

Document A310™ – 2010

Conforms with The American Institute of Architects AIA Document 310

Bid Bond

CONTRACTOR:

(Name, legal status and address)

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

SURETY:

(Name, legal status and principal place of business)

RLI Insurance Company
9025 N. Lindbergh Drive
Peoria, IL 61615

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

OWNER:

(Name, legal status and address)

Lexington-Fayette Urban County Government
200 East Main Street, Room 338
Lexington, KY 40507

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

BOND AMOUNT: \$ 5%

Five Percent of Amount Bid

PROJECT:

(Name, location or address, and Project number, if any)

Bid #139-2017 Tanker Pumper for the Division of Fire & Emergency Services - Supply One (1) Custom Tanker Pumper

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 30th day of October, 2017

(Witness)

(Witness)

Vogelpohl Fire Equipment, Inc.

(Principal)

(Seal)

By:

(Title)

RLI Insurance Company

(Surety)

(Seal)

By:

(Title) Kayla Woodward Attorney-in-Fact





RLI Surety
 9025 N. Lindbergh Dr. | Peoria, IL 61615
 Phone: (800)645-2402 | Fax: (309)689-2036
 www.rlicorp.com

POWER OF ATTORNEY

RLI Insurance Company

Know All Men by These Presents:

That this Power of Attorney is not valid or in effect unless attached to the bond which it authorizes executed, but may be detached by the approving officer if desired.

That **RLI Insurance Company**, an Illinois corporation, does hereby make, constitute and appoint:

Lisa A. McAleenan, Anne M. Gliedt, Kevin E. McDaniel, Stephanie L. Klearman, DeAnna M. Maurer, Kayla Woodward, Mark R. Duggan, jointly or severally

in the City of Saint Louis, State of Missouri its true and lawful Agent and Attorney in Fact, with full power and authority hereby conferred, to sign, execute, acknowledge and deliver for and on its behalf as Surety, the following described bond.

Any and all bonds provided the bond penalty does not exceed Twenty Five Million Dollars (\$25,000,000.00).

The acknowledgment and execution of such bond by the said Attorney in Fact shall be as binding upon this Company as if such bond had been executed and acknowledged by the regularly elected officers of this Company.

The **RLI Insurance Company** further certifies that the following is a true and exact copy of the Resolution adopted by the Board of Directors of **RLI Insurance Company**, and now in force to-wit:

"All bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or Agents who shall have authority to issue bonds, policies or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile."

IN WITNESS WHEREOF, the **RLI Insurance Company** has caused these presents to be executed by its Vice President with its corporate seal affixed this 4th day of May, 2017.



RLI Insurance Company

By: B. W. Davis
 Barton W. Davis Vice President

State of Illinois }
 County of Peoria } SS

CERTIFICATE

On this 4th day of May, 2017, before me, a Notary Public, personally appeared Barton W. Davis, who being by me duly sworn, acknowledged that he signed the above Power of Attorney as the aforesaid officer of the **RLI Insurance Company** and acknowledged said instrument to be the voluntary act and deed of said corporation.

I, the undersigned officer of **RLI Insurance Company**, a stock corporation of the State of Illinois, do hereby certify that the attached Power of Attorney is in full force and effect and is irrevocable; and furthermore, that the Resolution of the Company as set forth in the Power of Attorney, is now in force. In testimony whereof, I have hereunto set my hand and the seal of the **RLI Insurance Company** this 30 day of October, 2017.

By: Gretchen L. Johnigk
 Gretchen L. Johnigk Notary Public

RLI Insurance Company

By: B. W. Davis
 Barton W. Davis Vice President





Vogelpohl Fire Equipment, Inc.

2770 Circleport Drive

Erlanger, KY 41018

800-797-8317 859-272-1000 859-272-1550 fax

October 30, 2017

Lexington-Fayette Urban County Government
Central Purchasing
200 E. Main St. Rm 338
Lexington, KY 40507

Gentlemen,

Thank you for the opportunity to submit this bid for your fire department tanker pumper needs.

We have enclosed our proposal for an E-ONE Custom Tanker Pumper with a 1000 GPM Hale MG Pump, 3030 gallon Water Tank, and a heavy-duty Extruded Aluminum Body, mounted on an E-ONE Cyclone Custom Fire Apparatus Chassis. We have included pricing per your request, requested forms and submissions, and detailed specifications as to the construction of the apparatus bid.

E-ONE, Inc. is a leading worldwide designer, manufacturer and marketer of fire rescue vehicles with more than 23,000 vehicles in operation around the world. Headquartered in Ocala, Florida, E-ONE manufactures custom and commercial pumpers and tankers, aerial ladders and platforms, rescues of all sizes, quick attack units, industrial trucks, and aircraft rescue firefighting vehicles to meet the needs of fire departments, rescue/EMS squads, airports and Homeland Security agencies. Vogelpohl Fire Equipment, Inc., Erlanger Kentucky, is the local E-ONE dealer, who will be responsible for meeting all your sales and service requirements.

As you evaluate the proposals you receive, we would welcome the opportunity to meet with you and representatives of the fire department to discuss our proposal in detail and to answer any questions and concerns. While E-ONE may not be the lowest bid received, we hope that you will recognize the design, construction, durability, and service that make us one of the best values in the industry today, and worthy of your business.

Again, we thank you for considering us for your fire apparatus needs, and we look forward to hearing from you.

Sincerely,

Kevin Kleman
Vice President, Vogelpohl Fire Equipment, Inc.
E-ONE Dealer Representative

Lexington Fire Department
OPTIONS AND ALTERNATES
 Proposal for: Custom Tanker/Pumper

| Description | Add or (Delete) |
|--|-----------------|
| ISX12 450 hp with EVS4000 transmission, 1810 drivelines, 20k front axle with 425 tires, roof mounted AC condenser painted cab color, in place of L9 450 engine, EVS3000 transmission, 1710 drivelines, 18.7k front axle with 385 tires, radiator mounted AC condenser. | \$29,520 |
| ISX12 500 hp with EVS4000 transmission, 1810 drivelines, 20k front axle with 425 tires, roof mounted AC condenser painted cab color, in place of L9 450 engine, EVS3000 transmission, 1710 drivelines, 18.7k front axle with 385 tires, radiator mounted AC condenser. | \$30,920 |
| Paint Chassis Job Color (Red) in place of standard chassis black | \$1,810 |
| Change R1 Compartment to Full Height | \$2,210 |
| Delete 4.5" direct rear tank fill w/handwheel | (\$2,490) |
| Delete 4.5" direct rear tank fill Fireman's Friend | (\$2,160) |
| Change Officer Side LDH to 4" discharge w/3" handwheel valve | (\$900) |
| Change Officer Side LDH to 3" discharge w/3" handwheel valve | (\$1,170) |
| Change Rear Tank Gauge to Whelen PS Tank in place of IC10 | (\$230) |
| Change Traffic Advisor to Whelen TAL65, 36" in place of custom M2 Traffic Advisor | (\$1,210) |
| | |
| Compartment Shelves and Trays - to add to or delete from Base Bid Configuration | |
| Permanent Shelf, ea, | \$119 |
| Adjustable Shelf, 16-26" deep compt, ea, | \$291 |
| Adjustable Shelf, up to 15.99" deep compt, ea, | \$149 |
| Shelf Tracks, per set, full depth. | \$226 |
| Shelf Tracks, per set, upper only. | \$116 |
| Tray, out/down, 250#, adjustable, ea. | \$1,676 |
| Tray, 500#, adjustable, ea. | \$1,136 |
| Tray, 500#, floor mounted, ea. | \$792 |
| Toolboard, pull-out, adjustable, 500#ea. | \$1,041 |
| Toolboard, heavy-duty swing out, ea. | \$1,830 |
| Partition, bolt-in, fixed, ea | \$263 |
| | |
| | |
| | |
| | |



VOGELPOHL FIRE EQUIPMENT, INC
 2770 Circleport Dr.
 Erlanger, KY 41018
 800-797-8317
 10/30/2017

PRE-PAYMENT OPTIONS

Cyclone Tanker/Pumper - Lexington-Fayette Urban County Government

Prepayment Options

The price bid assumes no payment until delivery and acceptance of completed fire apparatus. For a full or partial prepayment the following discounts are available:

| | |
|------------------------------|-----------------|
| 100% Prepayment | \$15,332 |
| 75% Prepayment | \$11,419 |
| 50% Prepayment | \$7,613 |

Discounts shown are based on the bid amount of \$561,330 and delivery time of 330 days.

The 100% prepayment discount is based upon type of apparatus, content, and contract price. It is subject to adjustment by E-One based upon final contract amount, with discounted payment due with contract submission.

For partial prepayments, actual discount will be calculated at 3% simple interest annual rate from the day funds are received at E-One until the apparatus is ready for shipment at the factory, and applied as a deduct on the final invoice.

| Customer Specification | E-One Bid Proposal |
|---|--|
| Pg. 2 – Delivery | Delivery will be 360-390 days, defined as date apparatus is complete and ready for customer inspection at the manufacturer's plant. \$500 per day penalty effective after 390 days. Pg. 2 |
| Pg. 3 – Safety Video | Safety video is available for viewing on-line. |
| Pg. 3 – Acceptance Test | Per NFPA maximum speed for apparatus exceeding 50,000 GVW is 60 mph. |
| Pg. 10 – OAH max. 9' 5" | Overall height of E-One unit is 10' 2" +/- 2" (empty) |
| Pg. 10 – OAL max. 33' | Overall length of E-One unit is 33' 11". |
| Pg 11 – Frame Assembly 2,800,000 RBM | Total RBM of E-One frame unit is 3,161,400. |
| Pg. 11 – Chassis Paint Red | Frame unit on E-One chassis is fully galvanized then painted chassis black. If job color paint (red) is desired, add \$1,810 to the Base Bid price. |
| Pg. 13 – Rear Axle 46,000# | Rear axle on E-One chassis is 48,000# |
| Pg. 13 – Driver Controlled Differential Both Rear Axles | Driver controlled differential on tandem axle is provided on rear axle only. |
| Pg. 14 – Front Tires 4.25. | Front tires with 18,700 front axle are standard at 385 with a rating of 22,000#. If 425 tires are desired, add \$200 to the base bid. |
| Pg. 27 – Starter w/backup circuit. | Back-up start circuit is not available from E-One. According to E-One chassis engineering, the cause of the intermittent start issue has been identified and a solution has been implemented in production. A field fix is also being addressed, and the necessity for the primary and backup should not be necessary. They believe attempting a backup system could induce more problems than it would solve. |
| Pg. 31 – Stirrup Steps Rear Cab | Recessed rear step wells are provided each side of the cab in the rear, same as the new Lexington R1. |
| Pg. 34 – Engine Tunnel Mounting Plate. | Base bid includes new large E-One engine tunnel tray with cup-holders per E-One specification. |
| Pg. 46-47 – Compartments | Compartment number, size, location will be as listed in detailed E-One specifications included with the bid and as shown on the drawing. |
| Pg. 49 – Adjustable Shelves | Shelves included in the base bid are listed in the detailed E-One specifications included with the bid. Option pricing to add/delete individual shelves are listed on the Options quote. |
| Pg. 52 – Pump to tank 3.5". | To meet the required flow of 1000 gpm from tank to pump, valve will be 4" as listed in detailed E-One specifications included with the bid. Due to the under tank mounting of the pump panel, valve will be air operated. |

LIST OF CLARIFICATIONS AND EXCEPTIONS

Proposal for: Custom Tanker Pumper

| Customer Specification | E-One Bid Proposal |
|--|--|
| Pg. 54 – Hose Bed Access Ladder | With (2) 4” tank fills, rear discharges, the under-tank hard suction storage, and rear lighting, there is not sufficient space to locate a rear ladder. E-One body as proposed has beavertails with recessed LED lighted folding steps each side of the tailboard. |
| Pg. 59 – Pump Shift Override | Pump shift override is not available on a PTO pump. |
| Pg. 61-62 – Discharges | Specified discharges are included in the Base Bid. E-One is also providing a 2.5” driver side rear discharge and a 2” officer side rear discharge. These are required to meet NFPA requirement for (2) pre-connected handlines on a pumper. |
| Pg. 75 – Weldon LED Pump Panel Lights. | Pump panel lights will be (3) TecNiq E10 LED lights each side, providing a brighter, more rugged light than the Weldon LED light used previously. |
| Pg. 76 – Guardian Back Up System. | Guardian Back Up System is not available from E-One. Base bid includes a CAS-4HW rear obstacle detection and proximity system from Collision Avoidance Systems, per detailed E-One specifications included with the bid. |

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Vogelpohl Fire Equipment, Inc.

2770 Circleport Dr.
Erlanger, KY 41018
(859) 282-1000 (859) 282-1550 Fax

FIRE APPARATUS PROPOSAL

TO: Lexington-Fayette Urban County Government DATE: Oct. 30, 2017

Gentlemen:

Vogelpohl Fire Equipment, Inc. hereby proposes to furnish you, subject to your acceptance of this proposal and proper signing and execution of a mutually agreeable contract by the parties hereto, the apparatus and appurtenances herein described and for the following price(s) listed below:

One (1) E-One Custom Tanker Pumper with a 1000 gpm Hale MG Pump, 3030 gallon Water Tank, and a heavy-duty Extruded Aluminum Body, mounted on an E-One Cyclone Custom Chassis. Price below includes all equipment in the base specifications.

For the sum of:

Five Hundred Sixty One Thousand Three Hundred Thirty Thousand Dollars . \$ 561,330.00

Price quoted does not include any Federal, State, or Local Taxes unless such taxes are itemized above.

Delivery 360-390 Calendar Days. Delivery and Acceptance Lexington, KY.

Terms of Payment: *All apparatus shall be paid Net Upon Delivery and Acceptance at Purchaser's Location.*

All apparatus and appurtenances shall be manufactured in accordance with the attached specifications, with the same specifications becoming a part of the contract. Delivery shall be made within the time specified below after receipt and acceptance by E-One of the properly signed and executed contract. The delivery time indicated is based on the best delivery knowledge available at this time. Delivery shall be contingent upon delays or failure to delivery from our suppliers, delays caused by or resulting from labor problems, component shortages, strikes, fire, flood, accidents, any other acts of God, or any other circumstances which are beyond the control of this corporation.

All prices or quotations are subject to change or withdrawal unless accepted within 90 Days from the date of bid opening.

BY: _____
Todd Vogelpohl

TITLE: *President*
E-One Dealer Principal



Fire Apparatus Quotation for: LEXINGTON FAYETTE URBAN CO GOVT



Quotation Number: 78448 Rev: 86

Unit Description: TTSA-CYC2

Quote Description: Tanker, Tandem Axle, Side Mount, Cyclone II

Salesperson: K KLEMAN

| Salescode | Extended Description | Qty | |
|------------------------------------|--|-----|---|
| TESTING COMPLIANCE STANDARD | | | |
| 1001-0065 | The E-ONE supplied components of the vehicle shall meet the requirements of NFPA 1901, 2016 edition. | 1 | |
| 3090-0002 | OAH. Unit has no overall height restrictions. | 1 | |
| 3090-0004 | OAL. Unit has no overall length restrictions. | 1 | |
| 3090-0006 | The hose bed is to have the capacity for the following hose. Hose load shall be listed from driver to officer. | 1 | Lay 1 - 300 ft. of 2.50 DJ Lay 2 - 300 ft. of 5.00 LDH Lay 3 - 400 ft. of 1.75 DJ Estimated Weight - 661 lbs. |
| 3340-1137 | Equipment allowance on the apparatus shall be 2000 lbs. This allowance is in addition to the weight of the hoses and ground ladders listed in the shop order as applicable. | 1 | |
| BUMPERS | | | |
| 1160-0000 | Bumper 10" stainless steel. | 1 | |
| 1160-0011 | 4" Front Bumper Extension. | 1 | |
| FRAME ASSEMBLY | | | |
| 1250-0080 | Frame assembly with 10.25 x 3.5 x .375 powder coated galvanized rails. | 1 | |
| 1250-0083 | Frame liner 9.375 x 3.125 x .375, galvanized and powder coated. | 1 | |
| 1250-0085 | Front chassis frame extensions, crossmembers and battery brackets shall be zinc plated (galvanized) IPOS. Includes rear subframe if applicable (urban interface, straight frame 4x4, etc). | 1 | |
| 1250-0092 | GEOMET coated frame assembly fasteners. | 1 | |
| AXLE OPTIONS | | | |
| 1025-0005 | Meritor FL-941 front axle 18,700 lb. | 1 | |
| 1025-0021 | Meritor RT-46-160 rear tandem axle 48,000 lb. capacity. | 1 | |

| Salescode | Extended Description | Qty |
|----------------------|--|-----|
| 1025-0027 | Driver controlled rear differential. | 1 |
| 1025-0028 | Koni shock absorbers for front axle - adjustable. | 1 |
| 1025-0030 | Stemco oil seal front axle. Chicago Rawhide seal with Stemco sight glass will be supplied when front disc brakes are selected. | 1 |
| SUSPENSIONS | | |
| 1070-0022 | Rear suspension FIREMAAX EX model FMX-482 air ride rated equal to the capacity of the axles (40-48K). Requires TB modification on 4-jack aerials. (Raises OAH .5" over springs) | 1 |
| WHEEL OPTIONS | | |
| 1050-0007 | Front axle wheel trim kit. Includes stainless steel lug nut covers (chrome plated plastic if applicable) and center cap with E-ONE logo. Note: Center cap will have an inspection port IPO a logo if equipped with Stemco oil seals. | 1 |
| 1050-0009 | Rear axle (tandem) wheel trim kit. Includes stainless steel lug nut covers (chrome plated plastic if applicable) and center caps with E-ONE logo. E-ONE custom chassis w/steel wheels will have chrome plated plastic lug covers. | 1 |
| 1050-0018 | Each inside wheel of the tandem rear axles shall have valve stem extensions. | 1 |
| 1050-0044 | Accuride aluminum wheels for front axle (2). | 1 |
| 1050-0046 | Accuride aluminum wheels for rear axles (8). | 1 |
| TIRE OPTIONS | | |
| 1060-0021 | Eight Michelin 11R rear tires with XDN2 all weather tread. | 1 |
| 1060-0119 | RWC AirGuard LED tire pressure monitoring valve stem caps (10) for tandem rear axle applications. | 1 |
| 1060-0155 | Two Michelin 385 tires model X MULTIWAY HD XZE for front axle. | 1 |
| BRAKE SYSTEMS | | |
| 1100-0001 | Meritor EX225H 17" disc brakes for front axle. | 1 |
| 1100-0006 | Parking brake release mounted on the driver's side lower dash. | 1 |
| 1100-0008 | Brake system air 6X4. | 1 |
| 1100-0014 | ArvinMeritor 16-1/2" x 7" S-cam brakes with cast brake drums for a tandem rear axle. | 1 |
| 1100-0020 | Compression fittings for all air brake system lines. Includes cab interior air lines as applicable. | 1 |
| 1100-0026 | G4 Electronic Stability Control (6x4), Includes RSC and ATC. Not available on 6x6 or commercial chassis. | 1 |
| BRAKE SYSTEMS | | |
| 1100-0043 | Emergency park brake activation valve mounted on the officer's side dash with | 1 |

| Salescode | Extended Description | Qty |
|------------------------------------|--|-----|
| | stainless steel guard. | |
| AIR SYSTEM OPTIONS | | |
| 1110-0000-001 | Inlet for air system. Location: driver door jamb. | 1 |
| 1110-0003 | Air dryer System Saver 1200. | 1 |
| 1110-0004 | Air tank drains w/pull cords. | 1 |
| 1110-0006 | Air lines nylon. | 1 |
| 1110-0027 | Isolated air tank. Includes pressure protection valve. | 1 |
| 1110-0041 | Air horns Grover recessed in bumper (PR). | 1 |
| 1110-0043 | Auxiliary air tank to be plumbed to the following optional accessories (if equipped): Chassis air horns, brake system air outlet, air reel, light tower, air primer and or customer/dealer supplied pneumatic add-on(s). | 1 |
| 1110-0096 | Stainless steel mounting straps for air tank. | 4 |
| ENGINES & TRANSMISSIONS | | |
| 1200-0017 | Push-button transmission shift selector. | 1 |
| 1200-0020 | TransSynd synthetic transmission fluid for EVS3000. | 1 |
| 1200-0096 | Electronic speed limiting set at 60 MPH. | 1 |
| 1200-0341 | Eng/Trans Cummins L9 450HP/EVS3000 2017 EPA compliant engine. | 1 |
| SECONDARY BRAKING | | |
| 1125-0019 | Driveline Mounted Telma Retarder. Stage 1 & 2 applied off throttle; stage 3 & 4 applied with brake application. | 1 |
| EXHAUST OPTIONS | | |
| 1225-0024 | Plymovent Grabber magnetic exhaust end. Bolt-on for exhaust extraction system. | 1 |
| COOLING PACKAGE | | |
| 1800-0013 | Cooling system for use with Cyclone II X, Typhoon X, and Quest chassis. For use with 2010 - 2017 EPA engines. Includes coolant recovery system. | 1 |
| FUEL SYSTEMS | | |
| 1350-0009 | Fuel line hose braided. Includes fuel pick-up (if applicable). | 1 |
| 1350-0012-E69 | Fuel shut-off valve. Location: one (1) inlet side of fuel/water separator. | 1 |
| 1350-0013 | Racor fuel/water separator to be a bottom drop out style. Shall include indicator light and audible alarm. | 1 |
| 1350-0037 | Fuel system w/65 gallon stainless steel tank. | 1 |
| 1350-0041 | Fuel line service loop for tank maintenance. 4' loop coiled above fuel tank(s). | 1 |

| Salescode | Extended Description | Qty |
|--------------------------|---|-----|
| ALTERNATOR | | |
| 1700-0021 | Alternator Niehoff 360 amp (360 amp SAE/320 NFPA rating). Available only on ISL. | 1 |
| BATTERIES | | |
| 1400-0002 | Battery four group 31 1000 CCA. | 1 |
| CHASSIS OPTIONS | | |
| 1680-0005 | Thermatic fan clutch. | 1 |
| 1680-0006 | Drivelines 1710. | 1 |
| 1680-0008 | Tow eyes front painted below bumper/cab (PR). | 1 |
| 1680-0011 | Tow eyes rear below body, painted. | 1 |
| 1680-0187 | On-Spot tire chain installation. Requires pre-wire option located in Cab Electrical. Requires engineering review and approval if less than 176" WB. | 1 |
| 1680-0250-M58 | Diesel Exhaust Fluid (DEF) 5 gallon tank for 2013 / 2016 EPA engines. Location: left side below rear of cab. | 1 |
| 1680-0284 | Radiator mounted power steering cooler. | 1 |
| 1680-0373 | On-Spot Brass Cap upgrade option. | 1 |
| CAB MODEL | | |
| 1520-0087 | Cyclone II X short cab 2 door with 44.5" ca. Includes transverse compartment at rear of cab above the front axle accessible from both sides. The compartment is approx 48.5" wide x 44.25" high x the width of the cab. | 1 |
| CAB ROOF TYPE | | |
| 1615-0010 | Cab roof to be "flat" (non-vista). | 1 |
| CAB BADGE PACKAGE | | |
| 1610-0000 | Cab and body to have applicable E-ONE logos. | 1 |
| CAB DOOR OPTIONS | | |
| 1550-0015 | Stainless steel protective trim on rear edge of cab door openings. E-ONE custom chassis only. | 1 |
| 1550-0017 | Cab door panels stainless steel. | 1 |
| 1550-0018 | Scuff plates stainless steel (Set). Not available with paddle latches. | 1 |
| 1550-0025 | All cab doors shall have "L" style exterior latches. | 1 |
| 1550-0027 | Front cab door windows to have manual actuation. | 1 |
| 1550-0069-000-J7 | Reflective Red/Fluorescent Yellow Green 3M Diamond Grade striping positioned in the "A" formation located on the cab door panels. | 1 |
| 1550-0077 | Interior cab door locks - manual. Will have manual actuation from each respective | 1 |

| Salescode | Extended Description | Qty |
|----------------------------------|--|-----|
| 1550-0084 | door. Includes barrel style key lock on each exterior cab door. All cab exterior access doors to have 1250 keyed locks. | 1 |
| 1550-0196-658 | (2) TecNiq T440 4" LED cab step area lighting. Locate each light in the cab step well area. Lights to be switched with door ajar. | 1 |
| 1550-0203 | Map pockets cab front doors stainless steel 1.5" deep. | 1 |
| 1550-0251 | Driver and officer cab door windows - full glass style. For use with Typhoon and Cyclone cabs. Requires "L" handles and aluminum or S/S door panels. | 1 |
| CAB STEP OPTIONS | | |
| 1640-0045-158 | Step below cab door. Open back style with angled corners. Located driver's front door. Steps under front cab doors shall not interfere with approach angle. | 1 |
| 1640-0045-159 | Step below cab door. Open back style with angled corners. Located officer's front door. Steps under front cab doors shall not interfere with approach angle. | 1 |
| 1640-0047 | Lower steps to extend 3.5" past cab. Barrier doors only. | 1 |
| MIRRORS | | |
| 1670-0059 | Retrac Mirror stainless steel 10" 3-arm convex above officer side cab brow, 3 piece adjustable telescoping arm. Head #604953, Arm assy#604671 | 1 |
| 1670-0062 | Retrac Aerodynamic dual vision chrome west coast style mirrors (PR) mounted on cab doors. Includes remote control and heat for std and convex mirrors and LED marker light. Note: Officer side mirror located approx. 7 in rearward if equipped with forward vent windows. | 1 |
| MISC EXTERIOR CAB OPTIONS | | |
| 1675-0022 | Pair of 18" handrails located just behind driver and officer front door one each side. | 1 |
| 1675-0030 | Mud flaps, front, black with E-ONE logo. | 1 |
| 1675-0047 | Rear cab wall to be 3/16" aluminum diamond plate. | 1 |
| 1675-0202 | Mounting plate for battery charger receptacle, indicator, air inlet, etc (if applicable). Plate to be removable brushed stainless steel. | 1 |
| 1675-0214 | Rubber fenderettes in place of standard fender. | 1 |
| 1675-0287 | Access door for DEF tank mounted under cab. Compartment door painted job color. For use with a 2 door cab with a rear transverse compartment (E-ONE cabs only) where standard steps are used and the DEF fill is recessed. | 1 |
| HVAC | | |
| 1515-0017 | Air conditioning for the Typhoon X, CII X and Quest with Cummins ISC/ISL engine and radiator mounted condenser. | 1 |
| 1515-0045 | Controls for heating and air conditioning shall be located in the center dash area upper tier offset to driver side. For use with severe duty dash only. | 1 |

| Salescode | Extended Description | Qty |
|----------------------------------|--|-----|
| SEATS | | |
| 1510-0004 | Seats, Bostrom brand. | 1 |
| 1510-0008 | Seat color gray. | 1 |
| 1510-0037 | Seat cover material Durawear. | 1 |
| 1510-0353 | Driver seat Bostrom electric with integral dual retractor seat belt. | 1 |
| 1510-0421 | Officer seat Bostrom 500 Series Sierra with integral dual retractor seat belt. | 1 |
| 1685-0012 | Seating capacity tag of two occupants. | 1 |
| MAP BOXES | | |
| 1540-0013 | All map boxes in the cab to be painted Zolatone #20-64 gray. | 1 |
| 1540-0015 | Map box suspended with drop-down door. Box offset to rear to allow engine access door to open further. | 1 |
| MISC INTERIOR CAB OPTIONS | | |
| 1685-0000 | Cab interior gray. Does not include engine cover or seat color. | 1 |
| 1685-0005 | Lexan sun visors, driver and officer's side overhead. | 1 |
| 1685-0008 | Control lanyard Y type for air horns. | 1 |
| 1685-0105 | Sun visor strap (PR) with snap fasteners. | 1 |
| 1685-0112 | Integrated Roll Sensor (IRS) for RollTek air bag system. | 1 |
| 1685-0113 | Integrated roll sensor slave module for RollTek air bag system. | 1 |
| 1685-0114 | Integrated Head Curtain (IHC) for RollTek air bag system. | 2 |
| 1685-0115 | Integrated Belt Pretensioner (IBP) for RollTek air bag system. | 2 |
| 1685-0187 | Severe duty engine cover, molded polyurethane. | 1 |
| 1685-0291 | 4Front air bag system with steering wheel bag, driver knee bag and officer knee bag. Requires RollTek option. | 1 |
| 1685-0307 | Cup holder / tray enlarged for engine cover painted to match cab interior. Approx 19" wide x 12" long with tapered front corners and cup holders at each rear corner. For use in Typhoon and CII with severe duty engine cover. | 1 |
| 1685-0361 | Interior access panel of cab roof antenna. Location: driver side forward, driver side rearward, officer side forward and officer side rearward. | 1 |
| 1685-0364 | Recessed access panel in MDT notch on officer side cab dash. Approx. 8" x 8". | 1 |
| 1685-0369 | Severe duty dash package with low profile officer side dash. Includes smooth plate alum center and officer side dash and lower kick panels; all painted to match cab interior. | 1 |
| 1685-0477 | Radio cabinet located behind the driver's seat and accessed through the transverse compartment of 2DR cab. Includes 5" exhaust fan, 6 sets of louvers and removable panels. | 1 |

| Salescode | Extended Description | Qty |
|-------------------------------|--|-----|
| 1685-0478 | Finished rear cab compartment interior. Includes 1/8" panels with insulation on ceiling and walls painted to match cab interior. | 1 |
| 1685-0496 | ABS overhead console. Includes front full width overhead, air conditioning plenum and rear facing blower. | 1 |
| 1685-0531 | Reduced profile rear engine cover for increased legroom. | 1 |
| CAB ELECTRICAL OPTIONS | | |
| 1750-0012 | Swivel reading lamps (PR) overhead between driver and officer. Lights to be individually switched. | 1 |
| 1750-0021 | Battery charger Kussmaul model 1200, 40 amp. | 1 |
| 1750-0024-179-02 | Auto-Eject receptacle inlet 20 amp located outside driver's door next to handrail with a Red cover. | 1 |
| 1750-0029 | Switch horn button two position DOT/air horn. | 1 |
| 1750-0046-195 | Cab Headlights. Position: lower. | 1 |
| 1750-0047 | The chassis shall be pre-wired for installation of tire chains. | 1 |
| 1750-0072-592 | 12 VDC (or 24VDC) electrical outlet wired battery hot. Location: driver side dash. | 1 |
| 1750-0072-593 | 12 VDC (or 24VDC) electrical outlet wired battery hot. Location: officer side dash. | 1 |
| 1750-0073-09J | Antenna base Tessco P/N 90942 (NMO Motorola Style - also called MATM style) on cab roof. Location: driver side forward terminating in radio cabinet. | 1 |
| 1750-0073-0GW | Antenna base Tessco P/N 90942 (NMO Motorola Style - also called MATM style) on cab roof. Location: driver side rearward terminating in radio cabinet. | 1 |
| 1750-0073-1LG | Antenna base Tessco P/N 90942 (NMO Motorola Style - also called MATM style) on cab roof. Location: officer side forward with coaxial cable terminating on the officers side of the dash under the MDT access panel. | 1 |
| 1750-0073-1LH | Antenna base Tessco P/N 90942 (NMO Motorola Style - also called MATM style) on cab roof. Location: officer side rearward with coaxial cable terminating on the officers side of the dash under the MDT access panel. | 1 |
| 1750-0075 | English dominant main cab gauge cluster. | 1 |
| 1750-0163 | Speedometer officer's side switch panel. | 1 |
| 1750-0166 | ATC override switch. | 1 |
| 1750-0190 | Dome Lts Red/White LED. Package includes two lights mounted in the front of the cab. White light wire through door and light assembly mounted switch. Red light through light assembly mounted switch. | 1 |
| 1750-0198-A31 | Battery charger to be located behind driver's seat. | 1 |
| 1750-0215-172 | Turn signal Whelen M6 LED arrow amber pair located upper headlight bezel. | 1 |
| 1750-0429-592 | Dual USB charging ports in the cab wired battery hot. Location: driver side dash. | 1 |
| 1750-0429-593 | Dual USB charging ports in the cab wired battery hot. Location: officer side dash. | 1 |

| Salescode | Extended Description | Qty |
|------------------------------|---|-----|
| 1750-0449 | Momentary DPF regeneration override switch. | 1 |
| 1750-0461 | 4Front steering wheel shall not have switch pods. | 1 |
| 1750-0514 | Peterson LED cab headlights | 1 |
| 1750-0538 | Flexible 1" conduit with connectors. Location: Center cab dash to radio cabinet. To include pull string/wire. | 2 |
| BODY COMPT LEFT SIDE | | |
| 3100-0639 | Driver side tandem body with full height 42" wide and 50" wide forward and 34" wide rearward compartmentation. Includes (2) 51.5" wide compartments over the wheel well. | 1 |
| BODY COMPT RIGHT SIDE | | |
| 3120-0859 | Officer half side tandem body with 42" wide and 50" wide forward and 34" wide rearward compartmentation. | 1 |
| BODY COMPT REAR | | |
| 3110-0130 | Rear end tanker. Includes smooth plate upper and lower panels and a smooth plate center strip for a Jet or Newton Dump application. | 1 |
| 3110-0401 | Bolt-on diamond plate 18" tailboard (full width of body). Includes (2) squared off 11.25" deep beavertails (no stanchions) with removable outer panels and handrails- (2) vertical on trailing edge of body and horizontal mounted handrail(s) below hosebed. | 1 |
| 3340-0102 | Angled (Boston style) style tailboard corners. | 1 |
| DOORS | | |
| 3300-0021-005 | Door roll up short (up to 45") with painted finish ROM. Location(s): L3. | 1 |
| 3300-0021-006 | Door roll up short (up to 45") with painted finish ROM. Location(s): L4. | 1 |
| 3300-0021-015 | Door roll up short (up to 45") with painted finish ROM. Location(s): R1. | 1 |
| 3300-0021-016 | Door roll up short (up to 45") with painted finish ROM. Location(s): R2. | 1 |
| 3300-0021-017 | Door roll up short (up to 45") with painted finish ROM. Location(s): R3. | 1 |
| 3300-0022-003 | Door roll up tall (greater than 45") with painted finish ROM. Location(s): L1. | 1 |
| 3300-0022-004 | Door roll up tall (greater than 45") with painted finish ROM. Location(s): L2. | 1 |
| 3300-0022-007 | Door roll up tall (greater than 45") with painted finish ROM. Location(s): L5. | 1 |
| 3300-0063-003 | Keyed roll-up compartment door with #1250 key. Location(s): L1. | 1 |
| 3300-0063-004 | Keyed roll-up compartment door with #1250 key. Location(s): L2. | 1 |
| 3300-0063-005 | Keyed roll-up compartment door with #1250 key. Location(s): L3. | 1 |
| 3300-0063-006 | Keyed roll-up compartment door with #1250 key. Location(s): L4. | 1 |
| 3300-0063-007 | Keyed roll-up compartment door with #1250 key. Location(s): L5. | 1 |

| Salescode | Extended Description | Qty |
|---------------|---|-----|
| 3300-0063-015 | Keyed roll-up compartment door with #1250 key. Location(s): R1. | 1 |
| 3300-0063-016 | Keyed roll-up compartment door with #1250 key. Location(s): R2. | 1 |
| 3300-0063-017 | Keyed roll-up compartment door with #1250 key. Location(s): R3. | 1 |
| 3300-0066-003 | Drip pan for a ROM roll-up door (EA). Location(s): L1. | 1 |
| 3300-0066-004 | Drip pan for a ROM roll-up door (EA). Location(s): L2. | 1 |
| 3300-0066-005 | Drip pan for a ROM roll-up door (EA). Location(s): L3. | 1 |
| 3300-0066-006 | Drip pan for a ROM roll-up door (EA). Location(s): L4. | 1 |
| 3300-0066-007 | Drip pan for a ROM roll-up door (EA). Location(s): L5. | 1 |
| 3300-0066-015 | Drip pan for a ROM roll-up door (EA). Location(s): R1. | 1 |
| 3300-0066-016 | Drip pan for a ROM roll-up door (EA). Location(s): R2. | 1 |
| 3300-0066-017 | Drip pan for a ROM roll-up door (EA). Location(s): R3. | 1 |
| 3300-0164-834 | Door double vertical hinged w/rotary latches - painted . Location(s): driver side cab wheel well external cabinet door. Without secondary door latch handle extension. | 1 |
| 3300-0164-835 | Door double vertical hinged w/rotary latches - painted . Location(s): officer side cab wheel well external cabinet door. Without secondary door latch handle extension. | 1 |

SHELVES

| | | |
|---------------|---|---|
| 3370-0025-0P2 | Shelf, permanent shelf. Locate in L5 at upper offset (above extrusion if applicable). | 1 |
| 3370-0025-120 | Shelf, permanent shelf. Locate in L2 at offset (above extrusion if applicable). | 1 |
| 3370-0052-016 | Adjustable shelf (J-Style) for non-transverse compartments 16" or greater in depth. Location: R2. | 1 |
| 3370-0052-017 | Adjustable shelf (J-Style) for non-transverse compartments 16" or greater in depth. Location: R3. | 1 |
| 3370-0053-005 | Adjustable shelf (C-Style) for non-transverse compartments up to 15.99" in depth. Location: L3. | 1 |
| 3370-0053-006 | Adjustable shelf (C-Style) for non-transverse compartments up to 15.99" in depth. Location: L4. | 1 |
| 3370-0054-016 | Tracks for adjustable shelf and/or adjustable tray in compartments 16" or greater in depth. Location: R2. | 1 |
| 3370-0054-017 | Tracks for adjustable shelf and/or adjustable tray in compartments 16" or greater in depth. Location: R3. | 1 |
| 3370-0055-004 | Tracks for adjustable shelf in shallow compartments up to 15.99" deep. Location: L2. | 1 |
| 3370-0055-005 | Tracks for adjustable shelf in shallow compartments up to 15.99" deep. Location: L3. | 1 |

| Salescode | Extended Description | Qty | |
|--------------------------------|--|-----|-----|
| 3370-0055-006 | Tracks for adjustable shelf in shallow compartments up to 15.99" deep. Location: L4. | 1 | |
| TRAYS / TOOLBOARDS | | | |
| 3380-0404-06N | Adjustable 1/2 transverse toolboard with 500 lb. slides for use with deep compartments. Includes upper and lower adjustable track with lock in/lock out latch. For use with extended transverse floors. Location(s): (1) each side in cab transverse module. | 2 | |
| COVERS | | | |
| 3305-0007-000-02 | Vinyl Red hose bed cover with attached rear flap(s). | 1 | |
| 3305-0033 | Vinyl access cover for fill tower(s). | 1 | |
| PUMP MODULE | | | |
| 3130-0167 | Pump module to be 76" wide (side to side). Includes upper, lower, crosswalk, speedlay and tranverse module(s) if applicable. | 1 | |
| 3130-0461 | Pump module for use with frame mounted PTO pump. Will be mounted below tank rearward of driver side front compartment and will reduce the size of L1. | 1 | |
| PUMP PANELS | | | |
| 259251 | Stainless steel driver side pump panel. Tanker with under tank pump only. Location: L1 | 1 | |
| 3134-0064 | The gauge panel(s) on the driver side of the Side Mount module to be hinged upward. Panel(s) to include (2) mechanical/pneumatic (as applicable to panel size) hold opens and latches. | 1 | |
| MISC PUMP PANEL OPTIONS | | | |
| 4460-0003 | Pump panel tags color coded per NFPA compliance. | 1 | |
| 4460-0009 | Pump panel tags, special color. (Must specify.) | 1 | TBD |
| 4460-0010 | Pump panel tags - Special label. (Must specify.) | 1 | TBD |
| PUMP MODULE OPTIONS | | | |
| 3136-0000-202 | Air horn switch at pump panel. Switch to be labeled "Evacuation Alert". Location: driver side pump panel. | 1 | |
| WATER TANK | | | |
| 4010-0194 | 3030 Gallon Tandem "T" Water Tank. UPF Poly III color fill towers. Note: Any foam cell(s) and/or storage options thru the tank will reduce the overall water capacity. | 1 | |
| 4010-0223 | Fill tower(s) to be located offset to driver side of water tank. | 1 | |
| WATER TANK OPTIONS | | | |

| Salescode | Extended Description | Qty |
|-------------------------------|---|-----|
| 4020-0004 | Newton dump mounting plate. | 1 |
| 4020-0090 | Water tank notched at rear (overall tank capacity will be affected). Notch tank at rear as necessary to accommodate clearance for plumbing. | 2 |
| TANK PLUMBING | | |
| 259295 | 4.5" rear direct tank fill. Includes handwheel control, swivel with droop with cap and retainer. Located to left of the rear body. | 1 |
| 259297 | 4.5" Rear Direct tank fill. Includes Fireman Friend 4" valve with 4" body to terminate with 4.5" FNST adapter, 30 degree droop and plug. Location: right rear | 1 |
| 4450-0110 | 3" tank fill Akron manual valve. | 1 |
| 4450-0066 | Tank-to-pump 4" Akron Air Valve. | 1 |
| 4450-0228 | Rear tank dump. Includes stainless steel assembly with manually actuated valve on top of dump assembly. Includes integral 6012 swivel chute with manual telescopic extension and with locking system. | 1 |
| LADDER STORAGE / RACKS | | |
| 3365-0184-M13-L7 | Zico hydraulic drop down portable tank rack. Rack located to officer side on compartment top of body. Rack sized for 3000 gallon aluminum frame portable tank. The control switching to be located on the side pump panel with the rack being in full view of the operator during operations. | 1 |
| 3365-0188 | Zico drop down rack to have smooth plate cover between outboard rack assemblies. Cover to be painted job color. | 1 |
| 3365-0198-198 | Storage box for (1) 10' length of hard suction hose. Includes vertically hinged door with latch (wired to door ajar indicator). Reduces selected water tank capacity by approximately 100 gallons on Tankers. Locate to driver's side below "T" of water tank. | 1 |
| 3365-0198-199 | Storage box for (1) 10' length of hard suction hose. Includes vertically hinged door with latch (wired to door ajar indicator). Reduces selected water tank capacity by approximately 100 gallons on Tankers. Locate to officer's side below "T" of water tank. | 1 |
| HANDRAILS / STEPS | | |
| 3330-0034 | Recessed folding step box. Driver side rear. To accommodate all steps as applicable. | 1 |
| 3330-0035 | Recessed folding step box. Officer side rear. To accommodate all steps as applicable. | 1 |
| 3330-0159 | Step rear intermediate. Intermediate rear step to be located above the rear Newton dump. | 1 |
| 3330-0277 | Innovative Controls dual lighted LED folding steps rear NFPA. Includes folding steps on driver side rear of the body. (staggered stepped as applicable with tailboard depth) for NFPA hosebed access and handrail mounted on driver side upper | 1 |

| Salescode | Extended Description | Qty |
|----------------------------|--|-----|
| 3330-0278 | hosebed side (as applicable). Innovative Controls dual lighted LED folding steps rear NFPA. Includes folding steps on officer side (staggered stepped as applicable with tailboard depth) for additional hosebed access and handrail mounted on officer side upper hosebed side (as applicable). | 1 |
| MISC BODY OPTIONS | | |
| 3340-0004 | Hosebed above the booster tank. Includes forward hosebed and tower(s) cover plate work (as applicable). Hosebed adjustable divider extrusion rearward of the furthest tower is to run full width of the hosebed (as is practical with other hosebed mounted equipment). | 1 |
| 3340-0027 | Diamond plate corner guards for the driver and officer front compartment face. Guards to wrap around the corner and be full height of side assembly or to a max of 96". | 1 |
| 3340-0035 | Divider Long. To run full length of hose bed (front to rear). | 2 |
| 3340-0058 | Recessed fuel fill driver side wheel well. | 1 |
| 3340-0062 | Divider medium. To run full length of hose bed (front to rear) behind single fill tower. | 1 |
| 3340-0093 | Mud flaps, rear, black with E-ONE logo. | 1 |
| 3340-0094 | Body mainframe and hosebed side assemblies for a 95" high body. | 1 |
| 3340-0110 | The rear of each hose bed divider to have a hand hold cut-out(s). | 1 |
| 3340-0145 | Rub rail for the body and pump area module(s). | 1 |
| 3340-0681 | Body mainframe layout line to be 24". Includes body and all applicable modules. | 1 |
| 3340-1524 | Painted smooth plate tandem axle wheel well. Includes bolt-on composite wheel well liners and bolt-on rubber trim fenderettes. | 1 |
| SCBA BOTTLE STORAGE | | |
| 3320-0100 | Strap, loop style to retain SCBA bottle(s). Locate one per bottle in each exterior body storage compartment. | 1 |
| 3320-0182-497 | E-ONE designed (1) SCBA bottle storage driver side rear wheel well offset rearward with hinged door and push button latch. Door material to match wheel well material. Holds standard size SCBA bottle, 20lbs ABC Extinguisher or 2.5 gal Water Extinguisher. Door shall cover the recessed fuel fill if located adjacent to the SCBA storage. | 1 |
| 3320-0183-500 | E-ONE designed (2) SCBA bottle storage officer side rear wheel well offset rearward with hinged door and push button latch. Door material to match wheel well material. Holds standard size SCBA bottle, 20lbs ABC Extinguisher or 2.5 gal Water Extinguisher. | 1 |
| 3320-0188-495 | E-ONE designed Wheel Chock storage compartment driver side rear wheel well offset forward with hinged door and push button latch and wired to "Door Open" | 1 |

| Salescode | Extended Description | Qty |
|-----------------------------------|---|-----|
| 3320-0188-498 | indicator inside cab. Door material to match wheel well material. Storage area shall hold (2) Zico Model SAC-44-E or comparable Wheel Chocks (not included). E-ONE designed Wheel Chock storage compartment officer side rear wheel well offset forward with hinged door and push button latch and wired to "Door Open" indicator inside cab. Door material to match wheel well material. Storage area shall hold (2) Zico Model SAC-44-E or comparable Wheel Chocks (not included). | 1 |
| PUMPS | | |
| 4005-0035 | Rating 1000 GPM | 1 |
| 4005-0210 | Hale MBP PTO driven pump. Includes driver side 6" intake with cap (shipped loose). Capacity of 1000GPM/3785LPM. Requires primer option. | 1 |
| PUMP CERTIFICATION | | |
| 4475-0000 | Pump certification 750-2250 GPM | 1 |
| PUMP OPTIONS | | |
| 4015-0053-198 | Steamers to be Flush + 1". Location: driver's side. | 1 |
| 4015-0098 | Manual operated master pump drain. The master drain shall be clearly marked and placed in accessible location on pump panel. | 1 |
| 4015-0210 | Pump cooler with Innovative Control 1/4 turn valve with "T" handle and label. | 1 |
| 4015-0225 | Zinc anodes for Hale pump (3), (2) discharge side and (1) intake side. | 1 |
| 4015-0265 | Trident W/3 barrel Automatic Pump Primer. For use with 1250 GPM and larger pumps. Requires 15.6 CFM or large engine air compressor. | 1 |
| INTAKES | | |
| 4440-0005 | 2.5" Left Intake Akron Manual Valve. | 1 |
| INTAKE OPTIONS | | |
| 4445-0009 | Intake relief valve, Akron. | 1 |
| DISCHARGES AND PRECONNECTS | | |
| 4415-0014-581 | 2.5" Left Pump Panel Discharge Akron Manual Valve. Location: left side discharge 1. | 1 |
| 4415-0014-582 | 2.5" Left Pump Panel Discharge Akron Manual Valve. Location: left side discharge 2. | 1 |
| 4415-0022-350 | 2.5" Left Rear Discharge Akron Manual Valve. Location: left rear discharge. | 1 |
| 4415-0072-351 | 1.5" Right Rear Discharge w/2" Akron manual valve. Include 2" plumbing. Location: right rear discharge. | 1 |
| 4415-0421-583 | 4" Pump Panel Discharge Akron Valve Handwheel Control. (Waterous pumps noted location to be forward lower port.) Location: right side discharge 1. | 1 |
| DISCHARGE OPTIONS | | |

| Salescode | Extended Description | Qty |
|-------------------------------|---|-----|
| 4417-0175 | Innovative Controls push/pull valve controls with locking T handles. | 1 |
| 4417-0176 | Innovative Controls 3/4" bleeder/drain valve include lift lever with ergonomic grip. | 5 |
| 4417-0185 | Innovative Controls discharge and intake bezels with integral color code and verbiage for side mount pump panel. | 1 |
| PRESSURE GOVERNORS | | |
| 4465-0017 | FRC PumpBoss pressure governor PBA400. Includes engine monitor gauges. | 1 |
| GAUGES | | |
| 4435-0085-230 | Innovative Controls 10 LED SL series tank level water gauge, additional. Location: officer rear. | 1 |
| 4435-0089-527 | IC 10 LED SL series/Whelen PSTank water tank level gauge package. Location of Whelen PSTank Strip Lights: each side of cab rear of front doors. | 1 |
| 4435-0246 | 2.5" Innovative Controls stainless steel case pressure gauge (0-400) with color code bezel. | 5 |
| 4435-0247 | 4" Innovative Controls stainless steel case master pressure gauges with bezel. Intake 30-0-400, and discharge 0-400. | 1 |
| ELECTRICAL SYSTEMS | | |
| 5010-0013-Y83 | Vehicle data recorder - 2009 / 2016 NFPA compliant. Includes occupant detection with display. Display location: inboard on driver's side overhead console. | 1 |
| 5010-0036 | V-MUX Electrical system for pumper / tanker / rescue. | 1 |
| 5010-0059-339 | VFD Text display for V-MUX electrical system. Location: center of dash. | 1 |
| 5010-0094 | Nanoprotech corrosion inhibiting spray coating to be applied on all exposed electrical connections. | 1 |
| LIGHT BARS | | |
| 5300-0504 | Whelen MKEZ7 1.5" standard mount for front light bar (PR). | 1 |
| 5300-0506-000-4V | Front light bar LED color: Red/White with clear lenses (If applicable, includes side facing when colors are the same.) | 1 |
| 5300-0510 | Light bar Whelen Freedom IV Model F4X7 72" with 10 LED modules. Location: Centered on the front cab roof. | 1 |
| WARNING LIGHT PACKAGES | | |
| 5550-0261-536 | Whelen M6 Super LED lower level warning light package. Includes (10) M6RC red LED with clear lens light heads w/chrome flanges. Locate side facing lights: at forward most position, in rear wheel well offset to front, and on side of beavertail. | 1 |
| WARNING LIGHTS | | |
| 5600-0105-170 | Hazard (door ajar) light 2" LED. Location: center overhead. | 1 |

| Salescode | Extended Description | Qty |
|--|--|-----|
| 5600-0423-439 | Warning light Whelen Rota-Beam series model 6RBRC Super LED (PR) red with clear lenses. Location: (1) each side above quad bezel (outboard). | 1 |
| 5600-0468-464 | Warning/ground light Whelen M6V2RC series Linear Super LED (PR) red with clear lenses. Location: (1) each side of cab down low just ahead of rear doors. | 1 |
| 5600-0468-466 | Warning/ground light Whelen M6V2RC series Linear Super LED (PR) red with clear lenses. Location: (1) each side rear wheel well offset to rear. | 1 |
| 5600-0488-1VA | Warning/Scene light Whelen M9V2RC Super LED (PR) red with clear lenses. Location: driver side and officer side upper forward body corners in diamond plate boxes. | 1 |
| 5600-0552-479-R4 | Whelen beacon with LED upper beacon and M7 series Super LED (PR) model B6LED with red LEDs/clear domes and Red LED with Clear lens LEDs. Location: rear upper body on aerial style brackets. | 1 |
| DIRECTIONAL LIGHT BARS | | |
| 5310-0020-170 | Directional light bar control is to be located center overhead. | 1 |
| 5310-0096 | Whelen traffic advisor. Includes (8) M2A amber individual lights with amber lenses, control head and rubrail guard with mitered ends. Location: rear of body. NOTE: To be wired with a nine (9) conductor cable to the Whelen TACTL5 control head mounted in cab. Per Whelen; pin 312 white wire/blue trace wired to master switch activating all M2A lights as warning lights unless TACTL5 activated and takes priority. | 1 |
| SIRENS | | |
| 5500-0010-210 | Federal Q2B siren - flush mounted in bumper. Location: center front bumper. | 1 |
| DOT LIGHTING | | |
| 5150-0017 | License plate light LED with chrome housing located at the rear of the body. | 1 |
| 5150-0025 | Marker light LED body/cab package. E-One custom cab and pumper or tanker body only. | 1 |
| 5150-0032 | Bracket license plate at rear of body. | 1 |
| 5150-0091 | Whelen M6 series LED vertical mount tail lights. Includes LED stop/tail, arrow turn and back-up lights with vertical 4 light housing and weatherproof connectors. | 1 |
| LIGHTS - COMPARTMENT, STEP & GROUND | | |
| 5380-0279 | Ground light package TecNiq T440 4" LED - small. | 1 |
| 5380-0310 | Compartment light package Hansen LED for small bodies. Includes two lights per compartment (four if transverse). | 1 |
| 5380-0323 | The auxiliary steps below the cab doors to have EON LED lights to illuminate the stepping surface and ground below (IPO lights indicated in the main ground light package). | 1 |

| Salescode | Extended Description | Qty |
|--------------------------------|---|-----|
| LIGHTS - DECK AND SCENE | | |
| 5390-0007 | Deck/scene light circuit wiring through chassis reverse. Requires rear deck or scene light. | 1 |
| 5390-0025 | Cab scene lights are to be switched with cab doors in addition to standard. | 1 |
| 5390-0166-Q01 | FRC LED900 Scene light (EA). Switch in cab (driver and officer side lights switched separately). Locate driver side rear of body up high. | 1 |
| 5390-0193-G99 | FRC SPA900-Q70 Scene light (PR) with diamond plate mounting box. Switch in cab (driver and officer side lights switched separately). Locate (1) each side of body on rearward upper body corners. | 1 |
| 5390-0216 | Hose bed light Optronics LED model TLL44 Locate at front of hose bed. Switched with work light switch in cab. | 1 |
| 5390-0222-395 | Deck light FireTech, model FT-WL3500-FT-W LED (PR) with white housing. Switched with work light switch in cab. Location: rear body/beavertail area on the trailing edge up high. | 1 |
| LIGHTS - NON-WARNING | | |
| 5400-0010 | Incandescent pump compartment light (EA). | 1 |
| 5400-0173 | Spotlight Whelen PAR46 Super LED hand held located on officer's side of cab dash with plug-in connector. | 1 |
| 5400-0224 | Engine compartment light Optronics LED Series ILL22 (EA). | 1 |
| 5400-0259 | TecNiq model E10 pump panel LED light package with (3) lights per side pump panel. Pump panels over 45" may require additional lights. Side mount only. | 1 |
| CONTROLS / SWITCHES | | |
| 1750-0034-A24 | Switch, additional 12 volt/15 amp. Location and function: driver rear of body for rear work lights. | 1 |
| 5100-0006-198 | Foot switch to control Q2B located driver's side. | 1 |
| 5100-0006-199 | Foot switch to control Q2B located officer's side. | 1 |
| CAMERAS / INTERCOM | | |
| 5350-0060 | Diamond plate camera shield. | 1 |
| 5350-0103-X09 | The back-up camera monitor is to be located on the center dash offset driver. | 1 |
| 5350-0118 | Camera backup Federal Signal LCD model CAMSET70-NTSC-4 with monitor. | 1 |
| MISC ELECTRICAL | | |
| 1750-0082-762 | 12V power distribution module. Includes (6) battery hot and (6) switched hot circuits. 100 amps max (IATS). Location: behind officer's seat. | 1 |
| 1750-0082-B91 | 12V power distribution module. Includes (6) battery hot and (6) switched hot circuits. 100 amps max (IATS). Location: driver side back wall of radio box. | 1 |
| 5110-0017 | Back-up alarm 97 dB. | 1 |

| Salescode | Extended Description | Qty |
|-----------------------------|---|-----|
| 5110-0180 | Collision Avoidance Systems model CAS-4HW rear obstacle detection and proximity system. Includes 4 sensors at rear of vehicle and speaker in cab. | 1 |
| 5110-0185-593 | 12 volt 12 gauge constant hot lead (24" long) with ground wire and circuit breaker. Location: officer side dash. | 1 |
| LIGHTS - FLOOD | | |
| 5450-0293 | FireTech 72" 12V brow light with integrated marker lights. Includes switch accessible to driver. Replaces front brow marker lights. Requires special bracket 5450-0340 on aerials with waterway trough. Not available on aerials with deep trough. | 1 |
| 5450-0475-2Q2 | FireTech 25" 12V mini brow trunnion mount light painted job color. Includes switch in cab (driver and officer side facing lights switched separately). Location:centered above rear cab transverse doors. | 2 |
| RECEPTACLES | | |
| 5470-0004-545 | Receptacle household 20A/110V duplex 3-prong NEMA 5-20 with cover plate interior mounted wired to inlet receptacle. Location: In cab driver side on 3 x 3 post rear facing just above engine cover (or seat riser if in a Hush). | 1 |
| MISC LOOSE EQUIPMENT | | |
| 7900-0014 | DOT Required Drive Away Kit - Kit includes three (3) triangular warning reflectors with carrying case. This kit is for the end user and is to remain with the truck. | 1 |
| EXTERIOR PAINT | | |
| 8100-0089 | All applicable pump/pre-connect application modules are to have a sanded finish (not painted job color). Includes upper and lower pump modules, crosswalk module and/or speedlay/pre-connect module (as applicable). Rear mounted body/pump module to be painted job color. | 1 |
| 8100-0116 | Rear body surface to have a sanded finish (not painted job color). Includes hinged doors that do not have discrete sales codes and removable panels. | 1 |
| 8100-0176-000-26 | Paint E-ONE chassis cab - Sikkens paint. Color: FLNA3047 Red. | 1 |
| 8100-0183-000-26 | Paint Body - Large - For Aerials, T/A Tankers/Wetsides, Rear Mounts and Rescues. Sikkens paint. Color: FLNA3047 Red. | 1 |
| 8100-0222 | Paint roll up door header plate(s) job color for all painted roll-up doors.. | 1 |
| 8100-0396 | Undercoating E-ONE. To be applied after customer final inspection. | 1 |
| INTERIOR PAINT | | |
| 8150-0011 | The interior of the cab to be painted Zolatone gray. | 1 |
| LETTERING | | |
| 8200-0113 | Scotchlite Letter (Each) upto 6" tall. The exact size, color and location of the letters as specified by the customer. | 2 |

| Salescode | Extended Description | Qty |
|---|---|-----|
| 8200-0114 | Scotchlite Letter (Each) upto 12" tall. The exact size, color and location of the letters as specified by the customer. | 7 |
| 8200-0116 | Shade and/or outline (EA) for letters as specified by the customer. | 104 |
| 8200-0117 | Sign Gold Letter (Each) upto 6" tall. The exact size and location of the letters as specified by the customer. | 57 |
| 8200-0118 | Sign Gold Letter (Each) upto 12" tall. The exact size, color and location of the letters as specified by the customer. | 38 |
| STRIPING | | |
| 8300-0042 | White rubrail scotchlite insert. | 1 |
| 8300-0145-000-J7 | Chevron "A" style 6" 3M "Diamond Grade" striping on front bumper. Colors to be Red/Fluorescent Yellow Green. | 1 |
| 8300-0146-000-J7 | Chevron "A" style 6" 3M "Diamond Grade" striping full width on rear of body. Includes rear facing extrusions, panels and doors. Colors to be Red/Fluorescent Yellow Green. | 1 |
| 8300-0330 | Single NFPA Scotchlite Stripe - upto 6" wide and straight on cab and the body. Size, color and location as specified by the customer. | 1 |
| 8300-0334 | Additional NFPA Scotchlite Stripe - upto 3" wide on cab and the body. Design, size, color and location as specified by the customer. | 2 |
| 8300-0381 | Yellow perimeter marking to indicate designated standing / walking areas above 48" high in compliance with 2016 NFPA 1901 consisting of individual Reflexite diamonds approximately 1" wide. Steps, ladders and areas with a railing or structure at least 12" high are excluded from this requirement. | 1 |
| GRAPHICS | | |
| 8400-0023-1V4 | Install customer supplied logo. Location: reference graphics layout drawing. | 2 |
| 8400-0067 | E-ONE logo with grey Scotchlite backing on M6 series vertical tail light housing (PR). | 1 |
| WARRANTY / STANDARD & EXTENDED | | |
| 9100-0003 | Lifetime Frame Structural Warranty. | 1 |
| 9100-0004 | 10 Year/100,000 Mile Structural Warranty for Alum Cab / Body - Statement of Warranty. | 1 |
| 9100-0005 | 10 Year Stainless Steel Plumbing Warranty - Statement of Warranty. | 1 |
| 9100-0019 | 10 Year Limited Paint and Perforation Warranty - For Sikkens Paint. | 1 |
| 9100-0039 | 1 year full warranty. | 1 |
| 9100-0090 | 25 Year frame rail corrosion warranty. Includes liners (if equipped). | 1 |
| 9100-0091 | 20 Year frame component corrosion warranty. Includes front frame extensions, crossmembers, battery tray brackets and rear underbody support (if applicable). | 1 |

| Salescode | Extended Description | Qty |
|---|--|-----|
| SUPPORT, DELIVERY, INSPECTIONS AND MANUALS | | |
| 9300-0009 | Manuals, Operator and Service in digital format. | 1 |
| 9300-0012 | Pump panel approval drawings. | 1 |
| 9300-0016 | Approval Drawings-Standard. | 1 |
| 9300-0304 | Manuals, Operator and Service in printed format (1) set. | 1 |
| 9300-0316 | Fire Apparatus Safety Guide published by FAMA, latest edition. | 1 |
| DEALER SUPPLIED EQUIPMENT - Per Separate List | | |

| | |
|---------------|--------------|
| Customer | Lexington FD |
| Quote/Truck # | Q78448 |
| Date | 10/30/2017 |

| CAT# | QUANT | SPEC |
|----------------|-------|--|
| 02-0000 | . | TRUCK ACCESSORIES - CHASSIS |
| 02-1109 | 10 | Wheel Balance Beads, Equal, per wheel |
| 04-0000 | . | TRUCK ACCESSORIES - BODY |
| 04-1290 | 2 | Turtle Tile decking shall be installed on the exposed floors and all shelves/trays in all compartments of the apparatus body. |
| 34-0000 | . | ADAPTERS, THREADED |
| 34-0450 | 3 | Adapter, discharge, 45° elbow, 2-1/2" Female swivel NST x 2-1/2" Male NST, chrome plated brass. Elkhart #105. |
| 70-0000 | . | MISC. SERVICES |
| 70-1000 | 1 | Pre-delivery Inspection - Pumper or Aerial - After transportation from the factory and immediately prior to delivery to the fire department, the local dealer shall provide the following service: complete inspection and operational check including chassis, cab, body, pump and aerial (as applicable), and all electrical and mechanical devices; correction of any issues and leaks; fluid level checks and top off; and complete cleaning and detailing of the apparatus. |



SPECIFICATIONS

E-ONE CUSTOM TANKER-PUMPER

Prepared for:

**Lexington Fire Department
Lexington-Fayette Urban County Government
Lexington, KY**

APPARATUS DESCRIPTION

The apparatus herein specified is an E-One Custom Tanker-Pumper with a 1000 gpm Hale MBP Pump, 3030 gallon Water Tank, and a heavy-duty Extruded Aluminum Body, mounted on an E-One Cyclone Custom Chassis.

MANUFACTURER PROFILE

E-ONE is a worldwide designer, manufacturer and marketer of fire rescue vehicles with more than 23,000 vehicles in operation around the world. Headquartered in Ocala, Florida, E-ONE is the industry leader in product innovations, new technologies and exceeding customer expectations.

E-ONE manufactures custom and commercial pumpers and tankers, aerial ladders and platforms, rescues of all sizes, quick attack units, industrial trucks, and aircraft rescue firefighting vehicles to meet the needs of fire departments, rescue/EMS squads, airports and Homeland Security agencies.

Just as important as the full product line is the fact that E-ONE engineers and builds the complete vehicle - chassis, cab, body, and aerial device. And because E-ONE is a single source manufacturer, the customer's after sale needs are satisfied with just one call to their dealer or E-ONE for parts, service, warranty, training and manuals.

Established in 1974, E-ONE has grown to become an industry leader, and today employs more than 800 people in five plants totaling more than 420,000 square feet. E-ONE pioneered the use of aluminum in fire rescue vehicles and continues to lead the industry today with innovative uses of this material. Innovation has been the company's driving force and continues to be the impetus behind its pursuit of new technologies. The result is state-of-the-art fire rescue vehicles

recognized for superior firefighting and rescue capabilities.

Quality is the number one priority throughout E-ONE, and we consider it to be critical for continued business success. We define quality as conformance to requirements and charge all employees, from top management down, to dedicate their abilities and direct their energies towards complying with our quality policy.

Delivery of products and services that conform to customer and regulatory/legal requirements is a company-wide mandate. We will not knowingly accept a contract with quality requirements that cannot be met or surpassed, nor will we deliver any product that does not meet contractual requirements.

At E-ONE, quality applies to every department and everything we do. Each employee, by producing quality work, individually contributes to the fulfillment of our policy. Every employee is empowered with the authority and responsibility to ensure that their work process operates in conformance to requirements. All levels of management are responsible to continually stress our position on quality and are required to discontinue work and institute corrective action if conformance to requirements cannot be maintained. We will not waiver or alter this position.

E-ONE has one of the best warranty packages in the industry. E-ONE vehicles have a 10-year body structural warranty, a 10-year stainless steel plumbing warranty, a 10-year paint warranty, a 20-year aerial device structural warranty, a lifetime corrosion perforation warranty and a lifetime water tank warranty.

E-ONE dealers are supported by a Customer Support Group, which includes a computerized parts warehouse that can ship E-ONE parts worldwide within 72-hours. This skilled group provides a single-point contact for all service needs, warranty and parts requirements, and is ready to provide technical assistance. Since E-ONE builds the complete apparatus, most parts are in stock and ready to ship.

E-ONE is wholly American owned by American Industrial Partners (AIP), and operates as a division of the REV Group, Inc., a market leader in the manufacture of fire and emergency vehicles, recreational vehicles, and bus and industrial vehicles with an annual revenue of approximately \$2 billion. Other REV brands include Horton, Wheeled Coach, AEV, Road Rescue, McCoy-Miller, Marque, and Leader ambulances, the Fleetwood line of recreational vehicles, and Collins buses.

DEALER PROFILE

The fire apparatus specified will be sold and serviced by Vogelpohl Fire Equipment, Inc., Erlanger KY. Vogelpohl Fire Equipment has been in business for 26 years. Vogelpohl Fire Equipment provides experienced personal dedicated to fire apparatus and emergency vehicle sales and service, and also sells and services a broad line of fire department equipment and supplies.

Vogelpohl representatives, in conjunction with the manufacturer, prepared this proposal, and will attend all contract and/or specification review meetings, pre-construction meetings,

inspection trips, and will deliver the completed unit to the purchaser and provide the training as proposed, to ensure the success of your apparatus purchase.

Vogelpohl technicians will perform or coordinate all warranty and repair. Service and repair will be accomplished in your station whenever possible, or when necessary at our sales and service facility located near the Greater Cincinnati Airport.

BID BOND REQUIREMENTS

Vogelpohl Fire Equipment has furnished a bid surety in the amount of 5% with our bid.

PERFORMANCE BOND

If their bid is accepted and awarded, Vogelpohl Fire Equipment will furnish a 100% performance bond within fifteen (15) working days after the order is received.

PRE-CONTRACT CONFERENCE

A meeting shall be held at the Purchasers Fire Headquarters prior to the contract signing for a thorough review of the Purchaser's bid specifications and the Bidder's detailed response, to ensure that all aspects of Purchaser's requirements have been addressed by the Bidder.

PRE-CONSTRUCTION CONFERENCE

At the request of the purchaser or the manufacturer, a meeting may be held after the order has been submitted to review the specifications, details, and drawings, answer any outstanding questions or issues, and obtain final approvals of the purchaser. Unless otherwise specified in the bid, this meeting shall be held at the purchaser's fire headquarters.

This meeting will be in accordance with the engineering and build schedule of E-ONE so as not to delay the construction of the apparatus beyond the delivery commitment of the bid. The meeting shall be held prior to the commencement of any work being done on the chassis or the apparatus. The responsible representative(s) of the purchaser shall be in attendance at the conference to authorize decisions to be made in the behalf of the purchaser.

It is understood that any delays in scheduling a pre-construction conference, changes to the apparatus made after execution of the contract including any changes resulting from a pre-construction conference, or delays in obtaining approval signatures of the purchaser, may delay construction of the apparatus and increase the proposed delivery time.

INSPECTION TRIP

Vogelpohl Fire Equipment has included in their bid one (1) inspection trip for three (3) members of the fire department and one (1) dealer representative to the E-ONE manufacturing facility where the apparatus proposed is being constructed. The trips will take place for a pre-build conference, mid-point inspection, and final inspection of the completed apparatus prior to delivery to the Dealer's facility. All expenses for transportation, meals and lodging will be paid for by E-ONE and it's authorized dealer/agent. Travel would be via commercial airline.

Trips shall be scheduled in accordance with the production schedule. Any delays caused by changes ordered by the purchaser shall affect the delivery schedule.

TESTING

The apparatus shall be thoroughly tested by a certified, independent Third Party Testing Organization in accordance with the appropriate requirements of the latest edition of NFPA, Standard for Automotive Fire Apparatus. The manufacturer will include all required certification forms in the delivery package.

DELIVERY

The bid price includes delivery of the completed fire apparatus to the purchaser's location, serviced and ready for use, except for purchaser's installation of purchaser provided tools and equipment. Delivery from the manufacturer to the dealer shall be over-the-road under the vehicle's own power. Any mechanical problems discovered during the delivery from manufacturer to the dealer shall be corrected by the dealer prior to delivery to the purchaser.

DELIVERY DATE

The completed fire apparatus shall be delivered between 360 and 390 calendar days after signing of contract.

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

DELIVERY PENALTY

If the completed apparatus is not delivered within 390 calendar days after receipt of signed contract or purchase order at E-One, a penalty of \$500 per day for each day over 390 days may be deducted from the invoice.

Any delivery delays resulting from the occurrence of conditions as listed in the DELIVERY DATE paragraph above, or occurrence of conditions as listed under PENALTY DISCLAIMER paragraph below, will invalidate the agreed delivery penalty date which will be renegotiated in good faith between the purchaser, dealer, and manufacturer.

PENALTY DISCLAIMER

Neither the dealer nor the manufacturer will be held liable for any delivery delays due to acts of God, fire, civil unrest, labor disputes, governmental regulations, supplier delivery delays, or other delays beyond their control.

TESTING COMPLIANCE STANDARD

Overall Height

The apparatus shall have an overall height of 10' 2" +/-2".

Overall Length

The apparatus shall have an overall length of 33' 11".

NFPA Compliance

The E-ONE supplied components of the apparatus shall be compliant with NFPA 1901, 2016 edition.

Equipment Capacity

Equipment allowance on the apparatus shall be 2000 lbs. This allowance is in addition to the weight of the hoses and ground ladders listed in the shop order as applicable.

Cab Crashworthiness Requirement

The apparatus cab shall meet and/or exceed relevant NFPA 1901 load and impact tests required for compliance certification with the following:

Side Impact Dynamic Pre-Load per SAE J2422 (Section 5).

Testing shall meet and/or exceed defined test using 13,000 ft-lbs of force as a requirement. The cab shall be subject to a side impact representing the force seen in a roll-over. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed and cab shall remain attached to frame.

Cab testing shall be completed using 13,776 ft-lbs of force **exceeding** testing requirements.

Quasi-static Roof Strength (proof loads) per SAE J2422 (Section 6) / ECE R29, Annex 3, paragraph 5.

Testing shall meet and/or exceed defined test using 22,046 lbs of mass as a requirement. Testing shall be completed using platen(s) distributed uniformly over all bearing members of the cab roof structure.

Cab testing shall be completed using 23,561 lbs of mass **exceeding** testing requirements. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and doors shall remain closed.

Additional cab testing shall be conducted using 117,336 lbs of mass **exceeding** testing requirements by **over five (5) times**. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and the doors shall remain closed.

Frontal Impact per SAE J2420.

Testing shall meet and/or exceed defined test using 32,549 ft-lbs of force as a requirement. The cab shall be subject to a frontal impact as defined by the standard. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed and cab shall remain attached to frame.

Cab testing shall be completed using 34,844 ft-lbs of force **exceeding** testing requirements.

Additional cab testing shall be conducted using 65,891 ft-lbs of force **exceeding** testing requirements by **over two (2) times**.

The cab shall meet all requirements to the above cab crash worthiness; **NO EXCEPTIONS**.

A copy of a certificate or letter verifying compliance to the above performance by an independent, licensed, professional engineer shall be provided upon request.

For any or all of the above tests, the cab manufacturer shall provide either photographs or video footage of the procedure upon request.

Seat Mounting Strength

The cab seat mounting surfaces shall be third party tested and in compliance with FMVSS 571.207.

Seat Belt Anchor Strength

The cab seat belt mounting points shall be third party tested and in compliance with FMVSS 571.210.

ISO Compliance

The manufacturer shall ensure that the construction of the apparatus shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus that is built to exacting standards, meets the customer's expectations, and satisfies the customer's requirements.

BUMPERS

Front Bumper

The vehicle shall be equipped with a one-piece 10" high bumper made from 10 gauge (0.135" nominal) polished stainless steel for corrosion resistance, strength, and long lasting appearance. It shall be mounted directly to the front frame extensions for maximum strength. The bumper shall incorporate two (2) stiffening ribs.

Bumper Extension

The bumper extension shall be approximately 4" from the face of the cab as required.

FRAME ASSEMBLY

Frame Assembly

The frame shall consist of two (2) C-channel frame rails with heavy-duty cross-members. Each frame rail shall have the following minimum specifications in order to minimize frame deflection under load and thereby improve vehicle ride and extend the life of the frame:

Dimensions: 10-1/4" x 3-1/2" x 3/8"

Material: 110,000-psi minimum yield strength, high strength, low alloy steel

Section Modulus: 16.61 cu. in.

Resistance to Bending Moment (RBM): 1,827,045 in. lbs.

If larger rails are provided, the maximum height of each frame rail shall not exceed the 10-1/4" dimension by more than 1/2" in order to ensure the lowest possible body height for ease of access as well as the lowest possible vehicle center of gravity for maximum stability.

There shall be a minimum of six (6) cross-members joining the two (2) frame rails in order to make the frame rigid and hold the rails/liners in alignment. The cross-members shall be a combination of a formed steel C-channel design along with heavy duty steel fabricated designs as required for the exact chassis configuration. The cross-members shall be attached to the frame rails with not less than four (4) bolts at each end arranged in a bolt pattern to adequately distribute the cross-member load into the rail/liner and minimize stress concentrations.

All frame fasteners shall be high-strength Grade 8, flanged-head threaded bolts and nuts for frame strength, durability, and ease of repair. The nuts shall be Stover locknuts to help prevent loosening. The frame fasteners shall be tightened to the proper torque at the time of assembly.

The frame rails shall be hot-dip galvanized and powder coated for improved corrosion resistance. The galvanization shall be a minimum of 4 mils thick and done in accordance with ASTM A123. The powder coat shall be 6.5 mils thick (+/- 1.5 mils) and pass ASTM D3359 testing.

The frame cross-members and frame mounted components (suspensions, axles, air tanks, battery boxes, fuel tank, etc.) shall be painted black.

The apparatus manufacturer shall supply a full lifetime frame warranty including cross-members against defects in materials or workmanship. Warranties that provide a lifetime warranty for only the frame rails, but not the cross-members, are not acceptable. NO EXCEPTIONS.

The custom chassis frame shall have a WHEEL ALIGNMENT in order to achieve maximum vehicle road performance and to promote long tire life. The alignment shall conform to the manufacturer's internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery upon request.

Frame Liner

A 9-3/8" x 3-1/8" x 3/8" channel frame liner shall be bolted to each frame rail for added strength and rigidity. Frame liners shall be made of 110,000 psi minimum yield, high strength, low alloy steel. The frame rail liners shall be hot-dip galvanized and powder coated for improved corrosion resistance. The galvanization shall be a minimum of 4 mils thick and done in accordance with ASTM A123. The powder coat shall be 6.5 mils thick (+/- 1.5 mils) and pass ASTM D3359 testing.

Each frame rail with liner shall have the following minimum characteristics:

Section Modulus: 28.74 cu. in.

RBM: 3,161,400 in. lbs.

The frame liners shall be inserted inside the open portion of the frame rails and shall run continuously from the rear of the frame to the centerline of the front axle to provide maximum frame strength at all critical load points.

Galvanized Frame Components

The front chassis frame extensions, rear subframe (If equipped), crossmembers and battery brackets shall be hot-dip galvanized for increased corrosion resistance. The coating shall be done in compliance with the ASTM A123 Standard.

Coated Fasteners

The custom chassis frame assembly shall be assembled using GEOMET 720 coated fasteners for corrosion resistance.

Front Tow Eyes

Two (2) 3/4" thick heavy duty steel tow eyes shall be securely attached to the chassis frame rails at the front of the apparatus. They shall be mounted down below the bumper / cab.

Rear Tow Eyes

Two (2) heavy duty tow eyes made of 3/4" (0.75") thick steel having 2-1/2" diameter holes shall be mounted below the body at the rear of the vehicle to allow towing (not lifting) of the apparatus without damage. The tow eyes will be welded to the lower end of a 5" steel channel that is bolted at the end of the chassis frame rails. The tow eyes shall be painted chassis black.

AXLES

Front Axle

The vehicle shall utilize an ArvinMeritor FL-941 front axle with a rated capacity of 18,700 lbs. It shall have "easy steer" knuckle pin bushings and 68.5" kingpin centers. The axle shall be of I-beam construction and utilize grease-lubricated wheel bearings. The vehicle shall have a nominal cramp angle of 45 degrees, plus two (+ 2) degrees to minus three (- 3) degrees including front suction applications.

The front axle hubs shall be made from ductile iron and shall be designed for use with 10 hole hub-piloted wheels in order to improve wheel centering and extend tire life.

The front springs shall be parabolic tapered, minimum 4" wide x 54" long (flat), minimum 3 leaf, progressive rate with bronze bushings and a capacity of 20,000 lbs. at the ground.

Tapered leaf springs provide a 20% ride improvement over standard straight spring systems. Supporting documentation/data shall be provided upon request.

The vehicle shall be equipped with a Sheppard model M-110 power steering gear, used in conjunction with a power assist cylinder. The steering assembly shall be rated to statically steer up to a maximum front axle load of 18,700 lbs. Relief stops shall be provided to reduce system pressure upon full wheel cut. The system shall operate mechanically should the hydraulic system fail.

A 2-year/unlimited miles parts and 2-year labor axle warranty shall be provided as standard by ArvinMeritor Automotive.

In order to achieve maximum vehicle road performance and to promote long tire life, there shall be a wheel alignment. The alignment shall conform to the manufacturer's internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery.

Shock Absorbers Front

Koni model 90 shock absorbers shall be provided for the front axle. The shocks shall be three way adjustable.

The shocks shall be covered by the manufacturer's standard warranty.

Front Axle Oil Seals

The front axle shall have Stemco oil seals with sight glass to check the lubricant level of the axle spindles.

Rear Axle

The vehicle shall utilize an ArvinMeritor RT-46-160, 48,000 lb. capacity rear tandem axle with single reduction hypoid gearing.

The axle shall be equipped with oil-lubricated wheel bearings with ArvinMeritor oil seals.

A 2-year/unlimited miles parts and 2-year labor axle warranty shall be provided as standard by ArvinMeritor Automotive.

Driver Controlled Differential

A Rockwell driver controlled main differential lock shall be supplied. Operated from within the cab, it reduces wheel spin-outs by transferring power from the slipping wheel to the wheel with traction. An indicator shall be provided visible to the driver to show when the lock is engaged.

When used in a tandem axle application, the DCDL will be installed on the rear/rear axle only.

Rear Suspension

The vehicle shall be equipped with a Hendrickson FIREMAAX EX model FMX-482 air ride suspension for tandem drive axles. The suspension shall include dual height control valves that allow uneven, side heavy loads to be balanced, Quik-Align for easy axle alignment and four (4) hydraulic shock absorbers. The suspension shall be rated for the maximum axle capacity.

WHEELS

Front Wheels

The vehicle shall have two (2) Accuride polished (on outer wheel surfaces only) aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.

The wheel shall have a load rating of up to 11,000 lbs. each (up to 11,400 lb rating available with speed limited to 60 MPH)

Rear Wheels

The vehicle shall have eight (8) Accuride polished (on outer wheel surfaces only) aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.

Front Wheel Trim Package

The front wheels shall have stainless steel lug nut covers (for use with aluminum wheels) or chrome plated plastic (for use with steel wheels). The front axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel universal baby moons. All stainless steel baby moons shall carry a lifetime warranty plus a 2 year re-buffing policy. There shall be two (2) baby moons and twenty (20) lug nut covers.

Rear Wheel Trim Package, Tandem Axle

The rear wheels shall have stainless steel lug nut covers (chrome plated steel lug nut covers not acceptable), or American made chrome plated plastic lug nut covers. The rear axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel, spring clip band mount high hats, DOT user friendly. All stainless steel high hats shall carry a lifetime warranty plus a 2 year rebuffing policy. There shall be four (4) high hats and forty (40) lug nut covers.

Valve Stem Extensions

Each inside rear wheel on the rear axles shall have valve stem extensions.

TIRES

Front Tires

The front tires shall be two (2) Michelin 385/65R22.5 tubeless radial tires with X MULTIWAY HD XZE highway tread.

The tires with wheels shall have the following weight capacity and speed ratings:

Up to 22,000 lbs. @ 68 MPH (steel or aluminum wheels)

The wheels and tires shall conform to the Tire and Rim Association requirements.

Rear Tires

The rear tires shall be Michelin 11R22.5 tubeless type radial tires with XDN2 all weather tread.

The tires with wheels shall have the following weight capacity:

48,000 lbs. (tandem duals) @ 75 MPH

The wheels and tires shall conform to the Tire and Rim Association requirements.

Tire Pressure Indicators

The apparatus shall be provided with Real Wheels AirGuard LED tire pressure indicating valve stem caps. When the tire is under inflated by 5-10 PSI, the LED indicator on the cap shall flash red. The indicator housings shall be shock resistant and constructed from polished stainless

steel. The indicators shall be calibrated by attaching to valve stem of a tire at proper air pressure per load ratings and easily re-calibrated by simply removing and re-installing them during service.

Real Wheel Part number RWC1234 was superseded by RWC1235 as of June 2015

BRAKE SYSTEMS

Front Brakes

The front axle shall be equipped with Meritor DiscPlus EX225H 17 inch disc brakes.

The brakes shall be covered by the manufacturer's standard warranty which is three years, unlimited mileage and parts only.

Rear Brakes

The rear axle shall be equipped with ArvinMeritor 16-1/2" x 7" S-cam brakes with cast brake drums. Q-Plus shoes shall be provided with up to 48,000 lb. axle ratings and P-Type shoes with over 48,000 lb. axle ratings.

The rear axle brakes shall be furnished with automatic slack adjusters. ArvinMeritor brand shall be supplied on RT-40-145, RT-46-160 and RT-50-160 axles, and Haldex brand shall be supplied on RT-58-185 axles.

A 3 year/unlimited miles parts and 3 year labor rear brake warranty shall be provided as standard by ArvinMeritor Automotive. The warranty shall include bushings, seals, and cams.

Brake System

The vehicle shall be equipped with air operated brake system. The system shall meet or exceed the design and performance requirements of current FMVSS-121 and test requirements of current NFPA 1901 Standard.

Each wheel shall have a separate integral brake chamber. A dual treadle valve shall split the braking power between the front and rear systems.

The air system shall be provided with a rapid build-up feature, designed to meet current NFPA 1901 requirements. A 1/4" brass quick-release air inlet with male connection shall be located inside the driver door on the left side of the cab. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging into the wet tank.

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

Two (2) air pressure needle gauges, for front and rear air pressure, with warning light and buzzer shall be installed at the driver's instrument panel.

One (1) reservoir shall serve as the wet tank and a minimum of one (1) tank shall be supplied for each of the front and rear axles. The total system shall carry a sufficient volume of air to comply with FMVSS-121.

The following tank sizes shall be installed:

Tank Sizes in Cubic Inches

| Suspension | Wet | Front | Rear | Rear Extension | Total |
|-------------------|------------|--------------|-------------|-----------------------|--------------|
| 34-54K | 1738 | 1738 | 2988 | 0 | 6464 |
| 58K | 1738 | 1738 | 2988 | 1738 | 8202 |

An automatic drain valve shall be installed on the wet tank. All other tanks shall be equipped with manual drain valves.

A Wabco ABS system shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to axles and all electrical connections shall be environmentally-sealed, water-, weather-, and vibration-resistant.

The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall sense approaching wheel lock and instantly modulate brake pressure up to five (5) times per second to prevent wheel lock-up. Each wheel shall be individually controlled. To improve field performance, the system shall be equipped with a dual circuit design. The system circuits shall be configured in a diagonal pattern. Should a malfunction occur, that circuit shall revert to normal braking action. A warning light at the driver's instrument panel shall indicate malfunction to the operator.

The system shall consist of a sensor clip, sensor, electronic control unit, and solenoid control valve. The sensor clip shall hold the sensor in close proximity to the tooth wheel. An inductive sensor consisting of a permanent magnet with a round pole pin and coil shall produce an alternating current with a frequency proportional to wheel speed. The unit shall be sealed, corrosion-resistant and protected from electro-magnetic interference. The electronic control unit shall monitor the speed of each wheel sensor and a microcomputer shall evaluate in milliseconds wheel slip. A deviation shall be corrected by cyclical brake application and release. If a malfunction occurs, the circuit shall signal the operator and the malfunctioning half of the system shall shut down. The system is installed in a diagonal pattern for side to side control. The system shall ensure that each wheel is braked in optimum efficiency up to five (5) times a second.

The system shall also interface with the application of the auxiliary engine, exhaust, or driveline brakes to prevent wheel lock.

To improve service trouble-shooting, provisions in the system for an optional diagnostic tester shall be provided. The system shall test itself each time the vehicle is started and a dash-mounted light shall go out once the vehicle is moving above 4 MPH.

A 3 year/300,000 mile parts and labor Anti-Locking Braking System (ABS) warranty shall be provided as standard by Meritor Automotive.

Park Brake Release

One (1) Bendix-Westinghouse PP-5 parking brake control valve shall be supplied on the lower dash panel within easy reach of the driver.

Emergency Brake Activation

An additional emergency parking brake activation valve shall be supplied on the dash panel within easy reach of the officer. The valve shall be a Bendix-Westinghouse PP-8 plumbed in series with the standard PP-1 brake control valve.

A guard shall be provided over the valve. The guard shall be constructed of 14 gauge brushed stainless steel.

Electronic Stability Control

The apparatus shall be equipped with a G4 6S6M Electronic Stability Control (ESC) system that combines the functions of Roll Stability Control (RSC) with the added capability of yaw - or rotational – sensing.

RSC focuses on the vehicle's center of gravity and the lateral acceleration limit or rollover threshold. When critical lateral acceleration thresholds are exceeded, RSC intervenes to regulate the vehicle's deceleration functions. The added feature of ESC is to automatically intervene to reduce the risk of the vehicle rotating while in a curve or taking evasive action, prevents drift out through selective braking, and controlling and reducing vehicle speed when lateral acceleration limits are about to be exceeded.

Intervention by the system occurs in three forms - engine, retarder and brake control. The ESC system uses several sensors to monitor the vehicle. These include a steering wheel angle sensor, lateral accelerometer, and yaw position sensor. ESC constantly monitors driving conditions and intervenes if critical lateral acceleration is detected or if the vehicle begins to spin due to low friction surfaces. The system provides control of engine and retarder torque as well as automatically controlling individual wheels to counteract both over steer and under steer.

To further improve vehicle drive characteristics, the unit shall be fitted with Automatic Traction Control (ATC). This system shall control drive wheel slip during acceleration from a resting point. An extra solenoid valve shall be added to the ABS system. The system shall control the engine and brakes to improve acceleration slip resistance. The system shall have a dash mounted light that shall come on when ATC is controlling drive wheel slip.

3 year/300,000 miles parts and labor warranties for ESC, RSC, and ATC shall be provided as standard by Meritor Automotive.

Brake System Fittings

All air brake system hoses on the chassis shall be connected by use of compression fittings. Includes air lines in the chassis cab (if equipped).

AIR SYSTEM OPTIONS

Air Dryer

The chassis air system shall be equipped with a Meritor/Wabco System Saver 1200 air dryer located under the cab. The air dryer shall utilize a single spin-on desiccant cartridge.

Air Lines

Air brake lines shall be constructed of color coded nylon tubing routed in a manner to protect them from damage. Brass fittings shall be provided.

Air Inlet

A 1/4" brass quick-release air inlet with a male connection shall be provided. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging air directly into the wet tank of the air brake system. It shall be located driver door jamb.

Stainless Steel Mounting Straps [Qty: 4]

Stainless steel mounting straps shall be provided for an air tank.

Air Tank Drain Pull Cords

Manual drain valves with pull cords routed to side of cab/body shall be provided for all air brake system tanks. Labels shall be provided at the side of the cab/body that read "Air Tank Drain".

Isolated Air Reservoir

The air system shall have an additional 1738 cu. in. isolated reservoir. The supply side of the reservoir shall be equipped with a check valve and an 85 psi pressure protection valve.

Specified options shall be plumbed to the isolated air tank.

Auxiliary Air Tank Plumbing

The auxiliary air tank shall be plumbed to the following optional accessories, if equipped: Chassis air horns, brake system air outlet, air reel, light tower, air primer and or customer/dealer supplied pneumatic add-on(s).

Air Horns

Dual Grover air horns shall be provided, connected to the chassis air system. The horns shall be mounted through the front bumper. The front bumper shall have two (2) holes punched to accommodate the horns. A pressure protection valve shall be installed to prevent the air brake system from being depleted of air pressure.

ENGINES & TRANSMISSIONS

Engine

The vehicle shall utilize a Cummins L9 engine as described below:

- 450 maximum horsepower at 2100 rpm
- 1250 lb-ft peak torque at 1400 rpm
- Six (6) cylinder, charge air cooled, 4-cycle diesel
- 543 cu. in. (8.9 liter) displacement - 4.49 in bore x 5.69 in stroke
- 16.6:1 compression ratio
- Viable Geometry Turbocharged
- Engine shall be equipped with Full-Authority Electronics
- Electronic Timing Control fuel system
- Fuel cooler (when equipped with a fire pump)
- Fleetguard FS1022 fuel filter with integral water separator and water-in-fuel sensor approved by Cummins for use on the ISL engine
- Fleetguard LF9009 Venturi Combo combination full-flow/by-pass oil filter approved by Cummins for use on the ISL engine
- Engine lubrication system, including filter, shall have a minimum capacity of 25 quarts
- Delco-Remy 39 MT-HD 12-volt starter
- Cummins 18.7 cubic foot per minute (cfm) air compressor
- Corrosion inhibitor additive for coolant system
- After treatment system consisting of a oxidation catalyst and diesel particulate filter and selective catalyst reduction system
- Ember separator compliant with current NFPA 1901 standard
- The engine shall be compliant with 2017 EPA Emission standards

The engine air intake shall draw air through the front cab grill. The intake opening shall be located on the officer (right) side behind front cab face with a plenum that directs air to the air filter. The air cleaner intake piping shall be made from aluminized steel tubing with flexible rubber hoses. The intake piping clamps shall be heavy-duty, constant-torque, T-bolt style to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.

The air cleaner shall be an 11" diameter K&N for lower restriction and high air flow. The filtration media shall be washable and easily accessed for service. The air filter shall have a 3 year / 300,000 mile warranty.

The engine exhaust piping shall be a minimum of 4" diameter welded stainless steel tubing. The aftertreatment system shall be mounted horizontally under the right-hand frame rail in back of the cab in order to minimize heat transmission to the cab and its occupants. The exhaust shall be directed away from the vehicle on the right side ahead of the rear wheels in order to keep exhaust fumes as far away as possible from the cab and pump operator position.

A 5-year/100,000-miles parts and labor warranty shall be provided as standard by Cummins.

A copy of the Engine Installation Review stating the engine installation meets Cummins recommendations shall be provided as requested. The engine installation shall not require the operation of any type of "power-down" feature to meet engine installation tests.

Transmission

The vehicle shall utilize an Allison EVS3000P, electronic, 5-speed automatic transmission.

A push button shift module shall be located right side of the steering column, within easy reach of the driver. The shift position indicator shall be indirectly lit for after-dark operation. The shift module shall have a "Do Not Shift" light and a "Service" indicator light that are clearly visible to the driver. The shift module shall have means to enter a diagnostic mode and display diagnostic data.

A transmission oil temperature gauge with warning light and buzzer shall be installed on the cab instrument panel to warn the driver of high oil temperatures that may damage the transmission.

The transmission shall have a gross input torque rating of 1250 lb.-ft. and a gross input power rating of 450 HP.

The gear ratios shall be as follows:

1 - 3.49

2 - 1.86

3 - 1.41

4 - 1.00

5 - .75

R - 5.03

The transmission shall have an oil capacity of 23 quarts and shall be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the driver.

A water-to-oil transmission oil cooler shall be provided to ensure proper cooling of the transmission when the vehicle is stationary (no air flow). Air-to-oil transmission oil coolers, which require constant air flow, are not acceptable.

The transmission shall be provided with two (2) engine-driven PTO openings located at the 4 o'clock and 8 o'clock positions for flexibility in installing pto-driven equipment.

The automatic transmission shall be equipped with a power lock-up device. The transmission lock-up shall prevent down shifting of the transmission when the engine speed is decreased during pump operations, thereby maintaining a constant gear ratio for safe operation of the

pump. The transmission lock-up shall be automatically activated when the pump is engaged in gear. The transmission lock-up shall be automatically deactivated when the pump is disengaged for normal road operation.

A 5-year/unlimited miles parts and labor warranty shall be provided as standard by Allison Transmission.

Automatic Shift to Neutral

The transmission shall be programmed to comply with NFPA 1901 and automatically shift to neutral upon application of the parking brake.

Transmission Selector

A push-button transmission shift module, Allison model 29538373, shall be located to the right side of the steering column within easy reach of the driver. The shift position indicator shall be indirectly lit for after dark operation. The shift module shall have a "Do Not Shift" light and a "Service" indicator light. The shift module shall have means to enter a diagnostic mode and display diagnostic data including oil life monitor, filter life monitor, transmission health monitor and fluid level. A transmission temperature gauge with warning light and buzzer shall be installed on the cab instrument panel.

Transmission Fluid

The transmission fluid shall be TransSynd synthetic.

Vehicle Speed

Electronic speed limiting set at 60 MPH as required by NFPA 1901.

SECONDARY BRAKING

Telma Retarder

A Telma Focal retarder shall be mounted directly to the driveline to aid in slowing the vehicle by providing up to 85% of the braking requirements.

The retarder is a self air-cooled, frictionless, electromagnetic retarder that develops a magnetic field that applies a resistant torque to a set of rotors that are connected to the drive shaft. The retarder begins to slow the vehicle down before the foundation brakes are activated. As a result, the foundation brakes remain cool and capable of operating at their maximum efficiency.

The Telma has four (4) stages of retardation. Stage 1 & 2 shall be activated when throttle is released; stage 3 & 4 shall be activated when brake pedal is applied. Four (4) lights mounted on the instrument panel indicate to the driver the stage at which the retarder is applied. An electronic speed switch is used to deactivate the retarder when the vehicle comes to a stop.

EXHAUST OPTIONS

Exhaust End Modification

The end of the exhaust tail pipe shall be provided with a Plymovent Magnetic Grabber exhaust end for an in-house exhaust extraction system. The tail pipe will be at 90 degrees and straight out below the side of body. The bolt-on end shall be installed on the tail pipe to properly position the Plymovent nozzle.

Exhaust End Modification

The end of the exhaust tail pipe shall be modified to accommodate a Plymovent in-house exhaust extraction system. The tail pipe will be at 90 degrees and straight out below the side of body. A stop ring shall be provided on the tail pipe to properly position the Plymovent nozzle. The exhaust outlet shall be vented for use with 2013 and newer EPA engines.

COOLING PACKAGE

Engine Cooling Package

Radiator

The cooling system shall include an aluminum tube-and-fin radiator with a minimum of 1,408 total square inches of frontal area to ensure adequate cooling under all operating conditions. There shall be a drain valve in the bottom tank to allow the radiator to be serviced. A sight glass shall be included for quick fluid level assessment. The radiator shall be installed at the prescribed angle in order to achieve the maximum operational effectiveness. This shall be accomplished according to established work instructions and properly calibrated angle measurement equipment.

Silicone Hoses

All radiator and heater hoses shall be silicone. Pressure compensating band clamps shall be used to eliminate hose pinching on all hoses 3/4" diameter and larger. All radiator hoses shall be routed, loomed, and secured so as to provide maximum protection from chafing, crushing, or contact with other moving parts.

Coolant

The cooling system shall be filled with a 50/50 mixture of water and antifreeze/coolant conditioner to provide freezing protection to minus 40 (- 40) degrees F for operation in severe winter temperatures.

Coolant Recovery

There shall be a coolant overflow recovery system provided.

Charge Air Cooler System

The system shall include a charge air cooler to ensure adequate cooling of the turbocharged air for proper engine operation and maximum performance.

Charge Air Cooler Hoses

Charge air cooler hoses shall be made from high-temperature, wire-reinforced silicone to withstand the extremely high temperatures and pressures of the turbocharged air. The hoses shall incorporate a flexible hump section to allow motion and misalignment of the engine relative to the charge air cooler. Charge air cooler hose clamps shall be heavy-duty, constant-torque, T-bolt clamps to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.

Fan/Shroud

The fan shall be 30" in diameter with eleven (11) blades for maximum airflow and dynamic balance. It shall be made of nylon for strength and corrosion resistance. The fan shall be installed with grade 8 hardware which has been treated with thread locker for additional security. A fan shroud attached to the radiator shall be provided to prevent recirculation of engine compartment air around the fan in order to maximize the cooling airflow through the radiator. The fan shroud shall be constructed of fiber-reinforced high temperature plastic. The shroud shall be specifically formed with curved surfaces which improves air flow and cooling.

Transmission Cooler

The cooling system shall include a liquid-to-liquid transmission cooler capable of cooling the heat generated from the transmission. When a transmission retarder is selected, the cooler shall have an increased capacity to handle the additional heat load.

FUEL SYSTEMS

Fuel System

One (1) 65 gallon fuel tank shall be provided. The tank shall be of an all-welded, stainless-steel construction with anti-surge baffles and shall conform to all applicable Administration (FHWA) 393.65 and 393.67 standards. The tank shall be mounted below the frame rails at the rear of the chassis for maximum protection. The tank shall be secured with two (2) wrap-around T-bolt type stainless steel straps. Each strap shall be fitted with protective rubber insulation and shall be secured with grade 8 hardware. This design allows for tank removal from below the chassis.

The fuel tank shall be equipped with a 2" diameter filler neck. The filler neck shall extend to the rear of the vehicle behind the rear tires and away from the heat of the exhaust system as required by NFPA 1901 Standard for Automotive Fire Apparatus. The open end of the filler neck shall be equipped with a twist-off filler cap with a retaining chain.

The tank shall be plumbed with top-draw and top-return fuel lines in order to protect the lines from road debris. Bottom-draw and/or bottom-return fuel lines are not acceptable. A vent shall

be provided at the top of the tank. The vent shall be connected to the filler neck to prevent splash-back during fueling operations. A .50" NPT drain plug shall be provided at the bottom of the tank.

The tank shall have a minimum useable capacity of 65 gallons of fuel with a sufficient additional volume to allow for thermal expansion of the fuel without overflowing the vent.

A fuel pump shall be provided and sized by the engine manufacturer as part of the engine.

Fuel Line Hose

Wire braided fuel hose meeting SAE J-1402 shall be provided for the chassis fuel system. The hose shall have a working temperature rating of -55 degree F to 300 degree F.

The ends of the hose shall have connections that shall allow the hose to be reattached if removed.

Fuel Line Service Loop

A 4' service loop shall be provided and secured above the fuel tank(s).

Fuel/Water Separator

A Racor fuel/water separator shall be installed in place of the Cummins fuel/water separator with drain. The unit shall utilize a three-step separate process: centrifuge for primary contaminant separation, conical baffles for water coalescing, and a replaceable filter for final particulate removal. The separator shall have a bottom drain for removing contaminants, shall be heated and shall have a rated maximum flow of 3.16 GPM. A sensor with indicator light and audible alarm shall be provided for the Racor fuel/water separator. The indicator light shall be mounted in the cab visible to the driver with the unit located inside the frame rails. The unit will alert the driver of high water content in the separator bowl.

Fuel Shut-Off

A shut-off valve shall be supplied to prevent drain back of fuel into the main supply line during filter changes. The valve(s) shall be located: one (1) inlet side of fuel/water separator.

ALTERNATOR

360 Amp Alternator

A Niehoff model C505 360 amp SAE (J56) rated, 320 amp at 200 degrees F NFPA 1901 rated brush-less type alternator with rectifier shall be provided. It shall be self-energized and shall have a negative voltage compensating remote solid-state voltage regulator. The alternator shall be installed in accordance with the engine manufacturer's recommendations.

BATTERIES

Battery System

The manufacturer shall supply four (4) heavy duty Group 31 12-volt maintenance-free batteries. Each battery shall be installed and positioned so as to allow easy replacement of any single battery. Each battery shall be equipped with carrying handles to facilitate ease of removal and replacement. There shall be two (2) steel frame mounted battery boxes, one (1) on the left frame rail and one (1) on the right frame rail. Each battery box shall be secured to the frame rail with Grade 8 hardware. Each battery box shall hold (2) batteries. The batteries shall have a minimum combined rating of 4,000 (4 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 820 (4 x 205) minutes of reserve capacity for extended operation. The batteries shall have 3/8-16 threaded stud terminals to ensure tight cable connections. The battery stud terminals shall each be treated with concentrated industrial soft-seal after cable installation to promote corrosion prevention. The positive and negative battery stud terminals and the respective cables shall be clearly marked to ensure quick and mistake-proof identification.

Batteries shall be placed on non-corrosive rubber matting and secured with hold-down brackets to prevent movement, vibration, and road shock. The hold-down bracket J-hooks shall be cut to fit and shall have all sharp edges removed. The batteries shall be placed in plastic trays to provide preliminary containment should there be leakage of hazardous battery fluids. There shall be two (2) plastic trays, each containing (2) batteries. Each battery tray shall be equipped with a rubber vent hose to facilitate drainage. The rubber vent hose shall be routed to drain beneath the battery box. The batteries shall be positioned in well-ventilated areas.

One (1) positive and one (1) negative jumper stud shall be provided.

Batteries shall have a warranty of twelve (12) months that shall commence upon the date of delivery of the apparatus.

CHASSIS OPTIONS

Engine Fan Clutch

The engine shall be equipped with a thermostatically controlled engine cooling fan. The fan shall be belt driven and utilize a clutch to engage when the engine reaches a specified temperature and / or the water pump is engaged (if equipped).

When disengaged, the fan clutch shall allow for improved performance from optional floor heaters, reduced cab interior noise, increased acceleration and improved fuel economy.

The fan shall be equipped with a fail-safe engagement so that if the clutch fails the fan shall engage to prevent engine overheating.

Power Steering Cooler

A heat exchanger (cooler) shall be installed to maintain desired power steering fluid temperature. The cooler shall be a model DH-073-1-1 with air / oil design rated at 6300 BTU/HR @10 GPM. The cooler shall be mounted in front of the radiator and plumbed with #10 lines.

Drivelines

Drivelines shall have a heavy duty metal tube and shall be equipped with Spicer 1710HD universal joints to allow full-transmitted torque to the axle(s). Drive shafts shall be axially straight, concentric with axis and dynamically balanced.

DEF Tank

A diesel exhaust fluid (DEF) tank with a five (5) gallon capacity shall be provided.

The DEF tank shall include a heater fed by hot water directly from the engine block to prevent the DEF from becoming too cool to operate correctly per EPA requirements. The tank shall include a temperature sensor to control the heater control valve that controls the feed of hot water from the engine to the DEF tank heater.

A sender shall be provided in the DEF tank connected to a level gauge on the cab dash.

The tank shall be located left side below rear of cab.

On-Spot Tire Chains

The chassis shall be provided with On-Spot automatic tire chain system. The system shall include:

- An air cylinder containing one diaphragm, one return spring, one pushrod and a collapsible dust boot held in place with an Oetiker® style retainer to prevent foreign material from entering the air cylinder. The cylinder will be assembled with a two-piece cylinder clamp. The air cylinder will be cast aluminum and the lid will be threaded to receive a 90-degree DOT approved air fitting. The cylinder and lid must be anodized for corrosion resistance. Each cylinder will have 6 strengthening ribs. The cylinder wall thickness will be a minimum of 6mm.
- An extension rod and ball joint assembly that is fastened to the cylinder pushrod by means of a left hand thread. The ball joint must have a provision for greasings.
- A swing arm that is connected to the ball joint assembly with a Nylock lock nut on one side and is fastened to the cylinder bracket at the pivot point. The arm will be supported by 2 greaseable arm bushings. The arm will be one-piece hardened alloy material that is formed in such a fashion that it allows the chainwheel to contact the vehicle tire at 3-1/2 to 4 inches off the ground.
- A chainwheel that is fastened to the arm with one 20mm bolt that is hardened to Metric Grade 8.8 along with a hardened lock nut. The bolt will also come with one chainwheel spacer for wheel height adjustment. The chainwheel will be 7-3/4 inches in diameter and will be constructed of a one-piece cast aluminum center hub that contains two maintenance-free sealed bearings. The circumference of the chainwheel will be rubber coated so that it may ride on the inside of the vehicle tire without causing any damage to the tire. There will be 6 lengths of chains approximately 13 inches long that will be welded to a single steel ring at 60-degree intervals. The steel ring will be bolted to the center hub with 6 Grade 8 cap screws and locknuts. Each length of chain will contain up to 10 twisted links that are square-cut to provide for maximum traction in forward and

reverse. Each chainwheel will be delivered with a chainwheel helmet to protect the chainwheel bearing and casting.

A switch shall be provided in the cab for activation of the tire chains.

On-Spot Upgrade

Brass Cap up-grade option shall be provided for On-Spot tire chains.

CAB MODEL

CII X Short Cab 2 Dr

The vehicle shall have an all-welded aluminum, fully enclosed tilt cab designed exclusively for the fire service to ensure long life. It shall incorporate a welded substructure of high-strength aluminum alloy extrusions that surrounds and protects the perimeter of the occupant compartment for increased safety.

The cab shall be constructed from 3/16" (0.188") 3003 H14 aluminum alloy plate roof, floor, and outer skins welded to a high-strength 6063-T6 aluminum alloy extruded subframe. Wall supports and roof bows are 6061 T6 aluminum alloy. This combination of a high-strength, welded aluminum inner structure surrounded on all sides by load-bearing, welded aluminum outer skins provides a cab that is strong, lightweight, corrosion-resistant, and durable.

The inner structure shall be designed to create an interlocking internal "roll-cage" effect by welding two (2) 3" x 3" x 0.188" wall-thickness 6063-T5 aluminum upright extrusions between the 3" x 3" x 0.375" wall-thickness 6061-T6 roof crossbeam and the 2.25" x 3" x 0.435" wall-thickness 6063-T6 subframe structure in the front. An additional two (2) aluminum upright extrusions within the back-of-cab structure shall be welded between the rear roof perimeter extrusion and the subframe structure in the rear to complete the interlocking framework. The four (4) upright extrusions -- two (2) in the front and two (2) in the rear -- shall be designed to effectively transmit roof loads downward into the subframe structure to help protect the occupant compartment from crushing in a serious accident. All joints shall be electrically seam welded internally using aluminum alloy welding wire.

The subframe structure shall be constructed from high-strength 6061-T6 aluminum extrusions welded together to provide a structural base for the cab. It shall include a side-to-side 3" x 1.5" .375 thick C-channel extrusion across the front, with 3/4" x 2-3/4" (.75" x 2.75") full-width crossmember tubes spaced at critical points between the front and rear of the cab.

The cab floor shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate welded to the subframe structure to give the cab additional strength and to help protect the occupants from penetration by road debris and under-ride collision impacts.

The cab roof shall be constructed from 3/16" (0.188") 3003 H14 aluminum treadplate supported by a grid of fore-aft and side-to-side aluminum extrusions to help protect the occupants from penetration by falling debris and downward-projecting objects. Molded fiberglass or other molded fiber-reinforced plastic roof materials are not acceptable.

The cab roof perimeter shall be constructed from 4" x 6-5/8" (4" x 6.625") 6063-T5 aluminum extrusions with integral drip rails. Cast aluminum corner joints shall be welded to the aluminum roof perimeter extrusions to ensure structural integrity. The roof perimeter shall be continuously welded to the cab roof plate to ensure a leak-free roof structure.

The cab rear skin shall be constructed from 3/16" (0.188") 3003 H14 aluminum plate. Structural extrusions shall be used to reinforce the rear wall.

The left-hand and right-hand cab side skins shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate. The skins shall be welded to structural aluminum extrusions at the top, bottom, and sides for additional reinforcement.

The cab front skins shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate. The upper portion shall form the windshield mask, and the lower portion shall form the cab front. Each front corner shall have a full 9" outer radius for strength and appearance. The left-hand and right-hand sides of the windshield mask shall be welded to the left-hand and right-hand front door frames, and the upper edge of the windshield mask shall be welded to the cab roof perimeter extrusion for reinforcement. The cab front shall be welded to the subframe C-channel extrusion below the line of the headlights to provide protection against frontal impact.

Cab Transverse Compartment

A transverse compartment shall be provided to the rear of the front cab doors above the wheel wells. The compartment shall be constructed of 1/8" (.25") 3003 H14 aluminum alloy plate and finished with the same color as the cab interior. The compartment shall be approximately 48.5" wide x 47.25" high x 94" deep (transverse) and contain approximately 124.66 cubic feet of storage space. Door opening will be approximately 46" wide x 42" (door type will reduce opening size).

Adjustable Pull-Out Toolboard [Qty: 2]

An adjustable, 1/2 transverse, roll-out aluminum toolboard(s) shall be provided in a compartment.

The toolboard shall be constructed of 3/16" (.187") smooth aluminum plate with a sanded finish and be sized in height and depth as applicable. The toolboard shall be mounted on drawer slides at the top and bottom that will permit the board to roll out of the compartment for easier access to tools and/or equipment. The slide mechanisms shall have ball bearings for ease of extension and retraction operation and dependable service. The toolboard shall be mounted at top and bottom on adjustable tracking for ease of placement. The capacity rating shall be 500 lb. maximum at full extension. A latch shall be utilized to secure the toolboard in the open or closed position.

The toolboard(s) shall be located: Cab transverse compartment driver side. Cab transverse compartment officer side.

Cab Mounts and Cab Tilt System

The cab shall be independently mounted from the body and chassis to isolate the cab structure from stresses caused by chassis twisting and body movements. Mounting points shall consist of two (2) forward-pivoting points, one (1) on each side; two (2) intermediate rubber load-bearing cushions located midway along the length of the cab, one on each side; and two (2) combination rubber shock mounts and cab latches located at the rear of the cab, one (1) on each side.

An electric-over-hydraulic cab tilt system shall be provided to provide easy access to the engine. It shall consist of two (2) large-diameter, telescoping, hydraulic lift cylinders, one (1) on each side of the cab, with a frame-mounted electric-over-hydraulic pump for cylinder actuation.

Safety flow fuses (velocity fuses) shall be provided in the hydraulic lift cylinders to prevent the raised cab from suddenly dropping in case of a burst hydraulic hose or other hydraulic failure. The safety flow fuses shall operate when the cab is in any position, not just the fully raised position.

The hydraulic pump shall have a manual override system as a backup in the event of an electrical failure. Lift controls shall be located in a compartment to the rear of the cab on the right side of the apparatus. A parking brake interlock shall be provided as a safety feature to prevent the cab from being tilted unless the parking break is set.

The entire cab shall be tilted through a 42-45 degree arc to allow for easy maintenance of the engine, transmission and engine components. A positive-engagement safety latch shall be provided to lock the cab in the full tilt position to provide additional safety for personnel working under the raised cab.

In the lowered position, the cab shall be locked down by two (2) automatic, spring-loaded cab latches at the rear of the cab. A "cab ajar" indicator light shall be provided on the instrument panel to warn the driver when the cab is not completely locked into the lowered position.

CAB EXTERIOR

Cab Exterior

The exterior of the cab shall be 94" wide x 112" long. The cab roof shall be approximately 101" above the ground. The back-of-cab to front axle length shall be a minimum of 40".

Front axle fenderette trim shall be brushed aluminum for appearance and corrosion resistance. Bolt-in front wheel well liners shall be constructed of 3/16" (0.188") composite material to provide a maintenance-free, damage-resistant surface that helps protect the underside of the cab structure and components from stones and road debris.

A large stainless steel cooling air intake grille with an open area of no less than 81% shall be at the front of the cab.

The cab windshield shall be of a two-piece replaceable design for lowered cost of repair. The windshield shall be made from 1/4" (0.25") thick curved, laminated safety glass with a 75% light transmittance automotive tint. A combined minimum viewing area of 2,700-sq. in. shall be provided. Forward visibility to the ground for the average (50th percentile) male sitting in the

driver's seat shall be no more than 11 feet 7 inches from the front of the cab to ensure good visibility in congested areas.

Rubber Fenderette

A rubber fenderette shall be provided in place of the standard fenderette. The rubber fenderette shall extend 2.75" out from the mounting point.

Cab Roof

The cab shall have a flat roof (non-vista).

Rear Cab Wall Construction

The rear cab wall shall be constructed with the use of 3/16" aluminum diamond plate interlocking in aluminum extrusions.

Cab Doors

There shall be reflective signs on each cab door in compliance with all NFPA requirements.

Two (2) side-opening cab doors shall be provided. Doors shall be constructed of a 3/16" (0.188") aluminum plate outer material with an aluminum extruded inner framework to provide a structure that is as strong as the side skins.

Front cab door openings shall be approximately 36" wide x 71.5" high. The front doors shall open approximately 75 degrees.

The doors shall be securely fastened to the doorframes with full-length, stainless steel piano hinges, with 3/8" (0.375") diameter pins for proper door alignment, long life, and corrosion resistance. Mounting hardware shall be treated with corrosion-resistant material prior to installation. For effective sealing, an extruded rubber gasket shall be provided around the entire perimeter of all doors.

Stainless steel paddle-style door latches shall be provided on the interiors of the doors. The latches shall be designed and installed to protect against accidental or inadvertent opening as required by NFPA 1901.

The front door windows shall provide a minimum viewing area of 530 sq. in. each. All windows shall have 75% light transmittance automotive safety tint. Full roll-down windows shall be provided for the front cab doors with worm gear drive cable operation for positive operation and long life. Scissors or gear-and-sector drives are not acceptable.

Cab Front Door Windows

Driver and officer door windows shall be full width.

The front windows of the cab shall have manual actuation.

Cab Door Exterior Latches

All cab doors shall have "L" style exterior door latches.

Cab Door Handle Scuff Plates

A stainless steel scuff plate shall be installed at all cab door "L" handles for added paint protection.

Cab Door Locks

Each cab door shall have a manual operated door lock actuated from the interior of each respective door. Exterior of each cab door shall be provided with a barrel style keyed lock below the cab door handle.

The cab shall have 1250 keyed door locks provided on exterior doors to secure the apparatus.

Cab Door Panels

The inner door panels shall be made from 14 gauge brushed finish stainless steel for increased durability. The cab door panels shall incorporate an easily removable panel for access to the latching mechanism for maintenance or service.

Cab Door Map Pockets

A mechanically fastened stainless steel map pocket shall be mounted on the front cab doors, centered on the kick plates. The map pockets shall be constructed of 14 gauge (.070) stainless steel.

The dimensions of the map pocket shall be approximately 10" high x 14" wide x 1.5" deep.

Cab Door Stainless Steel Trim

Each cab door shall have a stainless steel trim on the trailing edge of the door opening. Rear doors shall have full vertical height trim; front cab doors shall be 50" tall on rear vertical edge above floor level.

Cab Door Area Lighting

There shall be two (2) clear TecNiq model T440 4" circular LED lights provided to illuminate the cab step well area. Each light shall be mounted in a resilient shock absorbent grommet and be located in the cab step well area. Each light shall be activated by the cab door ajar circuit.

Cab Door Reflective Material

Reflective Red/Fluorescent Yellow Green 3M Diamond Grade material striping shall be supplied on each of the cab doors. The stripes shall run from the lower outer corner to the upper

inside corner of the panel, forming an "A" shape when viewed from the rear. The material shall meet NFPA 1901 requirements for size (96 square inches) and reflectivity.

Cab Step [Qty: 2]

An auxiliary step below the cab door shall be provided. The step shall be constructed of .188" aluminum tread brite. The step surface shall be provided with an aggressive skid-resistant surface and have an open back. The step shall be in accordance with current NFPA requirements and shall include a multi-directional aggressive gripping surface incorporated into the diamond plate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8" (0.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

The step shall be located driver's front door, officer's front door.

Steps under front cab doors shall not interfere with approach angle.

Cab Steps

The lower cab steps shall extend 3.5" past the side of the cab to provide increased surface area.

Rear Cab - Double Compartment Door

Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pans shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pans shall have a 95-degree bend to form an integral drip rail.

The compartment doors shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the doors to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle with #459 latch shall be provided on the primary door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The secondary door shall have a dual stage rotary latch with a 750 lb rating to hold the door in the closed position. The latch shall be mounted at the top of the door. A stainless steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latch. The paddle handle shall be connected to the rotary latch by a 5/32" (.156") diameter rod. Cable actuation shall be deemed un-acceptable due to the potential for cable stretch and slippage. The striker pin shall be 3/8" (.38") diameter with slotted mounting holes for adjustment.

The compartment doors shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment doors with a dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe.

The doors shall have a gas shock-style hold-open device. The gas shocks shall have a 30 lb rating and be mounted near the top of the door (when possible).

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): driver side cab wheel well external cabinet door, officer side cab wheel well external cabinet door

MISC EXTERIOR CAB OPTIONS

Cab Mirrors

A pair of Retrac Aerodynamic model 612010 mirrors shall be provided on the cab. The west coast style mirrors shall have chrome housings with flat and convex sections. Both the upper and lower mirror sections shall be remote controlled and heated. The mirror heads shall include amber LED marker lights.

10in Convex Mirror

Retrac stainless steel 10" 3-Arm Convex mirror. (3) piece adjustable telescoping arm assembly (model 604671) and a 10" stainless steel center mounted convex head (model 604953). Mirror shall be mounted horizontally above the officer's position to permit rapid viewing of the rear cab area.

Front Mud Flaps

Black linear low density polyethylene (proprietary blend) mud flaps shall be installed on the rear of the cab front wheel wells. The design of the mud flaps shall have corrugated ridges to distribute water evenly.

Handrails

Cab door assist handrails shall consist of two (2) 1.25" diameter x 18" long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer door openings one each side of the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2" from the mounting surface to allow a positive grip with a gloved hand.

Receptacle Mounting Plate

A mounting plate shall be provided for the battery charger receptacle, battery charger indicator and if applicable the air inlet, etc. The plate shall be constructed of 14 gauge brushed finish stainless steel and be removable for service access to the receptacle(s) and indicator.

DEF Tank Access

Access door for DEF tank mounted under cab. Compartment door painted job color. For use with a 2 door cab with a rear transverse compartment (E-ONE cabs only) where standard steps are used and the DEF full is recessed.

Logo Package

The apparatus shall have manufacturer logos provided on the cab and body as applicable.

CAB INTERIOR

Cab Interior

The interior of the cab shall be of the open design with an ergonomically-designed driver area that provides ready access to all controls as well as a clear view of critical instrumentation.

The rear of the cab above the front axle will have a transverse compartment that is accessible from both sides of the cab. There will be a partition that separates the front of the cab from the rear compartment. The compartment shall be approximately 35" wide x 35" high x the width of the cab.

The engine cover between the driver and the officer shall be a low-rise contoured design to provide sufficient seating and elbow room for the driver and the officer. The engine cover shall blend in smoothly with the interior dash and flooring of the cab. An all-aluminum subframe shall be provided for the engine cover for strength. The overall height of the engine enclosure shall not exceed 23" from the floor at each side and 27" in the center section. The engine cover shall not exceed 41" in width at its widest point.

The rear portion of the engine cover shall be provided with a lift-up section to provide easy access for checking transmission fluid, power steering fluid, and engine oil without raising the cab. The engine cover insulation shall consist of 3/4" dual density fiberglass composite panels with foil backing manufactured to specifically fit the engine cover without modification to eliminate "sagging" as found with foam insulation. The insulation shall meet or exceed DOT standard MVSS 302-1 and V-0 (UI subject 94 Test).

All cab floors shall be covered with a black rubber floor mat that provides an aggressive slip-resistant surface in accordance with current NFPA 1901.

The rear engine cover area shall be covered with molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black with a pebble grain finish for slip resistance.

A minimum of 57.25" of floor-to-ceiling height shall be provided in the front seating area of the cab.

The interior side to side dimensions shall be 87" from wall padding to wall padding and 89.5" from door to door.

The floor area in front of the front seat pedestals shall be no less than 24" side to side by up to 25.0" front to rear for the driver and no less than 24" side to side by up to 27.0" front to rear for the officer to provide adequate legroom.

Battery jumper studs shall be provided to allow jump-starting of the apparatus without having to tilt the cab.

All exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

The interior of the cab shall be insulated to ensure the sound (dbA) level for the cab interior is within the limits stated in the current edition of NFPA 1901. The insulation shall consist of 2 oz. wadding and 1/4" (0.25") foam padding. The padding board shall be backed with 1/4" (0.25") thick reflective insulation. The backing shall be spun-woven polyester. Interior cab padding shall consist of a front cab headliner.

The vehicle shall use a seven-position tilt and telescopic steering column to accommodate various size operators. An 18" padded steering wheel with a center horn button shall be provided.

Storage areas, with hinged access doors, shall be provided below the driver and officer seats. The driver side compartment shall be approximately 20" x 12" x 3.5" high and the officer side compartment shall be approximately 20.25" x 22.75" x 11" high (20" x 12" x 3.5" high w/ air ride).

The front cab steps shall be a minimum of 8" deep x 24" wide. The first step shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The first step shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The steps are to be located inside the doorsill, where they are protected against mud, snow, ice, and weather. The step surfaces shall be aluminum diamond plate with a multi-directional, aggressive gripping surface incorporated into the aluminum diamond plate in accordance with current NFPA 1901.

A black grip handle shall be provided on the interior of each front door below the door window to ensure proper hand holds while entering and exiting the cab. An additional black grip handle shall be provided on the left and right side windshield post for additional handholds.

Map Box

An aluminum map/storage box shall be installed in the cab. The map box shall be constructed of 1/8" (.125) smooth aluminum. Hinged drop-down doors with push-button latches shall be installed on the front of the box for access to two (2) storage areas. Each storage area shall have

three (3) fixed shelves for storage of ring binders, map books, etc. Each latch shall have a 25 lb. rating.

The map box shall be mounted on the vertical uprights in the center of the cab between the driver and officer seating positions (between the vertical 3X3 extrusions). The box shall be offset to the rear of the cab to provide maximum top of engine cover space and clearance for the engine inspection door. The map box shall be secured and tested to meet current NFPA requirements.

Approximate dimensions:

Divided storage area - 34" W x 12.50" H x 12" D.

Map Box Finish

The map box(es) shall have Zolatone gray #20-64 finish.

Cab Instruments and Controls

Two (2) pantograph-style windshield wipers with two (2) separate electric motors shall be provided for positive operation. Air-operated windshield wipers are not acceptable because of their tendency to accumulate moisture, which can lead to corrosion or to freezing in cold weather. The wipers shall be a wet-arm type with a one (1) gallon washer fluid reservoir, an intermittent-wipe function, and an integral wash circuit. Wiper arm length shall be approximately 28", and the blade length approximately 20". Each arm shall have a 70 degree sweep for full coverage of the windshield.

Cab controls shall be located on the cab instrument panel in the dashboard on the driver's side where they are clearly visible and easily reachable. Emergency warning light switches shall be installed in removable panels for ease of service. The following gauges and/or controls shall be provided:

- Master battery switch/ignition switch (rocker with integral indicator)
- Starter switch/engine stop switch (rocker)
- Heater and defroster controls with illumination
- Marker light/headlight control switch with dimmer switch
- Self-canceling turn signal control with indicators
- Windshield wiper switch with intermittent control and washer control
- Master warning light switch
- Transmission oil temperature gauge
- Air filter restriction indicator
- Pump shift control with green "pump in gear" and "o.k. to pump" indicator lights
- Parking brake controls with red indicator light on dash
- Automatic transmission shift console
- Electric horn button at center of steering wheel
- Cab ajar warning light on the message center enunciator

Controls and switches shall be identified as to their function by backlit wording adjacent to each switch, or indirect panel lighting adjacent to the controls.

English Dominant Gauge Cluster

The cab operational instruments shall be located in the dashboard on the driver side of the cab and shall be clearly visible. The gauges in this panel shall be English dominant and shall be the following:

- Speedometer/Odometer
- Tachometer with integral hour meter
- Engine oil pressure gauge with warning light and buzzer
- Engine water temperature gauge with warning light and buzzer
- Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)
- Fuel gauge
- Voltmeter
- Transmission oil temperature gauge

This panel shall be backlit for increased visibility during day and night time operations.

Fast Idle System

A fast idle system shall be provided and controlled by the cab-mounted switch. The system shall increase engine idle speed to a preset RPM for increased alternator output.

Electrical System

The cab and chassis system shall have a centrally located electrical distribution area. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An automatic thermal-reset master circuit breaker compatible with the alternator size shall be provided. Automatic-reset circuit breakers shall be used for directional lights, cab heater, battery power, ignition, and other circuits. An access cover shall be provided for maintenance access to the electrical distribution area.

A 6 place, constantly hot, and 6 place ignition switched fuse panel and ground for customer-installed radios and chargers shall be provided at the electrical distribution area. Radio suppression shall be sufficient to allow radio equipment operation without interference.

All wiring shall be mounted in the chassis frame and protected from impact, abrasion, water, ice, and heat sources. The wiring shall be color-coded and functionally-labeled every 3" on the outer surface of the insulation for ease of identification and maintenance. The wiring harness shall conform to SAE 1127 with GXL temperature properties. Any wiring connections exposed to the outside environment shall be weather-resistant. All harnesses shall be covered in a loom that is rated at 280 degrees F to protect the wiring against heat and abrasion.

A Vehicle Data Computer (VDC) shall be supplied within the electrical system to process and distribute engine and transmission Electronic Control Module (ECM) information to chassis system gauges, the message center, and related pump panel gauges. Communication between

the VDC and chassis system gauges shall be through a 4 wire multiplexed communication system to ensure accurate engine and transmission data is provided at the cab dash and pump. The VDC shall be protected against corrosion, excessive heat, vibration, and physical damage.

Two (2) dual rectangular chrome plated headlight bezels shall be installed on the front of the cab. The low beam headlights shall activate with the release of the parking brake to provide daytime running lights (DRL) for additional vehicle conspicuity and safety. The headlight switch shall automatically override the DRL for normal low beam/high beam operation.

HVAC

Air Conditioning

An overhead air-conditioner / heater system with a single radiator mounted condenser shall be supplied.

The unit shall be mounted to the cab interior headliner in a mid-cab position, away from all seating positions. The unit shall provide ten (10) comfort discharge louvers, four (4) to the back area of the cab and six (6) to the front. These louvers will be used for AC and heat air delivery. Two (2) additional large front louvers shall be damper controlled to provide defogging and defrosting capabilities to the front windshield as necessary.

The unit shall consist of a high output evaporator coil and heater core with one (1) high output dual blower for front air delivery, and two (2) high performance single wheel blowers for rear air delivery.

The control panel shall 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. A three-speed blower switch shall control air speed.

The condenser shall be radiator mounted and have a minimum capacity of 65,000 BTU's and shall include a receiver drier.

Performance Data: (Unit only, no ducting or louvers)

- AC BTU: 55,000
- Heat BTU: 65,000
- CFM: 1300 @ 13.8V (All blowers)

The compressor shall be a ten-cylinder swash plate type Seltec model TM-31HD with a capacity of 19.1 cu. in. per revolution.

The system shall be capable of cooling the interior of the cab from 100 degrees ambient to 75 degrees or less with 50% relative humidity in 30 minutes or less.

HVAC Control Location

Heating and air conditioning controls shall be located in the center dash area upper tier offset to driver side.

SEATS

Cab Seats

All cab seats shall be Bostrom brand.

Seat Cover Material

All seats shall have Durawear seat cover material.

Seat Fabric Color

All seats shall be gray in color.

Seating Capacity Tag

A tag that is in view of the driver stating seating capacity of two (2) personnel shall be provided.

Seat, Driver

One (1) H. O. Bostrom Sierra EX8/ABTS seat with high back styling shall be provided for the driver's position.

The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated dual retractor seat belt with an additional 8-12" of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel.

Seat features shall include:

- Power fore/aft with 8" adjustment
- Power height with 2" adjustment
- Power front seat tilt
- Power rear seat tilt
- Power back recline
- Built in lumbar support

Seat, Officer

One (1) H. O. Bostrom Sierra EX8/ABTS seat with high back styling shall be provided for the officer's position.

The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated dual retractor seat belt with an additional 8-12" of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel.

MISC INTERIOR CAB OPTIONS

Cab Dash - Severe Duty

The center and officer side dash shall be constructed from .125" smooth aluminum plate painted to match the cab interior. The officer side dash panel shall be lowered to provide increased visibility. A hinged access panel shall be provided on top of the center dash to provide easy access to components within.

The lower kick panels below the dash to be constructed from .125" aluminum smooth plate painted to match cab interior. The panels shall be removable to allow for servicing components that may be located behind the panels.

Access Panel

A recessed access panel shall be provided on the floor of the MDT notch on the officer side of the cab dash. The panel shall be approximately 8" x 8".

12 Volt Power Lead

One (1) 12 volt 12 gauge constant hot lead shall be provided. The lead shall be 24" long and include a ground wire and circuit breaker.

The lead shall be located officer side dash.

Overhead Console

A full-width front overhead console shall be mounted to the cab ceiling for placement of siren/radio heads (non-LTH cabs only) and for warning light switches. The console shall be made from a thermoformed, non-metallic material and shall have easily removable mounting plates.

The overhead HVAC shall be covered with thermoformed, non-metallic, non-fiber trim pieces to provide excellent scuff and abrasion resistance, as well as chemical stain resistance. The thermoformed material shall comply with Federal Motor Vehicle Safety Standard (FMVSS) 302 for flammability of interior materials.

Engine Cover

The engine cover shall blend in smoothly with the interior dash and flooring of the cab. The upper left and right sides shall have a sloped transition surface running front to rear providing increased space for the driver and officer.

The engine cover and engine service access door cover shall be molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches.

The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black and feature a pebble grain finish for slip resistance.

Rear Engine Cover

The rear engine cover shall be provided with a reduced profile for increased legroom on the forward facing rear inboard seats.

Cup Holder / Storage Tray

An enlarged cup holder and tray assembly shall be provided on the cab engine cover between the driver and officer. The tray shall be approximately 19" wide x 12" long x 1.5" tall and constructed from .125" aluminum plate. The top edge of the tray sides shall have a .5" lip and the front corners of the tray shall be tapered for dash access. The two (2) cup holders shall be constructed from 3.5" diameter pipe approximately 2.5" tall and be located one each side at the rear corners of the tray. The assembly shall be painted to match the cab interior color.

Cab Interior Color

Cab instrument panel, overhead console, trim panels, headliner, and door panels shall be gray.

Sun Visors

Lexan sun visors shall be provided for the driver and officer matching the interior trim of the cab and shall be flush mounted into the underside of the overhead console.

Sun Visor Strap

Straps shall be provided on the cab sun visors to hold the visors in the up position. The straps shall be attached with snaps.

Rear Cab Compartment Interior

A finished rear cab compartment interior shall be provided. Includes 1/8" panels with insulation on ceiling and walls painted to match cab interior.

Front Occupant Protection

A 4Front occupant protection system shall be installed in the apparatus cab. The system shall inflate three (3) air bags in the following locations:

- Steering wheel air bag to protect the head and neck of the driver
- Knee bolster air bag to protect the driver's legs
- Knee bolster air bag to protect the officer's legs

The air bags shall use a combination of high-pressure stored argon and oxygen (and a pyrotechnic charge for initiation) to inflate the bags to a relatively cool (120° Fahrenheit) inflation temperature and remain inflated for several seconds.

The system shall be connected to the crash detection sensor that will also activate the driver and first officer Integrated Belt Pretensioners if it detects a frontal crash.

Cab Rollover Protection - Master Control Module

A RollTek rollover occupant protection system shall be installed in the apparatus cab. The system shall include an Integrated Roll Sensor (master module), Integrated Head Curtains and Integrated Seat Belt pretensioners.

The Integrated Roll Sensor (IRS) shall be a microprocessor-controlled solid-state sensing device that utilizes vehicle-specific calibrations to detect rollovers. The IRS shall be equipped with eight (8) pyrotechnic loops for connection to the protective countermeasures (Integrated Head Curtains and Integrated Seat Belt pretensioners).

The IRS shall continually monitor the truck's acceleration and angle, and upon detection of an imminent roll-over, shall activate protective countermeasures in a pre-programmed sequence. The entire process from activation to deployment shall take less than $\frac{1}{4}$ of a second (.234).

In addition to acting as the "brain" of the RollTek system, the IRS shall also act as a "black box," recording crash events for post-crash evaluation.

Cab Rollover Protection - Slave Module for Master Control

A slave module shall be installed with the RollTek Integrated Roll Sensor (IRS) to expand the system's capabilities. The slave module shall include connections for up to eight (8) additional pyrotechnic loops for use with up to a total of sixteen (16) protective countermeasures (Integrated Head Curtains and Integrated Seat Belt pretensioners).

Cab Rollover Protection - Side Air Bags [Qty: 2]

RollTek Integrated Head Curtains (IHC) shall be installed in the apparatus cab. The pillow-shaped side air bags shall be attached either to the ABTS seats or the rear cab wall. The air bags shall be optimally placed to deploy across the window and side of the vehicle interior to protect the occupants heads during impact. The air bags shall use a combination of high-pressure stored argon and oxygen (and a pyrotechnic charge for initiation) to inflate the bags to a relatively cool (120° Fahrenheit) inflation temperature and remain inflated for several seconds.

Cab Rollover Protection - Seat Belt Pretensioners [Qty: 2]

RollTek Integrated Seat Belt Pretensioners (ISB) shall be installed in the apparatus cab. The special seat belt buckles shall be designed to receive a signal from the Integrated Roll Sensor during a roll for the pretensioners on the buckles to tighten the seat belts to the occupant, better positioning the occupant in the seats.

CAB ELECTRICAL OPTIONS

Headlights

The front of the cab shall have four (4) headlights. The headlights shall be mounted on the front of the cab in the lower position. The headlights shall be day time operational.

Peterson LED headlights shall be provided. LED lights shall be provided in the low and high beam position of the head lamp assembly.

Cab Turn Signals

There shall be a pair of Whelen M6 LED (Light Emitting Diode) turn signal light heads with populated arrow pattern and amber lens mounted upper headlight bezel and wired with weatherproof connectors.

Cab Dome Lights

A Weldon LED dome light assembly with one (1) white lens and one (1) red lens and plastic housing shall be installed. The white light activates with appropriate cab door and light assembly switch, the red light activates with light assembly mounted switch only.

There shall be two (2) mounted in the front of the cab, one (1) in the driver and one (1) in the officer ceiling.

Cab Swivel Lights

An interior cab light unit shall be mounted in the headliner consisting of two (2) side ball-joint socket spot lamps. Each light shall be individually switched.

Horn Button Switch

A two (2) position rocker switch shall be installed in the cab accessible to the driver and properly labeled to enable operator to activate the OEM traffic horn or air horn from the steering wheel horn button.

Air Horn Lanyard

There shall be a "Y" style lanyard mounted in the center of the cab that allows the driver and officer to operate the air horns. The lanyard shall activate an electrical air switch.

Foot Switch [Qty: 2]

A heavy duty metal floor mounted foot switch shall be installed to operate the Q2B siren. It shall be located driver's side, officer's side.

Hazard (Door Ajar) Light

There shall be a 2" red LED hazard light installed as specified.

The light shall be located center overhead.

12 Volt Outlet [Qty: 2]

A plug-in type receptacle for hand held spotlights, cell phones, chargers, etc. shall be installed driver side dash, officer side dash. The receptacle shall be wired battery hot.

Cab USB Charging Port [Qty: 2]

A dual USB charging port for cell phones, chargers, etc. shall be installed driver side dash, officer side dash. The receptacles shall be wired battery hot.

Antenna Base [Qty: 4]

There shall be a Tessco P/N 90942 universal antenna base mounted on the cab roof with a weatherproof connector. The antenna base shall be NMO Motorola Style (equivalent to a MATM style) with RG58U coax cable. The antenna shall be located driver side forward with coaxial cable terminating at the center of the dash board, officer side forward with coaxial cable terminating at the center of the dash board, driver side forward terminating in radio cabinet, driver side rearward terminating in radio cabinet, officer side forward with coaxial cable terminating on the officers side of the dash under the MDT access panel, officer side rearward with coaxial cable terminating on the officers side of the dash under the MDT access panel.

Antenna Access [Qty: 4]

An access panel shall be provided on the interior of the cab for the cab roof mounted antenna.

Location: driver side forward, driver side rearward, officer side forward and officer side rearward.

Radio Cabinet

One (1) radio cabinet shall be provided behind the driver's seat and accessed via the transverse compartment of the two (2) door cab. The cabinet shall be constructed of .125 smooth aluminum painted to match cab interior, approx. 22" W x 8" D x 28" H. Top and bottom panels to be louvered and held in place with thumb latches. Enclosure to have a 5" 12v Exhaust fan through rear panel into rear cab area.

The radio cabinet shall contain a total of six (6) sets of louvers in the box and the door of the cabinet shall be louvered to ensure adequate cooling.

12 Volt DC Power Distribution Module

There shall be a 12 place 12 volt DC power distribution module installed as specified.

The module will have six (6) circuits wired directly to the battery and have six (6) circuits wired through the master battery switch with 12 positions for grounds. Connection to the power module circuit will be through a .250 female spade connector. Each buss will be protected with

a 50 amp circuit breaker for overload protection. The module will accept ATC blade type fuses or 22X series circuit breakers.

The module shall be located driver side back wall of radio box.

Flexible Conduit [Qty: 2]

A one inch (1") flexible conduit shall be provided from the center cab dash to the radio cabinet.

DPF Regeneration Override

A momentary override switch shall be provided for the Diesel Particulate Filter (DPF) regeneration. The switch will inhibit the regeneration process until the switch is reset or the engine is shut down and restarted. The switch shall be located within reach of the driver.

ATC Override

An Automatic Traction Control (ATC) override switch shall be provided. The switch shall be located within reach of the driver and allow for momentary disabling of the ATC system due to mud or snow conditions.

Officer Speedometer

An electronic speedometer shall be mounted on the passenger's side of the cab, mounted on the switch panel.

Hand Held Spotlight

A Whelen PAR46 hand held 12 volt super LED spotlight with mounting bracket shall be provided. It shall be located at the officer's side of the cab dash with a plug in connector.

Battery Charger with Remote

A Kussmaul Auto Charger 1200 battery charger with remote mounted bar graph display shall be installed.

The battery charger shall be completely automatic with an output of 0-40 amp @ 12 volts DC and an input current requirement of 10 amps @ 120 volts AC.

Battery Charger Location

The battery charger shall be located behind driver's seat.

Auto-Eject Battery Charger Receptacle

The battery charger receptacle shall be a Kussmaul 20 amp NEMA 5-20 Super Auto-Eject #091-55-20-120 with a cover. The Super Auto-Eject receptacle shall be completely sealed and have an automatic power line disconnect.

The receptacle shall be located outside driver's door next to handrail and the cover color shall be Red.

BODY CONSTRUCTION

Body Mainframe

The body mainframe shall be entirely constructed of aluminum. The complete framework shall be constructed of 6061 T6 and 6063 T5 aluminum alloy extrusions welded together using 5356 aluminum alloy welding wire.

The body mainframe shall include 3" x 3" 6061-T6 aluminum 3/8" (0.375") wall crossmember extrusion or 3" x 3" I-beam section aluminum extrusion depending on the application at the front of the body . A solid 3" x 3" "I-beam" section aluminum extrusion shall be provided the full width of the body forward and rearward of the rear wheel well. The crossmembers shall be designed to support the compartment framing and shall be welded to 1-3/16" x 3" (1.188" x 3") solid 6063-T5 aluminum frame sill extrusions. The frame sill extrusions shall be shaped to contour with the chassis frame rails and shall be protected from contact with the chassis frame rails by 5/16" x 2" (0.31" x 2") fiber-reinforced rubber strips to prevent wear and galvanic corrosion caused when dissimilar metals come in contact.

Body Mounting System

The main body shall be attached to the chassis frame rails with six (6) of 5/8" (0.625") diameter steel U-bolts. This body mounting system shall be used to allow easy removal of the body for major repair or disassembly.

Water Tank Mounting System

The body design shall allow the booster tank to be completely removable without disturbing or dismounting the apparatus body structure. The water tank shall rest on top of a 3" x 3" frame assembly covered with rubber shock pads and corner braces formed from 3/16" angled plate to support the tank. The booster tank mounting system shall utilize a floating design to reduce stress from road travel and vibration. To maintain low vehicle center of gravity the water tank bottom shall be mounted within 5" of the frame rail top.

Hosebed Side Assembly

The hosebed side assemblies shall be made of 3" x 3" slotted aluminum extrusion and 3/16" (.188") smooth plate. The hosebed side assemblies shall provide a 95" high body.

The exterior hosebed side surface shall be completely sanded and deburred to assure a smooth finish and painted job color. The interior hosebed side surface shall be completely sanded and deburred to assure a smooth sanded finish.

Hose Bed

The area above the booster tank shall have a hose storage area provided. The hose bed shall be constructed entirely from maintenance-free, 3/4" deep x 7.5" wide, extruded aluminum slats that shall be pop-rievted into a one-piece grid system. Each slat shall have all sharp edges removed and have an anodized ribbed top surface that shall prevent the accumulation of water and allow for ventilation of wet hose.

The hose bed shall include an open area for the fill tower(s). The hose bed design shall incorporate adjustable tracks in the forward area rearward of the fill tower(s) and the rearward area of the hose bed for the installation of an adjustable divider(s). The adjustable tracks shall hold an adjustable divider(s) mounting nut straight, so only a Philips head screwdriver is required to adjust a divider(s) from side to side (as is practical with other hose bed mounted equipment).

The hose bed shall be easily removable to allow access to the booster tank below.

Hose Bed Capacity

The hose bed shall meet have the capacity to store the following hose from the driver side to the officer side.

300' 2.5" DJ
300' 5" LDH
400' 1.75" DJ

Body Wheel Well

The body wheel well frame shall be constructed from 6063-T5 aluminum extrusion with a slot the full length to permit an internal fit of 3/16" (0.188") aluminum smooth plate painted job color.

The fenderettes shall be rubber bolt-on and shall be easily removable. The fenderette shall be 2 1/2" (2.5") wide x 2 1/4" (2.25") tall with a 26 7/8" (26.875") radius.

The wheel well liners shall be constructed of a 3/16" (.187") composite material. The liners shall be bolt-on and shall provide a maintenance-free and damage-resistant surface.

BODY COMPT LEFT SIDE

Driver Side Assembly

The driver side assembly shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. This aluminum modular design shall provide a high strength-to-weight ratio for increased equipment carrying capacity.

The driver side body corners shall be 6063-T5 extruded aluminum corner sections with a 3/16" (0.188") wall thickness. The side body extrusions shall be 6063-T5 aluminum tubing with a 3/16" (0.188") wall thickness and 3/16" (0.188") outside corner radius. The corners and sides shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

The driver side body shall be completely sanded and deburred to assure a smooth finish and painted job color.

Driver Side Compartments

The five (5) driver side compartments shall be constructed from 3003 H14 1/8" (.125") smooth aluminum plate. The compartments shall be modular in design and shall not be a part of the body support structure.

There shall be two(2) compartments ahead of the rear wheels.

The first front compartment located ahead of the rear wheels. This compartment shall be approximately 42" wide x 72" high x 26" deep in the lower 51" high section and 12" deep in the upper 21" high section. The compartment shall contain approximately 38.3 cu. ft. of combined storage space. The door opening shall be approximately 42" wide x 72" high.

The second front compartment located ahead of the rear wheels. This compartment shall be approximately 50" wide x 72" high x 26" deep in the lower 34" high section and 12" deep in the upper 38" high section. The compartment shall contain approximately 38.7 cu. ft. of combined storage space. The door opening shall be approximately 50" wide x 72" high.

There shall be two (2) compartment located over the rear wheel. Each compartment shall be approximately 51.5" wide x 34" high x 12" deep and contain approximately 12.1 cu. ft. of storage space. Each door opening shall be approximately 51.5" wide x 34" high. The compartments shall be transverse front to rear.

There shall be one (1) compartment located rearward of the rear wheels. This compartment shall be approximately 34" wide x 72" high x 26" deep in the lower 34" high section and 12" deep in the upper 38" high section. The compartment shall contain approximately 26.3 cu. ft. of combined storage space. The door opening shall be approximately 34" wide x 72" high.

Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.

An externally-mounted compartment top shall be provided and constructed of a 1/8" (.125") aluminum treadplate.

BODY COMPT RIGHT SIDE

Officer Side Assembly

The officer side assembly shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. This aluminum modular design shall provide a high strength-to-weight ratio for increased equipment carrying capacity.

The officer side body corners shall be 6063-T5 extruded aluminum corner sections with a 3/16" (0.188") wall thickness. The side body extrusions shall be 6063-T5 aluminum tubing with a 3/16" (0.188") wall thickness and 3/16" (0.188") outside corner radius. The corners and sides shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

The officer side body shall be completely sanded and deburred to assure a smooth finish and painted job color.

Officer Side Compartments

The three (3) officer side compartments shall be constructed from 3003 H14 1/8" (.125") smooth aluminum plate. The compartments shall be modular in design and shall not be a part of the body support structure.

There shall be two (2) compartments ahead of the rear wheels.

The first front compartment located ahead of the rear wheels. This compartment shall be approximately 42" wide x 34" high x 26" deep. The compartment shall contain approximately 21.4 cu. ft. of combined storage space. The door opening shall be approximately 42" wide x 34" high.

The second front compartment located ahead of the rear wheels. This compartment shall be approximately 50" wide x 34" high x 26" deep. The compartment shall contain approximately 25.5 cu. ft. of combined storage space. The door opening shall be approximately 50" wide x 34" high.

There shall be one (1) compartment located behind the rear wheel. The compartment shall be approximately 34" wide x 34" high x 26" deep. The compartment shall contain approximately 17.3 cu. ft. of combined storage space. The door opening shall be approximately 34" wide x 34" high.

Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.

An externally-mounted compartment top shall be provided and constructed of a 1/8" (.125") aluminum treadplate. The compartment top shall be removable for easy access to the main body wiring harness.

COMPARTMENT DOORS

Painted Roll Up Compartment Door

ROM brand roll up door painted job color shall be provided on the body side compartments: L1, L2, L3, L4, L5, R1, R2, R3.

The Robinson door slats shall be double wall box frame and manufactured from anodized aluminum. The slats shall have interlocking end shoes on each slat. The slats shall have interlocking joints with a PVC/vinyl inner seal to prevent any metal to metal contact and inhibit moisture and dust penetration.

The track shall be painted aluminum with a finishing flange incorporated to provide a finished look around the perimeter of the door without additional trim or caulking. The track shall have a replaceable side seal to prevent water and dust from entering the compartment.

The doors shall be counterbalanced for ease in operation. A full width latch bar shall be operable with one hand, even with heavy gloves. Securing method shall be a positive latch device.

A magnetic type switch integral to the door shall be supplied for door ajar indication and compartment light activation.

The door opening shall be reduced by 2" in width and approximately 8-9" in height depending on door height.

Drip Pan [Qty: 8]

A ROM drip pan shall be supplied for each roll-up door. The drip pan shall be made from a high strength aluminum alloy. The splashguard and end caps shall be made from extruded and injection molded high-impact plastic. Drip pan location(s): L1, L2, L3, L4, L5, R1, R2, R3.

Keyed Latch [Qty: 8]

The roll-up door shall be provided with locking mechanism. Two (2) #1250 keys shall be provided for the roll-up compartment door.

A locking roll-up door shall be provided in the following location(s): L1, L2, L3, L4, L5, R1, R2, R3.

BODY COMPT REAR

Rear End Assembly

The rear end shall be set-up as tanker and shall have no rear body compartment.

The rear end shall be constructed of vertical and horizontal extrusions with interlocking smooth plate upper and lower panels. The lower center area shall have a smooth plate panel area that shall allow for a Jet or Newton tank dumping application.

The vertical, horizontal, and smooth plate panels shall have a sanded finish.

Beavertails

Two (2) 11.25" deep and squared off beavertails shall be provided at the rear of the body. The beavertails shall be a part of the body framework and provide additional support to the tailboard. Each beavertail shall be constructed of formed 1/8" (0.125") aluminum treadplate and includes removable outside panels for access to internal wiring and bolt-on accessories.

Tailboard

A tailboard step shall be provided at the rear of the body. The tailboard shall 18" in depth and in accordance with NFPA in both step height and stepping surface. The maximum rear step height to the tailboard shall not exceed 24".

The tailboard step shall be formed from 3/16" (0.188") aluminum treadplate and shall be reinforced with 6063-T5 1.5" x 3" aluminum extrusion. The tailboard shall be in accordance with current NFPA requirements and shall include a multi-directional aggressive gripping surface incorporated into the diamond plate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8" (0.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

The tailboard step shall be bolted on to the body from the underside assuring a clear surface and shall be easily removable for replacement in the case of damage.

Angled Tailboard Corners

The corners of the rear tailboard shall be angled inward for increased clearance around the rear of the apparatus.

Rear Access Handrails

Handrails shall be provided at the rear of the body to assist ground personnel accessing the tailboard step and hosebed area. Each handrail shall be constructed of 6063T5 1.25" OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, and shall be mounted between chrome stanchions.

The handrails shall be located- two (2) handrails, one (1) on each side, appropriately sized handrail mounted vertical on the trailing edge of the body and appropriately sized handrail(s) mounted horizontal below the rear hosebed opening.

Hard Suction Storage Box [Qty: 2]

A box shall be provided for the storage of one (1) 10' length of hard suction hose.

The storage box shall include a hinged door with a push-button latch. The door shall be wired to the door ajar indicator light in the cab and shall be interlocked with the parking brake per NFPA.

The storage box shall be located below the driver's side, officer's side water tank and shall provide ground level access from the rear of the apparatus.

SHELVES

Permanent Shelf [Qty: 2]

There shall be a permanent mounted aluminum shelf provided for compartment L2 at offset (above extrusion if applicable), L5 at upper offset (above extrusion if applicable). The shelf shall be at the offset within the compartment.

The shelf shall be constructed of 3/16" (.187") smooth aluminum plate. The shelf shall have a minimum 2" front lip for added strength and reinforcement and to accommodate optional plastic interlocking compartment tile systems.

The shelf shall be capable of holding 100 lbs.

Adjustable Shelf [Qty: 2]

There shall be an aluminum adjustable shelf provided for compartment R2, R3.

The shelf shall be constructed of 3/16" (.187") smooth aluminum plate. The shelf shall have a minimum 2" front and rear lips to accommodate optional plastic interlocking compartment tile systems. For additional strength and reinforcement of the shelf a return break shall be provided on the outward lip. The adjustable shelf shall be capable of holding 250 lbs.

The shelf shall be sized, width and depth, to match the size and location in the compartment.

Adjustable Shelf [Qty: 2]

There shall be an aluminum adjustable shelf provided in the upper area of compartment L3, L4, the shelf shall be notched into extended side compartment area.

The shelf shall be constructed of 3/16" (.187") smooth aluminum plate. The shelf shall have a minimum 2" front and rear lips to accommodate optional plastic interlocking compartment tile systems. The adjustable shelf shall be capable of holding 100 lbs.

The shelf shall be sized, width and depth, to match the size and location in the compartment.

Adjustable Tracks

Tracks shall be provided in R2, R3 for use with adjustable shelves and/or trays in deep non-transverse compartments. The tracks shall be vertically mounted and attached to the side and/or rear walls of the compartments.

Adjustable Tracks

Tracks shall be provided in L2, L3, L4 for use with shallow depth adjustable shelves. The tracks shall be vertically mounted and attached to the side and/or rear walls of the compartments.

WATER TANK

3030 Gallon Water Tank

A 3030 gallon (U.S.) "T" booster tank shall be supplied.

The booster tank shall be constructed of polypropylene material. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal.

The booster tank top, sides, and bottom shall be constructed of a minimum 1/2" (0.50") thick black UV-stabilized copolymer polypropylene. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall 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 tank cover shall be constructed of 1/2" thick polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 3/8" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" minimum polypropylene dowels spaced a maximum of 40" apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions.

The tank shall have a combination vent and manual fill tower with a hinged lid. The fill tower shall be constructed of 1/2" polypropylene and shall be a typical dimension of 8" x 8" outer perimeter (subject to change for specific design applications). The fill tower shall be blue in color indicating that it is a water-only fill tower. The tower shall have a 1/4" thick removable polypropylene screen and a polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid.

The booster tank shall have two (2) tank plumbing openings. One (1) for a tank-to-pump suction line with an anti-swirl plate, and one (1) for a tank fill line. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates per the tank fill inlet size.

The sump shall be constructed of a minimum of 1/2" polypropylene. The sump shall have a minimum 3" N.P.T. threaded outlet for a drain plug per NFPA. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3" above the inside floor.

The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" polypropylene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall 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 shall comply with NFPA 1901. The walls shall be welded to the floor of the tank providing maximum strength.

Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with an I.D. of 3" or larger that is designed to run through the tank. This outlet shall direct the draining of overflow water past the rear axle, thus reducing the possibility of freeze-up of these components in cold environments. This drain configuration shall also assure that rear axle tire traction shall not be affected when moving forward.

The booster tank shall undergo extensive testing prior to installation in the truck. All water tanks shall be tested and certified as to capacity on a calibrated and certified tilting scale.

Each tank shall be weighed empty and full to provide precise fluid capacity. Each tank shall be delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight. Engineering estimates for capacity calculations shall not be permitted for capacity certification. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 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.

A tag shall 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 shall 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.

The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from the tank manufacturer.

The booster tank shall include a rear tank dump mounting plate.

Tank capacity is 3030 US gallons / 2523 Imperial gallons / 11469 Liters.

Fill Tower Location

Fill tower(s) shall be located offset to driver side of water tank.

Newton Dump Provision

Special provisions for mounting a Newton dump valve on the poly water tank shall be provided.

Tank Clearance Notch [Qty: 2]

Water tank notched at rear to accommodate plumbing and suction tubes.

TANK PLUMBING

Tank Fill 3 Akron Valve

One (1) 3" pump-to-tank fill line having a 3" manually operated full flow valve. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times. The fill line shall be controlled using a chrome handle with an integral tag.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Tank-to-Pump 4 Akron Air

A 4" in-line Akron air valve shall be installed between the pump and the booster tank. The valve shall be constructed of brass and shall be air operated by a valve control with a lock position. The control shall be located on the pump operator's panel.

The tank-to-pump line shall be provided with a 4" valve with flat ball concept for high flow valve, 4" piping, flex hose and stainless steel hose clamps. To prevent pressurization of the water tank, the intake line shall provide a swing check valve.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

Rear Direct Tank Fill

One (1) 4.5" rear direct water tank fill shall be provided.

The connection shall include an inlet strainer, 4" NST inlet with droop and cap with retainer.

The valve control shall be a handwheel located on the valve.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

The direct tank fill shall be located to the rear of the body drv side.

Rear Direct Tank Fill

4.5" Rear Direct tank fill. Includes Fireman Friend 4" valve with 4" body to terminate with 4.5" FNST adapter, 30 degree droop and cap.

The direct tank fill shall be located to the rear of the body ofc side.

Rear Swivel Dump

A tank dump shall be provided at the rear of the apparatus. Includes integral 6012 swivel chute with manual telescopic extension and two locks one each side.

The tank dump shall be a Newton Kwik Swivel Dump and shall include a 10" x 10" flip-up valve plate for maximum water flow. The lower portion of the dump assembly shall swivel 180 degrees and shall include a manual chute extension that shall extend the dumping past the sides of the body and rear tailboard area.

The dump valve shall be manually actuated from the upper area of the dump assembly and shall be accessible from the driver or officer side during side to side dumping operations.

The exterior surface of the dump assembly shall be stainless steel.

STORAGE / RACKS

Portable Storage Tank Rack

A Zico QUIC-LIFT Portable Tank System (PTS) rack shall be provided. The rack shall lower a portable tank from the stored position to provide a safe and convenient height for unloading and loading.

The rack shall be hydraulically operated by two (2) durable high cycle 12 volt actuators and controlled by a 30 amp two-pole double-throw momentary switch located at the pump module area. The control switch location shall allow the operator to monitor operations, monitor positioning of apparatus mounted equipment in the storage racks travel path and ground personnel while lowering and raising the rack.

The storage rack shall be self-locking in any position during operation. A visual signal shall be provided to indicate when the storage rack is in motion by two (2) yellow flashing lights installed one (1) on each side of the rack.

The rack shall also be wired through the door ajar indicator light located in the cab to alert the driver that the rack is not stowed if the parking brake is released.

The storage rack shall be capable of storing a maximum of three hundred pounds (300 lbs).

The rack shall be located to the officer side on compartment top of the body and shall be capable of storing a 3000 gallon aluminum frame tank.

Portable Tank Rack Cover

The Zico drop down rack shall have a smooth plate(s) cover provided. The cover shall wrap over the top of the tank and along the outboard side between the outboard rack assemblies.

The smooth plate panel(s) shall be painted job color.

HANDRAILS / STEPS

Hose Bed Folding Steps

Innovative Controls dual lighted LED folding steps shall be positioned to the driver side rear of the body. The steps shall be NFPA compliant for access to the hose bed storage area and in step height and surface area. The steps shall be staggered stepped as applicable with tailboard depth, not applicable with recessed step mounting.

Innovative Controls dual lighted folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 fc (20 lx) on the stepping surface. Folding step shall also have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18" below the step. The folding step shall sustain a minimum static load of 500 lb with a 3 to 1 safety factor. The folding step shall also meet NFPA slip resistance qualifications. Corrosion resistance shall be demonstrated by a 1000 hr salt spray test with no visible signs of deterioration of the step body or hardware.

One (1) hand rail shall be installed (as applicable) in compliance with current NFPA. The hand rail shall be constructed of 6063T5 1.25" OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, mounted between chrome stanchions.

Recessed Rear Folding Steps

The driver side rear hosebed access steps shall be recessed mounted into a diamond plate box as applicable.

Hose Bed Folding Steps

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One (1) hand rail shall be installed (as applicable) in compliance with current NFPA. The hand rail shall be constructed of 6063T5 1.25" OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, mounted between chrome stanchions.

Recessed Rear Folding Steps

The officer side rear hosebed access steps shall be recessed mounted into a diamond plate box as applicable.

Intermediate Rear Step

One (1) intermediate rear step shall be provided above the rear Newton dump.

The intermediate step shall be constructed of 3/16" (.187") aluminum treadplate. The step shall include a multi-directional, aggressive gripping surface incorporated into the treadplate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8" (.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

MISC BODY OPTIONS

Corner Guards

The forward body corners of the body shall have corner guards installed. The corner guards shall be constructed of (.063") aluminum treadplate.

SCBA 1 Bottle Storage

E-ONE designed (1) SCBA bottle storage constructed with aluminum plate with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match wheel well area material and finish.

The door shall cover the recessed fuel fill if located adjacent to the SCBA storage.

U-shaped trough made out of aluminum smooth plate with rubber insert shall be provided to store SCBA bottles.

Location: driver side rear wheel well offset rearward

SCBA 2 Bottle Storage

E-ONE designed (2) SCBA bottle storage constructed with aluminum plate with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match wheel well area material and finish.

The door shall cover the recessed fuel fill if located adjacent to the SCBA storage.

U-shaped troughs made out of aluminum smooth plate with rubber inserts shall be provided to store standard size SCBA bottles up to 7.25" in diameter and 24.5" in length. The troughs can also store a standard size 20lbs ABC Extinguisher or 2.5 gal Water Extinguisher in each trough.

Location: officer side rear wheel well offset rearward

Wheel Chock Storage [Qty: 2]

E-ONE designed Wheel Chock storage with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match the wheel well area material and finish.

The door shall be wired to "Door Open" indicator inside cab.

The storage area shall be capable of holding (2) Zico Model SAC-44-E or comparable Wheel Chocks (not included).

Location: driver side rear wheel well offset forward, officer side rear wheel well offset forward

SCBA Strap

Straps shall be provided in each exterior storage compartment to provide secondary means to hold each SCBA bottle in the compartment. The straps shall be constructed from 1" nylon webbing formed in a loop. The strap(s) shall be mounted to the storage compartment ceiling directly inside the door opening at each bottle location.

Hose Bed Divider [Qty: 2]

There shall be a hose bed divider provided the full fore-aft length of the hose bed.

The hose bed divider shall be constructed of 1/4" (0.25") smooth aluminum plate with an extruded aluminum base welded to the bottom. The rear end of the divider shall have a 3" radius corner to protect personnel. The divider shall be natural finish aluminum for long-lasting appearance and shall be sanded and de-burred to prevent damage to the hose.

The divider shall be adjustable from side to side in the hose bed to accommodate varying hose loads.

Divider

There shall be a hose bed divider provided behind the fill tower and shall be fore-aft length of the hose bed.

The hose bed divider shall be constructed of 1/4" (0.25") smooth aluminum plate with an extruded aluminum base welded to the bottom. The rear end of the divider shall have a 3" radius corner to protect personnel. The divider shall be natural finish aluminum for long-lasting appearance and shall be sanded and deburred to prevent damage to the hose.

The divider shall be adjustable from side to side rearward of the fill tower to accommodate varying hose loads.

Hose Bed Divider Hand Hold

There shall be a hand hole cut-out(s) on the trailing edge of each hose bed divider. The cut-out(s) is specifically sized for use in adjusting of the hose bed divider.

Fuel Fill

A recessed fuel fill shall be provided at the driver side rear wheel well area.

Rub Rail

The pump area module(s) and body shall have rub rails mounted along the sides and at the rear.

The rub rail shall be C-channel in design and constructed of 3/16" thick 6463T6 anodized aluminum extrusion. The rub rail shall be 2.75" high x 1.25" deep and shall extend beyond the body width to protect compartment doors and the body side. The rub rail depth shall allow marker and/or warning lights to be recessed inside for protection.

The top surface of the rub rail shall have minimum of five (5) raised serrations. Each serration being a minimum of .1" in height and with cross grooves to provide a slip-resistant edge for the tailboard step and pump module running board areas. The rub rail shall be mounted a minimum of 3/16" off the pump module and body with nylon spacers. The ends of each section shall be provided with a finished rounded corner piece.

Mud Flaps

Black mud flaps with E-ONE logo shall be provided for the body wheel wells.

COVERS

Hose Bed Cover

A cover constructed of Red 18 oz. PVC vinyl coated polyester shall be installed over the apparatus hose bed. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 square inch.

The front edge of the cover shall be mechanically attached to the body. The sides of the cover shall be held in place with heavy duty Velcro strips running the length of the hose bed. The rear of the cover shall have an integral flap that extends down to cover the rear of the hose bed. This flap shall be secured in place along the lower edge with flexible cord that fasten to steel hook(s) mounted to body to comply with the latest edition of NFPA 1901.

Vinyl Access Cover

A cover constructed 18 oz. PVC vinyl coated polyester shall be installed for the fill tower(s). The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 square inch.

The front edge of the cover shall be sewn to the vinyl hose bed cover. The sides and rear of the cover shall be held in place with heavy duty Velcro strips.

PUMP MODULE

Under Tank Pump Module

The pump panel shall be located within compartment L1 for use with a frame mounted PTO pump.

The driver side pump panel shall be constructed of 14 gauge stainless steel. The panel shall have the ability to be removed for easier maintenance access in the pump area. L1 compartment.

Hinged Gauge Panel

The driver side upper gauge panel(s) shall be hinged to provide access to panel mounted electrical connections.

The gauge panel(s) shall be hinged to open upward with a full-length stainless steel piano type hinge with 1/4" pins. The hinge shall be "staked" on every other knuckle to prevent the pin from sliding.

The gauge panel(s) shall include latches to secure the panel in the closed position and two (2) mechanical/pneumatic (as applicable with the panel size) hold-opens for the open position.

Pump Panel Tags

Color coded pump panel labels shall be supplied to be in accordance with NFPA 1901 compliance.

Special Color Pump Panel Tags.

The pump panel tags shall be color coded per customer specifications.

Special Label Pump Panel Tags

The pump panel tags shall be provided with special labeling as per customers specifications.

Air Horn Switch

A heavy duty weatherproof push-button switch shall be installed at the pump operator's panel to operate the air horns.

The switch shall be labeled "Evacuation Alert".

Location: driver side pump panel.

PUMPS

Fire Pump System

A Hale MBP pump shall be provided and shall be of a size and design to mount on the chassis rails. The pump shall have the capacity of 1000 gallons per minute (U.S. GPM/3785 Liters per minute). The pump shall be driven by a power take off (PTO) from the chassis transmission.

The entire pump shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be free from objectionable pulsation and vibration. The pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI (2069 bar). All metal moving parts in contact with water shall be of high quality bronze or stainless steel. (**Lower tensile strength cast iron not acceptable.**)

The pump body shall be vertically split on a single plane for easy removal of entire impeller assembly including clearance rings. The pump shaft to be rigidly supported by two bearings for minimum deflection. The pump shaft shall be heat-treated, electric furnace, corrosion resistant stainless steel. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of gearbox. The bearings shall be heavy duty, deep groove ball bearings in the gearbox and they shall be splash lubricated. The pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machined, hand-ground and individually balanced.

The vanes of the impeller intake eye shall be hand ground and polished to a sharp edge, and be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower. The pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machined hand ground and individually balanced. Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body.

Gearbox

The pump gearbox shall be all ball bearing construction. Precision heat treated helical gears. Splash lubrication system. Equipped with water-cooled oil pan to reduce transmission temperatures on 1000 GPM and larger. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature. The gearbox drive shafts shall be of heat-treated 1-3/4 inches keyed input shaft. Pump Intake

The pump ratio shall provide the maximum performance with the engine and transmission of the chassis.

Pump Intake

One (1) 6" diameter suction port with 6" NST male threads shall be provided and located to the driver side of the pump. The inlet shall include one (1) long handle cap (shipped loose).

Discharge Manifold

The pump system shall utilize a stainless steel discharge manifold system that allows a direct flow of water to discharge valves. The manifold and fabricated piping systems shall be constructed of a minimum of Schedule 10 stainless steel to reduce corrosion.

Test Ports

Two (2) test plugs shall be pump panel mounted for third party testing of vacuum and pressures of the pump.

PUMP CERTIFICATION

Pump Certification

The pump, when dry, shall be capable of taking suction and discharging water in accordance with current NFPA 1901. The pump shall be tested at the manufacturer's facility by an independent, third-party testing service. The conditions of the pump test shall be as outlined in current NFPA 1901.

The tests shall include, at a minimum, the pump test, the pumping engine overload test, the pressure control system test, the priming device tests, the vacuum test, and the water tank to pump flow test as outlined in current NFPA 1901.

A piping hydrostatic test shall be performed as outlined in current NFPA 1901.

The pump shall deliver the percentage of rated capacities at pressures indicated below:

- 100% of rated capacity at 150 psi net pump pressure
- 100% of rated capacity at 165 psi net pump pressure
- 70% of rated capacity at 200 psi net pump pressure
- 50% of rated capacity at 250 psi net pump pressure

A test plate, installed at the pump panel, shall provide the rated discharges and pressures together with the speed of the engine as determined by the certification test, and the no-load governed speed of the engine.

A Certificate of Inspection certifying performance of the pump and all related components shall be provided at time of delivery. Additional certification documents shall include, but not limited to, Certificate of Hydrostatic Test, Electrical System Performance Test, Manufacturer's Record of Pumper Construction, and Certificate of Pump Performance from the pump manufacturer.

PUMP OPTIONS

Steamers, Flush+1

The pump 6" steamer intake(s) shall be mounted approximately 1" from the pump panel to back of cap when installed. The "Flush+1" dimension can vary + or - 1-1/4" or as practicable depending on the pump module width and options selected. (Example 72" or 76" modules.)

Location: driver's side.

Zinc Anodes

The zinc anodes help prevent damage caused by galvanic corrosion within the fire pump. The system provides a sacrificial metal which helps to diminish or prevent pump and pump shaft galvanic corrosion. One anode will be located on the suction side and two will be located on the discharge side of the pump.

Master Drain Valve

A manual master drain valve shall be installed on the pump panel. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal. The master drain shall have a rubber seal to prevent water from running out on the running board.

The manual master drain valve shall have twelve (12) individual-sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of corrosion-resistant material and be capable of operating at a pressure of up to 600 PSI.

The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices.

Pump Cooler

The pump shall have a 3/8" line installed from the pump discharge to the booster tank to allow a small amount of water to circulate through the pump casing in order to cool the pump during sustained periods of pump operation when water is not being discharged. The pump cooler line shall be controlled from the pump operator's panel by an Innovative Controls 1/4 turn valve with "T" handle. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag

Pump Primer

AUTOMATIC FIRE PUMP PRIMING SYSTEM

A Trident Model #31.001.3 automatic air operated priming system shall be installed. The unit shall be of all brass and stainless steel construction and designed for fire pumps of 1,250 GPM (4,690 LPM) or more. Due to corrosion exposure no aluminum or vanes shall be used in the primer design. The primer shall be three-barrel design with 3/4" NPT connection to the fire pump.

The primer shall be mounted above the pump impeller so that the priming line will automatically drain back to the pump. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass 'wye' type strainer with removable stainless steel fine mesh strainer to prevent entry of debris into the primer body.

Performance, Safety, and NFPA Compliance

The priming system shall be capable to a vertical lift to 22 inches of mercury and shall be fully compliant to applicable NFPA standards for vertical lift. The system shall create vacuum by using air from the chassis air brake system through a three-barrel multi-stage internal “venturi nozzles” within the primer body. The noise level during operation of the primer shall not exceed 75 Db.

Air Flow Requirements

The primer shall require a minimum of 15.6 cubic foot per minute air compressor and shall be capable of meeting drafting requirements at high idle engine speed. The air supply shall be from a chassis supplied ‘protected’ air storage tank with a pressure protection valve. The air supply line shall have a pressure protection valve set between 70 to 80 PSIG.

Automatic Primer Control

The 12 volt primer control shall be an “automatic” type, with a pump panel three-way switch to operate an air solenoid valve. The air valve shall direct air pressure from the air brake system to the primer. To prevent freezing, no water shall enter the primer valve control.

The automatic priming switch shall have three positions as follows:

- “Prime” – the lower position shall 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 shall be illuminated when the switch is the auto-prime position. The “Auto-Prime” operates automatically when the pump pressure drops below 20 PSIG. The primer shuts “off” automatically when the pump pressure is re-established and exceeds 20 PSIG. The “Auto” mode only operates when the fire pump is engaged.

Power Requirements

To reduce the electrical power requirements on the fire apparatus the priming system shall be air powered. The system shall not require annual tear-down and maintenance, an electric motor, lubrication, belt drive, or clutch assembly. The maximum current draw shall not exceed 0.5amps during operation.

Warranty

The primer shall be covered by a five (5) year parts warranty.

INTAKES

Left Intake 2.5 Akron Valve

One (1) 2-1/2" suction inlet with a manually operated 2-1/2" Akron valve shall be provided on the left side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2-1/2" NST female chrome inlet swivel, and shall be equipped with a chrome plated rockerlug plug with a retainer device.

The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

A 3/4" bleeder valve assembly will be installed on the left side pump panel.

INTAKE OPTIONS

Intake Relief Valve

The pump shall be equipped with an Akron style 59 cast brass, variable-pressure-setting relief valve on the pump suction side. It shall be designed to operate at a maximum inlet pressure of 250 PSI. The relief valve shall be normally closed and shall be set to begin opening at 125 PSI in order to limit intake pressures in the pumping system. When the relief valve opens, the overflow water shall be directed through a plumbed outlet to discharge below the body in an area visible to the pump operator. The overflow outlet shall terminate with a male 2-1/2" NST threaded fitting to allow the overflow water to be directed away from the vehicle with a short hose (supplied by the fire department) during freezing weather or under other conditions where an accumulation of water around the apparatus might be hazardous.

DISCHARGES AND PRECONNECTS

Left Panel 2.5 Discharge Akron Valve [Qty: 2]

One (1) 2-1/2" discharge outlet with a manually operated Akron valve shall be provided at the left hand side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking

ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: left side discharge 1, left side discharge 2.

Right Side 4 Handwheel Discharge

One (1) 4" diameter discharge outlet with a handwheel controlled Akron valve shall be provided at the side pump panel.

The valve shall be an Akron 8840HD series with a bronze flat ball design for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the brass ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The handwheel valve control shall have the following features:

- Handwheel driven worm gear rotates a gear sector for smoother and easier operation under pressure.
- A 50:1 ratio.
- 6" handwheel.
- 12-1/2 turns for full open/close.
- Opening and closing speed complies with the current edition of NFPA.
- Portrait position indicator which shows the position of the valve ball to meet NFPA 1901.

The valve controls and indicators shall be located at the pump operator's panel.

Location: right side discharge 1.

Left Rear 2.5" Discharge Akron Valve

One (1) 2-1/2" discharge outlet with a manually operated Akron valve shall be supplied to the left rear of the apparatus by a 2-1/2" stainless steel pipe.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking

ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: left rear discharge.

Right Rear 1.5 Discharge Akron Valve

One (1) 1.5" discharge outlet with a manually-operated Akron valve shall supplied to the right rear of the apparatus by a 2" stainless steel pipe. The discharge shall terminate with a chrome 1.5" male NST adapter.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: right rear discharge.

DISCHARGE OPTIONS

IC Push/Pull Control

The apparatus pump panel shall be equipped with Innovative Controls Side Mount Valve Controls. The ergonomically designed ¼ turn push-pull T-handle shall be chrome-plated zinc with recessed labels for color-coding and verbiage. An anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome-plated zinc panel-mounting bezel with areas for color-coding and/or FOAM and CAFS identification labels.

Discharge/Intake Bezel

Innovative Controls intake and/or discharge swing handle bezels shall be installed to the apparatus with mounting bolts. These bezel assemblies will be used to identify intake and/or discharge ports with color and verbiage. These bezel are designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The specified assemblies feature a chrome-plated panel-mount bezel with durable UV resistant polycarbonate inserts. These UV resistant polycarbonate graphic inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. All insert labels shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.

Bleeder Drain Valve [Qty: 5]

The bleeder/drain valves shall be Innovative Controls ¾" ball brass drain valves with chrome-plated lift lever handles and ergonomic grips. Each lift handle grip shall feature built-in color-coding labels and a verbiage tag identifying each valve, also supplied by Innovative Controls. The color labels shall also include valve open and close verbiage.

PRESSURE GOVERNORS

FRC PBA400 Governor

Fire Research PumpBoss model PBA400 pressure governor and monitoring display kit shall be installed. The standard kit shall include a control module, pump discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 6-3/4" high by 4-5/8" wide by 1-3/4" deep. Inputs for engine information shall be from a J1939 databus or from independent sensors and pump discharge pressure input shall be from a pressure sensor. The following continuous displays shall be provided:

- * CHECK ENGINE and STOP ENGINE warning LEDs.
- * Engine RPM; shown with four daylight bright LED digits more than 1/2" high.
- * Engine OIL PRESSURE; shown on an LED bar graph display in 10 psi increments.
- * Engine TEMPERATURE; shown on an LED bar graph display in 10 degree increments.
- * BATTERY VOLTAGE; shown on an LED bar graph display in 0.5 volt increments.
- * PSI / RPM setting; shown on a dot matrix message display.
- * PSI and RPM mode LEDs.
- * THROTTLE READY LED.

A dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator.

The program shall store the accumulated operating hours for the pump and engine, previous incident hours, and current incident hours in a non-volatile memory. Stored elapsed hours shall be displayed at the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

- * Low Oil Pressure
- * High Engine Coolant Temperature
- * High Transmission Temperature
- * Low Battery Voltage (Engine Off)

- * Low Battery Voltage (Engine Running)
- * High Battery Voltage
- * High Engine RPM

The governor shall operate in two control modes; pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A control knob that uses optical technology shall adjust pressure or RPM settings. It shall be 2" in diameter with no mechanical stops, a serrated grip, and have a red idle push button in the center.

A throttle ready LED shall light when the pump engaged interlock signal is recognized. The governor shall be in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 PSI. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor and monitoring display shall be programmed to interface with a specific engine.

The display module shall be mounted at the pump operator's panel.

GAUGES

GAUGE IC 10 LED TANK LEVEL WATER, ADDITIONAL

An additional Innovative Controls brand water tank level gauge shall be located at the officer rear to provide a high-visibility display of the water tank water level. Ten (10) high-intensity light emitting diodes (LED's) on the display module shall have a 3 dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. Each display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an "anti-slosh" feature.

GAUGE IC 10 LED TANK LEVEL WATER/PSTANK

One (1) Innovative Controls brand water tank level gauge shall be located at the pump operator's panel to provide a high-visibility display of the water tank level. Ten (10) high-intensity light emitting diodes (LEDs) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED

indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. System calibration shall be accomplished via supplied magnet. Each display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an "anti-slosh" feature.

In addition to the pump panel mounted lights there shall be one (1) Whelen PSTank series LED (Light Emitting Diode) strip light installed each side as specified.

The system shall be controlled by an Innovative Control tank level driver module that is integral of the NFPA required pump panel mounted tank level light assembly.

The additional tank level system shall be interlocked through the parking brake assembly so as not to be on while the vehicle is in motion.

The remote strip light shall be arranged as follows:

Full Green
3/4 Blue
1/2 Amber
1/4 Red

Location of Whelen PSTank Strip Lights: each side of cab rear of front doors.

4" Master Gauges w/Bezel

The master intake and master discharge gauges shall be 4"(101mm) diameter IC pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40F to +160F. Each gauge shall meet ANSI B40.1 Grade 1A requirements with an accuracy of +/- 1% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

The two master gauges shall be installed into decorative chrome-plated zinc mounting bezel that also incorporates a test port manifold and a graphic overlay that identifies the master intake and discharge gauges, the vacuum test port, and the pressure test port. The test port manifold is solid cast brass with chrome plated plugs. The master gauges shall be installed on the pump panel no more than 6 inches apart. The gauge on the left shall be the master pump intake gauge and display a range from 30" vac to 400 psi with black graphics on a white background. The gauge on the right shall be the master pump discharge gauge and display a range from 0 to 400 psi with black graphics on a white background.

2.5" Individual Gauges w/Bezel [Qty: 5]

The valve discharge gauges shall be 2 ½“(63mm) diameter Innovative Controls pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40F to +160F. Each gauge shall exceed ANSI B40.1 Grade A requirements with an accuracy of +/- 1.5% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

A polished chrome-plated stainless steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels. The gauges shall display a range from 0 to 400 psi with black graphics on a white background.

ELECTRICAL SYSTEMS

Vehicle Data Recorder

A vehicle data recorder system shall be provided to comply with the 2009 and 2016 editions of NFPA 1901. The following data shall be monitored:

- Vehicle speed MPH
- Acceleration (from speedometer) MPH/Sec.
- Deceleration (from speedometer) MPH/Sec.
- Engine speed RPM
- Engine throttle position % of full throttle
- ABS Event On/Off
- Seat occupied status Occupied Yes/No by position
- Seat belt status Buckled Yes/No by position
- Master Optical Warning Device Switch On/Off
- Time: 24 hour time
- Date: Year/Month/Day

Occupant Detection System

There shall be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement.

The audible warning shall activate when the vehicle's park brake is released and a seat position is not in a valid state. A valid state is defined as a seat that is unoccupied and the seat belt is unbuckled, or one that has the seat belt buckled after the seat has been occupied.

The visual warning shall consist of a graphical display that will continuously indicate the validity of each seat position.

The system shall include a display panel with LED back-lit ISO indicators for each seating position, seat sensor and safety belt latch switch for each cab seating position, audible alarm and braided wiring harness.

The display panel shall be located inboard on driver's side overhead console.

Multiplex Electrical System

Electrical System

The apparatus shall incorporate a Weldon V-MUX multiplex 12 volt electrical system. The system shall have the capability of delivering multiple signals via a CAN bus. The electrical system installed by the apparatus manufacturer shall conform to current SAE standards, the latest FMVSS standards, and the requirements of the applicable NFPA 1901 standards.

The electrical system shall be pre-wired for optional computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics.

The electrical circuits shall be provided with low voltage over-current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather-resistant enclosures. The over-current protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

Any electrical junction or terminal boxes shall be weather-resistant and located away from water spray conditions.

Multiplex System

For superior system integrity, the networked multiplex system shall meet the following minimum component requirements:

- The network system must be Peer to Peer technology based on RS485 protocol. No one module shall hold the programming for other modules. One or two modules on a network referred to as Peer to Peer, while the rest of the network consists of a one master and several slaves is not considered Peer to Peer for this application.
- Modules shall be IP67 rated to handle the extreme operating environment found in the fire service industry.
- All modules shall be solid state circuitry utilizing MOS-FET technology and utilize Deutsch series input/output connectors.
- Each module that controls a device shall hold its own configuration program.
- Each module should be able to function as a standalone module. No "add-on" module will be acceptable to achieve this form of operation.
- Load shedding power management (8 levels).
- Switch input capability for chassis functions.
- Responsible for lighting device activation.

- Self-contained diagnostic indicators.
- Wire harness needed to interface electrical devices with multiplex modules.
- The grounds from each device should return to main ground trunk in each sub harness by the use of ultrasonic splices.

Wiring

All harnessing, wiring and connectors shall be manufactured to the following standards/guidelines. No exceptions.

- NFPA 1901-Standard for Automotive Fire Apparatus
- SAE J1127 and J1128
- IPC/WHMA-A-620 – Requirements and Acceptance for Cable and Wire Harness Assemblies. (Class 3 – High Performance Electronic Products)

All wiring shall be copper or copper alloys of a gauge rated to carry 125 of the maximum current for which the circuit is protected. Insulated wire and cable 8 gauge and smaller shall be SXL, GXL, or TXL per SAE J1128. Conductors 6 gauge and larger shall be SXL or SGT per SAE J1127.

All wiring shall be colored coded and imprinted with the circuits function. Minimum height of imprinted characters shall not be less than .082” plus or minus .01”. The imprinted characters shall repeat at a distance not greater than 3”.

A coil of wire shall be provided behind electrical appliances to allow them to be pulled away from mounting area for inspection and service work.

Wiring Protection

The overall covering of the conductors shall be loom or braid.

Braid style wiring covers shall be constructed using a woven PVC-coated nylon multifilament braiding yarn. The yarn shall have a diameter of no less than .04” and a tensile strength of 22 lbs. The yarn shall have a service temperature rating of -65 F to 194 F. The braid shall consist of 24 strands of yarn with 21 black and 3 yellow. The yellow shall be oriented the same and be next to each other.

Wiring loom shall be flame retardant black nylon. The loom shall have a service temperature of -40 F to 300 F and be secured to the wire bundle with adhesive-backed vinyl tape.

Wiring Connectors

All connectors shall be Deutsch series unless a different series of connector is needed to mate to a supplier’s component. The connectors and terminals shall be assembled per the connector/terminal manufacturer’s specification. Crimp solderless terminals shall be acceptable. Heat shrink style shall be utilized unless used within the confines of the cab.

NFPA Required Testing of Electrical System

The apparatus shall be electrical tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications, and test results shall be submitted with delivery documentation per requirements of NFPA 1901. The following minimum testing shall be completed by the apparatus manufacturer:

1. Reserve capacity test:

The engine shall 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 shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test fail.

2. Alternator performance test at idle:

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

3. Alternator performance test at full load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test. However, an alarm sounded by excessive battery discharge, as detected by the system required in NFPA 1901 Standard, or a system voltage of less than 11.7 volts DC for a 12 volt nominal system, for more than 120 seconds, shall be considered a test failure.

4. Low voltage alarm test:

Following the completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts DC for a 12 volt nominal system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

NFPA Required Documentation

The following documentation shall be provided on delivery of the apparatus:

- A. Documentation of the electrical system performance tests required above.
- B. A written load analysis, including:

- a. The nameplate rating of the alternator.
- b. The alternator rating under the conditions.
- c. Each specified component load.
- d. Individual intermittent loads.

Multiplex Display

The V-MUX multiplex electrical system shall include a text display.

The display shall have the following features:

- Rugged vacuum fluorescent technology
- Two twenty character lines
- Programmed to show door ajar status and diagnostic information

The display shall be located center of dash.

Electrical Connection Protection

The vehicle electrical system shall be made more robust by the application of a corrosion inhibiting spray coating on all exposed electrical connections on the chassis and body. If equipped with an aerial device, the exposed connections on the aerial components shall also be protected.

The coating shall use nanotechnology to penetrate at the molecular level into uneven surfaces to create a protective water repellant film. The coating shall protect electrical connections against the environmental conditions apparatus are commonly exposed to.

WARNING LIGHTS

Light Bar

A Whelen Freedom IV Series 72" LED light bar model F4X7 with ten (10) LED modules shall be provided; two (2) front corner mounted LED modules, six (6) forward facing LED modules and two (2) side facing LED modules (with front vista windows) or two (2) rear corner LED modules (without front vista windows).

No rear facing LEDs.

The light bars shall have clear lenses.

The white LEDs (if equipped) shall be switched off in blocking right of way mode.

The light bar shall be installed centered on the front cab roof.

Light Bar Mount

One (1) pair of Whelen 1.5" tall (model MKEZ7) mounts shall be provided on the front light bar.

Front Light Bar Color(s)

The front light bar shall be provided with the following color LED modules: Red/White with clear lenses

If applicable, includes side facing light bars when colors are the same.

Upper Rear Warning Lights

Whelen model B6LED beacons shall be supplied on polished aluminum mounts. Each unit shall consist of a LED upper beacon with red LEDs/clear domes and a M7 series Super LED with Red LED with Clear lens LEDs'.

The lights shall be located rear upper body on aerial style brackets to meet upper Zone C requirements.

Lower Level Warning Light Package

Ten (10) Whelen M6RC Super red LED with clear lens light heads shall be provided.

The rectangular lights shall include chrome flanges where applicable. The lights shall be wired with weatherproof connectors and shall be mounted as close to the corner points of the apparatus as is practical as follows:

- Two (2) on the front of the apparatus facing forward
- Two (2) on the rear of the apparatus facing rearward
- Two (4) lights each side of the apparatus, one (1) each side at the forward most point (as practical), and one (1) each side at the rearward most point (as practical).
- Two (2) lights each side of the apparatus, one (1) each side of the apparatus centrally located to provide mid ship warning light.

The side facing lights shall be located at forward most position, in rear wheel well offset to front, and on side of beavertail.

All warning devices shall be surface mounted in compliance with NFPA standards.

Warning Lights

Two (2) Whelen Rota-Beam series model 6RBRC Super LED red light heads with clear lens shall be provided. The lights shall include chrome flanges where applicable.

Location: (1) each side above quad bezel (outboard).

Warning Lights

Two (2) Whelen M6V2RC Super LED red light heads with clear lens shall be provided. The rectangular lights shall include chrome flanges where applicable. Scene lights shall be provided a switch in the cab.

Location: (1) each side of cab down low just ahead of rear doors, (1) each side rear wheel well offset to rear.

Warning/Scene Lights

Two (2) Whelen M9 series model M9V2RC combination 180 degree LED red warning/scene light heads with clear lenses shall be provided. The lights shall include chrome flanges where applicable. The warning lights will be covered by a five (5) year manufacturer warranty.

Size: 10.35"W x 6.44"H x 2.70"D.

Amp draw warning: 2.4

Amp draw scene: 2.4

Location: driver side and officer side upper forward body corners in diamond plate boxes.

Directional Traffic Warning Light

One (1) Whelen M2 traffic advisor shall be provided. The warning light shall include eight (8) individual M2A series amber warning lights with amber lenses located evenly spaced, up high on rear of body. One (1) Whelen model TACTL5 control head shall be provided for the lights. A rubrail extrusion with mitered ends shall be provided as a guard for the lights.

NOTE: To be wired with a nine (9) conductor cable to the Whelen TACTL5 control head mounted in cab. Per Whelen; pin 312 white wire/blue trace wired to master switch activating all M2A lights as warning lights unless TACTL5 activated and takes priority.

Directional Light Bar Control Location

The directional light bar control head shall be located in the center overhead.

SIRENS

Mechanical Siren

A chrome plated flush mounted Federal Q2B-NN coaster siren shall be installed in the front bumper. An electric siren brake switch shall be located in the cab accessible to driver.

The siren shall be located center front bumper.

DOT LIGHTING

LED Marker Lights

LED clearance/marker lights shall be installed as specified.

Upper Cab:

- Five (5) amber LED clearance lights on the cab roof.

Lower Cab:

- One (1) amber LED side turn/marker each side of cab ahead of the front door hinge.

Upper Body:

- One (1) red Trucklite LED clearance light each side, rear of body to the side.

Lower Body:

- Three (3) red Trucklite LED clearance lights centered at rear, recessed in the rub rail.
- One (1) red Trucklite LED clearance light each side at the trailing edge of the apparatus body, recessed in the rub rail.
- One (1) amber Trucklite LED clearance/auxiliary turn light each side front of body/module, recessed in the rub rail.

Tail Lights

Three (3) Whelen model M6 series LED (Light Emitting Diode) lights shall be installed in a four (4) light vertical housing each side at rear and wired with weatherproof connectors.

Light functions shall be as follows:

- LED red running light with red brake light in upper position.
- LED amber populated arrow pattern turn signal in middle position.
- LED clear back-up light in lower position.

A one-piece chrome plastic housing shall be mounted around the three (3) individual lights in a vertical position. The lower space will be used by the M6 or equivalent lower NFPA warning light.

License Plate Light

One (1) Truck-Lite model 15905 white LED license plate light mounted in a Truck-Lite model 15732 chrome plated plastic license plate housing shall be mounted at the rear of the body.

License Plate Bracket

There shall be bracket fabricated from aluminum diamond plate, secured to rear of the body to accommodate a license plate.

LIGHTS - COMPARTMENT, STEP & GROUND

Ground Lights

The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the ground areas around the apparatus in accordance with current NFPA requirements. The lights shall be TecNiq model T440 4" circular LED (Light Emitting Diode) with clear lenses mounted in a resilient shock absorbent mount for improved bulb life. The wiring connections shall be made with a weather resistant plug in style connector.

Ground area lights shall be switched from the cab dash with the work light switch.

One (1) ground light shall be supplied under each side of the front bumper extension if equipped.

Lights in areas under the driver and crew area exits shall be activated automatically when the exit doors are opened.

Compartment Light Package

Two (2) Hansen compartment light strips shall be mounted in each body compartment greater than 4 cu. ft. Transverse compartments shall have four (4) lights, located two (2) each side.

Each light bar shall include white LEDs mounted with a tough polycarbonate tube enclosure to protect the LED circuit board. The lights shall produce 120 lumens per foot and be waterproof up to IP66 rating.

Compartment lights shall be wired to a master on/off rocker switch on the cab switch panel.

The wiring connection for the compartment lights shall be made with a weather-resistant plug in style connector. A single water- and corrosion-resistant switch with a polycarbonate actuator and sealed contacts shall control each compartment light. The switch shall allow the light to illuminate if the compartment door is open.

Cab Ground / Auxiliary Step Lights

The cab shall be equipped with a sufficient quantity of lights to properly illuminate the auxiliary steps and the ground areas below them in accordance with current NFPA requirements. The lights shall be EON LED (Light Emitting Diode) with clear lenses. The wiring connections shall be made with a weather resistant plug in style connector.

The lights shall be switched from the cab dash with the work light switch. The lights shall also be activated automatically when the exit doors are opened.

LIGHTS - DECK AND SCENE

Hose Bed Light

An Optronics round LED light model TLL44 shall be installed at the front area of the hose bed to provide hose bed lighting per current NFPA 1901. The light shall provide 720 lm effective output. The light shall have a powder coated, die cast aluminum housing and stainless steel hardware with a weatherproof rating of IP69K.

The hose bed light shall be switched with the work light switch in the cab.

Scene Lights (pr)

One pair of Fire Research model LED900-Q70 surface mount lights with diamond plate boxes shall be provided. The lights shall be mounted with four (4) screws to a flat surface. It shall be 6 3/4" high by 9" wide and have a profile of less than 1 3/4" beyond the mounting surface. Wiring shall extend from a weatherproof strain relief at the rear of the light.

Each light shall have twenty-four (24) white LEDs that generate a rated 7000 lumens at 12 or 24 volts DC. The lens shall redirect the light along the vehicle and out onto the working area. The light housing shall be aluminum with a chrome colored bezel.

Lights shall be located (1) each side of body on rearward upper body corners and switch in cab (side facing lights switched separately).

Scene Light

One Fire Research model LED900-Q65 surface mount light shall be installed. The light shall be mounted with four (4) screws to a flat surface. It shall be 6-3/4" high by 9" wide and have a profile of less than 1-3/4" beyond the mounting surface. Wiring shall extend from a weatherproof strain relief at the rear of the light.

Light shall have twenty-four (24) white LEDs that generate a rated 4400 lumens at 12 or 24 volts DC. The lens shall redirect the light along the vehicle and out onto the working area. The light housing shall be aluminum with a chrome colored bezel.

Lights shall be located driver side rear of body up high.

Deck/Scene Light Wired to Back-Up Lights

The rear deck or scene lights shall be activated when the chassis is placed in reverse to provide additional lighting, in addition to the back-up lights, when backing the vehicle.

Rear Work Lights

Two (2) FireTech LED lights model FT-WL3500-FT-W shall be installed. The lights shall produce 1,981 effective lumens and have a white housing. The lights shall be switched with work light switch in the cab.

Location: rear body/beavertail area on the trailing edge up high.

Additional Switch

A 12 volt switch shall be provided.

The switch shall be located driver rear of body for rear work lights.

LIGHTS - NON-WARNING

Pump Compartment Light

An incandescent light shall be provided in the pump compartment area for NFPA compliance. The light shall be wired to operate with the work light switch in the cab.

LED Pump Panel Light Package

Three (3) TecNiq model E10 LED lights shall be mounted under a light shield directly above each side pump panel. The work light switch in the cab shall activate the lights when the park brake is set.

Engine Compartment Light

There shall be lighting provided to illuminate the engine compartment area in compliance with NFPA 1901. The light shall be an Optronics ILL22 Series LED that has a polycarbonate lens, sealed / waterproof housing and integral switch. The light wiring circuit shall activate when the cab is tilted and master power is switched on.

LIGHTS - FLOOD

Cab Brow Light

One (1) FireTech 12V LED model FT-B-72-ML-W 72" white housing brow light with integral marker lights shall be provided. The light shall be installed on the front cab brow in place of the standard DOT marker lights. The light shall feature 54 LEDs` producing 19,665 usable lumens and five (5) DOT approved marker lights. The 285W 12V light shall draw 23.75 amps.

LED Flood Light [Qty: 2]

One (1) FireTech 12V LED mini brow trunnion mount flood light model FT-MB-18-TR-FT 25" long shall be provided. The light shall feature 18 LEDs` producing 9,504 usable lumens. The 90W 12V light shall draw 7.5 amps. A switch shall be provided, accessible to driver, for activation of light.

Location: centered above rear cab transverse doors.

Cab Scene Light Switching

The cab scene lights shall be wired to activate through the appropriate side cab door ajar switch. This application allows the cab scene lights to be used as additional illumination of the ground

area for personnel entering or exiting the vehicle. The switching for this application is in addition to the standard cab scene light switching.

CAMERAS / BACKUP SYSTEM

Backup Camera

A Federal Signal Back-Up Camera system model CAMSET70-NTSC-4 shall be provided. The system shall include a color camera with audio model CAMCCD-REARNTSC and a color monitor model CAMLCD-70. The monitor shall be installed in the front area of the cab visible at night and also in bright sunlight to the driver. The camera shall be mounted up high at the rear of the vehicle to provide a wide angle rear view. The system shall include a cable with metallic waterproof threaded o-ring seal connectors to ensure positive connection between video cable and camera to prevent unplugging due to vibration resulting in video loss to vehicle operator.

Back-Up Camera Monitor Location

The back-up camera monitor shall be located on the center dash offset driver.

Camera Shield

A diamond plate protective shield shall be provided for the top and sides of a camera. The shield shall be designed not to impede in the operational envelope of the camera.

Back-Up Sensor System

A Collision Avoidance System rear obstacle detection with voice distance indication shall be installed on the apparatus. The model CAS-4HW system shall include four (4) heavy duty stainless steel sensors located at the rear of the vehicle, a weatherproof control box and a speaker in the cab near the driver. The system shall "warn" the driver with a "beeping" sound indicating potential obstacles at the rear of the vehicle and a clear voice shall "tell" the operator +a countdown of the remaining distance in feet as the vehicle reverses.

MISC ELECTRICAL

Back-Up Alarm

An electronic back-up alarm shall be supplied. The 97 dB alarm shall be wired into the chassis back-up lights to signal when the vehicle is in reverse gear.

12 Volt DC Power Distribution Module

There shall be a 12 place 12 volt DC power distribution module installed as specified.

The module will have six (6) circuits wired directly to the battery and have six (6) circuits wired through the master battery switch with 12 positions for grounds. Connection to the power module circuit will be through a .250 female spade connector. Each buss will be protected with

a 50 amp circuit breaker for overload protection. The module will accept ATC blade type fuses or 22X series circuit breakers.

The module shall be located behind officer's seat, driver side back wall of radio box.

RECEPTACLES

Receptacle

A 20 amp, 110 volt 3-prong straight blade NEMA 5-20 duplex household receptacle with stainless steel cover plate shall be installed in a non-weather exposed area as specified by the department. The receptacle shall be wired to the inlet receptacle where it will have overcurrent protection from an external source.

Location: In cab driver side on 3 x 3 post rear facing just above engine cover (or seat riser if in a Hush).

MISC LOOSE EQUIPMENT

DOT Required Drive Away Kit

Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement.

EXTERIOR PAINT

Paint Custom Cab

The apparatus cab shall be painted Sikkens FLNA3047 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The aluminum cab exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces. Cab doors and any hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on cab, door jambs and door edges.

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall 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 shall 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 shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Any location where aluminum is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall 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 shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

Paint Body

The apparatus body shall be painted Sikkens FLNA3047 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The aluminum body exterior shall 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 shall be painted separately to assure proper paint coverage on body, door jambs and door edges.

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall 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 shall 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 shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Any location where aluminum is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of

penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall 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 shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

Painted Header Plate

The roll up door header plates shall be painted job color for all painted roll-up doors.

Undercoating

Undercoating shall consist of a heavy coating of soft seal film sprayed on the entire underside of the vehicle to repel water and road elements. Shall be applied after customer final inspection.

INTERIOR PAINT

Cab Interior Paint

The interior of the cab shall be painted Zolatone gray #20-64. Prior to painting, all exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

LETTERING

Scotchlite Letter [Qty: 2]

Scotchlite letters up to 6" tall shall be applied.

The exact size, color and location of the letters shall be as specified by the customer.

Scotchlite Letter [Qty: 7]

Scotchlite letters up to 12" tall shall be applied.

The exact size, color and location of the letters shall be as specified by the customer.

Sign Gold Letter [Qty: 57]

Sign Gold letters up to 6" tall shall be applied.

The exact size and location of the letters shall be as specified by the customer.

Sign Gold Letters [Qty: 38]

Sign Gold letters up to 12" tall shall be applied.

The exact size, color and location of the letters shall be as specified by the customer.

Lettering Shade and/or Outline [Qty: 104]

Existing letters shall be shaded and/or outlined as specified by the customer to provide a contrast.

STRIPING

Cab and Body Stripe

A single straight Scotchlite stripe, up to 6 inches in width shall be installed on the cab and body.

The stripe shall be NFPA compliant and the size, color and location shall be as specified by the customer.

Cab and Body Stripe [Qty: 2]

An additional Scotchlite stripe, up to 3 inches in width shall be installed on the cab and body.

The stripe shall be NFPA compliant and the design, size, color and location shall be as specified by the customer.

Front Bumper 3M Diamond Grade Striping

Chevron style 3M Diamond Grade striping shall be provided on the front bumper of the apparatus. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern.

Rear Body 3M Diamond Grade Striping

Chevron style 3M Diamond Grade striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern. The striping shall be located on the rear facing extrusions, panels and doors inboard and outboard of the beavertails if applicable.

Designated Standing / Walking Area Indication

1" wide yellow perimeter marking consisting of individual Reflexite diamonds shall be applied to indicate the outside edge of designated standing and walking areas above 48" from the ground in compliance with 2016 NFPA 1901. Steps, ladders and areas with a railing or structure at least 12" high are excluded from this requirement.

GRAPHICS

Customer Supplied Logo [Qty: 2]

A logo shall be supplied by the customer and installed as specified.

Location: reference graphics layout drawing.

WARRANTY / STANDARD & EXTENDED

Lifetime Frame Warranty

The apparatus manufacturer shall provide a full lifetime frame structural warranty. This warranty shall cover all apparatus manufacturer designed frame, frame members, and cross-members against defects in materials or workmanship for the lifetime of the covered apparatus. A copy of the warranty document shall be provided with the proposal. Frame warranties that do not cover cross-members for the life of the vehicle shall not be acceptable.

10 Year 100,000 Mile Structural Warranty

The apparatus manufacturer shall provide a comprehensive 10 year/100,000 mile structural warranty. This warranty shall cover all structural components of the cab and/or body manufactured by the apparatus manufacturer against defects in materials or workmanship for 10 years or 100,000 miles, whichever occurs first. Excluded from this warranty are all hardware, mechanical items, electrical items, or paint finishes. A copy of the warranty document shall be provided with the proposal.

10 Year Stainless Steel Plumbing Warranty

The apparatus manufacturer shall provide a full 10-year stainless steel plumbing components warranty. This warranty shall cover defects in materials or workmanship of apparatus manufacturer designed foam/water plumbing system stainless steel components for 10 years. A copy of the warranty document shall be provided with the proposal.

10 Year Paint and Corrosion Warranty

The apparatus manufacturer shall provide a 10-year limited paint and corrosion perforation warranty. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in a normal and reasonable manner.

The paint shall be prorated for 10 years as follows:

| | | | |
|---|------|--|------|
| Topcoat & Appearance: Gloss, Color Retention, Cracking | | Coating System, Adhesion & Corrosion: Includes Dissimilar metal corrosion, Flaking, Blistering, Bubbling | |
| 0 to 72 months | 100% | 0 to 36 months | 100% |
| 73 to 120 months | 50% | 37 to 84 months | 50% |
| | | 85 to 120 months | 25% |

Corrosion perforation shall be covered 100% for 10 years. Corrosion perforation is defined as complete penetration through the exterior metal of the apparatus.

The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. A copy of the warranty document shall be provided with the proposal.

UV paint fade shall be covered in a separate warranty supplied by Akzo Nobel (Sikkens) and shall be for a minimum of 10 years.

Warranty - One Year Standard

The apparatus manufacturer shall provide a full 1 year standard warranty. All components manufactured by the apparatus manufacturer shall be covered against defects in materials or workmanship for a 1 year period. All components covered by separate suppliers such as engines, transmissions, tires, and batteries shall maintain the warranty as provided by the component supplier. A copy of the warranty document shall be provided with the proposal.

25 Year Frame Rail Corrosion Warranty

The chassis manufacturer shall provide a 25 year corrosion warranty on the chassis frame rails. This warranty shall cover the chassis frame rails, including frame rail liners (if equipped), for a period of 25 years after the date on which the vehicle is delivered to the original purchaser. A copy of the warranty document shall be provided with the proposal. Please refer to warranty document for complete details and exclusions.

20 Year Frame Components Corrosion Warranty

The chassis manufacturer shall provide a 20 year corrosion warranty on the galvanized chassis frame components. This warranty shall cover the front frame extensions, chassis crossmembers (from engine rearward), battery tray brackets and rear underbody support (if applicable) for a period of 20 years after the date on which the vehicle is delivered to the original purchaser. A copy of the warranty document shall be provided with the proposal. Please refer to warranty document for complete details and exclusions.

SUPPORT, DELIVERY, INSPECTIONS AND MANUALS

Pump Panel Approval Drawing

A detailed large scale approval drawing of the pump panel(s) shall be provided.

Approval Drawings

A general arrangement drawing depicting the vehicles appearance shall be provided. The drawing shall consist of left side, right side, front, and rear elevation views.

Vehicles requiring pump controls shall include a general arrangement view of the pump operator's position, scaled the same as the elevation views.

Electronic Manuals

Two (2) copies of all operator, service, and parts manuals **MUST** be supplied at the time of delivery in digital format -**NO EXCEPTIONS!** The electronic manuals shall include the following information:

- Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, aerial (if applicable), installed components, and auxiliary systems.
- Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and firefighting systems.
- Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.
- Instructions regarding the frequency and procedure for recommended maintenance.
- Maintenance instructions for the repair and replacement of installed components.
- Parts listing with descriptions and illustrations for identification.
- Warranty descriptions and coverage.

The electronic document shall incorporate a navigation page with electronic links to the operator's manual, service manual, parts manual, and warranty information, as well as instructions on how to use the manual. Each copy shall include a table of contents with links to the specified documents or illustrations.

The electronic document must be formatted in such a manner as to allow not only the printing of the entire manual, but to also the cutting, pasting, or copying of individual documents to other electronic media, such as electronic mail, memos, and the like.

A find feature shall be included to allow for searches by text or by part number.

These electronic manuals shall be accessible from any computer operating system capable of supporting portable document format (PDF). Permanent copies of all pertinent data shall be kept file at both the local dealership and at the manufacturer's location.

NOTE: Engine overhaul, engine parts, transmission overhaul, and transmission parts manuals are not included.

Printed Materials

One (1) individual binder shall be provided of the:

- Operation Manual.
- Service Manual.
- Parts Manual.

Each of these manuals shall be presented with a table of contents.

The manuals shall contain the following:

- Operating instructions.
- Descriptions, specifications.
- Ratings for the chassis.
- Installed components.

Auxiliary systems.

Warnings and cautions pertaining to the operation.

Maintenance of the fire apparatus.

Fire fighting systems.

Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.

Instructions regarding the frequency and procedure for recommended maintenance.

Maintenance instructions for the repair and replacement of installed components.

Parts listing with descriptions and illustrations for identification.

Note: Engine overhaul, engine parts, transmission overhaul, and transmission parts manuals are not included.

Fire Apparatus Safety Guide

Fire Apparatus Safety Guide published by FAMA, latest edition. This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of a fire apparatus and to suggest possible ways of dealing with these situations. This manual is NOT a substitute for the E-ONE's fire apparatus operator and maintenance manuals or commercial chassis manufacturer's operator and maintenance manuals.

DEALER SUPPLIED ITEMS

| CAT# | QUANT | SPEC |
|----------------|-------|--|
| 02-0000 | . | TRUCK ACCESSORIES - CHASSIS |
| 02-1109 | 10 | Wheel Balance Beads, Equal, per wheel |
| 04-0000 | . | TRUCK ACCESSORIES - BODY |
| 04-1290 | 2 | Turtle Tile decking shall be installed on the exposed floors and all shelves/trays in all compartments of the apparatus body. |
| 34-0000 | . | ADAPTERS, THREADED |
| 34-0450 | 3 | Adapter, discharge, 45° elbow, 2-1/2" Female swivel NST x 2-1/2" Male NST, chrome plated brass. Elkhart #105. |
| 70-0000 | . | MISC. SERVICES |
| 70-1000 | 1 | Pre-delivery Inspection - Pumper or Aerial - After transportation from the factory and immediately prior to delivery to the fire department, the local dealer shall provide the following service: complete inspection and operational check including chassis, cab, body, pump and aerial (as applicable), and all electrical and mechanical devices; correction of any issues and leaks; fluid level checks and top off; and complete cleaning and detailing of the apparatus. |



LEXINGTON

Lexington-Fayette Urban County Government

Lexington, Kentucky
Horse Capital of the World

Division of Central Purchasing

Date of Issue: October 9, 2017

INVITATION TO BID #139-2017 Tanker Pumper for the Division of Fire & Emergency Services

Bid Opening Date: October 30, 2017

Bid Opening Time: 2:00 PM

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

Type of Bid: Firm Bid

Pre Bid Meeting: Month XX, 2017

Pre Bid Time: X:XX xm

Address: XXXXXXXXXXXX Street

Sealed bids will be received in the office of the Division of Central Purchasing, 200 East Main Street, Lexington, Kentucky, until **2:00 PM**, prevailing local time on **10/30/2017**. Bids must be received by the above-mentioned date and time. Mailed bids should be sent to:

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

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

Bids are to include all shipping costs to the point of delivery located at: 219 E. Third Street, Lexington, KY 405XX

Bid Security and Performance Bond Required for all bids over \$50,000.

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

Submitted by: _____
Firm Name

Address

City, State & Zip

Bid must be signed: _____
(original signature) Signature of Authorized Company Representative – Title

Representative's Name (Typed or printed)

Area Code - Phone – Extension Fax #

E-Mail Address

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

AFFIDAVIT

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

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

Further, Affiant sayeth naught. _____

STATE OF _____

COUNTY OF _____

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

by _____ on this the _____ day
of _____, 20__.

My Commission expires: _____

NOTARY PUBLIC, STATE AT LARGE

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

I. GREEN PROCUREMENT

A. ENERGY

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

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

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

Key Benefits

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

B. GREEN SEAL CERTIFIED PRODUCTS

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

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

C. GREEN COMMUNITY

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

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

Yes _____ No _____

II. Bid Conditions

- A. No bid may be withdrawn for a period of sixty (60) days after the date and time set for opening.
- B. No bid may be altered after the date and time set for opening. In the case of obvious errors, the Division of Central Purchasing may permit the withdrawal of a bid. The decision as to whether a bid may be withdrawn shall be that of the Division of Central Purchasing.
- C. Acceptance of this proposal shall be enactment of an Ordinance by the Urban County Council.
- D. The bidder agrees that the Urban County Government reserves the right to reject any and all bids for either fiscal or technical reasons, and to award each part of the bid separately or all parts to one vendor.

- E. Minor exceptions may not eliminate the bidder. The decision as to whether any exception is minor shall be entirely that of the head of the requisitioning Department or Division and the Director of the Division of Central Purchasing. The Urban County Government may waive technicalities and informalities where such waiver would best serve the interests of the Urban County Government.
- F. Manufacturer's catalogue numbers, trade names, etc., where shown herein are for descriptive purposes and are to guide the bidder in interpreting the standard of quality, design, and performance desired, and shall not be construed to exclude proposals based on furnishing other types of materials and/or services. However, any substitution or departure proposed by the bidder must be clearly noted and described; otherwise, it will be assumed that the bidder intends to supply items specifically mentioned in this Invitation for Bids.
- G. The Urban County Government may require demonstrations of the materials proposed herein prior to acceptance of this proposal.
- H. Bids must be submitted on this form and must be signed by the bidder or his authorized representative. Unsigned bids will not be considered.
- I. Bids must be submitted prior to the date and time indicated for opening. Bids submitted after this time will not be considered.
- J. All bids mailed must be marked on the face of the envelope:

"Bid on #139-2017 Tanker Pumper for the Division of Fire & Emergency Services"

and addressed to: Division of Central Purchasing
 200 East Main Street, Room 338
 Lexington, Kentucky 40507

The Lexington-Fayette Urban County Government assumes no responsibility for bids that are not addressed and delivered as indicated above. Bids that are not delivered to the Division of Central Purchasing by the stated time and date will be rejected.

- K. Bidder is requested to show both unit prices and lot prices. In the event of error, the unit price shall prevail.
- L. A certified check or Bid Bond in the amount of 5 percent of the bid price must be attached hereto for bids greater than \$50,000. This check must be made payable to the Lexington-Fayette Urban County Government, and will be returned when the material and/or services specified herein have been delivered in accordance with specifications. In the event of failure to perform within the time period set forth in this bid, it is agreed the certified check may be cashed and the funds retained by the Lexington-Fayette Urban County Government as liquidated damages. Checks of unsuccessful bidders will be returned when the bid has been awarded.
- M. The delivery dates specified by bidder may be a factor in the determination of the successful bidder.
- N. Tabulations of bids received may be mailed to bidders. Bidders requesting tabulations must enclose a stamped, self-addressed envelope with the bid.
- O. The Lexington-Fayette Urban County Government is exempt from Kentucky Sales Tax and Federal Excise Tax on materials purchased from this bid invitation. Materials purchased by the bidder for construction projects are not tax exempt and are the sole responsibility of the bidder.
- P. All material furnished hereunder must be in full compliance with OSHA regulations.
- Q. If more than one bid is offered by one party, or by any person or persons representing a party, all such bids shall be rejected.
- R. Signature on the face of this bid by the Bidder or his authorized representative shall be construed as acceptance of and compliance with all terms and conditions contained herein.
- S. The Entity (regardless of whether construction contractor, non-construction contractor or supplier) agrees to provide equal opportunity in employment for all qualified persons, to prohibit discrimination in employment because of race, color, creed, national origin, sex or age, and to promote equal employment through a positive, continuing program from itself and each of its sub-contracting agents. This program of equal employment opportunity shall apply to every aspect of its employment policies and practices.

- T. The Kentucky Equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) requires that any county, city, town, school district, water district, hospital district, or other political subdivision of the state shall include in directly or indirectly publicly funded contracts for supplies, materials, services, or equipment hereinafter entered into the following provisions:

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

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

The Act further provides:

KRS 45.610. Hiring minorities - Information required

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

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

- (1) *If any contractor is found by the department to have engaged in an unlawful practice under this chapter during the course of performing under a contract or subcontract covered under KRS 45.560 to 45.640, the department shall so certify to the contracting agency and such certification shall be binding upon the contracting agency unless it is reversed in the course of judicial review.*
- (2) *If the contractor is found to have committed an unlawful practice under KRS 45.560 to 45.640, the contracting agency may cancel or terminate the contract, conditioned upon a program for future compliance approved by the contracting agency and the department. The contracting agency may declare such a contractor ineligible to bid on further contracts with that agency until such time as the contractor complies in full with the requirements of KRS 45.560 to 45.640.*
- (3) *The equal employment provisions of KRS 45.560 to 45.640 may be met in part by a contractor by subcontracting to a minority contractor or subcontractor. For the provisions of KRS 45.560 to 45.640, a minority contractor or subcontractor shall mean a business that is owned and controlled by one or more persons disadvantaged by racial or ethnic circumstances.*

KRS 45.630 Termination of existing employee not required, when

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

KRS 45.640 Minimum skills

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

It is recommended that all of the provisions above quoted to be included as special conditions in each

contract. In the case of a contract exceeding \$250,000, the contractor is required to furnish evidence that his work-force in Kentucky is representative of the available work-force in the area from which he draws employees, or to supply an Affirmative Action plan which will achieve such representation during the life of the contract.

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

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

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

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

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

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

Notice of appeal of a bid recommendation must be filed within 3 business days of the bid recommendation by (1) sending a written notice, including sufficient documentation to support appeal, to the Director, Division of Central Purchasing or (2) submitting a written request for a meeting with the Director of Central Purchasing to explain his appeal. After reviewing the documentation and/or hearing the vendor and consulting with the Commissioner of Finance and the Chief Administrative Officer, the Director of Central Purchasing shall in writing, affirm or withdraw the recommendation.

LFUCG Non-Appropriation Clause

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

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

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

SPECIAL INSTRUCTIONS TO THE BIDDER

(DO NOT SUBMIT PERFORMANCE SECURITY WITH BID)

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

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

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

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

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

EQUAL OPPORTUNITY AGREEMENT

Standard Title VI Assurance

The Lexington Fayette-Urban County Government, (hereinafter referred to as the "Recipient") hereby agrees that as a condition to receiving any Federal financial assistance from the U.S. Department of Transportation, it will comply with Title VI of the Civil Rights Act of 1964, 78Stat.252, 42 U.S.C. 2000d-4 (hereinafter referred to as the "Act"), and all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, (49 CFR, Part 21) Nondiscrimination in Federally Assisted Program of the Department of Transportation – Effectuation of Title VI of the Civil Rights Act of 1964 (hereinafter referred to as the "Regulations") and other pertinent directives, no person in the United States shall, on the grounds of race, color, national origin, sex, age (over 40), religion, sexual orientation, gender identity, veteran status, or disability be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Recipient receives Federal financial assistance from the U.S. Department of Transportation, including the Federal Highway Administration, and hereby gives assurance that will promptly take any necessary measures to effectuate this agreement. This assurance is required by subsection 21.7(a) (1) of the Regulations.

The Law

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

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

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

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

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

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

Bidders

I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, veteran status, disability and age.

Signature

Name of Business

GENERAL PROVISIONS OF BID CONTRACT

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

1. Bidder shall comply with all Federal, State & Local regulations concerning this type of service or good. All applicable state laws, ordinances and resolutions (including but not limited to Section 2-33 (Discrimination due to sexual orientation or gender identity) and Chapter 13 (Licenses and Regulations) of the Lexington-Fayette Urban County Government Code of Ordinances, and Resolution No. 484-17 (Minority, Women, and Veteran-Owned Businesses)) and the regulations of all authorities having jurisdiction over the project shall apply to the contract, and shall be deemed to be incorporated herein by reference.
2. Failure to submit ALL forms and information required by LFUCG may be grounds for disqualification.
3. Addenda: All addenda and IonWave Q&A, if any, must be considered by the bidder in making its response, and such addenda shall be made a part of the requirements of the bid contract. Before submitting a bid response, it is incumbent upon bidder to be informed as to whether any addenda have been issued, and the failure of the bidder to cover any such addenda may result in disqualification of that response.
4. Bid Reservations: LFUCG reserves the right to reject any or all bid responses, to award in whole or part, and to waive minor immaterial defects in proposals. LFUCG may consider any alternative proposal that meets its basic needs.
5. Liability: LFUCG is not responsible for any cost incurred by bidder in the preparation of its response.
6. Changes/Alterations: Bidder may change or withdraw a proposal at any time prior to the opening; however, no oral modifications will be allowed. Only letters, or other formal written requests for modifications or corrections of a previously submitted proposal which is addressed in the same manner as the bid response, and received by LFUCG prior to the scheduled closing time for receipt of bids, will be accepted. The bid response when opened, will then be corrected in accordance with such written request(s), provided that the written request is contained in a sealed envelope which is plainly marked "modifications of bid response".
7. Clarification of Submittal: LFUCG reserves the right to obtain clarification of any point in a bid or to obtain additional information from any bidder.
8. Bribery Clause: By his/her signature on its response, bidder certifies that no employee of his/hers, any affiliate or subcontractor, has bribed or attempted to bribe an officer or employee of the LFUCG.
9. Additional Information: While not necessary, the bidder may include any product brochures, software documentation, sample reports, or other documentation that may assist LFUCG in better understanding and

evaluating the bid response. Additional documentation shall not serve as a substitute for other documentation which is required by the LFUCG to be submitted with the bid response.

10. **Ambiguity, Conflict or other Errors:** If a bidder discovers any ambiguity, conflict, discrepancy, omission or other error in the bid request of LFUCG, it shall immediately notify LFUCG of such error in writing and request modification or clarification of the document if allowable by the LFUCG.
11. **Agreement to Bid Terms:** In submitting its bid response, the bidder agrees that it has carefully examined the specifications and all provisions relating to LFUCG's bid request, including but not limited to the bid contract. By submission of its bid response, bidder states that it understands the meaning, intent and requirements of LFUCG's bid request and agrees to the same. The successful bidder shall warrant that it is familiar with and understands all provisions herein and shall warrant that it can comply with them. No additional compensation to bidder shall be authorized for services, expenses, or goods reasonably covered under these provisions that the bidder omits from its bid response.
12. **Cancellation:** LFUCG may unilaterally terminate the bid contract with the selected bidder(s) at any time, with or without cause, by providing at least thirty (30) days advance written notice unless a different advance written notice period is negotiated prior to contract approval. Payment for services or goods received prior to termination shall be made by the LFUCG provided these goods or services were provided in a manner acceptable to the LFUCG. Payment for those goods and services shall not be unreasonably withheld.
13. **Assignment of Contract:** The selected bidder(s) shall not assign or subcontract any portion of the bid contract with LFUCG without the express written consent of LFUCG. Any purported assignment or subcontract in violation hereof shall be void. It is expressly acknowledged that LFUCG shall never be required or obligated to consent to any request for assignment or subcontract; and further that such refusal to consent can be for any or no reason, fully within the sole discretion of LFUCG.
14. **No Waiver:** No failure or delay by LFUCG in exercising any right, remedy, power or privilege hereunder, nor any single or partial exercise thereof, nor the exercise of any other right, remedy, power or privilege shall operate as a waiver hereof or thereof. No failure or delay by LFUCG in exercising any right, remedy, power or privilege under or in respect of this bid proposal or bid contract shall affect the rights, remedies, powers or privileges of LFUCG hereunder or shall operate as a waiver thereof.
15. **Authority to do Business:** Each bidder must be authorized to do business under the laws of the Commonwealth of Kentucky and must be in good standing and have full legal capacity to provide the goods or services specified in the bid proposal. Each bidder must have all necessary right and lawful authority to submit the bid response and enter into the bid contract for the full term hereof including any necessary corporate or other action authorizing the bidder to submit the bid response and enter into this bid contract. If requested, the bidder will provide LFUCG with a copy of a corporate resolution authorizing this action and/or a letter from an attorney confirming that the proposer is authorized to do business in the Commonwealth of Kentucky. All bid responses must be signed by a duly authorized officer, agent or employee of the bidder.
16. **Governing Law:** This bid request and bid contract shall be governed by and construed in accordance with the laws of the Commonwealth of Kentucky. In the event of any proceedings regarding this matter, the bidder agrees that the venue shall be the Fayette County Circuit Court or the U.S. District Court for the Eastern District of Kentucky, Lexington Division and that the bidder expressly consents to personal jurisdiction and venue in such Court for the limited and sole purpose of proceedings relating to these matters or any rights or obligations arising thereunder.
17. **Ability to Meet Obligations:** Bidder affirmatively states that there are no actions, suits or proceedings of any kind pending against bidder or, to the knowledge of the bidder, threatened against the bidder before or by any court, governmental body or agency or other tribunal or authority which would, if adversely determined, have a materially adverse effect on the authority or ability of bidder to perform its obligations under this bid response or bid contract, or which question the legality, validity or enforceability hereof or thereof.
18. **Price Discrepancy:** In case of price discrepancy, unit bid price written in words will prevail followed by unit price written in numbers then total amount bid per line item.
19. Bidder understands and agrees that its employees, agents, or subcontractors are not employees of LFUCG for any

purpose whatsoever. Bidder is an independent contractor at all times related to the bid response or bid contract.

20. If any term or provision of this bid contract shall be found to be illegal or unenforceable, the remainder of the contract shall remain in full force and such term or provision shall be deemed stricken.

Signature

Date

N O n n

| | | White (Not Hispanic or Latino) | Hispanic or Latino | Black or African- American (Not Hispanic or Latino) | Native Hawaiian and Other Pacific Islander (Not Hispanic) | Asian (Not Hispanic or Latino) | American Indian or Alaskan Native (not Hispanic or Latino) | Two or more races (Not Hispanic or Latino) | |
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(Name and Title)

Revised 2015-Dec-15

**DIRECTOR, DIVISION OF CENTRAL PURCHASING
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 EAST MAIN STREET
LEXINGTON, KENTUCKY 40507**

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE
EQUAL EMPLOYMENT OPPORTUNITIES AND DBE CONTRACT PARTICIPATION**

The Lexington-Fayette Urban County Government has set a goal that not less than ten percent (10%) of the total value of this contract be subcontracted to MBE/WBE's, and set a goal that not less than three percent (3%) of the total value of this contract be subcontracted to Veteran-Owned Small Businesses. The goal for the utilization of Certified MBE/WBE's and Veteran-Owned Small Businesses as subcontractors are recommended goals. Contractors who fail to meet such goals will be expected to provide written explanations to the Director of the Division of Central Purchasing of efforts they have made to accomplish the recommended goals and the extent to which they are successful in accomplishing the recommended goals will be a consideration in the procurement process.

For assistance in locating MBE/WBE Subcontractors contact Sherita Miller at 859/258-3320 or by writing the address listed below:

Sherita Miller, Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street – Room 338
Lexington, Kentucky 40507
smiller@lexingtonky.gov

Lexington-Fayette Urban County Government
MWDBE PARTICIPATION GOALS

A. GENERAL

- 1) The LFUCG request all potential contractors to make a concerted effort to include Minority-Owned (MBE), Woman-Owned (WBE), Disadvantaged (DBE) Business Enterprises and Veteran-Owned Small Businesses (VOSB) as subcontractors or suppliers in their bids.
- 2) Toward that end, the LFUCG has established 10% of total procurement costs as a Goal for participation of Minority-Owned, Woman-Owned and Disadvantaged Businesses on this contract.
- 3) **It is therefore a request of each Bidder to include in its bid, the same goal (10%) for MWDBE participation and other requirements as outlined in this section.**
- 4) The LFUCG has also established a 3% of total procurement costs as a Goal for participation for of Veteran-Owned Businesses.
- 5) **It is therefore a request of each Bidder to include in its bid, the same goal (3%) for Veteran-Owned participation and other requirements as outlined in this section.**

B. PROCEDURES

- 1) The successful bidder will be required to report to the LFUCG, the dollar amounts of all payments submitted to Minority-Owned, Woman-Owned or Veteran-Owned subcontractors and suppliers for work done or materials purchased for this contract. (See Subcontractor Monthly Payment Report)
- 2) Replacement of a Minority-Owned, Woman-Owned or Veteran-Owned subcontractor or supplier listed in the original submittal must be requested in writing and must be accompanied by documentation of Good Faith Efforts to replace the subcontractor / supplier with another MWDBE Firm; this is subject to approval by the LFUCG. (See LFUCG MWDBE Substitution Form)
- 3) For assistance in identifying qualified, certified businesses to solicit for potential contracting opportunities, bidders may contact:
 - a) The Lexington-Fayette Urban County Government, Division of Central Purchasing (859-258-3320)
- 4) The LFUCG will make every effort to notify interested MWDBE and Veteran-Owned subcontractors and suppliers of each Bid Package, including information on the scope of work, the pre-bid meeting time and location, the bid date, and all other pertinent information regarding the project.

C. DEFINITIONS

- 1) A Minority-Owned Business Enterprise (MBE) is defined as a business which is certified as being at least 51% owned, managed and controlled by persons of African American, Hispanic, Asian, Pacific Islander, American Indian or Alaskan Native Heritage.
- 2) A Woman-Owned Business Enterprise (WBE) is defined as a business which is certified as being at least 51% owned, managed and controlled by one or more women.

- 3) A Disadvantaged Business (DBE) is defined as a business which is certified as being at least 51% owned, managed and controlled by a person(s) that are economically and socially disadvantaged.
- 4) A Veteran-Owned Small Business (VOSB) is defined as a business which is certified as being at least 51% owned, managed and controlled by a veteran and/or a service disabled veteran.
- 5) Good Faith Efforts are efforts that, given all relevant circumstances, a bidder or proposer actively and aggressively seeking to meet the goals, can reasonably be expected to make. In evaluating good faith efforts made toward achieving the goals, whether the bidder or proposer has performed the efforts outlined in the Obligations of Bidder for Good Faith Efforts outlined in this document will be considered, along with any other relevant factors.

D. OBLIGATION OF BIDDER FOR GOOD FAITH EFFORTS

- 1) **The bidder shall make a Good Faith Effort to achieve the Participation Goal for MWDBE and Veteran-Owned subcontractors/suppliers. The failure to meet the goal shall not necessarily be cause for disqualification of the bidder; however, bidders not meeting the goal are required to furnish with their bids written documentation of their Good Faith Efforts to do so.**
- 2) Award of Contract shall be conditioned upon satisfaction of the requirements set forth herein.
- 3) The Form of Proposal includes a section entitled “MWDBE Participation Form”. The applicable information must be completed and submitted as outlined below.
- 4) **Failure to submit this information as requested may be cause for rejection of bid or delay in contract award.**

E. DOCUMENTATION REQUIRED FOR GOOD FAITH EFFORTS

- 1) Bidders reaching the Goal are required to submit only the MWDBE Participation Form.” The form must be fully completed including names and telephone number of participating MWDBE firm(s); type of work to be performed; estimated value of the contract and value expressed as a percentage of the total Lump Sum Bid Price. The form must be signed and dated, and is to be submitted with the bid.
- 2) Bidders not reaching the Goal must submit the “MWDBE Participation Form”, the “Quote Summary Form” and a written statement documenting their Good Faith Effort to do so. If bid includes no MWDBE and/or Veteran participation, bidder shall enter “None” on the subcontractor / supplier form). In addition, the bidder must submit written proof of their Good Faith Efforts to meet the Participation Goal:
 - a. Advertised opportunities to participate in the contract in at least two (2) publications of general circulation media; trade and professional association publications; small and minority business or trade publications; and publications or trades targeting minority, women and disadvantaged businesses not less than fifteen (15) days prior to the deadline for submission of bids to allow MWDBE firms and Veteran-Owned businesses to participate.
 - b. Included documentation of advertising in the above publications with the bidders good faith efforts package

- c. Attended LFUCG Central Purchasing Economic Inclusion Outreach event
- d. Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs and/or Veteran-Owned businesses of subcontracting opportunities
- e. Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms and Veteran-Owned businesses.
- f. Requested a list of MWDBE and/or Veteran subcontractors or suppliers from LFUCG and showed evidence of contacting the companies on the list(s).
- g. Contacted organizations that work with MWDBE companies for assistance in finding certified MWDBE firms and Veteran-Owned businesses to work on this project. Those contacted and their responses should be a part of the bidder's good faith efforts documentation.
- h. Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs and/or Veteran-Owned businesses soliciting their participation in the contract not less than seven (7) days prior to the deadline for submission of bids to allow them to participate effectively.
- i. Followed up initial solicitations by contacting MWDBEs and Veteran-Owned Businesses to determine their level of interest.
- j. Provided the interested MWDBE firm and/or Veteran-Owned business with adequate and timely information about the plans, specifications, and requirements of the contract.
- k. Selected portions of the work to be performed by MWDBE firms and/or Veteran-Owned businesses in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MWDBE and Veteran participation, even when the prime contractor may otherwise perform these work items with its own workforce
- l. Negotiated in good faith with interested MWDBE firms and Veteran-Owned businesses not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached.
- m. Included documentation of quotations received from interested MWDBE firms and Veteran-Owned businesses which were not used due to uncompetitive pricing or were rejected as unacceptable and/or copies of responses from firms indicating that they would not be submitting a bid.
- n. Bidder has to submit sound reasons why the quotations were considered unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a MWDBE and/or Veteran-Owned business's quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy MWDBE and Veteran goals.

- o. Made an effort to offer assistance to or refer interested MWDBE firms and Veteran-Owned businesses to obtain the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal
- p. Made efforts to expand the search for MWBE firms and Veteran-Owned businesses beyond the usual geographic boundaries.
- q. Other--any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include MWDBE and Veteran participation.

Note: Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement which is subject to review by the MBE Liaison. Documentation of Good Faith Efforts must be submitted with the Bid, if the participation Goal is not met.



MINORITY BUSINESS ENTERPRISE PROGRAM

Sherita Miller, MPA
Minority Business Enterprise Liaison
Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street
Lexington, KY 40507
smiller@lexingtonky.gov
859-258-3323

OUR MISSION: The mission of the Minority Business Enterprise Program is to facilitate the full participation of minority and women owned businesses in the procurement process and to promote economic inclusion as a business imperative essential to the long term economic viability of Lexington-Fayette Urban County Government.

To that end the city council adopted and implemented Resolution 484-2017 – A Certified Minority, Women and Disadvantaged Business Enterprise ten percent (10%) minimum goal and a three (3%) minimum goal for Certified Veteran-Owned Small Businesses and Certified Service Disabled Veteran – Owned Businesses for government contracts.

The resolution states the following definitions shall be used for the purposes of reaching these goals (a full copy is available in Central Purchasing):

Certified Disadvantaged Business Enterprise (DBE) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a person(s) who is socially and economically disadvantaged as defined by 49 CFR subpart 26.

Certified Minority Business Enterprise (MBE) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by an ethnic minority (i.e. African American, Asian American/Pacific Islander, Hispanic Islander, Native American/Native Alaskan Indian) as defined in federal law or regulation as it may be amended from time-to-time.

Certified Women Business Enterprise (WBE) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a woman.

Certified Veteran-Owned Small Business (VOSB) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a veteran who served on active duty with the U.S. Army, Air Force, Navy, Marines or Coast Guard.

Certified Service Disabled Veteran Owned Small Business (SDVOSB) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a disabled veteran who served on active duty with the U.S. Army, Air Force, Navy, Marines or Coast Guard.

The term “Certified” shall mean the business is appropriately certified, licensed, verified, or validated by an organization or entity recognized by the Division of Purchasing as having the appropriate credentials to make a determination as to the status of the business.

We have compiled the list below to help you locate certified MBE, WBE and DBE certified businesses. Below is a listing of contacts for LFUCG Certified MWDBEs and Veteran-Owned Small Businesses in (<https://lexingtonky.ionwave.net>)

| Business | Contact | Email Address | Phone |
|---|--|--|--------------|
| LFUCG | Sherita Miller | smiller@lexingtonky.gov | 859-258-3323 |
| Commerce Lexington – Minority Business Development | Tyrone Tyra | ttyra@commercelexington.com | 859-226-1625 |
| Tri-State Minority Supplier Diversity Council | Susan Marston | smarston@tsmsdc.com | 502-365-9762 |
| Small Business Development Council | Shawn Rogers UK SBDC | shawn.rogers@uky.edu | 859-257-7666 |
| Community Ventures Corporation | Phyllis Alcorn | palcorn@cvky.org | 859-231-0054 |
| KY Transportation Cabinet (KYTC) | Melvin Bynes | Melvin.bynes2@ky.gov | 502-564-3601 |
| KYTC Pre-Qualification | Shella Eagle | Shella.Eagle@ky.gov | 502-782-4815 |
| Ohio River Valley Women’s Business Council (WBENC) | Sheila Mixon | smixon@orvwbc.org | 513-487-6537 |
| Kentucky MWBE Certification Program | Yvette Smith, Kentucky Finance Cabinet | Yvette.Smith@ky.gov | 502-564-8099 |
| National Women Business Owner’s Council (NWBOC) | Janet Harris-Lange | janet@nwbo.org | 800-675-5066 |
| Small Business Administration | Robert Coffey | robertcoffey@sba.gov | 502-582-5971 |
| LaVoz de Kentucky | Andres Cruz | lavozdeky@yahoo.com | 859-621-2106 |
| The Key News Journal | Patrice Muhammad | production@keynewsjournal.com | 859-685-8488 |



LFUCG MWDBE PARTICIPATION FORM

Bid/RFP/Quote Reference # _____

The MWDBE and/or veteran subcontractors listed have agreed to participate on this Bid/RFP/Quote. If any substitution is made or the total value of the work is changed prior to or after the job is in progress, it is understood that those substitutions must be submitted to Central Purchasing for approval immediately. **Failure to submit a completed form may cause rejection of the bid.**

| MWDBE Company, Name, Address, Phone, Email | MBE WBE or DBE | Work to be Performed | Total Dollar Value of the Work | % Value of Total Contract |
|--|----------------|----------------------|--------------------------------|---------------------------|
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |
| 4. | | | | |

The undersigned company representative submits the above list of MWDBE firms to be used in accomplishing the work contained in this Bid/RFP/Quote. Any misrepresentation may result in the termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

Company

Company Representative

Date

Title



LFUCG MWDBE SUBSTITUTION FORM
Bid/RFP/Quote Reference # _____

The substituted MWDBE and/or veteran subcontractors listed below have agreed to participate on this Bid/RFP/Quote. These substitutions were made prior to or after the job was in progress. These substitutions were made for reasons stated below and are now being submitted to Central Purchasing for approval. By the authorized signature of a representative of our company, we understand that this information will be entered into our file for this project.

| SUBSTITUTED MWDBE Company Name, Address, Phone, Email | MWDBE Formally Contracted/ Name, Address, Phone, Email | Work to Be Performed | Reason for the Substitution | Total Dollar Value of the Work | % Value of Total Contract |
|---|--|----------------------|-----------------------------|--------------------------------|---------------------------|
| 1. | | | | | |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |

The undersigned acknowledges that any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

Company

Company Representative

Date

Title



MWDBE QUOTE SUMMARY FORM

Bid/RFP/Quote Reference # _____

The undersigned acknowledges that the minority and/or veteran subcontractors listed on this form did submit a quote to participate on this project. Failure to submit this form may cause rejection of the bid.

| | |
|----------------------------|-------------------------------|
| Company Name | Contact Person |
| Address/Phone/Email | Bid Package / Bid Date |

| MWDBE Company Address | Contact Person | Contact Information (work phone, Email, cell) | Date Contacted | Services to be performed | Method of Communication (email, phone meeting, ad, event etc) | Total dollars \$\$ Do Not Leave Blank (Attach Documentation) | MBE * AA HA AS NA Female | Veteran |
|-----------------------|----------------|---|----------------|--------------------------|---|--|---|---------|
| | | | | | | | | |
| | | | | | | | | |
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| | | | | | | | | |

(MBE designation / AA=African American / HA= Hispanic American/AS = Asian American/Pacific Islander/ NA= Native American)

The undersigned acknowledges that all information is accurate. Any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

Company

Company Representative

Date

Title



LFUCG SUBCONTRACTOR MONTHLY PAYMENT REPORT

The LFUCG has a 10% goal plan adopted by city council to increase the participation of minority and women owned businesses in the procurement process. The LFUCG also has a 3% goal plan adopted by cited council to increase the participation of veteran owned businesses in the procurement process. In order to measure that goal LFUCG will track spending with MWDBE and Veteran contractors on a monthly basis. By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentation may result in termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims. Please submit this form monthly to the Division of Central Purchasing/ 200 East Main Street / Room 338 / Lexington, KY 40507.

Bid/RFP/Quote # _____

Total Contract Amount Awarded to Prime Contractor for this Project _____

| | |
|---------------------------------|--|
| Project Name/ Contract # | Work Period/ From: _____ To: _____ |
| Company Name: | Address: |
| Federal Tax ID: | Contact Person: |

| Subcontractor Vendor ID (name, address, phone, email) | Description of Work | Total Subcontract Amount | % of Total Contract Awarded to Prime for this Project | Total Amount Paid for this Period | Purchase Order number for subcontractor work (please attach PO) | Scheduled Project Start Date | Scheduled Project End Date |
|---|---------------------|--------------------------|---|-----------------------------------|---|------------------------------|----------------------------|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentations may result in the termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims.

Company

Company Representative

Date

Title

LFUCG STATEMENT OF GOOD FAITH EFFORTS

Bid/RFP/Quote # _____

By the signature below of an authorized company representative, we certify that we have utilized the following Good Faith Efforts to obtain the maximum participation by MWDBE and Veteran-Owned business enterprises on the project and can supply the appropriate documentation.

_____ Advertised opportunities to participate in the contract in at least two (2) publications of general circulation media; trade and professional association publications; small and minority business or trade publications; and publications or trades targeting minority, women and disadvantaged businesses not less than fifteen (15) days prior to the deadline for submission of bids to allow MWDBE firms and Veteran-Owned businesses to participate.

_____ Included documentation of advertising in the above publications with the bidders good faith efforts package

_____ Attended LFUCG Central Purchasing Economic Inclusion Outreach event

_____ Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs and/or Veteran-Owned Businesses of subcontracting opportunities

_____ Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms and Veteran-Owned businesses

_____ Requested a list of MWDBE and/or Veteran subcontractors or suppliers from LFUCG and showed evidence of contacting the companies on the list(s).

_____ Contacted organizations that work with MWDBE companies for assistance in finding certified MWDBE firms and Veteran-Owned businesses to work on this project. Those contacted and their responses should be a part of the bidder's good faith efforts documentation.

_____ Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs soliciting their participation in the contract not less than seven (7) days prior to the deadline for submission of bids to allow them to participate effectively.

_____ Followed up initial solicitations by contacting MWDBEs and Veteran-Owned businesses to determine their level of interest.

_____ Provided the interested MWDBE firm and/or Veteran-Owned business with adequate and timely information about the plans, specifications, and requirements of the contract.

_____ Selected portions of the work to be performed by MWDBE firms and/or Veteran-Owned businesses in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MWDBE and Veteran participation, even when the prime contractor may otherwise perform these work items with its own workforce

_____ Negotiated in good faith with interested MWDBE firms and Veteran-Owned businesses not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached.

_____ Included documentation of quotations received from interested MWDBE firms and Veteran-Owned businesses which were not used due to uncompetitive pricing or were rejected as unacceptable and/or copies of responses from firms indicating that they would not be submitting a bid.

_____ Bidder has to submit sound reasons why the quotations were considered unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a MWDBE and/or Veteran-Owned business's quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy MWDBE and Veteran goals.

_____ Made an effort to offer assistance to or refer interested MWDBE firms and Veteran-Owned businesses to obtain the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal

_____ Made efforts to expand the search for MWBE firms and Veteran-Owned businesses beyond the usual geographic boundaries.

_____ Other--any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include MWDBE **and Veteran participation.**

NOTE: Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement which is subject to approval by the MBE Liaison. Documentation of Good Faith Efforts must be submitted with the Bid, if the participation Goal is not met.

The undersigned acknowledges that all information is accurate. Any misrepresentations may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

Company

Company Representative

Date

Title



LEXINGTON

Lexington-Fayette Urban County Government Division of Fire and Emergency Services Bid #139-2017 Tanker Pumper for Division of Fire and Emergency Services

The Lexington-Fayette Urban County Government is accepting bids for Tanker Pumper for the Division of Fire and Emergency Services, 219 East Third Street, Lexington, Kentucky 40507, as per the following specifications:

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INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to cover the furnishing and delivery of one (1) two door custom built, tandem axle fire apparatus that should carry a minimum of 3,000 gallons of water. Shall be equipped with 1000 gallon minute pump, with the pump located under the tank. The apparatus will be a front-line apparatus and subjected to daily use responding to various emergency incidents. These specifications cover only the general requirements as to the type of construction and test to which the apparatus shall conform, together with certain details as to finish, equipment and appliances with which the successful bidder shall conform. Minor details of construction and materials, which are not otherwise specified, are left to the discretion of the contractor, who shall be solely responsible for the design and construction of all features. Apparatus and loose equipment proposed by the bidder shall meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current editions at time of contract execution. Loose equipment shall be provided only as stated in the following pages.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of 20 years. Further, the bidder shall maintain dedicated service facilities for the repair and service of products. Evidence of such a facility shall be included in bidder proposal.

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

Each bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus and equipment proposed and to which the apparatus furnished under the contract shall conform. These specifications shall indicate size, type, model and make of all parts and equipment, and shall provide specifics of construction, construction methods, components and operational data with the bid. Each bidder shall provide two hard copies and one electronic copy of their complete bid proposal.

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

PROJECT FUNDING

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

Fifty percent (50%) of bid price will be issued upon completion of the chassis; final payment will be issued upon apparatus delivery and satisfactory inspection by the Division of Fire.

Bidders shall provide an option to negotiate a 100% pre-payment for the apparatus.

QUALITY AND WORKMANSHIP

The design of the apparatus shall embody the latest approved automotive engineering practices. The workmanship shall be of the highest quality in its respective field. Special consideration shall be given to the following points: Accessibility of the various units that require periodic maintenance, ease of operation (including both pumping and driving) and symmetrical proportions. Construction shall be rugged and ample safety factors shall be provided to carry the loads specified and to meet both on and off road requirements and speed conditions as set forth in "Performance Tests and Requirements." Welding shall not be employed in the assembly of the apparatus in a manner that shall prevent the ready removal of any part of service or repair. All steel welding shall follow American Welding Society recommendations for structural steel welding. All aluminum welding shall be done to American Welding Society and ANSI recommendations for structural welding of aluminum. The manufacturer is required to have an American Welding Society certified welding inspector in the plant during working hours to monitor weld quality.

DELIVERY SCHEDULE

The apparatus shall be delivered to the Lexington Fire Department within 200 days of bid acceptance, or the bidder shall be penalized \$500.00 per day for each day over the number of days specified in the bid that the apparatus is not delivered.

DELIVERY

Apparatus, to ensure proper break-in of all components while still under warranty, shall be delivered under its own power - rail or truck freight shall not be acceptable. A qualified delivery engineer representing the contractor shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in the proper operation, care and maintenance of the equipment delivered.

INFORMATION REQUIRED

The manufacturer shall supply at the time of delivery, complete operation and maintenance manuals covering the completed apparatus as delivered. A Copy of the manuals shall be provided in both hard copy and electronic format. A permanent plate shall be mounted in the driver's compartment which specifies the quantity and type of fluids required including engine

oil, engine coolant, transmission, pump transmission lubrication and drive axle.

SAFETY VIDEO

Documentation provided at the time of delivery shall also include an apparatus safety video, in DVD format. This video shall address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus. Safety procedures for the following shall be included: vehicle pre-trip inspection, chassis operation, pump operation, and maintenance.

ACCEPTANCE TEST

At final inspection, a road test shall be conducted with the apparatus fully loaded, and a continuous run of ten (10) miles or more shall be made under all driving conditions, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts, and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. The vehicle shall adhere to the following parameters:

- A) The apparatus, when fully equipped and loaded, shall have not less than 25% or more than 50% of the weight on the front axle, and not less than 50% nor more than 75% on the rear axle.
- B) The apparatus shall be capable of accelerating to 35 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed rpm of the engine.
- C) The service brakes shall be capable of stopping a fully loaded vehicle in 35 feet at 20 mph on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.
- D) The apparatus, fully loaded, shall be capable of obtaining a speed of 67 to 70 mph on a level concrete highway with the engine not exceeding its governed rpm (full load).
- E) The apparatus shall be tested and approved by NFPA Standard Practices and Federal Motor Vehicle Safety Standards (FMVSS).

The manufacturer shall provide a complete demonstration of the firefighting systems during the final inspection of the completed apparatus. Final acceptance of apparatus is subject to passing all required third party tests.

FAILURE TO MEET TEST

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

LIABILITY

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

SPECIFICATION BID REQUIREMENTS

Proposals taking total exception to specifications shall not be acceptable.

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

Any bid indicating that the manufacturer's proposal shall supersede the purchaser's specifications will be immediately rejected

EXCEPTIONS

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

Bidders shall also indicate in the "yes/no" column if their bid complies on each item (PARAGRAPH) specified. An exception to these requirements shall not be acceptable.

Exceptions shall be identified and fully explained on a separate page. Exceptions shall be allowed if they are equal to or superior to that specified and provided they are listed and fully explained on a separate page.

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COMMERCIAL GENERAL LIABILITY INSURANCE

The successful bidder shall, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of commercial general liability insurance:

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

Coverage shall be written on a Commercial General Liability form. The policy shall be written on an occurrence form and shall include Contractual Liability coverage for bodily injury and property damage subject to the terms and conditions of the policy. The policy shall include owner as an additional insured when required by written contract.

The policy shall include owner as an additional insured as their interest may appear.

The required limits can be provided by one or more policies provided all other insurance

requirements are met.

A carrier(s) rated "Excellent" by A.M. Bests shall provide coverage

COMMERCIAL AUTOMOBILE INSURANCE

The successful bidder shall, during the performance of the contract keep in force at least the following minimum limits of commercial automobile insurance:

Combined Single Limit: \$1,000,000

Coverage shall be written on a Commercial Automobile form.

UMBRELLA/EXCESS LIABILITY INSURANCE

The successful bidder shall, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:

Aggregate: \$25,000,000

Each Occurrence: \$25,000,000

The policy shall be written on an occurrence basis and at a minimum provide the same coverage's as Bidder's General Liability, Automobile Liability and Employer's Liability policies. The owner shall be included as an additional insured on the General Liability and Automobile Liability policies as their interest may appear. The required limits can be provided by one or more policies provided all other insurance requirements are met.

Bidder agrees to furnish owner with a current Certificate of Insurance with the coverage's listed above along with its bid. The certificate shall be made out to the purchaser and be original; no photocopies shall be accepted. The Certificate of Insurance shall provide that owner be given 30 days notice of cancellation, nonrenewal or material change in coverage.

ISO COMPLIANCE

The manufacturer shall operate a Quality Management System under the requirements of ISO 9001. These standards specify the quality systems that shall be established by the manufacturer for design, manufacture, installation, and service. A copy of the certificate of compliance shall be included with the bid.

SINGLE SOURCE MANUFACTURER

Bids shall only be accepted from a single source apparatus manufacturer. The definition of a single source is a manufacturer that designs and manufactures their products using an integrated approach, including the chassis, cab, and body being fabricated and assembled on the bidder's premises. The warranties relative to the chassis and body design (excluding component warranties such as engine, transmission, axles, pump, etc.) must be from a single source manufacturer and not split between manufacturers (i.e., body and chassis). The bidder shall provide evidence that they comply with this requirement.

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All major components must be built and assembled in the continental United States.

NFPA STANDARDS

This unit shall comply with the current NFPA standards in effect at the time of bid., except for fire department specifications that differ from NFPA specifications. These exceptions shall be outlined in the Statement of Exceptions and shall be indicated in the proposal as "non-NFPA."

Certification of slip resistance of all stepping, standing, and walking surfaces shall be supplied with delivery of the apparatus.

A plate that is highly visible to the driver while seated shall be provided. This plate shall show the overall height, length, and gross vehicle weight rating.

The manufacturer shall have programs in place for training, proficiency testing and performance for any staff involved with certifications.

An official of the company shall designate, in writing, who is qualified to witness and certify test results.

TOTAL VEHICLE ASSESSMENT CERTIFICATION

The apparatus shall be audit-certified by an independent third-party, approved by the fire department, to the current edition of NFPA 1901 standards. The certification includes all design, production, operational, and performance testing of the apparatus. (No exception)

PUMP TEST

The pump shall be tested, approved, and certified by a third-party, approved by the fire department at the manufacturer's expense. The test results and the pump manufacturer's certification of the hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the manufacturer's record of pump construction details shall be forwarded to the Fire Department.

INSPECTION TRIPS

The bidder shall provide three (3) factory inspection trips. The inspection trip(s) shall be scheduled at times mutually agreed upon between the manufacturer's representative and the customer, typically pre-construction, post-paint and final inspection. All costs such as travel, lodging, and meals shall be the responsibility of the bidder. Transportation is to be commercial air from Lexington, Kentucky, (locale acceptable to the fire department) to the nearest commercial airport and ground transportation from the time of arrival until departure.

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The bidder shall plan on Three (3) LFD personal traveling for the pre-construction conference.

There should be adequate time provided to meet with engineers, project managers, and conduct facility tours.

The bidder will require a proposed pump panel drawing be available before the trip. Bidder requires meeting with plumbing engineers during the conference.

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Three (3) LFD members will travel for the in-process inspection. Purchaser requires that a body should be loaded on at least one of the apparatus.

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Three (3) LFD members will travel for the final inspection.

Adequate time shall be provided for a demonstration of firefighting systems and designated electrical options as specified.

AFTERMARKET SUPPORT

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A Customer Service website shall provide authorized dealers access to comprehensive information about the maintenance and service of their customer's apparatus. This tool shall provide the authorized dealer the ability to service and support their customers to the best of their ability with factory support at their fingertips.

This website shall also be accessible to the end user through the guest login. Limited access is available and vehicle-specific parts information accessible by entering a specific VIN. All end users should see their local authorized dealer for additional support and service.

The website shall provide the following to the designated individuals:

Ability to access truck detail information on the major components of the vehicle, warranty information, available vehicle photographs, vehicle drawings, sales options, applicable vehicle software downloads, etc.

Ability to look-up parts with the aid of digital photographs, part drawings and assembly drawings.

Ability to electronically submit warranty claims directly to the factory for reimbursement.

Accessibility to multiple dealer reports that allow the dealership to maintain communication with the customer on the status of orders, claims, and phone contacts.

Access to all currently published Operation and Maintenance and Service publications.

Access to manufacturer Service Bulletins and Work Instructions containing information on current service topics and recommendations provided.

Access to upcoming training classes offered by the manufacturer.

Access to interactive electronic learning modules (Operators Guides) covering the operation of major vehicle components.

Access to customer service articles, corporate news, quarterly newsletters, and key contacts.

E I E EN E

To maintain this complex piece of apparatus, the experience and reliability of the factory authorized service center is of major concern to the purchaser. The service facility must comply with the following criteria to be considered:

Must have a minimum of five (5) years' experience repairing and maintaining fire apparatus of the make and type of apparatus being bid.

Must have adequate indoor heated facilities and factory-trained technicians to perform repairs, including powertrain, chassis, pump, generator, and controls must be provided.

Must have a fully equipped mobile shop van to be available for warranty work in Lexington, KY.

The bidder shall submit the location and recent photos of the service center and mobile service unit(s) along with the bid. Purchaser reserves the right to visit and inspect the service center before awarding bid.

The contractor is required to provide all warranty service at the Lexington Fire vehicle maintenance facility whenever major shop work is not involved. For warranty service involving transportation to the shop, the apparatus shall be picked up in Lexington, KY and returned from the contractor's facility by his personnel.

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

The contractor agrees to keep the apparatus in a secure, indoor heated area at all times while in their possession. It shall be understood that the contractor is responsible for the apparatus and all articles of equipment from the time the apparatus is picked up until it is returned to Lexington, KY.

The contractor shall provide proof of insurance coverage of the apparatus to LFD before the apparatus is transported.

After delivery and during the warranty period, in an effort to keep apparatus down time to a minimum during emergency conditions the LFD reserves the right, after notifying the vendor, that the LFD may proceed with any emergency repairs of the vendor's responsibility. LFD shall be reimbursed for parts and labor.

While apparatus delivered to the LFD may not be placed into service immediately upon final acceptance, the in-service date shall not be longer than 60 days after final acceptance. The LFD shall notify the vendor in writing of the actual mileage and in-service date.

APPROVAL DRAWING

A drawing of the proposed apparatus shall be provided for approval before construction begins.

A detailed pump panel layout drawing shall be included in the Approval Drawing.

The sales representative shall also have a copy of the same drawing. The finalized and approved drawing shall become part of the contract documents. This drawing shall indicate the

chassis make and model, the location of the lights, siren, horns, compartments, major components, etc.

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

BID BOND

All bidders shall provide a bid bond as security for the bid in the form of a 5% bid bond to accompany their bid. This bid bond shall be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond shall be issued by an authorized representative of the Surety Company and shall be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond shall include language, which assures that the bidder/principal shall give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.

Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle shall apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle shall not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision shall prevail.

PERFORMANCE BOND

The successful bidder shall provide a signed contract and performance and payment bond, which guarantees the performance of all terms and conditions of the contract and warranty agreement before a purchase order can be issued. The performance bond will specifically cover the performance of the contract according to its terms and conditions, as well as payment of all related bills and encumbrances. This performance bond shall be issued by a surety company which is listed on the U.S. Treasury Department's list of approved sureties, as published in Circular 570, as of the bid date. The performance bond shall be issued in an amount equal to 100% of the contract amount and shall be dated concurrently to, or after, the date of the contract.

GENERAL CONSTRUCTION

The apparatus shall be designed for heavy duty use with due consideration to the distribution of load between the front and rear axles. Weight balance and distribution shall be by the recommendations of the National Fire Protection Association. All piping, lighting and other vehicle accessories shall be mounted in a manner that provides the maximum ground clearance.

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The overall height of the vehicle shall be less than 113 inches (9'-5") from the ground. This measurement shall be taken on flat ground with the tires inflated in an unloaded condition, at the highest point of the vehicle.

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Overall length of the vehicle shall not exceed 396" (33')

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The apparatus manufacturer supplied components of the apparatus shall be compliant with NFPA 1901, 2016 edition.

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Equipment allowance on the apparatus shall be 2000 lbs. This allowance is in addition to the weight of the hoses and ground ladders listed in the shop order as applicable.

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The apparatus cab shall meet and exceed relevant NFPA 1901 load and impact tests required for compliance certification with the following: The fire apparatus manufacturer shall provide a cab crash test certification with this proposal. The certification states that the cab must meet or exceed the requirements below: **N c n**.

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The cab seat mounting surfaces shall be third party tested and in compliance with FMVSS 571.207.

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The cab seat belt mounting points shall be third party tested and in compliance with FMVSS 571.210.

I O nc

The manufacturer shall ensure that the construction of the apparatus shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration

Administration that directly or indirectly impacts this process shall be strictly adhered to. By its ISO compliance, the manufacturer shall provide an apparatus that is built to exacting standards, meets the customer`s expectations, and satisfies the customer`s requirements.

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The vehicle shall be equipped with a one-piece 10" high bumper made from 10 gauge (0.135" nominal) polished stainless steel for corrosion resistance, strength, and long lasting appearance. It shall be mounted directly to the front frame extensions for maximum strength. The bumper shall incorporate two (2) stiffening ribs.

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The bumper extension shall be approximately 4" from the face of the cab as required.

E E

Each Apparatus shall have continuous frame rails that are sturdy enough to support the apparatus for the intended use. Frame rails shall be of one continuous piece without splices, formed from a minimum 110,000 psi yield heat treated steel.

RBM: Shall be no less than 2,800,000 inch-pounds as measured at wheelbase center.

The frame rails shall have a corrosion protection process applied. The builder shall provide a detailed description of the corrosion protection process.

Wheelbase shall be as short as possible.

All frame fasteners shall be high-strength Grade 8, flanged-head threaded bolts and nuts for frame strength, durability, and ease of repair. The nuts shall be Stover locknuts to help prevent loosening. The frame fasteners shall be tightened to the proper torque at the time of assembly.

The frame, cross-members, and frame mounted components (suspensions, axles, air tanks, battery boxes,) painted red.

The apparatus manufacturer shall supply a full lifetime frame warranty including cross-members against defects in materials or workmanship. Warranties that provide a lifetime warranty for only the frame rails, but not the cross-members, are not acceptable. **NO EXCEPTIONS.**

The custom chassis frame shall have a wheel alignment to achieve maximum vehicle road performance and to promote long tire life. The alignment shall conform to the manufacturer`s internal specifications. All-wheel lug nuts and axle U-bolt retainer nuts shall

be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery upon request.

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Frame liners shall be made of 110,000 psi minimum yield, high strength, and low alloy steel.

The frame liners shall be inserted inside the open portion of the frame rails and shall run continuously from the rear of the frame to the centerline of the front axle to provide maximum frame strength at all critical load points.

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The custom chassis frame assembly shall be assembled using GEOMET 720 coated fasteners for corrosion resistance.

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Two (2) heavy duty painted front tow hooks shall be securely bolted to the front chassis frame rail extensions to allow towing (not lifting) of the apparatus without damage. They shall be mounted in the downward position.

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Two (2) heavy duty tow eyes made of 3/4" (0.75") thick steel having 2-1/2" diameter holes shall be mounted below the body at the rear of the vehicle to allow towing (not lifting) of the apparatus without damage. The tow eyes will be welded to the lower end of a 5" steel channel that is bolted at the end of the chassis frame rails.

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The vehicle shall utilize an ArvinMeritor FL-941 front axle with a rated capacity of 18,700 lbs. It shall have "easy steer" knuckle pin bushings and 68.5" kingpin centers. The axle shall be of I-beam construction and utilize grease-lubricated wheel bearings. The vehicle shall have a nominal cramp angle of 45 degrees, plus two (+ 2) degrees to minus three (- 3) degrees including front suction applications.

The front axle hubs shall be made from ductile iron and shall be designed for use with ten hole hub-piloted wheels to improve wheel centering and extend tire life.

The front springs shall be parabolic tapered, minimum 4" wide x 54" long (flat), minimum three leaves, progressive rate with bronze bushings and a capacity of 20,000 lbs. At the ground.

Tapered leaf springs provide a 20% ride improvement over standard straight spring systems. Supporting documentation/data shall be provided upon request.

If a heavier axle is required, it shall be the responsibility of the builder to propose it.

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The vehicle shall be equipped with a Sheppard model M-110 power steering gear, used in conjunction with a power assist cylinder. The steering assembly shall be rated to statically steer up to a maximum front axle load of 18,700 lbs. Relief stops shall be provided to reduce system pressure upon full wheel cut. The system shall operate mechanically should the hydraulic system fail.

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Koni model 90 shock absorbers shall be provided for the front axle. The shocks shall be three-way adjustable.

The shocks shall be covered by the manufacturer's standard warranty.

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The front axle shall have Stemco oil seals with a sight glass to check the lubricant level of the axle spindles.

The vehicle shall utilize an ArvinMeritor RT-46-160, 46,000 lb. capacity rear tandem axle with single reduction hypoid gearing.

The axle shall be equipped with oil-lubricated wheel bearings with ArvinMeritor oil seals.

A 2-year/unlimited miles parts and 2-year labor axle warranty shall be provided as standard by ArvinMeritor Automotive.

Axle ratio shall be discussed at the preconstruction conference.

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A Rockwell driver controlled main differential lock shall be supplied. Operated from within the cab, it reduces wheel spin-outs by transferring power from the slipping wheel to the wheel with traction. An indicator shall be provided visible to the driver to show when the lock is engaged.

When used in a tandem axle application, the DCDL will be installed on both rear/rear axle only.

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The vehicle shall be equipped with leaf spring type suspension. The suspension shall be torque leaf variable rate self-leveling slipper type. The suspension shall be rated for the maximum axle capacity.

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The vehicle shall have two (2) Accuride polished (on outer wheel surfaces only) aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.

The wheel shall have a load rating of up to 11,000 lbs. Each (up to 11,400 lb rating available with speed limited to 60 MPH)

The vehicle shall have eight (8) Accuride polished (on outer wheel surfaces only) aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.

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Each inside rear wheel on the rear axles shall have valve stem extensions.

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The front tires shall be two (2) Michelin 425/65R22.5 tubeless type 20 PR radial tires with Xyz highway tread.

The tires with wheels shall have the following weight capacity and speed ratings:

Up to 19,840 lbs. @ 65 MPH (steel or aluminum wheels)

Up to 21,228 lbs. @ 65 MPH (steel or aluminum wheels with intermittent fire service rating)

19,840 @ 75 MPH (steel or aluminum wheels with intermittent fire service rating)

The wheels and tires shall conform to the Tire and Rim Association requirements.

The rear tires shall be Michelin 11R22.5 tubeless type radial tires with XDN2 all-weather tread.

The tires with wheels shall have the following weight capacity:

48,000 lbs. (tandem duals) @ 75 MPH

The wheels and tires shall conform to the Tire and Rim Association requirements.

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The apparatus shall be provided with Real Wheels AirGuard LED tire pressure indicating valve stem caps. When the tire is under-inflated by 5-10 PSI, the LED indicator on the cap shall flash red. The indicator housings shall be shock resistant and constructed from polished stainless steel. The indicators shall be calibrated by attaching to the valve stem of a tire at proper air pressure per load ratings and easily re-calibrated by simply removing and re-installing them during service.

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Balance beads shall be installed in all wheels/tires.

Vendor shall install wheel-check or equal loose wheel nut indicators. Shall be proper color based on foot-pounds of torque.

Vendor shall install permanently mounted tire pressure placards on cab and body above front and rear wheel.

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The front axle shall be equipped with Meritor DiscPlus EX225H 17 inch disc brakes.

The brakes shall be covered by the manufacturer's standard warranty which is three years, unlimited mileage and parts only.

The rear axle shall be equipped with ArvinMeritor 16-1/2" x 7" S-cam brakes with cast brake drums. Q-Plus shoes shall be provided with up to 48,000 lb. axle ratings and P-Type shoes with over 48,000 lb. axle ratings.

The rear axle brakes shall be furnished with automatic slack adjusters. ArvinMeritor brand shall be supplied on RT-40-145, RT-46-160, and RT-50-160 axles, and Haldex brand shall be supplied on RT-58-185 axles.

A 3 year/unlimited miles parts and 3-year labor rear brake warranty shall be provided as standard by ArvinMeritor Automotive. The warranty shall include bushings, seals, and cams.

The vehicle shall be equipped with an air-operated brake system. The system shall meet or exceed the design and performance requirements of current FMVSS-121 and test requirements of current NFPA 1901 Standard.

Each wheel shall have a separate integral brake chamber. A dual treadle valve shall split the braking power between the front and rear systems.

The air system shall be provided with a rapid build-up feature, designed to meet current NFPA 1901 requirements. A 1/4" brass quick-release air inlet with male connection shall be located inside the driver door on the left side of the cab. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging into the wet tank.

A pressure protection valve shall be installed to prevent the use of air horns or other air operated devices should the air system pressure drops below 80 psi.

Two (2) air pressure needle gauges, for front and rear air pressure, with warning light and buzzer shall be installed at the driver`s instrument panel.

The air tanks shall be primed and painted. To reduce the effects of corrosion, the air tank shall be mounted with stainless steel brackets.

One (1) reservoir shall serve as the wet tank, and a minimum of one (1) tank shall be supplied for each of the front and rear axles. The total system shall carry a sufficient volume of air to comply

A Wabco ABS system shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to axles, and all electrical connections shall be environmentally-sealed, water-, weather-, and vibration-resistant.

The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall sense approaching wheel lock and instantly modulate brake pressure up to five (5) times per second to prevent wheel lock-up. Each wheel shall be individually controlled. To improve field performance, the system shall be equipped with a dual circuit design. The system circuits shall be configured in a diagonal pattern. Should a malfunction occur, that circuit shall revert to normal braking action. A warning light on the driver`s instrument panel shall indicate malfunction to the operator.

The system shall consist of a sensor chip, sensor, electronic control unit, and solenoid control valve. The sensor clip shall hold the sensor in close proximity to the toothed wheel. An inductive sensor consisting of a permanent magnet with a round pole pin and coil shall produce an alternating current with a frequency proportional to wheel speed. The unit shall be sealed, corrosion-resistant and protected from electromagnetic interference. The electronic control unit shall monitor the speed of each wheel sensor, and a microcomputer shall evaluate in milliseconds wheel slip. A deviation shall be corrected by cyclical brake

application and release. If a malfunction occurs, the circuit shall signal the operator and the malfunctioning half of the system shall shut down. The system is installed in a diagonal pattern for side to side control. The system shall ensure that each wheel is braked in optimum efficiency up to five (5) times a second.

The system shall also interface with the application of the auxiliary engine, exhaust, or driveline brakes to prevent wheel lock.

To improve service trouble-shooting, provisions in the system for an optional diagnostic tester shall be provided. The system shall test itself each time the vehicle is started, and a dash-mounted light shall go out once the vehicle is moving at 4 MPH.

A 3 year/300,000 mile parts and labor Anti-Locking Braking System (ABS) warranty shall be provided as standard by Meritor Automotive.

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Heavy duty manual drains valves with pull cables shall be provided on each tank to drain condensation. Drain cable shall be routed to readily accessible location on outer cab/body. Drain cables shall also have sufficient slack built in to the design to prevent unintended activation as a result of body flex/movement. The location shall have a permanently placard the reads "Drain Daily."

One (1) Bendix-Westinghouse PP-5 parking brake control valve shall be supplied on the engine cover within reach of the driver and officer. A park brake release guard shall be provided to the release control. The guard shall be constructed of 14 gauge brushed stainless steel.

E c n c n

The apparatus shall be equipped with a G4 6S6M Electronic Stability Control (ESC) system that combines the functions of Roll Stability Control (RSC) with the added capability of yaw - or rotational – sensing.

RSC focuses on the vehicle's center of gravity and the lateral acceleration limit or rollover threshold. When critical lateral acceleration thresholds are exceeded, RSC intervenes to regulate the vehicle's deceleration functions. The added feature of ESC is to automatically intervene to reduce the risk of the vehicle rotating while in a curve or taking evasive action, prevents drift out through selective braking, and controlling and reducing vehicle speed when lateral acceleration limits are about to be exceeded.

Intervention by the system occurs in three forms - engine, retarder and brake control. The ESC system uses several sensors to monitor the vehicle. These include a steering wheel angle sensor, lateral accelerometer, and yaw position sensor. ESC constantly monitors

driving conditions and intervenes if critical lateral acceleration is detected or if the vehicle begins to spin due to low friction surfaces. The system provides control of the engine and retarder torque as well as automatically controlling individual wheels to counteract both oversteer and understeer.

To further improve vehicle drive characteristics, the unit shall be fitted with Automatic Traction Control (ATC). This system shall control drive wheel slip during acceleration from a resting point. An extra solenoid valve shall be added to the ABS system. The system shall control the engine and brakes to improve acceleration slip resistance. The system shall have a dash mounted light that shall come on when ATC is controlling drive wheel slip.

3 year/300,000 miles parts and labor warranties for ESC, RSC, and ATC shall be provided as standard by Meritor Automotive.

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All air brake system hoses on the chassis shall be connected by use of brass compression fittings. All airlines on apparatus shall use brass compression fittings.

I E O ION

The chassis air system shall be equipped with a Meritor/Wabco System Saver 1200 air dryer located under the cab. The air dryer shall utilize a single spin-on desiccant cartridge.

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Air brake lines shall be constructed of color-coded nylon tubing routed in a manner to protect them from damage. Brass compression fittings shall be provided.

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A 1/4" brass quick-release air inlet with a male connection shall be provided. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging air directly into the wet tank of the air brake system. It shall be located driver door jamb.

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Stainless steel mounting straps shall be provided for an air tank.

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The air system shall have an additional 1738 cu. in. isolated reservoir. The supply side of the reservoir shall be equipped with a check valve and an 85 psi pressure protection valve.

Specified options shall be plumbed to the isolated air tank.

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The auxiliary air tank shall be plumbed to the following optional accessories if equipped: Chassis air horns; brake system air outlet, air primer and or customer/dealer supplied pneumatic add-on(s).

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Dual Grover air horns shall be provided connected to the chassis air system. The horns shall be mounted on the front bumper. The front bumper shall have two (2) holes punched to accommodate the horns. A pressure protection valve shall be installed to prevent the air brake system from being depleted of air pressure.

ENGINE SPECIFICATIONS

Engine

The vehicle shall utilize a Cummins L9 engine as described below:

- 450 maximum horsepower at 2100 rpm
- 1250 lb-ft peak torque at 1400 rpm
- Six (6) cylinder, charge air cooled, 4-cycle diesel
- 543 cu. in. (8.9 liters) displacement - 4.49 in bore x 5.69 in stroke
- 16.6:1 compression ratio
- Interact System Controlled Viable Geometry Turbocharged
- Engine shall be equipped with Full-Authority Electronics
- Electronic Timing Control fuel system
- Fuel cooler (when equipped with a fire pump)
- Fleetguard FS1022 fuel filter with integral water separator and water-in-fuel sensor approved by Cummins for use in the ISL engine
- Fleetguard LF9009 Venturi Combo combination full-flow/by-pass oil filter approved by Cummins for use in the ISL engine
- Engine lubrication system, including filter, shall have a minimum capacity of 25 quarts
- Delco-Remy 39 MT-HD 12-volt starter
- Cummins 18.7 cubic foot per minute (cfm) air compressor

- Corrosion inhibitor additive for coolant system
- After treatment system consisting of an oxidation catalyst and diesel particulate filter and selective catalyst reduction system
- Ember separator compliant with current NFPA 1901 standard
- The engine shall be compliant with 2017 EPA Emission standards

The engine air intake shall draw air through the front cab grill. The intake opening shall be located on the officer (right) side behind front cab face with a plenum that directs air to the air filter. The air cleaner intake piping shall be made from aluminized steel tubing with flexible rubber hoses. The intake piping clamps shall be heavy-duty, constant-torque, T-bolt style to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.

The air cleaner shall be an 11" diameter K&N for lower restriction and high air flow. The filtration media shall be washable and easily accessed for service. The air filter shall have a 3 year / 300,000-mile warranty.

The engine exhaust piping shall be a minimum of 4" diameter welded stainless steel tubing. The after-treatment system shall be mounted horizontally under the right-hand frame rail in back of the cab in order to minimize heat transmission to the cab and its occupants. The exhaust shall be directed away from the vehicle on the right side ahead of the rear wheels in order to keep exhaust fumes as far away as possible from the cab and pump operator position.

A 5-year/100,000-miles parts and labor warranty shall be provided as standard by Cummins.

A copy of the Engine Installation Review stating the engine installation meets Cummins recommendations shall be provided as requested. The engine installation shall not require the operation of any type of "power-down" feature to meet engine installation tests.

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The bidder shall include itemized price quote for an upgrade to a Cummins ISX-12 engine. The quote is to include the cost of all components, engineering, warranty, and Allison EVS 4000P transmission.

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The vehicle shall utilize an Allison EVS3000P, electronic, 6-speed automatic transmission.

A push button shift module shall be located right side of the steering column, within easy reach of the driver. The shift position indicator shall be indirectly lit for after-dark operation. The shift module shall have a "Do Not Shift" light and a "Service" indicator light that are

clearly visible to the driver. The shift module shall have means to enter a diagnostic mode and display diagnostic data.

A transmission oil temperature gauge with warning light and buzzer shall be installed on the cab instrument panel to warn the driver of high oil temperatures that may damage the transmission.

The transmission shall have a gross input torque rating of 1250 lb.-ft. and a gross input power rating of 450 HP.

The gear ratios shall be as follows:

1 - 3.49

2 - 1.86

3 - 1.41

4 - 1.00

5 - .75

6-.65-1.00

R - 5.03

The transmission shall have an oil capacity of 23 quarts and shall be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the driver.

A water-to-oil transmission oil cooler shall be provided to ensure proper cooling of the transmission when the vehicle is stationary (no air flow). Air-to-oil transmission oil coolers, which require constant airflow, are not acceptable.

The transmission shall be provided with two (2) engine-driven PTO openings located at the 4 o'clock and 8 o'clock positions for flexibility in installing pto-driven equipment.

The automatic transmission shall be equipped with a power lock-up device. The transmission lock-up shall prevent downshifting of the transmission when the engine speed is decreased during pump operations, thereby maintaining a constant gear ratio for safe operation of the pump. The transmission lock-up shall be automatically activated when the pump is engaged in gear. The transmission lock-up shall be automatically deactivated when the pump is disengaged for normal road operation.

Shall be programmed for fire service aggressive downshift application.

A 5-year/unlimited miles parts and labor warranty shall be provided as standard by Allison Transmission.

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A push-button transmission shift module, Allison model 29538373, shall be located on the right side of the steering column within easy reach of the driver. The shift position indicator shall be indirectly lit for after dark operation. The shift module shall have a "Do Not Shift" light and a "Service" indicator light. The shift module shall have means to enter a diagnostic mode and display diagnostic data including oil life monitor, filter life monitor, transmission health monitor, and fluid level. A transmission temperature gauge with warning light and buzzer shall be installed on the cab instrument panel. The transmission fluid shall be Trans-Synd synthetic.

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Electronic speed limiting set at 60 MPH as required by NFPA 1901.

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The transmission shall be programmed to comply with NFPA 1901 and automatically shift to neutral upon application of the parking brake.

E ON IN

A Telma electromagnetic, driveline retarder shall be furnished and mounted within the driveline system. This system shall automatically activate in four-stages to achieve 100% capacity when the brake pedal is applied.

The system shall have an on/off switch and a four-stage indicator to show retarder activation stages mounted on the dash.

The magnetic retarder control shall be through a switch on the dash, with activation of the retarder in conjunction with the brake pedal. The application shall be in progressive stages, (1/4, 1/2, 3/4 & 100 percent).

The system shall disengage with the activation of ABS. Programming of the retarder shall be discussed at the pre-conference.

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The end of the exhaust tailpipe shall be modified to accommodate a Plymovent in-house exhaust extraction system. The tailpipe will be at 90 degrees and straight out below the side

of the body. LFD uses the magnetic Plymovent sytem, shall be discussed at the preconstruction conference.

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The cooling system shall include an aluminum tube-and-fin radiator with a minimum of 1,408 total square inches of frontal area to ensure adequate cooling under all operating conditions. There shall be a drain valve in the bottom tank to allow the radiator to be serviced. A sight glass shall be included for quick fluid level assessment. The radiator shall be installed at the prescribed angle in order to achieve the maximum operational effectiveness. This shall be accomplished according to established work instructions and properly calibrated angle measurement equipment.

c n

All radiator and heater hoses shall be silicone. Pressure compensating band clamps shall be used to eliminate hose pinching on all hoses 3/4" diameter and larger. All radiator hoses shall be routed, loomed, and secured so as to provide maximum protection from chafing, crushing, or contact with other moving parts.

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The cooling system shall be filled with a 50/50 mixture of water and antifreeze/coolant conditioner to provide freezing protection to minus 40 (- 40) degrees F for operation in severe winter temperatures.

n c

There shall be a coolant overflow recovery system provided.

The system shall include a charge air cooler to ensure adequate cooling of the turbocharged air for proper engine operation and maximum performance.

Charge air cooler hoses shall be made from high-temperature, wire-reinforced silicone to withstand the extremely high temperatures and pressures of the turbocharged air. The hoses shall incorporate a flexible hump section to allow motion and misalignment of the engine relative to the charge air cooler. Charge air cooler hose clamps shall be heavy-duty, constant-torque, T-bolt clamps to ensure proper sealing under all temperatures in order to

keep dust and other contaminants out of the engine intake air stream and protect the engine.

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The fan shall be 30" in diameter with eleven (11) blades for maximum airflow and dynamic balance. It shall be made of nylon for strength and corrosion resistance. The fan shall be installed with grade 8 hardware which has been treated with thread locker for additional security. A fan shroud attached to the radiator shall be provided to prevent recirculation of engine compartment air around the fan in order to maximize the cooling airflow through the radiator. The fan shroud shall be constructed of fiber-reinforced high-temperature plastic. The shroud shall be specifically formed with curved surfaces which improve airflow and cooling.

E E

One (1) 65-gallon fuel tank shall be provided. The tank shall be of an all-welded, stainless-steel construction with anti-surge baffles and shall conform to all applicable Administration (FHWA) 393.65 and 393.67 standards. The tank shall be mounted below the frame rails at the rear of the chassis for maximum protection. The tank shall be secured with two (2) wrap-around T-bolt type stainless steel straps. Each strap shall be fitted with protective rubber insulation and shall be secured with grade 8 hardware. This design allows for tank removal from below the chassis.

The fuel tank shall be equipped with a 2" diameter filler neck. The filler neck shall extend to the rear of the vehicle behind the rear tires and away from the heat of the exhaust system as required by NFPA 1901 Standard for Automotive Fire Apparatus. The open end of the filler neck shall be equipped with a twist-off filler cap with a retaining chain.

The tank shall be plumbed with top-draw and top-return fuel lines in order to protect the lines from road debris. Bottom-draw and/or bottom-return fuel lines are not acceptable. A vent shall be provided at the top of the tank. The vent shall be connected to the filler neck to prevent splash-back during fueling operations. A .50" NPT drain plug shall be provided at the bottom of the tank.

The tank shall have a minimum usable capacity of 65 gallons of fuel with a sufficient additional volume to allow for thermal expansion of the fuel without overflowing the vent.

A fuel pump shall be provided and sized by the engine manufacturer as part of the engine.

There shall be signs located at fuel fill that shall read "Diesel Only."

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Wire braided fuel hose meeting SAE J-1402 shall be provided for the chassis fuel system. The hose shall have a working temperature rating of -55 degrees F to 300 degrees F.

The ends of the hose shall have connections that shall allow the hose to be reattached if removed.

A Racor fuel/water separator shall be installed in place of the Cummins fuel/water separator with drain. The unit shall utilize a three-step separate process: centrifuge for primary contaminant separation, conical baffles for water coalescing, and a replaceable filter for final particulate removal. The separator shall have a bottom drain for removing contaminants, shall be heated and shall have a rated maximum flow of 3.16 GPM. A sensor with indicator light and audible alarm shall be provided for the Racor fuel/water separator. The indicator light shall be mounted in the cab visible to the driver with the unit located inside the frame rails. The unit will alert the driver of high water content in the separator bowl.

-O

A shut-off valve shall be supplied to prevent drain back of fuel into the main supply line during filter changes. The valve(s) shall be located: one (1) inlet side of fuel/water separator.

E N O

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A Niehoff model C505 360 amp SAE (J56) rated, 320 amp at 200 degrees F NFPA 1901 rated brush-less type alternator with rectifier shall be provided. It shall be self-energized and shall have a negative voltage compensating remote solid-state voltage regulator. The alternator shall be installed in accordance with the engine manufacturer's recommendations.

E IE

The manufacturer shall supply four (4) heavy duty Group 31 12-volt maintenance-free batteries. Each battery shall be installed and positioned so as to allow easy replacement of any single battery. Each battery shall be equipped with carrying handles to facilitate ease of removal and replacement. There shall be two (2) stainless steel frame mounted battery boxes, one (1) on the left frame rail and one (1) on the right frame rail. Each battery box shall be secured to the frame rail with Grade 8 hardware. Each battery box shall hold (2) batteries. The batteries shall have a minimum combined rating of 4,000 (4 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 820 (4 x 205) minutes of reserve capacity for extended operation. The batteries shall have 3/8-16 threaded stud terminals to ensure tight cable connections. The battery stud terminals shall each be treated with concentrated industrial soft-seal after cable installation to promote corrosion prevention. The

positive and negative battery stud terminals and the respective cables shall be clearly marked to ensure quick and mistake-proof identification.

Batteries shall be placed on non-corrosive rubber matting and secured with hold-down brackets to prevent movement, vibration, and road shock. The hold-down bracket J-hooks shall be cut to fit and shall have all sharp edges removed. The batteries shall be placed in plastic trays to provide preliminary containment should there be leakage of hazardous battery fluids. There shall be two (2) plastic trays, each containing (2) batteries. Each battery tray shall be equipped with a rubber vent hose to facilitate drainage. The rubber vent hose shall be routed to drain beneath the battery box. The batteries shall be positioned in well-ventilated areas.

One (1) positive and one (1) negative jumper stud shall be provided.

Batteries shall have a warranty of twelve (12) months that shall commence upon the date of delivery of the apparatus.

I O ION

En n n c

The engine shall be equipped with a thermostatically controlled engine cooling fan. The fan shall be belt driven and utilize a clutch to engage when the engine reaches a specified temperature and / or the water pump is engaged (if equipped).

When disengaged, the fan clutch shall allow for improved performance from optional floor heaters, reduced cab interior noise, increased acceleration and improved fuel economy.

The fan shall be equipped with a fail-safe engagement so that if the clutch fails, the fan shall engage to prevent engine overheating.

n

A heat exchanger (cooler) shall be installed to maintain desired power steering fluid temperature. The cooler shall be a model DH-073-1-1 with air / oil design rated at 6300 BTU/HR @10 GPM. The cooler shall be mounted in front of the radiator and plumbed with #10 lines.

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Drivelines shall have a heavy duty metal tube and shall be equipped with Spicer 1710HD universal joints to allow full-transmitted torque to the axle(s). Drive shafts shall be axially straight, concentric with the axis and dynamically balanced.

E n

A diesel exhaust fluid (DEF) tank with a five (5) gallon capacity shall be provided.

The DEF tank shall include a heater fed by hot water directly from the engine block to prevent the DEF from becoming too cool to operate correctly per EPA requirements. The tank shall include a temperature sensor to control the heater control valve that controls the feed of hot water from the engine to the DEF tank heater.

A sender shall be provided in the DEF tank connected to a level gauge on the cab dash.

The tank shall be located left side below the rear of the cab.

A heavy duty high torque 12-volt starter motor wired to prevent starter motor from engaging while the engine is running. The starter shall be powered through two(2) external solenoids and separate relays wired independently from each other. All components shall be mounted for serviceability. There shall be two(2) switches, one(1) labeled primary, and one(1) labeled backup.

I E IN

An On-Spot automatic tire chain system shall be installed on the rear axle. A locking style switch shall be installed on the instrument panel in easy reach of the driver. An indicator light shall be installed in a convenient location for the driver.

O E

2

Chassis shall be built designed and manufactured by the bidder and shall be designed for a two (2) person crew.

The vehicle shall have an all-welded aluminum, fully enclosed tilt cab designed exclusively for the fire service to ensure long life. It shall incorporate a welded substructure of high-strength aluminum alloy extrusions that surrounds and protects the perimeter of the occupant compartment for increased safety.

A Full description including grade, thickness, and tensile strength of the proposed material construction must be included with the bid

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A transverse compartment shall be provided to the rear of the front cab doors above the wheel wells. The compartment shall be constructed of at least 1/8" (.25") 3003 H14 aluminum alloy plate and finished with the same color as the cab interior. The compartment shall be approximately 48.5" wide x 47.25" high x 94" deep (transverse) and

contain approximately 124.66 cubic feet of storage space. Door opening will be approximately 46" wide x 42" (door type will reduce opening size). Two(2) vertical sliding tool boards, constructed of aluminum approximately half the depth of the compartment, shall be discussed further at the preconstruction.

n n

The cab shall be independently mounted on the body and chassis to isolate the cab structure from stresses caused by chassis twisting and body movements. Mounting points shall consist of two (2) forward-pivoting points, one (1) on each side; two (2) intermediate rubber load-bearing cushions located midway along the length of the cab, one on each side; and two (2) combination rubber shock mounts and cab latches located at the rear of the cab, one (1) on each side.

An electric-over-hydraulic cab tilt system shall be provided to provide easy access to the engine. It shall consist of two (2) large-diameter, telescoping, hydraulic lift cylinders, one (1) on each side of the cab, with a frame-mounted electric-over-hydraulic pump for cylinder actuation.

Safety flow fuses (velocity fuses) shall be provided in the hydraulic lift cylinders to prevent the raised cab from suddenly dropping in case of a burst hydraulic hose or another hydraulic failure. The safety flow fuses shall operate when the cab is in any position, not just the fully raised position.

The hydraulic pump shall have a manual override system as a backup in the event of an electrical failure. Lift controls shall be located in a compartment to the rear of the cab on the right side of the apparatus. A parking brake interlock shall be provided as a safety feature to prevent the cab from being tilted unless the parking brake is set.

The entire cab shall be tilted through a 42-45 degree arc to allow for easy maintenance of the engine, transmission and engine components. A positive-engagement safety latch shall be provided to lock the cab in the full tilt position to provide additional safety for personnel working under the raised cab.

In the lowered position, the cab shall be locked down by two (2) automatic, spring-loaded cab latches at the rear of the cab. A "cab ajar" indicator light shall be provided on the instrument panel to warn the driver when the cab is not completely locked into the lowered position.

1. E E IO

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The exterior of the cab shall be approximately 94" wide .The cab roof shall be approximately 101" above the ground. The back-of-cab to front axle length shall be a minimum of 40".

The cab wheel well openings shall be trimmed with replaceable, bolt-in, molded black rubber fenderettes. The fenderettes shall be secured to the cab with stainless steel threaded fasteners along the internal perimeter of the wheel well. Rubber welting shall be installed between the fenderettes and the cab side panel. The grill should be stainless steel.

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The cab windshield shall have a bright trim insert in the rubber molding, holding the glass in place. Economical windshield replacement glass shall be readily available from local auto glass providers. All cab glass shall be tinted.

The cab shall have a flat roof.

n c n

The rear cab wall shall be constructed with the use of 3/16" aluminum diamond plate interlocking in aluminum extrusions.

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There shall be reflective signs on each cab door in compliance with all NFPA requirements.

Two (2) side-opening cab doors shall be provided. Doors shall be constructed of a minimum of 3/16" (0.188") aluminum plate outer material with an aluminum extruded inner framework to provide a structure that is as strong as the side skins.

Front cab door openings shall barrier style doors approximately 36" wide x 67" high. The front doors shall open approximately 75 degrees.

The doors shall be securely fastened to the doorframes with full-length, stainless steel piano hinges, with 3/8" (0.375") diameter pins for proper door alignment, long life, and corrosion resistance. Mounting hardware shall be treated with the corrosion-resistant material prior to installation. For effective sealing, an extruded rubber gasket shall be provided around the entire perimeter of all doors.

Heavy-duty door latches shall be provided on the interior of the doors. The latches shall be designed and installed to protect against accidental or inadvertent opening as required by NFPA 1901.

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Driver and officer door windows shall have ample opening area as determined by LFD. Shall be discussed and finalized at the pre-construction conference.

The front windows of the cab shall roll down completely into the door; this should be accomplished with a manual handle.

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The inner door panels shall be made from 14 gauge be brushed finish stainless steel for increased durability. The cab door panels shall incorporate an easily removable panel for access to the latching mechanism for maintenance or service.

c

A mechanically fastened stainless steel map pocket shall be mounted on the front cab doors, centered on the kick plates. The map pockets shall be constructed of 14 gauge (.070) stainless steel.

The dimensions of the map pocket shall be approximately 10" high x 14" wide x 1.5" deep.

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Each cab door shall have a stainless steel trim on the trailing edge of the door opening. Rear doors shall have full vertical height trim; front cab doors shall be 50" tall on rear vertical edge above floor level.

n

There shall be two (2) clear circular LED lights provided to illuminate the cab step well area. Each light shall be mounted in a resilient shock absorbent grommet and be located in the cab step well area. Each light shall be activated by the cab door ajar circuit.

c

Reflective Red/Fluorescent Yellow Green 3M Diamond Grade material striping shall be supplied on each of the cab doors. The stripes shall run from the lower outer corner to the upper inside corner of the panel, forming an "A" shape when viewed from the rear. The material shall meet NFPA 1901 requirements for size (96 square inches) and reflectivity.

2

An auxiliary step below the cab door shall be provided. The step shall be constructed of .188" aluminum tread . The step surface shall be provided with an aggressive skid-resistant surface and have an open back. The step shall be in accordance with current NFPA requirements and shall include a multi-directional aggressive gripping surface incorporated into the diamond plate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8" (0.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

The step shall be located driver's front door, officer's front door.

Steps under front cab doors shall not interfere with approach angle.

- n 2

Stirrup steps shall be provided on the rear portion of the cab. They shall be located rear of the front tires. The final location shall be discussed at the preconference.

- n

Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall be beveled and shall be constructed from aluminum plate. The inner door pans shall be constructed from smooth aluminum plate and shall have nutsert fittings to attach. The inner pans shall have a 95-degree bend to form an integral drip rail.

The compartment doors shall have a gasket installed around the perimeter of the doors to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle with #459 latch shall be provided on the primary door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The secondary door shall have a dual stage rotary latch with a 750 lb rating to hold the door in the closed position. The latch shall be mounted at the top of the door. A stainless steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latch. The paddle handle shall be connected to the rotary latch by a 5/32" (.156") diameter rod. Cable actuation shall be deemed unacceptable due to the potential for cable stretch and slippage. The striker pin shall be 3/8" (.38") diameter with slotted mounting holes for adjustment.

The compartment doors shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment doors with a dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe.

The doors shall have a gas shock-style hold-open device. The gas shocks shall have a 30 lb rating and be mounted near the top of the door (when possible).

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): driver side cab wheel well external cabinet door, officer side cab wheel well external cabinet door

I E E IO O ION

A pair of Retrac Aerodynamic model 612010 mirrors shall be provided on the cab. The west coast style mirrors shall have chrome housings with flat and convex sections. Both the upper and lower mirror sections shall be remote controlled and heated. The mirror heads shall include amber LED marker lights.

E

An eight (8) inch "eyeball" mirror (K-10 P/N 512115-50S) will be installed on cab officer's side top corner that will allow the driver to have visual access of front bumper from the seated position. The mirror shall have a minimum of two attachment points to the body of the cab.

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Black linear low-density polyethylene (proprietary blend) mud flaps shall be installed on the rear of the cab front wheel wells. The design of the mud flaps shall have corrugated ridges to distribute water evenly.

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Cab door assists handrails shall consist of two (2) 1.25" diameter x 18" long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer door openings on each side of the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2" from the mounting surface to allow a positive grip with a gloved hand.

c c n n

A mounting plate shall be provided for the battery charger receptacle, battery charger indicator and if applicable the air inlet, etc. The plate shall be constructed of 14 gauge be brushed finish stainless steel and be removable for service access to the receptacle(s) and indicator.

IN E IO

In n c n

The interior of the cab shall be of the open design with an ergonomically-designed driver area that provides ready access to all controls as well as a clear view of critical instrumentation.

The rear of the cab above the front axle will have a transverse compartment that is accessible from both sides of the cab. There will be a partition that separates the front of the cab from the rear compartment.

The engine cover between the driver and the officer shall be a low-rise contoured design to provide sufficient seating and elbow room for the driver and the officer. The engine cover shall blend in smoothly with the interior dash and flooring of the cab. An all-aluminum subframe shall be provided for the engine cover for strength. The overall height of the engine enclosure shall not exceed 23" from the floor on each side and 27" in the center section. The engine cover shall not exceed 41" in width at its widest point.

The rear portion of the engine cover shall be provided with a lift-up section to provide easy access for checking transmission fluid, power steering fluid, and engine oil without raising the cab. The engine cover insulation shall consist of 3/4" dual density fiberglass composite panels with foil backing manufactured to specifically fit the engine cover without modification to eliminate "sagging" as found with foam insulation. The insulation shall meet or exceed DOT standard MVSS 302-1 and V-0 (UI subject 94 Test).

All cab floors shall be covered with a black rubber floor mat that provides an aggressive slip-resistant surface in accordance with current NFPA 1901.

The rear engine cover area shall be covered. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black with a pebble grain finish for slip resistance.

The interior side to side dimensions shall be approximately 87" from wall padding to wall padding and 89.5" from door to door.

Battery jumper studs shall be provided to allow jump-starting of the apparatus without having to tilt the cab.

The interior of the cab shall be insulated to ensure the sound (dbA) level for the cab interior is within limits stated in the current edition of NFPA 1901.

The vehicle shall use a seven-position tilt and telescopic steering column to accommodate various size operators. An 18" padded steering wheel with a center horn button shall be provided.

Storage areas, with hinged access doors, shall be provided below the driver and officer seats. The driver side compartment shall be approximately 20" x 12" x 3.5" high and the officer side compartment shall be approximately 20.25" x 22.75" x 11" high (20" x 12" x 3.5" high w/ air ride).

The front cab steps shall be a minimum of 8" deep x 24" wide. The first step shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA

1901 standards. The first step shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The steps are to be located inside the doorsill, where they are protected from mud, snow, ice, and weather. The step surfaces shall be an aluminum diamond plate with a multi-directional, aggressive gripping surface incorporated into the aluminum diamond plate in accordance with current NFPA 1901.

A black grip handle shall be provided on the interior of each front door below the door window to ensure proper hand holds while entering and exiting the cab. An additional black grip handle shall be provided on the left and right side windshield post for additional handholds.

An engine tunnel equipment mounting plate shall be installed. The location shall be discussed at the pre-construction meeting.

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Mounted in the cab, over the engine cover shall be an enclosed Map storage cabinet constructed of 1/8" smooth aluminum plate and painted to match the cab interior.

The exact design and location of the map storage cabinet shall be discussed at the pre-construction meeting.

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Two (2) pantograph-style windshield wipers with two (2) separate electric motors shall be provided for positive operation. Air-operated windshield wipers are not acceptable because of their tendency to accumulate moisture, which can lead to corrosion or to freezing in cold weather. The wipers shall be a wet-arm type with a minimum one (1) gallon washer fluid reservoir, an intermittent-wipe function, and an integral wash circuit.

The control shall have a return to park provision.

n

Cab controls shall be located on the cab instrument panel in the dashboard on the driver's side where they are clearly visible and easily reachable. Emergency warning light switches shall be installed in removable panels for ease of service. The following gauges and/or controls shall be provided:

- Master battery switch/ignition switch (rocker with integral indicator)
- Starter switch/engine stop switch (rocker)
- Heater and defroster controls with illumination
- Marker light/headlight control switch with dimmer switch
- Self-canceling turn signal control with indicators

- Windshield wiper switch with intermittent control and washer control
- Master warning light switch
- Transmission oil temperature gauge
- Air filter restriction indicator
- Pump shift control with green "pump in gear" and "o.k. to pump" indicator lights • Parking brake controls with red indicator light on dash
- Automatic transmission shift console
- Electric horn button at center of steering wheel
- Cab ajar warning light on the message center enunciator

Controls and switches shall be identified as to their function by backlit wording adjacent to each switch, or indirect panel lighting adjacent to the controls.

En n n

The cab operational instruments shall be located in the dashboard on the driver side of the cab and shall be clearly visible. The gauges in this panel shall be English dominant and shall be the following:

- Speedometer/Odometer
- Tachometer with integral hour meter
- Engine oil pressure gauge with warning light and buzzer
- Engine water temperature gauge with warning light and buzzer
- Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)
- Fuel gauge
- Voltmeter
- Transmission oil temperature gauge

This panel shall be backlit for increased visibility during day and night time operations.

I

A fast idle system shall be provided and controlled by the cab-mounted switch. The system shall increase engine idle speed to a preset RPM for increased alternator output.

E c c

The cab and chassis system shall have a centrally located electrical distribution area. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An automatic thermal-reset master circuit breaker compatible with the alternator size shall be provided. Automatic-reset circuit breakers shall be used for

directional lights, cab heater, battery power, ignition, and other circuits. An access cover shall be provided for maintenance access to the electrical distribution area.

A 6 place, constantly hot, and 6 place ignition switched fuse panel, and ground for customer-installed radios and chargers shall be provided at the electrical distribution area. Radio suppression shall be sufficient to allow radio equipment operation without interference.

All wiring shall be mounted in the chassis frame and protected from impact, abrasion, water, ice, and heat sources. The wiring shall be color-coded and functionally-labeled every 3" on the outer surface of the insulation for ease of identification and maintenance. The wiring harness shall conform to SAE 1127 with GXL temperature properties. Any wiring connections exposed to the outside environment shall be weather-resistant. All harnesses shall be covered in a loom that is rated at 280 degrees F to protect the wiring against heat and abrasion.

A Vehicle Data Computer (VDC) shall be supplied within the electrical system to process and distribute engine and transmission Electronic Control Module (ECM) information to chassis system gauges, the message center, and related pump panel gauges. Communication between the VDC and chassis system gauges shall be through a 4 wire multiplexed communication system to ensure accurate engine and transmission data is provided at the cab dash and pump. The VDC shall be protected against corrosion, excessive heat, vibration, and physical damage.

Two (2) dual rectangular chrome plated headlight bezels shall be installed on the front of the cab, in the upper position. The low beam headlights shall activate with the release of the parking brake to provide daytime running lights (DRL) for additional vehicle conspicuity and safety. The headlight switch shall automatically override the DRL for normal low beam/high beam operation.

n

An overhead air-conditioner / heater system shall be provided, and the bidder shall describe the details of the system in the bid.

The condenser shall be radiator mounted and have a minimum capacity of 65,000 BTU's and shall include a receiver drier.

Performance Data: (Unit only, no ducting or louvers)

- AC BTU: 55,000
- Heat BTU: 65,000

- CFM: 1300 @ 13.8V (All blowers)

The system shall be capable of cooling the interior of the cab from 100 degrees ambient to 75 degrees or less with 50% relative humidity in 30 minutes or less.

The A/C shall drain manually without the use of pumps (**N E c n**). Draining condensation into the interior of the cab or onto the occupants, headliner, roof or windshield will not be acceptable under any conditions. A detailed description of how builder proposes to drain A/C is required.

The air conditioner shall be provided with adjustable air outlets strategically located to direct airflow to the driver, officer and crew cab area.

All hose used shall be class 1 type to reduce moisture ingress into the air conditioning system.

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

CAB DEFROSTER

There shall be a minimum of a 41,000 BTU/hr defroster in the cab located under the engine tunnel.

The defroster ventilation shall be built into the design of the cab dash instrument panel and shall be easily removable for maintenance.

The defroster shall have a three (3) speed blower, and temperature controls accessible to the driver and officer.

The defroster ducts shall be designed to provide maximum defrosting capabilities for the front cab windows

n c n

Heating and air conditioning controls shall be located in the center dash area upper tier offset to driver side.

E

All cab seats shall be Bostrom brand.

All seats shall have Durawear seat cover material.

c

The seats shall be gray in color.

n c

A tag that is in view of the driver stating seating capacity of two (2) personnel shall be provided.

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One (1) H. O. Bostrom Sierra EX8/ABTS seat with high back styling shall be provided for the driver's position.

The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated seat belt with an additional 8-12" of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel.

Seat features shall include:

- Power fore/aft with 8" adjustment
- Power height with 2" adjustment
- Power front seat tilt
- Power rear seat tilt
- Power back recline
- Built-in lumbar support

, O c

One (1) H. O. Bostrom Sierra EX8/ABTS seat with high back styling shall be provided for the officer position.

The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated seat belt with an additional 8-12" of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel.

I IN E IO O ION

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The center and officer side dash shall be constructed from .125" smooth aluminum plate painted to match the cab interior. The officer side dash panel shall be lowered to provide increased visibility. A hinged access panel shall be provided on top of the center dash to provide easy access to components within.

The lower kick panels below the dash to be constructed from .125" aluminum smooth plate painted to match cab interior. The panels shall be removable to allow for servicing components that may be located behind the panels.

N c

Provision for the installation of a mobile data computer (MDC) shall be provided in front of the officer seat. There shall also be provided the required wiring for the MDC on the right side of the cab dash.

This shall consist of a 12-volt power and ground pigtail and GPS / data antenna wiring. The location of this power and antenna wiring shall be demonstrated at the final inspection

O n

A full-width front overhead console shall be mounted to the cab ceiling for placement of siren/radio heads (non-LTH cabs only) and for warning light switches. The console shall be made from a thermoformed, non-metallic material and shall have easily removable mounting plates.

The overhead HVAC shall be covered with thermoformed, non-metallic, non-fiber trim pieces to provide excellent scuff and abrasion resistance, as well as chemical stain resistance. The thermoformed material shall comply with Federal Motor Vehicle Safety Standard (FMVSS) 302 for flammability of interior materials.

A cup holder and tray assembly shall be provided on the cab engine cover between the driver and officer. The tray shall be approximately 14" wide x 10" long x 1.5" tall and constructed from .125" aluminum plate. Further details and locations shall be discussed at the pre-construction conference.

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Cab instrument panel, an overhead console, trim panels, headliner, and door panels shall be gray.

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Lexan sun visors shall be provided for the driver and officer matching the interior trim of the cab and shall be flush mounted on the underside of the overhead console.

O c

There shall be a permanently mounted placard visible to the driver. The placard shall show the height of the completed fire apparatus in feet and inches, the length of the completed apparatus and the GVWR in pounds.

E E

n Occ n c n

A 4Front occupant protection system shall be installed in the apparatus cab. The system shall inflate three (3) airbags in the following locations:

- Steering wheel airbag to protect the head and neck of the driver
- Knee bolster airbag to protect the driver's legs
- Knee bolster airbag to protect the officer's legs

The air bags shall use a combination of high-pressure stored argon and oxygen (and a pyrotechnic charge for initiation) to inflate the bags to a relatively cool (120° Fahrenheit) inflation temperature and remain inflated for several seconds.

The system shall be connected to the crash detection sensor that will also activate the driver and first officer Integrated Belt Pretensioners if it detects a frontal crash.

c n - n

A RollTek rollover occupant protection system shall be installed in the apparatus cab. The system shall include an Integrated Roll Sensor (master module), Integrated Head Curtains and Integrated Seat Belt pretensioners.

The Integrated Roll Sensor (IRS) shall be a microprocessor-controlled solid-state sensing device that utilizes vehicle-specific calibrations to detect rollovers. The IRS shall be equipped with eight (8) pyrotechnic loops for connection to the protective countermeasures (Integrated Head Curtains and Integrated Seat Belt pretensioners).

The IRS shall continually monitor the truck's acceleration and angle, and upon detection of an imminent roll-over, shall activate protective countermeasures in a pre-programmed sequence. The entire process from activation to deployment shall take less than ¼ of a second (.234).

In addition to acting as the "brain" of the RollTek system, the IRS shall also act as a "black box," recording crash events for post-crash evaluation.

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A slave module shall be installed with the RollTek Integrated Roll Sensor (IRS) to expand the system's capabilities. The slave module shall include connections for up to eight (8) additional pyrotechnic loops for use with up to a total of sixteen (16) protective countermeasures (Integrated Head Curtains and Integrated Seat Belt pretensioners).

c n - 2

RollTek Integrated Head Curtains (IHC) shall be installed in the apparatus cab. The pillow-shaped side airbags shall be attached either to the ABTS seats or the rear cab wall. The air bags shall be optimally placed to deploy across the window and side of the vehicle interior to protect the occupant's head during impact. The air bags shall use a combination of high-

pressure stored argon and oxygen (and a pyrotechnic charge for initiation) to inflate the bags to a relatively cool (120° Fahrenheit) inflation temperature and remain inflated for several seconds.

c n - n n 2

RollTek Integrated Seat Belt Pretensioners (ISB) shall be installed in the apparatus cab. The special seat belt buckles shall be designed to receive a signal from the Integrated Roll Sensor during a roll for the pretensioners on the buckles to tighten the seat belts to the occupant, better positioning the occupant in the seats.

E E I O ION

The front of the cab shall have four (4) headlights. The headlights shall be mounted on the front of the cab in the upper lower position. The headlights shall be daytime operational.

Peterson LED headlights shall be provided. LED lights shall be provided in the low and high beam position of the head lamp assembly.

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There shall be a pair of Whelen M6 LED (Light Emitting Diode) turn signal light heads with populated arrow pattern, and amber lens mounted lower headlight bezel and wired with weatherproof connectors.

A Weldon LED dome light assembly with one (1) white lens, and one (1) red lens and plastic housing shall be installed. The white light activates with appropriate cab door and light assembly switch, the red light activates with light assembly mounted switch only.

There shall be two (2) mounted in the front of the cab, one (1) in the driver and one (1) in the officer ceiling.

An interior cab light unit shall be mounted in the headliner consisting of two (2) side ball-joint socket spot lamps. Each light shall be individually switched

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A two (2) position rocker switch shall be installed in the cab accessible to the driver and properly labeled to enable the operator to activate the OEM traffic horn or air horn from the steering wheel horn button.

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There shall be a "Y" style lanyard mounted in the center of the cab that allows the driver and officer to operate the air horns. The lanyard shall activate an electrical air switch.

c 2

A heavy duty metal floor mounted foot switch shall be installed to operate the Q2B siren. It shall be located driver's side, officer's side.

There shall be a 2" red LED hazard light installed as specified.

The light shall be located center overhead.

12 O 2

A plug-in type receptacle for handheld spotlights, cell phones, chargers, etc. shall be installed driver side dash, officer side dash. The receptacle shall be wired battery hot.

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A dual USB charging port for cell phones, chargers, etc. shall be installed driver side dash, officer side dash. The receptacles shall be wired battery hot.

IO

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There shall be a Tessco P/N 90942 universal antenna base mounted on the cab roof with a weatherproof connector. The antenna base shall be NMO Motorola Style (equivalent to a MATM style) with RG58U coax cable. The antenna shall be located driver side forward with coaxial cable terminating at the center of the dash board, officer side forward with coaxial cable terminating at the center of the dash board.

E I E IO E I EN ONNE ION OIN

The primary radio connection point shall be on top of the PPE compartment located behind the driver. The top of the compartment shall be flat and suitable for mounting radio equipment. There shall be an enclosure, approximately eight inches deep, with a bolt down louvered lid. There shall be four (4) studs provided in the primary power distribution center located in the enclosure.

The studs shall consist of the following:

12-volt 40-amp battery switched power

12-volt 100-amp ground

12-volt 60-amp ignition switched power

12-volt 60-amp direct battery power

These circuits shall not be load managed

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

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

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

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

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

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A momentary override switch shall be provided for the Diesel Particulate Filter (DPF) regeneration. The switch will inhibit the regeneration process until the switch is reset or the engine is shut down and restarted. The switch shall be located within reach of the driver.

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A hand held spotlight with mounting bracket shall be provided. It shall be located officer's side with a 12 volt receptacle. Shall be further discussed at preconstruction.

A Kussmaul Auto Charger 1200 battery charger with remote mounted bar graph display shall be installed.

The battery charger shall be completely automatic with an output of 0-40 amp @ 12 volts DC and an input current requirement of 10 amps @ 120 volts AC. The final location shall be discussed at pre-construction.

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The battery charger receptacle shall be a Kussmaul 20 amp NEMA 5-20 Super Auto-Eject #091-55-20-120 with a cover. The Super Auto-Eject receptacle shall be completely sealed and have an automatic power line disconnect.

The receptacle shall be located outside driver's door next to handrail, and the cover color shall be Red.

O ON ION

The apparatus body shall be built of aluminum construction using a minimum of .0125 aluminum body panel. The bidder shall provide a full description of the construction method and materials used.

The manufacturer shall ensure complete insulation between dissimilar metals used in the construction of the body to prevent corrosion.

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The main body shall be attached to the chassis frame rails with a minimum of six (6) steel U-bolts. This body mounting system shall be used to allow easy removal of the body for major repair or disassembly.

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The body design shall allow the booster tank to be completely removable without disturbing or dismounting the apparatus body structure. The water tank shall rest on top of a 3" x 3" frame assembly covered with rubber shock pads and corner braces formed from 3/16" angled plate to support the tank. The booster tank mounting system shall utilize a floating design to reduce stress from road travel and vibration. To maintain low vehicle center of gravity the water tank bottom shall be mounted within 5" of the frame rail top.

The hose bed side assemblies shall be made of 3" x 3" slotted aluminum extrusion and 3/16" (.188") smooth plate.

The exterior hosebed side surface shall be completely sanded and deburred to assure a smooth finish and painted job color. The interior hosebed side surface shall be completely sanded and deburred to assure a smooth sanded finish.

The area above the booster tank shall have a hose storage area provided. The hose bed shall be constructed entirely from maintenance-free, 3/4" deep x 7.5" wide, extruded aluminum slats that shall be pop-riveted into a one-piece grid system. Each slat shall have all sharp edges removed and have an anodized ribbed top surface that shall prevent the accumulation of water and allow for ventilation of wet hose.

The hose bed shall include an open area for the fill tower(s). The hose bed design shall incorporate adjustable tracks in the forward area rearward of the fill tower(s) and the rearward area of the hose bed for the installation of an adjustable divider(s). The adjustable tracks shall hold an adjustable divider(s) mounting nut straight, so only a Philips head screwdriver is required to adjust a divider(s) from side to side (as is practical with other hose bed mounted equipment).

The hose bed shall be easily removable to allow access to the booster tank below.

Hose Carried

- 400' 1.75
- 300' feet 2.5
- 300 5" LDH Supply Line

Body wheel well shall have smooth finish painted job color.

The cab wheel well openings front/rear shall be trimmed with replaceable, bolt-in, molded black rubber fenderettes. The fenderettes shall be secured to the cab with stainless steel threaded fasteners along the internal perimeter of the wheel well. Rubber welting shall be installed between the fenderettes and the cab side panel.

The wheel well liners shall be constructed of a 3/16" (.187") composite material. The liners shall be bolt-on and shall provide a maintenance-free and damage-resistant surface.

O O EN

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The driver side assembly shall be constructed entirely of aluminum. There shall be four (4) compartments, two (2) full height compartments and two (2) located over the wheel well.

The driver side body shall be completely sanded and deburred to assure a smooth finish and painted job color.

All body compartments shall have a minimum of one(1) set of louvers stamped into the wall to provides the proper airflow inside of the compartments. These louvers shall be formed into the metal and not added to the compartment as a separate plate.

Compartment floors shall be flush "sweep-out" design with the floor higher than the compartment door lip. All compartment seams shall be fully waterproofed.

The top of the compartment shall be covered with bright aluminum tread plate. The corners shall be TIG welded

The front facing compartment bulkheads shall be covered with bright aluminum tread plate.

Drip protections shall be provided over all doors.

The compartment floors shall be reinforced to hold heavy equipment.

Interior of compartments shall not be painted

All compartments on apparatus body shall be equipped with roll-up doors.

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The four (4) driver side compartments shall be constructed from a minimum of 3003 H14 1/8" (.125") smooth aluminum plate. All compartments shall be equipped with roll-up doors.

There shall be one (1) compartment located ahead of the rear wheels. This compartment shall be approximately 42" wide x 72" high x 26" deep in the lower 34" high section and 12" deep in the upper 38" high section. The compartment shall contain approximately 32.5 cu. ft. of combined storage space. The door opening shall be approximately 42" wide x 72" high. This compartment shall contain the pump intakes/discharges and pump controls shall be equipped with a roll-up door.

There shall be two (2) compartment located over the rear wheel. Each compartment shall be approximately 51.5" wide x 34" high x 12" deep and contain approximately 12.1 cu. ft. of storage space. Each door opening shall be approximately 51.5" wide x 34" high. The compartments shall be transverse front to rear.

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There shall be one (1) compartment located rearward of the rear wheels. This compartment shall be approximately 42" wide x 72" high x 26" deep in the lower 34" high section and 12"

deep in the upper 38" high section. The compartment shall contain approximately 32.5 cu. ft. of combined storage space. The door opening shall be approximately 42" wide x 72" high.

Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.

An externally-mounted compartment top shall be provided and constructed of a 1/8" (.125") aluminum tread plate.

O c n

The two (2) officer side compartments shall be constructed from 3003 H14 1/8" (.125") smooth aluminum plate. The compartments shall be modular in design and shall not be a part of the body support structure.

There shall be one (1) compartment located ahead of the rear wheels. This compartment shall be approximately 42" wide x 34" high x 26" deep. The compartment shall contain approximately 21.4 cu. ft. of combined storage space. The door opening shall be approximately 42" wide x 34" high.

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Provide pricing for full height compartment for R-1; if dump tank length allows for height.

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There shall be one (1) compartment located behind the rear wheel. The compartment shall be full height approximately 42" wide x 58" high x 26" deep. The compartment shall contain approximately 21.4 cu. ft. of combined storage space. The door opening shall be approximately 42" wide x 34" high.

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The apparatus shall be equipped with Robinson ROM Series III roll-up exterior compartment doors. Robinson rollup doors shall be complete with the following features;

Doors shall be front roll with drum positioned at upper front portion of compartment to afford maximum clearances and headroom for mounting equipment to ceiling of compartment

There shall be a non-abrasive side brush seals.

Every slat must have interlocking end shoes to prevent slat from moving side-to-side and binding the door

Between each slat must be a co-extruded PVC inner seal to prevent metal-to-metal contact and to repel moisture. This inner seal is not visible to detract from appearance of door

Slats are to have interlocking joints with a folding locking flange to provide security and prevent penetration by sharp objects

Slats are to be double-wall extrusion 1.366" high by .315" thick. Exterior surface to be flat and interior surface to be concave to prevent loose equipment from interfering with door operation Latch system to be a full width one piece lift bar operable by one hand

A 2" wide finger pull integrated into bottom rail extrusion for easy one hand opening and closing.

Clip system that connects the curtain slats to the operator drum which allows for easy tension adjustment without tools.

Each roll-up door shall have a 4" diameter counterbalance operator drum to assist in lifting the door.

Track shall be one-piece aluminum that has an attaching flange and finishing flange incorporated into its design

Drip rail will have a specially designed seal that prevents the seal from scratching the door bottom rail extrusion must have smooth back to prevent loose equipment from jamming the door.

Bottom rail to have "V" shaped double seal to prevent water and debris from entering the compartment

Standard replacement parts to be shipped from the United States and available in as little as 48 hours

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All exterior compartment doors shall have the standard 3.0" tall bottom rail extrusion for easy one (1) hand opening and closing.

The roll-up door slats and the door trim components shall be painted to match the exterior job color.

A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

A keyed cylinder lock shall be provided in the bottom portion of the roll-up door.

The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.

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The rear end shall be set-up as a tanker and shall have no rear body compartment.

The rear end shall be constructed of vertical and horizontal extrusions with interlocking smooth plate upper and lower panels. The lower center area shall have a smooth plate panel area that shall allow for a Jet or Newton tank dumping application.

The vertical, horizontal, and smooth plate panels shall have a sanded finish.

A tailboard step shall be provided at the rear of the body. The tailboard shall 12" in depth and in accordance with NFPA in both step height and stepping surface. The maximum rear step height to the tailboard shall not exceed 24".

The tailboard step shall be formed from 3/16" (0.188") aluminum tread plate and shall be reinforced with 6063-T5 1.5" x 3" aluminum extrusion. The tailboard shall be in accordance with current NFPA requirements and shall include a multi-directional aggressive gripping surface incorporated into the diamond plate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8" (0.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

The tailboard step shall be bolted on to the body from the underside assuring a clear surface and shall be easily removable for replacement in the case of damage.

Tailboard/rear bumper shall be angled.

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Handrails shall be provided at the rear of the body to assist ground personnel accessing the tailboard step and hose bed area. Each handrail shall be constructed of 6063T5 1.25" OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personal safety, and shall be mounted between chrome stanchions.

The handrails shall be located- two (2) handrails, one (1) on each side, appropriately sized handrail mounted vertically on the trailing edge of the body, and appropriately sized handrail(s) mounted horizontally below the rear hose bed opening.

There shall be an aluminum adjustable shelf provided for each compartment.

The shelf shall be constructed of 3/16" (.187") smooth aluminum plate. The shelf shall have a minimum 2" front and rear lips to accommodate optional plastic interlocking compartment tile systems. For additional strength and reinforcement of the shelf, a return break shall be provided on the outward lip. The adjustable shelf shall be capable of holding 250 lbs.

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Tracks shall be provided in all compartments for use with adjustable shelves and/or trays in deep non-transverse compartments. The tracks shall be vertically mounted and attached to the side and/or rear walls of the compartment.

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Turtle tile matting shall be installed on all exposed floors and all shelves/trays in all compartments of the apparatus body.

E N

3,000-gallon water tank shall be supplied.

The booster tank shall be constructed of polypropylene material. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal.

The booster tank top, sides, and bottom shall be constructed of a minimum 1/2" (0.50") thick black UV-stabilized copolymer polypropylene. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall 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 tank cover shall be constructed of 1/2" thick polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 3/8" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" minimum polypropylene dowels spaced a maximum of 40" apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions.

The tank shall have a combination vent and manual fill tower with a hinged lid. The fill tower shall be constructed of 1/2" polypropylene and shall be a typical dimension of 8" x 8" outer perimeter (subject to change for specific design applications). The fill tower shall be blue in color indicating that it is a water-only fill tower. The tower shall have a 1/4" thick removable polypropylene screen and a polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid.

The booster tank shall have four (4) tank plumbing openings. One (1) for a tank-to-pump suction line with an anti-swirl plate, and one (1) for a tank fill line and two(2) for the direct

tank. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates per the tank fill inlet size.

The sump shall be constructed of a minimum of 1/2" polypropylene. The sump shall have a minimum 3" N.P.T. threaded outlet for a drain plug per NFPA. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3" above the inside floor.

The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" polypropylene. All partitions shall be equipped with a vent and air holes to permit movement of air and water between compartments. The partitions shall 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 shall comply with NFPA 1901. The walls shall be welded to the floor of the tank providing maximum strength.

Inside the fill tower, there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with an I.D. of 3" or larger that is designed to run through the tank. This outlet shall direct the draining of overflow water past the rear axle, thus reducing the possibility of freeze-up of these components in cold environments. This drain configuration shall also assure that rear axle tire traction shall not be affected when moving forward.

The booster tank shall undergo extensive testing prior to installation in the truck. All water tanks shall be tested and certified as to capacity on a calibrated and certified tilting scale.

Each tank shall be weighed empty and full to provide precise fluid capacity. Each tank shall be delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight. Engineering estimates for capacity calculations shall not be permitted for capacity certification. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 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.

A tag shall be installed on the apparatus in a convenient location and contain pertinent information including a QR code readable by commercially available smartphones. The information contained on the tag shall 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.

The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from the tank manufacturer.

Tank capacity is 3,000 US gallons.

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Fill tower(s) shall be located offset to the driver's side of the water tank.

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One (1) 3" pump-to-tank fill line having a 3" manually operated full flow valve. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times. The fill line shall be controlled using a hand wheel control valve.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

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The booster tank shall be connected to the intake side of the pump with 4.00" heavy-duty piping and a quarter turn 3.5' Akron 8900 with a composite ball valve. The control shall be equipped with push / pull actuator located on the operator's panel.

The tank to pump line shall run straight, without elbows, from the pump into the front face of the water tank and angle down into the tank sump. A rubber coupling shall be included in this line to prevent damage from vibration or chassis flexing.

A check valve shall be provided in the tank to pump supply line to prevent the possibility of back filling the water tank.

A minimum flow of 1,000 GPM shall be achieved through the tank to pump piping.

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Two (2) 4" rear direct water tank fill shall be provided.

The connection shall include an inlet strainer, 4.5 NST inlets with droop and cap with retainer.

One (1) of the valves shall be a Fireman's Friend Engineering Inc., FFE4040CF8M-F-4" Body

with 4.5 NST.

The valve control shall be a hand wheel located on the valve.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Installation and final location shall be discussed at the preconstruction conference.

A tank dump shall be provided at the rear of the apparatus. Includes integral 6012 swivel chute with manual telescopic extension and two locks one each side.

The tank dump shall be a Newton Kwik Swivel Dump and shall include a 10" x 10" flip-up valve plate for maximum water flow. The lower portion of the dumping assembly shall swivel 180 degrees and shall include a manual chute extension that shall extend the dumping past the sides of the body and rear tailboard area.

The dump valve shall be manually actuated from the upper area of the dumping assembly and shall be accessible from the driver or officer side during side to side dumping operations.

The exterior surface of the dumping assembly shall be stainless steel.

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A Zico QUIC-LIFT Portable Tank System (PTS) rack shall be provided. The rack shall lower a portable tank from the stored position to provide a safe and convenient height for unloading and loading.

The rack shall be hydraulically operated by two (2) durable high cycle 12 volt actuators and controlled by a 30 amp two-pole double-throw momentary switch located at the pump module area. The control switch location shall allow the operator to monitor operations, monitor positioning of apparatus mounted equipment in the storage racks travel path and ground personnel while lowering and raising the rack.

The storage rack shall be self-locking in any position during operation. A visual signal shall be provided to indicate when the storage rack is in motion by two (2) yellow flashing lights installed one (1) on each side of the rack.

The rack shall also be wired through the door ajar indicator light located in the cab to alert the driver that the rack is not stowed if the parking brake is released.

The storage rack shall be capable of storing a maximum of three hundred pounds (300 lbs).

The rack shall be located to the officer side on compartment top of the body and shall be capable of storing a 3000 gallon aluminum frame tank.

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The Zico drop down rack shall have a smooth plate(s) cover provided. The cover shall wrap over the top of the tank and along the outboard side between the outboard rack assemblies.

The smooth plate panel(s) shall be painted job color.

N I E

cc

A Fixed ladder shall be provided to facilitate access to and egress from the top portion of the tank and hose bed. The ladders constructed of stainless steel and knurled tube rails and rungs grip strut inserts.

Further details regarding location shall be discussed at the pre-construction meeting.

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One (1) intermediate rear step shall be provided above the rear Newton dump. The step shall be constructed of aluminum tread plate.

I O O ION

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The forward body corners of the body shall have corner guards installed. The corner guards shall be constructed of (.063") aluminum tread plate .

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Storage compartments for SCBA and fire extinguisher cylinders shall be provided in the rear wheel wells of the apparatus. Storage compartments shall consider of single or double cylinder compartments constructed entirely of aluminum plate with hinged door and push button latches. Doors shall match wheel well area material and finish, aluminum tread plate or painted smooth plat aluminum as applicable. The door shall cover the recessed fuel fill if located adjacent to the SCBA storage.

One or two U-shaped troughs as applicable made out of aluminum smooth plate with rubber insert shall be provided to keep the cylinders from rolling within the compartments.

Double cylinder storage compartments shall be provided as follows:

Officer side rear wheel well offset rearward

Single cylinder storage compartments shall be provided as follows:

Driver side rear wheel well offset rearward

Straps shall be provided in each exterior storage compartment to provide secondary means to hold each SCBA bottle in the compartment. The straps shall be constructed from 1" nylon webbing formed in a loop. The strap(s) shall be mounted to the storage compartment ceiling directly inside the door opening at each bottle location.

c **2**

Wheel Chock storage with hinged door and push button latch shall be provided in the body wheel well area. The storage area shall be of aluminum construction integral with the body wheel wells.

The door shall match the wheel well area material and finish.

The door shall be wired to "Door Open" indicator inside the cab.

Location: driver side rear wheel well offset forward, officer side rear wheel well offset forward (shall be further discussed at preconstruction).

There shall be 2 (two) hose bed divider provided the full fore-aft length of the hose bed.

The hose bed divider shall be constructed of 1/4" (0.25") smooth aluminum plate with an extruded aluminum base welded to the bottom. The rear end of the divider shall have a 3" radius corner to protect personnel. The divider shall be natural finish aluminum for long-lasting appearance and shall be sanded and de-burred to prevent damage to the hose.

The dividers shall be adjustable from side to side in the hose bed to accommodate varying hose loads.

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There shall be a hand hole cut-out(s) on the trailing edge of each hose bed divider. The cut-out(s) is specifically sized for use in adjusting of the hose bed divider.

A recessed fuel fill shall be provided on the driver side rear wheel well area

Fuel tank fill will be labeled with a "Diesel Only" label. The mounting location will be determined at the pre-construction.

The pump area module(s) and body shall have rub rails mounted along the sides and at the rear.

The rub rail shall be C-channel in design and constructed of 3/16" thick 6463T6 anodized aluminum extrusion. The rub rail shall be 2.75" high x 1.25" deep and shall extend beyond the body width to protect compartment doors and the body side. The rub rail depth shall allow marker and/or warning lights to be recessed inside for protection.

The top surface of the rub rail shall have a minimum of five (5) raised serrations. Each serration being a minimum of .1" in height and with cross grooves to provide a slip-resistant edge for the tailboard step and pump module running board areas. The rub rail shall be mounted a minimum of 3/16" off the pump module and body with nylon spacers. The ends of each section shall be provided with a finished rounded corner piece.

Black mud flaps with manufacturer's logo shall be provided for the body wheel wells.

O E

A cover constructed of Red 18 oz. PVC vinyl coated polyester shall be installed over the apparatus hose bed. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 square inch.

The front edge of the cover shall be mechanically attached to the body. The sides of the cover shall be held in place with heavy duty Velcro strips running the length of the hose bed. The rear of the cover shall have an integral flap that extends down to cover the rear of the hose bed. This flap shall be secured in place along the lower edge with a flexible cord that fastens to steel hook(s) mounted to the body to comply with the latest edition of NFPA 1901.

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The centrifugal fire pump shall have a rated capacity of 1000 GPM. The pump shall meet 1901 requirements. The pump shall be mounted between the chassis frame rails and be driven by the chassis transmission power take off.

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. The Pump operators control panel and intake and discharges shall be located on the driver's side L-1 full height compartment. Intake and discharges shall be located in the lower compartment of L-1. The panel area shall be constructed of smooth plate aluminum with an

instrument area and shall have a stainless steel hinge that shall swing open for access to the gauges. The instruments panel shall be located in the upper compartment.

The panel shall have an aluminum shield with LED light that provides illumination for nighttime operation. The valve controls shall be neatly arranged for access and visibility. All controls shall be marked by permanent labels and color coded. Labels and color codes will be discussed at the pre-construction conference

The entire pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI (207 MPa). All metal moving parts in contact with water shall be of high quality bronze or stainless steel.

The pump impeller shall be hard, fine grain bronze of the mixed flow design and shall be individually ground and hand balanced. Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body, and of wrap-around double labyrinth design for maximum efficiency.

One (1) 6" diameter suction port with 6" NST male threads and removable screens shall be provided.

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A mechanical seal shall be provided on the inboard side of the pump. The mechanical seal shall be two (2) inches in diameter and shall be spring-loaded, maintenance-free, and self-adjusting.

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The pump system shall utilize a stainless steel discharge manifold system that allows a direct flow of water to discharge valves. The manifold and fabricated piping systems shall be constructed of a minimum of Schedule 10 stainless steel to reduce corrosion.

The pump shift shall be pneumatically-controlled using a power shifting cylinder.

The power shift control valve shall be mounted in the cab and be labeled "PUMP SHIFT." The apparatus transmission shift control shall be furnished with a positive lever, preventing accidental shifting of the chassis transmission.

A green indicator light shall be located in the cab and be labeled "PUMP ENGAGED." The light shall not activate until the pump shift has completed its full travel into pump engagement position.

A second green indicator light shall be located in the cab and be labeled "OK TO PUMP." This light shall be energized when both the pump shift has been completed, and the chassis automatic transmission has obtained converter lock-up (4th gear lock-up).

Two (2) test plugs shall be pump panel mounted for third party testing of vacuum and pressures of the pump.

E I I I O N

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The fire pump shall be rated at 1000 GPM.

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The pump, when dry, shall be capable of taking suction and discharging water in accordance with current NFPA 1901. The pump shall be tested at the manufacturer's facility by an independent, third-party testing service. The conditions of the pump test shall be as outlined in current NFPA 1901.

The tests shall include, at a minimum, the pump test, the pumping engine overload test, the pressure control system test, the priming device tests, the vacuum test, and the water tank to pump flow test as outlined in current NFPA 1901.

A piping hydrostatic test shall be performed as outlined in current NFPA 1901.

The pump shall deliver the percentage of rated capacities at pressures indicated below:

- 100% of rated capacity at 150 psi net pump pressure
- 100% of rated capacity at 165 psi net pump pressure
- 70% of rated capacity at 200 psi net pump pressure
- 50% of rated capacity at 250 psi net pump pressure

A test plate, installed at the pump panel, shall provide the rated discharges and pressures together with the speed of the engine as determined by the certification test, and the no-load governed speed of the engine.

A Certificate of Inspection certifying performance of the pump and all related components shall be provided at the time of delivery. Additional certification documents shall include, but not limited to, Certificate of Hydrostatic Test, Electrical System Performance Test, Manufacturer's Record of Pumper Construction, and Certificate of Pump Performance from the pump manufacturer.

O ION

The pump 6" Steamer/Intake(s) shall be "Flush" mounted with cap installed close as possible/practicable to pump panel. Actual dimension will vary due to pump module width and options selected. The Flush option could result in panel scratching.

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The zinc anodes help prevent damage caused by galvanic corrosion within the fire pump. The system provides a sacrificial metal which helps to diminish or prevent pump and pump shaft galvanic corrosion. One anode will be located on the suction side, and one will be located on the discharge side of the pump.

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One (1) manual pump shift override shall be mounted to side panel engage the fire pump in the event of an air pressure failure. The pump shift shall be operated by a chrome handled push-pull cable.

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A manual master drain valve shall be installed on the pump panel. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal. The master drain shall have a rubber seal to prevent water from running out on the running board.

The manual master drain valve shall have twelve (12) individual-sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of a corrosion-resistant material and be capable of operating at a pressure of up to 600 PSI.

The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices.

The pump shall have a 3/8" line installed from the pump discharge to the booster tank to allow a small amount of water to circulate through the pump casing in order to cool the pump during sustained periods of pump operation when water is not being discharged. The pump cooler line shall be controlled from the pump operator's panel by an Innovative Controls 1/4 turn valve with "T" handle. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag

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A Trident automatic air operated priming system shall be installed. The unit shall be of all brass and stainless steel construction and designed for fire pumps of 1,250 GPM (4,600 LPM) or more. Due to corrosion exposure, no aluminum or vanes shall be used in the primer design. The primer shall be three-barrel design with ¾" NPT connection to the fire pump.

The primer shall be mounted above the pump impeller so that the priming line will automatically drain back to the pump. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass "wye" type strainer with removable stainless steel fine mesh strainer to prevent entry of debris into the primer body.

The system shall create a vacuum by using air from the chassis air brake system through a two-barrel multi-stage internal "venturi nozzles" within the primer body. The noise level during operation of the primer shall not exceed 75 Db.

Air Flow Requirements

The primer shall require a minimum of 15.6 cubic foot per minute air compressor and shall be capable of meeting drafting requirements at high idle engine speed. The air supply shall be from a chassis supplied "protected" air storage tank with a pressure protection valve. The air supply line shall have a pressure protection valve set between 70 to 80 PSIG.

Primer Control

The primer control shall have a manually operated, panel mounted "push to prime" air valve. The valve shall direct air pressure from the air brake storage tank to the primer body. To prevent freezing, no water shall flow to and from the panel control.

Warranty

The primer shall be covered by a five (5) year parts warranty.

IN E O ION

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One (1) 2-1/2" suction inlet with a manually operated 2-1/2" Akron valve shall be provided on the left side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2-1/2" NST female chrome inlet swivel, and shall be equipped with a chrome plated rocker lug plug with a retainer device.

The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

A 3/4" bleeder valve assembly will be installed on the left side pump panel.

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The pump shall be equipped with an Akron style 59 cast brass, the variable-pressure-setting relief valve on the pump suction side. It shall be designed to operate at a maximum inlet pressure of 250 PSI. The relief valve shall be normally closed and shall be set to begin opening at 150 PSI in order to limit intake pressures in the pumping system. When the relief valve opens, the overflow water shall be directed through a plumbed outlet to discharge below the body in an area visible to the pump operator. The overflow outlet shall terminate with a male 2-1/2" NST threaded fitting to allow the overflow water to be directed away from the vehicle with a short hose (supplied by the fire department) during freezing weather or under other conditions where an accumulation of water around the apparatus might be hazardous.

I E O ION n 2. c n 2

Two (2) 2-1/2" discharge outlet with a manually operated Akron valve shall be provided on the left hand side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: left side discharge 1, left side discharge 2.

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One (1) 4" discharge outlet with a manually operated Akron valve shall be provided on the right side pump panel.

The discharge shall be equipped with a device that shall not allow the valve to open or close in less than three (3) seconds.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: right side discharge 1.

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The bleeder/drain valves shall be Innovative Controls ¾" ball brass drain valves with chrome-plated lift lever handles and ergonomic grips. Each lift handle grip shall feature built-in color-coding labels and a verbiage tag identifying each valve, also supplied by Innovative Controls. The color labels shall also include valve open and close verbiage.

E E O E NO

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Fire Research Pump Boss model PBA400 pressure governor and monitoring display kit shall be installed. The standard kit shall include a control module, pump discharge pressure sensor, Intake pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 6-3/4" high by 4-5/8" wide by 1-3/4" deep. Inputs for engine information shall be from a J1939 databus or from independent sensors and pump discharge pressure input shall be a pressure sensor.

The following continuous displays shall be provided:

- * CHECK ENGINE and STOP ENGINE warning LEDs.
- * Engine RPM; shown with four daylight bright LED digits more than 1/2" high.
- * Engine OIL PRESSURE; shown on an LED bar graph display in 10 psi increments.
- * Engine TEMPERATURE; shown on an LED bar graph display in 10 degree increments.
- * BATTERY VOLTAGE; shown on an LED bar graph display in 0.5 volt increments.
- * PSI / RPM setting; shown on a dot matrix message display.
- * PSI and RPM mode LEDs.
- * THROTTLE READY LED.

A dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator.

The program shall store the accumulated operating hours for the pump and engine, previous incident hours, and current incident hours in a non-volatile memory. Stored elapsed hours shall be displayed at the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

- * Low Oil Pressure
- * High Engine Coolant Temperature
- * High Transmission Temperature
- * Low Battery Voltage (Engine Off)
- * Low Battery Voltage (Engine Running)
- * High Battery Voltage
- * High Engine RPM

The governor shall operate in two control modes; pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A control knob that uses optical technology shall adjust pressure or RPM settings. It shall be 2" in diameter with no mechanical stops, a serrated grip, and have a red idle push button in the center.

A throttle ready LED shall light when the pump engaged interlock signal is recognized. The governor shall be in pressure mode and set the engine RPM to idle. In pressure mode, the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 PSI. Other safety features shall include recognition of no water conditions with an automatic, programmed response and a push button to return the engine to idle.

The pressure governor and monitoring display shall be programmed to interface with a specific engine.

The display module shall be mounted at the pump operator`s panel.

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A heavy duty weatherproof push-button switch shall be installed at the pump operator`s panel to operate the air horns.

The switch shall be labeled "Evacuation Alert."

Location: driver side pump panel.

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E I 10 E N E E E , I ION

An additional Innovative Controls brand water tank level gauge shall be located at the officer rear to provide a high-visibility display of the water tank water level. Ten (10) high-intensity light emitting diodes (LED`s) on the display module shall have a 3 dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminate light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. Each display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an "anti-slosh" feature.

E I 10 E N E E E N

One (1) Innovative Controls brand water tank level gauge shall be located at the pump operator`s panel to provide a high-visibility display of the water tank level. Ten (10) high-intensity light emitting diodes (LEDs) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminate light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. System

calibration shall be accomplished via supplied magnet. Each display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an "anti-slosh" feature.

In addition to the pump panel mounted lights, there shall be one (1) Whelen PS Tank series LED (Light Emitting Diode) strip light installed on the rear of apparatus.

The system shall be controlled by an Innovative Control tank level driver module that is integral of the NFPA required pump panel mounted tank level light assembly.

The additional tank level system shall be interlocked through the parking brake assembly so as not to be on while the vehicle is in motion.

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The valve discharge gauges shall be 2 ½"(63mm) diameter Innovative Controls pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40F to +160F. Each gauge shall exceed ANSI B40.1 Grade A requirements with an accuracy of +/- 1.5% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

A polished chrome-plated stainless steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels. The gauges shall display a range from 0 to 400 psi with black graphics on a white background.

The master intake and master discharge gauges shall be 4"(101mm) diameter IC pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40F to +160F. Each gauge shall meet ANSI B40.1 Grade 1A requirements with an accuracy of +/- 1% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

The two master gauges shall be installed into decorative chrome-plated zinc mounting bezel that also incorporates a test port manifold and a graphic overlay that identifies the master intake and discharge gauges, the vacuum test port, and the pressure test port. The test port manifold is solid cast brass with chrome plated plugs. The master gauges shall be installed on the pump panel no more than 6 inches apart. The gauge on the left shall be the master pump intake gauge and display a range from 30" vac to 400 psi with black graphics on a white background. The gauge on the right shall be the master pump discharge gauge and display a range from 0 to 400 psi with black graphics on a white background.

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A vehicle data recorder system shall be provided to comply with the 2009 and 2016 editions of NFPA 1901. The following data shall be monitored:

- Vehicle speed MPH
- Acceleration (from speedometer) MPH/Sec.
- Deceleration (from speedometer) MPH/Sec.
- Engine speed RPM
- Engine throttle position % of full throttle
- ABS Event On/Off
- Seat occupied status Occupied Yes/No by position
- Seat belt status Buckled Yes/No by position
- Master Optical Warning Device Switch On/Off
- Time: 24 hour time
- Date: Year/Month/Day

Occupant Detection System

There shall be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement.

The audible warning shall activate when the vehicle's park brake is released, and a seat position is not in a valid state. A valid state is defined as a seat that is unoccupied, and the seat belt is unbuckled, or one that has the seat belt buckled after the seat has been occupied.

The visual warning shall consist of a graphical display that will continuously indicate the validity of each seat position.

The system shall include a display panel with LED back-lit ISO indicators for each seating position, seat sensor and safety belt latch switch for each cab seating position, audible alarm and braided wiring harness.

The display panel shall be located inboard on driver's side overhead console.

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Electrical System

The apparatus shall incorporate a Weldon V-MUX multiplex or equivalent 12 volt electrical system. The system shall have the capability of delivering multiple signals via a CAN bus. The electrical system installed by the apparatus manufacturer shall conform to current SAE standards, the latest FMVSS standards, and the requirements of the applicable NFPA 1901 standards.

The electrical system shall be pre-wired for optional computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics.

The electrical circuits shall be provided with low voltage over-current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather-resistant enclosures. The over-current protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

Any electrical junction or terminal boxes shall be weather-resistant and located away from water spray conditions.

Multiplex System

For superior system integrity, the networked multiplex system shall meet the following minimum component requirements:

- The network system must be Peer to Peer technology based on RS485 protocol. No one module shall hold the programming for other modules. One or two modules on a network referred to as Peer to Peer, while the rest of the network consists of one master and several slaves is not considered Peer to Peer for this application.
- Modules shall be IP67 rated to handle the extreme operating environment found in the fire service industry.

- All modules shall be solid state circuitry utilizing MOS-FET technology and utilize Deutsch series input/output connectors.
- Each module that controls a device shall hold its own configuration program.
- Each module should be able to function as a standalone module. No “add-on” module will be acceptable to achieve this form of operation.
- Load shedding power management (8 levels).
- Switch input capability for chassis functions.
- Responsible for lighting device activation.
- Self-contained diagnostic indicators.
- Wire harness needed to interface electrical devices with multiplex modules.
- The grounds from each device should return to main ground trunk in each sub harness by the use of ultrasonic splices.

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All harnessing, wiring and connectors shall be manufactured to the following standards/guidelines. No exceptions.

- NFPA 1901-Standard for Automotive Fire Apparatus
- SAE J1127 and J1127
- IPC/WHMA-A-620 – Requirements and Acceptance for Cable and Wire Harness Assemblies. (Class 3 – High Performance Electronic Products)

All wiring shall be copper or copper alloys of a gauge rated to carry 125% of the maximum current for which the circuit is protected. Insulated wire and cable 8 gauge and smaller shall be SXL, GXL, or TXL per SAE J1128. Conductors 6 gauge and larger shall be SXL or SGT per SAE J1127.

All wiring shall be colored coded and imprinted with the circuits function. Minimum height of imprinted characters shall not be less than .082” plus or minus .01”. The imprinted characters shall repeat at a distance not greater than 3”.

A coil of wire shall be provided behind electrical appliances to allow them to be pulled away from mounting area for inspection and service work.

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The overall covering of the conductors shall be loom or braid.

Braid style wiring covers shall be constructed using a woven PVC-coated nylon multifilament braiding yarn. The yarn shall have a diameter of no less than .04” and a tensile strength of 22 lbs. The yarn shall have a service temperature rating of -65 F to 194 F. The braid shall consist of 24 strands of yarn with 21 black and 3 yellow. The yellow shall be oriented the same and be next to each other.

Wiring loom shall be flame retardant black nylon. The loom shall have a service temperature of -40 F to 300 F and be secured to the wire bundle with adhesive-backed vinyl tape.

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All connectors shall be Deutsch series unless a different series of connector is needed to mate with a supplier’s component. The connectors and terminals shall be assembled per the connector/terminal manufacturer’s specification. Crimble/Solderless terminals shall be acceptable. Heat shrink style shall be utilized unless used within the confines of the cab.

The V-MUX multiplex electrical system shall include a text display.

The display shall have the following features:

- Rugged vacuum fluorescent technology
- Two twenty character lines
- Programmed to show door ajar status and diagnostic information

The display shall be located the center of the dash.

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The vehicle electrical system shall be made more robust by the application of a corrosion inhibiting spray coating on all exposed electrical connections on the chassis and body.

The coating shall use nanotechnology to penetrate at the molecular level into uneven surfaces to create a protective water repellant film. The coating shall protect electrical connections against the environmental conditions apparatus are commonly exposed to.

NIN I I EN

A Whelen Freedom IV Series 72” LED light bar model F4X7 with ten (10) LED modules shall be provided; two (2) front corner mounted LED modules, six (6) forward facing LED modules and two (2) side facing LED modules (with front vista windows) or two (2) rear corner LED modules (without front vista windows).

No rear facing LEDs.

The light bars shall have clear lenses.

The white LEDs (if equipped) shall be switched off in blocking right of way mode.

The light bar shall be installed centered on the front cab roof.

One (1) pair of Whelen 1.5" tall (model MKEZ7) mounts shall be provided on the front light bar.

The front light bar shall be provided with the following color LED modules: Red/White with clear lenses

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Whelen model B63 M7LED beacons shall be supplied on polished aluminum mounts. Each unit shall consist of a LED upper beacon with red dome and an M7 series Super LED with clear lens.

The lights shall be located rear upper body on aerial style brackets to meet upper Zone C requirements.

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Eight (8) Whelen M6R Super LED red light heads shall be provided.

Two(2) Whelen Model # 6RBRC ,red LED rotator light shall be provided.

The rectangular lights shall include chrome flanges where applicable. The lights shall be wired with weatherproof connectors and shall be mounted as close to the corner points of the apparatus as is practical as follows:

Two (2) Model #6RBRC facing forward.

Two (2) M6R Super LED on the front of the apparatus facing forward

Two (2) M6R Super LED on the rear of the apparatus facing rearward

Two (2) lights each side of the apparatus, one (1) each side at the forward most point (as practical), and one (1) each side at the rearward most point (as practical).

- Two (2) lights each side of the apparatus, one (1) each side of the apparatus centrally located to provide mid ship warning light.

The side facing lights shall be located at a forward most position, in the rear wheel well offset to the front.

All warning devices shall be surface mounted in compliance with NFPA standards.

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Four (4) Whelen M6v2C series Linear Super LED red light heads with red lens shall be provided. The rectangular lights shall include chrome flanges where applicable.

Location: (1) each side of cab down low just ahead of rear doors. One(1) each off set to the rear wheel well.

Two (2) Whelen M9CZ combination warning scene light,(1) each side upper zone toward the front of the body.

All warning lights final location shall be discussed at the preconstruction.

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Apparatus shall have eight (8) Whelen M2 series amber lights model M2A installed individually across the back of the truck. All M2A lights will be wired with builder supplied nine(9) conductor harness to a Whelen TACTL5 traffic advisor control head to control the M2A lights Pin312 white wire/blue trace must be wired to the master switch activating all the warning lights which allow the M2A series lights to function as warning lights when the TACTL5 isn't activated. When TACTL5 is activated, it will take priority and provide advisor function.

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Whelen hand-held spot light Model # p46HHS shall be provided.

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A chrome plated flush mounted Federal Q2B coaster siren shall be installed in the front bumper. An electric siren brake switch shall be located in the cab accessible to the driver.

The siren shall be located center front bumper.

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LED clearance/marker lights shall be installed as specified.

Upper Cab:

- Five (5) amber LED clearance lights on the cab roof.

Lower Cab:

- One (1) amber LED side turn/marker each side of cab ahead of the front door hinge.

Upper Body:

- One (1) red Trucklite LED clearance light each side, rear of the body to the side.

Lower Body:

- Three (3) red Trucklite LED clearance lights centered at the rear, recessed in the rub rail.
- One (1) red Trucklite LED clearance light each side at the trailing edge of the apparatus body, recessed in the rub rail.
- One (1) amber Trucklite LED clearance/auxiliary turn light each side front of body/module, recessed in the rub rail.

Three (3) Whelen model M6 series LED (Light Emitting Diode) lights shall be installed in a four (4) light vertical housing each side at the rear and wired with weatherproof connectors.

Light functions shall be as follows:

- LED red running light with a red brake light in upper position.
- LED amber populated arrow pattern turn signal in middle position.
- LED clear back-up light in lower position.

A one-piece chrome plastic housing shall be mounted around the three (3) individual lights in a vertical position. The lower space will be used by the M6 or equivalent lower NFPA warning light.

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One (1) Truck-Lite model 15905 white LED license plate light mounted in a Truck-Lite model 15732 chrome plated plastic license plate housing shall be mounted at the rear of the body.

There shall be bracket fabricated from aluminum diamond plate, secured to the rear of the body to accommodate a license plate.

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The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the ground areas around the apparatus in accordance with current NFPA requirements. The lights shall be TecNiq model T440 4" circular LED (Light Emitting Diode) with clear lenses mounted in a resilient shock absorbent mount for improved bulb life. The wiring connections shall be made with a weather resistant plug in style connector.

Ground area lights shall be switched from the cab dash with the work light switch.

One (1) ground light shall be supplied to each side of the front bumper extension if equipped.

Lights in areas under the driver and crew area exits shall be activated automatically when the exit doors are opened.

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Two (2) Hansen compartment light strips shall be mounted in each body compartment greater than 4 cu. ft. Transverse compartments shall have four (4) lights, located two (2) each side.

Each light bar shall include white LEDs mounted with a tough polycarbonate tube enclosure to protect the LED circuit board. The lights shall produce 120 lumens per foot and be waterproof up to the IP66 rating.

Compartment lights shall be wired to a master on/off rocker switch on the cab switch panel.

The wiring connection for the compartment lights shall be made with a weather-resistant plug in style connector. A single water- and corrosion-resistant switch with a polycarbonate actuator and sealed contacts shall control each compartment light. The switch shall allow the light to illuminate if the compartment door is open.

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The cab shall be equipped with a sufficient quantity of lights to properly illuminate the auxiliary steps and the ground areas below them in accordance with current NFPA requirements. The lights shall be EON LED (Light Emitting Diode) with clear lenses. The wiring connections shall be made with a weather resistant plug in style connector.

The lights shall be switched from the cab dash with the work light switch. The lights shall also be activated automatically when the exit doors are opened.

I - E N ENE

An Optronics round LED light model TLL44 shall be installed at the front area of the hose bed to provide hose bed lighting per current NFPA 1901. The light shall provide 720 lm effective output. The light shall have a powder coated, die cast aluminum housing and stainless steel hardware with a weatherproof rating of IP69K.

The hose bed light shall be switched with the work light switch in the cab.

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Fire Research model SPA900-Q70 surface mount lights shall be installed. The lights shall be mounted with four (4) screws to a flat surface. It shall be 6-3/4" high by 9" wide and have a profile of less than 1-3/4" beyond the mounting surface. Wiring shall extend from a weatherproof strain relief at the rear of the light.

Each light shall have twenty-four (24) white LEDs that generate a rated 7000 lumens at 12 or 24 volts DC. The lens shall redirect the light along the vehicle and out onto the working area. The light housing shall be aluminum with chrome colored bezel.

Lights shall be located (1) each side rear compartment faces up high. (1) Each driver's side rear, up high

c n c n

The cab scene lights shall be wired to activate through the appropriate side cab door ajar switch. This application allows the cab scene lights to be used for additional illumination of the ground area for personnel entering or exiting the vehicle. The switching for this application is in addition to the standard cab scene light switching.

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The rear deck or scene lights shall be activated when the chassis is placed in reverse to provide additional lighting, in addition to the back-up lights, when backing the vehicle.

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Two (2) firetech round 12 volts LED floodlights shall be installed at the rear of the apparatus. Each light shall provide 720 lm effective output. Each light shall have a powder coated, die cast aluminum housing and stainless steel hardware with a weatherproof rating of IP69K.

The rear deck lights shall be switched with the work light switch in the cab.

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A 12 volt switch shall be provided.

The switch shall be located driver rear of the body for rear work lights.

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A LED light shall be provided in the pump compartment area for NFPA compliance. The light shall be wired to operate with the work light switch in the cab.

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Three (3) Weldon model 2631-0000-30 LED lights shall be mounted under a light shield directly above each side pump panel. The work light switch in the cab shall activate the lights when the parking brake is set.

En n n

There shall be lighting provided to illuminate the engine compartment area in compliance with NFPA 1901. The light shall be an Optronics ILL22 Series LED that has a polycarbonate lens, sealed / waterproof housing, and integral switch. The light wiring circuit shall activate when the cab is tilted, and master power is switched on.

I - OO

One (1) FireTech 12V LED model FT-B-72-ML-W 72" white housing brow light with integral marker lights shall be provided. The light shall be installed on the front cab brow in place of the standard DOT marker lights. the light shall feature 54 LEDs` producing 19,665 usable lumens and five (5) DOT approved marker lights. The 285W 12V light shall draw 23.75 amps.

Two (2) Firetech Minibrow single stack trunnion mount, part# FT_MB_TR-FT-B 25 inch.

(1) Each side cab roof, light housing, and mounting bracket shall be painted job color.

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A Federal Signal Back-Up Camera system model CAMSET70-NTSC-4 shall be provided. The system shall include a color camera with audio model CAMCCD-REARNTSC and a color monitor model CAMLCD-70. The monitor shall be installed in the front area of the cab visible at night and also in bright sunlight to the driver. The camera shall be mounted up high at the rear of the vehicle to provide a wide angle rear view. The system shall include a cable with metallic waterproof threaded o-ring seal connectors to ensure the positive connection between video cable and camera to prevent unplugging due to vibration resulting in video loss to the vehicle operator.

The back-up camera monitor shall be located on the center dash offset driver.

A diamond plate protective shield shall be provided for the top and sides of a camera. The shield shall be designed not to impede in the operational envelope of the camera.

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Guardian back up system by BackSafe Systems shall be installed.

The system shall be equipped with the handset, driver cab unit, and event recording; this shall be installed, per manufacturer's instructions. Information on product can be obtained at BackSafeSystems.com

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An electronic back-up alarm shall be supplied. The 97 dB alarm shall be wired into the chassis back-up lights to signal when the vehicle is in reverse gear.

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There shall be a 12 place 12 volt DC power distribution module installed as specified.

The module will have six (6) circuits wired directly to the battery and have six (6) circuits wired through the master battery switch with 12 positions for grounds. Connection to the power module circuit will be through a .250 female spade connector. Each buss will be protected with a 50 amp circuit breaker for overload protection. The module will accept ATC blade type fuses or 22X series circuit breakers.

The module shall be located behind officer's seat.

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A 20 amp, 110 volt 3-prong straight blade NEMA 5-20 duplex household receptacle with stainless steel cover plate shall be installed in a non-weather exposed area as specified by the department. The receptacle shall be wired to the inlet receptacle where it will have overcurrent protection from an external source. The location shall be discussed at the pre-construction.

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The apparatus cab shall be painted Sikkens FLNA3047 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The aluminum cab exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces. Cab doors and any hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on the cab, door jambs and door edges.

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall 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 shall be applied to guarantee excellent gloss hold-out, chip resistance, and a uniform base color.
- Sikkens High Solid LVBT650 (Basecoat) - a lead-free, chromate-free high solid acrylic urethane basecoat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clearcoat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Any location where aluminum is penetrated after painting, for the purpose of mounting steps, handrails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall 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, handrails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20-degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

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The apparatus body shall be painted Sikkens FLNA3047 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon

demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The aluminum body exterior shall 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 shall be painted separately to assure proper paint coverage on the body, door jambs and door edges.

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall 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 shall 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 shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Any location where aluminum is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall 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 shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

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Undercoating shall consist of a heavy coating of CRC SP400 soft seal film sprayed on the undercarriage of the entire vehicle to repel water and road elements.

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The interior of the cab shall be painted Zolatone gray #20-64. Prior to painting, all exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

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Scotchlite letters up to 6" tall shall be applied.

The exact size, color, and location of the letters shall be as specified by the customer.

c c 7

Scotchlite letters up to 12" tall shall be applied.

The exact size, color, and location of the letters shall be as specified by the customer.

n 7

Sign Gold letters up to 6" tall shall be applied.

The exact size and location of the letters shall be as specified by the customer.

n

Sign Gold letters up to 12" tall shall be applied.

The exact size, color, and location of the letters shall be as specified by the customer.

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Existing letters shall be shaded and/or outlined as specified by the customer to provide a contrast.

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A single straight Scotchlite stripe, up to 6 inches in width shall be installed on the cab and body.

The stripe shall be NFPA compliant, and the size, color, and location shall be as specified by the customer.

n 2

An additional Scotchlite stripe, up to 3 inches in width shall be installed on the cab and body.

The stripe shall be NFPA compliant, and the design, size, color, and location shall be as specified by the customer.

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Chevron style 3M Diamond Grade striping shall be provided on the front bumper of the apparatus. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern.

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Chevron style 3M Diamond Grade striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern. The striping shall be located on the rear facing extrusions, panels and doors inboard and outboard of the beavertails if applicable.

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A 1" wide yellow line shall be applied to indicate the outside perimeter of designated standing and walking areas above 48" from the ground in compliance with 2016 NFPA 1901. Steps, ladders, and areas with a railing or structure at least 12" high are excluded from requiring the line.

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A logo shall be supplied by the customer and installed as specified.

Location: reference graphics layout drawing.

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The apparatus manufacturer shall provide a full lifetime frame warranty. This warranty shall cover all apparatus manufacturer designed frame, frame members, and cross-members against defects in materials or workmanship for the lifetime of the covered apparatus. A copy of the warranty document shall be provided with the proposal. Frame warranties that do not cover cross-members for the life of the vehicle shall not be acceptable.

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The apparatus manufacturer shall provide a comprehensive 10 year/100,000 mile structural warranty. This warranty shall cover all structural components of the cab and/or body manufactured by the apparatus manufacturer against defects in materials or workmanship for 10 years or 100,000 miles, whichever occurs first. Excluded from this warranty are all

hardware, mechanical items, electrical items, or paint finishes. A copy of the warranty document shall be provided with the proposal.

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The apparatus manufacturer shall provide a full 10-year stainless steel plumbing components warranty. This warranty shall cover defects in materials or workmanship of apparatus manufacturer designed foam/water plumbing system stainless steel components for 10 years. A copy of the warranty document shall be provided with the proposal.

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The apparatus manufacturer shall provide a 10-year limited paint and corrosion perforation warranty. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in a normal and reasonable manner.

The paint shall be prorated for 10 years as follows:

| | | | |
|----------------------------------|------|--|------|
| Topcoat & Appearance: | | Coating System, Adhesion & Corrosion: | |
| Gloss, Color Retention, Cracking | | Includes Dissimilar metal corrosion, Flaking, Blistering, Bubbling | |
| 0 to 72 months | 100% | 0 to 36 months | 100% |
| 73 to 120 months | 50% | 37 to 84 months | 50% |
| | | 85 to 120 months | 25% |

Corrosion perforation shall be covered 100% for 10 years. Corrosion perforation is defined as complete penetration through the exterior metal of the apparatus.

The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. A copy of the warranty document shall be provided with the proposal.

UV paint fade shall be covered by a separate warranty supplied by Akzo Nobel (Sikkens) and shall be for a minimum of 10 years.

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The apparatus manufacturer shall provide a full 1-year standard warranty. All components manufactured by the apparatus manufacturer shall be covered against defects in materials or workmanship for a 1 year period. All components covered by separate suppliers such as engines, transmissions, tires, and batteries shall maintain the warranty as provided by the component supplier. A copy of the warranty document shall be provided with the proposal.

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The CD-ROM shall incorporate a navigation page with electronic links to the operator`s manual, service manual, parts manual, and warranty information, as well as instructions on how to use the manual. Each copy shall include a table of contents with links to the specified documents or illustrations.

The CD must be formatted in such a manner as to allow not only the printing of the entire manual, but to also the cutting, pasting, or copying of individual documents to other electronic media, such as electronic mail, memos, and the like.

A find feature shall be included to allow for searches by text or by part number.

These electronic manuals shall be accessible from any computer operating system capable of supporting portable document format (PDF). Permanent copies of all pertinent data shall be kept on file at both the local dealership and at the manufacturer`s location.

NOTE: Engine overhaul, engine parts, transmission overhaul, and transmission parts manuals are not included.

Fire Apparatus Safety Guide published by FAMA, latest edition. This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of a fire apparatus and to suggest possible ways of dealing with these situations. This manual is NOT a substitute for the manufacturer`s fire apparatus operator and maintenance manuals or commercial chassis manufacturer`s operator and maintenance manuals.

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After transportation from the factory and immediately prior to delivery to the fire department, the local dealer shall provide the following service: complete inspection and operational check including chassis, cab, body, pump and aerial (as applicable), and all electrical and mechanical devices; correction of any issues and leaks; fluid level checks and top off; and complete cleaning and detailing of the apparatus.

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Tanker Pumper per specifications \$ 561,330.00

IN E NI I ION N O E O I ION

- (1) It is understood and agreed by the parties that Vendor hereby assumes the entire responsibility and liability for any and all damages to persons or property caused by or resulting from or arising out of any act or omission on the part of Vendor or its employees, agents, servants, owners, principals, licensees, assigns or subcontractors of any tier (hereinafter "Vendor") under or in connection with this agreement and/or the provision of goods or services and the performance or failure to perform any work required thereby.
- (2) Vendor shall indemnify, save, hold harmless and defend the Lexington-Fayette Urban County Government and its elected and appointed officials, employees, agents, volunteers, and successors in interest (hereinafter "LFUCG") from and against all liability, damages, and losses, including but not limited to, demands, claims, obligations, causes of action, judgments, penalties, fines, liens, costs, expenses, interest, defense costs and reasonable attorney's fees that are in any way incidental to or connected with, or that arise or are alleged to have arisen, directly or indirectly, from or by Vendor's performance or breach of the agreement and/or the provision of goods or services provided that: (a) it is attributable to personal injury, bodily injury, sickness, or death, or to injury to or destruction of property (including the loss of use resulting therefrom), or to or from the negligent acts, errors or omissions or willful misconduct of the Vendor; and (b) not caused solely by the active negligence or willful misconduct of LFUCG.
- (3) In the event LFUCG is alleged to be liable based upon the above, Vendor shall defend such allegations and shall bear all costs, fees and expenses of such defense, including but not limited to, all reasonable attorneys' fees and expenses, court costs, and expert witness fees and expenses, using attorneys approved in writing by LFUCG, which approval shall not be unreasonably withheld.
- (4) These provisions shall in no way be limited by any financial responsibility or insurance requirements, and shall survive the termination of this agreement.
- (5) LFUCG is a political subdivision of the Commonwealth of Kentucky. Vendor acknowledges and agrees that LFUCG is unable to provide indemnity or otherwise save, hold harmless, or defend the Vendor in any manner.

IN N I E ON I I I

Vendor understands and agrees that it shall demonstrate the ability to assure compliance with these provisions prior to final acceptance of its bid and the commencement of any work or the provision of any goods.

IN N E E I E EN

YOUR ATTENTION IS DIRECTED TO THE INSURANCE REQUIREMENTS BELOW. YOU MAY NEED TO CONFER WITH YOUR INSURANCE AGENTS, BROKERS, OR CARRIERS TO DETERMINE IN ADVANCE OF SUBMISSION OF A RESPONSE THE AVAILABILITY OF THE INSURANCE COVERAGES AND ENDORSEMENTS REQUIRED HEREIN. IF YOU FAIL TO COMPLY WITH THE INSURANCE REQUIREMENTS BELOW OR THE INDEMNITY REQUIREMENTS, YOU MAY BE DISQUALIFIED FROM AWARD OF THE CONTRACT.

Required Insurance Coverage

Vendor shall procure and maintain for the duration of this contract the following or equivalent insurance policies at no less than the limits shown below and cause its subcontractors to maintain similar insurance with limits acceptable to LFUCG in order to protect LFUCG against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work or provision of goods hereunder by Vendor. The cost of such insurance shall be included in any bid:

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|--|---|
| General Liability (Insurance Services Office Form CG 00 01) | \$1 million per occurrence, \$2 million aggregate or \$2 million combined single limit |
| Products/Completed Operations | \$2 million aggregate |
| Personal and Advertising Injury | \$1 million |
| Worker's Compensation | Statutory |
| Employer's Liability | \$1,000,000 |
| Umbrella/Excess Liability | \$25,000,000 |

The policies above shall contain the following conditions:

- a. All Certificates of Insurance forms used by the insurance carrier shall be properly filed and approved by the Department of Insurance for the Commonwealth of Kentucky. LFUCG shall be named as an additional insured in the General Liability Policy and any required Commercial Automobile Liability Policy using the Kentucky DOI approved forms.
- b. The General Liability Policy shall be primary to any insurance or self-insurance retained by LFUCG.
- c. The General Liability Policy shall include Products Liability coverage.
- d. LFUCG shall be provided at least 30 days advance written notice via certified mail, return receipt requested, in the event any of the required policies are canceled or non-renewed.
- e. Said coverage shall be written by insurers acceptable to LFUCG and shall be in a form acceptable to LFUCG. Insurance placed with insurers with a rating classification of no less than Excellent (A or A-) and a financial size category of no less than VIII, as defined by the most current Best's Key Rating Guide shall be deemed automatically acceptable.

Renewals

After insurance has been approved by LFUCG, evidence of renewal of an expiring policy must be submitted to LFUCG, and may be submitted on a manually signed renewal endorsement form. If the policy or carrier has changed, however, new evidence of coverage must be submitted in accordance with these Insurance Requirements.

Deductibles and Self-Insured Programs

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Self-insurance programs, deductibles, and self-insured retentions in insurance policies are subject to separate approval by Lexington-Fayette Urban County Government's Division of Risk Management, upon review of evidence of Vendor's financial capacity to respond to claims. Any such programs or retentions must provide LFUCG with at least the same protection from liability and defense of suits as would be afforded by first-dollar insurance coverage.

Safety and Loss Control

Vendor shall comply with all applicable federal, state, and local safety standards related to the performance of its works or services under this Agreement and take necessary action to protect the life, health and safety and property of all of its personnel on the job site, the public, and LFUCG.

Verification of Coverage

Vendor agrees to furnish LFUCG with all applicable Certificates of Insurance signed by a person authorized by the insurer to bind coverage on its behalf prior to final award, and if requested, shall provide LFUCG copies of all insurance policies, including all endorsements.

Right to Review, Audit and Inspect

Vendor understands and agrees that LFUCG may review, audit and inspect any and all of its records and operations to insure compliance with these Insurance Requirements.

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Vendor understands and agrees that the failure to comply with any of these risk management provisions shall constitute a default and that LFUCG may elect at its option any single remedy or penalty or any combination of remedies and penalties, as available, including but not limited to purchasing insurance and charging Vendor for any such insurance premiums purchased, or suspending or terminating the contract or work.

00537945



LEXINGTON

Lexington-Fayette Urban County Government

Lexington, Kentucky
Horse Capital of the World

Division of Central Purchasing

Date of Issue: October 9, 2017

INVITATION TO BID #139-2017 Tanker Pumper for the Division of Fire & Emergency Services

Bid Opening Date: October 30, 2017

Bid Opening Time: 2:00 PM

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

Type of Bid: Firm Bid

Pre Bid Meeting: Month XX, 2017

Pre Bid Time: X:XX xm

Address: XXXXXXXXXXXX Street

Sealed bids will be received in the office of the Division of Central Purchasing, 200 East Main Street, Lexington, Kentucky, until **2:00 PM**, prevailing local time on **10/30/2017**. Bids must be received by the above-mentioned date and time. Mailed bids should be sent to:

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

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

Bids are to include all shipping costs to the point of delivery located at: 219 E. Third Street, Lexington, KY 405XX

Bid Security and Performance Bond Required for all bids over \$50,000.

| | |
|--|--|
| <input type="checkbox"/> Bid Specifications Met <input checked="" type="checkbox"/> Check One: <input type="checkbox"/> Exceptions to Bid Specifications. <i>Exceptions shall be itemized and attached to bid proposal submitted.</i> | Proposed Delivery: 360-390 days after acceptance of bid. |
| Procurement Card Usage —The Lexington-Fayette Urban County Government may be using Procurement Cards to purchase goods and services and also to make payments. Will you accept Procurement Cards? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |

Submitted by: Vogelpohl Fire Equipment
Firm Name

2770 Circleport Dr.

Address

Erlanger KY 41018

City, State & Zip

Bid must be signed:
(original signature)

[Signature] Vice President

Signature of Authorized Company Representative – Title

Kevin Kleman

Representative's Name (Typed or printed)

859-282-1000 859-282-1550

Area Code - Phone - Extension *Fax #*

Kevin.k@vogelpohlfire.com

E-Mail Address

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

AFFIDAVIT

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

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

Further, Affiant sayeth naught. [Signature]

STATE OF KENTUCKY

COUNTY OF BOONE

The foregoing instrument was subscribed, sworn to and acknowledged before me by Kevin Kleman on this the 27 day of October, 2017.

My Commission expires: 1/24/19

DAVID MCCLANAHAN
NOTARY PUBLIC
ID # 526549
Commonwealth of Kentucky
My Commission Expires January 24, 2019

[Signature]
NOTARY PUBLIC, STATE AT LARGE

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

I. GREEN PROCUREMENT

A. ENERGY

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

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

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

Key Benefits

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

B. GREEN SEAL CERTIFIED PRODUCTS

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

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

C. GREEN COMMUNITY

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

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

Yes No

II. Bid Conditions

- A. No bid may be withdrawn for a period of sixty (60) days after the date and time set for opening.
- B. No bid may be altered after the date and time set for opening. In the case of obvious errors, the Division of Central Purchasing may permit the withdrawal of a bid. The decision as to whether a bid may be withdrawn shall be that of the Division of Central Purchasing.
- C. Acceptance of this proposal shall be enactment of an Ordinance by the Urban County Council.
- D. The bidder agrees that the Urban County Government reserves the right to reject any and all bids for either fiscal or technical reasons, and to award each part of the bid separately or all parts to one vendor.

- E. Minor exceptions may not eliminate the bidder. The decision as to whether any exception is minor shall be entirely that of the head of the requisitioning Department or Division and the Director of the Division of Central Purchasing. The Urban County Government may waive technicalities and informalities where such waiver would best serve the interests of the Urban County Government.
- F. Manufacturer's catalogue numbers, trade names, etc., where shown herein are for descriptive purposes and are to guide the bidder in interpreting the standard of quality, design, and performance desired, and shall not be construed to exclude proposals based on furnishing other types of materials and/or services. However, any substitution or departure proposed by the bidder must be clearly noted and described; otherwise, it will be assumed that the bidder intends to supply items specifically mentioned in this Invitation for Bids.
- G. The Urban County Government may require demonstrations of the materials proposed herein prior to acceptance of this proposal.
- H. Bids must be submitted on this form and must be signed by the bidder or his authorized representative. Unsigned bids will not be considered.
- I. Bids must be submitted prior to the date and time indicated for opening. Bids submitted after this time will not be considered.
- J. All bids mailed must be marked on the face of the envelope:

"Bid on #139-2017 Tanker Pumper for the Division of Fire & Emergency Services"

and addressed to: Division of Central Purchasing
 200 East Main Street, Room 338
 Lexington, Kentucky 40507

The Lexington-Fayette Urban County Government assumes no responsibility for bids that are not addressed and delivered as indicated above. Bids that are not delivered to the Division of Central Purchasing by the stated time and date will be rejected.

- K. Bidder is requested to show both unit prices and lot prices. In the event of error, the unit price shall prevail.
- L. A certified check or Bid Bond in the amount of 5 percent of the bid price must be attached hereto for bids greater than \$50,000. This check must be made payable to the Lexington-Fayette Urban County Government, and will be returned when the material and/or services specified herein have been delivered in accordance with specifications. In the event of failure to perform within the time period set forth in this bid, it is agreed the certified check may be cashed and the funds retained by the Lexington-Fayette Urban County Government as liquidated damages. Checks of unsuccessful bidders will be returned when the bid has been awarded.
- M. The delivery dates specified by bidder may be a factor in the determination of the successful bidder.
- N. Tabulations of bids received may be mailed to bidders. Bidders requesting tabulations must enclose a stamped, self-addressed envelope with the bid.
- O. The Lexington-Fayette Urban County Government is exempt from Kentucky Sales Tax and Federal Excise Tax on materials purchased from this bid invitation. Materials purchased by the bidder for construction projects are not tax exempt and are the sole responsibility of the bidder.
- P. All material furnished hereunder must be in full compliance with OSHA regulations.
- Q. If more than one bid is offered by one party, or by any person or persons representing a party, all such bids shall be rejected.
- R. Signature on the face of this bid by the Bidder or his authorized representative shall be construed as acceptance of and compliance with all terms and conditions contained herein.
- S. The Entity (regardless of whether construction contractor, non-construction contractor or supplier) agrees to provide equal opportunity in employment for all qualified persons, to prohibit discrimination in employment because of race, color, creed, national origin, sex or age, and to promote equal employment through a positive, continuing program from itself and each of its sub-contracting agents. This program of equal employment opportunity shall apply to every aspect of its employment policies and practices.

- T. The Kentucky Equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) requires that any county, city, town, school district, water district, hospital district, or other political subdivision of the state shall include in directly or indirectly publicly funded contracts for supplies, materials, services, or equipment hereinafter entered into the following provisions:

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

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

The Act further provides:

KRS 45.610. Hiring minorities - Information required

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

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

- (1) *If any contractor is found by the department to have engaged in an unlawful practice under this chapter during the course of performing under a contract or subcontract covered under KRS 45.560 to 45.640, the department shall so certify to the contracting agency and such certification shall be binding upon the contracting agency unless it is reversed in the course of judicial review.*
- (2) *If the contractor is found to have committed an unlawful practice under KRS 45.560 to 45.640, the contracting agency may cancel or terminate the contract, conditioned upon a program for future compliance approved by the contracting agency and the department. The contracting agency may declare such a contractor ineligible to bid on further contracts with that agency until such time as the contractor complies in full with the requirements of KRS 45.560 to 45.640.*
- (3) *The equal employment provisions of KRS 45.560 to 45.640 may be met in part by a contractor by subcontracting to a minority contractor or subcontractor. For the provisions of KRS 45.560 to 45.640, a minority contractor or subcontractor shall mean a business that is owned and controlled by one or more persons disadvantaged by racial or ethnic circumstances.*

KRS 45.630 Termination of existing employee not required, when

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

KRS 45.640 Minimum skills

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

It is recommended that all of the provisions above quoted to be included as special conditions in each

contract. In the case of a contract exceeding \$250,000, the contractor is required to furnish evidence that his work-force in Kentucky is representative of the available work-force in the area from which he draws employees, or to supply an Affirmative Action plan which will achieve such representation during the life of the contract.

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

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

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

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

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

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

Notice of appeal of a bid recommendation must be filed within 3 business days of the bid recommendation by (1) sending a written notice, including sufficient documentation to support appeal, to the Director, Division of Central Purchasing or (2) submitting a written request for a meeting with the Director of Central Purchasing to explain his appeal. After reviewing the documentation and/or hearing the vendor and consulting with the Commissioner of Finance and the Chief Administrative Officer, the Director of Central Purchasing shall in writing, affirm or withdraw the recommendation.

LFUCG Non-Appropriation Clause

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

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

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

SPECIAL INSTRUCTIONS TO THE BIDDER

(DO NOT SUBMIT PERFORMANCE SECURITY WITH BID)

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

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

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

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

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

EQUAL OPPORTUNITY AGREEMENT

Standard Title VI Assurance

The Lexington Fayette-Urban County Government, (hereinafter referred to as the "Recipient") hereby agrees that as a condition to receiving any Federal financial assistance from the U.S. Department of Transportation, it will comply with Title VI of the Civil Rights Act of 1964, 78Stat.252, 42 U.S.C. 2000d-4 (hereinafter referred to as the "Act"), and all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, (49 CFR, Part 21) Nondiscrimination in Federally Assisted Program of the Department of Transportation – Effectuation of Title VI of the Civil Rights Act of 1964 (hereinafter referred to as the "Regulations") and other pertinent directives, no person in the United States shall, on the grounds of race, color, national origin, sex, age (over 40), religion, sexual orientation, gender identity, veteran status, or disability be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Recipient receives Federal financial assistance from the U.S. Department of Transportation, including the Federal Highway Administration, and hereby gives assurance that will promptly take any necessary measures to effectuate this agreement. This assurance is required by subsection 21.7(a) (1) of the Regulations.

The Law

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

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

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


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

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

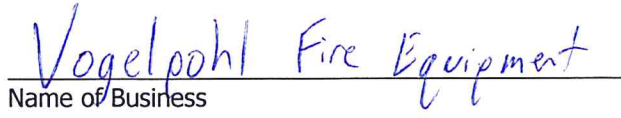
Please sign this statement in the appropriate space acknowledging that you have read and understand the provisions contained herein. Return this document as part of your application packet.

Bidders

I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, veteran status, disability and age.



Signature



Name of Business

GENERAL PROVISIONS OF BID CONTRACT

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

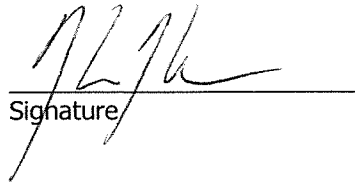
1. Bidder shall comply with all Federal, State & Local regulations concerning this type of service or good. All applicable state laws, ordinances and resolutions (including but not limited to Section 2-33 (Discrimination due to sexual orientation or gender identity) and Chapter 13 (Licenses and Regulations) of the Lexington-Fayette Urban County Government Code of Ordinances, and Resolution No. 484-17 (Minority, Women, and Veteran-Owned Businesses)) and the regulations of all authorities having jurisdiction over the project shall apply to the contract, and shall be deemed to be incorporated herein by reference.
2. Failure to submit ALL forms and information required by LFUCG may be grounds for disqualification.
3. Addenda: All addenda and IonWave Q&A, if any, must be considered by the bidder in making its response, and such addenda shall be made a part of the requirements of the bid contract. Before submitting a bid response, it is incumbent upon bidder to be informed as to whether any addenda have been issued, and the failure of the bidder to cover any such addenda may result in disqualification of that response.
4. Bid Reservations: LFUCG reserves the right to reject any or all bid responses, to award in whole or part, and to waive minor immaterial defects in proposals. LFUCG may consider any alternative proposal that meets its basic needs.
5. Liability: LFUCG is not responsible for any cost incurred by bidder in the preparation of its response.
6. Changes/Alterations: Bidder may change or withdraw a proposal at any time prior to the opening; however, no oral modifications will be allowed. Only letters, or other formal written requests for modifications or corrections of a previously submitted proposal which is addressed in the same manner as the bid response, and received by LFUCG prior to the scheduled closing time for receipt of bids, will be accepted. The bid response when opened, will then be corrected in accordance with such written request(s), provided that the written request is contained in a sealed envelope which is plainly marked "modifications of bid response".
7. Clarification of Submittal: LFUCG reserves the right to obtain clarification of any point in a bid or to obtain additional information from any bidder.
8. Bribery Clause: By his/her signature on its response, bidder certifies that no employee of his/hers, any affiliate or subcontractor, has bribed or attempted to bribe an officer or employee of the LFUCG.
9. Additional Information: While not necessary, the bidder may include any product brochures, software documentation, sample reports, or other documentation that may assist LFUCG in better understanding and

evaluating the bid response. Additional documentation shall not serve as a substitute for other documentation which is required by the LFUCG to be submitted with the bid response.

10. **Ambiguity, Conflict or other Errors:** If a bidder discovers any ambiguity, conflict, discrepancy, omission or other error in the bid request of LFUCG, it shall immediately notify LFUCG of such error in writing and request modification or clarification of the document if allowable by the LFUCG.
11. **Agreement to Bid Terms:** In submitting its bid response, the bidder agrees that it has carefully examined the specifications and all provisions relating to LFUCG's bid request, including but not limited to the bid contract. By submission of its bid response, bidder states that it understands the meaning, intent and requirements of LFUCG's bid request and agrees to the same. The successful bidder shall warrant that it is familiar with and understands all provisions herein and shall warrant that it can comply with them. No additional compensation to bidder shall be authorized for services, expenses, or goods reasonably covered under these provisions that the bidder omits from its bid response.
12. **Cancellation:** LFUCG may unilaterally terminate the bid contract with the selected bidder(s) at any time, with or without cause, by providing at least thirty (30) days advance written notice unless a different advance written notice period is negotiated prior to contract approval. Payment for services or goods received prior to termination shall be made by the LFUCG provided these goods or services were provided in a manner acceptable to the LFUCG. Payment for those goods and services shall not be unreasonably withheld.
13. **Assignment of Contract:** The selected bidder(s) shall not assign or subcontract any portion of the bid contract with LFUCG without the express written consent of LFUCG. Any purported assignment or subcontract in violation hereof shall be void. It is expressly acknowledged that LFUCG shall never be required or obligated to consent to any request for assignment or subcontract; and further that such refusal to consent can be for any or no reason, fully within the sole discretion of LFUCG.
14. **No Waiver:** No failure or delay by LFUCG in exercising any right, remedy, power or privilege hereunder, nor any single or partial exercise thereof, nor the exercise of any other right, remedy, power or privilege shall operate as a waiver hereof or thereof. No failure or delay by LFUCG in exercising any right, remedy, power or privilege under or in respect of this bid proposal or bid contract shall affect the rights, remedies, powers or privileges of LFUCG hereunder or shall operate as a waiver thereof.
15. **Authority to do Business:** Each bidder must be authorized to do business under the laws of the Commonwealth of Kentucky and must be in good standing and have full legal capacity to provide the goods or services specified in the bid proposal. Each bidder must have all necessary right and lawful authority to submit the bid response and enter into the bid contract for the full term hereof including any necessary corporate or other action authorizing the bidder to submit the bid response and enter into this bid contract. If requested, the bidder will provide LFUCG with a copy of a corporate resolution authorizing this action and/or a letter from an attorney confirming that the proposer is authorized to do business in the Commonwealth of Kentucky. All bid responses must be signed by a duly authorized officer, agent or employee of the bidder.
16. **Governing Law:** This bid request and bid contract shall be governed by and construed in accordance with the laws of the Commonwealth of Kentucky. In the event of any proceedings regarding this matter, the bidder agrees that the venue shall be the Fayette County Circuit Court or the U.S. District Court for the Eastern District of Kentucky, Lexington Division and that the bidder expressly consents to personal jurisdiction and venue in such Court for the limited and sole purpose of proceedings relating to these matters or any rights or obligations arising thereunder.
17. **Ability to Meet Obligations:** Bidder affirmatively states that there are no actions, suits or proceedings of any kind pending against bidder or, to the knowledge of the bidder, threatened against the bidder before or by any court, governmental body or agency or other tribunal or authority which would, if adversely determined, have a materially adverse effect on the authority or ability of bidder to perform its obligations under this bid response or bid contract, or which question the legality, validity or enforceability hereof or thereof.
18. **Price Discrepancy:** In case of price discrepancy, unit bid price written in words will prevail followed by unit price written in numbers then total amount bid per line item.
19. Bidder understands and agrees that its employees, agents, or subcontractors are not employees of LFUCG for any

purpose whatsoever. Bidder is an independent contractor at all times related to the bid response or bid contract.

20. If any term or provision of this bid contract shall be found to be illegal or unenforceable, the remainder of the contract shall remain in full force and such term or provision shall be deemed stricken.


Signature

10-27-17
Date

WORKFORCE ANALYSIS FORM

Name of Organization: Vogelpohl Fire Equipment

| Categories | Total | White (Not Hispanic or Latino) | | Hispanic or Latino | | Black or African-American (Not Hispanic or Latino) | | Native Hawaiian and Other Pacific Islander (Not Hispanic) | | Asian (Not Hispanic or Latino) | | American Indian or Alaskan Native (not Hispanic or Latino) | | Two or more races (Not Hispanic or Latino) | | Total | |
|---------------------|-----------|-----------------------------------|---|--------------------|---|---|---|--|---|-----------------------------------|---|---|---|---|---|-------|---|
| | | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F |
| Administrators | 4 | 2 | 2 | | | | | | | | | | | | | | |
| Professionals | 7 | 7 | | | | | | | | | | | | | | | |
| Superintendents | | | | | | | | | | | | | | | | | |
| Supervisors | | | | | | | | | | | | | | | | | |
| Foremen | | | | | | | | | | | | | | | | | |
| Technicians | 4 | 4 | | | | | | | | | | | | | | | |
| Protective Service | | | | | | | | | | | | | | | | | |
| Para-Professionals | | | | | | | | | | | | | | | | | |
| Office/Clerical | 2 | 2 | | | | | | | | | | | | | | | |
| Skilled Craft | | | | | | | | | | | | | | | | | |
| Service/Maintenance | 1 | 1 | | | | | | | | | | | | | | | |
| Total: | 18 | | | | | | | | | | | | | | | | |

Prepared by: Kevin Klemen - Vice President
 (Name and Title)

Date: 10 / 20 / 17
 Revised 2015-Dec-15

**DIRECTOR, DIVISION OF CENTRAL PURCHASING
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 EAST MAIN STREET
LEXINGTON, KENTUCKY 40507**

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE
EQUAL EMPLOYMENT OPPORTUNITIES AND DBE CONTRACT PARTICIPATION**

The Lexington-Fayette Urban County Government has set a goal that not less than ten percent (10%) of the total value of this contract be subcontracted to MBE/WBE's, and set a goal that not less than three percent (3%) of the total value of this contract be subcontracted to Veteran-Owned Small Businesses. The goal for the utilization of Certified MBE/WBE's and Veteran-Owned Small Businesses as subcontractors are recommended goals. Contractors who fail to meet such goals will be expected to provide written explanations to the Director of the Division of Central Purchasing of efforts they have made to accomplish the recommended goals and the extent to which they are successful in accomplishing the recommended goals will be a consideration in the procurement process.

For assistance in locating MBE/WBE Subcontractors contact Sherita Miller at 859/258-3320 or by writing the address listed below:

Sherita Miller, Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street – Room 338
Lexington, Kentucky 40507
smiller@lexingtonky.gov

Lexington-Fayette Urban County Government
MWDBE PARTICIPATION GOALS

A. GENERAL

- 1) The LFUCG request all potential contractors to make a concerted effort to include Minority-Owned (MBE), Woman-Owned (WBE), Disadvantaged (DBE) Business Enterprises and Veteran-Owned Small Businesses (VOSB) as subcontractors or suppliers in their bids.
- 2) Toward that end, the LFUCG has established 10% of total procurement costs as a Goal for participation of Minority-Owned, Woman-Owned and Disadvantaged Businesses on this contract.
- 3) **It is therefore a request of each Bidder to include in its bid, the same goal (10%) for MWDBE participation and other requirements as outlined in this section.**
- 4) The LFUCG has also established a 3% of total procurement costs as a Goal for participation for of Veteran-Owned Businesses.
- 5) **It is therefore a request of each Bidder to include in its bid, the same goal (3%) for Veteran-Owned participation and other requirements as outlined in this section.**

B. PROCEDURES

- 1) The successful bidder will be required to report to the LFUCG, the dollar amounts of all payments submitted to Minority-Owned, Woman-Owned or Veteran-Owned subcontractors and suppliers for work done or materials purchased for this contract. (See Subcontractor Monthly Payment Report)
- 2) Replacement of a Minority-Owned, Woman-Owned or Veteran-Owned subcontractor or supplier listed in the original submittal must be requested in writing and must be accompanied by documentation of Good Faith Efforts to replace the subcontractor / supplier with another MWDBE Firm; this is subject to approval by the LFUCG. (See LFUCG MWDBE Substitution Form)
- 3) For assistance in identifying qualified, certified businesses to solicit for potential contracting opportunities, bidders may contact:
 - a) The Lexington-Fayette Urban County Government, Division of Central Purchasing (859-258-3320)
- 4) The LFUCG will make every effort to notify interested MWDBE and Veteran-Owned subcontractors and suppliers of each Bid Package, including information on the scope of work, the pre-bid meeting time and location, the bid date, and all other pertinent information regarding the project.

C. DEFINITIONS

- 1) A Minority-Owned Business Enterprise (MBE) is defined as a business which is certified as being at least 51% owned, managed and controlled by persons of African American, Hispanic, Asian, Pacific Islander, American Indian or Alaskan Native Heritage.
- 2) A Woman-Owned Business Enterprise (WBE) is defined as a business which is certified as being at least 51% owned, managed and controlled by one or more women.

- 3) A Disadvantaged Business (DBE) is defined as a business which is certified as being at least 51% owned, managed and controlled by a person(s) that are economically and socially disadvantaged.
- 4) A Veteran-Owned Small Business (VOSB) is defined as a business which is certified as being at least 51% owned, managed and controlled by a veteran and/or a service disabled veteran.
- 5) Good Faith Efforts are efforts that, given all relevant circumstances, a bidder or proposer actively and aggressively seeking to meet the goals, can reasonably be expected to make. In evaluating good faith efforts made toward achieving the goals, whether the bidder or proposer has performed the efforts outlined in the Obligations of Bidder for Good Faith Efforts outlined in this document will be considered, along with any other relevant factors.

D. OBLIGATION OF BIDDER FOR GOOD FAITH EFFORTS

- 1) **The bidder shall make a Good Faith Effort to achieve the Participation Goal for MWDBE and Veteran-Owned subcontractors/suppliers. The failure to meet the goal shall not necessarily be cause for disqualification of the bidder; however, bidders not meeting the goal are required to furnish with their bids written documentation of their Good Faith Efforts to do so.**
- 2) Award of Contract shall be conditioned upon satisfaction of the requirements set forth herein.
- 3) The Form of Proposal includes a section entitled "MWDBE Participation Form". The applicable information must be completed and submitted as outlined below.
- 4) **Failure to submit this information as requested may be cause for rejection of bid or delay in contract award.**

E. DOCUMENTATION REQUIRED FOR GOOD FAITH EFFORTS

- 1) Bidders reaching the Goal are required to submit only the MWDBE Participation Form." The form must be fully completed including names and telephone number of participating MWDBE firm(s); type of work to be performed; estimated value of the contract and value expressed as a percentage of the total Lump Sum Bid Price. The form must be signed and dated, and is to be submitted with the bid.
- 2) Bidders not reaching the Goal must submit the "MWDBE Participation Form", the "Quote Summary Form" and a written statement documenting their Good Faith Effort to do so. If bid includes no MWDBE and/or Veteran participation, bidder shall enter "None" on the subcontractor / supplier form). In addition, the bidder must submit written proof of their Good Faith Efforts to meet the Participation Goal:
 - a. Advertised opportunities to participate in the contract in at least two (2) publications of general circulation media; trade and professional association publications; small and minority business or trade publications; and publications or trades targeting minority, women and disadvantaged businesses not less than fifteen (15) days prior to the deadline for submission of bids to allow MWDBE firms and Veteran-Owned businesses to participate.
 - b. Included documentation of advertising in the above publications with the bidders good faith efforts package

- c. Attended LFUCG Central Purchasing Economic Inclusion Outreach event
- d. Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs and/or Veteran-Owned businesses of subcontracting opportunities
- e. Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms and Veteran-Owned businesses.
- f. Requested a list of MWDBE and/or Veteran subcontractors or suppliers from LFUCG and showed evidence of contacting the companies on the list(s).
- g. Contacted organizations that work with MWDBE companies for assistance in finding certified MWDBE firms and Veteran-Owned businesses to work on this project. Those contacted and their responses should be a part of the bidder's good faith efforts documentation.
- h. Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs and/or Veteran-Owned businesses soliciting their participation in the contract not less than seven (7) days prior to the deadline for submission of bids to allow them to participate effectively.
- i. Followed up initial solicitations by contacting MWDBEs and Veteran-Owned Businesses to determine their level of interest.
- j. Provided the interested MWDBE firm and/or Veteran-Owned business with adequate and timely information about the plans, specifications, and requirements of the contract.
- k. Selected portions of the work to be performed by MWDBE firms and/or Veteran-Owned businesses in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MWDBE and Veteran participation, even when the prime contractor may otherwise perform these work items with its own workforce
- l. Negotiated in good faith with interested MWDBE firms and Veteran-Owned businesses not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached.
- m. Included documentation of quotations received from interested MWDBE firms and Veteran-Owned businesses which were not used due to uncompetitive pricing or were rejected as unacceptable and/or copies of responses from firms indicating that they would not be submitting a bid.
- n. Bidder has to submit sound reasons why the quotations were considered unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a MWDBE and/or Veteran-Owned business's quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy MWDBE and Veteran goals.

o. Made an effort to offer assistance to or refer interested MWDBE firms and Veteran-Owned businesses to obtain the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal

p. Made efforts to expand the search for MWBE firms and Veteran-Owned businesses beyond the usual geographic boundaries.

q. Other--any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include MWDBE and Veteran participation.

Note: Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement which is subject to review by the MBE Liaison. Documentation of Good Faith Efforts must be submitted with the Bid, if the participation Goal is not met.



MINORITY BUSINESS ENTERPRISE PROGRAM

Sherita Miller, MPA
Minority Business Enterprise Liaison
Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street
Lexington, KY 40507
smiller@lexingtonky.gov
859-258-3323

OUR MISSION: The mission of the Minority Business Enterprise Program is to facilitate the full participation of minority and women owned businesses in the procurement process and to promote economic inclusion as a business imperative essential to the long term economic viability of Lexington-Fayette Urban County Government.

To that end the city council adopted and implemented Resolution 484-2017 – A Certified Minority, Women and Disadvantaged Business Enterprise ten percent (10%) minimum goal and a three (3%) minimum goal for Certified Veteran-Owned Small Businesses and Certified Service Disabled Veteran – Owned Businesses for government contracts.

The resolution states the following definitions shall be used for the purposes of reaching these goals (a full copy is available in Central Purchasing):

Certified Disadvantaged Business Enterprise (DBE) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a person(s) who is socially and economically disadvantaged as defined by 49 CFR subpart 26.

Certified Minority Business Enterprise (MBE) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by an ethnic minority (i.e. African American, Asian American/Pacific Islander, Hispanic Islander, Native American/Native Alaskan Indian) as defined in federal law or regulation as it may be amended from time-to-time.

Certified Women Business Enterprise (WBE) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a woman.

Certified Veteran-Owned Small Business (VOSB) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a veteran who served on active duty with the U.S. Army, Air Force, Navy, Marines or Coast Guard.

Certified Service Disabled Veteran Owned Small Business (SDVOSB) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a disabled veteran who served on active duty with the U.S. Army, Air Force, Navy, Marines or Coast Guard.

The term “Certified” shall mean the business is appropriately certified, licensed, verified, or validated by an organization or entity recognized by the Division of Purchasing as having the appropriate credentials to make a determination as to the status of the business.

We have compiled the list below to help you locate certified MBE, WBE and DBE certified businesses. Below is a listing of contacts for LFUCG Certified MWDBEs and Veteran-Owned Small Businesses in (<https://lexingtonky.ionwave.net>)

| Business | Contact | Email Address | Phone |
|---|--|--|--------------|
| LFUCG | Sherita Miller | smiller@lexingtonky.gov | 859-258-3323 |
| Commerce Lexington – Minority Business Development | Tyrone Tyra | ttyra@commercelexington.com | 859-226-1625 |
| Tri-State Minority Supplier Diversity Council | Susan Marston | smarston@tsmsdc.com | 502-365-9762 |
| Small Business Development Council | Shawn Rogers UK SBDC | shawn.rogers@uky.edu | 859-257-7666 |
| Community Ventures Corporation | Phyllis Alcorn | palcorn@cvky.org | 859-231-0054 |
| KY Transportation Cabinet (KYTC) | Melvin Byne | Melvin.bynes2@ky.gov | 502-564-3601 |
| KYTC Pre-Qualification | Shella Eagle | Shella.Eagle@ky.gov | 502-782-4815 |
| Ohio River Valley Women’s Business Council (WBENC) | Sheila Mixon | smixon@orvwbc.org | 513-487-6537 |
| Kentucky MWBE Certification Program | Yvette Smith, Kentucky Finance Cabinet | Yvette.Smith@ky.gov | 502-564-8099 |
| National Women Business Owner’s Council (NWBOC) | Janet Harris-Lange | janet@nwbo.org | 800-675-5066 |
| Small Business Administration | Robert Coffey | robertcoffey@sba.gov | 502-582-5971 |
| LaVoz de Kentucky | Andres Cruz | lavozdeky@yahoo.com | 859-621-2106 |
| The Key News Journal | Patrice Muhammad | production@keynewsjournal.com | 859-685-8488 |



LFUCG MWDBE PARTICIPATION FORM

Bid/RFP/Quote Reference # 139-2017

The MWDBE and/or veteran subcontractors listed have agreed to participate on this Bid/RFP/Quote. If any substitution is made or the total value of the work is changed prior to or after the job is in progress, it is understood that those substitutions must be submitted to Central Purchasing for approval immediately. **Failure to submit a completed form may cause rejection of the bid.**

| MWDBE Company, Name, Address, Phone, Email | MBE WBE or DBE | Work to be Performed | Total Dollar Value of the Work | % Value of Total Contract |
|--|----------------|----------------------|--------------------------------|---------------------------|
| 1. N/A | | | | |
| 2. | | | | |
| 3. | | | | |
| 4. | | | | |

The undersigned company representative submits the above list of MWDBE firms to be used in accomplishing the work contained in this Bid/RFP/Quote. Any misrepresentation may result in the termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

Vogelpohl Fire Equipment
Company

10-27-17
Date

[Signature]
Company Representative

Vice President
Title



LFUCG MWDBE SUBSTITUTION FORM

Bid/RFP/Quote Reference # 139-2017

The substituted MWDBE and/or veteran subcontractors listed below have agreed to participate on this Bid/RFP/Quote. These substitutions were made prior to or after the job was in progress. These substitutions were made for reasons stated below and are now being submitted to Central Purchasing for approval. By the authorized signature of a representative of our company, we understand that this information will be entered into our file for this project.

| SUBSTITUTED MWDBE Company Name, Address, Phone, Email | MWDBE Formally Contracted/ Name, Address, Phone, Email | Work to Be Performed | Reason for the Substitution | Total Dollar Value of the Work | % Value of Total Contract |
|---|--|----------------------|-----------------------------|--------------------------------|---------------------------|
| 1. N/A | | | | | |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |

The undersigned acknowledges that any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

Vogelpohl Fire Equipment
Company

10-27-17
Date

[Signature]
Company Representative
Vice President
Title



MWDBE QUOTE SUMMARY FORM

Bid/RFP/Quote Reference # 139-2017

The undersigned acknowledges that the minority and/or veteran subcontractors listed on this form did submit a quote to participate on this project. Failure to submit this form may cause rejection of the bid.

| | |
|---|---|
| Company Name <u>Vogelpohl Fire Equipment</u> | Contact Person <u>Kevin Kleman</u> |
| Address/Phone/Email <u>2770 Circleport Dr Erlanger KY 41018</u> | Bid Package / Bid Date <u>139-2017 / 10-30-17</u> |

| MWDBE Company Address | Contact Person | Contact Information (work phone, Email, cell) | Date Contacted | Services to be performed | Method of Communication (email, phone meeting, ad, event etc) | Total dollars \$\$ Do Not Leave Blank (Attach Documentation) | MBE * AA HA AS NA Female | Veteran |
|-----------------------|----------------|---|----------------|--------------------------|---|--|---|---------|
| <u>N/A</u> | | | | | | | | |
| | | | | | | | | |
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| | | | | | | | | |
| | | | | | | | | |

(MBE designation / AA=African American / HA= Hispanic American/AS = Asian American/Pacific Islander/ NA= Native American)

The undersigned acknowledges that all information is accurate. Any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

Vogelpohl Fire Equipment
Company

10-30-17
Date

[Signature]
Company Representative

Vice President
Title



LFUCG SUBCONTRACTOR MONTHLY PAYMENT REPORT

The LFUCG has a 10% goal plan adopted by city council to increase the participation of minority and women owned businesses in the procurement process. The LFUCG also has a 3% goal plan adopted by cited council to increase the participation of veteran owned businesses in the procurement process. In order to measure that goal LFUCG will track spending with MWDDBE and Veteran contractors on a monthly basis. By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentation may result in termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims. Please submit this form monthly to the Division of Central Purchasing/ 200 East Main Street / Room 338 / Lexington, KY 40507.

Bid/RFP/Quote # 139-2017

Total Contract Amount Awarded to Prime Contractor for this Project N/A

| | |
|---|--|
| Project Name/ Contract # <u>139-2017</u> | Work Period/ From: _____ To: _____ |
| Company Name: <u>Vogelpohl Fire Equipment</u> | Address: <u>2770 Circleport Dr Erlanger KY 41018</u> |
| Federal Tax ID: <u>61 1166058</u> | Contact Person: <u>Kevin Kleman</u> |

| Subcontractor Vendor ID (name, address, phone, email) | Description of Work | Total Subcontract Amount | % of Total Contract Awarded to Prime for this Project | Total Amount Paid for this Period | Purchase Order number for subcontractor work (please attach PO) | Scheduled Project Start Date | Scheduled Project End Date |
|---|---------------------|--------------------------|---|-----------------------------------|---|------------------------------|----------------------------|
| <u>N/A</u> | | | | | | | |
| | | | | | | | |
| | | | | | | | |

By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentations may result in the termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims.

Vogelpohl Fire Equipment
Company

12-27-17
Date

[Signature]
Company Representative

Vice President
Title

LFUCG STATEMENT OF GOOD FAITH EFFORTS

Bid/RFP/Quote # 179-2017

By the signature below of an authorized company representative, we certify that we have utilized the following Good Faith Efforts to obtain the maximum participation by MWDBE and Veteran-Owned business enterprises on the project and can supply the appropriate documentation.

_____ Advertised opportunities to participate in the contract in at least two (2) publications of general circulation media; trade and professional association publications; small and minority business or trade publications; and publications or trades targeting minority, women and disadvantaged businesses not less than fifteen (15) days prior to the deadline for submission of bids to allow MWDBE firms and Veteran-Owned businesses to participate.

_____ Included documentation of advertising in the above publications with the bidders good faith efforts package

_____ Attended LFUCG Central Purchasing Economic Inclusion Outreach event

_____ Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs and/or Veteran-Owned Businesses of subcontracting opportunities

_____ Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms and Veteran-Owned businesses

_____ Requested a list of MWDBE and/or Veteran subcontractors or suppliers from LFUCG and showed evidence of contacting the companies on the list(s).

_____ Contacted organizations that work with MWDBE companies for assistance in finding certified MWDBE firms and Veteran-Owned businesses to work on this project. Those contacted and their responses should be a part of the bidder's good faith efforts documentation.

_____ Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs soliciting their participation in the contract not less than seven (7) days prior to the deadline for submission of bids to allow them to participate effectively.

_____ Followed up initial solicitations by contacting MWDBEs and Veteran-Owned businesses to determine their level of interest.

_____ Provided the interested MWDBE firm and/or Veteran-Owned business with adequate and timely information about the plans, specifications, and requirements of the contract.

_____ Selected portions of the work to be performed by MWDBE firms and/or Veteran-Owned businesses in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MWDBE and Veteran participation, even when the prime contractor may otherwise perform these work items with its own workforce

_____ Negotiated in good faith with interested MWDBE firms and Veteran-Owned businesses not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached.

_____ Included documentation of quotations received from interested MWDBE firms and Veteran-Owned businesses which were not used due to uncompetitive pricing or were rejected as unacceptable and/or copies of responses from firms indicating that they would not be submitting a bid.

_____ Bidder has to submit sound reasons why the quotations were considered unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a MWDBE and/or Veteran-Owned business's quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy MWDBE and Veteran goals.

_____ Made an effort to offer assistance to or refer interested MWDBE firms and Veteran-Owned businesses to obtain the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal

_____ Made efforts to expand the search for MWBE firms and Veteran-Owned businesses beyond the usual geographic boundaries.

_____ Other--any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include MWDBE and Veteran participation.

NOTE: Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement which is subject to approval by the MBE Liaison. Documentation of Good Faith Efforts must be submitted with the Bid, if the participation Goal is not met.

The undersigned acknowledges that all information is accurate. Any misrepresentations may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

Vogelpohl Fire Equipment
Company

10-27-17
Date

[Signature]
Company Representative

Vice President
Title



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

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

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

NEW PRODUCT WARRANTY



**PARTICIPATING OEM SALES
DISTRIBUTOR SALES**

LIMITED WARRANTY ON NEW ALLISON AUTOMATIC TRANSMISSIONS USED IN EMERGENCY VEHICLE APPLICATIONS

Allison Transmission, Inc. will provide for repairs or replacement, at its option, during the warranty period of each new Allison transmission listed below that is installed in an Emergency Vehicle in accordance with the following terms, conditions, and limitations.

WHAT IS COVERED

- **WARRANTY APPLIES** — This warranty is for new Allison transmission models listed below installed in an Emergency Vehicle and is provided to the original and any subsequent owner(s) of the vehicle during the warranty period.
- **REPAIRS COVERED** — The warranty covers repairs or replacement, at Allison Transmission's option, to correct any transmission malfunction resulting from defects in material or workmanship occurring during the warranty period. Needed repairs or replacements will be performed using the method Allison Transmission determines most appropriate under the circumstances.
- **TOWING** — Towing is covered to the nearest Allison Transmission Distributor or authorized Dealer only when necessary to prevent further damage to your transmission.
- **PAYMENT TERMS** — Warranty repairs, including parts and labor, will be covered per the schedule shown in the chart contained in section "APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE."
- **OBTAINING REPAIRS** — To obtain warranty repairs, take the vehicle to any Allison Transmission Distributor or authorized Dealer within a reasonable amount of time and request the needed repairs. A reasonable amount of time must be allowed for the Distributor or Dealer to perform necessary repairs.
- **TRANSMISSION REMOVAL AND REINSTALLATION** — Labor costs for the removal and re-installation of the transmission, when necessary to make a warranty repair, are covered by this warranty.
- **WARRANTY PERIOD** — The warranty period for all coverages shall begin on the date the transmission is delivered to the first retail purchaser, with the following exception:

Demonstration Service - A transmission in a new truck or bus may be demonstrated to a total of 5000 miles (8000 kilometers). If the vehicle is within this limit when sold to a retail purchaser, the warranty start date is the date of purchase. Normal warranty services are applicable to the demonstrating Dealer. Should the truck or bus be sold to a retail purchaser after these limits are reached, the warranty period will begin on the date the vehicle was first placed in demonstration service and the purchaser will be entitled to the remaining warranty.

APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE

| APPLICABLE MODELS | WARRANTY LIMITATIONS (Whichever occurs first) | | ADJUSTMENT CHARGE TO BE PAID BY THE CUSTOMER | |
|---|--|-------------------------------------|--|-----------|
| | Months | Transmission Miles Or Kilometers | Parts | Labor |
| MD 3000, 3200, 3500, 3700 | 0-24 | No Limit | No Charge | No Charge |
| 1000 Series, 2000 Series, 2400 Series | 0-36 | No Limit | No Charge | No Charge |
| HD 1000 EVS, 2100 EVS, 2200 EVS 2350 EVS, 2500 EVS, 2550 EVS, 3000 EVS, 3500 EVS, 4000, 4000 EVS, 4500, 4500 EVS, 4700, 4700 EVS, 4800, 4800 EVS | 0-60 | No Limit | No Charge | No Charge |

WHAT IS NOT COVERED

- **DAMAGE DUE TO ACCIDENT, MISUSE, or ALTERATION** — Defects and damage caused as the result of any of the following are not covered:
 - Flood, collision, fire, theft, freezing, vandalism, riot, explosion, or objects striking the vehicle;
 - Misuse of the vehicle;
 - Installation into unapproved applications and installations;
 - Alterations or modification of the transmission or the vehicle, and
 - Damage resulting from improper storage (refer to long-term storage procedure outlined in the applicable Allison Service Manual)
 - Anything other than defects in Allison Transmission material or workmanship

NOTE: This warranty is void on transmissions used in vehicles currently or previously titled as salvaged, scrapped, junked, or totaled.

- **CHASSIS, BODY, and COMPONENTS** — The chassis and body company (assemblers) and other component and equipment manufacturers are solely responsible for warranties on the chassis, body, component(s), and equipment they provide. Any transmission repair caused by an alteration(s) made to the Allison transmission or the vehicle which allows the transmission to be installed or operated outside of the limits defined in the appropriate Allison Installation Guideline is solely the responsibility of the entity making the alteration(s).
- **DAMAGE CAUSED by LACK of MAINTENANCE or by the USE of TRANSMISSION FLUIDS NOT RECOMMENDED in the OPERATOR'S MANUAL** — Defects and damage caused by any of the following are not covered:
 - Failure to follow the recommendations of the maintenance schedule intervals applicable to the transmission;
 - Failure to use transmission fluids or maintain transmission fluid levels recommended in the Operator's Manual.
- **MAINTENANCE** — Normal maintenance (such as replacement of filters, screens, and transmission fluid) is not covered and is the owner's responsibility.
- **REPAIRS by UNAUTHORIZED DEALERS** — Defects and damage caused by a service outlet that is not an authorized Allison Transmission Distributor or Dealer are not covered.
- **USE of OTHER THAN GENUINE ALLISON TRANSMISSION PARTS** — Defects and damage caused by the use of parts that are not genuine Allison Transmission parts are not covered.
- **EXTRA EXPENSES** — Economic loss and extra expenses are not covered. Examples include but are not limited to: loss of vehicle use; inconvenience; storage; payment for loss of time or pay; vehicle rental expense; lodging; meals; or other travel costs.
- **"DENIED PARTY" OWNERSHIP** — Warranty repair parts and labor costs are not reimbursed to any participating or non-participating OEMs, dealers or distributors who perform warranty work for, or on behalf of, end users identified by the United States as being a "denied party" or who are citizens of sanctioned or embargoed countries as defined by the U.S. Department of Treasury Office of Foreign Assets Control. Furthermore, warranty reimbursements are not guaranteed if the reimbursement would be contrary to any United States export control laws or regulations as defined by the U.S. Department of Commerce, the U.S. Department of State, or the U.S. Department of Treasury.

OTHER TERMS APPLICABLE TO CONSUMERS AS DEFINED by the MAGNUSON-MOSS WARRANTY ACT

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Allison Transmission does not authorize any person to create for it any other obligation or liability in connection with these transmissions.

ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLICABLE TO THESE TRANSMISSIONS IS LIMITED IN DURATION TO THE DURATION OF THIS WRITTEN WARRANTY. PERFORMANCE OF REPAIRS AND NEEDED ADJUSTMENTS IS THE EXCLUSIVE REMEDY UNDER THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (SUCH AS, BUT NOT LIMITED TO, LOST WAGES OR VEHICLE RENTAL EXPENSES) RESULTING FROM BREACH OF THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY.**

** Some states do not allow limitations on how long an implied warranty will last or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

OTHER TERMS APPLICABLE TO OTHER END-USERS

THIS WARRANTY IS THE ONLY WARRANTY APPLICABLE TO THE ALLISON TRANSMISSION MODELS LISTED ABOVE AND IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ALLISON TRANSMISSION DOES NOT AUTHORIZE ANY PERSON TO CREATE FOR IT ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH SUCH TRANSMISSIONS. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM BREACH OF THIS WARRANTY OR ANY IMPLIED WARRANTY.

QUESTIONS

If you have any questions regarding this warranty or the performance of warranty obligations, you may contact any Allison Transmission Distributor or Dealer or write to:

Allison Transmission, Inc.
P.O. Box 894
Indianapolis, IN 46206-0894
Attention: Warranty Administration PF-9

Commercial Vehicle Systems

Warranty / Model Year 2011 Vehicles



Simpler is better.

Warranty coverage is essential to protecting your investment. But understanding the full details of your coverage can be challenging. This straightforward approach allows you, our valued customer, to better understand how your specific vehicle applications will be covered.

Advantage Program

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

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

How to Read Warranty Coverage:

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

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

Linehaul Warranty Information



Linehaul Vehicles:

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

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

Linehaul Typically Is:

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

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

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

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

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

Clutches

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

¹ Clutches are warranted by ZF Sachs and administered by ArvinMeritor.

² Freedomline clutch consists of cover assembly and disc assembly.

Transmissions – 5/750/P&L

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

¹ With approved synthetic lube (Without = 3/300/P&L).

² Multiple engine retarders are not approvable.

³ Electronic shift systems 3/300/P&L.

⁴ Hard surface applications only.

⁵ Output seal 3/300/P&L.

Drivelines

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

Meritor® XTended Lube – MXL™ Drivelines

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

Rear Drive Single Axles – 5/750/P&L

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

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

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

¹ These models required for Chip Hauler and Linehaul warranty consideration.

² Warranty is 3/300/P&L when used with 2050 lb.ft. engines. Refer to Product Information Letter #293 for further details.

³ Each vehicle must have a Request for Application Recommendation (RAR) approved by ArvinMeritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.



Brake Components

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

¹ First year P&L.

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

³ Based on stamped wear diameter max.

Trailer Axles

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

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

² When installed by ArvinMeritor.

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

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

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

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

TAG/ Pusher Axles¹

| | |
|------------------------------------|------------------|
| TQ, TQD, TR, TRD Beam and Brackets | 3/300/P, 1/100/L |
|------------------------------------|------------------|

¹ For brake components and ABS Coverage, refer to appropriate product warranties.

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

Trailer Air Suspension Systems

MPA38/40 (Tandem Axle Parallelogram)

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

MPA20 (Single Axle Parallelogram)

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

RFS/MTA

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

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

Meritor WABCO Components¹

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

¹ Warranted by Meritor WABCO Vehicle Control Systems.

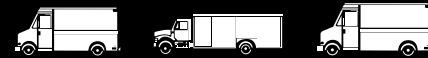
² WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by Meritor WABCO. Please contact your respective dealer/distributor of those engines for warranty and servicing.

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

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

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

General Service Warranty Information



General Service Vehicles:

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

General Service Typically Is:

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

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

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

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

¹ Can be used in front or tag position.

Front Non-Drive Steer Axles

with Unitized Wheel Ends – 3/Unl/P&L¹

FG-952
FH-941
FH-946

¹ Includes: hub, wheel seals and wheel bearings.

Clutches

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

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

Transmissions – 3/Unl/P&L

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

¹ Multiple engine retarders are not approvable.

² Electronic shift systems 3/300/P&L.

³ Hard surface applications only.

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

Drivelines

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

Rear Drive Single Axles – 2/Unl/P&L

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

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

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

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

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

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

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

² See limitations for minor component coverage.

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

| | | |
|----------------------------|------------------------|------------------------|
| MT-34-14X/P | RT-40-145/P/A | MT-58-616 |
| RT-34-144/P/A | MT-44-14X/P | RT-58-185 ² |
| MT-40-14X/P | RT-44-145/P | MT-70-380 |
| MT-40-143DA-N | RT-46-169 | RZ-166 |
| MT-40-143MA-N ¹ | MT-52-616 | RZ-186 |
| MT-40-144/P | RT-52-185 ² | RZ-188 |

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

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



Brake Components

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

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

² Based on stamped wear diameter max.

³ Applies to Tour Bus and Cross Country Coach only.

Trailer Axles

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

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

² When installed by ArvinMeritor.

³ 9000 Series is 3/Unl/P, 1/Unl/L.

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

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

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

Air Link™ 2/200/P&L^{1,2}

MWA46
MWA52

¹ Coverage includes Hangers, Trailing Arms, Walking Beams

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

Chassis Axles (2000 Series)

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

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

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

TAG/Pusher Axles¹

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

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

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

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

Trailer Air Suspension Systems

MPA38/40 (Tandem Axle Parallelogram)

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

MPA20 (Single Axle Parallelogram)

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

RFS/MTA

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

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

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

Meritor WABCO Components¹

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

¹ Warranted by Meritor WABCO Vehicle Control Systems.

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

³ Applies to Tour Bus and Cross Country Coach only.

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

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

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

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

Heavy Service Warranty Information



Heavy Service Vehicles:

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

Heavy Service Typically Is:

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

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

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

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

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

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

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

² See limitations for minor component coverage.

Clutches

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

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

Transmissions – 2/Uni/P&L

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

¹ Multiple engine retarders are not approvable.

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

³ Hard surface application only.

Drivelines – 1/Uni/P&L

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

Rear Drive Single Axles – 2/Uni/P&L

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



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

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

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 ArvinMeritor Axle Applications Engineering for details.

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

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

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

Brake Components

| | |
|--|-----------------------------|
| Cam P | 3/Unl/P |
| Cam P ³ | 2/100/P |
| Cam Cast Plus™ | 2/100/P&L |
| Cam Q Plus™ | 3/Unl/P&L |
| Cam Q Plus™ 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 |
| X30™ Drums ¹ | 12-Years or Wearable Life/P |

¹ Based on stamped wear diameter max.

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

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

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

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

¹ U.S. only. Canadian warranty = 1/Unl/P for combination vehicles only.

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

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

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

Trailer Air Suspension Systems

RFS/MTA

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

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

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

Center Non-drive Axles – 2/100/P&L

| | | |
|-------|-------|-----------|
| 61042 | 61052 | 71063 |
| 61043 | 61053 | RC-26-700 |

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

Air Link™ 2/200/P&L^{1,2}

Meritor WABCO Components¹

| | | |
|---|------------------|--|
| ABS (Anti-Lock Braking System) Air/Hydraulic | 3/300/P&L | MWA46 |
| Hydraulic Power Brake (HPB) | 3/300/P&L | MWA52 |
| ATC (Automatic Traction Control) | 3/300/P&L | ¹ Coverage includes Hangers, Trailing Arms, Walking Beams |
| EX ³ and PAN Air Disc Brake | 2/100/P&L | ² Bushings, Air Bag, Shock Absorbers 1/50/P |
| Air Dryers (ALL) | 1/100/P&L | |
| Leveling Valves | 1/Unl/P&L | |
| Air Brake Valves | 1/100/P&L | |
| Emissions Valve | 2/200/P | |
| Emission SCR Air Control Unit ⁴ | 2/200/P | |
| Clutch Controls | 2/200/P&L | |
| ECAS (Electronically Controlled Air Suspension) | 3/300/P&L | |
| Air Compressors (ALL) ² | 2/200/P&L | |
| Electronic Stability Control (ESC) | 3/300/P&L | |
| Truck Roll Stability Control (RSC) | 3/300/P&L | |
| Trailer Roll Stability Support (RSS) | 3/300/P&L | |
| Trailer Control Line Filter | 1/100/P&L | |
| Trailer Control Line Filter with ABS Valve | 4/400/P, 1/100/L | |
| Trailer ABS Valve with Control Line Filter | 4/400/P, 3/300/L | |

¹ Warranted by Meritor WABCO Vehicle Control Systems.

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

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

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

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 ArvinMeritor.

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

TAG/ Pusher Axles¹

| | |
|-------------------|------------------|
| TQ, TQD, TR, TRD | |
| Beam and Brackets | 3/Unl/P, 1/Unl/L |

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

Rear Engine

Power Take-offs 1/Unl/P

Transfer Cases – 1/Unl/P

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

Restricted Service Warranty Information



Restricted Service Vehicles:

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

Restricted Service Typically Is:

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

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

Front Non-Drive Steer Axles – 1/Unl/P

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

Clutch

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

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

Transmissions – 1/Unl/P

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

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

Drivelines – 1/Unl/P

RPL RN MXL

Rear Drive Single Axles – 1/Unl/P

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

Rear Drive Tandem Axles – 1/Unl/P

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

Shock Absorbers

1/100/P

Brake Components

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

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

Meritor WABCO Components¹

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

¹ Warranted by Meritor WABCO Vehicle Control Systems.
² WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by Meritor WABCO. Please contact your respective dealer/distributor of those engines for warranty and servicing.
³ Brake warranty coverage is valid when using a Meritor WABCO chamber. For other chambers, brake coverage is 1/Unl/P.
⁴ Meritor WABCO chamber warranty is 1/Unl/P.
⁵ Must have an oil coalescing device installed in the air system located before the Air Control Unit.

Coverage Exclusions:

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

Coverage Limitations:

Product Description

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

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

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

Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Components (whether new, used or remanufactured) installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

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

(2) Designation of Vocational Use Required. To obtain warranty coverage, each Owner must notify ArvinMeritor through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the ArvinMeritor components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with ArvinMeritor directly. Failure to notify ArvinMeritor of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date.

A second Owner and each subsequent Owner must also notify ArvinMeritor as to the intended vocational use of the vehicle. This notification can be sent directly to ArvinMeritor or through the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use.

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

(3) What is the Cost of this Warranty? There is no charge to the Owner for this warranty.

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

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

(6) Disclaimer of Warranty.

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

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

(8) To Obtain Service. If the Owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either ArvinMeritor or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM new truck and/or trailer dealer or authorized ArvinMeritor service location. The dealer will inspect the vehicle and contact ArvinMeritor for an evaluation of the claim. When authorized by ArvinMeritor, the dealer will repair or replace during the term of this warranty any defective ArvinMeritor component covered by this warranty.

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

For more information, call **800-535-5560**.





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

PRODUCT WARRANTY

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

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

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

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

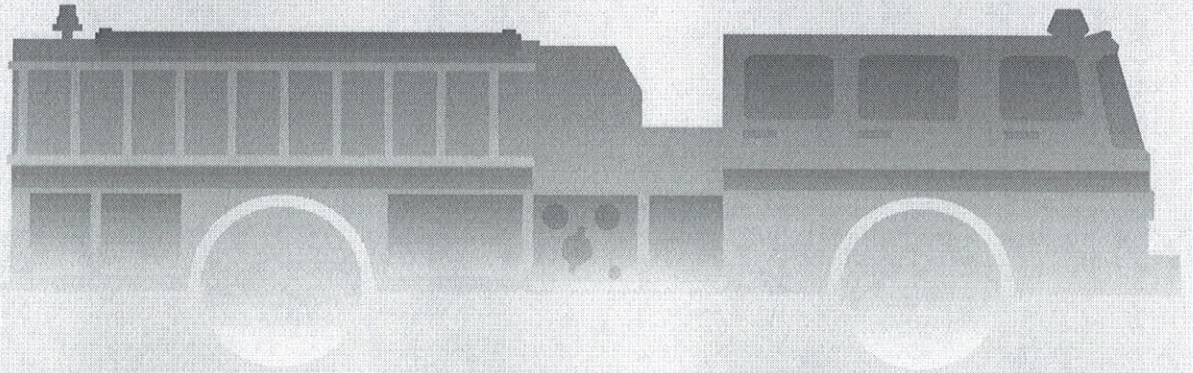
Class 1, 607 NW 27th Ave., Ocala, FL 34475



Cummins Warranty

Worldwide

Fire Apparatus/Crash Trucks



RECEIVED

JUN 01 2012

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 | max. 15 parts per million |
| EPA 2010 | 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 |

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine.

Any unauthorized modifications to the aftertreatment could negatively effect emissions certification and void Warranty.

Cummins is also not responsible for failures caused by incorrect oil, fuel or diesel exhaust fluid or by water, dirt or other contaminants in the fuel, oil or diesel exhaust fluid.

This Warranty does not apply to accessories supplied by Cummins which bear the name of another company. Such non-warranted accessories include, but are not limited to: alternators, starters, fans, air conditioning compressors, clutches, filters, transmissions, torque converters, vacuum pumps, power steering pumps, fan drives and air compressors. Cummins branded alternators and starters are covered for the first two years from the date of delivery of the Engine to the first user, or the expiration of the Base Engine Warranty, whichever occurs first.

Failures resulting in excessive oil consumption are not covered beyond the duration of the Coverage or 100,000 miles (160,935 kilometers) or 7,000 hours from the date of delivery of the Engine to the first user, whichever of the three occurs first. Before a claim for excessive oil consumption will be considered, Owner must submit adequate documentation to show that consumption exceeds Cummins published standards.

Failures of belts and hoses supplied by Cummins are not covered beyond the first year from the date of delivery of the Engine to the first user or the duration of the Warranty, whichever occurs first.

Parts used to repair a Warrantable Failure may be new Cummins parts, Cummins approved rebuilt parts or repaired parts. Cummins is not responsible for failures resulting from the use of parts not approved by Cummins.

A new Cummins or Cummins approved rebuilt part used to repair a Warrantable Failure assumes the identity of the part it replaced and is entitled to the

remaining Coverage hereunder.

Cummins Inc. reserves the right to interrogate Electronic Control Module (ECM) data for purposes of failure analysis.

CUMMINS DOES NOT COVER WEAR OR WEAROUT OF COVERED PARTS.

CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

THIS WARRANTY AND THE EMISSION WARRANTY SET FORTH HEREINAFTER ARE THE SOLE WARRANTIES MADE BY CUMMINS IN REGARD TO THESE ENGINES. CUMMINS MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Emission Warranty

Products Warranted

This Emission Warranty applies to new Engines marketed by Cummins that are used in the United States** in vehicles designed for transporting persons or property on a street or highway. This Warranty applies to Engines delivered to the first user on or after September 1, 1992.

Coverage

Cummins warrants to the first user and each subsequent purchaser that the Engine is designed, built and equipped so as to conform at the time of sale by Cummins with all U.S. federal emission regulations applicable at the time of manufacture and that it is free from defects in material or factory workmanship which would cause it not to meet these regulations within the longer of the following periods: (A) Five years or 100,000 miles (160,935 kilometers) of operation, whichever occurs first, as measured from the date of delivery of the Engine to the first user or (B) The Base Engine Warranty.

If the vehicle in which the Engine is installed is registered in the state of California, a separate California Emission Warranty also applies.

Limitations

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 | max. 15 parts per million |
| EPA 2010 | 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 |

Failures, other than those resulting from defects in material or factory workmanship, are not covered by this Warranty.

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine.

Any unauthorized modifications to the aftertreatment could negatively effect emissions certification and void Warranty.

Cummins is also not responsible for failures caused by incorrect oil, fuel or diesel exhaust fluid or by water, dirt or other contaminants in the fuel, oil or diesel exhaust fluid.

Cummins is not responsible for non-Engine repairs, "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs or other losses resulting from a Warrantable Failure.

CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

* Airport operated crash trucks and fire department operated trucks employed to respond to fires, hazardous material releases, rescue and other emergency-type situations.

** United States includes American Samoa, the Commonwealth of Northern Mariana Islands, Guam, Puerto Rico and the U.S. Virgin Islands.



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503-012 Worldwide Fire Truck (All Engines)

This warranty applies to new diesel engines that are used in fire apparatus truck and crash truck* applications Worldwide.

*Airport operated crash trucks and fire department operated trucks employed to respond to fires, hazardous material releases, rescue and other emergency-type situations.

| Coverage Effective Date* | Coverage End Date | Legal Description |
|---|-------------------|-------------------|
| April 1, 2007 | Still Active | 3381161 |
| *This coverage applies to engines with a warranty start date on or after this date. | | |

Coverage

The **warranty start date** is the date of delivery of the Engine to the first user. There is no demonstration period on fire trucks.

| BASE ENGINE WARRANTY | | |
|---|---|--|
| Coverage* | What is Covered? | Deductible** |
| 5 years, 100,000 miles, or 160,935 kilometers | Base Engine Labor Travel/Towing Other Claimables | \$100 per service visit only in the 3rd, 4th, and 5th years of Base Engine Warranty.*** |
| *Whichever occurs first, after the warranty start date. | | |
| **Repeat component failures are not subject to a deductible. For example, if the customer pays \$100 for a cylinder head failure, no deductible is charged on subsequent cylinder head failures. If the customer pays \$100 for an injector number 3 failure and injector number 6 fails, the customer is again charged a \$100 deductible. | | |
| ***Claims with deductibles should be filed in full including the deductible amount. Warranty and Customer Support will be responsible for subtracting the deductible when the claim is processed. | | |

Limitations

- During Base Engine Warranty, **travel or towing** is covered when the vehicle is disabled as a result of a warrantable failure.
- **Failures of belt and hoses** supplied by Cummins are covered for the first year of the warranty or the duration of the warranty coverage, whichever occurs first.
- **Non-Cummins accessories** are not covered by this warranty.
- **Failures resulting in excessive oil consumption** are covered for the duration of the coverage, 100,000 miles (160,935 kilometers) or 7,000 hours, whichever occurs first.
- **Cummins branded alternators and starters** are covered for the first 2 years from the date of delivery of the engine to the first user, or the expiration of the Base Engine Warranty, whichever occurs first.
- Unauthorized modifications to the aftertreatment could negatively effect emissions certification and void warranty.

Last Modified: 07-Aug-2009

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Cummins Recreational Vehicle And Fire Truck Major Components Coverage

Coverage

Cummins Recreational Vehicle and Fire Truck Major Components Coverage Plan (Plan) is available to be purchased for all eligible Cummins Engines marketed under the trademark "Cummins" or "Cummins ReCon®" and used in recreational vehicle and fire truck applications in the United States and Canada and applies to the following Engine parts or castings (Registered Parts). The specific Engine covered is designated on the accompanying Certificate.

| | |
|--------------------------------|-------------------------------|
| Engine Cylinder Block Casting | Oil Cooler Cover/Filter Heads |
| Engine Cylinder Head Casting | Oil Pan |
| Engine Cylinder Head Capscrews | Gear Cover and Housing |
| Engine Crankshaft Forging | Gear Train Gears |
| Engine Camshaft Forging | Crankshaft Gear |
| Engine Connecting Rods | Camshaft Idler Gear |
| Flywheel Housing | Accessory Drive Gear |
| Intake Manifold Castings | Fuel Pump Drive Gear |
| Valve Covers | |

This Plan covers any failure of the Registered Parts which results, under normal use and service, from a defect in Cummins material or factory workmanship (Covered Failure).

This Plan begins on the date the Plan is issued to the Owner. Coverage ends at the time, miles (kilometers) or hours specified on the accompanying Certificate, whichever occurs first **AS MEASURED FROM THE CUMMINS BASE ENGINE WARRANTY START DATE.**

Cummins Responsibilities

Cummins will pay for all parts and labor needed to repair damage to the Engine resulting from a Covered Failure.

Cummins will pay for the lubricating oil, antifreeze, diesel exhaust fluid, filter elements and other maintenance items that are not reusable due to the Covered Failure.

Cummins will cover reasonable costs for Engine removal and reinstallation when necessary to repair a Covered Failure.

Owner Responsibilities

Owner is responsible for the operation and maintenance of the Engine as specified in the applicable Cummins Operation and Maintenance Manual. Owner is also responsible for providing proof that all recommended maintenance has been performed.

Before the expiration of this Coverage, Owner must notify a Cummins distributor, authorized dealer or other repair location approved by Cummins of any Covered Failure and make the Engine available for repair by such facility. Owner is also responsible for delivering the Engine to the repair location or for the expenses associated with travel to and from the repair location if unable to deliver. Service locations are listed on the Cummins Worldwide Service locator at cummins.com.

Owner is responsible for non-Engine repairs, "downtime" expenses, cargo damage, fines, passenger delays, all applicable taxes, all business costs and other losses resulting from a Covered Failure.

Owner is responsible for communication expenses, meals, lodging and similar costs incurred as a result of a Covered Failure.

Owner is responsible for maintaining the Engine odometer in good working order at all times and ensuring that the odometer accurately reflects the total usage of the Engine.

Owner is responsible for the costs to investigate complaints, unless the failure is caused by a defect in Cummins material or factory workmanship.

Owner is responsible for a \$100 (U.S. Dollars) deductible per each service visit under this Plan.

Limitations

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 | max. 15 parts per million |
| EPA 2010 | 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 |

Cummins is not responsible for failures resulting from incorrect modifications or alterations to the Engine or adjustments that significantly alter the Engine's operating characteristics. Failures, other than those resulting from a defect in material or factory workmanship of Registered Parts, are not covered by this Plan.

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of cooling, lubricating or intake systems; improper storage, starting, warm-up, run-in or shutdown practices or unauthorized modifications to the Engine. Cummins is also not responsible for failures caused by incorrect oil or fuel, or by water or diesel exhaust fluid, dirt or other contaminants in the fuel or oil or diesel exhaust fluid.

Aftertreatment component failures are not covered by this Plan.

Parts used to repair a Covered Failure may be new Cummins parts, Cummins approved rebuilt parts or repaired parts. Cummins is not responsible for failures resulting from the use of parts not supplied by Cummins.

A new Cummins or Cummins approved rebuilt part used to replace a Registered Part assumes the identity of the Registered Part it replaced and is entitled to the remaining Coverage hereunder.

This Plan is transferable to subsequent Owners of the Engine by notifying a Cummins Distributor within 90 days of the transfer of ownership.

Bushing and bearing failures are not covered.

Excessive oil consumption or blowby is not covered.

CUMMINS DOES NOT COVER WEAR OR WEAROUT OF COVERED PARTS.

CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

CUMMINS RESERVES THE RIGHT TO INTERROGATE ELECTRONIC CONTROL MODULE (ECM) DATA FOR PURPOSES OF FAILURE ANALYSIS.

EXCEPT FOR THE PUBLISHED CUMMINS ENGINE WARRANTY APPLICABLE TO THE ENGINE, THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

In the United States*, this Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

* United States includes American Samoa, the Commonwealth of Northern Mariana Islands, Guam, Puerto Rico and the U.S. Virgin Islands.

Coverage I.D.: BMC



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Columbus, IN 47202-3005
U.S.A.

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Cummins Recreational Vehicle And Fire Truck Extended Coverage Plan

Coverage

Cummins Recreational Vehicle and Fire Truck Extended Coverage Plan (Plan) is available to be purchased for all eligible Cummins Engines marketed under the trademark "Cummins", "Cummins ReCon®" or "Cummins Westport" and used in recreational vehicle and fire truck applications in the United States* and Canada. The specific Engine covered is designated on the accompanying Certificate.

This Plan covers any failure of the Engine which results, under normal use and service, from a defect in Cummins material or factory workmanship (Covered Failure).

This Plan begins on the date the Plan is issued to the Owner. Coverage ends at the time, miles (kilometers) or hours specified on the accompanying Certificate, whichever occurs first, **AS MEASURED FROM THE CUMMINS BASE ENGINE WARRANTY START DATE.**

Cummins Responsibilities

Cummins will pay for all parts and labor needed to repair the damage to the Engine resulting from a Covered Failure.

Cummins will pay for the lubricating oil, antifreeze, filter element and other maintenance items that are not reusable due to the Covered Failure.

Cummins will pay reasonable costs for Engine removal and reinstallation when necessary to repair a Covered Failure.

Owner Responsibilities

Owner is responsible for the operation and maintenance of the Engine as specified in the applicable Cummins Operation and Maintenance Manual. Owner is also responsible for providing proof that all recommended maintenance has been performed.

Before the expiration of this Coverage, Owner must notify a Cummins distributor, authorized dealer or other repair location approved by Cummins of any Covered Failure and make the Engine available for repair by such facility. Owner is also responsible for delivering the vehicle to the repair location. Service locations are listed on the Cummins Worldwide Service Locator at cummins.com.

Owner is responsible for the cost of lubricating oil, antifreeze, diesel exhaust fluid, filter element, belts, hoses and other maintenance items provided during covered repairs unless such items are not reusable due to a Covered Failure.

Owner is responsible for non-Engine repairs, "downtime" expenses, cargo damage, fines, passenger delays, all applicable taxes, all business costs and other losses resulting from a Covered Failure.

Owner is responsible for communication expenses, meals, lodging and similar costs incurred as a result of a Covered Failure.

Owner is responsible for the costs to investigate complaints, unless the problem is caused by a defect in Cummins material or factory workmanship.

Owner is responsible for a \$100 (U.S. Dollars) deductible per each service visit under this Plan.

Limitations

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 | max. 15 parts per million |
| EPA 2010 | 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 |

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of cooling, lubricating or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications to the Engine.

Cummins is also not responsible for failures caused by incorrect oil or fuel, or by water or diesel exhaust fluid, dirt or other contaminants in the fuel or oil or diesel exhaust fluid.

Aftertreatment component failures are not covered by this Plan.

This Plan 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, steering pumps, non-Cummins fan drives, Engine compression brakes and air compressors.

Cummins branded alternators and starters are not covered by this Plan.

This Plan does not apply to maintenance components, including, but not limited to: fuel injectors, injection and fuel pumps, STC hydraulic tappets, STC oil control valves, turbochargers, air compressors, fan clutches, water pumps, fan hubs, fan idler pulley assemblies, belt tensioners, vibration dampers, valve lash, belts and hoses.

Parts used to repair a Covered Failure may be new Cummins parts, Cummins approved rebuilt parts or repaired parts. Cummins is not responsible for failures resulting from the use of parts not supplied by Cummins.

A new Cummins or Cummins approved rebuilt part used to repair a Covered Failure assumes the identity of the part it replaced and is entitled to the remaining Coverage hereunder.

This Plan is transferable to subsequent Owners of the Engine by notifying a Cummins Distributor within 90 days of the transfer of ownership.

This Plan does not duplicate other Coverage applicable to the Engine.

Fees paid for this Plan are not refundable.

Excessive oil consumption or blowby is not covered under this Plan.

CUMMINS DOES NOT COVER WEAR OR WEAROUT OF COVERED PARTS.

CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

CUMMINS RESERVES THE RIGHT TO INTERROGATE ELECTRONIC CONTROL MODULE (ECM) DATA FOR PURPOSES OF FAILURE ANALYSIS.

EXCEPT FOR THE PUBLISHED CUMMINS ENGINE WARRANTY APPLICABLE TO THE ENGINE, THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

In the United States* and Canada, this Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

* United States includes American Samoa, the Commonwealth of Northern Mariana Islands, Guam, Puerto Rico and the U.S. Virgin Islands.

Coverage I.D.: NEC

Coverage I.D.: RNE



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STATEMENT OF WARRANTY LIFETIME FRAME & FRAME CROSS MEMBERS

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

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

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

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

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

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

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

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

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

WHAT IS NOT COVERED

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

Legal Remedies: Any claim or controversy arising out of or relating to this limited warranty, or beach 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.

STATEMENT OF WARRANTY

ZINC PLATED AND POWDER COATED FRAME RAIL

25-YEAR CORROSION PERFORATION

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

This warranty shall provide for repair or replacement at E-ONE's option, for any claim in accordance with the following terms and conditions.

WHAT IS COVERED

- **WARRANTY APPLIES** – The warranty is for all new fire and rescue apparatus manufactured by E-ONE with zinc coated frame rails, and is extended only to the original user-purchaser.
- **REPAIRS COVERED** – The warranty covers repair or replacement at E-ONE's option. Repairs shall be made at an E-ONE owned service facility or another approved service facility at E-ONE's option.
- **OBTAINING REPAIRS** – The original user-purchaser must notify E-ONE in writing within a reasonable amount of time after any claimed defect has appeared. Transportation costs to and from the servicing center shall be the responsibility of the user-purchaser.
- **WARRANTY PERIOD** – The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. The warranty period shall be for a period of **TWENTY FIVE (25) YEARS**. Corrosion perforation is defined as complete penetration through the frame rail.

WHAT IS NOT COVERED

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

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

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

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

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

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

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

Legal Remedies: Any claim or controversy arising out of or relating to this limited warranty, or beach 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.

STATEMENT OF WARRANTY 10-YEAR LIMITED PAINT AND PERFORATION

E-ONE (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 E-ONE’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 E-ONE and is extended only to the original user-purchaser. The warranty registration must be received by E-ONE within 30 days of the in-service for the warranty to apply.
- **REPAIRS COVERED** –The warranty covers repair or replacement at E-ONE’s option. Repairs shall be made at an E-ONE owned service facility or another approved service facility at E-ONE’s option.
- **OBTAINING REPAIRS** –The original user-purchaser must notify E-ONE in writing within 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 to 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 E-ONE.
- 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 E-ONE.
- Damage from lack of, maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the E-ONE 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 beach 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.



STATEMENT OF WARRANTY STAINLESS STEEL PLUMBING COMPONENTS 10 YEAR WARRANTY POLICY



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

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

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

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

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

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

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

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

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

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

STATEMENT OF WARRANTY

1-YEAR STANDARD

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

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

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

The E-ONE warranty shall not apply to:

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

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

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

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

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

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

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

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

Legal Remedies: Any claim or controversy arising out of or relating to this limited warranty, or beach 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.

STATEMENT OF WARRANTY

STRUCTURAL WARRANTY

10-YEAR/100,000 MILES

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

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

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

The STATEMENT OF WARRANTY shall not cover the following:

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

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

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

Legal Remedies: Any claim or controversy arising out of or relating to this limited warranty, or beach 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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www.haleproducts.com

Hale Products Inc. Limited Standard Warranty **(Fire Service Applications Only)***

EXPRESS WARRANTY: Hale Products, Incorporated (“Hale”) hereby warrants to the original buyer that products manufactured by Hale are free of defects in material and workmanship for a period of five (5) years from the date the product is first placed into service or five and one-half (5-1/2) years from date of shipment by Hale, whichever period shall 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).

LIMITATIONS: HALE’S obligation is expressly conditioned on the Product being:

- Subjected to normal use and service.
- Properly installed and maintained in accordance with HALE’S Instruction Manual and Industry Standards as to recommended service and procedures.
- Not damaged due to abuse, misuse, negligence or accidental causes.
- Not altered, modified, serviced (non-routine) or repaired other than by an Authorized Service facility.
- Manufactured per design and specifications submitted by the original buyer.
- Used with an appropriate engine as determined by the engine manufacturers published data.
- Excluded are normal wear items identified as but not limited to packing, strainers, anodes, filters, light bulbs, intake screens, wear rings, mechanical seals, etc.

THE ABOVE EXPRESS LIMITED WARRANTY IS EXCLUSIVE. NO OTHER EXPRESS WARRANTIES ARE MADE. SPECIFICALLY EXCLUDED ARE ANY IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATIONS, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE; COURSE OF DEALING; USAGE OF TRADE; OR PATENT INFRINGEMENT FOR A PRODUCT MANUFACTURED TO ORIGINAL BUYER’S DESIGN AND SPECIFICATIONS.

EXCLUSIVE REMEDIES: If Buyer promptly notifies HALE upon discovery of any such defect (within the Warranty Period), the following terms shall apply:

- Any notice to HALE must be in writing, identifying the Product (or component) claimed defective and circumstances surrounding its failure.
- HALE reserves the right to physically inspect the Product and require Buyer to return same to HALE’S plant or Authorized service Facility.
- In such event, Buyer must notify HALE for a Return Goods Authorization number and Buyer must return the Product F.O.B. within (30) days thereof.
- If determined defective, HALE shall, at its option, repair or replace the Product, or refund the purchase price (less allowance for depreciation).
- HALE’S reimbursement covers only the standard labor and Hale components required for the removal, repair, and/or re-installation of HALE supplied Product.
- HALE’S reimbursement does not cover the standard labor or components for the removal and reinstallation of non-HALE supplied components.
- Absent proper notice within the Warranty Period, HALE shall have no further liability or obligation to Buyer therefore.

THE REMEDIES PROVIDED ARE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE. IN NO EVENT SHALL HALE BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING, WITHOUT LIMITATION, LOSS OF LIFE; PERSONAL INJURY; DAMAGE TO REAL OR PERSONAL PROPERTY DUE TO WATER OR FIRE; TRADE OR OTHER COMMERCIAL LOSSES ARISING, DIRECTLY OR INDIRECTLY OUT OF PRODUCT FAILURE.



** Portable and float pumps, non-fire service applications, skids and trailer products sold by Hale are not covered by this warranty document.*



LIMITED WARRANTY

(Effective 07-08-2011)

SECTION 1 - WARRANTY TERMS

R•O•M Corporation (“R•O•M”) warrants that the equipment and parts sold by it (collectively, the “Product”) will be free from manufacturing defects for a period of up to 7 years from date of purchase provided that the Product is used under conditions of normal use, that regular periodic maintenance and service is performed and that the Product was installed in accordance with R•O•M’s instructions.

The limited warranty is not transferable in the event the Product is sold, traded or transferred to another party.

SECTION 2 - EXCEPTIONS TO WARRANTY TERMS

2.1 R•O•M Replacement Parts:

- a. Warranty period for manufacturing defects equivalent to warranty of original product.

2.2 R•O•M Roll-up Shutter Door / Horizontal Hose Bed Cover:

- a. Warranty period for manufacturing defects is 7 years from the date of purchase (excluding electrical components).
- b. *LED V3 Lightbar components* - Warranty period for manufacturing defects is 7 years from the date of purchase.
- c. *Door ajar switch* - warranty period for manufacturing defects is 3 years from the date of purchase.
- d. *All other electrical components* – warranty period for manufacturing defects is 1 year from the date of purchase.
- e. Perfect Match Wet Paint System™:
 - *PPG Delta / Delfleet*: Covered 100% for 84 months from date of purchase for excessive loss of gloss caused from cracking, checking and hazing. Covered 100% for 84 months from date of purchase for cracking or checking, peeling or de-lamination of the topcoat or other layer of paint.
 - *Sikkens Autocoat LV*: Covered 100% for 84 months from date of purchase for items directly related to durability and appearance of the topcoat (gloss, color retention, cracking). Covered for 72 months from date of purchase, for items related to the integrity of the entire coating system (adhesion, peeling), coverage will be 100% for the first 36 months from date of purchase, from the 37th month to the 48th month from the date of purchase coverage will be 50%, from the 49th month to the 72nd month from date of purchase coverage will be 25%.
 - *DuPont Performance Coating products – Imron and Imron Elite*: R•O•M warrants that finished areas will be free throughout the warranty period from: corrosion, blistering, cracking, peeling, hazing, chalking, delamination, and unreasonable loss of gloss throughout the entire finished area. Covered 100% for 60 months from date of purchase, coverage will be 75% from the 61st month to the 72nd month from the date of purchase, and coverage will be 50% from the 73rd month to the 84th month from date of purchase.
 - *Other*: Contact factory.

2.3 R•O•M Extreme Cargo Tray and Slides:

- a. Warranty period for manufacturing defects is 7 years from the date of purchase.

2.4 DuroLumen™ LED V3 Light:

- a. Warranty period for manufacturing defects to the original consumer/purchaser is 7 years from the date of purchase.

2.5 LoadMaker™ Bulkhead (3" construction):

- a. Warranty period for manufacturing defects is 1 year from the date of purchase.
- b. *Core:* For the life of the bulkhead, the core will not delaminate or break from flexural movement along the length of the core.

2.6 Center ZoneMaker™ Bulkhead (2" construction):

- a. Warranty period for manufacturing defects is 1 year from the date of purchase.
- b. *Core:* For period of 5 years from date of purchase, the core will not delaminate or break from flexural movement along the length of the core.

2.7 T-Warrior™ Bulkhead (3" construction):

- a. Warranty period for manufacturing defects is 1 year from the date of purchase.

2.8 R•O•M Roadwarrior™ and Sidekick™ Ramps, Carriers, Platforms, Ladders, etc...:

- a. Warranty period for manufacturing defects is 1 year from the date of purchase.

2.9 R•O•M LinksGuard™ Chain Gates, Dock Gates, Truck Gates, etc...:

- a. Warranty period for manufacturing defects is 1 year from the date of purchase.

SECTION 3 - EXCLUSIONS FROM WARRANTY

3.1 This limited warranty does not cover normal maintenance, service and adjustments or damage to Product relating to:

- a. Accident, alteration, misuse, negligence, abuse, vandalism or physical damage;
- b. Any repair, replacement or alteration by a facility not approved in advance by R•O•M;
- c. Improper installation (including electrical damage caused by improper installation), failure to follow the installation instructions provided by R•O•M;
- d. Use inconsistent with the instruction manual or abuse;
- e. Use of equipment or parts not manufactured by R•O•M;
- f. Fire, explosion, implosion, flood, earthquake, lightning strike, acid rain, chemical fallout, catastrophic event, or other act of God or nature;
- g. Exposure to severe environmental conditions or excessive heat;
- h. Exposure to chemicals and other substances (other than cleaning agents specifically recommended in the instruction manual);
- i. Exposure to unintended uses and/or substances;
- j. Acts or omissions of any carrier delivering the Products;
- k. Any failure to care for or maintain the Products in accordance with the instruction manual;
- l. Damage to the R•O•M Roll-up Shutter Door resulting from the door being left in the open position while the vehicle is in motion.
- m. Damage to the R•O•M Roll-up Shutter Perfect Match Wet Paint System™ resulting from or relating to:
 - Application or removal of stickers, decals, adhesive tapes or adhesives of any kind or other subsequently applied signs, artwork or lettering; or

- Accidents, scratches, abrasions, chips, bruises and gloss reduction to the Perfect Match Wet Paint System™ caused intentionally, accidentally or by normal vehicle use and maintenance; or
 - Hazing, chalking, loss of gloss or peeling of the Perfect Match Wet Paint System™ caused by improper care, abrasive polishes, aggressive chemicals, cleaning agents, heavy-duty pressure washing or aggressive mechanical wash systems; or
- n. Damage to the LoadMaker™, ZoneMaker™, or T-Warrior™ bulkheads resulting from excessive compressive forces of any kind, any puncture, cutting, or ripping.
- o. The DuroLumen™ LED V3 Light limited warranty does not apply to:
- Severe applications, such as off-road vehicles, construction equipment, buses, or external applications (these applications are examples only and are not all inclusive of such excluded applications); or
 - Damage due to chemicals and or incompatible cleaners.

SECTION 4 - CONDITIONS OF WARRANTY

4.1 This limited warranty is conditioned upon and will be invalidated by failure to comply with the following conditions:

- a. The Product and any ancillary equipment, components or parts must be installed in accordance with the instruction manual provided by R•O•M.
- b. Regular maintenance and service must be performed on the Products;
- c. The Products must be put to their intended use;
- d. Replacement parts must be manufactured by R•O•M;
- e. Complete compliance with the claims procedure set forth in Section 5 below; and
- f. R•O•M must have received full and timely payment of all invoices issued to the customer.

SECTION 5 - NOTICE OF CLAIMS AND REPLACEMENT POLICY

5.1 Claims under this limited warranty must be in writing and presented to and received by R•O•M Corporation at 6800 East 163rd Street, Belton, Missouri 64012, within the applicable warranty period set forth in Sections 1 and 2 above. All claims must include the serial number of the Product, the name of the purchaser, and the date the alleged problem was discovered. Within 30 business days of receiving a written claim pursuant to Section 5.1, a member of R•O•M's staff will contact the customer and arrange for a time and place for a R•O•M representative to inspect the Products, if necessary. Alternatively, R•O•M may request the return of the Product.

If R•O•M instructs the customer to return the Products to R•O•M, the item will be assigned a Return Goods Authorization ("RGA") number and the item must be returned to R•O•M within 30 days of the RGA number being assigned. If the item is not returned within 30 days of the assignment of the RGA number, this limited warranty will terminate and R•O•M will have no further liability or obligation with respect to that Product.

- 5.2** After a representative of R•O•M inspects the Products or assesses the problem, R•O•M will take appropriate action, in its sole discretion, to remedy the alleged problem. If the claim is for a manufacturing defect, R•O•M must be satisfied, in its sole discretion, that the Products were defective at the time it left R•O•M's factory.
- 5.3** If R•O•M ships replacement parts prior to the receipt of the allegedly defective part, the replacement part at R•O•M's discretion will be invoiced FOB Belton, Missouri and upon receipt of the allegedly defective part, R•O•M will credit the customer's account, if R•O•M determines, in its sole discretion, that the returned part is covered by this limited warranty.
- 5.4** Labor reimbursement up to 3 years. R•O•M will determine, at its own discretion, the amount of time that it will reimburse for any labor associated with this limited warranty, depending on the nature of the claim. R•O•M will not reimburse any labor connected with the removal or reinstallation of adhesives, decals, stickers, tapes, etc... R•O•M may reimburse for labor with prior approval from an authorized R•O•M representative strictly adhering to the guidelines listed below. This authorization will

pay for removal, replacement and reinstallation of the allegedly defective Product. Warranty coverage only applies to original equipment supplied by R•O•M and does not extend to door attachments including (but not limited to) decals, emblems, stripes and adhesives, equipment removal, compartment configurations (i.e.: false walls, shelves), etc... Reimbursement is for repairs only, travel to and from truck location is not covered.

Guidelines – maximum allowance:

R•O•M Roll-up Shutter Doors and Parts:

- | | | | |
|----------------------|-----------------|--------------------------|-----------|
| • 1 Door | 1.5 hours | • 1 Bottom Rail Assembly | 1.0 hour |
| • 1 Curtain (slats) | 1.5 hours | • 1 Slat Replacement | 1.5 hours |
| • 1 Door Ajar Switch | 1.0 hour | • 1 Operator | 1.5 hours |
| • Other | Contact Factory | | |

Other R•O•M Products: (Contact Factory)

Maximum reimbursement rate is \$60.00 per hour.

SECTION 6 - REMEDY

6.1 The customer's exclusive remedy under this limited warranty is the repair or replacement of the Product, as determined by R•O•M in its sole discretion.

SECTION 7 - LIMITATION OF LIABILITY

7.1 **THE LIMITED WARRANTY DESCRIBED ABOVE IS THE ONLY WARRANTY MADE BY R•O•M CORPORATION, AND SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. R•O•M CORPORATION SHALL NOT BE LIABLE FOR ANY OTHER DAMAGE OF ANY KIND INCLUDING, BUT NOT LIMITED TO, PUNATIVE, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING DAMAGES FOR LOST PROFITS, LOST SALES, OR INJURY TO PERSON OR PROPERTY. NO REMEDY FOR SUCH DAMAGES SHALL BE AVAILABLE REGARDLESS OF WHETHER SUCH CLAIM IS BASED ON CONTRACT, NEGLIGENCE, TORT OR STRICT LIABILITY.**

7.2 **NO STATEMENT MADE BY ANY PERSON WITH RESPECT TO ANY PRODUCT SHALL CONSTITUTE A WARRANTY, BE RELIED UPON ANY CUSTOMER OR BE DEEMED PART OF THIS LIMITED WARRANTY OR ANY SALE AGREEMENT BETWEEN R•O•M AND THE CUSTOMER.**

SECTION 8 – CHANGED, RETURNED OR CANCELLED ORDERS

8.1 Changed orders: Alterations or modifications requested within 10 working days (15 working days for painted orders) of the scheduled ship date could result in additional charges for incurred material and labor costs, and may effect the delivery date.

8.2 Cancelled orders: Cancelled orders are subject to a 10% cancellation fee.

8.3 Returned items: With prior approval goods may be returned within 10 business days of invoice date (excludes custom made products & parts). Returned goods are subject to a 15% restocking fee. No credit allowed for goods returned without prior approval.



Excellence made to order.

6800 E. 163rd Street
Belton, MO 64012-5463
800-827-3692
Fax 816-318-8100
sales@romcorp.com
www.romcorp.com

December 14, 2010

Scott Beamesderfer
FSC Supply Chain Manager
E-One, Inc.
3611 SW 20th Street
Ocala, FL 34474

Dear Scott,

In the event that anyone would have an issue with an ROM product we simply request that we be contacted. Our toll free number is 1-800-827-3692. They would need to tell us the door serial number, what the issue is and that they believe the door to be under warranty. A repair authorization number and approval will need to be obtained prior to commencing repair. Our current Customer Development Representative is Mike Dryer. Mike can be reached at 1800-827-3692 ext 203 or at MikeDryer@romcorp.com.

If there is anything else I can help with please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink that reads 'Cindy Preston'.

Cindy Preston
Customer Development Representative
CPreston@Romcorp.com
1-800-827-3692 ext 273

ROM Warranty Attached

Warranty Claim Form

| | | | |
|---|--|--|--|
| Customer Name: | | | |
| Contact Name: | | | |
| Address: | | | |
| City / State / Zip: | | | |
| Phone #: | | Fax #: | |
| Cust ID: | | Date of Claim: | |
| Invoice # (s) of products in question: | | Serial # (s) of products in question: | |

Describe the Problem you are having:

Describe why you feel this is a Warranty Issue:

Can you return the parts in question? / If no, explain the reason:

| | |
|--|--|
| Can you provide photographs if asked? | |
| Is the equipment out of service due to the problem described? | |
| Is the product being used under normal conditions? | |
| If no, describe any special circumstances. | |
| What repairs have you made if any? | |

If you have made any modifications to the product, or modifications where the product is used - please describe.

Is there any other information you feel we should be made aware of?

The above-presented information is accurate and truthful to the best of my knowledge, fairly and accurately reflecting the facts in this case. I have reviewed R•O•M Corporation's Terms of Warranty and I hereby agree to the conditions therein. The above is not an accusation of liability on the part of any party involved and is submitted for informational purposes only.

Signature _____ Title _____ Date

FOR R•O•M OFFICE USE ONLY

| | |
|---------------------|-------------------|
| Date Received _____ | Reviewed By _____ |
| CQC Number _____ | Date of RMA _____ |

Copyright © 2007 R•O•M Corporation. All Rights Reserved.
Information contained herein is the confidential and proprietary intellectual property of R•O•M Corporation and should not be disclosed to any third party without the express prior written consent of R•O•M Corporation.

Toll: 800-827-3692 / Phone: 816-318-8000 / Fax: 816-318-8100 / www.romcorp.com

Instructions for Warranty Claim Form

| |
|--|
| Read the Warranty on the product you are making the Claim against, and determine if your case is indeed covered by R•O•M's Warranty. |
| Gather as much information and appropriate documentation as possible before beginning the Warranty Process. |
| Attach copies of any pertinent documentation to this form when you return it. |
| If available have a copies of the original Invoice, Order Packing Lists, Bills of Lading and any previous paperwork associated with the product in question. |
| Attempt to complete each piece of information requested on this form. If a piece of information is unavailable to you, please indicate that on the form, rather than leaving it blank. |
| If additional room is needed to complete a particular section, attach an additional paper, then reference the additional piece of paper you are continuing. |
| If needed, R•O•M can assist you in completing information on the form that you may not have available. However, we cannot assist you in making your actual complaint or in describing why you feel this is a warranty issue. |
| For assistance in completing this form call R•O•M's Customer Development Center at 1-800-827-3692. |
| R•O•M will open a Warranty Case and issue a CQC Number (Customer Quality Concern). |
| You will be sent an RMA number (Return Materials Authorization) if you are asked to return any product. We will not receive any returned product without this number. |
| R•O•M's Customer Development Center will begin a investigation process. This may involve requests for further information, phone calls and possibly a visit from our Territory Manager. |
| This process does take some time to complete, however, we will attempt to expedite the investigation when we can. |

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Information contained herein is the confidential and proprietary intellectual property of R•O•M Corporation
and should not be disclosed to any third party without the express prior written consent of R•O•M Corporation.*

Toll: 800-827-3692 / Phone: 816-318-8000 / Fax: 816-318-8100 / www.romcorp.com

UPF POLY-TANK® IIE

THE ALL-OUT™ NO FAULT LIFETIME WARRANTY

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

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

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

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

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

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

Transfer of Ownership Form



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

POLY-TANK®, POLY-TANK® II & POLY-TANK® IIE are all registered trademarks of United Plastic Fabricating, Inc.
ALL-OUT™ and PT2E™ are trademarks of U.P.F., Inc.
AccTuf™ is a trademark of Amoco Polymers, Inc., exclusive to U.P.F.
© April 1998 U.P.F., Inc. Printed in the U.S.A.

Serial Number: _____

Original Owner: _____

Address: _____

City/Town: _____ State: _____ Zip: _____

Complete and fax or mail to UPF to transfer warranty

Date of transfer: _____

New Owner: _____

Address: _____

City/Town: _____ State: _____ Zip: _____

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

*The Industry Standard in
Booster Tank Technology*

UPF's Poly-Tank® IIE

**With Amoco's
AccTuf™ Resin**

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

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

WARRANTY CARD

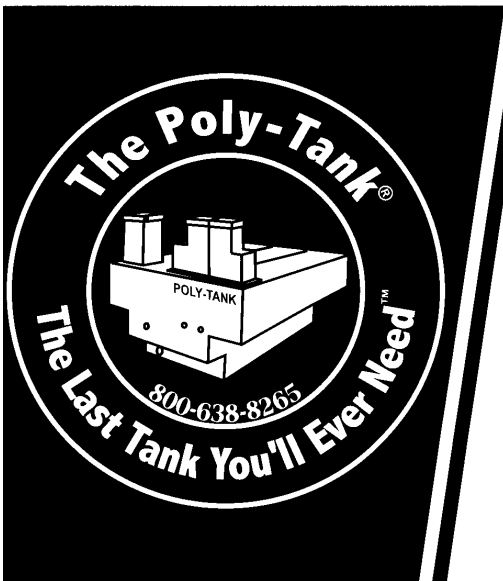
Phone: (800) 638-8265
Fax: (800) 966-4520
Email: info@unitedplastic.com
www.unitedplastic.com

To:

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N. Andover, MA 01845

**UNITED PLASTIC
FABRICATING, INC.**



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



Warranty Provided to: E-ONE

Page 1

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

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

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

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

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

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

<Table on Next Page – Defines Warranty Period >

| | | |
|---|---------------------------------------|---|
|  | Vehicle Multiplex Warranty |  |
|---|---------------------------------------|---|

Warranty Table

Page 2

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

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

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

| | | |
|---|---------------------------------------|---|
|  | Vehicle Multiplex Warranty |  |
|---|---------------------------------------|---|

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

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

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

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

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

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

| | | |
|---|--|---|
|  | <p>Vehicle Multiplex Warranty</p> |  |
|---|--|---|

V-MUX® Certified Supplier Program – VCS

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

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

This class will consist at a minimum of:

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

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

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

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



Vehicle Multiplex Warranty



Page 5

V-MUX® Certified Service Supplier – VCSS

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

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

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

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

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



DATE: May 24, 2017
TO: North American Dealers
FROM: Dave Boland
SUBJECT: Corrosion Mitigation

In a continuous effort to help mitigate corrosion, we have implemented new procedures into our manufacturing processes. These new procedures are provided as a quality enhancement to our products.

Nanoprotech Electric

Nanoprotech Electric corrosion inhibiting spray is now applied to all exposed electrical connections on an E-ONE custom chassis, body and aerial device (if equipped). The spray incorporates nanotechnology that penetrates at the molecular level to form a water repellant barrier that seals the connections from all forms of road debris. You will notice a new sales code that is auto added to each quote for the inhibiting spray.

Exposed connections are recommended to have inhibitor re-applied periodically. Nanoprotech spray can be purchased through our Parts Department for stocking at the dealership; reference part number 1068670 when ordering.

3M™ Single Step Primer

3M™ Single Step Primer is now applied to cab sheet metal openings for windows, headlights/warning lights and others that may be concern for corrosion. The black primer is a sealant specifically designed to promote adhesion of polyurethane adhesives when installing window glass. The primer also acts a corrosion inhibitor sealing the metal surface from intrusions that may cause corrosion.

3M™ 7070UV Clear Tape

3M™ 7070UV Clear Tape is now provided on door hinges, roll-out tray tracks and roll-out steps. The tape is an 8 mil clear film with adhesive backing providing excellent galvanic corrosion protection from the dissimilar metals.

ECK® Training

Annual training courses are provided as a continued education on the use of the ECK® (Electrolysis Corrosion Kontrol) product. ECK® is a patented and proven corrosion inhibitor for dissimilar metals. ECK® is applied to threaded fasteners on painted surfaces.

Deutsch Connector Upgrade

As a running change, any new orders received will have the Deutsch connectors upgraded to a new design that incorporates a retainer for the water seal gasket on the connector and a strain relief end that also acts as retainer for wiring gasket seal.

GEOMET® Frame Rail Hardware

Beginning in June, GEOMET® 720 coated hardware will be provided on all E-ONE custom chassis frame assemblies. GEOMET® 720 is a VOC compliant coating provided on the hardware that provides three times greater corrosion protection vs. pure zinc.

These enhancements are in addition to now providing galvanized powder coated C-Frames as standard. The new rails provide excellent corrosion resistance and feature a 25 year corrosion warranty. For reference please see product bulletin 2016-0895 and the sell sheet in the Dealer Portal Information Library.

If you have any questions, please e-mail me at dboland@e-one.com or phone 352-861-3543.



March 19, 2009

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



Dear Mr. Wolter,

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

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

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

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

Sincerely,

James R. Chinni P.E.
Director of CAPE

Ref: CTR03156



May 20, 2009



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

Dear Mr. Wolter,

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

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

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

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

Sincerely,

James R. Chinni P.E.
Director of CAPE

Ref: CTR03156



May 22, 2009

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



Dear Mr. Wolter,

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

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

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

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

Sincerely,

James R. Chinni P.E.
Director of CAPE

Ref: CTR03156



May 17, 2016

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

Ref: T2X/C2X/Quest 2016 ISL Installation Review

Dear Raff,

The IQA submission for the 2016 ISL installation has met Cummins requirements and has been approved by Cummins as of May 16, 2016. Any changes to the installation will need to be communicated to Cummins for additional review and approval.

| <u>System</u> | <u>Concurrence</u> |
|----------------|--------------------|
| Power Train | Yes |
| Mounting | Yes |
| Deaeration | Yes |
| Cooling | Yes |
| Fuel | Yes |
| Air Induction | Yes |
| Air Compressor | Yes |
| Aftertreatment | Yes |
| Lubrication | Yes |
| Electrical | Yes |
| Accessories | Yes |
| Serviceability | Yes |

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

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

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

Please contact me if you have any questions.

Sincerely,

Trey Hanson
Cummins Sales and Service
OEM Application Engineer

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

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

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

3.0 **DEFINITIONS:**

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

4.0 **RESPONSIBILITY:**

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

5.0 **PROCESS:**

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

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

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

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

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

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

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

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

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

Approval Status:

| | Title | Date | Signature |
|-----------------------------------|---|------------|-----------------------|
| Prepared by: | Serena Mendola Director of Quality | 12/22/10 | <i>Serena Mendola</i> |
| Reviewed/ Approved by: | Dirk Steyn Director of Engineering | 12/22/10 | <i>Dirk Steyn</i> |
| Reviewed/ Approved by: | Billy Miles Director of Customer Service | 11-29-2010 | <i>Billy Miles</i> |
| Reviewed/ Approved by: | Mike Tomasetti VP Operations | 12/22/10 | <i>Mike Tomasetti</i> |
| Reviewed/ Approved by: | | | |
| Reviewed/ Approved by: | | | |
| Reviewed/ Approved by: | | | |

Revision Log:

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

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

Certificate of Registration



This is to certify that the Quality Management System of:

E-ONE, Inc.

1601 Southwest 37th Avenue
Ocala FL 34474

(Central function listed above. See appendix for additional locations)

applicable to:

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

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

ISO 9001: 2008

For and on behalf of NQA, USA

Certificate Number: 12518
EAC Code: 22
Certified Since: August 18, 2000
Valid Until: July 30, 2018
Reissued: July 31, 2015
Cycle Issued: July 31, 2015





Appendix to Certificate Number 12518

Includes Facilities Located at:

E-ONE, Inc.

Certificate Number 12518
1601 Southwest 37th Avenue
Ocala FL 34474
United States of America

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

E-ONE, Inc.

Certificate Number 12518
S-4760 Camp Road
Hamburg NY 14075
United States of America

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



Certified Since: August 18, 2000

Valid Until: July 30, 2018

Reissued: July 31, 2015

Cycle Issued: July 31, 2015

Fire Apparatus Manufacturers' Association



Certificate of Membership

In accordance with its bylaws,
FAMA affirms that

E-ONE, Inc.

meets the membership qualifications
and is a member in good standing through

2017

A handwritten signature in blue ink, appearing to read "Scott Edens", is written over a horizontal line.

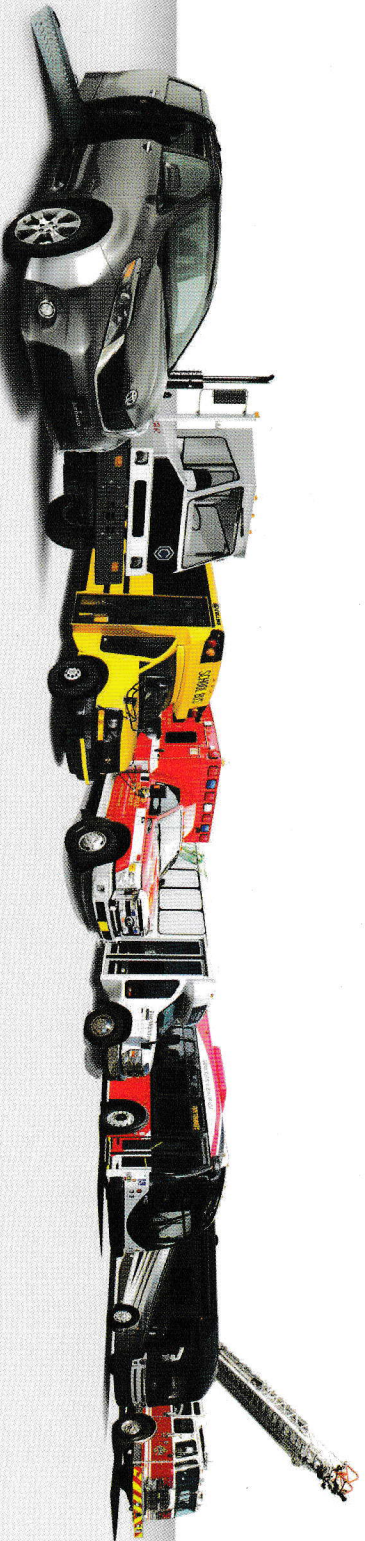
Scott Edens
FAMA Board President

Vehicles for Life

At REV Group, Inc., we innovate, design and build products that connect and protect thousands of people every day. Our trusted vehicles are engineered with the utmost rigor and thoughtful precision to deliver the highest levels of performance, reliability, durability and safety.

Around the clock and around the world, our vehicles transport patients to emergency rooms, fight fires across the country, shuttle people to the airport and connect families and friends in their RVs. With our products, we bring mobility to the disabled, move freight around ports and carry children safely to school. We are passionate about integrity and delivering quality vehicles you can rely on.

We are REV. And we build 23 of the hardest working, most reliable vehicle brands on the road.



REV is a privately-owned corporation dedicated to serving Recreation, Bus, Fire and Emergency, and Specialty vehicle markets worldwide. Our companies hold either the #1 or #2 positions in each of their respective markets.

Operational Excellence

REV maintains intense focus on designing, building and providing in-service support of superior quality specialty vehicles. We are driven to streamline processes, reduce lead times, share best practices, remain a great partner for our suppliers and most importantly, be the preferred choice for customers.

Innovative Brands

REV companies define market expectations. Our corporate culture fosters an atmosphere of continuous improvement and operational excellence. From safety to convenience, from durability to performance, we are constantly innovating to ensure our vehicles are the very best the industry has to offer.

Customer Focus

We define the direction of our product development by listening to our customers and valuing our partners. We're constantly evaluating how our vehicles are used, the challenges our drivers face and the aspirations of our recreational customers. In short, we're constantly evaluating our products' most important features.

REV is an organization of scale and synergy, focused on being the world's #1 specialty vehicle manufacturer. We continue to build upon our company culture, innovate our vehicle designs and accelerate our product offerings.

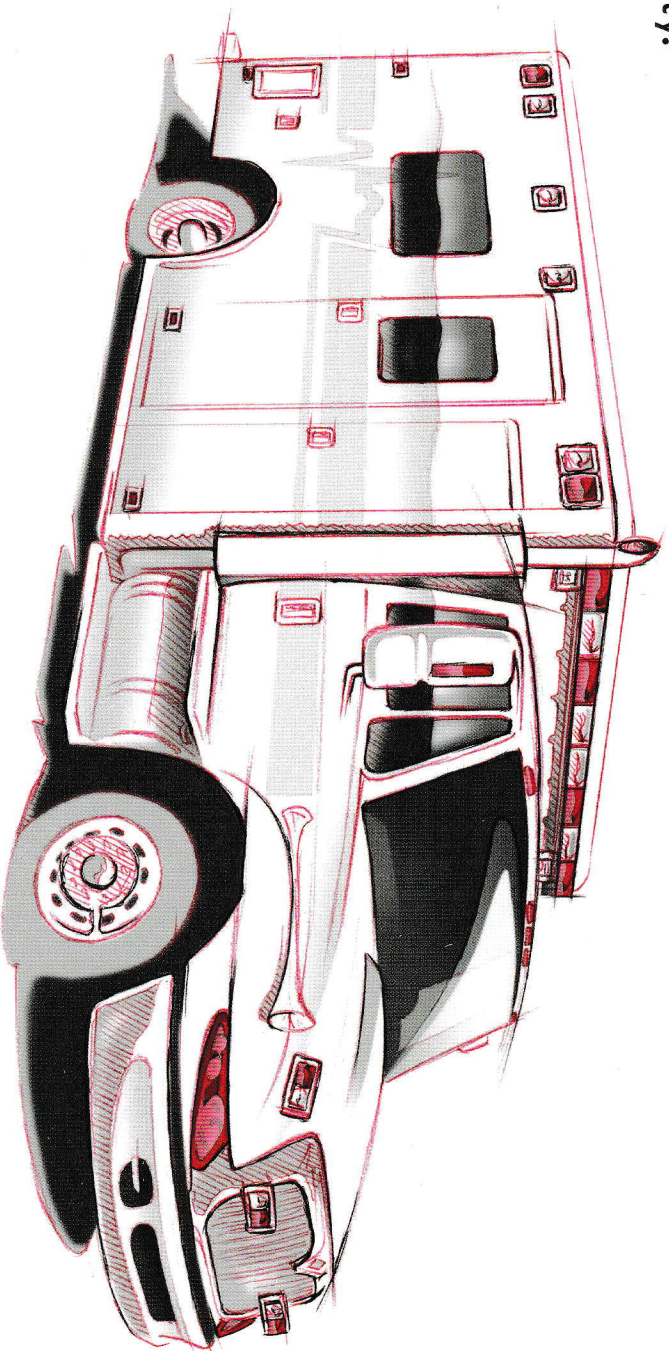
OUR VEHICLES CONNECT AND PROTECT



RECREATION
SPECIALTY PRODUCTS
BUS

FIRE / EMERGENCY

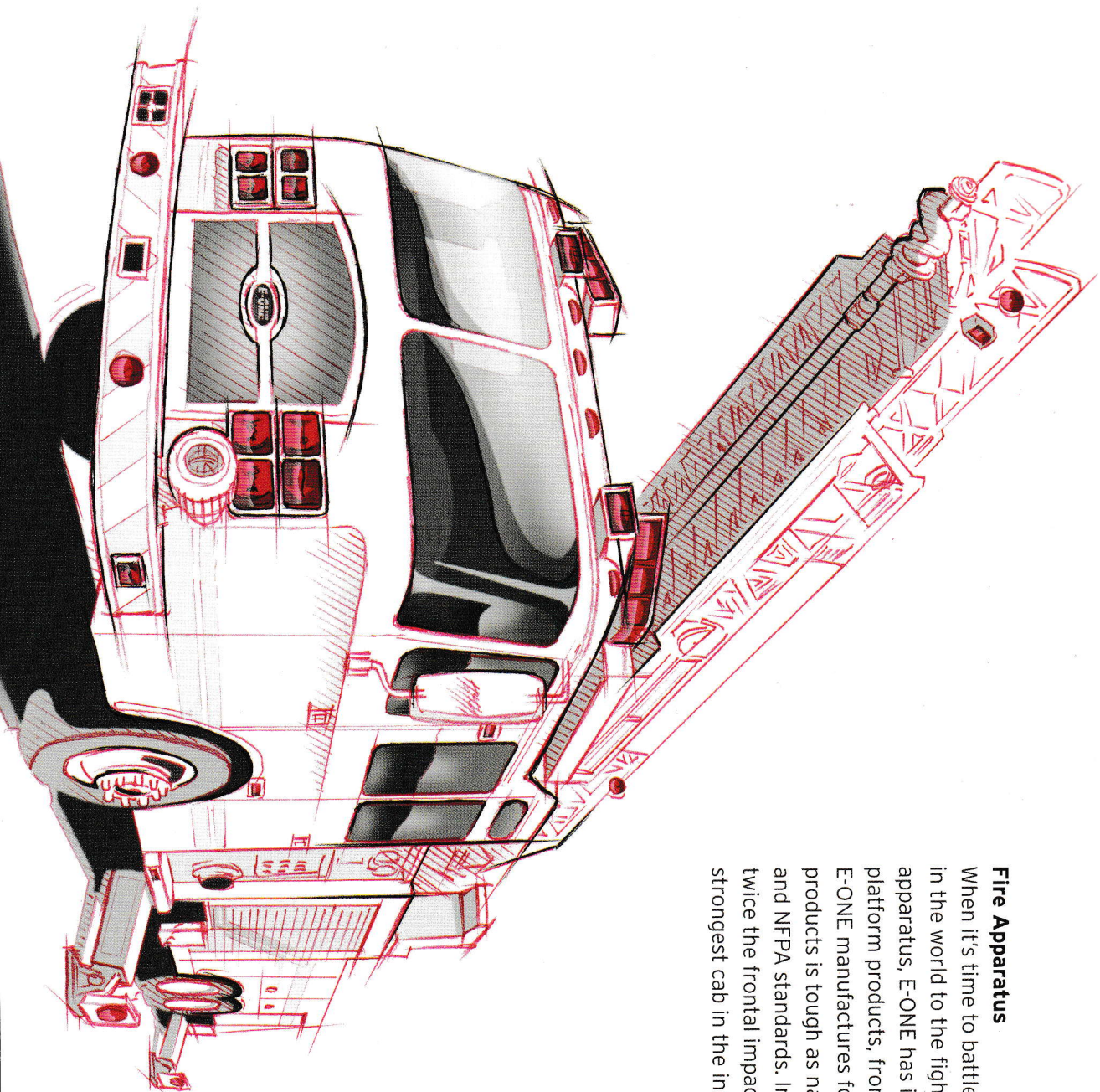
Whenever the call for help goes out, a REV vehicle stands ready to answer it. From ambulances to fire apparatuses, from medium- to light-duty rescue vehicles, every one of our eight brands puts first responders first. At REV, we strive to give crews the tools they need to get the job done, while keeping them protected so that they can ensure our communities' safety.



Ambulance and Rescue

REV offers seven proven and trusted ambulance and rescue brands that read like a Who's Who in the rescue vehicle category: **AEV, Horton, McCoy Miller, Leader, Marque, Road Rescue, Wheeled Coach.** Every municipality is unique, and with everything from fire rescue vehicles to Type I, Type II and Type III ambulances, we offer the flexibility to serve them all.





Fire Apparatus

When it's time to battle the blaze, REV brings one of the best brands in the world to the fight. **E-ONE**. As the pioneer of the aluminum aerial apparatus, E-ONE has innovation in its DNA. From aerial ladders to platform products, from airport rescue vehicles to custom fire trucks, E-ONE manufactures for every firefighting need. And every one of these products is tough as nails, because E-ONE fire trucks exceed SAE, ECE and NFPA standards. In fact, the cab structure can withstand more than twice the frontal impact required by the NFPA and SAE, making it the strongest cab in the industry.





CAPACITY



LAYMOR



ELDORADO
MOBILITY



ELDORADO



FLEETWOOD RV



1441 Brickell Ave, Suite 1007
Miami, FL 33131
(786) 464-8986
www.REVgroup.com



Proposal Information Sheet

Oct. 30, 2017

Customer: LEXINGTON-FAYETTE URBAN COUNTY GOVT

Apparatus: E-ONE Cyclone Custom Tanker

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

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

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

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



SERVICE FACILITIES

Local Service Facility:

Vogelpohl Fire Equipment, Inc

2770 Circleport Dr.
Erlanger, KY 41018

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

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

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

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

Joe Hoover, Service Writer
joehoover@vogelpohlfire.com

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

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



Vogelpohl Fire Equipment, Inc.
E-One Customer List

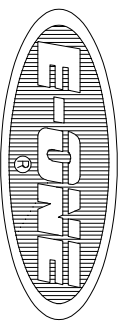
| Department | Contact & Phone | Units |
|--|--|--|
| Indiana | | |
| Aurora Volunteer Fire Dept. 5950 Dutch Hollow Rd. Aurora, IN 47001 | 812-926-1224 | Custom Pumpers Custom Quint Custom Tower |
| Dillsboro Fire Dept. 10100 Front St. Dillsboro, IN 47018 | Chief Tim Heitmeyer 812-432-5262 | eMax Rescue Pumper |
| Greendale Fire Dept. 510 Ridge Ave Greendale, IN 47025 | Chief Shannon Craig 812-537-1335 | Custom Rescue Custom Aerial Tower |
| Lawrenceburg Fire Dept. 3000 W. Tate St. Lawrenceburg, IN 47025 | Chief Johnnie Tremain 812-537-1509 | Custom Pumpers Custom Rescue Custom Quints |
| Manchester Township Fire Dept. 10475 SR 48 Aurora, IN 47001 | Chief Glen Brandt 812-212-3396 | Comm ES Pumper |
| Osgood Volunteer Fire Dept. 247 W. Beech St. Osgood, IN 47037 | Chief Steve Linville 812-689-4142 | Comm Wetside Tanker |
| Kentucky | | |
| Augusta Fire Dept. 215 Main St. Augusta, KY 41002 | 606-735-2700 | Comm Pumper Comm Rescue |
| Berea Fire Dept. 212 Chestnut St. Berea, KY 40403 | Chief Ray Curtis 859-986-8232 | HP78 Emax Quint |
| Bourbon County Fire Dept. 345 Main St. Paris, KY 40361 | Chief Lloyd Campbell 859-987-2141 | Comm ES Pumper Comm Wetside Tanker |
| Burlington Fire Protection District 6050 Firehouse Dr. Burlington, KY 41005 | (859) 586-6161 | Custom Pumpers |
| Central Campbell Co Fire District 4113 Alexandria Pike Cold Spring, KY 41076 | Asst. Chief Ray Dishman 859-441-7651 | Custom eMax Pumper |
| Central Hardin County Fire Dept. 2522 Ring Rd. Elizabethtown, KY 41702 | Chief Everett Roberts Jr 270-769-1201 | Custom ES Pumper Custom Refurb Quint |
| Crescent Villa Fire Authority 777 Overlook Dr Crescent Springs, KY 41017 | Chief Jeff Wendt 859-341-3840 | Custom Pumper |
| Cynthiana Fire Dept. 104 E. Pleasant St. Cynthiana, KY | Chief Jay Sanders 859-234-7518 | Commercial eMax Pumper |

| Department | Contact & Phone | Units |
|---|---------------------------------------|---|
| Daviess County Fire & Rescue 5005 Hwy 54E Owensboro, KY 42303 | Chief Dwane Smeathers 270-685-8440 | Typhoon Pumpers (2) |
| Dry Ridge Fire Department 35 Broadway Dry Ridge, KY 41035 | Chief Rodney Smith 859-824-9158 | HP78 Emax Quint |
| Elsmere Fire Dept. 401 Garvey Ave. Elsmere, KY 41018 | Chief Paul Lafontaine 859-342-1505 | Custom Rescue Pumper |
| Florence Fire Dept. 1152 Weaver Rd. Florence, KY 41042 | Chief Kelly Joe Aylor 859-647-5660 | Custom Aerial Tower Custom eMax Pumper |
| Harrison Co. Fire District 1014 US Hsy 62 East Cynthiana, KY 41031 | Chief Charlie Carson 859-234-0622 | Commercial Pumper |
| Harrodsburg Fire Dept. 208 S. Main St. Harrodsburg, KY 40330 | Chief Ric Maxfield 859-734-2848 | Custom SS Pumper |
| Georgetown Fire Dept. 101 Airport Rd. Georgetown, KY 40324 | Chief Robert Bruin 502-863-7835 | Custom Pumper |
| Greater Cincinnati Airport Fire Dept. 2100 Tower Dr. Hebron, KY 41048 | Chief Steve Listerman 859-767-3112 | HP78 Quint |
| Lacy Volunteer Fire Dept 11994 Greenville Rd. Hopkinsville, KY 42240 | Chief Kavin Meacham 270-269-9177 | Watermaster Tanker |
| Lexington Fire Dept. 219 E. Third St. Lexington, KY | A/C Harold Hoskins 859-231-5679 | Custom Pumper (8) SS Walk-in Rescue |
| Madison County Fire Dept. 560 S Keeneland Dr. Richmond, KY 40475 | Chief Jim Cox 859-624-4775 | Custom Pumper/Tanker (2) |
| Maytown Vol. Fire Dept 376 KY RR 777 Langley, KY 41645 | Chief George Gray Jr 606-285-9698 | Comm Pumper Tanker |
| Melbourne Vol. Fire Dept 912 Mary Ingles Hwy Melbourne, KY 41059 | Chief Paul Hehman 859-441-5608 | Custom Pumper |
| Monterey Fire Dept. Sawridge Creek Rd. Owenton, KY 40359 | Larry House 502-484-0969 | Comm ES Pumper |
| Newport Fire Dept. 998 Monmouth St. Newport KY 41071 | 859-292-3615 | HP100 Aerial Ladder Quint |
| Northern Pendleton Fire Dept. 5900 Hwy 154 Butler, KY 41006 | Chief Larry Record 859-472-5127 | Custom Pumper |
| Oak Grove Fire Dept. 8505 Pembroke-Oak Grove Rd Oak Grove, KY 42262 | Chief Greg Bequette 207-439-4941 | Custom eMax Pumper |

| Department | Contact & Phone | Units |
|--|---------------------------------------|--|
| Owen County Volunteer Fire Dept. 406 S. Main St. Owenton, KY 40359 | Chief Robb Chaney 502-484-2971 | Comm ES Pumper |
| Phelps Vol. Fire and Rescue 12812 Phelps 632 Rd. Phelps, KY 41553 | Chief Ron Vaughn 606-456-3642 | Comm ES Pumper |
| Piner-Fiskburg Fire District 1851 Bracht Piner Rd. Morning View, KY 41063 | Chief Jason Schleue 859-356-6916 | Comm eMax Pumper |
| Pt. Pleasant Fire District 3444 Turfway Rd. Erlanger, KY 41018 | A/C Eric Seibel 859-283-2798 | Custom Pumper HP78 Quint |
| Richmond Fire Dept. 200 Madison Ave. Richmond, KY 40476 | Chief Buzzy Campbell 859-623-1164 | HP78 Emax Quint |
| St. Matthews Fire Protection District 240 Sears Ave. Louisville, KY 40207 | Chief William Seng 502-893-7829 | Custom Pumpers |
| Scott Co. Fire Dept. 2200 Cincinnati Pike Georgetown, KY 40324 | Chief Mike Fuller 502-863-7854 | Watermaster Tanker |
| Ohio | | |
| Anderson Township Fire Dept 7850 Five Mile Rd. Cincinnati, OH 45230 | Chief Mark Ober 513-688-8400 | Custom 110' Quint Custom Pumper |
| Clearcreek Fire Protection Dist. 925 S. Main St. Springboro, OH 45066 | Chief Bob Kidd 937-748-2766 | Comm Pumpers Custom Pumper Custom 100' Quint |
| Colerain Township Fire Dept. 4160 Springdale Rd. Colerain Township, OH 45251 | Chief Frank Cook 513-825-6143 | Custom 100' Quint |
| Fairfield Fire Dept. 375 Nilles Rd. Fairfield, OH 45014 | Chief Don Bennett 513-867-5379 | HP78 Aerial Ladder Quint Custom Pumpers 75' Aerial Ladder Quints |
| Georgetown Fire Dept. 301 S. Main St. Georgetown, OH 45121 | Chief Joe Rockey 937-378-4414 | eMax Rescue Pumper |
| Goshen Twp. Fire Dept 6757 Goshen Rd. Goshen, OH 45122 | Chief Steve Pegram 513-722-3473 | Custom Rescue Pumper Commercial Tanker |
| Green Twp. Fire Dept 6303 Harrison Ave. Cincinnati, OH 45247 | Chief Doug Witskin 513-574-0474 | HP78 Aerial Ladder Quint |
| Harrison Fire Dept 200 Harrison Ave. Harrison, OH 45030 | Chief William Hursong 513-367-3722 | HP78 eMax Quint eMax Rescue Pumper |
| Liberty Twp Fire Dept 6400 Princeton Rd. Liberty Twp, OH 45011 | Chief Paul Stumpf 513-759-7531 | eMax Rescue Pumper |

| Department | Contact & Phone | Units |
|---|--|---|
| Mason Fire Dept 6000 Mason-Montgomery Rd. Mason, OH 45040 | Chief John Moore 513-229-8540 | HP100 Aerial Ladder Quint Custom Pumper |
| Monroe Township Fire Dept. 1905 St. Rt. 247 Manchester, OH 45144 | Chief Rick Bowman 937-549-3131 | Commercial Pumper Wetside Tanker |
| Morgan Township Fire Dept. 5654 Cincinnati-Brookville Rd. Okeana, OH 45053 | Chief Jeff Galloway 513-738-4513 | Custom Pumper |
| Pierce Township Fire Dept. 950 Locust Corner Rd. Cincinnati, OH 45245 | Chief Craig Wright 513-752-6273 | Comm Wetside Tanker Custom eMax Pumper |
| Reading Fire Department 1000 Market St. Reading, OH 45215 | Chief Todd Owens 513-733-5537 | Custom eMax Pumper |
| Reily Township Fire Department 6937 Imhoff Rd. Oxford, OH 45056 | Chief Dennis Conrad 513-757-4023 | Comm ES Pumper |
| Ross Township Fire Department PO Box 71 Ross, OH 45061 | Chief Steve Miller 513-863-3410 | Comm eMax Pumper |
| St. Bernard Fire Dept. 5116 Vine St. Cincinnati, OH 45217 | Chief Steve Scherpenberg 513-242-2727 | Custom Rescue Pumper |
| S. Webster/Bloom Twp Joint Fire Dist. 81 Market St. PO Box 509 S. Webster, OH 45682 | 740-778-2555 | Custom Pumper |
| Sprigg Township 3106 Cabin Creek Rd. Manchester, OH 45144 | Chief Rick Bowman 937-549-2256 | Comm ES Pumper |
| Springdale Fire Dept. 11700 Springfield Pike Springdale, OH 45246 | Chief Mike Hoffman 513-346-5580 | Custom SS Emax Pumper |
| Stamping Ground Fire Department 3374 Main St. Stamping Ground, KY 40379 | 502-535-7714 | Comm ES Pumper |
| Sycamore Twp Fire Dept. 8540 Kenwood Rd. Cincinnati, OH 45236 | Chief Rob Penny 513-792-8562 | Custom SS Pumper |
| Tri-Community Joint Fire District 49 Main St. Greenwich, OH 44837 | 419-752-5141 | Comm Tradition Pumper |
| West Chester Fire Dept 9119 Cincinnati-Dayton Rd. West Chester, OH 40069 | Chief Rick Prinz 513-777-1133 | 75' Aerial Ladder Quint Custom Rescue Pumper 100' Metro 100 Quint |

10/01/2017



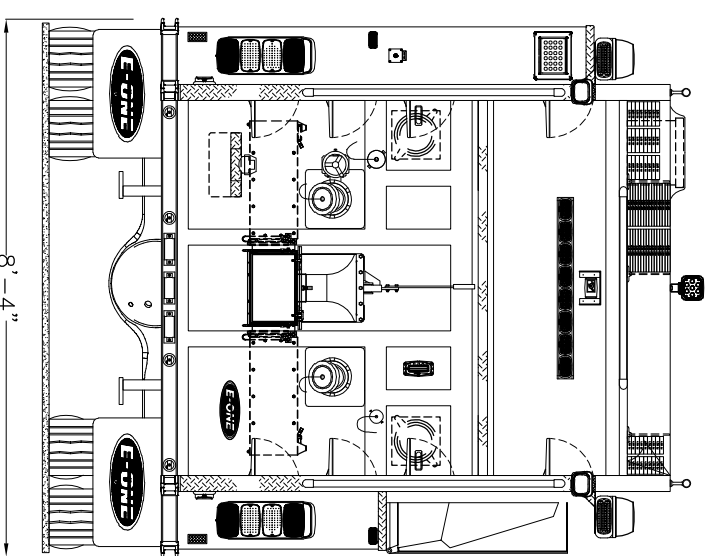
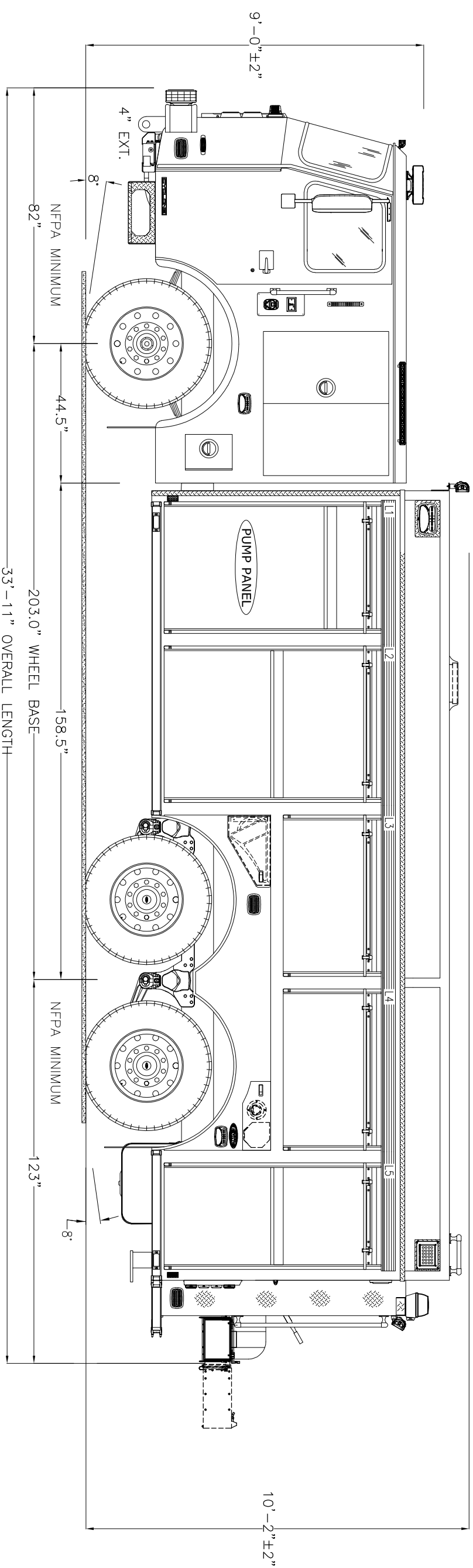
LEXINGTON FAYETTE URBAN CO GOVT LEXINGTON, KY.

QUOTE 78448
CUSTOM 42 TANDEM TANKER
E-ONE CYCLONE II X SHORT CAB 6X4 CHASSIS

| 1000 GMP HALE MBP PUMP 3030 GALLON WATER TANK | | HOSE LOAD: | |
|--|---------|--------------------|--------------------------|
| | | 300' OF 2.50" DJ | |
| | | 300' OF 5.00" LDH | |
| | | 400' OF 1.75" DJ | |
| COMP. | OPENING | INTERIOR DIMENSION | |
| L1 | 40W 63H | 42W 8H | 12D UPPER PUMP PANEL |
| L2 | 48W 63H | 50W 25H | 12D UPPER PUMP PANEL |
| L3/L4 | 49W 25H | 51W 25H | 12D UPPER PUMP PANEL |
| L5 | 32W 63H | 34W 34H | 25H 12D LOWER PUMP PANEL |
| R1 | 40W 25H | 42W 34H | 26D LOWER PUMP PANEL |
| R2 | 48W 25H | 50W 34H | 26D LOWER PUMP PANEL |
| R3 | 32W 25H | 34W 34H | 26D LOWER PUMP PANEL |

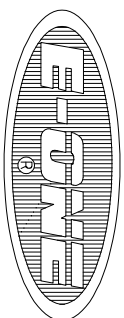
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HOSEBED HEIGHT:
(FOR REFERENCE ONLY)
TO TALLEST: 84"
TO GROUND: 108"

| DATE | DESCRIPTION | BY | APPROVED |
|------------|--------------------|-----|----------|
| 2016-01-27 | INITIAL RELEASE | JBK | JBK |
| 2016-01-17 | DESCRIPTION | JBK | JBK |
| | APPROVAL REVISIONS | | |



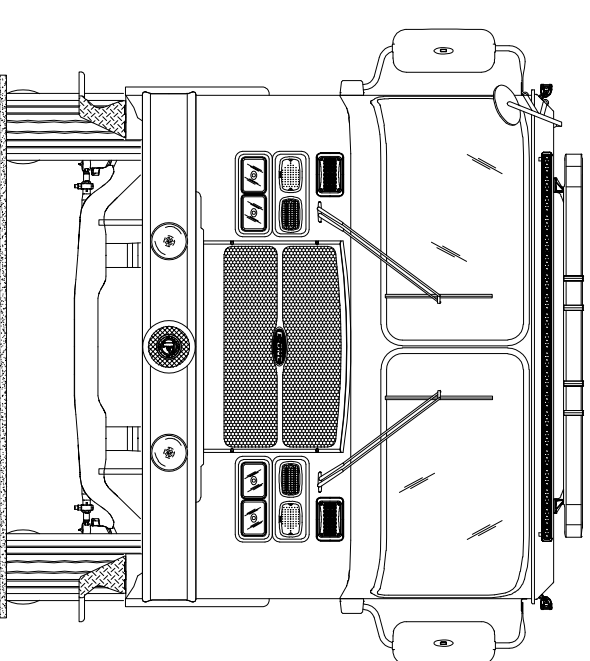
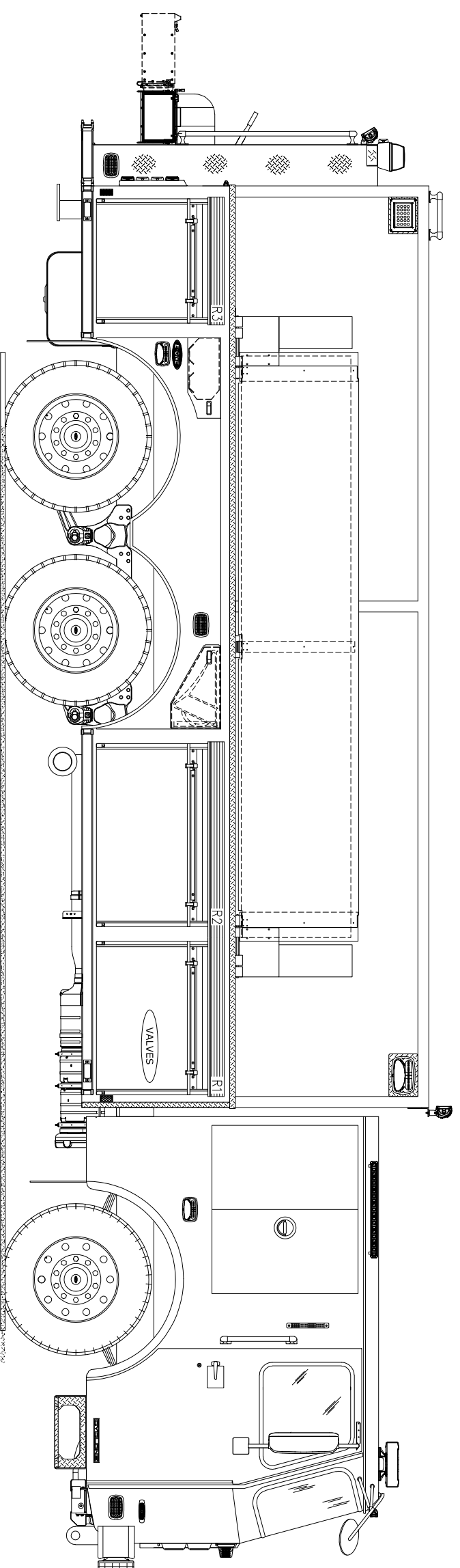
LEXINGTON FAYETTE URBAN CO GOVT LEXINGTON, KY.

QUOTE 78448

CUSTOM 42 TANDEM TANKER
E-ONE CYCLONE II X SHORT CAB 6X4 CHASSIS

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| REV | DATE | BY | DESCRIPTION |
|--------------------|-------------|-----|-----------------|
| BB | 2016-01-27 | JRW | ISSUE |
| RE | | | |
| A | 2016-MAY-17 | JRW | INITIAL RELEASE |
| REV | | | DESCRIPTION |
| APPROVAL REVISIONS | | | DATE |



CUSTOM TANKERS

UP TO 3500
GALLON TANK

UP TO 600
HP ENGINE

3/16"
EXTRUDED ALUMINUM BODY

UP TO 2000
GPM PUMP

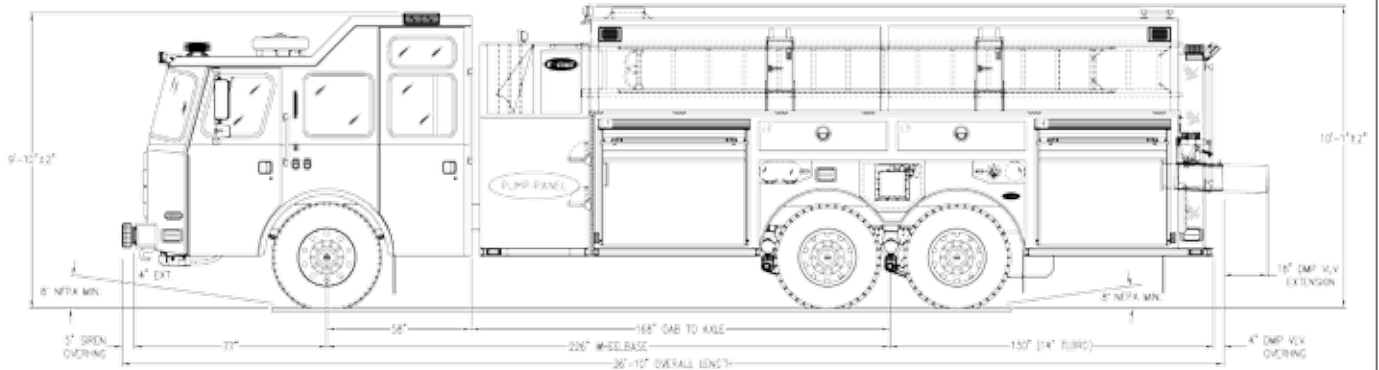
Custom tankers are NFPA compliant and built with the same proven technology and superior quality associated with all E-ONE apparatus. E-ONE tankers are rugged yet compact, easy-to-operate vehicles designed to meet demanding suburban and rural operational needs.



E-ONE custom tankers offer the versatility of high volume pumps and large tank capacities, and the dependability of an exceptionally durable custom chassis. Custom tankers are available in both 3/16" extruded aluminum and stainless steel bodies on three of the industry's strongest custom cabs – the Quest®, Cyclone® II and Typhoon®. Tank designs range from full width or narrow, rectangular Wetside or dryside in ranges from 1500 to 3500 gallons. Pumps are available from 500 to 2000 gpm with top mount or side mount controls and stainless steel plumbing.

When the scene demands large amounts of water, the E-ONE Tankers answer the call.

CUSTOM TANKERS



CHASSIS

- Quest®, Cyclone® II or Typhoon® chassis
- Medium, long and extended length 4-door cabs available
- Optional vista roof in three heights
- 12" frame and frame liner available
- Seating for up to 10
- Up to 600 HP Engine
- Standard safety features such as roll cage cab, CrewGuard & ABS brakes
- Optional safety features such as airbags & G4 (electronic stability control)
- Galvanized frame available

BODY CONSTRUCTION

- Wet-side or full-dry side body configurations
- Body available in 3/16" extruded aluminum or stainless steel
- 1500 to 3500 gallon tank capacity with integral foam cells available
- Full depth lower compartments for generous storage of large items
- Options include: hinged or roll-up doors, adjustable shelves, roll-out trays, tool boards and SCBA storage
- Adjustable ladder and hard suction racks
- Manual or electric portable tank racks
- Up to 80 cubic feet of hose bed storage with NFPA compliant hose bed cover
- Enclosed pump module available

FIRE PACKAGE

- Side mounted or top mounted pump panel configurations with stainless or Zolotone™ finishes
- Up to 2000 GPM with NFPA rated discharges
- PTO or split shaft pumps
- Pump and roll available
- Manually operated rear tank dump with directional chute
- Rear and side electrically actuated tank dumps with slip-on extension and directional chutes are available
- Customizable discharge and preconnects
- Popular options: Front bumper jump line with storage tray and top-mounted booster reel with hosebed storage pan

ELECTRICAL

- Multiplex electrical system provides increased feature capability and improved diagnostics
- Whelen® optical and audible warning packages standard, others optional
- 12-V scene lighting and back-up camera available



CONTACT US AT **E-ONE.COM**
OR CALL **352-237-1122** FOR A DEALER NEAR YOU.