Vogelpohl Fire Equipment, Inc.
2770 Circleport Drive
Erlanger, KY 41018
800-797-8317 859-272-1000 859-272-1550 fax

September 1, 2015

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

Gentlemen,

Thank you for the opportunity to submit this bid for Triple Combination Pumpers to meet the needs of the Lexington Fire Department.

We have enclosed our proposal for three (3) E-One Custom Pumpers with a 1500 GPM Waterous CSU Pump, 980 gallon Water Tank, 30 gallon Class A Foam Tank, 20 gallon Class B Foam Tank, and a heavy-duty Extruded Aluminum Body, mounted on an E-One Typhoon 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. We have provided pricing for several options at your request, as well as some additional options for your consideration.

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 additional business.

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

Sincerely,

Todd Vogelpohl
President, Vogelpohl Fire Equipment, Inc.
E-One Dealer Representative

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.

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

OWNER:
(Name, legal status and address)

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

BOND AMOUNT: $ 5% Five Percent of Amount Bid

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

Supply Three (3) Triple Combination Pumpers

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 2nd day of September, 2015

(Witness)

(Witness) Ben Seward

Vogelpohl Fire Equipment, Inc.
(Principal) *(Seal)*

By: [signature] President
(Title)

RLI Insurance Company
(Surety) *(Seal)*

By: [signature]
(Title) Teresa M. Sheppard 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:
Teresa M. Sheppard, William J. Lammel, jointly or severally

in the City of Memphis, State of Tennessee 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 21st day of May, 2015.

RLI INSURANCE COMPANY CORPORATE SEAL ILLINOIS

RLI Insurance Company

By: _____
Roy C. Die — Vice President

State of Illinois }
County of Peoria } SS

On this 21st day of May, 2015, before me, a Notary Public, personally appeared Roy C. Die, 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.

By: _____
Jacqueline M. Bockler — Notary Public

"OFFICIAL SEAL"
JACQUELINE M. BOCKLER
NOTARY PUBLIC STATE OF ILLINOIS
COMMISSION EXPIRES 01/14/18

CERTIFICATE

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 2nd day of September, 2015.

RLI Insurance Company

By: _____
Roy C. Die — Vice President

4180170020212

A0058514

CERTIFICATE OF LIABILITY INSURANCE

7/1/2016

DATE (MM/DD/YYYY): 8/24/2015

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

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

PRODUCER: Lockton Companies Three City Place Drive, Suite 900 St. Louis MO 63141-7081 (314) 432-0500	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS:
INSURED 1328495 E-ONE, Inc. 1601 SW 37th Avenue Ocala FL 34474	INSURER A: First Specialty Insurance Corporation — NAIC # 34916 INSURER B: The Phoenix Insurance Company — 25623 INSURER C: The Charter Oak Fire Insurance Company — 25615 INSURER D: AXIS Surplus Insurance Company — 26620 INSURER E: North American Specialty Insurance Co — 29874 INSURER F:

COVERAGES EONE60 **CERTIFICATE NUMBER:** 13633623 **REVISION NUMBER:** XXXXXXX

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

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY [ ] PRO-JECT [ ] LOC OTHER:	N	N	IRG2001384-02	7/1/2015	7/1/2016	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$ 1,000,000 $ 300,000 $ 50,000 $ 1,000,000 $ 4,000,000 $ 4,000,000 $
	AUTOMOBILE LIABILITY X ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS	N	N	Y8104052R029PHX15	7/1/2015	7/1/2016	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $	$ 1,000,000 $ XXXXXXX $ XXXXXXX $ XXXXXXX $ XXXXXXX
D E	[ ] UMBRELLA LIAB [X] OCCUR X EXCESS LIAB [ ] CLAIMS-MADE DED [ ] RETENTION $	N	N	EAU781897012015 EXS200016501	7/1/2015 7/1/2015	7/1/2016 7/1/2016	EACH OCCURRENCE AGGREGATE Excess Liab.	$ 5,000,000 $ 5,000,000 $ 20,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N [N] N/A If yes, describe under DESCRIPTION OF OPERATIONS below		N	TC20-UB-118D-4882-15	7/1/2015	7/1/2016	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
B	Garage Keepers Liability	N	N	Y8104052R029PHX15	7/1/2015	7/1/2016	Limit specified by location.	

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

CERTIFICATE HOLDER

13633623
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 E MAIN ST. RM 338
LEXINGTON KY 40507

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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: Sept. 1, 2015

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:

Three (3) E-One Custom Pumpers with a 1500 gpm Waterous CSU Pump, Advantus 3 Foam System, 980 gallon Water Tank, 30 gallon Class A Foam Tank, 20 gallon Class B Foam Tank, and a heavy-duty Extruded Aluminum Body, mounted on an E-One Typhoon Custom Chassis. Price below includes all equipment in the base specifications. Price does not include any quoted options.

For the sum of:

One Million Five Hundred Ninety Three Thousand One Hundred Ninety Two Dollars . $ 1,593,192.00.

Option – For Purchases between Jan 1, 2016 and Dec. 31, 2016:

Three (3) E-One Custom Pumpers, same configuration as above:

One Million Five Hundred Eighty Thousand Seven Hundred Ninety Three Dollars . $ 1,580,793.00 .

Two (2) E-One Custom Pumpers, same configuration as above:

One Million Fifty Nine Thousand Five Hundred Fourteen Dollars . $ 1,059,514.00 .

One (1) E-One Custom Pumper, same configuration as above:

Five Hundred Thirty Eight Thousand Two Hundred Thirty Three Dollars . $ 538,233.00 .

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

- continued -

Delivery 210-270 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

VOGELPOHL FIRE EQUIPMENT, INC
2770 Circleport Dr.
Erlanger, KY 41018
800-797-8317
9/1/2015

PRE-PAYMENT OPTIONS

Lexington-Fayette Urban County Government - (3) Triple Combination Pumpers

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	**$14,612**
75% Prepayment	**$8,839**
50% Prepayment	**$5,893**

Discounts shown are based on the bid amount of **$531,064** per truck and a delivery time of **240** days. 100% prepay discount for the order of 3 trucks would be **$43,836**

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.

Lexington-Fayette Urban County Government
OPTIONS AND ALTERNATES
Proposal for: Triple Combination Pumpers

Description	Add or (Delete)
DD13 Engine - Not available from E-One. This engine is only available from one fire apparatus manufacture under exclusive agreement.	No Bid
Bumper Tray, Rolled LDH Hose - officer side beside front suction	$730
Intermediate Step Officer Pump Panel - Full width step officer side with tapered front corner. Changes pump panel configuration and hinging.	$220
Hosebed Cover - 2-piece hinged treadplate cover in place of roll-back. Front and rear side to side supports only, no front to back center support.	n/c
Hosebed Rear Vinyl Flap - D&S Custom flap with chevrons in place of plain red.	($610)
Flowmeters - FRC Insight Pressure gauge with digital flowmeter in place of IC 2.5" gauge. Each	$2,100
Gauge Heater - MC Products. For 9 gauges.	$1,600
Warranty - 2 year Extended Standard Warranty in place of 1 year Standard Warranty	$9,473
Warranty - 3 year Extended Standard Warranty in place of 1 year Standard Warranty	$12,314
Additional Options:	
Officer Seat - fixed SCBA ABTS in place of electric.	($1,030)
Crosslay End Covers - Standard cargo net covers for ends of crosslays, fastened at top, bottom or front, with bungee cord hold-downs on opposite side. In place of specified covers.	($970)
Class 1 Gauges - Class 1 2.5" individual pressure gauges for 9 discharges in place of IC Brass gauges with color coded bezels.	($210)
Front Suction Primer - Additional Trident primer control for separate front suction priming.	$400
Foam Tank Fill - Hale Ez-fill for Class A foam tank.	$3,060
Compartment Shelves and Trays - add or delete	
Permanent Shelf, ea,	$109
Adjustable Shelf, 16-26" deep compt, ea,	$270
Adjustable Shelf, up to 15.99" deep compt, ea,	$138
Shelf Tracks, per set, full depth.	$209
Shelf Tracks, per set, upper only.	$107
Tray, 500#, adjustable, ea.	$1,059
Tray, 500#, floor mounted, ea.	$737
Toolboard, pull-out, adjustable, 500#ea.	$969
Toolboard, heavy-duty swing out, ea.	$1,705

9/1/2015

Customer Specification	E-One Bid Proposal
Specifications	
Pg. 1 – Payment – 50% completion of chassis, 50% upon acceptance	E-One standard terms are 100% at delivery and acceptance. E-One will provide a discount of 3% annual simple interest on any pre-payment amount. Discount will be calculated from date of receipt at E-One until apparatus is complete and ready for inspection at the plant and applied as a deduction on final invoice. Option quote included for 100% prepayment.
Pg. 2 - Delivery	Delivery will be 210-270 days, defined as date apparatus is complete and ready for customer inspection at the manufacturer's plant. $500 per day penalty effective after 270 days.
Pg. 3 – Information Required	(2) CD copies of the complete truck manual will be provided for each truck. (1) complete printed copy of the manual will be provided for the (3) trucks. The FD may print any pages such as daily checklist, etc. from the CD as needed. Additional complete printed copies are available for $924 each.
Pg. 2 – Manufacturer Sponsored Training – 8 man days.	E-One base bid includes (1) trip for (2) FD technicians to a four-day course at the manufacturing facility in Ocala. Includes fees, course materials, airfare, car rental, four nights hotel accommodation, and a meal allowance per person for (5) days. The cost of the one class is split between the (3) pumpers. For additional engines to be ordered later, no additional manufacturer training trips are included in the unit price. At the option of the Fire Department, training can be conducted at FD facilities in Lexington at the same included cost.
Pg. 11 – Overall Length – Max approx. 32'	With cab configuration, pump module configuration, and body/tank size requested, overall length of the proposed apparatus is 32' 5" – Pg. 48
Pg. 11 – Frame Corrosion Protection	E-One base bid includes galvanized frame rails, urethane painted per paint specifications provided in the E-One bid specifications.- Pg. 7
Pg. 14 – Brake system total air capacity of 4,362.	Total air capacity of E-One custom pumper is 5,214 cu.in, not including any auxiliary tanks. - Pg. 12
Pg. 15 – Air Tank Additional, 1454 cu.in.	E-One additional air tank is 1,738 cu.in. – Pg. 14
Pg. 15 - Engine – 2010 Compliant	Cummins ISL450 engine will be 2013 EPA Compliant. – Pg. 15
Pg. 21 – Engine Tunnel Plate – ¼"	Engine tunnel plate is 3/16" Black Durabak finish, same as previously furnished. Pg. 42
Pg. 30 – EMS Compartment Rear Wall – Cargo net	Cargo netting is not available on forward facing in cab cabinets due to safety concerns. Locking roll-up door will be provided – Pg. 39
Pg. 41 – Radio Antennas (5)	(4) Radio antenna universal mounts are provided per the addendum. – Pg. 47
Pg. 46 – Battery Charger – Behind driver's seat.	Due to PPE compartment, charger will be mounted behind officer seat. Alternate locations can be discussed at pre-build. Pg. 48
Pg. 52 – Rear Step Extension	Step extension is integral to the tailboard and provides Gator-grip non-slip surface in place of Bustin insert. Pg. 52

Customer Specification	E-One Bid Proposal
Pg. 55 – Adjustable Shelves (6)	Bid includes (7) adjustable shelves to match configuration of previously delivered engines. Pg. 55-56
Pg. 57 – Pike Pole Tubes (2)	E-One bid provides (4) pike pole tubes mounted behind ladders. Pg. 64
Pg. 57 – Folding Steps (10) – located at prebuild.	Bid includes ten (10) folding steps with dual LED lighting. (4) front body bulkhead driver side, (1) front body bulkhead officer side, (2) rear tailboard, (3) to be determined. Locations subject to adjustment at pre-build. Pg. 65
Pg. 58 – Manual Pump Shift - Direct	Pump shift will be Waterous brand direct linkage as provided by pump manufacturer. Pg. 72
Pg. 59 – Pressure Controller FRC Incontrol 400	Governor will be FRC Pump Boss 400 per the addendum. Pg. 81
Pg. 61 – Tank to Pump – 750 gpm	Tank outlet will be 4" to 3.5" Waterous valve as specified. Flow rate cannot be guaranteed. Pg. 62
Pg. 62 – Discharge Outlet Front – 2.5" w 2" piping.	Front discharge will be 2.5" swivel with 2.5" valve and piping, exceeding specification. Pg. 75
Pg. 64-65 – Foam System	Foam system will be Waterous Advantus 3.0 configured same as previously delivered E-One engines. Foam refill is not provided. Separate foam refill pump for Class A tank is quoted as an option. Pg. 84
Pg. 66 – Pump Compartment	Dunnage area has hinged treadplate doors in the floor for access to top of pump. Pg. 58
Pg. 66 – Pump Panel Controls	Pump panel will be 45" wide to accommodate requested controls. All discharges and intakes will have color coded and labeled IC raised bezels – Pg. 57
Pg. 68-69 – Water Level Gauge, Foam Level Gauge – 5 light LED	Water level and foam level gauge will be 10-light LED. – Pg. 83
Pg. 74 – 12 Volt Lighting FRC Spectra	12V cab side and rear driver side scene lighting will be FRC 900 12V LED per addendum. Pg. 94
Pg. 79-80 – Graphics and Lettering	Striping, Graphics, Lettering are quoted to match previously delivered E-One pumpers – Pg. 101-102
Pg. 81 – Frame Warranty – 50 years.	Frame and crossmembers carry a lifetime warranty to original owner. – Pg. 103
Pg. 86 – Pricing Sheet	2015 (3) truck purchase price includes familiarization by factory rep at FD; mechanics training at factory or FD; pre-construction, mid-point, and final inspection trips; (1) set of printed manuals, (1) set of as-built electrical drawings, with these costs spread across the 3 trucks. 2016 purchase prices include 3-days familiarization by factory rep at FD; mechanics training at factory or FD; and final inspection trip only for (5) FD reps, with the cost spread across the quantity of trucks as applicable.

Customer Specification	E-One Bid Proposal
Specifications	
Pg. 3 – Safety Video	Safety video is not available from E-One.
Pg. 4 – Specification Order	Detailed manufacturer specifications are enclosed. The E-One specification is driven by the manufacturer's engineering and build documents which group components differently than shown in the customer spec and thus not in the exact same sequence. However, specifications are grouped logically by major component and table of contents is provided to make comparison as easy as possible. All exceptions and clarifications are listed with the both customer specification page number and E-ONE specification page number where applicable.
Pg. 11 – Maximum Overall Height 114"	With raised roof cab and rooftop compartments, overall height of vehicle as proposed is 115". – Pg. 48 & Drawing
Pg. 11 Front Axle – Meritor MFS20	Front axle will be Meritor FL943, 20,000#. – Pg. 8
Pg. 13 – Brakes – Front – Knorr/Bendix Disc	Front brakes will be Meritor EX225H, 17" disc. – Pg. 11
Pg. 15 – Park Brake Control, additional on officer side.	A single park brake control will be provided mounted on dash over engine cover in reach of both driver and officer. – Pg. 13
Pg. 16 – Air intake – Accessible through front grille.	Access to air intake and ember separator required tilting the cab.
Pg. 17 – Radiator, copper fins.	Radiator is aluminum construction. – Pg. 19
Pg. 18 – Fuel Tank, 65 gallons.	Fuel tank will be 50 gallons. Largest tank available from E-One with air ride suspension. – Pg. 20
Pg. 20 – Cab Width – 95"	E-One Typhoon Cab is 94" wide. – Pg. 24
Pg. 20 – Overhead Storage, open shelf with cargo netting.	An enclosed overhead storage in forward Vista roof area will be provided. For safety reasons, area above officer side rear facing seat will have a door with latch – Pg. 39
Pg. 27 – Grab Handles	Grab rail is not provided on officer side dash due to low dash height, air bag, and leg room
Pg. 28 – Seat Belts - Ready-Reach on All Seats	All seats are ABTS (all belts to seats). Ready-Reach not available with ABTS.
Pg. 31 – Map Light – Sunnex SL9200B	Map light will be Sunnex HS 761-00 mounted officer console overhead inboard. Pg. 46
Pg. 32 – Step Lights – Ri-tar	Step lights will be EON or Trucklite LED depending on location. – Pg. 29
Pg. 32 – Rear Heaters – 32,000 BTU	Auxiliary Rear heaters will be 23,000 BTU, mounted on rear wall one each side. – Pg. 36

Customer Specification	E-One Bid Proposal
Pg. 36 – Gauges	Gauges will be as listed in detailed E-One specifications submitted with bid. – Pg. 33-34
Pg. 38 – Indicator Lamps	Indicator lamps will be as listed in detailed E-One specifications submitted with bid. – Pg. 33-34
Pg. 39-40 – Control Panels & Switches	Switches and panels will be as listed in detailed E-One specifications submitted with bid. – Pg. 33-34
Pg. 41 – Radio Compartment/ Connection Points	Radio compartment will be provided at rear of engine compartment. Aluminum compartment with louvers and drop down door with circulation fan. An electric distribution panel will be installed in compartment Bid include s(1) 1" flexible conduit from radio compartment to the cab dash. (1) pull cord is provided in conduit. Additional can be pulled through as wires are installed. Due to E-One heavy-duty extruded aluminum cab construction, there is insufficient space to install conduit to overhead console. – Pg. 43
Pg. 45 – Batteries (6), Battery System	(5) batteries will be provided as listed in detailed E-One specifications submitted with bid. There is insufficient space for (6) batteries with under-cab DEF tank. Bid includes isolating one of the batteries. Connections to be determined at prebuild. – Pg. 21
Pg. 47 – Load Management – Kussmaul	Load management system is Weldon integral with Vmux Multiplex system. – Pg. 87
Pg. 47 – Alternator – Niehoff 340 amp	Alternator will be Niehoff C505 360amp. - Pg. 21
Pg. 48 – Water Tank 1000 gallons.	E-One water tank is designed for a maximum of 1030 gallons. With integral 30 gallon and 20 gallon foam tanks, water capacity will be 980 gallons. Pg. 59, 62-63
Pg. 52 – Rear Step	Inside surface of body at rear is unpainted, natural finish aluminum or treadplate. Stainless overlay not required or provided. Tailboard is 10" wide with Gator-Grip non-slip. – Pg. 52
Pg. 52 – Rear Tow Bar –	E-One provides a rear underbody support frame with tow eyes under frame. See detailed E-One specifications included with bid. – Pg. 7
Pg. 53 – Compartments Construction	Compartment floors are flat, sweep out. Pg. 50
Pg 53-54 – Compartment Sizes	Compartment sizes are as indicated in detailed E-One specification and drawings included with bid. This is the optimal body configuration available from E-One to meet the overall length requirement while providing the cab configuration and pump module configuration requested. – Pg. 50-52 and Drawing
Pg. 55 – Rear Fender Crowns – Rubber	Rear fender crowns are formed aluminum extrusion. Pg. 49

Customer Specification	E-One Bid Proposal
Pg. 55 - Handrails	Cab face handrails not provided. Front bumper gravel panel cannot meet NFPA standard for step height.
Pg. 56 – Extinguisher/Cylinder Storage	(3) large triangular compartments are provided (1) driver side forward, (1) ea Officer side forward and rearward. (1) cylinder compartment driver side rearward. Triangular compartments can store up to (3) cylinders each. (6) formed inserts will be shipped loose for FD to install as desired. Pg. 67, 98
Pg. 59 – Lubrication Fittings – extend to pump panel.	Not available option from Waterous. Not provided.
Pg. 60 – Front Intake – Handwheel controlled.	Front intake valve will be electrically operated from pump panel with manual back-up behind officer panel. Location of front intake valve does not provide adequate space for manual linkage. Pg. 75
Pg. 62 – Left Discharge 2.5" Handwheel Controlled	Left side 2.5" discharge will be controlled by direct lever handle. – Pg. 77
Pg. 63 – Crosslays, (3) double stack, max. 68" off ground, adjustable dividers.	To keep wheelbase and overall truck length as short as possible and utilize hand-wheel controls, forward (2) 1.75" preconnect crosslays to be single stack. Bottom of pre-connect crosslays to be 78" off ground which is low as E-One linear pump panel configuration will allow. Deadlay crosslay to be double stack, per E-One drawing. Divider between preconnect crosslays to be centered and fixed. Divider between pre-connects and deadlay to be fixed. – Pg. 58 Pump module is painted on outside surfaces only. Inner areas of crosslays and storage pan will be unpainted natural aluminum for maximum durability. Stainless steel scuff plates not required or provided. – Pg. 58, 100
Pg. 64 – Backboard Compartment	No backboard compartment is provided. There is insufficient space to provide this in pump compartment while maintaining overall truck length requirement.
Pg. 64 – Foam Tanks, Integral, No reduction in water tank.	E-One 1000 gallon tank bodies are designed for a maximum capacity of 1030 gallons water and/or foam. Water tank capacity will be 980 gallons with requested 20 gallon class A and 30 gallon class B integral foam tanks. – Pg. 59, 62-63
Pg. 68 Pressure Gauges – Class 1	2.5" individual gauges will be IC brand brass case gauges with color coded and labeled raised bezels. New E-One standard for attractive and functional pump panel. Pg. 82
Pg. 82 – Steering Gear 3 Year Warranty	Steering gear is covered under the standard one year E-One warranty.
Pg. 82 – Pump Plumbing Warranty – 10 years	Plumbing warranty covers stainless steel piping only.
Pg. 83 – Valves and Outlet Controls Warranty – 10 year	Manufacturer's warranty on the Akron valves is 5 years. Controls are covered under the E-One standard 1 year warranty, or under optional extended standard warranties.

Bidder: E-One/Vogelpohl Fire Equipment, Inc.

Customer Specification	E-One Bid Proposal
Pg. 83 – Gauges – Warranty 10 years.	Class 1 warranty is 3 years for liquid filled gauges. IC warranty with brass case gauges is 5 years.
Pg. 83 – Paint Warranty Non-prorated 10 Year	E-One paint warranty is 10 years prorated per enclosed warranty statement.
Pg. 83 – Gold Leaf Warranty – 3 year	Sign gold is covered under the E-One standard 1 year warranty, or under optional extended standard warranties.

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SPECIFICATIONS

TRIPLE COMBINATION PUMPER

Prepared for:

LEXINGTON FIRE DEPARTMENT
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LEXINGTON, KY

APPARATUS DESCRIPTION

The apparatus herein specified is an E-One Mainline Custom Pumper with a 1500 gpm Waterous CSU Pump, Waterous Advantus 3 Foam System, 980 gallon Water Tank, 30 gallon Class A Foam Tank, 20 gallon Class B Foam Tank, and a heavy-duty Extruded Aluminum Body, mounted on an E-One Typhoon 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 Allied Specialty Vehicles, 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 $1 billion. Other ASV 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 25 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 the following visits/inspection trips to the E-One manufacturing facility in Ocala Florida:

One (1) inspection trip for four (4) fire department representatives for a pre-build conference
One (1) inspection trip for two (2) fire department representatives for a mid-point inspection
One (1) inspection trip for five (5) fire department representatives for a final inspection

All expenses for transportation, meals and lodging will be paid for by Vogelpohl Fire Equipment. 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 complete and ready for final inspection by the customer at the manufacturer's plant between 210 and 270 days after receipt of signed contract or purchase order at E-One.

Any delay in scheduling a mutually agreeable pre-construction conference date (if needed); 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 completed within 270 calendar days after receipt of signed contract or purchase order at E-One, a penalty of $ 500 per day for each day over 270 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

NFPA Compliance

The E-ONE supplied components of the apparatus shall be compliant with NFPA 1901, 2009 edition.

BUMPERS

Bumper

A heavy duty 10" high steel channel type front bumper shall be provided. The front corners of the bumper shall be angled at 45 degrees to reduce swing clearance. The bumper shall be painted job color.

Front Bumper Extension

The bumper shall be extended approximately 20" from the face of the cab as required.

Bumper Gravel Shield

The extended front bumper gravel shield shall be made of 3/16" (.188") aluminum treadplate material. The gravel shield shall include 1" turn down lips to protect the top edge of the heavy duty bumper from damage.

BUMPER TRAYS

Bumper Tray - Driver Side

A hose tray constructed of 1/8" aluminum shall be recessed into the front bumper extension. The tray shall be located on the driver side of the bumper outboard of the frame rail and be approximately 14" deep (13" to the top of the slats). One inch thick aluminum slats shall be included in the bottom of the hose tray to aid in the dissipation of water from the tray.

Bumper Tray - Center

A hose tray constructed of 1/8" aluminum shall be recessed into the front bumper extension. The tray shall be located in the center of the bumper and be approximately 14" deep (13" to the top of the slats). One inch thick aluminum slats shall be included in the bottom of the hose tray to aid in the dissipation of water from the tray.

Bumper Tray Securing Strap [Qty: 2]

A heavy duty black nylon strap with an aluminum quick-release buckle shall be provided for to be mounted at final inspection front bumper tray. The strap shall be attached to the inboard side of the tray and shall not reduce the overall tray capacity.

FRAME ASSEMBLY

Frame Rail Construction

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 and frame liners shall be finished with black paint. 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. 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.

Rear Underbody Support Frame

The body shall be supported at the rear by a steel frame extension bolted to the chassis frame rails. The frame rails and frame extension shall be isolated from the aluminum body extrusions by 5/16" x 2" fiber reinforced rubber.

The frame extension shall be built with (2) 2.5" sq. x .25 wall thickness x full width cross rails welded to (2) 2.5" sq. x .25 wall thickness side rails. The frame extension assembly will be welded to steel weldments, which are secured to the chassis frame with grade 8 5/8" bolts.

The frame extension shall not interfere with N.F.P.A. minimum requirements for angle of departure.

Galvanized Frame Rails

The chassis frame rails and rear subframe (if equipped) shall have a hot-dipped galvanized zinc coating in place of standard for increased corrosion resistance. The coating shall be done in compliance with the ASTM A123 Standard.

Galvanized Frame Liners

The chassis frame rail liners shall have a hot-dipped galvanized zinc coating in place of standard for increased corrosion resistance. The coating shall be done in compliance with the ASTM A123 Standard.

Tow Blocks

One (1) pair of towing blocks shall be provided under the front frame extensions. The tow blocks shall allow for proper alignment of towing attachments.

Front Tow Eyes

Two (2) 3/4" thick heavy duty steel tow eyes and one (1) heavy duty stainless steel front tow eye shall be securely attached to the chassis frame rails at the front of the apparatus. The steel shall be mounted two in the downward position and one stainless in the upward position on the officer side of the front bumper.

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 20,000 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 three (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 20,000 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 be equipped with an ArvinMeritor RS-25-160 single rear axle with single-reduction hypoid gearing and a manufacturer`s rated capacity of 27,000 lbs. The axle shall be equipped with oil-lubricated wheel bearings with ArvinMeritor oil seals.

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

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

Rear Suspension

The vehicle shall be equipped with a FIREMAAX® EX model FMX-272 air ride suspension. The suspension shall include dual height control valves that allow uneven, side heavy loads to be balanced, Quik-Align for easy axle alignment and two (2) hydraulic shock absorbers. The suspension shall be rated for the maximum axle capacity.

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.

WHEELS

Front Wheels

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

Rear Wheels

The vehicle shall have four (4) polished (on outer wheel surfaces only) Alcoa aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.

Aluminum Wheel Finish [Qty: 6]

A Dura-Brite high performance sealant shall be supplied on the aluminum wheel. The sealant shall not yellow under UV light exposure and shall impede staining and corrosion of the aluminum wheel.

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, Single 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 re-buffing policy. There shall be two (2) high hats and twenty (20) lug nut covers.

Valve Stem Extensions

Each inside rear wheel on the rear axle shall have valve extensions.

TIRES

Front Tires

The front tires shall be two (2) Michelin 425/65R 22.5 tubeless type 20 PR radial tires with XZY3 Wide Base aggressive tread.

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

Max front rating 22,800 @ 65 mph.

Max front rating with Alco aluminum wheels - 24,400 @ 65 MPH (intermittent fire service rating if GAW is over 22,800)

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

Rear Tires

The rear tires shall be Michelin 12R22.5 tubeless type radial tires with XDN2 mud and snow tread.

The tires with wheels shall have the following weight capacity:

27,000 lbs. (dual) @ 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 24,000 lb. axle ratings and P-Type shoes with over 24,000 lb. axle ratings.

The rear axle brakes shall be furnished with automatic slack adjusters. ArvinMeritor brand shall be supplied on RS-24-160 and RS-25-160 axles, and Haldex brand shall be supplied on RS-26-185 and RS-30-185 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 brakes and an anti-lock braking system (ABS). The brake system shall meet or exceed the design and performance requirements of the current Federal Motor Vehicle Safety Standard (FMVSS)-121, and the test requirements of the current NFPA 1901 Standard.

A dual-treadle brake valve shall correctly proportion the braking power between the front and rear systems. The air system shall be provided with a rapid pressure build-up feature, designed to meet current NFPA 1901 requirements, to allow the vehicle to begin its emergency response as quickly as possible.

A pressure-protection valve shall be installed to prevent use of the air horns or other air-operated devices should the air system pressure drop below 85 psi. This feature is designed to prevent inadvertent actuation of the emergency/parking brakes while the vehicle is in motion.

Two (2) air pressure needle gauges, one (1) each for front and rear air pressure, with a warning light and buzzer shall be installed at the driver`s instrument panel.

The braking system shall be provided with a minimum of three (3) air tank reservoirs for a total air system capacity of 5,214 cu. in. 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.

Tank Capacities in Cubic Inches:

Wet	Front	Rear	Total
1,738	1,738	1,738	5,214

Spring-actuated emergency/parking brakes shall be installed on the rear axle.

A Bendix-Westinghouse SR-1 valve, in conjunction with a double check valve system, shall provide automatic emergency brake application when the air brake system pressure falls below 40 psi in order to safely bring the vehicle to a stop in case of an accidental loss of braking system air pressure.

A four-channel Wabco ABS shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to both front and rear axles. All electrical connections shall be environmentally-sealed for protection against water, weather, and vibration.

The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall detect approaching wheel lock-up and instantly modulate (or pump) the 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 configured in a diagonal pattern. Should a malfunction occur in one circuit, that circuit shall revert to normal braking action. A warning light at the driver`s instrument panel shall signal a malfunction.

The system shall also be configured to work in conjunction with all auxiliary engine, exhaust, or driveline brakes to prevent wheel lock-up.

To improve maintenance troubleshooting, 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.

Electronic Stability Control

The apparatus shall be equipped with a G4 4S4M 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).

Park Brake Release

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

Park Brake Release Guard

A park brake release guard shall be provided over the release control. The guard shall be constructed of 14 gauge brushed stainless steel.

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.

Heated Moisture Ejector

The wet tank air reservoir shall be equipped with a Bendix DV-2 automatic reservoir drain valve which shall automatically eject moisture and contaminants from the reservoir. The moisture ejector shall be heated.

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.

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 and or customer/dealer supplied pneumatic add-on(s).

Stainless Steel Mounting Straps [Qty: 4]

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

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.

Air Outlet

A 1/4" female quick-disconnect air hose outlet shall be mounted and will be connected to the air reservoir tank. A 1/4" inline check valve will be installed in the line. It shall be located driver's step well.

Auxiliary Air Tank Gauge

Air gauge for auxiliary air tank. Located in cab on center console within view of driver. For use with auxiliary air tank to be provided on customer supplied chassis.

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/Transmission Package

Engine

The vehicle shall utilize a Cummins ISL 2013 electronic engine as described below:

- 450 gross bhp at 2200 rpm
- 1250 lb.-ft. peak torque at 1400 rpm
- Six (6)-cylinder, charge air cooled, 4-cycle diesel
- 543 cu. in. displacement -- 4.49 in bore x 5.69 in stroke (8.9 liters)
- 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 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 catalyist reduction system
- Ember separator compliant with 2009 NFPA 1901 standard
- The engine shall be compliant with 2013 EPA Emission standards
- Reference curve FR93434EV for ISCAAN

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 shall be a 11" diameter dry type that is easily accessed for service. Air cleaner intake piping shall be made from aluminized steel tubing with flexible rubber hoses. Air cleaner intake piping 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.

The engine exhaust piping shall be a minimum of 4" diameter welded aluminized steel tubing. The muffler 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 Bulletin 3381161.

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

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.

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.

6th Gear Overdrive

The chassis transmission shall include a 6th gear with an overdrive ratio of 0.65:1.

Vehicle Speed

The maximum speed shall be electronic limited to 68 MPH as required by NFPA 1901.

Note: Maximum speed may be set at 65 MPH due to tire rating.

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 shall be activated when throttle is released; stage 2, 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.

Transmission Programming

The transmission shall include the Allison 2nd gear Pre-Select feature. This option will direct the transmission to down shift to second gear when the throttle is released and the Jacobs engine brake (or Telma retarder wired to activate with release of throttle) is engaged. This feature is designed to increase brake life and aid vehicle braking.

EXHAUST OPTIONS

Exhaust Wrap

The exhaust shall be wrapped with a silica-based woven textile material designed for high temperature usage. The material shall be installed in a spiraled configuration from the engine turbo to the exhaust flex pipe. A stainless steel wire mesh shall then be installed over the material for additional protection. The stainless steel wire mesh shall be collared at both ends with a stainless steel band which shall in turn be welded to the exhaust pipe for additional security.

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.

Exhaust Heat Shield

A heat shield shall be provided on the exhaust to provide protection to the compartment floor.

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.

Engine Coolant Filter

A remote mounted engine coolant filter shall be supplied and connected to the engine cooling system. The filter shall be of the screw on type for ease of field replacement.

FUEL SYSTEMS

Fuel System

One (1) 50 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 50 gallons of fuel with a sufficient additional volume to allow for thermal expansion of the fuel without overflowing the vent.

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

Fuel Line Service Loop

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

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/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 five (5) 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. The boxes shall hold two (2) batteries on the left side and three (3) on the right side. The batteries shall have a minimum combined rating of 5,000 (5 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 1025 (5 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, one (1) for each set of batteries. Each battery tray shall be equipped with a rubber hose to facilitate drainage. The rubber 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.

Battery Trays

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 stainless steel trays to provide preliminary containment should there be leakage of hazardous battery fluids. There shall be two (2) stainless steel trays, each containing up to (3) 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.

Battery Isolation

The officer`s side front battery shall be isolated for use with 12V accessory system only.

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.

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 greasable 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 to10 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.

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.

CAB MODEL

Cab Typhoon X Long w/Barrier Style Doors

The vehicle shall be distinguished by an all-welded aluminum and fully enclosed tilt cab. The cab shall be designed exclusively for fire/rescue service and shall be pre-engineered to ensure long life. It shall incorporate an integral welded substructure of high-strength aluminum alloy extrusions that creates an occupant compartment that is essentially a protective perimeter. The end result is a distinctive structure that is aesthetically appealing, functionally durable, and characterized by increased personnel 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 0.375" 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 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 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 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.

ISO Compliance

The manufacturer shall ensure that the construction of the apparatus cab 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 cab that is built to exacting standards, meets the customer`s expectations, and satisfies the customer`s requirements.

CAB EXTERIOR

Cab Exterior

The exterior of the cab shall be 94" wide x 139.5" long to allow sufficient room in the occupant compartment for up to ten (10) fire fighters. The cab roof shall be approximately 101" above the ground with the flat roof option. The back-of-cab to front axle length shall be a minimum of 67.5".

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.

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.

Rear Cab Wall Construction

The rear cab wall shall be constructed using formed 3/16" (.188") aluminum smooth plate interlocking in aluminum extrusions. A rear cab wall overlay constructed of 3/32" (.090") diamond plate shall be provided over the smooth plate.

Raised Roof

The rear portion of the cab roof shall be raised 12". This will provide at least 5` 7" standing room. The front of the vista hood shall be sloped at 45 degrees from the vertical. The slope shall begin slightly in front of the centerline of the front axle to leave room for warning lights and air

conditioning in front of the vista. The main roof extrusion shall extend up into the vista to strengthen the roof perimeter. Windows shall be provided on the rear center of the raised roof section and in the door raised section only.

Cab Doors

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

Four (4) 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 63" high, and the rear cab door openings shall be approximately 33.75" wide x 85" high. The front doors shall open approximately 75 degrees, and the rear doors shall open approximately 80 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 rear doors shall be equipped with a dual striker bolt system.

The front door windows shall provide a minimum viewing area of 530 sq. in. each. The rear door windows shall provide a minimum viewing area of 500 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 DOOR OPTIONS

Cab Front Door Windows

Driver and officer door windows shall have the support pillar located toward the front of the window. There shall be a vent that can be opened and closed within the window itself, located towards the front.

The front windows of the cab shall have manual actuation.

Cab Door Rear Windows

The rear cab door windows shall be manually operated to raise and lower. The rear of the window opening shall have a fixed glass panel approximately 5" wide to allow the forward section of glass to roll down completely ahead of the door latching hardware.

Above the roll-down rear door windows in the door extension shall be a fixed window panel.

Stainless Steel Window Bars

Stainless steel bars shall be installed across the rear cab door windows.

Exterior Cab Door Latches

All exterior cab door latches shall be paddle style.

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 [Qty: 4]

A mechanically fastened stainless steel map pocket shall be mounted on the each cab door, 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 3" 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 four (4) clear LED lights provided to illuminate the cab step well area. Each light shall be located in the cab step well area. Each light shall be activated by the cab door ajar circuit.

Door Mounted Flashing Lights

There shall be four (4) door mounted red LED flashing lights, one (1) per door.

The lights shall be located on each cab door in the outboard position.

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: 4]

A 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. 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". It shall be located driver's front door, officer's front door, driver's rear door, officer's rear door. Steps under front cab doors shall not interfere with approach angle.

MISC EXTERIOR CAB OPTIONS

Cab Grille

The front cooling air intake grille shall be constructed of stainless steel mesh and supported by a 0.80" polished stainless steel frame providing no less than 81% open area for excellent cooling performance.

Cab Mirrors

There shall be two (2) Lang Mekra 300 Aero Series Technology Mirrors provided, one (1) driver`s and one (1) officer`s side. The mirrors shall be chrome-plated on the main head, be remote controlled with a four way power system and be heated. There shall be LED marker lights with bezel on the main head, and LED arrow lights in the mirror glass. The main flat glass shall provide 120 square inches of viewable surface space.

There shall be separate heads for the driver`s and officer`s side housing convex glass and provide 56 square inches of viewing surface.

The mirrors shall be mounted on the cab doors.

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.

Cab Canopy Window

There shall be a fixed window provided between the front and rear doors on the officer`s side of the cab.

Window dimensions shall be as follows:

- 26.69"W x 24.5"H

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.

Handrails

Cab door assist handrails shall consist of two (2) 1.25" diameter x 36" long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer rear 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.

Cab Wheel Well

The cab wheel well shall be increased in size to provide additional clearance for larger tires. The fender trim shall be adjustable in and out to better accommodate various wheel / tire offsets.

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.

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.

Cab Roof Sign Plate

There shall be a sign plate fabricated of smooth aluminum plate mounted to the roof of the cab for unit identification graphics.

Color: Job Color.

Receptacle Mounting Plate

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

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 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.

A minimum of 57.25" of floor-to-ceiling height shall be provided in the front seating area of the cab and a minimum of 55.25" floor-to-ceiling height shall be provided in the rear seating area. A minimum of 36" of seated headroom at the "H" point shall be provided over each fenderwell.

The floor area in front of the front seat pedestals shall be no less than 20.5" side to side by 25.0" front to rear for the driver and no less than 20.5" side to side by 26.0" 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 rear cab headliner, a rear wall panel, and side panels between the front and rear cab doors.

The overhead console and heater cover 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.

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.

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

Storage areas, with hinged access doors, shall be provided below the driver and officer seats. The driver side compartment shall be approximately 19.25" x 17.75" x 5.75" high and the officer side compartment shall be approximately 18.25" x 22.5" x 11" high (19.25" x 17.75" x 5.75" 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 rear cab steps shall be a minimum 12" deep x 21" 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 rear steps shall incorporate intermediate steps for easy access to the cab. 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 rubber 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 rubber grip handle shall be provided on the left and right side windshield post for additional handholds.

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.

An overhead mounted heater and defroster with a minimum capacity of 60,000 Btu/hr and all necessary controls shall be mounted in the cab. The airflow system shall consist of two (2) levels, defrost and cab, and shall have fresh air and defogging capabilities.

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 sealed beam halogen headlights shall be installed on the front of the cab, one (1) on each side, mounted in a polished chrome-plated bezel. 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 upper tier of the center dash area.

Heat, Supplemental

A single 40,000 BTU water heater shall be supplied in the front area of the cab. The unit shall heat the lower section of the driver`s and officer`s footwell.

Dual 23,000 BTU water heaters shall be supplied in the rear of the cab to heat the rear cab lower section.

Dual climate control will be achieved via dual switches installed on a front instrument panel. On units with optional multiplex display climate control, the floor heaters shall be controlled through the HVAC screen in the display.

The rear cab heaters shall be located below the rear wall seat riser(s) at the forward facing wall. Louvers shall be provided to allow for proper circulation for the heaters.

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 black in color.

Seating Capacity Tag

A tag that is in view of the driver stating seating capacity of five (5) 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.

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 Tanker 550EX6/ABTS seat with high back SCBA storage 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.

Seat features shall include:

- Removable "Store-All" side cushions
- Auto-pivot and return headrest to open for improved exit with SCBA
- 12.5" wide SCBA cavity to store leading SCBA Brands

- Shoulder strap holder
- Replaceable seat, side and headrest cushions
- Power 6" fore/aft adjustment; 2" height adjustment, front tilt, rear tilt

Seat, Rear Facing

One (1) Bostrom Tanker 550 ABTS seat with high back SCBA storage shall be provided in the rear facing position over the officer side wheel well.

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:

- Removable "Store-All" side cushions
- Auto-pivot and return headrest to open for improved exit with SCBA
- 12.5" wide SCBA cavity to store leading SCBA brands
- Shoulder strap holder
- Replaceable seat, side and headrest cushions

Seat, Rear Wall

Two (2) Bostrom Tanker 550 ABTS seats with high-back SCBA storage shall be provided on the center of the rear wall in the center position. The seats shall be mounted on a common seat riser.

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.

Features shall include:

- Removable "Store-All" side cushions.
- Auto-pivot and return headrest to open for improved exit with SCBA.
- 12.5" wide SCBA cavity to store leading SCBA brands.
- Built-in lumbar support.
- Replaceable seat, side and headrest cushions.

Bostrom SecureAll Locking System [Qty: 4]

The H.O. Bostrom SecureAll™ SCBA Locking System shall be one bracket model and store all U.S. and international SCBA brands and sizes while in transit or for storage on fire trucks. The bracket shall be easily adjustable; all adjustment points shall utilize similar hardware and adjustments shall be made with one tool.

The bracket system shall be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the tank in-place for a safe and

comfortable fit in seat cavity. Firefighters shall simply push the SCBA unit against the pivot arm to engage the patented auto-locking system. Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions.

The SecureAll™ bracket shall fit in all H.O. Bostrom Tanker SCBA seats including ABTS and non-ABTS seats and all flip-up ABTS and non-ABTS seats. Additional seat depth shall not be required for proper bracket fit; changes to the shroud back shall not be required for proper mounting of the bracket.

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

The H.O. Bostrom SecureAll™ system meets NFPA 1901 standards and requirements of EN 1846-2.

Location: officer's seat, rear facing officer's side, (2) rear wall forward facing seats.

Department Patch on Seat [Qty: 5]

One (1) customer supplied department patch shall be sewn on to Bostrom seat back headrest.

CAB STORAGE CABINETS

Interior Storage Cabinet – Forward Vista

A cabinet shall be provided for the vista area ahead of the rear cab doors. The cabinet shall be constructed of 1/8" (.125) smooth aluminum and shall include three (3) equally space compartments. Driver and center compartment shall be provided with cargo netting; officer compartment shall be provided with lift-up door to secure contents. The cabinet shall be approximately 83" wide x vista height x sloped angle deep.

Interior Storage Cabinet – Rear Wall

There shall be one (1) storage cabinet provided at the officer`s side rear wall of the cab. The medical cabinet shall be constructed of 1/8" smooth aluminum plate. The cabinet shall be approximately full height (as applicable) x 18" wide x 12" deep interior.

Three (3) vertically adjustable shelves shall be provided and installed in the cabinet. The shelves shall be constructed of 1/8" smooth aluminum plate. Each shelf shall have a 1" front for added strength and reinforcement. The shelves shall be sized to the interior dimensions of the cabinet. The shelves shall be mounted with extruded aluminum adjustable shelf tracking attached to the cabinet walls and the shelves to be secured with aluminum brackets to the tracks to allow for vertical height adjustment. As necessary a 3/4" x 2-3/4" aluminum extrusion shall be mounted to the underside of the shelves to provide additional reinforcement as needed.

There shall be a locking roll-up door provided to secure contents.

Exterior Storage Cabinet - PPE

There shall be one (1) storage cabinet provided over the driver side wheel well of the cab. The storage cabinet shall be constructed of 1/8" (.125") smooth aluminum plate. The storage cabinet shall be approximately 28" high x 22" wide x 28" deep.

The medical storage cabinet shall be accessible externally of the cab by a locking double pan door.

The exterior door shall be constructed using a box pan configuration. The outer door pan shall beveled and shall be constructed from 3/16" (0.188") aluminum plate.

The exterior door 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 door 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 a with #459 latch shall be provided on the 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 exterior door shall be securely attached to the apparatus cab with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the cab and exterior door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have a gas shock-style hold-open device.

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

Cab Cabinet Door Trim

A stainless steel trim shall be located at the bottom edge of the over cab wheel exterior compartment opening. The trim shall be made from 22 gauge stainless steel with a #4 brushed finish. The trim shall provide added protection of the painted surface of the cab when equipment is placed or removed from the compartment.

Exterior Cab Compartment [Qty: 2]

There shall be a storage compartment provided each side at the lower rear side of the cab with exterior access. The compartment shall have a door opening of approximately 30" high x 9" wide and be constructed of 1/8" aluminum plate. The cabinet interior shall be approximately 31" high x 11" wide x 14" deep interior (lower officer side floor notched for front suction if equipped).

A single door shall be provided on the compartment. The door shall be constructed using 1/8" (0.125") smooth aluminum plate with a quarter turn stainless steel d-ring. Latching shall be provided by a slot in the rear opening of the door area.

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

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

Reverse Hinge

The driver and officer side compartment door shall be hinged to the back side of the compartment opening. The doors shall open approximately 110 degrees.

A vertically mounted drip rail shall be installed along the forward compartment opening (if required with door design) to divert the elements from entering the compartment along the forward compartment opening while the apparatus is responding.

Storage Cabinet Finish

The storage cabinet(s) shall have a Zolatone gray finish. The finish shall be applied to the interior, exterior, shelves (if equipped) and trays (if equipped) of the cabinet.

MAP BOXES

Map Box

An aluminum map/storage box shall be installed in the cab. The map box shall be constructed of 1/8" (.125) inch smooth aluminum. Two (2)hinged drop down doors, with push button latches, shall be installed on the front of the box for the access to two (2) storage areas (seperated by a vertical divider). Each storage area shall have one (1) horizontal fixed shelve 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. The map box shall be secured and tested to meet with current N. F. P. A. requirements.

Approximate Dimensions:

Divided Storage area - 34" W x 6" H x 13.5" D.

Map Box Location

The map box suspended between the 3x3 vertical uprights shall be offset to the rear of the 3x3`s. The map box shall be mounted down low as possible as space permits.

Map Box Finish

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

MISC INTERIOR CAB OPTIONS

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.

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".

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 and with a minimum skin thickness of 0.0625 inches and shall be provided to reduce the transmission noise and heat from the engine. The cover shall be black and feature a pebble grain finish for slip resistance.

Mounting Plate on Engine Cover

An equipment mounting plate shall be provided between the driver and officer on the chassis engine cover. The plate shall be mounted to the engine cover forward of the access door spaced approximately 1-1/4" up to provide clearance for equipment mounting hardware. The plate shall be approximately 32"W x 12.5"L (front to rear), constructed of 3/16" aluminum plate and finish shall black Durabak.

Radio Cabinet

There shall be a radio storage cabinet provided in the cab at the rear of the engine cover. The radio cabinet shall be constructed of 1/8" smooth aluminum plate. The radio cabinet shall be approximately 8" high x 44" wide x 17" deep (upper) interior. The cabinet shall include louvers for ventilation of customer provided and installed radio equipment.

The radio cabinet shall be accessed from a lift-up door with a gas shock and two (2) locking thumb latches at the top of the cabinet.

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.

Rear Wall Toolboard

Pac Trac tool mounting shall be provided on the rear wall of the cab. The Pac Trac shall be vertical stacked on officer side outboard of seat(s) full height of the rear cab wall.

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 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.

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: 3]

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: 5]

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 upper position. The headlights shall be day time operational.

The quad cab headlight bezels shall contain rectangular sealed beam halogen lights.

Alternating Headlights

The chassis high beam headlights shall alternately flash and shall be controlled by a rocker switch mounted inside the cab.

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 lower headlight bezel, (1) each side back of cab outboard above running boards and wired with weatherproof connectors.

Cab Dome Lights

A Whelen model 60CREGCS LED dome light shall be installed. The light shall have twelve (12) high intensity Super LEDs; six (6) white and six (6) red. Two (2) switches shall be provided on the face of the light to activate the red or white lights. The white light shall activate 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.

There shall be four (4) mounted in the rear of the cab, two (2) in the driver side and two (2) in the officer side ceiling.

Switch Pod Removal

Switch pods shall be removed from the 4Front steering wheel and standard switches installed for relevant functions

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.

Officer Speedometer

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

Hazard (Door Ajar) Light [Qty: 2]

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

The light shall be located center overhead.

Hand Held Spotlight

A Specialty #2150 hand held 12 volt spotlight with mounting bracket shall be provided. It shall be hardwired and located at the officer`s side of the cab dash.

Map Light

A Sunnex HS761-00 map light with frosted lens shall be supplied.

The map light shall have a 12 volt, 20 watt halogen bulb with frosted lens. An on-off switch shall be supplied on the base of the light.

The map light shall have a 2.36" x 2.36" base with a matte black finish.

Location: Officer overhead console inboard.

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.

DPF Regeneration Override

An 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.

Door Ajar Alarm

An audible alarm shall be mounted in the cab interior and wired into the door ajar or indicator.

Door Ajar Override

There shall be a momentary switch provided in the cab that when activated shall disable the door ajar alarm. The switch will re-set once the park brake is set.

Additional Switch

A 12 volt switch shall be provided located driver's side overhead console to override clear forward facing warning lights.

Additional Switch

A 12 volt switch shall be provided, located driver's side overhead console to override clear side facing warning lights in light bars.

Additional Switch

A 12 volt momentary rocker switch shall be provided, located driver side overhead for door ajar audible alarm and door ajar light test.

Additional Switch

A 12 volt switch shall be provided, located officer's side switch panel for Q2B brake.

Misc. Programming Instructions

Additional programming shall be provided for the following: 1) fan clutch wired through park brake. Constant on when brake applied; 2) standard door ajar light wired to cab doors only; 3) additional door ajar light wired to body compartment doors.

Pre-Wire

The chassis shall be pre-wired for installation of tire chains. A guarded toggle switch shall be provided on the driver side cab dash diagnostic panel.

Windshield Fans

Two (2) adjustable windshield defogger fans with individual switches shall be mounted in the cab centered below the overhead console. The fans shall be 12 volt and shall each be rated at 250 cfm. Location: rear facing mounted up high on vertical 3 x 3 posts.

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). Antenna locations and coax terminations to be determined at pre-build.

Flexible Conduit

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

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 officer'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

Overall Height Restriction

The overall height of the completed apparatus shall be 9' 7" +/- 2".

Overall Length Restriction

The overall length of the completed apparatus shall be 32' 5".

Body Height and Mainframe Construction

The body mainframe shall be entirely constructed of aluminum. The complete framework shall be constructed of 6061T6 and 6063T5 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 90" 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.

Hosebed

The area above the booster tank shall have a hose storage area provided. The hosebed 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 hosebed shall include an open area for the fill tower(s). The hosebed design shall incorporate adjustable tracks in the forward area rearward of the fill tower(s) and the rearward area of the hosebed 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 hosebed mounted equipment).

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

Hose Bed Capacity

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

Storage Pan

A storage pan shall be provided in the forward area of the hosebed.

The storage pan shall be constructed of 3/16" (.188") aluminum treadplate.

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 wheel well trim shall be constructed from 6063-T5 formed aluminum extrusion. 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 three (3) 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 one (1) compartment located ahead of the rear wheels. This compartment shall be approximately 42" wide x 68" high x 26" deep in the lower 30" high section and 12" deep in the upper 38" high section. The compartment shall contain approximately 30 cu. ft. of combined storage space. The door opening shall be approximately 42" wide x 68" high.

There shall be one (1) compartment located over the rear wheel. The compartment shall be approximately 56" wide x 34" high x 12" deep and contain approximately 13.2 cu. ft. of storage space. The door opening shall be approximately 56" wide x 34" high.

There shall be one (1) compartment located behind of the rear wheels. This compartment shall be approximately 50" wide x 68" high x 26" deep in the lower 30" high section and 12" deep in the upper 38" high section. The compartment shall contain approximately 35.8 cu. ft. of combined storage space. The door opening shall be approximately 50" wide x 68" 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.

Driver Side Roof Top Compartments

Two (2) driver side roof compartments shall be provided. The compartments shall be integral to the driver side assembly.

The compartments shall be transverse front to rear and shall include flooring. The flooring shall be smooth plate and shall have drain holes to prevent the accumulation of water.

The compartment top lids shall be raised and constructed of 1/8" (.125") aluminum treadplate. The lids shall include stainless steel hinges and shall be hinged to the outside of the compartment. Each lid shall include turn latches, grab handle(s) and be wired to the door ajar indicator in the cab.

Lighting shall be provided for each compartment. The lights shall illuminate when the compartment lid is in the open position.

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 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 30" high x 26" deep. The compartment shall contain approximately 19 cu. ft. of combined storage space. The door opening shall be approximately 42" wide x 30" high.

There shall be one (1) compartment located behind of the rear wheels. This compartment shall be approximately 50" wide x 30" high x 26" deep. The compartment shall contain approximately 22.5 cu. ft. of combined storage space. The door opening shall be approximately 50" wide x 30" 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.

Adjustable Tracking

Adjustable tracking shall be provided on the officer side of the apparatus.

The tracking shall be positioned above the compartment top and shall allow for maximum adjustment of items mounted to the tracks.

BODY COMPT REAR

Rear Body Construction

The rear body shall be constructed entirely of aluminum extrusions and interlocking aluminum plates and includes a lower full height center rear compartment.

The rear body frame shall be 6063-T5 1.5" x 4" and 1.5" x 3"aluminum extrusions with a 3/16" (0.188") wall thickness and 3/16" (0.188") outside corner radius and 1/8" (0.125") aluminum plate. The rear extrusions shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

Rear Body Compartment

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

The compartment shall be approximately 38" wide x 30" high x 28" deep. The compartment shall contain approximately 18.4 cu. ft. of storage space. The door opening shall be approximately 38" wide x 30" high. This compartment shall be transverse through to the side rear compartments.

The compartment seams shall be sealed using a permanent pliable silicone caulk. Machined louvers shall be provided for adequate ventilation.

Tailboard Step

A tailboard with integral slide-out step shall be provided at the rear of the body. The tailboard shall 10" 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".

Tailboard

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 in a vertical direction 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.

Slide-out Step

A 28" wide integral slide-out step shall be provided in the center of the tailboard. The step shall be 22" deep when extended and shall be constructed of 3/16" (0.188") aluminum treadplate with a multi-directional, aggressive gripping surface. The step shall utilize a maintenance-free slide system incorporating stainless steel shoulder bolts that slide in slotted heavy-wall aluminum angles. Notches shall be provided at each end of the slots to hold the platform in both the extended and retracted positions.

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- one (1) appropriately sized handrail mounted vertical on the trailing edge of the body opposite side of the rear access ladder and appropriately sized handrail(s) mounted horizontal below the rear hosebed opening.

DOORS

Double Compartment Door - Short

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 1/8" (0.125") 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 a 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): L2, R1, R2, B1

Double Compartment Door - Tall

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 1/8" (0.125") 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 a 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 two (2) dual stage rotary latches, each with a 750 lb rating to hold the door in the closed position. The latches shall be mounted at the top and bottom of the

door. A stainless steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latches. The paddle handle shall be connected to the rotary latches by 5/32" (.156") diameter rods. Cable actuation shall not be deemed un-acceptable due to the potential for cable stretch and slippage. The striker pins 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): L1, L3

Keyed Latch [Qty: 6]

A locking D-ring with two (2) #1250 keys shall be installed on a box pan compartment door.

A locking D-ring shall be located on the following door(s): L1, L2, L3, R1, R2, B1.

Pull Handle – Double Door Interior [Qty: 6]

Interior double door latch to have latch brackets fabricated from aluminum smooth plate installed with "PULL" tags to make them easily unlatched without reaching behind door.

Location(s): L1, L2, L3, R1, R2, B1

Stainless Steel Trim

A stainless steel trim shall be located at the bottom edge of compartment L1, L2, L3, R1, R2 opening. The trim shall provide added protection of the painted surface of the body when equipment is removed from the compartment

SHELVES, TRAYS, TOOLBOARDS

Adjustable Shelf [Qty: 3]

There shall be an aluminum adjustable shelf provided for compartment R1, R2, L3 lower.

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: 4]

There shall be an aluminum adjustable shelf provided in the upper area of compartment L1 upper, L3 upper, 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 R1, R2, L3 lower 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 L1 upper, L3 upper 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.

Toolboard

The back wall of L2 shall have PAC TRAC tool mounting provided.

Swing-out Tool Board

An swing out aluminum tool board(s) shall be provided for compartment(s) L2.

The tool board shall be constructed of 1/4" (.25") smooth aluminum plate.The board shall contain a 90 degree bend top and bottom for rigidity. The tool board shall have a sanded finish and be sized in height and depth as applicable.

The tool board shall be mounted on a stainless steel hinge (stainless steel plate welded to a 1/2" stainless steel rod), attached to a 1.5" x 3" extrusion, that will permit the board to swing out of the compartment for easier access to tools and/or equipment. The tool board shall latch to a 3" x 3" extrusion, with a D-Ring latch utilized to secure the toolboard in the closed position.

The tool board shall be mounted centered front to rear of the compartment.

Roll-Out Tray

There shall be a floor mounted roll-out tray provided in compartment B1.

The roll-out tray shall be constructed of 3/16" (.187") smooth aluminum plate with a sanded finish and welded corners for increased strength and rigidity. The tray shall be sized in width and depth as applicable.

For greater tray accessibility, the drawer slides shall feature one hundred percent extension. The tray shall utilize a gas spring to secure the tray in the open or closed position.

The tray shall have a total capacity of 500 lbs.

PUMP MODULE

Pump Module Width

Pump module shall be 76" wide.

Pump Module Height

The pump module height shall be 80".

Pump Module

An aluminum extruded pump module shall be provided and located forward of the body. The pump module shall be provided with a forward area for a triple crosslay, and dunnage storage shall be provided. The pump module shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. The pump module design and mounting shall be separate from the body to allow the pump module and body to move independently of each other in order to reduce stress from frame twisting and vibration. The exterior surface of the pump module shall have a sanded finish. The pump module panel opening shall be 45" in width.

Side Mount Pump Panels

The driver and officer side pump panels shall be constructed of 14 gauge stainless steel. Each panel shall have the ability to be removed from the module for easier access and for maintenance in the pump area.

Hinged Gauge Panel

The driver side stainless steel single gauge panel shall be positioned where it can be opened downward for access to gauges and other interior pump module mounted items. The gauge panel shall include latches to secure the panel in the closed position. Two (2) cable tethers shall be provided to hold the panel in the open position.

Pump Access Door

The officer side pump module shall have a three (3) piece panel, one (1) above the discharge outlets, one (1) encompassing the discharges and intakes and one (1) low for bleeder valves.

The upper two (2) pump panel sections shall have a vertical stainless steel piano type hinge with 1/4" pins along the forward edge of the pump module. The hinges shall be "staked" on every other knuckle to prevent the pin from sliding. The panels shall have push button style latches to secure the panels in the closed position. The upper panel shall have one (1) pneumatic shock to hold the panel in the open position.

Crosslay Triple Preconnect Storage

The module design shall include an area for a single stacked 1.5" double crosslay and the 2.5" deadlay double stack at approximately 78" off the ground. The forward two (2) crosslay areas shall have a capacity of 200 ft. of 1.75" double jacket hose. The rearward deadlay area shall be for 2.5" double jacket hose. The crosslay floor shall be constructed of 3/16" (.188) smooth aluminum plate and shall be slotted to prevent the accumulation of water and allow for ventilation of wet hose. One (1) 1/4" (.25") smooth aluminum plate non-adjustable dividers with a sanded finish shall be provided to separate the forward hose storage area.

Roller Assemblies

Stainless steel rollers with nylon guides set in aluminum extrusions shall be installed on the preconnect hose storage area(s).

The rollers shall assist with deployment of hose and to protect the module surface.

Preconnect Storage Flooring

The preconnect hose storage area(s) shall include removable maintenance-free flooring constructed of 3/4" x 2-3/4" (0.75" x 2.75") hollow aluminum extrusions.

Crosslay Doors

Diamond plate vertically hinged door each side of the deadlay area hinged rearward. Includes thumb latch and wiring for door ajar switch.

Dunnage Pan

A dunnage pan constructed of 3/16" (.188") aluminum treadplate. The dunnage pan shall be sized to maximize available storage space.

Diamond plate access doors shall be provided to access plumbing in pump module. Includes push button latches.

Pump Module Running Boards

The pump module shall include a running board on each side of the pump module. The running boards shall be in accordance with NFPA in both step height and stepping surface. The

The pump module shall include a running board on each side of the pump module. The running boards shall be in accordance with NFPA in both step height and stepping surface. The maximum step height to each running board shall not exceed 24". The running boards shall be formed from 1/8" (.125") aluminum treadplate. Each running board 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". Each running board shall be bolted on to the pump module and be easily removable for replacement in the case of damage.

Runningboard Suction Tray [Qty: 2]

A running board suction hose storage tray (approx. 35"W) shall be provided and located in the driver side running board, officer side running board.

The tray shall be recessed mounted and constructed of 1/8" (.125") aluminum diamond plate (exterior) with a smooth surface interior. The bottom of the tray shall have removable aluminum slats and drain holes to allow water drainage from hose stored in the tray.

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.

Module Logos

Logos with the OEM brand name shall be provided and shall be mounted one (1) each side on pump module/pre-connect panels. Logos shall be sized as applicable to available space on panel(s).

WATER TANK

1030 Gallon Water Tank

A 1030 gallon (U.S.) "L" 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.

Tank capacity is 1030 US gallon / 857 Imperial gallons / 3898 Liters.

Tower Locations

Fill tower locations. Water fill tower to be located driver side, the Foam "A" fill tower centered and Foam "B" fill tower to be located to officer side at the front of the tank.

TANK PLUMBING

Tank Fill 3" Akron Handwheel

One (1) 3" pump-to-tank fill line having a handwheel operated 3" Akron 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 valve shall be an Akron 8600HD 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 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
- 4" 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.

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

Tank To Pump 3.5 Akron Valve

One (1) manually operated 3.5" Akron valve shall be installed between the pump suction and the booster tank, 4" piping, with flex hose and stainless steel hose clamps connect to the tank. 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 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.

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

FOAM TANK

30 Gallon Foam Tank

A 30 gallon (U.S.) foam cell for Class B foam shall be supplied. The foam cell shall be integral to the water tank and decrease the water capacity by a like amount.

The integral tank top, sides, and bottom shall be constructed of black polypropylene material. 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 copolymer polypropylene material shall be used for its high strength and corrosion resistance for a prolonged tank life.

The foam tank shall have a manual fill tower. 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). Foam fill tower shall be constructed of a Yellow colored material indicating type of foam utilized. The capacity of the tank shall be engraved on the top of the fill tower lid. The fill tower shall be located in the forward area of the tank. The tower shall have a 1/4" thick removable polypropylene screen. Inside the fill tower, approximately 1.5" down from

the top, there shall be an anti-foam fill tube that extends down to the bottom of the tank. A pressure vacuum vent shall be provided in the lid of the fill tower. The foam fill tower shall be removable to facilitate the cleaning of the foam tank.

The foam tank shall undergo extensive testing prior to installation in the truck. All foam tanks shall be tested and certified as to capacity. 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.

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.

20 Gallon Foam Tank

A 20 gallon (U.S.) foam cell for Class A foam shall be supplied. The foam cell shall be integral to the water tank and decrease the water capacity by a like amount.

The integral tank top, sides, and bottom shall be constructed of black polypropylene material. 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 copolymer polypropylene material shall be used for its high strength and corrosion resistance for a prolonged tank life.

The foam tank shall have a manual fill tower. 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). Foam fill tower shall be constructed of a Green colored material indicating type of foam utilized. The capacity of the tank shall be engraved on the top of the fill tower lid. The fill tower shall be located in the forward area of the tank. The tower shall have a 1/4" thick removable polypropylene screen. Inside the fill tower, approximately 1.5" down from the top, there shall be an anti-foam fill tube that extends down to the bottom of the tank. A pressure vacuum vent shall be provided in the lid of the fill tower. The foam fill tower shall be removable to facilitate the cleaning of the foam tank.

The foam tank shall undergo extensive testing prior to installation in the truck. All foam tanks shall be tested and certified as to capacity. 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.

FOAM TANK OPTIONS

Foam Tank Panel Outlet

A camlock quick-connect foam outlet shall be provided. The outlet shall be for use with a Class B external foam eductor application. The outlet shall be a 1" male disconnect with a 1" valve. The connection between the foam tank and valve shall be a flex line with a strainer. A check

valve shall be provided so water cannot enter into the foam tank once the external water line is connected.

A 1" female fitting shall be provided and shipped loose with the apparatus.

The outlet shall be located on the driver side pump panel.

LADDER STORAGE / RACKS

Ladder Storage

Ladder storage shall be provided over the officer side compartment top.

There shall be two (2) aluminum adjustable ladder tracks vertically-mounted to the hosebed side. There shall be two (2) cast ladder brackets provided with spring-loaded hold-down handles mounted in the adjustable ladder tracks. Brackets shall be provided to protect the painted body side surface.

Ladder Brand

The ladder brand capable of being carried on the unit shall be Duo-Safety.

Ladders

The length of ladders capable of being stored shall be the following: 24' 2-section and 14' roof ladder.

Equipment Storage

Four (4) aluminum storage tubes shall be provided for pike poles. An aluminum storage trough shall be provided for a folding attic ladder. These items shall be vertically mounted behind the ground ladders on the adjustable ladder tracks on the outside of the hose bed on the officer side.

Hard Suction Hose Rack [Qty: 2]

One (1) hard suction hose storage rack shall be provided above the officer side adjustable ladder tracks.

The storage rack shall be constructed of anodized extruded aluminum and includes two (2) spring-mounted latch handles.

The storage rack shall be capable of storing one (1) 6" x 10` hard suction hose.

HANDRAILS / STEPS

Folding Steps – Front Body Bulkhead [Qty: 5]

Dual lighted LED folding step(s) shall be located officer side front compartment face, driver side front compartment face. The folding step(s) shall meet current NFPA in step height and surface area.

Dual lighted LED folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 FC 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 lbs. The folding step shall also meet NFPA slip resistance qualifications.

One (1) hand rail shall be installed 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.

Handrail [Qty: 2]

Handrail(s) shall be installed in compliance with current NFPA. The handrail(s) shall be located driver side (vertically mounted) rearward of crosslay on pump module, officer side (vertically mounted) rearward of crosslay on pump module.

The handrail(s) 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.

Intermediate Rear Step

An intermediate step below the hosebed shall be provided.

The step shall be constructed of 3/16" (.187") aluminum embossed treadplate. The step shall be bolted below the hosebed and be easily removable for replacement in the case of damage. The top rear surface of the step to have three (3) hand hold cut-outs horizontally.

Folding Steps, Additional [Qty: 3]

Dual lighted LED folding steps shall be installed on the body as determined at pre-build. The steps shall be NFPA compliant for access to the body and in step height and surface area.

Dual lighted LED folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 FC on the stepping surface. Each 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 lbs. The folding step shall also meet NFPA slip resistance qualifications.

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.

MISC BODY OPTIONS

Hose Bed Divider [Qty: 3]

There shall be a hose bed divider provided the full fore-aft length of the hose bed. The divider height shall be 3/4 height of the hose bed depth top to bottom. This shall allow for easier loading and unloading of hose from this area.

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 in the hose bed 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.

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Divider Support

Divider Support shall run full width of hosebed (side to side) at the front of the hosebed divider(s). Attach to each hosebed divider to provide additional support.

Corner Guards

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

Corner Guard

Stainless Steel corner guard for the officer rear 3x3 to protect the paint from the pike poles.. Guard to wrap around the 3x3. The corner guards shall be constructed of stainless steel 14GA brushed plate.

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.

Rear Mud Flaps

The rear tires shall have a set of black mud flaps mounted behind the rear chassis wheels with E-ONE logo.

SCBA BOTTLE STORAGE

SCBA/Wheel Chock Storage

The body wheel well area shall store up to one (1) SCBA bottle on the driver side. The bottle shall be secured in each storage area by a vertically hinged door which shall be secured in the closed position by a push button latch. The door shall match the wheel well area material and finish. The rear door on driver side will be a single door and will not cover the fuel fill.

Three (3) wheel chock storage compartments shall be provided. The compartments shall be located one forward in the driver side body wheel well area, one forward and one rearward in the officer side body wheel well area . Each compartment shall be capable of holding two (2) Ziamatic model SAC-44-E wheel chock.

The wheel chock shall be secured in each storage area by a vertically hinged door which shall be secured in the closed position by a push button latch. The doors shall match the wheel well area material and finish.

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.

COVERS

Crosslay Cover [Qty: 2]

A crosslay cover shall be provided for the crosslay storage area of the pump module. The crosslay cover shall be provided in compliance with NFPA 1901.

The crosslay cover shall be constructed from 3/16" (.187") aluminum treadplate. The cover shall include a full-length stainless steel 1/4" (0.25") rod piano-type hinge. The cover shall be hinged to open and not interfere with applicable plumbing components on the apparatus.

The crosslay cover shall include two (2) hold downs to secure the cover in the closed position. The cover shall be labeled as a non-stepping surface in non-aerial applications. NO grab handle(s) on cover.

Crosslay Cover Hinge

The forward crosslay cover shall be hinged along the forward edge of the crosslay area and the rearward drylay cover shall be hinged along the rearward edge of the drylay area .

Hold Open [Qty: 2]

Hold open device(s) shall be provided for aluminum crosslay (single or bi-fold) cover.

Crosslay Cover - Sides [Qty: 2]

A pair of covers constructed of heavy duty black nylon cargo netting shall be installed over the side openings of the apparatus crosslay. Cover to have the male portion of buckle at bottom corners.

The covers shall be secured in place by (2) 2" aluminum quick release buckles to be permanently attached at bottom of module on either side of crosslay opening to comply with the latest edition of NFPA 1901.

Running Board Hose Tray Cover [Qty: 2]

A cover constructed of .125" (1/8") diamond plate shall be installed over the opening of the apparatus running board hose tray. The cover shall include push button latches and Gator Grip.

The cover shall be secured in place to comply with the latest edition of NFPA 1901.

Location: driver side running board, officer side running board.

Hose Bed Cover

The hose bed area shall have a two (2) piece aluminum hosebed cover. The hose bed cover shall be provided in compliance with NFPA.

Each hose bed cover shall be constructed of an aluminum tubing frame with a 1/8" (.125") aluminum tread plate top and a 3/32" (.094") aluminum smooth plate bottom.

The rear section shall roll over the forward section on tracks and rollers. When rolled open, the two sections shall lift upward on a forward mounted stainless steel piano hinge to assist in loading hose. The lid shall be assisted and supported by positive locking mechanism. The roller section shall also consist of positive latch open and close.

Each cover door shall be wired to the door ajar indicator light in the cab and shall be interlocked with the parking brake per NFPA.

Requires intermediate rear step except for extended enhanced compartments.

Rear Hose Bed Cover

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

The top of the cover shall be mechanically attached to the rear hose bed cover extrusion. The lower portion of the cover shall be secured in place with heavy duty nylon straps to comply with the latest edition of NFPA 1901.

PUMPS

Fire Pump System

The pump shall be a midship mounted Waterous CSU 1500-2250 single stage centrifugal pump. The pump shall be mounted on the chassis frame rails and shall be split-shaft driven.

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. Pump body shall be horizontally split in two (2) sections, for easy removal of impeller assembly including wear rings and bearings from beneath the pump without disturbing pump mounting or piping.

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.

The impeller shaft shall be stainless steel, accurately ground with a 2-3/4" diameter spline shaft, and shall be rigidly supported at each end by oil or grease-lubricated anti-friction ball bearings for rigid and precise support. Bearings shall be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. The remaining bearings shall be heavy duty, deep groove ball bearings in the gearbox and shall be splash lubricated. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of the gearbox.

Two (2) 6" diameter suction ports with 6" NST male threads and removable screens shall be provided, one each side. The ports shall be mounted one on each side of the midship pump and shall extend through the side pump panels. Inlets shall come equipped with long handle chrome caps.

Stuffing boxes shall be integral with the pump body and be equipped with two-piece glands to permit adjustment or replacement of packing without disturbing pump. Lantern rings shall be located at inner ends of stuffing boxes so that all rings of packing can be removed without

removal of the lantern rings. Water shall be fed into stuffing box lantern rings for proper lubrication and cooling when pump is operating.

Discharge Manifold

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

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.

Pump Shift

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).

Systems

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

A master drain valve shall be installed and operated from the pump operator`s panel. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal and turning handle.

The manual master drain valve shall have six individually sealed ports that allow quick, 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.

Auxiliary Engine Cooler

An engine cooler used to lower engine water temperature during prolonged pumping operations and controlled at the pump operator`s panel shall be provided.

The engine cooler shall be installed in the engine coolant system in such a manner as to allow cool pump water to circulate around engine water, thus forming a true heat exchanger action. Cooler inlet and outlet shall be continuous, preventing intermixing of engine coolant and pump water.

PUMP CERTIFICATION

Pump Rating

The fire pump shall be rated at 1500 GPM.

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

Pump Gear Box

Pump gear box to be mounted forward of pump in place of standard due to Telma retarder and air ride suspension.

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, officer's side.

Anodes, Waterous Pump

The anodes help prevent damage caused by galvanic corrosion within the pump. The system provides a sacrificial metal which helps to diminish or prevent pump and pump shaft galvanic corrosion. One (1) anode will be located on the suction side and one (1) will be located on the discharge side of the pump.

Pump Shift Override - Waterous

One (1) manual pump shift override shall be mounted to engage the fire pump in the event of an air pressure failure. Pump Shift Override - driver's side under running board rearward of running board tray if applicable. (Rod linkage in place of cable.)

Pump Seal, Mechanical

A mechanical seal shall be supplied with the pump and shall include an alternate seal housing that shall be equipped with self-adjusting, maintenance-free, mechanical shaft seals which eliminates the need for packing.

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 Primer

There shall be a Trident Model #31.001.7 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.

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.

Primer Control

The primer control shall have a manually operated, panel mounted "push to prime" air valve; which will 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.

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 or solenoid, electrical wiring, lubrication, belt drive, or clutch assembly.

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.

Front Intake 5"

A 5" stainless steel pipe shall extend from the right suction side of the pump to the front of the apparatus. All fabricated piping used in the front suction shall be constructed of a minimum of Schedule 10 stainless steel pipe to reduce corrosion of the lines. 3/4" valve(s) shall be provided to allow water to be drained.

Front Intake Swivel, 5"

A heavy duty 5" 90 degree cast brass elbow designed and constructed specifically for fire/emergency vehicle usage shall serve as the auxiliary front suction inlet. The elbow, also referred to as the "swivel", shall be attached to the front suction piping. This component shall have the following features:

1) The ability to rotate 180 degrees.
2) A rugged twist-lock mechanism to hold the elbow in place at the desired position.
3) A double-ball race with bronze balls.
4) A 5" NPT free swivel female inlet.
5) A 5" NST male outlet with strainer.
6) Cast brass with polished chrome finish.

The elbow/swivel shall be mounted so that it extends above the extended front bumper.

Adapter 5 FNST x 4.5 MNST Front Intake

A 5" female NST x 4-1/2" male NST chrome-plated adapter with suction strainer and 4-1/2" long handle chrome cap shall be installed on the front suction piping.

Monarch Waterous Electric Actuated Valve

A Waterous Monarch valve shall be provided for the specified intake. The inlet valve shall be operated by a 12 VDC electric motor with a remote switch provided at the pump operator`s position. The 12 VDC motor shall be provided with an automatic resetting, thermally-compensated over-current protection circuit breaker to protect the 12 VDC motor and apparatus electrical system. The gear actuator on the valve will cycle from full closed to full open in not less than three (3) seconds. A manual override shall be provided behind the officer side panel. An indicator light panel shall be located at the pump operator`s position to show valve open, closed, or traversing from open to closed.

A adjustable pressure relief valve shall be provided. The pressure relief valve shall be factory set to 125 psi. The pressure relief valve shall provide overpressure protection for the suction hose even when the intake valve is closed.

A 1/4" air bleeder valve shall be provided and controlled at the pump operator`s position.

A 3/4" water bleeder shall be supplied and controlled at the pump panel position.

Location: 5 in. front intake.

INTAKE OPTIONS

Intake Relief Valve

The pump shall be equipped with an Elkhart cast brass, variable pressure setting suction side relief valve. The valve shall be normally closed and shall limit pressures in the pumping system. When excessive intake pressures are received, the water shall be directed below the body to an area visible to the pump operator. The outlet shall terminate with a male 2-1/2" NST threaded fitting.

Manual Override Access panel

Manual override access hole to be supplied in officer`s side pump panel to access the override on the 5" front suction .Wrench required for manual override shall be located in vicinity of access panel.

Bleeder

Front intake bleeder valve to be located adjacent to inlet at front bumper.

DISCHARGES AND PRECONNECTS

Front Bumper 2.5 Akron Handwheel

One (1) 2-1/2" preconnect outlet with a handwheel operated Akron valve shall be supplied to the extended front bumper. The preconnect shall consist of a 2-1/2" heavy-duty hose coming

from the pump discharge manifold to a 2-1/2" FNPT x 2-1/2" MNST mechanical swivel hose connection to permit the use of the hose from either side of the apparatus.

The valve shall be an Akron 8600HD 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 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
• 4" 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.

An air blowout valve shall be installed between the chassis air reservoir and the front jump line. The control shall be installed on the pump operator`s panel.

The discharge shall be supplied with a Class 1 automatic 3/4" drain valve assembly. The automatic drain shall have an all-brass body with stainless steel check assembly. The drain shall normally be open and automatically close when the pressure is greater than 6 psi.

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.

Swivel Elbow, Polished Stainless Steel

There shall be a polished stainless steel swivel elbow provided for the front bumper discharge located on top of the bumper driver's side outboard.

Crosslay 1.5 Akron Handwheel [Qty: 2]

One (1) crosslay discharge shall be provided at the front area of the body. The crosslay shall include one (1) 2" brass swivel with a 1-1/2" hose connection to permit the use of hose from either side of the apparatus.

The crosslay hosebed shall consist of a 2" heavy duty hose coming from the pump discharge manifold to the 2" swivel. The hose shall be connected to a handwheel operated 2" Akron valve. The valve shall be an Akron 8600HD 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 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
• 4" 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 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.

Location: crosslay 1 & 2

Left Panel 2.5 Discharge Akron Valve

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.

Discharge 2.5 Left Rear Akron Handwheel

One (1) 2-1/2" discharge outlet with a handwheel 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 8600HD 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 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
• 4" 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 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

Discharge 2.5 Right Rear Akron Handwheel

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

The valve shall be an Akron 8600HD 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 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
• 4" 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 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

Right 4 Discharge Akron Handwheel [Qty: 2]

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.
• 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, right side discharge 2.

Deck Gun 3 Akron Handwheel

One (1) 3" deck gun discharge outlet with a handwheel operated Akron valve and 3" stainless steel pipe shall be provided above the pump compartment.

The valve shall be an Akron 8600HD 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 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
- 4" 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 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.

Additional Deck Gun Handwheel Control

Additional handwheel control for deck gun valve adjacent to the outlet.

Deck Gun Location

Deck gun piping shall be positioned dunnage pan centered. This location shall allow for optimal operation of a deck gun monitor once installed.

Extend-A-Gun

A Task Force Tips 18" Extend-A-Gun piping shall be supplied for the deck gun discharge to allow for raising and lowering the deck gun monitor.

The Extend-A-Gun shall include a raised monitor sensor connected to the door ajar light.

Deck Gun Flange

Deck Gun Discharge Piping. The deck gun discharge piping shall terminate 11" above storage pan floor with a 4 bolt flange.

DISCHARGE OPTIONS

Akron Composite Ball

The apparatus valves shall have Akron Fusion CF Composite Balls for all discharge outlets, and 2.5" intake in place of stainless steel balls.

Hand Wheel

Spinner knot on all hand wheels to be located at 5 o-clock positions when closed.

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: 9]

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 PumpBoss Pressure 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

6" Compound Pressure Gauge [Qty: 2]

A Class 1 weatherproof 6" compound vacuum pressure gauge with a range of 30-0-600 shall be installed on the pump panel in place of the standard 4.5" gauges. The gauge shall be filled with a liquid solution.

2.5" Discharge Pressure Gauge (Brass) with Color Coded Bezel [Qty: 9]

The valve discharge gauges shall be 2 ½" (63mm) diameter Innovative Controls pressure gauges. Each gauge shall have a one-piece die-cast brass case (5-year warranty) that integrates the valve stem connection, movement support, and bourdon tube support into a single unit that eliminates distortion and leakage (lifetime warranty against distortion and leakage). Clear scratch resistant molded crystals with captive O-ring seals shall be used to ensure distortion free viewing and to 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 brass 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.

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 towards rear.

GAUGE IC 10 LED FOAM TANK LEVEL

One (1) Innovative Controls brand foam tank level gauge shall be located at the pump operator`s panel to provide a high-visibility display of the foam 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. 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.

Foam Gauge Requirement

The B foam cell(s) shall not have a tank level gauge(s).

FOAM SYSTEMS

Foam System

There shall be a Waterous Advantus 3.0 fully automatic electronic direct injection foam proportioning system furnished and installed on the apparatus for the specified discharge(s). The system shall be capable of Class A foam concentrates and most Class B foam concentrates. The proportioning operation shall be based on an accurate direct measurement of water flow with no restriction. The proportioning system shall meet NFPA standards for foam proportioning systems and the design shall have passed testing against SAE automotive reliability standards appropriate for the application. The foam system shall be installed in accordance with the manufacturer recommendations.

The system shall be equipped with a digital electronic control display. It shall be installed on the pump operator`s panel and enable the pump operator to perform the following control and operation functions:

- Activate the foam system.
- Change foam concentrate proportioning rates from .1% to 3% in .1% increments.
- From discharges plumbed after the paddlewheel type flow meter: show current flow in gpm, show total volume of water pump, show total amounts of foam concentrate used.
- Provide simulated flow for manual operation.
- Perform set-up and diagnostic functions.
- Flash a "low-concentrate" warning for two minutes when the foam concentrate tank(s) run low of concentrate.
- Flash "no concentrate" warning if foam concentrate tank was not changed or foam concentrate was not added to the low tank and shut down foam concentrate pump.

- Display which foam concentrate tank is selected (tank A: PA or tank B: PB)
- Separate default setting for foam concentrate injection rate.
- Total amount of foam concentrate used from selected tank.
- Dual foam concentrate foam pump calibration.

The foam system shall have a 12 volt, 1hp electric motor designed for wet and high humidity environments, direct coupled to a positive displacement piston type foam pump with a rated capacity of .01 to 3.0 gpm with operating pressures up to 450 psi.

Foam System Plumbing

The specified foam system shall be plumbed to left rear discharge, 1.5 first crosslay, driver's side front jump line.

Waterous Auxiliary Pickup

The apparatus shall have a Electronic Dual Tank Selector, used with Waterous Advantus® Foam Systems. Equipped with a quick-connect type connector for quick and easy hose connection. Also equipped with a dust cap when the Overboard Pick-Up Kit is not in use.

A Stainless Steel Pick-Up Wand and Hose A stainless steel pick-up wand and 6 feet of reinforced hose equipped with a 1", non-drip, hydraulic quick-connect type connector constructed of brass or optional stainless steel with a spring-loaded release collar is used to draw the Class B foam into the foam system
through the Auxiliary Foam Connection.

Foam System Certification

The foam system performance shall be tested and certified in compliance with 2009 NFPA 1901.

ELECTRICAL SYSTEMS

Vehicle Data Recorder

A vehicle data recorder system shall be provided to comply with NFPA 1901, 2009 edition. 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 officer's overhead.

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 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.

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. Crimble/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 driver side of center dash upper tier (recessed).

WARNING LIGHTS

Light Bar

A Whelen Freedom series model FN72VLED 72" all LED light bar shall be installed.

The light bar shall have clear lenses and contain four (4) corner mounted red LED modules and ten (10) front LED modules, eight (8) red and two (2) white. The front LED colors shall be (from left to right) R/W/R/R/R/R/R/R/W/R. The lightbar shall be equipped with MKEZ7 mounts. Reference 660636.

The white LEDs shall be switched off in blocking right of way mode.

The lightbar shall be installed centered on the front cab roof.

A pair of Whelen 24" Mini-Freedom LED light bars (Model FNMINI) with clear lenses and MKEZ7 mounts shall be provided. The light bar shall consist of two (2) front corner red linear LEDs, one (1) white front linear LED and one (1) end red linear LED.

No rear facing LEDs.

The clear LED shall be switched off in blocking right of way mode.

The light bars shall be installed in the following location: each side over front cab doors.

Upper Rear Warning Lights

Whelen model Bb3M7 LED beacons shall be supplied on polished aluminum mounts. Each unit shall consist of a RotaBeam LED upper beacon with red dome/clear lenses and a M7 series Super LED with amber 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

Six (6) Whelen M6RC Super LED red light heads with clear lens, two (2) Whelen M9RC Super LED red light heads with clear lens and two (2) Whelen M2RC Super LED red light heads with clear lens 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) Whelen M6RC Super LED Red lights on the front of the apparatus facing forward
- Two (2) Whelen M6RC Super LED Red lights on the rear of the apparatus facing rearward
- Two (2) Whelen M9RC Super LED Red lights on the front bumper corners side facing
- Two (2) Whelen M6RC Super LED Red lights on the rear wheelwells
- Two (2) Whelen M2RC Super LED Red lights in the rubrails at rear corners facing side

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

ADDITIONAL WARNING LIGHTS

Warning Lights – Lower Additional

Six (6) Whelen M6 Series Linear Super LED red light heads with clear 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, (1) each side of cab, rearward of rear doors, above the cabinet doors, (1) each side above quad bezel at contour (outboard).

Warning Lights – Lower Additional

Two (2) Whelen model M2R Super LED red light heads (red LEDs with clear lens) shall be provided.

The rectangular lights shall include chrome flanges where applicable. The lights shall be wired with weatherproof connectors.

Specifications include:

- Surface mounted
- Patented Linear LED reflector assembly
- Sealed assembly
- Mounting gasket
- Multiple Scan-Lock flash patterns available
- Chrome mounting flange

Location: centered (1) each side below L1/R1 in rubrail if equipped, (1) each side in pump module rubrail if equipped, (1) each side rear facing centered between DOT lights and corner in rubrail if equipped.

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

DIRECTIONAL LIGHT BARS

Directional Traffic Warning Light

One (1) Whelen model TADP8 LED Dominator™ Plus Traffic Advisor™ with clear lenses shall be provided. The light bar shall include eight (8) LINZ6™ Super-LED® lamps.

The directional bar shall include a TADCTL1 control head.

The light shall be installed at rear of body to direct traffic around the apparatus.

Dimensions: 1.75" high x 2.17" deep x 30.36" long.

Directional Light Bar Control Location

The directional light bar control head shall be located in the center overhead console offset to driver side.

SIRENS

Mechanical Siren

A chrome plated and pedestal mounted Federal Q2B-P coaster siren shall be installed on top of the front bumper extension. An electric siren brake switch shall be located in the cab accessible to the driver.

The siren shall be located driver's side inboard.

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.

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 rubrail.
• One (1) red Trucklite LED clearance light each side at the trailing edge of the apparatus body, recessed in the rubrail.
• One (1) amber Trucklite LED clearance/auxiliary turn light each side front of body/module, recessed in the rubrail.

Marker Lights

One (1) pair of Britax model L427.203L.12V LED amber/red marker rubber housed lights shall be provided. The lights shall be located on the rear body corners mounted in the down angle position. The red lenses shall illuminate to the rear of the apparatus and the amber shall illuminate to the front of the apparatus. The lights shall be wired to the marker light circuit.

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.

Third Brake Light

One (1) Whelen model PSR00XRR LED red 3rd brake light shall be provided. The light shall be located center rear upper body.

Turn Signals

A pair of Weldon model 9186-8580-29 bubble style LED amber auxiliary turn signals with stainless steel bezels shall be installed.

Location: (1) each side in body wheel well offset forward.

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

Cabinet Light [Qty: 4]

One (1) Amdor Luma-Bar Blue LED compartment light strip shall be mounted in the storage cabinet.

The light shall be wired to the compartment light rocker switch in the cab.

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 below the bumper (if applicable), body and cab doors shall be 12" long Amdor Luma-Bar H2O LED with clear lenses. The lights shall be water resistant and mounted in an extruded under truck bracket. 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) Amdor Luma-Bar blue LED 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.

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.

LIGHTS - DECK AND SCENE

Scene Lights [pr]

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 a chrome colored bezel.

Lights shall be located (1) each side of vista forward of rear 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.

Work Lights - Crosslay

One (1) pair of Whelen model PELCC LED lights shall be provided. The lights shall be wired through work light switch in cab.

Location: Crosslays.

Hose Bed Light

One (1) Amdor H2O 40" Luma-Bar shall be installed at the front area of the hose bed to provide hose bed lighting per current NFPA 1901. All electrical connectors are to be enclosed in the housing providing protection against the elements.

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

Scene Light

(1) Fire Research model SPA900-Q70 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 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.

Light shall be located (1) driver side rear of apparatus up high.

Rear Work Lights

Two (2) FireTech LED lights model FT-WL3500-60 shall be installed. The lights shall be switched with work light switch in the cab.

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

LIGHTS - NON-WARNING

LED Pump Panel Light Package

Three (3) Amdor H2O 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.

Light Wiring

Forward pump panel light at the pump operator`s panel shall be wired to the pump shift to provide pump panel illumination when the pump is placed into gear. Top mount application

center light at the pump operator`s panel shall be wired to the pump shift to provide pump panel illumination when the pump is placed into gear.

Pump Compartment LED Light

An 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.

Engine Compartment Light

There shall be LED lighting provided in compliance with NFPA to illuminate the engine compartment area.

CONTROLS / SWITCHES

Three Way Switching [Qty: 6]

An additional momentary switch with circuitry shall be provided to allow on/off operation of specified device from remote locations. The remote switch shall be mounted; 1) officer's side switch panel for cab brow lights; 2) officer's side switch panel for driver side 12V cab/body scene lights; 3) officer's side switch panel for officer side 12V cab/body scene lights.
4) pump operator's panel for LED telescopic light(s) on driver side cab/body; 5) pump operator's panel for LED telescopic light(s) on officer side cab/body 6) driver rear of body for rear work lights;

INTERCOM

Intercom Wireless 4 Cab

A FireCom wireless intercom package shall be installed within the cab interior. One (1) model 5100D digital intercom with touch pad adjustable volume with advanced digital noise reduction circuitry. The intercom uses a durable membrane switch plate to control volume and change radios.
This intercom provides hearing loss protection that can occur from exposure to high noise levels.

The system contains:

- One (1) FireCom model 5100D single radio monitor shall be provided in the cab (two (2) year limited warranty).
- Two (2) base transmit units with radio transmission, FireCom part number 106-3089-00 shall be included.
- One (1) base transmit unit, intercom only (no radio), FireCom part number 106-3086-00 shall be included.
- Four (4) NFPA compliant headset hooks, FireCom part number 108-0678-00 shall be provided at each seated position.

Headsets shall be Dealer Supplied.

Intercom Base Unit Location

The intercom base unit shall be located center overhead.

MISC ELECTRICAL

12 Volt DC Power Distribution Module [Qty: 2]

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.

12 Volt Power Plug/USB Charger [Qty: 8]

One (1) Waytek 11014 Dual 2.1A USB Charger & 20A Power Receptacle 12v. Locations to be determined at pre-build.

12 Volt Power Lead [Qty: 3]

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 center overhead, behind center dash electrical access cover, TBD at pre-build.

Back-Up Alarm

A Ecco electronic back-up alarm model SA917 shall be supplied. The self adjusting 87-112 dB(A) alarm shall be wired into the chassis back-up lights to signal when the vehicle is in reverse.

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.

Pioneer 12 Volt Spot/Flood Light [Qty: 2]

Whelen Pioneer Plus LED light fixture model PCP2 on an Whelen 3000 series external pole mount shall be supplied. The rectangular extruded light fixture with die cast end caps shall measure 14" wide by 4-5/8" high by 3" deep and have a white powder coat finish. The light fixture shall have a dual panel (4) clusters of LED lamps (1 flood and 1 spot) with molded vacuum metalized reflector that draws 12 amps at 12.8 Vdc. The light shall be attached to the external pole mount with an electromagnetic sensor to indicate if the pole is not in the stored position. A locking swivel joint shall be provided to allow the lights to be manually tilted up/down and locked in position by the operator. Handle standard.

The light assembly shall be externally mounted as specified. The pole shall allow for 360-degree rotation of the light. A locking knob shall hold the pole at the desired height.

Location: officer side back of cab, driver side back of cab.

SHORELINE RECEPTACLES

Receptacle [Qty: 2]

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, R1 high on forward wall.

LOOSE EQUIPMENT

Wheel Well SCBA Storage Tray [Qty: 6]

There shall be .250" smooth plate aluminum tray for each bottle with ribbed rubber.

Elbow 30 2.5FNST x 2.5MNST [Qty: 3]

This unit shall be supplied with one (1) elbow 30 degree swivel 2.5" FNST x 2.5" MNST.

Reducer Adapter [Qty: 3]

2.5" discharge shall have reducer provided and shipped loose with the apparatus. The adapters shall be 2.5" female NST threads by 1.5" male NH threads without caps.

MISC LOOSE EQUIPMENT

DOT Required Drive Away Kit

Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement.

Miscellaneous Parts

Miscellaneous bag of screws, nuts, bolts and washers, as used in the construction of the unit. Quantity and type shall be determined upon submitted order.

Cargo Net

One (1) extra pair of cargo net covers shall be provided for the rear facing upper openings of the overhead medical cabinet.

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.

Painted Pump/Pre-Connect Module(s)

The apparatus pump/pre-connect module(s) shall be painted job color.

The paint process shall match what is applied to the body.

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.

Undercoating

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.

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

Sign Gold Letter [Qty: 57]

3" high Sign Gold letter(s) shall be applied as specified.

Sign Gold Letter [Qty: 4]

10" high Sign Gold letter(s) shall be applied as specified.

Scotchlite Letter [Qty: 2]

White 6" Scotchlite letters shall be applied per department specifications.

Scotchlite Letter [Qty: 7]

White 12" Scotchlite letters shall be applied per department specifications.

Sign Gold Letter [Qty: 17]

Letters shall be 8" high and applied as specified.

Lettering Shade and Outline [Qty: 87]

Existing letter shall be shaded and outlined in black to contrast the letters.

STRIPING

Chassis and Body Stripe

A straight chassis and body Scotchlite stripe, 6" minimum in width shall be supplied. The stripe shall be NFPA compliant with the color and location to be specified by the purchaser.

Location: bottom of stripe flush with top of bumper and straight back.

Color: White.

Trim Stripes

A 1" Scotchlite stripe shall be applied above and below the existing stripe. The stripes shall be spaced 1" away from the main stripe.

The stripe shall be Blue.

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 (does not include the B1 door). 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.

GRAPHICS

Customer Supplied Logo [Qty: 2]

A logo shall be supplied by the customer and installed as specified.

Location: (1) each side front cab doors.

WARRANTY / STANDARD & EXTENDED

Standard 1 Year Warranty

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.

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.

Lifetime Frame Warranty

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.

20 Year Frame Rail Corrosion Warranty

The chassis manufacturer shall provide a 20 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 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.

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.

SUPPORT, DELIVERY, INSPECTIONS AND MANUALS

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 electronic format (CD-ROMs) -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 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.
- Warranty descriptions and coverage.

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 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

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	6	Wheel Balance Beads, Equal, per wheel
02-1110	1	Wheel Chocks, two (2), Ziamatic #SAC-44 folding chocks with underbody mounting brackets, installed under the compartment forward of the driver's side rear axle.
02-1410	5	Zico UHH-1 Helmet Mount, shipped loose for installation by the Fire Dept.
02-9001	2	E-One Cup Holders, shipped loose
04-0000	.	TRUCK ACCESSORIES - BODY
04-1255	1	Universal SCBA Bracket with heavy-duty web strap, mounted in body compartment(s) as directed by the Fire Dept. Zico KD-FHLP-6-SFPHS
04-1290	3	Turtle Tile decking shall be installed on the exposed floors and all shelves/trays in all compartments of the apparatus body.
08-0000	.	TRUCK ACCESSORIES - ELECTRICAL
08-1100	1	LED Headlamp Conversion. Pair high beam and pair low beam. Peterson 702C/703C .
08-1615	2	Intercom, Firecom, UHW51 Wireless Headset Only, Radio push-to-talk, Driver or Officer Position, each. For E-One installed intercom systems.
08-1616	2	Intercom, Firecom, UHW54 Wireless Headset Only, Rear Crew Position, each. For E-One installed intercom systems.
08-1602	1	Intercom, Firecom, Radio Interface Cable, Unterminated, Installed
08-9901	1	12V Fan in Radio Compartment
12-0000	.	LIG[illegible] GENERATORS
12-0105	2	Handlight, battery, LED rechargeable, 12V charger, mounted as directed by the Fire Dept. Streamlight #44451 Fire Vulcan LED.
20-0000	.	LA[illegible]
20-0500	1	Ladder, Roof, 14' aluminum. Duo-Safety 775-A-14.
20-0600	1	Ladder, Extension, 24' 2-section aluminum. Duo-Safety 900-A-24.
20-0700	1	Ladder, Folding, 10' aluminum, w/shoes. Duo-Safety 585-A-10.
22-0000	.	TOOLS
22-2120	1	Pike Pole, 10' , Fiberglass I-beam handle, standard cast head. Akron IB-10
30-0000	.	HOSE AND ACCESSORIES
30-6001	2	Hose, hard suction, 5" x 10', ribbed PVC lightweight, 4.5" M NST x 4.5" FM NST LH swivel. Kochek 2P451.
34-0000		[illegible] THREADED

34-0301	2	Adapter, discharge, 4" NST Female rigid rockerlug local thread x 4.5" Male NST, hard coat aluminum. Red Head #37
34-0500	1	Adapter, discharge, 45° elbow, 4.5" Female swivel NST x 4.5" Male NST, aluminum hard coat. Red Head E45-45.
34-0501	1	Adapter, discharge, 45° elbow, 4.5" Female swivel NST x 4.5" Female swivel NST, hard coat aluminum. Red Head E-FF-45-45.
60-0000		**LETTERING AND STRIPING**
60-2000	1	Stop Signs - 12" x 12" reflective mounted inside of cab doors.
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.

Fire Apparatus Quotation for:
LEXINGTON FAYETTE URBAN CO GOVT

Quotation Number: 74057 Rev: 33
Unit Description: PMPR-TYPH
Quote Description: Pumper, Typhoon
Salesperson: K KLEMAN

Salescode	Extended Description	Qty
TESTING COMPLIANCE STANDARD		
1001-0015	The E-ONE supplied components of the vehicle shall meet the requirements of NFPA 1901, 2009 edition.	1
INSPECTIONS AND PENALTIES		
1002-0001	Final inspection trip.	1
1002-0002	Mid point inspection trip.	1
1002-0003	Unit has a penalty clause.	1
BUMPERS		
1160-0014	20" Front Bumper Gravel Shield Extension.	1
1160-0041	Heavy duty front bumper 10" high with full wrap around. To be painted job color.	1
1160-0140	3/16" Front Bumper Gravel Shield for heavy duty bumper. Includes 1" turn down around perimeter of HD bumper.	1
BUMPER TRAYS		
1150-0118	Bumper tray driver's side with slats 14 inches deep (approx 13 inches to slats).	1
1150-0121	Bumper tray center of bumper with slats 14 inches deep (approx 13 inches to slats).	1
1150-0139-966	Nylon black strap with aluminum quick release buckle for front bumper hose tray. Strap to attach to front and rear walls of tray down low as applicable. Location: to be mounted at final inspection.	2
FRAME ASSEMBLY		
1250-0003	Frame 10.25 x 3.5 x .375 chassis.	1
1250-0006	Frame liner 9.375 x 3.125 x .375.	1
1250-0011	Rear underbody support frame.	1
1250-0067	Chassis frame rails shall be zinc plated (galvanized) IPOS. Includes rear subframe rails (if applicable).	1

1250-0070	Chassis frame liner shall be zinc plated (galvanized) IPOS.	1
AXLE OPTIONS		
1025-0006	Meritor FL941 front axle 20,000 lbs.	1
1025-0017	Meritor RS-25-160 single rear axle 27,000 lb. capacity.	1
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		
1070-0027	Rear suspension FIREMAAX EX model FMX-272 27,000 lb. single axle air ride.	1
WHEEL OPTIONS		
1050-0001	Alcoa aluminum wheels for front axle (2).	1
1050-0003	Alcoa aluminum wheels for rear axle (4).	1
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
1050-0008	Rear axle (single) wheel trim kit. Includes stainless steel lug nut covers (chrome plated plastic if applicable) and center cap with E-ONE logo. E-ONE custom chassis w/steel wheels will have chrome plated plastic lug covers.	1
1050-0017	Each inside wheel of the single rear axle shall have valve stem extensions.	1
1050-0033	Dura-Brite finish on aluminum wheel (EA). Not available on 13" wheel (425 and 445 tires).	6
TIRE OPTIONS		
1060-0016	Four Michelin 12R rear tires with XDN2 mud and snow tread.	1
1060-0043	Two Michelin 425 tires model XZY3 for front axle.	1
1060-0117	RWC AirGuard LED tire pressure monitoring valve stem caps (6) for single rear axle applications.	1
BRAKE SYSTEMS		
1100-0001	Meritor EX225H 17" disc brakes for front axle.	1
1100-0002	ArvinMeritor 16-1/2" x 7" S-cam brakes with cast brake drums for a single rear axle.	1
BRAKE SYSTEMS		
1100-0005	Brake system air 4X2/4X4.	1
1100-0020	Compression fittings for all air brake system lines. Includes cab interior air lines as applicable.	1
1100-0023	Stainless steel park brake release guard.	1
1100-0024	G4 Electronic Stability Control (4x2), Includes RSC and ATC. Not available on 4x4,	1

	commercial chassis or tiller.	
1100-0049	Parking brake release mounted on center dash (not available with ABS dash).	1
AIR SYSTEM OPTIONS		
1110-0000-001	Inlet for air system. Location: driver door jamb.	1
1110-0003	Air dryer System Saver 1200.	1
1110-0006	Air lines nylon.	1
1110-0012-156	Air outlet off front ACC tank. It shall be located driver's step well.	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 and or customer/dealer supplied pneumatic add-on(s).	1
1110-0095	Automatic moisture ejector, heated. Wet tank only.	1
1110-0096	Stainless steel mounting straps for air tank.	4
1110-0128	Gauge air for tank. Location: driver side overhead.	1
ENGINES & TRANSMISSIONS		
1200-0017	Push-button transmission shift selector.	1
1200-0020	TransSynd synthetic transmission fluid for EVS3000.	1
1200-0097	Electronic limiting of speed to 68 MPH maximum. Note: Max speed may be set at 65 MPH due to tire rating.	1
1200-0224	Transmission re-programming to allow for 6th gear (lower engine speed/better fuel economy). Rear axle gearing will be the same as used with 5 speed transmission.	1
1200-0236	Eng/Trans Cummins ISL 450HP/EVS3000 2013 EPA compliant engine.	1
SECONDARY BRAKING		
1125-0022	Driveline Mounted Telma Retarder. Stage 1 applied off throttle; stage 2, 3 & 4 applied with brake application.	1
1125-0023	Transmission to seek second gear when Jacobs engine brake or Telma retarder is engaged. N/A with Trans retarder.	1
EXHAUST OPTIONS		
1225-0005	Exhaust heat shield. Locate below compartment floor.	1
1225-0008	Wrap exhaust with heat tape from the turbo down to the flex pipe. Inspect after install for tears in material. Wrap outside with wire mesh to ensure material remains affixed.	1
1680-0021	Exhaust end for Plymovent. For exhaust extraction system.	1
COOLING PACKAGE		
1800-0006	Remote coolant filter for engine cooling system (Cummins ISC and ISL engines	1

	only).	
1800-0013	Cooling system for use with Cyclone II X, Typhoon X, and Quest chassis. For use with 2010/2013 EPA engines. Includes coolant recovery system.	1
FUEL SYSTEMS		
1350-0009	Fuel line hose braided.	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
1350-0041	Fuel line service loop for tank maintenance. 4' loop coiled above fuel tank(s).	1
1350-0043	Fuel system w/50 gallon stainless steel tank.	1
ALTERNATOR		
1700-0021	Alternator Niehoff 360 amp (360 amp SAE/320 NFPA rating). Available only on ISL.	1
BATTERIES		
1400-0032	Battery five group 31 1000 CCA (two left / three right). For use with below cab DEF tank only.	1
1400-0034	Stainless steel battery trays.	1
167921	Officer side front battery isolated for use with 12V accessory system. The battery is not to be hooked up to the 12 Volt electric bus.	1
CHASSIS OPTIONS		
167920	Tow eyes front painted in down position with additional stainless steel officer only in the up position.	1
1680-0005	Thermatic fan clutch.	1
1680-0006	Drivelines 1710.	1
1680-0011	Tow eyes rear below body, painted.	1
1680-0092	Tow blocks under front bumper extension.	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 EPA engines. Location: left side below rear of cab.	1
1680-0284	Radiator mounted power steering cooler.	1
CAB MODEL		
1520-0021	Typhoon X long cab with 67.5" CA. Includes barrier style doors.	1
CAB ROOF TYPE		
1615-0001	Vista full height rear doors, 12".	1
1615-0005	Delete front vista roof windows.	1
1615-0006	Delete side vista roof windows ahead of rear doors.	1

1615-0029	Delete rear outboard vista roof windows.	1
CAB BADGE PACKAGE		
1610-0000	Cab and body to have applicable E-ONE logos.	1
GRILLE		
1620-0002	Stainless steel grille for Typhoon X.	1
CAB DOOR OPTIONS		
1550-0002	Map pockets cab front doors stainless steel.	1
1550-0003	Rear crew cab doors in the medium position.	1
1550-0005	Driver and officer cab door windows. Include forward vent windows.	1
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
1550-0024	All cab doors shall have exterior paddle latches.	1
1550-0027	Front cab door windows to have manual actuation.	1
1550-0030	Map pockets cab rear doors, stainless steel.	1
1550-0038-658	(4) LED cab step area lighting. Locate each light in the cab step well area. Lights to be switched with door ajar.	1
1550-0040-657	Door mounted red LED flashing lights (4). Locate lights on each cab door in the outboard position. Lights to be switched with door ajar.	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 door. Includes barrel style key lock on each exterior cab door.	1
1550-0084	All cab exterior access doors to have 1250 keyed locks.	1
1550-0103	Rear crew cab door windows with rear fixed panel. Includes manual roll-down actuation. For use with paddle style door latching.	1
1550-0133	Stainless steel trim on bottom edge of the over wheel cab compartment opening (ea).	1
CAB STEP OPTIONS		
1640-0000-158	Step below cab door. Located driver's front door. Steps under front cab doors shall not interfere with approach angle.	1
1640-0000-159	Step below cab door. Located officer's front door. Steps under front cab doors shall not interfere with approach angle.	1
1640-0000-160	Step below cab door. Located driver's rear door. Steps under front cab doors shall not interfere with approach angle.	1
1640-0000-161	Step below cab door. Located officer's rear door. Steps under front cab doors shall not interfere with approach angle.	1
MIRRORS		

1670-0038	Lang Mekra mirrors w/LED marker lights and turn signals. Door mounted west coast style with convex, remote control and heat.	1
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
MISC EXTERIOR CAB OPTIONS		
1550-0033	Windows cab side fixed officer's side.	1
1550-0035	No window on the driver side of the cab	1
1675-0022	Pair of 18" handrails located just behind driver and officer front door one each side.	1
1675-0024	Pair of 36" handrails located just behind driver and officer rear door (ALS doors if equipped) one each side.	1
1675-0030	Mud flaps, front, black with E-ONE logo.	1
1675-0038-000-39	Sign plate smooth 30" x 30" mounted on cab roof (vista if equipped). Color: Job Color.	1
1675-0048	Rear cab wall to be smooth 3/16" aluminum plate with a diamond plate overlay.	1
1675-0201	Large radius cab wheel well. Includes bolt-on adjustable wheel well trim.	1
1675-0202	Mounting plate for battery charger receptacle, indicator and air inlet (if applicable). Plate to be removable brushed stainless steel.	1
1675-0214	Rubber fenderettes in place of standard fender.	1
HVAC		
1515-0017	Air conditioning for the Typhoon X, CII X and Quest with Cummins ISC/ISL engine and radiator mounted condenser.	1
1515-0052	Controls for heating and air conditioning shall be located in the center dash area upper tier. For use with severe duty dash only.	1
1685-0056	Heater rear cab w/o cover (PR) and front cab heater with heat to the feet for the driver and officer.	1
1685-0127	Locate rear cab heaters below front of rear wall seat riser(s). Includes louvers for ventilation.	1
SEATS		
1510-0004	Seats, Bostrom brand.	1
1510-0009	Seat color black.	1
1510-0037	Seat cover material Durawear.	1
167940	Driver seat Bostrom electric with integral dual retractor seat belt.	1
167941	Officer seat Bostrom electric with SCBA back and integral dual retractor seat belt.	1
167942	Rear facing officer side seat Bostrom 550 with SCBA back and integral dual retractor seat belt.	1
167943	(2) Forward facing Bostrom 550 seats with SCBA back and integral dual retractor seat belts mounted center of rear wall on a common riser.	1
1510-0117-147	Bostrom SecureAll mechanical air pack bottle bracket (EA). Location: officer's seat.	1

1510-0117-215	Bostrom SecureAll mechanical air pack bottle bracket (EA). Location: rear facing officer's side.	1
1510-0131-151	Bostrom SecureAll mechanical air pack bottle bracket (EA) for bench / fold-down seat. Location: inboard driver's side rear wall.	1
SEATS		
1510-0131-152	Bostrom SecureAll mechanical air pack bottle bracket (EA) for bench / fold-down seat. Location: inboard officer's side rear wall.	1
1510-0200	Department patch sewn on Bostrom seat (EA). Requires customer supplied department patch for each seat.	5
1685-0032	Seating capacity tag of five occupants.	1
MEDICAL CABINETS		
1535-0032	All medical cabinet RUD in the cab to be locking with 1250 key	1
1535-0122	Medical cabinet mounted on the driver side rear cab wall full height (as applicable)X 18W X 12D with a locking roll up door. For use with vista cabs only. Lower door opening raised to provide hand clearance.	1
1535-0129	Reverse hinge driver and officer side ALS compartment door. Includes vertically mounted drip rail along forward area of compartment opening (as applicable)(in addition to the horizontal drip rail above the door opening; CIIX and TyphoonX cabs only). Doors to open approx. 110 degrees.	1
1535-0202	Cab medical/storage cabinet(s) finish to be Zolatone gray. Includes interior/exterior of cabinet and shelves/trays if equipped.	1
1535-0227	Additional medical cabinet shelf. Location: rear wall medical cabinet.	1
1535-0235	Upper forward vista area cabinet. Cabinet to be full width and height of vista area forward of rear cab doors. Includes (3) equally spaced compartments with driver and center cargo netting and officer lift-up door.	1
1535-0236	Compartment rear side of cab "under riser" type. Approx 9W x 30H opening. Includes single pan hinged door with 1/4 turn d-ring handles. Long cab with medium door location only. Location: driver and officer side.	2
1535-0237	Driver side cab wheel well medical cabinet approximately 28x22(25 Quest)x28. Includes external locking pan door painted job color. No shelves provided.	1
MAP BOXES		
1540-0013	All map boxes in the cab to be painted Zolatone 20-64 gray.	1
1540-0029	Offset suspended map box to rear of vertical 3x3 extrusions and as low as possible. Front of map box flush with front of 3x3 uprights.	1
1540-0075	Map box suspended with drop down doors. 34"W x 6"H x 13.5"D	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
1685-0011	Stainless steel pair of window bars for rear cab doors.	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
MISC INTERIOR CAB OPTIONS		
1685-0114	Integrated Head Curtain (IHC) for RollTek air bag system.	3
1685-0115	Integrated Belt Pretensioner (IBP) for RollTek air bag system.	5
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
1685-0330	Pac Trac panels vertical stacked on back wall of cab officer side outboard of seat(s).	1
1685-0331	Rear engine cover radio cabinet. 8"H x 44"W x 12"D (lower); ISC/ISL engines only. Includes lift-up door with gas shock, locking thumb latches and louvers. Finish to match cab interior.	1
1685-0333	3/16" aluminum plate on top engine cover forward of access door approx. 32"W x 12.5"L. Finish to black Durabak and be spaced up approx 1-1/4". Not available with cup holders.	1
1685-0361	Interior access panel of cab roof antenna. Location: driver side forward, driver side rearward, officer side forward and officer side rearward.	4
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
CAB ELECTRICAL OPTIONS		
1750-0015-G71	Windshield fans 8" pair. Location: rear facing mounted up high on vertical 3 x 3 posts.	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
1750-0046-194	Cab Headlights. Position: upper.	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
1750-0073-09K	Antenna base Tessco P/N 90942 (NMO Motorola Style - also called MATM style) on cab roof. Location: officer side forward terminating in radio cabinet.	1
1750-0073-0UP	Antenna base Tessco P/N 90942 (NMO Motorola Style - also called MATM style) on cab roof. Location: officer side rearward terminating in radio cabinet.	1

1750-0073-845	Antenna base Tessco P/N 90942 (NMO Motorola Style - also called MATM style) on cab roof. Location: officer side rearward with coaxial cable terminating at the center of the overhead console.	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
1750-0188	DPF regeneration override switch.	1
CAB ELECTRICAL OPTIONS		
1750-0198-762	Battery charger to be located behind officer's seat.	1
1750-0215-173	Turn signal Whelen M6 LED arrow amber pair located lower headlight bezel.	1
1750-0215-C10	Turn signal Whelen M6 LED arrow amber pair located (1) each side back of cab outboard above running boards.	1
1750-0285	The chassis shall be pre-wired for installation of tire chains. Includes guarded toggle switch located on the driver side diagnostic panel.	1
1750-0411	Dome Lts Red/White Whelen model 60CREGCS LED. Package includes two lights mounted in the front and four mounted in the rear of the cab. White light wired through door and light assembly switch. Red light through light assembly switch.	1
1750-0417	Flexible 1" conduit with connectors. Location: radio cabinet to center of dash.	1
1750-0435	Halogen cab headlights. TyphoonX, CIIX and QST2 only.	1
1750-0461	Remove switch pods from 4Front steering wheel and install std switches for relevant functions.	1
##	Waytek 11014 Dual USB & 12V Outlets	8
BODY COMPT LEFT SIDE		
3100-0243	Driver side body with full height 42" wide forward and 50" wide rearward compartmentation. Includes (1) 56" wide compartment over the wheel well.	1
3340-0045	(2) driver side roof top compartments. Includes hinged raised compartment lids with turn latches and grab handle(s). Each lid to have (1) bracket mounted LED light and to be wired to door ajar indicator in cab.	1
BODY COMPT RIGHT SIDE		
3120-0544	Officer half side body with 42" wide forward and 50" wide rearward enhanced extended compartmentation. Includes adjustable ladder tracks.	1
3365-0486	Adjustable tracks (pair). Locate tracks to hosebed side plate assembly ipo of the outboard side 3x3. For use with ladder and/or hard suction rack(s).	1
BODY COMPT REAR		
3110-0282	Single low rear compartment. For use with low hosebed. Includes smooth plate panels. B1 compartment 28" deep.	1
3110-0301	Bolt-on diamond plate 10" tailboard (full width of body) with center integral slide-out step. Includes handrails- (1) vertical on trailing edge of body opposite side of ladder and handrail(s) horizontal below hosebed.	1

3340-0102	Angled (Boston style) style tailboard corners.	1
DOORS		
3300-0062-003	Keyed compartment door latch with #1250 key. Location(s): L1.	1
3300-0062-004	Keyed compartment door latch with #1250 key. Location(s): L2.	1
3300-0062-005	Keyed compartment door latch with #1250 key. Location(s): L3.	1
3300-0062-015	Keyed compartment door latch with #1250 key. Location(s): R1.	1
3300-0062-016	Keyed compartment door latch with #1250 key. Location(s): R2.	1
DOORS		
3300-0062-027	Keyed compartment door latch with #1250 key. Location(s): B1.	1
3300-0164-004	Door double vertical hinged w/rotary latches - painted . Location(s): L2	1
3300-0164-015	Door double vertical hinged w/rotary latches - painted . Location(s): R1	1
3300-0164-016	Door double vertical hinged w/rotary latches - painted . Location(s): R2	1
3300-0164-027	Door double vertical hinged w/rotary latches - painted . Location(s): B1	1
3300-0167-003	Door double 3-point vertical hinged w/rotary latches - painted. Location(s): L1	1
3300-0167-005	Door double 3-point vertical hinged w/rotary latches - painted. Location(s): L3	1
3300-0222-003	Double door to have latch handle extension installed on secondary door's interior latch with "PULL" tags. Location(s): L1	1
3300-0222-004	Double door to have latch handle extension installed on secondary door's interior latch with "PULL" tags. Location(s): L2	1
3300-0222-005	Double door to have latch handle extension installed on secondary door's interior latch with "PULL" tags. Location(s): L3	1
3300-0222-015	Double door to have latch handle extension installed on secondary door's interior latch with "PULL" tags. Location(s): R1	1
3300-0222-016	Double door to have latch handle extension installed on secondary door's interior latch with "PULL" tags. Location(s): R2	1
3300-0222-027	Double door to have latch handle extension installed on secondary door's interior latch with "PULL" tags. Location(s): B1	1
SHELVES		
3370-0052-015	Adjustable shelf (J-Style) for non-transverse compartments 16" or greater in depth. Location: R1.	1
3370-0052-016	Adjustable shelf (J-Style) for non-transverse compartments 16" or greater in depth. Location: R2.	1
3370-0052-071	Adjustable shelf (J-Style) for non-transverse compartments 16" or greater in depth. Location: L3 lower.	1
3370-0053-070	Adjustable shelf (C-Style) for non-transverse compartments up to 15.99" in depth. Location: L1 upper.	2
3370-0053-072	Adjustable shelf (C-Style) for non-transverse compartments up to 15.99" in depth. Location: L3 upper.	2
3370-0054-015	Tracks for adjustable shelf and/or adjustable tray in compartments 16" or greater in	1

	depth. Location: R1.	
3370-0054-016	Tracks for adjustable shelf and/or adjustable tray in compartments 16" or greater in depth. Location: R2.	1
3370-0054-071	Tracks for adjustable shelf and/or adjustable tray in compartments 16" or greater in depth. Location: L3 lower.	1
3370-0055-070	Tracks for adjustable shelf in shallow compartments up to 15.99" deep. Location: L1 upper.	1
3370-0055-072	Tracks for adjustable shelf in shallow compartments up to 15.99" deep. Location: L3 upper.	1
TRAYS / TOOLBOARDS		
3380-0019-135	Running board suction tray. Includes removable slats in bottom of tray. Location(s): driver side running board	1
3380-0019-136	Running board suction tray. Includes removable slats in bottom of tray. Location(s): officer side running board	1
3380-0041-004	PAC TRAC panels vertical stacked on back wall of compartment. Locate: L2.	1
3380-0076-027	Tray, floor mounted roll-out with gas spring. 500 lbs. capacity. Location: B1.	1
3380-0167-004	Vertical hinged heavy duty swing-out toolboard. Location: L2. Hinge along forward compartment wall and position centered between door and back wall. Includes D-Ring latch to secure in the closed position that is accessible from the ground. Hinge made from 1/2" stainless steel rod and stainless steel plate with flanged bearing top and bottom.	1
COVERS		
167908	Nylon black cargo net end flaps w/(2) aluminum quick release buckles on each side for crosslay cover. Cover to have the male portion of buckle at top corners.	2
3305-0022-000-02	Vinyl rear cover for diamond plate hose bed cover. Color: Red.	1
3305-0060-135	Diamond plate cover for running board suction tray(s). Includes push-button latches and gator grip. Location(s): driver side running board.	1
3305-0060-136	Diamond plate cover for running board suction tray(s). Includes push-button latches and gator grip. Location(s): officer side running board.	1
3305-0119	Hold open device(s) for aluminum crosslay (single or bi-fold) cover. Locate as required based off options on module.	2
3305-0247	Diamond plate vertically hinged door each side of the 2.5" crosslay hinge rearward. Includes thumb latch and wiring for door ajar switch.	1
3305-0279	Forard crosslay cover to be hinged forward and rear drylay cover to be hinged rearward.	1
3305-0318	Two (2) piece aluminum hosebed cover.The rear section shall roll over the forward section on tracks and rollers. When rolled open, the two sections shall lift upward on a forward mounted stainless steel piano hinge to assist in loading hose. Includes appropriate handrails per NFPA guidelines.	1
3305-0331	Single diamond plate cover for the crosslay area. Includes (2) hold downs. NO grab handle(s) on cover. Non-aerial applications to be tagged as a non-stepping surface.	2

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	
3130-0540	Pump module height is 80". Pumper / tanker only.	1	
3130-0586	Pump module. Includes 45" wide pump panel opening and running boards. Upper SM pump module with 1.5" single stacked double crosslays 71" from ground, 2.5" double stack single dry crosslay stepped up 7" from double crosslay and diamond plate storage pan.	1	
PUMP PANELS			
3134-0006	The single gauge panel on the driver's side of the side mount module is to be hinged downward. Includes two (2) cable hold opens, and latches.	1	
3134-0016	Stainless steel driver and officer side pump panels.	1	
3134-0143	Officer side pump panel to be vertical hinged on forward extrusion. Panel to be (3) pieces with upper (2) panels secured in the closed position with push button latches. Upper panel to be held open with gas shock.	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	Front jump line to be ``Purple``; front crosslay ``Yellow;`` rear crosslay ``White``; Deck Gun ``Pink`` - Officer 4`` discharge `` Grey ``; LDH front is ``Teal ``Drivers side rear preconnect ``Tan``; officer side rear preconnect `` Green`` ; 2.5`` Dischrg on drivers side pump pnl `` Red``- Waterous overboard pickup to be labeled - ``Foam pickup`` - Foam outlet on pnl to read `` Class B Foam Outlet `` -
4460-0010	Pump panel tags - Special label. (Must specify.)	1	Front jump line to be ``Purple``; front crosslay ``Yellow;`` rear crosslay ``White``; Deck Gun ``Pink`` - Officer 4`` discharge `` Grey ``; LDH front is ``Teal ``Drivers side rear preconnect ``Tan``; officer side rear preconnect `` Green`` ; 2.5`` Dischrg on drivers side pump pnl `` Red``- Waterous overboard pickup to be labeled - ``Foam pickup`` - Foam outlet on pnl to read `` Class B Foam Outlet `` -
PUMP MODULE OPTIONS			
167910	Diamond plate access doors in dunnage pan for access to plumbing in pump	1	

	module. Includes push button latches.	
3136-0000-202	Air horn switch at pump panel. Switch to be labeled "Evacuation Alert". Location: driver side pump panel.	1
3136-0010	Stainless steel roller assemblies for crosslays and/or speedlays.	1
3136-0012	Slat flooring. The crosslay and/or speedlays are to have removable slat flooring.	1
3136-0058	E-ONE logo mounted one each side on pump module/preconnect panels. Logos to be sized as applicable to available space on panels.	1
WATER TANK		
4010-0185	1030 Gallon "L" shape Water Tank. Includes lowered rear section for lower hose bed height. Note: Any foam cell(s) optioned will reduce the overall water capacity. UPF Poly III color fill towers.	1
4010-0246	Fill tower locations. Water fill tower to be located driver side of hosebed, the Foam "A" centered and Foam "B" fill tower to be located to officer side of hosebed.	1
TANK PLUMBING		
4450-0229	3" Tank Fill Akron Valve Handwheel Control	1
4450-0230	3.5" Tank To Pump Akron Manual Valve w/4" Plumbing. Piping from the tank to the valve to be 4".	1
FOAM TANK		
4100-0033-591-04	30 gallon integral foam tank for Class B foam. UPF Poly III Yellow fill tower. Foam tank capacity will reduce the water tank capacity.	1
4100-0035-590-16	20 gallon integral foam tank for Class A foam. UPF Poly III Green fill tower. Foam tank capacity will reduce the water tank capacity.	1
FOAM TANK OPTIONS		
4110-0018	Foam tank (B) outlet. Includes 1" male camlock adaptor and connector (ship loose). Outlet location: driver side pump panel.	1
LADDER STORAGE / RACKS		
3365-0018	Hold down brackets to secure a 2-section extension and roof ladder.	1
3365-0031	Hard Suction Storage Rack. Officer side in adjustable track above ladders (if applicable). Includes spring hold downs and scuff plates.	2
3365-0050	Brand of ladders capable of being carried on unit to be Duo-Safety.	1
3365-0087-C57	The length of ladders capable of being stored shall be the following: 24' 2-section and 14' roof ladder.	1
3365-0303	Four (4) pike poles and a folding ladder tucked behind ground ladders on the adjustable ladder tracks.	1
HANDRAILS / STEPS		
3330-0008-R35	Handrail up to 12". Location driver side (vertically mounted) rearward of crosslay on pump module.	1
3330-0008-R36	Handrail up to 12". Location officer side (vertically mounted) rearward of crosslay	1

	on pump module.		
3330-0103	Dual lighted LED folding steps rear NFPA. Includes folding steps on driver side (staggered stepped as applicable with tailboard depth) for NFPA hosebed access and handrail mounted on driver side upper hosebed side (as applicable).	1	
3330-0105	Dual lighted LED folding step. Location: TBD. Each location requires a minimum of (1) handrail per NFPA.	3	
3330-0105-060	Dual lighted LED folding step. Location: officer side front compartment face. Each location requires a minimum of (1) handrail per NFPA.	1	
3330-0105-062	Dual lighted LED folding step. Location: driver side front compartment face. Each location requires a minimum of (1) handrail per NFPA.	4	
3330-0201	Step rear intermediate embossed treadplate. Locate below hosebed, includes three (3) hand hold cut-outs on top of the step in place of the hand rail.	1	
MISC BODY OPTIONS			
167901	Divider Support to run full width of hosebed (side to side) at the front of the hosebed divider(s). Attach to each hosebed divider to provide additional support.	1	
167903	Stainless Steel corner guard for the officer rear 3x3 to protect the paint from the pike poles.. Guard to wrap around the 3x3.	1	
3090-0003	OAH RESTRICTION. The unit has an overall height restriction. The height is not to be exceeded (unloaded height).	1	9ft. 7in.
3090-0005	OAL RESTRICTION. The unit has an overall length restriction. The length is not to be exceeded.	1	32ft. 5in.
MISC BODY OPTIONS			
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 1.75 DJ Lay 2 - 500 ft. of 2.50 DJ Lay 3 - 1200 ft. of 5.00 LDH Lay 4 - 300 ft. of 1.75 DJ
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	
3340-0049	Hosebed storage pan. Locate in forward area of hosebed.	1	
3340-0052-003	Stainless steel trim on bottom edge of compartment opening of L1.	1	
3340-0052-004	Stainless steel trim on bottom edge of compartment opening of L2.	1	
3340-0052-005	Stainless steel trim on bottom edge of compartment opening of L3.	1	
3340-0052-015	Stainless steel trim on bottom edge of compartment opening of R1.	1	
3340-0052-016	Stainless steel trim on bottom edge of compartment opening of R2.	1	
3340-0058	Recessed fuel fill driver side wheel well.	1	
3340-0075	Body mainframe and hosebed side assemblies for a 90" high body.	1	

3340-0079	Locate Tank Fill Tower(s) in the hose bed storage pan as applicable.	1
3340-0088	Smooth plate single axle wheel well painted job color. Includes bolt-on composite wheel well liners.	1
3340-0093	Mud flaps, rear, black with E-ONE logo.	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
3340-0393	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.	1
3340-0483	Divider Long. To run full length of hose bed (front to rear). Divider 3/4 height of hose bed depth (top to bottom). For use with low hose bed configurations only.	3
3340-0681	Body mainframe layout line to be 24". Includes body and all applicable modules.	1
SCBA BOTTLE STORAGE		
167899	SCBA/Wheel Chock Storage. (1) E-ONE SCBA bottle storage with hinged door (door to match wheel well material) with push button latches. (1) rearward driver side in wheel well area. The rear door on driver side will be a single door and will not cover the fuel fill. (3) wheel chock storage compartment with hinged door and push button latch, (1) driver side in forward wheel well area and (2) officer side in forward and rearward wheel well area. (2) wheel chocks to be stored per compartment. Does not include wheel chocks.	1
3320-0100	Strap(s), loop style to retain SCBA bottle(s). Locate one per bottle in each exterior storage compartment.	1
PUMPS		
4005-0021	Waterous CSU 1500-2250 GPM single stage pump.	1
4005-0031	Rating 1500 GPM.	1
PUMP CERTIFICATION		
4475-0000	Pump certification 750-2250 GPM	1
PUMP OPTIONS		
167955	Pump Shift Override - driver's side under running board rearward of running board tray if applicable. (Rod linkage in place of cable.)	1
4015-0039	Pump seal mechanical for Waterous pump.	1
4015-0041-340	Valve Monarch Electric - Waterous. Location: 5 in. front intake.	1
4015-0044	Anodes for Waterous pump - (Pair) (1) discharge side and (1) intake side.	1
4015-0053-198	Steamers to be Flush + 1". Location: driver's side.	1
4015-0053-199	Steamers to be Flush + 1". Location: officer'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
4015-0186	Trident Pump Primer W/3 Barrel Push Button Control. (In place of standard primer.)	1

4015-0198	Front Mounted Pump Gear Box IPOS	1
INTAKES		
4440-0005	2.5" Left Intake Akron Manual Valve.	1
4440-0014	5" front intake without valve.	1
INTAKE OPTIONS		
4445-0004	Front intake swivel 5" polished chrome.	1
4445-0008	Intake Relief Valve - Elkhart.	1
4445-0019	Intake Adapter 5" FNST x 4.5" MNST for Front Intake	1
4445-0059	Manual override access door to be on officer's side pump panel to access the override on the front intake electric valve.	1
4445-0060	Front intake bleeder valve to be located adjacent to inlet at front bumper.	1
DISCHARGES AND PRECONNECTS		
4415-0014-581	2.5" Left Pump Panel Discharge Akron Manual Valve. Location: left side discharge 1.	1
4415-0178-530	Polished Stainless Steel Swivel Located on Top of Bumper driver's side outboard for Front Bumper Discharge.	1
4415-0399-654	1.5" Crosslay w/2" Akron Valve Handwheel Control Location: crosslay 1 & 2	2
4415-0403	3" Deck Gun Discharge Akron Valve Handwheel Control.	1
4415-0407	2.5" Front Bumper Discharge Akron Valve Handwheel Control	1
4415-0422-583	4" Pump Panel Discharge Akron Valve Handwheel Control. (Waterous pumps noted location to be forward lower port.) Location: right side discharge 1.	1
4415-0422-584	4" Pump Panel Discharge Akron Valve Handwheel Control. (Waterous pumps noted location to be forward lower port.) Location: right side discharge 2.	1
4415-0438-350	2.5" Left Rear Discharge Akron Valve Handwheel Control Location: left rear discharge	1
4415-0445-351	2.5" Right Rear Discharge Akron Valve Handwheel Control Location: right rear discharge	1
4417-0106-123	Deck gun piping to be positioned dunnage pan centered.	1
DISCHARGE OPTIONS		
167959	Extend-a-Gun piping shall terminate with 4 bolt flange, and be position in storage pan so it don't affect OAH w/8297 MONITOR.	1
169197	Spinner knot on all hand wheels to be located at 5 o-clock positions when closed.	1
4417-0034	Deck gun TFT 18" Extend-A-Gun, 3" manual operation.	1
4417-0152	All discharges, and 2.5" intakes shall have Akron 8900 series valves with Fusion CF Composite ball.	1
4417-0163	Additional control for deck gun valve handwheel control locate adjacent to the	1

	outlet.	
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.	9
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		
4435-0024	6" Class 1 compound pressure gauge (30-0-600).	2
4435-0084	Innovative Controls 10 LED series foam tank level gauge. On pump panel.	1
4435-0089-295	IC 10 LED SL series/Whelen PSTank water tank level gauge package. Location of Whelen PSTank Strip Lights: each side of cab towards rear.	1
4435-0230	No foam level gauge(s) for class (B) foam cell(s). Not required per customer specifications.	1
4435-0244	2.5" Innovative Controls brass case pressure gauge (0-400) with color code bezel.	9
FOAM SYSTEMS		
4430-0079	The foam system performance shall be tested and certified in compliance with 2009 NFPA 1901.	1
4430-0109	Waterous Advantus 3.0 foam system.	1
FOAM SYSTEM OPTIONS		
4432-0053-350	Foam system plumbed to left rear discharge.	1
4432-0053-556	Foam system plumbed to 1.5 first crosslay.	1
4432-0053-565	Foam system plumbed to driver's side front jump line.	1
4432-0184	Waterous Overboard pickup electric actuated selector. A to be plumb to the foam tank, and B to be plumb to the left pump panel for an aux foam pick-up.	1
ELECTRICAL SYSTEMS		
5010-0013-169	Vehicle data recorder - 2009 NFPA compliant. Includes occupant detection with display. Display location: officer's overhead.	1
5010-0036	V-MUX Electrical system for pumper / tanker / rescue.	1
5010-0059-Z09	VFD Text display for V-MUX electrical system. Location: driver side of center dash upper tier (recessed).	1
LIGHT BARS		
5300-0157-666	Whelen Mini-Freedom LED light bars (PR) model FNMINI 24" with clear lenses and MKEZ7 mounts. Location: each side over front cab doors.	1
5300-0379	Light bar Whelen Freedom model FN72VLED 72" LED with MKEZ7 mounts. Includes	1

	(12) red LED and (2) white LED. N/A INTL Chassis. Location: Centered on the front cab roof.	
WARNING LIGHT PACKAGES		
5550-0339-535	Whelen M6 Super LED lower level warning light package. Includes (6) M6RC red LED light heads, (2) M9RC red LED light heads (side facing) and (2) red M2RC red Super LED light heads. Locate side facing lights: at forward most position, centered in rear wheel well, and side facing at rear of body in rubrail if equipped.	1
WARNING LIGHTS		
5600-0105-170	Hazard (door ajar) light 2" LED. Location: center overhead.	2
5600-0286-464	Warning light Whelen M6RC series Super LED (PR) red with clear lens. Location: (1) each side of cab down low just ahead of rear doors.	1
5600-0286-I11	Warning light Whelen M6RC series Super LED (PR) red with clear lens. Location: (1) each side of cab, rwd of rwd doors, above compt doors.	1
5600-0286-I40	Warning light Whelen M6RC series Super LED (PR) red with clear lens. Location: (1) each side above quad bezel at contour (outboard).	1
5600-0302-00K	Warning light Whelen M2 Super LED warning lights. Includes (2) red M2R LED light heads with clear lenses and chrome flanges (if applicable). Location: centered (1) each side below L1/R1 in rubrail if equipped.	1
5600-0302-742	Warning light Whelen M2 Super LED warning lights. Includes (2) red M2R LED light heads with clear lenses and chrome flanges (if applicable). Location: (1) each side in pump module rubrail if equipped.	1
5600-0302-N54	Warning light Whelen M2 Super LED warning lights. Includes (2) red M2R LED light heads with clear lenses and chrome flanges (if applicable). Location: (1) each side rear facing centered between DOT lights and corner in rubrail if equipped.	1
5600-0447-479-2Y	Whelen beacon with Rota-Beam LED upper beacon and M7 series Super LED (PR) model B63M7 with red domes/clear lenses and amber with clear lens LEDs. Location: rear upper body on aerial style brackets.	1
DIRECTIONAL LIGHT BARS		
5310-0020-846	Directional light bar control is to be located in the center overhead console offset to driver side.	1
5310-0058	Whelen Traffic Advisor Model TADP8 LED - 30" long. Includes TADCTL1 controller.	1
SIRENS		
5500-0011-131	Federal Q2B siren - Pedestal mounted on bumper. Location: driver's side inboard.	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
5150-0068	Marker lights Britax LED amber/red rubber housed mounted on the rear body corners angled down.	1
5150-0071-P12	Light Whelen model PSR00XRR LED (EA) red 3rd brake light. Location: center rear upper body.	1
5150-0080-461	Weldon auxiliary turn signal model 9186-8580 LED (PR). Location: (1) each side in body wheel well offset forward.	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		
167965	Compartment light package Amdor Luma-Bar blue LED for small bodies. Includes two lights per compartment (four if transverse).	1
168737	Compartment light Amdor LED blue for medical cabinet (EA).	2
5380-0111	Compartment light Amdor LED for medical cabinet (EA).	2
5380-0116	Ground light package Amdor Luma-Bar H2O LED - large.	1
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
5390-0169-395	Deck light FireTech, model FT-WL3500-60 LED (PR). Switched with work light switch in cab. Location: rear body/beavertail area on the trailing edge up high.	1
5390-0186-490	FRC SPA900-Q70 Scene light (PR). Switch in cab (driver and officer side lights switched separately). Locate (1) each side of vista forward of rear doors.	1
5390-XXXX	FRC SPA900-Q70 Scene light (EA). Switch in cab Locate: rear of body driver side up high.	1
5390-0190	Hose bed light Amdor H2O. Locate at the front area of hose bed. Switched with work light switch in cab.	1
5390-0194	Whelen PELCC crosslay lights LED (PR). Wired through work light switch. Location: (1) each side up high back of cab.	1
LIGHTS - NON-WARNING		
1535-0035	Engine compartment light, LED (EA).	1
5400-0008	(1) pump panel light over the pump control area to be wired to come on when pump shift is placed in pump. (Side mount forward light noted, Top Mount is center light.)	1
5400-0011	LED pump compartment light (EA).	1
5400-0039	Spotlight Specialty 2150 hand held located on officer's side of cab dash - hardwired.	1
5400-0149	Pump panel Amdor H2O LED light package with (3) lights per side pump panel. Pump panels over 45" may require additional lights. Side mount only.	1

5400-0204	Map light Sunnex HS 761-00 with frosted lens. Location: officer overhead console inboard.	1
CONTROLS / SWITCHES		
167975	Switch, additional 12 volt/15 amp. Location and function: driver's side overhead console to override clear side facing warning lights in light bars.	1
1750-0034-B07	Switch, additional 12 volt/15 amp. Location and function: driver's side overhead console to override clear forward facing warning lights.	1
1750-0034-D52	Switch, additional 12 volt/15 amp. Location and function: officer's side switch panel for Q2B brake.	1
5100-0001-A24	Switch circuit three way. Includes (1) additional switch. An additional switch required for more than two locations. Location: driver rear of body for rear work	1
5100-0001-D47	Switch circuit three way. Includes (1) additional switch. An additional switch required for more than two locations. Location: officer's side switch panel for cab	1
5100-0001-P42	Switch circuit three way. Includes (1) additional switch. An additional switch required for more than two locations. Location: pump operator's panel for LED telescopic light(s) on driver side cab/body.	1
5100-0001-P43	Switch circuit three way. Includes (1) additional switch. An additional switch required for more than two locations. Location: pump operator's panel for LED telescopic light(s) on officer side cab/body.	1
5100-0001-X94	Switch circuit three way. Includes (1) additional switch. An additional switch required for more than two locations. Location: officer's side switch panel for driver side 12V cab/body scene lights.	1
5100-0001-X95	Switch circuit three way. Includes (1) additional switch. An additional switch required for more than two locations. Location: officer's side switch panel for officer side 12V cab/body scene 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
5100-0009	Audible door ajar alarm wired through door ajar light.	1
5100-0036-09L	Additional programming instructions: fan clutch wired wired through park brake. Constant on when brake applied.	1
5100-0036-M19	Additional programming instructions: standard door ajar light wired to cab doors only. Additional door ajar light wired to body.	1
5100-0061	Door ajar alarm override momentary switch located at the cab dash. The switch will allow for overriding the door ajar alarm and reset after transmission is shifted again.	1
5100-0117-09I	Switch, additional momentary 12 volt/15 amp. Location and function: driver side overhead for door ajar audible alarm and door ajar light test.	1
5100-0117-M46	Switch, additional momentary 12 volt/15 amp. Location and function: accessible to driver to override side facing cab scene lights from activating with cab doors.	1
5100-0117-X44	Switch, additional momentary 12 volt/15 amp. Location and function: driver side switch panel for ground lights.	1

CAMERAS / INTERCOM		
5350-0107-170	Intercom base unit to be located center overhead.	1
5350-0205	FireCom wireless intercom kit to include a digital intercom model 5100D, two (2) base transmit units with radio transmission, one (1) base transmit unit for intercom only (no radios) and four (4) headset hooks shall be installed within the cab. Headsets are not included and ordered separately (misc loose equip).	1
MISC ELECTRICAL		
167979	12 volt 12 gauge constant hot lead (24" long) with ground wire and circuit breaker. Location: center overhead, behind center dash electrical access cover, TBD at pre-build.	3
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
5110-0004	Alternating flasher for headlights.	1
5110-0079	Back up alarm Ecco model SA917 87-112dB.	1
LIGHTS - QUARTZ		
5450-0286-063	Light Whelen Pioneer model PCP2 12V with external bottom raise pole mount. Includes switch accessible to driver. Location(s) officer side back of cab.	1
5450-0286-064	Light Whelen Pioneer model PCP2 12V with external bottom raise pole mount. Includes switch accessible to driver. Location(s) driver side back of cab.	1
5450-0293	FireTech 72" 12V brow light with integrated marker lights. Includes switch accessible to driver. Replaces front brow marker lights. Not available on aerials with deep trough.	1
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.	1
5470-0004-744	Receptacle household 20A/110V duplex 3-prong NEMA 5-20 with cover plate interior mounted wired to inlet receptacle. Location: R1 high on forward wall.	1
LOOSE EQUIPMENT		
167907	SCBA Bottle Storage Tray with ribbed rubber.	6
ELBOWS		
7400-0004	Elbow 30 degree chrome swivel w/2.5"FNST x 2.5"MNST.	3
ADAPTERS		
7200-0114	Chrome adapter for 2.5" discharge. Includes 2.5" FNST x 1.5" NH thread without cap.	3
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	
7900-0241	Miscellanous bag of screws, nuts, bolts and washers, as used in the construction of the unit. Quantity and type to be determined upon submitted order.	1	
7900-0262	Additional set of cargo net covers for rear facing medical cabinet opening(s).	1	
EXTERIOR PAINT			
8100-0071	Undercoating E-ONE.	1	
8100-0084	All applicable pump/pre-connect application modules are to have a job color finish. 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	
8100-0182-000-26	Paint Body - Small - For Pumpers, Rear Mounts, S/A Tankers/Wetsides and Rescues. Sikkens paint. Color: FLNA3047 Red.	1	
INTERIOR PAINT			
8150-0011	The interior of the cab to be painted Zolatone gray.	1	
LETTERING			
8200-0001-000-12	Scotchlite Letter (Each) - 6". Color White.	2	
8200-0003-000-12	Scotchlite Letter (Each) - 12". Color White.	7	
8200-0007	Sign Gold Letter (Each) - 3".	57	
8200-0022	Shade and outline for lettering.	87	
8200-0023	Lettering Instructions:	1	Instructions for 3 inch Sign Gold ``LEXINGTON`` front of cab below windshield. ``LEXINGTON`` arched over straight ``FIRE DEPT.`` front cab doors. ``ENGINE`` rear cab doors arched over number. Blue shade; black outline.; Instructions for 8 inch Sign Gold ``LEXINGTON FIRE DEPT`` upper body driver side. Blue shade black outline.; Instructions for 10 inch Sign Gold ``XX`` truck no. rear cab doors. Blue shade black outline.; Instructions for 12 inch Scotchlite White ``XX`` truck no L3/R2 interrupting NFPA stripe. ``E XX`` truck no B1 door. Black outline only.;
8200-0030	Sign Gold Letter (Each) - 10"	4	
8200-0052	Sign Gold Letter (Each) - 8"	17	
STRIPING			

8300-0003-334-12	NFPA Scotchlite Stripe - 6" wide and straight on front/sides of cab and sides/rear of body. Color: White. Location: bottom of stripe flush with top of bumper and straight back.	1
8300-0026-000-03	Scotchlite stripe 1" located 1" above and below existing stripe. Color: Blue.	1
8300-0042	White rubrail scotchlite insert.	1
8300-0144-000-J7	Chevron "A" style 6" 3M "Diamond Grade" striping full width on rear of body (does not include the B1 door). Includes rear facing extrusions, panels and doors. Colors to be Red/Fluorescent Yellow Green.	1
8300-0145-000-J7	Chevron "A" style 6" 3M "Diamond Grade" striping on front bumper. Colors to be Red/Fluorescent Yellow Green.	1
GRAPHICS		
8400-0023-C52	Install customer supplied logo. Location: (1) each side front cab doors.	2
WARRANTY / STANDARD & EXTENDED		
9100-0000	Standard 1 Year Warranty.	1
9100-0003	Lifetime Frame 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
9100-0060	20 Year Frame Rail Corrosion Warranty. Includes Liners (if equipped).	1
SUPPORT, DELIVERY, INSPECTIONS AND MANUALS		
9300-0009	Manuals, Operator and Service CD-ROM.	1
9300-0016	Approval Drawings-Standard.	1
9300-0316	Fire Apparatus Safety Guide published by FAMA, latest edition.	1