

LEGAL NOTICE

Request for Proposal

The **Town of Ridgefield** invites all interested parties to submit sealed proposals on the following :

Proposal Due Date: June 16, 2015

Proposal Due Time: 11:00 AM

Proposal Item: 2016 Class A Fire Department Pumper

Proposal Number: 16 - 02

Terms and conditions as well as the description of items being bid are stated in the specifications.
Specifications may be obtained at the following address:

**Town Of Ridgefield
Jerry Gay
400 Main Street
Ridgefield, CT. 06877
203 - 431 – 2720**

Or downloaded from www.ridgefieldct.org in Purchasing section under Departments

The return bid envelope must be marked and addressed to the following:

**TOWN OF RIDGEFIELD
DIRECTOR OF PURCHASING
RFP NUMBER: 16 - 02
400 MAIN STREET
RIDGEFIELD, CT. 06877**

Proposals must be received no later than the date and time stated above at the Purchasing Director's office on the second floor. **For further information**, please call **Jerry Gay at (203) 431-2720 or E-Mail at purchasing@ridgefieldct.org**

Bid Documents available at www.ridgefieldct.org in Purchasing section under Departments

Results may be viewed at www.ridgefieldct.org

**TOWN OF RIDGEFIELD
CONNECTICUT**

BOARD OF SELECTMAN

INSTRUCTIONS TO BIDDERS

1. Submit proposals in a sealed envelope plainly marked with bid number to identify this particular proposal.
2. Withdrawals of or amendments to bids received later than the time and date specified for bid opening will not be considered.
3. The Board of Selectman of the Town of Ridgefield reserves the right to accept or reject any or all options, bids or proposals; to waive any technicality in any bid or part thereof, and to accept any bid deemed to be in the best interest of the Town of Ridgefield, Connecticut.
4. Bidders may be present at the opening of bids.
5. Bids may be held by the Town of Ridgefield for a period not to exceed sixty (60) days from the opening of bids for the purpose of reviewing the bids and investigating the qualifications of bidders prior to the awarding of the contract.
6. Insurance requirements, if any, must be submitted with the bid. This includes any Hold Harmless requirements as well as Certificates of Insurance, if required, for the full amounts specified.
Unauthorized changes to these forms, i.e. adding, striking out and/or changing any words, language or limits **may cause the bidder to be disqualified.**

Please Note : Certificates of Insurance, if required, **MUST** name the Town of Ridgefield as **“Additional Insured”**. Failure to do so may mean disqualification from the Bid.

APPENDIX - HOLD HARMLESS AGREEMENT

To the fullest extent permitted by law, the undersigned Contractor shall defend, indemnify and Hold Harmless the Town of Ridgefield, it's affiliated entities, and their employees and agents (collectively "the indemnified parties") , with respect to all losses, damages, fines, penalties, costs and expenses and liabilities, including, but not limited to, costs and expenses of defending against any of the foregoing, arising from any claim, suit or action in which it is alleged or determined that any injury to or death of any person, or damage or destruction to the property of any person caused, in whole or part by : (i) the acts or omissions, whether negligent, willful or otherwise, of Contractor, it's employees or agents; (ii) the violation of any statute, rule, ordinance or regulation, by Contractor, it's employees or agents; or (iii) Contractors agents or employees performance of, non-performance of, or failure to properly perform, its obligations and duties under this contract.

The forgoing obligations to defend and indemnify shall apply regardless of any allegation or determination that an Indemnified Party caused or contributed to, or was liable for, in whole or in part, the death, injuries or damages alleged. Contractor hereby acknowledges its assumption of full and complete responsibility and liability for losses, claims, suits, actions, damages, fines, penalties, costs, expenses and liabilities arising from any of the causes listed herein above, even in cases where the contractors assumption of such responsibility and liability involves the defense and indemnification of an Indemnified Party from the consequences of it's own alleged negligence. Contractor hereby agrees that no condition precedent to it's obligations to defend and indemnify stated herein, whether by way of notice or otherwise, exists or shall constitute a defense to such obligations.

The Contractor shall comply with the Provisions of the Immigration Reform and Control Act of 1986 effective and enforceable as of June 6, 1987 which Act makes unlawful the hiring for employment or subcontracting individuals failing to provide documentation of legal eligibility to work in the United States. The Contractor shall hold the Town of Ridgefield harmless for the failure of the Contractor to comply with the provisions of said Act.

IN WITNESS WHEREOF, the parties hereto have set their

hand and seal this the _____ Date

Printed Company Business Name

Signed, Sealed and Delivered in the
Presence of:

Signed:

Town of Ridgefield
2016 Class A Fire Department Pumper
Request for Proposal 16-02, Due June 16, 2015 at 11am

The Town of Ridgefield is requesting sealed proposals on providing a new 2016 fire pumper as described in the detail specifications attached. In general the Town is looking for a professionally built vehicle that will conform to all industry standards and requirements for a vehicle of this nature and will perform the function it is being purchased for in an accurate and professional manner. Sealed Proposals **MUST** be received by the proposal closing date and time. Late proposals can not be accepted.

The Ridgefield Fire Department will utilize an internal committee to review all proposals. They will make a recommendation to the Fire Chief on accepting the proposal that they feel is the best value and in the best interests of the Town. The Fire Chief and First Selectman will be the sole deciders as to making the proposal award. This may not necessarily be the lowest cost proposal. Some of the key elements considered will be a vendors ability to match the specifications, to work with the Town on any adjustments, cost and overall capacity and reputation of the firm. The Town reserves the right to reject any and all proposals, particularly if all proposals are beyond available funding. The Town reserves the right to work with a particular vendor whose proposal is identified as in the best interests of the Town, to remove or adjust agreed upon items with the objective of reducing the cost to within funding limits without sacrificing key components, if the proposal price is beyond available funding.

The review committee will make a reasonable good faith effort to insure they fully understand all parameters of the vendor's proposal. Items that may seem to have questions will be brought to the proposer's attention for clarification. All proposal details will be kept confidential to the committee throughout the review process and will not be subject to FOIA requests during the review process as per PA-07-213. A listing of vendors submitting proposals along with the base cost, will be posted on the Town web page in the purchasing department section shortly after the public proposal opening at the due date and time.

While the detail specifications may occasionally list particular brands and models for specific items, where nothing is specified, the Town will be flexible on accepting different manufactures products as long as they perform the expected job and conform to industry standards for that item. Vendors should show why their product would be in the Towns best interest to use. Where a specific make, model or manufacturer is listed, the Town may not, at its sole discretion, be flexible in accepting Or Equal items, although in some cases the listing is for convenience in stating the type of equipment desired. In some cases the specific listing is for fleet uniformity, such as the Cummings Diesel Engine and in others it is because we are requesting that specific item as the Town has determined it is in our best interests. If the vendor cannot provide the exact specific item requested, the vendor **MUST** make note of the exception and list what substitution is being provided, along with all the documentation necessary to show the item as Or Equal to the specified item.

Vendors should provide general information about their company with the proposal. Items including, but not limited to, years in business, key employees and capitalization & financing capacity. List business locations and closest repair facilities to Ridgefield. Please provide at least the last five similar vehicles built and delivered, with other Connecticut Municipalities preferred. Provide all contact information with the reference

Price shall include delivery to the Town of Ridgefield Fire Department at 6 Catoonah St., along with basic pre-acceptance performance tests and review of all major systems. The Town will perform basic tests of all major systems prior to formal acceptance. If issues are discovered at this phase, the Town may accept the vehicle conditional upon these items being corrected prior to final and full payment. The Town would make a substantive and material payment in this situation (up to 95%), withholding a minor retainage (no less than 5%) payable upon completed corrections and full and final acceptance of the pumper. The Town will provide

payment at delivery, that will be conditional upon substantial testing and acceptance and presentation of an invoice and certification and delivery of all warranties. A formal Purchase Order will be given to the awarded vendor upon ordering the vehicle.

As the Town is not making any payments until delivery and acceptance of the truck, a performance bond is not being required. If material defects are identified at delivery of a substantive and/or material nature (as judged and decided upon by the Fire Chief), all payment may be withheld until substantial corrections have been made. Substantive, material or ongoing issues (defined as more than 2 times to repair the same item) shall be just cause in extending the affected warranties to starting at the time that the issue(s) have been fully corrected, as judged by the purchaser, and by submitting a proposal, the vendor hereby agrees to this provision.

Vendors should include all plans, technical drawings, and any other detail information they feel necessary for the reviewing committee to make a proper assessment of the pumper that is being proposed. All proposals and the information contained herein will be held confidential pursuant to PA-07-213, until after an award has been made.

Vendors are requested to give the estimated build time until delivery, from the date of award. The Town anticipates an award within approximately 30-45 days of the bid closing, but reserves the right to accept proposals up to 60 days after the closing.

ALL questions **SHALL** be submitted in writing (e-mail acceptable) to Jerry Gay, Purchasing Director, purchasing@ridgefieldct.org, 400 Main Street, Ridgefield, CT 06877, Ph 203-431-2720, fax 203-431-2723. All questions will be packaged into an addendum(s) and posted on the Town web page, ridgefieldct.org / Departments / Purchasing / Bid Notices and at the State DAS purchasing bid portal. Questions shall be submitted no later than June 9, allowing for seven days prior to the proposal closing for answers and posting a final addendum of same no later than June 11.

The Town requests that vendors follow the specification order, in their return submission. Of particular note would be to keep information listed under each of the bold headings of the specifications, together in the return proposal. However, Vendors should submit proposals in a format and order that allows them to explain their proposal in the best manner for their firm. Proposals that are hard to follow or understand, may be put at a disadvantage. A clearly stated price for the truck shall be included on the vendors letterhead, which shall include all contact information. Vendors shall submit five (5) sets of their proposal.

INSTRUCTIONS TO BIDDERS - PUMPER FIRE APPARATUS

Y___N___

The purpose of these instructions and specifications are to describe the requirements, construction, and delivery of a Fire Fighting Apparatus as outlined herein for the **Ridgefield Fire Department** here after referred to as the "Purchaser".

Sealed Bid envelopes shall be plainly labeled "**Bid 16-02 , RESCUE PUMPER RFP**". The purchaser requests five (5) bid packages to be submitted as their proposal.

Bids will only be considered from companies which have an established reputation in the field of fire apparatus construction and have been in business for a minimum of twenty five (25) years,
NO EXCEPTIONS

Each bidder shall furnish satisfactory evidence of his ability to construct the apparatus specified, and shall state the location of the factory where the apparatus is to be built. The bidder shall also show that they are in a position to render prompt service and furnish replacement parts for said apparatus.

It is the bidder's responsibility to see that their proposals arrive on time. Late proposals, facsimiles, telegrams, or telephoned or e-mailed bids will not be considered.

The purchaser reserves the right to accept or reject any or all bids on such basis as the purchaser shall deem to be in its best interest.

All bid prices shall remain effective for 60 calendar days from the bid opening date.

The apparatus is to be of current year of manufacture, 2016, and is to be new.

The bid price shall not include any local, state, or federal taxes.

DELIVERY

Each bidder shall clearly state the delivery date of the vehicle in calendar days. This shall be after receipt of signed contract. Delivery shall be to Fire Headquarters at 6 Catoonah Street, Ridgefield CT 06877

INTENT OF SPECIFICATIONS

It is the intent of these specifications to cover the furnishing and delivery to the purchaser a complete unit equipped as herein specified, with a view of obtaining the best results and the most acceptable apparatus for the purchaser.

These specifications cover only the general requirements as to the type of construction and test to which the apparatus must conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor, who shall be solely responsible for the design and construction of all features.

All equipment and components shall be in compliance with the National Fire Protection Association Pamphlet 1901 (2009 Edition), Standard for Automotive Fire Apparatus, for Pumper Fire Apparatus Equipped with a Fire Pump. In addition the apparatus shall also comply with all federal, state, ICC, and DOT regulations, standards, and laws relating to commercial vehicles as well as to the fire apparatus.

Loose equipment shall be provided only as stated in the following pages.

LIABILITY

The bidder, if his/her bid is accepted, shall defend any and all suits and assume liability for the use of any patented process, device or article forming a part of the apparatus or any appliance furnished under the contract to the extent allowable under the law.

GENERAL REQUIREMENTS

This specification package, along with any herein listed exceptions, shall be submitted as a part of the bidder's entire bid proposal. Do not detach or omit these sheets.

Proposal specifications must be on the manufacturer's own standard forms. In no case shall a bidder photocopy these specifications as his proposal specifications. **"NO EXCEPTIONS"**

Each bidder is required to provide in his bid to the purchaser a complete and accurate description of his own apparatus in the exact sequence of these specifications.

EXCEPTIONS, VARIATIONS, OR CLARIFICATIONS

These specifications are based upon performance criteria which have been developed by the purchaser as a result of extensive research and careful analysis of the data. Subsequently, these specifications reflect the only type of fire apparatus that is acceptable at this time. Therefore, major exceptions to the specifications will not be accepted.

All bidders shall place a "Y" for yes or a "N": for no next to each and every paragraph in the column provided on the right hand edge of the paper, indicating compliance or noncompliance with that paragraph of the specifications.

A number shall be inserted next to the paragraph which relates to an explanation on page(s) entitled "Exceptions" that the bidder shall include with their proposal specifications.

Any exception shall be clearly defined with details as to the proposed alternative, referencing manufacturer and model where appropriate. Descriptive literature shall be provided to help evaluate the exception. A general exception cannot be taken for any paragraph. A full word for word Written Comparison shall be included within the bid for any exception listed. Each exception shall be considered by the degree of impact and total effect on the bid. Proposals taking total exception to the specifications shall not be considered by the purchaser. **"NO EXCEPTIONS"**

The purchaser shall determine which (if any) exceptions are acceptable and this determination shall be final.

The purchaser shall assume that failure to cite an exception indicates full compliance with the specifications. Should the equipment not comply with all requirements of this document, the equipment shall be rejected at the final inspection. All equipment shall be inspected for material, workmanship, and compliance with the specifications prior to acceptance. All equipment found to be in noncompliance shall be identified and the purchaser reserves the right to accept or reject the specific items. The noncompliant rejected equipment shall be replaced or reworked to meet the requirements of this document at no additional cost to the purchaser.

The bidder shall have thirty (30) days after delivery to fulfill that part(s) of the specifications which does not comply to the original outlined specifications. Bidder shall incur all expenses of pickup and redelivery of the apparatus.

CONSTRUCTION

The materials specified are considered absolute minimum. Exceptions will not be accepted or permitted since all raw materials of the specified type are available to all manufacturers. Since all manufacturers have the ability to shear, break, and weld as these specifications require, all basic design requirements shall be complied with.

The apparatus shall be constructed with due consideration to the nature and distribution of the load to be sustained and to the general character of service to which the apparatus is to be subjected when placed in service. All parts of the apparatus shall be of adequate strength to withstand the general service under full load. The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment, and service.

APPARATUS DOCUMENTATION NFPA 4.20

Y___N___

NFPA 4.20.1 Fire Apparatus Documentation

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

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

- a. Owners name and address
- b. Apparatus manufacturer, model and serial number
- c. Chassis make, model and serial number
- d. GAWR of front and rear axles and GVWR
- e. Front tire size and total rated capacity in pounds
- f. Rear tire size and total rated capacity in pounds
- g. Chassis weight distribution in pounds with water and manufacturer mounted equipment front and rear
- h. Engine make, model, serial number, rated horsepower and related speed and governed speed; and if so equipped, engine transmission PTO(s) make, model, and gear ratio
- i. Type of fuel and fuel tank capacity
- j. Electrical system voltage and alternator output in amps
- k. Battery make, model, and capacity in cold crank amps (CCA)
- l. Transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio.
- m. Ratios of all driving axles.
- n. Maximum governed road speed
- o. Pump make, model, rated capacity in gallons per minute (liters per minute where applicable) and serial number
- p. Pump transmission make, model, serial number and gear ratio
- q. Auxiliary pump make, model, rated capacity in gallons per minute, (liters per minute where applicable) and serial number
- r. Water tank certified capacity in gallons or liters
- s. Aerial device type, rated vertical height in feet (meters), rated horizontal reach in feet (meters), and rated capacity in pounds (kilograms)
- t. Paint manufacturer and paint number(s)
- u. Company name and signature of responsible company representative

- v. Weight documents from a certified scale showing actual loading on the front axle, rear axles(s), and over all fire apparatus (with the water tank full but without personnel, equipment, and hose)
- (2) If the apparatus is a mobile foam fire apparatus, the certification of foam tank capacity
- (3) Certification of compliance of the optical warning system
- (4) Siren manufacturer's certification of the siren
- (5) Written load analysis and results of the electrical system performance tests
- (6) Certification of slip resistance of all stepping, standing and walking surfaces
- (7) If the apparatus has a fire pump, the pump manufacturer's certification of suction capability
- (8) If the apparatus has a fire pump, and special conditions are specified by the purchaser, the pump manufacturer's certification of suction capacity under the special conditions
- (9) If the apparatus has a fire pump, a copy of the apparatus manufacturer's approval for stationary pumping applications
- (10) If the apparatus has a fire pump, the engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum governed speed
- (11) If the apparatus has a fire pump, the pump manufacturer's certification of the hydrostatic test
- (12) If the apparatus has a fire pump, the certification of inspection and test for fire pump.
- (13) If the apparatus is equipped with an auxiliary pump, the apparatus manufacturer's certification of the hydrostatic test
- (14) When the apparatus is equipped with a water tank, the certification of water tank capacity
- (15) If the apparatus has an aerial device, the certification of inspection and test for the aerial device
- (16) If the apparatus has an aerial device, all the technical information required for inspection to comply with NFPA 1911
- (17) If the apparatus has a foam proportioning system, the foam proportioning system manufacturer's certification of accuracy and the final installer's certification the foam proportioning system meets this standard
- (18) If the apparatus has a CAFS, the documentation of the manufacturer's predelivery tests
- (19) If the apparatus has a line voltage power source, the certification of the test for the power source
- (20) If the apparatus is equipped with an air system, air tank certificates, the SCBA fill station certification, and the results of the testing of the air system installation
- (21) Any other required manufacturer test data or reports

OPERATION AND SERVICE DOCUMENTATION - NFPA 2009

Y___N___

The contractor will supply, at time of delivery, at least two (2) sets of complete operation and service documents covering the completed apparatus as delivered and accepted.

The documentation shall address at least the inspection, service and operations of the fire apparatus and all major components thereof.

The contractor shall also delivery with the fire apparatus the following documentation for the entire apparatus and each major operating system or major component of the apparatus:

- (1) Manufacturer's name and address
- (2) Country of manufacture
- (3) Source for service and technical information
- (4) Parts replacement information
- (5) Descriptions, specifications, and ratings of the chassis, pump (if applicable) and the aerial device (if applicable)

(6) Wiring diagrams for low voltage and line voltage systems to include the following information:

- (a) Pictorial representations of circuit logic for all electrical components and wiring
- (b) Circuit identification
- (c) Connector pin identification
- (d) Zone location of electrical components
- (e) Safety interlocks
- (f) Alternator-battery power distribution circuits
- (g) Input/output assignment sheets or equivalent circuit logic implemented in multiplexing systems

(7) Lubrication charts

(8) Operating instructions for chassis, any major components such as pump or aerial device, and any auxiliary systems

(9) Precautions related to multiple configurations of aerial devices, if applicable

(10) Instructions regarding the frequency and procedure for recommended maintenance

(11) Overall apparatus operating instructions

(12) Safety considerations

(13) Limitations of use

(14) Inspection procedures

(15) Recommend service procedures

(16) Troubleshooting guide

(17) Apparatus body, chassis and other component manufacturer's warranties

(18) Special data required by this standard

(19) A material safety data sheet (MSDS) for any fluid that is specified for use on the apparatus

The contractor will deliver with the apparatus all manufacturers' operations and service documents supplied with components and equipment that are installed or supplied by the contractor.

ROADABILITY NFPA 2009

Y___N___

NFPA 4.15.1 - The apparatus, when loaded to its estimated in-service weight, shall be capable of the following performance while on dry, paved roads that are in good condition:

1: From a standing start, the vehicle shall attain a speed of 35 mph within 25 seconds on a level road;

2: The apparatus shall attain a minimum top speed of 50 mph on a level road;

3: The apparatus shall be able to maintain a speed of at least 20 mph on any grade up to and including 6 percent.

NFPA 4.15.2 - The maximum top speed of fire apparatus with a GVWR over 26,000 lb shall not exceed either 68 mph or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower

NFPA 4.15.3 - If the combined water tank and foam agent tank capacities on the fire apparatus exceed 1250 gallons, or the GVWR of the vehicle is over 50,000 lb, the maximum top speed of the apparatus shall not exceed either 60 mph or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

NFPA TAG REQUIREMENTS

Y__N__

A label that states the number of personnel the vehicle is designed to carry shall be located in an area visible to the driver.

A sign that reads "**OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION**" shall be provided and located in the chassis cab in an area that is visible from each seating position.

An accident prevention sign that states "**OVERALL HEIGHT OF APPARATUS "TBD" INCHES**"

One "Final Stage Label" shall be attached to the driver's side door jam. The label shall certify that the complete vehicle conforms to the federal motor vehicle safety standards, which have been previously fully certified by the incomplete vehicle manufacture or by the intermediate vehicle manufacture and have not been affected by the final stage manufacture.

An accident prevention signs that states "**DANGER: DO NOT RIDE ON REAR STEP WHILE VEHICLE IS IN MOTION DEATH OR SERIOUS INJURY MAY RESULT**" shall be provided and installed at the rear of the apparatus.

A label stating "**DO NOT WEAR HELMET WHILE SEATED**" shall be visible from each seating location.

WARRANTY POLICY

Y__N__

Each bidder shall include a copy of their warranty with the bid proposal. The following minimum warranties shall be provided. **NO EXCEPTION**

The finest materials and utmost care go into the fabrication of each new apparatus. By using normal care without abuse, this equipment will give you lasting service.

Each new motorized Fire and Rescue Apparatus is to be free from defects in material and workmanship, under normal use and service, for a period of two (2) years. Our obligation under this warranty is limited to replacing or repairing, as the manufacturer may elect, any part or parts thereof, which upon examination would be determined to be defective. Such defective part or parts will be replaced free of charge and without charge for installation to the original purchaser. All warranty work related to the apparatus (not including vehicle chassis) is to be performed at the manufacturers factory or at an authorized service center.

This does not obligate the manufacturer to bear the costs of transportation charges and related expenses incurred in the replacement of parts.

BODY WARRANTY

The manufacturer shall warrant the entire stainless steel body against rust and/or full corrosion perforation and metal fatigue for a period of thirty (30) years from the date of delivery to the original purchaser, provided the apparatus is used in a normal and reasonable manner, **NO EXCEPTIONS**.

The term "body" shall be inclusive of the following:

A - Hosebed side walls

B - Compartments and compartment supports

C - Compartment doors "except rollup doors when specified"

D - Complete sub-frame including pump house framing

WATER TANK WARRANTY

The contracted tank manufacturer shall warrant that the tank provided shall be of first class workmanship and that under normal conditions shall show no defects due to faulty design, workmanship, or material for the Lifetime of the vehicle to the original owner.

PUMP WARRANTY

The contracted pump manufacturer shall warrant that the pump provided shall be of first class workmanship and that under normal conditions shall show no defects due to faulty design, workmanship, or materials for a period of five (5) years.

PUMP PLUMBING WARRANTY

The stainless steel plumbing components as specified and ancillary brass fittings used in the construction of the water/foam plumbing system shall be warranted for a period of ten (10) years or 100,000 miles. This covers structural failures caused by defective design or workmanship, or perforation caused by corrosion, provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original purchaser for a period of ten years from the date of delivery.

12 VOLT ELECTRICAL WARRANTY

The 12 volt electrical system and ancillary components used in the construction of the apparatus shall be warranted for a period of five (5) years. NO EXCEPTIONS. This covers failures caused by defective design or workmanship, provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original purchaser for a period of five (5) years from the date of delivery.

Items specifically covered are:

- * Electrical harnesses and harness installation
- * Load Manager, switches, circuit breakers and relays
- * LED Lighting: FMVSS required and warning lights
- * Electrical connectors and connections against corrosion or deterioration

Items excluded as they are covered by specific warranties supplied by the manufacturer of the components.

- * Chassis electrical systems and components installed by the chassis manufacturer.
- * Batteries, battery chargers, two way radio equipment, and similar equipment.
- * Periodic cleaning and tightening of battery terminal connections.
- * Accident, negligence or unauthorized alteration of original equipment.

PAINT WARRANTY

The paint on the unit will be provided with a Fifteen (15) year paint finish guarantee (NO EXCEPTIONS) which will cover the finish for the following items:

- * Peeling or delamination of the top coat and/or other layers of paint.
- * Cracking or checking.
- * Loss of gloss caused by defective finishes which are covered by this guarantee.

CHASSIS WARRANTY

Chassis shall be warranted by the chassis manufacturer as per the chassis manufacturer's issued warranty.

100% WARRANTY ON ALL OTHER ITEMS FOR TWO (2) YEARS.

THIS WILL NOT APPLY

1. To normal maintenance services or adjustments.
2. To damage caused by negligence of normal maintenance.
3. To any vehicle which shall have been repaired or altered outside our factory in any way, so as, in our judgement, to affect its stability, nor which has been subjected to negligence, or accident, nor to any vehicle made by us which shall have been operated at a speed exceeding the factory rated speed, or loaded beyond the factory rated load capacity.
4. To major components such as purchased chassis and associated equipment furnished with chassis, signaling devices, generators, batteries, or other trade accessories in as much as they are usually warranted separately by their respective manufacturers or to ancillary equipment used in rescue or fire fighting.
5. To loss of time or use of vehicle, inconvenience or other incidental expenses.

THIS WARRANTY IS MADE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, WITH RESPECT TO QUALITY, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR APPLICATION.

SOLE SOURCE WARRANTY COORDINATION

Y___N___

In order to protect the purchaser from divided warranty responsibility between chassis and body manufacturers, the manufacturer and local dealer will coordinate the warranty for the specified vehicle from bumper to bumper. While all fire apparatus have individual component warranties, we will act as the sole source warranty coordinator on the entire vehicle. This shall include the cab shell, chassis assembly, and complete body structure.

DELIVERY & DEMONSTRATION

Y__N__

Apparatus will be delivered to 6 Catoonah Street, Ridgefield, CT 06877 under its own power to insure proper break in of all components while still under warranty.

A qualified delivery engineer representing the manufacturer will deliver the apparatus and remain with the fire department, at his/her expense, for four (4) business days to demonstrate the apparatus and provide initial instruction to representatives of the fire department regarding the operation, care, and maintenance of the apparatus and equipment supplied.

PRE-CONSTRUCTION CONFERENCES AND INSPECTION TRIPS

Y__N__

Pre-Construction Conferences and Inspection trips shall be provided as follows:

There shall be at least to (2) Pre-Construction Conferences, to be held at the Fire Department.

- One (1) before the chassis is ordered
- One (1) before manufacturing begins on the body

Two (2) trips shall be provided. Each trip will cover cost for transportation, meals, and lodging for five (5) people each trip. The trips will take place at the following time periods:

- (1) Pre-paint Inspection at the bidder's factory.
- (1) Final inspection upon completion of apparatus at the bidder's factory

CHASSIS SPECIFICATIONS

Y__N__

MODEL

The chassis shall be a Metro Star model or equivalent. The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit and maneuverability. The chassis shall be manufactured for heavy duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time.

MODEL YEAR

The chassis shall have a vehicle identification number that reflects a 2016 model year.

COUNTRY OF SERVICE

The chassis shall be put in service in the country of United States of America (USA).

The chassis will meet applicable U.S.A. federal motor vehicle safety standards per CFR Title 49 Chapter V Part 571 as clarified in the incomplete vehicle book per CFR Title 49 Chapter V Part 568 Section 4 which accompanies each chassis.

APPARATUS TYPE

The apparatus shall be a pumper vehicle designed for emergency service use which shall be equipped with a permanently mounted fire pump which has a minimum rated capacity of 750 gallons per minute (3000 L/min). The apparatus shall include a water tank and hose body whose primary purpose is to combat structural and associated fires.

VEHICLE TYPE

The chassis shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.

AXLE CONFIGURATION

The chassis shall feature a 4 x 2 axle configuration consisting of a single rear drive axle with a single front steer axle.

GROSS AXLE WEIGHT RATINGS FRONT

The front gross axle weight rating (GAWR) of the chassis shall be 20,000 pounds.

This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

GROSS AXLE WEIGHT RATINGS REAR

The rear gross axle weight rating (GAWR) of the chassis shall be 27,000 pounds.

This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

PUMP PROVISION

The chassis shall include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location.

CAB STYLE

The cab shall be a custom, fully enclosed, MFD model with a minimum 10.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall offer up to eight (8) seating positions.

The cab shall incorporate a fully enclosed design with side wall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side wall panels shall be assembled using a combination of welds and proven industrial adhesives designed specifically for aluminum fabrication for construction.

The cab shall be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which shall provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.

All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favorable efficiency for heating and cooling retention.

The cab shall be constructed of 5052-H32 corrosion resistant aluminum plate. The cab shall incorporate tongue and groove fitted 6061-T6 0.13 & 0.19 inch thick aluminum extrusions for extreme duty situations. A single formed, one (1) piece extrusion shall be used for the "A" pillar, adding strength and rigidity to the cab as well as additional roll-over protection. The cab side walls and lower roof skin shall be 0.13 inch thick; the rear wall and raised roof skins shall be 0.09 inch thick; the front cab structure shall be 0.19 inch thick.

The exterior width of the cab shall be 94.00 inches wide with a minimum interior width of 88.00 inches. The overall cab length shall be 131.10 inches with 54.00 inches from the centerline of the front of the axle to the back of the cab.

The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor shall be flat across the entire walking area for ease of movement inside the cab.

The cab shall offer an interior height of 57.50 inches from the front floor to the headliner in the non-raised roof area and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 51.88 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The front doors shall offer a clear opening of 40.25 inches wide X 53.50 inches high, from the cab floor to the top of the door opening. The cab shall also include a crew area with up to two (2) cab doors, also large enough for personnel in full firefighting gear. The rear doors shall offer a clear opening of 32.25 inches wide X 61.00 inches high, from the cab floor to the top of the door opening.

The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.

The first step for the driver and officer area shall measure approximately 11.50 inches deep X 31.13 inches wide. The intermediate step shall measure approximately 8.50 inches deep X 32.50 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.

The first step for the crew area shall measure approximately 11.50 inches deep X 20.44 inches wide. The intermediate step shall measure approximately 10.25 inches deep X 22.75 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.80 inches.

OCCUPANT PROTECTION

The vehicle shall include the Advanced Protection System™ (APS) which shall secure belted occupants and increase the survivable space within the cab. The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection. NO EXCEPTION TO THIS REQUIREMENT.

The system components shall include:

- Driver steering wheel airbag
- Driver dual knee air bags (patent pending) with energy management mounting (patent pending) and officer knee airbag.
- Large driver, officer, and crew area side curtain airbags
- APS advanced seat belt system - retractor pre-tensioners tighten the seat belts around the occupants, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries
- Heavy truck Restraints Control Module (RCM) - receives inputs from the outboard sensors, selectively deploys APS systems, and records sensory inputs immediately before and during a detected qualifying event
- Integrated outboard crash sensors mounted at the perimeter of the vehicle - detects a qualifying front or side impact event and monitors and communicates vehicle status and real time diagnostics of all critical subsystems to the RCM
- Fault-indicating Supplemental Restraint System (SRS) light on the driver's instrument panel

Frontal impact protection shall be provided by the outboard sensors and the RCM. In a qualifying front impact event the outboard sensors provide inputs to the RCM. The RCM activates the steering wheel airbag, driver side dual knee airbags (patent pending), officer side knee airbag, and advanced seat belts for each occupant in the cab.

The APS frontal impact system shall be independently tested to ensure occupant injury criteria does not exceed injury criteria defined in Federal Motor Vehicle Safety Standard (FMVSS) 208. Frontal impact into a rigid barrier at 25 mph shall be conducted by an independent third party test facility using belted 95th percentile Hybrid II test dummies.

Rollover, side impact, and ejection mitigation shall be provided by the outboard sensors and the RCM. In qualifying rollover or side impact events the outboard sensors provide inputs to the RCM. The RCM activates the side curtain airbags and advanced seat belts for each occupant in the cab. The RCM measures roll angle, lateral acceleration, and roll rate to determine if a rollover event or side impact event is imminent or occurring.

In the event of a qualifying offset or other non-frontal impact, the RCM shall determine and intelligently deploy the front impact protection system, the side impact protection system, or both front and side impact protection systems based on the inputs received from the outboard crash sensors.

The APS side impact system shall be independently tested to ensure occupant injury criteria does not exceed injury criteria defined in Federal Motor Vehicle Safety Standard (FMVSS) 214. Side impact from a moving barrier at 17 mph shall be conducted by an independent third party test facility using belted 50th percentile ES-2re test dummies.

CAB FRONT FASCIA

The front cab fascia shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate which shall be an integral part of the cab.

The cab fascia will encompass the entire front of the aluminum cab structure from the bottom of the windshield to the bottom of the cab and shall be the “Classic” design.

The front cab fascia shall include two (2) molded plastic modules on each side accommodating a total of up to four (4) Hi/Low beam headlights and two (2) turn signal lights or up to four (4) warning lights. A chrome plated molded plastic bezel shall be provided on each side around each set of four lamps.

FRONT GRILLE

The front fascia shall include a box style, 304 stainless steel front grille 44.45 inches wide X 33.50 inches high X 1.50 inches deep. The grille shall include a minimum free air intake of 732.00 square inches. The upper portion of the grille shall be hinged to provide service access behind the grille.

CAB UNDERCOAT

There shall be a rubberized undercoating applied to the underside of the cab that provides abrasion protection, sound deadening and corrosion protection.

CAB SIDE DRIP RAIL

There shall be a drip rail along the top radius of each cab side. The drip rails shall help prevent water from the cab roof running down the cab side.

CAB PAINT EXTERIOR

The cab shall be painted prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and the maximum in corrosion protection of all metal surfaces.

All metal surfaces on the entire cab shall be ground by disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once the surface is machine ground a high quality acid etching of base primer shall be applied. Upon the application of body fillers and their preparation, the cab shall be primed with a coating designed for corrosion resistance and surface paint adhesion. The maximum thickness of the primer coat shall be 2.00 mils.

The entire cab shall then be coated with an intermediate solid or epoxy surfacing agent that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be a sanding of the cab with 360 grit paper followed by sealing the seams with SEM brand seam sealer.

The cab shall then be painted the specific color designated by the customer with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene. The paint shall have a minimum thickness of 2.00 mils, followed by a clear top coat not to exceed 2.00 mils. The entire cab shall then be baked at 180 degrees for one (1) hour to speed the curing process of the coatings.

CAB PAINT MANUFACTURER

The cab shall be painted with PPG Industries paint.

CAB PAINT PRIMARY/LOWER COLOR

The lower paint color shall be PPG FBCH 71663 Red.

CAB PAINT SECONDARY/UPPER COLOR

The secondary/upper paint color shall be PPG FBCH 2185 white.

CAB PAINT EXTERIOR BREAKLINE

The upper and lower paint shall meet at a breakline on the cab which shall be located approximately 1.00 inch below the door windows on each side of the cab. The breakline shall curve down at the front cab corners to approximately 5.00 inches below the windshields on the front of the cab.

CAB PAINT PINSTRIPE

A 0.50 inch wide gold leaf tape with black borders shall be applied on the break line between the two different colored surfaces.

CAB PAINT WARRANTY

The cab and chassis shall be covered by a limited manufacturer paint warranty which shall be in effect for ten (10) years from the first owner's date of purchase or in service or the first 100,000 actual miles, whichever occurs first.

CAB PAINT INTERIOR

The visible interior cab structure surfaces shall be painted with medium gray Spar-Liner spray on bed liner product which shall mold to each surface of the cab interior. The Spar-Liner shall be environmentally friendly and chemically resistant.

CAB ENTRY DOORS

The cab shall include four (4) entry doors, two (2) front doors and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA. The doors shall be constructed of extruded aluminum with a nominal thickness of 0.13 inch. The exterior skins shall be constructed of 0.13 inch aluminum plate.

The doors shall include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit.

All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each door hinge shall be piano style with a 0.38 inch pin and shall be constructed of stainless steel.

CAB ENTRY DOOR TYPE

All cab entry doors shall be barrier clear design resulting in exposed lower cab steps. The doors shall provide approximately 32.00 inches of clearance from the ground to the bottom of the door so cab doors may be opened un-hindered by most obstacles encountered, such as guard rails along interstate highways.

CAB INSULATION

The cab ceiling and walls shall include 1.00 inch thick foam insulation. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.

LH EXTERIOR MID EMS COMPARTMENT

The cab shall include provisions for a compartment located in the middle of the wall above the left side wheel well. The compartment provision shall have a clear opening of 17.00 inches wide X 43.00 inches high designed to accommodate a roll-up type door.

EXTERIOR MID EMS COMPARTMENT

The cab shall include provisions for a compartment located in the middle of the wall above the right side wheel well. The compartment provision shall have a clear opening of 17.00 inches wide X 43.00 inches high designed to accommodate a roll-up type door.

CAB STRUCTURAL WARRANTY

Summary of Warranty Terms:

The cab structure shall be warranted for a period of ten (10) years or one hundred thousand (100,000) miles which ever may occur first. The warranty period shall commence on the date the vehicle is delivered to the first end user.

CAB TEST INFORMATION

The cab shall have successfully completed the preload side impact, static roof load application and frontal impact without encroachment to the occupant survival space when tested in

accordance with Section 4 of SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks, Section 5 of SAE J2422 Cab Roof Strength Evaluation Quasi –Static Loading Heavy Trucks and ECE R29 Uniform Provisions Concerning the Approval of Vehicles with regard to the Protection of the Occupants of the Cab of a Commercial Vehicles Annex 3 Paragraph 5.

The above tests have been witnessed by and attested to by an independent third party. The test results were recorded using cameras, high speed imagers, accelerometers and strain gauges. Documentation of the testing shall be provided upon request.

ELECTRICAL SYSTEM

The chassis shall include a single starting electrical system which shall include a 12 volt direct current Weldon brand of multiplexing system, suppressed per SAE J551. The wiring shall be appropriate gauge cross link with 311 degree Fahrenheit insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by 275 degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.

APPARATUS WIRING PROVISION

An apparatus wiring panel shall be installed in the center dash area behind the rocker switch panel which shall include eight (8) open circuits consisting of three (3) 20 amp, one (1) 30 amp, three (3) 10 amp, and one (1) 15 amp circuit, with relays and breakers with trigger wires which shall be routed to the rocker switch panel.

MULTIPLEX DISPLAY

The multiplex electrical system shall include two (2) Weldon Vista IV Touchscreen displays which shall be located one (1) on the left side dash in the switch panel and one (1) on the right side of the dash in the switch panel. The Touchscreen displays shall feature full color LCD display screens. The display shall include a message bar displaying the time of day, and important messages requiring acknowledgement by the user. There shall be virtual controls for the on-board diagnostics. The display screens shall be video ready for back- up cameras, thermal cameras, and DVD. A DIN type input connector ready for GPS interfacing shall be incorporated into the back of the display.

The Touchscreen displays shall measure approximately 6.25 inches wide x 3.38 inches in height. The displays shall offer varying fonts and background colors. The display shall be fully programmable to the needs of the customer and shall offer virtually infinite flexibility for screen configuration options.

DATA RECORDING SYSTEM

The chassis shall have a Weldon Vehicle Data Recorder (VDR) system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with the Weldon Multiplex electrical system. The following information shall be recorded:

- Vehicle Speed
- Acceleration
- Deceleration

- Engine Speed
- Engine Throttle Position
- ABS Event
- Seat Occupied Status
- Seat Belt Status
- Master Optical Warning Device Switch Position
- Time
- Date

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system.

ACCESSORY POWER

The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40 amp battery direct load. One (1) power stud shall be capable of carrying up to a 15 amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud. A 225 amp battery direct power and ground stud shall be provided and installed on the chassis near the left hand battery box for OEM body connections.

EXTERIOR ELECTRICAL TERMINAL COATING

All terminals exposed to the elements will be sprayed with a high visibility protective rubberized coating to prevent corrosion.

ENGINE

The chassis engine shall be a Cummins ISL9 engine. The ISL9 engine shall be an in-line six (6) cylinder, four cycle diesel powered engine. The engine shall offer a rating of 450 horse power at 2100 RPM and shall be governed at 2200 RPM. The torque rating shall feature 1250 foot pounds of torque at 1400 RPM with 543 cubic inches (8.9 liters) of displacement.

The ISL9 engine shall feature a VGT™ Turbocharger, a high pressure common rail fuel system, fully integrated electronic controls with an electronic governor, and shall be EPA certified to meet the 2013 emissions standards using cooled exhaust gas recirculation and selective catalytic reduction technology.

The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system. The engine shall include Citgo brand Citgard 500, or equivalent SAE 15W40 CJ4 low ash engine oil which shall be utilized for proper engine lubrication.

A wiring harness shall be supplied ending at the back of the cab. The harness shall include a connector which shall allow an optional harness for the pump panel. The included circuits shall be provided for a tachometer, oil pressure, engine temperature, hand throttle, high idle and a PSG system. A circuit for J1939 data link shall also be provided at the back of the cab.

CAB ENGINE TUNNEL

The cab interior shall include an integrated engine tunnel constructed of 5052-H32 Marine Grade, 0.19 of an inch thick aluminum. The tunnel shall be a maximum of 41.50 inches wide X 25.50 inches high.

DIESEL PARTICULATE FILTER CONTROLS

There shall be two (2) controls for the diesel particulate filter. One (1) control shall be for regeneration and one (1) control shall be for regeneration inhibit.

ENGINE PROGRAMMING HIGH IDLE SPEED

The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged.

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with an automatic high-idle speed control. It shall be pre-set so when activated, it will operate the engine at the appropriate RPM to increase alternator output. This device shall operate only when the master switch is activated and the transmission is in neutral with the parking brake set. The device shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake is released, or when the transmission is placed in neutral. There shall be an indicator on the Vista display and control screen for the high idle speed control.

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

The engine shall include programming which will govern the top speed of the vehicle.

AUXILIARY ENGINE BRAKE

A compression brake, for the six (6) cylinder engine shall be provided. A cutout relay shall be installed to disable the compression brake when in pump mode or when an ABS event occurs. The engine compression brake shall activate upon 0% accelerator when in operation mode and actuate the vehicle's brake lights.

The engine shall utilize a variable geometry turbo (VGT) as an integrated auxiliary engine brake to offer a variable rate of exhaust flow, which when activated in conjunction with the compression brake shall enhance the engine's compression braking capabilities.

AUXILIARY ENGINE BRAKE CONTROL

An engine compression brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected:

- A valid gear ratio is detected.
- The driver has requested or enabled engine compression brake operation.
- The throttle is at a minimum engine speed position.

- The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift and there is no active ABS event.

The compression brake shall be controlled through an on/off switch and a low/medium/high selector switch within easy reach of the driver's position. An Aux Brake light will be located in the rocker switch panel. The light will indicate the engine brake switch is activated.

ELECTRONIC ENGINE OIL LEVEL INDICATOR

The engine oil shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.

FLUID FILLS

The front of the chassis shall accommodate fluid fill for the engine oil through the grille. This area shall also accommodate a check for the engine oil. The transmission, power steering, and coolant fluid fills and checks shall be under the cab. The windshield washer fill shall be accessible through the front left side mid step.

ENGINE DRAIN PLUG

The engine shall include an original equipment manufacturer installed magnetic oil drain plug.

ENGINE WARRANTY

The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.

REMOTE THROTTLE CONTROL

A Class 1 "TPG" pressure governor pump panel control module and a pressure transducer shall be provided. Class 1 Total Pressure Governor is designed to control the engine fuel to maintain a desired pump pressure or engine speed setting along with displaying diagnostic information. The "TPG" has a pre-set button for selecting a predetermined pressure or RPM and an emergency return to idle button.

LED readouts shall display RPM, engine oil pressure, engine temperature and battery voltage. An audible alarm output shall also be part of the system.

ENGINE PROGRAMMING REMOTE THROTTLE

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

ENGINE PROGRAMMING IDLE SPEED

The engine low idle speed will be programmed at 700 rpm.

ENGINE FAN DRIVE

The engine cooling system fan shall incorporate a thermostatically controlled, Horton clutched type fan drive. The clutch fan shall automatically engage in pump mode.

When the clutched fan is disengaged it shall facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail safe so that if the clutch drive fails the fan shall engage to prevent engine overheating due to the fan clutch failure.

ENGINE COOLING SYSTEM

There shall be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements. The complete cooling system shall be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores.

The cooling system shall utilize a charge air cooler to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components shall include a surge tank, an air to air charge air cooler bolted to the front of the radiator, recirculation shields, a shroud, a fan, and required tubing.

The radiator shall be a down-flow design constructed with aluminum cores, plastic end tanks, and a steel frame. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

The cooling system shall include a one piece injection molded polymer eleven (11) blade fan with a fiberglass fan shroud.

The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and sight glass to monitor the level of the coolant. The surge tank shall have a dual seal cap that meets the engine manufacturer's pressure requirements, and allows for expansion and recovery of coolant into a separate integral expansion chamber.

All radiator tubes shall be formed from aluminized steel tubing. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance.

The charge air cooler shall be a cross-flow design constructed completely of aluminum with cast tanks. All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel "constant torque" style clamps meeting the engine manufacturer's requirements.

ENGINE COOLING SYSTEM PROTECTION

The engine cooling system shall include a recirculation shield designed to act as a light duty skid plate below the radiator to provide additional protection for the engine cooling system from light impacts, stones, and road debris. The skid plate shall be painted to match the frame color.

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees Fahrenheit.

Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.

ELECTRONIC COOLANT LEVEL INDICATOR

The instrument panel shall feature a low engine coolant indicator light which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant. This shall allow the use of water from the discharge side of the pump to assist in cooling the engine.

COOLANT HOSES

The cooling system hoses shall be silicone heater hose with rubber hoses in the cab interior. The radiator hoses shall be formed silicone coolant hoses with formed aluminized steel tubing. All heater hose, silicone coolant hose, and tubing shall be secured with stainless steel constant torque band clamps.

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator air intake filter which shall be located in the front of the cab behind the right hand side fascia. This filter shall protect the downstream air filter from embers using a combination of unique flat and crimped metal screens constructed into a corrosion resistant steel frame. This multilayered screen shall be designed to trap embers or allow them to burn out before passing through the pack, while creating only minimal air flow restriction through the system. Periodic cleaning or replacement of the screen shall be all that is required after installation.

The engine shall also include an air intake filter which shall be bolted to the frame and located under the front of the cab on the right hand side. The system shall utilize a replaceable dry type filter which ensures dust and debris remains safely contained inside the housing during operation via leak-tight seals. The service cover shall be located on the bottom of the housing, eliminating the chance of contaminating the air intake system during air filter service.

The air flow distribution and dust loading shall be uniform throughout the high-performance filter element, which shall result in pressure differential for improved horsepower and fuel economy. The air intake ember separator shall be mounted within easy access via a hinged panel behind the right hand side headlight module. The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.

AIR INTAKE PROTECTION

A light duty skid plate shall be supplied for the engine air intake system below the right front side of the cab. The skid plate shall provide protection for the air intake system from light impacts, stones, and road debris.

ENGINE EXHAUST SYSTEM

The exhaust system shall be mounted below the frame in the outboard position with the SCR canister in line rearward of the DPF. The exhaust system shall utilize a 90-degree bend in the exhaust tubing from the turbo into a side inlet DPF canister that allows the entire system to be pulled forward. The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires.

The exhaust system shall include a diesel particulate filter (DPF), a diesel oxidation catalyst, and a selective catalytic reduction (SCR) catalyst to meet current EPA standards. The selective catalytic reduction catalyst utilizes a diesel exhaust fluid solution consisting of urea and purified water to convert NOx into nitrogen, water, and trace amounts of carbon dioxide. The solution shall be injected into the system through the decomposition tube between the DPF and SCR.

The system shall utilize 0.07 inch thick stainless steel exhaust tubing between the engine turbo and the DPF. Zero leak clamps seal all system joints between the turbo and DPF.

The DPF, the decomposition tube, and the SCR canister through the end of the tailpipe shall be connected with zero leak clamps.

DIESEL EXHAUST FLUID TANK

The exhaust system shall include a molded cross linked polyethylene tank for Diesel Exhaust Fluid (DEF). The tank shall have a capacity of six (6) usable gallons and shall be mounted on the left hand side of the chassis frame behind the batteries below the frame.

The DEF tank shall be designed with capacity for expansion in case of fluid freezing. Engine coolant, which shall be thermostatically controlled, shall be run through lines in the tank to help prevent the DEF from freezing and to provide a means of thawing the fluid if it should become frozen.

The tank fill tube shall be routed under the rear of the cab with the fill neck and splash guard accessible in the top rear step.

ENGINE EXHAUST ACCESSORIES

The exhaust system shall be modified to accept a Plymovent exhaust extraction system collar.

ENGINE EXHAUST WRAP

The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) shall be wrapped with a thermal cover in order to retain the necessary heat for DPF regeneration. The exhaust wrap shall also help protect surrounding components from radiant heat which can be transferred from the exhaust.

TRANSMISSION

The drive train shall include an Allison model EVS 3000 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

The transmission shall include two (2) internal oil filters and Castrol TranSynd™ synthetic TES 295 transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

The transmission gear ratios shall be:

1st	3.49:1
2nd	1.86:1
3rd	1.41:1
4th	1.00:1
5th	0.75:1
6th	0.65:1 (if applicable)
Rev	5.03:1

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will automatically select a four (4) speed operation. The fifth speed over drive shall be available with the activation of the mode button on the shifting pad.

TRANSMISSION FEATURE PROGRAMMING

The Allison Gen V-E transmission EVS group package number 127 shall contain the 198 vocational package in consideration of the duty of this apparatus as a pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override.

This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits shall be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide.

A transmission interface connector shall be provided in the cab. This package shall contain the following input/output circuits to the transmission control module. The Gen V-E transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

<u>Function ID</u>	<u>Description</u>	<u>Wire assignment</u>
Inputs		
C	PTO Request	142
J	Fire Truck Pump Mode (4th Lockup)	122 / 123
Outputs		
C	Range Indicator	145 (4th)
G	PTO Enable Output	130
	Signal Return	103

ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal.

TRANSMISSION SHIFT SELECTOR

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall have a graphical Vacuum Florescent Display (VFD) capable of displaying two lines of text. The shift selector shall provide mode indication and a prognostic indicator (wrench symbol) on the digital display. The prognostics monitor various operating parameters and shall alert you when a specific maintenance function is required.

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.

TRANSMISSION COOLING SYSTEM

The transmission shall include a water to oil cooler system located in the cooling loop between the radiator and the engine. The transmission cooling system shall meet all transmission manufacturer requirements. The transmission cooling system shall feature continuous flow of engine bypass water to maintain uninterrupted transmission cooling.

TRANSMISSION DRAIN PLUG

The transmission shall include an original equipment manufacturer installed magnetic transmission fluid drain plug.

TRANSMISSION WARRANTY

The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.

RH PTO

A Chassis Manufacturer supplied ten (10) bolt standard duty PTO shall be installed on the transmission. Installation shall include mounting of the PTO and wiring the unit with a control switch if required for the PTO model.

RH PTO MODEL

A ten (10) bolt Chelsea model 277-XDFJP-B5RA heavy duty transmission driven PTO shall be installed. The clutched shifted PTO is designed specifically for the Allison world transmission and provides torque ranges from 250 to 335 lb. ft.

PTO LOCATION

The transmission shall have two (2) power take off (PTO) mounting locations, one (1) in the 8:00 o'clock position and one (1) in the 4:00 o'clock position.

PTO CONTROL

The right hand power take off shall be controlled by the transmission. The power take off shall be activated by a locking on/off rocker switch which contains an integral light which shall illuminate upon a positive engagement of the power take off. This switch shall be located on dash.

Required operating conditions for enabling this function are:

- Throttle position is low
- Engine speed is within customer modifiable constant limits
- Output speed is within customer modifiable constant limits

Park brake set

DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with Spicer 1710 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated with Glide Coat®.

MIDSHIP PUMP / GEARBOX

A temporary jackshaft driveline shall be installed by the chassis manufacturer to accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer.

MIDSHIP PUMP / GEARBOX MODEL

The midship pump/gearbox provisions shall be for a Hale DSD forward pump.

MIDSHIP PUMP GEARBOX DROP

The Hale pump gearbox shall have an "L" (long) drop length.

MIDSHIP PUMP RATIO

The ratio for the midship pump shall be 2.28:1 (23).

MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE

The midship pump shall be located so the dimension from the centerline of the suction to the centerline of the rear axle is 80.00 inches.

PUMP SHIFT CONTROLS

One (1) pump shift control panel cutout for Innovative Controls shifter model 3001681 or 3001683 shall be provided on the center dash panel in the lower left-hand corner for customer installation of the pump shift controls.

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Fleetguard FS1003 fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve.

A water in fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator.

A secondary fuel filter shall be included as approved by the engine manufacturer.

FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine shall be reinforced nylon tubing rated for diesel fuel. The fuel lines shall be brown in color and connected with brass fittings.

FUEL SHUTOFF VALVE

A fuel shutoff valve shall be installed in the fuel draw line at the primary fuel filter to allow the fuel filter to be changed without loss of fuel to the fuel pump.

ELECTRIC FUEL PRIMER

Integral to the engine assembly is an electric lift pump that serves the purpose of pre-filter fuel priming.

FUEL TANK

The fuel tank shall have a capacity of sixty-five (65) gallons and shall measure 35.00 inches in width X 18.50 inches in height X 24.00 inches in length. The baffled tank shall be made of 14 gauge aluminized steel. The exterior of the tank shall be painted with a PRP Corsol™ black anti-corrosive exterior metal treatment finish. This results in a tank which offers the internal and external corrosion resistance.

The tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw.

The tank is designed with dual draw tubes and sender flanges. The tank shall have 2.00 inch NPT fill ports for right or left hand fill. A 0.50 inch NPT drain plug shall be centered in the bottom of the tank.

The fuel tank shall be mounted below the frame, behind the rear axle. Two (2) three-piece strap hanger assemblies with “U” straps bolted midway on the fuel tank front and rear shall be utilized to allow the tank to be easily lowered and removed for service purposes. Rubber isolating pads shall be provided between the tank and the upper tank mounting brackets. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.

FUEL TANK MATERIAL AND FINISH

The fuel tank shall be constructed of 14 gauge aluminized steel. The exterior of the fuel tank shall be painted to match the frame color.

FUEL TANK STRAP MATERIAL

The fuel tank straps shall be constructed of #304 stainless steel.

FUEL TANK FILL PORT

The fuel tank fill ports shall be offset with the left fill port located in the rearward position and the right fill port located in the middle position on the fuel tank.

FUEL TANK DRAIN PLUG

A 0.5 inch NPT drain plug shall be centered in the bottom of the fuel tank.

FRONT AXLE

The front axle shall include an independent front suspension (IFS) offering superior ride and improved handling.

The suspension shall utilize fully independent double wishbone arms with carrier and kingpin for optimized scrub radius. Air springs are tuned for ride and help reduce suspension weight. The IFS reduces turn radius with improved wheel cut over beam axles. The hydraulic damper shall feature rebound control to ensure the maximum load stability and superior driver comfort. The IFS system shall improve handling and offer better braking because of improved ground to tire ratio. This design shall allow for independent adjustment of the vehicle’s alignment settings.

Proposals offering independent front axles comprised of torsion bar style suspensions shall not be considered.

FRONT AXLE WARRANTY

The front axle shall be warranted by Tuthill for three (3) years or 150,000 miles, which ever comes first. Details of the Tuthill warranty are provided on the PDF document attached to this option.

FRONT WHEEL BEARING LUBRICATION

The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.

FRONT SHOCK ABSORBERS

Two (2) Koni shock absorbers shall be provided and installed as part of the front suspension system. The Koni shock absorbers shall be adjustable, providing as much or as little compensation as needed. Each shock shall deliver improved road handling and durability.

FRONT SUSPENSION

The independent front suspension (IFS) system shall improve handling and offer better braking because of improved ground to tire ratio. Lower spring rates and independent wheel travel shall reduce the shock within the wheel and feedback throughout the axle. Increased roll stiffness reduces chassis lean in cornering. The suspension travel of the IFS shall be approximately 6.50 inches, providing 3.00 inches jounce and 3.50 inches rebound of the suspension. This feature shall offer a smoother ride for personnel and sensitive equipment. The IFS front axle shall be rated between 18,000 and 20,000 pounds.

Proposals offering independent front axles comprised of torsion bar style suspensions shall not be considered.

STEERING COLUMN/ WHEEL

The cab shall include a Douglas Autotech steering column which shall include a seven (7) position tilt, a 2.25 inch telescopic adjustment, and an 18.00 inch, four (4) spoke steering wheel located at the driver's position. The steering wheel shall be covered with black polyurethane foam padding.

The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

The power steering fluid shall be monitored electronically and shall send a signal to activate an audible alarm and visual warning in the instrument panel when fluid level falls below normal.

POWER STEERING PUMP

The hydraulic power steering pump shall be a Vickers V20F and shall be gear driven from the engine. The pump shall be a fixed displacement vane type.

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 53-degrees to the left and right.

POWER STEERING GEAR

The power steering gear shall be a TRW model TAS 85/RCS 85.

CHASSIS ALIGNMENT

The chassis frame rails shall be measured to insure the length is correct and cross checked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.

REAR AXLE

The rear axle shall be a Meritor model RS-25-160 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 27,000 pounds.

The axle shall be built of superior construction and quality components to provide the rugged dependability needed to stand up to the fire industry's demands. The axle shall include rectangular shaped, hot-formed housing with a standard wall thickness of 0.63 of an inch for extra strength and rigidity and a rigid differential case for high axle strength and reduced maintenance.

The axle shall have heavy-duty Hypoid gearing for longer life, greater strength and quieter operation. Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage will be used.

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

REAR AXLE WARRANTY

The rear axle shall be warranted by Meritor for two (2) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

REAR AXLE DIFFERENTIAL CONTROL

A driver controlled differential lock shall be installed on the rear axle. This feature shall allow the main differential to be locked and unlocked when encountering poor road or highway conditions, where maximum traction is needed, for use at speeds no greater than 25 MPH. The differential lock shall be controlled by a locking rocker switch on the switch panel. The light on the switch shall illuminate with positive engagement of the differential control.

VEHICLE TOP SPEED

The top speed of the vehicle shall be approximately 68 MPH +/- 2 MPH at governed engine RPM.

REAR SUSPENSION

The single rear axle shall feature a Reyco 79KB vari-rate, self-leveling captive slipper type conventional multi-leaf spring suspension, with 57.50 inch X 3.00 inch springs. One (1) adjustable and one (1) fixed torque rod shall be provided.

The rear suspension capacity shall be rated from 21,000 to 31,500 pounds.

FRONT TIRE

The front tires shall be Goodyear 385/65R-22.5 18PR "J" tubeless radial G296 MSA mixed service tread.

The front tire stamped load capacity shall be 18,740 pounds per axle with a speed rating of 68 miles per hour when properly inflated to 120 pounds per square inch.

The Goodyear Intermittent Service Rating load capacity shall be 20,000 pounds per axle with a maximum speed of 68 miles per hour when properly inflated to 120 pounds per square inch. If the maximum speed is 70-75 MPH the tire shall be rated at stamped rating of 18,740 lbs. The Goodyear Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

REAR TIRE

The rear tires shall be Goodyear 315/80R-22.5 18PR "J" tubeless radial Regional RHD II HCT regional tread.

The rear tire stamped load capacity shall be 29,560 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 125 pounds per square inch.

The Goodyear Intermittent Service Rating load capacity shall be 32,000 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 125 pounds per square inch. The Goodyear Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

REAR AXLE RATIO

The rear axle ratio shall be 5.13:1.

TIRE PRESSURE INDICATOR

There shall be a voucher provided with the chassis for a dial style tire pressure indicator at the front and rear tire valve stem. The indicator shall provide visual indication of pressure in the specific tire.

The tire pressure indicators shall be redeemed upon the vehicle manufacturer's receipt of the voucher for installation by the customer.

FRONT WHEEL

The front wheels shall be Alcoa hub piloted, 22.50 inch X 12.25 inch LvL One™ polished aluminum wheels. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts. The wheels shall feature one-piece forged strength and shall include Alcoa's Dura-Bright® finish with XBR technology as an integral part of the wheel surface. Alcoa Dura-Bright® wheels keep their shine without polishing. Brake dust, grime and road debris are easily removed by simply cleaning the wheels with soap and water.

REAR WHEEL

The rear wheels shall be Alcoa hub piloted, heavy duty, 22.50 inch X 9.00 inch LvL One™ polished aluminum wheels with Alcoa Dura-Bright® wheel treatment with XBR® technology as an integral part of the wheel. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

WHEEL TRIM

The front wheels shall include stainless steel lug nut covers and stainless steel baby moons shipped loose with the chassis for installation by the apparatus builder. The baby moons shall have cutouts for oil seal viewing when applicable.

The rear wheels shall include stainless steel lug nut covers and band mounted spring clip stainless steel high hats shipped loose with the chassis for installation by the apparatus builder.

The lug nut covers, baby moons, and high hats shall be RealWheels® brand constructed of 304L grade, non-corrosive stainless steel with a mirror finish. Each wheel trim component shall meet D.O.T. certification.

TIRE CHAINS

Onspot brand extreme duty six (6) strand automatic ice chains shall be installed on the rear axle of the chassis to provide instant traction while traveling on ice and snow at speeds below 35 MPH.

TIRE CHAINS ACTIVATION

The tire chain system shall be activated by a locking switch on the dash to deter accidental activation. The light on the switch shall illuminate when the tire chains are engaged. The tire chains shall be interlocked with the transmission and shall engage only if the vehicle is traveling 30 MPH or less. After traveling over 30 MPH, the vehicle must be reduced to a speed below 5 MPH for the tire chains to be engaged or re-engaged.

AUXILIARY LUBRICATION SYSTEM

A Lincoln automatic lubrication system shall be installed on the chassis. The system shall be capable of lubricating eighteen (18) grease points on the chassis. A park brake interlock shall be incorporated into the ignition system to keep the system from operating while parked. The system shall be mounted on the left hand frame rail.

BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a service brake application in the unlikely event of primary air supply loss. All air reservoirs provided on the chassis shall be labeled for identification.

The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall designate when the system air pressure is below 60 PSI.

A four (4) sensor, four (4) modulator Anti-lock Braking System (ABS) shall be installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

Additional safety shall be accommodated through Automatic Traction Control (ATC) which shall be installed on the single rear axle. The ATC system shall apply the ABS when the drive wheels loose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces.

A virtual style switch shall be provided and properly labeled "mud/snow". When the switch is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition the ATC light shall blink continuously notifying the driver of activation. Pressing the switch again shall deactivate the mud/snow feature.

The Electronic Stability Control (ESC) unit is a functional extension of the electronic braking system. It is able to detect any skidding of the vehicle about its vertical axis as well as any rollover tendency. The control unit comprises an angular-speed sensor that measures the vehicle's motion about the vertical axis, caused, for instance, by cornering or by skidding on a slippery road surface. An acceleration sensor measures the vehicle's lateral acceleration. The Controller Area Network (CAN) bus provides information on the steering angle. On the basis of lateral acceleration and steering angle, an integrated microcontroller calculates a theoretical angular speed for the stable vehicle condition.

FRONT BRAKES

The front brakes shall be Bendix ADB 22X disc brakes with 17.00 inch vented rotors.

REAR BRAKES

The rear brakes shall be Meritor 16.50 inch X 7.00 inch S-cam drum type. The brakes shall feature a cast iron shoe.

PARK BRAKE

Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.

In addition to the mechanical rear brake engagement, the front service brakes will also engage via air pressure, providing additional braking capability.

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color.

The parking brake actuation valve shall be mounted on the top surface of the center dash within easy access of the driver and the officer positions. A guard shall be installed over the parking brake control to prevent accidental application or release.

REAR BRAKE SLACK ADJUSTERS

The rear brakes shall include Meritor automatic slack adjusters installed on the axle which features a simple, durable design offering reduced weight. The automatic slack adjusters shall feature a manual adjusting nut which cannot inadvertently be backed off and threaded grease fittings for easy serviceability.

AIR DRYER

The brake system shall include a Wabco System Saver 1200 air dryer with an integral heater with a Metri-Pack sealed connector. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be mounted behind the battery box on the left hand side.

FRONT BRAKE CHAMBERS

The front brakes shall be provided with type 24 brake chambers as supplied with the independent front suspension axle.

REAR BRAKE CHAMBERS

The rear axle shall include Haldex Gold Seal 30/36 brake chambers which shall convert the energy of compressed air into mechanical force and motion. The Gold Seal brake chamber shall feature a zinc plated spring chamber which shall be permanently attached for safety. This shall actuate the brake camshaft via a fully threaded push rod, which in turn shall operate the foundational brake mechanism forcing the brake shoes against the brake drum. The Haldex Gold Seal brake chamber shall feature an orange alert stroke indicator, a piloting diaphragm, a piloting dust shield and an epoxy powder coated spring and housing.

AIR COMPRESSOR

The air compressor provided for the engine shall be a Wabco® SS318 single cylinder pass-through drive type compressor which shall be capable of producing 18.7 CFM at 1200 engine RPMs. The air compressor shall feature a higher delivery efficiency translating to more air delivery per horsepower absorbed. The compressor shall include an aluminum cylinder head which shall improve cooling, reduce weight and decrease carbon formation. Superior piston and bore finishing technology shall reduce oil consumption and significantly increasing the system component life.

AIR GOVERNOR

An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be located on the air dryer bracket on the left frame rail behind the battery box.

MOISTURE EJECTORS

Heated, automatic moisture ejectors with a manual drain provision shall be installed on all reservoirs of the air supply system.

AIR SUPPLY LINES

The air system on the chassis shall be plumbed with color coded reinforced nylon tubing air lines. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.

Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

AIR INLET CONNECTION

A Kussmaul air automatic eject connection for the shoreline air inlet shall be supplied.

AIR INLET/ AUTO EJECT CONNECTION COVER

The air auto eject connection shall be red in color.

AIR INLET LOCATION

The air inlet shall be installed in the left hand side lower front step in the forward position.

PLUMBING AIR INLET CONNECTION

The air inlet connector shall be plumbed to the air system with a check valve to prevent air from escaping through the inlet connector.

AIR INLET/ OUTLET FITTING TYPE

The air connector supplied shall be a 0.25 inch size Tru-Flate Interchange style manual connection which is compatible with Milton 'T' style, Myers 0.25 inch Automotive style and Parker 0.25 inch 10 Series connectors.

REAR AIR TANK MOUNTING

If a combination of wheel base, air tank quantity, or other requirements necessitate the location of one or more air tanks to be mounted rear of the fuel tank, these tank(s) will be mounted perpendicular to frame.

WHEELBASE

The chassis wheelbase shall be 177.00 inches.

REAR OVERHANG

The chassis rear overhang shall be 42.00 inches.

FRAME

The frame shall consist of double rails running parallel to each other with cross members forming a ladder style frame. The frame rails shall be formed in the shape of a "C" channel, with the outer rail measuring 10.25 inches high X 3.50 inches deep upper and lower flanges X 0.38 inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and 0.38 inches thick. Each rail shall be constructed of 110,000 psi minimum yield high strength low alloy steel. Each double rail section shall be rated by a Resistance Bending Moment (RBM) minimum of 3,213,100 inch pounds and have a minimum section modulus of 29.21 cubic inches. The frame shall measure 35.00 inches in width.

Proposals calculating the frame strength using the "box method" shall not be considered.

Proposals including heat treated rails shall not be considered. Heat treating frame rails produces rails that are not uniform in their mechanical properties throughout the length of the rail. Rails made of high strength, low alloy steel are already at the required yield strength prior to forming the rail.

A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member. The cross members shall be attached using zinc coated grade 8 fasteners. The bolt heads shall be flanged type, held in place by distorted thread flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.

Any proposals not including additional reinforcement for each cross member shall not be considered.

All relief areas shall be cut in with a minimum 2.00 inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.

The frame and cross members shall carry a lifetime warranty to the original purchaser. A copy of the frame warranty shall be made available upon request.

Proposals offering warranties for frames not including cross members shall not be considered.

FRAME WARRANTY

Summary of Warranty Terms:

The frame and cross members shall carry a limited lifetime warranty to the original purchaser. The warranty period shall commence on the date the vehicle is delivered to the first end user.

FRAME PAINT

The frame shall be powder coated black prior to any attachment of components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils.

Any proposals offering painted frame with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

The chassis under carriage consisting of frame, axles, driveline running gear, air tanks and other chassis mounted components shall be painted the primary/lower cab color. Paint shall be applied prior to airline and electrical wiring installation.

FRONT BUMPER

The chassis shall be equipped with a severe duty front bumper constructed from structural steel channel. The bumper material shall be 0.38 thick ASTM A36 steel which shall measure 12.00 inches high with a 3.05 inch flange and shall be 99.00 inches wide with angled front corners.

The bumper shall be primed and painted as specified.

FRONT BUMPER EXTENSION LENGTH

The front bumper shall be extended approximately 6.00 inches ahead of the cab.

FRONT BUMPER EXTENSION FRAME WIDTH

The front bumper extension frame shall feature an overall width of 48.25 inches.

FRONT BUMPER PAINT

The front bumper shall be painted the same as the lower cab color.

FRONT BUMPER APRON

The 6.00 inch extended front bumper shall include an apron constructed of 0.19 inch thick embossed aluminum tread plate.

The apron shall be installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the top bumper flange.

MECHANICAL SIREN

The front bumper shall include an electro mechanical Federal Q2B™ siren, which shall be streamlined, chrome-plated and shall produce 123 decibels of sound at 10.00 feet. The Q2B™ siren produces a distinctive warning sound that is recognizable at long distances. A unique clutch design provides a longer coast down sound while reducing the amp draw to 100 amps. The siren shall measure 10.50 inches wide X 10.00 inches high X 14.00 inches deep. The siren shall include mounting hardware designed to recess or flush mount.

MECHANICAL SIREN LOCATION

The siren shall be recess mounted in the center on the front fascia of the bumper between the frame rails.

MECHANICAL SIREN ACCESSORIES

The front of the siren shall include (2) stainless steel flat bars approximately 1.00 inch wide by 19.00 inches long. Each bar shall be placed vertically on the right and left side of the siren face wrapping around towards the back of the siren into the bumper extension offering protection to the Q2B siren.

AIR HORN

The chassis shall include two (2) Grover brand Stutter Tone air horns, one (1) shall measure 21.00 inches long and one (1) shall measure 24.00 inches long, both with a 6.00 inch round flare. The air horns shall be trumpet style with a chrome finish.

AIR HORN LOCATION

The air horns shall be recess mounted in the front bumper face, one (1) on the right side of the bumper in the inboard position relative to the right hand frame rail and one (1) on the left side of the bumper in the inboard position relative to the left hand frame rail.

AIR HORN RESERVOIR

One (1) air reservoir, with a 1200 cubic inch capacity, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

ELECTRONIC SIREN SPEAKER

There shall be one (1) Cast Products Inc. model SA4301, 100 watt speaker provided. The speaker shall measure 6.20 inches tall X 7.36 inches wide X 3.06 inches deep. The speaker shall include a flat mounting flange which shall be polished aluminum.

ELECTRONIC SIREN SPEAKER LOCATION

The electronic siren speaker shall be located on the front bumper face on the right side outboard of the frame rail in the far outboard position.

FRONT BUMPER TOW HOOKS

Two (2) heavy duty tow hooks, painted to match the chassis frame, shall be installed below the front bumper in the forward position bolted directly to the outside of each chassis frame rail, with grade 8 bolts.

CAB TILT SYSTEM

The entire cab shall be capable of tilting approximately 45-degrees to allow for easy maintenance of the engine and transmission. The cab tilt pump assembly shall be located on the right side of the chassis above the battery box.

The electric-over-hydraulic lift system shall include an ignition interlock and red cab lock down indicator lamp on the tilt control which shall illuminate when holding the "Down" button to indicate safe road operation.

It shall be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution the ignition switch must be turned off to complete the cab tilt interlock safety circuit.

Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks.

Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be 1.90 inch ball and be anchored to frame brackets with 1.25 inch diameter studs.

A steel safety channel assembly, painted safety yellow shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab.

CAB TILT LIMIT SWITCH

A cab tilt limit switch shall be installed. The switch will effectively limit the travel of the cab when being tilted. The limit adjustment of the switch shall be preset by the chassis manufacturer to prevent damage to the cab or any bumper mounted option mounted in the cab tilt arc. Further adjustment to the limit by the apparatus manufacturer shall be available to accommodate additional equipment.

CAB TILT CONTROL RECEPTACLE

A six (6) pin Deutsch receptacle that includes a cap shall be installed in the front bumper tail on the right hand side to provide a place to plug in the cab tilt remote control pendant.

The remote control pendant shall include 20.00 feet of cable with a mating Deutsch connector. The remote control pendant shall be shipped loose with the chassis.

CAB WINDSHIELD

The cab windshield shall have a surface area of 2825.00 square inches and be of a two (2) piece wraparound design for maximum visibility.

The glass utilized for the windshield shall include standard automotive tint. The left and right windshield shall be fully interchangeable thereby minimizing stocking and replacement costs.

Each windshield shall be installed using black self locking window rubber.

GLASS FRONT DOOR

The front cab doors shall include a window which is 27.00 inches in width X 26.00 inches in height. These windows shall have the capability to roll down completely into the door housing. This shall be accomplished using electric actuation. The left and right front door windows shall be controlled using a switch on each respective side inner door panel. The driver's door shall include a switch for each powered door window in the cab. There shall be a master power switch at the driver's door to cut off power to the other cab windows.

There shall be an irregular shaped fixed window which shall measure 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches in height, more commonly known as "cozy glass" ahead of the front door roll down windows.

The windows shall be mounted within the frame of the front doors trimmed with a black anodized ring on the exterior.

GLASS TINT FRONT DOOR

The windows located in the left and right front doors shall have a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

GLASS REAR DOOR RH

The rear right hand side crew door shall include a window which is 27.00 inches in width X 26.00 inches in height. The window shall be a powered type and shall be controlled by a switch on the inner door panel and on the driver's control panel.

GLASS TINT REAR DOOR RIGHT HAND

The window located in the right hand side rear door shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

GLASS REAR DOOR LH

The rear left hand side crew door shall include a window which is 27.00 inches in width X 26.00 inches in height. The window shall be a powered type and shall be controlled by a switch on the inner door panel and on the driver's control panel.

GLASS TINT REAR DOOR LEFT HAND

The window located in the left hand side rear door shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.

CLIMATE CONTROL

A ceiling mounted combination defroster and cabin heating and air conditioning system shall be located above the engine tunnel area. The system covers and plenums shall be of sever duty design made of aluminum which shall be coated with a customer specified interior paint. The design of the system's covers shall provide quick access to washable air intake filters as well as easy access to other serviceable items.

The air delivery plenums provide targeted airflow directly to the vehicle occupants. Six (6) adjustable louvers will provide comfort for the front seat occupants and ten (10) adjustable louvers will provide comfort for the rear crew occupants.

The system shall be capable of producing up to 12 FPM of air velocity at all occupant seating positions. Separate front and rear blower motors shall be of brushless design and shall be controlled independently. It shall be capable of reducing the interior cabin air temperature from 122° F (+/- 3° F) to 80° F in thirty minutes with 50% relative humidity and full solar load as described in SAE J2646.

The system shall also provide heater pull up performance which meets or exceeds the performance requirements of SAE J1612 as well as defrost performance that meets or exceeds the performance requirements of SAE J381.

A gravity drain system shall be provided that is capable of evacuating condensate from the vehicle while on a slope of up to a 13% grade in any direction.

The air conditioning system plumbing shall be a mixture of custom bent zinc coated steel fittings and Aero-quip GH134 flexible hose with Aeroquip EZ-Clip fittings.

The overhead heater/defroster plumbing shall include an electronic flow control valve that re-directs hot coolant away from the evaporator, via a bypass loop, as the temperature control is moved toward the cold position.

Any component which needs to be accessed to perform system troubleshooting shall be accessible by one person using basic hand tools. Regularly serviced items shall be replaceable by one person using basic hand tools.

***Performance data is based on testing performed by an independent third party test facility using a medium four-door 10" Raised roof Gladiator chassis equipped with an ISL engine.*

CLIMATE CONTROL DRAIN

The climate control system shall include a gravity drain for water management. The gravity drain shall remove condensation from the air conditioning system without additional mechanical assistance.

CLIMATE CONTROL ACTIVATION

The heating, defrosting and air conditioning controls shall be located on the Vista display and control screen. The HVAC shall default to auto mode and set the temperature to 70 degrees Fahrenheit when the ignition switch is turned on.

HVAC OVERHEAD COVER PAINT

The overhead HVAC cover shall be painted with a Zolatone #20-72 silver gray texture finish.

A/C CONDENSER LOCATION

A roof mounted A/C condenser shall be installed centered on the cab forward of the raised roof against the slope rise.

A/C COMPRESSOR

The air-conditioning compressor shall be a belt driven, engine mounted compressor. The compressor shall be compatible with R134-a refrigerant.

UNDER CAB INSULATION

The underside of the cab tunnel surrounding the engine shall be lined with multi-layer insulation, engineered for application inside diesel engine compartments.

The insulation shall act as a noise barrier, absorbing noise thus keeping the decibel level in the cab well within NFPA recommendations. As an additional benefit, the insulation shall assist in sustaining the desired temperature within the cab interior.

The engine tunnel insulation shall measure approximately 0.75 inch thick including a vertically lapped polyester fiber layer, a 1.0 lb/ft² PVC barrier layer, an open cell foam layer, and a moisture and heat reflective foil facing reinforced with a woven fiberglass layer. The foil surface acts as protection against moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test.

The insulation shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation shall be held in place by 3 mils of acrylic pressure sensitive adhesive and aluminum pins with hard hat, hold in place fastening heads.

INTERIOR TRIM FLOOR MAT

The floor of the cab shall be covered with a multi-layer mat consisting of 0.25 inch thick sound absorbing closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive.

The floor shall have an overlay of 5052-H32 aluminum plate with a Spar-Liner finish. The aluminum plate shall be held down with screws and aluminum trim moldings. The step well area aluminum trim molding shall feature a Mebac® grit surface finish. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.

Proposals offering any step well trim molding other than with the Mebac® brand surface shall not be considered.

INTERIOR TRIM

The cab interior shall include trim on the front ceiling, rear crew ceiling, and the cab walls. It shall be easily removable to assist in maintenance. The trim shall be constructed of insulated vinyl over a hard board backing.

REAR WALL INTERIOR TRIM

The rear wall of the cab shall be trimmed with vinyl.

HEADER TRIM

The cab interior shall feature header trim over the driver and officer dash constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum.

TRIM CENTER DASH

The main center dash area shall be constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum plate. There shall be four (4) holes located on the top of the dash near each outer edge of the electrical access cover for ventilation.

TRIM LH DASH

The left hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum plate for a perfect fit around the instrument panel. For increased occupant protection the extreme duty left hand dash utilizes patent pending break away technology to reduce rigidity in the event of a frontal crash. The left hand dash shall offer lower vertical surface area to the left and right of the steering column to accommodate control panels.

TRIM RH DASH

The right hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate and shall include a glove compartment with a hinged door and a Mobile Data Terminal (MDT) provision. The glove compartment size will measure 14.00 inches wide X 6.38 inches high X 5.88 inches deep. The MDT provision shall be provided above the glove compartment.

ENGINE TUNNEL TRIM

The cab engine tunnel shall be covered with a multi-layer mat consisting of 0.25 inch thick sound absorbing closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive.

The cab engine tunnel shall have an overlay of 5052-H32 aluminum plate with a Spar-Liner finish, colored to match the cab paint interior finish color scheme. The aluminum plate shall be held down with screws. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.

ENGINE TUNNEL ACCESSORIES

The engine tunnel shall feature a fabricated aluminum console which shall include a large storage bin with dividers and a map compartment. There shall be two (2) cup holders included in the console.

POWER POINT DASH MOUNT

The cab shall include two (2) 12 volt cigarette lighter type receptacles in the cab dash to provide a power source for 12 volt electrical equipment. The receptacles shall be wired battery direct.

The cab shall also include two (2) Dual universal serial bus (USB) charging receptacles in the cab dash rocker switch cutout to provide a power source for USB chargeable electrical equipment. Each USB receptacle shall include one (1) USB port capable of a 5 Volt-1 amp output and one (1) USB port capable of a 5 Volt-2.1 amp output. The receptacles shall be wired battery direct and include a backlit legend.

AUXILIARY POWER POINT ENGINE TUNNEL

The cab interior shall include one (1) 12 volt cigarette lighter type receptacle to provide a power source for 12 volt electrical equipment. The receptacle shall be connected directly to the batteries. The receptacle shall be located on the rear of the engine tunnel near the top at the center.

STEP TRIM

Each cab entry door shall include a three step entry. The first step closest to the ground shall be constructed of polished 5032 H32 aluminum Grip Strut® grating with angled outer corners. The step shall feature a splash guard to reduce water and debris from splashing in to the step. The splash guard shall have an opening on the outer edge to allow debris and water to flow through rather than becoming trapped within the stepping surface. The lower step shall be mounted to a frame which is integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed with a Flex-Tred® adhesive grit surface material.

UNDER CAB ACCESS DOOR

The cab shall include an aluminum access door in the left crew step riser painted to match the cab interior paint with a push and turn latch. The under cab access door shall provide access to the diesel exhaust fluid fill.

INTERIOR DOOR TRIM

The interior trim on the doors of the cab shall consist of an aluminum panel constructed of Marine Grade 5052-H32 0.13 of an inch thick aluminum plate. The door panels shall include a painted finish.

DOOR TRIM CUSTOMER NAMEPLATE

The interior door trim on the front doors shall include a customer nameplate which states the vehicle was custom built for their Department.

CAB DOOR TRIM REFLECTIVE

The interior of each door shall include a white reflective tape installed vertically along the outer rear edge of the door. Also a 12.00 inch reflective octagon stop sign shall be installed on the inner door panel of each door. The lowest portion of each door skin shall include a reflective tape chevron with red and yellow stripes and a Chassis Manufacturer logo. The chevron tape shall measure 6.00 inches in height.

INTERIOR GRAB HANDLE "A" PILLAR

A rubber covered 11.00 inch grab handle shall be provided on the inside of the cab on the hinge post at the driver and officer doors. The handle shall assist personnel in exiting and entering the cab. The handle shall be yellow in color.

INTERIOR GRAB HANDLE FRONT DOOR

Each front door shall include one (1) ergonomically contoured 9.00 inch cast aluminum handle mounted horizontally on the interior door panels. The handles shall feature a textured yellow powder coat finish to assist personnel entering and exiting the cab.

INTERIOR GRAB HANDLE REAR DOOR

A yellow powder coated cast aluminum assist handle shall be provided on the inside of each rear crew door. A 30.00 inch long handle shall extend horizontally the width of the window just above the window sill. The handle shall assist personnel in exiting and entering the cab.

INTERIOR SOFT TRIM COLOR

The cab interior soft trim surfaces shall be gray in color.

INTERIOR TRIM SUNVISOR

The header shall include two (2) sun visors, one each side forward of the driver and officer seating positions above the windshield. Each sun visor shall be constructed of Masonite and covered with padded vinyl trim.

INTERIOR FLOOR MAT COLOR

The cab interior floor mat shall be gray in color.

CAB PAINT INTERIOR

The inner door panel surfaces shall be coated with Spar-Liner medium gray pebble-grain texture finish.

HEADER TRIM INTERIOR PAINT

The metal surfaces in the header area shall be coated with medium gray Spar-Liner.

TRIM CENTER DASH INTERIOR PAINT

The entire center dash shall be coated with medium gray Spar-Liner. Any accessory pods attached to the dash shall also be coated with this material.

TRIM LEFT HAND DASH INTERIOR PAINT

The left hand dash shall be coated with medium gray Spar-Liner.

TRIM RIGHT HAND DASH INTERIOR PAINT

The right hand dash shall be coated with medium gray Spar-Liner.

ENGINE TUNNEL ACCESSORIES PAINT

The engine tunnel accessories shall be coated with medium gray Spar-Liner.

FLOOR INTERIOR PAINT

The metal surfaces on the floor of the cab shall be coated with medium gray Spar-Liner.

DASH PANEL GROUP

The main center dash area shall include three (3) removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one (1) to the left of the officer position. The center panel shall be within comfortable reach of both the driver and officer.

SWITCHES CENTER PANEL

The center dash panel shall include six (6) rocker switch positions in a single row configuration in the upper center portion of the panel.

A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

SWITCHES LEFT PANEL

The left dash panel shall include four (4) switches. There shall be three (3) across the top of the panel with one (1) below. Two (2) of the top row of switches shall be rocker type and the left one (1) shall be the windshield wiper/washer control switch. The lower switch shall be a rocker type switch.

A rocker switch with a blank legend installed directly above shall be provided for any position not designated by a specific option. The non-designated switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

SWITCHES RIGHT PANEL

The right dash panel shall include no rocker switches or legends.

SEAT BELT WARNING

A Weldon seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall provide a visual warning indicator in the Vista display and control screen(s), an indicator light in the instrument panel, and an audible alarm.

The warning system shall activate when any seat is occupied with a minimum of 60 pounds, the corresponding seat belt remains unfastened, and the park brake is released. The warning system shall also activate when any seat is occupied, the corresponding seat belt was fastened in an incorrect sequence, and the park brake is released. Once activated, the visual indicators and audible alarm shall remain active until all occupied seats have the seat belts fastened.

SEAT MATERIAL

The seats shall include a covering of high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Common trade names for this material are Imperial 1200 and Durawear.

SEAT COLOR

All seats supplied with the chassis shall be gray in color. All seats shall include red seat belts.

SEAT BACK LOGO

The seat back shall include a logo. The logo shall be centered on the standard headrest of the seat back and on the left side of a split headrest.

SEAT DRIVER

The driver's seat shall be an H.O. Bostrom Firefighter Sierra model seat. The seat shall feature eight-way electric positioning. The eight positions shall include up and down, fore and aft with 8.00 inches of travel, back angle adjustment and seat rake adjustment. The seat shall feature integral springs to isolate shock.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches measured with the seat height adjusted to the lowest position of travel.

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207, 209, and 210 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity.

The materials used in construction of the seat shall also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK DRIVER

The driver's seat shall include a standard seat back incorporating the all belts to seat feature (ABTS). The seat back shall feature a contoured head rest.

SEAT MOUNTING DRIVER

The driver's seat shall be installed in an ergonomic position in relation to the cab dash.

OCCUPANT PROTECTION DRIVER

The driver's position shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

The driver's seating area APS shall include:

- Advanced seat belt system - retractor pre-tensioner tightens the seat belt around the driver, securing the occupant in the seat and the load limiter plays out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.
- Large side curtain airbag - protects the driver's head, neck, and upper body from dangerous cab side surfaces and contact points with intrusive surfaces as a result of a

collision as well as provides ejection mitigation protection to the driver in a qualifying event by covering the window and the upper portion of the door.

- Dual knee airbags (patent pending) with energy management mounting (patent pending) - protects the driver's lower body from dangerous surface contact injuries, acceleration injuries, and from intrusion as well as locks the lower body in place so the upper body shall be slowed by the load limiting seat belt.

Steering wheel airbag - protects the driver's head, neck, and upper torso from contact injuries, acceleration injuries, and contact points with intrusive surfaces as a result of a collision.

SEAT OFFICER

The officer's seat shall be a H.O. Bostrom Firefighter series. The seat shall feature a tapered and padded seat, and cushion. The seat shall be a non-adjustable type seat.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK OFFICER

The officer's seat back shall include an IMMI brand SmartDock® Gen 2 hands-free self contained breathing apparatus (SCBA) holder. The hands-free holder shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of emergency response vehicles. The bracket shall accommodate and secure most types of self-contained breathing apparatus cylinders.

The hands-free holder shall consist of a back plate, bottom cradle, non-marring top claws, and claw height adjustment knob. The height adjustment knob shall allow for easy adjustment of the claws to the SCBA. The hands-free holder's claws shall lock from inertial forces to prevent the SCBA from becoming a projectile in the event of a crash to meet the NFPA 1901-03 standard for SCBA retention. The SCBA holder shall offer single-motion insertion into the claws and hands-free release when the SCBA fitted seat occupant rises.

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

SEAT MOUNTING OFFICER

The officer's seat shall be installed in an ergonomic position in relation to the cab dash.

OCCUPANT PROTECTION OFFICER

The officer's position shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

The officer's seating area APS shall include:

- Advanced seat belt system - retractor pre-tensioner tightens the seat belt around the officer, securing the occupant in the seat and the load limiter plays out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.
- Large side curtain airbag - protects the officer's head, neck, and upper body from dangerous cab side surfaces and contact points with intrusive surfaces as a result of a collision as well as provides ejection mitigation protection to the officer in a qualifying event by covering the window and the upper portion of the door.

Knee airbags - protects the officer's lower body from dangerous surface contact injuries, acceleration injuries, and from contact points with intrusive surfaces as a result of a collision as well as locks the lower body in place so the upper body shall be slowed by the load limiting seat belt.

POWER SEAT WIRING

The power seat or seats installed in the cab shall be wired directly to battery power.

SEAT BELT ORIENTATION CREW

The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip.

SEAT REAR FACING CENTER LOCATION

The crew area shall include two (2) rear facing crew seats, which include one (1) located directly behind the engine tunnel on the right side of the cab and one (1) located directly behind the engine tunnel on the left side of the cab.

SEAT CREW REAR FACING CENTER

The crew area shall include a seat in the rear facing center position which shall be a H.O. Bostrom Firefighter series. The seat shall feature a tapered and padded seat back and cushion. The bottom cushion shall be spring load hinged and compact in design for additional room and shall remain in the stored position until occupied.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK REAR FACING CENTER

The crew area seat backs shall include an IMMI brand SmartDock® Gen 2 hands-free self-contained breathing apparatus (SCBA) holder. The hands-free holder shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of emergency response vehicles. The bracket shall accommodate and secure most types of self-contained breathing apparatus cylinders.

The hands-free holder shall consist of a back plate, bottom cradle, non-marring top claws, and claw height adjustment knob. The height adjustment knob shall allow for easy adjustment of the claws to the SCBA. The hands-free holder's claws shall lock from inertial forces to prevent the SCBA from becoming a projectile in the event of a crash to meet the NFPA 1901-03 standard for SCBA retention. The SCBA holder shall offer single-motion insertion into the claws and hands-free release when the SCBA fitted seat occupant rises.

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

SEAT MOUNTING REAR FACING CENTER

The rear facing center seat shall be mounted facing the rear of the cab.

OCCUPANT PROTECTION RFC

The rear facing center seat position(s) shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

Each rear facing center seating position APS shall include:

- APS advanced seat belt system - retractor pre-tensioners tighten the seat belts around each occupant, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.

Side curtain airbag - provides ejection mitigation protection to each occupant in a qualifying event by covering the windows and walls adjacent to crew seating with an airbag custom designed for each cab configuration.

SEAT FRAME REAR FACING CENTER

The rear facing center seating shall include a seat frame which is located and installed behind the engine tunnel. The seat frame shall measure 40.75 inches wide X 12.00 inches high X 15.88 inches deep. The seat frame shall be constructed of 0.19 inch thick Marine Grade 5052-H32 smooth aluminum plate. The seat box shall be painted with the same color as the remaining interior.

SEAT FRAME REAR FACING CENTER STORAGE ACCESS

The rear facing center seat frame shall include a storage access opening which shall measure 32.00 inches wide X 8.75 inches high to allow access within the seat frame for storage.

CAB FRONT UNDERSEAT STORAGE ACCESS

The left and right under seat storage areas shall have a solid aluminum hinged door with non-locking latch.

SEAT COMPARTMENT DOOR FINISH

All underseat storage compartment access doors shall have a protective coating of medium gray Spar-Liner.

HELMET STORAGE SHIPLOOSE QUANTITY

The ship loose items shall include four (4) helmet storage brackets.

HELMET STORAGE SHIPLOOSE

The ship loose items shall include Ziamatic model UHH-1 helmet storage designed to meet current NFPA regulations. The UHH-1 shall securely fasten fire helmets to flat cab surfaces. The UHH-1 utilizes a helmet hook and an adjustable strap to accommodate nearly any helmet size or configuration.

WINDSHIELD WIPER SYSTEM

The cab shall include a dual arm wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers which shall be affixed to a radial wet arm. The system shall include a single motor which shall initiate the arm in which both the left hand and right hand windshield wipers are attached, initiating a back and forth motion for each wiper. The

wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position.

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low the yellow "Check Message Center" indicator light on the instrument panel shall illuminate and the message center in the dual air pressure gauge shall display a "Check Washer Fluid Level" message.

CAB DOOR HARDWARE

The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of aluminum with a chrome plated finish.

The interior exit door handles shall be flush paddle type with a black finish, which are incorporated into the upper door panel.

All cab entry doors shall include locks which are keyed alike. The door locks shall be designed to prevent accidental lockout.

The exterior pull handles shall include a scuff plate behind the handle constructed of polished stainless steel to help protect the cab finish.

DOOR LOCKS

Each cab entry door shall include a manually operated door lock. Each door lock may be actuated from the inside of the cab by means of a red knob located on the paddle handle of the respective door or by using a TriMark key from the exterior. The door locks are designed to prevent accidental lock out.

DOOR LOCK RH EMS COMPARTMENT

The right hand side EMS compartment shall feature a manual door lock.

GRAB HANDLES

The cab shall include one (1) 18.00 inch three-piece knurled aluminum, anti-slip exterior assist handle, installed behind each cab entry door. The grab handle shall be made of extruded aluminum with a knurled finish to enable non-slip assistance with a gloved hand. Each grab handle shall include a stainless steel scuff plate to help protect the cab paint from damage.

REARVIEW MIRRORS

Retrac Aerodynamic West Coast style dual vision mirror heads model 613305 shall be provided and installed on each of the front cab doors.

The mirrors shall be mounted via 1.00 inch diameter tubular stainless steel arms to provide a rigid mounting to reduce mirror vibration.

The mirrors shall measure 8.00 inches wide X 19.00 inches high and shall include an integral convex mirrors installed in the mirror head below the flat glass to provide a wider field of vision. The flat and convex mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted within easy reach of the driver. The flat and convex mirrors shall be heated for defrosting in severe cold weather conditions.

The mirrors shall be constructed of a vacuum formed chrome plated ABS plastic housing that is corrosion resistant and shall include the finest quality non-glare glass.

REARVIEW MIRROR HEAT SWITCH

The heat for the rearview mirrors shall be controlled through a rocker switch in the mirror control panel on the left side dash.

CAB FENDER

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Each two-piece liner shall consist of an inner liner 16.00 inches wide made of vacuum formed ABS composite and an outer fenderette 3.50 inches wide made of 14 gauge 304 polished stainless steel.

CAB EXTERIOR FRONT & SIDE EMBLEMS

The cab shall include three (3) Chassis Manufacturer emblems. There shall be one (1) installed on the front air intake grille and one (1) emblem with an integrated model nameplate installed on the exterior of the cab on the lower forward portion of the front driver and officer side doors.

CAB EXTERIOR MODEL NAMEPLATE

The cab shall include custom “Metro Star Advanced Protection System” nameplates integrated into the side emblem.

IGNITION

A master battery system with a keyless start ignition system shall be provided. Each system shall be controlled by a one-quarter turn Cole Hersee switch, both of which shall be mounted to the left of the steering wheel on the dash. A chrome push type starter button shall be provided adjacent to the master battery and ignition switches.

Each switch shall illuminate a green LED indicator light on the dash when the respective switch is placed in the “ON” position.

The starter button shall only operate when both the master battery and ignition switches are in the “ON” position.

BATTERY

The single start electrical system shall include six (6) Harris BCI 31 950 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541.

BATTERY TRAY

The batteries shall be installed within two (2) steel battery trays located on the left side and right side of the chassis, securely bolted to the frame rails. The battery trays shall be coated with the same material as the frame.

The battery trays shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat made by Dri-Dek shall be installed in the bottom of the trays to allow for air flow and help prevent moisture build up. The batteries shall be held in place by non-conducting phenolic resin hold down boards.

BATTERY BOX COVER

Each battery box shall include a steel cover which protects the top of the batteries. Each cover shall include flush latches which shall keep the cover secure as well as a black powder coated handle for convenience when opening.

BATTERY CABLE

The starting system shall include cables which shall be protected by 275 degree F. minimum high temperature flame retardant loom, sealed at the ends with heat shrink and sealant.

The battery terminals shall not be utilized for auxiliary connections. The only acceptable auxiliary connections shall be for the cross over link from the left bank to the right bank, power for jumper studs and starter cables. All other auxiliary connections will use remote studs mounted in the battery box area. There shall be four (4) remote studs labeled as Common Power, Common Ground, Clean Power, and Clean Ground.

BATTERY JUMPER STUD

The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver's side lower step. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.

ALTERNATOR

The charging system shall include a 270 amp Leece Neville 12 volt alternator. The alternator shall include a self-excited integral regulator.

BATTERY CONDITIONER

A Kussmaul 1200 battery conditioner shall be supplied. The battery conditioner shall be mounted in the cab in the LH rear facing outer seating position.

BATTERY CONDITIONER DISPLAY

A Kussmaul battery conditioner display shall be supplied. The battery conditioner display shall be mounted to the dash so it is viewable through the front windshield on the left hand side of the cab.

ELECTRICAL INLET

A Kussmaul 20 amp super auto-eject electrical receptacle shall be supplied. It shall automatically eject the plug when the starter button is depressed.

A single item or an addition of multiple items must not exceed the rating of the electric inlet that it's connected to.

Amp Draw Reference List:

Kussmaul 1000 Charger - 3.5 Amps

Kussmaul 1200 Charger - 10 Amps

Kussmaul 35/10 Charger - 10 Amps

1000W Engine Heater - 8.33 Amps

1500W Engine Heater - 12.5 Amps

120V Air Compressor - 4.2 Amps

ELECTRICAL INLET LOCATION

An electrical inlet shall be installed in the left hand side middle front step forward of the mid position.

ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery conditioner.

ELECTRICAL INLET COLOR

The electrical inlet connection shall include a yellow cover.

HEADLIGHTS

The cab front shall include two (2) rectangular HID headlamps with Bi-Xenon Low/High beam in same housing and (2) separate halogen high beams mounted in bright chrome bezels.

The HID housing includes a single projector with a mirrored flapper that moves out of the way of the beam's trajectory inside of the housing to change the optics. Once activated this change in optics allows light broadcast through the projector to change to a high beam within the same HID light housing.

FRONT TURN SIGNALS

The front fascia shall include two (2) Whelen model 600 4.00 inch X 6.00 inch programmable amber LED turn signals which shall be installed in a polished aluminum housing above and outboard of the front warning and head lamps.

HEADLIGHT LOCATION

The headlights shall be located on the front fascia of the cab directly below the front warning lights.

SIDE TURN/MARKER LIGHTS

The sides of the cab shall include two (2) LED round side marker lights which shall be provided just behind the front cab radius corners.

MARKER AND ICC LIGHTS

In accordance with FMVSS, there shall be five (5) LED cab marker lamps designating identification, center and clearance provided. These lights shall be installed on the face of the cab within full view of other vehicles from ground level.

HEADLIGHT AND MARKER LIGHT ACTIVATION

The headlights and marker lights shall be controlled via a virtual button on the Vista display. There shall be a virtual dimmer control on the Vista display to adjust the brightness of the dash lights.

GROUND LIGHTS

Each door shall include an NFPA compliant LED ground light mounted to the underside of the cab step below each door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life. The ground lighting shall be activated by the opening of the door on the respective cab side, when the parking brake is set and through a virtual button on the Vista display and control screen.

LOWER CAB STEP LIGHTS

The middle step located at each door shall include a recess mounted 4.00 inch round LED light which shall activate with the opening of the respective door.

INTERMEDIATE STEP LIGHTS

The intermediate step well area at each door shall include an LED light within a chrome housing. The Egress step lights shall provide visibility to the step well area for the first step exiting the vehicle. The Egress step lights shall activate with Entry step lighting.

ENGINE COMPARTMENT LIGHT

There shall be an incandescent NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life. The light shall activate automatically when the cab is tilted.

LIGHTBAR PROVISION

There shall be a junction box located on the right hand side of the roof with electrical connections for a light bar. The light bar shall be provided and installed by the body manufacturer.

LIGHTBAR SWITCH

The light bar shall be controlled by a virtual button on the Vista display and control screen. This button shall be clearly labeled for identification.

SIDE SCENE LIGHTS

The side of the cab shall include two (2) Whelen M9 scene lights, one (1) each side which shall be surface mounted. The Whelen lights shall offer LED directional lighting from 2 to 40-degrees with internal and external optics.

SIDE SCENE LIGHT LOCATION

The scene lighting located on the left and right sides of the cab shall be mounted in the upper forward portion of the cab between the front and rear crew doors.

SIDE SCENE ACTIVATION

The scene lights shall be activated by two (2) virtual buttons on the Vista display and control screen(s), one (1) for each light.

INTERIOR OVERHEAD LIGHTS

The cab shall include a two-section, red and clear Weldon incandescent dome lamp located over each door. The dome lamps shall be rectangular in shape and shall measure approximately 9.50 inches in length X 5.00 inches in width with a black colored bezel. The clear portion of each lamp shall be activated by opening the respective door and via the multiplex display and both the red and clear portion can be activated by individual switches on each lamp.

An additional two-section Weldon incandescent red and clear lamp shall be provided over the engine tunnel which can be activated by individual switches on the lamp.

MAP LIGHTS

A Roxter gooseneck style map light shall be provided. The light shall have a clear bulb and a control switch on the base. The light shall be located on the right hand side of the dash.

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a flashing red light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated.

The flashing red light shall be 6.00 inches long X 2.50 inches wide X 1.75 inches high and shall be located centered left to right for greatest visibility.

The light and alarm shall be interlocked for activation when either a cab door is not firmly closed or an apparatus compartment door is not closed, and the parking brake is released.

MASTER WARNING SWITCH

A master switch shall be included, as a virtual button on the Vista display and control screen which shall be labeled “E Master” for identification. The button shall feature control over all devices wired through it. Any warning device switches left in the “ON” position when the master switch is activated shall automatically power up.

INBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen M6 Super LED front warning lights in the left and right inboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the front fascia of the cab within a chrome bezel

INBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the inboard positions shall be red.

OUTBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen M6 Super LED front warning lights in the left and right outboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the front fascia of the cab within a chrome bezel.

OUTBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the outboard position shall be blue.

FRONT WARNING SWITCH

The front warning lights shall be controlled through a virtual control on the Vista display and control screen. This switch shall be clearly labeled for identification.

INTERSECTION WARNING LIGHTS

The chassis shall include two (2) Whelen M6 series Super LED intersection warning lights, one (1) each side. The lights shall feature multiple flash patterns including steady burn.

INTERSECTION WARNING LIGHTS COLOR

The intersection lights shall be red.

INTERSECTION WARNING LIGHTS LOCATION

The intersection lights shall be mounted on the side of the cab on the front radius.

SIDE WARNING LIGHTS

The cab sides shall include two (2) Whelen M6 Super LED warning lights, one (1) on each side. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the sides of the cab within a chrome bezel.

SIDE WARNING LIGHTS COLOR

The warning lights located on the side of the cab shall be red.

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the cab shall be mounted over the front wheel well forward from the center of the front axle.

SIDE AND INTERSECTION WARNING SWITCH

The side warning lights shall be controlled through a virtual button on the Vista display and control screen. This button shall be clearly labeled for identification.

TANK LEVEL LIGHTS

There shall be two (2) Whelen PSTANK water level light strips surface mounted vertically, one (1) on each side of the cab behind the rear cab doors.

The light strips shall feature four (4) colors of LED lights to indicate the fluid level of a tank. The colors from top to bottom shall be green, blue, amber, and red.

INTERIOR DOOR OPEN WARNING LIGHTS

The interior of each door shall include one (1) red 4.00 inch diameter Truck-Lite LED warning light located on the door panel. Each light shall activate with a flashing pattern when the door is in the open position to serve as a warning to oncoming traffic.

SIREN CONTROL HEAD

A Whelen 295HFSA7 electronic siren control head with remote dual amplifier shall be provided and flush mounted in the switch panel with a location specific to the customer's needs. The siren shall feature 200-watt output, radio broadcast, public address, wail, yelp, or piercer tones and hands free operation which shall allow the operator to turn the siren on and off from the horn ring if a horn/siren selector switch option is also selected.

HORN BUTTON SELECTOR SWITCH

A rocker switch shall be installed in the switch panel between the driver and officer to allow control of either the electric horn or the air horn from the steering wheel horn button. The electric horn shall sound by default when the selector switch is in either position to meet FMCSA requirements.

AIR HORN ACTIVATION

The air horn activation shall be accomplished through the steering wheel button for the driver and by a single right hand side lanyard cable accessible to the officer. An air horn activation circuit shall be provided to the chassis harness pump panel harness connector.

MECHANICAL SIREN ACTIVATION

The mechanical siren shall be actuated by two (2) Linemaster model SP491-S81 foot switches mounted in the front section of the cab for use by the driver and officer. A red momentary siren brake rocker switch shall be provided in the switch panel on the dash.

The siren shall only be active when master warning switch is on to prevent accidental engagement.

BACK-UP ALARM

An ECCO model 575 backup alarm shall be installed at the rear of the chassis with an output level of 107 dB. The alarm shall automatically activate when the transmission is placed in reverse.

INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. Each gauge shall be backlit with LED lamps. Stepper motor movements shall drive all gauges. The instrumentation system shall be multiplexed and shall receive ABS, engine, and transmission information over the J1939 data bus to reduce redundant sensors and wiring.

The instrument panel shall contain the following gauges:

One (1) electronic speedometer shall be included. The primary scale on the speedometer shall read from 0 to 100 MPH, and the secondary scale on the speedometer shall read from 0 to 160 KM/H.

One (1) electronic tachometer shall be included. The scale on the tachometer shall read from 0 to 3000 RPM.

One (1) two-movement gauge displaying primary system, and secondary system air volumes and integral LCD odometer/trip odometer shall be included on the lower portion of the LCD. The scale on the air pressure gauges shall read from 0 to 150 pounds per square inch (PSI). The air pressure scales shall be linear to operate with an accuracy of 1 degree of the measured data with a red indication zone on the gauge showing critical levels of air pressure. A red indicator light in the gauge shall indicate a low air pressure, as well as a message on the LCD screen. The odometer shall display up to 9,999,999.9 miles. The trip odometer shall display 9,999.9 miles. The LCD shall display Transmission Temperature in degrees Fahrenheit on the upper portion of the LCD. The LCD screen shall also be capable of displaying certain diagnostic functions.

One (1) four-movement gauge displaying engine oil pressure, coolant temperature, fuel level, voltmeter, and an *indicator bar displaying Diesel Exhaust Fluid (DEF) LED bar shall be included. The scale on the engine oil pressure gauge shall read from 0 to 120 pounds per square inch (PSI). The engine oil pressure scale shall be linear to operate with an accuracy of 1 degree of the measured. A red indicator light in the gauge shall indicate a low engine oil pressure, as well as a message on the LCD screen. The scale on the coolant temperature gauge shall read from 100 to 250 degrees Fahrenheit (F). The coolant temperature scale shall be linear to operate with an accuracy of 1 degree of the measured data with a red indication zone on the gauge showing critical levels of air pressure. A red indicator light in the gauge shall indicate high coolant temperature, as well as a message on the LCD screen. The scale on the fuel level gauge

shall read from empty to full as a percentage of fuel remaining. An amber indicator light shall indicate low fuel at 25% tank level. The scale on the voltmeter shall read from 10 to 16 volts with a red indication zone on the gauge showing critical levels of battery voltage. A red indicator light shall indicate high or low system voltage, as well as a message on the LCD screen. The scale on the DEF LED bar will consist of four (4) LEDs displaying levels in increments of 25% of useable DEF in green. Upon decreasing levels, the indicator bar will change colors to notify the driver of decreasing levels of DEF and action will be required. An amber indicator light shall indicate low levels of DEF, as well as a message on the LCD screen and an audible alarm.

The instrument panel shall include a light bar that contains the following LED indicator lights and produce the following audible alarms in applicable configurations:

RED LAMPS

Stop Engine-indicates critical engine fault

Air Filter Restricted-indicates excessive engine air intake restriction

Park Brake-indicates parking brake is set

Seat Belt Indicator-indicates when a seat is occupied and corresponding seat belt remains unfastened

Low Coolant-indicates engine coolant is required

AMBER LAMPS

MIL-indicates an engine emission control system fault

Check Engine-indicates engine fault

Check Trans-indicates transmission fault

High Transmission Temperature-indicates excessive transmission oil temperature

ABS-indicates anti-lock brake system fault

HEST-indicates a high exhaust system temperature

Water in Fuel-indicates presence of water in fuel filter

*DPF-indicates a restriction of the diesel particulate filter

*Regen Inhibit-indicates regeneration has been postponed due to user interaction

Range Inhibit-indicates a transmission operation is prevented and requested shift request may not occur.

*SRS-indicates a problem in the supplemental restraint system

Check Message-Turn Signal On

Check Message-Door Ajar

Check Message-Cab Ajar

*Check Message-ESC Active

*Check Message-DPF Regen Active

Check Message-No Engine Data

Check Message-No Transmission Data

Check Message-No ABS Data

Check Message-No Data All Communication With The Vehicle Systems Has Been Lost

Check Message-Check Engine Oil Level

Check Message-Check Washer Fluid Level

Check Message-Check Power Steering Fluid Level

Check Message-Low Transmission Fluid Level

Check Message-Check Coolant Level

GREEN LAMPS

Left and Right turn signal indicators

*ATC-indicates low wheel traction for automatic traction control equipped vehicles, also indicates mud/snow mode is active for ATC system

High Idle-indicates engine high idle is active.

Cruise Control-indicates cruise control is active

OK to Pump-indicates the pump engage conditions have been met

Pump Engaged-indicates the pump is currently in use

Auxiliary Brake-indicates secondary braking device is active

BLUE LAMP

High Beam Indicator

WHITE LAMP

Wait to Start-indicates active engine air preheat cycle

AUDIBLE ALARMS FROM GAUGE PACKAGE

High Trans Temp

High or Low Voltage

Check Engine

Check Transmission

Stop Engine

Low Air Pressure

Fuel Low

Water in Fuel

*ESC

High Coolant Temperature

Low Engine Oil Pressure

Low Coolant Level

*Low DEF Level

Air Filter Restricted

Extended Left and Right Turn Remaining On

Cab Ajar

Door Ajar

ABS System Fault

Seatbelt Indicator

EXTERNAL AUDIBLE ALARM

Air Filter

Cab Ajar

Door Ajar

Check Engine

Stop Engine

Low Air Pressure

Low Engine Oil Pressure

Water in Fuel

*Low DEF

ABS System Fault

Seatbelt Indicator

*Items marked with an asterisk are provided only in applicable configurations.

LCD MESSAGES

Transmission Temperature
Battery Voltage
Engine Hours
Vehicle Speed
Engine RPMs
Fuel Level
DEF Level
Engine Oil Pressure
Ammeter (If quipped)
Auxiliary Ammeter (If quipped)
Engine Coolant Temp
Primary System Air Pressure
Secondary System Air Pressure
Turbo Boost Pressure
Exhaust Temperature
Engine Load
Engine Torque
Instant Fuel Economy
Average Fuel Economy

BACKLIGHTING COLOR

The instrumentation gauges and the switch panel legends shall be backlit using red LED backlighting.

AUXILIARY SPEEDOMETER

The dash shall include an auxiliary analog speedometer.

RADIO

A Jensen radio with weather band, AM/FM stereo receiver, compact disc (CD) player, and four (4) speakers shall be installed in the cab. The radio shall include rear RCA input pigtail connector, satellite radio capability, and a covered front auxiliary mini stereo input with iPod ready USB jack. The CD player shall be compatible with CD-R, CD-RW and MP3 format discs. The radio shall be installed in the left hand overhead position. The speakers shall be installed inside the cab with two (2) speakers recessed within the headliner of the front of the cab just behind the windshield and two (2) speakers on the upper rear wall of the cab.

AM/FM ANTENNA

A small antenna shall be located on the left hand side of the cab roof for AM/FM and weather band reception.

MOBILE GATEWAY

A vehicle mobile gateway router shall be provided. The device, once supplied with a customer provided USB aircard(s) and data plan SIM card(s), shall produce a mobile Wi-Fi hotspot in and around the vehicle using a cellular data connection. The vehicle router also enhances the vehicle's effective cellular data coverage and range. This option comes with free access to

remote configuration software for a year. The mobile data hotspot shall be mounted in the cab, behind the front officer seat.

MOBILE GATEWAY ANTENNA

A mobile gateway Wi-Fi hotspot antenna shall be provided. The antenna shall be mounted on the right hand mid area of the cab roof above the “B” pillar so not to interfere with light bars or other roof mounted equipment installed by Chassis Manufacturer.

CAMERA

An Audiovox Voyager heavy duty rearview camera system shall be supplied. One (1) box shaped camera shall be shipped loose for OEM installation in the body to afford the driver a clear view to the rear of the vehicle and one (1) camera with a teardrop shaped chrome plated housing shall be mounted on the officer side of the cab below windshield ahead of the front door at approximately the same level as the cab door handle.

The cameras shall be wired to a single Weldon Vista display located on the driver’s side dash. The rear camera shall activate when the transmission is placed in reverse and the right camera shall activate with the right side turn signal. Each camera shall also be activated by a button on the Vista display.

COMMUNICATION ANTENNA

An antenna base, for use with an NMO type antenna, shall be mounted on the right hand front corner of the cab roof so not to interfere with light bars or other roof mounted equipment installed by Chassis Manufacturer. The antenna base shall be an Antenex model MABVT8 made for either a 0.38 inch or 0.75 inch receiving hole in the antenna and shall include 17.00 foot of RG58 A/U cable with no connector at the radio end of the cable. The antenna base design provides the most corrosion resistance and best power transfer available from a high temper all brass construction and gold plated contact design. The antenna base shall be provided by Chassis Manufacturer.

COMMUNICATION ANTENNA CABLE ROUTING

The antenna cable shall be routed from the antenna base mounted on the roof to the area underneath the right hand front seat.

AUXILIARY COMMUNICATION ANTENNA

An auxiliary antenna base, for use with an NMO type antenna, shall be installed on the cab. The antenna base shall be an Antenex model MABVT8 and shall include 17.00 foot of RG58 A/U cable with no connector at the radio end of the cable. The antenna shall be mounted on the left hand front corner of the cab roof so not to interfere with light bars or other roof mounted equipment installed by Chassis Manufacturer. The antenna base shall be provided by Chassis Manufacturer.

AUXILIARY COMMUNICATION ANTENNA CABLE ROUTING

The auxiliary antenna cable shall be routed from the antenna base mounted on the roof to the area underneath the right hand front seat.

ADDITIONAL COMMUNICATION ANTENNA

An additional antenna base, for use with and NMO type antenna, shall be installed on the cab. The antenna base shall be an Antenex model MABVT8 and shall include 17.00 foot of RG58 A/U cable with no connector at the radio end of the cable. The antenna base shall be mounted in the inboard position on the left hand front corner of the cab roof so not to interfere with light bars or other roof mounted equipment installed by Chassis Manufacturer. The antenna base shall be provided by Chassis Manufacturer.

ADDITIONAL COMMUNICATION ANTENNA CABLE ROUTING

The additional antenna cable shall be routed from the antenna base mounted on the roof to the area underneath the right hand front seat.

CAB EXTERIOR PROTECTION

The cab face shall have a removable plastic film installed over the painted surfaces to protect the paint finish during transport to the body manufacturer.

FIRE EXTINGUISHER

A 2.50 pound D.O.T approved fire extinguisher with BC rating shall be shipped loose with the cab.

DOOR KEYS

The cab and chassis shall include a total of four (4) door keys for the manual door locks.

DIAGNOSTIC SOFTWARE OCCUPANT PROTECTION

Diagnostic software for the Advanced Protection System shall be available for free download from the Chassis Manufacturer website to Chassis Manufacturer authorized OEMs, dealers and service centers, as well as the vehicle owner.

The software has been validated to be compatible with the following RP1210 interface adapters:

- Dearborn Group DPA4 Plus
- Noregon Systems JPRO® DLA+
- Cummins INLINE5
- Cummins INLINE6
- NexIQ™ USB-Link™

The software and adapter utilize the SAE J1939-13 heavy duty nine (9) pin connector which is located below the driver's side dash to the left of the steering column.

WARRANTY

Summary of Warranty Terms:

The chassis manufacturer shall provide a limited parts and labor warranty to the original purchaser of the custom built cab and chassis for a period of twenty-four (24) months, or the first

36,000 miles, whichever occurs first. The warranty period shall commence on the date the vehicle is delivered to the first end user. IF the vehicle requires repetitive warranty service (defined as requiring more than two times to service essentially the same issue) on Any Item or warranty no matter which vehicle system(s) may be involved, Then the warranty shall be extended to start at the time that the issue has been fully corrected and accepted as corrected by the purchaser.

CAB AND CHASSIS LABELING LANGUAGE

The cab and chassis shall include the applicable caution, warning, and safety notice labels with text to be written in English.

CHASSIS OPERATION MANUAL

There shall be two (2) digital copies of the chassis operation manual provided with the chassis. The digital data shall include a parts list specific to the chassis model.

ENGINE AND TRANSMISSION OPERATION MANUALS

The following manuals specific to the engine and transmission models ordered will be included with the chassis in the ship loose items:

- (1) Hard copy of the Engine Operation and Maintenance manual with CD
- (1) Digital copy of the Transmission Operator's manual
- (1) Digital copy of the Engine Owner's manual

CAB/CHASSIS AS BUILT WIRING DIAGRAMS

The cab and chassis shall include two (2) digital copies of wiring schematics and option wiring diagrams.

LOCK-UP - ALLISON-3000 EVS TRANSMISSION (COMM CHASSIS)

Y___N___

The transmission shall have a shift lock-up to keep the automatic transmission in direct gear during pumping operations. The transmission shift lock-up shall be automatically activated when the pump is placed in gear and deactivated when the pump is taken out of gear.

CM - EXHAUST HORZ. EXTEN.

Y___N___

The chassis horizontal exhaust pipe shall be equipped with a stainless steel heat shield to protect the body compartments.

The exhaust pipe shall discharge engine exhaust to the right side of the apparatus.

CM - MUDEFLAPS - FRONT/ REAR

Y___N___

Heavy duty black rubber mud flaps shall be provided behind the front tires.

Anti-sail mudflaps, with manufacturers' logo, shall be installed behind the rear wheels.

CM - REAR MUDEFLAPS

Y___N___

A full width, Anti-sail mudflap shall be installed below the rear bumper.

CM - REAR TOW BAR

Y___N___

A two inch diameter solid steel bar shall be suspended approximately 28" below the top of the rear chassis frame rail.

The tow bar shall be attached to the frame rail at each side using properly reinforced channel supports.

Tow bars that are attached to both the frame rails and the apparatus body will not be acceptable due to undue stresses on the body caused when the chassis frame flexes.

HELMET HOLDERS - SUPPLIED WITH THE CUSTOM CHASSIS

Y___N___

The required helmet holders will be supplied with the custom chassis and mounted as directed by the Ridgefield Fire Dept.

FUEL FILL

Y___N___

The fuel fill of the custom chassis shall be located in the driver's side rear fender area and have a painted stainless steel door and be labeled: "DIESEL FUEL ONLY"

CAB TILT CONTROL

Y___N___

There shall be a cab tilt pendant control provided and installed on the right side of the apparatus. The pendant shall be located directly behind the upper auxiliary pump access panel.

There shall also be a cab tilt instruction plate located as close as possible to the control pendant for ease of operation.

CAMERA MOUNTING

Y___N___

The body builder shall mount the chassis supplied camera on the rear of the body.

POWER POINTS - 12 VOLT CIGAR LIGHTER TYPE & USB PORT - DASH MOUNT

Y___N___

The cab shall include two (2) 12 volt cigarette lighter type receptacles in the cab dash to provide a power source for 12 volt electrical equipment. The cab shall also include two (2) universal serial bus (USB) charging receptacles in the cab dash to provide a power source for USB chargeable electrical equipment. Each USB port shall be capable of a 5 Volt-500 milliampere output. The receptacles shall be wired to be live with the battery master switch.

EMS COMPARTMENT

Y___N___

An EMS compartment will be provided on each side of the cab behind the driver's and officer's seats, in the "APS clear area" provided with the chassis. Roll-up access doors shall be provided. Interior access doors will also be provided.

Each compartment will have one (1) adjustable shelf shall be provided.

Each compartment shall have 12V power run to it.

The compartment shall be constructed of aluminum and will have a DA sanded finish.

Storage compartment shall be compliant per NFPA standard for automotive fire apparatus.

COMPARTMENT LIGHTS

Compartment shall each have an LED light installed on the side wall of the compartment. The light shall be controlled by a switch.

Exact size and design will be resolved at the pre-paint inspection.

FORWARD FACING SEAT BOX WEBBING

Y___N___

The opening in the forward facing seat box in the cab shall have webbing installed.

RADIO MOUNTING

Y___N___

Fire Department supplied pre-programmed radio will be installed in the cab.

COMPARTMENT HEATER

Y___N___

A 12 volt heater with fan shall be provided and installed to provide heat in compartment R-1.

PUMP SHIFT - DASH MOUNTED (MIDSHIP)

Y___N___

Provisions shall be made for placing the pump drive system in operation using controls and switches that are identified and within convenient reach of the operator.

A "Pump Engaged" indicator shall be provided in the driving compartment and on the operator's panel to indicate that the pump shift process has been successfully completed. An "OK to Pump" indicator shall be provided in the driving compartment to indicate that the pump is engaged, the chassis transmission is in pump gear, and the parking brake is engaged.

The fire pump-shift system shall be equipped with a means to prevent unintentional movement of the control device from its set position. The system shall include a nameplate indicating the chassis transmission shift selector position to be used for pumping and located so that it can be easily read from the driver's position.

The system shall include the applicable NFPA standard interlocks, pump shift and OK TO PUMP indicator lights in the cab and pump panel. The fire pump system shall be equipped with an interlock system to ensure that the pump drive system components are properly engaged in the pumping mode of operation so that the pumping system can be safely operated from the pump operator's position.

If applicable, the secondary braking device shall be automatically disengaged for pumping operations.

HALE DSD 1500 GPM Midship Pump

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

Pump Assembly

1. The pump shall be of a size and design to mount on the chassis rails of commercial and custom truck chassis, and have the capacity of 1250 gallons per minute (U.S. GPM), NFPA-1901 rated performance.
2. The entire pump shall be assembled and tested at the pump manufacturer's factory.
3. The pump shall be driven by a drive line from the truck transmission. The engine shall provide sufficient horsepower and RPM to enable pump to meet and exceed its rated performance.
4. The entire pump shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by the latest NFPA Pamphlet No. 1901. Pump shall be free from objectionable pulsation and vibration.
5. The pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI (2069 bar). All metal moving parts in contact with water shall be of high quality bronze or stainless steel. Pump utilizing castings made of lower tensile strength cast iron not acceptable.
6. Pump body shall be vertically split, on a single plane for easy removal of entire impeller assembly including clearance rings.
7. Pump shaft to be rigidly supported by two bearings for minimum deflection. The bearings shall be heavy-duty, deep groove ball bearings in the gearbox and they shall be splash lubricated.
8. The pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machines, hand-ground and individually balanced. The vanes of the impeller intake eye shall be hand ground and polished to a sharp edge, and be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.
9. Pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machined hand ground and individually balanced. The vanes of the impeller intake eyes shall be hand ground and polished to a sharp edge and be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.

10. Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body.
11. The pump shaft shall be heat-treated, electric furnace, corrosion resistant stainless steel. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of gearbox.

Gearbox

1. Pump gearbox shall be of sufficient size to withstand up to 16,000 lbs. ft. of torque of the engine. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature..
2. The gearbox drive shafts shall be of heat-treated chrome nickel steel and at least 2-3/4 inches in diameter, on both the input and output drive shafts. They shall withstand the full torque of the engine.
3. All gears, both drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated and hardened, to give an extremely accurate gear for long life, smooth, quiet running, and higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust. (No exceptions.)
4. The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected.
5. If the gearbox is equipped with a power shift, the shifting mechanism shall be a heat treated, hard anodized aluminum power cylinder, with stainless steel shaft. An in-cab control for rapid shift shall be provided that locks in road or pump.
6. For automatic transmissions, three green warning lights shall be provided to indicate to the operator(s) when the pump has completed the shift from Road to Pump position. Two green lights to be located in the truck driving compartment and one green light on pump operators panel adjacent to the throttle control. For manual transmissions, one green warning light will be provided for the driving compartment. All lights to have appropriate identification/instruction plates.

ANODE SYSTEM

Y___N___

Two (2) anodes shall be installed in the pump to prevent damage caused by galvanic corrosion within the pump.

One (1) installed in the suction side of the pump and one (1) installed in the discharge side of the pump.

The anodes should be inspected every 12 months and replaced when over 75% of the zinc has been consumed. Performance of the anode life will vary with water quality and PH.

PUMP SYSTEM - HALE PRIMER ESP

Y___N___

A Hale ESP environmentally safe oil-less primer shall be provided.

The priming pump will be positive displacement vane type, electrically driven, and conform to standards outlined in NFPA 1901.

One PVG priming control valve will both open the priming valve and start the priming motor.

PUMP SYSTEM - PIPING STAINLESS & CLASS I

Y___N___

All piping shall be heavy duty 304 grade schedule 10 stainless steel or Class 1 high pressure flexible hose. All stainless steel fittings shall be threaded or welded.

Class 1 flexible hose shall be Black SBR synthetic rubber hose with 300# working and 1200# burst pressure with stainless steel fittings.

Whenever possible, sweep type elbows shall be utilized in order to reduce friction loss, thread-in 45's and 90's will be used elsewhere.

Victaulic or rubber couplings shall be used where necessary to allow flexing of plumbing which will prevent damage or loosening of the piping if connected rigidly.

All threaded joints shall have non-hardening type sealant for easy removal for repairs.

All piping, including intake and discharge lines shall be hydrostatically tested. A vacuum test shall be applied to the pump, plumbing, and valves to test for leaks. The system shall be tested and shall show minimum loss of no more than 10 inches of vacuum over a 5 minute period as required by NFPA section 16.13.6.4.

VALVES - ALL AKRON HD 8000 SERIES W/SS BALL

Y___N___

All pump intake and discharge valves shall be AKRON 8000 Heavy Duty swing-out series. The valves shall have an all brass body with flow optimizing stainless steel ball, and dual polymer seats. The valves shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. All stainless steel parts must be 316 grade for increased resistance to corrosion. The valve shall not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valves shall carry a ten (10) year manufacturer's warranty. The valve shall be manufactured and assembled in the United States.

ELKHART INTAKE RELIEF VALVE

Y___N___

An Elkhart intake relief valve shall be installed on the intake side of the pump, preset at 125 PSI.

U.L. PUMP CERTIFICATION TEST

Y___N___

The apparatus shall be completely tested and approved by Underwriters Laboratories Incorporated in accordance with their standard practices for pumping engines.

Test results shall be forwarded to the customer upon delivery.

Copies of the Pump Manufacturer's Certification of Hydrostatic Test and Manufacturer's Record of Pumper Construction Details shall be supplied upon delivery.

VENTED LUG CAPS AND PLUGS

Y__N__

All intake and discharge plugs and caps shall be vented lug type designed to relieve trapped pressure and help reduce possible operator injuries.

SUCTION - 6" W/LONG HANDLE CP CAPS - PAIR

Y__N__

Two (2) 6" steamer inlets shall be provided on the pump panels, one (1) left side and one (1) on right side.

Both to have screens and chrome caps with long handles.

SUCTION - (1) 2-1/2" LEFT SIDE

Y__N__

A 2-1/2" suction valve shall be installed on the left side of the unit with the valve body mounted behind the pump panel, with a 2-1/2" NST chrome inlet swivel, chrome plug and chain, and removable inlet strainer.

TANK-TO-PUMP - 3" - MIDSHIP PUMPS

Y__N__

There shall be one 3" gated tank to pump line piped to the tank sump.

Piping from the sump to the valve shall be 4" diameter.

The line shall be plumbed directly into the back of the pump for maximum efficiency.

A full-flow, in line ball valve, with check valve, shall be provided to prevent accidental pressurization of the water tank through the pump connection.

The valve shall be air activated with control located on the pump panel.

TANK FILL - 2"

Y__N__

There shall be a 2" tank refill line installed with an inline valve.

Valve shall be controlled at the pump operator's panel and will be clearly marked "TANK REFILL/PUMP COOLER".

BOOSTER REEL - HANNAY ALUMINUM IN REAR COMPT.

Y__N__

A Hannay aluminum booster reel shall be installed in the rear compartment. Reel shall be constructed utilizing an aluminum welded base. Rewind shall be a 12v electric motor and will chain drive the reel drum. The booster reel shall have an automatic brake to prevent the booster hose from unwinding. Piping and valve will 1.50" with control located on the operator's panel. Reel shall include 200' of 1" booster hose. A weatherproof push button switch shall be provided on the rear body panel to the left of the reel. A gear driven manual rewind shall be included. The booster reel discharge control shall be located at the operators control panel. A 4-way roller system shall be provided.

SPEEDLAY TARPS

Y__N__

Each end of the speedlay bins shall have Black vinyl flaps installed on each end to retain the hose load. The flaps shall be secured with shock cord fasteners.

Meets NFPA 15.10.7 - Any hose storage area shall be equipped with a positive means to prevent unintentional deployment of the hose from the top, side, front, and rear of the hose storage area while the apparatus is underway in normal operations.

PRE-CONNECTED SPEEDLAYS

Y__N__

Two (2) speedlay compartments fabricated of 12 gauge stainless steel shall be provided and located forward of the directly ahead of the body over the discharges stacked side by side and divided as follows:

1. Front section: Capable of holding 200 ft. of 1.75" hose in a double stack load. Piping and valve to be 2" with 2"swivel.
2. Rear section: Capable of holding 200 ft. of 1.75" hose in a double stack load. Piping and valve to be 2" with 1.5" swivel.

The hose swivel will terminate above each tray and will be located toward the ends of the trays to allow the hose to be easily pre-connected.

Both speedlays will have welded poly removable bin/tray provided with hand hold cutouts on each side to aid in the removal to allow for easy repacking. Trays shall be perforated to allow hose drainage and air flow.

Control handles shall be provided on the pump operator's panel.

TRANSVERSE STORAGE COMPARTMENT

Located above the speedlay compartment behind the cab shall be upper transverse storage compartment.

Stainless steel vertically hinged doors will be provided on each side with quick release latch and power cylinders to hold the door open.

The balance of the area shall be a "dead lay" hose storage area large enough to hold 400' of 3" hose.

NOTE: Both the speedlays compartments and upper transverse compartment will be 73" wide.

LEFT SIDE PRECONNECT

Y__N__

There shall be a pre-connect piped to the left front of the hose bed ahead of the 1.75" hose lay with 2" piping and 2" valve.

Discharge shall terminate with a 2" x 1.5" male NST adapter.

The control handle shall be provided on the pump operator's panel.

DISCHARGES LEFT SIDE

Y__N__

Two (2) 2-1/2" discharges shall be located on the left side pump panel and be controlled from the operator's panel.

Discharge shall terminate with a 2-1/2" NST 30 degree turn down with chrome cap and retainer chain.

DISCHARGES RIGHT SIDE

Y__N__

A 2-1/2" discharge shall be located on the right side pump panel and be controlled from the operator's panel.

Discharge shall terminate with a 2-1/2" NST 30 degree turn down with chrome cap and retainer chain.

DISCHARGE - 3" RIGHT SIDE

Y__N__

A 3" discharge shall be located on the right side pump panel and be controlled from the operator's panel.

Discharge shall terminate with a 3" NST x 5" 30 degree Storz adapter with blind cap and retainer chain.

DISCHARGE - 2-1/2" RIGHT FRONT HOSEBED

Y__N__

A 2-1/2" discharge shall be piped to the center front of the hose bed ahead of the 2.50" hose lay and terminate with a 2-1/2" NST chrome male adapter.

Discharge shall be controlled from the operator's panel.

DISCHARGE - AKRON 3" DECK PIPE w/ FLANGE ONLY

Y__N__

One (1) 3" deck gun discharge shall be plumbed to center of the dunnage area over the pump.

Piping will be firmly supported and braced.

The discharge shall be controlled at the operator's panel.

Discharge shall terminate with 4 bolt flange.

DECK GUN - 18" TFT EXTEND-A-GUN

Y__N__

A Task Force Tips, Extend-A-Gun, deck gun extender shall be supplied and connected to the deck gun discharge of the unit.

This will allow the deck gun to be lowered to a shorter travel height, yet still allow 360 degree use of the deck gun when fully extended 18 inches.

The Extend-a-gun will be wired to the hazard light in the cab.

PORTABLE DECK GUN

Y__N__

An Elkhart model 8297-25 Stinger portable monitor with model 8298 top mounted flange shall be provided.

Includes:

One (1) style 282A stream shaper

One (1) set of style ST194 quad stacked tips

AKRON SLO-CLOZ VALVES

Y__N__

An Akron Slo-Cloz device shall be provided on each 3" discharge valve to limit the opening of the valve to no faster than 3 seconds per N.F.P.A. specifications.

The hydraulic device shall be operable from -40 deg. F to 140 deg. F.

The device shall be made of corrosion-resistant materials and shall not add more than 1-1/2" to the valve height.

DRAIN - PUMP MASTER VALVE

Y__N__

A master drain that will have the capacity to drain all lines and main pump at the same time shall be installed. The master drain will be mounted on the left side panel and will be readily accessible.

DRAIN VALVES

Y__N__

The drain valves shall be Innovative Controls 3/4" 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 colors labels shall also include valve open and close verbiage. The drain valves shall located in the lower portion of the pump panels.

COOLER - ENGINE HEAT EXCHANGER

Y__N__

The supplementary heat exchanger cooling system supplied on the chassis shall be completed to the panel to permit water from the discharge side of the pump to be circulated through the engine cooling system.

Coolant inlet and outlet shall be continuous, preventing intermixing of engine coolant and pump water.

The heat exchanger shall be of brass construction, with control valve located on operator's panel.

FOAM SYSTEM HALE FOAM LOGIX 5.0

Y__N__

The apparatus shall be equipped with an automatic electronically controlled, direct injection, rotary gear pump, and discharge side foam proportioning system. Foam proportioning operation

shall be based on direct measurement of water flow, and remain consistent within the specified flows and pressures.

SYSTEM REQUIREMENTS

The complete foam proportioning system shall include the following:

1. Foam Pump
2. Control System
3. Tank Selector and Flushing Valves
4. Foam Concentrate Strainer
5. Integral Check Valve/ Injector Fitting.
6. Flowmeter(s) and Flowmeter Display Units
7. Control Cables
8. SAE 1922 CAN Capable Connection
9. Low Tank Level Switch(es)
10. Water Discharge Check Valves
11. Foam Tank(s)
12. Documentation

FOAM PUMP

The foam proportioning system shall be compatible with most Class A foam concentrates and most high viscosity normal hydrocarbon or polar solvent Class B foam concentrates. The foam proportioning system shall be capable of delivering the rated foam concentrate flow with the above mentioned foam concentrate types. Foam system manufacturer shall provide a list of foam chemicals that have been tested for compatibility with the foam pump.

The foam proportioning system shall be based on an electric motor driven, rotary gear foam concentrate pump, rated at 5.0 GPM (19 LPM) foam concentrate flow rate with maximum operating pressure of 250 PSIG (17 BAR). The electric motor shall be powered by 12 volts direct current with a ¾ Hp (0.5 Kw) power rating at a maximum current draw of 60 AMPS.

The rotary gear pump shall be close coupled to the motor without an oil filled gearbox. The foam concentrate pump and all wetted parts of the system shall be constructed of corrosion resistant materials compatible with all foam concentrates being used. The pump body, pump head and pump cover shall be constructed of bronze with pump shaft, gears and bearings constructed of stainless steel. A mechanical pump shaft seal shall be provided to prevent foam concentrate leakage around the rotating shaft. An internal foam concentrate relief valve constructed of stainless steel and preset at the factory for maximum system operating pressure shall be incorporated into the foam pump to protect the pump from over-pressurization. NO components of the foam concentrate pump and wetted parts of the foam system will be manufactured of aluminum.

The foam pump/motor assembly shall be permanently attached to an apparatus mountable base plate. A foam concentrate flowmeter shall be integral to the foam concentrate pump. The foam concentrate flowmeter will provide a signal to the electronic control unit to make sure the proper amount of foam concentrate is injected into the discharge stream.

The entire base plate mounted assembly shall have electrical components sealed to NEMA 4X or equiv. for mounting in the apparatus pump compartment or any suitable location on the apparatus. The pump will be mounted to allow gravity feed of foam concentrate from the foam tank to the pump

CONTROL SYSTEM

The system shall be equipped with an electronic control unit, suitable for installation on the pump operator panel as the single point of operation for the foam proportioning system. Incorporated within the control unit shall be a microprocessor that receives input from water flowmeter(s) while receiving foam concentrate pump output information from the foam concentrate flowmeter. The microprocessor, through constant comparison of the flow signals, will ensure the operator preset proportional amount of foam concentrate is injected into the discharge stream of the fire pump. Control unit will utilize a single sealed electrical connector on the rear panel. Wiring harness shall provide an SAE 1922 CAN connection for diagnostics and systems operations/communications. Control unit will have an environmentally sealed membrane front panel and sealed metallic housing.

The electronic control unit shall permit the pump operator to perform the following control and operation functions for the foam proportioning system:

Provide push-button ON/OFF control of foam proportioning system.

Provide push-button control of foam proportioning rates from 0.1% to 10.0%, in 0.1% increments.

Show real time flow rate of water or foam solution.

Show total volume of water or foam solution discharged during and after foam operations.

Show foam concentrate injection rate.

Show total amount of foam concentrate consumed.

Permit resetting of totalized values for water and foam concentrate.

Simulate water flow rates for manual operation, calibration and testing of foam system.

Enable system setup and full range system diagnostic functions.

Indicate on LED bargraph foam concentrate is being injected and the foam system capacity.

Indicate on LED bargraph when system capacity is not within design parameters.

Store independent default values for Class A and Class B foam concentrate injection.

Flash a "low concentrate" warning when the foam concentrate tank runs low.

Flash a "no concentrate" warning and shut the system off when the foam tank is empty.

Flash a "low battery" warning when battery voltage is low enough to affect system operation.

Flash a "hot" warning when system is running hot due to low voltage or radiant heat.

Read out calibration valves to allow setting up a replacement unit.

A power distribution box shall be attached to the base plate to provide ease of installation. The distribution box shall be sealed to a NEMA 4X or equiv. rating to permit installation in the pump compartment.

Foam concentrate flow feedback shall be provided to the control unit through the distribution box by a sensor mounted in the foam pump body. Rotors in the foam discharge side of the foam pump will provide the targets to pulse the sensor to generate a feedback signal.

The distribution box shall receive 12 volt direct current power from the apparatus electrical system as the only source of power to operate the system and power component sensors. Control power will be distributed to the control unit, flowmeter sensor and foam concentrate feedback sensor through a conductor in the cable sets provided by the foam proportioner manufacturer. The microprocessor in the control unit will process input signals from the flowmeter sensor and foam feedback sensor to determine the proper duty cycle for the electric motor to run. The distribution box will provide power to the electric motor, based on signals received from the control unit, at a variable rate to ensure that the correct proportion of foam concentrate, preset by the pump operator on the control unit, is injected into the water pump discharge stream. The

distribution box shall have a main power control switch and over current protection for the foam proportioning system.

All primary electrical wires for the foam concentrate system shall be type SXL or GXL (SAE J1128) per NFPA requirements. Electrical connections shall be made using heavy duty 5/ 16 inch (min) diameter studs and nuts.

MANUAL DUAL TANK SELECTOR: An operator panel mounted manual dual tank valve to provide manual selection of dual foam concentrate tanks from the operator panel shall be provided. The manual dual tank selector will be electrically interlocked with the low tank switches and control unit. When the selector is switched from one tank to the other the default foam concentrate injection rate will automatically change without operator intervention. Also, when the selector is switched from one tank to the other the low level sensor in the selected tank will be active and the other one will be isolated from the system.

The manual dual tank selector handle will have a “FLUSH” position between the tank settings. The “FLUSH” position will provide a clean water flush of the foam concentrate pump preventing foam concentrates from mixing and possibly jelling. Switches provided on the manual dual tank valve will determine which low tank level sensor is providing feedback and which foam concentrate injection rate to use. When FLUSH is selected the foam pump will only run for 10 seconds. All NFPA required flushing water check valves shall be provided with the manual dual tank selector.

FOAM CONCENTRATE STRAINERS

Field serviceable foam concentrate strainers shall be provided in the foam concentrate suction line. When the strainer will not be subject to flushing water pressure a plastic bodied in-line strainer shall be used. The strainer body shall be constructed of plastic with a stainless steel mesh screen and shall be compatible with both Class A and Class B foam concentrates. A shutoff valve will be provided to enable isolation of the strainer for service. The strainer will be mounted in the pump compartment. The strainer will be a low pressure device and will not be subject to flush water pressure.

Where strainers are subject to flush water pressure, panel mounted field serviceable foam concentrate strainers rated at 500 PSIG (34 BAR) minimum shall be installed on the pump panel. The strainer body shall be constructed of brass with a chrome cap and an easily removable stainless steel mesh screen for field servicing. A 1- ½ inch strainer with ¾ inch NPT connection ports will be used for Class A foam concentrate and a 2-½ inch strainer with 1 inch NPT connection ports shall be used for Class B foam concentrate.

INTEGRAL CHECK VALVE/ INJECTOR FITTING and WATERWAY CHECK VALVES

To prevent contamination of the foam concentrate supply, foam concentrate shall be injected into the water pump discharge stream through an integral check valve/ injector fitting. The check valve/ injector fitting shall be of one piece body construction of brass, with stainless steel wetted parts.

To prevent contamination of the water pump and apparatus booster tank spring loaded double-door type check valves shall be installed in the water pump discharge piping prior to the foam injection point.

FLOWMETER and FLOWMETER DISPLAY UNIT

A paddlewheel type flowmeter with a stainless steel impeller wheel shall monitor water flow in foam capable discharges. The flowmeter shall have a 500 PSIG (34 BAR) pressure rating per NFPA requirements.

One flowmeter is required for proper operation of the foam proportioning system. Power for the flowmeter sensor will be provided through the cable set from the control unit. Flowmeters shall have saddle clamp mounting shall be used to mount in stainless steel, brass or iron OEM manifold assemblies.

The flowmeter selected shall be sized to adequately monitor the minimum and maximum flow expected in the foam capable discharges.

CONTROL CABLES

The cables for connection of the control unit, distribution box, flowmeter sensor, flowmeter display units, pressure transducers and feedback sensor shall have the ability to connect together and total length shall not exceed 40 feet (12 meters). The connections shall be keyed to prevent misconnection and improper system operation. Where required a shield drain wire shall be tied to one of the pins on each end of the cable. No externally attached ferrite beads shall be installed for the purpose of electrical shielding. When properly connected the connections shall be sealed to NEMA 4X or equivalent.

LOW TANK LEVEL SWITCH

A low tank level switch shall be installed in each foam concentrate tank that supplies foam concentrate to the foam proportioning system. The low tank level sensor shall be connected to the foam proportioning system to provide protection against dry running of the foam pump. The low tank level sensor can be mounted on the side, bottom or top of the foam concentrate tank. The low tank level sensor and electrical connections shall be sealed to prevent infusion of foam concentrate into the wiring and possible short circuit of the tank level sensor. The low tank sensor shall be mounted so that the flow of foam concentrate from the tank does not cause a false low tank reading.

FOAM TANK

The foam proportioning system shall be supplied from apparatus mounted foam concentrate storage tank(s). The tanks shall be constructed of materials compatible with foam concentrates being used in the system. Provision shall be made for installation of low tank level sensors and routing of the wiring for the sensors. Tank capacity, venting, fill opening and foam outlet plumbing connections shall be in accordance with NFPA requirements. Foam tank lid shall be sealed and latched in accordance with NFPA standards.

DOCUMENTATION

The foam proportioning system when delivered to the end user shall include: a foam concentrate compatibility list and (2) two Description, Installation and Operation Manuals. The foam proportioning system shall have a one-year limited manufacturer warranty.

TRUCK-MOUNTED FOAM TANK REFILL SYSTEM - HALE TWO TANK Y___N___

The apparatus shall be equipped with a Hale Products, Inc. EZ-Fill™ fixed-mount foam tank refill pump system. The unit shall include a 12-volt electric motor that drives a 5-gpm foam concentrate pump used to refill the foam apparatus reservoir(s), a panel mounted smart-switch

operator control and a wand suction hose connection.

The EZ-Fill system shall incorporate push-button smart-switch technology and be designed so that with a momentary press of the EZ-Fill control panel “Fill” or “Flush” buttons, the unit will automatically cycle respectively filling the foam concentrate reservoir or running itself through a flush cycle.

The system shall be configured to handle refilling for a dual foam concentrate tank apparatus reservoir system.

The EZ Fill shall be equipped with a clear wand suction hose having a cam-lock fitting designed for 5-gallon pail drafting operations. The suction hose shall be equipped with integral strainer to prevent intake of unwanted debris. The cam-lock foam suction inlet connection shall be equipped with a cap for stowage. The wand shall attach to a cam-lock fitting receptacle on the pump operators panel during the refill process. Once the clear suction wand is connected via the cam-lock fitting, and the wand end is placed in a 5-gallon bucket of foam concentrate, with one push of the “Fill” button the unit shall self-prime and fill the apparatus foam concentrate reservoir. The EZ-Fill system shall then automatically shut itself off either after a 60-second run duration or when the foam concentrate reservoir is full. The EZ-Fill system shall contain a foam pump “Flush” feature via a three-way integral valve mounted inside the pump-house.

The EZ-Fill pump panel smart-switch control shall be designed to override automatic re-fill operation by allowing the pump operator to hold down the “Fill” or “Flush” buttons, which allows for continuous foam pump refill or flush action. The foam concentrate reservoir(s) shall be equipped with a “high level tank switch” to prevent foam reservoir overfill during automatic operation. The EZ-Fill shall include a factory supplied wiring harness configured for power and ground leads and an installation and operation manual.

The system operates by attaching a suction hose to a pre-plumbed panel connection using a cam-lock fitting. The pick-up wand is then placed in the concentrate container. The operator simply pushes a button to engage the 12-volt pumping system, which automatically fills and stops when the tank is full. An indicator light notifies the operator that the operation is complete. Even though the system recognizes a full cell, pushing the “on” button again will engage the concentrate pump momentarily, allowing the operator to fully empty the container. System is equipped with fresh water flush capabilities.

INDEPENDENT PUMP MODULE

Y___N___

The pump module shall be a self-supported structure mounted independently from the body and chassis cab. The pump module shall be fabricated and constructed from the same material as the body. The design shall allow for normal frame deflection without imposing stress on the pump module structure. The pump module shall consist of a welded tubular stainless steel frame work, properly braced to withstand chassis frame flexing. The pump module shall be bolted to the frame rails of the chassis.

PUMP PANEL - SIDE CONTROL

Y___N___

CONSTRUCTION

The pump house shall be a properly supported structure mounted between the body and chassis cab and shall be bolted to the chassis frame rails. The panel shall be supported by 1-1/2" stainless steel tubing. NO EXCEPTIONS

The pump and all of the pump mounted valves shall be completely enclosed by the pump house design.

The pump panel will be located in the forward portion of compartment L1. The pump panel mounted suctions and discharges shall be installed ahead of the front compartments.

Left and right side pump house panels shall consist of upper and lower stainless steel removable panels. Stainless panels to be brushed satin finish 12 gauge 304 material to ensure longevity. NO EXCEPTIONS

The left side pump panel shall have an upper vertically hinged panel containing all required gauges.

The lower panel shall contain left side specified discharges, inlets, drains, and pump controls.

The right side compartment R1 shall consist of a double vertically hinged access door. The door will be swing open style with quick opening latch.

A separate lower panel shall contain the specified right side mounted discharges and inlets and their respective drains.

The bottom panel shall be fastened to the pump house with stainless steel bolts and shall be completely removable.

INNOVATIVE CONTROLS PUSH/PULL VALVE CONTROL HANDLES

For valve actuation, the apparatus pump panel shall be equipped with Innovative Controls side mount valve controls.

The ergonomically designed push-pull T-handle shall be chrome plated zinc with recessed labels for color coding and verbiage. The control rod, double laminated locking clips and rod housing shall be stainless steel and provide a true positive lock that will eliminate valve drift. Bronze and Teflon impregnated stainless steel bushings in both ends of rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long term operation. Where required locking 1/4 turn push-pull T-handle controls will be provided.

The control assembly shall include a decorative chrome plated zinc panel mounting bezel and 4 mounting bolts.

RUNNING BOARDS

Running boards shall extend from the front of the side compartments forward to the back of the cab and be approximately 11" deep.

Running boards shall be constructed of 1/8" aluminum treadplate.

The rear edge shall be formed upward 1-1/2" to provide a kick strip along the bottom of the pump panel.

The outer edge shall be bent downward to provide a safety rail.

Running boards are supported by 1-1/2" stainless steel tubing welded to the panel framing and shall be able to support a minimum of 500 pounds per NFPA section 11-7.2.

PANEL LIGHTING

The left side panel shall be illuminated by five (5) TecNiq (model E10-W000-1) 6.00" LED lights with clear lens.

Lights shall be mounted across the top of the gauge panel and shall be protected by a full width polished stainless steel shield.

Lights are controlled by a master panel mounted light switch.

One (1) pump panel light shall come on when the pump is shifted into gear from inside the cab, affording the operator illumination when first approaching the control panel.

IDENTIFICATION LABELS FOR PUMP PANEL

Innovative Controls verbiage label bezels shall be installed. The bezel assemblies will be used to identify apparatus components. These labels shall be designed and manufactured to withstand the specified apparatus service environment.

The verbiage label bezel assemblies shall include a chrome plated panel mount bezel with durable easy to read UV resistant polycarbonate inserts featuring the specified verbiage and color coding. The UV resistant polycarbonate verbiage and color inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the insert labels and bezel shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.

SIDE MOUNTED OPERATOR'S PANEL

The following items shall be located on the left side pump panel:

*Individual 0-400# compound discharge gauges shall be provided for each 1.5" or larger discharge

*One (1) -30 to 400 psi master pressure gauge

*One (1) -30 to 400 psi master vacuum gauge

*One (1) engine oil pressure gauge with audible & visual alarm

*One (1) engine water temperature gauge with audible & visual alarm

*One (1) engine voltmeter

- *One (1) waterproof engine tachometer
- *One (1) auxiliary engine cooler control (heat exchanger)
- *Two (2) UL test connections
- *One (1) master pump house lighting switch
- *Pressure Governor control
- *One (1) primer control
- *All discharge controls
- *One (1) tank fill/pump bypass control
- *One (1) tank to pump valve control
- *One (1) pump ENGAGED indicator light
- *One pump certification plate
- *One liquid level meter with sensor in the water tank
- *Foam System controls

4.5" NO-SHOK MASTER GAUGES

Y___N___

The master intake and master discharge gauges shall be 4" diameter Noshok pressure gauges. Each gauge shall have a one-piece die-cast brass case that integrates the valve stem connection, movement support, and bourdon tube support into a single unit that eliminates 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 -40°F to +160°F. Each gauge shall meet ANSI B40.1 Grade 1A requirements with an accuracy of +/- 1% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

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.

The master gauges shall be installed on the pump panel no more than 6 inches apart. The gauge on the left shall be the master pump intake gauge and display a range from -30 to 400 psi with Black graphics on a White background. The gauge on the right shall be the master pump discharge gauge and display a range from -30 to 400 psi with Black graphics on a White background.

2-1/2" NO-SHOK DISCHARGE GAUGES

Y__N__

The valve discharge gauges shall be 2½" diameter Noshok pressure gauges. Each gauge shall have a one-piece die-cast brass case that integrates the valve stem connection, movement support, and bourdon tube support into a single unit that eliminates 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 -40°F to +160°F.

Each gauge shall exceed ANSI B40.1 Grade B 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 color labels. The gauges shall display a range from 0 to 400 psi with Black graphics on a White background.

FIRE RESEARCH WATER LEVEL GAUGE

Y__N__

A Fire Research Tank Vision model WL2000 tank water level display shall be located on the operator's panel. The pressure sensor shall be mounted near the bottom of the tank in an easily accessible location.

Features:

- * Highly visible wide-viewing lens
- * Ultra-brite LEDs display exact water remaining in the tank
- * Flashing warning when actual volume is below 25%
- * Down-chasing LEDs alert operator when tank is almost empty
- * Includes self-diagnostic capabilities

FIRE RESEARCH CLASS A FOAM LEVEL GAUGE

Y__N__

A Fire Research Tank Vision model WL2600 Class A foam level display shall be located on the operator's panel. The pressure sensor shall be mounted near the bottom of the tank in an easily accessible location.

Features:

- * Highly visible wide-viewing lens
- * Ultra-brite LEDs display exact foam remaining in the tank
- * Flashing warning when actual volume is below 25%
- * Down-chasing LEDs alert operator when tank is almost empty
- * Includes self-diagnostic capabilities

FIRE RESEARCH CLASS B FOAM LEVEL GAUGE

Y__N__

A Fire Research Tank Vision model WL2700 Class B foam level display shall be located on the operator's panel. The pressure sensor shall be mounted near the bottom of the tank in an easily accessible location.

Features:

- * Highly visible wide-viewing lens
- * Ultra-brite LEDs display exact foam remaining in the tank
- * Flashing warning when actual volume is below 25%
- * Down-chasing LEDs alert operator when tank is almost empty
- * Includes self-diagnostic capabilities

AIR HORN BUTTON ON PUMP PANEL

Y___N___

An air horn button shall be installed on the pump operator's panel.

This button will allow pump operator to activate air horns at any point in time. Button will be waterproof and marked properly.

10 GALLON CLASS "A" FOAM TANK INTEGRAL

Y___N___

The foam tank shall be 10 gallon Class "A" capacity and be designed as an integral part of the water tank. The foam cell shall have a separate fill tower that is a different color than the water tank fill tower. The tank shall be configured with appropriate inlets and outlets for the specified foam application.

30 GALLON CLASS "B" FOAM TANK INTEGRAL

Y___N___

The foam tank shall be 30 gallon Class "B" capacity and be designed as an integral part of the water tank. The foam cell shall have a separate fill tower that is a different color than the water tank fill tower. The tank shall be configured with appropriate inlets and outlets for the specified foam application.

WATER TANK - 750 GALLON

Y___N___

UPF POLY-TANK IIE

SPECIFICATIONS

The tank shall have a capacity of 750 U.S. Gallons

CONSTRUCTION

The UPF POLY-TANK IIE shall be constructed of 1/2" thick PT2E polypropylene sheet stock. This material shall be a non-corrosive stress relieved thermo-plastic, natural in color, and U.V. stabilized for maximum protection.

The booster tank shall be of a specific configuration and is so designed to be completely independent of the body and compartments. All joints and seams shall be nitrogen welded and tested for maximum strength and integrity. the top of the booster tank is fitted with removable lifting eyes designed with a 3 to 1 safety factor to facilitate easy removability. The transverse swash partitions shall be manufactured of 3/8" PT2E polypropylene (natural in color) and extend from approximately 4" off the floor to just under the cover. The longitudinal swash partitions shall be constructed of 3/8" PT2E polypropylene (natural in color) and extend from the floor of the tank through the cover to allow for positive welding and maximum integrity. 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 welded to each other as well as to the walls of the tank.

FILL TOWER AND COVER

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 1/2" PT2E polypropylene and shall be a minimum dimension of 8" x 8" outer perimeter. The tower shall be located in the left front corner of the tank unless otherwise specified by the purchaser in Special Provisions. The tower shall have a 1/4" thick removable polypropylene screen and a PT2E polypropylene hinged-type cover. Inside the fill tower, approximately 4" down from the top, shall be fastened a combination vent overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with a minimum I.D. of 4" that is designed to run through the tank, and shall be piped behind the rear wheels where specified to provide maximum traction for wheels.

The tank cover shall be constructed of 1/2" thick polypropylene, natural in color, and UV stabilized, to incorporate a multi three-piece design which allows for individual removal and inspection if necessary. The tank cover shall be recessed 3/8" from the top of the tank and shall be welded to both sides and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" polypropylene dowels spaced 30" apart. These dowels shall extend through the covers and become welded to the transverse partitions. This will assist in keeping the cover rigid under fast filling conditions. A minimum of two lifting dowels shall be drilled and tapped 1/2" x 13" to accommodate the lifting eyes.

SUMP

There shall be one (1) sump constructed of 1/2" PT2E polypropylene and be located in the left front quarter of the tank. On all tanks that require a front suction a 3" schedule no 40 polypropylene pipe shall be installed that will incorporate a dip tube from the front to the tank to the sump location. The sump shall have a minimum 3" NPT threaded outlet on the bottom for a drain plug. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 2" above the sump.

OUTLETS

There will be two (2) standard tank outlets: one for tank-to -pump suction line which shall be a minimum of 3" NPT coupling; and, one for a tank fill line which shall be a minimum of 1" NPT coupling. All tank couplings shall be backed with flow deflectors to break up the stream of water entering the tank.

MOUNTING

The UPF POLY-TANK IIE shall rest on the body cross-members with an unsupported area not to exceed 760 sq. in. on tanks up to 40" in height. On tanks over 40" in height, an unsupported area of not more than 530 square inches must be maintained. All tanks shall be insulated from the cross-members with a minimum of 1/4" hard rubber strips on tanks under 2,000 gallons and 1/2" hard rubber strips on 2,000 gallon tanks and over, 2" to 3" wide with a minimum of 60D hardness. The tank shall sit cradle mounted either using four (4) corner angles of 4" x 4" x 4" x 0.250" welded directly to the body cross members or the use of 2" x 2" x 0.250" angle iron which will extend around the entire perimeter of the tank and welded to the body cross members. In each case, the entire perimeter of the bottom of the tank wall be supported. Support under the upper side walls is not required. The support frame or angles will keep the tank from shifting

front to rear or side to side. Although the tank is designed on the free floating suspension principle, it shall be required that the tank have restraints halfway between the front and the rear of the tank. These restraints shall be made of 3" x3" 1/4" angle approximately 6" long. the restraint does not directly contact the top of the tank.

APPARATUS BODY RESCUE PUMPER

Y___N___

STAINLESS STEEL BODY& COMPARTMENT CONSTRUCTION

The complete apparatus body and sub frame shall be fabricated of 12 gauge type 304 grade stainless steel sheeting with a tensile strength of 87,000 psi and a yield strength of 39,000 psi.

All body and compartment components shall be break form design. Compartments are constructed of 12 gauge type 304 stainless steel. This shall include compartment floors, side walls and ceiling. No Exception. Compartments shall be formed from a single sheet of metal when possible. The exterior of the compartments shall be solid seam welded. The corner seams shall be caulked with Gray silicone caulking. All burrs shall be removed to eliminate sharp edges.

Interior of compartments are to be left natural stainless steel with a swirl finish applied to give a lasting and pleasing appearance.

NO EXCEPTIONS TO THE ABOVE PARAGRAPH

COMPARTMENT SUPPORTS

Compartment floor supports shall be provided fabricated of 12 gauge stainless steel 2.00" x 4.00" support members and shall be installed under the compartment floors. The supports shall be formed "U" sections that will extend the full width beneath the compartment floors. The upper body walkway floor will be supported in a similar fashion.

NO EXCEPTIONS TO THE ABOVE PARAGRAPH

STAINLESS STEEL SUBFRAME

A 1.50" x 3.00" stainless steel tubular sub frame shall be fabricated to support the body and tank. Structural stainless steel rails shall run the full length of the body across the top of the chassis frame rails. Appropriate 3.00" stainless steel cross members shall be utilized to ensure rigidity with cross members being space no more than 24" apart.

The sub frame and cross members shall be Mig welded. All compartments and all stainless steel sheeting is TIG welded with 308 stainless steel filler wire.

The complete body structure shall be secured to the chassis frame rails with high grade 5/8" diameter U-bolts.

One inch x three inch heavy duty rubber sill will be installed between the body sub frame and chassis frame rails to prevent stress on the body and tank components. The rubber sill shall be retained by a full length stainless steel channel.

NO EXCEPTIONS TO THE ABOVE PARAGRAPH

STEPPING, STANDING, & WALKING SURFACES

All stepping, standing, and walking surfaces on the body shall meet NFPA #1901 anti-slip standards.

WHEEL WELLS

12 gauge stainless steel wheel wells shall be an integral part of the body construction.

Wheel wells and cabinetry are to be designed so road debris will not be trapped on top of the cabinets.

Full one piece circular 24" deep stainless steel wheel well liners shall be installed. The fender flares shall be bright polished stainless steel and are attached to the wheel well using stainless steel bolts.

NO EXCEPTIONS TO THE ABOVE PARAGRAPH

WIRING ACCESS PANELS

Wiring access panels shall be provided in the body interior corner compartments. The panels shall be bolted in place to allow easy removal for service.

FUEL TANK ACCESS

If the apparatus is equipped with a rear frame mounted fuel tank a removable bolted on access panel will be provided in the rear compartment wall.

REMOVAL OF BODY

The completed body with all related parts will be able to be removed in its entirety and accompany the water tank when removed.

FASTENERS

All fasteners used in securing components to the body shall be type 304 stainless steel.

NO EXCEPTIONS TO THE ABOVE PARAGRAPH

COMPARTMENT VENTS

Compartments shall have a minimum of two (2) 4" louvered stainless steel vents per compartment. They shall be installed in the rear wall of each compartment in a fashion to prevent foreign matter and water from entering.

COMPARTMENT DRAINS

Duckbill type rubber floor drains will be installed in the corners of the lower compartment floors.

COMPARTMENTS

Y__N__

L1: 67.00" High x 13.00"/26.00" Deep x 64.00" Wide

Door Opening: 30.00" High x 55.00" Wide

Note: The rear 39 inches of this compartment will be full depth the entire compartment height.

L2: 35.00" High x 26.00" Deep x 64.00" Wide

Door Opening: 27.00" High x 54.50" Wide

L3: 67.00" High x 26.00" Deep x 44.00" Wide

Door Opening: 59.00" High x 38.00" Wide

RR: 50.00" High x 26.00" Deep x 46.00" Wide

Door Opening: 41.00" High x 43.50" Wide

R1: 67.00" High x 13.00/26.00" Deep x 64.00" Wide

Door Opening: 59.00" High x 55.00" Wide

R2: 35.00" High x 13.00" Deep x 64.00" Wide

Door Opening: 27.00" High x 54.50" Wide

R3: 67.00" High x 13.00/26.00" Deep x 44.00" Wide

Door Opening: 59.00" High x 38.00" Wide

UPPER COMPARTMENTS

There shall be a compartment on the upper left of the body, above the lower compartments. This compartment shall have the following dimensions, and four (4) access doors.

170" Long X 24" deep X 26" wide.

Top door openings:

Two (2) doors 53" long X 19" wide

One (1) door opening 42" long X 19" wide

A rear vertically hinged painted stainless steel door will also be provided with a "D" ring

latching handle

There shall be a compartment on the upper right of the body, over the lower compartments. This compartment shall house two (2) 10' hard suction in the rear section. A rear vertically hinged painted stainless steel door will be provided with a "D" ring latching handle.

The front section of this compartment shall have the following dimensions:

52" long X 24" deep X 13" wide

Door opening: 42" long X 6" wide.

STORAGE AREA BELOW HOSE BED

An open storage area will be provided below the hose bed at the rear of the unit designed to hold a Hydrant valve and Blitzfire. Cargo netting will be provided to secure the equipment.

LIFEPAK COMPARTMENT

Y__N__

There shall be one compartment located in the upper left corner of compartment R-1.

The compartment shall be large enough to accommodate the Department's LifePak Defibrillator.

The compartment shall be weather tight, with rubber gaskets around the door to keep out road dirt and dust. There shall be a stainless door, hinged horizontally at the top with a twist-lock latch and gas shock stays.

The exact size and design shall be finalized at the pre-paint inspection.

PHOENIX NOTCH

Y__N__

All compartment floors shall have a "phoenix notch" to provide a true sweep out compartment. The leading edge of the compartment floor shall have a 1" recess below the compartment floor to allow the rollup door to close below the compartment floor level. NO EXCEPTIONS

REAR BUMPER

Y__N__

The rear bumper shall be fabricated of 1.50" x 1.50" and 1.50" x 3.00" structural stainless steel tubing. The bumper shall be fully welded design and shall be welded to the rear side body compartments. NO EXCEPTIONS

The rear bumper shall be 10" deep and run full width of the vehicle.

ALUMINUM DIAMOND PLATE STEP

Y__N__

The bumper step shall be covered with aluminum diamond plate with welded end caps. The bumper stepping surface will comply with the latest version of NFPA 1901.

REAR BODY ALUMINUM FINISH

Y__N__

Any areas on the rear not covered with Chevron reflective stripping, shall be covered with Aluminum diamond plate.

PUMP HOUSE TRIM ALUMINUM FINISH

Y__N__

The front of the pump house shall be covered with Aluminum diamond plate.

RUB RAILS

Y__N__

Rub rails shall be provided and installed below each side compartment. The rub rail assembly shall be constructed of 1.25" x 1.00" heavy-duty extruded aluminum tubing with 45 degree tapered poly end caps and will be DA finished. Rub rails shall be bolted to the lower exterior edge of the apparatus body, with 0.50" nylon spacers installed between the body and the rub rail.

HOSE BED DESCRIPTION

Y__N__

A stainless steel hose bed with swirl finish shall be located above the water tank. The hose bed front and side walls shall be free of all sharp objects to prevent hose damage. There shall be two

removable floor sections constructed of Ryerson fiberglass grating, model T-3500, 1" "T" bars with 35% open area. This will allow for proper ventilation and drainage of hose.

FLUSH SIDE BODY PANELS

Hose bed side walls shall extend to outside edge of the side compartments. Panel shall be constructed of 12 gauge 304 grade smooth stainless steel sheeting and be painted job color.

HOSE BED DIVIDERS

Y___N___

Three (3) full length adjustable hose bed dividers shall be located in the hose bed area and shall be fully adjustable by means of stainless steel uni-strut tracking located at the front and rear of the hose bed.

The dividers shall be of "one piece" 1/4" extruded aluminum construction with integral extruded bottom "T" bar which runs full length of the hose bed. A top 1/2" diameter smooth edge is provided to prevent damage to hose.

The dividers shall be bolted in place with stainless steel fasteners and be easily adjusted from side to side with simple hand tools.

HAND-HOLD-CUT-OUTS

Y___N___

A hand-hold-cut-out shall be provided along the vertical rear edge of each divider.

HOSE BED CAPACITY

Y___N___

The hose bed shall be capable of holding the following hose:

300 Feet of 1.75" DJ hose
Open area
400 Feet of 2.50" DJ hose
1000 Feet of 5.00" LDH hose

HAND RAILS

Y___N___

Access hand rails shall be 1-1/4" in diameter extruded aluminum tubing with ribbed rubber inserts. Access rail escutcheons and brackets shall be chrome plated and attached with stainless steel bolts. Anchoring of posts and framing members for handrails of all types shall capable of withstanding a load of at least 225 pounds applied in any direction at any point along the rail.

Hand rails and handholds shall be constructed so that three points of contact (two hands and one foot, or one hand and two feet) can be maintained at all times while ascending and descending.

VERTICAL HAND RAILS

Y___N___

Two (2) 48" long hand rails shall be mounted vertically at the rear of the apparatus, one on each side of the rear compartment.

HORIZONTAL REAR HAND RAIL

Y___N___

One (1) 72" long hand rail shall be mounted horizontally just below the hosebed.

VERTICAL LADDER AND LITTLE GIANT STORAGE

Y__N__

LADDER COMPARTMENT

A compartment will be located on right side of the booster tank under the hose bed.

Compartment shall be fabricated of 12 gauge stainless steel and shall be designed to allow easy removal and storage of all specified equipment. All equipment shall be separated by dividers.

The compartment will be designed to hold a 14' roof ladder and 24' extension ladder, 10' attic ladder and two (2) pike poles.

LITTLE GIANT LADDER STORAGE

Above the ground ladders shall be a storage area large enough to hold a "Little Giant" ladder stored vertically.

Compartment will have a single vertically hinged painted stainless steel door with stainless steel D-Ring latching handle.

AIR BOTTLE COMPARTMENT SS - DOUBLE BOTTLE

Y__N__

One (1) spare air bottle compartment shall be provided and located, in the front portion of the driver's side rear wheel well area. The compartment will be capable of holding two (2) spare air bottles. The compartment shall be fabricated of stainless steel and lined to prevent vibration. The compartment shall have a drain hole in the floor.

AIR BOTTLE COMPARTMENT SS - SINGLE BOTTLE

Y__N__

One (1) spare air bottle compartment shall be provided and located, in the rear portion of the driver's side rear wheel well area. The compartment shall be fabricated of stainless steel and lined to prevent vibration. The compartment shall have a drain hole in the floor.

AIR BOTTLE COMPARTMENT SS - DOUBLE BOTTLE

Y__N__

One (1) spare air bottle compartment shall be provided and located, in the front portion of the officer's side rear wheel well area. The compartment will be capable of holding two (2) spare air bottles. The compartment shall be fabricated of stainless steel and lined to prevent vibration. The compartment shall have a drain hole in the floor.

AIR BOTTLE COMPARTMENT SS - SINGLE BOTTLE

Y__N__

One (1) spare air bottle compartment shall be provided and located, in the rear portion of the officer's side rear wheel well area. The compartment shall be fabricated of stainless steel and lined to prevent vibration. The compartment shall have a drain hole in the floor.

WHEEL WELL DOOR - PAINTED

Y__N__

The wheel well compartment(s), where specified, will have a vertically hinged painted stainless steel door(s) with a "SouthCo" twist lock latch. The door(s) shall be labeled: "SPARE SCBA CYLINDER"

REAR ACCESS LADDER

Y__N__

There shall be a custom fabricated stainless steel access ladder installed on the left rear of the body. The sides will be fabricated of 1.5" x 1.5" 304 stainless steel tubing. The rungs are fabricated of open grip stainless steel grating.

SHELVING - ADJUSTABLE

Y__N__

A total of seven (7) adjustable shelves shall be provided and installed in customer specified location.

Shelf construction where specified shall be rigid with 2" lip on the front and rear, and fabricated of 3/16" aluminum.

The shelving shall be adjustable by means of a threaded tightener that slides in a track to allow precise adjusting height. All tracking will be stainless steel uni-strut.

TRAYS - PULL OUT

Y__N__

Three (3) Accuride slide out trays shall be provided and installed in customer specified location.

Sliding tray where specified shall be mounted in a manner that provides for maximum clearance overhead.

The tray shall have a capacity of 300 pounds in the fully extended position.

The side mounted slides are to be equipped with ball bearings for ease of operation.

Tray will lock automatically in the open and closed positions. Manual type locks will not be acceptable.

LOCATION: TBD at pre-paint inspection

RESCUE TOOL TRAY - PULL OUT

Y__N__

One (1) Accuride slide out tray shall be provided and installed in customer specified location. This tray will be designed to hold customer's rescue tools.

Custom designed brackets shall be provided for holding Jaws, cutters, rams, etc.

Sliding tray where specified shall be mounted in a manner that provides for maximum clearance overhead. The tray shall have a capacity of 300 pounds in the fully extended position.

The side mounted slides are to be equipped with ball bearings for ease of operation.

Trays will lock automatically in the open and closed positions. Manual type locks will not be acceptable.

An identical tray shall be provided and shipped loose.

PULL OUT - TILT DOWN TRAY

Y___N___

A total of one (1) Slide Master Aluminum slide out tilt down tray shall be provided and installed in customer specified location.

Sliding tray where specified shall be mounted in a manner that provides for maximum clearance overhead.

The tray shall have a minimum capacity of 200 pounds in the fully extended position. The side mounted slides are to be equipped with ball bearings for ease of operation.

Tray will have a 5-1/2" deck height and a HSL push pull lock in the closed position.

HOSEBED TARP - NYLON WEBBING

Y___N___

A nylon webbing hosebed cover shall be provided with shock cord fasteners on the sides with stainless steel hooks.

The cover shall be in two (2) sections, with one section covering the front third of the hosebed and one section covering the rear two-thirds of the hosebed. The two sections shall be connected by velcro straps to enable the rear two thirds to be removed for hose packing.

ROM - ROLL-UP SATIN FINISH COMPARTMENT DOORS

Y___N___

All compartments shall have ROM Robinson Roll-o-matic compartment doors with "satin" finish.

Doors feature top, side and bottom seals to keep dirt and moisture out of the compartment.

Interlocking end shoes allow the door to operate as one unit, eliminating left-to right movement.

Side track finishing flange eliminates gap between the shutter body, keep moisture out.

Interlocking slats prevent knife penetration, offering both maximum security and a high-image appearance for custom striping and painting.

Inner seal between each slat prevents moisture from entering compartment and allows quieter performance by preventing metal-to-metal contact.

Continuous one-piece lift bar.

One-piece aluminum side track enables the shutter to slide up and down without obstruction and provides quick installation.

Heavy duty finger pull provides easy, one-hand operation.

Anodized aluminum sill plate protects the edge of the compartment.

Includes ROM magnetic door ajar and compartment light switch unit. The magnetic door ajar switch is completely contained within the door as part of the shutter design.

ELECTRICAL - CUSTOM PUMPER - MULTIPLEX SYSTEM

Y___N___

The apparatus shall be equipped with a multiplexed electrical system. The multiplex system shall consist of all solid-state components contained inside aluminum extrusions referred to as nodes. Each node shall consist of (24) output channels and (24) input channels. All inputs and outputs will be configured into a scaleable electrical harness utilizing Duetsche connectors. The nodes must be waterproof and not require special mounting requirements.

The system, at a minimum, shall be capable of performing the following functions: load management sequencing, switch loads, receive digital and analog signals, perform and report diagnostics, continuously report vehicle status and the system is expandable.

“Real Time” data can be reported and displayed through several operator interface modules. The VFD is the display, user interface display. As an option the EL “Vista” provides a built-in, audible alarm and menu-driven, input switches.

Placement of nodes throughout the apparatus enables a reduction in wire harness bundles, elimination of redundant harnesses and separate circuit boards, relay and circuit breakers, electrical hardware, separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs.

The multiplex system shall be field-re-programmable and re-configurable by any authorized dealer or service center. This complete system shall eliminate the need for the following separate components or devices: load manager, load sequencer, warning lamp flasher, headlamp flasher, door open notification system, interlock modules, separate volt meter and ammeter and temperature monitor.

The Base System Shall Include:

- * Total Load Management
- * Load Shedding Capabilities
- * Load Sequencing Capabilities
- * “On-Board” Diagnostics Readout
- * Very Reliable, Solid-State Hardware
- * Error Reporting
- * Display Analog Data (pressure, temperature...)
- * Continuous system monitoring and reporting
- * Emergency warning lamp flasher
- * Door Ajar System
- * Field Configurable
- * Expandability Capabilities
- * Advanced PC Diagnostics

As-built wiring harness drawings and a master circuit list of electrical circuits that the apparatus builder installs shall be furnished in the delivery manuals. These schematics must show the electrical system broken down into separate functions, or small groups of related functions.

Schematics shall depict circuit numbers, electrical components, harnesses, and connectors from beginning to end.

All wiring and electrical equipment shall meet N.F.P.A. 1901 (2009 edition) and SAE standards.

A master optical warning device switch that energizes all of the optical warning devices shall be provided.

The optical warning system shall be capable of two separate signaling modes during emergency operations. One mode shall signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right of way. The other mode shall signal that the apparatus is stopped and is blocking the right of way. Switching of modes shall be controlled by the parking brake.

All wiring harnesses and associated wiring shall be secured with nylon "ultra violet resistant" cable ties or bolted to the body with cable clamps.

Polyolefin "heat shrink" tubing with adhesive or Deutsch water tight connectors shall be used on all exterior wiring connections.

Flexible non-conductive polyurethane film shall be sprayed on all terminal studs, relays, starter, batteries, etc. to prevent corrosion.

JUNCTION BOX

The electrical junction box for all 12 volt wiring shall be located in a convenient location. It will be recessed into the compartment wall not to protrude into the storage area. It shall have a removable access panel.

The compartment shall be sealed and weather proof. All components in compartment shall have identification tags.

CLEARANCE LIGHTS

All required Clearance lights shall be provided at the rear and on each side of the unit to meet Federal regulations. All lights will be (LED) Light Emitting Diode type with a five (5) year warranty.

On apparatus 30 feet in length or longer, a Trucklite model 60072Y Amber LED turn signal light with stainless steel flange shall be mounted one (1) each side in rear wheel well area at approximately running board height.

LED STEP AREA LIGHTING

Four (4) step area lights shall be provided. One mounted each side on the front compartment face to illuminate the panel running board steps and two mounted at the rear of the unit to illuminate the rear tailboard step. These lights shall be activated when the parking brake is applied.

Whelen 3SCODCR series 3.00" round LED lights shall be utilized. Depending on body application the lights will either be mounted in a rubber grommet or surface mounted with a chrome flange.

HAZARD LIGHT

A red flashing light shall be located in the driving compartment, and shall be illuminated automatically whenever the apparatus parking brake is not fully engaged and any passenger or equipment compartment door is open, any ladder or equipment rack is not in the stowed position, a stabilizer system is deployed, a powered light tower is extended, or any other device is opened, extended, or deployed that creates a hazard or is likely to cause damage to the apparatus if the apparatus is moved. The light shall be marked "DO NOT MOVE APPARATUS WHEN LIGHT IS ON".

LICENSE PLATE LIGHT

One license plate light and bracket shall be provided on the rear of the unit.

EMERGENCY WARNING LIGHT SWITCHES CUSTOM CAB

Y___N___

All warning light switches shall be mounted in the cab in a readily accessible location.

The master switch and individual switches furnished with custom chassis shall be utilized to allow preselection of lights. The light switches are to be "rocker" type with an internal indicator light to show when the switch is energized. All switches to be properly identified and mounted in a removable panel for ease in servicing. Identification of the switches shall be done by either printing or etching on the switch panel.

WHELEN M6 QUAD CLUSTER LED REAR STOP, TURN, BACKUP

Y___N___

BACKUP LIGHTS

Two (2) Whelen model M6BUW Super LED backup lights

STOP/TAIL LIGHTS

Two (2) Whelen model M6BTT series Super LED Brake/Tail lights

DIRECTIONAL LIGHTS

Two (2) Whelen model M6T series Super LED arrow directional turn signal lights

The backup lights, stop/tail lights, and directional lights along with rear lower level warning lights shall be installed on the lower rear face of the unit and shall be recessed in chrome plated flange.

COMPARTMENT LIGHTS

Y__N__

R.O.M. LED compartment lighting shall be provided to provide full illumination of all lower body compartments. The lighting shall be mounted behind the door track on both sides of the compartment.

Compartment lighting shall activate automatically by the opening and closing of the door.

All body compartments shall have door ajar switches.

GROUND LED LIGHTING

Y__N__

The apparatus shall be equipped with lighting capable of providing illumination at a minimum level of two (2) foot candle on ground areas within 30.00" of the edge of the apparatus in areas designed for personnel to climb onto the apparatus or descend from the apparatus to the ground level. Lighting designed to provide illumination on areas under the driver and crew riding area exits, which shall be activated automatically when the parking brake is set. Lights shall be installed in a manner that illuminates all walkways and steps for safe operation of the apparatus.

TecNiq E10-WSOO-1 6.00" LED lights mounted in a stainless steel bracket shall be utilized.

One (1) light located each side under the panel running boards.

Two (2) lights mounted under the rear step.

PUMP COMPARTMENT LIGHT

Y__N__

One (1) SoundOff model ECVCSLLED10-10" LED pump compartment light shall be provided within the pump enclosure. The control switch shall be located on the pump operators panel.

HOSE BED LIGHTS

Y__N__

There shall be two (2) Whelen 3SCOCD CR series 3.00" round LED lights mounted at the front of the hose bed. The lights will be controlled by a switch located on the pump panel.

WHELEN NFPA APPROVED UPPER LEVEL LIGHT PACKAGE

Y__N__

ZONE A - FRONT UPPER

The lightbar provisions shall be for one (1) Whelen brand Freedom FN72VLED lightbar mounted centered on the front of the cab roof. The lightbar shall be 72.00 inches in length. The lightbar shall feature twelve (12) LED lights, six (6) red, four (4) Blue, two (2) clear LED lights, and one (1) clear LED Pioneer PFP2 front scene light integrated into the light bar. The Pioneer scene light in the light bar shall be switchable to steady-on. The clear lights shall be disabled with park brake engaged. The cable shall exit the lightbar on the right side of the cab.

WHELEN 900 SERIES ZONE B&D (4) ZONE C (4)

Y__N__

ZONE B & D - SIDE UPPER

Two (2) Whelen 900 Series Super LED lights with chrome bezels will be mounted one each side on the upper front side corners of the body. The lights will have Red lens.

Two (2) Whelen 900 Series Super LED lights with chrome bezels will be mounted one each side on the upper rear side corners of the body. The lights will have Red lens.

ZONE C - REAR UPPER

Two (2) Whelen 900 Series Super LED lights with chrome bezels will be mounted on the upper rear of the body. The lights will have Red lens.

Two (2) Whelen 900 Series Super LED lights with chrome bezels will be mounted in the middle of the rear of the body. One light will have an Amber lens, and will flash when in reverse gear. The other light shall have a Blue lens.

WHELEN M SERIES LED LOWER LEVEL LIGHTING

Y___N___

ZONE A - LOWER

Two (2) LED lights provided by the chassis manufacturer.

ZONE B & D- SIDE LOWER

One (1) LED lights provided by the chassis manufacture.

Two (2) M7 Super LED lights with chrome bezel and Red lens mounted one (1) each side in the rear body fender area.

ZONE C - LOWER

Two (2) M6 Super LED lights with Red lens mounted on the lower rear of the apparatus in M6FCV4 chrome housing.

ELECTRONIC SIREN

Y___N___

The electronic siren will be furnished with the custom chassis.

SIREN SPEAKER

Y___N___

The siren speaker will be furnished with the custom chassis.

SCENE LIGHTS

Y___N___

Six (6) Whelen model 9SC0ENZR Super-LED, 24 diode (7" high x 9" wide) Gradient 8-32 white scene lights will be installed on the body.

Two (2) located each side of the body, one (1) at the front and one (1) at the rear, and two (2) located on the rear face of the unit.

Lights will be controlled by three individual switches located in the cab. Rear lights will also be activated when unit is put into reverse.

WHELEN SUPER LED RECESSED FLOODLIGHTS

Y___N___

Two (2) Whelen Pioneer model PFP2 recessed lights shall be provided. The chrome PBA203 housing shall be used. The lamp head shall protrude no more than 1 1/2" from the housing flange. Wiring shall extend from the bottom of the recessed housing.

Each lamp head shall have two (2) LED blubs. The bulb will draw 1.25 amps and generate 16,000 lumens total. Lamp head and housing shall be powder coated white. The floodlight shall be UL listed as a scene light for fire service use.

Location of floodlight shall be: One (1) light mounted each side center of the body

GENERATOR - ONAN HYDRAULIC 10.0 KW AC

Y___N___

An Onan model 10RBAA PTO driven hydraulically powered generator system shall be supplied and installed. The genset shall be an Onan model CMHG. The genset system shall be capable of producing the nominal output power of 10KW, 120V / 240V, 60 Hz. The genset shall be installed per the manufacturer recommendations and shall be capable of supplying full power during all engine speeds or operation modes. The genset shall be capable of being switched on or off at any time, with or without electrical loads applied. The genset field and armature windings shall be of copper magnet wire, coated with class 200 film insulation. The genset alternator shall be capable of accepting a zero power factor load of 200% rated kVA and recover to 90% of rated voltage within 1/2 second. The genset shall be capable of continuous operation in 120°F ambient conditions.

A Chelsea, transmission PTO adapter shall be used. The gear ratio of the PTO shall be selected to provide required genset pump speeds with respect to engine speeds. The hydraulic pump can be directly mounted to the PTO using the standard SAE flange or the pump can be remote mounted utilizing a driveshaft. Direct mount pumps on the PTO shall have supports per the manufacturer instructions to avoid stress damage to the PTO mounting face. Remotely mounted pumps shall have adequately sized & configured mounting brackets, driveshafts and guarding to prevent entangling injuries.

The compartment or installation location for the genset module shall be made per the manufacturer recommendations. Proper cooling air control, service panel access and exhaust air venting shall be demonstrated. The compartment or location shall have an under tray and adequate structure to support the genset module.

The hydraulic system reservoir shall be mounted at least 2' above the pump and shall have access for fluid filling, draining and viewing the sight glass fluid level indicator. Clearance of at least 10" above the reservoir shall be provided for hydraulic fluid filter service. The system reservoir shall be labeled with the type and approximate amount of fluid required. The fluid shall be Dextron III hydraulic fluid.

All connecting hydraulic hoses & fittings shall be of the size and pressure rating specified by the manufacturer. The hoses shall be adequately protected from chafing or abrasion during operation.

A display meter consisting of 4 numeric LED displays shall be used. The meter shall simultaneously display system voltage, frequency and amperage in each of the two 120V legs. The meter shall also have provisions for toggling to total hours run and oil temp via a mode

switch. The display shall be mounted in an area clear for operator observation and near the on/off switch.

The genset shall be capable of being switched on or off by one or multiple switches as required. The on/off control switch (s) shall be mounted in an area convenient for the driver and/or pump operator as required.

The complete hydraulic system, including all major components, will be covered by a 5-year, 1000-hour manufacturer's warranty. Repair travel time of 2.5-hours and mileage of up to 100 miles is included in the first two years of warranty coverage.

120/240 ELECTRICAL SYSTEM - NFPA

Y___N___

GENERAL

Any fixed line voltage power source producing alternating current (ac) line voltage shall produce electric power at 60 cycles plus or minus 5 cycles.

Except where superseded by the requirements of NFPA 1901, all components, equipment, and insulation procedures shall conform to NFPA 70, National Electrical Code (herein referred to as the NEC).

Line voltage electrical system equipment and materials included on the apparatus shall be listed and installed in accordance with the manufacturer's instructions. All products shall be used only in the manner for which they have been listed.

GROUNDING

Grounding shall be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC.

Ungrounded systems shall not be used. Only stranded or braided copper conductors shall be used for grounding and bonding.

An equipment grounding means shall be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.

The grounded current carrying conductor (neutral) shall be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor shall be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.

In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor.

This conductor shall have a minimum ampere rating of 115 percent of the name plate current rating of the power source specification label as defined in Section 310-15 (Ampacities) of the NEC. A single conductor, properly sized to meet the low voltage and line voltage requirements shall be permitted to be used.

All power source system mechanical and electrical components shall be sized to support the continuous duty nameplate rating of the power source.

OPERATION

Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence shall be permanently attached to the apparatus at any point where such operations can take place.

Provisions shall be made for quickly and easily placing the power source into operation. The control shall be marked to indicate when it is correctly positioned for power source operation.

Portable Generator Installations shall comply with Article 445 (Generators) of the NEC.

OVERCURRENT PROTECTION

The conductors used in the power supply assembly between the output terminals of power source and the main overcurrent protection device shall not exceed 144 in. (3658mm) in length.

For fixed power supplied, all conductors in the power supply assembly shall be Type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degrees F (90 degrees C).

WIRING METHODS

Fixed wiring systems shall be limited to the following: Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees F (90 degrees C), or Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees F (90 degrees C).

Electrical cord or conduit shall not be attached to chassis suspension components, water or fuel lines, brake lines, hydraulic lines, exhaust system components, or low voltage wiring and shall be:

Separated by a minimum of 12 in. (305mm) from exhaust piping or properly shielded, and separated from fuel lines by a minimum of 6 in. (152 mm) distance.

Electrical cord or conduit shall be supported within 6" (152 mm) of any junction box and at a minimum of every 24 in. (610 mm) of run.

Supports shall be made of nonmetallic materials or corrosion protected metal. All supports shall be of a design that does not cut or abrade the conduit or cable and shall be mechanically fastened to the vehicle.

WIRING IDENTIFICATION

All line voltage conductors located in the main panel board shall be individually and permanently identified. The identification shall reference the wiring schematic or indicate the final termination point. When prewiring for future power sources or devices, the unterminated ends shall be labeled showing function and wire size.

WET LOCATIONS

All wet location receptacle outlets and inlet devices including those on hardwired remote power distribution boxes shall be of the grounding type, provided with a wet location cover, and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of NEC.

All receptacles located in a wet location shall be not less than 24 in. (610 mm) from ground. The face of any wet location receptacle shall be installed in a plane from vertical to not more than 45 degrees of vertical. No receptacle shall be installed in a face up position.

DRY LOCATIONS

All receptacles located in a dry location shall be of the grounding type.

All receptacles shall be marked with the type of line voltage. (120 volts or 240 volts)

LISTING

All receptacles and electrical inlet devices shall be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards.

ELECTRICAL SYSTEM TESTING

The wiring and associated equipment shall be tested by the apparatus manufacturer or the installer of the line voltage system.

The wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand test of 900 volts for 1 minute. The test shall be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switch in the circuit(s) closed. This test shall be conducted after all body work has been completed. Electrical polarity verification shall be made of all permanently wired equipment and receptacles to determine the connections have been properly made.

OPERATIONAL TEST PER NFPA 1901 CHAPTER 19-14.4

The apparatus manufacturer shall perform the following operation test and shall certify that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order.

The prime mover shall be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.

The power source shall be operated at 100 percent of its nameplate voltage for a minimum of 2 hours unless the system meets Category Certification as defined in NFPA 1901 chapter 19-14.5.

LOAD CENTER

Y___N___

A, Square D, breaker box shall be provided with separate breakers for each light and/or outlet. Breakers will be rated to load demand. The load center shall be installed in customer specified location.

CIRCUIT BREAKERS

Individual breakers shall be provided for all online equipment to isolate a tripped breaker from affecting any other online item.

RECEPTACLES - 120 VOLT

Y___N___

Two (2) 120 volt 20 amp. twist-lock outlet (NEMA L5-20) with weatherproof cover shall be provided with wiring in flexible conduit to circuit breaker panel.

Location shall be: TBD at Pre-paint Inspection

TELESCOPIC 1000 WATT FLOODLIGHT

Y___N___

Fire Research Focus model FCA530-M10 side mount push up telescopic light shall be installed. The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall rotate 360 degrees. The outer pole shall be a grooved aluminum extrusion and qualify as an NFPA compliant handrail. The pole mounting brackets shall have a 3 1/2" offset. Wiring shall extend from the pole bottom with a 4' retractile cord.

The lamp head shall have one (1) quartz halogen 1000 watt 120 volt bulb. The bulb will draw 8.3 amps and generate 22,000 lumens. The bulb shall be accessible through the front. The lamp head shall direct 50 percent of the light onto the action area while providing 50 percent to illuminate the working area. The lamp head angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamp head shall incorporate heat-dissipating fins and be no more than 5 1/4" deep by 3 3/8" high by 15" wide. Lamp head and mounting arm shall be powder coated white. The floodlight shall be UL listed as a scene light for fire service use.

Two (2) lights will be provided and mounted one each side on the back of the cab.

ELECTRIC CABLE REEL

Y___N___

One (1) Hannay #ECR-1616-17-18 series electric cable reel with electric rewind shall be provided on the apparatus. Reel shall have four (4) conductor wiring and four (4) fully enclosed collector rings. The reel shall be rated for continuous duty and installed to be easily accessible for removal, cord access, maintenance, and servicing.

The power rewind cable reel spool areas shall be visible to the operator during the rewind operation, or the reel spools shall be encapsulated to prevent cable from spooling off the reel. Power rewind type reels shall have the control in a position where the operator can safely observe the rewinding operations. The rewind control or crank shall not be over 72 inches above the operator's standing position.

The 12-volt electrical rewind supply cable shall be adequate size for reel capacity and protected with a circuit breaker sized for the cable and located at the power source. The rewind control shall be a Hannay #900-30 push sealed button with operational label next to button.

REEL CAPACITY

Reel shall be designed to hold 110 percent of the capacity needed for the intended cable length. The wire size shall be in accordance with NEC Table 400-5(A).

LABELING

A label shall be provided in a readily visible location adjacent to any permanently connected reel. It shall indicate the following: Current rating, Current type, Phase, Voltage, Total cable length.

ELECTRICAL SUPPLY WIRING TO REEL

The wiring shall terminate in a sealed conduit box at the reel with mechanical type connectors for quick removal of reel. The reel shall be wired to the breaker box and circuit breaker sized to wire size.

ELECTRICAL CORD

The reel shall be provided with one hundred fifty feet (150') of 10/4 yellow electrical cable, type SEO W-A, 30 amp, 240 volt wire.

REEL MOUNTING LOCATION

Reel to be mounted in compartment as directed by the Fire Department.

JUNCTION BOX

Y___N___

A lighted four way junction box will be provided and attached to the wire on the cord reel.

A bracket will be provided hold the junction box and will be mounted in a location near the reel.

Wiring to the junction box will be 220 volt with 110 and/or 220 volt outlets.

PAINT AND PREPARATION

Y___N___

All metal surfaces will be properly sanded, prepared and finished ready for our Axalta Coating Systems pretreatment. This is done to insure optimum adhesion, corrosion resistance, and durability.

After pretreatment, 1220S Axalta Coating Systems 5000 URO primer filler is applied designed to fill any minor surface defects and provide an adhesion layer between the pretreatment and the Imron Base Coat/Clear Coat. This is also applied to improve color gloss, retention, and durability of the paint.

Next the URO primer will be sanded to a smooth pre painting surface. The surface will be decontaminated and prepared for application of High Solids Axalta Coating Systems Productive Base Coat/Clear Coat finish to complete the finished paint process.

A full inspection is performed of Defects, Depth Imagery, Gloss, Film Build, Color Match and Texture, all to meet or exceed Axalta Coating Systems OEM fleet finish specifications.

Body assemblies that cannot be finish painted upon assembly shall be painted prior to finish assembly. All doors are removed and painted separate from the body.

Prior to reassembly and reinstallation of lights, handrails, door hardware, and any miscellaneous items; a gasket material or silicone sealant shall be applied to prevent damage to the finish painted surfaces and to protect against electrolysis between dissimilar metals.

Touch up paint shall be provided for each paint color used.

The complete apparatus body will be painted a single color to match the color of the cab. The cab shall remain as painted from the chassis supplier.

Paint Color TBD - Paint #TBD

LETTERING

Y__N__

Genuine gold leaf lettering, approximately 3.00" high shall be provided. The gold leaf used shall be genuine 23 karat.

The gold leaf shall come with a 1 year warranty against fading or deterioration.

Included will be a maximum of sixty five (65) three (3) inch letters.

REFLECTIVE STRIPING

Y__N__

A 6" wide white reflective stripe shall be applied to the unit in a straight line.

Per NFPA 15.9.3.1 this shall include at least 50 percent of the cab and body length on each side, excluding the pump panel areas, and at least 25 percent of the width of the front of the apparatus.

AMERICAN FLAG GRILLE PAINTED

Y__N__

An American Flag will be painted on the front grille.

CHEVRON FRONT BUMPER

Y__N__

The front bumper shall have a chevron of reflective material of the same type as the rear face of the vehicle applied.

CHEVRON REAR REFLECTIVE - ENTIRE REAR

Y__N__

REFLECTIVE CHEVRON - NFPA 15.9.3.2

The entire rear-facing vertical surfaces, visible from the rear of the apparatus, shall be equipped with retro-reflective striping in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees. Each stripe shall be 6" in width.

Stripe Colors will be Red & Yellow.

EQUIPMENT

Y__N__

The following equipment shall be provided along with any necessary mounting brackets. All other NFPA required equipment shall be furnished and mounted by the purchaser.

TWO (2) SUCTION HOSE - 6" X 10' FLEX

Y__N__

Two (2) Maxi Flex 6" x 10' light weight PVC Suction hose with male and 6" long handled female couplers.

STRAINER - 6" BARREL

Y__N__

One (1) South Park #BS4522AC, 6.00" barrel strainer will be provided and mounted in customer specified location.

10' FOLDING ATTIC - MODEL FL-10

Y__N__

One (1) Alco-Lite model #FL-10, 10' folding ladder shall be provided. Ladder shall consist of 1-section aluminum ladder with rubber feet and shall meet or exceed the latest NFPA standards.

14' ROOF - MODEL PRL-14

Y__N__

One (1) Alco-Lite model #PRL-14, 14' roof ladder shall be provided. Ladder shall consist of a single section aluminum ladder with folding steel hooks on one end and steel spikes on the other end. Ladder shall meet or exceed the latest NFPA standards.

24' EXTENSION - MODEL PEL-24

Y__N__

One (1) Alco-Lite #PEL-24, 24' extension ladder shall be provided. Ladder shall consist of 2 aluminum sections. Ladder shall meet or exceed the latest NFPA standards.

AXE - 6LB FIBERGLASS FLAT HEAVY DUTY

Y__N__

One (1) Council Tool (C60F) 6 lb steel flat head axe with a fiberglass handle shall be supplied and mounted in customer specified location.

AXE - 6LB FIBERGLASS PICK HEAD AXE

Y__N__

One (1) Council Tool (C60P) 6 lb steel pick head axe with a fiberglass handle shall be supplied and mounted in customer specified location.

PIKE POLE - 8' FIBERGLASS

Y__N__

One (1) Duo-Safety Type FP, 8' fiberglass handle pike pole shall be provided consisting of a 8' hollow fiberglass pole 1-3/4" OD with a painted steel pike riveted to the pole.

PIKE POLE - 10' FIBERGLASS

Y__N__

One (1) Duo-Safety Type FP, 10' fiberglass handle pike pole shall be provided consisting of a 10' hollow fiberglass pole 1-3/4" OD with a painted steel pike riveted to the pole.

EXTINGUISHER - 10LB ABC

Y__N__

One (1) Amerex model FE-419-10 w/#812 Bracket, 10LB ABC Stored Pressure Dry Chemical Extinguisher shall be provided and mounted in customer specified location.

EXTINGUISHER - CO2 15LB

Y__N__

One (1) Amerex model FE-331 w/#811 bracket, 15lb CO2 Fire Extinguisher shall be provided and mounted in customer specified location.

EXTINGUISHER - 2-1/2 GALLON WATER

Y__N__

One (1) Amerex model FE-240 w/810 bracket, 2-1/2 gallon pressure water extinguisher shall be provided and mounted in customer specified location.

WHEEL CHOCKS

Y__N__

Two (2) Worden model HWG wheel chocks will be provided and mounted under the left front compartment.

SPANNER WRENCH - WITH HYDRANT WRENCH

Y__N__

One (1) set of Red Head style 148-3 spanner wrenches shall be provided and mounted in customer specified location. Includes (1) 105 Hydrant wrench and (2) 101 spanner wrenches with mounting bracket.

Location: TBD at Pre-Paint Inspection

SPANNER WRENCH - (2-1/2")

Y__N__

One (1) set of Red Head style 146-2 spanner wrenches shall be provided and mounted in customer specified location. Includes (2) 101 spanner wrenches with mounting bracket.

Location:

HEADSET - FIRECOM 4 PERSON WIRELESS

Y__N__

A FireCom 5100D wireless headset system will be included and installed on the unit.

System shall include:

- *Two (2) single channel base stations w/ radio interface
- *One (1) multiple channel base station for intercom only
- *One (1) mobile radio interface cable and all hanging hardware in the cab.
- *Two (2) UHW 51 • Under the Helmet Wireless Headset, PTT radio for the driver and officer
- *Two (2) UHW 52 • Under the Helmet Wireless Headset, PTT intercom / listen only radio for the two (2) crew seats.

TRAFFIC VEST NFPA CUSTOMER SUPPLIED

Y__N__

The NFPA required Safety Vest will be supplied and installed by the purchaser before the truck is placed into service.

TRAFFIC CONES CUSTOMER SUPPLIED

Y__N__

The NFPA required traffic cones will be supplied and installed by the purchaser before the truck is placed into service.

AUTOMATIC EXTERNAL DEFIBRILLATOR CUSTOMER SUPPLIED

Y__N__

The NFPA required AED will be supplied and installed by the purchaser before the truck is placed into service.

<p>End of Base Specification</p>

The attached items listed below are already known to require adjustment to the detail specifications listed above. The items listed shall be substituted as listed.

ENGINE 2 RFP 16-02 Adjustments

Page 19: Cab paint pinstripe to be half inch black scotch lite.

Page 56: Rear seat under storage access to be netted with shock cord.

Page 62: Interior overhead lights to be LED

Page 68/69 :In place of mobile gateway, weBoost 4G-X signal booster kit sku # 470510 to be factory installed

Page 74 :Pump capacity shall be 1500 GPM

Page 78 :Both speedlay outlets shall have 2 inch swivels

Page 79 : Hose bed discharges both on right side and both with 2.5 inch outlets.

Page 103 : Coffin boxes will have a minimum of one 4 inch LED light per lid.

Page 104 : Zone C, middle warning lights will be WHELEN 900 series supper LED split blue and amber with clear lens.

Page 105 : WHELEN Pioneer PFP2 LED recessed lights not required.

Page 109 : Telescopic flood lights to be WHELEN Pioneer 120 volts

Page 109 :Electric reel to be Akron ERWC-10 with a minimum capacity of 150 Ft. 10/4 wire

Page 111 : Lettering and striping to match 2012 pumper

Page 112 : Ladders shall be Duo Safety brand

Note rear amber lights to flash when vehicle is in reverse.

Air and electric ejects to be mounted between left side cab doors, not in step area, with electric eject forward. Air eject cover yellow, electric eject cover red.

End of Adjustments
