

Ward Apparatus

Riverside County – Squad

Quote: 22-251
Date: 12/20/22

SPECIFICATIONS - NEW ALL-ALUMINUM 12 FOOT RESPONDER BODY

MUD FLAPS – REAR/FRONT:

There shall be black rubber mud flaps installed for the rear wheels. Ford OEM front mud flaps to be provided.

RUNNING BOARDS:

Running boards shall be installed on the unit under the cab and crew cab doors. They shall be fabricated from aluminum diamond plate. These running boards shall be structurally reinforced for maximum strength.

Note: Ward to confirm design of mounting brackets to provide extra strength and durability.

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.

Note: Delete DEF fill door on body mounted on RAM chassis, will use OEM DEF fill location on RAM chassis.

WHEEL COVERS:

No wheel covers shall be provided.

Note: Ford chassis is ordered with aluminum wheels.

TOW EYES - REAR:

There shall be two (2) chrome tow eyes mounted directly to the chassis frame rail at the rear of the unit.

TOW EYES - MOUNTING:

Each tow eye shall be recessed and mounted in a cast aluminum housing.

BATTERY CHARGER:

Blue Sea Systems 7532, 40-amp, battery charger will be supplied with the apparatus. The charger to be capable of charging batteries and functioning as a continuous 40-amp 12VDC power supply. The charger features a cast aluminum housing.

AUTO EJECT:

Blue Sea Systems "Sure-Eject", Model 7851, automatic disconnect device shall be provided and installed on the 110-volt shoreline connection complete with weatherproof cover. The Auto-Eject shall be activated by the chassis starter switch to disconnect the plug. Auto eject cover to be red. Auto eject to be located on driver's side of rear wheel well.

CAB CONTROL CONSOLE:

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

The center console shall be Troy products #CC-MC-18. The console shall have provisions for the mounting of:

Customer installed radio(s)

Two (2) internal beverage cup holders

Map book/binder storage to be fabricated/attached by Manufacturer at rear of console

The console shall be provided with all necessary blank cover plates to not allow any open spaces in the finished console.

Note: Reference previous build of Troy products console.

Customer radio model KCH20R – Kenwood.

ACCESSORY PANEL:

One (1) Blue Sea Systems 4365 water-resistant 15-amp accessory panel to be provided. To include one (1) 12V socket and two (2) 2.1-amp dual USB chargers for recharging electronic devices in the apparatus. Panel to include a back-lit Carling 15-amp circuit breaker switch to shut-off panel power. To be installed in the center cab console.

VEHICLE DATA RECORDER (VDR):

There shall be one (1) CLASS ONE Vehicle Data Recorder (VDR) provided and installed per NFPA 1901-2009 requirements. The VDR shall be an integrated component of the Class1 ES-Key multiplexed electrical system and shall record such data as the vehicle speed, acceleration/deceleration, engine speed, engine throttle position, ABS event, seat occupied status, seat belt status, master optical warning switch, park brake, service brake, time, date and engine hours. The VDR data shall be downloadable by a mini-USB cable to a computer.

Note: Delete this requirement, not available on OEM chassis

******* WALK-AROUND BODY *******

The apparatus body shall be manufactured as per the following specifications:

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.

BODY DESIGN:

The body shall be modular in design, allowing it to be removed and remounted on a new chassis.

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.

Note: Body mounts to be spring-loaded to minimize adverse effects of chassis frame torque.

Note: Apply protective coating to all U-Bolt fasteners and springs.

BODY CONSTRUCTION:

The primary body material shall be .125" aluminum for the sides, front, rear and top of the body.

The body framing shall be square tubing not less than 2" x 2" x (.125") on a maximum of 16" centers.

The framing shall be fully welded grid design, completely supporting the floor, sides, and the roof for maximum strength and durability.

The body skin shall be fully bonded to the interior framing.

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 ROOF:

The roof support framing shall be constructed of 2" x 2" x .125" 6063-T52 extruded aluminum tubing.

The body roof shall be a minimum of .125" embossed aluminum diamond plate and all roof seams shall be fully bonded and sealed.

ROOF TOP TIE DOWN BACKING PLATES

There shall be (4) .25" aluminum backing plates installed on the top of the body for future use as tie down anchors. Mounting plates to be constructed to provide 5" x 5" on center.

The plates shall be welded to the underside of the roof cap. The roof cap and the backing plates shall be drilled and tapped for 3/8" bolts. Manufacturer to install bolts with silicone in the backing plates for RCFD future use.

FRONT BODY SHEET:

The entire front of the apparatus body shall be constructed of .125" aluminum diamond plate.

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.

Note: Stone guards to include a separate piece that covers the rolled edge of the front of the body.

REAR BODY SHEET:

The rear body sheet shall be fabricated of .125" smooth aluminum sheeting. The area under the rear door and above the rear step shall include an overlay of .125" aluminum diamond plate. This will serve as a kick plate to protect the painted surfaces.

WHEEL WELL LINERS, BOLTED SYNTHETIC:

Bolted synthetic inner liners shall be provided at both rear wheel wells.

WHEEL WELL PANELS PAINTED:

The wheel well body panels shall be painted with no trim overlaid on the body panel.

SCBA WHEEL WELL STORAGE:

There shall be SCBA bottle storage compartment provided in the rear wheel well area. The air bottle compartment shall be in the form of an 8" round tube and shall be 25 1/4" deep to accommodate an air bottle. A brushed aluminum or stainless-steel hinged door with latch shall be provided for each compartment.

NOTE: Two (2) SCBA bottle storage compartments to be provided, one (1) on each side of the wheelhouse, curb side of vehicle.

FENDERETTES:

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

RUB RAILS:

A two (2) part impact and rub rail system shall be used for body side protection.

A structural body impact rail shall be welded into the apparatus body structural members. This impact rail shall be composed of 6063-T52 alloy-extruded aluminum. It shall receive the body side sheet by means of a groove, which runs continually fore to aft of the module for maximum strength and impact protection.

Additionally, a .75" thick x 3" wide polished extruded aluminum "sacrificial" rub rail 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.

Applied to the recessed center of this "sacrificial" rub rail shall be black Scotchlite reflective striping to provide additional body side illumination.

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.

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.

BODY COMPARTMENT CONSTRUCTION:

The body compartments shall be fully enclosed and isolated from adjoining compartments. All compartment walls to extend fully from floor to ceiling. All seams to be fully sealed.

Each compartment ceiling and wall shall be covered with .125" aluminum sheet. Wiring channels shall be provided where necessary and these shall be bolted into place for ease of access. Each body compartment shall be coated with light gray Zolatone equivalent surfacing material.

EXTERIOR COMPARTMENT VENTING:

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

COMPARTMENT DOOR CONSTRUCTION:

Each swing door shall be constructed of reinforced .125" aluminum sheeting and shall be approximately 2" thick. THE USE OF EXTRUSIONS IN THE CONSTRUCTION OF THE DOORS SHALL NOT BE ALLOWED.

All doors shall be mounted on a full length polished stainless-steel hinge with a minimum of .250" stainless steel pins. The hinges are bolted to the body and doors at a minimum of every six (6) inches.

The doorjamb shall have gaskets on all four sides.

The doors shall be flush mounted to prevent the gaskets from freezing to the body exterior.

The inner door panel shall be constructed of .125" aluminum with sanded finish and shall be bolted to the outer skin of the door.

Compartments with swing doors shall have stainless steel "D" handle latches, which will activate Eberhard #26T-400 series locks via a threaded stainless-steel rod with yoke end.

There shall be a turnbuckle installed on the rod for easy adjustment. The rotary locks shall be mounted on the top and bottom of both doors and shall be mounted within the door pan. DOORS THAT USE A SINGLE POINT, SINGLE CATCH LATCH WILL NOT BE PERMITTED. Note: Adequate venting to be installed in interior door panels and lower door frame to eliminate internal compartment air pressure and facilitate easier closing.

VERTICAL DOOR HOLD OPEN DEVICE:

All vertically hinged doors shall be equipped with pneumatic struts. When a door is open, the strut shall hold the door open at 90 degrees to the body.

COMPARTMENT L1 SHALL CONTAIN:

SLIDE OUT TRAY:

One (1) On-Scene Solutions slide out tray shall be fabricated and installed in the compartment. 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 1000 pounds.
The tray shall have a special design that will be approved by RCFD per included drawing.

COMPARTMENT R1:

Compartment R1 shall contain:

SLIDE OUT TRAY:

One (1) On-Scene Solutions slide out tray shall be fabricated and installed in the compartment. 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 1000 pounds.
The tray shall have a special design that will be approved by RCFD per included drawing.

TRANSVERSE COMPARTMENT L1/R1 SHALL CONTAIN:

BACKBOARD STORAGE:

A horizontal storage rack constructed of 1/8" aluminum shall be provided in the rear portion of the transverse compartment. The storage rack shall have separate vertical sections for storage of long backboards. Equipment shall be accessible from both sides.
Note: Belt buckle type strapping shall be provided to prevent sliding.

STORAGE FOR PIKE POLE AND HOOKS:

The upper portion of the front transverse compartment shall be sectioned to provide storage for pike poles and hooks to match previous build.
Note: Reference design drawing 363-BBST-ASM

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 in four (4) heavy duty C-channel tracks that are attached to the compartment walls.

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 in four (4) heavy duty C-channel tracks that are attached to the compartment walls.

COMPARTMENT L3 SHALL CONTAIN:

ADJUSTABLE SHELF:

Four (4) 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 in four (4) heavy duty C-channel tracks that are attached to the compartment walls.

COMPARTMENT R3 SHALL CONTAIN:

ADJUSTABLE SHELF:

Two (2) 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 in four (4) heavy duty C-channel tracks that are attached to the compartment walls.

COMPARTMENT RR1 SHALL CONTAIN:

SLIDE OUT TRAY:

One (1) On-Scene Solutions 81 Series slide out tray shall be fabricated and installed in the compartment. The tray shall be constructed from 3/16" smooth aluminum and have a 3" lip on all four sides. The tray shall have a rated capacity of 750 pounds at lengths over 75". The rear tray shall have a full-length divider that is installed. The divider shall be fully adjustable from side to side within the tray.

LONG TOOL AND BACKBOARD STORAGE:

A horizontal storage rack constructed of 1/8" DA finished aluminum shall be installed in the upper portion of the rear compartment. The storage rack shall allow for stokes basket storage on the top shelf on the right side and long handle tool storage on the left. Seatbelt Strapping shall be provided to prevent sliding.

Note: The floor of the long tool and backboard storage area floors shall be lined with plastic/poly material.

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 approximately 9" to protect the body from damage.

The rear step shall be covered using .125" aluminum diamond plate.

TRAILER HITCH:

One (1) class IV trailer hitch shall be installed on the rear of the rescue vehicle. The trailer hitch shall include an electrical connection.

TRAILER PLUG CONNECTOR:

A trailer plug connector wired to the taillights shall be provided and installed under the rear step. Power shall also be provided for the trailer brakes. Included shall be a mating plug connector. Connector to be recessed in the rear bumper – reference previous build for location.

TRAILER BRAKE CONTROLLER

There shall be (1) Tekonsha P3 (part# 90195) electronic trailer brake controller installed near the drivers left knee.

Note: Factory ordered chassis to have OEM brake controller.

BODY WIRING DIAGRAM:

There shall be two (2) complete wiring diagram(s) supplied when the vehicle is delivered. The diagram(s) shall include the 12-volt system, shall be customized for the vehicle and shall not be a standard wiring diagram.

Note: Provide two (2) paper copies per chassis manufacturer (Ford and RAM) and two (2) USB drives for each vehicle.

ELECTRICAL MULTIPLEX 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.

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 if needed and installed on the center console.

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.

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.

12-VOLT POWER DISTRIBUTION PANEL:

The 12-volt power distribution panel shall contain all major body/chassis electrical components, including but not limited to fuses, circuit breakers, relays, solenoids, power supplies, multiplex nodes, etc.

The power distribution panel shall be located in the left side forward most body compartment away from water and moisture in the lower portion of the compartment on the forward wall.

This distribution panel shall have a removable door with the same finish as the body compartment walls.

Note: Provide venting for PDQ. Design to be per previous build.

BATTERY CONTROL SYSTEM:

Battery control shall be through chassis ignition wiring.

PRE-WIRED ANTENNA CABLES:

There shall be three (3) RG58U coax cables pre-wired by the body builder from the module roof to the cab console. Body builder shall install customer supplied one (1) GPS cable. Cables to be secured within the console and clearly labeled to identify the mounting location on the roof. Antenna bases to be protected by removable covers. Reference previous build.

"DOOR OPEN" WARNING LIGHT:

A red 1500 series warning light shall be installed on the cab console and shall flash when any compartment door or entry door is open.

COMTRONIX BKRA-1 RADIO INTERFACE:

One (1) Comtronix model BKRA-1 radio interface shall be installed. The system shall provide intercom for all the seated positions. Additionally, radio interface & P-T-T shall be provided for both seated positions in the cab and one (1) in the rear crew area.

The system will provide the means to monitor both integrated radios and shall P-T-T capability for the radio selected on the master control. The intercom feature shall operate hands free only transmit over the assigned radio if the push-to-talk button is pressed.

Note: Delete this requirement based on communication with the customer's electrical technician. Customer to install the interface.

SIGTRONICS HEADSET SE-8RVC

There shall be four (4) SIGTRONICS, model SE-8RVC, helmet style headsets provided to be utilized with the Comtronix BKRA-1 Emergency apparatus intercom & radio interface.

Note: Reference previous build for location of headsets.

COMPARTMENT STRIP LIGHTING:

On-Scene Access 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 protected strip installed on both sides of the opening and shall run the full height of the compartment. Lights shall be activated by opening the compartment door.

Note: The L1/R1 compartments shall also have a light on the **rearward side of the compartment that shall extend down into the lower section of the compartment and a light on the top of the door opening.**

Note: Strip lighting to be white.

ELECTRONIC SIREN:

One (1) Federal Signal, model PF200R siren/light controller with 100/200 watts output.

Selectable siren tones with P/A and noise-canceling microphone. Integration capability with Rumbler®.

SPEAKER SYSTEM:

There shall be one (1) Federal model ES100 speaker(s) installed and wired to the electronic siren. Speaker to be mounted behind front grille in an area that provides maximum exposure of speaker.

RUMBLER WARNING SYSTEM:

One (1) Federal Signal RUMBLER-3 system shall be provided. This warning system shall be activated through a TAP feature in the steering wheel horn button. This system shall have a timed activation to limit the systems output to a maximum of 15 seconds. The Rumbler unit will be routed through the EQ2B siren speaker. The Rumbler unit shall be located within the front bumper area.

Note: Two (2) Speakers to be recessed mounted under each front corner of the chassis. Reference previous build for location.

FRONT LIGHT BAR:

One (1) Federal Signal Navigator Model #NVG53Z-RCFD2 with internal Opticom (#795H-EXT-D) light bar shall be provided and installed on the vehicle. The light bar shall be 53" long.

The Opticom shall be located in the middle of the lightbar and there shall be (1) forward facing red light on the officer side of the lightbar that shall be steady burn.

Note: One (1) forward facing red light on the officer's side of the light bar that shall be steady burn.

Note: Light bar to include side alley lights and tallest bracket possible for mounting #NVG53Z-RCFD2. New light bar part number has been assigned based on communication between Federal Signal and the customer's electrical technician.

FRONT LOWER WARNING LIGHTS:

There shall be two (2) red Federal MicroPulse Wide MPSW9-R LED lights with chrome bezels installed in the front grille of the cab.

SIDE UPPER WARNING LIGHTS:

There shall be four (4) red Federal MicroPulse Wide LED, model MPSW9-R, 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.

SIDE LOWER WARNING LIGHTS:

There shall be four (4) red Federal MicroPulse Wide MPSW9-R 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) on each side of the rear bumper cap/step.

There shall also be (2) Federal Signal Q-Flare QL64SFC-RW Red/White warning lights with chrome bezels installed on the vehicle.

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

ADDITIONAL SIDE LOWER WARNING LIGHTS:

There shall be two (2) Federal MicroPulse Ultra, model # MPS600 U-RW, installed one (1) on each side rear view mirror mounting arm. Lights shall have black bezels and shall include mounting kit model #MPSM6-SB.

Note: Reference previous build

REAR UPPER WARNING LIGHTS:

There shall be two (2) red Federal QuadraFlare LED, model QL97XF, rear upper warning lights with chrome bezels installed on the vehicle.

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

QL97XF-R (red) installed on the right side upper and QL97XF-A (amber) installed on the left side

SIDE BODY PERIMETER LIGHTS:

There shall be Federal Signal MicroPulse wide angle 9-LED perimeter lights installed. Model MPSW9-W white with chrome bezels.

Two (2) lights shall be mounted on both upper sides of the body, adjacent to the side body warning lights. The scene lights shall be controlled in pairs at the cab console.

REAR BODY SCENE LIGHTS:

There shall be two (2) Federal Commander LED, model COM-15K-260, clear scene lights installed.

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

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

The rear scene lights shall activate with transmission in reverse.

TRAFFIC ADVISOR LIGHT BAR:

A Federal Signal CNSM8R, reference number 1658415867, to include outboard amber lighting and center brake light red lighting, based on communication between Federal Signal and the customer's electrical technician.

TRAFFIC DIRECTING LIGHT BAR CONTROL:

Traffic Advisor to be controlled by the Federal Signal PF200R Controller.

BROW LIGHT:

Fire Tech HiViz Mini Brow Light (42"), Model FT-MB-33-FT-B with combination spot/flood beam optics shall be provided and installed beneath the lightbar. FT-MBKIT-LPX-B cast aluminum "L" shaped end cap mounting kit. The housing and mounting kit color to be black.

REAR TURN SIGNAL, BACK-UP AND BRAKE LIGHTS:

The rear turn signal, backup and stop/taillights shall be a Federal Signal QL64Z4V-LED four (4) light cluster to be mounted in a chrome housing.

The top brake light shall be a Federal Signal QL64Z-BTT LED red combination stop/taillight.

The rear turn signal shall be a Federal Signal QL64Z-TURN LED amber turn signal.

The backup light shall be a Federal Signal QL64X-BACKUP LED white back-up light.

The bottom light shall be a QL64XF-R LED red flasher.

One (1) 4-light cluster shall be mounted on each rear corner of body.

Reference previous build.

BACK-UP ALARM:

There shall be an electronic Federal Evacuator Plus model 210331SSG, 97 dB(A) back-up alarm with momentary cut off switch installed and shall be activated when the chassis is shifted into reverse.

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.

Note: Camera location to be centered between tow eyes in rear bumper. Reference previous build for location.

CLEARANCE LIGHTS/REFLECTORS:

Nine (9) Weldon 1500 series clearance lights, seven (7) red and two (2) amber, shall be installed to meet ICC, FMVSS and other applicable regulations.

Four (4) reflectors shall be installed, one (1) pair each side of the vehicle.

LED UNDERBODY LIGHTS:

There shall be eight (8) TecNiq Series E10-WS00-1 LED underbody lights installed under the cab doors and on the center and rear of the body. Lights shall be activated by a switch on the cab console.

The lights shall also be activated with transmission in park and there shall be a ground light switch on the smart siren.

Reference previous build for location

LICENSE PLATE BRACKET:

A Cast Products aluminum rear license plate holder will be provided with the rescue vehicle. Holder will have two (2) top lights for illumination. The lights will automatically activate when the head light switch is energized. The holder shall be mounted on the rear of the body on the street side beneath the light cluster.

STREAMLIGHT RECHARGEABLE FLASHLIGHTS:

Two (2) Streamlight DS LED HL rechargeable flashlights shall be provided. Mounting location to be on the backside of the map storage compartment of the Troy center console that was added by Ward Apparatus.

Reference previous build for location

STREAMLIGHT FIRE VULCANS:

Two (2) orange Streamlight Fire Vulcan LED vehicle mount systems, part number 44451, shall be provided and installed. Each lantern shall include a quick release buckle strap and 12-volt vehicle-mount direct wire charging rack. The hand lights shall feature C4 LED technology with two (2) ultra-bright blue LED's.

The lights shall be installed in the L1 and R1 compartment in the lower portion of the compartment, on the compartment wall towards the rear of the vehicle.

Note: Mounting location per previous build.

TELESCOPING SCENE LIGHT:

Two (2) Federal Signal Commander LED Scene Light Model # COM15K-530SW side mount Push-up telescopic lights with white housings 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 poles 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. The wiring shall extend from the pole bottom with a 4' retractile cord.

The lamp head shall have sixty (60) ultra-bright 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 a 3 3/4" deep and have a heat resistant handle. The lamp head and mounting arm shall be powder coated. The LED scene light shall be for fire service use.

The lights shall be installed on the front of the apparatus body, one (1) on each side.

Note: The lights shall be individually controlled via switches at the control panel.

UNDERCOATING:

There is no requirement for undercoating.

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.

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 contaminates 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. **Body paint matched to Ford chassis PQ_01 Race Red.**

TOUCH-UP PAINT:

One (1) pint of touch-up paint for each color utilized shall be provided with the completed apparatus.

LETTERING:

There shall be sixty (60) three-inch (3") gold leaf letters applied to the vehicle as directed. The letters shall have black shading.

Note: Customer to supply city seal decals, to be installed by Manufacturer as directed. Customer to provide details on current lettering layout.

4" SCOTCHLITE STRIPE:

A four-inch (4") high white "Scotchlite" stripe will be provided. Reference previous build.

CHEVRON STRIPING:

NFPA compliant Chevron style reflective stripes shall be provided and applied to the rear of the apparatus.

Note: Red & Yellow Oralite material to be used.

WHEEL CHOCs/HOLDERS:

Two (2) wheel chocs, model ZICO AC-1, shall be provided and installed. Each choc shall include a hand grip and a double row of rugged teeth to grip almost any surface. Two (2) horizontal holders shall be provided to store each choc under the rub rail of the body.

Note: Mounting location to be in lower portion of L1 and R1 compartments. Reference previous build.

EXTINGUISHER:

There shall be one (1) 10 lb. dry chemical portable fire extinguisher with an approved ABC rating and a mounting bracket to be provided.

Note: To ship loose for customer installation.

EMERGENCY KIT:

One (1) emergency kit including one (1) 5lb. ABC extinguisher and three (3) triangle reflectors shall be provided with the completed apparatus.

Note: To ship loose for customer installation.

6 FOOT FIBERGLASS PIKE POLE:

One (1) 6-foot Nupla fiberglass pike pole with "D" handle shall be provided. Model #YDPH-6

FIRE HOOKS UNLIMITED:

There shall be:

- (1) Fire Hooks Unlimited 4' NY roof hook
- (1) Fire Hooks Unlimited 6' NY roof hook
- (2) Nupla 6' LA Rubbish tool Model RH-6DA
- (1) Fire Hooks Unlimited 4' Universal Hook (plaster/drywall hook)

WATER COOLER:

There shall be one (1) 54 Qt Coleman Stainless steel water cooler supplied.

FUEL:

The completed vehicle's fuel tank shall be filled prior to leaving the manufacturing facility, and shall be re-filled prior to final delivery.

WEIGHT ANALYSIS:

Prior to leaving the manufacturing facility, the completed vehicle shall be weighed and the weight results shall be forwarded to the purchaser for their records.

Note: Provide weights at each wheel location.