



# REQUEST FOR PROPOSAL

August 21, 2024

For

Fire Department Pumper

Prepared by the City of Storm Lake Fire Department

**Notice of Request for Proposal**

Notice is hereby given that sealed proposals will be received before October 8, 2024, at the Office of the Fire Chief, 820 Oneida Street, Storm Lake, Iowa 50588, for a Fire Department Pumper as specified and requested by the City of Storm Lake.

**Name of the Proposal:** Fire Department Pumper RFP  
**Date of Issuance:** August 21, 2024  
**Deadline for Proposal Submittal:** October 8, 2024, 3:00pm, CST. Proposals time stamped 3:01 or after are late

**Recommendation for Award:** Within 30 days of proposal closing

**Submit Proposals to:**

<b>Sealed Proposal: Fire Department Pumper</b> <b>Office of the Fire Chief</b> <b>820 Oneida Street</b> <b>Storm Lake, IA 50588</b>
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**Method of Submittal** US Mail, Overnight Delivery or In Person.  
Electronic and fax proposals are not acceptable.

**Contact Person** Glenn Schlessner, Fire Chief

**Email** [schlessner@stormlake.org](mailto:schlessner@stormlake.org)

**Phone/Fax** Phone: 712-732-8010  
Fax Number: 712-749-5172

The City is not responsible for delays occasioned by the U.S. Postal Service, the internal mail delivery system of the City, or any other means of delivery employed by the Submitter. Similarly, the City is not responsible for, and will not open, any proposal responses that are received on or after the time stated above. Late submittals will be retained in the RFP file, unopened. No responsibility will be attached to any person for premature opening of a proposal not properly identified.

Proposals will be evaluated promptly after opening. Proposals may be withdrawn any time prior to the scheduled closing time for receipt of proposals; no proposal may be modified or withdrawn for a period of sixty (60) calendar days thereafter.

Questions arising about these apparatus specifications shall be directed to:

Fire Chief Glenn Schlessner  
City of Storm Lake Fire Department  
820 Oneida Street  
Storm Lake, IA 50588  
(712) 732-8010

[Schlessner@stormlake.org](mailto:Schlessner@stormlake.org)

## **INTENT OF SPECIFICATIONS**

It shall be the intent of these specifications to provide a complete apparatus equipped as hereinafter specified. With a view to obtaining the best results and the most acceptable apparatus for service in the Department, these specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder 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 for all features. The vehicle shall adhere to The National Fire Protection Association Standards effective January 1, 2024, unless otherwise specified in these specifications, shall prevail. Bidders are also welcome to submit bid specifications for a mid-mount tower ladder. If specifications and bid for a tower ladder are attached to the engine RFP, they should be bid with three (3) pricing options as follows:

- 1- Bid price on engine only
- 2- Bid price on tower ladder only
- 3- Bid price on engine and tower ladder with multiple vehicle purchase discount

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction and have been in continuous business for a minimum of thirty-five (35) years. A written chronological history of the bidder shall be included in the bid response package.

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

Each bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus being furnished under this contract which conform. Computer runoff sheets are not acceptable as "Contractor's Specifications". Note: Each bidder shall submit their bid in the same sequence as these specifications to allow the department to easily compare bid. There shall be no exception to this requirement.

These specifications shall indicate size, type, model and make of all component parts and equipment.

## **DELIVERY:**

Apparatus, to ensure proper break-in of all components while still under warranty, shall be delivered under its own power. A qualified delivery engineer representing the contractor shall instruct the Fire Department Personnel in the proper operation, care and maintenance of the equipment delivered. The bidder will specify delivery in calendar days. The bidder will notify the purchaser in writing of any production delays.

## **HIGHWAY PERFORMANCE**

With the apparatus loaded to its estimated in-service weight, the front to rear weight distribution shall be within limits set by the chassis manufacturer. The apparatus shall comply with all GAWR and GVWR ratings of the chassis.

### **LIABILITY:**

The bidder, if their bid is accepted, shall defend any and all suits and assume all liability for the use of any patented device or article forming part of the apparatus or any appliance furnished under the contract.

### **GENERAL CONSTRUCTION:**

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles, so that all specified equipment, including filled water tank, a full complement of personnel and fire hose will be carried without injury to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of NFPA #1901.

The apparatus shall be designed so that all recommended daily maintenance checks can be performed easily by the operator, without the need for hand tools. Apparatus components that interfere with repair or removal of other major components must be attached with fasteners (cap, screws, nuts, etc.) so that the components can be removed and installed with normal hand tools. These components must not be welded or otherwise permanently secured into place.

### **EXCEPTIONS OR CLARIFICATIONS TO SPECIFICATIONS**

These specifications have been carefully prepared by the Department, taking into consideration, among other items, performance of our previous apparatus. In order to provide a unit that we know will give outstanding performance in our particular operating environment, the following Chassis, Pump and Body specifications shall be strictly adhered to. Exceptions or Clarifications shall be allowed if they are judged by the department to be equal to or superior to those items specified, and will be given careful consideration provided they are listed and fully explained on a separate page entitled "Exceptions or Clarifications to Specifications". This list must refer to our specification page number and paragraph. Proposals taking total exception to specifications or total exception to certain parts of the specifications such as Electrical Systems, Body or Pump, will not be accepted. Apparatus shall be inspected upon delivery for compliance with specifications. Deviations will not be tolerated and will be cause for rejection of Apparatus unless they were originally listed in bidder's proposal and accepted in writing by the department.

If the bidder takes an exception, on the exception page, the bidder must state an option price to bring their specifications into full compliance with the Department specifications. Failure to provide this information shall be cause to reject the proposal as being non-responsive.

### **PURCHASER'S RIGHTS**

The Purchaser reserves the right to accept or reject any or all bids as it deems to be of their best interest to do so.

### **CHASSIS STORAGE**

The chassis on which this apparatus will be constructed, shall not be stored where it will

be exposed to the sun, rain, snow, hail or other elements. The chassis shall be stored in an enclosed, protected environment until construction is begun. For evaluation purposes, photographs and a detailed description of the chassis storage provisions shall be included in the bid response package. There shall be no exception to these protected chassis storage provisions.

### **APPROVAL DRAWINGS**

After awarding the bid, the contractor shall provide detailed, "D" size engineering drawings for use at the pre-construction conference. These drawings shall include, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus shall be required with the bid. The drawing shall include right, left, top and rear views of the apparatus. These drawings shall be updated and sent back to the department if any changes are made at the pre-construction conference.

The successful contractor shall also provide a detailed pump panel layout drawing for department evaluation and approval before construction of the apparatus is begun. It is required that the pump and plumbing be designed and engineered in the builder's engineering department before construction. Plumbing assembled "on the floor" without engineering drawings, shall not be acceptable.

For evaluation purposes, samples of the as-built electrical system schematics, engineered plumbing drawings and pump panel layout approval drawings, shall be included in the bid proposal package.

### **PRODUCT LIABILITY INSURANCE**

To adequately protect the Department, and its members, the manufacturer shall provide a minimum of \$10,000,000.00 of liability insurance. A copy of the insurance certificate shall be included in the bidder's response package.

### **DELIVERY**

The unit shall be delivered under its own power, by a factory-trained representative. Bids that do not include delivery to the purchaser shall not be acceptable. The unit will remain insured by the apparatus manufacturer until the department accepts the unit.

### **INFORMATION FOR CONTRACTORS**

Sealed proposals are desired from reputable manufacturers of Automotive Fire/Rescue Apparatus in accordance with these attached specifications for the apparatus as briefly described below:

### **GENERAL REQUIREMENTS**

Each bid must be accompanied by bidders accurate written and detailed specifications covering the apparatus and related items which the bidder is proposing to furnish and to

which the apparatus furnished under contract must conform. It is the intent of these specifications to cover the furnishing to the purchaser a complete apparatus constructed and equipped exactly as specified in the attached specifications. Any details of construction, materials, or equipment not specified are left to the discretion of the Contractor, whom will be responsible for all construction and manufacturing techniques involved in the assembly of the apparatus.

All aspects of the apparatus shall conform to any applicable rules/regulations imposed to such vehicles by any of the following Governing Agencies:

- National Fire Protection Association (not including recommended equipment).
- Occupational Safety Health Administration.
- Federal Motor Vehicle Safety Standards.
- Department of Transportation.
- Underwriter's Laboratories.

### **EXCEPTIONS TO SPECIFICATIONS**

It is the intent of the Purchaser to purchase a fire/rescue apparatus that has a proven record of dependability and reliability in the fire/rescue service. Experimental manufacturing techniques or materials are not acceptable and will be immediately rejected. Exceptions to the attached specifications will be considered provided they are of equal or superior quality and/or value of what has been specified. All bidders shall provide supporting documentation with proposal that may prove the 'equal to' or 'superior' quality or value. The Purchaser shall be solely responsible for determining 'equal to' or 'superior' status. The Purchaser's decision regarding these items will be final and conclusive.

Any area(s) of the attached specification that contain statements such as 'no exceptions' or similar statements with the same general meaning shall be strictly adhered to. The Purchaser has deemed these items to be extremely important to achieve the final delivered product that the Purchaser wishes to purchase. Any exceptions to these areas will result in immediate rejection of that bidder's proposal regardless of bid price.

All exceptions, no matter how minor, or seemingly un-important, must be detailed fully with supporting documentation submitted with proposal. Failure to submit exceptions and supporting documentation will cause immediate rejection of bidder's proposal.

All bidders shall be aware that the attached specifications shall be made part of the Purchase Contract between the Purchaser and the contractor/bidder. The successful bidder will be required to meet all construction, fabrication, and material requirements as called for in these specifications. Any deviations from these specifications must be specifically listed, explained, and submitted with the bid proposal. Failure to submit the detailed exceptions will indicate to the Purchaser that an exception is not taken and the bidder will provide the construction, fabrication, and material requirements as desired by the Purchaser and detailed in the attached specifications. Submission of list of exceptions does not indicate acceptance/approval of exceptions by the Purchaser.

In the unlikely event that the contractor/bidder fails to construct the apparatus as requested in the attached specifications, the Purchaser retains the right to reject the entire apparatus and invoice the contractor/bidder for any costs or losses that the Purchaser may have incurred due to the contractor/bidder failing to meet specifications

described in the purchase contract.

### **"BRAND NAME" CLAUSE**

It is the intent of the Purchaser to purchase components that have a proven record of Fire Department use and satisfaction. All bidders should be aware that were brand names are listed in these specifications, comparable products from different manufacturers may be acceptable. The bidder shall simply provide the Department with a listing of brands that they intend to provide in lieu of the originally requested brand.

The Fire Department will evaluate the proposed brand name to determine if the brand is equal to or superior to the originally requested brand.

### **CONTRACTOR'S SPECIFICATIONS**

All contractor's or bidders shall submit a detailed specification as to how the apparatus being proposed will be constructed. The attached specifications, copies, or re-typed versions of these specifications shall not be submitted as contractors' specifications, (this will not pertain to the contractor whose specifications these are based on). Any manufacturer doing so will be rejected immediately on the following grounds:

*"Contractor/bidder did not provide sufficient supporting data describing the contractors/bidders manufacturing and fabrication processes implemented in the construction of the proposed apparatus versus what was requested in the Purchaser's original specifications."*

### **CORPORATE OWNERSHIP OF MANUFACTURER**

The manufacturer of the apparatus must be fully owned and managed by a Parent Company, Corporation, or Individual(s) that is 100% held by United States of America based Company, Corporation, or United States citizen(s).

Proposals from any manufacturer that is fully or partially owned and/or operated by a foreign company, Corporation or Individual(s) under any type of ownership, partnership, or any similar type of agreement will be immediately rejected.

### **CORPORATE CONTACT INFORMATION**

The purchaser shall be provided with the following information to allow them to contact the President/CEO of the manufacturing company (not dealer) when deemed necessary:

- Name of Company President.
- Office address.
- Office telephone number.
- Email address.
- Home address.
- Home telephone number.
- 24/7 Cellular telephone number.

If the manufacturing company is a subsidiary of, division of, or owned by a different Company, the above information shall also be provided on the 'Parent' Company.

There will be no exception to this requirement.

### **AWARD OF CONTRACT**

The bid shall be awarded to the contractor or bidder that most closely meets all requirements set forth in the attached specifications. All contractor's or bidders shall be aware that exceptions taken will not affect the award of bid provided that all exceptions are determined to be 'equal to' or 'superior to' the attached specifications. The Purchaser shall be solely responsible to determine this.

The purchase contract shall list the manufacturer of the apparatus as the Contractor and shall not include a sales representative or company as the Contractor unless these are one in the same. The purchase contract shall be presented to the Purchaser within 15 days of notification of bid award to the contractor/bidder.

All contractor's or bidder's shall be aware that it is not the intention of the Purchaser to award the contract to the apparent low bidder. The Purchaser reserves the right to reject any or all bids and to accept the bid that the Purchaser feels is in the best interest of the Purchaser both now and in the future.

### **DELIVERY OF COMPLETED APPARATUS**

When the apparatus is completed at the manufacturer's facility, a factory trained delivery technician shall deliver the apparatus to the Purchaser. The technician shall familiarize all individuals designated by the purchaser on the operation and maintenance of the apparatus at this time. The technician shall remain at the purchaser's location for a sufficient period of time to allow all individuals to gain a thorough knowledge of the operation of the apparatus.

### **PRE-DELIVERY INSPECTION**

The contractor shall provide a pre-delivery inspection at the factory in which the apparatus will be constructed. All travel expenses incurred by the purchaser for up to one (4) officials shall be paid by the contractor. Air fare and overnight expenses shall be included. The bidder shall indicate in their proposal that this inspection will be provided.

### **BLUEPRINT DRAWING(S) - one (1)**

All bidder's must submit with their proposal one (1) blueprint drawing(s) of the exact apparatus being proposed. Drawing(s) of similar units **will not** be acceptable. Blueprint(s) must be submitted on minimum "B" size, 11" x 17" paper to allow for an accurate, easy to read, visual interpretation of the apparatus proposed by the manufacturer.

The drawing(s) shall show the complete left side view of the apparatus, including the chassis as well as right side and rear body views showing all compartment dimensions, door opening sizes, compartment depths, and total cubic feet of usable compartment space per compartment.

Any proposal received without the required drawing(s) will be immediately rejected.

### **WARRANTY**

All bidders shall submit warranty information on all of the following items:

1. Chassis including engine and transmission.
2. Fire Pump and related accessories.
3. Booster tank.
4. Apparatus body and paint.

All warranties shall be fully defined and explained on the respective manufacturer's official Certificate of Warranty document. Either the original certificate or copy of an identical certificate will be acceptable.

It is assumed that the manufacturer of the apparatus will be familiar with the installation requirements of component parts used in the construction of the apparatus that are not actually manufactured by the apparatus manufacturer, (ie: booster tank and fire pump ). If, however, the manufacturer fails to strictly follow the installation requirements of the component part manufacturer, the apparatus manufacturer will assume the warranty liability for the duration of the component parts warranty normally offered.

### **BID GUARANTY**

All bids shall be accompanied by a Surety or Bid Bond in the amount of 10 percent of the bid amount made payable to the purchaser and provided by the manufacturer of the apparatus. (Bonds submitted by dealers or agents will not be acceptable.) Failure to submit this bond, or submission by a dealer or agent in lieu of the manufacturer, will result in immediate rejection of said bid proposal.

### **PERFORMANCE AND PAYMENT GUARANTY**

The successful bidder to whom the award is made shall execute and deliver to the purchaser a Performance and Payment bond on the amount of 100 percent of the contract price amount. The Bond shall be made payable to the purchaser and shall be provided by the manufacturer of the apparatus. (Bonds submitted by dealers or agents will not be acceptable.) Failure to submit this bond within 21 days of official notification of bid award will result in rejection of said bid proposal.

### **SERVICE CENTER**

The bidder shall provide service information on the apparatus. The bidder shall list the nearest service center in relationship to the purchaser's location and the distance from the purchaser shall also be listed. This service center must be capable of performing all maintenance and repairs on the apparatus in a timely manner.

## Vehicle Specifications

<u>General Requirements</u>	<u>Meets Spec. Yes/No</u>	<u>Comments</u>
<b><u>This unit will comply with the NFPA standards effective January 1, 2024, except for fire department directed exceptions. These exceptions will be set forth in the Statement of Exceptions.</u></b>		
<b><u>Certification of slip resistance of all stepping, standing and walking surfaces will be supplied with delivery of the apparatus.</u></b>		
<b><u>Apparatus proposed by the bidder will meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications will be indicated in the proposal as "non-NFPA".</u></b>		
<b><u>Underwriters Laboratory (UL) will test, approved, and certify the pump. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the pump manufacturer's record of pump construction details will be forwarded to the Fire Department.</u></b>		
<b><u>If the unit has a generator, Underwriters Laboratory (UL) will test, approved, and certify the generator. The test results will be provided to the Fire Department at the time of delivery.</u></b>		
<b><u>Two (2) electrical wiring diagrams, prepared for the model of chassis and body, will be provided.</u></b>		
<b><u>The wheelbase of the vehicle will be 220.50".</u></b>		

<p><b>The gross vehicle weight rating will be 54,000.</b></p>		
<p><b>The chassis frame will be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails will be heat-treated steel measuring 10.25" x 3.50" x 0.375". Each rail will have a section modulus of 16.00 cubic inches, yield strength of 120,000 psi, and a resisting bending moment (rbm) of 1,921,069 inch-pounds.</b></p>		
<p><b>A full-length mainframe "C" liner will be provided. The liner will be an internal "C" design, heat-treated steel measuring 9.38" x 3.13" x .25". Each reinforcement member will have a section modulus of 3.90 cubic inches, yield strength of 120,000 psi and resisting bending moment (rbm) of 938,762 in-lb. In addition, a L-shaped steel channel reinforcement will be located under each mainframe rail.</b></p>		
<p><b>The front axle will be a reverse "I" beam type with inclined king pins. It will be a Dana®, Model D2200, with a rated capacity of 23,000 lb.</b></p>		
<p><b>The front springs will be a Standens, three (3)-leaf, taper leaf design, 54.00" long x 4.00" wide, with a ground rating of 23,000 lb. The two (2) top leaves will wrap the forward spring hanger pin. The top leaf will also wrap the rear spring hanger pin. Both the front and rear eyes will be Berlin style wraps that will place the eyes in the horizontal plane within the main leaf. This will reduce bending stress from acceleration and braking. A steel encased rubber bushing will be used in the spring eye. The steel encased rubber bushing will be maintenance free and require no lubrication.</b></p>		

<p><b><u>To provide a smoother ride, the front axle will be furnished with heavy-duty telescoping shock absorbers.</u></b></p>		
<p><b><u>Front tires will be Michelin 425/65R22.50 radials, 20 ply all-position XZY3 wide base tread, rated for 24,400 lb maximum axle load and 65 mph maximum speed. The tires will be mounted on Alcoa© 22.50" x 12.25" Dura-Black® polished aluminum disc type wheels with a ten (10) stud, 11.25" bolt circle.</u></b></p>		
<p><b><u>The rear axle will be a Dana, Model S30-190, single axle assembly with a capacity of 31,000 lb.</u></b></p>		
<p><b><u>A rear axle ratio will be furnished to allow the vehicle to reach a top speed of 60 mph/96KPH.</u></b></p>		
<p><b><u>The rear suspension will be Standens, semi-elliptical, 3.00" wide x 52.50" long, with a ground rating of 31,000 lbs. The spring hangers will be castings. The two (2) top leaves will wrap the forward spring hanger pin, and the rear of the spring will be a slipper style end that will ride in a rear slipper hanger. A steel encased rubber bushing will be used in the spring eye. The steel encased rubber bushing will be maintenance free and require no lubrication.</u></b></p>		
<p><b><u>Oil seals will be provided on the rear axle(s).</u></b></p>		
<p><b><u>Rear tires will be four (4) Michelin 315/80R22.50 radials, load range L, XDN2 Grip traction tread, rated for 35,396 lb maximum axle load and 75 mph maximum speed.</u></b></p>		
<p><b><u>The tires will be mounted on Alcoa© 22.50" x 9.00" Dura-Black® aluminum disc wheels with a ten (10) stud, 11.25" bolt circle.</u></b></p>		

<p><b>All tires will be balanced with Counteract balancing beads. The beads will be inserted into the tire and eliminate the need for wheel weights.</b></p>		
<p><b>There will be a RealWheels LED AirSecure™ tire alert pressure management system provided, that will monitor each tire's pressure. A sensor will be provided on the valve stem of each tire for a total of six (6) tires. The sensor will calibrate to the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor will activate an integral battery-operated LED when the pressure of that tire drops 5 to 8 psi. Removing the cap from the sensor will indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED will immediately start to flash.</b></p>		
<p><b>Black lug nut covers will be supplied on front and rear wheels.</b></p>		
<p><b>Stainless steel hub covers will be provided on the front axle. An oil level viewing window will be provided. They will be painted black.</b></p>		
<p><b>Mud flaps will be installed behind the front and rear wheels.</b></p>		
<p><b>There will be one (1) pair of folding Ziamatic, Model SAC-44-E, aluminum alloy, Quick-Choc wheel blocks, with easy-grip handle provided. The brackets will be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets will be mounted below the left side rear compartment.</b></p>		
<p><b>A vehicle control system will be provided as an integral part of the ABS brake system from Meritor Wabco.</b></p>		

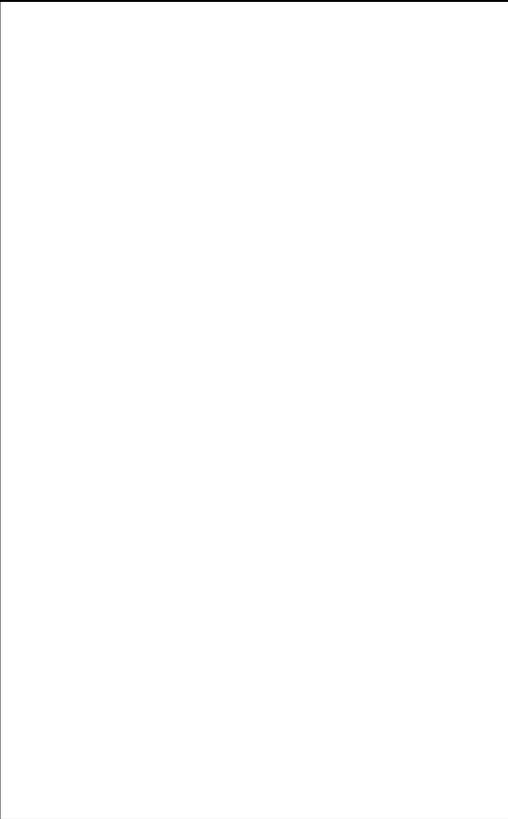
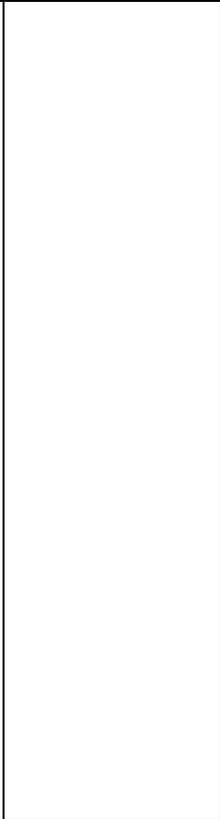
<p><b><u>The vehicle will be equipped with a Wabco 4S4M, anti-lock braking system. The ABS will provide a four (4) channel anti-lock braking control on both the front and rear wheels.</u></b></p>		
<p><b><u>The service brake system will be full air type by Bendix®.Front brakes will be Model ADB22X™, disc type with automatic pad wear adjustment and 17.00" rotors for improved stopping distance.The rear brakes will be Bendix®, Model ES1657D, 16.50" x 7.00" cam operated with automatic slack adjusters.</u></b></p>		
<p><b><u>The brake system will include:</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>Brake treadle valve</u></b></li> <li>• <b><u>Heated automatic moisture ejector on air dryer</u></b></li> <li>• <b><u>Total air system minimum capacity of 5,376 cubic inches</u></b></li> <li>• <b><u>Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi</u></b></li> <li>• <b><u>Spring set parking brake system</u></b></li> <li>• <b><u>Parking brake operated by a push-pull style control valve</u></b></li> <li>• <b><u>A parking "brake on" indicator light on instrument panel</u></b></li> <li>• <b><u>Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, with an automatic spring brake application at 40 psi</u></b></li> <li>• <b><u>A pressure protection valve to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa)</u></b></li> <li>• <b><u>1/4 turn drain valves on each air tank</u></b></li> </ul> <p><b><u>The air tank will be primed and painted to meet a minimum 750 hour salt spray test.</u></b></p> <p><b><u>The air tanks will be gloss black #101.</u></b></p> <p><b><u>To reduce the effects of corrosion,</u></b></p>		

<p><b><u>the air tank will be mounted with stainless steel brackets.</u></b></p>		
<p><b><u>The air dryer will be a Bendix AD-SP, with heater.</u></b></p>		
<p><b><u>Color-coded nylon brake lines will be provided. The lines will be wrapped in a heat protective loom in the chassis areas that are subject to excessive heat.</u></b></p>		

<p><b><u>A Kussmaul, Model 091-9HP, air compressor will be provided. It will be driven by the 120-volt shoreline electrical system and will be located behind driver's seat. The compressor will maintain the air pressure in the chassis air brake system while the vehicle is not in use. A pressure switch will sense when the system pressure drops and automatically start the compressor, which then will run until pressure is restored.</u></b></p>		
<p><b><u>he chassis will be powered by an electronically controlled engine as described below:</u></b>  <b><u>Make: Cummins</u></b>  <b><u>Model: X10</u></b>  <b><u>Power: 450 hp at 2100 rpm</u></b>  <b><u>Torque: 1250 lb-ft at 1400 rpm</u></b>  <b><u>Governed Speed: 2200 rpm EPA 2027 Diesel</u></b>  <b><u>Six (6)</u></b>  <b><u>606 cubic inches (9.9L)</u></b>  <b><u>Delco 39MT™</u></b>  <b><u>Spin-on style primary filter with water separator and water-in-fuel sensor. Secondary spin-on style filter.</u></b></p>		
<p><b><u>The engine will include On-board diagnostics (OBD), which provides self diagnostic and reporting.</u></b></p>		
<p><b><u>A high idle switch will be provided, inside the cab, on the instrument panel, that will automatically maintain a preset engine rpm. A switch will be installed, at the cab instrument panel, for activation/deactivation.</u></b>  <b><u>The high idle will be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light will be provided, adjacent to the switch.</u></b>  <b><u>The light will illuminate when the above conditions are met. The light</u></b></p>		

<p><b><u>will be labeled "OK to Engage High Idle."</u></b></p>		
<p><b><u>A Jacobs® engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver. The driver will be able to turn the engine brake system on/off and have a high, medium and low setting. The engine brake will activate when the system is on and the throttle is released. The high setting of the brake application will activate and work simultaneously with the variable geometry turbo (VGT) provided on the engine. The engine brake will be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated. The ABS system will automatically disengage the auxiliary braking device, when required.</u></b></p>		
<p><b><u>A fan clutch will be provided. The fan clutch will be automatic when the pump transmission is in "Road" position, and constantly engaged when in "Pump" position.</u></b></p>		
<p><b><u>The engine air intake will be located above the engine cooling package. It will draw fresh air from the front of the apparatus through the radiator grille.</u></b></p>		

**The exhaust system will be stainless steel from the turbo to the engine's aftertreatment device. The exhaust system will include an aftertreatment device to meet current EPA standards. An insulation wrap will be provided on all exhaust pipe between the turbo and the aftertreatment device to minimize the transfer of heat to the cab. The exhaust will terminate horizontally ahead of the right side rear wheels and will extend 2.00" past the body rub rail. The exhaust pipes will be aluminized steel. There will be an aluminized steel exhaust diffuser with a standard straight tip on the end provided to reduce the temperature of the exhaust as it exits. Heat deflector shields will be provided to isolate chassis and body components from the heat of the tailpipe diffuser.**



**The radiator and the complete cooling system will meet or exceed the current edition of applicable NFPA and engine manufacturer cooling system standards. For maximum corrosion resistance and cooling performance, the entire radiator core will be constructed using long life aluminum alloy. The radiator core will consist of aluminum fins, having a serpentine design, brazed to aluminum tubes. The radiator core will have a minimum front area of 1060 square inches. Supply tank will be made of heavy duty glass-reinforced nylon and the return tank will be made of aluminum. Both tanks will be crimped onto the core assembly using header tabs and a compression gasket to complete the radiator core assembly. There will be a full steel frame around the inserts to enhance cooling system durability and reliability. The radiator will be compatible with commercial antifreeze solutions. The radiator assembly will be isolated from the chassis frame rails with rubber isolators to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven terrain. The radiator will include a de-aeration/expansion tank. For visual coolant level inspection, the radiator will have a built-in sight glass. The radiator will be equipped with a 15 psi pressure relief cap. A drain port will be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system. Shields or baffles will be provided to prevent recirculation of hot air to the inlet side of the radiator.**

<p><b><u>Gates, or Goodyear, rubber hose will be used for all engine coolant lines installed by manufacturer. Hose clamps will be stainless steel constant torque type to prevent coolant leakage. They will expand and contract according to coolant system temperature thereby keeping a constant clamping pressure on the hose.</u></b></p>		
<p><b><u>A 65 gallon fuel tank will be provided and mounted at the rear of the chassis. The tank will be constructed of 12-gauge, hot rolled steel. It will be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank will be mounted with stainless steel straps. A 0.75" drain plug will be located in a low point of the tank for drainage. A fill inlet will be located on the left hand side of the body and is covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only." A 0.50" diameter vent will be installed from tank top to just below fuel fill inlet. The fuel tank will meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume. All fuel lines will be provided as recommended by the engine manufacturer.</u></b></p>		

<p><b><u>A 4.5 gallon diesel exhaust fluid (DEF) tank will be provided and mounted in the left side body forward of the rear axle.</u></b></p> <p><b><u>A 0.50" drain plug will be provided in a low point of the tank for drainage.</u></b></p> <p><b><u>A fill inlet will be located on the left side of the body and be covered with a hinged, spring loaded, polished stainless steel door that is marked "Diesel Exhaust Fluid Only".</u></b></p> <p><b><u>The tank will meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing.</u></b></p> <p><b><u>The tank will include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.</u></b></p>		
<p><b><u>A Cummins automatic electronic fuel priming pump will be integrated as part of the engine.</u></b></p>		
<p><b><u>An Allison 6th generation, Model EVS 3000P, electronic torque converting automatic transmission will be provided. The transmission will be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display will indicate when service is due. Two (2) PTO openings will be located on both sides of converter housing (positions 4 o'clock and 8 o'clock) as viewed from the rear. A transmission temperature gauge with amber light and audible alarm will be installed on the cab dash.</u></b></p>		

<p><b><u>A five (5)-speed push button shift module will be mounted to right of driver on console. Shift position indicator will be indirectly lit for after dark operation.</u></b>  <b><u>The transmission ratio will be:</u></b>  <b><u>1st 3.49 to 1.00</u></b>  <b><u>2nd 1.86 to 1.00</u></b>  <b><u>3rd 1.41 to 1.00</u></b>  <b><u>4th 1.00 to 1.00</u></b>  <b><u>5th 0.75 to 1.00</u></b>  <b><u>R 5.03 to 1.00</u></b></p>		
<p><b><u>A Modine plate and fin transmission oil cooler will be provided using engine coolant to control the transmission oil temperature.</u></b></p>		
<p><b><u>Drivelines will be a heavy-duty metal tube and be equipped with Spicer® 1710 universal joints.</u></b>  <b><u>The shafts will be dynamically balanced before installation.</u></b>  <b><u>A splined slip joint will be provided in each driveshaft where the driveline design requires it. The slip joint will be coated with Glidecoat® or equivalent.</u></b></p>		
<p><b><u>Dual steering gear, with integral heavy-duty power steering, will be provided. For reduced system temperatures, the power steering will incorporate an air to oil cooler and Vickers® V20NF hydraulic pump with integral pressure and flow control. All power steering lines will have wire braded lines with crimped fittings. A tilt and telescopic steering column will be provided to improve fit for a broader range of driver configurations.</u></b></p>		

<p><b>The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a four (4)-spoke design.</b></p> <p><b>There will be a switch pod provided on the left side of the steering wheel between the spokes. The switch pods will be an integral part of the steering wheel. The following switches will be provided:</b></p> <ul style="list-style-type: none"> <li>• <b>Windshield wash</b></li> <li>• <b>Wiper intermittent speed increase</b></li> <li>• <b>Wiper intermittent speed decrease</b></li> <li>• <b>Hi/Lo wiper speed</b></li> <li>• <b>Wiper off</b></li> </ul>		
<p><b>A one (1) piece, ten (10) gauge, 304-2B type polished stainless steel bumper, a minimum 10.00" high will be attached to a bolted modular extension frame constructed of 50,000 psi tensile steel "C" channel mounted directly behind it to provide adequate support strength. The bumper will be extended 27.00" from front face of cab. The bumper extension will be designed specifically for the special booster reel installation.</b></p>		
<p><b>A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and cab face. The gravel pan will be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate</b></p>		
<p><b>An enclosure, constructed of aluminum, will be placed in the center of the bumper extension for mounting of hose reel. Drain holes are also provided.</b></p>		

<p><b><u>Two (2) chromed steel tow hooks will be installed under the bumper and attached to the front frame members. The tow hooks will be designed and positioned to allow up to a 6,000 lb straight horizontal pull in line with the centerline of the vehicle. The tow hooks will not be used for lifting of the apparatus.</u></b></p>		
<p><b><u>The cab will be built by the apparatus manufacturer in a facility located on the manufacturer's premises.</u></b>  <b><u>For reasons of structural integrity and enhanced occupant protection, the cab will be a heavy duty design, constructed to the following minimal standards.</u></b></p>		
<p><b><u>The cab will have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts), and rear wall areas. The A-pillar will be constructed of solid A356-T5 aluminum castings.</u></b>  <b><u>The B-pillar and C-pillar will be constructed from 0.13" wall extrusions. The rear wall will be constructed of two (2) 2.00" x 2.00" outer aluminum extrusions and two (2) 2.00" x 1.00" inner aluminum extrusions. All main vertical structural members will run from the floor to 4.625" x 3.864" x 0.090" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.25" thick corner casting at each of the front corners of the roof assembly.</u></b></p>		

<p><b>The front of the cab will be constructed of a 0.13" firewall plate, covered with a 0.090" front skin (for a total thickness of 0.22"), and reinforced with a full width x 0.50" thick cross-cab support located just below the windshield and fully welded to the engine tunnel. The cross-cab support will run the full width of the cab and weld to each A-pillar, the 0.13" firewall plate, and the front skin. The cab floors will be constructed of 0.125" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.375" of structural material at the front floor area. The front floor area will also be supported with two (2) triangular 0.30" wall extrusions that also provides the mounting point for the cab lift. This tubing will run from the floor wireway of the cab to the engine tunnel side plates, creating the structure to support the forces created when lifting the cab.</b></p>		
<p><b>The cab will be 96.00" wide (outside door skin to outside door skin) to maintain maximum maneuverability. The centerline of front axle to the rear of the cab will be 70.00" long. The forward cab section will have an overall height (from the cab roof to the ground) of approximately 99.00". The crew cab section will have a 10.00" raised roof, with an overall cab height of approximately 109.00". The overall height listed will be calculated based on a truck configuration with the lowest suspension weight rating, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires,</b></p>		

<p><b>wheels, and suspension will increase the overall height listed.</b></p>		
<p><b>The floor to ceiling height inside the crew cab will be 64.50" in the center and outboard positions. The crew cab floor will measure 46.00" from the rear wall to the back side of the rear facing seat risers. The medium block engine tunnel, at the rearward highest point (knee level), will measure 61.50" to the rear wall. The big block engine tunnel will measure 51.50" to the rear wall. The crew cab will be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants. The cab will be a full tilt cab style. A 3-point cab mount system with rubber isolators will improve ride quality by isolating chassis vibrations from the cab.</b></p>		
<p><b>For enhanced protection from inclement weather, a drip rail will be furnished on the sides of the cab. The drip rail will be painted to match the cab roof, and bonded to the sides of the cab. The drip rail will extend the full length of the cab roof.</b></p>		

<p><b>Full circular inner fender liners in the wheel wells will be provided.</b></p>		
<p><b>A one (1)-piece safety glass windshield will be provided with over 2,775 square inches of clear viewing area. The windshield will be full width and will provide the occupants with a panoramic view. The windshield will consist of three (3) layers: outer light, middle safety laminate, and inner light. The outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage. The inner light will provide yet another chip resistant layer. The cab windshield will be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern will be applied on the outside perimeter of the windshield for a finished automotive appearance.</b></p>		
<p><b>Three (3) electric windshield wipers with washer will be provided that meet FMVSS and SAE requirements. The washer reservoir will be able to be filled without raising the cab.</b></p>		
<p><b>Engine hood side walls will be constructed of 0.375" aluminum. The top will be constructed of 0.125" aluminum and will be tapered at the top to allow for more driver and passenger elbow room. The engine hood will be insulated for protection from heat and sound. The noise insulation keeps the dBA level within the limits stated in the current edition of applicable NFPA standards. The engine tunnel will be no higher than 17.00" off the crew cab floor.</b></p>		

<p><b><u>The cab will include 1.00" insulation in the ceiling, 1.50" insulation in the side walls, a minimum of 1.00" insulation in the crew cab floor, and 2.00" insulation in the rear wall to maximize acoustic absorption and thermal insulation.</u></b></p>		
<p><b><u>The interior rear wall of the crew cab will have mounting holes every 2.75" to allow for adjustability of the forward facing crew cab seating along the rear wall. Seats will be adjustable with use of simple hand tools allowing departments flexibility of their seating arrangement should their department needs change.</u></b></p>		
<p><b><u>The exterior surface of the rear wall of the cab will be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.</u></b></p>		
<p><b><u>A hydraulic cab lift system will be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves. Hydraulic pump will have a manual override for backup in the event of electrical failure. Lift controls will be located on the right side pump panel or front area of the body in a convenient location. A "cab unlocked" indicator light will be located at the controls that will indicate when the cab is not in the locked position for safe road travel. The cab will be capable of tilting 43 degrees to accommodate engine maintenance and removal.</u></b></p>		

<p><b><u>The cab will be locked down by a 2-point normally closed spring loaded hook type latch that fully engages after the cab has been lowered. The system will be hydraulically actuated to release the normally closed locks when the cab lift control is in the raised position and cab lift system is under pressure. When the cab is completely lowered and system pressure has been relieved, the spring loaded latch mechanisms will return to the normally closed and locked position.</u></b></p> <p><b><u>The hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the control is located in the tilt position.</u></b></p> <p><b><u>For increased safety, a redundant mechanical stay arm will be provided that must be manually put in place on the left side between the chassis and cab frame when the cab is in the raised position. This device will be manually stowed to its original position before the cab can be lowered.</u></b></p>		
<p><b><u>The cab lift system will be interlocked to the parking brake. The cab tilt mechanism will be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism will be disabled</u></b></p>		
<p><b><u>A bright finished aluminum mesh grille screen, inserted behind a bright finished grille surround, will be provided on the front center of the cab.</u></b></p>		
<p><b><u>All cab door jambs will be furnished with a 1.00" polished stainless steel</u></b></p>		

<p><b><u>scuffplate, mounted on the striker side of the jamb</u></b></p>		
<p><b><u>Chrome molding will be provided on both sides of cab.</u></b></p>		
<p><b><u>A Retrac, Model 613423, dual vision, motorized, west coast style mirror, with chrome finish, will be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass will be heated and adjustable with remote control within reach of the driver.</u></b></p>		
<p><b><u>To enhance entry and egress to the cab, the forward cab door openings will be a minimum of 37.50" wide x 63.37" high. The crew cab doors will be located on the sides of the cab and will be constructed in the same manner as the forward cab doors. The crew cab door openings will be a minimum of 34.30" wide x 73.25" high.</u></b></p> <p><b><u>The forward cab and crew cab doors will be constructed of extruded aluminum with a nominal material thickness of 0.093". The exterior door skins will be constructed from 0.090" aluminum.</u></b></p> <p><b><u>A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door. The finish of the door handle will be chrome/black. The exterior handle will be designed specifically for the fire service to prevent accidental activation, and will provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands.</u></b></p>		

<p><b><u>Each door will also be provided with an interior flush, open style paddle handle that will be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles will provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands. The cab doors will be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys will be Model 751. The locks will be capable of activating when the doors are open or closed. The doors will remain locked if locks are activated when the doors are opened, then closed. A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf will be provided on all cab doors. There will be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit. A chrome grab handle will be provided on the inside of each cab door for ease of entry. A red webbed grab handle will be installed on the crew cab door stop strap. The grab handles will be securely mounted. The bottom cab step at each cab door location will be located below the cab doors and will be exposed to the exterior of the cab.</u></b></p>		
<p><b><u>The inner cab door panels will be constructed out of brushed stainless steel.</u></b></p>		
<p><b><u>All cab entry doors will contain a conventional roll down window.</u></b></p>		

<p><b>The forward cab and crew cab access steps will be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps will be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps will be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps will be a minimum 25.00" wide, and the crew cab steps will be 21.65" wide with a 10.00" minimum depth. The inside cab steps will not exceed 16.50" in height. The vertical surfaces of the step well will be aluminum treadplate.</b></p>		
<p><b>A 1.25" diameter slip-resistant, knurled aluminum handrail will be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress.</b></p>		
<p><b>There will be six (6) white LED step lights with chrome housing installed for cab and crew cab access steps.</b></p> <ul style="list-style-type: none"> <li>• <b>One (1) light for the left access steps.</b></li> <li>• <b>Two (2) lights for the left side crew cab access steps.</b></li> <li>• <b>Two (2) lights for the right side crew cab access steps.</b></li> <li>• <b>One (1) light for the right side access step.</b></li> </ul> <p><b>In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.</b></p> <p><b>The lights will be activated when the battery switch is on and the adjacent door is opened.</b></p>		

<p><b><u>Stainless steel fender crowns will be installed at the cab wheel openings.</u></b></p>		
<p><b><u>One (1) fixed window with tinted glass will be provided on each side of the cab, to the rear of the front cab door. The windows will be sized to enhance light penetration into the cab interior. The windows will measure 18.70" wide x 23.75" high.</u></b></p>		
<p><b><u>An enclosure will be installed on three sides of the Night Scan light on the cab roof. The back side will be open to prevent water and debris from collecting in the Night Scan area. The enclosure will be constructed out of aluminum and painted to match the cab roof. The sides of the enclosure will be even with the top of the Night Scan light in the stored position and the front will be at a sloped back angle.</u></b></p>		
<p><b><u>The driver side dash, switch panel located to the right of the driver, and center console will be constructed of metal and painted fire smoke gray.</u></b></p> <p><b><u>The officer side dash will be a flat top design with an upper beveled edge to provide easy maintenance and will be constructed out of aluminum and painted to match the cab interior.</u></b></p> <p><b><u>The instrument gauge cluster will be surrounded with a high impact ABS plastic contoured to the same shape of the instrument gauge cluster.</u></b></p>		

<p><b><u>The cab interior will be constructed of primarily metal (painted aluminum) to withstand the severe duty cycles of the fire service. The engine tunnel will be painted aluminum to match the cab interior. For durability and ease of maintenance, the cab interior side walls will be painted aluminum. The rear wall will be painted aluminum. The headliner will be installed in both forward and rear cab sections. Headliner material will be vinyl. A sound barrier will be part of its composition. Material will be installed on an aluminum sheet and securely fastened to interior cab ceiling. The forward portion of the cab headliner will permit easy access for service of electrical wiring or other maintenance needs. All wiring will be placed in metal raceways.</u></b></p>		
<p><b><u>The cab and crew cab floor areas will be covered with Polydamp™ acoustical floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler.</u></b></p>		
<p><b><u>A ceiling mounted combination heater, defroster and air conditioning system will be installed in the cab above the engine tunnel area.</u></b></p>		

<p><b><u>A 54,000 BTU heater-defroster unit with 690 SCFM of air flow will be provided inside the cab. The heater-defrost will be installed in the forward portion of the cab ceiling. Air outlets will be strategically located in the cab header extrusion per the following:</u></b></p> <ul style="list-style-type: none"> <li><b><u>• One (1) adjustable outlet directed towards the left side cab window.</u></b></li> <li><b><u>• One (1) adjustable outlet directed towards the right side cab window.</u></b></li> <li><b><u>• Six (6) fixed outlets directed at the windshield.</u></b></li> </ul> <p><b><u>The defroster will be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system will meet or exceed SAE J382 requirements.</u></b></p>		
<p><b><u>There will be one (1) 31,000 BTU auxiliary heater with 560 SCFM of air flow provided in each outboard rear facing seat risers with a dual scroll blower. An aluminum plenum incorporated into the cab structure used to transfer heat to the forward positions.</u></b></p>		

<p><b><u>A condenser will be a 59,644 BTU output that meets and exceeds the performance specification will be mounted on the radiator.The air conditioning system will be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50 percent relative humidity within 30 minutes. The cooling performance test will be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.The evaporator unit will be installed in the rear portion of the cab ceiling over the engine tunnel. The evaporator will include one (1) high performance heating core, one (1) high performance cooling core with (1) plenum directed to the front and one (1) plenum directed to the rear of the cab. The rear plenum will be covered with a formed plastic cover.The evaporator unit will have a 52,000 BTU at 690 SCFM rating that meets and exceeds the performance specifications.</u></b></p>		
<p><b><u>Adjustable air outlets will be strategically located on the forward plenum cover per the following:</u></b></p> <ul style="list-style-type: none"> <li><b><u>• Four (4) outlets directed towards the seating position on the left side of the cab.</u></b></li> <li><b><u>• Four (4) outlets directed towards the seating position on the right side of the cab.</u></b></li> </ul> <p><b><u>Adjustable air outlets will be strategically located on the rear plenum cover per the following:</u></b></p> <ul style="list-style-type: none"> <li><b><u>• Minimum of five (5) outlets directed towards crew cab area.</u></b></li> </ul> <p><b><u>A high efficiency particulate air (HEPA) filter will be included for the system. Access to the filter cover will be secured with four (4) screws. The air conditioner refrigerant will</u></b></p>		

**be R-134A and will be installed by a certified technician.**

**An automotive style controller will be provided to control the heat and air conditioning system within the cab. The controller will have three (3) functional knobs for fan speed, temperature, and air flow distribution (front to rear) control. The system will control the temperature of the cab and crew cab automatically by pushing the center of the fan speed control knob. Rotate the center temperature control knob to set the cab and crew cab temperature. The AC system will be manually activated by pushing the center of the temperature control knob. Pushing the center of the air flow distribution knob will engage the AC for max defrost, setting the fan speeds to 100 percent and directing all air flow to the overhead forward position. The system controller will be located within panel position #12.**

<p><b><u>Two (2) condensate drain tubes will be provided for the air conditioning evaporator. The drip pan will have two (2) drain tubes plumbed separately to allow for the condensate to exit the drip pan. No pumps will be provided.</u></b></p>		
<p><b><u>Two (2) smoked Lexan™ sun visors will be provided. The sun visors will be located above the windshield with one (1) mounted on each side of the cab.</u></b>  <b><u>There will be a black plastic thumb latch provided to help secure each sun visor in the stowed position.</u></b></p>		
<p><b><u>A black rubber covered grab handle will be mounted on the door post of the driver and officer's side cab door to assist in entering the cab. The grab handles will be securely mounted to the post area between the door and windshield.</u></b></p>		
<p><b><u>There will be one (1) Whelen, Model 3SC0CDCR, 12 volt DC, 3.00" white LED light(s) with Whelen, Model 3FLANGEC, chrome flange kit(s) installed under the cab to be used as engine compartment illumination. These light(s) will be activated automatically when the cab is raised.</u></b></p>		
<p><b><u>For access to the engine oil and transmission fluid dipsticks, there will be a door on the engine tunnel, inside the crew cab. The door will be on the rear wall of the engine tunnel, on the vertical surface.</u></b>  <b><u>The engine oil dipstick will allow for checking only. The transmission dipstick will allow for both checking and filling.</u></b>  <b><u>The door will have a rubber seal for thermal and acoustic insulation.</u></b>  <b><u>One (1) flush lift and turn latch will be provided on the access door.</u></b></p>		

<p><b><u>The cab will be provided with a safety system designed to protect occupants in the event of a side roll or frontal impact, and will include the following:</u></b></p> <ul style="list-style-type: none"> <li><b><u>• A supplemental restraint system (SRS) sensor will be installed on a structural cab member behind the instrument panel. The SRS sensor will perform real time diagnostics of all critical subsystems and will record sensory inputs immediately before and during a side roll or frontal impact event.</u></b></li> <li><b><u>• A slave SRS sensor will be installed in the cab to provide capacity for eight (8) crew cab seating positions.</u></b></li> <li><b><u>• A fault-indicating light will be provided on the vehicle's instrument panel allowing the driver to monitor the operational status of the SRS system.</u></b></li> <li><b><u>• A driver side front air bag will be mounted in the steering wheel and will be designed to protect the head and upper torso of the occupant, when used in combination with the 3-point seat belt.</u></b></li> </ul>		
<ul style="list-style-type: none"> <li><b><u>• A passenger side knee bolster air bag will be mounted in the modesty panel below the dash panel and will be designed to protect the legs of the occupant, when used in combination with the 3-point seat belt.</u></b></li> <li><b><u>• Air curtains will be provided in the outboard bolster of outboard seat backs to provide a cushion between occupant and the cab wall.</u></b></li> <li><b><u>• Suspension seats will be provided with devices to retract them to the lowest travel position during a side roll or frontal impact event.</u></b></li> <li><b><u>• Seat belts will be provided with pre-tensioners to remove slack from the seat belt during a side roll or frontal impact event.</u></b></li> </ul>		

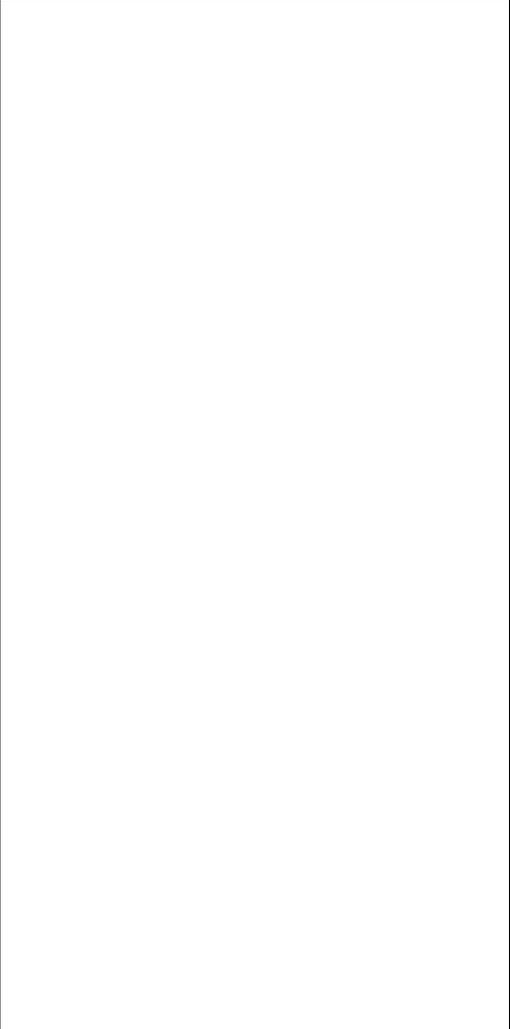
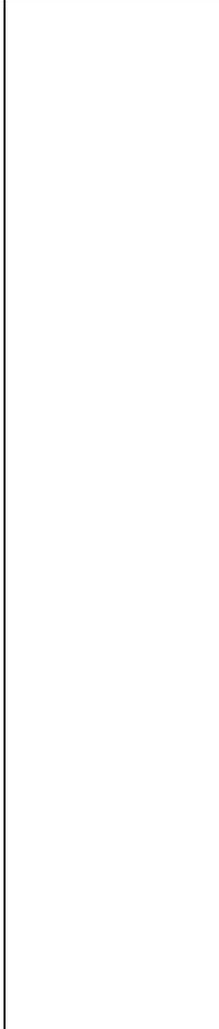
<p><b>The SRS system will provide protection during a frontal or oblique impact event. The system will activate when the vehicle decelerates at a predetermined G force known to cause injury to the occupants. The cab and chassis will have been subjected, via third party test facility, to a crash impact during frontal and oblique impact testing. Testing included all major chassis and cab components such as mounting straps for fuel and air tanks, suspension mounts, front suspension components, rear suspensions components, frame rail cross members, engine and transmission and their mounts, pump house and mounts, frame extensions and body mounts. The testing provided configuration specific information used to optimize the timing for firing the safety restraint system. The sensor will activate the pyrotechnic devices when the correct crash algorithm, wave form, is detected.</b></p>		
<p><b>The SRS system will deploy the following components in the event of a frontal or oblique impact event:</b></p> <ul style="list-style-type: none"> <li>• <b>Driver side front air bag</b></li> <li>• <b>Passenger side knee bolster air bag</b></li> <li>• <b>Air curtains mounted in the outboard bolster of outboard seat backs</b></li> <li>• <b>Suspension seats will be retracted to the lowest travel position</b></li> <li>• <b>Seat belts will be pre-tensioned to firmly hold the occupant in place</b></li> </ul>		

<p><b><u>The SRS system will provide protection during a fast or slow 90 degree roll to the side, in which the vehicle comes to rest on its side.</u></b></p> <p><b><u>The system will analyze the vehicle's angle and rate of roll to determine the optimal activation of the advanced occupant restraints.</u></b></p> <p><b><u>The SRS system will deploy the following components in the event of a side roll:</u></b></p> <ul style="list-style-type: none"> <li><b><u>• Air curtains mounted in the outboard bolster of outboard seat backs</u></b></li> <li><b><u>• Suspension seats will be retracted to the lowest travel position</u></b></li> <li><b><u>• Seat belts will be pre-tensioned to firmly hold the occupant in place</u></b></li> </ul>		
<p><b><u>The seating capacity of the vehicle (including tiller cab and belted seat positions in the rescue body) will be six (6).</u></b></p>		

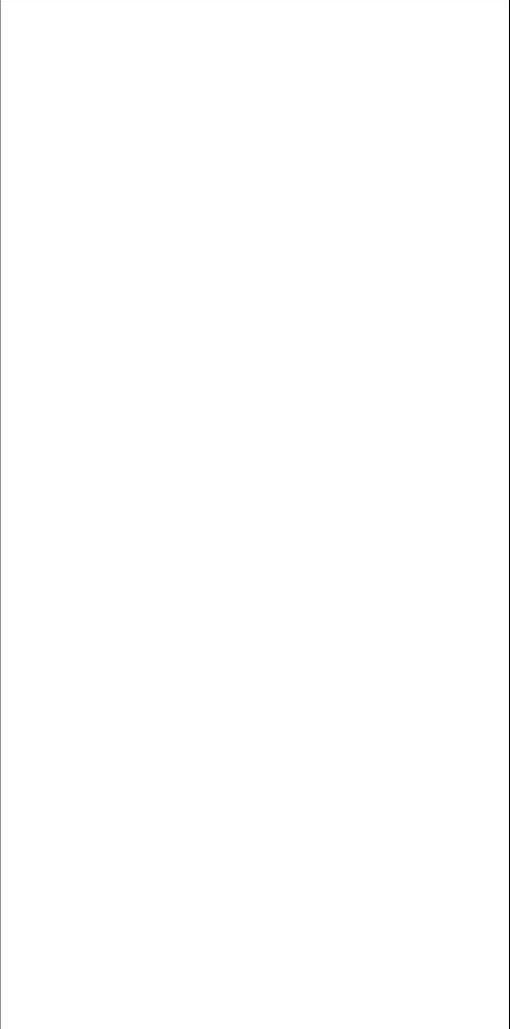
<p><b><u>A seat will be provided in the cab for the driver. The seat design will be a cam action type, with air suspension. For increased convenience, the seat will include a manual control to adjust the horizontal position (6.00" travel). The manual horizontal control will be a towel-bar style located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat will have an adjustable reclining back. The seat back will be a high back style with side bolster pads for maximum support. For optimal comfort, the seat will be provided with 17.00" deep foam cushions designed with EVC (elastomeric vibration control).The seat will include the following features incorporated into the side roll protection system:• Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position. • A suspension seat safety system will be included. When activated in the event of a side roll, this system will pretension the seat belt and retract the seat to its lowest travel position.The seat will be furnished with a 3-point, shoulder type seat belt.</u></b></p>		

<p><b><u>A seat will be provided in the cab for the passenger. The seat will be a fixed type, with no suspension. For optimal comfort, the seat will be provided with 17.00" deep foam cushions designed with EVC (elastomeric vibration control).The seat back will be an SCBA back style with 95 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.The seat will include the following features incorporated into the side roll protection system:• Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position. • A seat safety system will be included. When activated, this system will pretension the seat belt.The seat will be furnished with a 3-point, shoulder type seat belt.</u></b></p>		
<p><b><u>A radio compartment will be provided under the officer's seat. The inside compartment dimensions will be 16.00" wide x 7.50" high x 15.00" deep, with the back of the compartment angled up to match the cab structure. A drop-down door with one (1) lift and turn latch will be provided for access. The compartment will be constructed of smooth aluminum and painted to match the cab interior.</u></b></p>		

**There will be one (1) rear facing seat provided at the driver side outboard position in the crew cab. For optimal comfort, the seat will be provided with 15.00" deep foam cushions designed with EVC (elastomeric vibration control).The seat back will be an SCBA back style with 95 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.The seat will include the following features incorporated into the side roll protection system:• Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position. • A seat safety system will be included. When activated, this system will pretension the seat belt.The seat will be furnished with a 3-point, shoulder type seat belt.**



**There will be one (1) rear facing seat provided at the passenger side outboard position in the crew cab. For optimal comfort, the seat will be provided with 15.00" deep foam cushions designed with EVC (elastomeric vibration control).The seat back will be an SCBA back style with 95 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.The seat will include the following features incorporated into the side roll protection system:• Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position. • A seat safety system will be included. When activated, this system will pretension the seat belt.The seat will be furnished with a 3-point, shoulder type seat belt.**



<p><b><u>There will be two (2) forward facing seats provided at the center position in the crew cab. For optimal comfort, the seats will be provided with 15.00" deep foam cushions designed with EVC (elastomeric vibration control).The seat backs will be an SCBA style with 90 degree back. The SCBA cavity will be adjustable from front to rear in 1.00" increments to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.The seat will include the following features incorporated into the side roll protection system:• A seat safety system will be included. When activated, this system will pretension the seat belt.The seats will be furnished with a 3-point, shoulder type seat belt.</u></b></p>		
<p><b><u>All SCBA type seats in the cab will have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket will include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp will constrain the SCBA bottle in the seat and will exceed the NFPA standard of 9G. There will be a quantity of five (5) SCBA brackets.</u></b></p>		

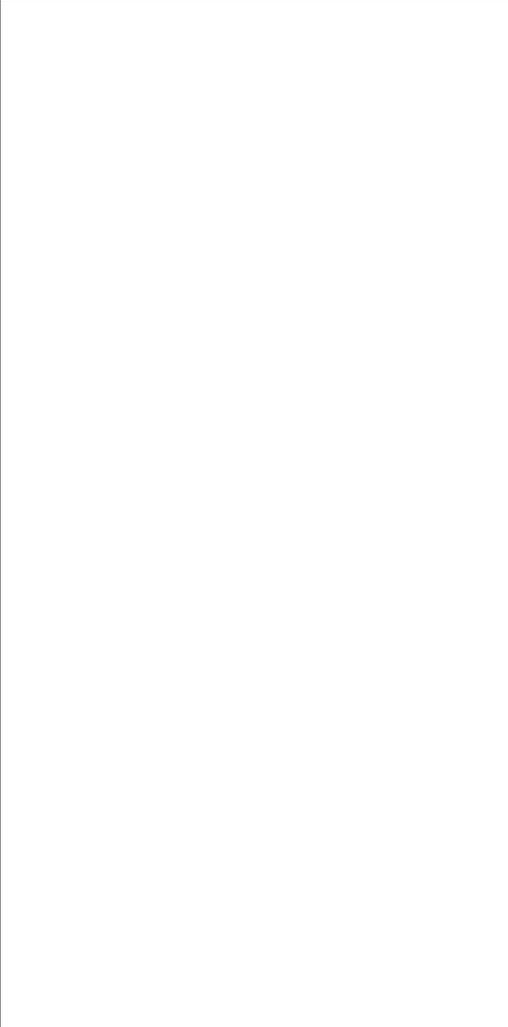
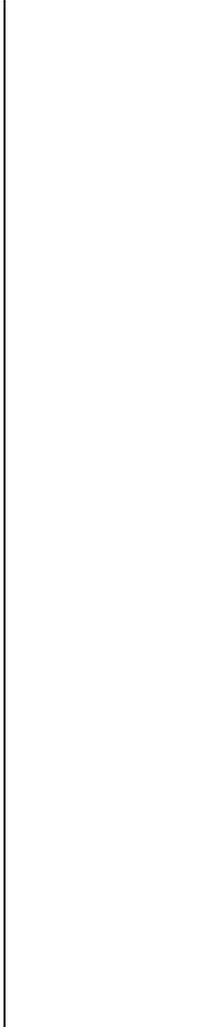
**All cab and tiller cab (if applicable) seating positions will have red seat belts. To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current edition of applicable NFPA and CAN/ULC - S515 standards. The 3-point shoulder type seat belts will include height adjustment. This adjustment will optimize the belts effectiveness and comfort for the seated firefighter. The 3-point shoulder type seat belts will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position. The 3-point shoulder type belts will also include the ReadyReach D-loop assembly to the shoulder belt system. The ReadyReach feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location. Any flip up seats will include a 3-point shoulder type belts only. To ensure safe operation, the seats will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled.**

<p><b><u>There will be four (4) dual LED dome lights with black bezels provided. Two (2) lights will be mounted above the inside shoulder of the driver and officer and two (2) lights will be installed and located, one (1) on each side of the crew cab. The color of the LED's will be red and white. The white LED's will be controlled by the door switches and the lens switch. The color LED's will be controlled by the lens switch. In order to ensure exceptional illumination, each white LED dome light will provide a minimum of 10.1 foot-candles (fc) covering an entire 20.00" x 20.00" square seating position when mounted 40.00" above the seat.</u></b></p>		
<p><b><u>The cab instrument panel will include gauges, telltale indicator lamps, control switches, alarms, and a diagnostic panel. The function of the instrument panel controls and switches will be identified by a label adjacent to each item. Actuation of the headlight switch will illuminate the labels in low light conditions. Telltale indicator lamps will not be illuminated unless necessary. The cab instruments and controls will be conveniently located within the forward cab section, forward of the driver.</u></b></p>		

<p><b>The gauge panel will include the following ten (10) black faced gauges with black bezels to monitor vehicle performance:</b></p> <ul style="list-style-type: none"> <li>• <b>Voltmeter gauge (volts):</b> <ul style="list-style-type: none"> <li>o <b>Low volts (11.8 VDC)</b></li> <li>§ <b>Amber telltale light on indicator light display with steady tone alarm</b></li> <li>o <b>High volts (15.5 VDC)</b></li> <li>§ <b>Amber telltale light on indicator light display with steady tone alarm</b></li> </ul> </li> <li>• <b>Engine Tachometer (RPM)</b></li> <li>• <b>Speedometer MPH (Major Scale), KM/H (Minor Scale)</b></li> <li>• <b>Fuel level gauge (Empty - Full in fractions):</b> <ul style="list-style-type: none"> <li>o <b>Low fuel (1/8 full)</b></li> <li>§ <b>Amber indicator light in gauge dial with steady tone alarm</b></li> </ul> </li> </ul>		
<ul style="list-style-type: none"> <li>• <b>Engine Oil pressure Gauge (PSI):</b> <ul style="list-style-type: none"> <li>o <b>Low oil pressure to activate engine warning lights and alarms</b></li> <li>§ <b>Red indicator light in gauge dial with steady tone alarm</b></li> </ul> </li> <li>• <b>Front Air Pressure Gauges (PSI):</b> <ul style="list-style-type: none"> <li>o <b>Low air pressure to activate warning lights and alarm</b></li> <li>§ <b>Red indicator light in gauge dial with steady tone alarm</b></li> </ul> </li> <li>• <b>Rear Air Pressure Gauges (PSI):</b> <ul style="list-style-type: none"> <li>o <b>Low air pressure to activate warning lights and alarm</b></li> <li>§ <b>Red indicator light in gauge dial with steady tone alarm</b></li> </ul> </li> <li>• <b>Transmission Oil Temperature Gauge (Fahrenheit):</b> <ul style="list-style-type: none"> <li>o <b>High transmission oil temperature activates warning lights and alarm</b></li> <li>§ <b>Amber indicator light in gauge dial with steady tone alarm</b></li> </ul> </li> <li>• <b>Engine Coolant Temperature Gauge (Fahrenheit):</b> <ul style="list-style-type: none"> <li>o <b>High engine temperature activates an engine warning light and alarms</b></li> <li>§ <b>Red indicator light in gauge dial with steady tone alarm</b></li> </ul> </li> </ul>		

<ul style="list-style-type: none"> <li>• <b>Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions):</b></li> <li>o <b>Low fluid (1/8 full)</b></li> <li><b>Amber indicator light in gauge dial</b></li> </ul>		
<p><b>The following amber telltale lamps will be present:</b></p> <ul style="list-style-type: none"> <li>• <b>Low coolant</b></li> <li>• <b>Trac cntl (traction control) (where applicable)</b></li> <li>• <b>Check engine</b></li> <li>• <b>Check trans (check transmission)</b></li> <li>• <b>Air rest (air restriction)</b></li> <li>• <b>DPF (engine diesel particulate filter regeneration)</b></li> <li>• <b>HET (engine high exhaust temperature) (where applicable)</b></li> <li>• <b>ABS (antilock brake system)</b></li> <li>• <b>MIL (engine emissions system malfunction indicator lamp) (where applicable)</b></li> <li>• <b>Regen inhibit (engine emissions regeneration inhibit) (where applicable)</b></li> <li>• <b>Side roll fault (where applicable)</b></li> <li>• <b>Front air bag fault (where applicable)</b></li> <li>• <b>Aux brake overheat (auxiliary brake overheat) (where applicable)</b></li> </ul>		
<ul style="list-style-type: none"> <li>• <b>The following red telltale lamps will be present:</b></li> <li>• <b>Ladder rack down</b></li> <li>• <b>Parking brake</b></li> <li>• <b>Stop engine</b></li> <li>• <b>The following green telltale lamps will be present:</b></li> <li>• <b>Left turn</b></li> <li>• <b>Right turn</b></li> <li>• <b>Battery on</b></li> <li>• <b>Ignition</b></li> <li>• <b>Aux brake (auxiliary brake engaged) (where applicable)</b></li> <li>• <b>The following blue telltale lamps will be present:</b></li> <li>• <b>High beam</b></li> </ul>		
<p><b>Audible steady tone warning alarm:</b>  <b>A steady audible tone alarm will be provided whenever a warning condition is active.</b></p>		

**For ease of use, the following controls will be provided immediately adjacent to the cab instrument panel within easy reach of the driver. All switches will have backlit labels for low light applications. Headlight/Parking light switch: A three (3)-position maintained rocker switch will be provided. The first switch position will deactivate all parking and headlights. The second switch position will activate the parking lights. The third switch will activate the headlights. Panel back lighting intensity control switch: A three (3)-position momentary rocker switch will be provided. Pressing the top half of the switch, "Panel Up" increases the panel back lighting intensity and pressing the bottom half of the switch, "Panel Down" decreases the panel back lighting intensity. Pressing the half or bottom half of the switch several times will allow back lighting intensity to be gradually varied from minimum to maximum intensity level for ease of use.**



<p><b><u>Ignition switch: A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will turn off and deactivate vehicle ignition. The second switch position will activate vehicle ignition and will perform prove-out on the telltale indicators and alarms for 3 to 5 seconds after the switch is turned on. A green indicator lamp is activated with vehicle ignition. The third momentary position will temporarily silence all active cab alarms. An alarm "chirp" may continue as long as alarm condition exists. Switching ignition to off position will terminate the alarm silence feature and reset function of cab alarm system.</u></b></p> <p><b><u>Engine start switch: A two (2)-position momentary rocker switch will be provided. The first switch position is the default switch position. The second switch position will activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.</u></b></p>		

<p><b><u>Hazard switch will be provided on the instrument panel or on the steering column.Heater, defrost, and air conditioning control panel.Turn signal arm: A self-canceling turn signal with high beam headlight controls.Windshield wiper control will have high, low, and intermittent modes.Parking brake control: An air actuated push/pull park brake control.Chassis horn control: Activation of the chassis horn control will be provided through the center of the steering wheel.High idle engagement switch: A maintained rocker switch with integral indicator lamp will be provided. The switch will activate and deactivate the high idle function. The "OK To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch will indicate when the high idle function is engaged.</u></b></p>		
<p><b><u>"OK To Engage High Idle" indicator lamp: A green indicator light will be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement. Emergency switching will be controlled by multiple individual warning light switches for various groups or areas of emergency warning lights. An Emergency Master switch provided on the instrument panel that enables or disables all individual warning light switches is included. An additional "Emergency Master" button will be provided on the lower left hand corner of the gauge panel to allow convenient control of the "Emergency Master" system from</u></b></p>		

<p><b><u>inside the driver's door when standing on the ground.</u></b></p>		
<p><b><u>The design of cab instrumentation will allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There will be positions for up to four (4) switch panels in the lower instrument console and up to six (6) switch panels in the overhead visor console. All switches have backlit labels for low light conditions.</u></b></p>		
<p><b><u>A diagnostic panel will be provided and accessible while standing on the ground. The panel will be located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches will allow ABS systems to provide blink codes should a problem exist. The diagnostic panel will include the following:</u></b></p>		

<ul style="list-style-type: none"> <li>• <b>ENGINE/TRANSMISSION/ABS J1939 Diagnostic Port</b></li> <li>• <b>ABS Diagnostic Switch and Indicator - The switch and amber indicator will allow access to diagnostic mode and display of standard ABS system fault blink codes that may be generated by the ABS system</b></li> <li>• <b>DPF REGEN (Diesel Particulate Filter Regeneration Switch) (where applicable) will be provided to request regeneration of the engine emission system. An amber indicator will be provided on top of the switch that will illuminate in a "CHECK ENGINE" condition</b></li> <li>• <b>REGEN INHIBIT (Diesel Particulate Filter Regeneration Inhibit Switch) (where applicable) will be provided that will request that regeneration be temporarily prevented. A green indicator will be provided on top of the Regen Inhibit switch that will illuminate when the Regen Inhibit feature is active. Regen Inhibit will be disabled upon cycling of the ignition switch to the off state.</b></li> </ul>		
<p><b>A high air restriction warning indicator light (electronic) will be provided.</b></p>		
<p><b>A flashing red indicator light, located in the driving compartment, will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On." The same circuit that activates the Do Not Move Apparatus indicator will activate a pulsing alarm when the parking brake is released.</b></p>		
<p><b>Wiper control will consist of a two (2)-speed windshield wiper control with intermittent feature and windshield washer controls. The control will be located in the left hand pod of the steering wheel.</b></p>		

<p><b><u>There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus.</u></b>  <b><u>The above wires will have the following features:</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>The positive wire will be connected directly to the battery power.</u></b></li> <li>• <b><u>The negative wire will be connected to ground.</u></b></li> <li>• <b><u>Wires will be protected to 15 amps at 12 volts DC.</u></b></li> <li>• <b><u>Power and ground will terminate officer side dash area.</u></b></li> <li>• <b><u>Termination will be with 15 amp, power point plug with rubber cover.</u></b></li> <li>• <b><u>Wires will be sized to 125 percent of the protection.</u></b></li> </ul>		
<p><b><u>There will be a LCD display integral to the cab gauge panel provided that will display the following information:</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>Total distance</u></b></li> <li>• <b><u>Trip distance</u></b></li> <li>• <b><u>Total hours</u></b></li> <li>• <b><u>Trip hours</u></b></li> <li>• <b><u>PTO "A" hours</u></b></li> <li>• <b><u>PTO "B" hours</u></b></li> </ul>		

<p><b><u>There will be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided. The vehicle data recorder will be capable of recording the following data via hardwired and/or CAN inputs:</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>Vehicle Speed - MPH</u></b></li> <li>• <b><u>Acceleration - MPH/sec</u></b></li> <li>• <b><u>Deceleration - MPH/sec</u></b></li> <li>• <b><u>Engine Speed - RPM</u></b></li> <li>• <b><u>Engine Throttle Position - % of Full Throttle</u></b></li> <li>• <b><u>ABS Event - On/Off</u></b></li> <li>• <b><u>Seat Occupied Status - Yes/No by Position</u></b></li> <li>• <b><u>Seat Belt Buckled Status - Yes/No by Position</u></b></li> <li>• <b><u>Master Optical Warning Device Switch - On/Off</u></b></li> <li>• <b><u>Internal clock syncs the time and date when a laptop is connected</u></b></li> </ul>		
<p><b><u>A seat belt monitoring system (SBMS) will be provided. The SBMS will be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>Seat Occupied &amp; Buckled = Green LED indicator illuminated</u></b></li> <li>• <b><u>Seat Occupied &amp; Unbuckled = Red LED indicator with audible alarm</u></b></li> <li>• <b><u>No Occupant &amp; Buckled = Red LED indicator with audible alarm</u></b></li> <li>• <b><u>No Occupant &amp; Unbuckled = No indicator and no alarm</u></b></li> </ul>		
<p><b><u>The SBMS will include an audible alarm that will warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.</u></b></p>		

<p><b><u>There will be a color vehicle camera system provided with the following:• One (1) Analog High Definition (AHD) black camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse.The camera image will be displayed on a 7.00" High Definition (HD) display located in view of the driver in the custom dash, per instrument panel layout. The display will include manual camera activation capability and audio from the active camera.The following components will be included:• One (1) HD700136DC, display • One (1) 1080p AHD rear camera • All necessary cables</u></b></p>		
<p><b><u>A compartment will be provided in or under the cab to house the vehicle's electrical power and signal circuit protection and control components. The power and signal protection and control compartment will contain circuit protection devices and power control devices. Power and signal protection and control components will be protected against corrosion, excessive heat, excessive vibration, physical damage and water spray. Serviceable components will be readily accessible. Circuit protection devices, which conform to SAE standard, will be utilized to protect each circuit. All circuit protection devices will be sized to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers will be Type-I automatic reset (continuously resetting) and conform to SAE J553 or J258. When required, automotive type fuses conforming to SAE J554, J1284, J1888 or J2077 will be utilized to protect electronic equipment.</u></b></p>		

<p><b>Power control relays and solenoids will have a direct current (dc) rating of 125 percent of the maximum current for which the circuit is protected. Visual status indicators will be supplied to identify control safety interlocks and vehicle status. In addition to visual status indicators, audible alarms designed to provide early warning of problems before they become critical will be used.</b></p>		
<p><b>A voltage monitor system will be provided to indicate the status of each battery system connected to the vehicle's electrical load. The monitor system will provide visual and audio warning when the system voltage is below optimum levels.</b></p>		
<p><b>Spare circuits will be provided in the primary distribution center for two-way radio equipment. The spare circuits will consist of the following:</b></p> <ul style="list-style-type: none"> <li><b>• One (1) 12-volt DC, 30 amp battery direct spare</b></li> <li><b>• One (1) 12-volt DC ground and unfused switched battery stud located in or adjacent to the power distribution center</b></li> </ul>		

**The electrical system proposed will include means to control undesired electromagnetic and radio frequency emissions. State of the art electrical system design and components will be used to ensure radiated and conducted EMI (electromagnetic interference) and RFI (radio frequency interference) emissions are suppressed at their source. The apparatus proposed will have the ability to operate in the electromagnetic environment typically found in fire ground operations. The contractor will be able to demonstrate the EMI and RFI testing has been done on similar apparatus and certifies that the vehicle proposed meets SAE J551 requirements. EMI/RFI susceptibility will be controlled by applying immune circuit designs, shielding, twisted pair wiring and filtering. The electrical system will be designed for full compatibility with low level control signals and high powered two-way radio communication systems. Harness and cable routing will be given careful attention to minimize the potential for conducting and radiated EMI-RFI susceptibility.**

<p><b>All 12-volt electrical equipment installed by the manufacturer will conform to modern automotive practices. All wiring will be high temperature crosslink type. Wiring will be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers will be provided which conform to SAE Standards. Wiring will be color, function and number coded. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.</b></p>		

**Electrical wiring and equipment will be installed utilizing the following guidelines:**

**1. All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.**

**2. Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.**

**3. Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also, a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.**

**4. Corrosion preventative compound will be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections will have this compound in the plug to prevent corrosion and for easy separation (of the plug).**

**5. All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.**

**6. All electrical terminals in exposed areas will have silicon applied completely over the metal portion of the terminal.**

<p><b>All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, will be furnished. Rear identification lights will be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments. An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order. The results of the tests will be recorded and provided to the purchaser at time of delivery.</b></p>		
<p><b>There will be four (4) 12 volt Stryten/Exide®, Model 31S950X5W, batteries that include the following features will be provided:</b></p> <ul style="list-style-type: none"> <li>• <b>950 CCA, cold cranking amps</b></li> <li>• <b>190 amp reserve capacity</b></li> <li>• <b>High cycle</b></li> <li>• <b>Group 31</b></li> <li>• <b>Rating of 3800 CCA at 0 degrees Fahrenheit</b></li> <li>• <b>760 minutes of reserve capacity</b></li> <li>• <b>Threaded stainless steel studs</b></li> </ul> <p><b>Each battery case will be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover will be manifold vented with a central venting location to allow a 45 degree tilt capacity.</b></p> <p><b>The inside of each battery will consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.</b></p>		

<p><b><u>There will be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.</u></b></p>		
<p><b><u>There will be a master battery switch provided within the cab within easy reach of the driver to activate the battery system. An indicator light will be provided on the instrument panel to notify the driver of the status of the battery system.</u></b></p>		
<p><b><u>Batteries will be placed on non-corrosive mats and be stored in well ventilated compartments located under the cab and bolted directly to the chassis frame. The battery boxes will have reinforced sides. The battery compartments will be constructed of 0.188" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The battery hold-downs will be of a non-corrosive material. All bolts and nuts will be stainless steel. Heavy-duty, 2/0 gauge, color coded battery cables will be provided. Battery terminal connections will be coated with anti-corrosion compound. Battery solenoid terminal connections will be encapsulated with semi-permanent rubberized compound.</u></b></p>		
<p><b><u>One (1) set of battery jumper studs with plastic color-coded covers will be included on the battery compartments.</u></b></p>		

<p><b><u>A Kussmaul Autocharge 35/10, Model 091-35-10, single battery charger will be provided. A bar graph display indicating the state of charge will be provided.</u></b>  <b><u>The battery saver circuit will be capable of supplying up to 10 amps for external loads such as hand light or auxiliary radio batteries.</u></b>  <b><u>The battery charger will be wired to the 120-volt shoreline to activate automatically when power is connected.</u></b>  <b><u>The battery charger will be located in the cab behind the driver seat.</u></b></p>		
<p><b><u>There will be a Kussmaul™, charger display included. The battery charger indicator will be located on the left side of the cab centered above the wheel well.</u></b></p>		
<p><b><u>There will be one (1) Kussmaul™, Model 091-55-20-120, 20 amp 120 volt AC shoreline inlet(s) provided to operate the dedicated 120 volt AC circuits on the apparatus.</u></b>  <b><u>The shoreline inlet(s) will include red weatherproof flip up cover(s).</u></b>  <b><u>There will be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.</u></b>  <b><u>The shoreline(s) will be connected to the battery charger.</u></b>  <b><u>There will be a mating connector body supplied with the loose equipment.</u></b>  <b><u>There will be a label installed near the inlet(s) that state the following:</u></b>  <ul style="list-style-type: none"> <li><b><u>• Line Voltage</u></b></li> <li><b><u>• Current Rating (amps)</u></b></li> <li><b><u>• Phase</u></b></li> <li><b><u>• Frequency</u></b></li> </ul> <b><u>The shoreline receptacle will be located on the driver side of cab, above wheel.</u></b></p>		

<p><b><u>A Leece-Neville, Model 4962PA, alternator will be provided. It will have a rated output current of 320 amps, as measured by SAE method J56. The alternator will feature an integral, self diagnostic regulator and rectifier. The alternator will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.</u></b></p>		
<p><b><u>An electronic load management (ELM) system that monitors the vehicles 12-volt electrical system, and automatically reduces the electrical load in the event of a low voltage condition and by doing so, ensures the integrity of the electrical system.The ELM will monitor the vehicle's voltage while at the scene (parking brake applied). It will sequentially shut down individual electrical loads when the system voltage drops below a preset value. Two (2) separate electrical loads will be controlled by the load manager. The ELM will sequentially re-energize electrical loads as the system voltage recovers.</u></b></p>		
<p><b><u>There will be four (4) JW Speaker®, Model 8800, 4" x 6" rectangular LED lights mounted in the front quad style, chrome housing on each side of the cab grille:</u></b></p> <ul style="list-style-type: none"> <li><b><u>• the outside light on each side will contain a part number 055***1 low beam module</u></b></li> <li><b><u>• the inside light on each side will contain a part number 055***1 high beam module</u></b></li> <li><b><u>• the headlights to include chrome bezels</u></b></li> </ul> <p><b><u>The low beam lights will be activated when the headlight switch is on.</u></b></p> <p><b><u>The high beam and low beam lights</u></b></p>		

<p><b><u>will be activated when the headlight switch and the high beam switch is activated.</u></b></p>		
<p><b><u>here will be two (2) Whelen 600 series, amber LED combination directional/marker lights provided. The lights will be located on the outside cab corners, next to the warning lights. The lens color(s) to be clear.</u></b></p>		
<p><b><u>There will be two (2) Weldon, Model 9186-8580-29, amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light will double as a turn signal and marker light.</u></b></p>		
<p><b><u>There will be seven (7) amber LED lights provided per the following:• Three (3) amber LED identification lights will be installed in the center of the cab above the windshield. • Two (2) amber LED clearance lights will be installed, one (1) on each outboard side of the cab above the windshield as close to the outside of the apparatus as practical. • Two (2) amber LED clearance lights will be installed, one (1) on each side of the cab as high and far forward as practical. The lights will be installed without guards.</u></b></p>		

<p><b><u>There will be two (2) Truck-Lite®, Model 19036Y, amber LED lights installed to the outside of the chrome wrap around bezel, one (1) on each side of the cab. The lights will activate as additional directional lights with the corresponding directional circuit.</u></b></p>		
<p><b><u>There will be a three (3) LED light bar used as identification lights located at the rear of the apparatus per the following:</u></b></p> <ul style="list-style-type: none"> <li><b><u>• As close as practical to the vertical centerline</u></b></li> <li><b><u>• Centers spaced not less than 6.00" or more than 12.00" apart</u></b></li> <li><b><u>• Red in color</u></b></li> <li><b><u>• All at the same height</u></b></li> </ul>		
<p><b><u>There will be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:</u></b></p> <ul style="list-style-type: none"> <li><b><u>• To indicate the overall width of the vehicle</u></b></li> <li><b><u>• One (1) each side of the vertical centerline</u></b></li> <li><b><u>• As near the top as practical</u></b></li> <li><b><u>• Red in color</u></b></li> <li><b><u>• To be visible from the rear</u></b></li> <li><b><u>• All at the same height</u></b></li> </ul>		
<p><b><u>There will be two (2) LED lights installed on the side of the apparatus used as marker lights as close to the rear as practical per the following:</u></b></p> <ul style="list-style-type: none"> <li><b><u>• To indicate the overall length of the vehicle</u></b></li> <li><b><u>• One (1) each side of the vertical centerline</u></b></li> <li><b><u>• As near the top as practical</u></b></li> <li><b><u>• Red in color</u></b></li> <li><b><u>• To be visible from the side</u></b></li> <li><b><u>All at the same height</u></b></li> </ul>		

<p><b><u>There will be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.</u></b></p> <p><b><u>There will be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.</u></b></p> <p><b><u>Per FMVSS 108 and CMVSS 108 requirements.</u></b></p>		
<p><b><u>The rear stop/tail and directional lighting included in the rear tail light housing will include the following:</u></b></p> <ul style="list-style-type: none"> <li><b><u>• Two (2) Whelen®, Model M62BTT, 4.30" high x 6.70" wide x 1.40" deep brake/tail lights with red LEDs</u></b></li> <li><b><u>• Two (2) Whelen, Model M62T, 4.30" high x 6.70" wide x 1.40" deep directional lights with amber LEDs.</u></b></li> </ul> <p><b><u>The directional lights will be set to Steady On (Arrow) flash pattern.</u></b></p> <ul style="list-style-type: none"> <li><b><u>• The lens color(s) to be clear.</u></b></li> </ul> <p><b><u>There will be two (2) Whelen Model M62BU, LED backup lights provided in the tail light housing.</u></b></p>		
<p><b><u>One (1) license plate bracket constructed of stainless steel will be provided at the rear of the apparatus.</u></b></p> <p><b><u>One (1) white LED light with chrome housing will be provided to illuminate the license plate. A stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.</u></b></p>		
<p><b><u>There will be two (2) Whelen, Model M6FCV4P, four (4) place chromed ABS housings with manufacturer logos provided for the rear M6 series stop/tail, directional, back up, scene lights or warning lights.</u></b></p>		

<p><b><u>A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.</u></b></p>		
<p><b><u>There will be four (4) TecNiq, Model T10-LC00-1, 15.00" lights with white LEDs and 45 degree stainless steel brackets provided per the following:</u></b></p> <ul style="list-style-type: none"> <li><b><u>• one (1) under the driver's side cab access step</u></b></li> <li><b><u>• one (1) under the passenger's side cab access step</u></b></li> <li><b><u>• one (1) under the passenger's side crew cab access step</u></b></li> <li><b><u>• one (1) under the driver's side crew cab access step</u></b></li> </ul> <p><b><u>The lights will be activated when the battery switch is on, when the respective door is open and by the same control selected for the body perimeter lights.</u></b></p>		
<p><b><u>There will be two (2) TecNiq, Model T10-LC00-1, 15.00" white 12 volt DC LED weatherproof strip lights provided under the pump panel running boards, one (1) each side. The lights will be controlled by the same means as the body perimeter lights.</u></b></p>		
<p><b><u>There will be two (2) TecNiq, Model T10-LC00-1, 15.00" 12 volt DC LED strip lights provided at the rear step area of the body, one (1) each side shining to the rear. The perimeter scene lights will be activated when the parking brake is applied.</u></b></p>		

<p><b>Four (4) white LED step lights will be provided. One (1) step light will be provided on each side, on the front compartment face and two (2) step lights at the rear to illuminate the tailboard. In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light. These step lights will be actuated with the pump panel light switch. All other steps on the apparatus will be illuminated per the current edition of applicable NFPA standards.</b></p>		
<p><b>There will be one (1) Whelen® Model P*H2*, 17,750 lumens 12 volt DC light(s) with a combination of flood and spot optics provided on the front visor, centered. The housing(s) painted parts of this light assembly to be white. The light(s) will be controlled by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel. These light(s) may be load managed when the parking brake is applied.</b></p>		
<p><b>There will be one (1) Whelen® Model M9LZC, 12 volt DC lights with white LEDs and chrome trim installed on the cab located, right side can in between cab door and crew doors in 10" raised roof. The lights will be activated by a switch at the driver's side switch panel. The light(s) may be load managed when the parking brake is applied.</b></p>		

<p><b><u>There will be one (1) Whelen® Model M9LZC, 12 volt DC lights with white LEDs and chrome trim installed on the cab located, left side can in between cab door and crew doors in 10" raised roof.The lights will be activated by a switch at the driver's side switch panel.The light(s) may be load managed when the parking brake is applied.</u></b></p>		
<p><b><u>There will be two (2) Whelen® Model M9LZC, 12 volt DC lights with white LEDs and chrome trim installed on the body located, One on each rear of truck body panel in the corners. The lights will be activated by a switch at the driver's side switch panel. The light(s) may be load managed when the parking brake is applied.</u></b></p>		
<p><b><u>There will be two (2) Whelen® Model M9LZC, 12 volt DC lights with white LEDs and chrome trim installed on the body located, Right side of body, one forward and one rearward of body. The lights will be activated by a switch at the driver's side switch panel. The light(s) may be load managed when the parking brake is applied.</u></b></p>		
<p><b><u>There will be two (2) Whelen® Model M9LZC, 12 volt DC lights with white LEDs and chrome trim installed on the body located, Left side of body, one forward and one rearward of body. The lights will be activated by a switch at the driver's side switch panel. The light(s) may be load managed when the parking brake is applied.</u></b></p>		
<p><b><u>There will be two (2) housings fabricated with painted aluminum installed on the apparatus right and left rear body scene lights for the 12 volt DC recessed lights.</u></b></p>		

<p><b><u>There will be two (2) Whelen, Model PFBP12C, 12 volt DC LED floodlights with swivel mount provided at the rear of the hose bed, one (1) each side.</u></b>  <b><u>The lights will be activated by a control from a switch at the rear of the truck.</u></b></p>		
<p><b><u>There will be white 12 volt DC LED light strips with stainless steel protective cover, provided to light the hose bed area. Hose Bed lights will meet the photometric levels listed in the current edition of applicable NFPA standards for Hose Bed lighting requirements. • Light strip(s) will be installed along the upper edge of the left side of the hose bed. • Light strip(s) will be installed along the upper edge of the right side of the hose bed. The lights will be activated by a cup switch at the rear of the apparatus no more than 72.00" from the ground.</u></b></p>		
<p><b><u>There will be Model FRP, 4" round black 12 volt DC LED floodlight(s) with bolt mount provided to illuminate the entire designated walking surface on top of the body. The light(s) will be activated when the body step lights are on.</u></b></p>		

<p><b><u>Booster tank will have a capacity of 1500 gallons and be constructed of polypropylene plastic by United Plastic Fabricating, Incorporated. The tank will be designed to achieve a low hosebed. Tank design will be a stepped design with the forward section of the tank higher than the section of the tank that is below the hose bed. Tank joints and seams will be nitrogen welded inside and out. Tank will be baffled in accordance with the current edition of applicable NFPA standards. Baffles will have vent openings at both the top and bottom to permit movement of air and water between compartments. Longitudinal partitions will be constructed of .38" polypropylene plastic and will extend from the bottom of the tank through the top cover to allow for positive welding. Transverse partitions will extend from 4.00" off the bottom of the tank to the underside of the top cover. All partitions will interlock and will be welded to the tank bottom and sides.</u></b></p>		
<p><b><u>Tank top will be constructed of .50" polypropylene. It will be recessed .38" and will be welded to the tank sides and the longitudinal partitions. Tank top will be sufficiently supported to keep it rigid during fast filling conditions. Construction will include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions. Two (2) of the dowels will be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes. A sump that will be sized dependent on the tank to pump plumbing will be provided at the bottom of the</u></b></p>		

<p><b>water tank.</b>  <b>Sump will include a drain plug and the tank outlet.</b></p>		
<p><b>Tank will be installed in a fabricated cradle assembly constructed of structural steel. Sufficient crossmembers will be provided to properly support bottom of tank. Crossmembers will be constructed of steel bar channel or rectangular tubing. Tank will "float" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber cushions, .50" thick x 3.00" wide, will be placed on all horizontal surfaces that the tank rests on. Stops or other provision will be provided to prevent an empty tank from bouncing excessively while moving vehicle. Mounting system will be approved by the tank manufacturer.</b></p>		
<p><b>Fill tower will be constructed of .50" polypropylene and will be a minimum of 8.00" wide x 14.00" long.</b>  <b>Fill tower will be furnished with a .25" thick polypropylene screen and a hinged cover.</b>  <b>An overflow pipe, constructed of 4.00" schedule 40 polypropylene, will be installed approximately halfway down the fill tower and</b></p>		

<p><b><u>extend through the water tank and exit to the rear of the rear axle.</u></b></p>		
<p><b><u>Two (2) sleeves will be provided in the water tank for a 3.00" pipe to the rear.</u></b></p>		
<p><b><u>A heavy-duty water tank restraint will be provided.</u></b></p>		
<p><b><u>There will be one (1) 2.50" body w/3.00" piping Fireman's Friend Inc., Model FFE 2530 CF8M-F semi-automatic tank fill(s) installed and properly labeled at the rear of the water tank, located right side, with the valve installed as low as practical for easy hose connection. A 2.50" (F)NST chrome swivel inlet connection will be located at the inlet. A 2.50" chrome plated 30 degree elbow and plug with VLH automatic pressure relieving thread technology will be provided for the tank fill.</u></b></p>		

<p><b><u>The hose bed will be fabricated of 0.125"-5052 aluminum with a nominal 38,000 psi tensile strength.The hose bed will be as low as practical.Upper and rear edges of side panels will have a double break for rigidity.The upper inside area of the beavertails will be covered with brushed stainless steel to prevent damage to painted surface when hose is removed.Flooring of the hose bed will be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats will be a minimum of 0.50" x 4.50" with spacing between slats for hose ventilation.A cross divider will be provided at the front of the hose bed before the tank transitions from the lower section to the upper section. The divider will run from the top of the side sheet down below the hose bed grating.The hose bed interior walls will be painted to match the lower body color.Hose bed will accommodate 1000' of 5" LDH 1000' of 2.5" DJ Hose 400' of 2.5" DJ Hose.</u></b></p>		
<p><b><u>Three (3) hosebed dividers will be furnished for separating hose. Each divider will be constructed of a .25" brushed aluminum sheet. Flat surfaces will be sanded for uniform appearance, or constructed of brushed aluminum.</u></b></p> <p><b><u>An oval opening will be provided near the rear of the divider to be used as a hand hold and aid in accessing the hose bed.</u></b></p> <p><b><u>Divider will be fully adjustable by sliding in tracks, located at the front and rear of the hose bed.</u></b></p> <p><b><u>Divider will be held in place by tightening bolts, at each end.</u></b></p> <p><b><u>Acorn nuts will be installed on all bolts in the hose bed which have exposed threads.</u></b></p>		

<p><b><u>A red hosebed cover will be furnished on the top of the hosebed with awning rail (aluminum retainer) fasteners at the front and StayPut Shock Cord Loop Pull Tab fasteners on the sides. The vinyl hosebed cover will be attached to the rear of the top of the hosebed with seat belt buckle. A heavy duty 2" black nylon webbing will be installed at the rear of the hose bed with Velcro strap and footman loop at the top. At the bottom of the webbing, Velcro strap and footman loop will be provided</u></b></p>		
<p><b><u>A reinforced hose bed floor will be provided above the water tank to support the mounting of the light tower in the forward portion of the hose bed. Aluminum treadplate will cover the floor.</u></b></p>		
<p><b><u>Running boards will be fabricated of 0.125" bright aluminum treadplate. Each running board will be supported by a welded 2.00" square tubing and channel assembly, which will be bolted to the pump compartment substructure. Running boards will be 12.75" deep and spaced 0.50" away from the pump panel. A splash guard will be provided above the running board treadplate.</u></b></p>		
<p><b><u>The tailboard will also be constructed of .125" bright aluminum treadplate and spaced .50" from the body, as well as supported by a structural steel assembly. The tailboard area will be 16.00" deep and full width of the body. The outboard sides of the tailboard will be angled at 45 degrees beginning at the point where the body meets the tailboard at the outboard edge angling rearward to the rear edge of the tailboard. The exterior side will be flanged</u></b></p>		

<p><b>down and in for increased rigidity of tailboard structure.</b></p>		
<p><b>The rear facing surfaces of the center rear wall will be smooth aluminum. The bulkheads, the surface to the rear of the side body compartments, will be smooth and the same material as the body. The rear wall will be flush.</b></p>		
<p><b>Two (2) tow eyes, which are an integral part of the body mounting substructure, will be installed below the rear of the truck. The tow eyes will be of adequate strength to allow the truck to be pulled from the eyes.</b></p>		
<p><b>One (1) tow bar will be installed under the tailboard. The tow bar assembly will be designed and positioned to allow up to a 30-degree upward angled pull of 17,000 lb, or a 20,000 lb straight horizontal pull in line with the centerline of the vehicle. The tow bar design will have been tested and evaluated using finite element analysis techniques.</b></p>		

<p><b><u>Body and compartments will be fabricated of 0.125", 5052-H32 aluminum.Side compartments will be an integral assembly with the rear fenders.Circular fender liners will be provided for prevention of rust pockets and ease of maintenance.Side compartment flooring will be of the sweep out design with the floor higher than the compartment door lip.The side compartment door opening will be framed by flanging the edges in 1.75" and bending out again 0.75" to form an angle.Drip protection will be provided above the doors by means of bright aluminum extrusion, formed bright aluminum treadplate or polished stainless steel.The top of the compartment will be covered with bright aluminum treadplate rolled over the edges on the front, rear and outward side. These covers will have the corners welded.Side compartment covers will be separate from the compartment tops.Front facing compartment walls will be covered with bright aluminum treadplate.All screws and bolts which protrude into a compartment will have acorn nuts on the ends to prevent injury.</u></b></p>		

<p><b><u>Due to the severe loading requirements of this pumper a method of body and compartment support suitable for the intended load will be provided.</u></b></p> <p><b><u>The backbone of the support system will be the chassis frame rails which is the strongest component of the chassis and is designed for sustaining maximum loads.</u></b></p> <p><b><u>Forward to the rear axle, the support system will include "L"-shaped support members bolted to the chassis frame rails. These welded support members will include vertical formed channels, horizontal structural channels, and support gussets. These parts extend from the chassis frame outward underneath the body.</u></b></p>		
<p><b><u>Rearward to the rear axle, the body support system will include two rearward facing "L"-shaped support members bolted to the chassis frame rails. These support members will be connected to the two body supporting crossmembers forming a boxed foundation for the rear body support system. Steel upper platform decks will be mounted on the top of these support members to create a floating substructure which will result in a 500 lb equipment support rating per lower compartment. All structural components of this system will be made from high strength 50K steel plate material or structural steel componentry. The steel frames as well as the steel vertical angles will be treated with an epoxy E-coat to provide resistance to corrosion and chemicals as standard.</u></b></p>		

<p><b><u>The floating substructure will be separated from the horizontal members with neoprene elastomer isolators. These isolators will reduce the natural flex stress of the chassis from being transmitted to the body.</u></b></p> <p><b><u>Isolators will have a broad load range, proven viability in vehicular applications, be of a fail-safe design and allow for all necessary movement in three (3) transitional and rotational modes.</u></b></p> <p><b><u>The neoprene isolators will be installed in a pattern which assimilates a three (3)-point mounting pattern to reduce the natural flex of the chassis being transmitted to the body.</u></b></p> <p><b><u>A design with body compartments hanging on the chassis in an unsupported fashion will not be acceptable.</u></b></p>		
<p><b><u>All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards</u></b></p>		
<p><b><u>Louvers will be stamped into compartment walls to provide the proper airflow inside the body compartments and to prevent water from dripping into the compartment. Where these louvers are provided, they will be formed into the metal and not added to the compartment as a separate plate.</u></b></p>		

<p><b><u>Body structural analysis will be fully tested. Proven engineering and test techniques such as finite element analysis, strain gauging, and model analysis will be performed with special attention given to fatigue, life and structural integrity of the body and substructure. Body will be tested while loaded to its greatest in-service weight. The criteria used during the testing procedure will include:</u></b></p>		
<ul style="list-style-type: none"> <li>• <b><u>Raising opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb.</u></b></li> <li>• <b><u>Making a 90 degree turn, while driving at 20 mph to simulate aggressive driving conditions.</u></b></li> <li>• <b><u>Driving the vehicle at 35 mph on a washboard road.</u></b></li> <li>• <b><u>Driving the vehicle at 55 mph on a smooth road.</u></b></li> <li>• <b><u>Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement.</u></b></li> </ul> <p><b><u>Evidence of actual testing techniques will be made available upon request.</u></b></p>		

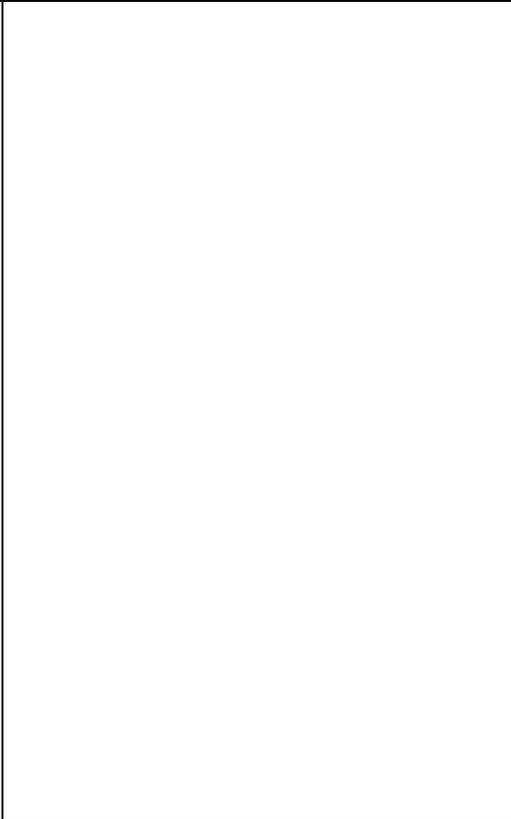
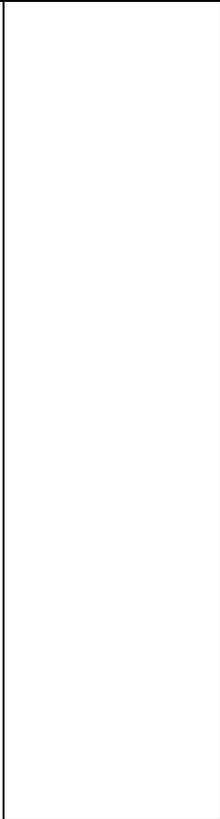
**The left side compartmentation will consist of three lap door compartments. A full height, vertically hinged, double door compartment ahead of the rear wheels will be provided. The interior dimensions of this compartment will be 54.00" wide x 66.63" high x 25.88" deep in the lower 25.00" of the compartment and 12.00" deep in the remaining upper portion. The clear door opening will be a minimum of 47.00" wide x 61.88" high. A horizontally hinged, single lift-up door compartment over the rear wheels will be provided. The interior dimensions of this compartment will be 66.50" wide x 32.88" high x 12.00" deep. The clear door opening will be a minimum of 59.25" wide x 27.00" high. A full height, vertically hinged, double door compartment behind the rear wheels will be provided. The interior dimensions of this compartment will be 47.75" wide x 67.63" high x 25.88" deep in the lower 26.00" of the compartment and 12.00" deep in the remaining upper portion. The clear door opening will be a minimum of 43.50" wide x 62.88" high.**

**The interior height of the compartments will be measured from the compartment floor to the ceiling. The depth of the compartments will be measured from the back wall to the inside of the door frame.**

**Closing of the doors will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.**

**The vertically hinged doors will be furnished with a positive door holder.**

**The lift-up door will be furnished with two gas-charged cylinders to assist in the opening of the door and to maintain the door in an open position. There will be a field adjustable, three-position bracket mounted on the vertical side door opening that will allow the door to be held open at 87°, 90°, or 93°.**



<p><b><u>The right side compartmentation will consist of three lap door compartments. A full height, vertically hinged, double door compartment ahead of the rear wheels will be provided. The interior dimensions of this compartment will be 54.00" wide x 65.13" high x 25.88" deep. The clear door opening will be a minimum of 47.00" wide x 61.88" high. A horizontally hinged, single lift-up door compartment over the rear wheels will be provided. The interior dimensions of this compartment will be 66.50" wide x 31.38" high x 25.88" deep. The clear door opening will be a minimum of 59.25" wide x 27.00" high. A full height, vertically hinged, double door compartment behind the rear wheels will be provided. The interior dimensions of this compartment will be 47.75" wide x 66.13" high x 25.88" deep. The clear door opening will be a minimum of 43.50" wide x 62.88" high. The interior height of the compartments will be measured from the compartment floor to the ceiling. The depth of the compartments will be measured from the back wall to the inside of the door frame.</u></b></p>		

<p><b><u>Closing of the doors will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand. The vertically hinged doors will be furnished with a positive door holder.</u></b></p> <p><b><u>The lift-up door will be furnished with two gas-charged cylinders to assist in the opening of the door and to maintain the door in an open position. There will be a field adjustable, three-position bracket mounted on the vertical side door opening that will allow the door to be held open at 87°, 90°, or 93°.</u></b></p>		
<p><b><u>All hinged compartment doors will be lap style with double panel construction and will be a minimum of 1.50" thick. The doors will be made out of the same material as the body. To provide additional door strength a "C" section reinforcement will be installed between the outer and interior panels. Doors will be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core will be installed on the door framing that seals onto the interior panel, to ensure a weather resisting compartment. All compartment doors will have polished stainless steel continuous hinge with a pin diameter of 0.25" that is bolted or screwed on with stainless steel fasteners. All door locking mechanisms will be fully enclosed within the door panels to prevent fouling of the lock in the event equipment inside shifts into the lock area. Doors will be latched with recessed, polished stainless steel "D" ring handles and FMVSS approved door locking mechanisms. To prevent corrosion</u></b></p>		

**caused by dissimilar metals, compartment door handles will not be attached to outer door panel with screws. A rubber gasket will be provided between the "D" ring handle and the door.**


<p><b><u>A roll-up door compartment above the rear tailboard will be provided. The interior dimensions of this compartment will be 40.00" wide x 47.38" high x 25.88" deep. The interior height of the compartments will be measured from the compartment floor to the ceiling. The spool of the rollup door at the top of the compartment takes up some usable space. The depth of the compartments will be measured from the back wall to the inside of the door frame. A louvered, removable access panel will be furnished on the back wall of the compartment. The rear compartment will be open into the rear side compartments. The clear door opening of this compartment will be a minimum of 33.25" wide x 37.63" high. Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.</u></b></p>		
<p><b><u>There will be a rear rollup door. The door will be double faced aluminum construction, an anodized satin finish and manufactured by Gortite®. Lath sections will be an interlocking rib design and will be individually replaceable without complete disassembly of door. Between each slat at the pivoting joint will be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals will allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals will be provided to resist ingress of dirt and weather and be made of Santoprene.</u></b></p>		

<p><b><u>All hinges, barrel clips and end pieces will be nylon 66. All nylon components will withstand temperatures from 300 to -40 degrees Fahrenheit. A polished stainless steel lift bar to be provided for each roll-up door. Lift bar will be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge will be supplied over lift bar for additional area to aid in closing the door. Door will be constructed from an aluminum box section. The exterior surface of each slat will be flat. The interior surface will be concave to provide strength and prevent loose equipment from jamming the door from inside. To conserve space in the compartments, the spring roller assembly will not exceed 3.00" in diameter. The header for the rollup door assembly will not exceed 4.00". A heavy-duty magnetic switch will be used for control of open compartment door warning lights.</u></b></p>		
<p><b><u>There will be seven (7) compartment doors that will include a guard/drip pan designed to protect the rollup door from damage when in the retracted position and contain any water spray. The guard will be fabricated from stainless steel and installed left side rearward compartment, left side over the wheel compartment, left side forward compartment, right side rearward compartment, right side over the wheel compartment, right side forward compartment and rear compartment.</u></b></p>		

<p><b>There will be seven (7) compartment(s) with two (2) white 12 volt DC LED compartment light strips. The dual light strips will be centered vertically along each side of the door framing. There will be two (2) light strips per compartment. The dual light strips will be in all body compartment(s). Any remaining compartments without light strips will have a 6.00" diameter Truck-Lite, Model: 79384 light. Each light will have a number 1076 one filament, two wire bulb. Opening the compartment door will automatically turn the compartment lighting on.</b></p>		
<p><b>Two (2) hatch compartments will be provided above the left and right side compartments. Each hatch compartment will extend the full length of the side body compartmentation x 13.75" wide. The height of each hatch compartment will match the side sheet height. Sides of the compartment will be constructed of the same material as the body and painted job color. A chrome and black vinyl molding will be provided to cover the seam between the top of the body panel and the bottom of the hatch compartment. The vertical outboard seam at the center of the compartment will be smooth weld finished and painted. The top of the compartment will be constructed of bright aluminum treadplate. Two (2) lift-up, bright aluminum treadplate doors will be provided on the top of the compartment. Doors will have lipped edges with a rubber seal for weather resistance. Each door will have a lever handle with a slam style latch. Doors will be hinged on the outboard side and will utilize a gas strut (or rubber covered</b></p>		

<p><b>chain on narrow width doors)</b>  <b>Compartment will drain to an area below the hose bed. Black rubber matting shall be provided to help prevent stored equipment in pooled water.</b></p>		
<p><b>There will be a 42.00" 12 volt DC strip light with white LEDs mounted on the interior, hinged side of each door. The lights will be mounted with mechanical fasteners. The lights will be activated when the battery switch is on and the door is opened.</b></p>		
<p><b>There will be seven (7) sets of tracks for mounting shelf(s) in LS1, LS2, LS3, RS1, RS2, RS3 and B1. These tracks will be installed vertically to support the adjustable shelf(s). The tracks will be painted to match the compartment interior.</b></p>		

<p><b><u>There will be eight (8) shelves with a capacity of 500 lb provided.</u></b>  <b><u>The shelf construction will consist of .188" aluminum painted spatter gray with 2.00" sides.</u></b>  <b><u>Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.</u></b>  <b><u>The shelves will be held in place by .12" thick stamped plated brackets and bolts.</u></b>  <b><u>The location(s) will be in RS3 in the upper third, in RS1 in the upper third, in LS3 in the upper third and in LS1 in the upper third.</u></b></p>		
<p><b><u>There will be two (2) floor mounted slide-out tray(s) provided.</u></b>  <b><u>Each tray will have 2.00" high sides and a minimum capacity rating of 500 lb in the extended position.</u></b>  <b><u>Each tray will be constructed of aluminum painted spatter gray.</u></b>  <b><u>There will be two undermount-roller bearing type slides rated at 250 lb each provided. The pair of slides will have a safety factor rating of 2.</u></b></p>		
<p><b><u>To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.To ensure years of easy operation, the slides will require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.</u></b>  <b><u>Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for</u></b></p>		

<p><b><u>the locks will be located at the front of the tray for ease of use with a gloved hand. The location(s) will be RS1 and LS1.</u></b></p>		
<p><b><u>A compartment for storage of a portable tank will be provided between the water tank and the Left side of water tank side body compartments. Within this compartment will be a rack constructed with stainless steel slides.</u></b> <b><u>The compartment storage area will be enclosed as practical by means of sheet metal to protect the portable tank from road dirt.</u></b> <b><u>The compartment will be sized for a Syntex brand of portable tank with a capacity of 2100 gallon Syntex Aluminum frame gallons and dimensions of 11'3" long x 30" tall x 7" wide. A vertically hinged door constructed of smooth aluminum will be provided at the rear. The door will be hinged along the outboard edge and have a D-handle latch.</u></b> <b><u>COMPARTMENT DUST FILTERS</u></b></p>		

<p><b><u>A total of seven (7) body compartment louvers will have a removable dust filter installed to restrict road dirt from easily entering the compartment and will be installed all compartments.</u></b></p>		
<p><b><u>Dri-Deck rubber compartment matting will be provided in the compartments on 14 compartment trays and shelves.The compartment trays and shelves locations will be: All compartments and trays and shelves.The Dri-Deck will be black, and .562" thick with holes in the decking to allow air to flow.</u></b></p>		
<p><b><u>Turtle Tile compartment matting will be provided in five (5) compartments on the compartment floor. The locations are, LS1, LS2, RS1, RS2, and B1. The Turtle Tile will be black and the leading edge of the matting will include the beveled edge. The beveled edge will be yellow.</u></b></p>		
<p><b><u>Pac Trac equipment mounting system will be installed on the left side, right side, and rear walls of one (1) compartment(s), LS3 upper compartment.</u></b></p>		
<p><b><u>Bottom edge of the side compartments will be trimmed with a bright aluminum extruded rub rail. Trim will be 2.12" high with 1.38" flanges turned outward for rigidity. The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.</u></b></p>		

<p><b><u>Polished stainless steel fender crowns will be provided around the rear wheel openings with a dielectric barrier will be provided between the fender crown and the fender sheet metal to prevent corrosion. These fender crowns must be wide enough to prevent splashing onto the body from the specified tires.</u></b></p> <p><b><u>The fender crowns will be held in place with stainless steel screws that thread directly into a composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals contact and greatly reduce the chance for corrosion. Rubber welting will be provided between the body and crown.</u></b></p>		
<p><b><u>A painted black 101 fender liner will be provided. The liners will be removable to aid in the maintenance of rear suspension components.</u></b></p>		
<p><b><u>Two (2) lengths of 6.00" Kochek Fire Grade clear corrugated hard suction hose, reinforced with a black spiral helix, 10' in length, will be provided. The hose will be equipped with a long handle female coupling on one (1) end and a rocker lug male coupling on the other end. Couplings will be black anodized hard coated aluminum.</u></b></p>		

<p><b><u>There will be a total of two (2) trough(s) for the storage of hard suction hose to be provided. The trough(s) will be located one (1) on the left side and one (1) on the right side hatch compartment(s). The trough(s) will be constructed of steel.</u></b></p> <p><b><u>One (1) painted aluminum door with a D-handle latch hinged along the outboard edge, will be provided at the rear of the hatch compartment. There will be an aluminum floor above the length of the hard suction hose and a vertical half height partition is provided in relation to the hard suction hose in the hatch compartment to allow for storage of additional equipment..</u></b></p>		
<p><b><u>The handrails will be 1.25" diameter knurled aluminum to provide a positive gripping surface. Chrome plated end stanchions will support the handrail. Plastic gaskets will be used between end stanchions and any painted surfaces.</u></b></p> <p><b><u>Drain holes will be provided in the bottom of all vertically mounted handrails.</u></b></p> <p><b><u>Handrails will be provided to meet current edition of applicable NFPA standards.</u></b></p>		
<p><b><u>One (1) vertical handrail will be located on each rear beavertail.</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>One (1) knurled aluminum handrail will be installed below the hose bed.</u></b></li> </ul>		
<p><b><u>One (1) handrail will be mounted on top of the left side catwalk forward. The handrail(s) will be constructed of knurled aluminum</u></b></p>		

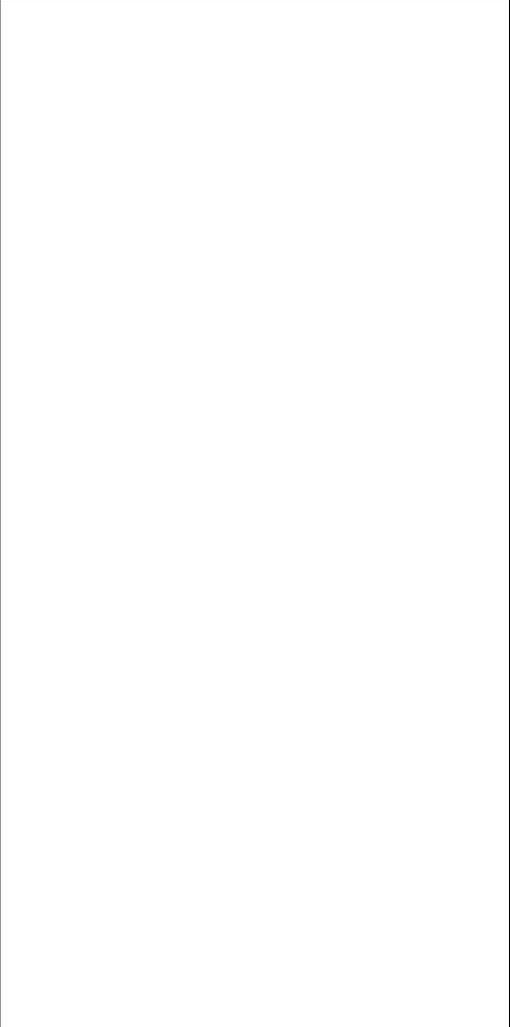
<p><b><u>A quantity of four (4) air bottle compartments, 15.25" wide x 7.75" tall x 26.00" deep, will be provided on the left side forward of the rear wheels, on the left side rearward of the rear wheels, on the right side forward of the rear wheels and on the right side rearward of the rear wheels. A polished stainless steel door with a Southco raised trigger C2 chrome lever latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal. Inside the compartment, black rubber matting will be provided.</u></b></p>		
<p><b><u>There will be a 24' two-section aluminum Duo-Safety Series 900-A extension ladder provided.</u></b></p>		
<p><b><u>There will be a 14' aluminum Duo-Safety Series 775-A roof ladder provided.</u></b></p>		
<p><b><u>The ladders will be stored inside the upper section of the right side compartments.</u></b></p> <p><b><u>The ladders will extend into the pump compartment just to the rear of the water pump discharges. The section of ladders that extend into the pump house will also be enclosed. A black rubber boot will be provided to enclose the ladders in the gap between the pump house and the body.</u></b></p> <p><b><u>Each ladder will be stored vertically in a separate stainless steel storage trough. Each stainless steel trough will be lined with Dura-Surf nylon slides.</u></b></p> <p><b><u>A vertically hinged smooth aluminum door with a D-handle latch will be provided at the rear bulkhead to access the ladders. The door will be hinged along the inboard edge.</u></b></p>		

<p><b><u>One (1) 10.00' aluminum, Series 585-A, Duo-Safety folding ladder will be installed.</u></b></p>		
<p><b><u>There will be storage designated right side for folding ladders stored between the side sheet in a stainless steel trough in the ladder storage compartment</u></b></p>		
<p><b><u>There will be two (2) New York Hook(s) provided. The New York Hook(s) will be a Fire Hooks Unlimited 8 foot hook</u></b></p>		
<p><b><u>There will be storage designated on the right side for One (1) pike pole 8' or longer pike poles with a .75" standard notch, stored in a tube between the side sheet and tank in the ground ladder storage compartment.</u></b></p>		
<p><b><u>There will be two (2) 6' pike pole(s) provided. The pike pole(s) will be a Fire Hooks Unlimited 6' Universal hook.</u></b></p>		
<p><b><u>There will be storage designated right side for One (1) pike pole with a .75" standard notch stored in a tube through the full depth body panel in the ladder storage compartment.</u></b></p>		
<p><b><u>Two (2) box lights will be provided by the manufacturer and mounted in the crew cab area.</u></b></p>		
<p><b><u>Folding steps will be provided full height on the left side body compartments to provide access to the cargo bed. Steps will be spaced evenly on the sales drawing. Actual quantity may vary due to pump panel interferences but will meet the NFPA required maximum stepping height.</u></b>  <b><u>The Trident steps will be black powder coat finished, non-skid with a black tread coating on the stepping surface.</u></b>  <b><u>The steps will incorporate an LED light to illuminate the stepping</u></b></p>		

<p><b>surface.</b>  <b>The steps can be used as a hand hold with two openings wide enough for a gloved hand.</b></p>		
<p><b>Bright finished, non-skid folding steps with a black tread coating on the stepping surface will be provided at the rear. Each step will incorporate an LED light to illuminate the stepping surface. The steps can be used as a hand hold with two openings wide enough for a gloved hand.</b></p>		
<p><b>The pump compartment will be separate from the hose body and compartments so that each may flex independently of the other. The pump compartment will be constructed of the same material as the body compartmentation.</b>  <b>The pump compartment substructure will be a fabricated assembly of steel tubing, angles and channels which supports both the fire pump and the side running boards.</b>  <b>The pump compartment will be mounted on the chassis frame rails with rubber biscuits in a four point pattern to allow for chassis frame twist.</b>  <b>Pump compartment, pump, plumbing and gauge panels will be removable from the chassis in a single assembly.</b></p>		

<p><b><u>Pump will be mounted to a substructure which will be mounted to the chassis frame rail using rubber isolators. The mounting will allow chassis frame rails to flex independently without damage to the fire pump.</u></b></p>		
<p><b><u>All pump controls and gauges will be located at the left (driver's) side of the apparatus and properly identified. Layout of the pump control panel will be ergonomically efficient and systematically organized. The pump operator's control panel will be removable in two (2) main sections for ease of maintenance: The upper section will contain sub panels for the mounting of the pump pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable). Sub panels will be removable from the face of the pump panel for ease of maintenance. Below the sub panels will be located all valve controls and line pressure gauges. The lower section of the panel will contain all inlets, outlets, and drains. All push/pull valve controls will have 1/4 turn locking control rods with polished chrome plated zinc tee handles. Guides for the push/pull control rods will be chrome plated zinc castings securely mounted to the pump panel. Push/pull valve controls will be capable of locking in any position. The control rods will pull straight out of the panel and will be equipped with universal joints to eliminate binding.</u></b></p>		

**The identification tag for each valve control will be recessed in the face of the tee handle. All discharge outlets will have color coded identification tags, with each discharge having its own unique color. Color coding will include the labeling of the outlet and the drain for each corresponding discharge. All line pressure gauges will be mounted directly above the corresponding discharge control tee handles and recessed within the same chrome plated casting as the rod guide for quick identification. The gauge and rod guide casting will be removable from the face of the pump panel for ease of maintenance. The casting will be color coded to correspond with the discharge identification tag. All remaining identification tags will be mounted on the pump panel in chrome plated bezels. The pump panel on the right (passenger's) side will be removable with lift and turn type fasteners. Trim rings will be installed around all inlets and outlets.**



<p><b><u>Pump will be a Waterous CSPA, 1250 gpm, single (1) stage power take off (PTO) driven, midship mounted centrifugal type. Pump will be the class "A" type. Pump will deliver the percentage of rated discharge at pressures indicated below:- 100% of rated capacity at 150 psi net pump pressure.-70% of rated capacity at 200 psi net pump pressure.-50% of rated capacity at 250 psi net pump pressure. Pump body will be close-grained gray iron, bronze fitted, and will be horizontally split in two (2) sections for easy removal of the entire impeller shaft assembly (including wear rings). Pump will be designed for complete servicing from the bottom of the truck, without disturbing the pump setting or apparatus piping.</u></b></p>		
<p><b><u>Pump case halves will be bolted together on a single horizontal face to minimize a chance of leakage and facilitate ease of reassembly. No end flanges will be used. Discharge manifold of the pump will be cast as an integral part of the pump body assembly and will provide a minimum of three (3) 3.50" openings for flexibility in providing various discharge outlets for maximum efficiency. The three (3) 3.50" openings will be located as follows: one (1) outlet to the right of the pump, one (1) outlet to the left of the pump, and one (1) outlet directly on top of the discharge manifold. Impeller shaft will be stainless steel, accurately ground to size. It will be supported at each end by oil or grease lubricated, anti-friction</u></b></p>		

<p><b><u>ball bearings for rigid precise support.</u></b></p>		
<p><b><u>Bearings will be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. No special or sleeve type bearings will be used. Pump will be equipped with a self-adjusting, maintenance-free, mechanical shaft seal. The mechanical seal will consist of a flat, highly polished, spring fed carbon ring that rotates with the impeller shaft. The carbon ring will press against a highly polished stainless steel stationary ring that is sealed within the pump body. In addition, a throttling ring will be pressed into the steel chamber cover, providing a very small clearance around the rotating shaft in the event of a mechanical seal failure. The pump performance will not deteriorate, nor will the pump lose prime, while drafting if the seal fails during pump operation. Wear rings will be bronze and easily replaceable to restore original pump efficiency and</u></b></p>		

<p><b><u>eliminate the need to replace the entire pump casing due to wear.</u></b></p>		
<p><b><u>The pump transmission will be made of light weight aluminum casing. Power transfer to pump will be through a pressure lubricated, Morse HY-VO drive chain.</u></b> <b><u>Drive shafts will be a minimum of 1.50" diameter hardened and ground alloy steel. All shafts will be ball bearing supported. The case will be designed as to eliminate the need for water cooling.</u></b> <b><u>The water pump will be driven by a special heavy duty ten (10)-bolt hot shift PTO. It will be located on the left side of the chassis transmission. This PTO will be designed specifically for the torque required to drive a 1250 gpm or larger water pump.</u></b></p>		

<p><b><u>An interlock system will be provided to ensure that the pump drive system components are properly engaged so that the apparatus can be safely operated. The interlock system will be designed to allow stationary pumping and the truck to be in motion while pumping. A digital pump pressure gauge will be supplied in the cab.</u></b></p>		
<p><b><u>A pump shift will be provided within easy reach of the driver for engagement of the PTO driven pump. The shift will include the indicator lights as mandated by NFPA. The pump shift control will be illuminated to meet NFPA requirements.</u></b></p>		
<p><b><u>A supplementary heat exchange cooling system will be provided to allow the use of water from the discharge side of the pump for cooling the engine water. The heat exchanger will be a separate unit. It will be installed in the pump or engine compartment with the control located on the pump operator's control panel. The exchanger will be plumbed to the master drain valve.</u></b></p>		
<p><b><u>A Task Force Tips A18 series relief valve will be installed on the suction side of the pump preset at 125 psig. The relief valve will have a working range of 90 psi to 300 psi. The pressure relief valve control will be located behind an access door at the right side pump panel. The outlet will terminate below the frame rails with a 2.50" National Standard hose thread adapter and will have a "do not cap" warning tag.</u></b></p>		

<p><b><u>A Fire Research Pump Boss, Model PBA400, pressure governor will be provided.</u></b></p> <p><b><u>A pressure transducer will be installed in the water discharge manifold on the pump.</u></b></p> <p><b><u>A pressure transducer will be installed in the inlet manifold on the pump.</u></b></p> <p><b><u>The display panel will be located at the pump operator's panel.</u></b></p>		
<p><b><u>A Waterous electric pump priming system conforming to standards outlined in the current edition of applicable NFPA standards will be furnished with the apparatus. One (1) VPO electric motor driven rotary vane primer will be provided. One (1) VAP vacuum activated priming valve will be plumbed main pump. One (1) momentary push-button control will be located at the pump operator's panel. The push button control system control will operate an electric priming motor and the priming valve will automatically open during priming and close when the primer is deactivated.</u></b></p>		
<p><b><u>A Waterous Overheat Protection Manager (OPM) will be included on the pump that monitors pump water temperature and opens to relieve water to cool the pump when the temperature of the pump water exceeds 140 Degrees F (60 C) and a red warning light that is triggered when the water in the pump reaches 180 F (82 C).</u></b></p> <p><b><u>The warning light will act as an additional protection device if the temperature in the pump keeps rising after the valve opens. The warning light with a test switch will be mounted on the pump operator panel.</u></b></p> <p><b><u>The discharge line will be plumbed to water tank.</u></b></p>		

<p><b><u>There will be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals will be provided by the pump manufacturer in the form of two (2) electronic copies. Each manual will cover pump operation, maintenance, and parts.</u></b></p>		
<p><b><u>All inlet and outlet lines will be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hose's will be equipped with brass or stainless steel couplings. All stainless steel hard plumbing will be a minimum of a schedule 10 wall thickness. Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping will be equipped with victaulic or rubber couplings. Plumbing manifold bodies will be ductile cast iron or stainless steel. All piping lines are to be drained through a master drain valve or will be equipped with individual drain valves. All drain lines will be extended with a hose to drain below the chassis frame. All water carrying gauge lines will be of flexible polypropylene tubing. All piping, hose and fittings will have a minimum of a 500 PSI hydrodynamic pressure rating.</u></b></p>		
<p><b><u>A 6.00" pump manifold inlet will be provided on each side of the vehicle. The suction inlets will include removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.</u></b></p>		

<p><b><u>The suction tube(s) on the water pump will have short suction tube(s) installed to allow for installation of adapters, elbows or intake valves without excessive overhang.</u></b></p>		
<p><b><u>There will be Two (2) Task Force Tips (TFT) AX Series aluminum ball intake valve(s) provided at right and left 6" inlet .The inlet connection will be 1SX (6.0" Rigid Storz) with a cap with a matching cap and the outlet connection will be NX (6.0" Threaded Swivel) . There will be an eight-position adjustable 30 degree swiveling detent elbow on the inlet side of the ball intake valve.The ball intake valve will be controlled with a(n) standard crank on the left side .If ball intake valve is to be controlled with a manual handwheel, the handwheel will be controlled with a NFPA compliant slow-close hand wheel. A position indicator will be provided to allow for a quick visualization of the status of the valve in the open, closed or transition position.If the ball intake valve is to be electrically controlled, the ball intake valve will be controlled by a remote panel-mounted push-button switch with LED lights for a quick visualization of the status of the valve in the open, closed or transition position. The push button switch will be mounted on the pump operator's panel.</u></b></p>		

<p><b><u>The ball intake valve will be equipped with a standard adjustable pressure relief valve. The relief valve will have a working range of 90 PSI to 300 PSI.</u></b></p> <p><b><u>A 3/4" TFT bleeder/drain valve will be provided on the ball intake valve to exhaust excess air or water from the valve.</u></b></p> <p><b><u>For corrosion protection the aluminum casting will have a hard coat anodized finish, with a powder coated internal and external finish. All the components facing the wet side of the valve will be constructed from stainless steel.</u></b></p>		
<p><b><u>The main pump inlets will have National Standard Threads with a long handle chrome cap. The cap will be the VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.</u></b></p>		
<p><b><u>All valves will be Akron® Brass brand, utilizing the 8800 series swing out for sizes 1.00" and larger where applicable.</u></b></p> <p><b><u>The location of the valve for the one (1) inlet will be recessed behind the pump panel.</u></b></p>		
<p><b><u>The side auxiliary inlet(s) will incorporate a quarter-turn ball valve with the control located at the inlet valve. The valve operating mechanism will indicate the position of the valve.</u></b></p>		
<p><b><u>There will be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.</u></b></p> <p><b><u>The auxiliary inlet will be provided with a strainer, chrome swivel and plug.</u></b></p>		

<p><b><u>There will be one (1) auxiliary inlet with a 2.50" valve at the right side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.</u></b>  <b><u>The auxiliary inlet will be provided with a strainer, chrome swivel and plug.</u></b></p>		
<p><b><u>One (1) pair of sacrificial Zinc anodes will be provided in the water pump to protect the pump from corrosion. One (1) will be placed in the inlet side of the pump and the other one (1) in the discharge side of the pump.</u></b></p>		
<p><b><u>A 0.75" bleeder valve will be provided for each side gated inlet. The valves will be located behind the panel with a "T" swing style handle control extended to the outside of the panel. The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders will be routed below the chassis frame rails.</u></b></p>		
<p><b><u>The booster tank will be connected to the intake side of the pump with heavy duty 4.00" piping and a quarter turn 3.00" valve with the control remotely located at the operator's panel. A rubber coupling will be included in this line to prevent damage from vibration or chassis flexing.</u></b>  <b><u>A check valve will be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.</u></b></p>		
<p><b><u>A 1.50" combination tank refill and pump re-circulation line will be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.</u></b></p>		

<p><b><u>The discharge outlets will incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism will indicate the position of the valve.</u></b>  <b><u>If a handwheel control valve is used, the control will be a minimum of a 3.9" diameter stainless steel handwheel with a dial position indicator built in to the center of the handwheel.</u></b>  <b><u>Any 3.00 inch or larger discharge valve will be a slow-operating valve in accordance with NFPA 1900 2024 Edition 13.7.5.3.</u></b></p>		
<p><b><u>There will be Two (2) discharge outlets with a 2.50" valve on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.</u></b></p>		
<p><b><u>The 2.50" discharge outlets located on the left side pump panel will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow. The elbow will be VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.</u></b></p>		
<p><b><u>There will be Two (2) discharge outlets with a 2.50" valve on the right side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.</u></b></p>		
<p><b><u>The 2.50" discharge outlets located on the right side pump panel will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow. The elbow will be VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.</u></b></p>		

<p><b><u>There will be an Akron 8800 4.00" flat ball valve with 4.00" plumbing terminating with a 4.00" MNST chrome adapter on the right side pump panel.</u></b>  <b><u>The valve will be controlled with a(n) large handwheel with indicator located at the pump operator's panel.</u></b></p>		
<p><b><u>The 4.00" outlet(s) will be furnished with one (1) 4.00" (F) National Standard hose thread x 5.00" Storz elbow adapter with Storz cap.</u></b></p>		
<p><b><u>There will be one (1) 1.50" discharge outlet piped to the front of the apparatus and located on the top of the left side of the front bumper.Plumbing will consist of 2.00" piping and flexible hose with a 2.00" ball valve with control at the pump operator's panel. A fabricated weldment made of stainless steel pipe will be used in the plumbing where appropriate. The piping will terminate with a 1.50" NST with 90 degree stainless steel swivel.There will be automatic drains provided at all low points of the piping.</u></b></p>		
<p><b><u>There will be Two (2) discharge outlets piped to the rear of the hose bed, one (1) each side, installed so proper clearance is provided for spanner wrenches or adapters. Plumbing will consist of 2.50" piping along with a 2.50" full flow ball valve with the control from the pump operator's panel.</u></b></p>		
<p><b><u>The 2.50" discharge outlets located at the rear of the apparatus will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow. The elbow will be VLH, which incorporates an exclusive thread design to automatically relieve</u></b></p>		

<p><b><u>stored pressure in the line when disconnected.</u></b></p>		
<p><b><u>Chrome plated, rocker lug, caps with chain will be furnished for all discharge outlets 1.00" thru 3.00" in size, besides the pre-connected hose outlets.</u></b></p> <p><b><u>Chrome plated, rocker lug, plugs with chain will be furnished for all auxiliary inlets 1.00" thru 3.00" in size.</u></b></p> <p><b><u>The caps and plugs will incorporate a thread design to automatically relieve stored pressure in the line when disconnected.</u></b></p>		
<p><b><u>A 0.75" bleeder valve will be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application. The valves will be located behind the panel with a T swing style handle control extended to the outside of the side pump panel. The handles will be chrome plated and provide a visual indication of valve position. The T swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders will be located at the bottom of the pump panel. They will be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders will be routed below the chassis frame rails.</u></b></p>		

<p><b><u>A 3.00" deluge riser will be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping will be rigidly braced and installed securely so no movement develops when the line is charged. The riser will be gated and controlled at the pump operator's panel with a handwheel control.</u></b></p>		
<p><b><u>The deluge riser piping will include a 18.00" Task Force Model XG18 Extend-A-Gun extension. This extension will be telescopic to allow the deluge gun to be raised 18.00" increasing the range of operation. A position sensor will be provided on the telescopic piping that will activate the "do not move vehicle" light inside the cab when the monitor is in the raised position.</u></b></p>		
<p><b><u>A Task Force Crossfire #XFT-NJ monitor with Task Force Safe-TAK base # XFH-1ST will be provided. This monitor will be painted as provided by monitor manufacturer.</u></b></p>		
<p><b><u>A Task Force Tips Master Stream 1250 M-R nozzle will be provided. The deluge riser Extend-a-Gun will have provisions for direct mounting a Task Force Tips CrossFire monitor.</u></b></p>		

<p><b><u>Ahead of the pump enclosure will be two (2) 1.75" speedlay hose beds. Each bed will have a 2.00" pre-connect line with a 2.00" quarter-turn ball valve and terminate with a 1.50" National Standard hose thread 90 degree swivel. The swivel will be located at the top of the speedlay compartment to allow easy removal of the hose in either direction. Individual controls for the speedlays will be at the pump operator's panel. Each compartment will be capable of carrying 200 feet of 1.75" double jacketed hose with the one (1) compartment located above the other. A removable tray will be provided for each speedlay hosebed. The speedlay trays will be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes will be in the floor and additional hand holes will be provided in the sides for easy removal and installation from the compartment. The floor of the trays will be perforated to allow for drainage and hose drying. The bottom of the speedlay compartments will be lined with stainless steel to allow the tray to slide with ease. Scuffplates will be provided on both sides, at the sides and bottom of each opening to protect the paint.</u></b></p>		
<p><b><u>There will be two (2) additional poly tray(s) provided for the speedlays. The trays will be identical in design and will be shipped with the loose equipment.</u></b></p>		

<p><b><u>A 2.00" black nylon webbing design restraint will be provided across the ends of speedlay(s) to secure the hose during travel. The webbing assembly is to be attached at the bottom of the speedlay(s) with footman loops as a permanent attachment and is attached at the top outside corners with two (2) seat belt buckles. The female end is permanently attached above the speedlay(s) and the male end attached to the webbing. There will be a metal bar, to connect the buckles, and an attached web strap, to allow a single pull release. The color of the release strap will be orange.</u></b></p>		
<p><b><u>There will be two (2) removable access panel installed in the back wall of both speedlay(s). The panel will be held in place with recessed lift-and-turn latches.</u></b></p>		
<p><b><u>A Hannay, electric rewind booster hose reel shall be installed in the center of the front bumper extension. The capacity of this reel shall be 125 feet of 1.00" booster hose.</u></b>  <b><u>The exterior finish of the reel shall be painted #269 gray from the reel manufacturer.</u></b>  <b><u>Discharge control shall be provided at the pump operator's panel.</u></b>  <b><u>Plumbing to the reel shall consist of a 1.50" Aeroquip hose and a 1.50" valve.</u></b>  <b><u>The reel shall be protected on the underside by an aluminum enclosure. The enclosure shall be a bolt on enclosure and be removable for maintenance.</u></b>  <b><u>A bright aluminum treadplate cover shall be provided over the top of the booster reel.</u></b></p>		

<p><b><u>A polished stainless steel roller and guide assembly shall be provided on all four (4) sides of the front opening.</u></b></p>		
<p><b><u>There shall be a blow out valve provided using chassis air.Reel motor will be protected from overload with a circuit breaker rated to match the motor.An electric rewind control switch will be installed adjacent to the reel.Booster hose, 1.00" diameter and 125 feet, with chrome plated Barway, or equal, couplings will be provided.Working pressure of the booster hose will be a minimum of 1000 psi.Capacity of the hosereel will be 125' booster hose.An Akron, model 1702, 1.00" booster hose nozzle with pistol grip will be provided.</u></b></p>		
<p><b><u>A hose reel blowout will be furnished to blow out any remaining water from the reel. Blowout will be piped from the wet tank of the brake system to the reel, and will be controlled at the pump operator's panel with a quarter turn valve.</u></b></p>		
<p><b><u>A foam system will not be required on this apparatus</u></b></p>		

<p><b><u>The pump panel configuration will be arranged and installed in an organized manner that will provide user-friendly operation.</u></b></p>		
<p><b><u>The pump and gauge panels will be constructed of stainless steel with a brushed finish. A polished aluminum trim molding will be provided on both sides of the pump panel.</u></b></p>		
<p><b><u>The right side upper pump panel will be removable.</u></b></p>		
<p><b><u>The removable panels will be secured with chrome rased trigger latch.</u></b>  <b><u>The left side pump panels will be attached with screws.</u></b>  <b><u>The right side lower pump panel (drain bank) will be attached with screws.</u></b></p>		
<p><b><u>There will be one (1) Whelen®, Model 3SC0CDCR, 3.00" white 12 volt DC LED light(s) with Whelen, Model 3FLANGEC, flange(s) installed in the pump compartment.Engine monitoring graduated LED indicators will be incorporated with the pressure controller.Also provided at the pump panel will be the following:- Master Pump Drain Control</u></b></p>		
<p><b><u>There will be a green indicator light integrated with the pressure governor and/or engine throttle installed on the pump operators panel that is activated when the pump is in throttle ready mode.</u></b></p>		
<p><b><u>There will be a green indicator light installed on the pump operators panel that is activated when the pump is in Ok To Pump mode.</u></b></p>		
<p><b><u>An air horn control button will be provided at the pump operator's control panel. This button will be red in color and properly labeled "Evacuation".</u></b></p>		

<p><b><u>A heat enclosure will be installed, trapping hot air radiated from the engine exhaust system, which will warm the fire pump. The enclosure will consist of an aluminum understructure, with easily removable aluminum panels. Also, a covering above the pump will be provided so warm air cannot escape freely.</u></b></p>		
<p><b><u>A 12v electric gauge heater will be provided for all water carrying gauges.</u></b></p>		
<p><b><u>A hot water heater will be installed in the pump compartment. Controls for the heater will be located at the pump operator's panel.</u></b></p>		
<p><b><u>The front and rear of the pump house will be enclosed to contain the heat. The rear will have openings for the plumbing only. A rubber boot will be supplied around the swing controls and plumbing, at the front, sides and rear of the pump house, the boot will allow the plumbing to flex and keep cold air out.</u></b></p>		

<p><b>The pump vacuum and pressure gauges will be liquid filled and manufactured by Class 1 Incorporated ©.</b></p> <p><b>The gauges will be a minimum of 4.00" in diameter and will have white faces with black lettering, with a pressure range of 30.00"-0-600#.</b></p> <p><b>Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.</b></p> <p><b>The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel.</b></p> <p><b>Test port connections will be provided at the pump operator's panel. One will be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They will have 0.25 in. standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They will be marked with a label.</b></p> <p><b>This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.</b></p>		
<p><b>The individual "line" pressure gauges for the discharges will be Class 1© interlube filled.They will be a minimum of 2.00" in diameter and have white faces with black lettering.Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.Gauges will have a pressure range of 30"-0-400#.The individual pressure gauge will be installed as close to the outlet control as practical.This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.</b></p>		

**A Fire Research TankVision Pro model WLA300-A00 water tank indicator gauge will be installed on the pump operators panel. The gauge kit will include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The gauge will show the volume of water in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs will provide for a viewing angle of 180 degrees. The gauge case will be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive blue label. The program features will be accessed from the front of the indicator module. The program will support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a data link to connect remote indicators. Low water warnings will include flashing LEDs at 1/4 tank and down chasing LEDs when the tank is almost empty. The gauge will receive an input signal from an electronic pressure sensor. The sensor will be mounted from the outside of the water tank near the bottom. No probe will be placed on the interior of the tank. Wiring will be weather resistant and have automotive type plug-in connectors.**

<p><b><u>A Fire Research TankVision model WLA205-A00 miniature tank indicator gauge will be installed in the cab. The indicator gauge will show the volume of water in the tank on five (5) easy to see super bright LEDs. A wide view lens over the LEDs will provide for a viewing angle of 180 degrees. The indicator gauge case will be manufactured of Polycarbonate material with an integrated lens and have a distinctive blue label.</u></b></p>		
<p><b><u>There will be one (1) Fire Research TankVision Pro model WLA300-B00 water tank remote indicator kit(s) installed on the left side pump panel. The kit(s) will include an electronic indicator module and a 10' remote cable. The indicator(s) will show the volume of water in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs will provide for a viewing angle of 180 degrees. The indicator case will be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive blue label. The remote indicator(s) will receive input information over a data link from the primary Fire Research TankVision indicator. A 10' cable will be provided to connect the data link. The remote indicator(s) will have the same program as the primary so that the two indicators are interchangeable. The flash rate will be determined by the main water tank sensor.</u></b></p>		

<p><b><u>There will be a polished, 16 gauge stainless steel light shield installed over the pump operator's panel.</u></b></p> <p><b><u>• There will be 12 volt DC white LED lights installed under the stainless steel light shield to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. These lights will be activated by the pump panel light switch. Additional lights will be included every 18.00" depending on the size of the pump house. • One (1) pump panel light will come on when the pump is in ok to pump mode. There will be a light activated above the pump panel light switch when the parking brake is set. This is to afford the operator some illumination when first approaching the control panel.</u></b></p>		
<p><b><u>A microphone and speaker compartment with a polished stainless steel door will be furnished adjacent to the pump operator's panel. The compartment size will be 12.00" high x 9.00" wide x 6.00" deep.</u></b></p>		
<p><b><u>Two (2) Hadley®, eTone, chrome air horns will be recessed in the front bumper. The air horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed to prevent the loss of air in the brake system.</u></b></p>		
<p><b><u>The air horns will be located on each side of the bumper, towards the outside.</u></b></p>		
<p><b><u>The air horn(s) will be activated by the following:</u></b></p> <ul style="list-style-type: none"> <li><b><u>• Left side lanyard. The lanyard to be a plastic coated braided cable.</u></b></li> <li><b><u>• Steering wheel horn ring with electric/air horn selector switch</u></b></li> </ul>		

<p><b><u>A Whelen® , Model 295SLSA1, electronic siren with noise canceling microphone will be provided. This siren to be active when the battery switch is on and that emergency master switch is on. Electronic siren head will be recessed in the driver side center switch panel. The electronic siren will be controlled on the siren head only. No horn button or foot switches will be provided.</u></b></p>		
<p><b><u>There will be one (1) Whelen® , Model SA315P, black nylon composite, 100-watt, speaker with through bumper mounting brackets and polished stainless steel grille provided. The speaker will be connected to the siren amplifier. The speaker(s) will be recessed in the center of the front bumper.</u></b></p>		
<p><b><u>There will be a Federal Signal Model Q2B mechanical siren furnished and installed in the front of the apparatus. The Q2B will be chrome finish. The siren will have a 2-gauge cable connected to a power solenoid that is connected by a 2-gauge cable ran battery direct to the primary chassis batteries and will be labeled Q2B+ at the battery. The power solenoid will only be enabled when the emergency master switch is on. The siren will have a 2-gauge ground wire connected to the chassis battery stud. The cable will be labeled Q2B- at the battery. The mechanical siren will be mounted on the bumper deck plate. It will be mounted on the left side. A reinforcement plate will be furnished to support the siren.</u></b></p>		

<p><b><u>The mechanical siren will be activated by the following:</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>Left side foot switch.</u></b></li> </ul> <p><b><u>A momentary chrome push button switch will be included in the right side dash panel to activate the siren brake.</u></b></p>		
<p><b><u>There will be one (1) 72.00" Whelen® Freedom™ IV LED lightbar mounted on the cab roof.</u></b></p> <p><b><u>The lightbar will include the following:</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>One (1) red flashing LED module in the left side end position.</u></b></li> <li>• <b><u>One (1) red flashing LED module in the left side front corner position.</u></b></li> <li>• <b><u>One (1) red flashing LED module in the left side first front position.</u></b></li> <li>• <b><u>One (1) red flashing LED module in the left side second front position.</u></b></li> <li>• <b><u>One (1) red flashing LED module in the left side third front position.</u></b></li> <li>• <b><u>One (1) red flashing LED module in the left side fourth front position.</u></b></li> <li>• <b><u>One (1) white flashing LED module in the left side fifth front position.</u></b></li> <li>• <b><u>Open in the left side sixth front position.</u></b></li> <li>• <b><u>Open in the right side sixth front position.</u></b></li> </ul>		

<ul style="list-style-type: none"> <li>• <b><u>One (1) white flashing LED module in the right side fifth front position.</u></b></li> <li>• <b><u>One (1) blue flashing LED module in the right side fourth front position.</u></b></li> <li>• <b><u>One (1) blue flashing LED module in the right side third front position.</u></b></li> <li>• <b><u>One (1) blue flashing LED module in the right side second front position.</u></b></li> <li>• <b><u>One (1) blue flashing LED module in the right side first front position.</u></b></li> <li>• <b><u>One (1) blue flashing LED module in the right side front corner position.</u></b></li> <li>• <b><u>One (1) blue flashing LED module in the right side end position.</u></b></li> </ul> <p><b><u>There will be clear lenses included on the lightbar.</u></b></p> <p><b><u>There will be a switch in the cab on the switch panel to control this lightbar.</u></b></p> <p><b><u>The white LEDs will be disabled when the parking brake is applied.</u></b></p> <p><b><u>The four (4) red and four (4) blue flashing LED modules in the front positions may be load managed when the parking brake is applied.</u></b></p>		

<p><b><u>There will be four (4), Whelen® Model M6** 4.32" high x 6.75" wide x 1.37" deep flashing LED warning lights installed on the cab face above the headlights in twin bezels.</u></b></p> <ul style="list-style-type: none"> <li><b><u>• The left side outside warning light to include red LEDs</u></b></li> <li><b><u>• The left side inside warning light to include blue LEDs</u></b></li> <li><b><u>• The right side inside warning light to include green LEDs</u></b></li> <li><b><u>• The right side outside warning light to include red LEDs</u></b></li> <li><b><u>• The warning light lens color(s) to be clear</u></b></li> <li><b><u>• The housing to be polished and the trim shall be chrome</u></b></li> </ul> <p><b><u>The lights may be controlled per the following:</u></b></p> <ul style="list-style-type: none"> <li><b><u>• A switch on the cab instrument panel will control the lights</u></b></li> <li><b><u>• White LEDs will be deactivated when the parking brake is applied</u></b></li> <li><b><u>• Amber LEDs will be activated when the parking brake is applied</u></b></li> <li><b><u>• Amber, blue green or red LEDs in the inside positions may be load managed when the parking brake is applied</u></b></li> </ul>		
<p><b><u>The high beam headlights will flash alternately between the left and right side.</u></b></p> <p><b><u>There will be a switch installed in the cab on the switch panel to control the high beam flash. This switch will be live when the battery switch and the emergency master switches are on.</u></b></p> <p><b><u>The flashing will automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.</u></b></p>		
<p><b><u>Two (two) Mars type 888 lights mounted to front corner of rig</u></b></p>		

<p><b>There will be six (6) Whelen<sup>®</sup>, Model M6*C, flashing LED warning lights with chrome trim installed per the following:</b></p> <ul style="list-style-type: none"> <li>• <b>Two (2) lights, one (1) each side on the bumper extension. The side front lights to be red.</b></li> <li>• <b>Two (2) lights, one (1) each side of cab rearward of crew cab doors. The side middle lights to be blue.</b></li> <li>• <b>Two (2) lights, one (1) each side on the rear fender panel. The side rear lights to be red.</b></li> </ul> <p><b>The lights will include clear lenses. There will be a switch in the cab on the switch panel to control the lights.</b></p>		
<p><b>There will be two (2) Whelen<sup>®</sup>, Model M9# split color, 6.50" high x 10.37" wide x 1.37" deep flashing warning light(s) with chrome trim bezel(s) provided right and left forward body. The color of the light(s) to be red to the front and blue to the rear. All of these lights will include a clear lens. These lights will be activated with the side warning switch. Any white warning lights will be deactivated when the parking brake is set. These lights may be load managed when the parking brake is applied.</b></p>		
<p><b>There will be two (2) Whelen<sup>®</sup>, Model M6*C, LED flashing warning lights located at the rear of the apparatus.</b></p> <ul style="list-style-type: none"> <li>• <b>The driver's side rear light to be red</b></li> <li>• <b>The passenger's side rear light to be red</b></li> </ul> <p><b>Both lights will include a lens that is clear. There will be a switch located in the cab on the switch panel to control the lights.</b></p>		

**There will be four (4) Whelen, Model M9#, 6.50" high x 10.37" long x 1.37" deep flashing LED warning lights with chrome trim and clear lenses provided at the rear of the apparatus per the following:**

- The driver's side, side light will be as high and close to the rear of the apparatus as practical. The left side light to have the red LEDs forward and the blue LEDs to the rear.**
- The driver's side, rear light will be as high and close to the outside of the apparatus as practical. The driver's side rear light to be red to the outside and blue to the inside.**
- The passenger's side, rear light will be as high and close to the outside of the apparatus as practical. The passenger's side rear light to be red to the outside and blue to the inside.**
- The passenger's side, side light will be as high and close to the rear of the apparatus as practical. The right side light to have the red LEDs forward and the blue LEDs to the rear.**

**There will be a switch in the cab on the switch panel to control the lights. The rear warning lights will be mounted on top of the compartmentation with all wiring totally enclosed. The rear deck lights will be mounted on the beavertails as high as possible.**

<p><b><u>There will be one (1) Whelen®, Model TAL65, 36.00" long x 2.87" high x 2.25" deep, amber LED traffic directing light installed at the rear of the apparatus.</u></b></p> <p><b><u>The Whelen, Model TACTL5, control head will be included with this installation.</u></b></p> <p><b><u>The controller will be energized when the battery switch is on.</u></b></p> <p><b><u>The auxiliary flash to be activated when the emergency master switch is on.</u></b></p> <p><b><u>This traffic directing light will be recessed with a stainless steel trim plate at the rear of the apparatus as high as practical.</u></b></p> <p><b><u>The traffic directing light control head will be located in the driver side overhead switch panel in the right panel position.</u></b></p>		
<p><b><u>The following guidelines will apply to the 120/240 VAC system installation:</u></b></p>		
<p><b><u>Any fixed line voltage power source producing alternating current (ac) line voltage will produce electric power at 60 cycles plus or minus 3 cycles.</u></b></p> <p><b><u>Except where superseded by the requirements of the current edition of applicable NFPA standards, all components, equipment and installation procedures will conform to NFPA 70, National Electrical Code (herein referred to as the NEC).</u></b></p> <p><b><u>Line voltage electrical system equipment and materials included on the apparatus will be listed and installed in accordance with the manufacturer's instructions. All products will be used only in the manner for which they have been listed.</u></b></p>		

<p><b><u>Grounding will be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems will not be used. Only stranded or braided copper conductors will be used for grounding and bonding. An equipment grounding means will be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC. The grounded current carrying conductor (neutral) will be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts.</u></b></p>		
<p><b><u>The neutral conductor will 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 will be bonded to the vehicle frame by a copper conductor. This conductor will have a minimum ampere rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements will be permitted to be used. All power source system mechanical and electrical components will be sized to support the continuous duty nameplate rating of the power source.</u></b></p>		

<p><b><u>Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, will be permanently attached to the apparatus at any point where such operations can take place. Provisions will be made for quickly and easily placing the power source into operation. The control will be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train will be equipped with a means to prevent the unintentional movement of the control device from its set position. A power source specification label will be permanently attached to the apparatus near the operator's control station. The label will provide the operator with the following information:</u></b></p>		
<ul style="list-style-type: none"> <li><b><u>• Rated voltage(s) and type (ac or dc)</u></b></li> <li><b><u>• Phase • Rated frequency • Rated amperage • Continuous rated watts</u></b></li> <li><b><u>• Power source engine speedDirect drive (PTO) and portable generator installations will comply with Article 445 (Generators) of the NEC.</u></b></li> </ul>		

**The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device will not exceed 144.00" (3658 mm) in length.**  
**For fixed power supplies, all conductors in the power supply assembly will be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degree Fahrenheit (90 degrees Celsius).**  
**For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device will be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).**

<p><b><u>Fixed wiring systems will be limited to the following:</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius)</u></b></li> <li>• <b><u>Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius)</u></b></li> </ul> <p><b><u>Electrical cord or conduit will not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition the wiring will be run as follows.</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>Separated by a minimum of 12.00" (305 mm), or properly shielded, from exhaust piping</u></b></li> <li>• <b><u>Separated from fuel lines by a minimum of 6.00" (152 mm) distance</u></b></li> </ul> <p><b><u>Electrical cord or conduit will be supported within 6.00" (152 mm) of any junction box and at a minimum of every 24.00" (610 mm) of continuous run. Supports will be made of nonmetallic materials or corrosion protected metal. All supports will be of a design that does not cut or abrade the conduit or cable and will be mechanically fastened to the vehicle.</u></b></p>		
<p><b><u>All line voltage conductors located in the main panel board will be individually and permanently identified. The identification will reference the wiring schematic or indicate the final termination point. When prewiring for future power sources or devices, the unterminated ends will be labeled showing function and wire size.</u></b></p>		

<p><b>All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, will be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC. All receptacles located in a wet location will be not less than 24.00" (610 mm) from the ground. Receptacles on off-road vehicles will be a minimum of 30.00" (762 mm) from the ground. The face of any wet location receptacle will be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle will be installed in a face up position.</b></p>		
<p><b>All receptacles located in a dry location will be of the grounding type. Receptacles will be not less than 30.00" (762 mm) above the interior floor height. All receptacles will be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they will be so marked.</b></p>		
<p><b>All receptacles and electrical inlet devices will be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages will be rated for the appropriate service.</b></p>		

<p><b><u>The wiring and associated equipment will be tested by the apparatus manufacturer or the installer of the line voltage system. The wiring and permanently connected devices and equipment will be subjected to a dielectric voltage withstand test of 900-volts for one (1) minute. The test will be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test will be conducted after all body work has been completed. Electrical polarity verification will be made of all permanently wired equipment and receptacles to determine that connections have been properly made.</u></b></p>		
<p><b><u>The apparatus manufacturer will perform the following operation test and ensure that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order. The test will be witnessed and the results certified by an independent third-party certification organization. The prime mover will be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating. The power source will be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in the current edition of applicable NFPA standards. Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in the current edition of</u></b></p>		

<p><b><u>applicable NFPA standards will be applied to the low voltage electrical system during the operational test.</u></b></p>		
<p><b><u>The apparatus will be equipped with a complete electrical power system. The generator will be a Harrison Model 15.0 MPC 15.0 kW Hydraulic unit. The wiring and generator installation will conform to the present National Electrical Codes Standards of the National Fire Protection Association. The installation will be designed for continuous operation without overheating and undue stress on components. Generator Performance- Continuous Duty Rating: 15,000 watts- Nominal Volts: 120/240- Amperage: 125 @ 120 volts, 62.5 @ 240 volts- Phase: Single- Cycles: 60 hertz- Engine Speed at Engagement: Idle- RPM range: 925 to 3,000 (hydraulic pump)</u></b></p>		

<p><b>Generator Dimensions</b></p> <ul style="list-style-type: none"> <li>- Length: 35.00 inches</li> <li>- Width: 23.00 inches</li> <li>- Height: 19.00 inches</li> <li>- Weight: 455 pounds (dry)</li> </ul> <p><u>The output of the generator will be controlled by an internal hydraulic system. An electrical instrument gauge panel will be provided for the operator to monitor and control all electrical operations and output.</u></p> <p><u>The generator will be driven by a transmission power take off unit, through a hydraulic pump and motor.</u></p> <p><u>The generator will include an electrical control inside the cab.</u></p> <p><u>The hydraulic engagement supply will be operational at any time (no interlocks).</u></p> <p><u>An electric/hydraulic valve will supply hydraulic fluid to the clutch engagement unit provided on the chassis PTO drive.</u></p>		
<p><b>Generator Instruments and Controls</b></p> <p><u>To properly monitor the generator performance a digital meter panel will be furnished and mounted next to the circuit breaker panel. The meter will indicate the following items:- Voltage- Amperage for both lines- Frequency- Generator run hours- Over current indication- Over temperature indication- "Power On" indication</u></p> <p><u>The meter and indicators will be installed near eye level in the compartment.</u></p> <p><u>Instruments will be flush mounted in an appropriate sized weatherproof electrical enclosure.</u></p> <p><u>All instruments used will be accurate within +/- two (2) percent.</u></p>		

<p><b>Load Center:</b>  <b>The main load center will be a Cutler Hammer with circuit breakers rated to load demand.</b></p> <p><b>Circuit Breakers:</b>  <b>Individual breakers will be provided for all on-line equipment to isolate a tripped breaker from affecting any other on-line equipment.</b></p>		
<p><b>The generator will be mounted in the in the area over the pump in the center. The flooring in this area will be either reinforced or constructed in such a manner that it will handle the additional weight of the generator.</b></p>		
<p><b>There will be a switch provided on the cab instrument panel to engage the generator.</b></p>		
<p><b>The circuit breaker panel will be located low on the left wall of compartment LS3.</b></p>		
<p><b>There will be one (1) Will-Burt, Powerlite Model NS4.5-900 WHL, light tower provided. There will be six (6) Whelen, Model PCP2AC, 150 watt, 120 volt AC combination spot/flood LED light heads included on this tower. The painted parts of the light tower and the light heads to be white. The tower will include no AC detector. This tower will be connected to the Do Not Move Truck Indicator in the cab.</b></p>		
<p><b>The light tower will be installed on the crew cab roof.</b></p>		
<p><b>There will be one (1) wired handheld controller included.</b></p>		
<p><b>The light tower controller will be installed in the driver's side front body compartment.</b></p>		

<p><b>Furnished with the 120 volt AC electrical system will be a Hannay, Series 1600, cord reel. The reel will be provided with a 12-volt electric rewind switch, that is guarded to prevent accidental operation and labeled for its intended use. The switch will be protected with a fuse and installed at a height not to exceed 72.00" above the operators standing position.</b></p> <p><b>The exterior finish of the reel(s) will be painted #269 gray from the reel manufacturer.</b></p> <p><b>A captive roller assembly to be provided to aid in the payout and loading of the reel. A ball stop will be provided to prevent the cord from being wound on the reel.</b></p> <p><b>A label will be provided in a readily visible location adjacent to the reel. The label will indicate current rating, current type, phase, voltage and total cable length.</b></p> <p><b>A total of two (2) cord reels will be provided one (1) above the pump area on the left side and one (1) above the pump area on the right side.</b></p> <p><b>The cord reel will be configured with three (3) conductors.</b></p>		
<p><b>Provided for electric distribution will be one (1) length installed on the reel of 200 feet of yellow 10/3 electrical cord, weather resistant 105 degree Celsius to -50 degree Celsius, 600 volt jacketed SOOW cord. No connector will be installed on the end of the cord.</b></p>		
<p><b>The following equipment will be furnished with the completed unit:</b></p> <ul style="list-style-type: none"> <li>• <b>One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit.</b></li> </ul>		

<p><b><u>A 2100 gallon folding portable water will be provided. The tank will be constructed of vinyl with an aluminum frame and be yellow in color.</u></b></p>		
<p><b><u>Two (2) TFT Handline nozzles</u></b></p>		
<p><b><u>• 800 ft (60 m) of 2.50" (65 mm) or larger fire hose.</u></b></p>		
<p><b><u>• One (1) first aid kit.</u></b>  <b><u>• Four (4) combination spanner wrenches.</u></b>  <b><u>• Two (2) hydrant wrenches.</u></b>  <b><u>• One (1) double female 2.50" (65 mm) adapter with national hose (NH) threads.</u></b>  <b><u>• One (1) double male 2.50" (65 mm) adapter with national hose (NH) threads.</u></b>  <b><u>• One (1) rubber mallet, for use on suction hose connections.</u></b>  <b><u>• Two (2) salvage covers each a minimum size of 12 ft × 18 ft (3.7 m × 5.5 m).</u></b>  <b><u>• One (1) automatic external defibrillator (AED), Zoll Corp.</u></b></p>		
<p><b><u>Setcom Liberrator Max Fire Headset with 6 sets</u></b></p>		
<p><b><u>The cab will be painted two-tone with the upper section painted to the specification and color choices of the Fire Chief.</u></b></p>		

<p><b>The chassis frame assembly will be finished with a single system black top coat before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc. Components that are included with the chassis frame assembly that will be painted are:</b></p> <ul style="list-style-type: none"> <li>• <b>Frame rails</b></li> <li>• <b>Frame liners</b></li> <li>• <b>Cross members</b></li> <li>• <b>Axles</b></li> <li>• <b>Suspensions</b></li> <li>• <b>Steering gear</b></li> <li>• <b>Battery boxes</b></li> <li>• <b>Bumper extension weldment</b></li> <li>• <b>Frame extensions</b></li> <li>• <b>Body mounting angles</b></li> <li>• <b>Rear Body support substructure (front and rear)</b></li> <li>• <b>Pump house substructure</b></li> <li>• <b>Steel fuel tank</b></li> <li>• <b>Castings</b></li> </ul>		
<p><b>Individual piece parts used in chassis and body assembly</b></p> <p><b>Components treated with epoxy E-coat protection prior to paint:</b></p> <ul style="list-style-type: none"> <li>• <b>Two (2) C-channel frame rails</b></li> <li>• <b>Two (2) frame liners</b></li> </ul>		
<p><b>All axle hubs will be painted black #101.</b></p>		
<p><b>The interior of all compartments will be painted with a gray spatter finish for ease of cleaning and to make it easier to touch up scratches and nicks.</b></p>		

<p><b><u>There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The rear surface, excluding the rear compartment door, will be covered. The colors will be red and fluorescent yellow green diamond grade. Each stripe will be 6.00" in width. This will meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface will be covered with chevron striping.</u></b></p>		
<p><b><u>A 6.00" x 16.00" white reflective stripe will be provided across the interior of each cab door. The stripe will be located approximately 1.00" up from the bottom, on the door panel. This stripe will meet the NFPA 1901 requirement.</u></b></p>		
<p><b><u>The lettering will be 22 karat gold vinyl.</u></b></p>		
<p><b><u>Department logo applied to the direction of the Fire Chief</u></b></p>		
<p><b><u>Sixty-one (61) to eighty (80) Sign Gold lettering, 3.00" high, with outline and shade will be provided.</u></b></p>		
<p><b><u>There will be one (1) custom parts manual(s) in USB flash drive format for the complete fire apparatus provided. The manual(s) will contain the following:</u></b></p> <ul style="list-style-type: none"> <li><b><u>• Job number</u></b></li> <li><b><u>• Part numbers with full descriptions</u></b></li> <li><b><u>• Table of contents</u></b></li> <li><b><u>• Parts section sorted in functional groups reflecting a major system, component, or assembly</u></b></li> <li><b><u>• Parts section sorted in alphabetical order</u></b></li> <li><b><u>• Instructions on how to locate parts</u></b></li> </ul> <p><b><u>Each manual will be specifically written for the chassis and body model being purchased. It will not</u></b></p>		

<p><b><u>be a generic manual for a multitude of different chassis and bodies.</u></b></p>		
<p><b><u>There will be one (1) chassis service manuals on USB flash drives containing parts and service information on major components provided with the completed unit. The manual will contain the following sections: • Job number • Table of contents • Troubleshooting • Front Axle/Suspension • Brakes • Engine • Tires • Wheels • Cab • Electrical, DC • Air Systems • Plumbing • Appendix</u></b>  <b><u>The manual will be specifically written for the chassis model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.</u></b></p>		
<p><b><u>The chassis operation manual will be provided on one (1) USB flash drive.</u></b></p>		
<p><b><u>Warranty specifications</u></b></p>		

## **Notes**