



Lexington-Fayette Urban County Government

Lexington, Kentucky
Horse Capital of the World

Division of Central Purchasing

Date of Issue: August 3, 2015

INVITATION TO BID #114-2015 Triple Combination Pumpers

Bid Opening Date: September 2, 2015

Bid Opening Time: 2:00 PM

Address: 200 East Main Street, 3rd Floor, Room 338, Lexington, Kentucky 40507

Type of Bid: Firm Bid

Pre Bid Meeting: August 12, 2015

Pre Bid Time: 10:00AM

Address: 200 E. Main Street – 3rd Floor (Purchasing Conference Room)

Sealed bids will be received in the office of the Division of Central Purchasing, 200 East Main Street, Lexington, Kentucky, until **2:00 PM**, prevailing local time on **09/2/2015**. Bids must be received by the above-mentioned date and time. Mailed bids should be sent to:

**Division of Central Purchasing
200 East Main Street, Room 338
Lexington, KY 40507, (859) 258-3320**

The Lexington-Fayette Urban County Government assumes no responsibility for bids that are not addressed and delivered as indicated above. **Bids that are not delivered to the Division of Central Purchasing by the stated time and date will be rejected.** All bids must be signed and have the company name and address, bid invitation number, and the name of the bid on the outside of the envelope.

Bids are to include all shipping costs to the point of delivery located at: 219 E. Third Street, Lexington KY 40508

Bid Security Required: Yes No *Cashier Check, Certified Check, Bid Bond (Personal checks and company checks will not be acceptable).*

Performance Bond Required: Yes No

Check One: <input type="checkbox"/> Bid Specifications Met <input checked="" type="checkbox"/> Exceptions to Bid Specifications. <i>Exceptions shall be itemized and attached to bid proposal submitted.</i>		Proposed Delivery: 210 <u>270</u> days after acceptance of bid.
Procurement Card Usage —The Lexington-Fayette Urban County Government may be using Procurement Cards to purchase goods and services and also to make payments. Will you accept Procurement Cards? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Submitted by: Vogelpohl Fire Equipment
Firm Name

2770 Circleport Dr.

Address

Erlanger, KY 41018

City, State & Zip

Bid must be signed:
(original signature)

Signature of Authorized Company Representative – Title

Todd Vogelochl

Representative's Name (Typed or printed)

859-282-1000 859-282-1550

Area Code - Phone – Extension

Fax #

Todd.v@Vogelpohlfire.com

E-Mail Address

The Affidavit in this bid must be completed before your firm can be considered for award of this contract.

AFFIDAVIT

Comes the Affiant, Todd Vogelwohl, and after being first duly sworn under penalty of perjury as follows:

1. His/her name is Todd Vogelwohl and he/she is the individual submitting the bid or is the authorized representative of Vogelwohl Fire Equipment the entity submitting the bid (hereinafter referred to as "Bidder")
2. Bidder will pay all taxes and fees, which are owed to the Lexington-Fayette Urban County Government at the time the bid is submitted, prior to award of the contract and will maintain a "current" status in regard to those taxes and fees during the life of the contract.
3. Bidder will obtain a Lexington-Fayette Urban County Government business license, if applicable, prior to award of the contract.
4. Bidder has authorized the Division of Central Purchasing to verify the above-mentioned information with the Division of Revenue and to disclose to the Urban County Council that taxes and/or fees are delinquent or that a business license has not been obtained.
5. Bidder has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky within the past five (5) years and the award of a contract to the Bidder will not violate any provision of the campaign finance laws of the Commonwealth.
6. Bidder has not knowingly violated any provision of Chapter 25 of the Lexington-Fayette Urban County Government Code of Ordinances, known as "Ethics Act."
7. Bidder acknowledges that "knowingly" for purposes of this Affidavit means, with respect to conduct or to circumstances described by a statute or ordinance defining an offense, that a person is aware or should have been aware that his conduct is of that nature or that the circumstance exists.

Further, Affiant sayeth naught.

Todd Vogelwohl

STATE OF

KY

COUNTY OF

Boone

The foregoing Instrument was subscribed, sworn to and acknowledged before me

by TODD VOGELWOHL on this the 1 day of SEP, 2015.

1/24/19

My Commission expires:
DAVID MCCLANAHAN
NOTARY PUBLIC
ID # 526549

Commonwealth of Kentucky
My Commission Expires January 24, 2019

[Signature]
NOTARY PUBLIC, STATE AT LARGE

Please refer to Section II. Bid Conditions, Item "U" prior to completing this form.

I. GREEN PROCUREMENT

A. ENERGY

The Lexington-Fayette Urban County Government is committed to protecting our environment and being fiscally responsible to our citizens.

The Lexington-Fayette Urban County Government mandates the use of Energy Star compliant products if they are available in the marketplace (go to www.Energystar.gov). If these products are available, but not submitted in your pricing, your bid will be rejected as non-compliant.

ENERGY STAR is a government program that offers businesses and consumers energy-efficient solutions, making it easy to save money while protecting the environment for future generations.

Key Benefits

These products use 25 to 50% less energy
Reduced energy costs without compromising quality or performance
Reduced air pollution because fewer fossil fuels are burned
Significant return on investment
Extended product life and decreased maintenance

B. GREEN SEAL CERTIFIED PRODUCTS

The Lexington-Fayette Urban County Government is also committed to using other environmentally friendly products that do not negatively impact our environment. Green Seal is a non-profit organization devoted to environmental standard setting, product certification, and public education.

Go to www.GreenSeal.org to find available certified products. These products will have a reduced impact on the environment and on human health. The products to be used must be pre-approved by the LFUCG prior to commencement of any work in any LFUCG facility. If a Green Seal product is not available, the LFUCG must provide a signed waiver to use an alternate product. Please provide information on the Green Seal products being used with your bid response.

C. GREEN COMMUNITY

The Lexington-Fayette Urban County Government (LFUCG) serves as a principal, along with the University of Kentucky and Fayette County Public Schools, in the Bluegrass Partnership for a Green Community. The Purchasing Team component of the Partnership collaborates on economy of scale purchasing that promotes and enhances environmental initiatives. Specifically, when applicable, each principal is interested in obtaining best value products and/or services which promote environment initiatives via solicitations and awards from the other principals.

If your company is the successful bidder on this Invitation For Bid, do you agree to extend the same product/service pricing to the other principals of the Bluegrass Partnership for a Green Community (i.e. University of Kentucky and Fayette County Schools) if requested?

Yes No

- Q. If more than one bid is offered by one party, or by any person or persons representing a party, all such bids shall be rejected.
- R. Signature on the face of this bid by the Bidder or his authorized representative shall be construed as acceptance of and compliance with all terms and conditions contained herein.
- S. The Entity (regardless of whether construction contractor, non-construction contractor or supplier) agrees to provide equal opportunity in employment for all qualified persons, to prohibit discrimination in employment because of race, color, creed, national origin, sex or age, and to promote equal employment through a positive, continuing program from itself and each of its sub-contracting agents. This program of equal employment opportunity shall apply to every aspect of its employment policies and practices.
- T. The Kentucky Equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) requires that any county, city, town, school district, water district, hospital district, or other political subdivision of the state shall include in directly or indirectly publicly funded contracts for supplies, materials, services, or equipment hereinafter entered into the following provisions:

During the performance of this contract, the contractor agrees as follows:

- (1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age or national origin;*
- (2) The contractor will state in all solicitations or advertisements for employees placed by or on behalf of the contractors that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age or national origin;*
- (3) The contractor will post notices in conspicuous places, available to employees and applicants for employment, setting forth the provisions of the non-discrimination clauses required by this section; and*
- (4) The contractor will send a notice to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding advising the labor union or workers' representative of the contractor's commitments under the nondiscrimination clauses.*

The Act further provides:

KRS 45.610. Hiring minorities - Information required

- (1) For the length of the contract, each contractor shall hire minorities from other sources within the drawing area, should the union with which he has collective bargaining agreements be unwilling to supply sufficient minorities to satisfy the agreed upon goals and timetable.*
- (2) Each contractor shall, for the length of the contract, furnish such information as required by KRS 45.560 to KRS 45.640 and by such rules, regulations and orders issued pursuant thereto and will permit access to all books and records pertaining to his employment practices and work sites by the contracting agency and the department for purposes of investigation to ascertain compliance with KRS 45.560 to 45.640 and such rules, regulations and orders issued pursuant thereto.*

KRS 45.620. Action against contractor - Hiring of minority contractor or subcontractor

- (1) If any contractor is found by the department to have engaged in an unlawful practice under this chapter during the course of performing under a contract or subcontract covered under KRS 45.560 to 45.640, the department shall so certify to the contracting agency and such certification shall be binding upon the contracting agency unless it is reversed in the course of judicial review.*
- (2) If the contractor is found to have committed an unlawful practice under KRS 45.560 to 45.640, the contracting agency may cancel or terminate the contract, conditioned upon a program for future compliance approved by the contracting agency and the department. The contracting agency may declare such a contractor ineligible to bid on further contracts with that agency until such time as the contractor complies in full with the requirements of KRS 45.560 to 45.640.*

- (3) *The equal employment provisions of KRS 45.560 to 45.640 may be met in part by a contractor by subcontracting to a minority contractor or subcontractor. For the provisions of KRS 45.560 to 45.640, a minority contractor or subcontractor shall mean a business that is owned and controlled by one or more persons disadvantaged by racial or ethnic circumstances.*

KRS 45.630 Termination of existing employee not required, when

Any provision of KRS 45.560 to 45.640 notwithstanding, no contractor shall be required to terminate an existing employee upon proof that that employee was employed prior to the date of the contract.

KRS 45.640 Minimum skills

Nothing in KRS 45.560 to 45.640 shall require a contractor to hire anyone who fails to demonstrate the minimum skills required to perform a particular job.

It is recommended that all of the provisions above quoted to be included as special conditions in each contract. In the case of a contract exceeding \$250,000, the contractor is required to furnish evidence that his work-force in Kentucky is representative of the available work-force in the area from which he draws employees, or to supply an Affirmative Action plan which will achieve such representation during the life of the contract.

- U. Any party, firm or individual submitting a proposal pursuant to this Invitation must be in compliance with the requirements of the Lexington-Fayette Urban County Government regarding taxes and fees before they can be considered for award of this Invitation and must maintain a "current" status with regard to those taxes and fees throughout the term of the contract. The contractor must be in compliance with Chapter 13 from the Code of Ordinances of the Lexington-Fayette Urban County Government. The contractor must be in compliance with Ordinance 35-2000 pursuant to contractor registration with the Division of Building Inspection. If applicable, said business must have a Fayette County business license.

Pursuant to KRS 45A.343 and KRS 45A.345, the contractor shall

- (1) *Reveal any final determination of a violation by the contractor within the previous five year period pursuant to KRS Chapters 136 (corporation and utility taxes), 139 (sales and use taxes), 141 (income taxes), 337 (wages and hours), 338 (occupational safety and health of employees), 341 (unemployment and compensation) and 342 (labor and human rights) that apply to the contractor; and*
- (2) *Be in continuous compliance with the above-mentioned KRS provisions that apply to the contractor for the duration of the contract.*

A contractor's failure to reveal the above or to comply with such provisions for the duration of the contract shall be grounds for cancellation of the contract and disqualification of the contractor from eligibility for future contracts for a period of two (2) years.

- V. Vendors who respond to this Invitation have the right to file a notice of contention associated with the bid process or to file a notice of appeal of the recommendation made by the Director of Central Purchasing resulting from this invitation.

Notice of contention with the bid process must be filed within 3 business days of the bid/proposal opening by (1) sending a written notice, including sufficient documentation to support contention, to the Director of the Division of Central Purchasing or (2) submitting a written request for a meeting with the Director of Central Purchasing to explain his/her contention with the bid process. After consulting with the Commissioner of Finance the Chief Administrative Officer and reviewing the documentation and/or hearing the vendor, the Director of Central Purchasing shall promptly respond in writing findings as to the compliance with bid processes. If, based on this review, a bid process irregularity is deemed to have occurred the Director of Central Purchasing will consult with the Commissioner of Finance, the Chief Administrative Officer and the Department of Law as to the appropriate remedy.

Notice of appeal of a bid recommendation must be filed within 3 business days of the bid recommendation by (1) sending a written notice, including sufficient documentation to support appeal, to the Director, Division of Central Purchasing or (2) submitting a written request for a meeting with the Director of Central

Purchasing to explain his appeal. After reviewing the documentation and/or hearing the vendor and consulting with the Commissioner of Finance and the Chief Administrative Officer, the Director of Central Purchasing shall in writing, affirm or withdraw the recommendation.

LFUCG Non-Appropriation Clause

Contractor acknowledges that the LFUCG is a governmental entity, and the contract validity is based upon the availability of public funding under the authority of its statutory mandate.

In the event that public funds are unavailable and not appropriated for the performance of the LFUCG's obligations under this contract, then this contract shall automatically expire without penalty to the LFUCG thirty (30) days after written notice to Contractor of the unavailability and non-appropriation of public funds. It is expressly agreed that the LFUCG shall not activate this non-appropriation provision for its convenience or to circumvent the requirements of this contract, but only as an emergency fiscal measure during a substantial fiscal crisis, which affects generally its governmental operations.

In the event of a change in the LFUCG's statutory authority, mandate and mandated functions, by state and federal legislative or regulatory action, which adversely affects the LFUCG's authority to continue its obligations under this contract, then this contract shall automatically terminate without penalty to the LFUCG upon written notice to Contractor of such limitation or change in the LFUCG's legal authority.

SPECIAL INSTRUCTIONS TO THE BIDDER

(DO NOT SUBMIT PERFORMANCE SECURITY WITH BID)

Performance Security: The APPARENT LOW BIDDER shall furnish, before recommendation by the Division of Central Purchasing to the Urban County Council that the BIDDER'S bid be accepted, a Performance Bond, Certified Check or Cashier's Check, payable to the Lexington-Fayette Urban County Government, in the penal sum of 100% of the price of the materials and/or services proposed in the bid.

The performance bond will not be returned to the bidder after delivery of the materials/services specified herein unless the bidder requests that the performance bond be returned.

The certified / cashier's check will be returned when the materials and/or services specified herein have been delivered.

In the event of bidder's failure to perform as specified herein, it is agreed that the monies represented by the performance bond or certified / cashier's check shall be retained by the Lexington-Fayette Urban County Government as liquidated damages.

Contracts that are less than \$50,000 will not require a 5% bid security or a performance and payment bond.

EQUAL OPPORTUNITY AGREEMENT

The Law

- Title VII of the Civil Rights Act of 1964 (amended 1972) states that it is unlawful for an employer to discriminate in employment because of race, color, religion, sex, age (40-70 years) or national origin.
- Executive Order No. 11246 on Nondiscrimination under Federal contract prohibits employment discrimination by contractor and sub-contractor doing business with the Federal Government or recipients of Federal funds. This order was later amended by Executive Order No. 11375 to prohibit discrimination on the basis of sex.
- Section 503 of the Rehabilitation Act of 1973 states:

The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap.

- Section 2012 of the Vietnam Era Veterans Readjustment Act of 1973 requires Affirmative Action on behalf of disabled veterans and veterans of the Vietnam Era by contractors having Federal contracts.
- Section 206(A) of Executive Order 12086, Consolidation of Contract Compliance Functions for Equal Employment Opportunity, states:

The Secretary of Labor may investigate the employment practices of any Government contractor or sub-contractor to determine whether or not the contractual provisions specified in Section 202 of this order have been violated.

The Lexington-Fayette Urban County Government practices Equal Opportunity in recruiting, hiring and promoting. It is the Government's intent to affirmatively provide employment opportunities for those individuals who have previously not been allowed to enter into the mainstream of society. Because of its importance to the local Government, this policy carries the full endorsement of the Mayor, Commissioners, Directors and all supervisory personnel. In following this commitment to Equal Employment Opportunity and because the Government is the benefactor of the Federal funds, it is both against the Urban County Government policy and illegal for the Government to let contracts to companies which knowingly or unknowingly practice discrimination in their employment practices. Violation of the above mentioned ordinances may cause a contract to be canceled and the contractors may be declared ineligible for future consideration.

Please sign this statement in the appropriate space acknowledging that you have read and understand the provisions contained herein. Return this document as part of your application packet.

Bidders

I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, Vietnam veterans, handicapped and aged persons.



 Signature

Vogelpohl Fire Equipment

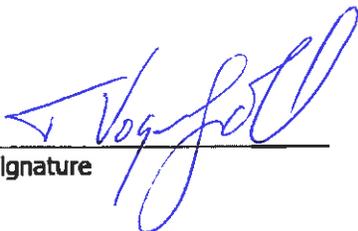
 Name of Business

GENERAL PROVISIONS OF BID CONTRACT

By signing the below, bidder acknowledges that it understands and agrees with the following provisions related to its bid response and the provision of any goods or services to LFUCG upon selection by LFUCG pursuant to the bid request:

1. Bidder shall comply with all Federal, State & Local regulations concerning this type of service or good.
2. Failure to submit ALL forms and information required by LFUCG may be grounds for disqualification.
3. Addenda: All addenda, if any, must be considered by the bidder in making its response, and such addenda shall be made a part of the requirements of the bid contract. Before submitting a bid response, it is incumbent upon bidder to be informed as to whether any addenda have been issued, and the failure of the bidder to cover any such addenda may result in disqualification of that response.
4. Bid Reservations: LFUCG reserves the right to reject any or all bid responses, to award in whole or part, and to waive minor immaterial defects in proposals. LFUCG may consider any alternative proposal that meets its basic needs.
5. Liability: LFUCG is not responsible for any cost incurred by bidder in the preparation of its response.
6. Changes/Alterations: Bidder may change or withdraw a proposal at any time prior to the opening; however, no oral modifications will be allowed. Only letters, or other formal written requests for modifications or corrections of a previously submitted proposal which is addressed in the same manner as the bid response, and received by LFUCG prior to the scheduled closing time for receipt of bids, will be accepted. The bid response when opened, will then be corrected in accordance with such written request(s), provided that the written request is contained in a sealed envelope which is plainly marked "modifications of bid response".
7. Clarification of Submittal: LFUCG reserves the right to obtain clarification of any point in a bid or to obtain additional information from any bidder.
8. Bribery Clause: By his/her signature on its response, bidder certifies that no employee of his/hers, any affiliate or subcontractor, has bribed or attempted to bribe an officer or employee of the LFUCG.
9. Additional Information: While not necessary, the bidder may include any product brochures, software documentation, sample reports, or other documentation that may assist LFUCG in better understanding and evaluating the bid response. Additional documentation shall not serve as a substitute for other documentation which is required by the LFUCG to be submitted with the bid response.
10. Ambiguity, Conflict or other Errors: If a bidder discovers any ambiguity, conflict, discrepancy, omission or other error in the bid request of LFUCG, it shall immediately notify LFUCG of such error in writing and request modification or clarification of the document if allowable by the LFUCG.
11. Agreement to Bid Terms: In submitting its bid response, the bidder agrees that it has carefully examined the specifications and all provisions relating to LFUCG's bid request, including but not limited to the bid contract. By submission of its bid response, bidder states that it understands the meaning, intent and requirements of LFUCG's bid request and agrees to the same. The successful bidder shall warrant that it is familiar with and understands all provisions herein and shall warrant that it can comply with them. No additional compensation to bidder shall be authorized for services, expenses, or goods reasonably covered under these provisions that the bidder omits from its bid response.
12. Cancellation: LFUCG may unilaterally terminate the bid contract with the selected bidder(s) at any time, with or without cause, by providing at least thirty (30) days advance written notice unless a different advance written notice period is negotiated prior to contract approval. Payment for services or goods received prior to termination shall be made by the LFUCG provided these goods or services were provided in a manner acceptable to the LFUCG. Payment for those goods and services shall not be unreasonably withheld.
13. Assignment of Contract: The selected bidder(s) shall not assign or subcontract any portion of the bid contract with LFUCG without the express written consent of LFUCG. Any purported assignment or subcontract in violation hereof shall be void. It is expressly acknowledged that LFUCG shall never be required or obligated to consent to any request for assignment or subcontract; and further that such refusal to consent can be for any or no reason, fully within the sole discretion of LFUCG.

14. **No Waiver:** No failure or delay by LFUCG in exercising any right, remedy, power or privilege hereunder, nor any single or partial exercise thereof, nor the exercise of any other right, remedy, power or privilege shall operate as a waiver hereof or thereof. No failure or delay by LFUCG in exercising any right, remedy, power or privilege under or in respect of this bid proposal or bid contract shall affect the rights, remedies, powers or privileges of LFUCG hereunder or shall operate as a waiver thereof.
15. **Authority to do Business:** Each bidder must be authorized to do business under the laws of the Commonwealth of Kentucky and must be in good standing and have full legal capacity to provide the goods or services specified in the bid proposal. Each bidder must have all necessary right and lawful authority to submit the bid response and enter into the bid contract for the full term hereof including any necessary corporate or other action authorizing the bidder to submit the bid response and enter into this bid contract. If requested, the bidder will provide LFUCG with a copy of a corporate resolution authorizing this action and/or a letter from an attorney confirming that the proposer is authorized to do business in the Commonwealth of Kentucky. All bid responses must be signed by a duly authorized officer, agent or employee of the bidder.
16. **Governing Law:** This bid request and bid contract shall be governed by and construed in accordance with the laws of the Commonwealth of Kentucky. In the event of any proceedings regarding this matter, the bidder agrees that the venue shall be the Fayette County Circuit Court or the U.S. District Court for the Eastern District of Kentucky, Lexington Division and that the bidder expressly consents to personal jurisdiction and venue in such Court for the limited and sole purpose of proceedings relating to these matters or any rights or obligations arising thereunder.
17. **Ability to Meet Obligations:** Bidder affirmatively states that there are no actions, suits or proceedings of any kind pending against bidder or, to the knowledge of the bidder, threatened against the bidder before or by any court, governmental body or agency or other tribunal or authority which would, if adversely determined, have a materially adverse effect on the authority or ability of bidder to perform its obligations under this bid response or bid contract, or which question the legality, validity or enforceability hereof or thereof.
18. Bidder understands and agrees that its employees, agents, or subcontractors are not employees of LFUCG for any purpose whatsoever. Bidder is an independent contractor at all times related to the bid response or bid contract.
19. If any term or provision of this bid contract shall be found to be illegal or unenforceable, the remainder of the contract shall remain in full force and such term or provision shall be deemed stricken.



Signature

9/1/15

Date

Specifications

**Bidder
Complies**

Yes

No

**SPECIFICATIONS FOR THREE (3) TRIPLE COMBINATION PUMPERS
FOR THE LEXINGTON KY FIRE DEPARTMENT**

Provide one original and one copy of your bid.

INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to cover the furnishing and delivery of three (3) complete apparatus equipped as hereinafter specified. These specifications 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, who shall be solely responsible for the design and construction of all features. Apparatus and loose equipment proposed by the bidder shall meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current editions at time of contract execution. Loose equipment shall be provided only as stated in the following pages.

Bids shall only 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. Further, bidder shall maintain dedicated service facilities for the repair and service of products. Evidence of such a facility shall be included in bidder proposal.

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, and shall provide specifics of construction, construction methods, components and operational data with bid. Each bidder shall provide two hard copies and one electronic copy of their complete bid proposal.

A drawing of the proposed apparatus along with turn radius analysis report (including both curb to curb and wall to wall measurements) shall be provided with each bid.

PROJECT FUNDING

Fulfillment of this project will be contingent on funding avenues yet to be determined and committed. Final Project funding may potentially be dependent upon bid pricing. Once the bid is submitted and opened at a time, date and location provided by the Lexington Fayette Urban County Government, the bid may not be withdrawn and will stand for ninety (90) calendar days.

Bidder shall submit additional pricing effective January 1, 2016 for potential future purchases in single unit increments from one (1) to three (3) units throughout calendar year 2016.



Specifications	Bidder Complies	
	Yes	No
<p>Fifty percent (50%) of bid price will be issued upon completion of the chassis; final payment will be issued upon apparatus delivery and satisfactory inspection by the Division of Fire.</p> <p>Bidders shall provide an option to negotiate a 100% pre-payment for the apparatus.</p> <p><u>QUALITY AND WORKMANSHIP</u> 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 that 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 recommendations for structural steel welding. All aluminum welding shall be done to American Welding Society and ANSI recommendations for structural welding of aluminum. The manufacturer is required to have an American Welding Society certified welding inspector in plant during working hours to monitor weld quality.</p> <p><u>DELIVERY SCHEDULE</u> The apparatus shall be delivered to the Lexington Fire Department within 200 days of bid acceptance or the bidder shall be penalized \$500.00 per day for each day over the number of days specified in the bid that the apparatus is not delivered. <i>Addendum #1</i></p> <p><u>DELIVERY</u> Apparatus, to ensure proper break in of all components while still under warranty, shall be delivered under its own power - rail or truck freight shall not be acceptable. A qualified delivery engineer representing the contractor shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in the proper operation, care and maintenance of the equipment delivered.</p> <p><u>APPARATUS AND RELATED COMPONENT TRAINING</u> Training shall be provided by the manufacturer for three consecutive days at a designated time and location determined by the fire department on the operation of the apparatus and associated components. Target audience to include service and operational personnel.</p> <p><u>MANUFACTURER SPONSORED TRAINING</u> The manufacturer will provide to the Lexington KY Division of Fire's Mechanical Bureau, factory level or equivalent repair and or maintenance related training on fire apparatus and or apparatus components within one year of delivery. This training will be the equivalent of eight (8) man days.</p> <p>All expenses associated with providing this training including registration, travel, lodging,</p>	✓	
	✓	
	✓	
	✓	
	✓	

Specifications	Bidder Complies	
	Yes	No
<p>meals course materials, etc. shall be the sole responsibility of the manufacturer.</p> <p><u>INFORMATION REQUIRED</u> The manufacturer shall supply at time of delivery, complete operation and maintenance manuals covering the completed apparatus as delivered. A Copy of the manuals shall be provided in both hard copy and electronic format. 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.</p> <p><u>SAFETY VIDEO</u> Documentation provided at the time of delivery shall also include an apparatus safety video, in DVD format. This video shall address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus. Safety procedures for the following shall be included: vehicle pre-trip inspection, chassis operation, pump operation, and maintenance.</p> <p><u>ACCEPTANCE TEST</u> At final inspection, a road test shall be conducted with the apparatus fully loaded and a continuous run of ten (10) miles or more 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. Vehicle shall adhere to the following parameters:</p> <p>A) The apparatus, when fully equipped and loaded, shall have not less than 25% or more than 50% of the weight on the front axle, and not less than 50% nor more than 75% on the rear axle.</p> <p>B) The apparatus shall be capable of accelerating to 35 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed rpm of the engine.</p> <p>C) The service brakes shall be capable of stopping a fully loaded vehicle in 35 feet at 20 mph on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.</p> <p>D) The apparatus, fully loaded, shall be capable of obtaining a speed of 67 to 70 mph on a level concrete highway with the engine not exceeding its governed rpm (full load).</p> <p>E) The apparatus shall be tested and approved in accordance with NFPA Standard Practices and Federal Motor Vehicle Safety Standards (FMVSS).</p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p></p> <p></p> <p></p>

Specifications	Bidder Complies	
	Yes	No
<p>The manufacturer shall provide a complete demonstration of the fire fighting systems during the final inspection of the completed apparatus. Final acceptance of apparatus is subject to passing all required third party tests.</p> <p><u>FAILURE TO MEET TEST</u> 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.</p> <p><u>LIABILITY</u> 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.</p> <p><u>SPECIFICATION BID REQUIREMENTS</u></p> <p><u>Proposals taking total exception to specifications shall not be acceptable.</u></p> <p>Also, bidders shall submit a detailed proposal. Bid proposals shall be submitted in the same sequence as specifications for ease of evaluation, comparison and checking of compliance. A letter only, even though written on a company letterhead, shall not be sufficient.</p> <p>Any bid indicating that the manufacturer's proposal shall supersede the purchaser's specifications will be immediately rejected</p> <p><u>EXCEPTIONS</u> 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.</p> <p>Bidders shall also indicate in the "yes/no" column if their bid complies on each item (PARAGRAPH) specified. An exception to these requirements shall not be acceptable.</p> <p>Exceptions shall be clearly identified and fully explained on a separate page. 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. The decision as to whether any exception is approved as being equivalent shall be entirely that of the Chief of the Division of Fire.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	<p></p> <p></p> <p></p> <p></p> <p>✓</p>

Specifications

**Bidder
Complies**

Yes No

INDEMNIFICATION AND HOLD HARMLESS PROVISION

It is understood and agreed by the parties that Vendor hereby assumes the entire responsibility and liability for any and all damages to persons or property caused by or resulting from or arising out of any act or omission on the part of Vendor or its employees, agents, servants, owners, principals, licensees, assigns or subcontractors of any tier (hereinafter "Vendor") under or in connection with this agreement and/or the provision of goods or services and the performance or failure to perform any work required thereby.

Vendor shall indemnify, save, hold harmless and defend the Lexington-Fayette Urban County Government and its elected and appointed officials, employees, agents, volunteers, and successors in interest (hereinafter "LFUCG") from and against all liability, damages, and losses, including but not limited to, demands, claims, obligations, causes of action, judgments, penalties, fines, liens, costs, expenses, interest, defense costs and reasonable attorney's fees that are in any way incidental to or connected with, or that arise or are alleged to have arisen, directly or indirectly, from or by Vendor's performance or breach of the agreement and/or the provision of goods or services provided that: (a) it is attributable to personal injury, bodily injury, sickness, or death, or to injury to or destruction of property (including the loss of use resulting therefrom), or to or from the negligent acts, errors or omissions or willful misconduct of the Vendor; and (b) not caused solely by the active negligence or willful misconduct of LFUCG.

In the event LFUCG is alleged to be liable based upon the above, Vendor shall defend such allegations and shall bear all costs, fees and expenses of such defense, including but not limited to, all reasonable attorneys' fees and expenses, court costs, and expert witness fees and expenses, using attorneys approved in writing by LFUCG, which approval shall not be unreasonably withheld.

These provisions shall in no way be limited by any financial responsibility or insurance requirements, and shall survive the termination of this agreement.

LFUCG is a political subdivision of the Commonwealth of Kentucky. Vendor acknowledges and agrees that LFUCG is unable to provide indemnity or otherwise save, hold harmless, or defend the Vendor in any manner.

COMMERCIAL GENERAL LIABILITY INSURANCE

The successful bidder shall, 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:

Products/Completed Operations Aggregate	\$2,000,000
Personal and Advertising Injury	\$1,000,000
Each Occurrence	\$1,000,000



Specifications	Bidder Complies	
	Yes	No
<p>Coverage shall be written on a Commercial General Liability form. The policy shall be written on an occurrence form and shall include Contractual Liability coverage for bodily injury and property damage subject to the terms and conditions of the policy. The policy shall include owner as an additional insured when required by written contract.</p> <p>The policy shall include owner as an additional insured as their interest may appear.</p> <p>The required limits can be provided by one or more policies provided all other insurance requirements are met.</p> <p>A carrier(s) rated "Excellent" by A.M. Bests shall provide coverage</p> <p><u>COMMERCIAL AUTOMOBILE INSURANCE</u> The successful bidder shall, during the performance of the contract keep in force at least the following minimum limits of commercial automobile insurance:</p> <p>Combined Single Limit: \$1,000,000</p> <p>Coverage shall be written on a Commercial Automobile form.</p> <p><u>UMBRELLA/EXCESS LIABILITY INSURANCE</u> The successful bidder shall, 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:</p> <p>Aggregate: \$25,000,000 Each Occurrence: \$25,000,000</p> <p>The policy shall be written on an occurrence basis and at a minimum provide the same coverage's as Bidder's General Liability, Automobile Liability and Employer's Liability policies. Owner shall be included as an additional insured on the General Liability and Automobile Liability policies as their interest may appear. The required limits can be provided by one or more policies provided all other insurance requirements are met.</p> <p>Bidder agrees to furnish owner with a current Certificate of Insurance with the coverage's listed above along with its bid. The certificate shall be made out to the purchaser and be an original, no photocopies shall be accepted. The Certificate of Insurance shall provide that owner be given 30 days advance notice of cancellation, nonrenewal or material change in coverage.</p> <p><u>ISO COMPLIANCE</u> The manufacturer shall operate a Quality Management System under the requirements of ISO 9001. These standards specify the quality systems that shall be established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of</p>	<p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>compliance shall be included with the bid.</p> <p><u>SINGLE SOURCE MANUFACTURER</u> Bids shall only be accepted from a single source apparatus manufacturer. The definition of single source is a manufacturer that designs and manufactures their products using an integrated approach, including the chassis, cab and body being fabricated and assembled on the bidder's premises. The warranties relative to the chassis and body design (excluding component warranties such as engine, transmission, axles, pump, etc.) must be from a single source manufacturer and not split between manufacturers (i.e. body and chassis). The bidder shall provide evidence that they comply with this requirement.</p> <p><u>NFPA STANDARDS</u> This unit shall comply with the current NFPA standards in effect at the time of bid., except for fire department specifications that differ from NFPA specifications. These exceptions shall be set forth in the Statement of Exceptions and shall be indicated in the proposal as "non-NFPA".</p> <p>Certification of slip resistance of all stepping, standing and walking surfaces shall be supplied with delivery of the apparatus.</p> <p>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.</p> <p>The manufacturer shall have programs in place for training, proficiency testing and performance for any staff involved with certifications.</p> <p>An official of the company shall designate, in writing, who is qualified to witness and certify test results.</p> <p><u>TOTAL VEHICLE ASSESSMENT CERTIFICATION</u> The apparatus shall be audit-certified by an independent third-party, approved by the fire department, to the current edition of NFPA 1901 standards. The certification includes: all design, production, operational, and performance testing of the apparatus. (No exception)</p> <p><u>PUMP TEST</u> The pump shall be tested, approved, and certified by a third-party, approved by the fire department at the manufacturer's expense. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the manufacturer's record of pump construction details shall be forwarded to the Fire Department.</p> <p><u>INSPECTION TRIPS</u> The bidder shall provide three (3) factory inspection trips. The inspection trip(s) shall be scheduled at times mutually agreed upon between the manufacturer's representative and the customer, typically pre-construction, post paint and final inspection. All costs such as travel, lodging and meals shall be the responsibility of the bidder. Transportation is to be commercial air from Lexington, Kentucky, (locale acceptable to the fire department) to the nearest commercial airport and ground transportation from the time of arrival until departure.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p><u>Pre-construction</u> The bidder shall plan on four (4) LFD personal traveling for the pre-construction conference.</p> <p>There should be adequate time provided to meet with engineers, project managers and conduct facility tours.</p> <p>Bidder will require a proposed pump panel drawing be available prior to the trip. Bidder requires meeting with plumbing engineers during the conference.</p>	✓	
<p><u>Mid-Point</u> Two (2) LFD members will travel for the in - process inspection. Purchaser requires that a body should be loaded on at least one of the apparatus.</p>	✓	
<p><u>Final</u> Five (5) LFD members will travel for the final inspection.</p> <p>Adequate time shall be provided for demonstration of firefighting systems and designated electrical options as specified.</p>	✓	
<p><u>AFTERMARKET SUPPORT</u></p> <p><u>WEBSITE</u> A Customer Service website shall provide authorized dealers access to comprehensive information pertaining to the maintenance and service of their customer's apparatus. This tool shall provide the authorized dealer the ability to service and support their customers to the best of their ability with factory support at their fingertips.</p> <p>This website shall also be 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 dealer for additional support and service.</p> <p>The website shall provide the following to the designated individuals:</p> <p>Ability to access truck detail information on the major components of the vehicle, warranty information, available vehicle photographs, vehicle drawings, sales options, applicable vehicle software downloads, etc.</p> <p>Parts look-up capability, with the aid of digital photographs, part drawings assembly drawings.</p> <p>Ability to electronically submit warranty claims directly to the factory for reimbursement.</p> <p>Accessibility to multiple dealer reports that allow the dealership to maintain communication with the customer on the status of orders, claims, and phone contacts.</p>		

Specifications	Bidder Complies	
	Yes	No
<p>Access to all currently published Operation and Maintenance and Service publications.</p> <p>Access to manufacturer Service Bulletins and Work Instructions containing information on current service topics and recommendations provided.</p> <p>Access to upcoming training classes offered by the manufacturer.</p> <p>Access to interactive electronic learning modules (Operators Guides) covering the operation of major vehicle components.</p> <p>Access to customer service articles, corporate news, quarterly newsletters, and key contacts.</p> <p><u>SERVICE CENTER</u></p> <p>In order to maintain this complex piece of apparatus, the experience and reliability of the factory authorized service center is of major concern to purchaser. The service facility must comply with the following criteria in order to be considered:</p> <p style="padding-left: 40px;">Must have a minimum of five (5) years experience repairing and maintaining fire apparatus of the make and type of apparatus being bid.</p> <p style="padding-left: 40px;">Must have adequate indoor heated facilities and factory-trained technicians to perform repairs, including power train, chassis, pump, generator and controls must be provided.</p> <p style="padding-left: 40px;">Must have a fully equipped mobile shop van to be available for warranty work in Lexington, KY.</p> <p>The bidder shall submit the location and recent photos of the service center and mobile service unit(s) along with the bid. Purchaser reserves the right to visit and inspect the service center prior to awarding bid.</p> <p>The contractor is required to provide all warranty service at the Lexington Fire vehicle maintenance facility whenever major shop work is not involved. For warranty service involving transportation to the shop, the apparatus shall be picked up in Lexington, KY and returned from the contractor's facility by his personnel.</p> <p>While under warranty, if towing or flat bedding of the apparatus to the repair facility is required, it shall be the responsibility of the bidder to provide such service at his cost.</p> <p>The contractor agrees to keep the apparatus in a secure, indoor heated area at all times while in their possession. It shall be understood that the contractor is responsible for the apparatus and all articles of equipment from the time the apparatus is picked up until it is returned to Lexington, KY.</p> <p>The contractor shall provide proof of insurance coverage of the apparatus to LFD before the apparatus is transported.</p>	✓	

Specifications	Bidder Complies	
	Yes	No
<p><u>APPROVAL DRAWING</u></p> <p>A drawing of the proposed apparatus shall be provided for approval before construction begins.</p> <p>A detailed pump panel layout drawing shall be included in the Approval Drawing.</p> <p>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> <p><u>BID BOND</u></p> <p>All bidders shall provide a bid bond as security for the bid in the form of a 5% bid bond to accompany their bid. This bid bond shall 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 shall be issued by an authorized representative of the Surety Company and shall be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond shall include language, which assures that the bidder/principal shall 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.</p> <p>Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle shall apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle shall 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 shall prevail.</p> <p><u>PERFORMANCE BOND</u></p> <p>The successful bidder shall provide a signed contract and performance and payment bond, which guarantees performance of all terms and conditions of the contract and warranty agreement before a purchase order can be issued. The performance bond will specifically cover the performance of the contract according to its terms and conditions, as well as payment of all related bills and encumbrances. This performance bond shall be issued by a surety company who is listed by the U.S. Treasury Department's list of approved sureties, as published in Circular 570, as of the bid date. The performance bond shall be issued in an amount equal to 100% of the contract amount and shall be dated concurrent to, or subsequent to, the date of the contract.</p>	<p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p><u>GENERAL CONSTRUCTION</u> The apparatus shall be designed for heavy duty use 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. All piping, lighting and other vehicle accessories shall be mounted in a manner that provides the maximum ground clearance.</p>	✓	
<p><u>CORROSION PROTECTION</u> There shall be a system to prevent corrosion of all underbody components. The builder shall provide a detailed description of the corrosion protection process.</p>	✓	
<p><u>SEATING CAPACITY</u> The seating capacity in the cab shall be five (5).</p>	✓	
<p><u>MAXIMUM OVERALL HEIGHT</u> The maximum overall height of the apparatus shall be 114 inches.</p>		✓
<p><u>MAXIMUM OVERALL LENGTH</u> The maximum overall length of the apparatus shall be approximately 32 feet</p>		
<p><u>WHEELBASE</u> The wheelbase of the vehicle shall be no greater than 212.00 inches.</p>	✓	
<p><u>GVW RATING</u> The gross vehicle weight rating shall be a minimum of 46,500 pounds.</p>	✓	
<p><u>FRAME</u> Each Apparatus shall have continuous frame rails that are sturdy enough to support the apparatus for the intended use. Frame rails shall be of one continuous piece without splices, formed from a minimum 110,000 psi yield heat treated steel. A frame rail liner may be utilized to meet the strength requirements specified.</p> <p>RBM: Shall be no less than 2,800,000 inch-pounds as measured at wheelbase center.</p> <p>The frame rails shall have a corrosion protection process applied. The builder shall provide a detailed description of the corrosion protection process.</p> <p>Wheelbase shall be as short as possible and stated in the bid questionnaire.</p>	✓	
<p><u>FRONT NON DRIVE AXLE</u> The front axle shall be a Meritor MFS-20 with 20,000-pound capacity. It shall be equipped with oil seals and transparent cover for oil level inspection.</p> <p>If a heavier axle is required it shall be the responsibility of the builder to propose it.</p>		✓

Specifications	Bidder Complies	
	Yes	No
<p><u>REAR AXLE</u> The rear axle shall be a Meritor, Model RS-25-160, with a capacity of 27,000 pounds. Oil seals shall be provided on the rear axle.</p> <p>If a heavier axle is required it shall be the responsibility of the builder to propose it.</p>	✓	
<p><u>TOP SPEED OF VEHICLE</u> A rear axle ratio shall be furnished to allow the vehicle to reach a top speed of 67 MPH.</p>	✓	
<p><u>FRONT SUSPENSION</u> The front suspension shall be parabolic (taper leaf) spring type, with three-(3) leaves 20,000 pounds capacity. The leaves shall be a minimum of 4" wide x 54" long (flat), with grease fittings for lubrication installed in the spring pins. Axle stops with energy absorbing jounce bumpers shall be supplied on the spring top pad.</p> <p>Double acting Koni shock absorbers shall be installed.</p>	✓	
<p><u>REAR SUSPENSION</u> Rear Suspension shall be a Hendrickson FMX 272 EX, air ride with a ground rating of 27,000 pounds.</p> <p>The suspension shall have the following features:</p> <ul style="list-style-type: none"> Heavy-duty shock absorbers to protect air springs from overextension Heavy-duty torque rods and bushings Premium, heavy duty rubber bushings that require no lubrication Integrated stabilizer design for greater stability Low spring rate air springs for excellent ride quality Dual height control valves to maintain level vehicle from side to side 	✓	
<p><u>ELECTRONIC STABILITY CONTROL</u> A vehicle control system shall be provided as an integral part of the ABS brake system from Meritor Wabco.</p> <p>The system shall monitor and update the lateral acceleration (cornering) of the vehicle and compare it to a critical threshold where a side roll event may occur. If the critical threshold is met, the vehicle control system shall automatically reduce engine RPM, engage the engine retarder (if equipped), and selectively apply brakes to the individual wheel ends of the front and rear axles to reduce the possibility of a side roll event.</p> <p>The system shall monitor directional stability through an electronic lateral accelerometer, steer angle sensor and yaw rate sensor. If spinout or drift out is detected, the vehicle control system shall selectively apply brakes to the individual wheel ends of the front and rear axles to assist in bringing the vehicle back to its intended direction. The operator shall continue to provide steering input in the desired direction as the system compensates.</p>	✓	
<p><u>ANTI-LOCK BRAKE SYSTEM</u> 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. A digitally controlled system that utilizes microprocessor technology shall control the anti-lock braking system.</p>	✓	

Specifications	Bidder Complies	
	Yes	No
<p>Each wheel shall be monitored by the system. When any wheel begins to lockup, a signal shall be sent to the control unit. This control unit shall then 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.</p> <p><u>AUTOMATIC TRACTION CONTROL</u> An anti-slip feature shall be included with the ABS. The Automatic Traction Control shall be used for traction in poor road and weather conditions. The Automatic Traction Control shall act as an electronic differential lock that shall not allow a driving wheel to spin, thereby supplying traction at all times.</p> <p>The ABS electronic control unit (ECU) shall work with the engine ECU, sharing information concerning wheel slip. Engine ECU shall use information to control engine speed, allowing only as much throttle application as required for the available traction, regardless of how much the driver is asking for.</p> <p>An "Off Road Traction" switch shall be provided on the instrument panel. Activation of the switch shall allow additional tire slip to let the truck climb out and get on top of deep snow or mud.</p> <p><u>REAR AXLE LOCK UP</u> The rear axle shall be equipped with a means to lock the rear axle into a positive traction mode. The lock-up shall be controlled by an illuminated locking style switch mounted on the dash, in easy reach of the driver.</p> <p><u>BRAKES</u> The service brake system shall be full air type.</p> <p>The front brakes shall be Knorr / Bendix disc type with a 17.00" ventilated rotor for improved stopping distance.</p> <p>The rear brakes shall be Meritor 16.50" x 7.00" cam operated outboard drums with automatic slack adjusters.</p> <p>The brake system shall be certified, third party inspected, for improved stopping distance.</p> <p><u>ELECTROMAGNETIC BRAKE</u> A Telma electromagnetic, driveline retarder shall be furnished and mounted within the driveline system. This system shall automatically activate in four-stages to achieve 100% capacity when the brake pedal is applied.</p> <p>The system shall have an on/off switch and a four-stage indicator to show retarder activation stages mounted on the dash.</p> <p>The magnetic retarder control shall be through a switch on the dash, with activation of the retarder in conjunction with the brake pedal. The application shall be in progressive stages, (1/4, 1/2, 3/4 & 100 percent).</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
System shall disengage with the activation of ABS.	✓	
<u>AIR COMPRESSOR, BRAKE SYSTEM</u> The air compressor shall be a Cummins/Wabco with 18.7 cubic feet per minute output or sized to the demands of the air primer.		
All air line connections shall be of the compression type. "Push on" fittings shall not be used for any air application (brakes or accessories).	✓	
<u>BRAKE SYSTEM</u> The brake system shall include:		
Bendix-Westinghouse dual brake treadle valve with vinyl covered foot surface		
Total air system capacity of 4,362 cubic inch		
Two (2) air pressure gauges with red warning light and audible alarm that activates when air pressure falls below 60 psi		
MGM spring set parking brake system		
Parking brake operated by a Bendix-Westinghouse PP-1 control valve		
A parking "brake on" indicator light on instrument panel		
Bendix-Westinghouse SR-1 valve, in conjunction with a double check valve system, shall be provided with an automatic spring brake application at 40 psi		
The air tanks shall be primed and painted. To reduce the effects of corrosion, the air tank shall be mounted with stainless steel brackets. No Exceptions.		
A heated, automatic moisture ejector on air the dryer		
Wabco System Saver 1200 air dryer with spin-on coalescing filter cartridge	✓	
<u>BRAKE LINES</u> Color-coded nylon brake lines shall be provided. The lines shall be wrapped in a heat protective loom where necessary in the chassis.		
<u>AIR INLET</u> One (1) air inlet with male Type "A" 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 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 Type "A" coupling shall also be provided with the loose equipment.		
<u>AIR OUTLET</u> One (1) female Type "A" coupling shall be provided adjacent to the Air Inlet. Air supply	✓	

Specifications	Bidder Complies	
	Yes	No
<p>shall be dried and filtered.</p> <p><u>AIR TANK, ADDITIONAL</u> An additional air tank with 1454 cubic inch displacement shall be provided to increase the capacity of the air system. This tank shall be dedicated for air horn and air primer use.</p> <p>The air tank shall be primed and painted to meet a minimum 750 hour salt spray test. To reduce the effects of corrosion, the air tank shall be mounted with stainless steel brackets. No Exceptions.</p> <p>The output flow of the engine air compressor varies with engine RPM. Full compressor output is only achieved at governed engine speed. Engine speed may be limited by generators, pumps and other PTO driven options.</p> <p><u>PARK BRAKE CONTROL (additional)</u> A second park brake control valve shall be installed on the officer side of the instrument panel. This valve shall only activate the brakes if manually pulled out; low air pressure shall not activate this valve.</p> <p><u>ENGINE</u> The chassis shall be powered by an electronically controlled engine as described below:</p> <p>Make: Cummins Model: ISL9 Power: 450 hp at 2100 rpm Torque: 1250 lb-ft at 1400 rpm Governed Speed: 2200 rpm Emissions Level: EPA 2010 Fuel: Diesel Cylinders: Six (6) Displacement: 543 cubic inches (8.9L) Starter: Delco 39MT Fuel Filters: Spin-on style primary filter with water separator & water-in-fuel sensor. Coolant Filter: Spin-on style with shut off valves on the supply and return line.</p> <p><u>UPGRADE OF POWERTRAIN (OPTIONAL)</u> The bidder shall include an itemized price quote for an upgrade to a Detroit DD13 engine with 450 hp and 1550 lb-ft of torque. This quote is to include the cost of all components, engineering, warranty, and Allison Gen IV, Model EVS 4000P transmission.</p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p>

Specifications	Bidder Complies	
	Yes	No
<p><u>ENGINE INSTALLATION CERTIFICATION</u></p> <p>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 delivery.</p>	✓	
<p><u>ENGINE AIR INTAKE</u></p> <p>A dry-type air cleaner, suitable for the engine being proposed, shall be installed and mounted as to provide easy access for serviceability.</p> <p>An air restriction indicator shall be mounted in the dash panel to provide a warning indication of a clogged air filter.</p> <p>The air intake with ember separator shall be provided and be easily accessible through a hinged stainless steel grille, with a flush quarter turn latch.</p>	✓	✓
<p><u>EXHAUST SYSTEM</u></p> <p>The exhaust system shall be stainless steel from the turbo to the inlet of the selective catalytic reduction (SCR) device, and shall be 4.00" in diameter.</p> <p>The exhaust system shall include a diesel particulate filter (DPF) and an SCR device to meet current EPA standards.</p> <p>An insulation wrap shall be provided on all exhaust pipe between the turbo and SCR to minimize the transfer of heat to the cab.</p> <p>The exhaust shall terminate horizontally ahead of the passenger side rear wheels. A tailpipe diffuser shall be provided to reduce the temperature of the exhaust at the exit. Heat deflector shields shall be provided to isolate chassis and body components from the heat of the tailpipe diffuser.</p>	✓	
<p><u>EXHAUST MODIFICATION</u></p> <p>The exhaust pipe shall be brought out from under the body at a 90 degree angle from the truck. The tail pipe shall extend a minimum of 2.00" past the body, terminating with a flange for a Plymovent magnetic attachment system. The diameter of the pipe shall be 6.00".</p> <p>There shall be a clearance of 4.00" completely around the pipe once past the side of the body.</p>	✓	
<p><u>DIESEL EXHAUST FLUID TANK</u></p> <p>A minimum 4.2 gallon diesel exhaust fluid (DEF) tank, constructed of polyethylene, shall be provided and mounted in the driver's side rear cab step area. There shall be an access door that provides easy access for refilling the DEF tank.</p> <p>The tank shall be easy to remove for service.</p> <p>There shall be a DEF fluid level sensor provided in the tank and connected to a gauge on the dash of the cab.</p> <p>All metal mounting components shall be stainless steel.</p>	✓	

Specifications	Bidder Complies	
	Yes	No
<p>A .50" drain plug shall be provided in a low point of the tank for drainage.</p> <p>The tank shall meet the engine manufacturer's requirement for 10% 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> <p><u>COOLANT LINES</u></p> <p>Silicone hoses shall be used for all engine/heater coolant lines installed by the chassis manufacturer.</p> <p>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.</p> <p><u>RADIATOR</u></p> <p>The radiator and the complete cooling system shall meet or exceed NFPA and engine manufacturer cooling system standards.</p> <p>For maximum cooling performance, the radiator core shall be made of copper fins having a serpentine design, soldered to brass tubes. The tubes shall be welded to brass headers using the patented "Beta-Weld" process for increased strength, longer road life and solder-bloom corrosion protection. Steel supply and return tanks shall be bolted to the core headers and steel side channels to complete the radiator assembly. The radiator shall be compatible with commercial antifreeze solutions.</p> <p>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.</p> <p>The radiator shall include an integral de-aeration tank, with a 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.</p> <p>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.</p> <p>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.</p> <p><u>CLUTCH FAN</u></p> <p>A Horton fan clutch shall be provided. The fan clutch shall be automatic when the pump transmission is in "Road" position, and fully engaged when parking brake is set.</p> <p><u>ACCESS TO ENGINE DIPSTICKS</u></p> <p>For access to the engine oil and transmission fluid dipsticks, there shall be a door on the engine tunnel, inside the crew cab.</p> <p>The engine oil dipstick shall allow for checking only. The transmission dipstick shall allow for both checking and filling. An additional tube shall be provided for filling the engine oil.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>The door shall have a rubber seal for thermal and acoustic insulation. One (1) flush latch shall be provided on the access door.</p> <p><u>FUEL TANK</u> A minimum 65-gallon fuel tank shall be provided and mounted at rear of chassis. The tank shall be constructed of stainless 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. No Exceptions.</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, stainless steel door that is marked "Diesel Fuel Only".</p> <p>The fuel fill shall not be covered by an SCBA cylinder wheel well compartment door.</p> <p>A .50" diameter 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% of tank volume.</p> <p>All fuel lines shall be provided as recommended by the engine manufacturer. Four (4) feet of extra fuel line shall be provided, coiled and secured to the top of the tank.</p> <p>The fuel tank pickup tube shall be accessible without having to remove the tank.</p> <p><u>FUEL / WATER SEPARATOR</u> The engine shall be equipped with a Racor in-line spin-on fuel and water separator in addition to the engine fuel filters.</p> <p>An LED warning light and buzzer shall be provided in the cab to indicate water in the fuel system.</p> <p><u>FUEL COOLER</u> An air to fuel cooler shall be installed in the engine fuel return line.</p> <p><u>TRANSMISSION</u> An Allison electronic automatic transmission shall be provided. The transmission shall be the most current generational design by Allison.</p> <p>The transmission shall be of heavy duty design.</p> <p>The transmission shall be rated to handle the weight of the apparatus when fully loaded.</p> <p>The transmission shall be rated to handle the maximum rated torque output as produced by the chassis engine in all power ranges.</p> <p>A transmission temperature gauge shall be installed on the cab instrument panel.</p>	✓	

Specifications	Bidder Complies	
	Yes	No
The transmission shall be programmed for Fire Service / aggressive downshifting application.	✓	
<u>TRANSMISSION SHIFTER</u>		
A six (6)-speed push button shift module with the 4 + 2 "Mode" button shall be mounted to right of driver on console. Shift position indicator shall be indirectly lit for after dark operation.		
The Allison shifter shall be a "double-digit" display model.		
The transmission ratio shall be 1st - 3.49 to 1.00, 2nd - 1.86 to 1.00, 3rd - 1.41 to 1.00, 4th - 1.00 to 1.00, 5th - 0.75 to 1.00, 6th - 0.65 to 1.00, R - 5.03 to 1.00.	✓	
<u>TRANSMISSION COOLER</u>		
A transmission oil cooler shall be provided in the lower tank of the radiator. Purchaser would prefer external mounted transmission cooler.		
<u>DRIVELINE</u>		
Drivelines shall be a heavy-duty metal tube and be equipped with Spicer 1710 universal joints.	✓	
The shafts shall be dynamically balanced before installation.		
A splined slip joint shall be provided in each driveshaft, slip joint shall be coated with Glide coat or equivalent.		
<u>STEERING</u>		
The apparatus shall be equipped with an integral power steering unit which is rated to steer the front axle capacity.	✓	
The system will operate mechanically should the hydraulic system fail.		
The steering wheel shall be capable of tilting and telescoping.		
<u>POWER STEERING COOLER</u>		
A power steering cooler shall be provided. Power steering oil temperature shall not exceed 225°F with an ambient air temperature of 115°F under any operating conditions.	✓	
The cooler shall be of oil to air type.		
<u>TIRES</u>		
The front tires shall be Michelin radials sized for the front axle load, with all position XZY tread.	✓	
The tires shall be mounted on Alcoa Dura-Bright polished aluminum disc-type wheels with a ten (10) stud 11.25" bolt circle.		
The rear tires shall be Michelin radials sized for the rear axle load with XDN-2 all position tread.		

Specifications	Bidder Complies	
	Yes	No
Tires shall be mounted on Alcoa Dura-Bright polished aluminum disc-type wheels with a ten (10)-stud 11.25" bolt circle.	✓	
<u>TIRE BALANCE</u> All tires shall be balanced with Counteract balancing beads. The beads shall be inserted into the tire and eliminate the need for wheel weights.	✓	
<u>LUG NUT COVERS</u> Chrome plated lug nut covers shall be installed on all lug nuts.	✓	
<u>HUB COVERS (front)</u> Stainless steel hub covers shall be provided on the front axle. An oil level viewing window shall be provided.	✓	
<u>HUB COVERS (rear)</u> A pair of stainless steel high hat hub covers shall be provided on rear axle hubs.	✓	
<u>MUD FLAPS</u> Mud flaps shall be installed behind the front and rear wheels of the apparatus.	✓	
<u>TIRE CHAINS</u> An On-Spot automatic tire chain system shall be installed on the rear axle.	✓	
A locking style switch shall be installed on the instrument panel in easy reach of the driver. An indicator light shall be installed in a convenient location for the driver.	✓	
<u>TIRE PRESSURE MANAGEMENT</u> There shall be a LED tire alert pressure management system provided that shall monitor each tire's pressure. A chrome plated brass sensor shall be provided on the valve stem of each tire for a total of six (6) tires. The sensor shall calibrate to the tire pressure when installed on the valve stem for pressures between 20 and 120 psi. The sensor shall activate an integral battery operated LED when the pressure of that tire drops 8 psi. Removing the cap from the sensor shall indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED shall immediately start blinking.	✓	
<u>CAB</u> The cab shall be designed specifically for the fire service and shall be manufactured by the chassis builder for severe service. Construction of the cab shall consist of stainless steel or aluminum. The cab shall be built by the apparatus manufacturer in a facility located on the manufacturer's premises (no exceptions). The cab shall be a minimum of 95" wide.		✓

Specifications	Bidder Complies	
	Yes	No
<p>The crew cab section shall have a 10.00" raised roof. 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.</p> <p>The raised roof section shall have a shelf that extends from the distance between drivers rearward facing seat to officers rearward facing seat. The shelf shall be designed to maximize the space available.</p> <p>Cargo netting shall be provided to secure items in the compartment.</p> <p>The cab shall be a full tilt cab style. The engine shall be easily accessible and capable of being removed with the cab tilted. The cab shall be capable of tilting 45 degrees and 90 degrees with crane assist.</p> <p>The cab shall have a 3-point rubber mounting and shall be tilted by a hydraulic pump connected to two (2) cab lift cylinders.</p> <p><u>INTERIOR CAB INSULATION</u> The cab shall include minimum 1.50" insulation in the ceiling and side walls, and 2.00" insulation in the rear wall to maximize acoustic absorption and thermal insulation.</p> <p><u>ENGINE TUNNEL</u> The engine tunnel shall be insulated for protection from heat and sound. The noise insulation keeps the DBA level within the limits stated in the current NFPA series 1900 pamphlet. A durable material suitable for severe service use shall be used on the engine tunnel.</p> <p>A solid .25" painted aluminum plate shall be affixed to the top of the engine tunnel with 1.25" spacers to allow for mounting of Mobile Data Terminals and other such equipment without drilling through the top of the engine hood.</p> <p><u>FENDER LINERS</u> Full circular inner fender liners in the wheel wells shall be provided.</p> <p><u>REAR WALL COVERING</u> Bright aluminum tread plate shall be overlaid on the outside rear wall of the crew cab except for areas that are not typically visible when the cab is lowered.</p> <p><u>WINDSHIELD</u> The cab windshield shall have bright trim inserts in the rubber molding holding the glass in place.</p> <p>Economical windshield replacement glass shall be readily available from local auto glass suppliers.</p> <p>All cab glass shall be tinted.</p> <p><u>AUXILIARY FANS</u></p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>Two (2) auxiliary fans for providing additional windshield defogging capability shall be provided, one on the passenger side and one on the driver side. Each fan shall be controlled by a switch integral to the fan.</p> <p>The auxiliary fans shall not interfere with the operation of the sun visors, and shall not be placed so as to interfere with the driver's field of vision through the windshield.</p> <p>Placement of the auxiliary fans shall be determined at the pre-construction conference.</p>		
<p><u>SUN VISORS</u></p> <p>Two (2) smoked Lexan sun visors shall be provided. The sun visors shall be located above the windshield with one (1) mounted on each side of the cab.</p> <p>Sun visors shall have a positive locking device to keep them in the stowed position.</p>	✓	
<p><u>WINDSHIELD WIPERS</u></p> <p>Two (2) electric windshield wipers with washer shall be provided that meet FMVSS and SAE requirements.</p> <p>Wiper control shall consist of a two (2)-speed individual windshield wiper control with intermittent feature and windshield washer controls.</p> <p>The control shall also have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.</p> <p>The washer reservoir shall be able to be filled without raising the cab.</p>	✓	
<p><u>WINDSHIELD WIPER DURABILITY CERTIFICATION</u></p> <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 <i>Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles</i>. The bidder shall certify that the wiper system design has been tested and that the wiper system has met these criteria.</p>	✓	
<p><u>MDT Notch</u></p> <p>Provision for the installation of a mobile data computer (MDC) shall be provided in front of the officer seat. There shall also be provided the required wiring for the MDC on the right side of the cab dash.</p> <p>This shall consist of a 12 volt power and ground pigtail and GPS / data antenna wiring. The location of this power and antenna wiring shall be demonstrated at the final inspection.</p>	✓	
<p><u>CAB STEPS</u></p> <p>The forward cab and crew cab access steps shall be a full size two-step design to provide largest possible stepping surfaces for safe ingress and egress.</p>	✓	
<p><u>STIRRUP STEPS WITH GRIP STRUT</u></p>	✓	

Specifications	Bidder Complies	
	Yes	No
<p>A stirrup step shall be provided below each cab and crew cab door. The steps shall be designed with a grip strut tread material providing support, slip resistance, and drainage. The steps shall be a bolt-on design and provide a 19.50" wide x 5.00" deep stepping surface. Each step shall provide a step height of 9.25" from the top of the stirrup step to the first step of the cab.</p> <p>The stirrup step shall be lit by a white 12 volt DC LED light provided on the step.</p> <p>The step light shall be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body step lights</p> <p><u>CAB INTEGRITY CERTIFICATION</u> The fire apparatus manufacturer shall provide a cab crash test certification with this proposal. The certification states that the cab must meet or exceed the requirements below:</p> <p>European Occupant Protection Standard ECE Regulation No.29</p> <p>SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks</p> <p>SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks</p> <p><u>Roof Crush</u> The cab shall be subjected to a roof crush force of 100,000 lbs.</p> <p><u>Side Impact</u> The cab shall be subjected to dynamic preload with a 13,275 lb moving barrier is slammed into the side of the cab at 5.5 mph, striking with an impact of 13,000 ft-lbs of energy. This test shall closely represent the forces a cab shall see in a rollover incident.</p> <p><u>Frontal Impact</u> The cab shall withstand a frontal force produced from 65,200 ft-lbs of energy using a swing-bob type platen.</p> <p>The same cab shall withstand all tests without any measurable intrusion into the survival space of the occupant area.</p> <p>There shall be no exception to any portion of the cab integrity certification. Nonconformance shall lead to immediate rejection of bid.</p> <p><u>Flooring</u> The cab and crew cab floor areas shall be covered with an acoustical floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler.</p> <p>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 .25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels</p> <p><u>CAB DOORS</u> All of the personnel cab doors shall be "barrier style".</p> <p>All cab and crew cab entry doors shall contain a conventional roll down window.</p>	<p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>A flush mounted, chrome plated paddle type door handle shall be provided on the exterior of each cab door. Each door shall also be provided with an interior flush paddle handle.</p> <p>The cab doors shall be provided with interior (rotary knob) locks as required by FMVSS 206. All cab doors shall be able to be locked and unlocked from the interior only. Design shall be approved by the Fire Department.</p> <p>A full length, heavy duty, stainless steel, piano-type hinge 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.</p> <p>Full height polished stainless steel scuff plates shall be installed on the inside of all cab doors. Cab door panels shall be removable without disconnecting door and window mechanisms.</p> <p>A bright stainless steel grab rail shall be installed on the rear doors at the height and angle to be determined at the pre-construction conference</p> <p>Flush mounted red LED warning lights shall be installed on the inside of the cab doors to warn approaching traffic that the door is open.</p> <p>An access panel shall be provided to permit door latches to be accessible without removing the door panel.</p> <p>A map box shall be mounted to each door.</p> <p><u>STORAGE COMPARTMENT</u> There shall be a compartment provided on each side of the cab, below the cab floor, to the rear of the crew cab access doors.</p> <p>The compartment on officer side shall be capable of carrying one 2.5 gallon pressurized water extinguisher.</p> <p><u>DOOR JAM SCUFF PLATES</u> All cab door jambs shall be furnished with a stainless steel scuff plate, mounted on the striker side of the jam.</p> <p><u>FENDER CROWNS</u> The cab wheel well openings shall be trimmed with replaceable, bolt-in, molded black rubber fenderettes. The fenderettes shall be secured to the cab with stainless steel threaded fasteners along the internal perimeter of the wheel well. Rubber welting shall be installed between the fenderettes and the cab side panel.</p> <p><u>MAP STORAGE COMPARTMENT</u> Mounted in the cab, over the engine cover shall be an enclosed Map storage cabinet constructed of 1/8" smooth aluminum plate and painted to match the cab interior.</p> <p>The exact design and location of the map storage cabinet shall be discussed at the pre-construction meeting.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p><u>HAND HELD LIGHT</u> There shall be two (2) hand lights provided, Streamlight Vulcan lights with the orange thermoplastic body and a 20-watt spot bulb. The two (2) hand lights shall be mounted rear crew cab area.</p> <p>The exact location of the hand lights shall be discussed at the pre-construction meeting.</p>	✓	
<p><u>CAB LIFT</u> A hydraulic cab lift system shall be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves.</p> <p>Lift controls shall be on a panel located on the pump panel or front area of the body in a convenient location.</p> <p>Cab shall be locked down by a two (2)-point automatic spring-loaded hook mechanism that actuates after the cab has been lowered.</p> <p>The hydraulic cylinders shall be equipped with a velocity fuse that protects the cab from accidentally descending when the control is located in the tilt position.</p> <p>For increased safety, an automatic mechanical stay arm shall be provided that will automatically fall into 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.</p> <p>A manual override shall be provided to lift the cab in the event of an electric failure.</p>	✓	
<p><u>INTERLOCK CAB LIFT TO PARKING BRAKE</u> The cab lift 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 control connection shall be moisture proof.</p>	✓	
<p><u>MIRRORS</u> Two (2) Lang Mekra 300 Aero Series Technology Mirrors shall be mounted on each side of the front cab door. Mirror shall be chrome plated, heated, and with four way power system remote control that is convenient to the driver. The main flat mirror shall provide 120 inches of viewable surface area.</p> <p>There shall be separate heads for the driver's and officer's side housing convex glass and provide 56 square inches of viewing surface.</p> <p>The mirrors shall be installed to reduce the overall width of the cab as much as possible.</p>	✓	
<p><u>EYE BALL MIRROR</u> An eight (8) inch "eyeball" mirror (K-10 P/N 512115-50S) will be installed on cab officer's side top corner that will allow the driver to have visual access of front bumper from the seated</p>	✓	

Specifications	Bidder Complies	
	Yes	No
<p>position. The mirror shall have a minimum of two attachment points to the body of the cab.</p> <p><u>BUMPER</u> A one (1) piece bumper shall be provided. The bumper shall be a minimum of 10.00" high with a 1.50" top and bottom flange, and shall extend 19.00" from the face of the cab. The bumper shall have 45 degree corners and side plates. The bumper shall be metal finished and painted job color.</p> <p>To provide adequate support strength, the bumper shall be mounted directly to the front of the C channel frame. The frame shall be a bolted modular extension frame constructed of 50,000 psi tensile steel.</p> <p><u>LIFT AND TOW MOUNTS</u> Mounted to the frame extension shall be lift and tow mounts two (2) painted tow eyes. The lift and tow mounts shall be designed and positioned to adapt to certain tow truck lift systems.</p> <p>The lift and tow mounts with eyes shall be painted the same color as the frame.</p> <p><u>TOW EYE</u> One (1) Chicago style tow eye shall be mounted through the top of the bumper extension.</p> <p>The tow eye shall be designed and positioned to allow up to a 6,000 lb. straight horizontal pull in line with the centerline of the vehicle.</p> <p>The tow eye shall not be used for lifting of the apparatus.</p> <p>The inner and outer edges of the tow eye shall have a .25" radius.</p> <p>The tow eye shall be chrome plated.</p> <p><u>GRAVEL PAN</u> A gravel pan, constructed of bright aluminum tread plate, shall be furnished between the bumper and the cab face. The pan shall be properly supported from the underside to prevent flexing and vibration.</p> <p>The gravel pan shall extend over the top of the front bumper and extend down the face 0.25 (1/4) inch.</p> <p><u>HOSE TRAY (left / drivers side)</u> A hose tray, constructed of aluminum, shall be placed in the left / drivers side of the bumper extension.</p> <p>The tray shall have a capacity of 100' of 1.75" double jacket cotton-polyester hose and an ELKHART STSM-20 FGATLP nozzle.</p> <p>Black rubber grating shall be provided at the bottom of the tray. Drain holes are also to be provided.</p> <p>The edge of the tray openings shall be angled to prevent hose couplings from snagging on the tray opening.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p><u>HOSE TRAY (center)</u> A hose tray, constructed of aluminum, shall be placed in the center of the extended bumper.</p> <p>The tray shall have a capacity of 20' of 5.00" double jacket cotton-polyester hose. The tray shall also hold couplings and other small equipment (spanners, hydrant wrenches)</p> <p>Black rubber grating shall be provided at the bottom of the tray. Drain holes are also to be provided.</p> <p>The edge of the tray openings shall be angled to prevent hose couplings from snagging on the tray opening.</p>	✓	
<p><u>HOSE TRAY (right/officer side) OPTIONAL</u> A recessed half moon style tray, capable of holding 20 feet of 5.00" double jacket cotton-polyester hose, shall be located on the right (officer) side of the bumper.</p>	✓	
<p><u>HOSE HOLD DOWN STRAP</u> The two (2) hose trays shall have a pair of 2.00" wide black nylon straps, with Velcro fasteners, provided.</p>	✓	
<p><u>CAB INTERIOR</u> The cab dash fascias shall be a flat faced design to provide easy of maintenance and shall be constructed out of painted aluminum.</p> <p>The headliner shall be installed in both forward and rear cab sections. Headliner material shall be vinyl. A sound barrier shall be part of its composition. Material shall be installed on aluminum sheet and securely fastened to interior cab ceiling.</p> <p>Forward portion of cab headliner shall provide easy access for servicing electrical wiring or for other maintenance needs without removing the entire unit.</p>	✓	
<p><u>CAB INTERIOR UPHOLSTERY</u> The cab interior upholstery shall be black.</p>	✓	
<p><u>INTERIOR PAINT (Cab)</u> The cab interior metal surfaces shall be painted gray vinyl texture paint.</p>	✓	
<p><u>GRAB HANDLES</u> A black rubber covered grab handle shall be mounted on the lower portion of the driver's side cab entrance to assist in entering the cab. The grab handle shall be securely mounted to the driver side A post area between the door and steering wheel column.</p> <p>A long rubber grab handle shall be mounted on the dash board in front of the officer.</p> <p>A grab handle shall be mounted on the officer side A post. This handle shall be mounted as low as possible on the A post.</p>	✓	✓
<p><u>HANDRAILS</u> The handrails shall be 1.25" diameter anodized aluminum extrusion, with a ribbed design, to provide a positive gripping surface.</p>		

Specifications	Bidder Complies	
	Yes	No
<p>Chrome plated end stanchions shall support the handrail. Plastic gaskets shall be used between end stanchions and any painted surfaces.</p> <p>Drain holes shall be provided in the bottom of all vertically mounted handrails.</p> <p>Handrails shall be provided at each crew door. These handrails shall have a coat hook installed at the top of each handrail.</p> <p>Two (2) handrails shall be provided on the cab face, one above each warning light combination.</p> <p>Location of handrails shall be finalized at the pre-construction conference.</p>		
<p><u>DRIVER SEAT</u> The driver's seat shall be a high back air suspension seat. The seat shall have 4-way adjustability by the driver.</p>	✓	
<p><u>OFFICER SEAT</u> The officer's seat shall be a Bostrom model Tanker 550 with air suspension. The seat back shall include a spring loaded flip up head rest and Secure/All bracket designed to accommodate a Scott 1,800 liter cylinder @4,500 psi cylinder.</p>	✓	
<p><u>OFFICER SIDE REAR FACING CREW SEAT</u> One SCBA outboard rear facing seat shall be installed behind the officer. The seat shall be the Bostrom model Tanker 550 SCBA non-suspension seat. The seat shall include spring loaded flip up headrest and Secure/ALL Bracket designed to accommodate a Scott 1,800 liter @4,500 psi cylinder.</p>	✓	
<p><u>FORWARD FACING CENTER SEATS</u> There shall be two (2) forward facing seats provided at the center position in the crew cab. The seats shall be Bostrom model Tanker 550 non-suspension seats. Seat backs shall include spring loaded flip up head rest and Secure/All brackets designed to accommodate a Scott 1,800 liter @4,500 psi cylinder.</p>	✓	
<p><u>SEAT UPHOLSTERY</u> The seats shall be covered with Turnout TUF material.</p> <p>A department provided patch shall be fixed to center head rest on all seats.</p>	✓	
<p><u>SEAT BELTS</u> All seats shall be equipped with a three-point seat belt.</p> <p>All seating positions in the cab and crew cab shall have red seat belts, equipped with the IMMI ReadyReach system, and provided with automatic retractor that is positioned to prevent the seatbelt from being damaged from being caught in latch / nader pin mechanism</p>		✓
<p><u>SHOULDER HARNESS HEIGHT ADJUSTMENT</u> All seating positions furnished with three (3)-point shoulder type seat belts shall include a height adjustment. This adjustment shall optimize the belts effectiveness and comfort for the seated firefighter.</p>	✓	

Specifications	Bidder Complies	
	Yes	No
<p><u>SEAT MOUNTING STRENGTH</u> 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> <p><u>SEAT BELT MONITORING SYSTEM</u> A seat belt monitoring system (SBMS) shall be provided. The SBMS shall be capable of monitoring and indicating the status of each seat position with a green or red LED indicator as follows:</p> <p><u>Driver Seat:</u></p> <p>Seat Occupied Buckled Green No Occupant Unbuckled Not Illuminated</p> <p>The driver seat shall not include an occupant sensor. The display indication for the driver seat shall illuminate red any time the parking brake is released and the driver seat belt is not buckled.</p> <p><u>All Other Seats:</u></p> <p>Seat Occupied Buckled Green Seat Occupied Unbuckled Red No Occupant Buckled Red No Occupant Unbuckled Not Illuminated</p> <p><u>Alarm:</u></p> <p>The SBMS shall include an audible alarm that shall be activated when a red illumination condition exists and the parking brake is released, or a red illumination condition exists and the transmission is not in park.</p> <p><u>PPE COMPARTMENT INSIDE/OUTSIDE</u> A compartment shall be located on left side of cab between front and rear doors.</p> <p>The compartment shall have a vertical hinged door that will provide maximum opening.</p> <p>The door latches shall match all other latches used on apparatus doors. The compartment shall have 28" interior height by approximately 24" deep.</p> <p>This compartment shall hold 1 Scott AirPak 50 model SCBA in a bracket and 1 complete set of turn out gear.</p> <p>The compartment shall be constructed of smooth aluminum, and painted to match the cab interior.</p>	<p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>This storage compartment shall be compliant per NFPA standard for automotive fire apparatus.</p> <p><u>UTILITY COMPARTMENT</u> A utility compartment shall be provided under the officer's seat. A drop-down door with a chrome plated lift and turn latch shall be provided for access. The compartment shall be constructed of smooth aluminum and painted with gray vinyl texture paint.</p> <p><u>EMS COMPARTMENT</u> A Compartment shall be furnished on the rear wall driver side outboard located between the seat and the door. The compartment shall extend to the cab roof.</p> <p>The compartment shall not extend in front of the door impeding egress from the cab.</p> <p>It will be made of smooth aluminum and shall have a removable cargo net across the front of the opening.</p> <p>The compartment shall be provided with three aluminum shelves. Each shelf will be infinitely adjustable by means of a threaded fastener which slides in a strut style track.</p> <p><u>PAC TRAC Rear Interior Wall</u> Pac Trac Panels (2) to be placed outboard of the forward facing jump seat on the officer side on the rear wall. The PAC TRAC panels shall extend to the roof of the cab.</p> <p><u>HELMET HOLDER</u> There shall be five (5) Zico UHH-1 helmet holder brackets provided in the cab. The brackets shall provide quick access and secure storage of the helmets. The bracket locations shall be determined at time of final inspection.</p> <p><u>FRONTAL IMPACT PROTECTION</u> The cab shall be equipped with a frontal impact protection system consisting of a minimum one (1) air bag in front of the driver, one (1) knee bolster air bag in front of the forward passenger seating position. The air bags shall be designed specifically for the cab configurations.</p> <p>The driver side air bag shall be mounted in the steering wheel and shall be designed to protect the head and upper torso of the occupant, when used in combination with the 3-point seat belt, in the event of a frontal or oblique impact.</p> <p>The passenger side knee bolster air bag shall be mounted in the modesty panel below the dash panel and shall be designed to protect the legs of the occupant, when used in combination with the 3-point seat belt, in the event of a frontal or oblique impact.</p> <p>In the event of a frontal or oblique impact, the system shall deploy the front driver and passenger side air bags, and activate the following components integrated into the driver and front passenger cab seats:</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>Suspension seats shall be retracted to lowest travel position using a seat repositioning system.</p> <p>Seat belts shall be pre-tensioned to firmly hold the occupants in place.</p> <p><u>SIDE ROLL PROTECTION PACKAGE</u> An advanced side roll protection system shall be provided. The package shall be a supplemental restraint system designed for use with the seat belts. The system shall be designed for a fast or slow 90-degree roll in which the vehicle comes to rest on its side.</p> <p>The supplemental restraint system shall include:</p> <p>Air cushions which are designed to protect the head and torso</p> <p>Suspension seats which will retract to the lowest travel position</p> <p>Seat belts which are pre-tensioned to firmly hold the occupant in place</p> <p>A fault-indicating light shall be provided on the vehicle's instrument panel.</p> <p><u>ENGINE COMPARTMENT LIGHT</u> An engine compartment light shall be installed under the cab, of which the switch is an integral part. Light shall be a sealed water proof LED to prevent moisture retention.</p> <p><u>CAB INTERIOR LIGHTING</u> Auxiliary lights shall be provided in the cab and consisting of:</p> <p>Two (2) Whelen, Model 60CREGCS, red/clear dome light, one (1) located above the driver seat and one (1) located above the officer seat, controlled as follows:</p> <p>Clear forward light controlled by the door switch and the lens switch.</p> <p>Red rearward light controlled by the lens switch.</p> <p><u>MAP LIGHT</u> One (1) Adjustable Map Light: Sunnex model SL9-200B10L will be mounted in a position on the passenger side to allow reading of maps.</p> <p>Final position of map light and interior cab lights to be determined at preconstruction meeting</p> <p><u>CREW CAB INTERIOR LIGHTING</u> Auxiliary lights shall be provided in the crew cab and consist of:</p> <p>- Four (4) Whelen Model 60CREGCS, red/clear dome lights located one (1) each above each sitting position, controlled by the following:</p> <p>Clear lights controlled by the door switch and the lens switch.</p> <p>Red lights controlled by the lens switch.</p> <p>- A courtesy light at each door opening, controlled by automatic door switches</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	<p></p> <p></p> <p></p> <p></p>

Specifications	Bidder Complies	
	Yes	No
<p><u>STEP LIGHTS</u> There shall be four (4) Ri-tar, Model M27HW2, LED, step lights provided. The lights shall be installed at each cab and crew cab door, one (1) per step, in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep. These lights shall be installed in such a way to provide a well-lit step while being in a protected position from damage.</p> <p>The lights shall be activated when the adjacent door is opened.</p> <p><u>CLIMATE CONTROL SYSTEM</u> A high-performance, customized air conditioning system shall be furnished inside the cab and crew cab.</p> <p>The air conditioning system shall be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50% relative humidity within 30 minutes. The cooling performance test shall be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.</p> <p>The evaporator unit shall be all metal design. It should be painted to match the interior of the cab.</p> <p>The A/C shall drain manually without the use of pumps (No Exceptions). Draining condensation into the interior of the cab or onto the occupants, headliner, roof or windshield will not be acceptable under any conditions. Detailed description of how builder proposes to drain A/C is required.</p> <p>The air conditioner shall be provided with adjustable air outlets strategically located to direct air flow to the driver, officer and crew cab area.</p> <p>All hose used shall be class 1 type to reduce moisture ingress into the air conditioning system.</p> <p>The air conditioner refrigerant shall be R-134A and shall be installed by a certified technician.</p> <p>The air conditioner shall be controlled by a single electronic control panel. For ease of operation, the control panel shall include variable adjustment for temperature and fan control and be conveniently located on the dash in clear view of the driver. The control panel shall include robust knobs for both fan speed and temperature adjustment.</p> <p><u>CAB/CREW CAB HEATER</u> Two (2) auxiliary heaters with a minimum of 32,000 BTU/hr each shall be provided in the cab. The heaters shall have a three (3) speed blower, and temperature controls accessible to the driver and officer.</p> <p>Auxiliary blower and control in place operable by and to service cab crew area (rear).</p> <p><u>CAB HEATER CERTIFICATION</u> Adequate 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</p>	✓	✓

Specifications	Bidder Complies	
	Yes	No
<p>found in SAE J381. The bidder shall certify that a substantially similar cab has been tested and has met these criteria.</p> <p><u>CAB DEFROSTER</u> There shall be a 41,000 BTU/hr defroster in the cab located under the engine tunnel.</p> <p>The defroster ventilation shall be built into the design of the cab dash instrument panel and shall be easily removable for maintenance.</p> <p>The defroster shall have a three (3) speed blower, and temperature controls accessible to the driver and officer.</p> <p>The defroster ducts shall be designed to provide maximum defrosting capabilities for the front cab windows</p> <p><u>CAB DEFROSTER CERTIFICATION</u> Visibility during inclement weather is essential to safe apparatus performance. The defroster system shall clear the required windshield zones in accordance with SAE J381 <i>Windshield Defrosting Systems Test Procedure and Performance Requirements - Trucks, Buses, and Multipurpose Vehicles</i>. The bidder shall certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.</p> <p><u>ELECTRICAL POWER CONTROL SYSTEM</u> 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.</p> <p>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.</p> <p>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.</p>	<p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>General protection circuit breakers shall be Type-I automatic reset (continuously resetting). When required, automotive type fuses shall be utilized to protect electronic equipment.</p> <p>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> <p><u>ELECTRICAL HARNESSING INSTALLATION</u></p> <p>To ensure rugged dependability, all 12-volt wiring harnesses installed by the apparatus manufacturer shall conform to the following specifications:</p> <p>SAE J1128 - Low tension primary cable</p> <p>SAE J1292 - Automobile, truck, truck-tractor, trailer and motor coach wiring</p> <p>SAE J163 - Low tension wiring and cable terminals and splice clips</p> <p>SAE J2202 - Heavy duty wiring systems for on-highway trucks</p> <p>NFPA 1901 - Standard for automotive fire apparatus</p> <p>FMVSS 302 - Flammability of interior materials for passenger cars, multipurpose passenger vehicles, trucks and buses</p> <p>SAE J1939 - Serial communications protocol</p> <p>SAE J2030 - Heavy-duty electrical connector performance standard</p> <p>SAE J2223 - Connections for on board vehicle electrical wiring harnesses</p> <p>NEC - National Electrical Code</p> <p>SAE J561 - Electrical terminals - Eyelet and spade type</p> <p>SAE J928 - Electrical terminals - Pin and receptacle type A</p> <p>Wiring shall be run in loom where exposed, and have grommets or other edge protection where wires pass through metal. Automatic reset circuit breakers shall be provided which conform to SAE standards. Wiring shall be color, function and number coded. Wire colors shall be integral to each wire insulator and run the entire length of each wire. Harnessing containing multiple wires and uses a single wire color for all wires shall not be allowed. Function and number codes shall be continuously imprinted on all wiring harness conductors at 2.00" intervals. All wiring installed between the cab and into doors shall be enclosed within an expandable rubber boot to protect the wiring. 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:</p> <ul style="list-style-type: none"> All wire ends not placed into connectors shall be sealed with a heat shrink end cap. Wires without a terminating connector or sealed end cap shall not be allowed. 	✓	

Specifications

Bidder Complies

Yes No

- All holes made in the roof shall be caulked with silicon (no exception). Large fender washers, liberally caulked, shall be used when fastening equipment to the underside of the cab roof.
- 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.
- For low cost of ownership, electrical components designed to be removed for maintenance shall be quickly accessible. For ease of use, a coil of wire shall be provided behind the appliance to allow them to be pulled away from the mounting area for inspection and service work.
- Corrosion preventative compound shall be applied to non-waterproof electrical connectors 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.
- Any lights containing non-waterproof sockets in a weather-exposed area shall have corrosion preventative compound added to the socket terminal area.
- All electrical terminals in exposed areas shall have DOW 1890 protective Coating applied completely over the metal portion of the terminal.
- Rubber coated metal clamps shall be used to support wire harnessing and battery cables routed along the chassis frame rails.
- Heat shields shall be used to protect harnessing in areas where high temperatures exist. Harnessing passing near the engine exhaust shall be protected by a heat shield.
- All braided wire harnesses shall have a permanent label attached for easy identification of the harness part number and fabrication date.

BATTERY CABLE INSTALLATION

All 12-volt battery cables and battery cable harnessing installed by the apparatus manufacturer shall conform to the following requirements:

SAE J1127 - Battery Cable

SAE J561 - Electrical terminals, eyelets and spade type

SAE J562 - Nonmetallic loom

SAE J836A - Automotive metallurgical joining

SAE J1292 - Automotive truck, truck-tractor, trailer and motor coach wiring

NFPA 1901 - Standard for automotive fire apparatus

Battery cables and battery cable harnessing shall be installed utilizing the following guidelines:



Specifications	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • All battery cables and battery harnesses shall have a permanent label attached for easy identification of the harness part number and fabrication date. • Splices shall not be allowed on battery cables or battery cable harnesses. • For ease of identification and simplified use, battery cables shall be color coded. All positive battery cables shall be red in color or wrapped in red loom the entire length of the cable. All negative battery cables shall be black in color. • For ease of identification, all positive battery cable isolated studs throughout the cab and chassis shall be red in color. • For increased reliability and reduced maintenance, all electrical buss bars located on the exterior of the apparatus shall be coated to prevent corrosion. <p><u>ELECTRICAL COMPONENT INSTALLATION</u></p> <ul style="list-style-type: none"> • All lighting used on the apparatus shall be, at a minimum, a two (2) wire light grounded through a wired connection to the battery system. Lights using an apparatus metal structure for grounding shall not be allowed. • Lights and wiring mounted in 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. <p><u>CAB INSTRUMENTATION</u></p> <p>The cab instrument panel shall include gauges, telltale indicator lamps, control switches, alarms, and a diagnostic panel. The function of the instrument panel controls and switches shall be identified by a label adjacent to each item.</p> <p>Actuation of the headlight switch shall illuminate the labels in low light conditions. Telltale indicator lamps shall not be illuminated unless necessary.</p> <p>The cab instruments and controls shall be conveniently located within the forward cab section, forward of the driver. The gauge assembly and switch panels are designed to be removable for ease of service and low cost of ownership.</p> <p>A "Do Not Move Apparatus" red flashing indicator shall be located in the driver's compartment to indicate that any passenger door, compartment door or hose bed covers (if equipped) not in the closed or stowed position. The light shall be activated only when the parking brake is released.</p> <p><u>GAUGES</u></p> <p><u>The gauge panel shall include the following ten (10) black faced gauges with black bezels to monitor vehicle performance:</u></p>	✓	
		✓
		✓

Specifications	Bidder Complies	
	Yes	No
<p><u>Voltmeter Gauge (volts):</u></p> <p>Low volts (11.8 VDC)</p> <p>Amber telltale light on indicator light display with steady tone alarm</p> <p>High volts (15.5 VDC)</p> <p>Amber telltale light on indicator light display with steady tone alarm</p> <p><u>Engine Tachometer (RPM)</u></p> <p><u>Speedometer MPH</u></p> <p><u>Fuel Level Gauge</u></p> <p>Low fuel (1/8 full)</p> <p>Amber telltale light on indicator light display with steady tone alarm</p> <p><u>Engine Oil Pressure Gauge (PSI):</u></p> <p>Low oil pressure to activate engine warning lights and alarms</p> <p>Red telltale light on indicator light display with steady tone alarm</p> <p><u>Front Air Pressure Gauges (PSI):</u></p> <p>Low air pressure to activate warning lights and alarm</p> <p>Red telltale light on indicator light display with steady tone alarm</p> <p><u>Rear Air Pressure Gauges (PSI):</u></p> <p>Low air pressure to activate warning lights and alarm</p> <p>Red telltale light on indicator light display with steady tone alarm</p> <p><u>Wet Air Tank Pressure Gauge (PSI)</u></p> <p>No alarm</p> <p>Located adjacent to pump shift</p> <p><u>Transmission Oil Temperature Gauge (Fahrenheit):</u></p> <p>High transmission oil temperature activates warning lights and alarm</p> <p>Amber telltale light on indicator light display with steady tone alarm</p> <p><u>Engine Coolant Temperature Gauge (Fahrenheit):</u></p> <p>High engine temperature activates an engine warning light and alarms</p> <p>Red telltale light on indicator light display with steady tone alarm</p> <p><u>Diesel Exhaust Fluid Level Gauge</u></p>		

Specifications	Bidder Complies	
	Yes	No
<p>Low fluid (1/8 full)</p> <p>Amber telltale light on indicator light display</p> <p><u>INDICATOR LAMPS</u></p> <p>To promote safety, the following telltale indicator lamps shall be located on the instrument panel in clear view of the driver. The indicator lamps shall be "dead-front" design that is only visible when active. The colored indicator lights shall have descriptive text or symbols.</p> <p><u>The following amber telltale lamps shall be present:</u></p> <p>Low coolant</p> <p>Trac cntl (traction control) (where applicable)</p> <p>Check engine</p> <p>Check Trans (check transmission)</p> <p>Air rest (air restriction)</p> <p>Driver door open</p> <p>Passenger door open</p> <p>DPF (engine diesel particulate filter regeneration)</p> <p>HET (engine high exhaust temperature) (where applicable)</p> <p>ABS (antilock brake system)</p> <p>MIL (engine emissions system malfunction indicator lamp) (where applicable)</p> <p>Regen inhibit (engine emissions regeneration inhibit) (where applicable)</p> <p>Trans temp (transmission temperature)</p> <p>Side roll fault (where applicable)</p> <p>Front air bag fault (where applicable)</p> <p>DEF (low diesel exhaust fluid level)</p> <p><u>The following red telltale lamps shall be present:</u></p> <p>Parking brake</p> <p>Stop engine</p> <p><u>The following green telltale lamps shall be present:</u></p> <p>Left turn</p> <p>Right turn</p> <p>Battery on</p>		✓

Specifications	Bidder Complies	
	Yes	No
<p>Ignition</p> <p>Aux brake (auxiliary brake engaged) (where applicable)</p> <p>The following blue telltale lamps shall be present:</p> <p>High beam</p> <p><u>ALARMS</u></p> <p>Audible steady tone warning alarm: A steady audible tone alarm shall be provided whenever a warning message is present.</p> <p>An override switch to silence an audible alarm in case of malfunction shall be provided.</p> <p><u>INDICATOR LAMP AND ALARM PROVE-OUT</u></p> <p>A system shall be provided which automatically tests telltale indicator lights and alarms located on the cab instrument panel. Telltale indicators and alarms shall perform prove-out when the ignition switch is held in the up position for three (3) to five (5) seconds to ensure proper performance.</p> <p><u>CONTROL SWITCHES</u></p> <p>For ease of use, the following controls shall be provided immediately adjacent to the cab instrument panel within easy reach of the driver. All switches shall have backlit labels for low light applications.</p> <p>Headlight/Parking light switch: A three (3)-position maintained rocker switch shall be provided. The first switch position shall deactivate all parking and headlights. The second switch position shall activate the parking lights. The third switch shall activate the headlights.</p> <p>Panel backlighting intensity control switch: A variable voltage control switch shall be provided. The switch moved in the up direction increases the panel backlighting intensity to a maximum and the switch moved in a down direction decreases the panel backlighting intensity to a minimum level.</p> <p>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 perform prove-out on the telltale indicators and alarms when the ignition switch is held in the up position for three (3) to five (5) seconds to ensure proper performance. A green indicator lamp is activated with vehicle ignition.</p> <p>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.</p> <p>Hazard switch shall be incorporated into the steering column.</p> <p>Heater and defroster controls.</p> <p>Turn signal arm: A self-canceling turn signal with high beam headlight controls.</p>	<p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>Windshield wiper control shall have high, low, and intermittent modes.</p> <p>Parking brake control: An air actuated push/pull park brake control.</p> <p>Chassis horn control: Activation of the chassis horn control shall be provided through the center of the steering wheel. There shall be no additional control switches located in the steering wheel.</p> <p><u>CUSTOM SWITCH PANELS</u></p> <p>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 three (3) switch panels in the overhead console on the driver's side, up to five (5) switch panels in the engine tunnel console, and up to three (3) switch panels in the overhead console between the driver and officer. All switches have backlit labels for low light applications.</p> <p>High idle engagement switch: A maintained rocker switch with integral indicator lamp shall be provided. The switch shall activate and deactivate the high idle function. 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.</p> <p>"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.</p> <p>Diesel particulate filter regeneration switch (where applicable).</p> <p>Diesel particulate filter regeneration inhibit switch (where applicable).</p> <p><u>SWITCH PANELS</u></p> <p>The built-in emergency light switch panel shall have a master switch plus individual switches for selective control. The switch panel shall be located in the "overhead" position above the windshield on the driver's side to allow for easy access. Switches shall be maintained rocker type with an indicator light, of which is an integral part of the switch.</p> <p><u>SECOND SWITCH PANEL</u></p> <p>There shall be a switch panel located in the overhead area of the cab above the windshield that is within reach of the driver and officer. Switches shall be maintained rocker type with an indicator light of which is an integral part of switch. The switches in this panel will control the front cab brow light and the side mounted cab flood lights.</p> <p><u>DIAGNOSTIC PANEL</u></p> <p>A diagnostic panel shall be accessible while standing on the ground and shall be 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 engine and ABS systems to provide blink codes should a problem exist. The diagnostic panel shall include the following:</p>	✓	✓
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Specifications	Bidder Complies	
	Yes	No
<p>Engine diagnostic port</p> <p>Transmission and ABS diagnostic port</p> <p>Roll sensor diagnostic port</p> <p>Engine diagnostic switch (blink codes flashed on check engine telltale indicator)</p> <p>ABS diagnostic switch (blink codes flashed on ABS telltale indicator)</p> <p>High Air Restriction Warning Indicator Light (electronic).</p> <p><u>OFFICER SPEEDOMETER</u> - A Class I digital display speedometer shall be provided on the officer side overhead position.</p> <p><u>POWER POINTS</u> Six (6) 12 volt DC / USB utility plugs shall be installed in the cab interior. Two (2) 12 volt DC / USB utility plugs shall be installed in a designated body compartment. The location of the 12 volt DC / USB utility plugs shall be determined at the pre-construction conference.</p> <p><u>RADIO ANTENNA MOUNT</u> The apparatus will require five (5) communications antennas mounted on the roof of the apparatus.</p> <p>The antenna mounting base shall be NMO type mounts designed for use with the thickness of the material used for the roof of the apparatus (Model MATM). The antenna mounts shall be provided with twenty-five (25) feet of coaxial cable installed to locations in the apparatus determined by the Radio Communications Section of the Lexington Division of Fire and Emergency Services. The coaxial cable shall be RG58/U with 95% braided shield minimum. The coaxial cable shall have a solid copper center conductor with a Polyethylene or Teflon dielectric.</p> <p>The location of the antennas on the roof of the apparatus shall be determined in consultation with the Radio Communications Section of the Lexington Division of Fire and Emergency Services (Radio Communications Section). The manufacturer shall provide the Radio Communications Section a detailed diagram on the apparatus cab area including the layout of the roof area, the interior consoles, seats and interior compartments. The diagram of the roof shall include the location of the structural members, light fixtures and interior head liners. A means of access shall be provided to the inside location of each antenna mounting location selected by the radio communications personnel. Head liner removal shall not be required to service the underside of antenna mounts.</p> <p>All factory installed antenna mounts shall have an antenna or an antenna mount rain cap installed to protect the antenna mount from damage.</p> <p><u>DEDICATED RADIO EQUIPMENT CONNECTION POINTS</u> The primary radio connection point shall be on top of the PPE compartment located behind the driver. The top of the compartment shall be flat and suitable for mounting radio equipment. There shall be an enclosure, approximately eight inches deep, with a bolt down</p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p>

Specifications

Bidder Complies

Yes No

louvered lid. There shall be four (4) studs provided in the primary power distribution center located in the enclosure.

The studs shall consist of the following:

- 12-volt 40-amp battery switched power

- 12-volt 100-amp ground

- 12-volt 60-amp ignition switched power

- 12-volt 60-amp direct battery power

These circuits shall not be load managed.

Wiring of appropriate size shall be provided from this primary power distribution center to the locations in the apparatus cab that are selected by the Radio Communications Section for the mounting of the radios and radio controls. The power required at each location will be provided by the Division's Radio Communications personnel.

A raceway, with a minimum of 2 inch tall and 2 ½ inches wide, or a 2.0" flexible conduit shall be provided running from the dedicated radio connection enclosure behind the driver seat to the switch panel area above the windshield. The raceway shall not be visible from inside the cab.

A second raceway, with a minimum of 2 inch tall and 2 ½ inches wide, or a 2.0" flexible conduit shall be provided running from the dedicated radio connection enclosure behind the driver seat to the switch panel area on the engine tunnel. The raceway shall not be visible from inside the cab.

Five (5) pull cords for each raceway or conduit listed above shall be run at the time of construction.

The exact location of the raceway or conduit shall be demonstrated at the final inspection.

RADIO INTERFACE CABLE

A 9 conductor 160A serial cable shall be provided between the dedicated radio equipment compartment and the upper dash for the location of the Fire-Com unit.

SPARE CIRCUITS

There shall be a total of three (3) spare circuits installed as described below. The location of each circuit shall be determined in the pre-construction conference. These three (3) circuits shall not be load managed.

The location of each spare circuit shall be demonstrated at final inspection.

FIRST SPARE CIRCUIT

There shall be two (2) pair of wires installed in officer dash area.

The above wires shall have the following features:

- Wires shall be connected directly to the battery switched power.

✓
✓

Specifications

Bidder Complies

Yes No

Wires are fused at 20 amps.
Power and ground will end at a location to be designated at the pre-construction conference.
Termination is with water resistant male and female plugs.
Wires shall be sized to 125% of the protection.

✓

SECOND SPARE CIRCUIT

There shall be two (2) pair of wires installed.

The above wires shall have the following features:

Wires shall be connected directly to the battery power.
Wires shall be fused at 20 amps.
Power and ground shall end at a location to be designated at the pre-construction conference.
Termination shall be with water resistant male and female plugs.
Wires shall be sized to 125% of the protection.

✓

THIRD SPARE CIRCUIT

There shall be two (2) pair of wires installed.

The above wires shall have the following features:

Wires shall be connected directly to the battery power.
Wires shall be fused at 20 amps.
Power and ground shall end at a location specified by the fire department at pre-construction conference.
Termination shall be with water resistant male and female plugs.
Wires shall be sized to 125% of the protection.

✓

ELECTRICAL POWER CONTROL SYSTEM

A compartment shall be provided in or under the cab to house the vehicle's electrical power and signal circuit protection and control components. The power and signal protection and control compartment shall contain circuit protection devices and power control devices. Power and signal protection and control components shall be protected against corrosion, excessive heat, excessive vibration, physical damage and water spray.

Serviceable components shall be readily accessible.

Circuit protection devices, which conform to SAE standard, shall be utilized to protect each circuit. All circuit protection devices shall be sized to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers shall be Type-I automatic reset (continuously resetting) and conform to SAE J553 or J258. PTO power circuits shall be protected by Type III manual reset non-cycling circuit breakers conforming to SAE J553 or J258 which remain open until manually reset. When required, automotive type fuses conforming to SAE J554, J1284, J1888 or J2077 shall be utilized to protect electronic equipment.

Specifications	Bidder Complies	
	Yes	No
<p>Power control relays and solenoids shall have a direct current (dc) rating of 125 percent of the maximum current for which the circuit is protected.</p> <p>Visual status indicators shall be supplied to identify control safety interlocks and vehicle status. In addition to visual status indicators, audible alarms designed to provide early warning of problems before they become critical shall be used.</p> <p><u>VOLTAGE MONITOR SYSTEM</u></p> <p>A voltage monitor system shall be provided to indicate the status of each battery system connected to the vehicles electrical load. The monitor system shall provide visual and audio warning when the system voltage is above or below optimum levels.</p> <p><u>EMI/RFI PROTECTION</u></p> <p>The electrical system proposed shall include means to control undesired electromagnetic and radio frequency emissions. State of the art electrical system design and components shall be used to ensure radiated and conducted EMI (electromagnetic interference) and RFI (radio frequency interference) emissions are suppressed at their source.</p> <p>The apparatus proposed shall have the ability to operate in the electromagnetic environment typically found in fire ground operations. The contractor shall be able to demonstrate the EMI and RFI testing has been done on similar apparatus and certifies that the vehicle proposed meets SAE J551 requirements.</p> <p>EMI/RFI susceptibility shall be controlled by applying immune circuit designs, shielding, twisted pair wiring and filtering. 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.</p> <p><u>VEHICLE DATA RECORDER</u></p> <p>A vehicle data recorder (VDR) shall be provided. The VDR shall be capable of reading and storing vehicle information. The VDR shall be capable of operating in a voltage range from 8VDC to 16VDC. The VDR shall not interfere with, suspend, or delay any communications that may exist on the CAN data link during the power up, initialization, runtime, or power down sequence. The VDR shall continue operation upon termination of power or at voltages below 8VDC for a minimum of 10ms.</p> <p>The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A CD provided with the apparatus shall include the programming to download the information from the VDR. A USB cable can be used to connect the VDR to a laptop to retrieve required information.</p> <p>The vehicle data recorder shall be capable of recording the following data via hardwired and/or CAN inputs:</p> <p>Vehicle Speed - MPH</p> <p>Acceleration - MPH/sec</p> <p>Deceleration - MPH/sec</p>	<p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>Engine Speed - RPM</p> <p>Engine Throttle Position - % of Full Throttle</p> <p>ABS Event - On/Off</p> <p>Seat Occupied Status - Yes/No by Position (7-12 Seating Capacity)</p> <p>Seat Belt Buckled Status - Yes/No by Position (7-12 Seating Capacity)</p> <p>Master Optical Warning Device Switch - On/Off</p> <p>Time - 24 Hour Time</p> <p>Date - Year/Month/Day</p> <p><u>INTERCOM SYSTEM</u></p> <p>A Fire-Com, Model 5100 D single radio interface intercom system shall be provided. Headset charging cords shall be provided for the driver, officer, and two (2) crew positions. All headsets shall be wireless.</p> <p><u>The following components shall be supplied with this system:</u></p> <p>One (1) 5100D Intercom Unit</p> <p>One (1) Multi Channel Base</p> <p>Two (2) Single Wireless Base Stations</p> <p>Two (2) UHW-51 under Helmet Radio Transmit Wireless Headsets</p> <p>One (1) WBMC Wireless Base Station (Multiple Channel)</p> <p>Two (2) UHW-J4 under Helmet Wireless Intercom only Headsets</p> <p>All necessary wiring and headset charging drops</p> <p><u>BATTERY SYSTEM</u></p> <p>Six (6) 12 volt, batteries that include the following features shall be provided:</p> <p>950 CCA, cold cranking amps</p> <p>190 amp reserve capacity</p> <p>High cycle</p> <p>Group 31</p> <p>Rating of 3800 CCA at 0 degrees Fahrenheit</p> <p>760 minutes of reserve capacity</p> <p>Threaded stainless steel studs</p>	✓	✓

Specifications	Bidder Complies	
	Yes	No
<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> <p><u>BATTERY SYSTEM</u> A single starting system shall be provided.</p> <p>An ignition switch and starter button shall be located on the instrument panel.</p> <p>Sensitive electronic components shall be wired to an isolated battery.</p> <p><u>MASTER BATTERY SWITCH</u> A master battery switch, to activate the battery system, shall be provided inside the cab within easy reach of the driver.</p> <p>An indicator light shall be provided on the instrument panel to notify the driver of the status of the battery system.</p> <p><u>BATTERY COMPARTMENTS</u> 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 stainless steel plate and be designed to accommodate a maximum of two (2) group 31 batteries in each compartment. The battery hold-downs shall be of a non-corrosive material. All bolts and nuts shall be stainless steel.</p> <p>Heavy-duty battery cables shall be used to provide maximum power to the electrical system. Cables shall be color-coded.</p> <p>Battery terminal connections shall be coated with anti-corrosion compound. Battery solenoid terminal connections shall be encapsulated with semi-permanent rubberized compound.</p> <p><u>BATTERY TRAYS AND COVER</u> Formed fit heavy-duty roto-molded polyethylene battery trays with drain tubes shall be provided for the batteries to sit in.</p> <p>There shall be a cover over the batteries</p> <p><u>JUMPER STUDS</u> One (1) set of battery jumper studs with plastic color-coded covers labeled positive and negative shall be installed on the bottom of the driver's side battery box. This shall provide for easy jumper cable access.</p> <p><u>BATTERY CHARGER</u> A Kussmaul Auto charge 1200, Model 091-53-12-Remote battery charger shall be provided. A bar graph display indicating the state of charge shall be provided.</p> <p>The charger shall have a maximum output of 40 amps and a fully automatic regulation.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>The battery charger shall be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.</p> <p>Battery charger shall be located in the the cab, behind the driver's seat.</p> <p>The battery charger indicator shall be located behind the driver's door on the outside of the cab.</p> <p><u>ALTERNATOR</u> A C.E. Niehoff, Model C620, alternator shall be provided. It shall have a rated output current of 340 amp as measured by SAE method J56. Also, it shall have a custom three (3)-set point voltage regulator, manufactured by C. E. Niehoff. The alternator shall be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output. It is the responsibility of builder to recommend a larger alternator if one is needed.</p> <p><u>ELECTRONIC LOAD MANAGEMENT</u> A Kussmaul electronic load management (ELM) system shall be provided that monitors the vehicles 12-volt electrical system, and automatically reduces the electrical load in the event of a low voltage condition and by doing so, ensures the integrity of the electrical system.</p> <p>The ELM shall monitor the vehicle's voltage while at the scene (parking brake applied). It shall sequentially shut down individual electrical loads when the system voltage drops below a preset value. Five (5) separate electrical loads shall be controlled by the load manager. The ELM shall sequentially re-energize electrical loads as the system voltage recovers.</p> <p>The (ELM) also includes sequencer function for the five (5) managed loads and two (2) additional.</p> <p><u>AMP DRAW REPORT</u> 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.</p> <p>The manufacturer of the apparatus shall provide the following:</p> <ol style="list-style-type: none"> 1) Documentation of the electrical system performance tests. 2) A written load analysis, which shall include the following: <ol style="list-style-type: none"> A) The nameplate rating of the alternator. B) The alternator rating under the conditions specified per: <ul style="list-style-type: none"> • Applicable NFPA 1901 or 1906 (Current Edition). C) The minimum continuous load of each component that is specified per: <ul style="list-style-type: none"> • Applicable NFPA 1901 or 1906 (Current Edition). D) Additional loads that, when added to the minimum continuous load, determine the total connected load. 	✓	✓

Specifications	Bidder Complies	
	Yes	No
<p>E) 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><u>ELECTRICAL WIRING DIAGRAMS</u></p> <p>Two (2) hard copies and one (1) electronic format electrical wiring diagrams, prepared for the model of chassis and body, shall be provided.</p> <p>The diagrams shall show the truck wiring <u>as built</u>.</p> <p><u>BODY</u></p> <p>Body shall be constructed of aluminum. Body shall be designed and built to acceptable industry standards and shall be of sufficient construction and integrity to prevent cracking at welds, warping, metal fatigue and stress under rough road conditions and extreme temperatures encountered in our area. Body shall be designed and constructed to provide an expected service life of at least 25 years.</p> <p><u>TESTING OF BODY DESIGN</u></p> <p>Body structural analysis shall be fully tested. Proven engineering and test techniques such as finite element analysis, stress coating and strain gauging shall be performed with special attention given to fatigue, life and structural integrity of the cab, body and substructure.</p> <p>Body shall be tested while loaded to its greatest in-service weight.</p> <p>The criteria used during the testing procedure shall include:</p> <p>The raising of opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb.</p> <p>Making a 90 degree turn, while driving at 20 mph to simulate aggressive driving conditions</p> <p>Driving the vehicle at 35 mph on a "washboard" road</p> <p>Driving the vehicle at 55 mph on a smooth road</p> <p>Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement</p> <p>Evidence of actual testing techniques shall be made available upon request</p> <p><u>WATER TANK</u></p> <p>Booster tank shall have a capacity of 1000 gallons and be constructed of polypropylene plastic by United Plastic Fabricating, Incorporated.</p> <p>The tank shall be designed to achieve a low hose bed. Tank design shall be a stepped design with the forward section of the tank higher than the section of the tank that is below the hose bed.</p> <p>Tank joints and seams shall be nitrogen welded inside and out.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	<p></p> <p></p> <p></p> <p>✓</p>

Specifications	Bidder Complies	
	Yes	No
<p>Tank shall be baffled in accordance with NFPA Bulletin 1901 requirements.</p> <p>Baffles shall have vent openings at both the top and bottom to permit movement of air and water between compartments.</p> <p>Longitudinal partitions shall be constructed of .38" polypropylene plastic and shall extend from the bottom of the tank through the top cover to allow for positive welding.</p> <p>Transverse partitions shall extend from 4.00" off the bottom of the tank to the underside of the top cover.</p> <p>All partitions shall interlock and shall be welded to the tank bottom and sides.</p> <p>Tank top shall be constructed of .50" polypropylene. It shall be recessed .38" and shall be welded to the tank sides and the longitudinal partitions.</p> <p>Tank top shall be sufficiently supported to keep it rigid during fast filling conditions.</p> <p>Construction shall include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions. Two (2) of the dowels shall be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes.</p> <p>A sump that is 8.00" long x 8.00" wide x 6.00" deep shall be provided at the bottom of the water tank.</p> <p>Sump shall include a drain plug and the tank outlet.</p> <p>The tank to pump opening in the tank shall be 4.00" in diameter.</p> <p>Sufficient cross members shall be provided to properly support bottom of tank.</p> <p>Tank shall "float" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber cushions, .50" thick x 3.00" wide, shall be placed on all horizontal surfaces that the tank rests on.</p> <p>Stops or other provision shall be provided to prevent an empty tank from bouncing excessively while moving vehicle.</p> <p>Mounting system shall be approved by the tank manufacturer.</p> <p>Fill tower shall be located at the front left (driver) side of the tank, and constructed of .50" polypropylene and shall be a minimum of 8.00" wide x 14.00" long.</p> <p>Fill tower shall be furnished with a .25" thick polypropylene screen and a hinged cover.</p> <p>Fill tower not to interfere with hose loads.</p> <p>An overflow pipe, constructed of 4.00" schedule 40 polypropylene, shall be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.</p> <p>A Tanknology Tag shall be installed on the pump panel. The information on the tag shall contain pertinent information regarding the tank.</p>		

Specifications	Bidder Complies	
	Yes	No
Any storage area on top of the tank shall have flooring of removable aluminum grating.	✓	
<u>WATER TANK RESTRAINT</u> A heavy-duty water tank restraint shall be provided.	✓	
<u>HOSE BED</u> The hose bed shall be a maximum of 70" from the ground.		
Hose body width shall be a minimum of 68.00" inside.		
Hose bed shall be approximately ninety (90) inches in length, front to back.		
Flooring of the hose bed shall be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats shall have spacing between slats for hose ventilation.		
Hose bed shall accommodate 1200' of 5.00" Double Jacketed Triple Duty Hose. The hose is 100ft lengths and will be packed in a single slot, flat loaded 5 tiers wide.		
600' of 1.75" Double Jacketed Hose it shall be packed in two separate slots, each flat loaded two tiers wide.		
500' of 2.50" Double Jacket Hose shall be packed in a single slot, flat loaded two tiers wide with an ELKHART STSM-20 FGATLP nozzle.		
Three (3) adjustable hose bed dividers shall be furnished for separating hose.		
Each divider shall be constructed of a .125" brushed aluminum sheet fitted and fastened into a slotted, 1.50" diameter radiuses extrusion along the top, bottom, and rear edge.		
Partition shall be fully adjustable by sliding in tracks, located at the front and rear of the hose bed.		
Divider shall be held in place by tightening bolts, at each end. There shall be no support required across the top of the divider(s) at the rear of the hose bed.		
Acorn nuts shall be installed on all bolts in the hose bed which have exposed threads.		
<u>HOSE RESTRAINT (REAR)</u> The hose in the hose bed shall be restrained by red vinyl enclosures at the rear of the hose bed. The enclosure shall include quick release fasteners with 1" nylon webbing of length to be manipulated with a gloved hand.	✓	
<u>VINYL HOSE BED ENCLOSURES (OPTIONAL)</u> A D&S Custom Covers red with chevrons vinyl hose bed flap installed at the rear of the tread plate hose bed cover shall be provided. The flap shall be secured with seat belt style buckles.		
The chevrons shall be matched with the chevrons applied to the rear of the apparatus.		
<u>Sliding Hose Bed Cover</u> The top of the hose bed shall have an NFPA compliant cover installed to secure the hose from unintentionally deploying out the top or rear of the hose bed. The cover shall be a polished	✓	

Specifications	Bidder Complies	
	Yes	No
<p>aluminum tread plate combination roller/lift-up style cover.</p> <p>The cover shall be capable of supporting 250 lbs at any single point on the cover.</p> <p>The rear half of the cover shall roll back over the forward half of the cover on channel tracks and sealed ball bearing nylon coated rollers. When rolled open, the entire cover shall be capable of being lifted up on a stainless steel piano hinge installed across the front of the body.</p> <p>The cover shall rise to no less than 60 degrees for loading hose. The cover shall lock in the closed position. When unlocked, the roller portion of the cover shall be capable of rolling forward and locking into the open rolled position.</p> <p>The lift portion shall be assisted and supported by positive locking gas charged struts on each side of the cover.</p> <p>Handles shall be installed on the end of the cover to assist with rolling and lifting.</p> <p>A red vinyl flap shall be installed at the rear of the tread plate cover. It shall be secured at the bottom to prevent unintentional deployment of the hose.</p> <p>Hose bed doors to be wired to "Do Not Move" apparatus warning light system.</p> <p><u>TREADPLATE HOSE BED COVER (OPTIONAL)</u></p> <p>A hose bed cover constructed bright aluminum tread plate shall be installed. The hose bed cover shall be two sections and hinged at the outside edge by a full-length stainless steel piano hinge.</p> <p>The sides shall be slanted down with the center of the cover supported by a stationary bridgework support. The cover shall be reinforced so that it can support the weight of a person walking on it.</p> <p>Four (4) Gas shock type-holding devices shall hold the cover open for hose loading. A positive locking mechanism shall be provided to hold in the open position.</p> <p>Each section to have chrome handles for lifting, and a handrail shall be provided at the rear, in the center of the support, to assist in opening the cover.</p> <p>The top surface shall be a metallic non-slip surface.</p> <p>A red vinyl flap shall be installed at the rear of the tread plate cover. It shall be secured at the bottom to prevent unintentional deployment of the hose with 1" nylon webbing of length to be manipulated with a gloved hand.</p> <p>Hose bed doors to be wired to "Do Not Move" apparatus warning light system.</p>		

Specifications	Bidder Complies	
	Yes	No
<p><u>RUNNING BOARDS</u></p> <p>Running boards shall be fabricated of .125" bright aluminum tread plate.</p> <p>Each running board shall be supported by a welded 2.00" square tubing and channel assembly, which shall be bolted to the pump compartment substructure.</p> <p>Running boards shall be 12.75" deep and spaced .50" away from the pump panel.</p> <p>A splashguard shall be provided above the running board tread plate.</p> <p>A hose tray shall be provided on each side of truck below the pump panels. The hose trays shall be constructed of aluminum tread plate and shall have the capacity of 30 ft. of double jacketed 5" hose.</p> <p>A cover for the hose tray shall be provided.</p> <p>The edge of the tray openings shall be angled to prevent hose couplings from snagging on the tray opening.</p> <p>Black rubber grating shall be provided at the bottom of the trays. Drain holes are also to be provided in the bottom of the trays.</p> <p><u>REAR STEP</u></p> <p>The tailboard shall be constructed of Bustin Type N bar grating with the scalloped top and spaced .50" from the body, as well as supported by a structural steel assembly.</p> <p>The side and rear edges shall have an aluminum diamond plate trim piece installed.</p> <p>The tailboard area shall be twelve (12.00) inches deep and full width of the body.</p> <p>The exterior side shall be flanged down and in for increased rigidity of tailboard structure.</p> <p>The rear step corners shall be mitered forty-five (45) degrees</p> <p><u>REAR STEP EXTENSION</u></p> <p>A slide out step shall be provided at the rear step.</p> <p>The extension shall be installed between the frame rails, allowing the maximum width possible.</p> <p>The surface of the extension shall be Bustin Type N bar grating.</p> <p><u>TOW BAR</u></p> <p>A tow bar shall be installed at the rear of the truck.</p> <p>Tow bar assembly shall be designed and positioned to allow up to a 30-degree upward angled pull of 17,000 pounds, or a 20,000-pound straight horizontal pull in line with the centerline of the vehicle.</p>	<p>✓</p>	<p>✓</p>

Specifications	Bidder Complies	
	Yes	No
Tow bar design shall have been fully tested and evaluated using strain gauge testing and finite element analysis techniques.	✓	
<u>UNDERBODY SUPPORT SYSTEM</u> Due to the severe loading requirements of this pumper a method of body and compartment support suitable for the intended load shall be provided. The backbone of the support system shall be the chassis frame rails which is the strongest component of the chassis and is designed for sustaining maximum loads.	✓	
<u>AGGRESSIVE WALKING SURFACE</u> All exterior surfaces designated as stepping, standing, and walking areas shall comply with the required average slip resistance of the current NFPA standards.	✓	
<u>LOUVERS</u> All body compartments shall have a minimum of one (1) set of louvers stamped into a wall to provide the proper airflow inside the compartment and to prevent water from dripping into the compartment. These louvers shall be formed into the metal and not added to the compartment as a separate plate.	✓	
<u>COMPARTMENTS</u> The purchaser requires the maximum compartment space possible while keeping the apparatus within the specified maximum length, height, and wheelbase. The apparatus shall be of "flat panel" rear design to maximize compartment space. No beaver tail shall be provided. Compartment floors shall be flush "sweep-out" design with the floor higher than the compartment door lip. All compartment seams shall be fully waterproofed. All compartments shall contain stamped louvers for ventilation in the interior rear walls. A polished stainless steel scuff plate with a lip down shall be provided below all compartment doors to protect the finish. The top of the compartment shall be covered with bright aluminum tread plate. The corners shall be TIG welded The front facing compartment bulkheads shall be covered with bright aluminum tread plate. Drip protections shall be provided over all doors. The compartment floors shall be reinforced to hold heavy equipment. Interior of compartments shall not be painted.		✓

Specifications	Bidder Complies	
	Yes	No
The rear compartment shall be open across the body	✓	
<u>COMPARTMENT DOORS</u> All compartments on the apparatus body shall be provided with painted, lap style vertically hinged double panel doors with polished stainless steel "D" ring handles and #106 locks. A positive door holder shall be installed on each hinged compartment door. Automotive rubber molding shall be installed on the compartment door framing to ensure a weather resistant compartment seal.		
<u>COMPARTMENTATION, DRIVER'S SIDE</u> <u>Forward of Rear Wheels</u> A full height, compartment ahead of the rear wheels shall be provided. The interior dimensions of this compartment shall be approximately 44.00" wide x 58.00" high x 25.00" deep in the lower 26.00" of the compartment and 12.00" deep in the remaining upper portion. <u>Above Rear Wheels</u> A compartment over the rear wheels shall be provided. The interior dimensions of this compartment shall be a minimum of 66.00" wide x 25.00" high x 12.00" deep. The compartment shall be equipped with PAC Tool board mounting system 7000 along the back wall. The compartment shall have a swing out tool board that is no greater than 1" wide. <u>Behind Rear Wheels</u> A full height compartment behind the rear wheels shall be provided. The interior dimensions of this compartment shall be a minimum 47.00" wide x 58.00" high x 12.00" deep. A section of this compartment shall be a minimum 25.00" deep x 47.00" wide x 26.00" high directly behind the rear wheels.		✓
<u>COMPARTMENTATION, PASSENGER'S SIDE</u> <u>Forward Rear Wheels</u> A compartment in the lower area ahead of the rear wheels shall be provided. The interior dimensions of this compartment shall be a minimum of 44.00" wide x 26.00" high x 25.00" deep. <u>Behind Rear Wheels</u> A compartment in the lower area behind the rear wheels shall be provided. The interior dimensions of this compartment shall be 47.00" wide x 26.00" high x 12.00" deep.		✓
<u>COMPARTMENTATION, REAR</u> Interior dimensions of this compartment shall be minimum 40.00" wide x 30.00" high x 25.00" deep A louvered, removable access panel shall be furnished on the back wall of the compartment. Rear compartment shall be open into the rear side compartments.		✓

Specifications	Bidder Complies	
	Yes	No
<p><u>COFFIN COMPARTMENT</u> A coffin compartment shall be provided on driver side above the side compartments. The compartment shall be as large as possible as not to interfere with the hose bed height or the maximum height of the apparatus.</p> <p>The compartment shall be equipped with two hatch style compartment doors on top.</p>	✓	
<p><u>ADJUSTABLE SHELVES</u> There shall be six (6) shelves, with a minimum capacity of 215 pounds provided. The shelf construction shall consist of .125" pan-shaped aluminum with 2.00" sides. Each shelf shall be infinitely adjustable by means of a threaded fastener which slides in a strut style track.</p> <p>The locations shall be determined at the pre-construction meeting.</p>	✓	
<p><u>RUB RAIL</u> There shall be a rub rail installed on both sides of the lower body compartments. The rub rail shall be constructed of polished aluminum. The rub rail shall be bolted in place with stainless steel bolts, and spaced from the fire body to provide body protection. The rub rail shall serve as protection to the side doors when encountering close objects.</p>	✓	
<p><u>BODY FENDER CROWNS</u> The cab wheel well openings shall be trimmed with replaceable, bolt-in, molded black rubber fenderettes. The fenderettes shall be secured to the cab with stainless steel threaded fasteners along the internal perimeter of the wheel well. Rubber welting shall be installed between the fenderettes and the cab side panel.</p>		✓
<p><u>HOSE TROUGHS</u> Suction hose (5" diameter with 4.5" NST couplings) shall be carried above the ladders. Troughs shall be constructed of aluminum and painted to match the truck.</p>	✓	
<p><u>HANDRAILS</u> The handrails shall be 1.25" diameter anodized aluminum extrusion, with a ribbed design, to provide a positive gripping surface. Chrome plated end stanchions shall support the handrail. Plastic gaskets shall be used between end stanchions and any painted surfaces.</p> <p>Drain holes shall be provided in the bottom of all vertically mounted handrails.</p> <p>Four (4) handrails shall be provided, two above each side pump panel.</p> <p>Two (2) handrails shall be provided on the cab face, one above each warning light combination.</p> <p>One (1) vertical handrail shall be provided on the driver's side body, on the front bulkhead door frame.</p> <p>One (1) full width horizontal handrail shall be provided below the hose bed at the rear of the apparatus.</p> <p>Location of handrails shall be finalized at the pre-construction conference.</p>		✓

Specifications	Bidder Complies	
	Yes	No
<p><u>EXTINGUISHER / AIR CYLINDER STORAGE</u></p> <p><u>EXTINGUISHER STORAGE</u></p> <p>One (1) extinguisher compartment shall be provided located on the passenger's side behind the rear wheels.</p> <p>One (1) extinguisher compartment shall be located on the passenger's side in front of the rear wheels.</p> <p>The compartments shall be of adequate depth to accommodate different size extinguishers.</p> <p>Flooring shall be rubber lined and have a drain hole.</p> <p>A painted door with a chrome-plated latch shall be provided. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal.</p> <p>Purchaser desires the largest compartment possible in this location.</p> <p><u>AIR CYLINDER STORAGE</u></p> <p>Storage for a minimum of four air cylinders shall be provided.</p> <p>The air cylinder compartments shall be located on drivers side,</p> <p>One (1) in front of the rear wheels and (1) behind the rear wheels.</p> <p>Each air cylinder compartment shall be of adequate size to accommodate at least two (2) 45 minute air cylinders.</p> <p>Flooring shall be rubber lined and furnished with a drain hole.</p> <p>A painted door with a chrome-plated latch shall be provided. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal.</p> <p>Purchaser desires the largest compartment possible in this location.</p> <p><u>AIR CYLINDER STORAGE INSERT</u></p> <p>A minimum of two (2) inserts shall be provided for the air cylinder storage compartments. The inserts shall accommodate 45 minute @ 4,500 psi SCBA cylinders. Purchaser desires to carry maximum number of cylinders in each compartment, appropriate number of inserts to be proposed by bidder.</p> <p>Exact configuration of Extinguisher and Air Cylinder storage shall be determined at the pre-construction conference.</p> <p><u>EXTENSION LADDER</u></p> <p>There shall be a 24', two (2) sections, Duo-Safety Series 900-A extension ladder provided.</p> <p><u>ROOF LADDER</u></p> <p>There shall be a 14' Duo-Safety Series 775-A roof ladder provided.</p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p> <p>✓</p>

Specifications	Bidder Complies	
	Yes	No
<p><u>LADDER BRACKETS</u> The ladders shall be installed on the right side of the hose body in lined brackets and held in place by chrome plated, quarter-turn spring loaded clamps. The extension ladder shall be mounted in the outboard position.</p> <p>The clamps shall be such that when the extension ladder is removed, the clamps can be moved a half turn to hold the roof ladder in place.</p> <p>The ladder brackets shall be mounted to the body bulkhead to minimize the overall width of the apparatus and be adjustable up and down.</p>	✓	
<p><u>FOLDING LADDER</u> One (1) 10' aluminum folding ladder, Series 585-A Duo-Safety folding ladder shall be installed behind the ladders. A method shall be provided to remove this ladder from the rear.</p>	✓	
<p><u>PIKE POLE MOUNTING</u> Two (2) aluminum tubes shall be installed behind the ladders to allow storage of pike poles. The pike poles shall be removable from the rear of the truck</p>	✓	
<p><u>ADDITIONAL STEPS</u> Ten (10) additional folding Eberhard steps shall be provided. Steps shall be located at the pre-construction conference.</p>	✓	
<p><u>PUMP</u> Pump shall be a Waterous CSU, 1500 gpm single (1) stage midship mounted centrifugal type.</p> <p>Pump shall be the class "A" type.</p> <p>Pump shall deliver the percentage of rated discharge at pressures indicated below:</p> <ul style="list-style-type: none"> - 100% of rated capacity at 150 psi net pump pressure. - 70% of rated capacity at 200 psi net pump pressure. - 50% of rated capacity at 250 psi net pump pressure. <p>Pump body shall be close-grained gray iron, bronze fitted, and horizontally split in two (2) sections for easy removal of the entire impeller shaft assembly (including wear rings).</p> <p>Pump shall be designed for complete servicing from the bottom of the truck, without disturbing the pump setting or apparatus piping.</p> <p>Pump case halves shall be bolted together on a single horizontal face to minimize chance of leakage and facilitate ease of reassembly. No end flanges shall be used.</p> <p>Discharge manifold of the pump shall be cast as an integral part of the pump body assembly and shall provide a minimum of three (3) 3.50" openings for flexibility in providing various discharge outlets for maximum efficiency.</p> <p>The three (3) 3.50" openings shall be located as follows: one (1) outlet to the right of the pump, one (1) outlet to the left of the pump, and one (1) outlet directly on top of the discharge manifold.</p>	✓	

Specifications

Bidder Complies

Yes No

Impeller shaft shall be stainless steel, accurately ground to size. It shall be supported at each end by sealed, anti-friction ball bearings for rigid precise support. Impeller shall have flame plated hubs assuring maximum pump life and efficiency despite any presence of abrasive matter in the water supply.

Bearings shall be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. No special or sleeve type bearings shall be used.

Pump shall be equipped with a self-adjusting, maintenance-free, mechanical shaft seal. The mechanical seal shall consist of a flat, highly polished, spring fed carbon ring that rotates with the impeller shaft. The carbon ring shall press against a highly polished stainless steel stationary ring that is sealed within the pump body.

In addition, a throttling ring shall be pressed into the steel chamber cover, providing a very small clearance around the rotating shaft in the event of a mechanical seal failure. The pump performance shall not deteriorate, nor shall the pump lose prime, while drafting if the seal fails during pump operation.

Wear rings shall be bronze and easily replaceable to restore original pump efficiency and eliminate the need to replace the entire pump casing due to wear.

PUMP TRANSMISSION

Pump transmission shall be made of a three (3) piece, aluminum, horizontally split casing. Power transfer to pump shall be through a high strength Morse HY-VO silent drive chain.

Drive shafts shall be a minimum of 2.35" diameter hardened and ground alloy steel. All shafts shall be ball bearing supported. The case shall be designed as to eliminate the need for water cooling.

AIR PUMP SHIFT

Pump shift engagement shall be made by a two (2) position sliding collar, actuated pneumatically (by air pressure), with a three (3) position air control switch located in the cab.

A manual back-up shift control shall also be located on the driver's side pump panel. The linkages for the manual pump shift shall be solid material. Cable linkage is not acceptable.

Two (2) indicator lights shall be provided adjacent to the pump shift inside the cab. One (1) green light shall indicate the pump shift has been completed and be labeled "pump engaged". The second green light shall indicate when the pump has been engaged, and that the chassis transmission is in pump gear. This indicator light shall be labeled "OK to pump".

Another green indicator light shall be installed adjacent to the hand throttle on the pump panel and indicate either the pump is engaged and the road transmission is in pump gear, or the road transmission is in neutral and the pump is not engaged. This indicator light shall be labeled "Warning: Do not open throttle unless light is on".

The pump shift control in the cab shall be illuminated to meet NFPA requirements.

✓

✓

Specifications	Bidder Complies	
	Yes	No
<p><u>TRANSMISSION LOCK-UP</u> The direct gear transmission lock-up for the fire pump operation shall engage automatically when the pump shift control, in the cab, is activated.</p>	✓	
<p><u>AUXILIARY COOLING SYSTEM</u> A supplementary heat exchange cooling system shall be provided to allow the use of water from the discharge side of the pump for cooling the engine water. Heat exchanger shall be cylindrical type and shall be a separate unit.</p> <p>The heat exchanger shall be installed in the pump or engine compartment with the control located on the pump operator's control panel. Exchanger shall be plumbed to the master drain valve.</p>	✓	
<p><u>INTAKE RELIEF VALVE</u> An Elkhart relief valve shall be installed on the suction side of the pump preset at 125 psig.</p> <p>Relief valve shall have a working range of 75 psig to 250 psig.</p> <p>Outlet shall terminate below the frame rails with a 2.50" National Standard hose thread adapter and shall have a "do not cap" warning tag.</p> <p>Control shall be located behind an access door at the right (passenger's) side pump panel.</p>	✓	
<p><u>PRESSURE CONTROLLER</u> A Fire Research Incontrol 400 pressure governor shall be provided.</p> <p>A pressure transducer shall be installed in the water discharge manifold on the pump.</p> <p>The display panel shall be located at the pump operator's panel.</p>	✓	
<p><u>PRIMING PUMP</u> The priming system shall be a Trident Emergency Products Autoprimer with vacuum gauge compressed air powered, high efficiency; multistage venturi based Air-Prime System, conforming to standards outlined in NFPA pamphlet #1901.</p> <p>All wetted metallic parts of the priming system are to be of brass and stainless steel construction.</p> <p>One (1) priming control shall open the priming valve and start the pump primer.</p>	✓	
<p><u>LUBRICATION FITTING</u> Any component of the fire pump that requires grease lubrication shall have the lubrication fitting remotely located at the left (driver's) side pump panel.</p>		✓
<p><u>PUMP MANUALS</u> One (1) hard copy pump manual from the pump manufacturer and one electronic format shall be furnished. Manuals shall cover pump operation, maintenance, and parts.</p>	✓	
<p><u>PLUMBING</u> All inlet and outlet plumbing, 3.00" and smaller, shall be plumbed with either stainless steel pipe or synthetic rubber hose reinforced with high-tensile polyester braid. If hose is used, it</p>	✓	

Specifications	Bldder Complies	
	Yes	No
<p>must have a minimum burst rating of 1,000 psi and be equipped with high pressure couplings. Small diameter secondary plumbing such as drain lines shall be stainless steel, brass or hose.</p> <p>Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping shall be equipped with Victaulic or rubber couplings.</p> <p>All lines to drain through either a master drain valve or shall be equipped with individual drain valves. All individual drain lines for discharges shall be extended with a hose to drain below the chassis frame.</p> <p>All water carrying gauge lines shall be of flexible polypropylene tubing.</p> <p><u>MAIN PUMP INLETS</u> A 6.00" pump manifold inlet shall be provided on each side of the vehicle. The suction inlets shall include removable die cast zinc screens that are designed to provide cathode protection for the pump, thus reducing corrosion in the pump.</p> <p>The main pump inlets shall have National Standard Threads with a long handle chrome cap.</p> <p><u>SHORT SUCTION TUBE</u> The suction tubes on the midship pump shall have "short" suction tubes to allow for installation of adapters without excessive overhang.</p> <p><u>VALVES</u> All ball valves shall be Akron Brass in-line valves. The Akron valves shall be the 8900 series heavy-duty style with a composite ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve.</p> <p><u>INLET (Left side)</u> On the left side pump panel shall be one (1) 2.50" auxiliary suction, terminating in 2.50" female NST. The auxiliary suction shall be provided with a strainer, chrome swivel and chrome plated lightweight plug and heavy duty cable.</p> <p>Inlet valve shall be outside of the pump panel and the control located at the inlet valve.</p> <p><u>INLET BLEEDER VALVE</u> A .75" bleeder valve shall be provided for the side gated inlet. The valve shall be located behind the panel with a swing style handle control extended to the outside of the panel. The handle shall be chrome plated and provide a visual indication of valve position.</p> <p>The swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders shall be routed below the chassis frame rails.</p> <p><u>INLET (Front)</u> A 4.50" front inlet with die cast zinc screens shall be provided using 5.00" stainless steel pipe and a 5.00" butterfly valve. Only radiused elbows shall be used in the piping, no mitered joints.</p>	✓	
	✓	
	✓	
	✓	
	✓	
	✓	✓

Specifications	Bidder Complies	
	Yes	No
<p>Drains are furnished in all the low points of piping and have 3/4" valves with swing handle. The drain in front of the front wheel shall be installed into the side of the piping to maximize approach clearance to sloped grades.</p> <p>A bleeder valve shall be located at the threaded connection.</p> <p>The front suction shall be located on the passenger's side of the front bumper extension and equipped with a swivel.</p> <p>The front suction shall be controlled by a manually operated hand wheel valve mounted at the pump operator's panel.</p> <p>The front suction shall have a chromed 4 1/2" male NST adapter.</p> <p><u>INTAKE RELIEF VALVE</u></p> <p>An intake relief valve, preset at 125 psig, shall be installed on the inlet side of the valve.</p> <p>Relief valve shall have a working range of 75 psig to 250 psig.</p> <p>Outlet shall terminate below the frame rails.</p> <p><u>TANK TO PUMP</u></p> <p>The booster tank shall be connected to the intake side of the pump with 4.00" heavy-duty piping and a quarter turn 3.50"s Akron 8900 with composite ball valve. The control shall be equipped with push / pull actuator located at the operator's panel.</p> <p>The tank to pump line shall run straight, without elbows, from the pump into the front face of the water tank and angle down into the tank sump. A rubber coupling shall be included in this line to prevent damage from vibration or chassis flexing.</p> <p>A check valve shall be provided in the tank to pump supply line to prevent the possibility of back filling the water tank.</p> <p>A minimum flow of 750 gpm shall be achieved through the tank to pump piping.</p> <p><u>TANK REFILL</u></p> <p>A 3.00" combination tank refill and pump recirculation line shall be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel, with a hand wheel.</p> <p><u>DISCHARGE OUTLET CONTROLS</u></p> <p>All discharge valves shall be manually operated Akron indicator style valves with hand-wheel cranks unless otherwise noted.</p> <p>All discharge valve handles shall be mounted in such a manner as to have the extended portion of the circular handle mounted in the five o'clock positions, when fully closed.</p> <p>Actuator rods shall be secured to the hand wheel and valve with locking style nuts.</p> <p><u>DISCHARGE CAPS (light weight with heavy duty cables)</u></p> <p>Red Head rocker lug cap with vinyl covered cables shall be furnished for 2 1/2" side discharge outlets. No caps are required for rear and front discharges.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p><u>DISCHARGE OUTLET (Left Side)</u> There shall be one (1) discharge outlet on the left side of the apparatus, terminating with a male 2.50" National Standard hose thread adapter. This discharge shall be operated with a 2.50" full flow ball valve with a hand wheel control from the pump operator's panel.</p>		✓
<p><u>ELBOW, LEFT SIDE OUTLET</u> The 2.50" discharge outlet, located on the left side pump panel, shall be furnished with a 2.50"(F) National Standard hose thread x 2.50"(M) National Standard hose thread, chrome plated, 30 degree elbow.</p>	✓	
<p><u>DISCHARGE OUTLETS (Right Side)</u> There shall be two (2) - 4.50" discharge outlets with 4.00" Akron valves, installed on the right side of the apparatus, terminating with a male 4.50" National Standard hose thread adapter. This discharge outlet(s) shall be actuated with a hand wheel control at the pump operator's control panel.</p>	✓	
<p><u>ELBOWS LDH DISCHARGE OUTLETS (Right Side)</u> One 4.50" discharge shall be furnished with 4.5"(F) NST swivel x 4.5"(F)NST swivel and the other with 4.5"(F) NST swivel X 4.5"(M) NST Red Head Brass anodized aluminum elbow.</p>	✓	
<p><u>DISCHARGE OUTLET (Front)</u> There shall be a 2.50" gated discharge outlet plumbed to the top of the bumper beside the tray in the driver's side front bumper extension.</p> <p>The discharge shall have a 90-degree swivel and terminate with 2.50" NST with a 2.5" x 1.5" reducer.</p> <p>Plumbing shall consist of 2.00" piping with a 2.00" full flow ball valve controlled at the pump operator's panel with a hand wheel control.</p> <p>Automatic drains shall be provided at all low points in the plumbing.</p>	✓	
<p><u>DISCHARGE OUTLETS (Rear)</u> There shall be two (2) discharge outlets piped to the rear of the hose bed, one (1) each side, installed 4 inches from the inside of the rear inner bulkhead to center of the pipe, so proper clearance is provided for spanner wrenches or adapters.</p> <p>Plumbing shall consist of 2.50" piping along with a 2.50" full flow ball valve with the with a hand wheel control from the pump operator's panel, terminating with 2.5" male NST.</p>	✓	
<p><u>ELBOWS, REAR OUTLETS</u> The two (2) 2.50" discharge outlets, located at the rear of the apparatus, shall be furnished with a 2.50" FNST x 2.50" MNST, chrome plated, 30 degree elbows.</p> <p>There shall be two (2) adapters equipped with 2.50" FNST x 1.50" MNST threads installed one each on the rear (side) 2.50" outlets elbows.</p>	✓	

Specifications	Bidder Complies	
	Yes	No
<p><u>OUTLET BLEEDER VALVE</u> A .75" bleeder valve shall be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.</p> <p>The valves shall be located behind the panel with a swing style handle control extended to the outside of the side pump panel. The handles shall be chrome plated and provide a visual indication of valve position.</p> <p>The swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders shall be located at the bottom of the pump panel. They shall be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders shall be routed below the chassis frame rails.</p> <p><u>DELUGE RISER</u> A 3.00" deluge riser shall be installed above the pump in such a manner that a monitor can be mounted near the center of the dunnage area and used effectively.</p> <p>The riser shall be finished with at Task Force Tips Extend-a-Gun device to accommodate an Elkhart Stinger. Piping shall be installed securely so no movement develops when the line is charged.</p> <p>The riser shall be gated and controlled by hand wheels or other slow operating quarter turn ball valve located both at the riser and also a hand wheel control at the pump panel.</p> <p><u>CROSSLAY HOSE BED</u></p> <p>Three (3) cross lays shall be provided, two (2) with 1.50" outlets.</p> <p>The two plumbed beds shall be capable of carrying 200 feet of 1.75" double jacketed hose, flat loaded in a two tiers, with (ELKHART STSM-20 FGATLP) nozzles.</p> <p>Third crosslay will not be plumbed and shall be wide enough for 2.5" hose flat loaded in two tiers. This crosslay is for the storage of hose bundles.</p> <p>The center cross lay dividers shall be fabricated of .25" aluminum and shall provide adjustment from side to side. The divider shall be unpainted with a brushed finish. The remainder of the cross lay bed shall be painted job color.</p> <p>Vertical scuff plates, constructed of stainless steel, shall be provided at the front and rear ends of the bed on each side of vehicle.</p> <p>Cross lay bed flooring shall consist of removable perforated brushed aluminum.</p> <p>Cross lays should be located as low as possible. Maximum height from the ground is 68" from the ground.</p> <p><u>CROSSLAY DISCHARGE OUTLETS</u> The front two crosslay hose beds shall be plumbed for pre connected hose lines.</p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p>

Specifications	Bidder Complies	
	Yes	No
<p>The discharges shall be plumbed with 2.00" i.d. pipe and gated with a 2.00" quarter turn ball valve with a hand wheel control from the pump operator's panel.</p> <p>Outlets to be equipped with a 1.50" National Standard hose thread 90 degree swivel located in the hose bed so that hose may be removed from either side of apparatus.</p> <p><u>CROSSLAY ROLLER - Horizontal</u> A stainless steel roller shall be mounted horizontally across the bottom of each crosslay bed to aid in hose removal. The crosslay designed for hose bundles does not need horizontal rollers.</p> <p><u>CROSSLAY ROLLERS - Vertical</u> A stainless steel roller shall be mounted vertically on each side of the crosslay openings to aid in hose removal.</p> <p><u>CROSSLAY COVER</u> A hinged aluminum tread plate cover shall be installed over the top of the cross lay hose beds.. A system of webbing shall be provided to prevent the hose of the front two (2) cross lays from unintended deployment. This webbing shall be connected at the top with a single buckle that is unlatched by pulling a single piece of one(1) inch webbing</p> <p>The third cross lay shall have an aluminum door on each side secured with a lift and turn latch, hinged at the rear of the compartment.</p> <p><u>BACKBOARD COMPARTMENT</u> There shall be a backboard compartment provided which is located to the rear of the cross lays. It shall accommodate one (1) standard plastic long spine board. The backboard shall be accessible from either side of apparatus. There will be an aluminum door with push latch.</p> <p><u>FOAM TANK- Class A</u> The foam tank shall be an integral portion of the polypropylene water tank. The cell shall have a capacity of 20 gallons of foam with the intended use of Class "A" foam. The brand of foam stored in this tank shall be to be provided by the fire department. The foam cell shall not reduce the capacity of the water tank. The foam cell shall have a screen in the fill dome and a breather in the lid.</p> <p><u>FOAM TANK- Class B</u> The foam tank shall be an integral portion of the polypropylene water tank. The cell shall have a capacity of 30 gallons of foam with the intended use of Class "B" foam. The brand of foam stored in this tank shall be provided by the fire department. The foam cell shall not reduce the capacity of the water tank. The foam cell shall have a screen in the fill dome and a breather in the lid.</p> <p>The Class B foam tank shall be piped with one (1) inch tubing to an outlet located on the driver side pump panel.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p><u>Class B Foam outlet</u> The Class B foam piping shall terminate at the driver side pump panel with a quarter turn, locking valve.</p> <p>A one (1) inch male cam lock fitting with cap shall be provided at the valve.</p> <p>The location of the Class B foam outlet shall be determined at the pre-construction conference.</p>	✓	
<p><u>Class A/B FOAM PROPORTIONER</u> A foam proportioning system shall be provided that is an on demand, automatic proportioning, single point, direct injection system suitable for all types of Class "A" & "B" foam concentrates, including the high viscosity, alcohol resistant Class B foams. The design of the system shall allow operation from draft, hydrant, or relay operation.</p> <p><u>Waterway check valve</u> A full flow brass body waterway check valve at the inlet end of the foam manifold waterway to prevent contamination of the fire pump and water supply shall be provided.</p> <p><u>Control System</u> The system shall be equipped with a digital electronic control display located on the pump operator's panel. Push button controls shall be integrated into the panel to turn the system on/off, control the foam percentage, and to set the operation modes.</p> <p><u>Foam Pump</u> The foam concentrate pump shall be powered by an electric over hydraulic drive system. The hydraulic system and motor shall be integrated into one unit. The portion of the pump in contact with the foam should be constructed of brass and stainless steel.</p> <p>The foam concentrate pump shall have minimum capacity for 3 gpm with all types of foam concentrates. The foam concentrate pump shall be self-priming and have the ability to draw foam concentrate from external supplies such as drums or pails.</p> <p><u>External Foam Concentrate Connection</u> An external foam pick-up shall be provided to enable use of a foam agent that is not stored on the vehicle. The external foam pick-up shall be designed to allow continued operation after the on-board foam tank is empty, or the use of foam different than the foam in the foam tank.</p> <p>A bronze three way valve shall be provided. The unit shall be mounted to the pump panel. The valve unit shall function as the foam system tank to pump valve and external suction valve. The external foam pick-up shall be one female quick coupling to be determined at pre-construction conference.</p> <p><u>Pick-Up Hose</u> A 3/4" flexible hose with an end for insertion into foam containers shall be provided.</p> <p><u>Discharges</u></p>	✓	

Specifications	Bidder Complies	
	Yes	No
<p>The foam system shall be plumbed to three discharges. The discharges capable of dispensing foam shall be the front crosslay, the front bumper line and the left rear 2.5" discharge.</p> <p><u>Refill, Single Foam Tank</u> The foam system's proportioning pump shall be used to fill the foam tank. This shall allow use of the auxiliary foam pick-up to pump the foam from pails or a drum on the ground into the foam tank.</p> <p><u>Foam Tank Drain</u> The foam tanks shall have a 1.00" drain valve located inside the pump compartment accessible through a door on the passenger's side pump panel.</p> <p><u>PUMP COMPARTMENT</u> The pump compartment shall be separate from the hose body and compartments so that each may flex independently of the other. It shall be a fabricated assembly of steel or aluminum tubing, angles and channels which supports both the fire pump and the side running boards.</p> <p>The pump compartment shall be mounted on the chassis frame rails with rubber biscuits in a four point pattern to allow for chassis frame twist.</p> <p>Pump compartment, pump, plumbing and gauge panels shall be removable from the chassis in a single assembly.</p> <p>Any storage area on top of the pump compartment shall have flooring of removable aluminum grating.</p> <p><u>PUMP CONTROL PANELS (Side Control)</u> All pump controls and gauges shall be located at the left (driver's) side of the apparatus and properly marked.</p> <p>The pump panel on the right (passenger's) side shall be split in two (2) hinged sections. The left (driver's) side is fastened with screws.</p> <p>The control panels shall be 48.00" wide.</p> <p>The gauge and control panels shall be two (2) separate panels for ease of maintenance.</p> <p>The side gauge panel shall be hinged at the bottom with a full length stainless steel hinge. The fasteners used to hold the panel in the upright position shall be quarter turn type. Vinyl covered cable or chains shall be used to hold the gauge panel in the dropped position.</p> <p>Polished stainless steel trim collars shall be installed around all inlets and outlets.</p> <p>The identification tag for each valve control shall be recessed in the face of the tee handle where a tee handle is used.</p> <p><u>DISCHARGE COLOR CODING</u></p>	<p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies																					
	Yes	No																				
<p>All discharge outlets shall have color coded identification tags, with each discharge having its own unique color. Color coding shall include the labeling of the outlet and the drain for each corresponding discharge.</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Discharge</u></th> <th style="text-align: left;"><u>Tag color</u></th> <th style="text-align: left;"><u>Discharge</u></th> <th style="text-align: left;"><u>Tag Color</u></th> </tr> </thead> <tbody> <tr> <td>Front Bumper</td> <td>Purple</td> <td>#1 (2 ½")</td> <td>Red</td> </tr> <tr> <td>Front Crosslay</td> <td>Yellow</td> <td>LDH A</td> <td>Grey</td> </tr> <tr> <td>Rear Crosslay</td> <td>White</td> <td>LDH B</td> <td>Teal</td> </tr> <tr> <td>Driver's side rear</td> <td>Tan</td> <td>Officer's side rear</td> <td>Green</td> </tr> </tbody> </table> <p>All line pressure gauges shall be mounted in individual chrome plated castings with the identification tag recessed in the casting below the gauge.</p> <p>All remaining identification tags shall be mounted on the pump panel in chrome plated bezels. Mounting of the castings and identification bezels shall be done with a threaded peg cast on the back side of the bezel or screws.</p> <p><u>PUMP PANEL CONFIGURATION</u> The pump panel configuration shall be neat and orderly. An approval drawing of the final pump panel configuration shall be provided after the pre-construction conference.</p> <p><u>PUMP AND GAUGE PANEL</u> The pump and gauge panels shall be constructed of stainless steel with a brushed finish. A polished aluminum trim molding shall be provided on both sides of the pump panel.</p> <p>Engine monitoring graduated LED indicators shall be incorporated with the pressure controller.</p> <p><u>AIR HORN SWITCH</u> An air horn control switch shall be provided at the pump operator's control panel. This switch shall be red and properly labeled and put within easy reach of the operator in the electrical switch panel.</p> <p><u>GAUGES, VACUUM and PRESSURE</u> The pump pressure and vacuum gauges shall be installed adjacent to each other at the pump operator's control panel.</p> <p>If the pump vacuum and pressure master gauges are above eye level, they shall be placed in housing with a downward angle for ease of viewing.</p> <p>The pump vacuum and pressure gauges shall be silicone filled and manufactured by Class 1, Inc.</p> <p>The gauges shall be a minimum of 6.00" in diameter and shall have white faces with black lettering, with a pressure range of 30.00"-0-600#.</p>	<u>Discharge</u>	<u>Tag color</u>	<u>Discharge</u>	<u>Tag Color</u>	Front Bumper	Purple	#1 (2 ½")	Red	Front Crosslay	Yellow	LDH A	Grey	Rear Crosslay	White	LDH B	Teal	Driver's side rear	Tan	Officer's side rear	Green	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	<p></p> <p></p> <p></p> <p></p>
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Front Crosslay	Yellow	LDH A	Grey																			
Rear Crosslay	White	LDH B	Teal																			
Driver's side rear	Tan	Officer's side rear	Green																			

Specifications	Bidder Complies	
	Yes	No
<p>Gauge construction shall include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.</p> <p><u>TEST PORT CONNECTIONS</u></p> <p>Test port connections shall be provided at the pump operator's panel. One shall be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They shall have 0.25" standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They shall be marked with a label.</p> <p><u>PRESSURE GAUGES</u></p> <p>The individual "line" pressure gauges for the discharges shall be interlube filled and manufactured by Class 1.</p> <p>They shall be a minimum of 2.50" in diameter and shall have white faces with black lettering.</p> <p>Gauge construction shall include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.</p> <p>Gauges shall have a pressure range of 0-400 psi.</p> <p>The individual pressure gauge shall be installed as close to the outlet control as practical.</p> <p><u>PRESSURE GAUGES (OPTIONAL)</u></p> <p>The builder shall install Three (3) Fire Research Cooperation (FRC) flow meters. The flow meters shall include display module, paddlewheel flow sensors and flow sensor housing with mount for applicable plumbing, pressure sensors and interconnected cables.</p> <p>The gauge used shall be the Insight Ultimate</p> <p>The flow meter shall be installed following FRC installation guidelines and a flow conditioner will be used if recommended and be mounted using weld mount fittings.</p> <p>The meters shall be provided on rear crosslay, right rear pre-connect, and the LDH outlet with the least amount of friction loss.</p> <p>Each meter shall be calibrated utilizing the multiple point calibration.</p> <p>Flow meter system shall be properly calibrated prior to delivery.</p> <p><u>PRESSURE GAUGE HEATER (OPTIONAL)</u></p> <p>Gauges shall be equipped with MC Series 5000 Panel Gauge Heaters</p> <p><u>WATER LEVEL GAUGE</u></p> <p>An electronic water level gauge shall be provided on the operator's panel that registers water level by means of five colored LED lights. The lights shall be</p>	<p>✓</p>	<p>✓</p>

Specifications	Bidder Complies	
	Yes	No
<p> durable, ultra-bright five LED design viewable through 180 degrees. The water level indicators shall be as follows: </p> <ul style="list-style-type: none"> - 100% = Green - 75% = Yellow - 50% = Yellow - 25% = Yellow - Refill = Red <p> The light shall flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights shall flash sequentially when the water tank is empty. </p> <p> The level measurement shall be based on the sensing of head pressure of the fluid in the tank. </p> <p> The display shall be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components. </p> <p> The encapsulated design shall provide complete protection from water and environmental elements. </p> <p> An industrial pressure transducer shall be mounted to the outside of the tank. </p> <p> The field calibratable display measures head pressure to accurately show the tank level. </p> <p> <u>FOAM LEVEL GAUGE /A TANK</u> </p> <p> An electronic foam level gauge shall be provided on the operator's panel that registers foam level by means of five colored LED lights. The lights shall be durable, ultra-bright five LED design viewable through 180 degrees. The foam level indicators shall be as follows: </p> <ul style="list-style-type: none"> - 100% = Green - 75% = Yellow - 50% = Yellow - 25% = Yellow - Refill = Red <p> The light shall flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights shall flash sequentially when the foam tank is empty. </p>	✓	

Specifications	Bidder Complies	
	Yes	No
<p>The level measurement shall be based on the sensing of head pressure of the fluid in the tank.</p> <p>The display shall be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components.</p> <p>The encapsulated design shall provide complete protection from foam and environmental elements.</p> <p>An industrial pressure transducer shall be mounted to the outside of the tank.</p> <p>The display shall be able to be calibrated in the field and shall measure head pressure to accurately show the tank level.</p>		
<p><u>WATER LEVEL LIGHT CAB</u></p> <p>Two (2) Whelen model PSTANK, LED water level strip lights shall be provided. One shall be positioned on each side of the cab in a high position to allow the lights to be seen by personnel from a distance.</p>	✓	
<p><u>LIGHT SHIELD DRIVER SIDE PUMP PANEL</u></p> <p>Pump panel illumination shall be provided by AMDOR Luma bar, Model Superbright LED lights to illuminate controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus and the equipment provided on it.</p> <p>Lights shall be installed under a stainless steel shield.</p> <p>A light shall come on above the pump panel light switch when the parking brake is set. This is to afford the operator some illumination when first approaching the control panel.</p> <p>A green pump engaged indicator shall come on at the operator's panel when the pump is shifted into gear from inside the cab.</p> <p>The remaining lights to be actuated from a maintained switch located on the pump panel.</p>	✓	
<p><u>ALUMINUM FOUR-WAY LIGHT SHIELD/STEP (OPTIONAL)</u></p> <p>A light shield/step with a weight capacity of not less than 250 pounds shall be provided above the driver's side pump panel.</p> <p>The light shield/step shall be constructed of Aluminum four-way.</p>	✓	
<p><u>ADDITIONAL LIGHT SHIELD PASSENGER SIDE PUMP PANEL</u></p> <p>An Amdor Luma Bar model SuperBright LED light shall be provided above passenger's side pump panel.</p> <p>Lights shall be installed under a stainless steel shield.</p>	✓	

Specifications	Bidder Complies	
	Yes	No
<p>These lights shall be operated by the driver side pump panel light switch.</p> <p><u>ALUMINUM FOUR-WAY LIGHT SHIELD/STEP (OPTIONAL)</u></p> <p>A light shield/step with a weight capacity of not less than 250 pounds shall be provided above the passenger's side pump panel.</p> <p>The light shield/step shall be constructed of Aluminum four-way.</p> <p><u>STEP LIGHTS</u></p> <p>All mounted steps shall be lit by LED lighting integrated into the steps.</p> <p>These step lights shall be actuated with the pump panel light switch.</p> <p>All other steps on the apparatus shall be illuminated per the current edition of NFPA 1901.</p> <p><u>EXTERIOR LIGHTING</u></p> <p>Exterior lighting shall meet or exceed Federal Department of Transportation, Federal Motor Vehicle Safety Standards and National Fire Protection Association requirements in effect at time of proposal.</p> <p><u>FRONT FMVSS LIGHTING</u></p> <p>Front headlights will be Peterson LED 4"x 6" sealed headlights Model 702C Low beam and 703C high beam. They will be mounted in a chrome trim housing. The headlight shall be equipped with daytime driving application.</p> <p>The headlight and LED directional lights can be in the same assembly.</p> <p>Headlights shall be wired for daytime driving lights function.</p> <p>Five (5) LED clearance and marker lights shall be installed across the leading edge of the cab.</p> <p><u>BACK OF CAB TURN SIGNALS</u></p> <p>One (1) pair of Whelen M6T turn lights shall be located on the lower back side of the cab. These lights shall be low enough not to interfere with the push up poles for the flood lights. If possible the lights should be mounted in a way that angles away from the truck but be as low profile as possible.</p> <p><u>REAR FMVSS LIGHTING</u></p> <p><u>The rear stop/tail and directional lighting shall consist of the following:</u></p> <p>Two (2) Whelen, Model M6BTT, red Super LED combination stop/tail lights.</p> <p>Two (2) Whelen, Model M6T, amber Super LED arrow shape turn signal lights.</p> <p>Two (2) Whelen, Model M6BUW, Super LED backup lights shall be provided.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>One (1) Whelen, Model PSROCXRR, LED Third brake strip will be provided and mounted above the rear compartment doors and centered.</p> <p>These lights shall be installed at the rear of the truck in a polished housing that will hold all 4 lights on each side.</p> <p>Four (4) red reflectors shall be provided.</p> <p><u>LIGHTING BEZEL</u></p> <p>Two (4) light aluminum housings shall be provided for mounting the Rear FMVSS lighting. (Combination brake – back up – turn signals – and warning)</p> <p><u>LICENSE PLATE BRACKET / LIGHTING</u></p> <p>A license plate bracket shall be mounted at the rear in a highly visible location where it does not interfere with other equipment. An LED light shall illuminate the license plate.</p> <p><u>REAR ID/MARKER DOT LIGHTING</u></p> <p>Truck-Lite Model 30080R identification lights located at the rear shall be installed per FMVSS 108 and CMVSS 108 requirements.</p> <p>Two (2) outside clearance lights equipped with rubber arms shall be located on the side of the body behind the rear compartment door.</p> <p><u>BACK-UP ALARM</u></p> <p>An ECCO, Model SA917-PM2, 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 five (5) DBA above surrounding environmental noise levels.</p> <p><u>LIGHT, INTERMEDIATE</u></p> <p>There shall be one (1) pair, of Truck-Lite, Model: 60115Y, amber, LED, turn signal, marker lights furnished, one (1) each side, horizontally in the rear fender panel.</p> <p>A stainless steel trim shall be included with this installation.</p> <p><u>OPEN DOOR INDICATOR LIGHT</u></p> <p>Two (2) red indicator lights shall be provided and located in clear view of the driver, warning of an open passenger or equipment compartment door.</p> <p>One (1) light shall indicate status of doors on the driver's side of the vehicle and the other light shall indicate the status of the passenger side and rear compartment doors.</p> <p><u>COMPARTMENT LIGHTING</u></p> <p>All compartments shall be equipped with Andor Stand Alone LED compartment light strips. The strips shall be centered vertically along each side of the door framing. The compartments with these strip lights shall be each equipment compartment including the engineer's, Vista, and EMS compartments.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>The compartment light strips shall not rely on Velcro or other temporary means for mounting.</p> <p>Opening the compartment door shall automatically turn the compartment lighting on.</p> <p>Compartments with netting in place of doors shall have a switch provided to operate the light.</p> <p>The compartment lights shall be blue in color.</p> <p><u>PERIMETER SCENE LIGHTS, CAB</u></p> <p>There shall be an AMDOR LUMA BAR, Model H2O LED light provided for each cab door. Lighting shall be designed to provide illumination on areas under the driver, officer, and crew cab riding area exits, which shall be activated automatically when the exit doors are opened and by the same means as the body perimeter lights. One (1) shall be placed and centered under the front bumper.</p> <p>The lighting shall be capable of providing illumination at a minimum level of two (2) foot-candles on ground areas within 30.00" of the edge of the apparatus in areas which personnel climb in or out of the apparatus or descend from the apparatus to the ground level.</p> <p><u>PERIMETER SCENE LIGHTS, BODY</u></p> <p>There shall be a total of four (4) AMDOR, LUMA BAR, Model H2O LED lights provided on the apparatus. Two (2) lights shall be provided under the rear step area and two (2) lights shall be provided under the pump panel running boards. The lights shall be spaced one (1) each side of apparatus. The perimeter scene lights shall be activated by the parking brake.</p> <p>The lighting shall be capable of providing illumination at a minimum level of two (2) foot-candles on ground areas within 30.00" of the edge of the apparatus in areas designed for personnel to climb onto the apparatus or descend from the apparatus to the ground level.</p> <p><u>12 VOLT LIGHTING</u></p> <p>There shall be two (2) Whelen Model PCP2 LED Combination flood/spot top raise, side mount; 12V LED floodlights provided on the apparatus located one (1) each side on the back of the cab wall.</p> <p>These lights will be mounted on telescoping poles. In the stowed position the lights should be just below the top of the cab.</p> <p>Each light shall be controlled from switches located at the pump operator's panel .</p> <p><u>12 VOLT LIGHTING – (cab brow)</u></p> <p>There shall be one (1) 72" LED HIVIZ, FIRE TECH Model FT-B-72 floodlight provided centered on the front visor.</p> <p>The lights shall be controlled by a switch located panel located between driver and officer.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>This light may be load managed when the parking brake is set.</p> <p><u>12 VOLT LIGHTING</u> There shall be one Whelen PELCC mounted in a centered position on the exterior cab wall to provide illumination for the cross lay area.</p>	✓	
<p>There shall be one Amdor Lumabar H20 light installed in a downward position at the front of the hose bed at the highest possible location. This light shall be controlled by a switch on the pump panel.</p> <p><u>12 VOLT LIGHTING</u> There shall be one (1) FRC Spectra Surface Mount Model (SPA 260-Q15) 12V LED floodlight located on the driver's side top corner of the crew cab.</p> <p>The lights shall be controlled by a switch located between driver and officer and shall come on when the driver side crew doors are opened.</p>	✓	
<p>These lights may be load managed when the parking brake is set.</p> <p><u>12 VOLT LIGHTING</u> There shall be one (1) FRC Spectra Surface Mount Model (SPA 260-Q15) 12V LED floodlight located on the passenger side top corner of the crew cab.</p> <p>The lights shall be controlled by a switch located between driver and officer and shall come on when the passenger side crew doors are opened..</p>	✓	
<p>These lights may be load managed when the parking brake is set.</p> <p><u>12 VOLT LIGHTING</u> There shall be one (1) FRC Spectra Surface Mount Model (SPA 260-Q15) 12V LED floodlight mounted rear facing at the top of the driver side rear compartment.</p> <p>The lights shall be wired to automatically come on when transmission is placed in reverse.</p> <p>There shall also be a switch on the rear of the apparatus. to control the light from the ground.</p>	✓	
<p><u>DECK LIGHTS</u> Two (2) HIVIZ LED, FIRETECH, Model FT-WL 3500-FT, lights shall be mounted, one (1) each side, at the rear inner bulkhead of the hose bed. Deck lights shall be wired to automatically come on when transmission is placed in reverse. There shall also be a maintained switch on the rear of the apparatus to control these lights from the ground.</p>	✓	
<p><u>SWITCH, BACK-UP LIGHTS</u> A switch shall be provided in the cab to activate the back-up lights, rear 12V scene, and deck lights. The switch shall only be active when the parking brake is applied.</p>	✓	
<p><u>SWITCH, GROUND PERIMETER AND STEP LIGHTS</u></p>	✓	

Specifications	Bidder Complies	
	Yes	No
<p>A switch shall be provided in the cab to permit the ground perimeter lights and step lights to be turned on from the cab. This switch shall also allow the ground perimeter and step lights to be disabled for "blacked out" situations.</p> <p><u>HAND HELD SPOTLIGHT</u> There shall be one (1) Specialty Lighting Inc. Mobile Patrol Light, series 2150, hand held spotlight installed on the officer's side cab dash panel. The light shall be furnished with a 2-foot coil cord (12-foot extended) and a momentary switch. The housing shall be made from one piece unibody UV treated black neoprene. The mounting bracket shall be fabricated from stainless steel.</p> <p><u>AIR HORN SYSTEM</u> Two (2) Grover Stuttertone air horns shall be provided and located, in the front bumper, recessed in the passenger side of frame rail The horn system shall be piped to the air brake system wet tank utilizing .38" tubing. A pressure protection valve shall be installed in-line to prevent loss of air, in the air brake system.</p> <p><u>AIR HORN CONTROL</u> Two (2) lanyard rope pull controls shall be provided, one (1) within reach of the driver and one (1) within reach of the officer.</p> <p><u>MECHANICAL SIREN</u> A Federal Q2B siren shall be furnished. A siren brake button shall be installed on the switch panel.</p> <p>The control solenoid shall be powered up after the emergency master switch is activated.</p> <p>The mechanical siren shall be mounted on the bumper deck plate. It shall be mounted on the left side, between the left and center hose trays. The siren mounting shall include a reinforcement plate.</p> <p>The mechanical siren shall be actuated by two (2) foot switches, one (1) located on the officer's side and one (1) on the driver's side.</p> <p><u>WARNING LIGHTS (Cab Roof)</u> There shall be a 72.00" Whelen Ultra Freedom Super LED Light Bar, Model: FN72VLED light bar mounted on the cab roof. The light bar shall include the following:</p> <ul style="list-style-type: none"> • Eight (8) red flashing forward facing LED modules. • Two (2) white flashing forward facing LED modules. • Two (2) red flashing front corner LED modules. • Two (2) red flashing rear corner LED modules. <p>All the lenses shall be clear.</p> <p>There shall be one (1) switch located in the cab, on the switch panel, shall control this light bar.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>The white warning lights shall be controlled by a switch in the cab switch panel and disabled when the parking brake is set</p> <p><u>WARNING LIGHTS MINI LIGHT BARS</u></p> <p>There shall be two (2) Whelen Model FNMINI, NFPA Mini Ultra Freedom LED light bars provided. These lights shall be positioned one (1) above the passenger front cab door and one (1) above the driver side front cab door facing to the side. The light bar shall include:</p> <ul style="list-style-type: none"> ▪ 3 red flashing LED modules. ▪ 1 white flashing LED module <p>All the lenses shall be clear.</p> <p>There shall be one (1) switch located in the cab, on the switch panel, to control these light bars.</p> <p>The white warning lights shall be controlled by a switch in the cab switch panel and disabled when the parking brake is set.</p> <p>These lights are dependent on room on the cab roof and meeting the overall height of the cab limits.</p> <p><u>WARNING LIGHTS (Cab Face)</u></p> <p>Two (2) pair of Whelen Model M6* C LED lights shall be installed on the cab face, above the headlights, mounted in a common bezel.</p> <p>The color of these LEDs shall be red Super Linear LED/clear lens.</p> <p>The inner LEDs shall be additional lighting.</p> <p>The color of these lights shall be red Super Linear LED/clear lens.</p> <p>Both sets of lights shall be activated by the same switch in the cab.</p> <p><u>HEADLIGHT FLASHER</u></p> <p>The high beam headlights shall flash alternately between the left and right side, with a control switch located on the cab instrument panel.</p> <p>The flashing shall automatically cancel when the headlight hi-beam switch is activated or when the parking brake is set.</p> <p><u>SIDE ZONE LOWER LIGHTING</u></p> <p>Six (6) Whelen Model M6*C, red flashing super linear LED lights with clear lens shall be located at the following positions</p> <ul style="list-style-type: none"> Two (2) lights one (1) located each side above front wheel. Two (2) lights one (1) located each side on the lower rear corners of the crew cab. 	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>Two (2) lights one (1) located each side over the rear wheels in the rear fender panels.</p> <p>Two (2) Whelen Model M9RC, red flashing super linear LED lights with clear lens shall be located one (1) each side on the front bumper extension.</p> <p><u>RUB RAIL WARNING LIGHTS</u></p> <p>Eight (8) Whelen Model M2WRC, provided,</p> <p>Two (2) located one (1) each side centered in rub rail below the pump panel</p> <p>Two (2) located one (1) each side centered in rub rail below front compartment</p> <p>Two (2) located one (1) each side centered in rub rail below rear compartment</p> <p>Two (2) lights will be located off center on either side of the DOT lights centered in the tail board rub rail.</p> <p>The lights shall be controlled by the directional arrow controller.</p> <p>These lights shall be installed with polished trim flange kits.</p> <p><u>REAR ZONE LOWER LIGHTING</u></p> <p>Two (2) Whelen M 6RC LED shall be located at the rear of the apparatus required to meet or exceed the lower level optical warning and optical power requirements of NFPA.</p> <p>Each light shall be mounted in the 4 light housing.</p> <p>The rear zone lower lighting and the rear of hose bed warning lights described below shall be controlled by one lighted switch in on the cab switch panel.</p> <p><u>WARNING LIGHTS (Rear of Hose Bed)</u></p> <p>Two (2) Whelen B63M751 LED warning beacons shall be provided at the rear of the apparatus located one (1) each side. These lights shall be activated by a lighted switch on the instrument panel.</p> <p>The color of the lights shall be clear lenses with rotating red LEDs in the top dome. Bottom will be yellow with clear lens.</p> <p><u>These lights shall be mounted in the highest position possible not to affect overall height of the truck. All wiring shall be totally enclosed.</u></p> <p><u>DIRECTIONAL WARNING LIGHT</u></p> <p>A Whelen LINZ6 Dominator Plus series Model TADP8, LED amber in color directional arrow will be installed on the rear of the apparatus, located above the rear compartment doors and below the hose bed.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>The directional warning light shall be mounted with the end cap mount option and installed in protective aluminum tread plate housing.</p> <p>Directional arrow will be controllable from the driver's position.</p> <p><u>110 VOLT INTERIOR RECEPTACLEs</u> The receptacles shall be two (2) NEMA 5-15, 120 volt, 15 amp, three (3) wire duplex household type connected to the shoreline.</p> <p>There shall be one (1) receptacle provided located in a body compartment as determined at pre-construction conference and one (1) receptacle provided located in the cab as determined at pre-construction conference.</p> <p><u>KUSSMAUL AUTO EJECT FOR SHORELINE</u> One (1) shoreline receptacle shall be provided to operate the dedicated 120-volt circuits on the truck.</p> <p>The shoreline receptacle (s) shall be provided with a NEMA 5-20, 120 volt, 20 amp, straight blade Kussmaul auto eject plug with a red weatherproof cover. The cover is spring loaded to close, preventing water from entering when the shoreline is not connected.</p> <p>A solenoid wired to the vehicle's starter is energized when the engine is started. This instantaneously drives the plug from the receptacle.</p> <p>The shoreline shall be connected to the battery charger.</p> <p>A mating connector body shall also be supplied with the loose equipment.</p> <p>The shoreline receptacle shall be located on the driver's side exterior of the cab, behind the crew cab door.</p> <p><u>PAINT</u> The exterior custom cab and body painting procedure shall consist of a seven (7) step finishing process as follows:</p> <p>1. <u>Manual Surface Preparation</u> - All exposed metal surfaces on the custom cab and body shall be thoroughly cleaned and prepared for painting. Surfaces that shall not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum tread plate. Each imperfection on the exterior metal surface shall be removed or filled and then sanded smooth for a smooth appearance. All seams shall be sealed before painting.</p> <p>2. <u>Chemical cleaning and Treatment</u> - The metal surfaces shall be properly cleaned using a high pressure and high temperature cleaning system. Surfaces are chemically cleaned to remove all dirt, oil, grease and metal oxides to ensure the subsequent coatings bond well. An ultra pure water final rinse shall be applied to all metal surfaces at the conclusion of the metal treatment process.</p>	<p>✓</p> <p>✓</p> <p>✓</p>	

Specifications	Bidder Complies	
	Yes	No
<p>3. <u>Primer/Surfacer Coats</u> - A two (2) component urethane primer/surfacer shall be hand applied to the chemically treated metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface.</p> <p>4. <u>Hand Sanding</u> - The primer/surfacer coat shall be lightly sanded to an ultra smooth finish.</p> <p>5. <u>Sealer Primer Coat</u> - A two (2) component sealer primer coat shall be applied over the sanded primer.</p> <p>6. <u>Topcoat Paint</u> - Urethane base coat shall be applied to opacity for correct color matching.</p> <p>7. <u>Clear coat</u> - Two (2) coats of an automotive grade two (2) component urethane shall be applied. Lap style doors shall be clear coated to match the body.</p>	✓	
<p><u>PAINT</u></p> <p>All removable items such as brackets, compartment doors, door hinges, trim, etc. shall be removed and painted separately to insure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly shall be finish painted before assembly.</p> <p>The cab and the body shall be painted single color dark red to be approved by the Fire Chief prior to construction. Paint number shall be FLNA 3235.</p> <p>Prior to reassembly and reinstallation of lights, handrails, door hardware and any miscellaneous items an isolation tape, gasket or dielectric material shall be used to prevent damage to the finish painted surfaces (no exceptions). A nylon washer shall be installed under each acorn nut or metal screw that is fastened directly to an exterior painted surface.</p>	✓	
<p><u>PAINT CHASSIS FRAME ASSEMBLY</u></p> <p>The chassis frame assembly shall be painted black 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 black are frame rails, cross members, axles, suspension, steering gear, fuel tank, body substructure supports, miscellaneous mounting brackets, etc.</p>	✓	
<p><u>GRAPHICS</u></p> <p>Detailed description of all graphics to be determined at pre-construction conference.</p>	✓	
<p><u>REFLECTIVE STRIPES</u></p> <p>Three (3) reflective stripes shall be provided across the front of the vehicle and along the sides of the chassis cab and apparatus body. The reflective band shall consist of</p>	✓	

Specifications	Bidder Complies	
	Yes	No
<p>a 1.00" blue stripe at the top with a 1.00" gap then a 6.00" white stripe with a 1.00" gap and a 1.00" blue stripe on the bottom.</p> <p>The reflective band provided on the cab face shall be at the headlight level.</p> <p><u>JOG, IN REFLECTIVE STRIPE</u></p> <p>A jog in the reflective stripe shall be located each side of the vehicle at the rear. The stripe shall be angled upward at approximately a 45 degree angle.</p> <p><u>CHEVRON STRIPING, REAR</u></p> <p>There shall be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The entire rear surface, excluding the rear compartment door, shall be covered.</p> <p>The colors shall be red and fluorescent yellow green diamond grade.</p> <p>Each stripe shall be 6.00" in width.</p> <p>This shall meet the requirements of NFPA 1901, 2009 edition, which states that 50% of the rear surface shall be covered with chevron striping.</p> <p><u>CHEVRON STRIPING, FRONT BUMPER</u></p> <p>There shall be alternating chevron striping located on the front-facing vertical surface of the front bumper.</p> <p>The colors shall be red and fluorescent yellow green diamond grade.</p> <p>Each stripe shall be 6.00" in width.</p> <p><u>STOP SIGN and REFLECTIVE CHEVRONS, CAB DOORS</u></p> <p>A 12.00" x 12.00" reflective stop sign shall be provided on the interior of each cab door. The stop sign shall be located on the stainless steel door panel.</p> <p>There shall be alternating chevron striping located on the interior of each cab door. The colors shall be red and fluorescent yellow green diamond grade. Each stripe shall be 6.00" in width.</p> <p>The stop sign and chevrons shall meet or exceed NFPA 1901 requirements.</p> <p><u>LETTERING</u></p> <p>The lettering shall be totally encapsulated between two (2) layers of clear vinyl.</p> <p><u>LETTERING</u></p> <p>Forty-one (41) to sixty (60) genuine gold leaf letters, 3.00" high, with outlining and shading shall be provided.</p> <p><u>LETTERING ADDITIONAL</u></p> <p>8.00" white reflective numbers with black outline shall be installed on the passenger cab front.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p>

Specifications	Bidder Complies	
	Yes	No
<p>16.00" white reflective letters/numbers with black shading shall be installed on the rear side compartment doors, rear tailboard compartment and roof of the cab.</p> <p>Seventeen (17) genuine gold leaf letters, 8" high, with outlining and shading shall be provided for upper left (driver) side pump body.</p> <p><u>WARRANTIES</u></p> <p>Each piece of new fire or rescue apparatus shall be warranted to be free from defects in materials or workmanship under normal use and service. Each manufacturer shall supply, as a part of their bid package, a copy of the warranty or warranties that they propose to provide.</p> <p>The bidder shall provide all optional warranty packages, such as extended warranties, etc., bid to include the cost of said packages.</p> <p>All other warranties, as outlined in these specifications shall be provided in writing as a part of the bid package.</p> <p>Failure to provide the warranties as outlined throughout these specifications shall be cause for rejection of the bid package.</p> <p>The following minimum warranties shall be furnished:</p> <p><u>ONE (1) YEAR MATERIAL AND WORKMANSHIP</u></p> <p>Each new piece of apparatus shall be provided with a minimum one (1) year basic apparatus 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.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (No Exception).</p> <p><u>FIFTY (50) YEAR FRAME STRUCTURAL INTEGRITY</u></p> <p>The chassis frame shall be provided with a fifty (50) year material and workmanship limited warranty. The warranty shall cover the chassis frame as being free from defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (No Exception).</p> <p><u>TEN (10) YEAR CAB STRUCTURAL INTEGRITY</u></p> <p>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.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (No Exception).</p>	✓	
	✓	
	✓	
	✓	

Specifications	Bidder Complies	
	Yes	No
<p><u>TEN (10) YEAR BODY STRUCTURAL INTEGRITY</u> 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.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (No Exception).</p>	✓	
<p><u>ENGINE</u> The engine shall come with a five (5) year or 100,000 mile warranty provided by the Cummins Corporation.</p>	✓	
<p><u>TRANSMISSION</u> The transmission shall have a five (5) year/unlimited mileage warranty covering 100% parts and labor.</p>	✓	
<p><u>FRONT/REAR AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY plus TWO (2) YEAR PARTS WARRANTY</u> A Meritor™ Axle 3 year limited warranty shall be provided.</p>	✓	
<p><u>STEERING</u> The steering gear shall have a three (3) year parts and labor warranty.</p>		✓
<p><u>ELECTRONIC STABILITY CONTROL SYSTEM, ANTI-LOCK BRAKE SYSTEM & AUTOMATIC TRACTION CONTROL</u> The Wabco ABS/ATC system shall come with a three (3) year or 300,000 mile parts and labor warranty provided by Meritor Wabco Vehicle Control Systems.</p>	✓	
<p><u>LOAD MANAGER</u> The load manager shall have a three (3) year warranty.</p>	✓	
<p><u>WATER TANK</u> The UPF poly water tank shall be provided with a lifetime material and workmanship limited warranty.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (No Exception).</p>	✓	
<p><u>PUMP</u> A Waterous five (5) year warranty shall be provided for the pump.</p>	✓	
<p>PUMP PLUMBING</p> <p>The stainless steel plumbing components and ancillary brass fittings used in the construction of the water/foam plumbing system shall be warranted for a period of ten (10) years. This covers structural failures caused by defective design or workmanship, or perforation caused by corrosion, provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original purchaser for a period of ten years from the date of delivery. A copy of the warranty shall be submitted with the bid. (No exception)</p>		✓

Specifications

**Bidder
Complies**

Yes No

VALVES and OUTLET CONTROLS

Discharge outlet controls and valves shall have a ten (10) year manufacturer's parts and labor warranty on said valves.

GAUGES, VACUUM and PRESSURE

This gauges shall include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.

TEN (10) YEAR NON-PRO-RATED PAINT AND CORROSION

Each new piece of apparatus shall be provided with a ten (10) year non-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 package (No Exception).

THREE (3) YEAR GOLD LEAF 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 package (No Exception).

LOOSE EQUIPMENT

The following equipment shall be furnished with the completed unit:

1. One bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit.
2. One set of Zico folding wheel chocks with under body mounting brackets.
3. Turtle-Tile shall be provided for all compartment floors.
4. One 10 foot fiberglass I-beam handle pike pole.
5. Two 10 foot sections of lightweight hard suction hose, 5" diameter hose with 4.5" NST couplings.

✓

✓

✓

✓

✓

Specifications

Bidder
Complies

Yes No

ENGINE QUESTIONNAIRE

Vendors must complete the questionnaire below regarding manufacturer, dealer and service center information:

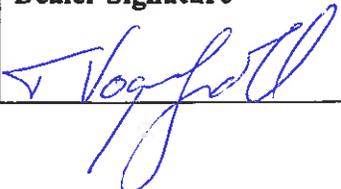


MANUFACTURER	DEALER	SERVICE CENTER
E-ONE, Inc.	Vogelpohl Fire Equipment Inc.	Vogelpohl Fire Equipment Inc.
Mfg. Address 1601 Southwest 37th Ave.	Dealer Address 2770 Circleport Dr.	Service Center Address 2770 Circleport Dr.
City/State/Zip Ocala, FL 34474	City/State/Zip Erlanger, KY 41018	City/State/Zip Erlanger, KY 41018
Mfg. Phone 352-237-1122	Dealer Phone 859-282-1000	Service Center Phone 859-282-1000
Apparatus Model Name Mainline Typhoon Pumper	Number of Days: Contract Award to Delivery 210-270	Driving miles from LFD to Service Center 75
Overall Length 32' 5"	Transmission Make and Model Allison 300EV5	Service Center Sq. Ft. 15,000
Overall Height 9' 9"	Pump Make and Model Waterous CSU 1500gpm	Service Center Number of Factory Trained Techs 4
Overall Width 8' 4"	Front Axle Capacity 20,000	Service Center Number of Mobile Service Units 4
Wheelbase 198"	Front Axle Loaded Weight (Est.) 18,900	Service Center Number of Indoor Service Bays 5
Curb-to-Curb Turning Radius 28.9	Rear Axle Capacity 27,000	Frame Dimension 10.25 x 3.5 x .375 Galvanized 9.375 x 3.125 x .375 Finer Galvanized
Engine Make & Model Cummins ISL 450hp	Rear Axle Loaded Weight (Est.) 25,700	Frame Resistance To Bending 3,161,400

Specifications

Bidder Complies

Yes No

Engine Torque Rating 1250 lb.-ft. @ 1400 rpm	Hose Bed Height from Ground 67"	
Bidder Vogelpohl Fire Equipment	Dealer Signature 	Date 9/1/2015

PRICING

	UOM	PRICE
<i>One Million</i> Three (3) Triple Combination Pumpers as per specifications for <i>Five Hundred Ninety-Three Thousand One Hundred Ninety Two</i> Dollars and <u>00</u> Cents	LS	\$ <u>1,593,192.00</u>
Three (3) Triple Combination Pumpers AFTER January 1, 2016 as per specifications for <i>One Million Five Hundred Eighty Thousand Seven Hundred Ninety Three</i> Dollars and <u>00</u> Cents	LS	\$ <u>1,580,793.00</u>
Two (2) Triple Combination Pumpers AFTER January 1, 2016 as per specifications for <i>One Million Fifty-nine Thousand Five Hundred Fourteen</i> Dollars and <u>00</u> Cents	LS	\$ <u>1,059,514.00</u>
One (1) Triple Combination Pumper AFTER January 1, 2016 as per specifications for <i>Five Hundred Thirty Eight Thousand Two Hundred Thirty Three</i> Dollars and <u>00</u> Cents	LS	\$ <u>538,233.00</u>

In case of price discrepancy, unit bid price written in words will prevail followed by unit price written in numbers.

Pre-bid meeting is Aug 12th at 10:00 AM, 200 East Main Street in Purchasing Conference Room 3rd floor.



Lexington-Fayette Urban County Government
DEPARTMENT OF FINANCE & ADMINISTRATION

Jim Gray
Mayor

William O' Mara
Commissioner

Addendum #1

Bid Number: Bid 114-2015
Subject: Triple Combination Pumpers

Date: August 12, 2015
Please address inquiries to:
Debra Bright
(859) 258-3320

TO ALL PROSPECTIVE BIDDERS:

Please be advised of the following changes to the above referenced specifications:

Be advised of the Pre-Bid Clarifications that are attached.

Todd Slatin, Purchasing Director
Division of Central Purchasing

All other terms and conditions of the Proposal and specifications are unchanged.

This letter should be signed, attached to and become a part of your Proposal.

PROPOSAL OF: Vogelpohl Fire Equipment

ADDRESS: 2770 Circleport Dr. Erlanger KY 41018

SIGNATURE OF BIDDER: [Handwritten Signature]

Lexington Fire Department
Triple Combination Pumper Spec

Pre-Bid Clarifications

Delivery Schedule pg. 2

Change the delivery date from 200 days to 270 days.

Service Center Towing pg. 8 – 9

While under warranty, if towing or flat bedding of the apparatus to the repair facility is required, it shall be the responsibility of the bidder to provide such service at his cost.

“While under warranty” refers to the one year material and workmanship warranty period.

MDT Notch pg. 21

The specification does not require the builder to provide the MDT mount. However, add an access panel with a minimum size of eight (8) inches by six (6) inches in the dash centered in the MDT notch. This panel to be secured by screws, and provides access to wiring under the dash/MDT notch.

Officer Seat pg. 27

An electric seat is acceptable if the roll over protection system does not allow an air suspension seat.

Radio Antenna Mount pg. 40

Reduce the number of required radio antenna mounts from five (5) to four (4). All antennas shall have standard RG58/U coaxial cable.

Pressure Controller pg. 58 – 59

Replace the Fire Research INCONTROL 400 pressure governor with a Fire Research PUMPBOSS PBA 400 series

Crosslay Hose Bed pg. 63

The center cross lay divider does not need to be adjustable from side to side, providing the stated hose loads can be accommodated.

12 Volt Lighting pg 73 – 74

Replace the FRC Spectra Surface Mount Model (SPA-260-Q15) 12V LED floodlights with FRC Spectra Surface Mount Model SPA900-Q70 12V LED floodlights. On passenger side of cab, driver side of cab, and rear facing top of the driver side rear compartment.



STATEMENT OF WARRANTY 1 YEAR STANDARD



E-ONE (the "Company") warrants each new item of fire and rescue apparatus manufactured by it against defects in material and workmanship provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original user-purchaser for a period of one year from the date of delivery to the original user-purchaser.

E-ONE'S obligation under this warranty is strictly limited to replacing or repairing, as the Company may elect, any part or parts of such apparatus which the Company's examination discloses to be defective in material or workmanship.

The Company reserves the right to require any such repairs to be made either at a Company owned service facility or another approved service facility at the Company's option. Transportation cost to and from the servicing location are the responsibility of the user-purchaser.

The E-ONE warranty shall not apply to:

1. Major components or trade accessories such as purchased chassis, engines, transmissions, tires, pumps, signaling devices, or batteries that have a separate warranty by the original manufacturer or to ancillary equipment used in fire fighting.
2. Normal adjustments and maintenance services.
3. Replacement of consumable parts including, but not limited to; filters, lubricants, belts, light bulbs, wiper blades, brake linings and brake pads.
4. Failure resulting from the apparatus being operated in a manner or for a purpose not recommended by E-ONE.
5. Any apparatus, which shall have been repaired, modified or altered in any way so as, in the Company's sole judgment, to have adversely affected the unit's stability or reliability.
6. Items subjected to misuse, negligence, accident or improper maintenance.
7. Loss of time or use of the vehicle, inconvenience or other incidental expenses.

Nothing contained in this warranty shall make E-ONE liable beyond the express limitations hereof, for loss, injury or damage of any kind to any person or entity resulting from any defect or failure in this vehicle.

To the extent permitted by law, THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

To the extent permitted by law, this warranty is also in lieu of all other obligations or liabilities on the part of E-ONE or the Seller, including liability for incidental and consequential damages.

E-ONE makes no representation that the vehicle has the capacity to perform any functions other than as contained in the Company's written literature, catalogs or specifications accompanying delivery of the vehicle.

No person or affiliated Company representative is authorized to give any other warranties or to assume any other liability on behalf of E-ONE in connection with sale, service or repair of any apparatus manufactured by the Company.

E-ONE reserves the right to make design changes or improvements in its products without imposing any obligation upon itself to change or improve previously manufactured products.

Whenever a performance bond is required under a contract or purchase order, coverage under the performance bond shall only extend for one year from the delivery date of the equipment. This limitation under the performance bond shall not affect any extended warranties offered by E-One or any OEM's.



STATEMENT OF WARRANTY 10 YEAR/100,000 MILE STRUCTURAL WARRANTY



The STATEMENT OF WARRANTY ensures the original user-purchaser that any E-ONE manufactured cab and/or body is, and will remain free of structural defects, provided they are used in a normal and reasonable manner. The cab and body are defined as modular structures, fabricated with aluminum extrusion and plate. Excluded is all hardware, mechanical items, electrical items or paint finishes. Structural componentry is defined as the body/cab supports and mountings as identified in E-ONE's specifications.

The STATEMENT OF WARRANTY is strictly limited to the repairing or replacing, as E-ONE (the "Company") may elect, any part or parts of such apparatus which the Company's examination discloses to be defective in material or workmanship.

The STATEMENT OF WARRANTY shall extend for a period of 10 years/100,000 miles from the delivery date to the original user-purchaser. The Company reserves the right to require any such repairs to be made either at a Company owned service facility or another approved service facility at the Company's option. Transportation cost to and from the servicing location is the responsibility of the user-purchaser.

The STATEMENT OF WARRANTY shall not cover the following:

1. Damage caused by fire, misuse, negligence, or accident.
2. Damage caused by theft, vandalism, riot or explosion.
3. Damage caused by lightning, earthquake, windstorm, hail, water or flood.
4. Any body and/or cab, which shall have been repaired, modified or altered without the Company's authorization.
5. Damage caused from exposure to road de-icing compounds or use in an acidic environment.
6. Damage from lack of maintenance or cleaning.
7. Loss of time, loss of use of the product, inconvenience, lodging, food or other consequential loss that may result from a failure.

Nothing contained in the STATEMENT OF WARRANTY shall make E-ONE liable beyond the express limitations hereof, for loss, injury or damage of any kind to any person or entity resulting from any defect or failure in the cab and/or body.

E-ONE reserves the right to make design changes or improvements in its products without imposing any obligation upon itself to change or improve previously manufactured products.

REV C
2/27/06

NOTE: Surety bond, if required, applies only to E-ONE's Basic One Year Limited Warranty, and not to this or any other extended warranty made by E-ONE or any of E-ONE's suppliers.

STATEMENT OF WARRANTY

E-ONE, INC. ALUMINUM CAB PAINT/CORROSION LIMITED WARRANTY

LIMITED WARRANTY CAB

Subject to the limitations and exclusions set forth below, and provided the vehicle shall have been placed in service within sixty (60) days after delivery to the original purchaser (the "Buyer") as established by our original invoice, for a period of ten (10) years after delivery to the original purchaser, E-ONE, Inc. warrants to the Buyer that its cab shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection for exterior surfaces of the cab of the vehicle. The limited warranty shall apply only if the vehicle is properly maintained in accordance with E-One's maintenance instructions and manuals, and is used in service which is normal to the particular vehicle model. Normal service means service which does not subject the vehicle to stresses or impacts greater than normally resulting from the careful use of the vehicle. If the Customer discovers a defect or nonconformity they must notify the E-ONE warranty department in writing within thirty (30) days after the date of discovery. **THIS LIMITED WARRANTY MAY NOT BE ASSIGNED TO OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.**

This limited warranty applies only to cab exterior paint. Paint on the vehicle's undercarriage and cab interior is warranted only under the E-ONE's Basic One-Year Limited Warranty.

The vehicle must be inspected by an authorized E-ONE representative on a three, five and seven-year basis and submitted to the E-ONE Warranty department on a inspection form that details the condition of the painted cab. It is the Customers sole responsibility to arrange for the unit to be inspected by an authorized E-ONE representative. If the vehicle's inspection report is not submitted to the E-ONE Warranty department within 45 days after the required inspection date the units paint warranty will revert to the prorated warranty schedule.

E-ONE makes no warranty whatsoever as to integral parts, components, attachments or trade accessories not manufactured by E-ONE, but instead, the applicable warranties, if any, of the respective manufacturers thereof shall apply.

WHAT IS NOT COVERED

- Any fire apparatus cab not manufactured by E-ONE.
- Damage caused by fire, misuse, negligence or accident.
- Damage caused by theft, vandalism, riot or explosion.
- Damage caused by any natural occurrence including but not limited to, lightning, earthquake, windstorm, hail, and flood.
- Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of E-ONE.
- Damage from improper repair, lack of maintenance and cleaning.
- Any damage caused from exposure to any road de-icing compounds and or chemicals or use in an acidic environment.
- Gold leaf or striping installed by E-ONE except that which is affected by a warranty defect repair.
- Loss of time, loss of use of the product, inconvenience, lodging, food or other consequential or incidental loss that may result from a failure.
- Transportation cost to and from servicing center shall be the responsibility of the user-purchaser.

REV A 05-29-2014



STATEMENT OF WARRANTY LIFETIME FRAME WARRANTY



E-ONE (the "Company") warrants to the original user-purchaser only of an E-ONE chassis that the frame and frame members are free of defects in material and workmanship, ordinary wear and tear excepted, for the lifetime of the vehicle.

E-ONE'S obligation under this warranty is strictly limited to replacing or repairing, as the Company may elect, any part or parts of such frame or frame members which the Company's examination discloses to be defective in material or workmanship. This company reserves the right to require any such repairs to be made either at a Company owned service facility or another approved service facility at the Company's option. Transportation cost to and from the servicing location are the responsibility of the user-purchaser.

This warranty shall be null and void if the frame shows any evidence of alterations, cutting, splicing, welding or drilling of rails or flanges without the written authorization of E-ONE. Further, this warranty shall be void if the vehicle is involved in an accident, shows signs of abuse, neglect, or evidence of being operated in a manner or purpose not recommended by E-ONE.

Nothing contained in this warranty shall make E-ONE liable beyond the express limitations hereof, for loss, injury or damage of any kind to any person or entity resulting from any defect or failure of the chassis.

To the extent permitted by law, THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATIONS, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

To the extent permitted by law, this warranty is also in lieu of all other obligations or liabilities on the part of E-ONE or the Seller, including liability for incidental and consequential damages.

E-ONE makes no representation that any E-ONE chassis has the capacity to perform any functions other than as contained in the Company's written literature, catalogs or specifications accompanying delivery of the vehicle.

No person or affiliated Company representative is authorized to give any other warranties or to assume any other liability on behalf of E-ONE in connection with sale, service or repair of any apparatus manufactured by the Company.

E-ONE reserves the right to make design changes or improvements in its products without imposing any obligation upon itself to change or improve previously manufactured products.

REV.C
2/7/05

NOTE: Surety bond, if required, applies only to E-ONE's Basic One Year Limited Warranty, and not to this or any other extended warranty made by E-ONE or any of E-ONE's suppliers.

STATEMENT OF WARRANTY ZINC COATED FRAME ASSEMBLY 20 YEAR CORROSION PERFORATION

E-ONE, Inc. (the "Company") warrants that the ZINC COATED FRAME RAIL, FRONT FRAME EXTENSIONS, CROSS MEMBERS AND BATTERY BRACKETS used in the construction of each new fire and rescue apparatus during the warranty period when used in a normal and reasonable manner shall be warranted against corrosion. E-ONE's obligation under this warranty is strictly limited to replacing or repairing, as E-ONE may elect, any frame rail, front frame extensions, cross members and battery brackets which the Company's examination discloses to be defective in material or workmanship.

This warranty shall provide for repair or replacement of the frame rail, front frame extensions, cross members and battery brackets at E-ONE's option, for any claim in accordance with the following terms and conditions.

WHAT IS COVERED

- **WARRANTY APPLIES** – The warranty is for all new fire and rescue apparatus manufactured by E-ONE with zinc coated frame rails, front frame extensions, cross members and battery brackets and is extended only to the original user-purchaser.
- **REPAIRS COVERED** – The warranty covers repair or replacement at E-ONE's option. Repairs shall be made at an E-ONE owned service facility or another approved service facility at E-ONE's option.
- **OBTAINING REPAIRS** – The original user-purchaser must notify E-One in writing within a reasonable amount of time after any claimed defect has appeared. Transportation costs to and from the servicing center shall be the responsibility of the user-purchaser.
- **WARRANTY PERIOD** – The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. The warranty period shall be for a period of **TWENTY (20) YEARS**.

WHAT IS NOT COVERED

- Any item that is bolted to the frame rail, including the item attachment hardware (bolts, nuts, etc.).
- Any damaged caused by fire, misuse, negligence or accident.
- Any damage caused by theft, vandalism, riot or explosion.
- Any damaged caused by lightning, earthquake, windstorm, hail, or flood.
- Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of E-One.
- Any damage from lack of maintenance and /or cleaning.
- Paint, except that which is affected by an E-ONE approved warrantable repair.
- Loss of time, loss of use of the product, inconvenience, lodging, food or other consequential or incidental loss that may result from a failure.
- This warranty shall be null and void if the frame rails, front frame extensions, cross members and battery brackets show any evidence of alterations, cutting, splicing, welding or drilling of rails or flanges without the written authorization of E-One. Further this warranty shall be void if the vehicle is involved in an accident, shows signs of abuse, neglect or evidence of being operated in a manner or purpose not recommended by E-One.

Nothing contained in this warranty shall make E-ONE liable beyond the express limitations hereof, for loss, injury or damage of any kind to any person or entity resulting from any defect or failure of the chassis.

To the extent permitted by law, **THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATIONS, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

To the extent permitted by law, this warranty is also in lieu of all other obligations or liabilities on the part of E-ONE or the Seller, including liability for incidental and consequential damages.

E-One makes no representation that any E-ONE chassis has the capacity to perform any functions other than as contained in the Company's written literature, catalogs or specifications accompanying delivery of the vehicle.

No person or affiliated company representative is authorized to give any other warranties or to assume any other liability on behalf of E-One in connection with sale, service or repair of any apparatus manufactured by the Company.

E-One reserves the right to make design changes or improvements in its products without imposing any obligation upon itself to change or improve previously manufactured products.

REV A 09/16/2013

NOTE: Surety bond, if required, applies only to E-ONE's Basic One Year Limited Warranty, and not to this or any other extended warranty made by E-ONE or any of E-ONE's suppliers.



**STATEMENT OF WARRANTY
STAINLESS STEEL PLUMBING COMPONENTS
10 YEAR WARRANTY POLICY**



E-ONE (the "Company") warrants all E-ONE manufactured stainless steel plumbing components used in the construction of E-ONE fire apparatus water/foam plumbing systems against defects and workmanship provided the apparatus is used in a normal and reasonable manner. This warranty is extended to the original user-purchaser for a period of ten years from the date of delivery to the original user-purchaser, whichever occurs first.

The Company reserves the right to require any such repairs to be made either at a Company owned service facility or another approved service facility at the Company's option. Transportation cost to and from the servicing location are the responsibility of the user-purchaser.

E-ONE will repair, or replace the specific E-ONE manufactured stainless steel plumbing component, at our option, with a new E-ONE manufactured stainless steel plumbing component. E-ONE will cover all customary and reasonable costs to remove and install the E-ONE manufactured stainless steel plumbing component. This warranty will not cover components that have been misused or abused, or due to accident or natural disaster. E-ONE will not cover any unauthorized third party repairs or alterations. Any of these actions may void the warranty.

Nothing contained in this warranty shall make E-ONE liable beyond the express limitations hereof, for loss, injury or damage of any kind to any person or entity resulting from any defect or failure in the E-ONE manufactured stainless steel plumbing components.

To the extent permitted by law, THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

To the extent permitted by law, this warranty is also in lieu of all other obligations or liabilities on the part of E-ONE or the Seller, including liability for incidental and consequential damages.

E-ONE makes no representation that the E-ONE manufactured stainless steel plumbing components have the capacity to perform any functions other than as contained in the Company's written literature, catalogs or specifications accompanying delivery of the apparatus.

No person or affiliated Company representative is authorized to give any other warranties or to assume any other liability on behalf of E-ONE in connection with sale, service or repair of any apparatus manufactured by the Company.

E-ONE reserves the right to make design changes or improvements in its products without imposing any obligation upon itself to change or improve previously manufactured products.

REV C
2/7/03

NOTE: Surety bond, if required, applies only to E-ONE's Basic One Year Limited Warranty, and not to this or any other extended warranty made by E-ONE or any of E-ONE's suppliers.

CONDITIONAL 5-YEAR WARRANTY POLICY

WATEROUS warrants, to the original Buyer only, that products and parts manufactured by WATEROUS will be free from defects in material and workmanship under normal use and service for a period of five (5) years from the date the product is first placed in service, or five and one-half (5-1/2) years from the date of shipment by Waterous, whichever period shall be the first to expire; provided the Buyer notifies WATEROUS, in writing, of the defect in said product within the warranty period, and said product is found by WATEROUS to be nonconforming with the aforesaid warranty. When required in writing by WATEROUS, defective products must be promptly returned by Buyer to WATEROUS at WATEROUS' plant at South St. Paul, Minnesota, or at such other place as may be specified by WATEROUS, with transportation and other charges prepaid. A Returned Material Authorization (RMA) is required for all products and parts and may be requested by phone, fax or mail. The aforesaid warranty excludes any responsibility or liability of WATEROUS for:

- (a) damages or defects due to accident, abuse, misuse, abnormal operating conditions, negligence, accidental causes, or improper maintenance, or attributable to written specifications or instructions furnished by Buyer;
- (b) defects in products manufactured by others and furnished by WATEROUS hereunder, it being understood and agreed by the parties that the only warranty provided for such products shall be the warranty provided by the manufacturer thereof which, if assignable, WATEROUS will assign to Buyer, if requested by Buyer;
- (c) any product or part, altered, modified, serviced or repaired other than by WATEROUS, without its prior written consent; and
- (d) the cost of dismantling, removing, transporting, storing, or insuring the defective product or part and the cost of reinstallation.
- (e) normal wear items (packing, strainers, filters, light bulbs, anodes, intake screens, mechanical seals, etc.).

This warranty is subject to WATEROUS' Conditions of Sale (Waterous Company form number F-2190) as currently in effect all of which are herein incorporated and by this reference made a part hereof.

All other warranties are excluded, whether express or implied by operation of law or otherwise, including all implied warranties of merchantability or fitness for purpose. WATEROUS shall not be liable for consequential or incidental damages directly or indirectly arising or resulting from the breach of any of the terms of this limited warranty or from the sale, handling, or used of any WATEROUS' product or part. WATEROUS' liability hereunder, either for breach of warranty or for negligence, is expressly limited at WATEROUS' option:

- (A) to the replacement at the agreed point of delivery of any product or part, which upon inspection by WATEROUS or its duly authorized representative, is found not to conform to the limited warranty set forth above, or
- (B) to the repair of such product or part, or
- (C) to the refund or crediting to buyer of the net sales price of the defective product or part.

Buyer's remedies contained herein are exclusive of any other remedy otherwise available to Buyer.

Waterous Company
 125 Hardman Avenue South
 South St. Paul, MN 55075 USA
www.waterousco.com

WATEROUS

Fire Pumps - Since 1886

F-2113



607 N.W. 27th Avenue
Ocala, Florida 34475
800-533-3569

PRODUCT WARRANTY

Class 1 warrants that any equipment of our own manufacture (or manufactured for us pursuant to our specifications) found to have defects in material or workmanship during normal use and service, will be repaired or replaced (at our option) free of charge, provided that written notice of such defect is received by us within two years (three for liquid-filled gauges) after initial shipment. All equipment requiring repair or replacement under this warranty shall be returned prepaid to **Class 1**. Such returned equipment shall be examined by us and, if found to be defective as a result of materials failure or workmanship, shall be repaired or replaced at no charge.

This warranty shall not apply to any equipment which has been tampered with or altered after leaving our control or which has been repaired by anyone except **Class 1**. Product, which has been subjected to misuse, neglect, abuse, or improper application, will not be covered under this warranty. Misuse or abuse of the equipment or any part thereof shall include, but not limited to, damage by negligence, overpressure, excess voltage and the like. Operating the equipment with or in a corrosive, explosive, or combustible medium (unless equipment is specifically designed for such service), or exposing it to any other conditions or environment of greater severity than that for which the equipment was designed will void this warranty.

This warranty is given and accepted in lieu of all other warranties, expressed or implied, and of all other obligations or liabilities on our part. In no event shall we be liable for breach of warranty beyond the terms stated above or for any consequential damages in any case. **Class 1**'s liability in all events is limited to the value of the product involved.

In order to ensure prompt exchange or repair service, please contact **Class 1** toll free at 800-533-3569 or email: class1returns@idexcorp.com to receive a Return Materials Authorization Number (RMA #) prior to returning the items to **Class 1**. Please mark the RMA # on the outside of all packages. This will enable our receiving department to quickly route the product to the appropriate repair department. Products received by **Class 1** without a RMA # may experience service delays or may be returned to the sender for additional information. All returned items should be shipped prepaid by customer to:

Class 1, 607 NW 27th Ave., Ocala, FL 34475



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.



Cummins Inc.
Box 3005
Columbus, IN 47202-3005
U.S.A.

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WARRANTY AND DISCLAIMER*: We warrant Akron Brass products for a period of five (5) years* after purchase against defects in materials or workmanship. Akron Brass will repair or replace product which fails to satisfy this warranty. Repair or replacement shall be at the discretion of Akron Brass. Products must be promptly returned to Akron Brass for warranty service. We will not be responsible for wear and tear, any improper installation, use, maintenance or storage; negligence of the owner or user; repair or modification after delivery; failure to follow our instructions or recommendations; or anything else beyond our control. WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED, OTHER THAN THOSE INCLUDED IN THIS WARRANTY STATEMENT, AND WE DISCLAIM ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. Further, we will not be responsible for any consequential, incidental or indirect damages (including, but not limited to, any loss of profits) from any cause whatsoever. No person has authority to change this warranty.

*Unless otherwise provided herein, Akron Brass industrial electronic components & the Severe-Duty Monitor have a one (1) year warranty. Select Akron Brass headline nozzles and valves carry a ten (10) year warranty. Weldon products have a two (2) year warranty from date of manufacture (excluding consumable components). Select Weldon LED products carry a five (5) year warranty. Honda products have the manufacturer's warranty and Akron Brass disclaims any warranty in respect of those products.

NEW PRODUCT WARRANTY

PARTICIPATING OEM SALES
DISTRIBUTOR SALESLIMITED WARRANTY ON NEW ALLISON AUTOMATIC TRANSMISSIONS
USED IN EMERGENCY VEHICLE APPLICATIONS

Allison Transmission, Inc. 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
MD 3000, 3200, 3500, 3700	0-24	No Limit	No Charge	No Charge
1000 Series, 2000 Series, 2400 Series	0-36	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

UPF POLY-TANK® IIE

THE ALL-OUT™ NO FAULT LIFETIME WARRANTY

UNITED PLASTIC FABRICATING, INC. warrants each UPF POLY-TANK® IIE Booster/Foam tank to be free from manufacturing defects in material and workmanship for the service life of the original vehicle (vehicle must be actively used in fire suppression). The warranty is transferable within the United States and Canada by notifying UPF within thirty (30) days of the vehicle transfer date. Every UPF POLY-TANK® IIE is thoroughly inspected and tested for leaks before leaving our facility and must be installed in accordance with the United Plastic Fabricating Installation Guidelines. Should any problems develop with your UPF POLY-TANK® IIE Booster/Foam tank, please notify UPF in writing or call our TOLL FREE SERVICE HOT LINE at 1-800-USA-POLY and provide UPF with the serial number and a description of the problem. If UPF determines that the tank problem has rendered the truck out of service, UPF will dispatch a service technician WITHIN 48 HOURS (2 DAYS) to repair the tank (This time period is for the United States and Canada Only). If it is determined that the vehicle can remain in service, UPF will dispatch a service technician within a mutually agreed upon time period. Should the vehicle be located outside of the United States and Canada, UPF will assume costs for labor and material for the repair and for any travel costs to the U.S. port of embarkation. Costs for airline or other means of travel outside of the U.S. and Canada will not be the responsibility of United Plastic Fabricating, Inc.

UPF will repair or, at its option, replace the tank with a new UPF POLY-TANK® IIE. UPF will cover customary and reasonable costs to remove and install the UPF POLY-TANK® IIE. This warranty will not cover tanks that have been improperly installed, misused or abused, and the serial number must not have been altered, defaced or removed. UPF will not cover any unauthorized third party repairs or alterations. Any of these actions may void the warranty.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF. THERE IS NO EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. ADDITIONALLY, THIS WARRANTY IS IN LIEU OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF UNITED PLASTIC FABRICATING, INC.

This warranty contains the entire warranty. It is the sole warranty and price agreements or representation, whether oral or written, are either merged herein or expressly canceled. UNITED PLASTIC FABRICATING, INC. neither assumes, nor authorizes any person supposing to act on its behalf to change, nor assume for it, any warranty or liability concerning its product.

IN NO EVENT WILL UNITED PLASTIC FABRICATING, INC. BE LIABLE FOR AN AMOUNT IN EXCESS OF THE CURRENTLY PUBLISHED RETAIL PRICE PLUS INSTALLATION AND REMOVAL COST OF THE BOOSTER TANK, FOR ANY LOSS OR DAMAGE, WHETHER DIRECT OR INDIRECT, INCIDENTAL, CONSEQUENTIAL, OR OTHERWISE ARISING OUT OF FAILURE OF ITS PRODUCT.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow exclusion or limitation of incidental or consequential damage, so the above limitation or exclusion may not apply to you. Since some states do not allow limitations on the length of an implied warranty, the above limitation may not apply to you.



FILL IN THE INFORMATION CONTAINED ON YOUR WARRANTY CARD IN THE FORM TO THE RIGHT. PLEASE KEEP THIS INFORMATION IN A SAFE PLACE FOR REFERENCE. IF SERVICE SHOULD EVER BE NEEDED, CALL 1-800-USA-POLY.

POLY-TANK®, POLY-TANK® II & POLY-TANK® IIE are all registered trademarks of United Plastic Fabricating, Inc.
ALL-OUT™ and PT2E™ are trademarks of U.P.F., Inc.
AccTuf™ is a trademark of Amoco Polymers, Inc., exclusive to U.P.F.
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Transfer of Ownership Form

Serial Number: _____

Original Owner: _____

Address: _____

City/Town: _____ State: _____ Zip: _____

Complete and fax or mail to UPF to transfer warranty

Date of transfer: _____

New Owner: _____

Address: _____

City/Town: _____ State: _____ Zip: _____

** All transfers subject to approval by UPF. **

**The Industry Standard in
Booster Tank Technology**

UPF's Poly-Tank® IIE

**With Amoco's
AccTuf™ Resin**

**For Service Call:
1-800-USA-POLY**

- **Booster/Foam Tanks**
- **Slide-In Units**
- **Foam Trailers**
- **Wet-Side Tankers**
- **Rescue/Brush Trucks**
- **Elliptical Tankers**

WARRANTY CARD

Phone: (800) 638-8265
Fax: (800) 966-4520
Email: info@unitedplastic.com
www.unitedplastic.com

To:

Place
Postage
Here

**UNITED PLASTIC
FABRICATING, INC.**
165 Flagship Drive
N. Andover, MA 01845



**UPF's ALL-OUT™
No Fault Lifetime
Warranty is the
Only Transferable
Tank Warranty in
the Fire Industry!**



Elkhart Brass

Fire Fighting Equipment

Downloads

Warranties

APPARATUS VALVES	
Unibody Valve Limited Warranty	<p>This 10-year warranty covers all valve-related electric components, including: the controller, the motor and the sensor(s). It's the most comprehensive and longest warranty on electric waterflow components in the industry.</p> <p><i>File Type: Adobe Acrobat PDF</i> <i>File Size: 123.64 kB</i></p>
OTHER WARRANTIES	
Standard Warranty	<p>Elkhart Brass Mfg. Co., Inc. warranties all new products against defects in materials or workmanship for 5 years.</p> <p><i>File Type: Adobe Acrobat PDF</i> <i>File Size: 208.75 kB</i></p>

1302 West Beardsley Ave. • Elkhart, IN 46514 • 800-346-0250 • 1-574-295-8330

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 <p>WELDON A DIVISION OF AKRON BRASS</p>	<p align="center">Vehicle Multiplex Warranty</p>	
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Warranty Provided to: E-ONE

Page 1

Warranties: The Multiplex (V-MUX[®]) system of Weldon (A Division of Akron Brass), when installed correctly is warranted against mechanical, electrical and physical defects for the period defined in the table below per module. The period is defined as the date of manufacture from Weldon; each module carries its own date of manufacture.

This warranty is valid only for those Manufacturers that have completed and received VCS (V-MUX Certified Supplier) Level 1 or Level 2 (see page 4).

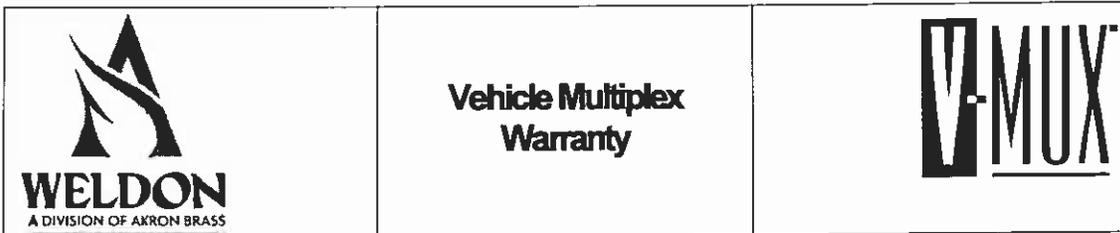
Without VCS, Weldon offers a 30-day parts-only warranty on all V-MUX hardware.

Weldon will correct by repair or replacement, at its option, equipment or parts which fail because of mechanical, electrical or physical defects, provided that the goods have been properly handled and stored prior to installation and properly installed and properly operated after installation. Buyer must provide Weldon written notice (RGA) of such defects after delivery of the goods to Buyer. All products to be returned for repair or replacement must be authorized by Weldon prior to their return. Weldon will issue a RGA number that must be clearly marked on the exterior of the box and associated packing slip. Weldon reserves the right to assess a \$50.00 no-fault-found fee on any product returned to Weldon as defective and found to be fully functional. The Buyer must supply; model number, serial number and failure mode to Weldon when requesting an RGA.

Weldon may examine any goods upon which a claim is made in the same condition as when defect therein is discovered, and may require the return of the goods to establish any claim.

Weldon's obligation under this is warrant is limited to making repair or replacement within a reasonable time after receipt of such written notice and does not include any other costs such as the cost of removal of defective part, installation of repaired product, labor or consequential damages of any kind, the exclusive remedy being to require such parts to be furnished. Weldon's liability under no circumstances will exceed the contract price of goods claimed to be defective. Any returns under this guarantee are to be on a transportation charges prepaid basis.

<Table on Next Page – Defines Warranty Period >



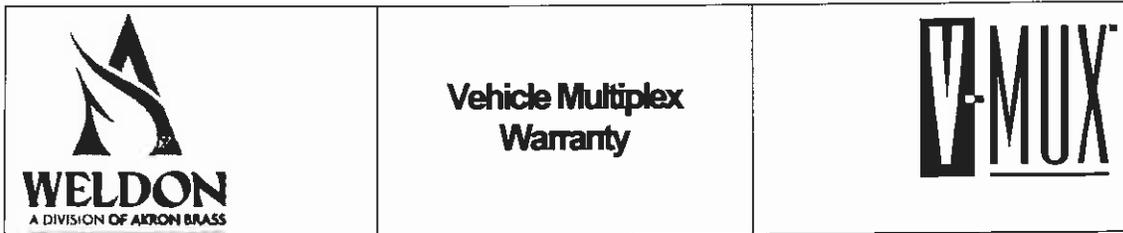
Warranty Table

Page 2

Part Numbers	Parts Period	¹ Weldon Internal Repair Labor Period
6000-0000-04 Hercules	5 years	5 years
6010-0000-00 Mini 5x12	5 years	5 years
6020-0000-00 Mini 16	5 years	5 years
6030-0000-00 8x16 Node	5 years	5 years
6231-####-## Vista III LCDisplay Nodes ¹	5 years	5 years
Internal LCDisplay*	2 years	2 years
Internal Electronics	5 years	5 years
624#-####-## Vista IV LCDisplay Nodes ¹		
Internal LCDisplay*	2 years	2 years
Internal Electronics	5 years	5 years
6204-####-## Seatbelt Indicator	5 years	5 years
6300-####-## Switch Panels	2 years	2 years
6400-0000-00 Gateway Node	5 years	5 years
6444-XXXX-XX VDR	5 years	5 years
6120-0000-00 Modem Transceiver	2 years	2 years
0R80-0614-00 Shunt interface Module	1 year	1 year
0U10-0715-00 VFD 2 Line Display	1 year	1 year
0R13-0614-00 Temp sensor	1 year	1 year
611X-0000-00 Transceiver Serial or USB	1 year	1 year
613X-0000-00 Diag Kit, Serial or USB	1 year	1 year
0Q20-2972-07 or -10 Extended warranty label 7 or 10 years from date of manufacture ²	7 years	7 years

¹Weldon Internal Repair Labor Period is defined as the labor provided by Weldon's service department to repair or provide a replacement for the returned device. This does not reflect the labor to remove or replace any such devices from the vehicle, nor indicate Weldon accepts any responsibility for such removal, replacement or troubleshooting of said devices.

²Extended warranties are offered by purchasing tamper proof stickers from Weldon with the years of the warranty on them. Extended warranties extended the base warranty, a node with a 7 year sticker has an additional 3 years added to the 4 year standard. Damaged or removal of the label will result in no extended warranty.



Warranty Repairs: End users requiring warranty repairs on the V-MUX® system should contact the original equipment manufacturer's customer service or other appropriate dept for service/warranty repairs. All repairs and / or exchanges performed on the V-MUX System must be routed through and coordinated by the OEM utilizing Weldon's RGA process.

THIS IS WELDON'S SOLE GUARANTEE AND WARRANTY WITH RESPECT TO THE GOODS; THERE ARE NO EXPRESS WARRANTIES OR WARRANTIES OF FITNESS FOR ANY PARTICULAR PURPOSE OR ANY IMPLIED WARRANTIES OF FITNESS FOR ANY PARTICULAR PURPOSE OR ANY IMPLIED WARRANTIES OTHER THAN THOSE MADE EXPRESSLY HEREIN. ALL SUCH WARRANTIES BEING EXPRESSLY DISCLAIMED.

Limitation of Liability: Neither Weldon nor its suppliers shall be liable, whether in contract, warranty, failure of a remedy to achieve its essential purpose, tort including negligence, strict liability, indemnity, or any other legal theory, for loss of use, revenue or profit, or for cost of capital or of substitute use of performance, or for indirect, special, liquidated, incidental or consequential damages, or for any other loss or cost of a similar type, or for claims by Purchaser for damages of Purchaser's customers.

Patents: Weldon shall pay costs and damages finally awarded in any suit against Purchaser to the extent based upon a finding that the design or construction of the goods as furnished infringes a United States patent (except infringement occurring as a result of incorporating a design or modification at Purchaser's request), provided that Purchaser promptly notifies Weldon of any charge of infringement, and Weldon is given the right at its expense to settle such charge and to defend or control the defense of any suit based upon such charge.

THIS PARAGRAPH SETS FORTH COMPANY'S ENTIRE LIABILITY WITH RESPECT TO PATENTS.

Governing law and Assignment: The laws of the State of Ohio shall govern the validity, interpretation, and enforcement of this contract. Assignment may be made only with written consent of both parties.



V-MUX® Certified Supplier Program – VCS

At the OEM level: Weldon offers two levels of certification for the OEM (original equipment manufacturer):

- **VCS (V-MUX Certified Supplier Program) Level 1.** To obtain **VCS 1**, an OEM must:
 - Send at least two electrical design qualified individuals through Weldon's two-day class.

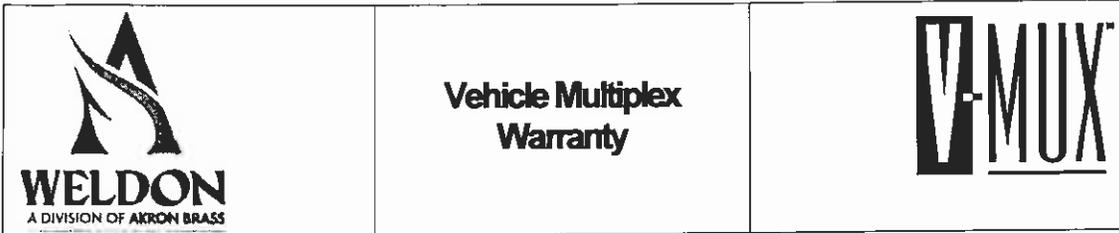
This class will consist at a minimum of:

 - 1 hour of V-MUX electrical system overview
 - 10 hours of V-MUX System Designer™ software training
 - 1 hour of multiplex node Downloader software training
 - 3 hours of vehicle Diagnostics software and troubleshooting training
 - 1 hour of on-site support for V-MUX test apparatus fabrication
 - Host Weldon provided production-level electrical training, (may be concurrent with above training) consisting at a minimum of:
 - 1 hour of V-MUX electrical system overview
 - 3 hours Diagnostics/Downloader software training with Diagnostics tools
 - 1 hour of general electrical troubleshooting training.

Certified **VCS 1** OEMs will have the ability to design, build, and service a V-MUXed electrical system.

- **VCS Level 2.** To obtain **VCS 2**, an OEM must:
 - Obtain VCS 1 level training. This can be concurrent with VCS 2 training.
 - Set up with Weldon an end-user customer support system. (Manuals, internet, etc...)
 - Provide dealer and/or service-level training, consisting at a minimum of:
 - 1.5 hours of V-MUX electrical system overview
 - 1 hour of Downloader software training
 - 2 hours of Diagnostics training
 - Weldon approved basic computer literacy training/test for at each service center. At least one active person per service center must pass the computer literacy test.
 - Distribution of V-MUX Diagnostic software and troubleshooting tools
 - Annual refresher training.

Certified **VCS 2** OEMs will have VCS 1 abilities plus the ability to provide to end users a robust V-MUX support system. For each end user an overview class will be conducted by the OEM or Dealer that covers the location of V-MUX nodes in their vehicle, on-board diagnostic messages, basic troubleshooting, and support. The end user should also test completely any V-MUXed vehicle before taking delivery. VCS 2 certification is annual and subject to annual reviews by Weldon.



V-MUX® Certified Service Supplier – VCSS

At the Dealer and Service Network Level: Weldon offers two levels of certification for the dealer and service network:

- **VCSS (V-MUX Certified Service Supplier) Level 1.** To obtain **VCSS 1**, dealer/service center must:
 - Provide Weldon approved V-MUX service training for a minimum of 50% of the individuals responsible for electrical repair and troubleshooting. This training class will consist of a minimum of:
 - 1.5 hours of V-MUX system overview
 - 1 hours of Downloader software training
 - 4 hours of Diagnostics/troubleshooting training **with Diagnostics tools**
 - Weldon approved basic computer literacy training/test. At least one VCSS 1 trainee per service center must pass the computer literacy test.

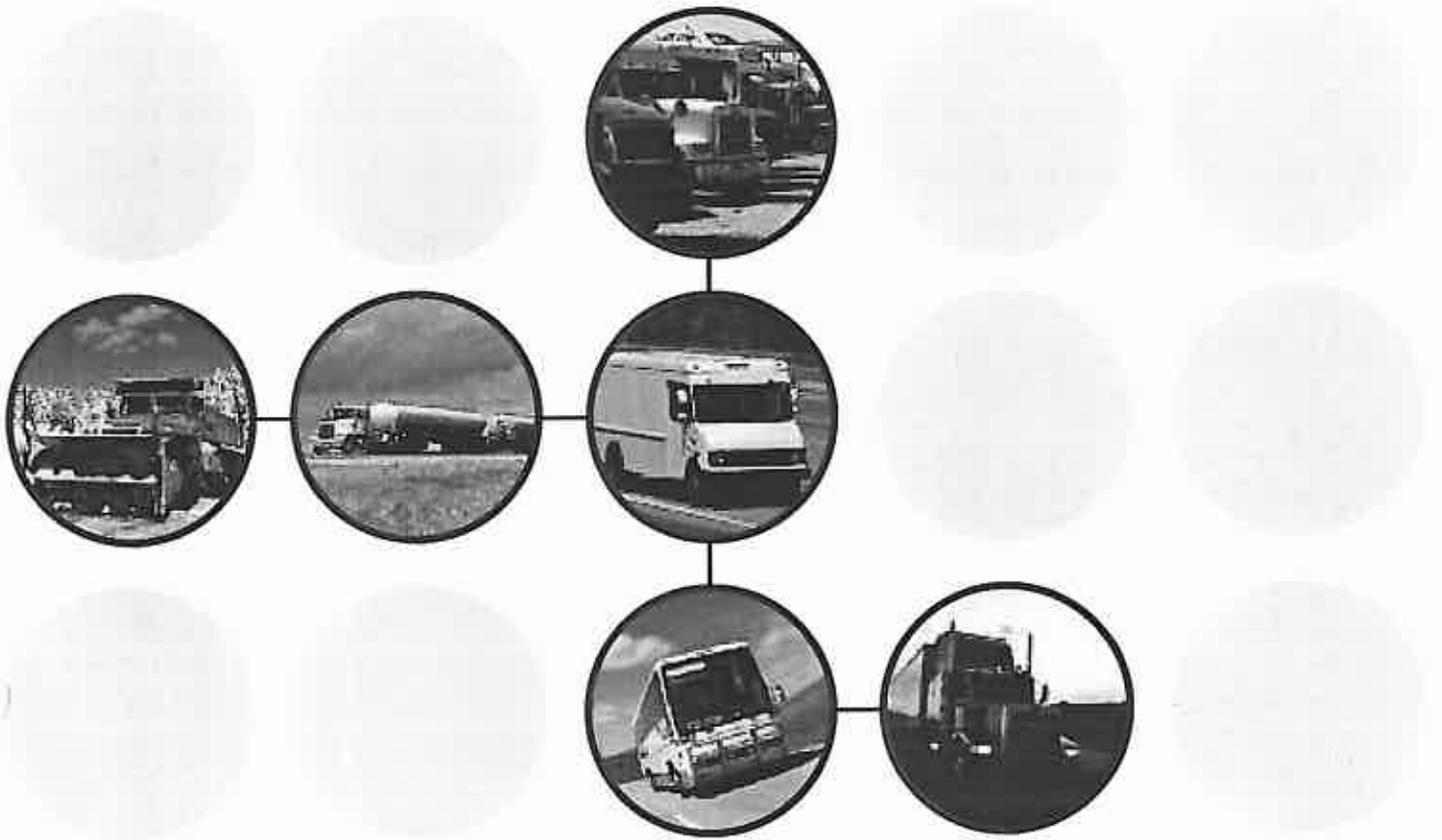
Certified **VCSS 1** center will have the tools and ability to efficiently service a V-MUX electrical system.

- **VCSS (V-MUX Certified Service Supplier) Level 2.** To obtain **VCSS 2**, dealer/service center must:
 - Provide VCSS 1 level training for **all** of the individuals responsible for electrical repair and troubleshooting within their organization. At least two VCSS 1 trainees per service center must pass the computer literacy test.
 - Set up with the OEM or Weldon an end-user customer support system. (Manuals, etc...)
 - Participate in or coordinate a training class for end-users, which must include at least:
 - V-MUX system overview
 - V-MUX system documentation review:
 - Wiring schematics
 - Complete vehicle electrical input/output documentation
 - Location of V-MUX hardware on vehicle
 - Review of all diagnostic messages available from installed system
 - Review top-level troubleshooting practices
 - Review complete vehicle functional and system specification
 - Discuss availability of V-MUX diagnostic software and troubleshooting tools

Certified **VCSS 2** centers will have VCSS 1 abilities plus robust capability to support and train V-MUX end users to become self-sufficient in basic V-MUX troubleshooting. VCSS 2 certification is annual and subject to annual reviews by Weldon.

Commercial Vehicle Systems

Warranty / Model Year 2011 Vehicles



ArvinMeritor

Simpler is better.

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.

Advantage Program

Purchasing additional coverage on select components will continue to safeguard your investment against major repair costs after the initial base coverage expires. You can find out more about the Advantage Program by visiting www.arvinmeritor.com or by contacting ArvinMeritor at 800-535-5560.

■ Linehaul	4-5
■ General Service	6-7
■ Heavy Service	8-9
■ Restricted Service	10
■ Terms and Conditions	11

How to Read Warranty Coverage:

Number of Years / Mileage (in thousands) / P=Parts Only
Unl=Unlimited / P&L=Parts & Labor

Models or components that are approved for use by ArvinMeritor's vocational guidelines contained in ArvinMeritor Publication TP-9441 for axles, SP-8320 for trailer axles, which are not specifically listed, are warranted for one year, unlimited miles, parts only (1/Unl/P).

ArvinMeritor™

Linehaul Warranty Information



Linehaul Vehicles:

- | | | | |
|----------------|-------------------|--------------------|------------------------|
| ■ Auto Hauler | ■ Flatbed | ■ Livestock Hauler | ■ Refrigerated Freight |
| ■ Bulk Hauler | ■ General Freight | ■ Moving Van | ■ Tanker |
| ■ Chip Hauler* | ■ Grain Hauler | ■ Pipe Hauler | ■ Triples |
| ■ Doubles | | | |

* Chip Hauler vehicles require specific axle models listed below and Linehaul condition to be eligible for Linehaul warranty consideration.

Linehaul Typically Is:

- High mileage operation (over 60,000 miles/year)
- Operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock, hard packed dirt or other similar surfaces (moderate grades)
- Greater than 30 miles between starting and stopping

Coverage under ArvinMeritor's warranty requires that the application of products be properly approved pursuant to OEM, ArvinMeritor, Meritor WABCO, and ZF engineering approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, and/or contact ArvinMeritor regarding specific application approval questions on any product line.

Front Non-Drive Steer Axles - 5/750/P&L

FD-965	FF-943	FF-966	FG-943	MFS-10-144A-N	MFS-13-143A-N
FF-941	FF-944	FF-967	MFS-10-122A	MFS-12-143A-N	MFS-13-144A-N
FF-942	FF-961	FG-941	MFS-10-143A-N	MFS-12-144A-N	MFS-14-143A-N

Composite Truck/Tractor Springs 3/300/P, 1/Unl/P&L

Clutches

15.5" Manual-Adjust Clutch ¹	1/100/P&L
15.5" TwinXTend Self-Adjust Clutch ¹	3/350/P&L
17" FreedomLine Clutch ^{1,2}	3/350/P&L

¹ Clutches are warranted by ZF Sachs and administered by ArvinMeritor.
² FreedomLine clutch consists of cover assembly and disc assembly.

Transmissions - 5/750/P&L

ZF-FreedomLine 12-Speed^{1,2,3,4,5}

¹ With approved synthetic lube (Without - 3/300/P&L).
² Multiple engine retarders are not approvable.
³ Electronic shift systems 3/300/P&L.
⁴ Hard surface applications only.
⁵ Output seal 3/300/P&L.

Drivelines

RPL	4/400/P, 1/Unl/P&L
92N	1/Unl/P
RN (155N - 18N)	1/Unl/P

Meritor® XTended Lube — MXL™ Drivelines

17XN/17XT	3/350/P, 1/Unl/P&L
176XN/176XT	3/350/P, 1/Unl/P&L
18XN/18XT	3/350/P, 1/Unl/P&L

Rear Drive Single Axles - 5/750/P&L

MFS-13-122	RS-21-145	RH-23-161
RS-19-144/145/A	RS-21-160	RS-23-161/A
MS-19-14X	RH-23-160	RS-23-180
MS-21-144MA-N	RS-23-160/A	RS-23-186

Rear Drive Tandem/Tridem Axles - 5/750/P&L

RT-34-144/P/A	RT-50-160/P/A ^{1,2,3}	MT-40-943
RT-40-145/P/A	MT-34-14X/P	RZ-166 ^{2,3}
RT-40-160/P/A ^{1,2,3}	MT-40-14X/P	RZ-186
RT-46-160/P/A ^{1,2,3}	MT-40-143	RZ-188
RT-46-164EH/P/A ^{1,2,3}	MT-40-144/P	

¹ These models required for Chip Hauler and Linehaul warranty consideration.
² Warranty is 3/300/P&L when used with 2050 lb.ft. engines. Refer to Product Information Letter #293 for further details.
³ Each vehicle must have a Request for Application Recommendation (RAR) approved by ArvinMeritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.



Brake Components

Cam Q Series Trailer Brakes	5/500/P, 1/100/L
LX500 Feature ²	5/750/P&L
Cam ¹ Q Plus™	5/500/P, 1/Unl/P&L
ASA ¹	5/500/P, 1/Unl/P&L
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
X30™ Drums ³	12-Years or Wearable Life/P

¹ First year P&L.

² Includes: bushing, seal, cam, ASA lubrication and wear coverage of 3/500/P&L.

³ Based on stamped wear diameter max.

Trailer Axles

Wheel End Systems ¹	
Beam and Brackets	5/500/P, 1/100/L
Standard System ²	1/100/P&L
PreSet by Meritor ³	5/500/P&L
AxlePak4 ⁴	
Beam and Brackets	5/500/P, 1/100/L
AxlePak6 ⁵	
Beam and Brackets	6/600/P, 1/100/L

¹ Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

² When installed by ArvinMeritor.

³ Requires approved hubcap stating PreSet by Meritor on hubcap face.

⁴ Applies to STEMCO Guardian HP Seal, STEMCO Pro-Torq nut, STEMCO Integrated Sentinel Hub Cap, and Meritor bearings.

⁵ Applies to STEMCO Guardian HP Seal, STEMCO Pro-Torq nut, STEMCO Integrated Sentinel Hub Cap, and STEMCO matched bearing sets.

(For brake components and ABS coverage, refer to appropriate product warranties.)

TAG/ Pusher Axles¹

TQ, TQD, TR, TRD Beam and Brackets	3/300/P, 1/100/L
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¹ For brake components and ABS Coverage, refer to appropriate product warranties.

Meritor® Tire Inflation System by PSI 3/500/P&L

Trailer Air Suspension Systems

MPA38/40 (Tandem Axle Parallelogram)

Major Structural Components	5/500/P, 1/100/L
Height Control Valve	1/100/P&L
Shock Absorbers	2/200/P&L
Air Springs	2/200/P, 1/100/L
Bushings	7/Unl/P, 5/Unl/L
PinLoc Air Controls	1/100/P&L
PinLoc Actuator	3/300/P&L

MPA20 (Single Axle Parallelogram)

Major Structural Components	5/500/P, 1/100/L
Height Control Valve	1/100/P&L
Shock Absorbers	2/200/P&L
Air Springs	2/200/P, 1/100/L
Bushings	7/Unl/P, 5/Unl/L

RFS/MTA

Major Structural Components	5/500/P, 1/100/L
Height Control Valve	1/100/P&L
Shock Absorbers	2/200/P&L
Air Springs & Rebound Straps	2/200/P, 1/100/L
Bushings	5/500/P, 3/300/L

(For axle and ABS coverage, refer to appropriate product warranties.)

Meritor WABCO Components¹

ABS (Anti-Lock Braking System) Air/Hydraulic	3/300/P&L
Hydraulic Power Brake (HPB)	3/300/P&L
ATC (Automatic Traction Control)	3/300/P&L
EX and PAN Air Disc Brake ^{3,4}	2/Unl/P&L
Air Dryers (All)	1/Unl/P&L, 3/300/P
Leveling Valves	1/Unl/P&L
Air Brake Valves	1/Unl/P&L, 3/300/P
Emissions Valve	2/200/P
Emission SCR Air Control Unit ⁶	2/200/P
Clutch Controls	2/200/P&L
ECAS (Electronic Controlled Air Suspension)	3/300/P&L
Air Compressors (ALL) ²	3/300/P&L
Electronic Stability Control (ESC)	3/300/P&L
Roll Stability Control (RSC)	3/300/P&L
OnGuard™	3/300/P&L
Trailer Roll Stability Support (RSS)	3/300/P&L
Trailer Control Line Filter	1/100/P&L
Trailer Control Line Filter with ABS Valve	4/400/P, 1/100/L
Trailer ABS Valve with Control Line Filter	4/400/P, 3/300/L

¹ Warranted by Meritor WABCO Vehicle Control Systems.

² WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by Meritor WABCO. Please contact your respective dealer/distributor of those engines for warranty and servicing.

³ Brake warranty coverage is 5/750/P when using a Meritor WABCO chamber. For other chambers, brake coverage is 1/Unl/P.

⁴ Meritor WABCO chamber warranty is 1/Unl/P.

⁵ Must have an oil coalescing device installed in the air system located before the Air Control Unit.

General Service Warranty Information



General Service Vehicles:

■ Aerial Ladder Truck	■ Front Engine Commercial Chassis	■ Moving Van	■ Recreational Vehicles
■ Aerial Platform	■ Front Engine Integral Coach	■ Municipal Truck	■ Refrigerated Truck
■ Ambulance	■ General Freight	■ Newspaper Delivery	■ School Bus
■ Auto Hauler	■ Intercity Coach	■ Pick-Up and Delivery	■ Stake Truck
■ Beverage Truck	■ Intermodal Chassis	■ Pipe Hauler	■ Tanker
■ Chip Hauler	■ Livestock Hauler	■ Platform Auto Hauler	■ Tanker Truck
■ Cross Country Coach	■ Meat Packer	■ Pumper	■ Tour Bus
■ Flatbed		■ Rear Engine Integral Coach	■ Wrecker

General Service Typically Is:

- Lower mileage operations (less than 60,000 miles/year)
- Generally, on-road service (less than 10% off-road)
- An average of three (3) miles between starting and stopping

Coverage under ArvinMeritor's warranty requires that the application of products be properly approved pursuant to OEM, ArvinMeritor, Meritor WABCO, and ZF engineering approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, and/or contact ArvinMeritor regarding specific application approval questions on any product line.

Front Drive/Non-Drive Steer Axles – 2/Unl/P&L

FD-965	FF-966	17100	MFS-6-153C-N	MFS-8-163B-N	MFS-13-144A-N
FF-941	FF-967	17101	MFS-6-162C-N	MFS-10-122A	MFS-14-143A-N
FF-942	FG-941	FL-941	MFS-7-113C-N	MFS-10-143A-N	MFS-16-122A-N
FF-943	FG-943	FL-943	MFS-7-153C-N	MFS-10-144A-N	MFS-16-143A-N
FF-944	FG-952 ¹	MFS-6-151A-N	MFS-7-163C-N	MFS-12-143A-N	MFS-18-133A-N
FF-946	FH-941	MFS-6-153B-N	MFS-8-113B-N	MFS-12-144A-N	MFS-20-133A-N
FF-961	FH-945 ¹	MFS-6-162B-N	MFS-8-153B-N	MFS-13-143A-N	

¹ Can be used in front or tag position.

Front Non-Drive Steer Axles

with Unitized Wheel Ends – 3/Unl/P&L¹

FG-952
FH-941
FH-946

¹ Includes: hub, wheel seals and wheel bearings.

Clutches

15.5" HD Clutch¹ 1/100/P&L
15.5" TwinXTend 1/100/P&L
17" FreedomLine Clutch 1/100/P&L

¹ Products with an in-service date prior to 11/01/02 warranted by Meritor Clutch Company.

Transmissions – 3/Unl/P&L

ZF-FreedomLine 12-Speed^{1,2,3}

¹ Multiple engine retarders are not approvable.

² Electronic shift systems 3/300/P&L

³ Hard surface applications only.

Composite Truck/Tractor Springs 3/300/P, 1/Unl/P&L

Drivelines

RPL 4/400/P, 1/Unl/P&L	Meritor® XTended Lube – MXL™ Drivelines
92N 1/Unl/P	17XN/17XT 3/350/P, 1/Unl/P&L
RN (155N - 18N) 1/Unl/P	176XN/176XT 3/350/P, 1/Unl/P&L
	18XN/18XT 3/350/P, 1/Unl/P&L

Rear Drive Single Axles – 2/Unl/P&L

MS-10-113	MS-21-144MA-N	RH-23-161	RS-30-185
MS-11-113	RS-21-145	RS-23-160	MS-30-616
MS-12-113	RS-21-145/A	RS-23-160/A	MS-35-380
MFS-13-122	RS-21-160	RS-23-161	61142
MS-17-14X	RC-22-145	RS-23-161/A	61143
MS-19-14X	RC-22-145/A	RS-23-186	61152
RS-13-120	RC-23-160	RS-24-160/A	61153
RS-15-120	RC-23-161	RC-25-160	71063
RS-17-144/145/A	RC-23-162 ¹	RS-25-160/A	71162
RS-19-144/145/A	RC-23-165 ¹	RS-26-185	71163
MS-21-14X	RH-23-160	MS-26-616	

¹ 3/Unl/P&L if PreSet by ArvinMeritor.

Rear Drive Tandem/Tridem Axles – 3/Unl/P&L

RT-40-160/P/A	RT-46-164EH/P/A
RT-46-160/P/A	RT-50-160/P/A

Bus & Coach, Recreational Vehicle Suspensions – 2/200/P&L^{1,2}

RIS07EF	RIS09EF	RIS10EF	RIS12EF
RIS16EF	RIS18EF	RTA20ER	RTA13EA
RFA20ER	RFA23ER	RFA25ER	RTA28ER
RAL12EF			

¹ Coverage Includes frames, brackets, arms, knuckles and seats.

² See limitations for minor component coverage.

Rear Drive Tandem/Tridem Axles – 2/Unl/P&L

MT-34-14X/P	RT-40-145/P/A	MT-58-616
RT-34-144/P/A	MT-44-14X/P	RT-58-185 ¹
MT-40-14X/P	RT-44-145/P	MT-70-380
MT-40-143DA-N	RT-46-169	RZ-166
MT-40-143MA-N ¹	MT-52-616	RZ-186
MT-40-144/P	RT-52-185 ¹	RZ-188

¹ Axle model designated will vary according to options and variations specified on these axles. Contact ArvinMeritor Axle Applications Engineering for details.

² Each vehicle must have a Request for Application Recommendation (RAR) approved by ArvinMeritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.



Brake Components

Cam Q Series Trailer Brakes LX500 Feature ¹	3/Unl/P, 1/Unl/L 3/Unl/P&L
Cam P ²	2/200/P
Cam	3/Unl/P
Cam Q Plus™	3/Unl/P&L
Cam Q Plus™ ³	2/200/P&L
ASA	3/Unl/P
ASA ³	2/200/P
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
X30™ Drums ²	12-Years or Wearable Life/P

¹ Includes: bushing, seal, cam, ASA lubrication and wear coverage of 1/Unl/P.

² Based on stamped wear diameter max.

³ Applies to Tour Bus and Cross Country Coach only.

Trailer Axles

Wheel End Systems ¹	
Beam and Brackets	5/500/P, 1/100/L
Standard System ²	1/Unl/P&L
AxlePak ⁴	4P/3L
Beam and Brackets ³	5/500/P, 1/100/L
AxlePak ⁶	6P/5L
Beam and Brackets ³	6/600/P, 1/100/L

¹ Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

² When installed by ArvinMeritor.

³ 9000 Series Is 3/Unl/P, 1/Unl/L.

⁴ Applies to STEMCO Guardian HP Seal, STEMCO Pro-Torq nut, STEMCO Integrated Sentinel Hub Cap, and Meritor bearings.

⁵ Applies to STEMCO Guardian HP Seal, STEMCO Pro-Torq nut, STEMCO Integrated Sentinel Hub Cap, and STEMCO matched bearing sets.

(For brake components and ABS coverage, refer to appropriate product warranties.)

Air Link™ 2/200/P&L^{1,2}

MWA46
MWA52

¹ Coverage includes Hangers, Trailing Arms, Walking Beams

² Bushings, Air Bag, Shock Absorbers 1/50/P

Chassis Axles (2000 Series)

Beam and Brackets TN, TP	6/Unl/P, 1/Unl/L
Wheel End Systems ¹	
TN, TP	1/Unl/P&L
CN ²	4P/3L
Beam and Brackets	7/Unl/P, 1/Unl/L

¹ Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

² Applies to STEMCO Guardian HP Seal, STEMCO Pro-Torq nut, STEMCO Integrated Sentinel Hub Cap, and Meritor bearings.

TAG/ Pusher Axles¹

TQ, TQD, TR, TRD	Beam and Brackets	3/Unl/P, 1/Unl/L
MC12002 ¹ , MC16003 ²		2/Unl/P&L

(For brake components and ABS coverage, refer to appropriate product warranties.)

¹ 3/UNL/P&L if sold with PreSel by ArvinMeritor.

² 3/UNL/P&L if sold w/unutilized wheel ends.

Trailer Air Suspension Systems

MPA38/40 (Tandem Axle Parallelogram)

Major Structural Components	5/Unl/P, 1/Unl/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs	2/Unl/P, 1/Unl/L
Bushings	7/Unl/P, 5/Unl/L
Air Controls	1/100/P&L
Air Actuator	3/300/P&L

MPA20 (Single Axle Parallelogram)

Major Structural Components	5/Unl/P, 1/Unl/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs	2/Unl/P, 1/Unl/L
Bushings	7/Unl/P, 5/Unl/L

RFS/MTA

Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs and Rebound Straps	2/Unl/P, 1/Unl/L
Bushings ¹	5/Unl/P, 3/Unl/L

(For axle and ABS coverage, refer to appropriate product warranties.)

¹ Raw wood applications 3/Unl/P, 1/Unl/L

Meritor WABCO Components¹

ABS (Anti-Lock Braking System) Air/Hydraulic	3/300/P&L
Hydraulic Power Brake (HPB)	3/300/P&L
ATC (Automatic Traction Control)	3/300/P&L
EX ^{4,5} and PAN Air Disc Brake	2/Unl/P&L
All Other Air Disc Brakes	1/Unl/P
Air Dryers (ALL)	1/Unl/P&L, 2/200/P
Leveling Valves	1/Unl/P&L
Air Brake Valves	1/Unl/P&L, 2/200/P
Emissions Valve	2/200/P
Emission SCR Air Control Unit ⁶	2/200/P&L
Clutch Controls	2/200/P&L
ECAS (Electronically Controlled Air Suspension)	3/300/P&L
Air Compressors (ALL) ²	2/200/P&L
Electronic Stability Control (ESC)	3/300/P&L
Truck Roll Stability Control (RSC)	3/300/P&L
Trailer Roll Stability Support (RSS)	3/300/P&L
Trailer Control Line Filter	1/100/P&L
Trailer Control Line Filter with ABS Valve	4/400/P, 1/100/L
Trailer ABS Valve with Control Line Filter	4/400/P, 3/300/L

¹ Warranted by Meritor WABCO Vehicle Control Systems.

² WABCO compressors installed on Cummins, Mercedes, and Volvo engines are not warranted or serviced by Meritor WABCO. Please contact your respective dealer/distributor of those engines for warranty and servicing.

³ Applies to Tour Bus and Cross Country Coach only.

⁴ Brake warranty coverage is valid when using a Meritor WABCO chamber. For other chambers, brake coverage is 1/Unl/P.

⁵ Meritor WABCO chamber warranty is 1/Unl/P.

⁶ Must have an oil coalescing device installed in the air system located before the Air Control Unit.

Meritor® Tire Inflation System by PSI 3/500/P&L

Heavy Service Warranty Information



Heavy Service Vehicles:

- | | | | |
|-----------------------------------|----------------------------------|------------------------------------|-------------------------------|
| ■ Airport Rescue Fire (ARF) | ■ Dump | ■ Michigan Special Steel Hauler | ■ Side Loader |
| ■ Airport Shuttle | ■ Emergency Service | ■ Michigan Special Waste Vehicle | ■ Snowplow/Snowblower |
| ■ Asphalt Truck | ■ Equipment Hauling | ■ Municipal Dump | ■ Steel Hauling |
| ■ Block Truck | ■ Flatbed Trailer Hauler | ■ Rapid Intervention Vehicle (RIV) | ■ Tanker |
| ■ Bottom Dump Trailer Combination | ■ Flatbed Truck | ■ Rear Loader | ■ Tank Truck |
| ■ Cementing Vehicle | ■ Fracturing Truck | ■ Recycling Truck | ■ Tractors with Pole Trailers |
| ■ City Bus | ■ Front Loader | ■ Residential Pick-Up | ■ Tractor/Trailer with Jeeps |
| ■ Commercial Pick-Up | ■ Geophysical Exploration | ■ Rigging Truck | ■ Transfer Dump |
| ■ Concrete Pumper | ■ Hopper Trailer Combinations | ■ Roll-Off | ■ Transfer Vehicle |
| ■ Construction Material Hauler | ■ Landscaping Truck | ■ Scrap Truck | ■ Transit Bus |
| ■ Crash Fire Rescue (CFR) | ■ Liquid Waste Hauler | ■ Semi-End Dump | ■ Trolley |
| ■ Mixer | ■ Log Hauling | ■ Sewer/Septic Vacuum | ■ Utility Truck |
| ■ Demolition | ■ Lowboy | ■ Shuttle Bus | ■ Winch Truck |
| ■ Drill Rig | ■ Michigan Special Gravel Trains | | |
| | ■ Michigan Special Log Hauler | | |

Heavy Service Typically Is:

- Moderate mileage operation (less than 60,000 miles per year)
- On/Off road vocations (10% or more off-road)
- Moderate to frequent stops/starts (up to 10 stops per mile)

Coverage under ArvinMeritor's warranty requires that the application of products be properly approved pursuant to OEM, ArvinMeritor, Meritor WABCO, and ZF engineering approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, and/or contact ArvinMeritor regarding specific application approval questions on any product line.

Front Drive/Non-Drive Steer Axles – 2/Uni/P&L

FD-965	FF-966	FL-941	MFS-6-153B	MFS-8-153B-N	MFS-13-143A-N	MFS-20-133A-N	MX-19-140
FF-941	FF-967	FL-943	MFS-6-162B	MFS-8-163B-N	MFS-13-144A-N	RF-21-160	MX-21-140
FF-942	FG-941	17100	MFS-6-162C	MFS-10-122A	MFS-14-143A-N	MX-10-120	MX-21-160
FF-943	FG-943	17101	MFS-7-113C-N	MFS-10-143A-N	MFS-16-122A-N	MX-12-120	MX-23-160
FF-944	FH-941	17110	MFS-7-153C-N	MFS-10-144A-N	MFS-16-143A-N	MX-14-120	
FF-946	FH-945	17111	MFS-7-163C-N	MFS-12-143A-N	RF-16-145	MX-16-120	
FF-961	FH-946	MFS-6-151A-N	MFS-8-113B-N	MFS-12-144A-N	MFS-18-133A-N	MX-17-140	

Bus & Coach Suspensions – 2/200/P&L^{1,2}

RIS07EF	RIS09EF	RIS10EF	RIS12EF
RIS16EF	RIS18EF	RTA20ER	RTA13EA
RFA20ER	RFA23ER	RFA25ER	RTA28ER
RAL12EF			

¹ Coverage Includes frames, brackets, arms, knuckles and seats.

² See limitations for minor component coverage.

Clutches

15.5" HD Clutch ¹	1/100/P&L
15.5" TwinXTend	1/100/P&L
17" FreedomLine Clutch	1/100/P&L

¹ Products with an In-service date prior to 11/01/02 warranted by Meritor Clutch Company.

Transmissions – 2/Uni/P&L

ZF-FreedomLine 12-Speed^{1,2,3}

¹ Multiple engine retarders are not approvable.

² 12-speed transmission not approved for off-road vocations.

³ Hard surface application only.

Drivelines – 1/Uni/P&L

RPL	92N	RN	MXL
-----	-----	----	-----

Rear Drive Single Axles – 2/Uni/P&L

MS-10-113	MS-19-14X	RS-21-160	RC-23-161	RS-24-160/A	RH-30-185	RC-26-720	61153
RS-13-120	RS-19-144	RC-22-145	RH-23-161	RS-25-160/A	RS-30-185/380	59732	71162
MFS-13-122	MS-21-114	RC-23-160	RS-23-161/A	RH-26-185	MS-35-380	59733	71163
RS-15-120	MS-21-14X	RH-23-160	RS-23-186/380	MS-26-616	RS-38-380	61142	
MS-17-14X	RS-21-145	RS-23-160	RC-23-162	RS-26-185/380	RC-25-160	61143	
RS-17-144/145/A	RS-21-145/A	RS-23-160/A	RC-23-165	MS-30-616	RC-26-633	61152	



Rear Drive Tandem/Tridem Axles - 2/Uni/P&L

MT-34-14X/P	MT-40-143DA-N	MT-40-144/P	RT-44-145/P	RT-52-185/380 ^{2,3,4,5}	RT-70-380 ⁶	RZ-186 ⁶
RT-34-144/P/A	MT-40-143MA-N ¹	RT-40-145/P/A	RT-46-169	MT-58-616	MT-70-380	RZ-188 ⁶
MT-40-14X/P	MT-40-144	MT-44-14X/P	MT-52-616	RT-58-185/380 ^{2,3,4,5}	RZ-166 ⁶	

¹ U.S. only. Canadian warranty - 1/Uni/P for combination vehicles only.

² Axle model designated will vary according to options and variations specified on these axles. Contact ArvinMeritor Axle Applications Engineering for details.

³ Axle model designated will vary according to options and variations specified on these axles. Contact ArvinMeritor Axle Applications Engineering for details.

⁴ Each vehicle must have a Request for Application Recommendation (RAR) approved by ArvinMeritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

⁵ Warranty is 1/Uni/P&L when used with 2050 lb.ft. engines. Refer to Product Information Letter #293 for further details.

Brake Components

Cam P	3/Uni/P
Cam P ³	2/100/P
Cam Cast Plus™	2/100/P&L
Cam Q Plus™	3/Uni/P&L
Cam Q Plus™ ²	2/100/P&L
ASA	3/Uni/P
ASA ²	2/100/P
Hubs/Cast Drums and Other Wheel-end Components	1/Uni/P
Hydraulic Disc Brakes	1/Uni/P
All Other Brakes	1/Uni/P
X30™ Drums ¹	12-Years or Wearable Life/P

¹ Based on stamped wear diameter max.

² Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

³ Warranty for all non-Meritor ASAs supplied by ArvinMeritor for all Heavy Service vocations is 1/100/P.

Rear Drive Tandem/Tridem Axles - 3/Uni/P&L

RT-40-160/P/A ^{3,4}
RT-46-160/P/A ^{1,3,4}
RT-46-164EH/P/A ^{2,3,4}
RT-50-160/P/A ^{3,4}

¹ U.S. only. Canadian warranty - 1/Uni/P for combination vehicles only.

² Axle model designated will vary according to options and variations specified on these axles. Contact ArvinMeritor Axle Applications Engineering for details.

³ Warranty is 1/Uni/P&L when used with 2050 lb.ft. engines. Refer to Product Information Letter #293 for further details.

⁴ Each vehicle must have a Request for Application Recommendation (RAR) approved by ArvinMeritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

Trailer Air Suspension Systems

RFS/MTA

Major Structural Components ¹	5/Uni/P, 1/Uni/L
Height Control Valve	1/Uni/P&L
Shock Absorbers ¹	2/Uni/P&L
Air Springs	2/Uni/P, 1/Uni/L
Bushings ¹	5/Uni/P, 3/Uni/L

(For axle and ABS coverage, refer to appropriate product warranties.)

¹ Raw wood applications 3/Uni/P, 1/Uni/L

Center Non-drive Axles - 2/100/P&L

61042	61052	71063
61043	61053	RC-26-700

Meritor® Tire Inflation System by PSI 3/500/P&L

Meritor WABCO Components¹

ABS (Anti-Lock Braking System) Air/Hydraulic	3/300/P&L
Hydraulic Power Brake (HPB)	3/300/P&L
ATC (Automatic Traction Control)	3/300/P&L
EX ³ and PAN Air Disc Brake	2/100/P&L
Air Dryers (ALL)	1/100/P&L
Leveling Valves	1/Uni/P&L
Air Brake Valves	1/100/P&L
Emissions Valve	2/200/P
Emission SCR Air Control Unit ⁴	2/200/P
Clutch Controls	2/200/P&L
ECAS (Electronically Controlled Air Suspension)	3/300/P&L
Air Compressors (ALL) ²	2/200/P&L
Electronic Stability Control (ESC)	3/300/P&L
Truck Roll Stability Control (RSC)	3/300/P&L
Trailer Roll Stability Support (RSS)	3/300/P&L
Trailer Control Line Filter	1/100/P&L
Trailer Control Line Filter with ABS Valve	4/400/P, 1/100/L
Trailer ABS Valve with Control Line Filter	4/400/P, 3/300/L

¹ Warranted by Meritor WABCO Vehicle Control Systems.

² WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by Meritor WABCO. Please contact your respective dealer/distributor of those engines for warranty and servicing.

³ Brake warranty coverage is valid when using a Meritor chamber. For other chambers, brake coverage is 1/Uni/P.

⁴ Must have an oil coalescing device installed in the air system located before the Air Control Unit.

Air Link™ 2/200/P&L^{1,2}

MWA46
MWA52

¹ Coverage includes Hangers, Trailing Arms, Walking Beams

² Bushings, Air Bag, Shock Absorbers 1/50/P

Trailer Axles

Beam and Brackets ¹	5/Uni/P, 1/Uni/L
Wheel End Systems ²	
Standard System ³	1/Uni/P&L

¹ 9000 Series is 3/Uni/P, 1/Uni/L

² Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

³ When installed by ArvinMeritor.

(For brake components and ABS coverage, refer to appropriate product warranties.)

Shock Absorbers 1/50/P

Coverage for trailer suspension shock absorbers may vary. Please check appropriate Trailer products sections for other terms.

Rear Engine Power Take-offs 1/Uni/P

TAG/Pusher Axles¹

TQ, TQD, TR, TRD	
Beam and Brackets	3/Uni/P, 1/Uni/L

(For brake components and ABS coverage, refer to appropriate product warranties.)

Transfer Cases - 1/Uni/P

MTC-4208	T-1138
MTC-4210	T-2111
MTC-4213	T-2119
	T-2120
	TG-2213

Restricted Service Warranty Information



Restricted Service Vehicles:

- | | | | |
|--------------------|---------------------|-----------------------|---------------|
| ■ Load-On/Load-Off | ■ Rail Yard Spotter | ■ Stevedoring Tractor | ■ Yard Jockey |
| ■ Port Tractor | ■ Roll-On/Roll-Off | ■ Trailer Spotter | |

Restricted Service Typically Is:

- Low mileage operation
- 15 MPH vehicle speed restriction
- Vehicles are **not** typically licensed for highway use
- Six (6) starts/stops per mile (typical)

Coverage under ArvinMeritor's warranty requires that the application of products be properly approved pursuant to OEM, ArvinMeritor, Meritor WABCO, and ZF engineering approvals. Refer to TP-9441 for axles and/or contact ArvinMeritor regarding specific application approval questions on any product line.

Front Non-Drive Steer Axles – 1/Unl/P

FF-941	FF-966	FL-941	MFS-12-144A-N	MFS-14-143A-N	MFS-18-133A-N
FF-943	FG-941	FL-943	MFS-13-143A-N	MFS-16-122A-N	MFS-20-133A-N
FF-961	FG-943	MFS-12-143A-N	MFS-13-144A-N	MFS-16-143A-N	

Clutch

15.5" HD Clutch ¹	1/100/P&L
15.5" TwinXTend	1/100/P&L
17" FreedomLine Clutch ¹	1/100/P&L

¹ Products with an in-service date prior to 11/01/02 warranted by Meritor Clutch Company.

Transmissions – 1/Unl/P

ZF-FreedomLine 12-Speed^{1,2}

¹ Includes electronic shift systems.
² Hard surface applications only.

Drivelines – 1/Unl/P

RPL RN MXL

Rear Drive Single Axles – 1/Unl/P

RS-23-186	RS-24-160	MS-30-616	RS-30-380
RS-23-380	MS-26-616	RS-30-185	MS-35-380

Rear Drive Tandem Axles – 1/Unl/P

MT-44-14X/P	MT-70-380	RT-46-164EH/P
MT-52-616	RT-44-145/P	RT-50-160/P
MT-58-616	RT-46-160/P	

Shock Absorbers 1/100/P

Brake Components

Cam P	3/Unl/P
Cam Q Plus™	3/Unl/P&L
ASA	3/Unl/P
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
LX500 Feature ¹	1/Unl/P

¹ Includes: bushing, seal, cam and ASA.
² Based on stamped wear diameter max.

Meritor WABCO Components¹

ABS (Anti-Lock Braking System) Air/Hydraulic	3/300/P&L
Hydraulic Power Brake (HPB)	3/300/P&L
ATC (Automatic Traction Control)	3/300/P&L
EX ^{3,4} and PAN Disc Brake	2/100/P&L
Air Dryers (ALL)	1/100/P&L
Leveling Valves	1/Unl/P&L
Air Brake Valves	1/100/P
Emissions Valve	2/200/P
Emission SCR Air Control Unit ⁵	2/200/P
Clutch Controls	2/200/P&L
Air Compressors ²	2/Unl/P&L

¹ Warranted by Meritor WABCO Vehicle Control Systems.

² WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by Meritor WABCO.

Please contact your respective dealer/distributor of those engines for warranty and servicing.

³ Brake warranty coverage is valid when using a Meritor WABCO chamber. For other chambers, brake coverage is 1/Unl/P.

⁴ Meritor WABCO chamber warranty is 1/Unl/P.

⁵ Must have an oil coalescing device installed in the air system located before the Air Control Unit.

Coverage Exclusions:

	<u>Product Description</u>
All:	The cost of any repairs, replacements or adjustments to a covered component (1) associated with noise; (2) resulting from the use or installation of non-genuine ArvinMeritor components or materials; (3) due to vibration associated with improper operation or misapplication of drivetrain components; and (4) damage resulting from corrosion.
Front Axles:	King Pin Bushings.
Rear Axles:	Self-contained traction equalizers and oil filters. The use of NoSPIN differentials will result in the exclusion of axle shafts from warranty considerations. NoSPIN is a product of Tractech Inc.
Clutch:	Friction face and mating surface of center and pressure plate, wear pads and clutch brake.
ASA:	Boot and bushing, Bent, broken, over-torqued, missing or otherwise damaged pawl assemblies.
ABS:	Cut, broken, chaffed or otherwise damaged cable wires. Damaged sensors from removal when seized in block, or sensor adjustments. Valve failures due to contamination in air system. E.C.U. failures due to excessive over-voltage conditions.
Air Dryers:	Mounting brackets (see vehicle OEM). Desiccant cartridge housing only.
Emission SCR Air Control Unit:	In no event shall Meritor WABCO be liable for special, incidental, indirect or consequential damages of any kind, including but not limited to towing charges, downtime expenses, failure to meet emission standards, cargo damage or other losses resulting from a defective component.
Air System Components:	Gladhand seals, dash valve knobs, valve actuation handles, treadles, pedals. Water and other contamination damage that is due to the use of a non-genuine air dryer cartridge will not be covered.
Cam Brake:	Brake lining wear (except MX500 package) and brake shoe "rust-jacking."
Disc Brake:	Pad wear, rotor wear, non-Meritor WABCO chambers.

Coverage Limitations:

	<u>Product Description</u>
All:	Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program.
Front Axles:	Tie rod and tie rod ends limited to 3-year/300,000-mile or published vocational coverage, whichever is less. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by ArvinMeritor.
Rear Axles:	Pinion and through shaft seals limited to 3-year/300,000-mile or published vocational coverage, whichever is less, if yoke is installed by ArvinMeritor. If yoke is not installed by ArvinMeritor, then ArvinMeritor does not warrant pinion seals. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by ArvinMeritor.
Rear Axles:	The Meritor® breather part number A-1199-W-4053 or A-1199-R-4048 must be used for eligibility of any potential warranty consideration relating to contamination and/or loss of lube in axles.
Cam Brake:	Limited to bracket, brake splder and camshaft.
X30:	Wearable life is up to the discard diameter of the drum.
Disc Brake:	For EX brakes, warranty coverage for brake is 1/Unl/P when using chambers other than a Meritor WABCO chamber. All chamber coverages are limited to 1/Unl/P for disc brakes, excluding heavy service applications. Warranty coverage for boots, seals, bushings and pins is 2/200/P.
Trailer Air Suspension Systems:	Fastener torque coverage is limited to 2/Unl P&L.
Transmissions:	Seal warranty is 3-years/300,000-miles or published vocational coverage, whichever is less, if yoke is installed by ArvinMeritor. If yoke is not installed by ArvinMeritor, there is no seal coverage. Approved synthetic lube required for extended transmission coverage.
Bus & Coach, R.V. Suspensions:	Links, rubber and plastic parts, bushings, bearings, joints and air springs are limited to 1/100/P&L.

Warranty coverage on vehicles with 1,850 lb-ft engine torque and over may be reduced on individual drivetrain components. Contact your ArvinMeritor representative for specific details.

(1) What is Covered by this Commercial Warranty? ArvinMeritor Inc. warrants to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment in vehicles licensed for on-highway use, will be free from defects in material and workmanship. This warranty coverage begins only after the expiration of the OEM's vehicle warranty for the applicable covered components. 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 elsewhere in this warranty statement.

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. Components (whether new, used or remanufactured) installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

For certain components, coverage requires the use of specific extended drain interval or synthetic lubricants. For further information about lubrication and maintenance, see ArvinMeritor publication Maintenance Manual Number 1 and the applicable ArvinMeritor maintenance manual for the product in question. Other conditions and limitations applicable to this warranty are detailed below.

(2) Designation of Vocational Use Required. To obtain warranty coverage, each Owner must notify ArvinMeritor through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the ArvinMeritor 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 ArvinMeritor directly. Failure to notify ArvinMeritor 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 ArvinMeritor as to the intended vocational use of the vehicle. This notification can be sent directly to ArvinMeritor 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 ArvinMeritor's warranty requires that the application of products be properly approved pursuant to OEM, ArvinMeritor, MeritorWABCO, and ZF engineering approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, and/or contact ArvinMeritor regarding specific application approval questions on any product line.

(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? This warranty does not cover normal wear and tear; nor does it cover a component that fails, malfunctions or is damaged as a result of (I) improper 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 ArvinMeritor), (II) accident, natural disaster, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the transmission, axle, driveline, and/or clutch torque capacity), or (III) improper or insufficient maintenance (including deviation from approved lubricants, change intervals, or lube levels). This warranty does not cover any component or part that is not sold by ArvinMeritor. For vehicles that operate full or part time outside of the United States and Canada, a one year, unlimited mileage, parts only warranty (1/Unl/P) will apply.

(5) Remedy. The exclusive remedy under this warranty shall be the repair or replacement of the defective component at ArvinMeritor's option. ArvinMeritor reserves the right to require that all applicable failed materials are available and/or returned to ArvinMeritor for review and evaluation.

(6) Disclaimer of Warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESSED, IMPLIED OR STATUTORY INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

(7) Limitation of Remedies. In no event shall ArvinMeritor be liable for special, incidental, indirect, or consequential damages of any kind or under any legal theory, including, but not limited to, towing, downtime, lost productivity, cargo damage, taxes, or any other losses or costs resulting from a defective covered component.

(8) 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 ArvinMeritor or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM new truck and/or trailer dealer or authorized ArvinMeritor service location. The dealer will inspect the vehicle and contact ArvinMeritor for an evaluation of the claim. When authorized by ArvinMeritor, the dealer will repair or replace during the term of this warranty any defective ArvinMeritor component covered by this warranty.

(9) Entire Agreement. This is the entire agreement between ArvinMeritor and the Owner about warranty and no ArvinMeritor employee or dealer is authorized to make any additional warranty on behalf of ArvinMeritor. This agreement allocates the responsibilities for component failure between ArvinMeritor and the Owner.

For more information, call 800-535-5560.



Meritor Heavy Vehicle Systems, LLC
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800-535-5560
www.arvinmeritor.com

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Proposal Information Sheet

September 1, 2015

Customer: Lexington Fayette Urban County Government

Apparatus: E-One Custom Pumper

Manufacturer: E-ONE
1601 S.W. 37th Avenue
Ocala, FL 34474
Dan Peters, President and CEO
(352) 237-1122
(352) 237-1151 Fax
info@e-one.com

Dealer: Vogelpohl Fire Equipment, Inc.
2770 Circleport Dr.
Erlanger, KY 41018
800-797-8317
859-282-1000
859-282-1550 fax

Todd Vogelpohl, President
513-659-8789 cell
toddv@vogelpohlfire.com

Kevin Kleman, Vice President
Fire Apparatus Sales Manager
859-240-1515 cell
kevink@vogelpohlfire.com



SERVICE FACILITIES

Local Service Facility:

Vogelpohl Fire Equipment, Inc
2770 Circleport Dr.
Erlanger, KY 41018

15,000 sq.ft. facility
Eight service bays
Four mobile service vehicles

800-797-8317
859-282-1000
859-282-1550 fax

Todd Vogelpohl, President
513-659-8789 cell
toddv@vogelpohlfire.com

Brian Roleson, Service Manager, EVT Technician
(513) 276-5996 cell
brianr@vogelpohlfire.com

Joe Hoover, Service Writer
joehoover@vogelpohlfire.com

For normal service call **859-282-1000** or **800-797-8317** and ask for **Service Department**

For Emergency after hours service call 800-797-8317, press option 2 and leave a message for the on-call service technician. Your call will be returned as quickly as possible. If you do not have a return call within two (2) hours please try your sales representative, or Todd Vogelpohl or Brian Roleson at the above numbers.

Certificate of Registration

nqa global assurance

This is to certify that the Quality Management System of:

E-ONE, Inc.

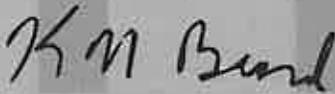
1601 Southwest 37th Avenue
Ocala, FL 34474

applicable to:

The design and manufacture of custom and standard fire fighting and emergency response vehicles and apparatus

has been assessed and approved by
National Quality Assurance, U.S.A., against the provisions of:

ISO 9001: 2008



For and on behalf
of NQA, USA, Acton, MA 01720

Certificate Number: 12518

EAC Code: 22

First Issued: August 18, 2000

Valid Until: September 10, 2015

Reissued: September 10, 2012





SAE Turning Radius Calculations for Quote No. 74057				
Wheelbase:	198"	Front Bumper Size:	10"	
Body Width:	100"	Front Bumper Extension:	20"	
Front Axle Kingpin Center:	68.5"	Front Wheel Type:	ALUMINUM	
Front Axle Track:	81.24"	Rear Wheel Type:	ALUMINUM	
Front Axle Tire Width:	16.6"	Tire Brand:	MICHELIN	
Dimension Over Rear Tires:	97.71"			
Body Front Overhang:	92"			
Inside Cramp Angle	S. A. E. Turning Radius	Tire Curb Clearance	Bumper Swing Clearance	Minimum Inside Radius
35	34.1'	34.8'	39'	22.3'
36	33.4'	34.1'	38.3'	21.5'
37	32.7'	33.4'	37.7'	20.7'
38	32'	32.7'	37.1'	19.9'
39	31.4'	32.1'	36.5'	19.2'
40	30.8'	31.5'	36'	18.4'
41	30.2'	30.9'	35.5'	17.8'
42	29.7'	30.4'	35'	17.1'
43	29.2'	29.9'	34.6'	16.5'
44	28.7'	29.4'	34.1'	15.9'
* 45	28.2'	28.9'	33.7'	15.3'
46	27.7'	28.4'	33.3'	14.7'
47	27.3'	28'	33'	14.2'
48	26.9'	27.6'	32.6'	13.6'
49	26.5'	27.2'	32.3'	13.1'
50	26.1'	26.8'	31.9'	12.6'
Nominal Cramp Angles:				
Leaf spring suspension: up to and including 425/65R22.5 tires			45 degrees	
Leaf spring suspension: 445/65R22.5 tires			38 degrees	
Reyco IFS: up to and including 385/65R22.5 tires			48 degrees	
Reyco IFS: 425/65R22.5 tires			45 degrees	
Reyco IFS: 445/65R22.5 tires without front intake			42 degrees	
Timoney Independent Front Suspension (IFS): up to and including 425/65R22.5 tires			44 degrees	
Timoney Independent Front Suspension (IFS): 445/65R22.5 tires			42 degrees	
Front Drive Axle: up to and including 425/65R22.5 tires			35 degrees	
This Turning Radius report reflects how the quote was configured. Any succeeding changes may slightly alter the turning radius of the vehicle and the data in this report.				

Electrical Load Report for Quote: 74057	
---	--

Amp Draw

Category / Selection	Responding	On-Scene with Fast Idle	Minimum Load w/o Fast Idle	Intermittent Load
AIR SYSTEM OPTIONS				
AIR HORNS RECSO BUMP GRVR (PR)	0	0	0	1
AUTO MOISTURE EJECTOR HEATED	3	3	3	0
SECONDARY BRAKING				
RETARDER TELMA DRIVELINE MOUNT	0	0	0	70
FUEL SYSTEMS				
FUEL/WATER SEPARATOR RACOR	1	1	1	0
CHASSIS OPTIONS				
TANK DEF 5 GAL - 2013 EPA	10	10	10	30
CAB MODEL				
TYPHOON X LONG CAB W/BS DRS	7.5	7.5	7.5	0
CAB DOOR OPTIONS				
CAB STEP AREA LTG LED (4)	0	2	2	0
CAB STEP AREA LTG LED RED (4)	0	1	1	0
MIRRORS				
MIRROR LANG MEKRA	3	3	0	2
HVAC				
AIR COND ISC/ISL W/RAD CNDSR	65	65	0	0
HEATER FRNT/RR W/O COVER (PR)	20.1	20.1	0	0
CAB ELECTRICAL OPTIONS				
WINDSHIELD FANS-8" (PR)	8	8	0	0
SPEEDOMETER FOR OFFICER	.25	.25	.25	0
TURN WHLN M6 LED ARROW AMBR	1.4	1.4	1.4	0
TURN WHLN M6 LED ARROW AMBR	1.4	1.4	1.4	0
TIRE CHAIN PREWIRE	8	0	0	0
LT DOME R/W WHLN LED PKG (6)	3.3	6.6	3.3	0
CAB HEADLIGHTS HALOGEN	10.93	10.93	10.93	0
BODY COMPT LEFT SIDE				
COMPT ROOF TOP STRG DRV	0	2.88	1.44	0
HANDRAILS / STEPS				
STEP RR FLDG DRV LED CPI	0	.288	.288	0
STEP FLDG LED CPI	0	.072	.072	0
STEP FLDG LED CPI [4]	0	.288	.288	0
PUMPS				
PUMP WATEROUS CSU1500-2250-1/S	0	0	0	100
PUMP OPTIONS				
VLV MONARCH ELECT ACT - WTRUS	0	0	0	10
TRIDENT PUMP PRIMER (IPOS)	0	0	0	-100
PRESSURE GOVERNORS				
GOV PRESS FRC PUMPBOS	1	1	1	0
GAUGES				
GA TC 10LED TANK LVL FOAM	0	.5	.5	0
GA TC 10LED TANK LVL WTR/PSTNK	0	1.8	0	0
LIGHT BARS				
LT BAR WHLN FNMINI LED MK7(PR)	8	6	6	0
LT BAR WHLN FN72VLED 14 MKEZ7	14	10	0	0
WARNING LIGHT PACKAGES				
LT PKG WHLN M6 LED RED (6/2/2)	9	9	9	0
WARNING LIGHTS				
LT HAZARD 2° LED [2]	.6	0	0	0
LTS WHLN M6 SUPER LED RED(PR)	1	1	1	0
LTS WHLN M6 SUPER LED RED(PR)	1	1	1	0
LTS WHLN M6 SUPER LED RED(PR)	1	1	1	0
LT WHLN M2RC LED (PR)	2	.9	.9	0
LT WHLN M2RC LED (PR)	2	.9	.9	0
LT WHLN M2RC LED (PR)	2	.9	.9	0
LTS WHLN ROTABEAM B63M7 (PR)	3	3	3	0
DIRECTIONAL LIGHT BARS				
LT DIR WHLN TADP8 LED 30°	0	4.12	0	0
SIRENS				
SIREN FED Q2B-PEDESTAL MNTD	0	0	0	100
DOT LIGHTING				
LT LICENSE PLATE LED	.05	.05	.05	0
LTS MRKR PKG BDY/CAB LED-P/TKR	3.5	3.5	3.5	0
LTS BRITAX LED AMBR/RED (PR)	.8	.8	.8	0
LT WHLN LED PSR00XRR BRAKE LT	0	0	0	.65
LT AUX TURN WLDN 9186 LED (PR)	0	0	0	2.1
LTS S/T/AT/BU M6 LED VRT 4	1.5	1.5	1.5	0
LIGHTS - COMPARTMENT, STEP & GROUND				
LT COMPT AMD LED MED CABINET [2]	0	1.2	1.2	0
LT COMPT AMD LED MED CABINET [2]	0	1.2	1.2	0
LT GROUND PKG LMBR H2O LED LG	0	6	6	0
LIGHTS - DECK AND SCENE				
LTS DECK FRTH WL3500 LED (PR)	0	3	0	0
LTS SCENE FRC SPA900 (PR)	0	12	0	0
LT HOSEBED AMDOR H2O	0	1.1	1.1	0

<u>LTS CROSSLAY WHLN PELCC (PR)</u>	0	1	1	1
<u>LIGHTS - NON-WARNING</u>				
<u>LT ENGINE COMPT LED (EA)</u>	0	.5	.5	0
<u>LT WIRING-PUMP PANEL LT</u>	0	0	0	0
<u>LT PUMP COMPT LED (EA)</u>	0	.5	.5	0
<u>LT SPOT-SPECLTY 2150 HNDHLD</u>	0	0	0	3.9
<u>LT PUMP PNL H2O LED 6LT SM PKG</u>	0	6.3	6.3	0
<u>LT MAPLT SUNNEX HS761-00</u>	1	1	0	0
<u>CONTROLS / SWITCHES</u>				
<u>ALARM DOOR AJAR</u>	.5	0	0	0
<u>CAMERAS / INTERCOM</u>				
<u>INTRCM FIRECOM 4 CAB WIRELESS</u>	2	2	0	0
<u>MISC ELECTRICAL</u>				
<u>12V POWER DISTRIBUTION MODULE</u>	10	10	0	0
<u>12V POWER DISTRIBUTION MODULE</u>	10	10	0	0
<u>ALARM BACK UP ECCQ SA917</u>	0	0	0	.3
<u>LIGHTS - QUARTZ</u>				
<u>LT WHLN PIONR PCP2 W/EXT POLE</u>	0	12	0	0
<u>LT WHLN PIONR PCP2 W/EXT POLE</u>	0	12	0	0
<u>LT FIRETECH 72" BROW W/ML WHT</u>	23.75	23.75	0	0
Total Amps:	240.58	295.23	92.72	220.95

Alternator Output

	Responding	On-Scene with Fast Idle	Idle
<u>ALT-360AMP NIEHOFF</u>	340	304	230

Wattage

Category / Selection	25 Pct Wattage	100 Pct Wattage	
Total Watts:	0	0	0



May 20, 2009

Mr. Reynold D. Wolter
Director of Advanced Product Development
E-One
1601 SW 37th Street
Ocala, FL 34474



Dear Mr. Wolter,

18881 US 31 North
P.O. Box 1020
Westfield, Indiana
46074-1020

Phone
(317) 896-9531
Fax
(317) 867-2305

This document confirms that on February 18, 2009 IMMI's Center for Advanced Product Evaluation (CAPE) conducted a static roof load test on an E-One C2X/T2X cab, using the procedure defined in ECE R29 annex three test B. During this test, a minimum static roof load of 117,336 pounds was applied to the roof of the C2X/T2X cab. The uncertainty in this load measurement was +2.2% / -0%. The event was documented with photographs and real-time video.

This document also reports that the E-One C2X/T2X cab withstood this load without encroachment into the occupant survival space and that all doors remained closed during the test.

Sincerely,

James R. Chinni P.E.
Director of CAPE

Ref: CTR03156



March 19, 2009

Mr. Reynold D. Wolter
Director of Advanced Product Development
E-One
1601 SW 37th Street
Ocala, FL 34474



Dear Mr. Wolter,

18881 US 31 North
P.O. Box 1020
Westfield, Indiana
46074-1020

Phone
(317) 896-9531
Fax
(317) 867-2305

This document confirms that on February 18, 2009 IMMI's Center for Advanced Product Evaluation (CAPE) conducted a dynamic frontal impact on an E-One C2X/T2X cab, using the procedure defined in SAE J2420. The test was configured such that the cab encountered 65,891 ft-lb of energy during the impact. For reference, SAE J2420 specifies a 32,549 ft-lb minimum impact energy. The test was documented with photographs, high speed and real-time video, accelerometers and a laser speed trap.

This document also reports that the E-One C2X/T2X cab withstood this frontal impact without encroachment into the occupant survival space, all doors remained closed during the test, and the cab remained attached to the frame rails in at least one location.

Sincerely,

James R. Chinni P.E.
Director of CAPE

Ref: CTR03156



May 22, 2009

Mr. Reynold D. Wolter
Director of Advanced Product Development
E-One
1601 SW 37th Street
Ocala, FL 34474



Dear Mr. Wolter,

18881 US 31 North
P.O. Box 1020
Westfield, Indiana
46074-1020

Phone
(317) 896-9531
Fax
(317) 867-2305

This document confirms that on February 18, 2009 the Center for Advanced Product Evaluation (CAPE) conducted a dynamic preload side impact and static roof load application to an E-One C2X/T2X cab and chassis section. The dynamic preload was conducted according to SAE J2422 paragraph 5 and the static roof load was applied according to ECE R29 Annex 3 Test B. The tests were documented with photographs, real-time and high-speed video, accelerometers and a laser speed trap.

This document also reports that the E-One C2X/T2X cab withstood this test without encroachment into the occupant survival space, all doors remained closed during the test, and the cab remained attached to the frame rails in at least one location.

Sincerely,

James R. Chinni P.E.
Director of CAPE

Ref: CTR03156



June 3, 2013

Mr. Raff McDougall
Emergency One, Inc.
P.O. Box 2710
Ocala, Florida, 34478

Ref: T2X/C2X/Quest Installation Review 2013 ISL

Dear Raff,

Cummins has approved our IQA submission for the 2013 ISL installation on May 23, 2013. Per the submission, the installation meets Cummins requirements. Per Cummins AEB's, any changes to the installation need to be communicated to Cummins for additional review and approval.

<u>System</u>	<u>Concurrence</u>
Power Train	Yes
Mounting	Yes
Deaeration	Yes
Cooling	Yes
Fuel	Yes
Air Induction	Yes
Air compressor	Yes
Exhaust	Yes
Lubrication	Yes
Electrical	Yes
Accessories	Yes
Serviceability	Yes

Emergency One
Page 2

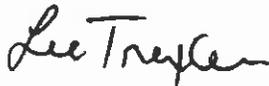
As always, this engine installation interfaces with various other systems in the equipment. There are several factors the installation review cannot be expected to address and have not been evaluated unless specifically noted in this report.

- Equipment application with regard to type of service and performance
- Component quality, workmanship, assembly practices and endurance abilities.
- Conformance of the equipment to regulatory or legislated requirements for design, safety and noise levels.
- End user acceptability of subjective characteristics as vibration or noise levels.

This report in no way reflects or assures market availability of the equipment reviewed.

Please contact me if you have any questions.

Best regards,



Lee Trexler
Director of OEM Sales and Engineering

cc: John Tyson – Cummins Power South LLC Ocala
Aaron Schilling – Cummins Power South LLC Tampa

E-ONE Quality Operating Procedure	Revision No.: A Date: 12/22/2010 Page: 1 of 2
Title: Corrosion Prevention Policy	

1.0 **PURPOSE:** This procedure defines E-ONE's approach to corrosion prevention and control.

2.0 **SCOPE:** This procedure applies to all steps in the product realization process and covers the entire life cycle of the product.

3.0 **DEFINITIONS:**

- ASTM D1654 – Standard Test Method for evaluation of painted or coated specimens subjected to corrosive environments.
- Corrosion – The destructive attack of a metal through interaction with its environment.
- PI – Process Instruction
- QMS – Quality Management System

4.0 **RESPONSIBILITY:**

- Design Engineer – incorporate corrosion prevention design principals. Define testing criteria.
- Manufacturing Engineer – develop process instructions and standards for corrosion control applications.
- Production Supervisor/Manager – ensure all operators are trained on corrosion prevention techniques and follow established standards.
- Quality Team – Audit process to ensure procedures are followed and ensure products are tested and records are maintained.
- Customer Service Team – document corrosion issues in the field.

5.0 **PROCESS:**

Corrosion prevention is achieved by engineering out corrosion opportunities. Design practices include the use of pre-punched holes to eliminate drilling after paint application, the minimization of slotted extrusions, and the elimination of water intrusion and collection points. Periodic evaluations of product designs are conducted to identify corrosion prevention opportunities.

Corrosion control is achieved by the application of corrosion protection products. Selection of materials, coatings, and corrosion inhibitors are specified to minimize corrosion from dissimilar metals. Surface pre-treatments are specified to promote maximum paint adhesion. Sealants are specified to minimize water and salt intrusion and collection points.

Storage and manufacturing processes are defined to ensure corrosion control. These QMS procedures are used to train associates on:

- Corrosion prevention of dissimilar metals (PI 2153)
- Corrosion control applications (PI 33)
- Protection of joints and seams (PI1318)

Pre-production corrosion control testing must be conducted by an accredited laboratory according to ASTM D1654 (or equivalent) prior to changing any corrosion control applications or processes. In-process tests are defined to target leak detection where corrosion is most likely to occur.

Field reports and warranty claims are reviewed and used to drive design and process changes that will further reduce long-term corrosion.

Process audits are scheduled with 3rd party corrosion reduction experts to verify correct application of coatings and pre-treatments.

<i>This document printed on:</i>	12/22/10
<i>By:</i>	Quality Department
<i>File Name:</i>	Design Control Rev. A
Uncontrolled copy	

E-ONE Quality Operating Procedure	Revision No.: A Date: 12/22/2010 Page: 2 of 2
Title: Corrosion Prevention Policy	

Approval Status:

	Title	Date	Signature
Prepared by:	Serena Mendola Director of Quality	12/22/10	<i>Serena Mendola</i>
Reviewed/ Approved by:	Dirk Steyn Director of Engineering	12/22/10	<i>Dirk Steyn</i>
Reviewed/ Approved by:	Billy Miles Director of Customer Service	11-27-2010	<i>Billy Miles</i>
Reviewed/ Approved by:	Mike Tomasetti VP Operations	12/22/10	<i>Mike Tomasetti</i>
Reviewed/ Approved by:			
Reviewed/ Approved by:			
Reviewed/ Approved by:			

Revision Log:

Revision Level	Date Changed	Section Changed	Description of Change
A	12/21/10	All	Original Issue

This document printed on:	12/22/10
By:	Quality Department
File Name:	Design Control Rev. A
Uncontrolled copy	



ALLIED SPECIALTY VEHICLES



ALLIED SPECIALTY VEHICLES

Brands represent best-in-class in their respective industries.

Fire & Ambulance



RV



Industrial / Bus



Allied Specialty Vehicles



ALLIED SPECIALTY VEHICLES

- AIP specialty vehicle companies under common legal entity “ASV”.
- AIP plan is to leverage E-ONE and Collins as a platform to develop a larger business.
- Randall Swift, former Collins Industries CEO, appointed CEO of ASV.
- Corporate office established in Orlando
- Impacts:
 - Financial Stability
 - Significant purchasing leverage
 - IT, Lean, Engineering and Best Practice sharing
 - Ensures E-ONE future is stable
 - Platform of companies for growth as market recovers
- www.alliedsv.com



Vogelpohl Fire Equipment, Inc.
E-One Customer List

Department	Contact & Phone	Units
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Indiana

Aurora Volunteer Fire Dept. 5950 Dutch Hollow Rd. Aurora, IN 47001	812-926-1224	Custom Pumpers Custom Quint Custom Tower
Dillsboro Fire Dept. 10100 Front St. Dillsboro, IN 47018	Chief Tim Heitmeyer 812-432-5262	eMax Rescue Pumper
Greendale Fire Dept. 510 Ridge Ave Greendale, IN 47025	Chief Shannon Craig 812-537-1335	Custom Rescue Custom Aerial Tower
Lawrenceburg Fire Dept. 3000 W. Tate St. Lawrenceburg, IN 47025	Chief Johnnie Tremain 812-537-1509	Custom Pumpers Custom Rescue Custom Quints
Manchester Township Fire Dept. 10475 SR 48 Aurora, IN 47001	Chief Glen Brandt 812-212-3396	Comm ES Pumper
Osgood Volunteer Fire Dept. 247 W. Beech St. Osgood, IN 47037	Chief Steve Linville 812-689-4142	Comm Wetside Tanker

Kentucky

Augusta Fire Dept. 215 Main St. Augusta, KY 41002	606-735-2700	Comm Pumper Comm Rescue
Bourbon County Fire Dept. 345 Main St. Paris, KY 40361	Chief Lloyd Campbell 859-987-2141	Comm ES Pumper Comm Wetside Tanker
Burlington Fire Protection District 6050 Firehouse Dr. Burlington, KY 41005	(859) 586-6161	Custom Pumpers
Central Campbell Co Fire District 4113 Alexandria Pike Cold Spring, KY 41076	Asst. Chief Ray Dishman 859-441-7651	Custom eMax Pumper
Central Hardin County Fire Dept. 2522 Ring Rd. Elizabethtown, KY 41702	Chief Everett Roberts Jr 270-769-1201	Custom ES Pumper Custom Refurb Quint
Cynthiana Fire Dept. 104 E. Pleasant St. Cynthiana, KY	Chief Jay Sanders 859-234-7518	Commercial eMax Pumper

Department	Contact & Phone	Units
Davies County Fire & Rescue 5005 Hwy 54E Owensboro, KY 42303	Chief Dwane Smeathers 270-685-8440	Typhoon Pumpers
Elsmere Fire Dept. 401 Garvey Ave. Elsmere, KY 41018	Chief Paul Lafontaine 859-342-1505	Custom Rescue Pumper
Florence Fire Dept. 1152 Weaver Rd. Florence, KY 41042	Chief Kelly Joe Aylor 859-647-5660	Custom Aerial Tower Custom eMax Pumper
Georgetown Fire Dept. 101 Airport Rd. Georgetown, KY 40324	Chief Robert Bruin 502-863-7835	Custom Pumper
Greater Cincinnati Airport Fire Dept. 2100 Tower Dr. Hebron, KY 41048	Chief Steve Listerman 859-767-3112	HP78 Quint
Lacy Volunteer Fire Dept 11994 Greenville Rd. Hopkinsville, KY 42240	Chief Kavin Meacham 270-269-9177	Watermaster Tanker
Lexington Fire Dept. 219 E. Third St. Lexington, KY	A/C Harold Hoskins 859-231-5679	Custom Pumper (5)
Maytown Vol. Fire Dept 376 KY RR 777 Langley, KY 41645	Chief George Gray Jr 606-285-9698	Comm Pumper Tanker
Monterey Fire Dept. Sawridge Creek Rd. Owenton, KY 40359	Larry House 502-484-0969	Comm ES Pumper
Newport Fire Dept. 998 Monmouth St. Newport KY 41071	859-292-3615	HP100 Aerial Ladder Quint
Northern Pendleton Fire Dept. 5900 Hwy 154 Butler, KY 41006	Chief Larry Record 859-472-5127	Custom Pumper
Oak Grove Fire Dept. 8505 Pembroke-Oak Grove Rd Oak Grove, KY 42262	Chief Greg Bequette 207-439-4941	Custom eMax Pumper
Owen County Volunteer Fire Dept. 406 S. Main St. Owenton, KY 40359	Chief Robb Chaney 502-484-2971	Comm ES Pumper
Phelps Vol. Fire and Rescue 12812 Phelps 632 Rd. Phelps, KY 41553	Chief Ron Vaughn 606-456-3642	Comm ES Pumper
Piner-Fiskburg Fire District 1851 Bracht Piner Rd. Morning View, KY 41063	Chief Jason Schleue 859-356-6916	Comm eMax Pumper

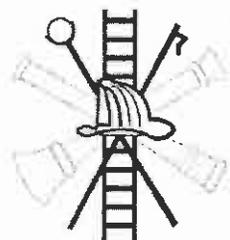
Department	Contact & Phone	Units
Pt. Pleasant Fire District 3444 Turfway Rd. Erlanger, KY 41018	A/C Eric Seibel 859-283-2798	Custom Pumper HP78 Quint
St. Matthews Fire Protection District 240 Sears Ave. Louisville, KY 40207	Chief William Seng 502-893-7829	Custom Pumpers
Scott Co. Fire Dept. 2200 Cincinnati Pike Georgetown, KY 40324	Chief Mike Fuller 502-863-7854	Watermaster Tanker

Ohio

Clearcreek Fire Protection Dist. 925 S. Main St. Springboro, OH 45066	Chief Bob Kidd 937-748-2766	Comm Pumpers Custom Pumper Custom 100' Quint
Georgetown Fire Dept. 301 S. Main St. Georgetown, OH 45121	Chief Joe Rockey 937-378-4414	eMax Rescue Pumper
Goshen Twp. Fire Dept 6757 Goshen Rd. Goshen, OH 45122	Chief Steve Pegram 513-722-3473	Custom Rescue Pumper
Green Twp. Fire Dept 6303 Harrison Ave. Cincinnati, OH 45247	Chief Doug Witskin 513-574-0474	HP78 Aerial Ladder Quint
Liberty Twp Fire Dept 6400 Princeton Rd. Liberty Twp, OH 45011	Chief Paul Stumpf 513-759-7531	eMax Rescue Pumper
Mason Fire Dept 6000 Mason-Montgomery Rd. Mason, OH 45040	Chief John Moore 513-229-8540	HP100 Aerial Ladder Quint Custom Pumper
Pierce Township Fire Dept. 950 Locust Corner Rd. Cincinnati, OH 45245	Chief Craig Wright 513-752-6273	Comm Wetside Tanker
Reily Township Fire Department 6937 Imhoff Rd. Oxford, OH 45056	Chief Dennis Conrad 513-757-4023	Comm ES Pumper
St. Bernard Fire Dept. 5116 Vine St. Cincinnati, OH 45217	Chief Steve Scherpenberg 513-242-2727	Custom Rescue Pumper
S. Webster/Bloom Twp Joint Fire Dist. 81 Market St. PO Box 509 S. Webster, OH 45682	740-778-2555	Custom Pumper
Sprigg Township 3106 Cabin Creek Rd. Manchester, OH 45144	Chief Rick Bowman 937-549-2256	Comm ES Pumper

Department	Contact & Phone	Units
Stamping Ground Fire Department 3374 Main St. Stamping Ground, KY 40379	502-535-7714	Comm ES Pumper
Tri-Community Joint Fire District 49 Main St. Greenwich, OH 44837	419-752-5141	Comm Tradition Pumper
West Chester Fire Dept 9119 Cincinnati-Dayton Rd. West Chester, OH 40069	513-777-1133	75' Aerial Ladder Quint Custom Rescue Pumper

08/31/15



VOGELPOHL FIRE EQUIPMENT

SALES CONTRACT

This agreement made by and between **VOGELPOHL FIRE EQUIPMENT, INC.** 2770 Circleport Dr., Erlanger, KY 41018 (Company) and

(Legal Name of Buyer)

(Address)

(City)

(State / Province)

(Zip / Postal Code)

1. **AGREEMENT:** The "Company" agrees to sell and the "Buyer" agrees to purchase the apparatus and equipment described in the E-ONE specifications entitled _____ dated _____, attached hereto and made part of this contract, in accordance with the terms and conditions listed on contract pages 1 through 4.

2. **DELIVERY:** The apparatus shall be ready for delivery within approximately _____ calendar days, after the receipt and signed acceptance of this contract at the E-ONE Corporate Headquarters, Ocala, FL (Manufacturer). The delivery schedule assumes that a pre-construction conference, whether requested by the Buyer or otherwise needed by the Company or Manufacturer to ascertain, confirm, or clarify exact requirements of the Buyer, will be conducted no later than thirty (30) business days from execution of this Contract.

Any delay in scheduling a mutually agreeable pre-construction conference date; any changes to the apparatus components or configuration after execution of this Contract (including any changes resulting from a pre-construction conference); failure of the Buyer to act on change requests and approvals in a timely manner, or inability of the Buyer to conduct requested mid-point or final inspections in a timely manner in accordance with the apparatus build schedule, may result in an extension of the maximum delivery days and any agreed to penalty date if applicable.

The Company or Manufacturer cannot be held liable by the Buyer for any delivery delays due to acts of God, fire, civil unrest, labor disputes, governmental regulations, supplier delivery delays, or other delays beyond the control of the Company or Manufacturer.

3. **CHANGE ORDERS:** In order to establish a stable design, procurement, and build schedule, a cutoff date for Buyer requested change orders of thirty (30) days from the date of the execution of the contract will be enforced. The Company shall submit any Buyer requested change requests to the Manufacturer for design review, cost, and schedule impact, then prepare a written Change Order for execution by the Buyer. The price of the apparatus shall be adjusted to take into account any approved Change Orders, and any Change Order after the initial pre-build Change Order may include a Change Order Fee. **Any and all Change Orders may extend the completion and delivery of the apparatus.**

If the apparatus manufacturer is unable to obtain exclusive or brand name materials which causes completion or delivery problems, the Company shall advise the Buyer of said problem and resolves to examine alternative sources of said material. Any material substitutions shall be mutually agreed upon by the Buyer and the Company, and no substitutions shall be made without the execution of an approved change order.

4. **WARRANTY:** Shall be as proposed in the attached E-ONE specifications.

5. **PRICE:** The Buyer shall pay, as a purchase price for the apparatus, the sum of:

_____ or \$ _____.

The purchase price payment reflects US dollars and does not include any change orders which may be authorized after execution of the contract. Above price also does not include any applicable local, state, or federal taxes which may be applied to the apparatus proposed. Buyer agrees to provide applicable tax exemption forms with the contract, and hold the Company harmless from any damage which may result from the Company ultimately having any such tax assessed against it.

6. **TERMS OF PAYMENT:**

a) Contract payment of \$ _____ (100% of purchase price) will be due and payable to the Company at the time of final inspection and acceptance of completed apparatus by the Buyer.

b) Optional Payment Plan – Full Payment - Within 10 days after receipt of a fully executed performance bond from the Company, Buyer, at their option, may make an advanced payment to the Company of \$ _____ as full payment for the specified apparatus. This advance payment does not include payment for any approved change orders, payment for which shall be made by the Buyer at time of delivery and acceptance.

c) Optional Payment Plan – Partial Payment – For any partial prepayment amount the Buyer makes to the Company at least 60 days prior to the expected delivery date of the completed apparatus, the Company will provide a discount calculated at 3% simple interest from the day the funds are received by the Company until the day the apparatus is ready for inspection and shipment at the factory. The applicable discount will be applied as a deduction on the final invoice.

d) Payment shall be made only to: **Vogelpohl Fire Equipment, Inc.**
2770 Circleport Dr.
Erlanger, KY 41018

e) It is agreed that the apparatus and equipment covered by this contract shall remain the property of the Company and not be placed in service until the entire contract price has been paid.

7. **VOGELPOHL FIRE EQUIPMENT, INC** requires, and the Buyer agrees, that the unit shall be inspected and / or accepted by the Buyer within seven (7) days of notice that the unit had been completed.

8. **CANCELLATION:** This contract is subject to cancellation by Buyer only upon payment to Company of reasonable cancellation charges, which shall take into account expenses already incurred and commitments made by Company.

9. **OTHER:**

This contract, to be binding, must be signed by an officer of **Vogelpohl Fire Equipment, Inc.** or a person authorized, in writing, by **Vogelpohl Fire Equipment, Inc.** to do so.

This contract, including its appendices, embodies the entire understanding between the parties relating to the subject matter contained herein and merges all prior discussions and agreements between them. No agent or representative of the Company has authority to make any representations, statements, warranties, or agreements not herein expressed and all modifications or amendments of this agreement, including any appendices, must be in writing signed by an authorized representative of each of the parties hereto.

No surety of any performance bond given by the Company to the Buyer in connection with this Agreement shall be liable for any obligation of the Company arising under the Standard Warranty.

IN WITNESS WHEREOF, the Buyer and the Company have caused this contract to be executed by their duly authorized representatives this _____ day of _____, 20_____.

COMPANY

BUYER

**Vogelpohl Fire Equipment, Inc.
2770 Circleport Dr.
Erlanger, KY 41018
859-282-1000 Phone
859-282-1550 Fax**

BY: _____

BY: _____

NAME: _____

NAME: _____

TITLE: _____

TITLE: _____

DATE: _____

DATE: _____

