

Specification

0100-011 Metro Star MODEL

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

8011-027 Model Year - 2027 MODEL YEAR

The chassis shall have a vehicle identification number that reflects a 2027 model year.

8001-001 Country of Service United States Of America COUNTRY OF SERVICE

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

The chassis will meet applicable U.S.A. federal motor vehicle safety standards per CFR Title 49 Chapter V Part 571 as clarified in the incomplete vehicle book per CFR Title 49 Chapter V Part 568 Section 4 which accompanies each chassis. The chassis manufacturer is not responsible for compliance to state, regional, or local regulations. Dealers should identify those regulations and order any necessary optional equipment from the chassis manufacturer or their OEM needed to be in compliance with those regulations.

8017-009 Cab and Chassis Labeling Language English w/Innovative Controls Labels CAB AND CHASSIS LABELING LANGUAGE

The cab and chassis shall include the applicable caution, warning, and safety notice labels with text to be written in English. All applicable caution, warning, and safety notice labels shall be Innovative Controls brand. Where applicable to the location within the specific layout and label package of the cab and chassis, the labels shall include decorative chrome bezels. Designs shall include bezels that fit individual labels or packaged configurations of labels in certain common locations.

8006-009 Apparatus Type Pumper APPARATUS TYPE

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

8008-001 Vehicle Type Straight Truck VEHICLE TYPE

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

8008A-000 Vehicle Angle of Approach NFPA Minimum 8.00 Degrees VEHICLE ANGLE OF APPROACH PACKAGE

The angle of approach of the apparatus shall be a minimum of 8.00 degrees.

NFPA1901 Angle of Approach definition:

“To determine the angle of approach, place a thin steel strip against the front of the tires where they touch the ground or stretch a tight string from one front tire to the other at the front where they touch the ground. Determine the lowest point (component or equipment) on the vehicle forward of the front tire that would make the smallest angle of approach. Hang a plumb bob from the lowest point and mark the point on the ground where the point of the plumb bob touches. Measure the vertical distance from the ground to the point where the plumb bob was hung (distance V). Measure the horizontal distance from the plumb bob point to the steel strip or string running from front tire to front tire (distance H). Divide the vertical distance by the horizontal distance. The ratio of V/H is the tangent of the angle of approach. If the ratio is known, the angle of approach can be determined from a table of trigonometric functions of angles or from a math calculator. The standard requires a minimum angle of approach of 8.00 degrees: since the tangent of 8.00 degrees is 0.1405, if V divided by H is 0.1405 or larger, the angle of approach is 8.00 degrees or greater.”

0104-001 Axle Configuration 4x2 (Rear Axle Drive Only)

AXLE CONFIGURATION

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

0101-004 GAWR Front 21500#

GROSS AXLE WEIGHT RATINGS FRONT

The front gross axle weight rating (GAWR) of the chassis shall be 21,500 pounds.

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

0102-005 GAWR Rear 31000#

GROSS AXLE WEIGHT RATINGS REAR

The rear gross axle weight rating (GAWR) of the chassis shall be 31,000 pounds.

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

8010-201 Pump Provision Driveline Midship, Pump Mode Prog w/Auto Park Brake "N"

PUMP PROVISION

The chassis shall include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location. Chassis driveline pump provisions shall include an interlock feature for automatic setting of the park brake when the vehicle is shifted into pump mode while the transmission is in neutral and the transmission output speed translates to less than 1 mph. When the conditions are met the driver side parking brake valve shall activate. Once shifted to road mode the condition for electric automatic brake engagement is no longer present and the driver's parking brake control valve shall function normally.

8009-013 Water & Foam Tank Capacity 750 to 1250 Gallons

WATER & FOAM TANK CAPACITY

The chassis shall include a carrying capacity of 750 gallons (2839 liters) to 1250 gallons (4732 liters). The water and/or foam tank(s) shall be supplied and installed by the apparatus manufacturer.

8003-197 Warranty Cab and Chassis (2) Year RFW0102

WARRANTY

Purchaser shall receive a Custom Chassis Two (2) Years or 36,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0102. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

1000-013 Cab Style EMFD 10" Raised Roof

CAB STYLE

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

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

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

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

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

The exterior width of the cab shall be 94.00 inches wide with a minimum interior width of 88.00 inches. The overall cab length shall be 137.10 inches with 60.00 inches from the centerline of the front of the axle to the back of the cab.

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

The cab shall offer an interior height of 57.50 inches from the front floor to the headliner and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 57.88 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

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

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

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

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

8101-300 Occupant Protection IMMI 4Front & RollTek w/SRA

OCCUPANT PROTECTION

An IMMI 4Front® occupant protection system shall be installed in the vehicle's cab. The system shall inflate up to three (3) air bags in the following locations as applicable by customer specification:

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

The air bags shall use a combination of high-pressure stored argon and oxygen with a pyrotechnic charge for initiation to inflate the bags remain inflated for several seconds.

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

A RollTek™ rollover occupant protection system shall be installed in the apparatus cab. The system shall include an integrated roll sensor (IRS).

The IRS shall be a microprocessor-controlled solid-state sensing device that utilizes vehicle-specific calibrations to detect rollovers. The IRS shall be equipped with pyrotechnic loops for connection to the protective countermeasures which shall include seat integrated side roll airbags (SRA), integrated seat belt pretensioners, and air seat pull-downs (S4S), in applicable occupant seat positions.

The IRS shall continuously monitor the truck's acceleration and angle, and upon detection of an imminent rollover, shall activate protective countermeasures in a pre-programmed sequence. In addition, the IRS shall also act as a data recorder to record crash events for post-crash evaluation.

1501-002 Cab Frt Fascia Classic

CAB FRONT FASCIA

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

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

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

1518-025 Cab Frt Grille Hinged Classic Styled

FRONT GRILLE

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

1551-002 Cab Undercoat

CAB UNDERCOAT

There shall be undercoating applied to the underside of the cab which provides an abrasion resistant coating for protection against corrosion caused by moisture, salt, alkalis and galvanic reaction.

1552-002 Cab Side Drip Rail

CAB SIDE DRIP RAIL

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

1521-001 Cab Paint Exterior Single Color

CAB PAINT EXTERIOR

The cab exterior shall be painted a single color per customers specified paint color following the RFG-SR-001 paint standards.

1533-001 Cab Paint Process/Manufacturer PPG

CAB PAINT PROCESS/MANUFACTURER

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

All metal surfaces on the cab shall be mechanically etched by sanding disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once all imperfections on the exterior surfaces are removed and sanded smooth, body fillers shall be applied to the cab on all surfaces that require a critically aesthetic finish and sanded smooth.

The entire cab shall then be coated with a high quality base primer that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be sanding the cab to a smooth finish followed by sealing the seams with an automotive seam sealer. The minimum thickness of the primer coat after sanding shall be 2.50 mils with a maximum thickness of 5.00 mils.

The cab shall then be painted the specific color(s) designated by the customer with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on an emergency scene. The paint shall have a minimum thickness of 1.00 mils with a maximum of 4 mils, followed by a clear top coat with a minimum of 2.5 mils and a maximum of 3.5 mils. The entire cab shall then be baked to speed the curing process of the coatings.

1522-800 Cab Paint Primary/Lower Color PPG Red FBCH 926234

CAB PAINT PRIMARY/LOWER COLOR

The primary/lower paint color shall be PPG FBCH 926234 red.

8013-156 Cab Paint Warranty PPG (10) Year RFW0710

CAB PAINT WARRANTY

Purchaser shall receive a Paint and Finish (Exterior Clear coated) Ten (10) Years limited warranty in accordance with, and subject to, warranty certificate RFW0710. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

1334-039 Cab Paint Int Multi-tone Onyx Blk

CAB PAINT INTERIOR

The visible interior cab structure surfaces shall be painted with a multi-tone onyx black texture finish.

1005-001 Cab Entry Doors (4)

CAB ENTRY DOORS

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

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

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

1101-101 Cab Entry Door Type Full Length w/Pollak Switches

CAB ENTRY DOOR TYPE

All cab entry doors shall be full length in design to fully enclose the lower cab steps. Entry doors shall include Pollak mechanical plunger style switches for electrical component activation.

1322-007 Cab Insulation Nonwoven Polyester Fiber

CAB INSULATION

The cab ceiling and walls shall include a nonwoven polyester fiber insulation. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.

8004-033 Cab Structural Warranty (10) Year RFW0602

CAB STRUCTURAL WARRANTY

Purchaser shall receive a Cab Structure (Aluminum) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0602. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

9001-006 Cab Test Information Crash Test ECE-R29/SAE J2420/SAE J2422

CAB TEST INFORMATION

The cab shall have successfully completed the preload side impact, static roof load application and frontal impact without encroachment to the occupant survival space when tested in accordance with Section 4 of SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks, Section 5 of SAE J2422 Cab Roof Strength Evaluation Quasi –Static Loading Heavy Trucks and ECE R29 Uniform Provisions Concerning the Approval of Vehicles with regard to the Protection of the Occupants of the Cab of a Commercial Vehicles Annex 3 Paragraph 5.

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

5000-018 Elec System 12V DC Multiplex

ELECTRICAL SYSTEM

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

5005-251 Vehicle Display Control-Maxx 10" Touchscreen LH Sw Pnl

MULTIPLEX DISPLAY

The multiplex electrical system shall include an FRC OmniPlex S-Core 10-inch Touchscreen display which shall be located on the left side dash in the switch panel. The Touchscreen displays shall feature full color LCD display screens.

5046-046 Multiplex Display Special Layout S180 Model

MULTIPLEX DISPLAY SPECIAL LAYOUT

The vehicle display and control screen shall be configured specifically for the requirements of the S180 model 2106, 2112, 2113, 2114 and 2120. See PDF for details.

Note: Activation additions and deletions to the base S-180 models listed above shall be programed per best practices.

5004-002 Load Management System Multiplex

LOAD MANAGEMENT SYSTEM

The apparatus load management shall be performed by the included multiplex system. The multiplex system shall also feature the priority of sequences and shall shed electrical loads based on the priority list specifically programmed.

5622-032 Data Recording Sys Vehicle Data Control-Maxx w/USB Data Link

DATA RECORDING SYSTEM

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

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

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system. The laptop connection shall be a panel mounted female type C USB connection point, mounted in dash.

5031-100 Accessory Pwr Batt & Ign Stud w/(2)Fuse Batt/(2)Fuse Mstr Bus Bar Rescue/Pumper

ACCESSORY POWER

The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40-amp battery direct load. One (1) power stud shall be capable of carrying up to a 15-amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud.

The Master power distribution box (MPD) shall include four (4) fuses. The battery direct bus bar shall include one (1) 300-amp fuse labeled E-PUMP and one (1) 300-amp fuse labeled PUMP PRIMER. The master power bus bar shall include one (1) 200-amp fuse labeled PUMP MASTER and one (1) 300-amp fuse labeled BODY MASTER. Each bus bar stud is size 5/16”.

5011-001 Exterior Electrical Terminal Coating Spray On Plasti Dip

EXTERIOR ELECTRICAL TERMINAL COATING

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

8014-002 Electrical System Warranty (2) Year RFW0202

ELECTRICAL SYSTEM WARRANTY

Purchaser shall receive an Electrical System Two (2) Years or 36,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0202. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

1701-182 Engine Diesel 450HP/1250Ft-Lbs Cummins X10 MHD - EPA 2027

ENGINE

The chassis engine shall be a Cummins medium heavy duty (MHD) certified X10 engine. The X10 engine shall be an in-line six (6) cylinder, four-cycle diesel-powered engine. The engine shall offer a rating of 450
10080-0002

horsepower at 2100 RPM and shall be governed at 2200 RPM. The torque rating shall feature 1250-foot pounds of torque at 1200 RPM.

The engine shall feature a VGT™ Turbocharger, a high-pressure common rail fuel system, fully integrated electronic controls with an electronic governor, and shall be EPA certified to meet the 2027 emissions standards.

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

Until the 2027 EPA engine integration is finalized, option availability and body design relative to engine and aftertreatment are subject to change. Additional costs associated with the 2027 EPA engine will be passed on to the end user. No exceptions.

1329-001 Cab Engine Tunnel Small/Medium

CAB ENGINE TUNNEL

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

1731-018 DPF Ctrl Regeneration Sw & Inhibit Sw w/Digital Dash

DIESEL PARTICULATE FILTER CONTROLS

There shall be two (2) controls for the diesel particulate filter. One (1) control shall be for regeneration and one (1) control shall be for regeneration inhibit. The controls shall be located on the digital dash display.

1718-002 Engine Programming High Idle Speed 1250 RPM

ENGINE PROGRAMMING HIGH IDLE SPEED

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

1719-005 Engine High Idle Ctrl Automatic and Manual w/Disp Actv

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with an automatic high-idle speed control which shall be pre-set to operate the engine at a specified RPM to increase alternator output if the system voltage drops to 12.5 volts. This device shall automatically operate only when the engine is running, the transmission is in neutral, and with the parking brake set. The automatic high idle will stay engaged for a minimum of ten (10) minutes and until the system, voltage has reached 13.0 volts. Application of the service brake will override the automatic high idle and reset timer. The vehicle shall be equipped with a high-idle speed virtual button on the vehicle display and control screen to activate/deactivate manual control only. It shall be pre-set so when activated, it will operate the engine at the specified RPM to increase alternator output. This device shall operate only when the engine is running, the transmission is in neutral, and with the parking brake set. When automatically engaged the high idle shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake pedal is released, or when the transmission is placed in neutral. Virtual control screen shall not override automatic high idle between voltage parameters during timed cycle. Display shall indicate when high idle is disabled, enabled, or active.

1710-001 Engine Programming Road Speed Governor Enabled

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

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

1713-010 Aux Engine Brake Compression Brake w/VG Turbo**AUXILIARY ENGINE BRAKE**

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

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

1708-004 Aux Engine Brake Ctrl On/Off & Low/Med/High Sw Pnl**AUXILIARY ENGINE BRAKE CONTROL**

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

- ☐ A valid gear ratio is detected.
- ☐ The driver has requested or enabled engine compression brake operation.
- ☐ The throttle is at a minimum engine speed position.
- ☐ The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift.

The compression brake shall be controlled through an on/off switch and a low/medium/high selector switch.

1720-003 Elec Engine Oil Level Indicator**ELECTRONIC ENGINE OIL LEVEL INDICATOR**

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

1715-001 Fluid Fills Fwd For Med Displacement Cap**FLUID FILLS**

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

1735-001 Engine Drain Plug**ENGINE DRAIN PLUG**

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

8002-001 Engine Warranty Cummins (5) Year/100,000 Miles**ENGINE WARRANTY**

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

1707-116 Rmt Throttle Harness Cab Harness Only Shift Interlock**REMOTE THROTTLE HARNESS**

An apparatus interface wiring harness for the engine and transmission pump interlocks shall be supplied with the chassis. The harness shall include a connector for connection to a chassis pump panel harness supplied by the body builder and shall terminate in the left frame rail behind the cab for connection by the body builder. The harness shall include circuits deemed for a pump panel and shall contain circuits for a hand throttle, and a multiplexed gauge. Separate circuits shall also be included for a pump control switch, "Pump Engaged" and "OK to Pump" indicator lights, open compartment ground, start signal, park brake ground, ignition signal, master power, clean power, customer ignition, air horn solenoid switch, high idle switch and high idle indicator light. The harness shall contain interlocks that will prevent shifting to road or pump mode unless the transmission output speed translates to less than 1 mph and the transmission is in neutral. The shift to pump mode shall also require the park brake be set.

1721-001 Engine Program Rmt Throttle Off**ENGINE PROGRAMMING REMOTE THROTTLE**

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

1727-001 Engine Programming Idle Speed 700 RPM**ENGINE PROGRAMMING IDLE SPEED**

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

2801-010 Engine Air Intake Filtration and Restriction w/Replaceable Element Abv Radiator**ENGINE AIR INTAKE**

The engine air intake system shall include an ember separator. This ember separator shall be designed to protect the downstream air filter from embers using a combination of unique flat and crimped metal screens packaged in a heavy duty galvanized steel frame. This multilayered screen shall trap embers and allow them to burn out before passing through the pack.

The engine air intake system shall also include an air cleaner mounted above the radiator. This air cleaner shall utilize a replaceable dry type filter element designed to prevent dust and debris from being ingested into the engine. A service cover shall be provided on the housing, reducing the chance of contaminating the air intake system during air filter service.

The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.

2704-016 Engine Fan Drive Variable Speed**ENGINE FAN DRIVE**

The engine cooling system fan shall incorporate a thermostatically controlled, Horton fully variable type fan drive with SmartClutch J-1939 CAN controller.

The variable speed fan clutch only engages at the amount needed for proper cooling to facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail-safe so that if the clutch drive fails the fan shall engage to prevent engine overheating due to the fan clutch failure. The fan speed shall include a J-1939 CAN clutch controller to receive signal from the engine control module to

activate at variable rates of speed. Variable speeds shall be set through thermostatic and engine speed signals to run as efficiently and quietly as required to maintain temperature.

2701-021 Engine Cooling System Serial Flow w/Package Drop-Out Prov

ENGINE COOLING SYSTEM

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

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

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

The cooling system shall include a one piece injected molded polymer fan with a three (3) piece fiberglass fan shroud.

The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and rearward oriented sight glass to observe coolant in the system. A cold fill and observation line shall be included within the frame mounted translucent recovery bottle to monitor the level of the coolant. The surge tank shall have a dual seal cap that meets the engine manufacturer's pressure requirements and allows for expansion and recovery of coolant into a separate integral expansion chamber.

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

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

The radiator and charge air cooler shall be removable through the bottom of the chassis.

2711-005 Engine Cooling System Protection Light Duty Skid Plate Paint Frame Color

ENGINE COOLING SYSTEM PROTECTION

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

2708-001 Engine Coolant Extended Life

ENGINE COOLANT

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

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

2706-003 Elec Low Coolant Level Indicator

ELECTRONIC COOLANT LEVEL INDICATOR

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

2709-002 Coolant Hoses Blue Stripe Heater & Radiator

COOLANT HOSES

The cooling system hoses shall be blue stripe heater hose with formed silicone radiator coolant hoses and formed aluminized steel tubing. The heater hose, radiator hose, and tubing shall be secured with stainless steel constant torque band clamps.

2710-005 Engine Coolant Overflow Expansion Bottle

ENGINE COOLANT OVERFLOW BOTTLE

A remote engine coolant overflow expansion bottle shall be provided in the case of over filling the coolant system. The overflow bottle shall capture the expansion fluid or overfill rather than allow the fluid to drain on the ground.

2901-097 Eng Exhaust Sys Under Frm RH Fwd Outboard DPF/SCR Inboard

ENGINE EXHAUST SYSTEM

The exhaust system shall include a side-in end-out horizontally mounted dual module after treatment device, and downpipe from the charge air cooled turbo. The side inlet DPF canister allows the entire system to be pulled forward. The dual module shall include a diesel particulate filter (DPF), urea dosing module (UL2), and a selective catalytic reduction (SCR) catalyst to meet current EPA standards.

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

The DPF, the decomposition tube, and the SCR canister through the end of the tailpipe shall be connected with zero leak clamps. The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires.

The exhaust system after treatment modules shall be mounted below the frame, with the DPF in the outboard position and the SCR rearward in the inboard position.

Disclaimer - Until the 2027 EPA engine integration is finalized, available options and body design specifications related to the engine and aftertreatment system are subject to change. This may include, but is not limited to, wheelbase dimensions, centerline of suction for pumps, and pump configurations. Any additional costs resulting from the 2027 EPA engine requirements will be passed on to the end user - No exceptions.

2907-021 Diesel Exhaust Fluid Tank LH 5 Gal Fill Thru Rr Step**DIESEL EXHAUST FLUID TANK**

The exhaust system shall include a molded cross linked polyethylene tank for Diesel Exhaust Fluid (DEF). The tank shall have a capacity of five (5) usable gallons and shall be mounted on the left-hand side of the chassis frame behind the rear crew door entry steps.

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

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

2902-030 Engine Exhaust Acc Temp Mitigation w/Drop T-Pipe**ENGINE EXHAUST ACCESSORIES**

An exhaust temperature mitigation device shall be shipped loose for installation by the body manufacturer on the vehicle. The temperature mitigation device shall lower the temperature of the exhaust by combining ambient air with the exhaust gasses at the exhaust outlet.

The tail pipe shall have a drop in it to allow additional clearance from the body.

2906-002 Engine Exhaust Wrap**ENGINE EXHAUST WRAP**

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

The exhaust flex joint shall not include the thermal exhaust wrap.

8018-005 Emissions System Warranty (10) Years Med HDE/280K Miles/14K Hours RFW0143**EMISSIONS SYSTEMS WARRANTY**

Purchaser shall receive a Regulated Emissions Systems ten (10) years, or 280,000 miles, or 14,000 engine hours limited warranty for medium heavy-duty engines in accordance with, and subject to, warranty certificate RFW0143. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

8018A-002 Regulated Emissions Warranty Tires (2) Years/24,000 Miles RFW0145**REGULATED EMISSIONS WARRANTY TIRES**

Purchaser shall receive a regulated emissions tires two (2) years or 24,000 miles limited warranty in accordance with, and subject to, warranty certificate RFW0145. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

8018B-002 Regulated Emissions Warranty Air Conditioning (5) Years/100,000 Miles RFW0146**REGULATED EMISSIONS WARRANTY AIR CONDITIONING**

Purchaser shall receive a regulated emissions air conditioning five (5) years or 100,000 miles limited warranty in accordance with, and subject to, warranty certificate RFW0146. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

1801-015 Transmission Allison 3000 EVS

TRANSMISSION

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

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

The transmission gear ratios shall be:

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

1806-002 Transmission Mode Programming 5th Startup/5th Mode

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will select the fifth speed operation without the need to press the mode button.

1811-004 Transmission Feature Programming Allison Gen 5 & 6-E I/O Package 198/Pumper

TRANSMISSION FEATURE PROGRAMMING

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

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

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

Function ID

Description

Wire assignment

Inputs

10080-0002

1st Out Specialty Vehicles

Stock S180 4116

C	PTO Request		142
J	Fire Truck Pump Mode (4th Lockup)	122 / 123	
Outputs			
C	Range Indicator		145 (4th)
G	PTO Enable Output		130
	Signal Return		103

1807-005 Transmission GEN 5 & 6-E Shift Sel Key Pad/Push Button

TRANSMISSION SHIFT SELECTOR

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

1815-002 Elec Transmission Oil Level Indicator

ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically.

1814-002 2nd Gear Pre-Select

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

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

1808-007 Transmission Cooling System

TRANSMISSION COOLING SYSTEM

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

1817-001 Transmission Drain Plug

TRANSMISSION DRAIN PLUG

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

8005-001 Transmission Warranty Allison (5) Year

TRANSMISSION WARRANTY

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

2005-009 PTO Location 8:00/4:00

PTO LOCATION

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

3001-014 Driveline MSI 1710 w/Meritor U-Joints w/Thrust Washers

10080-0002

DRIVELINE

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

3005-022 Midship Pump Jackshaft w/Spartan ER Full Body Pump Mount Holes**MIDSHIP PUMP / GEARBOX**

A temporary jackshaft driveline shall be installed by the chassis manufacturer to accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer. Holes shall be provided as specified by the OEM for mounting a pump.

See PDF for specific hole pattern.

3008-085 Midship Pump/Gearbox Model Waterous CSUC20/C22 Fwd**MIDSHIP PUMP / GEARBOX MODEL**

The midship pump/gearbox provisions shall be for a Waterous CSUC20 or C22 pump.

3048-007 Midship Driveline Pump Gearbox Drop Waterous "C"**MIDSHIP PUMP GEARBOX DROP**

The Waterous pump gearbox shall have a "C" (medium length) drop length.

3009-007 Midship Pump Ratio 2.27:1**MIDSHIP PUMP RATIO**

The ratio for the midship pump shall be 2.27:1.

3010-0935 Midship Pump Location C/L Suction to C/L Rear Axle 93.5"**MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE**

The midship pump shall be located so the dimension from the centerline of the suction to the centerline of the rear axle is 93.50 inches.

5013-032 Pump Shift Ctrl Air Ctrl Integrated Shifter Pod**PUMP SHIFT CONTROLS**

One (1) air pump shift control panel shall be located on the left hand side of the engine tunnel, integrated with the shifter pod. The following shall be provided on the panel: a three (3) position control lever; an engraved PUMP ENGAGED identification light; and an engraved OK TO PUMP identification light. The pump shift control panel shall be black with a yellow border outline and shall include pump instructions. An instruction plate describing the transmission shift selector position used for pumping shall be provided and located so it can be read from the driver's position per NFPA 16.10.1.3. The road mode shall be selected when the control lever is in the forward position and pump mode shall be selected when the control lever is in the rearward position.

The control lever center position shall exhaust air from both pump and road sides of the pump gear box shift cylinder.

3049-003 Pump Shift Control Plumbing Pre-Plumb Elec/Air**PUMP SHIFT CONTROL PLUMBING**

Air connections shall be provided from the air supply tank to the pump shift control valve and from the pump shift control valve to the frame mounted bracket. The frame mounted bracket shall include labeling identifying the pump and road connection points with threaded 0.25 inch NPT fittings on the solenoid for attaching the customer installed pump. The air supply shall be pressure protected from service brake system.

3109-064 Fuel Filter/Wtr Separator Racor GreenMAX 6600R w/Lt & Alarm

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Racor GreenMAX 6600R fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve and a see-through cover to allow visual inspection of fuel and filter condition. The Racor 6600R shall meet engine requirements for particulate size, collection capacity, removal efficiency, and water removal efficiency. The filter shall be capable of handling a maximum flow rate of 150 gallons per hour.

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

An instrument panel lamp and audible alarm which indicates when water is present in the fuel-water separator shall also be included.

3111-002 Fuel Lines Wire Braid

FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine shall be black textile braided lines which are reinforced with braided high tensile steel wire. The fuel lines shall be connected with reusable steel fittings.

3104-012 Fuel Shutoff Valve at Tank and (2) at Primary Filter

FUEL SHUTOFF VALVE

There shall be two (2) fuel shutoff valves which shall be installed, one (1) in the fuel draw line at the primary fuel filter and one (1) in the fuel outlet line at the primary fuel filter to allow the fuel filters to be changed without loss of fuel to the fuel pump.

A third fuel shutoff valve shall be installed in the fuel draw line, near the fuel tank to allow maintenance to be performed with minimal loss of fuel.

3103-008 Electric Fuel Primer Engine Sply Electric Lift Pump

ELECTRIC FUEL PRIMER

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

3112-018 Fuel Cooler w/Active Cooling Fan/Temp Ctrl Sw

FUEL COOLER

A fuel cooler shall be provided to lower fuel temperature allowing the vehicle to operate at higher ambient temperatures. The fuel cooler shall include an electrical fan and temperature-controlled relay switch.

3101-101 Fuel Tank 50 Gallon

FUEL TANK

The fuel tank shall have a capacity of fifty (50) gallons and shall measure 35.00 inches in width X 15.00 inches in height X 24.00 inches in length.

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

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

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

3130-001 Fuel Tank Material Steel & Finish Painted Frame Components Color

FUEL TANK MATERIAL AND FINISH

The fuel tank shall be constructed of 12 gauge aluminized steel. The exterior of the tank shall be powder coated black and then painted to match the frame components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 Method B, results to be 5B minimum. The pencil hardness test per ASTM D3363 shall have a final post-cured pencil hardness of H-2H. The direct impact resistance test per ASTM D2794, results to be 5B minimum.

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

3131-001 Fuel Tank Strap Material Steel & Finish Painted Frame Components Color

FUEL TANK STRAP MATERIAL

The fuel tank straps shall be constructed of ASTM A-36 steel. The fuel tank straps shall be powder coated black and then painted to match the frame components if possible.

3102-032 Fuel Tank Fill Port LH Fwd 3" from Frt Edge/RH Fwd 3" from Frt Edge

FUEL TANK FILL PORT

The fuel tank fill ports shall be offset with the left and right side fill ports located in a special forward position 3.00 inches from the front edge of the fuel tank.

3114-002 Fuel Tank Serviceability Prov 8' Fuel Line Extension

FUEL TANK SERVICEABILITY PROVISIONS

The chassis fuel lines shall have additional length provided so the tank can be easily lowered and removed for service purposes. The additional 8.00 feet of length shall be located above the fuel tank and shall be coiled and secured. The fuel line fittings shall be pointed towards the right side (curbside) of the chassis.

3115-002 Fuel Tank Drain Plug Magnetic

FUEL TANK DRAIN PLUG

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

2401-004 Frt Axle Meritor MFS 21500# Beam

FRONT AXLE

The front axle shall be a Meritor Easy Steer Non drive front axle, model number MFS-20. The axle shall include a 3.74 inch drop and a 71.00 inch king pin intersection (KPI). The axle shall include a conventional style hub with a standard knuckle. The weight capacity for the axle shall be rated to 21,500 pounds FAWR.

8059-027 Front Axle Warranty Meritor 2027

FRONT AXLE WARRANTY

The front axle shall be warranted by Meritor for five (5) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

2405-002 Frt Wheel Bearing Lube Synthetic

FRONT WHEEL BEARING LUBRICATION

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

2502-002 Frt Shock Absorbers Bilstein

FRONT SHOCK ABSORBERS

Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the front suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintains consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life.

The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would.

The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and “road sensing” shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers.

Proposals offering the use of conventional twin tube or “road sensing” designed shocks shall not be considered.

2501-016 Frt Suspension 10 Leaf 20000-21500#

FRONT SUSPENSION

The front suspension shall include a ten (10) leaf spring pack in which the longest leaf measures 54.00 inch long and 4.00 inches wide and shall include a military double wrapped front eye. Both spring eyes shall have a case hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity shall be rated at 21,500 pounds.

2601-006 Steering Column/Wheel Tilt/Telescopic 18" 4 Spoke

STEERING COLUMN/ WHEEL

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

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

2609-002 Elec Power Steering Fluid Level Indicator

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

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

2603-016 Power Steering Pump Vickers V20H w/Passive Cooler

POWER STEERING PUMP

The hydraulic power steering pump shall be a Vickers V20H and shall be gear driven from the engine. The pump shall be a fixed displacement vane type. The power steering system shall include an oil to air passive cooler.

2606-009 Front Axle Cramp Angle 48L/44R Degrees

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 48-degrees to the left and 44-degrees to the right.

Note: Addition of optional equipment may require cramp angle to be reduced.

2610-003 Power Steering Gear TRW TAS 65 w/Assist

POWER STEERING GEAR

The power steering gear shall be a TRW model TAS 65 with an assist cylinder.

2608-001 Chassis Alignment

CHASSIS ALIGNMENT

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

3401-014 Rear Axle 33000# Meritor RS-30-185

REAR AXLE

The rear axle shall be a Meritor model RS-30-185 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 33,000 pounds.

The axle shall be built of superior construction and quality components to provide the rugged dependability needed to stand up to the fire industry's demands. The axle shall include rectangular shaped, hot-formed housing with a standard wall thickness of 0.56 of an inch for extra strength and rigidity and a rigid differential case for high axle strength and reduced maintenance.

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

3403-002 Rear Axle Differential Lubrication Synthetic

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with synthetic oil.

8061-022 Rear Axle Warranty Meritor 2027

REAR AXLE WARRANTY

The rear axle shall be warranted by Meritor for five (5) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

3411-002 Rear Wheel Bearing Lubrication Synthetic

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with synthetic oil.

3408-008 Vehicle Top Speed 68 MPH

VEHICLE TOP SPEED

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

3501-040 Rear Susp Hendrickson FireMaax Air 31000#

REAR SUSPENSION

The single rear axle shall feature a Hendrickson Firemaax™ air suspension. The suspension shall include two optimized air springs mounted to cast structural trailing arms, a transverse cross beam for increased roll stability and two heavy duty shock absorbers. Dual air height control valves shall be installed to ensure equal frame height on both sides of the vehicle regardless of the load. Axle alignment is maintained using two eccentric bushings at each frame bracket.

The rear suspension capacity shall be rated at 31,000 pounds.

3503-003 Rear Shock Absorbers Suspension Sply

REAR SHOCK ABSORBERS

Shock absorbers shall be supplied by the suspension manufacturer and installed on the rear axle suspension.

3625-002 Tire Intermittent Service Ratings Acceptable

TIRE INTERMITTENT SERVICE RATING

The chassis shall be rated using Intermittent Service ratings provided to the emergency vehicle market by the tire manufacturers as the basis for determining the maximum vehicle load and speed.

3601-063 Frt Tire 425/65R 22.5 Michelin XZY3

FRONT TIRE

The front tires shall be Michelin 425/65R-22.5 20PR "L" tubeless radial XZY3 mixed service tread.

The front tire stamped load capacity shall be 22,800 pounds per axle with a nominal speed rating of 65 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum load capacity shall be 24,396 pounds per axle with a maximum speed of 65 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum speed capacity shall be 22,800 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

3602-019 Rear Tire 315/80R 22.5 Michelin XDN2 Grip

REAR TIRE

The rear tires shall be Michelin 315/80R-22.5 20PR "L" tubeless radial XDN2 Grip all weather tread.

The rear tire stamped load capacity shall be 33,080 pounds per axle with a nominal speed rating of 75 miles per hour when properly inflated to 130 pounds per square inch.

The Michelin Intermittent Service Rating maximum load capacity shall be 35,396 pounds per axle with a maximum speed of 75 miles per hour when properly inflated to 130 pounds per square inch.

The Michelin Intermittent Service Rating maximum speed capacity shall match the nominal speed rating.

The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

3413-513 Rear Axle Ratio 5.13

REAR AXLE RATIO

The rear axle ratio shall be 5.13:1.

3614-030 Tire Pressure Ind Frt & Rr LED

TIRE PRESSURE INDICATOR

There shall be electronic chrome LED valve caps shipped loose for installation by the OEM which shall illuminate with a red LED when tire pressure drops 8psi provided. The valve caps are self-calibrating and set to the pressure of the tire upon installation.

3701-034 Frt Wheel Alcoa Dura-Bright 22.5 x 12.25 Alum

FRONT WHEEL

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

3703-050 Rr Whl Alcoa Dura-Bright 22.5 x 9.00 Alum

REAR WHEEL

The rear wheels shall be Alcoa hub piloted, 22.50 inch X 9.00 inch aluminum wheels with a polished outer surface and Alcoa Dura-Bright® wheel treatment as an integral part of the wheel surface. The inner rear wheels shall be Alcoa hub piloted, 22.50 inch X 9.00 inch aluminum wheels with a polished inner and outer surface and

Alcoa Dura-Bright® wheel treatment as an integral part of the wheel surface. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

3719-002 Balance Wheels & Tires

BALANCE WHEELS AND TIRES

All of the wheels and tires, including any spare wheels and tire assemblies, shall be dynamically balanced.

3702-002 Wheel Trim Hub & Nut Covers SS Shiploose

WHEEL TRIM

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

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

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

3205-014 Brake System ABS/ATC/ESC Sgl Axle Disp Actv

BRAKE SYSTEM

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

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

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

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

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

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

3206-003 Frt Brakes Meritor EX225 Disc 17"

FRONT BRAKES

The front brakes shall be Meritor EX225 Disc Plus disc brakes with 17.00 inch vented rotors.

3207-009 Rr Brakes S-Cam Drum 16.5" x 8.6" Cast Iron Shoe

REAR BRAKES

The rear brakes shall be Meritor 16.50 inch X 8.63 inch S-cam drum type. The brakes shall feature a cast iron shoe.

3208-001 Prk Brake Rr Wheels Only

PARK BRAKE

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

3204-029 Prk Brake Ctrl LH Tunnel Mnt, Integrated w/Shift Pod, Adjacent To Trans Shifter

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake.

The parking brake actuation valve shall be mounted to the left side of the engine tunnel integrated into the transmission shift pod console within easy access of the driver.

3214-002 Rr Brake Slack Adjusters Haldex

REAR BRAKE SLACK ADJUSTERS

Haldex rear brake automatic slack adjusters shall be installed on the axle.

3202-001 Air Dryer Wabco System Saver 1200 Bhd RH Step

AIR DRYER

The brake system shall include a Wabco System Saver 1200 air dryer with an integral 100 watt heater with a Metri-Pack sealed connector. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be located on the right hand frame rail forward of the front wheel behind the right hand cab step.

3215-004 Frt Brake Chambers MGM Type 24 Long Stroke

FRONT BRAKE CHAMBERS

The front brakes shall be provided with MGM type 24 long stroke brake chambers.

3210-015 Rr Brake Chambers TSE 30/36 Long Stroke

10080-0002

REAR BRAKE CHAMBERS

The rear axle shall include TSE 30/36 brake chambers which shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake shoes against the brake drum. The TSE Type 36 brake chamber has a 36.00 square inch effective area.

3320-001 Air Compressor Wabco SS318 18.7 CFM**AIR COMPRESSOR**

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

3339-004 Air Governor Mnt on Air Dryer Bracket**AIR GOVERNOR**

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

3303-008 Moisture Ejectors w/Cable/Auto Wet Tank w/Cable**MOISTURE EJECTORS**

An automatic moisture ejector with a manual cable actuated drain provision shall be installed on the wet tank of the air supply system. Manual cable actuated drain valves shall be installed on all remaining reservoirs of the air supply system. The actuation pull cables shall be coiled and tied at each drain valve. The supplied cables when extended shall be sufficient in length to allow each drain to be activated from the side of the apparatus.

3307-101 Air Sply Lines Nylon w/PTC Fittings**AIR SUPPLY LINES**

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

Push to connect type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

3334-002 Air Tank Spacers Inboard 1.5"**AIR TANK SPACERS**

The air tanks shall be moved 1.50 inches inward towards the center of the chassis from the standard position when mounted in the frame rail. This shall provide clearance between the air tanks and the frame for body U-bolt clearance.

3338-002 Rear Air Tank Mnt Any Bhd Rear Axle Perpendicular w/Frame**REAR AIR TANK MOUNTING**

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

2103-1830 Wheelbase 183.0"

WHEELBASE

The chassis wheelbase shall be 183.00 inches.

2106-0560 Rear Overhang 56.0"

REAR OVERHANG

The chassis rear overhang shall be 56.00 inches.

2101-002 Frame Double Channel 35.00" Width

FRAME

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

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

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

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

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

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

2111-124 Misc Frame Options Spartan ERV Vibratorque Hole Pattern HF9R7C

MISCELLANEOUS FRAME OPTIONS

The frame shall include hole patterns which shall be specific to Crimson Vibratorque style body mounting. There shall be nine (9) mounting locations forward of the centerline of rear axle, and seven (7) mounting locations rearward of the centerline of rear axle, and one (1) mounting location centered over the centerline of rear axle.

See PDF for OEM specified pattern.

2118-004 Rear Tow Device Spartan ERV Pumper Pattern**REAR TOW DEVICE**

The frame rails shall contain (6) holes per frame in a pattern specified by the OEM for mounting Spartan ERV tow eyes at the rear of the frame at a location defined by the OEM.

2110-201 Frame Paint Hot Dipped Galvanized - Frame Only Addl Comp Blk Powder Coat**FRAME PAINT**

The frame rails shall be hot dip galvanized prior to assembly and attachment of any components. The components that shall be galvanized shall include:

- Main frame “C” channel or channels

The frame parts which are not galvanized shall be powder coated prior to any attachment of components. Parts which shall be powder coated shall include but are not limited to:

- ☐ Steering gear bracket
- ☐ Front splayed rails and fish plates
- ☐ Bumper extensions
- ☐ Cross members
- ☐ Cross member gussets
- ☐ Fuel tank mounting brackets
- ☐ Fuel tank straps (unless material/finish is specified in 3130 subcat)
- ☐ Air tanks (unless color coded tanks are specified in 3205 subcat)
- ☐ Air tank mounting brackets
- ☐ Exhaust mounting brackets
- ☐ Air cleaner skid plate
- ☐ Radiator skid plate
- ☐ Battery supports, battery trays and battery covers

Other non-galvanized under carriage components which are received from the suppliers with coatings already applied shall include but are not limited to:

- ☐ Suspension components
- ☐ Front and rear axles

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

8007-036 Frame Assembly Structural Warranty (50) Year RFW0305**FRAME ASSEMBLY STRUCTURAL**

Purchaser shall receive a Frame Assembly Structural Fifty (50) Years or 250,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0305. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

8019-003 Frame Rail Corrosion Warranty (25) Year RFW0316

FRAME RAIL CORROSION

Purchaser shall receive a Frame Rail Corrosion (Zinc Plate and Powder Coat) Twenty Five (25) Years or 150,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0316. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

8022-004 Frame Components Corrosion Warranty (3) Year RFW0315**FRAME COMPONENTS CORROSION**

Purchaser shall receive a Frame Components Corrosion (Powder Coat) Three (3) Years or 48,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0313. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

2105-002 Rear Mud Flap & Fender Temp Mnt**REAR MUD FLAP**

The unit shall be equipped with a temporary wooden fender and mud flap assembly for transport to the body manufacturer.

2201-002 Frt Bumper Structural Steel Channel Severe Duty**FRONT BUMPER**

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

The bumper shall be primed and painted as specified.

2202-005 Frt Bumper Extension Length 21"**FRONT BUMPER EXTENSION LENGTH**

The front bumper shall be extended approximately 21.00 inches ahead of the cab.

2206-001 Frt Bumper Paint Primary/Lower Cab Color**FRONT BUMPER PAINT**

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

2227-025 Frt Bumper Trim SS Wide Band Frt Top Edge/Corners Abv Apron w/Iso Washers**FRONT BUMPER TRIM**

A polished stainless steel trim angle, shall be installed on the top corner of the bumper across the front and on the top corner of the bumper tails, terminating at the rearmost portion of the apron. The trim angle shall measure approximately 3.00 inches wide on the horizontal flange and 1.60 inches tall on the vertical flange. The trim shall be affixed to the bumper and bolted down to the apron with isolating washers.

2215-002 Frt Bumper Suction Provision 5.0" RH Vertical Outboard**FRONT BUMPER SUCTION PROVISION**

The bumper apron shall include a 5.00 inch stainless steel pipe intended for use as a suction intake for the pump. The suction pipe shall be routed from the right hand front bumper area to the area rear of the front axle near the back of the cab.

The front of the suction pipe shall be designed to extend vertically 2.00 inches above the top surface of the bumper in the right hand outboard position.

The forward end of the suction pipe shall be finished with a 5.00 inch National Pipe Thread (NPT). The rear of the suction shall include a Victaulic groove for connecting to the pump plumbing. The suction pipe shall also include a 0.50 inch NPT port intended as a primer assist connection.

The apparatus manufacturer shall plumb the suction pipe to the pump and shall provide all valves as required.

2208-006 Frt Bumper Apron For 21" Extension

FRONT BUMPER APRON

The 21.00 inch extended front bumper shall include an apron constructed of 0.19 inch thick embossed aluminum tread plate.

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

2237-024 Front Bumper Discharge 2.5" w/LH IB Vert Chicksan Termination On Apron w/Guard

FRONT BUMPER DISCHARGE

The bumper apron shall include a 2.50 inch diameter plumbed line intended for use as a discharge trash line. The discharge line shall be routed through the left side bumper apron down the left hand rail to the area rear of the front axle, ahead of the battery box. The discharge shall terminate vertically through the left side apron inboard position with a 2.50 inch NPT (national pipe thread) x 2.50 inch NST (national standard thread), brass Chicksan swivel to accommodate deployment of hose in different directions. The bumper apron shall feature an aluminum diamond plate Chicksan guard with two (2) rubber bump stops to prevent the Chicksan from contacting the cab. The smooth side of the guard shall feature a DA finish.

The discharge shall pipe shall be a 2.50 inch stainless steel schedule 10 tube. The discharge shall include a Victaulic groove for connecting to the pump on the end of the tube.

The apparatus manufacturer shall plumb the discharge pipe to the pump and shall provide all valves as required.

2211-075 Frt Bumper Cmpt Ctr Full Size 38.00"Wx10.88"D w/LH Notched Cover

FRONT BUMPER COMPARTMENT CENTER

The front bumper shall include a compartment in the bumper apron located in the center between the frame rails which may be used as a hose well. The compartment shall be constructed of 0.13 inch 5052-H32 grade aluminum and shall include drain holes in the bottom corners to allow excess moisture to escape. The compartment shall be the full size of available space in the apron from the cab fascia to the bumper and 38.00 inches wide X 10.88 inches deep. The clear opening shall be 37.75 inches wide. The compartment shall include a notched cover constructed of 0.19 inch thick bright embossed aluminum tread plate. The notch shall be located in the left front portion of the cover and shall be 4.00 inches in length with a 2.00 inches wide radius.

2210-002 Frt Bumper Cmpt Cover Hardware Gas Cylinder/D-Ring

FRONT BUMPER COMPARTMENT COVER HARDWARE

The front bumper compartment cover(s) shall include gas cylinder stays which shall hold the cover open. Each cover shall be held in the closed position via a D-ring style latch.

5503-021 Mechanical Siren Federal Signal Q2B Recess Mnt**MECHANICAL SIREN**

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

2218-017 Mech Siren Location Frt Bmpr Face LH OB**MECHANICAL SIREN LOCATION**

The siren shall be recess mounted on the driver side of the front fascia of the bumper, in the outboard position.

5511-003 Mechanical Siren Accessories Guards**MECHANICAL SIREN ACCESSORIES**

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

5501-020 Air Horn (2) 21" Round Hadley E-Tone**AIR HORN**

The front bumper shall include two (2) Hadley brand E-Tone air horns which shall measure 21.00 inches long with a 6.00 inch round flare. The air horns shall be trumpet style with a chrome finish on the exterior and a painted finish deep inside the trumpet.

2216-010 Air Horn Location (2) Frt Bmpr Face R/L IB**AIR HORN LOCATION**

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

2232-002 Air Horn Reservoir (1) 1200 Cu In**AIR HORN RESERVOIR**

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

5504-073 Elect Siren Speaker 100W Whelen SA314A w/Spartan Grille**ELECTRONIC SIREN SPEAKER**

There shall be one (1) Whelen Engineering Inc. model SA314A, 100 watt speakers provided. The speaker shall measure 6.40 inches tall X 6.17 inches wide X 3.14 inches deep. The speaker shall have a natural cast aluminum finish and shall be installed using a polished custom Spartan grille.

2217-005 Elec Siren Speaker Location Frt Bmpr Face RH OB**ELECTRONIC SIREN SPEAKER LOCATION**

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

2203-002 Frt Bumper Tow Hooks Painted Below Fwd

FRONT BUMPER TOW HOOKS

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

2301-036 Cab Tilt System w/Pump Bhd RH Frt Step

CAB TILT SYSTEM

The entire cab shall be capable of tilting approximately 45-degrees to allow for easy maintenance of the engine and transmission. The cab tilt pump assembly shall be located on the right side of the chassis forward of the front axle behind the officer's door area.

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

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

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

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

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

2302-014 Cab Tilt Aux Pump Manual Mnt w/Fwd Tilt Pump Mnt

CAB TILT AUXILIARY PUMP

A manual cab tilt pump module shall be attached to the cab tilt pump mounting bracket.

2303-003 Cab Tilt Limit Sw Preset Limit

CAB TILT LIMIT SWITCH

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

2305-001 Cab Tilt Ctrl Receptacle Temp

CAB TILT CONTROL RECEPTACLE

The cab tilt control cable shall include a receptacle which shall be temporarily located on the right hand chassis rail rear of the cab to provide a place to plug in the cab tilt remote control pendant. The tilt pump shall include 8.00 feet of cable with a six (6) pin Deutsch receptacle with a cap.

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

2306-002 Cab Tilt Lock Down Indicator

CAB TILT LOCK DOWN INDICATOR

The cab dash shall include a message located within the dual air pressure gauge which shall alert the driver when the cab is unlocked and ajar. The alert message shall cease to be displayed when the cab is in the fully lowered position and the hold down hooks are secured and locked to the cab mounts.

In addition to the alert message an audible alarm shall sound when the cab is unlocked and ajar with the parking brake released.

1401-109 Cab Windshield

CAB WINDSHIELD

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

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

Each windshield shall be bonded to the cab using a high strength commercial grade automotive adhesive.

1402-002 Glass Frt Dr Pwr

GLASS FRONT DOOR

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

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

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

1407-002 Glass Tint Frt Dr Automotive Dark Gray

GLASS TINT FRONT DOOR

The windows located in the left and right front doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

1419-008 Glass Rr Dr RH Pwr

GLASS REAR DOOR RH

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

1430-002 Glass Tint Rr Door RH Automotive Dark Gray
GLASS TINT REAR DOOR RIGHT HAND

The window located in the right hand side rear window shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

1412-008 Glass Rr Dr LH Pwr
GLASS REAR DOOR LH

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

1431-002 Glass Tint Rr Door LH Automotive Dark Gray
GLASS TINT REAR DOOR LEFT HAND

The window located in the left hand side rear door shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

1410-103 Glass Side Mid RH Fxd 15.50"W x 27"H
GLASS SIDE MID RH

The cab shall include a window on the right side behind the front door and ahead of the crew door and above the wheel well which shall measure approximately 15.50 inches wide X 27.00 inches high and rectangular in shape. This window shall be fixed and bonded to the cab using a high strength commercial grade automotive adhesive.

1432-002 Glass Tint Side Mid RH Automotive Dark Gray
GLASS TINT SIDE MID RIGHT HAND

The window located on the right hand side of the cab between the front and rear doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

1409-103 Glass Side Mid LH Fxd 15.50"W x 27"H
GLASS SIDE MID LH

The cab shall include a window on the left side behind the front door and ahead of the crew door and above the wheel well which shall measure approximately 15.50 inches wide X 27.00 inches high and rectangular in shape. This window shall be fixed and bonded to the cab using a high strength commercial grade automotive adhesive.

1433-002 Glass Tint Side Mid LH Automotive Dark Gray
GLASS TINT SIDE MID LEFT HAND

The window located on the left hand side of the cab between the front and rear doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

1640-007 Cabin Air Filtration System Active Air Pur Upr Ctr Rear Wall Horiz Ign/Shore Pwr
CABIN AIR FILTRATION SYSTEM

An Active Air Purification system will be installed in the cab. The system utilizes RGF's Photohydroionization® Cell (PHI-Cell®) technology which produces hydro-peroxides and hydroxide ions, reducing airborne mold, bacteria, viruses, and odors up to 99%.

The system shall include a stainless-steel housing approximately 7.50 inches high X 16.13 inches wide X 6.6 inches deep in a trapezoid shape and shall be located at the upper portion of the rear wall mounted in a horizontal orientation. The system shall be 12V DC and shall be active either when the ignition power is on, or when the shoreline is connected.

1614-204 Climate Ctrl Htr Defroster A/C SGM Ovrhd Alum 10-24" RR Short Plenum
CLIMATE CONTROL

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

Six (6) adjustable louvers shall provide comfort for the front seat occupants and ten (10) adjustable louvers shall provide comfort for the rear crew occupants. The plenum shall be shortened to terminate in the mid crew area on cabs with 10.00 inch raised roofs and greater. This shortened plenum shall allow for the customer to utilize the upper rear center wall for compartmentation, equipment, or apparatus operations.

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

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

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

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

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

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

*****The chassis manufacturer recommends that the overall climate system performance be based off third-party testing in accordance with the Society of Automotive Engineering standards as a complete system.***

Individual component level BTU ratings is not an accurate indicator of the performance capability of the completed system. System individual component BTU ratings:

- ☐ Air conditioning evaporator total BTU/HR: 82,000
- ☐ Air conditioning condenser total BTU/HR: 59,000
- ☐ Heater coil total BTU/HR: 98,000

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

1632-002 Climate Control Drain Gravity

CLIMATE CONTROL DRAIN

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

1617-201 Climate Ctrl Actv Rotary Dash Mnt Ctr

CLIMATE CONTROL ACTIVATION

The heating, defrosting and air conditioning controls shall be in the center dash center switch panel, in a position which is easily accessible to the driver. The climate control shall be activated by a rotary switch.

1620-019 HVAC Overhead Cover Paint Multi-tone Onyx Black

HVAC OVERHEAD COVER PAINT

The overhead HVAC cover shall be painted with a multi-tone onyx black texture finish.

1603-003 A/C Condenser Location Roof Mnt Fwd Ctr

A/C CONDENSER LOCATION

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

1601-013 A/C Compressor TM-31/QP-31

A/C COMPRESSOR

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

*****The chassis manufacturer recommends that the overall climate system performance be based off third-party testing in accordance with the Society of Automotive Engineering standards as a complete system.***

Individual component level ratings are not an accurate indicator of the performance capability of the completed system.

Refrigerant Compressor displacement: 19.1 cubic inches per revolution.

1608-002 Cab Circulation Fans Frt (2) Outboard

CAB CIRCULATION FANS FRONT

The cab shall include two (2) all metal 6.00 inch air circulation fans installed in the outer front cab corners. Each fan shall be controlled by an individual toggle switch on each fan. The fans can be used to help defog the windshield or to increase air circulation for passenger comfort.

1530-103 Under Cab Insulation Eng Tnl w/Removable Alum Overlay

UNDER CAB INSULATION

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

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

The engine tunnel insulation shall measure approximately 0.30 inch thick including a multi-layer foil faced glass cloth and polyester fiber layer. The foil surface acts as protection against heat, moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test.

The insulation shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation shall be held in place by acrylic pressure sensitive adhesive. In addition, the insulation shall have a removable aluminum overlay installed to protect the insulation and assist in retaining the insulation tight against the engine tunnel surfaces.

The cab floor insulation shall cover the driver and officer floor areas as well as all crew floor areas and compartment floor areas if applicable.

1327-036 Interior Trim Floor w/Cast Alum Trim

INTERIOR TRIM FLOOR

The floor of the cab shall be covered with a multi-layer mat consisting of 0.25 inch thick sound absorbing closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive and a cast aluminum trim piece at each cab door opening. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.

1302-001 Interior Trim Vinyl

INTERIOR TRIM

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

1368-002 Rear Wall Interior Trim Vinyl

REAR WALL INTERIOR TRIM

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

1306-006 Header Trim XDuty

HEADER TRIM

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

1305-015 Trim Center Dash XDuty w/Gas Cylinder Stay

10080-0002

TRIM CENTER DASH

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

1339-102 Trim LH Dash XDuty**TRIM LH DASH**

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

1321-030 Trim RH Dash XDuty Glove Cmpt/MDT Prov/4.50"H Glovebox**TRIM RH DASH**

The right hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate and shall include a glove compartment with a hinged door and a Mobile Data Terminal (MDT) provision. The glove compartment size will measure 14.00 inches wide X 4.50 inches high X 5.88 inches deep. The MDT provision shall be provided above the glove compartment.

1307-002 Eng Tnl Trim Flr Mat**ENGINE TUNNEL TRIM**

The cab engine tunnel shall be covered with a multi-layer mat consisting of 0.25 inch closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The mat shall be held in place by pressure sensitive adhesive. The engine tunnel mat shall be trimmed with anodized aluminum stair nosing trim for an aesthetically pleasing appearance.

5040-169 Pwr Pnt Dash Mnt Batt Dir (2) Dual USB Blue Sea 4.8A Sw Pnl**POWER POINT DASH MOUNT**

The cab interior shall include (2) Blue Sea dual universal serial bus (USB) charging receptacles in the cab dash switch panel to provide a power source for USB chargeable electrical equipment. The USB port shall be capable of a 5 Volt-4.8 amp total output. The receptacles shall be wired battery direct.

1303-039 Step Trim Embossed & Diamond Cut SS Lwr, TPlt Mid**STEP TRIM**

Each cab entry door shall include a three step entry. The first step closest to the ground shall be constructed of SAE 304 stainless steel with embossed perforations and diamond shaped cutout. The perforations and cutouts shall allow water and other debris to flow through rather than becoming trapped within the stepping surface. The stainless steel material shall have a number 8 mirror finish. The lower step shall be mounted to a frame which is integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed in 0.08 inch thick 3003-H22 embossed aluminum tread plate.

1379-003 Under Cab Access Door Rear Step LH Painted**UNDER CAB ACCESS DOOR**

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

1102-013 Interior Door Trim Painted
INTERIOR DOOR TRIM

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

1107-002 Door Trim Kickplate Treadplate
DOOR TRIM KICKPLATE

The inner door panels shall include an aluminum tread kick plate which shall be fastened to the lower portion of the door panels.

1105-012 Cab Dr Trim Reflective Vert Stripe/6" Red/Yellow Chevron w/Logo
CAB DOOR TRIM REFLECTIVE

The interior of each door shall include high visibility reflective tape. A white reflective tape shall be provided vertically along the outer rear edge of the door. The lowest portion of each door skin shall include a reflective tape chevron with red and yellow stripes and a Spartan logo. The chevron tape shall measure 6.00 inches in height.

1308-001 Interior Grab Handle 'A' Pillar 11" Molded
INTERIOR GRAB HANDLE "A" PILLAR

There shall be two (2) rubber covered 11.00 inch grab handles installed inside the cab, one on each "A" post at the left and right door openings. The left handle shall be located 7.88 inches above the bottom of the door window opening and the right handle shall be located 2.88 inches above the bottom of the door window opening. The handles shall assist personnel in entering and exiting the cab.

1332-008 Interior Grab Handle Frt Door Horiz 9"
INTERIOR GRAB HANDLE FRONT DOOR

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

1345-002 Int Grab Handle Rr Dr Alum Window Span 30" Black Powder Coat
INTERIOR GRAB HANDLE REAR DOOR

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

1301-003 Interior Soft Trim Color Gray
INTERIOR SOFT TRIM COLOR

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

1337-001 Interior Trim Sunvisor Vinyl
INTERIOR TRIM SUNVISOR

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

1304-002 Interior Floor Mat Color Black**INTERIOR FLOOR MAT COLOR**

The cab interior floor mat shall be black in color.

1335-018 Cab Paint Int Dr Trim Multi-tone Onyx Black**CAB PAINT INTERIOR DOOR TRIM**

The inner door panel surfaces shall be painted with multi-tone onyx black texture finish.

1371-021 Header Trim Interior Paint Multi-tone Onyx Black**HEADER TRIM INTERIOR PAINT**

The metal surfaces in the header area shall be coated with multi-tone onyx black texture finish.

1370-023 Trim Center Dash Interior Paint Multi-tone Onyx Black**TRIM CENTER DASH INTERIOR PAINT**

The entire center dash shall be coated with multi-tone onyx black texture finish. Any accessory pods attached to the dash shall also be painted this color.

1378-022 Trim LH Dash Interior Paint Multi-tone Onyx Black**TRIM LH DASH INTERIOR PAINT**

The left hand dash shall be painted with a multi-tone onyx black texture finish.

1373-022 Trim RH Dash Interior Paint Multi-tone Onyx Black**TRIM RIGHT HAND DASH INTERIOR PAINT**

The right hand dash shall be painted with multi-tone onyx black texture finish.

1344-009 Dash Pnl Group 3-Pnl w/Black Textured Aluminum Panels**DASH PANEL GROUP**

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

1312-080 Switches Ctr Pnl 6**SWITCHES CENTER PANEL**

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

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

1313-023 Switches Left Pnl 5 (3+2) Wiper Only**SWITCHES LEFT PANEL**

The left dash panel shall include five (5) switches. There shall be three (3) across the top of the panel with two (2) below. Two (2) of the top row of switches shall be rocker type and the left one (1) shall be the windshield wiper/washer control switch. The lower switches shall be a rocker type switch.

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

1314-036 Switches Right Pnl 3

SWITCHES RIGHT PANEL

The right dash panel shall include three (3) rocker switch positions in a single row configuration.

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

1225-007 Seat Belt Warn Disp w/VDR

SEAT BELT WARNING

A seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall provide a visual warning indicator in the vehicle display and control screen(s).

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

1237-005 Seat Material Bostrom Durawear Plus

SEAT MATERIAL

The Bostrom Firefighter seats shall include a covering of extra high strength, wear resistant fabric made of durable low seam Durawear Plus™ ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Durawear Plus™ meets or exceeds specification of the common trade name Imperial 1800. The material meets FMVSS 302 flammability requirements.

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

1243-003 Seat Color Black/Red Seat Belts

SEAT COLOR

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

1249-001 Seat Back Logo Spartan

SEAT BACK LOGO

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

1201-033 Seat Driver Bostrom Firefighter 8-Way Elect 500 Series ABTS

SEAT DRIVER

The driver's seat shall be an H.O. Bostrom 500 Series Firefighter Sierra model seat. The seat shall feature eight-way electric positioning. The eight positions shall include up and down, fore and aft with 8.00 inches of travel, back angle adjustment and seat rake adjustment. The seat shall feature integral springs to isolate shock.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.

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

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

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

1213-025 Seat Back Driver Non-SCBA ABTS

SEAT BACK DRIVER

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

1219-001 Seat Mounting Driver

SEAT MOUNTING DRIVER

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

8102-200 Occupant Protection Driver 4Front & Mechanical/Elect Seat RollTek w/SRA

OCCUPANT PROTECTION DRIVER

The driver's position shall be equipped with the IMMI 4Front and RollTek™ Systems which shall secure belted occupants and increase the survivable space within the cab. The 4Front and RollTek™ Systems shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, and rollover events.

The Driver's seating area protection shall include:

- ☐ Drivers airbag **DAB** - inflates a steering wheel airbag to protect the head and neck of the driver.
- ☐ Driver's knee airbag **DKAB** - inflating knee bolster airbags to protect the knees.
- ☐ Integrated roll sensor **IRS** - detects an imminent rollover, activates protective devices and records crash events.

- Integrated belt pretension **IBP** - device for mechanical and/or electrical seats tightens the seat belt, securing driver in seat and positions driver for contact with seat integrated head cushion side roll airbag.

Inflatable head cushion seat integrated side roll airbag **SRA** - protects driver's head/neck and shields driver from dangerous surfaces.

1202-036 Seat Officer Bostrom Firefighter 2-Way Manual 500 Series ABTS

SEAT OFFICER

The officer's seat shall be an H.O. Bostrom 500 Series Sierra model seat. The seat shall feature two-way manual adjustment and shall include a tapered and padded seat cushion. The seat shall also feature integral springs to isolate shock.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.

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

This model of seat shall have successfully completed the static load tests by FMVSS 207, 209, 210 and 302 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

1214-055 Seat Back Officer SCBA Bostrom SecureAll+

SEAT BACK OFFICER

The officer's seat shall feature the SecureAll+™ self-contained breathing apparatus (SCBA) locking system, designed as a single-bracket model compatible with most U.S. and international SCBA brands and sizes. The bracket shall allow tool-free adjustments to accommodate various cylinder diameters and lengths.

To modify the fit for different cylinder sizes, a simple lever mechanism shall enable vertical movement of the top clamp, eliminating the need for tools. The system shall be free of straps and clamps that might interfere with auxiliary SCBA equipment. Instead, the top clamp shall securely guide the SCBA tank into position within the seat back cavity.

The SCBA unit shall lock into place by pressing it against the pivot arm, activating the auto-locking mechanism. Once engaged, the top clamp shall provide a secure fit in all directions.

The SecureAll+™ system shall include a quick-release handle integrated into the seat cushion for easy access, along with a manual release located on the left side of the SCBA bracket. The locking mechanism shall eliminate the need for straps or pull cords, preventing interference with SCBA equipment.

Additionally, the seat back shall feature a removable padded cover over the SCBA cavity for enhanced comfort and protection.

1220-013 Seat Mounting Officer Rwd 3"**SEAT MOUNTING OFFICER**

The officer's seat shall offer a special mounting position which is 3.00 inches rearward of the standard location offering increased leg room for the occupant.

8103-200 Occupant Protection Officer 4Front & Mechanical/Elect Seat RollTek w/SRA**OCCUPANT PROTECTION OFFICER**

The officer's position shall be equipped with the IMMI 4Front and RollTek™ Systems which shall secure belted occupants and increase the survivable space within the cab. The 4Front and RollTek™ Systems shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, and rollover events.

The Officer's seating area protection shall include:

- ☐ Officer's knee airbag **OKAB** - inflating knee bolster airbags to protect the knees.
- ☐ Integrated roll sensor **IRS** - detects an imminent rollover, activates protective devices and records crash events.
- ☐ Integrated belt pretension **IBP** - device for mechanical and/or electrical seats tightens the seat belt, securing officer in seat and positioning officer for contact with seat integrated head cushion side roll airbag.
- ☐ Inflatable head cushion seat integrated side roll airbag **SRA** - protects officer's head/neck and shields officer from dangerous surfaces.

1297-002 Power Seats Wiring Battery Direct**POWER SEAT WIRING**

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

1273-001 Seat Belt Orientation Crew Outboard Shoulder To Inboard Hip**SEAT BELT ORIENTATION CREW**

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

1263-001 Seat RFO Location Primary Pos (2) R/L**SEAT REAR FACING OUTER LOCATION**

The crew area shall include two (2) rear facing crew seats, which include one (1) located directly behind the left side front seat and one (1) located directly behind the right side front seat.

The primary position designation per NFPA 1900 2024 edition, shall only declare the positioning in the cab offers a minimum width of 27.60 inches of shoulder clearance without overlap of any other primary seating position and a minimum of 10.80 inches each side of seat center line. Clear width may be offset from center of seat cushion by up to 3.00 inches. It shall also offer a minimum of 22.00 inches of shoulder width clearance without any overlap of any position.

1203-024 Seat Crew RFO Bostrom Firefighter Fold & Hold Flip-Up 500 Series

SEAT CREW REAR FACING OUTER

The crew area shall include a seat in the rear facing outboard position which shall be a H.O. Bostrom 500 Series Firefighter model seat. The seat shall feature a tapered and padded seat, and cushion. The seat and cushion shall be spring load hinged and compact in design for additional room. The seat shall include a "Fold and Hold" feature so that the cushion shall remain in the seated position and simply touched to flip up.

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

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

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

**1215-055 Seat Back RFO SCBA Bostrom SecureAll+
SEAT BACK REAR FACING OUTER**

Each rear facing outboard seat position feature the SecureAll+™ self-contained breathing apparatus (SCBA) locking system, designed as a single-bracket model compatible with most U.S. and international SCBA brands and sizes. The bracket shall allow tool-free adjustments to accommodate various cylinder diameters and lengths.

To modify the fit for different cylinder sizes, a simple lever mechanism shall enable vertical movement of the top clamp, eliminating the need for tools. The system shall be free of straps and clamps that might interfere with auxiliary SCBA equipment. Instead, the top clamp shall securely guide the SCBA tank into position within the seat back cavity.

The SCBA unit shall lock into place by pressing it against the pivot arm, activating the auto-locking mechanism. Once engaged, the top clamp shall provide a secure fit in all directions.

The SecureAll+™ system shall include a quick-release handle integrated into the seat cushion for easy access, along with a manual release located on the left side of the SCBA bracket. The locking mechanism shall eliminate the need for straps or pull cords, preventing interference with SCBA equipment.

Additionally, the seat back shall feature a removable padded cover over the SCBA cavity for enhanced comfort and protection.

**1221-009 Seat Mounting RFO Rwd 2"
SEAT MOUNTING REAR FACING OUTER**

The rear facing outer seats shall offer special mounting positions which shall be 2.00 inches towards the rear wall offering additional space between the front seats and the outer rear facing seats.

8104-200 Occupant Protection RFO RollTek w/SRA
OCCUPANT PROTECTION RFO

The rear facing outer seat position(s) shall be equipped with the RollTek™ System which shall secure belted occupants and increase the survivable space within the cab. The RollTek™ System shall deploy integrated systems to protect against injuries in rollover events.

The rear facing outer seat position(s) protection shall include:

- ☐ Integrated roll sensor **IRS** - detects an imminent rollover, activates protective devices and records crash events.
- ☐ Integrated belt pretension **IBP** - device for flip-up (non-theatre) and fixed mechanical seats tightens the seat belt, securing occupant in seat and positioning occupant for contact with seat integrated head cushion side roll airbag.

Inflatable head cushion seat integrated side roll airbag **SRA** - protects occupant's head/neck and shields occupant from dangerous surfaces.

1266-001 Seat FFC Location Secondary Pos (2) Ctr
SEAT FORWARD FACING CENTER LOCATION

The crew area shall include two (2) forward facing center crew seats with both located at the center of the rear wall.

1206-031 Seat Crew FFC Bostrom Firefighter Fold & Hold Flip-Up 500 Series
SEAT CREW FORWARD FACING CENTER

The forward facing center seat shall be a H.O. Bostrom 500 Series Firefighter model seat. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position. The seat and cushion shall be hinged and compact in design for additional room. The seat shall include a "Fold and Hold" feature so that the cushion shall remain in the seated position and simply touched to flip up.

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

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

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th

percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

1218-057 Seat Back FFC SCBA Bostrom SecureAll+

SEAT BACK FORWARD FACING CENTER

Each forward-facing center seat position shall feature the SecureAll+™ self-contained breathing apparatus (SCBA) locking system, designed as a single-bracket model compatible with most U.S. and international SCBA brands and sizes. The bracket shall allow tool-free adjustments to accommodate various cylinder diameters and lengths.

To modify the fit for different cylinder sizes, a simple lever mechanism shall enable vertical movement of the top clamp, eliminating the need for tools. The system shall be free of straps and clamps that might interfere with auxiliary SCBA equipment. Instead, the top clamp shall securely guide the SCBA tank into position within the seat back cavity.

The SCBA unit shall lock into place by pressing it against the pivot arm, activating the auto-locking mechanism. Once engaged, the top clamp shall provide a secure fit in all directions.

The SecureAll+™ system shall include a quick-release handle integrated into the seat cushion for easy access, along with a manual release located on the left side of the SCBA bracket. The locking mechanism shall eliminate the need for straps or pull cords, preventing interference with SCBA equipment.

Additionally, the seat back shall feature a removable padded cover over the SCBA cavity for enhanced comfort and protection.

8107-101 Occupant Protection FFC RollTek Belt Pretensioner

OCCUPANT PROTECTION FFC

The forward facing center seat positions shall be equipped with the RollTek™ rollover occupant protection system which shall secure occupants, increase the survivable space within the cab and protect against head/neck injuries in the event of a rollover accident.

The system shall function using a microprocessor-controlled, solid-state sensing device which, when the system detects a side roll shall provide instantaneous occupant protection (less than 0.3 seconds from trigger to total deployment) by automatically initiating the following sequence:

1. The seat belt shall tighten around the occupant.

System Components Shall Include:

Integrated Roll Sensor **IRS** - detects an imminent rollover, activates protective devices and records crash events.

Integrated Belt Pretension **IBP** with flip-up (non theatre) and fixed mechanical seats - tightens the seat belt around occupant, securing occupant in seat.

Integrated Gas Pretension **IGP** with flip-up theatre style seats - tightens the seat belt around occupant, securing occupant in seat.

1269-101 Seat Frm Fwd Fcg Dual Width

SEAT FRAME FORWARD FACING

The forward facing center seating positions shall include an enclosed seat frame located and installed on the rear wall. The seat frame shall measure 42.38 inches wide X 12.38 inches high X 22.00 inches deep. The seat frame shall be constructed of Marine Grade 5052-H32 0.19 inch thick aluminum plate. The seat box shall be painted with the same color as the remaining interior.

1281-101 Seat Frm Fwd Fcg Strg Acc Dr (2) R/L Sd

SEAT FRAME FORWARD FACING STORAGE ACCESS

There shall be two (2) access points to the seat frame storage area, one (1) on each side of the seat frame. Each access point shall be covered by a hinged door which measures 15.00 inches in width X 10.63 inches in height with an opening that measures 13.75 inches wide X 10.00 inches high.

1224-002 Seat Mounting Forward Facing Center

SEAT MOUNTING FORWARD FACING CENTER

The forward facing center seats shall be installed facing the front of the cab.

1311-101 Cab Frt Undrst Strg Acc Dr

CAB FRONT UNDERSEAT STORAGE ACCESS

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

1355-023 Seat Compartment Door Finish Multi-tone Onyx Black

SEAT COMPARTMENT DOOR FINISH

All underseat storage compartment access doors shall have a multi-tone onyx black texture finish.

1511-200 Windshield Wiper System

WINDSHIELD WIPER SYSTEM

The cab shall include a triple arm linkage wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers; each shall be affixed to a radial arm. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position.

1534-002 Electronic Windshield Fluid Level Indicator

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

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

1103-002 Cab Door Hardware Black Composite

CAB DOOR HARDWARE

The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of a fiber reinforced plastic composite with a black matt finish.

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

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

1111-001 Door Locks Manual

DOOR LOCKS

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

1503-201 Grab Handles 3-Pc Alum Knurled 18"

GRAB HANDLES

The cab shall include one (1) 18.00 inch three-piece knurled aluminum, anti-slip exterior assist handle, installed behind each cab door. The assist handle shall be made of extruded aluminum with a knurled finish to enable non-slip assistance with a gloved hand.

1503D-005 Lighted Grab Handles Red LED

LIGHTED GRAB HANDLES

The grab rails shall include a 12 volt, 17.00 inch long red LED light to provide an increased margin of safety for night time cab entry and egress.

1504-014 Mirror Aerodynamic Retractable 613305 Rmt Htd

REARVIEW MIRRORS

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

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

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

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

1529-004 Rearview Mirror Heat Sw Mirror Ctrl Pnl

REARVIEW MIRROR HEAT SWITCH

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

1513-009 Cab Fender SS Wide w/ABS Liner

CAB FENDER

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Fender shall consist of an inner liner 16.00 inches wide made of ABS composite and an outer fenderette 5.00 inches wide made of SAE 304 polished stainless steel.

1514-002 Mud Flaps Frt

MUD FLAPS FRONT

The front wheel wells shall have mud flaps installed on them.

1526-026 Cab Ext Frt & Side Emblems Spartan

CAB EXTERIOR FRONT & SIDE EMBLEMS

The cab shall include three (3) Spartan emblems. There shall be one (1) installed on the front air intake grille and one (1) emblem on each of the cab sides.

1502-050 Cab Exterior Model Nameplate Metro Star

CAB EXTERIOR MODEL NAMEPLATE

The cab shall include “Metro Star” nameplates on the front driver and officer side doors.

5109-015 Ign Mstr Rkr Sw w/Push-Button Start

IGNITION

A master battery system with a keyless start ignition system shall be provided. There shall be a three-position rocker switch with off, battery, and ignition positions as well as a stainless-steel etched engine start push-button. The engine start button shall include an illuminated LED halo ring. Both switches shall be mounted to the left of the steering wheel on the dash.

The engine start switch shall only operate when the master battery and ignition switch is in the “ignition” position.

5101-035 Batt (5) Group 31 Harris

BATTERY

The single start electrical system shall include five (5) Harris BCI 31 925 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541.

5106-003 Batt Tray (2) R/L Steel

BATTERY TRAY

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

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

5107-028 Batt Box Cover (2)

BATTERY BOX COVER

Each battery box shall include a cover which protects the top of the batteries. The covers shall be constructed of a composite material which is resistant to corrosion.

5102-001 Batt Cables

10080-0002

BATTERY CABLE

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

5108-010 Batt Jumper Stud Frt LH Lwr Step 8" Apart

BATTERY JUMPER STUD

The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver's side lower step, 8.00 inches apart. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.

5104-002 Alternator Leece-Neville 320A

ALTERNATOR

The charging system shall include a 320 amp Leece-Neville 12 volt alternator. The alternator shall include a self-exciting integral regulator.

5105-001 Starter Motor Delco

STARTER MOTOR

The single start electrical system shall include a Delco brand starter motor.

5202-400 Batt Cond Kussmaul Chief 4012 40A

BATTERY CONDITIONER

A Kussmaul Auto Charge Chief 4012 battery conditioner shall be supplied. The battery conditioner shall provide a circuit protected 40-amp output for the chassis batteries and a 20-amp output circuit for accessory loads. The conditioner shall also include a battery temperature sensor.

5218-002 Batt Cond Loc LH RFO Seat Position

BATTERY CONDITIONER LOCATION

The battery conditioner shall be mounted in the cab in the left-hand rear facing outer seating position.

5203-205 Batt Cond Display Auto Charge Status Center

BATTERY CONDITIONER DISPLAY

A Kussmaul Universal Status Center battery conditioner display shall be supplied. The display shall indicate full charge, low charge, charging, and a three (3) digit voltage reading.

5220-003 Batt Cond Display Location LH Mid Glass

BATTERY CONDITIONER DISPLAY LOCATION

The battery conditioner display shall be mounted in the cab, viewable through the cab mid side window behind the left front door.

3314-207 Aux Air Cmp Kussmaul 12V w/Auto Drain

AUXILIARY AIR COMPRESSOR

A Kussmaul Pump 12V air compressor shall be supplied. The air compressor shall be plumbed to the air brake system to maintain air pressure. The air compressor shall include an auto drain to prevent moisture from

entering the air system. The automatic moisture drain shall be plumbed into the system between the auxiliary air compressor pump and the air tanks.

3370-002 Aux Air Compressor Location RH Under Dash

AUXILIARY AIR COMPRESSOR LOCATION

The air compressor shall be installed under the dashboard on the right-hand side, forward of the officer's seating position.

5208-029 Cab/Chassis Elec Outlet 120V 20A (2) Breaker J-Box Bhd Off Wired to Inlet

CAB/CHASSIS ELECTRICAL OUTLET

There shall be a 120V 20A power junction box behind the officer's seat wired into the cab from the shore power inlet junction box. The junction box shall include two (2) circuit breakers labeled as 'ELECTRICAL RECEPTACLE'. The junction box shall provide provisions for the body builder to wire and install electrical receptacle(s) to customer specified locations in the cab.

5209-002 Elec Inlet Location LH Cab Side Mid

ELECTRICAL INLET LOCATION

An electrical inlet shall be installed on the left hand side of cab over the wheel well.

5204-055 Elec Inlet 120V 20A Auto Eject

ELECTRICAL INLET

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

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

Amp Draw Reference List:

*Kussmaul 40 LPC Charger - 5 Amps
Kussmaul Chief 4012 Charger – 5.7 Amps
Kussmaul 80 LPC Charger - 13 Amps
Kussmaul Chief 6012 Charger - 9 Amps
Blue Sea P12 7532 - 7.5 Amps
Iota DLS-45/IQ4 - 11 Amps
1000W Engine Heater - 8.33 Amps
1500W Engine Heater - 12.5 Amps
120V Air Compressor - 4.2 Amps
120V Dometic HVAC - 15 Amps*

5210-032 Elec Inlet Conn to Batt Conditioner & Outlet

ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery conditioner and the electrical outlet receptacle.

5206-002 Elec Inlet Color Yellow

ELECTRICAL INLET COLOR

The electrical inlet connection shall include a yellow cover.

5301-106 Headlights 4 Headlamps LED, Firetech FT-4X6-4KIT**HEADLIGHTS**

The cab front shall include two (2) FireTech rectangular LED headlamps with high/low beam in the same housing and two (2) separate FireTech LED high beam only headlamps mounted in bright chrome bezels.

5337-002 Headlights Above Frt Warn Lts**HEADLIGHT LOCATION**

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

5303-026 Frt Turn Signals Whelen M6 LED Above Frt Warn Rad Mnt**FRONT TURN SIGNALS**

The front fascia shall include two (2) Whelen model M6 4.00 inch X 6.00 inch amber LED turn signals which shall be installed in a chrome radius mount housing above and outboard of the front warning and head lamps.

5336-015 Side Turn/Marker Lts LED Tecniq S170**SIDE TURN/MARKER LIGHTS**

The sides of the cab shall include two (2) Tecniq S170 LED side marker lights which shall be provided just behind the front cab radius corners. The lights shall be amber with chrome bezels.

5302-018 Marker & ICC Lts Face Mnt LED In Scene Lt**MARKER AND ICC LIGHTS**

In accordance with FMVSS, there shall be five (5) marker lamps on the front of the vehicle designating identification and clearance. There shall be five (5) face mounted lights integrated into the scene light.

5350-104 Hdlt & Mrkr Lt Actv Disp/Halo w/Mrkr Lts/Ign Sw**HEADLIGHT AND MARKER LIGHT ACTIVATION**

The headlights and marker lights shall be controlled via a virtual button on the vehicle display and control screen. There shall be a virtual dimmer control on the vehicle display and control screen to adjust the brightness of the dash lights. The headlamps and markers lamps shall illuminate to 100% brilliance when the ignition switch is in the "On" position. The headlamps shall be equipped with an LED halo parking light around the perimeter of each lamp that shall activate with marker lights "on".

5333-108 Cornering Lts Whelen M6 Super LED**CORNERING LIGHTS**

The chassis shall include two (2) Whelen model M6 Super LED steady-on cornering lamps with clear lenses, one (1) each side. The lights shall be mounted within a chrome bezel.

5390-005 Cornering Lights Actv w/Turn Signal, Reverse, & Disp**CORNERING LIGHTS ACTIVATION**

Each cornering light head shall illuminate when the respective side turn signal is activated, when the vehicle is placed in reverse, or via a virtual button on the vehicle display and control screen.

5391-002 Cornering Lights Location Bumper Tail Upper Rear**CORNERING LIGHTS LOCATION**

Each cornering light head shall be located on the bumper tail, one each side, in the rearward and uppermost available space claim.

5305-350 Interior Overhead Lts Red/Clear LED

INTERIOR OVERHEAD LIGHTS

The cab shall include a LED dome lamp located over each door. The lights shall include push switches on each lamp to activate both the clear and red portions of the light individually.

5388-003 Int Ovrhd Lt Actv Resp Dr & Disp

INTERIOR OVERHEAD LIGHTS ACTIVATION

The clear portion of each lamp shall be activated by opening the respective door and via the vehicle display and control screen.

5327-012 Auxiliary Dome Lt Frt Red/Clear LED

AUXILIARY DOME LIGHT FRONT CENTER

The cab shall include a LED dome lamp as an auxiliary dome light. The auxiliary dome light shall be located over the engine tunnel. The light shall include push switches to activate both the clear and red portions of the light individually.

5323-151 Aux Dome Lt Frt Crew (2) Whelen Red/Clear LED Rr Dr Actv

AUXILIARY DOME LIGHT FRONT CREW

The cab shall include two (2) Whelen LED red/clear type auxiliary dome lights in the headliner inboard of the rear facing crew seat. They shall be rectangular shaped and measure approximately 7.00 inches in length X 3.00 inches in width, with a black colored bezel. The clear portion of each light shall be activated by the rear doors as well as a push button on each light. The red portion of each light shall be activated by a push button on each light only.

5403-050 Lightbar Prov Wire & Mnt Chassis Supply

LIGHTBAR PROVISION

There shall be one (1) light bar installed on the cab roof. The light bar shall be provided and installed by the chassis manufacturer. The light bar installation shall include mounting and wiring to a control switch on the cab dash.

5450N-011 Cab Front Lightbar Model Whelen - Not Listed/PreConfigured

CAB FRONT LIGHTBAR MODEL

The cab shall be provided with one (1) Whelen light bar.

See the light bar layout for specific details.

5450-233 Cab Frt Ltbar Whelen Freedom F4N72QLED 12R2C Layout 1

CAB FRONT LIGHTBAR

The lightbar provisions shall be for one (1) Whelen brand Freedom IV LED lightbar mounted centered on the front of the cab roof. The lightbar shall be 72.00 inches in length. The lightbar shall feature twelve (12) red LED light modules and two (2) clear LED light modules. The entire lightbar shall feature a clear lens. The clear lights shall be disabled with park brake engaged. The cable shall exit the lightbar on the right side of the cab.

5426-003 Lightbar Sw Disp
LIGHTBAR SWITCH

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

5317-158 Frt Scene Lts FireTech FT-B-72-ML-W 12V LED 72" White
FRONT SCENE LIGHTS

The front of the cab shall include one (1) HiViz model FireTech FT-B-72-ML-W LED scene light installed on the brow of the cab. The light shall feature (5) five integrated marker lights.

The housing shall be powder coated white.

5329-003 Frt Scene Lt Loc Ctr Brow Pos
FRONT SCENE LIGHT LOCATION

There shall be one (1) scene light mounted center on the front brow of the cab.

5335-041 Frt Scene Lts Actv Rkr Sw Pnl (3) Sw Indv Circuit Scene/Spot/Flood Brow Lt
FRONT SCENE LIGHTS ACTIVATION

The front scene lighting shall be activated by individual rocker switches for each of the three (3) separate scene lighting circuits. Each circuit shall be activated independently and shall include rocker switches labeled "Front Scene", "Front Flood", and "Front Spotlight".

5306-220 Side Scene Lts Whelen M9 EZ Series 12V LED
SIDE SCENE LIGHTS

The cab shall include two (2) Whelen M9 EZ LED scene lights, one (1) each side which shall be surface mounted in a chrome bezel.

5318-004 Side Scene Lt Loc Upper Mid Rwd 10" Roof Position
SIDE SCENE LIGHT LOCATION

The scene lighting located on the left and right sides of the cab shall be mounted rearward of the cab "B" pillar in the 10.00 inch raised roof portion of the cab between the front and rear crew doors.

5316-033 Side Scene Actv Indv Lighted Momentary Sw, Indv Disp Actv, Resp Side Doors
SIDE SCENE ACTIVATION

The scene lights shall be activated by two (2) lighted momentary rocker switches located in the switch panel, one (1) for each light, by two (2) virtual buttons on the vehicle display and control screen(s), one (1) for each light, and by opening the respective side cab doors.

5330-035 Rear Scene Lts Body Mount Provision
REAR SCENE LIGHTS

The vehicle shall include multiplex activated rear scene lighting for body builder installed scene lights and body builder installed multiplex output.

5331-022 Rear Scene Lt Actv Sgl Sw Disp & Rev Sw**REAR SCENE LIGHT ACTIVATION**

The rear scene lighting shall be activated via a virtual button on the vehicle display and control screen and interlocked for activation when the transmission is placed in reverse.

5308-300 Ground Lts Tecniq T44 LED**GROUND LIGHTS**

Each door shall include a Tecniq T44 LED ground light mounted to the underside of the cab step below each door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life.

5386-004 Ground Lt Actv Prk Brk, Resp Sd Dr & Disp**GROUND LIGHTS**

The ground lighting shall be activated when the parking brake is set, by the opening of the door on the respective cab side, and through a virtual button on the vehicle display and control screen.

5319-003 Under Bmpr Lts 4" LED Prk Brk & Marker Lts**UNDER BUMPER LIGHTS**

There shall be two (2) 4.00 inch round LED NFPA compliant ground lights mounted under the bumper. The lights shall include a polycarbonate lens, a housing which is vibration welded, and LEDs which shall be shock mounted for extended life. The under bumper ground lighting shall be interlocked with the park brake and the marker light activation.

5309-003 Lwr Cab Step Lts Tecniq T44 LED**LOWER CAB STEP LIGHTS**

The middle step located at each door shall include a Tecniq T44 LED light which shall activate with the opening of the respective door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life.

5382-008 Intermediate Step Lts Tecniq D06 LED Frt Drs**INTERMEDIATE STEP LIGHTS**

The intermediate step well area at the front doors shall include a TecNiQ D06 LED light within a chrome housing. The front egress step lights shall provide visibility to the step well area for the first step exiting the vehicle. The Egress step lights shall activate with entry step lighting.

5312-003 Engine Cmpt Work Lt LED (1)**ENGINE COMPARTMENT LIGHT**

There shall be a LED NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall activate automatically when the cab is tilted.

5406-119 Do Not Move App Lt Flashing Red Tecniq K50 LED w/Alarm**DO NOT MOVE APPARATUS LIGHT**

The front headliner of the cab shall include a flashing red TecNiq K50 LED light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated.

The flashing red light shall be located centered left to right for greatest visibility.

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

5422-002 Mstr Warn Sw Disp

MASTER WARNING SWITCH

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

5409-002 Headlight Flasher Alternating

HEADLIGHT FLASHER

An alternating high beam headlight flashing system shall be installed into the high beam headlight circuit which shall allow the high beams to flash alternately from left to right.

Deliberate operator selection of high beams will override the flashing function until low beams are again selected. Per NFPA, these clear flashing lights will also be disabled "On Scene" when the park brake is applied.

5425-003 Headlight Flasher Sw Disp

HEADLIGHT FLASHER SWITCH

The flashing headlights shall be activated through a virtual button on the Vista display and control screen.

5401-079 Inboard Frt Warn Lts Whelen M6 LED TripleFlash 75 I/O Pattern Chrm Bezel

INBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen M6 Super LED front warning lights in the left and right inboard positions. The lights shall feature multiple flash patterns including steady burn. The lights shall be mounted to the front fascia of the cab within a chrome bezel. The warning lights shall be set to emit the "TripleFlash 75" in/out flash pattern.

5413-003 Inboard Frt Warn Lts Color Red w/Clr Lens

INBOARD FRONT WARNING LIGHTS COLOR

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

5414-057 Outboard Frt Warn Lts Whelen M6 LED TripleFlash 75 I/O Pattern Chrm Bezel

OUTBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen M6 Super LED front warning lights in the left and right outboard positions. The lights shall feature multiple flash patterns including steady burn. The lights shall be mounted to the front fascia of the cab within a chrome bezel. The warning lights shall be set to emit the "TripleFlash 75" in/out flash pattern.

5415-003 Outboard Frt Warn Lts Color Red w/Clr Lens

OUTBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the outboard position shall be red with a clear lens.

5423-003 Frt Warn Sw Disp

FRONT WARNING SWITCH

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

5402-080 Side Warn Lts Whelen M6 LED TripleFlash 75 I/O Pattern

SIDE WARNING LIGHTS

The cab sides shall include two (2) Whelen M6 Super LED warning lights, one (1) on each side. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the sides of the cab within a chrome bezel. The light shall be programmed to emit the "TripleFlash 75" in/out flash pattern.

5418-003 Side Warn Lts Color Red w/Clr Lens

SIDE WARNING LIGHTS COLOR

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

5412-009 Side Warn Lts Location Lwr Mid Fwd Position

SIDE WARNING LIGHTS LOCATION

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

5424-003 Side & Intersection Warn Sw Disp

SIDE AND INTERSECTION WARNING SWITCH

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

5407-019 Int Dr Open Warn Lts Amber Weldon 15" LED Dir Flsh

INTERIOR DOOR OPEN WARNING LIGHTS

The interior of each door shall include one (1) 15.87 inch long X 0.73 inch tall amber Weldon LED warning light. The light shall be located on the upper portion of the door frame to be visible when a person is standing in front of the door while entering or exiting the cab. Each light shall activate with a scrolling directional flash pattern which moves from inside to outside when the door is in the open position. This shall serve as a warning to oncoming traffic.

5510-079 Siren Ctrl Head Whelen 295HFSC9

SIREN CONTROL HEAD

A Whelen 295HFSC9 electronic siren control head shall be provided. The siren head shall feature a 200-watt output, wail, yelp, manual siren, and hands free operation which shall allow the operator to turn the siren on and off from the horn ring if a horn/siren selector switch option is also selected. The siren shall be installed in the switch panel with a location specific to the customer's needs.

5514-101 Horn Btn Sel Sw Elec Horn/Air Horn Disp

STEERING WHEEL HORN BUTTON SELECTOR SWITCH

A virtual button on the vehicle display and control screen shall be provided to allow control of either the electric horn or the air horn from the steering wheel horn button.

5526-003 Audible Warning LH Foot Switch Air Horn & Siren

AUDIBLE WARNING LH FOOT SWITCH

Two (2) foot actuated switches shall be supplied for installation in the front section of the cab for driver actuation. One (1) switch shall be wired to actuate the air horn(s) and one (1) switch the mechanical siren(s).

5526A-001 Air Horn Foot Switch LH Linemaster 491-S

AIR HORN FOOT SWITCH LH

The air horn foot switch shall be a Linemaster model 491-S.

5526B-001 Air Horn Foot Switch LH Location A-Pillar

AIR HORN FOOT SWITCH LH LOCATION

The air horn foot switch shall be located on the left hand side accessible to the driver between the steering column and the door.

5526C-001 Air Horn Foot Switch LH Position Inboard of Other Foot Switch

AIR HORN FOOT SWITCH LH POSITION

The air horn foot switch shall be positioned inboard of any other foot switch, if applicable.

5526D-001 Mechanical Siren Foot Switch LH Linemaster 491-S

MECHANICAL SIREN FOOT SWITCH LH

The mechanical siren foot switch shall be a Linemaster model 491-S.

5526E-001 Mechanical Foot Switch LH Location A-Pillar

MECHANICAL SIREN FOOT SWITCH LH LOCATION

The mechanical siren foot switch shall be located on the left hand side accessible to the driver between the steering column and the door.

5526F-001 Mechanical Siren Foot Switch Position Outboard of Other Foot Switches

MECHANICAL SIREN FOOT SWITCH LH POSITION

The mechanical siren foot switch shall be positioned outboard of any other foot switch, if applicable.

5529-002 Audible Warn LH Ft Sw Double Brkt 30Deg TPlate

AUDIBLE WARNING LH FOOT SWITCH BRACKET

A 30.00 degree angled foot switch bracket, wide enough to accommodate (2) foot switches, shall be installed outboard of the steering column for specified driver accessible foot switch activations.

5527-004 Audible Warning RH Foot Switch Siren

AUDIBLE WARNING RH FOOT SWITCH

A foot switch wired to actuate the mechanical siren(s) shall be supplied for installation in the front section of the cab for officer actuation.

5527C-001 Mechanical Siren Foot Switch RH Linemaster 491-S

MECHANICAL SIREN FOOT SWITCH RH

The mechanical siren foot switch shall be a Linemaster model 491-S.

5527D-002 Mechanical Siren Foot Switch RH Location Temporary Firewall Inboard Coiled
MECHANICAL SIREN FOOT SWITCH RH LOCATION

The mechanical siren foot switch shall be temporarily tied up with a coiled wire drop at the firewall inboard for installation by the customer on the right hand side accessible to the officer.

5512-013 Air Horn Actv L/R Lanyard
AIR HORN AUXILIARY ACTIVATION

The air horn activation shall be accomplished by two (2) lanyard cables, one (1) on the left hand side accessible to the driver and one (1) on the right hand side accessible to the officer. An air horn activation circuit shall be provided to the chassis harness pump panel harness connector.

5513-500 Mech Siren Brk Sw
MECHANICAL SIREN BRAKE/AUXILIARY ACTIVATION

A red momentary siren brake rocker switch shall be provided in the switch panel on the dash.

5532-001 Mechanical Siren Interlock Master Warn Only
MECHANICAL SIREN INTERLOCK

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

5505-002 Back-Up Alarm Ecco 575
BACK-UP ALARM

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

5601-063 Instrumentation Digital Innovative Controls Touchscreen
INSTRUMENTATION

An Innovative Controls Digital Instrument Cluster (DIC) shall be provided that combines gauges, telltales, warning messages, and advanced diagnostic capabilities into a single 12.8-inch digital display. The display screen shall have an anti-reflective coating and include touch screen and mechanical button user interaction with the display as well as video and audio interfaces.

The DIC shall include a vehicle odometer which displays the total vehicle distance traveled. The DIC shall also include two vehicle trip odometers (TRIP A and TRIP B) which indicate the distance traveled and average fuel economy for each respective trip. The operator may select which odometer is displayed and may reset either trip odometer through the on-screen display. The DIC shall include an engine hour meter which displays the total engine hours of operation.

The gauges shall have high-contrast white scales with orange pointers. The following gauges shall be included on the display:

- ☐ Speedometer that indicates vehicle speed. The scale on the speedometer shall read from 0 to 100 MPH. A numerical display of vehicle speed shall also be shown on the gauge.
- ☐ Tachometer that indicates engine speed. The scale of the tachometer shall read from 0 to 3000 RPM.

- Primary and secondary air pressure gauges shall indicate the pressure in the primary and secondary air systems. The scale of the air pressure gauges shall read from 0 to 160 pounds per square inch (PSI). The gauge icon and scale shall turn amber when the system pressure drops below 70 PSI. The icon and scale shall turn red when the system pressure drops below 62 PSI. An audible alarm shall also sound when air pressure is low.
- Fuel gauge. The fuel gauge shall read from empty to full as a fraction of full tank capacity. The gauge icon and scale shall turn amber when the fuel level is below 1/8th tank capacity (1/4th tank in pump mode). An audible alarm shall also sound with low fuel level.
- Diesel exhaust fluid (DEF) gauge. The DEF gauge shall read from empty to full as a fraction of full tank capacity. The gauge icon and scale shall turn amber, and an audible alarm shall sound to indicate low DEF level.
- Engine oil pressure gauge. The scale of the engine oil pressure gauge shall read from 0 to 100 PSI. The gauge icon and scale shall turn red, and an audible alarm shall sound to indicate low oil pressure.
- Engine coolant temperature gauge. The scale of the coolant temperature shall read from 100 to 250 degrees Fahrenheit (°F). The gauge icon and scale shall turn red, and an audible alarm shall sound to indicate high coolant temperature.
- Voltmeter indicating chassis system voltage. The scale of the voltmeter shall be from 10 to 18 volts. The gauge icon and scale shall turn red, and an audible alarm shall sound when the system voltage drops below 11.8 volts for more than 120 seconds in accordance with the requirements of NFPA 1901. The gauge icon and scale shall turn red, and an audible alarm shall sound when the system voltage rises above 15.5 volts for more than 5 seconds.
- Transmission temperature gauge. The scale of the transmission temperature shall read from 100 to 300 degrees Fahrenheit (°F). The gauge icon and scale shall turn amber, and an audible alarm shall sound to indicate high transmission temperature.

The DIC shall include thirty-six (36) colored telltales to indicate vehicle operating conditions. The DIC shall provide text-based warning messages to accompany all telltales. The DIC shall contain an audible alarm capable of providing different alert sounds based on the type of warning. The audible alarm shall be capable of being heard from all seating positions in the cab. The operator shall be able to silence active alarms that are permitted to be silenced by applicable regulations. The DIC shall contain the following indicators and produce the following audible alarms when supplied in conjunction with applicable configurations:

RED TELLTALES

- Air Filter Restriction - indicates restriction of the engine air intake filter
- Air Pressure (Primary) – indicates critically low primary system air pressure
- Air Pressure (Secondary) – indicates critically low secondary system air pressure
- Cab Tilt Warning - indicates the cab tilt system locks are not engaged
- Coolant Temperature – indicates high engine coolant temperature
- Low Coolant - indicates critically low engine coolant
- Oil Pressure – indicates critically low engine oil pressure
- Park Brake - indicates parking brake is set
- Seat Belt - indicates a seat belt violation
- Stop Engine - indicates critical engine fault
- Voltage – indicates critically low or high system voltage

AMBER TELLTALES

- Supplemental Restraint System (SRS) – ISO Icon indicates an SRS fault
- Anti-Lock Brake System (ABS) - indicates anti-lock brake system fault
- Check Engine - indicates engine fault
- Check Transmission - indicates transmission fault

- Diesel Exhaust Fluid (DEF) level – indicates low DEF level
- Diesel Particulate Filter (DPF) - indicates restriction of the diesel particulate filter
- Electronic Stability Control (ESC) – indicates active electronic stability control system
- Fuel Level – indicates low fuel
- High Exhaust System Temperature (HEST) – indicates elevated exhaust temperature
- Malfunction Indicator Lamp (MIL) - indicates an engine emissions system fault
- Regen Inhibit - indicates regeneration of the DPF has been inhibited by the operator
- Transmission Temperature – indicates high transmission or transmission retarder temperature
- Transmission Range Inhibit - indicates a transmission operation is prevented and requested shift into gear may not occur
- Wait to Start - indicates active engine air preheat cycle
- Water in Fuel - indicates presence of water in fuel filter
- Windshield Washer Fluid – indicates low washer fluid

GREEN TELLTALES

- ☐ Automatic Traction Control (ATC) - indicates low wheel traction for automatic traction control equipped vehicles. Also indicates mud/snow mode is active for ATC system
- ☐ Auxiliary Brake - indicates secondary braking device is active
- ☐ Cruise Control - indicates cruise control is enabled
- ☐ High Idle - indicates engine high idle is active
- ☐ OK to Pump - indicates that conditions have been met for pump operations
- ☐ Left and Right Turn Signal – indicates active turn signal
- ☐ Pump Engaged - indicates the pump transmission is currently in pump gear

BLUE TELLTALES

- ☐ High Beam indicator

AUDIBLE ALARMS

- ☐ ABS System Fault
- ☐ Air Filter Restriction
- ☐ APS System Fault
- ☐ Cab Tilt Warning
- ☐ Check Engine
- ☐ Check Transmission
- ☐ Do Not Move Apparatus (open door/compartment)
- ☐ DPF Restriction
- ☐ High Coolant Temperature
- ☐ High or Low System Voltage
- ☐ High Transmission Temperature
- ☐ Idle Shutdown
- ☐ Low Air Pressure
- ☐ Low Coolant Level
- ☐ Low DEF Level
- ☐ Low Engine Oil Pressure
- ☐ Low Fuel
- ☐ Seatbelt Warning
- ☐ Stop Engine
- ☐ Turn Signal On
- ☐ Water in Fuel

The DIC shall allow the user to configure settings through an on-screen menu. The following settings shall be adjustable by the user:

- Distance/Speed Units – English (miles/MPH) or metric (kilometers/KPH)
- Temperature Units – degrees Fahrenheit (°F) or degrees Celsius (°C)
- Pressure Units – pounds per square inch (PSI) or kilopascals (kPA)
- Odometer/Trip odometer–chose which odometer is displayed and reset trip odometers
- Display Brightness – adjust brightness levels for both day and night settings
- Volume – adjust volume of display speaker
- Auxiliary Gauges – configure location of auxiliary gauges

The DIC shall include on-screen control of the diesel particulate filter (DPF). The DIC shall be capable of initiating and halting a manual DPF regeneration cycle. Also, the DIC shall be capable of inhibiting DPF regeneration when not desired by the operator.

The DIC shall be capable of displaying detailed diagnostic information. Diagnostic information screens shall only be accessible when the park brake is set to prevent unsafe operation of the vehicle. The following information shall be available through the on-screen menu:

- ☐ On-Board Diagnostics (OBD) faults – display of all active OBD faults, including the system reporting the fault, the suspect parameter number (SPN), and the failure mode identifier (FMI)
- ☐ Messages– display a list of all active warning messages and the status of alarms
- ☐ Vehicle Info – display of broadcast chassis information, including Vehicle Identification Number (VIN)
- ☐ Pump Interlocks – display pump interlocks status, engine speed, and transmission output speed
- ☐ Input/Output Diagnostics – display the state of all wired inputs and outputs to the DIC
- ☐ Symbol Legend – display a glossary of all symbols and icons used on the DIC
- ☐ J1939 Databus Info – display a list of all electronic control units (ECUs) communicating on the vehicle J1939 databus and display a list of all current message data on J1939

5624-005 Backlighting Color Red Switch Backlighting w/White Digital Dash Display

BACKLIGHTING COLOR

The digital dash instrumentation gauges shall display in white and the switch panel legends shall be backlit using red LED backlighting.

5607-030 Hour Meter Digital Dash Engine/Pump

HOUR METER

An hour meter for the engine and the pump hours shall be included within the digital dash display which shall measure the number of hours the engine and the driveline pump has been operated.

5728-009 Camera HD Rear Box

CAMERA REAR

One (1) Audiovox Voyager heavy duty box shaped HD camera shall be shipped loose for OEM installation in the body to afford the driver a clear view to the rear of the vehicle.

The camera system shall include a one-way communication device that shall be an integral part of the rear camera for the use of voice commands directly to the driver. The rear camera display shall activate when the vehicle's transmission is placed in reverse.

5731-004 Camera Display on Disp

CAMERA DISPLAY

The camera system shall be wired to a single vehicle display and control screen located on the driver's side dash. The camera system display can be activated through the vehicle display and control screen.

5732-002 Camera Speaker
CAMERA SPEAKER

The rear camera shall be wired to speaker(s) in the cab and shall audible to the driver and officer. There shall be a virtual button provided on the Vista display and control panel to deactivate the speaker(s).

8806-001 Fire Extinguisher Shiploose
FIRE EXTINGUISHER

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

8810-001 Door Keys for Manual Locks (4)
DOOR KEYS

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

8030-021 Chassis Operation Manual w/On-Board USB Storage
CHASSIS OPERATION MANUAL

The chassis operation manual shall be contained in an on board USB digital storage device. The chassis operation manual shall be accessible through a USB port provided in the OBD diagnostic panel.

8031-024 Eng & Trans Operation Man Eng Hard Copy/Trans Digital/Eng Owner Digital
ENGINE AND TRANSMISSION OPERATION MANUALS

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

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

8805-019 Cab/Chassis As Built Wiring Diagrams w/On-Board USB Storage
CAB/CHASSIS AS BUILT WIRING DIAGRAMS

The cab and chassis wiring schematics and option wiring diagrams shall be contained in an on board USB digital storage device. The cab and chassis wiring schematics and option wiring diagrams shall be accessible through a USB port provided in the OBD diagnostic panel.

8039-001 Sales Terms
SALES TERMS

The sale of the chassis shall be governed by the terms contained on the Sales Terms – Acceptance of Purchase Order document, a copy of w

One (1) == S180 Model 4116 Side Control Pumper - Boiler Plate - 10.360 05/21/26 ==

One (1) ***Base Model 4116***Base Model 4116***Base Model 4116***Base Model 4116***
00-00-0116

One (1) General Specifications, Pumper (S180)
00-01-100S

INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to provide a complete apparatus equipped as hereinafter and as specified. With a view to obtaining the best results and the most acceptable apparatus for service in the Department, these specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment, and appliances with which the successful bidder shall conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor, who shall be solely responsible for the design and construction for all features. The manufacturer shall provide loose equipment only when specified by the customer. The current NFPA (Standard for Automotive Fire Apparatus) at time of contract, unless otherwise specified as requested by the customer in these specifications, shall prevail.

The apparatus must meet all NFPA, DOT, ICC, AE, SAE, UL, TRA, FMVSS and local state Motor Vehicle Requirements.

It is required that the apparatus be manufactured to current NFPA edition standards, all NFPA equipment (LOOSE EQUIPMENT) not specified in the specifications will not be provided by the contractor.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction that have been in business and construction for a minimum of twenty-five (25) years.

The bidder of the apparatus herein specified; shall be wholly owned (100%) and managed by a Company, Corporation, and/or Parent Company that is wholly based, and permanently resides in the United States of America.

The Company, Corporation, and/or Parent Company and all assets belonging to such, shall be wholly owned and managed (100%) by the entities specified above.

The bidder shall state the location of the manufacturing facility where the apparatus is to be built and the location of the parent company if a subsidiary of a manufacturer.

The bidder shall provide satisfactory evidence of their ability to construct the apparatus specified in the bidders' manufacturing facilities.

The bidder's representation shall state the length of time representing the manufacturer of specified apparatus.

Due to the severe service requirements, the department will impose on the apparatus as specified, each bidder shall provide a list of at least six (6) departments in which similar apparatus utilizing the brand of chassis proposed have been in service for over one year. This list shall include contact names and phone numbers.

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-training personnel.

The bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus being provided under this contract which conform. Computer runoff sheets are not acceptable as "Contractor's Specifications". Item compliance shall be indicated in the "Yes/No" column of each item by all Bidders. Note: Each bidder shall submit their bid in the same sequence as these specifications to allow the department to easily compare.

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

QUALITY AND WORKMANSHIP

The design of the Apparatus shall embody the latest approved automotive engineering practices.

The workmanship must be of the highest quality in its respective field. Special consideration will be given to the following points: Accessibility of the various units, which require periodic maintenance, ease of operation (including both pumping and driving) and symmetrical proportions.

Construction shall be rugged and ample safety factors shall be provided to carry loads as specified and to meet both on and off-road requirements and to speed conditions as set forth under "Performance tests and requirements".

Welding shall be employed in the assembly of the apparatus in a manner that will not prevent the ready removal of any component part for service or repair, with apparatus bodies of bolt together design not being acceptable.

All steel welding shall follow American Welding Society requirements for AWS D1.1:2012 Structural Welding Code for welding steel structural assemblies. All aluminum welding shall follow American Welding Society requirements for AWS D1.2/D1.2M:2003 Structural Welding Code for any type of structure made from aluminum structural alloys. All sheet metal welding shall follow American Welding Society AWS D9.1M/D9.1:2006 Structural Welding code for Arc/Braze requirements of non-structural materials. All pressure pipe welding shall follow American Society of Mechanical Engineers ASME IX/ ASME B31:2010 requirements to the qualification of procedures in welding and brazing, in accordance with the ASME Boiler and Pressure Vessel Code and the ASME B31 Code for Pressure Piping. Flux core arc welding to use alloy rods, type 7000, American Welding Society AWS standards A5.20-E70T1.

DELIVERY

The bidder shall provide the number of calendar days from the date the bid is awarded to the delivery of the completed unit.

A qualified delivery engineer representing the contractor shall deliver the apparatus and instruct the Fire Department personnel in the proper operation, care and maintenance of the equipment delivered.

To ensure 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.

PERFORMANCE TESTS AND REQUIREMENTS

A road test shall be conducted with the apparatus fully loaded to its estimated in-service weight and shall be capable of the following performance while on dry paved roads that are in good condition and for a continuous run of ten (10) miles or more, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. The successful bidder shall provide a Weight Certificate showing weights on front axle, rear axles, and total weight for the completed apparatus at time of delivery.

- A. The apparatus shall be capable of accelerating to 35 MPH (55 km/hr) from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed RPM of the engine.
- B. The apparatus, fully loaded, shall be capable of obtaining a minimum top speed of 50 MPH (80 km/hr) on a level dry concrete highway with the engine not exceeding its governed RPM (fully loaded).
- C. The service brakes shall be capable of stopping a fully loaded vehicle in 35ft (10.7 m) at 20 mph (32.2 km/hr) on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.
- D. The apparatus, when fully loaded, shall have not less than 25 percent or more than 50 percent of the weight on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle.
- E. 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.
- F. The apparatus will be able to maintain a speed of at least 20 mph on any grade up to and including 6 percent.
- G. The contractor shall have a third party testing company conduct the tests of the apparatus as in accordance with standard practices required by the third party testing company (Guide for the Certification of Fire Department Pumper latest edition). A copy of all tests shall accompany the Apparatus. (For apparatus sold within Canadian ULC S515 latest revision shall prevail).
- H. The contractor shall provide copies of the Pump Manufacturer's Certification of hydrostatic test, the Engine Manufacturer current certified brake horsepower curve, and the Manufacturer's record of pumper construction details when delivered.
- I. All fluid levels and applicable pressures will be brought to proper levels and noted prior to final delivery.

INFORMATION REQUIRED

The manufacturer shall supply, at time of delivery, a complete operation and maintenance

manual covering the completed apparatus as delivered.

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 shall be mounted in the driver's compartment to specify the quantity and type of the following fluids used in the vehicle: Engine oil, engine coolant, and chassis transmission fluid, pump transmission lubrication fluid, pump primer fluid (if used), and drive axle lubrication fluid.

The manufacturer shall supply the final certification of GVWR and GAWR on a nameplate affixed to the vehicle.

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

Signs that state "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION" shall be provided and will be visible from each seated position. An accident prevention sign shall be located at the rear step area of the apparatus. It shall warn all personnel that standing on the step while apparatus is in motion shall be prohibited.

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

LIABILITY

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

GENERAL CONSTRUCTION

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles, so that all specified equipment, including filled water tank, a full complement of personnel and fire hose will be carried without injury to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the current NFPA, Standard for Automotive Fire Apparatus, documentation at time of contract signing.

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

The GAWR and GVWR of the chassis shall be adequate to carry the fully equipped apparatus including all tanks filled, the specified hose load, unequipped personnel weight, ground ladders,

and a miscellaneous equipment allowance per NFPA criteria. It shall be the responsibility of the purchaser to provide the contractor with the weight of equipment to be carried if it is in excess of the allowance as set forth by NFPA.

The unequipped personnel weight shall be calculated at 250 lbs. per person times the maximum number of persons to ride on the apparatus.

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

The front to rear weight distribution of the fully loaded vehicle shall be within the limits set by the chassis manufacturer. The front axle loads shall not be less than the minimum axle loads specified by the chassis manufacturer, under full loads 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, shall not exceed 7 percent.

The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment, and repair.

Where special tools manufactured or designed by the contractor and are required to provide routine service on any component of the apparatus built or supplied by the contractor, such tools shall be provided with the apparatus.

EXCEPTIONS TO SPECIFICATIONS

The following specifications shall be strictly adhered to. Exceptions shall be allowed if they are equal to or superior to that as specified and providing, they are listed and entirely explained on a separate page entitled "Exceptions to Specifications". The exceptions list to refer to specification page number and paragraph.

Proposals taking total exception to specifications or total exception to certain parts of the specifications such as Electrical Systems, Chassis, Body or Pump, will not be accepted.

Prototype units will not be acceptable. Apparatus shall be inspected upon completion for compliance with specifications.

Deviations will not be tolerated and will be cause for rejection of Apparatus unless they were originally listed in bidder's proposal and accepted in writing by the department.

If the bidder takes an exception, on the exception page, the bidder must state an option price to bring their specifications into full compliance with the Department specifications.

Failure to provide this information shall be cause to reject the proposal as being non-responsive.

Copied or run off sheets of these specifications shall be unacceptable, and the bid will be rejected no exceptions.

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.

PURCHASER'S RIGHTS

The Purchaser reserves the right to accept or reject any or all bids as it deemed in their best interests.

One (1)
00-01-2500

Engine Availability

ENGINE AVAILABILITY

If an L9 engine is **NOT** available or cannot be provided for that specific quote or build slot at time of production, the engine will **automatically be upgraded and charged for an X12 (or the X10 engine) with all costs associated with the upgrade being passed on to the end user. No exceptions.**

If a pre-2027 emission engine is **NOT** available at the time of build (**starting production on January 1, 2026**) the order will **automatically be upgraded and charged for either the 2027 engine compliant Cummins X-10 or X-15, with all associated costs being passed on to the end user. No exceptions.**

One (1)
00-03-1110

Bid (Generic Specs) Drawing

BID/PROPOSAL DRAWINGS

For purposes of evaluation, the bidder shall provide a drawing illustrating, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus and other specified equipment, shall be required to be included with the bidder's proposal package.

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

Smaller size drawings, "similar to" drawings or general sales drawings, shall not be acceptable.

Failure to provide a bid evaluation drawing in accordance with these specifications shall be cause for rejection of the bid proposal.

One (1)
00-08-3100

Single Source Manufacturer (Generic Specs)

SINGLE SOURCE MANUFACTURER

Bids shall only be accepted from a single source apparatus manufacturer.

The definition of single source manufacturer is a company that designs and manufactures their products utilizing an approach that includes complete product integration, including the apparatus chassis, cab, and body modules being constructed, assembled, and tested on company premises only.

Warranties qualified to the chassis and body design construction (excluding vender component warranties such as engine, axles, transmission, and pumps, etc.) will be from a single source manufacturer and not separated between manufacturers (i.e., body and chassis). The bidder shall provide evidence of maintaining compliance to this requirement.

One (1)
10080-0002

Tag On Order/Cooperative Purchasing Agreement (Generic)

00-08-4110

TAG-ON ORDERS-COOPERATIVE PURCHASING

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

(a) Changes - 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. 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 - Manufacture 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 – Manufacture holding the contract reserves the right to accept or reject any tag-on orders under this Contract.

One (1)
00-13-1000

2 Hard Copy Sets Supplied Component Info, Pumper/Tanker (Generic Specs)-English

SUPPLIED INFORMATION & EXTRAS

The apparatus manufacturer shall supply two (2) hard 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 the manufacturer can supply to its customer regarding the said apparatus.

Included in the delivery of the unit, the manufacturer shall 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 maintenance of the general apparatus.

The manufacturer shall also supply a manufacturer's record of apparatus construction details, including the following information:

- Owner name and address
- Apparatus manufacturer, 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 manufacturer mounted equipment (front and rear)

- Engine make, model, serial number, rated horsepower, related speed and no load governed speed
 - 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 provided, showing the maximum no load governed speed
 - Certification of the water tank capacity
- One (1)
00-13-2010 {Qty} Hard Copy Set-Electrical Schematics-English

ELECTRICAL SCHEMATICS

The apparatus manufacturer shall supply one (1) set(s) as-built wiring schematics, to include all line voltage schematics with each apparatus.
Warning and Information Labels - English

One (1)
00-13-9000

WARNING AND INFORMATION LABELS

All warning and informational labels (non-vendor specific) shall be provided in compliance with current NFPA (Standard for Automotive Fire Apparatus) at time of contract, and installed in the appropriate locations to alert the operator of potential hazards and operating instructions.
Liability Insurance, \$10 mill (Generic Specs)

One (1)
00-40-0100

LIABILITY INSURANCE COVERAGE

In order to protect the department and its personnel, the bidder shall show proof that it has no less than \$10 million in liability insurance in force. A certificate of coverage shall be included in the bid package. Failure to carry liability insurance of at least this amount or failure to include proof of coverage shall be cause to reject the bidder's proposal.
General Warranty - 2 Year (Generic Specs)

One (1)
00-60-1000

GENERAL WARRANTY

The manufacturer shall provide a two (2) year warranty from the date of delivery.

In the case of a commercial chassis being used, 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 manufacturer thereof and adjustments for the same are to be made directly with the manufacturer by the customer.

One (1)
00-90-8200

10 Year Plumbing Warranty, (Generic Specs)

PLUMBING WARRANTY

A Stainless Steel Plumbing/Piping warranty shall be provided by the apparatus manufacturer 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 from the date of delivery.

One (1)
00-10-0100

Third Party Pump & Low-Voltage Electrical Certification Test (NFPA)-Full Specs

THIRD PARTY PUMP CERTIFICATION AND TESTING

The apparatus upon completion will be tested and certified by an independent third party testing company. The certification tests will follow the guidelines outlined in the current NFPA, Standard for Automotive Fire Apparatus, documentation at time of contract signing.

There shall be multiple tests performed by the contractor and the third party testing company when the apparatus has been completed. The manufacturer shall provide the completed Test Certificate(s) to the purchaser at time of delivery.

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 gauge 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 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 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 stopwatch, 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.

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) ± 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) ± 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) ± 5 percent.
- (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) $\pm$ 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.

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 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.
- (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 discharged.

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 exist:

- (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.

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:

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 11.8v dc for a 12v nominal system or 23.6v dc for a 24v 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.

The test shall be considered a failure if the alarm has not yet sounded 140 seconds after the voltage drops to 11.7v for a 12v nominal system or 23.4v for a 24v 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)
00-95-1E50 NO Maximum Overall Length Requirement (Max OAL)

MAXIMUM OVERALL LENGTH REQUIREMENT

One (1)
00-95-2E50 The apparatus specified shall be constructed with no restrictions to the maximum overall length.
NO Maximum Overall Height Requirement (Max OAH)

MAXIMUM OVERALL HEIGHT REQUIREMENT

One (1)
00-95-3E00 The apparatus specified shall be constructed with no restrictions to the maximum overall height.
Maximum Overall Width, (OAW) = 99" (Apparatus Body)

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 (99.00) 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.

One (1)
00-95-5E50 The items included, but not limited to, are Rub Rails, Fenderettes, Mirrors, Lights, Handrails, Front Bumpers, Cab Steps, Overlays, Etc.
NO Maximum Wheelbase

MAXIMUM WHEELBASE REQUIREMENT

One (1)
00-95-9E00 The apparatus specified shall be constructed with no restrictions to the maximum wheelbase.
NO Altitude Performance Requirement

ALTITUDE PERFORMANCE REQUIREMENT

One (1)
== S180 Model 4116 Side Control Pumper - Chassis - 10.360 05/21/26 ==

One (1)
06-26-0105 Exhaust Heat Shield, Front Compartment

EXHAUST HEAT SHIELD

There shall be an exhaust heat shield added to the chassis provided exhaust. The shield shall terminate past the front compartment and shall incorporate a heavy duty spray on insulation under R1.

One (1)
04-87-0000 The heat shield shall be attached to the underside of the body utilizing a flexible bracket.
Chassis Required Labeling & Miscellaneous Options, English, custom cab

CHASSIS REQUIRED LABELING

10080-0002

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-English

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.

Overall Height (feet and inches)

Overall Length (feet and inches)

Overall GVWR (tons or metric tons)

One (1)
06-22-056S

Cab Tilt Pendant Control -Lower Pump Access Panel- w/ Hinged Door (S180)

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 lower pump access panel, accessible through a small, hinged door secured with a push button style latch.

A label shall be provided that states "CAB TILT".

There shall also be a cab tilt instruction plate shipped loose with the apparatus for install before being placed into service.

One (1)
06-22-1205

Air Tank Drain Lines -(extended)

AIR TANK DRAIN LINES (extended)

There shall be manual pull air tank drain lines provided with the apparatus. The air drain lines shall be extended to the outer edge of the apparatus to facilitate draining moisture from the chassis air tanks to a single location for all drains and shall be actuated by a key ring. A label shall be affixed indicating "Air Tank Drain".

One (1)
05-15-005T

Helmet Restraints - Fire Department or Dealer Supplied & Installed (S180)

HELMET RESTRAINTS

10080-0002

One (1)
06-20-0002 All NFPA required helmet restraints will be supplied and installed by the Fire Department or Dealer prior to the truck being placed into service.
NO Front Mud Flaps Added

MUD FLAPS

One (1)
06-20-0010 There shall be no front mud flaps added by the body manufacturer.
Mud flaps - Rear/Individual (W/Logo)

MUD FLAPS

One (1) Heavy-duty black rubber mud flaps with manufactures logo shall be provided behind the rear wheels. The mud flaps shall be bolted in place.
== S180 Model 4116 Side Control Pumper - Pump Control - 10.360 05/21/26 ==

One (1)
26-10-250V Pump Compartment Construction, Pumper - 48" Access Work Light (S180)

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 are encountered while the vehicle is in transit so that harmful torsional forces are not transmitted into the structural framework.

One (1)
26-10-2910 Vibra-Torq Pump Compartment Mounting, Pumpers/Tankers

VIBRA-TORQ™ 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 8 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 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-Torq™ body mounting system shall have a twenty (20) year or 100,000 miles limited warranty in accordance with, and subject to, warranty certificate RFW0710.

One (1)
70-20-214T

(1) 48.00 inch Pump Compartment Work Light (LED Tube, OnScene Access) (S180)

PUMP COMPARTMENT WORK LIGHT

One (1) LED OnScene Solutions "Access" Series 48.00 inch (1219.2 mm) tube light shall be installed inside the pump compartment module to illuminate the piping and plumbing components.

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

One (1)
26-10-311S

Left Side Operator's Panel- Pumpers (S180)

SIDE OPERATORS PANEL & PUMP PANEL

The panels shall be an integral part of the pump module structure.

The driver's side panels shall consist of a removable lower panel fastened with mechanical fasteners, a removable middle operator's panel fastened with mechanical fasteners and a removable diamond plate panel above the operator's panel.

One (1)
26-05-0125

Valve Control-Innovative Controls- Side Mount {NEW}

VALVE CONTROL - T-HANDLE PULL ASSEMBLY

Unless specified otherwise, the discharge valves shall be controlled from an Innovative Controls side mount valve control assembly. The ergonomically designed handle shall be chrome-plated with recessed areas for name plate and color code. A .75 inch (19.5 mm) diameter hardcoat anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome-plated panel-mounting bezel. The valve operating mechanism will indicate the position of the valve at all times.

One (1)
26-10-160T

Panel Lights -SC-DP Interm Steps w/ Hand Cutouts-Full Length OS Access (S180)

PUMP PANEL LIGHTS

There shall be adequate illumination provided at the side pump panels with the installation of two (2) embossed aluminum diamond plate shielded light assemblies functioning as an intermediate step and installed on a stationary surface, one (1) on the left and one (1) on the right side pump compartment.

There shall be up to three (3) handhold cutouts provided in the top step surface measuring

approximately 2.50 inches deep. There shall be one (1) full length aluminum non lit handrail integrated into each side assembly.

One (1)
26-10-191T Each shield shall contain one (1) maximum length available OnScene LED "Access" light.
Pump Panel Light Shield Chamfered Ends - Rear Only - DS Only (S180)

The operator panel light shield shall have a chamfered end at the rear of the pump house for additional body clearance.

One (1)
26-10-2017 The operator panel light shield shall have a squared end at the front of the pump house for maximum stepping surface.
Pump Panel Light Activation- Park Brake

PUMP PANEL LIGHT ACTIVATION

One (1)
26-11-9205 The pump panel light(s) shall illuminate with the activation of the park brake.
Pump Compt Fwd Wall Pump Access-No Overlay (for Side Control)

PUMP COMPARTMENT SERVICE ACCESS

One (1)
26-12-0545 The front portion of the pump compartment structure (directly behind the chassis cab) shall not be overlaid. The outer edges of the pump compartment shall be overlaid with aluminum diamond plate for a pleasing appearance.
Pump Compartment Width - 52"

PUMP COMPARTMENT WIDTH

One (1)
26-41-103U The width of the pump compartment (front to back) shall be 52.00 inches (1.32 m).
Right Side Panels Split - Removable (Brushed SST L & R sides) No Strg Cvtly(S180)

RIGHT SIDE PUMP PANELS STYLE

There shall be four (4) pump panels on the right side of the pump compartment, one (1) upper and three (3) lower. Two (2) lower panels shall be accessible by mechanical fasteners. One (1) upper and one (1) lower shall use thumb latches. The panels shall be easily removed for access to the pump for service.

RIGHT & LEFT SIDE BRUSHED STAINLESS STEEL PANELS

The panels for the pump compartment on the left and right side shall be made from 14 gauge brushed stainless steel capable of withstanding the conditions and effects of extreme weather and temperature changes.

One (1)
27-00-000S Panels shall be installed inside the DA finished tubular structure of the pump house.
Running Board Details, - Hosewell RS Only w/ Matting (S180)

RUNNING BOARDS

The pump compartment running boards shall be made of a structural tubular framework. The tubular frame supports 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 into 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)
27-10-051S Right Side Only- Floating Hosewell-Chamfered Corners - 8" Deep-Smooth Alum(S180)

FLOATING HOSE WELL

The right side running board area shall have a floating hose well with drain holes provided.

The hose well shall be fabricated of .125 inch (3.18 mm) smooth aluminum and be formed so that it rests in the framework of the running board with no fasteners installed. The front and rear ends of the hose well shall be slightly tapered, to allow the well to float up instead of being damaged in cases where extreme break over angles or impact from road debris are encountered.

The hose well shall be approximately 8.00 inches (203.20 mm) deep (measured from the top of the running board) and as wide and long as possible to fit in the framework of the running board.

One (1)
27-01-0155 (2) D&S Aircraft Style Seat Belt Hold Down Straps

AIRCRAFT STYLE HOSE WELL HOSE RESTRAINTS

There shall be two (2) D&S Custom Covers aircraft style seat belt straps provided at the top of the hose well. The straps shall be used to hold the hose in place during transit.

One (1)
27-07-001S Left - w/ 3/16" Embossed Aluminum Diamond Plate Overlay (S180)

LEFT SIDE RUNNING BOARD OVERLAY

The left side running board shall have a 3/16" embossed aluminum diamond plate overlay installed. The stepping area shall be as large as possible, overlapping the perimeter of the structural running board.

One (1)
27-11-902S Hosewell Matting-VersaFlex (S180)

HOSEWELL MATTING

VersaFlex matting shall be included on the bottom of the running board hosewell compartment. Matting-Black color

One (1)
04-60-0280

MATTING COLOR

The matting shall be black in color.

One (1)
28-15-006S PSG - Fire Research Corporation "InControl 400" (S180)

PRESSURE GOVERNOR, MONITORING, and MASTER PRESSURE DISPLAY

Fire Research "InControl 400" Series pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 5 1/2" high by 10 1/2" wide by 2" deep. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 1 3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939

databus or engine specific wiring.

The following continuous displays shall be provided:

Pump discharge; shown with four daylight bright LED digits more than 1/2" high
Pump Intake; shown with four daylight bright LED digits more than 1/2" high
Pressure / RPM setting; shown on a dot matrix message display
Pressure and RPM operating mode LEDs
Throttle ready LED
Engine RPM; shown with four daylight bright LED digits more than 1/2" high
Check engine and stop engine warning LEDs
Oil pressure; shown on a dual color (green/red) LED bar graph display
Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
Transmission Temperature; shown on a dual color (green/red) LED bar graph display
Battery voltage; shown on a dual color (green/red) LED bar graph display.

The dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and nighttime operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

High Battery Voltage
Low Battery Voltage (Engine Off)
Low Battery Voltage (Engine Running)
High Transmission Temperature
Low Engine Oil Pressure
High Engine Coolant Temperature
Out of Water (visual alarm only)
No Engine Response (visual alarm only).

The program features shall be accessed via push buttons and a control knob located on the front of the control panel. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

Inputs to the control panel from the pump discharge and intake pressure sensors shall be electrical. The discharge pressure display shall show pressures from 0 to 600 psi. The intake pressure display shall show pressures from -30 in. Hg to 600 psi.

The governor shall operate in two control modes, pressure, and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

One (1)
09-09-021S

Intake Pressure Relief - TFT, All Pumps

(S180)

INTAKE 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 easy to read 90, 125, 150, 200, 250, 300 psi settings and an "OFF" position. Pressure adjustment can 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, 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)
28-25-0100

Pump Testing Ports

TESTING PORTS

Test port connections for pressure and vacuum shall be provided at the pump operator's panel. One (1) shall be connected to the intake side of the pump, and the other to the discharge manifold side of the pump.

Each port shall have 0.25 inch (6.35 mm) standard pipe thread connection and be manufactured of non-corrosive polished stainless steel or brass plugs.

One (1)
28-50-0125

IC SL Plus Tank Gauge - operator's panel

TANK LEVEL GAUGE

An Innovative Controls SL Plus Tank Monitor System model number 3030796-01, with a Spartan bezel, shall be installed. The system shall include an electronic display module, a pressure transducer-based sender unit, and the necessary wiring with water-tight plug terminations.

The display module shall show the volume of water in the tank using 16 super bright easy-to-see LEDs. Tank level indication shall be achieved by the use of 4 horizontal rows of LEDs. Full and near-full levels shall be indicated with the illumination of all 4 rows of LEDs, including the illumination of the top row of 4 green LEDs. Tank levels between 1/2 and 3/4 full shall be indicated with the illumination of the bottom 3 rows of LEDs, including the illumination of the top row of 4 blue LEDs. Tank levels between 1/4 and 1/2 full shall be indicated with the illumination of the bottom 2 rows of LED's including the illumination of the top row of 4 amber LEDs. Tank levels between 1/4 full and near empty shall be indicated with the illumination of the bottom row of 4 red LEDs only. Tank levels between near empty and empty shall be indicated by flashing the bottom row of 4 red LEDs.

A wide-angle polycarbonate diffusion lens in front of the LEDs create a 180 degree viewing angle. The electronic display module shall be waterproof and shock resistant being encapsulated

in a urethane-based potting compound. The potted display module shall be mounted to a chrome plated panel-mount bezel with a durable easy-to-read polycarbonate insert featuring blue graphics and a water icon.

All programming functions shall be accessed and performed from the front of the display module. The programming includes manual or self-calibration and networking capabilities to connect remote slave displays. Low tank level warnings shall include flashing red LEDs starting below the ¼ level, down-chasing LEDs when the tank is almost empty.

The display module shall receive an input signal from a pressure transducer. This stainless steel sender unit shall be installed on the outside of the water tank near the bottom. All wiring, cables and connectors shall be waterproof without the need for sealing grease.

One (1)
28-51-0030

Chassis Included Water Gauges (S180)

CHASSIS INSTALLED TANK LEVEL GAUGE

When a tank level gauge is provided by the chassis, the gauge(s) shall utilize the above specified tank level gauge to provide an accurate reading of the water tank level.

One (1)
28-25-0220

Air Horn Button-Red Momentary Rocker (For Use w/ IC Panel)

AIR HORN BUTTON

The air horn shall be activated by a red momentary rocker switch 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)
28-25-112T

Innovative Control Six Place Switch Panel - Chrome Bezel (S180)

ROCKER SWITCH PANEL

All specified lighting fixtures and electrical components activated at the pump operator's panel shall be activated by Carling W-series rocker style switches.

The switches shall be located on a separate matte black Innovative Controls 6-position electrical panel with chrome bezel, complete with backlit name tags describing the function of each individual switch.

The switches shall be laid out in order from left to right:

- Blank
- Left Scene
- Right Scene
- Rear Scene
- (Blank Space)
- Air Horn

One (1)
54-50-311S

Pump Compmt Top (WITH DUNNAGE)-1/8" Embossed Aluminum Diam Plate (S180)

PUMP COMPARTMENT TOP OVERLAY

The top cap of the pump compartment shall be overlaid with materials of a non-slip .125 inch (3.18 mm) embossed aluminum diamond plate.

One (1)
54-50-331S

Dunnage Area (Above Pump)-1/8" aluminum diamond plate (S180)

DUNNAGE AREA

A single wall .125 inch (3.18 mm) aluminum diamond plate dunnage area shall be provided above the pump house compartment for equipment mounting and storage space.

One (1) == S180 Model 4116 Side Control Pumper - Plumbing - 10.360 05/21/26 ==

One (1) Waterous Pump, CSU 2000 GPM (s/s) - no de-rate (S180)
08-21-002T

MIDSHIP PUMP

The pump shall have a capacity of 2000 gallons per minute, measured in U.S. Gallons. The pump shall be a Waterous model CSU, single stage midship pump.

One (1) CSU Verbiage (std w/ F. P. impeller)
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, Standard for Automotive Fire Apparatus. The pump shall be free from objectionable pulsation and vibration.

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.

Pump Warranty Waterous (7 year)

One (1)
08-58-0200

PUMP WARRANTY

Waterous Co shall provide a limited manufacturer's pump warranty to be free from defects, under normal use and service, for a period of seven (7) years from the date placed into service.

Mechanical Seals

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.

Trident Air Primer -Single Primer Actuation

Non-ACE Control

One (1)
09-38-0105

AIR PRIMER SYSTEM

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

All wetted metallic parts of the priming system are to be of brass and stainless steel construction. A single panel mounted control will activate the priming pump and open the priming valve to the pump.

The priming components shall be mounted above the highest priming point on the suction side of the pump to permit air removal and allow for drainage. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass 'wye' type strainer with removable stainless steel fine mesh strainer to prevent entry of debris into the primer body.

The system shall 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.

Push Button Primer Control

One (1)
09-38-0305

PRIMER CONTROL

One (1)
10-12-10SL

There shall be one (1) push button control to actuate the primer control valve at the operator's panel.
6" Inlet LEFT SIDE w/ Std Length Tube - w/ Long Handle Cap (S180)

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 inlet shall protrude up to 2.00 inches (50 mm) away from the side panel and maintain a low connection height.

One (1)
10-25-1000

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.
6" Long Handled, Chrome Plated Cap-(Logo)

6" CHROME PLATED CAP

There shall be one (1) 6.00 inch (150 mm) long handled chrome plated cap installed on the Steamer Inlet.

One (1)
10-12-10SR

The cap shall be National Standard Thread.
6" Inlet RIGHT SIDE w/ Std Length Tube - w/ Long Handle Cap (S180)

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 inlet shall protrude up to 2.00 inches (50 mm) away from the side panel and maintain a low connection height.

One (1)
10-25-1000

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.
6" Long Handled, Chrome Plated Cap-(Logo)

6" CHROME PLATED CAP

There shall be one (1) 6.00 inch (150 mm) long handled chrome plated cap installed on the Steamer Inlet.

One (1)
09-01-05M0

The cap shall be National Standard Thread.
Master Drain - Turn - Trident (Midship Mounted Pumps)

MASTER DRAIN VALVE

A Trident 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 functions 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 draining. If no lower or vertical sill exists, 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)
09-70-0010

Pump Cooling/Circulation Line

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.

One (1)
09-70-042S

(Qty 2) Pump Anodes - discharge and suction (S180)

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.

One (1)
12-10-100S

Plumbing Specs - Sch 10 Stainless Steel, - 3" manifold - Class 1 Drains (S180)

STAINLESS STEEL PLUMBING

All auxiliary suction and discharge plumbing related fittings, and manifolds shall be fabricated with a minimum of 3.00 inch (77 mm), or greater as required by design, 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 700 PSI working pressure and 1200 PSI burst pressure for flexible piping sizes 1.50 inches (38 mm) through 4.00 inches (100 mm). Sizes of .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.

One (1)
12-10-1250

Plumbing Line Protection

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)
12-10-1295 Plumbing Termination Securement - coated cable

PLUMBING TERMINATION SECUREMENT

All plumbing termination caps and plugs for intakes and discharges, shall be secured by a coated cable.

One (1)
12-10-1305 Manual Drains Class One #115639 J-Style Lift Handle-IC labels N/A

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)
18-65-901T Single Foam Tank - 20 gallon (S180)

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 Integral w/ Booster Tank (<30 gallons)

Each foam tank shall be integral with the booster water tank provided.
single tank 1" drain plug (S180)

One (1)
18-72-010S

FOAM TANK DRAIN

There shall be a 1.00 inch (25.4 mm) drain plug installed on the foam tank. The plug shall be accessible from the pump house.

One (1)
14-05-030S 5" front suction (Some Chassis Provided Plumbing) (S180)

FRONT SUCTION

There shall be an auxiliary steamer inlet located on the front of the apparatus.

One (1)
14-30-070S Akron Electric -Butterfly - Valve - 5" (S180)

INTAKE VALVE

A 5.00 inch (125 mm) Akron Brass 7000 series electrically actuated "Butterfly" valve with quarter turn air bleeder valve shall be plumbed to the water supply side of the intake valve (with a .75 inch NPT port) to help evacuate air from the system and avoid cavitation of the pump. A manual override control shall be provided to actuate the manual overrides on the apparatus. The override control shall be installed in an easily accessible location.

One (1)
10080-0002 Akron Mini Navigator Pro Electric Controller Only-9327

14-33-0010

STYLE 9327 MINI VALVE CONTROLLER

The controller shall be an Akron Brass Style 9327 Mini 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 buttons. One additional button shall be available to be used for preset activation. 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 series of 5 ultra-bright LEDs. It shall have manual adjustment of the brightness in the menus. The unit must carry a five year warranty.

One (1)
14-33-011S

Auxiliary Gated Intake Pressure Relief - TFT (S180)

INTAKE PRESSURE 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)
14-45-032S

5" Front Suction Inlet Piping - 1/2 Spartan Chassis Supplied (S180)

INTAKE PLUMBING

The plumbing shall consist of 5.00 inch (125 mm) stainless steel piping.
Term: 5" NPT x 6" NST Chrome Swivel ELBOW w/long handle Cap

One (1)
14-55-4150

SUCTION/INTAKE TERMINATION

The termination shall include the following components:

One (1) 5.00 inch (125 mm) NPT X 6.00 inch (150 mm) NST chrome plated brass 90 degree swiveling elbow

One (1) 6.00 inch (150 mm) NST long handled self-venting chrome cap.
Manually Operated Drains

One (1)
14-60-1000

DRAINS

The suction shall be plumbed with manually operated drains in the lowest point(s) of the piping.

Two (2) drains shall be installed on each front suction pipe. One (1) drain will be located forward of the front wheel, and one (1) drain will be located rearward of the front wheel. The drains shall be located on the bottom sides of the front suction pipe.

One (1)
14-75-021S

Suction located right front bumper, vertical outboard (S180)

SUCTION LOCATION

10080-0002

The front suction inlet shall be located on the front bumper apron in the right hand outboard position.
 One (1) 2.5 - 3" Left Side Inlet (S180-SC)
 14-10-010S

LEFT SIDE INLET

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) Akron 8000 Series Valve - 2.5" - Direct Control (S180)
 14-30-001S

INTAKE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with stainless steel ball.
 One (1) Valve(s) Controlled -Directly /Suction Valve w/ Lever-
 14-35-001S

INTAKE VALVE CONTROL

The intake control valve shall be a 'swing out type' direct operation manual lever actuator at the valve.
 One (1) 2.5" Side Inlet Piping (S180)
 14-45-000S

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) Term: 2.5" NPT x 2.5" NST adapt w/Plug
 14-55-0500

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.
 Side Inlet to be located in forward position
 14-75-0305

INLET LOCATION

The inlet shall be located on the pump panel in the forward position.
 One (1) (Qty 1) 2.5" - 3" Left Side Discharge Rack & Sector (S180)
 15-05-010T

LEFT SIDE DISCHARGE

There shall be one (1) gated discharge installed on the left side of the apparatus with the following specified components.
 One (1) Akron Rack & Sector Actuated Valve - 3"
 16-30-0235

DISCHARGE VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series rack and sector slo-cloz actuated valve.
 One (1) Valve(s) Controlled - Discharge Location w/ Push/Pull for R&S
 16-35-0020

DISCHARGE VALVE CONTROL

10080-0002

One (1)
16-44-111T

The discharge shall be controlled from a rack and sector actuator having an ergonomically designed T-handle. The handle shall be chrome-plated with name plate insertion recess area.
3" Discharge Piping (side mstr) (S180)

DISCHARGE PLUMBING

One (1)
16-52-1100

The plumbing shall consist of 3.00 inch (77 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.
Term: 2.5" NST x 2.5"NST x 2.5"NST Chrome Elbow w/cap

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 30 degree polished elbow

One (1)
15-05-061S

One (1) 2.50 inch (65 mm) female self-venting cap.
(Qty 1) 2.5" - 3" Right Side Discharge (S180)

RIGHT SIDE DISCHARGE

One (1)
16-30-012S

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

Akron 8000 Series Valve - 2 1/2" Operators Panel (S180)

DISCHARGE VALVE

One (1)
16-35-0010

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.
Valve(s) Controlled -Operator's Panel-

DISCHARGE VALVE CONTROL

One (1)
16-44-051S

The discharge shall be controlled from the pump operator's panel location.
2 1/2" Discharge Piping (side discharges) (S180)

DISCHARGE PLUMBING

One (1)
16-52-1100

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.
Term: 2.5" NST x 2.5"NST x 2.5"NST Chrome Elbow w/cap

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 30 degree polished elbow

One (1)
15-05-111S One (1) 2.50 inch (65 mm) female self-venting cap.
(Qty 1) Side 3" - 4" Master Discharge-Right Side (S180)

RIGHT SIDE MASTER DISCHARGE

There shall be one (1) master discharge installed on the right side of the apparatus provided with the following specified components.

One (1)
16-30-020S Akron 8000 Series Valve - 3" Operators Panel (S180)

DISCHARGE VALVE

One (1)
16-35-0010 A 3.00 inch (77 mm) Akron Brass 8000 series slo-cloz swing-out valve with a stainless steel ball.
Valve(s) Controlled -Operator's Panel-

DISCHARGE VALVE CONTROL

One (1)
16-44-171S The discharge shall be controlled from the pump operator's panel location.
4" Discharge Piping (side mstr) (S180)

DISCHARGE PLUMBING

One (1)
16-53-6000 The plumbing shall consist of 4.00 inch (100 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.
Term: 4" NPT x 5" Storz elbow w/cap

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 4.00 inch (100 mm) NST adapter

One (1) 4.00 inch (100 mm) NST female by 5.00 inch (125 mm) Storz with 30 degree elbow

One (1)
15-05-161S One (1) 5.00 inch (125 mm) Storz cap.
2.5" - 3" Left Rear Discharge (S180)

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)
16-30-0105 Akron 8000 Series Valve - 2 1/2"

DISCHARGE VALVE

One (1)
16-35-0010 A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.
Valve(s) Controlled -Operator's Panel-

DISCHARGE VALVE CONTROL

One (1)
16-44-071S The discharge shall be controlled from the pump operator's panel location.
2 1/2" Discharge Plumbing (rear discharges) (S180)

DISCHARGE PLUMBING

10080-0002

One (1)
16-52-1100

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.
Term: 2.5" NST x 2.5"NST x 2.5"NST Chrome Elbow w/cap

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 30 degree polished elbow

One (1)
15-05-211U

One (1) 2.50 inch (65 mm) female self-venting cap.
2.5" - 3" Right Rear Discharge (S180)

RIGHT REAR DISCHARGE

One (1)
16-30-0105

There shall be one (1) gated discharge installed on the right rear of the apparatus with the following specified components.
Akron 8000 Series Valve - 2 1/2"

DISCHARGE VALVE

One (1)
16-35-0010

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.
Valve(s) Controlled -Operator's Panel-

DISCHARGE VALVE CONTROL

One (1)
16-44-071S

The discharge shall be controlled from the pump operator's panel location.
2 1/2" Discharge Plumbing (rear discharges) (S180)

DISCHARGE PLUMBING

One (1)
16-52-1100

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.
Term: 2.5" NST x 2.5"NST x 2.5"NST Chrome Elbow w/cap

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 30 degree polished elbow

One (1)
16-20-004T

One (1) 2.50 inch (65 mm) female self-venting cap.
CROSSLAY AREA - Adjustable Crosslays - Access Lights - No Trim (S180)

CROSSLAY AREA

The crosslay hose beds shall be located in the upper portion of the pump compartment.

10080-0002

One (1)
16-20-001S

The crosslay area shall span the entire width of the apparatus pump module. Removable flooring shall be provided in the hose bed area for drainage.

Minimum 25" Deep Adjustable Crosslay Width, w/ chiksan terminations (S180)

ADJUSTABLE CROSSLAYS

The crosslay area shall be constructed with a minimum of 25.00-inch (635mm) approximate depth for laying each hose size as specified below.

One (1)
16-20-012S

Chiksan swivels shall be installed just below the floor of each crosslay bed just high enough for hose couplings to be accessed and tightened on to chiksans. Chiksan swivels shall swing from left to right to allow attached hose to be deployed from either side.

1/4" Adjustable Crosslay Divider - Full Length (S180)

ADJUSTABLE CROSSLAY DIVIDERS WITH HANDHOLD CUTOUTS

Two (2)
16-20-020S

Each crosslay divider acting as a hose bed separator shall be fabricated of .25-inch smooth aluminum. Each divider shall be adjustable from side to side and be of full length. Each divider shall have a vertical hand hold cutout provided at each end.

{Qty} Crosslay - 1.75"-200' (S180)

1 3/4" CROSSLAY

A crosslay with the following specified components shall be provided for a minimum of 200 feet (60 m) of 1.75 inch (44.4 mm) hose.

Two (2)
16-30-0005

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

Akron 8000 Series Valve - 2"

DISCHARGE VALVE

Two (2)
16-35-0010

A 2.00 inch (50 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

Valve(s) Controlled -Operator's Panel-

DISCHARGE VALVE CONTROL

Two (2)
16-44-011S

The discharge shall be controlled from the pump operator's panel location.

2" Discharge Plumbing (x-lays, speedlays, side body preconnects) (S180)

DISCHARGE PLUMBING

Two (2)
16-50-1000

The plumbing shall consist of 2.00 inch (50 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

Term: 2" NPT x 1.5" NST Brass Chiksan (no cap)

DISCHARGE TERMINATION

The discharge termination shall include the following components:

Two (2)

One (1) 2.00 inch (50 mm) NPT x 1.50 inch (38 mm) NST brass chiksan swivel
(2) Foam Capable Discharges (S180)

10080-0002

18-61-042S

DISCHARGE CAPABILITY

The two (2) discharges shall be plumbed to a foam capable manifold.

One (1)
16-20-040S

When a foam system is specified, these discharges shall be foam capable.
{Qty} Crosslay - 2.50" -200' (S180)

2 1/2" CROSSLAY

A crosslay with the following specified components shall be provided for minimum of 200 feet (60 m) of 2.50 inch (63.5 mm) hose.

One (1)
16-30-012S

There shall be a total of one (1) provided.
Akron 8000 Series Valve - 2 1/2" Operators Panel (S180)

DISCHARGE VALVE

One (1)
16-35-0010

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.
Valve(s) Controlled -Operator's Panel-

DISCHARGE VALVE CONTROL

One (1)
16-44-061S

The discharge shall be controlled from the pump operator's panel location.
2 1/2" Discharge Plumbing (x-lays, speedlays) (S180)

DISCHARGE PLUMBING

One (1)
16-50-2000

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.
Term: 2.5" NPT x 2.5" NST Brass Chiksan (no cap)

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1)
16-65-004S

One (1) 2.50 inch (65 mm) NPT x 2.50 inch (65 mm) NST brass chiksan swivel
Crosslay HB Cover w/ hand hold cutout (hinged, 3/16" emb alum dimnd plate (S180)

CROSSLAY COVER

One (1)
16-65-0201

The crosslay hose bed area shall have a hinged .188 inch (4.76 mm) embossed aluminum diamond plate cover installed. The cover shall be installed to provide a solid surface over all bays. The cover shall have a hand hold slot on each end. The cover shall be attached with a full length piano style hinge.

Crosslay End Covers - Fire Department or Dealer Provided and Installed (S180)

CROSSLAY END COVERS

One (1)
78-00-012S
10080-0002

The crosslay hose bed area shall have a cover installed at each end provided and installed by the Fire Department or the Dealer prior to the apparatus being placed into service.
(Qty 2) 18" OnScene "Access" LED Strip lights-front of body (S180)

CROSSLAY HOSE BED LIGHT

One (1)
78-00-0205

There shall be two (2) 18.00 inch OnScene "Access" LED strip lights in bezels provided and installed on the front face of the body to illuminate the crosslay hose bed.
Crosslay Light Activation-Park Brake

CROSSLAY LIGHT ACTIVATION

One (1)
16-21-040S

The crosslay light shall be activated when the park brake is set.
(1) Pre-Connect - 2 1/2" (right side) pumpers/tanker (S180)

2 1/2" PRE-CONNECT

One (1)
16-30-0105

One (1) hose bed pre-connect with the following specified components shall be provided for 2.50 inch (63.5 mm) hose on the right side of the hose bed.
Akron 8000 Series Valve - 2 1/2"

DISCHARGE VALVE

One (1)
16-35-0010

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.
Valve(s) Controlled -Operator's Panel-

DISCHARGE VALVE CONTROL

One (1)
16-44-081S

The discharge shall be controlled from the pump operator's panel location.
2 1/2" Discharge Plumbing (2 1/2" pre-connects) (S180)

DISCHARGE PLUMBING

One (1)
16-50-4000

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.
Term: 2.5" NPT x 2.5" NST (no cap)

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1)
16-55-220S

One (1) 2.50 inch (65 mm) NPT x 2.50 inch (65 mm) MNST chrome plated brass fitting
Pre connect to Terminate right side, 8" above the hose bed floor (S180)

PRE-CONNECT LOCATION

One (1)
18-61-040S

The discharge shall terminate to the right side lower corner of the hose bed header approximately 8.00 inches, on center, above the hose bed floor.
(1) Foam Capable Discharge (S180)

DISCHARGE CAPABILITY

The discharge shall be plumbed to a foam capable manifold.

One (1)
16-22-010T
10080-0002

When a foam system is specified, this discharge shall be foam capable.
(1) Deluge Waterway - Single Control - RS (S180-SC)

DECK GUN MONITOR WATERWAY

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

One (1)
16-30-025S Akron 8000 Series - 3" w/ Trident 4" Handwheel - Deck Gun - Sngl Cntrl (S180)

DISCHARGE VALVE

The valve shall be a 3.00 inch (77 mm) Akron Brass 8000 series valve with 4" Trident "TRU-FLO" handwheel control and position indicator.

One (1)
16-44-151T 3" Discharge Piping (deluge) - w/ Xtend-a-Gun - RS (S180)

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)
16-79-0030 Deluge-locate pipe right above pump

DELUGE PIPE LOCATION

The deluge pipe shall be located up through the pump compartment, to the right side of the apparatus.

One (1)
16-83-0110 Tele pipe, TFT, Ext-A-Gun, 18", 3" VIC x 3"M NPT

TELESCOPING MONITOR PIPE

One (1) Task Force Tips model #XG18VL-PL manually telescoping waterway shall be provided with the apparatus.

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) by lifting a quick release latch located at the base of the extension tube. This latching device shall be capable of locking the waterway in either the raised or lowered position while maintaining the ability to horizontally rotate the monitor device 360 degrees.

If the extend-a-gun is not properly stowed and the parking brake is 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 provided with a 3.00 inch (77 mm) Victaulic inlet and a 3.00 inch (77 mm) male NPT outlet. The riser shall utilize two brackets to securely mount the Extend-A-Gun telescoping waterway.

One (1)
16-23-001V (1) Front Bumper LS Discharge - 2.5" (S180)

FRONT BUMPER DISCHARGE OUTLET

One (1) front bumper discharge outlet shall be provided and installed in the location specified.

One (1)
16-30-0105 Akron 8000 Series Valve - 2 1/2"

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.
Valve(s) Controlled -Operator's Panel-

One (1)
10080-0002

16-35-0010

DISCHARGE VALVE CONTROLOne (1)
16-44-101U

The discharge shall be controlled from the pump operator's panel location.
2 1/2" Discharge Plumbing (2 1/2" LS fbd)-1/2 CHASSIS PROVIDED (S180)

DISCHARGE PLUMBINGOne (1)
16-50-010S

The plumbing shall consist of 2.50 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.

Discharge Termination Chassis Provided (S180)

DISCHARGE TERMINATIONOne (1)
18-61-040S

The discharge shall be provided and installed by the chassis manufacturer.

(1) Foam Capable Discharge (S180)

DISCHARGE CAPABILITY

The discharge shall be plumbed to a foam capable manifold.

One (1)
16-88-100U

When a foam system is specified, this discharge shall be foam capable.
REEL, std electric w/capacity to handle 150' of 1" I.D. hose (S180)

BOOSTER REEL

There shall be an electric rewind booster reel with automatic brake installed on the apparatus. The booster reel shall have a capacity to handle up to 150 feet of 1.00-inch diameter (25.4 mm) booster hose.

There shall be a manual rewind device provided. A manual crank shall be mounted adjacent to booster reel.

One (1)
16-88-301S

Booster Hose- Fire Department or Dealer Provided (S180)

BOOSTER HOSE

The booster hose shall be provided and installed by the Fire Department or Dealer before the truck is placed into service.

One (1)
16-89-1000

Reel to be (steel, painted std silver)

REEL FINISHOne (1)
16-89-2007

The hose reel specified shall be steel and painted the standard silver utilized by Hannay.
1.5" Akron Valve (S180)

HOSE REEL VALVE

The reel shall be plumbed to the pump with a 1.50 inch (38.10 mm) quarter turn Akron brass 8000 series ball valve and 1.50 inch (38.10 mm) high pressure hose and couplings.

The valve shall be controlled from the operator's panel.

10080-0002

07/20/26

One (1)
16-91-1020 Rewind switch IC Rocker Switch - Operator Panel (S180 FC94)

REWIND ACTIVATION

An electric rewind switch shall be located in the leftmost location of the IC Rocker switch panel on the pump operator panel. The switch shall have a weather resistant rubber cover and a label indicating its function.

One (1)
16-90-010T The switch shall be labeled "REEL REWIND".
Reel mounted above pump of pump compt - left no extra roller (S180)

HOSE REEL LOCATION

One (1)
16-92-0135 The hose reel shall be mounted in a dunnage area specified above the pump on the left side.
Rollers on left & right side of upper pumphouse-Bell Rollers

HOSE REEL ROLLERS

One (1)
16-93-0010 There shall be two (2) sets of bell roller assemblies installed, one (1) on each side of upper pump house to allow hose payout to either side of the apparatus.
Hose reel blow out system

HOSE REEL BLOW OUT

There shall be an air "blowout" system provided and installed on the apparatus. The air blow out system shall be connected to the chassis air brake system. A check valve shall be installed between the chassis system and the reel blow out system. A ¼ turn manual control valve shall be installed on the pump operator's panel for the air blow out system.

One (1)
16-93-0105 The valve shall be labeled "REEL BLOW OUT".
ADD Gauge for Booster Reel (will match discharge gauge selection)

BOOSTER REEL GAUGE

One (1)
18-61-040S There shall be a pressure gauge supplied for the Booster Reel as specified below.
(1) Foam Capable Discharge (S180)

DISCHARGE CAPABILITY

The discharge shall be plumbed to a foam capable manifold.

Eleven (11)
16-60-050S When a foam system is specified, this discharge shall be foam capable.
{Qty} Innovative Controls TC 63 mm gauge (IC Bezels available) (S180-SC)

DISCHARGE GAUGES

An Innovative Controls TC Series nominal 63 mm gauge shall be supplied for reading the pressure of each discharge greater than 1.50 inches (38 mm) in diameter, unless otherwise specified.

A KEM-X socket saver diaphragm, located in the stem, eliminates freeze-up by preventing water from entering and/or clogging the gauge internals while containing a low temperature instrument

oil that fills and protects the socket and the bourdon tube.

The molded glass-filled Nylon 66 case will not corrode and includes a scratch-resistant molded polycarbonate lens with O-ring seal. The gauge shall withstand pressures up to 100psi over gauge range with operation from -40° F to +160°F.

Eleven (11)
16-62-0100

0-400 PSI Scale Reading-Gauge

GAUGE SCALE

Each gauge shall be marked for reading a pressure range of 0-400 PSI.
Black Markings on white gauge face

Eleven (11)
16-62-0400

GAUGE FACE COLOR

Each gauge shall have black markings on a white face.
Innovative Controls Bezels for Gauges (S180-SC)

Eleven (11)
16-62-080S

BEZELS FOR 2.5" DISCHARGE GAUGES

Highly polished stainless steel Innovative Control bezels shall be provided around each of the 2.50 inch (65 mm) discharge pressure gauges to prevent corrosion and protect lenses and gauge cases. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve identifying verbiage and/or color labels.

Eleven (11)
28-10-059S

IC Apparatus Labeling - Deluxe Labels, (S180-SC)

APPARATUS PLUMBING LABELING

Innovative Controls verbiage tag bezels shall be installed. The bezel assemblies will be used to identify apparatus components. These tags shall be designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The verbiage tag bezel assemblies shall include a chrome-plated panel-mount bezel with durable easy-to-read UV resistant polycarbonate inserts featuring the specified verbiage and color coding. These UV resistant polycarbonate verbiage and color inserts shall be subsurface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the insert labels and bezel shall be backed with 3M permanent adhesive, which meets UL969 and NFPA standards.

Where it is appropriate to denote foam discharges, the notation shall be incorporated into the discharge label itself. A secondary "FOAM" label and bezel will not be accepted.

One (1)
20-00-001S

(Qty 1) Tank to Pump Line - SST Schedule 10 - Waterous 3 1/2" (S180)

TANK TO PUMP LINE

The connection between the tank and the pump shall be capable of the flow recommendations as set forth in NFPA, Standard for Automotive Fire Apparatus, latest revision 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)
10080-0002

Integral Tank to Pump Check Valve

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)
20-28-061S

Waterous Valve - 3 1/2"

(S180)

TANK TO PUMP VALVE

One (1)
20-35-0005

A 3.50 inch (89 mm) Waterous valve shall be installed.
Valve(s) Controlled at Operator's Panel

VALVE CONTROL

One (1)
20-10-011S

The valve shall be controlled from the pump operator's panel location.
(Qty 1) 2" Tank Re-fill Line

(S180)

TANK FILL LINE

One (1)
20-26-0110

One (1) 2.00 inch (50.80 mm) tank fill/recirculating line shall be installed from the pump directly to the booster tank.
Akron 8000 Series Valve - 2"

TANK FILL VALVE

One (1)
20-35-0005

A 2.00 inch (50 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.
Valve(s) Controlled at Operator's Panel

VALVE CONTROL

One (1)

The valve shall be controlled from the pump operator's panel location.
== S180 Model 4116 Side Control Pumper - Body - 10.360 05/21/26 ==

One (1)
30-11-100S

Extruded .125 Aluminum Body Material Construction

(S180)

TRI-MAX™ Space Frame Body - ALUMINUM

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.

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 .125 inches (3.18 mm) to .250 inches (6.35 mm) throughout, dependent on the design requirement.

BODY MATERIAL TYPE

All body structural members shall be Aluminum 6061-T6 alloy material. All .125 inch (3.18 mm) sheet material shall be Aluminum Alloy 5052-H32, and .250 inch (6.35 mm) sheet materials shall be Aluminum Alloy 3003. These alloys are required because it provides optimum all-around performance for strength, manufacturing properties, and corrosion resistance.

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 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 aluminum 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.

FASTENERS

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)
30-12-520S

PPG Painting/Finish Specifications

(S180)

PPG 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 infrared, 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 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 course 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)
30-12-600S Body Paint - Single - (S180)

BODY PAINT COLOR

One (1)
30-12-700S Body Paint color to match PPG 926234 Red (S180)

The apparatus body shall be painted to match PPG 926234 Red.
Compt. Superliner Finish, Alum (S180)

One (1)
30-12-606S

SUPERLINER COMPARTMENT FINISH

The compartment interiors shall be coated with Superliner.
Superliner Medium Gray Color

One (1)
30-12-6540

COMPARTMENT FINISH COLOR

The Superliner Color shall be Medium Gray.
10 Year Structural Body Warranty, Aluminum (Generic Specs)

One (1)
30-12-5500

STRUCTURAL BODY WARRANTY

A structural Aluminum body warranty shall be provided by the apparatus manufacturer 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.

One (1)
30-12-5850 Paint Warranty - 10 year Prorated, Aluminum (Generic Specs)

PAINT WARRANTY

A Prorated Paint Warranty shall be provided by the apparatus manufacturer 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.

One (1)
54-50-104S Diamond Plate front overlays and raw Alum rear overlays (S180)

DIAMOND PLATE FRONT OVERLAYS

The entire front face of the apparatus body shall have aluminum diamond plate overlays installed.

RAW ALUMINUM REAR OVERLAYS

The entire rear face of the apparatus body shall have raw aluminum overlays installed for the installation of chevron striping.

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

One (1)
54-50-2110 Front Vertical Overlay Corner Trim - 16 Gauge Brushed Stainless Steel

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 1.00 inch x 1.00 inch corner trim piece, for edge protection. The vertical edge trim

One (1)
54-50-221S

shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

Rear Vertical Overlay Corner Trim - 16 Gauge Brushed Stainless Steel (S180)

REAR CORNER TRIM 16 GAUGE BRUSHED STAINLESS 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 shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

One (1)
54-75-0010

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.

Catwalks- embossed aluminum diamond plate (see drop down for avail options)

CATWALKS

The catwalks shall be constructed with materials of a non-slip .125 inch embossed aluminum diamond plate.

One (1)
30-20-1000

Vibra-Torq Body Mounting, Pumper, Tanker, Wildland

VIBRA-TORQ™ BODY MOUNTING SYSTEM

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 8 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-Torq™ body mounting system shall have a twenty (20) year or 100,000 miles limited warranty in accordance with, and subject to, warranty certificate RFW0541.

One (1)
10080-0002

99" Wide Body

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 99.00 inch (2.51 m) excluding any attached peripherals such as rub rails, fenderettes, grab handles, etc.

One (1)
30-31-5000

Compartment Filter Vent System

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. Chrome louvered plate vents shall be installed appropriately on the compartment interior walls.

One (1)
33-01-116S

1495-3 Ladder Box {5" taller side compts} Short Wheel Panel-Inset 9" (S180-4116)

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 33.50 inches (850.90 mm) wide by 74.00 inches (1879.60 mm) high with a lower depth of 25.50 inches (647.70 mm) and an upper depth of 12.50 inches (317.50 mm).

The framed opening shall measure 31.00 inches (787.40 mm) wide by 70.00 inches (1778.00 mm) high.

The compartment will have approximately 26.25 cubic feet (0.74 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 45.25 inches (1149.35 mm) high with a depth of 12.50 inches (317.50 mm). The lower 4.50 inches of the compartment shall be a depth of 25.50 inches.

The framed opening shall measure approximately 62.00 inches (1574.80 mm) wide by 40.50 inches (1028.70 mm) high.

The compartment will have approximately 22.06 cubic feet (0.62 cu m) of space.

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 58.00 inches (1473.20 mm) wide by 74.00 inches (1879.60 mm) high with an upper depth of 12.50 inches (317.50 mm) and the lower portion being transverse into the rear compartment, unless partitions are installed.

The framed opening shall measure approximately 55.50 inches (1409.70 mm) wide by 70.00 inches (1778.0 mm) high.

The compartment will have approximately 45.45 cubic feet (1.29 cu m) of space.

Compartment "R1"

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

The approximate interior dimensions of this compartment shall be 33.50 inches (850.90 mm) wide by 74.00 inches (1879.60 mm) high with a lower depth of 25.50 inches (647.70 mm) and an upper depth of 12.50 inches (317.50 mm).

The floor of the compartment shall have a notch large enough to accommodate the chassis exhaust and its components.

The framed opening shall measure approximately 31.00 inches (787.40 mm) wide by 70.00 inches (1778.00 mm) high.

The compartment shall have approximately 26.25 cubic feet (0.74 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 45.25 inches (1149.35 mm) high with a depth of 12.50 inches (317.50 mm). The lower 4.50 inches of the compartment shall be a depth of 25.50 inches.

The framed opening shall measure approximately 62.00 inches (1574.80 mm) wide by 40.50 inches (1028.70 mm) high.

The compartment will have approximately 22.06 cubic feet (0.62 cu m) of space.

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 58.00 inches (1473.20 mm) wide by 74.00 inches (1879.60 mm) high with an upper depth of 12.50 inches (317.50 mm) and the lower portion being transverse into the rear compartment, unless partitions are installed.

The framed opening shall measure approximately 55.50 inches (1409.70 mm) wide by 70.00 inches (1778.0 mm) high.

One (1)
33-05-034S

The compartment will have approximately 45.45 cubic feet (1.29 cu m) of space.
Non Locking ROM Roll-Up Doors (-3) Side Compts (5" taller 9" tail inset) (S180)

DOOR CONSTRUCTION

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

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 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.

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

One (1)
37-90-011T

Side Compartment Doors, track & trim wet painted No Door Protectors (S180)

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)
37-92-0105
10080-0002

Both, Left & Right/HS (roll-up door assist straps)

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, halfway between the top and bottom of the compartment.

One (1)
37-96-0020 Door Open Switch/Warning Light - Roll Up Doors ROM

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 parking brake is released, it shall activate the "hazard light" in the cab to alert the crew.

One (1)
37-10-002T Rear Center Compartment- "B-1" (38"w x 29.5"h framed) (S180)

REAR CENTER COMPARTMENT

There shall be one (1) compartment, "B1", located at the rear of the apparatus, below the hose bed access area.

The approximate interior dimensions of this compartment shall be 43.00 inches (1092.20 mm) wide and 35.50 inches (901.70 mm) high or as high as possible determined by the hose bed height and rear configuration. The depth shall be determined by the length of the rear side compartments specified and maximized for the suspension specified for the chassis.

The framed opening shall be approximately 38.00 inches (965.20 mm) wide and 29.50 inches (749.30 mm) high.

One (1)
37-10-020S Rear Comp - ROM Non Lock Roll Up Door Option No Door Protectors (S180)

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.

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

One (1)
37-41-001T Rear Center Compartment Door, track & trim wet painted No Door Protector (S180)

REAR CENTER COMPARTMENT DOOR FINISH

The rear center compartment door, track and trim shall be aluminum and wet painted to match the apparatus body color.

One (1)
37-96-0015 Door Open Switch/Warning Light - Roll Up Door ROM (Single)

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 parking brake is released, it shall activate the “hazard light” in the cab to alert the crew.

One (1)
37-50-001S Fuel Tank Access-Removable Panel-Custom Chassis only option (S180)

FUEL TANK ACCESS PANEL

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)
37-65-0010 Rear Transverse Compt Partitions - Permanent

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 Brushed Stainless Steel Sill Plates

SILL PLATES

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

One (1)
70-30-030S (2) LED Tubes Light per Compartment, Spartan (S180)

COMPARTMENT LIGHTING

Two (2) LED tube light model #RX-15T16-5050, shall be installed in each body compartment. The tube light shall be centered vertically along the forward side of the door framing and at

maximum length available to fit the opening.

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

One (1)
71-50-0100

Compartment Lighting Activation - Battery, Ignition, Door Switch

COMPARTMENT LIGHTING ACTIVATION

Each compartment light shall be activated with the ignition, park brake, and the respective compartment door open switch.

One (1)
38-10-027S

9" Inset Rear Tailboard-With Ladder/Rear Compartments- (S180)

INSET REAR TAILBOARD

The rear tailboard shall be fabricated of the same structural materials used in manufacturing the apparatus body.

The rearmost body side compartmentation shall be extended rearward and be flush with the rearmost edge of the tailboard. The side compartments extension shall provide a larger door opening and increase compartment storage space.

The rear inset side compartmentation with compartment(s) through the tank shall be of a vertically split depth design and shall have full depth lower compartment(s). The storage compartments shall be installed flushed with the rear vertical face of the rear compartment door opening with the horizontal surfaces above the extension overlaid with embossed aluminum diamond plate.

If a compartment is not specified for rear access, the void shall create a permanent intermediate stepping surface approximately 48.50 inches (1231.9 mm) in height above the tailboard. The horizontal surfaces shall be overlaid with embossed aluminum diamond plate.

The rear inset side compartmentation with full depth design compartments shall have extensions of full height and full depth.

There shall be a warning sign installed on the rear body surface area indicating: "DO NOT RIDE ON REAR STEP, DEATH OR SERIOUS INJURY MAY RESULT."

The rear tailboard and body shall be constructed as such that the angle of departure shall not be less than 8 degrees at the rear of the apparatus when fully loaded to meet NFPA, Standard for Automotive Fire Apparatus.

One (1)
38-11-0400

Step - 9" Inset/9" Extension (18") w/ 3/16" Embossed Aluminum Diamond Plate

TAILBOARD LENGTH

The rear tailboard shall be approximately 18.00 inches deep (457.20 mm) and shall incorporate a .188 inch (4.78 mm) embossed aluminum diamond plate overlay.

The step shall extend approximately 9.00 inches (228.60 mm) from the inset rear wall, rear compartment door opening, to the rear of the body where the side compartments stop. The step shall extend an additional 9.00 inches (228.60 mm) beyond the rear side facing compartments.

One (1)
39-01-001V

The stepping area shall span the width of the apparatus, overlapping the perimeter of the structural tailboard framework.

Wheel Wells, Single Axle - Short Height Wheel Panel w/ SCBA (S180)

WHEEL WELLS

One (1)
39-03-002V

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.

Wheel Well panels to be painted, Single Axle LS Only Fuel Fill - w/ SCBA (S180)

WHEEL WELL PANELS

One (1)
52-60-2000

The body panel in the wheel well area on each side of the body shall be fabricated of same material type as the body and finish painted.

Air Bottle Compts w/safety straps/CPI, - 1 Left/2 Right

SCBA BOTTLE COMPARTMENTS

Cylindrical SCBA storage compartments shall be installed in the wheel well area above the wheel well liner, protected from dirt, rocks, and other debris.

The storage compartments shall be made of a tube that interfaces with a spring loaded cast aluminum door and housing - fastened to the wheel well panel for a secure installation. The inside of each compartment shall be lined with material (if required) to protect the air bottles from being damaged.

The storage compartments shall be installed in the apparatus at an inclined angle and incorporate a 1" nylon safety loop to be attached to the top of the bottle, to prevent the bottles from sliding forward when stored. There shall be holes drilled in the tubes for drainage in the event that water enters the compartment. Each SCBA compartment shall be a minimum internal diameter of 7.5" and be at least 25" deep.

One (1)
56-05-2000

There shall be one (1) compartment on the left side, ahead of the wheel. The right side shall have two (2) compartments, one forward and one rearward.

Left Side- Cast Products Rear Fuel Fill Assembly, *CUSTOM CAB ONLY* Pumper/Rescu

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 area that best suits efficient fuel filling with the space appropriated on the left side of the apparatus.

The fuel fill assembly will have a brushed aluminum door. There shall be a drain in the fuel fill assembly to allow overflow to drain on the back side of the apparatus body. The fuel fill cap shall be removable, manufactured of plastic materials, green in color and equipped with a tether.

The fuel fill cap shall be labeled "DIESEL FUEL". The 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)
39-15-000S Rear Fenderettes to be Polished Stainless (S180)

FENDERETTES

Two (2) polished stainless steel 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.

One (1)
50-15-302T Hose bed Description - FD/Dealer Cover Only *RX Lighting* (S180)

HOSE STORAGE

A hose bed shall be provided and installed as long and as deep as the tank volume, rear configuration, and the body height allows. At a minimum, the capacity of the hose bed shall meet the latest version of NFPA, Standard for Automotive Fire Apparatus.

The hose bed 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.

One (1)
30-14-0005 Hose bed Walls w/Brushed Stainless Steel Finish

HOSE BED AREA

The hose bed area of the apparatus shall be overlaid with brushed stainless steel material.
Rear Hose bed Corners Trimmed w/ Brushed SST

One (1)
30-14-2000

HOSE BED AREA TRIMMED W/ BRUSHED SST

The vertical corners at the back hose bed 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)
30-14-5000 Hose Bed Side Walls Cap w/ Brushed SST

HOSE BED WALL CAP

The top rail on the hose bed side walls shall have a trim cap fabricated of 16 gauge brushed 304L stainless steel. The cap shall run the entire length of the hose bed side wall and shall provide a smooth surface with a highly finished appearance. It shall extend down at least 1.00 inch on each side of the hose bed side wall.

One (1)
50-12-4000 Walls to be 90" tall

HOSE BED WALL HEIGHT

The walls of the hose bed shall be 90.00 inches (2.29 m) tall, measured from the bottom edge of the compartments to the top flange.

One (1)
50-30-006S Fire Department or Dealer supplied Hose Restraints (S180)

HOSE RESTRAINT

The Fire Department or Dealer shall provide a means of restraining the hose stored in the hose

bed to prevent inadvertent deployment of hose during transit. A hose restraint safety label shall be affixed by the Dealership and visible to personnel at each hose storage area.

One (1)
78-05-301S Two (2) 48" & Two (2) 24" Spartan LED Tube Lights, Hose Bed Walls (S180)

LED HOSE BED LIGHTING

There shall be four (4) LED tube lights installed with protective angles to maximize the space available. One (1) LED tube light model #RX-15T16-5050-61CM and one (1) model #RX-5T16-5050-122CM shall be installed on each side at the top of the hose bed walls, centered from front to back.

One (1)
78-10-1070 (Mult) Hose bed Lights to illuminate w/ Park Brake

HOSE BED LIGHT ACTIVATION

The hose bed lights shall be activated when the park brake is set.

One (1)
50-15-329S Dunnage Area in Hose bed - No Cover - No Lighting - w/ Divider (S180)

HOSE BED DUNNAGE AREA

A vertical bulkhead shall be provided and installed at the front of the hose bed 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.

There shall be a vertical divider installed to the exposed ladder box wall in the dunnage area. The vertical divider shall be secured to the forward body wall at the front of the divider and the bulkhead wall at the rear of the divider. The divider shall be as tall as practical, leaving room for the hose bed cover and hardware.

One (1)
50-15-3390 Dunnage Area Hose Bed - Embossed Floor

The dunnage floor shall have a slotted .1875 inch (4.76 mm) aluminum embossed diamond plate flooring installed to allow drainage through the tank cavity to the ground below. The area shall be free of sharp edges to protect stored items when loading and unloading.

Two (2)
50-15-402S {Qty} Full Height Reinforced Hose Bed Divider(s) w/hand cut-out(s) (S180)

REINFORCED HOSE BED DIVIDER WITH HAND CUTOUT

There shall be a full height adjustable reinforced hose bed divider provided and installed in the hose bed 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 and a hand cut out to aid in access to the hose bed area. The top and rear edges shall be reinforced with 1.00 inch (25.40 mm) round aluminum tubing for extra rigidity. Hose payout shall be unobstructed by the divider.

There shall be a total of two (2) provided and installed in the hose bed.

One (1)
60-00-159V Spartan Tank - 1000 gal low hose bed pumper - 'L' Configuration (S180)

TANK CAPACITY

One (1)
60-00-0010

The tank shall be 1000 gallons (3785 liters) in capacity and have an 'L' configuration with the majority of the water being located at the front of the body creating a low hose bed.
Spartan Tank Verbiage (low hose bed)

SPARTAN POLY TANK

The water tank shall be designed to utilize cavities that have commonly been wasted space. The water tank may 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 poly 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 tested for maximum strength and integrity. The top of the booster tank is fitted with lifting eyes designed to facilitate tank removal.

COVER

The tank cover shall be constructed of the same poly material as the rest of the tank and shall be recessed. A minimum of two lifting dowels shall be drilled to accommodate the lifting eyes.

BAFFLES

The swash partitions shall be manufactured of the same poly material as the rest of the tank. 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 floor for added strength and durability. The tank shall be isolated from the body substructure cross members with 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)
60-00-0050

Spartan Tank Warranty (For bid specs)

TANK WARRANTY

A lifetime tank warranty will be provided by the tank manufacturer.

One (1)
60-00-011S

Please see the official warranty document in the appendix (attached) for specific details.
Fill Tower & Overflow 6" (less than 1500 gal.) (S180)

FILL TOWER

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

10080-0002

07/20/26

The tower will have a removable poly screen and a poly hinged type cover that will open if the tank is filled at an excess rate. The removable poly screen to prevent debris from falling into the tank.

The fill tower shall have a 6.00 inch (150.00 mm) overflow that will be routed below the fuel 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)
60-00-0230

Fill Tower Location - Center Rear Dunnage

FILL TOWER LOCATION

To minimize the volume of tank lost to the overflow pipe as well as to make the fill accessible from the hose bed the fill tower shall be located at the center location at the rear of the dunnage area.

One (1)
60-00-030S

The lid will be at the same height as the top of the hose bed walls.
Single Tank Sump Verbiage (USE for 1 TTP valve) (S180)

SUMP

The sump will be constructed in an 8.00 inch (203.20 mm) x 16.00 inch (406.40 mm) x 1.00 inch (25.40 mm) deep area.

The construction material shall utilize 1.00 inch (25.40 mm) poly and be located in line with the tank suction valve. There shall be a 4.00 inch (100.00 mm) schedule 40 poly 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 inches (50.00 mm) above the sump.

One (1)
60-00-0310

Sump 3" Plug (no valve)

SUMP PLUG

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

One (1)
60-00-0400

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.

One (1)
62-25-000U

Ladder Compartment beside Booster Tank Right (S180)

LADDER COMPARTMENT

The ground ladders shall be stored within a compartment installed beside the booster tank.

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, to support the ladders and allow ease of removal. There shall be a stop in the front of each section to prevent the items from sliding forward.

One (1)
10080-0002

Ladder Compt Made of 1/8" Smooth Aluminum

62-25-1200

LADDER COMPARTMENT MATERIALOne (1)
62-27-001S

The ground ladder compartment shall be fabricated of .125-inch smooth aluminum.
Compartment RIGHT on side of Water Tank-Vertical (S180)

LADDER COMPARTMENT LOCATIONOne (1)
62-29-0020

The ground ladder compartment shall be mounted vertically on the right side of the water tank.
Compt. open in pump compartment

LADDER COMPARTMENT OPEN ENDOne (1)
62-29-1010

The compartment shall be enclosed through the tank and open at the pumphouse end; where "stops" will be incorporated to prevent the ladders from sliding forward and damaging internal pumphouse components.

Ladder Compt. Door Hinge location -Inboard Edge-

LADDER COMPARTMENT DOOR HINGE LOCATIONOne (1)
62-29-1900

The door hinge shall be mounted vertically across the inboard edge of the compartment door opening.

Ladder Compartment Door, (Door Matches Rear Overlay) STD

LADDER COMPARTMENT DOOR

The door material shall match the rear overlay material. The door shall have two (2) push button type latches installed with a chrome handle centered between the push button latches.

If the door is not properly closed and the parking brake is released, it shall activate the "hazard light" in the cab to alert the crew.

One (1)
62-29-8010

Reflective Chevron Material on Ladder Compartment Door

LADDER COMPARTMENT DOOR REFLECTIVE CHEVRONOne (1)
62-35-001S

The ladder compartment door shall be left unfinished and include retro-reflective chevron material matching the rear of the apparatus.

Duo Safety Ladders - 24' / 14' / 10' - Spartan Supplied Ladders (S180)

LADDER COMPLEMENTOne (1)
90-11-0070

The following ladders shall be supplied with the apparatus:

Duo Safety 24' Alum 900A 2 sect

One (1)
90-12-0030

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

Duo Safety 14' Alum 775A roof

One (1)
90-13-0030

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

Duo Safety 10' Alum 585A Attic

One (1)
62-38-000T

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

(2) Pike Poles Metal Storage Tubes - Spartan Supplied Pike Poles (S180)

10080-0002

PIKE POLE STORAGE

There shall be two (2) tubes provided for storage of the pike poles installed with the ground ladder complement.

The following pike poles shall be supplied with the apparatus:

One (1)
90-21-001S Duo Safety (Qty) 12' w/Fiberglass Handle (S180)

One (1) Duo-Safety 12 foot (3.5 m) pike pole(s) with fiberglass handle.
One (1)
90-21-001T Duo Safety (Qty) 10' w/Fiberglass Handle (S180)

One (1) Duo-Safety 10 foot (3.0 m) pike pole(s) with fiberglass handle.
One (1)
62-39-1010 (1) Backboard storage in ladder compartment-FD or Dealer provides board

BACKBOARD STORAGE

There shall be storage provisions provided in the specified ladder compartment for one (1) backboard.

The storage area shall be approximately 2.50 inches by 18.00 inches by 72.00 inches.
One (1)
62-40-000S Extend Inner Wall of Ladder Compartment for open storage (S180)

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 or as high as permitted by design to create a dunnage area above the ground ladder compartment.

This storage area shall be open to the top and to the rear.

Where applicable by design, the construction style of the extension shall be similar to hose bed divider style if provided.

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

One (1)
66-02-010S (2) Suction Hose Carriers-6" x 10'-(1) LS and (1) RS Catwalk (S180)

SUCTION HOSE STORAGE

Suction hose shall be stored on a formed carrier rack sized to hold 6.00 inch x 10.00 foot hose. The rack shall have two (2) Velcro hold-down straps, one (1) at each end, which shall secure the suction hose to the tray.

One (1) carrier shall be mounted to the catwalk on each side of the apparatus above the side compartments.

One (1)
66-02-9020 Suction Hose Carrier - Anodized Aluminum

SUCTION HOSE STORAGE MATERIAL

Each suction hose rack shall be constructed of anodized aluminum for a durable, long lasting finish.

One (1)
10080-0002 (2) Suction Hose for Carrier-Spartan Provided-6" x 10' (S180)

66-08-010S

SUCTION HOSETwo (2)
90-31-0110

The following suction hose shall be provided with the carriers.
{Qty} 6" x 10' w/ lightweight cplg - Clear PVC

One (1)
51-05-0005

There shall be Two (2) 10 foot length(s) of 6.00 inch clear PVC suction hose with 6.00 inch lightweight couplings provided with the above specified storage.
Vertical Unistrut (ALL) Body Compartments, Pumper (includes rear)

COMPARTMENT UNISTRUTOne (1)
52-13-001S

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.

Over Wheel Partitions-Partial Front & Rear (Both Sides) (S180)

OVER-WHEEL COMPARTMENT PARTITIONS- PARTIAL FRONT & REAR

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 partial-height partitions shall be installed flush to the forward frame opening and the rearward frame opening. The partitions shall include slots cut into the partitions allowing 8.00 inches of vertical adjustment for the installation of shelves if specified.

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

One (1)
52-16-002V

Vertical uni-strut will not be installed in the over-wheel compartments or the upper rear wall of the forward full height compartments.

Shelving Package - CUSTOM PKG - {SEE PDF for Shelving Capacity.} - w/ R2 (S180)

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.

Standard manufacture shelf construction capacity ratings are as follows, any requested change to the manufacture's standard design may affect/reduce the ratings accordingly:

Shelving shall be rated at a capacity of 200 pounds (90.72 kg) and applicable to the design configuration.

Four (4)
52-16-021T

The following shelving shall be provided:

{QTY} Full Width x Half Depth - Upper Shelf - w/ R2 (S180)

UPPER HALF DEPTH SHELVING

10080-0002

07/20/26

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

There shall be a total quantity of four (4) provided.
{Qty} L1 Compartment

One (1)
52-40-0105

- One (1) located in the L1 compartment.

One (1)
52-40-0115

{Qty} L3 Compartment

- One (1) located in the L3 compartment.

One (1)
52-40-0205

{Qty} R1 Compartment

- One (1) located in the R1 compartment.

One (1)
52-40-0215

{Qty} R3 Compartment

- One (1) located in the R3 compartment.

One (1)
52-22-002V

Roll-Out Tray Package - CUSTOM PACKAGE - w/ R2 - w/ B1 (S180)

ROLL OUT TRAY(S)

Each tray shall be fabricated of .19 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:

Three (3)
52-22-820T

{Qty} Floor Mount Roll Out-Full Width-(300#/100% w/FDR) w/R2 - w/B1 (S180)

ROLL-OUT ASSEMBLY/SPARTAN

The floor mounted tray shall be full width and shall be secured to a Spartan 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 three (3) provided.
{Qty} L3 Compartment

One (1)
52-40-0115

- One (1) located in the L3 compartment.

One (1)
52-40-0215

{Qty} R3 Compartment

- One (1) located in the R3 compartment.

One (1)
52-40-0305

{Qty} B1 Rear Ctr Compartment

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

One (1)
52-26-2005

DA-Tray/Shelf Finish

SHELF AND TRAY FINISH

The shelf(s) or roll-out tray(s) installed shall have a dual-action sanded finish applied on the front and side faces.

One (1)
53-00-011S

Side Rub Rails - Anodized Aluminum - (S180)

SIDE RUB RAILS (ALUMINUM CHANNEL)

The lowest edge of the apparatus body side compartments shall be trimmed with brightly anodized aluminum channel rub rail material.

The rub rails shall be approximately 3.00 inches high with flanges turned outwards for increased rigidity, with each end chamfered to a 45 degree angle. 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)
53-01-011S Rub Rail Retro-Reflective Striping (3M Diamond Grade) (S180)

RUB RAIL REFLECTIVE STRIPING

One inch reflective 3M "Diamond Grade" striping shall be applied to the length of each side rub rail section making the perimeter of the apparatus more readily visible.

One (1)
53-01-0310 Stripe to be 3M Diamond Grade Ruby Red

The reflective striping shall be "Ruby Red" in color.
Rear Rub Rail - Anodized Aluminum - (S180)

One (1)
53-02-010S

REAR RUB RAIL (ALUMINUM CHANNEL)

The rearward edge of the rear step shall be trimmed with brightly anodized aluminum channel rub rail.

The rub rail shall be approximately 3.00" high with flanges turned outwards for increased rigidity, with each end chamfered to a 45 degree angle. The rub rail shall not be constructed as an integral part of the apparatus body structure, allowing the rub rail to be easily removed in the event of damage.

The rub rail shall be secured with stainless steel fasteners and spaced away from the edge of the rear step with .50 inch nylon spacers, to help absorb moderate rear impacts and prevent the collection of water and debris for easier cleaning.

One (1)
53-01-040S Rub Rail Retro-Reflective Striping (3M Diamond Grade) - Rear (S180)

RUB RAIL REFLECTIVE STRIPING

One inch reflective 3M "Diamond Grade" striping shall be applied to the length of the rear rub rail section making the rear of the apparatus more readily visible.

One (1)
53-01-0510 Stripe to be 3M Diamond Grade Ruby Red

The reflective striping shall be "Ruby Red" in color.
FOLDING STEPS, IC Illuminated LED - Chrome (3LF, 3RF, LR - S180)

One (1)
53-15-000U

FOLDING STEPS

Innovative Controls Inc. steps, made of high strength die cast aluminum, conforming to current NFPA requirements, shall be provided and installed on the apparatus as specified.

The steps shall include a molded gasket and drain at the bottom to allow any water to escape the assembly, preventing water ingress and keeping the mount from damaging painted surfaces.

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.

The following components shall be provided on each step:

One (1)
53-17-0100 w/Logo, White Step Light & Down Light, Safety Label, & Flying Lead Termination

One (1) Logo label

One (1) White step light

One (1) White down light

One (1) Safety label

One (1) Flying leads termination

One (1)
53-17-121S Three (3) Left Forward Steps - Chrome (S180)

STEP LOCATION

Three (3) folding steps shall be installed on the left forward vertical wall of the front compartment.

One (1)
53-30-120S (1) 10" Handrails - Knurled Alum/LED - Catwalk Angled 30° (S180)

10" HANDRAILS

One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded aluminum with a knurled grip, and full length illuminated LED light strip shall be installed in a location above the forward step(s) and in accordance with NFPA, Standard for Automotive Fire Apparatus, standard requirements. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

Location: Front edge of catwalk, angled at approximately 30°.
Red Reflective Handrail Insert

One (1)
53-31-0020

RED REFLECTIVE HANDRAIL INSERT

There shall be a full length red reflective strip provided on the above specified handrail.
Handrail Illumination Light Color (White/Clear)

One (1)
53-31-0510

Each handrail LED light strip specified shall be white/clear in color.
Illuminated Handrail Activation - Park Brake

One (1)
53-32-0005

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.
Step Light Activation - Park Brake

One (1)
58-60-0005

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.
Three (3) Right Forward Steps - Chrome (S180)

One (1)
53-17-131S

10080-0002

STEP LOCATION

Three (3) folding steps shall be installed on the right forward vertical wall of the front compartment.

One (1)
53-30-120S (1) 10" Handrails - Knurled Alum/LED - Catwalk Angled 30° (S180)

10" HANDRAILS

One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded aluminum with a knurled grip, and full length illuminated LED light strip shall be installed in a location above the forward step(s) and in accordance with NFPA, Standard for Automotive Fire Apparatus, standard requirements. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

One (1)
53-31-0020 Location: Front edge of catwalk, angled at approximately 30°. Red Reflective Handrail Insert

RED REFLECTIVE HANDRAIL INSERT

One (1)
53-31-0510 There shall be a full length red reflective strip provided on the above specified handrail. Handrail Illumination Light Color (White/Clear)

One (1)
53-32-0005 Each handrail LED light strip specified shall be white/clear in color. Illuminated Handrail Activation - Park Brake

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

One (1)
58-60-0005 The illuminated handrail light shall be activated when the park brake is set. Step Light Activation - Park Brake

STEP LIGHT ACTIVATION

One (1)
53-17-140S The step light shall be activated when the park brake is set. Two (2) Left Rear Steps - Chrome (S180)

STEP LOCATION

One (1)
53-30-9960 Two (2) folding steps shall be installed on the left rear inset vertical face of the body. NO Handrail above rear steps

NO REAR 10" HANDRAIL

One (1)
58-60-0005 There shall be no 10" handrails mounted at the rear steps of the apparatus. The rear steps shall utilize the vertical handrails, specified below, mounted at the rear of body to assist in climbing the steps in accordance with NFPA, Standard for Automotive Fire Apparatus. Step Light Activation - Park Brake

STEP LIGHT ACTIVATION

One (1)
53-20-014T The step light shall be activated when the park brake is set. Bolt On Intermediate Rear Step - 3/16" Embossed DP w/ Cutouts - Whelen (S180)

INTERMEDIATE REAR STEP

10080-0002

The rear step shall be 8.00 inches (203.20 mm) in depth. Handhold cutouts shall be provided in the top step surface measuring approximately 2.50 inches deep. There shall be one (1) full length aluminum non lit handrail integrated into the assembly.

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.

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

One (1)
53-20-0220 Intermediate Rear Step -Located below Hose Bed-high as possible

INTERMEDIATE REAR STEP LOCATION

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

One (1)
58-50-015T (2) LED Step Lighting, Whelen 0AC0EDCR w/ 45 Bezel, (S180)

STEP LIGHTING

Two (2) Whelen model #0AC0EDCR LED step lights with 45 deg. mounting bezel shall be installed to illuminate the stepping areas.

One (1)
58-60-0005 The lights shall be directed towards and positioned above the stepping surfaces.
Step Light Activation - Park Brake

STEP LIGHT ACTIVATION

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

One (1)
53-30-100U HANDRAILS - Knurled Alum/Illuminated LED - 2 on Back of Body - LED (S180)

HANDRAILS KNURLED ALUMINUM ILLUMINATED

Handrails shall be 1.25 inches in diameter, constructed of extruded aluminum with a knurled grip, 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, Standard for Automotive Fire Apparatus, standard requirements.

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

One (1)
53-30-133S (2) 42" Handrails - knurled Alum/LED - rear wall (S180)

42" HANDRAILS

Two (2) 42.00 inch vertical handrails shall be installed, one (1) on each side of the rear center compartment area of the rear of the apparatus. These vertical handrails shall utilize an offset stanchion with the offset directed away from storage door openings for added clearance, where applicable.

One (1)
53-31-0020 Red Reflective Handrail Insert

RED REFLECTIVE HANDRAIL INSERT

One (1)
53-31-0510 There shall be a full length red reflective strip provided on the above specified handrail.
Handrail Illumination Light Color (White/Clear)

One (1)
53-32-0005 Each handrail LED light strip specified shall be white/clear in color.
Illuminated Handrail Activation - Park Brake

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

One (1)
56-58-0025 The illuminated handrail light shall be activated when the park brake is set.
DUAL Tow Eyes Below Rear Body/Compt - 1 ea side (Black Color)

TOW EYES

There shall be two (2) rear tow eyes installed to the frame rails, one each side, accessible below the rear of the apparatus.

One (1) 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 six (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.
== S180 Model 4116 Side Control Pumper - Electrical - 10.360 05/21/26 ==

One (1)
70-01-001S Multiplex Body Low Voltage Electrical System (S180)

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, 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 provided 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.**

One (1)
70-01-5020 2 Year Limited Multiplexed Electrical Warranty, (Generic Specs)

MULTIPLEXED ELECTRICAL WARRANTY

A two (2) year limited (Control-MAXX) multiplex system warranty shall be provided by the apparatus manufacturer 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 "third-party parts". Defects in materials and workmanship related to third-party parts that carry their own warranty are subject to that warranty.

One (1)
70-10-004S

Node (Combination Mount) (S180)

NODE

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 and as forward as practical in the full depth portion of the right front compartment.

The right rear body node shall be mounted as high and as far inboard as practical on the rear wall in the right rear compartment.

The left rear node shall be mounted as high and rearward as practical in the full depth portion of the left rear 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 shelf mounting structure and shall limit the height of unistrut or shelf height within the compartments.

One (1)
70-36-192S

Underbody Lights (6) - Side front & rear body/Tailboard (S180)

PERIMETER LIGHTS LOCATION

There shall be six (6) 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, one (1) under each side at the rear of the body, and two (2) under the rear tailboard.

Six (6)
70-36-2280

TecNiq T44 Series, 4" Rd LED Underbody Lights

PERIMETER LIGHTS

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

One (1)
70-37-0020

Underbody Perimeter Light Activation-Match Chassis Programming

PERIMETER LIGHTS ACTIVATION

The perimeter lights under the body shall illuminate the area with the activation of the chassis ground lights, excluding any chassis door programming.

One (1)
72-2A-009S

Whelen Upper Lighting Package - all red lights - chrome bezels (S180)

UPPER LIGHTING PACKAGE

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

One (1)
72-2M-013R

Zone C (2) B6 Red LED w/clear lens Beacons with (2) M7 Series Amber LED (S180)

UPPER ZONE C:

There shall be two (2) Whelen beacons with 360 degree super LED lights with polished base, provided and installed at the rear upper outboard corners of the apparatus, one (1) each side.

The beacons shall be B63 Series with R316 Super-LED beacons with red lights and clear lenses and two (2) M7 series LED amber flashing lights with clear lenses surface mounted below the beacons.

One (1)
78-30-0005

Upper Zone C NO Stanchions provided (For use w/ upper storage/catwalk mount etc)

LIGHT MOUNT LOCATION

The upper ZONE C specified lights shall be mounted directly to the horizontal body surface as far rearward as possible.

One (1)
75-02-143S

Upper Rear Warn Lights Switched w/E-Master & Secondary Switch (Vehicle Display)

UPPER REAR WARNING LIGHT SWITCH E-MASTER/DISPLAY

The upper rear warning lights shall be controlled through the master warning switch. A secondary rear warning switch shall be located on the vehicle display control screen, where applicable. The switches shall be clearly labeled for ease of identification.

One (1)
74-2A-109S

Whelen Lower LED Lighting Package - all red lights - chrome bezels (S180)

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-029S

Zone B&D - (2) Whelen M6 Series Super-LED, Chrome Bezels - red (S180)

LOWER ZONE B&D:

There shall be two (2) Whelen model M6 series LED lights with chrome bezels, one (1) each side, provided and installed with the apparatus.

One (1)
75-05-0207

Side Warning Lights Standard Flash

SIDE WARNING LIGHTS FLASH

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

One (1)
75-11-0010

Side Warning Lights are Red with Clear Lenses

SIDE WARNING LIGHTS COLOR

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

One (1)
75-15-0012

(2) Side Lights Located- Rear Wheel Panel-forward

SIDE WARNING LIGHTS LOCATION

10080-0002

One (1)
74-2F-503S

The warning lights on the side of the apparatus shall be mounted at the rear wheel panel forward of the axle.
Aux. B&D - Lower (4) Whln WION LED, Chrm Bzls, Cntrd below Frnt/Rear compt (S180)

AUXILIARY WARNING LIGHTS LOWER ZONE B&D

There shall be four (4) auxiliary Whelen WION series LED lights with chrome bezels installed two (2) each side.

One (1)
75-05-0207

One (1) shall be installed in front and one (1) behind the rear axle centered below the front and rear compartments.
Side Warning Lights Standard Flash

SIDE WARNING LIGHTS FLASH

One (1)
75-11-0010

The lower side lights shall feature multiple flash patterns including steady burn.
Side Warning Lights are Red with Clear Lenses

SIDE WARNING LIGHTS COLOR

One (1)
75-18-012S

The lower side warning lights mounted on the side positions shall be red with clear lenses.
Lower Side Warning Lights Switched w/E-Master & Secondary Switch (Vehicle Disp)

LOWER SIDE WARNING LIGHT SWITCH E-MASTER/DISPLAY

One (1)
74-2J-009W

The lower side warning lights shall be controlled through the master warning switch. A secondary side warning switch shall be located on the vehicle display control screen, where applicable. The switches shall be clearly labeled for ease of identification.
Zone C - (2) Whelen M6 Series Super-LED, Chrome Bezels - all red lights (S180)

LOWER ZONE C:

One (1)
75-05-0407

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.
Rear Warning Lights Standard Flash

REAR WARNING LIGHTS FLASH

One (1)
75-12-0010

The lower rear lights shall feature multiple flash patterns including steady burn.
Rear Warning Lights are Red with Clear Lenses

REAR WARNING LIGHTS COLOR

One (1)
75-18-022S

The lower rear warning lights mounted at the rear shall be red with clear lenses.
Lower Rear Warning Lights Switched w/E-Master & Secondary Switch (Vehicle Disp)

LOWER REAR WARNING LIGHT SWITCH E-MASTER/DISPLAY

One (1)
10080-0002

The lower rear warning lights shall be controlled through the master warning switch. A secondary rear warning switch shall be located on the vehicle display control screen, where applicable. The switches shall be clearly labeled for ease of identification.
Whelen Super LED Brake/Tail/Turn & Back-Up Assembly, M6-Series-chrome (S180)

75-20-035S

LED REAR TAILLIGHT ASSEMBLY

There shall be Whelen M6-Series Super LED rear taillight 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) M62BTT LED red brake light

One (1) M62T LED series amber turn signal light

One (1) M62BU LED clear back-up light

One (1) Whelen M6 series 4 Position Vertical Housing, Chrome Plated

75-20-0650

MOUNTING ASSEMBLY

There shall be Whelen 4-position vertical chrome plated housing provided for each taillight assembly.

The upper most open cavity shall be filled with the specified warning light for the rear of the apparatus.

One (1) Taillights with Clear Lenses

75-20-1010

REAR TAILLIGHTS COLOR

The taillights mounted at the rear shall have clear lenses.

One (1) Backup Lights to illuminate in reverse only

75-21-0010

BACKUP LIGHTS

The backup lights shall illuminate when the apparatus is placed in reverse.

One (1) TecNiq S17 RED DOT Lighting - (7 total LED) - low at rear - steady burn (S180)

75-25-301S

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 of the tailboard, 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 TecNiq S17 series LED red markers.

One (1) (1 per side) TecNiq Intermediate Amber Lighting (Req. for apparatus >30'

75-25-6000

DOT ADDITIONAL MARKER LIGHTS

There shall be two (2) amber LED intermediate marker lights/intermediate turn signals installed in the rub rail, forward of the rear wheel well, one (1) each side.

The lights shall be TecNiq S17 series LED amber markers/turn.

One (1) Intermediate Turn Signals (mid turn, steady burn)

75-25-9010

INTERMEDIATE TURN SIGNALS

10080-0002

07/20/26

One (1)
75-30-5100
The intermediate turn signals will steady burn when not blinking.
Marker Lights - Clear Lens

MARKER LIGHT LENS COLOR

One (1)
75-30-7000
The above specified marker lights shall have clear lenses.
Marker Lights - Chrome Bezels

MARKER LIGHT BEZELS

One (1)
77-01-0050
The above specified marker lights shall have chrome bezels.
Rear camera mount underside of intermediate step (Chassis Provided Camera)

REAR VIEW CAMERA LOCATION

One (1)
78-45-002S
A camera shipped loose with the chassis shall be mounted at the center location to the underside of the intermediate rear step at the rear of the apparatus body for maximum viewing capability.
(4) Stationary Scene lights located side of body two each side-chrome bzl (S180)

SIDE SCENE LIGHT LOCATION

There shall be four (4) scene lights installed on the sides of the apparatus, two (2) on each side.

Four (4)
78-51-0250
One (1) located at the front and one (1) located at the rear corner.
Whelen M9 Gradient Series Super-LED, Scene Light, Chrome Flange

SCENE LIGHT MODEL

Whelen model #M9LZC LED gradient scene lighting with chrome flange shall be surface mounted on the apparatus.

One (1)
82-60-253S
Each light shall offer LED directional lighting from 2 to 40 degrees with internal and external optics. The lamp shall draw 6 amps and generate 6,500 lumens.
Body Side Scene light(s) switch on the display & pump pnl-rckr switch (S180)

BODY SIDE SCENE LIGHT ACTIVATION

The scene lighting shall be activated by two (2) virtual buttons on the vehicle display control screen and two (2) weather resistant switches at the pump operator's panel, one (1) for each side of the apparatus.

The switch shall be labeled as follows:

Left Scene

Right Scene

One (1)
78-45-003S
(2) Stationary Scene lights located back of body, one each side-chrome bzl(S180)

REAR SCENE LIGHT LOCATION

There shall be two (2) scene lights installed on the rear facing vertical surface of the apparatus,

Two (2)
78-51-0250

one (1) on each side.
Whelen M9 Gradient Series Super-LED, Scene Light, Chrome Flange

SCENE LIGHT MODEL

Whelen model #M9LZC LED gradient scene lighting with chrome flange shall be surface mounted on the apparatus.

One (1)
82-60-352S

Each light shall offer LED directional lighting from 2 to 40 degrees with internal and external optics. The lamp shall draw 6 amps and generate 6,500 lumens.
Rear Scene light(s) switched on the vehicle display & rckr switch on pp (S180)

REAR SCENE LIGHT ACTIVATION

The rear scene lighting shall be activated by a virtual button on the vehicle display control screen in the cab and a weather resistant switch at the pump operator's panel. The scene shall also be interlocked with the park brake.

The switch shall be labeled as follows:

One (1)

Rear Scene
== S180 Model 4116 Side Control Pumper - Extras - 10.360 05/21/26 ==

One (1)
88-50-0530

Reflective Stripe - Fire Department or Dealer Supplied & Installed (S180)

REFLECTIVE STRIPING

One (1)
88-53-200T

The reflective striping shall be supplied and installed by the Fire Department or Dealer.
Diamond Grade Retro-Reflective Chevron Red/Yellow(REAR)- NO Bumper Chevron(S180)

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 3M 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.

One (1)
88-53-6010

The stripe shall be 6.00 inches (152.40 mm) wide alternating in colors.
Chevron Striping to be Red/Fluorescent Yellow Green

CHEVRON COLOR

The diamond grade retro-reflective chevron striping shall be red and fluorescent yellow-green in color.

One (1)
88-54-020S

Fire Department or Dealer Supplied Body/Cab Lettering (S180)

APPARATUS LETTERING

The apparatus lettering shall be provided and installed by the Fire Department or Dealer after final delivery of the completed apparatus.

One (1)
88-55-020S

Fire Department or Dealer Installed Decals (S180)

APPARATUS DECALS

10080-0002

The apparatus decals shall be provided and installed by the Fire Department or Dealer after final delivery of the completed apparatus.
 One (1) License Plate Mounting Options (S180)
 88-78-000S

LICENSE PLATE MOUNTING

One (1) CPI Cast Aluminum License Plate Bracket (open bottom) w/ LED Light
 88-78-3050

A Cast Products, model LP0005-1-C, cast aluminum open bottom license plate bracket shall be installed. The bracket shall incorporate a clear LED (WL0501) to illuminate the license plate and meet DOT requirements.

One (1) License Plate Bracket Location Right Side
 88-78-9010

LICENSE PLATE BRACKET LOCATION

The above specified license plate bracket shall be installed at the back of the apparatus on the right side. The bracket shall be mounted to meet all applicable DOT standards.
 One (1) EQUIPMENT (S180)
 90-00-000S

MISCELLANEOUS EQUIPMENT

The following equipment list shall be provided with the completed apparatus.
 One (1) 1 Set-Spartan Folding Wheel Chocks (S180)
 90-04-100S

WHEEL CHOCKS

One (1) set of NFPA compliant cast aluminum folding wheel chocks shall be supplied with the apparatus.
 One (1) (1-set) Spartan Folding Wheel Chock -horiz mnt brckts-LF & LR body
 90-04-1120

WHEEL CHOCK MOUNTING BRACKETS

One (1) set of folding wheel chock underbody horizontal mounts shall be installed on the apparatus under the body on the left side, one (1) mount forward of the rear wheels and one (1) mount rearward.
 One (1) Fire Department Supplied Fire Extinguishers
 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) Fire Department Supplied Portable Hand Lights
 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) Flares (S180)
 91-22-001S

FLARES

One (1) Fire Department Supplied Flares
 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) Traffic Cones (S180)

10080-0002

91-23-001S

TRAFFIC CONES

One (1)
91-23-0120 Fire Department Supplied Traffic Cones

All NFPA required traffic cones will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-23-020S Traffic Vest (S180)

TRAFFIC VEST

One (1)
91-23-0220 Fire Department Supplied Traffic Vest

All NFPA required traffic vest will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-24-000S AED (S180)

AED (AUTOMATIC EXTERNAL DEFIBRILLATOR)

One (1)
91-24-0054 Fire Department Supplied AED

All NFPA required AED units will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-25-000S First Aid Kit (S180)

FIRST AID KIT

One (1)
91-25-0054 Fire Department Supplied First Aid Kit

All NFPA required First Aid Kits will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-26-001S Salvage Covers (S180)

SALVAGE COVERS

One (1)
91-26-0120 Fire Department Supplied Salvage Covers

All NFPA required salvage covers will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-29-001S Axes (S180)

AXES

One (1)
91-29-0030 Fire Department Supplied Axes

All NFPA required Axes will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-35-000S Spanner Wrenches (S180)

WRENCH SETS

One (1)
91-35-0054 Fire Department Supplied Spanner & Hydrant Wrenches

All NFPA required spanner and hydrant wrenches will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
91-36-000S Nozzles (S180)

NOZZLES

One (1)
91-36-0054 Fire Department Supplied Nozzles

All NFPA required nozzles will be supplied and installed by the Fire Department before the truck is placed into service.

10080-0002

07/20/26

1st Out Specialty Vehicles

Stock S180 4116

One (1) Handheld Tools (S180)
91-40-001S

HANDHELD TOOLS

One (1) Claw Tool (S180)
91-40-010S

CLAW TOOL

One (1) Fire Department Supplied Claw Tool
91-40-0110

All NFPA required claw tools will be supplied and installed by the Fire Department before the truck is placed into service.

One (1) Halligan Tool (S180)
91-40-020S

HALLIGAN TOOL

One (1) Fire Department Supplied Halligan Tool
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) Crowbars (S180)
91-40-030S

CROWBAR

One (1) Fire Department Supplied Crowbar
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) Sledge Hammer (S180)
91-40-050S

SLEDGE HAMMER

One (1) Fire Department Supplied Sledge Hammer
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) Rubber Mallet-Fire Department Supplied
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) Shovels (S180)
91-40-070S

SHOVELS

One (1) Fire Department Supplied Shovels
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) Bolt Cutter (S180)
91-40-080S

BOLT CUTTER

One (1) Fire Department Supplied Bolt Cutter
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) Supply Hose (S180)
91-70-000S

SUPPLY HOSE

One (1) Fire Department Supplied Fire Hose
10080-0002

1st Out Specialty Vehicles

Stock S180 4116

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)
92-01-010S

Adaptors (S180)

ADAPTORS

One (1)
92-01-0154

Fire Department Supplied Adaptors

All NFPA required Adaptors will be supplied and installed by the Fire Department before the truck is placed into service.

One (1)
92-10-010S

SCBA & Cylinders (S180)

SCBA & CYLINDERS (air packs)

One (1)
92-10-0154

Fire Department Supplied SCBA

All NFPA required SCBA and Cylinders will be supplied and installed by the Fire Department before the truck is placed into service.