

THE CITY OF OKLAHOMA CITY
A Municipal Corporation

CONTRACT

APPROVED by the Council and SIGNED by the Mayor of The City of Oklahoma City this

16th day of August, 2022.

ATTEST:

Amy K. Simpson

CITY CLERK



David Holt

MAYOR

AVAILABILITY OF FUNDS CERTIFICATE

I, the undersigned encumbering officer of The City of Oklahoma City do hereby certify that the designated fund and account number as follows: BETTER STREETS SAFER CITY USE TAX - BETTER STREETS SAFER CITY USE TAX - FIRE CAPITAL USE - FIRE PURCHASING - FIRE APPARATUS REPLACEMENT VEHICLES - FURNITURE EQUIPMENT MACHINERY (731-1791-4503800-11550-F0010-54150001) and MAPS 4 USE TAX - MAPS 4 USE TAX PUBLIC SAFETY CAPITAL - FIRE CAPITAL USE - FIRE PURCHASING - FIRE APPARATUS REPLACEMENT - FURNITURE EQUIPMENT MACHINERY (741-1784-4503800-11550-F0010-54150001) has a sufficient balance to satisfy this obligation of Five Million Two Hundred Seventy-Eight Thousand Nine Hundred Seven Dollars and Thirty-Four Cents (\$5,278,907.34).

Shormarlynne Vickers
ENCUMBERING OFFICER of The City of Oklahoma City

Reviewed for form and legality.

Carol Sanett
ASSISTANT MUNICIPAL COUNSELOR

Supplier: **Conrad Fire Equipment**

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**BID/PRICING AGREEMENT/CONTRACT FORM & NON-DISCRIMINATION
STATEMENT**
**BIDDER MUST ELECTRONICALLY COMPLETE, SIGN AND NOTARIZE THIS
DOCUMENT PRIOR TO SUBMITTING IN THE ELECTRONIC BID SYSTEM**

**Please be aware that typing in your password acts as your electronic signature, which is
just as legal and binding as an original signature.**

(See Electronic Signatures in Global and National Commerce Act for more information.)

**THIS DOCUMENT MUST BE ELECTRONICALLY SIGNED AND SUBMITTED WITH THE BID
OR THE BID WILL BE REJECTED**

INSTRUCTIONS: This document MUST be electronically signed and submitted with the bid for the bid to be valid. Failure to electronically sign the this document prior to submitting the electronic bid will result in rejection of your bid. This document constitutes your bid and will be the Pricing Agreement/Contract document under which you are to perform, should your bid be accepted, so it must be properly and completely executed. It is, therefore, essential that you are aware of its terms, as well as those contained in the specifications.

Submit this electronically signed document, along with all accompanying documents:

THIS PRICING AGREEMENT/CONTRACT is made and entered into, by and between **Conrad Fire Equipment** hereinafter referred to as "Bidder" and The City of Oklahoma City, a municipal corporation, or a participating Public Trust of which The City of Oklahoma City is Beneficiary hereinafter referred to as the "Contracting Entity."

WITNESSETH:

WHEREAS, the governing body of the Contracting Entity has approved certain specifications and requested by notice that bids be submitted thereon; and

WHEREAS, this document until executed by the Mayor/Chairman of the Contracting Entity constitutes the Bidder's proposal; and

NOW, THEREFORE, that in consideration of the covenants, agreements and representations as hereinafter set forth, it is mutually agreed by the parties that:

1. The Bidder agrees to sell and deliver to the Contracting Entity, the items of material and/or services, specified in the pricing section of the electronic bid submittal, which is attached hereto and made a part of this Pricing Agreement/Contract. List the prompt payment discount, if any, for this agreement in the space provided below:

Discount for Prompt Payment **0%** Days

2. The Bidder expressly warrants that all articles, material, and/or work covered in this Pricing Agreement/Contract will conform to the specifications and electronic bid documents attached to this bid and are hereby incorporated, as if set forth in full herein; and further warrants that the same shall be of good material and workmanship, and free from defects.

3. The Bidder understands that all bids are to be submitted in U.S. dollars at a firm price. Bids submitted in any currency other than U.S. dollars will be rejected.

4. The Bidder also understands that all invoices shall be submitted in U.S. dollars and agrees to accept payment in U.S. dollars as full satisfaction of the invoiced amount.

5. If any of the goods fail to meet the warranties contained in Paragraph 2, above, the Bidder, upon notice from the Contracting Entity, shall promptly correct or replace the same at the Bidder's expense. If the Bidder shall fail to so do, the Contracting Entity may cancel this order as to all such goods, and in addition, may cancel the then remaining balance of this order. After notice to the Bidder, all such goods will be held

at the Bidder's risk. The Contracting Entity may, at the Bidder's direction, make available such goods to be returned to the Bidder at the Bidder's risk, and all transportation charges, both to and from the original destination, shall be paid by the Bidder. Any payment for such goods shall be refunded by the Bidder unless the Bidder promptly corrects or replaces the same at the Bidder's expense.

6. The Contracting Entity agrees to pay to the Bidder the price and amount in accordance with Paragraph 1 above, based on the quantity actually purchased, upon delivery to and acceptance by the Contracting Entity, of the material and/or service[s] above described and upon the filing by the Bidder, and approval by the Contracting Entity, of a verified claim for the amount due.

7. The Bidder agrees, in connection with the performance of work under this Pricing Agreement/Contract:

a. That the Bidder will not discriminate against any employee or applicant for employment, because of race, creed, color, sex, age, national origin, ancestry or disability. The Bidder shall take affirmative action to ensure that employees are treated without regard to their race, creed, color, age, national origin, sex, ancestry or disability. Such actions shall include, but not be limited to, the following: employment, promotion, demotion or transfer, recruitment, advertising, lay-off, termination, rates of pay or other forms of compensation and selection for training, including apprenticeship. The Bidder agrees to post, in a conspicuous place available to employees and applicants for employment, notices to be provided by the City Clerk/Secretary of the Contracting Entity setting forth the provisions of this section, and;

b. That the Bidder agrees to include this non-discrimination clause in any subcontracts connected with the performance of this Pricing Agreement/Contract.

8. In the event of the Bidder's non-compliance with the above non-discrimination clause, this Pricing Agreement/Contract may be canceled or terminated by the Contracting Entity. The Bidder may be declared by the Contracting Entity ineligible for further Pricing Agreement[s]/Contract[s] with the Contracting Entity until satisfactory proof of intent to comply is made by the Bidder.

9. The risk of loss or damage shall be borne by the Bidder at all times until the acceptance of goods, properly packed, by the Contracting Entity.

10. This Pricing Agreement/Contract, specifications, electronic bid submittal documents and any attachments constitutes the entire understanding and agreement of the parties upon the subject matter hereof. There is no agreement, oral or otherwise, which is not contained in or attached to this Pricing Agreement/Contract. This Pricing Agreement/Contract may not be modified or assigned unless approved in writing and signed by both parties.

11. The parties assume and understand that the variables in the Bidder's cost of performance may fluctuate; consequently, the parties agree that any fluctuations in the Bidder's costs will not alter the Bidder's obligations under this Pricing Agreement/Contract nor excuse performance or delay on the Bidder's part.

12. This Pricing Agreement/Contract shall be inoperative during such period of time that the aforesaid delivery or acceptance may be rendered impossible by reason of fire, Act of God or government regulation. Provided, however, to the extent that the Bidder has any commercially reasonable alternative method of performing this Pricing Agreement/Contract by purchase on the market or otherwise, the Bidder shall not be freed of any obligations hereunder by this clause, even though the goods intended for this Pricing Agreement/Contract were destroyed or their delivery delayed because of an event described above.

13. The shipping or receiving of any goods under this Pricing Agreement/Contract shall not be deemed, or be, a waiver of any right to damages for any prior failure to ship or receive any goods.

14. This Pricing Agreement/Contract shall be governed by the laws of the State of Oklahoma.

15. The Bidder shall be responsible for complying with all applicable federal, state and local laws.

16. If submitting a bid for services, the Bidder certifies that they, and any proposed subcontractors, are in compliance with 25 O.S. §1313 and participate in the status Verification System. The Status Verification System is defined in 25 O.S. §1312 and includes but is not limited to the free Employment Verification Program (E-Verify) through the Department of Homeland Security and available at www.dhs.gov/E-Verify.

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The undersigned individual states that the Bidder will be bound by all components of its bid, the specification, the terms and conditions of the Pricing Agreement/Contract, and the requirements for Bidders.

WITNESS the hands of the parties hereto:

THIS FORM MUST BE ELECTRONICALLY SIGNED AND SUBMITTED WITH THE BID FOR THE BID TO BE VALID

Note: The owner or an officer of the business or corporation may sign this document. A Corporate Seal or a letter of authorization is needed for any other signer. For instance, if a Salesman or Manager signs this form, a letter of authorization or Corporate Seal is to be attached.

Sal Monteleone

Type Name of Authorized Agent

President

Title of Authorized Agent

Conrad Fire Equipment - 19922 W 162nd St - Olathe, KS 66062

Company Name and Address

Zip Code

913-780-5521; 913-780-5251

Telephone Number and Fax Number if any

BIDDER MUST ELECTRONICALLY COMPLETE, SIGN AND NOTARIZE THIS DOCUMENT

Please be aware that typing in your password acts as your electronic signature, which is just as legal and binding as an original signature.

(See Electronic Signatures in Global and National Commerce Act for more information.)

THIS FORM MUST BE ELECTRONICALLY SIGNED AND SUBMITTED WITH THE BID OR THE BID WILL BE REJECTED

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Supplier: **Conrad Fire Equipment****NON-COLLUSION AFFIDAVIT****BIDDER MUST ELECTRONICALLY COMPLETE, SIGN AND NOTARIZE THIS DOCUMENT PRIOR TO SUBMITTING BID****Please be aware that typing in your password acts as your electronic signature, which is just as legal and binding as an original signature.****(See Electronic Signatures in Global and National Commerce Act for more information.)**

The undersigned, of lawful age, being duly sworn, upon oath, deposes and says: That the undersigned has the lawful authority to execute the within and foregoing proposal/bid for, and on behalf of, the Proposer/Bidder; that the Proposer/Bidder has not, directly or indirectly, entered into any agreement, express or implied, with any Proposer/Bidder, having for its object the controlling of the price or amount of such proposal/bid, the limiting of the proposals/bids or the Proposers/Bidders, the parceling or farming out to any Proposer/Bidder or other persons, of any part of the Agreement or any part of the subject matter of the proposal/bid, or of the profits thereof, and that Proposer/Bidder has not and will not divulge the sealed proposal/bid to any person whomsoever, except those having a partnership or other financial interest with the Proposer/Bidder in the said proposal/bid, until after the said sealed proposals/bids are opened.

The undersigned further states that the Proposer/Bidder has not been a party to any collusion: among Proposer/Bidders in restraint of freedom of competition, by any agreement to bid at a fixed price or to refrain from proposing; or with any City/Trust official, City/Trust employee or City/Trust agent as to the quantity, quality, or price in the prospective Agreement, or any other terms of the said prospective Agreement; or in any discussions between the Proposers/Bidders or City/Trust official, City/Trust employee or City/Trust agent concerning the exchange of money or other thing of value for special consideration in the letting of Agreement. The Proposer/Bidder states that it has not paid, given or donated or agreed to pay, give or donate to any City/Trust official, officer or employee of the City or awarding agency, any money or other thing of value, either directly or indirectly, in the procuring of the award of Agreement pursuant to this Proposal/Bid.

Witness the hands of the parties hereto:

The undersigned states that the Proposer/Bidder will be bound by its proposal/bid, the specification, the terms and conditions of the Agreement, and the Requirements for Proposer/Bidders.

→ → THIS FORM TO BE COMPLETED BY THE PROPOSER/BIDDER PRIOR TO AGREEMENT APPROVAL ← ←

Sal Monteleone
Type Name of Authorized Agent/Representative
Conrad Fire Equipment
Company Name
19922 W 162nd Street, Olathe, KS
Address
(913) 780-5521; (913) 780-5251
Telephone Number and Fax Number, if any

President
Title

66062
Zip Code

TO BE COMPLETED BY THE NOTARY:

State of *)
Kansas) SSS

County of *)
United States

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[*State and County where notarized must be typed in for bid/proposal to be considered.][SAK1]

Signed and sworn to before **14** day of **7**, **2022** by **Sal Monteleone**
me on this
[Day] [Month] [Year] [Print the name of the
agent/representative who signed
above.]

My Commission Number: **1136040**
[Oklahoma] **Angie Smith**
My Commission Expires: **05/25/2025**
[Date/Year] Type Name of Notary Public

[49 Okla. Stat. 2011 §119]

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Supplier: Conrad Fire Equipment**BIDDER MUST ELECTRONICALLY COMPLETE THIS FORM PRIOR TO SUBMITTING BID****SUPPLIER CONTACT INFORMATION**

The purpose of this form is to assist various City Departments and Trusts with placing orders.

Sales Contact:

Company Name: **Conrad Fire Equipment**

Address: **19922 W 162nd St, Olathe, KS 66062**

Contact Person: **Sal Moteleone** Email Address: **salm@conradfire.com**

Telephone Number: **913-780-5521** Fax Number: **913-780-5251**

Billing Contact:

Company Name: **Conrad Fire Equipment**

Address: **19922 W 162nd St, Olathe, KS 66062**

Contact Person: **Angie Smith** Email Address: **angies@conradfire.com**

Telephone Number: **913-780-5521** Fax Number: **913-780-5251**

Service Contact:

Company Name: **Conrad Fire Equipment**

Address: **2624 W Reno Avenue, Oklahoma City, OK 73107**

Contact Person: **Butch Richardson** Email Address: **butchr@conradfire.com**

Telephone Number: **913-780-5521** Fax Number: **913-780-5251**

After Hours Emergency Number(s) **913-780-5521**

After Hours Emergency Number(s)

After Hours Emergency Number(s) **butchr@conradfire.com**

After Hours Emergency Number(s) **michaelc@conradfire.com**

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Conrad Fire Equipment

Bid Contact **Salvatore Monteleone**
salm@conradfire.com
Ph 816-335-5350

Address **19922 W162nd Street**
Olathe, KS 66061

Item #	Line Item	Notes	Unit Price	Qty/Unit	Attch. Docs
23506--01-01	100 Foot Midmount Aerial Platform: Delivery	Supplier Product Code: 795 Supplier Notes: Current delivery expectation is 26.5 months or 795 days	First Offer -	1 / day	Y
23506--01-02	100 Foot Midmount Aerial Platform: Manufacturer, Model, Number	Supplier Product Code: 6010 Supplier Notes: Pierce Velocity 6010	First Offer -	1 / each	Y
23506--01-03	100 Foot Midmount Aerial Platform: Unit Price	Supplier Product Code: Supplier Notes: \$1,759,635.78 per unit	First Offer - \$1,759,635.78	1 / each	\$1,759,635.78 Y
23506--01-04	100 Foot Midmount Aerial Platform:Additional Option				No Bids
23506--01-05	100 Foot Midmount Aerial Platform:Additional Option				No Bids

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23506--01-06	100 Foot Midmount Aerial Platform: Exceptions	Supplier Product Code:	First Offer -	1 / each	Y	Y
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Supplier Notes: See
attachment for details
of exceptions and
clarifications

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23506--01-07	100 Foot Midmount Aerial Platform: Detailed Proposal	Supplier Product Code:	First Offer -	1 / each	Y	Y
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23506--01-08	100 Foot Midmount Aerial Platform: Warranties, Certifications, Drawing	Supplier Product Code: Supplier Notes: All warranty documents attached. Drawing is an approximate and may not be exact to final product	First Offer -	1 / each	Y	Y
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23506--01-09	100 Foot Midmount Aerial Platform: Quality Management System	Supplier Product Code:	First Offer -	1 / each	Y	Y
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Lot Total **\$1,759,635.78**

Item #	Line Item	Notes	Unit Price	Qty/Unit	Attch.	Docs
23506--02-01	W-9: W-9	Supplier Product Code:	First Offer -	1 / each	Y	Y

Lot Total **\$0.00**

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Supplier: Conrad Fire Equipment**BID23506 100 FOOT MIDMOUNT AERIAL PLATFORM****QUESTIONNAIRE**

Bidder must complete the entire Compliance Questionnaire in order to be considered for an award. Bidder shall indicate in the “yes” or “no” box if their bid complies on each item specified. Exceptions shall be allowed if they are equal to or superior to that specified and provided they are listed and fully explained on a separate attachment clearly labeled “Exceptions”. Exceptions attachment shall be in the same sequence as the items in the specifications and on the questionnaire for ease of evaluation, comparison and checking of compliance. Engineering design drawings of the apparatus that is being proposed will be required in all bid proposals. The compliance questionnaire for this bid packet is critical for evaluation of the bids submitted and must be completed. The questionnaire will be incorporated into the terms and conditions of the awarded contract.

Vendors are to indicate compliance in the appropriate box. Explain all “No” responses in a separate attachment clearly labeled “Exceptions”

1. INTENT:		Compliance
To obtain three (3) 100 Foot Midmount Aerial Platforms for the City of Oklahoma City Fire Department. The apparatus shall comply with the current edition of National Fire Protection Association (NFPA) 1901 standards.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
2. BIDDER QUALIFICATIONS:		
<p>Bids shall be considered from companies that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of 20 years. Bidder must provide warranty repair and service for its product(s), directly or through the manufacture’s approved dealer and / or service provider. Any dealer and or service provider designated by the manufacture to perform such work must have served as a warranty service and repair provider on behalf of the manufacturer for not less than three (3) continuous years from the posting date of this bid and fifty percent (50%) of providers primary business must be servicing and repairing heavy-duty emergency response fire apparatus or similar equipment.</p> <p>At no time later than the closing of this bid, the manufacturer or its approved dealer and / or service provider which meet the preceding qualifications must have an established service center or mobile service capabilities permanently based within fifty (50) miles of Oklahoma City, Oklahoma. Each bid must indicate whether warranty service and repair will be provided primarily through the manufacturer or the manufacturer’s approved dealer and / or service provider and must include the Oklahoma City area service centers address or mobile service location of such provider. If warranty service and repair is to be provided through a service provider other than the manufacturer, the service provider’s business name, primary business address, and the number of years of operating as an approved warranty and service provider on behalf of the manufacturer must be submitted with each bid.</p>		

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Each Bidder shall furnish satisfactory evidence of their ability to construct the apparatus specified and shall state the location of the factory where the apparatus is to be built. The Bidder shall also show that the company is in position to render prompt service and to furnish replacement parts for said apparatus.

Each bid shall be accompanied by a set of Contractor's Specifications consisting of a detailed description of the apparatus and equipment proposed and to which the apparatus furnished, under contract, shall conform. These specifications shall indicate size, type, model and make of all component parts and equipment.

☒ Yes ☐ No
COMMENTS:**3. WARRANTY AND WARRANTY REPAIR:**

Warranty shall begin at the time the apparatus is placed into service by the Purchaser. Purchaser shall notify successful Bidder the date of in service. When warranty repairs are necessary, the Bidder is responsible for pick-up and delivery of the apparatus at the Oklahoma City Fire Maintenance Facility, 600 North Portland, Oklahoma City, Oklahoma 73107 at no cost to the Purchaser. If travel to a repair facility exceeds 200 miles then transport will be required.

Bidder accepts responsibility for any liabilities, losses or damages incurred while apparatus is in their possession during warranty repairs or while apparatus is being transported or driven by Bidder or Bidder's agent performing warranty repair. An Insurance Certificate shall be provided to Purchaser as proof of insurance prior to apparatus being released to Bidder or Bidder's agent.

Each Bidder shall include with the bid detailed information on the Bidder's ability to perform routine and emergency service on the apparatus after delivery. Detailed information shall be provided on service facilities, personnel, service vehicles, and the type and nature of repair work the Bidder is able to provide. Bidder shall state the number of miles from the Purchaser's facility to the nearest fully staffed repair facility operated by the Bidder. It is the intent of the Purchaser to assure that parts and service are readily available for the equipment specified.

Within forty-eight hours after receipt of verbal or written notification by the Purchaser that a warranty service is required, the successful Bidder shall respond verbally, and immediately follow up by letter or electronic correspondence to the Fire Fleet Manager with a statement of intent to perform warranty repairs. If Bidder agrees to have the Purchaser complete the warranty repairs and reimburse Purchaser, a letter signed by both parties will be required.

In the event that there is no response from the Bidder, the response exceeds forty-eight hours, or if the response is not acceptable to the Fire Chief and/or Fire Fleet Manager, Maintenance Services will provide required warranty service, and the total costs shall be reimbursed to the Purchaser.

When Purchaser performs warranty work, successful Bidder shall reimburse the City of Oklahoma City \$150 per labor hour for all warranty work performed by Purchaser. An invoice will be mailed to the Bidder and reimbursement shall be received within 30 calendar days from the date of the invoice.

Successful Bidder shall provide a replacement part to Purchaser within 7 working days after notification of Purchaser supplied part being used. Upon receipt of the replacement part, the Purchaser shall, if requested by Bidder, return the original removed part in question to the successful Bidder. Exact details to be discussed and agreed upon at pre-construction conference. The successful Bidder shall pay shipping costs for faulty parts and replacement parts. Purchaser may choose to bill successful Bidder for stock replacement or locally procured parts in lieu of receiving replacement parts.

☒ Yes ☐ No
COMMENTS:**4. PRE-CONSTRUCTION AND FINAL INSPECTION TRIPS:**

The successful Bidder shall provide two (2) factory trips, to be held at the manufacturer's facility, for Oklahoma City Fire Department (OKCFD) personnel.

One pre-construction conference, prior to manufacturing, for five (5) official personnel from OKCFD. All modifications decided at the pre-construction conference shall be in written form and must be signed by the Fire Chief, or his designee, and the successful Bidder.

One final inspection trip for six (6) official personnel from OKCFD.

The inspection trips shall be scheduled at times mutually agreed upon between the manufacturer's representative and the Fire Department. All expenses will be the responsibility of the Bidder and paid by the Bidder. Fire Department employees will adhere to the City travel policy while traveling for City business. All travel over 200 miles will be by commercial air limited to coach airfare. Travel time is no more than 24 hours before and after the date of the inspection. Reasonable expenses for lodging and meals shall be paid by the Bidder. Single or double occupancy room rates shall apply with only room and tax expense paid. Meal expenses including alcoholic beverages are not allowed. Bidder shall reimburse Fire Department personnel for any baggage fee with receipt provided. Special events and tours that are not job-related and are leisure activity paid by the Bidder are not permissible

☒ Yes ☐ No
COMMENTS:**5. QUALITY AND WORKMANSHIP:**

The design of the apparatus shall embody the latest approved automotive engineering practices. The workmanship shall be of the highest quality in its respective field. Special consideration shall be given to the following points: Accessibility of the various units which require periodic maintenance, ease of operation (including both pumping and driving) and symmetrical proportions. Construction shall be rugged and ample safety factors shall be provided to carry the loads specified and to meet both on and off-road requirements and speed conditions, as set forth under Performance Tests and Requirements. Welding shall not be employed in the assembly of the apparatus, in a manner that shall prevent the ready removal, of any component part for service or repair. All steel welding shall follow American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding shall follow American Welding Society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding shall follow American Welding Society B2.1-2000 requirements for structural welding of sheet metal. Flux core arc welding to use alloy rods, type 7000, American Welding Society standards A5.20-E70T1. Employees classified as welders are tested and

certified to meet American Welding Society codes upon hire and every three (3) years thereafter. The manufacturer shall be required to have an American Welding Society certified welding inspector in plant during working hours to monitor weld quality.

☒ Yes ☐ No

COMMENTS:

6. DELIVERY:

To ensure proper break in of all components while still under warranty, the apparatus shall be delivered under its own power - rail or truck freight shall not be acceptable.

Maximum acceptance delivery time shall be 365 days from the date of purchase order. Therefore, each bid shall specify the number of calendar days after receipt of purchase order in which the apparatus will be delivered to the Purchaser. The complete apparatus, and all tools and equipment called for in these specifications shall be delivered F.O.B. to the Oklahoma City Fire Department Maintenance Facility, 600 North Portland, Oklahoma City, Oklahoma 73107. Since delivery proposals by Bidders will weigh heavily in the determination of the award of bid, the delivery schedules that are submitted by the Bidders and agreed upon by the Purchaser shall automatically become binding upon the successful Bidder. All Bidders shall provide as part of their bid proposal a milestone chart identifying the major projected dates from the initial step through delivery and acceptance. A delivery schedule shall be jointly arrived at in agreement between the Purchaser and the successful Bidder.

☐ Yes ☒ No

COMMENTS:

Due to supply chain issues no timeline of delivery can be guaranteed.

7. LIQUIDATED DAMAGES:

If the successful Bidder fails to deliver the equipment or perform the services within the time specified, it is understood, and the successful Bidder hereby agrees, the amount of \$100 per unit, per calendar day, to a maximum of the contract price, may be deducted from the monies due the successful Bidder for each intervening calendar day any work remains incomplete, not as a penalty, but as liquidated damages. The successful Bidder shall not be liable if performance failure arises out of causes beyond the control, and without the fault or negligence of the successful Bidder (acts of God, war, fires, floods, freight embargoes, etc.). Should a performance failure occur, it will be the responsibility of the successful Bidder to notify the Purchaser in writing and submit proof of the circumstances for non-performance. Immediately following the resolution of circumstances responsible for non-performance, the successful Bidder must re-negotiate the delivery schedule.

☐ Yes ☒ No

COMMENTS:

Cannot guarantee delivery time currently due to worldwide supply chain issues.

8. INFORMATION REQUIRED:

The manufacturer shall supply at time of delivery, a hard copy and one CD of the complete operation and maintenance manuals covering the completed apparatus as delivered. A permanent plate shall be mounted in the driver's compartment which specifies the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

☒ Yes ☐ No

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2**COMMENTS:****9. TRAINING:**

Upon delivery of the apparatus the contractor will provide training in the operation and maintenance of the apparatus. Four days of training will be provided, one day per shift in the operation of the apparatus. One day of training will be provided to Fleet Maintenance personnel in the proper maintenance of apparatus. Training will include: vehicle pre-trip inspection, chassis operation, pump operation, aerial operation, and maintenance.

☒ Yes ☐ No**COMMENTS:****10. PERFORMANCE TEST AND REQUIREMENTS:**

A road test shall be conducted with the apparatus fully loaded and a continuous run of a minimum of 10 miles shall be made under all driving conditions, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts, and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus.

☒ Yes ☐ No**COMMENTS:****11. FAILURE TO MEET TEST:**

In the event the apparatus fails to meet the test requirements of these specifications on the first trial, second trials may be made at the option of the Bidder, within 30 days of the date of the first trial. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Failure to comply with changes to conform to any clause of the specifications, within 30 days after notice is given to the Bidder of such changes, shall also be cause for rejection of the apparatus. Permission to keep or store the apparatus in any building owned or occupied by the Purchaser or its use by the Purchaser during the above-specified period with the permission of the Bidder shall not constitute acceptance.

☒ Yes ☐ No**COMMENTS:****12. LIABILITY:**

The successful Bidder shall defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.

☒ Yes ☐ No**COMMENTS:****13. SPECIFICATION BID REQUIREMENTS:**

Bidders shall indicate in the "yes/no" block if their bid complies on each item specified. Exceptions shall be allowed if they are equal to or superior to that specified and provided they are listed and fully explained on a separate page. Also, Bidders shall submit a

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detailed proposal. A letter only, even though written on a company letterhead, shall not be sufficient. Bid proposals shall be submitted in the same sequence as specifications for ease of evaluation, comparison and checking of compliance.

☒ Yes ☐ No

COMMENTS:

14. EXCEPTIONS:

All exceptions shall be stated no matter how seemingly minor. Any exceptions not taken shall be assumed by the Purchaser to be included in the proposal, regardless of the cost to the Bidder.

☒ Yes ☐ No

COMMENTS:

15. GENERAL CONSTRUCTION:

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles. Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Association.

☒ Yes ☐ No

COMMENTS:

16. QUALITY MANAGEMENT SYSTEM:

The manufacturer shall operate a quality management system and shall provide the standards utilized. The City of Oklahoma City often refers to the standards set under the requirements of ISO 9001. These standards sponsored by the International Organization for Standardization (ISO) specify the quality systems that shall be established by the manufacturer for design, manufacture, installation and service.

☒ Yes ☐ No

COMMENTS:

17. SINGLE SOURCE MANUFACTURER:

Single source is a manufacturer that designs and manufactures their products, including the chassis, cab weldment, cab, pump house, and body. All should be assembled on the Bidder's premises. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) must be from a single source manufacturer and not split between manufacturers (e.g., body, pump house, cab weldment, chassis). The Bidder shall provide evidence that they comply with this requirement.

☒ Yes ☐ No

The Bidder shall state the location of the factory where the apparatus is to be built.

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2**18. NFPA 2016 STANDARDS:**

This unit shall comply with the NFPA standards effective January 1, 2016, except for Fire Department directed exceptions. These exceptions shall be set forth in the Statement of Exceptions. Certification of slip resistance of all stepping, standing and walking surfaces shall be supplied with delivery of the apparatus. A plate that is highly visible to the driver while seated shall be provided. This plate shall show the overall height, length, and gross vehicle weight rating. The manufacturer shall have programs in place for training, proficiency testing and performance for any staff involved with certifications. An official of the company shall designate, in writing, who is qualified to witness and certify test results.

☒ Yes ☐ No**COMMENTS:****19. NFPA COMPLIANCY:**

Apparatus proposed by the Bidder shall meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire Department's specifications that differ from NFPA specifications shall be indicated in the proposal as "non-NFPA."

☒ Yes ☐ No**COMMENTS:****20. VEHICLE INSPECTION PROGRAM CERTIFICATION:**

To assure the vehicle is built to current NFPA standards, the apparatus, in its entirety, shall be third-party, independent, audit-certified through Underwriters Laboratory (UL) that is built and complies with all applicable standards in the current edition of NFPA 1901. The certification includes: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus.

A placard shall be affixed in the driver's side area stating the third-party agency, the date, the standard and the certificate number of the whole vehicle audit.

☒ Yes ☐ No**COMMENTS:****21. DRAWINGS:**

A preliminary drawing of the proposed apparatus shall be provided with bid. This drawing will be for reference only and not be expected to have exact measurements as an engineered drawing.

An engineering drawing of the proposed apparatus shall be provided for approval before construction begins. The sales representative shall also have a copy of the same drawing. The finalized and approved drawing shall become part of the contract documents. This drawing shall indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.

A "revised" approval drawing of the apparatus shall be prepared and submitted by the manufacturer to the Purchaser showing any changes made to the approval drawing.

☒ Yes ☐ No**COMMENTS:**

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22. ELECTRICAL WIRING DIAGRAMS:	
Two (2) electrical wiring diagrams, prepared for the model of chassis and body, shall be provided.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
23. CHASSIS:	
The chassis provided shall be a new, tilt-type custom fire apparatus. The chassis shall be manufactured in the apparatus body builder's facility, eliminating any split responsibility. The chassis shall be designed and manufactured for heavy-duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
24. DIMENSIONS:	
The wheelbase of the vehicle shall be no greater than 264" The overall height shall not exceed 138" The overall length shall not exceed 44' The distance from the center rear axle to end of the apparatus (tail swing) shall not exceed 170"	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
25. GVW RATING:	
The gross vehicle weight rating shall be a minimum of 76,000 lbs.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
26. FRAME:	
The chassis frame shall be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails shall have approximately 13.00" tall web over the front and mid sections of the chassis, with a continuous smooth taper to approximately 10.75" over the rear axle. The frame rails shall be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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2**27. FRAME REINFORCEMENT:**

In addition, a full-length mainframe internal liner shall be provided.

☒ Yes ☐ No**COMMENTS:****28. TOP SPEED OF VEHICLE:**

A rear axle ratio shall be furnished to allow the vehicle to reach a top speed of 60 mph.

☒ Yes ☐ No**COMMENTS:****29. FRONT NON-DRIVE AXLE:**

The front axle shall be of the independent suspension design with a ground rating of 24,000 lb.

☒ Yes ☐ No**COMMENTS:****30. FRONT SUSPENSION:**

Front independent suspension shall be provided with a minimum ground rating of 24,000 lb.

The independent suspension system shall be designed to provide maximum ride comfort. The design shall allow the vehicle to travel at highway speeds over improved road surfaces and at moderate speeds over rough terrain with minimal transfer of road shock and vibration to the vehicle's crew compartment.

☒ Yes ☐ No**COMMENTS:****31. FRONT SHOCK ABSORBERS:**

KONI heavy-duty telescoping shock absorbers shall be provided on the front suspension.

☒ Yes ☐ No**COMMENTS:****32. FRONT OIL SEALS:**

Oil seals with viewing window shall be provided on the front axle.

☒ Yes ☐ No

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COMMENTS:		
33. FRONT TIRES:		
<p>Front tires shall be Goodyear radials 445/65R22.50, 20 ply all-position G296 MSA tread, rated for 24,600 lb maximum axle load and 68 mph maximum speed.</p> <p>The tires shall be mounted on Alcoa 22.50" x 13.00" polished aluminum disc type wheels with a ten (10) stud, 11.25" bolt circle.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
34. REAR AXLE:		
<p>The rear axle shall be a tandem axle assembly equipped with independent suspension and rear steering capability.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
35. REAR STEERING:		
<p>The rear axle assembly will consist of a mechanically controlled rear steering system that is applied to both rear axles. The Steering geometry will maximize the turning diameter of the apparatus with minimized tire scrub.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
36. REAR SUSPENSION:		
<p>The rear axle assembly will consist of a mechanically controlled rear steering system that is applied to both rear axles. The Steering geometry will maximize the turning diameter of the apparatus with minimized tire scrub.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
37. REAR OIL SEALS:		
<p>Oil seals shall be provided on the rear axle(s).</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		

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2**38. REAR TIRES:**

Rear tires shall be four (4) Goodyear 445/65R22.50, 20 ply all position G296 MSA tread, rated for 52,640 lb maximum axle load at 68 mph.

The tires shall be mounted on Alcoa© 22.50" x 13.00" steel disc style wheels with a ten (10) stud, 11.25" bolt circle.

☒ Yes ☐ No
COMMENTS:**39. TIRE BALANCE:**

All tires shall be balanced with Counteract balancing beads. The beads shall be inserted into the tire and eliminate the need for wheel weights.

☒ Yes ☐ No
COMMENTS:**40. MUD FLAPS:**

Mud flaps shall be installed behind the front and rear wheels of the apparatus.

☒ Yes ☐ No
COMMENTS:**41. WHEEL CHOCKS:**

There shall be one (1) pair of folding Ziamatic, Model SAC-44-E, aluminum alloy, Quick-Choc wheel blocks with easy-grip handle provided.

☒ Yes ☐ No
COMMENTS:**42. WHEEL CHOCK BRACKETS:**

There shall be one (1) pair of Zico, Model SQCH-44-H, horizontal mounting wheel chock brackets provided for the Ziamatic, Model SAC-44-E, folding wheel chocks. The brackets shall be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets shall be mounted rearward of the left side rear tire.

☒ Yes ☐ No
COMMENTS:**43. ANTI-LOCK BRAKE SYSTEM:**

The vehicle shall be equipped with a Wabco 4S4M, anti-lock braking system. The ABS shall provide a four (4) channel anti-lock braking control on both the front and rear wheels

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(rear tandem wheels). A digitally controlled system that utilizes microprocessor technology shall control the anti-lock braking system. Each wheel shall be monitored by the system. When any particular wheel begins to lockup, a signal shall be sent to the control unit. This control unit then shall reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system shall eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

☒ Yes ☐ No
COMMENTS:**44. BRAKES:**

The service brake system will be full air type.
The front brakes will be Knorr/Bendix disc type with a 17.00" ventilated rotor for improved stopping distance.
The brake system will be certified, third party inspected, for improved stopping distance.
The rear brakes will be Bendix®, Model ES1657D, 16.50" x 7.00" cam operated with automatic slack adjusters.

☒ Yes ☐ No
COMMENTS:**45. AIR COMPRESSOR, BRAKE SYSTEM:**

The air compressor will be a Cummins/WABCO with 18.7 cubic feet per minute output.

☒ Yes ☐ No
COMMENTS:**46. BRAKE SYSTEM:**

The brake system will include:

- Bendix dual brake treadle valve
- Heated automatic moisture ejector on air dryer
- Total air system capacity of 6,653 cubic inches
- Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi
- Spring set parking brake system
- Parking brake operated by a push-pull style control valve
- A parking "brake on" indicator light on instrument panel
- Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, will be provided with an automatic spring brake application at 40 psi
- A pressure protection valve will be provided to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa).
- Quarter turn drain valves on each air tank

The air tank will be primed and painted to meet a minimum 750-hour salt spray test. To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets.

☒ Yes ☐ No

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2**COMMENTS:****47. BRAKE LINES:**

Color-coded nylon brake lines shall be provided. The lines shall be wrapped in a heat protective loom where necessary in the chassis.

☒ Yes ☐ No
COMMENTS:**48. AIR INLET:**

One (1) air inlet with male coupling shall be provided. It shall allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet shall be located forward in the driver side lower step well of cab. A check valve shall be provided to prevent reverse flow of air. The inlet shall discharge into the "wet" tank of the brake system. A mating female fitting shall also be provided with the loose equipment.

☒ Yes ☐ No
COMMENTS:**49. ALL WHEEL LOCK-UP:**

An additional all wheel lock-up system shall be installed which applies air to the front brakes only. The standard spring brake control valve system shall be used for the rear.

☒ Yes ☐ No
COMMENTS:**50. AIR COMPRESSOR – BRAKE SYSTEM MAINTENANCE:**

A Kussmaul, Model 091-9HP, air compressor shall be provided. It shall be driven by the 120-volt shoreline electrical system and shall be located TBD. The compressor shall maintain the air pressure in the chassis air brake system while the vehicle is not in use. A pressure switch shall sense when the system pressure drops and automatically start the compressor, which then shall run until pressure is restored.

☒ Yes ☐ No
COMMENTS:**51. ENGINE:**

The chassis shall be powered by an electronically controlled engine as described below:

Make:	Cummins®
Model:	X15
Power:	605 hp at 1800 rpm
Torque:	1850 lb-ft at 1200 rpm
Governed Speed:	2100 rpm
Emissions Level:	EPA 2021
Fuel:	Diesel
Cylinders:	Six (6)

Displacement:	912 cubic inches (14.9L)	
Starter:	Delco 39MT+™	
Fuel Filters:	Frame mounted spin-on style primary filter with water separator and water-in-fuel sensor	
		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
52. REMOTE MOUNTED FILTERS:		
The engine oil and fuel filters will be remote mounted for ease of maintenance.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
53. HIGH IDLE:		
<p>A high idle switch shall be provided, inside the cab, on the instrument panel, that shall automatically maintain a preset engine rpm. A switch shall be installed, at the cab instrument panel, for activation/deactivation.</p> <p>The high idle shall be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light shall be provided, adjacent to the switch. The light shall illuminate when the above conditions are met. The light shall be labeled "OK to Engage High Idle."</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
54. ENGINE BRAKE:		
<p>A Jacobs® engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.</p> <p>The driver shall be able to turn the engine brake system on/off and have a high, medium and low setting.</p> <p>The engine brake shall be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.</p> <p>The ABS system shall automatically disengage the auxiliary braking device when required.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
55. CLUTCH FAN:		
A Horton® fan clutch shall be provided. The fan clutch shall be automatic when the pump transmission is in "Road" position, and fully engaged in "Pump" position.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		

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56. ENGINE SHUTDOWN W/RESET:	
<p>An emergency engine shutdown, by means of incorporating a flapper over the engine air intake, shall be provided with a pneumatic push-to-activate control inside the cab. A protective guard shall be supplied to avoid unnecessary activation.</p> <p>The push-to-active control inside the cab can also be used to release the emergency shutdown, without having to tilt the cab.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
57. ENGINE OIL:	
<p>The engine shall be provided from the apparatus builder with synthetic oil installed.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
58. GUARD, U-BOLT OVER EMERGENCY SHUTDOWN SWITCH:	
<p>A U-bolt type protective guard shall be installed over the emergency shutdown switch to prevent accidental activation of the emergency shutdown switch.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
59. ENGINE AIR INTAKE:	
<p>An air intake with an ember separator (to prevent road dirt, burning embers, and recirculating hot air from entering the engine) shall be mounted at the front of the apparatus, on the passenger side of the engine.</p> <p>The ember separator shall be mounted in the air intake with flame retardant, roto-molded polyethylene housing. It shall be easily accessible by the hinged access panel at the front of the vehicle.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
60. EXHAUST SYSTEM:	
<p>The exhaust system shall include a diesel particulate filter (DPF) and a selective catalytic reduction (SCR) device to meet current EPA standards. The exhaust system shall be stainless steel from the turbo to the inlet of the SCR device and shall be 5.00" in diameter.</p> <p>An insulation wrap shall be provided on all exhaust pipes between the turbo and SCR to minimize the transfer of heat to the cab. The exhaust shall terminate horizontally ahead of the right-side rear wheels. A tailpipe diffuser shall be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields shall be provided to isolate chassis and body components from the heat of the tailpipe diffuser.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

COMMENTS:	The exhaust system will include a Single Module aftertreatment device to meet current EPA standards
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61. EXHAUST MODIFICATION:

The exhaust pipe shall be brought out from under the body at a 90-degree angle from the truck. An adapter shall be provided on the tail pipe, allowing use of an MagneGrip magnetic mount exhaust hose. The diameter of the diffuser shall be 6.00". The exhaust pipe shall terminate flush with the outer edge of the rubrail. A stop shall be provided on the tail pipe that shall prevent the nozzle from sliding too far on.

☒ Yes ☐ No

COMMENTS:	
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62. RADIATOR:

The radiator and the complete cooling system shall meet or exceed NFPA and engine manufacturer cooling system standards.

For maximum corrosion resistance and cooling performance, the entire radiator core shall be constructed using long life aluminum alloy. The core shall be made of aluminum fins, having a serpentine design, brazed to aluminum tubes. The tubes shall be brazed to aluminum headers. No solder joints or leaded material of any kind shall be acceptable in the core assembly. Supply tank made of glass-reinforced nylon and a return tank of cast aluminum alloy shall be crimped on to the core assembly using header tabs and a compression gasket to complete the radiator core assembly. The radiator shall be compatible with commercial antifreeze solutions.

There shall be a full steel frame around the entire radiator core assembly. The radiator core assembly shall be isolated within the steel frame by rubber inserts to enhance cooling system durability and reliability. The radiator shall be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly shall be isolated from the chassis frame rails with rubber isolators.

The radiator assembly shall include an integral deaeration tank permanently mounted to the top of the radiator framework, with a readily accessible remote-mounted overflow tank. For visual coolant level inspection, the radiator shall have a built-in sight glass. The radiator shall be equipped with a 15-psi pressure relief cap.

A drain port shall be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.

A heavy-duty fan shall draw in fresh, cool air through the radiator. Shields or baffles shall be provided to prevent recirculation of hot air to the inlet side of the radiator.

☒ Yes ☐ No

COMMENTS:	
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63. COOLANT LINES:

Gates, or Goodyear, rubber hose shall be used for all engine coolant lines installed by the

chassis manufacturer.		
Hose clamps shall be stainless steel "constant torque type" to prevent coolant leakage. They shall react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
64. FUEL TANK:		
<p>A 65-gallon fuel tank shall be provided and mounted at the rear of the chassis. The tank shall be constructed of 12-gauge, hot rolled steel. It shall be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank shall be mounted with stainless steel straps.</p> <p>A drain plug shall be provided in a low point of the tank for drainage.</p> <p>A fill inlet shall be located on the left-hand side of the body and be covered with a hinged, spring-loaded, stainless-steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only."</p> <p>A vent shall be provided running from top of tank to just below fuel fill inlet.</p> <p>The tank shall meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.</p> <p>All fuel lines shall be provided as recommended by the engine manufacturer.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
65. DIESEL EXHAUST FLUID TANK:		
<p>A 4.5-gallon diesel exhaust fluid (DEF) tank shall be provided and mounted in the driver's side body forward of the rear axle.</p> <p>A drain plug shall be provided in a low point of the tank for drainage.</p> <p>A fill inlet shall be located on the driver's side of the body and be covered with a hinged, spring loaded, polished stainless-steel door that is marked "Diesel Exhaust Fluid Only."</p> <p>The tank shall meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing.</p> <p>The tank shall include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
66. FUEL PRIMING PUMP:		
A Cummins automatic electronic fuel priming pump will be integrated as part of the engine.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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2**COMMENTS:****67. FUEL SHUTOFF:**

A fuel line shutoff valve will be installed on both the inlet and outlet of the primary fuel filter.

☒ Yes ☐ No
COMMENTS:**68. FUEL SEPARATOR:**

The engine will be equipped with a Racor in-line spin-on fuel and water separator in addition to the engine fuel filters.

☒ Yes ☐ No
COMMENTS:**69. FUEL COOLER:**

An air to fuel cooler shall be installed in the engine fuel return line.

☒ Yes ☐ No
COMMENTS:**70. TRANSMISSION:**

An Allison 5th generation, Model EVS 4500P, electronic, torque converting, automatic transmission shall be provided.

The transmission shall be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display shall indicate when service is due.

Two (2) PTO openings shall be located on left side and top of converter housing (positions 8 o'clock and 1 o'clock).

A transmission temperature gauge with red light and buzzer shall be installed on the cab instrument panel.

☒ Yes ☐ No
COMMENTS:

Due to timing of build, transmission will be a 6th gen

71. TRANSMISSION SHIFTER:

A six (6)-speed push button shift module shall be mounted to right of driver on console. Shift position indicator shall be indirectly lit for after dark operation.

The transmission ratio shall be:

1st	3.51 to 1.00
2nd	1.91 to 1.00
3rd	1.43 to 1.00
4th	1.00 to 1.00
5th	0.75 to 1.00
6th	0.64 to 1.00
R	4.80 to 1.00

☒ Yes ☐ No**COMMENTS:****72. TRANSMISSION COOLER:**

A Modine plate and fin transmission oil cooler shall be provided using engine coolant to control the transmission oil temperature.

☒ Yes ☐ No**COMMENTS:****73. DOWNSHIFT MODE (W/ENGINE BRAKE):**

The transmission shall be provided with an aggressive downshift mode.

This shall provide earlier transmission downshifts to 3rd gear from 6th gear, resulting in improved engine braking performance.

☒ Yes ☐ No**COMMENTS:****74. TRANSMISSION FLUID:**

The transmission shall be provided with TranSynd, or other Allison approved TES-295 heavy duty synthetic transmission fluid.

☒ Yes ☐ No**COMMENTS:****New Allison standard for 6th gen transmissions is TES-668****75. DRIVELINE:**

Drivelines shall be a heavy-duty metal tube and be equipped with Spicer® 1810 universal joints.

The shafts shall be dynamically balanced before installation.

A splined slip joint shall be provided in each driveshaft where the driveline design requires it. The slip joint shall be coated with Glidecoat® or equivalent.

☒ Yes ☐ No**COMMENTS:**

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2**76. STEERING:**

Dual Sheppard, Model M110, steering gears, with integral heavy-duty power steering, shall be provided. For reduced system temperatures, the power steering shall incorporate an air to oil cooler and an Eaton, Model VN20, hydraulic pump with integral pressure and flow control. All power steering lines shall have wire braded lines with crimped fittings.

A tilt and telescopic steering column shall be provided to improve fit for a broader range of driver configurations.

☒ Yes ☐ No
COMMENTS:**77. STEERING WHEEL:**

The steering wheel shall be 18.00" in diameter, have tilting and telescoping capabilities.

☒ Yes ☐ No
COMMENTS:**78. BUMPER:**

An aluminum bumper, minimum of 10.00" high shall be attached to a bolted modular frame extension. The bumper shall be extended 15.00" from front face of cab. The bumper shall be metal finished and painted job color.

☒ Yes ☐ No
COMMENTS:**79. GRAVEL PAN:**

A gravel pan, constructed of bright aluminum treadplate, shall be furnished between the bumper and cab face. The gravel pan shall be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.

☒ Yes ☐ No
COMMENTS:**80. LIFT AND TOW MOUNTS:**

Mounted to the frame extension shall be lift and tow mounts. The lift and tow mounts shall be designed and positioned to adapt to certain tow truck lift systems.

The lift and tow mounts with eyes shall be painted the same color as the frame.

☒ Yes ☐ No
COMMENTS:**81. TOW HOOKS:**

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No tow hooks are to be provided. This truck shall be equipped with a lift and tow package with integral tow eyes.

☒ Yes ☐ No

COMMENTS:

82. CAB:

The City of Oklahoma City realizes that each manufacture has different engineering designs that may differ from the following specifications. For this reason, all proposed specifications will be reviewed as long as they provide their structural processes and dimensions in a similar format as provided below.

The cab shall be designed specifically for the fire service and shall be manufactured by the chassis builder.

To provide quality at the source and single source customer support, the cab shall be built by the apparatus manufacturer in a facility located on the manufacturer's premises (no exception).

For reasons of structural integrity and enhanced occupant protection, the cab shall be of heavy-duty design, constructed to the following minimal standards.

The cab shall have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts) and rear wall areas. The A-pillar shall be constructed of 0.25" heavy wall extrusions joined by a solid A356-T6 aluminum joint casting. The B-pillar and C-pillar shall also be constructed from 0.25" heavy wall extrusions. The rear wall shall be constructed of two (2) 4.00" x 2.00" outer aluminum extrusions and two (2) 3.00" x 2.00" inner aluminum extrusions. All main vertical structural members shall run from the floor to 7.50" x 3.50" x 0.125" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.75" thick corner casting at each of the front corners of the roof assembly.

The front of the cab shall be constructed of a 0.25" thick firewall, covered with a 0.125" front skin (for a total thickness of 0.38"), and reinforced with 24.50" wide x 10.00" deep x 0.50" thick supports on each side of the engine tunnel. The cross-cab support shall be welded to the A-pillar, 0.25" firewall, and engine tunnel, on the left and right sides.

The cab floors shall be constructed of 0.1875" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.44" of structural material at the front floor area. The front floor area shall also be supported with three (3) 0.50" plates bolted together that also provides the mounting point for the cab lift. This tubing shall run from the front of the cab to the 0.1875" thick engine tunnel, creating the structure to support the forces created when lifting the cab.

The cab shall be a full-tilt style. A 3-point cab mount system with rubber isolators shall improve ride quality by isolating chassis vibrations from the cab.

The crew cab shall be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.

The forward cab section shall have an overall height (from the cab roof to the ground) of approximately 102.00". The crew cab section shall have a 10.00" raised roof, with an overall cab height of approximately 112.00". The raised portion shall start at the most forward point of the B-pillar and continue rearward to the back of the cab. The overall height listed shall be calculated based on a truck configuration with the lowest suspension

weight ratings, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension shall increase the overall height listed.

The cab shall have an interior width of not less than 93.50". The driver and passenger seating positions shall have a minimum 24.00" clear width at knee level.

To reduce injuries to occupants in the seated positions, proper head clearance shall be provided. The floor to ceiling height inside the forward cab shall be no less than 60.25". The floor to ceiling height inside the crew cab shall be no less than 62.95" in the center position and 68.75" in the outboard positions.

The crew cab shall measure a minimum of 47.50" from the rear wall to the backside of the engine tunnel (knee level) for optimal occupant legroom.

☒ Yes ☐ No

COMMENTS:
83. INTERIOR CAB INSULATION:

The cab walls, ceiling and engine tunnel shall be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab shall be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling.

☒ Yes ☐ No

COMMENTS:
84. FENDER LINERS:

Full-circular, aluminum inner fender liners in the wheel wells shall be provided.

☒ Yes ☐ No

COMMENTS:
85. PANORAMIC WINDSHIELD:

A one-piece, safety glass windshield is the preferred windshield. *The City of Oklahoma City recognizes that not all manufactures manufacture fire apparatus cabs with a one-piece windshield. Two-piece windshields will be an accepted exception.* The windshield shall be full width and shall provide the occupants with a panoramic view. The cab windshield shall be bonded to the aluminum windshield frame using a urethane adhesive. A custom fit pattern shall be applied on the outside perimeter of the windshield for a finished automotive appearance.

☒ Yes ☐ No

COMMENTS:
86. WINDSHIELD WIPERS:

Three (3) electric windshield wipers with a washer, in conformance with FMVSS and SAE requirements, shall be provided.

The windshield washer fluid reservoir shall be located at the front of the vehicle and be accessible through the access hood for simple maintenance.

☒ Yes ☐ No

COMMENTS:

87. FAST SERVICE ACCESS FRONT TILT HOOD:

A full-width access hood shall be provided for convenient access to engine coolant, steering fluid, wiper fluid, cab lift controls, headlight power modules, and ember separator.

☒ Yes ☐ No

COMMENTS:

88. ENGINE TUNNEL:

To provide structural strength, the engine tunnel sidewalls shall be constructed of 0.50" aluminum plate that is welded to both the 0.25" firewall and 0.38" heavy wall extrusion under the crew cab floor. To maximize occupant space, the top edges shall be tapered.

The back of the engine tunnel shall be no higher than 16.25" off the crew cab floor. The engine tunnel shall be insulated on both sides for thermal and acoustic absorption. The underside of the tunnel shall be covered with 1.00" thick polyether foam that is reinforced with an aluminized face. Thermal rating for this insulation shall be -40 degrees Fahrenheit to 300 degrees Fahrenheit. The insulation shall keep noise (dBA) levels at or lower than the specifications in the current edition of the NFPA 1901 standards.

☒ Yes ☐ No

COMMENTS:

89. CAB REAR WALL EXTERIOR COVERING:

The exterior surface of the rear wall of the cab shall be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.

☒ Yes ☐ No

COMMENTS:

90. CAB LIFT:

A hydraulic cab lift system shall be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. The hydraulic pump shall have a backup manual override, for use in the event of an electrical failure.

The cab lift controls shall be located at the driver side front of the cab, easily accessible under the full width front access hood. The controls shall include a permanently mounted raise/lower switch. For enhanced visibility during cab tilt operations, a remote-control tether with on/off switch shall be supplied on a coiled cord that shall extend from 2.00' (coiled) to 6.00' (extended).

The cab shall be capable of tilting 42 degrees and 80 degrees with crane assist to accommodate engine maintenance and removal. The cab pivots shall be located 46.00" apart to provide stability while tilting the cab.

The rear of the cab shall be locked down by a two (2)-point, automatic, hydraulic, double hook mechanism that fully engages after the cab has been lowered (self-locking). The dual 2.25" diameter hydraulic cylinders shall be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position.

For increased safety, a redundant mechanical stay arm shall be provided that must be manually put in place on the driver side between the chassis and cab frame when cab is in the raised position. This device shall be manually stowed to its original position before the cab can be lowered.

☒ Yes ☐ No

COMMENTS:
91. CAB LIFT INTERLOCK:

The cab lift safety system shall be interlocked to the parking brake. The cab tilt mechanism shall be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism shall be disabled.

The cab lift safety system shall also be interlocked to the front stabilizers in the bumper. The cab tilt mechanism shall be active only when the front stabilizers are fully stowed, and fully tilted outboard. The cab tilt mechanism shall not allow the front stabilizers to be tilted inboard until the cab has been fully lowered and locked into position.

☒ Yes ☐ No

COMMENTS:
92. GRILLE:

A bright finished aluminum mesh grille screen, inserted behind a formed bright finished grille surround, shall be provided on the front center of the cab, and shall serve as an air intake to the radiator. Grille will be painted with the corresponding fire station number.

☒ Yes ☐ No

COMMENTS:
93. DOOR JAMB SCUFFPLATES:

All cab door jambs shall be furnished with a polished stainless steel scuffplate, mounted on the striker side of the jamb.

☒ Yes ☐ No

COMMENTS:
94. MIRRORS:

Ramco, Model 6001CCHR, polished aluminum 9.25" wide x 13.50" high mirrors, with a

convex section, and CAS750 add-on shall be mounted on each side of the front cab corner.

The flat glass in each mirror shall be heated and adjustable with remote controls that are convenient to the driver.

The convex section in each mirror shall be adjusted manually.

A 6.00" riser shall be provided between the mirror body and support arm on both sides.

☒ Yes ☐ No

COMMENTS:

95. CAB DOORS:

The forward cab and crew cab doors shall be the half-height style door. To enhance entry and egress to the cab, the forward cab doors shall be a minimum of 43.59" wide x 64.71" high. The crew cab doors shall measure a minimum of 37.87" wide x 73.75" high.

The forward cab and crew cab doors shall be constructed of extruded aluminum with a nominal material thickness of 0.125". The exterior door skins shall be constructed from 0.090" aluminum.

The forward cab door windows shall include a 7.50" high x 10.00" wide drop area at the front to enhance visibility.

A customized, vertical, pull-down type door handle shall be provided on the exterior of each cab door. The exterior handle shall be designed specifically for the fire service to prevent accidental activation and shall provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands. Each door shall also be provided with an interior flush, open style paddle handle that shall be readily operable from fore and aft positions and be designed to prevent accidental activation. The interior handles shall provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands.

The cab doors shall be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys shall be Model 751. The locks shall be capable of activating when the doors are open or closed. The doors shall remain locked if locks are activated when the doors are opened, then closed.

A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11-gauge leaf shall be provided on all cab doors. There shall be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.

A chrome grab handle shall be provided on the inside of each cab and crew cab door.

The cab steps at each cab door location shall be located below the cab doors and shall be exposed to the exterior of the cab.

☒ Yes ☐ No

COMMENTS:

96. CAB DOOR PANELS:

The inner cab door panels shall be constructed out of brushed stainless steel. The cab door panels shall be removable.

☒ Yes ☐ No

COMMENTS:		
97. RECESSED POCKET WITH ELASTIC COVER:		
<p>To provide organized storage (clutter control) in the cab for miscellaneous equipment, the cab interior shall be provided with recessed storage pockets. The pockets shall be 5.63" wide x 2.00" high x 4.00" deep. The pockets shall be provided with a perforated elastic material cover to secure the equipment in the pocket. The pockets shall be installed in all available mounting locations of the overhead console.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
98. ELECTRIC WINDOW CONTROLS:		
<p>Each cab entry door shall be equipped with an electrically operated tempered glass window. A window control panel shall be located on the door panel within easy reach of the respective occupant. Each switch shall allow intermittent or auto down operation for ease of use. Auto down operation shall be actuated by holding the window down switch for approximately one second. The driver control panel shall contain a control switch for each cab door's window. All other door control panels shall contain a single switch to operate the window within that door.</p> <p>The window switches shall be connected directly to the battery power. This allows the windows to be raised and lowered when the battery switch is in the off position.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
99. CAB STEPS:		
<p>The forward cab and crew cab access steps shall be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps shall be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps shall be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps shall be a minimum 31.00" wide, and the crew cab steps shall be 24.25" wide with an 8.00" minimum depth. The inside cab steps shall not exceed 18.00" in height and be limited to two (2) steps. Three (3) step entrance designs shall not be acceptable due to safety concerns.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
100. CAB EXTERIOR HANDRAILS:		
<p>A 1.25" diameter slip-resistant, knurled aluminum handrail shall be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress. Handrails will be backlit with green LED lighting for ease of locating in low light/visibility environments.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

COMMENTS:**101. STEP LIGHTS:**

For reduced overall maintenance costs compared to incandescent lighting, there shall be four (4) white LED step lights provided. The lights shall be installed at each cab and crew cab door, one per step. The lights shall be located in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep.

In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light. The lights shall be activated when the adjacent door is opened.

☒ Yes ☐ No
COMMENTS:**102. FENDER CROWNS:**

Rubber fender crowns shall be provided around the cab wheel openings.

Crowns shall be black.

☒ Yes ☐ No
COMMENTS:**103. CAB AIR FILTRATION:**

The vehicle will be equipped with an Active Air Purification system to provide purification of the interior air of the cab and crew cab.

System Construction

The unit will contain a PHI Cell using a UVC light with a quad-metallic hydrophilic catalyst to generate H₂O₂ and reactive oxygen species (ROS) to sanitize against various microbial species. The system will produce H₂O₂ at 20 to 50 parts per billion (PPB) to sanitize the atmosphere inside the apparatus. The system will be properly sized per application to support virus and bacteria kill rates. The unit will be stand-alone and contain its own airflow mechanism, with a stainless-steel outer housing. The expected PHI Cell life will be no less than one year. The unit will be environmentally friendly and not emit direct UVC outside of the unit. The system will not generate H₂O₂ levels above 0.1 ppm (1/10 of OSHA limits of 1 ppm) in the installed apparatus.

There will be two (2) additional PHI cells shipped loose with the unit.

The housing will be 16.00" wide x 5.75" high x 5.50" deep. The non-angled vertical surfaces will be provided with an additional 3.00" of clearance for air flow. The unit will be mounted to the rear of the driver seat.

An LED indicator light monitoring the PHI cell is active will be provided on the housing exterior.

System Certification/Testing

The system will be 3rd party tested to verify H2O2 production at 20 to 50 PPB, and to support virus and bacteria kill rates. The manufacturer must be ISO 9001:2015 certified. The system will meet all applicable sections of IEC 61373:2010 for shock and vibration, and SAE J1455 for electrical specifications.

System Operating Conditions

The unit will be resistant to dust particles normally found in apparatus. The working temperature of the system will be -22F to 149F (-30C to 65C).

The unit will operate at any time with or without occupants in the cab and will pose no harm to the occupants from H2O2, Ozone, or UVC light.

Electrical Wiring/Function

The system will be 12 VDC powered from the vehicle power supply and/or an external 12 VDC source. The system will draw a maximum of 1.5 amps and have a 5-amp integrated fuse in the wire harness.

☒ Yes ☐ No
COMMENTS:**104. MOUNTING PLATE ON ENGINE TUNNEL:**

Equipment installation provisions shall be installed on the engine tunnel.

A .188" smooth aluminum plate shall be bolted to the top surface of the engine tunnel. The plate shall be located to the left of the officer and on the rear of the tunnel. It shall follow the contour of the engine tunnel and shall run the entire length of the engine tunnel. The plate shall be spaced off the engine tunnel .75" to allow for wire routing below the plate.

The mounting surface shall be red, industrial coating/Rhino lining.

☒ Yes ☐ No
COMMENTS:**105. MOUNTING PLATE(S):**

There will be three (3) full size of the side wall of the EMS cabinet pegboard mounting plate(s) provided and installed one on inboard side of EMS cabinet facing the engine tunnel one each side, Outboard side of rear wall (2). The plate will be 0.188" thick with 0.203" diameter holes, punched 1.00" on center in a pegboard pattern. The mounting surface will be painted to match the cab interior. The plates(s) will be mounted on 1.00" spacer stand-offs.

☒ Yes ☐ No
COMMENTS:**106. CAB INTERIOR:**

With safety as the primary objective, the wrap-around style cab instrument panel shall be designed with unobstructed visibility to instrumentation. The dash layout shall provide the

driver with a quick reference to gauges that allows more time to focus on the road.

The center console shall be a high impact ABS polymer and shall be easily removable for access to the defroster. The center console shall include louvers strategically located for optimal air flow and defrost capability to the windshield.

The passenger side dashboard shall be constructed of painted aluminum for durability and low maintenance. For enhanced versatility, the passenger side dash shall include a flat nonslip working surface in order to keep items from sliding when placed on the dash.

To provide optional (service friendly) control panels, switches and storage modules, a painted aluminum overhead console shall also be provided.

To complete the cab front interior design, painted aluminum modesty panels shall be provided under the dash on both sides of the cab. The driver side modesty panel shall provide mounting for the battery switch and diagnostic connectors, while the passenger side modesty panel provides a glove box, and ground access to the main electrical distribution panel via quick quarter turn fasteners.

To provide a deluxe automotive interior, the engine tunnel, side walls and rear wall shall be covered by a leather grain vinyl that is resistant to oil, grease, and mildew.

The headliner shall be installed in both forward and rear cab sections. The headliner panel shall be a composition of an aluminum panel covered with a sound barrier and upholstery.

The cab structure shall include designated raceways for electrical harness routing from the front of the cab to the rear upper portion of the cab. Raceways shall be extruded in the forward door frame, floor, walls and overhead in the area where the walls meet the ceiling. The raceways located in the floor shall be covered by aluminum extrusion, while the vertical and overhead raceways shall be covered by painted aluminum covers. The raceways shall improve harness integrity by providing a continuous harness path that eliminates wire chafing and abrasion associated with exposed wiring or routing through drilled metal holes. Harnesses shall be laid in place. Routing through holes in tubing shall not be accepted due to chaffing that installation causes.

☒ Yes ☐ No

COMMENTS:

107. CAB INTERIOR UPHOLSTERY:

The cab interior upholstery shall be red. All cab interior materials shall meet FMVSS 302 (flammability of interior materials).

☒ Yes ☐ No

COMMENTS:

108. CAB INTERIOR PAINT:

The cab interior metal surfaces shall be Rhino Lined red.

☒ Yes ☐ No

COMMENTS:**109. CAB FLOOR:**

The cab and crew cab floor areas shall be covered with acoustical floor mat consisting of a black rubber facing and closed cell foam decoupler.

☒ Yes ☐ No
COMMENTS:**110. CAB DEFROSTER/AC SYSTEM:**

A ceiling mounted combination heater, defroster and air conditioning system will be installed in the cab above the engine tunnel area.

A 54,000 BTU heater-defroster unit with 690 SCFM of air flow will be provided inside the cab. The heater-defrost will be installed in the forward portion of the cab ceiling. Air outlets will be strategically located in the cab header extrusion per the following:

- One (1) adjustable will be directed towards the left side cab window
- One (1) adjustable will be directed towards the right-side cab window
- Six (6) fixed outlets will be directed at the windshield

The defroster will be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system will meet or exceed SAE J382 requirements.

☒ Yes ☐ No
COMMENTS:**111. CAB/CREW CAB HEATER:**

There will be one (1) 31,000 BTU auxiliary heater with 560 SCFM of air flow provided in each outboard rear facing seat risers with a dual scroll blower. An aluminum plenum incorporated into the cab structure used to transfer heat to the forward positions.

☒ Yes ☐ No
COMMENTS:**112. AIR CONDITIONING:**

A 19.10 cubic inch compressor will be installed on the engine.

A roof-mounted condenser with a 78,000 BTU output at 2,400 SCFM that meets and exceeds the performance specification will be installed on the cab roof. The condenser cover to be painted to match the cab roof.

The air conditioning system will be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50 percent relative humidity within 30 minutes. The cooling performance test will be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.

The evaporator unit will be installed in the rear portion of the cab ceiling over the engine tunnel. The evaporator will include one (1) high performance heating core, one (1) high performance cooling core with (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.

The evaporator unit will have a 52,000 BTU at 690 SCFM rating that meets and exceeds the performance specifications.

Adjustable air outlets will be strategically located on the forward plenum cover per the following:

- Four (4) will be directed towards the seating position on the left side of the cab
- Four (4) will be directed towards the seating position on the right side of the cab

Adjustable air outlets will be strategically located on the evaporator cover per the following:

- Five (5) will be directed towards crew cab area

A high efficiency particulate air (HEPA) filter will be included for the system. Access to the filter cover will be secured with four (4) screws.

The air conditioner refrigerant will be R-134A and will be installed by a certified technician.

☒ Yes ☐ No

COMMENTS:

113. CLIMATE CONTROL:

An automotive style controller will be provided to control the heat and air conditioning system within the cab. The controller will have three (3) functional knobs for fan speed, temperature, and air flow distribution (front to rear) control.

The system will control the temperature of the cab and crew cab automatically by pushing the center of the fan speed control knob. Rotate the center temperature control knob to set the cab and crew cab temperature.

The AC system will be manually activated by pushing the center of the temperature control knob.

Pushing the center of the air flow distribution knob will engage the AC for max defrost, setting the fan speeds to 100 percent and directing all air flow to the overhead forward position.

☒ Yes ☐ No

COMMENTS:

114. GRAVITY DRAIN TUBES:

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Two (2) condensate drain tubes will be provided for the air conditioning evaporator. The drip pan will have two (2) drain tubes plumbed separately to allow for the condensate to exit the drip pan. No pumps will be provided.

The drain tubes will terminate under the cab, on the inboard side of the front wheelwells.

☒ Yes ☐ No

COMMENTS:

115. INTERIOR CAB INSULATION:

The cab walls, ceiling and engine tunnel shall be insulated in all strategic locations to maximize acoustic absorption and thermal insulation.

☒ Yes ☐ No

COMMENTS:

116. SUN VISORS:

Two (2) smoked Lexan™ sun visors provided. The sun visors shall be located above the windshield with one mounted on each side of the cab.

There shall be a black plastic thumb latch provided to help secure each sun visor in the stowed position.

☒ Yes ☐ No

COMMENTS:

117. GRAB HANDLE:

A black rubber covered grab handle shall be mounted on the door post of the driver side and passenger side cab door to assist in entering the cab. The grab handle shall be securely mounted to the post area between the door and windshield.

☒ Yes ☐ No

COMMENTS:

118. ENGINE COMPARTMENT LIGHTS:

There shall be one (1) Whelen, Model 3SC0CDCR, 12-volt DC, 3.00" white LED lights with Whelen, Model 3FLANGEC, chrome flange kits installed under the cab to be used as engine compartment illumination.

These lights shall be activated automatically when the cab is raised.

☒ Yes ☐ No

COMMENTS:

119. ACCESS TO ENGINE DIPSTICKS:

For access to the engine oil and transmission fluid dipsticks, there shall be a door on the engine tunnel, inside the crew cab. The door shall be on the rear wall of the engine tunnel, on the vertical surface. The door shall be 17.75" wide x 12.75" high and be flush with the wall of the engine tunnel.

The engine oil dipstick shall allow for checking only. The transmission dipstick shall allow for both checking and filling. An additional port shall be provided for filling the engine oil.

The door shall have a rubber seal for thermal and acoustic insulation. One (1) flush latch shall be provided on the access door.

☒ Yes ☐ No
COMMENTS:

Actual door size will be 20.00" wide x 8.25" high

120. MAP BOX:

There shall be one (1) map box with three (3) bins, open at top. The map box shall be installed at final inspection. The map box shall be divided into three (3) bins, each being 12.50" wide x 3.00" high x 12.00" deep. Each bin shall slant 30 degrees from horizontal. The map box shall be constructed of 0.125" aluminum and shall be painted to match the cab interior.

☒ Yes ☐ No
COMMENTS:**121. SEATING CAPACITY:**

The seating capacity in the cab shall be five (5).

☒ Yes ☐ No
COMMENTS:**122. DRIVER SEAT:**

A H.O. Bostrom, Sierra, air suspension high back seat will be provided in the cab for the driver. For increased convenience, the seat will include a manual control to adjust the horizontal position (5.50" travel). To provide flexibility for multiple driver configurations, the seat will have a reclining back, adjustable from 15 degrees back to 45 degrees forward. To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled.

The seat will include two (2) removable zip clean seat covers for the cushion, seat back and headrest and the foam of the seat to be an encapsulated barrier foam to create a waterproof barrier.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

☒ Yes ☐ No

COMMENTS:**123. OFFICER SEAT:**

A H.O. Bostrom, Tanker 550 series, SCBA air suspension seat will be provided in the cab for the officer. For optimal comfort, the seat will be provided with 18.50" deep cushion and contoured headrest. To ensure safe operation, the seat will be equipped with a sensor in the seat cushion and belt receptacle that will activate an alarm indicating the seat is occupied but not buckled.

The seat back will be an SCBA back style with a 5-degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location. SCBA retention hooks will be provided.

The seat will include two (2) removable zip clean seat covers for the cushion, seat bolsters and headrest and the foam of the seat to be an encapsulated barrier foam to create a waterproof barrier.

The seat will be furnished with a 3-point, shoulder type seat belt.

☒ Yes ☐ No
COMMENTS:**124. REAR FACING DRIVER SIDE OUTBOARD SEAT:**

There will be one (1) rear facing, HO Bostrom Tanker 450 SCBA seat provided at the driver side outboard position in the crew cab. For optimal comfort, the seat will be provided with 17.00" deep cushion. To ensure safe operation, the seat will be equipped with a sensor in the seat cushion and belt receptacle that will activate an alarm indicating the seat is occupied but not buckled.

The seat back will be an SCBA back style with a 5-degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include two (2) removable zip clean seat covers for the cushion, seat bolsters and headrest and the foam of the seat to be an encapsulated barrier foam to create a waterproof barrier.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

☒ Yes ☐ No
COMMENTS:**125. REAR FACING RIGHT SIDE CABINET:**

A rear facing cabinet shall be provided in the crew cab at the right-side outboard position.

The cabinet shall be 19.00" wide x 40.50" high x 26.50" deep. The interior door shall be web netting. The netting is to be made with 1.00" wide nylon material with 2.00" openings. The nylon webbing shall be permanently fastened at the inboard side of the cabinet and have spring clip and hook fasteners on the opposite side to secure it. The clear door opening shall be 16.50" wide x 37.00" high.

The cabinet shall include two (2) infinitely adjustable shelves with a 0.75" up-turned lip painted to match the cab interior.

The cabinet shall include no louvers.

The cabinet shall be constructed of smooth aluminum and coated with industrial coating/Rhino lining to match the cab interior.

☒ Yes ☐ No
COMMENTS:

Exterior cabinet access also provided based off previous version of this apparatus. However interior access only is available

126. CABINET LIGHT:

There shall be one (1) white LED strip light installed on the left side of the interior cabinet door opening. The lights shall be controlled by a rocker switch on the exterior of the cabinet.

☒ Yes ☐ No
COMMENTS:**127. FORWARD FACING CENTER SEATS:**

There will be two (2) forward facing, HO Bostrom Tanker 400CT SCBA seats provided at the center position in the crew cab. For optimal comfort, the seats will be provided with 15.00" deep cushions. To ensure safe operation, the seats will be equipped with a sensor in the seat cushion and belt receptacle that will activate an alarm indicating the seat is occupied but not buckled.

The seat backs will be an SCBA back style with a 0-degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include four (4) removable zip clean seat covers for the cushion, side bolsters and headrest; the foam of the seat to be an encapsulated barrier foam to create a waterproof barrier, two (2) sets of covers for each seat.

The seats will be furnished with a 3-point, shoulder type seat belts. The seat belts will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

☒ Yes ☐ No
COMMENTS:**128. SEAT UPHOLSTERY:**

All seat upholstery shall be black Turnout Tuff material.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	All seat upholstery will be black Dura-Wear Plus, waterproof fabric	
129. AIR BOTTLE HOLDERS:		
<p>All SCBA type seats in the cab shall have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket shall include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp shall constrain the SCBA bottle in the seat and shall exceed the NFPA standard of 9G. Bracket designs with manual restraints (belts, straps, buckles) that could be inadvertently left unlocked and allow the SCBA to move freely within the cab during an accident, shall not be acceptable.</p> <p>There shall be a quantity of four (4) SCBA brackets.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
130. SEAT BELTS:		
<p>All seating positions in the cab, crew cab shall have red seat belts.</p> <p>To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length shall meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.</p> <p>The 3-point shoulder type seat belts shall also include the ReadyReach D-loop assembly to the shoulder belt system. The ReadyReach feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
131. SHOULDER HARNESS HEIGHT ADJUSTMENT:		
<p>All seating positions furnished with 3-point shoulder type seat belts shall include a height adjustment. This adjustment shall optimize the belts effectiveness and comfort for the seated firefighter. A total of four (4) seating positions shall have the adjustable shoulder harness.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
132. CAB DOME LIGHTS:		
<p>There shall be four (4) dual LED dome lights with black bezels provided. Two (2) lights shall be mounted above the inside shoulder of the driver and officer and two (2) lights shall</p>		

be installed and located, one (1) on each side of the crew cab.

The color of the LED's shall be red and white.

The white LED's shall be controlled by the door switches and the lens switch.

The color LED's shall be controlled by the lens switch.

☒ Yes ☐ No

COMMENTS:

133. CAB INSTRUMENTATION:

The cab instrument panel shall consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches shall be identified by a label adjacent to each item. Actuation of the headlight switch shall illuminate the labels in low light conditions. Telltale indicator lamps shall not be illuminated unless necessary. The cab instruments and controls shall be conveniently located within the forward cab section directly forward of the driver. Gauge and switch panels shall be designed to be removable for ease of service and low cost of ownership.

☒ Yes ☐ No

COMMENTS:

134. GAUGES:

The gauge panel shall include the following ten (10) ivory gauges with chrome bezels to monitor vehicle performance:

- Voltmeter gauge (Volts)

Low volts (11.8 VDC)

Amber indicator on gauge assembly with alarm

High volts (15 VDC)

Amber indicator on gauge assembly with alarm

Very low volts (11.3 VDC)

Amber indicator on gauge assembly with alarm

Very high volts (16 VDC)

Amber indicator on gauge assembly with alarm

- Tachometer (RPM)

- Speedometer (Primary (outside) MPH, Secondary (inside) Km/H)

- Fuel level gauge (Empty - Full in fractions)

Low fuel (1/8 full)

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Amber indicator on gauge assembly with alarm

Very low fuel (1/32) fuel

Amber indicator on gauge assembly with alarm

- Engine oil pressure gauge (PSI)

Low oil pressure to activate engine warning lights and alarms

Red indicator on gauge assembly with alarm

- Front air pressure gauge (PSI)

Low air pressure to activate warning lights and alarm

Red indicator on gauge assembly with alarm

- Rear air pressure gauge (PSI)

Low air pressure to activate warning lights and alarm

Red indicator on gauge assembly with alarm

- Transmission oil temperature gauge (Fahrenheit)

High transmission oil temperature activates warning lights and alarm

Amber indicator on gauge assembly with alarm

- Engine coolant temperature gauge (Fahrenheit)

High engine temperature activates an engine warning light and alarm

Red indicator on gauge assembly with alarm

- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions)

☒ Yes ☐ No

Low fluid (1/8 full)

Amber indicator on gauge assembly with alarm

All gauges and gauge indicators shall perform prove out at initial power-up to ensure proper performance

COMMENTS:

135. INDICATOR LAMPS:

To promote safety, the following telltale indicator lamps shall be integral to the gauge assembly and are located above and below the center gauges. The indicator lamps shall be "dead-front" design that is only visible when active. The colored indicator lights shall have descriptive text or symbols.

The following amber telltale lamps shall be present:

- Low coolant

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- Trac cntl (traction control) (where applicable)
- Check engine
- Check trans (check transmission)
- Aux brake overheat (Auxiliary brake overheat)
- Air rest (air restriction)
- Caution (triangle symbol)
- Water in fuel
- DPF (engine diesel particulate filter regeneration)
- Trailer ABS (where applicable)
- Wait to start (where applicable)
- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- SRS (supplemental restraint system) fault (where applicable)
- DEF (low diesel exhaust fluid level)

The following red telltale lamps shall be present:

- Warning (stop sign symbol)
- Seat belt
- Parking brake
- Stop engine
- Rack down

The following green telltale lamps shall be provided:

- Left turn
- Right turn
- Battery on

The following blue telltale lamp shall be provided:

- High beam

☒ Yes ☐ No

COMMENTS:

136. ALARMS:

Visual alarms will be provided whenever a warning message is present.

All if any audio alarms will be able to be fully silenced by the apparatus operator.

☒ Yes ☐ No

COMMENTS:

137. INDICATOR LAMP AND ALARM PROVE-OUT:

Telltale indicators and alarms shall perform prove-out at initial power-up to ensure proper performance.

☒ Yes ☐ No

COMMENTS:

138. CONTROL SWITCHES:

For ease of use, the following controls shall be provided immediately adjacent to the cab instrument panel within easy reach of the driver.

Emergency master switch: A molded plastic push button switch with integral indicator lamp shall be provided. Pressing the switch shall activate emergency response lights and siren control. A green lamp on the switch provides indication that the emergency master mode is active. Pressing the switch again disables the emergency master mode.

Headlight / Parking light switch: A three (3)-position maintained rocker switch shall be provided. The first switch position shall deactivate all parking lights and the headlights. The second switch position shall activate the parking lights. The third switch position shall activate the headlights.

Panel backlighting intensity control switch: A three (3)-position momentary rocker switch shall be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the switch is held. The second switch position is the default position that does not affect the backlighting intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.

The following standard controls shall be integral to the gauge assembly and are located below the right-hand gauges. All switches have backlit labels for low light applications.

High idle engagement switch: A two (2)-position momentary rocker switch with integral indicator lamp shall be provided. The first switch position is the default switch position. The second switch position shall activate and deactivate the high idle function when pressed and released. The "Ok To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch shall indicate when the high idle function is engaged.

"Ok To Engage High Idle" indicator lamp: A green indicator light shall be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.

The following standard controls shall be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches shall have backlit labels for low light applications.

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Ignition switch: A three (3)-position maintained/momentary rocker switch shall be provided. The first switch position shall deactivate vehicle ignition. The second switch position shall activate vehicle ignition. The third momentary position shall disable the Command Zone audible alarm if held for three to five seconds. A green indicator lamp shall be activated with vehicle ignition.

Engine start switch: A two (2)-position momentary rocker switch shall be provided. The first switch position is the default switch position. The second switch position shall activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.

4-way hazard switch: A two (2)-position maintained rocker switch shall be provided. The first switch position shall deactivate the 4-way hazard switch function. The second switch position shall activate the 4-way hazard function. The switch actuator shall be red and includes the international 4-way hazard symbol.

Heater, defroster, and optional air conditioning control panel: A control panel with membrane switches shall be provided to control heater/defroster temperature and heater, defroster, and air conditioning fan speeds. A green LED status bar shall indicate the relative temperature and fan speed settings.

Turn signal arm: A self-canceling turn signal with high beam headlight and windshield wiper/washer controls shall be provided. The windshield wiper control shall have high, low, and intermittent modes.

☒ Yes ☐ No

Parking brake control: An air actuated push/pull park brake control valve shall be provided.

Chassis horn control: Activation of the chassis horn control shall be provided through the center of the steering wheel.

COMMENTS:
139. CUSTOM SWITCH PANELS:

The design of cab instrumentation shall allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There shall be positions for up to four (4) switch panels in the overhead console on the driver's side, up to four (4) switch panels in the engine tunnel console facing the driver, up to four (4) switch panels in the overhead console on the officer's side and up to two (2) switch panels in the engine tunnel console facing the officer. All switches shall have backlit labels for low light applications.

☒ Yes ☐ No

COMMENTS:
140. DIAGNOSTIC PANEL:

A diagnostic panel shall be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel shall allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches shall allow ABS systems to provide blink codes should a problem exist.

The diagnostic panel shall include the following:

- Engine diagnostic port
- Transmission diagnostic port
- ABS diagnostic port
- SRS diagnostic port
- ABS diagnostic switch (blink codes flashed on ABS telltale indicator)
- Diesel particulate filter regeneration switch
- Diesel particulate filter regeneration inhibit switch

☒ Yes ☐ No

COMMENTS:

141. CAB LCD DISPLAY:

A digital four (4)-row by 20-character dot matrix display shall be integral to the gauge panel. The display shall be capable of showing simple graphical images as well as text. The display shall be split into three (3) sections. Each section shall have a dedicated function. The upper left section shall display the outside ambient temperature.

The upper right section shall display, along with other configuration specific information:

- Odometer
- Trip mileage
- PTO hours
- Fuel consumption
- Engine hours

The bottom section shall display INFO, CAUTION, and WARNING messages. Text messages shall automatically activate to describe the cause of an audible caution or warning alarm. The LCD shall be capable of displaying multiple text messages should more than one caution or warning condition exist.

☒ Yes ☐ No

COMMENTS:

142. AIR RESTRICTION INDICATOR:

A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm shall be provided.

☒ Yes ☐ No

COMMENTS:

143. "DO NOT MOVE APPARATUS" INDICATOR:

A flashing red indicator light, located in the driving compartment, shall be illuminated automatically per the current NFPA requirements. The light shall be labeled "Do Not Move Apparatus If Light Is On."

The same circuit that activates the Do Not Move Apparatus indicator shall activate a pulsing alarm when the parking brake is released.

☒ Yes ☐ No
COMMENTS:**144. DO NOT MOVE TRUCK MESSAGES:**

Messages shall be displayed on the color display located within sight of the driver whenever the Do Not Move Truck light is active. The messages shall designate the item or items not in the stowed for vehicle travel position (parking brake disengaged).

The following messages shall be displayed (where applicable):

- Do Not Move Truck
- DS Cab Door Open (Driver Side Cab Door Open)
- PS Cab Door Open (Passenger's Side Cab Door Open)
- DS Crew Cab Door Open (Driver Side Crew Cab Door Open)
- PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open)
- DS Body Door Open (Driver Side Body Door Open)
- PS Body Door Open (Passenger's Side Body Door Open)
- Rear Body Door Open
- Aerial Not Stowed (Aerial Device Not Stowed)
- Stabilizer Not Stowed

Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause major damage to the apparatus if the apparatus is moved shall be displayed as a caution message after the parking brake is disengaged.

☒ Yes ☐ No
COMMENTS:**145. SWITCH PANELS:**

The emergency light switch panel shall have a master switch for ease of use plus individual switches for selective control. Each switch panel shall contain eight (8) membrane-type switches each rated for one million (1,000,000) cycles. Panels containing less than eight (8) switch assignments shall include non-functioning black appliques. Documentation shall be provided by the manufacturer indicating the rated cycle life of the switches. The switch

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panel(s) shall be located in the overhead position above the windshield on the driver side overhead to allow for easy access.

Additional switch panel(s) shall be located in the overhead position(s) above the windshield or in designated locations on the lower instrument panel layout.

The switches shall be membrane-type and also act as an integral indicator light. For quick, visual indication the entire surface of the switch shall be illuminated white whenever back lighting is activated and illuminated green whenever the switch is active. An active illuminated switch shall flash when interlock requirements are not met or device is actively being load managed. For ease of use, a two (2)-ply, scratch resistant laser engraved Gravoply label indicating the use of each switch shall be placed in the center of the switch. The label shall allow light to pass through the letters for ease of use in low light conditions.

☒ Yes ☐ No
COMMENTS:**146. WIPER CONTROL:**

For simple operation and easy reach, the windshield wiper control shall be an integral part of the directional light lever located on the steering column. The wiper control shall include high and low wiper speed settings, a one-speed intermittent wiper control and windshield washer switch. The control shall have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.

☒ Yes ☐ No
COMMENTS:**147. HOURMETER – AERIAL DEVICE:**

An hourmeter for the aerial device shall be provided and located within the cab display or instrument panel.

☒ Yes ☐ No
COMMENTS:**148. AERIAL MASTER:**

There shall be a master switch for the aerial operating electrical system provided.

☒ Yes ☐ No
COMMENTS:**149. AERIAL PTO SWITCH:**

A PTO switch for the aerial with indicator light shall be provided.

☒ Yes ☐ No
COMMENTS:

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2**150. SPARE CIRCUIT:**

There shall be two (2) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires shall have the following features:

- The positive wire shall be connected directly to the battery power
- The negative wire shall be connected to ground
- Wires shall be protected to 15 amps at 12 volts DC
- Power and ground shall terminate officer side dash area
- Termination shall be with heat shrinkable butt splicing
- Wires shall be sized to 125 percent of the protection

The circuit(s) may be load managed when the parking brake is set.

☒ Yes ☐ No

COMMENTS:**151. INFORMATION CENTER:**

An information center employing a 7.00" diagonal touch screen color LCD display shall be encased in an ABS plastic housing and mounted on a swivel to be adjusted by the driver to account for glare.

The information center shall have the following specifications:

- Operate in temperatures from -40 to 185 degrees Fahrenheit
- An Optical Gel shall be placed between the LCD and protective lens
- Five weather resistant user interface switches
- Grey with black accents
- Sunlight Readable
- Linux operating system
- Minimum of 1000nits rated display
- Display can be changed to an available foreign language
- An LCD display integral to the cab gauge panel shall be included as outlined in the cab instrumentation area.
- Programmed to read US Customary

☐ Yes ☒ No

COMMENTS:

Information center is mounted at an angle for driver. No swivel is currently available.

152. GENERAL SCREEN DESIGN:

Where possible, background colors shall be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background shall be used.

If a caution or warning situation arises the following shall occur:

- An amber background/text color shall indicate a caution condition
- A red background/text color shall indicate a warning condition
- The information center shall utilize an "Alert Center" to display text messages for audible alarm tones. The text messages shall be written to identify the items causing the alarm to sound. If more than one text message occurs, the messages shall cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" shall change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color shall be shown for all alert center messages.
- A label for each button shall exist. The label shall indicate the function for each active button for each screen. Buttons that are not utilized on specific screens shall have a button label with no text or symbol.

☒ Yes ☐ No
COMMENTS:**153. HOME/TRANSIT SCREEN:**

This screen shall display the following:

- Seat Belt Monitoring Screen
- Tire Pressure Monitoring
- Digital Speedometer
- Active Alarms

☒ Yes ☐ No
COMMENTS:**154. ON SCENE SCREEN:**

This screen shall display the following:

- Battery Voltage
- Fuel
- Oil Pressure
- Coolant Temperature

<ul style="list-style-type: none"> • RPM • Water Flow Rate • Water Used • Active Alarms 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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COMMENTS:**155. VIRTUAL BUTTONS:**

There shall be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.

☒ Yes ☐ No
COMMENTS:**156. PAGE SCREEN:**

The page screen shall display the following and allow the user to progress into other screens for further functionality:

- Diagnostics
 - o Faults
 - ☐ Listed by order of occurrence
 - ☐ Allows to sort by system
 - o Interlock
 - ☐ Throttle Interlocks
 - ☐ Aerial Interlocks (if equipped)
 - ☐ PTO Interlocks (if equipped)
 - o Load Manager
 - ☐ A list of items to be load managed shall be provided. The list shall provide a description of the load.
 - ☐ The lower the priority numbers the earlier the device shall be shed should a low voltage condition occur.
 - ☐ The screen shall indicate if a load has been shed (disabled) or not shed.
 - ☐ "At a glance" color features are utilized on this screen.
 - o Systems
 - ☐ Multiplexing

- Module type and ID number
- Module Version
- Input or output number
- Circuit number connected to that input or output
- Status of the input or output
- Power and Constant Current module diagnostic information
- o Live Data
- ☐ General Truck Data
- Maintenance
- o Engine oil and filter
- o Transmission oil and filter
- o Aerial
- Setup
- o Clock Setup
- o Date & Time
- ☐ 12- or 24-hour format
- ☐ Set time and date
- o Backlight
- ☐ Daytime
- ☐ Nighttime
- ☐ Sensitivity
- o Unit Selection
- o Home Screen
- o Virtual Button Setup
- o On Scene Screen Setup
- o Configure Video Mode
- ☐ Set Video Contrast
- ☐ Set Video Color
- ☐ Set Video Tint
- Do Not Move

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o The screen shall indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices shall be indicated:

- ☐ Driver Side Cab Door
- ☐ Passenger's Side Cab Door
- ☐ Driver Side Crew Cab Door
- ☐ Passenger's Side Crew Cab Door
- ☐ Driver Side Body Doors
- ☐ Passenger's Side Body Doors
- ☐ Rear Body Door(s)
- ☐ Stabilizers
- Notifications

o View Active Alarms

☐ Shows a list of all active alarms including date and time of the occurrence is shown with each alarm

☒ Yes ☐ No

☐ Silence Alarms - All alarms are silenced

- Timer Screen
- HVAC (if equipped)
- Tire Information (if equipped)
- Ascendant Set Up Confirmation (if equipped)

Button functions and button labels may change with each screen.

COMMENTS:

157. COLLISION MITIGATION:

There will be a HAAS Alert®, Model HA5 Responder-to-Vehicle (R2V) collision avoidance system provided on the apparatus. The HA5 cellular transponder module will be installed behind the cab windshield, as high and near to the center as practical, to allow clear visibility to the sky. The module dimensions are 5.40" long x 2.70" wide x 1.30" high, and operating temperature range is -40 degree C to 85-degree C.

The transponder will be connected to the vehicle's emergency master circuit and battery direct power and ground.

While responding with emergency lights on, the HA5 transponder sends alert messages via cellular network to motorists in the vicinity of the responding truck that are equipped with the WAZE app.

While on scene with emergency lights on, the HA5 transponder sends road hazard alerts to motorists in the vicinity of the truck that are equipped with the WAZE app.

The HA5 Responder-to-Vehicle (R2V) collision avoidance system will include the transponder and a 5-year cellular plan subscription.

Activation of the HAAS Alert system requires a representative of the customer to accept the End User License Agreement (EULA) via an on-line portal.

☒ Yes ☐ No

COMMENTS:

158. VEHICLE DATA RECORDER:

There shall be a Wheldon vehicle data recorder (VDR) capable of reading and storing vehicle information provided.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.

The vehicle data recorder shall be capable of recording the following data via hardwired and/or CAN inputs:

- Vehicle Speed - MPH
- Acceleration - MPH/sec
- Deceleration - MPH/sec
- Engine Speed - RPM
- Engine Throttle Position - % of Full Throttle
- ABS Event - On/Off
- Seat Occupied Status - Yes/No by Position
- Seat Belt Buckled Status - Yes/No by Position
- Master Optical Warning Device Switch - On/Off
- Time - 24 Hour Time
- Date - Year/Month/Day

☒ Yes ☐ No

COMMENTS:

159. SEAT BELT MONITORING SYSTEM:

A programmable seat belt monitoring system (SBMS) shall be provided on the color display and in the center overhead of the cab instrument panel. The SBMS shall be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:

- Seat Occupied & Buckled = Green LED indicator illuminated

- Seat Occupied & Unbuckled = Red LED indicator with audible alarm
- No Occupant & Buckled = Red LED indicator with audible alarm
- No Occupant & Unbuckled = No indicator and no alarm

The seat belt monitoring screen shall become active on the color display when:

- The home screen is active:
 - o and there is any occupant seated but not buckled or any belt buckled with an occupant.
 - o and there are no other Do Not Move Apparatus conditions present. As soon as all Do Not Move Apparatus conditions are cleared, the SBMS shall be activated.

The SBMS shall include an audible alarm that shall warn that an unbuckled occupant condition exists, and the parking brake is released, or the transmission is not in park. Audible alarm must have the capability of being silenced by the apparatus operator.

☒ Yes ☐ No

COMMENTS:

160. INTERCOM SYSTEM:

There will be digital, single radio interface, intercom located in the cab. The front panel will have master volume, and squelch controls with illuminated indicators, allowing for independent level setting of radio and auxiliary audio devices.

There will be one (1) radio listen only / transmit control with select, monitor, receive, and transmit indicators. There will be one (1) auxiliary audio input with select and receive indicators.

There will be one (1) wireless base station for up to five (1-5) headset users provided.

The wireless base station will have a 100' to 1100' range, line of sight. Objects between the transmitter and receiver affect range.

The following Firecom components will be provided:

- One (1) 5100D Intercom
- One (1) WB505R wireless base station (1-5 wireless positions)
- All necessary power and station cabling

☒ Yes ☐ No

COMMENTS:

161. RADIO/INTERCOM INTERFACE INCLUDED:

All radio interfaced stations shall have universal radio interfaces installed.

☒ Yes ☐ No

COMMENTS:

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2**162. UNDER THE HELMET HEADSET:**

There will be three (3) Firecom™, Model UHW-503 wireless under the helmet, intercom only headset(s) provided. A heavy duty coiled 12 volt charging pigtail with plug will be provided at each CC seat.

Each headset will feature:

- Noise cancelling electric microphone
- Flexible microphone boom
- Ear seals with 20 dB noise reduction
- Programmable Microphone transmit button
- Rechargeable battery operates 24 hours on a full charge
- IP-66 when worn

☒ Yes ☐ No
COMMENTS:**163. WIRELESS UNDER THE HELMET HEADSET:**

There will be two (2) Firecom™, Model UHW-505, wireless under the helmet, radio transmit headset(s) provided. A heavy duty, coiled 12 volt charging pigtail with plug will be provided driver's seat and officer seat.

Each headset will feature:

- Noise cancelling electric microphone
- Flexible microphone boom
- Ear seals with 20 dB noise reduction
- Stereo Listen-Through Ear dome microphones
- Radio Push to Transmit button (Left or Right Side)
- Rechargeable battery operates for 24 hours on a full charge
- IP-66 when worn

☒ Yes ☐ No
COMMENTS:**164. HEADSET HANGERS:**

There will be five (5) headset hanger(s) installed driver's seat, officer's seat, driver's side outboard rear facing seat, passenger's side outboard forward-facing seat and passenger's

side outboard rear facing seat. The hanger(s) will meet NFPA 1901, Section 14.1.11, requirement for equipment mounting.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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COMMENTS:**165. RADIO ANTENNA MOUNT:**

There shall be one (1) standard 1.125", 18 thread antenna-mounting base(s) installed on the right side on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the instrument panel area. A weatherproof cap shall be installed on the mount.

☒ Yes ☐ No**COMMENTS:****166. VEHICLE CAMERA SYSTEM:****FRONT, SIDE, AND REAR VISION SYSTEM**

The Pro-Vision cameras will be located as follows:

One (1) color video camera with microphone located at the rear of the vehicle, pointing rearward, automatically displayed when the apparatus is put into reverse.

One (1) color forward facing camera displayed when a switch in panel is activated.

One (1) color video camera located on the right side of the cab forward of the cab doors, pointing rearward, automatically displayed with the right turn signal.

One (1) color video camera located on the left side of the cab forward of the cab doors, pointing rearward, automatically displayed with the left turn signal.

The camera images will be displayed on the driver's 7" LCD quad monito.

- The digital video recorder (DVR) will be located [TBD]. The DVR will include a 128 gigabit SDXC memory card and lockable cage. The DVR will be wired battery direct.
- There will be an event button mounted [TBD].
- There will be a GPS antenna mounted to the windshield.

For any additional software such as Enhanced Connectivity Bundle or PV transfer software, it is the responsibility of the end user to contact the vendor Pro-Vision®. Any additional programming is the responsibility of the end user.

The following Pro-Vision® components will be supplied:

- One (1) DVR-906T1-128 1080p HD Hybrid Bas e KIT with (1) Forward Facing Camera [128GB]

Includes: HD Forward Facing Camera, Hybrid HD DVR, 128GB SDXC Card, Lockable Cage, 10ft HD Camera Cable, DVR Interface Cable, Enhanced Event Marker Button, GPS Antenna, Software & Guides

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<ul style="list-style-type: none"> Two (2) DVR-920 AHD Waterproof Side Camera Kits One (1) DVR-916 AHD Waterproof Standard Heavy Duty Camera <p>One (1) PM-1980s 7" AHD LCD Quad Monitor</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
167. KNOX-BOX:	
<p>There shall be a Knox-Box® KeySecure® 5, Model KSM-200K1, with keypad access provided. The system shall allow all administration functions to be performed via Wi-Fi, Ethernet cable or USB port. The box shall hold one (1) key. The box shall be surface mounted and installed TBD.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
168. ELECTRICAL POWER CONTROL SYSTEM:	
<p>The primary power distribution shall be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers shall be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers shall be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers shall be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays shall be easily accessible.</p> <p>Distribution centers located throughout the vehicle shall contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.</p> <p>Circuit protection devices, which conform to SAE standards, shall be utilized to protect electrical circuits. All circuit protection devices shall be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers shall be Type-I automatic reset (continuously resetting). When required, automotive type fuses shall be utilized to protect electronic equipment. Control relays and solenoid shall have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
169. SOLID-STATE CONTROL SYSTEM:	
<p>A solid-state electronics-based control system shall be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network shall consist of electronic modules located near their point of use to reduce harness lengths and improve reliability. The control system shall comply with SAE J1939-11 recommended practices.</p>	

The control system shall operate as a master-slave system whereas the main control module instructs all other system components. The system shall contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system shall utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership.

For increased reliability and simplified use the control system modules shall include the following attributes:

- Green LED indicator light for module power
- Red LED indicator light for network communication stability status
- Control system self-test at activation and continually throughout vehicle operation
- No moving parts due to transistor logic
- Software logic control for NFPA mandated safety interlocks and indicators
- Integrated electrical system load management without additional components
- Integrated electrical load sequencing system without additional components
- Customized control software to the vehicle's configuration
- Factory and field re programmable to accommodate changes to the vehicle's operating parameters
- Complete operating and troubleshooting manuals
- USB connection to the main control module for advanced troubleshooting

To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules shall meet the following specifications:

- Module circuit board shall meet SAE J771 specifications
- Operating temperature from -40C to +70C
- Storage temperature from -40C to +70C
- Vibration to 50g

IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)

Operating voltage from 8 volts to 16 volts DC

☒ Yes ☐ No

The main controller shall activate status indicators and audible alarms designed to provide warning of problems before they become critical.

COMMENTS:

170. CIRCUIT PROTECTION AND CONTROL DIAGRAM:

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Copies of all job-specific, computer network input and output (I/O) connections shall be provided with each chassis. The sheets shall indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.

☒ Yes ☐ No
COMMENTS:**171. ON-BOARD ADVANCED/VISUAL ELECTRICAL SYSTEM DIAGNOSTIC:**

The on-board information center shall include the following diagnostic information:

- Text description of active warning or caution alarms
- Simplified warning indicators
- Amber caution indication with intermittent alarm
- Red warning indication with steady tone alarm

All control system modules, with the exception of the main control module, shall contain on-board visual diagnostic LEDs that assist in troubleshooting. The LEDs shall be enclosed within the sealed, transparent module housing near the face of the module. One LED for each input or output shall be provided and shall illuminate whenever the respective input or output is active. Color-coded labels within the modules shall encompass the LEDs for ease of identification. The LED indicator lights shall provide point of use information for reduced troubleshooting time without the need for an additional computer.

☒ Yes ☐ No
COMMENTS:**172. PROGNOSTICS:**

A software-based vehicle tool shall be provided to predict remaining life of the vehicle's critical fluid and events.

The system shall send automatic indications to the color display and/or wireless enabled device to proactively alert of upcoming service intervals.

Prognostics shall include:

- Engine oil and filter
- Transmission oil and filter
- Aerial oil and filter

☒ Yes ☐ No
COMMENTS:

173. ADVANCED DIAGNOSTICS:

An advanced, Windows-based, diagnostic software program shall be provided for this control system. The software shall provide troubleshooting tools to service technicians equipped with a Windows-based computer or wireless enabled device.

The service and maintenance software shall be easy to understand and use and have the ability to view system input/output (I/O) information.

☒ Yes ☐ No
COMMENTS:**174. INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM:**

A system shall be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.

☒ Yes ☐ No
COMMENTS:**175. VOLATAGE MONITOR SYSTEM:**

A voltage monitoring system shall be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system shall provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm shall activate if the system falls below 11.8 volts DC for more than two (2) minutes.

☒ Yes ☐ No
COMMENTS:**176. DEDICATED RADIO EQUIPMENT CONNECTION POINTS:**

There shall be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment.

- The studs shall consist of the following:
- 12-volt 40-amp battery switched power
- 12-volt 60-amp ignition switched power
- 12-volt 60-amp direct battery power

There shall also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.

☒ Yes ☐ No
COMMENTS:

177. ENHANCED SOFTWARE:

The solid-state control system shall include the following software enhancements:

All perimeter lights and scene lights (where applicable) shall be deactivated when the parking brake is released.

Cab and crew cab dome lights shall remain on for ten seconds for improved visibility after the doors close. The dome lights shall dim after ten seconds or immediately if the vehicle is put into gear.

Cab and crew cab perimeter lights shall remain on for ten seconds for improved visibility after the doors close. The dome lights shall dim after ten seconds or immediately if the vehicle is put into gear.

☒ Yes ☐ No
COMMENTS:**178. EMI/RFI PROTECTION:**

To prevent erroneous signals from crosstalk contamination and interference, the electrical system shall meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system shall be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.

The apparatus shall have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system shall meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, shall provide EMC testing reports from testing conducted on an entire apparatus and shall certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter requirements. Component and partial (incomplete) vehicle testing is not adequate as overall vehicle design can impact test results and thus is not acceptable by itself.

EMI/RFI susceptibility shall be controlled by applying appropriate circuit designs and shielding. The electrical system shall be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing shall be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.

☒ Yes ☐ No
COMMENTS:**179. ELECTRICAL:**

All 12-volt electrical equipment installed by the apparatus manufacturer shall conform to modern automotive practices. All wiring shall be high temperature crosslink type. Wiring shall be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers shall be provided which conform to SAE Standards. Wiring shall be color, function and number coded. Function and number codes shall be continuously imprinted on all wiring harness conductors at 2.00" intervals.

Exterior exposed wire connectors shall be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

Electrical wiring and equipment shall be installed utilizing the following guidelines:

1. All holes made in the roof shall be caulked with silicon, rope caulk is not acceptable. Large fender washers, liberally caulked, shall be used when fastening equipment to the underside of the cab roof.
2. Any electrical component that is installed in an exposed area shall be mounted in a manner that shall not allow moisture to accumulate in it. Exposed area shall be defined as any location outside of the cab or body.
3. Electrical components designed to be removed for maintenance shall not be fastened with nuts and bolts. Metal screws shall be used in mounting these devices. Also a coil of wire shall be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.
4. Corrosion preventative compound shall be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections shall require this compound in the plug to prevent corrosion and for easy separation (of the plug).
5. All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.
6. All electrical terminals in exposed areas shall have silicon (1890) applied completely over the metal portion of the terminal.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, shall be furnished. Rear identification lights shall be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads shall be protected from damage by installing a false bulkhead inside the rear compartments.

An operational test shall be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

The results of the tests shall be recorded and provided to the purchaser at time of delivery.

☒ Yes ☐ No

COMMENTS:

180. BATTERY SYSTEM:

There shall be four (4) 12-volt Exide®, Model 31S950X3W, batteries that include the following features shall be provided:

- 950 CCA, cold cranking amps
- 190-amp reserve capacity
- High cycle
- Group 31
- Rating of 3800 CCA at 0 degrees Fahrenheit
- 760 minutes of reserve capacity

<ul style="list-style-type: none"> Threaded stainless steel studs <p>Each battery case shall be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover shall be manifold vented with a central venting location to allow a 45-degree tilt capacity.</p> <p>The inside of each battery shall consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
181. BATTERY SYSTEM:	
<p>There shall be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
182. MASTER BATTERY SWITCH:	
<p>There shall be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.</p> <p>An indicator light shall be provided on the instrument panel to notify the driver of the status of the battery system.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
183. BATTERY COMPARTMENTS:	
<p>The batteries shall be stored in well-ventilated compartments that are located under the cab and bolted directly to the chassis frame. The battery compartments shall be constructed of 3/16" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The compartments shall include formed fit heavy-duty roto-molded polyethylene battery tray inserts with drains on each side of the frame rails. The batteries shall be mounted inside of the roto-molded trays.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
184. JUMPER STUDS:	
<p>One (1) set of battery jumper studs with plastic color-coded covers shall be installed on the battery box on the driver's side. This shall allow enough room for easy jumper cable access.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

COMMENTS:**185. BATTERY CHARGER:**

There shall be an IOTA™, Model DSL 75, battery charger with IQ4, controller provided.

The battery charger shall be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.

There shall be a Kusssmaul™, Model #091-94-12, remote indicator included.

The battery charger shall be located in the left body compartment mounted on the left wall as high as possible.

The battery charger indicator shall be located near the driver's seat riser with special bracketry.

☒ Yes ☐ No
COMMENTS:**186. AUTO EJECT FOR SHORELINE:**

There shall be one (1) Kusssmaul™, Model 091-55-20-120, 20-amp 120-volt AC shoreline inlet(s) provided to operate the dedicated 120-volt AC circuits on the apparatus.

The shoreline inlet(s) shall include red weatherproof flip up cover(s).

There shall be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.

The shoreline(s) shall be connected to the battery charger.

There shall be a mating connector body supplied with the loose equipment.

There shall be a label installed near the inlet(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

The shoreline receptacle shall be located on the driver side, under the cab door.

☒ Yes ☐ No
COMMENTS:**187. ALTERNATOR:**

A Delco Remy®, Model 55SI, alternator will be provided. It will have a rated output current of 430 amps, as measured by SAE method J56. The alternator will feature an

integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). The alternator will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.

☒ Yes ☐ No
COMMENTS:**188. ELECTRONIC LOAD MANAGER:**

An electronic load management (ELM) system shall be provided that monitors the vehicles 12-volt electrical system, automatically reducing the electrical load in the event of a low voltage condition, and automatically restoring the shed electrical loads when a low voltage condition expires. This ensures the integrity of the electrical system.

For improved reliability and ease of use, the load manager system shall be an integral part of the vehicle's solid state control system requiring no additional components to perform load management tasks. Load management systems which require additional components shall not be allowed.

The system shall include the following features:

- System voltage monitoring.
- A shed load shall remain inactive for a minimum of five minutes to prevent the load from cycling on and off.
- Sixteen available electronic load shedding levels.
- Priority levels can be set for individual outputs.
- High Idle to activate before any electric loads are shed and deactivate with the service brake.
- o If enabled:
 - ☐ "Load Man Hi-Idle On" shall display on the information center.
 - ☐ Hi-Idle shall not activate until 30 seconds after engine start up.
- Individual switch "on" indicator to flash when the particular load has been shed.
- The information center indicates system voltage.

The information center, where applicable, includes a "Load Manager" screen indicating the following:

- Load managed items list, with priority levels and item condition.
- Individual load managed item condition:
 - o ON = not shed
 - o SHED = shed

☒ Yes ☐ No
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189. SEQUENCER:	
A sequencer shall be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation shall allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12-volt load to prolong the life of the alternator.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
190. HEADLIGHTS:	
<p>There shall be four (4), rectangular Fire Tech LED lights mounted in the front quad style, chrome housing on each side of the cab grille:</p> <p>The low beam lights shall be activated when the headlight switch is on.</p> <p>The high beam and low beam lights shall be activated when the headlight switch and the high beam switch is activated.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
191. DIRECTIONAL LIGHTS:	
<p>There shall be two (2) Whelen® 600 series, LED combination directional/marker lights provided. The lights shall be located on the outside cab corners, next to the headlights.</p> <p>The color of the lenses shall be the same color as the LED's.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
192. INTERMEDIATE LIGHT:	
There shall be two (2) Weldon, Model 9186-8580-29, amber LED turn signal marker lights furnished, one each side, in the rear fender panel. The light shall double as a turn signal and marker light.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
193. CAB CLEARANCE/MARKER/ID LIGHTS:	
There shall be seven (7) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:	

- Three (3) amber LED identification lights shall be installed in the center of the cab above the windshield.
- Two (2) amber LED clearance lights shall be installed, one on each outboard side of the cab above the windshield.
- Two (2) amber LED marker lights shall be installed, one on each side above the cab doors.

☒ Yes ☐ No
COMMENTS:**194. REAR CLEARANCE/MARKER/ID LIGHTING:**

There shall be three (3) LED identification lights located at the rear of the apparatus installed per the following:

- As close as practical to the vertical centerline and one (1) on each outside edge
- Centers spaced not less than 6.00" or more than 12.00" apart
- Red in color
- All at the same height
- All visible from the rear

There shall be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:

- To indicate the overall width of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the rear
- All at the same height

There shall be two (2) LED lights installed on the side of the apparatus used as marker lights as close to the rear as practical per the following:

- To indicate the overall length of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the side
- All at the same height

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There shall be two (2) red reflectors located on the rear of the truck facing to the rear. One each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

There shall be two (2) red reflectors located on the side of the truck facing to the side. One each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

Per FMVSS 108 and CMVSS 108 requirements.

☒ Yes ☐ No

COMMENTS:

195. MARKER LIGHTS:

There shall be one (1) pair of amber and red LED marker lights with rubber arm, located at the rear most lower corner of the body. The amber lens shall face the front and the red lens shall face the rear of the truck.

These lights shall be activated with the running lights of the vehicle.

☒ Yes ☐ No

COMMENTS:

196. REAR FMVSS LIGHTING:

The rear stop/tail and directional LED lighting shall consist of the following:

- Two (2) Whelen®, Model M6BTT, red LED stop/taillights
- Two (2) Whelen, Model M6T, amber LED arrow turn lights

The lights shall be provided with color lenses.

The lights shall be mounted in a polished combination housing.

There shall be two (2) Whelen Model M6BUW, LED backup lights provided in the taillight housing.

☒ Yes ☐ No

COMMENTS:

197. LICENSE PLATE BRACKET:

There shall be one (1) license plate bracket mounted on the rear of the body.

A white LED light shall illuminate the license plate. A polished stainless steel light shield shall be provided over the light that shall direct illumination downward, preventing white light to the rear.

☒ Yes ☐ No

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198. LIGHTING BEZEL:	
There shall be two (2) Whelen, Model M6FCV4P, four (4) place chromed housings provided for the rear M6 series stop/tail, directional, back up, scene lights or warning lights.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
199. BACK-UP ALARM:	
A solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse shall be provided. The device shall sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
200. CAB PERIMETER SCENE LIGHTS:	
There shall be four (4) Amdor, Model AY-LB-12HW020, 350 lumens each, 20.00" white LED strip lights provided, one for each cab door. These lights shall be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
201. BODY PERIMETER SCENE LIGHTS:	
There shall be three (3) Amdor®, Model AY-LB-12HW012, 190 lumens, 12.00" long, white 12-volt DC LED strip lights provided. The lights shall be mounted in the following locations. <ul style="list-style-type: none"> One (1) light shall be provided under the left side turntable access steps One (1) light shall be provided under the left side basket access steps One (1) light shall be provided under the right-side basket access steps The perimeter scene lights shall be activated when the parking brake is applied.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
202. STEP LIGHTS:	

All steps on the apparatus shall be illuminated per the current edition of NFPA 1901 and shall match the turn table access step lights.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
203. 12-VOLT LIGHT BRACKET:		
There shall be two (2) aluminum treadplate brackets installed on LS and RS on catwalk for the recessed flood light. The brackets shall have all wiring totally enclosed.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
204. 12-VOLT LIGHTING:		
<p>There shall be one (1) Whelen® Model P*H2*, 17,750 lumens 12-volt DC light with a combination of flood and spot optics provided on the front visor, centered.</p> <p>The painted parts of this light assembly to be white.</p> <p>The light shall be controlled by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel.</p> <p>This light may be load managed when the parking brake is applied.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
205. 12-VOLT DC SCENE LIGHTS:		
<p>There shall be one (1) Whelen® Model S30M**, 12,960 lumens 30.00" 12-volt DC light(s) with white LEDs provided on the left side of the cab roof located, Centered above crew cab door. Out to the cab seam. The painted parts of this light assembly to be white. The light(s) to be installed with universal horizontal tall mounts.</p> <p>The light(s) will include the following:</p> <ul style="list-style-type: none"> • Six (6) scene light modules with white LEDs • Three (3) amber LEDs as marker lights • Two (2) additional LED modules. The additional modules to be two (2) scene light modules with white LEDs. <p>The lights will be activated per the following:</p> <ul style="list-style-type: none"> • The amber marker lights to flash when the emergency master switch is activated. • The scene LEDs will be controlled by a switch at the driver's side switch panel. 		

- There will be a switch in the cab on the switch panel to control the flashing or spot LED modules.

☒ Yes ☐ No

- The light(s) may be load managed when the parking brake is applied.

COMMENTS:**206. 12-VOLT DC SCENE LIGHTS:**

There shall be one (1) Whelen® Model S30M**, 12,960 lumens 30.00" 12-volt DC light(s) with white LEDs provided on the right side of the cab roof located, Centered above crew cab door. Out to the cab seam. The painted parts of this light assembly to be white. The light(s) to be installed with universal horizontal tall mounts.

The light(s) will include the following:

- Six (6) scene light modules with white LEDs
- Three (3) amber LEDs as marker lights
- Two (2) additional LED modules. The additional modules to be two (2) scene light modules with white LEDs.

The lights will be activated per the following:

- The amber marker lights to flash when the emergency master switch is activated.
- The scene LEDs will be controlled by a switch at the driver's side switch panel.
- There will be a switch in the cab on the switch panel to control the flashing or spot LED modules.
- The light(s) may be load managed when the parking brake is applied.

☒ Yes ☐ No
COMMENTS:**207. 12-VOLT LIGHTING:**

There shall be one (1) Whelen® Model S44M**, 19,440 lumens 44.00" 12-volt DC light(s) with white LEDs provided on the right side of the body located, as far rearward as possible on top of body above RS2 compartment. The painted parts of this light assembly to be white.

The light(s) will include the following:

- 10 scene light modules with white LEDs
- Three (3) amber LEDs as marker lights
- Two (2) additional LED modules. The additional modules to be two (2) scene light modules with white LEDs.

The lights will be activated per the following:

- The amber marker lights to flash when the emergency master switch is activated.
- The scene LEDs will be controlled by the same control that has been selected for the passenger's side scene light(s).
- There will be a switch in the cab on the switch panel to control the flashing warning LED modules when selected.
- The light(s) may be load managed when the parking brake is applied.

☒ Yes ☐ No
COMMENTS:**208. 12-VOLT LIGHTING:**

There shall be one (1) Whelen® Model S16*M*, 6,480 lumens 16.00" 12-volt DC light(s) with white LEDs in flood optics provided on the body located on top of rear body where a traffic adviser would normally sit. Angled down if needed to meet NFPA rear scene lighting requirements.

The painted parts of this light assembly to be white.

The scene LEDs will be activated by a switch at the driver's side switch panel.

These light(s) may be load managed when the parking brake is applied.

☒ Yes ☐ No
COMMENTS:**209. 12-VOLT LIGHTING:**

There shall be one (1) Whelen® Model S44M**, 19,440 lumens 44.00" 12-volt DC light(s) with white LEDs provided on the left side of the body located, as far rearward as possible on top of body above LS2 compartment. The painted parts of this light assembly to be white.

The light(s) will include the following:

- 10 scene light modules with white LEDs
- Three (3) amber LEDs as marker lights
- Two (2) additional LED modules. The additional modules to be two (2) scene light modules with white LEDs.

The lights will be activated per the following:

- The amber marker lights to flash when the emergency master switch is activated.
- The scene LEDs will be controlled by the same control that has been selected for the driver's side scene light(s).
- There will be a switch in the cab on the switch panel to control the flashing warning LED modules when selected.
- The light(s) may be load managed when the parking brake is applied.

☒ Yes ☐ No

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2**COMMENTS:****210. WALKING SURFACE LIGHT:**

There shall be two (2) Model P25 12-volt DC LED lights provided to illuminate the top of body walking surface. These LED lights shall be located on the rear facing surface of the upper portion of the body to illuminate the walking surface to the platform basket. There shall be a Model FRP, 4" round black 12-volt DC LED floodlight located forward on the left side top of the body.

These lights shall be activated when the body step lights are on.

☒ Yes ☐ No
COMMENTS:**211. CARGO AREA:**

The cargo area shall be fabricated of .125" 5052 aluminum with a tensile strength range of 31,000 to 38,000 psi.

The sides shall not form any portion of the fender compartments.

The upper and rear edges of the side panels shall have a double break for rigidity.

The cargo area shall be located ahead of the ladder turntable.

Flooring of the cargo area shall be aluminum treadplate.

☒ Yes ☐ No
COMMENTS:**212. TURNABLE STEPS:**

Access to the turntable shall be provided by a set of swing-down steps on the left side of the truck.

The access steps shall be located just behind the front body and in front of the middle stabilizer.

All steps shall have a height no greater than 14.00" from top surface to top surface.

The swing down step mechanism shall be constructed of brushed aluminum with aluminum treadplate steps. The steps shall be designed with a grip pattern punched into the treadplate material to provide support, slip resistance, and drainage.

The stepwell shall be lined with bright aluminum treadplate to act as scuffplates.

Holes shall be provided in each side step plate for hand holds.

The bottom step shall have a step height not exceeding 24.00" from the ground to the top surface of the step at any time.

☒ Yes ☐ No

The steps shall be connected to the "Do Not Move Truck" indicator in the cab.

COMMENTS:**213. STEP LIGHTS:**

There shall be three (3) white LED step lights provided for the aerial turntable access steps.

In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten-inch distance below the light.

☒ Yes ☐ No

The step lights shall be actuated by the aerial master switch in the cab.

COMMENTS:**214. SMOOTH ALUMINUM REAR WALL:**

The rear wall shall be smooth aluminum

☒ Yes ☐ No
COMMENTS:**215. TOW EYES:**

Two (2) rear painted tow eyes shall be located at the rear of the apparatus and shall be mounted directly to the frame rails. The inner and outer edges of the tow eyes shall be radiused.

☒ Yes ☐ No
COMMENTS:**216. COMPARTMENTATION:**

Compartmentation shall be fabricated of 0.125" 5052 aluminum.

Side compartments shall be an integral assembly with the rear fenders.

Circular fender liners shall be provided. For prevention of rust pockets and ease of maintenance, the fender liners shall be formed from aluminum and removable for maintenance.

Compartment flooring shall be of the sweep out design with the floor higher than the compartment door lip.

Drip protection shall be provided above the doors by means of bright aluminum extrusion, formed bright aluminum treadplate or polished stainless steel.

The top of the compartment shall be covered with bright aluminum treadplate rolled over the edges on the front, rear and outward side. These covers shall have the corners welded.

Side compartment covers shall be separate from the compartment tops.

☒ Yes ☐ No

All screws and bolts, which are not Grade 8, shall be stainless steel and where they protrude into a compartment shall have acorn nuts on the ends to prevent injury.

COMMENTS:

217. UNDERBODY SUPPORT SYSTEM:

The backbone of the body support system shall begin with the aerial torque box which is the strongest component of the apparatus and is designed for sustaining maximum loads.

An aluminum body structure shall be mounted to the aerial torque box at four (4) points using neoprene elastomer isolators. The front mounts shall attach from structural steel brackets on the sides of the torque box to a structural tube on the body. The rear mounts shall attach structural members on the rear body to the top of the rear down rigger mounting structure.

The combination of the elastomer isolators and the body structure design allow the chassis and torque box to flex without driving loads into the body.

The compartment floor support design shall result in an 800lb equipment support rating per lower compartment, and a 500lb equipment support rating for the upper, over the axle compartments.

☒ Yes ☐ No

COMMENTS:

218. AGGRESSIVE WALKING SURFACE:

All exterior surfaces designated as stepping, standing, and walking areas shall comply with the required average slip resistance of the current NFPA standards.

☒ Yes ☐ No

COMMENTS:

219. LOUVERS:

All body compartments shall be vented to provide one way airflow out of the compartment that prevents water and dirt from gaining access to the compartment.

☒ Yes ☐ No

COMMENTS:

220. TESTING OF BODY DESIGN:

Body structural analysis shall be fully tested. Proven engineering and test techniques such as finite element analysis, model analysis, and strain gauging have been performed with special attention given to fatigue, life and structural integrity of the body and substructure.

The body shall be tested while loaded to its greatest in-service weight.

The criteria used during the testing procedure shall include:

Evidence of the actual testing techniques shall be made available upon request.

☒ Yes ☐ No

COMMENTS:

221. COMPARTMENT IN PLACE OF PUMP:

A single door compartment will be installed in place of the pump and pump panel.

The compartment will be approximately 35.75" wide x 30.00" high x 24.38" deep in the lower area and transversed in the top portion of the compartment. The transversed area will be 35.75" wide x 18.19" high.

The door opening will be approximately 33.00" wide x 25.62" high.

☒ Yes ☐ No

COMMENTS:

222. LEFT SIDE COMPARTMENTATION:

A full height double door compartment ahead of the rear wheels shall be provided. The compartment shall be 29.13" wide x 28.25" high x 27.13" deep inside with a door opening of 26.13" wide x 26.25" high.

A full height single lap door compartment forward above the fender compartment and over the rear wheels shall be 16.25" wide x 20.06" high x 27.13" deep inside with a door opening of 14.63" wide x 18.50" high.

One (1) lift up door compartment rearward above the fender compartments and over the rear axles shall be provided. The compartment shall be 84.00" wide x 22.13" high x 27.13" deep inside with a door opening of 81.00" wide x 19.13" high.

A full height double door compartment behind the rear wheels shall be 41.25" wide x 53.88" high x 27.13" deep. The door opening shall be 38.25" wide x 51.88" high.

One (1) single lap door compartment behind the rear stabilizer shall be provided. The compartment shall be 18.13" wide x 45.75" high x 27.13" deep inside with a door opening of 15.13" wide x 42.75" high.

☒ Yes ☐ No

COMMENTS:

223. RIGHT SIDE COMPARTMENTATION:

A full height single lap door compartment ahead of the front stabilizer shall be provided.

The compartment shall be 18.38" wide x 35.25" high x 9.91" deep with a door opening of 15.38" wide x 33.25" high.

A full height double door compartment ahead of the rear wheels shall be 29.13" wide x 28.25" high x 27.13" deep inside with a door opening of 26.13" wide x 26.25" high.

A full height single lap door compartment forward above the fender compartment and over the rear wheels shall be 16.25" wide x 20.06" high x 27.13" deep. The door opening shall be 14.63" wide x 18.50" high.

One (1) lift up door compartment rearward above the fender compartments and over the rear axles shall be provided. The compartment shall be 84.00" wide x 22.13" high x 27.13" deep inside with a door opening of 81.00" wide x 19.13" high.

A full height double door compartment behind the rear wheels shall be 41.25" wide x 53.88" high x 27.13" deep. The door opening shall be 38.25" wide x 51.88" high.

One (1) single lap door compartment behind the rear stabilizer shall be provided. The compartment shall be 18.13" wide x 45.75" high x 27.13" deep inside with a door opening of 15.13" wide x 42.75" high.

☒ Yes ☐ No

COMMENTS:

224. SIDE COMPARTMENT DOORS:

All hinged compartment doors shall be lap style with double panel construction and fabricated of .09" 5052H32 aluminum. Doors shall be a minimum of 1.50" thick. To provide additional door strength, a "C" section reinforcement shall be installed between the outer and interior panels.

Doors shall be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core shall be installed on the door framing that seals onto the interior panel, to ensure a weather resisting compartment.

All compartment doors shall have polished stainless steel continuous hinge with a pin diameter of .25", that is bolted or screwed on with stainless steel fasteners. (Hinges which are welded on shall not be acceptable.) A dielectric substance shall be applied to each hinge fastener.

All door lock mechanisms shall be fully enclosed within the door panels to prevent fouling of the lock in the event equipment inside shifts into the lock area.

Doors shall be latched with recessed, polished stainless steel "D" ring handles and Eberhard 106 locks.

To prevent corrosion caused by dissimilar metals, compartment door handles shall not be attached to outer door panel with screws. A rubber gasket shall be provided between the "D" ring handle and the door.

☒ Yes ☐ No

COMMENTS:

225. REAR BUMPER:

An 8.00" rear bumper shall be furnished. Bumper shall be constructed of steel and shall be covered with polished aluminum treadplate. The bumper shall be 7.50" deep x 3.50" high and shall be spaced away from the body approximately 0.50". It shall extend the full width of the body.

☒ Yes ☐ No
COMMENTS:**226. SCUFFPLATE ON INTERIOR OF COMPARTMENT DOOR(S):**

The seven (7) compartment doors shall include a polished stainless steel scuffplate to cover the entire width and height on the inside panel of each door pan.

Scuffplate shall be located on all doors with slide out trays.

☒ Yes ☐ No
COMMENTS:

A total of 13 doors will have scuff plates provided

227. COMPARTMENT LIGHTING:

There shall be thirteen (13) compartment(s) with two (2) white 12-volt DC LED compartment light strips. The dual light strips shall be centered vertically along each side of the door framing. There shall be two (2) light strips per compartment. The dual light strips shall be in all body compartment(s).

Any remaining compartments without light strips shall have 12-volt DC LED lights installed that fit in the compartment and provide adequate lighting for the interior space of the compartment.

Opening the compartment door shall automatically turn the compartment lighting on.

☒ Yes ☐ No
COMMENTS:**228. MOUNTING TRACKS:**

There shall be recessed tracks installed vertically to support the adjustable shelves.

Tracks shall not protrude into any compartment in order to provide the greatest compartment space and widest shelves possible.

The tracks shall be provided in each compartment.

☒ Yes ☐ No
COMMENTS:**229. ADJUSTABLE SHELVES:**

There shall be four (4) shelves with a capacity of 500 lb provided.

The shelf construction will consist of .188" aluminum painted spatter gray with 2.00" sides.

Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.

The shelves will be held in place by .12" thick stamped plated brackets and bolts.

The location(s) will be in RS2 in the upper third, in RS1 in the upper third, in LS2 in the upper third and in LS2 at the depth transition point.

There will be one (1) shelf provided LS4. The shelf construction will consist of .188" aluminum painted spatter gray. A capacity rating will not be available on this item due to a reduced side height being less than 2.00". Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.

The shelves will be held in place by .12" thick stamped plated brackets and bolts.

The side height of the shelf/shelves will be as follows:

- Front: 1.00" down-turned flange
- Rear: 2.00" high
- Left & Right Sides: 2.00" high

☒ Yes ☐ No

COMMENTS:

230. TWO (2) WAY UTILITY SLIDE-OUT FLOOR MOUNTED TRAY:

There shall be one (1) floor mounted utility slide-out tray(s) provided LS6/RS7. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of .19" thick aluminum for the tray bottom and special aluminum extrusions for the tray sides, ends and tracks. The corners will be welded. The finish will be painted spatter gray.

The tray will be 3.00" high x full depth of the transverse compartment x as wide as possible for the compartment.

The tray will be supported with a minimum of six (6) ball bearing rollers. The tray will slide out two thirds (2/3) of its length to either side of the apparatus.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

☒ Yes ☐ No

COMMENTS:

231. SLIDE-OUT FLOOR MOUNTED TRAY:

There shall be four (4) floor mounted slide-out tray(s) with 2.00" sides provided LS1,LS2,RS1,RS5. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of .19" aluminum with non-welded corners. The finish will be painted spatter gray.

There will be two undermount-roller bearing type slides rated at 250lb each provided. The pair of slides will have a safety factor rating of 2.

To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slides will require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40-hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

There will be one (1) floor mounted slide-out tray(s) with 2.00" sides provided B1. Each tray will be rated for up to 200lb in the extended position. The tray(s) will be constructed of .19" aluminum with non-welded corners. The finish will be painted to match compartment interior.

Slides will be equipped with ball bearings for ease of operation and years of dependable service. The slides will be located on the sides of the tray so that the tray can be located as close to the compartment floor as possible.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

There will be one (1) floor mounted slide-out tray(s) provided LS5. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of .19" aluminum. The finish will be painted to match compartment interior. Any side taller than 2.00" in height will contain pegboard pattern with .281" diameter holes.

The side height of the tray(s) will be as follows:

- Front: 2.00" high
- Rear: 21.00" high
- Left Side: 21.00" high
- Right Side: 2.00" high

There will be two undermount-roller bearing type slides rated at 250lb each provided. Each slide will have a safety factor rating of 2.

To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slides will require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40-hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

☒ Yes ☐ No

COMMENTS:

232. TOOL BOARD:

An aluminum tool board shall be provided.

It shall be a minimum of .188" thick with .20" diameter holes in a pegboard pattern with 1.00" centers between holes.

A 1.00" x 1.00" aluminum tube frame shall be welded to the edge of the board.

The board shall be installed on adjustable tracks on a slide out tray. The tracks shall allow side to side adjustment. The board shall be as high as space permits and full length of the tray. The tray is not included in this option.

There shall be one (1) toolboard provided. The toolboard shall be spatter gray painted and installed LS1.

☒ Yes ☐ No

COMMENTS:

Pac Trac will be available for install if needed to match other compartments

233. SWING OUT TOOLBOARD:

A swing out aluminum toolboard shall be provided.

It shall be a minimum of .188" thick with .281" diameter holes in a pegboard pattern with 1.00" centers between holes.

Pac Trac tool mount material will be provided on both sides of the toolboard.

A 1.00" x 1.00" aluminum tube frame shall be welded to the edge of the pegboard.

The board shall be mounted on a pivoting device at the back of the compartment on the top and bottom to allow easy movement in and out of the compartment. The maximum tool load shall be 400 lb.

The board shall have positive lock in the stowed and extended position.

The board shall be mounted on adjustable tracks from front to back within the compartment.

There shall be one (1) toolboard provided. The toolboard shall be spatter gray painted and installed in LS3.

☒ Yes ☐ No

COMMENTS:

Pac Trac will be available for install if needed to match other compartments

234. SLIDE-OUT TOOLBOARD:

A slide-out toolboard equipped with Pac Trac equipment mounting tracks will be provided. The Pac Trac mounting tracks will be provided on both sides of the toolboard.

The board will be mounted on an undermount-roller bearing type slide rated at 250 lb with a factor of safety of 2.

To ensure years of dependable service the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slides will require no more than a 50-pound force for push-in or pull-out movement when fully loaded after having been subjected to a 40-hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

The slides will be mounted on adjustable tracks side to side within the compartment.

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<p>The board will have positive lock in the stowed and extended position.</p> <p>There will be one (1) toolboard(s) provided and will be installed RS3- 12.00" from forward door frame.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	Pac Trac will be available for install if needed to match other compartments	
235. EQUIPMENT MOUNTING SYSTEM:		
<p>Pac Trac equipment mounting system will be installed on the walls of one (1) compartment(s), RS2.</p> <p>Pac Trac equipment mounting system will be installed on seven (7) tray(s), [Locations to be determined].</p> <p>Pac Trac equipment mounting system will be installed on the back wall of two (2) compartment(s), RS3 and LS3.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
236. VERTICAL COMPARTMENT PARTITION:		
<p>One (1) partition will be provided.</p> <p>The partition construction will consist of body material painted spatter gray. Each partition will be the full vertical height of the compartment.</p> <p>The location(s) will be in LS3, 30.00" from the forward door frame.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
237. BACKBOARD STORAGE:		
<p>A rack constructed of one (1) storage trough for backboards shall be installed P3.</p> <p>The rack shall be fabricated of .19" aluminum with the exterior finished to match the compartment interior. The interior of the troughs shall not be finished.</p> <p>Each trough dimension shall be 3" x73" x 20".</p> <p>The rack shall be open on the outboard side of the compartment.</p> <p>The backboards shall be secured with Velcro® straps.</p>		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
COMMENTS:	Due to previous versions of same truck this option is not included but can be added at no cost if wanted.	
238. FLOOR EXTENSION:		

There shall be a compartment floor extension provided. The floor extension shall extend from the area over the frame rails to within an inch of the compartment door. The floor extension shall have a 1.00" vertical downturned lip and no return flange.

A total of two (2) shall be provided and located LS6 and PS7.

☒ Yes ☐ No

COMMENTS:

239. RUB RAIL:

Bottom edge of the side compartments shall be trimmed with a bright aluminum extruded rub rail.

Trim shall be 3.12" high with 1.50" flanges turned outward for rigidity.

The rub rails shall not be an integral part of the body construction, which allows replacement in the event of damage.

☒ Yes ☐ No

COMMENTS:

240. AIRBAG STORAGE:

There will be one (1) rack installed for storing three (3) air bags in the RS2 mounted directly under upper shelf, horizontally stacked compartment.

The rack will be fabricated from painted spatter gray .125" aluminum. The rack will have half-moon cutouts for grabbing the air bag. Velcro® straps will be installed to hold the air bags in place.

The size of the air bags will be Mounted to top rear, 3 bag compartment stacked horizontally. 1.25" tall each. Make top comp 28" x 20.5" Make bottom 2 comp 22" x 20.5" each Make 20.5" the depth so that front edges are flush.

☒ Yes ☐ No

COMMENTS:

241. BODY FENDER CROWNS:

Polished stainless steel fender crowns shall be provided around the rear wheel openings.

An unpainted fender liner shall be provided to avoid paint chipping. The liners shall be removable to aid in the maintenance of rear suspension components.

A dielectric barrier shall be provided between the fender crown fasteners and the fender sheet metal to prevent corrosion.

The fender crowns shall be held in place with stainless steel screws that thread directly into a composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals contact and greatly reduce the chance for corrosion.

☒ Yes ☐ No

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COMMENTS:		
242. AIR BOTTLE STORAGE COMPARTMENT:		
<p>A total of two (2) air bottle compartments shall be provided and located one on the driver's side and one on the passenger's side centered between the tandem rear wheels. The air bottle compartment shall consist of individual bins each designed to hold an air bottle with a maximum diameter of 7.50" and a maximum depth of 26.00".</p> <p>Each compartment shall hold three (3) air bottles, two stored next to each other in the top area, and one stored centered below. Each bottle shall be separated by a partition.</p> <p>Flooring shall be rubber lined and have a drain hole. A lift up door with stay arm device with pair of flush lift & turn latches shall be provided for each compartment. The door shall be polished stainless steel. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
243. AIR BOTTLE COMPARTMENT STRAP:		
<p>Straps shall be provided in the air bottle compartments to help contain the air bottles. The straps shall wrap around the neck of each bottle and attach to the wall of the compartment.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
244. AIR BOTTLE STORAGE (SINGLE):		
<p>A quantity of four (4) air bottle compartments, approximately 7.50" wide x 7.50" tall x 26.00" deep, shall be provided on the left side forward of the rear wheels, on the left side rearward of the rear wheels, on the right side forward of the rear wheels and on the right-side rearward of the rear wheels. The compartment will be square with angled corners. A polished stainless-steel door with a chrome plated flush lift & turn latch shall be provided to contain the air bottle. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal.</p> <p>Inside the compartment, black rubber matting shall be provided.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	<p>A different configuration is included to match previous versions of this truck. This exact option can be done at no cost if you choose.</p>	
245. EXTENSION LADDER:		
<p>There shall be one (1) 40', without stay poles, aluminum, Duo-Safety, Series 1500-A extension ladder provided and located in the ladder compartment. The ladder shall have Kernmantle rope.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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COMMENTS:	1525-A	
246. EXTENSION LADDER:		
There shall be one (1) 40', with stay poles, aluminum, Duo-Safety, Series 1500-A extension ladder provided and located in the ladder compartment. The ladder shall have Kernmantle rope.		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
COMMENTS:	Two ladders of this size will not fit. Either one can be available for selection	
247. ADDED EXTENSION LADDER:		
There shall be one (1) 35', two section, aluminum, Duo-Safety Series 1200A extension ladder provided.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
248. AERIAL EXTENSION LADDER:		
There shall be (1) 28' two section aluminum Duo-Safety Series 1200-A extension ladder built on a 24' platform provided.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	2 ladders of this size will fit in the compartment so 2 have been included	
249. ROOF LADDER:		
There shall be two (2) 16' two section aluminum Duo-Safety Series 1000-A roof ladders provided.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	Series 875-DR ladders provided	
250. FOLDING LADDER, AERIAL:		
There shall be a 14' aluminum, Duo-Safety, Series 585-A folding ladder provided.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
251. GROUND LADDER STORAGE:		

The ground ladders are stored within the torque box and are removable from the rear.

Ladders shall be enclosed to prevent road dirt and debris from fouling or damaging the ladders.

The ladders rest in full-length stainless-steel slides and are arranged in such a manner that any one ladder can be removed without having to move or remove any other ladder.

A rollup door shall be provided at the rear, double faced, aluminum construction, and an anodized satin finish. A polished stainless steel lift bar to be provided for the rear roll-up door. The latching mechanism shall consist of a full-length lift bar lock with latches on the outer extrusion of the door frame.

A stainless plate with a 2-bend flange and a stainless-steel hinge shall be provided to secure the aerial ladder complement. The plate assembly shall be mounted to the bottom of the entrance of the torque box ladder storage area.

When the plate is vertical, it shall secure the ladders and prevent them from migrating to the rear of the apparatus. When the plate is down and not securing the ladders, the rollup door cannot close, which shall activate the "Open Door Indicator Light" within the cab. The hinged plate shall have a positive latching feature that shall secure the plate in the vertical position.

☒ Yes ☐ No

COMMENTS:

252. COMPARTMENT STORAGE:

Below the ground ladder storage shall be a storage compartment measuring 37.25" wide x 15.75" high x 26.50" deep. The opening shall be 34.75" wide x 15.25" high. The floor and back of this compartment shall be removable.

☒ Yes ☐ No

COMMENTS:

253. LADDER STORAGE LIGHTING:

There shall be 36.00" white 12-volt DC LED strip lights provided to illuminate the torque box ladder storage area and the compartment directly below the ladder storage. One light shall be provided on each side of the ladder storage area.

The lights shall be activated when the ladder storage compartment door is opened.

☒ Yes ☐ No

COMMENTS:

254. ADDITIONAL FOLDING LADDER:

One (1) 10' aluminum Series 585-A Duo-Safety folding ladder shall be installed in the ladder tunnel.

☒ Yes ☐ No

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COMMENTS:		
255. PIKE POLES:		
There shall be one (1) 12' and one (1) 10' Duo Safety pike poles with fiberglass handles provided. The pike poles shall be stored in tubular holders located in the ground ladder storage compartment.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
COMMENTS:		
256. 8' PIKE POLE:		
There shall be two (2) 8' Duo Safety pike poles with fiberglass handle provided. The pike pole(s) shall be stored in tubular holders located in the ground ladder storage compartment.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
COMMENTS:		
257. 6' NEW YORK STYLE HOOK:		
There shall be two (2) 6' New York Style Hooks provided. The hooks shall be stored in tubular holders located in the ground ladder storage compartment.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
COMMENTS:		
258. 3' PIKE POLE:		
There shall be two (2) 3' Duo Safety pike poles with fiberglass shaft and "D" handles shipped loose.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
COMMENTS:		
259. PIKE POLE STORAGE IN TORQUE BOX/LADDER STORAGE:		
There shall be ABS tubing provided in the torque box/ladder storage area for a total of six (6) pike poles. If the head of a pike pole can come into contact with a painted surface, a stainless steel scuffplate shall be provided.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
COMMENTS:		
260. AIR HORN SYSTEM:		

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There shall be two (2) Grover air horns recessed in the front bumper. The horn system shall be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve shall be installed in-line to prevent loss of air in the air brake system.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	Air horns will be Hadley brand due to supply issues with Grover	
261. AIR HORN LOCATION:		
The air horns shall be located on each side of the bumper, inside of the frame rails.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
262. AIR HORN CONTROL:		
The air horn shall be actuated by a chrome push button switch located on the officer side of the engine tunnel and by a foot switch on the driver's side.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
263. ELECTRONIC SIREN:		
<p>A Whelen®, Model 295SLSA1, electronic siren with noise canceling microphone shall be provided.</p> <p>This siren to be active when the battery switch is on and that emergency master switch is on.</p> <p>Electronic siren head shall be recessed in the driver side center switch panel.</p> <p>The electronic siren shall be controlled on the siren head only. No horn button or foot switches shall be required.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
264. SPEAKER:		
<p>There shall be one (1) Whelen®, Model SA315P, black nylon composite, 100-watt, speaker with through bumper mounting brackets and polished stainless-steel grille provided. The speaker shall be connected to the siren amplifier.</p> <p>The speaker shall be recessed in the center of the front bumper.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		

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2**265. SIREN AMPLIFIER:**

There shall be one (1) amplifier provided and installed with the Whelen, HOWLER, system to be used in conjunction with the vehicle's primary electronic siren.

☐ Yes ☒ No
COMMENTS:

HOWLER system will not fit under front bumper due to structural components

266. AUXILIARY SPEAKERS:

There shall be two (2) auxiliary speakers provided with the Whelen, HOWLER system.

These speakers shall be installed behind the front bumper of the cab.

☐ Yes ☒ No
COMMENTS:

See 265

267. ACTIVATION:

There shall be an activation switch and cancellation switch provided on the cab instrument panel.

There shall be an additional activation toggle switch with guard located TBD.

☒ Yes ☐ No
COMMENTS:**268. AUXILIARY MECHANICAL SIREN:**

A Federal Q2B® siren shall be furnished. A siren brake button shall be installed on the switch panel.

The control solenoid shall be powered up after the emergency master switch is activated.

The mechanical siren shall be mounted recessed in the front grille. The siren mounting shall include a reinforcement plate.

The mechanical siren shall be actuated by two (2) foot switches, one located on the officer's side and one on the driver's side.

☒ Yes ☐ No
COMMENTS:**269. WARNING SYSTEM CONTROL:**

There shall be a Whelen®, CenCom CORE™ WeCanX™ warning system control provided. The system will be a microprocessor-based system that utilizes a centralized means of controlling the warning lighting on the vehicle.

The system will include a photocell to sense ambient light.

The warning system controlled warning lighting will be controlled as following:

When in respond mode (high ambient light):

When the emergency master switch is active, the associated warning light switch is activated, and the parking brake is released, and the vehicle is in high ambient light conditions, the warning light control system will change the flash pattern to LONG FLASH 75 RANDOM flash with high intensity light output.

When in respond mode (low ambient light):

When the emergency master switch is active, the associated warning light switch is activated, and the parking brake is released, and the vehicle is in low ambient light conditions, the warning light control system will change the flash pattern to SIGNAL ALERT 75 ALTERNATING flash with high intensity light output.

When in blocking mode (high ambient light):

When the emergency master switch is active, the associated warning light switch is activated, and the parking brake is applied, and the vehicle is in high ambient light conditions, the warning light control system will change the flash pattern to SINGLE FLASH 75 ALTERNATING flash with high intensity light output.

When in blocking mode (low ambient light):

When the emergency master switch is active, the associated warning light switch is activated, the parking brake is applied, and the vehicle is in low ambient light conditions, the warning light control system will enter the Whelen® Dynamic Variable Intensity (DVI) mode. DVI mode lowers warning light output intensity and creates a "calming" effect by slowing flash rates and synchronizing warning light flash patterns.

☒ Yes ☐ No

COMMENTS:

270. FRONT ZONE UPPPER WARNING LIGHTS:

There shall be one (1) 72.00" Whelen® Freedom™ IV lightbar mounted on the cab roof.

The lightbar shall include the following:

- One (1) red flashing LED module in the driver's side end position.
- One (1) blue flashing LED module in the driver's side front corner position.
- One (1) red flashing LED module in the driver's side first front position.
- One (1) red flashing LED module in the driver's side second front position.
- Open in the driver's side third front position.
- Open in the driver's side fourth front position.
- One (1) red flashing LED module in the driver's side fifth front position.

- One (1) 795 LED traffic light controller sent to national standard high priority in the center positions.
- One (1) red flashing LED module in the passenger's side fifth front position.
- Open in the passenger's side fourth front position.
- Open in the passenger's side third front position.
- One (1) red flashing LED module in the passenger's side second front position.
- One (1) red flashing LED module in the passenger's side first front position.
- One (1) blue flashing LED module in the passenger's side front corner position.
- One (1) red flashing LED module in the passenger's side end position.

There shall be clear lenses included on the lightbar.

The following switches may be installed in the cab on the switch panel to control the lightbar:

- a switch to control the flashing LED modules.
- the traffic light controller by a cab switch with emergency master control.
- no momentary switch to activate the traffic light controller

☒ Yes ☐ No

The traffic light controller shall be disabled when the parking brake is applied.

The six (6) red flashing LED modules in the front positions may be load managed when the parking brake is applied.

COMMENTS:

271. CAB FACE WARNING LIGHTS:

There shall be four (4) Whelen®, Model M6*C, LED flashing warning lights installed on the cab face, above the headlights, mounted in a common bezel.

- The driver's side front outside warning light to be red
- The driver's side front inside warning light to be red
- The passenger's side front inside warning light to be red
- The passenger's side front outside warning light to be red

All four (4) lights shall include a clear lens.

There shall be a switch located in the cab, on the switch panel, to control the four (4) lights.

The inside lights may be load managed if colored or disabled if white, when the parking brake is set.

☒ Yes ☐ No

COMMENTS:

272. HEADLIGHT FLASHER:

The high beam headlights shall flash alternately between the left and right side.

There shall be a switch installed in the cab on the switch panel to control the high beam flash. This switch shall be live when the battery switch and the emergency master switches are on.

The flashing shall automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.

☒ Yes ☐ No
COMMENTS:**273. SIDE ZONE LOWER LIGHTING:**

There shall be four (4) Whelen®, Model M6*CS, 4.31" high x 6.75" long x 1.37" deep steady burn LED warning lights with chrome trim installed per the following:

- Two (2) lights located, one (1) each side on the bumper extension. The left side, side front light to include blue warning LEDs and the right side, side front light to include blue warning LEDs.
- Two (2) lights located, one (1) each side located between the tandems. The left side, side rear light to include blue warning LEDs and the right side, side rear light to include blue warning LEDs.
- The lights will include clear lenses.

These lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

There will be a switch in the cab on the switch panel to control the lights.

☒ Yes ☐ No
COMMENTS:**274. REAR ZONE LOWER LIGHTING:**

There will be two (2) Whelen®, Model M6**S, 4.31" high x 6.75" wide x 1.37" deep flashing LED warning lights located at the rear of the apparatus included in the taillight housings.

- The left side rear warning light to include red LEDs.
- The right side rear warning light to include blue LEDs.
- The warning light lens color(s) to be clear.

The flash pattern of the lights will be controlled through the supplier based electrical control system.

There will be a switch in the cab on the switch panel to control the lights.

☒ Yes ☐ No

COMMENTS:**275. REAR/SIDE ZONE UPPER WARNING LIGHTS:**

There shall be two (2) Whelen®, Model Rota-Beam™, Model R416*F, 4.88" high x 6.44" wide LED beacons, and two (2) Model M6*CS, 5.31" high x 6.75" wide x 1.37" deep steady burn LED warning lights with clear lenses, and chrome trim provided.

The rear zone upper R416*F warning beacons will be as follows:

- One (1) R416RF, red Rota-Beam beacon mounted on top of the rear left side of the body
- One (1) R416BF, blue Rota-Beam beacon mounted on top of the rear right side of the body

The M6*CS steady burn warning lights will be provided at the rear upper zone as follows:

- One (1) M6BCS, blue steady burn light will be mounted as close to the outside of the rear left side of the body
- One (1) M6RCS, red steady burn light will be mounted as close to the outside of the rear right side of the body

These lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

There will be a switch located in the cab on the switch panel to control the beacons.

☒ Yes ☐ No

COMMENTS:**276. TRAFFIC DIRECTING LIGHT:**

There shall be Whelen®, Model TLIA amber LED lights installed as follows:

- Six (6) Whelen®, Model TLIA amber, LED lights installed low on the left side of the vehicle. One (1) installed under compartment "LS6" in rub rail as far forward as practical, one (1) installed to the right of the turntable access steps low and as far forward as practical, one (1) under compartment "LS5" in rub rail as far forward as practical, two (2) under compartment "LS2" in rub rail, one (1) as far forward and one (1) as far towards the rear as practical, and one (1) "LS1" in rub rail as far towards the rear as practical.
- Six (6) Whelen®, Model TLIA amber, LED lights installed low on the rear of the vehicle, in the rear tail board step, under rear compartment "B1".
- Six (6) Whelen®, Model TLIA amber, LED lights installed low on the right side of the vehicle. One (1) installed under compartment "RS7" as far forward as practical, one (1) installed under compartment "RS6" in rub rail as far forward as practical, one (1) under compartment "RS5" in rub rail as far forward as practical, two (2) under compartment "RS2" in rub rail, one (1) as far forward and one (1) as far towards the rear as practical, and one (1) "RS1" in rub rail as far towards the rear as practical.

There will be four (4) switches installed in the cab instrument panel to control these traffic directing lights as follows:

- "TA LEFT" - Activating this switch will initiate a light pattern that directs traffic to the left when facing the vehicle.
- "TA RIGHT" - Activating this switch will initiate a light pattern that directs traffic to the right when facing the vehicle.

Activating both the "TA LEFT" and "TA RIGHT" will initiate a center out light pattern.

"BLOCKING LEFT" - Activating this switch in conjunction with the "TA LEFT" and/or "TA RIGHT" switches will allow traffic directing control of the left side and rear mounted lights.

"BLOCKING RIGHT" - Activating this switch in conjunction with the "TA LEFT" and/or "TA RIGHT" switches will allow traffic directing control of the right side and rear mounted lights.

Activating both the "BLOCKING LEFT" and "BLOCKING RIGHT" switches in conjunction with the "TA LEFT" and/or "TA RIGHT" switches will initiate a traffic directing pattern that incorporates both sides and the rear of the vehicle.

If neither the "BLOCK LEFT" or "BLOCK RIGHT" switches are selected, only the traffic directing lights at the rear of the truck will be controlled when a "TA LEFT" and/or "TA RIGHT" are selected.

If none of the BLOCKING switches are selected and E-Master is active, the TLIA lights on the sides of the apparatus will activate in warning mode.

The warning system-controlled warning lighting will be controlled as per the following:

When in respond mode (high ambient light):

When the emergency master switch is active, the rear warning light switch is activated, and the parking brake is released, and the vehicle is in high ambient light conditions, the warning light control system will change the flash pattern to LONG FLASH 75 RANDOM flash with high intensity light output.

When in respond mode (low ambient light):

When the emergency master switch is active, the rear warning light switch is activated, and the parking brake is released, and the vehicle is in low ambient light conditions, the warning light control system will change the flash pattern to SIGNAL ALERT 75 ALTERNATING flash with high intensity light output.

When in blocking mode (high ambient light):

When the emergency master switch is active, the rear warning light switch is activated, and the parking brake is applied, and the vehicle is in high ambient light conditions, the warning light control system will change the flash pattern to SINGLE FLASH 75 ALTERNATING flash with high intensity light output.

When in blocking mode (low ambient light):

When the emergency master switch is active, the rear warning light switch is activated, the parking brake is applied, and the vehicle is in low ambient light conditions, the warning light control system will enter the Whelen® Dynamic Variable Intensity (DVI) mode. DVI mode lowers warning light output intensity and creates a "calming" effect by slowing flash rates and synchronizing warning light flash patterns.

☒ Yes ☐ No

The traffic directing lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

The traffic directing light control switches will be located within the switch panel on the center console.

COMMENTS:**277. 120-VOLT RECEPTACLE:**

There will be one (1), 4-place receptacle box(es) with four (4) 15/20 amp 120-volt AC three (3) wire straight blade receptacles with an interior stainless steel wall plate installed RS3 As far forward as possible, high on forward wall. The NEMA configuration for the receptacles will be 5-20R.

The receptacle(s) will be powered from the shoreline inlet.

There will be a label installed near the receptacle(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

☒ Yes ☐ No
COMMENTS:**278. GENERAL INFORMATION:**

It is the intent of these specifications to describe a mid-mounted telescoping, elevating platform. The unit shall consist of a five (5) section, steel ladder with a self-leveling basket attached to the ladder fly section.

☒ Yes ☐ No
COMMENTS:**279. OPERATION ON GRADES:**

The aerial unit shall be capable of operating safely on any slope up to 10 degrees at full capacities.

☒ Yes ☐ No
COMMENTS:**280. CONSTRUCTION STANDARDS:**

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The ladder shall be constructed to meet all of the requirements as described in the current edition of NFPA 1901.

These capabilities shall be established in an unsupported configuration.

All structural load supporting elements of the aerial device that are made of a ductile material shall have a design stress of not more than 50% of the minimum yield strength of the material based on the combination of the live load and the dead load. This 2:1 structural safety factor meets the current NFPA 1901 standard.

All structural load supporting elements of the aerial device that are made of non-ductile material shall have a design stress of not more than 20% of the minimum ultimate strength of the material, based on the combination of the rated capacity and the dead load. This 5:1 safety factor meets the current 1901 NFPA standard.

The aerial device shall be capable of sustaining a static load one and one-half times its rated tip load capacity (live load) in every position in which the aerial device can be placed when the vehicle is on a firm level surface.

The aerial device shall be capable of sustaining a static load one and one-third times its rated tip load capacity (live load) in every position the aerial device can be placed when the vehicle is on a slope of five degrees downward in the direction most likely to cause overturning.

With the aerial device out of the cradle in the in the fully extended position at zero degrees elevation, a test load shall be applied in a horizontal direction normal to the centerline of the ladder. The turntable shall not rotate and the ladder shall not deflect beyond what the product specification allows.

All welding shall be in compliance with the American Welding Society standards. All welding personnel shall be certified, as qualified under AWS welding codes.

The aerial device shall be capable of operating in either of the two following conditions:

- Conditions of high wind up to 35 mph
- Conditions of icing, up to a coating of .25" over the entire aerial structure

All of the design criteria must be supported by the following test data:

- Strain gage testing of the complete aerial device

The following criteria for materials are to be used in the design of the aerial device:

- Materials are to be certified by the mill that manufactured the material
- Material testing that is performed after the mill test shall be for verification only and not with the intent of changing the classification.

☒ Yes ☐ No

COMMENTS:

281. LADDER CONSTRUCTION:

The ladder shall be comprised of five (5) sections and shall extend to a nominal height, of 100' above the ground, as measured by 1901 recommendations. The ladder (handrails, baserails, trusses, k-braces and rungs) shall be constructed of welded, high strength steel

certified by the manufacturer as being a minimum of 100,000 pounds per square inch of yield strength. All critical points shall be reinforced, for extra rigidity, and to provide a high strength-to-weight ratio. Ladder rungs shall be round and welded to each section in two (2) places with "K" bracing for torsional rigidity. A minimum of 70.25" of overlap between each of the aerial sections shall be provided.

The inside width dimensions of the ladder shall be:

- Base Section 56.12"
- Lower Mid Section 46.12"
- Center Mid Section 36.62"
- Upper Mid Section 28.12"
- Fly Section 22.12"

The height of the handrails above the centerline of the rungs shall be:

- Base Section 40.72"
- Lower Mid Section 39.08"
- Center Mid Section 32.32"
- Upper Mid Section 29.02"
- Fly Section 26.37"

☒ Yes ☐ No

COMMENTS:

282. VERTICAL HEIGHT:

The height of the unit shall extend to no less than 100', as measured by a plumb line from the top surface of the basket handrail assembly to the ground, with the basket raised to a 77-degree angle.

☒ Yes ☐ No

COMMENTS:

283. HORIZONTAL REACH:

The rated horizontal reach shall be 93'. The measurement of horizontal reach shall be consistent with NFPA standards.

☒ Yes ☐ No

COMMENTS:

284. MOUNTING OF ELEVATING PLATFORM:

The aerial device shall be mid mounted, to a torque box, on the truck chassis.

☒ Yes ☐ No**COMMENTS:****285. TORQUE BOX:**

A "torsion box" subframe shall be installed between two sets of stabilizers. The torque box shall be constructed of 100,000 pounds per square inch yield steel with an integral ladder storage box. The torque box assembly shall be capable of withstanding all torsional and horizontal loads when the unit is on the stabilizers. The torque box shall be bolted to the chassis frame rails using forty-eight .750" SAE grade 8 bolts with nuts.

☒ Yes ☐ No**COMMENTS:****286. TURNTABLE:**

The turntable shall be coated with a non-skid, chemical resistant material in the walking areas. The stepping surfaces shall meet the skid-resistance requirements in the current NFPA 1901 standard.

The turntable shall serve as a step for access to the ladder.

The turntable handrails shall be a minimum 42.00" high and shall not increase the overall travel height of the vehicle. The handrails shall be constructed from 1.62" diameter extruded 6061-T6 aluminum with a slip resistant knurled surface. The handrails shall be anodized to resist corrosion.

☒ Yes ☐ No**COMMENTS:****287. ELEVATION SYSTEM:**

Two (2) double acting, lift cylinders shall be utilized to provide smooth, precise elevation from 15 degrees below horizontal to 77 degrees above horizontal. The lift cylinder shall be attached to each side of the base section. The lift cylinders shall have a 7.50" internal diameter (bore), 3.50" diameter cylinder rod and a 53.89" stroke. The lift cylinder rod shall be chrome plated, to provide smooth operation of the aerial and reduce seal wear. The lift cylinders shall be equipped with integral holding valves located in the cylinder, to prevent the unit from descending should the charged lines be severed, at any point within the hydraulic system and to maintain the ladder in the bedded position during road travel. The integral holding valves shall NOT be located in the transfer tubes.

The elevation system shall be controlled by the microprocessor. The microprocessor shall provide the following features:

- Collision avoidance of the elevation system to prevent accidental body damage
- Automatic deceleration when the aerial device is lowered into the cradle
- Automatic deceleration at the end of stroke, in maximum raise and lower positions
- Deceleration of the aerial device from 0 to -15 degrees

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☒ Yes ☐ No**COMMENTS:****288. EXTENSION/RETRACTION SYSTEM:**

A hydraulically powered, extension and retraction system shall be provided through dual hydraulic cylinders and wire ropes. The extension cylinder shall have a 6.50" internal diameter (bore), 2.75" diameter rod and a 53.12" stroke. Each set shall be capable of operating the ladder in the event of a failure, of the other. For safety, systems that use only a single extension/retraction system shall not be acceptable. The extension cylinder rod shall be chrome plated to provide smooth operation of the aerial device and reduce seal wear. The extension/retraction cylinders shall be equipped, with integral holding valves, to prevent the unit from retracting should the charged line be severed, at any point within the hydraulic system. The integral holding valves shall NOT be located in the transfer tubes.

Wire ropes and attaching systems used to extend and retract the fly sections shall have a 5:1 safety factor based on the ultimate strength under all operating conditions. The factor of safety for the wire rope shall remain above 2:1 during any extension or retraction stall. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used shall be 1:12. Wire ropes shall be constructed of seven (7) strands over an inner wire core for increased flexibility. The wire rope shall be galvanized to reduce corrosion.

The extension/retraction system shall be controlled by the microprocessor. The microprocessor shall provide the following features:

- Automatic deceleration at the end of stroke, in maximum extend and retract positions
- Controls the rate of retraction while flowing water

All sheaves and sheave pins shall utilize greasable bronze bushings. Sheave pins shall be polished stainless steel

☒ Yes ☐ No**COMMENTS:****289. ROTATION SYSTEM:**

A 54.00" diameter, external tooth, monorace rotation bearing shall be used for the rotation system and shall provide 360-degree continuous rotation. The turntable shall be bolted to the bearing using 30 SAE grade 8, .875" diameter bolts. To secure the bearing to the base support, 36 grade 8, .875" diameter bolts shall be used. The turntable base and the torque box bearing plate shall be machined to fit the bearing, thereby providing even distribution of forces. Two (2) hydraulically driven, planetary gear boxes, with drive speed reducer, shall be used to provide infinite and minute rotation control, throughout the entire rotational travel. Each planetary gearbox has a torque rating of 130,000 pounds per square inch. A spring applied, hydraulically released, disc type, swing brake shall be furnished to provide positive braking of the turntable assembly. Provisions shall be made for auxiliary operation of the rotation system should complete loss of normal hydraulic power occur.

The rotation system shall be controlled by the microprocessor. The microprocessor shall provide the following features:

- Envelope control of rotation system to prevent accidental body damage

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- Prevent the aerial from being rotated into the short-jacked side of the unit		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
290. MANUAL OVERRIDE CONTROLS:		
Manual override controls shall be provided for all aerial and stabilizer functions.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
291. LADDER SLIDE MECHANISM:		
Wear pads shall be used between the telescoping ladder sections, to reduce friction for smoother operation. Slide pads shall also be used to control side play between the ladder sections.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
292. BASKET LEVELING SYSTEM:		
<p>A basket leveling system shall be provided and so designed, that the basket with its rated load, can be supported and maintained level, relative to the turntable, regardless of the elevation or flexion of the ladder.</p> <p>The leveling of the basket features a hydraulic cylinder system mounted between the ladder fly section and the basket with each side capable of supporting the load, while maintaining the basket level.</p> <p>The hydraulic circuitry includes pressure operated counterbalance valves, on the load side of the cylinders, to prevent the basket from tipping should the hydraulic lines be severed.</p> <p>The microprocessor shall control the level of the basket during bedding operations, preventing the basket from hitting the body deck when the truck is setup on unlevel ground.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
293. ROTATION INTERLOCK:		
The microprocessor shall be used to prevent the rotation of the aerial device, to the side in which the stabilizers have not been fully deployed (short-jacked). The microprocessor shall allow full and unrestricted use of the aerial, in the 180-degree area, on the side(s) where the stabilizers have been fully deployed. The system shall also have a manual override, to comply with NFPA 1901. SYSTEMS THAT PERMIT THE AERIAL TO ROTATE TO THE "SHORT JACK" SIDE, WITHOUT AUTOMATICALLY STOPPING THE ROTATION AND/OR WITHOUT ACTUATION OF THE "MANUAL OVERRIDE",		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

SHALL NOT BE ACCEPTED. SYSTEMS THAT ONLY INCLUDE AN ALARM ARE NOT CONSIDERED AN INTERLOCK AND SHALL NOT BE ACCEPTED.

COMMENTS:**294. LOAD CAPACITIES:**

The following load capacities shall be established with the stabilizers at full horizontal extension and placed in the down position to level the truck and to relieve the weight from the tires and axles. Capacities shall be based upon full extension and 360-degree rotation.

A load chart, visible at the operator's station, shall be provided. The load chart shall show the recommended safe load at any condition of the aerial device's elevation and extension.

☒ Yes ☐ No
COMMENTS:**295. 35 MPH WIND CONDITIONS/DRY:**

Degree of Elevation	-15 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 77
Basket	1000	1000	1000	1000	1000	1000	1000
Fly	-	-	-	-	250	250	500
Upper Mid	-	-	-	-	250	250	500
Center Mid	-	-	250	250	250	500	500
Lower Mid	-	-	250	250	500	500	500
Base	-	250	500	500	500	500	750

☒ Yes ☐ No
COMMENTS:**296. WATER TOWER OPERATION:**

The following capacities shall be based upon continuous 360-degree rotation and full extension.

☒ Yes ☐ No
COMMENTS:**297. 35 MPH WIND CONDITIONS/WATER CHARGED:**

Degree of Elevation	-15 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 77
Basket	500	500	500	500	500	500	500
Fly	-	-	-	-	-	-	250
Upper Mid	-	-	-	-	-	250	250

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Center Mid	-	-	-	-	250	250	500
Lower Mid	-	-	-	250	250	500	500
Base	-	-	250	250	250	500	500

☒ Yes ☐ No

COMMENTS:

298. ELEVATION -15 TO 77 DEGREES:

The aerial device shall be able to maintain the above load capacities while flowing up to 1500 GPM and a nozzle position of 0 to 90 degrees to either side of the ladder centerline, and as far above and below horizontal to the platform as nozzle design allows.

The aerial device shall be able to maintain the above load capacities while flowing up to 2000 GPM and a nozzle position of 0 to 45 degrees to either side of the ladder centerline, and 30 degrees above horizontal and as far below horizontal to the platform as nozzle design allows.

Reduced loads in the basket can be redistributed in 250 lb. increments to the fly, mid, or base as needed.

☒ Yes ☐ No

COMMENTS:

299. LADDER CRADLE INTERLOCK SYSTEM:

A ladder cradle interlock system shall be provided through the microprocessor to prevent the lifting of the aerial device from the nested position until the operator places all the stabilizers in a load supporting configuration. A switch shall be installed at the boom support to prevent operation of the stabilizers once the aerial has been elevated from the nested position.

☒ Yes ☐ No

COMMENTS:

300. AERIAL BOOM PANEL:

There shall be one boom panel provided on each side of the aerial ladder base section. The boom panel shall be painted red.

The boom panels shall be designed so no mounting bolts are in the face of the panel. This shall keep the lettering surface free of holes.

☒ Yes ☐ No

COMMENTS:

301. AERIAL DEVICE RUNG COVERS:

Each rung shall be covered with a secure, heavy-duty, fiberglass pultrusion that incorporates an aggressive, no-slip coating.

The rung covers shall be glued to each rung and shall be easily replaceable should the rung cover become damaged.

The center portion of each rung cover shall be black and the outside 2.00" edge at each side shall be safety yellow.

Under no circumstances shall the rung covers be fastened to the rungs using screws or rivets.

The rung covers shall have a 10-year, limited warranty.

☒ Yes ☐ No

COMMENTS:

302. PIKE POLE MOUNTING BRACKETS:

Mounting will be provided near the end of the fly section of the aerial ladder for one (1) pike pole(s).

The bracket will be sized to hold a Fire Hooks Unlimited 8' roof hook.

☒ Yes ☐ No

COMMENTS:

303. POLY BLOCK:

One (1) poly block(s) will be provided below the Haligan tool mount.

☒ Yes ☐ No

COMMENTS:

304. MAXIMUM SIZE BOX AT BASKET:

A miscellaneous storage box of maximum size with a hinged cover will be provided at the right, outside rear of the basket when viewed from the turntable. The cover will be weatherproof to protect the inside of the box from the elements and held closed with a rubber draw latch located in the outboard location, match write up on 34690-01. The box will be constructed of smooth aluminum and will be painted to match the platform basket. The size will be approximately 20.38" high x 9.62" wide x 10.25" deep (from the rear wall of basket).

The maximum capacity of this box shall be 10 lb.

☒ Yes ☐ No

COMMENTS:

305. HALLIGAN TOOL MOUNTING BRACKETS:

Brackets will be provided inside the platform basket for mounting a Halligan tool. A total of one (1) sets of brackets will be provided.

☒ Yes ☐ No

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COMMENTS:		
306. AXE MOUNTING BRACKETS:		
Brackets will be provided in the aerial platform basket for mounting one (1) fire axe(s). The type of axe mounted here will be a flathead axe. The mounting plates for this installation will be stainless steel.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
307. LADDER STORAGE MOUNTING BRACKETS:		
There will be brackets that are DA finished provided near the end of the fly section of the aerial for mounting a roof ladder. The mounting brackets will accommodate a 12' Duo-Safety 875-A roof/wall ladder as determined by the type of aerial device and the available space.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
308. SAW STORAGE BOX:		
There shall be two (2) storage boxes provided at the base section of the aerial ladder on each side of the aerial device. The boxes shall be painted to match the aerial device and located at the tip of the base section. The boxes shall have a hinged cover with D-handle latch and two (2) gas struts to secure the saw. The cover shall have the same finish as the box. The box shall have a removable drip pan with handles and no louvers. The maximum capacity of each box shall be 75 lb.		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
COMMENTS:	Maximum weight in each box will be 25 lbs	
309. BASKET STRUCTURE:		
The complete basket structure shall be constructed of welded high strength steel certified by the manufacturer to have a minimum of 100,000 lb per square inch yield strength on all structural members. The aerial basket shall be fully tested and independent third party certified. The flooring of the basket shall be multi-piece Morton Cass material, preventing the accumulation of water on the standing surface. The floor shall measure approximately 33.63" long x 72.75" wide. The stepping surfaces shall meet the skid-resistance requirements of current NFPA 1901 standard.		

The outside basket steps used for transferring in and out of the basket shall be at the same level as the basket floor and shall be constructed of aluminum treadplate. The steps on the front and sides are approximately 8.00" deep. The front corners of the basket step shall be mitered at 45 degrees to allow the basket to be maneuvered closer to buildings when approaching at an angle.

Four (4) stainless steel pompier belt safety loops shall be attached to the inside of the basket. Two (2) lifting eyes shall be provided on the bottom side of the basket support structure.

Four (4) rubber bumpers are provided on the bottom side of the basket structure for damage protection when setting it down on a surface.

The basket interior shall be illuminated as required per the current edition of NFPA 1901. Electrical sub-components shall be mounted under the basket in an enclosed area providing protection from heat exposure while allowing for easy servicing and maintaining an unobstructed basket interior.

☒ Yes ☐ No
COMMENTS:**310. BASKET SIDES:**

The sides of the basket shall be of tubular steel construction and aluminum sheet skin, and along with the basket doors, shall form a continuous 42.00" high wall around the basket.

☒ Yes ☐ No
COMMENTS:**311. PLATFORM ENTRANCES/EXITS:**

Two (2) swing-in, spring-loaded, self-closing doors shall be of steel frame construction with an aluminum sheet skin and shall be provided on the 45-degree angles at the front of the platform. A paddle style door latch shall allow the basket doors to be opened from the outside by applying pressure to the paddle with the hand. The rear of the platform shall be equipped with a vertical self-closing gate for transfer to and from the platform's ladder device.

☒ Yes ☐ No
COMMENTS:**312. ACCESSORY MOUNTING RECEPTACLES:**

Universal accessory mounting receptacles shall be permanently affixed on the left side of the basket to receive options such as the rescue basket holders, rappelling arms, roof ladder brackets, winch, etc. Complete interchangeability shall be required without modification to the basket.

☒ Yes ☐ No
COMMENTS:

313. LIGHTS FOR TURNABLE WALKWAY:

There shall be 6.00" long white LED lights and P25 white LED lights provided at the aerial turntable. The lights shall be located to illuminate the entire walking surface of the turntable including the area around the turntable console. These lights shall be activated by the aerial master switch.

☒ Yes ☐ No
COMMENTS:**314. TURNABLE CONSOLE LIGHTING:**

There shall be one (1), white LED light mounted in the turntable console cover to illuminate the controls located on both the upper and lower portion of the turntable control station. These lights shall be activated by the aerial master switch.

☒ Yes ☐ No
COMMENTS:**315. BASKET HEAT SHIELDS:**

A heat reflective shield, constructed of aluminum shall be provided on the front, sides, bottom, and access doors of the basket.

These heat shields shall be painted to match the aerial device.

The heat shields on the bottom of the basket shall be easily removable for ease of servicing components located under the basket.

☒ Yes ☐ No
COMMENTS:**316. INFORMATION CENTER:**

There shall be an information center provided. The information center shall operate in temperatures from -40 to 185 degrees Fahrenheit. The information center shall employ a Linux operating system and a 7.00" (diagonal measurement) LCD display. The LCD shall have 1000 nits rated color display. The LCD shall be daylight visible. The LCD display shall be encased in an ABS, grey plastic housing with a black decal. There shall be five (5), weather-resistant user interface buttons provided. The LCD display can be changed to an optional single foreign language.

☒ Yes ☐ No
COMMENTS:**317. OPERATION:**

The information center shall be designed for easy operation in everyday use. There shall be a page button to cycle from one screen to the next screen in a rotating fashion. A video

button shall allow an NTSC camera signal into the information center to be displayed on the LCD. If any button is pressed while viewing a video feed, the information center shall return to the vehicle information screens. There shall be a menu button to provide access to maintenance, setup, and diagnostic screens. All other button labels shall be specific to the information being viewed.

☒ Yes ☐ No
COMMENTS:**318. GENERAL SCREEN DESIGN:**

Where possible, background colors shall be used to provide vehicle information At A Glance. If the information provided on a screen is within acceptable limits, a green background color shall be used. If the information provided on a screen is not within acceptable limits, an amber background color shall indicate a caution condition and a red background color shall indicate a warning condition.

Every screen in the information center shall include the aerial tip temperature, the time (12- or 24-hour mode) and a text Alert Center. The time shall be synchronized between all Command Zone color displays located on the vehicle. The Alert Center shall display text messages for audible alarms. The text messages shall identify any items causing the audible alarm to sound. If more than one (1) audible alarm is activated, the text message for each alarm shall cycle every second until the problems have been resolved. The background for the Alert Center shall change to indicate the severity of the warning message. Amber shall indicate a caution condition and red shall indicate a warning condition. If a warning and a caution condition occur simultaneously, the red background color shall be shown for all Alert Center messages.

A label shall be provided for each button. The label shall indicate the function for each active button for each screen. If the button is not utilized on specific screens, it shall have a button label with no text.

Symbols shall accurately depict the aerial device type the information pertains to such as rear mount ladder, rear mount platform, mid-mount ladder or mid-mount platform.

☒ Yes ☐ No
COMMENTS:**319. PAGE SCREENS:**

The Information center shall include the following pages:

The Aerial Main and Load Chart page shall indicate the following information:

- Rungs Aligned and Rungs Not Aligned shall be indicated with text and respective green or red colored ladder symbols.
- Ladder Elevation shall be indicated via a fire apparatus vehicle with ladder symbol with the degree of elevation indicated between the vehicle and ladder.
- Water Flow (if applicable) shall be indicated via a water nozzle symbol and text indicating flow / time.
- Breathing Air Levels shall be indicated via an air bottle symbol and text indicating the percent (%) of air remaining. A green bar graphs shown inside the bottle shall indicate

oxygen levels above 20%. A red bar graph shall indicate oxygen levels at or below 20%. When oxygen levels are at or below 10% the red bar graph shall flash.

- The Aerial Load Chart shall indicate the load limit on each section of the ladder based on actual ladder position and water flow (if applicable).

- At A Glance color features shall be utilized on this screen. Caution type conditions shall be indicated via a yellow background. Warning type conditions shall be indicated via a red background. Conditions operating within acceptable limits shall be indicated via a green background.

The Aerial Reach and Hydraulic Systems page shall indicate the following information:

- Aerial Hydraulic Oil Temperature shall be indicated with symbol and text. At a glance features shall be utilized.

- Aerial Hydraulic Oil Pressure shall be indicated with a symbol and text. At a glance features shall be utilized.

- The following calculations shall be indicated on a representative vehicle symbol:

- Aerial Device Extension length.

- Aerial Device Height indicating the height of the aerial device tip from the ground.

- Aerial Device Reach indicating the horizontal distance the aerial reaches from the turntable.

- Aerial Device Angle indicating the angle from the vehicle which the device is at.

- At A Glance color features shall be utilized on this screen. Caution type conditions shall be indicated via a yellow background. Warning type conditions shall be indicated via a red background. Conditions operating within acceptable limits shall be indicated via a green background.

The Level Vehicle page shall indicate the following information:

- The grade of the vehicle shall be indicated via a fire apparatus vehicle symbol with the degree of grade shown in text format. The symbol shall tilt dependent on the vehicle grade.

- The slope of the vehicle shall be indicated via a fire apparatus vehicle symbol with the degree of slope shown in text format. The symbol shall tilt dependent on the vehicle slope.

- Outriggers status shall be indicated via a colored symbol for each outrigger present. Each outrigger status shall be defined as one of the following:

- Outrigger stowed indicated with a silver pan located close to the vehicle

- Outrigger fully extended indicated with a fully deployed green outrigger

- Outrigger short-jacked indicated by a yellow outrigger partially deployed

- Outrigger not set indicated by a red outrigger that is not set on the ground

- A text box located on the vehicle symbol shall be utilized to identify the overall status of the outrigger leveling system. The following status shall be indicated in the text box:

- Deployed status shall indicate all outriggers are properly set on the ground at full extension

- Shortjacked status shall indicate one or more outriggers are set on the ground but not fully extended.
- Not Set status shall indicate one or more outriggers is not properly set on the ground.
- Stowed status shall indicate all outriggers are stowed for vehicle travel.
- At A Glance color features shall be utilized on this screen. Caution type conditions shall be indicated via a yellow background. Warning type conditions shall be indicated via a red background. Conditions operating within acceptable limits shall be indicated via a green background.

☒ Yes ☐ No
COMMENTS:**320. MENU SCREENS:**

The following screens shall be available through the Menu button:

The View System Information screen shall display aerial device hours, aerial PTO hours, ladder aligned for stowing, aerial rotation angle, total water flow (if applicable), and aerial waterway valve status (if applicable).

The Set Display Brightness screen shall allow brightness increase and decrease and include a default setting button.

The Configure Video Mode screen shall allow setting of video contrast, video color and video tint.

The Set Startup screen allows setting of the screen that shall be active at vehicle power-up.

The Set Date and Time screen has a 12- or 24-hour format and allows setting of the time and date.

The View Active Alarms screen shows a list of all active alarms including the date and time of each alarm occurrence and shows all alarms that are silenced.

The System Diagnostics screen allows the user to view system status for each module and its respective inputs and outputs. Viewable data shall include the module type and ID number; the module version; and module diagnostics information including input or output number, the circuit number connected to that input or output, the circuit name (item connected to the circuit), status of the input or output, and other module diagnostic information.

Aerial calibrations screen indicates items that may be calibrated by the user and instructions to follow for proper calibration of the aerial device.

Button functions and button labels may change with each screen.

☒ Yes ☐ No
COMMENTS:**321. LOWER CONTROL STATION:**

A lower control station with pendant control shall be located at the rear of the apparatus in

an easily accessible area. The controls and indication labels shall be illuminated for nighttime operation. The following items shall be furnished at the lower control station and shall be clearly identified and conveniently located for ease of operation and viewing:

- Level assist switch
- Override switch to override microprocessor
- Emergency power unit switch

☒ Yes ☐ No

COMMENTS:
322. AERIAL DEVICE CONTROL STATIONS:

There shall be two (2) aerial device control stations, one shall be referred to as the basket control station, and the other as the turntable control station. All elevation, extension, and rotation controls shall operate from both of these locations. The controls shall permit the operator to regulate the speed of the aerial functions, within the safe limits as determined by the manufacturer and NFPA standards. The controls shall be clearly marked and illuminated for nighttime operation.

Each control shall be equipped with an operator presence, preventing accidental activation.

☒ Yes ☐ No

COMMENTS:
323. TURNABLE CONTROL STATION:

The turntable control station shall be located on the right side of the turntable so the operator may easily observe the basket while operating the controls. A console cover shall be provided at the turntable control station. The controls shall be so designed to allow the turntable control station to immediately override the basket controls even if the ladder is being operated by the basket controls.

The following items shall also be provided at the turntable control station and be clearly identified and illuminated for nighttime operation and conveniently located for ease of operation and viewing:

- Three (3) separate controls for raise/lower, extend/retract, and left/right rotation
- Intercom controls
- Tip tracking light switch
- Emergency power unit switch
- Operator's load chart
- Two (2) position switch for selecting aerial operational speed
- Aerial monitor switches

☒ Yes ☐ No

COMMENTS:**324. BASKET CONTROL STATION:**

The basket control station shall be located at the front, center of the platform basket. The following items shall also be provided at the basket control station and be clearly identified and illuminated for nighttime operation and conveniently located for ease of operation and viewing:

- Three (3) separate controls for raise/lower, extend/retract, and left/right rotation
- Intercom controls
- Tip tracking light switch
- Basket leveling switches
- Operator's load chart
- Aerial monitor switches

☒ Yes ☐ No
COMMENTS:**325. HIGH IDLE:**

The high idle shall be controlled by the microprocessor. The microprocessor shall automatically adjust the engine rpm, to compensate for the amount of load placed upon the system. The system shall include a safety device that allows activation of the high idle, only when the parking brake is set and the transmission is placed in neutral.

☒ Yes ☐ No
COMMENTS:**326. STABILIZERS:**

The vehicle shall come equipped with a stabilization system consisting of six (6) hydraulically operated stabilizers. The middle two (2) shall be out and down style, the front and rear two (2) shall be down only. This system shall meet or exceed all requirements of the NFPA specifications related to stabilization and setup on sloped surfaces.

The stabilizer/leveling jacks shall have a maximum spread of 18' measured from the centerline of the jack footpads when the beams are fully extended. The beams shall be 6.81" wide x 13.00" high with 1.00" thick top and bottom plates and 1/2" thick sides of 100,000-PSI minimum yield strength steel. The cylinders shall have pilot-operated check valves with thermal relief designed to ensure that the beams shall not drift out of the stowed position during travel. Wear pads shall guide the stabilizers.

The horizontal extension cylinders shall be totally enclosed within the beams and shall incorporate telescoping hydraulic tubing to supply the jack cylinder hydraulic power. Stabilizer hydraulic hoses shall remain stationary during operation of the stabilizers to prevent hose wear and potential failure. The cylinders shall be equipped with decelerators to reduce the speed of extension and retraction when the beams are near the fully retracted

and extended positions. The stabilizer extension hydraulic cylinders shall have the following dimensions: 2.25" bore, 1.38" rod, and 62.25" stroke.

The front vertical jack cylinders shall be capable of 15.00" ground penetration. The middle and rear vertical jack cylinders shall be capable of 18.00" ground penetration. The cylinders shall be supplied with pilot operated check valves on each jack cylinder to hold the cylinder in the stowed or working position, should a charged line be severed at any point in the hydraulic system. For safety, the integral holding valves shall be located in the cylinder base, not in the transfer tube. Vertical jack cylinder rods shall be fully enclosed by a telescoping inner box to protect the cylinder rods from damage. The stabilizer jack hydraulic cylinders shall have the following dimensions: 4.25" bore, 3.00" rod, and 34.88" stroke.

The middle and rear stabilizer jack shall have a polished stainless-steel shield. The stainless-steel shield shall be a maximum of 14.00" wide so as to allow the extension of the stabilizer between parked cars or other obstacles. This plate shall serve as a protective guard and a mounting surface for warning lights. The top, forward, and rear edges shall be flanged back 90 degrees for added strength. The front stabilizers shall be designed for easy cab tilt.

☒ Yes ☐ No

COMMENTS:

327. STABILIZER PADS:

The stabilizer footpad shall include an integrated stabilizer pad. The footpad shall be attached to the jack cylinder rod by means of a machined ball at the end of the jack cylinder rod which mates to a socket machined into the footpad. The footpad shall automatically position itself when being stowed so that no portion of the foot extends outside the body.

☒ Yes ☐ No

COMMENTS:

328. STABILIZER CONTROLS:

A portable stabilizer control pendant shall be provided. The control pendant shall be weatherproof and oil resistant. Each function and indicator light shall be labeled on a mylar lexan panel. The control pendant can be taken as far away as 15' from the vehicle with an attached coil cable.

The stabilizer control pendant shall include the following:

- One (1) green power indicator light for stabilizer control that shall be illuminated when the Stabilizer Power Enable switch has been activated. This shall be interlocked such that the aerial master must be activated, the ladder is in the cradle, or the Global Override at the rear of the apparatus is activated.
- Two (2) electric toggle switches for stabilizers: each toggle switch shall control the extend/retract (middle only) and raise/lower (front/middle/rear) of its respective stabilizer to allow vehicle set up in restricted areas and/or on uneven surfaces.
- Level assist switch: The stabilizer control system shall incorporate a computerized leveling system to enhance the stabilizer set up. The computerized system shall ensure full stabilizer extension, proper jack penetration, and shall level the vehicle within eight tenths of a degree of level for safe operation of the aerial device.

- Stow assist switch: The stabilizer control system shall incorporate a computerized system to move all six (6) stabilizer shoes to the full raised position while this switch is held.
- Tilt assist toggle switch: The stabilizer control system shall incorporate a computerized system to tilt the chassis to five degrees for enhanced side angle deployment of the aerial device.
- One (1) electric push button switch for the engaging the emergency power unit.
- One (1) red "stabilizer not stowed" indicator light: this light shall illuminate when the stabilizers are not in the fully stowed position.
- Two (2) fully extended beams green indicator lights: these lights shall be illuminated when each of the respective stabilizer beams are fully extended.
- Six (6) firm on ground green indicator lights: each light shall be illuminated when its respective stabilizer shoe is in the load supporting condition.

Each toggle switch shall activate the engine fast idle automatically.

Manual override shall be supplied for each stabilizer control valve.

A "Stabilizers Not Stowed" indicator shall be provided in the driver's compartment. It shall illuminate automatically whenever the stabilizers are not fully stowed to prevent damage to the apparatus if moved. The stabilizer system shall also be wired to the "Do Not Move Indicator Light", which shall flash whenever the apparatus parking brake is not fully engaged, and the stabilizers are not fully stowed.

☒ Yes ☐ No

COMMENTS:

329. CREADLE INTERLOCK SYSTEM:

A cradle interlock system shall be provided, to prevent the lifting of the aerial from the nested position, until the operator has positioned all the stabilizers in a load supporting configuration. A switch shall be installed at the cradle, to prevent operation of the stabilizers once the aerial has been elevated from the nested position.

☒ Yes ☐ No

COMMENTS:

Ta2a

330. STABILIZER CONTROL BOX ALUMINUM DOOR:

A vertically hinged smooth aluminum door shall be provided over the stabilizer control box. The door shall be hinged outboard.

☒ Yes ☐ No

COMMENTS:

331. HYDRAULIC SYSTEM:

All hose assemblies shall be assembled and crimped by the hose manufacturers certified technician.

All manufacturing employees responsible for the installation of hydraulic components shall be properly trained. Training shall include proper handling, installation, torque requirements, cleanliness and quality control procedures for hydraulic components.

Hoses used in the aerial hydraulic system shall be of a premium quality hose with a high abrasion resistant cover. All pressure hoses shall have a working pressure of 4000 psi and a burst pressure rating of 16,000 psi.

All hydraulic fittings and tubing shall be plated or constructed of 304 stainless steel to minimize corrosion.

The fitting shall use an O-ring seal where possible to minimize hydraulic leaks.

An interlock shall be provided that prevents activation of the hydraulic pump until the transmission is placed in neutral and the parking brake is set as outlined in the current NFPA 1901 standard.

The system shall meet the performance requirement of the current NFPA 1901 standard, which requires adequate cooling less than 2.5 hours of operations.

All hydraulic components that are non-sealing whose failure could result in the movement of the aerial shall comply with current NFPA 1901 standards and have burst strength of 4:1.

Dynamic sealing components whose failure could cause aerial movement shall have a margin of 2:1 on maximum operating pressure per the current NFPA 1901 standard.

All hydraulic hoses, tubes, and connections shall have a minimum burst strength of 3:1 per the current NFPA 1901 standard.

A chassis mounted positive displacement piston pump for consistent pressure and rapid responses shall supply hydraulic power for all aerial operations. The positive displacement pump shall provide 3,000psi. The hydraulic pump shall be solely dedicated to aerial operations (no exception).

Each aerial shall be evaluated as to the region and climate where it shall be used to determine the optimum viscosity and proper oil grade. Oil viscosity shall be based on an optimum range of 80 to 1000 SUS during normal aerial use. Before shipment of the unit, an oil sample shall be taken and analyzed to confirm the oil is within the allowable ISO grade tolerance.

The aerial hydraulic system shall have a minimum oil cleanliness level of ISO 18/15/13 based on the ISO 4406:1999 cleanliness standard. Each customer shall receive a certificate of actual cleanliness test results and an explanation of the rating system.

Oil samples can be taken from the hydraulic manifold GP1 port which is also used for verifying system pressure.

Ball valves shall be provided in the hydraulic suction lines to permit component servicing without draining the oil reservoir.

The aerial shall incorporate the use of trombone steel tubes inside the stabilizer beams to eliminate hydraulic hose wear and leaks.

Hydraulic power to the ladder shall be transferred from the pedestal by a hydraulic swivel.

The system hydraulic pressure shall be displayed on the turntable display.

The hydraulic system shall be additionally protected from excessive pressure by a secondary pressure relief valve set at 3,500 psi. In the event the main hydraulic pump compensator malfunctions, the secondary relief shall prevent system damage.

☒ Yes ☐ No

COMMENTS:

332. HYDRAULIC CYLINDERS:

All cylinders used on the aerial device shall be produced by a manufacturer that specializes in the manufacture of hydraulic cylinders.

Each cylinder shall include integral safety holding cartridges. No manifold or transfer tube mounted cartridge shall be acceptable.

Each cylinder shall be designed to a minimum safety factor of 4:1 to failure.

All safety holding cartridges shall be installed at the cylinder manufacturer, in a controlled clean environment to avoid possible contamination and or failure.

☒ Yes ☐ No

COMMENTS:

333. POWER TAKEOFF/HYDRAULIC PUMP:

The apparatus shall be equipped with a power takeoff driven by the chassis transmission and actuated by an electric shift, located inside the cab. The power takeoff which drives the hydraulic pump shall meet all the requirements for the aerial unit operations.

An amber indicator light shall be installed on the cab instrument panel to notify the operator that the power takeoff is engaged.

An interlock shall be provided that allows operation of the aerial power takeoff shift only after the chassis spring brake has been set and the chassis transmission has either been placed in the neutral position or drive position after the driveline has been disengaged from the rear axle.

The hydraulic system shall be supplied by a variable displacement load and pressure compensating piston pump. The pump shall meet the demands of all three simultaneous aerial functions. The pump shall provide proper flow for single aerial function with the engine at idle speed. A switch shall be provided on the control console to increase the engine speed for multiple function operation.

☒ Yes ☐ No

COMMENTS:

334. EMERGENCY PUMP:

The hydraulic system shall be designed with an auxiliary power unit meeting the guidelines of the current NFPA 1901 standard.

The aerial shall be equipped with an emergency hydraulic pump, electrically driven from the truck batteries. The pump shall be capable of running for 30 minutes for limited aerial

functions to stow the unit in case of a main pump or truck system failure. A momentary switch shall be located at the stabilizer and aerial control locations to activate the emergency pump.

☒ Yes ☐ No

COMMENTS:
335. AERIAL CONTROL VALVE:

The aerial hydraulic control valve shall be designed with special spool flows, limiting the oil flow for the designed function speed. The valve shall be electrically controlled and be located below the swivel and integrated with the stabilizer control manifold. The handles shall be oriented outward and shall be spaced 1.80" apart. The valve spools shall be designed to bleed off downstream pressure, in the neutral position and allow proper sealing of any cylinder holding cartridge.

☒ Yes ☐ No

COMMENTS:
336. OIL RESERVOIR:

The oil reservoir shall have a minimum capacity of 39 gallons. The oil fill location shall be easily accessible and be labeled "Hydraulic Oil Only" and also indicate the grade of oil that is installed in the reservoir. A drain port shall be provided.

Two suction ports shall be provided, one for the main hydraulic pump and one for the emergency pump. The emergency suction port shall be raised slightly off the bottom of the reservoir.

Magnetic filter shall be installed in line with the return hose.

A float type sending unit in the reservoir shall provide an indication of oil level on an electronic display. A temperature sending unit in the reservoir shall provide indication of the oil temperature on an electronic display.

The hydraulic oil reservoir shall be labeled per the current edition of NFPA 1901 standard.

☒ Yes ☐ No

COMMENTS:
337. RETURN FILTER:

The low-pressure oil return filter shall be remote mounted in the return line and designed to prevent oil loss during filter change. A 50-psi bypass shall be included to protect the element and hydraulic system during lower-than-normal operating temperatures. The system shall incorporate the following filter to provide dependable service:

- Return filter will be rated: Beta 1000 at 6 microns

☒ Yes ☐ No

COMMENTS:

338. HYDRAULIC SWIVEL:

The aerial ladder shall be equipped with a three (3) port, high pressure hydraulic swivel which shall connect the hydraulic lines from the hydraulic pump and reservoir through the rotation point to the aerial control bank. The hydraulic swivel shall allow for 360-degree continuous rotation of the aerial.

☒ Yes ☐ No
COMMENTS:**339. ELECTRIC SWIVEL:**

The ladder shall be equipped with an electric swivel to allow 360-degrees rotation of the aerial while connecting all electrical circuits through the rotation point. A minimum of 36 collector rings shall be provided that are capable of supplying 20-amp continuous service. All collector rings shall be enclosed and protected with desiccant plugs against condensation and corrosion. No oil or silicone shall be used.

☒ Yes ☐ No
COMMENTS:**340. WATER SWIVEL:**

Water shall be transferred to the aerial waterway by means of a 5.00" internal diameter waterway, through the swivel, permitting 360-degree continuous rotation.

☒ Yes ☐ No
COMMENTS:**341. 13-BIT ABSOLUTE ENCODER:**

The aerial ladder shall be equipped with a 13-Bit Absolute Encoder which provides 8192 counts per shaft turn for position and direction reference.

The 13-Bit Absolute Encoder shall provide a unique binary word to reference each position and direction for all 360 degrees of rotation.

If the power is interrupted for any reason, the 13-Bit Absolute Encoder shall allow power to be returned to the system without having to re-zero the settings.

The 13-Bit Absolute Encoder shall be an integral part of a micro-processor-based control system.

☒ Yes ☐ No
COMMENTS:**342. ELECTRICAL SYSTEM:**

The aerial device shall utilize a microprocessor-based control system. The system shall

consist of the following components:

Control System Modules

Each of the control system modules shall be configured as follows:

Sealed to a NEMA 4X rating

Operating range from -40 degrees F to 156 degrees F (-40 degrees C to 70 degrees C)

Communicate using J1939 data link

Two (2) diagnostic LED lights

One (1) green light that illuminates when module has power (B+) and ground

One (1) red light that flashes to indicate the module is capable of communicating via the data link

Up to 16 diagnostic LEDs on each module

Ground matrix identification system

The following control system modules shall be used:

Control Module

Main controller for the system

USB connection allows for computer diagnostics

Power Module

Built-in fault sensing

Eight (8) digital outputs

Pulse width modulating (PWM) capable

10A continuous per output

Circuit protection based on actual current draw (not affected by heat)

Current Control Module

Built-in fault sensing

Three (3) analog inputs

Eight (8) digital outputs

Pulse width modulating (PWM) capable

3A continuous per output

Closed Loop System

Circuit protection based on actual current draw (not affected by heat)

Input Module

16 software selectable (digital or analog) inputs	
Output Module	
16 digital outputs	
Input/Output Module	
Eight (8) software selectable (digital or analog) inputs	
Eight (8) digital outputs	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Valve Module	
36 digital inputs	
36 digital outputs	
COMMENTS:	
343. BASKET LIGHTS:	
There shall be three (3) Whelen® Model MPB*, 4,100 lumens 12-volt DC LED light with adjustable mount installed on the basket locations to be determined at prebuild meeting. The painted parts of this light assembly to be white.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
344. TRACKING LIGHTS:	
<p>There will be two (2) Whelen® MPB*, 5,695 lumens 12-volt DC LED lights with bail bracket mounts installed near the tip of the base section of the aerial device. The lights are installed at the tip so the overall width of the apparatus is not affected. The lights will be mounted below the top edge of the aerial device so the overall height of the apparatus is not affected.</p> <ul style="list-style-type: none"> One (1) located on the left side with spot optics One (1) located on the right side with spot optics The painted parts of this light assembly to be white. <p>Power to the lights will be controlled by a master on/off switch at the turntable control operator's position.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
345. BASKET ACCESS STEPS:	
Access to the basket will be provided by a pull-out, swing-down climbing ladder. The	

2.25" deep climbing ladder surfaces will be constructed with Traction Tread®. The bottom step will be a flip-down, stirrup step. The access ladder will be recessed into the angled corners of the rear body on each side. Hand holds will be provided in each side of the ladder.

The step well finish shall be aluminum treadplate.

All stepping surfaces will have a height not greater than 14.00" from top surface to top surface.

The bottom stepping height will not exceed 24.00" from the ground to the top of the stepping surface at any time.

☒ Yes ☐ No

COMMENTS:

346. STEP LIGHTS:

There shall be two (2) white LED step lights provided for each set of aerial basket access steps.

In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten-inch distance below the light.

The step lights shall be actuated by the aerial master switch in the cab.

These lights shall meet NFPA requirements for step lighting.

☒ Yes ☐ No

COMMENTS:

347. STABILIZER WARNING LIGHTS:

There shall be four (4) Whelen®, Model M6*C, LED flashing warning lights with Whelen, Model M6FC, chrome flanges installed, one on each stabilizer cover panel.

- The front stabilizer pan lights shall be red LED with a clear lens
- The rear stabilizer pan lights shall be red LED with a clear lens

These warning lights shall be activated by the same switch as the side warning lights.

☒ Yes ☐ No

COMMENTS:

348. STABILIZER BEAM WARNING LIGHTS:

Two (2) 4.00" diameter red LED flashing lights shall be mounted on each stabilizer, one (1) facing forward and one (1) facing rearward.

The lights shall be Grote Supernova 40 series LED lights.

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The lights shall be recessed in the horizontal beam of the stabilizer.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
These warning lights shall be activated with the aerial master switch.		
COMMENTS:		
349. STABILIZER SCENE LIGHTS:		
There shall be one (1) Amdor®, Model AY-LB-12HW012, 190 lumens, 12" long, white LED strip light installed under each stabilizer beam to illuminate the surrounding area. A total of six (6) lights shall be installed. The lights shall be activated by the aerial master switch.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
350. UNDER PLATFORM LIGHTING:		
<p>There will be two (2) Whelen® Model P*H1*, 9,260 lumens light(s) with white LEDs, a combination of flood and spot optics and bail brackets provided under the platform steps per the following:</p> <ul style="list-style-type: none"> One (1) light installed under the left side corner step in the center position and one (1) light installed under the right side corner step in the center position. The painted parts of this light assembly to be white. <p>The light(s) will be controlled from a switch(es) at the platform/tip and turntable.</p> <p>The light(s) may be load managed when the parking brake is applied.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
351. PLATFORM 120-VOLT ELECTRIC SYSTEM:		
Two (2), 20 amp, NEMA L5-20, 120-volt, three (3)-prong twist lock receptacles with weatherproof covers shall be provided in the aerial platform. Both receptacles shall be located on the left side rear of the basket. Each receptacle shall be supplied from individual branch circuits protected by dedicated 20 amp/120-volt circuit breakers. All wiring shall be sized to and conform to the latest edition of NEC standards.		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
COMMENTS:	12v power to platform is provided	
352. 2-WAY AERIAL COMMUNICATION SYSTEM:		
There shall be a Fire Research model ICA900-112 two-way intercom system provided.		

The control module shall be located on the turntable operator console, provided there is room, and have an LED volume display and push-button volume control.

A hands-free module shall be located at the aerial tip or platform and constantly transmit to the other module unless the control module push-to-talk button is pressed.

Each intercom unit shall be weatherproof.

☒ Yes ☐ No

COMMENTS:

353. AERIAL PEDESTAL:

The aerial pedestal shall accommodate the height of the cab.

☒ Yes ☐ No

COMMENTS:

354. BREATHING AIR:

Breathing air will be supplied to the aerial platform. The air system will incorporate one (1) 510 cubic foot, 6000-psi cylinder. To allow the turntable operator an unobstructed view of the platform the cylinder will be mounted on the left side of the aerial base section while viewed from the turntable. A pressure regulator located at the air cylinder. A shutoff valve with guard will be provided on the cylinder. The air will be routed to the basket using hose especially designed for use in breathing air systems. At the platform, the breathing air will be accessible via two (2) quick couplings for air masks. These will have a Hansen brass 3000 series coupling. Two (2) couplings will be located at the rear of the basket, one (1) on each side. There will be a weather resistant storage compartment for two (2) air masks provided at the basket with a rubber draw latch. A 75' recharge hose will be provided for refilling the air cylinder without having to remove the tank from its mounting.

The breathing air cylinder will be designed and constructed to conform to the requirements of the United Nations (UN) on the transportation of dangerous goods.

☒ Yes ☐ No

COMMENTS:

355. BREATHING AIR LEVEL AND WARNING SYSTEM:

The level of breathing air remaining will be visible on the LCD display at all operating positions. The display will incorporate a low-pressure warning circuit that activates an audible alarm when 20% maximum air cylinder capacity remains. A second, louder audible alarm will activate when the remaining air level drops to 10% of maximum air cylinder capacity.

☒ Yes ☐ No

COMMENTS:

356. BREATHING AIR GAUGE GUARD:

There will be an aluminum three (3) sided guard provided over the sides and top of the breathing air gauges on the base of the device. The guard will be approximately 3.00" deep on each side to help protect the gauges but allow regulator adjustment and access. The guard will be painted to match the aerial device.

☒ Yes ☐ No
COMMENTS:**357. 3-IN-1 BASKET OPTION BRACKETS:**

Brackets shall be provided to increase the safety of firefighters during fire ground and rescue operations. The removable brackets shall have the following three functions: securing a roof ladder to the basket, two (2) rappelling anchor points, and mounting bars to allow the secure mounting of a rescue basket stretcher.

The roof ladder mounting bracket shall be designed to allow firefighter access below the basket using up to a 20' roof ladder. The ladder shall be secured through its beams and one (1) rung, by a 1.00" diameter aluminum rod capable of being positively latched in place and able to withstand a minimum of a 500lb load. There shall be a latch to keep the ladder in a vertical position at all times. A set of nylon guides shall be provided to aid in positioning the roof ladder on the mounting brackets.

Two (2) rappelling arms shall be provided. Forged stainless steel eyebolts with a 1.38" inside diameter shall be incorporated into the design of the brackets for use as a rappel line anchor. Each anchor point shall have a capacity of 300lb.

Rescue basket support brackets shall be provided to allow patient transport using the aerial. Two (2) quick clip basket straps shall be used to secure the basket to the brackets.

Strain gauging and testing shall have been completed on the system (ladder and complete holding device) to ensure structural integrity of all components and maintain a minimum of two to one (2:1) safety factor.

☒ Yes ☐ No
COMMENTS:**358. AERIAL TURNTABLE MANSAYER™ BAR:**

A ManSaver™ bar shall be installed at the aerial turntable.

☒ Yes ☐ No
COMMENTS:**359. LYFECOMBO™ BRACKETS:**

Brackets will be provided to increase the safety of firefighters during fire ground and rescue operations. The removable brackets will have the following three functions: securing a roof ladder to the basket, two (2) rappelling anchor points, and mounting bars to allow the secure mounting of a rescue basket stretcher.

LyfeLadder™ brackets will be designed to allow firefighter access below the basket using up to a 20' roof ladder. The ladder will be secured through its beams and one (1) rung, by a

1.00" diameter aluminum rod capable of being positively latched in place and able to withstand a minimum of a 500lb load. There will be a latch to keep the ladder in a vertical position at all times. A set of nylon guides will be provided to aid in positioning the roof ladder on the mounting brackets.

Two (2) LyfeEye™ rappelling arms will be provided. Forged stainless steel eyebolts with a 1.38" inside diameter will be incorporated into the design of the brackets for use as a rappel line anchor. Each anchor point will have a capacity of 300lb.

LyfeSupport™ rescue basket support brackets will be provided to allow patient transport using the aerial. Two (2) quick clip basket straps will be used to secure the basket to the brackets.

Strain gauging and testing will have been completed on the system (ladder and complete holding device) to ensure structural integrity of all components and maintain a minimum of two to one (2:1) safety factor.

☒ Yes ☐ No

COMMENTS:
360. AERIAL WATERWAY:

The aerial waterway shall be capable of being supplied by either a midship mounted pump or an external water source through a 5.00" intake at the side of the apparatus.

A 5.00" water swivel shall be installed below the aerial turntable permitting the ladder to rotate 360 degrees continuously.

A 5.00" water swivel shall be installed at the aerial heel pivot pin that shall permit water tower operations of -15 degrees to 77 degrees. The heel pivot pin shall not be integral with the waterway swivel at any point. The waterway design shall allow complete servicing of the waterway swivel without disturbing the heel pivot pin.

A telescoping aluminum waterway shall be installed on the side of the aerial ladder sections. The waterway shall consist of a 5.50" diameter tube for the base section, 5.00" diameter tube for the lower mid section, 4.50" diameter tube for the center mid section, 4.00" diameter tube for the upper mid section, and 3.50" diameter tube for the fly section.

A 1.50" drain shall be provided for the waterway.

☒ Yes ☐ No

COMMENTS:
361. WATERWAY SEALS:

The waterway seals shall be of type-B PolyPak design, composed of nitrile seal and a nitrile wiper, which together offer maximum stability and extrusion resistance on the waterway. The seal shall be capable of withstanding pressures up to 2000 psi, temperatures in excess of 250 degrees Fahrenheit and have resistance to all foam generating solutions. The seals shall be internally lubricated.

The waterway seals shall have automatic centering guides constructed of synthetic thermal polymer. The guides shall provide positive centering of the extendible sections within each other and the base section to insure longer service life and smoother operation.

☒ Yes ☐ No

COMMENTS:**362. PLATFORM WATER SYSTEM:**

A 4.00" (internal diameter) water swivel shall connect the fly section waterway to the platform waterway. The water swivel shall permit water tower operations from -15 degrees to 77 degrees. The water shall be routed from the swivel to a 4.00" gear operated valve(s) on the front of the platform using a combination of 4.00" tubes and piping. The monitor(s) shall be bolted onto the valve(s).

A 2.50" preset pressure relief valve shall be provided in the waterway system. It shall be designed to protect the aerial waterway from excess pressure. It shall dump water to the ground when operating.

A shower nozzle rated at 75 gpm shall be provided beneath the platform for heat protection for the platform personnel. A direct linkage control for the shower nozzle shall be provided.

☒ Yes ☐ No
COMMENTS:**363. AERIAL MONITOR:**

There shall be two (2) Task Force Tips monitors provided at the platform.

One shall be a Y4-MP1A-P-01 double crank-controlled monitor with a TFT YST-4NN stacked tips.

The other shall be a Y4-EP1A-P electric monitor with a TFT 2000 gpm Model M-ERP2000 electric nozzle.

The controls for the electronic monitor shall be located at the platform and the turntable control console.

☒ Yes ☐ No
COMMENTS:**364. WATERWAY FLOWMETER:**

Waterway flow, including total water flowed, and PSI shall be monitored by the microprocessor. An LCD display shall be located at the upper and lower control stations.

☒ Yes ☐ No
COMMENTS:**365. WATERWAY INLET:**

There shall be a 5.00" schedule 10 stainless steel inlet pipe on the right side of the apparatus. The inlet shall be connected to the base of the ladder, through the turntable

swivel, to assure continuous rotation. The inlet shall terminate with a 5.00" NST chrome adapter and a long-handled chrome cap.

☒ Yes ☐ No

COMMENTS:

366. BREATHING AIR:

Breathing air shall be supplied to the aerial platform. The air system shall incorporate one (1) 510 cubic foot, 6000-psi cylinder. To allow the turntable operator an unobstructed view of the platform the cylinder shall be mounted on the left side of the aerial base section while viewed from the turntable. A pressure regulator located at the air cylinder. A shutoff valve with guard shall be provided on the cylinder. The air shall be routed to the basket using hose especially designed for use in breathing air systems. At the platform, the breathing air shall be accessible via two (2) quick couplings for air masks. Two (2) couplings shall be located at the rear of the basket, one (1) on each side. There shall be a weather resistant storage compartment for two (2) air masks provided at the basket with a rubber draw latch. A 75' recharge hose shall be provided for refilling the air cylinder without having to remove the tank from its mounting.

The breathing air cylinder shall be designed and constructed to conform to the requirements of the United Nations (UN) on the transportation of dangerous goods.

☒ Yes ☐ No

COMMENTS:

367. BREATHING AIR LEVEL AND WARNING SYSTEM:

The level of breathing air remaining shall be visible on the LCD display at all operating positions. The display shall incorporate a low-pressure warning circuit that activates an audible alarm when 20% maximum air cylinder capacity remains. A second, louder audible alarm shall activate when the remaining air level drops to 10% of maximum air cylinder capacity.

☒ Yes ☐ No

COMMENTS:

368. TOOLS:

The following tools shall be provided for retorquing of all specified bolts as recommended by the manufacturer:

Torque Wrench

All Required Extensions, Sockets and Adapters

4-to-1 Multiplier

☒ Yes ☐ No

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369. MANUALS:

The aerial manufacturer shall provide two (2) operator maintenance manuals and two (2) as built wiring diagrams pertaining to the aerial device.

☒ Yes ☐ No
COMMENTS:**370. INITIAL INSTRUCTION:**

On initial delivery of the fire apparatus, the contractor shall supply a qualified factory representative to demonstrate the apparatus and provide initial instruction to the fire department regarding the operation, care, and maintenance of the apparatus for a period of four (4) consecutive days. The fourth day will be to provide training to the fire departments maintenance staff.

☒ Yes ☐ No
COMMENTS:**371. AERIAL LADDER BELTS:**

The following ladder belts shall be provided:

- no small/medium belts
- two (2) large/extra-large belts for 34"-42" waist
- one (1) XXL belt for 42"-50" waist

☒ Yes ☐ No
COMMENTS:**372. PAINT:**

The exterior custom cab and body painting procedure shall consist of a seven (7) step finishing process as follows:

1. Manual Surface Preparation - All exposed metal surfaces on the custom cab and body shall be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces shall be removed and sanded to a smooth finish. Exterior seams shall be sealed before painting. Exterior surfaces that shall not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.
2. Chemical Cleaning and Pretreatment - All surfaces shall be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces shall be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces shall be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion. A final pure water rinse shall be applied to all metal surfaces.

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3. Surfacr Primer - The Surfacr Primer shall be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacr Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacr Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.

4. Finish Sanding - The Surfacr Primer shall be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.

5. Sealer Primer - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacr Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated.

6. Basecoat Paint - Two coats of a high performance, two component high solids polyurethane basecoat shall be applied. The Basecoat shall be applied to a thickness that shall achieve the proper color match. The Basecoat shall be used in conjunction with a urethane clear coat to provide protection from the environment.

7. Clear Coat - Two (2) coats of Clear Coat shall be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors shall be Clear Coated to match the body. Paint warranty for the roll-up doors shall be provided by the roll-up door manufacture.

Each batch of basecoat color shall be checked for a proper match before painting of the cab and the body. After the cab and body are painted, the color shall be verified again to make sure that it matches the color standard. Electronic color measuring equipment shall be used to compare the color sample to the color standard entered into the computer. Color specifications shall be used to determine the color match. A Delta E reading shall be used to determine a good color match within each family color.

All removable items such as brackets, compartment doors, door hinges, and trim shall be removed and separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly shall be finish painted before assembly.

The paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) are to meet or exceed Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels are to meet or exceed the #6 A.C.T. standard in critical areas. These requirements must be met in order for the exterior paint finish to be considered acceptable. The manufacture's written paint standards shall be available upon request.

The cab shall be two-tone, with the upper section painted white along with a shield design on the cab face and lower section of the cab and body painted red. Exact shades of white and red will be finalized at prebuild.

☒ Yes ☐ No

COMMENTS:
373. PAINT – ENVIRONMENTAL IMPACT:

Contractor shall meet or exceed all current State regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. Controls shall include the following conditions:

- Topcoats and primers shall be chrome and lead free.
- Metal treatment chemicals shall be chrome free. The wastewater generated in the metal treatment process shall be treated on-site to remove any other heavy metals.
- Particulate emission collection from sanding operations shall have a 99.99% efficiency factor.
- Particulate emissions from painting operations shall be collected by a dry filter or water wash process. If the dry filter is used, it shall have an efficiency rating of 98.00%. Water wash systems shall be 99.97% efficient
- Water from water wash booths shall be reused. Solids shall be removed on a continual basis to keep the water clean.
- Paint wastes are disposed of in an environmentally safe manner.
- Empty metal paint containers shall be to recover the metal.
- Solvents used in clean-up operations shall be recycled on-site or sent off-site for distillation and returned for reuse.

Additionally, the finished apparatus shall not be manufactured with or contain products that have ozone depleting substances. Contractor shall, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his State EPA rules and regulations.

☒ Yes ☐ No
COMMENTS:**374. PAINT CHASSIS FRAME ASSEMBLY:**

The chassis frame assembly shall be finished with a single system black topcoat before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.

Components that are included with the chassis frame assembly that shall be painted are:

- Frame rails
- Frame liners
- Cross members
- Axles
- Suspensions
- Steering gear
- Battery boxes
- Bumper extension weldment
- Frame extensions
- Body mounting angles

- Rear Body support substructure (front and rear)
- Air tanks
- Steel fuel tank
- Castings
- Individual piece parts used in chassis and body assembly

Components treated with epoxy E-coat protection prior to paint:

- Two (2) C-channel frame rails
- Two (2) frame liners

☒ Yes ☐ No

COMMENTS:

375. COMPARTMENT INTERIOR PAINT:

The interior of all compartments shall be painted with a gray spatter type paint.

☒ Yes ☐ No

COMMENTS:

376. AERIAL DEVICE PAINT COLOR:

The aerial device paint procedure shall consist of a seven (7) step finishing process as follows:

1. Manual Surface Preparation - All exposed metal surfaces on the aerial device structural components above the rotation point shall be thoroughly cleaned and mechanically shot-blasted to remove metal impurities and prepare the aerial for painting.
2. Zinc Rich Primer - Zinc rich primer shall be applied to the torque box and stabilizers.
3. Primer/Surfacer Coats - A two component epoxy primer/surfacer shall be applied to the mechanically shot-blasted metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface. All seams shall be caulked with a two-component epoxy caulk before painting.
4. Hand Sanding - The primer/surfacer coat of the outer surfaces of the handrails and base rails shall be lightly sanded to a smooth finish.
5. Primer Coat - A two component epoxy primer coat shall be applied over the sanded primer.
6. Topcoat Paint - Urethane base coat shall be applied to opacity for correct color matching.
7. Clear Coat - Two (2) coats of an automotive grade two (2) component urethane shall be applied.

Surfaces that shall not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum treadplate.

All buy out components, such as monitor, nozzle, gauges, etc. shall be supplied as received from the vendor.

Removable items such as brackets shall be removed and painted separately to ensure paint coverage behind all mounted items.

The aerial device components shall be painted as follows using the aforementioned seven (7) step finishing process:

- Aerial basket and basket leveling cylinders at tip: red
- Aerial device ladder sections and extension cylinders: white
- Aerial turntable and leveling cylinders at turntable: red
- Aerial control console: red
- Aerial lift cylinders: red
- Aerial rotation motor: black
- Aerial torque box, support structure and components below the rotation point: gloss black primer
- Aerial stabilizers: black
- Aerial boom support: gloss black primer

☒ Yes ☐ No

COMMENTS:

377. REFLECTIVE BAND:

A 10.00" white reflective band shall be provided across the front of the vehicle and along the sides of the body.

The reflective band provided on the cab face shall be below the headlights on the fiberglass.

☒ Yes ☐ No

COMMENTS:

1-6-1 Pattern is bid to match previous apparatus in your fleet but 10" is available at no cost difference

378. REAR CHEVRON STRIPING:

There shall be alternating chevron striping located on the rear-facing vertical surface of the apparatus. Covered surfaces shall include the rear wall and aluminum doors. Rear compartment doors, stainless steel access doors and the rear bumper shall not be covered.

The colors shall be red and white reflective.

Each stripe shall be 6.00" in width.

☒ Yes ☐ No

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2**379. REFLECTIVE STRIPE ON STABILIZERS:**

There shall be a 4.00" wide fluorescent yellow green diamond grade reflective stripe provided on the forward and rear facing side of all aerial stabilizers.

☒ Yes ☐ No
COMMENTS:**380. CAB DOOR REFLECTIVE STRIPE:**

A 6.00" x 16.00" white reflective stripe shall be provided across the interior of each cab door. The stripe shall be located approximately 1.00" up from the bottom, on the door panel.

☒ Yes ☐ No
COMMENTS:**381. LETTERING:**

The lettering shall be totally encapsulated between two layers of clear vinyl.

☒ Yes ☐ No
COMMENTS:**382. LETTERING:**

Forty-one (41) to sixty (60) genuine gold leaf lettering, 3.00" high, with outline and shade shall be provided.

☒ Yes ☐ No
COMMENTS:

Gold leaf lettering is bid to match previous trucks of this type

383. FIRE APPARATUS PARTS MANUAL:

There shall be one (1) custom parts manual in USB flash drive format for the complete fire apparatus provided.

The manual(s) shall contain the following:

- Job number
- Part numbers with full descriptions
- Table of contents
- Parts section sorted in functional groups reflecting a major system, component, or assembly
- Parts section sorted in alphabetical order

<ul style="list-style-type: none"> Instructions on how to locate parts <p>Each manual shall be specifically written for the chassis and body model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
384. SERVICE PARTS INTERNET SITE:	
<p>The service parts information included in these manuals shall also be available on the factory website. The website shall offer additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website shall also feature electronic search tools to assist in locating parts quickly.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
385. CHASSIS SERVICE MANUALS:	
<p>There shall be one (1) chassis service manual on USB flash drives containing parts and service information on major components provided with the completed unit.</p> <p>The manual shall contain the following sections:</p> <ul style="list-style-type: none"> Job number Table of contents Troubleshooting Front Axle/Suspension Brakes EngineTires Wheels Cab Electrical, DC Air Systems Plumbing Appendix <p>The manual shall be specifically written for the chassis model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	

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2**386. CHASSIS OPERATION MANUAL:**

The chassis operation manual shall be provided on one (1) USB flash drive.

☒ Yes ☐ No**COMMENTS:****387. THREE (3) YEAR MATERIAL AND WORKMANSHIP:**

The new chassis shall be provided with a three (3) year material and workmanship limited warranty. The warranty shall cover such portions of the chassis built by the manufacturer as being free from structural failures caused by defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid (no exception).

☒ Yes ☐ No**COMMENTS:****388. ENGINE WARRANTY:**

A Detroit Diesel five (5) year limited engine warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid.

☒ Yes ☐ No**COMMENTS:****Cummins 10 year/200,000 mile extended warranty is provided****389. STEERING GEAR WARRANTY:**

A Sheppard three (3) year limited steering gear warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid.

☒ Yes ☐ No**COMMENTS:****390. FIFTY (50) YEAR STRUCTURAL INTEGRITY:**

The chassis frame and crossmembers shall be provided with a fifty (50) year material and workmanship limited warranty. The warranty shall cover the chassis frame and crossmembers as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid.

☒ Yes ☐ No**COMMENTS:**

391. FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY:

Independent front suspension shall be provided with a three (3) year material and workmanship limited warranty. The manufacturer's warranty shall provide that the independent front suspension and steering gears be free from any defect related to material and workmanship on the portion of the apparatus built by the manufacturer that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid.

☒ Yes ☐ No
COMMENTS:**392. REARA AXLE TWO (2) YEAR MATERIAL AND WORKMANSHIP WARRANTY:**

A Meritor™ Axle two (2) year limited warranty shall be provided.

☒ Yes ☐ No
COMMENTS:

3 year warranty provided on T3 IRS system

393. ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY:

A Meritor Wabco™ ABS brake system three (3) year limited warranty shall be provided.

☒ Yes ☐ No
COMMENTS:**394. TEN (10) YEAR STRUCTUAL INTEGRITY:**

The new cab shall be provided with a ten (10) year material and workmanship limited warranty. The warranty shall cover such portions of the cab built by the manufacturer as being free from structural failures caused by defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid.

☒ Yes ☐ No
COMMENTS:**395. TEN (10) YEAR PRO-RATED PAINT AND CORROSION:**

Each new piece of apparatus shall be provided with a ten (10) year pro-rated paint and corrosion limited warranty on the apparatus cab. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid.

☒ Yes ☐ No

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COMMENTS:		
396. FIVE (5) YEAR MATERIAL AND WORKMANSHIP:		
<p>The electronic modules and display(s) shall be provided with a five (5) year material and workmanship limited warranty. The warranty shall cover electronic modules to be free from failures caused by defects in material and workmanship.</p> <p>A copy of the warranty certificate shall be submitted with the bid.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
397. CAMERA SYSTEM WARRANTY:		
<p>A fifty-four (54) month warranty shall be provided for the camera system.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
398. COMPARTMENT SYSTEM WARRANTY:		
<p>A ten (10) year material and workmanship limited warranty shall be provided for the 12-volt DC LED strip lights. The warranty shall cover the LED strip lights to be free from defects in material and workmanship that would arise under normal use.</p> <p>A copy of the warranty certificate shall be submitted with the bid.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
399. TRANSMISSION WARRANTY:		
<p>The transmission shall have a five (5) year/unlimited mileage warranty covering 100 percent parts and labor. The warranty is to be provided by Allison Transmission and not the apparatus builder.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
400. TRANSMISSION COOLER WARRANTY:		
<p>The transmission cooler shall carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty shall also be in effect for the first three years of the warranty coverage and shall not exceed \$10,000 per occurrence. A copy of the warranty certificate shall be submitted with the bid.</p>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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2**COMMENTS:****401. TEN (10) YEAR STRUCTURAL INTEGRITY:**

Each new piece of apparatus shall be provided with a ten (10) year material and workmanship limited warranty on the apparatus body. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid.

☒ Yes ☐ No
COMMENTS:**402. ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY:**

A roll-up door limited warranty shall be provided. The mechanical components of the roll-up door shall be warranted against defects in material and workmanship for the lifetime of the vehicle. A six (6) year limited warranty shall be provided on painted and satin roll up doors.

A copy of the warranty certificate shall be submitted with the bid.

☒ Yes ☐ No
COMMENTS:**403. TWENTY (20) YEAR AERIAL DEVICE STRUCTURAL INTEGRITY WARRANTY:**

The aerial device shall be provided with a twenty (20) year material and workmanship limited warranty. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service. This warranty shall be limited to the torque box, turntable, aerial sections and other structural components.

A copy of the warranty certificate shall be submitted with the bid.

☒ Yes ☐ No
COMMENTS:**404. AERIAL SWIVEL WARRANTY:**

An Amity five (5) year limited swivel warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid.

☒ Yes ☐ No
COMMENTS:**405. HYDRAULIC SYSTEM COMPONENTS WARRANTY:**

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Aerial hydraulic system components shall be provided with a five (5) year material and workmanship limited warranty.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
406. HYDRAULIC SEAL WARRANTY:		
Aerial hydraulic seals shall be provided with a three (3) year material and workmanship limited warranty.		
A copy of the warranty certificates shall be submitted with the bid.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
407. AERIAL WATERWAY WARRANTY:		
An Amity ten (10) year limited waterway warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
408. FOUR (4) YEAR PRO-RATED PAINT AND CORROSION:		
The aerial device shall be provided with a four (4) year pro-rated paint and corrosion limited warranty. The warranty shall cover exterior painted surfaces of the aerial device to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.		
A copy of the warranty certificate shall be submitted with the bid.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
409. THREE (3) YEAR MATERIAL AND WORKMANSHIP:		
The gold leaf lamination shall be provided with a three (3) year material and workmanship limited warranty. The warranty shall cover the gold leaf lamination as being free from defects in material and workmanship that would arise under normal use and service.		
A copy of the warranty certificate shall be submitted with the bid.		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		

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2**410. VEHICLE STABILITY CERTIFICATION:**

The fire apparatus manufacturer shall provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification shall be provided at the time of bid.

☒ Yes ☐ No
COMMENTS:**411. ENGINE INSTALLATION CERTIFICATION:**

The fire apparatus manufacturer shall provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification shall be provided at the time of bid.

☒ Yes ☐ No
COMMENTS:**412. POWER STEERING CERTIFICATION:**

The fire apparatus manufacturer shall provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification shall be provided at the time of bid.

☒ Yes ☐ No
COMMENTS:**413. CAB INTEGRITY CERTIFICATION:**

The fire apparatus manufacturer shall provide a cab integrity certification with bid. The certification shall state that the cab has been tested and certified by an independent third-party test facility. Testing events shall be documented with photographs, real-time and high-speed video, vehicle accelerometers, cart accelerometers, and a laser speed trap. The fire apparatus manufacturer shall provide a state-licensed professional engineer to witness and certify all testing events. Testing shall meet or exceed the requirements below:

- European Occupant Protection Standard ECE Regulation No.29.
- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.
- SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.

☒ Yes ☐ No
COMMENTS:**414. ROOF CRUSH:**

The cab shall be subjected to a roof crush force of 22,050 lb. This value meets the ECE 29 criteria and is equivalent to the front axle rating up to a maximum of 10 metric tons.

☒ Yes ☐ No

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2**COMMENTS:****415. ADDITIONAL ROOF CRUSH:**

The same cab shall be subjected to a roof crush force of 100,000 lbs. This value exceeds the ECE 29 criteria by nearly 4.5 times.

☒ Yes ☐ No
COMMENTS:**416. SIDE IMPACT:**

The same cab shall be subjected to dynamic preload where a 13,275 lb moving barrier slams into the side of the cab at 5.5 mph at a force of 13,000 ft-lbs. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab shall see in a rollover incident.

☒ Yes ☐ No
COMMENTS:**417. FRONTAL IMPACT:**

The same cab shall withstand a frontal impact of 32,600 ft-lbs of force using a moving barrier in accordance with SAE J2420.

☒ Yes ☐ No
COMMENTS:**418. ADDITIONAL FRONTAL IMPACT:**

The same cab shall withstand a frontal impact of 65,200 ft-lbs of force using a moving barrier, (twice the force required by SAE J2420).

The same cab shall withstand all tests without any measurable intrusion into the survival space of the occupant area.

There shall be no exception to any portion of the cab integrity certification. Nonconformance shall lead to immediate rejection of bid.

☒ Yes ☐ No
COMMENTS:**419. CAB DOOR DURABILITY CERTIFICATION:**

Robust cab doors help protect occupants. Cab doors shall survive a 200,000-cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder shall certify that the sample doors similar to those provided on the apparatus have been tested and have

☒ Yes ☐ No

met these criteria without structural damage, latch malfunction, or significant component wear.	
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COMMENTS:**420. WINDSHIELD WIPER DURABILITY CERTIFICATION:**

<p>Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers shall survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles. The bidder shall certify that the wiper system design has been tested and that the wiper system has met these criteria.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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COMMENTS:**421. ELECTRICAL WINDOW DURABILITY CERTIFICATION:**

<p>Cab window roll-up systems can cause maintenance problems if not designed for long service life. The window regulator design shall complete 30,000 complete up-down cycles and still function normally when finished. The bidder shall certify that sample doors and windows similar to those provided on the apparatus have been tested and have met these criteria without malfunction or significant component wear.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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COMMENTS:**422. SEAT BELT ANCHOR STRENGTH:**

<p>Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design shall withstand 3000 lbs of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder shall certify that each anchor design was pull tested to the required force and met the appropriate criteria.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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COMMENTS:**423. SEAT BELT MONITORING STRENGTH:**

<p>Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design shall be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder shall certify that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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COMMENTS:

424. CAB DEFROSTER CERTIFICATION:

Visibility during inclement weather is essential to safe apparatus performance. The defroster system shall clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure and Performance Requirements - Trucks, Buses, and Multipurpose Vehicles. The bidder shall certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.

☒ Yes ☐ No
COMMENTS:**425. CAB HEATER CERTIFICATION:**

Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. The cab heaters shall warm the cab 75 F from a cold soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder shall certify that a substantially similar cab has been tested and has met these criteria.

☒ Yes ☐ No
COMMENTS:**426. CAB AIR CONDITIONING PERFORMANCE CERTIFICATION:**

Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system shall cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to an average of 67 degrees Fahrenheit in 30 minutes. The bidder shall certify that a substantially similar air conditioning system has been tested and has met these criteria. The certification shall be available at the time of delivery.

☒ Yes ☐ No
COMMENTS:**427. AMP DRAW REPORT:**

The bidder shall provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus shall provide the following:

- Documentation of the electrical system performance tests.
- A written load analysis, which shall include the following:
 - o The nameplate rating of the alternator.
 - o The alternator rating under the conditions specified per:

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<p><input type="checkbox"/> Applicable NFPA 1901 or 1906 (Current Edition).</p> <p><input type="checkbox"/> The minimum continuous load of each component that is specified per:</p> <p><input type="checkbox"/> Applicable NFPA 1901 or 1906 (Current Edition).</p> <p><input type="checkbox"/> Additional loads that, when added to the minimum continuous load, determine the total connected load.</p> <p><input type="checkbox"/> Each individual intermittent load.</p> <p>All of the above listed items shall be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>COMMENTS:</p>	

Conrad Fire Equipment

Item: **100 Foot Midmount Aerial Platform:Exceptions**

Attachments

Exceptions and clarifications .docx

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OKC 100' Midmount Exceptions and Clarifications

6. DELIVERY- Due to supply chain issues no timeline of delivery can be guaranteed.
7. Liquidated Damages- Cannot guarantee delivery time currently due to worldwide supply chain issues.
60. EXHAUST SYSTEM- The exhaust system will include a Single Module aftertreatment device to meet current EPA standards rather than a two piece
70. TRANSMISSION- Due to timing of build, transmission will be a 6th generation
74. TRANSMISSION FLUID- New Allison standard for 6th gen transmissions is TES-668
119. ACCESS TO ENGINE DIPSTICKS- Actual door size will be 20.00" wide x 8.25" high
125. REAR FACING RIGHT SIDE CABINET- Exterior cabinet access also provided based off previous version of this apparatus. However interior access only is available
128. SEAT UPHOLSTERY- All seat upholstery will be black Dura-Wear Plus, waterproof fabric
151. INFORMATION CENTER- Information center is mounted at an angle for driver. No swivel is currently available.
226. SCUFF PLATES- A total of 13 doors will have scuff plates provided
232. TOOL BOARD- Pac Trac will be available for install if needed to match other compartments
233. SWING OUT TOOLBOARD- Pac Trac will be available for install if needed to match other compartments
234. SLIDE OUT TOOLBOARD- Pac Trac will be available for install if needed to match other compartments
237. BACKBOARD STORAGE- Due to previous versions of same truck this option is not included but can be added at no cost if wanted.
244. AIR BOTTLE STORAGE (SINGLE)- A different configuration is included to match previous versions of this truck. This exact option can be done at no cost if you choose.
246. EXTENSION LADDER- Two ladders of this size will not fit. Either one can be available for selection
248. EXTENSION LADDER- 2 ladders of this size will fit in the compartment so 2 have been included
249. ROOF LADDER- Series 875-DR ladders provided
260. AIR HORN SYSTEM- Air horns will be Hadley brand due to supply issues with Grover

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265. SIREN AMPLIFIER- HOWLER system will not fit under front bumper due to structural components

266. AUXILLIARY SPEAKERS- See 265

308. SAW STORAGE BOX- Maximum weight in each box will be 25 lbs

351. PLATFORM 120V ELECTRICAL SYSTEM- 12v power to platform is provided as no source for 120v power is requested.

377. REFLECTIVE BAND- 1-6-1 Pattern is bid to match previous apparatus in your fleet but 10" is available at no cost difference

382. LETTERING- Gold leaf lettering is bid to match previous trucks of this type

388. ENGINE WARRANTY- Cummins 10 year/200,000 mile extended warranty is provided

392. REAR AXLE WARRANTY - 3 year warranty provided on T3 IRS system

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Conrad Fire Equipment

Item: **100 Foot Midmount Aerial Platform:100 Foot Midmount Aerial Platform:Detailed Proposal**

Attachments

OKC Tower 7-18-22.docx

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Conrad Fire is pleased to submit a proposal to Oklahoma City Fire Department for a **Pierce® 100' Heavy Duty Aerial Tower** per your request for quotation. The following paragraphs will describe in detail the apparatus, construction methods, and equipment proposed. This proposal will indicate size, type, model and make of components parts and equipment, providing proof of compliance with each and every item (except where noted) in the departments advertised specifications.

PIERCE MANUFACTURING was founded in 1913. Since then we have been building bodies with one philosophy, "BUILD THE FINEST". Our skilled craftsmen take pride in their work which is reflected in the final product. We have been building fire apparatus since the early "forties" giving Pierce Manufacturing over 75 years of experience in the fire apparatus market. Pierce Manufacturing has built and put into service more than 62,500 apparatus, including more than 33,900 on Pierce custom chassis designed and built specifically for fire and emergency applications. Our Appleton, Wisconsin facility has over 870,000 total square feet of floor space situated on approximately 105 acres of land. Our Bradenton, Florida facility has 300,000 square feet of floor space situated on approximately 38 acres of land.

Our beliefs in high ethical standards are carried through in all of our commitments and to everyone with whom we do business. Honesty, Integrity, Accountability and Citizenship are global tenets by which we all live and work. Consequently, we neither engage in, nor have we ever been convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.

Pierce has only one brand of fire apparatus "Pierce", ensuring you are receiving top of the line product that meets your specification.

In accordance with the current edition of NFPA 1901 standards, this proposal will specify whether the fire department, manufacturer, or apparatus dealership will provide required loose equipment.

Images and illustrative material in this proposal are as accurate as known at the time of publication, but are subject to change without notice. Images and illustrative material is for reference only, and may include optional equipment and accessories and may not include all standard equipment.

GENERAL DESIGN AND CONSTRUCTION

To control quality, ensure compatibility, and provide a single source for service and warranty, the custom cab, chassis, pump module and body will be entirely designed, assembled/welded and painted in Pierce owned manufacturing facilities. This includes, but not limited to the cab weldment, the pumphouse module assembly, the chassis assembly, the body and the electrical system.

QUALITY AND WORKMANSHIP

Pierce has set the pace for quality and workmanship in the fire apparatus field. Our tradition of building the highest quality units with craftsmen second to none has been the rule right from the beginning and we demonstrate that ongoing commitment by: Ensuring all steel welding follows American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding follows American Welding society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding follows American welding Society B2.1-2000 requirements for structural welding of sheet metal. Our flux core arc welding uses alloy rods, type 7000 and is performed to American Welding Society standards A5.20-E70T1. Furthermore, all employees classified as welders are tested

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and certified to meet the American welding Society codes upon hire and every three (3) years thereafter. Pierce also employs an American Welding Society certified welding inspector in plant during working hours to monitor weld quality.

Pierce Manufacturing operates a Quality Management System under the requirements of ISO 9001. These standards sponsored by the International Organization for Standardization (ISO) specify the quality systems that are established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance is included with this proposal.

In addition to the Quality Management system, we also employ a Quality Achievement Supplier program to insure the vendors and suppliers that we utilize meet the high standards we demand. That is just part of our overall "Quality at the Source" program at Pierce.

To demonstrate the quality of our products and services, a list of at least two (2) fire departments/municipalities that have purchased vehicles for a second time is provided.

DELIVERY

The apparatus will be delivered under its own power to insure proper break-in of all components while the apparatus is still under warranty. A qualified delivery representative shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in proper operation, care and maintenance of the equipment delivered.

MANUAL AND SERVICE INFORMATION

At time of delivery, complete operation and maintenance manuals covering the apparatus will be provided. A permanent plate will be mounted in the driver's compartment specifying the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

SAFETY VIDEO

At the time of delivery Pierce will also provide one (1) 39-minute, professionally produced apparatus safety video, in DVD format. This video will address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus, including the following: vehicle pre-trip inspection, chassis operation, pump operation, aerial operation, and safety during maintenance.

PERFORMANCE TESTS

A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten (10) miles. During that time the apparatus will show no loss of power nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus when fully loaded will not have less than 25 percent nor more than 50 percent on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle. The apparatus will meet NFPA 1901 acceleration and braking requirements.

SERVICE AND WARRANTY SUPPORT

Pierce dealership support will be provided by Conrad Fire Equipment by operating a Pierce authorized service center. The service center will have factory-trained mechanics on staff versed in Pierce fire apparatus. The service facility will be located within ten (10) miles of the fire department.

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In addition to the dealership, Pierce has service facilities located in both, Weyauwega, Wisconsin and Bradenton, Florida. Pierce also maintains a dedicated parts facility of over 100,000 square feet in Appleton, Wisconsin. The parts facility stocks in excess of \$5,000,000 in parts dedicated to service and replacement parts. The parts facility employs a staff dedicated solely for the distribution and shipment of service and replacement parts.

Service parts for the apparatus being proposed can be found via Pierceparts.com which, is an interactive online tool that delivers information regarding your specific apparatus as well as the opportunity to register for training classes.

As a Pierce customer you have the ability to view the complete bill of materials for your specific apparatus, including assembly drawings, piece part drawings, and beneficial parts notations. You will also have the ability to search the complete Pierce item master through a parts search function which offers all Pierce SKU's and descriptions offered on all Pierce apparatus. Published component catalogs, which include proprietary systems along with an extensive operators manual library is available for easy reference.

Pierce Manufacturing maintains a dedicated service and warranty staff of over 35 personnel, dedicated to customer support, which also maintains a 24 hour 7 day a week toll free hot line, four (4) on staff EVTs, and offers hands-on repair and maintenance training classes multiple times a year.

LIABILITY

The successful bidder will defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.

INSURANCE PROVIDED BY BIDDER

COMMERCIAL GENERAL LIABILITY INSURANCE

The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of commercial general liability insurance:

Each Occurrence\$1,000,000

Products/Completed Operations Aggregate\$1,000,000

Personal and Advertising Injury\$1,000,000

General Aggregate\$2,000,000

Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form and will include Contractual Liability coverage for bodily injury and property damage subject to the terms and conditions of the policy. The policy will include Owner as an additional insured when required by written contract.

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COMMERCIAL AUTOMOBILE LIABILITY INSURANCE

The successful bidder will, during the performance of the contract, keep in force at least the following minimum limits of commercial automobile liability insurance and coverage will be written on a Commercial Automobile liability form:

Each Accident Combined Single Limit:\$1,000,000

UMBRELLA/EXCESS LIABILITY INSURANCE

The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:

Aggregate:\$3,000,000

Each Occurrence:\$3,000,000

The umbrella policy will be written on an occurrence basis and at a minimum provide excess to the bidder's General Liability and Automobile Liability policies.

The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.

Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.

All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Bidder agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as certificate holder.

INSURANCE PROVIDED BY MANUFACTURER

PRODUCT LIABILITY INSURANCE

The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of Product Liability insurance:

Each Occurrence\$1,000,000

Products/Completed Operations Aggregate\$1,000,000

Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form. The manufacturer's policy will include the owner as additional insured when required by written contract between the Owner and a Pierce authorized dealer.

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UMBRELLA/EXCESS LIABILITY INSURANCE

The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:

Each Occurrence:\$25,000,000

Aggregate:\$25,000,000

The umbrella policy will be written on an occurrence basis and provide excess to the manufacturer's General Liability/Products policies.

The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.

Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.

All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Manufacturer agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as the certificate holder.

SINGLE SOURCE MANUFACTURER

Pierce Manufacturing, Inc. provides an integrated approach to the design and manufacture of our products that delivers superior apparatus and a dedicated support team. From our facilities, the chassis, cab weldment, cab, pump house (including the sheet metal enclosure, valve controls, piping and operators panel) body and aerial device will be entirely designed, tested, and hand assembled to the customer's exact specifications. The electrical system either hardwired or multiplexed, will be both designed and integrated by Pierce Manufacturing. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) will be provided by Pierce as a single source manufacturer. Pierce's single source solution adds value by providing a fully engineered product that offers durability, reliability, maintainability, performance, and a high level of quality.

Your apparatus will be manufactured in Appleton, Wisconsin.

NFPA 2016 STANDARDS

This unit will comply with the NFPA standards effective January 1, 2016, except for fire department directed exceptions. These exceptions will be set forth in the Statement of Exceptions.

Certification of slip resistance of all stepping, standing and walking surfaces will be supplied with delivery of the apparatus.

All horizontal surfaces designated as a standing or walking surface that are greater than 48.00" above the ground must be defined by a 1.00" wide line along its outside perimeter. Perimeter markings and

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designated access paths to destination points will be identified on the customer approval print and are shown as approximate. Actual location(s) will be determined based on materials used and actual conditions at final build. Access paths may pass through hose storage areas and opening or removal of covers or restraints may be required. Access paths may require the operation of devices and equipment such as the aerial device or ladder rack.

A plate that is highly visible to the driver while seated will be provided. This plate will show the overall height, length, and gross vehicle weight rating.

The manufacturer will have programs in place for training, proficiency testing and performance for any staff involved with certifications.

An official of the company will designate, in writing, who is qualified to witness and certify test results.

NFPA COMPLIANCY

Apparatus proposed by the bidder will meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications will be indicated in the proposal as "non-NFPA".

INSPECTION CERTIFICATE

A third party inspection certificate for the aerial device will be furnished upon delivery of the aerial device. The certificate will be Underwriters Laboratories Inc. Type 1 and will indicate that the aerial device has been inspected on the production line and after final assembly.

Visual structural inspections will be performed on all welds on both aluminum and steel ladders.

On critical weld areas, or on any suspected defective area, the following tests will be conducted:

- Magnetic particle inspection will be conducted on steel aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. Magnets will be placed on each side of the weld while iron powder is placed on the weld itself. The powder will detect any crack that may exist. This test will conform to ASTM E709 and be performed prior to assembly of the aerial device.
- A liquid penetrant test will be conducted on aluminum aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. This test will conform to ASTM E165 and be performed prior to assembly of the aerial device.
- Ultrasonic inspection will be conducted on all aerials to detect any flaws in pins, bolts and other critical mounting components.

In addition to the tests above, functional tests, load tests, and stability tests will be performed on all aerials. These tests will determine any unusual deflection, noise, vibration, or instability characteristics of the unit.

GENERATOR TEST

If the unit has a generator, the generator will be tested, approved, and certified by Underwriters Laboratories at the manufacturer's expense. The test results will be provided to the Fire Department at the time of delivery.

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BREATHING AIR TEST

If the unit has breathing air, Pierce Manufacturing will draw an air sample from the air system and certify that the air quality meets the requirements of NFPA 1989, *Standard on Breathing Air Quality for Fire and Emergency Services Respiratory Protection*.

VEHICLE INSPECTION PROGRAM CERTIFICATION

To assure the vehicle is built to current NFPA 1901 standards, the apparatus, in its entirety, will be third-party, independent, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition. The certification includes: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus.

A placard will be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.

DELIVERY

Said apparatus and equipment will be built and shipped in accordance with the specifications hereto. Delays due to strikes, war or international conflict, failures to obtain chassis, materials, or other causes beyond our control not preventing, within about 365calendar days after receipt of this order and the acceptance thereof at our office at Appleton, Wisconsin, and to be delivered to you at OKC Fire Maintenance .

The specifications herein contained will form a part of the final contract and are subject to changes desired by the purchaser, provided such alterations are interlined prior to the acceptance by the company of the order to purchase, and provided such alterations do not materially affect the cost of the construction of the apparatus.

The proposal for fire apparatus conforms with all Federal Department of Transportation (DOT) rules and regulations in effect at the time of bid and with all National Fire Protection Association (NFPA) Guidelines for Automotive Fire Apparatus as published at the time of bid, except as modified by customer specifications. Any increased costs incurred by first party because of future changes in or additions to said DOT or NFPA standards will be passed along to the customers as an addition to the price set forth above.

Unless accepted within 30 days from date, the right is reserved to withdraw this proposition.

INSPECTION TRIP(S)

The bidder will provide two (2) factory inspection trip(s) for 5 fire personal on prebuild and 6 on final customer representative(s). The inspection trip(s) will be scheduled at times mutually agreed upon between the manufacturer's representative and the customer. All costs such as travel, lodging and meals will be the responsibility of the bidder.

AFTERMARKET SUPPORT WEBSITE

Pierceparts.com will provide Pierce authorized dealer access to comprehensive information pertaining to the maintenance and service of their customer's apparatus. This tool will provide the Pierce authorized dealer the ability to service and support their customers to the best of their ability with factory support at their fingertips.

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Pierceparts.com is also accessible to the end user through the guest login. Limited access is available and vehicle specific parts information accessible by entering a specific VIN number. All end users should see their local authorized Pierce dealer for additional support and service.

The website will consist of the following screens at the dealer level:

My Fleet Screen

The My Fleet screen will provide access to truck detail information on the major components of the vehicle, warranty information, available vehicle photographs, vehicle drawings, sales options, applicable vehicle software downloads, etc.

Parts Screens

The Parts screens will provide parts look-up capability of Pierce Manufacturing sourced items, with the aid of digital photographs, part drawings and assembly drawings. The parts search application will permit the searching of parts by item description or function group (major system category). The parts application will provide the ability to submit electronically a parts order, parts quote, or parts return request directly to Pierce Manufacturing for processing.

Warranty Screen

The Warranty screens will provide dealers the ability to submit electronically warranty claims directly to Pierce Manufacturing for reimbursement.

My Reports Screens

The My Reports screens will provide access to multiple dealer reports to allow the dealership to maintain communication with the customer on the status of orders, claims, and phone contacts.

Technical Support Screens

The Technical Support screens will provide access to all currently published Operation and Maintenance and Service Publications. Access to Pierce Manufacturing Service Bulletins and Work Instructions, containing information on current service topics and recommendations will be provided.

Training

The Training screens will provide access to upcoming training classes offered by Pierce Manufacturing along with interactive electronic learning modules (Operators Guides) covering the operation of major vehicle components will be provided. Access to training manuals used in Pierce Manufacturing training classes will be provided.

About Pierce

Access to customer service articles, corporate news, quarterly newsletters, and key contacts within the Customer Service Department will be provided. The current Customer Service Policy and Procedure Manual, detailing the operation of the Customer Service group will also be accessible.

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Bid bond not required. pl

BID BOND

A bid bond as security for the bid in the form of a 10% bid bond will be provided with the proposal. This bid bond will be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond will be issued by an authorized representative of the Surety Company and will be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond will include language which assures that the bidder/principal will give a bond or bonds, as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.

Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle will apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle will not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision will prevail.

PERFORMANCE BOND NOT REQUESTED

A performance bond will not be included. If requested at a later date, one will be provided to you for an additional cost and the following will apply:

The successful bidder will furnish a Performance and Payment bond (Bond) equal to 100 percent of the total contract amount within 30 days of the notice of award. Such Bond will be in a form acceptable to the Owner and issued by a surety company included within the Department of Treasury's Listing of Approved Sureties (Department Circular 570) with a minimum A.M. Best Financial Strength Rating of A and Size Category of XV. In the event of a bond issued by a surety of a lesser Size Category, a minimum Financial Strength rating of A+ is required.

Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Bumper to Bumper warranty period included within this proposal. Owner agrees that the penal amount of this bond will be simultaneously amended to 25 percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this contract to the contrary, the surety's liability for any warranties of any type will not exceed three (3) years from the date of such satisfactory acceptance and delivery, or the actual Bumper to Bumper warranty period, whichever is shorter.

APPROVAL DRAWING

A drawing of the proposed apparatus will be prepared and provided to the purchaser for approval before construction begins. The Pierce sales representative will also be provided with a copy of the same drawing. The finalized and approved drawing will become part of the contract documents. This drawing will indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.

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A "revised" approval drawing of the apparatus will be prepared and submitted by Pierce to the purchaser showing any changes made to the approval drawing.

FINAL DRAWING

There will be a revised drawing of the truck with all the changes made during production provided at pickup.

ELECTRICAL WIRING DIAGRAMS

Two (2) electrical wiring diagrams, prepared for the model of chassis and body, will be provided.

VELOCITY CHASSIS

The Pierce Velocity® is the custom chassis developed exclusively for the fire service. Chassis provided will be a new, tilt-type custom fire apparatus. The chassis will be manufactured in the apparatus body builder's facility eliminating any split responsibility. The chassis will be designed and manufactured for heavy-duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required. The chassis will be the manufacturer's first line tilt cab.

WHEELBASE

The wheelbase of the vehicle will be 255".

GVW RATING

The gross vehicle weight rating will be 76,000.

FRAME

The chassis frame will be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails will have a 13.38" tall web over the front and mid sections of the chassis, with a continuous smooth taper to 10.75" over the rear axle. Each rail will have a section modulus of 25.992 cubic inches and a resisting bending moment (rbm) of 3,119,040 in-lb over the critical regions of the frame assembly, with a section modulus of 18.96 cubic inches with an rbm of 2,275,200 in-lb over the rear axle. The frame rails will be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges.

FRAME REINFORCEMENT

In addition, a full-length mainframe internal "C" liner will be provided. It will be heat-treated steel measuring 12.50" x 3.00" x 0.25". Each liner will have a section modulus of 13.58 cubic inches, yield strength of 110,000 psi, and rbm of 857,462 in-lb. Total rbm at wheelbase center will be 4,391,869 in-lb.

The frame liner will be mounted inside of the chassis frame rail and extend the full length of the frame.

FRONT NON DRIVE AXLE

The Oshkosh TAK-4® front axle will be of the independent suspension design with a ground rating of 24,000 lb.

Upper and lower control arms will be used on each side of the axle. Upper control arm castings will be made of 100,000-psi yield strength 8630 steel and the lower control arm casting will be made of 55,000-psi yield ductile iron.

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The center cross members and side plates will be constructed out of 80,000-psi yield strength steel.

Each control arm will be mounted to the center section using elastomer bushings. These rubber bushings will rotate on low friction plain bearings and be lubricated for life. Each bushing will also have a flange end to absorb longitudinal impact loads, reducing noise and vibrations.

There will be nine (9) grease fittings supplied, one (1) on each control arm pivot and one (1) on the steering gear extension.

The upper control arm will be shorter than the lower arm so that wheel end geometry provides positive camber when deflected below rated load and negative camber above rated load.

Camber at load will be 0 degrees for optimum tire life.

The ball joint bearing will be of low friction design and be maintenance free.

Toe links that are adjustable for alignment of the wheel to the center of the chassis will be provided.

The wheel ends must have little to no bump steer when the chassis encounters a hole or obstacle.

The steering linkage will provide proper steering angles for the inside and outside wheel, based on the vehicle wheelbase.

The axle will have a turning angle of up to 45 degrees.

FRONT SUSPENSION

Front Oshkosh TAK-4™ independent suspension will be provided with a minimum ground rating of 24,000 lb.

The independent suspension system has been designed to provide maximum ride comfort. The design will allow the vehicle to travel at highway speeds over improved road surfaces and at moderate speeds over rough terrain with minimal transfer of road shock and vibration to the vehicle's crew compartment.

Each wheel will have a torsion bar type spring. In addition, each front wheel end will also have energy absorbing jounce bumpers to prevent bottoming of the suspension.

The suspension design will be such that there is at least 10.00" of total wheel travel and a minimum of 3.75" before suspension bottoms.

The torsion bar anchor lock system allows for simple lean adjustments, without the use of shims. One can adjust for a lean within 15 minutes per side. Anchor adjustment design is such that it allows for ride height adjustment on each side.

The independent suspension was put through a durability test that simulated 140,000 miles of inner city driving.

FRONT SHOCK ABSORBERS

KONI heavy-duty telescoping shock absorbers will be provided on the front suspension.

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FRONT OIL SEALS

Oil seals with viewing window will be provided on the front axle.

FRONT TIRES

Front tires will be Goodyear radials 445/65R22.50, 20 ply all-position G296 MSA tread, rated for 24,600 lb maximum axle load and 68 mph maximum speed.

The tires will be mounted on Alcoa 22.50" x 13.00" polished aluminum disc type wheels with a ten (10)stud, 11.25" bolt circle.

REAR AXLE

The rear axle will be a tandem axle assembly, of the Oshkosh TAK-4® T3, Tight Turning Technology, independent suspension design, with the ability to support a mechanical rear axle steering system. Tandem rear axles will have a ground rating of 52,000 lb.

The rear axles will be designed for specific use of the independent suspension.

The rear independent suspension driving axles will be equipped with a carrier reduction of 1.69 to 1.00 with a planetary wheel end reduction of 3.55 to 1.00. Driving torque will be transmitted from the center differential to the planetary wheel drive by means of a half shaft.

Oil fills and level checks will be required at the center differential and the planet wheel end locations.

An inter-axle differential, which divides torque evenly between axles, will be provided with an indicator light mounted on the cab instrument panel.

REAR AXLE STEERING

The tandem rear axle assembly will include a mechanical rear steering system. The mechanical rear steering system will be applied to both rear axles.

The steering geometry will be designed to minimize tire scrub of the rear tandem axle tires while reducing the overall turning diameter of the apparatus.

The mechanical rear steering system will not use electronic controls and will not have a means to be disengaged. Coordinated steering is the only steering mode supported by the mechanical steering system.

Rear steering system is actuated by a mechanical means of connecting the front master/slave steering gear system to a rear axle master/slave steering gear system.

TOP SPEED OF VEHICLE

A rear axle ratio will be furnished to allow the vehicle to reach a top speed of 60 mph.

REAR SUSPENSION

The rear suspension will be an Oshkosh TAK-4® independent type with a minimum ground rating of 52,000 lbs.

The independent suspension will be configured with upper and lower control arms with a spring seat for a coil spring mounted to the lower control arm. The spring tower will be integrated into the suspension

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frame mount. Each control arm has elastomeric bushings at the inner pivot locations with a ball joint bearing at the outer pivot location. All suspension pivot joints will be of a maintenance free design.

The rear independent suspension will be provided with steering toe links providing tow adjustments and maintaining wheel control throughout the range of wheel travel.

The independent suspension will be designed to provide maximum ride quality when traveling at highway speeds over improved roads or a moderate speeds over secondary road surfaces with minimal transfer of shock and vibration to the apparatus.

Each independent suspension will utilize a coil type of spring. The design will allow for removal of the spring without the use of any spring compression.

The rear suspension will provide a minimum wheel travel of 10.00", 6.00" jounce and 4.00" of rebound.

REAR OIL SEALS

Oil seals will be provided on the rear axle(s).

REAR TIRES

Rear tires will be four (4) Goodyear radials 445/65R22.50, 20 ply all-position G296 MSA tread, rated for 52,640 lb maximum axle load and 68 mph maximum speed.

The tires will be mounted on 22.50" x 13.00" steel disc type wheels with a ten (10) stud, 11.25" bolt circle.

TIRE BALANCE

All tires will be balanced with Counteract balancing beads. The beads will be inserted into the tire and eliminate the need for wheel weights.

TIRE PRESSURE INDICATOR

NFPA 1901, 2016 edition, section 4.13.4 requires each tire be equipped with a visual indicator or monitoring system that indicates tire pressure.

Per Fire Department specification, a tire pressure indicator is not on the apparatus as manufactured. This apparatus will be non-compliant to NFPA 1901 standards effective at time of contract execution.

FRONT HUB COVERS

Stainless steel hub covers will be provided on the front axle. An oil level viewing window will be provided.

CHROME LUG NUT COVERS

Chrome lug nut covers will be supplied on front and rear wheels.

MUD FLAPS

Mud flaps with a Pierce logo will be installed behind the front and rear wheels.

WHEEL CHOCKS

There will be one (1) pair of folding Ziamatic, Model SAC-44-E, aluminum alloy, Quick-Choc wheel blocks, with easy-grip handle provided.

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Wheel Chock Brackets

There will be one (1) pair of Zico, Model SQCH-44-H, horizontal mounting wheel chock brackets provided for the Ziamatic, Model SAC-44-E, folding wheel chocks. The brackets will be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets will be mounted rearward of the left side rear tire.

ANTI-LOCK BRAKE SYSTEM

The vehicle will be equipped with a Wabco 4S4M, anti-lock braking system. The ABS will provide a four (4) channel anti-lock braking control on both the front and rear wheels (rear tandem wheels). A digitally controlled system that utilizes microprocessor technology will control the anti-lock braking system. Each wheel will be monitored by the system. When any particular wheel begins to lockup, a signal will be sent to the control unit. This control unit then will reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system will eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

BRAKES

The service brake system will be full air type.

The front brakes will be Knorr/Bendix disc type with a 17.00" ventilated rotor for improved stopping distance.

The brake system will be certified, third party inspected, for improved stopping distance.

The rear brakes will be Bendix®, Model ES1657D, 16.50" x 7.00" cam operated with automatic slack adjusters.

BRAKE SYSTEM AIR COMPRESSOR

The air compressor will be a Cummins/WABCO with 18.7 cubic feet per minute output.

BRAKE SYSTEM

The brake system will include:

- Bendix dual brake treadle valve
- Heated automatic moisture ejector on air dryer
- Total air system capacity of 6,653 cubic inches
- Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi
- Spring set parking brake system
- Parking brake operated by a push-pull style control valve
- A parking "brake on" indicator light on instrument panel
- Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, will be provided with an automatic spring brake application at 40 psi
- A pressure protection valve will be provided to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa).
- Quarter turn drain valves on each air tank

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The air tank will be primed and painted to meet a minimum 750 hour salt spray test.

To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets.

BRAKE SYSTEM AIR DRYER

The air dryer will be a Bendix AD-IP, with coalescing filter and heater.

BRAKE LINES

Color-coded nylon brake lines will be provided. The lines will be wrapped in a heat protective loom in the chassis areas that are subject to excessive heat.

AIR INLET

One (1) air inlet with 3D series male coupling will be provided. It will allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet will be located forward in the driver side lower step well of cab. A check valve will be provided to prevent reverse flow of air. The inlet will discharge into the "wet" tank of the brake system. A mating female fitting will also be provided with the loose equipment.

ALL WHEEL LOCK-UP

An additional all wheel lock-up system will be installed which applies air to the front brakes only. The standard spring brake control valve system will be used for the rear.

AIR TANK, SPECIAL LOCATION

Due to space constraints, one (1) air tanks will be located the midship air tank as directed in E-pickup report, item 19 for 34690-01.

AIR COMPRESSOR - BRAKE SYSTEM MAINTENANCE

A Kussmaul, Model 091-9HP, air compressor will be provided. It will be driven by the 120-volt shoreline electrical system and will be located Behind driver's seat accessible for service if needed. . The compressor will maintain the air pressure in the chassis air brake system while the vehicle is not in use. A pressure switch will sense when the system pressure drops and automatically start the compressor, which then will run until pressure is restored.

COMPRESSION FITTINGS

Any nylon tube on the apparatus that is pneumatic will be plumbed with compression type fittings where applicable.

ENGINE

The chassis will be powered by an electronically controlled engine as described below:

Make:	Cummins®
Model:	X15
Power:	605 hp at 1800 rpm
Torque:	1850 lb-ft at 1000 rpm
Governed Speed:	2100 rpm
Emissions Level:	EPA 2021

Fuel:	Diesel
Cylinders:	Six (6)
Displacement:	912 cubic inches (14.9L)
Starter:	Delco 39MT+™
Fuel Filters:	Frame mounted spin-on style primary filter with water separator and water-in-fuel sensor

The engine will include On-board diagnostics (OBD), which provides self diagnostic and reporting. The system will give the owner or repair technician access to state of health information for various vehicle sub systems. The system will monitor vehicle systems, engine and after treatment. The system will illuminate a malfunction indicator light on the dash console if a problem is detected.

REMOTE MOUNTED ENGINE FILTERS

The engine fuel and oil filters will be remote mounted for ease of maintenance.

HIGH IDLE

A high idle switch will be provided, inside the cab, on the instrument panel, that will automatically maintain a preset engine rpm. A switch will be installed, at the cab instrument panel, for activation/deactivation.

The high idle will be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light will be provided, adjacent to the switch. The light will illuminate when the above conditions are met. The light will be labeled "OK to Engage High Idle."

ENGINE BRAKE

A Jacobs® engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.

The driver will be able to turn the engine brake system on/off and have a high, medium and low setting.

The engine brake will activate when the system is on and the throttle is released.

The high setting of the brake application will activate and work simultaneously with the variable geometry turbo (VGT) provided on the engine.

The engine brake will be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.

The ABS system will automatically disengage the auxiliary braking device, when required.

CLUTCH FAN

A Horton® fan clutch will be provided. The fan clutch will be automatic when the pump transmission is in "Road" position, and fully engaged in "Pump" position.

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ENGINE SHUTDOWN W/RESET

An emergency engine shutdown, by means of incorporating a flapper over the engine air intake, will be provided with a pneumatic push-to-activate control inside the cab. A protective guard will be supplied to avoid unnecessary activation.

The push-to-active control inside the cab can also be used to release the emergency shutdown, without having to tilt the cab.

ENGINE OIL

The engine will be provided from the apparatus builder with synthetic oil installed.

GUARD, U-BOLT OVER EMERGENCY SHUTDOWN SWITCH

A U-bolt type protective guard will installed over the emergency shutdown switch to prevent accidental activation of the emergency shutdown switch.

ENGINE AIR INTAKE

An air intake with an ember separator (to prevent road dirt, burning embers, and recirculating hot air from entering the engine) will be mounted at the front of the apparatus, on the passenger side of the engine. The ember separator will be mounted in the air intake with flame retardant, roto-molded polyethylene housing. It will be easily accessible by the hinged access panel at the front of the vehicle.

EXHAUST SYSTEM

The exhaust system will include a Single Module™ aftertreatment device to meet current EPA standards. The exhaust system will be stainless steel from the turbo to the inlet of the aftertreatment device, and will be 5.00" in diameter. An insulation wrap will be provided on all exhaust pipes between the turbo and aftertreatment device to minimize the heat loss to the aftertreatment device. The exhaust will terminate horizontally ahead of the right side rear wheels. A tailpipe diffuser will be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields will be provided to isolate chassis and body components from the heat of the tailpipe diffuser.

EXHAUST MODIFICATION

The exhaust pipe will be brought out from under the body at a 90 degree angle from the truck. An adapter will be provided on the tail pipe, allowing use of an MagneGrip magnetic mount exhaust hose. The diameter of the diffuser will be 6.00". The exhaust pipe will terminate flush with the outer edge of the rubrail. A stop will be provided on the tail pipe that will prevent the nozzle from sliding too far on.

RADIATOR

The radiator and the complete cooling system will meet or exceed NFPA and engine manufacturer cooling system standards.

For maximum corrosion resistance and cooling performance, the entire radiator core will be constructed using long life aluminum alloy. The core will be made of aluminum fins, having a serpentine design, brazed to aluminum tubes. The tubes will be brazed to aluminum headers. The radiator core will have a minimum frontal area of 1434 square inches. Supply tank made of glass-reinforced nylon and a return tank of cast aluminum alloy will be crimped on to the core assembly using header tabs and a

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compression gasket to complete the radiator core assembly. The radiator will be compatible with commercial antifreeze solutions.

There will be a full steel frame around the entire radiator core assembly. The radiator core assembly will be isolated within the steel frame by rubber inserts to enhance cooling system durability and reliability. The radiator will be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly will be isolated from the chassis frame rails with rubber isolators.

The radiator assembly will include an integral de-aeration tank permanently mounted to the top of the radiator framework, with a readily accessible remote-mounted overflow tank. For visual coolant level inspection, the radiator will have a built-in sight glass. The radiator will be equipped with a 15 psi pressure relief cap.

A drain port will be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.

A heavy-duty fan will draw in fresh, cool air through the radiator. Shields or baffles will be provided to prevent recirculation of hot air to the inlet side of the radiator.

COOLANT LINES

Gates, or Goodyear, rubber hose will be used for all engine coolant lines installed by the chassis manufacturer.

Hose clamps will be stainless steel "constant torque type" to prevent coolant leakage. They will react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.

FUEL TANK

A 65 gallon fuel tank will be provided and mounted at the rear of the chassis. The tank will be constructed of 12-gauge, hot rolled steel. It will be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank will be mounted with stainless steel straps.

A 0.75" drain plug will be located in a low point of the tank for drainage.

A fill inlet will be located on the left hand side of the body and is covered with a hinged, spring loaded, brushed stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only."

A 0.50" diameter vent will be installed from tank top to just below fuel fill inlet.

The fuel tank will meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.

All fuel lines will be provided as recommended by the engine manufacturer.

DIESEL EXHAUST FLUID TANK

A 4.5 gallon diesel exhaust fluid (DEF) tank will be provided and mounted in the driver's side body forward of the rear axle.

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A 0.50" drain plug will be provided in a low point of the tank for drainage.

A fill inlet will be located on the driver's side of the body and be covered with a hinged, spring loaded, brushed stainless steel door that is marked "Diesel Exhaust Fluid Only".

The tank will meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing.

The tank will include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.

FUEL PRIMING PUMP

A Cummins automatic electronic fuel priming pump will be integrated as part of the engine.

FUEL SHUTOFF

A fuel line shutoff valve will be installed on both the inlet and outlet of the primary fuel filter.

FUEL COOLER

An air to fuel cooler will be installed in the engine fuel return line.

FUEL SEPARATOR

The engine will be equipped with a Racor in-line spin-on fuel and water separator in addition to the engine fuel filters.

TRANSMISSION

An Allison 6th generation, Model EVS 4000P, electronic, torque converting, automatic transmission will be provided.

The transmission will be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display will indicate when service is due.

Two (2) PTO openings will be located on left side and top of converter housing (positions 8 o'clock and 1 o'clock).

A transmission temperature gauge with an amber light and buzzer will be installed on the cab instrument panel.

TRANSMISSION SHIFTER

A six (6)-speed push button shift module will be mounted to right of driver on console. Shift position indicator will be indirectly lit for after dark operation.

The transmission ratio will be:

1st	3.51 to 1.00
2nd	1.91 to 1.00
3rd	1.43 to 1.00
4th	1.00 to 1.00
5th	0.75 to 1.00

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6th	0.64 to 1.00
R	4.80 to 1.00

TRANSMISSION COOLER

A Modine plate and fin transmission oil cooler will be provided using engine coolant to control the transmission oil temperature.

DOWNSHIFT MODE (W/ENGINE BRAKE)

The transmission will be provided with an aggressive downshift mode.

This will provide earlier transmission downshifts to 3rd gear from 6th gear, resulting in improved engine braking performance.

TRANSMISSION FLUID

The transmission will be provided with TranSynd, or other Allison approved TES-668 heavy duty synthetic transmission fluid.

DRIVELINE

Drivelines will be a heavy-duty metal tube and be equipped with Spicer® 1810 universal joints.

The shafts will be dynamically balanced before installation.

A splined slip joint will be provided in each driveshaft where the driveline design requires it. The slip joint will be coated with Glidecoat® or equivalent.

STEERING

Dual Sheppard, Model M110, steering gears, with integral heavy-duty power steering, will be provided. For reduced system temperatures, the power steering will incorporate an air to oil cooler and an Eaton, Model VN20, hydraulic pump with integral pressure and flow control. All power steering lines will have wire braded lines with crimped fittings.

A tilt and telescopic steering column will be provided to improve fit for a broader range of driver configurations.

STEERING WHEEL

The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a 4-spoke design.

LOGO AND CUSTOMER DESIGNATION ON DASH

The dash panel will have an emblem containing the Pierce logo and customer name. The emblem will have three (3) rows of text for the customer's department name. There will be a maximum of eight (8) characters in the first row, 11 characters in the second row and 11 characters in the third row.

The first row of text will be: Oklahoma City

The second row of text will be: Fire

The third row of text will be: Rescue

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BUMPER

A one (1) piece aluminum bumper minimum of 10.00" high and 45 degree corners containing a 3/8" bend radius and 1.50" top and bottom flange will be attached to the modular frame extension. The bumper will be extended 15.00" from front face of cab.

It will have fully covered stabilizer cylinders that tip within a pocket inside the covers allowing the bumper to be a single wrap around piece.

The bumper will be metal finished and painted job color.

Gravel Pan

A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and cab face. The gravel pan will be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.

LIFT AND TOW MOUNTS

Mounted to the frame extension will be lift and tow mounts. The lift and tow mounts will be designed and positioned to adapt to certain tow truck lift systems.

The lift and tow mounts with eyes will be painted the same color as the frame.

TOW HOOKS

No tow hooks are to be provided. This truck will be equipped with a lift and tow package with integral tow eyes.

All hardware securing the deckplate on top of the bumper will be Torx head.

FRONT BUMPER UL-LX COATING

Protective black UL-LX® coating will be provided on the outside exterior of the top front bumper flange. It will not be sprayed on the underside of the flange.

The lining will be properly installed by an authorized UL-LX dealer.

CAB

The Velocity cab will be designed specifically for the fire service and will be manufactured by Pierce Manufacturing.

To provide quality at the source and single source customer support, the cab will be built by the apparatus manufacturer in a facility located on the manufacturer's premises.

For reasons of structural integrity and enhanced occupant protection, the cab will be of heavy duty design, constructed to the following minimal standards.

The cab will have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts) and rear wall areas. The A-pillar will be constructed of 0.25" heavy wall extrusions joined by a solid A356-T6 aluminum joint casting. The B-pillar and C-pillar will also be constructed from 0.25" heavy wall extrusions. The rear wall will be constructed of two (2) 4.00" x 2.00" outer aluminum extrusions and two (2) 3.00" x 2.00" inner

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aluminum extrusions. All main vertical structural members will run from the floor to 7.50" x 3.50" x 0.125" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.75" thick corner casting at each of the front corners of the roof assembly.

The front of the cab will be constructed of a 0.25" thick firewall, covered with a 0.125" front skin (for a total thickness of 0.38"), and reinforced with 24.50" wide x 10.00" deep x 0.50" thick supports on each side of the engine tunnel. The cross-cab support will be welded to the A-pillar, 0.25" firewall, and engine tunnel, on the left and right sides.

The cab floors will be constructed of 0.1875" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.44" of structural material at the front floor area. The front floor area will also be supported with three (3) 0.50" plates bolted together that also provides the mounting point for the cab lift. This tubing will run from the front of the cab to the 0.1875" thick engine tunnel, creating the structure to support the forces created when lifting the cab.

The cab will be a full tilt style. A 3-point cab mount system with rubber isolators will improve ride quality by isolating chassis vibrations from the cab.

The crew cab will be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.

The forward cab section will have an overall height (from the cab roof to the ground) of approximately 102.00". The crew cab section will have a 10.00" raised roof, with an overall cab height of approximately 112.00". The raised portion will start at the most forward point of the B-pillar and continue rearward to the back of the cab. The overall height listed will be calculated based on a truck configuration with the lowest suspension weight ratings, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension will increase the overall height listed.

The cab will have an interior width of not less than 93.50". The driver and passenger seating positions will have a minimum 24.00" clear width at knee level.

To reduce injuries to occupants in the seated positions, proper head clearance will be provided. The floor to ceiling height inside the forward cab will be no less than 60.25". The floor to ceiling height inside the crew cab will be no less than 62.95" in the center position and 68.75" in the outboard positions.

The crew cab will measure a minimum of 47.50" from the rear wall to the backside of the engine tunnel (knee level) for optimal occupant legroom.

INTERIOR CAB INSULATION

The cab walls, ceiling and engine tunnel will be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab will be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling.

FENDER LINERS

Full-circular, aluminum inner fender liners in the wheel wells will be provided.

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PANORAMIC WINDSHIELD

A one (1)-piece, safety glass windshield with more than 2,802 square inches of clear viewing area will be provided. The windshield will be full width and will provide the occupants with a panoramic view. The windshield will consist of three (3) layers; the outer light, the middle safety laminate, and the inner light. The 0.114" thick outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage. The inner light will provide yet another chip resistant layer. The cab windshield will be bonded to the aluminum windshield frame using a urethane adhesive. A custom fit pattern will be applied on the outside perimeter of the windshield for a finished automotive appearance.

WINDSHIELD WIPERS

Three (3) electric windshield wipers with a washer, in conformance with FMVSS and SAE requirements, will be provided. The wiper blades will be 21.65" long and together will clear a minimum of 1,783 square inches of the windshield for maximum visibility in inclement weather.

The windshield washer fluid reservoir will be located at the front of the vehicle and be accessible through the access hood for simple maintenance.

FAST SERVICE ACCESS FRONT TILT HOOD

A full width access hood will be provided for convenient access to engine coolant, steering fluid, wiper fluid, cab lift controls, headlight power modules, and ember separator. The hood will also provide complete access to the windshield wiper motor and components. The hood will be contoured to provide a sleek, automotive appearance. The hood will be constructed of two (2) fiberglass panels bonded together and will include reinforcing ribs for structural integrity. The hood will include air cylinders to hold the hood in open and closed positions, and a heavy duty latch system that will meet FMVSS 113 (Hood Latch System). The spring loaded hood latch will be located at the center of the hood with a double action release lever located behind the Pierce logo. The two (2)-step release requires the lever first be pulled to the driver side until the hood releases from the first latch (primary latch) then to the passenger side to fully release the hood (secondary latch).

ENGINE TUNNEL

To provide structural strength, the engine tunnel sidewalls will be constructed of .50" aluminum plate that is welded to both the .25" firewall and .38" heavy wall extrusion under the crew cab floor. To maximize occupant space, the top edges will be tapered.

The engine hood will be insulated for protection from heat and sound. Perforated foil faced insulation will be over a 1.00" thick closed cell foam affixed with pressure sensitive adhesive and further secured with mechanical fasteners. Thermal rating for this insulation will be -40 degrees Fahrenheit to 300 degrees Fahrenheit. The noise insulation keeps the dBA level within the limits stated in the current NFPA 1901 standards.

CAB REAR WALL EXTERIOR COVERING

The exterior surface of the rear wall of the cab will be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.

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CAB LIFT

A hydraulic cab lift system will be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. The hydraulic pump will have a backup manual override, for use in the event of an electrical failure.

The cab lift controls will be located at the driver side front of the cab, easily accessible under the full width front access hood. The controls will include a permanently mounted raise/lower switch. For enhanced visibility during cab tilt operations, a remote control tether with on/off switch will be supplied on a coiled cord that will extend from 2.00' (coiled) to 6.00' (extended).

The cab will be capable of tilting 42 degrees and 80 degrees with crane assist to accommodate engine maintenance and removal. The cab pivots will be located 46.00" apart to provide stability while tilting the cab.

The rear of the cab will be locked down by a two (2)-point, automatic, hydraulic, double hook mechanism that fully engages after the cab has been lowered (self-locking). The dual 2.25" diameter hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position.

For increased safety, a redundant mechanical stay arm will be provided that must be manually put in place on the driver side between the chassis and cab frame when cab is in the raised position. This device will be manually stowed to its original position before the cab can be lowered.

Cab Lift Interlock

The cab lift safety system will be interlocked to the parking brake. The cab tilt mechanism will be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism will be disabled.

The cab lift safety system will also be interlocked to the front stabilizers in the bumper. The cab tilt mechanism will be active only when the front stabilizers are fully stowed, and fully tilted outboard. The cab tilt mechanism will not allow the front stabilizers to be tilted inboard until the cab has been fully lowered and locked into position.

GRILLE

A bright finished aluminum mesh grille screen, inserted behind a formed bright finished grille surround, will be provided on the front center of the cab, and will serve as an air intake to the radiator.

SCUFFPLATE

An aluminum treadplate scuffplate will be provided on the rear facing seat riser(s). The rear edge of the scuffplate will have a 90 degree bend down to the top of the heater grille. The scuffplate will also extend forward on the flat portion of the riser as far as possible.

The scuffplate shall be installed on the following riser(s) LH RF Seat . The one (1) scuffplates shall be installed.

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DOOR JAMB SCUFFPLATES

All cab door jambs will be furnished with a brushed stainless steel scuffplate, mounted on the striker side of the jamb and include the area behind the cab door handrails.

FRONT CAB TRIM

There will be polished stainless steel rectangular garnish plates installed behind the two (2) headlight bezels for an enhanced appearance.

There will be no covers provided over the painted cab corner where the cab turn signals are located.

MIRRORS

Ramco, Model 6001CCHR, polished aluminum 9.25" wide x 13.50" high mirrors, with a convex section, will be mounted on each side of the front cab corner.

The flat glass in each mirror will be heated and adjustable with remote controls that are convenient to the driver.

The convex section in each mirror will be adjusted manually.

There will be a pair of 6.00" risers, one for each mirror, mounted between the mirror body and mirror arm.

CAB DOORS

The forward cab and crew cab doors will be the half-height style door. To enhance entry and egress to the cab, the forward cab doors will be a minimum of 43.59" wide x 64.71" high. The crew cab doors will measure a minimum of 37.87" wide x 73.75" high.

The forward cab and crew cab doors will be constructed of extruded aluminum with a nominal material thickness of 0.125". The exterior door skins will be constructed from 0.090" aluminum.

The forward cab door windows will include a 7.50" high x 10.00" wide drop area at the front to enhance visibility.

A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door. The finish of the door handle will be chrome/black. The exterior handle will be designed specifically for the fire service to prevent accidental activation, and will provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands.

Each door will also be provided with an interior flush, open style paddle handle that will be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles will provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands.

The cab doors will be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys will be Model 751. The locks will be capable of activating when the doors are open or closed. The doors will remain locked if locks are activated when the doors are opened, then closed.

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A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf will be provided on all cab doors. There will be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.

A chrome grab handle will be provided on the inside of each cab and crew cab door.

A red webbed grab handle will be installed on the crew cab door stop strap. The grab handles will be securely mounted.

The cab steps at each cab door location will be located below the cab doors and will be exposed to the exterior of the cab.

Door Panels

The inner cab door panels will be constructed out of brushed stainless steel. The cab door panels will be removable.

RECESSED POCKET WITH ELASTIC COVER

To provide organized storage (clutter control) in the cab for miscellaneous equipment, the cab interior will be provided with recessed storage pockets. The pockets will be 5.63" wide x 2.00" high x 4.00" deep. The pockets will be provided with a perforated elastic material cover to secure the equipment in the pocket. The pockets will be installed in all available mounting locations of the overhead console.

ELECTRIC WINDOW CONTROLS

Each cab entry door will be equipped with an electrically operated tempered glass window. A window control panel will be located on the door panel within easy reach of the respective occupant. Each switch will allow intermittent or auto down operation for ease of use. Auto down operation will be actuated by holding the window down switch for approximately 1 second. The driver control panel will contain a control switch for each cab door's window. All other door control panels will contain a single switch to operate the window within that door.

The window switches will be connected directly to the battery power. This allows the windows to be raised and lowered when the battery switch is in the off position.

CAB STEPS

The forward cab and crew cab access steps will be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps will be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps will be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps will be a minimum 31.00" wide, and the crew cab steps will be 24.25" wide with an 8.00" minimum depth. The inside cab steps will not exceed 18.00" in height and be limited to two (2) steps.

CAB EXTERIOR HANDRAILS

A Hansen knurled aluminum handrail will be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress. Each handrail will be provided with green LED lights. The lights will be activated when the parking brake is applied. The LED lights may be load managed.

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STEP LIGHTS

There will be four (4) white P25 LED step lights provided. The lights will be installed at each cab and crew cab door, one (1) per step. The lights will be located in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep.

In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light.

The light(s) will have a chrome housing.

The lights will be activated when the adjacent door is opened.

FENDER CROWNS

Rubber fender crowns will be provided around the cab wheel openings.

Crowns will be black.

CREW CAB WINDOWS

One (1) fixed window will be provided on the driver side of the cab, to the rear of the front cab door. The window will be sized to enhance light penetration into the cab interior. The driver side window will measure 20.00" wide x 20.50" high. There will not be a window provided on the passenger side of the cab.

WINDOW INTERIOR TRIM

For improved aesthetics, the driver side cab window will include a vacuum formed ABS interior trim panel.

WEBSITE TAG

A tag will be located on the cab door containing all necessary information to access the Pierce Parts website. The tag will be 2.00" high x 6.00" wide.

CAB AIR FILTRATION

The vehicle will be equipped with an Active Air Purification system to provide purification of the interior air of the cab and crew cab.

System Construction

The unit will contain a PHI Cell using a UVC light with a quad-metallic hydrophilic catalyst to generate H₂O₂ and reactive oxygen species (ROS) to sanitize against various microbial species. The system will produce H₂O₂ at 20 to 50 parts per billion (PPB) to sanitize the atmosphere inside the apparatus. The system will be properly sized per application to support virus and bacteria kill rates. The unit will be stand-alone and contain its own airflow mechanism, with a stainless-steel outer housing. The expected PHI Cell life will be no less than 1 year. The unit will be environmentally friendly and not emit direct UVC outside of the unit. The system will not generate H₂O₂ levels above 0.1 ppm (1/10 of OSHA limits of 1 ppm) in the installed apparatus.

There will be two (2) additional PHI cells shipped loose with the unit.

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The housing will be 16.00" wide x 5.75" high x 5.50" deep. The non-angled vertical surfaces will be provided with an additional 3.00" of clearance for air flow. The unit will be mounted to the rear of the driver seat.

An LED indicator light monitoring the PHI cell is active will be provided on the housing exterior.

System Certification/Testing

The system will be 3rd party tested to verify H2O2 production at 20 to 50 PPB, and to support virus and bacteria kill rates. The manufacturer must be ISO 9001:2015 certified. The system will meet all applicable sections of IEC 61373:2010 for shock and vibration, and SAE J1455 for electrical specifications.

System Operating Conditions

The unit will be resistant to dust particles normally found in apparatus. The working temperature of the system will be -22F to 149F (-30C to 65C).

The unit will operate at any time with or without occupants in the cab and will pose no harm to the occupants from H2O2, Ozone, or UVC light.

Electrical Wiring/Function

The system will be 12 VDC powered from the vehicle power supply and/or an external 12 VDC source. The system will draw a maximum of 1.5 amps and have a 5-amp integrated fuse in the wire harness.

MOUNTING PLATE ON ENGINE TUNNEL

Equipment installation provisions will be installed on the engine tunnel.

A 0.188" smooth aluminum plate will be bolted to the top surface of the engine tunnel. The plate will be located to the left of the officer and on the rear of the tunnel. It will follow the contour of the engine tunnel and will run the entire length of the engine tunnel. The plate will be spaced off the engine tunnel .75" to allow for wire routing below the plate.

The mounting plate will be sprayed with red UL-LX® polyurethane/polyurea elastomer abrasive resistant material.

MOUNTING PLATE(S)

There will be three (3) the full size of the side wall of the Ems cabinet and as large as possible on rear wall pegboard mounting plate(s) provided and installed 1 on inboard side of EMS cabinet facing the engine tunnel 1 each side, Outboard side of rear wall (2). The plate will be 0.188" thick with .281" diameter holes, punched 1.00" on center in a pegboard pattern. The mounting surface will be painted to match the cab interior. The plates(s) will be mounted on 1.00" spacer stand-offs.

CAB INTERIOR

With safety as the primary objective, the wrap-around style cab instrument panel will be designed with unobstructed visibility to instrumentation. The dash layout will provide the driver with a quick reference to gauges that allows more time to focus on the road.

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The center console will be a high impact ABS polymer and will be easily removable.

The passenger side dashboard will be constructed of aluminum for durability and low maintenance. For enhanced versatility, the passenger side dash will include a flat working surface.

To provide optional (service friendly) control panels, switches and storage modules, an aluminum overhead console will also be provided.

To complete the cab front interior design, aluminum modesty panels will be provided under the dash on both sides of the cab. The driver side modesty panel will provide mounting for the battery switch and diagnostic connectors, while the passenger side modesty panel provides a glove box, and ground access to the main electrical distribution panel via quick quarter turn fasteners.

The following items will be sprayed with red polyurethane/polyurea elastomer abrasive resistant material. The abrasive resistant material will be properly sprayed by an authorized UL-LX® dealer.

- Modesty panel in front of driver
- Officer side dash
- Glove box in front of officer
- Power distribution in front of officer
- Overhead switch panel
- Radio compartment below the officer seat (if applicable)
- Engine tunnel
- Fluid check access door
- Scuffplate on bottom rear of engine tunnel
- Front evaporator cover for air conditioner
- Defrost duct cover
- Evaporator drain tubes
- Permanent and bolt-in seat risers
- Side wall panels below the crew cab windows
- Side wall panels to the rear and above the crew cab windows
- Rear wall panels
- Heater face plates
- Driver side lower wireway covers
- Officer side lower wireway covers
- Upper wireway covers
- Vertical riser in the floor
- Vertical door sills
- PUC notch (if applicable)

The headliner will be installed in both forward and rear cab sections. The headliner panel will be a composition of an aluminum panel covered with a sound barrier and vinyl.

The cab structure will include designated raceways for electrical harness routing from the front of the cab to the rear upper portion of the cab. Raceways will be extruded in the forward door frame, floor,

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walls and overhead in the area where the walls meet the ceiling. The raceways located in the floor will be covered by aluminum extrusion, while the vertical and overhead raceways will be covered by painted aluminum covers. The raceways will improve harness integrity by providing a continuous harness path that eliminates wire chafing and abrasion associated with exposed wiring or routing through drilled metal holes. Harnesses will be laid in place.

CAB INTERIOR UPHOLSTERY

The cab interior upholstery will be 36 oz red vinyl. All cab interior materials will meet FMVSS 302 (flammability of interior materials).

CAB INTERIOR PAINT

The following metal surfaces will be painted black, vinyl textured paint:

- Modesty panel in front of driver
- Vertical surface of dash in front of the officer (not applicable for recessed dash)
- Glove box in front of the officer (if applicable)
- Power distribution in front of the officer
- Rear heater vent panels

The remaining cab interior metal surfaces will be painted red, vinyl texture paint.

CAB FLOOR

The cab and crew cab floor areas will be covered with Polydamp™ acoustical floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler.

The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a 0.25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels.

DEFROST/AIR CONDITIONING SYSTEM

A ceiling mounted combination heater, defroster and air conditioning system will be installed in the cab above the engine tunnel area.

Cab Defroster

A 54,000 BTU heater-defroster unit with 690 SCFM of air flow will be provided inside the cab. The heater-defrost will be installed in the forward portion of the cab ceiling. Air outlets will be strategically located in the cab header extrusion per the following:

- One (1) adjustable will be directed towards the left side cab window
- One (1) adjustable will be directed towards the right side cab window
- Six (6) fixed outlets will be directed at the windshield

The defroster will be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system will meet or exceed SAE J382 requirements.

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Cab/Crew Auxiliary Heater

There will be one (1) 31,000 BTU auxiliary heater with 560 SCFM of air flow provided in each outboard rear facing seat risers with a dual scroll blower. An aluminum plenum incorporated into the cab structure used to transfer heat to the forward positions.

Air Conditioning

A 19.10 cubic inch compressor will be installed on the engine.

A roof-mounted condenser with a 78,000 BTU output at 2,400 SCFM that meets and exceeds the performance specification will be installed on the cab roof. The condenser cover to be painted to match the cab roof.

The air conditioning system will be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50 percent relative humidity within 30 minutes. The cooling performance test will be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.

The evaporator unit will be installed in the rear portion of the cab ceiling over the engine tunnel. The evaporator will include one (1) high performance heating core, one (1) high performance cooling core with (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.

The evaporator unit will have a 52,000 BTU at 690 SCFM rating that meets and exceeds the performance specifications.

Adjustable air outlets will be strategically located on the forward plenum cover per the following:

- Four (4) will be directed towards the seating position on the left side of the cab
- Four (4) will be directed towards the seating position on the right side of the cab

Adjustable air outlets will be strategically located on the evaporator cover per the following:

- Five (5) will be directed towards crew cab area

A high efficiency particulate air (HEPA) filter will be included for the system. Access to the filter cover will be secured with four (4) screws.

The air conditioner refrigerant will be R-134A and will be installed by a certified technician.

Climate Control

An automotive style controller will be provided to control the heat and air conditioning system within the cab. The controller will have three (3) functional knobs for fan speed, temperature, and air flow distribution (front to rear) control.

The system will control the temperature of the cab and crew cab automatically by pushing the center of the fan speed control knob. Rotate the center temperature control knob to set the cab and crew cab temperature.

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The AC system will be manually activated by pushing the center of the temperature control knob. Pushing the center of the air flow distribution knob will engage the AC for max defrost, setting the fan speeds to 100 percent and directing all air flow to the overhead forward position.

Gravity Drain Tubes

Two (2) condensate drain tubes will be provided for the air conditioning evaporator. The drip pan will have two (2) drain tubes plumbed separately to allow for the condensate to exit the drip pan. No pumps will be provided.

The drain tubes will terminate under the cab, on the inboard side of the front wheelwells.

SUN VISORS

Two (2) smoked Lexan™ sun visors will be provided. The sun visors will be located above the windshield with one (1) mounted on each side of the cab.

There will be a black plastic thumb latch provided to help secure each sun visor in the stowed position.

GRAB HANDLE

A black rubber covered grab handle will be mounted on the door post of the driver side and passenger side cab door to assist in entering the cab. The grab handle will be securely mounted to the post area between the door and windshield.

ENGINE COMPARTMENT LIGHTS

There will be one (1) Whelen, Model 3SC0CDCR, 12 volt DC, 3.00" white LED light(s) with Whelen, Model 3FLANGEC, chrome flange kit(s) installed under the cab to be used as engine compartment illumination.

These light(s) will be activated automatically when the cab is raised.

ACCESS TO ENGINE DIPSTICKS

For access to the engine oil and transmission fluid dipsticks, there will be a door on the engine tunnel, inside the crew cab. The door will be on the rear wall of the engine tunnel, on the vertical surface. The door will be 20.00" wide x 8.25" high and be flush with the wall of the engine tunnel.

The engine oil dipstick will allow for checking only. The transmission dipstick will allow for both checking and filling. An additional port will be provided for filling the engine oil.

The door will have a rubber seal for thermal and acoustic insulation. One (1) flush lift and turn latch will be provided on the access door.

MAP BOX

There will be one (1) map box(es) with three (3) bins, open at top. The map box(es) will be installed at final inspection. The map box(es) will be divided into three (3) bins, each being 12.50" wide x 3.00" high x 12.00" deep. Each bin will slant 30 degrees from horizontal. The map box(es) will be constructed of 0.125" aluminum and will be painted to match the cab interior.

SEATING CAPACITY

The seating capacity in the cab will be five (5).

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DRIVER SEAT

A H.O. Bostrom, Sierra, air suspension high back seat will be provided in the cab for the driver. For increased convenience, the seat will include a manual control to adjust the horizontal position (5.50" travel). To provide flexibility for multiple driver configurations, the seat will have a reclining back, adjustable from 15 degrees back to 45 degrees forward. To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled.

The seat will include two (2) removable zip clean seat covers for the cushion, seat back and headrest and the foam of the seat to be an encapsulated barrier foam to create a waterproof barrier.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

OFFICER SEAT

A H.O. Bostrom, Tanker 550 series, SCBA air suspension seat will be provided in the cab for the officer. For optimal comfort, the seat will be provided with 18.50" deep cushion and contoured headrest. To ensure safe operation, the seat will be equipped with a sensor in the seat cushion and belt receptacle that will activate an alarm indicating the seat is occupied but not buckled.

The seat back will be an SCBA back style with a 5 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location. SCBA retention hooks will be provided.

The seat will include two (2) removable zip clean seat covers for the cushion, seat bolsters and headrest and the foam of the seat to be an encapsulated barrier foam to create a waterproof barrier.

The seat will be furnished with a 3-point, shoulder type seat belt.

RADIO COMPARTMENT

A compartment for the radio amplifier will be located under the front passenger's seat. The size of the compartment will be approximately 16.00" wide x 7.50" high x 16.50" deep. A drop-down door with a chrome plated lift and turn latch will be provided for access. The compartment will be constructed of smooth aluminum and painted to match the cab interior.

REAR FACING DRIVER SIDE OUTBOARD SEAT

There will be one (1) rear facing, HO Bostrom Tanker 450 SCBA seat provided at the driver side outboard position in the crew cab. For optimal comfort, the seat will be provided with 17.00" deep cushion. To ensure safe operation, the seat will be equipped with a sensor in the seat cushion and belt receptacle that will activate an alarm indicating the seat is occupied but not buckled.

The seat back will be an SCBA back style with a 5 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

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The seat will include two (2) removable zip clean seat covers for the cushion, seat bolsters and headrest and the foam of the seat to be an encapsulated barrier foam to create a waterproof barrier.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

REAR FACING RIGHT SIDE CABINET

A rear facing cabinet will be provided in the crew cab at the right side outboard position.

The cabinet will be 26.50" wide x 40.50" high x 21.50".

The cabinet will include one (1) infinitely adjustable shelf with a 0.75" up-turned lip and one (1) infinitely adjustable shelf with a 0.75" flanged down lip painted to match the cab interior.

The cabinet will include no louvers.

The cabinet will only provide access from outside the cab with one (1) reverse hinged double pan door painted to match the cab exterior with a non-locking D-ring latch. A rubber bumper will be provided as a door stop. The exterior clear door opening will be 16.00" wide x 37.75" high. The door will be located on the side of the cab over the wheelwell.

The exterior access will be provided with a polished stainless steel scuffplate on the lower door frame.

The cabinet will be constructed of smooth aluminum and painted to match the cab interior.

Cabinet Light

There will be one (1) white LED strip light installed on the left side of the exterior cabinet door opening. The lights will be controlled by an automatic door switch.

FORWARD FACING CENTER SEATS

There will be two (2) forward facing, HO Bostrom Tanker 400CT SCBA seats provided at the center position in the crew cab. For optimal comfort, the seats will be provided with 15.00" deep cushions. To ensure safe operation, the seats will be equipped with a sensor in the seat cushion and belt receptacle that will activate an alarm indicating the seat is occupied but not buckled.

The seat backs will be an SCBA back style with a 0 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include four (4) removable zip clean seat covers for the cushion, side bolsters and headrest; the foam of the seat to be an encapsulated barrier foam to create a waterproof barrier, two (2) sets of covers for each seat.

The seats will be furnished with a 3-point, shoulder type seat belts. The seat belts will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

SEAT UPHOLSTERY

All seat upholstery will be black Dura-Wear Plus, waterproof fabric.

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AIR BOTTLE HOLDERS

All SCBA type seats in the cab will have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket will include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp will constrain the SCBA bottle in the seat and will exceed the NFPA standard of 9G.

There will be a quantity of four (4) SCBA brackets.

SEAT BELTS

All seating positions in the cab, crew cab and tiller cab (if applicable) will have red seat belts.

To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.

The 3-point shoulder type seat belts will also include the ReadyReach D-loop assembly to the shoulder belt system. The ReadyReach feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.

Any flip up seats will include a 3-point shoulder type belts only.

SHOULDER HARNESS HEIGHT ADJUSTMENT

All seating positions furnished with 3-point shoulder type seat belts will include a height adjustment. This adjustment will optimize the belts effectiveness and comfort for the seated firefighter.

A total of four (4) seating positions will have the adjustable shoulder harness.

HELMET STORAGE PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 14.1.7.4.1 requires a location for helmet storage be provided.

There is no helmet storage on the apparatus as manufactured. The fire department will provide a location for storage of helmets.

CAB DOME LIGHTS

There will be four (4) dual LED dome lights with black bezels provided. Two (2) lights will be mounted above the inside shoulder of the driver and officer and two (2) lights will be installed and located, one (1) on each side of the crew cab.

The color of the LED's will be red and white.

The white LED's will be controlled by the door switches and the lens switch.

The color LED's will be controlled by the lens switch.

In order to ensure exceptional illumination, each white LED dome light will provide a minimum of 10.1 foot-candles (fc) covering an entire 20.00" x 20.00" square seating position when mounted 40.00" above the seat.

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ENHANCED SOFTWARE FOR CAB AND CREW CAB DOME LIGHTS

The cab and crew cab dome lights will remain on for 10 seconds for improved visibility after the doors are closed.

The dome lights will dim after 10 seconds or immediately if the vehicle's transmission is put into gear.

PORTABLE HAND LIGHTS, PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 8.9.3 requires four portable hand lights mounted in brackets fastened to the apparatus.

The hand lights are not on the apparatus as manufactured. The fire department will provide and mount these hand lights.

CAB INSTRUMENTATION

The cab instrument panel will consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches will be identified by a label adjacent to each item. Actuation of the headlight switch will illuminate the labels in low light conditions. Telltale indicator lamps will not be illuminated unless necessary. The cab instruments and controls will be conveniently located within the forward cab section directly forward of the driver. Gauge and switch panels will be designed to be removable for ease of service and low cost of ownership.

Gauges

The gauge panel will include the following ten (10) ivory gauges with chrome bezels to monitor vehicle performance:

- Voltmeter gauge (Volts)
 - Low volts (11.8 VDC)
 - Amber indicator on gauge assembly with alarm
 - High volts (15 VDC)
 - Amber indicator on gauge assembly with alarm
 - Very low volts (11.3 VDC)
 - Amber indicator on gauge assembly with alarm
 - Very high volts (16 VDC)
 - Amber indicator on gauge assembly with alarm
- Tachometer (RPM)
- Speedometer (Primary (outside) MPH, Secondary (inside) Km/H)
- Fuel level gauge (Empty - Full in fractions)
 - Low fuel (1/8 full)
 - Amber indicator on gauge assembly with alarm
 - Very low fuel (1/32) fuel
 - Amber indicator on gauge assembly with alarm
- Engine oil pressure gauge (PSI)
 - Low oil pressure to activate engine warning lights and alarms
 - Red indicator on gauge assembly with alarm
- Front air pressure gauge (PSI)

- Low air pressure to activate warning lights and alarm
 - Red indicator on gauge assembly with alarm
- Rear air pressure gauge (PSI)
 - Low air pressure to activate warning lights and alarm
 - Red indicator on gauge assembly with alarm
- Transmission oil temperature gauge (Fahrenheit)
 - High transmission oil temperature activates warning lights and alarm
 - Amber indicator on gauge assembly with alarm
- Engine coolant temperature gauge (Fahrenheit)
 - High engine temperature activates an engine warning light and alarm
 - Red indicator on gauge assembly with alarm
- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions)
 - Low fluid (1/8 full)
 - Amber indicator on gauge assembly with alarm

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All gauges and gauge indicators will perform prove out at initial power-up to ensure proper performance.

Indicator Lamps

To promote safety, the following telltale indicator lamps will be integral to the gauge assembly and are located above and below the center gauges. The indicator lamps will be "dead-front" design that is only visible when active. The colored indicator lights will have descriptive text or symbols.

The following amber telltale lamps will be present:

- Low coolant
- Trac cntl (traction control) (where applicable)
- Check engine
- Check trans (check transmission)
- Aux brake overheat (Auxiliary brake overheat)
- Air rest (air restriction)
- Caution (triangle symbol)
- Water in fuel
- DPF (engine diesel particulate filter regeneration)
- Trailer ABS (where applicable)
- Wait to start (where applicable)
- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- SRS (supplemental restraint system) fault (where applicable)
- DEF (low diesel exhaust fluid level)

The following red telltale lamps will be present:

- Warning (stop sign symbol)

- Seat belt
- Parking brake
- Stop engine
- Rack down

The following green telltale lamps will be provided:

- Left turn
- Right turn
- Battery on

The following blue telltale lamp will be provided:

- High beam

Alarms

Audible steady tone warning alarm: A steady audible tone alarm will be provided whenever a warning message is present.

Audible pulsing tone caution alarm: A pulsing audible tone alarm (chime/chirp) will be provided whenever a caution message is present without a warning message being present.

Alarm silence: Any active audible alarm will be able to be silenced by holding the ignition switch at the top position for 3 to 5 seconds. For improved safety, silenced audible alarms will intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp will act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition will enable the steady or pulsing tones respectively.

Indicator Lamp and Alarm Prove-Out

Telltale indicators and alarms will perform prove-out at initial power-up to ensure proper performance.

Control Switches

For ease of use, the following controls will be provided immediately adjacent to the cab instrument panel within easy reach of the driver.

Emergency master switch: A molded plastic push button switch with integral indicator lamp will be provided. Pressing the switch will activate emergency response lights and siren control. A green lamp on the switch provides indication that the emergency master mode is active. Pressing the switch again disables the emergency master mode.

Headlight / Parking light switch: A three (3)-position maintained rocker switch will be provided. The first switch position will deactivate all parking lights and the headlights. The second switch position will activate the parking lights. The third switch position will activate the headlights.

Panel backlighting intensity control switch: A three (3)-position momentary rocker switch will be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the switch is held. The second switch position is the default position that does not affect the backlighting

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intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.

The following standard controls will be integral to the gauge assembly and are located below the right hand gauges. All switches have backlit labels for low light applications.

High idle engagement switch: A two (2)-position momentary rocker switch with integral indicator lamp will be provided. The first switch position is the default switch position. The second switch position will activate and deactivate the high idle function when pressed and released. The "Ok To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch will indicate when the high idle function is engaged.

"Ok To Engage High Idle" indicator lamp: A green indicator light will be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.

The following standard controls will be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches will have backlit labels for low light applications.

Ignition switch: A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will deactivate vehicle ignition. The second switch position will activate vehicle ignition. The third momentary position will disable the Command Zone audible alarm if held for 3 to 5 seconds. A green indicator lamp will be activated with vehicle ignition.

Engine start switch: A two (2)-position momentary rocker switch will be provided. The first switch position is the default switch position. The second switch position will activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.

4-way hazard switch: A two (2)-position maintained rocker switch will be provided. The first switch position will deactivate the 4-way hazard switch function. The second switch position will activate the 4-way hazard function. The switch actuator will be red and includes the international 4-way hazard symbol.

Heater, defroster, and air conditioning control panel.

Turn signal arm: A self-canceling turn signal with high beam headlight and windshield wiper/washer controls will be provided. The windshield wiper control will have high, low, and intermittent modes.

Parking brake control: An air actuated push/pull park brake control valve will be provided.

Chassis horn control: Activation of the chassis horn control will be provided through the center of the steering wheel.

Custom Switch Panels

The design of cab instrumentation will allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There will be positions for up to four (4) switch panels in the overhead console on the driver's side, up to four (4) switch panels in the engine tunnel console facing the driver, up to four (4) switch panels in the overhead console on the officer's side and

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up to two (2) switch panels in the engine tunnel console facing the officer. All switches will have backlit labels for low light applications.

Diagnostic Panel

A diagnostic panel will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches will allow ABS systems to provide blink codes should a problem exist.

The diagnostic panel will include the following:

- Engine diagnostic port
- Transmission diagnostic port
- ABS diagnostic port
- SRS diagnostic port (where applicable)
- Command Zone USB diagnostic port
- ABS diagnostic switch (blink codes flashed on ABS telltale indicator)
- Diesel particulate filter regeneration switch (where applicable)
- Diesel particulate filter regeneration inhibit switch (where applicable)

Cab LCD Display

A digital four (4)-row by 20-character dot matrix display will be integral to the gauge panel. The display will be capable of showing simple graphical images as well as text. The display will be split into three (3) sections. Each section will have a dedicated function. The upper left section will display the outside ambient temperature.

The upper right section will display, along with other configuration specific information:

- Odometer
- Trip mileage
- PTO hours
- Fuel consumption
- Engine hours

The bottom section will display INFO, CAUTION, and WARNING messages. Text messages will automatically activate to describe the cause of an audible caution or warning alarm. The LCD will be capable of displaying multiple text messages should more than one caution or warning condition exist.

AIR RESTRICTION INDICATOR

A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm will be provided.

"DO NOT MOVE APPARATUS" INDICATOR

A flashing red indicator light, located in the driving compartment, will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On."

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The same circuit that activates the Do Not Move Apparatus indicator will activate a pulsing alarm when the parking brake is released.

DO NOT MOVE TRUCK MESSAGES

Messages will be displayed on the Command Zone™, color display located within sight of the driver whenever the Do Not Move Truck light is active. The messages will designate the item or items not in the stowed for vehicle travel position (parking brake released).

The following messages will be displayed (where applicable):

- Do Not Move Truck
- LS CAB DOOR, the left side cab door is open
- LS CAB COMPT DOOR, the left side cab compartment door is open
- LS CREWCAB DOOR, the left side crew cab door is open
- STEP NOT STOWED, pump house step not stowed
- LS TURNTABLE STEP, left side turntable step not stowed
- AERIAL CONTROL DR, aerial override control compartment door is open
- LS6 COMPT DR, the left side LS6 compartment door is open
- LS5 COMPT DR, the left side LS5 compartment door is open
- LS4 COMPT DR, the left side LS4 compartment door is open
- LS3 COMPT DR, the left side LS3 compartment door is open
- LS2 COMPT DR, the left side LS2 compartment door is open
- LS1 COMPT DR, the left side LS1 compartment door is open
- LS AIR BTL COMPT DR, the left side air bottle compartment door is open
- LS BASKET STEP, the left side basket steps not stowed
- STABILIZER CTRL DR, the rear stabilizer control compartment door is open
- STABILIZER DEPLOYED, the stabilizers are not stowed.
- LS CORD REEL DR, the left side cord reel compartment door is open
- RS CORD REEL DR, the right side cord reel compartment door is open
- B1 REAR COMPT DR, the rear B1 compartment door is open
- TURNTBL CTRL CNSL, the turntable control console not stowed.
- RS BASKET STEP, the right side basket steps not stowed
- RS AIR BTL COMPT DR, the right side air bottle compartment door is open.
- RS1 COMPT DR, the right side RS1 compartment door is open
- RS2 COMPT DR, the right side RS2 compartment door is open
- RS3 COMPT DR, the right side RS3 compartment door is open
- RS4 COMPT DR, the right side RS4 compartment door is open
- RS5 COMPT DR, the right side RS5 compartment door is open
- RS6 COMPT DR, the right side RS6 compartment door is open
- RS7 COMPT DR, the right side RS7 compartment door is open
- RS CREWCAB DR, the right side crew cab door is open
- RS CAB COMPT DR, the right side cab compartment door is open
- RS CAB DR, the right side cab door is open

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- LT TOWER NOT STOWED, the light tower is not stowed

Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause major damage to the apparatus if the apparatus is moved will be displayed as a caution message after the parking brake is released.

SWITCH PANELS

The emergency light switch panel will have a master switch for ease of use plus individual switches for selective control. Each switch panel will contain eight (8) membrane-type switches each rated for one million (1,000,000) cycles. Panels containing less than eight (8) switch assignments will include non-functioning black appliques. Documentation will be provided by the manufacturer indicating the rated cycle life of the switches. The switch panel(s) will be located in the overhead position above the windshield on the driver side overhead to allow for easy access.

Additional switch panel(s) will be located in the overhead position(s) above the windshield or in designated locations on the lower instrument panel layout.

The switches will be membrane-type and also act as an integral indicator light. For quick, visual indication the entire surface of the switch will be illuminated white whenever back lighting is activated and illuminated green whenever the switch is active. An active illuminated switch will flash when interlock requirements are not met or device is actively being load managed. For ease of use, a two (2)-ply, scratch resistant laser engraved Gravoply label indicating the use of each switch will be placed in the center of the switch. The label will allow light to pass through the letters for ease of use in low light conditions.

WIPER CONTROL

For simple operation and easy reach, the windshield wiper control will be an integral part of the directional light lever located on the steering column. The wiper control will include high and low wiper speed settings, a one (1)-speed intermittent wiper control and windshield washer switch. The control will have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.

HOURLY METER - AERIAL DEVICE

The following aerial hour meter messages will be included in the information centers:

- Aerial Hours, that keeps track of the time the aerial device is in motion.
- Aerial PTO Hours, that keeps track of the time the aerial master switch is on and the aerial PTO is engaged.

AERIAL MASTER

There will be a master switch for the aerial operating electrical system provided.

AERIAL PTO SWITCH

A PTO switch for the aerial with indicator light will be provided.

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SPARE CIRCUIT

There will be two (2) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires will have the following features:

- The positive wire will be connected directly to the battery power
- The negative wire will be connected to ground
- Wires will be protected to 15 amps at 12 volts DC
- Power and ground will terminate officer side dash area
- Termination will be with heat shrinkable butt splicing
- Wires will be sized to 125 percent of the protection

The circuit(s) may be load managed when the parking brake is set.

STEREO RADIO

A Jensen, heavy duty AM/FM/CD/Weatherband stereo radio, with front auxiliary input will be installed within reach of the officer . There will be 5.25" speakers installed one (1) pair of 5.25" speakers in the cab and one (1) pair of 5.25" speakers in the crew cab. The antenna will be a roof-mounted rubber antenna located in an open space, on the cab roof .

The following features will be included:

- CD Player with Electronic Skip Protection (ESP)
- Full 7-Channel NOAA Weatherband Tuner with SAME technology
- Built-in Clock
- Audio CD, CD-R, R/W, MP3 CD compatible
- Radio Broadcast Data System Text Display
- Front panel USB input
- Front and Rear Auxiliary Audio Input
- Receives audio (A2DP/AVRCP) from Bluetooth enabled device
- Supports Bluetooth HFP to receive phone calls from BT-enabled phones
- Low battery alert (<10.8Vdc)
- Heavy Duty design with Conformal Coated Circuit Boards for maximum durability under all conditions

INFORMATION CENTER

An information center employing a 7.00" diagonal touch screen color LCD display will be encased in an ABS plastic housing.

The information center will have the following specifications:

- Operate in temperatures from -40 to 185 degrees Fahrenheit
- An Optical Gel will be placed between the LCD and protective lens
- Five weather resistant user interface switches
- Grey with black accents
- Sunlight Readable

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- Linux operating system
- Minimum of 1000nits rated display
- Display can be changed to an available foreign language
- A LCD display integral to the cab gauge panel will be included as outlined in the cab instrumentation area.
- Programmed to read US Customary

General Screen Design

Where possible, background colors will be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background will be used.

If a caution or warning situation arises the following will occur:

- An amber background/text color will indicate a caution condition
- A red background/text color will indicate a warning condition
- The information center will utilize an "Alert Center" to display text messages for audible alarm tones. The text messages will be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages will cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" will change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color will be shown for all alert center messages.
- A label for each button will exist. The label will indicate the function for each active button for each screen. Buttons that are not utilized on specific screens will have a button label with no text or symbol.

Home/Transit Screen

This screen will display the following:

- Vehicle Mitigation (if equipped)
- Water Level (if the water level system includes compatible communications to the information center)
- Foam Level (if the foam level system includes compatible communications to the information center)
- Seat Belt Monitoring Screen
- Tire Pressure Monitoring (if equipped)
- Digital Speedometer
- Active Alarms

On Scene Screen

This screen will display the following and will be auto activated with pump engaged (if equipped):

- Battery Voltage
- Fuel
- Oil Pressure
- Coolant Temperature

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- RPM
- Water Level (if equipped)
- Foam Level (if equipped)
- Foam Concentration (if equipped)
- Water Flow Rate (if equipped)
- Water Used (if equipped)
- Active Alarms

Virtual Buttons

There will be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.

Page Screen

The page screen will display the following and allow the user to progress into other screens for further functionality:

- Diagnostics
 - Faults
 - Listed by order of occurrence
 - Allows to sort by system
 - Interlock
 - Throttle Interlocks
 - Pump Interlocks (if equipped)
 - Aerial Interlocks (if equipped)
 - PTO Interlocks (if equipped)
 - Load Manager
 - A list of items to be load managed will be provided. The list will provide a description of the load.
 - The lower the priority numbers the earlier the device will be shed should a low voltage condition occur.
 - The screen will indicate if a load has been shed (disabled) or not shed.
 - "At a glance" color features are utilized on this screen.
 - Systems
 - Command Zone
 - Module type and ID number
 - Module Version
 - Input or output number
 - Circuit number connected to that input or output
 - Status of the input or output
 - Power and Constant Current module diagnostic information
 - Foam (if equipped)
 - Pressure Controller (if equipped)
 - Generator Frequency (if equipped)
 - Live Data

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- General Truck Data
- Maintenance
 - Engine oil and filter
 - Transmission oil and filter
 - Pump oil (if equipped)
 - Foam (if equipped)
 - Aerial (if equipped)
- Setup
 - Clock Setup
 - Date & Time
 - 12 or 24 hour format
 - Set time and date
 - Backlight
 - Daytime
 - Night time
 - Sensitivity
 - Unit Selection
 - Home Screen
 - Virtual Button Setup
 - On Scene Screen Setup
 - Configure Video Mode
 - Set Video Contrast
 - Set Video Color
 - Set Video Tint
- Do Not Move
 - The screen will indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices will be indicated
 - Driver Side Cab Door
 - Passenger's Side Cab Door
 - Driver Side Crew Cab Door
 - Passenger's Side Crew Cab Door
 - Driver Side Body Doors
 - Passenger's Side Body Doors
 - Rear Body Door(s)
 - Ladder Rack (if applicable)
 - Deck Gun (if applicable)
 - Light Tower (if applicable)
 - Hatch Door (if applicable)
 - Stabilizers (if applicable)
 - Steps (if applicable)
- Notifications
 - View Active Alarms
 - Shows a list of all active alarms including date and time of the occurrence is shown with each alarm

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- Silence Alarms - All alarms are silenced
- Timer Screen
- HVAC (if equipped)
- Tire Information (if equipped)
- Ascendant Set Up Confirmation (if equipped)

Button functions and button labels may change with each screen.

COLLISION MITIGATION

There will be a HAAS Alert®, Model HA5 Responder-to-Vehicle (R2V) collision avoidance system provided on the apparatus. The HA5 cellular transponder module will be installed behind the cab windshield, as high and near to the center as practical, to allow clear visibility to the sky. The module dimensions are 5.40" long x 2.70" wide x 1.30" high, and operating temperature range is -40 degree C to 85 degree C.

The transponder will be connected to the vehicle's emergency master circuit and battery direct power and ground.

While responding with emergency lights on, the HA5 transponder sends alert messages via cellular network to motorists in the vicinity of the responding truck that are equipped with the WAZE app.

While on scene with emergency lights on, the HA5 transponder sends road hazard alerts to motorists in the vicinity of the truck that are equipped with the WAZE app.

The HA5 Responder-to-Vehicle (R2V) collision avoidance system will include the transponder and a 5 year cellular plan subscription.

Activation of the HAAS Alert system requires a representative of the customer to accept the End User License Agreement (EULA) via an on-line portal.

VEHICLE DATA RECORDER

There will be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.

The vehicle data recorder will be capable of recording the following data via hardwired and/or CAN inputs:

- Vehicle Speed - MPH
- Acceleration - MPH/sec
- Deceleration - MPH/sec
- Engine Speed - RPM
- Engine Throttle Position - % of Full Throttle

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- ABS Event - On/Off
- Seat Occupied Status - Yes/No by Position
- Seat Belt Buckled Status - Yes/No by Position
- Master Optical Warning Device Switch - On/Off
- Time - 24 Hour Time
- Date - Year/Month/Day

Seat Belt Monitoring System

A seat belt monitoring system (SBMS) will be provided on the Command Zone™ color display and in the center overhead of the cab instrument panel. The SBMS will be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:

- Seat Occupied & Buckled = Green LED indicator illuminated
- Seat Occupied & Unbuckled = Red LED indicator with audible alarm
- No Occupant & Buckled = Red LED indicator with audible alarm
- No Occupant & Unbuckled = No indicator and no alarm

The seat belt monitoring screen will become active on the Command Zone color display when:

- The home screen is active:
 - and there is any occupant seated but not buckled or any belt buckled with an occupant.
 - and there are no other Do Not Move Apparatus conditions present. As soon as all Do Not Move Apparatus conditions are cleared, the SBMS will be activated.

The SBMS will include an audible alarm that will warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.

INTERCOM SYSTEM

There will be digital, single radio interface, intercom located [Location] in the cab. The front panel will have master volume, and squelch controls with illuminated indicators, allowing for independent level setting of radio and auxiliary audio devices.

There will be one (1) radio listen only / transmit control with select, monitor, receive, and transmit indicators. There will be one (1) auxiliary audio input with select, and receive indicators.

There will be one (1) wireless base station for up to five (1-5) headset users provided.

The wireless base station will have a 100' to 1100' range, line of sight. Objects between the transmitter and receiver affect range.

The following Firecom components will be provided:

- One (1) 5100D Intercom
- One (1) WB505R wireless base station (1-5 wireless positions)
- All necessary power and station cabling

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RADIO / INTERCOM INTERFACE CABLE

The apparatus manufacturer will supply and install one (1) radio interface cable before delivery of the vehicle.

The radio equipment to be used by the customer will be:

- [Radio, First Two-Way Make] , Model number [Radio, Two-Way Model, First].

WIRELESS UNDER HELMET, INTERCOM ONLY HEADSET

There will be three (3) Firecom™, Model UHW-503 wireless under the helmet, intercom only headset(s) provided. A heavy duty, coiled 12 volt charging pigtail with plug will be provided At each CC seat.

Each headset will feature:

- Noise cancelling electric microphone
- Flexible microphone boom
- Ear seals with 20 dB noise reduction
- Programmable Microphone transmit button
- Rechargeable battery operates 24 hours on a full charge
- IP-66 when worn

WIRELESS UNDER HELMET, RADIO TRANSMIT ONLY HEADSET

There will be two (2) Firecom™, Model UHW-505, wireless under the helmet, radio transmit headset(s) provided. A heavy duty, coiled 12 volt charging pigtail with plug will be provided driver's seat and officer seat.

Each headset will feature:

- Noise cancelling electric microphone
- Flexible microphone boom
- Ear seals with 20 dB noise reduction
- Stereo Listen-Through Ear dome microphones
- Radio Push To Transmit button (Left or Right Side)
- Rechargeable battery operates for 24 hours on a full charge
- IP-66 when worn

HEADSET HANGERS

There will be five (5) headset hanger(s) installed driver's seat, officer's seat, driver's side inboard forward facing seat, driver's side outboard rear facing seat and passenger's side inboard forward facing seat. The hanger(s) will meet NFPA 1901, Section 14.1.11, requirement for equipment mounting.

RADIO ANTENNA MOUNT

There will be one (1) standard 1.125", 18 thread antenna-mounting base(s) installed on the right side on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the instrument panel area. A weatherproof cap will be installed on the mount.

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FRONT, SIDE, AND REAR VISION SYSTEM

The Pro-Vision cameras will be located as follows:

One (1) color video camera with microphone located at the rear of the vehicle, pointing rearward, automatically displayed when the apparatus is put into reverse.

One (1) color forward facing camera [Location] displayed when a switch in panel [Location 1] is activated.

One (1) color video camera located on the right side of the cab forward of the cab doors, pointing rearward, automatically displayed with the right turn signal.

One (1) color video camera located on the left side of the cab forward of the cab doors, pointing rearward, automatically displayed with the left turn signal.

The camera images will be displayed on the driver's 7" LCD quad monitor mounted [Location, Camera Monitor].

- The digital video recorder (DVR) will be located [Location 2]. The DVR will include a 128 gigabit SDXC memory card and lockable cage. The DVR will be wired battery direct.
- There will be an event button mounted [Location, Event Button].
- There will be a GPS antenna mounted to the windshield.

For any additional software such as Enhanced Connectivity Bundle or PV transfer software, it is the responsibility of the end user to contact the vendor Pro-Vision®. Any additional programming is the responsibility of the end user.

The following Pro-Vision® components will be supplied:

- One (1) DVR-906T1-128 1080p HD Hybrid Bas e KIT with (1) Forward Facing Camera [128GB]

Includes: HD Forward Facing Camera, Hybrid HD DVR, 128GB SDXC Card, Lockable Cage, 10ft HD Camera Cable, DVR Interface Cable, Enhanced Event Marker Button, GPS Antenna, Software & Guides

- Two (2) DVR-920 AHD Waterproof Side Camera Kits
- One (1) DVR-916 AHD Waterproof Standard Heavy Duty Camera
- One (1) PM-1980s 7" AHD LCD Quad Monitor

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KNOX-BOX

There will be a Knox-Box® KeySecure® 5, Model KSM-200K1, with key pad access provided. The system will allow all administration functions to be performed via WiFi, Ethernet cable or USB port. The box will hold one (1) key. The box will be surface mounted and installed To be determined at final inspection .

ELECTRICAL POWER CONTROL SYSTEM

The primary power distribution will be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers will be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers will be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers will be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays will be easily accessible.

Distribution centers located throughout the vehicle will contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.

Circuit protection devices, which conform to SAE standards, will be utilized to protect electrical circuits. All circuit protection devices will be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers will be Type-I automatic reset (continuously resetting). When required, automotive type fuses will be utilized to protect electronic equipment. Control relays and solenoid will have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.

Solid-State Control System

A solid-state electronics based control system will be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network will consist of electronic modules, electronic control modules to include a see through housing, a power indicator, a status indicator and circuit indicators located near their point of use to reduce harness lengths and improve reliability. The control system will comply with SAE J1939-11 recommended practices.

The control system will operate as a master-slave system whereas the main control module instructs all other system components. The system will contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system will utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership.

For increased reliability and simplified use the control system modules will include the following attributes:

- Green LED indicator light for module power
- Red LED indicator light for network communication stability status
- Control system self test at activation and continually throughout vehicle operation
- No moving parts due to transistor logic
- Software logic control for NFPA mandated safety interlocks and indicators

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- Integrated electrical system load management without additional components
- Integrated electrical load sequencing system without additional components
- Customized control software to the vehicle's configuration
- Factory and field programmable to accommodate changes to the vehicle's operating parameters

To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules will meet the following specifications:

- Module circuit board will meet SAE J771 specifications
- Operating temperature from -40C to +70C
- Storage temperature from -40C to +70C
- Vibration to 50g

IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)

Operating voltage from eight (8) volts to 32 volts DC

The main controller will activate status indicators and audible alarms designed to provide warning of problems before they become critical.

Circuit Protection and Control Diagram

Copies of all job-specific, computer network input and output (I/O) connections will be provided with each chassis. The sheets will indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.

On-Board Electrical System Diagnostics

The on-board information center will include the following diagnostic information:

- Text description of active warning or caution alarms
- Simplified warning indicators
- Amber caution indication with intermittent alarm
- Red warning indication with steady tone alarm

Advanced diagnostic feature will be provided in this control system. From the Command Zone display or connected wireless device, these features allow the user to monitor the real-time status of every input or output on the vehicle. It also allows users logged in as an administrator to force on inputs or outputs to assist the troubleshooting process.

TCU Module with WiFi

An in cab module will provide WiFi wireless interface and data logging capability. The WiFi interface will comply with IEEE 802.11 b/g/n capabilities while communicating at 2.4 Gigahertz. The module will communicate through a black WiFi antenna allowing a line of site communication range of up to 300 feet with a roof mounted antenna.

The module will transmit a password protected web page to a WiFi enabled device (i.e. most smart phones, tablets or laptops) allowing two levels of user interaction. The firefighter level will allow vehicle

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monitoring of the vehicle and firefighting systems on the apparatus. The technician level will allow diagnostic access to inputs and outputs installed on the Command Zone™, control and information system.

The TCU capability will record faults from the engine, transmission, ABS and Command Zone™, control and information systems as they occur. No other data will be recorded at the time the fault occurs. The data TCU will provide up to 2 Gigabytes of data storage.

The TCU will provide a means to download the TCU information and update software in the device.

Indicator Light and Alarm Prove-Out System

A system will be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.

Voltage Monitor System

A voltage monitoring system will be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system will provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm will activate if the system falls below 11.8 volts DC for more than two (2) minutes.

Dedicated Radio Equipment Connection Points

There will be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment. The studs will consist of the following:

- 12-volt 40-amp battery switched power
- 12-volt 60-amp ignition switched power
- 12-volt 60-amp direct battery power

There will also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.

EMI/RFI Protection

To prevent erroneous signals from crosstalk contamination and interference, the electrical system will meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system will be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.

The apparatus will have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system will meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, will provide EMC testing reports from testing conducted on an entire apparatus and will certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter requirements. Component and partial (incomplete) vehicle testing is not adequate as overall vehicle design can impact test results and thus is not acceptable by itself.

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EMI/RFI susceptibility will be controlled by applying appropriate circuit designs and shielding. The electrical system will be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing will be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.

ELECTRICAL SYSTEM PROGNOSTICS

There will be a software based vehicle tool provided to predict remaining life of the vehicles critical fluid and events.

The system will send automatic indications to the Command Zone™ information center and/or wireless enabled devices to proactively alert of upcoming service intervals.

Prognostics will include the following:

- Engine oil and filter
- Transmission oil and filter

TELEMATICS SYSTEM

There will be a cellular based vehicle telematics system consisting of a Telematic Control Unit (TCU) with external cellular WiFi and GPS antenna, and access to a web-based user interface portal provided.

The TCU will be fully integrated into the Command Zone™ electrical system. It will monitor the vehicle through the CAN data bus and transmit data through a secure 4G LTE cellular connection, and be provided with a 3 year subscription..

After accepting the end user license agreement, the vehicle administrator will have access to vehicle location information and vehicle data via a secure CZ Connect web-based interface portal.

The CZ Connect web-based interface will allow users to access vehicle data and configure monitoring tools, providing a global view of the location of each connected asset and a summary of fleet data, which include:

- User defined interval notifications
- User defined fault alerts
- Remote access to Command Zone diagnostics
- Vehicle analytics and activity monitoring
- Vehicle system status

ELECTRICAL

All 12-volt electrical equipment installed by the apparatus manufacturer will conform to modern automotive practices. All wiring will be high temperature crosslink type. Wiring will be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers will be provided which conform to SAE Standards. Wiring will be color, function and number coded. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors will be positive locking, and

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environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

Electrical wiring and equipment will be installed utilizing the following guidelines:

1. All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.
2. Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.
3. Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.
4. Corrosion preventative compound will be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation (of the plug).
5. All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.
6. All electrical terminals in exposed areas will have silicon (1890) applied completely over the metal portion of the terminal.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, will be furnished. Rear identification lights will be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments.

An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

The results of the tests will be recorded and provided to the purchaser at time of delivery.

BATTERY SYSTEM

There will be four (4) 12 volt Exide®, Model 31S950X3W, batteries that include the following features will be provided:

- 950 CCA, cold cranking amps
- 190 amp reserve capacity
- High cycle
- Group 31
- Rating of 3800 CCA at 0 degrees Fahrenheit
- 760 minutes of reserve capacity
- Threaded stainless steel studs

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Each battery case will be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover will be manifold vented with a central venting location to allow a 45 degree tilt capacity.

The inside of each battery will consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.

BATTERY SYSTEM

There will be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.

MASTER BATTERY SWITCH

There will be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.

An indicator light will be provided on the instrument panel to notify the driver of the status of the battery system.

BATTERY COMPARTMENTS

The batteries will be stored in well-ventilated compartments that are located under the cab and bolted directly to the chassis frame. The battery compartments will be constructed of 3/16" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The compartments will include formed fit heavy-duty roto-molded polyethylene battery tray inserts with drains on each side of the frame rails. The batteries will be mounted inside of the roto-molded trays.

JUMPER STUDS

One (1) set of battery jumper studs with plastic color-coded covers will be installed on the battery box on the driver's side. This will allow enough room for easy jumper cable access.

BATTERY CHARGER

There will be an IOTA™, Model DSL 75, battery charger with IQ4, controller provided.

The battery charger will be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.

There will be a Kussmaul™, Model #091-94-12, remote indicator included.

The battery charger will be located on the back wall of the EMS compartment, located [Location].

The battery charger indicator will be located near the driver's seat riser with special bracketry.

KUSSMAUL RECEPTACLE FOR SHORELINE

one (1) shoreline inlet will be provided to operate the dedicated 120-volt circuits on the truck without the use of the generator.

The shoreline receptacle(s) will be provided with a NEMA 5-20, 120 volt, 20 amp, straight blade Kussmaul plug with a red weatherproof cover. The cover is spring loaded to close, preventing water from entering when the shoreline is not connected.

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The shoreline will be connected to Battery Charger and Receptacles .

A mating connector body will also be supplied with the loose equipment.

The shoreline receptacle will be located in the driver side lower step well of cab.

ALTERNATOR

A Delco Remy®, Model 55SI, alternator will be provided. It will have a rated output current of 430 amps, as measured by SAE method J56. The alternator will feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). The alternator will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.

CLAMP FOR WIRING

There will be rubber covered "P" clamps installed above the flange of the body to hold the harnesses in place. The harnesses will be higher than standard.

ELECTRONIC LOAD MANAGER

An electronic load management (ELM) system will be provided that monitors the vehicles 12-volt electrical system, automatically reducing the electrical load in the event of a low voltage condition, and automatically restoring the shed electrical loads when a low voltage condition expires. This ensures the integrity of the electrical system.

For improved reliability and ease of use, the load manager system will be an integral part of the vehicle's solid state control system requiring no additional components to perform load management tasks. Load management systems which require additional components will not be allowed.

The system will include the following features:

- System voltage monitoring.
- A shed load will remain inactive for a minimum of five minutes to prevent the load from cycling on and off.
- Sixteen available electronic load shedding levels.
- Priority levels can be set for individual outputs.
- High Idle to activate before any electric loads are shed and deactivate with the service brake.
 - If enabled:
 - "Load Man Hi-Idle On" will display on the information center.
 - Hi-Idle will not activate until 30 seconds after engine start up.
- Individual switch "on" indicator to flash when the particular load has been shed.
- The information center indicates system voltage.

The information center, where applicable, includes a "Load Manager" screen indicating the following:

- Load managed items list, with priority levels and item condition.

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- Individual load managed item condition:
 - ON = not shed
 - SHED = shed

SEQUENCER

A sequencer will be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation will allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12 volt load to prolong the life of the alternator.

For improved reliability and ease of use, the load sequencing system will be an integral part of the vehicle's solid state control system requiring no additional components to perform load sequencing tasks. Load sequencing systems which require additional components will not be allowed.

Emergency light sequencing will operate in conjunction with the emergency master light switch. When the emergency master switch is activated, the emergency lights will be activated one by one at half-second intervals. Sequenced emergency light switch indicators will flash while waiting for activation.

When the emergency master switch is deactivated, the sequencer will deactivate the warning light loads in the reverse order.

Sequencing of the following items will also occur, in conjunction with the ignition switch, at half-second intervals:

- Cab Heater and Air Conditioning
- Crew Cab Heater (if applicable)
- Crew Cab Air Conditioning (if applicable)
- Exhaust Fans (if applicable)
- Third Evaporator (if applicable)

HEADLIGHTS

There will be a HiViz part number FT-4X6-4KIT, that includes four (4) 4.00" high x 6.00" long rectangular LED lights with parking lamp illumination around the outside of the lamps mounted in the front quad style housings on each side of the cab grille:

- the outside lamp on each side will contain a part number FT-4X6-HL with low beam LEDs
- the inside lamp on each side will contain a part number FT-4X6-H with high beam LEDs
- the lights will be controlled through the headlight switch

The headlight housing to include a polished finish and the trim to be chromed.

DIRECTIONAL LIGHTS

There will be two (2) Whelen 600® series, LED combination directional/marker lights provided. The lights will be located on the outside cab corners, next to the headlights.

The color of the lenses will be clear.

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INTERMEDIATE LIGHT

There will be two (2) Weldon, Model 9186-8580-29, amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light will double as a turn signal and marker light.

CAB CLEARANCE/MARKER/ID LIGHTS

There will be seven (7) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:

- Three (3) amber LED identification lights will be installed in the center of the cab above the windshield.
- Two (2) amber LED clearance lights will be installed, one (1) on each outboard side of the cab above the windshield.
- Two (2) amber LED marker lights will be installed, one (1) on each side above the cab doors.

REAR CLEARANCE/MARKER/ID LIGHTING

There will be three (3) LED identification lights located at the rear of the apparatus installed per the following:

- As close as practical to the vertical centerline and one (1) on each outside edge
- Centers spaced not less than 6.00" or more than 12.00" apart
- Red in color
- All at the same height
- All visible from the rear

There will be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:

- To indicate the overall width of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the rear
- All at the same height

There will be two (2) LED lights installed on the side of the apparatus used as marker lights as close to the rear as practical per the following:

- To indicate the overall length of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the side
- All at the same height

There will be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

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There will be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

Per FMVSS 108 and CMVSS 108 requirements.

MARKER LIGHTS

There will be one (1) pair of amber and red LED marker lights with rubber arm, located at the rear most lower corner of the body. The amber lens will face the front and the red lens will face the rear of the truck.

These lights will be activated with the running lights of the vehicle.

REAR FMVSS LIGHTING

The rear stop/tail and directional LED lighting will consist of the following:

- Two (2) Whelen®, Model M6BTT, red LED stop/tail lights
- Two (2) Whelen, Model M6T, amber LED arrow turn lights

The lights will be provided with clear lenses.

The lights will be mounted in a polished combination housing.

There will be two (2) Whelen Model M6BUW, LED backup lights provided in the tail light housing.

LICENSE PLATE BRACKET

There will be one (1) license plate bracket mounted on the rear of the body.

A white LED light will illuminate the license plate. A stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.

LIGHTING BEZEL

There will be two (2) Whelen, Model M6FCV4P, four (4) place chromed ABS housings with Pierce logos provided for the rear M6 series stop/tail, directional, back up, scene lights or warning lights.

BACK-UP ALARM

A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.

CAB PERIMETER SCENE LIGHTS

There will be four (4) Amdor, Model AY-LB-12HW020, 350 lumens each, 20.00" white LED strip lights provided, one (1) for each cab door.

These lights will be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.

BODY PERIMETER SCENE LIGHTS

There will be three (3) Amdor®, Model AY-LB-12HW012, 190 lumen, 12.00" long, white 12 volt DC LED strip lights provided.

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The lights will be mounted in the following locations.

- One (1) light will be provided under the left side turntable access steps
- One (1) light will be provided under the left side basket access steps
- One (1) light will be provided under the right side basket access steps

The perimeter scene lights will be activated when the parking brake is applied.

ENHANCED SOFTWARE FOR PERIMETER LIGHTS

All perimeter lights and scene lights will be deactivated when the parking brake is released.

The cab and crew cab perimeter lights will dim after 10 seconds or immediately if the vehicle's transmission is put into gear.

12 VOLT LIGHTING

There will be one (1) Whelen® Model P*H2*, 17,750 lumens 12 volt DC light(s) with a combination of flood and spot optics provided on the front visor, centered.

The housing(s) painted parts of this light assembly to be white.

The light(s) will be controlled by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel.

These light(s) may be load managed when the parking brake is applied.

12 VOLT DC SCENE LIGHTS

There will be one (1) Whelen® Model S30M**, 12,960 lumens 30.00" 12 volt DC light(s) with white LEDs provided on the right side of the cab roof located, Centered above crew cab door. Out to the cab seam . The painted parts of this light assembly to be white. The light(s) to be installed with universal horizontal tall mounts.

The light(s) will include the following:

- Six (6) scene light modules with white LEDs
- Three (3) amber LEDs as marker lights
- Two (2) additional LED modules. The additional modules to be two (2) scene light modules with white LEDs.

The lights will be activated per the following:

- The amber marker lights to flash when the emergency master switch is activated.
- The scene LEDs will be controlled by a switch at the driver's side switch panel.
- There will be a switch in the cab on the switch panel to control the flashing or spot LED modules.
- The light(s) may be load managed when the parking brake is applied.

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12 VOLT DC SCENE LIGHTS

There will be one (1) Whelen® Model S30M**, 12,960 lumens 30.00" 12 volt DC light(s) with white LEDs provided on the left side of the cab roof located, Centered above crew cab door. Out to the cab seam . The painted parts of this light assembly to be white. The light(s) to be installed with universal horizontal tall mounts.

The light(s) will include the following:

- Six (6) scene light modules with white LEDs
- Three (3) amber LEDs as marker lights
- Two (2) additional LED modules. The additional modules to be two (2) scene light modules with white LEDs.

The lights will be activated per the following:

- The amber marker lights to flash when the emergency master switch is activated.
- The scene LEDs will be controlled by a switch at the driver's side switch panel.
- There will be a switch in the cab on the switch panel to control the flashing or spot LED modules.
- The light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be one (1) Whelen® Model S16*M*, 6,480 lumens 16.00" 12 volt DC light(s) with white LEDs in flood optics provided on the body located, On top of rear body where a traffic adviser would normally sit. Angled down if needed to meet NFPA rear scene lighting requirements. .

The painted parts of this light assembly to be white.

The scene LEDs will be activated by a switch at the driver's side switch panel.

These light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be one (1) Whelen® Model S44M**, 19,440 lumens 44.00" 12 volt DC light(s) with white LEDs provided on the right side of the body located, As far rearward as possible on top of body above RS2 compartment. The painted parts of this light assembly to be white.

The light(s) will include the following:

- 10 scene light modules with white LEDs
- Three (3) amber LEDs as marker lights
- Two (2) additional LED modules. The additional modules to be two (2) scene light modules with white LEDs.

The lights will be activated per the following:

- The amber marker lights to flash when the emergency master switch is activated.

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- The scene LEDs will be controlled by the same control that has been selected for the passenger's side scene light(s).
- There will be a switch in the cab on the switch panel to control the flashing warning LED modules when selected.
- The light(s) may be load managed when the parking brake is applied.

12 VOLT LIGHTING

There will be one (1) Whelen® Model S44M**, 19,440 lumens 44.00" 12 volt DC light(s) with white LEDs provided on the left side of the body located, As far rearward as possible on top of body above LS2 compartment. The painted parts of this light assembly to be white.

The light(s) will include the following:

- 10 scene light modules with white LEDs
- Three (3) amber LEDs as marker lights
- Two (2) additional LED modules. The additional modules to be two (2) scene light modules with white LEDs.

The lights will be activated per the following:

- The amber marker lights to flash when the emergency master switch is activated.
- The scene LEDs will be controlled by the same control that has been selected for the driver's side scene light(s).
- There will be a switch in the cab on the switch panel to control the flashing warning LED modules when selected.
- The light(s) may be load managed when the parking brake is applied.

WALKING SURFACE LIGHT

There will be two (2) Model P25 12 volt DC LED lights with chrome housing provided to illuminate the top of body walking surface. These LED lights will be located on the rear facing surface of the upper portion of the body to illuminate the walking surface to the platform basket. There will be a Model FRP, 4" round black 12 volt DC LED floodlight located forward on the left side top of the body.

These lights will be activated when "Aerial Master" is on.

CARGO AREA

The cargo area will be fabricated of .125" 5052 aluminum with a tensile strength range of 31,000 to 38,000 psi.

The sides will not form any portion of the fender compartments.

The upper and rear edges of the side panels will have a double break for rigidity.

The cargo area will be located ahead of the ladder turntable.

Flooring of the cargo area will be aluminum treadplate.

The hose bed/cargo area walls will be unpainted and dual action finished.

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CARGO AREA COMPARTMENT

An enclosed compartment will be provided in a portion of the hose bed used for storage, opposite of where the hose is stored.

An "L" shaped divider will form the exterior walls of this compartment and an aluminum treadplate cover reinforced to support 250lb will be provided on the top.

The cover will be hinged on the left side and will be provided with socket and plunger latches and two (2) grab handles. The door will not open to 90 degrees and include a rubber coated chain on each side of the door.

A Pierce LED strip light will be provided to illuminate this compartment. The light will be activated when the cover is opened.

TURNTABLE STEPS

Access to the turntable will be provided by a set of swing-down steps on the left side of the truck. The bottom step shall be a flip down, stirrup step. The bottom step will have a step height not exceeding 24.00" from the ground to the top surface of the step at any time. All steps will have a height no greater than 14.00" from top surface to top surface.

The access steps will be located just behind the front body and in front of the middle stabilizer.

The swing down step assembly will be constructed of D/A finished aluminum with bright aluminum treadplate steps. The steps shall have a punched grip pattern design.

The stepwell will be lined with bright aluminum treadplate to act as scuffplates.

A knurled aluminum handrail will be provided on the left side of the steps.

Holes will be provided in each side step plate for hand holds.

The steps will be connected to the "Do Not Move Truck" indicator in the cab.

STEP LIGHTS

There will be three (3) white P25 LED step lights with chrome housing provided for the aerial turntable access steps.

In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.

The step lights will be activated by when the parking brake is applied.

SMOOTH ALUMINUM REAR WALL

The rear wall will be smooth aluminum.

TOW EYES

Two (2) rear painted tow eyes will be located at the rear of the apparatus and will be mounted directly to the frame rails. The inner and outer edges of the tow eyes will be radiused.

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COMPARTMENTATION

Compartmentation will be fabricated of 0.125" 5052 aluminum.

Side compartments will be an integral assembly with the rear fenders.

Circular fender liners will be provided. For prevention of rust pockets and ease of maintenance, the fender liners will be formed from aluminum and removable for maintenance.

Compartment flooring will be of the sweep out design with the floor higher than the compartment door lip.

Drip protection will be provided above the doors by means of bright aluminum extrusion, formed bright aluminum treadplate or polished stainless steel.

The top of the compartment will be covered with bright aluminum treadplate rolled over the edges on the front, rear and outward side. These covers will have the corners welded.

Side compartment covers will be separate from the compartment tops.

All screws and bolts, which are not Grade 8, will be stainless steel and where they protrude into a compartment will have acorn nuts on the ends to prevent injury.

UNDERBODY SUPPORT SYSTEM

The backbone of the body support system will begin with the aerial torque box which is the strongest component of the apparatus and is designed for sustaining maximum loads.

An aluminum body structure will be mounted to the aerial torque box at four (4) points using neoprene elastomer isolators. The front mounts will attach from structural steel brackets on the sides of the torque box to a structural tube on the body. The rear mounts will attach structural members on the rear body to the top of the rear down rigger mounting structure.

The combination of the elastomer isolators and the body structure design allow the chassis and torque box to flex without driving loads into the body.

The compartment floor support design will result in an 800 lb equipment support rating per lower compartment, and a 500 lb equipment support rating for the upper, over the axle compartments.

AGGRESSIVE WALKING SURFACE

All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards.

LOUVERS

All body compartments will be vented to provide one (1) way airflow out of the compartment that prevents water and dirt from gaining access to the compartment.

TESTING OF BODY DESIGN

Body structural analysis will be fully tested. Proven engineering and test techniques such as finite element analysis, model analysis, and strain gauging have been performed with special attention given to fatigue, life and structural integrity of the body and substructure.

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The body will be tested while loaded to its greatest in-service weight.

The criteria used during the testing procedure will include:

- Raising opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb.
- Making a 90 degree turn, while driving at 20 mph to simulate aggressive driving conditions.
- Driving the vehicle on at 35 mph on a washboard road.
- Driving the vehicle at 55 mph on a smooth road.
- Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement.

COMPARTMENT IN PLACE OF PUMP

A single door compartment will be installed in place of the pump and pump panel.

The compartment will be approximately 35.75" wide x 30.00" high x 24.38" deep in the lower area and transversed in the top portion of the compartment. The transversed area will be 35.75" wide x 18.19" high.

The door opening will be approximately 33.00" wide x 25.62" high.

LEFT SIDE COMPARTMENTATION

The override door forward of the stabilizer will include a pair of D-ring latches.

A full height double door compartment ahead of the rear wheels will be provided. The compartment will be approximately 29.13" wide x 28.25" high x 27.13" deep inside with a clear door opening of approximately 25.13" wide x 26.37" high.

A full height single lap door compartment forward above the fender compartment and over the rear wheels will be approximately 16.25" wide x 20.06" high x 27.13" deep inside with a clear door opening of approximately 12.87" wide x 20.25" high.

One (1) liftup door compartment rearward above the fender compartments and over the rear axles will be provided. The compartment will be approximately 84.00" wide x 22.13" high x 27.13" deep inside with a clear door opening of approximately 81.25" wide x 19.13" high.

A full height double door compartment behind the rear wheels will be approximately 41.25" wide x 53.88" high x 27.13" deep. The clear door opening will be approximately 37.25" wide x 52.00" high.

One (1) single lap door compartment behind the rear stabilizer will be provided. The compartment will be approximately 18.13" wide x 45.75" high x 27.13" deep inside with a clear door opening of approximately 14.87" wide x 43.87" high.

RIGHT SIDE COMPARTMENTATION

A full height single lap door compartment ahead of the front stabilizer will be provided. The compartment will be approximately 18.38" wide x 35.25" high x 9.91" deep with a clear door opening of approximately 15.00" wide x 33.37" high.

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A full height double door compartment ahead of the rear wheels will be approximately 29.13" wide x 28.25" high x 27.13" deep inside with a clear door opening of approximately 25.13" wide x 26.37" high.

A full height single lap door compartment forward above the fender compartment and over the rear wheels will be approximately 16.25" wide x 22.13" high x 27.13" deep. The clear door opening will be approximately 12.87" wide x 20.25" high.

One (1) liftup door, rearward compartment above the fender compartments and over the rear axles will be provided. The compartment will be approximately 84.00" wide x 22.13" high x 27.13" deep inside with a clear door opening of approximately 81.25" wide x 19.13" high.

A full height double door compartment behind the rear wheels will be approximately 41.25" wide x 53.88" high x 27.13" deep. The clear door opening will be approximately 37.25" wide x 52.00" high.

One (1) single lap door compartment behind the rear stabilizer will be provided. The compartment will be approximately 18.13" wide x 45.75" high x 27.13" deep inside with a clear door opening of approximately 14.87" wide x 43.87" high.

SIDE COMPARTMENT DOORS

All hinged compartment doors will be lap style with double panel construction and fabricated of .09" 5052H32 aluminum. Doors will be a minimum of 1.50" thick. To provide additional door strength, a "C" section reinforcement will be installed between the outer and interior panels.

Doors will be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core will be installed on the door framing that seals onto the interior panel, to ensure a weather resisting compartment.

All compartment doors will have polished stainless steel continuous hinge with a pin diameter of .25", that is bolted or screwed on with stainless steel fasteners. A dielectric substance will be applied to each hinge fastener.

All door lock mechanisms will be fully enclosed within the door panels to prevent fouling of the lock in the event equipment inside shifts into the lock area.

Doors will be latched with recessed, polished stainless steel "D" ring handles and Eberhard 106 locks.

To prevent corrosion caused by dissimilar metals, compartment door handles will not be attached to outer door panel with screws. A rubber gasket will be provided between the "D" ring handle and the door.

REAR BUMPER

A 5.00" rear bumper will be furnished. Bumper will be constructed of steel with the top covered with polished aluminum treadplate. The sides and rear face of the bumper will be smooth aluminum and painted Red 90. Match to body color. The bumper will be 4.50" deep x 4.00" high and will be spaced away from the body approximately 0.50". The corners of the bumper will be angled at 45 degrees to be flush with the angled rear body. It will extend the full width of the body.

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Protective black UL-LX coating will be provided on the outside top edge and 1.00" over the edge. The lining will be properly installed by an authorized UL-LX dealer.

There will be a full width aluminum extruded rubrail attached to the rear bumper. Trim will be 3.12" high with 1.50" flanges turned outward for rigidity.

Cut outs will be provided in the rub rail for lighting.

DOOR STOP WEB STRAP,

five (5) compartment doors will be provided with front cab door strap to keep the high side compartment doors from hitting the lift up compartment doors. Two Each on LS2 and RS2 compartment doors to prevent them from hitting LS3 and RS3 door, as shown in E-pickup for 34690-01, One on the PS Cab EMS Door.

SCUFFPLATE ON INTERIOR OF COMPARTMENT DOOR(S)

The 13 compartment doors will include a polished stainless steel scuffplate to cover the entire width and height on the inside panel of each door pan.

Scuffplate will be located LS1, LS2, LS5, LS6, RS1, RS2, RS5, RS6, RS7.

COMPARTMENT LIGHTING

There will be thirteen (13) compartment(s) with two (2) white 12 volt DC LED compartment light strips. The dual light strips will be centered vertically along each side of the door framing. There will be two (2) light strips per compartment. The dual light strips will be in all body compartment(s).

Any remaining compartments without light strips will have a 6.00" diameter Truck-Lite, Model: 79384 light. Each light will have a number 1076 one filament, two wire bulb.

Opening the compartment door will automatically turn the compartment lighting on.

MOUNTING TRACKS

There will be recessed tracks installed vertically to support the adjustable shelf(s).

Tracks will not protrude into any compartment in order to provide the greatest compartment space and widest shelves possible.

The tracks will be provided in each compartment except for the one that contains the pump operator's panel.

ADJUSTABLE SHELVES

There will be four (4) shelves with a capacity of 500 lb provided.

The shelf construction will consist of .188" aluminum painted spatter gray with 2.00" sides.

Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.

The shelves will be held in place by .12" thick stamped plated brackets and bolts.

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The location(s) will be in RS2 in the upper third, in RS1 in the upper third, in LS2 in the upper third and in LS2 at the depth transition point.

ADJUSTABLE SHELVES

There will be one (1) shelf provided LS4 . The shelf construction will consist of .188" aluminum painted spatter gray. A capacity rating will not be available on this item due to a reduced side height being less than 2.00". Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.

The shelves will be held in place by .12" thick stamped plated brackets and bolts.

The side height of the shelf/shelves will be as follows:

- Front: 1.00" down-turned flange
- Rear: 2.00" high
- Left & Right Sides: 2.00" high

SLIDE-OUT ADJUSTABLE HEIGHT TRAY

There will be one (1) slide-out tray provided B1.

A capacity rating will not be available on this tray due to a reduced side height being less than 2.00". The tray(s) will be constructed of a minimum .13" aluminum painted spatter gray.

The tray(s) will be designed for maximum compartment width and depth.

The side height of the tray(s) will be as follows:

- Left side: 2.00" high
- Right side: 2.00" high
- Front: 2.00" high
- Rear: 2.00" high

Each tray will be mounted on a pair of side mounted slides. The slide mechanisms will have ball bearings for ease of operation and years of dependable service. The slides will be mounted to shelf tracks to allow the tray to be adjustable up and down within the designated mounting location.

An automatic lock will be provided for both the in and out tray positions. The lock trip mechanism will be located at the front of the tray and will be easily operated with a gloved hand.

SLIDE-OUT FLOOR MOUNTED TRAY

There will be one (1) floor mounted slide-out tray(s) provided LS5. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of .19" aluminum. The finish will be painted to match compartment interior. Any side taller than 2.00" in height will contain pegboard pattern with .281" diameter holes.

The side height of the tray(s) will be as follows:

- Front: 2.00" high

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- Rear: 21.00" high
- Left Side: 21.00" high
- Right Side: 2.00" high

There will be two undermount-roller bearing type slides rated at 250lb each provided. Each slide will have a safety factor rating of 2.

To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slides will require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

SLIDE-OUT FLOOR MOUNTED TRAY

There will be one (1) floor mounted slide-out tray(s) with 2.00" sides provided B1. Each tray will be rated for up to 200lb in the extended position. The tray(s) will be constructed of .19" aluminum with non-welded corners. The finish will be painted to match compartment interior.

Slides will be equipped with ball bearings for ease of operation and years of dependable service. The slides will be located on the sides of the tray so that the tray can be located as close to the compartment floor as possible.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

SLIDE-OUT FLOOR MOUNTED TRAY

There will be four (4) floor mounted slide-out tray(s) with 2.00" sides provided LS1,LS2,RS1,RS5. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of .19" aluminum with non-welded corners. The finish will be painted spatter gray.

There will be two undermount-roller bearing type slides rated at 250lb each provided. The pair of slides will have a safety factor rating of 2.

To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slides will require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

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Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

TWO (2) WAY UTILITY SLIDE-OUT FLOOR MOUNTED TRAY

There will be one (1) floor mounted utility slide-out tray(s) provided LS6/RS7. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of .19" thick aluminum for the tray bottom and special aluminum extrusions for the tray sides, ends and tracks. The corners will be welded. The finish will be painted spatter gray.

The tray will be 3.00" high x full depth of the transverse compartment x as wide as possible for the compartment.

The tray will be supported with a minimum of six (6) ball bearing rollers. The tray will slide out two thirds (2/3) of its length to either side of the apparatus.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

SWING OUT TOOLBOARD

A swing out aluminum toolboard will be provided.

It will be a minimum of .188" thick aluminum.

Pac Trac tool mount material will be provided on both sides of the toolboard.

A 1.00" x 1.00" aluminum tube frame will be welded to the edge of the pegboard.

The board will be mounted on a pivoting device at the back of the compartment on the top and bottom to allow easy movement in and out of the compartment. The maximum tool load will be 400 pounds.

The board will have positive lock in the stowed and extended position.

The board will be mounted on adjustable tracks from front to back within the compartment.

There will be One (1) toolboard(s) provided and installed LS3 Rear of partition .

SLIDE-OUT TOOL BOARD

A slide-out toolboard equipped with Pac Trac equipment mounting tracks will be provided. The Pac Trac mounting tracks will be provided on both sides of the toolboard.

The board will be mounted on an undermount-roller bearing type slide rated at 250 lb with a factor of safety of 2.

To ensure years of dependable service the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slides will require no more than a 50 pound force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected

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from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

The slides will be mounted on adjustable tracks side to side within the compartment.

The board will have positive lock in the stowed and extended position.

There will be Two (2) toolboard(s) provided, and will be installed RS3- 12.00" from forward door frame LS1 Centered, As tall as possible, .

VERTICAL COMPARTMENT PARTITION

One (1) partition will be provided.

The partition construction will consist of body material painted spatter gray. Each partition will be the full vertical height of the compartment.

The location(s) will be in LS3, 30.00" from the forward door frame.

EQUIPMENT MOUNTING SYSTEM

Pac Trac equipment mounting system will be installed on the back wall of two (2) compartment(s), RS3 and LS3 .

Pac Trac equipment mounting system will be installed on seven (7) tray(s),[Location].

EQUIPMENT MOUNTING

Pac Trac equipment mounting system will be installed on the walls of one (1) compartment(s), RS2.

AIR BAG STORAGE

There will be a one (1) rack(s) installed for storing three (3) air bags in the RS2 mounted directly under upper shelf, horizontally stacked compartment.

The rack will be fabricated from painted spatter gray .125" aluminum. The rack will have half moon cutouts for grabbing the air bag. Velcro® straps will be installed to hold the air bags in place.

The size of the air bags will be Mounted to top rear, 3 bag compartment stacked horizontally. 1.25" tall each. Make top comp 28" x 20.5" Make bottom 2 comp 22" x 20.5" each Make 20.5" the depth so that front edges are flush .

FLOOR EXTENSION

There will be a compartment floor extension provided. The floor extension will extend from the area over the frame rails to within an inch of the compartment door. The floor extension will have a 1.00" vertical downturned lip and no return flange.

A total of two (2) will be provided and located LS6 and RS7.

RUBBER BUMPER

Rubber bumpers will be added to the slide rails for the trays mounted One on top of the Swing Out Toolboard in LS3 and One on top of the Slide Out Toolboard in RS3.

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two (2) pairs will be provided.

RUBBER SUPPORT UNDER TREADPLATE

There will be rubber strips provided under the horizontal portion of the center front catwalk ahead of the rear body.

RUB RAIL

Bottom edge of the side compartments will be trimmed with a bright aluminum extruded rub rail.

Trim will be 3.12" high with 1.50" flanges turned outward for rigidity.

The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.

BODY FENDER CROWNS

Rubber fender crowns will be provided around the rear wheel openings.

A brushed stainless steel unpainted fender liner will be provided to avoid paint chipping. The liners will be removable to aid in the maintenance of rear suspension components.

STORAGE COMPARTMENT

A total of one (1) air bottle compartment will be provided and located on the left side centered between the tandem rear wheels. The compartment will be designed to hold equipment with a maximum depth of 26.00". The compartment will be one (1) large compartment with no divider or partitions.

A drain hole and black rubber matting will be provided on the floor of each compartment. A lift up with pneumatic spring with pair of flush lift & turn latches will be provided for each compartment. The door will be brushed stainless steel. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

COMPARTMENT STRAP

A strap will be provided in the compartment(s) to help contain the equipment.

THREE AIR BOTTLE/EXTINGUISHER STORAGE COMPARTMENT

A total of one (1) air bottle compartment will be provided and located on the right side centered between the tandem rear wheels. The compartment will consist of individual bins each designed to hold an air bottles or extinguishers with a maximum diameter of 8.00" and a maximum depth of 26.00".

Each compartment will hold three (3), two (2) stored next to each other in the top area, and one (1) stored centered below. Each bin will be separated by a partition.

A drain hole and black rubber matting will be provided on the floor of each compartment. A lift up with pneumatic spring with a pair of flush lift & turn latches will be provided for each compartment. The door will be brushed stainless steel. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

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COMPARTMENT STRAP

Straps will be provided in the compartment(s) to help contain the equipment. The straps will wrap around the neck of each and attach to the wall of the compartment.

AIR BOTTLE STORAGE (TRIPLE)

A quantity of one (1) air bottle compartment designed to hold (3) air bottles up to 7.25" in diameter x 26.00" deep will be provided on the right side rearward of the rear wheels. A brushed stainless steel door with a chrome plated flush lift & turn latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

Inside the compartment, black rubber matting will be provided.

AIR BOTTLE COMPARTMENT STRAP

A strap will be provided in the air bottle compartment(s) to help contain the air bottles when the vehicle is parked on an incline. The strap will wrap around the neck and attach to the wall of the compartment.

AIR BOTTLE STORAGE (SINGLE)

A quantity of three (3) air bottle compartments, approximately 7.50" wide x 7.50" tall x 26.00" deep, will be provided on the left side forward of the rear wheels, on the left side rearward of the rear wheels and on the right side forward of the rear wheels. The compartment will be square with angled corners. A brushed stainless steel door with a chrome plated flush lift & turn latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

Inside the compartment, black rubber matting will be provided.

SCUFFTAPE AROUND AIR BOTTLE OPENINGS

Vinyl scuff tape will be provided around the entire opening of each air bottle compartment in the fender panels.

EXTENSION LADDER

There will be a 40', three (3) section, aluminum, Duo-Safety, Series 1525-A extension ladder provided. The ladder will not have poles and will be located ladder storage.

ADDED EXTENSION LADDER

There will be one (1) 28', two (2) section, aluminum, Duo-Safety Series 1200A extension ladder provided.

AERIAL EXTENSION LADDER

There will be a 35' two (2) section aluminum Duo-Safety Series 1200-A extension ladder provided.

ROOF LADDER

There will be two (2), 16' aluminum, Duo-Safety, Series 875-DR roof ladders provided. The ladders will have hooks on both ends.

ADDED ROOF LADDER

There will be one (1) aluminum, 12' Duo Safety 875-DR roof ladder provided On fly section of aerial.

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FOLDING LADDER, AERIAL

There will be a 14' aluminum, Duo-Safety, Series 585-A folding ladder provided.

GROUND LADDER STORAGE

The ground ladders are stored within the torque box and are removable from the rear.

Ladders will be enclosed to prevent road dirt and debris from fouling or damaging the ladders.

The ladders rest in full length stainless steel slides and are arranged in such a manner that any one ladder can be removed without having to move or remove any other ladder.

A Gortite rollup door will be provided at the rear, double faced, aluminum construction, and an anodized satin finish. A polished stainless steel lift bar to be provided for the rear roll-up door. The latching mechanism will consist of a full length lift bar lock with latches on the outer extrusion of the door frame.

A stainless plate with a 2-bend flange and a stainless steel hinge will be provided to secure the aerial ladder complement. The plate assembly will be mounted to the bottom of the entrance of the torque box ladder storage area.

When the plate is vertical, it will secure the ladders and prevent them from migrating to the rear of the apparatus. When the plate is down and not securing the ladders, the rollup door can not close, which will activate the "Open Door Indicator Light" within the cab. The hinged plate will use two (2) rubber draw style latches to secure it in the vertical position to contain the ladders.

Compartment Storage

Below the ground ladder storage will be a storage compartment with interior measurements of 36.75" wide x 14.88" high x 26.50" deep. There will be no door or frame on this compartment. A seal and drains will be provided between the top of this compartment and the torque box above it to help prevent water intrusion. The compartment finish will match body interior.

LADDER STORAGE LIGHTING

There will be 36.00" white 12 volt DC LED strip lights provided to illuminate the torque box ladder storage area and the compartment directly below the ladder storage. One (1) light will be provided on each side of the ladder storage area.

The lights will be activated when the ladder storage compartment door is opened.

NESTED LADDER STORAGE

There will be nested ladders on the left side of the ladder storage compartment. The ladders will be nested so that one ladder can be removed without removing the adjoining ladder.

NESTED LADDER STORAGE

There will be nested ladders on the right side of the ladder storage compartment.

BACKBOARD STORAGE

There will be one (1) stainless steel storage trough provided for backboard storage in the torque box ladder storage area. Each trough will be sized to accommodate backboard(s) 72.00" long x 18.00" wide x 3.00" high.

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PIKE POLES

There will be one (1) 12' Duo Safety pike pole(s) with fiberglass handles provided. The pike pole(s) will be stored in tubular holders located in the ground ladder storage compartment.

8' PIKE POLE

There will be two (2) 8' Duo Safety pike pole(s) with fiberglass handle provided. The pike pole(s) will be stored in tubular holders located in the ground ladder storage compartment.

PIKE POLE 6 FT

There will be two (2) Fire Hooks Unlimited, Model RH-6, 6' pike pole(s) with steel shaft and chisel (pry) end provided and located Location.

3' PIKE POLE

There will be two (2) 3' Duo Safety pike pole(s) with fiberglass shaft and "D" handles shipped loose.

10' PIKE POLE(S)

There will be one (1) 10' pike pole(s) with fiberglass handles provided.

PIKE POLE STORAGE IN TORQUE BOX/LADDER STORAGE

There will be ABS tubing provided in the torque box/ladder storage area for a total of four (4) pike poles.

If the head of a pike pole can come into contact with a painted surface, a stainless steel scuffplate will be provided.

PIKE POLE STORAGE IN TORQUE BOX/LADDER STORAGE

There will be a total of one (1) stainless steel trough(s) provided in the torque box/ladder storage area.

The trough(s) will accommodate a Fire Hooks Unlimited 8' arson trash hook with D handle.

AIR HORN SYSTEM

Two (2) Hadley round air horns with 6.00" bell will be recessed in the front bumper. The horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed in-line to prevent loss of air in the air brake system. The horns will be in position 3 & 5.

Air Horn Location

The air horns will be located on each side of the bumper, inside of the frame rails.

Air Horn Control

The air horns will be actuated by a chrome push button located on the officer's side of the engine tunnel and by the horn button in the steering wheel. The driver will have the option to control the air horns or the chassis horns from the horn button by means of a selector switch located on the instrument panel.

- Right side chrome push button switch

ELECTRONIC SIREN

A Whelen®, Model 295SLSA1, electronic siren with noise canceling microphone will be provided.

This siren to be active when the battery switch is on and that emergency master switch is on.

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Electronic siren head will be recessed in the driver side inside switch panel.

SIREN CONTROL

The electronic siren will be controllable on the siren head and horn ring only. No foot switches will be required.

The driver will have the option to control the siren or the chassis horns from the horn button by means of a selector switch located on the instrument panel.

SPEAKER

There will be one (1) Whelen®, Model SA315P, black nylon composite, 100-watt, speaker with through bumper mounting brackets and polished stainless steel grille provided. The speaker will be connected to the siren amplifier.

The speaker will be recessed in the left side of the front bumper, just outside of the frame rail.

AUXILIARY MECHANICAL SIREN

There will be a Federal Signal Model Q2B mechanical siren furnished and installed in the front of the apparatus.

The Q2B siren will be chrome finish.

The siren will have a 2-gauge cable connected to a power solenoid that is connected by a 2-gauge cable ran battery direct to the primary chassis batteries and will be labeled Q2B+ at the battery. The power solenoid will only be enabled when the emergency master switch is on.

The siren will have a 2-gauge ground wire connected to the chassis battery stud. The cable will be labeled Q2B- at the battery.

When the chassis battery switch is on, and the emergency master switch is on, the Q2B siren will be activated by the following:

The mechanical siren will be mounted recessed in the front grille. The siren mounting will include a reinforcement plate.

MECHANICAL SIREN CONTROL

The mechanical siren will be activated by the following:

- Left side foot switch.
- Right side push button switch.

A momentary chrome push button switch will be included in the right side dash panel to activate the siren brake.

WARNING SYSTEM CONTROL

There will be a Whelen®, CenCom CORE™ WeCanX™ warning system control provided. The system will be a microprocessor based system that utilizes a centralized means of controlling the warning lighting on the vehicle.

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The system will include a photocell to sense ambient light.

The warning system controlled warning lighting will be controlled as following:

When in respond mode (high ambient light):

When the emergency master switch is active, the associated warning light switch is activated, and the parking brake is released, and the vehicle is in high ambient light conditions, the warning light control system will change the flash pattern to LONG FLASH 75 RANDOM flash with high intensity light output.

When in respond mode (low ambient light):

When the emergency master switch is active, the associated warning light switch is activated, and the parking brake is released, and the vehicle is in low ambient light conditions, the warning light control system will change the flash pattern to SIGNAL ALERT 75 ALTERNATING flash with high intensity light output.

When in blocking mode (high ambient light):

When the emergency master switch is active, the associated warning light switch is activated, and the parking brake is applied, and the vehicle is in high ambient light conditions, the warning light control system will change the flash pattern to SINGLE FLASH 75 ALTERNATING flash with high intensity light output.

When in blocking mode (low ambient light):

When the emergency master switch is active, the associated warning light switch is activated, the parking brake is applied, and the vehicle is in low ambient light conditions, the warning light control system will enter the Whelen® Dynamic Variable Intensity (DVI) mode. DVI mode lowers warning light output intensity and creates a "calming" effect by slowing flash rates and synchronizing warning light flash patterns.

FRONT ZONE UPPER WARNING LIGHTS

There will be one (1) 72.00" Whelen® Freedom IV WeCanX™ DUO lightbar mounted on the cab roof.

A photo cell will be installed in the light bar that senses ambient light. The light bar will include the following warning configuration:

- One (1) red flashing LED module in the left side rear corner position.
- One (1) blue flashing LED module in the left side end position.
- One (1) red flashing LED module in the left side front corner position.
- One (1) blue flashing LED module in the left side first front position.
- One (1) red flashing LED module in the left side second front position.
- One (1) blue flashing LED module in the left side third front position.

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- One (1) red flashing LED module in the left side fourth front position.
- One (1) white flashing LED module in the left side fifth front position.
- One (1) 795 LED traffic light controller set to national standard high priority in the center positions.
- One (1) white flashing LED module in the right side fifth front position.
- One (1) red flashing LED module in the right side fourth front position.
- One (1) blue flashing LED module in the right side third front position.
- One (1) red flashing LED module in the right side second front position.
- One (1) blue flashing LED module in the right side first front position.
- One (1) red flashing LED module in the right side front corner position.
- One (1) blue flashing LED module in the right side end position.
- One (1) red flashing LED module in the right side rear corner position.
- The light bar will have clear lenses.

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There will be a switch in the cab on the switch panel to control this lightbar.

There will be a switch in the cab on the switch panel to control the traffic light controller that will only function when emergency master switch is on. There will not be a momentary switch for traffic light controller activation.

The traffic light controller will be disabled when the parking brake is applied.

The white LEDs will be disabled when the parking brake is applied.

Two (2) red flashing LED modules, and four (4) blue flashing modules in the front positions may be load managed when the parking brake is applied.

These lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

CAB FACE WARNING LIGHTS

There will be four (4) Whelen®, Model M6**, 4.31" high x 6.75" wide x 1.37" deep flashing LED warning lights installed on the cab face, above the headlights, mounted in a common bezel.

- The left side outside warning light to include red LEDs
- The left side inside warning light to include blue LEDs
- The right side inside warning light to include blue LEDs
- The right side outside warning light to include red LEDs
- The warning light lens color(s) to be clear
- The housing to be polished and the trim shall be chrome

There will be a switch located in the cab, on the switch panel, to control the lights.

The flash pattern of the lights will be controlled through the supplier based electrical control system.

HEADLIGHT FLASHER

The high beam headlights will flash alternately between the left and right side.

There will be a switch installed in the cab on the switch panel to control the high beam flash. This switch will be live when the battery switch and the emergency master switches are on.

The flashing will automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.

SIDE ZONE LOWER LIGHTING

There will be four (4) Whelen®, Model M6*CS, 4.31" high x 6.75" long x 1.37" deep steady burn LED warning lights with chrome trim installed per the following:

- Two (2) lights located, one (1) each side on the bumper extension. The left side, side front light to include blue warning LEDs and the right side, side front light to include blue warning LEDs.
- Two (2) lights located, one (1) each side located between the tandems. The left side, side rear light to include blue warning LEDs and the right side, side rear light to include blue warning LEDs.
- The lights will include clear lenses.

These lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

There will be a switch in the cab on the switch panel to control the lights.

REAR ZONE LOWER LIGHTING

There will be two (2) Whelen®, Model M6**S, 4.31" high x 6.75" wide x 1.37" deep flashing LED warning lights located at the rear of the apparatus included in the tail light housings.

- The left side rear warning light to include red LEDs.
- The right side rear warning light to include blue LEDs.
- The warning light lens color(s) to be clear.

The flash pattern of the lights will be controlled through the supplier based electrical control system.

There will be a switch in the cab on the switch panel to control the lights.

REAR AND SIDE ZONE UPPER WARNING LIGHTS

There will be two (2) Whelen®, Model Rota-Beam™, Model R416*F, 4.88" high x 6.44" wide LED beacons, and two (2) Model M6*CS, 5.31" high x 6.75" wide x 1.37" deep steady burn LED warning lights with clear lenses, and chrome trim provided.

The rear zone upper R416*F warning beacons will be as follows:

- One (1) R416RF, red Rota-Beam beacon mounted on top of the rear left side of the body
- One (1) R416BF, blue Rota-Beam beacon mounted on top of the rear right side of the body

The M6*CS steady burn warning lights will be provided at the rear upper zone as follows:

- One (1) M6BCS, blue steady burn light will be mounted as close to the outside of the rear left side of the body

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- One (1) M6RCS, red steady burn light will be mounted as close to the outside of the rear right side of the body

These lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

There will be a switch located in the cab on the switch panel to control the beacons.

TRAFFIC DIRECTING LIGHT

There will be Whelen®, Model TLIA amber LED lights installed as follows:

- Six (6) Whelen®, Model TLIA amber, LED lights installed low on the left side of the vehicle. One (1) installed under compartment "LS6" in rub rail as far forward as practical, one (1) installed to the right of the turntable access steps low and as far forward as practical, one (1) under compartment "LS5" in rub rail as far forward as practical, two (2) under compartment "LS2" in rub rail, one (1) as far forward and one (1) as far towards the rear as practical, and one (1) "LS1" in rub rail as far towards the rear as practical.
- Six (6) Whelen®, Model TLIA amber, LED lights installed low on the rear of the vehicle, in the rear tail board step, under rear compartment "B1".
- Six (6) Whelen®, Model TLIA amber, LED lights installed low on the right side of the vehicle. One (1) installed under compartment "RS7" as far forward as practical, one (1) installed under compartment "RS6" in rub rail as far forward as practical, one (1) under compartment "RS5" in rub rail as far forward as practical, two (2) under compartment "RS2" in rub rail, one (1) as far forward and one (1) as far towards the rear as practical, and one (1) "RS1" in rub rail as far towards the rear as practical.

There will be four (4) switches installed in the cab instrument panel to control these traffic directing lights as follows:

- "TA LEFT" - Activating this switch will initiate a light pattern that directs traffic to the left when facing the vehicle.
- "TA RIGHT" - Activating this switch will initiate a light pattern that directs traffic to the right when facing the vehicle.

Activating both the "TA LEFT" and "TA RIGHT" will initiate a center out light pattern.

"BLOCKING LEFT" - Activating this switch in conjunction with the "TA LEFT" and/or "TA RIGHT" switches will allow traffic directing control of the left side and rear mounted lights.

"BLOCKING RIGHT" - Activating this switch in conjunction with the "TA LEFT" and/or "TA RIGHT" switches will allow traffic directing control of the right side and rear mounted lights.

Activating both the "BLOCKING LEFT" and "BLOCKING RIGHT" switches in conjunction with the "TA LEFT" and/or "TA RIGHT" switches will initiate a traffic directing pattern that incorporates both sides and the rear of the vehicle.

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If neither the "BLOCK LEFT" or "BLOCK RIGHT" switches are selected, only the traffic directing lights at the rear of the truck will be controlled when a "TA LEFT" and/or "TA RIGHT" are selected.

If none of the BLOCKING switches are selected and E-Master is active, the TLIA lights on the sides of the apparatus will activate in warning mode.

The warning system controlled warning lighting will be controlled as per the following:

When in respond mode (high ambient light):

When the emergency master switch is active, the rear warning light switch is activated, and the parking brake is released, and the vehicle is in high ambient light conditions, the warning light control system will change the flash pattern to LONG FLASH 75 RANDOM flash with high intensity light output.

When in respond mode (low ambient light):

When the emergency master switch is active, the rear warning light switch is activated, and the parking brake is released, and the vehicle is in low ambient light conditions, the warning light control system will change the flash pattern to SIGNAL ALERT 75 ALTERNATING flash with high intensity light output.

When in blocking mode (high ambient light):

When the emergency master switch is active, the rear warning light switch is activated, and the parking brake is applied, and the vehicle is in high ambient light conditions, the warning light control system will change the flash pattern to SINGLE FLASH 75 ALTERNATING flash with high intensity light output.

When in blocking mode (low ambient light):

When the emergency master switch is active, the rear warning light switch is activated, the parking brake is applied, and the vehicle is in low ambient light conditions, the warning light control system will enter the Whelen® Dynamic Variable Intensity (DVI) mode. DVI mode lowers warning light output intensity and creates a "calming" effect by slowing flash rates and synchronizing warning light flash patterns.

The traffic directing lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

The traffic directing light control switches will be located within the switch panel on the center console.

120 VOLT RECEPTACLE

There will be one (1), 4-place receptacle box(es) with four (4) 15/20 amp 120 volt AC three (3) wire straight blade receptacles with an interior stainless steel wall plate installed RS3 As far forward as possible, high on forward wall. The NEMA configuration for the receptacles will be 5-20R.

The receptacle(s) will be powered from the shoreline inlet.

There will be a label installed near the receptacle(s) that state the following:

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- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

AERIAL GENERAL INFORMATION

It is the intent of these specifications to describe a mid-mounted telescoping, elevating platform. The unit will consist of a five (5) section, steel ladder with a self-leveling basket attached to the ladder fly section.

Operation on Grades

The aerial unit will be capable of operating safely, on any slope up to 10 degrees at full capacities. (Operation beyond this limit will be at the operator's discretion).

Construction Standards

The ladder will be constructed to meet all of the requirements as described in the current edition of NFPA 1901.

These capabilities will be established in an unsupported configuration.

All structural load supporting elements of the aerial device that are made of a ductile material will have a design stress of not more than 50 percent of the minimum yield strength of the material based on the combination of the live load and the dead load. This 2:1 structural safety factor meets the current NFPA 1901 standard.

All structural load supporting elements of the aerial device that are made of non-ductile material will have a design stress of not more than 20 percent of the minimum ultimate strength of the material, based on the combination of the rated capacity and the dead load. This 5:1 safety factor meets the current 1901 NFPA standard.

The aerial device will be capable of sustaining a static load one and one-half times its rated tip load capacity (live load) in every position in which the aerial device can be placed when the vehicle is on a firm level surface.

The aerial device will be capable of sustaining a static load one and one-third times its rated tip load capacity (live load) in every position the aerial device can be placed when the vehicle is on a slope of five degrees downward in the direction most likely to cause overturning.

With the aerial device out of the cradle in the fully extended position at zero degrees elevation, a test load will be applied in a horizontal direction normal to the centerline of the ladder. The turntable will not rotate and the ladder will not deflect beyond what the product specification allows.

All welding will be in compliance with the American Welding Society standards. All welding personnel will be certified, as qualified under AWS welding codes.

The aerial device will be capable of operating in either of the two (2) following conditions:

- Conditions of high wind up to 35 mph

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- Conditions of icing, up to a coating of 0.25" over the entire aerial structure

All of the design criteria must be supported by the following test data:

- Strain gage testing of the complete aerial device

The following criteria for materials are to be used in the design of the aerial device:

- Materials are to be certified by the mill that manufactured the material
- Material testing that is performed after the mill test will be for verification only and not with the intent of changing the classification.

Ladder Construction

The ladder will be comprised of five (5) sections and will extend to a nominal height, of 100' above the ground, as measured by 1901 recommendations. The ladder (handrails, baserails, trusses, k-braces and rungs) will be constructed of welded, high strength steel certified by the manufacturer as being a minimum of 100,000 lb per square inch of yield strength. All critical points will be reinforced, for extra rigidity, and to provide a high strength-to-weight ratio. Ladder rungs will be round and welded to each section in two (2) places with "K" bracing for torsional rigidity. A minimum of 70.25" of overlap between each of the aerial sections will be provided.

The inside width dimensions of the ladder will be:

Base Section:	56.12"
Lower Mid Section:	46.12"
Center Mid Section:	36.62"
Upper Mid Section:	28.12"
Fly Section:	22.12"

The height of the handrails above the centerline of the rungs will be:

Base Section:	40.72"
Lower Mid Section:	39.08"
Center Mid Section:	32.32"
Upper Mid Section:	29.02"
Fly Section:	26.37"

Vertical Height

The height of the unit will extend to no less than 100', as measured by a plumb line from the top surface of the basket handrail assembly to the ground, with the basket raised to a 77 degree angle.

Horizontal Reach

The rated horizontal reach will be 93'. The measurement of horizontal reach will be consistent with NFPA standards.

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Mounting of Elevating Platform

The aerial device will be mid mounted, to a torque box, on the truck chassis.

Torque Box

A "torsion box" subframe will be installed between two sets of stabilizers. The torque box will be constructed of 100,000 lb per square inch yield steel with an integral ladder storage box. The torque box assembly will be capable of withstanding all torsional and horizontal loads when the unit is on the stabilizers. The torque box will be bolted to the chassis frame rails using forty-eight 0.750" SAE grade 8 bolts with nuts.

Turntable

The turntable will be coated with a non-skid, chemical resistant material in the walking areas. The stepping surfaces will meet the skid-resistance requirements in the current NFPA 1901 standard.

The turntable will serve as a step for access to the ladder.

The turntable handrails will be a minimum 42.00" high and will not increase the overall travel height of the vehicle. The handrails will be constructed from 1.62" diameter extruded 6061-T6 aluminum with a slip resistant knurled surface. The handrails will be anodized to resist corrosion.

Elevation System

Two (2) double acting, lift cylinders will be utilized to provide smooth, precise elevation from 15 degrees below horizontal to 77 degrees above horizontal. The lift cylinder will be attached to each side of the base section. The lift cylinders will have a 7.50" internal diameter (bore), 3.50" diameter cylinder rod and a 53.89" stroke. The lift cylinder rod will be chrome plated, to provide smooth operation of the aerial and reduce seal wear. The lift cylinders will be equipped with integral holding valves located in the cylinder, to prevent the unit from descending should the charged lines be severed, at any point within the hydraulic system and to maintain the ladder in the bedded position during road travel. The integral holding valves will NOT be located in the transfer tubes.

The elevation system will be controlled by the microprocessor. The microprocessor will provide the following features:

- Collision avoidance of the elevation system to prevent accidental body damage
- Automatic deceleration when the aerial device is lowered into the cradle
- Automatic deceleration at the end of stroke, in maximum raise and lower positions
- Deceleration of the aerial device from 0 to -15 degrees

Extension/Retraction System

A hydraulically powered, extension and retraction system will be provided through dual hydraulic cylinders and wire ropes. The extension cylinder will have a 6.50" internal diameter (bore), 2.75" diameter rod and a 53.12" stroke. Each set will be capable of operating the ladder in the event of a failure, of the other. For safety, systems that use only a single extension/retraction system will not be acceptable. The extension cylinder rod will be chrome plated to provide smooth operation of the aerial device and reduce seal wear. The extension/retraction cylinders will be equipped, with integral holding

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valves, to prevent the unit from retracting should the charged line be severed, at any point within the hydraulic system. The integral holding valves will NOT be located in the transfer tubes.

Wire ropes and attaching systems used to extend and retract the fly sections will have a 5:1 safety factor based on the ultimate strength under all operating conditions. The factor of safety for the wire rope will remain above 2:1 during any extension or retraction stall. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used will be 1:12. Wire ropes will be constructed of seven (7) strands over an inner wire core for increased flexibility. The wire rope will be galvanized to reduce corrosion.

The extension/retraction system will be controlled by the microprocessor. The microprocessor will provide the following features:

- Automatic deceleration at the end of stroke, in maximum extend and retract positions
- Controls the rate of retraction while flowing water

All sheaves and sheave pins will utilize greasable bronze bushings. Sheave pins will be polished stainless steel.

Rotation System

A 54.00" diameter, external tooth, monorace rotation bearing will be used for the rotation system and will provide 360 degree continuous rotation. The turntable will be bolted to the bearing using 30 SAE grade 8, 0.875" diameter bolts. To secure the bearing to the base support, 36 grade 8, 0.875" diameter bolts will be used. The turntable base and the torque box bearing plate will be machined to fit the bearing, thereby providing even distribution of forces. Two (2) hydraulically driven, planetary gear boxes, with drive speed reducer, will be used to provide infinite and minute rotation control, throughout the entire rotational travel. Each planetary gearbox has a torque rating of 130,000 lb per square inch. A spring applied, hydraulically released, disc type, swing brake will be furnished to provide positive braking of the turntable assembly. Provisions will be made for auxiliary operation of the rotation system should complete loss of normal hydraulic power occur.

The rotation system will be controlled by the microprocessor. The microprocessor will provide the following features:

- Envelope control of rotation system to prevent accidental body damage
- Prevent the aerial from being rotated into the short-jacked side of the unit

Manual Override Controls

Manual override controls will be provided for all aerial and stabilizer functions.

Ladder Slide Mechanism

Wear pads will be used between the telescoping ladder sections, to reduce friction for smoother operation. Slide pads will also be used to control side play between the ladder sections.

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Basket Leveling System

A basket leveling system will be provided and so designed, that the basket with it's rated load, can be supported and maintained level, relative to the turntable, regardless of the elevation or flexion of the ladder.

The leveling of the basket features a hydraulic cylinder system mounted between the ladder fly section and the basket with each side capable of supporting the load, while maintaining the basket level.

The hydraulic circuitry includes pressure operated counter balance valves, on the load side of the cylinders, to prevent the basket from tipping should the hydraulic lines be severed.

The microprocessor will control the level of the basket during bedding operations, preventing the basket from hitting the body deck when the truck is setup on unlevel ground.

Rotation Interlock

The microprocessor will be used to prevent the rotation of the aerial device, to the side in which the stabilizers have not been fully deployed (short-jacked). The microprocessor will allow full and unrestricted use of the aerial, in the 180 degree area, on the side(s) where the stabilizers have been fully deployed. The system will also have a manual override, to comply with NFPA 1901.

Load Capacities

The following load capacities will be established with the stabilizers at full horizontal extension and placed in the down position to level the truck and to relieve the weight from the tires and axles. Capacities will be based upon full extension and 360 degree rotation.

A load chart, visible at the operator's station, will be provided. The load chart will show the recommended safe load at any condition of the aerial device's elevation and extension.

35 MPH Wind Conditions/Dry

Degree of Elevation	-15 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 77
Basket	1000	1000	1000	1000	1000	1000	1000
Fly	-	-	-	-	250	250	500
Upper Mid	-	-	-	-	250	250	500
Center Mid	-	-	250	250	250	500	500
Lower Mid	-	-	250	250	500	500	500
Base	-	250	500	500	500	500	750

Water Tower Operation

The following capacities will be based upon continuous 360 degree rotation and full extension.

35 MPH Wind Conditions/Water Charged

Degree of Elevation	-15 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 77
Basket	500	500	500	500	500	500	500
Fly	-	-	-	-	-	-	250
Upper Mid	-	-	-	-	-	250	250
Center Mid	-	-	-	-	250	250	500

Lower Mid	-	-	-	250	250	500	500
Base	-	-	250	250	250	500	500

Elevation -15 to 77 Degrees

The aerial device will be able to maintain the above load capacities while flowing up to 1500 GPM and a nozzle position of 0 to 90 degrees to either side of the ladder centerline, and as far above and below horizontal to the platform as nozzle design allows.

The aerial device will be able to maintain the above load capacities while flowing up to 2000 GPM and a nozzle position of 0 to 45 degrees to either side of the ladder centerline, and 30 degrees above horizontal and as far below horizontal to the platform as nozzle design allows.

Reduced loads in the basket can be redistributed in 250 lb Increments to the fly, mid, or base as needed.

Ladder Cradle Interlock System

A ladder cradle interlock system will be provided through the microprocessor to prevent the lifting of the aerial device from the nested position until the operator places all the stabilizers in a load supporting configuration. A switch will be installed at the boom support to prevent operation of the stabilizers once the aerial has been elevated from the nested position.

AERIAL BOOM PANEL

There will be one boom panel provided on each side of the aerial ladder base section. The boom panel will be painted #90 red.

The boom panels will be designed so no mounting bolts are in the face of the panel. This will keep the lettering surface free of holes.

AERIAL DEVICE RUNG COVERS

Each rung will be covered with a secure, heavy-duty, fiberglass pultrusion that incorporates an aggressive, no-slip coating.

The rung covers will be glued to each rung, and will be easily replaceable should the rung cover become damaged.

The center portion of each rung cover will be black and the outside 2.00" edge at each side will be safety yellow.

Under no circumstances will the rung covers be fastened to the rungs using screws or rivets.

The rung covers will have a 10-year, limited warranty.

LADDER STORAGE MOUNTING BRACKETS

There will be brackets that are DA finished provided near the end of the fly section of the aerial for mounting a roof ladder.

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The mounting brackets will accommodate a 12' Duo-Safety 875-A roof/wall ladder as determined by the type of aerial device and the available space.

SAW STORAGE BOX

There will be a total of two (2) storage box(es) provided at the base section of the aerial ladder, one (1) on each side of the aerial device. The box(es) will be painted to match the aerial device and located at the tip of the base section. The box(es) will have a hinged cover with D-handle latch and gas struts to secure the saw. The cover will have the same finish as the box. The cover will be tied in to the open door indicator circuitry when in the open position. The box will have no louvers.

The maximum capacity of each box will be 25 lb.

PIKE POLE MOUNTING BRACKETS

Mounting will be provided near the end of the fly section of the aerial ladder for one (1) pike pole(s).

The bracket will be sized to hold a Fire Hooks Unlimited 8' roof hook.

BASKET STRUCTURE

The complete basket structure will be constructed of welded high strength steel certified by the manufacturer to have a minimum of 100,000 lb per square inch yield strength on all structural members. The aerial basket will be fully tested and independent third party certified.

The flooring of the basket will be multi-piece Morton Cass material, preventing the accumulation of water on the standing surface. The floor will measure approximately 33.63" long x 72.75" wide. The stepping surfaces will meet the skid-resistance requirements of current NFPA 1901 standard.

The outside basket steps used for transferring in and out of the basket will be at the same level as the basket floor and will be constructed of aluminum treadplate. The steps on the front and sides are approximately 8.00" deep. The front corners of the basket step will be mitered at 45 degrees to allow the basket to be maneuvered closer to buildings when approaching at an angle.

Four (4) stainless steel pompier belt safety loops will be attached to the inside of the basket. Two (2) lifting eyes will be provided on the bottom side of the basket support structure. Each lifting eye will be rated for 500lb.

Four (4) rubber bumpers are provided on the bottom side of the basket structure for damage protection when setting it down on a surface.

The basket interior will be illuminated as required per the current edition of NFPA 1901. Electrical sub-components will be mounted under the basket in a enclosed area providing protection from heat exposure while allowing for easy servicing and maintaining an unobstructed basket interior.

BASKET SIDES

The sides of the basket will be of tubular steel construction and aluminum sheet skin, and along with the basket doors, will form a continuous 42.00" high wall around the basket.

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PLATFORM ENTRANCES/EXITS

Two (2) swing-in, spring-loaded, self-closing doors will be of steel frame construction with an aluminum sheet skin and will be provided on the 45 degree angles at the front of the platform. A paddle style door latch will allow the basket doors to be opened from the outside by applying pressure to the paddle with the hand. The rear of the platform will be equipped with a vertical self-closing gate for transfer to and from the platform's ladder device.

ACCESSORY MOUNTING RECEPTACLES

Universal accessory mounting receptacles will be permanently affixed on the left side of the basket to receive options such as the rescue basket holders, rappelling arms, roof ladder brackets, winch, etc. Complete interchangeability will be required without modification to the basket.

HALLIGAN TOOL MOUNTING BRACKETS

Brackets will be provided inside the platform basket for mounting a halligan tool. A total of one (1) sets of brackets will be provided.

MAXIMUM SIZE BOX AT BASKET

A miscellaneous storage box of maximum size with a hinged cover will be provided at the right, outside rear of the basket when viewed from the turntable. The cover will be weatherproof to protect the inside of the box from the elements and held closed with a rubber draw latch located in the outboard location, match write up on 34690-01 . The box will be constructed of smooth aluminum and will be painted to match the platform basket. The size will be approximately 20.38" high x 9.62" wide x 10.25" deep (from the rear wall of basket).

The maximum capacity of this box shall be 10 lb.

AXE MOUNTING BRACKETS

Brackets will be provided in the aerial platform basket for mounting one (1) fire axe(s). The type of axe mounted here will be a flathead axe. The mounting plates for this installation will be stainless steel.

POLY BLOCK

one (1) poly block(s) will be provided below the Haligan tool mount.

LIGHTS FOR TURNTABLE WALKWAY

There will be On Scene Model 73006-WHW 6.00" long white LED lights and P25 white LED lights with chrome housing provided at the aerial turntable. The lights will be located to illuminate the entire walking surface of the turntable including the area around the turntable console. These lights will be activated by the aerial master switch.

TURNTABLE CONSOLE LIGHTING

There will be one (1), TecNiq Model E10, white LED light mounted in the turntable console cover to illuminate the controls located on both the upper and lower portion of the turntable control station. These lights will be activated by the aerial master switch.

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TURNTABLE HANDRAILS

The upper, horizontal handrail to the left of the turntable control console and the lower handrail on the face of the control console will be yellow.

BASKET HEAT SHIELDS

A heat reflective shield constructed of 0.063 aluminum will be provided on the front, sides, bottom, and access doors of the basket.

The front, side and access door heat shields will be painted to match the aerial basket.

The heat shields on the bottom of the basket will be easily removable for ease of servicing components located under the basket. These heat shields will be provided with a non-glare finish.

INFORMATION CENTER

There will be an information center provided. The information center will operate in temperatures from - 40 to 185 degrees Fahrenheit. The information center will employ a Linux operating system and a 7.00" (diagonal measurement) LCD display. The LCD will have a 1000 nits rated color display. The LCD will be daylight visible. The LCD display will be encased in an ABS, grey plastic housing with a black decal. There will be five (5), weather-resistant user interface buttons provided. The LCD display can be changed to an optional single foreign language.

Operation

The information center will be designed for easy operation in everyday use. There will be a page button to cycle from one screen to the next screen in a rotating fashion. A video button will allow an NTSC camera signal into the information center to be displayed on the LCD. If any button is pressed while viewing a video feed, the information center will return to the vehicle information screens. There will be a menu button to provide access to maintenance, setup, and diagnostic screens. All other button labels will be specific to the information being viewed.

General Screen Design

Where possible, background colors will be used to provide vehicle information *At A Glance*. If the information provided on a screen is within acceptable limits, a green background color will be used. If the information provided on a screen is not within acceptable limits, an amber background color will indicate a caution condition and a red background color will indicate a warning condition.

Every screen in the information center will include the aerial tip temperature, the time (12- or 24-hour mode) and a text Alert Center. The time will be synchronized between all Command Zone color displays located on the vehicle. The Alert Center will display text messages for audible alarms. The text messages will identify any items causing the audible alarm to sound. If more than one (1) audible alarm is activated, the text message for each alarm will cycle every second until the problems have been resolved. The background for the Alert Center will change to indicate the severity of the warning message. Amber will indicate a caution condition and red will indicate a warning condition. If a warning and a caution condition occur simultaneously, the red background color will be shown for all Alert Center messages.

A label will be provided for each button. The label will indicate the function for each active button for each screen. If the button is not utilized on specific screens, it will have a button label with no text.

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Symbols will accurately depict the aerial device type the information pertains to such as rear mount ladder, rear mount platform, mid-mount ladder or mid-mount platform.

Page Screens

The Information center will include the following pages:

The Aerial Main and Load Chart page will indicate the following information:

Rungs Aligned and Rungs Not Aligned will be indicated with text and respective green or red colored ladder symbols.

Ladder Elevation will be indicated via a fire apparatus vehicle with ladder symbol with the degree of elevation indicated between the vehicle and ladder.

Water Flow (if applicable) will be indicated via a water nozzle symbol and text indicating flow / time.

Breathing Air Levels will be indicated via an air bottle symbol and text indicating the percent (%) of air remaining. A green bar graphs shown inside the bottle will indicate oxygen levels above 20 percent. A red bar graph will indicate oxygen levels at or below 20 percent. When oxygen levels are at or below 10 percent the red bar graph will flash.

The Aerial Load Chart will indicate the load limit on each section of the ladder based on actual ladder position and water flow (if applicable).

At A Glance color features will be utilized on this screen. Caution type conditions will be indicated via a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

The Aerial Reach and Hydraulic Systems page will indicate the following information:

Aerial Hydraulic Oil Temperature will be indicated with symbol and text. At a glance features will be utilized.

Aerial Hydraulic Oil Pressure will be indicated with a symbol and text. At a glance features will be utilized.

The following calculations will be indicated on a representative vehicle symbol:

Aerial Device Extension length.

Aerial Device Height indicating the height of the aerial device tip from the ground.

Aerial Device Reach indicating the horizontal distance the aerial reaches from the turntable.

Aerial Device Angle indicating the angle from the vehicle which the device is at.

At A Glance color features will be utilized on this screen. Caution type conditions will be indicated via a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

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The Level Vehicle page will indicate the following information:

The grade of the vehicle will be indicated via a fire apparatus vehicle symbol with the degree of grade shown in text format. The symbol will tilt dependent on the vehicle grade.

The slope of the vehicle will be indicated via a fire apparatus vehicle symbol with the degree of slope shown in text format. The symbol will tilt dependent on the vehicle slope.

Outriggers status will be indicated via a colored symbol for each outrigger present. Each outrigger status will be defined as one of the following:

Outrigger stowed indicated with a silver pan located close to the vehicle

Outrigger fully extended indicated with a fully deployed green outrigger

Outrigger short-jacked indicated by a yellow outrigger partially deployed

Outrigger not set indicated by a red outrigger that is not set on the ground

A text box located on the vehicle symbol will be utilized to identify the overall status of the outrigger leveling system. The following status will be indicated in the text box:

Deployed status will indicate all outriggers are properly set on the ground at full extension

Shortjacked status will indicate one or more outriggers are set on the ground but not fully extended.

Not Set status will indicate one or more outriggers is not properly set on the ground.

Stowed status will indicate all outriggers are stowed for vehicle travel.

A bedding assist alert will indicate that the aerial device is being aligned by the Command Zone system as the operator lowers the aerial device into the cradle with the joystick.

At A Glance color features will be utilized on this screen. Caution type conditions will be indicated via a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

Menu Screens

The following screens will be available through the Menu button:

The View System Information screen will display aerial device hours, aerial PTO hours, ladder aligned for stowing, aerial rotation angle, total water flow (if applicable), and aerial waterway valve status (if applicable).

The Set Display Brightness screen will allow brightness increase and decrease and include a default setting button.

The Configure Video Mode screen will allow setting of video contrast, video color and video tint.

The Set Startup screen allows setting of the screen that will be active at vehicle power-up.

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The Set Date and Time screen has a 12- or 24-hour format, and allows setting of the time and date.

The View Active Alarms screen shows a list of all active alarms including the date and time of each alarm occurrence and shows all alarms that are silenced.

The System Diagnostics screen allows the user to view system status for each module and it's respective inputs and outputs. Viewable data will include the module type and ID number; the module version; and module diagnostics information including input or output number, the circuit number connected to that input or output, the circuit name (item connected to the circuit), status of the input or output, and other module diagnostic information.

Aerial calibrations screen indicates items that may be calibrated by the user and instructions to follow for proper calibration of the aerial device.

Button functions and button labels may change with each screen.

LOWER CONTROL STATION

A lower control station with pendant control will be located at the rear of the apparatus in an easily accessible area. The controls and indication labels will be illuminated for nighttime operation. The following items will be furnished at the lower control station and will be clearly identified and conveniently located for ease of operation and viewing:

- Level assist switch
- Override switch to override microprocessor
- Emergency power unit switch

AERIAL DEVICE CONTROL STATIONS

There will be two (2) aerial device control stations, one (1) will be referred to as the basket control station, and the other as the turntable control station. All elevation, extension, and rotation controls will operate from both of these locations. The controls will permit the operator to regulate the speed of the aerial functions, within the safe limits as determined by the manufacturer and NFPA standards. The controls will be clearly marked and illuminated for night time operation.

Each control will be equipped with an operator presence, preventing accidental activation.

TURNTABLE CONTROL STATION

The turntable control station will be located on the right side of the turntable so the operator may easily observe the basket while operating the controls. A console cover will be provided at the turntable control station. The controls will be so designed to allow the turntable control station to immediately override the basket controls even if the ladder is being operated by the basket controls.

The following items will also be provided at the turntable control station and be clearly identified and illuminated for nighttime operation and conveniently located for ease of operation and viewing:

- Three (3) separate controls for raise/lower, extend/retract, and left/right rotation
- Intercom controls
- Tip tracking light switch

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- Emergency power unit switch
- Operator's load chart
- Two (2) position switch for selecting aerial operational speed
- Aerial monitor switches

BASKET CONTROL STATION

The basket control station will be located at the front, center of the platform basket. The following items will also be provided at the basket control station and be clearly identified and illuminated for nighttime operation and conveniently located for ease of operation and viewing:

- Three (3) separate controls for raise/lower, extend/retract, and left/right rotation
- Intercom controls
- Tip tracking light switch
- Basket leveling switches
- Operator's load chart
- Aerial monitor switches

HIGH IDLE

The high idle will be controlled by the microprocessor. The microprocessor will automatically adjust the engine rpm, to compensate for the amount of load placed upon the system. The system will include a safety device that allows activation of the high idle, only when the parking brake is set and the transmission is placed in neutral.

INTERIOR BASKET ILLUMINATION

There will be three (3) 20.00" weather resistant strip lights with white LEDs and stainless steel shield provided to illuminate the interior of the aerial basket.

- One (1) light over the control console
- One (1) light on the left side rear of the basket
- One (1) light on the right side rear of the basket

The lights will be activated when the battery switch is on and the aerial master switch is on.

STABILIZERS

The vehicle will come equipped with a stabilization system consisting of six (6) hydraulically operated stabilizers. The middle two (2) will be out and down style, the front and rear two (2) will be down only. This system will meet or exceed all requirements of the NFPA specifications related to stabilization and setup on sloped surfaces.

The stabilizer/leveling jacks will have a maximum spread of 18' measured from the centerline of the jack footpads when the beams are fully extended. The beams will be 6.81" wide x 13.00" high with 1.00" thick top and bottom plates and 1/2" thick sides of 100,000-PSI minimum yield strength steel. The cylinders will have pilot-operated check valves with thermal relief designed to ensure that the beams will not drift out of the stowed position during travel. Wear pads will guide the stabilizers.

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The horizontal extension cylinders will be totally enclosed within the beams and will incorporate telescoping hydraulic tubing to supply the jack cylinder hydraulic power. Stabilizer hydraulic hoses will remain stationary during operation of the stabilizers to prevent hose wear and potential failure. The cylinders will be equipped with decelerators to reduce the speed of extension and retraction when the beams are near the fully retracted and extended positions. The stabilizer extension hydraulic cylinders will have the following dimensions: 2.25" bore, 1.38" rod, and 62.25" stroke.

The front vertical jack cylinders will be capable of 15.00" ground penetration. The middle and rear vertical jack cylinders will be capable of 18.00" ground penetration. The cylinders will be supplied with pilot operated check valves on each jack cylinder to hold the cylinder in the stowed or working position, should a charged line be severed at any point in the hydraulic system. For safety, the integral holding valves will be located in the cylinder base, NOT in the transfer tube. Vertical jack cylinder rods will be fully enclosed by a telescoping inner box to protect the cylinder rods from damage. The stabilizer jack hydraulic cylinders will have the following dimensions: 4.25" bore, 3.00" rod, and 34.88" stroke.

The middle and rear stabilizer jack will have a pan that will be a maximum of 14.00" wide so as to allow the extension of the stabilizer between parked cars or other obstacles. This pan will serve as a protective guard and a mounting surface for warning lights. The top, forward, and rear edges will be flanged back 90 degrees for added strength. The front stabilizers will be designed for easy cab tilt.

STABILIZER PADS

The stabilizer footpad will include an integrated stabilizer pad. The footpad will be attached to the jack cylinder rod by means of a machined ball at the end of the jack cylinder rod which mates to a socket machined into the footpad. The footpad will automatically position itself when being stowed so that no portion of the foot extends outside the body.

STABILIZER CONTROLS

A portable stabilizer control pendant will be provided. The control pendant will be weatherproof and oil resistant. Each function and indicator light will be labeled on a mylar lexan panel. The control pendant can be taken as far away as 15' from the vehicle with an attached coil cable.

The stabilizer control pendant will include the following:

- One (1) green power indicator light for stabilizer control that will be illuminated when the Stabilizer Power Enable switch has been activated. This will be interlocked such that the aerial master must be activated, the ladder is in the cradle, or the Global Override at the rear of the apparatus is activated.
- Two (2) electric toggle switches for stabilizers: each toggle switch will control the extend/retract (middle only) and raise/lower (front/middle/rear) of its respective stabilizer to allow vehicle set up in restricted areas and/or on uneven surfaces.
- Level assist switch: The stabilizer control system will incorporate a computerized leveling system to enhance the stabilizer set up. The computerized system will ensure full stabilizer extension, proper jack penetration, and will level the vehicle within eight tenths of a degree of level for safe operation of the aerial device.
- Stow assist switch: The stabilizer control system will incorporate a computerized system to move all six (6) stabilizer shoes to the full raised position while this switch is held.

- Tilt assist toggle switch: The stabilizer control system will incorporate a computerized system to tilt the chassis to five (5) degrees for enhanced side angle deployment of the aerial device.
- One (1) electric push button switch for the engaging the emergency power unit.
- One (1) red "stabilizer not stowed" indicator light: this light will illuminate when the stabilizers are not in the fully stowed position.
- Two (2) fully extended beams green indicator lights: these lights will be illuminated when each of the respective stabilizer beams are fully extended.
- Six (6) firm on ground green indicator lights: each light will be illuminated when its respective stabilizer shoe is in the load supporting condition.

Each toggle switch will activate the engine fast idle automatically.

Manual override will be supplied for each stabilizer control valve.

A "Stabilizers Not Stowed" indicator will be provided in the driver's compartment. It will illuminate automatically whenever the stabilizers are not fully stowed to prevent damage to the apparatus if moved. The stabilizer system will also be wired to the "Do Not Move Indicator Light", which will flash whenever the apparatus parking brake is not fully engaged and the stabilizers are not fully stowed.

CRADLE INTERLOCK SYSTEM

A cradle interlock system will be provided, to prevent the lifting of the aerial from the nested position, until the operator has positioned all the stabilizers in a load supporting configuration. A switch will be installed at the cradle, to prevent operation of the stabilizers once the aerial has been elevated from the nested position.

STABILIZER PAN AND TRIM MATERIAL

The aerial stabilizer pans will be stainless steel, painted to match the lower body color and the aerial stabilizer trim will be not required .

STABILIZER CONTROL BOX DOOR

A vertically hinged smooth aluminum door will be provided over the stabilizer control box. The door will be hinged along the inboard edge and provided with a flush lift and turn latch.

STABILIZER PLACEMENT

There will be two (2) cameras provided and installed on the body, one (1) directly above each stabilizer. The cameras will be activated with a switch in the cab and will provide a picture to specify the fully extended stabilizer position allowing the driver the ability to position the vehicle with the proper clearance for stabilizer deployment.

HYDRAULIC SYSTEM

All hose assemblies will be assembled and crimped by the hose manufacturers certified technician.

All manufacturing employees responsible for the installation of hydraulic components will be properly trained. Training will include: proper handling, installation, torque requirements, cleanliness and quality control procedures for hydraulic components.

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Hoses used in the aerial hydraulic system will be of a premium quality hose with a high abrasion resistant cover. All pressure hoses will have a working pressure of 4000 psi and a burst pressure rating of 16,000 psi.

All hydraulic fittings and tubing will be plated or constructed of 304 stainless steel to minimize corrosion.

The fitting will use an O-ring seal where possible to minimize hydraulic leaks.

An interlock will be provided that prevents activation of the hydraulic pump until the transmission is placed in neutral and the parking brake is set as outlined in the current NFPA 1901 standard.

The system will meet the performance requirement of the current NFPA 1901 standard, which requires adequate cooling less than 2.5 hours of operations.

All hydraulic components that are non-sealing whose failure could result in the movement of the aerial will comply with current NFPA 1901 standards and have burst strength of 4:1.

Dynamic sealing components whose failure could cause aerial movement will have a margin of 2:1 on maximum operating pressure per the current NFPA 1901 standard.

All hydraulic hoses, tubes, and connections will have a minimum burst strength of 3:1 per the current NFPA 1901 standard.

A chassis mounted positive displacement piston pump for consistent pressure and rapid responses will supply hydraulic power for all aerial operations. The positive displacement pump will provide 3,000psi. The hydraulic pump will be solely dedicated to aerial operations.

Each aerial will be evaluated as to the region and climate where it will be used to determine the optimum viscosity and proper oil grade. Oil viscosity will be based on an optimum range of 80 to 1000 SUS during normal aerial use. Before shipment of the unit, an oil sample will be taken and analyzed to confirm the oil is within the allowable ISO grade tolerance.

The aerial hydraulic system will have a minimum oil cleanliness level of ISO 18/15/13 based on the ISO 4406:1999 cleanliness standard. Each customer will receive a certificate of actual cleanliness test results and an explanation of the rating system.

Oil samples can be taken from the hydraulic manifold GP1 port which is also used for verifying system pressure.

Ball valves will be provided in the hydraulic suction lines to permit component servicing without draining the oil reservoir.

The aerial will incorporate the use of trombone steel tubes inside the stabilizer beams to eliminate hydraulic hose wear and leaks.

Hydraulic power to the ladder will be transferred from the pedestal by a hydraulic swivel.

The system hydraulic pressure will be displayed on the turntable display.

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The hydraulic system will be additionally protected from excessive pressure by a secondary pressure relief valve set at 3,500 psi. In the event the main hydraulic pump compensator malfunctions, the secondary relief will prevent system damage.

HYDRAULIC CYLINDERS

All cylinders used on the aerial device will be produced by a manufacturer that specializes in the manufacture of hydraulic cylinders.

Each cylinder will include integral safety holding cartridges. No manifold or transfer tube mounted cartridge will be acceptable.

Each cylinder will be designed to a minimum safety factor of 4:1 to failure.

All safety holding cartridges will be installed at the cylinder manufacturer, in a controlled clean environment to avoid possible contamination and or failure.

POWER TAKEOFF/HYDRAULIC PUMP

The apparatus will be equipped with a power takeoff driven by the chassis transmission and actuated by an electric shift, located inside the cab. The power takeoff which drives the hydraulic pump will meet all the requirements for the aerial unit operations.

An amber indicator light will be installed on the cab instrument panel to notify the operator that the power takeoff is engaged.

An interlock will be provided that allows operation of the aerial power takeoff shift only after the chassis spring brake has been set and the chassis transmission has either been placed in the neutral position or drive position after the driveline has been disengaged from the rear axle.

The hydraulic system will be supplied by a variable displacement load and pressure compensating piston pump. The pump will meet the demands of all three simultaneous aerial functions. The pump will provide proper flow for single aerial function with the engine at idle speed. A switch will be provided on the control console to increase the engine speed for multiple function operation.

EMERGENCY PUMP

The hydraulic system will be designed with an auxiliary power unit meeting the guidelines of the current NFPA 1901 standard.

The aerial will be equipped with an emergency hydraulic pump, electrically driven from the truck batteries. The pump will be capable of running for 30 minutes for limited aerial functions to stow the unit in case of a main pump or truck system failure. A momentary switch will be located at the stabilizer and aerial control locations to activate the emergency pump.

AERIAL CONTROL VALVE

The aerial hydraulic control valve will be designed with special spool flows, limiting the oil flow for the designed function speed. The valve will be electrically controlled and be located below the swivel and integrated with the stabilizer control manifold. The handles will be oriented outward and will be spaced 1.80" apart. The valve spools will be designed to bleed off downstream pressure, in the neutral position and allow proper sealing of any cylinder holding cartridge.

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OIL RESERVOIR

The oil reservoir will have a minimum capacity of 39 gallons. The oil fill location will be easily accessible and be labeled "Hydraulic Oil Only" and also indicate the grade of oil that is installed in the reservoir. A drain port will be provided.

Two suction ports will be provided, one for the main hydraulic pump and one for the emergency pump. The emergency suction port will be raised slightly off the bottom of the reservoir.

Magnetic filter will be installed in line with the return hose.

A float type sending unit in the reservoir will provide an indication of oil level on an electronic display. A temperature sending unit in the reservoir will provide indication of the oil temperature on an electronic display.

The hydraulic oil reservoir will be labeled per the current edition of NFPA 1901 standard.

RETURN FILTER

The low pressure oil return filter will be remote mounted in the return line and designed to prevent oil loss during filter change. A 50 psi bypass will be included to protect the element and hydraulic system during lower than normal operating temperatures. The system will incorporate the following filter to provide dependable service:

- return filter: beta 1000 at 6 micron

HYDRAULIC SWIVEL

The aerial ladder will be equipped with a three (3) port, high pressure hydraulic swivel which will connect the hydraulic lines from the hydraulic pump and reservoir through the rotation point to the aerial control bank. The hydraulic swivel will allow for 360 degree continuous rotation of the aerial.

ELECTRIC SWIVEL

The ladder will be equipped with an electric swivel to allow 360 degrees rotation of the aerial while connecting all electrical circuits through the rotation point. A minimum of 36 collector rings will be provided that are capable of supplying 20 amp continuous service. All collector rings will be enclosed and protected with desiccant plugs against condensation and corrosion. No oil or silicone will be used.

WATER SWIVEL

Water will be transferred to the aerial waterway by means of a 5.00" internal diameter waterway, through the swivel, permitting 360 degree continuous rotation.

13-BIT ABSOLUTE ENCODER

The aerial ladder will be equipped with a 13-Bit Absolute Encoder which provides 8192 counts per shaft turn for position and direction reference.

The 13-Bit Absolute Encoder will provide a unique binary word to reference each position and direction for all 360 degrees of rotation.

If the power is interrupted for any reason, the 13-Bit Absolute Encoder will allow power to be returned to the system without having to re-zero the settings.

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The 13-Bit Absolute Encoder will be an integral part of a micro-processor based control system.

ELECTRICAL SYSTEM

The aerial device will utilize a microprocessor-based control system. The system will consist of the following components:

- Control System Modules

Each of the control system modules will be configured as follows:

- Sealed to a NEMA 4X rating
- Operating range from -40 degrees F to 156 degrees F (-40 degrees C to 70 degrees C)
- Communicate using J1939 data link
- Two (2) diagnostic LED lights
 - One (1) green light that illuminates when module has power (B+) and ground
 - One (1) red light that flashes to indicate the module is capable of communicating via the data link
- Up to 16 diagnostic LEDs on each module
- Ground matrix identification system

The following control system modules will be used:

- Control Module
 - Main controller for the system
 - USB connection allows for computer diagnostics
- Power Module
 - Built-in fault sensing
 - Eight (8) digital outputs
 - Pulse width modulating (PWM) capable
 - 10A continuous per output
 - Circuit protection based on actual current draw (not affected by heat)
- Current Control Module
 - Built-in fault sensing
 - Three (3) analog inputs
 - Eight (8) digital outputs
 - Pulse width modulating (PWM) capable
 - 3A continuous per output
 - Closed Loop System
 - Circuit protection based on actual current draw (not affected by heat)
- Input Module
 - 16 software selectable (digital or analog) inputs
- Output Module
 - 16 digital outputs
- Input/Output Module
 - Eight (8) software selectable (digital or analog) inputs

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- Eight (8) digital outputs
- Valve Module
 - 36 digital inputs
 - 36 digital outputs

TIP LIGHTS

There will be one (1) Whelen® Model P*H2*, 18,520 lumens 12 volt DC light with white LEDs and vertically adjustable bail mount installed on the front of the basket per the following:

- The painted parts of this light assembly to be white.
- The a combination of flood and spot optics.
- The lights will be controlled at the turntable and tip and at the left side cab switch panel.

TRACKING LIGHTS

There will be two (2) Whelen® MPB*, 5,695 lumens 12 volt DC LED lights with bail bracket mounts installed near the tip of the base section of the aerial device. The lights are installed at the tip so the overall width of the apparatus is not affected. The lights will be mounted below the top edge of the aerial device so the overall height of the apparatus is not affected.

- One (1) located on the left side with spot optics
- One (1) located on the right side with spot optics
- The painted parts of this light assembly to be white.

Power to the lights will be controlled by a master on/off switch at the turntable control operator's position.

BASKET ACCESS

Access to the basket will be provided by a pull-out, swing-down climbing ladder. The 2.25" deep climbing ladder surfaces will be constructed with Traction Tread®. The bottom step will be a flip-down, stirrup step. The access ladder will be recessed into the angled corners of the rear body on each side. Hand holds will be provided in each side of the ladder.

The step well finish will be aluminum treadplate.

All stepping surfaces will have a height not greater than 14.00" from top surface to top surface.

The bottom stepping height will not exceed 24.00" from the ground to the top of the stepping surface at any time.

STEP LIGHTS

There will be two (2) white LED step lights with chrome housing provided for each set of aerial basket access steps.

In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.

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The step lights will be actuated when parking brake is applied.

These lights will meet NFPA requirements for step lighting.

STABILIZER WARNING LIGHTS

There will be four (4) Whelen®, Model M6*C, LED flashing warning lights with Whelen, Model M6FC, chrome flanges installed, one (1) on each stabilizer cover panel.

- The front stabilizer pan lights will be red LED with a clear lens
- The rear stabilizer pan lights will be red LED with a clear lens

These warning lights will be activated by the same switch as the side warning lights.

STABILIZER BEAM WARNING LIGHTS

Two (2) 4.00" diameter red LED flashing lights will be mounted on each stabilizer, one (1) facing forward and one (1) facing rearward. The lights will be Grote Supernova 40 series LED lights. The lights will be recessed in the horizontal beam of the stabilizer. These warning lights will be activated with the aerial master switch.

STABILIZER SCENE LIGHTS

There will be one (1) Amdor®, Model AY-LB-12HW012, 190 lumen, 12" long, white LED strip light installed under each stabilizer beam to illuminate the surrounding area. A total of six (6) lights will be installed. The lights will be activated by the aerial master switch.

DC POWER CABLE TO TIP

There will be a cable installed in the aerial device to provide 12.88 amps @ 12 volts DC to the tip of the aerial device.

UNDER PLATFORM LIGHTING

There will be two (2) Whelen® Model P*H1*, 9,260 lumens light(s) with white LEDs, a combination of flood and spot optics and bail brackets provided under the platform steps per the following:

- One (1) light installed under the left side corner step in the center position and One (1) light installed under the right side corner step in the center position.
- The painted parts of this light assembly to be white.

The light(s) will be controlled from a switch(es) at the platform/tip and turntable.

The light(s) may be load managed when the parking brake is applied.

2-WAY AERIAL COMMUNICATION SYSTEM

There will be a Fire Research model ICA910 two-way intercom system provided. The control module with an LED volume display and push-button volume control will be located on the turntable operator console.

A hands free module will be located at the aerial tip or platform and constantly transmit to the other module unless the control module push-to-talk button is pressed.

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Each intercom unit will be weatherproof.

BREATHING AIR

Breathing air will be supplied to the aerial platform. The air system will incorporate one (1) 510 cubic foot, 6000-psi cylinder. To allow the turntable operator an unobstructed view of the platform the cylinder will be mounted on the left side of the aerial base section while viewed from the turntable. A pressure regulator located at the air cylinder. A shutoff valve with guard will be provided on the cylinder. The air will be routed to the basket using hose especially designed for use in breathing air systems. At the platform, the breathing air will be accessible via two (2) quick couplings for air masks. These will have a Hansen brass 3000 series coupling . Two (2) couplings will be located at the rear of the basket, one (1) on each side. There will be a weather resistant storage compartment for two (2) air masks provided at the basket with a rubber draw latch. A 75' recharge hose will be provided for refilling the air cylinder without having to remove the tank from its mounting.

The breathing air cylinder will be designed and constructed to conform to the requirements of the United Nations (UN) on the transportation of dangerous goods.

BREATHING AIR LEVEL AND WARNING SYSTEM

The level of breathing air remaining will be visible on the LCD display at all operating positions. The display will incorporate a low-pressure warning circuit that activates an audible alarm when 20% maximum air cylinder capacity remains. A second, louder audible alarm will activate when the remaining air level drops to 10% of maximum air cylinder capacity.

BREATHING AIR GAUGE GUARD

There will be an aluminum three (3) sided guard provided over the sides and top of the breathing air gauges on the base of the device. The guard will be approximately 3.00" deep on each side to help protect the gauges, but allow regulator adjustment and access. The guard will be painted to match the aerial device.

AERIAL PEDESTAL

The aerial pedestal will accommodate the height of the cab.

LYFECOMBO™ BRACKETS

Brackets will be provided to increase the safety of firefighters during fire ground and rescue operations. The removable brackets will have the following three (3) functions: securing a roof ladder to the basket, two (2) rappelling anchor points, and mounting bars to allow the secure mounting of a rescue basket stretcher.

LyfeLadder™ brackets will be designed to allow firefighter access below the basket using up to a 20' roof ladder. The ladder will be secured through its beams and one (1) rung, by a 1.00" diameter aluminum rod capable of being positively latched in place and able to withstand a minimum of a 500lb

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load. There will be a latch to keep the ladder in a vertical position at all times. A set of nylon guides will be provided to aid in positioning the roof ladder on the mounting brackets.

Two (2) **LyfeEye™** rappelling arms will be provided. Forged stainless steel eyebolts with a 1.38" inside diameter will be incorporated into the design of the brackets for use as a rappel line anchor. Each anchor point will have a capacity of 300lb.

LyfeSupport™ rescue basket support brackets will be provided to allow patient transport using the aerial. Two (2) quick clip basket straps will be used to secure the basket to the brackets.

Strain gauging and testing will have been completed on the system (ladder and complete holding device) to ensure structural integrity of all components and maintain a minimum of two to one (2:1) safety factor.

AERIAL TURNTABLE MANSAYER™ BAR

A ManSaver™ bar will be installed at the aerial turntable.

AERIAL WATERWAY

The aerial waterway will be capable of being supplied by either a midship mounted pump or an external water source through a 5.00" intake at the side of the apparatus.

A 5.00" water swivel will be installed below the aerial turntable permitting the ladder to rotate 360 degrees continuously.

A 5.00" water swivel will be installed at the aerial heel pivot pin that will permit water tower operations of -15 degrees to 77 degrees. The heel pivot pin will not be integral with the waterway swivel at any point. The waterway design will allow complete servicing of the waterway swivel without disturbing the heel pivot pin.

A telescoping aluminum waterway will be installed on the side of the aerial ladder sections. The waterway will consist of a 5.50" diameter tube for the base section, 5.00" diameter tube for the lower mid section, 4.50" diameter tube for the center mid section, 4.00" diameter tube for the upper mid section, and 3.50" diameter tube for the fly section.

A 1.50" drain will be provided for the waterway.

WATERWAY SEALS

The waterway seals will be of type-B PolyPak design, composed of nitroxile seal and a nitrile wiper, which together offer maximum stability and extrusion resistance on the waterway. The seal will be capable of withstanding pressures up to 2000 psi, temperatures in excess of 250 degrees Fahrenheit and have resistance to all foam generating solutions. The seals will be internally lubricated.

The waterway seals will have automatic centering guides constructed of synthetic thermalpolymer. The guides will provide positive centering of the extendible sections within each other and the base section to insure longer service life and smoother operation.

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PLATFORM WATER SYSTEM

A 4.00" (internal diameter) water swivel will connect the fly section waterway to the platform waterway. The water swivel will permit water tower operations from -15 degrees to 77 degrees. The water will be routed from the swivel to a 4.00" gear operated valve(s) on the front of the platform using a combination of 4.00" tubes and piping. The monitor(s) will be bolted onto the valve(s).

A 2.50" preset pressure relief valve will be provided in the waterway system. It will be designed to protect the aerial waterway from excess pressure. It will dump water to the ground when operating.

A shower nozzle rated at 75 gpm will be provided beneath the platform for heat protection for the platform personnel. A direct linkage control for the shower nozzle will be provided.

One (1) - 2.50" preconnect will be provided at the front of the platform with a swivel elbow. The preconnect will be gated at the platform. The preconnect will be furnished with 2.50" NST threads and chrome plated cap.

AERIAL MONITOR

There will be two (2) Task Force Tips monitors provided at the platform.

One will be a Y4-MP1A-P double crank controlled monitor with a TFT YST-4NN stacked tips.

The other will be a Y4-EP1A-P electric monitor with a TFT 2000 gpm Model M-ERP2000 electric nozzle.

The controls for the electronic monitor will be located at the platform and the turntable control console.

WATERWAY FLOWMETER

Waterway flow, including total water flowed, will be monitored by the microprocessor. An LCD display will be located at the upper and lower control stations.

WATERWAY INLET

There will be a 5.00" schedule 10 stainless steel inlet pipe on the right side of the apparatus. The inlet will be connected to the base of the ladder, through the turntable swivel, to assure continuous rotation. The inlet will terminate with a 5.00" NST chrome adapter and a long handled chrome cap.

TOOLS

The following tools will be provided for retorquing of all specified bolts as recommended by the manufacturer:

- Torque Wrench
- All Required Extensions, Sockets and Adapters
- 4-to-1 Multiplier

MANUALS

The aerial manufacturer will provide two (2) operator maintenance manuals and two (2) wiring diagrams pertaining to the aerial device.

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INITIAL INSTRUCTION

On initial delivery of the fire apparatus, the contractor will supply a qualified representative to demonstrate the apparatus and provide initial instruction to the fire department regarding the operation, care, and maintenance of the apparatus for a period of three (3) consecutive days.

LOOSE EQUIPMENT

The following equipment will be furnished with the completed unit:

- One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit.

NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT

The following loose equipment as outlined in NFPA 1901, 2016 edition, section 8.9.3 will be provided by the fire department.

- Two (2) 3 ft - 4 ft plaster hooks with D handles mounted in brackets fastened to the apparatus.
- Two (2) crowbars.
- Two (2) claw tools.
- Two (2) 12 lb (5 kg) sledgehammers.
- One (1) SCBA complying with NFPA 1981 for each assigned seating position, but not fewer than four (4), mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer.
- One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s).
- One (1) first aid kit.
- Six (6) salvage covers, each a minimum size of 12 ft x 18 ft (3.6 m x 5.5 m).
- Four (4) combination spanner wrenches.
- Two (2) scoop shovels.
- One (1) pair of bolt cutters, 24" (0.6 m) minimum.
- Four (4) ladder belts meeting the requirements of NFPA 1983.
- One (1) 150 ft (45 m) light-use life safety rope meeting the requirements of NFPA 1983.
- One (1) 150 ft (45 m) general-use life safety rope meeting the requirements of NFPA 1983.
- Two (2) 150 ft (45 m) utility ropes having a breaking strength of at least 5000 lb (2300 kg).
- One (1) box of tools to include the following:
 - one (1) hacksaw with three (3) blades
 - one (1) keyhole saw
 - one (1) 12" (.3 m) pipe wrench
 - one (1) 24" (.6 m) pipe wrench
 - one (1) ballpeen hammer
 - one (1) pair of tin snips
 - one (1) pair of pliers
 - one (1) pair of lineman's pliers
 - assorted types and sizes of screwdrivers
 - assorted adjustable wrenches
 - assorted combination wrenches

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- One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High Visibility Public Safety Vests*, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front.
- Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band.
- Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.
- One (1) automatic external defibrillator (AED).
- One (1) double female 2.50" adapter with National Hose Threads (if equipped with a fire pump).
- One (1) double male 2.50" adapter with National Hose Threads (if equipped with a fire pump).
- One (1) rubber mallet, for use on suction hose connections (if equipped with a fire pump).
- Two (2) hydrant wrenches (if equipped with a fire pump).
- If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, will be carried mounted in brackets fastened to the apparatus (if equipped with a fire pump).
- If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side will be carried. Any intake connection larger than 3.00" (75 mm) will include a pressure relief device that meets the requirements of 16.6.6 (if equipped with a fire pump).
- If the apparatus does not have a 2.50" National Hose (NH) intake, an adapter from 2.50" NH female to a pump intake will be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake (if equipped with a fire pump).
- If the supply hose carried has other than 2.50" National Hose (NH) threads, adapters will be carried to allow feeding the supply hose from a 2.50" NH thread male discharge and to allow the hose to connect to a 2.50" NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake (if equipped with a fire pump).

DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 8.9.3 requires one (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 8.9.3 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

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AERIAL LADDER BELTS

The following ladder belts will be provided:

- no small/medium belts
- two (2) large/extra large belts for 34"-42" waist
- one (1) XXL belt for 42"-50" waist

FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, Section 8.9.3 requires two (2) flathead axes mounted in brackets fastened to the apparatus.

The axes are not on the apparatus as manufactured. The fire department will provide and mount the axes.

PICKHEAD AXES PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, Section 8.9.3 requires three (3) pickhead axes mounted in brackets fastened to the apparatus.

The axes are not on the apparatus as manufactured. The fire department will provide and mount the axes.

PAINT PROCESS

The exterior custom cab and body painting procedure will consist of a seven (7) step finishing process as follows:

1. Manual Surface Preparation - All exposed metal surfaces on the custom cab and body will be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces will be removed and sanded to a smooth finish. Exterior seams will be sealed before painting. Exterior surfaces that will not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.
2. Chemical Cleaning and Pretreatment - All surfaces will be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces will be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces will be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion.
3. Surfacer Primer - The Surfacer Primer will be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacer Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.
4. Finish Sanding - The Surfacer Primer will be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.

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5. Sealer Primer - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacer Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated.
6. Basecoat Paint - Two coats of a high performance, two component high solids polyurethane basecoat will be applied. The Basecoat will be applied to a thickness that will achieve the proper color match. The Basecoat will be used in conjunction with a urethane clear coat to provide protection from the environment.
7. Clear Coat - Two (2) coats of Clear Coat will be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors will be Clear Coated to match the body. Paint warranty for the roll-up doors will be provided by the roll-up door manufacturer.

After the cab and body are painted, the color will be verified to make sure that it matches the color standard. Electronic color measuring equipment will be used to compare the color sample to the color standard entered into the computer. Color specifications will be used to determine the color match. A Delta E reading will be used to determine a good color match within each family color.

All removable items such as brackets, compartment doors, door hinges, and trim will be removed and painted separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly.

The paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) are to meet or exceed Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels are to meet or exceed the #6 A.C.T. standard in critical areas. The manufacture's written paint standards will be available upon request.

Environmental Impact

Contractor will meet or exceed all current state regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water and soil. Controls will include the following conditions:

- Topcoats and primers will be chrome and lead free.
- Metal treatment chemicals will be chrome free. The wastewater generated in the metal treatment process will be treated on-site to remove any other heavy metals.
- Particulate emission collection from sanding operations will have a 99.99 percent efficiency factor.
- Particulate emissions from painting operations will be collected by a dry filter or water wash process. If the dry filter is used, it will have an efficiency rating of 98 percent. Water wash systems will be 99.97 percent efficient
- Water from water wash booths will be reused. Solids will be removed on a continual basis to keep the water clean.
- Paint wastes are disposed of in an environmentally safe manner.
- Empty metal paint containers will be recycled to recover the metal.
- Solvents used in clean-up operations will be recycled on-site or sent off-site for distillation and returned for reuse.

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Additionally, the finished apparatus will not be manufactured with or contain products that have ozone depleting substances. Contractor will, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his state EPA rules and regulations.

CAB TWO-TONE PAINT

The cab will be painted two-tone, with the upper section painted #10 white and the lower section painted #90 red. There will be a standard two-tone cab paint break provided.

There will be a standard cab shield provided.

BODY PAINT

The body will be painted to match the lower section of the cab.

PAINT CHASSIS FRAME ASSEMBLY

The chassis frame assembly will be finished with a single system black top coat before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.

Components that are included with the chassis frame assembly that will be painted are:

- Frame rails
- Frame liners
- Cross members
- Axles
- Suspensions
- Steering gear
- Battery boxes
- Bumper extension weldment
- Frame extensions
- Body mounting angles
- Rear Body support substructure (front and rear)
- Pump house substructure
- Air tanks
- Steel fuel tank
- Castings
- Individual piece parts used in chassis and body assembly

Components treated with epoxy E-coat protection prior to paint:

- Two (2) C-channel frame rails
- Two (2) frame liners

The E-coat process will meet the technical properties shown.

PAINT, REAR WHEELS

All wheel surfaces, inside and outside, will be provided with [Paint, Wheels].

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AXLE HUB PAINT

All axle hubs will be painted black #101.

COMPARTMENT INTERIOR PAINT

The interior of all compartments will be painted with a gray spatter finish for ease of cleaning and to make it easier to touch up scratches and nicks.

AERIAL DEVICE PAINT COLOR

The aerial device paint procedure will consist of a seven (7) step finishing process as follows:

1. Manual Surface Preparation - All exposed metal surfaces on the aerial device structural components above the rotation point will be thoroughly cleaned and mechanically shot-blasted to remove metal impurities and prepare the aerial for painting.
2. Zinc Rich Primer - Zinc rich primer will be applied to the torque box and stabilizers.
3. Primer/Surfacer Coats - A two (2) component epoxy primer/surfacer will be applied to the mechanically shot-blasted metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface. All seams will be caulked with a two (2) component epoxy caulk before painting.
4. Hand Sanding - The primer/surfacer coat of the outer surfaces of the hand rails and base rails will be lightly sanded to a smooth finish.
5. Primer Coat - A two (2) component epoxy primer coat will be applied over the sanded primer.
6. Topcoat Paint - Urethane base coat will be applied to opacity for correct color matching.
7. Clear Coat - Two (2) coats of an automotive grade two (2) component urethane will be applied.

Surfaces that will not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum treadplate.

All buy out components, such as monitor, nozzle, gauges, etc. will be supplied as received from the vendor.

Removable items such as brackets will be removed and painted separately to ensure paint coverage behind all mounted items.

The aerial device components will be painted as follows using the aforementioned seven (7) step finishing process:

- Aerial basket and basket leveling cylinders at tip: red 90
- Aerial device ladder sections and extension cylinders: white 10
- Aerial turntable and leveling cylinders (if applicable) at turntable: red 90
- Aerial control console: red 90
- Aerial lift cylinders: red 90
- Aerial rotation motor (if applicable): black

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- Aerial torque box, support structure and components below the rotation point: gloss black primer
- Aerial stabilizers (middle and rear only): black 101
- Aerial boom support: gloss black primer

REFLECTIVE STRIPES

Three (3) reflective stripes will be provided across the front of the vehicle and along the sides of the body. The reflective band will consist of a 1.00" white stripe at the top with a 1.00" gap then a 6.00" white stripe with a 1.00" gap and a 1.00" white stripe on the bottom.

The reflective band provided on the cab face will be below the headlights on the fiberglass.

CHEVRON STRIPING, REAR

There will be chevron striping located on the rear-facing vertical surface of the apparatus. Covered surfaces will include the rear wall, smooth aluminum doors, and rear compartment door.

The colors will be white and red (tomato red) reflective.

Each stripe will be 6.00" in width.

A blue field with white stars will be provided in the center section of the rear of the body. The field will be triangular shaped as per the customer supplied photo.

This will not meet the requirements of NPFA 1901, 2016 edition, which states that 50% of the rear surface will be covered with chevron striping.

NPFA 1901, 2016 edition, 15.9.3.2.1 requires each stripe in the chevron to be a single color alternating between red and either yellow, fluorescent yellow, or fluorescent yellow green. Use of the red and yellow color is endorsed by the International Association of Fire Chiefs. The fire apparatus purchaser will realize that by requesting an exception to this aspect of NFPA 1901, this fire apparatus will not contribute to the national standardization initiative. Per the purchaser's specification, this apparatus will not be compliant to NFPA 1901 standards in this regard.

REFLECTIVE STRIPE ON STABILIZERS

There will be 4.00" wide alternating ruby red and white reflective chevron stripes provided on the forward and rear facing sides of both aerial stabilizers. The stripes will be angled at a 45 degree angle.

REFLECTIVE STRIPES

Three (3) reflective stripes will be provided across the sides and front of the aerial basket. The reflective bands will consist of a 1.00" white stripe at the top with a 1.00" gap then a 6.00" white stripe with a 1.00" gap and a 1.00" white stripe on the bottom. This band will stay consistent with the striping on the body.

JOG(S) IN REFLECTIVE BAND

The reflective band located on each side of the apparatus body will contain one (1) jog(s) and will be angled at approximately a 45 degrees when installed.

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REFLECTIVE STRIPE OUTLINE

A black outline will be applied on the top and the bottom of the reflective band. There will be three (3) set of outline stripes required.

TOOLBOARD DIAMOND GRADE STRIPES

There will be red diamond grade reflective stripes installed on the three (3) toolboard(s) located body.

INVERTED "V" CHEVRON STRIPING ON CAB AND CREW CAB DOORS

There will be alternating chevron striping located on the inside of each cab and crew cab door.

The striping will consist of the following colors:

The first color will be white

The second color will be ruby red

The size of the striping will be 4.00".

CAB STRIPE

There will be a genuine gold leaf stripe provided on both sides of the cab in place of the chrome molding.

LETTERING

The lettering will be totally encapsulated between two (2) layers of clear vinyl.

LETTERING

Forty-one (41) to sixty (60) genuine gold leaf lettering, 3.00" high, with outline and shade will be provided.

LETTERING

There will be genuine gold leaf lettering, 12.00" high, with outline and shade provided. There will be four (4) letters provided.

LETTERING

There will be reflective lettering, 6.00" high, with outline and shade provided. There will be two (2) letters provided.

LETTERING

There will be genuine gold leaf lettering, 8.00" high, with outline and shade provided. There will be two (2) letters provided.

LETTERING

There will be reflective lettering, 18.00" high, with outline and shade provided. There will be one (1) letter provided.

LETTERING

There will be genuine gold leaf lettering, 6.00" high, with outline and shade provided. There will be 12 letters provided.

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LETTERING

There will be genuine gold leaf lettering, 2.00" high, with outline and shade provided. There will be 24 letters provided.

LETTERING

There will be non-reflective vinyl lettering, 18.00" high, with no outline or shade provided. There will be two (2) letters provided.

LETTERING

There will be genuine gold leaf lettering, 1.00" high, with outline and shade provided. There will be 18 letters provided.

DECAL INSTALLATION

There will be two (2) pair of decals furnished by the fire department and applied by the apparatus manufacturer.

EMBLEM - RIBBON STYLE

There will be one (1) pair of "ISO CLASS 1" gold leaf emblem(s) installed.

LETTERING/NUMERALS ON CAB GRILLE

Up to ten (10) painted letters/numerals with outline, as determined by the fire department, will be provided on the cab grille.

The colors of the letters/numerals and the outline will be [Color, Outline] .

FIRE APPARATUS PARTS MANUAL

There will be one (1) custom parts manual(s) in USB flash drive format for the complete fire apparatus provided.

The manual(s) will contain the following:

- Job number
- Part numbers with full descriptions
- Table of contents
- Parts section sorted in functional groups reflecting a major system, component, or assembly
- Parts section sorted in alphabetical order
- Instructions on how to locate parts

Each manual will be specifically written for the chassis and body model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.

Service Parts Internet Site

The service parts information included in these manuals are also available on the Pierce website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly.

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CHASSIS SERVICE MANUALS

There will be one (1) chassis service manuals on USB flash drives containing parts and service information on major components provided with the completed unit.

The manual will contain the following sections:

- Job number
- Table of contents
- Troubleshooting
- Front Axle/Suspension
- Brakes
- Engine
- Tires
- Wheels
- Cab
- Electrical, DC
- Air Systems
- Plumbing
- Appendix

The manual will be specifically written for the chassis model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.

CHASSIS OPERATION MANUAL

The chassis operation manual will be provided on one (1) USB flash drive.

ONE (1) YEAR MATERIAL AND WORKMANSHIP

A Pierce basic apparatus limited warranty certificate, WA0008, is included with this proposal.

THREE (3) YEAR MATERIAL AND WORKMANSHIP

The Pierce custom chassis limited warranty certificate, WA0284, is included with this proposal.

ENGINE EXTENDED WARRANTY

Cummins will provide a ten (10) year/200,000 mile, whichever occurs first, Major Components Coverage warranty on the ISX engine. This warranty will cover 100% parts and labor.

The warranty will be subject to a \$100.00 deductible for all service visits after expiration of the base warranty of five (5) years/100,000 miles, whichever occurs first. The extended warranty coverage, beyond the base warranty, will be limited to the following major components.

- Engine cylinder block casting
- Engine cylinder head castings and cap screws
- Engine crankshaft forging
- Engine camshaft forging
- Engine connecting rods
- Flywheel housing

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- Intake manifold castings
- Valve covers
- Oil cooler cover/filter heads
- Oil pan
- Gear cover and housing (excluding front gear)
- Gear train gears
- Crankshaft gear
- Camshaft idler gear
- Accessory drive gear
- Fuel pump drive gear

ENGINE WARRANTY

A Cummins **five (5) year** limited engine warranty will be provided. A limited warranty certificate, WA0181, is included with this proposal.

STEERING GEAR WARRANTY

A Sheppard **three (3) year** limited steering gear warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.

FIFTY (50) YEAR STRUCTURAL INTEGRITY

The Pierce custom chassis frame and crossmembers limited warranty certificate, WA0038, is included with this proposal.

FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY

The Pierce TAK-4 suspension limited warranty certificate, WA0050, is included with this proposal.

REAR AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY

Pierce TAK-4® independent rear suspension will be provided with a three (3) year material and workmanship limited warranty. The manufacturer's warranty will provide that the independent rear suspension be free from any defect related to material and workmanship on the portion of the apparatus built by the manufacturer that would arise under normal use and service.

ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY

A Meritor Wabco™ ABS brake system limited warranty certificate, WA0232, is included with this proposal.

TEN (10) YEAR STRUCTURAL INTEGRITY

The Pierce custom cab limited warranty certificate, WA0012, is included with this proposal.

TEN (10) YEAR PRO-RATED PAINT AND CORROSION

A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal.

FIVE (5) YEAR MATERIAL AND WORKMANSHIP

The Pierce Command Zone electronics limited warranty certificate, WA0014, is included with this proposal.

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COMPARTMENT LIGHT WARRANTY

The Pierce 12 volt DC LED strip lights limited warranty certificate, WA0203, is included with this proposal.

TRANSMISSION WARRANTY

The transmission will have a **five (5) year/unlimited mileage** warranty covering 100 percent parts and labor. The warranty will be provided by Allison Transmission.

Note: The transmission cooler is not covered under any extended warranty you may be getting on your Allison Transmission. Please review your Allison Transmission warranty for coverage limitations.

TRANSMISSION COOLER WARRANTY

The transmission cooler will carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty will also be in effect for the first three (3) years of the warranty coverage and will not exceed \$10,000 per occurrence. A copy of the warranty certificate will be submitted with the bid package.

TEN (10) YEAR STRUCTURAL INTEGRITY

The Pierce apparatus body limited warranty certificate, WA0009, is included with this proposal.

ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY

A Gortite roll-up door limited warranty will be provided. The mechanical components of the roll-up door will be warranted against defects in material and workmanship for the lifetime of the vehicle. A **six (6) year** limited warranty will be provided on painted and satin roll up doors.

The limited warranty certificate, WA0190, is included with this proposal.

TWENTY (20) YEAR AERIAL DEVICE STRUCTURAL INTEGRITY WARRANTY

The Pierce device limited warranty certificate, WA0052, is included with this proposal.

AERIAL SWIVEL WARRANTY

An Amity five (5) year limited swivel warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.

HYDRAULIC SYSTEM COMPONENTS WARRANTY

Aerial hydraulic system components will be provided with a five (5) year material and workmanship limited warranty.

HYDRAULIC SEAL WARRANTY

Aerial hydraulic seals will be provided with a three (3) year material and workmanship limited warranty.

A copy of the warranty certificates will be submitted with the bid package.

AERIAL WATERWAY WARRANTY

An Amity ten (10) year limited waterway warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.

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FOUR (4) YEAR PRO-RATED PAINT AND CORROSION

A Pierce aerial device limited pro-rated paint warranty certificate, WA0047, is included with this proposal.

FIVE (5) YEAR MATERIAL AND WORKMANSHIP

The Pierce Command Zone electronics limited warranty certificate, WA0014, is included with this proposal.

TEN (10) YEAR PRO-RATED PAINT AND CORROSION

A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.

THREE (3) YEAR MATERIAL AND WORKMANSHIP

The Pierce Goldstar gold leaf lamination limited warranty certificate, WA0018, is included with this proposal.

VEHICLE STABILITY CERTIFICATION

The fire apparatus manufacturer will provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification will be provided at the time of bid.

ENGINE INSTALLATION CERTIFICATION

The fire apparatus manufacturer will provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification will be provided at the time of delivery.

POWER STEERING CERTIFICATION

The fire apparatus manufacturer will provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification will be provided at the time of bid.

CAB INTEGRITY CERTIFICATION

The fire apparatus manufacturer will provide a cab integrity certification with this proposal. The certification will state that the cab has been tested and certified by an independent third-party test facility. Testing events will be documented with photographs, real-time and high-speed video, vehicle accelerometers, cart accelerometers, and a laser speed trap. The fire apparatus manufacturer will provide a state-licensed professional engineer to witness and certify all testing events. Testing will meet or exceed the requirements below:

- European Occupant Protection Standard ECE Regulation No.29.
- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.
- SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.

Roof Crush

The cab will be subjected to a roof crush force of 22,050 lb. This value meets the ECE 29 criteria and is equivalent to the front axle rating up to a maximum of 10 metric tons.

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Additional Roof Crush

The same cab will be subjected to a roof crush force of 100,000 lbs. This value exceeds the ECE 29 criteria by nearly 4.5 times.

Side Impact

The same cab will be subjected to dynamic preload where a 13,275 lb moving barrier slams into the side of the cab at 5.5 mph at a force of 13,000 ft-lbs. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a rollover incident.

Frontal Impact

The same cab will withstand a frontal impact of 32,600 ft-lbs of force using a moving barrier in accordance with SAE J2420.

Additional Frontal Impact

The same cab will withstand a frontal impact of 65,200 ft-lbs of force using a moving barrier, (twice the force required by SAE J2420).

The same cab will withstand all tests without any measurable intrusion into the survival space of the occupant area.

CAB DOOR DURABILITY CERTIFICATION

Robust cab doors help protect occupants. Cab doors will survive a 200,000 cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder will certify that the sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.

WINDSHIELD WIPER DURABILITY CERTIFICATION

Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers will survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 *Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles*. The bidder will certify that the wiper system design has been tested and that the wiper system has met these criteria.

ELECTRIC WINDOW DURABILITY CERTIFICATION

Cab window roll-up systems can cause maintenance problems if not designed for long service life. The window regulator design will complete 30,000 complete up-down cycles and still function normally when finished. The bidder will certify that sample doors and windows similar to those provided on the apparatus have been tested and have met these criteria without malfunction or significant component wear.

SEAT BELT ANCHOR STRENGTH

Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design will withstand 3000 lb of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder will certify that each anchor design was pull tested to the required force and met the appropriate criteria.

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SEAT MOUNTING STRENGTH

Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design will be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder will certify that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.

PERFORMANCE CERTIFICATIONS**Cab Air Conditioning**

Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system will cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to an average of 78 degrees Fahrenheit in 30 minutes. The bidder will certify that a substantially similar cab has been tested and has met these criteria.

Cab Defroster

Visibility during inclement weather is essential to safe apparatus performance. The defroster system will clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure And Performance Requirements - Trucks, Buses, And Multipurpose Vehicles. The bidder will certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.

Cab Auxiliary Heater

Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. An auxiliary cab heater will warm the cab 77 degrees Fahrenheit from a cold-soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder will certify, at time of delivery, that a substantially similar cab has been tested and has met these criteria.

AMP DRAW REPORT

The bidder will provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus will provide the following:

- Documentation of the electrical system performance tests.
- A written load analysis, which will include the following:
 - The nameplate rating of the alternator.
 - The alternator rating under the conditions specified per:
 - Applicable NFPA 1901 or 1906 (Current Edition).
 - The minimum continuous load of each component that is specified per:
 - Applicable NFPA 1901 or 1906 (Current Edition).
 - Additional loads that, when added to the minimum continuous load, determine the total connected load.
 - Each individual intermittent load.

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All of the above listed items will be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).

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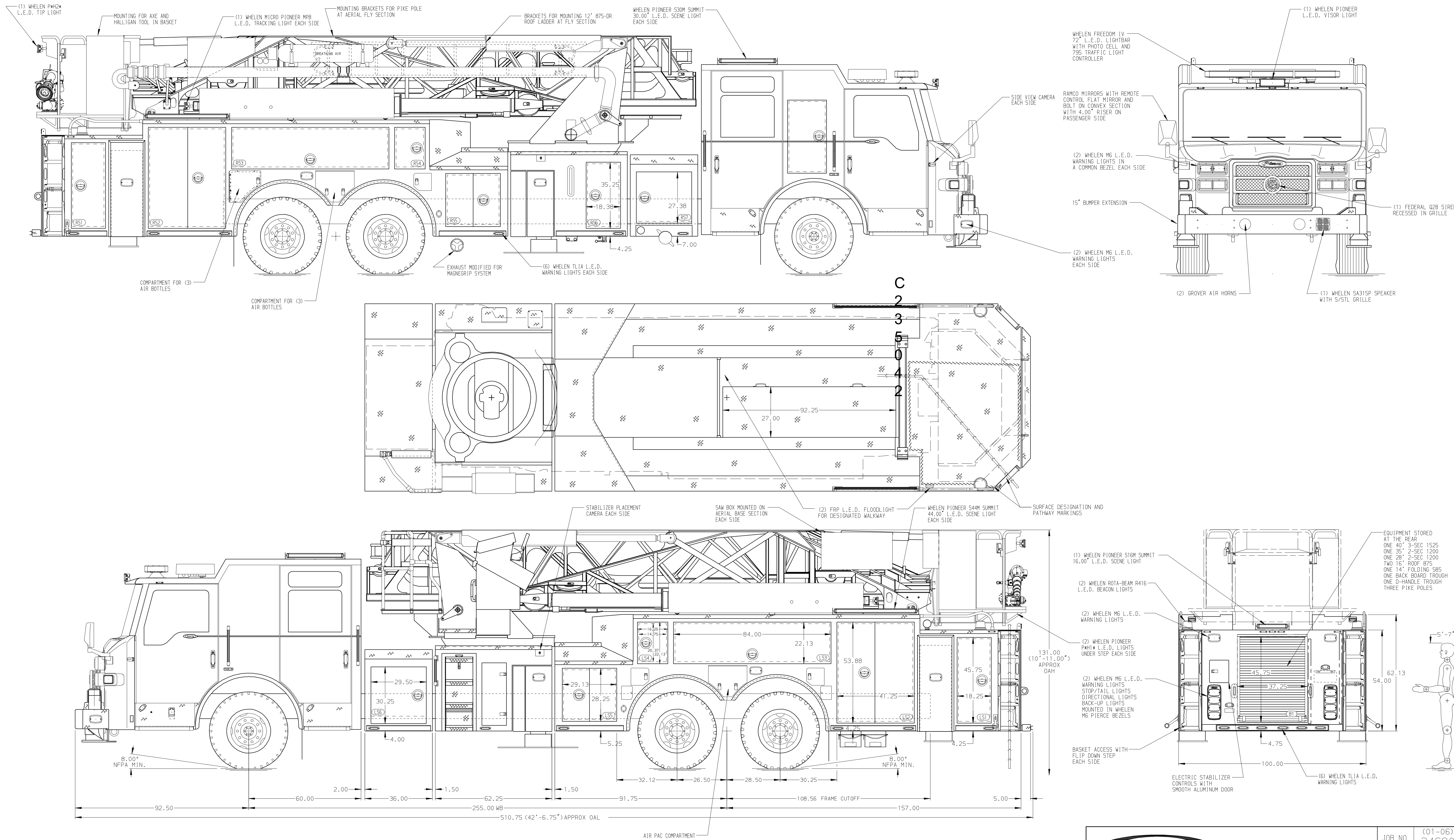
Conrad Fire Equipment

Item: **100 Foot Midmount Aerial Platform:100 Foot Midmount Aerial Platform:100 Foot Midmount Aerial
Platform:Warranties, Certifications, Drawing**

Attachments

OKC Tower Rough Drawing.pdf

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Conrad Fire Equipment

Item: **100 Foot Midmount Aerial Platform:100 Foot Midmount Aerial Platform:100 Foot Midmount Aerial Platform:100 Foot Midmount Aerial Platform:Quality Management System**

Attachments

Forms - Pierce ISO Cert Appleton.pdf

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Contents in zip file submitted were not converted in
bid packet. Inserted pdf documents below. pl

Please wait...

If this message is not eventually replaced by the proper contents of the document, your PDF viewer may not be able to display this type of document.

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G296 MSA

Long Mileage Super Single Tire For Heavy On-And Off-Road Applications.

Features and Benefits

Tire Specs

Features

Deep 23/32" tread

Severe service compound

Deep, wide circumferential grooves with more than 500 biting edges

Optimized tread design

Benefits

Helps put more wearable rubber on the road for enhanced mileage.

Helps resist cuts, chips and tears and offers enhanced mileage.

Help promote all-season traction on wet, snowy and dry roads.

Helps reduce road noise for a quiet ride.

Reference Only

SIZE	TREAD DEPTH	RIM WIDTH		TIRE WEIGHT		OVERALL WIDTH		OVERALL DIAMETER		STATIC LOADED RADIUS		RETREAD BUFFING RADIUS		RETREAD BASE WIDTH	
		(IN)	(MM)	(LBS)	(KG)	(IN)	(MM)	(IN)	(MM)	(IN)	(MM)	(IN)	(MM)	(IN)	(MM)
TUBELESS TIRES ON 15° DROP CENTER RIMS															
385/65R22.5 J	23	11.75	298	169	76	14.9	378	42.5	1,080	19.8	503	0	0	0.000	0
425/65R22.5 L	23	12.25	311	188	85	16.3	414	44.4	1,128	20.6	523	0	0	0.000	0
445/65R22.5 L	23	13.00	330	207	94	17.5	445	45.5	1,156	20.9	531	0	0	0.000	0

SIZE	SPEED RATING (MPH)	SINGLE MAX LOAD (LBS) (KG)		SINGLE INFLATION (PSI) (KPa)		DUAL MAX LOAD (LBS) (KG)		DUAL INFLATION (PSI) (KPa)		REVS PER (MILE) (KM)		MINIMUM DUAL SPACING (IN) (MM)		PRODUCT CODE
TUBELESS TIRES ON 15° DROP CENTER RIMS														
385/65R22.5 J	68	9,370	4,250	120	830	0	0	0	0	488	303	0.0	0	756315365
425/65R22.5 L	68	11,400	5,150	120	830	0	0	0	0	468	291	0.0	0	756160365
445/65R22.5 L	68	12,300	5,600	120	830	0	0	0	0	457	284	0.0	0	756314365

Reference Only



Fire and Rescue Apparatus

Four (4) Year Pro-Rated Paint and Corrosion

Aerial Device

Limited Warranty

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1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Aerial device shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection for exterior surfaces.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Four (4) Years
Conditions and Exclusions: See Also Paragraphs 2 thru 4	<p>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</p> <p>Topcoat Durability & Appearance: Gloss, Color Retention & Cracking 0-24 months 100% 25-48 months 50%</p> <p>Integrity of Coating System: Adhesion, Blistering/Bubbling 0-24 months 100% 25-48 months 50%</p> <p>Corrosion: Dissimilar Metal and Crevice 0-24 months 100% 25-48 months 50%</p> <p>Corrosion Perforation 0-24 months 100% 25-48 months 50%</p> <p>This limited warranty applies only to exterior paint.</p> <p>Items not covered by this warranty include: (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual). (b) UV paint fade.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

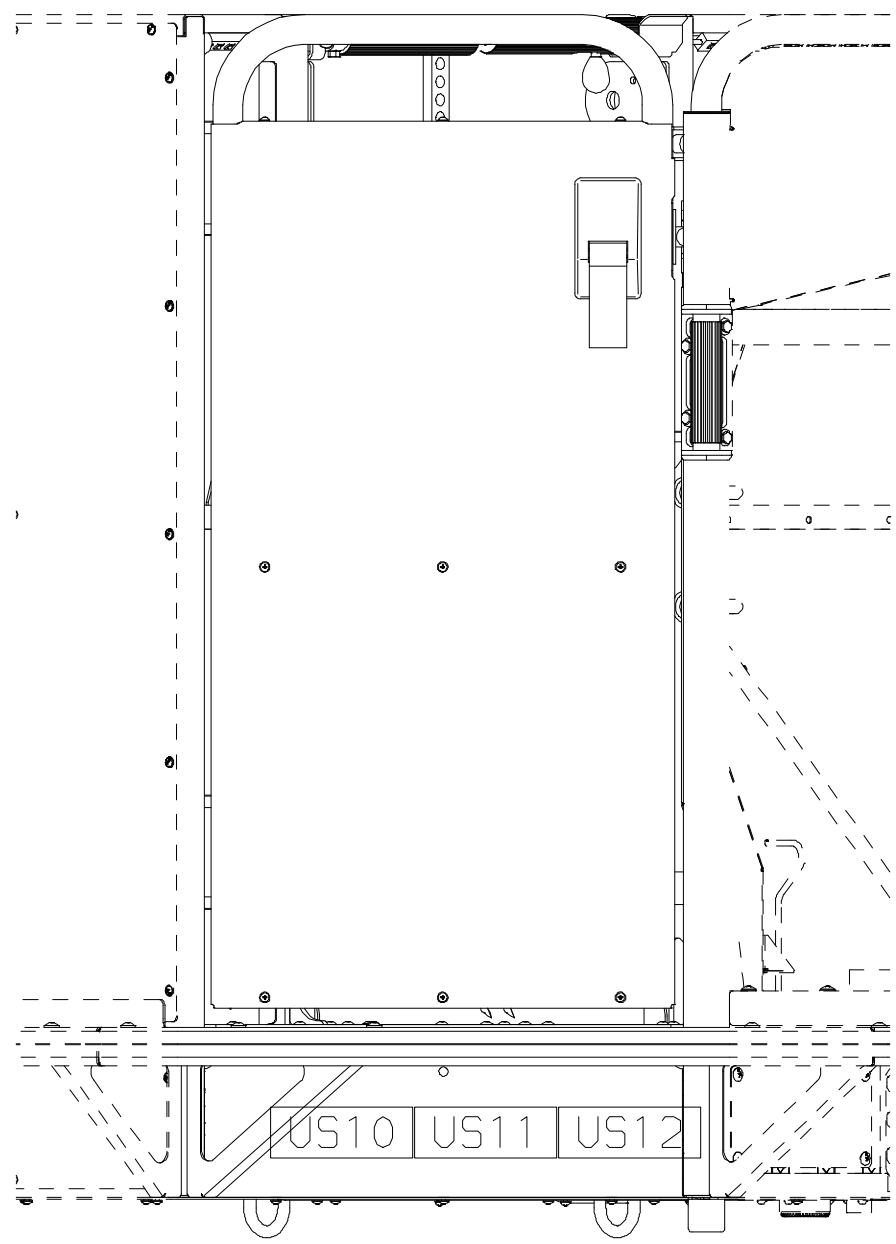
3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

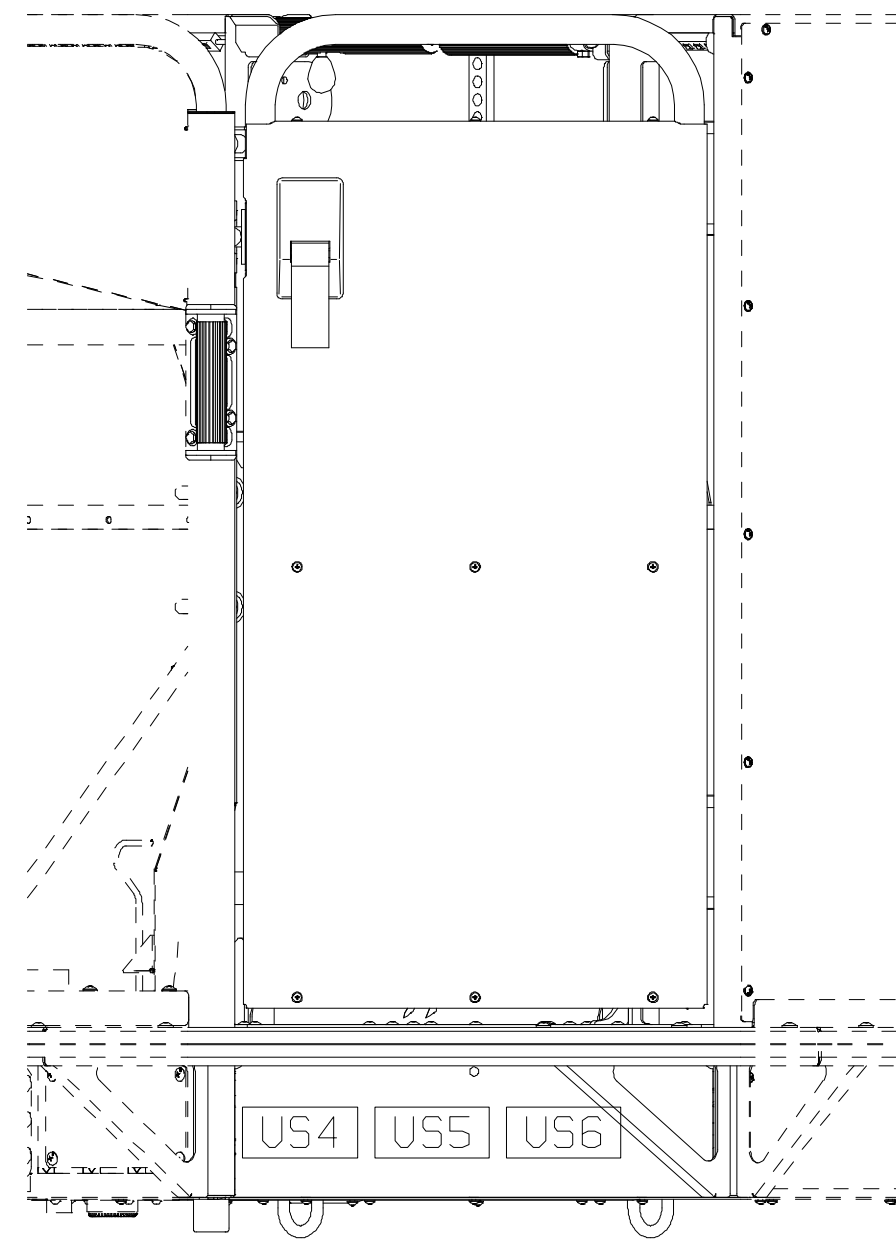
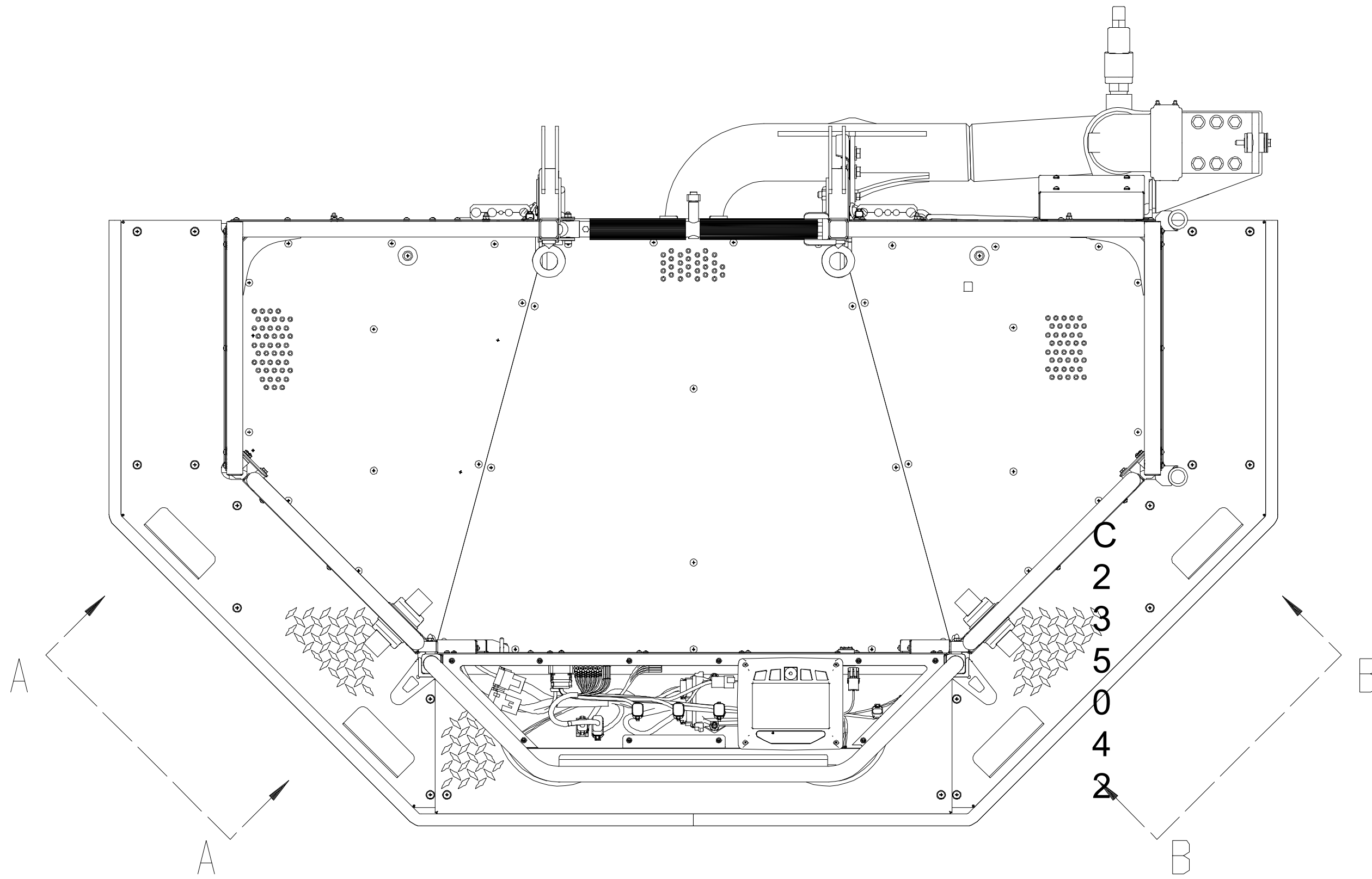
4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

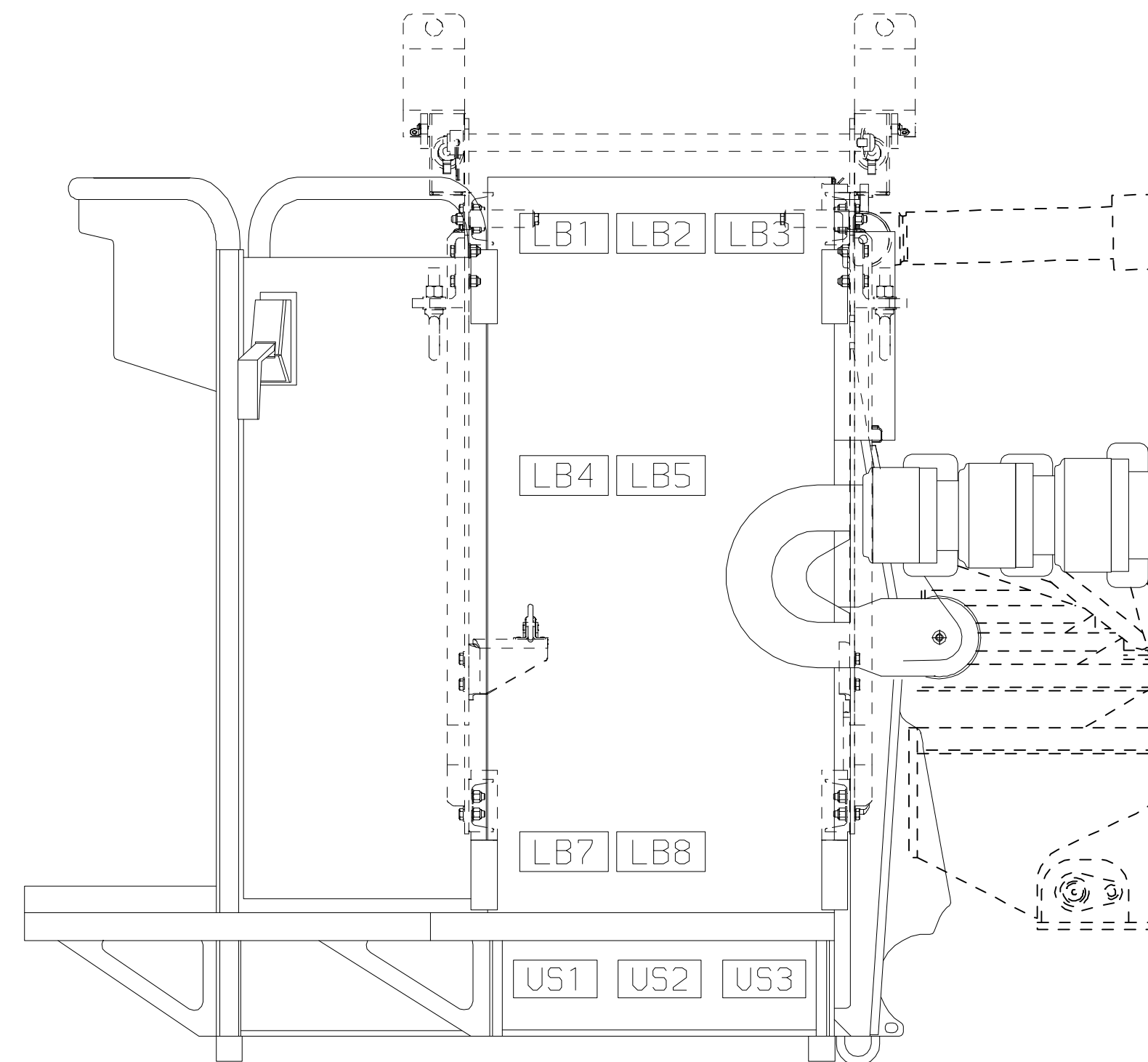
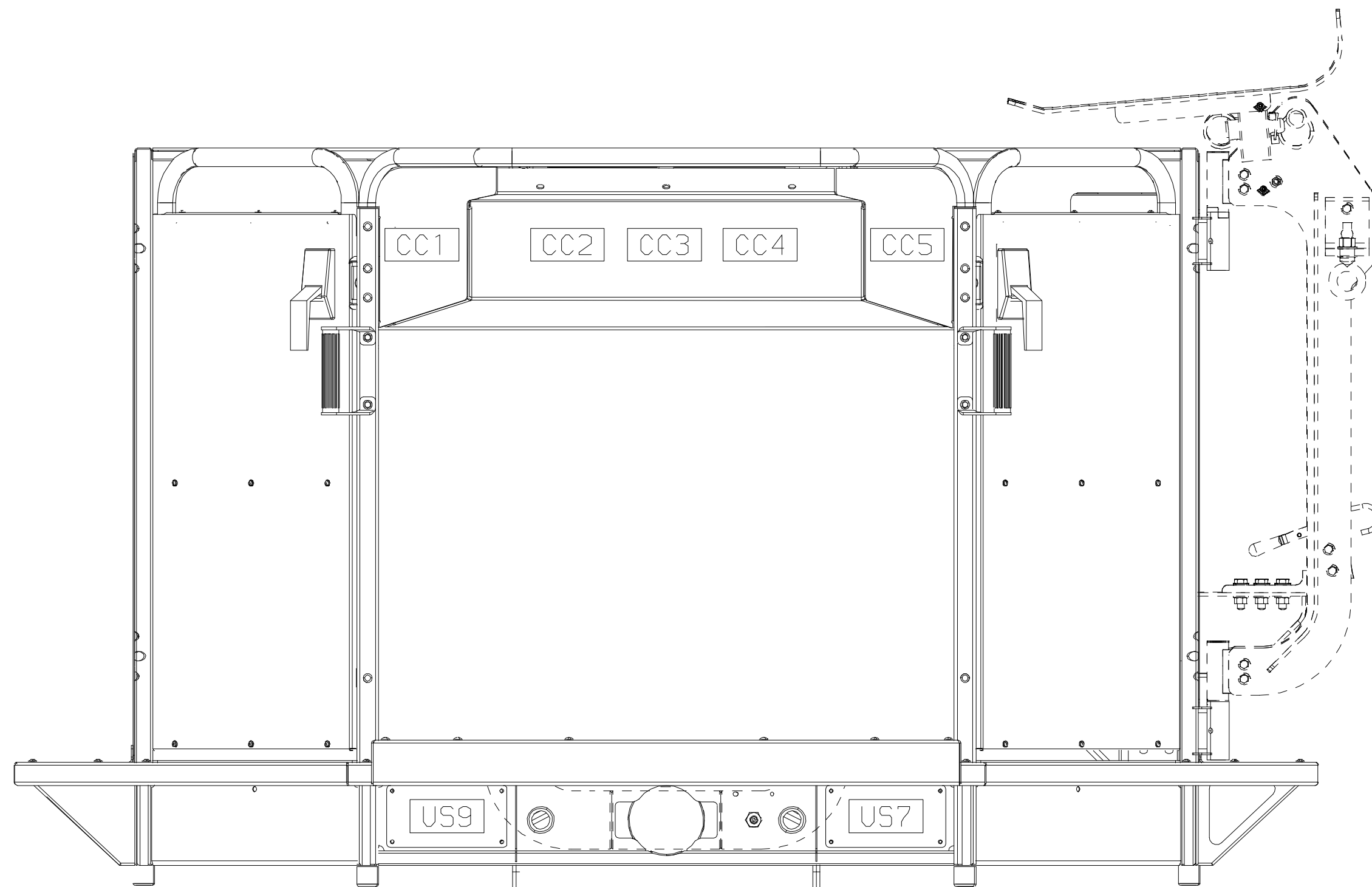
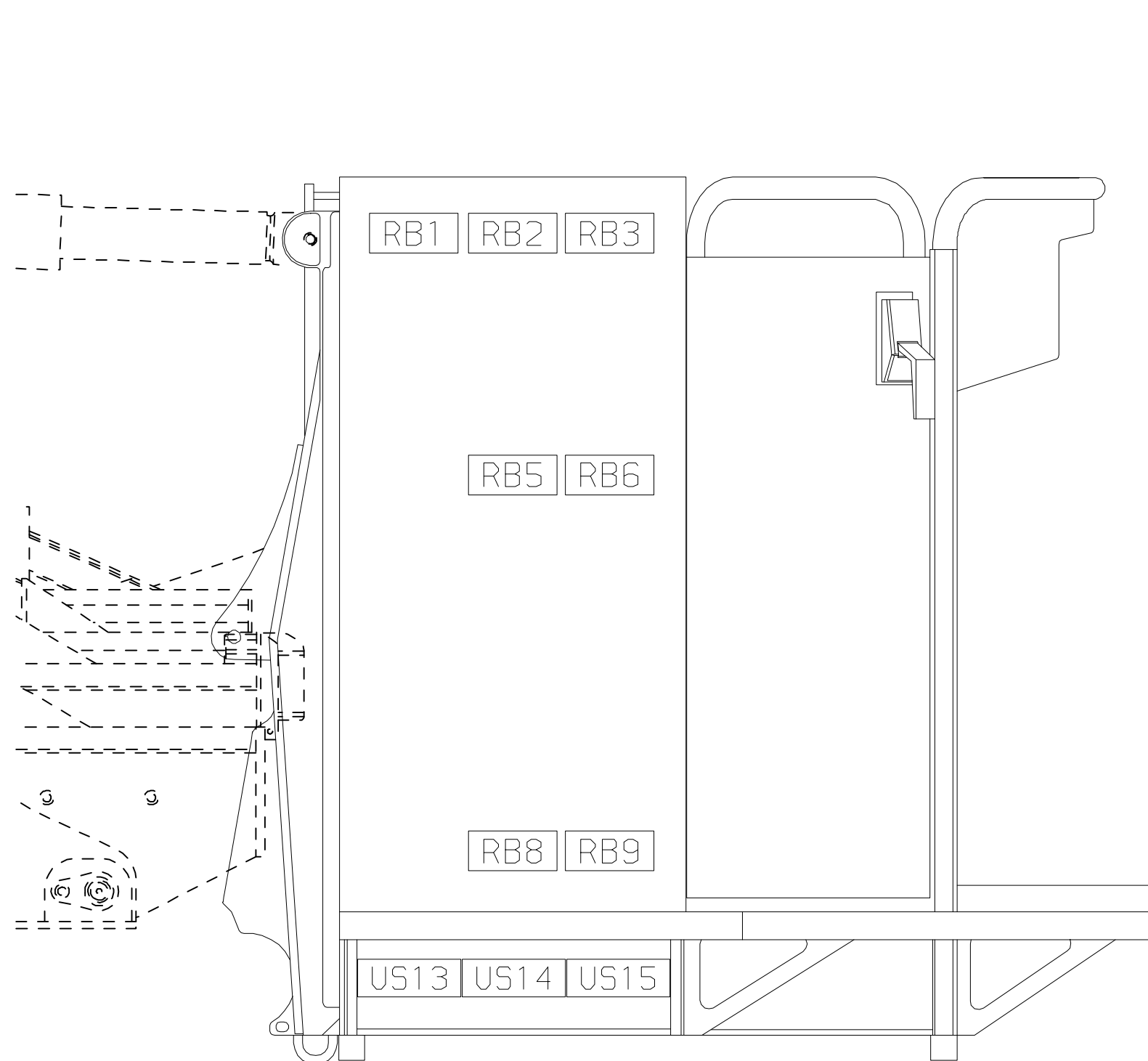
Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

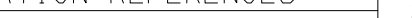


SECTION "A-A"



SECTION "B-B"



										REF BASKET LOCATION REFERENCES		TOLERANCE UNLESS NOTED 2 PLACE..... ±0.06 3 PLACE..... ±0.015 ANGULAR..... ±1.0° DO NOT SCALE DRAWING. ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.		SCALE 1:8	DATE	SIZE —	MIN —	WEIGHT —	# —	
										 MANUFACTURING INC. APPLETON, WISCONSIN				DRAWN CRI	09JUN20	TITLE				
										THIS PRINT IS LOANED ON A CONFIDENTIAL BASIS SUBJECT TO RETURN UPON DEMAND BY PIERCE MFG INC AND NOTHING HEREIN MAY BE REPRODUCED, USED OR DISCLOSED IN WHOLE OR IN PART WITHOUT THE PRIOR WRITTEN PERMISSION OF PIERCE MFG INC.				CHECKED —	—	100' TOWER BASKET MATRIX				
										FSOM NO.		04664		APPROVED —	—	PART NO.	—		SIZE D	SHEET NO. 1 OF 2



Certification Document CD0001 Velocity® & Impel® Cab Doors

Pierce Manufacturing certifies the integrity of the Velocity® & Impel® cab doors.

Specimens representing the substantial structural configuration of the Velocity and Impel cab front and crew doors have been successfully tested to meet the following objectives:

OBJECTIVES:

- Survive a 200,000-cycle door slam test with a slam acceleration up to 20 g's on one representative
- Validate the assembly concept of the main structure of the door by evaluating the durability of the bonding technique.
- Evaluate components, structure, and mounting of the door during and the end of the test for fatigue and failure to ensure durability.
- Verify that the door seals function properly at the end of the test.
- Evaluate the new extrusions and castings of the cab doorframe during and at the end of the test for fatigue, failure, and deformation of seal flanges.
- Evaluate various mounting options for the electronic control module for durability during portions of the slam test.

CONCLUSIONS:

- The door structure and doorframe successfully completed a 200,000-cycle door slam test with a door slam acceleration of 50 g's.

VALIDATION TEST: RD1239, RD1350

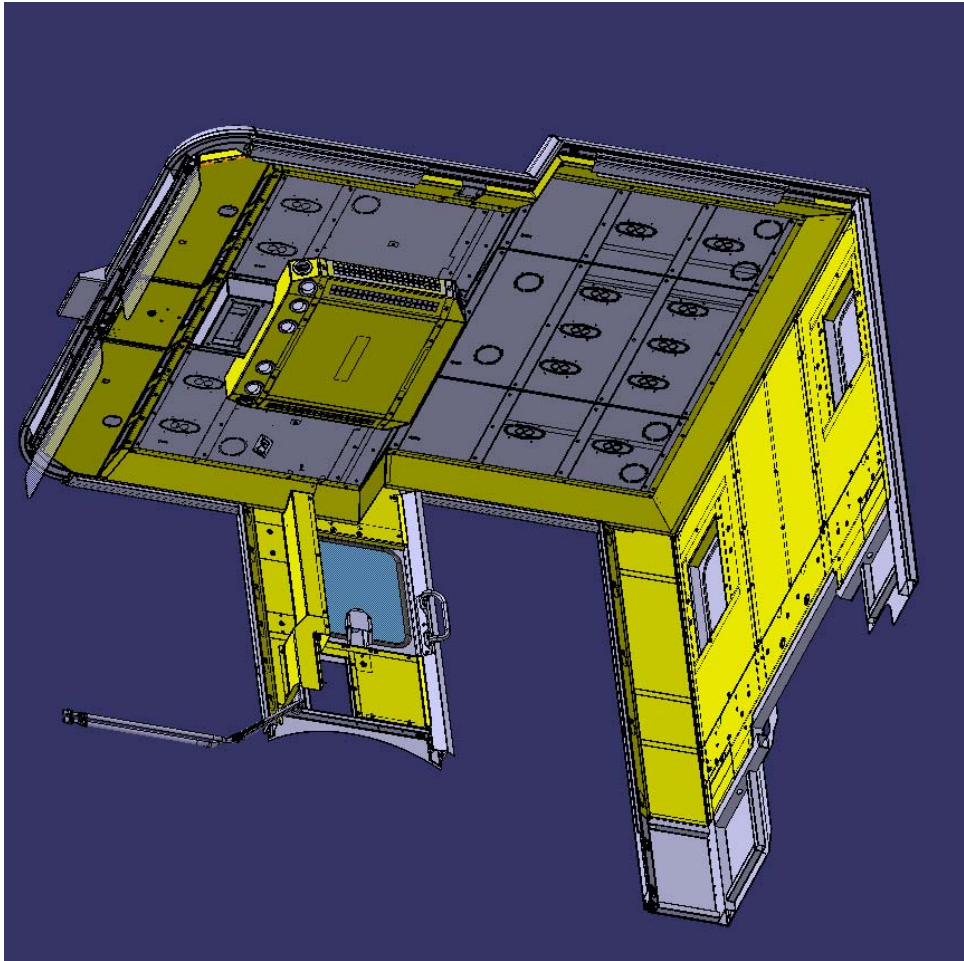
Pierce Manufacturing, Inc.

A handwritten signature in blue ink, appearing to read "James R. Lackore".



James Roger Lackore, PE
March 16, 2008



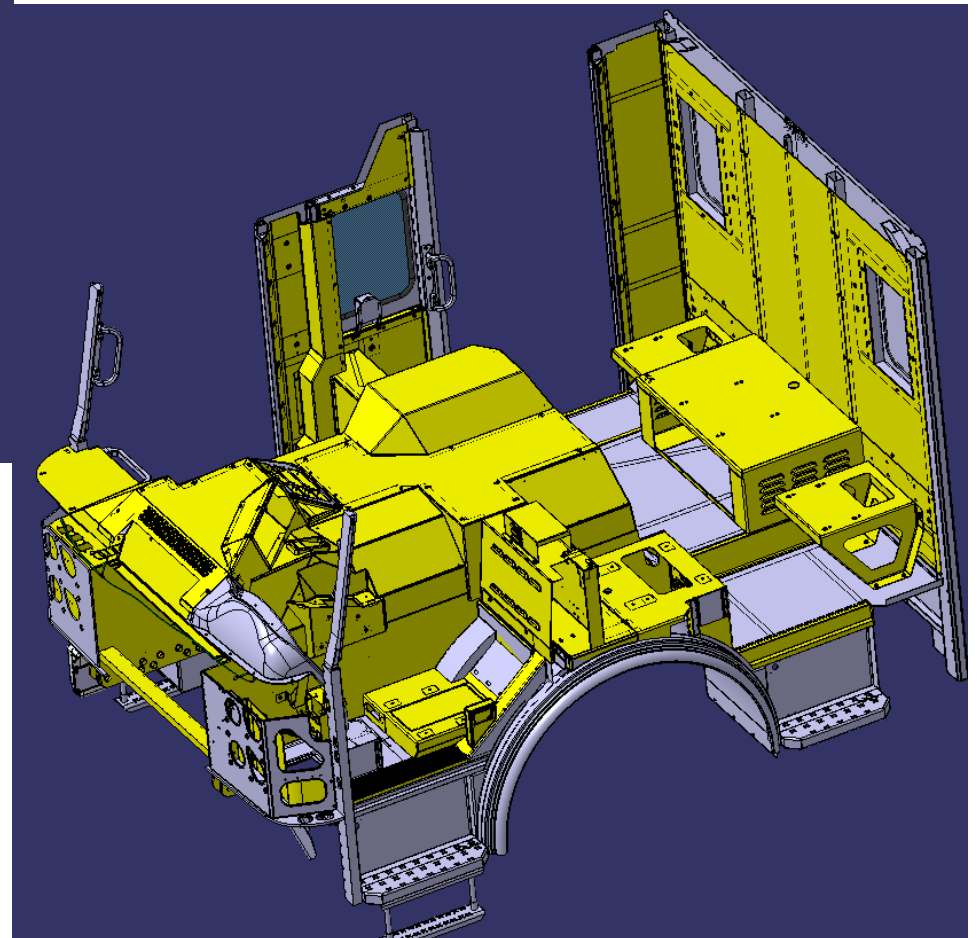


Deluxe Level, Line-X

Arrow XT Cab

(Items sprayed with Line-X will differ based on cab – reference areas listed in option text)

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Certification Document CD0004 Velocity® & Impel® Window Regulators

Pierce Manufacturing certifies the integrity of the Velocity® & Impel® window regulators.

Specimens representing the substantial structural configuration of the Velocity® & Impel® window regulators have been successfully tested to meet the following objectives:

OBJECTIVES:

- Electric window regulators withstand 30,000 up-down cycles.

CONCLUSIONS:

- The electric window regulators withstood 30,000 cycles without failure.

VALIDATION TEST: RD1350, RD1368

Pierce Manufacturing, Inc.

A handwritten signature in blue ink, appearing to read "James R. Lackore".



James Roger Lackore, PE
March 16, 2008





Certification Document CD0005 Velocity® & Impel® Windshield Wiper System

Pierce Manufacturing certifies the integrity of the Velocity® & Impel® Windshield Wiper System.

Specimens representing the configuration of the Velocity® & Impel® windshield wipers have been successfully tested to meet the following objectives:

OBJECTIVES:

- Complete 3,000,000 cycles of windshield wiper operation per SAE J198 § 6.2
- Inspect wiper motor, pivots, linkages, and mounts frequently to validate cumulative wiper system integrity.

CONCLUSIONS:

- The wiper linkage, pivots, and mounts successfully completed 4,254,000 cycles.
- The low speed circuit on the wiper motor failed at 2,954,000 cycles but it continued to operate on high speed. The low speed failure was determined to be due to water intrusion. The production wiper motors are coated in "EL-Cast Resin with a 641 hardener additive" to seal them from water intrusion to prevent failure.

VALIDATION TEST: RD1240

Pierce Manufacturing, Inc.



James Roger Lackore, PE
March 16, 2008





Certification Document CD0009 Velocity® & Impel® Cab Integrity Certification

Pierce Manufacturing certifies the integrity of the Velocity/Impel cab relative to occupant protection.

A specimen representing the substantial structural configuration of the Velocity and Impel cab models has been successfully tested in accordance with the following standards.

- SAE J2422 Cab Roof Strength Evaluation – Quasi-Static Loading Heavy Trucks.
- European Occupant Protection Standard ECE Regulation No. 29.
- SAE J2420 COE Frontal Strength Evaluation – Dynamic Loading Heavy Trucks.

Side Impact: The test cab was subjected to dynamic preload where a 13,275 lb moving barrier was slammed into the side of the cab at 5.5 mph, striking with an impact of 13,000 ft-lbs of energy. This test is not required to meet the ECE 29 standard, but is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a roll-over incident.

Roof Crush: This same test cab was then subjected to a roof crush force of 22,050 lbs. This value meets the ECE 29 criteria, which must be equivalent to the front axle rating up to a maximum of 10 metric tons.

Additional Roof Crush: The same cab was then loaded with 58,000 lbs, 85,000 lbs, and finally 100,000 lbs on the roof, exceeding the ECE test by 4.5 times!



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Frontal Impact: The test cab was struck by the 13,275 lb moving barrier at a speed sufficient to impart the required 32,600 ft-lbs of energy.

The cab survived this second blow without compromising the survival space of any occupant area.

Additional Frontal Impact: The same cab was then struck a third time at a higher speed to impart 65,200 ft-lbs of energy into the cab (twice the ECE 29 level of energy).

The cab survived this third blow, again without compromising the survival space of any occupant area.

Side Crush: As an additional test of the Velocity/Impel strength, the same test cab was set on its side and loaded to 100,000 lbs. The cab in this test withstood the load without any appreciable damage or occupant space intrusion.



Pass-Fail criteria of the SAE tests and the ECE 29 test is a measure of whether the “survival space” inside the cab is compromised during any of the test loads. The Pierce cab withstood all integrity tests on the same cab without any measurable intrusion into the survival space of the occupant area.

Witnessed and Certified by:

Pierce Manufacturing, Inc.

A handwritten signature in blue ink, followed by a circular professional engineer seal. The seal contains the text: "WISCONSIN", "JAMES R. LACKORE", "E-26228", "APPLETON, WI", and "PROFESSIONAL ENGINEER".

James Roger Lackore, PE
January 24, 2008

PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY



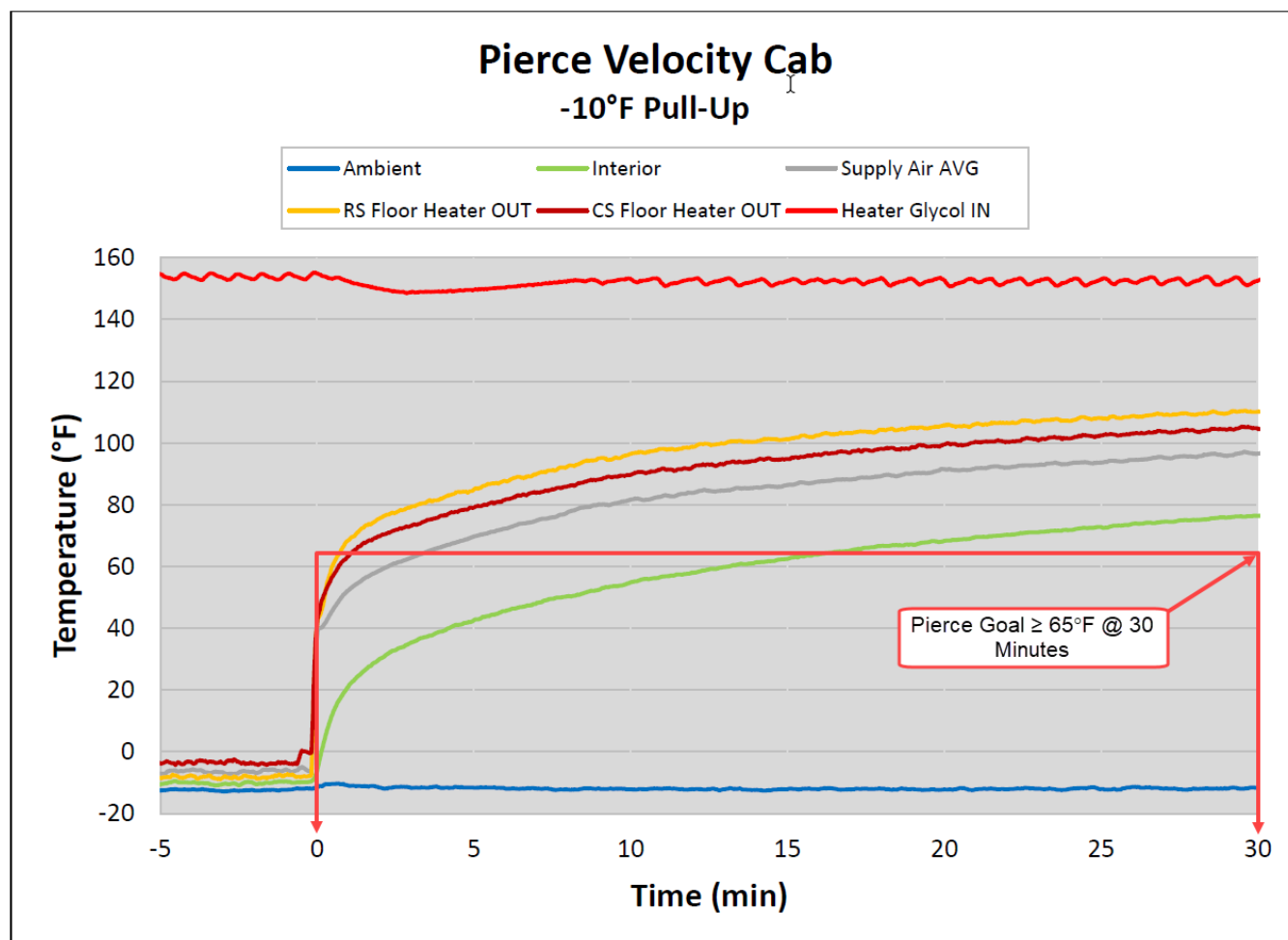
Certification Document CD0166

Velocity® & Impel® Cab Heater

Pierce Manufacturing certifies the performance of the Velocity® & Impel® cab heat system.


The Velocity® & Impel® Heater System was tested successfully in an environmental chamber.

Heater testing was performed using the coolant supply procedures from SAE J381. The average cab temperature increased 86.5° F from -10° F to 75.6° F within the prescribed 30 minutes utilizing the right side under seat auxiliary heater. The cab was contained in a cold chamber at -10° F during the duration of the test.



VALIDATION TEST: TR#19-0047 R00

Pierce Manufacturing, Inc.

A handwritten signature in black ink, appearing to read "David Archer", is positioned below the company name.

David Archer, Vice President of Engineering

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Certification Document CD0156

Statement of Compliance to NFPA 1901-2016

Vehicle Stability

Pierce fire apparatus comply with NFPA 1901 Section 4.13 Vehicle Stability using the tilt table method. As prescribed by the standard, each apparatus is compared to a substantially similar apparatus that has been loaded as required and tested on a tilt table per the SAE J2180 test procedure. If the apparatus configuration was not expected to meet the minimum tilt table criteria, then it will be equipped with the Electronic Stability Control option. A listing of all tested apparatus is maintained by the Research and Development lab and is available for inspection at the Appleton factory.



4.13 Vehicle Stability.

4.13.1* Rollover Stability. The apparatus shall meet the criteria defined in 4.13.1.1, or it shall be equipped with a stability control system in accordance with 4.13.1.2.

4.13.1.1 The apparatus shall meet the criteria defined in either of the following:

- (1)*The apparatus shall remain stable to 26.5 degrees in both directions when tested on a tilt table in accordance with SAE J2180, *A Tilt Table Procedure for Measuring the Static Rollover Threshold for Heavy Trucks*.
- (2) The calculated or measured center of gravity (CG) shall be no higher than 80 percent of the rear axle track width.

4.13.1.1.1 Compliance shall be certified by testing, calculating, or measuring the apparatus or by comparing the apparatus to a compliant, substantially similar example apparatus, and the certification shall be delivered with the fire apparatus.

4.13.1.1.2 The example apparatus shall be considered substantially similar if it includes a chassis with the same or higher CG height, the same or narrower rear axle track width, the same or greater water tank size and CG height, the same type of front and rear suspension, and the same type and size of aerial device.

4.13.1.1.3 For purposes of 4.13.1.1, the apparatus shall be loaded with fuel, fire-fighting agents, hose, ladders, a weight of 250 lb in each seating position, and weight equivalent to the miscellaneous equipment allowance as defined in Table 12.1.2.

4.13.1.1.3.1 If the apparatus is designed to meet a specified higher equipment loading or larger hose bed capacity or to carry additional ground ladders, these greater loads shall be included in the testing, calculating, or measuring.

4.13.1.1.3.2 The weight added to the fire apparatus for the purpose of test, calculation, or measurement shall be distributed to approximate typical in-service use of the fire apparatus while not exceeding the manufacturer's published individual compartment weight ratings.

4.13.1.2 If the apparatus is equipped with a stability control system, the system shall have, at a minimum, a steering wheel position sensor, a vehicle yaw sensor, a lateral accelerometer, and individual wheel brake controls.

VALIDATION TEST: Multiple Tests

Pierce Manufacturing, Inc.

David W. Archer
Vice President of Engineering
June 1, 2017



Over 30 years serving America's firefighters

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UHW503

FIRECOM 500-SERIES

Wireless headsets engineered for and tested by firefighters.



DECT7® WIRELESS COMMUNICATIONS¹
Full-duplex crew communication. Integrates with the 5000D Series Digital Intercom and WB505R wireless base station for a complete apparatus communication system.



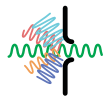
WIDEBAND AUDIO
High-definition, wideband audio provides greater clarity and understanding. This feature is defeatable for use with narrowband audio communication format.



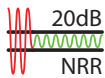
RUGGED
Built to withstand environmental extremes, the UHW503 is dustproof and watertight.



AUTO-LEVELING MICROPHONE
Be heard clearly as you move from low- to high-noise areas.



NOISE CANCELLING MICROPHONE
Be understood even in the loudest environments.



HEARING PROTECTION
Passive noise reduction eliminates unsafe noise.



USER-REPLACEABLE BATTERY
24-hour charge; replaceable battery; in-headset charging. Charges to full in less than 4 hours.



AUTO-ON
The UHW503 automatically powers on when the charging cable is disconnected.



VOICE PROMPTS
Integrated voice menu system for easy control.

1. Requires Firecom DECT Base or ComHub.

INTERCOM-ONLY UNDER-HELMET DECT7 WIRELESS HEADSET

This rugged, weatherproof wireless headset features DECT7 wireless technology for improved sound quality in the apparatus and on the fire scene. Extended range and coverage let you communicate clearly with crew members up to 1,000 feet from the apparatus. Auto-On activates the headset on removal of the charging cable. An automatic noise gate provides set-and-forget ease of use for seamless transitions between high- and low-noise situations, and the new ergonomic design delivers enhanced comfort and wearability.

UHW503 INTERCOM-ONLY UNDER-HELMET DECT7 WIRELESS HEADSET



FIRECOM 500-SERIES PRODUCT LINE

Model	Description	DECT7	Radio Tx	Bluetooth
FHW507	Radio Transmit Convertible with BT	•	•	•
UHW507	Radio Transmit Under-Helmet with BT	•	•	•
UHW505	Radio Transmit Under-Helmet	•	•	
UHW503	Intercom-Only Under-Helmet	•		
DW501BT	Wired Radio Transmit Under-Helmet with BT		•	•
DW501	Wired Radio Transmit Under-Helmet		•	





Over 30 years serving America's firefighters

UHW503

INTERCOM-ONLY UNDER-HELMET DECT7 WIRELESS HEADSET

FEATURES

ROBUST DESIGN
IP-66 Rating - dustproof; sealed against water spray
Enhanced durability and comfort; designed to fit any head size
2-stage microphone cover eliminates wind noise
Flexible microphone boom
Microphones protected by a layer of waterproof material for outdoor use
STATE-OF-THE-ART HEARING PROTECTION
Sound suppressor reduces loud noise while enhancing other sounds
20dB passive noise reduction rating (NRR)
LONG-LASTING POWER SOURCE
24-hour rechargeable lithium-ion battery
User-replaceable battery
Energy-saver sleep mode: one year of shelf life without losing charge
Auto-on powers on the headset on charging cable disconnect
Power-on battery capacity LED indicator
Audible and visual 2-stage low battery warning
110/220V DC battery charger included
Heavy-duty 12V DC charging cable included
MOBILE DEVICE AND RADIO CONNECTIVITY
Make calls or listen to music while you work
Connect to your MP3 player or phone directly via the auxiliary jack
TOTAL CONFIGURABILITY
Features are custom programmable to user specifications
Programmable microphone gain
Voice prompts for easy feature navigation and feedback
CUSTOMIZABLE
Personalize and protect with silicone ruggedizers (available in 7 standard colors)

SPECIFICATIONS

DECT7 WIRELESS TECHNOLOGY	2
Dynamic channel allocation	
DECT Standard Cipher with 40-bit initialization vector	3
Frequency Bandwidth: 1920 MHz to 1930 MHz	
PHYSICAL	5
Weight: 16 oz. (without ruggedizers)	
Color: Black	0
Noise Reduction Rating: 20 dB NRR	
Side Pressure: 2.2 lbs.	4
POWER	2
3.7V rechargeable lithium ion battery	
More than 24 hours of battery life at 77°F (25°C)	
Charge time: 4 hours	
AC Charge Source: supplied 12V, 500mA wall charger	
DC Charge Source: 5V to 16V, 1.5A minimum, cable supplied	
Over voltage, under voltage, over current and over temperature protection	
ENVIRONMENTAL	
IP-66 Rating	
Operating temperature -22°F (-30°C) to 140°F (60°C)	
Storage temperature -40°F (-40°C) to +185°F (+85°C)	
MIL	
Humidity per MIL-STD 810F and 810G	
Temperature Shock per MIL-STD 810F and 810G	
Chemical Exposure per MIL-STD 810	
SAE	
Salt Spray per J1455, Sec. 4.3	
Vibration per J1455, Sec. 4.9	
Conducted Immunity per J1113-11	
Electrostatic Discharge per J1113-13	
Radiated Emissions per J1113-41	
ISO	
Conducted Transients per 7637-2	
Quality Management System ISO 9001:2008	

FIRECOM 500-SERIES PRODUCT LINE

Model	Description	DECT7	Radio Tx	Bluetooth
FHW507	Radio Transmit Convertible with BT	•	•	•
UHW507	Radio Transmit Under-Helmet with BT	•	•	•
UHW505	Radio Transmit Under-Helmet	•	•	
UHW503	Intercom-Only Under-Helmet	•		
DW501BT	Wired Radio Transmit Under-Helmet with BT		•	•
DW501	Wired Radio Transmit Under-Helmet		•	



PROTECT YOUR INVESTMENT WITH COMCARE EXTENDED SERVICE PROGRAMS

For less than the cost of a single out-of-warranty repair, ComCare Extended Service Programs provide comprehensive support and extend the warranty on your system for up to three years from the date of purchase. Benefits include priority status on technical support, priority repair time and return shipping. ComCare is available for purchase within 90 days of original equipment purchase date. To learn more, visit www.firecom.com/customer-support/service.





Over 30 years serving America's firefighters

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UHW505

FIRECOM 500-SERIES

Wireless headsets engineered for and tested by firefighters.



DECT7® WIRELESS COMMUNICATIONS¹
Full-duplex crew communication. Integrates with the 5000D Series Digital Intercom and WB505R wireless base station for a complete apparatus communication system.



WIDEBAND AUDIO
High-definition, wideband audio provides greater clarity and understanding. This feature is defeatable for use with narrowband audio communication format.



LISTEN-THROUGH SITUATIONAL AWARENESS
Hear your surroundings and have face-to-face conversations without removing hearing protection.



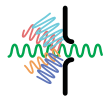
RUGGED
Built to withstand environmental extremes, the UHW505 is dustproof and watertight.



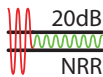
RADIO TRANSMIT
Direct-wire interface with any portable radio with a Firecom PR Adapter (*sold separately*).



AUTO-LEVELING MICROPHONE
Set-and-Forget ensures you are heard clearly as you move from low- to high-noise areas.



NOISE CANCELLING MICROPHONE
Enhances speech and reduces distracting background noise. Be understood even in the loudest environments.



HEARING PROTECTION
Passive noise reduction eliminates unsafe noise.



AUTO-ON
The UHW505 automatically powers on when the charging cable is disconnected.

¹. Requires Firecom DECT Base or ComHub.

RADIO TRANSMIT UNDER-HELMET DECT7 WIRELESS HEADSET

The watertight UHW505 brings the communication and safety innovations you've asked for to the apparatus and the fire scene. DECT7 wireless technology delivers improved voice clarity and a "set-and-forget" automatic noise gate. Stereo listen-through microphones provide situational awareness without removing your hearing protection. Connect any portable radio via a Portable Radio Interface cable (*sold separately*). Auto-On activates the headset on charging cable disconnect.

UHW505 RADIO TRANSMIT UNDER-HELMET DECT7 WIRELESS HEADSET



FIRECOM 500-SERIES PRODUCT LINE

Model	Description	DECT7	Radio Tx	Bluetooth
FHW507	Radio Transmit Convertible with BT	•	•	•
UHW507	Radio Transmit Under-Helmet with BT	•	•	•
UHW505	Radio Transmit Under-Helmet	•	•	
UHW503	Intercom-Only Under-Helmet	•		
DW501BT	Wired Radio Transmit Under-Helmet with BT		•	•
DW501	Wired Radio Transmit Under-Helmet		•	





Over 30 years serving America's firefighters

UHW505 RADIO TRANSMIT UNDER-HELMET DECT7 WIRELESS HEADSET

FEATURES

ROBUST DESIGN

- IP-66 Rating - Dustproof; sealed against water spray and moisture.
- Microphones protected by a layer of waterproof material for outdoor use
- 2-stage microphone cover eliminates wind noise
- Flexible microphone boom
- Enhanced durability and comfort; designed to fit any head size

STATE-OF-THE-ART HEARING PROTECTION

- Sound suppressor reduces loud noise while enhancing other sounds
- Stereo Listen-Through microphones allow face-to-face conversation and situational awareness without removing hearing protection
- 20dB passive noise reduction rating (NRR)

LONG-LASTING POWER SOURCE

- 24-hour rechargeable lithium-ion battery
- User-replaceable battery
- Energy-saver sleep mode: one year of shelf life without losing charge
- Auto-on powers on the headset on charging cable disconnect
- Power-on battery capacity LED indicator
- Audible and visual 2-stage low battery warning
- 110/220V DC battery charger included
- Heavy-duty 12V DC charging cable included

RADIO AND MOBILE DEVICE CONNECTIVITY

- Connect to an MP3 player or mobile phone directly via the auxiliary jack
- Take calls or listen to music while you work
- Connect any portable radio via a Portable Radio Interface cable (*sold separately*)

TOTAL CONFIGURABILITY

- Features are custom programmable to user specifications
- Programmable microphone gain
- Voice prompts for easy feature navigation and feedback

CUSTOMIZABLE

- Silicone ruggedizers for position or function ID (available in 12 standard colors)

SPECIFICATIONS

DECT7 WIRELESS TECHNOLOGY

- Dynamic channel allocation
- DECT Standard Cipher with 40-bit initialization vector
- Frequency Bandwidth: 1920 MHz to 1930 MHz

PHYSICAL

- Weight: 16 oz. (without ruggedizers)
- Color: Black
- Noise Reduction Rating: 20 dB NRR
- Side Pressure: 2.2 lbs.

POWER

- 3.7V rechargeable lithium ion battery
- More than 24 hours of battery life at 77°F (25°C)
- Charge time: 4 hours
- AC Charge Source: supplied 12V, 500mA wall charger
- DC Charge Source: 5V to 16V, 1.5A minimum, cable supplied
- Over voltage, under voltage, over current and over temperature protection

ENVIRONMENTAL

- IP-66 Rating
- Operating temperature -40°F (-40°C) to 140°F (60°C)
- Storage temperature -40°F (-40°C) to +185°F (+85°C)

MIL

- Humidity per MIL-STD 810F and 810G
- Temperature Shock per MIL-STD 810F and 810G
- Chemical Exposure per MIL-STD 810

SAE

- Salt Spray per J1455, Sec. 4.3
- Vibration per J1455, Sec. 4.9
- Conducted Immunity per J1113-11
- Electrostatic Discharge per J1113-13
- Radiated Emissions per J1113-41

ISO

- Conducted Transients per 7637-2
- Quality Management System ISO 9001:2008

FIRECOM 500-SERIES PRODUCT LINE

Model	Description	DECT7	Radio Tx	Bluetooth
FHW507	Radio Transmit Convertible with BT	•	•	•
UHW507	Radio Transmit Under-Helmet with BT	•	•	•
UHW505	Radio Transmit Under-Helmet	•	•	
UHW503	Intercom-Only Under-Helmet	•		
DW501BT	Wired Radio Transmit Under-Helmet with BT		•	•
DW501	Wired Radio Transmit Under-Helmet		•	



PROTECT YOUR INVESTMENT WITH COMCARE EXTENDED SERVICE PROGRAMS

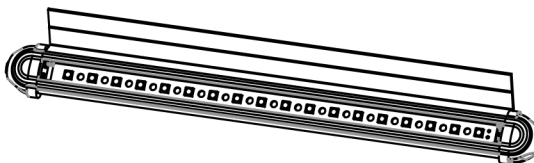
For less than the cost of a single out-of-warranty repair, ComCare Extended Service Programs provide comprehensive support and extend the warranty on your system for up to three years from the date of purchase. Benefits include priority status on technical support, priority repair time and return shipping. ComCare is available for purchase within 90 days of original equipment purchase date. To learn more, visit www.firecom.com/customer-support/service.



CERTIFICATE OF COMPLIANCE

with NFPA 1901-2016

Product: 20" (Part # AY-LB-12HW020)
Application: Ground Lighting
Date of Issue: 9th FEB, 2018



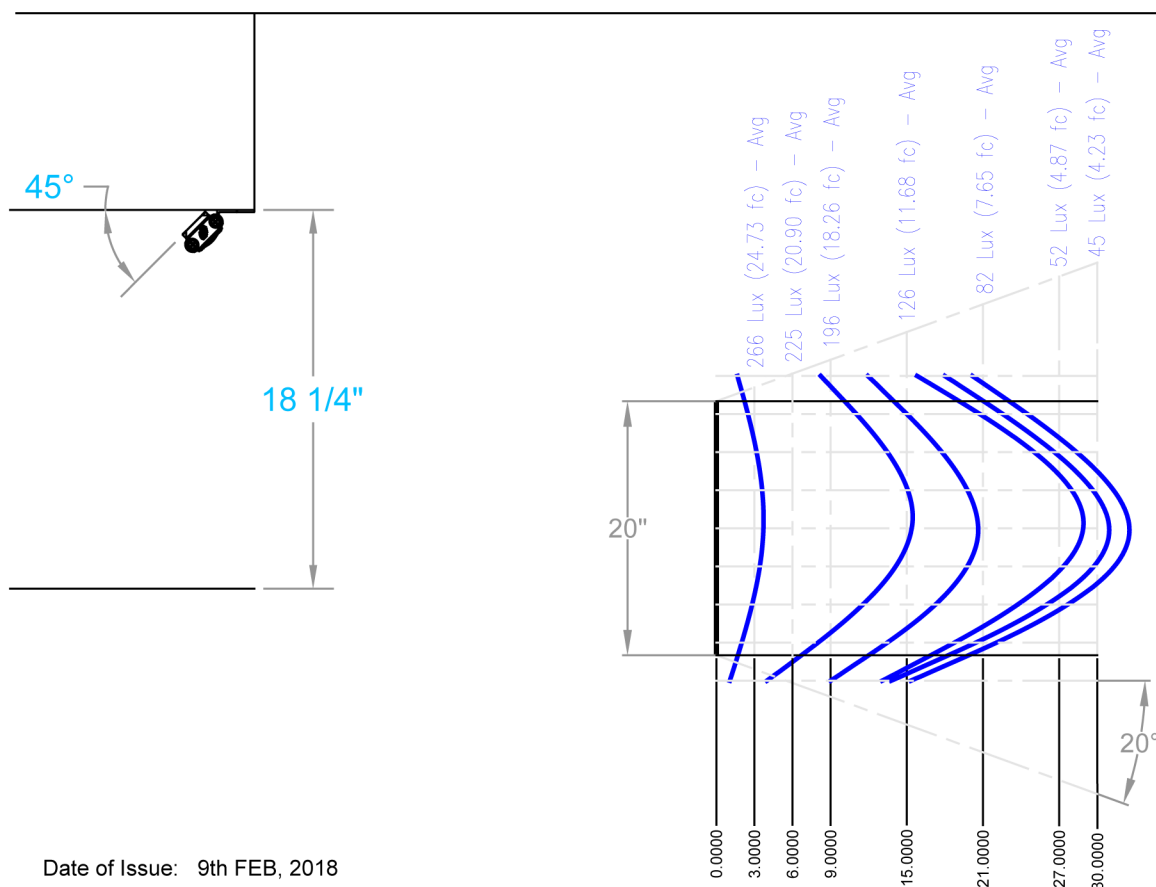
AMDOR luma bar

Standard:

NFPA 1901-2016 - Standard for Automotive Fire Apparatus
13.10.1.2 - Ground Lighting

Test Parameters:

Apparatus height: 18-1/4" Above
luma bar Rotation: 45° from bottom of unit
Power Source: 12V DC



Date of Issue: 9th FEB, 2018

AMDOR Inc. certifies that the lighting products outlined in this Certificate of Compliance are in accordance with the NFPA 1901- 2016 Standard, 13.10.1.2 All information provided in this Certificate of Compliance is accurate, to the best of our knowledge, as of the date of issue.

Disclaimer: This certificate applies only when the product is installed and wired in conformance to the NFPA 1901-2016 Standard and Specifications, and also in conformance to the manufacturer's recommended application and mounting & wiring specifications.

PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY



Certification Document CD0177

Velocity® & Impel®

Air Conditioning & Defrost

Pierce Manufacturing, in conjunction with Mobile Climate Control, Inc., certifies the performance of the Velocity® & Impel® cab air conditioning and defrost system.

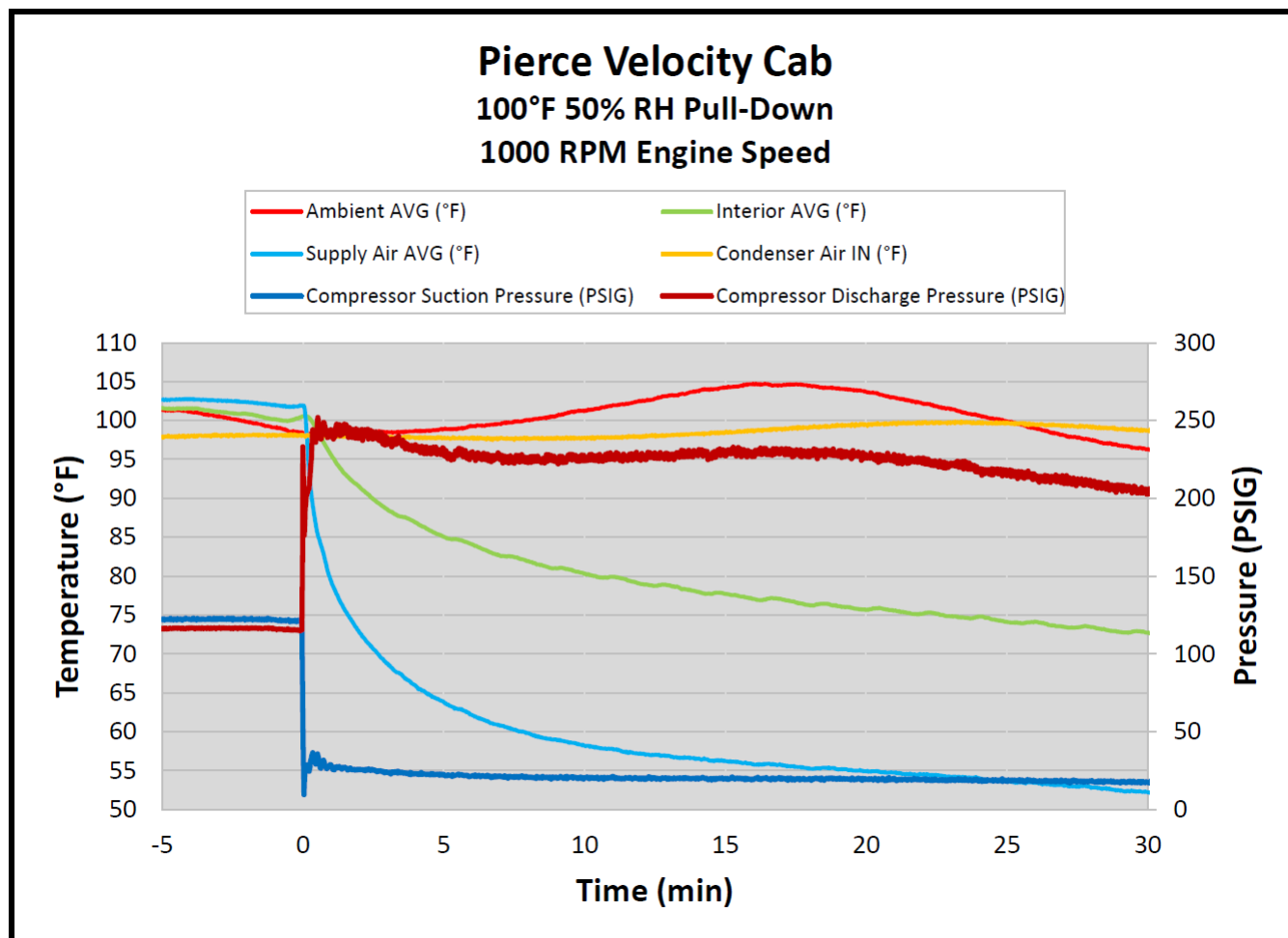
The air conditioning and defrost system was tested successfully in an environmental chamber.

Air Conditioning:

Air conditioning performance testing was conducted at an ambient of 100°F and 50 percent relative humidity. Engine speed was maintained at 1000 rpm with the controls set to maximum cooling.

All temperature probes were monitored to confirm temperature stabilization. The transient test began when all the vehicle doors were closed, and the air conditioning was turned on.

The average cab temperature dropped to 72.6 °F at the end of the 30-minute test.



Defrosting

Defroster testing was performed in accordance with *SAE J381 Windshield Defrosting Systems Test Procedure and Performance Requirements-Trucks, Buses, and Multipurpose Vehicles*.

This SAE Recommended Practice establishes uniform test procedures and performance requirements for the defrosting system of enclosed cab trucks, buses, and multipurpose vehicles. Current engineering practice prescribes that for laboratory evaluation of defroster systems, an ice coating of known thickness be applied to the windshield and left- and right-hand side windows to provide more uniform and repeatable test results, even though under actual conditions such a coating would necessarily be scraped off before driving. The test condition, therefore, represents a more severe condition than the actual condition, where the defroster system must merely be capable of maintaining a cleared viewing area.

During the test, the vehicle is cold-soaked to 0° F in a cold chamber. A prescribed layer of ice is applied to the windshield. The defroster is then run and the advancing melt boundary marked as the test proceeds.

The SAE prescribed area of the windshield was 100% cleared within the specified 30 minute period.

Defrost Results



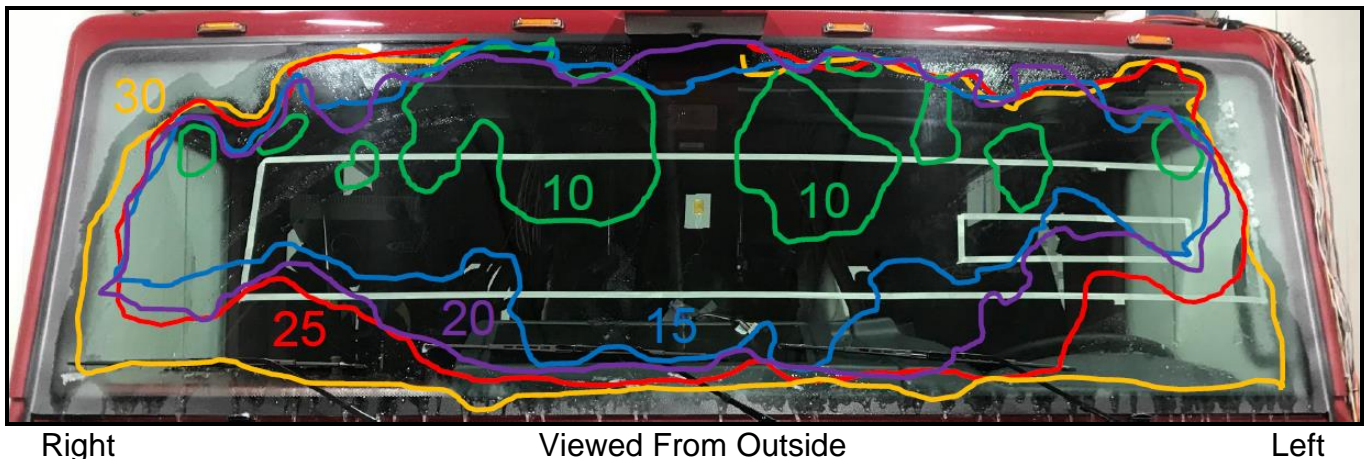
Start of Test



15 Minutes



30 Minutes



Right

Viewed From Outside

Left

VALIDATION TEST: MCC Test Report TR#19-0047 R00

Pierce Manufacturing, Inc.



David Archer
Vice President of Engineering

Mobile Climate Control, Inc.



Brent Griffith
Lead Test Engineer & Large Application Specialist

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PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY



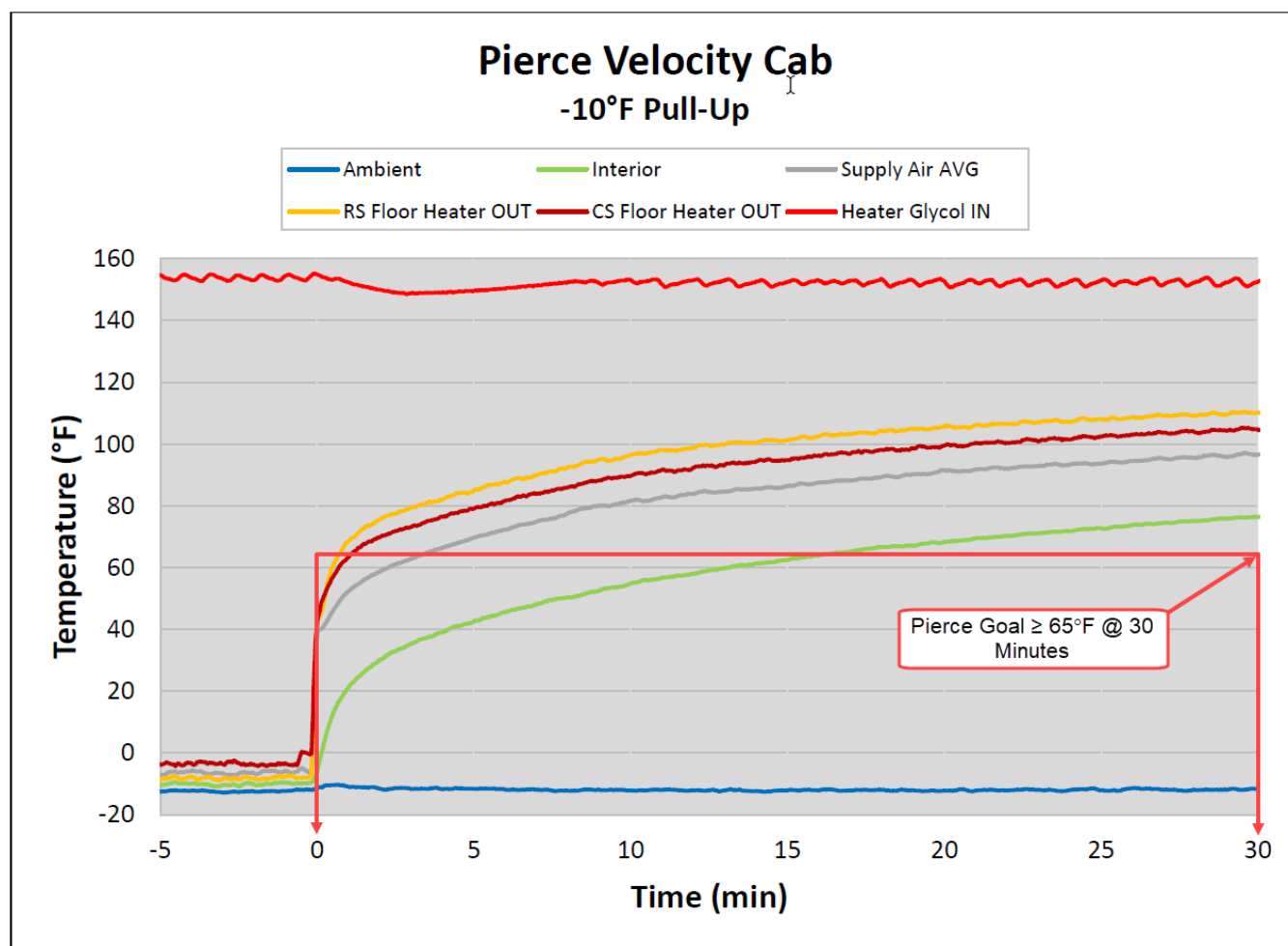
Certification Document CD0176

Velocity® & Impel® Cab Heater

Pierce Manufacturing, in conjunction with Mobile Climate Control, Inc., certifies the performance of the Velocity® & Impel® cab heat system.

The Velocity® & Impel® Heater System was tested successfully in an environmental chamber.

Heater testing was performed using the coolant supply procedures from SAE J381. The average cab temperature increased 86.5° F from -10° F to 75.6° F within the prescribed 30 minutes utilizing the right side under seat auxiliary heater. The cab was contained in a cold chamber at -10° F during the duration of the test.



VALIDATION TEST: TR#19-0047 R00

Pierce Manufacturing, Inc.



David Archer, Vice President of Engineering

Mobile Climate Control, Inc.



Brent Griffith
Lead Test Engineer & Large Application Specialist

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PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY



Certification Document CD0168

Velocity® & Impel®

Air Conditioning & Defrost

Pierce Manufacturing certifies the performance of the Velocity® & Impel® cab air conditioning and defrost system.

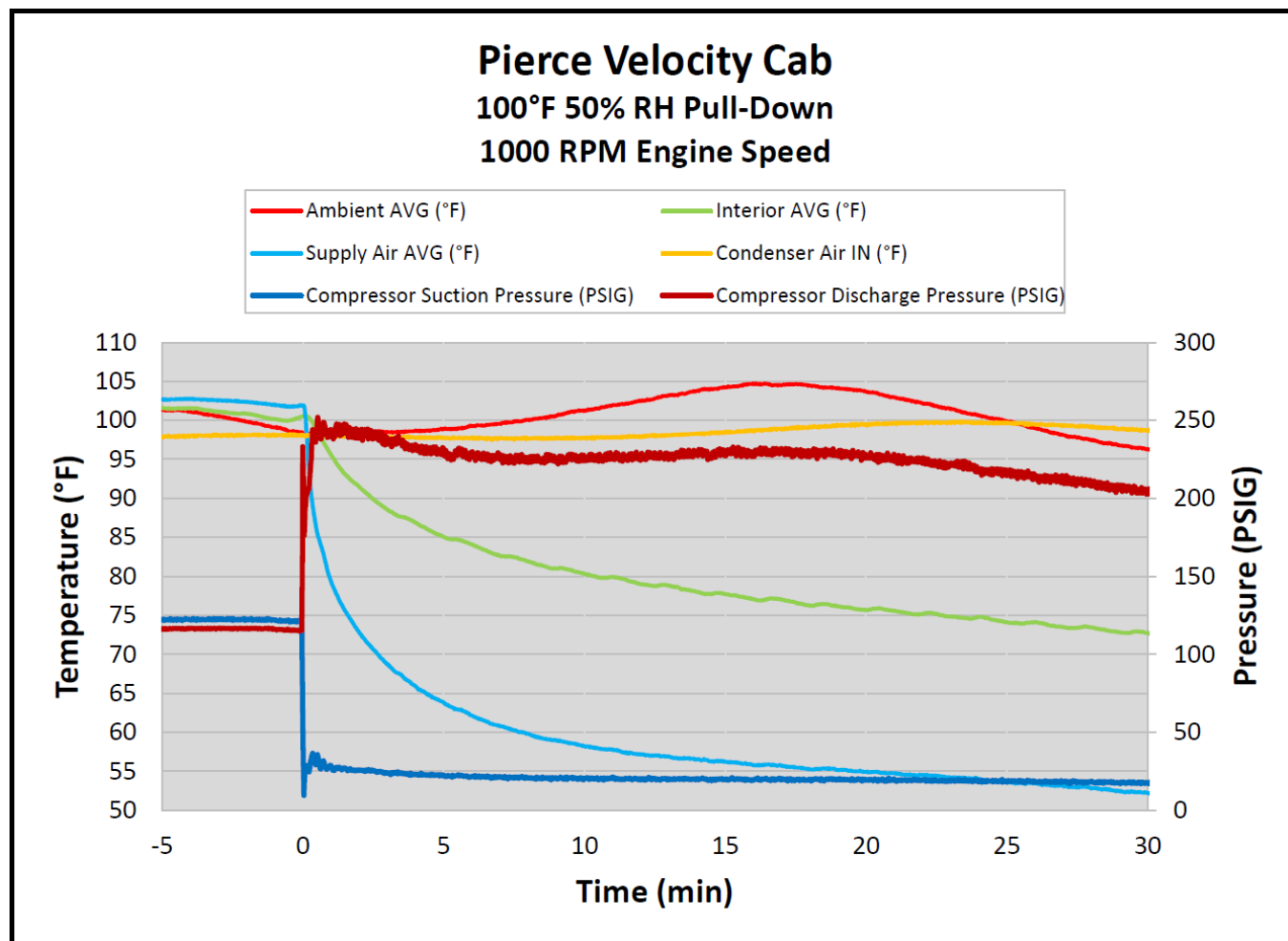
The air conditioning and defrost system was tested successfully in an environmental chamber.

Air Conditioning:

Air conditioning performance testing was conducted at an ambient of 100°F and 50 percent relative humidity. Engine speed was maintained at 1000 rpm with the controls set to maximum cooling.

All temperature probes were monitored to confirm temperature stabilization. The transient test began when all the vehicle doors were closed, and the air conditioning was turned on.

The average cab temperature dropped to 72.6 °F at the end of the 30-minute test.



Defrosting

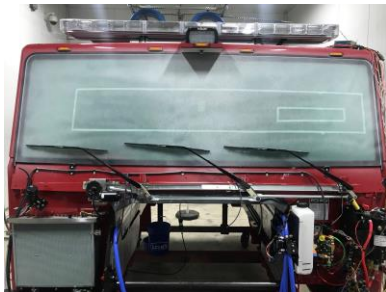
Defroster testing was performed in accordance with *SAE J381 Windshield Defrosting Systems Test Procedure and Performance Requirements-Trucks, Buses, and Multipurpose Vehicles*.

This SAE Recommended Practice establishes uniform test procedures and performance requirements for the defrosting system of enclosed cab trucks, buses, and multipurpose vehicles. Current engineering practice prescribes that for laboratory evaluation of defroster systems, an ice coating of known thickness be applied to the windshield and left- and right-hand side windows to provide more uniform and repeatable test results, even though under actual conditions such a coating would necessarily be scraped off before driving. The test condition, therefore, represents a more severe condition than the actual condition, where the defroster system must merely be capable of maintaining a cleared viewing area.

During the test, the vehicle is cold-soaked to 0° F in a cold chamber. A prescribed layer of ice is applied to the windshield. The defroster is then run and the advancing melt boundary marked as the test proceeds.

The SAE prescribed area of the windshield was 100% cleared within the specified 30 minute period.

Defrost Results



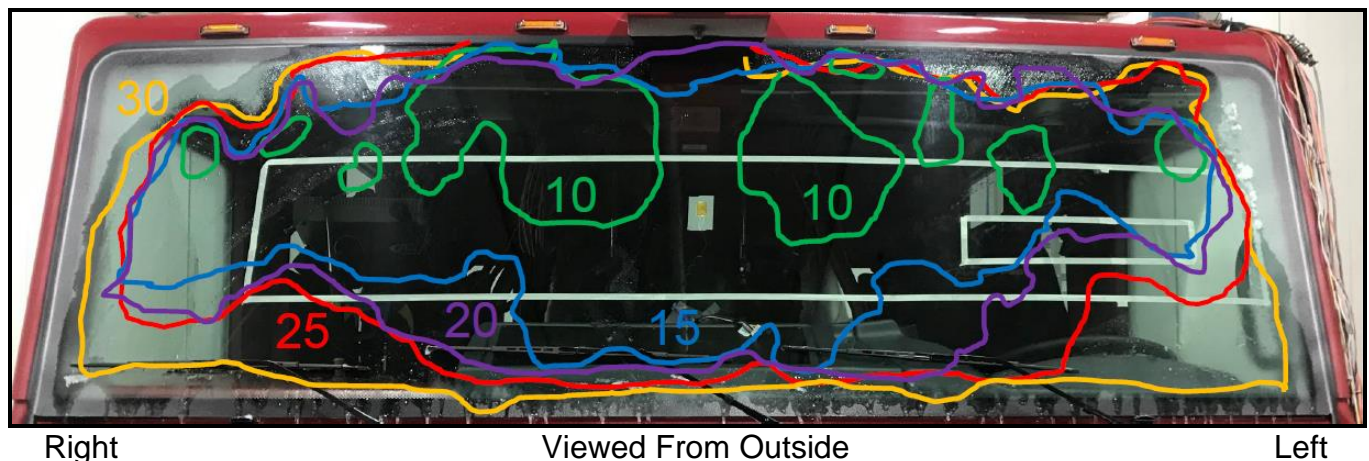
Start of Test



15 Minutes



30 Minutes



VALIDATION TEST: MCC Test Report TR#19-0047 R00

Pierce Manufacturing, Inc.



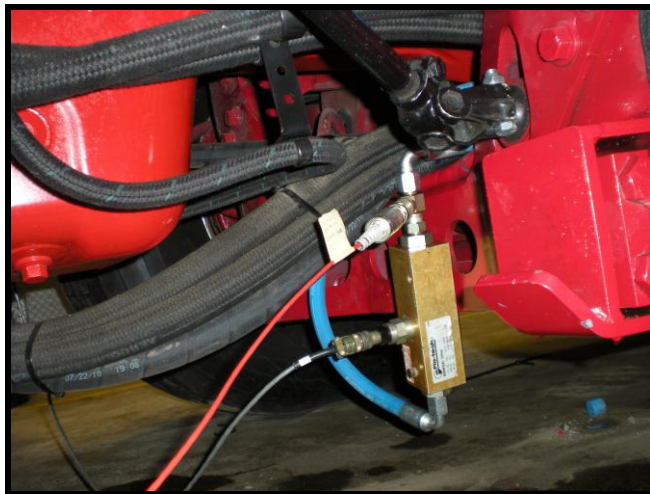
David Archer
Vice President of Engineering

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Certification Document CD0098 Power Steering System

Pierce Manufacturing, Inc. certifies that the power steering system as installed in our custom chassis meets the requirements of the component supplier, the NFPA 1901 and NFPA 1906 guidelines as applicable, and Pierce internal design standards.



VALIDATION TEST: RD1987, RD2055
RD2056, RD2057, RD2058, RD2059

Pierce Manufacturing, Inc.

A handwritten signature in black ink, appearing to read "David W. Archer".

David W. Archer
Director of Engineering
June 03, 2011

HED Product tested: 8 Button Switch Panel (HED p/n DG-021)

Million Cycle Test Procedure:

Selected buttons on the 8 Button Switch Panel were cycled under controlled conditions to simulate one million presses by an operator.

The buttons that were chosen for testing were simulated being pressed by a pneumatic cylinder using 35 psi of air supplied to the pneumatic bank. A medium hard stopper was mounted on the tip of the cylinder. The following steps were required to increment the counter for the number of cycles completed:

- Step 1: Pneumatic cylinder is extended
- Step 2: Button is pressed
- Step 3: Retract the cylinder
- Step 4: Button is depressed
- Step 5: Increment counter
- Repeat

Below in **Figure-1** shows the pneumatic cylinder retracted position:

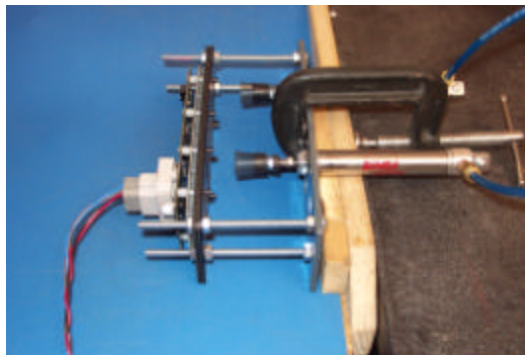


Figure 1

In **Figure-2** shows the pneumatic cylinder extended and pressing the button:

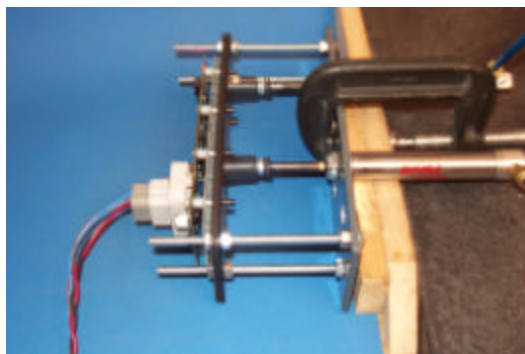


Figure-2

Million Cycle Test Results:

After one million cycles the buttons were examined for mechanical failure. The different parts of the button that were examined were the contacts, black carbon, and the polyester membrane.

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The electrical contacts showed no wear after the cycle testing. See **Figure-3**:

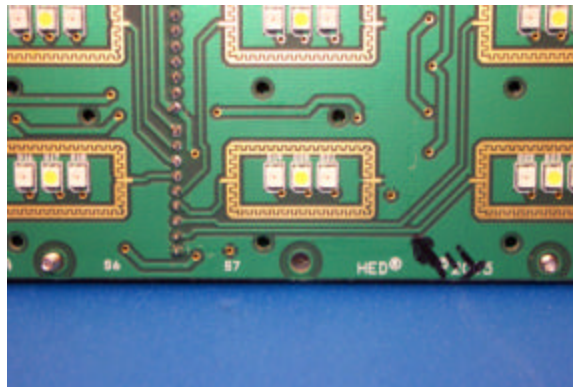


Figure-3

The black carbon was examined and an impression of the contacts left on them but there was no physical wear of the black carbon layer. Also after the testing the polyester membrane displayed no change in the physical structure. See **Figure-4**:



Figure-4

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400/600/700/900/M6/M9/SurfaceMax™ Series Signal and Backup Light Marketing Advisory



PRODUCT END OF LIFE

MA:0002 • 03/2022

Whelen Engineering announces a Product End of Life (EOL) notice for the Hundred Series, M-Series, and SurfaceMax™ Back-up, Brake/Tail/Turn, and Turn/Marker Lightheads. With this notice we are also excited to share improvements to our newly redesigned B/T/T, Back-up, and Turn/Marker product families.

Supply chain challenges and LED technology advancement provided Whelen the opportunity to build in additional product improvements. The new design provides a solution to ongoing component availability issues facing manufacturers, providing users with a stable supply and improved lead times. As a result of these updates, current models will be discontinued.

The newly redesigned models have advanced LED technology including an upgraded lens design which achieves IP67 rating and 12/24 VDC operation. The integration of Whelen's patented Potting Dam Technology creates a watertight seal around the unit's stranded wires, preventing wire wicking and corrosion. New models have an identical footprint to the original, allowing for the same ease of installation.

The below listed product models are facing EOL effective September 9, 2022 and will no longer be available to order after this date. Superseding models will be available to order on April 1, 2022.

Current Model	New Model
40BTT	404BTT
40BTTC	404BTTC
40A00AAR	404T
40A00CAR	404CTC
40BUV	404BUV
40BUH	404BUH
60BTT	604BTT
60BTTC	604BTTC
60A00TAR	604T
60A00TCR	604TC
60C00VCR	604BU
60C00WCR	604BU
70BTT	704BTT
70BTTC	704BTTC
70A00TAR	704T
70A00TCR	704TC

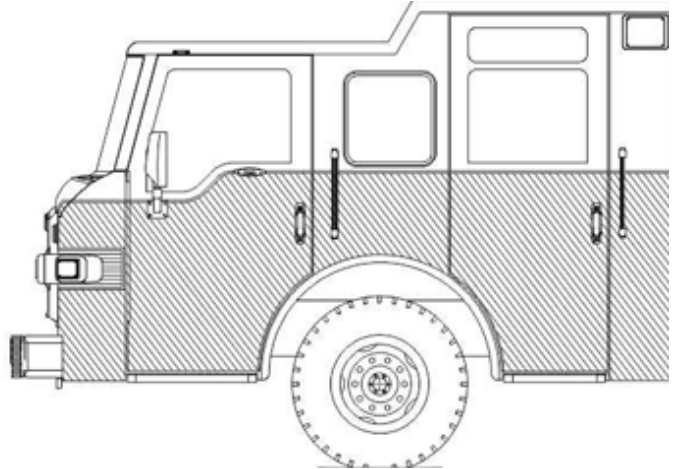
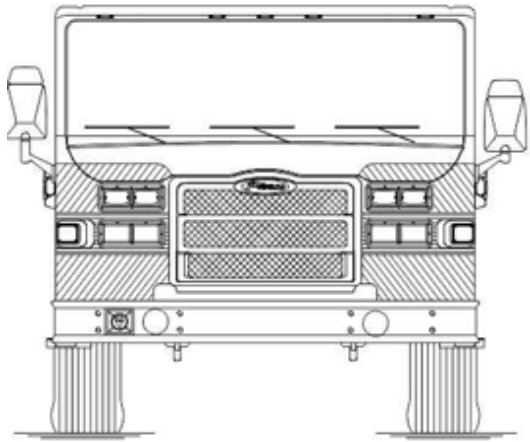
Current Model	New Model
70C00VCR	704BU
70C00WCR	704BU
90BTT	904BTT
90BTTC	904BTTC
90A00TAR	904T
90A00TCR	904TC
M6BTT	M62BTT
M6BTTC	M62BTTC
M6BTT24	M62BTT
M6BTT24C	M62BTTC
M6T	M62T
M6TC	M62TC
M6T24	M62T
M6T24C	M62TC
M6BUW	M62BU
M6BUW24	M62BU

Current Model	New Model
M9BTTX	M92BTT
M9BTTXC	M92BTTC
M9BTTX24	M92BTT
M9T	M92T
M9TC	M92TC
M9BUW	M92BU
M9BUW24	M92BU
C6BU	C62BU
C6BUL	C62BU
C6BTT	C62BTT
C6BTTC	C62BTTC
C6T	C62T
C6TC	C62TC
C7BU	C72BU
C7BUL	C72BU
C7BTT	C72BTT

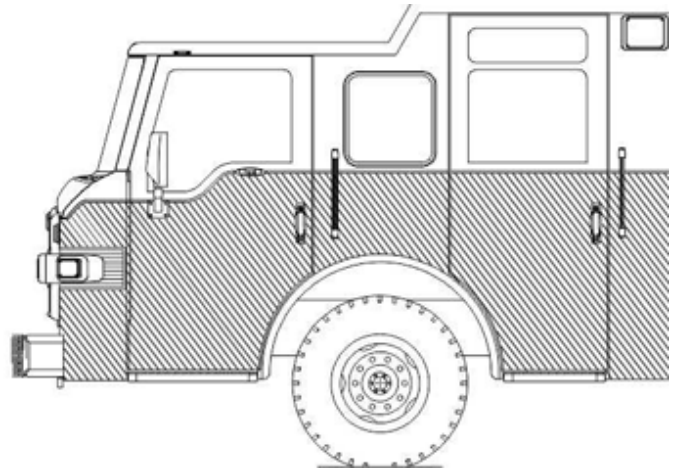
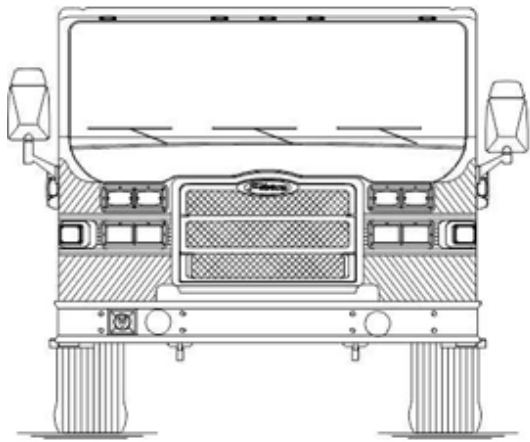
Current Model	New Model
C7BTTC	C72BTTC
C7T	C72T
C7TC	C72TC
C9BTT	C92BTT
C9BTTC	C92BTTC
C9T	C92T
C9TC	C92TC
20R00XRR	No Supersession, EOL
5GR01BRR	No Supersession, EOL
PSR00XRR	No Supersession, EOL



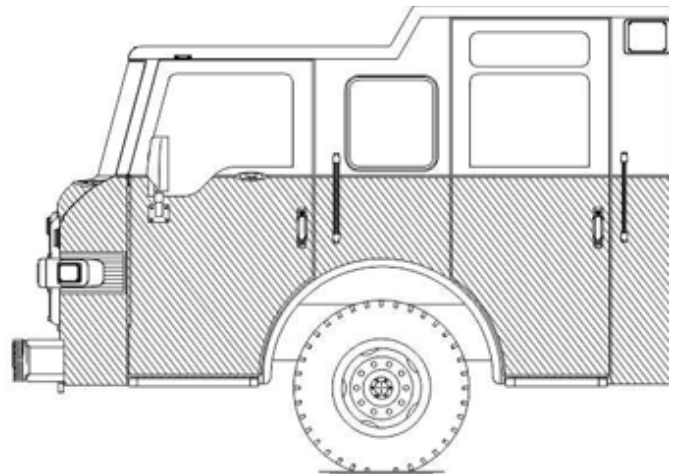
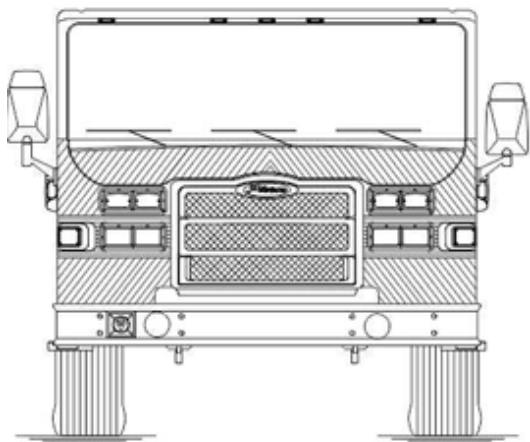
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Velocity/Impel with high shield



Velocity/Impel with standard shield



Velocity/Impel with no shield



Velocity/Impel – Standard two-tone paint break with no shield



Velocity/Impel – Standard two-tone paint break with standard shield

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Velocity/Impel – Standard two-tone paint break with high shield



Velocity/Impel – Special two-tone paint break at roof line with no shield



Fire and Rescue Apparatus

One (1) Year Material and Workmanship

Basic Apparatus

Limited Warranty

1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Portions of the apparatus manufactured by Pierce shall be free from defects in material and workmanship
Warranty Begins:	The date the apparatus is placed in service, or 60 days from the original buyer invoice date, whichever comes first.
Warranty Period Ends After:	Twelve (12) months.
Conditions and Exclusions:	No specific exclusions apply
See Also Paragraphs 2 thru 4	

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



Fire and Rescue Apparatus

Ten (10) Year Structural Integrity Apparatus Body

Limited Warranty

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1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The apparatus body shall be free from structural failures caused by defects in material and workmanship
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Years - or - 100,000 Miles
Conditions and Exclusions: See Also Paragraphs 2 thru 4	<p>This warranty applies only to the body tubular support and mounting structures and other structural components of the body of the vehicle model, as identified in the Pierce specifications for the Fire and Rescue Apparatus.</p> <p>This warranty does not apply to damage caused by corrosion.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



Fire and Rescue Apparatus

Ten (10) Year Structural Integrity Custom Cab

Limited Warranty

1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The Pierce Custom Cab shall be free from structural failures caused by defects in material and workmanship
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Years - or - 100,000 Miles
Conditions and Exclusions: See Also Paragraphs 2 thru 4	<p>This warranty applies only to the cab tubular support and mounting structures and other structural components of the cab of the vehicle model, as identified in the Pierce specifications for the Fire and Rescue Apparatus.</p> <p>This warranty does not apply to damage caused by corrosion.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



Fire and Rescue Apparatus

Five (5) Year Material and Workmanship

Command Zone Electronics

Limited Warranty

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1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Command Zone control modules shall be free from failures caused by defects in material and workmanship
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Five (5) Years
Conditions and Exclusions: See Also Paragraphs 2 thru 4	This limited warranty applies to all of the control modules for the Command Zone system, including the full color graphic displays. Related wire harnesses, cables and connectors are not covered under this limited warranty and are instead covered under the Pierce One Year Basic Apparatus Limited Warranty.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



Fire and Rescue Apparatus

Five (5) Year Material and Workmanship

Command Zone Electronics

Limited Warranty

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1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Command Zone control modules shall be free from failures caused by defects in material and workmanship
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Five (5) Years
Conditions and Exclusions: See Also Paragraphs 2 thru 4	This limited warranty applies to all of the control modules for the Command Zone system, including the full color graphic displays. Related wire harnesses, cables and connectors are not covered under this limited warranty and are instead covered under the Pierce One Year Basic Apparatus Limited Warranty.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



Fire and Rescue Apparatus

Lifetime Fifty (50) Year Structural Integrity

Chassis Frame & Crossmembers

Limited Warranty

1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Custom chassis frame rail and cross members manufactured by Pierce shall be free from defects in material and workmanship
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Fifty (50) Years (Expected Life of Apparatus)
Conditions and Exclusions:	This warranty does not apply to damage caused by corrosion.
See Also Paragraphs 2 thru 4	

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



Fire and Rescue Apparatus

Three (3) Year Material and Workmanship

Goldstar® Gold Leaf Lamination

Limited Warranty

1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Each Goldstar® gold leaf lamination shall be free from defects in material and workmanship.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Three (3) Years
Conditions and Exclusions: See Also Paragraphs 2 thru 4	This warranty does not cover damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual).

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



Fire and Rescue Apparatus

Twenty (20) Year Structural Integrity Pierce Aerial Device *Limited Warranty*

1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Each new Pierce Aerial Device shall be free from defects in material and workmanship. Aerial Device Models Covered by this warranty include: Aerial Platforms Aerial Ladders SkyBoom
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Twenty (20) Years - or - 100,000 Miles
Conditions and Exclusions: See Also Paragraphs 2 thru 4	<p>This warranty applies only to the torque box, turntable, aerial sections and other structural components of the aerial device, as identified in the Pierce specifications for the aerial device. This warranty shall be void if, or to the extent that the aerial device is not maintained in strict compliance with NFPA Standard 1911 in effect at time of sale, including such periodic inspections and testing by qualified third parties as are required by that Standard as it may be in effect from time to time. Proof of such compliance shall accompany any claims under this warranty. Third party testing agencies known to Pierce to be qualified for such purposes may be obtained from the Pierce Customer Service Department</p> <p>This warranty does not apply to damage caused by corrosion.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



Fire and Rescue Apparatus

Three (3) Year Material and Workmanship TAK-4 Independent Front Suspension

Limited Warranty

1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The TAK-4 Front Independent Suspension and Steering Gears shall be free from defects in material and workmanship.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Three (3) Years -or- 30,000 Miles
Conditions and Exclusions: See Also Paragraphs 2 thru 4	This limited warranty excludes brake pads, brake rotors, seal boots and shock absorbers.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



Fire and Rescue Apparatus

Ten (10) Year Pro-Rated Paint and Corrosion

Cab

Limited Warranty

1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Exterior surfaces of the cab painted by Pierce shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Years
Conditions and Exclusions:	<p>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</p> <p>Topcoat Durability & Appearance: Gloss, Color Retention & Cracking 0-72 months 100% 73-96 months 50% 97-120 months 25%</p> <p>Integrity of Coating System: Adhesion, Blistering/Bubbling 0-36 months 100% 37-84 months 50% 85-120 months 25%</p> <p>Corrosion: Dissimilar Metal and Crevice 0-36 months 100% 37-48 months 50% 49-72 months 25% 73-120 months 10%</p> <p>Corrosion Perforation 0-120 months 100%</p> <p>This limited warranty applies only to exterior paint. Paint on the vehicle's interior is warranted only under the Pierce Basic One Year Limited Warranty.</p> <p>Items not covered by this warranty include: (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual). (b) UV paint fade. (c) Any cab not manufactured by Pierce.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



Fire and Rescue Apparatus

Ten (10) Year Pro-Rated Paint and Corrosion

Custom Body

Limited Warranty

1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Exterior surfaces of the body shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Years
Conditions and Exclusions:	<p>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</p> <p>Topcoat Durability & Appearance: Gloss, Color Retention & Cracking 0-72 months 100% 73-96 months 50% 97-120 months 25%</p> <p>Integrity of Coating System: Adhesion, Blistering/Bubbling 0-36 months 100% 37-84 months 50% 85-120 months 25%</p> <p>Corrosion: Dissimilar Metal and Crevice 0-36 months 100% 37-48 months 50% 49-72 months 25% 73-120 months 10%</p> <p>Corrosion Perforation 0-120 months 100%</p> <p>This limited warranty applies only to exterior paint. Paint on the vehicle's interior is warranted only under the Pierce Basic One Year Limited Warranty.</p> <p>Items not covered by this warranty include: (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual). (b) UV paint fade. (c) Any cab not manufactured by Pierce.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

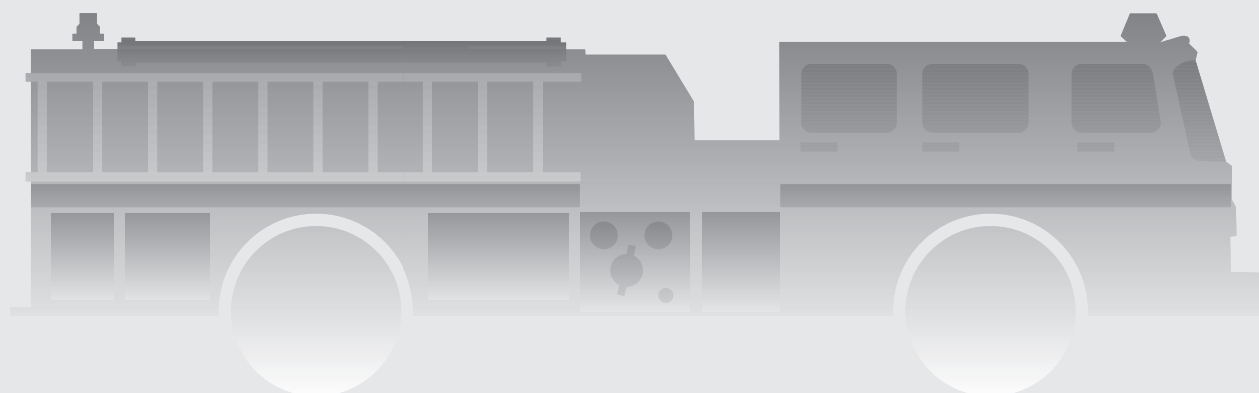


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Cummins Warranty

Worldwide

Fire Apparatus/Crash Trucks



Coverage

Products Warranted

This Warranty applies to new diesel Engines sold by Cummins and delivered to the first user on or after April 1, 2007, that are used in fire apparatus truck and crash truck* applications Worldwide.

Base Engine Warranty

The Base Engine Warranty covers any failures of the Engine which result, under normal use and service, from a defect in material or factory workmanship (Warrantable Failure). This Coverage begins with the sale of the Engine by Cummins and ends five years or 100,000 miles (160,935 kilometers), whichever occurs first, after the date of delivery of the Engine to the first user.

Engine aftertreatment components included in the Cummins Critical Parts List (CPL) and marked with a Cummins part number are covered under Base Engine Warranty.

Additional Coverage is outlined in the Emission Warranty section.

These Warranties are made to all Owners in the chain of distribution and Coverage continues to all subsequent Owners until the end of the periods of Coverage.

Cummins Responsibilities

Cummins will pay for all parts and labor needed to repair the damage to the Engine resulting from a Warrantable Failure.

Cummins will pay for the lubricating oil, antifreeze, filter elements, belts, hoses and other maintenance items that are not reusable due to the Warrantable Failure.

Cummins will pay for reasonable labor costs for Engine removal and reinstallation when necessary to repair a Warrantable Failure.

Cummins will pay reasonable costs for towing a vehicle disabled by a Warrantable Failure to the nearest authorized repair location. In lieu of the towing expense, Cummins will pay reasonable costs for mechanics to travel to and from the location of the vehicle, including meals, mileage and lodging when the repair is performed at the site of the failure.

Owner Responsibilities

Owner is responsible for the operation and maintenance of the Engine as specified in Cummins Operation and Maintenance Manuals. Owner is also responsible for providing proof that all recommended maintenance has been performed.

Before the expiration of the applicable Warranty, Owner must notify a Cummins distributor, authorized dealer or other repair location approved by Cummins of any Warrantable Failure and make the Engine available for repair by such facility. Except for Engines disabled by a Warrantable Failure, Owner must also deliver the Engine to the repair facility.

Service locations are listed on the Cummins Worldwide Service Locator at cummins.com.

Owner is responsible for the cost of lubricating oil, antifreeze, filter elements and other maintenance items provided during Warranty repairs unless such items are not reusable due to the Warrantable Failure.

Owner is responsible for communication expenses, meals, lodging and similar costs incurred as a result of a Warrantable Failure.

Owner is responsible for non-Engine repairs and for "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs and other losses resulting from a Warrantable Failure.

Owner is responsible for a \$100 (U.S. Dollars) deductible per each service visit under this plan in the 3rd, 4th and 5th years of Base Engine Warranty. The deductible will not be charged during the first 2 years of the Base Engine Warranty.

Limitations

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine.

Any unauthorized modifications to the aftertreatment could negatively effect emissions certification and void Warranty.

Cummins is also not responsible for failures caused by incorrect oil, fuel or diesel exhaust fluid or by water, dirt or other contaminants in the fuel, oil or diesel



exhaust fluid.

This Warranty does not apply to accessories supplied by Cummins which bear the name of another company. Such non-warranted accessories include, but are not limited to: alternators, starters, fans, air conditioning compressors, clutches, filters, transmissions, torque converters, vacuum pumps, power steering pumps, fan drives and air compressors. Cummins branded alternators and starters are covered for the first two years from the date of delivery of the Engine to the first user, or the expiration of the Base Engine Warranty, whichever occurs first.

Failures resulting in excessive oil consumption are not covered beyond the duration of the Coverage or 100,000 miles (160,935 kilometers) or 7,000 hours from the date of delivery of the Engine to the first user, whichever of the three occurs first. Before a claim for excessive oil consumption will be considered, Owner must submit adequate documentation to show that consumption exceeds Cummins published standards.

Failures of belts and hoses supplied by Cummins are not covered beyond the first year from the date of delivery of the Engine to the first user or the duration of the Warranty, whichever occurs first.

Parts used to repair a Warrantable Failure may be new Cummins parts, Cummins approved rebuilt parts or repaired parts. Cummins is not responsible for failures resulting from the use of parts not approved by Cummins.

A new Cummins or Cummins approved rebuilt part used to repair a Warrantable Failure assumes the identity of the part it replaced and is entitled to the remaining Coverage hereunder.

Cummins Inc. reserves the right to interrogate Electronic Control Module (ECM) data for purposes of failure analysis.

CUMMINS DOES NOT COVER WEAR OR WEAROUT OF COVERED PARTS.

CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

THIS WARRANTY AND THE EMISSION WARRANTY SET FORTH HEREINAFTER ARE THE SOLE WARRANTIES MADE BY CUMMINS IN REGARD TO THESE ENGINES. CUMMINS MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Emission Warranty

Products Warranted

This Emission Warranty applies to new Engines marketed by Cummins that are used in the United States** in vehicles designed for transporting persons or property on a street or highway. This Warranty applies to Engines delivered to the first user on or after September 1, 1992.

Coverage

Cummins warrants to the first user and each subsequent purchaser that the Engine is designed, built and equipped so as to conform at the time of sale by Cummins with all U.S. federal emission regulations applicable at the time of manufacture and that it is free from defects in material or factory workmanship which would cause it not to meet these regulations within the longer of the following periods: (A) Five years or 100,000 miles (160,935 kilometers) of operation, whichever occurs first, as measured from the date of delivery of the Engine to the first user or (B) The Base Engine Warranty.

If the vehicle in which the Engine is installed is registered in the state of California, a separate California Emission Warranty also applies.

Limitations

Failures, other than those resulting from defects in material or factory workmanship, are not covered by this Warranty.

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine.

Any unauthorized modifications to the aftertreatment could negatively effect emissions certification and void Warranty.

Cummins is also not responsible for failures caused by incorrect oil, fuel or diesel exhaust fluid or by water, dirt or other contaminants in the fuel, oil or diesel exhaust fluid.

Cummins is not responsible for non-Engine repairs, "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs or other losses resulting from a Warrantable Failure.

**CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL
OR CONSEQUENTIAL DAMAGES.**

* Airport operated crash trucks and fire department
operated trucks employed to respond to fires,
hazardous material releases, rescue and other
emergency-type situations.

** United States includes American Samoa, the
Commonwealth of Northern Mariana Islands, Guam,
Puerto Rico and the U.S. Virgin Islands.

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NEW PRODUCT WARRANTY



**PARTICIPATING OEM SALES
DISTRIBUTOR SALES**

LIMITED WARRANTY ON NEW ALLISON AUTOMATIC TRANSMISSIONS USED IN EMERGENCY VEHICLE APPLICATIONS

Allison Transmission will provide for repairs or replacement, at its option, during the warranty period of each new Allison transmission listed below that is installed in an Emergency Vehicle in accordance with the following terms, conditions, and limitations.

WHAT IS COVERED

- **WARRANTY APPLIES** — This warranty is for new Allison transmission models listed below installed in an Emergency Vehicle and is provided to the original and any subsequent owner(s) of the vehicle during the warranty period.
- **REPAIRS COVERED** — The warranty covers repairs or replacement, at Allison Transmission's option, to correct any transmission malfunction resulting from defects in material or workmanship occurring during the warranty period. Needed repairs or replacements will be performed using the method Allison Transmission determines most appropriate under the circumstances.
- **TOWING** — Towing is covered to the nearest Allison Transmission Distributor or authorized Dealer only when necessary to prevent further damage to your transmission.
- **PAYMENT TERMS** — Warranty repairs, including parts and labor, will be covered per the schedule shown in the chart contained in section "APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE."
- **OBTAINING REPAIRS** — To obtain warranty repairs, take the vehicle to any Allison Transmission Distributor or authorized Dealer within a reasonable amount of time and request the needed repairs. A reasonable amount of time must be allowed for the Distributor or Dealer to perform necessary repairs.
- **TRANSMISSION REMOVAL AND REINSTALLATION** — Labor costs for the removal and re-installation of the transmission, when necessary to make a warranty repair, are covered by this warranty.
- **WARRANTY PERIOD** — The warranty period for all coverages shall begin on the date the transmission is delivered to the first retail purchaser, with the following exception:

Demonstration Service - A transmission in a new truck or bus may be demonstrated to a total of 5000 miles (8000 kilometers). If the vehicle is within this limit when sold to a retail purchaser, the warranty start date is the date of purchase. Normal warranty services are applicable to the demonstrating Dealer. Should the truck or bus be sold to a retail purchaser after these limits are reached, the warranty period will begin on the date the vehicle was first placed in demonstration service and the purchaser will be entitled to the remaining warranty.

APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE

APPLICABLE MODELS	WARRANTY LIMITATIONS (Whichever occurs first)		ADJUSTMENT CHARGE TO BE PAID BY THE CUSTOMER	
	Months	Transmission Miles Or Kilometers	Parts	Labor
MT, MD 3000, 3200, 3500, 3700	0-24	No Limit	No Charge	No Charge
HT with Hydraulic Controls	0-24	No Limit	No Charge	No Charge
AT, 1000 Series™, 2000 Series™, 2400 Series™	0-36	No Limit	No Charge	No Charge
HT with Electronic Controls	0-60	No Limit	No Charge	No Charge
HD 1000 EVS, 2100 EVS, 2200 EVS 2350 EVS, 2500 EVS, 2550 EVS, 3000 EVS, 3500 EVS, 4000, 4000 EVS, 4500, 4500 EVS, 4700, 4700 EVS, 4800, 4800 EVS	0-60	No Limit	No Charge	No Charge

WHAT IS NOT COVERED

- **DAMAGE DUE TO ACCIDENT, MISUSE, or ALTERATION** — Defects and damage caused as the result of any of the following are not covered:
 - Flood, collision, fire, theft, freezing, vandalism, riot, explosion, or objects striking the vehicle;
 - Misuse of the vehicle;
 - Installation into unapproved applications and installations;
 - Alterations or modification of the transmission or the vehicle, and
 - Damage resulting from improper storage (refer to long-term storage procedure outlined in the applicable Allison Service Manual)
 - Anything other than defects in Allison Transmission material or workmanship

NOTE: This warranty is void on transmissions used in vehicles currently or previously titled as salvaged, scrapped, junked, or totaled.

- **CHASSIS, BODY, and COMPONENTS** — The chassis and body company (assemblers) and other component and equipment manufacturers are solely responsible for warranties on the chassis, body, component(s), and equipment they provide. Any transmission repair caused by an alteration(s) made to the Allison transmission or the vehicle which allows the transmission to be installed or operated outside of the limits defined in the appropriate Allison Installation Guideline is solely the responsibility of the entity making the alteration(s).
- **DAMAGE CAUSED by LACK of MAINTENANCE or by the USE of TRANSMISSION FLUIDS NOT RECOMMENDED in the OPERATOR'S MANUAL** — Defects and damage caused by any of the following are not covered:
 - Failure to follow the recommendations of the maintenance schedule intervals applicable to the transmission;
 - Failure to use transmission fluids or maintain transmission fluid levels recommended in the Operator's Manual.
- **MAINTENANCE** — Normal maintenance (such as replacement of filters, screens, and transmission fluid) is not covered and is the owner's responsibility.
- **REPAIRS by UNAUTHORIZED DEALERS** — Defects and damage caused by a service outlet that is not an authorized Allison Transmission Distributor or Dealer are not covered.
- **USE of OTHER THAN GENUINE ALLISON TRANSMISSION PARTS** — Defects and damage caused by the use of parts that are not genuine Allison Transmission parts are not covered.
- **EXTRA EXPENSES** — Economic loss and extra expenses are not covered. Examples include but are not limited to: loss of vehicle use; inconvenience; storage; payment for loss of time or pay; vehicle rental expense; lodging; meals; or other travel costs.
- **"DENIED PARTY" OWNERSHIP** — Warranty repair parts and labor costs are not reimbursed to any participating or non-participating OEMs, dealers or distributors who perform warranty work for, or on behalf of, end users identified by the United States as being a "denied party" or who are citizens of sanctioned or embargoed countries as defined by the U.S. Department of Treasury Office of Foreign Assets Control. Furthermore, warranty reimbursements are not guaranteed if the reimbursement would be contrary to any United States export control laws or regulations as defined by the U.S. Department of Commerce, the U.S. Department of State, or the U.S. Department of Treasury.

OTHER TERMS APPLICABLE TO CONSUMERS AS DEFINED by the MAGNUSON-MOSS WARRANTY ACT

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Allison Transmission does not authorize any person to create for it any other obligation or liability in connection with these transmissions.

ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLICABLE TO THESE TRANSMISSIONS IS LIMITED IN DURATION TO THE DURATION OF THIS WRITTEN WARRANTY. PERFORMANCE OF REPAIRS AND NEEDED ADJUSTMENTS IS THE EXCLUSIVE REMEDY UNDER THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (SUCH AS, BUT NOT LIMITED TO, LOST WAGES OR VEHICLE RENTAL EXPENSES) RESULTING FROM BREACH OF THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY.**

** Some states do not allow limitations on how long an implied warranty will last or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

OTHER TERMS APPLICABLE TO OTHER END-USERS

THIS WARRANTY IS THE ONLY WARRANTY APPLICABLE TO THE ALLISON TRANSMISSION MODELS LISTED ABOVE AND IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ALLISON TRANSMISSION DOES NOT AUTHORIZE ANY PERSON TO CREATE FOR IT ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH SUCH TRANSMISSIONS. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM BREACH OF THIS WARRANTY OR ANY IMPLIED WARRANTY.

QUESTIONS

If you have any questions regarding this warranty or the performance of warranty obligations, you may contact any Allison Transmission Distributor or Dealer or write to:

Allison Transmission, Inc.
P.O. Box 894
Indianapolis, IN 46206-0894
Attention: Warranty Administration PF-9



Pierce Warranty Statement for Gortite Roll Up Doors Rev 2/24/2011

All mechanical components of the door shall be warranted to be free from defects in materials and workmanship for the lifetime of the vehicle. All parts covered under this warranty shall be to the original owner.

A&A manufacturing warrants that painted doors shall be free of blistering, peeling, bubbling, or any other adhesion defect caused by defective manufacturing methods or paint material selection. The time period for the coverage shall be 6 years from date of door shipment to Pierce. Satin anodized finish doors shall be warranted for 6 years against corrosion defects from date of door shipment to Pierce. Replacement of decals/Scotchlite is not covered.

The maximum amount A&A will reimburse for labor is \$60.00 per hour and the maximum amount of time allowed for repair is as follows:

Door	1.0 Hr.
Slat Replacement	1.0 Hr.
Pennant Plate Replacement	1.0 Hr.
Roller Replacement	.5 Hr.
Seal Replacement	.5 Hr.
Switch/Magnet Replacement	1.0 Hr.
Travel Time	4.0 Hr.

Cummins Recreational Vehicle and Fire Truck Major Components Coverage

Coverage

Cummins Recreational Vehicle and Fire Truck Major Components Coverage Plan (Plan) is available to be purchased for all eligible Cummins Engines marketed under the trademark "Cummins" or "Cummins ReCon®" and used in recreational vehicle and fire truck applications in the United States* and Canada and applies to the following Engine parts or castings (Registered Parts). The specific Engine covered is designated on the accompanying Certificate.

Engine Cylinder Block Casting	Oil Cooler Cover/Filter Heads
Engine Cylinder Head Casting	Oil Pan
Engine Cylinder Head Capscrews	Gear Cover and Housing
Engine Crankshaft Forging	Gear Train Gears
Engine Camshaft Forging	Crankshaft Gear
Engine Connecting Rods	Camshaft Idler Gear
Flywheel Housing	Accessory Drive Gear
Intake Manifold Castings	Fuel Pump Drive Gear
Valve Covers	

This Plan covers any failure of the Registered Parts which results, under normal use and service, from a defect in Cummins material or factory workmanship (Covered Failure).

This Plan begins on the date the Plan is issued to the Owner. Coverage ends at the time, miles (kilometers) or hours specified on the accompanying Certificate, whichever occurs first **AS MEASURED FROM THE CUMMINS BASE ENGINE WARRANTY START DATE.**

Cummins Responsibilities

Cummins will pay for all parts and labor needed to repair damage to the Engine resulting from a Covered Failure.

Cummins will pay for the lubricating oil, antifreeze, diesel exhaust fluid, filter elements and other maintenance items that are not reusable due to the Covered Failure.

Cummins will cover reasonable costs for Engine removal and reinstallation when necessary to repair a Covered Failure.

Owner Responsibilities

Owner is responsible for the operation and maintenance of the Engine as specified in the applicable Cummins Operation and Maintenance Manual. Owner is also responsible for providing proof that all recommended maintenance has been performed.

Before the expiration of this Coverage, Owner must notify a Cummins distributor, authorized dealer or other repair location approved by Cummins of any Covered Failure and make the Engine available for repair by such facility. Owner is also responsible for delivering the Engine to the repair location or for the expenses associated with travel to and from the repair location if unable to deliver. Service locations are listed on the Cummins Worldwide Service locator at cummins.com.

Owner is responsible for non-Engine repairs, "downtime" expenses, cargo damage, fines, passenger delays, all applicable taxes, all business costs and other losses resulting from a Covered Failure.

Owner is responsible for communication expenses, meals, lodging and similar costs incurred as a result of a Covered Failure.

Owner is responsible for maintaining the Engine odometer in good working order at all times and ensuring that the odometer accurately reflects the total usage of the Engine.

Owner is responsible for the costs to investigate complaints, unless the failure is caused by a defect in Cummins material or factory workmanship.

Owner is responsible for a \$100 (U.S. Dollars) deductible per each service visit under this Plan.

Limitations

Cummins is not responsible for failures resulting from incorrect modifications or alterations to the Engine or adjustments that significantly alter the Engine's operating characteristics. Failures, other than those resulting from a defect in material or factory workmanship of Registered Parts, are not covered by this Plan.

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of cooling, lubricating or intake systems; improper storage, starting, warm-up, run-in or shutdown practices or unauthorized modifications to the

Engine. Cummins is also not responsible for failures caused by incorrect oil or fuel, or by water or diesel exhaust fluid, dirt or other contaminants in the fuel or oil or diesel exhaust fluid.

Aftertreatment component failures are not covered by this Plan.

Parts used to repair a Covered Failure may be new Cummins parts, Cummins approved rebuilt parts or repaired parts. Cummins is not responsible for failures resulting from the use of parts not supplied by Cummins.

A new Cummins or Cummins approved rebuilt part used to replace a Registered Part assumes the identity of the Registered Part it replaced and is entitled to the remaining Coverage hereunder.

This Plan is transferable to subsequent Owners of the Engine by notifying a Cummins Distributor within 90 days of the transfer of ownership.

Bushing and bearing failures are not covered.

Excessive oil consumption or blowby is not covered.

CUMMINS DOES NOT COVER WEAR OR WEAROUT OF COVERED PARTS.

CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

CUMMINS RESERVES THE RIGHT TO INTERROGATE ELECTRONIC CONTROL MODULE (ECM) DATA FOR PURPOSES OF FAILURE ANALYSIS.

EXCEPT FOR THE PUBLISHED CUMMINS ENGINE WARRANTY APPLICABLE TO THE ENGINE, THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

In the United States*, this Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

* United States includes American Samoa, the Commonwealth of Northern Mariana Islands, Guam, Puerto Rico and the U.S. Virgin Islands.

Coverage I.D.: BMC



Cummins Inc.
Box 3005
Columbus, IN 47202-3005
U.S.A.

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AMITY FIRE AND SAFETY, INC.

3750 CHESTNUT ROAD
ALBURTIS, PA 18011-0451
Phone: 610-966-3115
Fax: 610-965-6313

* STANDARD FIVE YEAR WARRANTY *

(standard warranty is in effect for parts shipped after 4/15/10)

Three Function Swivel

A. PRESHIPMENT TESTING The Three Function Swivel fabricated by Amity which is exposed to pressure during normal use is subject to final inspection using the following pressure minimums:

1. Hydrostatic applications will be tested to 400 PSI unless specified otherwise on approved drawings. Operating pressures on installed systems are not to exceed 250 PSI at any point in the system. Warranty will be voided and Amity will not be held liable for failure and/or damage occurring from Water Hammering or freezing of water in any system.
2. Hydraulic applications will be tested to 4000 PSI. System operating pressure in application to be 3000 PSI maximum.
3. Dielectric and Continuity Test all circuits. 30 Amp max current loading.

B. THREE FUNCTION SWIVEL MAINTENANCE – Our Three Function Swivel has been fully tested at assembly. Under no circumstances is there to be any maintenance performed internally or externally to the Three Function Swivel by Purchaser or any other third party other than an authorized representative of or Amity itself. The Three Function Swivel is sealed and must remain so. The Three Function Swivel is designed for a long maintenance free life. Should any problems occur or replacement be necessary, first contact Amity. There is to be no field maintenance performed on the Three Function Swivel .

C. MOUNTING REQUIREMENTS – The following are the mounting requirements for the Three Function Swivel:

1. Mounting points and methods are to be determined at the initial design stage. All drawings and applicable documentation must be signed off by both parties and filed for future reference. No deviation to the approved mounting is allowed without approval from Amity.
2. The Three Function Swivel is to be mounted concentric to the center of the turntable bearing.
3. All inlet and outlet plumbing to conform to swivel mounting, under no circumstances is the Three Function Swivel to be positioned to match connections. This will avoid putting excessive loads on the Three Function Swivel. All tubing or piping to be supported by means other than the Three Function Swivel.

D. LIMITED WARRANTY, LIMITATIONS, CONDITIONS AND PROCEDURES REQUIRED.

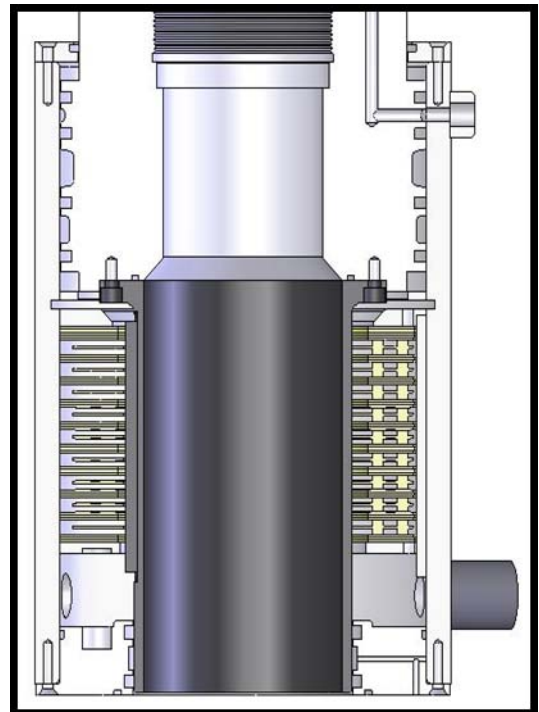
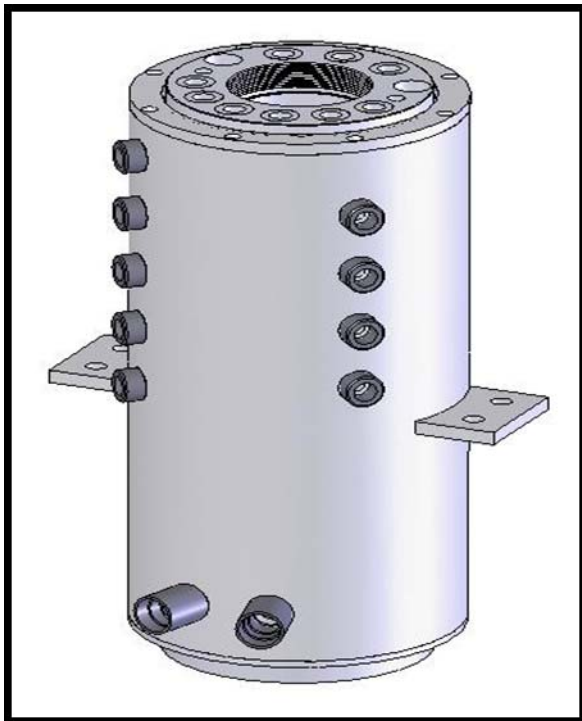
1. The Three Function Swivel is warranted to be free of defects in labor and/or materials for a period of five (5) years from the Date of Service. For purposes here, "Date of Service" shall mean the date when the Three Function Swivel, or the unit to which the Three Function Swivel is incorporated, passes final Underwriters Laboratory testing, or similarly compliant testing, and is certified for service. Evidence of such Date of Service shall be required in connection with any warranty claim by Purchaser.
2. The Three Function Swivel shall be repaired or replaced at the sole option and expense of the Amity provided the Three Function Swivel alleged to be defective was used for its intended normal use of operation and subject to the following qualifications and limitations.
3. Any alteration of the Three Function Swivel without consent from Amity is strictly forbidden and shall void warranty.
4. No welding shall be performed on finished Three Function Swivel.
5. No responsibility is assumed for any malfunctions or damages which are occasionally caused by foreign objects which may be ingested into water or hydraulic systems such as, but not limited to stones, sand or metal chips.
6. Amity assumes responsibility for our Three Function Swivel, which is defective only, and therefore, it will not assume responsibility for labor to either remove or install our Three Function Swivel unless it agrees in writing to assume such responsibility.
7. Unless otherwise approved in writing by the Amity all returns of defective Three Function Swivels (or allegedly defective Three Function Swivels) are at Purchaser's expense and must include a RGA number issued by the Amity.

8. All warranty claims must be presented at the time the problem occurs, or as soon as practical thereafter, either called or faxed to the Amity and include the numbers on the assembly's Amity's label with a detailed explanation of the difficulty in order for the matter to be appropriately evaluated and resolved.
9. Amity will not be held liable for damage incurred during shipment.
10. No responsibility shall be assumed for misuse or improper mounting, unreasonable use or abuse of the Three Function Swivel and or failure to provide or use improper maintenance, failure to follow written installation and use in instruction or any use other than the customary designed use.

THE REMEDIES PROVIDED IN THE ABOVE EXPRESS LIMITED WARRANTY AND ARE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE. NO OTHER EXPRESS WARRANTIES ARE MADE. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE ARE LIMITED IN DURATION AS SET FORTH ABOVE. IN NO EVENT SHALL THE AMITY ASSUME OR BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

THE WITHIN DESCRIBED WARRANTY SHALL ONLY BE AFFORDED TO THE ORIGINAL PURCHASER OR FOR INCORPORATION INTO ANOTHER UNIT AND TO FIRST PURCHASER AS PART OF COMPLETED UNIT, HOWEVER, THE WARRANTY PERIOD OF FIVE YEARS IS FROM THE DATE OF SERVICE WITH THE UNDERSTANDING IT IS INSTALLED WITHIN A REASONABLE TIME PERIOD.

Dated: _____, 20__





AMITY FIRE AND SAFETY, INC.

3750 CHESTNUT ROAD
ALBURTIS, PA 18011-0451
Phone: 610-966-3115
Fax: 610-965-6313

* STANDARD TEN YEAR WARRANTY *

(standard warranty is in effect for parts shipped after 4/15/10)

Telescopic Waterways

A. PRESHIPMENT TESTING All waterways fabricated by Amity are final inspected using the following pressure minimums:

1. Hydrostatic applications will be tested to 400 PSI unless specified otherwise on approved drawings. Operating pressures on installed systems are not to exceed 250 PSI at any point in the system. Warranty will be voided and Amity will not be held liable for failure and/or damage occurring from Water Hammering or freezing of water in any system.

B. COMPONENTS DESCRIPTION AND MAINTENANCE

1. All components are thoroughly greased at assembly. Since internally lubricated seals are used, regular greasing is not required. We recommend components not be greased at installation.
2. Slip Tube Assemblies may be greased at the Amity's regularly scheduled Aerial Inspections. The seals in the Slip Tube Assemblies are self-lubricating, so greasing is not mandatory. We do recommend a visual inspection of the Slip Tube Assembly while it is fully extended after initial installation, from that point on we recommend inspection every ten hours of aerial operation. If any deposits of aluminum appear, they are to be rubbed off using a Teflon scouring pad. Slip Tube Assemblies are designed to give long maintenance free service; however, like any product, problems may occur and periodic visual inspections will aid in determining if a potential problem exists and warrants a call to us. Care must be taken to keep debris off of extended tubes. We recommend wiping tubes with light oil (10 weight) or hydraulic oil after use, if tubes appear to have contamination on them. Under no circumstance are tubes to be cleaned with lacquer thinner, or any other solvent.

C. LIMITED WARRANTY, LIMITATIONS, CONDITIONS AND PROCEDURES REQUIRED.

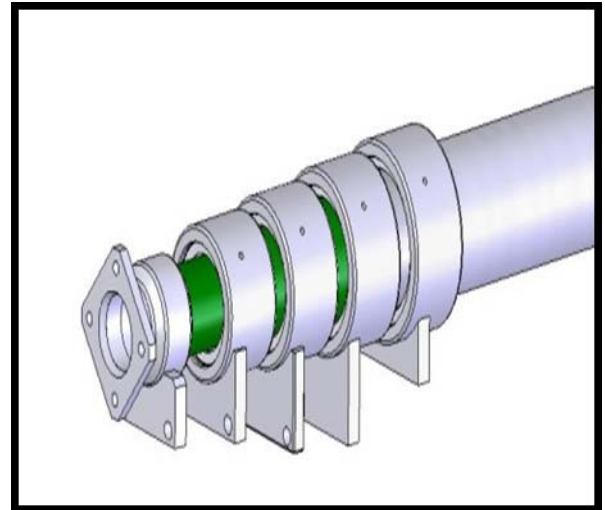
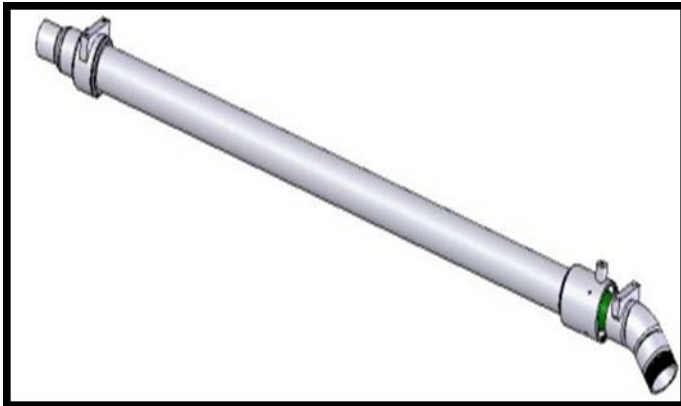
1. Products are warranted to be free of defects in labor and/or materials for a period of ten years from the date of purchase from the Amity and shall be repaired or replaced at the sole option and expense of the Amity provided the products alleged to be defective was used for its intended normal use operation and subject to the following qualifications and limitations.
2. Any alteration of product without consent from Amity is strictly forbidden and shall void warranty.
3. No welding shall be performed on finished product.
4. No responsibility is assumed for any malfunctions or damages which are occasionally caused by foreign objects which may be ingested into water system such as, but not limited to stones, sand or metal chips.
5. Amity assumes responsibility for our product, which is defective only, and therefore, it will not assume responsibility for labor to either remove or install our product unless it agrees in writing to assume such responsibility.
6. Unless otherwise approved in writing by the Amity all returns of defective (or allegedly defective products) are at Purchaser's expense and must include a RGA number issued by the Amity.
7. All warranty claims must be presented at the time the problem occurs, or as soon as practical thereafter, either called or faxed to the Amity and include the numbers on the assembly's Amity's label with a detailed explanation of the difficulty in order for the matter to be appropriately evaluated and resolved.
8. Amity will not be held liable for damage incurred during shipment.
9. No responsibility shall be assumed for misuse or improper mounting, unreasonable use or abuse of the Product and or failure to provide or use improper maintenance, failure to follow written installation and use in instruction or any use other than the customary designed use.

THE REMEDIES PROVIDED IN THE ABOVE EXPRESS LIMITED WARRANTY AND ARE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE. NO OTHER EXPRESS WARRANTIES ARE MADE. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR

FITNESS FOR A PARTICULAR PURPOSE OR USE ARE LIMITED IN DURATION AS SET FORTH ABOVE. IN NO EVENT SHALL THE AMITY ASSUME OR BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

THE WITHIN DESCRIBED WARRANTY SHALL ONLY BE AFFORDED TO THE ORIGINAL PURCHASER OR FOR INCORPORATION INTO ANOTHER UNIT AND TO FIRST PURCHASER AS PART OF COMPLETED UNIT, HOWEVER, THE WARRANTY PERIOD OF TEN YEARS COMMENCES UPON INSTALLATION INTO FINAL ASSEMBLY WITH THE UNDERSTANDING IT IS INSTALLED WITHIN SIX MONTHS OF PURCHASE.

Dated: _____, 20____





Fire and Rescue Apparatus

Five (5) Year Material and Workmanship Aerial Hydraulic System Components

Three (3) Year Material and Workmanship Aerial Hydraulic System Seals

Limited Warranty

1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The aerial hydraulic system components and seals shall be free from component or structural failures caused by defects in material and/or workmanship.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Five (5) Years and Three (3) Years
Conditions and Exclusions: See Also Paragraphs 2 thru 4	<p>Pierce's obligation under this warranty is limited to repairing or replacing without charge, as Pierce may elect, the hydraulic lines, fittings, valves, seals, cylinders, filters, pumps, hydraulic motors, rotary actuators, or components which Pierce determines to have failed due to defective material and workmanship.</p> <p>This warranty shall not apply unless the aerial device is inspected in accordance with NFPA 1911 Standard for Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus and the applicable Pierce Operator and Maintenance Manuals.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

R. H. SHEPPARD CO., INC.
101 Philadelphia St.
Hanover, PA 17331
Pierce Manufacturing Inc.
2600 American Drive
Appleton, WI 54912

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LIMITED WARRANTY: The R. H. Sheppard Co. Inc., ("Sheppard") warrants all M110PKG1 and M110SAU1 steering gears manufactured and sold to Pierce Manufacturing Inc. ("Pierce") for application on Pierce TAK-4 equipped vehicles to be free from defects of workmanship and material under normal use and service for a period of thirty six months from the in service date of the vehicle to its original owner.

Vehicle applications where Sheppard product is used require an application approval before production build. If Pierce uses Sheppard product for any purpose or application which has not been approved by Sheppard in advance, including aftermarket devices (defined as a device added to the steering system directly or indirectly affecting the performance or operation of the Sheppard product in its approved application) not tested and approved by Sheppard this limited warranty SHALL NOT APPLY AND SHALL BE VOID. SHEPPARD MAKES NO OTHER WARRANTY, EITHER EXPRESS OR IMPLIED. SHEPPARD EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

SHEPPARD SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES OR FOR LOSS OR DAMAGE DIRECTLY OR INDIRECTLY ARISING FROM THE USE OF A PRODUCT. Pierce expressly acknowledges its obligation to inform all users (customers) of the above disclaimer.

CONDITIONS: Claims under this Limited Warranty may only be made by Pierce. In no event shall Sheppard be held liable for warranty charges by unauthorized persons. No allowance will be made for repairs or alterations, unless made with the written consent of Sheppard. Authorized Pierce dealers shall be the only authorized repair facility for Sheppard products applied to Pierce vehicles. Any warrantable repair made under this Limited Warranty must be made on or before 36 months of the in-service date for the Product to which the claim relates. Sheppard shall not be liable for claims made after such date. Sheppard product fitted to Pierce vehicles that are repaired at a repair facility other than an authorized Pierce dealer within the warranty period will be considered for payment under the guidelines of this agreement only by joint written consideration of Sheppard and Pierce warranty departments. It shall be the responsibility of the Pierce warranty department to notify Sheppard if and when this situation occurs. Sheppard will not be held responsible for damage to other steering components such as but not limited to pumps and reservoirs due to improper adjustment of steering gear relief plungers. Vehicle downtime and towing will not be considered under warranty.

REMEDIES: The sole and exclusive remedy of Pierce for Sheppard's breach of the foregoing warranty is limited to the return and repair or reimbursement as follows:

R. H. SHEPPARD CO., INC. WARRANTY
Pierce Manufacturing Inc.
Page 2

Warranty Support: In support of the Pierce dealer network, Sheppard will provide a toll-free "Hotline" service to assist in the diagnosis and troubleshooting of steering problems. The R. H. Sheppard Co., Inc. Field Service Department can be reached at 1-800-274-7437 for assistance. Sheppard will require that Pierce dealers contact this toll-free "Hotline" for approval before product is removed from a vehicle in a warranty situation. When contacted regarding a warranty situation, the Sheppard representative will provide an authorization number for removal of the product. This Returned Goods Authorization (RGA) number must be included in all warranty correspondence and attached to all returned goods.

Procedure: In the event of a warranty situation, the servicing dealer shall contact the Sheppard Hotline and receive an RGA number before replacing any steering gear. For M110PKG1 and M110SAU1 steering gear models, the dealer will first obtain an RGA number from Sheppard, and then order the replacement gear from Pierce. Replacement M110PKG1 and M110SAU1 steering gears shall be shipped from Pierce once those models are in full production. A warranty claim for both parts and labor will then be generated by the dealer and sent to Pierce. After reviewing the claim, Pierce will submit it to Sheppard for reimbursement.

Parts Reimbursement: Sheppard agrees to reimburse Pierce at Pierce's purchase price plus 30% mark-up for parts found to be defective within the warranty period. Parts being returned for warranty consideration shall be sent to the R. H. Sheppard Company, 447 E. Middle St., Hanover, PA 17331 ATTN: Warranty Dept. Sheppard's determination as to whether the part is covered by the foregoing warranty is final and conclusive. Sheppard requires the return of complete steering gears only. Individual seals replaced under warranty **should not** be returned unless specifically requested by Sheppard. All parts being returned for warranty consideration must be clearly tagged with all pertinent warranty information including, but not limited to (1) Returned Goods Authorization number (RGA); (2) claim number; (3) date in service; (4) date of failure; (5) mileage; (6) part number; (7) labor hours; (8) dealer labor rate and; (9) dollar amount claimed. Claims submitted without prior authorization are subject to rejection under this agreement.

Labor: Labor to repair Sheppard product found to be defective within the warranty period will be reimbursed at not more than 10 hours per vehicle. Labor shall be reimbursed at the rate of \$85.00 USD per hour for M110PGK1 and M110SAU1 steering gears.

Freight: Pierce will collect M110PGK1 and M110SAU1 warranty material at a designated collection point. Inbound freight to the Pierce collection point will be the responsibility of Pierce. All warranty material should be returned from the Pierce collection point to R. H. Sheppard Co. Freight Collect by a Sheppard-specified common carrier based on location of the Pierce collection point. Sheppard does not require the return of failed seals. Any freight charges incurred for the return of seals will be the responsibility of Pierce. Parts returned for warranty consideration without prior authorization are subject to rejection under this agreement and may be subject to a charge back of inbound freight charges. Parts rejected under this warranty will be returned to Pierce Freight Collect or scrapped by Sheppard at Pierce's discretion.

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Fire and Rescue Apparatus

Ten (10) Year Material and Workmanship

Pierce 12V LED Strip Light

Limited Warranty

1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	This limited warranty covers repairs to correct any defect related to materials or workmanship of the Pierce 12V LED strip lights installed on the apparatus occurring during the warranty period.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Year
Conditions and Exclusions: See Also Paragraphs 2 thru 4	This limited warranty does not apply to related wire harnesses, cables, and connectors, which are covered by the Pierce one (1) year basic apparatus limited warranty.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



Fire and Rescue Apparatus

Five (5) Year Material and Workmanship - Transmission Oil Cooler Three (3) Year Collateral Damage Coverage

Limited Warranty

1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The transmission cooler shall be free from component or structural failures caused by defects in material and/or workmanship. Collateral damage up to \$10,000 per occurrence is available for the first three (3) years.
Warranty Begins:	The date of delivery to the first retail purchaser.
Warranty Period Ends After:	Five (5) Years on Oil Cooler and three (3) years on collateral damage coverage
Conditions and Exclusions: See Also Paragraphs 2 thru 4	<p>This warranty does not cover repair due to accidents, misuse, and excessive vibration, flying debris, storage damage (freezing), negligence or modification. This warranty is void if any modification or repairs are performed without authorization. This also voids any future warranty.</p> <p>This warranty does not cover cost of maintenance or repairs due to lack of required maintenance services as recommended. Performance of the required maintenance and use of proper fluids are the responsibility of the owner.</p> <p>Towing is covered to the nearest distributor or authorized dealer only when necessary to prevent further damage to your transmission.</p> <p>Labor costs for the removal and reinstallation of goods may be covered when necessary to make repairs. Please contact your OEM for authorization.</p> <p>Replacement of cooler during the warranty period is limited to 100% of reasonable labor costs up to a maximum of \$700 to remove, replace, or repair the oil cooler.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



Fire and Rescue Apparatus

Three (3) Year Material and Workmanship Meritor Wabco ABS Brake System Limited Warranty

1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The Meritor Wabco ABS brake system shall be covered by Meritor Wabco as indicated in the attached Meritor Wabco warranty coverage description
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Three (3) Year
Conditions and Exclusions: See Also Paragraphs 2 thru 4	The exclusions listed in the attached Meritor Wabco warranty description shall apply.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

WARRANTY

MODEL YEAR 2021 VEHICLES



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Warranty coverage is essential to protecting your investment. But understanding the full details of your coverage can be challenging. This straightforward approach allows you, our valued customer, to better understand how your specific vehicle applications will be covered in your region. Our component warranty coverage is provided according to vocation/usage categories listed below.

- Linehaul covers high mileage operation (over 60,000 miles/year) on well-maintained major highways of concrete or asphalt construction.
- General Service covers moderate mileage operations (less than 60,000 miles/year) on well-maintained public roads (less than 10 percent off-road) typically with less than three (3) stops per mile.
- Heavy Service (Vocational) covers vehicles with more than 10 percent off-road OR moderate to frequent starts/stops typically with more than three (3) stops per mile.
- Off-Highway Service covers lower mileage operations. Vehicles are not typically licensed for highway use.

How to Read Warranty Coverage (Example)

Number of Years	Mileage (in thousands) Unl=Unlimited	P=Parts Only P&L=Parts & Labor
3	300	P

- The standard aftermarket warranty for WABCO products - including WABCO Original parts, WABCO Reman Solutions, ProVia quality aftermarket parts and WABCO retrofit solutions - is one year, parts only from in-service date when purchased from ZF distributor networks or its affiliates and/or subsidiaries.

WABCO

LINEHAUL/GENERAL SERVICE WARRANTY INFORMATION

LINEHAUL/GENERAL SERVICE VEHICLES

- Aerial Ladder Truck
- Aerial Platform
- Ambulance
- Auto Hauler
- Beverage Truck
- Bulk Hauler
- Chip Hauler (Truck)
- Cross Country Coach
- Doubles
- Flatbed
- Front Engine Commercial Chassis
- Front Engine Integral Coach
- General Freight
- Grain Hauler
- Intercity Coach
- Intermodal Chassis
- Livestock Hauler
- Meat Packer
- Moving Van
- Municipal Truck
- Pipe Hauler
- Platform Auto Hauler
- Pumper
- Rear Engine Integral Coach
- Recreational Vehicles
- Refrigerated Freight
- School Bus
- Stake Truck
- Tanker
- Tanker Truck
- Triples
- Tour Bus
- Wrecker

LINEHAUL TYPICALLY IS

- High mileage operation (over 60,000 miles/year)
- Well maintained major highways of concrete or asphalt construction

GENERAL SERVICE TYPICALLY IS

- Moderate mileage operations (less than 60,000 miles/year)
- Well maintained public roads (less than 10% off-road)
- Less than three (3) stops per mile

WABCO Components ¹	
Air Management	
Air Brake Valves	1/100/P&L
Trailer Lift Axle Control Valve	
Trailer Control Line Filter ³	
Air Compressors (ALL) ²	2/200/P&L
Air Dryers (ALL)	3/300/P&L
Aerodynamics	
OptiFlow® TrailerSkirt	2/UnU/P
OptiFlow® Trailer Tail and AutoTail	2/UnI/P
Braking Systems	
ABS (Anti-Lock Braking System) Air	3/300/P&L
ABS (Anti-Lock Braking System) Hydraulic	
Electronic Braking System (EBS)	
Electronic Stability Control (ESC)	
Roll Stability Control (RSS)	
Trailer Roll Stability Support (RSS)	
Trailer ABS (Anti-Lock Braking System) ³	
Driveline Suspension Control	
Clutch Controls	2/200/P&L
Leveling Valves	1/100/P&L
OptiRide® Automated Manual Transmission (AMT)	
OptiRide® Electronically Controlled Air Suspension (ECAS)	3/300/P&L

WABCO Components ¹ (cont.)	
Safety	
OnGuardACTIVE®	3/300/P&L
OnLane®	
OnLaneALERT®	
OnSide®	
Trailer SafeStart™	
Trailer TailGUARD™	
Telematics	
TrailerCAST™ Telematics Device	3/300/P&L
Wheel End Solutions	
EasyFit™ Slack Adjuster	6/600/P
MAXXUS™ Truck Air Disc Brake	5/500/P&L
IVTM - Wheel Module	6/P
IVTM - All Other Products	2/P
Pan 17 and 19 Air Disc Brake	2/Unl/P and 1/Unl/L
Pan 22 Air Disc Brake	5/500/P and 1/L
TRISTOP™ D Actuator w/ IBV or IRB	6/600/P
TRISTOP™ D Actuator	3/300/P
UNISTOP™ Actuator	2/200/P
Trailer MAXX22T™ Air Disc Brake	5/500/P and 1/L

¹ ZF and WABCO branded components. ² WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by ZF. Please contact your respective dealer/distributor of those engines for warranty and servicing. ³ An extended warranty of 4/400/P will apply when a WABCO Trailer Control Line Filter is used in combination with a WABCO Trailer ABS valve.

HEAVY SERVICE (VOCATIONAL) WARRANTY INFORMATION

HEAVY SERVICE VEHICLES

- Airport Rescue Fire (ARF)
- Airport Shuttle
- Asphalt Truck
- Block Truck
- Bottom Dump Trailer
- Combination
- Cementing Vehicle
- City Bus
- Commercial Pick-Up
- Concrete Pumper
- Construction Material Hauler
- Crash Fire Rescue (CFR)
- Mixer
- Demolition
- Drill Rig
- Dump
- Emergency Service
- Equipment Hauling
- Flatbed Trailer Hauler
- Flatbed Truck
- Fracturing Truck
- Front Loader
- Geophysical Exploration
- Hopper Trailer Combinations
- Landscaping Truck
- Liquid Waste Hauler
- Log Hauling
- Lowboy
- Michigan Special Gravel Trains
- Michigan Special Log Hauler
- Michigan Special Steel Hauler
- Michigan Special Waste Vehicle
- Municipal Dump
- Newspaper Delivery
- Package Delivery
- Pick-up and Delivery
- Rapid Intervention Vehicle (RIV)
- Rear Loader
- Recycling Truck
- Residential Pick-Up/Waste
- Rigging Truck
- Roll-Off
- Scrap Truck
- Semi-End Dump
- Sewer/Septic Vacuum
- Shuttle Bus
- Side Loader
- Snowplow/Snowblower
- Steel Hauling
- Tanker
- Tank Truck
- Tractors with Pole Trailers
- Tractor/Trailer with Jeeps
- Transfer Dump
- Transfer Vehicle
- Transit Bus
- Trolley
- Utility Truck
- Winch Truck

HEAVY SERVICE TYPICALLY IS

- On/Off road vocations (10% or more off-road) OR
- Moderate to frequent starts/stops typically more than three (3) stops per mile



WABCO Components ¹	
Air Management	
Air Brake Valves	1/100/P&L
Air Compressors (ALL)2	
Air Dryers (ALL)	
Trailer Control Line Filter ³	
Braking Systems	
ABS (Anti-Lock Braking System) Air	3/300/P&L
ABS (Anti-Lock Braking System) Hydraulic	2/200/P&L
Electronic Braking System (EBS)	3/300/P&L
Electronic Stability Control (ESC)	
Trailer ABS Valve ³	
Roll Stability Control (RSS)	
Trailer Roll Stability Support (RSS)	
Driveline Suspension Control	
OptiRide® Electronically Controlled Air Suspension (ECAS)	2/200/P&L
Leveling Valves	1/100/P&L
Clutch Controls	2/200/P&L
Safety	
OnGuardACTIVE®	3/300/P&L
OnLane®	
OnLaneALERT®	
OnSide®	
Trailer SafeStart™	
Trailer TailGUARD™	
Telematics	
TrailerCAST™ Telematics Device	3/300/P&L
Wheel End Solutions	
EasyFit™ Slack Adjuster	2/200/P
MAXXUS™ Air Disc Brake	1/Unl/P&L
IVTM - Wheel Module	6/P
IVTM - All Other Products	2/P
Pan 22, 19 and 17 Air Disc Brake	1/Unl/P&L
Trailer MAXX22T™	1/Unl/P&L
TRISTOP™ D Actuator w/ IBV	3/Unl/P
TRISTOP™ D Actuator	2/200/P
UNISTOP™ Actuator	1/100/P

¹ ZF and WABCO branded components. ² WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by ZF. Please contact your respective dealer/distributor of those engines for warranty and servicing. ³ An extended warranty of 4/400/P will apply when a WABCO Trailer Control Line Filter is used in combination with a WABCO Trailer ABS valve.

WARRANTY - MODEL YEAR 2021 VEHICLES

INDUSTRIAL/OFF-HIGHWAY SERVICE WARRANTY INFORMATION

INDUSTRIAL AND OFF-HIGHWAY SERVICE TYPICALLY IS

- Low mileage operation³
- Vehicles are not typically licensed for highway use

Market	Common Application Types
Agriculture	Fertilizer Spreader, Tractor, Heavy Duty Ag Trailers, Harvester, Sprayer, Skid Loader, Silage Bagger, Slurry Wagons, Grain Cart
Airport Support	Pushback Tractor, Towing Tugs, Aircraft Tow Tractor, Refueling Trucks, Food Service Trucks, Baggage Tractors, De-Icing Equipment, Runway Clearing Equipment
Construction	All-Terrain Crane, Rough Terrain Crane, Excavator, Compactor, Wheel Loader, Road Roller, Motor Grader, Articulated Dump Truck, Rubber Tire Road Roller, Backhoe Loaders, Haul Trucks, Scraper Rough Terrain Forklifts, Trenchers, Drills
Forestry	Logging Forwarder, Kidder, Loaders, Yard Forklifts, Harvesters Fellers
Material Handling	Port Tractor, Rail Yard Spotter, Stevedoring Tractor, Trailer Spotter, Yard Jockey, Scissor Lift, Straddle Carrier, Manlift, Forklift, Boom Lift Telehandlers, Aerial Work Platforms
Mining	Specialized Mining, Excavator, Haul Truck, Underground Loader, Service Trucks, Wheel Loaders, Scrapers, Load Haul Dumps, Personnel Transports, Bolters, Scalpers
Municipal	Street Sweeper, Utility Tractor, Utility Trucks, Tree Trimmers, Dump Trucks, Tow Trucks, Flat Bed Trucks, Winch Applications
Oil & Gas	Fracturing Trailer, Injector Heads, Top Drives, Jack/Lift Boats, Wireline Trucks, Load-On / Load-Off
Rail	Railcar Mover, Track Layers, Grinders, Platform Crane, Locomotive Railcars, Ballast Equipment, Winch Applications



WABCO Components ¹	
Air Management	
Air Brake Valves	2/Unl/P
Air Compressors (ALL)2	
Air Dryers (ALL)	
Brake Actuation	
Air/Hydraulic Actuators	2/Unl/P
Master Cylinders	
Remote Actuators	
Slave and Wheel Cylinders	
Two Fluid Actuators	
Brake Locks	
Brake Locks (ALL)	2/Unl/P
Electric Brake Locks	
Lever Locks	
Braking Systems	
ABS (Anti-Lock Braking System) Air	1/100/P&L
ABS (Anti-Lock Braking System) Hydraulic	
Driveline Suspension Control	
Clutch Controls	1/100/P&L
Leveling Valves	
Electrohydraulics & Controls	
Electronic Pedals	2/Unl/P
Electrohydraulic Brake Valves (EBV)	
Pressure Switches	
Hydraulic Braking Solutions	
Accumulator Charging Valves	2/Unl/P
Hydraulic Throttle Controls and Switches	
Modulating Brake Valves	
Wheel End Solutions	
EasyFit™ Slack Adjuster	2/200/P
Caliper Disc Brakes	2/Unl/P
MAXXUS™ Air Disc Brake	1/Unl/P&L
Multiple Disc Brakes	2/Unl/P
IVTM - Wheel Module	6/P
IVTM - All Other Products	2/P
Pan 22, 19 and 17 Air Disc Brake	1/Unl/P&L
TRISTOP™ D Actuator w/ IBV	3/Unl/P
TRISTOP™ D Actuator	2/200/P
UNISTOP™ Actuator	1/100/P

¹ ZF and WABCO branded components. ² WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by ZF. Please contact your respective dealer/distributor of those engines for warranty and servicing. ³ Equivalent hours of service limit: 2,000 hours for all components.

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TERMS AND CONDITIONS

COVERAGE EXCLUSIONS

PRODUCT DESCRIPTION

ALL PRODUCTS

This Warranty shall not apply to the following, but not limited to: (1) damage to the product or its component parts caused by incorrect use, installation, maintenance or repair, including without limitation (a) improper fit of mating components or brackets, damaged threads, cut, broken, chafed, pinched or otherwise damaged wiring (sensors, harnesses and connectors), (b) sensors damaged during removal when seized in block, or associated with sensor adjustments/ alignments, and (c) damage resulting from the use or installation of non-genuine WABCO components or materials; (2) damage to the product, its component parts, or diminished product or component part performance due to incorrect operation, deviation from approved conditions or misapplication; (3) any unauthorized disassembly of the product or its component parts including without limitation (a) obliterated, defaced or missing WABCO or WABCO name plate, serial numbers or label identifying the device as a ZF product or WABCO component, (b) changes to sealed adjusting screws, and (c) opening or attempted repair of non-serviceable components; (4) malfunction of the component due to internal contamination of the vehicle system including without limitation (a) water and other contamination damage that is due to the use of a non-genuine air dryer cartridge or (b) valve failures due to contamination in air system, (5) complaints associated with noise, (6) damage resulting from corrosion (including oxidation of electrical devices and connections).

AIR DRYERS

Mounting brackets (see vehicle OEM). Desiccant cartridge housing only.

AIR SYSTEM COMPONENTS

Normal wear items; Gladhand seals, dash valve knobs, valve actuation handles, treadles, pedals.

ABS, ELECTRONIC STABILITY CONTROL (ESC), ROLL STABILITY CONTROL (RSC), OPTIRIDE®, ONGUARD® AND ONLANE®, COLLECTIVELY “ELECTRONICS”

Failure of electronic components due to overvoltage condition, improper grounding, electrostatic discharge (ESD), improper shielding, electromagnetic interference (EMI), or other wiring or installation issues. Malfunctions and failure codes caused by other electronic subsystem failures (data bus, engine, transmission, dashboard, etc.)

HYDRAULIC COMPONENTS

For certain components, brake fluid DOT3 or DOT4 is used as the operating medium. Use of any other fluid will void all warranties associated with that component. For hydraulic braking applications the brake fluid is considered a maintenance item. Maintenance intervals are listed in TB-1367.

COVERAGE LIMITATIONS

PRODUCT DESCRIPTION

ALL PRODUCTS

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program.

Products purchased on an incomplete vehicle (glider) are limited to one year, 1/Unl/P.

For vehicles that operate full- or part-time outside of the United States and Canada, a 1-Year/Unlimited Miles parts only (1/Unl/P) will apply.

TOOLBOX PLUS™ DIAGNOSTIC SOFTWARE

Proper diagnostics of WABCO Electronics may require the latest version of TOOLBOX PLUS™. Additional labor due to use of an outdated version of TOOLBOX™ software and/or the time to purchase or install the latest version of TOOLBOX PLUS™ are not covered under product warranty.

TERMS AND CONDITIONS

(1) What is Covered by this Commercial Warranty?

ZF CV Systems North America LLC and its North American subsidiaries and affiliates (ZF) warrant to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment will be free from defects in material and workmanship. This warranty coverage begins from the original in-service date to the limits provided and runs concurrently with any warranties provided by OEMs and/or any distribution agreements and/or any service contracts that cover the components listed in this publication, if any. If the components listed in this publication are covered by an OEM warranty and/or service contract, then the OEM's warranty and/or service contract shall supersede ZF's warranty and Owner shall comply with all OEM's warranty and/or service contract requirements for claims under such OEM's warranty and/or service contract until those agreements expire. Once those agreements expire and provided the ZF warranty has not expired under the terms stated above, the ZF warranty will be in effect until its expiration date.

Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed previously in this publication. Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Additional diagnostic time due to use of an outdated version of TOOLBOX™, time to purchase or install latest version of TOOLBOX™ are the responsibility of the authorized ZF distributor networks and are not covered under product warranty. Components installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

(2) Designation of Vocational Use Required. To obtain warranty coverage, each Owner must notify ZF through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the WABCO components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with ZF directly. Failure to notify ZF of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date. A second Owner and each subsequent Owner must also notify ZF as to the intended vocational use of the vehicle. This notification can be sent directly to ZF or through

the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use. Coverage under ZF's warranty requires that the application of products be properly approved pursuant to OEM and ZF, approvals.

(3) What is the Cost of this Warranty? There is no charge to the Owner for this warranty.

(4) What is not Covered by this Warranty? In addition to the items listed on "Coverage Exclusions," this warranty does not cover normal wear and tear, or service items; nor does it cover a component that fails, malfunctions or is damaged as a result of (a) improper handling, storage, installation, adjustment, repair or modification including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by ZF, (b) accident, fire or other casualty, natural disaster, road debris, negligence, misuse, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the brake system capacity), or (c) improper or insufficient maintenance (including deviation from maintenance intervals, approved lubricants, or lube levels). This warranty does not cover any component or part that is not sold by ZF.

(5) To obtain service. If the owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either ZF or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM dealer or ZF distributor networks' servicer. The dealer or ZF authorized servicer will inspect the vehicle and contact ZF for an evaluation of the claim. When authorized by ZF, the dealer or ZF authorized servicer will repair or replace during the term of this warranty any defective WABCO component covered by this warranty.

(6) Disclaimer of Warranty and Limitation of remedies. TO THE MAXIMUM EXTENT PERMITTED BY LAW, THE LIMITED WARRANTY SET FORTH HEREIN IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND/OR WARRANTY FOR HIDDEN OR LATENT DEFECTS, AND IN NO EVENT WILL ZF OR ANY OF ITS AFFILIATES BE LIABLE FOR DIRECT, INDIRECT, INCIDENTAL, PROGRESSIVE, SPECIAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND.

- (7) Legal action. Any legal action or claim arising from or related to this Warranty, in contract or otherwise, must be commenced within one year from the accrual of that cause of action, or be barred forever. Any dispute arising in connection with this agreement shall be governed by and construed according to the laws of the State of Michigan and be brought, heard and determined exclusively in either the Circuit Court for the County of Oakland, State of Michigan or the United States District Court for the Eastern District of Michigan. The parties stipulate that the referenced venues are convenient.
- (8) Remedy. The exclusive remedy under this warranty shall be the repair or replacement of the defective component at ZF's option. ZF reserves the right to require that all applicable covered components are available and/or returned to ZF for review and evaluation. THE MAXIMUM LIABILITY, IF ANY, OF ZF FOR ALL DAMAGES, INCLUDING WITHOUT LIMITATION CONTRACT DAMAGES, BREACH OF WARRANTY, NEGLIGENCE, STRICT LIABILITY, OR OTHER TORT, IS LIMITED TO AN AMOUNT NOT TO EXCEED THE PURCHASE PRICE OF THE PRODUCT and where indicated in the product and application warranty information above, the inclusion of labor is limited to the standard repair time. THE PARTIES ACKNOWLEDGE AND AGREE THAT THE LIMITATION OF DAMAGES PROVISION SET FORTH IN THIS PARAGRAPH SURVIVES BETWEEN THE ORIGINAL END USER AND ZF EVEN IF THE EXCLUSIVE REMEDY SET FORTH ABOVE IS DEEMED TO FAIL OF ITS ESSENTIAL PURPOSE. ZF may change the design or make improvements to its Products without incurring any warranty obligation for previously manufactured Product .
- (9) Entire Agreement. This is the entire agreement between ZF and the Owner about warranty and no, ZF employee, or dealer is authorized to make any additional warranty on behalf of ZF unless in writing and signed by an authorized representative of ZF.





**For further product details contact your distributor or the
WABCO Customer Care Center at 855-228-3203.**

About ZF Friedrichshafen AG

ZF is a global technology company and supplies systems for passenger cars, commercial vehicles and industrial technology, enabling the next generation of mobility. ZF allows vehicles to see, think and act. In the four technology domains Vehicle Motion Control, Integrated Safety, Automated Driving, and Electric Mobility, ZF offers comprehensive solutions for established vehicle manufacturers and newly emerging transport and mobility service providers. ZF electrifies different kinds of vehicles. With its products, the company contributes to reducing emissions and protecting the climate.

ZF, which acquired WABCO Holdings Inc. on May 29, 2020, now has 160,000 employees worldwide with approximately 260 locations in 41 countries. In 2019, the two then-independent companies achieved sales of €36.5 billion (ZF) and \$3.4 billion (WABCO). For more information, visit: www.wabco-na.com



Fire and Rescue Apparatus

Three (3) Year Material and Workmanship TAK-4 Independent Rear Suspension

Limited Warranty

1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The TAK-4 Rear Independent Suspension and Steering Gears shall be free from defects in material and workmanship.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Three (3) Years -or- 30,000 Miles
Conditions and Exclusions: See Also Paragraphs 2 thru 4	This limited warranty excludes brake shoes, brake drums, ball joint boots and shock absorbers.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



Fire and Rescue Apparatus

Three (3) Year Material and Workmanship Velocity and Impel Custom Chassis

Limited Warranty

1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Portions of the apparatus manufactured by Pierce shall be free from defects in material and workmanship
Warranty Begins:	The date the apparatus is placed in service, or 60 days from the original buyer invoice date, whichever comes first.
Warranty Period Ends After:	Three (3) Years, or 30,000 Miles, or 5000 Engine Hours
Conditions and Exclusions: See Also Paragraphs 2 thru 4	This limited warranty applies, where applicable, to Goldstar lamination, defroster heater coil and motor blower assembly (excluding the FET PWM module), heater, air conditioning condenser coil and fan/motor assembly, air conditioning evaporator coil and motor blower assembly (excluding the drain pan pump and thermostat), under seat heaters coil and motor blower assembly (excluding the FET PWM module), HVAC electronic switches, HVAC hoses and hard lines, heater water valve, Pierce PS6 seat frames and hardware, Pierce One-Eleven mirrors, Pierce hands-free scba holder, cracking or color loss of roto-molded components, Meritor rear axle, Wabco ABS system, cab door handles, Standen spring suspension components, and the gauge instrument cluster.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



Active Air with RGF PHI® Technology - Limited Warranty
Version 1.0 – 2020

LIMITED WARRANTY:

UNITED SAFETY warrants to the original buyer ("Buyer") that the following components of the Active Air with RGF PHI® technology purchased from UNITED SAFETY will be free from material defects in material and workmanship for the following time periods:

Five (5) years: Ballast, metal housing

Two (2) years: CAPS Commuter unit

One (1) year: PHI cell

The warranty period for a unit of UNITED SAFETY's Active Air with RGF PHI® technology (each such unit being a "Warranted Active Air system") starts to run at the time Buyer begins to install such Warranted unit or thirty (30) days after shipment of such Warranted unit to Buyer, whichever occurs first. Each unit will be numbered (serialized) for identification. This number must be presented with any warranty claim. If returning parts, a copy of Buyer's purchase order against which they were purchased must be included at the time of return to UNITED SAFETY.

EXCLUSIONS:

This warranty specifically excludes any unit that is damaged or operates outside of specifications as result of accident, derailment, improper installation, structural defects in the vehicle into which the unit is installed, intentional damage, abuse, vandalism, negligence, misuse, improper operating conditions, extreme natural phenomena or improper maintenance or repair. Warranted units exposed to cleaning solutions that are not listed in the UNITED SAFETY maintenance manual or components subjected to the incorrect cleaning solution are excluded from this warranty. This warranty also excludes any defect caused, in whole or in part, by the application of paints or metal finish to any part of the Warranted unit. This warranty is provided directly to Buyer only and does not extend to any subsequent purchaser from or transferee of Buyer.

LIMITED REMEDY:

In the event that a defect covered by this Limited Warranty occurs within the warranty period for a Warranted unit, UNITED SAFETY will, at its option and as Buyer's sole and exclusive remedy, either repair or replace the Warranted unit (or the defective part) without charge; provided that Buyer is solely responsible for the costs and expenses of de-installing the defective Warranted unit (or the defective part), if requested by UNITED SAFETY, shipping the defective Warranted unit (or defective part) to UNITED SAFETY and re-installing the repaired or replacement unit (or replacement part therefor). The repaired or replacement unit (or replacement part therefor) is only covered by this Limited Warranty for the remainder of warranty period applicable to the original Warranted Unit. The original unit (or part thereof) replaced by UNITED SAFETY shall become the property of UNITED SAFETY upon UNITED SAFETY shipping the replacement unit (or replacement part) to Buyer.

DISCLAIMER OF WARRANTIES; LIMITATIONS OF LIABILITY:

Buyer and UNITED SAFETY acknowledge that the following provisions have been negotiated by them, reflect a fair allocation of risk and such allocation is reflected in the fees payable to UNITED SAFETY for the Warranted Units:

(A) THIS LIMITED WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT.

(B) IN NO EVENT SHALL UNITED SAFETY'S LIABILITY, IN THE AGGREGATE, FOR DAMAGES ARISING OUT OF A BREACH OF THIS LIMITED WARRANTY, WHETHER IN TORT, CONTRACT OR OTHERWISE, TO BUYER OR ANY OTHER PERSON OR ENTITY EXCEED THE PRICE ACTUALLY PAID BY BUYER FOR THE WARRANTED UNIT.



(C) IN NO EVENT SHALL UNITED SAFETY BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, INDIRECT, PUNITIVE, SPECIAL, OR SIMILAR DAMAGES, INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF PROFITS, LOSS OF GOOD WILL, WORK STOPPAGE, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, WHETHER DIRECTLY OR INDIRECTLY CAUSED, WHETHER IN TORT, CONTRACT, OR OTHERWISE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

(D) THE LIMITATIONS OF LIABILITY IN CLAUSES (B) AND (C) ABOVE SHALL APPLY EVEN IF AN EXCLUSIVE REMEDY UNDER THIS LIMITED WARRANTY FAILS OF ITS ESSENTIAL PURPOSE.

NOTIFICATION:

All reports, claims, or notices required by the warranty to be provided to UNITED SAFETY must be in writing and delivered to: Attention – UNITED SAFETY Warranty Claim Department, 101 Gordon Drive, Exton, PA 19341 or emailed to customerservice@usscgroup.com or to such other physical or email address as UNITED SAFETY requires from time to time. Repairs being claimed for warranty must be sent to UNITED SAFETY for prior approval and warranty acceptance before any warranty claims can be made. Parts being claimed for warranty must be sent to UNITED SAFETY for prior approval and warranty acceptance before any warranty claims can be made.

INSPECTION AND VERIFICATION:

The owner must provide access to each alleged defective Warranted Unit so that UNITED SAFETY's authorized representative can perform an on-site inspection. Alternatively, UNITED SAFETY may ask the owner to ship the alleged defective Warranted Unit to UNITED SAFETY for inspection. Within 90 days of the inspection, either on-site or in the laboratory, UNITED SAFETY will render an opinion as to whether or not the claimed failure is covered by the warranty.

MAINTENANCE:

UNITED SAFETY provides the proper maintenance instructions as well as required service intervals with each Warranted Unit. Warranty is contingent upon documented performance of recommended maintenance and service. All replacement parts must be purchased from UNITED SAFETY or an authorized dealer of UNITED SAFETY, and the failure to purchase such parts from UNITED SAFETY or an authorized dealer of UNITED SAFETY will render this warranty null and void.

DESIGN:

UNITED SAFETY reserves the right to modify parts and design specifications without notice as long as the Warranted Unit meets general specifications, unless otherwise committed per contract. If changes outside the specifications in effect at the time of manufacturing the Warranted Unit have to be incorporated, UNITED SAFETY will submit such changes to Buyer for prior approval.

OTHER:

This Limited Warranty is contingent upon Buyer paying the purchase price for the Warranted Unit. This Limited Warranty supersedes any other terms including but not limited to Buyer's terms printed on the back of Purchase Orders, listed on websites or other sources from buyers.

Warranty – Active Air

Conrad Fire Equipment

Item: **W-9:W-9:W-9:W-9:W-9:W-9**

Attachments

COI 2022 Midmounts.pdf

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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

7/14/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Twin Lakes Insurance Agency PO Box 970 Lees Summit MO 64063	CONTACT NAME: Carrie McArthur PHONE (A/C, No, Ext): 816-251-3316 E-MAIL ADDRESS: carriem@twinlakesins.com		FAX (A/C, No): 816-525-4049
	INSURER(S) AFFORDING COVERAGE		
INSURED Conrad Fire Equipment 19922 W 162nd Olathe KS 66062	INSURER A: *Travelers Property Casualty Co		NAIC # 36161
	INSURER B: Accident Fund Insurance Company Of America		10166
	INSURER C: Travelers Casualty & Surety Co of Amer		31194
	INSURER D:		
	INSURER E:		
INSURER F:			

COVERAGES

CERTIFICATE NUMBER: 422002060

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:	Y	Y	Y6303K456048IND21	12/2/2021	12/2/2022	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 \$
A	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY	Y	Y	BA8L8023032114G	12/2/2021	12/2/2022	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
A	<input type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 10,000			CUP3K4636172114	12/2/2021	12/2/2022	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000 \$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input type="checkbox"/>	N/A	AFWCP100038617	6/27/2022	6/27/2023	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
C	MOBILE DEALERS EQUIPMENT			QT6601J679070TIL21	12/2/2021	12/2/2022	LIMIT 1,700,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
The Certificate Holder and all other parties required under a written contract are named as additional insureds with respects to Liability on a Primary & Non-Contributory basis. A Waiver of Subrogation is provided where allowed by law & required by a written contract.
The City of Oklahoma City and all other parties required under a written contract are named as additional insured with respects to liability. Bid #23506

CERTIFICATE HOLDER

CANCELLATION

City of Oklahoma City
200 N Walker Ave
Oklahoma City OK 73102
USA

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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Solicitation 23506

100 Foot Midmount Aerial Platform

Bid Designation: Public



City of Oklahoma City and its Trusts

Bid 23506
100 Foot Midmount Aerial PlatformC
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Bid Number **23506**
Bid Title **100 Foot Midmount Aerial Platform**
Expected Expenditure **\$5,400,000.00** (This price is expected - not guaranteed)

Bid Start Date **Jun 29, 2022 8:05:53 AM CDT**
Bid End Date **Jul 20, 2022 10:00:00 AM CDT**
Question & Answer
End Date **Jul 15, 2022 12:00:00 PM CDT**

Bid Contact **Pennie Leck**
Management Specialist
pennie.leck@okc.gov

Bid Contact **City Clerk**
cityclerk@okc.gov

Bid Contact **Billy Bray**
billy.bray@okc.gov

Contract Duration **One Time Purchase**
Contract Renewal **Not Applicable**
Prices Good for **Not Applicable**

Standard Disclaimer **This site and system is hosted by Oklahoma City through BIDSYNC for use of The City of Oklahoma City and its trusts.**
Certain screens and flags may show the name and/or seal of The City; however, such references do not indicate or change the contracting entity.

Bid Comments **The Expected Expenditure amount of \$5,400,000 is for the purchase of three units and may or may not be an accurate estimate. This amount should in no way influence the amount of your bid price. Your bid price is expected to be reflective of the equipment being requested in this bid when meeting the requirements of the specifications. INTENT: To obtain three (3) 100 Foot Midmount Aerial Platforms for the City of Oklahoma City Fire Department. The apparatus shall comply with the current edition of National Fire Protection Association (NFPA) 1901 standards.**

Item Response Form

Item **23506--01-01 - 100 Foot Midmount Aerial Platform: Delivery**
Lot Description **100 Foot Midmount Aerial Platform**
Quantity **1 day**
Prices are not requested for this item.

Delivery Location **City of Oklahoma City and its Trusts**[See Bid Packet for Location\(s\)](#)

N/A

Oklahoma City OK 73102

Qty 1**Description**

Enter number of days for delivery after receipt of purchase order in the Note To Buyer field.

Item **23506--01-02 - 100 Foot Midmount Aerial Platform: Manufacturer, Model, Number**Lot Description **100 Foot Midmount Aerial Platform**Quantity **1 each**

Prices are not requested for this item.

Delivery Location **City of Oklahoma City and its Trusts**[See Bid Packet for Location\(s\)](#)

N/A

Oklahoma City OK 73102

Qty 1**Description**

Enter the manufacturer, model and number of the unit bid in the Buyer Note field.

Item **23506--01-03 - 100 Foot Midmount Aerial Platform: Unit Price**Lot Description **100 Foot Midmount Aerial Platform**Quantity **1 each**Unit Price Delivery Location **City of Oklahoma City and its Trusts**[See Bid Packet for Location\(s\)](#)

N/A

Oklahoma City OK 73102

Qty 1**Description**

Enter unit price as described in the specifications. Price shall include delivery and standard warranties as requested in the specifications.

Item **23506--01-04 - 100 Foot Midmount Aerial Platform: Additional Option**Lot Description **100 Foot Midmount Aerial Platform**Quantity **1 each**Unit Price Delivery Location **City of Oklahoma City and its Trusts**[See Bid Packet for Location\(s\)](#)

N/A

Oklahoma City OK 73102

Qty 1**Description**

Enter price for additional option offered and attach details.

Item **23506--01-05 - 100 Foot Midmount Aerial Platform: Additional Option**Lot Description **100 Foot Midmount Aerial Platform**

Quantity **1 each**
Unit Price
Delivery Location **City of Oklahoma City and its Trusts**
[See Bid Packet for Location\(s\)](#)
N/A
Oklahoma City OK 73102
Qty 1

Description

Enter price for additional option offered and attach details.

Item **23506--01-06 - 100 Foot Midmount Aerial Platform: Exceptions**
Lot Description **100 Foot Midmount Aerial Platform**
Quantity **1 each**
Prices are not requested for this item.
Delivery Location **City of Oklahoma City and its Trusts**
[See Bid Packet for Location\(s\)](#)
N/A
Oklahoma City OK 73102
Qty 1

Description

Attach exceptions as described in specifications.

Item **23506--01-07 - 100 Foot Midmount Aerial Platform: Detailed Proposal**
Lot Description **100 Foot Midmount Aerial Platform**
Quantity **1 each**
Prices are not requested for this item.
Delivery Location **City of Oklahoma City and its Trusts**
[See Bid Packet for Location\(s\)](#)
N/A
Oklahoma City OK 73102
Qty 1

Description

Attach detailed proposal of unit being proposed as described in specifications.

Item **23506--01-08 - 100 Foot Midmount Aerial Platform: Warranties, Certifications, Drawing**
Lot Description **100 Foot Midmount Aerial Platform**
Quantity **1 each**
Prices are not requested for this item.
Delivery Location **City of Oklahoma City and its Trusts**
[See Bid Packet for Location\(s\)](#)
N/A
Oklahoma City OK 73102
Qty 1

Description

Attach drawing and all warranties and certifications, as requested in questionnaire, to this Line Item. Any standard warranty included in bid price above.

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Item **23506--01-09 - 100 Foot Midmount Aerial Platform: Quality Management System**
Lot Description **100 Foot Midmount Aerial Platform**
Quantity **1 each**
Prices are not requested for this item.
Delivery Location **City of Oklahoma City and its Trusts**

[See Bid Packet for Location\(s\)](#)

N/A

Oklahoma City OK 73102

Qty 1

Description

Attach standards utilized for quality management system.

Item **23506--02-01 - W-9: W-9**
Lot Description **W-9**
Quantity **1 each**
Prices are not requested for this item.

Delivery Location **City of Oklahoma City and its Trusts**

[See Bid Packet for Location\(s\)](#)

N/A

Oklahoma City OK 73102

Qty 1

Description

Please attach a W-9 on the most current IRS Form.

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**BID/PRICING AGREEMENT/CONTRACT FORM & NON-DISCRIMINATION
STATEMENT**
**BIDDER MUST ELECTRONICALLY COMPLETE, SIGN AND NOTARIZE THIS
DOCUMENT PRIOR TO SUBMITTING IN THE ELECTRONIC BID SYSTEM**

**Please be aware that typing in your password acts as your electronic signature, which is
just as legal and binding as an original signature.**

(See Electronic Signatures in Global and National Commerce Act for more information.)

**THIS DOCUMENT MUST BE ELECTRONICALLY SIGNED AND SUBMITTED WITH THE BID
OR THE BID WILL BE REJECTED**

INSTRUCTIONS: This document MUST be electronically signed and submitted with the bid for the bid to be valid. Failure to electronically sign the this document prior to submitting the electronic bid will result in rejection of your bid. This document constitutes your bid and will be the Pricing Agreement/Contract document under which you are to perform, should your bid be accepted, so it must be properly and completely executed. It is, therefore, essential that you are aware of its terms, as well as those contained in the specifications.

Submit this electronically signed document, along with all accompanying documents:

THIS PRICING AGREEMENT/CONTRACT is made and entered into, by and between
hereinafter referred to as "Bidder" and The City of Oklahoma City, a municipal corporation, or a participating Public Trust of which The City of Oklahoma City is Beneficiary hereinafter referred to as the "Contracting Entity."

WITNESSETH:

WHEREAS, the governing body of the Contracting Entity has approved certain specifications and requested by notice that bids be submitted thereon; and

WHEREAS, this document until executed by the Mayor/Chairman of the Contracting Entity constitutes the Bidder's proposal; and

NOW, THEREFORE, that in consideration of the covenants, agreements and representations as hereinafter set forth, it is mutually agreed by the parties that:

1. The Bidder agrees to sell and deliver to the Contracting Entity, the items of material and/or services, specified in the pricing section of the electronic bid submittal, which is attached hereto and made a part of this Pricing Agreement/Contract. List the prompt payment discount, if any, for this agreement in the space provided below:

Discount for Prompt Payment % Days

2. The Bidder expressly warrants that all articles, material, and/or work covered in this Pricing Agreement/Contract will conform to the specifications and electronic bid documents attached to this bid and are hereby incorporated, as if set forth in full herein; and further warrants that the same shall be of good material and workmanship, and free from defects.

3. The Bidder understands that all bids are to be submitted in U.S. dollars at a firm price. Bids submitted in any currency other than U.S. dollars will be rejected.

4. The Bidder also understands that all invoices shall be submitted in U.S. dollars and agrees to accept payment in U.S. dollars as full satisfaction of the invoiced amount.

5. If any of the goods fail to meet the warranties contained in Paragraph 2, above, the Bidder, upon notice from the Contracting Entity, shall promptly correct or replace the same at the Bidder's expense. If the Bidder shall fail to so do, the Contracting Entity may cancel this order as to all such goods, and in addition, may cancel the then remaining balance of this order. After notice to the Bidder, all such goods will be held at the Bidder's risk. The Contracting Entity may, at the Bidder's direction, make available such goods to be returned to the Bidder at the Bidder's

risk, and all transportation charges, both to and from the original destination, shall be paid by the Bidder. Any payment for such goods shall be refunded by the Bidder unless the Bidder promptly corrects or replaces the same at the Bidder's expense.

6. The Contracting Entity agrees to pay to the Bidder the price and amount in accordance with Paragraph 1 above, based on the quantity actually purchased, upon delivery to and acceptance by the Contracting Entity, of the material and/or service[s] above described and upon the filing by the Bidder, and approval by the Contracting Entity, of a verified claim for the amount due.

7. The Bidder agrees, in connection with the performance of work under this Pricing Agreement/Contract:

a. That the Bidder will not discriminate against any employee or applicant for employment, because of race, creed, color, sex, age, national origin, ancestry or disability. The Bidder shall take affirmative action to ensure that employees are treated without regard to their race, creed, color, age, national origin, sex, ancestry or disability. Such actions shall include, but not be limited to, the following: employment, promotion, demotion or transfer, recruitment, advertising, lay-off, termination, rates of pay or other forms of compensation and selection for training, including apprenticeship. The Bidder agrees to post, in a conspicuous place available to employees and applicants for employment, notices to be provided by the City Clerk/Secretary of the Contracting Entity setting forth the provisions of this section, and;

b. That the Bidder agrees to include this non-discrimination clause in any subcontracts connected with the performance of this Pricing Agreement/Contract.

8. In the event of the Bidder's non-compliance with the above non-discrimination clause, this Pricing Agreement/Contract may be canceled or terminated by the Contracting Entity. The Bidder may be declared by the Contracting Entity ineligible for further Pricing Agreement[s]/Contract[s] with the Contracting Entity until satisfactory proof of intent to comply is made by the Bidder.

9. The risk of loss or damage shall be borne by the Bidder at all times until the acceptance of goods, properly packed, by the Contracting Entity.

10. This Pricing Agreement/Contract, specifications, electronic bid submittal documents and any attachments constitutes the entire understanding and agreement of the parties upon the subject matter hereof. There is no agreement, oral or otherwise, which is not contained in or attached to this Pricing Agreement/Contract. This Pricing Agreement/Contract may not be modified or assigned unless approved in writing and signed by both parties.

11. The parties assume and understand that the variables in the Bidder's cost of performance may fluctuate; consequently, the parties agree that any fluctuations in the Bidder's costs will not alter the Bidder's obligations under this Pricing Agreement/Contract nor excuse performance or delay on the Bidder's part.

12. This Pricing Agreement/Contract shall be inoperative during such period of time that the aforesaid delivery or acceptance may be rendered impossible by reason of fire, Act of God or government regulation. Provided, however, to the extent that the Bidder has any commercially reasonable alternative method of performing this Pricing Agreement/Contract by purchase on the market or otherwise, the Bidder shall not be freed of any obligations hereunder by this clause, even though the goods intended for this Pricing Agreement/Contract were destroyed or their delivery delayed because of an event described above.

13. The shipping or receiving of any goods under this Pricing Agreement/Contract shall not be deemed, or be, a waiver of any right to damages for any prior failure to ship or receive any goods.

14. This Pricing Agreement/Contract shall be governed by the laws of the State of Oklahoma.

15. The Bidder shall be responsible for complying with all applicable federal, state and local laws.

16. If submitting a bid for services, the Bidder certifies that they, and any proposed subcontractors, are in compliance with 25 O.S. §1313 and participate in the status Verification System. The Status Verification System is defined in 25 O.S. §1312 and includes but is not limited to the free Employment Verification Program (E-Verify) through the Department of Homeland Security and available at www.dhs.gov/E-Verify.

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The undersigned individual states that the Bidder will be bound by all components of its bid, the specification, the terms and conditions of the Pricing Agreement/Contract, and the requirements for Bidders.

WITNESS the hands of the parties hereto:

THIS FORM MUST BE ELECTRONICALLY SIGNED AND SUBMITTED WITH THE BID FOR THE BID TO BE VALID

Note: The owner or an officer of the business or corporation may sign this document. A Corporate Seal or a letter of authorization is needed for any other signer. For instance, if a Salesman or Manager signs this form, a letter of authorization or Corporate Seal is to be attached.

Type Name of Authorized Agent

Title of Authorized Agent

Company Name and Address

Zip Code

Telephone Number and Fax Number if any

BIDDER MUST ELECTRONICALLY COMPLETE, SIGN AND NOTARIZE THIS DOCUMENT

Please be aware that typing in your password acts as your electronic signature, which is just as legal and binding as an original signature.

(See Electronic Signatures in Global and National Commerce Act for more information.)

THIS FORM MUST BE ELECTRONICALLY SIGNED AND SUBMITTED WITH THE BID OR THE BID WILL BE REJECTED

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NON-COLLUSION AFFIDAVIT

BIDDER MUST ELECTRONICALLY COMPLETE, SIGN AND NOTARIZE THIS DOCUMENT PRIOR TO SUBMITTING BID

Please be aware that typing in your password acts as your electronic signature, which is just as legal and binding as an original signature.

(See Electronic Signatures in Global and National Commerce Act for more information.)

The undersigned, of lawful age, being duly sworn, upon oath, deposes and says: That the undersigned has the lawful authority to execute the within and foregoing proposal/bid for, and on behalf of, the Proposer/Bidder; that the Proposer/Bidder has not, directly or indirectly, entered into any agreement, express or implied, with any Proposer/Bidder, having for its object the controlling of the price or amount of such proposal/bid, the limiting of the proposals/bids or the Proposers/Bidders, the parceling or farming out to any Proposer/Bidder or other persons, of any part of the Agreement or any part of the subject matter of the proposal/bid, or of the profits thereof, and that Proposer/Bidder has not and will not divulge the sealed proposal/bid to any person whomsoever, except those having a partnership or other financial interest with the Proposer/Bidder in the said proposal/bid, until after the said sealed proposals/bids are opened.

The undersigned further states that the Proposer/Bidder has not been a party to any collusion: among Proposer/Bidders in restraint of freedom of competition, by any agreement to bid at a fixed price or to refrain from proposing; or with any City/Trust official, City/Trust employee or City/Trust agent as to the quantity, quality, or price in the prospective Agreement, or any other terms of the said prospective Agreement; or in any discussions between the Proposers/Bidders or City/Trust official, City/Trust employee or City/Trust agent concerning the exchange of money or other thing of value for special consideration in the letting of Agreement. The Proposer/Bidder states that it has not paid, given or donated or agreed to pay, give or donate to any City/Trust official, officer or employee of the City or awarding agency, any money or other thing of value, either directly or indirectly, in the procuring of the award of Agreement pursuant to this Proposal/Bid.

Witness the hands of the parties hereto:

The undersigned states that the Proposer/Bidder will be bound by its proposal/bid, the specification, the terms and conditions of the Agreement, and the Requirements for Proposer/Bidders.

→ →THIS FORM TO BE COMPLETED BY THE PROPOSER/BIDDER PRIOR TO AGREEMENT APPROVAL ← ←

<input type="text"/>	<input type="text"/>
Type Name of Authorized Agent/Representative	Title
<input type="text"/>	
Company Name	
<input type="text"/>	<input type="text"/>
Address	Zip Code
<input type="text"/>	
Telephone Number and Fax Number, if any	

TO BE COMPLETED BY THE NOTARY:

State of *)
<input type="text"/>) SSS
County of *)
<input type="text"/>	

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[*State and County where notarized must be typed in for bid/proposal to be considered.][SAK1]

Signed and sworn to
before me on this

day of , by

[Day] [Month] [Year]

[Print the name of the
agent/representative who signed
above.]

My Commission
Number:

[Oklahoma]

Type Name of Notary Public

My Commission
Expires:

[Date/Year]

[49 Okla. Stat. 2011 §119]

BIDDER MUST ELECTRONICALLY COMPLETE, SIGN AND NOTARIZE THIS DOCUMENT PRIOR TO SUBMITTING BID

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(See Electronic Signatures in Global and National Commerce Act for more information.)

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BIDDER MUST ELECTRONICALLY COMPLETE THIS FORM PRIOR TO SUBMITTING BID

SUPPLIER CONTACT INFORMATION

The purpose of this form is to assist various City Departments and Trusts with placing orders.

Sales Contact:

Company Name:
Address:

Contact Person: Email Address:
Telephone Number: Fax Number:

Billing Contact:

Company Name:
Address:

Contact Person: Email Address:
Telephone Number: Fax Number:

Service Contact:

Company Name:
Address:

Contact Person: Email Address:
Telephone Number: Fax Number:

After Hours Emergency Number(s)
After Hours Emergency Number(s)
After Hours Emergency Number(s)
After Hours Emergency Number(s)

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(Internal use only)

PeopleSoft Vendor ID: _____ Entered by: ____

Helpdesk Ticket #: _____ Date: _____

The Bidder's Name that is entered on the Bid/Pricing Agreement/Contract Form & Non-Discrimination Form should match the Business Name on the Vendor Registration Form

VENDOR REGISTRATION FORM

If you are a single member LLC classified as a Disregarded Entity on your W-9, you MUST provide the owner's SSN or EIN, not the LLC's EIN (see IRS pub 3402).

Select One:

- ☐ **NEW DOMESTIC VENDOR** - Attach the most current IRS W-9 form, along with this form; both MUST be filled out in their entirety.
- ☐ **NEW FOREIGN ENTITY** - Attach the most current, appropriate, IRS W-8 form, along with this form; both MUST be filled out in their entirety.
- ☐ **UPDATE EXISTING VENDOR** - Attach the most current IRS W-9/W-8 form, along with this form; both MUST be filled out in their entirety.

SDBE Program: Please select all applicable vendor characteristics:

- ☐ Disadvantaged Business Enterprise DUNS Number (if any) _____
- ☐ Small Business - as defined by the U.S. Small Business Administration
- ☐ Women-Owned Business - % Women-Owned / Controlled _____ %
- ☐ Minority-Owned Business - % Minority-Owned / Controlled _____ % Ethnicity(ies) _____

If you checked any of the above boxes, please provide a brief description of your business:

If you checked any of the above boxes, do you wish to receive notifications of upcoming contract opportunities? ☐

Mailing Addresses:

PURCHASE ORDERS

BUSINESS NAME

ADDRESS 1

PAYMENT REMITTANCE

BUSINESS NAME

ADDRESS 1

ADDRESS 2

CITY

STATE

ZIP CODE

CONTACT PERSON

EMAIL ADDRESS

TELEPHONE NUMBER

ADDRESS 2

CITY

STATE

ZIP CODE

CONTACT PERSON

EMAIL ADDRESS

TELEPHONE NUMBER

Do you wish to receive payments by electronic funds transfer?

Any vendor who accepts payment confirms the following: the invoice is true and correct; the work, service or materials as shown by the invoice or claim have been completed or supplied in accordance with the plans, specifications, orders or requests furnished the vendor; and the vendor has made no payment, directly or indirectly, to any elected official, officer or employee of this City, of money or any other thing of value to obtain payment See [62 O.S. § 310.9](#).

I certify that the information supplied herein is correct and that neither the applicant nor any person (or concern) in any connection with the applicant as a principal or officer is now debarred or otherwise declared ineligible by a public agency for bidding or furnishing materials, supplies or services, to any other public agency thereof. NOTE: Article IV, Section 11 of the City Charter prohibits employees of the City from having a proprietary interest in City Contracts. See 11 O.S. §8-113.

TYPE NAME OF PERSON AUTHORIZED TO SIGN

TITLE

**BIDDER MUST ELECTRONICALLY COMPLETE AND SIGN THIS DOCUMENT PRIOR TO SUBMITTING
INTO THE ELECTRONIC BID SYSTEM**

**Please be aware that typing in your password acts as your electronic signature, which is just as legal
and binding as an original signature.**

(See Electronic Signatures in Global and National Commerce Act for more information.)

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(Published in *The Journal Record* on June 29, 2022)

NOTICE TO BIDDERS

Notice is hereby given that The City of Oklahoma City (“Contracting Entity”) will receive electronic bids at the **OFFICE OF THE CITY CLERK, 200 North Walker Avenue, Oklahoma City, Oklahoma 73102** until 10:00:00 a.m., on the 20th day of July, 2022, for the following:

BID23506 – 100 Foot Midmount Aerial Platforms

The Contracting Entity has partnered with Periscope (formerly BidSync) to accept bids electronically. You are invited to submit a bid electronically through the Periscope system to supply the goods and/or services specified in the electronic bid packet. The Contracting Entity does not provide access to a computer for electronic bidding or electronic bid submission. Bidders must register in advance with Periscope at <https://prod.bidsync.com/the-city-of-oklahoma-city> in order to submit an electronic bid. The Contracting Entity recommends potential Bidders register and become familiar with the Periscope electronic bidding process in advance of submitting a bid. There is no charge to the Bidder for registering or submitting an electronic bid to the Contracting Entity through Periscope. Instructions on how to get registered to bid through Periscope can be found on The City of Oklahoma City’s website at <https://www.okc.gov/departments/bidding>.

Bids shall be made in accordance with this Notice to Bidder, General Instructions and Requirements for Bidders, Oklahoma Open Records Act and Confidential Information, the Specifications, the Agreement & Non-Discrimination Statement, the Non-Collusion Affidavit, and any other documents which are included in the complete electronic bid packet. The Agreement must be completed, signed, and submitted electronically through Periscope for the bid to be valid.

Bids timely submitted electronically through Periscope shall be opened at the time stated above or later in the City Clerk’s Conference Room, located on the 2nd floor of the Municipal Building. The Periscope system does not allow bids to be submitted after the above stated date and time. There will be no exceptions to this policy. All bids shall remain on file at least 48 hours before an Agreement shall be made and entered.

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**The City of
OKLAHOMA CITY**
and its Trusts

**ELECTRONIC BID PACKET
100 FOOT MIDMOUNT AERIAL PLATFORM
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GENERAL INSTRUCTIONS AND REQUIREMENTS FOR BIDDERS

THESE INSTRUCTIONS, REQUIREMENTS AND ANY SPECIAL INSTRUCTIONS CONTAINED IN THE SPECIFICATIONS ARE A PART OF THE TERMS AND CONDITIONS OF THE BIDDER'S IRREVOCABLE BID AS A FIRM OFFER. ANY EXCEPTIONS TO THESE INSTRUCTIONS, REQUIREMENTS OR SPECIFICATIONS MUST BE SPECIFIED AND SUBMITTED WITH THE BIDDER'S BID. THIS CAN BE ACCOMPLISHED BY SUBMITTING AN ALTERNATE OFFER, IF AVAILABLE ON THE BID, OR BY ENTERING INFORMATION INTO THE "NOTE TO BUYER" FIELD. A BIDDER MAY ALSO SUBMIT EXCEPTIONS BY UPLOADING A SEPARATE DOCUMENT LABELED "EXCEPTIONS" INTO THE PERISCOPE SYSTEM. FAILURE TO INDICATE ANY EXCEPTIONS WILL BE REGARDED AS FULL ACCEPTANCE OF THE REQUIREMENTS, INSTRUCTIONS, AND SPECIFICATIONS CONTAINED IN THIS BID PACKET AND ANY OTHER BID DOCUMENTS RELATED TO THIS BID.

1. **EXAMINATION BY BIDDERS:** All Bidders must examine the specifications, drawings, schedules, special instructions and these general instructions and requirements prior to electronically submitting any Bid/Pricing Agreement/Contract. Failure to examine is at the Bidder's own risk as Bidder will be held to the terms, conditions, and requirements therein.
2. **SUBMISSION OF FORMS REQUIRED FOR PRICING AGREEMENT/CONTRACT AWARD:** All bids must be completed electronically, on the forms provided by the Contracting Entity through the electronic bidding system. Bids will not be considered unless the Bid/Pricing Agreement/Contract form is completed, signed, and submitted by the Bidder in the electronic bidding system. A Letter of Authorization should also be attached and submitted when the Bidder is not authorized by statute and the Bidder's organizational and establishing documents to sign and bind the Bidder to the Bid/Pricing Agreement/Contract documents. The Non-Collusion Affidavit must be executed by the Bidder or an authorized agent and notarized. The notarization must contain:
 - (a) The notary's signature (electronic signature);
 - (b) Jurisdiction where notarization took place (i.e., State of __, County of __);
 - (c) Date of notarization;
 - (d) The notary's commission expiration date;
 - (e) The notary's commission number (Oklahoma);
 - (f) The notarial seal (the notary seal is not required for electronic notarization); and
 - (g) Comply with all other applicable laws. The Non-Collusion Affidavit must be submitted electronically with the electronic bid packet.
3. **SUBMISSION OF BIDS ELECTRONICALLY TO THE CITY CLERK/SECRETARY:** Bids must be submitted electronically through Periscope and shall be opened at the time stated in the Notice to Bidders, or later, in the City Clerk's Conference Room, located on the 2nd floor of the Municipal Building. The Periscope system does not allow bids to be submitted after the deadline. There will be no exceptions to this policy. All bids shall remain on file at least 48 hours thereafter before a Pricing Agreement/Contract shall be made and entered into thereon.
4. **DESCRIPTIVE TERMS:** Unless the term "no substitute" is used, the use of brand name, manufacturer, make, or catalog designation in describing an item does not restrict Bidders to that particular brand name, etc. The term is simply to indicate the type, character, quality and/or performance equivalence of the item desired. However, the proposed substitution item must be of such character, quality and/or performance equivalence as that indicated in the specifications. A proposed substitute item must include complete data as to the manufacturer's name, type, model number, any descriptive bulletins, and specifications. This data can be uploaded electronically through the electronic bidding system.
5. **EXCEPTIONS:** Any exceptions or variances to these instructions or specifications must be submitted with the Bidder's bid. This can be accomplished by submitting an alternate offer, if available on the bid, or by entering information in the "Note to Buyer" field. A Bidder may also submit exceptions by uploading a separate document labeled "Exceptions" into the Periscope system. Failure to indicate any exceptions will be construed to mean that the Bidder offers to furnish the exact commodity as described in the bid specifications and as full acceptance of the requirements, instructions, and specifications contained in this bid packet and any other bid documents related to this bid.
6. **UNIT PRICES:** A unit price for each unit bid must be shown and include any applicable taxes, delivery, and packaging and/or packing, if any, unless otherwise specified. If there is an estimated quantity stated as such in the specifications, the estimate is not a guarantee of the quantity which may be purchased. When the quantity in the Periscope system is listed as "1", Bidder shall bid the per individual unit price. The Contracting Entity may purchase one or more bid item at any given time throughout the term of the Pricing Agreement/Contract. The Periscope system will calculate the total based on the quantity requested by the Contracting Entity and the price entered by the Bidder. The Periscope system will calculate the bid price based on the quantity and price. Items bid as an estimated quantity will be awarded on a "no guarantee" basis. Prices shall be extended in decimals, not fractions, and shall include transportation and delivery charges, prepaid by the Bidder to the destination specified in the special instructions of the specifications.
7. **EXEMPTIONS FROM CERTAIN TAXES:** The purchase of certain goods or services by the Contracting Entity is exempt from the payment of excise, transportation, use, and sales tax imposed by the federal, state and/or city

governments. Such taxes must not be included in the bid prices. Any taxes that are not exempt must be included in the bid price. No additional payment or compensation will be made for taxes.

8. PAYMENTS AND DISCOUNTS:

- (a) Payment for goods and services as specified in the Pricing Agreement/Contract shall be processed promptly after completion of delivery and acceptance of items and after receipt from Bidder of properly prepared invoice(s) and/or notarized claim voucher(s), if applicable. Purchases may be made by certain City or Trust employees using a purchasing card. Employees of Contracting Entity are required, when possible, to use a purchasing card for purchases under the amount of \$5,000 for a single transaction. For single transactions over \$5,000, the Bidder may request payment be completed by issuance of a purchase order. Processing fees may not be added when a purchasing card is used. The bid price shall cover any fees a bidder may incur.
- (b) Discounts for prompt payment will not be considered in bid evaluations, unless otherwise specified. Discounts offered by the Bidder will be taken, however, if payment is made within the discount period.
- (c) Late charges cannot be assessed against Contracting Entity.

9. LATE INVOICES: If the purchase order indicates that the purchase is being made with City funds, all unpaid invoices pertaining to this Pricing Agreement/Contract must be recorded in the Finance Department, Accounts Payable Section, or in the Office of the City Clerk on or before September 30 for all debts incurred during the prior fiscal year (July 1 through June 30), or said invoice shall be void and forever barred. (See 62 Okla. Stat. 2010 § 310.4).

10. DELIVERY:

- (a) All bid prices quoted shall be based on delivery F.O.B. Oklahoma City, Oklahoma or to any points located within the municipal corporate limits (unless otherwise stated in the bid specifications) with all charges prepaid to the actual point of delivery.
- (b) Bids must show the number of days required for delivery under normal conditions. Unrealistically short or long delivery promises may cause bids to be rejected. A successful Bidder is required to keep the purchasing department advised at all times of the status of the order and delivery. All goods or services shall be delivered within thirty (30) days from the date of the award of the Pricing Agreement/Contract, unless specified otherwise.

11. AWARD OF PRICING AGREEMENT/CONTRACTS: The Contracting Entity reserves the rights to: award by item, groups of items or all items of the bid; to reject any or all bids in whole or in part; and, waive technical defects, irregularities and/or omissions.

12. PERFORMANCE BONDS: If required by the specifications, the successful Bidder must post the performance bond, a certified or cashier's check in the amount required prior to award of Pricing Agreement/Contract.

13. PATENTS: The Bidder agrees to indemnify and save harmless the Contracting Entity, including any of Contracting Entity's employees, the purchasing agent and assistants from all suits and actions of every nature and description brought against the Bidder and/or any assistants because of, or for the use of, patented or licensed appliances, products, or processes. The Bidder shall pay all royalties and charges which are legal, and equitable evidence of such payment or satisfaction shall be submitted upon request of the Contracting Entity, as a necessary requirement in connection with the final execution of any Agreement/Contract in which patented or licensed appliances, products, or processes are to be used.

14. TERMINATION:

- (a) The performance of services and/or the delivery of items under any Pricing Agreement/Contract may be terminated by the Contracting Entity, in whole or in part, whenever it is determined to be in the best interest of the Contracting Entity.
- (b) Any such termination will be effected by delivery to the Bidder of a termination notice specifying the extent to which performance or services and/or delivery of ordered commodities is terminated, and the date the termination becomes effective.
- (c) After receipt of a termination notice, the Bidder shall stop performance of services and/or accept no further orders under the Pricing Agreement/Contract.

15. COMPLIANCE WITH APPLICABLE LAWS: All Proposers must comply with all applicable federal, state, or local laws and regulations, including Title VI and all provisions of the Civil Rights Act of 1964 42, U.S.C. §§ 2000d, -et seq.

16. SELF-INSURED: The Contracting Entity is self-insured for its own negligence. The liability of the Contracting Entity for acts of negligence are limited and subject to the Governmental Tort Claims Act, 51 O.S. §§ 151, *et seq.*

17. RIGHT TO AUDIT: The Contracting Entity shall at all times have the right to examine books, papers, and records of the successful Bidder relative to all aspects of the Pricing Agreements/Contracts awarded as a result of this bid to confirm Pricing Agreement/Contract compliance. Failure to provide the requested information may result in termination of the Pricing Agreement/Contract. This right to audit only affects Pricing Agreement/Contract compliance as a result of this bid, and does not apply to Bidder records beyond the scope of the Pricing Agreement/Contract.

18. REFERENCES: The Contracting Entity has the right to request references from bidders.

19. BID EVALUATION: Bids will be evaluated based upon the lowest overall cost to the Contracting Entity and a bidder's responsiveness to the requirements of the specifications. The Contracting Entity retains the right to waive minor deficiencies of specifications, technicalities, or informalities in a bid, provided that the best interest of the Contracting Entity would be served without prejudice to the rights of other bidders.

OKLAHOMA OPEN RECORDS ACT AND CONFIDENTIAL INFORMATION

All materials submitted to the Contracting Entity pursuant to this Bid or Proposal potentially become subject to the mandates of the Oklahoma Open Records Act, 51 O.S. § 24A.1. *et seq.* The purpose of this Act is to ensure and facilitate the public's right of access to and review of government records so they may efficiently and intelligently exercise their inherent political power. Almost all "records," as that term is defined in the Act, may be disclosed to the public upon request. Except where specific state or federal statutes create a specific and express exemption or confidential privilege, persons who submit information to public bodies have no right to keep this information from public access nor have a reasonable expectation that this information will be kept from public access.

If you believe that any of the information you have submitted to the Contracting Entity pursuant to this Bid or Proposal is exempt or confidential under a specific state or federal statute, and therefore not subject to public access under the Oklahoma Open Records Act, you must comply with the following:

1. Place said documents/records in a separate electronic file attachment marked "Confidential." DO NOT label your entire Bid or Proposal as "Confidential" – label only those portions of the Bid or Proposal that you feel are exempt or are made confidential by state or federal law as "Confidential."
2. For each such document for which you are claiming an exemption or a confidential privilege, identify the federal and/or state law that creates said privilege, e.g., for trade secrets, see 21 O.S. § 1732 (Larceny of Trade Secrets) and the Uniform Trade Secrets Act, 78 O.S. § 85 *et seq.*

Should an Open Records request be presented to the Contracting Entity requesting information you have identified as "Confidential," you will be responsible for defending your position in the District Court, if needed.

If you fail to identify any records submitted as part of your Bid or Proposal as "Confidential," you are agreeing that said records are not exempt or confidential and are subject to public access.

Upon receipt of a request by a third party to review or copy records properly identified as "Confidential," you will be notified of the request and thereby given an opportunity to immediately enforce and protect your rights by initiating an action in a court of competent jurisdiction. Should you fail to timely bring an action to enforce your rights, then the requested records will be released by the Contracting Entity based upon its determination of the application of the Oklahoma Open Records Act.

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BID SPECIFICATIONS

100 FOOT MIDMOUNT AERIAL PLATFORM

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**BID SPECIFICATIONS
100 FOOT MIDMOUNT AERIAL PLATFORM
Instructions to Bidders**

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INTENT: To obtain three (3) 100 Foot Midmount Aerial Platforms for the City of Oklahoma City Fire Department. The apparatus shall comply with the current edition of National Fire Protection Association (NFPA) 1901 standards.

SCOPE OF PRICING AGREEMENT/CONTRACT: The Bidder shall furnish and supply the below listed item(s) in accordance with the terms, conditions and provisions set forth herein.

The Contracting Entity reserves the right to award this Pricing Agreement/Contract to a single Bidder or to multiple Bidders, whichever is deemed to be in best interest of the Contracting Entity. You may bid on some or all items. If you choose not to bid on one of the items respond by typing, "No Bid" in the "Note to Buyer" field of the Line Item in the Periscope system.

SUBSTITUTE OFFERS: If the bid specifications provide that the Contracting Entity is accepting substitute offers for a good or service, this option will be available for bidders in Periscope when completing the electronic bid packet. The Contracting Entity is under no obligation to accept a substitute offer.

CONTRACTING ENTITY: The term "Contracting Entity" as used throughout this Pricing Agreement/Contract shall mean The City of Oklahoma City and any participating Public Trust which chooses to avail itself of the goods or services from the resultant Pricing Agreement/Contract. Should a participating Public Trust, of which The City of Oklahoma City is Beneficiary, choose to avail itself of goods or services from the resultant Pricing Agreement(s)/Contract(s), the Bidder(s) will honor the terms and conditions, including price, of the Pricing Agreement(s)/Contract(s).

BIDDER: Upon award of this Pricing Agreement/Contract, the term "Bidder" shall mean the contracting party supplying the goods and/or services.

DELIVERY: Bidders shall specify their proposed delivery times for the requested goods and services in the Line-Item pricing area in the electronic bidding system. If a deadline is specified and no alternative is proposed, the Bidder will have agreed to meet the stated deadline.

INSPECTION AND ACCEPTANCE AT DESTINATION:

1. Final inspection and acceptance shall be at destination. Acceptance will occur after the goods or results of the services have been inspected and when determined by designated competent staff to have met the bid specifications. Delivery does not constitute acceptance.
2. Although source inspection by the Contracting Entity is not anticipated under this Pricing Agreement/Contract, the provisions of this article shall in no way be construed to limit the rights of the Contracting Entity to otherwise conduct source inspections when it deems to be appropriate.

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F.O.B. DESTINATION:

1. The Bidder shall deliver each item F.O.B. Destination, Oklahoma City, Oklahoma, and to any and all points designated in the bid specifications.
2. Inside delivery is required unless specifically and expressly stated in the bid specifications.

COMMERCIAL PACKAGING: Preservation, packaging, packing, and marking will be in accordance with Bidder's best commercial practice to provide adequate protection against shipping damage. Bidder is required to replace any goods damaged in shipping or delivery.

ESTIMATED ANNUAL REQUIREMENTS (NO GUARANTEE):

1. The quantity of any item, good, or service when shown in the price schedule as an estimate of an annual requirement is merely an estimate based on currently available information. The purchase of any such item or quantity of good or service is not guaranteed. Any offer conditioned upon a promise by the Contracting Entity to purchase a minimum or definite quantity of such an item will be rejected.
2. The Bidder agrees to furnish all quantities ordered by the Contracting Entity during the Pricing Agreement/Contract period.
3. The Contracting Entity agrees to place orders with the Bidder for all its requirements for those items shown in the price schedule, as awarded, except as follows:
 - a. Quantities of items needed under conditions of emergency or public exigency as approved by the Purchasing Agent.
 - b. Quantities of items obtainable from State contracts, as approved by the Purchasing Agent.
 - c. Quantities of items where federal funds are involved and other action is warranted for federal regulatory compliance purposes.
 - d. Quantities of items awarded under specific and separate pricing agreements/contracts.
 - e. Quantities of items which otherwise are determined to be outside the general scope and intent of this Pricing Agreement/Contract.
4. If requirements for any awarded items do not materialize for the quantity estimated in the applicable price schedule, such failure shall not constitute grounds for equitable adjustment or additional compensation.
5. There is no obligation to purchase any items from this Pricing Agreement/Contract, and purchases made in future fiscal years or other contract periods are subject to future appropriations and availability of funds.

6. The Contracting Entity may request Bidder provide quantity discounts when making larger purchases. Quantity discounts will be requested from all Bidders when multiple Pricing Agreements/Contracts are awarded.

ORDER OF PRECEDENCE: In the event of an inconsistency between provisions of this Pricing Agreement/Contract, the inconsistency shall be resolved by giving precedence in the following order: (i) Pricing Agreement/Contract articles, (ii) Bid Specifications, (iii) Notice to Bidders, (iv) General Instructions and Requirements for Bidders, (v) other requirements provided by the Contracting Entity in the bid packet, then (vi) attachments, notes and exceptions by Bidder.

PAYMENT METHODS: The ordering departments will utilize purchase order numbers or purchasing cards for ordering the goods and services they require as the need arises during the Pricing Agreement/Contract period.

The Contracting Entity shall not be held liable for any damages sustained by any Bidder for delivery of goods or services awarded by Pricing Agreement/Contract unless accompanied by an authorized purchase order or purchasing card reference name and number. Delivery of goods or services to any department of Contracting Entity without a purchase order document, purchase order number or purchasing card reference name and number given at the time the order is placed shall constitute an unauthorized purchase.

PAYMENT/INVOICE:

1. Payments will be processed promptly after completion of delivery of ordered items and after receipt of properly prepared invoices.
2. **FOR ORDERS PLACED BY PURCHASE ORDER:** The original invoice must be mailed directly to The City of Oklahoma City, Accounts Payable, 100 N. Walker Avenue, Suite 200, Oklahoma City, Oklahoma 73102, or invoices may be e-mailed to accountspayable@okc.gov. If invoices are e-mailed, a paper copy should not be mailed. This information is printed on the front of each purchase order. Copies of invoices may be sent to other addresses upon request. However, if the original invoice is sent to any other address, payment will be delayed, or may not be processed at all. Should another trust or government entity be using this contract they may request a different invoice address.

FOR ORDERS PLACED BY PURCHASING CARD: Do not send invoices, statements etc. to Accounts Payable for purchasing card orders. Please send all purchasing card documents directly to the cardholder. Cardholders are required to submit itemized transaction details such as invoice/delivery tickets with their monthly purchasing card statement. This is a vital part of the monthly reconciliation process. Your cooperation is appreciated. City and/or Trust employees are required, when possible, to use a purchasing card for purchases under the amount of \$5,000 for a single transaction. For single transactions over \$5,000, the bidder may request payment be completed by issuance of a purchase order. Processing fees may not be added when a purchasing card is used. The bid price is expected to cover any fees a bidder may incur.

3. Invoices must contain the following information:
 - a. Bidder's name and address
 - b. Ship to address (department name)
 - c. Purchase order number - **MUST BE INDICATED ON THE INVOICE**
 - d. Itemization of each item purchased to include:
 - (1) description/stock number
 - (2) unit price
 - (3) quantity
 - (4) unit of issue (each, box, dozen, pound, etc.)
 - (5) total price
 - e. Total amount of invoice
 - f. Date of delivery
4. Invoices should not reflect any outstanding backorders.

WARRANTY:

1. The Bidder warrants that at the time of delivery, all items furnished under this Pricing Agreement/Contract will be free from defects in material or workmanship and will conform to the specifications and all other requirements of this Pricing Agreement/Contract. All Bidders will furnish with their bid one copy of their warranty applicable to the supplies or equipment to be furnished.
2. As to any item which does not conform to this warranty, the Bidder agrees that the Contracting Entity shall have the right to:
 - a. Reject and return each nonconforming item to the Bidder for correction or replacement at the Bidder's expense; or
 - b. Require an equitable adjustment in the Pricing Agreement/Contract price.
3. This warranty shall be in addition to any other rights of the Contracting Entity.
4. All equipment warranties shall start on the date of installation and will be for the full term of said warranty.

GENERAL PROVISIONS: The following documents are attached or by this reference incorporated as a part of this Pricing Agreement/Contract:

- a. Bid/Pricing Agreement/Contract Form & Non-Discrimination Statement
- b. Non-Collusion Affidavit
- c. General Instructions and Requirements for Bidders
- d. Specifications
- e. Oklahoma Open Records Act and Confidential Information

SAFETY DATA SHEETS: Any Bidder supplying goods or materials to the Contracting Entity that require a Safety Data Sheet (SDS) will furnish the required sheet or a composite concentration list in one of the following manners:

- a. Submitted as part of the proposal document
- b. Submitted prior to Agreement/Contract award
- c. Submitted with the product invoice
- d. Submitted at the request of the Contracting Entity

In all instances, the Bidder shall furnish the safety data sheets with the products at delivery, and shall comply with all local, state, and federal laws providing for identification of materials transported to the Contracting Entity. The appropriate proposal number, Agreement/Contract number, delivery ticket number, or invoice number shall be clearly marked on the safety data sheet or the composite concentration lists. Information regarding Safety Data Sheets can be found on-line at <https://www.osha.gov/Publications/OSHA3514.html>. Any question regarding this requirement should be directed to the following address:

Oklahoma City Risk Management Division
420 W. Main Street, Suite 630
Oklahoma City, Oklahoma 73102
(405) 297-3891

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BID SPECIFICATIONS

Other Provisions

ADDENDA: It is the Bidder's responsibility to log into the electronic bidding system to monitor any addenda that may be issued during the process. A Bidder's bid will not be accepted if all addenda have not been acknowledged by the Bidder through the electronic bidding system. If you are set up for electronic notifications through the electronic bidding system, you should receive a notification by e-mail when addenda are issued.

INDEMNITY REQUIREMENTS: The Bidder assumes all risks incident to or in connection with its purpose to be conducted herein under and shall indemnify, defend and save Contracting Entity harmless from damage or injuries of whatever nature or kind to persons or property arising directly or indirectly out of the Bidder's operations and transportation of the Contracting Entity's equipment to and from repair site regardless of fault and arising from acts or omissions of its employees regardless of fault and shall indemnify, defend, and save harmless Contracting Entity from any penalties for violation of any law, ordinance or regulation affecting or having application to said operation.

UNDUE INFLUENCE: Upon advertising this solicitation, no officer, employee, agent, or representative of the Bidder shall have any contact or discussion, verbal or written, with any representative of the Contracting Entity (i.e. Trust Officer, City Council member, City staff, etc.) either directly or indirectly through others in which the Bidder seeks to influence any representative of the Contracting Entity regarding any matters pertaining to this solicitation.

Contacts by the Bidder with the Contracting Entity that do not pertain to a solicitation are exempt from this provision. Examples of these exempt contacts are:

- Private, non-business, contacts with the Contracting Entity by the Bidder's employees acting in their personal capacity
- Business contacts outside of this solicitation that the Contracting Entity may have with the Bidder
- Presentations and/or responses to inquiries initiated by the Contracting Entity
- Pre-bid or pre-proposal conferences
- Discussions with The City Procurement Agent, buyer or departmental contact as outlined in the bid packet

If a representative of any Bidder submitting a bid violates the foregoing prohibition by contacting any of these parties, such contact may result in the Bidder being disqualified from the procurement process.

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BID SPECIFICATIONS

Technical Provisions

INTENT: To obtain three (3) 100 Foot Midmount Aerial Platforms for the City of Oklahoma City Fire Department. The apparatus shall comply with the current edition of National Fire Protection Association (NFPA) 1901 standards.

It shall be the intent of these specifications to cover the furnishing and delivery of apparatus equipped as here in after specified. These specifications shall cover only the general requirements as to the type of construction and test to which the apparatus shall conform, together with certain details as to finish, equipment, and appliances, with which the successful Bidder shall conform. Minor details of construction and materials, which are not otherwise specified, are left to the discretion of the contractor. The manufacturer shall provide loose equipment only when specified by the customer. Otherwise, in accordance with the current edition of NFPA 1901 standards, the proposal shall specify whether the fire department or apparatus dealership shall provide required loose equipment.

The City recognizes that different manufacturers will have their own design of equipment and engineering details, which might deviate from the City's specifications. The City will consider any such deviations subject to the equipment bid conforming to the City's basic specifications, and meeting its performance, functional, and operational requirements. The respondent should, however, spell out clearly all such deviations, if any, on the bid and provide supportive literature and specifications. Failure to do so could result in bid rejection.

It is not the intention of the Purchaser to write out vendors or manufacturers of similar or equal equipment of the types specified. Proposals or alternate bids for any equipment that will effectively accomplish the same task will be given careful consideration. The Purchaser shall be the sole judge of equipment that is the most advantageous.

Bids shall be considered from companies that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of 20 years. Bidder must provide warranty repair and service for its product(s), directly or through the manufacture's approved dealer and / or service provider. Any dealer and or service provider designated by the manufacture to perform such work must have served as a warranty service and repair provider on behalf of the manufacturer for not less than three (3) continuous years from the posting date of this bid and fifty percent (50%) of providers primary business must be servicing and repairing heavy-duty emergency response fire apparatus or similar equipment.

At no time later than the closing of this bid, the manufacturer, or its approved dealer and / or service provider which meet the preceding qualifications must have an established service center or mobile service capabilities permanently based within fifty (50) miles of Oklahoma City, Oklahoma. Each bid must indicate whether warranty service and repair will be provided primarily through the manufacturer or the manufacturer's approved dealer and / or service provider and must include the Oklahoma City area service centers address or mobile service location of such provider. If warranty service and repair is to be provided through a service provider other than the manufacturer, the service provider's business name, primary business

address, and the number of years of operating as an approved warranty and service provider on behalf of the manufacturer must be submitted with each bid.

Each Bidder shall furnish satisfactory evidence of their ability to construct the apparatus specified and shall state the location of the factory where the apparatus is to be built. The Bidder shall also show that the company is in position to render prompt service and to furnish replacement parts for said apparatus.

Each bid shall be accompanied by a set of Contractor's Specifications consisting of a detailed description of the apparatus and equipment proposed and to which the apparatus furnished, under contract, shall conform. These specifications shall indicate size, type, model and make of all component parts and equipment.

COMPLIANCE QUESTIONNAIRE: Bidder shall indicate in the "yes" or "no" box on the questionnaire if their bid complies on each item specified. The compliance questionnaire for this bid packet is critical for evaluation of the bids submitted and must be completed. The questionnaire will be incorporated into the terms and conditions of the awarded contract.

EXCEPTIONS: Exceptions shall be allowed if they are equal to or superior to that specified and provided they are listed and fully explained in the comments section of the questionnaire. Bidders may attach a separate document clearly labeled "Exceptions" for further explanation. **Exceptions attachment shall be in the same sequence as the items in the specifications and on the questionnaire for ease of evaluation, comparison and checking of compliance.** All exceptions shall be stated no matter how seemingly minor. Any exceptions not taken shall be assumed by the Purchaser to be included in the proposal, regardless of the cost to the Bidder.

BID EVALUATION: Bids received will be evaluated to verify whether items meet, do not meet, or exceed specifications and to determine the best overall apparatus value for the Purchase. This evaluation will be based on, but is not limited to, the following criteria: Price; Commitment for expedient delivery; Commitment to warranty; Completeness of the proposal; Manufacturing and delivery schedule; Contractor's demonstrated capabilities and qualifications; Equipment supplier's demonstrated capabilities and qualifications; Design and engineering reliability factors; Equipment's maintainability consideration and recommendations; Planning documentation addressing design and engineering data, drawings and schematic layouts, logistical support, training, operations, and maintenance; Service capabilities and percentage of open source repair parts will be one of the criteria for award of this contract.

PROPOSAL ATTACHMENT: Bidder shall also attach a detailed proposal of the unit being proposed. A letter only, even though written on a company letterhead, shall not be sufficient. It should include detailed description of the apparatus and equipment proposed and shall include size, type, model and make of all component parts and equipment. Engineering design drawings of the apparatus that is being proposed is required with all bid proposals. **Bid proposal attachment shall be in the same sequence as the items in these specifications and on the questionnaire for ease of evaluation, comparison and checking of compliance (NO EXCEPTION).**

LIQUIDATED DAMAGES: If the successful Bidder fails to deliver the equipment or perform the services within the time specified, it is understood, and the successful Bidder hereby agrees, the amount of \$100 per unit, per calendar day, to a maximum of the contract price, may be deducted from the monies due the successful Bidder for each intervening calendar day any work remains incomplete, not as a penalty, but as liquidated damages. The successful Bidder shall not be liable if performance failure arises out of causes beyond the control, and without the fault or negligence of the successful Bidder (acts of God, war, fires, floods, freight embargoes, etc.). Should a performance failure occur, it will be the responsibility of the successful Bidder to notify the Purchaser in writing and submit proof of the circumstances for non-performance. Immediately following the resolution of circumstances responsible for non-performance, the successful Bidder must re-negotiate the delivery schedule.

PERISCOPE ATTACHMENTS: When uploading attachments in Periscope, please do not submit zip files.

VENDOR QUESTIONS: Any questions are to be submitted through Periscope. Questions will be answered, and any addenda issued if necessary.

PRICING: Pricing must be submitted through the Line-Item area of the electronic bidding system.

Technical questions are to be addressed through the electronic bidding system and the Buyer will respond electronically and issue addenda, if necessary.

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LETTER OF AUTHORIZATION

**THIS LETTER OF AUTHORIZATION MUST BE COMPLETED AND SIGNED IF THE
BID/PRICING AGREEMENT/CONTRACT FORM & NON-DISCRIMINATION STATEMENT
WAS NOT SIGNED BY THE OWNER, A GENERAL PARTNER, OR AN OFFICER OF THE
CORPORATION**

**THIS DOCUMENT CAN BE UPLOADED ELECTRONICALLY AS AN ATTACHMENT
TO ONE OF THE LINES ITEMS ON THE ELECTRONIC BID**

City of Oklahoma City or related Public Trust:

This letter authorizes _____ to sign the
BID/PRICING AGREEMENT/CONTRACT FORM & NON-DISCRIMINATION STATEMENT and
all forms related to on behalf of _____.
Company Name

Sincerely,

Signature of Authorized Agent

Print Title

Date

Print Name

Email Address: _____

Title: (must be checked)

- | | |
|--|--|
| <input type="checkbox"/> Owner | <input type="checkbox"/> Treasurer |
| <input type="checkbox"/> Chief Executive Officer [CEO] | <input type="checkbox"/> Corporate Secretary |
| <input type="checkbox"/> Chairman or Chairman of the Board | <input type="checkbox"/> Assistant Secretary |
| <input type="checkbox"/> President | <input type="checkbox"/> Secretary-Treasurer |
| <input type="checkbox"/> Vice-President | |

**BIDDER MUST ELECTRONICALLY PRINT, COMPLETE AND SIGN THIS
DOCUMENT PRIOR TO UPLOADING AS AN ATTACHMENT INTO THE
ELECTRONIC BID SYSTEM**

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BID23506 100 FOOT MIDMOUNT AERIAL PLATFORM**QUESTIONNAIRE**

Bidder must complete the entire Compliance Questionnaire in order to be considered for an award. Bidder shall indicate in the “yes” or “no” box if their bid complies on each item specified. Exceptions shall be allowed if they are equal to or superior to that specified and provided they are listed and fully explained on a separate attachment clearly labeled “Exceptions”. Exceptions attachment shall be in the same sequence as the items in the specifications and on the questionnaire for ease of evaluation, comparison and checking of compliance. Engineering design drawings of the apparatus that is being proposed will be required in all bid proposals. The compliance questionnaire for this bid packet is critical for evaluation of the bids submitted and must be completed. The questionnaire will be incorporated into the terms and conditions of the awarded contract.

Vendors are to indicate compliance in the appropriate box. Explain all “No” responses in a separate attachment clearly labeled “Exceptions”

1. INTENT:		Compliance
To obtain three (3) 100 Foot Midmount Aerial Platforms for the City of Oklahoma City Fire Department. The apparatus shall comply with the current edition of National Fire Protection Association (NFPA) 1901 standards.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
2. BIDDER QUALIFICATIONS:		
<p>Bids shall be considered from companies that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of 20 years. Bidder must provide warranty repair and service for its product(s), directly or through the manufacture’s approved dealer and / or service provider. Any dealer and or service provider designated by the manufacture to perform such work must have served as a warranty service and repair provider on behalf of the manufacturer for not less than three (3) continuous years from the posting date of this bid and fifty percent (50%) of providers primary business must be servicing and repairing heavy-duty emergency response fire apparatus or similar equipment.</p> <p>At no time later than the closing of this bid, the manufacturer or its approved dealer and / or service provider which meet the preceding qualifications must have an established service center or mobile service capabilities permanently based within fifty (50) miles of Oklahoma City, Oklahoma. Each bid must indicate whether warranty service and repair will be provided primarily through the manufacturer or the manufacturer’s approved dealer and / or service provider and must include the Oklahoma City area service centers address or mobile service location of such provider. If warranty service and repair is to be provided through a service provider other than the manufacturer, the service provider’s business name, primary business address, and the number of years of operating as an approved warranty and service provider on behalf of the manufacturer must be submitted with each bid.</p> <p>Each Bidder shall furnish satisfactory evidence of their ability to construct the apparatus specified and shall state the location of the factory where the apparatus is to be built. The</p>		

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Bidder shall also show that the company is in position to render prompt service and to furnish replacement parts for said apparatus.

Each bid shall be accompanied by a set of Contractor's Specifications consisting of a detailed description of the apparatus and equipment proposed and to which the apparatus furnished, under contract, shall conform. These specifications shall indicate size, type, model and make of all component parts and equipment.

☐ Yes ☐ No

COMMENTS:

3. WARRANTY AND WARRANTY REPAIR:

Warranty shall begin at the time the apparatus is placed into service by the Purchaser. Purchaser shall notify successful Bidder the date of in service. When warranty repairs are necessary, the Bidder is responsible for pick-up and delivery of the apparatus at the Oklahoma City Fire Maintenance Facility, 600 North Portland, Oklahoma City, Oklahoma 73107 at no cost to the Purchaser. If travel to a repair facility exceeds 200 miles then transport will be required.

Bidder accepts responsibility for any liabilities, losses or damages incurred while apparatus is in their possession during warranty repairs or while apparatus is being transported or driven by Bidder or Bidder's agent performing warranty repair. An Insurance Certificate shall be provided to Purchaser as proof of insurance prior to apparatus being released to Bidder or Bidder's agent.

Each Bidder shall include with the bid detailed information on the Bidder's ability to perform routine and emergency service on the apparatus after delivery. Detailed information shall be provided on service facilities, personnel, service vehicles, and the type and nature of repair work the Bidder is able to provide. Bidder shall state the number of miles from the Purchaser's facility to the nearest fully staffed repair facility operated by the Bidder. It is the intent of the Purchaser to assure that parts and service are readily available for the equipment specified.

Within forty-eight hours after receipt of verbal or written notification by the Purchaser that a warranty service is required, the successful Bidder shall respond verbally, and immediately follow up by letter or electronic correspondence to the Fire Fleet Manager with a statement of intent to perform warranty repairs. If Bidder agrees to have the Purchaser complete the warranty repairs and reimburse Purchaser, a letter signed by both parties will be required.

In the event that there is no response from the Bidder, the response exceeds forty-eight hours, or if the response is not acceptable to the Fire Chief and/or Fire Fleet Manager, Maintenance Services will provide required warranty service, and the total costs shall be reimbursed to the Purchaser.

When Purchaser performs warranty work, successful Bidder shall reimburse the City of Oklahoma City \$150 per labor hour for all warranty work performed by Purchaser. An invoice will be mailed to the Bidder and reimbursement shall be received within 30 calendar days from the date of the invoice.

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Successful Bidder shall provide a replacement part to Purchaser within 7 working days after notification of Purchaser supplied part being used. Upon receipt of the replacement part, the Purchaser shall, if requested by Bidder, return the original removed part in question to the successful Bidder. Exact details to be discussed and agreed upon at pre-construction conference. The successful Bidder shall pay shipping costs for faulty parts and replacement parts. Purchaser may choose to bill successful Bidder for stock replacement or locally procured parts in lieu of receiving replacement parts.

☐ Yes ☐ No

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COMMENTS:**4. PRE-CONSTRUCTION AND FINAL INSPECTION TRIPS:**

The successful Bidder shall provide two (2) factory trips, to be held at the manufacturer's facility, for Oklahoma City Fire Department (OKCFD) personnel.

One pre-construction conference, prior to manufacturing, for five (5) official personnel from OKCFD. All modifications decided at the pre-construction conference shall be in written form and must be signed by the Fire Chief, or his designee, and the successful Bidder.

One final inspection trip for six (6) official personnel from OKCFD.

The inspection trips shall be scheduled at times mutually agreed upon between the manufacturer's representative and the Fire Department. All expenses will be the responsibility of the Bidder and paid by the Bidder. Fire Department employees will adhere to the City travel policy while traveling for City business. All travel over 200 miles will be by commercial air limited to coach airfare. Travel time is no more than 24 hours before and after the date of the inspection. Reasonable expenses for lodging and meals shall be paid by the Bidder. Single or double occupancy room rates shall apply with only room and tax expense paid. Meal expenses including alcoholic beverages are not allowed. Bidder shall reimburse Fire Department personnel for any baggage fee with receipt provided. Special events and tours that are not job-related and are leisure activity paid by the Bidder are not permissible

☐ Yes ☐ No
COMMENTS:**5. QUALITY AND WORKMANSHIP:**

The design of the apparatus shall embody the latest approved automotive engineering practices. The workmanship shall be of the highest quality in its respective field. Special consideration shall be given to the following points: Accessibility of the various units which require periodic maintenance, ease of operation (including both pumping and driving) and symmetrical proportions. Construction shall be rugged and ample safety factors shall be provided to carry the loads specified and to meet both on and off-road requirements and speed conditions, as set forth under Performance Tests and Requirements. Welding shall not be employed in the assembly of the apparatus, in a manner that shall prevent the ready removal, of any component part for service or repair. All steel welding shall follow American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding shall follow American Welding Society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding shall follow American Welding Society B2.1-2000 requirements for structural welding of sheet metal. Flux core arc welding to use alloy rods, type 7000, American Welding Society standards A5.20-E70T1. Employees classified as welders are tested and certified to meet American Welding Society codes upon hire and every three (3) years

thereafter. The manufacturer shall be required to have an American Welding Society certified welding inspector in plant during working hours to monitor weld quality.

☐ Yes ☐ No

COMMENTS:

6. DELIVERY:

To ensure proper break in of all components while still under warranty, the apparatus shall be delivered under its own power - rail or truck freight shall not be acceptable.

Maximum acceptance delivery time shall be 365 days from the date of purchase order. Therefore, each bid shall specify the number of calendar days after receipt of purchase order in which the apparatus will be delivered to the Purchaser. The complete apparatus, and all tools and equipment called for in these specifications shall be delivered F.O.B. to the Oklahoma City Fire Department Maintenance Facility, 600 North Portland, Oklahoma City, Oklahoma 73107. Since delivery proposals by Bidders will weigh heavily in the determination of the award of bid, the delivery schedules that are submitted by the Bidders and agreed upon by the Purchaser shall automatically become binding upon the successful Bidder. All Bidders shall provide as part of their bid proposal a milestone chart identifying the major projected dates from the initial step through delivery and acceptance. A delivery schedule shall be jointly arrived at in agreement between the Purchaser and the successful Bidder.

☐ Yes ☐ No

COMMENTS:

7. LIQUIDATED DAMAGES:

If the successful Bidder fails to deliver the equipment or perform the services within the time specified, it is understood, and the successful Bidder hereby agrees, the amount of \$100 per unit, per calendar day, to a maximum of the contract price, may be deducted from the monies due the successful Bidder for each intervening calendar day any work remains incomplete, not as a penalty, but as liquidated damages. The successful Bidder shall not be liable if performance failure arises out of causes beyond the control, and without the fault or negligence of the successful Bidder (acts of God, war, fires, floods, freight embargoes, etc.). Should a performance failure occur, it will be the responsibility of the successful Bidder to notify the Purchaser in writing and submit proof of the circumstances for non-performance. Immediately following the resolution of circumstances responsible for non-performance, the successful Bidder must re-negotiate the delivery schedule.

☐ Yes ☐ No

COMMENTS:

8. INFORMATION REQUIRED:

The manufacturer shall supply at time of delivery, a hard copy and one CD of the complete operation and maintenance manuals covering the completed apparatus as delivered. A permanent plate shall be mounted in the driver's compartment which specifies the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

☐ Yes ☐ No

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COMMENTS:		
9. TRAINING:		
Upon delivery of the apparatus the contractor will provide training in the operation and maintenance of the apparatus. Four days of training will be provided, one day per shift in the operation of the apparatus. One day of training will be provided to Fleet Maintenance personnel in the proper maintenance of apparatus. Training will include: vehicle pre-trip inspection, chassis operation, pump operation, aerial operation, and maintenance.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
10. PERFORMANCE TEST AND REQUIREMENTS:		
A road test shall be conducted with the apparatus fully loaded and a continuous run of a minimum of 10 miles shall be made under all driving conditions, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts, and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
11. FAILURE TO MEET TEST:		
In the event the apparatus fails to meet the test requirements of these specifications on the first trial, second trials may be made at the option of the Bidder, within 30 days of the date of the first trial. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Failure to comply with changes to conform to any clause of the specifications, within 30 days after notice is given to the Bidder of such changes, shall also be cause for rejection of the apparatus. Permission to keep or store the apparatus in any building owned or occupied by the Purchaser or its use by the Purchaser during the above-specified period with the permission of the Bidder shall not constitute acceptance.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
12. LIABILITY:		
The successful Bidder shall defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
13. SPECIFICATION BID REQUIREMENTS:		
Bidders shall indicate in the "yes/no" block if their bid complies on each item specified. Exceptions shall be allowed if they are equal to or superior to that specified and provided they are listed and fully explained on a separate page. Also, Bidders shall submit a		

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detailed proposal. A letter only, even though written on a company letterhead, shall not be sufficient. Bid proposals shall be submitted in the same sequence as specifications for ease of evaluation, comparison and checking of compliance.

☐ Yes ☐ No
COMMENTS:**14. EXCEPTIONS:**

All exceptions shall be stated no matter how seemingly minor. Any exceptions not taken shall be assumed by the Purchaser to be included in the proposal, regardless of the cost to the Bidder.

☐ Yes ☐ No
COMMENTS:**15. GENERAL CONSTRUCTION:**

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles. Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Association.

☐ Yes ☐ No
COMMENTS:**16. QUALITY MANAGEMENT SYSTEM:**

The manufacturer shall operate a quality management system and shall provide the standards utilized. The City of Oklahoma City often refers to the standards set under the requirements of ISO 9001. These standards sponsored by the International Organization for Standardization (ISO) specify the quality systems that shall be established by the manufacturer for design, manufacture, installation and service.

☐ Yes ☐ No
COMMENTS:**17. SINGLE SOURCE MANUFACTURER:**

Single source is a manufacturer that designs and manufactures their products, including the chassis, cab weldment, cab, pump house, and body. All should be assembled on the Bidder's premises. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) must be from a single source manufacturer and not split between manufacturers (e.g., body, pump house, cab weldment, chassis). The Bidder shall provide evidence that they comply with this requirement.

☐ Yes ☐ No

The Bidder shall state the location of the factory where the apparatus is to be built.

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COMMENTS:		
18. NFPA 2016 STANDARDS:		
<p>This unit shall comply with the NFPA standards effective January 1, 2016, except for Fire Department directed exceptions. These exceptions shall be set forth in the Statement of Exceptions. Certification of slip resistance of all stepping, standing and walking surfaces shall be supplied with delivery of the apparatus. A plate that is highly visible to the driver while seated shall be provided. This plate shall show the overall height, length, and gross vehicle weight rating. The manufacturer shall have programs in place for training, proficiency testing and performance for any staff involved with certifications. An official of the company shall designate, in writing, who is qualified to witness and certify test results.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
19. NFPA COMPLIANCY:		
<p>Apparatus proposed by the Bidder shall meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire Department's specifications that differ from NFPA specifications shall be indicated in the proposal as "non-NFPA."</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
20. VEHICLE INSPECTION PROGRAM CERTIFICATION:		
<p>To assure the vehicle is built to current NFPA standards, the apparatus, in its entirety, shall be third-party, independent, audit-certified through Underwriters Laboratory (UL) that is built and complies with all applicable standards in the current edition of NFPA 1901. The certification includes: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>A placard shall be affixed in the driver's side area stating the third-party agency, the date, the standard and the certificate number of the whole vehicle audit.</p>		
COMMENTS:		
21. DRAWINGS:		
<p>A preliminary drawing of the proposed apparatus shall be provided with bid. This drawing will be for reference only and not be expected to have exact measurements as an engineered drawing.</p> <p>An engineering drawing of the proposed apparatus shall be provided for approval before construction begins. The sales representative shall also have a copy of the same drawing. The finalized and approved drawing shall become part of the contract documents. This drawing shall indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.</p> <p>A "revised" approval drawing of the apparatus shall be prepared and submitted by the manufacturer to the Purchaser showing any changes made to the approval drawing.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No

COMMENTS:		
22. ELECTRICAL WIRING DIAGRAMS:		
Two (2) electrical wiring diagrams, prepared for the model of chassis and body, shall be provided.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
23. CHASSIS:		
The chassis provided shall be a new, tilt-type custom fire apparatus. The chassis shall be manufactured in the apparatus body builder's facility, eliminating any split responsibility. The chassis shall be designed and manufactured for heavy-duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
24. DIMENSIONS:		
The wheelbase of the vehicle shall be no greater than 264" The overall height shall not exceed 138" The overall length shall not exceed 44' The distance from the center rear axle to end of the apparatus (tail swing) shall not exceed 170"		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
25. GVW RATING:		
The gross vehicle weight rating shall be a minimum of 76,000 lbs.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
26. FRAME:		
The chassis frame shall be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails shall have approximately 13.00" tall web over the front and mid sections of the chassis, with a continuous smooth taper to approximately 10.75" over the rear axle. The frame rails shall be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges.		<input type="checkbox"/> Yes <input type="checkbox"/> No

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27. FRAME REINFORCEMENT:

In addition, a full-length mainframe internal liner shall be provided.

☐ Yes ☐ No**COMMENTS:**

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28. TOP SPEED OF VEHICLE:

A rear axle ratio shall be furnished to allow the vehicle to reach a top speed of 60 mph.

☐ Yes ☐ No**COMMENTS:**

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29. FRONT NON-DRIVE AXLE:

The front axle shall be of the independent suspension design with a ground rating of 24,000 lb.

☐ Yes ☐ No**COMMENTS:**

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30. FRONT SUSPENSION:

Front independent suspension shall be provided with a minimum ground rating of 24,000 lb.

The independent suspension system shall be designed to provide maximum ride comfort. The design shall allow the vehicle to travel at highway speeds over improved road surfaces and at moderate speeds over rough terrain with minimal transfer of road shock and vibration to the vehicle's crew compartment.

☐ Yes ☐ No**COMMENTS:**

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31. FRONT SHOCK ABSORBERS:

KONI heavy-duty telescoping shock absorbers shall be provided on the front suspension.

☐ Yes ☐ No**COMMENTS:**

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32. FRONT OIL SEALS:

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Oil seals with viewing window shall be provided on the front axle.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
33. FRONT TIRES:		
Front tires shall be Goodyear radials 445/65R22.50, 20 ply all-position G296 MSA tread, rated for 24,600 lb maximum axle load and 68 mph maximum speed. The tires shall be mounted on Alcoa 22.50" x 13.00" polished aluminum disc type wheels with a ten (10) stud, 11.25" bolt circle.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
34. REAR AXLE:		
The rear axle shall be a tandem axle assembly equipped with independent suspension and rear steering capability.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
35. REAR STEERING:		
The rear axle assembly will consist of a mechanically controlled rear steering system that is applied to both rear axles. The Steering geometry will maximize the turning diameter of the apparatus with minimized tire scrub.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
36. REAR SUSPENSION:		
The rear axle assembly will consist of a mechanically controlled rear steering system that is applied to both rear axles. The Steering geometry will maximize the turning diameter of the apparatus with minimized tire scrub.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
37. REAR OIL SEALS:		
Oil seals shall be provided on the rear axle(s).		<input type="checkbox"/> Yes <input type="checkbox"/> No

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COMMENTS:		
38. REAR TIRES:		
<p>Rear tires shall be four (4) Goodyear 445/65R22.50, 20 ply all position G296 MSA tread, rated for 52,640 lb maximin axle load at 68 mph.</p> <p>The tires shall be mounted on Alcoa© 22.50" x 13.00" steel disc style wheels with a ten (10) stud, 11.25" bolt circle.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
39. TIRE BALANCE:		
<p>All tires shall be balanced with Counteract balancing beads. The beads shall be inserted into the tire and eliminate the need for wheel weights.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
40. MUD FLAPS:		
<p>Mud flaps shall be installed behind the front and rear wheels of the apparatus.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
41. WHEEL CHOCKS:		
<p>There shall be one (1) pair of folding Ziamatic, Model SAC-44-E, aluminum alloy, Quick-Choc wheel blocks with easy-grip handle provided.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
42. WHEEL CHOCK BRACKETS:		
<p>There shall be one (1) pair of Zico, Model SQCH-44-H, horizontal mounting wheel chock brackets provided for the Ziamatic, Model SAC-44-E, folding wheel chocks. The brackets shall be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets shall be mounted rearward of the left side rear tire.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		

43. ANTI-LOCK BRAKE SYSTEM:

The vehicle shall be equipped with a Wabco 4S4M, anti-lock braking system. The ABS shall provide a four (4) channel anti-lock braking control on both the front and rear wheels (rear tandem wheels). A digitally controlled system that utilizes microprocessor technology shall control the anti-lock braking system. Each wheel shall be monitored by the system. When any particular wheel begins to lockup, a signal shall be sent to the control unit. This control unit then shall reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system shall eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

☐ Yes ☐ No
COMMENTS:**44. BRAKES:**

The service brake system will be full air type.
The front brakes will be Knorr/Bendix disc type with a 17.00" ventilated rotor for improved stopping distance.
The brake system will be certified, third party inspected, for improved stopping distance.
The rear brakes will be Bendix®, Model ES1657D, 16.50" x 7.00" cam operated with automatic slack adjusters.

☐ Yes ☐ No
COMMENTS:**45. AIR COMPRESSOR, BRAKE SYSTEM:**

The air compressor will be a Cummins/WABCO with 18.7 cubic feet per minute output.

☐ Yes ☐ No
COMMENTS:**46. BRAKE SYSTEM:**

The brake system will include:

- Bendix dual brake treadle valve
- Heated automatic moisture ejector on air dryer
- Total air system capacity of 6,653 cubic inches
- Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi
- Spring set parking brake system
- Parking brake operated by a push-pull style control valve
- A parking "brake on" indicator light on instrument panel
- Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, will be provided with an automatic spring brake application at 40 psi
- A pressure protection valve will be provided to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa).
- Quarter turn drain valves on each air tank

The air tank will be primed and painted to meet a minimum 750-hour salt spray test.

☐ Yes ☐ No

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To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets.

COMMENTS:**47. BRAKE LINES:**

Color-coded nylon brake lines shall be provided. The lines shall be wrapped in a heat protective loom where necessary in the chassis.

☐ Yes ☐ No
COMMENTS:**48. AIR INLET:**

One (1) air inlet with male coupling shall be provided. It shall allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet shall be located forward in the driver side lower step well of cab. A check valve shall be provided to prevent reverse flow of air. The inlet shall discharge into the "wet" tank of the brake system. A mating female fitting shall also be provided with the loose equipment.

☐ Yes ☐ No
COMMENTS:**49. ALL WHEEL LOCK-UP:**

An additional all wheel lock-up system shall be installed which applies air to the front brakes only. The standard spring brake control valve system shall be used for the rear.

☐ Yes ☐ No
COMMENTS:**50. AIR COMPRESSOR – BRAKE SYSTEM MAINTENANCE:**

A Kussmaul, Model 091-9HP, air compressor shall be provided. It shall be driven by the 120-volt shoreline electrical system and shall be located TBD. The compressor shall maintain the air pressure in the chassis air brake system while the vehicle is not in use. A pressure switch shall sense when the system pressure drops and automatically start the compressor, which then shall run until pressure is restored.

☐ Yes ☐ No
COMMENTS:**51. ENGINE:**

The chassis shall be powered by an electronically controlled engine as described below:

Make:	Cummins®
Model:	X15
Power:	605 hp at 1800 rpm
Torque:	1850 lb-ft at 1200 rpm

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Governed Speed:	2100 rpm	
Emissions Level:	EPA 2021	
Fuel:	Diesel	
Cylinders:	Six (6)	
Displacement:	912 cubic inches (14.9L)	
Starter:	Delco 39MT+™	
Fuel Filters:	Frame mounted spin-on style primary filter with water separator and water-in-fuel sensor	
		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
52. REMOTE MOUNTED FILTERS:		
The engine oil and fuel filters will be remote mounted for ease of maintenance.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
53. HIGH IDLE:		
<p>A high idle switch shall be provided, inside the cab, on the instrument panel, that shall automatically maintain a preset engine rpm. A switch shall be installed, at the cab instrument panel, for activation/deactivation.</p> <p>The high idle shall be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light shall be provided, adjacent to the switch. The light shall illuminate when the above conditions are met. The light shall be labeled "OK to Engage High Idle."</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
54. ENGINE BRAKE:		
<p>A Jacobs® engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.</p> <p>The driver shall be able to turn the engine brake system on/off and have a high, medium and low setting.</p> <p>The engine brake shall be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.</p> <p>The ABS system shall automatically disengage the auxiliary braking device when required.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
55. CLUTCH FAN:		
A Horton® fan clutch shall be provided. The fan clutch shall be automatic when the pump		

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transmission is in "Road" position, and fully engaged in "Pump" position.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
56. ENGINE SHUTDOWN W/RESET:		
An emergency engine shutdown, by means of incorporating a flapper over the engine air intake, shall be provided with a pneumatic push-to-activate control inside the cab. A protective guard shall be supplied to avoid unnecessary activation. The push-to-active control inside the cab can also be used to release the emergency shutdown, without having to tilt the cab.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
57. ENGINE OIL:		
The engine shall be provided from the apparatus builder with synthetic oil installed.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
58. GUARD, U-BOLT OVER EMERGENCY SHUTDOWN SWITCH:		
A U-bolt type protective guard shall be installed over the emergency shutdown switch to prevent accidental activation of the emergency shutdown switch.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
59. ENGINE AIR INTAKE:		
An air intake with an ember separator (to prevent road dirt, burning embers, and recirculating hot air from entering the engine) shall be mounted at the front of the apparatus, on the passenger side of the engine. The ember separator shall be mounted in the air intake with flame retardant, roto-molded polyethylene housing. It shall be easily accessible by the hinged access panel at the front of the vehicle.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
60. EXHAUST SYSTEM:		
The exhaust system shall include a diesel particulate filter (DPF) and a selective catalytic reduction (SCR) device to meet current EPA standards. The exhaust system shall be stainless steel from the turbo to the inlet of the SCR device and shall be 5.00" in diameter. An insulation wrap shall be provided on all exhaust pipes between the turbo and SCR to		

minimize the transfer of heat to the cab. The exhaust shall terminate horizontally ahead of the right-side rear wheels. A tailpipe diffuser shall be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields shall be provided to isolate chassis and body components from the heat of the tailpipe diffuser.

☐ Yes ☐ No
COMMENTS:**61. EXHAUST MODIFICATION:**

The exhaust pipe shall be brought out from under the body at a 90-degree angle from the truck. An adapter shall be provided on the tail pipe, allowing use of an MagneGrip magnetic mount exhaust hose. The diameter of the diffuser shall be 6.00". The exhaust pipe shall terminate flush with the outer edge of the rubrail. A stop shall be provided on the tail pipe that shall prevent the nozzle from sliding too far on.

☐ Yes ☐ No
COMMENTS:**62. RADIATOR:**

The radiator and the complete cooling system shall meet or exceed NFPA and engine manufacturer cooling system standards.

For maximum corrosion resistance and cooling performance, the entire radiator core shall be constructed using long life aluminum alloy. The core shall be made of aluminum fins, having a serpentine design, brazed to aluminum tubes. The tubes shall be brazed to aluminum headers. No solder joints or leaded material of any kind shall be acceptable in the core assembly. Supply tank made of glass-reinforced nylon and a return tank of cast aluminum alloy shall be crimped on to the core assembly using header tabs and a compression gasket to complete the radiator core assembly. The radiator shall be compatible with commercial antifreeze solutions.

There shall be a full steel frame around the entire radiator core assembly. The radiator core assembly shall be isolated within the steel frame by rubber inserts to enhance cooling system durability and reliability. The radiator shall be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly shall be isolated from the chassis frame rails with rubber isolators.

The radiator assembly shall include an integral deaeration tank permanently mounted to the top of the radiator framework, with a readily accessible remote-mounted overflow tank. For visual coolant level inspection, the radiator shall have a built-in sight glass. The radiator shall be equipped with a 15-psi pressure relief cap.

A drain port shall be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.

A heavy-duty fan shall draw in fresh, cool air through the radiator. Shields or baffles shall be provided to prevent recirculation of hot air to the inlet side of the radiator.

☐ Yes ☐ No
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COMMENTS:

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63. COOLANT LINES:

Gates, or Goodyear, rubber hose shall be used for all engine coolant lines installed by the chassis manufacturer.

Hose clamps shall be stainless steel "constant torque type" to prevent coolant leakage. They shall react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.

☐ Yes ☐ No
COMMENTS:

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64. FUEL TANK:

A 65-gallon fuel tank shall be provided and mounted at the rear of the chassis. The tank shall be constructed of 12-gauge, hot rolled steel. It shall be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank shall be mounted with stainless steel straps.

A drain plug shall be provided in a low point of the tank for drainage.

A fill inlet shall be located on the left-hand side of the body and be covered with a hinged, spring-loaded, stainless-steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only."

A vent shall be provided running from top of tank to just below fuel fill inlet.

The tank shall meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.

All fuel lines shall be provided as recommended by the engine manufacturer.

☐ Yes ☐ No
COMMENTS:

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65. DIESEL EXHAUST FLUID TANK:

A 4.5-gallon diesel exhaust fluid (DEF) tank shall be provided and mounted in the driver's side body forward of the rear axle.

A drain plug shall be provided in a low point of the tank for drainage.

A fill inlet shall be located on the driver's side of the body and be covered with a hinged, spring loaded, polished stainless-steel door that is marked "Diesel Exhaust Fluid Only."

The tank shall meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing.

The tank shall include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.

☐ Yes ☐ No

COMMENTS:		
66. FUEL PRIMING PUMP:		
A Cummins automatic electronic fuel priming pump will be integrated as part of the engine.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
67. FUEL SHUTOFF:		
A fuel line shutoff valve will be installed on both the inlet and outlet of the primary fuel filter.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
68. FUEL SEPARATOR:		
The engine will be equipped with a Racor in-line spin-on fuel and water separator in addition to the engine fuel filters.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
69. FUEL COOLER:		
An air to fuel cooler shall be installed in the engine fuel return line.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
70. TRANSMISSION:		
<p>An Allison 5th generation, Model EVS 4500P, electronic, torque converting, automatic transmission shall be provided.</p> <p>The transmission shall be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display shall indicate when service is due.</p> <p>Two (2) PTO openings shall be located on left side and top of converter housing (positions 8 o'clock and 1 o'clock).</p> <p>A transmission temperature gauge with red light and buzzer shall be installed on the cab instrument panel.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No

COMMENTS:**71. TRANSMISSION SHIFTER:**

A six (6)-speed push button shift module shall be mounted to right of driver on console.
Shift position indicator shall be indirectly lit for after dark operation.

The transmission ratio shall be:

1st	3.51 to 1.00
2nd	1.91 to 1.00
3rd	1.43 to 1.00
4th	1.00 to 1.00
5th	0.75 to 1.00
6th	0.64 to 1.00
R	4.80 to 1.00

☐ Yes ☐ No
COMMENTS:**72. TRANSMISSION COOLER:**

A Modine plate and fin transmission oil cooler shall be provided using engine coolant to control the transmission oil temperature.

☐ Yes ☐ No
COMMENTS:**73. DOWNSHIFT MODE (W/ENGINE BRAKE):**

The transmission shall be provided with an aggressive downshift mode.

This shall provide earlier transmission downshifts to 3rd gear from 6th gear, resulting in improved engine braking performance.

☐ Yes ☐ No
COMMENTS:**74. TRANSMISSION FLUID:**

The transmission shall be provided with TranSynd, or other Allison approved TES-295 heavy duty synthetic transmission fluid.

☐ Yes ☐ No
COMMENTS:**75. DRIVELINE:**

Drivelines shall be a heavy-duty metal tube and be equipped with Spicer® 1810 universal joints.

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The shafts shall be dynamically balanced before installation.		<input type="checkbox"/> Yes <input type="checkbox"/> No
A splined slip joint shall be provided in each driveshaft where the driveline design requires it. The slip joint shall be coated with Glidecoat® or equivalent.		
COMMENTS:		
76. STEERING:		
Dual Sheppard, Model M110, steering gears, with integral heavy-duty power steering, shall be provided. For reduced system temperatures, the power steering shall incorporate an air to oil cooler and an Eaton, Model VN20, hydraulic pump with integral pressure and flow control. All power steering lines shall have wire braded lines with crimped fittings.		<input type="checkbox"/> Yes <input type="checkbox"/> No
A tilt and telescopic steering column shall be provided to improve fit for a broader range of driver configurations.		
COMMENTS:		
77. STEERING WHEEL:		
The steering wheel shall be 18.00" in diameter, have tilting and telescoping capabilities.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
78. BUMPER:		
An aluminum bumper, minimum of 10.00" high shall be attached to a bolted modular frame extension. The bumper shall be extended 15.00" from front face of cab. The bumper shall be metal finished and painted job color.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
79. GRAVEL PAN:		
A gravel pan, constructed of bright aluminum treadplate, shall be furnished between the bumper and cab face. The gravel pan shall be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
80. LIFT AND TOW MOUNTS:		
Mounted to the frame extension shall be lift and tow mounts. The lift and tow mounts shall be designed and positioned to adapt to certain tow truck lift systems.		

The lift and tow mounts with eyes shall be painted the same color as the frame.

☐ Yes ☐ No

COMMENTS:

81. TOW HOOKS:

No tow hooks are to be provided. This truck shall be equipped with a lift and tow package with integral tow eyes.

☐ Yes ☐ No

COMMENTS:

82. CAB:

The City of Oklahoma City realizes that each manufacture has different engineering designs that may differ from the following specifications. For this reason, all proposed specifications will be reviewed as long as they provide their structural processes and dimensions in a similar format as provided below.

The cab shall be designed specifically for the fire service and shall be manufactured by the chassis builder.

To provide quality at the source and single source customer support, the cab shall be built by the apparatus manufacturer in a facility located on the manufacturer's premises (no exception).

For reasons of structural integrity and enhanced occupant protection, the cab shall be of heavy-duty design, constructed to the following minimal standards.

The cab shall have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts) and rear wall areas. The A-pillar shall be constructed of 0.25" heavy wall extrusions joined by a solid A356-T6 aluminum joint casting. The B-pillar and C-pillar shall also be constructed from 0.25" heavy wall extrusions. The rear wall shall be constructed of two (2) 4.00" x 2.00" outer aluminum extrusions and two (2) 3.00" x 2.00" inner aluminum extrusions. All main vertical structural members shall run from the floor to 7.50" x 3.50" x 0.125" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.75" thick corner casting at each of the front corners of the roof assembly.

The front of the cab shall be constructed of a 0.25" thick firewall, covered with a 0.125" front skin (for a total thickness of 0.38"), and reinforced with 24.50" wide x 10.00" deep x 0.50" thick supports on each side of the engine tunnel. The cross-cab support shall be welded to the A-pillar, 0.25" firewall, and engine tunnel, on the left and right sides.

The cab floors shall be constructed of 0.1875" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.44" of structural material at the front floor area. The front floor area shall also be supported with three (3) 0.50" plates bolted together that also provides the mounting point for the cab lift. This tubing shall run from the front of the cab to the 0.1875" thick engine tunnel, creating the structure to support the forces created when lifting the cab.

The cab shall be a full-tilt style. A 3-point cab mount system with rubber isolators shall improve ride quality by isolating chassis vibrations from the cab.

The crew cab shall be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.

The forward cab section shall have an overall height (from the cab roof to the ground) of approximately 102.00". The crew cab section shall have a 10.00" raised roof, with an overall cab height of approximately 112.00". The raised portion shall start at the most forward point of the B-pillar and continue rearward to the back of the cab. The overall height listed shall be calculated based on a truck configuration with the lowest suspension weight ratings, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension shall increase the overall height listed.

The cab shall have an interior width of not less than 93.50". The driver and passenger seating positions shall have a minimum 24.00" clear width at knee level.

To reduce injuries to occupants in the seated positions, proper head clearance shall be provided. The floor to ceiling height inside the forward cab shall be no less than 60.25". The floor to ceiling height inside the crew cab shall be no less than 62.95" in the center position and 68.75" in the outboard positions.

The crew cab shall measure a minimum of 47.50" from the rear wall to the backside of the engine tunnel (knee level) for optimal occupant legroom.

☐ Yes ☐ No

COMMENTS:
83. INTERIOR CAB INSULATION:

The cab walls, ceiling and engine tunnel shall be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab shall be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling.

☐ Yes ☐ No

COMMENTS:
84. FENDER LINERS:

Full-circular, aluminum inner fender liners in the wheel wells shall be provided.

☐ Yes ☐ No

COMMENTS:
85. PANORAMIC WINDSHIELD:

A one-piece, safety glass windshield is the preferred windshield. *The City of Oklahoma City recognizes that not all manufactures manufacture fire apparatus cabs with a one-piece windshield. Two-piece windshields will be an accepted exception.* The windshield shall be full width and shall provide the occupants with a panoramic view. The cab windshield shall be bonded to the aluminum windshield frame using a urethane adhesive.

☐ Yes ☐ No

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A custom fit pattern shall be applied on the outside perimeter of the windshield for a finished automotive appearance.

COMMENTS:**86. WINDSHIELD WIPERS:**

Three (3) electric windshield wipers with a washer, in conformance with FMVSS and SAE requirements, shall be provided.

The windshield washer fluid reservoir shall be located at the front of the vehicle and be accessible through the access hood for simple maintenance.

☐ Yes ☐ No
COMMENTS:**87. FAST SERVICE ACCESS FRONT TILT HOOD:**

A full-width access hood shall be provided for convenient access to engine coolant, steering fluid, wiper fluid, cab lift controls, headlight power modules, and ember separator.

☐ Yes ☐ No
COMMENTS:**88. ENGINE TUNNEL:**

To provide structural strength, the engine tunnel sidewalls shall be constructed of 0.50" aluminum plate that is welded to both the 0.25" firewall and 0.38" heavy wall extrusion under the crew cab floor. To maximize occupant space, the top edges shall be tapered.

The back of the engine tunnel shall be no higher than 16.25" off the crew cab floor. The engine tunnel shall be insulated on both sides for thermal and acoustic absorption. The underside of the tunnel shall be covered with 1.00" thick polyether foam that is reinforced with an aluminized face. Thermal rating for this insulation shall be -40 degrees Fahrenheit to 300 degrees Fahrenheit. The insulation shall keep noise (dBA) levels at or lower than the specifications in the current edition of the NFPA 1901 standards.

☐ Yes ☐ No
COMMENTS:**89. CAB REAR WALL EXTERIOR COVERING:**

The exterior surface of the rear wall of the cab shall be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.

☐ Yes ☐ No

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90. CAB LIFT:

A hydraulic cab lift system shall be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. The hydraulic pump shall have a backup manual override, for use in the event of an electrical failure.

The cab lift controls shall be located at the driver side front of the cab, easily accessible under the full width front access hood. The controls shall include a permanently mounted raise/lower switch. For enhanced visibility during cab tilt operations, a remote-control tether with on/off switch shall be supplied on a coiled cord that shall extend from 2.00' (coiled) to 6.00' (extended).

The cab shall be capable of tilting 42 degrees and 80 degrees with crane assist to accommodate engine maintenance and removal. The cab pivots shall be located 46.00" apart to provide stability while tilting the cab.

The rear of the cab shall be locked down by a two (2)-point, automatic, hydraulic, double hook mechanism that fully engages after the cab has been lowered (self-locking). The dual 2.25" diameter hydraulic cylinders shall be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position.

For increased safety, a redundant mechanical stay arm shall be provided that must be manually put in place on the driver side between the chassis and cab frame when cab is in the raised position. This device shall be manually stowed to its original position before the cab can be lowered.

☐ Yes ☐ No
COMMENTS:

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91. CAB LIFT INTERLOCK:

The cab lift safety system shall be interlocked to the parking brake. The cab tilt mechanism shall be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism shall be disabled.

The cab lift safety system shall also be interlocked to the front stabilizers in the bumper. The cab tilt mechanism shall be active only when the front stabilizers are fully stowed, and fully tilted outboard. The cab tilt mechanism shall not allow the front stabilizers to be tilted inboard until the cab has been fully lowered and locked into position.

☐ Yes ☐ No
COMMENTS:

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92. GRILLE:

A bright finished aluminum mesh grille screen, inserted behind a formed bright finished grille surround, shall be provided on the front center of the cab, and shall serve as an air intake to the radiator. Grille will be painted with the corresponding fire station number.

☐ Yes ☐ No

COMMENTS:
93. DOOR JAMB SCUFFPLATES:

All cab door jambs shall be furnished with a polished stainless steel scuffplate, mounted on the striker side of the jamb.

☐ Yes ☐ No
COMMENTS:
94. MIRRORS:

Ramco, Model 6001CCHR, polished aluminum 9.25" wide x 13.50" high mirrors, with a convex section, and CAS750 add-on shall be mounted on each side of the front cab corner.

The flat glass in each mirror shall be heated and adjustable with remote controls that are convenient to the driver.

The convex section in each mirror shall be adjusted manually.

A 6.00" riser shall be provided between the mirror body and support arm on both sides.

☐ Yes ☐ No
COMMENTS:
95. CAB DOORS:

The forward cab and crew cab doors shall be the half-height style door. To enhance entry and egress to the cab, the forward cab doors shall be a minimum of 43.59" wide x 64.71" high. The crew cab doors shall measure a minimum of 37.87" wide x 73.75" high.

The forward cab and crew cab doors shall be constructed of extruded aluminum with a nominal material thickness of 0.125". The exterior door skins shall be constructed from 0.090" aluminum.

The forward cab door windows shall include a 7.50" high x 10.00" wide drop area at the front to enhance visibility.

A customized, vertical, pull-down type door handle shall be provided on the exterior of each cab door. The exterior handle shall be designed specifically for the fire service to prevent accidental activation and shall provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands. Each door shall also be provided with an interior flush, open style paddle handle that shall be readily operable from fore and aft positions and be designed to prevent accidental activation. The interior handles shall provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands.

The cab doors shall be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys shall be Model 751. The locks shall be capable of activating when the doors are open or closed. The doors shall remain locked if locks are activated when the doors are opened, then closed.

A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11-gauge leaf shall be provided on all cab doors. There shall be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.

A chrome grab handle shall be provided on the inside of each cab and crew cab door.

The cab steps at each cab door location shall be located below the cab doors and shall be exposed to the exterior of the cab.

☐ Yes ☐ No

COMMENTS:

96. CAB DOOR PANELS:

The inner cab door panels shall be constructed out of brushed stainless steel. The cab door panels shall be removable.

☐ Yes ☐ No

COMMENTS:

97. RECESSED POCKET WITH ELASTIC COVER:

To provide organized storage (clutter control) in the cab for miscellaneous equipment, the cab interior shall be provided with recessed storage pockets. The pockets shall be 5.63" wide x 2.00" high x 4.00" deep. The pockets shall be provided with a perforated elastic material cover to secure the equipment in the pocket. The pockets shall be installed in all available mounting locations of the overhead console.

☐ Yes ☐ No

COMMENTS:

98. ELECTRIC WINDOW CONTROLS:

Each cab entry door shall be equipped with an electrically operated tempered glass window. A window control panel shall be located on the door panel within easy reach of the respective occupant. Each switch shall allow intermittent or auto down operation for ease of use. Auto down operation shall be actuated by holding the window down switch for approximately one second. The driver control panel shall contain a control switch for each cab door's window. All other door control panels shall contain a single switch to operate the window within that door.

The window switches shall be connected directly to the battery power. This allows the windows to be raised and lowered when the battery switch is in the off position.

☐ Yes ☐ No

COMMENTS:

99. CAB STEPS:

The forward cab and crew cab access steps shall be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps

shall be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps shall be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps shall be a minimum 31.00" wide, and the crew cab steps shall be 24.25" wide with an 8.00" minimum depth. The inside cab steps shall not exceed 18.00" in height and be limited to two (2) steps. Three (3) step entrance designs shall not be acceptable due to safety concerns.

☐ Yes ☐ No
COMMENTS:**100. CAB EXTERIOR HANDRAILS:**

A 1.25" diameter slip-resistant, knurled aluminum handrail shall be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress. Handrails will be backlit with green LED lighting for ease of locating in low light/visibility environments.

☐ Yes ☐ No
COMMENTS:**101. STEP LIGHTS:**

For reduced overall maintenance costs compared to incandescent lighting, there shall be four (4) white LED step lights provided. The lights shall be installed at each cab and crew cab door, one per step. The lights shall be located in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep.

In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light. The lights shall be activated when the adjacent door is opened.

☐ Yes ☐ No
COMMENTS:**102. FENDER CROWNS:**

Rubber fender crowns shall be provided around the cab wheel openings.
Crowns shall be black.

☐ Yes ☐ No
COMMENTS:**103. CAB AIR FILTRATION:**

The vehicle will be equipped with an Active Air Purification system to provide purification of the interior air of the cab and crew cab.

System Construction

The unit will contain a PHI Cell using a UVC light with a quad-metallic hydrophilic catalyst to generate H₂O₂ and reactive oxygen species (ROS) to sanitize against various microbial species. The system will produce H₂O₂ at 20 to 50 parts per billion (PPB) to sanitize the atmosphere inside the apparatus. The system will be properly sized per application to support virus and bacteria kill rates. The unit will be stand-alone and contain its own airflow mechanism, with a stainless-steel outer housing. The expected PHI Cell life will be no less than one year. The unit will be environmentally friendly and not emit direct UVC outside of the unit. The system will not generate H₂O₂ levels above 0.1 ppm (1/10 of OSHA limits of 1 ppm) in the installed apparatus.

There will be two (2) additional PHI cells shipped loose with the unit.

The housing will be 16.00" wide x 5.75" high x 5.50" deep. The non-angled vertical surfaces will be provided with an additional 3.00" of clearance for air flow. The unit will be mounted to the rear of the driver seat.

An LED indicator light monitoring the PHI cell is active will be provided on the housing exterior.

System Certification/Testing

The system will be 3rd party tested to verify H₂O₂ production at 20 to 50 PPB, and to support virus and bacteria kill rates. The manufacturer must be ISO 9001:2015 certified. The system will meet all applicable sections of IEC 61373:2010 for shock and vibration, and SAE J1455 for electrical specifications.

System Operating Conditions

The unit will be resistant to dust particles normally found in apparatus. The working temperature of the system will be -22F to 149F (-30C to 65C).

The unit will operate at any time with or without occupants in the cab and will pose no harm to the occupants from H₂O₂, Ozone, or UVC light.

Electrical Wiring/Function

The system will be 12 VDC powered from the vehicle power supply and/or an external 12 VDC source. The system will draw a maximum of 1.5 amps and have a 5-amp integrated fuse in the wire harness.

☐ Yes ☐ No

COMMENTS:

104. MOUNTING PLATE ON ENGINE TUNNEL:

Equipment installation provisions shall be installed on the engine tunnel.

A .188" smooth aluminum plate shall be bolted to the top surface of the engine tunnel. The plate shall be located to the left of the officer and on the rear of the tunnel. It shall follow the contour of the engine tunnel and shall run the entire length of the engine tunnel. The plate shall be spaced off the engine tunnel .75" to allow for wire routing below the plate.

The mounting surface shall be red, industrial coating/Rhino lining.

☐ Yes ☐ No

COMMENTS:

105. MOUNTING PLATE(S):	
There will be three (3) full size of the side wall of the EMS cabinet pegboard mounting plate(s) provided and installed one on inboard side of EMS cabinet facing the engine tunnel one each side, Outboard side of rear wall (2). The plate will be 0.188" thick with 0.203" diameter holes, punched 1.00" on center in a pegboard pattern. The mounting surface will be painted to match the cab interior. The plates(s) will be mounted on 1.00" spacer stand-offs.	<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
106. CAB INTERIOR:	
<p>With safety as the primary objective, the wrap-around style cab instrument panel shall be designed with unobstructed visibility to instrumentation. The dash layout shall provide the driver with a quick reference to gauges that allows more time to focus on the road.</p> <p>The center console shall be a high impact ABS polymer and shall be easily removable for access to the defroster. The center console shall include louvers strategically located for optimal air flow and defrost capability to the windshield.</p> <p>The passenger side dashboard shall be constructed of painted aluminum for durability and low maintenance. For enhanced versatility, the passenger side dash shall include a flat nonslip working surface in order to keep items from sliding when placed on the dash.</p> <p>To provide optional (service friendly) control panels, switches and storage modules, a painted aluminum overhead console shall also be provided.</p> <p>To complete the cab front interior design, painted aluminum modesty panels shall be provided under the dash on both sides of the cab. The driver side modesty panel shall provide mounting for the battery switch and diagnostic connectors, while the passenger side modesty panel provides a glove box, and ground access to the main electrical distribution panel via quick quarter turn fasteners.</p> <p>To provide a deluxe automotive interior, the engine tunnel, side walls and rear wall shall be covered by a leather grain vinyl that is resistant to oil, grease, and mildew.</p> <p>The headliner shall be installed in both forward and rear cab sections. The headliner panel shall be a composition of an aluminum panel covered with a sound barrier and upholstery.</p> <p>The cab structure shall include designated raceways for electrical harness routing from the front of the cab to the rear upper portion of the cab. Raceways shall be extruded in the forward door frame, floor, walls and overhead in the area where the walls meet the ceiling. The raceways located in the floor shall be covered by aluminum extrusion, while the vertical and overhead raceways shall be covered by painted aluminum covers. The raceways shall improve harness integrity by providing a continuous harness path that eliminates wire chafing and abrasion associated with exposed wiring or routing through drilled metal holes. Harnesses shall be laid in place. Routing through holes in tubing shall not be accepted due to chaffing that installation causes.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No

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COMMENTS:		
107. CAB INTERIOR UPHOLSTERY:		
The cab interior upholstery shall be red. All cab interior materials shall meet FMVSS 302 (flammability of interior materials).		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
108. CAB INTERIOR PAINT:		
The cab interior metal surfaces shall be Rhino Lined red.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
109. CAB FLOOR:		
The cab and crew cab floor areas shall be covered with acoustical floor mat consisting of a black rubber facing and closed cell foam decoupler.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
110. CAB DEFROSTER/AC SYSTEM:		
<p>A ceiling mounted combination heater, defroster and air conditioning system will be installed in the cab above the engine tunnel area.</p> <p>A 54,000 BTU heater-defroster unit with 690 SCFM of air flow will be provided inside the cab. The heater-defrost will be installed in the forward portion of the cab ceiling. Air outlets will be strategically located in the cab header extrusion per the following:</p> <ul style="list-style-type: none"> One (1) adjustable will be directed towards the left side cab window One (1) adjustable will be directed towards the right-side cab window Six (6) fixed outlets will be directed at the windshield <p>The defroster will be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system will meet or exceed SAE J382 requirements.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No

COMMENTS:

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111. CAB/CREW CAB HEATER:

There will be one (1) 31,000 BTU auxiliary heater with 560 SCFM of air flow provided in each outboard rear facing seat risers with a dual scroll blower. An aluminum plenum incorporated into the cab structure used to transfer heat to the forward positions.

☐ Yes ☐ No
COMMENTS:

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112. AIR CONDITIONING:

A 19.10 cubic inch compressor will be installed on the engine.

A roof-mounted condenser with a 78,000 BTU output at 2,400 SCFM that meets and exceeds the performance specification will be installed on the cab roof. The condenser cover to be painted to match the cab roof.

The air conditioning system will be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50 percent relative humidity within 30 minutes. The cooling performance test will be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.

The evaporator unit will be installed in the rear portion of the cab ceiling over the engine tunnel. The evaporator will include one (1) high performance heating core, one (1) high performance cooling core with (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.

The evaporator unit will have a 52,000 BTU at 690 SCFM rating that meets and exceeds the performance specifications.

Adjustable air outlets will be strategically located on the forward plenum cover per the following:

- Four (4) will be directed towards the seating position on the left side of the cab
- Four (4) will be directed towards the seating position on the right side of the cab

Adjustable air outlets will be strategically located on the evaporator cover per the following:

- Five (5) will be directed towards crew cab area

A high efficiency particulate air (HEPA) filter will be included for the system. Access to the filter cover will be secured with four (4) screws.

The air conditioner refrigerant will be R-134A and will be installed by a certified technician.

☐ Yes ☐ No
COMMENTS:

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2**113. CLIMATE CONTROL:**

An automotive style controller will be provided to control the heat and air conditioning system within the cab. The controller will have three (3) functional knobs for fan speed, temperature, and air flow distribution (front to rear) control.

The system will control the temperature of the cab and crew cab automatically by pushing the center of the fan speed control knob. Rotate the center temperature control knob to set the cab and crew cab temperature.

The AC system will be manually activated by pushing the center of the temperature control knob.

Pushing the center of the air flow distribution knob will engage the AC for max defrost, setting the fan speeds to 100 percent and directing all air flow to the overhead forward position.

☐ Yes ☐ No
COMMENTS:**114. GRAVITY DRAIN TUBES:**

Two (2) condensate drain tubes will be provided for the air conditioning evaporator. The drip pan will have two (2) drain tubes plumbed separately to allow for the condensate to exit the drip pan. No pumps will be provided.

The drain tubes will terminate under the cab, on the inboard side of the front wheelwells.

☐ Yes ☐ No
COMMENTS:**115. INTERIOR CAB INSULATION:**

The cab walls, ceiling and engine tunnel shall be insulated in all strategic locations to maximize acoustic absorption and thermal insulation.

☐ Yes ☐ No
COMMENTS:**116. SUN VISORS:**

Two (2) smoked Lexan™ sun visors provided. The sun visors shall be located above the windshield with one mounted on each side of the cab.

There shall be a black plastic thumb latch provided to help secure each sun visor in the stowed position.

☐ Yes ☐ No
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2**117. GRAB HANDLE:**

A black rubber covered grab handle shall be mounted on the door post of the driver side and passenger side cab door to assist in entering the cab. The grab handle shall be securely mounted to the post area between the door and windshield.

☐ Yes ☐ No
COMMENTS:**118. ENGINE COMPARTMENT LIGHTS:**

There shall be one (1) Whelen, Model 3SC0CDCR, 12-volt DC, 3.00" white LED lights with Whelen, Model 3FLANGEC, chrome flange kits installed under the cab to be used as engine compartment illumination.

These lights shall be activated automatically when the cab is raised.

☐ Yes ☐ No
COMMENTS:**119. ACCESS TO ENGINE DIPSTICKS:**

For access to the engine oil and transmission fluid dipsticks, there shall be a door on the engine tunnel, inside the crew cab. The door shall be on the rear wall of the engine tunnel, on the vertical surface. The door shall be 17.75" wide x 12.75" high and be flush with the wall of the engine tunnel.

The engine oil dipstick shall allow for checking only. The transmission dipstick shall allow for both checking and filling. An additional port shall be provided for filling the engine oil.

The door shall have a rubber seal for thermal and acoustic insulation. One (1) flush latch shall be provided on the access door.

☐ Yes ☐ No
COMMENTS:**120. MAP BOX:**

There shall be one (1) map box with three (3) bins, open at top. The map box shall be installed at final inspection. The map box shall be divided into three (3) bins, each being 12.50" wide x 3.00" high x 12.00" deep. Each bin shall slant 30 degrees from horizontal. The map box shall be constructed of 0.125" aluminum and shall be painted to match the cab interior.

☐ Yes ☐ No
COMMENTS:**121. SEATING CAPACITY:**

The seating capacity in the cab shall be five (5).

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2☐ Yes ☐ No**COMMENTS:****122. DRIVER SEAT:**

A H.O. Bostrom, Sierra, air suspension high back seat will be provided in the cab for the driver. For increased convenience, the seat will include a manual control to adjust the horizontal position (5.50" travel). To provide flexibility for multiple driver configurations, the seat will have a reclining back, adjustable from 15 degrees back to 45 degrees forward. To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled.

The seat will include two (2) removable zip clean seat covers for the cushion, seat back and headrest and the foam of the seat to be an encapsulated barrier foam to create a waterproof barrier.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

☐ Yes ☐ No**COMMENTS:****123. OFFICER SEAT:**

A H.O. Bostrom, Tanker 550 series, SCBA air suspension seat will be provided in the cab for the officer. For optimal comfort, the seat will be provided with 18.50" deep cushion and contoured headrest. To ensure safe operation, the seat will be equipped with a sensor in the seat cushion and belt receptacle that will activate an alarm indicating the seat is occupied but not buckled.

The seat back will be an SCBA back style with a 5-degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location. SCBA retention hooks will be provided.

The seat will include two (2) removable zip clean seat covers for the cushion, seat bolsters and headrest and the foam of the seat to be an encapsulated barrier foam to create a waterproof barrier.

The seat will be furnished with a 3-point, shoulder type seat belt.

☐ Yes ☐ No**COMMENTS:****124. REAR FACING DRIVER SIDE OUTBOARD SEAT:**

There will be one (1) rear facing, HO Bostrom Tanker 450 SCBA seat provided at the driver side outboard position in the crew cab. For optimal comfort, the seat will be

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provided with 17.00" deep cushion. To ensure safe operation, the seat will be equipped with a sensor in the seat cushion and belt receptacle that will activate an alarm indicating the seat is occupied but not buckled.

The seat back will be an SCBA back style with a 5-degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include two (2) removable zip clean seat covers for the cushion, seat bolsters and headrest and the foam of the seat to be an encapsulated barrier foam to create a waterproof barrier.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

☐ Yes ☐ No
COMMENTS:**125. REAR FACING RIGHT SIDE CABINET:**

A rear facing cabinet shall be provided in the crew cab at the right-side outboard position.

The cabinet shall be 19.00" wide x 40.50" high x 26.50" deep. The interior door shall be web netting. The netting is to be made with 1.00" wide nylon material with 2.00" openings. The nylon webbing shall be permanently fastened at the inboard side of the cabinet and have spring clip and hook fasteners on the opposite side to secure it. The clear door opening shall be 16.50" wide x 37.00" high.

The cabinet shall include two (2) infinitely adjustable shelves with a 0.75" up-turned lip painted to match the cab interior.

The cabinet shall include no louvers.

The cabinet shall be constructed of smooth aluminum and coated with industrial coating/Rhino lining to match the cab interior.

☐ Yes ☐ No
COMMENTS:**126. CABINET LIGHT:**

There shall be one (1) white LED strip light installed on the left side of the interior cabinet door opening. The lights shall be controlled by a rocker switch on the exterior of the cabinet.

☐ Yes ☐ No
COMMENTS:**127. FORWARD FACING CENTER SEATS:**

There will be two (2) forward facing, HO Bostrom Tanker 400CT SCBA seats provided at

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the center position in the crew cab. For optimal comfort, the seats will be provided with 15.00" deep cushions. To ensure safe operation, the seats will be equipped with a sensor in the seat cushion and belt receptacle that will activate an alarm indicating the seat is occupied but not buckled.

The seat backs will be an SCBA back style with a 0-degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include four (4) removable zip clean seat covers for the cushion, side bolsters and headrest; the foam of the seat to be an encapsulated barrier foam to create a waterproof barrier, two (2) sets of covers for each seat.

The seats will be furnished with a 3-point, shoulder type seat belts. The seat belts will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

☐ Yes ☐ No
COMMENTS:**128. SEAT UPHOLSTERY:**

All seat upholstery shall be black Turnout Tuff material.

☐ Yes ☐ No
COMMENTS:**129. AIR BOTTLE HOLDERS:**

All SCBA type seats in the cab shall have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket shall include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp shall constrain the SCBA bottle in the seat and shall exceed the NFPA standard of 9G. Bracket designs with manual restraints (belts, straps, buckles) that could be inadvertently left unlocked and allow the SCBA to move freely within the cab during an accident, shall not be acceptable.

There shall be a quantity of four (4) SCBA brackets.

☐ Yes ☐ No
COMMENTS:**130. SEAT BELTS:**

All seating positions in the cab, crew cab shall have red seat belts.

To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length shall meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.

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The 3-point shoulder type seat belts shall also include the ReadyReach D-loop assembly to the shoulder belt system. The ReadyReach feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.

☐ Yes ☐ No
COMMENTS:**131. SHOULDER HARNESS HEIGHT ADJUSTMENT:**

All seating positions furnished with 3-point shoulder type seat belts shall include a height adjustment. This adjustment shall optimize the belts effectiveness and comfort for the seated firefighter. A total of four (4) seating positions shall have the adjustable shoulder harness.

☐ Yes ☐ No
COMMENTS:**132. CAB DOME LIGHTS:**

There shall be four (4) dual LED dome lights with black bezels provided. Two (2) lights shall be mounted above the inside shoulder of the driver and officer and two (2) lights shall be installed and located, one (1) on each side of the crew cab.

The color of the LED's shall be red and white.

The white LED's shall be controlled by the door switches and the lens switch.

The color LED's shall be controlled by the lens switch.

☐ Yes ☐ No
COMMENTS:**133. CAB INSTRUMENTATION:**

The cab instrument panel shall consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches shall be identified by a label adjacent to each item. Actuation of the headlight switch shall illuminate the labels in low light conditions. Telltale indicator lamps shall not be illuminated unless necessary. The cab instruments and controls shall be conveniently located within the forward cab section directly forward of the driver. Gauge and switch panels shall be designed to be removable for ease of service and low cost of ownership.

☐ Yes ☐ No
COMMENTS:**134. GAUGES:**

The gauge panel shall include the following ten (10) ivory gauges with chrome bezels to monitor vehicle performance:

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- Voltmeter gauge (Volts)
Low volts (11.8 VDC)
Amber indicator on gauge assembly with alarm
High volts (15 VDC)
Amber indicator on gauge assembly with alarm
Very low volts (11.3 VDC)
Amber indicator on gauge assembly with alarm
Very high volts (16 VDC)
Amber indicator on gauge assembly with alarm
- Tachometer (RPM)
- Speedometer (Primary (outside) MPH, Secondary (inside) Km/H)
- Fuel level gauge (Empty - Full in fractions)
Low fuel (1/8 full)
Amber indicator on gauge assembly with alarm
Very low fuel (1/32) fuel
Amber indicator on gauge assembly with alarm
- Engine oil pressure gauge (PSI)
Low oil pressure to activate engine warning lights and alarms
Red indicator on gauge assembly with alarm
- Front air pressure gauge (PSI)
Low air pressure to activate warning lights and alarm
Red indicator on gauge assembly with alarm
- Rear air pressure gauge (PSI)
Low air pressure to activate warning lights and alarm
Red indicator on gauge assembly with alarm
- Transmission oil temperature gauge (Fahrenheit)
High transmission oil temperature activates warning lights and alarm
Amber indicator on gauge assembly with alarm
- Engine coolant temperature gauge (Fahrenheit)
High engine temperature activates an engine warning light and alarm
Red indicator on gauge assembly with alarm

- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions)

Low fluid (1/8 full)

☐ Yes ☐ No

Amber indicator on gauge assembly with alarm

All gauges and gauge indicators shall perform prove out at initial power-up to ensure proper performance

COMMENTS:

135. INDICATOR LAMPS:

To promote safety, the following telltale indicator lamps shall be integral to the gauge assembly and are located above and below the center gauges. The indicator lamps shall be "dead-front" design that is only visible when active. The colored indicator lights shall have descriptive text or symbols.

The following amber telltale lamps shall be present:

- Low coolant
- Trac cntl (traction control) (where applicable)
- Check engine
- Check trans (check transmission)
- Aux brake overheat (Auxiliary brake overheat)
- Air rest (air restriction)
- Caution (triangle symbol)
- Water in fuel
- DPF (engine diesel particulate filter regeneration)
- Trailer ABS (where applicable)
- Wait to start (where applicable)
- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- SRS (supplemental restraint system) fault (where applicable)
- DEF (low diesel exhaust fluid level)

The following red telltale lamps shall be present:

- Warning (stop sign symbol)
- Seat belt

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- Parking brake
- Stop engine
- Rack down

The following green telltale lamps shall be provided:

- Left turn
- Right turn
- Battery on

The following blue telltale lamp shall be provided:

- High beam

☐ Yes ☐ No
COMMENTS:**136. ALARMS:**

Visual alarms will be provided whenever a warning message is present.

All if any audio alarms will be able to be fully silenced by the apparatus operator.

☐ Yes ☐ No
COMMENTS:**137. INDICATOR LAMP AND ALARM PROVE-OUT:**

Telltale indicators and alarms shall perform prove-out at initial power-up to ensure proper performance.

☐ Yes ☐ No
COMMENTS:**138. CONTROL SWITCHES:**

For ease of use, the following controls shall be provided immediately adjacent to the cab instrument panel within easy reach of the driver.

Emergency master switch: A molded plastic push button switch with integral indicator lamp shall be provided. Pressing the switch shall activate emergency response lights and siren control. A green lamp on the switch provides indication that the emergency master mode is active. Pressing the switch again disables the emergency master mode.

Headlight / Parking light switch: A three (3)-position maintained rocker switch shall be provided. The first switch position shall deactivate all parking lights and the headlights. The second switch position shall activate the parking lights. The third switch position shall activate the headlights.

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Panel backlighting intensity control switch: A three (3)-position momentary rocker switch shall be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the switch is held. The second switch position is the default position that does not affect the backlighting intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.

The following standard controls shall be integral to the gauge assembly and are located below the right-hand gauges. All switches have backlit labels for low light applications.

High idle engagement switch: A two (2)-position momentary rocker switch with integral indicator lamp shall be provided. The first switch position is the default switch position. The second switch position shall activate and deactivate the high idle function when pressed and released. The "Ok To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch shall indicate when the high idle function is engaged.

"Ok To Engage High Idle" indicator lamp: A green indicator light shall be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.

The following standard controls shall be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches shall have backlit labels for low light applications.

Ignition switch: A three (3)-position maintained/momentary rocker switch shall be provided. The first switch position shall deactivate vehicle ignition. The second switch position shall activate vehicle ignition. The third momentary position shall disable the Command Zone audible alarm if held for three to five seconds. A green indicator lamp shall be activated with vehicle ignition.

Engine start switch: A two (2)-position momentary rocker switch shall be provided. The first switch position is the default switch position. The second switch position shall activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.

4-way hazard switch: A two (2)-position maintained rocker switch shall be provided. The first switch position shall deactivate the 4-way hazard switch function. The second switch position shall activate the 4-way hazard function. The switch actuator shall be red and includes the international 4-way hazard symbol.

Heater, defroster, and optional air conditioning control panel: A control panel with membrane switches shall be provided to control heater/defroster temperature and heater, defroster, and air conditioning fan speeds. A green LED status bar shall indicate the relative temperature and fan speed settings.

Turn signal arm: A self-canceling turn signal with high beam headlight and windshield wiper/washer controls shall be provided. The windshield wiper control shall have high, low, and intermittent modes.

☐ Yes ☐ No

Parking brake control: An air actuated push/pull park brake control valve shall be provided.

Chassis horn control: Activation of the chassis horn control shall be provided through the center of the steering wheel.

COMMENTS:

139. CUSTOM SWITCH PANELS:

The design of cab instrumentation shall allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There shall be positions for up to four (4) switch panels in the overhead console on the driver's side, up to four (4) switch panels in the engine tunnel console facing the driver, up to four (4) switch panels in the overhead console on the officer's side and up to two (2) switch panels in the engine tunnel console facing the officer. All switches shall have backlit labels for low light applications.

☐ Yes ☐ No
COMMENTS:**140. DIAGNOSTIC PANEL:**

A diagnostic panel shall be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel shall allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches shall allow ABS systems to provide blink codes should a problem exist.

The diagnostic panel shall include the following:

- Engine diagnostic port
- Transmission diagnostic port
- ABS diagnostic port
- SRS diagnostic port
- ABS diagnostic switch (blink codes flashed on ABS telltale indicator)
- Diesel particulate filter regeneration switch
- Diesel particulate filter regeneration inhibit switch

☐ Yes ☐ No
COMMENTS:**141. CAB LCD DISPLAY:**

A digital four (4)-row by 20-character dot matrix display shall be integral to the gauge panel. The display shall be capable of showing simple graphical images as well as text. The display shall be split into three (3) sections. Each section shall have a dedicated function. The upper left section shall display the outside ambient temperature.

The upper right section shall display, along with other configuration specific information:

- Odometer
- Trip mileage
- PTO hours

- Fuel consumption - Engine hours The bottom section shall display INFO, CAUTION, and WARNING messages. Text messages shall automatically activate to describe the cause of an audible caution or warning alarm. The LCD shall be capable of displaying multiple text messages should more than one caution or warning condition exist.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
142. AIR RESTRICTION INDICATOR:		
A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm shall be provided.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
143. "DO NOT MOVE APPARATUS" INDICATOR:		
A flashing red indicator light, located in the driving compartment, shall be illuminated automatically per the current NFPA requirements. The light shall be labeled "Do Not Move Apparatus If Light Is On." The same circuit that activates the Do Not Move Apparatus indicator shall activate a pulsing alarm when the parking brake is released.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
144. DO NOT MOVE TRUCK MESSAGES:		
Messages shall be displayed on the color display located within sight of the driver whenever the Do Not Move Truck light is active. The messages shall designate the item or items not in the stowed for vehicle travel position (parking brake disengaged). The following messages shall be displayed (where applicable): <ul style="list-style-type: none"> • Do Not Move Truck • DS Cab Door Open (Driver Side Cab Door Open) • PS Cab Door Open (Passenger's Side Cab Door Open) • DS Crew Cab Door Open (Driver Side Crew Cab Door Open) • PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open) • DS Body Door Open (Driver Side Body Door Open) • PS Body Door Open (Passenger's Side Body Door Open) 		

<ul style="list-style-type: none"> • Rear Body Door Open • Aerial Not Stowed (Aerial Device Not Stowed) • Stabilizer Not Stowed <p>Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause major damage to the apparatus if the apparatus is moved shall be displayed as a caution message after the parking brake is disengaged.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
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COMMENTS:**145. SWITCH PANELS:**

The emergency light switch panel shall have a master switch for ease of use plus individual switches for selective control. Each switch panel shall contain eight (8) membrane-type switches each rated for one million (1,000,000) cycles. Panels containing less than eight (8) switch assignments shall include non-functioning black appliques. Documentation shall be provided by the manufacturer indicating the rated cycle life of the switches. The switch panel(s) shall be located in the overhead position above the windshield on the driver side overhead to allow for easy access.

Additional switch panel(s) shall be located in the overhead position(s) above the windshield or in designated locations on the lower instrument panel layout.

The switches shall be membrane-type and also act as an integral indicator light. For quick, visual indication the entire surface of the switch shall be illuminated white whenever back lighting is activated and illuminated green whenever the switch is active. An active illuminated switch shall flash when interlock requirements are not met or device is actively being load managed. For ease of use, a two (2)-ply, scratch resistant laser engraved Gravoply label indicating the use of each switch shall be placed in the center of the switch. The label shall allow light to pass through the letters for ease of use in low light conditions.

☐ Yes ☐ No
COMMENTS:**146. WIPER CONTROL:**

For simple operation and easy reach, the windshield wiper control shall be an integral part of the directional light lever located on the steering column. The wiper control shall include high and low wiper speed settings, a one-speed intermittent wiper control and windshield washer switch. The control shall have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.

☐ Yes ☐ No
COMMENTS:**147. HOURMETER – AERIAL DEVICE:**

An hourmeter for the aerial device shall be provided and located within the cab display or instrument panel.

☐ Yes ☐ No

COMMENTS:		
148. AERIAL MASTER:		
There shall be a master switch for the aerial operating electrical system provided.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
149. AERIAL PTO SWITCH:		
A PTO switch for the aerial with indicator light shall be provided.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
150. SPARE CIRCUIT:		
<p>There shall be two (2) pair of wires, including a positive and a negative, installed on the apparatus.</p> <p>The above wires shall have the following features:</p> <ul style="list-style-type: none"> • The positive wire shall be connected directly to the battery power • The negative wire shall be connected to ground • Wires shall be protected to 15 amps at 12 volts DC • Power and ground shall terminate officer side dash area • Termination shall be with heat shrinkable butt splicing • Wires shall be sized to 125 percent of the protection <p>The circuit(s) may be load managed when the parking brake is set.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
151. INFORMATION CENTER:		
<p>An information center employing a 7.00" diagonal touch screen color LCD display shall be encased in an ABS plastic housing and mounted on a swivel to be adjusted by the driver to account for glare.</p> <p>The information center shall have the following specifications:</p> <ul style="list-style-type: none"> • Operate in temperatures from -40 to 185 degrees Fahrenheit 		

- An Optical Gel shall be placed between the LCD and protective lens
- Five weather resistant user interface switches
- Grey with black accents
- Sunlight Readable
- Linux operating system
- Minimum of 1000nits rated display
- Display can be changed to an available foreign language
- An LCD display integral to the cab gauge panel shall be included as outlined in the cab instrumentation area.
- Programmed to read US Customary

☐ Yes ☐ No
COMMENTS:**152. GENERAL SCREEN DESIGN:**

Where possible, background colors shall be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background shall be used.

If a caution or warning situation arises the following shall occur:

- An amber background/text color shall indicate a caution condition
- A red background/text color shall indicate a warning condition
- The information center shall utilize an "Alert Center" to display text messages for audible alarm tones. The text messages shall be written to identify the items causing the alarm to sound. If more than one text message occurs, the messages shall cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" shall change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color shall be shown for all alert center messages.
- A label for each button shall exist. The label shall indicate the function for each active button for each screen. Buttons that are not utilized on specific screens shall have a button label with no text or symbol.

☐ Yes ☐ No
COMMENTS:**153. HOME/TRANSIT SCREEN:**

This screen shall display the following:

- Seat Belt Monitoring Screen
- Tire Pressure Monitoring

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- Digital Speedometer

- Active Alarms

☐ Yes ☐ No**COMMENTS:****154. ON SCENE SCREEN:**

This screen shall display the following:

- Battery Voltage
- Fuel
- Oil Pressure
- Coolant Temperature
- RPM
- Water Flow Rate
- Water Used
- Active Alarms

☐ Yes ☐ No**COMMENTS:****155. VIRTUAL BUTTONS:**

There shall be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.

☐ Yes ☐ No**COMMENTS:****156. PAGE SCREEN:**

The page screen shall display the following and allow the user to progress into other screens for further functionality:

- Diagnostics
 - Faults
 - ☐ Listed by order of occurrence
 - ☐ Allows to sort by system
 - Interlock

- ☐ Throttle Interlocks
- ☐ Aerial Interlocks (if equipped)
- ☐ PTO Interlocks (if equipped)
- o Load Manager
 - ☐ A list of items to be load managed shall be provided. The list shall provide a description of the load.
 - ☐ The lower the priority numbers the earlier the device shall be shed should a low voltage condition occur.
 - ☐ The screen shall indicate if a load has been shed (disabled) or not shed.
 - ☐ "At a glance" color features are utilized on this screen.
- o Systems
 - ☐ Multiplexing
 - Module type and ID number
 - Module Version
 - Input or output number
 - Circuit number connected to that input or output
 - Status of the input or output
 - Power and Constant Current module diagnostic information
 - o Live Data
 - ☐ General Truck Data
 - Maintenance
 - o Engine oil and filter
 - o Transmission oil and filter
 - o Aerial
 - Setup
 - o Clock Setup
 - o Date & Time
 - ☐ 12- or 24-hour format
 - ☐ Set time and date
 - o Backlight
 - ☐ Daytime
 - ☐ Nighttime

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- ☐ Sensitivity
 - o Unit Selection
 - o Home Screen
 - o Virtual Button Setup
 - o On Scene Screen Setup
 - o Configure Video Mode
 - ☐ Set Video Contrast
 - ☐ Set Video Color
 - ☐ Set Video Tint
 - Do Not Move
 - o The screen shall indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices shall be indicated:
 - ☐ Driver Side Cab Door
 - ☐ Passenger's Side Cab Door
 - ☐ Driver Side Crew Cab Door
 - ☐ Passenger's Side Crew Cab Door
 - ☐ Driver Side Body Doors
 - ☐ Passenger's Side Body Doors
 - ☐ Rear Body Door(s)
 - ☐ Stabilizers
 - Notifications
 - o View Active Alarms
 - ☐ Shows a list of all active alarms including date and time of the occurrence is shown with each alarm
 - ☐ Silence Alarms - All alarms are silenced
 - Timer Screen
 - HVAC (if equipped)
 - Tire Information (if equipped)
 - Ascendant Set Up Confirmation (if equipped)
- Button functions and button labels may change with each screen.

☐ Yes ☐ No**COMMENTS:**

157. COLLISION MITIGATION:

There will be a HAAS Alert®, Model HA5 Responder-to-Vehicle (R2V) collision avoidance system provided on the apparatus. The HA5 cellular transponder module will be installed behind the cab windshield, as high and near to the center as practical, to allow clear visibility to the sky. The module dimensions are 5.40" long x 2.70" wide x 1.30" high, and operating temperature range is -40 degree C to 85-degree C.

The transponder will be connected to the vehicle's emergency master circuit and battery direct power and ground.

While responding with emergency lights on, the HA5 transponder sends alert messages via cellular network to motorists in the vicinity of the responding truck that are equipped with the WAZE app.

While on scene with emergency lights on, the HA5 transponder sends road hazard alerts to motorists in the vicinity of the truck that are equipped with the WAZE app.

The HA5 Responder-to-Vehicle (R2V) collision avoidance system will include the transponder and a 5-year cellular plan subscription.

Activation of the HAAS Alert system requires a representative of the customer to accept the End User License Agreement (EULA) via an on-line portal.

☐ Yes ☐ No
COMMENTS:**158. VEHICLE DATA RECORDER:**

There shall be a Wheldon vehicle data recorder (VDR) capable of reading and storing vehicle information provided.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.

The vehicle data recorder shall be capable of recording the following data via hardwired and/or CAN inputs:

- Vehicle Speed - MPH
- Acceleration - MPH/sec
- Deceleration - MPH/sec
- Engine Speed - RPM
- Engine Throttle Position - % of Full Throttle
- ABS Event - On/Off
- Seat Occupied Status - Yes/No by Position

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|--|--|
| <ul style="list-style-type: none"> • Seat Belt Buckled Status - Yes/No by Position • Master Optical Warning Device Switch - On/Off • Time - 24 Hour Time • Date - Year/Month/Day | <input type="checkbox"/> Yes <input type="checkbox"/> No |
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COMMENTS:**159. SEAT BELT MONITORING SYSTEM:**

A programmable seat belt monitoring system (SBMS) shall be provided on the color display and in the center overhead of the cab instrument panel. The SBMS shall be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:

- Seat Occupied & Buckled = Green LED indicator illuminated
- Seat Occupied & Unbuckled = Red LED indicator with audible alarm
- No Occupant & Buckled = Red LED indicator with audible alarm
- No Occupant & Unbuckled = No indicator and no alarm

The seat belt monitoring screen shall become active on the color display when:

- The home screen is active:
 - o and there is any occupant seated but not buckled or any belt buckled with an occupant.
 - o and there are no other Do Not Move Apparatus conditions present. As soon as all Do Not Move Apparatus conditions are cleared, the SBMS shall be activated.

The SBMS shall include an audible alarm that shall warn that an unbuckled occupant condition exists, and the parking brake is released, or the transmission is not in park. Audible alarm must have the capability of being silenced by the apparatus operator.

☐ Yes ☐ No
COMMENTS:**160. INTERCOM SYSTEM:**

There will be digital, single radio interface, intercom located in the cab. The front panel will have master volume, and squelch controls with illuminated indicators, allowing for independent level setting of radio and auxiliary audio devices.

There will be one (1) radio listen only / transmit control with select, monitor, receive, and transmit indicators. There will be one (1) auxiliary audio input with select and receive indicators.

There will be one (1) wireless base station for up to five (1-5) headset users provided.

The wireless base station will have a 100' to 1100' range, line of sight. Objects between the transmitter and receiver affect range.

The following Firecom components will be provided:

- One (1) 5100D Intercom
- One (1) WB505R wireless base station (1-5 wireless positions)
- All necessary power and station cabling

☐ Yes ☐ No

COMMENTS:

161. RADIO/INTERCOM INTERFACE INCLUDED:

All radio interfaced stations shall have universal radio interfaces installed.

☐ Yes ☐ No

COMMENTS:

162. UNDER THE HELMET HEADSET:

There will be three (3) Firecom™, Model UHW-503 wireless under the helmet, intercom only headset(s) provided. A heavy duty coiled 12 volt charging pigtail with plug will be provided at each CC seat.

Each headset will feature:

- Noise cancelling electric microphone
- Flexible microphone boom
- Ear seals with 20 dB noise reduction
- Programmable Microphone transmit button
- Rechargeable battery operates 24 hours on a full charge
- IP-66 when worn

☐ Yes ☐ No

COMMENTS:

163. WIRELESS UNDER THE HELMET HEADSET:

There will be two (2) Firecom™, Model UHW-505, wireless under the helmet, radio transmit headset(s) provided. A heavy duty, coiled 12 volt charging pigtail with plug will be provided driver's seat and officer seat.

Each headset will feature:

- Noise cancelling electric microphone

- | | |
|--|--|
| <ul style="list-style-type: none"> • Flexible microphone boom • Ear seals with 20 dB noise reduction • Stereo Listen-Through Ear dome microphones • Radio Push to Transmit button (Left or Right Side) • Rechargeable battery operates for 24 hours on a full charge • IP-66 when worn | <input type="checkbox"/> Yes <input type="checkbox"/> No |
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COMMENTS:**164. HEADSET HANGERS:**

There will be five (5) headset hanger(s) installed driver's seat, officer's seat, driver's side outboard rear facing seat, passenger's side outboard forward-facing seat and passenger's side outboard rear facing seat. The hanger(s) will meet NFPA 1901, Section 14.1.11, requirement for equipment mounting.

☐ Yes ☐ No
COMMENTS:**165. RADIO ANTENNA MOUNT:**

There shall be one (1) standard 1.125", 18 thread antenna-mounting base(s) installed on the right side on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the instrument panel area. A weatherproof cap shall be installed on the mount.

☐ Yes ☐ No
COMMENTS:**166. VEHICLE CAMERA SYSTEM:****FRONT, SIDE, AND REAR VISION SYSTEM**

The Pro-Vision cameras will be located as follows:

One (1) color video camera with microphone located at the rear of the vehicle, pointing rearward, automatically displayed when the apparatus is put into reverse.

One (1) color forward facing camera displayed when a switch in panel is activated.

One (1) color video camera located on the right side of the cab forward of the cab doors, pointing rearward, automatically displayed with the right turn signal.

One (1) color video camera located on the left side of the cab forward of the cab doors, pointing rearward, automatically displayed with the left turn signal.

The camera images will be displayed on the driver's 7" LCD quad monito.

- The digital video recorder (DVR) will be located [TBD]. The DVR will include a 128 gigabit SDXC memory card and lockable cage. The DVR will be wired battery direct.
- There will be an event button mounted [TBD].
- There will be a GPS antenna mounted to the windshield.

For any additional software such as Enhanced Connectivity Bundle or PV transfer software, it is the responsibility of the end user to contact the vendor Pro-Vision®. Any additional programming is the responsibility of the end user.

The following Pro-Vision® components will be supplied:

- One (1) DVR-906T1-128 1080p HD Hybrid Base KIT with (1) Forward Facing Camera [128GB]

Includes: HD Forward Facing Camera, Hybrid HD DVR, 128GB SDXC Card, Lockable Cage, 10ft HD Camera Cable, DVR Interface Cable, Enhanced Event Marker Button, GPS Antenna, Software & Guides

- Two (2) DVR-920 AHD Waterproof Side Camera Kits
- One (1) DVR-916 AHD Waterproof Standard Heavy Duty Camera

☐ Yes ☐ No

One (1) PM-1980s 7" AHD LCD Quad Monitor

COMMENTS:

167. KNOX-BOX:

There shall be a Knox-Box® KeySecure® 5, Model KSM-200K1, with keypad access provided. The system shall allow all administration functions to be performed via Wi-Fi, Ethernet cable or USB port. The box shall hold one (1) key. The box shall be surface mounted and installed TBD.

☐ Yes ☐ No

COMMENTS:

168. ELECTRICAL POWER CONTROL SYSTEM:

The primary power distribution shall be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers shall be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers shall be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers shall be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays shall be easily accessible.

Distribution centers located throughout the vehicle shall contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.

Circuit protection devices, which conform to SAE standards, shall be utilized to protect electrical circuits. All circuit protection devices shall be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers shall be Type-I automatic reset (continuously resetting). When required, automotive type fuses shall be utilized to protect electronic equipment. Control relays and solenoid shall have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.

☐ Yes ☐ No
COMMENTS:

169. SOLID-STATE CONTROL SYSTEM:

A solid-state electronics-based control system shall be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network shall consist of electronic modules located near their point of use to reduce harness lengths and improve reliability. The control system shall comply with SAE J1939-11 recommended practices.

The control system shall operate as a master-slave system whereas the main control module instructs all other system components. The system shall contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system shall utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership.

For increased reliability and simplified use the control system modules shall include the following attributes:

- Green LED indicator light for module power
- Red LED indicator light for network communication stability status
- Control system self-test at activation and continually throughout vehicle operation
- No moving parts due to transistor logic
- Software logic control for NFPA mandated safety interlocks and indicators
- Integrated electrical system load management without additional components
- Integrated electrical load sequencing system without additional components
- Customized control software to the vehicle's configuration
- Factory and field re programmable to accommodate changes to the vehicle's operating parameters
- Complete operating and troubleshooting manuals
- USB connection to the main control module for advanced troubleshooting

To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules shall meet the following specifications:

- Module circuit board shall meet SAE J771 specifications
- Operating temperature from -40C to +70C

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- Storage temperature from -40C to +70C
- Vibration to 50g

IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)

Operating voltage from 8 volts to 16 volts DC

☐ Yes ☐ No

The main controller shall activate status indicators and audible alarms designed to provide warning of problems before they become critical.

COMMENTS:

170. CIRCUIT PROTECTION AND CONTROL DIAGRAM:

Copies of all job-specific, computer network input and output (I/O) connections shall be provided with each chassis. The sheets shall indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.

☐ Yes ☐ No

COMMENTS:

171. ON-BOARD ADVANCED/VISUAL ELECTRICAL SYSTEM DIAGNOSTIC:

The on-board information center shall include the following diagnostic information:

- Text description of active warning or caution alarms
- Simplified warning indicators
- Amber caution indication with intermittent alarm
- Red warning indication with steady tone alarm

All control system modules, with the exception of the main control module, shall contain on-board visual diagnostic LEDs that assist in troubleshooting. The LEDs shall be enclosed within the sealed, transparent module housing near the face of the module. One LED for each input or output shall be provided and shall illuminate whenever the respective input or output is active. Color-coded labels within the modules shall encompass the LEDs for ease of identification. The LED indicator lights shall provide point of use information for reduced troubleshooting time without the need for an additional computer.

☐ Yes ☐ No

COMMENTS:

172. PROGNOSTICS:

A software-based vehicle tool shall be provided to predict remaining life of the vehicle's critical fluid and events.

The system shall send automatic indications to the color display and/or wireless enabled device to proactively alert of upcoming service intervals.

Prognostics shall include:

- Engine oil and filter
- Transmission oil and filter
- Aerial oil and filter

☐ Yes ☐ No

COMMENTS:

173. ADVANCED DIAGNOSTICS:

An advanced, Windows-based, diagnostic software program shall be provided for this control system. The software shall provide troubleshooting tools to service technicians equipped with a Windows-based computer or wireless enabled device.

The service and maintenance software shall be easy to understand and use and have the ability to view system input/output (I/O) information.

☐ Yes ☐ No

COMMENTS:

174. INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM:

A system shall be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.

☐ Yes ☐ No

COMMENTS:

175. VOLATAGE MONITOR SYSTEM:

A voltage monitoring system shall be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system shall provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm shall activate if the system falls below 11.8 volts DC for more than two (2) minutes.

☐ Yes ☐ No

COMMENTS:

176. DEDICATED RADIO EQUIPMENT CONNECTION POINTS:

There shall be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment.

- The studs shall consist of the following:
- 12-volt 40-amp battery switched power
- 12-volt 60-amp ignition switched power
- 12-volt 60-amp direct battery power

There shall also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.

☐ Yes ☐ No
COMMENTS:**177. ENHANCED SOFTWARE:**

The solid-state control system shall include the following software enhancements:

All perimeter lights and scene lights (where applicable) shall be deactivated when the parking brake is released.

Cab and crew cab dome lights shall remain on for ten seconds for improved visibility after the doors close. The dome lights shall dim after ten seconds or immediately if the vehicle is put into gear.

Cab and crew cab perimeter lights shall remain on for ten seconds for improved visibility after the doors close. The dome lights shall dim after ten seconds or immediately if the vehicle is put into gear.

☐ Yes ☐ No
COMMENTS:**178. EMI/RFI PROTECTION:**

To prevent erroneous signals from crosstalk contamination and interference, the electrical system shall meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system shall be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.

The apparatus shall have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system shall meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, shall provide EMC testing reports from testing conducted on an entire apparatus and shall certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter requirements. Component and partial (incomplete) vehicle testing is not adequate as overall vehicle design can impact test results and thus is not acceptable by itself.

EMI/RFI susceptibility shall be controlled by applying appropriate circuit designs and shielding. The electrical system shall be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing shall be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.

☐ Yes ☐ No
COMMENTS:**179. ELECTRICAL:**

All 12-volt electrical equipment installed by the apparatus manufacturer shall conform to modern automotive practices. All wiring shall be high temperature crosslink type. Wiring shall be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers shall be provided which conform to SAE Standards. Wiring shall be color, function and number coded. Function and number codes shall be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors shall be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

Electrical wiring and equipment shall be installed utilizing the following guidelines:

1. All holes made in the roof shall be caulked with silicon, rope caulk is not acceptable. Large fender washers, liberally caulked, shall be used when fastening equipment to the underside of the cab roof.
2. Any electrical component that is installed in an exposed area shall be mounted in a manner that shall not allow moisture to accumulate in it. Exposed area shall be defined as any location outside of the cab or body.
3. Electrical components designed to be removed for maintenance shall not be fastened with nuts and bolts. Metal screws shall be used in mounting these devices. Also a coil of wire shall be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.
4. Corrosion preventative compound shall be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections shall require this compound in the plug to prevent corrosion and for easy separation (of the plug).
5. All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.
6. All electrical terminals in exposed areas shall have silicon (1890) applied completely over the metal portion of the terminal.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, shall be furnished. Rear identification lights shall be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads shall be protected from damage by installing a false bulkhead inside the rear compartments.

An operational test shall be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

The results of the tests shall be recorded and provided to the purchaser at time of delivery.

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COMMENTS:

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180. BATTERY SYSTEM:

There shall be four (4) 12-volt Exide®, Model 31S950X3W, batteries that include the following features shall be provided:

- 950 CCA, cold cranking amps
- 190-amp reserve capacity
- High cycle
- Group 31
- Rating of 3800 CCA at 0 degrees Fahrenheit
- 760 minutes of reserve capacity
- Threaded stainless steel studs

Each battery case shall be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover shall be manifold vented with a central venting location to allow a 45-degree tilt capacity.

The inside of each battery shall consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.

☐ Yes ☐ No
COMMENTS:

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181. BATTERY SYSTEM:

There shall be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.

☐ Yes ☐ No
COMMENTS:

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182. MASTER BATTERY SWITCH:

There shall be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.

An indicator light shall be provided on the instrument panel to notify the driver of the status of the battery system.

☐ Yes ☐ No
COMMENTS:

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183. BATTERY COMPARTMENTS:

The batteries shall be stored in well-ventilated compartments that are located under the cab and bolted directly to the chassis frame. The battery compartments shall be constructed of 3/16" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The compartments shall include formed fit heavy-duty roto-molded polyethylene battery tray inserts with drains on each side of the frame rails. The batteries shall be mounted inside of the roto-molded trays.

☐ Yes ☐ No
COMMENTS:**184. JUMPER STUDS:**

One (1) set of battery jumper studs with plastic color-coded covers shall be installed on the battery box on the driver's side. This shall allow enough room for easy jumper cable access.

☐ Yes ☐ No
COMMENTS:**185. BATTERY CHARGER:**

There shall be an IOTA™, Model DSL 75, battery charger with IQ4, controller provided.

The battery charger shall be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.

There shall be a Kusssmaul™, Model #091-94-12, remote indicator included.

The battery charger shall be located in the left body compartment mounted on the left wall as high as possible.

The battery charger indicator shall be located near the driver's seat riser with special bracketry.

☐ Yes ☐ No
COMMENTS:**186. AUTO EJECT FOR SHORELINE:**

There shall be one (1) Kusssmaul™, Model 091-55-20-120, 20-amp 120-volt AC shoreline inlet(s) provided to operate the dedicated 120-volt AC circuits on the apparatus.

The shoreline inlet(s) shall include red weatherproof flip up cover(s).

There shall be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.

The shoreline(s) shall be connected to the battery charger.

There shall be a mating connector body supplied with the loose equipment.

There shall be a label installed near the inlet(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

The shoreline receptacle shall be located on the driver side, under the cab door.

☐ Yes ☐ No

COMMENTS:

187. ALTERNATOR:

A Delco Remy®, Model 55SI, alternator will be provided. It will have a rated output current of 430 amps, as measured by SAE method J56. The alternator will feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). The alternator will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.

☐ Yes ☐ No

COMMENTS:

188. ELECTRONIC LOAD MANAGER:

An electronic load management (ELM) system shall be provided that monitors the vehicle's 12-volt electrical system, automatically reducing the electrical load in the event of a low voltage condition, and automatically restoring the shed electrical loads when a low voltage condition expires. This ensures the integrity of the electrical system.

For improved reliability and ease of use, the load manager system shall be an integral part of the vehicle's solid state control system requiring no additional components to perform load management tasks. Load management systems which require additional components shall not be allowed.

The system shall include the following features:

- System voltage monitoring.
- A shed load shall remain inactive for a minimum of five minutes to prevent the load from cycling on and off.
- Sixteen available electronic load shedding levels.
- Priority levels can be set for individual outputs.
- High Idle to activate before any electric loads are shed and deactivate with the service brake.
- o If enabled:

- ☐ "Load Man Hi-Idle On" shall display on the information center.
- ☐ Hi-Idle shall not activate until 30 seconds after engine start up.
- Individual switch "on" indicator to flash when the particular load has been shed.
 - The information center indicates system voltage.
- The information center, where applicable, includes a "Load Manager" screen indicating the following:
- Load managed items list, with priority levels and item condition.
 - Individual load managed item condition:
 - o ON = not shed
 - o SHED = shed

☐ Yes ☐ No
COMMENTS:**189. SEQUENCER:**

A sequencer shall be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation shall allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12-volt load to prolong the life of the alternator.

☐ Yes ☐ No
COMMENTS:**190. HEADLIGHTS:**

There shall be four (4), rectangular Fire Tech LED lights mounted in the front quad style, chrome housing on each side of the cab grille:

The low beam lights shall be activated when the headlight switch is on.

The high beam and low beam lights shall be activated when the headlight switch and the high beam switch is activated.

☐ Yes ☐ No
COMMENTS:**191. DIRECTIONAL LIGHTS:**

There shall be two (2) Whelen® 600 series, LED combination directional/marker lights provided. The lights shall be located on the outside cab corners, next to the headlights.

The color of the lenses shall be the same color as the LED's.

☐ Yes ☐ No

COMMENTS:

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192. INTERMEDIATE LIGHT:

There shall be two (2) Weldon, Model 9186-8580-29, amber LED turn signal marker lights furnished, one each side, in the rear fender panel. The light shall double as a turn signal and marker light.

☐ Yes ☐ No
COMMENTS:

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193. CAB CLEARANCE/MARKER/ID LIGHTS:

There shall be seven (7) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:

- Three (3) amber LED identification lights shall be installed in the center of the cab above the windshield.
- Two (2) amber LED clearance lights shall be installed, one on each outboard side of the cab above the windshield.
- Two (2) amber LED marker lights shall be installed, one on each side above the cab doors.

☐ Yes ☐ No
COMMENTS:

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194. REAR CLEARANCE/MARKER/ID LIGHTING:

There shall be three (3) LED identification lights located at the rear of the apparatus installed per the following:

- As close as practical to the vertical centerline and one (1) on each outside edge
- Centers spaced not less than 6.00" or more than 12.00" apart
- Red in color
- All at the same height
- All visible from the rear

There shall be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:

- To indicate the overall width of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color

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- To be visible from the rear
- All at the same height

There shall be two (2) LED lights installed on the side of the apparatus used as marker lights as close to the rear as practical per the following:

- To indicate the overall length of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the side
- All at the same height

There shall be two (2) red reflectors located on the rear of the truck facing to the rear. One each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

There shall be two (2) red reflectors located on the side of the truck facing to the side. One each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

Per FMVSS 108 and CMVSS 108 requirements.

☐ Yes ☐ No

COMMENTS:

195. MARKER LIGHTS:

There shall be one (1) pair of amber and red LED marker lights with rubber arm, located at the rear most lower corner of the body. The amber lens shall face the front and the red lens shall face the rear of the truck.

These lights shall be activated with the running lights of the vehicle.

☐ Yes ☐ No

COMMENTS:

196. REAR FMVSS LIGHTING:

The rear stop/tail and directional LED lighting shall consist of the following:

- Two (2) Whelen®, Model M6BTT, red LED stop/taillights
- Two (2) Whelen, Model M6T, amber LED arrow turn lights

The lights shall be provided with color lenses.

The lights shall be mounted in a polished combination housing.

☐ Yes ☐ No

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There shall be two (2) Whelen Model M6BUW, LED backup lights provided in the taillight housing.

COMMENTS:**197. LICENSE PLATE BRACKET:**

There shall be one (1) license plate bracket mounted on the rear of the body.

A white LED light shall illuminate the license plate. A polished stainless steel light shield shall be provided over the light that shall direct illumination downward, preventing white light to the rear.

☐ Yes ☐ No
COMMENTS:**198. LIGHTING BEZEL:**

There shall be two (2) Whelen, Model M6FCV4P, four (4) place chromed housings provided for the rear M6 series stop/tail, directional, back up, scene lights or warning lights.

☐ Yes ☐ No
COMMENTS:**199. BACK-UP ALARM:**

A solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse shall be provided. The device shall sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.

☐ Yes ☐ No
COMMENTS:**200. CAB PERIMETER SCENE LIGHTS:**

There shall be four (4) Amdor, Model AY-LB-12HW020, 350 lumens each, 20.00" white LED strip lights provided, one for each cab door.

These lights shall be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.

☐ Yes ☐ No
COMMENTS:**201. BODY PERIMETER SCENE LIGHTS:**

There shall be three (3) Amdor®, Model AY-LB-12HW012, 190 lumens, 12.00" long, white 12-volt DC LED strip lights provided.

The lights shall be mounted in the following locations.

- One (1) light shall be provided under the left side turntable access steps
- One (1) light shall be provided under the left side basket access steps
- One (1) light shall be provided under the right-side basket access steps

The perimeter scene lights shall be activated when the parking brake is applied.

☐ Yes ☐ No

COMMENTS:

202. STEP LIGHTS:

All steps on the apparatus shall be illuminated per the current edition of NFPA 1901 and shall match the turn table access step lights.

☐ Yes ☐ No

COMMENTS:

203. 12-VOLT LIGHT BRACKET:

There shall be two (2) aluminum treadplate brackets installed on LS and RS on catwalk for the recessed flood light. The brackets shall have all wiring totally enclosed.

☐ Yes ☐ No

COMMENTS:

204. 12-VOLT LIGHTING:

There shall be one (1) Whelen® Model P*H2*, 17,750 lumens 12-volt DC light with a combination of flood and spot optics provided on the front visor, centered.

The painted parts of this light assembly to be white.

The light shall be controlled by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel.

This light may be load managed when the parking brake is applied.

☐ Yes ☐ No

COMMENTS:

205. 12-VOLT DC SCENE LIGHTS:

There shall be one (1) Whelen® Model S30M**, 12,960 lumens 30.00" 12-volt DC light(s) with white LEDs provided on the left side of the cab roof located, Centered above crew cab

door. Out to the cab seam. The painted parts of this light assembly to be white. The light(s) to be installed with universal horizontal tall mounts.

The light(s) will include the following:

- Six (6) scene light modules with white LEDs
- Three (3) amber LEDs as marker lights
- Two (2) additional LED modules. The additional modules to be two (2) scene light modules with white LEDs.

The lights will be activated per the following:

- The amber marker lights to flash when the emergency master switch is activated.
- The scene LEDs will be controlled by a switch at the driver's side switch panel.
- There will be a switch in the cab on the switch panel to control the flashing or spot LED modules.
- The light(s) may be load managed when the parking brake is applied.

☐ Yes ☐ No

COMMENTS:

206. 12-VOLT DC SCENE LIGHTS:

There shall be one (1) Whelen® Model S30M**, 12,960 lumens 30.00" 12-volt DC light(s) with white LEDs provided on the right side of the cab roof located, Centered above crew cab door. Out to the cab seam. The painted parts of this light assembly to be white. The light(s) to be installed with universal horizontal tall mounts.

The light(s) will include the following:

- Six (6) scene light modules with white LEDs
- Three (3) amber LEDs as marker lights
- Two (2) additional LED modules. The additional modules to be two (2) scene light modules with white LEDs.

The lights will be activated per the following:

- The amber marker lights to flash when the emergency master switch is activated.
- The scene LEDs will be controlled by a switch at the driver's side switch panel.
- There will be a switch in the cab on the switch panel to control the flashing or spot LED modules.
- The light(s) may be load managed when the parking brake is applied.

☐ Yes ☐ No

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2**207. 12-VOLT LIGHTING:**

There shall be one (1) Whelen® Model S44M**, 19,440 lumens 44.00" 12-volt DC light(s) with white LEDs provided on the right side of the body located, as far rearward as possible on top of body above RS2 compartment. The painted parts of this light assembly to be white.

The light(s) will include the following:

- 10 scene light modules with white LEDs
- Three (3) amber LEDs as marker lights
- Two (2) additional LED modules. The additional modules to be two (2) scene light modules with white LEDs.

The lights will be activated per the following:

- The amber marker lights to flash when the emergency master switch is activated.
- The scene LEDs will be controlled by the same control that has been selected for the passenger's side scene light(s).
- There will be a switch in the cab on the switch panel to control the flashing warning LED modules when selected.
- The light(s) may be load managed when the parking brake is applied.

☐ Yes ☐ No
COMMENTS:**208. 12-VOLT LIGHTING:**

There shall be one (1) Whelen® Model S16*M*, 6,480 lumens 16.00" 12-volt DC light(s) with white LEDs in flood optics provided on the body located on top of rear body where a traffic adviser would normally sit. Angled down if needed to meet NFPA rear scene lighting requirements.

The painted parts of this light assembly to be white.

The scene LEDs will be activated by a switch at the driver's side switch panel.

These light(s) may be load managed when the parking brake is applied.

☐ Yes ☐ No
COMMENTS:**209. 12-VOLT LIGHTING:**

There shall be one (1) Whelen® Model S44M**, 19,440 lumens 44.00" 12-volt DC light(s) with white LEDs provided on the left side of the body located, as far rearward as possible on top of body above LS2 compartment. The painted parts of this light assembly to be white.

The light(s) will include the following:

- 10 scene light modules with white LEDs
- Three (3) amber LEDs as marker lights
- Two (2) additional LED modules. The additional modules to be two (2) scene light modules with white LEDs.

The lights will be activated per the following:

- The amber marker lights to flash when the emergency master switch is activated.
- The scene LEDs will be controlled by the same control that has been selected for the driver's side scene light(s).
- There will be a switch in the cab on the switch panel to control the flashing warning LED modules when selected.
- The light(s) may be load managed when the parking brake is applied.

☐ Yes ☐ No

COMMENTS:

210. WALKING SURFACE LIGHT:

There shall be two (2) Model P25 12-volt DC LED lights provided to illuminate the top of body walking surface. These LED lights shall be located on the rear facing surface of the upper portion of the body to illuminate the walking surface to the platform basket. There shall be a Model FRP, 4" round black 12-volt DC LED floodlight located forward on the left side top of the body.

These lights shall be activated when the body step lights are on.

☐ Yes ☐ No

COMMENTS:

211. CARGO AREA:

The cargo area shall be fabricated of .125" 5052 aluminum with a tensile strength range of 31,000 to 38,000 psi.

The sides shall not form any portion of the fender compartments.

The upper and rear edges of the side panels shall have a double break for rigidity.

The cargo area shall be located ahead of the ladder turntable.

Flooring of the cargo area shall be aluminum treadplate.

☐ Yes ☐ No

COMMENTS:

212. TURNABLE STEPS:

Access to the turntable shall be provided by a set of swing-down steps on the left side of the truck.

The access steps shall be located just behind the front body and in front of the middle stabilizer.

All steps shall have a height no greater than 14.00" from top surface to top surface.

The swing down step mechanism shall be constructed of brushed aluminum with aluminum treadplate steps. The steps shall be designed with a grip pattern punched into the treadplate material to provide support, slip resistance, and drainage.

The stepwell shall be lined with bright aluminum treadplate to act as scuffplates.

Holes shall be provided in each side step plate for hand holds.

The bottom step shall have a step height not exceeding 24.00" from the ground to the top surface of the step at any time.

☐ Yes ☐ No

The steps shall be connected to the "Do Not Move Truck" indicator in the cab.

COMMENTS:

213. STEP LIGHTS:

There shall be three (3) white LED step lights provided for the aerial turntable access steps.

In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten-inch distance below the light.

☐ Yes ☐ No

The step lights shall be actuated by the aerial master switch in the cab.

COMMENTS:

214. SMOOTH ALUMINUM REAR WALL:

The rear wall shall be smooth aluminum

☐ Yes ☐ No

COMMENTS:

215. TOW EYES:

Two (2) rear painted tow eyes shall be located at the rear of the apparatus and shall be mounted directly to the frame rails. The inner and outer edges of the tow eyes shall be radiused.

☐ Yes ☐ No

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2**COMMENTS:****216. COMPARTMENTATION:**

Compartmentation shall be fabricated of 0.125" 5052 aluminum.

Side compartments shall be an integral assembly with the rear fenders.

Circular fender liners shall be provided. For prevention of rust pockets and ease of maintenance, the fender liners shall be formed from aluminum and removable for maintenance.

Compartment flooring shall be of the sweep out design with the floor higher than the compartment door lip.

Drip protection shall be provided above the doors by means of bright aluminum extrusion, formed bright aluminum treadplate or polished stainless steel.

The top of the compartment shall be covered with bright aluminum treadplate rolled over the edges on the front, rear and outward side. These covers shall have the corners welded.

Side compartment covers shall be separate from the compartment tops.

All screws and bolts, which are not Grade 8, shall be stainless steel and where they protrude into a compartment shall have acorn nuts on the ends to prevent injury.

☐ Yes ☐ No
COMMENTS:**217. UNDERBODY SUPPORT SYSTEM:**

The backbone of the body support system shall begin with the aerial torque box which is the strongest component of the apparatus and is designed for sustaining maximum loads.

An aluminum body structure shall be mounted to the aerial torque box at four (4) points using neoprene elastomer isolators. The front mounts shall attach from structural steel brackets on the sides of the torque box to a structural tube on the body. The rear mounts shall attach structural members on the rear body to the top of the rear down rigger mounting structure.

The combination of the elastomer isolators and the body structure design allow the chassis and torque box to flex without driving loads into the body.

The compartment floor support design shall result in an 800lb equipment support rating per lower compartment, and a 500lb equipment support rating for the upper, over the axle compartments.

☐ Yes ☐ No
COMMENTS:**218. AGGRESSIVE WALKING SURFACE:**

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All exterior surfaces designated as stepping, standing, and walking areas shall comply with the required average slip resistance of the current NFPA standards.

☐ Yes ☐ No

COMMENTS:

219. LOUVERS:

All body compartments shall be vented to provide one way airflow out of the compartment that prevents water and dirt from gaining access to the compartment.

☐ Yes ☐ No

COMMENTS:

220. TESTING OF BODY DESIGN:

Body structural analysis shall be fully tested. Proven engineering and test techniques such as finite element analysis, model analysis, and strain gauging have been performed with special attention given to fatigue, life and structural integrity of the body and substructure.

The body shall be tested while loaded to its greatest in-service weight.

The criteria used during the testing procedure shall include:

Evidence of the actual testing techniques shall be made available upon request.

☐ Yes ☐ No

COMMENTS:

221. COMPARTMENT IN PLACE OF PUMP:

A single door compartment will be installed in place of the pump and pump panel.

The compartment will be approximately 35.75" wide x 30.00" high x 24.38" deep in the lower area and transversed in the top portion of the compartment. The transversed area will be 35.75" wide x 18.19" high.

The door opening will be approximately 33.00" wide x 25.62" high.

☐ Yes ☐ No

COMMENTS:

222. LEFT SIDE COMPARTMENTATION:

A full height double door compartment ahead of the rear wheels shall be provided. The compartment shall be 29.13" wide x 28.25" high x 27.13" deep inside with a door opening of 26.13" wide x 26.25" high.

A full height single lap door compartment forward above the fender compartment and over the rear wheels shall be 16.25" wide x 20.06" high x 27.13" deep inside with a door

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opening of 14.63" wide x 18.50" high.

One (1) lift up door compartment rearward above the fender compartments and over the rear axles shall be provided. The compartment shall be 84.00" wide x 22.13" high x 27.13" deep inside with a door opening of 81.00" wide x 19.13" high.

A full height double door compartment behind the rear wheels shall be 41.25" wide x 53.88" high x 27.13" deep. The door opening shall be 38.25" wide x 51.88" high.

One (1) single lap door compartment behind the rear stabilizer shall be provided. The compartment shall be 18.13" wide x 45.75" high x 27.13" deep inside with a door opening of 15.13" wide x 42.75" high.

☐ Yes ☐ No

COMMENTS:

223. RIGHT SIDE COMPARTMENTATION:

A full height single lap door compartment ahead of the front stabilizer shall be provided. The compartment shall be 18.38" wide x 35.25" high x 9.91" deep with a door opening of 15.38" wide x 33.25" high.

A full height double door compartment ahead of the rear wheels shall be 29.13" wide x 28.25" high x 27.13" deep inside with a door opening of 26.13" wide x 26.25" high.

A full height single lap door compartment forward above the fender compartment and over the rear wheels shall be 16.25" wide x 20.06" high x 27.13" deep. The door opening shall be 14.63" wide x 18.50" high.

One (1) lift up door compartment rearward above the fender compartments and over the rear axles shall be provided. The compartment shall be 84.00" wide x 22.13" high x 27.13" deep inside with a door opening of 81.00" wide x 19.13" high.

A full height double door compartment behind the rear wheels shall be 41.25" wide x 53.88" high x 27.13" deep. The door opening shall be 38.25" wide x 51.88" high.

One (1) single lap door compartment behind the rear stabilizer shall be provided. The compartment shall be 18.13" wide x 45.75" high x 27.13" deep inside with a door opening of 15.13" wide x 42.75" high.

☐ Yes ☐ No

COMMENTS:

224. SIDE COMPARTMENT DOORS:

All hinged compartment doors shall be lap style with double panel construction and fabricated of .09" 5052H32 aluminum. Doors shall be a minimum of 1.50" thick. To provide additional door strength, a "C" section reinforcement shall be installed between the outer and interior panels.

Doors shall be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core shall be installed on the door framing that seals onto the interior panel, to ensure a weather resisting compartment.

All compartment doors shall have polished stainless steel continuous hinge with a pin diameter of .25", that is bolted or screwed on with stainless steel fasteners. (Hinges which are welded on shall not be acceptable.) A dielectric substance shall be applied to each hinge fastener.

All door lock mechanisms shall be fully enclosed within the door panels to prevent fouling of the lock in the event equipment inside shifts into the lock area.

Doors shall be latched with recessed, polished stainless steel "D" ring handles and Eberhard 106 locks.

To prevent corrosion caused by dissimilar metals, compartment door handles shall not be attached to outer door panel with screws. A rubber gasket shall be provided between the "D" ring handle and the door.

☐ Yes ☐ No
COMMENTS:**225. REAR BUMPER:**

An 8.00" rear bumper shall be furnished. Bumper shall be constructed of steel and shall be covered with polished aluminum treadplate. The bumper shall be 7.50" deep x 3.50" high and shall be spaced away from the body approximately 0.50". It shall extend the full width of the body.

☐ Yes ☐ No
COMMENTS:**226. SCUFFPLATE ON INTERIOR OF COMPARTMENT DOOR(S):**

The seven (7) compartment doors shall include a polished stainless steel scuffplate to cover the entire width and height on the inside panel of each door pan.

Scuffplate shall be located on all doors with slide out trays.

☐ Yes ☐ No
COMMENTS:**227. COMPARTMENT LIGHTING:**

There shall be thirteen (13) compartment(s) with two (2) white 12-volt DC LED compartment light strips. The dual light strips shall be centered vertically along each side of the door framing. There shall be two (2) light strips per compartment. The dual light strips shall be in all body compartment(s).

Any remaining compartments without light strips shall have 12-volt DC LED lights installed that fit in the compartment and provide adequate lighting for the interior space of the compartment.

Opening the compartment door shall automatically turn the compartment lighting on.

☐ Yes ☐ No

COMMENTS:
228. MOUNTING TRACKS:

There shall be recessed tracks installed vertically to support the adjustable shelves.

Tracks shall not protrude into any compartment in order to provide the greatest compartment space and widest shelves possible.

The tracks shall be provided in each compartment.

☐ Yes ☐ No

COMMENTS:
229. ADJUSTABLE SHELVES:

There shall be four (4) shelves with a capacity of 500 lb provided.

The shelf construction will consist of .188" aluminum painted spatter gray with 2.00" sides.

Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.

The shelves will be held in place by .12" thick stamped plated brackets and bolts.

The location(s) will be in RS2 in the upper third, in RS1 in the upper third, in LS2 in the upper third and in LS2 at the depth transition point.

There will be one (1) shelf provided LS4. The shelf construction will consist of .188" aluminum painted spatter gray. A capacity rating will not be available on this item due to a reduced side height being less than 2.00". Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.

The shelves will be held in place by .12" thick stamped plated brackets and bolts.

The side height of the shelf/shelves will be as follows:

- Front: 1.00" down-turned flange
- Rear: 2.00" high
- Left & Right Sides: 2.00" high

☐ Yes ☐ No

COMMENTS:
230. TWO (2) WAY UTILITY SLIDE-OUT FLOOR MOUNTED TRAY:

There shall be one (1) floor mounted utility slide-out tray(s) provided LS6/RS7. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of .19" thick aluminum for the tray bottom and special aluminum extrusions for the tray sides, ends and tracks. The corners will be welded. The finish will be painted spatter gray.

The tray will be 3.00" high x full depth of the transverse compartment x as wide as possible for the compartment.

The tray will be supported with a minimum of six (6) ball bearing rollers. The tray will slide out two thirds (2/3) of its length to either side of the apparatus.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

☐ Yes ☐ No

COMMENTS:

231. SLIDE-OUT FLOOR MOUNTED TRAY:

There shall be four (4) floor mounted slide-out tray(s) with 2.00" sides provided LS1,LS2,RS1,RS5. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of .19" aluminum with non-welded corners. The finish will be painted spatter gray.

There will be two undermount-roller bearing type slides rated at 250lb each provided. The pair of slides will have a safety factor rating of 2.

To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slides will require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40-hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

There will be one (1) floor mounted slide-out tray(s) with 2.00" sides provided B1. Each tray will be rated for up to 200lb in the extended position. The tray(s) will be constructed of .19" aluminum with non-welded corners. The finish will be painted to match compartment interior.

Slides will be equipped with ball bearings for ease of operation and years of dependable service. The slides will be located on the sides of the tray so that the tray can be located as close to the compartment floor as possible.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

There will be one (1) floor mounted slide-out tray(s) provided LS5. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of .19" aluminum. The finish will be painted to match compartment interior. Any side taller than 2.00" in height will contain pegboard pattern with .281" diameter holes.

The side height of the tray(s) will be as follows:

- Front: 2.00" high
- Rear: 21.00" high
- Left Side: 21.00" high
- Right Side: 2.00" high

There will be two undermount-roller bearing type slides rated at 250lb each provided. Each slide will have a safety factor rating of 2.

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To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slides will require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40-hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

☐ Yes ☐ No
COMMENTS:**232. TOOL BOARD:**

An aluminum tool board shall be provided.

It shall be a minimum of .188" thick with .20" diameter holes in a pegboard pattern with 1.00" centers between holes.

A 1.00" x 1.00" aluminum tube frame shall be welded to the edge of the board.

The board shall be installed on adjustable tracks on a slide out tray. The tracks shall allow side to side adjustment. The board shall be as high as space permits and full length of the tray. The tray is not included in this option.

There shall be one (1) toolboard provided. The toolboard shall be spatter gray painted and installed LS1.

☐ Yes ☐ No
COMMENTS:**233. SWING OUT TOOLBOARD:**

A swing out aluminum toolboard shall be provided.

It shall be a minimum of .188" thick with .281" diameter holes in a pegboard pattern with 1.00" centers between holes.

Pac Trac tool mount material will be provided on both sides of the toolboard.

A 1.00" x 1.00" aluminum tube frame shall be welded to the edge of the pegboard.

The board shall be mounted on a pivoting device at the back of the compartment on the top and bottom to allow easy movement in and out of the compartment. The maximum tool load shall be 400 lb.

The board shall have positive lock in the stowed and extended position.

The board shall be mounted on adjustable tracks from front to back within the compartment.

☐ Yes ☐ No

There shall be one (1) toolboard provided. The toolboard shall be spatter gray painted and installed in LS3.

COMMENTS:**234. SLIDE-OUT TOOLBOARD:**

A slide-out toolboard equipped with Pac Trac equipment mounting tracks will be provided. The Pac Trac mounting tracks will be provided on both sides of the toolboard.

The board will be mounted on an undermount-roller bearing type slide rated at 250 lb with a factor of safety of 2.

To ensure years of dependable service the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slides will require no more than a 50-pound force for push-in or pull-out movement when fully loaded after having been subjected to a 40-hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

The slides will be mounted on adjustable tracks side to side within the compartment.

The board will have positive lock in the stowed and extended position.

There will be one (1) toolboard(s) provided and will be installed RS3- 12.00" from forward door frame.

☐ Yes ☐ No
COMMENTS:**235. EQUIPMENT MOUNTING SYSTEM:**

Pac Trac equipment mounting system will be installed on the walls of one (1) compartment(s), RS2.

Pac Trac equipment mounting system will be installed on seven (7) tray(s), [Locations to be determined].

Pac Trac equipment mounting system will be installed on the back wall of two (2) compartment(s), RS3 and LS3.

☐ Yes ☐ No
COMMENTS:**236. VERTICAL COMPARTMENT PARTITION:**

One (1) partition will be provided.

The partition construction will consist of body material painted spatter gray. Each partition will be the full vertical height of the compartment.

The location(s) will be in LS3, 30.00" from the forward door frame.

☐ Yes ☐ No

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2**COMMENTS:**

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237. BACKBOARD STORAGE:

A rack constructed of one (1) storage trough for backboards shall be installed P3.

The rack shall be fabricated of .19" aluminum with the exterior finished to match the compartment interior. The interior of the troughs shall not be finished.

Each trough dimension shall be 3" x73" x 20".

The rack shall be open on the outboard side of the compartment.

The backboards shall be secured with Velcro® straps.

☐ Yes ☐ No
COMMENTS:

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238. FLOOR EXTENSION:

There shall be a compartment floor extension provided. The floor extension shall extend from the area over the frame rails to within an inch of the compartment door. The floor extension shall have a 1.00" vertical downturned lip and no return flange.

A total of two (2) shall be provided and located LS6 and PS7.

☐ Yes ☐ No
COMMENTS:

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239. RUB RAIL:

Bottom edge of the side compartments shall be trimmed with a bright aluminum extruded rub rail.

Trim shall be 3.12" high with 1.50" flanges turned outward for rigidity.

The rub rails shall not be an integral part of the body construction, which allows replacement in the event of damage.

☐ Yes ☐ No
COMMENTS:

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240. AIRBAG STORAGE:

There will be one (1) rack installed for storing three (3) air bags in the RS2 mounted directly under upper shelf, horizontally stacked compartment.

The rack will be fabricated from painted spatter gray .125" aluminum. The rack will have half-moon cutouts for grabbing the air bag. Velcro® straps will be installed to hold the air bags in place.

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The size of the air bags will be Mounted to top rear, 3 bag compartment stacked horizontally. 1.25" tall each. Make top comp 28" x 20.5" Make bottom 2 comp 22" x 20.5" each Make 20.5" the depth so that front edges are flush.

☐ Yes ☐ No
COMMENTS:**241. BODY FENDER CROWNS:**

Polished stainless steel fender crowns shall be provided around the rear wheel openings.

An unpainted fender liner shall be provided to avoid paint chipping. The liners shall be removable to aid in the maintenance of rear suspension components.

A dielectric barrier shall be provided between the fender crown fasteners and the fender sheet metal to prevent corrosion.

The fender crowns shall be held in place with stainless steel screws that thread directly into a composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals contact and greatly reduce the chance for corrosion.

☐ Yes ☐ No
COMMENTS:**242. AIR BOTTLE STORAGE COMPARTMENT:**

A total of two (2) air bottle compartments shall be provided and located one on the driver's side and one on the passenger's side centered between the tandem rear wheels. The air bottle compartment shall consist of individual bins each designed to hold an air bottle with a maximum diameter of 7.50" and a maximum depth of 26.00".

Each compartment shall hold three (3) air bottles, two stored next to each other in the top area, and one stored centered below. Each bottle shall be separated by a partition.

Flooring shall be rubber lined and have a drain hole. A lift up door with stay arm device with pair of flush lift & turn latches shall be provided for each compartment. The door shall be polished stainless steel. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal.

☐ Yes ☐ No
COMMENTS:**243. AIR BOTTLE COMPARTMENT STRAP:**

Straps shall be provided in the air bottle compartments to help contain the air bottles. The straps shall wrap around the neck of each bottle and attach to the wall of the compartment.

☐ Yes ☐ No

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2**COMMENTS:****244. AIR BOTTLE STORAGE (SINGLE):**

A quantity of four (4) air bottle compartments, approximately 7.50" wide x 7.50" tall x 26.00" deep, shall be provided on the left side forward of the rear wheels, on the left side rearward of the rear wheels, on the right side forward of the rear wheels and on the right-side rearward of the rear wheels. The compartment will be square with angled corners. A polished stainless-steel door with a chrome plated flush lift & turn latch shall be provided to contain the air bottle. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal.

Inside the compartment, black rubber matting shall be provided.

☐ Yes ☐ No
COMMENTS:**245. EXTENSION LADDER:**

There shall be one (1) 40', *without* stay poles, aluminum, Duo-Safety, Series 1500-A extension ladder provided and located in the ladder compartment. The ladder shall have Kernmantle rope.

☐ Yes ☐ No
COMMENTS:**246. EXTENSION LADDER:**

There shall be one (1) 40', with stay poles, aluminum, Duo-Safety, Series 1500-A extension ladder provided and located in the ladder compartment. The ladder shall have Kernmantle rope.

☐ Yes ☐ No
COMMENTS:**247. ADDED EXTENSION LADDER:**

There shall be one (1) 35', two section, aluminum, Duo-Safety Series 1200A extension ladder provided.

☐ Yes ☐ No
COMMENTS:**248. AERIAL EXTENSION LADDER:**

There shall be (1) 28' two section aluminum Duo-Safety Series 1200-A extension ladder built on a 24' platform provided.

☐ Yes ☐ No

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COMMENTS:		
249. ROOF LADDER:		
There shall be two (2) 16' two section aluminum Duo-Safety Series 1000-A roof ladders provided.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
250. FOLDING LADDER, AERIAL:		
There shall be a 14' aluminum, Duo-Safety, Series 585-A folding ladder provided.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
251. GROUND LADDER STORAGE:		
<p>The ground ladders are stored within the torque box and are removable from the rear.</p> <p>Ladders shall be enclosed to prevent road dirt and debris from fouling or damaging the ladders.</p> <p>The ladders rest in full-length stainless-steel slides and are arranged in such a manner that any one ladder can be removed without having to move or remove any other ladder.</p> <p>A rollup door shall be provided at the rear, double faced, aluminum construction, and an anodized satin finish. A polished stainless steel lift bar to be provided for the rear roll-up door. The latching mechanism shall consist of a full-length lift bar lock with latches on the outer extrusion of the door frame.</p> <p>A stainless plate with a 2-bend flange and a stainless-steel hinge shall be provided to secure the aerial ladder complement. The plate assembly shall be mounted to the bottom of the entrance of the torque box ladder storage area.</p> <p>When the plate is vertical, it shall secure the ladders and prevent them from migrating to the rear of the apparatus. When the plate is down and not securing the ladders, the rollup door cannot close, which shall activate the "Open Door Indicator Light" within the cab. The hinged plate shall have a positive latching feature that shall secure the plate in the vertical position.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
252. COMPARTMENT STORAGE:		
Below the ground ladder storage shall be a storage compartment measuring 37.25" wide x 15.75" high x 26.50" deep. The opening shall be 34.75" wide x 15.25" high. The floor and		

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back of this compartment shall be removable.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
253. LADDER STORAGE LIGHTING:		
<p>There shall be 36.00" white 12-volt DC LED strip lights provided to illuminate the torque box ladder storage area and the compartment directly below the ladder storage. One light shall be provided on each side of the ladder storage area.</p> <p>The lights shall be activated when the ladder storage compartment door is opened.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
254. ADDITIONAL FOLDING LADDER:		
One (1) 10' aluminum Series 585-A Duo-Safety folding ladder shall be installed in the ladder tunnel.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
255. PIKE POLES:		
<p>There shall be one (1) 12' and one (1) 10' Duo Safety pike poles with fiberglass handles provided. The pike poles shall be stored in tubular holders located in the ground ladder storage compartment.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
256. 8' PIKE POLE:		
<p>There shall be two (2) 8' Duo Safety pike poles with fiberglass handle provided. The pike pole(s) shall be stored in tubular holders located in the ground ladder storage compartment.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
257. 6' NEW YORK STYLE HOOK:		
<p>There shall be two (2) 6' New York Style Hooks provided. The hooks shall be stored in tubular holders located in the ground ladder storage compartment.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No

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COMMENTS:		
258. 3' PIKE POLE:		
There shall be two (2) 3' Duo Safety pike poles with fiberglass shaft and "D" handles shipped loose.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
259. PIKE POLE STORAGE IN TORQUE BOX/LADDER STORAGE:		
There shall be ABS tubing provided in the torque box/ladder storage area for a total of six (6) pike poles.		<input type="checkbox"/> Yes <input type="checkbox"/> No
If the head of a pike pole can come into contact with a painted surface, a stainless steel scuffplate shall be provided.		
COMMENTS:		
260. AIR HORN SYSTEM:		
There shall be two (2) Grover air horns recessed in the front bumper. The horn system shall be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve shall be installed in-line to prevent loss of air in the air brake system.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
261. AIR HORN LOCATION:		
The air horns shall be located on each side of the bumper, inside of the frame rails.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
262. AIR HORN CONTROL:		
The air horn shall be actuated by a chrome push button switch located on the officer side of the engine tunnel and by a foot switch on the driver's side.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		

263. ELECTRONIC SIREN:

A Whelen®, Model 295SLSA1, electronic siren with noise canceling microphone shall be provided.

This siren to be active when the battery switch is on and that emergency master switch is on.

Electronic siren head shall be recessed in the driver side center switch panel.

The electronic siren shall be controlled on the siren head only. No horn button or foot switches shall be required.

☐ Yes ☐ No

COMMENTS:**264. SPEAKER:**

There shall be one (1) Whelen®, Model SA315P, black nylon composite, 100-watt, speaker with through bumper mounting brackets and polished stainless-steel grille provided. The speaker shall be connected to the siren amplifier.

The speaker shall be recessed in the center of the front bumper.

☐ Yes ☐ No

COMMENTS:**265. SIREN AMPLIFIER:**

There shall be one (1) amplifier provided and installed with the Whelen, HOWLER, system to be used in conjunction with the vehicle's primary electronic siren.

☐ Yes ☐ No

COMMENTS:**266. AUXILIARY SPEAKERS:**

There shall be two (2) auxiliary speakers provided with the Whelen, HOWLER system.

These speakers shall be installed behind the front bumper of the cab.

☐ Yes ☐ No

COMMENTS:**267. ACTIVATION:**

There shall be an activation switch and cancellation switch provided on the cab instrument panel.

There shall be an additional activation toggle switch with guard located TBD.

☐ Yes ☐ No

COMMENTS:**268. AUXILIARY MECHANICAL SIREN:**

A Federal Q2B® siren shall be furnished. A siren brake button shall be installed on the switch panel.

The control solenoid shall be powered up after the emergency master switch is activated.

The mechanical siren shall be mounted recessed in the front grille. The siren mounting shall include a reinforcement plate.

The mechanical siren shall be actuated by two (2) foot switches, one located on the officer's side and one on the driver's side.

☐ Yes ☐ No

COMMENTS:**269. WARNING SYSTEM CONTROL:**

There shall be a Whelen®, CenCom CORE™ WeCanX™ warning system control provided. The system will be a microprocessor-based system that utilizes a centralized means of controlling the warning lighting on the vehicle.

The system will include a photocell to sense ambient light.

The warning system controlled warning lighting will be controlled as following:

When in respond mode (high ambient light):

When the emergency master switch is active, the associated warning light switch is activated, and the parking brake is released, and the vehicle is in high ambient light conditions, the warning light control system will change the flash pattern to LONG FLASH 75 RANDOM flash with high intensity light output.

When in respond mode (low ambient light):

When the emergency master switch is active, the associated warning light switch is activated, and the parking brake is released, and the vehicle is in low ambient light conditions, the warning light control system will change the flash pattern to SIGNAL ALERT 75 ALTERNATING flash with high intensity light output.

When in blocking mode (high ambient light):

When the emergency master switch is active, the associated warning light switch is activated, and the parking brake is applied, and the vehicle is in high ambient light conditions, the warning light control system will change the flash pattern to SINGLE FLASH 75 ALTERNATING flash with high intensity light output.

When in blocking mode (low ambient light):

When the emergency master switch is active, the associated warning light switch is activated, the parking brake is applied, and the vehicle is in low ambient light conditions, the warning light control system will enter the Whelen® Dynamic Variable Intensity (DVI)

mode. DVI mode lowers warning light output intensity and creates a "calming" effect by slowing flash rates and synchronizing warning light flash patterns.

☐ Yes ☐ No

COMMENTS:

270. FRONT ZONE UPPER WARNING LIGHTS:

There shall be one (1) 72.00" Whelen® Freedom™ IV lightbar mounted on the cab roof.

The lightbar shall include the following:

- One (1) red flashing LED module in the driver's side end position.
- One (1) blue flashing LED module in the driver's side front corner position.
- One (1) red flashing LED module in the driver's side first front position.
- One (1) red flashing LED module in the driver's side second front position.
- Open in the driver's side third front position.
- Open in the driver's side fourth front position.
- One (1) red flashing LED module in the driver's side fifth front position.
- One (1) 795 LED traffic light controller set to national standard high priority in the center positions.
- One (1) red flashing LED module in the passenger's side fifth front position.
- Open in the passenger's side fourth front position.
- Open in the passenger's side third front position.
- One (1) red flashing LED module in the passenger's side second front position.
- One (1) red flashing LED module in the passenger's side first front position.
- One (1) blue flashing LED module in the passenger's side front corner position.
- One (1) red flashing LED module in the passenger's side end position.

There shall be clear lenses included on the lightbar.

The following switches may be installed in the cab on the switch panel to control the lightbar:

- a switch to control the flashing LED modules.
- the traffic light controller by a cab switch with emergency master control.
- no momentary switch to activate the traffic light controller

The traffic light controller shall be disabled when the parking brake is applied.

☐ Yes ☐ No

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The six (6) red flashing LED modules in the front positions may be load managed when the parking brake is applied.

COMMENTS:**271. CAB FACE WARNING LIGHTS:**

There shall be four (4) Whelen®, Model M6*C, LED flashing warning lights installed on the cab face, above the headlights, mounted in a common bezel.

- The driver's side front outside warning light to be red
- The driver's side front inside warning light to be red
- The passenger's side front inside warning light to be red
- The passenger's side front outside warning light to be red

All four (4) lights shall include a clear lens.

There shall be a switch located in the cab, on the switch panel, to control the four (4) lights.

The inside lights may be load managed if colored or disabled if white, when the parking brake is set.

☐ Yes ☐ No

COMMENTS:**272. HEADLIGHT FLASHER:**

The high beam headlights shall flash alternately between the left and right side.

There shall be a switch installed in the cab on the switch panel to control the high beam flash. This switch shall be live when the battery switch and the emergency master switches are on.

The flashing shall automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.

☐ Yes ☐ No

COMMENTS:**273. SIDE ZONE LOWER LIGHTING:**

There shall be four (4) Whelen®, Model M6*CS, 4.31" high x 6.75" long x 1.37" deep steady burn LED warning lights with chrome trim installed per the following:

- Two (2) lights located, one (1) each side on the bumper extension. The left side, side front light to include blue warning LEDs and the right side, side front light to include blue warning LEDs.

- Two (2) lights located, one (1) each side located between the tandems. The left side, side rear light to include blue warning LEDs and the right side, side rear light to include blue warning LEDs.

- The lights will include clear lenses.

These lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

☐ Yes ☐ No

There will be a switch in the cab on the switch panel to control the lights.

COMMENTS:**274. REAR ZONE LOWER LIGHTING:**

There will be two (2) Whelen®, Model M6**S, 4.31" high x 6.75" wide x 1.37" deep flashing LED warning lights located at the rear of the apparatus included in the taillight housings.

- The left side rear warning light to include red LEDs.
- The right side rear warning light to include blue LEDs.
- The warning light lens color(s) to be clear.

The flash pattern of the lights will be controlled through the supplier based electrical control system.

There will be a switch in the cab on the switch panel to control the lights.

☐ Yes ☐ No
COMMENTS:**275. REAR/SIDE ZONE UPPER WARNING LIGHTS:**

There shall be two (2) Whelen®, Model Rota-Beam™, Model R416*F, 4.88" high x 6.44" wide LED beacons, and two (2) Model M6*CS, 5.31" high x 6.75" wide x 1.37" deep steady burn LED warning lights with clear lenses, and chrome trim provided.

The rear zone upper R416*F warning beacons will be as follows:

- One (1) R416RF, red Rota-Beam beacon mounted on top of the rear left side of the body
- One (1) R416BF, blue Rota-Beam beacon mounted on top of the rear right side of the body

The M6*CS steady burn warning lights will be provided at the rear upper zone as follows:

- One (1) M6BCS, blue steady burn light will be mounted as close to the outside of the rear left side of the body
- One (1) M6RCS, red steady burn light will be mounted as close to the outside of the rear right side of the body

These lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

There will be a switch located in the cab on the switch panel to control the beacons.

☐ Yes ☐ No

COMMENTS:

276. TRAFFIC DIRECTING LIGHT:

There shall be Whelen®, Model TLIA amber LED lights installed as follows:

- Six (6) Whelen®, Model TLIA amber, LED lights installed low on the left side of the vehicle. One (1) installed under compartment "LS6" in rub rail as far forward as practical, one (1) installed to the right of the turntable access steps low and as far forward as practical, one (1) under compartment "LS5" in rub rail as far forward as practical, two (2) under compartment "LS2" in rub rail, one (1) as far forward and one (1) as far towards the rear as practical, and one (1) "LS1" in rub rail as far towards the rear as practical.
- Six (6) Whelen®, Model TLIA amber, LED lights installed low on the rear of the vehicle, in the rear tail board step, under rear compartment "B1".
- Six (6) Whelen®, Model TLIA amber, LED lights installed low on the right side of the vehicle. One (1) installed under compartment "RS7" as far forward as practical, one (1) installed under compartment "RS6" in rub rail as far forward as practical, one (1) under compartment "RS5" in rub rail as far forward as practical, two (2) under compartment "RS2" in rub rail, one (1) as far forward and one (1) as far towards the rear as practical, and one (1) "RS1" in rub rail as far towards the rear as practical.

There will be four (4) switches installed in the cab instrument panel to control these traffic directing lights as follows:

- "TA LEFT" - Activating this switch will initiate a light pattern that directs traffic to the left when facing the vehicle.
- "TA RIGHT" - Activating this switch will initiate a light pattern that directs traffic to the right when facing the vehicle.

Activating both the "TA LEFT" and "TA RIGHT" will initiate a center out light pattern.

"BLOCKING LEFT" - Activating this switch in conjunction with the "TA LEFT" and/or "TA RIGHT" switches will allow traffic directing control of the left side and rear mounted lights.

"BLOCKING RIGHT" - Activating this switch in conjunction with the "TA LEFT" and/or "TA RIGHT" switches will allow traffic directing control of the right side and rear mounted lights.

Activating both the "BLOCKING LEFT" and "BLOCKING RIGHT" switches in conjunction with the "TA LEFT" and/or "TA RIGHT" switches will initiate a traffic directing pattern that incorporates both sides and the rear of the vehicle.

If neither the "BLOCK LEFT" or "BLOCK RIGHT" switches are selected, only the traffic directing lights at the rear of the truck will be controlled when a "TA LEFT" and/or "TA RIGHT" are selected.

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If none of the BLOCKING switches are selected and E-Master is active, the TLIA lights on the sides of the apparatus will activate in warning mode.

The warning system-controlled warning lighting will be controlled as per the following:

When in respond mode (high ambient light):

When the emergency master switch is active, the rear warning light switch is activated, and the parking brake is released, and the vehicle is in high ambient light conditions, the warning light control system will change the flash pattern to LONG FLASH 75 RANDOM flash with high intensity light output.

When in respond mode (low ambient light):

When the emergency master switch is active, the rear warning light switch is activated, and the parking brake is released, and the vehicle is in low ambient light conditions, the warning light control system will change the flash pattern to SIGNAL ALERT 75 ALTERNATING flash with high intensity light output.

When in blocking mode (high ambient light):

When the emergency master switch is active, the rear warning light switch is activated, and the parking brake is applied, and the vehicle is in high ambient light conditions, the warning light control system will change the flash pattern to SINGLE FLASH 75 ALTERNATING flash with high intensity light output.

When in blocking mode (low ambient light):

When the emergency master switch is active, the rear warning light switch is activated, the parking brake is applied, and the vehicle is in low ambient light conditions, the warning light control system will enter the Whelen® Dynamic Variable Intensity (DVI) mode. DVI mode lowers warning light output intensity and creates a "calming" effect by slowing flash rates and synchronizing warning light flash patterns.

The traffic directing lights will be controlled utilizing the microprocessor based Whelen® CenCom CORE™ system.

The traffic directing light control switches will be located within the switch panel on the center console.

☐ Yes ☐ No

COMMENTS:

277. 120-VOLT RECEPTACLE:

There will be one (1), 4-place receptacle box(es) with four (4) 15/20 amp 120-volt AC three (3) wire straight blade receptacles with an interior stainless steel wall plate installed RS3 As far forward as possible, high on forward wall. The NEMA configuration for the receptacles will be 5-20R.

The receptacle(s) will be powered from the shoreline inlet.

There will be a label installed near the receptacle(s) that state the following:

- Line Voltage
- Current Rating (amps)

<ul style="list-style-type: none"> Phase Frequency 	<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
278. GENERAL INFORMATION:	
It is the intent of these specifications to describe a mid-mounted telescoping, elevating platform. The unit shall consist of a five (5) section, steel ladder with a self-leveling basket attached to the ladder fly section.	<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
279. OPERATION ON GRADES:	
The aerial unit shall be capable of operating safely on any slope up to 10 degrees at full capacities.	<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:	
280. CONSTRUCTION STANDARDS:	
<p>The ladder shall be constructed to meet all of the requirements as described in the current edition of NFPA 1901.</p> <p>These capabilities shall be established in an unsupported configuration.</p> <p>All structural load supporting elements of the aerial device that are made of a ductile material shall have a design stress of not more than 50% of the minimum yield strength of the material based on the combination of the live load and the dead load. This 2:1 structural safety factor meets the current NFPA 1901 standard.</p> <p>All structural load supporting elements of the aerial device that are made of non-ductile material shall have a design stress of not more than 20% of the minimum ultimate strength of the material, based on the combination of the rated capacity and the dead load. This 5:1 safety factor meets the current 1901 NFPA standard.</p> <p>The aerial device shall be capable of sustaining a static load one and one-half times its rated tip load capacity (live load) in every position in which the aerial device can be placed when the vehicle is on a firm level surface.</p> <p>The aerial device shall be capable of sustaining a static load one and one-third times its rated tip load capacity (live load) in every position the aerial device can be placed when the vehicle is on a slope of five degrees downward in the direction most likely to cause overturning.</p>	

With the aerial device out of the cradle in the in the fully extended position at zero degrees elevation, a test load shall be applied in a horizontal direction normal to the centerline of the ladder. The turntable shall not rotate and the ladder shall not deflect beyond what the product specification allows.

All welding shall be in compliance with the American Welding Society standards. All welding personnel shall be certified, as qualified under AWS welding codes.

The aerial device shall be capable of operating in either of the two following conditions:

- Conditions of high wind up to 35 mph
- Conditions of icing, up to a coating of .25" over the entire aerial structure

All of the design criteria must be supported by the following test data:

- Strain gage testing of the complete aerial device

The following criteria for materials are to be used in the design of the aerial device:

- Materials are to be certified by the mill that manufactured the material
- Material testing that is performed after the mill test shall be for verification only and not with the intent of changing the classification.

☐ Yes ☐ No

COMMENTS:

281. LADDER CONSTRUCTION:

The ladder shall be comprised of five (5) sections and shall extend to a nominal height, of 100' above the ground, as measured by 1901 recommendations. The ladder (handrails, baserails, trusses, k-braces and rungs) shall be constructed of welded, high strength steel certified by the manufacturer as being a minimum of 100,000 pounds per square inch of yield strength. All critical points shall be reinforced, for extra rigidity, and to provide a high strength-to-weight ratio. Ladder rungs shall be round and welded to each section in two (2) places with "K" bracing for torsional rigidity. A minimum of 70.25" of overlap between each of the aerial sections shall be provided.

The inside width dimensions of the ladder shall be:

- Base Section 56.12"
- Lower Mid Section 46.12"
- Center Mid Section 36.62"
- Upper Mid Section 28.12"
- Fly Section 22.12"

The height of the handrails above the centerline of the rungs shall be:

- Base Section 40.72"
- Lower Mid Section 39.08"
- Center Mid Section 32.32"

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- Upper Mid Section 29.02"		<input type="checkbox"/> Yes <input type="checkbox"/> No
- Fly Section 26.37"		
COMMENTS:		
282. VERTICAL HEIGHT:		
The height of the unit shall extend to no less than 100', as measured by a plumb line from the top surface of the basket handrail assembly to the ground, with the basket raised to a 77-degree angle.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
283. HORIZONTAL REACH:		
The rated horizontal reach shall be 93'. The measurement of horizontal reach shall be consistent with NFPA standards.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
284. MOUNTING OF ELEVATING PLATFORM:		
The aerial device shall be mid mounted, to a torque box, on the truck chassis.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
285. TORQUE BOX:		
A "torsion box" subframe shall be installed between two sets of stabilizers. The torque box shall be constructed of 100,000 pounds per square inch yield steel with an integral ladder storage box. The torque box assembly shall be capable of withstanding all torsional and horizontal loads when the unit is on the stabilizers. The torque box shall be bolted to the chassis frame rails using forty-eight .750" SAE grade 8 bolts with nuts.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
286. TURNTABLE:		
The turntable shall be coated with a non-skid, chemical resistant material in the walking areas. The stepping surfaces shall meet the skid-resistance requirements in the current NFPA 1901 standard.		

The turntable shall serve as a step for access to the ladder.

The turntable handrails shall be a minimum 42.00" high and shall not increase the overall travel height of the vehicle. The handrails shall be constructed from 1.62" diameter extruded 6061-T6 aluminum with a slip resistant knurled surface. The handrails shall be anodized to resist corrosion.

☐ Yes ☐ No

COMMENTS:

287. ELEVATION SYSTEM:

Two (2) double acting, lift cylinders shall be utilized to provide smooth, precise elevation from 15 degrees below horizontal to 77 degrees above horizontal. The lift cylinder shall be attached to each side of the base section. The lift cylinders shall have a 7.50" internal diameter (bore), 3.50" diameter cylinder rod and a 53.89" stroke. The lift cylinder rod shall be chrome plated, to provide smooth operation of the aerial and reduce seal wear. The lift cylinders shall be equipped with integral holding valves located in the cylinder, to prevent the unit from descending should the charged lines be severed, at any point within the hydraulic system and to maintain the ladder in the bedded position during road travel. The integral holding valves shall NOT be located in the transfer tubes.

The elevation system shall be controlled by the microprocessor. The microprocessor shall provide the following features:

- Collision avoidance of the elevation system to prevent accidental body damage
- Automatic deceleration when the aerial device is lowered into the cradle
- Automatic deceleration at the end of stroke, in maximum raise and lower positions
- Deceleration of the aerial device from 0 to -15 degrees

☐ Yes ☐ No

COMMENTS:

288. EXTENSION/RETRACTION SYSTEM:

A hydraulically powered, extension and retraction system shall be provided through dual hydraulic cylinders and wire ropes. The extension cylinder shall have a 6.50" internal diameter (bore), 2.75" diameter rod and a 53.12" stroke. Each set shall be capable of operating the ladder in the event of a failure, of the other. For safety, systems that use only a single extension/retraction system shall not be acceptable. The extension cylinder rod shall be chrome plated to provide smooth operation of the aerial device and reduce seal wear. The extension/retraction cylinders shall be equipped, with integral holding valves, to prevent the unit from retracting should the charged line be severed, at any point within the hydraulic system. The integral holding valves shall NOT be located in the transfer tubes.

Wire ropes and attaching systems used to extend and retract the fly sections shall have a 5:1 safety factor based on the ultimate strength under all operating conditions. The factor of safety for the wire rope shall remain above 2:1 during any extension or retraction stall. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used shall be 1:12. Wire ropes shall be constructed of seven (7) strands over an inner wire core for increased flexibility. The wire rope shall be galvanized to reduce corrosion.

The extension/retraction system shall be controlled by the microprocessor. The microprocessor shall provide the following features:

- Automatic deceleration at the end of stroke, in maximum extend and retract positions
- Controls the rate of retraction while flowing water

All sheaves and sheave pins shall utilize greasable bronze bushings. Sheave pins shall be polished stainless steel

☐ Yes ☐ No

COMMENTS:

289. ROTATION SYSTEM:

A 54.00" diameter, external tooth, monorace rotation bearing shall be used for the rotation system and shall provide 360-degree continuous rotation. The turntable shall be bolted to the bearing using 30 SAE grade 8, .875" diameter bolts. To secure the bearing to the base support, 36 grade 8, .875" diameter bolts shall be used. The turntable base and the torque box bearing plate shall be machined to fit the bearing, thereby providing even distribution of forces. Two (2) hydraulically driven, planetary gear boxes, with drive speed reducer, shall be used to provide infinite and minute rotation control, throughout the entire rotational travel. Each planetary gearbox has a torque rating of 130,000 pounds per square inch. A spring applied, hydraulically released, disc type, swing brake shall be furnished to provide positive braking of the turntable assembly. Provisions shall be made for auxiliary operation of the rotation system should complete loss of normal hydraulic power occur.

The rotation system shall be controlled by the microprocessor. The microprocessor shall provide the following features:

- Envelope control of rotation system to prevent accidental body damage
- Prevent the aerial from being rotated into the short-jacked side of the unit

☐ Yes ☐ No

COMMENTS:

290. MANUAL OVERRIDE CONTROLS:

Manual override controls shall be provided for all aerial and stabilizer functions.

☐ Yes ☐ No

COMMENTS:

291. LADDER SLIDE MECHANISM:

Wear pads shall be used between the telescoping ladder sections, to reduce friction for smoother operation. Slide pads shall also be used to control side play between the ladder sections.

☐ Yes ☐ No

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2**292. BASKET LEVELING SYSTEM:**

A basket leveling system shall be provided and so designed, that the basket with its rated load, can be supported and maintained level, relative to the turntable, regardless of the elevation or flexion of the ladder.

The leveling of the basket features a hydraulic cylinder system mounted between the ladder fly section and the basket with each side capable of supporting the load, while maintaining the basket level.

The hydraulic circuitry includes pressure operated counterbalance valves, on the load side of the cylinders, to prevent the basket from tipping should the hydraulic lines be severed.

The microprocessor shall control the level of the basket during bedding operations, preventing the basket from hitting the body deck when the truck is setup on unlevel ground.

☐ Yes ☐ No
COMMENTS:**293. ROTATION INTERLOCK:**

The microprocessor shall be used to prevent the rotation of the aerial device, to the side in which the stabilizers have not been fully deployed (short-jacked). The microprocessor shall allow full and unrestricted use of the aerial, in the 180-degree area, on the side(s) where the stabilizers have been fully deployed. The system shall also have a manual override, to comply with NFPA 901. SYSTEMS THAT PERMIT THE AERIAL TO ROTATE TO THE "SHORT JACK" SIDE, WITHOUT AUTOMATICALLY STOPPING THE ROTATION AND/OR WITHOUT ACTUATION OF THE "MANUAL OVERRIDE", SHALL NOT BE ACCEPTED. SYSTEMS THAT ONLY INCLUDE AN ALARM ARE NOT CONSIDERED AN INTERLOCK AND SHALL NOT BE ACCEPTED.

☐ Yes ☐ No
COMMENTS:**294. LOAD CAPACITIES:**

The following load capacities shall be established with the stabilizers at full horizontal extension and placed in the down position to level the truck and to relieve the weight from the tires and axles. Capacities shall be based upon full extension and 360-degree rotation.

A load chart, visible at the operator's station, shall be provided. The load chart shall show the recommended safe load at any condition of the aerial device's elevation and extension.

☐ Yes ☐ No
COMMENTS:**295. 35 MPH WIND CONDITIONS/DRY:**

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Degree of Elevation	-15 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 77
Basket	1000	1000	1000	1000	1000	1000	1000
Fly	-	-	-	-	250	250	500
Upper Mid	-	-	-	-	250	250	500
Center Mid	-	-	250	250	250	500	500
Lower Mid	-	-	250	250	500	500	500
Base	-	250	500	500	500	500	750

☐ Yes ☐ No
COMMENTS:**296. WATER TOWER OPERATION:**

The following capacities shall be based upon continuous 360-degree rotation and full extension.

☐ Yes ☐ No
COMMENTS:**297. 35 MPH WIND CONDITIONS/WATER CHARGED:**

Degree of Elevation	-15 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 77
Basket	500	500	500	500	500	500	500
Fly	-	-	-	-	-	-	250
Upper Mid	-	-	-	-	-	250	250
Center Mid	-	-	-	-	250	250	500
Lower Mid	-	-	-	250	250	500	500
Base	-	-	250	250	250	500	500

☐ Yes ☐ No
COMMENTS:**298. ELEVATION -15 TO 77 DEGREES:**

The aerial device shall be able to maintain the above load capacities while flowing up to 1500 GPM and a nozzle position of 0 to 90 degrees to either side of the ladder centerline, and as far above and below horizontal to the platform as nozzle design allows.

The aerial device shall be able to maintain the above load capacities while flowing up to 2000 GPM and a nozzle position of 0 to 45 degrees to either side of the ladder centerline, and 30 degrees above horizontal and as far below horizontal to the platform as nozzle design allows.

Reduced loads in the basket can be redistributed in 250 lb. increments to the fly, mid, or base as needed.

☐ Yes ☐ No

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2**COMMENTS:**

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299. LADDER CRADLE INTERLOCK SYSTEM:

A ladder cradle interlock system shall be provided through the microprocessor to prevent the lifting of the aerial device from the nested position until the operator places all the stabilizers in a load supporting configuration. A switch shall be installed at the boom support to prevent operation of the stabilizers once the aerial has been elevated from the nested position.

☐ Yes ☐ No
COMMENTS:

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300. AERIAL BOOM PANEL:

There shall be one boom panel provided on each side of the aerial ladder base section. The boom panel shall be painted red.

The boom panels shall be designed so no mounting bolts are in the face of the panel. This shall keep the lettering surface free of holes.

☐ Yes ☐ No
COMMENTS:

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301. AERIAL DEVICE RUNG COVERS:

Each rung shall be covered with a secure, heavy-duty, fiberglass pultrusion that incorporates an aggressive, no-slip coating.

The rung covers shall be glued to each rung and shall be easily replaceable should the rung cover become damaged.

The center portion of each rung cover shall be black and the outside 2.00" edge at each side shall be safety yellow.

Under no circumstances shall the rung covers be fastened to the rungs using screws or rivets.

The rung covers shall have a 10-year, limited warranty.

☐ Yes ☐ No
COMMENTS:

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302. PIKE POLE MOUNTING BRACKETS:

Mounting will be provided near the end of the fly section of the aerial ladder for one (1) pike pole(s).

The bracket will be sized to hold a Fire Hooks Unlimited 8' roof hook.

☐ Yes ☐ No

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2**COMMENTS:**

303. POLY BLOCK:

One (1) poly block(s) will be provided below the Haligan tool mount.

☐ Yes ☐ No
COMMENTS:

304. MAXIMUM SIZE BOX AT BASKET:

A miscellaneous storage box of maximum size with a hinged cover will be provided at the right, outside rear of the basket when viewed from the turntable. The cover will be weatherproof to protect the inside of the box from the elements and held closed with a rubber draw latch located in the outboard location, match write up on 34690-01. The box will be constructed of smooth aluminum and will be painted to match the platform basket. The size will be approximately 20.38" high x 9.62" wide x 10.25" deep (from the rear wall of basket).

The maximum capacity of this box shall be 10 lb.

☐ Yes ☐ No
COMMENTS:

305. HALLIGAN TOOL MOUNTING BRACKETS:

Brackets will be provided inside the platform basket for mounting a Halligan tool. A total of one (1) sets of brackets will be provided.

☐ Yes ☐ No
COMMENTS:

306. AXE MOUNTING BRACKETS:

Brackets will be provided in the aerial platform basket for mounting one (1) fire axe(s). The type of axe mounted here will be a flathead axe. The mounting plates for this installation will be stainless steel.

☐ Yes ☐ No
COMMENTS:

307. LADDER STORAGE MOUNTING BRACKETS:

There will be brackets that are DA finished provided near the end of the fly section of the aerial for mounting a roof ladder.

The mounting brackets will accommodate a 12' Duo-Safety 875-A roof/wall ladder as determined by the type of aerial device and the available space.

☐ Yes ☐ No

COMMENTS:

308. SAW STORAGE BOX:

There shall be two (2) storage boxes provided at the base section of the aerial ladder on each side of the aerial device. The boxes shall be painted to match the aerial device and located at the tip of the base section. The boxes shall have a hinged cover with D-handle latch and two (2) gas struts to secure the saw. The cover shall have the same finish as the box. The box shall have a removable drip pan with handles and no louvers.

The maximum capacity of each box shall be 75 lb.

☐ Yes ☐ No

COMMENTS:

309. BASKET STRUCTURE:

The complete basket structure shall be constructed of welded high strength steel certified by the manufacturer to have a minimum of 100,000 lb per square inch yield strength on all structural members. The aerial basket shall be fully tested and independent third party certified.

The flooring of the basket shall be multi-piece Morton Cass material, preventing the accumulation of water on the standing surface. The floor shall measure approximately 33.63" long x 72.75" wide. The stepping surfaces shall meet the skid-resistance requirements of current NFPA 1901 standard.

The outside basket steps used for transferring in and out of the basket shall be at the same level as the basket floor and shall be constructed of aluminum treadplate. The steps on the front and sides are approximately 8.00" deep. The front corners of the basket step shall be mitered at 45 degrees to allow the basket to be maneuvered closer to buildings when approaching at an angle.

Four (4) stainless steel pompier belt safety loops shall be attached to the inside of the basket. Two (2) lifting eyes shall be provided on the bottom side of the basket support structure.

Four (4) rubber bumpers are provided on the bottom side of the basket structure for damage protection when setting it down on a surface.

The basket interior shall be illuminated as required per the current edition of NFPA 1901. Electrical sub-components shall be mounted under the basket in an enclosed area providing protection from heat exposure while allowing for easy servicing and maintaining an unobstructed basket interior.

☐ Yes ☐ No

COMMENTS:

310. BASKET SIDES:

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The sides of the basket shall be of tubular steel construction and aluminum sheet skin, and along with the basket doors, shall form a continuous 42.00" high wall around the basket.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
311. PLATFORM ENTRANCES/EXITS:		
Two (2) swing-in, spring-loaded, self-closing doors shall be of steel frame construction with an aluminum sheet skin and shall be provided on the 45-degree angles at the front of the platform. A paddle style door latch shall allow the basket doors to be opened from the outside by applying pressure to the paddle with the hand. The rear of the platform shall be equipped with a vertical self-closing gate for transfer to and from the platform's ladder device.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
312. ACCESSORY MOUNTING RECEPTACLES:		
Universal accessory mounting receptacles shall be permanently affixed on the left side of the basket to receive options such as the rescue basket holders, rappelling arms, roof ladder brackets, winch, etc. Complete interchangeability shall be required without modification to the basket.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
313. LIGHTS FOR TURNTABLE WALKWAY:		
There shall be 6.00" long white LED lights and P25 white LED lights provided at the aerial turntable. The lights shall be located to illuminate the entire walking surface of the turntable including the area around the turntable console. These lights shall be activated by the aerial master switch.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
314. TURNTABLE CONSOLE LIGHTING:		
There shall be one (1), white LED light mounted in the turntable console cover to illuminate the controls located on both the upper and lower portion of the turntable control station. These lights shall be activated by the aerial master switch.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		

315. BASKET HEAT SHIELDS:

A heat reflective shield, constructed of aluminum shall be provided on the front, sides, bottom, and access doors of the basket.

These heat shields shall be painted to match the aerial device.

The heat shields on the bottom of the basket shall be easily removable for ease of servicing components located under the basket.

☐ Yes ☐ No
COMMENTS:**316. INFORMATION CENTER:**

There shall be an information center provided. The information center shall operate in temperatures from -40 to 185 degrees Fahrenheit. The information center shall employ a Linux operating system and a 7.00" (diagonal measurement) LCD display. The LCD shall have 1000 nits rated color display. The LCD shall be daylight visible. The LCD display shall be encased in an ABS, grey plastic housing with a black decal. There shall be five (5), weather-resistant user interface buttons provided. The LCD display can be changed to an optional single foreign language.

☐ Yes ☐ No
COMMENTS:**317. OPERATION:**

The information center shall be designed for easy operation in everyday use. There shall be a page button to cycle from one screen to the next screen in a rotating fashion. A video button shall allow an NTSC camera signal into the information center to be displayed on the LCD. If any button is pressed while viewing a video feed, the information center shall return to the vehicle information screens. There shall be a menu button to provide access to maintenance, setup, and diagnostic screens. All other button labels shall be specific to the information being viewed.

☐ Yes ☐ No
COMMENTS:**318. GENERAL SCREEN DESIGN:**

Where possible, background colors shall be used to provide vehicle information At A Glance. If the information provided on a screen is within acceptable limits, a green background color shall be used. If the information provided on a screen is not within acceptable limits, an amber background color shall indicate a caution condition and a red background color shall indicate a warning condition.

Every screen in the information center shall include the aerial tip temperature, the time (12- or 24-hour mode) and a text Alert Center. The time shall be synchronized between all Command Zone color displays located on the vehicle. The Alert Center shall display text messages for audible alarms. The text messages shall identify any items causing the audible alarm to sound. If more than one (1) audible alarm is activated, the text message

for each alarm shall cycle every second until the problems have been resolved. The background for the Alert Center shall change to indicate the severity of the warning message. Amber shall indicate a caution condition and red shall indicate a warning condition. If a warning and a caution condition occur simultaneously, the red background color shall be shown for all Alert Center messages.

A label shall be provided for each button. The label shall indicate the function for each active button for each screen. If the button is not utilized on specific screens, it shall have a button label with no text.

Symbols shall accurately depict the aerial device type the information pertains to such as rear mount ladder, rear mount platform, mid-mount ladder or mid-mount platform.

☐ Yes ☐ No

COMMENTS:

319. PAGE SCREENS:

The Information center shall include the following pages:

The Aerial Main and Load Chart page shall indicate the following information:

- Rungs Aligned and Rungs Not Aligned shall be indicated with text and respective green or red colored ladder symbols.

- Ladder Elevation shall be indicated via a fire apparatus vehicle with ladder symbol with the degree of elevation indicated between the vehicle and ladder.

- Water Flow (if applicable) shall be indicated via a water nozzle symbol and text indicating flow / time.

- Breathing Air Levels shall be indicated via an air bottle symbol and text indicating the percent (%) of air remaining. A green bar graphs shown inside the bottle shall indicate oxygen levels above 20%. A red bar graph shall indicate oxygen levels at or below 20%. When oxygen levels are at or below 10% the red bar graph shall flash.

- The Aerial Load Chart shall indicate the load limit on each section of the ladder based on actual ladder position and water flow (if applicable).

- At A Glance color features shall be utilized on this screen. Caution type conditions shall be indicated via a yellow background. Warning type conditions shall be indicated via a red background. Conditions operating within acceptable limits shall be indicated via a green background.

The Aerial Reach and Hydraulic Systems page shall indicate the following information:

- Aerial Hydraulic Oil Temperature shall be indicated with symbol and text. At a glance features shall be utilized.

- Aerial Hydraulic Oil Pressure shall be indicated with a symbol and text. At a glance features shall be utilized.

- The following calculations shall be indicated on a representative vehicle symbol:

- Aerial Device Extension length.

- Aerial Device Height indicating the height of the aerial device tip from the ground.

- Aerial Device Reach indicating the horizontal distance the aerial reaches from the turntable.

- Aerial Device Angle indicating the angle from the vehicle which the device is at.

- At A Glance color features shall be utilized on this screen. Caution type conditions shall be indicated via a yellow background. Warning type conditions shall be indicated via a red background. Conditions operating within acceptable limits shall be indicated via a green background.

The Level Vehicle page shall indicate the following information:

- The grade of the vehicle shall be indicated via a fire apparatus vehicle symbol with the degree of grade shown in text format. The symbol shall tilt dependent on the vehicle grade.

- The slope of the vehicle shall be indicated via a fire apparatus vehicle symbol with the degree of slope shown in text format. The symbol shall tilt dependent on the vehicle slope.

- Outriggers status shall be indicated via a colored symbol for each outrigger present. Each outrigger status shall be defined as one of the following:

- Outrigger stowed indicated with a silver pan located close to the vehicle

- Outrigger fully extended indicated with a fully deployed green outrigger

- Outrigger short-jacked indicated by a yellow outrigger partially deployed

- Outrigger not set indicated by a red outrigger that is not set on the ground

- A text box located on the vehicle symbol shall be utilized to identify the overall status of the outrigger leveling system. The following status shall be indicated in the text box:

- Deployed status shall indicate all outriggers are properly set on the ground at full extension

- Shortjacked status shall indicate one or more outriggers are set on the ground but not fully extended.

- Not Set status shall indicate one or more outriggers is not properly set on the ground.

- Stowed status shall indicate all outriggers are stowed for vehicle travel.

☐ Yes ☐ No

- At A Glance color features shall be utilized on this screen. Caution type conditions shall be indicated via a yellow background. Warning type conditions shall be indicated via a red background. Conditions operating within acceptable limits shall be indicated via a green background.

COMMENTS:

320. MENU SCREENS:

The following screens shall be available through the Menu button:

The View System Information screen shall display aerial device hours, aerial PTO hours, ladder aligned for stowing, aerial rotation angle, total water flow (if applicable), and aerial waterway valve status (if applicable).

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The Set Display Brightness screen shall allow brightness increase and decrease and include a default setting button.

The Configure Video Mode screen shall allow setting of video contrast, video color and video tint.

The Set Startup screen allows setting of the screen that shall be active at vehicle power-up.

The Set Date and Time screen has a 12- or 24-hour format and allows setting of the time and date.

The View Active Alarms screen shows a list of all active alarms including the date and time of each alarm occurrence and shows all alarms that are silenced.

The System Diagnostics screen allows the user to view system status for each module and its respective inputs and outputs. Viewable data shall include the module type and ID number; the module version; and module diagnostics information including input or output number, the circuit number connected to that input or output, the circuit name (item connected to the circuit), status of the input or output, and other module diagnostic information.

Aerial calibrations screen indicates items that may be calibrated by the user and instructions to follow for proper calibration of the aerial device.

Button functions and button labels may change with each screen.

☐ Yes ☐ No

COMMENTS:

321. LOWER CONTROL STATION:

A lower control station with pendant control shall be located at the rear of the apparatus in an easily accessible area. The controls and indication labels shall be illuminated for nighttime operation. The following items shall be furnished at the lower control station and shall be clearly identified and conveniently located for ease of operation and viewing:

- Level assist switch
- Override switch to override microprocessor
- Emergency power unit switch

☐ Yes ☐ No

COMMENTS:

322. AERIAL DEVICE CONTROL STATIONS:

There shall be two (2) aerial device control stations, one shall be referred to as the basket control station, and the other as the turntable control station. All elevation, extension, and rotation controls shall operate from both of these locations. The controls shall permit the operator to regulate the speed of the aerial functions, within the safe limits as determined by the manufacturer and NFPA standards. The controls shall be clearly marked and illuminated for nighttime operation.

Each control shall be equipped with an operator presence, preventing accidental activation.

☐ Yes ☐ No

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2**COMMENTS:****323. TURNTABLE CONTROL STATION:**

The turntable control station shall be located on the right side of the turntable so the operator may easily observe the basket while operating the controls. A console cover shall be provided at the turntable control station. The controls shall be so designed to allow the turntable control station to immediately override the basket controls even if the ladder is being operated by the basket controls.

The following items shall also be provided at the turntable control station and be clearly identified and illuminated for nighttime operation and conveniently located for ease of operation and viewing:

- Three (3) separate controls for raise/lower, extend/retract, and left/right rotation
- Intercom controls
- Tip tracking light switch
- Emergency power unit switch
- Operator's load chart
- Two (2) position switch for selecting aerial operational speed
- Aerial monitor switches

☐ Yes ☐ No
COMMENTS:**324. BASKET CONTROL STATION:**

The basket control station shall be located at the front, center of the platform basket. The following items shall also be provided at the basket control station and be clearly identified and illuminated for nighttime operation and conveniently located for ease of operation and viewing:

- Three (3) separate controls for raise/lower, extend/retract, and left/right rotation
- Intercom controls
- Tip tracking light switch
- Basket leveling switches
- Operator's load chart
- Aerial monitor switches

☐ Yes ☐ No
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2**325. HIGH IDLE:**

The high idle shall be controlled by the microprocessor. The microprocessor shall automatically adjust the engine rpm, to compensate for the amount of load placed upon the system. The system shall include a safety device that allows activation of the high idle, only when the parking brake is set and the transmission is placed in neutral.

☐ Yes ☐ No
COMMENTS:**326. STABILIZERS:**

The vehicle shall come equipped with a stabilization system consisting of six (6) hydraulically operated stabilizers. The middle two (2) shall be out and down style, the front and rear two (2) shall be down only. This system shall meet or exceed all requirements of the NFPA specifications related to stabilization and setup on sloped surfaces.

The stabilizer/leveling jacks shall have a maximum spread of 18' measured from the centerline of the jack footpads when the beams are fully extended. The beams shall be 6.81" wide x 13.00" high with 1.00" thick top and bottom plates and 1/2" thick sides of 100,000-PSI minimum yield strength steel. The cylinders shall have pilot-operated check valves with thermal relief designed to ensure that the beams shall not drift out of the stowed position during travel. Wear pads shall guide the stabilizers.

The horizontal extension cylinders shall be totally enclosed within the beams and shall incorporate telescoping hydraulic tubing to supply the jack cylinder hydraulic power. Stabilizer hydraulic hoses shall remain stationary during operation of the stabilizers to prevent hose wear and potential failure. The cylinders shall be equipped with decelerators to reduce the speed of extension and retraction when the beams are near the fully retracted and extended positions. The stabilizer extension hydraulic cylinders shall have the following dimensions: 2.25" bore, 1.38" rod, and 62.25" stroke.

The front vertical jack cylinders shall be capable of 15.00" ground penetration. The middle and rear vertical jack cylinders shall be capable of 18.00" ground penetration. The cylinders shall be supplied with pilot operated check valves on each jack cylinder to hold the cylinder in the stowed or working position, should a charged line be severed at any point in the hydraulic system. For safety, the integral holding valves shall be located in the cylinder base, not in the transfer tube. Vertical jack cylinder rods shall be fully enclosed by a telescoping inner box to protect the cylinder rods from damage. The stabilizer jack hydraulic cylinders shall have the following dimensions: 4.25" bore, 3.00" rod, and 34.88" stroke.

The middle and rear stabilizer jack shall have a polished stainless-steel shield. The stainless-steel shield shall be a maximum of 14.00" wide so as to allow the extension of the stabilizer between parked cars or other obstacles. This plate shall serve as a protective guard and a mounting surface for warning lights. The top, forward, and rear edges shall be flanged back 90 degrees for added strength. The front stabilizers shall be designed for easy cab tilt.

☐ Yes ☐ No
COMMENTS:**327. STABILIZER PADS:**

The stabilizer footpad shall include an integrated stabilizer pad. The footpad shall be attached to the jack cylinder rod by means of a machined ball at the end of the jack cylinder rod which mates to a socket machined into the footpad. The footpad shall automatically position itself when being stowed so that no portion of the foot extends outside the body.

☐ Yes ☐ No

COMMENTS:

328. STABILIZER CONTROLS:

A portable stabilizer control pendant shall be provided. The control pendant shall be weatherproof and oil resistant. Each function and indicator light shall be labeled on a mylar lexan panel. The control pendant can be taken as far away as 15' from the vehicle with an attached coil cable.

The stabilizer control pendant shall include the following:

- One (1) green power indicator light for stabilizer control that shall be illuminated when the Stabilizer Power Enable switch has been activated. This shall be interlocked such that the aerial master must be activated, the ladder is in the cradle, or the Global Override at the rear of the apparatus is activated.
- Two (2) electric toggle switches for stabilizers: each toggle switch shall control the extend/retract (middle only) and raise/lower (front/middle/rear) of its respective stabilizer to allow vehicle set up in restricted areas and/or on uneven surfaces.
- Level assist switch: The stabilizer control system shall incorporate a computerized leveling system to enhance the stabilizer set up. The computerized system shall ensure full stabilizer extension, proper jack penetration, and shall level the vehicle within eight tenths of a degree of level for safe operation of the aerial device.
- Stow assist switch: The stabilizer control system shall incorporate a computerized system to move all six (6) stabilizer shoes to the full raised position while this switch is held.
- Tilt assist toggle switch: The stabilizer control system shall incorporate a computerized system to tilt the chassis to five degrees for enhanced side angle deployment of the aerial device.
- One (1) electric push button switch for the engaging the emergency power unit.
- One (1) red "stabilizer not stowed" indicator light: this light shall illuminate when the stabilizers are not in the fully stowed position.
- Two (2) fully extended beams green indicator lights: these lights shall be illuminated when each of the respective stabilizer beams are fully extended.
- Six (6) firm on ground green indicator lights: each light shall be illuminated when its respective stabilizer shoe is in the load supporting condition.

Each toggle switch shall activate the engine fast idle automatically.

Manual override shall be supplied for each stabilizer control valve.

A "Stabilizers Not Stowed" indicator shall be provided in the driver's compartment. It shall illuminate automatically whenever the stabilizers are not fully stowed to prevent damage to the apparatus if moved. The stabilizer system shall also be wired to the "Do Not Move

☐ Yes ☐ No

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Indicator Light", which shall flash whenever the apparatus parking brake is not fully engaged, and the stabilizers are not fully stowed.

COMMENTS:**329. CREADLE INTERLOCK SYSTEM:**

A cradle interlock system shall be provided, to prevent the lifting of the aerial from the nested position, until the operator has positioned all the stabilizers in a load supporting configuration. A switch shall be installed at the cradle, to prevent operation of the stabilizers once the aerial has been elevated from the nested position.

☐ Yes ☐ No
COMMENTS:

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330. STABILIZER CONTROL BOX ALUMINUM DOOR:

A vertically hinged smooth aluminum door shall be provided over the stabilizer control box. The door shall be hinged outboard.

☐ Yes ☐ No
COMMENTS:**331. HYDRAULIC SYSTEM:**

All hose assemblies shall be assembled and crimped by the hose manufacturers certified technician.

All manufacturing employees responsible for the installation of hydraulic components shall be properly trained. Training shall include proper handling, installation, torque requirements, cleanliness and quality control procedures for hydraulic components.

Hoses used in the aerial hydraulic system shall be of a premium quality hose with a high abrasion resistant cover. All pressure hoses shall have a working pressure of 4000 psi and a burst pressure rating of 16,000 psi.

All hydraulic fittings and tubing shall be plated or constructed of 304 stainless steel to minimize corrosion.

The fitting shall use an O-ring seal where possible to minimize hydraulic leaks.

An interlock shall be provided that prevents activation of the hydraulic pump until the transmission is placed in neutral and the parking brake is set as outlined in the current NFPA 1901 standard.

The system shall meet the performance requirement of the current NFPA 1901 standard, which requires adequate cooling less than 2.5 hours of operations.

All hydraulic components that are non-sealing whose failure could result in the movement of the aerial shall comply with current NFPA 1901 standards and have burst strength of 4:1.

Dynamic sealing components whose failure could cause aerial movement shall have a margin of 2:1 on maximum operating pressure per the current NFPA 1901 standard.

All hydraulic hoses, tubes, and connections shall have a minimum burst strength of 3:1 per the current NFPA 1901 standard.

A chassis mounted positive displacement piston pump for consistent pressure and rapid responses shall supply hydraulic power for all aerial operations. The positive displacement pump shall provide 3,000psi. The hydraulic pump shall be solely dedicated to aerial operations (no exception).

Each aerial shall be evaluated as to the region and climate where it shall be used to determine the optimum viscosity and proper oil grade. Oil viscosity shall be based on an optimum range of 80 to 1000 SUS during normal aerial use. Before shipment of the unit, an oil sample shall be taken and analyzed to confirm the oil is within the allowable ISO grade tolerance.

The aerial hydraulic system shall have a minimum oil cleanliness level of ISO 18/15/13 based on the ISO 4406:1999 cleanliness standard. Each customer shall receive a certificate of actual cleanliness test results and an explanation of the rating system.

Oil samples can be taken from the hydraulic manifold GP1 port which is also used for verifying system pressure.

Ball valves shall be provided in the hydraulic suction lines to permit component servicing without draining the oil reservoir.

The aerial shall incorporate the use of trombone steel tubes inside the stabilizer beams to eliminate hydraulic hose wear and leaks.

Hydraulic power to the ladder shall be transferred from the pedestal by a hydraulic swivel.

The system hydraulic pressure shall be displayed on the turntable display.

The hydraulic system shall be additionally protected from excessive pressure by a secondary pressure relief valve set at 3,500 psi. In the event the main hydraulic pump compensator malfunctions, the secondary relief shall prevent system damage.

☐ Yes ☐ No

COMMENTS:

332. HYDRAULIC CYLINDERS:

All cylinders used on the aerial device shall be produced by a manufacturer that specializes in the manufacture of hydraulic cylinders.

Each cylinder shall include integral safety holding cartridges. No manifold or transfer tube mounted cartridge shall be acceptable.

Each cylinder shall be designed to a minimum safety factor of 4:1 to failure.

All safety holding cartridges shall be installed at the cylinder manufacturer, in a controlled clean environment to avoid possible contamination and or failure.

☐ Yes ☐ No

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2**333. POWER TAKEOFF/HYDRAULIC PUMP:**

The apparatus shall be equipped with a power takeoff driven by the chassis transmission and actuated by an electric shift, located inside the cab. The power takeoff which drives the hydraulic pump shall meet all the requirements for the aerial unit operations.

An amber indicator light shall be installed on the cab instrument panel to notify the operator that the power takeoff is engaged.

An interlock shall be provided that allows operation of the aerial power takeoff shift only after the chassis spring brake has been set and the chassis transmission has either been placed in the neutral position or drive position after the driveline has been disengaged from the rear axle.

The hydraulic system shall be supplied by a variable displacement load and pressure compensating piston pump. The pump shall meet the demands of all three simultaneous aerial functions. The pump shall provide proper flow for single aerial function with the engine at idle speed. A switch shall be provided on the control console to increase the engine speed for multiple function operation.

☐ Yes ☐ No
COMMENTS:**334. EMERGENCY PUMP:**

The hydraulic system shall be designed with an auxiliary power unit meeting the guidelines of the current NFPA 1901 standard.

The aerial shall be equipped with an emergency hydraulic pump, electrically driven from the truck batteries. The pump shall be capable of running for 30 minutes for limited aerial functions to stow the unit in case of a main pump or truck system failure. A momentary switch shall be located at the stabilizer and aerial control locations to activate the emergency pump.

☐ Yes ☐ No
COMMENTS:**335. AERIAL CONTROL VALVE:**

The aerial hydraulic control valve shall be designed with special spool flows, limiting the oil flow for the designed function speed. The valve shall be electrically controlled and be located below the swivel and integrated with the stabilizer control manifold. The handles shall be oriented outward and shall be spaced 1.80" apart. The valve spools shall be designed to bleed off downstream pressure, in the neutral position and allow proper sealing of any cylinder holding cartridge.

☐ Yes ☐ No
COMMENTS:**336. OIL RESERVOIR:**

The oil reservoir shall have a minimum capacity of 39 gallons. The oil fill location shall be easily accessible and be labeled "Hydraulic Oil Only" and also indicate the grade of oil that is installed in the reservoir. A drain port shall be provided.

Two suction ports shall be provided, one for the main hydraulic pump and one for the emergency pump. The emergency suction port shall be raised slightly off the bottom of the reservoir.

Magnetic filter shall be installed in line with the return hose.

A float type sending unit in the reservoir shall provide an indication of oil level on an electronic display. A temperature sending unit in the reservoir shall provide indication of the oil temperature on an electronic display.

The hydraulic oil reservoir shall be labeled per the current edition of NFPA 1901 standard.

☐ Yes ☐ No

COMMENTS:

337. RETURN FILTER:

The low-pressure oil return filter shall be remote mounted in the return line and designed to prevent oil loss during filter change. A 50-psi bypass shall be included to protect the element and hydraulic system during lower-than-normal operating temperatures. The system shall incorporate the following filter to provide dependable service:

- Return filter will be rated: Beta 1000 at 6 microns

☐ Yes ☐ No

COMMENTS:

338. HYDRAULIC SWIVEL:

The aerial ladder shall be equipped with a three (3) port, high pressure hydraulic swivel which shall connect the hydraulic lines from the hydraulic pump and reservoir through the rotation point to the aerial control bank. The hydraulic swivel shall allow for 360-degree continuous rotation of the aerial.

☐ Yes ☐ No

COMMENTS:

339. ELECTRIC SWIVEL:

The ladder shall be equipped with an electric swivel to allow 360-degrees rotation of the aerial while connecting all electrical circuits through the rotation point. A minimum of 36 collector rings shall be provided that are capable of supplying 20-amp continuous service. All collector rings shall be enclosed and protected with desiccant plugs against condensation and corrosion. No oil or silicone shall be used.

☐ Yes ☐ No

COMMENTS:

340. WATER SWIVEL:		
Water shall be transferred to the aerial waterway by means of a 5.00" internal diameter waterway, through the swivel, permitting 360-degree continuous rotation.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
341. 13-BIT ABSOLUTE ENCODER:		
<p>The aerial ladder shall be equipped with a 13-Bit Absolute Encoder which provides 8192 counts per shaft turn for position and direction reference.</p> <p>The 13-Bit Absolute Encoder shall provide a unique binary word to reference each position and direction for all 360 degrees of rotation.</p> <p>If the power is interrupted for any reason, the 13-Bit Absolute Encoder shall allow power to be returned to the system without having to re-zero the settings.</p> <p>The 13-Bit Absolute Encoder shall be an integral part of a micro-processor-based control system.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
342. ELECTRICAL SYSTEM:		
<p>The aerial device shall utilize a microprocessor-based control system. The system shall consist of the following components:</p> <p>Control System Modules</p> <p>Each of the control system modules shall be configured as follows:</p> <p>Sealed to a NEMA 4X rating</p> <p>Operating range from -40 degrees F to 156 degrees F (-40 degrees C to 70 degrees C)</p> <p>Communicate using J1939 data link</p> <p>Two (2) diagnostic LED lights</p> <p>One (1) green light that illuminates when module has power (B+) and ground</p> <p>One (1) red light that flashes to indicate the module is capable of communicating via the data link</p> <p>Up to 16 diagnostic LEDs on each module</p> <p>Ground matrix identification system</p>		

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The following control system modules shall be used:

Control Module

Main controller for the system

USB connection allows for computer diagnostics

Power Module

Built-in fault sensing

Eight (8) digital outputs

Pulse width modulating (PWM) capable

10A continuous per output

Circuit protection based on actual current draw (not affected by heat)

Current Control Module

Built-in fault sensing

Three (3) analog inputs

Eight (8) digital outputs

Pulse width modulating (PWM) capable

3A continuous per output

Closed Loop System

Circuit protection based on actual current draw (not affected by heat)

Input Module

16 software selectable (digital or analog) inputs

Output Module

16 digital outputs

Input/Output Module

Eight (8) software selectable (digital or analog) inputs

Eight (8) digital outputs

Valve Module

36 digital inputs

36 digital outputs

☐ Yes ☐ No

COMMENTS:

343. BASKET LIGHTS:

There shall be three (3) Whelen® Model MPB*, 4,100 lumens 12-volt DC LED light with adjustable mount installed on the basket locations to be determined at prebuild meeting. The painted parts of this light assembly to be white.

☐ Yes ☐ No
COMMENTS:**344. TRACKING LIGHTS:**

There will be two (2) Whelen® MPB*, 5,695 lumens 12-volt DC LED lights with bail bracket mounts installed near the tip of the base section of the aerial device. The lights are installed at the tip so the overall width of the apparatus is not affected. The lights will be mounted below the top edge of the aerial device so the overall height of the apparatus is not affected.

- One (1) located on the left side with spot optics
- One (1) located on the right side with spot optics
- The painted parts of this light assembly to be white.

Power to the lights will be controlled by a master on/off switch at the turntable control operator's position.

☐ Yes ☐ No
COMMENTS:**345. BASKET ACCESS STEPS:**

Access to the basket will be provided by a pull-out, swing-down climbing ladder. The 2.25" deep climbing ladder surfaces will be constructed with Traction Tread®. The bottom step will be a flip-down, stirrup step. The access ladder will be recessed into the angled corners of the rear body on each side. Hand holds will be provided in each side of the ladder.

The step well finish shall be aluminum treadplate.

All stepping surfaces will have a height not greater than 14.00" from top surface to top surface.

The bottom stepping height will not exceed 24.00" from the ground to the top of the stepping surface at any time.

☐ Yes ☐ No
COMMENTS:**346. STEP LIGHTS:**

There shall be two (2) white LED step lights provided for each set of aerial basket access steps.

In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten-inch distance below the light.

The step lights shall be actuated by the aerial master switch in the cab.

These lights shall meet NFPA requirements for step lighting.

☐ Yes ☐ No

COMMENTS:

347. STABILIZER WARNING LIGHTS:

There shall be four (4) Whelen®, Model M6*C, LED flashing warning lights with Whelen, Model M6FC, chrome flanges installed, one on each stabilizer cover panel.

- The front stabilizer pan lights shall be red LED with a clear lens
- The rear stabilizer pan lights shall be red LED with a clear lens

These warning lights shall be activated by the same switch as the side warning lights.

☐ Yes ☐ No

COMMENTS:

348. STABILIZER BEAM WARNING LIGHTS:

Two (2) 4.00" diameter red LED flashing lights shall be mounted on each stabilizer, one (1) facing forward and one (1) facing rearward.

The lights shall be Grote Supernova 40 series LED lights.

The lights shall be recessed in the horizontal beam of the stabilizer.

These warning lights shall be activated with the aerial master switch.

☐ Yes ☐ No

COMMENTS:

349. STABILIZER SCENE LIGHTS:

There shall be one (1) Amdor®, Model AY-LB-12HW012, 190 lumens, 12" long, white LED strip light installed under each stabilizer beam to illuminate the surrounding area. A total of six (6) lights shall be installed. The lights shall be activated by the aerial master switch.

☐ Yes ☐ No

COMMENTS:

350. UNDER PLATFORM LIGHTING:

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There will be two (2) Whelen® Model P*H1*, 9,260 lumens light(s) with white LEDs, a combination of flood and spot optics and bail brackets provided under the platform steps per the following:

- One (1) light installed under the left side corner step in the center position and one (1) light installed under the right side corner step in the center position.
- The painted parts of this light assembly to be white.

The light(s) will be controlled from a switch(es) at the platform/tip and turntable.

The light(s) may be load managed when the parking brake is applied.

☐ Yes ☐ No

COMMENTS:

351. PLATFORM 120-VOLT ELECTRIC SYSTEM:

Two (2), 20 amp, NEMA L5-20, 120-volt, three (3)-prong twist lock receptacles with weatherproof covers shall be provided in the aerial platform. Both receptacles shall be located on the left side rear of the basket. Each receptacle shall be supplied from individual branch circuits protected by dedicated 20 amp/120-volt circuit breakers. All wiring shall be sized to and conform to the latest edition of NEC standards.

☐ Yes ☐ No

COMMENTS:

352. 2-WAY AERIAL COMMUNICATION SYSTEM:

There shall be a Fire Research model ICA900-112 two-way intercom system provided. The control module shall be located on the turntable operator console, provided there is room, and have an LED volume display and push-button volume control.

A hands-free module shall be located at the aerial tip or platform and constantly transmit to the other module unless the control module push-to-talk button is pressed.

Each intercom unit shall be weatherproof.

☐ Yes ☐ No

COMMENTS:

353. AERIAL PEDESTAL:

The aerial pedestal shall accommodate the height of the cab.

☐ Yes ☐ No

COMMENTS:

354. BREATHING AIR:

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Breathing air will be supplied to the aerial platform. The air system will incorporate one (1) 510 cubic foot, 6000-psi cylinder. To allow the turntable operator an unobstructed view of the platform the cylinder will be mounted on the left side of the aerial base section while viewed from the turntable. A pressure regulator located at the air cylinder. A shutoff valve with guard will be provided on the cylinder. The air will be routed to the basket using hose especially designed for use in breathing air systems. At the platform, the breathing air will be accessible via two (2) quick couplings for air masks. These will have a Hansen brass 3000 series coupling. Two (2) couplings will be located at the rear of the basket, one (1) on each side. There will be a weather resistant storage compartment for two (2) air masks provided at the basket with a rubber draw latch. A 75' recharge hose will be provided for refilling the air cylinder without having to remove the tank from its mounting.

The breathing air cylinder will be designed and constructed to conform to the requirements of the United Nations (UN) on the transportation of dangerous goods.

☐ Yes ☐ No
COMMENTS:**355. BREATHING AIR LEVEL AND WARNING SYSTEM:**

The level of breathing air remaining will be visible on the LCD display at all operating positions. The display will incorporate a low-pressure warning circuit that activates an audible alarm when 20% maximum air cylinder capacity remains. A second, louder audible alarm will activate when the remaining air level drops to 10% of maximum air cylinder capacity.

☐ Yes ☐ No
COMMENTS:**356. BREATHING AIR GAUGE GUARD:**

There will be an aluminum three (3) sided guard provided over the sides and top of the breathing air gauges on the base of the device. The guard will be approximately 3.00" deep on each side to help protect the gauges but allow regulator adjustment and access. The guard will be painted to match the aerial device.

☐ Yes ☐ No
COMMENTS:**357. 3-IN-1 BASKET OPTION BRACKETS:**

Brackets shall be provided to increase the safety of firefighters during fire ground and rescue operations. The removable brackets shall have the following three functions: securing a roof ladder to the basket, two (2) rappelling anchor points, and mounting bars to allow the secure mounting of a rescue basket stretcher.

The roof ladder mounting bracket shall be designed to allow firefighter access below the basket using up to a 20' roof ladder. The ladder shall be secured through its beams and one (1) rung, by a 1.00" diameter aluminum rod capable of being positively latched in place and able to withstand a minimum of a 500lb load. There shall be a latch to keep the ladder in a vertical position at all times. A set of nylon guides shall be provided to aid in positioning the roof ladder on the mounting brackets.

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Two (2) rappelling arms shall be provided. Forged stainless steel eyebolts with a 1.38" inside diameter shall be incorporated into the design of the brackets for use as a rappel line anchor. Each anchor point shall have a capacity of 300lb.

Rescue basket support brackets shall be provided to allow patient transport using the aerial. Two (2) quick clip basket straps shall be used to secure the basket to the brackets.

Strain gauging and testing shall have been completed on the system (ladder and complete holding device) to ensure structural integrity of all components and maintain a minimum of two to one (2:1) safety factor.

☐ Yes ☐ No
COMMENTS:**358. AERIAL TURNTABLE MANSAYER™ BAR:**

A ManSaver™ bar shall be installed at the aerial turntable.

☐ Yes ☐ No
COMMENTS:**359. LYFECOMBO™ BRACKETS:**

Brackets will be provided to increase the safety of firefighters during fire ground and rescue operations. The removable brackets will have the following three functions: securing a roof ladder to the basket, two (2) rappelling anchor points, and mounting bars to allow the secure mounting of a rescue basket stretcher.

LyfeLadder™ brackets will be designed to allow firefighter access below the basket using up to a 20' roof ladder. The ladder will be secured through its beams and one (1) rung, by a 1.00" diameter aluminum rod capable of being positively latched in place and able to withstand a minimum of a 500lb load. There will be a latch to keep the ladder in a vertical position at all times. A set of nylon guides will be provided to aid in positioning the roof ladder on the mounting brackets.

Two (2) LyfeEye™ rappelling arms will be provided. Forged stainless steel eyebolts with a 1.38" inside diameter will be incorporated into the design of the brackets for use as a rappel line anchor. Each anchor point will have a capacity of 300lb.

LyfeSupport™ rescue basket support brackets will be provided to allow patient transport using the aerial. Two (2) quick clip basket straps will be used to secure the basket to the brackets.

Strain gauging and testing will have been completed on the system (ladder and complete holding device) to ensure structural integrity of all components and maintain a minimum of two to one (2:1) safety factor.

☐ Yes ☐ No
COMMENTS:**360. AERIAL WATERWAY:**

The aerial waterway shall be capable of being supplied by either a midship mounted pump or an external water source through a 5.00" intake at the side of the apparatus.

A 5.00" water swivel shall be installed below the aerial turntable permitting the ladder to rotate 360 degrees continuously.

A 5.00" water swivel shall be installed at the aerial heel pivot pin that shall permit water tower operations of -15 degrees to 77 degrees. The heel pivot pin shall not be integral with the waterway swivel at any point. The waterway design shall allow complete servicing of the waterway swivel without disturbing the heel pivot pin.

A telescoping aluminum waterway shall be installed on the side of the aerial ladder sections. The waterway shall consist of a 5.50" diameter tube for the base section, 5.00" diameter tube for the lower mid section, 4.50" diameter tube for the center mid section, 4.00" diameter tube for the upper mid section, and 3.50" diameter tube for the fly section.

☐ Yes ☐ No

A 1.50" drain shall be provided for the waterway.

COMMENTS:

361. WATERWAY SEALS:

The waterway seals shall be of type-B PolyPak design, composed of nitroxile seal and a nitrile wiper, which together offer maximum stability and extrusion resistance on the waterway. The seal shall be capable of withstanding pressures up to 2000 psi, temperatures in excess of 250 degrees Fahrenheit and have resistance to all foam generating solutions. The seals shall be internally lubricated.

The waterway seals shall have automatic centering guides constructed of synthetic thermal polymer. The guides shall provide positive centering of the extendible sections within each other and the base section to insure longer service life and smoother operation.

☐ Yes ☐ No

COMMENTS:

362. PLATFORM WATER SYSTEM:

A 4.00" (internal diameter) water swivel shall connect the fly section waterway to the platform waterway. The water swivel shall permit water tower operations from -15 degrees to 77 degrees. The water shall be routed from the swivel to a 4.00" gear operated valve(s) on the front of the platform using a combination of 4.00" tubes and piping. The monitor(s) shall be bolted onto the valve(s).

A 2.50" preset pressure relief valve shall be provided in the waterway system. It shall be designed to protect the aerial waterway from excess pressure. It shall dump water to the ground when operating.

A shower nozzle rated at 75 gpm shall be provided beneath the platform for heat protection for the platform personnel. A direct linkage control for the shower nozzle shall be provided.

☐ Yes ☐ No

COMMENTS:

363. AERIAL MONITOR:

There shall be two (2) Task Force Tips monitors provided at the platform.

One shall be a Y4-MP1A-P-01 double crank-controlled monitor with a TFT YST-4NN stacked tips.

The other shall be a Y4-EP1A-P electric monitor with a TFT 2000 gpm Model M-ERP2000 electric nozzle.

The controls for the electronic monitor shall be located at the platform and the turntable control console.

☐ Yes ☐ No

COMMENTS:**364. WATERWAY FLOWMETER:**

Waterway flow, including total water flowed, and PSI shall be monitored by the microprocessor. An LCD display shall be located at the upper and lower control stations.

☐ Yes ☐ No

COMMENTS:**365. WATERWAY INLET:**

There shall be a 5.00" schedule 10 stainless steel inlet pipe on the right side of the apparatus. The inlet shall be connected to the base of the ladder, through the turntable swivel, to assure continuous rotation. The inlet shall terminate with a 5.00" NST chrome adapter and a long-handled chrome cap.

☐ Yes ☐ No

COMMENTS:**366. BREATHING AIR:**

Breathing air shall be supplied to the aerial platform. The air system shall incorporate one (1) 510 cubic foot, 6000-psi cylinder. To allow the turntable operator an unobstructed view of the platform the cylinder shall be mounted on the left side of the aerial base section while viewed from the turntable. A pressure regulator located at the air cylinder. A shutoff valve with guard shall be provided on the cylinder. The air shall be routed to the basket using hose especially designed for use in breathing air systems. At the platform, the breathing air shall be accessible via two (2) quick couplings for air masks. Two (2) couplings shall be located at the rear of the basket, one (1) on each side. There shall be a weather resistant storage compartment for two (2) air masks provided at the basket with a rubber draw latch. A 75' recharge hose shall be provided for refilling the air cylinder without having to remove the tank from its mounting.

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The breathing air cylinder shall be designed and constructed to conform to the requirements of the United Nations (UN) on the transportation of dangerous goods.

☐ Yes ☐ No

COMMENTS:

367. BREATHING AIR LEVEL AND WARNING SYSTEM:

The level of breathing air remaining shall be visible on the LCD display at all operating positions. The display shall incorporate a low-pressure warning circuit that activates an audible alarm when 20% maximum air cylinder capacity remains. A second, louder audible alarm shall activate when the remaining air level drops to 10% of maximum air cylinder capacity.

☐ Yes ☐ No

COMMENTS:

368. TOOLS:

The following tools shall be provided for retorquing of all specified bolts as recommended by the manufacturer:

Torque Wrench

All Required Extensions, Sockets and Adapters

4-to-1 Multiplier

☐ Yes ☐ No

COMMENTS:

369. MANUALS:

The aerial manufacturer shall provide two (2) operator maintenance manuals and two (2) as built wiring diagrams pertaining to the aerial device.

☐ Yes ☐ No

COMMENTS:

370. INITIAL INSTRUCTION:

On initial delivery of the fire apparatus, the contractor shall supply a qualified factory representative to demonstrate the apparatus and provide initial instruction to the fire department regarding the operation, care, and maintenance of the apparatus for a period of four (4) consecutive days. The fourth day will be to provide training to the fire departments maintenance staff.

☐ Yes ☐ No

COMMENTS:

371. AERIAL LADDER BELTS:

The following ladder belts shall be provided:

- no small/medium belts
- two (2) large/extra-large belts for 34"-42" waist
- one (1) XXL belt for 42"-50" waist

☐ Yes ☐ No

COMMENTS:**372. PAINT:**

The exterior custom cab and body painting procedure shall consist of a seven (7) step finishing process as follows:

1. Manual Surface Preparation - All exposed metal surfaces on the custom cab and body shall be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces shall be removed and sanded to a smooth finish. Exterior seams shall be sealed before painting. Exterior surfaces that shall not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.
2. Chemical Cleaning and Pretreatment - All surfaces shall be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces shall be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces shall be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion. A final pure water rinse shall be applied to all metal surfaces.
3. Surfacer Primer - The Surfacer Primer shall be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacer Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.
4. Finish Sanding - The Surfacer Primer shall be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.
5. Sealer Primer - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacer Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated.
6. Basecoat Paint - Two coats of a high performance, two component high solids polyurethane basecoat shall be applied. The Basecoat shall be applied to a thickness that shall achieve the proper color match. The Basecoat shall be used in conjunction with a urethane clear coat to provide protection from the environment.

7. Clear Coat - Two (2) coats of Clear Coat shall be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors shall be Clear Coated to match the body. Paint warranty for the roll-up doors shall be provided by the roll-up door manufacture.

Each batch of basecoat color shall be checked for a proper match before painting of the cab and the body. After the cab and body are painted, the color shall be verified again to make sure that it matches the color standard. Electronic color measuring equipment shall be used to compare the color sample to the color standard entered into the computer. Color specifications shall be used to determine the color match. A Delta E reading shall be used to determine a good color match within each family color.

All removable items such as brackets, compartment doors, door hinges, and trim shall be removed and separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly shall be finish painted before assembly.

The paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) are to meet or exceed Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels are to meet or exceed the #6 A.C.T. standard in critical areas. These requirements must be met in order for the exterior paint finish to be considered acceptable. The manufacture's written paint standards shall be available upon request.

☐ Yes ☐ No

The cab shall be two-tone, with the upper section painted white along with a shield design on the cab face and lower section of the cab and body painted red. Exact shades of white and red will be finalized at prebuild.

COMMENTS:

373. PAINT – ENVIRONMENTAL IMPACT:

Contractor shall meet or exceed all current State regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. Controls shall include the following conditions:

- Topcoats and primers shall be chrome and lead free.
- Metal treatment chemicals shall be chrome free. The wastewater generated in the metal treatment process shall be treated on-site to remove any other heavy metals.
- Particulate emission collection from sanding operations shall have a 99.99% efficiency factor.
- Particulate emissions from painting operations shall be collected by a dry filter or water wash process. If the dry filter is used, it shall have an efficiency rating of 98.00%. Water wash systems shall be 99.97% efficient
- Water from water wash booths shall be reused. Solids shall be removed on a continual basis to keep the water clean.
- Paint wastes are disposed of in an environmentally safe manner.
- Empty metal paint containers shall be to recover the metal.

- Solvents used in clean-up operations shall be recycled on-site or sent off-site for distillation and returned for reuse.

Additionally, the finished apparatus shall not be manufactured with or contain products that have ozone depleting substances. Contractor shall, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his State EPA rules and regulations.

☐ Yes ☐ No

COMMENTS:

374. PAINT CHASSIS FRAME ASSEMBLY:

The chassis frame assembly shall be finished with a single system black topcoat before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.

Components that are included with the chassis frame assembly that shall be painted are:

- Frame rails
- Frame liners
- Cross members
- Axles
- Suspensions
- Steering gear
- Battery boxes
- Bumper extension weldment
- Frame extensions
- Body mounting angles
- Rear Body support substructure (front and rear)
- Air tanks
- Steel fuel tank
- Castings
- Individual piece parts used in chassis and body assembly

Components treated with epoxy E-coat protection prior to paint:

- Two (2) C-channel frame rails
- Two (2) frame liners

☐ Yes ☐ No

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375. COMPARTMENT INTERIOR PAINT:		
The interior of all compartments shall be painted with a gray spatter type paint.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
376. AERIAL DEVICE PAINT COLOR:		
<p>The aerial device paint procedure shall consist of a seven (7) step finishing process as follows:</p> <ol style="list-style-type: none"> 1. Manual Surface Preparation - All exposed metal surfaces on the aerial device structural components above the rotation point shall be thoroughly cleaned and mechanically shot-blasted to remove metal impurities and prepare the aerial for painting. 2. Zinc Rich Primer - Zinc rich primer shall be applied to the torque box and stabilizers. 3. Primer/Surfacer Coats - A two component epoxy primer/surfacer shall be applied to the mechanically shot-blasted metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface. All seams shall be caulked with a two-component epoxy caulk before painting. 4. Hand Sanding - The primer/surfacer coat of the outer surfaces of the handrails and base rails shall be lightly sanded to a smooth finish. 5. Primer Coat - A two component epoxy primer coat shall be applied over the sanded primer. 6. Topcoat Paint - Urethane base coat shall be applied to opacity for correct color matching. 7. Clear Coat - Two (2) coats of an automotive grade two (2) component urethane shall be applied. <p>Surfaces that shall not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum treadplate.</p> <p>All buy out components, such as monitor, nozzle, gauges, etc. shall be supplied as received from the vendor.</p> <p>Removable items such as brackets shall be removed and painted separately to ensure paint coverage behind all mounted items.</p> <p>The aerial device components shall be painted as follows using the aforementioned seven (7) step finishing process:</p> <ul style="list-style-type: none"> • Aerial basket and basket leveling cylinders at tip: red • Aerial device ladder sections and extension cylinders: white • Aerial turntable and leveling cylinders at turntable: red 		

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| <ul style="list-style-type: none"> • Aerial control console: red • Aerial lift cylinders: red • Aerial rotation motor: black • Aerial torque box, support structure and components below the rotation point: gloss black primer • Aerial stabilizers: black • Aerial boom support: gloss black primer | <input type="checkbox"/> Yes <input type="checkbox"/> No |
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COMMENTS:**377. REFLECTIVE BAND:**

A 10.00" white reflective band shall be provided across the front of the vehicle and along the sides of the body.

The reflective band provided on the cab face shall be below the headlights on the fiberglass.

☐ Yes ☐ No
COMMENTS:**378. REAR CHEVRON STRIPING:**

There shall be alternating chevron striping located on the rear-facing vertical surface of the apparatus. Covered surfaces shall include the rear wall and aluminum doors. Rear compartment doors, stainless steel access doors and the rear bumper shall not be covered.

The colors shall be red and white reflective.

Each stripe shall be 6.00" in width.

☐ Yes ☐ No
COMMENTS:**379. REFLECTIVE STRIPE ON STABILIZERS:**

There shall be a 4.00" wide fluorescent yellow green diamond grade reflective stripe provided on the forward and rear facing side of all aerial stabilizers.

☐ Yes ☐ No
COMMENTS:**380. CAB DOOR REFLECTIVE STRIPE:**

A 6.00" x 16.00" white reflective stripe shall be provided across the interior of each cab

door. The stripe shall be located approximately 1.00" up from the bottom, on the door panel.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
381. LETTERING:		
The lettering shall be totally encapsulated between two layers of clear vinyl.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
382. LETTERING:		
Forty-one (41) to sixty (60) genuine gold leaf lettering, 3.00" high, with outline and shade shall be provided.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
383. FIRE APPARATUS PARTS MANUAL:		
<p>There shall be one (1) custom parts manual in USB flash drive format for the complete fire apparatus provided.</p> <p>The manual(s) shall contain the following:</p> <ul style="list-style-type: none"> • Job number • Part numbers with full descriptions • Table of contents • Parts section sorted in functional groups reflecting a major system, component, or assembly • Parts section sorted in alphabetical order • Instructions on how to locate parts <p>Each manual shall be specifically written for the chassis and body model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
384. SERVICE PARTS INTERNET SITE:		
The service parts information included in these manuals shall also be available on the factory website. The website shall offer additional functions and features not contained in		

this manual, such as digital photographs and line drawings of select items. The website shall also feature electronic search tools to assist in locating parts quickly.

☐ Yes ☐ No

COMMENTS:

385. CHASSIS SERVICE MANUALS:

There shall be one (1) chassis service manual on USB flash drives containing parts and service information on major components provided with the completed unit.

The manual shall contain the following sections:

- Job number
- Table of contents
- Troubleshooting
- Front Axle/Suspension
- Brakes
- Engine/Tires
- Wheels
- Cab
- Electrical, DC
- Air Systems
- Plumbing
- Appendix

The manual shall be specifically written for the chassis model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.

☐ Yes ☐ No

COMMENTS:

386. CHASSIS OPERATION MANUAL:

The chassis operation manual shall be provided on one (1) USB flash drive.

☐ Yes ☐ No

COMMENTS:

387. THREE (3) YEAR MATERIAL AND WORKMANSHIP:

The new chassis shall be provided with a three (3) year material and workmanship limited

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warranty. The warranty shall cover such portions of the chassis built by the manufacturer as being free from structural failures caused by defects in material and workmanship that would arise under normal use and service.

☐ Yes ☐ No

A copy of the warranty certificate shall be submitted with the bid (no exception).

COMMENTS:**388. ENGINE WARRANTY:**

A Detroit Diesel five (5) year limited engine warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid.

☐ Yes ☐ No
COMMENTS:**389. STEERING GEAR WARRANTY:**

A Sheppard three (3) year limited steering gear warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid.

☐ Yes ☐ No
COMMENTS:**390. FIFTY (50) YEAR STRUCTURAL INTEGRITY:**

The chassis frame and crossmembers shall be provided with a fifty (50) year material and workmanship limited warranty. The warranty shall cover the chassis frame and crossmembers as being free from defects in material and workmanship that would arise under normal use and service.

☐ Yes ☐ No

A copy of the warranty certificate shall be submitted with the bid.

COMMENTS:**391. FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY:**

Independent front suspension shall be provided with a three (3) year material and workmanship limited warranty. The manufacturer's warranty shall provide that the independent front suspension and steering gears be free from any defect related to material and workmanship on the portion of the apparatus built by the manufacturer that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid.

☐ Yes ☐ No
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2**392. REARA AXLE TWO (2) YEAR MATERIAL AND WORKMANSHIP WARRANTY:**

A Meritor™ Axle two (2) year limited warranty shall be provided.

☐ Yes ☐ No**COMMENTS:****393. ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY:**

A Meritor Wabco™ ABS brake system three (3) year limited warranty shall be provided.

☐ Yes ☐ No**COMMENTS:****394. TEN (10) YEAR STRUCTUAL INTEGRITY:**

The new cab shall be provided with a ten (10) year material and workmanship limited warranty. The warranty shall cover such portions of the cab built by the manufacturer as being free from structural failures caused by defects in material and workmanship that would arise under normal use and service.

☐ Yes ☐ No

A copy of the warranty certificate shall be submitted with the bid.

COMMENTS:**395. TEN (10) YEAR PRO-RATED PAINT AND CORROSION:**

Each new piece of apparatus shall be provided with a ten (10) year pro-rated paint and corrosion limited warranty on the apparatus cab. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.

☐ Yes ☐ No

A copy of the warranty certificate shall be submitted with the bid.

COMMENTS:**396. FIVE (5) YEAR MATERIAL AND WORKMANSHIP:**

The electronic modules and display(s) shall be provided with a five (5) year material and workmanship limited warranty. The warranty shall cover electronic modules to be free from failures caused by defects in material and workmanship.

☐ Yes ☐ No

A copy of the warranty certificate shall be submitted with the bid.

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397. CAMERA SYSTEM WARRANTY:		
A fifty-four (54) month warranty shall be provided for the camera system.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
398. COMPARTMENT SYSTEM WARRANTY:		
A ten (10) year material and workmanship limited warranty shall be provided for the 12-volt DC LED strip lights. The warranty shall cover the LED strip lights to be free from defects in material and workmanship that would arise under normal use.		
A copy of the warranty certificate shall be submitted with the bid.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
399. TRANSMISSION WARRANTY:		
The transmission shall have a five (5) year/unlimited mileage warranty covering 100 percent parts and labor. The warranty is to be provided by Allison Transmission and not the apparatus builder.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
400. TRANSMISSION COOLER WARRANTY:		
The transmission cooler shall carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty shall also be in effect for the first three years of the warranty coverage and shall not exceed \$10,000 per occurrence. A copy of the warranty certificate shall be submitted with the bid.		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
401. TEN (10) YEAR STRUCTUAL INTEGRITY:		
Each new piece of apparatus shall be provided with a ten (10) year material and workmanship limited warranty on the apparatus body. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.		
A copy of the warranty certificate shall be submitted with the bid.		

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		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
402. ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY:		
<p>A roll-up door limited warranty shall be provided. The mechanical components of the roll-up door shall be warranted against defects in material and workmanship for the lifetime of the vehicle. A six (6) year limited warranty shall be provided on painted and satin roll up doors.</p> <p>A copy of the warranty certificate shall be submitted with the bid.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
403. TWENTY (20) YEAR AERIAL DEVICE STRUCTURAL INTEGRITY WARRANTY:		
<p>The aerial device shall be provided with a twenty (20) year material and workmanship limited warranty. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service. This warranty shall be limited to the torque box, turntable, aerial sections and other structural components.</p> <p>A copy of the warranty certificate shall be submitted with the bid.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
404. AERIAL SWIVEL WARRANTY:		
<p>An Amity five (5) year limited swivel warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
405. HYDRAULIC SYSTEM COMPONENTS WARRANTY:		
<p>Aerial hydraulic system components shall be provided with a five (5) year material and workmanship limited warranty.</p>		<input type="checkbox"/> Yes <input type="checkbox"/> No
COMMENTS:		
406. HYDRAULIC SEAL WARRANTY:		
<p>Aerial hydraulic seals shall be provided with a three (3) year material and workmanship</p>		

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limited warranty.

A copy of the warranty certificates shall be submitted with the bid.

☐ Yes ☐ No**COMMENTS:****407. AERIAL WATERWAY WARRANTY:**

An Amity ten (10) year limited waterway warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid.

☐ Yes ☐ No**COMMENTS:****408. FOUR (4) YEAR PRO-RATED PAINT AND CORROSION:**

The aerial device shall be provided with a four (4) year pro-rated paint and corrosion limited warranty. The warranty shall cover exterior painted surfaces of the aerial device to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid.

☐ Yes ☐ No**COMMENTS:****409. THREE (3) YEAR MATERIAL AND WORKMANSHIP:**

The gold leaf lamination shall be provided with a three (3) year material and workmanship limited warranty. The warranty shall cover the gold leaf lamination as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid.

☐ Yes ☐ No**COMMENTS:****410. VEHICLE STABILITY CERTIFICATION:**

The fire apparatus manufacturer shall provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification shall be provided at the time of bid.

☐ Yes ☐ No**COMMENTS:**

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2**411. ENGINE INSTALLATION CERTIFICATION:**

The fire apparatus manufacturer shall provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification shall be provided at the time of bid.

☐ Yes ☐ No
COMMENTS:**412. POWER STEERING CERTIFICATION:**

The fire apparatus manufacturer shall provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification shall be provided at the time of bid.

☐ Yes ☐ No
COMMENTS:**413. CAB INTEGRITY CERTIFICATION:**

The fire apparatus manufacturer shall provide a cab integrity certification with bid. The certification shall state that the cab has been tested and certified by an independent third-party test facility. Testing events shall be documented with photographs, real-time and high-speed video, vehicle accelerometers, cart accelerometers, and a laser speed trap. The fire apparatus manufacturer shall provide a state-licensed professional engineer to witness and certify all testing events. Testing shall meet or exceed the requirements below:

- European Occupant Protection Standard ECE Regulation No.29.
- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.
- SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.

☐ Yes ☐ No
COMMENTS:**414. ROOF CRUSH:**

The cab shall be subjected to a roof crush force of 22,050 lb. This value meets the ECE 29 criteria and is equivalent to the front axle rating up to a maximum of 10 metric tons.

☐ Yes ☐ No
COMMENTS:**415. ADDITIONAL ROOF CRUSH:**

The same cab shall be subjected to a roof crush force of 100,000 lbs. This value exceeds the ECE 29 criteria by nearly 4.5 times.

☐ Yes ☐ No

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2**COMMENTS:**

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416. SIDE IMPACT:

The same cab shall be subjected to dynamic preload where a 13,275 lb moving barrier slams into the side of the cab at 5.5 mph at a force of 13,000 ft-lbs. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab shall see in a rollover incident.

☐ Yes ☐ No
COMMENTS:

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417. FRONTAL IMPACT:

The same cab shall withstand a frontal impact of 32,600 ft-lbs of force using a moving barrier in accordance with SAE J2420.

☐ Yes ☐ No
COMMENTS:

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418. ADDITIONAL FRONTAL IMPACT:

The same cab shall withstand a frontal impact of 65,200 ft-lbs of force using a moving barrier, (twice the force required by SAE J2420).

The same cab shall withstand all tests without any measurable intrusion into the survival space of the occupant area.

There shall be no exception to any portion of the cab integrity certification. Nonconformance shall lead to immediate rejection of bid.

☐ Yes ☐ No
COMMENTS:

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419. CAB DOOR DURABILITY CERTIFICATION:

Robust cab doors help protect occupants. Cab doors shall survive a 200,000-cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder shall certify that the sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.

☐ Yes ☐ No
COMMENTS:

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420. WINDSHIELD WIPER DURABILITY CERTIFICATION:

Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers shall survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles. The bidder shall certify that the wiper system design has been tested and that the wiper system has met these criteria.

☐ Yes ☐ No

COMMENTS:

421. ELECTRICAL WINDOW DURABILITY CERTIFICATION:

Cab window roll-up systems can cause maintenance problems if not designed for long service life. The window regulator design shall complete 30,000 complete up-down cycles and still function normally when finished. The bidder shall certify that sample doors and windows similar to those provided on the apparatus have been tested and have met these criteria without malfunction or significant component wear.

☐ Yes ☐ No

COMMENTS:

422. SEAT BELT ANCHOR STRENGTH:

Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design shall withstand 3000 lbs of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder shall certify that each anchor design was pull tested to the required force and met the appropriate criteria.

☐ Yes ☐ No

COMMENTS:

423. SEAT BELT MONITORING STRENGTH:

Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design shall be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder shall certify that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.

☐ Yes ☐ No

COMMENTS:

424. CAB DEFROSTER CERTIFICATION:

Visibility during inclement weather is essential to safe apparatus performance. The defroster system shall clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure and Performance Requirements - Trucks, Buses, and Multipurpose Vehicles. The bidder shall certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.

☐ Yes ☐ No

COMMENTS:**425. CAB HEATER CERTIFICATION:**

Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. The cab heaters shall warm the cab 75 F from a cold soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder shall certify that a substantially similar cab has been tested and has met these criteria.

☐ Yes ☐ No
COMMENTS:**426. CAB AIR CONDITIONING PERFORMANCE CERTIFICATION:**

Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system shall cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to an average of 67 degrees Fahrenheit in 30 minutes. The bidder shall certify that a substantially similar air conditioning system has been tested and has met these criteria. The certification shall be available at the time of delivery.

☐ Yes ☐ No
COMMENTS:**427. AMP DRAW REPORT:**

The bidder shall provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus shall provide the following:

- Documentation of the electrical system performance tests.
- A written load analysis, which shall include the following:
 - o The nameplate rating of the alternator.
 - o The alternator rating under the conditions specified per:
 - ☐ Applicable NFPA 1901 or 1906 (Current Edition).
 - o The minimum continuous load of each component that is specified per:
 - ☐ Applicable NFPA 1901 or 1906 (Current Edition).
 - o Additional loads that, when added to the minimum continuous load, determine the total connected load.
 - o Each individual intermittent load.

All of the above listed items shall be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).

☐ Yes ☐ No

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Question and Answers for Bid #23506 - 100 Foot Midmount Aerial Platform

Overall Bid Questions

There are no questions associated with this bid.

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