

Spartan Emergency Response

New Ulm Fire Dept

One (1)
00-00-1100

SPARTAN EMERGENCY RESPONSE PROPOSAL for PURCHASE (When Late Delivery Penalty is Required)

DATE _____

Gentlemen/Ladies:

The undersigned is prepared to manufacture for you, upon an order being placed by you, for final acceptance by Spartan Emergency Response at its headquartered office in Brandon, South Dakota. The apparatus and equipment herein named and for the following prices:

No State, Federal or local taxes included.

TOTAL _____

The Apparatus and Equipment shall be ready for delivery from a Spartan Emergency Response factory, within ___ days after the Effective Date. **This delivery timeframe is contingent on completion of a pre-construction meeting and corresponding signed change order returned to the factory as required.** Spartan Emergency Response commits to have all information necessary for the pre-construction to meet the requirements. Any further delays after the pre-construction has been completed in providing additional desired specifications, change approvals, inspection timelines, or other required information for the Apparatus and Equipment may result in an extension of the above referenced delivery timeline by the amount of time Spartan Emergency Response requires, in its sole but reasonable discretion, to provide the Apparatus and Equipment following Customers delay, but in any event by at least the duration of Customers delay. The penalty clause will stop once apparatus has shipped from Spartan Emergency Response.

The specifications herein contained shall form a part of the final contract, and are subject to changes desired by the purchaser, provided such alterations are interlined prior to the acceptance by the company of the offer to purchase, and provided such alterations do not materially affect the cost of the construction of the apparatus.

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If this proposal is not accepted by the purchaser within 60 days from the bid date, we reserve the right to withdraw this proposal.

Spartan Motors USA, Inc. (d/b/a Spartan Emergency Response)

By _____

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INTENT OF SPECIFICATIONS

Spartan Motors USA, Inc. of Charlotte, MI and the authorized Dealership representing Spartan Emergency Response (ER) submit the following detailed proposal for your consideration.

The following items have been specifically addressed regardless of whether they are included in the published specifications.

The Spartan Emergency Response detailed proposal supersedes the published specifications and will be the specifications in which the apparatus will be designed and manufactured to, if awarded the contract.

Any mutually agreed changes made during a pre-construction meeting or build process, will become part of the contract and the build specification. Based on these processes any costs and or credits will be applied to the final invoice.

Spartan Emergency Response is a business unit of Spartan Motors USA, Inc. and has operated since 1902. Spartan of Charlotte, MI is a leading supplier to the fire service and has operated since 1975. They maintain a complete on-site parts department with same-day shipping provided for all necessary service parts.

Spartan Emergency Response is a U.S. based provider of fire apparatus. Spartan designs and manufactures fire and rescue apparatus which utilize the approach of complete product integration including the apparatus body and pump house structures. Engineering, assembly and testing all take place on Spartan owned premises only.

Each apparatus is quality control inspected with full documentation at each step of the manufacturing process.

The unit will be manufactured at a Spartan Emergency Response manufacturing facility. Spartan Emergency Response operates three (3) manufacturing facilities.

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- An apparatus manufacturing facility located at 907 7th Avenue North, Brandon, South Dakota
- An aerial and apparatus manufacturing facility located at 64 Cocalico Creek Road, Ephrata, Pennsylvania
- A chassis and apparatus manufacturing facility located at 1541 Reynolds Road, Charlotte, Michigan.

STANDARD SPARTAN EMERGENCY RESPONSE FEATURES PROVIDED

The unit will be designed and assembled 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 removal or repair of other major components will be attached with fasteners and installed with normal hand tools. These components will not be welded or otherwise permanently secured into place.

A test data plate will be provided at the pump operator's position which gives the rated discharges and pressures, together with the speed of the engine as determined by the manufacturer's test for this unit.

A manufacturer's certification of GVWR and GAWR on a nameplate will be affixed to the completed vehicle.

A Fire Apparatus Safety Guide published by Fire Apparatus Manufacturer's Association shall be provided with the apparatus upon delivery. This manual includes essential safety information for fire fighters, fire chiefs, apparatus mechanics, and fire department safety officers. The guide is applicable to municipal, wildland, and airport firefighting apparatus manufactured on either custom or commercial chassis.

A permanent plate mounted in the driver's area of the cab unless otherwise specified will be supplied. It will specify the quantity and type of the following fluids used in the vehicle: engine oil, engine coolant, chassis transmission fluid, pump transmission lubrication fluid, pump primer fluid (if used), and drive axle lubrication fluid.

A permanent plate in the driver's compartment will be installed, specifying the seating capacity of the included cab.

Signs that state "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION" will be provided. They will be visible from each seated position.

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An accident prevention sign will be located at the rear step area of the apparatus. The sign will warn personnel that standing on the step while vehicle is in motion; is prohibited.

A nameplate indicating the chassis transmission shift selector position to be used for pumping will be provided in the driving compartment and located so that it can be easily read from the driver's position.

The height of the fully loaded vehicle's center of gravity will not exceed the chassis manufacturer's maximum limit.

The front to rear weight distribution of the fully loaded vehicle will be within the limits set by the chassis manufacturer. The front axle loads will be less than the maximum axle loads specified by the chassis manufacturer, under full load and all other loading conditions.

The difference in weight on the end of each axle, from side to side, when the vehicle is fully loaded and equipped will not exceed 7 percent.

All manufacturers' operations and maintenance documents supplied with components and equipment installed on, or supplied with the completed vehicle will be provided with the completed unit.

The unit will be protected by permanent Anti-Freeze for operation between -30 degrees F to +235 degrees F.

All fluid levels and applicable pressures will be brought to proper levels and noted prior to final delivery.

The GAWR and GVWR of the chassis will be adequate to carry the fully equipped apparatus including water and other tanks filled, the specified hose load, unequipped personnel weight, ground ladders, and a miscellaneous equipment allowance per (NFPA) 1901, Standard for Automotive Fire Apparatus, criteria as well as additional equipment and personnel specified by the purchaser. Personnel are calculated at 250 lbs. per person.

The apparatus will be designed and constructed to follow the requirements of the following recognized standards unless otherwise specified by the customer:

(NFPA) 1901 Standard for Automotive Fire Apparatus
Federal Motor Vehicle Safety Standards (FMVSS)
Department of Transportation (DOT)
Interstate Commerce Commission (ICC)
Society of Automotive Engineers (SAE)
Underwriters Laboratories, LLC (UL, LLC)

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The apparatus when fully loaded will be capable of the following performance on dry, level paved roads in good condition. Item (d) not included requiring an incline.

A continuous minimum ten (10) mile road test shall be conducted with the apparatus fully loaded.

The apparatus shall be inspected for any loss of power, overheating, noise from the transmission or drive lines, any vibrations and noise.

(a) From a standing start the vehicle will attain a true speed of 35 mph within 25 seconds.

(b) From a steady pace of 15 mph, the vehicle will accelerate to a true speed of 35 mph within 15 seconds. This will be accomplished without moving gear selector.

(c) The vehicle will attain a minimum top speed of 50 mph.

(d) The apparatus will be able to maintain a speed of at least 20 mph on any grade up to and including 6 percent.

DELIVERY

To insure proper break-in of all components while still under warranty, the apparatus **shall be delivered under its own power**. The unit will remain insured by the apparatus manufacturer until the department accepts the unit.

SERVICE

Due to the importance of keeping this vital piece of firefighting apparatus in service with a minimum of downtime, the manufacturer shall maintain a network of service centers with factory-trained personnel.

WARRANTY

Warranties applicable to the chassis and body (excluding vendor supplied components {engine, transmission, axles, etc.} which carry their own specific warranties) will be addressed by a single point warranty service provider approved by the manufacturer to perform service as necessary.

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00-03-1120

BID/PROPOSAL DRAWING

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For purposes of evaluation, Spartan Emergency Response shall provide a drawing illustrating, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus.

The drawings shall be large "D" size (minimum 24.00 inches x 36.00 inches).

Other specified equipment shall be required to be included with the bidder's proposal package.

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00-03-1222

PRE-CONSTRUCTION DRAWINGS

After the award of the bid, Spartan Emergency Response shall provide detailed colored engineering drawings including, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus for use at the pre-construction conference.

The drawings shall include, but shall not be limited to the right, left, top, front and rear views of the apparatus.

In addition, a detailed engineering drawing of the pump operator's panel shall be provided prior to manufacturing for fire department approval.

One (1)
00-06-1100

PERFORMANCE BOND

A 100% Performance Bond shall be supplied by Spartan Emergency Response within thirty days (30) of bid award. The signatures of both buyer and bidder on the contract shall construe awarding of the bid.

One (1)
00-08-3105

SINGLE SOURCE MANUFACTURER

Spartan Emergency Response is defined as a single source apparatus manufacturer.

Spartan Emergency Response designs and manufactures our products utilizing an approach that includes complete product integration, including the apparatus Chassis, Chassis Cab, Pump Module and Body Module being constructed, assembled, and tested on company premises.

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Warranties qualified to the Chassis, Pump Module and Body Module design construction (excluding vendor component warranties such as engine, axles, transmission, and pumps, etc.) will be from Spartan Emergency Response.

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00-08-4100

TAG-ON ORDERS-COOPERATIVE PURCHASING

Other fire departments, metropolitan regions, or municipalities, may purchase apparatus and equipment similar to the Apparatus and Equipment that is the subject of this Contract. The following terms shall apply to any such tag-on orders:

(a) Changes - Spartan Emergency Response's intention is to make available to others, tag-on orders utilizing the same specification as the Apparatus and Equipment that is the subject of this Contract in order to provide favorable pricing and lead-times to other buyers due to having such specification fully engineered. Spartan Emergency Response recognizes however that each additional buyer may have unique requirements that must be accommodated; and in this regard, limited changes will be permitted. Such changes will be captured in the pre-construction meeting and the price of any tag-on unit adjusted accordingly.

(b) Term – Tag-on orders may be placed for a term of one year after the Effective Date of this Contract.

(c) Escalation - Spartan Emergency Response reserves the right to adjust the price of any tag-on order if material costs escalate during the term of this Contract, changes in regulations become effective (for example EPA, NFPA or other), or the tag-on order would cross a model year.

(d) Acceptance – Spartan Emergency Response reserves the right to accept or reject any tag-on orders under this Contract.

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00-10-4005

FINITE ELEMENT ANALYSIS AND TESTING

Finite Element Analysis has been utilized in evaluating and engineering the critical areas of the Spartan Emergency apparatus body and pump module.

Prototype bodies were subjected to rigorous testing over varied terrains simulating different environmental conditions.

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The purpose of such complex engineering methods of analysis is to ensure the longevity of the design by analyzing stress levels throughout the body and pump module incorporating the structural supports wherever necessary.

There has been a minimum of three (3) different load cases (per DOT, FHWA, and TTMA recommended practice) applied and analyzed to properly display the different areas and levels of stresses that will be present under the various operating conditions of the apparatus. This is in addition to the static stress analysis. The analysis has included the weight of the structure plus an estimate of all the components that exist on a fully loaded apparatus (i.e. tank, water, hose load, equipment in compartments, etc.).

Analysis has also been conducted on the mounting system for the apparatus body and pump module.

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SUPPLIED INFORMATION & EXTRAS

Spartan Emergency Response (ER) will supply two (2) copies of apparatus manuals with all manufactured apparatus.

The manuals shall include, but not be limited to: all component warranties, users' manuals and information for supplied products, apparatus engineering information including drawings and build prints, and whatever other pertinent information Spartan ER can supply to its customer regarding the said apparatus.

Included in the delivery of the unit, Spartan ER will also include spare hardware and extra fasteners, paint for touch-up, information regarding washing and care procedures, as well as other recommendations for care and upkeep of the general apparatus.

Spartan ER will also supply a manufacturer's record of apparatus construction details, including the following information:

- Owner name and address
- Spartan ER, model and serial number
- Chassis make, model, and serial number
- GAWR of front and rear axles
- Front tire size and total rated capacity in pounds
- Rear tire size and total rated capacity in pounds
- Chassis weight distribution in pounds with water (if applicable) and Spartan ER mounted equipment (front and rear)
- Engine make, model, serial number, rated horsepower, related speed and no load governed speed

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- Type of fuel and fuel tank capacity
- Electrical system voltage and alternator output in amps
- Battery make and model, capacity in CCA
- Paint numbers
- Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall vehicle (with the water tank full (if applicable) but without personnel, equipment, and hose)
- Written load analysis and results of the electrical system performance tests
- Transmission make, model, and type
- Pump to drive through the transmission (yes or no)
- Engine to pump gear ratio and transmission gear ratio used
- Pump make and model, rated capacity in gallons per minute, serial number, and number of stages
- Pump manufacturer's certification of suction capability
- Pump manufacturer's certification of hydrostatic test
- Pump manufacturer's certification of inspection and test for the fire pump
- Copy of the apparatus manufacturer's approval for stationary pumping applications
- Pump transmission make, model and serial number
- Priming device type
- Type of pump pressure control system
- The engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum no load governed speed
- Certification of water tank capacity

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00-13-9000

WARNING AND INFORMATION LABELS

All warning and informational labels (non-vendor specific) shall be provided in compliance with (NFPA) 1901, Standard for Automotive Fire Apparatus, and installed in the appropriate locations to alert the operator of potential hazards and operating instructions.

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LIABILITY INSURANCE COVERAGE

Spartan Emergency Response certificate of liability insurance coverage is included in this proposal, in the required amount of \$10 million.

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GENERAL WARRANTY

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A warranty shall be offered for each new fire apparatus manufactured by Spartan Emergency Response for a period of two (2) years from the date of delivery, except for a commercial chassis (if specified) and certain other components as noted in the next paragraph.

The warranty on the chassis, engine, transmission, tires, storage batteries, generators, electrical lamps and other devices subject to deterioration is limited to the warranty of the chassis manufacturer thereof and adjustments for the same are to be made directly with the chassis manufacturer.

This warranty is in lieu of all other warranties, expressed or implied, and all other obligations or liabilities on our part.

We neither assume nor authorize any person to assume for us any liability in connection with the sales of our apparatus unless made in writing by Spartan Emergency Response.

Please see the official warranty document in the appendix (attached) for specific details.

One (1)
00-70-4500

STRUCTURAL BODY WARRANTY

A structural Stainless Steel body warranty will be provided by Spartan Emergency Response, for products of its manufacture to be free from defects in material and workmanship under normal use and service, for a period of twenty (20) years.

Please see the official warranty document in the appendix (attached) for specific details.

One (1)
00-80-0200

PAINT WARRANTY

A Prorated Paint Warranty shall be provided by Spartan Emergency Response for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years.

Please see the official warranty document in the appendix (attached) for specific details.

One (1)
00-90-6800

PUMP WARRANTY

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Waterous Co shall provide a limited manufacturer's pump warranty with total protection package (TPP-5) to be free from defects in material and workmanship, under normal use and service, for a period of five (5) years from the date placed into service.

One (1)
00-90-8300

PLUMBING WARRANTY

A Stainless Steel Plumbing/Piping warranty will be provided by Spartan Emergency Response for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years.

Please see the official warranty document in the appendix (attached) for specific details.

One (1)
00-91-3500

TANK WARRANTY

A lifetime tank warranty will be provided by the tank manufacturer, Pro Poly.

Please see the official warranty document in the appendix (attached) for specific details.

One (1)
00-91-9150

MULTI-PLEXED ELECTRICAL WARRANTY

A four (4) year limited (V-MUX) multiplex system warranty, of Weldon Technologies, Inc.; shall be provided by Spartan Emergency Response for parts and labor, while under normal use and service; against mechanical, electrical and physical defects from the date of installation.

The warranty shall exclude; sensors, shunt interface modules, serial or USB kits, transceivers, cameras, GPS, and electrical display screens, which shall be limited to a period of one a (1) year repair parts and labor from the date of installation.

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00-10-0100

PUMP CERTIFICATION AND TESTING

The apparatus upon completion will be tested and certified by Underwriters Laboratories, LLC. The certification tests will follow the guide lines outlined in (NFPA) 1901, Standard for Automotive Fire Apparatus.

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There shall be multiple tests performed by the contractor and Underwriter's Laboratories, LLC when the apparatus has been completed. The manufacturer shall provide the completed Test Certificate(s) to the purchaser at time of delivery. The inspection services of Underwriters Laboratories, LLC are available to all bidders on an equal basis; therefore, no third party certification of testing results shall be acceptable.

The fire pump shall be mounted on the apparatus and shall have a minimum rated capacity of 250 gpm (1000 L/min) at 150 psi (1000 kPa) net pump pressure.

Where the apparatus is designed for pump in-motion operations, the vehicle drive engine and drive train shall be arranged so that the pump can deliver at least 20 gpm (76 L/min) at a gage pressure of 80 psi (550 kPa), while the fire apparatus is moving.

If the pumping system provided is rated at 3000 gpm (12,000 L/min) or less, the pump shall be capable of delivering the following:

- (1) One hundred percent of rated capacity at 150 psi (1000 kPa) net pump pressure
- (2) Seventy percent of rated capacity at 200 psi (1400 kPa) net pump pressure
- (3) Fifty percent of rated capacity at 250 psi (1700 kPa) net pump pressure

If the pumping system provided is rated at greater than 3000 gpm (12,000 L/min), the pump shall be capable of delivering the following:

- (1) One hundred percent of rated capacity at 100 psi (700 kPa) net pump pressure
- (2) Seventy percent of rated capacity at 150 psi (1000 kPa) net pump pressure
- (3) Fifty percent of rated capacity at 200 psi (1400 kPa) net pump pressure

If the fire pump has a rated capacity of 750 gpm (3000 L/min) or greater, the pump shall be tested after the pump and all its associated piping and equipment have been installed on the apparatus.

The tests shall include at least the pumping test, the pumping engine overload test, the pressure control system test, the priming device tests, and the vacuum test.

A test plate shall be provided at the pump operator's panel that gives the rated discharges and pressures together with the speed of the engine as determined by the certification test for each unit, the position of the parallel/series pump as used, and the governed speed of the engine as stated by the engine manufacturer on a certified brake horsepower curve. The plate shall be

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completely stamped with all information at the factory and attached to the vehicle prior to shipping.

Pumping Test:

The test site shall be adjacent to a supply of clear water at least 4 feet (1.2 m) deep, with the water level not more than 10 feet (3 m) below the center of the pump intake, and close enough to allow the suction strainer to be submerged at least 2 feet (0.6 m) below the surface of the water when connected to the pump by 20 feet (6 m) of suction hose.

Tests shall be performed when conditions are as follows:

- (1) Air temperature: 0 degrees Fahrenheit to 110 degrees Fahrenheit (-18 degrees Celsius to 43 degrees Celsius)
- (2) Water temperature: 35 degrees Fahrenheit to 90 degrees Fahrenheit (2 degrees Celsius to 32 degrees Celsius)
- (3) Barometric pressure: 29 inches Hg (98.2 kPa), minimum (corrected to sea level)

Engine-driven accessories shall not be functionally disconnected or rendered inoperative during the tests.

The following devices shall be permitted to be turned off or not operating during the pump test:

- (1) Aerial hydraulic pump
- (2) Foam pump
- (3) Hydraulically driven equipment (other than hydraulically driven line voltage generator)
- (4) Winch
- (5) Windshield wipers
- (6) Four-way hazard flashers
- (7) Compressed air foam system (CAFS) compressor

All structural enclosures, such as floorboards, gratings, grilles, and heat shields, not provided with a means for opening them in service shall be kept in place during the tests.

All test gauges shall meet the requirements for Grade A gauges as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments*, and shall be at least size 3 1/2 per ASME B40.100. The pump intake gauge shall have a range of 30 in. Hg (100 kPa) vacuum to zero for a vacuum gauge, or 30 in. Hg (100 kPa) vacuum to a gauge pressure of 150 psi (1000 kPa) for a compound gauge. The discharge pressure gauge shall have a gauge pressure range of 0 psi to 400 psi (0 kPa to 2800 kPa). All pilot gauges shall have a gauge pressure range of at least 0 psi to 160 psi (0 kPa to 1103 kPa).

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to 1100 kPa). All gauges shall be calibrated in the month preceding the tests using a dead-weight gauge tester or a master gauge meeting the requirements for Grade 3A or 4A gauges, as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments*, that has been calibrated within the preceding year.

The engine speed-measuring equipment shall consist of a nonadjustable tachometer supplied from the engine or transmission electronics, a revolution counter on a checking shaft outlet and a stop watch, or other engine speed-measuring means that is accurate to within ± 50 rpm of actual speed.

If the apparatus is equipped with a fire pump rated at 750 gpm (3000 L/min) or greater but not greater than 3000 gpm (12,000 L/min), the pump shall be subjected to a 3 hour pumping test from draft consisting of 2 hours of continuous pumping at rated capacity at a minimum of 150 psi (1000 kPa) net pump pressure, followed by 1/2 hour of continuous pumping at 70 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure and 1/2 hour of continuous pumping at 50 percent of rated capacity at a minimum of 250 psi (1700 kPa) net pump pressure and shall not be stopped until after the 2 hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

If the apparatus is equipped with a fire pump rated at greater than 3000 gpm (12,000 L/min), the pump shall be subjected to a 3 hour pumping test from draft consisting of 2 hours of continuous pumping at rated capacity at 100 psi (700 kPa) net pump pressure, followed by 1/2 hour of continuous pumping at 70 percent of rated capacity at 150 psi (1000 kPa) net pump pressure and 1/2 hour of continuous pumping at 50 percent of rated capacity at 200 psi (1400 kPa) net pump pressure and shall not be stopped until after the 2 hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

If the apparatus is equipped with a fire pump rated at less than 750 gpm (3000 L/min), the pump shall be subjected to a 50-minute pumping test from draft consisting of 30 minutes of continuous pumping at rated capacity at a minimum of 150 psi (1000 kPa) net pump pressure, followed by 10 minutes of continuous pumping at 70 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure and 10 minutes of continuous pumping at 50 percent of rated capacity at a minimum of 250 psi (1700 kPa) net pump pressure and shall not be stopped until after the 30-minute test at rated capacity, unless it becomes necessary to clean the suction strainer.

Pumping Engine Overload Test:

If the pump has a rated capacity of 750 gpm (3000 L/min) or greater but not greater than 3000 gpm (12,000 L/min), the apparatus shall be subjected to an overload test consisting of pumping rated capacity at 165 psi (1100 kPa) net pump pressure for at least 10 minutes.

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This test shall be performed immediately following the pumping test of rated capacity at 150 psi (1000 kPa).

The capacity, discharge pressure, intake pressure, and engine speed shall be recorded at least three times during the overload test.

Pressure Control System Test:

If the pump is rated at 3000 gpm (12,000 L/min) or less, the pressure control system on the pump shall be tested as follows:

- (1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 150 psi (1000 kPa).
- (2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 150 psi (1000 kPa) \pm 5 percent.
- (3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.
- (4) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.
- (5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be reestablished.
- (6) The discharge pressure gauge shall be reduced to 90 psi (620 kPa) by throttling the engine fuel supply, with no change to the discharge valve settings, hose, or nozzles.
- (7) The pressure control system shall be set according to the manufacturer's instructions to maintain the discharge gauge pressure at 90 psi (620 kPa) \pm 5 percent.
- (8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.
- (9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.
- (10) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 250 psi (1700 kPa).
- (11) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 250 psi (1700 kPa) \pm 5 percent.

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(12) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(13) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

If the pump is rated at greater than 3000 gpm (12,000 L/min), the pressure control system on the pump shall be tested as follows:

(1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 100 psi (700 kPa).

(2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 100 psi (700 kPa) ± 5 percent.

(3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(4) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

(5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be reestablished.

(6) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 200 psi (1400 kPa).

(7) The pressure control system shall be set according to the manufacturer's instructions to maintain the discharge gauge pressure at 200 psi (1400 kPa) ± 5 percent.

(8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

Priming System Tests:

With the apparatus set up for the pumping test, the primer shall be operated in accordance with the manufacturer's instructions until the pump has been primed and is discharging water. This test shall be permitted to be performed in connection with priming the pump for the pumping test.

The interval from the time the primer is started until the time the pump is discharging water shall be noted. The time required to prime the pump shall not exceed 30 seconds if the rated capacity

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is 1250 gpm (5000 L/min) or less. The time required to prime the pump shall not exceed 45 seconds if the rated capacity is 1500 gpm (6000 L/min) or more.

An additional 15 seconds shall be permitted in order to meet the requirements of 16.13.5.3 and 16.13.5.4 when the pump system includes an auxiliary 4 inches (100 mm) or larger intake pipe having a volume of 1 foot³ (0.30 m³) or more.

Vacuum Test:

The vacuum test shall consist of subjecting the interior of the pump, with all intake valves open, capped or plugged, and all discharge caps removed, to a vacuum of 22 inches/Hg (75 kPa) by means of the pump priming system.

At altitudes above 2000 feet (600 m), the vacuum attained shall be permitted to be less than 22 inches/Hg (75 kPa) by 1 inch/Hg (3.4 kPa) for each 1000 feet (305 m) of altitude above 2000 feet (610 m).

The vacuum shall not drop more than 10 inches/Hg (34 kPa) in 5 minutes.

The primer shall not be used after the 5 minute test period has begun and the engine shall not be operated at any speed greater than the governed speed during this test.

Water Tank-to-Pump Flow Test:

A water tank-to-pump flow test shall be conducted as follows:

- (1) The water tank shall be filled until it overflows.
- (2) All intakes to the pump shall be closed.
- (3) The tank fill line and bypass cooling line shall be closed.
- (4) Hose lines and nozzles for discharging water at the rated tank-to-pump flow rate shall be connected to one or more discharge outlets.
- (5) The tank-to-pump valve(s) and the discharge valves leading to the hose lines and nozzles shall be fully opened.
- (6) The engine throttle shall be adjusted until the required flow rate $-0/+5$ percent is established.
- (7) The discharge pressure shall be recorded.

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- (8) The discharge valves shall be closed and the water tank refilled.
- (9) The bypass line shall be permitted to be opened temporarily, if needed, to keep the water temperature in the pump within acceptable limits.
- (10) The discharge valves shall be reopened fully and the time noted.
- (11) If necessary, the engine throttle shall be adjusted to maintain the discharge pressure recorded as noted in 16.13.7.1(7).
- (12) When the discharge pressure drops by 10 psi (70 kPa) or more, the time shall be noted and the elapsed time from the opening of the discharge valves shall be calculated and recorded.

Volume Discharge Calculation:

The volume discharged shall be calculated by multiplying the rate of discharge in gallons per minute (liters per minute) by the time in minutes elapsed from the opening of the discharge valves until the discharge pressure drops by at least 10 psi (70 kPa).

Other means shall be permitted to be used to determine the volume of water pumped from the tank such as a totalizing flowmeter, weighing the truck before and after, or refilling the tank using a totalizing flowmeter.

The rated tank-to-pump flow rate shall be maintained until 80 percent of the rated capacity of the tank has been discharge.

Engine Speed Advancement Interlock Test

The engine speed advancement interlock system shall be tested to verify that engine speed cannot be increased at the pump operator's panel unless there is throttle-ready indication.

If the apparatus is equipped with a stationary pump driven through split-shaft PTO, the test shall verify that the engine speed control at pump operator's panel cannot be advanced when either of the following conditions exists:

- (1) The chassis transmission is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.
- (2) The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

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If the apparatus is equipped with a stationary pump driven through a transmission mounted PTO, front-of-engine crankshaft PTO, or engine flywheel PTO, the test shall verify that the engine speed control on the pump operator's panel cannot be advanced when either of the following conditions exists:

- (1) The chassis transmission is in neutral, the parking brake is off, and the pump shift status in the driving compartment is disengaged.
- (2) The chassis transmission is in any other gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the "Pump Engaged" position.

If the apparatus is equipped with a pump driven by the chassis engine designed for both stationary pumping and pump-in-motion, the test shall verify that the engine speed control at pump operator's panel cannot be advanced when either of the following conditions exists:

- (1) The chassis transmission is in neutral, the parking brake is on, and the pump shift status in the driving compartment is disengaged.
- (2) The chassis transmission is in any other gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the "Pump Engaged" or the "OK to Pump In-Motion" position.

If the apparatus is equipped with a stationary pump driven through transfer case PTO, the test shall verify that the engine speed control on the pump operator's panel cannot be advanced when either of the following conditions exists:

- (1) The chassis transmission is in neutral, the transfer case is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.
- (2) The chassis transmission is in neutral, the transfer case is engaged, the parking brake is off, and the pump shift in the driving compartment is in the road position.
- (3) The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

LOW-VOLTAGE ELECTRICAL SYSTEM PERFORMANCE TESTING

The apparatus low-voltage electrical system will be tested and certified. Tests shall be performed when the air temperature is between 0 degrees Fahrenheit and 110 degrees Fahrenheit (-18 degrees Celsius and 43 degrees Celsius). The three tests defined in NFPA shall be performed in the order in which they appear. Before each test, the batteries shall be fully charged until the voltage stabilizes at the voltage regulator set point and the lowest charge current is maintained for 10 minutes. Failure of any of these tests shall require a repeat of the sequence.

Reserve Capacity Test:

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The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged.

The engine shall be shut off and the minimum continuous electrical load shall be activated for 10 minutes.

All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test failure of the battery system.

Alternator Performance Test at Idle:

The minimum continuous electrical load shall be activated with the engine running at idle speed.

The engine temperature shall be stabilized at normal operating temperature.

The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

Alternator Performance Test at Full Load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed.

The test duration shall be a minimum of 2 hours.

Activation of the load management system shall be permitted during this test.

An alarm sounded by excessive battery discharge, as detected by the system required in NFPA 13.3.4, or a system voltage of less than 11.8 V dc for a 12 V nominal system or 23.6 V dc for a 24 V nominal system, for more than 120 seconds, shall be considered a test failure.

Low Voltage Alarm Test:

Following the above test, a Low Voltage Alarm Test will be performed in the manner prescribed.

With the engine shut off, the total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates.

The battery voltage shall be measured at the battery terminals.

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The test shall be considered a failure if the alarm has not yet sounded 140 seconds after the voltage drops to 11.70V for a 12 V nominal system or 23.4 V for a 24 V nominal system.

The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

One (1)
00-30-1000

FACTORY PRE-CONSTRUCTION CONFERENCE

The factory authorized Distributor shall be required, prior to manufacturing, to have a pre-construction conference at the manufacturing facility with a factory representative present and with One (1) individual(s) from the New Ulm Fire Dept to finalize all construction details.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

One (1)
00-30-2000

MID-CONSTRUCTION INSPECTION CONFERENCE

The factory authorized Distributor shall be required, during manufacturing, to have a mid-construction conference at the site of the manufacturing facility with One (1) individual(s) from the New Ulm Fire Dept to inspect the apparatus during construction.

The "Purchaser" shall designate the stage of construction at which the visit will be conducted.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

One (1)
00-30-4000

FINAL INSPECTION CONFERENCE

The factory authorized Distributor shall be required, during manufacturing, to have a final completion inspection conference at the site of the manufacturing facility with One (1) individuals from the New Ulm Fire Dept to inspect the apparatus after construction.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

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One (1)
00-95-1E50

MAXIMUM OVERALL LENGTH REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum overall length.

One (1)
00-95-2E50

MAXIMUM OVERALL HEIGHT REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum overall height.

One (1)
00-95-3E00

MAXIMUM OVERALL WIDTH OF NINETY-NINE (99) INCHES

The apparatus specified shall be constructed as detailed and shall NOT exceed a Maximum Overall Width of Ninety-nine (99") inches.

This dimension shall include the primary construction of the apparatus body and chassis cab. Any peripheral items shall not be incorporated into this measurement.

The items included, but not limited to, are: Rub Rails, Fenderettes, Mirrors, Lights, Handrails, Front Bumpers, Cab Steps, Overlays, Etc.

One (1)
00-95-5E50

MAXIMUM WHEEL BASE REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum wheel base.

One (1)
06-26-0105

EXHAUST HEAT SHIELD

There shall be an exhaust heat shield added to the chassis provided exhaust. The shield shall run the full length of the exhaust system, terminate past the front compartment and shall incorporate a heavy duty spray on insulation under R1. With this shield the temperature of the front compartment shall not exceed the ambient temperature.

The heat shield shall be attached to the underside of the body utilizing a flexible bracket.

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S One (1)
04-25-0120

EMS STORAGE COMPARTMENT

There shall be one (1) EMS compartment, fabricated out of .125 inch (3.18 mm) smooth aluminum installed behind the Driver's seat in the chassis cab. [Rear Crew FF outer Officer \(No Outside Access provided\)](#) [in the chassis cab.](#)

S One (1)
04-25-0210

Vertically mounted Unistrut shall be installed inside the EMS storage compartment to accommodate the installation of shelving.

There shall be one (1) compartment(s) fabricated out of 1/8" smooth aluminum installed in the chassis cab. The compartment(s) shall be approximately 20" wide x 14" deep and [as tall as the top of the pump panel Lower most front lip in the cab.](#) The interior of the cabinet(s) shall be left natural finish aluminum.

One (1)
04-25-0395

There shall be a 1.00 inch high lip included around the top perimeter of the EMS compartment specified to retain equipment stored on top of the compartment by the Fire Department.

One (1)
04-25-0405

EMS COMPARTMENT DOOR

The EMS cab compartment door shall be roll-up style, Series IV R·O·M brand.

One (1)
71-90-0020

EMS COMPARTMENT LIGHTING

One (1) LED Tube light model #RX-15T16-5050 shall be installed in accordance with the compartment height to offer the best lighting in the EMS cabinet.

One (1)
71-90-1010

EMS COMPARTMENT LIGHTING ACTIVATION

Spartan Emergency Response

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The light(s) in each compartment shall be on a separate circuit, turning on only when the magnetic switch for the EMS compartment door is activated.

S One (1)
04-25-0810

EMS COMPARTMENT SHELVING

There shall be two (2) shelves in the cab EMS compartment. Each shelf shall be fabricated of .188 inch (4.76 mm) thick aluminum sheet material with the outside and inside edges flanged up **with 1" lips** to prevent equipment from sliding off. Each shelf shall be as wide as possible to allow proper attachment to unistrut channels and shall be adjustable up and down.

Each shelf shall feature a natural finish.

S One (1)
04-25-0125

EMS STORAGE COMPARTMENT

There shall be one (1) EMS compartment, fabricated out of .125 inch (3.18 mm) smooth aluminum installed **Rear Crew FF outer Officer (No Outside Access provided)** in the chassis cab.

S One (1)
04-25-0210

The compartment dimensions shall be approximately 20.00 inches (508 mm) wide by **14.00 inches** deep. The interior of the compartment shall feature a natural aluminum finish.

Vertically mounted Unistrut shall be installed inside the EMS storage compartment to accommodate the installation of shelving.

One (1)
04-25-0395

There shall be a 1.00 inch high lip included around the top perimeter of the EMS compartment specified to retain equipment stored on top of the compartment by the Fire Department.

One (1)
04-25-0405

EMS COMPARTMENT DOOR

Spartan Emergency Response

New Ulm Fire Dept

The EMS cab compartment door shall be roll-up style, Series IV R·O·M brand.

One (1)
71-90-0020

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71-90-1010

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04-25-0810

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Each shelf shall feature a natural finish.

One (1)
04-25-0720

EMS COMPARTMENT EXTERIOR FINISH

The exterior of the EMS compartment shall be painted with Zolatone black onyx texture finish.

S One (1)
04-58-0150

28" EXTENSION W/SEVERE DUTY BUMPER

The chassis frame shall be extended twenty-eight (28) inches for two (2) full width bumper crosslay bays of equal width. Each bay shall be sized for double stack 1.75 inch hose with slotted aluminum flooring provided.

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The chassis bumper shall be replaced with a steel, severe duty style bumper with chamfered corners at each end beginning at the crosslay openings. The bumper shall be painted to match lower body job color.

The top perimeter of the bumper extension shall be trimmed with .188 inch (4.76 mm) embossed aluminum diamond plate. At each side around the crosslay openings, there shall be [Brushed stainless trim installed with roller assemblies on three sides of crosslay hose beds\(Front, Bottom, rear\) on right and left sides of bumper.](#)

The crosslay assembly shall include a [3/16 inch embossed aluminum diamond plate 3" Raised cover](#) that has a full length stainless steel hinge along the rear edge and secured with two (2) butterfly hold closed latches. There shall be two (2) EMS type hold open latch assemblies provided, one (1) at each corner of the cover, to prevent the cover from hitting the chassis.

[Three way rollers on out board sides of crosslays both sides.](#)

[Shall have tow Eyes provided on each side of the front frame.](#)

One (1)
16-65-0300

CARGO NETTING COVERS CROSSLAY ENDS

The crosslay hose bed area shall have a cargo net cover installed at each end of the crosslay area. The crosslay cover on each opening shall be fastened on with side push clips at the top and extrusion on the bottom edge for ease of access. The side push style clips shall fall out of the way when the hinged cover is open.

One (1)
16-66-0210

CROSSLAY SIDE COVERS COLOR

The crosslay hose bed side covers shall be black in color.

S One (1)
04-61-0400

INTERSECTION LIGHTS, BUMPER TAILS

[Mount the chassis shipped loose Whelen M6 interection lights to the bumper tails.](#)

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One (1)
04-65-0900

ELECTRONIC SIREN SPEAKER LOCATION

The two (2) electronic siren speakers shall be located on the front bumper face outboard of the frame rails with one (1) on the right side and one (1) on the left side in the outboard positions.

S One (1)
04-85-0355

AIR HORN LOCATION

The air horns shall be mounted below the front bumper between the frame rails in the right and left **outboard of Frame rails positions as if mounting in a 6" bumper location.**

One (1)
04-87-0000

CHASSIS REQUIRED LABELING

Signs that state "Occupants must be seated and belted when apparatus is in motion" shall be provided.

They shall be visible from each seating position.

There shall be a lubrication plate mounted inside the cab listing the type and grade of lubrication used in the following areas on the apparatus and chassis:

- Engine oil
- Engine Coolant
- Transmission Fluid
- Pump Transmission Lubrication Fluid
- Drive Axle Lubrication Fluid
- Generator Lubrication Fluid (where applicable)
- Tire Pressures

One (1)
04-87-5000

APPARATUS INFORMATION LABEL

There shall be a high-visibility label installed in a location clearly detectable to the driver while in the seated position.

The label shall indicate the following specified information.

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Overall Height (feet and inches)
 Overall Length (feet and inches)
 Overall GVWR (tons or metric tons)

One (1)
 06-22-0500

CAB TILT CONTROL

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

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

One (1)
 28-25-1010

HEAT EXCHANGER

The supplementary heat exchanger cooling system shall be provided and installed to the discharge side of the fire pump through to the engine compartment without intermixing, for absorption of excess heat.

The heat exchanger shall be adequate in size to maintain safe operating temperature of the coolant in the pump drive engine and not in excess of the engine manufacturer's temperature rating, under all pumping conditions. Appropriate drains shall be provided to allow draining the heat exchanger to prevent damage from freezing.

Five (5)
 05-15-0158

HELMET RESTRAINTS

Five (5) Helmet Restraints shall be provided with the chassis and installed during the final inspection process.

One (1)
 06-20-0010

MUD FLAPS

Heavy-duty rubber mud flaps shall be provided behind the rear wheels. The mud flaps shall be black rubber type and be bolted in place.

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One (1)
26-10-2525

PUMP COMPARTMENT

The complete apparatus pump compartment shall be constructed of a combination of structural tubing and formed sheet metal. The same materials used in the body shall be utilized in the construction of the pump compartment. The structure shall be welded utilizing the same A.W.S. Certified welding procedure as used on the structural body module. These processes shall ensure the quality of structural stability of the pump compartment module.

The pump compartment module shall be separated from the apparatus body with a gap. This gap is necessary to accommodate the flexing of the chassis frame rails that is encountered while the vehicle is in transit so that harmful torsional forces are not transmitted into the structural framework.

The pump compartment module shall be approximately 74.00 inches (1.88 m) in width measured laterally across the apparatus.

One (1)
26-10-2910

VIBRA-TORQUE™ PUMP MODULE MOUNTING SYSTEM

The entire pump module assembly shall be mounted so that it “floats” above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable pump module mounting system.

The pump module substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each pump compartment mount bracket shall be mounted to the side chassis frame flange with two 5/8”-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the pump module, apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All pump module to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck

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chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature pump module structural failures. The Vibra-Torque™ mounting system shall have a lifetime warranty.

One (1)
26-13-1000

PUMP COMPARTMENT HEATER

One (1) 30,000 BTU auxiliary heater shall be provided and installed inside the pump compartment. The heater shall be connected to the engine cooling system with gated valves located inside the engine compartment.

Dual 12 volt electric fans shall be installed and controlled with single toggle switch and a LED indicator light on the operator's pump control panel.

The switch shall be of a weather resistant type and be clearly labeled for ease of identification.

S One (1)
26-13-3000

HEAT PAN

There shall be a heat pan enclosure provided and installed under the apparatus fire pump.

The heat pan assembly shall be fabricated of .188 inch aluminum. The top portion shall be bolted in place. The bottom trays shall be held in the place with **pin type latch** devices. The enclosure may include slide out tray(s) on either side of the apparatus for ease of service and maintenance.

The heat pan shall have one (1) 3.00 inch hole under the relief valve for drainage.

S One (1)
26-13-3055

DRAIN HOLE

The heat pan shall have one (1) **additional** 2.00 inch hole centered on each side for drainage.

S One (1)
26-13-7020

EXTREME ARCTIC PUMP ENCLOSURE/INSULATION PACKAGE

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A completely enclosed and sealed pump compartment shall be installed, providing retention of the radiant heat emitted from the engine's exhaust system during extreme arctic weather conditions.

The pump enclosure shall also include an extreme arctic insulation package with the following features:

All suction inlets and discharge plumbing shall include "extreme duty" elastic rubber boots to allow plumbing flexibility, while sealing out cold air.

There shall also be "extreme duty" rubber gaskets installed between the pump compartment enclosure and body module, providing a heavy-duty seal against extreme weather conditions.

One (1)
26-15-0105

AIR CHUCK OUTLET

There shall be a quick disconnect air chuck outlet furnished and installed on the apparatus at the left side lower pump compartment sill. The air chuck outlet shall be plumbed to the chassis air system and have on/off valve and label.

One (1)
70-20-2100

PUMP COMPARTMENT WORK LIGHT

One (1) Weldon LED work light model #2631-0000-30 shall be installed in the pump compartment module to illuminate the piping and plumbing components.

The light shall be activated by a weather resistant toggle switch in the pump compartment.

One (1)
26-10-3020

OPERATORS PANEL

The operator's panel shall be a "top mount", constructed on two incline surfaces. The lower panel shall be used to house all valve controls with the upper panel housing the discharge and other pump monitoring gauges. Valve control levers shall be immediately adjacent and instruments shall be neatly arranged for easy access and visible from the operator's location.

One (1)
26-05-0010

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VALVE CONTROL – TOP MOUNT ASSEMBLY

Unless specified otherwise, the valves shall be controlled from a top mounted locking valve actuation control assembly that shall be installed on the specified discharge and suction. The Class 1 assembly shall have a round chrome plated handle with an ergonomically designed surface to allow for a secure grip to turn and lock the handle. The assembly shall have a name plate insertion recess area. A brass bushing and stainless steel rod shall never require lubrication. The valve operating mechanism will indicate the position of the valve at all times.

S One (1)
26-10-0045

PANEL LIGHTS

There shall be adequate illumination provided at the top operator's panel and at the side pump panels.

For the top mount panel there shall be a brushed stainless steel shielded light assembly provided. The shield shall contain two (2) outboard 24.00 inch model #RX-15T16-5050-61CM and one (1) center mounted 9.00 inch LED Tube lights model #RX-15T16-5050-21CM.

At each side panel there shall be a 9" On-Scene Night Axe with aluminum bezel installed on a stationary surface and shall activate with the parking brake.

S One (1)
26-10-2015

PUMP PANEL LIGHT ACTIVATION

One (1) pump panel light at the operator's panel shall be illuminated at the time the pump is ready to pump and it is "OK TO PUMP". The Pump shift has been completed and the chassis automatic transmission is engaged.

The remaining lights shall illuminate with the activation of the park brake.

All Switches Including HVAC controls, Rear view Camera are to be through Chassis supplied ship loose Vmux to be installed on enclosed Top mount pump panel in center of upper control panel with pressure governor to the right side of Vmux screen.

One (1)
26-11-9010

PUMP COMPARTMENT SERVICE ACCESS

The front portion of the pump compartment structure shall be overlaid with brushed stainless

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steel material.

A removable brushed stainless steel panel shall be provided at the front face of the pump compartment for access to the midship pump and plumbing. The panel shall be secured by two (2) push-button latches.

One (1)
26-12-0545

PUMP COMPARTMENT WIDTH

The width of the pump compartment (front to back) shall be 52.00 inches (1.32 m).

One (1)
26-16-0410

CAB TO PUMP COMPARTMENT SEAL

The gap between the cab and pump compartment shall be sealed with a rubber boot. This shall be a water and weather tight seal of neoprene or a similar material and shall be made replaceable. The painted cab area wear the boot may come in contact with shall be overlaid with brushed stainless steel to prevent the boot from wearing the paint off the cab.

One (1)
26-36-1000

BLACK LAMINOL TOP CONTROL PANEL

The surface of the operator's control and gauge panel shall be manufactured from heavy duty non-glare black "Laminol", aluminum that is capable of withstanding the effects of extreme weather and temperature.

One (1)
26-37-6200

RIGHT & LEFT SIDE PUMP PANELS

There shall be two (2) side pump panels on each side of the pump compartment, one (1) upper and one (1) lower. Each panel shall be accessible by quick-release type latches, closing against a door seal.

The lower panels on each side shall be easily removed for a large access to the pump for service.

The upper panels shall be vertically hinged on the rearward or body side of the panel with a gas shock hold open device installed. Each hinged panel shall be reinforced with hat channels installed on the backside of the panel to add stiffness.

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RIGHT & LEFT SIDE BRUSHED STAINLESS STEEL FINISHING FOR PANELS AND OVERLAYS

All panels shall be made from 14 gauge “Brushed Stainless Steel” capable of withstanding the effects of extreme weather and temperature.

The tubular structure shall be overlaid on each side of the pump compartment underneath the access panels and shall be made of “Brushed Stainless Steel”.

One (1)
27-00-0005

RUNNING BOARDS

The pump compartment running boards shall be made of a structural tubular framework. The tubular frame support all loads by transmitting the loads through the pump compartment structure directly to the chassis frame rails.

The running boards shall be independent of the apparatus body and shall be integrated to the pump compartment structure only, eliminating any pump compartment to body interference. This is essential in keeping a truly 'modular' configuration. Slip-resistant abrasive adhesive materials shall be applied to the top surface of the running board framework to provide a suitable stepping surface where applicable.

One (1)
27-05-0015

EMBOSSSED ALUMINUM DIAMOND PLATE OVERLAYS

The side running boards shall have a .188 inch (4.76 mm) embossed aluminum diamond plate overlays installed. The stepping areas shall be as large as possible, overlapping the perimeter of the structural running board framework. The overlay shall be constructed of embossed aluminum diamond plate material.

One (1)
28-10-0010

APPARATUS PLUMBING LABELING

The apparatus shall be descriptively tagged with color coded metal labels.

The labels shall be applied near the apparatus features that require a user function description. Wherever necessary, the labels shall be color coded to differentiate controls and their respective functions to simplify and clarify complex configurations.

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One (1)
28-15-0005

PRESSURE GOVERNOR

The Pressure Governing System provided with the chassis shall be installed on the pump operator's panel.

One (1)
09-09-0210

PRESSURE RELIEF VALVE

A Task Force Tips model #A18XX pressure relief valve shall be provided. The valve shall have an easy to read adjustment range from 90 to 300 PSI with 90, 125, 150, 200, 250 and 300 PSI adjustment settings and an "OFF" position. Pressure adjustments shall be made utilizing a 1/4" hex key, 9/16" socket or 14mm socket.

For corrosion resistance the cast aluminum valve shall be a hardcoat anodized with a powder coat interior and exterior finish. The valve shall meet (NFPA) 1901, Standard for Automotive Fire Apparatus, requirements for pump inlet relief valves. The unit shall be covered by a five year warranty. The valve shall be preset at 125 PSI (860 kPa) suction inlet pressure, unless otherwise shop noted. The valve shall be installed inside the pump compartment where it will be easily accessible for future adjustment. The excess water shall be plumbed to the atmosphere and shall dump on the opposite side of the pump operator.

For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP" installed.

One (1)
09-09-5000

The relief valve shall have no stainless steel plumbing extension installed.

One (1)
28-25-0100

TESTING PORTS

Test port connections for pressure and vacuum shall be provided at the pump operator's panel. One shall be connected to the intake side of the pump, and the other to the discharge manifold side of the pump. They shall have 0.25 in. standard pipe thread connections and be manufactured of non-corrosive polished stainless steel or brass plugs.

One (1)

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28-50-0105

TANK LEVEL GAUGE

A Fire Research TankVision model WLA300-A00 tank indicator kit shall be installed at the pump operator's panel location. The kit shall include an electronic indicator module, a pressure sensor, and a 20.00 foot sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of aluminum, and have a distinctive blue label.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall be placed on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.

One (1)
28-25-0205

AIR HORN BUTTON

There shall be an air horn activation red push button provided and installed on the pump operator's gauge panel. The air horn button shall be of weather resistance type and labeled "AIR HORN".

One (1)
54-50-3010

PUMP COMPARTMENT TOP OVERLAY

The top of the pump compartment shall be overlaid with 1/8" embossed aluminum diamond plate.

One (1)
08-21-0015

MIDSHIP PUMP

The pump shall have a capacity of 1500 gallons per minute, measured in U.S. Gallons. The pump shall be a Waterous model CSUC20, single stage midship pump.

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One (1)
08-21-0105

The pumps impellers shall be bronze with double suction inlets, accurately balanced (mechanically and hydraulically), of mixed flow design with reverse-flow, labyrinth-type, wear rings that resist water bypass and loss of efficiency due to wear. The impeller shall have flame plated hub to assure maximum pump life and efficiency despite the presence of abrasive particles, such as fine sand, in the water being pumped. The wear rings shall be bronze and easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear.

Pump casing shall be close grained gray iron, bronze fitted and horizontally split in two sections for easy removal of entire impeller assembly, including wear rings, without disturbing setting of pump in chassis or pump piping. The pump, for ease and rapid servicing in the future, shall have the separable impeller shaft which allows true separation of transmission or pump without disassembly or disturbing the other component. This shall be accomplished by using a two piece shaft. This feature will allow field service to accomplish in much less time since each component (pump or transmission) can be repaired independently. The impeller shaft shall be stainless steel, accurately ground to size and polished. Shaft shall be supported at each end by ball type oil grease lubricated bearings. Sleeve bearings or bushings will not be acceptable. The bearings shall be protected from water at each end of the impeller shaft.

The discharge manifold shall be cast as an integral part of the pump body assembly and shall provide at least three full 3.50 inch openings for ultimate flexibility in providing various discharge outlets for maximum efficiency, and shall be located as follows: one outlet on the right side of the pump body, one outlet on the left side of the pump body, and one outlet directly on top of the pump discharge manifold.

The entire pump shall be cast, manufactured and tested at the pump manufacturer's factory. The pump transmission housing shall be high strength aluminum, three pieces and horizontally split. Power transfer to the pump shall be through a Morse Hy-Vo drive chain. Chain shall be pressure lubricated through oil pump. Chain sprockets shall be cut from carbonized, hardened alloy steel. Spur gears will not be acceptable.

The drive shafts shall be 2.35 inches in diameter, made of hardened and ground alloy steel. All shafts shall be ball bearing supported. Case shall be designed to eliminate the need of water cooling.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. A certificate documenting this test shall be provided with the completed apparatus. The pump shall be fully tested at the pump manufacturer's factory to the performance requirements as outlined by the latest (NFPA) 1901, Standard for Automotive Fire Apparatus. Pump shall be free from objectionable pulsation and vibration.

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The pump shall be the Class "A" type and shall deliver the percentage of rated discharge at pressures indicated below.

100% of rated capacity at 150 PSI net pump pressure.

100% of rated capacity at 165 PSI net pump pressure.

70% of rated capacity at 200 PSI net pump pressure.

50% of rated capacity at 250 PSI net pump pressure.

One (1)
09-01-05M0

MASTER DRAIN VALVE

A manifold type drain valve shall be installed in the pump compartment. All pump drains shall be connected to the master drain valve. The drain valve shall be controlled from the left side lower pump house sill. The control shall be a hand wheel knob marked "open" and "closed".

The drain shall be located such that it shall not interfere with pumping operations or function such as soft suction hoses, etc. nor shall it protrude past the outer edge of the apparatus, to prevent damage to the valve.

In some cases, it is necessary to locate the master drain in a secondary location to ensure proper function, such as draining, or if no lower or vertical sill exists. In this event, the drain shall be located below the bottom outside edge of the hose body near the forward most corner on the driver's side hose body. The drain shall not protrude past the outer edge of the body, thus preventing damage to the valve.

One (1)
09-23-0020

PUMP SEALS

The pump shall be equipped with self-adjusting, maintenance free mechanical shaft seals that shall not require manual adjustment. These seals shall be designed in a manner that they will remain functional enough to permit continued use of the pump in the unlikely event of a seal failure.

One (1)
09-38-0110

AUTOMATIC AIR PRIMER SYSTEM

The priming system shall be a Trident Emergency Products compressed air powered high efficiency, multi-stage, venturi based Automatic Air Prime System.

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All wetted metallic parts of the priming system are to be of brass and stainless steel construction. The 12 volt primer control shall be an “automatic” type, with a pump panel three-way switch to operate an air solenoid valve. The maximum current draw shall not exceed 0.5amps during operation.

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

The automatic priming switch shall have three positions as follows:

- **“Prime”** – the lower position shall be a momentary “push to prime”.
- **“Off”** -- center position
- **“Auto-Prime”** – in the upper position, a “green” LED pilot light shall be illuminated when the switch is the auto-prime position. The “Auto-Prime” operates automatically when the pump pressure drops below 20 PSIG. The primer shuts “off” automatically when the pump pressure is re-established and exceeds 20 PSIG. The “Auto” mode only operates when the fire pump is engaged.

The system shall employ an 80 PSI (5.5 bar) pressure protection valve, located on the chassis auxiliary air tank.

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

One (1)
09-38-0305

PRIMER CONTROL

There shall be one (1) push button control to actuate the primer control valve at the operator's panel.

One (1)
10-12-1200

MAIN PUMP INLET-LEFT SIDE

A 6.00 inch (150 mm) pump manifold inlet shall be provided on the left side of the pump. The shorter style inlet shall protrude less than 2.00 inches (50 mm) away from the side panel, allowing an external valve to be connected and not protrude past the apparatus body sides while

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maintaining a low connection height.

The main pump inlet shall have National Standard Threads and includes a removable screen designed to provide cathodic protection for reducing deterioration in the pump.

One (1)
10-21-6000

INTAKE WATERWAY VALVE

There shall be one (1) Akron 7960 6.00 inch (150 mm) electrically operated wafer valve mounted directly to the pump intake manifold and shall be located behind the pump panel.

The valve shall be mounted between the main pump body casting and the steamer inlet casting. A .25 inch (6.35 mm) quarter turn air bleeder valve shall be plumbed to the water supply side of the intake valve, by a .75 inch (19.05 mm) NPT port, to help evacuate air from the system and avoid cavitation of the pump.

One (1)
10-21-600E

VALVE CONTROLLER

The controller shall be an Akron Brass Style 9323 Navigator Pro™ Valve Controller. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open and close to operate the actuator. Two additional buttons shall be available to be used for preset selection, preset activation, and menu activation. The controller must have up to three preset locations that can be user set and easily recalled upon each use. The unit must provide position indication through a full color backlit LCD display. It shall have a manual adjustment of the brightness as well as an auto-dimming option.

One (1)
10-24-8100

INTAKE RELIEF VALVE

A Task Force Tips model #A18 pressure relief valve with a range of adjustment from 90 to 300 PSI shall be installed inside pump compartment piped to the suction side of the pump.

The valve shall be preset at 125 PSI (860 kPa) suction inlet pressure. The valve shall be installed inside the pump compartment where it will be easily accessible for future adjustment. The excess water shall be plumbed to the atmosphere and shall dump on the opposite side of the pump operator.

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For normal pumping operations, the relief valve shall not be capped and there shall be a placard installed stating "DO NOT CAP".

One (1)
09-09-5030

INTAKE RELIEF VALVE TERMINATION

The Intake relief valve shall terminate on the left side of the pump house compartment. If the apparatus is equipped with a heat pan, the relief valve shall terminate outside of the heat pan.

One (1)
10-24-9000

INTAKE VALVE MANUAL OVER RIDE

One (1) manual over ride crank control(s) shall be installed at the pump panel to facilitate operation of the valve in case of a failure in the valve's electrical wiring and/or motor.

S One (1)
10-25-2000

5" STORZ ELBOW & CAP

The inlet shall include the following components:

One (1) 6.00 inch (150 mm) NST female swivel x 5.00 inch (125 mm) Storz cast aluminum elbow

One (1) 5.00 inch (125 mm) Storz to 2.50 inch (65 mm) male NST adapter

One (1) 2.50 inch (65 mm) cap, secured by a chain

One (1)
10-12-1205

MAIN PUMP INLET-RIGHT SIDE

A 6.00 inch (150 mm) pump manifold inlet shall be provided on the right side of the pump. The shorter style inlet shall protrude less than 2.00 inches (50 mm) away from the side panel, allowing an external valve to be connected and not protrude past the apparatus body sides while maintaining a low connection height.

The main pump inlet shall have National Standard Threads and includes a removable screen designed to provide cathodic protection for reducing deterioration in the pump.

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One (1)
10-21-6000

INTAKE WATERWAY VALVE

There shall be one (1) Akron 7960 6.00 inch (150 mm) electrically operated wafer valve mounted directly to the pump intake manifold and shall be located behind the pump panel.

The valve shall be mounted between the main pump body casting and the steamer inlet casting. A .25 inch (6.35 mm) quarter turn air bleeder valve shall be plumbed to the water supply side of the intake valve, by a .75 inch (19.05 mm) NPT port, to help evacuate air from the system and avoid cavitation of the pump.

One (1)
10-21-600E

VALVE CONTROLLER

The controller shall be an Akron Brass Style 9323 Navigator Pro™ Valve Controller. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open and close to operate the actuator. Two additional buttons shall be available to be used for preset selection, preset activation, and menu activation. The controller must have up to three preset locations that can be user set and easily recalled upon each use. The unit must provide position indication through a full color backlit LCD display. It shall have a manual adjustment of the brightness as well as an auto-dimming option.

One (1)
10-24-8100

INTAKE RELIEF VALVE

A Task Force Tips model #A18 pressure relief valve with a range of adjustment from 90 to 300 PSI shall be installed inside pump compartment piped to the suction side of the pump.

The valve shall be preset at 125 PSI (860 kPa) suction inlet pressure. The valve shall be installed inside the pump compartment where it will be easily accessible for future adjustment. The excess water shall be plumbed to the atmosphere and shall dump on the opposite side of the pump operator.

For normal pumping operations, the relief valve shall not be capped and there shall be a placard installed stating "DO NOT CAP".

One (1)

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09-09-5020

INTAKE RELIEF VALVE TERMINATION

The Intake relief valve shall terminate on the right side of the pump house compartment. If the apparatus is equipped with a heat pan, the relief valve shall terminate outside of the heat pan.

One (1)
10-24-9000

INTAKE VALVE MANUAL OVER RIDE

One (1) manual over ride crank control(s) shall be installed at the pump panel to facilitate operation of the valve in case of a failure in the valve's electrical wiring and/or motor.

S One (1)
10-25-2000

5" STORZ ELBOW & CAP

The inlet shall include the following components:

One (1) 6.00 inch (150 mm) NST female swivel x 5.00 inch (125 mm) Storz cast aluminum elbow

One (1) 5.00 inch (125 mm) Storz to 2.50 inch (65 mm) male NST adapter

One (1) 2.50 inch (65 mm) cap, secured by a chain

One (1)
09-50-1600

OVER HEAT PROTECTION MANAGER

A Waterous Overheat Protection Manager (OPM) valve shall be installed to protect the pump from overheating. The OPM shall consist of a valve that opens when the water in the pump reaches 140 degrees Fahrenheit (60 degrees Celsius) and a warning light on the pump panel that is triggered by a thermal switch when the water in the pump reaches 180 degrees Fahrenheit (82 degrees Celsius). It shall be mechanical and not require constant operator monitoring.

The warning light shall act as an additional protection device if the temperature inside the pump keeps rising although the valve is open.

The relief valve shall discharge out below the running board.

One (1)

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09-70-0010

PUMP COOLING LINE

There shall be a .38 inch (9.5 mm) line running from the pump to the water tank to assist in keeping the pump water from overheating. A valve shall be installed on the operator's panel.

S One (1)
09-70-0420

PUMP ANODES

Two (2) pump anodes shall be installed in the pumping system, one (1) on the discharge side and one (1) on the suction side, to prevent damage from galvanic corrosion within the pump system.

Paint the (2) pump anodes yellow.

One (1)
12-10-1000

STAINLESS STEEL PLUMBING

All auxiliary suction and discharge plumbing related fittings, and manifolds shall be fabricated with 3.00 inch (77 mm) schedule 10 stainless steel pipe; brass or high pressure flexible piping with stainless steel couplings. Galvanized components and/or iron pipe shall NOT be accepted to ensure long life of the plumbing system without corrosion or deterioration of the waterway system. Where waterway transitions are critical (elbows, tees, etc.), no threaded fittings shall be allowed to promote the smooth transition of water flow to minimize friction loss and turbulence. All piping components and valves shall be non-painted, unless otherwise specified. All piping welds shall be wire brushed and cleaned for inspection and appearance.

The high pressure flexible piping shall be black SBR synthetic rubber hose with 300 PSI working pressure and 1200 PSI burst pressure for flexible piping sizes 1.50 inches (38 mm) through 4.00 inches (100 mm). Sizes .75 inch (19 mm), 1.00 inch (25 mm) and 5.00 inches (125 mm) are rated at 250 PSI working pressure and 1000 PSI burst pressure. All sizes are rated at 30 in HG vacuum. Reinforcement consists of two plies of high tensile strength tire cord for all sizes and helix wire installed in sizes 1.00 inch (25 mm) through 5.00 inches (125 mm) for maximum performance in tight bend applications. The material has a temperature rating of -40 degrees Fahrenheit to +210 degrees Fahrenheit.

The stainless steel full flow couplings are precision machined from high tensile strength stainless steel. All female couplings are brass. Mechanical grooved and male .75 inch (19 mm) and 1.00 inch (25 mm) couplings are brass. A high tensile strength stainless steel ferrule with serrations on the I. D. is utilized to assure maximum holding power when fastening couplings to hose.

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One (1)
12-10-1250

PUMP HOUSE LINE PROTECTION

All drain lines for the discharges, suctions, ABS discharge gauge lines and any other appropriate connections in the pump house area shall have a protective cover provided on the lines in the required areas of the lines to prevent the lines from rubbing on any other components in the pump house area.

All drain lines, ABS lines, high pressure discharge lines and electrical wiring in the pump house area shall be properly and neatly routed, wire tied and rubber coated "P" clamped, to keep the items secured.

One (1)
12-10-1305

DRAIN VALVES

All manual drains shall be Class One with .75 inch J-style lift handle kit.

Each drain shall have a 90 degree Push Lock fitting supply with a 90 degree poly elbow drain. Reinforced clear vinyl tubing shall be utilized to route the water to atmosphere.

One (1)
18-20-2100

FOAMPRO 2001

The apparatus shall be equipped with an electronic, fully automatic, variable speed, direct injection, and discharge side foam proportioning system. The system shall be capable of handling Class A foam concentrates and most Class B foam concentrates. The foam proportioning operation shall be based on direct measurement of water flows, and remain consistent within the specified flows and pressures. System must be capable of delivering accuracy to within 5% of calibrated settings over the advertised operation range when installed according to factory standards. The system shall be equipped with a digital electronic control display suitable for installation on the pump panel. Incorporated within the control display shall be a microprocessor that receives input from the system flowmeter(s), while also monitoring foam concentrate pump output. This compares values to ensure that the operator's preset is proportional to the amount of foam concentrate injected into the discharge side of the fire pump.

A paddlewheel-type flowmeter shall be installed in the discharge system specified to be "foam capable. The flow meter shall be mounted in a manifold providing accurate water flow readings from 30-1150 gpm and operate up to 1380 gpm.

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The digital computer control display shall enable the pump operator to perform the following control and operation functions for the foam proportioning system:

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

Show current flow-per-minute of water

Show total volume of water discharged during and after foam operations are completed

Show total amount of foam concentrate consumed

Simulate flow rates for manual operation

Perform setup and diagnostic functions for the computer control microprocessor

Flash a "low concentrate" warning when the foam concentrate tank(s) runs low

Flash a "no concentrate" warning and shut the foam concentrate pump off, preventing damage to the pump, should the foam tank(s) empty

A 12-volt electric motor drive positive displacement foam concentrate pump, rated up to 2.5 gpm (9.5 L/min) @ 150 psi with operating pressures up to 400 psi (27.6 BAR), shall be installed in a suitable, accessible location. The system will draw a maximum of 40 amps @ 12 VDC. A pump motor electronic driver (mounted to the base of the pump) shall receive signals from the computer control display and power the 1/2 hp (0.40 Kw) electric motor directly coupled to the concentrate pump in a variable speed duty cycle to ensure that the correct proportion of concentrate preset by the pump operator is injected into the water stream.

When two types of foam concentrates are to be used, a dual tank switch over system will be installed to provide rapid changeover of foam concentrate reservoirs. The digital computer control display shall interface with the dual tank switch over system, provide dual foam calibration, and display separate totals for each foam concentrate used.

Full flow check valve shall be provided to prevent foam contamination of fire pump and water tank or water contamination of foam tank.

Components of the complete proportioning system shall include:

Operator control and display

Paddlewheel flowmeter

Pump and electric motor/motor driver

Wiring harnesses

Low level tank switch

Foam injection check valve

Main waterway check valve

One (1)
00-10-3000

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FOAM SYSTEM TESTING

The apparatus foam system shall be tested and the Water Flow meter shall be certified by the manufacturer prior to delivery.

One (1)
18-20-4000

FOAM SYSTEM SUPPLY

The system shall be supplied by a single foam tank that shall be monitored by the control display. The display shall flash a "low concentrate" warning for two minutes when the foam tank runs low. In the event that no additional concentrate is added to the tank, the foam concentrate pump shall be deactivated.

One (1)
18-65-0010

FOAM TANK

A 20 gallon foam tank with square hinged lid, equipped with a hold down device shall be installed and plumbed with non-corrosive piping to the foam system. The fill tower shall be approximately 10.00 inch by 10.00 inch.

A label shall be affixed to the foam tank fill indicating: "WARNING" Class A (or B) foam tank fill, do not mix brands or types of foam.

One (1)
18-70-0100

Each foam tank shall be integral with the booster water tank provided.

One (1)
18-72-0100

FOAM TANK DRAIN

There shall be a 1.00 inch (25.4 mm) quarter turn drain valve installed to drain the foam tank. The valve shall be installed in the pump house with a drain line extended to the side running board.

The drain line shall be labeled "FOAM DRAIN".

S One (1)
18-73-0020

FOAM ACCESS DOOR

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There shall be a foam access door provided on the right side of the pump house.

The **cutout** shall measure 6.00 inches by 6.00 inches and shall be hinged on one side and secured with a push button style latch.

One (1)
18-80-0030

FOAM TANK LEVEL GAUGE

Fire Research TankVision Pro model WLA360-A00 tank indicator kit shall be installed. The kit shall include an electronic indicator module, a pressure sensor, a 20.00 foot sensor cable and a tank vent. The indicator shall show the volume of Class A foam concentrate in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive green label.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the foam tank near the bottom. No probe shall be placed on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.

One (1)
18-85-0200

FOAM PRO POWER FILL

The apparatus shall be equipped with a FoamPro Power Fill foam system. The foam fill system shall be a FoamPro Power Fill with electronic, automatic, concentrate refill system, to increase safety of firefighter personnel. The system shall operate independently of the foam proportioner allowing simultaneous use. Refill operation shall not require apparatus or fire pump to be running. The system shall be capable of handling Class A or Class B foam concentrates, emulsifiers, gels and decontamination concentrates. The apparatus shall be plumbed from the externally accessed intake/flush ports to the concentrate cell. External fill and flush connections shall be quick-connect cam-lock type. Internal piping shall incorporate check valves to prevent back flow. Concentrate tank inlet shall be positioned to minimize agitation. The refill operation shall be based on direct measurement of concentrate level in tank. The system must be capable of

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automatically stopping when cell is full and include a manual override feature. The system shall be equipped with an electronic control suitable for installation on the pump panel. Incorporated within the control shall be a microprocessor that receives input from the system while controlling foam concentrate pump output. An all-bronze three-way valve shall be included to allow the operator to flush system after use. Valve control, intake and flush ports shall be located within corresponding panel plate.

The system shall enable the operator to perform the following control/operation functions and status indicators for the refill operation:

- a) Provide push-button start/stop control of foam refill
- b) Solid green light advises operator concentrate cell is full
- c) Flashing green indicates system is running
- d) Green light off, system off
- e) Allow override of "full tank" condition
- f) Provide a means to flush the pump and intake piping

The system shall include a 12 or 24-volt electric motor driven, positive displacement concentrate pump. The pump(s) shall deliver minimum flow of 10 gpm (37.8 L/min) @ 20 psi with all concentrates currently utilized in fire apparatus. Pump body to be of all-bronze construction and other wetted components and piping to be constructed of non-corrosive materials. The system will draw a maximum of 38 amps @ 12 VDC or 19 amps @ 24 VDC. A pump/motor solenoid (mounted to the base of the pump) shall receive signals from the computer control display and power the 1/2 hp (0.4 Kw) electric motor directly coupled to the concentrate pump. The system(s) shall receive readings when the concentrate tank is full and stop operation to prevent overflow.

Components of the complete refill system shall include:

- a) Operator control and display with Weather-Pac connectors
- b) Refill/flush quick-connect cam-lock fittings and cap
- c) Check valves
- d) Pump/motor assembly and solenoid
- e) Strainer
- f) Tank level switch
- g) Three-way fill/flush valve
- h) Stainless steel pickup wand and 6 feet of reinforced suction hose, 1 inch in diameter to allow maximum flow
- i) Panel placards

One (1)
14-10-0110

LEFT SIDE INLET

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There shall be one (1) gated suction inlet with .75 inch (19mm) bleeder installed on the left side of the apparatus with the following specified components.

One (1)
14-30-0205

INTAKE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series 'electric valve' with stainless steel ball.

One (1)
14-33-0005

STYLE 9323 VALVE CONTROLLER

The controller shall be an Akron Brass Style 9323 Navigator Pro™ Valve Controller. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. Two additional buttons shall be available to be used for preset selection, preset activation, and menu activation. The controller must have up to three preset locations that can be user set and easily recalled upon each use. The unit must be capable of being used in conjunction with at least two additional displays to control one valve. The unit must provide position indication through a full color backlit LCD display. It shall have a manual adjustment of the brightness as well as an auto-dimming option.

One (1)
14-45-0005

INTAKE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)
14-55-1000

SUCTION/INTAKE TERMINATION

The termination shall include the following components:

One (1) 2.50 inch (65 mm) NST swivel female straight adapter with screen

One (1) 2.50 inch (65 mm) self-venting plug, secured by a chain

One (1)
14-10-0515

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RIGHT SIDE INLET

There shall be one (1) gated suction inlet with .75 inch (19mm) bleeder installed on the right side of the apparatus with the following specified components.

One (1)
14-30-0205

INTAKE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series 'electric valve' with stainless steel ball.

One (1)
14-33-0005

STYLE 9323 VALVE CONTROLLER

The controller shall be an Akron Brass Style 9323 Navigator Pro™ Valve Controller. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. Two additional buttons shall be available to be used for preset selection, preset activation, and menu activation. The controller must have up to three preset locations that can be user set and easily recalled upon each use. The unit must be capable of being used in conjunction with at least two additional displays to control one valve. The unit must provide position indication through a full color backlit LCD display. It shall have a manual adjustment of the brightness as well as an auto-dimming option.

One (1)
14-45-0005

INTAKE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)
14-55-1000

SUCTION/INTAKE TERMINATION

The termination shall include the following components:

One (1) 2.50 inch (65 mm) NST swivel female straight adapter with screen

One (1) 2.50 inch (65 mm) self-venting plug, secured by a chain

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One (1)
15-05-0215

LEFT SIDE DISCHARGE

There shall be two (2) gated discharges installed on the left side of the apparatus with the following specified components.

Two (2)
16-30-0145

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series 'electric valve' with stainless steel ball.

Two (2)
20-37-0105

STYLE 9325 NAVIGATOR PRO VALVE CONTROLLER

The controller shall be an Akron Brass Style 9325 Navigator Pro™ Valve Controller and shall be installed at the pump operator's panel location. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. Three additional buttons shall be available to be used for preset selection, preset activation, CAFS activation (if provided), and menu activation.

The unit must be capable of being connected to a pressure sensor and provide an LCD display showing pressure as well as valve position indication. Valve position indication must be determined from true position feedback and indicate the exact position of the valve.

The unit must be able to be programmed to PSI, kPa, or Bar for pressure. The unit must be capable of turning on and off a solenoid used in a CAFS system (if provided). The only calibration required is to set the unit to the valve during the initial set up. No other calibration shall be required.

The display shall be a full color LCD display with a backlight. It shall have a manual adjustment of the brightness as well as an auto-dimming option.

Two (2)
16-44-0510

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

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Two (2)
16-55-1500

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female by male swivel with 45 degree elbow

One (1) 2.50 inch (65 mm) female by 1.50 inch (38 mm) male reducer

One (1) 1.50 inch (38 mm) female self-venting cap, secured by a chain

One (1)
15-05-0715

RIGHT SIDE DISCHARGE

There shall be two (2) gated discharges installed on the right side of the apparatus with the following specified components.

Two (2)
16-30-0145

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series 'electric valve' with stainless steel ball.

Two (2)
20-37-0105

STYLE 9325 NAVIGATOR PRO VALVE CONTROLLER

The controller shall be an Akron Brass Style 9325 Navigator Pro™ Valve Controller and shall be installed at the pump operator's panel location. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. Three additional buttons shall be available to be used for preset selection, preset activation, CAFS activation (if provided), and menu activation.

The unit must be capable of being connected to a pressure sensor and provide an LCD display showing pressure as well as valve position indication. Valve position indication must be determined from true position feedback and indicate the exact position of the valve.

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The unit must be able to be programmed to PSI, kPa, or Bar for pressure. The unit must be capable of turning on and off a solenoid used in a CAFS system (if provided). The only calibration required is to set the unit to the valve during the initial set up. No other calibration shall be required.

The display shall be a full color LCD display with a backlight. It shall have a manual adjustment of the brightness as well as an auto-dimming option.

Two (2)
16-44-0510

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

Two (2)
16-55-1500

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female by male swivel with 45 degree elbow

One (1) 2.50 inch (65 mm) female by 1.50 inch (38 mm) male reducer

One (1) 1.50 inch (38 mm) female self-venting cap, secured by a chain

One (1)
15-05-1620

LEFT REAR DISCHARGE

There shall be one (1) gated discharge installed on the left rear of the apparatus with the following specified components.

One (1)
16-30-0145

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series 'electric valve' with stainless steel ball.

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One (1)
20-37-0105

STYLE 9325 NAVIGATOR PRO VALVE CONTROLLER

The controller shall be an Akron Brass Style 9325 Navigator Pro™ Valve Controller and shall be installed at the pump operator's panel location. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. Three additional buttons shall be available to be used for preset selection, preset activation, CAFS activation (if provided), and menu activation.

The unit must be capable of being connected to a pressure sensor and provide an LCD display showing pressure as well as valve position indication. Valve position indication must be determined from true position feedback and indicate the exact position of the valve.

The unit must be able to be programmed to PSI, kPa, or Bar for pressure. The unit must be capable of turning on and off a solenoid used in a CAFS system (if provided). The only calibration required is to set the unit to the valve during the initial set up. No other calibration shall be required.

The display shall be a full color LCD display with a backlight. It shall have a manual adjustment of the brightness as well as an auto-dimming option.

One (1)
16-44-0710

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)
16-55-1500

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female by male swivel with 45 degree elbow

One (1) 2.50 inch (65 mm) female by 1.50 inch (38 mm) male reducer

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One (1) 1.50 inch (38 mm) female self-venting cap, secured by a chain

One (1)
15-05-2120

RIGHT REAR DISCHARGE

There shall be one (1) gated discharge installed on the right rear of the apparatus with the following specified components.

One (1)
16-30-0145

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series 'electric valve' with stainless steel ball.

One (1)
20-37-0105

STYLE 9325 NAVIGATOR PRO VALVE CONTROLLER

The controller shall be an Akron Brass Style 9325 Navigator Pro™ Valve Controller and shall be installed at the pump operator's panel location. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. Three additional buttons shall be available to be used for preset selection, preset activation, CAFS activation (if provided), and menu activation.

The unit must be capable of being connected to a pressure sensor and provide an LCD display showing pressure as well as valve position indication. Valve position indication must be determined from true position feedback and indicate the exact position of the valve.

The unit must be able to be programmed to PSI, kPa, or Bar for pressure. The unit must be capable of turning on and off a solenoid used in a CAFS system (if provided). The only calibration required is to set the unit to the valve during the initial set up. No other calibration shall be required.

The display shall be a full color LCD display with a backlight. It shall have a manual adjustment of the brightness as well as an auto-dimming option.

One (1)
16-44-0710

DISCHARGE PLUMBING

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The plumbing shall consist of 2.50 inch (65 mm) piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

One (1)
16-52-1100

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female swivel by male with 45 degree polished elbow

One (1) 2.50 inch (65 mm) female self-venting cap, secured by a chain

One (1)
18-61-0400

DISCHARGE CAPABILITY

The discharge shall be foam capable.

One (1)
16-22-0110

DECK GUN MONITOR WATERWAY

There shall be one (1) deck gun monitor waterway installed on the apparatus with the following components.

One (1)
16-30-0245

DISCHARGE VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series 'electric valve' with stainless steel ball.

One (1)
20-37-0105

STYLE 9325 NAVIGATOR PRO VALVE CONTROLLER

The controller shall be an Akron Brass Style 9325 Navigator Pro™ Valve Controller and shall be installed at the pump operator's panel location. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be

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completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. Three additional buttons shall be available to be used for preset selection, preset activation, CAFS activation (if provided), and menu activation.

The unit must be capable of being connected to a pressure sensor and provide an LCD display showing pressure as well as valve position indication. Valve position indication must be determined from true position feedback and indicate the exact position of the valve.

The unit must be able to be programmed to PSI, kPa, or Bar for pressure. The unit must be capable of turning on and off a solenoid used in a CAFS system (if provided). The only calibration required is to set the unit to the valve during the initial set up. No other calibration shall be required.

The display shall be a full color LCD display with a backlight. It shall have a manual adjustment of the brightness as well as an auto-dimming option.

One (1)
16-44-1510

DELUGE PLUMBING

The deluge waterway shall consist of 3.00 inch (77 mm) piping and shall be drained with an auto-drain located at the lowest point of the waterway plumbing if required.

One (1)
16-79-0010

DELUGE PIPE LOCATION

The deluge pipe shall be located up through the pump compartment, at the center location.

One (1)
16-83-3010

REMOTE CONTROL MONITOR PACKAGE

Task Force Tips Hurricane model remote control monitor package consisting of remote control monitor, operator control, and Master Stream series electric remote nozzle shall be supplied.

The package shall be configured as follows:

One (1)
16-83-0240

EXTEND-A-GUN BRACKET SET

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Task Force Tips model # XGB-13 bracket set shall be installed. The set shall include a tube and saddle brackets and is designed to securely mount the Extend-A-Gun telescoping waterway.

One (1)
16-83-0310

REMOTE CONTROL TELESCOPING MONITOR PIPE

Task Force Tips model # XGA38VL-RL 3.00 inch (77 mm) electrically telescoping waterway shall be installed. The waterway shall be capable of being lowered to deck level (or into a monitor well) for storage and transportation and shall be capable of being raised to an extended height of 18.00 inch (457.2 mm) using panel mounted switches or Auxiliary 1 push button on Task Force Tips RC monitor control stations. These switches shall control a 12 volt motor and be capable of moving the waterway in either the raised or lowered position while maintaining the ability to horizontally rotate the monitor device 360 degrees. The motor shall be weatherproof in design and have an accessible manual override control for use in the event power failure occurs. An interface box with cables and waterproof plugs shall be provided for connection of power, monitor, Extend-A-Gun RC and push button controls.

If the extend-a-gun is not properly stowed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the hazard light in the cab to alert the crew.

The aluminum riser shall have a 3.00 inch (77 mm) waterway; hardcoat anodized finish and be furnished with a 3.00 inch (77 mm) Victaulic inlet coupling and a TFT Code RLM male connection for a TFT remote control monitor with TFT Code RLF female inlet.

One (1)
16-83-2030

1250 GPM REMOTE CONTROLLED MONITOR

Task Force Tips Hurricane RC, model # XFIH-E11A remote controlled monitor shall be installed. The monitor shall be controlled by a monitor mounted membrane switch panel with functions that control rotation, elevation and nozzle patterns, oscillate, park, auxiliary 1 and auxiliary 2.

The monitor shall have the following travel capabilities: full 450 degrees of horizontal rotation with travel 225 degrees left and right of center, full 135 degrees of vertical travel with stops at 90 degrees above and 45 degrees below horizontal, field changeable rotation stops shall be provided at 45, 90 and 135 degrees left and/or right of center, flow capability of 1250 GPM, maximum operating pressure of 200 PSI.

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The electrical components for the monitor and switch enclosures shall be compatible with 12 and 24 volt DC systems, shall be weatherproof and shall utilize weatherproof components such as a membrane switch, silicone seal, hardware with o-rings and liquid tight electrical connections with strain relief fittings. Monitor shall have current limiting and position encoders to protect the drive train at the ends of travel. Monitor shall have waterproof plug for power and control cable connection for easy removal. Thirty feet of ultra flex robotic power cable shall be provided and include a unique cable guide for 450 degrees of monitor rotation. A six-pin electrical connection for a TFT remote control nozzle shall be provided. The monitor shall be compatible with optional wired and wireless control panels and monitor position display. The monitor shall be equipped with manual override knobs for use in the event of power failure. The motors and knobs control stainless steel worm gears for rotation and elevation adjustment.

For resistance to corrosion the monitor shall be constructed from hardcoat anodized aluminum with a silver powder coat interior and exterior finish. A built in automatic drain designed to protect the monitor from freezing and a threaded port for an optional pressure gauge shall be provided. The unit shall have a unique serial number.

The monitor shall be configured with a Task Force Tips code RLF female threaded inlet to mount directly on Task Force Tips Extend-A-Gun RC3 telescoping deck pipe and 2.50 inch (65 mm) male NH outlet.

One (1)
16-83-2100

PANEL MOUNT MONITOR CONTROL STATION

Task Force Tips model # Y4E-RP panel mount control station for Monsoon, Hurricane, Typhoon, and Tornado series remote control monitors shall be installed. The control station shall be designed for flush panel mounting and include switches to control horizontal rotation, vertical elevation and nozzle stream pattern, oscillate and park. The control station shall be capable of connection of control circuits from other control devices. The interface accepts 12 or 24 volt DC positive signals, and is field changeable to accept ground inputs. The control station shall also include a circuit board to communicate with the Task Force Tips remote control monitor. Internally mounted switches shall be included for the ability to choose which control station shall be dominant. Relay connections for "At Park" indication shall be provided.

The switch enclosure shall be weatherproof and utilize weatherproof components such as a membrane switch, silicone seal, and hardware with o-rings and liquid tight electrical connections with strain relief fittings. A 10 foot long incoming power connection cable shall be supplied and can be used as a central connection point for other wired controls or monitor position display.

The location of the panel mount controller shall be at the pump operator's panel.

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One (1)
16-83-3220

REMOTE ELECTRIC MASTER STREAM NOZZLE

Task Force Tips Master Stream 1000, model # M-ERP1000-NJ automatic nozzle with electrically operated pattern control shall be provided. The nozzle design shall allow for straight stream through dense wide fog patterns.

The electric drive unit shall develop over 400 pounds of torque, be enclosed in a waterproof cast aluminum housing and include a manual override device in the event the power source fails. The unit shall be compatible with 12 or 24 volt power systems and require no more than a 3 amp power draw and include a 6.00 inch connection cable with plug.

Nozzle stream shaper actuator shall have position encoder for smooth transition between straight stream and fog pattern with fine stream adjustment.

For corrosion resistance and durability the nozzle and actuator shall be constructed from hardcoat anodized aluminum alloy, include a protective rubber bumper with fog teeth, laser engraved serial number, and reflective labeling.

The nozzle shall have a 2.50 inch (65 mm) female NH swivel rocker lug coupling and a flow range of 150-1000 GPM at 100 PSI. A waterproof six-pin electrical connection for use with TFT remote control monitors shall be included. The nozzle shall be designed to accept the TFT FJ-LX-M FoamJet low expansion air aspirating attachment.

One (1)
16-23-0210

FRONT BUMPER CROSSLAY DISCHARGES

Two (2) front bumper crosslay discharge outlets shall be provided and installed at the front bumper with chicksan swivel terminations just below the floor or each crosslay bed just high enough for hose couplings to be accessed and tightened on to the chicksans.

Each discharge shall include the following components:

Two (2)
16-30-0030

DISCHARGE VALVE

A 2.00 inch (50 mm) Akron Brass 8000 series 'electric valve' with stainless steel ball.

Two (2)

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20-37-0105

STYLE 9325 NAVIGATOR PRO VALVE CONTROLLER

The controller shall be an Akron Brass Style 9325 Navigator Pro™ Valve Controller and shall be installed at the pump operator's panel location. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. Three additional buttons shall be available to be used for preset selection, preset activation, CAFS activation (if provided), and menu activation.

The unit must be capable of being connected to a pressure sensor and provide an LCD display showing pressure as well as valve position indication. Valve position indication must be determined from true position feedback and indicate the exact position of the valve.

The unit must be able to be programmed to PSI, kPa, or Bar for pressure. The unit must be capable of turning on and off a solenoid used in a CAFS system (if provided). The only calibration required is to set the unit to the valve during the initial set up. No other calibration shall be required.

The display shall be a full color LCD display with a backlight. It shall have a manual adjustment of the brightness as well as an auto-dimming option.

Two (2)
16-44-0412

DISCHARGE PLUMBING

The front bumper crosslay plumbing shall consist of 2.00 inch (50 mm) piping, and incorporate a manual drain control installed below the pump area for ease of access. Auto-drain(s) shall be installed in the discharge piping at lowest point of the plumbed system.

Two (2)
16-50-1000

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.00 inch (50 mm) NPT x 1.50 inch (38 mm) NST brass chicksan swivel

One (1)
18-61-0420

DISCHARGE CAPABILITY

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The two (2) discharges shall be foam capable.

One (1)
20-00-0020

TANK TO PUMP LINE

The connection between the tank and the pump shall be capable of the flow recommendations in compliance with (NFPA) 1901, Standard for Automotive Fire Apparatus, requirements and shall be tested to those standards when the pump is being certified.

One (1) non-collapsible flexible hose and valve shall be incorporated into the tank to pump plumbing to allow movement in the line as the chassis flexes to avoid damage during normal road operation. Four (4) inch stainless steel schedule 10 piping shall be used to complete the connection from the tank to pump valve to the water tank.

One (1)
20-05-0100

TANK TO PUMP CHECK VALVE

There shall be a tank to pump check valve, conforming to NFPA standard requirements to prevent water from back flowing at an excessive rate if the pump is being supplied from a pressurized source. The check valve shall be mounted as an integral part of the pump suction extension. A hole up to .25 inch (6.00 mm) is allowable in the check valve to release steam or other pressure buildup so that the void between the valve and check valve may drain of water that could be subject to freezing.

One (1)
20-26-0337

TANK TO PUMP VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series 'electric valve' with stainless steel ball.

One (1)
20-37-0100

STYLE 9323 VALVE CONTROLLER

The controller shall be an Akron Brass Style 9323 Navigator Pro™ Valve Controller and shall be installed at the pump operator's panel location. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. Two additional buttons shall be available to be used for preset selection, preset activation, and menu activation. The controller must have up to three preset locations that

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can be user set and easily recalled upon each use. The unit must be capable of being used in conjunction with at least two additional displays to control one valve. The unit must provide position indication through a full color backlit LCD display. It shall have a manual adjustment of the brightness as well as an auto-dimming option.

One (1)
20-10-0115

TANK FILL LINE

One (1) 2.00 inch (50.80 mm) tank fill/recirculating line shall be installed from the pump directly to the booster tank.

One (1)
20-26-0125

TANK FILL VALVE

A 2.00 inch (50 mm) Akron Brass 8000 series 'electric valve' with stainless steel ball.

One (1)
20-37-0100

STYLE 9323 VALVE CONTROLLER

The controller shall be an Akron Brass Style 9323 Navigator Pro™ Valve Controller and shall be installed at the pump operator's panel location. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. Two additional buttons shall be available to be used for preset selection, preset activation, and menu activation. The controller must have up to three preset locations that can be user set and easily recalled upon each use. The unit must be capable of being used in conjunction with at least two additional displays to control one valve. The unit must provide position indication through a full color backlit LCD display. It shall have a manual adjustment of the brightness as well as an auto-dimming option.

One (1)
30-11-2000

TRI-MAX™ Space Frame Body- STAINLESS STEEL

The apparatus body shall be a Tri-Max™ **Space Frame** design, which serves as an incredibly durable, structural body framework. This framework acts as a series of beams and columns that support and protect the body and its contents. The space frame design provides maximum torsional resistance and load capabilities. The entire space frame structure shall be welded together utilizing an A.W.S. Certified welding procedure.

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The space frame design shall also be required because it provides energy absorbing impact zones in the structure, thus providing increased safety to the rest of the apparatus and personnel on board. Documented proof of this extra safety shall be required upon request.

The Tri-Max™ body structure shall consist entirely of closed section members, except where the body is mounted to the chassis. Closed section members (such as square, rectangular, triangular, or round tubes) are required because they provide maximum strength and torsion rigidity. This solid tubular structural style of design, ultimately adds longevity to the body structure by eliminating flex and twists in material, creating less stress and fatigue. Body designs that use independent sub-frames will not be acceptable.

BODY STRUCTURE MEMBERS

The space frame body shall have triangular shaped structural members in certain areas of the body. This shape is required to prevent loss of useable compartment space. Other body structure members shall be square or rectangular. Each structural member will have a nominal outside dimension of 2.50 inches (63.50 mm) in at least one direction. The body shall be designed for maximum strength to weight ratio, therefore the gauge of sheet metal and structural members varies from 14 gauge to 11 gauge throughout dependent on the design requirement.

BODY MATERIAL TYPE

All body structure and sheet material shall be premium grade Stainless Steel, Type 304L. This alloy is utilized because it provides an excellent balance of material strength, manufacturing properties, and corrosion resistance that is achieved through high levels of both chromium and nickel.

ECK® ANTI-CORROSION PROCESS

Absolutely no dissimilar metals shall be used in the body and its supporting substructure without being separated by Eck®, which prevents corrosion by providing a barrier between dissimilar metals, sealing out moisture and absorbing energy created by a dissimilar metal reaction.

FRONT BODY COMPARTMENT WALLS

The front compartment walls of both forward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments.

REAR BODY COMPARTMENT WALLS

The rear compartment walls of both rearward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments. Access panels from the

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rear walls shall be strategically placed to ensure access to the rear taillight clusters for any servicing that may be completed.

COMPARTMENT TOP

The top of the compartments shall be an integral portion of the body. No overlay material shall be visible from the interior of the compartments.

COMPARTMENT FLOORS

The body compartments shall be enclosed with stainless steel sheet metal as specified above. The compartment floors shall have a 1.00 inch (25.40 mm) lip downward at the door opening side of the compartment. This lip shall integrate with a structural member on the bottom edge and form a "sweep-out" compartment. This design shall also allow for a structural flush fitting door frame and a complete door/weather seal.

COMPARTMENT LOAD CAPACITY

Each compartment shall have a minimum of one additional structural compartment floor support centered on the underside of the compartment floor. This additional member shall be integral with the rest of the body structure. Each compartment must be designed, and 3rd party analyzed to carry a working load of:

Full depth side compartment: 1,000 lbs (453.59 kg) per compartment

Half depth side compartment: 750 lbs (340.19 kg) per compartment

Rear center compartment: 1,500 lbs (680.39 kg)

NOTE: These values are for design purposes only for individual compartment construction and are not meant to be used as an actual overall weight rating for equipment load per compartment for the specified apparatus. The apparatus shall be engineered such that the completed unit, when loaded to its estimated in-service weight, shall comply with the gross axle weight ratings {GAWR}, the overall gross vehicle weight rating {GVWR}, and the chassis manufacturer's load balance guidelines per NFPA.

EXTERIOR HOSE BED WALLS

The exterior hose bed walls shall be an integral portion of the body. The wall shall give a smooth exterior look and finish with no vertical supports tubing visible from the exterior of the truck.

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All bolts and nuts used in the finish construction of the apparatus shall be coated stainless steel which helps prevent dissimilar metal electrolytic reaction and corrosion. Any bolt extending into a compartment or into the hose bed area shall have an acorn nut attached or be protected in such manner where sharp edges are avoided.

FINITE ELEMENT ANALYSIS

The proposed body design must have completed a review and analysis by a legitimate 3rd party engineering firm. At a minimum, the 3rd party must have conducted a computer model finite element analysis of the proposed design. The analysis is to include real world working load scenarios. Analysis to cover both static and dynamic situations must be completed. The purpose of the finite element analysis is to ensure proper design of the apparatus body, and that it is capable of carrying the typical fire apparatus loads and those specified by NFPA for equipment. The analysis process must conclude that the body structure is properly designed and manufactured to provide longevity under normal conditions. The 3rd party must also validate the manufacturing processes are consistent with the design and analysis performed. Proof of having completed this testing must be submitted with the bid.

One (1)
30-12-5035

PAINT SPECIFICATIONS

All bright metal fittings, if unavailable in stainless steel, shall be heavily chrome plated.

Critical body and sub-frame area which cannot be primed after assembly shall be pre-painted.

All welded metal surfaces shall be ground to a smooth surface prior to a degreasing and high pressure, high temperature phosphatizing process. The entire surface shall be sprayed with a non-chromate sealing compound to prevent formulation of stains or flash rust on previously phosphatized parts.

The paint applied to the apparatus shall be PPG Industries Delta® brand, applied throughout a multi-step process including at least two coats of each color and clear coat finish.

The coating shall be an infra-red, baked air dried. The coatings shall provide full gloss finished suitable for application by high-pressure airless or conventional low pressure air atomizing spray.

The coatings shall not contain lead, cadmium or arsenic. The polyisocyanate component shall consist of only aliphatic isocyanates, with no portion being aromatic isocyanates in character. The solvents used in all components and products shall not contain ethylene glycol mono-ethyl ethers or their acetates (commercially recognized as cello solves), nor shall they contain any

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chlorinated hydrocarbons. The products shall have no adverse effects on the health or nor present any unusual hazard to personnel when used according to manufacturer's recommendations for handling and proper protective safety equipment, and for its intended use.

The coating system, as supplied and recommended for application, shall meet all applicable federal, state and local laws and regulations now in force or at any time during the courses of the bid.

The manufacturer shall supply (upon request) for each product and component of the system, a properly complete OSHA "Safety Data Sheet".

The following documents of the issue in effect on the date of the invitation to quote form a part of this document to the extent specified herein:

Federal Standards: Number 141A and 141B paint, varnish, lacquer and related material: methods of inspection, sampling, and testing.

Military Standard: MIL-C 83486B Coating, Urethane, Aliphatic Isocyanates, for Aerospace applications.

Industry Methods and Standards: ASTM Method of Analysis (American Society for testing and Materials). BMS 10-72A (Boeing Material Specifications).

The entire exterior body structure (excluding roll-up doors) shall receive the primer coats and the finish coats. The apparatus body, will be painted in a down draft type paint booth to reduce dust, dirt or impurities in the finish paint. The painted surfaces shall have a finish with no runs, sags, craters, pinholes or other defects. The coating will meet the following test performance properties as a minimum standard.

One (1)
30-12-6000

BODY PAINT COLOR

S One (1)
30-12-7010

The apparatus body shall be painted PPG [926234 Red. Same as Truck #215111](#)

One (1)
30-12-6125

NATURAL COMPARTMENT FINISH

To prevent scratching of the paint finish and to provide the maximum reflectivity for the

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compartment lighting, the interior of the compartments shall have a natural finish. Absolutely no coatings will be allowed on the compartment interiors.

One (1)
54-50-1050

BRUSHED STAINLESS STEEL FRONT OVERLAYS

The entire front face of the apparatus body shall have brushed stainless steel plate overlays installed.

BRUSHED STAINLESS STEEL REAR OVERLAYS

The entire rear face of the apparatus body shall have brushed stainless steel overlays installed for the installation of chevron striping.

All overlay materials shall be coated with 3M adhesive sealant on the back portion to provide an insulating barrier between dissimilar metals.

One (1)
54-50-2110

FRONT CORNER TRIM 16 GAUGE BRUSHED STAINLESS STEEL

The front of the apparatus body vertical wall overlays shall be installed with a 16 gauge brushed stainless steel 1.0" x 1.0" corner trim piece, for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

One (1)
54-50-2210

REAR CORNER TRIM 16 GAUGE BRUSHED STIANLESS STEEL

The rear face of the apparatus body, vertical wall overlays shall be installed with a 16 gauge brushed stainless steel 1.00 inch by 1.00 inch corner trim piece, for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

The vertical edge trim piece that is protecting the chevron striping surface or that is utilized for the purpose of striping, shall be secured utilizing fasteners only.

One (1)
30-20-1000

VIBRA-TORQUE™ BODY MOUNTING SYSTEM

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The entire body module assembly shall be mounted so that it “floats” above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable body mounting system.

The body substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each body mount bracket shall be mounted to the side chassis frame flange with two 5/8”-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All body to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures. The Vibra-Torque™ body mounting system shall have a lifetime warranty.

One (1)
30-30-1000

BODY STRUCTURE WIDTH

The width of the apparatus body from the outside of the left compartments to the outside of the right compartments shall be 99" excluding any attached peripherals such as rub rails, fenderettes, grab handles, etc.

One (1)
30-31-5000

COMPARTMENT VENTILATION

To allow for proper air circulation & flow, each compartment shall have a venting route. The venting locations shall be determined by best-fit for each body configuration. Louvered plate

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vents shall be installed appropriately on the compartment interior walls.

S One (1)
33-40-2200

COMPARTMENTATION

The following compartments shall be supplied on the apparatus:

Compartment "L1"

There shall be one (1) full height compartment ahead of the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 49.00 inches (1244.60 mm) wide by 74.00 inches high with a depth of 25.50 inches (647.70 mm).

The framed opening shall measure approximately 46.50 inches (1181.10 mm) wide by 70.00 inches high.

The compartment will have approximately 49.60 cubic feet (1.40 cu m) of space.

Compartment "L2"

There shall be one (1) compartment located directly over the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 62.00 inches (1574.80 mm) wide by 44.50 inches high with a depth of 25.50 inches (647.70 mm).

The framed opening shall measure approximately 62.00 inches (1574.80 mm) wide by 40.50 inches high.

Compartment "L3"

There shall be one (1) full height compartment located behind the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 49.00 inches (1244.60 mm) wide by 74.00 inches high with an upper depth of 25.50 inches (647.70 mm) and the lower portion being transverse into the rear compartment, unless partitions are installed.

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The framed opening shall measure approximately 46.50 inches (1181.10 mm) wide by 70.00 inches high.

The compartment will have approximately 49.60 cubic feet (1.40 cu m) of space.

Compartment "R1"

There shall be one (1) full height compartment ahead of the rear wheels on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 49.00 inches (1244.60 mm) wide by 74.00 inches high with a depth of 25.50 inches (647.70 mm).

The framed opening shall measure approximately 46.50 inches (1181.10 mm) wide by 70.00 inches high.

The compartment will have approximately 49.60 cubic feet (1.40 cu m) of space.

Compartment "R2"

There shall be one (1) compartment located directly over the rear wheels on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 62.00 inches (1574.80 mm) wide by 44.50 inches high with a depth of 25.50 inches (647.70 mm).

The framed opening shall measure approximately 62.00 inches (1574.80 mm) wide by 40.50 inches high.

Compartment "R3"

There shall be one (1) full height compartment located behind the rear wheels on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 49.00 inches (1244.60 mm) wide by 74.00 inches high with an upper depth of 25.50 inches (647.70 mm) and the lower portion being transverse into the rear compartment, unless partitions are installed.

The framed opening shall measure approximately 46.50 inches (1181.10 mm) wide by 70.00 inches high.

The compartment will have approximately 49.60 cubic feet (1.40 cu m) of space.

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One (1)
33-45-0320

ROLL-UP DOOR CONSTRUCTION

All horizontal and vertical side compartment doors shall be roll-up style doors.

One (1)
37-90-0010

R•O•M ROLL-UP DOOR

A R•O•M Corporation Series IV roll-up shutter door shall be installed. Each shutter slat, track, bottom rail, and drip rail shall be constructed from anodized 6063 T6 aluminum.

Shutter slats shall feature a double wall extrusion 0.315 inches thick with a concave interior surface to minimize loose equipment jamming the shutter door closed. Shutter slats shall feature an interlocking end shoe to prevent side to side binding of the shutter door during operation. Slat inner seal shall be a one piece PVC extrusion; seal design shall be such to prevent metal to metal contact while minimizing dirt and water from entering the compartment.

Shutter door track shall be one piece design with integral overlapping flange to provide a clean finished look without the need of caulk. Door track shall feature an extruded Santoprene rubber double lip low profile side seal with a silicone co-extruded back to reduce friction during shutter operation.

Shutter bottom rail shall be a one piece double wall extrusion with integrated finger pull. Finger pull shall be curved upward with a linear striated surface to improve operator grip while operating the shutter door. Bottom rail shall have a smooth contoured interior surface to prevent loose equipment from jamming the shutter door. Bottom rail seal shall be made from Santoprene; it will be a double "V" seal to prevent water and debris from entering compartment. Bottom rail lift bar shall be a one piece "D" shaped aluminum extrusion with linear striations to improve operator grip during operation. Lift bar shall have a wall thickness of 0.125 inches. Lift bar shall be supported by no less than two pivot blocks; pivot blocks shall be constructed from Type 66 Glass filled reinforced nylon for superior strength. Bottom rail end blocks shall have incorporated drain holes which will allow any moisture that collects inside the extrusion to drain out.

Shutter door shall have an enclosed counter balance system. Counter balance system shall be 4.00 inches in diameter and held in place by 2 heavy duty 18 gauge zinc plated plates. Counter balance system shall have 2 over-molded rubber guide wheels to provide a smooth transition from vertical track to counter balance system.

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One (1)
37-90-0115

SIDE COMPARTMENT DOORS/TRACK/TRIM/WET PAINTED

The side compartment roll up doors, track and trim shall be wet finish painted to color match the apparatus body.

One (1)
37-91-0005

ROLL-UP DOOR PROTECTORS

There shall be a protective cover installed under each body side compartment door roll to protect the door in the rolled up position.

One (1)
37-91-0010

ROLL-UP DOOR PROTECTOR FINISH

The roll-up door protector shall be left Natural finish.

One (1)
37-92-0105

DOOR ASSIST STRAPS

There shall be nylon straps installed on both the left and right body side 'high side' compartment doors to assist in closing the door. The strap shall be attached to each door and permanently mounted to the rearward wall with footman loops using nutserts, half way between the top and bottom of the compartment.

One (1)
37-96-0020

DOOR OPEN INDICATOR

Each roll up door shall have an integral door open indicator magnet in the lift bar.

If the door is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the "hazard light" in the cab to alert the crew.

S One (1)
37-10-0020

REAR CENTER COMPARTMENT WITH LOW HOSE BED

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There shall be one (1) compartment, "B1", located at the rear of the apparatus.

The approximate interior dimensions of this compartment shall be 43.00 inches (1092.20 mm) wide and 33.00 inches (838.20 mm) high or as high as possible as determined by water tank shelf and rear configuration.

The framed opening shall be approximately 38.00 inches (965.20 mm) wide and 27 inches (685.80 mm) high.

The rear center compartment shall be 25.5" deep.

One (1)
37-10-0102

REAR COMPARTMENT DOOR

A non-locking R•O•M Corporation Series IV roll-up shutter door shall be installed. Each shutter slat, track, bottom rail, and drip rail shall be constructed from anodized 6063 T6 aluminum.

Shutter slats shall feature a double wall extrusion 0.315 inches thick with a concave interior surface to minimize loose equipment jamming the shutter door closed. Shutter slats shall feature an interlocking end shoe to prevent side to side binding of the shutter door during operation. Slat must have interlocking joints with an inverted locking flange. Slat inner seal shall be a one piece PVC extrusion; seal design shall be such to prevent metal to metal contact while minimizing dirt and water from entering the compartment.

Shutter door track shall be one piece design with integral overlapping flange to provide a clean finished look without the need of caulk. Door track shall feature an extruded Santoprene rubber double lip low profile side seal with a silicone co-extruded back to reduce friction during shutter operation.

Shutter bottom rail shall be a one piece double wall extrusion with integrated finger pull. Finger pull shall be curved upward with a linear striated surface to improve operator grip while operating the shutter door. Bottom rail shall have a smooth contoured interior surface to prevent loose equipment from jamming the shutter door. Bottom rail seal shall be made from Santoprene; it will be a double "V" seal to prevent water and debris from entering compartment. Bottom rail lift bar shall be a one piece "D" shaped aluminum extrusion with linear striations to improve operator grip during operation. Lift bar shall have a wall thickness of 0.125 inches. Lift bar shall be supported by no less than two pivot blocks; pivot blocks shall be constructed from Type 66 Glass filled reinforced nylon for superior strength. Bottom rail end blocks shall have incorporated drain holes which will allow any moisture that collects inside the extrusion to drain out.

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Shutter door shall have an enclosed counter balance system. Counter balance system shall be 4.00 inches in diameter and held in place by 2 heavy duty 18 gauge zinc plated plates. Counter balance system shall have 2 over-molded rubber guide wheels to provide a smooth transition from vertical track to counter balance system.

One (1)
37-41-0005

REAR COMPARTMENT DOOR FINISH

The rear center compartment door shall be satin aluminum finish.

One (1)
37-42-0010

ROLL-UP DOOR PROTECTOR

There shall be a protective cover installed under the rear compartment door roll to protect the door in the rolled up position.

One (1)
37-42-0100

ROLL-UP DOOR PROTECTOR FINISH

The roll-up door protector shall be left Natural finish.

One (1)
37-96-0015

DOOR OPEN INDICATOR

Each roll up door shall have an integral door open indicator magnet in the lift bar.

If the door is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the "hazard light" in the cab to alert the crew.

One (1)
37-50-0015

FUEL TANK ACCESS

There shall be a removable panel located on the interior back wall of the rear center compartment for maintenance access to the chassis fuel tank.

One (1)

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37-65-0010

REAR COMPARTMENT PARTITIONS

The rear center compartment of the apparatus shall have permanent partitions installed on each side to increase utilization of the rear center area and to block access to either of the side compartments. The partitions shall be constructed of the same materials as used in the body structure and shall be welded in place to form permanent compartmentation.

One (1)

37-98-0010

SILL PLATES

Brushed stainless steel sill plates shall be installed at the bottom of each body compartment door opening.

One (1)

70-30-0300

COMPARTMENT LIGHTING

Two (2) LED Tube lights model #RX-15T16-5050 shall be installed in each body compartment. The tube lights shall be centered vertically along each side of the door framing and at maximum length available to fit the opening.

The lights in each compartment shall be on a separate circuit, turning on only those lights that have open compartment doors.

One (1)

38-10-0140

REAR TAILBOARD

The rear of the apparatus body shall be vertical in design - otherwise known as a 'flat-back'.

The rear tailboard shall be fabricated of the same tubular materials as used in the apparatus body.

The tailboard shall be two (2) independent assemblies welded to the rear body structural framing to provide body protection and a solid rear stepping platform. The center section shall be framed for a slide out platform.

The rear step shall be designed to incorporate "crush zone" technology. This idea incorporates lighter materials in the tailboard than the body structure so the step will "crush" in a collision before the body structure.

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On the rear body surface, a sign shall be attached that states: "DO NOT RIDE ON REAR STEP, DEATH OR SERIOUS INJURY MAY RESULT."

The rear tailboard and body shall be constructed such that the angle of departure shall be no less than 8 degrees at the rear of the apparatus when fully loaded (NFPA) 1901, Standard for Automotive Fire Apparatus.

One (1)
38-11-0120

TAILBOARD LENGTH

The rear tailboard shall be approximately 13.50 inches (342.90 mm) deep and shall incorporate a ventilated "Diamondback" material stepping surface bolted in place which spans the full width of the apparatus on non-recess designs, and as wide as possible on inset recess designs. The extruded stepping surface shall be completely enclosed by the supporting structural framework to minimize damage.

The ventilated "Diamondback" material shall be capable of being easily replaced if necessary, using only hand tools. The framework shall be covered with an adhesive tape providing an aggressive traction surface. Use of any aluminum diamond plate material on these areas shall not be acceptable.

S One (1)
53-25-1005

SLIDE OUT PLATFORM

One (1) slide out platform, utilizing an OnScene Solutions brand slide shall be installed at the center of the rear tailboard, approximately 1.00 inch (25.4 mm) below the split outward tailboard sections.

The platform shall be 43.00 inches wide and shall extend approximately 20.00 inches from the stowed position. The platform stepping surface shall be constructed of "Aluminum Diamond Grip Strut" material with adhesive tape covering the frame work.

The face of the platform shall have no rub rail installed for ease of deployment.

The platform shall lock into place while in the extended and stowed positions. There shall be a reinforcement channel on the back of the step.

If the slide out platform is not properly stowed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the hazard light in the cab to alert the crew.

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One (1)
39-01-0005

WHEEL WELLS

Wheel wells shall have semicircular black polymer composite inner liners that are bolted to the wheel well panel and supported inboard by brackets that are connected to the body framework. Each wheel well shall be a continuous piece with no breaks or ledges where road grime or debris may accumulate. This liner shall be removable for access to suspension assembly for repairs. There shall be no exception to the bolted wheel well inner liner requirement.

One (1)
39-04-0005

WHEEL WELL MODULES

The body wheel well area shall be fabricated of same material type as the body and finish painted. There shall be “smart storage” compartmentation features incorporated on each side of the apparatus body wheel well modules to utilize and maximize storage space availability.

One (1)
39-06-0005

LEFT FRONT WHEEL WELL

There shall be provisions in the wheel well on the left side in front of the axle.

One (1)
39-07-0105

SCBA COMPARTMENT

The compartment shall hold three (3) 6.75 inch (171.45 mm) Diameter x 24.00 inch (609.60 mm) long SCBA bottles with 1.00 inch (25.40 mm) nylon safety loops installed.

One (1)
39-06-0100

LEFT REAR WHEEL WELL

There shall be provisions in the wheel well on the left side behind the axle.

One (1)
39-07-0715

FUEL FILL

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The fuel fill shall be located within the smart storage compartment.

One (1)
56-05-1000

SMART STORAGE FUEL FILL ASSEMBLY

There shall be a fuel fill assembly located on the apparatus body accessing the chassis supplied fuel tank. The assembly shall be located in the rear Smart Storage module specified behind the rear axle.

There shall be a drain in the fuel fill assembly to allow over flow to drain on the back side of the apparatus body. The fuel fill cap shall be manufactured of plastic materials, green in color and equipped with a tether.

The fuel fill cap shall be labeled "DIESEL FUEL". The stainless steel fuel fill neck shall have a .375 inch inside diameter vent line installed from the top of the fuel tank to the fill tube.

One (1)
39-06-0150

RIGHT FRONT WHEEL WELL

There shall be provisions in the wheel well on the front side in front of the axle.

One (1)
39-07-0105

SCBA COMPARTMENT

The compartment shall hold three (3) 6.75 inch (171.45 mm) Diameter x 24.00 inch (609.60 mm) long SCBA bottles with 1.00 inch (25.40 mm) nylon safety loops installed.

One (1)
39-06-0250

RIGHT REAR WHEEL WELL

There shall be provisions in the wheel well on the right side behind the axle.

One (1)
39-07-0105

SCBA COMPARTMENT

The compartment shall hold three (3) 6.75 inch (171.45 mm) Diameter x 24.00 inch (609.60 mm) long SCBA bottles with 1.00 inch (25.40 mm) nylon safety loops installed.

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One (1)
39-08-0025

SMART STORAGE DOORS

The smart storage compartment doors shall be smooth and painted to match body job color. Where a module storage compartment is specified, a hinged door shall be provided. Each compartment door shall be secured with a round chrome latch.

S One (1)
39-09-0010

DOOR OPEN INDICATOR

There shall be a "**inductive** proximity" style switch installed for each smart storage compartment door.

If the door is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the "hazard light" in the cab to alert the crew.

One (1)
39-15-0015

FENDERETTES

Two (2) polished aluminum fenderettes shall be provided and installed on body rear wheel well openings, one (1) each side. Rubber welting shall be provided between the body and the crown to seal the seam and restrict moisture from entering. A dielectric barrier shall be provided between the fender crown fasteners (screws) and the fender sheet metal to resist deterioration.

S One (1)
43-10-0165

LEFT SIDE UPPER STORAGE COMPARTMENTS

Two (2) storage compartments shall be provided and installed on the upper left side of the apparatus body. The approximate length of each compartment shall be 80.00 inches long. The depth of the compartments shall be determined by the hose bed wall height. The compartment shall extend beyond the apparatus body roof and walking surface and provide a vertical edge to prevent water intrusion. An adhesive backed bulb seal shall be applied to the underside perimeter of the lid, excluding the hinge side, to ensure a positive seal.

The formed door incorporating broken edges of 45 degrees or less shall extend over the compartment edge approximately 1.00 inch to minimize water penetration. Each door shall be secured by push button weather resistant (C5) South Co Brand style latches; the door shall be

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fabricated of embossed aluminum diamond plate and be secured by an aluminum hinge. If deemed necessary due to width, the doors shall be reinforced to act as a suitable walking or standing surface. Each door shall be held open by a gas charged strut on each side and permit full access to the compartment along its length. The struts shall be concealed inside the compartment when the door is in the closed position. The compartments shall be constructed as part of the body and be accessible from the hose bed area.

The upper compartments shall not be vented. There shall be plastic tubing installed for adequate drainage that is routed from corners of the upper compartment floors down to below the lower compartment floor level.

S One (1)
43-10-0175

RIGHT SIDE UPPER STORAGE COMPARTMENTS

Two (2) storage compartments shall be provided and installed on the upper right side of the apparatus body. The approximate length of each compartment shall be 80.00 inches long. The depth of the compartments shall be determined by the hose bed wall height. The compartment shall extend beyond the apparatus body roof and walking surface and provide a vertical edge to prevent water intrusion. An adhesive backed bulb seal shall be applied to the underside perimeter of the lid, excluding the hinge side, to ensure a positive seal.

The formed door incorporating broken edges of 45 degrees or less shall extend over the compartment edge approximately 1.00 inch to minimize water penetration. Each door shall be secured by push button weather resistant (C5) South Co Brand style latches; the door shall be fabricated of embossed aluminum diamond plate and be secured by an aluminum hinge. If deemed necessary due to width, the doors shall be reinforced to act as a suitable walking or standing surface. Each door shall be held open by a gas charged strut on each side and permit full access to the compartment along its length. The struts shall be concealed inside the compartment when the door is in the closed position. The compartments shall be constructed as part of the body and be accessible from the hose bed area.

The upper compartments shall not be vented. There shall be plastic tubing installed for adequate drainage that is routed from corners of the upper compartment floors down to below the lower compartment floor level.

Two (2)
44-45-0035

UPPER STORAGE COMPARTMENT LIGHTING

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One (1) LED Tube light model #RX-15T16-5050 shall be installed in each upper body storage compartment along the hinge side of the cover. The tube light shall be of maximum length available to fit in the compartment.

The lights shall be on a separate circuit, activating only those lights that have an open compartment door.

One (1)
50-15-3000

HOSE STORAGE

A hosebed shall be provided and installed with the minimum capacity as required by (NFPA) 1901, Standard for Automotive Fire Apparatus.

The hosebed shall have a slotted .25 inch (6.35 mm) aluminum flooring installed to allow drainage through the tank cavity to the ground below.

The aluminum flooring shall be manufactured in discrete sections to allow for ease of removal and stability. The area shall be free of sharp edges to protect the hose when loading and unloading.

S One (1)
30-14-0005

HOSE BED AREA

The hosebed area of the apparatus shall be overlaid with brushed stainless steel material.

Hose bed Floor to be 53" from tail board. Keeping the bottom of Ladder box at 48" from tailboard and also the Rear intermediate step just below the ladder box.

One (1)
30-14-2000

HOSEBED AREA TRIMMED W/ BRUSHED SST

The vertical corners at the back hosebed shall be trimmed with brushed stainless steel. The trim shall extend from the hose floor level up to the top edge of the body side.

One (1)
50-12-3000

HOSE BED WALL HEIGHT

The walls of the hose bed shall be 85.00 inches (2.16 m) tall, measured from the bottom edge of the compartments to the top flange.

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S One (1)
50-32-0105

'A' FRAME HOSEBED COVER

There shall be a double door cover provided and installed which overlays a tubular structure for the hosebed.

Each cover shall be capable of supporting 600 pounds (272 kg) while standing on the cover. Each cover shall be capable of being opened independently and rest on a tubular structure which runs down the middle of the hose bed with a truss support at the rear of the apparatus. The covers in the closed position shall be higher in the center of the hose bed than they are at the hinged end to create an 'A' frame appearance and to aid in water run off.

The front and rear of hose bed covers shall have vertical end caps that extend down to create a level line of diamond plate the width of the covers.

The doors shall be fabricated of .125 inch (3.18 mm) embossed aluminum diamond plate with full length two-piece stainless steel piano hinges.

The hosebed covers shall be wired to the hazard light in chassis cab. **inductive proximity** switches shall be installed at the hosebed cover door hinges. If the door is not properly closed with the parking brake released, it shall activate the "hazard light" in the cab to alert the crew.

To aid in opening and closing the cover, there shall be two (2) grab handles, one (1) for each cover, installed on the rear facing vertical end cap.

One (1)
50-33-0005

MANUAL RAISED COVERS

Each cover shall be raised independently and manually. There shall be a gas shock hold open device provided to hold each cover in the open position.

One (1)
50-34-0105

REAR HOSEBED RESTRAINT

There shall be a vinyl flap that extends down over the rear of the hosebed provided and installed with the apparatus. The cover shall be fastened by an elastic shock cord sewn into the tarp with brass grommets where the shock cord passes through the hosebed cover. Hooks shall be provided

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on the lower corners to provide a means of attaching the cover to the apparatus. The hooks shall be made of cast aluminum.

One (1)
50-34-0210

REAR FLAP COLOR

The rear flap shall be red.

One (1)
70-31-5800

LED HOSE BED COVER LIGHTING

There shall be four (4) Fire Research FireFly LED lights model #100-Q01 installed to the underside of each hose bed cover and evenly spaced from front to back. The lights shall have four (4) white LEDs each that generate a rated 650 lumens at 12 vdc/0.8amps or 24 vdc /0.4 amps.

The lights shall be on a circuit and turning on only when the cover is opened.

One (1)
50-15-3305

HOSEBED DUNNAGE AREA

A vertical bulkhead shall be provided and installed at the front of the hosebed area, behind the water tank fill tower, forming a storage area that is separated from the hose bed.

The rear face of the bulkhead shall serve as a mounting surface for the hose bed dividers, resulting in the ability to move any hose bed divider across the entire width of the hose bed.

S One (1)
50-15-4005

HOSEBED DIVIDER(S)

There shall be a **28.00 inch high** adjustable divider provided and installed in the hosebed area of the apparatus body.

The divider shall be fabricated of .25 inch (6.35 mm) thick aluminum plate with a double sided reinforcement and attached to the adjustable slide rails. The rear of the divider shall have a radius to provide a smooth corner. Hose payout shall be unobstructed by the divider.

There shall be a total of one (1) provided and installed in the hosebed.

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One (1)
50-15-9E00

HOSE LOAD

The hosebed shall accommodate the following hose loads:

One (1)
50-16-0005

BAY 1:

One (1)
50-19-0600

-600 feet of 2.50 inch hose

One (1)
50-16-0010

BAY 2:

One (1)
50-19-0600

-600 feet of 2.50 inch hose

One (1)
50-16-0015

BAY 3:

S One (1)
50-17-0200

-200 feet of 1.75 inch hose, **above the ladder compartment.**

One (1)
61-00-1600

TANK CAPACITY

The tank shall be 500 gallons (1893 liters) in capacity.

One (1)
61-00-0050

PRO POLY POLYPRENE TANK

The water tank shall be designed to utilize cavities that have commonly been wasted space. The

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water tank shall extend up and over the rear center compartment to just behind the rear body wall. The water tank shall fill the void between the main hose bed floor and the top of the rear center compartment. This tank design shall provide for a lower overall tank height, resulting in a lower overall main hose bed height. In addition, this design shall create a lower center of gravity of the vehicle, for improved vehicle handling.

TANK CONSTRUCTION

The booster tank shall be constructed of .50 inch (12.70 mm) thick Polyprene sheet stock which is a non-corrosive stress relieved thermoplastic. It shall be designed to be completely independent of the body and compartments. All joints and seams are extrusion welded and/or contain the "Bent Edge" and tested for maximum strength and integrity. The top of the booster tank is fitted with lifting eyes designed with a 3 to 1 safety factor to facilitate tank removal.

COVER

The tank cover shall be constructed of .50 inch (12.70 mm) thick Polyprene and shall be recessed. A minimum of two lifting dowels shall be drilled and tapped .50 inch (12.70 mm) x 2.00 inch (50.00 mm) to accommodate the lifting eyes.

BAFFLES

The swash partitions shall be manufactured from .50 inch (12.70 mm) Polyprene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments to provide maximum water flow. All swash partitions interlock and are welded to one another as well as to the walls of the tank.

MOUNTING

The tank shall have a reinforced .75 inch (19.10 mm) floor for added strength and durability. The tank shall be isolated from the body substructure cross members with .50 inch (12.70 mm) x 2.50 inch (65.00 mm) rubber strips that are 60 durometer in hardness. The tank shall sit nested inside the center body substructure and shall be completely removable without disturbing the body side panels. Tank stops on all four sides will keep the tank from shifting front to back or side to side.

One (1)
61-00-0100

FILL TOWER

The fill tower opening shall be approximately 13.00 inches (330.20 mm) x 12.00 inches (304.80 mm).

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The tower will have a .25 inch (6.40 mm) thick removable Polyprene screen and a Polyprene hinged type cover that will open if the tank is filled at an excess rate. There shall be a removable .25 inch (6.40 mm) thick Polyprene screen to prevent debris from falling into the tank.

The fill tower shall have a 4.00 inch (100.00 mm) overflow that will discharge underneath the tank, behind the rear axle(s), avoiding the chassis fuel tank and suspension components where applicable. The overflow shall terminate above the tank water level when filled to the rated capacity.

One (1)
61-00-0200

FILL TOWER LOCATION

The fill tower shall be located to the left side at the front of the hose bed.

One (1)
61-00-0300

SUMP

The sump will be constructed in an 8.00 inch (203.20 mm) x 16.00 inch (406.40 mm) x 3.00 inch (77.00 mm) deep area.

The construction material shall utilize .50 inch (12.70 mm) Polyprene and be located in line with the tank suction valve. There shall be a 4.00 inch (100.00 mm) schedule 40 Polyprene tube installed that will run from the suction outlet to the sump location. The tank will have an anti-swirl plate located approximately 2.00 inch (50.00 mm) above the sump.

One (1)
61-00-0310

SUMP PLUG

The sump shall have a 3.00 inch (77.00 mm) plug for use in draining and cleaning out the tank.

One (1)
61-00-0400

OUTLETS

In addition to the tank suction valve outlet located in the sump, there shall be an outlet provided for the tank fill valve. If there are any additional options selected (such as an extra tank suction or direct tank inlets), there shall be additional outlets provided to accommodate these items.

S One (1)

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62-25-0015

LADDER STORAGE

The ground ladders shall be stored within a compartment located **above the booster tank in the hosebed.**

All items shall be stored in their own independent section to allow one item to be removed without disturbing another. There shall be polypropylene slide angles installed in each section where applicable, and for the ladders to slide on. There shall be a stop in the front of each section to prevent the items from sliding forward.

There shall be a **vertically** hinged door, **smooth aluminum covered with chevron** on the rear of the compartment with two (2) push button type latches and a chrome handle centered between the push button latches.

If the door is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the “hazard light” in the cab to alert the crew.

One (1)

62-25-1200

LADDER COMPARTMENT MATERIAL

The ground ladder compartment shall be fabricated of .125 inch smooth aluminum.

S One (1)

62-27-0030

LADDER COMPARTMENT LOCATION

The ground ladder compartment shall be **located vertically in the hose bed.**

One (1)

62-29-0010

LADDER COMPARTMENT END CAP

The compartment shall be enclosed through the tank to the pumphouse, and incorporate a removable weather resistant end cap, providing access for serviceability, drainage and cleaning.

One (1)

62-35-0015

LADDER COMPLIMENT

The following ladders shall be supplied with the apparatus:

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One (1)
90-11-0070

One (1) Duo-Safety 24 foot (7.0 m) two (2) section aluminum extension ladder(s), model 900A.

One (1)
90-12-0030

One (1) Duo-Safety 14 foot (4.0 m) aluminum roof ladder(s) with folding hooks, model 775A.

One (1)
90-13-0030

One (1) Duo-Safety 10 foot (3.0 m) aluminum attic ladder(s), model 585A.

One (1)
62-38-0010

PIKE POLE STORAGE

There shall be three (3) aluminum tubes provided for storage of the pike poles installed with the ground ladder compliment.

The following pike poles shall be supplied with the apparatus:

One (1)
90-21-0015

One (1) Duo-Safety 10 foot (3.0 m) pike pole(s) with fiberglass handle

One (1)
90-21-0020

One (1) Duo-Safety 8 foot (2.5 m) pike pole(s) with fiberglass handle

One (1)
90-21-0025

One (1) Duo-Safety 6 foot (2.0 m) pike pole(s) with fiberglass handle(s)

One (1)
62-40-0005

STORAGE ABOVE LADDER COMPARTMENT

The inner side wall of the ladder compartment shall be extended vertically to the same height as the body side sheet to create a dunnage area above the ground ladder compartment. This storage area shall be open to the top and to the rear.

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The sheet shall be overlaid with the matching material of the hose bed interior side sheets.

There shall be slotted hose bed flooring installed with approximately 1.00 inch clearance above the ladder box allowing for drainage.

One (1)
66-15-0015

EQUIPMENT DOOR STRIPING

Retro-Reflective striping in a chevron pattern matching the rear layout shall be provided on the equipment access door.

S One (1)
66-04-0220

SUCTION HOSE STORAGE

One (1) suction hose compartment shall be provided **inboard** side of the **upper left storage**, manufactured integral to the upper storage compartment.

All items shall be stored in their own sleeve to allow one item to be removed without disturbing the others. There shall be a stop located in the front section to prevent each item from sliding forward.

The interior floor of the compartments shall be lined with black ABS plastic for ease of storing and removing the suction hose.

One (1)
66-05-0070

ENCLOSED SUCTION HOSE COMPARTMENTS DOOR

Each door for the suction hose compartments shall be fabricated of .125 aluminum, hinged on the bottom edge and shall be equipped with one (1) push button style latch.

If the door is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the "hazard light" in the cab to alert the crew.

One (1)
66-15-0015

EQUIPMENT DOOR STRIPING

Retro-Reflective striping in a chevron pattern matching the rear layout shall be provided on the equipment access door.

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One (1)
66-05-0105

ENCLOSED SUCTION HOSE COMPARTMENT LOCATION

The compartment shall be located in the top upper left body side of the apparatus.

One (1)
66-07-0015

SUCTION HOSE

The following suction hose shall be provided to be stored in the compartment layout as specified.

One (1)
90-31-0110

There shall be One (1) 10 foot length(s) of 6.00 inch clear PVC suction hose with lightweight couplings provided with the apparatus.

One (1)
51-05-0005

COMPARTMENT UNISTRUT

Vertically mounted Unistrut shall be installed in all apparatus body compartments, in the upper and lower sections, to accommodate the installation of shelves, trays, and or other miscellaneous equipment.

One (1)
52-13-0010

OVER-WHEEL COMPARTMENT PARTITIONS

Compartment partitions fabricated of the same material as the body shall be permanently installed in the left over-wheel compartment, right over-wheel compartment, or both where applicable by design.

The partitions shall be permanently installed in place and flush to the forward and rearward frame openings.

The partitions shall aid in keeping loose equipment from falling into the fore and aft compartments.

One (1)
52-15-0105

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COMPARTMENT FLOOR MATTING

Turtle Tile floor tiles shall be installed on the floor of all exterior compartments. The tile shall be custom fitted to the interior compartment floor construction to protect the entire floor surface from equipment damage.

One (1)
52-15-0505

FLOOR MATTING COLOR

The floor matting shall be black in color.

One (1)
52-15-1110

FLOOR EDGING

Tapered tile edging shall be installed along the matting edges. The beveled tile shall be custom fitted to the matting installed in the interior compartment. The tapered tile shall aid in the removal and installation of equipment while protecting the floor edges from equipment damage.

One (1)
52-15-1505

FLOOR EDGING COLOR

The tapered edges shall be black.

One (1)
52-16-0020

SHELVING

The shelving shall be made out of .190 inch (4.83 mm) smooth aluminum sheet material with a formed 2.00 inch (50.80 mm) lip on the front and back.

The side mounting brackets shall be provided for vertical adjustment.

The following shelving shall be provided:

Six (6)
52-16-0310

UPPER FULL DEPTH SHELVING

A full width x full depth shelf shall be provided and installed in the upper area of the

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compartment as specified.

There shall be a total quantity of six (6) provided.

Two (2)
52-40-0105

- Two (2) located in the L-1 compartment.

One (1)
52-40-0110

- One (1) located in the L-2 compartment.

Two (2)
52-40-0205

- Two (2) located in the R-1 compartment.

One (1)
52-40-0215

- One (1) located in the R-3 compartment.

One (1)
52-16-0510

REAR COMPARTMENT SHELF

An adjustable shelf installed in the rear center compartment, B-1, of the apparatus. Each shelf shall be as wide and deep as possible.

There shall be a total quantity of one (1) provided.

One (1)
52-22-0020

ROLL OUT TRAY(S)

Each tray shall be fabricated of .190 inch (4.83 mm) thick 3003 grade or higher aluminum sheet material with four (4) 3.00 inch (76.20 mm) side flanges, corner welded for maximum strength and shall be as wide and as deep as compartment allows.

The following shall be supplied:

One (1)
52-23-0205

ROLL-OUT ASSEMBLY/AUSTIN

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The floor mounted tray shall be full width and shall be secured to an Austin Hardware 22.00 inch (558.80 mm) long ball bearing "heavy duty" slide assembly. The slide assemblies shall incorporate cadmium plated ball bearing roller slides and a lock-in, lock-out front drawer release system (FDR).

The tray shall have a 300# capacity and 100% extension.

There shall be a total quantity of one (1) provided.

One (1)
52-40-0305

- One (1) located in the rear center compartment.

Two (2)
52-23-0405

ROLL-OUT ASSEMBLY/AUSTIN

The adjustable tray shall be full width and shall be secured to an Austin Hardware 22.00 inch (558.80 mm) long ball bearing "heavy duty" slide assembly. The slide assemblies shall incorporate cadmium plated ball bearing roller slides and a lock-in, lock-out front drawer release system (FDR).

The tray shall have a 300# capacity and 100% extension and adjustable height utilizing unistrut materials.

There shall be a total quantity of two (2) provided.

One (1)
52-40-0105

- One (1) located in the L-1 compartment.

One (1)
52-40-0205

- One (1) located in the R-1 compartment.

Two (2)
52-25-5105

ROLL OUT/TILT DOWN TRAY

The roll out/tilt mounted tray shall be full width and depth and shall be secured to a (Slide Master) roll-out system. The slide unit shall extend down 30-degrees and 90% extension with a

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250# slide capacity. The slide assemblies shall incorporate cadmium plated ball bearing roller slides and a latching device to hold the tray in the stored position.

The roll out tilt tray assembly shall be mounted to the floor of the compartment specified.

There shall be a total quantity of two (2) provided.

Two (2)
52-24-5010

Each slide shall be held in the locked position by a lever actuated twist lock.

Two (2)
52-24-6010

Each Slide Master slide shall be wet painted {silver} in color.

One (1)
52-40-0110

- One (1) located in the L-2 compartment.

One (1)
52-40-0210

- One (1) located in the R-2 compartment.

Two (2)
52-25-7105

ROLL OUT/TILT DOWN TRAY

The roll out/tilt mounted tray shall be full width and depth and shall be secured to a (Slide Master) roll-out system. The slide unit shall extend down 30-degrees and 90% extension with a 250# slide capacity. The slide assemblies shall incorporate cadmium plated ball bearing roller slides and a latching device to hold the tray in the stored position.

The roll out tilt tray assembly shall be mounted to the unistrut of the compartment specified so that it is vertically adjustable.

There shall be a total quantity of two (2) provided.

Two (2)
52-24-5010

Each slide shall be held in the locked position by a lever actuated twist lock.

Two (2)

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52-24-6010

Each Slide Master slide shall be wet painted {silver} in color.

One (1)

52-40-0115

- One (1) located in the L-3 compartment.

One (1)

52-40-0210

- One (1) located in the R-2 compartment.

One (1)

52-26-0505

SHELF AND ROLL OUT TRAY MATTING

Any shelf or tray provided shall have Turtle Tile floor tiles installed. The tiles shall be custom fitted for durability and a pleasing appearance.

One (1)

52-26-1220

MATTING COLOR

The matting shall be black in color.

S One (1)

52-41-1010

BUNKER STORAGE

The L3 and R3 compartments shall be divided into compartments for the storage of bunker gear. The dividers shall be constructed of aluminum and welded to hold there proper positions.

There shall be six (6) equal compartments in the **lower** L3 compartment using the full height area upper section.

There shall be Nine (9) equal compartments in the R3 compartment using the full depth of the compartment.

The top of the bunker storage shall attach to the bottom of the shelf that is in the upper compartment of L3 and R3. The bins will be approximately 15"W x 18"H.

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S One (1)
52-41-1305

BUNKER STORAGE FINISH

Each Bunker Storage shall have a dual-action sanded finish.

S One (1)
52-85-0020

EXTINGUISHER STORAGE RACK

S Two (2)
52-85-0105

There shall be two (2) free standing .125 smooth aluminum ABC Fire Extinguisher/ H2o Extinguisher Can storage racks installed with the apparatus.

The storage racks shall be mounted on a slight incline towards the compartment inboard wall. Each individual bottle storage compartment shall incorporate a 1.00 inch nylon safety loop to be attached to the top of the bottle to prevent the bottles from sliding forward when stored.

The bottle storage openings shall be have an inside dimension of minimum 10.00 inches wide by 10.00 inches high with a maximum depth not to exceed compartment interior depth.

The storage racks shall have provisions to hold the following Fire Extinguishers: Qty 5 water 2.5 Gal cans/ and Qty 3 ABC 20LB Extinguishers.

S Two (2)
52-85-0305

Each rack shall hold four (4) extinguishers in a horizontal orientation.

S Two (2)
52-85-1005

EXTINGUISHER RACK LOCATION

The Extinguisher storage racks shall be located in the L-1 and R1 compartment.

S Two (2)
52-85-1300

The Extinguisher storage racks shall be mounted on the compartment floor.

S One (1)
52-85-1405

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EXTINGUISHER STORAGE RACKS FINISH

The **Extinguisher** storage **racks** shall have a dual-action sanded finish on the exterior surfaces.

One (1)
53-00-0120

SIDE RUB RAILS (OVERLAID WITH BRUSHED STAINLESS STEEL)

The lower edge of the apparatus shall be trimmed with rub rails to absorb minor damage while protecting the body. The rub rails shall be fabricated of 1.00 inch by 1.50 inch solid aluminum material and overlaid with brushed stainless steel material with Sikaflex and welded end caps to provide a pleasing appearance.

The rub rails shall not be constructed as an integral part of the apparatus body structure, allowing each rub rail to be easily removed in the event of damage.

The rub rails shall be secured with stainless steel fasteners and spaced away from the apparatus body with .50 inch nylon spacers to help absorb moderate side impacts and prevent the collection of water and debris for easier cleaning.

One (1)
53-15-0020

FOLDING STEPS

Cast Products, Inc. model #SP6610-1CH, dual LED illuminated folding steps, made of high strength die cast aluminum with protective chromed coating, pyramid tread platform, conforming to current NFPA requirements, shall be provided and installed on the apparatus as specified.

The steps shall have a minimum of 46 sq. inches of surface area capable of sustaining a 1200 lb. static load. The steps shall be mounted no more than 18" inches between each step.

One (1)
53-15-1320

STEP LOCATION

Four (4) folding steps shall be installed on the right forward vertical wall of the front compartment.

S One (1)
53-30-1205

10" HANDRAILS

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One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded aluminum with a knurled grip, full length red reflective strip and full length illuminated LED light strip shall be installed **on top of the pump house**. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

One (1)
58-60-0005

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

One (1)
53-15-1220

STEP LOCATION

Four (4) folding steps shall be installed on the left forward vertical wall of the front compartment.

S One (1)
53-30-1205

10" HANDRAILS

One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded aluminum with a knurled grip, full length red reflective strip and full length illuminated LED light strip shall be installed **on top of the pump house**. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

One (1)
58-60-0005

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

One (1)
53-20-0110

INTERMEDIATE REAR STEP

The rear step shall be 8.00 inches (203.20 mm) in depth.

The step shall be mounted on the flat back of the apparatus with gusset-type mounting to provide sufficient support for loading hose and gaining access to the hose bed area.

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The platform stepping surface shall be constructed of .188 inch (4.76 mm) embossed aluminum diamond plate materials.

One (1)
53-20-0505

INTERMEDIATE REAR STEP LOCATION

The rear step shall be located as high as possible beneath the hose bed floor.

The horizontal handrail specified shall be integrated into the step by utilizing hand hold cutouts in the horizontal stepping surface.

There shall be two (2) cutouts provided measuring approximately 3.00 inches deep.

One (1)
58-50-0005

STEP LIGHTING

One (1) light shall be installed to illuminate the stepping areas as provided. The light shall be a LED Tube light model #RX-15T16-5050-21CM with an aluminum mounting bezel.

The light shall be directed towards and positioned above the stepping surfaces.

One (1)
58-60-0005

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

One (1)
53-22-0505

"SMART" ALUMINUM ACCESS LADDER

A "Smart" aluminum fold down access ladder shall be provided at the rear of the apparatus. The ladder rungs shall be constructed of a slip resistant stepping material.

The upper section shall be permanently secured to the body with a mechanical style hinge and fasteners that allow the ladder to extend down and out to the ground from the apparatus body. When deployed, the fold-down steps shall create a safe and comfortable climbing angle.

Two (2) gas cylinders shall be installed to assist in the deployment of the lower fold-down section. A mechanical locking mechanism shall be provided to retain the ladder in a stowed and

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secured position when in transit or when not in use. Access ladder rung illumination shall be provided during low light conditions.

If the step is not properly stowed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the hazard light in the cab to alert the crew.

One (1)
53-22-1010

ACCESS LADDER LOCATION

The ladder shall be installed at the rear of the apparatus on the right side.

One (1)
58-50-0005

STEP LIGHTING

One (1) light shall be installed to illuminate the stepping areas as provided. The light shall be a LED Tube light model #RX-15T16-5050-21CM with an aluminum mounting bezel.

The light shall be directed towards and positioned above the stepping surfaces.

One (1)
58-60-0005

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

One (1)
53-25-0120

UNDERBODY SLIDE OUT PLATFORM

There shall be two (2) slide out platforms installed under the front body compartments, one (1) each side, under L-1 and R-1.

Each platform shall be as wide as possible to the width of the compartment and shall be approximately 16.00 inches (406.40 mm) deep when extended.

Each platform shall lock into place while in the extended and stowed positions. There shall be a reinforcement channel on the back of each step.

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If the slide out step is not properly stowed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the hazard light in the cab to alert the crew.

Two (2)
53-25-0410

SLIDE OUT PLATFORM

Each slide out shall be a OnScene Solutions brand slide with the platform surface constructed of "Aluminum Diamond Grip Strut" material to provide a slip resistant stepping surface with adhesive tape covering the frame work.

One (1)
53-30-1005

HANDRAILS KNURLED ALUMINUM ILLUMINATED

Handrails shall be 1.25 inches in diameter, constructed of extruded aluminum with a knurled grip, full length red reflective strip and full length illuminated LED light strip.

There shall be a 2.00 inch minimum clearance between the handrail and the body. The light shall illuminate an area adjacent to the handrail and in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus, standard requirements.

The following handrails shall be installed at the approximate lengths noted:

S One (1)
53-30-1330

42" HANDRAILS

Three (3) 42.00 inch vertical handrails shall be installed, one (1) on each side of the folding Ladder on the rear of the apparatus and One on Left side of hose bed vehicle mounted.

One (1)
53-31-0500

Each handrail LED light strip specified shall be white/clear in color.

One (1)
53-32-0005

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

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One (1)
56-58-0025

TOW EYES

There shall be two rear tow eyes installed to the frame rails, one each side, accessible below the rear center compartment. They shall be manufactured of 1.00 inch plate steel and each plate shall be bolted to the chassis frame rail with a minimum quantity of (6) grade 8 bolts. The two plates shall be anchored together with 1.00 inch steel tubing to prevent swaying of the frame rails during a towing operation. All steel components shall be painted black.

S One (1)
70-01-0010

LOW-VOLTAGE ELECTRICAL SYSTEM

The apparatus shall be equipped with a Logic Controlled, Low-Voltage (12v) Electrical System, compliant with the latest revision of the (NFPA) 1901, Standard for Automotive Fire Apparatus.

The system shall be capable of performing total load management, load management sequencing, and load shedding via continuous monitoring of the low-voltage electrical system. In addition, the system shall be capable of switching loads (similar to operating as an emergency warning lamp flasher) eliminating the dependency on many archaic electrical components such as conventional flasher modules. The system shall also incorporate provisions for future expansion or system modification.

The low-voltage electrical system shall be designed to distribute the placement of electrical system hardware throughout the apparatus thereby enabling a smaller, optimized wire harness. The programmable, logic controlled system shall eliminate redundant electrical hardware such as extra harnesses, circuit boards, relays, circuit breakers, and separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs.

As-built electrical system drawings and an apparatus-specific reference of I/O shall be furnished in the final delivery manuals. These drawings shall illustrate the electrical system broken down into separate functions, or small groups of related functions. Drawings shall depict circuit numbers, electrical components and connectors from beginning to end. **A single drawing for all electrical circuits installed by the apparatus manufacturer shall not be accepted.**

Chassis provided Vista screen that is being shipped loose will be installed at the operators panel.

One (1)
70-10-0025

NODE

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An electrical distribution node or relay shall be installed in the below locations of the apparatus body.

The pump node shall be mounted as high as practical in the full depth portion of the right front compartment.

The rear body nodes shall be mounted as high and as far rearward as practical on the back wall of the rearmost compartment.

A protective cover shall be installed to prevent damage to the node or electrical system during equipment installation and or removal. Node covers shall be approximately 16.00 to 22.00 inches in length with an inspection hole positioned for view of the node indicator LED lights. The finish of the cover shall match the compartments interior finish. Node covers will not include any type of shelve mounting structure and shall limit the height of unistrut or shelf height within the compartments.

One (1)
70-36-1902

PERIMETER LIGHTS LOCATION

There shall be four (4) underbody perimeter lights installed on the apparatus positioned to provide illumination to the immediate ground area around the unit.

One (1) under each side at the front of the body and two (2) under the rear tailboard.

Four (4)
70-36-2280

PERIMETER LIGHTS

The underbody perimeter lights provided will be TecNiq model T44 series, 4" round, 8 diode LED lights.

One (1)
70-37-0020

PERIMETER LIGHTS ACTIVATION

The perimeter lights under the body shall illuminate the area with the activation of the chassis ground lights.

One (1)
72-2A-0010

UPPER LIGHTING PACKAGE

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The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the upper areas of the vehicle.

One (1)
72-2H-0120

UPPER ZONE B&D-FORWARD:

There shall be two (2) Whelen model M9 series LED lights with chrome bezels provided and installed with the apparatus.

There shall be one (1) each side of the body in the upper forward corners.

One (1)
75-01-5000

SIDE WARNING LIGHTS FLASH

The upper side lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors.

One (1)
75-02-8005

SIDE WARNING LIGHTS COLOR

The upper warning lights mounted on the side positions shall be red with clear lenses.

One (1)
72-2K-0120

UPPER ZONE B&D-REAR:

There shall be two (2) Whelen model M9 series LED lights with chrome bezels provided and installed with the apparatus.

There shall be one (1) each side of the body in the upper rear corners.

One (1)
75-01-5000

SIDE WARNING LIGHTS FLASH

The upper side lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors.

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One (1)
75-02-8005

SIDE WARNING LIGHTS COLOR

The upper warning lights mounted on the side positions shall be red with clear lenses.

One (1)
75-02-1210

UPPER SIDE WARNING LIGHT SWITCH E-MASTER ONLY

The upper side warning lights shall be controlled through the master warning switch only. There shall not be a secondary switch.

One (1)
72-2M-1025

UPPER ZONE C:

There shall be two (2) Whelen model M9 series LED lights with chrome bezels, one (1) each side, provided and installed with the apparatus.

One (1)
75-01-0010

REAR WARNING LIGHTS FLASH

The rear upper lights shall feature multiple flash patterns including steady burn.

One (1)
75-02-9025

REAR WARNING LIGHTS COLOR

The upper warning lights mounted at the rear shall be red on the left and blue on the right side with clear lenses.

One (1)
75-02-1400

UPPER REAR WARNING LIGHT SWITCH E-MASTER ONLY

The upper rear warning lights shall be controlled through the master warning switch only. There shall not be a secondary switch.

One (1)
74-2A-1000

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LOWER LED WARNING LIGHTING

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the lower areas of the vehicle.

One (1)
74-2F-0710

LOWER ZONE B&D:

There shall be four (4) Whelen model M6 series LED lights with chrome bezels, two (2) each side, provided and installed with the apparatus.

One (1)
75-05-0207

SIDE WARNING LIGHTS FLASH

The lower side lights shall feature multiple flash patterns including steady burn.

One (1)
75-10-0310

SIDE WARNING LIGHTS COLOR

The lower side warning lights mounted on the side positions shall be red with clear lenses.

One (1)
75-15-0105

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the apparatus shall be mounted at the pump panel location and at the rear tailboard location.

One (1)
74-6J-0010

LOWER ZONES B&D CAST ALUMINUM LIGHT HOUSING

A cast aluminum angled light housing shall be used for the rearmost warning light in zones B&D to ensure the light is mounted as far rearward as possible.

One (1)
75-18-0105

LOWER SIDE WARNING LIGHT SWITCH E-MASTER ONLY

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The lower side warning lights shall be controlled through the master warning switch only. There shall not be a secondary switch.

One (1)
74-2J-0040

LOWER ZONE C:

There shall be two (2) Whelen model M6 series Super-LED lights with chrome bezels, one (1) each side, on provided and installed on the rear of the body.

One (1)
75-05-0407

REAR WARNING LIGHTS FLASH

The lower rear lights shall feature multiple flash patterns including steady burn.

One (1)
75-10-0630

REAR WARNING LIGHTS COLOR

The lower rear warning lights mounted at the rear shall be red on the left and blue on the right side with clear lenses.

One (1)
75-18-0205

LOWER REAR WARNING LIGHT SWITCH E-MASTER ONLY

The lower rear warning lights shall be controlled through the master warning switch only. There shall not be a secondary switch.

One (1)
75-20-0315

LED REAR TAIL LIGHT ASSEMBLY

There shall be Whelen M6-Series Super LED rear tail light assemblies provided and installed with the apparatus, one (1) each side at the rear.

The following shall be installed in the order as specified from top to bottom:

- One (1) #M6BTT LED red brake light
- One (1) #M6T LED series amber turn signal light
- One (1) #M6 BUW LED clear backup light

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One (1)
75-20-0555

MOUNTING ASSEMBLY

There shall be Whelen M6 series #M6FCV4 chrome flanges provided for each tail light assembly.

The upper most open cavity shall be filled with the specified warning light for the rear of the apparatus.

One (1)
75-21-0010

BACKUP LIGHTS

The backup lights shall illuminate when the apparatus is placed in reverse.

One (1)
75-25-0010

LED DOT LIGHTING

There shall be seven (7) lights located on the rear of the apparatus. Three (3) of the lights shall be mounted on the rear of the apparatus center location, for use as identification lamps. Two (2) additional lights shall be located on the rear outboard locations, one (1) each side as high as possible. Two (2) lights shall be mounted on the sides facing the side at the rear corners, for use as clearance lamps.

The lights shall be Weldon brand 9186-1500 series LED red markers.

One (1)
75-25-0155

LED INTERMEDIATE TURN SIGNAL LIGHTING

There shall be two (2) amber intermediate turn signals and two (2) amber intermediate marker lights on the sides of the apparatus (one (1) each per side) between the front and rear axles.

The lights shall be Weldon brand 9186-1500 series LED amber markers.

One (1)
75-25-0175

INTERMEDIATE TURN SIGNALS

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The intermediate turn signals will flash with the turn indicators.

One (1)
76-30-0020

REAR DIRECTIONAL LIGHTBAR

S One (1)
76-30-0320

There shall be six (6) rear directional lights provided and installed on the rear of the apparatus integrated to the rear face of hosebed cover vertical end cap.

The lights shall be Whelen model TIR 6 LED amber lights with clear lenses and chrome bezels and mounted equally spaced, three (3) lights on each end cap.

The back of the hose bed cap shall be boxed in to provide protection and strength for the lights. The back of the protection panel shall be angled to provide protection when hose is deployed in case of contact. This protection panel shall be constructed of embossed aluminum diamond plate.

The lights shall be **programmed to be controlled through all three (3) Vista's.**

S One (1)
77-00-0010

CHASSIS PROVIDED CAMEERA

Rear Camera to be viewed by reverse signal on the VMux screen on pump operators panel, the driver and Officer position. The right side teardrop camera shall be activated with right blinker and viewed on Driver's VMux screen only.

One (1)
77-01-0010

REAR VIEW CAMERA LOCATION

A camera shipped loose with the chassis shall be surface mounted at the center location on the rear of the apparatus body for maximum viewing capability. A protective shroud shall be installed over the system to protect against damage.

One (1)
78-50-0505

SIDE SCENE LIGHT LOCATION

There shall be four (4) scene lights installed on the body sides of the apparatus, two (2) on each side.

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One (1) located at the front and one (1) located at the rear corner of the body side walls.

S Four (4)
78-51-0220

SCENE LIGHT MODEL

Whelen Pioneer model #PFH2 LED flood scene lighting shall be semi-recess mounted on the apparatus.

Each lamp head shall have two (2) 12 volt high intensity LED panels. Each lamp head shall draw 12.0 amps and generate 14,000 lumens. Each lamp head shall measure 4.25 inches in height by 14.00 inches in width. Each lamp head shall be mounted at a 0-degree downward angle within a semi-recess housing featuring a chrome flange which shall measure 7.92 inches in height by 17.15 inches in width. The lamp heads shall be powder coated white.

S One (1)
82-60-2520

BODY SIDE SCENE LIGHT ACTIVATION

The body scene lighting shall be activated with the two (2) chassis scene virtual buttons on the Vista display and control screen, one (1) for each light.

The switch shall be labeled as follows:

Left Scene

Right Scene

On all Three Vista screens

One (1)
78-50-0705

REAR SCENE LIGHT LOCATION

There shall be two (2) scene lights installed on the rear facing vertical surface of the body, one (1) on each side.

S Two (2)
78-51-0215

SCENE LIGHT MODEL

Whelen Pioneer model #PFH1 LED flood scene lighting shall be semi-recess mounted on the

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apparatus.

Each lamp head shall have one (1) 12 volt high intensity LED panel. Each lamp head shall draw 6.0 amps and generate 7,000 lumens. Each lamp head shall measure 4.25 inches in height by 8.18 inches in width. Each lamp head shall be mounted at a 0-degree downward angle within a semi-recess housing featuring a chrome flange which shall measure 7.64 inches in height by 11.87 inches in width. The lamp heads shall be powder coated white.

S One (1)
82-60-3535

REAR SCENE LIGHT ACTIVATION

The rear scene lighting shall be activated when the apparatus transmission is shifted into reverse and by a virtual button on the Vista display and control screen.

The switch shall be labeled as follows:

Rear Scene
On all Three Vista screens.

One (1)
80-80-0214

RECEPTACLE BEHIND DRIVER & OFFICER

Two (2) receptacles shall be provided and installed inside the chassis cab, one (1) behind the driver's seat and one (1) behind the officer's seat.

Two (2)
80-81-0125

RECEPTACLE TYPE

The receptacle(s) shall be type NEMA 5-15 120V/15A duplex receptacle with a cover.

Two (2)
80-82-0200

RECEPTACLE POWER

The previously described outlet(s) shall be powered by the shoreline connection and shall be live when the shoreline power is provided.

One (1)
80-80-0250

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RECEPTACLE INSIDE EMS COMPARTMENT

One (1) receptacle shall be provided and installed inside each of the two (2) chassis cab EMS compartments. The receptacles shall be low on the back wall and to the left side of each compartment.

Two (2)
80-81-0125

RECEPTACLE TYPE

The receptacle(s) shall be type NEMA 5-15 120V/15A duplex receptacle with a cover.

Two (2)
80-82-0200

RECEPTACLE POWER

The previously described outlet(s) shall be powered by the shoreline connection and shall be live when the shoreline power is provided.

One (1)
80-80-0615

LINE VOLTAGE OUTLET R-1

The R-1 body compartment shall be equipped with the following receptacle(s).

A total of one (1) shall be provided.

One (1)
80-80-5000

The outlet shall be located in the above compartment, as inboard as practical on the upper portion of the forward wall.

One (1)
80-81-0125

RECEPTACLE TYPE

The receptacle(s) shall be type NEMA 5-15 120V/15A duplex receptacle with a cover.

One (1)
80-82-0200

RECEPTACLE POWER

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The previously described outlet(s) shall be powered by the shoreline connection and shall be live when the shoreline power is provided.

One (1)
88-58-1000

REFLECTIVE STRIPING

There shall be a 4.00 inch (101.60 mm) inch reflective stripe with two (2) 1.00 inch (25.40 mm) accent stripes applied to the chassis and apparatus body as specified:

One (1)
88-59-5000

STRIPE PATTERN

The reflective striping shall be applied around the perimeter of the front of the apparatus in a straight line. In addition, when the stripe reaches the front area of the body, the stripe shall jog in a 'Hockey Stick' shape pattern, then continuing around the rear of the apparatus at a slightly higher level.

One (1)
88-60-0100

STRIPE COLOR

The reflective striping shall be white in color.

S One (1)
88-61-5100

CAB FRONT AND SIDE EMBLEMS FROM CHASSIS

Mount the chassis shipped loose front and side emblems at FINAL INSPECTION.

One (1)
88-65-1000

REAR RETRO-REFLECTIVE CHEVRON STRIPING

A minimum of 50 percent of the rear-facing vertical surface, visible from the rear of the apparatus, shall be equipped with Diamond Grade, retro-reflective striping in a chevron pattern, sloping downward and away from the centerline of the vehicle at an angle of 45-degrees.

The stripe shall be 6.00 inches (152.40 mm) wide alternating in colors in compliance with (NFPA) 1901, Standard for Automotive Fire Apparatus.

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One (1)
88-66-1200

CHEVERON COLOR

The retro-reflective chevron striping shall be red and fluorescent yellow-green in color.

S One (1)
88-70-0120

IMITATION GOLD LETTERING (SCOTCHCAL)

Imitation Gold adhesive Scotchcal lettering with **BLUE** shadowing and edging shall be provided and installed the apparatus body as directed by the Fire Department. A maximum total of sixty (60) letters up to 6.00 inches (152.4 mm) high **or sized to fit** shall be provided.

Front cab doors Line 1 NEW ULM straight
Line 2 FIRE DEPT. straight

Rear cab doors Line 1 ENGINE straight
Line 2 3

Reference photos in truck files (truck 215111)

One (1)
88-76-0020

FIRE DEPARTMENT SUPPLIED DECALS

The apparatus decals shall be provided and installed by the Fire Department after final delivery of the completed apparatus.

One (1)
90-00-0000

MISCELLANEOUS EQUIPMENT

The following equipment list shall be provided with the completed apparatus.

S One (1)
90-03-1000

WHEEL CHOCKS

One (1) set of NFPA compliant Ziamatic folding wheel chocks model # SAC-44-E shall be supplied with the apparatus.

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Ship the wheel chocks loose

One (1)
90-80-0110

EXTINGUISHERS

All NFPA required fire extinguishers will be supplied and installed by the Fire Department before the apparatus is placed into service.

One (1)
91-10-0010

RECHARGEABLE FLASHLIGHTS

One (1)
91-10-0030

All NFPA required portable hand lights will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-22-0010

FLARES

Five (5)
91-22-0110

All NFPA required flares will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-23-0010

TRAFFIC CONES

Five (5)
91-23-0120

All NFPA required traffic cones will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-23-0200

TRAFFIC VEST

Five (5)
91-23-0220

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All NFPA required traffic vest will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-24-0001

AED (AUTOMATIC EXTERNAL DEFIBRILLATOR)

One (1)
91-24-0054

All NFPA required AED units will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-25-0001

FIRST AID KIT

One (1)
91-25-0054

All NFPA required First Aid Kits will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-26-0010

SALVAGE COVERS

One (1)
91-26-0120

All NFPA required salvage covers will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-29-0010

AXES

One (1)
91-29-0030

All NFPA required Axes will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-35-0000

WRENCH SETS

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Two (2)
91-35-2000

Two (2) South Park ##WH76301A spanner wrench sets containing two (2) universal spanner wrenches and one (1) hydrant wrench with mounting bracket shall be supplied with the apparatus.

Two (2)
91-35-3000

Two (2) wrench set(s) shall be mounted on the specified apparatus in the noted location(s).

S One (1)
91-35-9000

The one (1) spanner wrench(s) shall be installed

Mount at final inspection.

S One (1)
91-35-9100

The one (1) spanner wrench(s) shall be installed

Mount at final inspection

One (1)
91-36-0000

NOZZLES

One (1)
91-36-0054

All NFPA required nozzles will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-40-0010

HAND HELD TOOLS

One (1)
91-40-0100

CLAW TOOL

Two (2)
91-40-0110

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All NFPA required claw tools will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-40-0200

HALLIGAN TOOL

One (1)
91-40-0210

All NFPA required Halligan tools will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-40-0300

CROW BAR

Two (2)
91-40-0310

All NFPA required crowbars will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-40-0500

SLEDGE HAMMER

One (1)
91-40-0510

All NFPA required sledge hammers will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-40-0615

RUBBER MALLET

All NFPA required rubber mallets will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-40-0700

SHOVELS

Two (2)

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91-40-0710

All NFPA required shovels will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)

91-40-0800

BOLT CUTTER

One (1)

91-40-0810

All NFPA required bolt cutters will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)

91-70-0000

SUPPLY HOSE

One (1)

91-70-0054

All NFPA required fire hose will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)

92-01-0100

ADAPTORS

One (1)

92-01-0154

All NFPA required Adaptors will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)

92-10-0100

SCBA & CYLINDERS (air packs)

Four (4)

92-10-0154

All NFPA required SCBA and Cylinders will be supplied and installed by the Fire Department before the truck is placed into service.