

WHEN LIVES ARE ON THE LINE,
YOUR EMERGENCY VEHICLES SHOULD BE



January 25, 2018

Byram Township
10 Mansfield Drive
Stanhope, New Jersey 07874

RE: HGAC Proposal

We are pleased to provide a proposal for a K.M.E. Custom 2000 GPM 1000 Gallon Tank Pumper to Byram Township. This proposal is offered as a "no bid" purchase utilizing the HGACBuy program Contract FS12-17. The cost of the apparatus, as proposed herein, is \$479,918.00 delivered. An HGACBuy worksheet is provided in our proposal for your review.

If you have any questions, or require additional information, please contact me at any of the numbers listed below.

Respectfully,

A handwritten signature in cursive script that reads 'Skip Stinger'.

Skip Stinger,
Vice President – Fire Apparatus Sales
First Priority Emergency Vehicles, Inc.

SERVING OUR CUSTOMERS WITH AMERICA'S FINEST EMS, RESCUE AND FIRE FIGHTING VEHICLES

Skip Stinger
Vice President – Fire Apparatus Sales
skip.stinger@verizon.net
609-516-4796

HGAC PROPOSAL FORM

BUYER: **Byram Township
10 Mansfield Drive
Stanhope, New Jersey 07874
Phone: 973-347-2500**

SELLER: **First Priority Emergency Vehicles, Inc.
2444 Ridgeway Blvd., #500
Manchester, New Jersey 08759**

TELEPHONE: **New Jersey (732) 657-1104**

We are pleased to offer the following proposal, as per the attached specifications and information requirements for:

One (1) K.M.E. Custom 2000 GPM 1000 Gallon Tank Pumper

Completion of vehicle within **330 to 360** calendar days after receipt of the Purchase **Order** and **Signed Contract** at the First Priority Emergency Vehicles, Inc. facility at Manchester, New Jersey.

Date of Proposal: **January 25, 2018**

Proposal price valid until: **March 26, 2018**

Proposal Price: (Numbers): **\$ 4 7 9 , 9 1 8 . 0 0**

Proposal Price: (Written): **Four-hundred seventy-nine thousand nine-hundred
eighteen and -----00/100 U.S. Dollars**

SUBMITTED BY: _____

Skip Stinger
Signature

Skip Stinger
Print or Type

Vice President of Fire Apparatus Sales
Title

**CONTRACT PRICING WORKSHEET**
For MOTOR VEHICLES OnlyContract
No.:

FS12-17

Date
Prepared:

1/25/2018

A. Product Item Base Unit Price Per Contractor's H-GAC Contract:

Buying Agency:	Township of Byram, New Jersey	Contractor:	First Priority Emergency Vehicles
Contact Person:	Joseph Sabatini, Township Manager	Prepared By:	Skip Stinger, Vice President - Fire Apparatus Sales
Phone:	(973) 347-2500 X129	Phone:	609-516-4796
Phone:	(973) 347-0502	Fax:	732-657-7955
Email:	jsabatini@byramtwp.org	Email:	skip.stinger@verizon.net
Product Code:	MC06	Description:	KME Custom, 4-Door, Full-Tilt, Aluminum Cab, Alum Body, Single Axle, 2000 GPM Pump, 1000 Gal Tank-Flex Pumper

A. Product Item Base Unit Price Per Contractor's H-GAC Contract:

\$ 368,121

B. Published Options - Itemize below - Attach additional sheet(s) if necessary - Include Option Code in description if applicable.

(Note: Published Options are options which were submitted and priced in Contractor's bid.)

Description	Cost	Description	Cost
KME-P010 Upgrade driver seat to Bostrom 8-Way Electric	\$228	KME-P058 Add front suction w/180 degree chrome swivel	\$6,726
KME-P011 Upgrade fixed officer seat to Bostrom Fixed		KME-P060 Add Hale MIV valve - manual control	\$3,735
SCBA style with SCBA ULLH bracket	\$555	KME-P063 Upgrade crosslay discharge to 2-1/2"	\$243
KME-P012 Upgrade ULH SCBA brkts to Secureall (5)	\$1,500	KME-P065 Upgrade OS Discharge to 4" w/Handwheel	\$5,102
KME-P014 Add auxiliary manual cab lift backup system	\$560	KME-P069 Add 2-1/2" Hosebed Discharge	\$2,777
KME-P016 Upgrade front GVWR to 21,500#	\$1,281	KME-P070 Add 3" deck gun discharge (gun not included)	\$3,426
KME-P018 Upgrade rear GVWR to 27,000#	\$2,367	KME-P072 Add 3" Manual Extend-A-Gun	\$1,760
KME-P022 Upgrade front brakes to disc.	\$1,083	KME-P078 Add TFT Hurricane Manual Deck Gun w/Fog	\$1,421
KME-P023 Upgrade rear brakes to disc.	\$1,083	KME-P082 Add 1-1/2" front bumper discharge	\$3,131
KME-P026 Upgrade chassis engine to Cummins L9 450 HP	\$7,440	KME-P106 Add additional hose bed divider, adjustable	\$490
KME-P046 Add (2) 12-volt Tele Lts. FRC Spectra	\$3,587	KME-P111 Upgrade compartment interior paint to Line-X	\$1,375
KME-P057 Add additional 2-1/2" auxiliary suction	\$1,073	Subtotal From Additional Sheet(s):	\$ 36,454
		Subtotal B:	\$ 87,397

C. Unpublished Options - Itemize below / attach additional sheet(s) if necessary.

(Note: Unpublished options are items which were not submitted and priced in Contractor's bid.)

Description	Cost	Description	Cost
Engine enclosure storage module (map box)	\$714	FRC Spectra 900 12V scene lts-rear/body sides (6)	\$3,150
Aluminum wheels in place of Steel Wheels	\$1,040	Tuff Kote Under Seal	\$1,420
Akron Electric Rewind Electric Cord Reel	\$2,213	Subtotal From Additional Sheet(s):	\$ 2,147
Trident Automatic Air Priming System IPOS	\$320	Subtotal C:	\$ 11,004

For this transaction the percentage is:

2%

D. Total Cost Before Any Applicable Trade-In / Other Allowances / Discounts (A+B+C)

Quantity Ordered:	1	X Subtotal of A + B + C:	466522	=	Subtotal D:	\$ 466,522	
HGAC \$2,000 included in Purchase for all units						Subtotal E:	\$ 2,000

F. Trade-Ins / Other Allowances / Special Discounts / Freight / Installation

Description	Cost	Description	Cost
Lining and Striping	\$5,000	One (1) day training	\$500
Inspection Trips	\$1,500	Performance Bond	\$1,896
Pre-Delivery Mechanical Inspection at Dealer, Detailing	\$2,500	Subtotal F:	\$ 11,396

Delivery Date:

2/1/2019

G. Total Purchase Price (D+E+F):

\$ 479,918

B. Published Options - Itemize below - Attach additional sheet(s) if necessary - Include Option Code in description if			
Description	Cost	Description	Cost
KME-P113 Upgrade chassis to two-tone paint	\$1,491	KME-P390 Compt. Lts, Amdor LED - Dual (7)	\$3,199
KME-P114 Adjustable shelves - \$416 x 7	\$2,912	KME-P431 Whelen Led 36" #Ta165 Traffic Advisor	\$1,287
KME-P115 Floor mounted 250# roll-out tray (3)	\$2,448	KME-P434 Federal Q2B Siren @ Cab Front	\$3,302
KME-P117 Adjustable roll-out tray	\$816	KME-P435 Siren Control - Floor Switch, D.S./O.S.	\$221
KME-P118 Roll out drop down tray	\$1,116	KME-P508 Air Horn Control Button-Pump Panel	\$208
KME-P121 Swing out tool board 3/16" aluminum	\$1,698	KME-P510 3/4" Pump By-Pass Cooler	\$246
KME-P126 Flooring material on compt. floors	\$1,385	KME-P530 Tubing Reinforcement On Partition (2)	\$614
KME-P127 Flooring material on shelves (11) x 70	\$770	KME-P538 Slide-Out Absorbent Bin - Body Fender	\$1,288
KME-P183 Stainless Steel Cab Fenderettes	\$587	KME-P560 6' Fire Hooks Unlimited Fiberglass PP	\$75
KME-P189 Lang Mekra Mirrors Heated/Remote	\$1,966	KME-P562 10' Fire Hooks Unlimited Fiberglass PP	\$118
KME-P253 20" front bumper extension	\$1,233	KME-P604 Fluorescent Orange Traffic Cones - (5)	\$182
KME-P260 Custom-Hose Well Center Bumper	\$671		
KME-P261 (2) Velcro Straps Center Hose Well	\$186		
KME-P274 (2) Painted tow hooks below bumper	\$243		
KME-P286 Electronic Stability Control + ATC	\$2,478		
KME-P314 Dual Fuel line shut-off valves	\$422		
KME-P321 Leece-Neville 350 AMP alternator	\$1,341		
KME-P355 Blue Sea Fuse Block - 12 circuit rear	\$386		
KME-P356 Optimo Rear Vision/GPS Camera Sys	\$1,756		
KME-P365 Rear Camera Guard	\$156		
KME-P371 FRC Brow Light, Spectra LED	\$1,653		
		Subtotal of Options Addtl	\$36,454

C. Unpublished Options - Itemize below / attach additional sheet(s) if necessary.			
Description	Cost	Description	Cost
Kussmaul Auto-Eject	\$419		
IOTA 45-AMP battery charger	\$432		
(2) Rear Wall Flip Up Seats - No SCBA	\$1,296		
		Subtotal of Options Addtl	\$2,147



First Priority Emergency Vehicles, Inc.

2444 Ridgeway Blvd., #500 – Manchester, NJ 08759
(732) 657-1104 [Phone] - (732) 657-7955 [Fax]
www.firstpriorityglobal.net

AGREEMENT OF SALE FOR FIRE APPARATUS

THIS AGREEMENT is made between First Priority Emergency Vehicles, Inc, of 2444 Ridgeway Blvd., #500, Manchester, New Jersey, 08759 ("Company") and:

Byram Township, of
(Legal Name of Buyer)

10 Mansfield Drive, Stanhope, Sussex County, New Jersey 07874
(Address) (City) (County) (State) (Zip)

973-347-2500 ("Buyer").
(Phone Number)

BUYER INFORMATION (check one):

Municipal Corporation _____ Non-Profit Corporation _____

Business Corporation _____ Sole Proprietorship _____

Other (specify) _____

State of Incorporation: _____ Date of Incorporation _____

1. **ACCEPTANCE:** Company agrees to sell and Buyer agrees to purchase the fire apparatus and equipment ("Apparatus") described in the **Bid Proposal Specifications** which are incorporated as "**Exhibit A**" of this contract, as may be amended in writing, and the equipment listed herein, and in accordance with the terms and conditions set forth herein. In the event that both Company Specifications and Buyer's Bid Specifications are incorporated and are in conflict, Company's Specifications will apply.

2. **UNIT PURCHASED:** K.M.E. Custom 2000 GPM 1000 Gallon Tank Pumper

3. **COMPLETION SCHEDULE:** The Apparatus will be completed F.O.B. at:

Stanhope, New Jersey
(City) (State)

in approximately 330 to 360 calendar days after receipt of the **SIGNED CONTRACT** at the Company's facilities in Manchester, New Jersey, subject to extension due to changes made by Buyer in accordance with Paragraph 6, 12 or 13 below.

4. **PRICE:**

Buyer will pay to Company as the Purchase Price for the Apparatus the sum of

Four-hundred seventy-nine thousand nine-hundred eighteen and -----00/100 U.S. Dollars.

(\$ 479,918.00)

This purchase price includes the following taxes: Zero.

Any applicable taxes not specifically noted above will be paid by the Buyer directly, or will be added to the Purchase Price and paid by Company. If Buyer claims exemption from any tax, Buyer agrees to furnish the applicable exemption certificate(s) (forms to be attached) and to indemnify and save Company harmless from any such tax, interest or penalty, which may at any time be assessed against Company as the result of this transaction.

5. **TERMS OF PAYMENT:** Terms of payment will be:

(A) The completed apparatus shall be paid for on delivery to the Purchaser. An OEM Title for the vehicle will be presented to the Purchaser upon payment in full.

(B) Due upon signing	\$ <u>Zero</u>
Due Upon completion/receipt of chassis	\$ <u>Zero</u>
Due upon delivery	\$ <u>479,918.00</u>

(C) Check appropriate method of payment for remaining balance due:

 X Cash/cash equivalent at time of delivery.
 Installment Sales Contract - Financing*
 Lease-Purchase Agreement - Financing*

*Lender/Leasing Company: _____

(D) NO PAYMENT of any amount due under this Agreement shall be made directly to a Sales Representative without prior written approval from Company.

6. **CONTINGENCIES:** Company will not be liable to Buyer for any delay, failure to make delivery, or other default due to strikes or labor unrest, war, riot, federal, state or local government action, fire, flood or other disaster or acts of God, accidents, breakdown of machinery, lack of or inability to obtain materials, parts or supplies, or any other causes of circumstances beyond the reasonable control of Company which prevent or hinder Company's manufacture and/or delivery of the Apparatus.

7. **WARRANTY:** The Apparatus is manufactured and assembled by Kovatch Mobile Equipment Corp. t/a K.M.E. Fire Apparatus, which provides a limited warranty in accordance with the Specifications. Certain equipment installed in or on the Apparatus is manufactured by other companies which provide separate limited warranties, as set forth in the Specifications. The Company only provides a limited warranty on the work it performs on the Apparatus as set forth in the Specifications.

EXCEPT TO THE EXTENT PROHIBITED BY LAW, COMPANY MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE FACE HEREOF.

SEE SEPARATE WARRANTY STATEMENTS FOR COMPLETE INFORMATION.

8. **DISCLAIMER OF CONSEQUENTIAL DAMAGES:** COMPANY EXPRESSLY DISCLAIMS ANY LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES WHICH MAY BE SUSTAINED BY BUYER, INCLUDING BUT NOT LIMITED TO THOSE ARISING FROM THE USE, INABILITY TO USE, MAINTENANCE OR REPAIR OF THE APPARATUS, WHETHER UNDER THEORIES OF BREACH OF EXPRESS OR IMPLIED WARRANTY, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE.

9. **CANCELLATION:** This contract is not subject to cancellation by Buyer, unless for material breach by Company, except upon payment to Company of reasonable cancellation charges, which shall take into account expenses already incurred and commitments made by Company and Company's anticipated profit.

10. **ENTIRE AGREEMENT; AMENDMENTS:** 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 Company has authority to make any representations, statements, warranties or agreements not herein expressed. All modifications or amendments of this contract, including the appendices, must be in writing signed by an authorized representative of each of the parties hereto.

11. **SEVERABILITY:** If any provision hereof shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provision, and this contract will be construed as if the invalid, illegal or unenforceable provision had never been contained in it, unless to do so clearly negates the overall intent or purpose of the parties in entering into this contract.

12. **CHANGES IN COMMERCIAL SPECIFICATIONS:** Specifications for all commercial components of the Apparatus, manufactured by companies other than KME, are subject to change without notice. Specifications for such components will be as available at the time of manufacture of the Apparatus. Company shall not be held liable for any specification deviations from the original contract specifications on such components made by their original manufacturer.

13. **CHANGES IN REGULATIONS / INDUSTRY STANDARDS** The Purchase Price is subject to adjustment for changes to the Apparatus necessitated by changes in applicable government regulations (such as FMVSS or emissions regulations), industry standards (such as NFPA standards), replacement of discontinued models or components from vendors, or freight charges. Buyer is responsible for any cost increases due to such changes beyond Company's control.

EXPLANATION OF CONTRACT AMOUNT

BASE PROPOSAL PRICE: \$ 479,918.00

The following options are selected and shall be added to, or subtracted from, the apparatus bid price at the cost listed with each:

OPTION(S) COST: \$ Zero

CONTRACT TOTAL WITH SELECTED OPTIONS: \$ 479,918.00

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

Byram Township
(Buyer's Legal Name)

Signed by Buyer's Representatives: (Two)

By: _____

Title: _____

Date: _____

By: _____

Title: _____

Date: _____

This proposal and contract is not a valid and binding obligation until accepted, dated and approved at First Priority Emergency Vehicles, Inc., of Manchester, New Jersey.

ACCEPTED AND APPROVED BY FIRST PRIORITY EMERGENCY VEHICLES, INC., FIRE APPARATUS DIVISION:

BY: _____

TITLE: _____

DATE: _____

Please mail to: First Priority Emergency Vehicles, Inc.
Attn. – Alex Cherepakhov, Chairman and CEO
2444 Ridgeway Blvd., #500
Manchester, New Jersey 08759

FEDERAL EXCISE TAX EXEMPTION CERTIFICATE

(For use by United States, Territories, District of Columbia, or Political subdivisions.)

Date: _____

The undersigned hereby certifies that he is: _____
(Title of Officer)

of Byram Township
(United States, States, Territory, District of Columbia or Political Subdivision)

and that he is authorized to execute this certificate and that the article or articles specified in the accompanying order or on the reverse side hereof are purchased from Kovatch Mobile Equipment Corporation, for the exclusive use of:

Byram Township
(United States, States, Territory, District of Columbia, or political subdivision.)

It is understood that the exemption from tax in the case of sales or articles under this exemption certificate to the United States, States, etc. is limited to the sale of articles purchased for their exclusive use; and it is agreed that, if articles purchased tax free under exemption certificates are used otherwise, or are sold to employees or others, such fact must be reported to the Federal Tax Office of the article or articles covered by this certificate. It is also understood that the fraudulent use of this certificate to secure exemption will subject the undersigned and all guilty parties to a fine of not more than \$10,000.00 or to imprisonment for not more than five years, or both, together with costs or prosecution.

Byram Township
(Name of Organization)

By: _____
(Signature)

SALES OR USE TAX EXEMPTION CERTIFICATE

Name of Buyer: Byram Township

Address: 10 Mansfield Drive

City State Zip: Stanhope, New Jersey 07874

The above named business, holder of the following State permit number:

Number: _____ State: New Jersey

respectively certifies that all tangible property purchased from First Priority Emergency Vehicles, Inc. of Manchester, New Jersey is exempt from Sales of Use Tax for reasons(s) checked below:

_____ Resale as tangible personal property

_____ Governmental Unit or Instrumentality

_____ Non or Charitable Unit

_____ Other (Explain Fully)

Signature: _____

Title: _____

Date: _____

Federal Excise Tax and State Sales Tax will be added if the above form is not completed and signed.

LEGAL REQUIREMENTS

To conform to the State of New Jersey laws for all municipalities and government units, and the requirements of HGAC (Houston Galveston Area Cooperative), the following documents have been included in this proposal:

1. A New Jersey Business Registration Certificate.
2. A Non-Collusion statement as required by N.J.S.A. 52-34-15.
3. Statement of Ownership Disclosure statement showing all stockholders/owners who have a 10% or larger ownership in the Corporation of the Bidder.
4. Affirmative Action Compliance Notice required by N.J.A.C. 17:27-1.1 et seq.
5. Certificate of Employee Information Report.
6. Political Contribution Disclosure Form.

NON-COLLUSION AFFIDAVIT

State of: Pennsylvania

County of: Carbon

Skip Stinger, Vice President – Fire Apparatus Sales being first duly sworn,
deposes and says that:

- (1) He is (owner, partner, officer, representative, or agent) of First Priority Emergency Vehicles Inc., the bidder, that has submitted the attached Proposal.
- (2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such bid.
 - (A) By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
 - (1) The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
 - (2) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
 - (3) No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition."

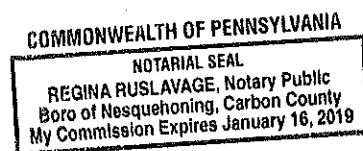
A bid shall not be considered for award nor shall any award be made where (a) (1) (2) and (3) above have not been complied with; provided however, that if in any case the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where (a) (1) (2) and (3) above have not been complied with, the bid shall not be considered for award nor shall any award be made unless the head of the purchasing unit of the political subdivision, public department, agency or official thereof to which the bid is made, or his designee, determines that such disclosure was not made for the purpose of restricting competition.

The fact that a bidder (a) has published price lists, rates, or tariffs covering items being procured, (b) has informed prospective customers of proposed or pending publication of new or revised price lists for such items, or (c) has sold the same items to other customers at the same prices being bid, does not constitute, without more, a disclosure within the meaning of subparagraph one (a).

- (3) Any bid hereafter made to any political subdivision of the state or any public department, agency or official thereof by a corporate bidder for work or services performed or to be performed or goods sold or to be sold, where competitive bidding is required by statute, rule, regulation, or local law, and where such bid contains the certification referred to in subdivision one of this section, shall be deemed to have been authorized by the board of directors of the bidder, and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of the certificate as to non-collusion as the act and deed of the corporation.

BY: Skip Stinger
Signature
Skip Stinger
Print or Type
Vice President – Fire Apparatus Sales
Title

Subscribed and sworn to before me
this 25TH day of January, 2018
Regina Ruslavage
NOTARY PUBLIC



STATE OF NEW JERSEY
BUSINESS REGISTRATION CERTIFICATE

DEPARTMENT OF TREASURY
DIVISION OF REVENUE
PO BOX 282
TRENTON, NJ 08646-0282

TAXPAYER NAME:

FIRST PRIORITY EMERGENCY VEHICLES, INC.

TRADE NAME:

ADDRESS:

2444 RIDGEWAY BLVD BLDG 500
MANCHESTER, NJ 08759-5703

EFFECTIVE DATE:

06/22/98

SEQUENCE NUMBER:

0102638

ISSUANCE DATE:

07/14/08

James J. [Signature]
Director
New Jersey Division of Revenue

FORM-BRC

This Certificate is NOT assignable or transferable. It must be conspicuously displayed at above address.

STATE OF NEW JERSEY
Certificate of Authority

DIVISION OF TAXATION
TRENTON, NJ 08646

The person or partnership or corporation named below is hereby authorized to collect:
NEW JERSEY SALES & USE TAX

pursuant to N.J.S.A. 54:32B-1 ET SEQ.

This authorization is good ONLY for the named person at the location specified herein.
This authorization is null and void if any change of ownership or address is made.

FIRST PRIORITY EMERGENCY VEHIC
2444 RIDGEWAY BLVD BLDG 500
MANCHESTER, NJ 08759-5703

Tax Registration No.: XXX-XXX-9137007

Tax Effective Date: 05-05-98

Document Locator No.: 80000752764

Date Issued: 07-14-08

Maurice Adams
Director, Division of Taxation

This Certificate is NOT assignable or transferable. It must be conspicuously displayed at above address.

STOCKHOLDER DISCLOSURE

The Bidder shall state the names and addresses of all persons owning Ten Percent (10%) or greater interest therein of the bidding "Company", First Priority Emergency Vehicles, Inc., in compliance with P.L. 1977, Chapter 33, effective March 8, 1977, are as follows:

Name: CFD Trust

Address: 9 Oak Lane

Mountain Lakes, New Jersey 07046

Percentage Owned: 47.5 %

Name: Estate of Robert J. Freeman

Address: 7 Haddington Lane

Manchester, New Jersey 08759

Percentage Owned: 47.5 %

Name: _____

Address: _____

Percentage Owned: _____ %

Name: _____

Address: _____

Percentage Owned: _____ %

Name: _____

Address: _____

Percentage Owned: _____ %

Name: _____

Address: _____

Percentage Owned: _____ %

Name: _____

Address: _____

Percentage Owned: _____ %

Name: _____

Address: _____

Percentage Owned: _____ %

BY: Skip Stinger

Signature

Skip Stinger

Print or Type

Vice President of Fire Apparatus Sales

Title

AFFIRMATIVE ACTION COMPLIANCE NOTICE

N.J.S.A. 10:5-31 and N.J.A.C. 17:27

This form is a summary of the successful bidder's requirement to comply with the requirements of N.J.S.A. 10:5-31 and N.J.A.C. 17:27-1 et seq.

The successful bidder shall submit to the public agency, after notification of award but prior to execution of this contract, one of the following three documents as forms of evidence:

_____ (a) A photocopy of a valid letter that the contractor is operating under an existing Federally approved or sanctioned affirmative action program (good for one year from the date of the letter);

OR

X (b) A photocopy of a Certificate of Employee Information Report approval, issued in accordance with N.J.A.C. 17:27-4;

OR

_____ (c) A photocopy of an Employee Information Report (Form AA302) provided by the Division and distributed to the public agency to be completed by the contractor in accordance with N.J.A.C. 17:27-4.

The successful vendor may obtain the Affirmative Action Employee Information Report (AA302) from the contracting unit during normal business hours.

The successful vendor(s) must submit the copies of the AA302 Report to the Division of Contract Compliance and Equal Employment Opportunity in Public Contracts (Division). The Public Agency copy is submitted to the public agency, and the vendor copy is retained by the vendor.

The undersigned vendor certifies that he/she is aware of the commitment to comply with the requirements of N.J.S.A. 10:5-31 and N.J.A.C. 17:27.1 et seq. and agrees to furnish the required forms of evidence.

The undersigned vendor further understands that his/her bid shall be rejected as non-responsive if said contractor fails to comply with the requirements of N.J.S.A. 10:5-31 and N.J.A.C. 17:27-1 et seq.

BY: _____
Signature

Skip Stinger
Print or Type

Vice President of Fire Apparatus Sales
Title

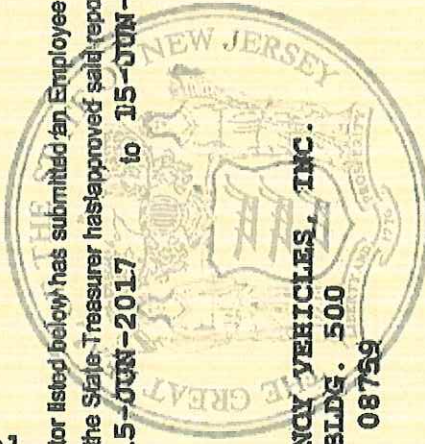
First Priority Emergency Vehicles, Inc.
Company

Certification 34111

**CERTIFICATE OF EMPLOYEE INFORMATION REPORT
RENEWAL**

This is to certify that the contractor listed below has submitted an Employee Information Report pursuant to N.J.A.C. 17:27-1.1 et. seq. and the State Treasurer has approved said report. This approval will remain in effect for the period of **15-JUN-2017** to **15-JUN-2020**

**FIRST PRIORITY EMERGENCY VEHICLES, INC.
2444 RIDGEWAY BLVD., BLDG. 500
MANCHESTER NJ 08759**



Ford M. Scudder

**FORD M. SCUDDER
State Treasurer**

C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

Public Agency Instructions

This page provides guidance to public agencies entering into contracts with business entities that are required to file Political Contribution Disclosure forms with the agency. **It is not intended to be provided to contractors.** What follows are instructions on the use of form local units can provide to contractors that are required to disclose political contributions pursuant to N.J.S.A. 19:44A-20.26 (P.L. 2005, c. 271, s.2). Additional information on the process is available in Local Finance Notice 2006-1 (http://www.nj.gov/dca/divisions/dlgs/resources/lfns_2006.html). Please refer back to these instructions for the appropriate links, as the Local Finance Notices include links that are no longer operational.

1. The disclosure is required for all contracts in excess of \$17,500 that are **not awarded** pursuant to a "fair and open" process (N.J.S.A. 19:44A-20.7).
2. Due to the potential length of some contractor submissions, the public agency should consider allowing data to be submitted in electronic form (i.e., spreadsheet, pdf file, etc.). Submissions must be kept with the contract documents or in an appropriate computer file and be available for public access. **The form is worded to accept this alternate submission.** The text should be amended if electronic submission will not be allowed.
3. The submission must be **received from the contractor and** on file at least 10 days prior to award of the contract. Resolutions of award should reflect that the disclosure has been received and is on file.
4. The contractor must disclose contributions made to candidate and party committees covering a wide range of public agencies, including all public agencies that have elected officials in the county of the public agency, state legislative positions, and various state entities. The Division of Local Government Services recommends that contractors be provided a list of the affected agencies. This will assist contractors in determining the campaign and political committees of the officials and candidates affected by the disclosure.
 - a. The Division has prepared model disclosure forms for each county. They can be downloaded from the "County PCD Forms" link on the Pay-to-Play web site at <http://www.nj.gov/dca/divisions/dlgs/programs/lpcl.html#12>. They will be updated from time-to-time as necessary.
 - b. A public agency using these forms **should edit them to properly reflect the correct legislative district(s)**. As the forms are county-based, **they list all legislative districts in each county. Districts that do not represent the public agency should be removed from the lists.**
 - c. Some contractors may find it easier to provide a single list that covers all contributions, regardless of the county. These submissions are appropriate and should be accepted.
 - d. The form may be used "as-is", subject to edits as described herein.
 - e. The "Contractor Instructions" sheet is intended to be provided with the form. It is recommended that the Instructions and the form be printed on the same piece of paper. The form notes that the Instructions are printed on the back of the form; where that is not the case, the text should be edited accordingly.
 - f. The form is a Word document and can be edited to meet local needs, and posted for download on web sites, used as an e-mail attachment, or provided as a printed document.
5. It is recommended that the contractor also complete a "Stockholder Disclosure Certification." This will assist the local unit in its obligation to ensure that contractor did not make any prohibited contributions to the committees listed on the Business Entity Disclosure Certification in the 12 months prior to the contract. (See Local Finance Notice 2006-7 for additional information on this obligation at http://www.nj.gov/dca/divisions/dlgs/resources/lfns_2006.html) A sample Certification form is part of this package and the instruction to complete it is included in the Contractor Instructions. **NOTE: This section is not applicable to Boards of Education.**

C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

Contractor Instructions

Business entities (contractors) receiving contracts from a public agency that are NOT awarded pursuant to a "fair and open" process (defined at N.J.S.A. 19:44A-20.7) are subject to the provisions of P.L. 2005, c. 271, s.2 (N.J.S.A. 19:44A-20.26). This law provides that 10 days prior to the award of such a contract, the contractor shall disclose contributions to:

- any State, county, or municipal committee of a political party
- any legislative leadership committee*
- any continuing political committee (a.k.a., political action committee)
- any candidate committee of a candidate for, or holder of, an elective office:
 - of the public entity awarding the contract
 - of that county in which that public entity is located
 - of another public entity within that county
 - or of a legislative district in which that public entity is located or, when the public entity is a county, of any legislative district which includes all or part of the county

The disclosure must list reportable contributions to any of the committees that exceed \$300 per election cycle that were made during the 12 months prior to award of the contract. See N.J.S.A. 19:44A-8 and 19:44A-16 for more details on reportable contributions.

N.J.S.A. 19:44A-20.26 itemizes the parties from whom contributions must be disclosed when a business entity is not a natural person. This includes the following:

- individuals with an "interest" ownership or control of more than 10% of the profits or assets of a business entity or 10% of the stock in the case of a business entity that is a corporation for profit
- all principals, partners, officers, or directors of the business entity or their spouses
- any subsidiaries directly or indirectly controlled by the business entity
- IRS Code Section 527 New Jersey based organizations, directly or indirectly controlled by the business entity and filing as continuing political committees, (PACs).

When the business entity is a natural person, "a contribution by that person's spouse or child, residing therewith, shall be deemed to be a contribution by the business entity." [N.J.S.A. 19:44A-20.26(b)] The contributor must be listed on the disclosure.

Any business entity that fails to comply with the disclosure provisions shall be subject to a fine imposed by ELEC in an amount to be determined by the Commission which may be based upon the amount that the business entity failed to report.

The enclosed list of agencies is provided to assist the contractor in identifying those public agencies whose elected official and/or candidate campaign committees are affected by the disclosure requirement. It is the contractor's responsibility to identify the specific committees to which contributions may have been made and need to be disclosed. The disclosed information may exceed the minimum requirement.

The enclosed form, a content-consistent facsimile, or an electronic data file containing the required details (along with a signed cover sheet) may be used as the contractor's submission and is disclosable to the public under the Open Public Records Act.

The contractor must also complete the attached Stockholder Disclosure Certification. This will assist the agency in meeting its obligations under the law. **NOTE: This section does not apply to Board of Education contracts.**

* N.J.S.A. 19:44A-3(s): "The term "legislative leadership committee" means a committee established, authorized to be established, or designated by the President of the Senate, the Minority Leader of the Senate, the Speaker of the General Assembly or the Minority Leader of the General Assembly pursuant to section 16 of P.L.1993, c.65 (C.19:44A-10.1) for the purpose of receiving contributions and making expenditures."

C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

Required Pursuant To N.J.S.A. 19:44A-20.26

This form or its permitted facsimile must be submitted to the local unit no later than 10 days prior to the award of the contract.

Part I – Vendor Information

Vendor Name:	First Priority Emergency Vehicles, Inc.		
Address:	2444 Ridgeway Blvd., #500		
City:	Manchester	State: N.J.	Zip: 08759

The undersigned being authorized to certify, hereby certifies that the submission provided herein represents compliance with the provisions of N.J.S.A. 19:44A-20.26 and as represented by the Instructions accompanying this form.

Skip Stinger
Signature

Skip Stinger
Printed Name

Vice President – Fire Apparatus Sales
Title

Part II – Contribution Disclosure

Disclosure requirement: Pursuant to N.J.S.A. 19:44A-20.26 this disclosure must include all reportable political contributions (more than \$300 per election cycle) over the 12 months prior to submission to the committees of the government entities listed on the form provided by the local unit.

☐ Check here if disclosure is provided in electronic form.

[illegible]☐ Check here if the information is continued on subsequent page(s)

Continuation Page

C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

Required Pursuant To N.J.S.A. 19:44A-20.26

Page 4 of 5

Vendor Name:

[illegible]

☐ Check here if the information is continued on subsequent page(s)

List of Agencies with Elected Officials Required for Political Contribution Disclosure
N.J.S.A. 19:44A-20.26

County Name:

State: Governor, and Legislative Leadership Committees

Legislative District #s:

State Senator and two members of the General Assembly per district.

County:

Freeholders

{County Executive}

County Clerk

Surrogate

Sheriff

Municipalities (Mayor and members of governing body, regardless of title):

**USERS SHOULD CREATE THEIR OWN FORM, OR DOWNLOAD
FROM the Pay to Play section OF THE DLGS WEBSITE A
COUNTY-BASED, CUSTOMIZABLE FORM.**



CERTIFICATE OF LIABILITY INSURANCE

7/1/2018

DATE (MM/DD/YYYY)
6/30/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	Lockton Companies Three City Place Drive, Suite 900 St. Louis MO 63141-7081 (314) 432-0500	CONTACT NAME:	
		PHONE (A/C, No, Ext):	FAX (A/C, No):
		E-MAIL ADDRESS:	
		INSURER(S) AFFORDING COVERAGE	NAIC #
		INSURER A: Great American E & S Insurance Company	37532
		INSURER B: Travelers Property Casualty Co of America	25674
		INSURER C: AXIS Surplus Insurance Company	26620
		INSURER D: North American Specialty Insurance Co	29874
		INSURER E: The Charter Oak Fire Insurance Company	25615
		INSURER F:	

COVERAGES ALLSP CERTIFICATE NUMBER: 14372186 REVISION NUMBER: XXXXXXXX
THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC <input type="checkbox"/> OTHER:	N	N	PL1744639	7/1/2017	7/1/2018	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ XXXXXXXX PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 4,000,000 PRODUCTS - COMP/OP AGG \$ 4,000,000 \$
B	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY	N	N	TC2JCAP8E082581TIL17	7/1/2017	7/1/2018	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ XXXXXXXX BODILY INJURY (Per accident) \$ XXXXXXXX PROPERTY DAMAGE (Per accident) \$ XXXXXXXX \$ XXXXXXXX
C D A	UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$	N	N	EAU781897012017 EXS200016503 XS1744640	7/1/2017 7/1/2017 7/1/2017	7/1/2018 7/1/2018 7/1/2018	EACH OCCURRENCE \$ 30,000,000 AGGREGATE \$ 30,000,000 \$ XXXXXXXX
E	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N	N/A	TC20UB118D488217	7/1/2017	7/1/2018	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

CANCELLATION

14372186 For Informational Purposes Only	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE



Amps/Weight Report

Byram Township
10 Mansfield Drive
Stanhope, New Jersey 07874

First Priority Emergency Vehicles
2444 Ridgeway Blvd.
#500
Manchester, New Jersey 08759
800-247-7725
732-657-7955

Quote No: 18002-4
1 MODEL: 00DEVICE12 CUSTOM PUMPER
2 LETTER: LETTER 21 LETTERING & STRIPING, PUMPER
3 COMP ACC: 000COMP006 COMPARTMENT ACCESSORIES PUMPER
4 AC/ELEC: 000AC012 CUSTOM PUMPER GEN/ELEC AC
5 MISC EQU: 000EQUIP02 MISC AND LOOSE EQUIPMENT (PUMPER)
6 WARRANTY: WARNTY-07 CUSTOM PUMPER WARRANTY PACKAGE
DEALER: Dealer Parts

01/25/2018

Page 1

PART NO	S	DESCRIPTION	QTY	RESP	SCENE
BA-05-2425		WINDSHIELD WIPERS & WASHERS - 100" PREDATOR	1	0.00	0.00
BA-05-3595		LANG-MEKRA HEATED REMOTE CONTROLLED MIRRORS - WEST COAST STYLE	1	0.00	0.00
BA-06-3220		DRIVERS SEAT, BOSTROM EX8 SIERRA ELECTRIC BASE - ABTS	1	0.00	0.00
BA-08-0291		INSTRUMENT PANEL, 100" PREDATOR "PANTHER" - NARROW	1	1.00	1.00
BA-08-0620		ULTRAVIEW 450 DISPLAY ON CAB DASH FOR ES-KEY SYSTEM	1	0.50	0.50
BA-08-1220		INDICATOR CLUSTER, 100" PREDATOR	1	1.00	1.00
BA-08-1800		LOWER RIGHT AUXILIARY SWITCH PANEL - PREDATOR - FAB	1	0.00	0.00
BA-08-1900		PUMP SHIFT CONTROL ON LOWER LEFT DASH PANEL	1	0.00	0.00
BA-08-1950		MULTIPLEX CONTROL PUMP SHIFT SWITCH - MULTIPLEX	1	0.00	0.00
BA-08-3350		HEATER/ DEFROSTER & ACCESS, PREDATOR "PANTHER" 10" RR	1	26.00	26.00
BA-08-9000		CAB TILT SYSTEM & OPTIONS	1	0.00	0.00
BA-20-1100		ABS BRAKING FOR SINGLE REAR AXLE CHASSIS	1	2.00	0.00
BA-20-1270		ELECTRONIC STABILITY CONTROL (ESC) WITH (ATC) - CUSTOM SA	1	2.00	0.00
BA-20-3010		MERITOR/WABCO SYSTEM SAVER #1200, AIR DRYER HEATED	1	0.00	0.00
BA-30-6560		CUMMINS L9 450 HP @ 2100 RPM, TQ 1250 lb-ft @ 1400 - PANTHER NARROW	1	5.00	5.00
BA-33-0020		SECONDARY BRAKING - ENGINE COMPRESSION BRAKE	1	0.00	0.00
BA-40-0100		ALLISON 3000EVS TRANS. - COMPRESSION BRAKE	1	2.00	2.00
BA-40-0650		FIVE (5) SPEED AUTOMATIC TRANSMISSION - 3000 SERIES	1	2.00	2.00
BA-50-2500		FUEL SYSTEM	1	6.00	6.00
BA-50-2645		CUMMINS FUEL-WATER SEPARATOR	1	0.00	0.00
BE-05-0375		CLASS-1 ES-KEY MULTI-PLEXED ELECT SYSTEM 100' PREDATOR "PANTHER"	1	5.00	5.00
BE-05-0450		CLASS-1 ES-KEY ULTRAVIEW 450 DISPLAY	1	5.00	5.00
BE-05-0800		INTER-LOCK MODULE FOR MULTIPLEX SYSTEM	1	1.00	1.00
BE-10-0415		LEECE NEVILLE 350 AMP BLP4004H ALTERNATOR	1	0.00	0.00
BF-00-0515		WELDON #8080-8001-13 WHITE/RED LED INTERIOR LIGHTS (4)	1	2.00	2.00
BF-00-5005		DOOR OPEN INDICATOR W/ INTEGRAL AUDIBLE ALARM "PANTHER"	1	0.00	0.00
BF-20-0040		DUAL HEADLIGHTS, LED, PREDATOR - J.W. SPEAKER - DUAL BEZELS	1	5.40	5.40
BG-00-0050		DUAL MODULE w/ WHELEN 600 LED TURN SIGNAL & REQ WARN LIGHT	1	0.50	0.00
BG-00-1220		WHELEN LED MARKER LIGHTS @ TOP FRONT ROOF EDGE OF CAB	1	1.10	1.10
BG-00-1610		OPTRONICS MARKER/TURN LIGHTS @ EA SIDE OF BODY	1	0.60	0.20
BG-00-1700		TRUCK-LITE MARKER LIGHTS @ EA SIDE OF CAB, ADJACENT TO DRIVER DOOR	1	0.10	0.10

PART NO	S	DESCRIPTION	QTY	RESP	SCENE
BG-00-1760		TRUCK-LITE MARKER LIGHTS @ REAR OF BODY	1	0.30	0.30
BG-00-2915		TECNIQ #L10 LED LICENSE PLATE LIGHT @ DS REAR OF BODY	1	0.10	0.10
BG-02-2035		WHELEN #600 LED BRAKE, REVERSE, TURN W/ QUAD HOUSING	1	2.20	1.50
BH-04-1050		CAB STEP LIGHTS, TECNIQ EON 3 LED, ALL DEVICES	4	0.00	0.80
BH-04-1130		BODY STEP LIGHTS, TECNIQ EON 3 LED, ALL DEVICES	2	0.00	0.40
BH-05-1625		DUNNAGE AREA LIGHTING, TECNIQ EON 3 LED	1	0.00	0.20
BH-06-0700		WHELEN #PELCC HOSE BED LIGHTS-FRONT WALL	1	0.00	0.00
BH-10-7010		FRC SPECTRA 900 LED SCENE LIGHTS ON REAR OF BODY	1	0.00	12.00
BH-10-7045		FRC SPECTRA 900 LED SCENE LIGHTS ON DRIVER SIDE OF BODY	1	0.00	12.00
BH-10-7055		FRC SPECTRA 900 LED SCENE LIGHTS ON OFFICER SIDE OF BODY	1	0.00	12.00
BH-11-0810		NFPA (4) AMDOR H2O LED GROUND LIGHTS, BELOW CAB DOORS	1	0.00	0.80
BH-11-0820		GROUND LIGHTS, 2 LED UNDER FRONT BUMPER FACING FORWARD - H2O	1	0.00	0.40
BH-11-0870		GROUND LIGHTS, 2 LED AT REAR BODY CORNERS - H2O	1	0.00	0.40
BH-12-2275		FRC BROW LIGHT, SPECTRA MAX LED, 12V, (1) ABOVE WINDSHIELD	1	0.00	18.00
BH-13-0025		FRC SPECTRA MAX LED TELESCOPING W/POLES, 12V- REAR OF CAB	1	0.00	36.00
BJ-00-5115		PUMP ENCLOSURE WORK LIGHTS - TECNIQ LED	1	0.00	0.00
BJ-00-5165		ENGINE COMPARTMENT WORK LIGHTS - TECNIQ LED	1	0.00	0.00
BJ-02-0450		COMPT. LIGHTS, AMDOR LUMA BAR LED LIGHTING - DUAL	7	0.00	9.80
BM-01-005S	S	A-UPPER, WHELEN LED F4N1VLED, FREEDOM SERIES IV 81" LIGHT BAR FRONT POPULATED	1	6.00	5.00
BM-01-1030	S	C-UPPER, WHELEN 900 SUPER LED'S RED w/CLEAR LENS	1	3.00	3.00
BM-01-2014	S	B/D-UPPER REAR, WHELEN 900 SUPER LED'S RED w/CLEAR LENS	1	3.00	3.00
BM-01-3014	S	B/D-UPPER FRONT, WHELEN 900 SUPER LED'S RED w/CLEAR LENS	1	3.00	3.00
BM-08-0019	S	A-LOWER FRONT, WHELEN 600 SUPER LED'S RED w/CLEAR LENS	1	1.50	1.50
BM-08-1075	S	C-LOWER REAR, WHELEN 600 SUPER LED'S RED w/CLEAR LENS	1	1.50	1.50
BM-08-2022	S	B/D-LOWER FRONT, WHELEN 600 SUPER LED'S - RED/BLUE w/ CLEAR LENS	1	1.50	1.50
BM-08-3080	S	B/D-LOWER MID, WHELEN 600 SUPER LED'S - RED/BLUE w/ CLEAR LENS	1	1.50	1.50
BM-08-4085	S	B/D-LOWER REAR, WHELEN 600 SUPER LED'S - RED/BLUE w/ CLEAR LENS	1	1.50	1.50
BM-30-1070		WHELEN LED 36" - #TAL65 "TRAFFIC ADVISOR" ON REAR OF BODY	1	3.20	3.20
BW-00-0510		CHASSIS SINGLE ELECTRIC (DOT) HORN	1	0.00	0.00
BW-00-0560		CODE 3, #CA278, BACK-UP ALARM - 87DBA	1	0.00	0.00
BW-00-5000		DUAL CHROME AIR HORNS	1	0.20	0.00
BW-01-0120		SIREN, WHELEN # 295HFS2, 100W - FLUSH MOUNT	1	9.00	0.00
BW-02-0000		FEDERAL Q2B SIREN @ CAB FRONT	1	0.00	0.00
DC-01-8600		HALE PUMP SHIFT INDICATOR LIGHTS	1	0.00	0.00
DC-05-1225		FIRE RESEARCH "IN CONTROL" TGA-300 PRESSURE GOVERNOR	1	2.00	2.00
DC-05-3690		TRIDENT "AUTOMATIC" AIR PRIMING SYSTEM	1	0.00	0.00
DD-66-0210		AMDOR LUMA BAR H2O SUPER BRIGHT LED - LIGHT SHIELD/STEP	1	0.00	1.00
DD-66-2310		AMDOR LUMA BAR H2O SUPER BRIGHT LED - LIGHT SHIELD/STEP	1	0.00	1.00
DD-72-0260		IC, SL PLUS SUPER BRIGHT 16 LED WATER TANK GAUGE - PUMP	1	0.70	0.70
TF-13-7370		CAST PRODUCTS CHROME LIGHTED FOLDING STEP(S), BODY FRONT, DS	1	0.00	1.00
TF-13-7470		CAST PRODUCTS CHROME LIGHTED FOLDING STEP(S), BODY FRONT, OS	1	0.00	0.60
TF-13-7570		CAST PRODUCTS CHROME LIGHTED FOLDING STEP(S), BODY REAR, DS	1	0.00	0.60
TF-13-7670		CAST PRODUCTS CHROME LIGHTED FOLDING STEP(S), BODY REAR, OS	1	0.00	0.60
TL-20-1860		ONE (1) AKRON BRASS #ERWC-10-28, 120 VOLT ELECTRIC CORD REEL	1	0.00	0.00
Totals				108.40	200.20



**K.M.E. Custom 2000 GPM
1000 Gallon Tank Pumper**

For:

**Byram Township,
Sussex County, New Jersey**



K.M.E. Custom 2000 GPM 1000 Gallon Tank Pumper

PROPOSAL

First Priority Emergency Vehicles is pleased to offer the proposed vehicle to meet the intent of the fire department specifications.

KME Fire apparatus is a leading manufacturer in custom and commercial firefighting vehicles.

Questions or concerns pertaining to this proposal can be answered by contacting the following KME representative.

Skip Stinger, Vice-President of Fire Apparatus Sales
First Priority Emergency Vehicles
2444 Ridgeway Blvd, #500
Manchester, NJ 08759

Cell Number: 609-516-4796
Fax Number: 732-657-7955
E-mail: skip.stinger@verizon.net

Web: www.emergencyvehiclecenter.com

BUYER

The Buyer of the Fire Apparatus is Byram Township, 10 Stanhope Drive, Stanhope, New Jersey 07874. Telephone: 973-347-2500 Fax: 973-347-0502

HGAC CONTRACT PURCHASE

The proposed unit is being purchased from First Priority Emergency Vehicles Inc. under HGAC Buy Co-op number FS12-17.

PURCHASE ORDER

To order this vehicle, a Purchase Order should be completed and made out to the following vendor:

First Priority Emergency Vehicles Inc.
2444 Ridgeway Blvd.
#500
Manchester, New Jersey 08759
Phone: (732) 657-1104
Fax: (732) 657-7955

The Purchase Order description shall state:

Product Code: MC06

Model and Description: KME Custom, 4-Door, Full-Tilt, Aluminum Cab, Aluminum Body, Single Axle, 2000 GPM Pump, 1000 Gal Tank-Flex Pumper



K.M.E. Custom 2000 GPM 1000 Gallon Tank Pumper

CONTRACT

A standard First Priority Emergency Vehicles, Inc. Form of Contract is included in our Proposal. This Contract should be signed by two (2) representatives of the Purchasing Authority and submitted with the Purchase Order.

HGAC LETTER

To enter the order with HGAC, a letter from the Purchaser needs to be supplied to the Seller, First Priority Emergency Vehicles, Inc., to be forwarded to HGAC in the order entry package. A sample of wording is provided below.

**Byram Township
10 Mansfield Drive
Stanhope, New Jersey 07874**

To Whom It May Concern,

Byram Township is purchasing an MC06 Fire Pumper from First Priority Emergency Vehicles, Inc. of Manchester, New Jersey and KME Fire Apparatus under the HGAC FS12-17 contract in the amount of \$ 479,918.00.

Signature

Title

Date

N.F.P.A. 1901, 2016 EDITION COMPLIANT APPARATUS

The proposed apparatus will be compliant to N.F.P.A. Pamphlet 1901, 2016 edition.

GENERAL INFORMATION

The proposed apparatus will be constructed to withstand the severe and continuous use encountered during emergency fire fighting services. The apparatus will be of the latest type, carefully designed and constructed with due consideration to the nature and distribution of the load to be sustained.

This proposal details the general design criteria of cab and chassis components, aerial device (if applicable), fire pump and related components (if applicable), water tank (if applicable), fire body, electrical components, painting, and equipment.

All items of these proposal specifications will conform to the fullest extent possible with the National Fire Protection Association Pamphlet No. 1901, latest edition, except as noted in the Statement-of-Exceptions.

KME will furnish satisfactory evidence of our ability to construct, supply service parts and technical assistance for the apparatus specified.

ACCEPTANCE

First Priority Emergency Vehicles, Inc. agrees to sell and Buyer agrees to purchase, the fire apparatus and equipment ("Apparatus") described herein in the **Bid Proposal Specifications** which are incorporated as "**Exhibit A**" of this contract, as may be amended in writing, and the equipment listed herein, and in accordance with the terms and conditions set forth herein.

FIRE APPARATUS DOCUMENTATION

KME will supply, at the time of delivery, at least one (1) copy of the following documents:

The manufacturer's record of apparatus construction details, including the following information:

- Owners name and address
- Apparatus manufacturer, model and serial number
- Chassis make, model and serial number
- Front tire size and total rated capacity in pounds
- Rear tire size and total rated capacity in pounds
- Chassis weight distribution in pounds with water and manufacturer mounted equipment, front and rear
- Engine make, model, serial number, rated horsepower, rated speed and governed speed
- Type of fuels and fuel tank capacity
- Electrical system voltage and alternator output in amps.
- Battery make, model and total capacity in cold crank amps (CCA)
- Transmission make, model and serial number. If so equipped chassis transmission PTO(s) make, model and gear ratio

- Pump make, model, rated capacity in gallons per minute (liters per minute where applicable) and serial number
- Pump transmission make, model, serial number and gear ratio
- Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable) and serial number
- Water tank certified capacity in gallons or liters
- Paint manufacturer and paint number(s)

Certification of slip resistance of all stepping, standing and walking surfaces.

If the apparatus has a fire pump or an industrial supply pump, the pump manufacturer's certification of suction capability.

If the apparatus has a fire pump or an industrial supply pump, a copy of the apparatus manufacturer's approval for stationary pumping applications.

If the apparatus has a fire pump or an industrial supply pump, the engine manufacturers certified brake horsepower curve for the engine furnished, showing the maximum governed speed.

If the apparatus has a fire pump or an industrial supply pump, the pump manufacturers certification of hydrostatic test (if applicable).

If the apparatus has a fire pump or an industrial supply pump, the Underwriters Laboratory certification of inspection and test for the fire pump (if applicable).

If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source (if applicable).

Weight documents from certified scale - showing actual loading on the front axle, rear axle(s) and overall vehicle (with the water tank full but without personnel, equipment and hose) will be supplied with the complete vehicle to determine compliance with NFPA-1901

Written load analysis and results of electrical performance tests.

If the apparatus is equipped with a water tank, the certification of water tank capacity by the tank manufacturer.

The proposed chassis will be certified by KME as conforming to all applicable Federal Motor Vehicle Safety Standards (FMVSS) in effect at the date of contract. This will be attested to by the attachment of a FMVSS certify caution label on the vehicle by KME, who will be recognized as the responsible final manufacturer.

RECORDS

KME will be responsible for preparing and maintaining a record file of parts and assemblies used to manufacture the proposed apparatus. These records will be maintained in KME's factory for a minimum of twenty (20) years. The file will contain copies of any and all reported deficiencies, all replacement parts required to maintain the apparatus, and original purchase documents including specifications, contract, invoices, incomplete chassis certificates, quality control reports and final delivery acceptance documents. The purchaser will have access to any and all documents contained in this file upon official written request.



K.M.E. Custom 2000 GPM 1000 Gallon Tank Pumper

GENERAL CONSTRUCTION

The proposed apparatus, assemblies, subassemblies, component parts, etc., will be designed and constructed with the due consideration to the nature and distribution of the load to be sustained and to the general character of the service to which the apparatus is subjected to when placed in service. All parts of the apparatus will be designed with a factor of safety, which is equal to or greater than that which is considered standard and acceptable for this class of equipment in fire fighting service. All parts of the proposed apparatus will be strong enough to withstand general service under full load. The apparatus will be so designed that the various parts are readily accessible for lubrication, inspection, adjustment and repair.

The apparatus will be designed and constructed, and the equipment so mounted, with due consideration to distribution of the load between front and rear axles that all specified equipment, including a full complement of specified ground ladders, full water tank, loose equipment, and firefighters will be carried without overloading or injuring the apparatus.

SINGLE-LINE RESPONSIBILITY

KME is a true "sole source" manufacturer. KME engineers, designs, manufactures, builds and paints our own fire apparatus cab, chassis, body, aerial devices and electrical systems. All work is done in KME owned and operated manufacturing facilities by KME direct employees. This capability provides consistent design and manufacturing procedures that will reduce warranty issues and provide ease in parts replacement.

MANUFACTURING FACILITY

The entire apparatus will be fabricated and assembled in the facility solely owned and operated by Kovatch Mobile Equipment Corporation (KME). The cab, including the cab shell, chassis and fire body will be manufactured in the KME Nesquehoning, Pennsylvania facility.

PRODUCT LIABILITY INSURANCE

KME provides liability and facility insurance equaling \$30,000,000.00, which is one of the highest available in the fire industry. Reference attached documentation.

SERVICE CENTER AND PARTS DEPOT - MANUFACTURER

KME Fire Apparatus has an authorized service center at the manufacturing site in Nesquehoning, Penna., with a staff of factory-trained EVT mechanics, well versed in all aspects of service for all major components of the apparatus. The facility is within a 100-mile radius of the Byram Township.

SERVICE CENTER AND PARTS DEPOT

First Priority Emergency Vehicles, Inc.
Comprehensive Emergency Vehicle Repair Center



K.M.E. Custom 2000 GPM 1000 Gallon Tank Pumper

KME FIRE APPARATUS SERVICE STATEMENT

The proposed KME Fire Apparatus is offered with service for both in and out of warranty service and/or repairs. The work can be promptly performed by the local KME authorized service center either at your location or in one of two (2) convenient locations.

SERVICE SHALL BE PROVIDED BY

MAIN OFFICE

First Priority Emergency Vehicles, Inc.
2444 Ridgeway Blvd.
Manchester, NJ 08759
Phone: 732-657-1104/800-247-7725
Fax: 732-657-7955

BRANCH OFFICE

First Priority Emergency Vehicles, Inc.
166 Goldmine Road
Flanders, NJ 07836
Phone: 973-347-4321/800-526-5106
Fax: 973-347-7211

SERVICE CENTER CAPABILITIES

Complete apparatus service and repair including Preventative Maintenance programs, pump repair, electrical system repairs, apparatus upgrades, comprehensive collision and body repair facility, fabrication and testing.

First Priority Emergency Vehicles, Inc. has a dedicated staff of fifty-two (52) employees in two strategically located offices in New Jersey. Our company is family owned and operated with a focus on keeping your fire apparatus on the road and ready to respond at all times. Our service department has fifteen (15) full-time technicians that can handle any service or repair problems you may encounter. We provide mobile service throughout the area as well as providing free pick up and delivery of your apparatus.

First Priority Emergency Vehicles, Inc. is an authorized service center for the following OEM's – Hales Pumps, Waterous Pumps, Darley Pumps, Weldon V-Mux, FoamPro Systems and many more. We provide service and repair to ALL makes and models of Fire Apparatus and any other Emergency Service Vehicle in your fleet.

First Priority Emergency Vehicles, Inc. offers twenty-four (24) hour emergency service for out of service units. We're just one call away and can provide heavy duty towing if needed. Our service center(s) are fully insured for your protection and we are licensed as mandated by the State of New Jersey Motor Vehicle Commission.

PRICES AND PAYMENTS

The bid price will be F.O.B. Destination, on a delivered and accepted basis at the Fire Department.

Total price on KME's proposal sheet will include all items listed in these specifications.

KME has computed pricing less federal and state taxes. It is understood that any applicable taxes will be added to the proposed prices, unless the purchaser furnishes appropriate tax-exempt forms.



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PAYMENT TERMS

The Purchaser shall be invoiced for the unit, including any approved Change Orders, at least 30 days prior to the completion of the apparatus.

The apparatus shall be paid for, in full, upon delivery to the Purchaser.

TRANSFER OF TITLE

When payment in full is received, the Manufacturer shall present an Original Equipment Manufacturers (OEM) title to the Purchaser.

CHANGE ORDERS AND CREDITS

All change orders will be presented to the Purchaser's designated representative for approval prior to work being done or material ordered. The change orders will reflect a charge or credit as appropriate.

COMPLETION TIME

KME Fire Apparatus is proposing to complete the apparatus based on the number of calendar days, starting from the date the sales contract is signed and accepted by KME Fire Apparatus.

Completion Time: 330 to 360 Calendar Days

DELIVERY TIME AFTER COMPLETION

Due to the required process of the local Dealer having to inspect, prepare and detail the completed apparatus once it leaves the manufacturer, the unit will be delivered to the Purchaser within 21 calendar days after its completion by the manufacturer, correction of any items from the final inspection, and delivery to First Priority Emergency Vehicles..

This time period is in addition to any time quoted by the manufacturer for completion, and shall not be subject to a penalty.

DISCLAIMERS: *Company will not be liable for any delay, failure to make delivery, or other default due to strikes or labor unrest, war, riot, federal, state or local government action, fire, flood or other disaster or acts of God, accidents, breakdown of machinery, lack of or inability to obtain materials, parts or supplies, or any other causes or circumstances beyond the reasonable control of Company which prevent or hinder Company's manufacture and/or delivery of the Apparatus.*

CHANGES IN REGULATIONS/INDUSTRY STANDARDS: *The Purchase Price is subject to adjustment for changes to the Apparatus necessitated by changes in applicable government regulations (such as FMVSS or emissions regulations), industry standards (such as NFPA standards), replacement of discontinued models or components from vendors, or freight charges. Buyer is responsible for any cost increases due to such changes beyond Company's control.*



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PERFORMANCE BOND

A performance bond will be supplied by the KME upon acceptance of the signed sales contract for the apparatus. The performance bond will be for an amount equal to the full contract price (i.e. 100% bond).

FAIR, ETHICAL AND LEGAL COMPETITION

In order to ensure fair, ethical, and legal competition, neither original equipment manufacturer (OEM) nor parent company of the OEM will have ever been fined or convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.

MATERIAL AND WORKMANSHIP

All equipment furnished will be guaranteed to be new and of current manufacture, to meet all requirements of purchaser's specifications.

All workmanship will be of high quality and accomplished in a professional manner so as to insure a functional apparatus with a pleasing, aesthetic appearance.

CONTRACT SPECIALIST

KME will designate an in house individual to perform KME's contract specialist functions. The contract administrator will provide a single point interface between the purchaser and KME on all matters concerning the contract.

APPROVAL DRAWING

A detailed drawing of the apparatus will be provided to the Byram Township for approval before construction begins. A copy of this drawing will also be provided to the manufacturer's representative. Upon Byram Township approval, the finalized drawing will become a part of the total contract.

The drawing will show, but is not limited to, such items as the chassis make and model, major components, location of lights, sirens, all compartment locations and dimensions, special suctions, discharges, etc. The drawing will be a visual interpretation of the apparatus as it is to be supplied.

INSPECTION VISITS

KME will provide four (4) factory inspection trips to KME's facility. Transportation, meals, lodging, and other requisite expenses will be the bidder's responsibility.

Accommodations will be for four (4) Fire Department representatives per trip.

The factory visits will occur at the following stages of production of the apparatus:

- Pre-construction / blueprint review.
- Custom chassis completion.



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- Midpoint completion of entire apparatus.
- Final inspection upon completion.

All inspections will be at the KME Fire Apparatus factory in Nesquehoning, Pennsylvania where the cab, chassis and body is manufactured and the unit completed.

Travel arrangements less than 300 miles from the manufacturing facility will be via ground transportation.

The customer maintains the right to inspect the apparatus, within KME's normal business hours. At any other point during construction expenses incurred during non-specified visits will be the responsibility of the customer.

During inspection visits, the customer reserves the right to conduct actual performance tests to evaluate completed portions of the unit. Testing will be accomplished with the assistance and resources of the contractor.

FINAL INSPECTION - PUMPING DEMONSTRATION

A demonstration of the pumps capabilities will be performed at the final inspection, and witnessed by the Purchaser's representatives inspecting the apparatus. The pump will take draft, pump at capacity for 10 minutes, and a demonstration of the pressure control device and relief valve will be conducted. In addition, the pump will be pressurized, and all caps removed, to ensure that there are no leaks in the plumbing system.

DELIVERY

Delivery of the apparatus to the Fire Department will remain KME's responsibility.

A qualified and responsible representative of KME will deliver the apparatus to the Fire Department.

TRANSPORTATION OF COMPLETED VEHICLE

To insure proper break-in of all components while still under warranty, the apparatus will be delivered over the road under its own power (Rail and/or truck freight shall not be acceptable).

UNIT INSURED UPON DELIVERY

In order to store the completed unit in the facilities of the Purchaser, the unit must be insured by the Purchaser upon delivery of the unit to the Purchaser.

DEMONSTRATION AND FAMILIARIZATION

On initial delivery of the fire apparatus, a qualified and responsible representative of the contractor {will/shall} demonstrate the apparatus and provide initial instruction to representatives of the customer regarding the operation, care, and maintenance of the apparatus and equipment supplied.

The demonstration and familiarization will be for a period of eight (8) hours at mutually agreed upon times.

INSTRUCTION MANUALS/DRAWINGS, SCHEMATIC

KME will supply at time of delivery, two (2) CD copies of a complete operation and service manual covering the complete apparatus as delivered and accepted.

The manual will contain the following:

- Descriptions, specifications, and ratings of chassis, pump (if applicable), and aerial device.
- Wiring diagrams.
- Lubrication charts.
- Operating instructions for the chassis, any major components such as a pump and any auxiliary systems.
- Instructions regarding the frequency and procedures recommended for maintenance.
- Parts replacement information.

VEHICLE FLUIDS PLATE

As required by NFPA-1901, KME will affix a permanent plate in the driver's compartment specifying the quantity and type of the following fluids used in the vehicle:

A permanent plate in the driving compartment will specify the quantity and type of the following fluids used in the vehicle:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Pump transmission lubrication fluid
- Pump primer fluid
- Drive axle(s) lubrication fluid
- Air-conditioning refrigerant
- Air-conditioning lubrication oil
- Power steering fluid
- Cab tilt mechanism
- Transfer case fluid
- Equipment rack fluid
- Air compressor system lubricant
- Generator system lubricant
- Aerial systems

PRIMARY PLANT CONSTRUCTION

In order to insure top quality construction, maximum assembly line and engineering communication and the highest level of manufacturing supervision the entire apparatus will be built at KME's (headquarters) manufacturing facility.



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PROPOSAL BLUEPRINT

KME is providing a scaled drawing of the specific apparatus being proposed WITH THE BID. The drawing has been generated by KME's engineering department in order to maintain the accuracy of the drawing.

U.S.A. MANUFACTURER

The entire apparatus will be assembled within the borders of the Continental United States to insure more readily available parts (without added costs and delays caused by tariffs and customs) and service.

QUALITY MANAGEMENT

KME is certified ISO 9001 at all company locations. KME received its certification from Eagle Registrations Inc. after they assessed the company's quality system and found it to be in full compliance with ISO 9001. Eagle is accredited as a registrar by ANSI-ASQ National Accreditation Board (ANAB), the organization responsible for qualifying registrars as competent to audit and certify organizations conforming to ISO 9001 or other management system standards.

The International Organization for Standardization (ISO) is a worldwide federation of national standards bodies from 130 countries. Its ISO 9001 standard is a quality assurance model made up of 20 sets of quality system requirements. This model applies to organizations that design, develop, produce, install, and service products.

This business management system allows KME to monitor processes to ensure they are effective; keep adequate records; check output for defects, with appropriate and corrective action where necessary; regularly review individual processes and the quality system itself for effectiveness; and facilitate continual improvement.

STEPPING, STANDING, & WALKING SURFACES

All stepping, standing, and walking surfaces on the body will meet NFPA #1901 anti-slip standards. Aluminum tread plate utilized for stepping, standing, and walking surfaces will be Alcoa No-Slip type. This material will be a minimum 3/16 (0.1875") in thickness. KME will supply proof of compliance with this requirement. All vertical surfaces on the body, which incorporate aluminum tread plate material, will utilize the same material pattern to provide a consistent overall appearance.

AMP DRAW REPORT

The bidder shall provide with their bid proposal and at the time of delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

A written load analysis, which shall include the following:

- The rating of the alternator.
- The minimum continuous load of each component that is specified per: Applicable NFPA-1901.
- Additional loads that, when added to the minimum continuous load, determine the total connected load.

- Each individual intermittent load.

All of the above listed items shall be provided by the bidder per the applicable NFPA-1901.

COOPERATIVE PURCHASING

KME is pleased to allow other public agencies to use the purchase agreement resulting from this invitation to bid. The condition of such use by other agencies will be that any such agency must make and pursue contact, purchase order/contract, and all contractual remedies with KME. Such tag-on's will be done so that the original purchasing agency has no responsibility for performance by either KME or the agency using the contract.

UNDERWRITERS LABORATORIES INC. (UL) EXAMINATION AND TEST PROPOSAL

If required by the specific chapters of NFPA-1901, the proposed unit will be tested and certified for KME Fire Apparatus by Underwriters Laboratories Inc. (UL) Underwriters Laboratories Inc. (UL) is recognized worldwide as a leading third party product safety certification organization for over 100 years. UL has served on National Fire Protection Association (NFPA) technical committees for over thirty years.

INDEPENDENT TESTING ORGANIZATION QUALIFICATIONS

- UL is a nationally recognized testing laboratory recognized by OSHA.
- UL complies with the American Society for Testing and Materials (ASTM) Standard ASTM E543 "Determining the Qualifications for Nondestructive Testing Agencies."
- UL has more than 40 years of automotive fire apparatus safety testing experience and 16 years of factory aerial device testing and Certification experience. UL has more than 100 years of experience developing and implementing product safety standards.
- UL does not represent, is not associated with, nor is in the manufacture or repair of automotive fire apparatus.
- All test work for fire pumps outlined in NFPA 1901, Edition will be conducted.
- UL has included a list of all factory aerial device manufacturers for whom testing is currently being conducted on a regular basis.
- UL carries ten million dollars in excess liability insurance for bodily injury and property damage combined.

All work outlined in NFPA 1914, current Edition, including nondestructive testing, will be conducted at the manufacturer's facility.

The UL inspectors performing the test work on the units are certified to Level II in the required NDT methods, under the requirements outlined in ASNT document CP-189.

The actual person(s) performing the inspection will present for review proof of Level II Certification in the required NDT methods.

KME will designate, in writing, who is qualified to witness and certify these test results.

Prior to submittal to the automotive fire apparatus manufacturer, the final Report will be reviewed by the Supervisor of Fire Equipment Services and a Registered Professional Engineer, both of whom are directly involved with the aerial device certification program at UL.

When the unit successfully meets all the requirements outlined in NFPA 1901, 2009 Edition, UL shall issue a Certificate of Automotive Fire Apparatus Examination and Test stating the unit's compliance with NFPA- 1901.

LINE VOLTAGE ELECTRICAL SYSTEM CERTIFICATION

When the unit successfully meets all the requirements outlined in NFPA 1901, 2016 Edition, UL will issue a Certificate of Automotive Fire Apparatus Examination and Test stating the unit's compliance with the required line voltage section of NFPA.

GENERAL APPARATUS DESCRIPTION "PUMPER"

The unit will be designed to conform fully to the "Pumper Fire Apparatus" requirements as stated in the NFPA 1901 Standard (2016 Revision), which will include the following required chapters as stated in this revision:

- Chapter 1 Administration
- Chapter 2 Referenced Publications
- Chapter 3 Definitions
- Chapter 4 General Requirements
- Chapter 5 Pumper Fire Apparatus
- Chapter 12 Chassis and Vehicle Components
- Chapter 13 Low Voltage Electrical Systems and Warning Devices
- Chapter 14 Driving and Crew Areas
- Chapter 15 Body, Compartments and Equipment Mounting
- Chapter 16 Fire Pumps and Associated Equipment
- Chapter 18 Water Tanks
- Chapter 22 Line Voltage Electrical Systems

CAB SAFETY SIGNS

The following safety signs will be provided in the cab:

- A label displaying the maximum number of personnel the vehicle is designed to carry will be visible to the driver.
- "Occupants will be seated and belted when apparatus is in motion" signs will be visible from each seat.
- "Do Not Move Apparatus When Light Is On" sign adjacent to the warning light indicating a hazard if the apparatus is moved (as described in subsequent section).
- A label displaying the height, length, and GVWR of the vehicle will be visible to driver.
- This label will indicate that the fire department will revise the dimension if vehicle height changes while vehicle is in service.

CHASSIS DATA LABELS

The following information will be on labels affixed to the vehicle:

Fluid Data

- Engine Oil
- Engine Coolant
- Chassis Transmission Fluid
- Pump Transmission Lubrication Fluid
- Pump Primer Fluid (if applicable)
- Drive Axle(s) Lubrication Fluid
- Air Conditioning Refrigerant
- Air Conditioning Lubrication Oil
- Power Steering Fluid
- Cab Tilt Mechanism Fluid
- Transfer Case Fluid (if applicable)
- Equipment Rack Fluid (if applicable)
- Air Compressor System Lubricant
- Generator System Lubricant (if applicable)
- Front Tire Cold Pressure
- Rear Tire Cold Pressure
- Aerial Hydraulic Fluid (if applicable)
- Maximum Tire Speed Rating

Chassis Data

- Chassis Manufacturer
- Production Number
- Year Built
- Month Manufactured
- Vehicle Identification Number

Manufacturers weight certification:

- Gross Vehicle (or Combination) Weight Rating (GVWR or GCWR)
- Gross Axle Weight Rating, Front
- Gross Axle Weight Rating, Rear

ROLLOVER STABILITY

The apparatus will meet the criteria defined in 4.13.1 for rollover stability as defined in the 2016 NFPA Standard for Automotive Fire Apparatus.

PRINCIPAL APPARATUS DIMENSIONS & G.V.W.R.

- OVERALL LENGTH: 382.5" (31'-10.5")
- OVERALL WIDTH: 100" (8'-4")
- OVERALL HEIGHT: 113" (9'-5")
- WHEELBASE: 195"

The axle and total weight ratings of the completed apparatus will not be less than the following minimum acceptable weight ratings:

- MINIMUM FRONT G.A.W.R.: 21,500 lbs.
- MINIMUM REAR G.A.W.R.: 27,000 lbs.
- MINIMUM TOTAL G.V.W.R.: 48,500 lbs.

KME will include the principal dimensions, front G.A.W.R., rear G.A.W.R., and total G.V.W.R. of the proposed apparatus. Additionally, KME will provide a weight distribution of the fully loaded, completed vehicle; this will include a filled water tank, specified hose load, miscellaneous equipment allowance in accordance with NFPA-1901 requirements, and an equivalent personnel load of 250 lbs. per seating position.

SEAT BELT ANCHOR TESTING

Each seat belt anchor will be tested to withstand 3,000lbs of pull on both the lap and shoulder belt in accordance with FMVSS 210 section 4.2.

SEAT MOUNTING TESTING

Each seat mounting position will be tested to withstand 20G's of force in accordance with FMVSS 207 section 4.2(c).

Both tests will be performed and verified at a third party testing and evaluation center.

CAB TYPE - K.M.E. PREDATOR PANTHER

- K.M.E. FIRE APPARATUS "PREDATOR PANTHER" CAB AND CHASSIS
- MEDIUM FOUR DOOR DESIGN (MFD)
- MEASURES 62.5" FROM CENTER OF FRONT AXLE TO REAR OF CAB
- CAB WILL BE 100" WIDE
- FOUR (4) SIDE OPENING DOORS
- ALUMINUM CONSTRUCTION
- SEATING FOR EIGHT (8)
- FULL TILTING TYPE CAB
- CONTOUR WINDSHIELD
- FULLY CRASH TESTED
- CAB TO BE CUSTOM BUILT FOR FIRE SERVICE USE
- CAB OVER ENGINE DESIGN WITH INTEGRAL TILT MECHANISM
- CAB DESIGNED, FABRICATED, ASSEMBLED AND INSTALLED ON THE FRAME RAILS IN THE FACTORY OF THE BIDDER. (SINGLE SOURCE SUPPLIER)
- THE CAB INTERIOR WILL BE AN "OPEN SPACE" DESIGN WITH NO WALL, WINDOW OR VERTICAL SUPPORTS BETWEEN THE FRONT AND CREW AREA.

CAB MATERIAL - ALUMINUM

The cab will be fabricated from 5052-H 32 aluminum alloy, utilizing the minimum material thickness as follows:

- | | |
|--------------------------------|----------------------|
| • Cab side panels | 0.125 thick (1/8") |
| • Cab roof | 0.125 thick (1/8") |
| • Forward cab front sheet | 0.125 thick (1/8") |
| • Interior cab panels | 0.125 thick (1/8") |
| • Other panels | 0.125 thick (1/8") |
| • Cab doors | 0.1875 thick (3/16") |
| • Engine enclosure side panels | 0.250 thick (1/4") |

CAB - BASE CONSTRUCTION

Cab sub-frame will be a welded assembly fabricated of 6063 structural aluminum alloy. This frame will extend the full length and width of the cab and be secured to the chassis frame through two (2) rear urethane self centering load cushions, two (2) forward pivot brackets, and two (2) cab locks. The cab will be of entirely welded construction.

The front cab wall will be of double wall type construction, featuring an inner and outer panel.

CRASH TESTING CERTIFICATION

To ensure the safety of the cab occupants and cab integrity, proof of third party testing will be provided. The cab will be certified for SAEJ2422 side impact, SAEJ2420 with ECER29 cab front impact, and ECER29 cab roof strength.

Furthermore, proof of testing and certification will be provided that the cab, in accordance to SAE J2420 was front impact tested at 2.1 times the standard energy required in SAE J2420, thus exceeding the NFPA requirement.

This test will be performed with no support immediately behind the cab, thus providing an authentic test result.

ROOF AND SIDE LOAD TESTING

The cab design will include additional third party testing to ensure the safety of the cab occupants and cab integrity, proof of third party testing will be provided. The cab will be certified for SAEJ2422 side impact, SAEJ2420 with ECER29 cab front impact, and ECER29 cab roof strength.

The manufacturer will provide proof that third party testing has been conducted to prove a static roof and a static side-load test has been completed. In these tests, a 120,000 pound static load was first applied to the roof. This test was followed by applying the same 120,000 pound static load to the side of the cab.

These tests will be conducted per the SAE J2422, Cab Roof Strength Evaluation, protocol and the ECE R29, Uniform provisions concerning the approval of vehicles with regard to the protection of occupants of the cab of a commercial vehicle, protocol.

During both tests, the cab will withstand these loads without encroachment into the occupant survivable space and all doors remained closed during the test. The tests will be documented with photographs and real-time video in a report provided to the manufacturer.

DIMENSIONS - MEDIUM FOUR DOOR STYLE CAB

Minimum Cab Dimensions:

- | | |
|---|--------------------------------|
| • Overall width | 100" |
| • Inside width across ceiling | 92" |
| • Front area floor to ceiling | 62" |
| • Crew seat area width | 92" |
| • Outer crew seat risers to rear wall | 42" |
| • Centerline front axle to back of cab | 62-1/2" |
| • Centerline axle to front of cab | 74" |
| • Top of front seat to ceiling | 44" (depending upon seat type) |
| • Seat back to steering wheel | 22" (depending upon seat type) |
| • Inside width (door to engine enclosure) | 27" (driver's side, at floor) |
| • Inside width (door to engine enclosure) | 24" (officer's side, at floor) |
| • Floor to top of engine enclosure | 27" |
| • Front cab floor to top of center dash | 34-3/4" |

Glass Area Dimensions:

- | | |
|----------------------------------|------------------|
| • Windshield (Contour) | 3,422 sq. in. |
| • Front door window, retractable | 743 sq. in. each |
| • Rear door window, retractable | 875 sq. in. each |
| • Fixed side windows | 620 sq. in. each |

Cab Entry Door Width Dimensions

- Forward door opening 40" wide
- Rear door opening 37" wide

Cab Entry Step Dimensions

- Forward door recessed step 32" wide x 9" deep
- Rear door recessed step 32" wide x 9" deep

Cab Entry Door Height Dimensions

- Forward door opening 76-1/4" high
- Rear door opening 85-1/4" high

10" RAISED CAB ROOF

The roof will be of a split level design with radius edges for an aesthetic, streamline appearance. The roof will be constructed the same material as the main structure and will be internally reinforced using framing which will span the entire width and length of the cab for maximum structural integrity. This will allow the roof to support personnel and roof mounted equipment without the need for additional reinforcement.

The cab roof over the rear crew area will be raised ten (10) inches higher than the front driver and officer area. The front face of the raised roof section will be sloped at a 45 degree angle, creating a streamlined interface with the standard, lower, forward roof section. This design will allow for additional interior height in the rear crew area.

The rear crew area doors will be "Vista-Style", extending full height to the radius edge of the raised roof.

Approximate dimensions:

- Crew area floor to ceiling 64"
- Top of crew seat to ceiling 46" (depending upon seat type)

CAB ROOF OVERLAY

A bright finish aluminum tread plate overlay will be placed on the cab roof, starting at a point rearward of the light bar location and extending back to the end of the cab roof. This tread plate overlay will be sealed with caulking around the edges to prevent moisture from entering the area between the cab roof and the overlay.

CAB ROOF DRIP RAIL

For enhanced protection from inclement weather, an integral drip rail will be furnished on each side of the cab roof. The drip rail will extend the full length of the cab roof.

STEPWELL BATTERY ACCESS DOORS

The battery access doors will be 1/8" aluminum tread plate, drop down doors with thumb latches at each side rear cab step well.

CAB DOORS

Four (4) side-opening doors will be provided. The cab doors will be totally aluminum construction with an extruded aluminum frame and an aluminum outer door skin. Doors will be full height from the step to the cab roof extrusion and enclose the step area when the doors are closed.

The forward cab door opening will be a minimum of 40" wide, and the rear cab door opening will be a minimum of 37" wide. The rearward cab doors will have a radius cutout allowing the door opening to protrude forward over the cab wheel well, while providing full access to the rear crew area.

There will be a heavy duty piano type stainless steel hinge on each door with a minimum pin diameter of 5/16". Hinges will be slotted for ease of horizontal and vertical adjustment. There will be a cab door seal and the doors will close flush with the side of the cab. A heavy-duty 6" wide belting material will be utilized to prevent the cab doors from opening greater than 90 degrees.

ENTRY STEP AREA

Each of the forward entrance steps will be a minimum of 8-1/2" deep with the floor board recessed a minimum of 5" to avoid "shin knocking". Each step will be a bolt-in cast aluminum step.

Each of the rear entrance steps will be a minimum of 8-1/2" deep. An intermediate step will be provided between the lower entrance step and the crew area floor for ease of entry and egress. Each step will be fabricated as an integral part of the cab construction. The cab step risers will be painted to match the cab exterior color.

Each lower step will be a bolt-in cast aluminum step.

DOOR LATCHES

A semi-recessed chrome plated pull handle, capable of operating with a gloved hand, will be provided on the exterior of each cab door. Heavy-duty, bright finish cast paddle latches will be provided on the interior of each cab door. Door latch mechanisms which utilize spring steel clamps will not be considered due to their tendency to both rust and break. The interior door latch cables are to be designed to reduce adjustment or possible wear at the adjustment turnbuckles.

LOCKING CAB DOORS

Each exterior cab door will be equipped with keyed locks. The cab doors will be capable of being locked from the outside with a key and from the inside with a control in each interior paddle latch.

The specified door lock cylinders will be equipped with #2001 keys.

DOOR WINDOWS

Each side cab door will have a tinted retractable window operated by a hand crank mechanism. The window track will be designed into the door frame extrusion, which will be extruded with a track groove to house a window track and seal. The window will be capable of being removed from an access slot designed in the bottom of the door frame.

DOOR WINDOW TRIM

Each side cab door window will be designed with a custom extruded trim plate, which will conform to the perimeter of the window opening in each door. The trim plate will extend from the edge of the door skin to the window and will have a silver anodized finish.

INNER DOOR PANELS

The cab door interior panels will be covered with an aluminum panel, full height. The panel will be 1/8" aluminum and painted with Line-X and will be designed to allow easy access to the inner door.

The Line-X will be dark gray in color.

Each interior cab door panel will be equipped with reflective ScotchLite material that will cover at least 96 in². The material will be applied to an aluminum plate that will be fastened to the door panel.

EXTERIOR CAB WALL OVERLAY

A bright finish aluminum tread plate overlay will be provided over the entire exterior rear cab wall. The tread plate overlay will be sealed with caulking around the edges to prevent moisture from getting between the cab and the overlay.

WINDSHIELD/GLASS

A two piece, symmetrical, safety glass windshield will be provided on the cab for the driver and officer providing a clear viewing area. The windshields will be full width to the center of the front cab support for each side and provide the occupants with a panoramic view. To provide enhanced peripheral vision on each side of the cab, the windshield and cab structure will be designed with radius corners, which provide a minimum of 8" of glass area, measured from the glass face to the side edge near the door post. The windshield will consist of three (3) layers; the outer light, the middle safety laminate and the inner light. The thick outer light layer will provide superior chip resistance, the middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage and the inner light will provide yet another chip resistant layer.

The windshield will be a contour design with 3422 sq. in. of area for improved visibility and style. The windshield glass will be designed so it can be used on either the driver or officer side. Single piece windshields that utilize epoxy or that are bonded to the cab structure will not be acceptable.

WINDSHIELD WIPERS AND WASHER

Dual, electric operated, pantographic type windshield wipers will be provided. One (1) electric drive motor will be provided for each wiper.

Wipers will have "HI/LO" and "INTERMITTENT" operating speeds. "HI/LO" speeds will be controlled by a steering column control, within the turn signal control stem. "INTERMITTENT" operation will be controlled by a twist switch within the control on the steering column. The wipers will be of the self-parking type.

Windshield washers will be electric operated wet-arm type with a 3/4 gallon washer fluid reservoir, mounted inside the engine enclosure and readily accessible through the engine hatch at the rear of the engine enclosure. The washer control will be integral with the intermittent wiper control switch.

There will be individual removable panels on the front face of the cab for access to the wiper motor assemblies.

WINDSHIELD WIPER DURABILITY CERTIFICATION

Windshield wipers will survive testing in excess of 3 million cycles in accordance with section 6.2 of SAE J198 "Windshield Wiper Systems – Trucks, Buses and Multipurpose Vehicles". The bidder will certify that the wiper system design has been "Third party tested" and that the wiper system has met this criteria.

CAB SIDE VIEWING WINDOWS

A fixed, tinted window with 620 sq. in of glass area will be provided on each side of the cab behind the forward cab doors. This window will be the same height as the window in the rear cab door for maximum visibility.

DARK TINTED REAR WINDOW GLASS

The windshield and the forward cab door glass will be provided with standard DOT green automotive tint. The side cab windows to the rear of the front doors, the rear cab door windows and any rear viewing windows will be equipped with a dark automotive tint.

GRAB HANDLES

Four (4) 1-1/4" diameter x 28" long, knurled bright anodized aluminum handrails will be provided, one (1) at each cab door entrance. Grab rail stanchions will be chrome plated and offset when necessary to prevent "hand-pinching" when opening or closing the doors. Formed rubber gaskets will be provided between each stanchion base and the cab surface.

INTERIOR GRAB RAILS

Grab rails will be provided to assist in entry and exiting of the cab. Each grab rail will be a cast aluminum "D" style handle that will have a wheelabrated finish and will be located in the following locations:

- One (1) 11" long, horizontally mounted, on each front cab door on the upper interior door panel
- One (1) 12" long, vertically mounted, on the officer's side "A" post
- One (1) 11" long, horizontally mounted, on each rear cab door on the interior door panel
- One (1) 30" long, horizontally mounted, on each rear cab door, located approximately 8" above the bottom of the window opening
- Three (3) 12" long, vertically mounted, one (1) on the driver's side cab interior on the "A" post and one (1) each side of the cab interior on the "C" post in the crew area

STAINLESS STEEL FRONT CAB GRILL

There will be a mirror finished stainless steel, custom formed grille assembly for maximum air flow to the charge air cooler and the radiator. The grille will be designed with an aesthetic look, with large horizontal louvers that will be reinforced to provide integrity.

The grill will be a modular design to allow the sides or the individual louvers to be replaced if damaged.

An American flag mesh bug screen will be provided behind the front grill assembly to protect the radiator from bugs and other debris. The screen will be secured to the front of the cab, behind the main grill.

AIR INTAKE/OUTLET

Two (2) shaped, mirror finished stainless steel air inlets/outlets will be provided horizontally above the wheel well opening, one on each side of the cab. The grilles will be equipped with a mesh screen to serve as a secondary ember separator. The design will permit proper ducting of air through the engine compartment and cooling system.

ENGINE AIR INTAKE SYSTEM

The left side inlet, used for the air intake to the air cleaner, will be equipped with dual ember separators for separating burning embers from the air intake system. This system will be such that particles larger than .039 inches (1 mm) in diameter cannot reach the air filter element.

No part of the air intake system for the engine will be lower than the top of the frame rails to ensure the vehicle can navigate pooled water without any part of the air intake system being exposed to water when the vehicle is stopped or in motion. Chassis designs, which the engine air intake system is lower than the frame rails will not be acceptable!

CAB WHEEL WELL LINERS

The front cab wheel wells will be equipped with fully removable, bolt-in, aluminum inner wheel well liners. The liners will extend full depth into the truck frame. The completely washable wheel well liners will be designed to protect the cab substructure, inner panels, and other miscellaneous installed components from road salts, debris, dirt accumulation and corrosion.

CAB FENDERETTES

The cab wheel well openings will be trimmed with replaceable, bolt-in, polished stainless steel fenderettes. The fenderettes will be secured to the cab with stainless steel threaded fasteners along the internal perimeter of the wheel well. Dissimilar metal tape and black vinyl trim molding will be used where the cab and fender meet.

FRONT MUD FLAPS

Heavy duty, black rubber type mud flaps will be provided behind the front wheels.

LANG-MEKRA 300 SERIES WEST COAST STYLE

Two (2) Lang-Mekra 300 Series West Coast style mirror assemblies will be furnished, one on each front cab door. Each mirror assembly will have a 17 x 6 shatterproof flat glass head mounted in a chrome plated housing and a 6-3/4 x 6-3/4 shatterproof convex head mounted in its own chrome plated housing. All heads will be electrically heated. The upper flat glass portion will be electrically controlled from the driver's seating position and the lower convex sections will be manually adjustable.

The mirror heads will be installed on a one piece break away style stainless steel loop mounted to the forward portion of the door with two (2) brackets, forward of the windows.

MIRROR CONTROL/S

To minimize wire circuits roughed from the dash to the door, the mirror position and heat (if applicable) controls will be programmed into and controlled from the multiplex control screen.

INTERIOR TRIM

The cab interior will be constructed to create an ergonomically designed interior to be user friendly and functional for the driver and officer.

The forward overhead panel will be a fabricated aluminum module painted to match the interior. This module will contain the integrated windshield defroster/heater.

The headliner and rear cab wall will utilize **Dark Gray Vinyl** material, with padding underneath, to provide additional insulation.

The interior metal surfaces of the cab will be finish painted with dark gray Line-X material.

INTERIOR REAR WALL

The interior rear wall of the cab will be covered with **Dark Gray Vinyl** for durability and will match the other areas of the cab.

A twelve (12) inch high bright finish aluminum tread plate scuff plate will be provided on the lower portion of the rear interior cab wall.

UNDER SEAT STORAGE COMPARTMENTS

There will be a compartment provided under each front seat. Each compartment will be accessible from the front of the seat riser when the door is opened.

BARYFOL FLOORING

The floor of the driver's compartment and the floor of the crew area will be lined with BARYFOL vinyl composite flooring to comply with NFPA noise and heat requirements.

ENGINE ENCLOSURE

The forward portion of the engine enclosure will be covered with a Durawear material formed overlay to match the balance of the cab interior. This Durawear overlay will provide superior cab insulation against noise as well as improved heating and air conditioning performance. The Durawear layer will then be overlaid with formed aluminum panels which will be coated with Line-X to provide a rugged surface for this high wear area. **Note:** Cab interiors which feature the base aluminum structure painted with high impact resistant paint are not acceptable, the Durawear layer is required between the base structure and the impact panels to provide desired interior conditions.

To allow maximum "elbow room" for the driver and officer, the forward portion of the engine enclosure will feature a contour shape. The engine enclosure will not significantly obstruct the driver's vision in any direction. The enclosure will be an integral part of the cab structure, which will be constructed from material providing adequate strength to support radio, map boxes, etc. The engine enclosure will be insulated to protect from heat and sound. The noise insulation will keep the DBA level within the limits stated in the current NFPA series 1901 pamphlet.

A padded, hinged access door will be provided in the top rearward portion of the engine enclosure. The door will allow access to the engine oil, transmission fluid, power steering fluid level dipsticks and the windshield washer fluid reservoir. The access door will be provided with two (2) flush mounted latches and gas shock holders. There will be a Durawear material cover over the access door to give a cleaner look to the top of the engine enclosure and doghouse area.

The enclosure will be an integral part of the cab structure, which will be constructed from a minimum of .25" 5052-H32 aluminum. This material will be welded to the floor sub frame on each side of the cab and will extend from the very front of the cab to the rear of the engine enclosure.

The rear section of the engine enclosure will be reduced 8-1/2" in length to provide additional leg room for the forward facing seating position/s.

ADDITIONAL ENGINE ENCLOSURE INSULATION

Premium soundproofing/insulation material, Barymat BTRLAX3-14BY will be installed in the engine enclosure. To ensure a clean, smooth surface, this material will be retained by flat aluminum panels fastened to studs that are welded to cab as needed. These panels will be removable. Any gaps in this insulation barrier will be sealed with 3M #425 aluminized high temperature tape.

SUN VISORS

To provide maximum protection for the driver and officer, two (2) padded vinyl sun visors will be mounted in the cab overhead on each side.

DRIVERS SEAT

The driver's seat will be a H. O. Bostrom Sierra EX8 high back bucket ABTS LH seat. The seat will have a tapered and padded seat cushion with lumbar support. The seat will have an eight inch fore and aft adjustment, a 2 inch height adjustment, front of seat tilt, rear of seat tilt and a reclining seat back. All seat movements will be electrically controlled from a control panel on the forward lower edge of the seat.

The seat will be equipped with a red integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly.

OFFICERS SEAT

The officer's seat will be a H. O. Bostrom Tanker 450 ABTS RH series fixed base SCBA seat. The seat will have a tapered and padded seat cushion with lumbar support. The seat will include a SCBA storage area with integral headrest.

The seat will be equipped with a red integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly.

The officer's seat will include a H. O. BOSTROM Secure All™ SCBA Locking System. The bracket system will be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the tank in-place for a safe and comfortable fit in seat cavity. Fire fighters will simply push the SCBA unit against the pivot arm to engage the patented auto-locking system. Once the lock is engaged, the top clamp will surround the top of the SCBA tank for a secure fit in all directions.

The standard release handle will be integrated into the seat cushion for quick and easy release and will eliminate the need for straps or pull cords to interfere with other SCBA equipment.

REAR FACING, OUTBOARD, DRIVER SIDE SEAT

The driver's side outboard rear facing crew seat will be a H. O. Bostrom Tanker 450 ABTS RH series fixed base SCBA seat. The seat will have a tapered and padded seat cushion with lumbar support. The seat will include a SCBA storage area with integral headrest.

The seat will be equipped with a red integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly.

The driver's side rear facing outboard seat will include a H. O. BOSTROM Secure All™ SCBA Locking System. The bracket system will be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the tank in-place for a safe and comfortable fit in seat cavity. Fire fighters will simply push the SCBA unit against the pivot arm to engage the patented auto-locking system. Once the lock is engaged, the top clamp will surround the top of the SCBA tank for a secure fit in all directions.

The standard release handle will be integrated into the seat cushion for quick and easy release and will eliminate the need for straps or pull cords to interfere with other SCBA equipment.

REAR FACING, OUTBOARD, OFFICER SIDE SEAT

The officer's side outboard rear facing crew seat will be a H. O. Bostrom Tanker 450 ABTS LH series fixed base SCBA seat. The seat will have a tapered and padded seat cushion with lumbar support. The seat will include a SCBA storage area with integral headrest.

The seat will be equipped with a red integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly.

The officer's side rear facing outboard seat will include a H. O. BOSTROM Secure All™ SCBA Locking System. The bracket system will be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the tank in-place for a safe and comfortable fit in seat cavity. Fire fighters will simply push the SCBA unit against the pivot arm to engage the patented auto-locking system. Once the lock is engaged, the top clamp will surround the top of the SCBA tank for a secure fit in all directions.

The standard release handle will be integrated into the seat cushion for quick and easy release and will eliminate the need for straps or pull cords to interfere with other SCBA equipment.

FORWARD FACING, OUTBOARD, DRIVER SIDE SEAT

The driver's side outboard forward facing crew seat position will be provided. The inner rear cab wall of the cab will serve for back support.

The seating position will be equipped with a red 3-point shoulder harness with lap belt.

The driver's side outboard forward facing crew seat position will have a flip-up style seat.

FORWARD FACING, OUTBOARD, OFFICER SIDE SEAT

The officer's side outboard forward facing crew seat position will be provided. The inner rear cab wall of the cab will serve for back support.

The seating position will be equipped with a red 3-point shoulder harness with lap belt.

The officer's side outboard forward facing crew seat will have a flip-up style seat.

CENTER FORWARD FACING CREW SEATS

Two (2) center inboard forward facing crew seats will be provided. Each seat will be H. O. Bostrom Tanker 450 ABTS series fixed SCBA seat and will have a tapered and padded seat cushion with lumbar support.

Each seat will include an SCBA storage area with integral headrest.

Each seat will be equipped with a red integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly.

The two (2) center inboard forward facing crew seats will have a flip-up style seat.

Each center forward facing seat will include a H. O. BOSTROM Secure All™ SCBA Locking System. The bracket system will be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the tank in-place for a safe and comfortable fit in seat cavity. Fire fighters will simply push the SCBA unit against the pivot arm to engage the patented auto-locking system. Once the lock is engaged, the top clamp will surround the top of the SCBA tank for a secure fit in all directions.

The standard release handle will be integrated into the seat cushion for quick and easy release and will eliminate the need for straps or pull cords to interfere with other SCBA equipment.

FORWARD FACING CREW SEAT RISER

The center forward facing seats will be mounted on an aluminum riser that will be mounted in the center of the cab. The riser will match the interior of the cab and will have individual, tread plate compartment doors with latches, to provide additional storage space in the cab.

SEAT UPHOLSTERY MATERIAL

The seats will be upholstered with heavy duty gray tweed Durawear material as provided by Bostrom.

AIR MASK STORAGE BAG(S)

Five (5) Bostrom SCBA mask storage bag(s) for the SCBA seats will be provided and mounted to the top (backside) of the seat headrest. The storage bag(s) will be made of a mesh-type material.

SEAT ADJUSTMENT NOTICE

If equipped, adjustable seats may be limited by outside factors such as optional installed equipment (i.e. ems compartments, battery chargers, SCBA cylinder brackets) and seat placement.

SEAT BELT CUSHION SENSORS AND BELT SENSORS

The apparatus will be equipped with a Class 1 seat belt warning system. The system will consist of a Seat Belt module and will display the seating positions through the main UltraView screen.

Seat belt and seat cushion sensors will be provided on the eight (8) specified seating positions.

VEHICLE DATA RECORDER

A Class 1 Vehicle Data Recorder (VDR) system will be provided. The system will include an NFPA compliant "Black Box" with reporting software that will be capable of data storage to coincide with the NFPA requirements.

Data storage capabilities will include interfaces with the following systems:

- Display module (Master Optical Warning Device)
- VDR, date & time stamp
- Max Vehicle speed (MPH)
- Vehicle acceleration / deceleration (MPH/Sec.)
- Engine Speed (RPM)
- ABS event
- Data password protected
- Data sampled once per second, in 48-hour loop
- Data sampled min by min for 100 engine hours
- Throttle position (% of Throttle)
- Data software
- PC / Mac Compatible
- Data summary reports

The VDR data will be downloadable by USB cable to a computer using either Microsoft or Apple operating systems.

ENGINE ENCLOSURE STORAGE MODULE

A storage module will be installed on the center of the engine access door between the rear facing seats. The module will be constructed of 1/8" aluminum and will be coated with scuff resistant paint to match the cab interior. The module will include two (2) flat open storage areas and six (6) divided storage area's for 3-ring binders.

ANTENNA INSTALLATION

Two (2) antenna mounting base(s) model #MATM with 17' of coaxial cable will be provided and installed on the lower cab roof, behind the light bar. The attached antenna wire(s) will be run to the right side cab dash area.

The Fire Department is responsible to have the correct antenna whip installed once the apparatus is delivered.

DASH & CENTER CONSOLE

The dash will be a custom formed, Line-X aluminum housing to create an ergonomically designed interior that will be user friendly and functional for the driver and officer.

The instrument cluster will be centered in front of the driver and all gauges will be installed in a non-glare, pewter finish panel.

All warning lights and indicators will be located in either the gauge itself or in the lower center portion. Each gauge will be equipped with an international symbol that is easily recognizable; denoting the system being monitored. Instrumentation will be backlit for easy identification when activated.

The transmission gear selector will be located on the left side of the center dash assembly, toward the driver for easy access.

DRIVER'S DASHBOARD PANEL

The main instrument panel will be centered in front of the driver and will have a hinged bottom with two ¼ turn latches at the top. The panel will be made of 1/8" aluminum with an anti-glare, pewter brushed surface and will contain the primary gauges, an instrument warning light cluster and the ignition and engine start switches.

The lower portion of this panel can be used for the installation of up to five (5) guarded type rocker switches. Examples of the switches that will be installed in this area are automatic chains, fan clutch over-ride, ATC mud-snow, inter-axle diff lock, electric fuel pump, all-wheel drive, etc.

The main instrument panel will contain the primary gauges. An ignition and engine start switch will be located on a panel to the left upper portion of the driver's side dash panel.

Each gauge will have a raised glass lens with a black matte finish trim ring and be backlit by integral white LEDs. Each gauge will also possess an integral red warning light with a pre-programmed warning point. Each gauge warning indicator will be capable of activating an audible alarm inside the dashboard.

The primary gauges will consist of:

- Vehicle speedometer, (0-80 mph)
- Engine tachometer, (0-3000 rpm)
- Engine oil pressure, (0-100 psi); low oil warning
- Engine coolant temperature (100-280 °F); high engine temp warning
- Transmission oil temperature (100-350 °F); high transmission fluid temp warning
- Vehicle battery voltage (9-18 VDC); low voltage warning
- Front air system gauge (0-150 psi); low air pressure warning at 65 psi
- Rear air system gauge (0-150 psi); low oil pressure warning at 65 psi
- Fuel level (E - 1/2 - F); low fuel level warning
- Air cleaner restriction gauge (0-40), warning at 25"

Additional auxiliary control switches and instruments (if applicable) will be located within the dash panel and overhead panel located near the driver's position.

- Diesel Exhaust Fluid level (E-1/2-F); low fuel level warning @ 1/8 tank
- Engine Compression Brake Controls

CLASS 1 DISPLAY

An UltraView 450 4.3" display will be provided on the dash for the electrical Class One ES-Key multiplex system. The exact location will be determined by the totality of instruments and switches on the cab dash.

The screen shall be programmed with the following features:

- Chassis Instrument Display
- Seat Occupant Display
- HVAC Controls
- Power Mirror Controls
- DPF Filter Regeneration Controls

INDICATOR CLUSTER

The driver's dashboard panel will consist of Ametek gauges, an 18 item instrument warning light cluster and a 16 item, dead front type alarm panel.

This display will contain the system control unit that collects data from the vehicle data bus (J1939), analog sensors, and switches throughout the vehicle. This data will be presented using gauges, telltales and the two (2) display panels. The warning light display will include a 2 x 20 dot matrix display, 18 telltales and 2 buttons to navigate through the screen menus.

The LCD dot matrix display will be a 2 line by 20-character display with each character being 7 dot by 5 dot configuration. FSTN technology will be used on the display for wide viewing capability. The module will be backlit with amber LEDs. The unit will also be supplied with a heater to ensure proper operation over the entire 40 to +85 deg. C.

This display contains a series of two (2) screens to provide information about the vehicle. To control the display of that information, the screens are divided into two (2) menus; one that can be displayed while the vehicle is in motion and one that can only be accessed when the parking brake is set.

On the Road displays include:

- Two (2) configurable displays that can show any of the parameters the unit collects. This includes odometer, trip information, fuel economy information; all gauge data, and virtually any other data available on the vehicle that the display has access to, either through the data bus or via analog inputs.
- Two (2) trip displays for miles and hours that are capable of being reset.
- Two (2) fuel data screens: will be provided; one for fuel remaining until empty and one for fuel economy. The fuel economy display will be capable of being reset so that average economy over a predetermined period can be displayed.

The displays that can be accessed when the parking brake is set include:

- Engine hours as maintained by the engine ECU
- Service Alarm screens to report miles to next service or miles past required service. These screens will allow the operator to choose the length of the service interval and will have the ability to reset it.
- Message screens with warning messages the display has collected during the current ignition cycle. These screens will be divided into configured warnings such as "Low Air

Pressure" and the data bus faults reported by ECU's on the vehicle. Both lists will allow the operator to review the last 12 events that occurred on the vehicle for maintenance and troubleshooting purposes.

- Diagnostic screens will test the instrumentation system to verify it is working correctly.
- Setup screens will be used to select either English or metric display. They will also allow the operator to choose the data that will be displayed by the configurable on-the-road screens.

The system will be configured with user defined warning messages such as Low Air Pressure or High Coolant Temperature. When these events occur the warning message will come up on the screen and can be accompanied by a buzzer. The messages will be prioritized so the most important messages are always displayed. Whether the message can be dismissed by pressing a button will be configurable. Messages that have been dismissed but are still active will be retained in the message screens for review until the ignition is turned off. Listed below are the defined telltales and their indicators.

- "Right And Left Directional" arrows (green in color)
- "Ignition ON" Indicator (amber in color)
- "Hi Beam" indicator (blue in color)
- "Battery ON" indicator (green in color)
- "Parking Brake ON" indicator (red in color)
- "Check Transmission" indicator (amber in color)
- "Cab Not Latched" indicator (red in color)
- "Stop Engine" indicator (red in color)
- "Check Engine" indicator (amber in color)
- "ABS Warning" indicator (red in color)
- "Low Coolant Level" (red in color)
- "Fuel Restriction" indicator (amber in color)
- "Water In Fuel" indicator (amber in color)
- "Fasten Seat Belts" indicator (red in color)
- "Fast Idle" Indicator (amber in color)
- "Do Not Move Truck" indicator (red in color)
- "DPF Regeneration" (amber in color)
- "Exhaust High Temperature" (amber in color)
- "Engine Diagnostic Fault" (amber in color)
- "Retarder On" (green in color)

Listed below are indicators that may be included, depending upon the vehicle configuration:

- "Wait To Start" indicator (amber in color)
- "Exhaust System Fault" (amber in color)
- "Jacks Not Stowed" (red in color)
- "PTO Engaged" (green in color)
- "Inter Axle Lock" (amber in color)
- "Ok to Pump" (green in color)
- "Auto Traction Control" (amber in color)
- "Auxiliary Brake Active" (amber in color).
- "ATC Disabled" indicator (red in color)
- "ATC Active" indicator (yellow in color)

LOWER RIGHT AUXILIARY SWITCH PANEL

The driver's lower right panel will be capable of housing five (5) guarded type rocker switches. Examples of the switches that will be installed in this area are automatic chains, fan clutch over-ride, ATC, inter-axle diff lock, electric fuel pump, all-wheel drive, etc.

PUMP SHIFT CONTROL

The pump shift control and pump engaged indicator light will be mounted in the driver's lower left panel.

The pump shift control will be a Mil Spec toggle switch with mechanical detents mounted in a fully backlit panel that will have indicators for "Pump Engage" and "Ok To Pump". The mode of the transfer case will be controlled by remotely mounted air solenoids which will be activated and monitored through the chassis control logic of the multiplex system.

MOBILE TERMINAL AREA

There will be a flat surface area in front of the officer for placement of a laptop computer.

HEATER/DEFROSTER AND AIR CONDITIONING SYSTEM

The cab will be designed with a HVAC system will be a dual roof mounted SGM air conditioning system capable of cooling a heat soaked cab interior.

The HVAC will utilize one (1) International Components Engineering #TM-31 HD compressor, mounted as close to level as practicable. The compressor will have a serpentine Poly "V" drive belt system installed in accordance with the compressor and belt manufacturer's requirements.

Air conditioning hoses and fittings will be appropriately sized to the compressor and other specified air conditioning components. Minimum hose size, will be #10 hose for discharge and #12 hose for suction. Steel hose end fittings will be provided at the compressor. The air conditioner hose will be the Aeroquip "Easy Clip" style hoses as recommended by Aeroquip. The A/C hoses will utilize FC802 Aeroquip hose with re-usable JIC 37 degree fittings.

One (1) condenser, rated at a minimum of 72,000 BTU cooling and 104,000 BTU heating will be provided on the cab roof. Both the front and rear overhead units will include the heating units. (if applicable, the raised roof will be equipped with notch to accommodate the condenser unit)

Two (2) evaporators, with a minimum blower output of 720 CFM through the louvers will be provided. Both evaporator units will be mounted on the cab roof, enclosed by aluminum panels painted white. The evaporator louvers and controls will penetrate the cab roof into occupant compartments to the least extent practicable. Fourteen (14) 3" diameter adjustable louvers will be furnished, four (4) in the front crew area and eight (8) in the rear crew area of the cab. The A/C drain lines will be routed to the inside of the cab wheel well area. Draining condensation into the interior of the cab or onto the occupants, roof or windshield will not be acceptable under any conditions.

The dual evaporator will be roof mounted to allow service and maintenance without the need to remove interior components or upholstery.

System will be compatible with R134A refrigerant.

The 12-volt system for the air conditioners will have first priority to be load managed. The system will utilize clearly labeled automatic reset-type circuit breakers.

The controls system will actuate the air-distribution system with air cylinders, which are to be separated from the brake system by an 85-90 psi pressure protection valve.

The air conditioning system will be configured to only operate when the vehicle's engine is running.

The blowers, in both evaporators, will be in operation whenever the air conditioning system is activated.

Heater-defroster will have a three-speed electric fan with a minimum output of 720 CFM through the louvers. Six (6) 3" diameter adjustable defroster outlets will be provided for directing warm air to the windshields. An additional diffuser will be added to each corner of the front overhead, angled to the front door windows to assist with window defrosting. Heater-defroster unit controls will be illuminated. Water lines from the engine to heater-defroster will be 5/8" heater hose with readily accessible flexible connections at each end. The water lines to the heater will have brass shut-off valves mounted on the engine to isolate the heater-defroster unit. The heater hose installation will not incorporate a copper tube manifold.

The heater/defroster unit will clear the windshield in half-the-time required by SAE Standards.

A serviceable foam intake filter will be installed on the rear of the evaporator.

Controls for this HVAC system shall be accessed and controlled through the Class One Ultraview screen located either in the cab overhead or on the dash wing panel, both of which shall be easily accessible by the driver.

ROOF MOUNT CONDENSER

A 12-volt roof top dual condenser will be strategically positioned on the cab roof so as not to interfere with any emergency lighting systems. The condenser will be designed with high performance, long life fan assemblies. The fan motors are to be equipped with sealed housings and shaft.

The condenser and coil design will include rifled tubing for maximum efficiency. Each coil will be painted black. The condenser unit must include a receiver drier with a high and low pressure switch. The wire harness will include necessary wiring for the clutch circuit as well as a separate power relay circuit.

Mounting design will enable easy servicing of all components and unit replacement if necessary.

CLIMATE CONTROL SWITCHES

The multiplex system control screen will contain all controls for the cab HVAC system. The following controls will be programmed into the control/display: mode selector switch, front fan speed switch, rear fan speed switch, air conditioning on/off switch, and temperature control dial.

CAB TILT ASSEMBLY

A hydraulic cab lift system will be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves.

The cab tilt mechanism will be custom designed for ease of maintenance and consist of two (2) hydraulic cylinders. Hydraulic lines will be rated at 20,000 PSI burst pressure. The hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position.

Hydraulic cylinders will be detachable to allow removal of the engine for major service. A remote cable operated mechanical cylinder stay bar and release will be provided to insure a positive lock in the tilted position.

The two (2) rear outboard cab latches will be of the hydraulic pressure release, automatic re-latching type, and provide an automatic positive lock when the cab is lowered. The latch will not disengage or experience any damage when subjected to a pull apart tensile load of 6,000 lbs. The hydraulic pressure required to unlock the latch will not exceed 550 PSI. The latch will withstand 5,000 PSI without leaks or damage and withstand 1,000 continuous cycles of operation under a load of 1,000 lbs. at liftoff. The tilt pump will be electric over hydraulic type, with a pressure rating of not less than 4,000 PSI. Additionally, the cab tilt device will be both electrically and hydraulically interlocked to prevent inadvertent activation of the cab tilt system.

- A "CAB NOT LATCHED" indicator will be provided in the cab dash-warning cluster.
- A dual switch control system will be provided for the cab tilt, located on the passenger side of the vehicle or on the optional tether control. System will consist of a three (3) position toggle switch along with a rubber covered push button switch.

AUXILIARY MANUAL CAB LIFT

An auxiliary manual cab lift backup system will be furnished inside the passenger side of the pump enclosure or front compartment for use in the event of total electrical shutdown.

The cab tilt control will be equipped with an interlock that will disable the cab tilt system in the event the parking brake is not applied.

CHASSIS FRAME ASSEMBLY

The chassis frame will be fabricated in its entirety at the manufacturer's facility. This will prevent any split responsibility in warranty or service.

The frame will consist of two (2) channels fastened together by cross members. All structural fasteners used in the frame will be Grade 8 hardware. Hardened steel washers will be used under all bolt heads and nuts to avoid stress concentrations. Top flange will be free of bolt heads. All spring hangers will be machined steel castings. Frame assemblies that are welded or assembled with "Huck" type fasteners are not acceptable."

Each main frame rail will be 10-1/4" x 4" x 3/8", fabricated from Domex™ 110,000 PSI minimum yield steel, with a minimum section modulus of 18.396 cu in and a resisting bending moment (RBM) of 2,023,560 inch pounds. The frame rails will be drilled "together" (back to back) on a frame drilling machine with an internally cooled drill bit in order to minimize the deviation in hole diameter or location.

Frames are built for the specific apparatus under construction so that no unnecessary holes or modifications are made to the frame assembly.

The chassis frame assembly, consisting of frame rails, cross members, axles and steering gear(s), will be finish painted before installation of any electrical wiring, fuel system components, or air system components. All components or brackets fastened to the frame rails will be cleaned, primed and painted prior to being attached to the frame rails.

FRONT BUMPER

A 12" high, 101" wide, two (2) ribbed, bright finish stainless steel front bumper will be provided. The bumper will be a wrapped design to match the contour of the front cab sheet.

BUMPER EXTENSION

The bumper will be extended 20" with a polished aluminum tread plate gravel shield enclosing the top and ends.

STORAGE WELL - CENTER

One (1) storage well constructed of 1/8" aluminum will be installed in the gravel shield. This storage well will be center mounted between the chassis frame rails. The bottom of the storage well will have a minimum of four (4) drain holes.

The center front bumper hose well will be furnished with Velcro straps to secure the hose stored in the well. The straps will be attached to each side of the hose well with stainless steel footman loops.

CENTER WELL - HOSE CAPACITY

The center storage well will have the desired capacity of:

- 100' of 1 3/4" hose

FRONT TOW HOOKS

Two (2) front painted tow hooks will be fastened directly to the frame, below the front bumper. The tow hooks will be fastened with grade 8 bolts and nuts.

FRONT AXLE

Front axle will be a Meritor MFS-20-133 A-N, includes low friction "Easy Steer" bushing technology for maximum steering ease and longer life.

The front axle will be rated at 21,500 lbs.

Premium Stemco oil seals with viewer glass will be provided on the front axle.

FRONT DISC BRAKES

Meritor EX-225 H, 17" disc brakes will be provided for the front axle. The front brakes will be full air actuated with automatic slack adjustment.

Premium Stemco oil seals with viewer glass will be provided on the front axle.

FRONT SUSPENSION

Front suspension will be progressive rate front leaf springs. The spring will be permanently pinned at the front and have a shackle double pinned mounting at the rear.

The front leaf springs will have a minimum of 10 leaves, a minimum length of 51", and a minimum width of 3-1/2". The capacity at ground will be 21,500 lbs. All springs will be of center bolt design. All spring pins will be positively restrained from rotating in brackets and shackles.

FRONT AXLE SHOCK ABSORBERS - SPECIAL FOR FRONT SUCTION - MONROE "MAGNUM "

The front suspension system will be equipped with Monroe, "Magnum", double acting hydraulic shock absorbers. Shock absorbers to have a minimum bore of 1.38" and an outside diameter of approximately 3-1/4".

REAR AXLE

Rear axle will be a single, Meritor RS-26-185 with a capacity of 27,000 lbs. (Minimum). Axle will be a single reduction axle with hypoid gearing and oil-lubricated wheel bearings. Oil seals will be provided as standard equipment.

REAR BRAKES

Meritor EX-225 H, 17" disc brakes will be provided for the rear axle. The rear brakes will be full air actuated with automatic slack adjustment.

REAR AXLE TOP SPEED

The rear axle/s will be geared for a vehicle top speed in accordance with NFPA sections 4.15.2 and 4.15.3.

Units with GVWR over 26,000 pounds will be limited to 68 mph. If the combined tank capacity is over 1250 gallons of foam and water or the GVWR is over 50,000 pounds, the vehicle top speed will be limited to 60 mph or the fire service rating of the tires, whichever is lower.

REAR SUSPENSION

The rear suspension will be leaf type, variable rate with a 31,000 lb. rating. The main spring assembly will consist of 14 leaves with the main spring measuring 60.5" L x 3" W.

There will be a rubber block helper mounted above the leaf springs, rated at 4,500 lbs. Two (2) fully wrapped leaves will transmit driving and braking torque. The rating will be designed to match or exceed the rear axle.

REAR SHOCK ABSORBERS

The rear suspension system will be equipped with Monroe, model "Magnum" model #74001, double acting hydraulic shock absorbers. Shock absorbers to have a minimum bore of 1.38" and an outside diameter of approximately 3-1/4".

BRAKE SYSTEM

A dual circuit, air operated braking system, meeting the design and performance requirements of FMVSS -121 and the operating test requirements of NFPA 1901 current edition will be installed. It will be direct air type with dual air treadle in the cab. The system will be powered by an engine mounted, gear driven air compressor protected by a heated air dryer.

The air system will be plumbed with reinforced, air brake tubing/hose in conformance to SAE J 844-94, Type B and U.S.D.O.T. standards. The compressor discharge will be plumbed with stainless steel braided hose lines with a Teflon lining. Eaton Synflex Eclipse Air Brake tubing will be run along the inside frame rails and connected with push to connect type fittings that meet or exceed all industry standards. All Synflex will be secured with non-conductive, corrosion resistant strapping mounted with standoff fasteners.

Cord reinforced rubber hose lines with brass fittings will be installed from the frame rails to axle mounted air connections.

The air system will provide a rapid air build-up feature and low-pressure protection valve with light and buzzer, designed to meet the requirements of NFPA 1901, current edition.

ABS SYSTEM

An Anti-Skid Braking System (ABS) will be provided to improve braking control and reduce stopping distance. This braking system will be fitted to all of the axles. All electrical connections will be environmentally sealed, water, weatherproof, and vibration resistant.

The system will constantly monitor wheel behavior during braking. Sensors on each wheel will transmit wheel speed data to an electronic processor which will sense approaching wheel lock causing instant brake pressure modulation up to 5 times per second in order to prevent wheel lockup. Each wheel will be individually controlled.

To improve service trouble shooting, provisions in the system for an optional diagnostic tester will be provided. The system will test itself each time the vehicle is started. A dash-mounted light will go out once the vehicle has attained 4 mph after successful ABS start-up. To improve field performance; the system will be equipped with a dual circuit design. The system circuits will be configured in a diagonal pattern. Should a malfunction occur, the defective circuit will revert to normal braking action. A warning light will signal malfunction to the operator. The system will consist of a wheel mounted toothed ring, sensor, sensor clip, electronic control unit and solenoid control valve.

The sensor clip will hold the sensor in close proximity to the toothed ring. An inductive sensor consisting of a permanent magnet with a round pole pin and coil will produce an alternating current with a frequency proportional to wheel speed. The unit will be sealed, corrosion resistant and protected from electromagnetic interference. The electronic control unit will monitor the speed of each wheel. A deviation will be corrected by cyclical brake application and release. If a malfunction occurs, the defective circuit will signal the operator and the malfunctioning portion of the system will shut down. The system will be installed in a diagonal pattern for side-to-side control. The system will insure that each wheel is braking to optimum efficiency up to 5 times a second.

The system will also control application of the auxiliary engine exhaust or drive line brakes to prevent wheel lock.

This system will have a three (3) year or 300,000 mile parts and labor warranty as provided by Meritor Wabco Vehicle Control Systems.

ELECTRONIC STABILITY CONTROL (ESC)

An Electronic Stability Control (4 or 6 Channel) will be provided as part of the Standard ABS system. The Electronic Stability Control system is capable of recognizing and assisting in both rollover and vehicle-under and over-steer situations through advanced monitoring of vehicle parameters and automatic and selective application of the chassis brakes. The Electronic Stability system uses lateral and yaw accelerometers, wheel speed sensors, ABS pressure modulator valves and an ECU to control the four corners of a vehicle. The controller monitors the vehicle response to turning and braking and adjusts or modulates the brake pressure at the wheel end to slow the vehicle in roll control, stabilize the vehicle when under or over steering, and modulate brake pressure when excessive wheel slip, or wheel lockup is detected. By these actions, the ESC system helps to maintain the vehicle's lateral and roll stability at all times, and improves braking and steer ability during heavy brake applications and during braking on slippery surfaces.

AUTOMATIC TRACTION CONTROL (ATC)

To further improve vehicle drive characteristics, the unit will be fitted with automatic traction control (ATC). This system will control drive wheel slip during acceleration from a resting point. An extra solenoid valve will be added to the ABS system. The system will control the engine and brakes to ensure efficient acceleration. The system will be equipped with a dash-mounted light that will come on when ATC is controlling drive wheel slip. The system will also include an "off road traction" dash mounted switch that will allow the operator to momentarily allow for more wheel slip when the unit is in deep mud or snow.

This system will have a three (3) year or 300,000 mile parts and labor warranty as provided by Meritor Wabco Vehicle Control Systems.

BRAKE AIR RESERVOIRS

There will be a minimum of three (3) air reservoirs installed in conformance with best automotive practices. Reservoir capacity total will be a minimum of 4693 cubic inches.

The air reservoirs will be color coded to match the air lines for easy identification, ease of maintenance and troubleshooting.

The reservoirs will be painted the following colors:

- | | |
|------------------|-------|
| • Wet Tank | Black |
| • Primary Tank | Green |
| • Secondary Tank | Blue |

For ease of daily maintenance, each air system reservoir will be equipped with a brass 1/4 turn drain valve.

AIR DRYER SYSTEM

A Meritor/Wabco System Saver 1200 heated air dryer will be furnished. An automatic moisture ejector on the primary will also be furnished.

AIR LINES

The entire chassis air system will be plumbed utilizing reinforced, Synflex air lines, which will be equipped with quick release type fittings. All of the airlines will be color coded to correspond with an air system schematic and will be adequately protected from heat and chafing.

AIR COMPRESSOR

Air compressor will be a Wabco brand, minimum of 18.7 cubic feet per minute capacity. Air brake system will be the quick build up type. The air compressor discharge line will be stainless steel braid reinforced Teflon hose.

A pressure protection valve will be installed to prevent the use of air horns or other air operated devices should the air system pressure drop below 80 psi (552 kPa).

The chassis air system will meet NFPA 1901, latest edition for rapid air pressure build-up within sixty (60) seconds from a completely discharged air system. This system will provide sufficient air pressure so that the apparatus has no brake drag and is able to stop under the intended operating conditions following the sixty (60) seconds build-up time.

BRAKE TREADLE VALVE

A Bendix dual brake treadle valve will be mounted on the floor in front of the driver. The brake control will be positioned to provide unobstructed access and comfort for the driver.

PARKING BRAKE

Parking brake will be of the spring-actuated type, mounted on the rear axle brake chambers. The parking brake control will be mounted on the cab center instrument panel, offset toward the driver. A red indicator light will be provided in the driver dash panel that will illuminate when the parking brake is applied.

FRONT WHEELS & TIRES

The front wheels will be 22.5" x 12.25" ten stud, hub piloted polished aluminum disc type.

The front wheels will be provided with bright nut covers and hub caps.

The front tires will be Goodyear 425/65R22.5 "20 Ply" tubeless radial G296 MSA on/off road tread. The tires will be fire service rated up to 24,400 lbs. and will have a top speed of 68 mph when inflated to 120 psi.

Fire Service Rating defined as no more than 50 miles of continuous operation at maximum load, or without stopping for at least 20 minutes. Emergency vehicle will reduce its speed to no more than 50 mph after the first 50 miles of travel.

Industry load and inflation standards are in a constant state of change. Printed material may not reflect the latest load and inflation standards.

REAR WHEELS & TIRES

The single rear axle wheels will be 22.5" x 9" ten stud, hub piloted polished aluminum disc type.

The single rear axle aluminum disc wheels will be provided with bright nut covers and hub caps.

The rear tires will be Goodyear 12R22.5 "16 Ply" tubeless radial G622 RSD traction tread. The tires will be fire service rated up to 29,020 lbs. and will have a top speed of 75 mph when inflated to 120 psi.

Fire Service Rating defined as no more than 50 miles of continuous operation at maximum load, or without stopping for at least 20 minutes. Emergency vehicle will reduce its speed to no more than 50 mph after the first 50 miles of travel.

Industry load and inflation standards are in a constant state of change. Printed material may not reflect the latest load and inflation standards.

TIRE PRESSURE MONITORING DEVICES

Each tire will be equipped with an LED tire alert pressure management system (Vecsafe equal) that will monitor tire pressure. A chrome plated brass sensor will be provided on the valve stem of each tire.

The sensor will calibrate to the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor will activate an integral battery operated LED when the pressure of that tire drops 8 psi.

ENGINE

Engine will be a Cummins, Model L9 450, diesel, turbo-charged, electronically controlled, per the following specifications.

- | | |
|---------------------|-------------------------|
| • Max. Horsepower | 450 HP @ 2100 RPM |
| • Governed Speed | 2200 RPM |
| • Peak Torque | 1250 lb. ft. @ 1400 RPM |
| • Cylinders | Six (6) |
| • Operating Cycles | Four (4) |
| • Bore & Stroke | 4.49 x 5.69 in. |
| • Displacement | 543 cu. in. |
| • Compression Ratio | 16.6:1 |
| • Governor Type | Limiting Speed |
| • Drive line Size | 1710 |

Engine oil filters will be engine manufacturers branded or approved equal. Engine oil filters will be accessible for ease of service and replacement.

A fuel/water separator will be provided.

ENGINE CHASSIS CERTIFICATION

The engine will be installed in accordance with engine manufacturer's instructions. KME will be able to furnish proof of engine installation approval by the engine manufacturer.

COOLING/RADIATOR

Radiator and charge air cooler will be aluminum with welded aluminum top and bottom tanks. The cooling system will be designed for a maximum of fifteen (15) PSI operation. There will be a sight glass on the surge tank to check the coolant level without removing the radiator cap. The core construction will be aluminum bar/plate. Fin density should be a maximum of ten (10) fins per inch. Extended life engine coolant will provide anti-freeze protection to -30° F. The mixture will be per the engine manufacture's specifications.

Core area will be a minimum of 1525 square inches (48.5" H x 31.5"W)

The engine cooling system will have an inline coolant filter that will have a shut off valve for ease of maintenance.

The engine cooling system will be certified by the engine manufacturer to meet cooling index requirements for a minimum ambient temperature or 110-degrees Fahrenheit.

TRANSMISSION COOLER

A shell and tube transmission oil cooler will be provided using engine coolant to control the transmission oil temperature. The cooler will have an aluminum shell and copper tubes. The cooler will be assembled using pressed in rubber tube sheets to mechanically create a reliable seal between the coolant and the oil. No brazed, soldered, or welded connections will be used to separate the coolant from the oil.

RADIATOR CROSSMEMBER

The radiator installation will include a radiator crossmember for additional strength and durability. This crossmember will be designed so the angle of approach is not affected.

CHARGE AIR COOLER

The charge air cooler will be constructed of aluminum with cast aluminum side tanks. The cooler will have a frontal core size of 957 square inches, seven (7) fins per inch, and forty eight (48) core tubes.

The charge air cooler will be mounted directly ahead of the radiator and to the radiator headers. Rubber isolators will be used at the mounting points to reduce transmission of vibrations.

Where applicable, the charge air cooler pipes will be constructed of appropriately sized aluminized steel tubing with 0.06" wall thickness and formed hose barbs. The connections between these pipes, the engine and charged air cooler, will be made using high temperature silicone hoses rated for use in temperature up to 500°F, and heavy duty constant tension T-Bolt spring hose clamps. These connections will adequately allow for movement of the engine relative to the charged air cooler.

COOLING SYSTEM FAN

The engine cooling system will incorporate a heavy duty fan, installed on the engine and include a shroud.

The fan will be equipped with an air operated clutch fan, which will activate at a pre-determined temperature range.

Recirculation shields will be installed to ensure that air which has passed through the radiator is not drawn through it again.

FAN SWITCH - OVERRIDE

A switch will be provided on cab dash to operate the engine cooling fan, if needed.

COOLANT HOSE AND PIPING

All coolant piping will be constructed of appropriately sized powder coated steel tubing with 0.06" wall thickness and formed hose barbs. All connections between coolant pipes and chassis components will be made using appropriately sized silicone hoses or elbows, rated for use in temperatures ranging from -60°F to +350°F, and appropriately sized constant torque hose clamps. These connections will be

minimal in number to reduce the number potential leak points, and will adequately allow for movement of the engine relative to chassis mounted components. All integral hoses supplied with the engine will be as supplied by the engine manufacturer.

HEATER HOSES

Premium Goodyear Hi-Miler® blue heater hoses will be furnished for the heater system. The Hi-Miler® hose will have a core of black Versigard (EPDM) with spiral Flextan reinforcement and blue Versigard coating. All heater hoses will be equipped with constant torque type hose clamps. All integral hoses supplied with the engine will be as supplied by the engine manufacturer.

ENGINE BRAKE

An engine compression brake will be furnished for increased braking capabilities. Controls will be as provided by the engine manufacturer and will be activated by releasing the throttle pedal to the idle position.

The engine compression brake will have dash mounted control switches to turn the brake on or off as well as to control the operational level of the brake.

The engine brake will be wired in such a manner so as to illuminate the chassis brake lights when the engine brake is engaged and operating.

The engine brake will be interlocked with the PTO operation and will automatically disengage any time the apparatus is operating with the PTO active.

ENGINE FAST IDLE

A fast idle for the electronic controlled engine will be provided. The fast idle will be controlled by an ON/OFF switch on the dash.

An electronic interlock system will prevent the fast idle from operating unless the transmission is in "Neutral" and the parking brake is fully engaged. If the fast idle control is used in conjunction with a specified engine/transmission driven component or accessory, the fast idle control will be properly interlocked with the engagement of the specified component or accessory.

AIR CLEANER

An engine air cleaner will be provided. The air cleaner will include a dry type element and will be installed in accordance with the engine manufacturer's recommendations. The air cleaner will be located to the rear of the engine, with streamline air pipes and hump hose connections from the inlet to the air cleaner and from the air cleaner to the turbo. The air cleaner will be easily accessible when the cab is tilted. The air cleaner will be plumbed to the air intake system that will include a self sealing connection between the cab and air cleaner assembly to allow the cab to be tilted.

To draw fresh clean air, the intake for the air cleaner will be on the side of the cab on the driver's side. The inlet will be a minimum of 41" above the ground to allow the vehicle to navigate through water without any part of the air intake system being below the frame rail, preventing any type of water intake.

SPARK ARRESTOR

A spark arrestor will be installed in the chassis air intake system. This arrestor will be mounted behind the intake grille to filter out airborne embers. The spark arrestor housing must be easily accessible when the cab is tilted.

ACCELERATOR CONTROL

A floor mount accelerator pedal will be installed on the floor in front of the driver. The pedal will be positioned for comfort with ample space for fire boots and adequate clearance from the brake pedal control.

REMOTE THROTTLE CONTROL HARNESS

An apparatus interface wiring harness for the engine will be supplied with the chassis. The harness will include a connector for connection to the chassis harness which will terminate in the left frame rail behind the cab for reconnection to required throttle control harnesses. The harness will contain necessary connectors for a pressure governor and a multiplexed gauge. Separate circuits will be included for pump controls, "Pump Engaged" and "OK to Pump" indicator lights, open compartment ground, start signal, park brake ground, ignition signal, master power, customer ignition, air horn solenoid switch, high idle switch and high idle indication light.

An apparatus interface wiring harness will also be included which will be wired to the cab harness interface connectors and will incorporate circuits with relays to control pump functions. This harness will control the inputs for the transmission lock up circuits, governor/hand throttle controls and dash display which will incorporate "Pump Engaged" and "OK to Pump" indicator lights. The harness will contain circuits for the apparatus builder to wire in a pump switch.

ENGINE PROGRAMMING REMOTE THROTTLE

The engine ECM (Electronic Control Module) discreet wire remote throttle circuit will be turned off for use with a J1939 based pump controller or when the discreet wire remote throttle controls are not required.

TRANSMISSION

An Allison World Transmission, Model 3000 EVS electronically controlled, automatic transmission will be provided. Transmission specifications will be as follows:

- Max. Gross Input Power 450 HP
- Max. Gross Input Torque 1250 lb. ft.
- Input Speed (Range) 2000- 2800 RPM
- Direct Gear (Pumping) 4th (Lock-up)

Transmission installation will be in accordance with the transmission manufacturer's specification. The transmission will be readily and easily removable for repairs or replacement.

One (1) PTO opening will be provided on both the left and right side of the converter housing (positions four (4) o'clock and eight (8) o'clock).

The transmission will be calibrated for five (5) forward gears and one (1) reverse gear. Each gear will have the following ratios:

- First 3.49:1
- Second 1.86:1
- Third 1.41:1
- Fourth 1.00:1
- Fifth 0.75:1
- Reverse -5.03:1

TRANSMISSION SHIFT SELECTOR

An illuminated, touch-pad type shift control will be mounted in the cab, convenient to the driver. Shift control will be approved by the transmission manufacturer.

TRANSMISSION MODE

The transmission, upon startup, will select four (4) speed operation. By pressing the "mode" switch on the shift pad (mode on) provides access to the remaining forward gear in the transmission.

TRANSMISSION OIL LEVEL SENSOR

The transmission will be equipped with the oil level sensor (OLS); this sensor will allow the operator to obtain an indication of the fluid level from the shift selector. The sensor display will provide the following checks, correct fluid level, low fluid level and high fluid level.

PARK TO NEUTRAL

The transmission, upon application of the parking brake, will automatically shift into neutral.

PRESELECT PROGRAMMING

The transmission will have Allison Pre select enabled to automatically downshift when the secondary engine brake is active.

The transmission will be programmed at the factory to automatically downshift to 3rd gear.

This feature will be enabled/disabled with the main on/off switch for the engine brake.

SYNTHETIC TRANSMISSION FLUID

TES 295 transmission fluid will be utilized to fill the 3000 EVS transmission.

DRIVE LINES

Drive lines will be Dana (Spicer) 1710 heavy duty series or equal, with "glide coat" splines on all slip shafts. The manufacturer will utilize an electronic type balancing machine to statically and dynamically balance all drive shafts. The manufacturer will provide proof of compliance with all drive shaft manufacturer's standards and specifications.

Where applicable, the universal joints will be the half loop style joints.

DIESEL EXHAUST FLUID TANK

A five (5) gallon diesel exhaust fluid (DEF) tank will be provided and installed. The tank will be mounted in the area of the battery box and will be accessible through a door in the crew area step well.

The tank will include an internal heater that will be fed by engine coolant directly from the engine block to ensure it is always kept at the proper temperature per EPA requirements. The tank will include a temperature sensor to control the flow of the engine coolant from the heater valve to the DEF tank.

A DEF fluid level sensor will be provided with the DEF tank and connected to the level gauge on the dashboard.

EXHAUST SYSTEM

The exhaust system will be installed in accordance with the engine manufacturer's requirements and meet all Environmental Protection Agency and State noise level requirements. Exhaust system components will be securely mounted and easily removable.

The diesel particulate filter/muffler will be fabricated from stainless steel and of a size compatible with the engine exhaust discharge.

Exhaust tubing will be a minimum of 16 gauge stainless steel from the turbocharger on the engine to the inlet of the diesel particulate filter. Any flexible exhaust tubing will be HDT stainless steel type. To minimize heat build-up, exhaust tubing within the engine compartment will be wrapped with an insulating material. Exhaust will be wrapped from the turbocharger to the entrance of the muffler. Material will be held in place with worm gear type clamps.

An exhaust diffuser will be provided to reduce the temperature of the exhaust as it exits the tailpipe.

Separate "regeneration" enable and prohibit switches will be provided within the Class 1 dash display screen.

SELECTIVE CATALYTIC REDUCTION (SCR)

The vehicle will be equipped with SCR technology that uses a urea based diesel exhaust fluid (DEF) and a catalytic converter to significantly reduce oxides of nitrogen (NOx) emissions.

The SCR system will reduce levels of NOx (oxides of nitrogen emitted from engines) by injecting small quantities of diesel exhaust fluid (DEF) into the exhaust upstream of a catalyst, where it vaporizes and decomposes to form ammonia and carbon dioxide. The ammonia (NH3), in conjunction to the SCR catalyst, converts the NOx to harmless nitrogen (N2) and water (H2O).

The exhaust tailpipe extending from the SCR catalyst to the side of the vehicle will be constructed from 16-gauge aluminized steel tubing. The exhaust discharge will be on the officer side of the apparatus forward of the rear axle.

FUEL TANK

Fuel tank will be a minimum of fifty (50) gallon capacity. It will have a minimum fuel filler neck of 2" ID and 1/4 turn fill cap. A 1/2" minimum diameter drain plug will be provided. The tank will be fabricated from hot rolled, pickled and oiled steel. Provisions for an additional feed line and fuel level float will be provided for future use.

The fuel tank will be installed behind the rear wheels between the frame rails.

The fuel tank will meet all FHWA 393.67 requirements including a fill capacity of 95% of tank volume.

The fuel tank will be able to withstand a longitudinal acceleration of -23.0g at 0.166 seconds in accordance to SAE J211 standards using a channel frequency class 600 filter. Testing will be performed at and verified by a third party testing and evaluation center.

FUEL TANK STRAPS

The straps supporting the diesel fuel tank will be made of Type 304L stainless steel with grade 8, zinc coated steel hardware.

The fuel tank mounting straps will utilize dense rubber between the straps and the fuel tank to prevent chaffing.

Fuel lines shall be an Aeroquip FC332 AQP Series fiber reinforced hose. The lines will be sized to meet engine manufacture's requirements, and will be carefully routed and secured along the inside of the frame rails.

DUAL FUEL LINE SHUT-OFF VALVES

A fuel line shut-off valve will be provided on both the inlet and outlet side of the primary fuel filter to allow for easy removal of the filter.

The valves will be labeled "Fuel Shut-Off". No reserve feature will be included in the tank.

FUEL FILTER/WATER SEPARATOR

A fuel filter/water separator will be provided in the fuel system. A "water in fuel" indicator will be provided on the dash.

FUEL POCKET

A fuel fill will be provided in the left side rear wheel well area. A Cast Products heavy duty cast aluminum spring loaded hinged fill door will be provided.

A label indicating "Ultra Low Sulfur Diesel Fuel Only" will be provided adjacent to the fuel fill.

DUAL POWER STEERING

A dual power steering system will be provided utilizing a Sheppard model #M110 main steering gear on the driver side of the chassis and a Sheppard model #M90 steering gear on the officer side of the chassis.

The power steering gear on the officer side of the chassis will increase performance in turning the officer side wheel assembly, reducing loads and forces on the main gear and components.

The steering system will be designed to maximize the turning capabilities of the front axle no matter the rating and tire size. The use of a power assist cylinder on the officer side of the chassis is NOT ACCEPTABLE on front axles of this capacity.

The system will be designed utilizing an engine driven hydraulic pump, with a maximum operating pressure of 2000 PSI. Steering design will permit a maximum of 5.6 turns from stop to stop. Steering system components will be mounted in accordance with the steering gear manufacturer's instructions.

STEERING COLUMN

The steering column will be a "Douglas Autotech" tilt and telescope column. A lever mounted on the side of the column will control the tilt and telescope features.

The steering shaft from the column to the miter box will have a rubber boot to cover the shaft slip and a second rubber boot to seal the passage hole in the floor.

There will be a self-canceling lever that will control the following functions:

- Left and right turn signals
- High beam activation
- Two speed with intermittent windshield wiper control
- Windshield washer control

STEERING WHEEL

The steering wheel will be a two (2) spoke, vinyl padded, minimum 18" diameter, with a center hub mounted horn button.

ROAD SAFETY KIT

A road safety kit will be furnished with the following equipment:

- 2 1/2 lb. B-C fire extinguisher
- Triangle safety reflectors.

CHASSIS ELECTRICAL SYSTEM

All electrical wiring in the chassis will be GXL cross link insulated type. Wiring is to be color coded and include function codes every three (3) inches on both sides. Wiring harnesses will be routed in protective, heat resistant loom, securely and neatly installed. Two (2) power distribution centers will be provided in central locations for greater accessibility. The power distribution centers will contain thermal automatic reset breakers, power control relays, flashers, diode modules, daytime driving light module, and engine and transmission data links. All breakers and relays will have a capacity substantially greater than the expected load on the related circuit, thus ensuring long component life. Power distribution centers will be composed of a system of interlocking plastic modules for ease in custom construction.

The power distribution centers are function oriented. The first is to control major truck function. The second will control center to overhead switching and interior operations. Each module is single function coded and labeled to aid in troubleshooting. The centers will also have accessory breakers and relays for future installations. All harnesses and power distribution centers will be electrically tested prior to installation to ensure the highest system reliability.

All external harness interfaces will be of a triple seal type connection to ensure a proper connection. The cab/chassis and the chassis/body connection points will be mounted in accessible locations. Complete chassis wiring schematics will be supplied with the apparatus.

WIRING HARNESS DESCRIPTION

The wiring harness contained on the chassis will be designed to utilize wires of stranded copper or copper alloy of a gauge rated to carry 125% of maximum current for which the circuit is protected without exceeding 10% voltage drop across the circuit. Wiring will be uniquely identified by color code or circuit function code, labeled at a minimum of every three (3) inches. The identification of the wiring will be referenced on a wiring diagram. All wires conform to SAEJ1127 (Battery Cable), SAEJ1128 (Low Tension Primary Cable), SAEJ1560 (Low Tension Thin Wall Primary Cable).

The covering of harnesses will be moisture resistant loom with a minimum rating of 289° Fahrenheit and a flammability rating of VW-1 as defined in UL62. The covering of jacketed cable will have a minimum rating of 289° Fahrenheit.

All circuits will conform to SAEJ1292. All circuits must be provided with low voltage over current protective devices.

All exposed electrical connections will be coated with "Z-Guard" to prevent corrosion.

DIRECT GROUNDING STRAPS

Direct grounding straps will be mounted to the following areas; frame to cab, frame to body and frame to pump enclosure.

All exposed electrical connections will be coated with "Z-Guard 8000" to prevent corrosion.

12 VOLT ELECTRICAL SYSTEM TESTING

The apparatus low voltage electrical system will be tested and certified by the manufacturer. The certification will be provided with the apparatus. All tests will be performed with air temperature between 0°F and 100°F.

The following three (3) tests will be performed in order. Before each test, the batteries will be fully charged.

TEST #1-RESERVE CAPACITY TEST

The engine will be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine will be shut off and the minimum continuous electrical load will be activated for 10 minutes. All electrical loads will be turned off prior to attempting to restart the engine. The battery system will then be capable of restarting the engine. Failure to restart the engine will be considered a test failure.

TEST #2-ALTERNATOR PERFORMANCE TEST AT IDLE

The minimum continuous electrical load will be activated with the engine running at idle speed. The engine temperature will be stabilized at normal operating temperature. The battery system will be tested to detect the presence of battery discharge current. The detection of battery discharge current will be considered a test failure.

TEST #3-ALTERNATOR PERFORMANCE TEST AT FULL LOAD

The total continuous electrical load will be activated with the engine running up to the engine manufacturers governed speed. The test duration will be a minimum of 2 hours. Activation of the load management system will be permitted during this test. However, an alarm sounded due to excessive battery discharge, as detected by the system, or a system voltage of less than 11.7 volts DC for a 12 volt system, for more than 120 seconds, will be considered a test failure.

LOW VOLTAGE ALARM TEST

Following completion of the preceding tests, the engine will be shut off. The total continuous electrical load will be activated and will continue to be applied until the excessive battery discharge alarm is activated.

The battery voltage will be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts will be considered a test failure. The battery system will then be able to restart the engine.

At time of delivery, documentation will be provided with the following information:

- Documentation of the electrical system performance test
- A written load analysis of the following;
- Nameplate rating of the alternator
- Alternator rating at idle while meeting the minimum continuous electrical load
- Each component load comprising the minimum continuous electrical load.
- Additional loads that, when added to the minimum continuous load, determine the total connected load.
- Each individual intermittent load.

ELECTRICAL MANAGEMENT SYSTEM

A Class 1 ES-Key Electrical Management System will be utilized on the chassis for all functions applicable. The system will consist of the following components:

A Modem with a RS232 computer interface and standard telephone jack used to not only program the multiplex system but also serve as a factory direct gateway into the vehicle from any Class 1 multiplex authorized service facility.

A Universal System Manager (USM), which acts as the main controlling component of the multiplexing system will be provided and factory programmed to DOT, NFPA, SAE, the manufacturer and Byram Township specifications. The programming will be done by the manufacturer's engineering department. The ES-Key system installation will comply with SAE J 551 requirements regarding Electromagnetic and Radio Frequency interference (EMI, RFI), as well as utilize components and wiring practices that insure the system is protected against corrosion, excessive temperatures, water, excessive physical, and vibration damage by any equipment installed on the vehicle at the time of delivery.

A series of Multiplexing Input/Output Modules will be installed. The Input/Output modules will permit the multiplexing system to reduce the amount of wiring and components used as compared to non-multiplexed apparatus. These modules will vary in I/O configuration, be waterproof allowing installation outside of enclosed areas and will possess individual output internal circuit protection. The modules will also have three status indicators visible from a service persons vantage point that will indicate the status of the module. In the event a load requires more than 7.5 AMPS of operating current, the module will activate a simple relay circuit integral to any of the 3 dillbox assemblies installed in the cab.

Diagnostic software will be provided to download data from the on board ES-KEY system. This software will have the ability to view system input/output (I/O) information, and include a connection from a computer to the vehicle.

A Class1 UltraView # UV450 4.3" color transmissive TFT display for monitoring critical apparatus and engine information will be provided and installed. The displays will be CAN based utilizing J1939 message protocol. The display will utilize a bonded LCD display screen for optimal visibility in direct sunlight.

The display will be fully configurable and when used in conjunction with the Class1 ES-Key system and will be custom programmed to control multiple apparatus functions and perform onboard apparatus and engine diagnostics.

INTERLOCK INTERFACE MODULE

A Vocation Module, which is the interface between the multiplexing system and the pump system will be provided. This module will serve as the interface between the operator, engine, transmission and pumping system. The module will be installed under the driver's side dash, in a sealed enclosure that will possess green indicating LEDs that will indicate to service personnel the interlock state of the apparatus. In the event of a multiplexing error involving pump operation can be activated to ensure reliable pumping operations at ALL times. In addition to controlling pump function, this vocation module will be able to provide automatic and/or manual activation of engine "Fast Idle", to maintain adequate alternator output and thus, chassis voltage.

CHASSIS DIAGNOSTICS SYSTEM

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

The diagnostic system will include the following:

- A single port to monitor the engine, transmission and ABS system and diagnostics of the roll sensor (if applicable)
- Engine diagnostic switch (blink codes)
- ABS diagnostic switch (blink codes)
- Allison Transmission Codes (through touch pad shifter)

VOLTAGE MONITOR SYSTEM

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

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

INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM

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

12 VOLT SEQUENCER

A sequencer will be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation will allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12 volt load to prolong the life of the alternator.

Emergency light sequencing will operate in conjunction with the emergency master light switch. When the emergency master switch is activated, the emergency lights will be activated one by one at half second intervals. Sequenced emergency light switch indicators will flash while waiting for activation.

When the emergency master switch is deactivated, the sequencer will deactivate the warning light loads in the reverse order.

Rear of cab Air-Conditioning and Heat will be load managed.

ELECTRICAL HARNESS REQUIREMENT

To ensure dependability, all 12-volt wiring harnesses installed by the manufacturer will conform to the following specifications:

- SAE J 1128 - Low tension primary cable
- SAE J 1292 - Automobile, truck, truck-tractor, trailer and motor coach wiring
- SAE J 163 - Low tension wiring and cable terminals and splice clips
- SAE J 2202 - Heavy duty wiring systems for on-highway trucks
- NFPA 1901 - Standard for automotive fire apparatus
- FMVSS 302 - Flammability of interior materials for passenger cars, multipurpose passenger vehicles, trucks and buses
- SAE J 1939 - Serial communications protocol
- SAE J 2030 - Heavy-duty electrical connector performance standard
- SAE J 2223 - Connections for on board vehicle electrical wiring harnesses
- NEC - National Electrical Code
- SAE J 561 - Electrical terminals - Eyelet and spade type
- SAE J 928 - Electrical terminals - Pin and receptacle type A.

For increased reliability and harness integrity, harnesses will be routed throughout the cab and chassis in a manner which allows the harnessing to be laid into its mounting location. Routing of harnessing which requires pulling of wires through tubes is never allowed at the manufacturer.

Wiring will be run in loom or conduit where exposed, and have grommets or other edge protection where wires pass through metal. Wire colors will 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 will not be allowed. Function and number codes will be continuously imprinted on all wiring harness conductors at 3.00" intervals. All wiring installed between the cab and into doors will be protected by a wire conduit to protect the wiring. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids. Electrical wiring and equipment will be installed utilizing the following guidelines:

- All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.
- Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.
- For low cost of ownership, electrical components designed to be removed for maintenance will be quickly accessible. For ease of use, a coil of wire will be provided behind the appliance to allow them to be pulled away from the mounting area for inspection and service work.
- Corrosion preventative compound will be applied to non-waterproof electrical connectors located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation of the plug.
- Any lights containing non-waterproof sockets in a weather-exposed area will have corrosion preventative compound added to the socket terminal area.
- All electrical terminals in exposed areas will have protective coating applied completely over the metal portion of the terminal.
- Rubber coated metal clamps will be used to support wire harnessing and battery cables routed along the chassis frame rails.
- Heat shields will be used to protect harnessing in areas where high temperatures exist. Harnessing passing near the engine exhaust will be protected by a heat shield.

- Cab and crew cab harnessing will not be routed through enclosed metal tubing. Dedicated wire routing channels will be used to protect harnessing therefore improving the overall integrity of the vehicle electrical system. The design of the cab will allow for easy routing of additional wiring and easy access to existing wiring.
- All standard wiring entering or exiting the cab will be routed through sealed bulkhead connectors to protect against water intrusion into the cab.

BATTERY CABLE INSTALLATION

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

- SAE J 1127 - Battery Cable
- SAE J 561 - Electrical terminals, eyelets and spade type
- SAE J 562 - Nonmetallic loom
- SAE J 836 A - Automotive metallurgical joining
- SAE J 1292 - Automotive truck, truck-tractor, trailer and motor coach wiring
- NFPA 1901 - Standard for automotive fire apparatus.

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

- Splices will not be allowed on battery cables or battery cable harnesses.
- For ease of identification and simplified use, battery cables will be color coded. All positive battery cables will be marked red in color. All negative battery cables will be black in color.
- For ease of identification, all positive battery cable isolated studs throughout the cab and chassis will be red in color.
- For increased reliability and reduced maintenance, all electrical buss bars located on the exterior of the apparatus will be coated to prevent corrosion.
- An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

ALTERNATOR

The alternator will be Leece Neville Model BLP4004H, 350 amp, serpentine belt driven unit. The installation will include an integral self-diagnostic regulator and rectifier for compact installation.

The alternator installation will be designed to provide maximum output at engine idle speed to meet the minimum continuous electrical load of the apparatus as required.

BATTERY SYSTEM

Six (6) Exide #EXP1000-31D, maintenance free batteries will be provided. Each battery will be rated at 1000 CCA at 0° F and will have a reserve capacity of 200 minutes.

Wiring for the batteries will be 4/0 welding type dual path starting cables for SAEJ541.

BATTERY STORAGE

Batteries will be securely mounted in fixed 3/16" stainless steel trays located on each side of the chassis frame. Complete access will be provided when the cab is fully tilted. Batteries will be mounted on non-corrosive matting material.

The battery tray will be able to withstand a longitudinal acceleration of -46.5g at 0.246 seconds in accordance to SAE J211 standards using a channel frequency class 600 filter. Testing will be performed at and verified by a third party testing and evaluation center.

BATTERY BOX COVER

The battery box will be overlaid with an "L" shaped, polished aluminum tread plate cover. This cover will protect the batteries from road spray, snow and road debris. The cover of this box will be easily removable for inspection, testing and maintenance of the batteries.

There shall be no cut outs, handholds or other type, in this battery box cover.

BATTERY DISCONNECT SWITCH

The chassis batteries will be wired in parallel to a single 12 volt electrical system, controlled through a heavy duty master disconnect switch. The master disconnect switch will be located within easy access of the driver upon entering or exiting the cab.

BATTERY JUMPER STUDS

A set of Cole Hersee battery jumper studs, model #46210-02 (red) and #46210-03 (black) will be provided to allow the battery system to be jump started or charged from an external source. The studs will be located on the bottom of the battery box on the driver's side of the chassis. Each stud will be equipped with both a rubber protector cap and a 2" square non-conductive plate to prevent accidental shorting.

120 VOLT SHORELINE CONNECTION - "SUPER" AUTO EJECT

One (1) Kussmaul "Super" Auto Eject model 091-55-20-120, automatic, 120 volt, 20 amp shoreline disconnect will be provided for the on board, 120 volt battery charging systems.

The disconnect will be equipped with a NEMA 5-20 P male receptacle, which will automatically eject the shoreline when the vehicle starter is energized. The mating connector will be included with the auto eject and will be provided as loose equipment. A label will be provided indicating voltage and amperage ratings.

SHORELINE POWER INLET PLATE

A shoreline power receptacle information plate will be permanently affixed at or near the power inlet. The plate will indicate the following:

- Type of Line Voltage
- Current Rating in Amps Power Inlet Type (DC or AC).

The Kussmaul auto-eject connection will be equipped with a Red weatherproof cover.

The shoreline receptacle will be located in the area directly adjacent to the driver's side cab door in a pre-determined location by KME.

BATTERY CHARGER

A DLS-45 Power Converter/Battery Charger from IOTA Engineering will be provided for maintaining the vehicle battery system. converts nominal 108-132 AC voltage, to 13.4 DC voltage for both DC load operation and 12V battery charging.

The unit will maintain the battery, delivering its full-rated current of 45 amps when the battery capacity falls sufficiently low. The voltage is set to deliver its maximum current for the necessary period of time to minimize undue stress to the battery caused by heating of its cells. This helps to ensure the longest possible life of the battery. Over time, as the battery nears its full capacity, the DLS-45 will automatically drop the current, providing a float-charge to the battery to prevent self-discharge of the cells.

EMERGENCY/AUXILIARY SWITCHES

The cab will be designed with multiple areas for component switching within easy reach of the driver and or officer. This switch package will separate the emergency / auxiliary electrical functions from the regular chassis functions. A minimum of twenty one (21) programmable CAN Bus Eaton model #E33 switches with integral indicator lights will be provided.

Twelve (12) of switches will be located on a sloped panel above the above the driver's position for warning lights and auxiliary controls. A master warning switch will be provided, which will allow pre-setting of emergency light switches and will have a red integral indicator light.

Nine (9) additional switches will be located on the lower switch panel between the driver and officer for auxiliary controls.

All switches, (other than the master switch), will have switch function labeling and an integral indicator light.

"LED" CAB INTERIOR LIGHTING

Four (4) Weldon 8080-8001-13 interior LED combination red/white dome lights will be furnished in the cab, two (2) in the forward section and two (2) in the rear crew section. Each dome light will have an integral selector switch. Each dome light will also activate when the respective, adjacent cab door is opened.

"DO NOT MOVE APPARATUS" WARNING LIGHT

A 1" round, red flashing warning light with an integral audible alarm will be functionally located in the cab to signal when an unsafe condition is present; such as an open cab or body compartment door, an extended ladder rack, a deployed stabilizer, an extended light tower or any other device that may be opened, extended or deployed and might cause damage to the apparatus if it is moved.

This light will be activated through the parking brake switch to signal when the parking brake is released. This light will be labeled "DO NOT MOVE TRUCK".

12 VOLT ACCESSORY CIRCUIT - CAB DASH

One (1) dedicated circuit; 12 volt, 40 Amp, power and ground on 3/8 stud and fused at battery will be provided in the cab dash. The circuit will be for future installation of radios or accessories.

12 VOLT ACCESSORY CIRCUIT - BEHIND OFFICERS SEAT

One (1) dedicated circuit; 12 volt, 40 amp, power and ground on 3/8 stud and fused at battery will be provided behind the officer seat.

An additional 12 volt, 20 amp, power stud will be installed next to the studs above and will be switched with the ignition circuit.

The circuit will be for future installation of radios or accessories.

BLUE SEA FUSE BLOCK - 12 CIRCUIT IN REAR CREW AREA BEHIND OFFICERS SEAT

A Blue Sea 5026B, 12 circuit fuse block, will be installed behind the officers seat. This block has a maximum amperage of 60 Amps per block and 30 Amps per circuit.

MULTI - USE POWER POINT IN FRONT AND REAR OF CAB

A Mobile Vision (Magnadyne DVU-3G2) multi-use power point with built in two (2) USB ports, and two (2) 12 volt sockets will be installed in the front, and rear of the cab on the back of the engine enclosure. This will be capable of supplying the USB ports with up to three (3) amps and have a 15 amp fuse for overall protection.

IGNITION STUD - REAR CREW AREA

An ignition stud will be installed in the rear crew area for items needing an ignition circuit (i.e. mobile radio). This stud has a maximum amperage of 20 Amps.

REAR VISION CAMERA/GPS SYSTEM

An Optimo rear vision camera/GPS system model # GPS-7101 will be provided to allow the driver to visually see the rear of the apparatus while in the cab. The system will include a high resolution 7" touch screen with LED Backlight and anti-glare system with an auto dimmer. The system will include audio transmission from the camera.

A Sygic premium turn by turn navigation system with maps and a robust set of features will be included as standard equipment.

The system will have 3 viewing modes, navigation, picture in picture (camera and navigation), and full back-up camera mode.

The rear vision camera will be wired to automatically activate when the chassis transmission is placed in reverse.

The system will carry a two (2) year warranty from Optimo.

The monitor for the rear vision system will be mounted ceiling of the cab in easy view of the driver.

HEADLIGHTS CLUSTER

Two (2) dual, J.W. Speaker LED headlight modules with a bright finish bezel will be furnished, one (1) each side, on the front of the cab. Each head light module will incorporate an individual LED low beam and a LED high beam headlight. High beam actuation will be controlled on the turn signal lever.

DAYTIME RUNNING LIGHTS

The chassis head lights will have integrated circuitry to actuate the low beam headlights at a maximum of 80 percent of capacity whenever the chassis engine is running.

The daytime running lights will be interlocked with the parking brake.

SECONDARY DUAL LIGHT MODULE

Two (2) Whelen 60A00TAR arrow shaped, amber LED turn signals will be provided, one (1) in each side of the dual light module above the headlights.

The NFPA required, Zone "A" lower warning lights will be incorporated into each side dual light module noted above.

DOT MARKER LIGHTS AND REFLECTORS

Five (5) DOT approved Whelen Light Emitting Diode (LED) cab marker lamps will mounted on the top front edge of the cab roof.

Optronics model MCL82RB red LED marker lights with integral reflectors will be provided at the lower side rear, one (1) each side.

Optronics Model #STL71AMB yellow LED side marker and turn lights will be provided on the apparatus lower side, forward of rear axle, one (1) each side if the apparatus is 30' long or longer.

Amber LED marker lights with integral reflectors will be provided on the side of the cab adjacent to the driver's door, one (1) each side.

Truck-Lite Model #19 red LED clearance lights will be provided on the apparatus rear upper, one (1) each side at the outermost practical location.

Truck-Lite Model # 33740R LED 3-lamp identification bar will be provided on the apparatus rear center. The lights will be red in color.

Truck-Lite # 98034Y yellow reflectors will be provided on the apparatus body lower side, as far forward and low as practical, one (1) each side if the apparatus is 30' long or longer.

Truck-Lite # 98034R red reflectors will be provided on the apparatus rear, one (1) each side at the outermost practical location.

Truck-Lite # 98034Y yellow reflectors will be provided on the side of the cab lower side, as far forward and low as practical, one (1) each side.

LED LICENSE PLATE LIGHT - REAR

One (1) Tecniq model #L10 LED license plate light will be provided above the mounting position of the license plate. The light will be clear in color and will have a chrome finish.

TAIL, STOP, TURN AND BACK-UP LIGHTS

Two (2) Whelen 600 series, 4-1/8" x 6-1/2", LED red combination tail and stop lights, will be mounted one each side at the rear of the body.

Two (2) Whelen 600 series, 4-1/8" x 6-1/2", LED amber arrow turn signal lights, will be mounted one each side, on a vertical plane with the tail/stop lights.

Two (2) Whelen 600 series, 4-1/8" x 6-1/2", LED white back-up lights, will be mounted one each side on a vertical plane with the turn/tail/stop signals. These lights will activate when the transmission is placed in reverse gear.

Two (2) Whelen PLAST4V mounting flanges, installed one (1) on each side, will be provided to mount the lights described above in one common mounting flange. The fourth opening will be for the lower rear warning lights.

The lights will be mounted in order, from top to bottom, as described above.

CAB STEP LIGHTS

Polished stainless steel, TecNiq Eon 3-LED horizontal surface mounted chassis step lights will be provided and controlled with marker light actuation. Step lights will be located to properly illuminate all chassis access steps and walkway areas and will include a mounting gasket to provide a watertight seal.

BODY STEP LIGHTS

Polished stainless steel, TecNiq Eon 3-LED horizontal surface mounted body step lights will be provided and controlled with marker light actuation. Step lights will be located to properly illuminate all body access steps and walkway areas and will include a mounting gasket to provide a watertight seal.

DUNNAGE AREA LIGHTING

Two (2) stainless steel, TecNiq Eon 3-LED horizontal surface mounted lights will be provided in the dunnage area to provide adequate illumination of this area. These lights will be switched in the same manner as the step lights.

HOSE BED LIGHTS

Two (2) Whelen model PELCC chrome plated surface mounted lights will be mounted in the hose bed on the front wall to illuminate the hose bed area.

HOSE BED WORK LIGHT - SWITCH

The hose bed work light will have a protected 12-volt switch at the rear body panel. The switch will be labeled "HOSE BED WORK LIGHTS".

SCENE LIGHTS - REAR OF BODY

Two (2) Fire Research Spectra 900 LED scene lights will be provided, one on each side of the rear body panel in a chrome plated flange. Each light will be 9" wide by 6 ¾" high by 1 ¾" deep, draw 6 amps, and produce 7,000 lumens. The scene lights will be wired through the load management system.

REAR SCENE LIGHTS - ADDITIONAL ACTIVATION

In addition to the cab mounted switch for the rear scene lights, the rear scene lights will illuminate when the transmission is placed in reverse gear and the apparatus is operating as an emergency vehicle (Primary Warning switch on).

REAR OF BODY LIGHT SWITCHING - CAB

A switch will be provided in the cab warning light switch console to turn the rear of body lights on and off.

SCENE LIGHTS - DRIVER SIDE OF BODY

Two (2) Fire Research Spectra 900 LED scene lights will be provided. The scene lights will be installed one rearward and one forward on the driver side of the body in a chrome plated flange. Each light will be 9" wide by 6 ¾" high by 1 ¾" deep, draw 6 amps, and produce 7,000 lumens. The scene lights will be wired through the load management system.

DRIVER SIDE OF BODY LIGHT SWITCHING - CAB

A switch will be provided in the cab warning light switch console to turn the driver side of body lights on and off.

SCENE LIGHTS - OFFICER SIDE OF BODY

Two (2) Fire Research Spectra 900 LED scene lights will be provided. The scene lights will be installed one rearward and one forward on the officer side of the body in a chrome plated flange. Each light will be 9" wide by 6 ¾" high by 1 ¾" deep, draw 6 amps, and produce 7,000 lumens. The scene lights will be wired through the load management system.

OFFICER SIDE OF BODY LIGHT SWITCHING - CAB

A switch will be provided in the cab warning light switch console to turn the officer side of body lights on and off.

GROUND LIGHTS - CAB

One (1) Amdor Luma Bar H2O LED 20" ground light will be provided under each side cab door entrance step, four (4) total. The ground lights will turn on automatically with each respective door jamb switch and also by a master ground light switch in the warning light switch console.

Each light will illuminate an area at a minimum 30" outward from the edge of the vehicle.

GROUND LIGHTS - FRONT BUMPER

One (1) Amdor Luma Bar H2O LED 12" ground light will be provided under each side of the front bumper facing forward, two (2) total. The ground lights will be activated by a master ground light switch in the cab and will be wired through the load management system.

GROUND LIGHTS - FRONT BODY

One (1) Amdor Luma Bar H2O LED 20" ground light will be provided under each front body corner, two (2) total. The ground lights will be activated by a master ground light switch in the cab and will be wired through the load management system.

GROUND LIGHTS - REAR

One (1) Amdor Luma Bar H2O LED 20" ground light will be provided under each rear body corner, two (2) total. The ground lights will be activated by a master ground light switch in the cab and will be wired through the load management system.

GROUND LIGHT SWITCHING

The cab and body ground lights will activate by engaging the parking brake.

GROUND LIGHT SWITCHING

The cab and body ground lights will be equipped with an activation switch in the cab.

ROOF MOUNT LED BROW LIGHT - ABOVE WINDSHIELD

Fire Research Spectra Max LED Scene Light model SPA800-Q28 contour mount light will be installed. The mounting brackets will attach to the bottom of the lamphead and be machined to conform to the roof radius. Wiring will extend from a weatherproof strain relief at the rear of the lamp head.

The lamp head will have eighty four (84) ultra-bright white LEDs, 72 for flood lighting and 12 to provide a spot light beam pattern and will operate at 12 volts DC, draw 19.2 amps, and generate 20,000 lumens of light. The lamp head will have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The lamphead will be no more than 5 7/8" high by 14" wide. The lamphead mounting bracket will be powder coated. The LED scene light will be for fire service use.

The Spectra brow mounted flood light will be located above the windshield in the center of the cab.

LIGHT ABOVE WINDSHIELD SWITCHING - CAB

A switch will be provided in the cab warning light switch console to turn the light(s) above windshield on and off.

TELESCOPING LIGHTS - REAR OF CAB

Two (2) Fire Research Spectra Max LED Scene Light model SPA530-Q28 side mount push up telescopic lights shall be mounted one (1) each side on the rear of the cab. The light poles will be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. Each extension pole will rotate 360 degrees. The outer pole will be a grooved aluminum extrusion and qualify as an NFPA compliant handrail. The pole mounting brackets will have a 2 3/4" offset. Wiring will extend from the pole bottom with a 4' retractile cord.

Each lamp head shall have eighty four (84) ultra-bright white LEDs, 72 for flood lighting and 12 to provide a spot light beam pattern and will operate at 12 volts DC, draw 19.2 amps, and generate 28,000 lumens of light. Each lamp head will have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The lamp head angle of elevation will be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamp head will be no more than 5 3/8" high by 14" wide by 3 3/4" deep and have a heat resistant handle. The lamp head and mounting arm will be powder coated. The LED scene lights will be for fire service use.

REAR OF CAB LIGHT SWITCHING - CAB

Two (2) switches will be provided in the cab warning light switch console to turn the rear of cab lights on and off. One (1) switch will control the driver side light and one (1) switch will control the officer side light.

REAR OF CAB LIGHT SWITCHING - PUMP PANEL

Two (2) switches will be provided on the pump panel to turn the rear of cab lights on and off. One (1) switch will control the driver side light and one (1) switch will control the officer side light.

12 VOLT BODY ELECTRICAL SYSTEM

All electrical lines in the body will be protected by automatic circuit breakers, conveniently located to permit ease of service. Flashers, heavy solenoids and other major electrical controls will be located in a central area near the circuit breakers.

All lines will be color and function coded every 3", easy to identify, oversized for the intended loads and installed in accordance with a detailed diagram. A complete wiring diagram will be supplied with the apparatus.

Wiring will be carefully protected from weather elements and snagging. Heavy duty loom will be used for the entire length. Grommets will be utilized where wiring passes through panels.

In order to minimize the risk of heat damage, wires run in the engine compartment area will be carefully installed and suitably protected by the installation of heat resistant shielded loom.

All electrical equipment will be installed to conform to the latest federal standards as outlined in NFPA 1901.

POWER DISTRIBUTION MODULES

Class 1 Power distribution modules will be provided in strategic areas of the chassis to allow body harnesses to interface to multiplex system.

The Remote Power Modules (RPM) provide a method of controlling loads on the vehicle, outside the cab, without running individual wires from each switch to the load. This electronic module distributes and controls power to various devices on the vehicle as commanded by the control system inside the cab. The RPM is connected to the Electrical System Controller via the J1939 datalink. Each module receives power from a power cable, protected by a fusible link to the main battery circuit.

The power distribution modules will be mounted in a location to provide complete access for service or trouble shooting.

PUMP ENCLOSURE WORK LIGHTS

Two (2) Tecniq model #E18 lights will be provided inside the pump enclosure providing 800 lumens each. Each light will have their own independent switch incorporated into the light head.

ENGINE COMPARTMENT WORK LIGHTS

Two (2) Tecniq model #E18 LED lights will be provided inside the engine enclosure that will provide 800 lumens each. Each light will have their own independent switch incorporated into the light head.

COMPARTMENT LIGHT ACTIVATION

Compartment lighting will be switched either from an integral switch as provided by the roll up door manufacturer or a magnetic proximity switch if it is a KME manufactured door.

AMDOR LUMA BAR COMPARTMENT LIGHTS - LED

Each individual, equipment storage compartment will be equipped with the AMDOR Luma Bar LED light fixture mounted one each side of the forward (and rear) vertical door frame.

NFPA AUDIBLE AND LIGHTING WARNING PACKAGE

The following warning light package will include all of the minimum warning light and actuation requirements for the current revision of the NFPA 1901 Fire Apparatus Standard. The lighting as specified will meet the requirements for both "Clearing Right of Way" and "Blocking Right of Way" which includes disabling all white warning lights when the apparatus is in "Blocking Right of Way" mode.

LIGHT PACKAGE ACTUATION CONTROLS

The entire warning light package will be actuated with a single warning light switch located on the cab switch panel. The wiring for the warning light package will engage all of the lights required for "Clearing Right of Way" mode when the vehicle parking brake is not engaged. An automatic control system will be provided to switch the warning lights to the "Blocking Right of Way" mode when the vehicle parking brake is engaged.

WARNING LIGHT FLASH PATTERN

All of the perimeter warning lights will be set to a default NFPA compliant flash pattern as provided by the light manufacturer.

UPPER LEVEL LIGHTING - WHELEN**NFPA ZONE A, UPPER**

A Whelen # F4N1VLED "Edge Freedom Series IV", 81" LED cab roof warning light bar will be furnished and rigidly mounted on top of the cab roof.

The light bar will be equipped with the following:

- Clear Lenses
- Four Corner Red Linear LEDs.
- Eight Red Forward Facing Linear LEDs.
- Four Blue Forward Facing Linear LEDs.
- Two White Forward Facing Linear LEDs.

If equipped, the forward facing white lights will be automatically disabled for the "Blocking Right of Way" mode.

NFPA ZONE C, UPPER

Two (2) Whelen 90RR5FCR, 900 super LED light heads will be furnished and mounted one (1) each side on the upper rear face of the body, facing rear.

Each light head will be equipped with red LEDs and a clear lens.

The lights will be installed with a chrome plated mounting flange.

NFPA ZONES B & D REAR, UPPER

Two (2) Whelen 90RR5FCR, 900 super LED light heads will be furnished and mounted one (1) each side on the upper side face, towards the rear of the body, facing to each side of the unit.

Each light head will be equipped with red LEDs and a clear lens.

The lights will be installed with a chrome plated mounting flange.

NFPA ZONES B & D FRONT, UPPER

Two (2) Whelen 90RR5FCR, 900 super LED light heads will be furnished and mounted one (1) each side on the upper side face, towards the front of the body, facing to each side of the unit.

Each light head will be equipped with red LEDs and a clear lens.

The lights will be installed with a chrome plated mounting flange.

LOWER LEVEL LIGHTING - WHELEN

NFPA ZONE A, LOWER

Two (2) Whelen 60R02FCR 600 super LED light heads will be provided and installed one (1) each side.

Each light head will be equipped with red LEDs and a clear lens.

The lights will be installed with a chrome plated mounting flange.

The lower Zone A warning lights will be mounted in the custom chassis headlight bezels.

NFPA ZONE C, LOWER

Two (2) Whelen 60R02FCR 600 super LED light heads will be provided and installed one (1) each side directly below the DOT stop, tail, turn and backup lights.

Each light head will be equipped with red LEDs and a clear lens.

The lights will be installed with a chrome plated mounting flange.

NFPA ZONES B & D FRONT, LOWER

Two (2) Whelen 60RB6FCR 600 super LED light heads will be provided and installed one (1) each side.

Each light head will be equipped with Red and Blue LED's and a Clear lens.

The lights will be installed with a chrome plated mounting flange.

The lower Zone B & D warning lights will be mounted on the sides of the custom chassis front bumper.

NFPA ZONES B & D MIDSHIP, LOWER

Two (2) Whelen 60RB6FCR 600 super LED light heads will be provided and installed one (1) each side.

Each light head will be equipped with Red and Blue LED's and a Clear lens.

The lights will be installed with a chrome plated mounting flange.

NFPA ZONES B & D REAR, LOWER

Two (2) Whelen 60RB6FCR 600 super LED light heads will be provided and installed one (1) each side above the rearward axle.

Each light head will be equipped with Red and Blue LED's and a Clear lens.

The lights will be installed with a chrome plated mounting flange.

WARNING LIGHT SYSTEM CERTIFICATION

The warning light system(s) specified above will not exceed a combined total amperage draw of 45 AMPS with all lights activated in either the "Clearing Right of Way" or the "Blocking Right of Way" mode.

The warning light system(s) will be certified by the light system manufacturer(s), to meet all of the requirements in the current revision of the NFPA 1901 Fire Apparatus Standard as noted in the General Requirements section of these specifications. The NFPA required "Certificate of Compliance" will be provided with the completed apparatus.

Any large truck as defined by NFPA will have the lower zone warning lights mounted no higher than 62" to the optical center of the warning light from ground level.

TRAFFIC ADVISER WARNING LIGHT

One (1) Whelen LED "Traffic Advisor", model TAL65 36", rear directional light will be installed on the rear of the body. The light will be equipped with six (6) lamps. The directional light will be activated by a control module. The control module will be conveniently located near the driver's position. The rear directional light will be wired through the load management system of the unit.

TRAFFIC ADVISOR - RECESSED IN REAR INTERMEDIATE STEP

The traffic advisor will be recessed in the rear intermediate step.

ELECTRIC HORN

A single electric horn activated by the steering wheel horn button will be furnished.

BACK-UP ALARM

A Code 3, model # CA278, 87dBA back-up alarm, will be provided and installed at the rear of the apparatus under the tailboard. The back-up alarm will activate automatically when the transmission is placed in reverse gear and the ignition is "on".

AIR HORNS

Two (2) chrome plated air horns will be at the front of the vehicle. The air horns will be mounted in full compliance with NFPA-1901. The supply lines will be dual 1/4" lines with equal distance from each horn.

GROVER STUTTER TONE AIR HORNS

The air horns will be Grover stutter tone air horns. The horns will be "tuned" during the final inspection by the manufacturer as per the department's requests.

Each air horn will be recessed in the front bumper, one (1) on the driver's side and one (1) on the officer's side.

The air horns will be controlled by dual ceiling mounted lanyard cables, located in the center of the cab.

ELECTRONIC SIREN AND SPEAKER

One (1) Whelen # 295HFS2, 100 watt electronic siren will be provided featuring: flush mount remote control head recessed in center dash panel as space allows, "Si-Test" self diagnostic feature, six (6) function siren, radio repeat and public address.

The electronic siren and speaker will meet the NFPA required SAE certification to ensure compatibility between the siren and speaker.

One (1) Whelen, model # SP123BMC with chrome plated ABS outer flange, siren speakers will be provided, recessed in the front bumper and wired to the electronic siren.

FEDERAL Q2B MECHANICAL SIREN

One (1) Federal Model #Q2B mechanical siren will be provided to provide audible warning.

The Q2B siren will be pedestal mounted on top of the extended bumper on the driver's side. The siren will be equipped with a Federal model #P, chrome housing and pedestal.

Two (2) floor mounted foot switches will be provided, one (1) for the officer and one (1) for the driver. A siren brake button will be provided near the driver's position.

FIRE PUMP

- Hale Pump Company Model QMAX-200
- Capacity: 2000 G.P.M.
- Single Stage Pump

The pump must deliver the percentage of rated capacity at the pressure listed below:

- 100% of rated capacity at 150 P.S.I. net pump pressure
- 100% of rated capacity at 165 P.S.I. net pump pressure
- 70% of rated capacity at 200 P.S.I. net pump pressure
- 50% of rated capacity at 250 P.S.I. net pump pressure.

PUMP ASSEMBLY

The pump will be of a size and design to mount on the chassis rails of commercial and custom truck chassis, and have the capacity of 2000 gallons per minute (U.S. GPM), NFPA-1901 rated performance.

PUMP CONSTRUCTION

The entire pump will be manufactured and tested at the pump manufacturer's factory.

The pump will be driven by a drive line from the truck transmission. The engine will provide sufficient horsepower and RPM to enable the pump to meet and exceed its rated performance.

The entire pump, both suction and discharge passages, will be hydrostatically tested to a pressure of 600 PSI. The pump will be fully tested at the pump manufacturer's factory to performance specs as outlined by the latest NFPA-1901. Pump will be free from objectionable pulsation and vibration.

The pump body and related parts will be of fine grain alloy cast iron with a minimum tensile strength of 30,000 PSI. All moving parts in contact with water will be of high quality bronze or stainless steel. Pumps utilizing castings made of lower tensile strength cast iron are not acceptable.

Pump body will be horizontally split, on a single plane in two sections for easy removal of entire impeller assembly including wear rings and bearings from beneath the pump without disturbing piping or the mounting of the pump in chassis.

PUMP SHAFT

Pump shaft to be rigidly supported by three bearings for minimum deflection. One high lead bronze sleeve bearing will be located immediately adjacent to the impeller (on side opposite the gearbox). The sleeve bearing is to be lubricated by a force fed, automatic oil lubricated design, pressure balanced to exclude foreign material.

The pump shaft will be heat-treated, electric furnace, corrosion resistant stainless steel to be super-finished under packing with galvanic corrosion (zinc foil separators in packing) protection for longer shaft life. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of gearbox.

PUMP IMPELLER

The pump will have one double suction impeller. The pump body will have two opposed discharge volute cutwaters to eliminate radial unbalance. (No exceptions)

Pump impeller will be hard, fine grain bronze of the mixed flow design; accurately machined and individually balanced. The vanes of the impeller intake eyes will be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.

Impeller clearance rings will be bronze, easily renewable without replacing impeller or pump volute body, and of wrap-around double labyrinth design for maximum efficiency.

MECHANICAL SHAFT SEAL

The mid ship pump will be equipped with a high quality, spring loaded, self-adjusting mechanical seal capable of providing a positive seal to atmosphere under all pumping conditions. This positive seal to atmosphere must be achievable under vacuum conditions up to 26 Hg (draft) or positive suction pressures up to 250 PSI.

The mechanical seal assembly will be 2 inches in diameter and consists of a carbon sealing ring, stainless steel coil spring, Viton rubber boot, and a tungsten carbide seat with a Teflon backup seal provided.

Only one (1) mechanical seal will be required, located on the first stage suction (inboard) side of the pump and be designed to be compatible with a one piece pump shaft. A continuous cooling flow of water from the pump will be directed through the seal chamber when the pump is in operation.

PUMP DRIVE UNIT

The drive unit will be completely assembled and tested at the pump manufacturer's factory.

Pump drive unit will be of sufficient size to withstand up to 16,000 lbs. ft. of torque of the engine in both road and pump operating conditions. The drive unit will be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.

The gearbox drive shafts will be of heat treated chrome nickel steel and at least 2-3/4 inches in diameter on both the input and output drive shafts. They will withstand the full torque of the engine in both road and pump operating conditions.

All gears, both drive and pump, will be of the highest quality electric furnace chrome nickel steel. Bores will be ground to size and teeth integrated, chrome-shaven and hardened, to give an extremely accurate gear for long life, smooth, quiet running and higher load carrying capability. An accurately cut spur design will be provided to eliminate all possible end thrust.

PUMP RATIO

The pump ratio will be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected.

The manufacturer will supply at time of delivery copies of the pump manufacturer's certification of hydrostatic testing, the engine manufacturer's current certified brake horsepower curve.

PUMP SHIFT CONTROL

The drive unit will be equipped with a power shift. The shifting mechanism will be a heat treated, hard anodized aluminum power cylinder with stainless steel shaft. An in-cab control for rapid shift will be provided that locks in road or pump, with a manual override is required.

EMERGENCY PUMP SHIFT

An emergency manual pump shift control will be furnished on the left side pump panel which may be utilized if the air shift control does not operate.

A transmission, manual lock-up switch will be furnished in the cab to ensure positive lock-up of the transmission.

MAIN PUMP - PUMP SHIFT INDICATOR LIGHTS

For automatic transmissions, three (3) green warning lights will be provided to indicate to the operator(s) when the pump has completed the shift for Road to Pump position. Two (2) green lights to be located in the truck driving compartment and one (1) green light on pump operator's panel adjacent to the throttle control. For manual transmissions, one (1) green warning light will be provided for the driving compartment. All lights to have appropriate identification/instruction plates.

TRANSMISSION LOCK

The automatic transmission furnished in the chassis will have a lock-up assembly which brings the transmission to direct drive and prevents the transmission from shifting gears while in the pumping mode.

BRAKING SYSTEM

A positive braking system will be provided to prevent vehicle movement during pumping operations. The air brakes furnished must satisfy this requirement.

MAIN PUMP MOUNTS

Extra heavy duty pump mounting brackets will be furnished. These will be bolted to the frame rails in such a position to perfectly align the pump so that the angular velocity of the drive line joints will be the same on each end of the drive shaft. This will assure full capacity performance with a minimum of vibration. Mounting hardware will utilize Grade 8 bolts.

FIRE RESEARCH "IN-CONTROL" PRESSURE GOVERNOR

The apparatus will be equipped with a Fire Research InControl series TGA300 pressure governor and monitoring display kit will be installed. The kit will include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case will be waterproof and have dimensions not to exceed 5 1/2" high by 10 1/2" wide by 2" deep. Inputs for monitored information will be from a J1939 databus or independent sensors. Outputs for engine control will be on the J1939 databus or engine specific wiring.

The following continuous displays will be provided:

- Pump discharge; shown with four daylight bright LED digits more than 1/2" high
- Pump Intake; shown with four daylight bright LED digits more than 1/2" high
- Pressure / RPM setting; shown on a dot matrix message display
- Pressure and RPM operating mode LEDs
- Throttle ready LED
- Engine RPM; shown with four daylight bright LED digits more than 1/2" high
- Check engine and stop engine warning LEDs
- Oil pressure; shown on a dual color (green/red) LED bar graph display
- Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
- Transmission Temperature; shown on a dual color (green/red) LED bar graph display
- Battery voltage; shown on a dual color (green/red) LED bar graph display.
- The dot-matrix message display will show diagnostic and warning messages as they occur. It will show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity will be automatically adjusted for day and night time operation.

The program will store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It will monitor inputs and support audible and visual warning alarms for the following conditions:

- High Battery Voltage
- Low Battery Voltage (Engine Off)
- Low Battery Voltage (Engine Running)
- High Transmission Temperature
- Low Engine Oil Pressure
- High Engine Coolant Temperature
- Out of Water (visual alarm only)
- No Engine Response. (visual alarm only)

The program features will be accessed via push buttons located on the front of the control panel. There will be an USB port located at the rear of the control module to upload future firmware enhancements.

Inputs to the control panel from the pump discharge and intake pressure sensors will be electrical. The discharge pressure display will show pressures from 0 to 600 psi. The intake pressure display will show pressures from -30 in. Hg to 600 psi.

The governor will operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation will occur when switching between modes. A throttle ready LED will light when the interlock signal is recognized. The governor will start in pressure mode and set the engine RPM to idle. In pressure mode the governor will automatically regulate the discharge pressure at the level set by the

operator. In RPM mode the governor will maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor will limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features will include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor, monitoring and master pressure display will be programmed to interface with a specific engine.

ELKHART INTAKE RELIEF VALVE

An Elkhart Model 40 intake relief valve system will be plumbed on the suction side of the pump to comply fully with NFPA-1901 requirements. It shall have an adjustable pressure relief setting from 75 psi to 250 psi and is factory preset at 125 psi. Excess pressures will be plumbed to discharge water under the pump enclosure away from the pump operator.

PUMP CERTIFICATION

The pump will be third party performance tested to meet the requirements of NFPA-1901. To ensure top quality and integrity, the test company will be Underwriters Laboratories (UL).

TRIDENT "AUTOMATIC" AIR PRIMING SYSTEM

A Trident automatic air operated priming system will be installed. The unit will be brass and stainless steel construction, no aluminum will be used. The priming system will be fully compliant of applicable NFPA standards for vertical lift. Noise level during operation of the primer will not exceed 75Db.

The 12 volt primer control will be an "automatic" type, with a pump panel three-way switch to operate an air solenoid valve.

Automatic Priming switch will have three positions:

- "Prime"- the lower position will be a momentary "push to prime". The "Prime" position also allows the operator to "ramp" test the primer without the fire pump being engaged.
- "Off" - center position.
- "Auto-Prime" - in the upper position, a "green" LED pilot light will be illuminated when the switch is in the auto-prime position. Auto-Prime will operate automatically when the pump pressure drops 20 PSIG. The primer will shut "off" automatically when the pump pressure is re-established and exceeds 20 PSIG.

FRONT SUCTION REMOTE PRIMING VALVE

An additional primer control valve will be furnished to prime the front suction. The Trident Emergency products RPV (remote priming valve) will activate using the same air that powers the AirPrime™ system when the coinciding panel valve is depressed.

MASTER DRAIN VALVE

A rotary type, 12 port master drain valve will be provided and controlled at the lower portion of the side pump panel. The valve will be located in pump compartment lower than the main body and connected in such a manner as to allow complete water drainage of the pump body and all required accessories. Water will be drained below the apparatus body and away from the pump operator.

INDIVIDUAL BLEEDERS AND DRAINS

All lines will drain through the master drain valve or will be equipped with individual drain valves, easily accessible and labeled.

One (1) individual "Innovative Control" lift up drain valve will be furnished for each 1-1/2" or larger discharge port and each 2-1/2" gated auxiliary suction.

Drain/bleeder valves will be located at the bottom of the side pump module panels.

All drains and bleeders will discharge below the running boards.

SYNFLEX SUCTION, DISCHARGE, PRESSURE AND CONTROL LINES

Small lines within the pump enclosure will be constructed from Synflex hose. Uses include, but are not limited to such lines as priming control, gauge lines, drain lines, air control valves, pump shift, supplemental cooling, foam flush and air bleeder valves.

HALE ANODE BLOCKS - ALLOY - 2 TOTAL

Two (2) Hale Alloy Anode blocks will be provided and located one (1) on the suction side and one (1) on the discharge side of the pump to protect the pump from corrosion.

The Anodes will be painted Safety Yellow for identification purposes.

PUMP MODULE

The pump module will be a self-supported structure mounted independently from the body and chassis cab. The design must allow normal frame deflection without imposing stress on the pump module structure or side running boards. The pump module will be securely mounted to the chassis frame rails.

The pump module will be a welded frame work utilizing structural steel components properly braced to withstand the rigors of chassis frame flex.

DUNNAGE AREA

A dunnage area will be provided above the pump enclosure for equipment mounting and storage. This area will be furnished with a removable 3/16" aluminum tread plate floor and will be enclosed on the sides.

NOTE: The size of this storage area may vary when top mounted crosslays, booster reel(s), etc., are specified and located in this area.

PUMP SUCTIONS & AUXILIARY INLETS

SUCTION INLETS

Two (2) 6" N.S.T. suction inlets will be provided, one on the driver side and one on the officer side pump panel. A removable strainer will be installed on each inlet.

INTAKE BUTTERFLY VALVE - MANUAL OPERATED - DRIVER SIDE

The fire pump will be fitted with a Hale Master Intake Valve (MIV), on the driver side main suction inlet. The valve will be mounted between the suction tube extension and the suction tube, and will be recessed behind the operator's panel. The valve body and all related components that are in contact with water will be manufactured of fine grained, corrosion resistant bronze. The valve will have a bore of 6.40". The valve will incorporate a pressure relief valve, set at the pump manufacturer's facility to a rating of 125 PSI. The pressure relief valve will provide protection for the suction hose even with the valve in the closed position. The valve will incorporate a NFPA compliant, large diameter hose air bleed valve, controlled at the operator's panel.

The valve will be operated by a hand wheel control, mounted at the suction inlet. The hand wheel control will incorporate a placard with status lights to indicate whether the valve is in the closed, open or throttled position. The valve will not be able to move from fully open to fully closed in under three (3) seconds, in compliance with NFPA-1901.

PUMP SUCTION ENDS

The main pump suction inlets will be furnished with a short suction end, terminating with only the suction threads protruding through the side panel to minimize the distance an exterior appliance protrudes beyond the pump panel.

A 6" NST chrome plated long handle pressure vented cap will be installed on the officer's side main inlet of the pump.

The driver side pressure vented cap will be deleted.

One (1) 6" NSTF x 5" Storz Kocheck SKE-R 30° degree adapter and cap will be provided for the driver side main suction inlet.

FRONT SUCTION

A 6" N.S.T. front suction inlet will be provided at the front of the vehicle, plumbed from the pump.

The front inlet will be located above the right hand side of the front bumper extension and will terminate with a chromed brass, chicksan style swivel to allow a minimum of 180 degree rotation of the inlet for suction hose attachment.

The front suction pipe will be equipped with a chrome 6" NSTM thread adapter.

The front inlet will be plumbed utilizing 5", schedule 10 stainless steel piping, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to the front of the cab. A manual drain will be provided ahead of the front wheel and a panel controlled drain will be provided aft of the front wheel.

A minimum of two (2) grooved pipe couplings will be furnished in this assembly to allow for flex and serviceability.

The front suction inlet will be gated with a 5" Bray in-line, full flow butterfly valve, located in the pump compartment.

An Akron model 59 inlet relief valve will be provided as part of the front suction plumbing, situated outboard of the rear suction gate valve.

The front suction valve will be air operated with a control switch located on the operator's panel with function plate.

One (1) 6" NST chrome plated long handle vented cap(s) will be installed on front suction.

AUXILIARY SIDE SUCTIONS

One (1) 2-1/2" auxiliary suction will be provided at the driver side pump panel, to the rear of the main inlet. The 2-1/2" auxiliary suction will terminate with a removable strainer, chrome plated 2-1/2" NST female swivel with a chrome plated plug and retaining chain.

An Akron Brass 2-1/2" Generation II Swing-Out™ Valve will be provided for the driver's side rear auxiliary suction. The valve will have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

A 1/4 turn swing control handle will be provide on the driver side rear auxiliary suction valve

One (1) 2-1/2" auxiliary suction will be provided at the officer side pump panel, to the rear of the main inlet. The 2-1/2" auxiliary suction will terminate with a removable strainer, chrome plated 2-1/2" NST female swivel with a chrome plated plug and retaining chain.

An Akron Brass 2-1/2" Generation II Swing-Out™ Valve will be provided for the officer's side rear auxiliary suction. The valve will have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

A 1/4 turn swing control handle will be provided on the officer side rear auxiliary suction valve.

All side gated inlet valves will be recess mounted behind the side pump panels or body panels.

TANK TO PUMP

One (1) 4" tank to pump line will be piped through the front bulkhead of the tank with a 90 degree elbow down into the tank sump. This line will be plumbed directly into the rear of the pump suction manifold for maximum efficiency.

A check valve will be provided to prevent accidental pressurization of the water tank through the pump connection. Connection from the valve to the tank will be made by using a non-collapsible flexible rubber hose.

An Akron Brass 3" Generation II Swing-Out™ Valve will be provided between the pump suction manifold and the water tank. The valve will have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

A push/pull control handle will be located on the operator's panel with function plate.

TANK FILL

One (1) 2-1/2" gated full flow pump to tank refill line controlled at the pump panel will be provided. A deflector shield inside the tank will be furnished. Tank fill plumbing will utilize 2-1/2" high pressure hose for tank connection to accommodate flexing between components.

An Akron Brass 2-1/2" Generation II Swing-Out™ Valve will be provided between the pump discharge manifold and the water tank. The valve will have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

A push/pull control handle will be located on the operator's panel with function plate.

DISCHARGES & ACCESSORIES - SIDE MOUNT

DRIVER'S SIDE MAIN DISCHARGE #1

A discharge will be provided and located at the driver's side pump panel. The driver's side discharges # 1 will terminate with NST threads, through the left panel above the main pump intake.

The main pump discharge will be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

An Akron Brass 2-1/2" Generation II Swing-Out™ Valve will be provided for the driver's side #1 discharge. The valve will have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

The discharge valve will be equipped with a straight 2-1/2" NST adapter that will be equipped with a 2-1/2" NST, 30-degree, chrome plated elbow.

The driver's side #1 discharge cap provided as standard equipment will be deleted.

One (1) 2-1/2" NSTF X 1-1/2" NSTM reducer with cap will be provided on the driver's side # 1 discharge.

The driver's side # 1 discharge valve will be controlled by a rack and sector with push/pull handle located on the operator's panel.

The driver's side # 1 discharge will be equipped with a Class One Sub-Z II, 2 ½" diameter interlube filled pressure gauge with pulse and vibration dampening. To prevent internal freezing, the stem and Bourdon tube will be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem. A bright metal bezel will be supplied for resistance to corrosion and to protect the lens and case from damage. The gauge face will be white with black numerals.

DRIVER'S SIDE MAIN DISCHARGE #2

A discharge will be provided and located at the driver's side pump panel. The driver's side discharges # 2 will terminate with NST threads, through the left panel above the main pump intake.

The main pump discharge will be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

An Akron Brass 2-1/2" Generation II Swing-Out™ Valve will be provided for the driver's side #2 discharge. The valve will have an all brass body with flow optimizing stainless steel ball and dual polymer seat.

The discharge valve will be equipped with a straight 2-1/2" NST adapter that will be equipped with a 2-1/2" NST, 30-degree, chrome plated elbow.

The driver's side # 2 discharge cap provided as standard equipment will be deleted.

A 2-1/2" NSTF X 1-1/2" NSTM reducer with cap will be provided on the driver's side # 2 discharge.

The driver's side # 2 discharge valve will be controlled by a rack and sector with push/pull handle located on the operator's panel.

The driver's side # 2 discharge will be equipped with a Class One Sub-Z II, 2 ½" diameter interlube filled pressure gauge with pulse and vibration dampening. To prevent internal freezing, the stem and Bourdon tube will be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem. A bright metal bezel will be supplied for resistance to corrosion and to protect the lens and case from damage. The gauge face will be white with black numerals.

OFFICER'S SIDE MAIN DISCHARGE #1

A discharge will be provided and located at the officer's side pump panel. The officer's side discharges #1 will terminate with NST threads, through the officer's side panel above the main pump intake.

The main pump discharge will be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

An Akron Brass 4" Heavy Duty Swing-Out™ Valve will be provided for the officer's side #1 discharge. The valve will have an all brass body with flow optimizing flat ball and dual polymer seats

The discharge valve will be equipped with a straight 4" NST adapter.

The officer's side # 1 discharge cap provided as standard equipment will be deleted.

A 4" NSTF X 5" Storz KocheK SKE-R 30° adapter with cap will be provided on the officer's side # 1 discharge.

The officer's side # 1 discharge valve will be gated with an Akron Hand wheel controlled, inline valve. The valve will be controlled at the pump operator's panel with a chrome plated hand wheel and mechanical valve position indicator.

The Akron Handwheel Actuator for the Akron #8840 4" valve {will/shall} have a 50:1 ratio and a minimum of a 6" diameter handwheel. A handwheel of less than 6" diameter {will/shall} not be acceptable. The handwheel {will/shall} open or close the Akron 4" #8840 valve in 12-1/2 turns. The position indicator {will/shall} be a landscape configuration for use on a side-mounted pump panel.

The officer's side # 1 discharge will be equipped with a Class One Sub-Z II, 2 ½" diameter interlube filled pressure gauge with pulse and vibration dampening. To prevent internal freezing, the stem and Bourdon tube will be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem. A bright metal bezel will be supplied for resistance to corrosion and to protect the lens and case from damage. The gauge face will be white with black numerals.

OFFICER'S SIDE MAIN DISCHARGE #2

A discharge will be provided and located at the officer's side pump panel. The officer's side discharges #2 will terminate with NST threads, through the officer's side panel above the main pump intake.

The main pump discharge will be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

An Akron Brass 2-1/2" Generation II Swing-Out™ Valve will be provided for the officer's side #2 discharge. The valve will have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

The discharge valve will be equipped with a straight 2-1/2" NST adapter that will be equipped with a 2-1/2" NST, 30-degree, chrome plated elbow.

The officer's side #2 discharge cap provided as standard equipment will be deleted.

A 2-1/2" NSTF X 1-1/2" NSTM reducer w/cap will be provided on the officer's side #2 discharge.

The driver side rear discharge valve will be controlled by a push/pull handle located on the operator's panel.

The officer's side #2 discharge will be equipped with a Class One Sub-Z II, 2 ½" diameter interlube filled pressure gauge with pulse and vibration dampening. To prevent internal freezing, the stem and Bourdon tube will be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem. A bright metal bezel will be supplied for resistance to corrosion and to protect the lens and case from damage. The gauge face will be white with black numerals.

DRIVER SIDE HOSE BED DISCHARGE

A 2-1/2" NST rear hose bed discharge will be plumbed to the upper front body panel, extending into the front of the hose bed.

The rear hose bed discharge will terminate just above the hosebed floor, in the driver side front of the hose bed.

The driver side hose bed discharge pipe will be equipped with a chrome 2-1/2" NSTM thread adapter.

The driver side hose bed discharge will be plumbed utilizing 2-1/2" schedule 10 stainless steel piping, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to the rear of the vehicle.

A minimum of one (1) grooved pipe coupling will be furnished in this assembly to allow for flex and serviceability.

An Akron Brass 2-1/2" Generation II Swing-Out™ Valve will be provided for the driver's side hose bed rear discharge. The valve will have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

The driver side hose bed discharge valve will be controlled by a push/pull handle located on the operator's panel.

The driver's side hose bed discharge cap provided as standard equipment will be deleted.

The driver's side hose bed discharge will be equipped with a Class One Sub-Z II, 2 1/2" diameter interlube filled pressure gauge with pulse and vibration dampening. To prevent internal freezing, the stem and Bourdon tube will be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem. A bright metal bezel will be supplied for resistance to corrosion and to protect the lens and case from damage. The gauge face will be white with black numerals.

DECK GUN DISCHARGE

A deck gun discharge will be plumbed from the pump to an area on top of the vehicle. The deck gun piping will be firmly supported and braced.

The deck gun discharge will be located in the center of the dunnage area above the pump module. A pedestal type, 1/4" steel plate support assembly will be provided to stabilize deck gun plumbing below deck gun mount flange.

The deck gun discharge pipe will terminate with a 4-bolt flange.

To improve the operation range of the deck gun, the discharge pipe will be outfitted with a TFT (18") Extend-A-Gun, part # XG18VL-PL. The Extend-A-Gun will be wired to the hazard light on the cab dash.

WARNING LIGHT - IN CAB - "DECK GUN RAISED"

A hazard warning light will be installed to alert the driver, "Deck Gun Raised".

The deck gun piping will be designed so the overall height of the deck gun in the mounted/stowed position does not exceed the tallest point on the cab/body.

The deck gun discharge will be plumbed utilizing 3" schedule 10 stainless steel piping, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to the deck gun location.

A minimum of one (1) grooved pipe coupling will be furnished in this assembly to allow for flex and serviceability.

An Akron Brass 3" Generation II Swing-Out™ Valve will be provided for the deck gun discharge. The valve will have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

The deck gun discharge valve will be controlled by a push/pull handle located on the operator's panel.

The deck gun discharge will be equipped with a Class One Sub-Z II, 2 ½" diameter interlube filled pressure gauge with pulse and vibration dampening. To prevent internal freezing, the stem and Bourdon tube will be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem. A bright metal bezel will be supplied for resistance to corrosion and to protect the lens and case from damage. The gauge face will be white with black numerals.

TFT MANUAL DECK GUN

A TFT Hurricane monitor will be supplied and mounted on the deck gun discharge of the unit to provide the maximum travel clearance.

TFT MASTER STREAM NOZZLE

A TFT model "MASTER STREAM" 1000 GPM nozzle will be supplied with the deck gun.

FRONT DISCHARGE

A 1-1/2" front #1 discharge will be plumbed to the front bumper of the vehicle.

The front #1 discharge will terminate on the top driver's side of the front bumper extension gravel shield with a chrome 1-1/2" NST chicksan swivel adapter.

The front #1 discharge will be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to the front of the vehicle.

A minimum of one (1) grooved pipe coupling will be furnished in this assembly to allow for flex and serviceability. Automatic discharge drains will be provided at all low points in the plumbing.

An Akron Brass 2" Generation II Swing-Out™ Valve will be provided for the front #1 discharge. The valve will have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

The front #1 discharge valve will be controlled by a push/pull handle located on the operator's panel.

The front #1 discharge cap provided as standard equipment will be deleted.

The front #1 discharge will be equipped with a Class One Sub-Z II, 2 ½" diameter interlube filled pressure gauge with pulse and vibration dampening. To prevent internal freezing, the stem and Bourdon tube will be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem. A bright metal bezel will be supplied for resistance to corrosion and to protect the lens and case from damage. The gauge face will be white with black numerals.

HORIZONTAL CROSSLAY #1

A crosslay hose bed will be provided and plumbed from the pump in a transverse design, located above the pump enclosure for quick attack deployment. The crosslay hose bed flooring will be designed to be removable, constructed from brushed finish, perforated aluminum material.

Crosslay #1 will be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of 200 feet of 1-3/4" fire hose.

Crosslay #1 hose bed will be designed to accommodate the fire hose in a single stack configuration.

The crosslay discharge will terminate below the hosebed floor with a 1-1/2" NSTM chicksan swivel adapter. The crosslay hose bed floor will be slotted to allow the swivel to extend up through the floor, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

The crosslay #1 discharge will be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to crosslay hose bed.

A minimum of one(1) grooved pipe coupling will be furnished in this assembly, if necessary, to allow for flex and serviceability.

An Akron Brass 2" Generation II Swing-Out™ Valve will be provided for the crosslay #1 discharge. The valve will have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

The crosslay #1 discharge valve will be controlled by a push/pull handle located on the operator's panel.

The crosslay #1 discharge will be equipped with a Class One Sub-Z II, 2 ½" diameter interlube filled pressure gauge with pulse and vibration dampening. To prevent internal freezing, the stem and Bourdon tube will be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem. A bright metal bezel will be supplied for resistance to corrosion and to protect the lens and case from damage. The gauge face will be white with black numerals.

HORIZONTAL CROSSLAY #2

A crosslay hose bed will be provided and plumbed from the pump in a transverse design, located above the pump enclosure for quick attack deployment. The crosslay hose bed flooring will be designed to be removable, constructed from brushed finish, perforated aluminum material.

Crosslay #2 will be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of 200 feet of 1-3/4" fire hose.

Crosslay #2 hose bed will be designed to accommodate the fire hose in a single stack configuration.

The crosslay discharge will terminate below the hose bed floor with a 1-1/2" NSTM chickensan swivel adapter. The crosslay hose bed floor will be slotted to allow the swivel to extend up through the floor, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

The crosslay #2 discharge will be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to crosslay hose bed.

A minimum of one(1) grooved pipe coupling will be furnished in this assembly, if necessary, to allow for flex and serviceability.

An Akron Brass 2" Generation II Swing-Out™ Valve will be provided for the crosslay #2 discharge. The valve will have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

The crosslay #2 discharge valve will be controlled by a push/pull handle located on the operator's panel.

The crosslay #2 discharge will be equipped with a Class One Sub-Z II, 2 1/2" diameter interlube filled pressure gauge with pulse and vibration dampening. To prevent internal freezing, the stem and Bourdon tube will be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem. A bright metal bezel will be supplied for resistance to corrosion and to protect the lens and case from damage. The gauge face will be white with black numerals.

HORIZONTAL CROSSLAY #3

A crosslay hose bed will be provided and plumbed from the pump in a transverse design, located above the pump enclosure for quick attack deployment. The crosslay hose bed flooring will be designed to be removable, constructed from brushed finish, perforated aluminum material.

Crosslay #3 will be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of 200 feet of 2-1/2" fire hose.

Crosslay #3 hosebed will be designed to accommodate the fire hose in a single stack configuration.

The crosslay discharge will terminate below the hosebed floor with a 2-1/2" NSTM chicksan swivel adapter. The crosslay hose bed floor will be slotted to allow the swivel to extend up through the floor, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

The crosslay #3 discharge will be plumbed utilizing 2-1/2" schedule 10 stainless steel piping and/or flexible hose, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to crosslay hosebed.

A minimum of one (1) grooved pipe coupling will be furnished in this assembly, if necessary, to allow for flex and serviceability.

An Akron Brass 2-1/2" Generation II Swing-Out™ Valve will be provided for the crosslay #3 discharge. The valve will have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

The crosslay #3 discharge valve will be controlled by a push/pull handle located on the operator's panel.

The crosslay #3 discharge will be equipped with a Class One Sub-Z II, 2 1/2" diameter interlube filled pressure gauge with pulse and vibration dampening. To prevent internal freezing, the stem and Bourdon tube will be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem. A bright metal bezel will be supplied for resistance to corrosion and to protect the lens and case from damage. The gauge face will be white with black numerals.

LOWERED CROSSLAY

The crosslay hose bed floor will be approximately 42" above the side running board and no more than 66" above ground level.

NOTCHED CROSSLAY DIVIDERS

The crosslay dividers will be notched on both ends to allow nozzles to be stored in the crosslay with the NFPA crosslay cover installed.

PUMP BOX FRONT BULKHEAD

The front bulkhead of the pump box will be made three-inches (3") wide so that the crosslay hose, when removed, will not interfere with the telescopic lights mounted on the rear of the cab. The side of the three-inch (3") bulkhead will be covered with aluminum tread plate to match the balance of the dunnage area upper panels.

PUMP ENCLOSURE HOSEBED HOSE RETENTION

A vinyl cross lay cover will be provided. It will be securely fastened at the front with snaps and Velcro at the rear, with straps to secure each end flap.

The crosslay cover will be black in color.

PUMP PANEL & ACCESSORIES**PUMP PANEL - SIDE MOUNT**

The pump operator's control panel will be located on the driver side of the apparatus. The pump enclosure side panels will be completely removable and designed for easy access and servicing.

PUMP PANEL MATERIAL

The left side operator's panel, gauge panel, right side pump panel and right side access door will be fabricated from 1/8" black vinyl clad aluminum with a grained finish.

HINGED GAUGE PANEL

A full width, vertically hinged gauge access panel will be provided at the operator's position. Chrome plated positive locks will be provided along with chain holders to prevent the front of the gauge panel from coming in contact with other panels when open.

VERTICALLY HINGED, SPLIT PUMP PANEL OFFICER SIDE

The officer's side pump panel will be split, vertically hinged, to provide complete access to the pump and plumbing on the officer side of the pump enclosure. The panels will be equipped with stainless steel hinges and secured with push type locks to hold the panels closed. The drains located on the officer's side panel will be fastened to the lower panel, which will be stationary.

PANEL FASTENERS

Stainless steel machine screws and lock washers will be used to hold these panels in position. The panels will be easily removable to provide complete access to the pump for major service.

CAPS AND ADAPTERS SAFETY TETHER

All applicable discharge and suction caps, plugs and adapters will be equipped with chrome plated ball chain and secured to the vehicle.

PUMP PANEL TRIM PLATES

A high polished trim plate will be provided around each discharge port and suction inlet opening to allow accessibility to the respective valve for service and repairs.

DISCHARGE GAUGE TRIM BEZELS

Each individual discharge gauge will be installed into a decorative chrome-plated mounting bezel that incorporates valve-identifying verbiage and color labels.

COLOR CODED IDENTIFICATION TAGS

Color coded identification tags will be provided for all gauges, controls, connections, switches, inlets and outlets.

PUMP OPERATOR'S PANEL LIGHT SHIELD AND STEP

The pump operator's panel will be equipped with a light shield/step that will be full width of the control panel, and will be positioned to cover the lights and prevent glare. The light shield will be fabricated from aluminum tread plate, which will also serve as a step. The step will be a minimum of 8" deep X the width of the pump panel. (Note: On apparatus with lowered style crosslays, the light shield will be from the back of the crosslays to the rear of the pump house).

The light shield will be equipped with the following lights:

- Two (2) 20" Amdor Luma Bar H2O super bright led strip lights.

One (1) light under the operator's panel light shield will be actuated when fire pump is engaged in addition to the pump engaged light.

OFFICER SIDE PUMP PANEL LIGHT SHIELD AND STEP

The officer side pump panel will be equipped with a light shield/step that will be full width of the panel, and will be positioned to cover the lights and prevent glare. The light shield will be fabricated from aluminum tread plate, which will also serve as a step. The step will be a minimum of 8" deep X the width of the pump panel.

The light shield will be equipped with the following lights:

- Two (2) 20" Amdor Luma Bar H2O super bright led strip lights.

The lights will be switched with the operator panel lights.

PUMP OPERATOR'S PANEL

Particular attention is to be given to functional arrangement of all controls. The pump operator's panel will accommodate the following:

- Hinged gauge panel
- Water tank fill valve
- Auxiliary suction valve control
- All discharge valve controls
- Auxiliary engine cooler controls
- Water tank suction control valve
- Pump primer valve
- Engine throttle control
- Master compound vacuum gauge
- Master pressure gauge
- Individual discharge gauges

- Pump shift engaged indicator light
- Water tank water level indicator
- Engine tachometer
- Engine oil pressure gauge with audible alarm
- Engine water temperature gauge with audible alarm
- Low voltage light and audible alarm
- Pump panel light switch
- Speed counter (Underwriters)
- Pump performance plate (Underwriters)
- Pump serial No. plate
- Master pump drain valve
- Individual drains
- Voltmeter
- Air inlet/outlet at lower driver side panel
- Pump panel air horn actuation button labeled "EVACUATION" in white letters with a red background.
- 3/4" Pump cooler (By-pass Line).
- Fire Research #TGA300 "IN CONTROL" pressure governor control.

PUMP TEST PORTS

The pump panel will be equipped with Vacuum & Pressure test plugs to allow for test equipment to monitor pump pressure and vacuum levels. Chrome plugs and labels will be provided for the test ports.

MASTER PUMP GAUGES

The master pump intake pressure and vacuum, and the main pump discharge pressure will be indicated on the pressure governor display.

PRESSURE & COMPOUND GAUGE RANGES

All applicable pressure gauges will have a range of 0 - 400 P.S.I., and the compound gauge will have a range of -30" - 0 - 400 P.S.I.

ENGINE COOLER

An auxiliary cooler or heat exchanger will be installed in the engine compartment between the engine and the chassis radiator. The cooler will permit the use of water from the pump for cooling the engine. The cooling will be done without mixing engine and pump water.

TANK LEVEL GAUGE

An Innovative Controls model # 3030691-02 SL Plus Tank Level Monitor System will be provided on the pump operator's panel. The master display module will show the tank level using 16 super-bright easy-to-see LEDs. Tank level indication will be achieved by the appropriate illumination of 4 horizontal rows of LEDs, with 4 LEDs per row.

A wide-angle polycarbonate diffusion lens in front of the LEDs will produce a 180° viewing angle. The electronic display module will be waterproof and shock resistant being encapsulated in a urethane-based potting compound. The potted display electronics will be integral to a chrome-plated panel-mount reflector that is secured to the apparatus panel.

The gauge will use a pressure transducer #3030376-01 installed near the bottom of the water tank to determine the correct volume in the tank.

1,000 GALLON WATER TANK

The water tank will have a capacity of 1000 gallons, constructed from Poly material.

WATER TANK CONSTRUCTION

The Poly water tank will be constructed of PT3 polypropylene material. This material will be a non-corrosive stress relieved thermoplastic and UV stabilized for maximum protection. Tank shell thickness may vary depending on the application and may range from 1/2 to 1" as required. Internal baffles are generally 3/8" in thickness.

The tank will be of a specific configuration and is so designed to be completely independent of the body and compartments. Joints and seams will be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction will include PolyProSeal technology wherein a sealant will be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal. The transverse and longitudinal swash partitions will be manufactured of a minimum of 3/8" PT3 polypropylene. All partitions will be equipped with vent and air holes to permit movement of air and water between compartments. The partitions will be designed to provide maximum water flow. All swash partitions interlock with one another and are completely fused to each other as well as to the walls of the tank. All partitions and spacing will comply with NFPA 1901. The walls will be welded to the floor of the tank providing maximum strength as part of the tank's unique Full Floor Design. Tolerances in design allow for a maximum variation of 1/8" on all dimensions.

WATER CAPACITY CERTIFICATION

All tanks will be tested and certified as to capacity on a calibrated and certified tilting scale. Each tank will be weighed empty and full to provide precise fluid capacity. Each Poly-Tank's III is delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight.

WATER TANKNOLOGY TAG

A tag will be installed on the apparatus in a convenient location and contain pertinent information including a QR code readable by commercially available smart phones. The information contained on the tag will include the capacity of the water and foam (s), the maximum fill and pressure rates, the serial number of the tank, the date of manufacture, the tank manufacturer, and contact information. The QR code will allow the user to connect with the tank manufacturer for additional information and assistance.

WATER TANK ISO CERTIFICATION

The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2000 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.

WATER TANK LID

The tank cover will be constructed of 1/2" thick PT3 polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) will be flush or recessed 3/8" from the top of the tank and will be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers will have hold downs consisting of 2" minimum polypropylene dowels spaced a maximum of 40" apart. These dowels will extend through the covers and will assist in keeping the covers rigid under fast filling conditions. A minimum of two lifting dowers will accommodate the necessary lifting hardware.

WATER TANK FILL TOWER

The tank will have a combination vent and manual fill tower. The fill tower will be constructed of 1/2" PT3 polypropylene and will be a minimum dimension of 12" x 12" outer perimeter. The fill tower will be blue in color indicating that it is a water-only fill tower. The tower will be located in the left front corner of the tank unless otherwise specified by the tank manufacturer to the purchaser. The tower will have a 1/4" thick removable polypropylene screen and a PT3 polypropylene hinged cover. The capacity of the tank will be engraved on the top of the fill tower lid. Inside the fill tower there will be a combination vent/overflow pipe. The vent overflow will be a minimum of schedule 40 polypropylene pipe with a minimum I.D. of that is designed to run through the tank, and will be piped to discharge water behind the rear wheels as required in NFPA 1901 so as to not interfere with rear tire traction.

WATER TANK OVERFLOW AND VENT PIPE

The fill tower will be fitted with an integral 4" I.D. schedule 40 P.V.C. combination overflow/vent pipe running from the fill tower through the tank to a 4" coupling flush mounted into the bottom of the tank to allow water to overflow behind the chassis rear axle.

WATER TANK SUMP

The tank sump will be a minimum of 10" wide x 10" long x 3" deep. An anti-swirl plate will be mounted inside the sump, approximately 1" above the bottom of the sump.

WATER TANK SUMP CONNECTION

The front bulkhead of the water tank will be fitted with one (1) tank sump connection.

WATER TANK 3" SUMP DRAIN

A 3" drain plug will be provided.

WATER TANK FLANGES/OUTLETS - PUMPER

There will be two (2) standard tank outlets; one for tank-to-pump suction line which will be a minimum of 4" coupling and one for a tank fill line which will be a minimum of a 2" NPT coupling. All tank fill couplings will be backed with flow deflectors to break up the stream of water entering the tank.

WATER TANK MOUNTING ALL TANKS - PUMPER

The tank will rest on the body cross members spaced a maximum of 22" apart, and will be insulated from these cross members with a minimum of 3/8" nylon webbing or 1/2" rubber, 2-1/2" wide. The tank will sit cradle-mounted using four (4) corner angles of 6 x 6 x 4 x 0.250 welded directly to the body cross members. The angles will keep the tank from shifting left to right or front to rear. The tank is designed on the free-floating suspension principle and will not require the use of hold downs. The tank will be completely removable without disturbing or dismantling the apparatus body structure. The body or hose bed cross braces will act as water tank retainers.

APPARATUS BODY DESIGN CONSTRUCTION

The body side and compartment assemblies will be designed and assembled to provide maximum strength and durability under all operating conditions.

Special attention will be taken to minimize corrosion on all fabricated parts and structural members of the body. All bolt-on components will be provided with a dissimilar metals isolation barrier to prevent electric corrosion. The body design will also incorporate removable panels to access rear body mounts and fuel tank sending units.

The body will be completely isolated from the cab and pump module structure.

BODY AND COMPARTMENT FABRICATION - 3/16" ALUMINUM

All compartment panels and body side sheets will be entirely 3/16" aluminum (5052-H32). Each side compartment assembly will be both plug welded and stitch welded to ensure proper weld penetration on all panels while avoiding the possible warping caused by a full seam weld. The side compartments will be welded on a fixture to ensure true body dimensions of all door openings. The side compartments and body side panels are then set into a body squaring fixture where the super structure is installed and the entire body is aligned to be completely symmetrical. The super structure is then welded to the compartment side panels and reinforcement plates are inserted which allows the compartment panels to become an integral component of the body support structure. A full seam weld will not be used due to the applied heat which could distort sheet metal and remove the protective coating from the perimeter of the welded area. All seams will be caulked prior to finish paint to ensure proper compartment seal.

SUPER STRUCTURE - ALUMINUM

The body super structure will be an all welded configuration utilizing a combination of 3" x 1-1/2" 6061-T6 thick walled structural tubing and 6061 structural channel.

This structure will be designed to totally support the full length and width of the body and will be welded to the body side compartments by use of reinforcement plates to incorporate the compartments into an integral part of the body weldment.

The super structure will be bolted to the sides of the chassis frame at four (4) points.

STEPPING, STANDING, & WALKING SURFACES

All stepping, standing, and walking surfaces on the body will meet NFPA #1901 anti-slip standards. Aluminum tread plate utilized for stepping, standing, and walking surfaces will be ALCOA No Slip type. Upon request by the Purchaser, the manufacturer will supply proof of compliance with this requirement.

DRIVER'S SIDE COMPARTMENTATION

One (1) full height/full depth compartment, with a roll up door, will be provided forward of the rear wheels. Compartment dimensions 68" high x 49" wide x 29" deep, with a door opening of 64" high x 46" wide.

One (1) high side compartment, with a roll up door, will be provided above the rear wheels. Compartment dimensions 36" high x 64" wide by 29" deep, with a door opening of 33-1/2" high by 58" wide.

One (1) full height/full depth compartment, with a roll up door, will be provided behind the rear wheels. Compartment dimensions 68" high x 46" wide x 29" deep, with a door opening of 64" high x 46" wide.

OFFICER'S SIDE COMPARTMENTATION

One (1) full height/split depth compartment, with a roll up door, will be provided forward of the rear wheels. Compartment dimensions 68" high x 49" wide x 29" deep in the lower 30" high area, 14" deep in the upper 38" high area, with a door opening of 64" high x 46" wide.

One (1) high side compartment, with a roll up door, will be provided above the rear wheels. Compartment dimensions 36" high x 64" wide by 14" deep, with a door opening of 33-1/2" high by 58" wide.

One (1) full height/split depth compartment, with a roll up door, will be provided behind the rear wheels. Compartment dimensions 68" high x 46" wide x 29" deep in the lower 30" high area, 14" deep in the upper 38" high area, with a door opening of 64" high x 46" wide.

ROLL-UP DOORS

Roll-up doors will be provided on all compartments. The roll-up doors will be constructed from aluminum extruded slats which will have a flexible seal between each slat for proper sealing of the door.

A synthetic rubber seal will be provided at each side, top and bottom edge of the door to prevent entry of dirt into the compartment.

The door will be equipped with a lift bar style latch mechanism which will latch at the bottom of the door mounting extrusion.

The roll-up door assembly will be furnished with a spring-loaded, counter balance assembly to assist in door actuation.

All running board and high side compartments will be equipped with roll-up doors.

AMDOR ROLL-UP DOORS

The roll-up doors will be Amdor brand roll-up doors. The doors will be painted to match the required color of the fire department.

A total of six (6) painted doors will be provided.

PROTECTION PANELS

Seven (7) protection panels will be provided at the top of all body exterior compartments fitted with roll-up doors. The panels will be installed below the roll-up area to prevent possible damage to the roll-up door by misplaced equipment. Each protection panel will be bolted in place and have a brushed plain aluminum finish.

SWEEP-OUT COMPARTMENT FLOORS

Compartment floors will be welded to the compartment walls and have a sweep out design for easy cleaning.

Compartment with hinged doors will have the door opening flanges bend down to produce the sweep-out design.

Compartment with roll-up style doors will have the external floor flange stepped down, 1/2" high x 2" deep, to produce a sealing surface for the roll-up doors below the compartment floor. The sweep out design will also permit easy cleaning.

STAINLESS STEEL SILL PROTECTORS

A 90° angle door sill protector, fabricated from 18 gauge brushed finish stainless steel will be installed on the bottom external edge of each body compartment door opening to help protect this area from paint chipping.

COATED FASTENERS

All exterior fasteners will be coated stainless steel screws. Screw threads will be coated with reusable, self-locking, sealing material to provide vibration resistance. Screw heads will be coated with a sealing element to prevent galvanic corrosion between dissimilar metals. Non-coated screws will only be provided as part of vendor supplied component installations.

COMPARTMENT LOUVERS

Ventilation between compartments to atmosphere will be provided and located to avoid water entry into compartments.

ACCESS PANELS

Removable access panels will be provided (if applicable) to access fuel tank sender, electrical junction compartment and rear body mounts.

Protective panels will be located in the rear compartments providing access to the lights and associated wiring. The covers will also serve as protective covers to prevent inadvertent damage to lights or wiring from tools or equipment located in the compartment.

BODY PROTECTION PANELS

The front face of the side compartments, next to the driver and officer pump panels will be overlaid with full height aluminum tread plate protection panels. The overlays will cover the front face of the compartments only, they will not wrap around to the door opening.

REAR BODY PANEL

The rear body panel will extend the full width between the side compartments. This panel will be full height from the rear step compartment to the hose bed floor. The panel will be bolted on and removable, with no part of the rear panel attached to the booster tank. The rear body panel material will be aluminum tread plate as standard. If Chevron striping is specified for the rear of the body then smooth aluminum will be utilized.

The chevrons will be on the areas on each side of the rear step compartment. The area above the rear step compartment will be tread plate as standard.

BODY RUB RAILS

Sacrificial C-Channel style rub rails will be mounted at the base of the body, extend outward from the body. The rub rails will extend the full length of the main body. Rub rails will be designed to bolt to the body from the bottom side of the compartment area, so as not to damage the body side panels on initial impact and to provide for ease of replacement.

RUNNING BOARD STEPS

The driver and officer running board steps will be fabricated of 3/16" polished aluminum tread plate. The outside edge on each step will be fabricated with a double break, return flange. The steps will be rigidly reinforced with a heavy duty support structure. The running boards will not form any part of the compartment design, and will be bolted into place with a minimum 1/2" clearance gap between any panel to facilitate water runoff.

REAR STEP

The rear step will be fabricated from 3/16" polished aluminum tread plate, and will be rigidly reinforced. The rear step will extend 12" past the rear edge of the body, and will be 100" wide, with tapered corners.

The rear edge of the step will be designed to accommodate the rear clearance lights, recessed for protection in the step reinforcement channel. The step tread plate overlay will be bolted to the step frame for ease of replacement.

INTERMEDIATE REAR STEP

An eight (8) inch deep, bolt on intermediate rear step, fabricated from 3/16" aluminum tread plate, will be installed. The step will be approximately 8" deep x 42" wide.

REAR STEP COMPARTMENT

One (1) rear step compartment 51" high x 42" wide x 29" deep in the lower portion and 12" deep in the upper portion will be provided with a door opening of 47 5/8" high x 42" wide.

The rear step compartment door will be a roll-up door. The roll-up door will be equipped with a brushed aluminum finish.

GRAB RAILS

All hand rails will be 1-1/4" outer diameter, knurled bright anodized aluminum extrusion, designed to meet NFPA 1901 requirements.

Molded gaskets will be installed between the handrail stanchion castings and body surfaces to prevent electrolytic reaction between dissimilar metals and to protect paint.

GRAB RAIL LOCATIONS

Grab rails will be provided at the following specified locations. Additional grab rails will be provided adjacent to any additional steps specified to comply with NFPA 1901.

- Two (2) vertical rails will be mounted on the rear edge of the body, one (1) each side.
- One (1) horizontal, full width handrail will be installed on the rear, below the level of the hose bed.
- Two (2) horizontal handrails will be mounted above each pump panel, (1) each side.

FOLDING STEP(S) - BODY FRONT DRIVER SIDE

Cast Products model SP6610-1-CH LED lighted large folding step(s) with RG0082 gasket, with a textured chrome plate finish will be provided on driver side body front to provide NFPA compliant access (maximum 18" height between steps) to an upper horizontal walking surface (compartment cap, dunnage area, fabricated step, or upper body compartments).

Each step will have an LED light at the top and bottom of each step to illuminate the stepping areas.

FOLDING STEP(S) - BODY FRONT OFFICER SIDE

Cast Products model SP6610-1-CH LED lighted large folding step(s) with RG0082 gasket, with a textured chrome plate finish will be provided on officer side body front to provide NFPA compliant access (maximum 18" height between steps) to an upper horizontal walking surface (compartment cap, dunnage area, fabricated step, or upper body compartments).

Each step will have an LED light at the top and bottom of each step to illuminate the stepping areas.

FOLDING STEP(S) - BODY REAR DRIVER SIDE

Cast Products model SP6610-1-CH LED lighted large folding step(s) with RG0082 gasket, with a textured chrome plate finish will be provided on driver side body rear to provide NFPA compliant access (maximum 18" height between steps) to an upper horizontal walking surface (compartment cap, dunnage area, fabricated step, or upper body compartments).

Each step will have an LED light at the top and bottom of each step to illuminate the stepping areas.

FOLDING STEP(S) - BODY REAR OFFICER SIDE

Cast Products model SP6610-1-CH LED lighted large folding step(s) with RG0082 gasket, with a textured chrome plate finish will be provided on officer side body rear to provide NFPA compliant access (maximum 18" height between steps) to an upper horizontal walking surface (compartment cap, dunnage area, fabricated step, or upper body compartments).

Each step will have an LED light at the top and bottom of each step to illuminate the stepping areas.

SAFETY SIGN(S) AT REAR STEP AND CROSS WALKWAY(S)

Safety sign(s) will be located on the vehicle at the rear step, and at any cross walkway(s), to warn personnel that riding in or on these areas while the vehicle is in motion is prohibited.

REAR WHEEL WELL LINERS

Fully removable, one piece, bolt-in, stainless steel rear wheel well liner and fenderette will be provided. The wheel well liners will be natural metal finish and will protect the front and rear compartments and main body supports from damage. Wheel well liners and fenderettes which are welded in place or are only partially removable shall not be considered.

BODY FENDER STORAGE COMPARTMENTS**DRIVER FRONT FENDER STORAGE**

A storage compartment will be inserted into the front driver side body fender. The compartment will be sized large enough to store three (3) SCBA cylinders or fire extinguishers, with a maximum length of 26". The compartment will have a non-abrasive lined floor area for the three (3) devices. The compartment will be enclosed by a door painted to match the primary body color, with a single point latch and hinge. The back side of the door will have a section of Nylatron installed to protect the door surface from the items stored in the compartment. This compartment will be tied into the "Do Not Move Apparatus" warning system.

OFFICER FRONT FENDER STORAGE

A storage compartment will be inserted into the front officer side body fender. The compartment will be sized large enough to store three (3) SCBA cylinders or fire extinguishers, with a maximum length of 26". The compartment will have a non-abrasive floor area for the three (3) devices. The compartment will be enclosed by a door painted to match the primary body color, with a single point latch and hinge. The back side of the door will have a section of Nylatron installed to protect the door surface from the items stored in the compartment. This compartment will be tied into the compartment door ajar/do not move apparatus warning system.

DRIVER REAR FENDER STORAGE

A storage compartment will be inserted into the rear driver side body fender. The compartment will be sized large enough to store two (2) SCBA cylinders or fire extinguishers, with a maximum length of 26". The compartment will have a non-abrasive floor area for the two (2) devices. The compartment will be enclosed by a door painted to match the primary body color, with a single point latch and hinge. The back side of the door will have a section of Nylatron installed to protect the door surface from the items stored in the compartment. This compartment will be tied into the compartment door ajar/do not move apparatus warning system.

OFFICER REAR FENDER STORAGE

A slide out absorbent storage bin will be installed in the rear officer side body fender. The storage bin will be constructed of smooth aluminum and will be sized to store a minimum of 50 lbs. of absorbent material. The bin will be installed on sliding tracks that allow the bin to extend out of the body fender for dumping/filling. There will be a hinged lid on top of the storage bin to add material to the bin, and a spring loaded valve at the bottom to dispense material out of the bin. The compartment will be enclosed by a door painted to match the primary body color, with a single point latch and hinge. The back side of the door will have a section of Nylatron installed to protect the door surface from the items stored in the compartment. This compartment will be tied into the compartment door ajar/do not move apparatus warning system.

REAR MUD FLAPS

Heavy duty mud flaps will be provided behind the rear wheels.

REAR TOW EYES

Two (2) painted tow eyes will be furnished on the rear of the vehicle. The tow eyes will be made from plate steel and will be bolted directly to the chassis frame rails with grade 8 bolts and will extend below the body. The tow eyes will be smooth and free from sharp edges, and have a minimum eyelet hole of 2-1/2". The tow eyes will be painted.

HOSE BED

The hose bed will be located directly above the booster tank and will be free from all sharp objects such as bolts, nuts, etc., to avoid damage to fire hose.

The hose bed will provide approximately 141 cubic feet of hose storage area for 2 1/2" or larger fire hose, exceeding NFPA 1901 minimum pumper hose storage requirements. The hose bed depth will be 16".

The apparatus weight analysis will be based on 800' of 2 1/2" hose unless otherwise specified. If the hose load to be carried exceeds this minimum, the purchaser must advise the manufacturer prior to contract so adequate chassis carrying capacity can be provided.

For added strength and rigidity, the hose bed side walls will be (3) inches thick. The top edge of the front wall will be flanged inward two (2) inches and downward one (1) inch.

HOSE BED FLOORING

Flooring to be constructed from extruded aluminum and be properly spaced for ventilation. The flooring will be smooth and free from sharp edges to avoid hose damage. The hose bed floor will be removable to provide access to inner body framework.

HOSE BED PARTITIONS

Two (2) fully adjustable 3/16", brushed finish, aluminum hose bed partitions will be provided. Partitions will be easily adjustable by means of Unistrut channels located at the front and rear of the hose bed. Partitions will be removable for access to the booster tank.

The top and rear edge of each of the adjustable hose bed partitions will have an integral tubing reinforcement welded on for additional support.

HOSE BED FULL WIDTH DIVIDER

A full width divider will be installed in the hose bed located approximately 2" beyond the end of the water fill tower. This divider will be constructed of smooth aluminum and will be fixed. The adjustable hose bed dividers will be installed up to this divider with the adjustment tracking attached to the fixed divider.

HOSE BED COVER, VINYL WITH VELCRO

A hose bed cover will be provided and installed. The cover will be made from 22 ounce; heavy-duty vinyl coated polyester fabric (TXN 226). The cover will be sewn with ultraviolet resistant thread and will have 2" wide nylon webbing sewn around the perimeter to provide additional strength.

The cover will be secured to the top front body flange with Velcro and quarter turn fasteners and will be secured to the top side body flanges with Velcro. A weighted flap will be furnished on the rear of the cover with two (2) bungee cords.

The Hypalon material will be black in color.

COMPARTMENT ACCESSORIES**HALF DEPTH ADJUSTABLE SHELVING**

Compartment shelving will be constructed of 3/16" brush finish aluminum with a 2" upward bend at front and rear, and side supports. Shelving will be vertically adjustable with spring nuts in aluminum strut channel.

Half depth adjustable shelves will be located as follows:

- One (1) in the officer side front compartment
- One (1) in the officer side rear compartment

ADJUSTABLE SHELVING

Compartment shelving will be constructed of 3/16" brush finish aluminum with a 2" upward bend at front and rear, and side supports. Shelving will be vertically adjustable with spring nuts in aluminum strut channel.

Adjustable shelves will be located as follows:

- One (1) in the driver side front compartment
- One (1) in the officer side front compartment
- One (1) in the driver side rear compartment
- One (1) in the officer side rear compartment
- One (1) in the rear step compartment

SLIDE OUT FLOOR MOUNT SHELVING

Slide out floor mount compartment shelving will be constructed of 3/16" brush finish aluminum with a 2" upward bend at front and rear, and side supports attached to #250 rated slides. Slide out floor mount shelving will have gas shocks to hold the tray in and out.

Slide out floor mount shelving will be provided as follows:

- One (1) in the driver side front compartment
- One (1) in the driver side rear compartment
- One (1) in the rear step compartment

ADJUSTABLE ROLL-OUT TRAYS

Roll out adjustable compartment shelving will be constructed of 3/16" brush finish aluminum with a 2" upward bend at front and rear, and side supports attached to 250# rated slides. Slide out adjustable shelving will be vertically adjustable with spring nuts in aluminum strut channel. Slide out adjustable shelving will have gas springs to hold in and out.

The adjustable roll-out trays will be located as follows:

- One (1) in the driver side front compartment

ROLL-OUT/ DROP DOWN TRAYS

The roll out/tilt tray will consist of a 3/16" brushed aluminum finished aluminum tray with a minimum 2" lip on all four sides. Heavy duty aluminum Unistrut "C" channel tracking material will be utilized to securely fasten the slide tracks to the compartment walls, while allowing height adjustment.

The slide mechanism will consist of a low-weight high-strength plastic to create a robust front bracket to support the aluminum tray. The rear of the tip down tray will be mounted on a slider with an integral pivot plate. This slider and pivot plate will be mounted inside an aluminum rail for maximum strength. The tray will be released from the stowed position with the use of a push button and will be capable of auto latching to the stowed position. The front handle/latch will be designed with a double hand hold to control the tray when deployed or stowed. The roll out/tilt tray will be rated for 330# capacity.

Roll out/Tilt trays will be located as follows:

- One (1) in the driver side over the wheel high side compartment

SWING OUT TOOL BOARDS

The tool boards will be constructed of PAC TRAC Dual Faced 7040 series aluminum extrusion allowing mounting of equipment on the interior and exterior of the tool boards. The tool boards will be installed with a Performance Advantage Company PM-1000 Swing-Out Module Kit. Aluminum angles will attach the hinge to Unistrut tracking to allow depth adjustments. A heavy duty thumb latch will be provided to secure the tool boards in the closed position.

Swing out tool boards will be located as follows:

- One (1) in the officer side over the wheel high side compartment

TURTLE TILE

Turtle Tile brand floor material will be installed on all compartment floors. The Turtle Tile will be custom installed to provide full floor coverage.

Floor matting material will be provided on eleven (11) specified shelf(s) or roll-out tray(s).

The compartment flooring color will be black.

120/240 VOLT A.C. ELECTRICAL AND GENERATOR SECTION

120/240 VOLT ELECTRICAL SYSTEM TESTING

All line voltage wiring and permanently connected devices and equipment will be subjected to a dielectric voltage withstand test of 900 volts for one minute. The test will be conducted between live parts and the neutral conductor and between live parts and the vehicle frame with any switches in the circuits closed. The test will be conducted after all bodywork has been completed. The dielectric tester will have a minimum 500 VA transformer with a sinusoidal output voltage that can be verified.

Electrical polarity verification will be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

OPERATIONAL TESTING

The apparatus manufacturer will perform the following operation test and will certify that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order.

The generator will be started from a cold start condition and the line voltage electrical system will be loaded to 100 percent of the nameplate voltage rating.

The following items will be monitored and documented every 15 minutes:

- The cranking time until the generator starts and runs.
- The voltage, frequency, and amperes at continuous full rated load.
- The generator oil pressure, water temperature, transmission temperature, hydraulic temperature, and the battery rate charge, as applicable.
- The ambient temperature and altitude.

The generator will operate at 100 percent of its nameplate wattage for a minimum of two (2) hours.

PORTABLE GENERATOR (CUSTOMER SUPPLIED)

A Honda Model #EM5000SXK2A, 5000 watt, portable gasoline generator with electric start will be provided and will require a two pole 25 amp main breaker to be installed in the load center. The generator dimensions are 41.9" long x 27.2" wide and 29.2" high.

The generator will be mounted as listed below and will have a plug in connection which will be wired to the breaker panel, utilizing receptacles provided on the generator. A secondary plug in will be provided to supply 12 volt power to the generator electric start system.

A "power on" indicator light will be provided at the breaker panel box to notify the operator when the generator is producing electricity.

120/240 VOLT WIRING

The wiring from the generator to the breaker box will be Type SO with suffix WA flexible cable.

REMOTE ELECTRIC START

An electric remote start kit will be provided and *located on the pump operator's panel.*

The portable generator will be equipped with an appropriately sized 220V plug that will attach to the breaker box to supply electrical power to the circuits.

A 12V plug assembly will be provided for a remote start/stop circuit if the generator is equipped with such means.

GENERATOR LOCATION

The generator will be mounted above the pump enclosure on the officer side.

Locating the generator greater than 144" from the main breaker panel may require the installation of an additional power disconnecting means.

120/240 VOLT LOAD CENTER

The generator output line conductors will be wired from the generator output connections to a Square D, model #QO112L125G breaker panel. The breaker panel will be equipped with a properly sized main breaker using two (2) of the twelve (12) spaces which leaves a total of ten (10) available spaces.

The generator output conductors will be sized to 115% of the main breaker rating and will be installed as indicated in the wiring section.

Ten (10) appropriately sized, 120 volt, circuit breakers will be provided.

The breaker panel will be located on the rear wall of the driver side front compartment.

120/240 VOLT WIRING METHODS

Wiring/conduit will not be attached to any chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components or low voltage wiring.

All wiring will be installed at a minimum of 12 inches away from any exhaust piping and a minimum of 6 inches from any fuel lines.

All wiring will be securely clamped within 6 inches of any junction box and at a minimum of every 24 inches of run. All supports will be of nonmetallic material or corrosion protected metal. All supports will not cut or abrade conduit or cable and will be mechanically fastened to the vehicle.

All power supply assembly conductors, including neutral and grounding conductors, will have an equivalent amperage rating and will be sized to carry not less than 115% of the main breaker rating.

All Type SO or Type SEO cable not installed in a compartment will be installed in wire loom. Where Type SO or Type SEO cable penetrates a metal surface, a rubber or plastic grommet or bushing will be provided.

The installation of all 120/240 wiring will meet the current NFPA-1901 Standards .

120/240 VOLT WIRING IDENTIFICATION

All line voltage conductors located inside the main breaker panel box will be individually and permanently identified. When pre-wiring for future power wiring installations, the non-terminated ends will be labeled showing function and wire size.

120/240 VOLT GROUNDING

The neutral conductor of the power source will be bonded to the vehicle frame only at the power source.

The grounded current carrying conductor (neutral) will be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor will be colored white or gray.

In addition to the bonding required for the lower voltage return current, each body and driving/crew compartment enclosure will be bonded to the vehicle frame by a copper conductor. The conductor will have a minimum amperage rating of 115 percent of the name plate current rating of the power source specification label.

120/240 VOLT CIRCUIT BREAKER / RECEPTACLE INSTALLATION

The system will be installed by highly qualified electrical technicians to assure the required level of safety and protection to the fire apparatus operators. When multiple circuit are required, the circuits will be wired to the breaker panel in a staggered configuration to minimize electrical loads on each breaker or generator (leg) circuit. The wiring, electrical fixtures and components will be to the highest industry quality standards available on the domestic market. The equipment will be the type as designed for mobile type installations subject to vibration, moisture and severe continuous usage.

ELECTRIC CABLE REEL

One (1) Akron Brass Model #ERWC-10-28, 120 volt, electric rewind cord reels (able to accommodate 200 feet of 10 gauge electric cable or 250 feet of 12 gauge electric cable). The reels will be provided and wired to the breaker panel. The reels have a factory installed rear mount motor. The reels will be securely mounted and equipped with a rewind control adjacent to each reel.

The cord reel will be rear wall mounted in the officer rear compartment, as high as possible.

The circuit breaker used to protect any device attached to the cord reel will be sized to the smallest electrical connection used.

One (1) reel rewind switch will be provided on the compartment wall

One (1) stainless steel roller assembly will be provided. The roller assembly opening will be the full width of the reel drum.

One (1) cable ball stop will be installed on the cable to keep the end from passing through the roller assembly.

ELECTRIC CABLE

Two hundred (200) feet of Type SO yellow 12/3 heavy duty electric cable will be provided on the reel.

One (1) NEMA L5-15R, 15 amp, three prong twist-lock receptacle will be provided on the end of the cable.

LADDER STORAGE

The ground ladders will be stored vertically next to the water tank, behind the side body compartments, on the officer side of the apparatus.

To secure the ground ladders, a hinged rear access door will be provided and tied into the "Do Not Move Apparatus" warning system.

The ladder storage area will be provided with a black vinyl coated polyester deflector at the forward opening to deflect road debris from entering the ladder storage area.

GROUND LADDERS

The following Alco-Lite ground ladder complement will be provided:

- One (1) Alco-Lite model PEL-24; 24', aluminum, two (2) section extension ladder will be provided.
- One (1) Alco-Lite model PRL-14; 14', aluminum, straight roof ladder with folding hooks will be provided.
- One (1) Alco-Lite model FL-10; 10', folding, aluminum, attic ladder will be provided.

PIKE POLE STORAGE

Four (4) pike pole tubes will be provided. Each holder will be accessible from the rear of the apparatus. Each pike pole holder will be labeled to indicate the pike pole length.

The pike pole tubes will be mounted in the ladder storage compartment.

- One (1) 6' Fire Hooks Unlimited fiberglass handled pike pole will be provided.
- One (1) 10' Fire Hooks Unlimited fiberglass handled pike pole will be provided.

SUCTION HOSE STORAGE

The suction hoses will be located beneath the hose bed, one (1) on the driver side and one (1) on the officer side. The hose storage area will be accessed from the rear of the apparatus. The storage area will be enclosed with a hinged door on the rear of the body that will be tied into the "Do Not Move Apparatus" warning system.

Note: On bodies with roll up style doors this storage area will be behind the roll of the door and will not affect usable compartment space. On bodies with hinged style doors this storage area will be in the top corner of the compartment.

SUCTION HOSE

Two (2) 13 foot sections of six (6) inch PVC lightweight suction hose will be furnished (Kochek or Firequip Maxi-Flex). Suction hose will be for suction only and not to be used on pressurized hydrants or for relay pumping. Couplings will include a long handle, female swivel on one end and a rocker lug male on the other end. All threads will be six (6) inch N.S.T.

NOTE: All PVC suction hoses are strictly drafting hoses and must not be used on hydrants or in pressure applications, as serious personal injury or death may occur.

EQUIPMENT CLARIFICATION

The NFPA-1901 required suction strainer will "NOT" be provided by the apparatus manufacturer.

EQUIPMENT CLARIFICATION

The NFPA-1901 recommended double female hydrant adapter will not be provided by the apparatus manufacturer.

ADDITIONAL ITEMS SUPPLIED WITH THE VEHICLE

- 1 - Pint of touch up paint for each color
- 1 -Bag of assorted stainless steel nuts and bolts

LOOSE EQUIPMENT

The following items will be provided and shipped loose with the completed apparatus at the time of delivery:

- Two (2) Six(6) foot NY roof hooks with mounting brackets
- Five (5) fluorescent orange traffic cones with a 6" and 2" retro reflective band

WHEEL CHOCKS

Two (2) ZICO #SAC-44 folding wheel chocks will be mounted forward of the rear wheels on the driver side below the side running board compartments.

PAINT, PREPARATION AND FINISH

The apparatus body will be painted Sikkens [#COL]. The paint process will meet or exceed current state regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water, and soil. Contractor will, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The exterior will have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces of the body. Any vertically or horizontally hinged smooth-plate compartment doors will be painted separately to assure proper paint coverage on body, door jambs and door edges.

Paint process will feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces will be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer will be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat will be applied, providing excellent coverage and durability. A minimum of two (2) coats will be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat will be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats will be applied.

Any location where the material is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components will be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment will be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, hand rails, doors, lights, or other specified components will be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit will be tested with a 20 degree gloss meter. Coating thickness will be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

BODY PRIMER & PREPARATION

All exposed welds will be ground smooth for final finishing of areas to be painted. The compartments and doors are totally degreased and phosphatized. After final body work is completed, grinding (36 and 80 grit), and finish sanding will be used in preparation for priming.

BODY FINISH PAINT

The body will be finish sanded and prepared for final paint. Upon completion of final preparation, the body will be painted utilizing the highest quality, state of the art, low V.O.C., polyurethane base paint. Finish paint will be applied in multiple coats to ensure proper paint coverage with a high gloss finish.

The entire body will be buffed and detailed.

"TUF-KOTE" UNDER SEAL

The under side of the apparatus will have Tectyl # 518 film applied to retard rust and the corrosion process. The product will meet military Specification A-A-59295 Type 1. The amber, semi-firm wax film will be applied by air spray method. The cure time is 24 hours. The film will be applied to the chassis major components such as: chassis frame rails and cross members, axles, springs, drive line components, lower radiator supports, fuel tank, air tanks, running boards, bumper apron and other related components.

The under side of the cab and body will have the film applied to the following areas: cab steps, front gravel shield and underside of battery box, body substructure, underside of all body compartments, running board supports and rear step supports. No film will be applied to the exhaust system or cab wheel wells, or body rear wheel wells.

NOTE: The film will remain semi-firm to promote self-sealing. The film may leave a light amber cast to those areas treated.

BODY PAINT

The inside and underside areas of the complete body assembly will be painted black using a Sikkens paint system, prior to the installation of the body on the chassis or torque box.

COMPARTMENT PAINT

The interior of the body compartments will be painted with Line-X material.

The Line-X coating will be light gray in color.

BODY PAINT

The body paint finish will be Sikkens paint system in a single color, to match customer furnished paint codes and requirements.

PUMP / PIPING PAINT

The pump enclosure and pump/plumbing within the pump enclosure will be painted black.

FENDER STORAGE COMPARTMENT PAINT

The interior of the fender storage compartments (if fender compartments are specified) will be finish painted with Light Gray Line-X paint to provide a protective finish.

CAB PRIMER & PREPARATION

The cab primer will be a two (2) stage process. First stage will be a coating with a two part component, self etching, corrosion resistant primer to chemically bond the surface of the metal for increased adhesion. Second stage will be multiple coats of a catalyzed, two component polyurethane, primer applied for leveling of small imperfections and top coat sealing.

CAB FINISH PAINT

The entire cab will be finish sanded and prepared for final paint. Upon completion of final preparation, the cab will be painted utilizing the highest quality, state of the art, low V.O.C., polyurethane base paint. Finish paint will be applied in multiple coats to ensure proper paint coverage with a high gloss finish.

CAB UNDERSIDE PAINT

The exposed areas under the cab will be painted with a black urethane paint/primer.

The cab exterior will be painted with Sikkens paint system to match purchaser's furnished paint codes. A two-tone paint finish will be provided with the two-tone break line located approximately 3" below the cab side windows.

The entire exterior finish of the cab will be buffed and detailed.

CAB INTERIOR PAINT

The interior metal surfaces of the cab will be painted using dark gray Line-X material.

CHASSIS PAINT

The chassis frame rails, suspension, axles, and drivelines (with the exception of any PTO drivelines which will be safety yellow) will be painted black with a polyurethane base paint prior to installation of any air lines or electric systems to ensure proper serviceability.

WHEEL PAINT

The chassis wheels, (except aluminum wheels) will be painted job color with silver trim around the perimeter. All outer wheels on the rear axle will be job color with the inner being a color selected by the wheel manufacturer suitable for inner wheel use.

PAINT CODES

The paint will match customer furnished paint code(s) and layout. The paint code(s) will be as indicated below:

- **PRIMARY PAINT COLOR**

Single Color: **Red** Paint Code# **71096**

- **SECONDARY PAINT COLOR**

Two/Tone Color: **Black** Paint code# **9000**

TOUCH-UP PAINT

One (1) pint of each exterior color paint for touch-up purposes will be supplied when the apparatus is delivered to the end user.

RUST PROOFING

The entire unit will be thoroughly rust proofed utilizing rustproof and sound deadening materials applied in manufacturer recommended application procedures. Rust proofing will be applied during the assembly process and upon completion to insure proper coverage in all critical areas.

LETTERING

The sales representative will supply all gold leaf or equal lettering, decals, special emblems and non NFPA required striping.

SCOTCH-LITE STRIPE

A six (6) inch high "Scotch-Lite" stripe will be provided. The stripe will be applied on a minimum of 60 percent of each side of the unit, 60 percent on the rear of the unit and 40 percent on the front of the unit. The Scotch-Lite stripe layout will be determined by the Fire Department.

The Scotch-Lite will be black in color.

A six (6) inch custom fold will be incorporated into the Scotch-Lite scheme on the body. Final layout of this configuration will be determined by the Fire Department.



K.M.E. Custom 2000 GPM 1000 Gallon Tank Pumper

REAR CHEVRON STRIPING

At least 50% of the rear facing vertical surface will be covered with alternating strips of reflective striping.

The striping will be 6" Diamond Grade Scotch-Lite.

The Diamond Grade Scotch-Lite will be Red and Fluorescent Yellow Green in color.

WARRANTIES & REQUIRED INFORMATION

KME WARRANTY, STARTING ON DELIVERY DATE

Warranty coverage by KME will begin on the date of delivery to the customer.

WARRANTY - KME CHASSIS

The proposed vehicle includes a one (1) year new vehicle warranty, upon delivery and acceptance of the vehicle. The warranty will ensure that the vehicle has been manufactured to the proposed contract specifications and will be free from defects in material and workmanship that may appear under normal use and service within the warranty period. The warranty may be subject to different time and mileage limitations for specific components and parts. This warranty is issued to the original purchaser of the vehicle.

The warranty will not apply to tires, batteries, or other parts or components that are warranted directly by their manufacturers. The warranty will not apply to routine maintenance requirements as described in the service and operators manual. No warranty whether express, implied, statutory or otherwise including, but not limited to any warranty of merchantability or fitness for purpose will be imposed.

OVERALL UNIT AND CUSTOM CHASSIS

All components and parts of the vehicle are warranted for a period of one (1) year from acceptance of the vehicle, unless excluded elsewhere in this warranty or described as having longer time limitations.

WARRANTY - ENGINE

The proposed unit will be equipped with a Fire Service rated engine, which will come furnished with a five (5) year Engine Manufacturer's warranty. A copy of the manufacturer's warranty will be supplied to define additional details of the warranty provisions.

WARRANTY - TRANSMISSION

The proposed Allison transmission will be provided with a five (5) year warranty. A copy of the Allison transmission warranty will be supplied to the purchaser to define additional details of the warranty provisions.



K.M.E. Custom 2000 GPM 1000 Gallon Tank Pumper

WARRANTY - COOLING SYSTEM - CUSTOM CHASSIS

Kovatch Mobile Equipment (KME) warrants all Cooling System Equipment components used in the construction of KME Fire Apparatus against defects 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 three (3) years from the date of delivery / acceptance to the original user-purchaser, which ever occurs first.

This warranty applies to both purchased and fabricated, manufacturer supplied, coolant system components, and is not provided in lieu of any Vendor provided warranties. All coolant system components provided by the engine manufacturer are covered by the engine manufacturer's warranty only.

WARRANTY - CUSTOM CHASSIS FRAME RAILS

The proposed KME custom chassis frame and cross members will be warranted to the original purchaser for the life of the vehicle. A copy of KME's frame rail warranty will be supplied to define additional details of the warranty provisions.

WARRANTY - STEERING UNIT

The proposed Sheppard steering gear will be warranted for a period of three(3) years from the first date of service or 150,000 miles (241,401 kilometers), whichever occurs first. The product will be free from defects in material and workmanship under normal use in applications approved in advance by Sheppard.

WARRANTY - FRONT AXLE

The Meritor axle will be provided with a two (2) year parts and labor warranty. The wheel seals, gaskets and wheel bearings will have a one (1) year warranty. A copy of Meritor's warranty will be supplied to define additional details of the warranty provisions.

WARRANTY - REAR AXLE

The Meritor axle will be provided with a two (2) year parts and labor warranty. The wheel seals, gaskets and wheel bearings will have a one (1) year warranty. A copy of Meritor's warranty will be supplied to define additional details of the warranty provisions.

WARRANTY - ABS

The Meritor ABS will be provided with a three (3) year warranty, parts and labor. A copy of Meritor's warranty will be supplied to define additional details of the warranty provisions. Vehicles that operate full or part time outside the United States and Canada will have a one (1) year, parts only warranty.



K.M.E. Custom 2000 GPM 1000 Gallon Tank Pumper

WARRANTY - CAB STRUCTURE

The proposed cab will be warranted against structural defects for a period of ten (10) years from the date of acceptance of the unit. Details of warranty coverage, limitations and exclusions are included in the specific warranty document.

WARRANTY - BODY STRUCTURE

The proposed body will be warranted against structural defects for a period of ten (10) years from the date of acceptance of the unit. Details of warranty coverage, limitations and exclusions are included in the specific warranty document.

WARRANTY - CORROSION

The proposed cab and body will be warranted against rust-through or perforation, due to corrosion from within, for a period of ten (10) years. Perforation is defined as a condition in which an actual hole occurs in a sheet metal panel due to rust or corrosion from within. Surface rust or corrosion caused by chips or scratches in the paint is not covered by this warranty.

WARRANTY - PAINT

The proposed paint finish will be warranted for a period of ten (10) years from the date of acceptance of the unit. Details of warranty coverage, limitations and exclusions are included in the specific warranty document.

WARRANTY - STAINLESS STEEL PLUMBING WARRANTY

The proposed stainless steel plumbing will be warranted for a period of ten (10) years from the date of acceptance of the unit. Details of warranty coverage, limitations and exclusions are included in the specific warranty document.

WARRANTY - REAR SUSPENSION

KME hereby warrants to the original Buyer, that leaf spring products installed will be free of defects in material and workmanship for one (1) year. The "Warranty Period" commences on the date the original Buyer takes delivery of the product from the manufacturer.

WARRANTY - WATER TANK

The proposed water tank will be warranted by the water tank manufacturer for the "Lifetime" of the unit. A copy of the manufacturer's warranty will be supplied to define additional details of the warranty provisions.



K.M.E. Custom 2000 GPM 1000 Gallon Tank Pumper

WARRANTY - FIRE PUMP

Hale Products, Incorporated ("Hale") hereby warrants to the original buyer that products manufactured by Hale will be free of defects in material and workmanship for a period of five (5) years from the date product is first placed into service or five and one-half (5 1/2) years from date of shipment by Hale, whichever period will be first to expire. Within this warranty period Hale will cover parts and labor for the first two (2) years and parts only for years three (3) through five (5).

WARRANTY - CLASS 1 - PRODUCTS

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 opinion) free of charge, provided that written notice of such defect is received by us within two (2) years, (three 3 years on liquid filled gauges) after initial shipment.

WARRANTY - HEAVY DUTY VALVES

Akron Brass warrants Heavy Duty Swing-Out Valves for a period of ten (10) years after purchase against defects in material or workmanship. Akron Brass will repair or replace any Heavy Duty Swing Out Valve which fails to satisfy this warranty.

WARRANTY - SEATING

HO Bostrom will warrant each new seat manufactured, to be free from defects in materials and workmanship when delivered to the original purchaser for a period of five (5) years with a limited warranty.

Labor to remove or reinstall and transportation of defective items will not be covered by, or any allowance made for said cost under this warranty.

NFPA REQUIRED LOOSE EQUIPMENT, PROVIDED BY FIRE DEPARTMENT

The following loose equipment as outlined in NFPA 1901, 2016 edition in accordance with the applicable requirements unless supplied by the manufacturer or sales rep organization, will be provided by the fire department. All loose equipment will be installed on the apparatus before placed in emergency service, unless the fire department waives NFPA section 4.21.

Section 5.7 Equipment.

It is the responsibility of the purchaser to ensure that all required equipment has been supplied and installed on the apparatus in order to achieve compliance with the standard prior to placing it in service.

5.7.1 Ground Ladders.

5.7.1.1 All fire department ground ladders carried on the apparatus shall meet the requirements of NFPA 1931, Standard for Manufacturer's Design of Fire Department Ground Ladders, except as permitted by 5.7.1.3 and 5.7.1.4.

5.7.1.2 At a minimum, the following fire department ground ladders shall be carried on the apparatus:

- (1) One straight ladder equipped with roof hooks
- (2) One extension ladder
- (3) One folding ladder

5.7.1.3 Stepladders and other types of multipurpose ladders meeting ANSI A14.2, Ladders - Portable Metal- Safety Requirements, or ANSI A14.5, Ladders - Portable Reinforced Plastic Safety Requirements, with duty ratings of Type IA or IAA shall be permitted to be substituted for the folding ladder required in 5.7.1.2(3).

5.7.1.4 Stepladders and other types of multipurpose ladders shall be permitted to be carried in addition to the minimum fire department ground ladders specified in 5.7.1.2 provided they meet either ANSI A14.2 or ANSI A14.5 with duty ratings of Type 1A or 1AA.

Section 5.7.2 Suction Hose or Supply Hose.

It is the responsibility of the purchaser to ensure that all required equipment has been supplied and installed on the apparatus in order to achieve compliance with the standard prior to placing it in service.

5.7.2.1 A minimum of 20 ft (6 m) of suction hose or 15 ft (4.5 m) of supply hose shall be carried.

5.7.2.1.1 Where suction hose is provided, a suction strainer shall be furnished.

5.7.2.1.2 Where suction hose is provided, the friction and entrance loss of the combination suction hose and strainer shall not exceed the losses listed in Table 16.2.4.1 (b) or Table 16.2.4.1(c).

5.7.2.1.3 Where supply hose is provided. It shall have couplings compatible with the local hydrant outlet connection on one end and the pump intake connection on the other end.

5.7.2.2 Suction hose and supply hose shall meet the requirements of NFPA 1961, Standard on Fire Hose.

Section 5.8 Minor Equipment.

It is the responsibility of the purchaser to ensure that all required equipment has been supplied and installed on the apparatus in order to achieve compliance with the standard prior to placing it in service.

5.8.2 Fire Hose and Nozzles. The following fire hose and nozzles shall be carried on the apparatus:

- (1) 800 ft (240 m) of 2 1/2 in. (65 mm) or larger fire hose
- (2) 400 ft (120 m) of 1 1/2 in. (38 mm), 1 3/4 in. (45 mm), or 2 in. (52 mm) fire hose
- (3) One hand line nozzle. 200 gpm (750 L/min) minimum
- (4) Two hand line nozzles. 95 gpm (360 L/min) minimum
- (5) One play pipe with shutoff and 1 in. (25 mm), 1 1/8 in. (29 mm), and 1 1/4 in. (32 mm) tips

5.8.3 Miscellaneous Equipment. The following additional equipment shall be carried on the apparatus:

- (1) One 6 lb. (2.7 kg) flathead axe mounted in a bracket fastened to the apparatus
- (2) One 6 lb. (2.7 kg) pick head axe mounted in a bracket fastened to the apparatus
- (3) One 6 ft (2 m) pike pole or plaster hook mounted in a bracket fastened to the apparatus
- (4) One 8 ft (2.4 m) or longer pike pole mounted in a bracket fastened to the apparatus
- (5) Two portable hand lights mounted in brackets fastened to the apparatus
- (6) One approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus
- (7) One 2 1/2 gal (9.5 L) or larger water extinguisher mounted in a bracket fastened to the apparatus
- (8) One self-contained breathing apparatus (SCBA) complying with NFPA 1981, Standard on Open-Circuit Self Contained Breathing Apparatus (SCBA) for Emergency Services, for each assigned seating position. But not fewer than four, mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer
- (9) One spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space
- (10) One first aid kit
- (11) Four combination spanner wrenches mounted in brackets fastened to the apparatus
- (12) Two hydrant wrenches mounted in brackets fastened to the apparatus
- (13) One double female 2 1/2 in. (65 mm) adapter with National Hose (NH) threads, mounted in a bracket fastened to the apparatus
- (14) One double male 2 1/2 in. (65 mm) adapter with NH threads, mounted in a bracket fastened to the apparatus
- (15) One rubber mallet, suitable for use on suction hose connections, mounted in a bracket fastened to the apparatus
- (16) Two salvage covers each a minimum size of 12 ft x 14 ft (3.7 m x 4.3 m)
- (17) Two or more wheel chocks. Mounted in readily accessible locations, that together will hold the apparatus. When loaded to its GVWR or GCWR, on a hard surface with a 20 percent grade with the transmission in neutral and the parking brake released
- (18) One traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, Standard for High-Visibility Public Safety Vests, and have a five-point breakaway feature that includes two at the shoulders, two at the sides, and one at the front
- (19) Five fluorescent orange traffic cones not less than 28 in. (711 mm) in height, each equipped with a 6 in. (152 mm) retroreflective white band no more than 4 in. (102 mm) from the top of the cone, and an additional 4 in. (102 mm) retroreflective white band 2 in. (51 mm) below the 6 in. (152 mm) band
- (20) Five illuminated warning devices such as highway flares, unless the live fluorescent orange traffic cones have illuminating capabilities
- (21) One automatic external defibrillator (AED)

5.8.3.1 If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, shall be carried mounted in brackets fastened to the apparatus.

5.8.3.2 If none of the Pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side shall be carried. Any intake connection larger than 3 in. (75 mm) shall include a pressure relief device that meets the requirements of 16.6.6.

5.8.3.3 If the pumper is equipped with an aerial device with a permanently mounted ladder, four ladder belts meeting the requirements of NFPA 1983, Standard on Life Safety Rope and Equipment for Emergency Services shall be provided.

5.8.3.4 If the apparatus does not have a 2 1/2 in. intake with NH threads, an adapter from 2 1/2 in. NH female to a pump intake shall be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.

5.8.3.5 If the supply hose carried has other than 2 1/2 in. NH threads, adapters shall be carried to allow feeding the supply hose from a 2 1/2 in. NH thread male discharge and to allow the hose to connect to a 2 1/2 in. NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.

14.1.8.4 Fire Helmet.

It is the responsibility of the purchaser to ensure that "Fire helmets shall not be worn by persons riding in enclosed driving and crew areas any time the apparatus is placed in service.

14.1.8.4.1 A location for helmet storage shall be provided.

14.1.8.4.2 If helmets are to be stored in the driving or crew compartment, the helmets shall be secured in compliance with 14.1.11.2.

14.1.10 SCBA Mounting.

It is the responsibility of the purchaser to ensure that any SCBA equipment has been supplied and installed on the apparatus in order to achieve compliance with the standard prior to placing it in service.

14.1.10.1 Where SCBA units are mounted within a driving or crew compartment, a positive latching mechanical means of holding the SCBA device in its stowed position shall be provided such that the SCBA unit cannot be retained in the mount unless the positive latch is engaged.

14.1.10.2 The bracket holding device and its mounting shall retain the SCBA unit when subjected to a 9 G force and shall be installed in accordance with the bracket manufacturer's requirements.

14.1.10.3 If the SCBA unit is mounted in a seat back, the release mechanism shall be accessible to the user while seated.

14.1.11 Equipment Mounting.

It is the responsibility of the purchaser to ensure that any equipment installed on the apparatus by them or their subcontractor meets the following requirements prior to placing it in service.

14.1.11.1 All equipment required to be used during an emergency response shall be securely fastened.

14.1.11.2 All equipment not required to be used during an emergency response, with the exception of SCBA units, shall not be mounted in a driving or crew area unless it is contained in a fully enclosed and latched compartment capable of containing the contents when a 9 G force is applied in the longitudinal axis of the vehicle or a 9G force is applied in any other direction, or the equipment is mounted in a bracket(s) that can contain the equipment when the equipment is subjected to those same forces.

Section 15.9.3 Reflective Striping.

It is the responsibility of the purchaser to ensure that Reflective Striping has been supplied and installed on the apparatus in order to achieve compliance with the standard prior to placing it in service.

15.9.3.1" A retro reflective stripe(s) shall be affixed to at least 50 percent of the cab and body length on each side, excluding the pump panel areas, and at least 25 percent of the width of the front of the apparatus.

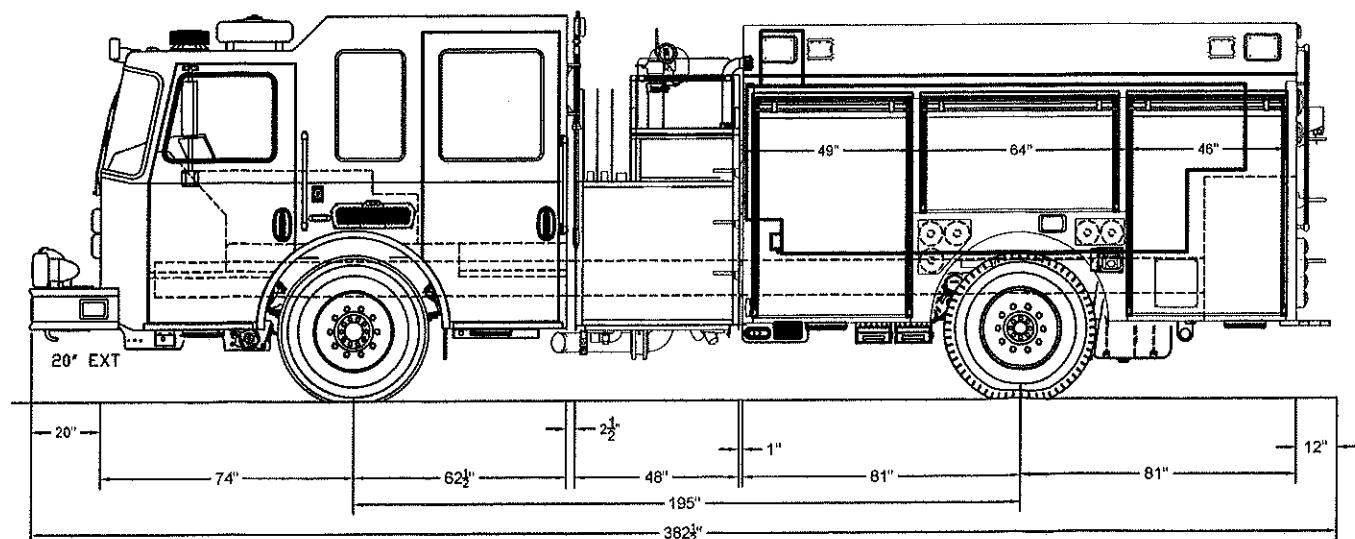
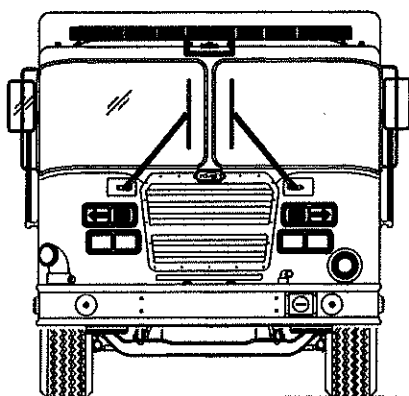
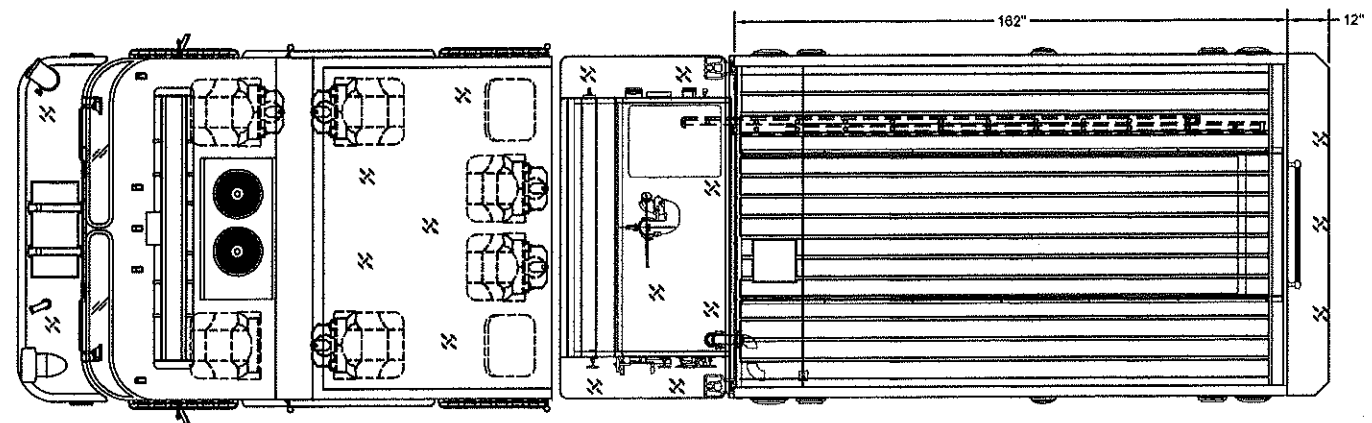
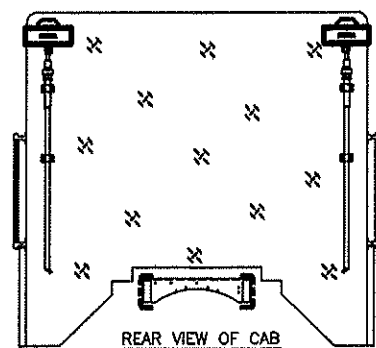
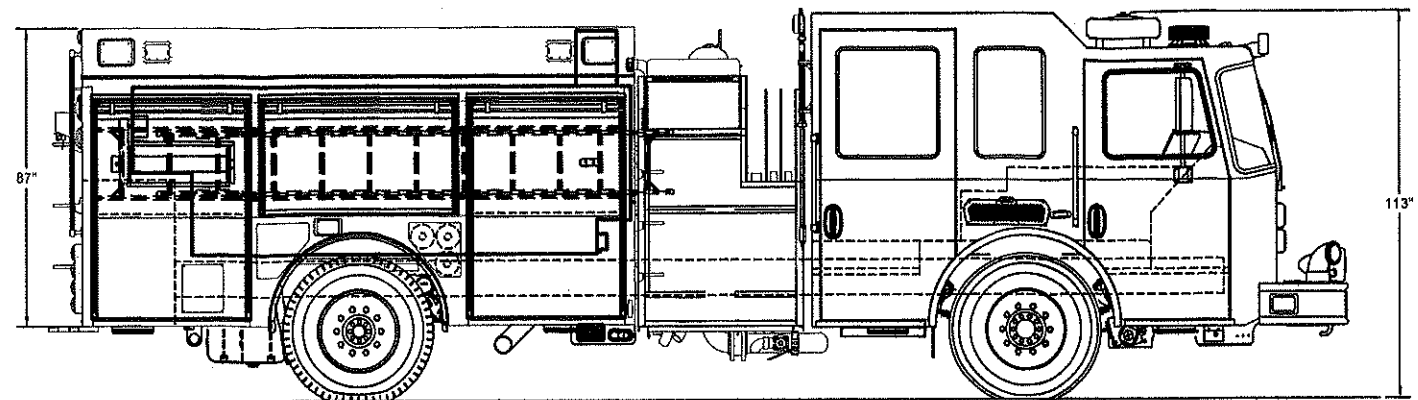
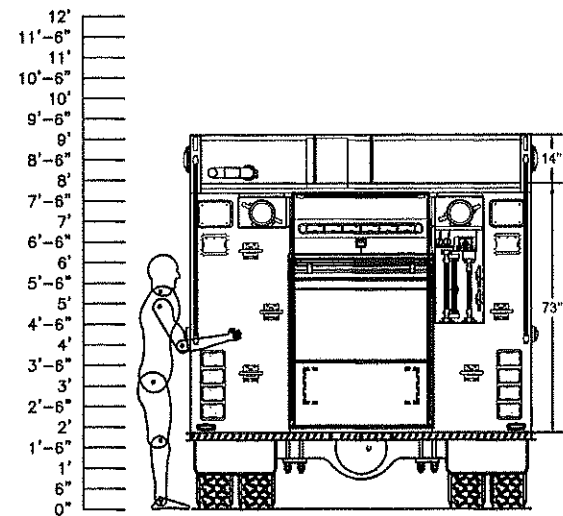
15.9.3.1.1 The stripe or combination of stripes shall be a minimum of 4 in. (100 mm) in total width.

15.9.3.1.2 The 4 in. (100 mm) wide stripe or combination of stripes shall be permitted to be interrupted by objects (i.e., receptacles, cracks between slats in roll up doors) provided the full stripe is seen as conspicuous when approaching the apparatus.

15.10 Hose Storage.

It is the responsibility of the purchaser to ensure that any hose storage area includes a positive means to prevent unintentional deployment in order to achieve compliance with the standard prior to placing it in service.

- 15.10.7 Any hose storage area shall be equipped with a positive means to prevent unintentional deployment of the hose from the top, sides, front, and rear of the hose storage area while the apparatus is underway in normal operations.



CAB: 100"W KME PANTHER MFD 10" RR
ENGINE & TRANS: CUMMINS L9 450 HP/ALLISON 3000 EVS
AXLES: 21,500# FRONT/27,000# REAR
PUMP: HALE QMAX-200 2,000 GPM SINGLE STAGE PUMP
WATER TANK: 1,000 GALLONS POLY
BODY TYPE: 162" CHALLENGER

THIS DRAWING IS A GENERAL
CONFIGURATION AND MAY NOT
NECESSARILY REFLECT ALL
CONTRACTUAL REQUIREMENTS.
CONTRACT SPECIFICATIONS SHALL
PREVAIL OVER DRAWING.

CUSTOMER APPROVAL:

NAME:

TITLE:

DATE:

SYM	DATE	REVISION DESCRIPTION	APP'D
B	1/16/2018	REVISED PROPOSAL	MJH
A	11/20/2017	REVISED PROPOSAL	MJH
SALES ENGINEER : TBD			

DIMENSIONS ARE APPROXIMATE & MAY VARY DUE TO BUILD ADJUSTMENTS			
SCALE	DWG SIZE	DRAWN BY	DATE
NONE	B	MJH	11/20/2017
APPROVED BY TBA			

CUSTOM PUMPER

BYRAM TWP. NJ

PROPOSAL DRAWING





One Industrial Complex – Nesquehoning, PA 18240
(800) 235-3928 [Phone] - (570) 669-5124 [Fax]
www.kovatch.com URL

KME FIRE APPARATUS
NEW PRODUCT WARRANTY
(Domestic Fire Service Sales)

Kovatch Mobile Equipment Corporation ("KME"), hereby warrants to the original purchaser (first end users) that any new products manufactured by KME shall be free from defects in material and workmanship under normal use, maintenance and service for a period of one (1) year from date of delivery, subject to the conditions and exceptions stated herein. Under this warranty, KME'S obligation is limited to the repair or replacement at KME'S option, at its factory, by its representative, or by its authorized service facility, of any part found to be defective by KME. If KME deems it necessary, all parts for which warranty claim is made, shall be returned to KME, transportation charges prepaid, for examination by KME who shall be the sole judge as to whether such part was defective in material or workmanship under normal use, maintenance or service.

THIS WARRANTY DOES NOT APPLY TO:

1. Any product or component which has been subjected to misuse, neglect, alteration, accident or lack of normal maintenance, or which has been operated above factory rated capacity.
2. Routine maintenance items; such as filters, belts and lights, and routine maintenance service, such as normal lubrication or proper adjustments.
3. Components manufactured by others that are warranted by the manufactures thereof to the original purchaser; such as, engines, tires, rims, ignition apparatus, horn or other signal devices, generators, batteries, speedometers, and other trade accessories.

THIS WARRANTY IS EXPRESSLY GRANTED IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

KME shall not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience.

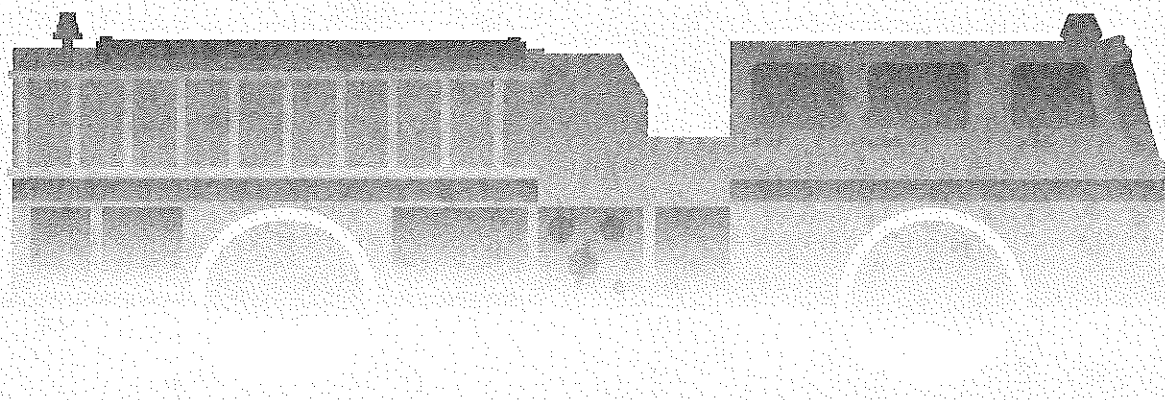
KME neither assumes nor authorizes any other person to make or assume for it any other obligation, liability, or warranty or to make any other representation on its behalf in connection with the sale or use of the new product covered by this warranty.

Legal Remedies: Any claim or controversy arising out of or relating to this limited warranty, or breach thereof, shall be settled by arbitration administered by the American Arbitration Association in Milwaukee, Wisconsin in accordance with the Commercial Arbitration Rules of the American Arbitration Association. The laws of the State of Wisconsin shall be applied in any arbitration proceedings, without regard to principles of conflict of law. Each party shall bear its own costs, fees and expenses of arbitration. The arbitrator(s) determination and the basis for that determination shall be in writing and shall include an explanation of the basis for the determination. The determination of the arbitrator(s) shall be final and binding and judgment upon such determination may be entered in any court having jurisdiction. The arbitration proceedings and arbitration award shall be maintained by the parties as strictly confidential, except as otherwise required by court order or as is necessary to confirm, vacate, or enforce the award and for disclosure in confidence to the parties' respective attorneys, tax advisors, or senior management personnel. Furthermore, any action for breach of warranty must be commenced within three months following the expiration of the warranty period.



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

Engines with an emissions certification listed below must be operated using only diesel fuel having no more than the corresponding maximum sulfur content. Failure to use the specified fuel (see also Cummins Fuel Bulletin #3379001) can damage the Engine and aftertreatment system within a short period of time. This damage could cause the Engine to become inoperable and failures attributable to the use of incorrect fuels will be denied Warranty Coverage.

Maximum sulfur levels by emissions certification level as listed on the Engine's dataplate are:

EPA 2007/2010/2013	max. 15 parts per million
EPA Tier 4 Interim / Final	max. 15 parts per million
EU Stage IIIB 2011	max. 15 parts per million
Euro 4/5	max. 50 parts per million
Euro 6	max. 10 parts per million

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 system could negatively effect emissions certification and void the 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** or Canada 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

Engines with an emissions certification listed below must be operated using only diesel fuel having no more than the corresponding maximum sulfur content. Failure to use the specified fuel (see also Cummins Fuel Bulletin #3379001) can damage the Engine and aftertreatment system within a short period of time. This damage could cause the Engine to become inoperable and failures attributable to the use of incorrect fuels will be denied Warranty Coverage.

Maximum sulfur levels by emissions certification level as listed on the Engine's dataplate are:

EPA 2007/2010/2013	max. 15 parts per million
EPA Tier 4 Interim / Final	max. 15 parts per million
EU Stage IIIB 2011	max. 15 parts per million
Euro 4/5	max. 50 parts per million
Euro 6	max. 10 parts per million

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 system could negatively effect emissions certification and void the Warranty.

Cummins is also not responsible for failures caused by incorrect oil, fuel or diesel exhaust fluid or by water, dirt or other contaminants in the fuel, oil or diesel exhaust fluid.

Cummins is not responsible for non-Engine repairs, "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs or other losses resulting from a Warrantable Failure.

**CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL
OR CONSEQUENTIAL DAMAGES.**

* Airport operated crash trucks and fire department operated trucks employed to respond to fires, hazardous material releases, rescue and other emergency-type situations.

** United States includes American Samoa, the Commonwealth of Northern Mariana Islands, Guam, Puerto Rico and the U.S. Virgin Islands.



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Columbus, IN 47202-3005
U.S.A.

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Allison Transmission
Division of General Motors Corporation

Important

“Participating OEM & Allison Distributor/Dealer Warranty Document Only”

The following warranty statement is for transmissions purchased by Participating OEMs (Original Equipment Manufacturers) and by Allison Transmission Distributor/Dealers. The term Participating means that the OEM participates in the warranty coverage provided by Allison Transmission and utilizes Allison Transmission authorized Distributor/Dealer network for warranty repairs.

In the event that an OEM is a Non-Participating OEM then the OEM provides the warranty to the customer by utilizing their own network for warranty repairs.

Please refer to your vehicle's operator/owner's manual and or selling vehicle dealer for powertrain coverage.

NEW PRODUCT WARRANTY



**PARTICIPATING OEM SALES
DISTRIBUTOR SALES**

LIMITED WARRANTY ON NEW ALLISON AUTOMATIC TRANSMISSIONS USED IN AUTOMOTIVE FIRE APPARATUS APPLICATIONS

Allison Transmission will provide for repairs or replacement, at its option, during the warranty period of each new Allison transmission listed below that is installed in an Automotive Fire Apparatus 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 Automotive Fire Apparatus and is provided to the original and any subsequent owner(s) of the vehicle during the warranty period.
- **REPAIRS COVERED** — The warranty covers repairs or replacement, at Allison Transmission's option, to correct any transmission malfunction resulting from defects in material or workmanship occurring during the warranty period. Needed repairs or replacements will be performed using the method Allison Transmission determines most appropriate under the circumstances.
- **TOWING** — Towing is covered to the nearest Allison Transmission Distributor or authorized Dealer only when necessary to prevent further damage to your transmission.
- **PAYMENT TERMS** — Warranty repairs, including parts and labor, will be covered per the schedule shown in the chart contained in section "APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE."
- **OBTAINING REPAIRS** — To obtain warranty repairs, take the vehicle to any Allison Transmission Distributor or authorized Dealer within a reasonable amount of time and request the needed repairs. A reasonable amount of time must be allowed for the Distributor or Dealer to perform necessary repairs.
- **TRANSMISSION REMOVAL AND REINSTALLATION** — Labor costs for the removal and re-installation of the transmission, when necessary to make a warranty repair, are covered by this warranty.
- **WARRANTY PERIOD** — The warranty period for all coverages shall begin on the date the transmission is delivered to the first retail purchaser, with the following exception:

Demonstration Service - A transmission in a new truck or bus may be demonstrated to a total of 5000 miles (8000 kilometers). If the vehicle is within this limit when sold to a retail purchaser, the warranty start date is the date of purchase. Normal warranty services are applicable to the demonstrating Dealer. Should the truck or bus be sold to a retail purchaser after these limits are reached, the warranty period will begin on the date the vehicle was first placed in demonstration service and the purchaser will be entitled to the remaining warranty.

APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE

APPLICABLE MODELS	WARRANTY LIMITATIONS (Whichever occurs first)		ADJUSTMENT CHARGE TO BE PAID BY THE CUSTOMER	
	Months	Transmission Miles Or Kilometers	Parts	Labor
MT, MD 3000, 3200, 3500, 3700	0-24	No Limit	No Charge	No Charge
HT with Hydraulic Controls	0-24	No Limit	No Charge	No Charge
AT, 1000 Series™, 2000 Series™, 2400 Series™	0-36	No Limit	No Charge	No Charge
HT with Electronic Controls	0-60	No Limit	No Charge	No Charge
HD 1000 EVS, 2100 EVS, 2200 EVS 2350 EVS, 2500 EVS, 2550 EVS, 3000 EVS, 3500 EVS, 4000, 4000 EVS, 4500, 4500 EVS, 4700 EVS 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
General Motors Corporation
P.O. Box 894
Indianapolis, IN 46206-0894
Attention: Warranty Administration 462-470-PF9
Form SE0616EN (200606)



One Industrial Complex – Nesquehoning, PA 18240
(800) 235-3928 [Phone] - (570) 669-5124 [Fax]
www.kovatch.com URL

COOLING SYSTEM WARRANTY
(Domestic Fire Service Sales)

Kovatch Mobile Equipment (KME) warrants all Cooling System Equipment components used in the construction of KME Fire Apparatus against defects 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 three (3) years from the date of delivery / acceptance to the original user-purchaser, whichever occurs first.

This warranty applies to both purchased and fabricated, manufacturer supplied, coolant system components, and is not provided in lieu of any Vendor provided warranties. All coolant system components provided by the engine manufacturer are covered by the engine manufacturer's warranty only.

THIS WARRANTY IS EXPRESSLY GRANTED IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

KME shall not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience

KME neither assumes nor authorizes any other person to make or assume for it any other obligation, liability or warranty or to make any other representation on its behalf in connection with the sale or use of the new product covered by this warranty.

Legal Remedies: Any claim or controversy arising out of or relating to this limited warranty, or breach thereof, shall be settled by arbitration administered by the American Arbitration Association in Milwaukee, Wisconsin in accordance with the Commercial Arbitration Rules of the American Arbitration Association. The laws of the State of Wisconsin shall be applied in any arbitration proceedings, without regard to principles of conflict of law. Each party shall bear its own costs, fees and expenses of arbitration. The arbitrator(s) determination and the basis for that determination shall be in writing and shall include an explanation of the basis for the determination. The determination of the arbitrator(s) shall be final and binding and judgment upon such determination may be entered in any court having jurisdiction. The arbitration proceedings and arbitration award shall be maintained by the parties as strictly confidential, except as otherwise required by court order or as is necessary to confirm, vacate, or enforce the award and for disclosure in confidence to the parties' respective attorneys, tax advisors, or senior management personnel. Furthermore, any action for breach of warranty must be commenced within three months following the expiration of the warranty period.



One Industrial Complex – Nesquehoning, PA 18240
(800) 235-3928 [Phone] - (570) 669-5124 [Fax]
www.kovatch.com URL

KME FIRE APPARATUS
CHASSIS LIFETIME FRAME WARRANTY
(Domestic Fire Service Sales)

KOVATCH MOBILE EQUIPMENT CORP. warrants to the original purchaser of a KME chassis that the frame and frame cross members are free of defects in material and workmanship for the lifetime of the vehicle, provided that the chassis is used in a normal and reasonable manner. KOVATCH MOBILE EQUIPMENT CORP'S obligation under this warranty is strictly limited to repairing or replacing, as KOVATCH MOBILE EQUIPMENT CORP. may elect, any part or parts of such frame or frame members which KOVATCH MOBILE EQUIPMENT CORP'S examination discloses to be defective in material or workmanship.

Any part or parts considered to be covered by the conditions of this warranty shall be returned, freight prepaid, to the Company's factory at Nesquehoning, Pennsylvania.

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

Chassis frame components damaged as a result of corrosion, including but not limited to exposure to salt, acidic material, or other damaging chemicals are not covered under this warranty.

Nothing contained in this warranty shall make KOVATCH MOBILE EQUIPMENT CORP. 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 chassis or frame.

To the extent permitted by law, THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED 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 KOVATCH MOBILE EQUIPMENT CORP., or the Seller, including liability for incidental and consequential damages.

KOVATCH MOBILE EQUIPMENT CORP. makes no representation that the chassis or frame has the capacity to perform any functions other than as contained in the Company's written literature, catalogs or specification accompanying delivery of the chassis.

No person or affiliated company representative is authorized to give any other warranties or to assume any other liability on behalf of KOVATCH MOBILE EQUIPMENT CORP. in connection with the sale, servicing or repair of any KME Chassis. KOVATCH MOBILE EQUIPMENT CORP. 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.

Legal Remedies: Any claim or controversy arising out of or relating to this limited warranty, or breach thereof, shall be settled by arbitration administered by the American Arbitration Association in Milwaukee, Wisconsin in accordance with the Commercial Arbitration Rules of the American Arbitration Association. The laws of the State of Wisconsin shall be applied in any arbitration proceedings, without regard to principles of conflict of law. Each party shall bear its own costs, fees and expenses of arbitration. The arbitrator(s) determination and the basis for that determination shall be in writing and shall include an explanation of the basis for the determination. The determination of the arbitrator(s) shall be final and binding and judgment upon such determination may be entered in any court having jurisdiction. The arbitration proceedings and arbitration award shall be maintained by the parties as strictly confidential, except as otherwise required by court order or as is necessary to confirm, vacate, or enforce the award and for disclosure in confidence to the parties' respective attorneys, tax advisors, or senior management personnel. Furthermore, any action for breach of warranty must be commenced within three months following the expiration of the warranty period.

HEAVY SERVICE WARRANTY INFORMATION

Heavy Service Vehicles

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

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 Meritor's warranty requires that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

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

FD-965	FG-941	MFS-6-162C	MFS-10-144A-N	MFS-13-155	MX-10-120	MX-23-160
FF-941	FG-943	MFS-7-113C-N	MFS-12-122	MFS-14-122	MX-12-120	MX-23-810
FF-942	FH-941	MFS-7-153C-N	MFS-12E-122	MFS-14-143A-N	MX-14-120	
FF-943	FH-946	MFS-7-163C-N	MFS-12-143A-N	MFS-16-122A-N	MX-16-120	
FF-944	FL-941	MFS-8-113B-N	MFS-12-144A-N	MFS-16-143A-N	MX-18-120	
FF-946	FL-943	MFS-8-153B-N	MFS-12-155	MFS-18-133A-N	MX-17-140	
FF-961	MFS-6-151A-N	MFS-8-163B-N	MFS-13-122	MFS-20-133A-N	MX-19-140	
FF-966	MFS-6-153B	MFS-10-122A	MFS-13-143A-N	RF-16-145	MX-21-140	
FF-967	MFS-6-162B	MFS-10-143A-N	MFS-13-144A-N	RF-21-160	MX-21-160	

Drivelines – 1/Unl/P&L

RPL	92N	MXL
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Rear Drive Single Axles – 2/Unl/P&L

MS-17-14X	RS-23-160	MS-30-616-SP
RS-17-144/145/A	RC-23-161	RS-30-185/380
MS-19-14X	RS-23-161	MS-35-380
RS-19-144	RS-23-186/380	RS-38-380
MS-21-114	RC-23-162	RC-25-160
MS-21-14X	RC-23-165	RC-26-633
RS-21-145	RS-24-160	MT-58-616
RS-21-145/A	RS-25-160	MT-58-616-SP
RS-21-160	MS-26-616	71162
RC-22-145	MS-26-616-SP	71163
RC-23-160	RS-26-185/380	79163
RH-23-160	MS-30-616	



HEAVY SERVICE WARRANTY INFORMATION

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

MT-34-14X/P	RT-44-145/P	MT-58-616	RZ-166
RT-34-144/P/A	RT-46-169	MT-58-616-SP	RZ-188
MT-40-14X/P	MT-52-616	RT-58-185/380 ^{1,2}	
RT-40-145/A	MT-52-616-SP	RT-70-380	
MT-44-14X/P	RT-52-185/380 ^{1,2}	MT-70-380	

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

² Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor 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 P	3/Unl/P
Cam P ³	2/100/P
Cam Cast Plus™	2/100/P&L
Q+ Drum Brake™	3/Unl/P&L
Q+ Drum Brake™ ²	2/100/P&L
ASA	3/Unl/P
ASA ²	2/100/P
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
EX+ Air Disc Brake	2/100/P&L

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 Meritor for all Heavy Service vocations is 1/100/P.

Transfer Cases – 1/Unl/P

MTC-4208	MTC-4213	T-2119
MTC-4210	T-2111	T-2120

Rear Drive Tandem – 3/Unl/P&L

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

¹ U.S. only. Canadian warranty = 1/Unl/P for combination vehicles only.

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

³ Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

Meritor Tire Inflation System by PSI

MTIS Components	3/500/P&L
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Trailer Air Suspension Systems

MTA (Trailing Arm)	
Major Structural Components ¹	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 ¹	5/Unl/P, 3/Unl/L

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

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

Center Non-drive Axles – 2/Unl/P&L

MC26000
71063
79063

Trailer Axles

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

¹ 9000 Series is 3/Unl/P, 1/Unl/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 Meritor.

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



TERMS AND CONDITIONS

Coverage Exclusions

Product Description

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 Meritor 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 Eaton.

ASA

Boot and bushing. Bent, broken, over-torqued, missing or otherwise damaged pawl assemblies.

Cam Brake

Brake lining wear and brake shoe "rust-jacking."

Disc Brake

Pad wear, rotor wear.

Coverage Limitations

Product Description

All

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program. Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

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 Meritor.

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 Meritor. If yoke is not installed by Meritor, then Meritor 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 Meritor.

Rear Axles

The Meritor® breather part number A-2297-C-8765 with A-3196-J-1336 hose 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 spider and camshaft structural integrity.

STEELite X30

Wearable life is up to the discard diameter of the drum.

Disc Brake

Warranty coverage for boots, seals, bushings and pins is 2/200/P. Warranty coverage for pads is 1/100/P.

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

TERMS AND CONDITIONS

(1) What is Covered by this Commercial Warranty?

Meritor 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 Meritor publication Maintenance Manual Number 1 and the applicable Meritor 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 Meritor through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the Meritor 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 Meritor directly. Failure to notify Meritor 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 Meritor as to the intended vocational use of the vehicle. This notification can be sent directly to Meritor 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 Meritor's warranty requires that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor 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 Meritor), (II) accident, natural disaster, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the axle and/or driveline 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 Meritor. 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 Meritor's option. Meritor reserves the right to require that all applicable failed materials are available and/or returned to Meritor 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 Meritor 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 Meritor 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 Meritor service location. The dealer will inspect the vehicle and contact Meritor for an evaluation of the claim. When authorized by Meritor, the dealer will repair or replace during the term of this warranty any defective Meritor component covered by this warranty.

(9) Entire Agreement.

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

Vehicle models, brands and names depicted herein are the property of their respective owners, and are not in any way associated with Meritor, Inc., or its affiliates.



Meritor Heavy Vehicle Systems, LLC
2135 West Maple Road
Troy, Michigan 48084 USA

For more information:
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or visit meritor.com

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HEAVY SERVICE (VOCATIONAL) WARRANTY INFORMATION

Heavy Service Vehicles

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

Heavy Service Typically Is

- On/Off road vocations (10% or more off-road) OR
- Moderate to frequent starts/stops typically more than three (3) stops per mile

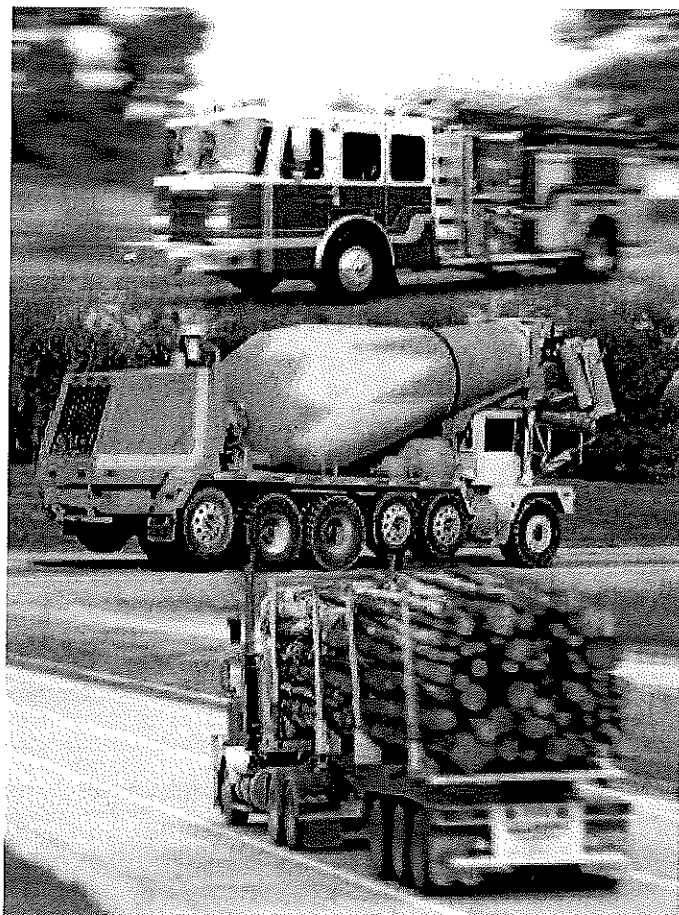
Meritor WABCO Components¹

ABS (Anti-Lock Braking System) Air	3/300/P&L
ABS (Anti-Lock Braking System) Hydraulic	2/200/P&L
Electronic Braking System (EBS)	3/300/P&L
Electronic Stability Control (ESC)	3/300/P&L
Roll Stability Control (RSC)	3/300/P&L
Air Dryers (ALL)	1/100/P&L
Leveling Valves	1/100/P&L
Air Brake Valves	1/100/P&L
Emission Valves (SCR)	2/200/P&L
Clutch Controls	2/200/P&L
Air Compressors (ALL) ²	1/100/P&L
OnGuard™	3/300/P&L
OnLane™ Lane Departure Warning	3/300/P&L
Blind Spot Detection	3/300/P&L
OptiRide™	2/200/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 ³	1/Unl/P&L, 4/400/P
Trailer ABS Valve with Control Line Filter ³	3/300/P&L, 4/400/P

¹ WABCO and Meritor WABCO branded components.

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 An extended warranty of 4/400/P will be applied when a Meritor WABCO Trailer Control Line Filter is used in combination with a Meritor WABCO Trailer ABS valve.



TERMS AND CONDITIONS

Coverage Exclusions

Product Description

All

The cost of any repairs, replacements or adjustments to a covered product due to the following: (1) damage to the product or its component parts caused by incorrect use, installation, maintenance or repair, including without limitation (a) improper fit of mating components or brackets, (b) damaged threads, (c) cut, broken, chafed, pinched or otherwise damaged wiring (sensors, harnesses and connectors), (d) damaged sensors from removal when seized in block, or associated with sensor adjustments/alignments, and (e) damage resulting from the use or installation of non-genuine Meritor WABCO components or materials; (2) damage to the product or its component parts caused by incorrect operation contrary to Meritor WABCO's approved conditions or misapplication; (3) any unauthorized disassembly of the product or its component parts including without limitation (a) obliterated, defaced or missing WABCO or Meritor WABCO name plate, serial numbers or label identifying the device as a Meritor WABCO product or WABCO component, (b) changes to sealed adjusting screws, and (c) opening or attempted repair of non-serviceable components; (4) malfunction of the component due to internal contamination out of the vehicle system including without limitation (a) water and other contamination damage that is due to the use of a non-genuine air dryer cartridge or (b) valve failures due to contamination in air system, (5) complaints associated with noise, (6) damage resulting from corrosion (including oxidation of electrical devices and connections).

Air Dryers

Mounting brackets (see vehicle OEM). Desiccant cartridge housing only.

Air System Components

Normal wear items; Gladhand seals, dash valve knobs, valve actuation handles, treadles, pedals.

ABS, Electronic Stability Control (ESC), Roll Stability Control (RSC), OptiRide™, OnGuard™ and OnLane™, collectively "Electronics"

Failure of electronic components due to overvoltage condition, improper grounding, electrostatic discharge (ESD), improper shielding, electromagnetic interference (EMI), or other wiring or installation issues.

Malfunctions and failure codes caused by other electronic subsystem failures (data bus, engine, transmission, dashboard, etc.)

Hydraulic Components

For certain components, brake fluid DOT3 or DOT4 is used as the operating medium. Use of any other fluid will void all warranties associated with that component. For hydraulic braking applications the brake fluid is considered a maintenance item. Maintenance intervals are listed in TB-1367.

Coverage Limitations

Product Description

All

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program.

Products purchased on an incomplete vehicle (glider) are limited to one year, 1/Unl/P.

For vehicles that operate full- or part-time outside of the United States and Canada, a 1-Year/Unlimited Miles parts only (1/Unl/P) will apply.

TOOLBOX™ Software

Proper diagnostics of Meritor WABCO Electronics may require the latest version of TOOLBOX™. Additional labor due to use of an outdated version of TOOLBOX™, time to purchase or install latest version of TOOLBOX™ are not covered under product warranty.

TERMS AND CONDITIONS

(1) What is Covered by this Commercial Warranty?

Meritor WABCO Vehicle Control Systems 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 will be free from defects in material and workmanship. This warranty coverage begins from the original in-service date to the limits provided and runs concurrently with any warranties provided by OEMs and/or any service contracts that cover the components listed in this publication, if any. If the components listed in this publication are covered by an OEM warranty and/or service contract, then the OEM's warranty and/or service contract shall supersede Meritor WABCO's warranty and Owner shall comply with all OEM's warranty and/or service contract requirements for claims under such OEM's warranty and/or service contract until those agreements expire. Once those agreements expire and provided the Meritor WABCO warranty has not expired under the terms stated above, the Meritor WABCO warranty would be in effect until its expiration date.

Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed previously in this publication. Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Additional diagnostic time due to use of an outdated version of TOOLBOX™, time to purchase or install latest version of TOOLBOX™ are the responsibility of the authorized Meritor WABCO service location and are not covered under product warranty. Components installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

(2) Designation of Vocational Use Required.

To obtain warranty coverage, each Owner must notify Meritor WABCO through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the Meritor WABCO components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with Meritor WABCO directly. Failure to notify Meritor WABCO 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 Meritor WABCO as to the intended vocational use of the vehicle. This notification can be sent directly to Meritor WABCO 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 Meritor WABCO's warranty requires that the application of products be properly approved pursuant to OEM and Meritor WABCO, approvals.

(3) What is the Cost of this Warranty?

There is no charge to the Owner for this warranty.

(4) What is not Covered by this Warranty?

In addition to the items listed on page 7, this warranty does not cover normal wear and tear, or service items; nor does it cover a component that fails, malfunctions or is damaged as a result of

(a) improper handling, storage, installation, adjustment, repair or modification including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by Meritor WABCO, (b) accident, fire or other casualty, natural disaster, road debris, negligence, misuse, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the brake system capacity), or (c) improper or insufficient maintenance (including deviation from maintenance intervals, approved lubricants, or lube levels). This warranty does not cover any component or part that is not sold by Meritor WABCO.

(5) Remedy.

The exclusive remedy under this warranty shall be the repair or replacement of the defective component at Meritor WABCO's option. Meritor WABCO reserves the right to require that all applicable covered components are available and/or returned to Meritor WABCO for review and evaluation.

(6) DISCLAIMER OF WARRANTY.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS, IMPLIED OR STATUTORY INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. SOME STATES LIMIT OR DO NOT ALLOW THE DISCLAIMER OF IMPLIED OR OTHER WARRANTIES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO THE EXTENT SUCH STATE'S LAW IS APPLICABLE TO THESE TERMS.

(7) LIMITATION OF REMEDIES.

IN NO EVENT SHALL MERITOR WABCO 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, LOST PROFITS, COSTS OF PROCUREMENT OF A SUBSTITUTE COMPONENT OR ANY OTHER LOSSES OR COSTS RESULTING FROM A COVERED COMPONENT. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO THE EXTENT SUCH STATE'S LAW IS APPLICABLE TO THESE TERMS.

(8) TIME LIMIT ON COMMENCING LEGAL ACTION.

ANY LEGAL ACTION OR CLAIM ARISING FROM OR RELATED TO THIS WARRANTY, IN CONTRACT OR OTHERWISE, MUST BE COMMENCED WITHIN ONE YEAR FROM THE ACCRUAL OF THAT CAUSE OF ACTION, OR BE BARRED FOREVER.

(9) 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 Meritor WABCO 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 Meritor WABCO service location. The dealer will inspect the vehicle and contact Meritor WABCO for an evaluation of the claim. When authorized by Meritor WABCO, the dealer will repair or replace during the term of this warranty any defective Meritor WABCO component covered by this warranty.

(10) Entire Agreement.

This is the entire agreement between Meritor WABCO and the Owner about warranty and no Meritor, Meritor WABCO employee, or dealer is authorized to make any additional warranty on behalf of Meritor WABCO unless in writing and signed by an authorized representative of Meritor WABCO.



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KME FIRE APPARATUS
NEW SHEET METAL CAB WARRANTY
(Domestic Fire Service Sales)

KME FIRE APPARATUS DIVISION of KOVATCH MOBILE EQUIPMENT CORP., ("KME") hereby warrants to the original purchaser (first end user) that any new fire apparatus cab manufactured by KME shall be free from structural defects under normal use, maintenance, or service for a period of ten (10) years from date of delivery, subject to the conditions and exceptions stated herein. Under this warranty, KME'S obligation is limited to the repair or replacement at KME'S option, at its factory, by it's representative, or by its authorized service facility, of any structural part of the fire apparatus cab found to be defective by KME. For purposes of this warranty, fire apparatus cab is defined as all sheet metal and welds.

THIS WARRANTY DOES NOT APPLY TO:

1. Hinges, door latches, bolt-on items or accessories or other items that are not an integral part of the cab itself.
2. Any part or component which has been subjected to misuse, abuse, neglect, alteration, or lack of normal maintenance.
3. Components that may be manufactured by others and that are warranted by the manufacturers thereof to the original purchaser.
4. Cab components damaged as a result of corrosion, including but not limited to exposure to salt, acidic material, or other damaging chemicals.

THIS WARRANTY IS EXPRESSLY GRANTED IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

KME shall not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience.

KME neither assumes nor authorizes any other person to make or assume for it any other obligation, liability or warranty or to make any other representation on its behalf in connection with the sale or use of the new product covered by this warranty.

Legal Remedies: Any claim or controversy arising out of or relating to this limited warranty, or breach thereof, shall be settled by arbitration administered by the American Arbitration Association in Milwaukee, Wisconsin in accordance with the Commercial Arbitration Rules of the American Arbitration Association. The laws of the State of Wisconsin shall be applied in any arbitration proceedings, without regard to principles of conflict of law. Each party shall bear its own costs, fees and expenses of arbitration. The arbitrator(s) determination and the basis for that determination shall be in writing and shall include an explanation of the basis for the determination. The determination of the arbitrator(s) shall be final and binding and judgment upon such determination may be entered in any court having jurisdiction. The arbitration proceedings and arbitration award shall be maintained by the parties as strictly confidential, except as otherwise required by court order or as is necessary to confirm, vacate, or enforce the award and for disclosure in confidence to the parties' respective attorneys, tax advisors, or senior management personnel. Furthermore, any action for breach of warranty must be commenced within three months following the expiration of the warranty period.



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KME FIRE APPARATUS
NEW SHEET METAL BODY WARRANTY
(Domestic Fire Service Sales)

KME FIRE APPARATUS DIVISION of KOVATCH MOBILE EQUIPMENT CORP., ("KME") hereby warrants to the original purchaser (first end user) that any new fire apparatus body manufactured by KME shall be free from structural defects under normal use, maintenance, or service for a period of ten (10) years from date of delivery, subject to the conditions and exceptions stated herein. Under this warranty, KME'S obligation is limited to the repair or replacement at KME'S option, at its factory, by it's representative, or by its authorized service facility, of any structural part of the fire apparatus body found to be defective by KME. For purposes of this warranty, fire apparatus body is defined as all sheet metal and welds.

THIS WARRANTY DOES NOT APPLY TO:

1. Hinges, door latches, bolt-on items or accessories or other items that are not an integral part of the body itself.
2. Any part or component which has been subjected to misuse, abuse, neglect, alteration, or lack of normal maintenance.
3. Components that may be manufactured by others and that are warranted by the manufacturers thereof to the original purchaser.

THIS WARRANTY IS EXPRESSLY GRANTED IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

KME shall not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience.

KME neither assumes nor authorizes any other person to make or assume for it any other obligation, liability or warranty or to make any other representation on its behalf in connection with the sale or use of the new product covered by this warranty.

Legal Remedies: Any claim or controversy arising out of or relating to this limited warranty, or breach thereof, shall be settled by arbitration administered by the American Arbitration Association in Milwaukee, Wisconsin in accordance with the Commercial Arbitration Rules of the American Arbitration Association. The laws of the State of Wisconsin shall be applied in any arbitration proceedings, without regard to principles of conflict of law. Each party shall bear its own costs, fees and expenses of arbitration. The arbitrator(s) determination and the basis for that determination shall be in writing and shall include an explanation of the basis for the determination. The determination of the arbitrator(s) shall be final and binding and judgment upon such determination may be entered in any court having jurisdiction. The arbitration proceedings and arbitration award shall be maintained by the parties as strictly confidential, except as otherwise required by court order or as is necessary to confirm, vacate, or enforce the award and for disclosure in confidence to the parties' respective attorneys, tax advisors, or senior management personnel. Furthermore, any action for breach of warranty must be commenced within three months following the expiration of the warranty period.



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KME Fire Apparatus 10 Year Corrosion Limited Warranty

KME Fire Apparatus provides to the original owner a rustproofing warranty for a period of ten (10) years on new fire apparatus that is operated for non-commercial purposes, provided the owner to whom this warranty is issued follows the "Customer Responsibilities" set forth below. This warranty commences on the date of application of rustproofing material, and is non-transferable. The apparatus is warranted against rust perforation from the inside out (rust through) of any covered area(s). KME will at its discretion either (1) repair, or (2) replace the rusted through covered area(s).

CUSTOMER RESPONSIBILITIES:

1. **Inspections.** Customer shall have the apparatus inspected once a year by an authorized KME service provider. Records of such inspections shall be kept and presented to KME upon demand.
2. **Damage to Fire Truck.** If the fire truck is involved in a collision or other incident that damages the rustproofing application, the owner must notify KME within thirty (30) days of such occurrence. If notice is not given, then this warranty shall automatically become null and void. If KME is notified as required, KME will inspect the vehicle, and if KME determines it necessary in order to continue this warranty, KME will perform either partial or complete reapplication of the rust preventative material at the then-current rates to be charged to the customer.
3. **Rust-through Claims Procedure.** In the event of rust through during the term of this warranty, the customer must notify KME within thirty (30) days of the first notice of rust. Conformance by the customer with the thirty (30) day notice requirement will be judged by KME on the basis of the extent of damage resulting from rust-through. If, in the opinion of KME, the rust-through is substantially larger than that which could have reasonably occurred within thirty (30) days of the first notice of rust-through, no such claim will be valid under this warranty. Further, in no event shall a claim be considered timely if made later than the last day of the term of this warranty.

EXCLUSIONS:

Service provided by KME or its authorized representative under this warranty does not include the following:

- A. Repair or replacement of exhaust systems, which are not covered.
- B. Repair or replacement of any parts damaged by rusting through, if such repair or replacement was performed before obtaining KME's authorization in writing.
- C. This warranty does not apply to exterior surface or cosmetic rust, rust caused by external damage from any cause, such as dents, scratches, chipped paint, etc.
- D. Repair or replacement of parts damaged by rusting through on any fire truck whose owner does not present us with copies of inspection records showing that all required inspections have been timely performed.
- E. Repair or replacement of parts damaged by rusting through if such parts were repaired or replaced because of rust damage and such parts were not treated with rust preventative compound within thirty (30) days of repair or replacement.
- F. This limited warranty applies only to exterior body and cab paint. Paint on the vehicle's undercarriage, cab and body interior is warranted only under the KME proposed general warranty.
- G. Those areas within the vehicle that are foam or caulk filled.

DISCLAIMER OF IMPLIED WARRANTIES:

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. Some states do not allow disclaimers of or limitations on duration of implied warranties, so these limitations may not apply to you.

INCIDENTAL AND CONSEQUENTIAL DAMAGES EXCLUDED:

The customer shall not be entitled to recover from KME, its successors or assigns, any consequential damages to property, damages for loss of use, loss of time, loss of profits or income, or any other incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Legal Remedies: Any claim or controversy arising out of or relating to this limited warranty, or breach thereof, shall be settled by arbitration administered by the American Arbitration Association in Milwaukee, Wisconsin in accordance with the Commercial Arbitration Rules of the American Arbitration Association. The laws of the State of Wisconsin shall be applied in any arbitration proceedings, without regard to principles of conflict of law. Each party shall bear its own costs, fees and expenses of arbitration. The arbitrator(s) determination and the basis for that determination shall be in writing and shall include an explanation of the basis for the determination. The determination of the arbitrator(s) shall be final and binding and judgment upon such determination may be entered in any court having jurisdiction. The arbitration proceedings and arbitration award shall be maintained by the parties as strictly confidential, except as otherwise required by court order or as is necessary to confirm, vacate, or enforce the award and for disclosure in confidence to the parties' respective attorneys, tax advisors, or senior management personnel. Furthermore, any action for breach of warranty must be commenced within three months following the expiration of the warranty period.



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STATEMENT OF WARRANTY

10-YEAR LIMITED PAINT AND PERFORATION

KME (the "Company") warrants each new fire and rescue apparatus during the warranty period, when used in normal and reasonable manner. All apparatus shall be warranted against peeling, cracking, blistering and corrosion. This warranty shall provide for repair or replacement at KME's option, any claim in accordance with the following terms and conditions.

WHAT IS COVERED

- **WARRANTY APPLIES** - This warranty is for all new fire and rescue apparatus manufactured by KME and is extended only to the original user-purchaser. The warranty registration must be received by KME within 30 days of the in-service for the warranty to apply.
- **REPAIRS COVERED** -The warranty covers repair or replacement at KME's option. Repairs shall be made at a KME owned service facility or another approved service facility at KME's option.
- **OBTAINING REPAIRS** -The original user-purchaser must notify KME in writing within 30 days 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 TEN YEARS. Corrosion perforation is defined as complete penetration through the exterior metal of the apparatus. The following percentages apply:

<u>Topcoat & Appearance</u> Gloss, Color Retention, Cracking	<u>Coating System, Adhesion & Corrosion</u> Includes Dissimilar Metal Corrosion, Flaking, Blistering, Bubbling
0-72 Months 100%	0 To 36 Months 100%
73 To 120 Months 50%	37 To 84 Months 50%
	85 To 120 Months 25%

NOTES:

- Under carriage, cab and body interiors are covered under our standard one year warranty.
- Demonstration vehicles sold to an end user will have the full warranty, if sold within one year of demonstration service, and will be prorated if sold after the first year.

WHAT IS NOT COVERED

- ✓ Any cab not manufactured by KME.
- ✓ Damage caused by fire, misuse, negligence or accident.
- ✓ Damage caused by theft, vandalism, riot or explosion.
- ✓ Damage caused by lightning, earthquake, windstorm, hail, flood or use in an acidic environment (such as de-icing compounds, road salts and acid rain).
- ✓ Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of KME.
- ✓ Damage from lack of, maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the KME maintenance manual).
- ✓ Gold leaf or striping except that which is affected by repair (Gold Leaf or striping must have been installed during manufacturing to be covered under this limited warranty).
- ✓ Loss of time, loss of use of the product, inconvenience, lodging, food or other consequential or incidental loss that may result from a failure.

Legal Remedies: Any claim or controversy arising out of or relating to this limited warranty, or breach thereof, shall be settled by arbitration administered by the American Arbitration Association in Milwaukee, Wisconsin in accordance with the Commercial Arbitration Rules of the American Arbitration Association. The laws of the State of Wisconsin shall be applied in any arbitration proceedings, without regard to principles of conflict of law. Each party shall bear its own costs, fees and expenses of arbitration. The arbitrator(s) determination and the basis for that determination shall be in writing and shall include an explanation of the basis for the determination. The determination of the arbitrator(s) shall be final and binding and judgment upon such determination may be entered in any court having jurisdiction. The arbitration proceedings and arbitration award shall be maintained by the parties as strictly confidential, except as otherwise required by court order or as is necessary to confirm, vacate, or enforce the award and for disclosure in confidence to the parties' respective attorneys, tax advisors, or senior management personnel. Furthermore, any action for breach of warranty must be commenced within three months following the expiration of the warranty period.



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KME FIRE APPARATUS
10-STAINLESS STEEL PLUMBING WARRANTY
(Domestic Fire Service Sales)

Kovatch Mobile Equipment (KME) warrants all KME manufactured stainless steel plumbing components used in the construction of KME 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 only to the original user-purchaser for a period of ten years from the date of delivery.

THIS WARRANTY IS EXPRESSLY GRANTED IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

KME shall not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience.

KME neither assumes nor authorizes any other person to make or assume for it any other obligation, liability or warranty or to make any other representation on its behalf in connection with the sale or use of the new product covered by this warranty.

Legal Remedies: Any claim or controversy arising out of or relating to this limited warranty, or breach thereof, shall be settled by arbitration administered by the American Arbitration Association in Milwaukee, Wisconsin in accordance with the Commercial Arbitration Rules of the American Arbitration Association. The laws of the State of Wisconsin shall be applied in any arbitration proceedings, without regard to principles of conflict of law. Each party shall bear its own costs, fees and expenses of arbitration. The arbitrator(s) determination and the basis for that determination shall be in writing and shall include an explanation of the basis for the determination. The determination of the arbitrator(s) shall be final and binding and judgment upon such determination may be entered in any court having jurisdiction. The arbitration proceedings and arbitration award shall be maintained by the parties as strictly confidential, except as otherwise required by court order or as is necessary to confirm, vacate, or enforce the award and for disclosure in confidence to the parties' respective attorneys, tax advisors, or senior management personnel. Furthermore, any action for breach of warranty must be commenced within three months following the expiration of the warranty period.



One Industrial Complex – Nesquehoning, PA 18240
(800) 235-3928 [Phone] - (570) 669-5124 [Fax]
www.kovatch.com URL

KME FIRE APPARATUS
NEW PRODUCT WARRANTY
(Domestic Fire Service Sales)

Kovatch Mobile Equipment Corporation ("KME"), hereby warrants to the original purchaser (first end users) that any new products manufactured by KME shall be free from defects in material and workmanship under normal use, maintenance and service for a period of one (1) year from date of delivery, subject to the conditions and exceptions stated herein. Under this warranty, KME'S obligation is limited to the repair or replacement at KME'S option, at its factory, by its representative, or by its authorized service facility, of any part found to be defective by KME. If KME deems it necessary, all parts for which warranty claim is made, shall be returned to KME, transportation charges prepaid, for examination by KME who shall be the sole judge as to whether such part was defective in material or workmanship under normal use, maintenance or service.

THIS WARRANTY DOES NOT APPLY TO:

1. Any product or component which has been subjected to misuse, neglect, alteration, accident or lack of normal maintenance, or which has been operated above factory rated capacity.
2. Routine maintenance items; such as filters, belts and lights, and routine maintenance service, such as normal lubrication or proper adjustments.
3. Components manufactured by others that are warranted by the manufactures thereof to the original purchaser; such as, engines, tires, rims, ignition apparatus, horn or other signal devices, generators, batteries, speedometers, and other trade accessories.

THIS WARRANTY IS EXPRESSLY GRANTED IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

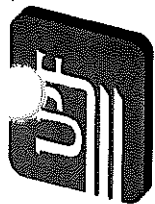
KME shall not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, down time, loss of use or inconvenience.

KME neither assumes nor authorizes any other person to make or assume for it any other obligation, liability, or warranty or to make any other representation on its behalf in connection with the sale or use of the new product covered by this warranty.

GSO# _____

Vin. #: _____

UNITED PLASTIC FABRICATING, INC.



WARRANTY

FOR: POLY-TANK®, POLYSIDE®, INTEGRATOR™, ELLIPSE™, ELLIP-T-TANK™ & DEFENDER™

LIFETIME SERVICE WARRANTY

United Plastic Fabricating, Inc. (hereinafter called "UPF") warrants each POLY-TANK®, Booster/Foam Tank POLYSIDE® Wetside Tank, Integrator Tank/Body, ELLIPSE™ Elliptical Tank, Ellip-T-Tank Tank and DEFENDER™ Skid Tank to be free from defects in material and workmanship for the service life of the original vehicle (vehicle must be actively used in an emergency response for fire suppression). All UPF Tanks must be installed and operated in accordance with the UPF Installation and Operating Guidelines. Failure to do so can void the warranty.

Every UPF Tank is inspected and tested before leaving our facility. Should your UPF Tank require service, please notify UPF via email, fax, in writing or by calling UPF at 1-978-975-4520. Please provide the serial number, a description of the service request, the location along with the phone number and name of the contact person. Our goal is to have scheduled work completed within a reasonable time period.

Under a valid warranty claim, UPF will cover the cost to repair the UPF Tank including the customary and reasonable costs to make the tank accessible such as the removal and reinstallation of the tank if authorized in advance (pre-approved) by UPF. The warranty will not cover tanks that have been improperly installed, operated, misused, abused, or modified from its intended or designed use. Serial number must not have been altered, defaced or removed. Tanks that are not stored or installed properly which results in the tank suffering UV damage will not be covered by this agreement.

Should UPF determine that the service claim is valid under this warranty for a tank located outside of the United States and Canada, UPF will assume the costs for labor and material for the warranty repair as described above plus all travel costs to the U.S. port of embarkation. Costs for airline travel outside of the U.S. and Canada will not be the responsibility of UPF.

In the event the tank shall become stationed in an area of the world that is considered to be a war zone or where unsafe conditions exist for the safe passage of United States Nationals, as reported by the United States Department of State, (<http://www.state.gov>), and a request to perform service or warranty repairs, UPF reserves the right to refuse to honor such requests. It is the purchaser's responsibility to relocate the tank to an area where such repairs can be performed without undue risk to UPF employees or their designee. UPF will make every reasonable effort to support our products through alternative means.

For Ellipse™ elliptical tanks, a separate five year warranty provided by the subcontractor is applied to the sub-frames, chute linings (rubber isolation strips) and metal components. The stainless steel wrap provided by UPF shall be warranted by the subcontractor performing the wrap installation in accordance with their warranty in place at the time of the installation. UPF will not be liable for any warranty costs associated with the wrap, sub-frames, chute linings (rubber isolation strips) and metal components but will assist with all claims on behalf of its customer.

For PolySide® wetsided tanks and Integrator™ Tank/Body units, all polypropylene components related to the tank shall carry the standard UPF lifetime

Continued on back



UNITED PLASTIC FABRICATING, INC.

WARRANTY

FOR: POLY-TANK®, POLYSIDE®, INTEGRATOR™, ELLIPSE™, ELLIP-T-TANK™ & DEFENDER™

service warranty. Other polypropylene components, including but not limited to compartments, wheel wells, fenders and other body related components shall be warranted by UPF for a period of ten years. The warranty for the PolySide® and Integrator™ units excludes paint or hardware, which shall be covered by the manufacturer of the paint/hardware.

All UPF tanks 50 gallons or less utilized for non-fire applications and installed on specialty vehicles such as ATVs, trailers, boats, etc. are covered under a separate warranty policy available from UPF. Further, UPF Protector™ foam and water trailers are warranted under a separate warranty policy available from UPF.

This UPF warranty is transferable within the United States only with prior written approval by UPF (except an original apparatus manufacturer may assign this warranty to the first titled owner/lessee of the apparatus).

UPF will NOT reimburse any unnecessary work and/or work that has not been pre-approved. Any and all third party charges must be pre-authorized and approved in writing by UPF prior to commencing the work. Any unauthorized third party repairs, alterations, actions or modifications will not be covered and can void the warranty. UPF will be the sole determining authority as to whether a service claim will be valid and covered under this warranty.

In no event will UPF be liable for an amount in excess of the purchase price of the booster/foam tank at the time of manufacture or for any loss or damage, whether direct, indirect, incidental, consequential, or otherwise arising out of failure of its product. Loss of contents (water, foam, etc.) shall not be the responsibility of UPF. Further, UPF is not responsible for costs associated with service repairs to chassis, sub-frames, bodies, valves, dumps, hoses, pressure vacuum vents, and other components (i.e. liquid level transducers, etc.). Further, UPF will not cover the cost for travel of the vehicle to and from a repair facility.

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 cancelled. UPF 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.

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 or 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.

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 OBLIGATION OR LIABILITIES ON THE PART OF UPF.

POLY-TANK®, POLYSIDE® are registered trademarks of UPF, Inc. INTEGRATOR™, ELLIPSE™, ELLIP-T-TANK™ & DEFENDER™ are trademarks of UPF, Inc. © 08/01/09 UPF, Inc. Printed in the USA



Warranty Statement

Effective October 18, 2013

Subject to the following general and specific terms and conditions, Hale Products, Inc. ("Seller") hereby warrants to the original Purchaser¹ that Products sold under Hale and Class 1 brands will be free of defects in material and workmanship for the applicable Warranty Period. General terms and conditions applicable for all Products are set forth under the heading **General Terms and Conditions** below. Product specific terms and conditions, including Warranty Periods and Warranty Coverages, are set forth in the Tables following the **General Terms and Conditions**.

General Terms and Conditions

The following limitations, exclusions, procedures and other terms and conditions shall apply for all Products:

Warranty is voided if:

- Product is used for an application, with products or in a manner other than the application, products and manner for which such Product is designed and intended
- Product is subjected to a use, service, condition or environment other than a use, service, condition or environment for which such Product is designed and intended
- Product is not properly installed
- Product is not properly tested and maintained in accordance with Seller's product manuals and supplemental instructions and guidelines, applicable industry standards and guidelines, and applicable legal and regulatory requirements
- Product is altered, modified, serviced (except routine maintenance performed in accordance with Seller's instruction manual for Product and Industry accepted standards and guidelines), or repaired by a person other than Seller or a person authorized by Seller to make such alteration or modification or perform such service or repair
- Seller is not paid the full amount of the purchase price for Product when due.

No Warranty covers:

- Ordinary wear and tear
- Failure due to compliance with a specification or design provided or required by Purchaser
- Failure due to improper operation, excess pressure, excess voltage or other similar cause
- Failure due to operator error
- Damage during or after shipment and failure attributable thereto or resulting there from
- Failure attributable to or resulting from the failure or substandard, inadequate or improper performance of any part, component or equipment not supplied by Seller
- Failure attributable to or resulting from the failure or substandard, inadequate or improper performance of any third party (e.g., not Hale or Class 1 brand) part, component, product or equipment, whether or not combined, packaged, incorporated, installed or used with a Hale or Class 1 brand part, component, product or equipment.

Seller shall have no obligation under any Warranty unless Purchaser promptly notifies Seller of the failure giving rise to the Warranty claim, such notice is received by Seller within the applicable Warranty Period, and Seller is provided with such information, data and records (including, but not limited to, in service date, run hours, and service and repair records) as Seller may reasonably request in evaluating the Warranty claim. The notice of failure must be given in writing, identify the Product claimed to be defective (including serial number, if any), and describe in reasonable detail the circumstances surrounding the failure.

Repaired Product and replacement Product shall be warranted only for the remainder of the original Warranty Period.

¹ The "original Purchaser" is the original purchaser from Hale Products, whether the original purchaser is a distributor, dealer or other reseller, an OEM, or an end user.



Warranty Statement

Effective October 18, 2013

Seller reserves the right to use reconditioned parts for Warranty repairs and to use reconditioned Products for Warranty replacements.

Seller shall have the right to physically inspect Product claimed to be defective. If requested by Seller, Purchaser shall deliver the Product claimed to be defective to Seller at its manufacturing facility or to another party or location designated by Seller. In such event, Seller shall issue to Purchaser a Return Materials Authorization (RMA) for the Product to be delivered. The Product must be delivered to Seller within 30 days of issuance of the RMA. The RMA number must be included with the Product when delivered to Seller. Failure to make timely delivery to Seller of the Product claimed to be defective shall void any Warranty.

Purchaser or its customer shall be responsible for all freight and shipping charges in connection with the delivery of Product claimed to be defective to Seller at its manufacturing facility or to another party or location designated by Seller and the delivery of repaired or replacement Product or parts to Purchaser. Product claimed to be defective must be shipped by Purchaser freight prepaid. Repaired and replacement Product and parts therefor will be shipped to Purchaser freight collect. Purchaser shall bear all risk of loss or damage during shipment.

If requested to do so by Purchaser, Seller may, at its sole option and in its sole discretion, supply a replacement Product or part to Purchaser prior to making a final determination as to whether Warranty Coverage is available. If Seller ultimately determines that no Warranty Coverage is available for the Product claimed to be defective, whether the determination is based on the Warranty being voided, the Product failure being due to a cause not covered by the Warranty, the failure to make a timely and proper Warranty claim, or otherwise, Purchaser or its customer will be required to purchase the replacement Product or part that has been supplied to it by Seller at the price at which Purchaser is then entitled to purchase such Product or part under the Supply Agreement.

If Seller ultimately determines that no Warranty Coverage is available for a Product claimed to be defective, whether the determination is based on the Warranty being voided, the Product failure being due to a cause not covered by the Warranty, the failure to make a timely and proper Warranty claim, or otherwise, Purchaser shall have the option of either (i) having the Product returned to it freight collect, without repair or replacement, or (ii) if Seller determines that the Product is repairable, have the Product repaired by Seller or another party designated by it on a time and materials basis at Seller's then current standard charges for non-warranty repairs and then returned to Purchaser freight collect.

SELLER'S WARRANTY AS SET FORTH HEREIN IS SELLER'S SOLE AND EXCLUSIVE WARRANTY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT ALL OF WHICH OTHER WARRANTIES ARE EXPRESSLY EXCLUDED.

THE RIGHTS AND REMEDIES SET FORTH HEREIN ARE THE SOLE AND EXCLUSIVE RIGHTS AND REMEDIES AGAINST SELLER. EXCEPT FOR THE SPECIFIC LIABILITIES AND OBLIGATIONS PROVIDED HEREIN, SELLER SHALL HAVE NO LIABILITY OR OBLIGATION WITH RESPECT TO ANY PRODUCT CLAIMED TO BE DEFECTIVE IN ANY MANNER.

UNDER NO CIRCUMSTANCES SHALL SELLER BE LIABLE FOR SPECIAL, INCIDENTAL, INDIRECT, CONSEQUENTIAL OR PUNITIVE DAMAGES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, LOST OR UNREALIZED SALES, REVENUES, PROFITS, INCOME, COST SAVINGS OR BUSINESS, LOST OR UNREALIZED CONTRACTS, LOSS OF GOODWILL, DAMAGE TO REPUTATION, LOSS OF PROPERTY, LOSS OF INFORMATION OR DATA, LOSS OF PRODUCTION, DOWNTIME, OR INCREASED COSTS, IN CONNECTION WITH ANY PRODUCT, EVEN IF SELLER IS ADVISED OR PLACED ON NOTICE OF THE POSSIBILITY OF SUCH DAMAGES AND NOTWITHSTANDING THE FAILURE OF ANY ESSENTIAL PURPOSE OF ANY PRODUCT.



Warranty Statement

Effective October 18, 2013

Hale Products, Inc.			
Product Specific Warranty Terms and Conditions			
(October 18, 2013)			
Product*		Warranty Period	Coverage**
Pumps Mid-Ship, Rear Mount, and Booster (Excludes all Engine Driven Units)	Non-Marine Fire Service Applications	Earlier of (i) 5 years from in service date of vehicle or equipment in which Product is initially installed, or (ii) 5-1/2 years from date of shipment of Product to original Purchaser.	Repair or replacement of Product that Seller determines failed during Warranty Period due to a defect in material or workmanship. At time pump is ordered, original Purchaser may take Standard Warranty at no charge or purchase Extended Warranty for an additional charge which will be quoted by Seller at original purchaser's request at time of order. Under Standard Warranty, Seller will cover parts and labor for first 2 years of Warranty Period and parts only (no labor) for remainder of the Warranty Period. Under Extended Warranty (if purchased by original Purchaser), Seller will cover parts and labor for the full Warranty Period. When labor is covered, original Purchaser will be reimbursed at Seller's then current standard labor hours and rates for labor to make repair (if not repaired by Seller) and to remove defective Product and re-install repaired or replacement Product. Seller's approval of repair estimate is required prior to performance of repair work. If applicable, actual mileage will be reimbursed at Seller's then current mileage reimbursement rate.
	Marine and Other Applications	Earlier of (i) 2 years from the date of shipment of Product to original Purchaser, or (ii) 2,000 run hours.	Repair or replacement of Product that Seller determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
Engine Driven Units (Excluding Engines ***)	Pump Ends Backpacks Floats	If not used for rental or contracting, 2 years from the date of shipment of Product to original Purchaser.	Repair or replacement of Product that Seller determines failed during Warranty Period due to a defect in material or workmanship. Repair labor is included but any other labor (including removal and re-installation) and mileage are excluded. Original Purchaser will be reimbursed at Seller's then current standard labor hours and rates for labor to make repair (if not repaired by Seller). Seller's approval of repair estimate is required prior to performance of repair work.
		If not used for rental or contracting, 2 years from the date of shipment of Product to original Purchaser.	Repair or replacement of Product that Seller determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
	HP Portables	If not used for rental or contracting, 3 years from the date of shipment of Product to original Purchaser	Repair or replacement of Product that Seller determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
		If used for rental or contracting, earlier of (i) 6 months from date of shipment to original Purchaser, or (ii) 1,000 run hours.	Repair or replacement of Product that Seller determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
	Cross-Chassis Skids Trailer Units	Earlier of (i) 12 months from date of shipment to original Purchaser, or (ii) 1,000 run hours.	Repair or replacement of Product that Seller determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.





Warranty Statement

Effective October 18, 2013

Hale Products, Inc.			
Product Specific Warranty Terms and Conditions			
(Month Day, Year)			
Product*		Warranty Period	Coverage**
Pump Modules Pump Body Weldments, Stainless Manifolds, and Fabricated Panels		10 years from the date of shipment of Product to original Purchaser.	Repair or replacement of Product that Seller determines failed (including cracks resulting from stress and rust through of panels) during Warranty Period due to a defect in material or workmanship. No labor is included. Pump modules are built to original Purchaser's specification or design. Although individual Hale and Class 1 brand components used for pump modules comply with NFPA standards, pump modules are not NFPA compliant. Original Purchaser is solely responsible for (i) ensuring finished pump houses are NFPA compliant and adhere to industry accepted standards and guidelines, and (ii) supplying manuals that include appropriate directions, instructions and warnings concerning pump house operation.
Foam CAFS Systems, FoamLogix Proportioners, and EZ Fill		1 year from the date of shipment to original Purchaser.	Repair or replacement of Product that Seller determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
Pump Repair & Replacement Parts		90 days from date of shipment of Product to original Purchaser.	Repair or replacement of Product that Seller determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
Pressure Gauges		3 years from date of shipment of Product to the original Purchaser.	Repair or replacement of Product that Seller determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
Plumbing		2 years from date of shipment of Product to original Purchaser.	Repair or replacement of Product that Seller determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
Valves	SVS "Torrent" Valves	10 years from date of shipment of Product to original Purchaser on everything except seal. 2 years from date of shipment of Product to original Purchaser on seal.	Repair or replacement of Product that Hale determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
	Hale Valves	10 years from date of shipment of Product to original Purchaser on everything except seal. No warranty on seal.	Repair or replacement of Product that Seller determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
Electronics		2 years from date of shipment of Product to original Purchaser.	Repair or replacement of Product that Seller determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.

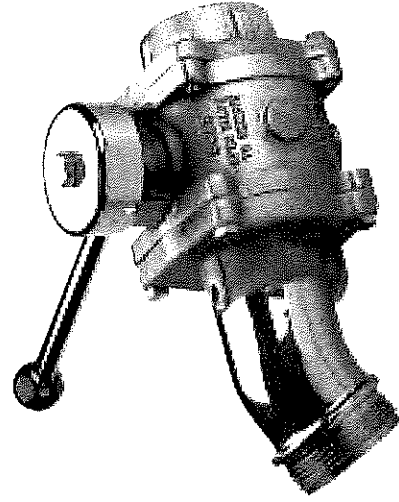
*When Products are combined to form a module or package, each Product will have its own separate Warranty Period and Warranty Coverage

** For each Product, Seller will have the option to refund to Purchaser (in cash or by credit) the purchase price Seller was paid for such Product, less depreciation determined on a straight line basis over the Warranty Period, in lieu of repair or replacement (including, when applicable, labor). The decision whether to repair, replace or refund (and, if there is a refund, whether to refund in cash or by credit) shall be made by Seller in its sole discretion.

*** Seller makes no warranty with respect to engines. Any warranty with respect to engines is limited to whatever warranty may be provided by the engine manufacturer.

AKRON BRASS 10 YEAR WARRANTY ON HEAVY DUTY SWING-OUT™ VALVES

Akron Brass warrants Heavy Duty Swing-Out Valves for a period of ten (10) years after purchase against defects in material or workmanship. Akron Brass will repair or replace any Heavy Duty Swing-Out Valve which fails to satisfy this warranty. Repair or replacement shall be at the discretion of Akron Brass. Electrical components shall carry our standard five (5) year warranty. We will not be responsible for: wear and tear; any improper installation, use or maintenance; 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.



**HEAVY
DUTY**
Swing-Outs
Proven Performance Trusted By Firefighters
For Over Half a Century

 **AKRON**
BRASS COMPANY
An ISO 9001: 2000 Registered Company

H.O. Bostrom Co., Inc.

FireFighter Series

Seat Limited Warranty

Five Year

H.O. Bostrom Company, Inc., Hereinafter called HOBCO, warrants each new seat manufactured by it to be free from defects in materials, (except for the misuse of upholstery materials), and workmanship when delivered to the original purchaser. HOBCO's sole obligation under this warranty is limited to and shall be fully discharged by repairing, or at its option, replacing free of charge at its factory or any authorized service center, such parts which shall prove to HOBCO's satisfaction to be defective within a period of five years from date of delivery to the original purchaser. However, no removal or reinstallation labor will be provided or paid for, or allowance given therefor under the provision of this warranty. Also no transportation will be paid or allowance given therefor under this warranty.

This warranty shall be considered void if recommended maintenance procedures are not followed, if the seat has been altered, modified or changed in any manner that would affect serviceability or if the seat has been negligently used or misused by the purchaser or user.

This warranty is in lieu of all other warranties, expressed or implied, including, without limitation, warranties of merchantability and fitness for a particular purpose, all other representations to the original purchaser, and all other obligations or liabilities, including liability for incidental and consequential damages on the part of HOBCO.

H.O. Bostrom Company
818 Progress Avenue
Waukesha, WI 53186

effective 1/1/98