FORD F550 CHASSIS SPECIFICATIONS

The chassis shall be a 2022 Ford, Model F-550 Super Duty, 4x4 chassis supplied with the following equipment:

WHEELBASE

The wheelbase of the vehicle shall be no greater than 203", with a cab to axle distance of 84.00".

GVW RATING

The chassis shall include the Payload Plus Upgrade Package so that the gross vehicle weight rating is 19,500 pounds.

FRAME

The frame rails shall include the upgrade required to meet the enhanced GVWR.

FRONT AXLE

The front axle shall be a driving type with a 7,500 lb. capacity rating at the ground.

A manually shifted, two (2) speed transfer case shall be provided to engage the front axle.

FRONT SUSPENSION

A "Heavy Service Suspension" shall be provided on the front axle. The rating shall be as described below, but it shall provide enhanced support over the standard suspension:

- Front Mono-beam non-independent suspension with coil spring and anti-roll bar
- Capacity at Ground: 7,000 lb.
- Front Anti-Roll Bar

Shock absorbers shall be provided on the front axle.

ELECTRIC SHIFT TRANSFER CASE AND AUTO/LOCKING WHEEL HUBS

The front axle shall be provided with manually selectable full locking or automatic locking wheel hubs.

There shall be an electric control for the transfer case to engage the front axle and shift between high and low all-wheel drive operation.

TIRES, FRONT

The front tires shall be 225/70R19.50 with black side walls and an (AT) all-terrain "traction" tread.

WHEELS, FRONT

Wheels for the front axle shall be Polished Aluminum.

REAR AXLE

The single reduction limited slip rear axle shall have a ground rating capacity of 14,706 lb.

REAR BRAKES

The rear brakes shall be hydraulic disc type.

PARKING BRAKE

The parking brake shall be located on the rear axle service brake.

REAR AXLE RATIO

Limited Slip / 4.88.

REAR SUSPENSION

The rear suspension shall be a leaf spring type, with a capacity at ground level of 15,000 lb.

The rear stabilizer bar shall be included.

TIRES, REAR

The rear tires shall be 225/70R19.50G with black side walls and an (AT) all-terrain "traction" tread.

WHEELS, REAR

The rear wheels shall be Polished Aluminum.

ANTI-LOCK BRAKE SYSTEM (ABS), ROLL STABILITY CONTROL (RSC)

The vehicle shall be equipped with an anti-lock braking and roll stability control systems.

ABS:

- Sensors monitor wheel rotation speed, checking for the onset of wheel lockup.
- If the onset of lockup is detected, the system automatically compensates for this condition and prevents wheel lockup by automatically "pumping" the brakes several times per second, even when the brakes are firmly applied.

ANTI-LOCK BRAKE SYSTEM (ABS), ROLL STABILITY CONTROL (RSC) (Continued)

- Improves vehicle steering control in severe braking maneuvers, under variety of weather conditions.

RSC:

- An additional vehicle control software module.
- Detects the roll angle of the vehicle on the horizontal axis.
- Monitor's vehicle body roll angle at least 100 times per second.
- Automatically reacts to help the driver keep the vehicle upright and all tires on the
- ground.

FRONT BRAKES

The front brakes shall be hydraulic disc type.

ENGINE

Model: Power Stroke 6.7 Turbocharged Diesel, CGI (compacted graphite iron) block and aluminum heads

- Number of Cylinders: Eight (8), "V" configuration
- Bore and Stroke: 3.90 x 4.25 in
- Displacement: 6.7 liters (406 cubic inches)
- Compression Ratio: 15.8:1
- Rated Brake Horsepower: 330 at 2600 rpm
- Peak Torque: 825 ft-lb at 2000 rpm
- Turbocharger: VGT (Variable Geometry Turbine) DualBoost
- Combustion System: High Pressure Bosch Fuel Injection System

ENGINE ACCESSORIES

- Air Cleaner: Dry type
- Governor: Limiting speed type
- Lube Oil Cooler
- Lube Oil Filter: Full flow
- Fuel Filter: Single fuel filter/water separator, heated.
- Starting Motor: 12-volt
- Oil Fill and Level Gauge

RADIATOR

- Pressurized System, Tube and Fin
- Anti-Freeze Protection to -20 degrees Fahrenheit.

ENGINE EXHAUST BRAKE

A Smart exhaust brake shall be provided. The control button shall be located on the instrument panel within easy reach of the driver.

EXHAUST SYSTEM

The exhaust system shall include a diesel particulate filter (DPF), a diesel oxidation catalyst and a selective catalytic reduction (SCR) to meet current EPA standards. The exhaust shall terminate with a horizontal tailpipe and diffuser on the right side behind the rear wheels.

The combustion system is the heart of the 6.7L Power Stroke diesel engine and reflects how Ford engineers achieved a balance of power, fuel efficiency and reduced emissions. To help reduce NOx levels, the Power Stoke burns cleaner in large part because of the Exhaust Gas Recirculation (EGR) system.

In addition, there is a three-step after-treatment system utilizing a diesel oxidation catalyst (DOC), selective catalytic reduction (SCR) using diesel exhaust fluid (DEF) and a diesel particulate filter (DPF) as the key components.

COOLANT LINES

Premium rubber hose shall be used for all engine coolant lines installed by the chassis manufacturer.

Hose clamps shall be of a design commonly called constant torque type to prevent coolant leakage. They shall react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.

FUEL TANK

The fuel tank provided shall be 40-gallon capacity and mounted behind the rear axle by the chassis manufacturer. It shall comply with all DOT regulations. It shall be designed and installed so that it does not interfere with the mounting of the pump, plumbing or other components.

DIESEL EXHAUST FLUID TANK

A diesel exhaust fluid (DEF) tank shall be provided for the emissions system.

TRANSMISSION

A ten (10)-speed automatic overdrive transmission shall be provided.

TRANSMISSION COOLER

A transmission oil cooler shall be provided in a tank of the radiator.

TRANSMISSION PTO PROVISION

The chassis transmission shall include the provision for a PTO.

DRIVELINE

The driveline shall be a heavy-duty metal tube type. A splined slip joint shall be provided in each driveshaft.

STEERING

The steering wheel shall be black vinyl with 3-button message center control. The steering wheel is 15.00" in diameter and includes tilt and telescoping adjustment.

Cruise control shall be steering wheel mounted.

The steering gear ratio shall be 20.30:1.00. The steering shall consist of a hydraulically driven steering system.

BUMPER

A full-width, aerodynamic, chrome plated steel bumper shall be attached to the front of the chassis frame.

TOWING PROVISIONS

Two (2) painted, steel tow eyes or hooks shall be provided.

CAB

Type: Conventional, engine forward, four (4) door crew cab

Construction: Aluminum

Accessories:

- Tinted glass in all windows
- Dual sun visors
- Electric windshield washer

CAB (Continued)

- Two (2) speed electric windshield wipers with intermittent control
- Dome light
- Fresh air heater and defroster
- Dual electric horns
- Driver and passenger air bags

XL TRIM PACKAGE

The chassis shall be equipped with the Ford XL trim package.

CAB GRILLE

The cab grille shall be a chrome plated high impact plastic.

MIRRORS

Manual-telescoping
Manual-folding trailer tow
Power/heated glass with heated convex spotter mirrors
Turn Indicators

AIR CONDITIONING

An air conditioner shall be provided that is integral with heater and defroster system.

SEATING

Seating inside the cab shall consist of a 40-20-40 split bench seat. These seats shall be upholstered in vinyl or similar material.

REAR SEATING

A Vinyl fold-forward rear bench seat shall be provided by the chassis manufacturer.

SEATING - NFPA

NFPA 1901, 2016 edition, section 4.11 requires all apparatus have a vehicle data recorder, and that the data recorded includes "seat occupied" and "seat belt status".

This seat does not provide the necessary sensors to accomplish the requirements of section 4.11. Per fire department specification and request, this apparatus shall be non-compliant to NFPA 1901 standards effective at time of contract execution.

SEAT BELT WEB LENGTH

NFPA 1901, 2016 edition, Section 14.1.3.1 and 14.1.3.2 requires effective seat belt web length for a Type 1 lap belt for pelvic restraint to be a minimum of 60.00", and a Type 2 pelvic and upper torso restraint-style seat belt assembly to be a minimum of 110.00".

Per Fire Department specification of a commercial chassis, this apparatus may not have seat belts of the required length. These belts may not provide sufficient length for large firefighters in bunker gear. This apparatus shall be non-compliant to NFPA 1901 standards effective at time of contract execution.

SEAT BELTS

NFPA 1901, 2016 edition, section 14.1.3.3 requires the seat belt webbing to be bright red or bright orange in color, and the buckle portion of the seat belt shall be mounted on a rigid or semi-rigid stalk such that the buckle remains positioned in an accessible location.

The seat belt color is not available in red or orange from the commercial chassis manufacturer. Per Fire Department specification of a commercial chassis, the seat belt color shall be noncompliant. This apparatus shall be non-compliant to NFPA 1901 standards effective at time of contract execution.

CAB INSTRUMENTS

Instrumentation display includes the following:

- Engine Temperature Gauge
- Engine Oil Pressure Indicator
- Transmission Fluid Temperature Gauge
- Speedometer with Odometer
- Engine Tachometer
- Engine Hour meter
- Fuel Level Gauge
- Turbo/supercharger Boost Gauge
- Systems Monitor
- Trip Odometer

Warning Indicators Include:

Oil Pressure

- Battery
- Engine Temperature
- Lights On
- Service Interval
- Brake System Indicator

CAB INSTRUMENTS (Continued)

- Key
- Low Fuel
- Door Ajar

WIPER CONTROL

Wiper control shall consist of a two (2)-speed individual windshield wiper control with intermittent feature and windshield washer controls.

The wipers shall also activate with the automatic (on/off) rain lamp wiper activated headlamps.

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AM/FM RADIO

There shall be an AM/FM stereo radio as part of this premium radio package with seven (7) premium speakers on the Super and Crew Cab. This system shall be mounted in the dash.

BATTERY SYSTEM

A single starting battery system shall be provided consisting of two (2) 12 volt, 750 CCA, maintenance-free batteries.

ELECTRICAL SYSTEM

The 12-volt electrical system shall be maintained by a dual alternator set-up provided by the chassis manufacturer. The dual alternators combined shall provide a total output of 397 amperes.

FORD POWER EQUIPMENT GROUP

The electrical power equipment group shall be provided on the chassis.

The option package shall include the following:

- Accessory Delay
- Manually telescoping two-way folding trailer tow mirrors w/power/heated glass, heated convex spotter mirror, integrated clearance lamps, turn signals
- MyKey owner controls feature
- Perimeter anti-theft alarm
- Power 1st row (front-seat) windows w/one-touch up/down
- Power 2nd row (rear-seat) windows (Crew Cab)
- Power locks
- Remote keyless entry

EXTERIOR LIGHTING

Exterior lighting shall meet or exceed Federal Department of Transportation, Federal Motor Vehicle Safety Standards and National Fire Protection Association requirements in effect at time of proposal. Front headlamps shall be Quad-beam, jewel-effect halogen type and comply to all FMVSS requirements.

The headlights shall be automatically activated (automatic on/off) with windshield wipers. Headlight high beam automatic dimming shall be included.

Five (5) clearance and marker LED lights shall be installed across the leading edge of the cab.

CHASSIS CAB COLOR

Ford Red.

CHASSIS RELATED ACCESSORIES

REPAINT CHASSIS CAB TOP AND HOOD – BLACK

The chassis cab roof and the top of the hood shall be repainted "BLACK" to match the attached photographs.

The break line shall start at the front face of the hood and following a straight line to the back of the chassis cab.

RELOCATE UREA TANK/FILL

The chassis urea tank and fill shall be moved to the LS frame rail, ahead of the rear axle. Fill to be in the LS forward fender panel. Chassis wiring harness shall be extended via an extension harness. Urea line also to be extended.

SCBA SEATS

The chassis provided rear crew cab bench seats will be removed and replaced with Bostrom SCBA seats.

The two (2) seats shall be Bostrom Tanker 400 Fold and Hold with **SECUREALL** SCBA Seats with Risers. **(7540-8309F)**

CAB CONTROL CONSOLE

There shall be one (1) cab control console installed in the chassis between the cab front seats. This console shall be fabricated from .125" aluminum and shall be as large as possible and bolted into place. This console shall have a removable top cover plate, which shall be retained by stainless steel counter-sunk fasteners.

CAB CONTROL CONSOLE (Continued)

The console shall accommodate all required electrical connections, sirens, light controls, switch banks, multiplex control heads, and any other electrical equipment as specified. Storage for binders and maps to be provided based on available space, to be determined.

Two (2) cup holders shall also be added to the console layout.

The console shall be coated with gray splatter finish to aid in abrasion resistance.

12-VOLT POWER LEADS

One (1) set of 12-volt power leads shall be installed on the apparatus. The power leads shall terminate inside the cab center console.

The power leads shall consist of One (1), 12ga. B+ power and One (1), 12ga. ground. Both leads shall be approx. 24.0" long and terminate with solder-less barrel type connectors.

The leads shall be connected battery direct and be un-fused.

BLUE SEA 12-VOLT ACCESSORY PANEL

A Blue Sea Systems 4365 water resistant accessory panel shall be provided in the center console area allowing for quick and easy way to recharge electronic devices in the apparatus. The panel shall have two (2) 2.1 amp dual USB chargers and one (1) 12-volt socket charger, each provided with protective covers.

The panel is also provided with an illuminated 15 amp circuit breaker switch to shut off the panel preventing parasitic draw.

USB-C RECEPTICLE

A USB-C receptacle shall be added to the above 122-volt accessory panel.

"DO NOT MOVE APPARATUS" INDICATOR

A flashing red indicator light (located in the driving compartment) shall be illuminated automatically per the current edition of NFPA. The light shall be labeled "Do Not Move Apparatus If Light Is On".

The same circuit that activates the Do Not Move Apparatus indicator shall activate a steady tone alarm when the parking brake is released.

MASTER BATTERY SWITCH

There shall be a master battery switch provided in the cab within easy reach of the driver. A green indicator light shall be provided in the cab to notify the driver of the status of the battery system.

INFORMATION CENTER

All standard switching shall be provided. Neither a color display nor a vacuum florescent display shall be provided with the multiplex system installation.

OPEN DOOR INDICATOR LIGHT

A red "open door" indicator light shall be provided inside the cab, in clear view of the driver, to warn of an open compartment door.

PRE-WIRED ANTENNA CABLES

There shall be two (2) RG58U coax cables pre-wired by the body builder from the chassis roof to the cab center console. Cables to be clearly labeled and secured within the console. Antenna bases to be protected by removable covers.

CAB STEP BARS

Polished Stainless Steel Step Bars shall be installed beneath the cab and crew area doors on both sides of the chassis.

CAB STEP LIGHTS

There shall be four (4) TecNiq Series E10-WS00-1 LED step lights provided. There shall be one (1) light installed at each cab entry door.

The lights shall be activated with marker lights turned on and the transmission is in Park position.

BACK-UP CAMERA:

One (1) Nagy 7" color back up camera system, 8212-IR Camera Kit, shall be installed on the apparatus.

The camera shall display the real time view of the area directly behind the apparatus. Monitor shall attach to the windshield in replacement of the chassis rear view mirror.

HELMET STORAGE PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 14.1.7.4.1 requires a location for helmet storage be provided. There is no helmet storage on the apparatus as manufactured.

The fire department shall provide a location for storage of helmets.

VEHICLE DATA RECORDER (NOT PROVIDED)

NFPA 1901, 2016 edition, section 4.11.1 requires all apparatus be equipped with an on-board vehicle data recorder. The VDR is intended to be used by the fire department to monitor seat belt use as a tool for enforcing a seat belt policy that enhances the safety of apparatus occupants.

VEHICLE DATA RECORDER (NOT PROVIDED) (Continued)

The vehicle data recorder is not available as required from the commercial chassis manufacturer. Per Fire Department specification of a commercial chassis, there shall be no vehicle data recorder on the apparatus. This apparatus shall be non-compliant to NFPA 1901 standards effective at time of contract execution.

Seat Belt Monitoring System

NFPA 1901, 2016 edition, section 14.1.3.9 requires a seat belt warning system be provided. The seat belt warning device is intended to assist the driver or officer in determining whether all occupants are seated and belted before the vehicle is driven. Without this device, the driver must manually determine that all occupants are seated and belted before the apparatus is placed in motion.

The seat belt warning system is not available as required from the commercial chassis manufacturer, or not requested by the customer. Per Fire Department specification of a commercial chassis, there shall be no seat belt warning system on the apparatus. The purchasing authority is consciously choosing to accept an apparatus without a tool that the NFPA Technical Committee on Fire Department Apparatus believes all fire departments should use to promote and enforce seat belt compliance.

This apparatus shall be non-compliant to NFPA 1901 standards effective at time of contract execution.

BACK-UP ALARM:

Federal Evacuator Plus, model 210331SSG, back-up alarm to be provided. 97 dB(A)

REAR SUSPENSION STABILIZATION:

Rear suspension to include SuperSprings® stabilizing system to level the load created by water tank and to reduce body roll. Modification to be performed without removal of OEM spring pack and should not compromise ride quality.

MAXIMUM SEATING CAPACITY:

There shall be a label located in the driver's view specifying the maximum number of personnel the vehicle is designed to carry per NFPA standards.

REMAIN SEATED:

There shall be a label located in the driver's view that states "Occupants Must Remain Seated While Vehicle is in Motion".

WHEEL CHOCKS

There shall be one (1) pair of folding Ziamatic, Model SAC-44-E, aluminum alloy, Quick-Choc wheel blocks with easy-grip handle provided.

WHEEL CHOCK BRACKETS

There shall be one (1) pair of Zico, Model SQCH-44-H, horizontal mounting wheel chock brackets provided for the Ziamatic, Model SAC-44-E, folding wheel chocks. The brackets shall be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets shall be mounted below the left side of the body, one (1) in front of and one (1) be hide the rear wheels.

BUCKSTOP "OUTBACK" BUMPER

The original OEM factory bumper will be replaced by a Buckstop OUTBACK replacement aluminum bumper assembly. The bumper offers full protection for the grill and headlights.

Features include:

- Hidden winch mount w/ winch access door
- Recess light mounts for both 4” and 6” round driving/fog lights
- 2” Trailer receiver
- Relocation points for OEM tow hooks
- License plate mount

DRIVING LIGHTS

15,000 LB ELECTRIC WINCH

A Warn M15000 self-recovery winch shall be provided and installed on the apparatus. The winch shall be powered with a 12V 4.6 hp Series Wound motor. The Warn system shall incorporate a three-stage planetary gear train with a 315:1 gear ratio. It shall have a free spooling clutch with a rotating ring gear.

The retrieval line speed at no load shall be 2.48 feet per minute. The winch shall have a 25 foot corded control switch for remote operation and a fairlead roller to guide the cable on and off the spool.

The winch shall hold 90' of 7/16" galvanized aircraft cable with a replaceable clevis hook rated at 15,000 lb. capacity.

WINCH WORK LIGHT

A white LED work light shall be provided on the grill guard to illuminate the winch work area.

TIRE PRESSURE MANAGEMENT

There shall be a RealWheels LED AirSecure™ tire alert pressure management system provided, that shall monitor each tire's pressure. A sensor shall be provided on the valve stem of each tire for a total of six (6) tires.

TIRE PRESSURE MANAGEMENT (Continued)

The sensor shall calibrate the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor shall activate an integral battery-operated LED when the pressure of that tire drops 5 to 8 psi.

Removing the cap from the sensor shall indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED shall immediately start to flash.

MUD FLAPS

Mud flaps shall be installed behind the front and rear wheels of the apparatus. A polished stainless steel Ward Apparatus logo will be on each rear mud flap.

EXHAUST PIPE EXTENSION

The chassis exhaust pipe shall be extended to the right side of the apparatus body to direct exhaust fumes away from the unit. The extension shall maintain the same diameter as the original chassis pipe.

CHASSIS EXHAUST HEAT SHIELD

The chassis exhaust system shall have heat shielding installed between the exhaust pipe and the bottom of the body.

OVERALL HEIGHT

There shall be a label located in the driver's view that states the overall height (in feet and inches) of the vehicle from the ground. This measurement shall be taken on flat ground with the tires properly inflated, in the unloaded condition, at that highest point of the vehicle.

OVERALL LENGTH

There shall be a label located in the driver's view that states the overall maximum length of the apparatus in feet and inches.

OVERALL WIDTH

There shall be a label located in the driver's view that states the overall maximum width of the apparatus in feet and inches.

FASTEN SEATBELT

There shall be a label located in the cab that states "Occupants Must Fasten Seat Belts Before Vehicle is in Motion."

DO NOT RIDE

There shall be two (2) labels located on the rear of the apparatus, one on each side, that states "Danger: Do Not Ride on Rear Step While Vehicle is in Motion - Death or Serious Injury May Result".

DELIVERY REQUIREMENTS

VEHICLE ROAD AND SYSTEMS INTEGRITY TESTING

A complete and thorough road test and systems integrity test shall be conducted at the time of vehicle completion, and prior to delivery. The road-test portion shall encompass differing types of road conditions and terrain, including but not limited to hills, curves, rough roads, rural high-speed environments, urban stop and go environments, and other conditions to verify vehicle manufacturing and delivery integrity.

A systems integrity test shall be performed on the completed vehicle. In this test, the completed vehicle shall have all systems checked for proper operation and conformity to manufacturing specs.

This test shall include but not be limited to a full 12-volt electrical test, a full 120-volt electrical test, all doors shall be checked for proper closure, all doors, hatches, bellows, etc. shall have a water test performed to check for leaks, all roll out trays, tool boards, drawers, etc. shall be checked for proper opening and closing, tire chains (if included) shall be operated, and any system having a mechanical function shall be tested.

MANUALS

All manuals related to sub-system components for included optional equipment to be provided at the time of customer acceptance.

FIRE PUMP - (HALE)

PUMP COMPARTMENT (SIDE)

The complete apparatus pump compartment shall be constructed of a combination of aluminum structural tubing and formed aluminum sheet metal.

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.

PUMP MODULE MOUNTING SYSTEM (SIDE)

The outer edges of the pump house shall be wrapped with stainless, providing a picture frame-inset appearance for the pump panels as specified below.

PUMP COMPARTMENT WORK LIGHTS (LED)

Two (2) LED work light shall be installed in the pump compartment module to illuminate the piping and plumbing components.

LEFT SIDE OPERATORS PANEL & PUMP PANEL

The pump operator's panel shall be located on the left side of the apparatus pump compartment. The panel shall be split into an upper and lower section.

The material of the operator's panel shall match that of the overlays and right-side panels specified.

The upper panel shall house gauges and controls and be hinged to allow easy access to components. The door shall have a stainless-steel hinge, dual point chrome push button latches, and a rubber seal provided to prevent excessive moisture from entering or leaving the pump house.

The lower panel on the left side shall be a removable panel attached with mechanical fasteners.
Valve controls shall be immediately adjacent to its respective gauge.

The valve controls shall be properly labeled, and color coded for ease of use.

VALVE CONTROL – SIDE MOUNT

Unless specified otherwise, the discharge valves shall be controlled from a side mounted locking push-pull valve actuation control assembly that shall be installed on the specified discharge.

The assembly shall have a T-handle chrome plated with an ergonomically designed surface to allow for a secure grip to turn and lock the handle.

PUMP PANEL LIGHTS

There shall be adequate illumination provided at the side pump panels with the installation of two (2) brushed stainless steel shielded light assemblies, one (1) on the left and one (1) on the right-side pump compartment.

Each shield shall contain the maximum number of lights permitted in the space available of LED strip lights.

PUMP PANEL LIGHT ACTIVATION

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

The lights shall also be controlled by a switch located on the side operator's panel.

PUMP COMPARTMENT FRONT OVERLAY

The front wall of the pump compartment module shall be overlaid entirely with aluminum diamond plate material fastened with mechanical fasteners.

PUMP COMPARTMENT WIDTH

The width of the pump compartment shall be 24.00 inches.

RIGHT SIDE PUMP PANELS STYLE

There shall be two (2) separate panels on the right side of the pump compartment, one (1) upper and one (1) lower. Each panel shall be removable for service accessibility with mechanical fasteners.

RIGHT & LEFT SIDE BRUSHED STAINLESS-STEEL PANELS (BLACK FINISH)

The panels for the pump compartment on the left and right side shall be made from 14 gauge stainless steel with a durable black finish.

RUNNING BOARDS

The pump compartment running boards shall be made of an aluminum 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 to the pump compartment structure only, eliminating any pump compartment to body interference.

EMBOSSED ALUMINUM DIAMOND PLATE OVERLAYS

The side running boards shall have a .188-inch embossed aluminum diamond plate overlays installed. The stepping areas shall be as large as possible.

APPARATUS PLUMBING LABELING

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.

APPARATUS PLUMBING LABELING

The verbiage tag bezel assemblies shall include a chrome-plated panel-mount bezel with durable easy-to-read UV resistant inserts featuring the specified verbiage and color coding. These verbiage and color inserts shall be meet NFPA standards.

PLASE NOTE: The Fire Department desires to have the crosslays and hose storage preconnect labels match the color of the hose to be stored.

It shall feature a robust knob operator that can be configured to operate the engine throttle in either the clockwise or counterclockwise directions. It shall feature a large stationary idle button in the center of the knob. It shall also provide the operator with "Throttle Ready" and "Throttle Active" LED indicators.

CLASS 1 SENTRY GOVERNOR SYSTEM

The apparatus shall be equipped with the Class1 Sentry Pressure Governor System. The Sentry Pressure Governor System (SPGS) is a J1939 CAN based pressure governing system that consists of a Sentry display with integral push-button throttle controls, pressure transducers and associated wiring.

The SPGS must be capable of dual station control allowing the system to be operated from separate locations on the apparatus (dual systems do not require additional transducers). The SPGS' advanced diagnostic capability instantly notifies the operators of any out of parameter condition. It also notifies the operator of actions performed and suggests operation methods in the event of an out of parameter condition. Graphic diagnostics also provides wiring and troubleshooting information.

The Sentry display utilizes Class1's UltraView technology. It is a custom tooled and programmed, 4.3 inch, full color LCD display with an (8) buttons. It shall be bonded for direct sunlight viewing.

The Sentry is sealed to IP67 and allows for flush, pedestal or rear mounting options.

The sentry display can be oriented in either the portrait or landscape orientations.

The Sentry display provides the interface to the Engine Control Module (ECM) mounted on the engine.

The Sentry display will operate as a pressure sensing governor (PSG) utilizing the engines J1939 CAN data for optimal resolution and response. If J-1939 engine control is not supported by the engine manufacturer, then analog remote throttle control shall be provided by the Sentry display. The Sentry display utilizes control algorithms that minimize pressure spikes during low or erratic water supply situations.

The Sentry display shall be backwards compatible to any engine that supplies J1939 RPM, Temperature and Oil Pressure information providing the ability to maintain a consistent fleet fire-fighting capability and reduce operator cross training and confusion.

CLASS 1 SENTRY GOVERNOR SYSTEM (Continued)

The Sentry display shall have the ability to use either a 300 PSI or 600 PSI pressure transducers for intake and discharge pressures.

The Sentry display is capable of storing up to 12 different languages. It shall provide the operator with the ability to adjust the display brightness for day and night mode operations.

The following parameters visible at all times:

- Pump Intake Pressure
- Pump Discharge Pressure
- Engine RPM
- Engine Oil Pressure
- Engine Coolant Temperature
- Transmission Temperature
- System Voltage
- Throttle Ready Interlock Status
- Pump Engaged Interlock Status
- OKAY to Pump Interlock Status
- Operating Mode Status (RPM or Pressure)
- Target Pressure Indication (when in pressure mode)

PRESSURE RELIEF VALVE

A Class 1 stainless steel pressure relief valve with a range of adjustment from 50 to 200 PSI shall be provided and installed inside pump compartment piped to the suction side of the pump. The valve shall be preset at 125 PSI 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.

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

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.

TANK LEVEL GAUGE

There shall be a Class 1 model #ITL-40 tank level gauge provided and installed at the pump operator's panel location. The tank level gauge shall indicate the liquid level for water in increments of 1/8th of a tank.

The tank level gauge shall include a pressure transducer mounted on the outside of the tank, a super bright LED 4-light display with visual indication at nine accurate levels, and a set of weather resistant connectors.

PUMP COMPARTMENT TOP OVERLAY

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

SINGLE-STAGE MIDSHIP PUMP

The pump shall have the capacity of 1500 gallons per minute, measured in U.S. Gallons.

The pump shall be a Hale Fire Pump, DSD single stage.

PUMP ASSEMBLY

The entire pump shall be assembled and tested at the pump manufacturer's factory. The pump shall be driven by a drive line from the truck transmission. The engine shall provide sufficient horsepower and RPM to enable pump to meet and exceed its rated performance.

The entire pump shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by (NFPA) 1901, Standard for Automotive Fire Apparatus. Pump shall be free from objectionable pulsation and vibration.

The pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI (2069 bar). All metal moving parts in contact with water shall be of high-quality bronze or stainless steel. Pump utilizing castings made of lower tensile strength cast iron not acceptable.

Pump body shall be vertically split on a single plane for easy removal of entire impeller assembly including clearance rings.

Pump shaft to be rigidly supported by two bearings for minimum deflection. The bearings shall be heavy-duty, deep groove ball bearings in the gearbox, and they shall be splash lubricated. Shaft seal comes standard with face-type, self-adjusting corrosion- and wear-resistant mechanical seals.

The pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machines, hand-ground and individually balanced. The vanes of the impeller intake eye shall be hand ground and polished to a sharp edge and be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.

PUMP ASSEMBLY (Continued)

Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body.

The pump shaft shall be heat-treated, electric furnace, corrosion resistant stainless steel. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of gearbox.

GEAR BOX

The gearbox shall be manufactured and tested at the pump manufacturer's factory.

Pump gearbox shall be of sufficient size to withstand up to 16,000 lbs. ft. of torque of the engine. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.

The gearbox drive shafts shall be of heat-treated chrome nickel steel and at least 2.75 inches in diameter, on both the input and output drive shafts. They shall withstand the full torque of the engine.

All gears, drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated and hardened, to give an extremely accurate gear for long life, smooth, quiet running, and higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust.

The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected.

If the gearbox is equipped with a power shift, the shifting mechanism shall be a heat treated, hard anodized aluminum power cylinder, with stainless steel shaft.

An in-cab control for rapid shift shall be provided that locks in road or pump.

For automatic transmissions, three green warning lights shall be provided to indicate to the operator(s) when the pump has completed the shift from Road to Pump position. Two green lights to be located in the truck driving compartment and one green light on pump operator's panel adjacent to the throttle control.

For manual transmissions, one green warning light will be provided for the driving compartment. All lights to have appropriate dentification/instruction plates.

MECHANICAL PUMP SEAL

A mechanical seal shall be supplied on the inboard side of the pump. The mechanical seal must be two (2) inches in diameter and shall be spring-loaded, maintenance-free and self-adjusting.

Mechanical seal construction shall be a carbon sealing ring, stainless steel coil spring, Viton rubber cup, and a tungsten carbide seat.

PUMP SHIFT

The drive unit shall be provided with an air pump shift system. The control valve shall be a spring-loaded guard lever that locks in "Road" or "Pump" mode. To the left of the pump shift control, there shall be two indicator lights to show the position of the pump when the control is moved to "Pump" position.

A green light shall be energized when the pump shift has been completed and shall be labeled "PUMP ENGAGED"; a second green light shall be labeled "OK TO PUMP" energized when both the pump shift has been completed and the chassis automatic transmission is engaged.

A third green indicator light shall be installed adjacent to the throttle on the pump operator's panel. This light shall be labeled "Throttle Ready".

In addition to this indicator light, an additional indication shall be provided to the pump operator at the panel when the pump is ready to pump. This additional indication shall be that one (1) of the operator's panel illumination lights will only activate when the "OK TO PUMP" indicator is lit.

AIR PUMP SHIFT LOCATION

The pump shift shall be mounted in the "best fit" location as determined by the apparatus manufacture.

PUMP SHIFT MANUAL OVERRIDE

In the event of pump shift failure, the pump can be shifted into gear by a push/pull manual override mechanism, allowing the pump to be engaged manually. The handle shall be located on the lower portion of the driver's side pump panel and shall be labeled accordingly.

AIR COMPRESSOR - PUMP SHIFT

Since the mini pumper chassis does not have a chassis air system, an alternate air system shall be provided. This system shall include a 12-volt air compressor and **LARGE (As large as possible)** capacity tank. The compressor and tank shall be installed in a location that does not interfere with other equipment.

The compressor shall maintain air system pressure. A pressure switch shall sense when the system pressure drops and automatically start the compressor, (providing the battery switch is "on") which then shall run until pressure is restored.

PRIMING SYSTEM

The priming system shall be a ESP-12 positive displacement, oil-less electrically driven rotary vane priming pump rigidly attached to the pump transmission.

The priming pump shall be self-lubricating and shall not require lubrication. The pump, when dry, shall be capable of taking suction and discharging water with a lift of 10 feet in not more than 30 seconds through 20 feet of suction hose through the steamers.

PRIMER CONTROL

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

DISCHARGE AND INLET MANIFOLDS

A pump manifold inlet shall be provided on the pump as required for the layout. The inlet(s) shall protrude up to 2.00 inches away from the side panels and maintain a low connection height.

A discharge manifold shall also be added to the pressure side of the pump to feed the specified discharge waterways.

MAIN PUMP INLET-LEFT SIDE

A 6.00-inch pump manifold inlet shall be provided on the left side of the pump. The inlet shall protrude up to 2.00 inches away from the side panel and maintain a low connection height.

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

6" CHROME PLATED BRONZE CAP

There shall be one (1) 6.00-inch-long handled chrome plated cap installed on the Steamer Inlet.

The cap shall be National Standard Thread.

MAIN PUMP INLET-RIGHT SIDE

A 6.00-inch pump manifold inlet shall be provided on the right side of the pump. The inlet shall protrude up to 2.00 inches away from the side panel and maintain a low connection height.

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

6" CHROME PLATED BRONZE CAP

There shall be one (1) 6.00-inch-long handled chrome plated cap installed on the Steamer Inlet.
The cap shall be National Standard Thread.

MASTER DRAIN VALVE

A Class 1 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”.

MASTER DRAIN VALVE (Continued)

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

PUMP COOLING LINE

There shall be a .38-inch 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.

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.

STAINLESS STEEL PLUMBING

All auxiliary suction and discharge plumbing related fittings, and manifolds shall be fabricated with a minimum of 3.00 inch, or greater as required by design, schedule 10 stainless steel pipe, brass or high-pressure flexible piping with stainless steel couplings. All piping components and valves shall be non-painted, unless otherwise specified.

All piping welds shall be wire brushed and cleaned for inspection and appearance.

The high-pressure flexible piping shall be black SBR synthetic rubber hose with 300 PSI working pressure and 1200 PSI burst pressure for flexible piping sizes 1.50 inches through 4.00 inches. Sizes .75-inch, 1.00 inch and 5.00 inches 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 through 5.00 inches 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 and 1.00-inch 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.

DRAIN VALVES

All manual drains shall be ¾" J-style lift handle type.

LEFT SIDE INLET

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

INTAKE VALVE

A 2.50-inch Akron Brass 8000 series swing-out valve with stainless steel ball.

INTAKE VALVE CONTROL

The intake control valve shall be a 'swing out type' direct operation manual lever actuator at the valve.

INTAKE PLUMBING

The plumbing shall consist of 2.50-inch piping and shall incorporate a manual drain control installed below the pump area for ease of access.

SUCTION/INTAKE TERMINATION

The termination shall include the following components:

One (1) 2.50-inch NST swivel female straight adapter with screen
One (1) 2.50-inch self-venting plug, secured by a chain.

INLET LOCATION

The inlet shall be located on the pump panel in the forward position.

LEFT SIDE DISCHARGE

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

DISCHARGE VALVE

A 2.50-inch Akron Brass 8000 series swing-out valve with a stainless-steel ball.

DISCHARGE VALVE CONTROL

The control valve shall be a ‘swing out type’ direct operation manual lever actuator at the valve.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50-inch piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50-inch Male NST adapter
One (1) 2.50-inch NST 30-degree polished elbow
One (1) 2.50-inch female self-venting cap, secured by a chain.

RIGHT SIDE FORWARD DISCHARGE

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

DISCHARGE VALVE

A 2.50-inch Akron Brass 8000 series swing-out valve with a stainless-steel ball.

DISCHARGE VALVE CONTROL

The control valve shall be a 'swing out type' direct operation manual lever actuator at the valve.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50-inch piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50-inch Male to 3.0 NST adapter
One (1) 2.50-inch NST x 3.0-inch 30-degree polished elbow
One (1) 3.0-inch female self-venting cap, secured by a chain.

RIGHT SIDE REARWARD DISCHARGE

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

DISCHARGE VALVE

A 3.00-inch Akron Brass 8000 series Slo-Cloz swing-out valve with a stainless-steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 3.00-inch piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 3.00 inch (77 mm) NST adapter
One (1) 3.00 inch (77 mm) NST female swivel by 5.00 inch (125 mm) Storz with 30 degree elbow
One (1) 5.00 inch (125 mm) Storz cap, secured by a chain

RIGHT REAR HOSEBED DISCHARGE

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

DISCHARGE VALVE

A 2.50-inch Akron Brass 8000 series Slo-Cloz swing-out valve with a stainless-steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50-inch piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch NPT x 2.50 inch MNST chrome plated brass fitting

LEFT REAR HOSEBED DISCHARGE

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

DISCHARGE VALVE

A 1.50-inch Electric Controlled Akron Brass 8000 series swing-out valve with a stainless-steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be operated from the pump operator's panel location with an Akron Navigator Pro 9335 Controller. This controller shall indicate pressure digitally.

DISCHARGE PLUMBING

The plumbing shall consist of 1.50-inch piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 1.50 inch NPT x 1.50 inch MNST chrome plated brass fitting

DECK GUN DISCHARGE

There shall be one (1) Deck Gun discharge installed at the center top of the pump module with the following specified components.

DISCHARGE VALVE

A 3.0-inch Electric Controlled Akron Brass 8000 series swing-out valve with a stainless-steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be operated from the pump operator's panel location with an Akron Navigator Pro 9335 Controller. This controller shall indicate pressure digitally.

DISCHARGE PLUMBING

The plumbing shall consist of 3.00-inch piping and shall incorporate an automatic drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The pipe shall terminate in a 3" (7.62cm) MNPT thread. The pipe shall be held in place by a 2-piece stainless steel bracket.

CROSSLAY MODULE

The crosslay hose beds shall be in the upper portion of the pump compartment.

The crosslay module shall be manufactured of a bolt-on design configuration constructed of smooth aluminum materials that shall span the entire width of the apparatus pump compartment.

DOUBLE STACK CROSSLAYS

The crosslay area shall be constructed with a minimum fifteen 15.00-inch depth for laying a double stack of each hose size as specified below.

Chicksan swivels shall be installed just below the floor of each crosslay bed, high enough for hose couplings to be accessed and tightened on to chicksans.

Chicksan swivels shall swing from left to right to allow attached hose to be deployed from either side of the apparatus.

CROSSLAY DIVIDER

The crosslay divider shall be fabricated of .188-inch smooth aluminum and shall have a dual-action sanded finish.

HOSE BED FLOORING

The hose bed areas of the pump compartment shall be lined with a black matting material.

1-3/4" CROSSLAYS

An adjustable crosslay with the following specified components shall be provided for up to 200 feet of 1.75-inch hose. This section shall be the first section, directly behind the cab.

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

DISCHARGE VALVES

A 2.00-inch Akron Brass 8000 series swing-out valve with a stainless-steel ball.

DISCHARGE VALVE CONTROLS

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.00-inch piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATIONS

The discharge termination shall include the following components:

One (1) 2.00-inch NPT x 1.50-inch NST brass chicksan swivel for each crosslay.

CROSSLAY COVER

A vinyl crosslay hose bed cover shall be provided to conceal the entire crosslay hose bed area.

The cover shall be securely fastened to the outside rails with 1/4-turn style latches. The right and left ends of the cover shall have flaps with heavy duty zippers sewn in for ease of access.

The zipper pull tabs shall have gripper tags installed, enabling ease of access to the stored hose.

CROSSLAY TOP & SIDES COVER COLOR

The crosslay hose bed covers shall be BLACK in color.

CROSSLAY HOSE BED LIGHT

There shall be one (1) LED light in a bezel provided and installed on the front face of the body to illuminate the crosslay hose bed.

CROSSLAY LIGHT ACTIVATION

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

DISCHARGE GAUGES

A Class 1 2.50-inch gauge shall be supplied for reading the pressure of each discharge greater than 1.50 inches in diameter, unless otherwise specified.

The gauge shall be a model LFP220.

GAUGE SCALE

Each gauge shall be marked for reading a pressure range of 0-400 PSI.

GAUGE FACE COLOR

Each gauge shall have black markings on a white face.

TANK TO PUMP LINE

The connection between the tank and the pump shall be capable of the flow recommendations as set forth in (NFPA) 1901, 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.

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.

TANK TO PUMP VALVE

A 3.00-inch Akron Brass 8000 series swing-out valve with a stainless-steel ball.

VALVE CONTROL

The valve shall be controlled from the pump operator's panel location.

TANK FILL LINE

One (1) 1.50-inch tank fill/recirculating line shall be installed from the pump directly to the booster tank.

TANK FILL VALVE

A 1.50-inch Akron Brass 8000 series swing-out valve with a stainless-steel ball.

VALVE CONTROL

The valve shall be controlled from the pump operator's panel location.

PUMP PANEL GARNISH RINGS

The Left and Right side pump panels shall be provided with polished stainless steel garnish rings.

BODY DESIGN

The body shall be modular in design, capable of being removed and remounted on a new chassis. Body integrity and strength to be independent of chassis mounting.

Body is specifically designed to enable custom layout of interior compartments.

RESCUE BODY DESIGN AND CONSTRUCTION SPECIFICATIONS

The apparatus body shall be all aluminum construction. The body shall be fabricated and assembled on a body "fixture" to assure proper fit, form, and finish standardization.

The apparatus body shall be constructed of .125" thick Type #5052-H32 alloy aluminum sheet except for compartment floors being .188’’.

The body shall be designed and engineered specifically for emergency vehicles and shall be built to meet the duty cycle for fire and rescue services.

The apparatus body shall be formed, welded construction for maximum strength and integrity for the entire life of the apparatus.

The sub-body structural aluminum extrusions shall be integrated with the exterior body sheet metal and form an interference fit, reinforced body construction.

The structural extrusions shall be Type #6061 and heat tempered to T-6 hardness.

All compartment seams shall be sealed with silver TremPro #644 sealant.

For ease of replacement part ordering, each body panel shall have an alpha-numeric part identification number assigned to it.

BODY SUB-STRUCTURE

The body sub-structure shall consist of 2” x 3” x .125” structural #6063-T6 aluminum tubing located on no greater than 12-inch centers.

The body sub-frame shall be welded to the fabricated aluminum compartment construction.

EXTERIOR BODY AND COMPARTMENT CONSTRUCTION

The exterior body fabrication shall be constructed of Type #5052-H32 .125" smooth aluminum plate.

The floor, ceiling, and sidewalls shall be of body construction that shall be integral, which shall be self-supporting and welded construction.

Compartments shall be of all welded construction with continuous welding in critical structural areas and 2" strip welding on 8" centers in non-critical areas.

All compartment seams shall be sealed with silver Trem-Pro sealant.

COMPARTMENT FLOOR CONSTRUCTION

The compartment floors shall be .188" #5052-H32 aluminum with a "lip free" and sweep out construction, which shall permit easy cleaning of the compartments.

The compartment floors shall have .125" aluminum 2" x 4" hat-sections welded on the underside of body for reinforcement.

BODY CORNERS, CAPPED

The exterior body corners shall be capped with a either polished 14 gauge stainless steel or 1/8" aluminum treadplate.

These body corners create additional protection from physical and environmental damage.

WHEEL WELL PANEL CONSTRUCTION

Wheel well panels shall be painted .125" aluminum and bolted in place. All seams on the frame side of the body shall be welded and caulked to prevent moisture from entering the compartment.

NOTE: the exterior fasters will be supplied with a nylon washer to assist in corrosion resistance.

WHEEL WELL LINERS

Wheel well liners designed to protect the body from impact resulting from road debris thrown by the tires shall be installed.

The wheel well shall be provided with smooth aluminum, full fender liners that shall be formed to eliminate pockets that might trap and collect road dirt.

SCBA WHEEL WELL STORAGE

Three (3) Fire Department supplied SCBA MSA G1 4500psi 45-minute air cylinders shall be stored in the rear wheel well areas. Each air bottle compartment shall be in the form of a round tube and shall be 25-1/4" deep to accommodate air bottles.

One (1) compartment shall be provided in the front left side wheel well panel and two (2) shall be provide in the right-side wheel well panel, one (1) front and one (1) rear.

A hinged door with latch shall be provided for each compartment as well as air cylinder retaining straps.

FUEL FILL DOOR

A flush mounted fuel filler guard with a hinged door shall be installed over the fuel fill ports. The door shall be a Cast Products Incorporated #FG2103 or similar. The door shall have a label for FUEL FILL. The labels shall be a product of Innovative Concepts Inc.

Additionally, DIESEL ONLY engraved plates shall be installed inside the door on a permanently attached label above or near each fill site.

DEF FILL LOCATION

The DEF Fill point location will be located at the right side pump access door.

RUB RAILS

An impact and rub rail system shall be used for body side protection. An aluminum extrusion shall be bolted to the body ½" with poly spacers.

PROTECTIVE COVERING

The front of the apparatus body shall have a protective covering installed. The covering shall be constructed of bright aluminum .125" treadplate material.

These panels shall be mechanically fastened to the main body structure using stainless steel screws inserted into drilled and tapped hole and further secured with split-washers.

REAR BODY PANEL

The rear vertical exterior body panels shall have overlays of smooth 0.125" aluminum surface for the application of chevron stripping.

These panels shall be mechanically fastened to the main body structure using stainless steel screws inserted into drilled and tapped hole and further secured with split-washers.

VENTILATION LOUVERS -- EXTERIOR COMPARTMENTS

The exterior body compartments shall be equipped louvers mounted inside of each compartment; to permit the passage of moisture or hazardous vapors into and out of compartments.

BODY FASTENERS

The securement of all equipment to the body shall be with only stainless steel "nuts and bolts" or expanding type captive nut devices. No rivets or self-tapping screws shall be used in the attachment of equipment to the apparatus.

DRIP MOULDINGS – OVER SIDE COMPARTMENT DOORS

Extruded aluminum full length molding, sealed with TremPro #644 shall be installed over all compartment doors.

CORROSION PROTECTION

Electrolysis Corrosion Kontrol (ECK) shall be used to prevent dissimilar metal corrosion. ECK shall be used for door latches, door hinges, trim plates, fenderettes, etc. ECK shall be applied to every external fastener hole prior to component mounting.

UNDERCOATING

The underside of the vehicle including all metal work shall be sprayed with SEM ROCK-IT XC urethane automotive undercoating. The ROCK-IT XC product is designed to prevent chipping, cracking, or marring of painted and unpainted surfaces after exposure to high impact sand, gravel, and other abrasive materials.

This undercoating shall aid in preventing corrosion and will provide a sound and vapor barrier to the aluminum body structure.

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

PPG PAINT SPECIFICATIONS (Continued)

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 courses of the bid.

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.

BODY COMPARTMENT COATING

All body compartments shall be fully coated with durable light gray splatter tone finish to aid in abrasion resistance.

ADJUSTABLE SHELF CHANNEL

Vertically mounted Uni-Strut channel shall be provided and installed in all exterior compartments where necessary for the installation of infinitely adjustable shelving and trays.

The channels shall be of such design to allow square type spring loaded, self-tightening nuts to be attached inside of the channel.

ROLL-UP DOOR CONSTRUCTION, AMDOR

AMDOR brand roll-up style doors with satin aluminum finish shall be provided at the specified door locations.

Each door shall be manufactured in the United States. Replacement parts shall be available within 2-3 working days.

The door slats shall be double wall box frame extrusion. The exterior surface of slat shall be flat and interior surface to be concave to prevent loose equipment from jamming the door.

The door slats shall be anodized to prevent oxidation. Door slats have interlocking end shoes on every slat to be secured by a punch dimple process.

ROLL-UP DOOR CONSTRUCTION, AMDOR (Continued)

The door slats shall have interlocking joints with a folding locking flange. A PVC/vinyl inner seal to prevent any metal-to-metal contact shall be provided between each slat.
Each track shall be one piece construction with attaching flange and finishing flange incorporated into the design. The flange design eliminates any requirement for additional trim or caulk. Each track shall have a replaceable seal to prevent water and dust from entering the compartment.

Each assembly shall include an aluminum drip rail with a replaceable wiper seal.

Each roll-up door shall have a 4" counterbalance spring in the roller assembly to assist in lifting and help prevent the accidental closing. A full width lift bar shall secure each door.

Each roll up door shall have an integral "Door Open" indicator magnet in the lift bar. If the bar is not properly closed, it shall activate the "Door Open" light in the cab.

NOTE: Door Finish: the roll-up doors shall be PAINTED to match the chassis color (RACE RED).

NOTE: Key Lock: compartment door handles shall be equipped with a keyed cylinder lock assembly.

SIDE DOOR SILL PLATE

Each compartment door shall have a brushed stainless steel sill plate installed.

EXTERIOR COMPARTMENT SPECIFICATIONS

DRIVER'S SIDE

The front driver's side compartment, L1, shall have a clear opening of 50.0" H x 27.5" W x 23" D with a roll-up door.

The compartment over the rear wheels on the driver's side, L2, shall have a clear opening of 22" H x 43" W x 23" D with a roll-up door.

The driver's side compartment behind the rear wheels, L3, shall have a clear opening of 50.0" H x 35.5" W x 23" D with a roll-up door.

OFFICER'S SIDE

The front officer's side compartment, R1, shall have a clear opening of 50.0" H x 27.5" W x 23" D with a roll-up door.

The compartment over the rear wheels on the officer's side, R2, shall have a clear opening of 22" H x 43" W x 23” D with a roll-up door.

The officer's side compartment behind the rear wheels, R3, shall have a clear opening of 50.0" H x 35.5" W x 23" D with a roll-up door.

REAR

The rear compartment RR1, shall have a clear opening of 22.5” H x 42” W x 39.0” D with a roll-up door

COMPARTMENT L1 SHALL CONTAIN

ADJUSTABLE SHELVES

Two (2) adjustable shelves shall be fabricated and installed. Each shelf shall be constructed of 3/16" DA finished aluminum, with a 2" lip on all four sides.

The shelves shall be vertically adjustable by mounting to the Uni-Strut channels provided.

COMPARTMENT R1 SHALL CONTAIN

ADJUSTABLE SHELVES

Two (2) adjustable shelves shall be fabricated and installed. Each shelf shall be constructed of 3/16" DA finished aluminum, with a 2" lip on all four sides.

The shelves shall be vertically adjustable by mounting to the Uni-Strut channels provided.

COMPARTMENT L2 SHALL CONTAIN

ADJUSTABLE SHELF

One (1) adjustable shelf shall be fabricated and installed. The shelf shall be constructed of 3/16" DA finished aluminum, with a 2" lip on all four sides.

120-VOLT STRIP OUTLET

One (1) 120-volt six (6) receptacle strip shall be provided and mounted at the upper rear wall. This strip outlet will be wired to the shore power inlet.

COMPARTMENT R2 SHALL CONTAIN

ADJUSTABLE SHELF

One (1) adjustable shelf shall be fabricated and installed. The shelf shall be constructed of 3/16" DA finished aluminum, with a 2" lip on all four sides.

COMPARTMENT L3 SHALL CONTAIN

ADJUSTABLE SHELF

One (1) adjustable shelf shall be fabricated and installed. The shelf shall be constructed of 3/16" DA finished aluminum, with a 2" lip on all four sides.

The shelf shall be vertically adjustable by mounting to the Uni-Strut channels provided.

COMPARTMENT R3 SHALL CONTAIN

ADJUSTABLE SHELF

One (1) adjustable shelf shall be fabricated and installed. The shelf shall be constructed of 3/16" DA finished aluminum, with a 2" lip on all four sides.

The shelf shall be vertically adjustable by mounting to the Uni-Strut channels provided.

COMPARTMENT RR1 SHALL CONTAIN

SLIDE OUT TRAY

A SlideMaster SM3-MP 100% extension slide out tray shall be provided and installed. The tray shall be constructed from 3/16" smooth aluminum and have a 3" lip on all four sides.

The tray shall have a capacity of 600-pounds and shall be mounted on SlideMaster steel slides.

An IMS push/pull red ball latch on the front of the slide shall lock the tray in the "in" or "out" position.

POLY POLYPRENE TANK

A 300-gallon water tank shall be provided.

The tank shall be designed to utilize cavities that have commonly been wasted space. The tank shall extend up and over the rear center compartment to just behind the rear body wall. The tank shall fill the void between the main hose bed floor and the top of the rear center compartment.

This tank design shall provide for a lower overall tank height, resulting in a lower overall main hose bed height. In addition, this design shall create a lower center of gravity of the vehicle, for improved vehicle handling.

TANK CONSTRUCTION

The booster tank shall be constructed of .50-inch thick Polyprene sheet stock which is a non-corrosive stress relieved thermoplastic. It shall be designed to be completely independent of the body and compartments.

All joints and seams are extrusion welded and/or contain the "Bent Edge" and tested for maximum strength and integrity.

The top of the booster tank is fitted with lifting eyes designed with a 3 to 1 safety factor to facilitate tank removal.

COVER

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

BAFFLES

The swash partitions shall be manufactured from .50-inch Polyprene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments to provide maximum water flow.

All swash partitions interlock and are welded to one another as well as to the walls of the tank.

MOUNTING

The tank shall have a reinforced .75-inch floor for added strength and durability. The tank shall be isolated from the body substructure cross members with .50-inch x 2.50-inch rubber strips. 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.

FILL TOWER

The fill tower opening shall be approximately 10.00 inches x 10.00 inches.

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

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

FILL TOWER LOCATION

The water tower shall be located at the front of the hose bed.

SUMP

The sump will be constructed in an 8.00-inch x 16.00-inch x 3.00-inch-deep area.

The construction material shall utilize .50-inch Polyprene and be in line with the tank suction valve.

There shall be a 4.00-inch schedule 40 Polyprene tube installed that will run from the suction outlet to the sump location. The tank will have an anti-swirl plate located approximately 2.00 inch above the sump.

SUMP PLUG

The sump shall have a plug for use in draining and cleaning out the tank.

OUTLETS

In addition to the tank suction valve outlet located in the sump, there shall be an outlet provided for the tank fill valve.

OUTLETS (Continued)

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.

UPPER HOSE BED

Hose bed located full length and width of upper center section of apparatus between side compartments walls. Hose bed supporting structure of 2.0" x 2.0" x .125" 6063-T52 alloy square aluminum tubing.

The Floor of NFPA non-slip aluminum, minimum .188" aluminum.

HOSE BED PARTITIONS

There shall be two (2) .188" aluminum reinforced, fully adjustable hose bed partition. Each partition shall be adjustable by usage of spring-loaded cam lock fasteners.

The partition shall have an oval hand hold cut-out at the rear of the partition to aid personnel in accessing the hose bed area.

VINYL HOSE BED COVER

A reinforced vinyl hose bed cover shall be provided over the upper hose bed storage area. This cover shall be reinforced at all four edges and shall be retained on the front, left side, and right-side walls with stainless steel twist lock fasteners.

There shall be a rear flap extending from the rear of the hose bed cover to secure hose at the rear opening of the hose bed.

This flap shall have a minimum of five (5) sewn-in bungie cord retaining loops with stainless steel hook retainers.

BODY HANDRAILS - LIGHTED

Two (2) LED lighted (WHITE) handrails shall be provided at the rear of the apparatus body. Each will be 1 1/4" extruded aluminum Hansen non-rotating knurled tubing with chrome plated end stanchions. To also include stanchion to body gaskets to prevent dissimilar metal corrosion.

Each stanchion shall be bolted into place for ease of removal or replacement.

FUEL FILL DOOR

A flush mounted fuel filler guard with a hinged door shall be installed over the fuel fill ports.

The door shall be a Cast Products Incorporated or similar. The door shall have a label for FUEL FILL. The labels shall be a product of Innovative Concepts Inc.

Additionally, DIESEL FUEL ONLY engraved plates shall be installed inside the door on a permanently attached label above or near each fill site.

ELECTRICAL SYSTEM - BASE

All wiring and electrical equipment to be compliant with any applicable NFPA 1901 criteria for Special Service Fire Apparatus and SAE standards. All lighting and reflectors shall meet Federal Motor Vehicle Standards. A master warning device switch that energizes all optical warning devices shall be provided.

The warning system on the apparatus shall be capable of two separate signaling modes during emergency operations.

One mode shall signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right of way. The other mode shall signal that the apparatus is stopped and is blocking the right of way.

Switching to sense the position of the park position of an automatic transmission. When the master warning system switch is closed, and the parking brake released or the automatic transmission is not in park, the warning devices signaling the call for right of way shall be energized.

When the master optical warning system switch is closed, and the parking brake is on or the automatic transmission is in park, the warning devices signaling the blockage of right of way shall be energized. The system shall be permitted to have a method of modifying the two signaling modes.

The warning devices shall be constructed or arranged to avoid the projection of light either directly or through mirrors into any driving or crew compartment(s).

Electromagnetic interference suppression shall be in accordance with SAE J551, performance levels and methods of measurement of electromagnetic radiation from vehicles and devices (30-1000 MHZ).

Wiring grommets shall be provided through all panels for automotive type wiring with coated automotive type loom. Insulation shall be in accordance with SAE J1128, low tension primary cable, type SXL or GXL, and wired to SAE J1292, Automobile, Truck, Truck-Tractor, Trailer and Motor Coach wiring for such loading at the potential employed. All wiring installed by the Apparatus

Manufacturer shall be stranded copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for which the circuit is protected.

Voltage drops in all wiring from the power source to the using device shall not exceed 10 percent. Wiring shall be color and function coded the entire length with insulated bolted-down type hold-down clamps and mechanically secured connections.

Overall covering of conductors shall be 280 degrees F. Minimum flame retardant, moisture resistant loom.

Hydraulic lines, air system tubing, control cables, and electrical lines shall be clipped to the frame or body structure of the apparatus and shall be furnished with metal protective looms or grommets at each point where they pass through body panels or structural members. Where any through-the-frame connector is provided, any such connector and wiring shall also be protected from shear or tear.

ELECTRICAL SYSTEM – BASE (Continued)

Wiring shall be provided with properly rated low voltage over current automatic resetting protective devices. Such devices shall be readily accessible and protected against excessive heat, damage and water spray.

Switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. All electrical components shall be protected against corrosion, heat, vibration and moisture.

There shall be a minimum of two (2) spare wires installed in each loom running to the body of the vehicle.

ELECTRICAL SYSTEM – WHELEN CARBIDE

A Whelen Carbide CCSRNT5 Electrical System shall be provided and installed. The system shall consist of all solid-state components contained inside aluminum module. The system shall consist off eighteen (18) output channels and twelve (12) input channels. All inputs and outputs shall be configured into a scale-able electrical harness utilizing plug-in connectors.

The system is expandable and shall be capable of performing the following functions: load management sequencing, switch loads and receive digital and analog signals.

The complete system shall eliminate the need for the following separate components or devices: load manager, load sequencer, warning lamp flasher, headlamp flasher, door open notification system, interlock modules, separate voltmeter, ammeter, and temperature monitor.

A Whelen CANport OBDII Interface cable shall be included for connection to the vehicle CAN bus system.

In an application where this system is unable to provide the necessary switching then Carling rocker type switches with function labels shall be provided and installed on the center console.

POWER DISTRIBUTION QUARTERS

The vehicle shall be equipped with a Power Distribution Quarters (PDQ) to provide a protected environment for the electrical systems interface to the apparatus body. The PDQ shall have a service access door that is removable via two (2) recessed positive type door latches.

12v lighting shall automatically activate with the removal of the access door. The compartment and access door shall be fabricated from 5052-H32 aluminum alloy, finished to match with interior compartments, and include venting for heat dissipation.

The design shall provide a standardized platform for reliable and repeatable hard-wired or multiplexed electrical systems that can be documented and easily serviced and maintained.

The internal wiring terminals shall be machine or torque-tool crimped to the wire ends and splices shall be protected with heat shrink material.

POWER DISTRIBUTION QUARTERS

All body harnesses entering and exiting the distribution panel shall pass through a protected wiring channel directly into the PDQ.

The electrical distribution panel shall incorporate wiring harnesses that meet or exceed NFPA standards while providing a central location for body wiring harnesses.

The distribution panel, including all circuits, shall be documented and made part of the records available at time of delivery.

The PDQ shall be an extension of the center console and shall be installed between the rear SCBA seats.

BATTERY CHARGER

A Kussmaul Auto Charge Low Profile LPC 20 Series Model #091-207-12-194B shall be installed for a single battery system. The charger shall include a status display mounted on the cab console.

Charger to be built in an aluminum enclosure and include an auxiliary 15-amp output circuit with power source selector for operating accessory loads, and front panel connections for a remote display.

Charger output shall pose no interference with other electronic systems on the vehicle.

KUSSMAUL 120-VOLT SUPER AUTO EJECT

Kussmaul Super Auto Eject, model 091-55-20-120-BW, 20-amp, automatic shoreline disconnect will be provided for the on board, 120-volt battery charging system.

The disconnect will be equipped with a NEMA 5-20P male receptacle, which will automatically eject the shoreline when the vehicle starter is energized.

COMPARTMENT STRIP LIGHTING, AMDOR

AMDOR "LUMA BAR" LED strip lighting elements shall be installed in all compartments, to provide even, full height lighting for the compartment without interference from shelves or equipment.

There shall be a light strip installed on both sides of the opening and shall run the full height of the compartment.

Lights shall be WHITE" in color.

Lights shall be activated by opening the compartment doors.

ELECTRONIC SIREN

The Whelen Siren Amplifier shall be part of the Whelen Carbide system. A Whelen CANCTL7 remote mounted control head shall be provided and installed in the cab console. This control head shall include functions: wail, yelp, manual, hands-free, piercer tones, PA and radio-rebroadcast.

ELECTRONIC SIREN (Continued)

PLEASE NOTE: A Power Call Tone shall be added.

The siren shall have the ability to drive a 100-watt output. Control to be backlit with soft LED non-glare lighting. The operating controls will consist of a power switch, manual button, PA volume switch, horn button, lighting controls, and a microphone.

SPEAKER SYSTEM

There shall be two (2) Whelen SA315P Series siren speakers recessed into the front bumper. Each speaker to be polished aluminum, 100-watt, and wired to the Whelen Carbide system.

FRONT LIGHT BAR

Whelen Legacy GB2DDDR light bar shall be provided and installed on the vehicle. The light bar shall be 54”" long and include:

Two (2) front corner RED/WHITE, six (6) front linear, RED/ WHITE, two (2) center TIR Takedown two (2) alley lights and two rear corner RED/WHITE.

FRONT LOWER WARNING LIGHTS

There shall be Whelen ION-T series Super LED lights with chrome bezels installed.

Four (4) warning lights shall be mounted in the grille.

The warning lights shall be red LED's with clear lenses.

SIDE UPPER WARNING LIGHTS

There shall be Whelen M6 series Super LED upper warning lights with chrome bezels installed.

Two (2) warning lights shall be mounted on the left upper body panel.
Two (2) warning lights shall be mounted on the right upper body panel.

The warning lights shall be red LED's with clear lenses.

SIDE LOWER WARNING LIGHTS

There shall be Whelen ION-T series Super LED lower warning lights with chrome bezels installed on the vehicle.

Two (2) lights installed, one (1) on each front fender of the chassis.
Two (2) lights installed, one (1) in the cab running boards under the chassis cab doors.
Two (2) lights installed, one (1) at each side at the rear sides of the body.

The warning lights shall be red LED's with clear lenses.

REAR UPPER WARNING LIGHTS

There shall be Whelen M6 series Super LED rear upper warning lights with chrome bezels installed.

Two (2) lights shall be mounted, one (1) in each upper rear corner.

The warning lights shall be Red LED's with clear lenses.

REAR LOWER WARNING LIGHTS

There shall be Whelen M6 series Super LED rear upper warning lights with chrome bezels installed.

Two (2) lights shall be mounted in the lower position in the taillight module., one (1) each side.

The warning lights shall be Rede LED's with clear lenses

UPPER BODY SCENE LIGHTS

There shall be Fire Tech Guardian Junior Series FT-GMSJR LED clear scene lights installed.

Two (2) lights shall be mounted with chrome bezels on the upper street side of the body.
Two (2) lights shall be mounted with chrome bezels on the upper curb side of the body.

The scene lights shall be controlled in pairs at the cab console.

REAR BODY SCENE LIGHTS

There shall be Whelen M6 LED series clear scene lights installed.

Two (2) lights shall be mounted with chrome bezels on the rear upper body.

The scene lights shall be controlled in pairs at the cab console

REVERSE ACTIVATED REAR SCENE LIGHTS

The rear scene lights to automatically activate whenever the apparatus transmission is in reverse mode.

CAB BROW LIGHT

A Fire Tech Brow Light on the front of the chassis cab. The light is a BLACK Hi-Viz FT-B-46-B LED Brow Light. The light shall be switched at the center cab console.

REAR D.O.T. QUAD CLUSTER W/WARNING LIGHT

A four (4) light vertical cluster with chrome bezel shall be mounted on the rear of the body, one (1) each side. The cluster will utilize Whelen M6 series LED lights

Model #M6BTT LED red combination stop/taillight.
Model #M6T LED amber turn signal.
Model #M6BUW LED white back-up light.
Model #M6RC LED red warning light

REAR DIRECTIONAL LIGHTBAR

A Whelen LED Traffic Advisor light bar, model TAL-85 shall be provided and installed at the rear of the apparatus body.

The eight (8) lamp module shall be wired to the Whelen Carbide System with functions: arrow-left, arrow-right, center-out, and alternating flash.

A .125 inch aluminum diamond plate light shield shall be installed directly above the rear directional light bar to protect the light bar from accidental damaged during hose loading and unloading operations.

This light shield shall not be used as a stepping surface.

LIGHT TOWER

The apparatus shall be equipped with one (1) Command Shadow-RT Series Horizontal mounted, model {SL422D} all electric floodlighting light tower.

The light tower shall extend 55" above the mounting surface and shall extend to full upright position in less than 15 seconds. The overall size of nested light tower shall be 54" long x 34" wide x 8" high and weigh approximately 75 pounds.

Light Tower Construction and Design

The Command Light assembly shall be of aluminum construction, with stainless steel shafts and bronze bushings for long life and low maintenance.

The electrically controlled unit shall not require usage of the vehicle's air supply for operation, thereby eliminating the chance for air leaks in the vehicle braking system. Hydraulic or pneumatic type floodlights are not acceptable alternatives to the specified all electric light tower.

The light tower shall be tested to in wind conditions of 90 mph (150 kph) minimum. Other type floodlights that have not been tested to these conditions are not acceptable.

LIGHT TOWER (Continued)

Light Tower Electrical System

The light tower shall be a single-stage device with lighting, capable of 350 degree rotation. The light shall be elevated by an electric linear actuator. The actuator shall adjust the light bank angle from 0 to 110 degrees.

Light Tower Floodlights

The light heads shall be mounted in two (2) on each side of the light tower, giving two (2) vertical lines of two (2) when the lights are in the upright position.

Two (2) switches for each 2 light banks.
One (1) switch for elevating /retracting the arm.
One (1) switch for rotation of the light bank.
One (1) switch to engage Auto-Park.
One (1) indicator light to indicate when light bank is out of nest position.
One (1) indicator light to indicate when light bank is rotated to the proper center position for nesting.

The Command Light shall be equipped with the following bank of floodlights:

Floodlight manufacturer:	Whelen Engineering
Number of lamp heads:	Four (4) Pioneer Plus PFH2B LED
Voltage:	12 VDC
Watts of each lamp head:	168 watt
Total watts of light tower:	800 watts
Amperage per lamp head:	13 amps
Total amperage of light tower:	70 amps
Total Lumens of light tower:	71,000 lumens

CONTROL KIT

One (1) handheld remote controller kit shall be provided and installed in Compartment L1 in the apparatus body.

CHASSIS CAB ROOF MOUNTING – Light Tower

The inside structure of the chassis cab roof shall be reinforced for the addition of the light tower assembly.

LED CLEARANCE LIGHTS

Eleven (11) Weldon 1500 Series LED Low Amp Draw Marker Lamps, seven (7) Red (Model #9186-1500-10) and four (4) Amber (Model #9186-1500-20), with stainless steel brush guards (Model #0J10-1200-00) shall be installed to meet ICC, FMVSS and other applicable regulations.

LED UNDERBODY LIGHTS

There shall be eight (8) TecNiq Series E10-WS00-1 LED underbody lights mounted on stainless steel brackets.

Two (2) under the chassis cab bumper, one (1) each side.
Two (2) under the front body compartments, one (1) each side.
Two (2) under the rear body compartments, one (1) each side.
Two (2) under the rear bumper, one (1) each side.

The lights shall be activated when the transmission is placed in Park and the Marker lights are on.

STEP LIGHTS

Two (2), Technique LED step lights shall be provided at the rear of the apparatus body. The lights shall be located above the rear step. The step lights shall be activated when the chassis transmission is placed in the "PARK" position.

LICENSE PLATE BRACKET WITH LIGHT

There shall be a license plate bracket with white LED light supplied and mounted at the rear of the apparatus.

FOLDING STEPS

Eight (8) Cast Products, Inc. model #SP6610-1CH dual LED illuminated folding steps, made of high strength die cast aluminum with a protective chromed coating, pyramid tread platform, conforming to current NFPA requirements, shall be provided and installed on the apparatus as specified.

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

Installed at the rear of the apparatus body, four (4) each side.

Three (3) additional steps shall be provided at the right side front of the body for access to the deck gun location

REAR STEP AND BUMPER

The rear bumper and step assembly shall extend full width of the body. The bumper structure shall be attached to the chassis frame rails using a minimum of 3" structural channel.

The bumper and step assembly shall extend beyond the rear of the modular body a minimum twelve inches (12") to protect the body from damage.

The rear step shall be constructed of 1/8” embossed aluminum tread plate material.

REAR TRAILER HITCH

TRAILER HITCH CLASS IV

The apparatus shall be equipped with a receiver hitch installed at the rear of the apparatus mounted directly to the chassis frame rails and below the apparatus in the center.

The receiver shall be classified as a Class IV receiver hitch with a 2.50-inch hitch box opening.

The maximum towing capacity shall be 7500 pounds (3400 kg) with a tongue weight of 750 pounds (340 kg) or 12000 pounds (5443 kg) towing capacity with an approved distributed trailer load.

TRAILER LIGHT CONNECTOR

A weather-proof covered combination 7-pin/4-pin trailer plug connector wired to the taillights shall be installed.

TOW EYES – REAR

There shall be two (2) tow eyes mounted directly to the chassis rear bumper framework.

EXTENSION LADDER

A 14', two (2) section, aluminum, Alco-Lite, PEL-14 extension ladder shall be provided (9’-7”).

ROOF LADDER

An 8', aluminum, Alco-Lite PRL-8 roof ladder shall be provided. (8’-5”)

FOLDING LADDER

An Alco-Lite 8-foot aluminum attic ladder, Model Fl-08 shall be provided. (9’-3”)

PIKE POLES

There shall be two (2) tubes provided for storage of the pike poles. The final location to be determined.

A Fire Hooks Unlimited 6 foot (1.8 m) steel handled All Purpose Hook(s), model APH-6. shall be provided.

A Fire Hooks Unlimited 8 foot (2.5 m) steel handled All Purpose Hook(s), model APH-8 shall be provided.

LADDER STORAGE

There shall be one (1) storage area for the ladder(s) and shall be mounted in an aluminum treadplate trough on the top of the on the top right-side compartments.

The trough shall be constructed from aluminum treadplate and the bottom of the trough where the ladder rails ride shall be lined with a smooth nylon or poly material to protect the ladder rails and aid in the removal and installation of the ladder.

Nylon straps with quick release clips or Velcro at the rear shall retain the ladders within the trough. The ladders shall be banked together if more than one ladder is to be carried.

SUCTION HOSE STORAGE TRAYS

Suction hose shall be stored on a formed aluminum trough sized to hold 6.00-inch x 10.00-foot hose. The trough shall have two (2) Velcro hold-down straps, one (1) at each end, which shall secure the suction hose to the tray.

Two (2) troughs shall be mounted to the top left side catwalk above the left side compartments.

There shall be two (2) 10-foot lengths of 6.00 inch clear PVC suction hose with lightweight couplings provided with the above specified storage.

STOKES BASKET STORAGE AREA

A storage area for a Fire Department Stokes Basket shall be provided.

WARNING LABELS AND INFORMATION PLATES

All operator controls and switches shall have the appropriate label and corresponding bezel such as pump discharge controls, electrical connections, fuel/DEF fill and exterior switches, etc.

REAR RETRO-REFLECTIVE CHEVRON STRIPING

A minimum of 50 percent of the rear-facing vertical surface, visible from the rear of the apparatus, shall be equipped with Diamond Grade, retro-reflective striping in a chevron pattern, sloping downward and away from the centerline of the vehicle at an angle of 45-degrees.

The stripe shall be 6.00 inches (152.40 mm) wide alternating in colors BLACK and RED in compliance with (NFPA) 1901, Standard for Automotive Fire Apparatus.

REFLECTIVE STRIPING

There shall be a BLACK 4.00-inch reflective stripe with two (2) 1.00-inch reflective stipes applied to the chassis and apparatus body as specified. The stripe shall be in a “Z” pattern.

PROVIDED EQUIPMENT

The following items shall be provided with the completed apparatus:

1. An Ally Fire USA 818-F Deck Gun with a 3" waterway and a 3" flange.
2. An Ally Fire USA 649 Master Stream Selectable Flow Nozzle.