



Lake Township 12' Rescue
2022/2023 Ford F550 Crew Cab 84CA chassis

BUILD SPECIFICATIONS

**WARD APPARATUS SPECIFICATION
NEW ALL-ALUMINUM TWELVE (12) FOOT RESPONDER BODY**

THE APPARATUS BODY SHALL BE MANUFACTURED AS PER THE FOLLOWING SPECIFICATIONS:

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.

BODY MATERIALS:

The following shall be the minimum acceptable materials, gauge, and finish used:

Aluminum Sheeting - All exterior panels shall be 5052-H32 aluminum of .125" thickness.

Aluminum Diamond Plate - All diamond plate shall be 3003-H14 aluminum of .125" thickness.

Body Mounting - All body mounting bolts to be minimum Grade 5.

Exterior Fasteners - All exterior nuts, bolts, and screws shall be stainless steel.

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.

BODY SUPER-STRUCTURE:

The body super-structure shall be constructed of square aluminum tubing and custom extrusions. All framing and supports shall be welded to create a fully enclosed structure. This construction technique provides high strength and durability and enables custom design of interior compartments.

The side wall structure shall be constructed of 2.0" x 2.0" x .125" 6063-T52 alloy square aluminum tubing, the side wall structure shall be welded and gusseted to the sub structure.

The roof structure shall be constructed of 2.0" x 2.0" x .125" 6063-T52 alloy aluminum tubing in a lateral pattern, maximum 20-inch spacing. The roof structure shall be welded to the side-wall structure.

All side walls shall be surfaced using a .125" aluminum sheet, welded and bonded to body side wall structure. The body roof shall be surfaced using .125" aluminum diamond plate.

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A side body impact rail manufactured of 6063-T52 alloy extruded aluminum shall be welded to the apparatus side wall structure. It shall receive the body side sheet by means of a groove, which runs continually fore to aft of the side wall structure.

BODY CORNERS, EXTRUDED:

The exterior body corners and roof perimeter shall be capped with a radiused (2.44") custom aluminum extrusion and welded to the wall and roof structure. Body corners create additional protection from physical and environmental damage to the super-structure.

BODY FLOOR CONSTRUCTION:

The sub structure shall be constructed of 2.0" x 2.0" x .250" 6063-T52 alloy square aluminum tubing, welded and gusseted to the side-wall structure for maximum strength and durability.

Two (2) mounting rails of full-length 1.0" x 3.0" 6061-T6 alloy solid aluminum flat-bar shall be welded to the sub structure, the mounting rails to align with the chassis frame rails for mounting of the body to the chassis.

The sub structure belly-pan shall be fabricated from .090" aluminum sheeting and welded to the sub structure.

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.

BODY MOUNTING:

The body shall be mounted to the chassis frame at not less than six (6) locations, three (3) on each side. The mounts shall secure the 1.0" x 3.0" 6061-T6 alloy solid aluminum flat-bar of the floor sub-frame to the chassis frame.

Neoprene pads shall be furnished and installed between the body and the mounts to prevent electrolysis and to minimize noise transfer.

BODY FRONT SHEETING:

The front body sheet shall be fabricated of .125" smooth aluminum and painted job color.

STONE GUARDS:

The front body corners shall have .125" aluminum diamond plate protective guards. The stone guards shall be bolted to the body and provide coverage at a minimum of 24" high from the base of the body.

BODY REAR SHEETING:

The rear body sheet shall be fabricated of .125" smooth aluminum sheeting and painted job color. There shall be a kick plate fabricated of .125" aluminum diamond plate, located below the rear opening.

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BODY ROOF SHEETING:

The body roof sheet shall be fabricated of .125" aluminum diamond plate.

APPARATUS BODY PAINT FINISH:

Entire paint process including initial surface preparation through final paint and clear-coat application to be conducted according to PPG certified paint process. The final finish of the apparatus shall conform to fire apparatus standards, exhibiting excellent gloss and color retention properties.

Preparation: Removal of all contaminants and oxidation is essential to the final effect of a finish system, the apparatus shall be pre-cleaned with wax and grease remover and dried to evaporation. A PPG 10-step standard body preparation shall be completed. When the substrate is prepared, the entire body shall be cleaned by washing again with wax and grease remover and dried.

Pre-treat ANF Primers: The pre-treat and primer applications shall be made in two (2) independent steps. An application of a combined pre-treat/primer product shall not be allowed as a substrate. The prepared substrate shall be pre-treated with Acid Curing 2 component primer to provide corrosion protection and create an adhesive bond between the substrate and the surface applications. To enhance adhesion and topcoat gloss, a two-component urethane primer shall be applied. All the primed surfaces shall be sanded smooth, thus removing all texture and surface imperfections, and creating a finish base that will meet the rigid requirements of the fire and emergency services.

Top Coats: Paint shall be PPG FBCH. Two (2) coats urethane base coat shall be applied according to paint manufacturer specifications. After the base coats have cured properly, two (2) coats of a high solids urethane clear shall be applied. All surface imperfections shall be removed by buffing and polishing.

Note: Body to be paint matched to chassis OEM paint.

REAR BODY CHEVRONS:

"Diamond Grade" Chevron reflective striping, six-inch (6") wide, shall be applied to at least 50% of the entire rear body panel. The chevron style striping shall be applied in an inverted "V" pattern at a 45-degree angle from the tailboard to the upper centerline of the rear panel. The stripes shall alternate red reflective, yellow reflective.

REFLECTIVE STRIPE:

A four-inch (4") white "Scotchlite" stripe will be provided. Location and application details to be determined.

DRIP RAILS:

There shall be polished aluminum rain gutters installed on the side and rear of the body, the rain gutters shall be fastened to the body and removable in case of damage. Rain gutters that are an integral part of the roof radius will not be acceptable due to the difficulty in replacing if damaged.

RUB RAILS:

A two (2) part impact and rub rail system shall be used for body side protection. A polished aluminum rub rail .75" thick x 3" wide shall be bolted to the body "impact" rail to aid in collision protection. The outside vertical edges shall be chamfered for an aesthetic appearance and to reduce the chance of personnel injury.

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Black Scotchlite reflective striping to be applied to the recessed center of rub rail to provide additional body side illumination. An additional four (4) reflectors to be installed, two (2) each side of body.

WHEEL WELL LINERS:

Welded aluminum inner liners shall be provided at both rear wheel wells.

WHEEL WELL SURROUND PANELS PAINTED:

The body panels that surround the wheel wells shall be painted with no trim overlaid on the body panel.

FENDERETTES:

The wheel well openings shall be trimmed with polished stainless steel fenderettes, bolted into place.

BODY COMPARTMENT CONSTRUCTION:

The body compartment shall be enclosed with .125" aluminum sheet. Each compartment floor shall be covered with .188" aluminum sheet for added weight carrying capability, with all seams fully sealed.

The body compartments shall be of a sweep-out design and include a stainless-steel door sill to protect the lower door opening area. The door sill configuration shall have a raised peak to reduce water intrusion under the door when in the closed position.

Wiring channels shall be provided where necessary and shall be screwed in place for ease of access.

BODY COMPARTMENT COATING:

All body compartments shall be fully coated with Zolatone equivalent to aid in abrasion resistance.

BODY COMPARTMENT VENTING:

Each compartment that extends below the chassis frame shall have a removable louvered vent panel with a replaceable filter.

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 DOORS:

The compartments shall be equipped with custom-built Hansen International Inc. roll-up doors. The doors shall be produced by an ISO-9001 certified company and tested to at least 100,000 cycles. Each door shall have a serial number label and shall carry warranty of ten (10) years. To facilitate a 24-hour replacement part service turn around, the doors must be manufactured in the United States.

Door Construction-Smooth: The doors shall be constructed of double walled and concave hard-anodized aluminum extrusion laths with a smooth exterior surface. The interlocking joint extrusion design shall have an integral synthetic spacer seal to reduce noise and prevent weather or debris intrusion in a closed position.

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Each door lath shall have inter-locking, nested, and replaceable polymer slide guides. Sides of the door openings shall be of hard anodized aluminum extruded guide channels.

Operating Components: The easy opening doors shall be equipped with 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.

Door Handle and Latching-Handle Bar: The latch bar shall consist of a full width .750" diameter stainless steel tube handle with centrally located knurled anti-slip sections and 1.25" hand clearance between handle and the door surface. The lift handlebar assembly shall have four (4) roller wheels to reduce friction and ease opening of door.

Compartment Lighting Switch: The compartment lights and door-ajar light system shall be activated by an 8-amp rated magnetic switch assembly mounted to the right pennant plate at the top of the door roller area with a permanently installed magnet installed in the top lath. If the bar is not properly closed, it shall activate the "Door Open" light in the cab.

Weather Resistance: The top door drip rail shall be a hard-anodized aluminum extrusion and shall contain a full width strip of weather seal to minimize water ingress along the top of the door. The top door seal shall be of a two (2) piece 'non-contacting design' to prevent damage to graphics, logos, or reflective striping.

Guide channel seals shall be replaceable and constructed of UV resistant rubber with automotive style flocking material for smoothness of operation. The bottom of the door curtain shall have an additional full width UV resistant rubber seal.

NOTE: Door Finish: The roll-up doors shall be finished anodized Satin.

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

COMPARTMENT L1 SHALL CONTAIN:

FLOOR EXTENSION:

Floor height at the area over the frame rails to be continued on the same plane to the outer body sidewall. Floor extension shall be fabricated of 3/16" smooth aluminum in the form of an inverted box with a 2" lip to create additional support strength.

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.

BUILD SPECIFICATIONS**COMPARTMENT R1 SHALL CONTAIN:****FLOOR EXTENSION:**

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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.

TRANSVERSE COMPARTMENT L1/R1 SHALL CONTAIN:**DUAL DIRECTION SLIDE TRAY:**

A SlideMaster SM2-D 70% extension dual directional slide out tray shall be mounted in the transverse compartment. The tray shall be fabricated from 3/16" DA finished aluminum and have a 3" lip on all four sides. The tray shall have a capacity of 1,000-pound and be mounted on SlideMaster slides. An IMS push/pull red ball latch on the front of the slide shall lock the tray in the "in" or "out" position. To include NFPA reflective striping.

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

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

TRANSVERSE COMPARTMENT L2/R2 SHALL CONTAIN:**DUAL DIRECTION SLIDE TRAY:**

A SlideMaster SM2-D 70% extension dual directional slide out tray shall be mounted in the transverse compartment. The tray shall be fabricated from 3/16" DA finished aluminum and have a 3" lip on all four sides. The tray shall have a capacity of 1,000-pound and be mounted on SlideMaster slides. An IMS push/pull red ball latch on the front of the slide shall lock the tray in the "in" or "out" position. To include NFPA reflective striping.

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COMPARTMENT L3 SHALL CONTAIN:

ADJUSTABLE SHELVES:

Three (3) adjustable shelves shall be fabricated and installed. The shelves 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 R3 SHALL CONTAIN:

ADJUSTABLE SHELVES:

Three (3) adjustable shelves shall be fabricated and installed. The shelves 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 RR1 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.

SLIDE OUT TRAY:

A SlideMaster SM2-MP 70% 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. To include NFPA reflective striping.

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.

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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.

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:

There shall be a Class 1 Multiplexed Electrical System installed. The multiplex system shall consist of all solid-state components contained inside aluminum extrusions referred to as nodes. Each node shall consist off twenty-four (24) output channels and twenty-four (24) input channels. All inputs and outputs shall be configured into a scale-able electrical harness utilizing Deutsche connectors. The nodes must be waterproof and not require special mounting requirements.

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 placement of nodes throughout the apparatus enables a reduction in wire harness bundles, elimination of redundant harnesses and separate circuit boards, relay and circuit breakers, electrical hardware, separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs.

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The complete multiplex 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. In an application where the siren controller 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. 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.

CIRCUIT BREAKER PANEL:

There shall be a Blue Seas circuit breaker panel installed to house all 120/240-volt circuit breakers. Circuit breakers shall be appropriately rated to wire size and load demand. All circuit breakers shall be labeled as to usage. All circuit breakers shall be switch rated.

Breaker box to be powered from shoreline connection.

115-VOLT INTERIOR OUTLETS:

Four (4) 15-amp, 115-volt interior duplex receptacles shall be installed in the body. These receptacles shall be wired to the circuit breaker box. Location(s) to be determined.

BATTERY CONTROL SYSTEM, IGNITION SWITCH:

Battery master control shall be through the chassis ignition switch. The chassis ignition key shall activate a heavy-duty relay to provide 12-volt battery power to the vehicle. Battery switch shall consist of a minimum 200-ampere, constant duty solenoid to feed from positive side of battery.

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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, 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.

Note: Installed driver side running board.

COMPARTMENT STRIP LIGHTING:

Hansen International "Brilliant White" LED modular compartment lighting shall be installed all compartments to provide even, full height lighting for the compartment without interference from shelves or equipment.

Protected strip to be installed on both sides of the opening and shall run the full height of the compartment. Lights shall be activated by a magnet switch when opening the compartment door.

This lighting system to employ 12V D.C. solid state operation with 24" connective pigtail, 120 lumens per foot, rated at 50,000 hours, waterproof to IP66 rating, and be shock and vibration resistant. Lighting shall snap-in for easy installation and service if necessary, be manufactured in the USA, exceed NFPA 1901 current edition, and be white in color.

"DOOR OPEN" WARNING LIGHT:

A Federal Signal Commander 4-LED red warning light COM1MC-R shall be installed on the cab console and shall flash when any compartment door is open.

ELECTRONIC SIREN:

One (1) Federal Signal, model PF200R with remote surface siren/light controller with 100/200 watts output. Siren control to include selectable siren tones with P/A and noise-canceling microphone. SignalMaster directional warning operation and integrated dual tone capability.

SPEAKER SYSTEM:

There shall be one (1) Federal DynaMax ES100C speaker(s) with mounting bracket installed and wired to the electronic siren. Speaker(s) shall be installed behind the front bumper.

FRONT LIGHT BAR:

Federal Signal NVG60D-NFPA21 Navigator light bar shall be installed on the vehicle. The light bar shall be 60" long and include front & rear corner red LED lights, side red/white LED lights, two (2) front red LED lights, and two (2) front red/white LED lights. Light bar to be permanently mounted using a four-inch (4") riser.

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FRONT LOWER WARNING LIGHTS:

There shall be two (2) Federal Signal, MicroPulse MPS122OU-RW LED lights with chrome bezels (MPSUM12-1) installed in the front lower area of the cab.

Clear lens with red LED light.

SIDE UPPER WARNING LIGHTS:

There shall be Federal Signal FR9 FireRay LED series 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.

Clear lens with red LED light.

SIDE LOWER WARNING LIGHTS:

There shall be Federal Signal MicroPulse MPS122OU-RW LED lower warning lights with chrome bezels (MPSUM12-1) installed on the vehicle.

Two (2) lights installed, one (1) on each front fender of the chassis.

Two (2) lights installed, one (1) above each rear wheel well.

Two (2) lights installed, one (1) at each side of bumper tail.

Clear lens with red LED light.

REAR UPPER WARNING LIGHTS:

There shall be Federal Signal FR9 FireRay LED series rear upper warning lights with chrome bezels installed on the vehicle.

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

Clear lens with red LED light.

SIDE BODY SCENE LIGHTS:

There shall be Federal Signal FR9 FireRay LED series scene lights with chrome bezels installed.

Two (2) lights shall be mounted on the left upper side of the body.

Two (2) lights shall be mounted on the right upper side of the body.

The scene lights shall be controlled as a pair at the cab console.

REAR BODY SCENE LIGHTS:

There shall be Federal Signal FR9 FireRay LED series scene lights with chrome bezels installed.

Two (2) lights shall be mounted on the rear upper body, one (1) each upper rear corner. The scene lights shall be controlled in pairs at the cab console.

TRAFFIC DIRECTING LIGHT BAR:

A Federal Signal CN SignalMaster 31" traffic directing light bar, model CNSM8R -2654044, shall be provided and installed on the rear of the apparatus. Eight (8) lamp LED traffic director with functions: arrow-left, arrow-right, center-out, and alternating flash. Operation of lightbar via PF200R siren/warning light controller.

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REAR TURN SIGNAL, BACK-UP, AND BRAKE LIGHTS:

The rear turn signal, backup and stop/taillights shall be a Federal Signal FireRay four (4) light cluster mounted in a chrome housing FR6MC4V.

FR6-BTT series LED red combination stop/taillight.

FR6-AAROW series LED amber arrow turn signal.

FR6-BACKUP series LED white back-up light.

FR6C-R series clear lens with red LED warning light

One (1) 4-light cluster shall be mounted on each right and left rear of the body.

LED CLEARANCE LIGHTS:

Nine (9) clearance lights, Federal Signal Commander 4-LED, seven (7) red and two (2) amber, 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 cab entry doors, 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.

LED TELESCOPING SCENE LIGHTS:

Two (2) Fire Research Spectra LED Scene Light model SPA530-SW-A side mount push up telescopic light shall be installed. The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall rotate 360-degrees. The outer pole shall be a grooved aluminum extrusion and qualify as an NFPA compliant handrail. The pole mounting brackets shall have a 2 3/4" offset. Wiring shall extend from the pole bottom with a 4' retractile cord.

Fire Research Spectra LED Scene Light model SPA100-Q15 lamp head shall be provided. The lamp head mounting arm shall terminate in 3/4" NPT threads. Wiring shall extend from the lamp head mounting arm bottom. The lamp head shall have sixty (60) ultra-bright white LEDs, 48 for flood lighting and 12 to provide a spotlight beam pattern. It shall operate at 12/24 volts DC, draw 13/6.5 amps, and generate 15,000 lumens of light. The lamp head shall have a unique lens that directs flood lighting onto the work area and focuses the spotlight beam into the distance. The lamp head angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamp head shall be no more than 5 3/8" high by 14" wide by 3 3/4" deep and have a heat resistant handle.

Note: The lamp head housing shall be white powder coated.

The telescoping lights shall be mounted as follows: One (1) on each side of the compartment door on the rear wall of the apparatus.

LICENSE PLATE BRACKET WITH LIGHT:

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

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CHASSIS RELATED ACCESSORIES

CAB CONTROL CONSOLE:

There shall be one (1) cab control console installed in the chassis between the cab bucket 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.

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.

The console shall be coated with a Zolatone equivalent to aid in abrasion resistance.

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.

USB PORT, DUAL, KUSSMAUL:

A Kussmaul Dual USB charging port Model #091-219-4 shall be provided in the center console area allowing for quick and easy way to recharge electronic devices in the apparatus. A 4.2 Amps max output allows charging of both a smart phone and a tablet at the same time or two tablets at the same time. Built-In LED Indicator indicates device is powered.

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 nine inches (9") to protect the body from damage.

The rear step shall be constructed of an open aluminum grip strut material.

TRAILER HITCH:

Class III trailer hitch shall be installed on the rear of the rescue vehicle.

TRAILER LIGHT CONNECTOR:

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

RUNNING BOARDS:

Running boards shall be installed beneath the cab and crew area doors on both sides of the chassis. They shall be fabricated from aluminum diamond plate and be structurally reinforced for maximum strength.

Running board to be enclosed on leading edge to protect against road debris from front tire.

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CAB STEP LIGHTS:

There shall be four (4) Federal Signal COM145LC-W white LED step lights provided. There shall be one (1) light installed at each cab and crew door. The lights shall activate with parking lights "on" and the transmission in Park position.

BACK-UP CAMERA:

One (1) AAMP 7" color back up camera system, 250-8222-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.

BACK-UP ALARM:

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

FUEL FILL DOOR:

A flush mounted fuel filler guard with a hinged door shall be installed over the fuel fill hose. The opening shall be labeled DIESEL FUEL ONLY engraved on a permanently attached label.

DIESEL EXHAUST FLUID FILL DOOR:

A flush mounted fuel filler guard with a hinged door shall be installed over the diesel exhaust fluid fill. The opening shall be labeled with a permanently attached label.

TOW EYES - REAR:

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

TIRE PRESSURE MONITORING DEVICES:

The apparatus shall be equipped with an AirGuard LED tire alert pressure management system. When tire is properly inflated, the indicator inside the cap shall be clear. The sensor shall activate an integral battery-operated LED when the pressure of that tire drops by 8 psi or more. Valve stem extensions shall be included on outer rear wheels. Sensors to be shipped loose for installation by customer.

MUD FLAPS - REAR:

There shall be black rubber mud flaps installed for the rear wheels.

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. Labels to be manufactured by Innovative Controls.

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.

BUILD SPECIFICATIONS

REMAIN SEATED:

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

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".

BUILD SPECIFICATIONS

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.