

## Riverside County Fire Department 11' Boat Hauler

### BUILD SPECIFICATIONS

#### WARD APPARATUS SPECIFICATION NEW ALL-ALUMINUM ELEVEN FOOT (11') SPITFIRE SERVICE 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 MATERIALS:**

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

Aluminum Body - All construction 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 SUPER-STRUCTURE:**

Lateral floor structure built using 3.0" H x 2.0" W x .125" aluminum tubing welded to longitudinal, doubled 1.0" x 3.0" flat bar. Formed 5.0" channel ties floor structure at front with 3.0" H x 2.0" W x .125" aluminum tubing at rear. Structure is welded and gusseted to the side-wall structure for maximum strength and durability. A welded bulkhead panel above the floor structure secures the compartments at the front of the body.

##### **BODY FRONT SHEETING:**

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

##### **BODY ROOF SHEETING:**

The top of body compartments to be covered with .125" aluminum diamond plate.

##### **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.

Kick plate to be approximately 4" high, to not interfere with rear taillight installation.

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

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### **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:**

No requirement for undercoating

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

### **APPARATUS BODY PAINT FINISH:**

The final finish of the apparatus shall conform to fire apparatus standards, exhibiting excellent gloss and color retention properties.

Preparation: Since the 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 towel dried to evaporation. A 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 towel 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.**

### **LETTERING:**

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

### **4" SCOTCHLITE STRIPE:**

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

Note: Reverence Paramedic Squad build.

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### **REAR BODY CHEVRONS:**

Red/Yellow Oralite Chevron reflective striping, six-inch (6") wide, minimum 50% of the entire rear body. Chevrons to include the rear end gate.

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

### **ADD FENDERETTES:**

The wheel well openings shall be trimmed with chrome C-channel.

### **BODY COMPARTMENT COATING:**

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

### **BODY COMPARTMENT VENTING:**

Compartments below the chassis frame to 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.

### **EXTERIOR COMPARTMENT SPECIFICATIONS:**

#### **COMPARTMENT DOORS:**

The compartments shall be equipped with flush mounted hinged doors constructed of 3/16" aluminum with 3/4" x 2.5" extruded interior bracing. Doors to have greaseable stainless-steel hinges that are isolated from body. Vertically hinged doors to be held open approximately 95-degrees via gas spring

Door Latch & Mechanism: D-Ring style door latch with keyed lock. Three-point latching via roller style rod ends and center striker

Weather Resistance: Each compartment opening protected by metal-backed clip-on bulb seal

NOTE: Key Lock: Compartment door latches with keyed cylinder lock assembly

#### **COMPARTMENT L1 SHALL CONTAIN:**

#### **ADJUSTABLE SHELVES:**

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 to the Uni-Strut channels provided.

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### COMPARTMENT L2 SHALL CONTAIN:

#### ADJUSTABLE SHELVES:

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 to the Uni-Strut channels provided.

### 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 L4 SHALL CONTAIN:

#### ADJUSTABLE SHELVES:

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 to the Uni-Strut channels provided.

#### FUEL REEL / FILLER:

A Reelcraft P/N FSD14050 OLP spring retractable hose reel with 50' of fuel delivery hose to be provided and installed. Includes Fill-Rite (or equivalent) fuel filler nozzle. Fuel pump to be installed in-line from the tank to the reel.

Fuel pump to be located in the L4 compartment. Fuel pump on/off switch to be provided at the reel/fill nozzle location.

### COMPARTMENT R1 SHALL CONTAIN:

#### ADJUSTABLE SHELVES:

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 to the Uni-Strut channels provided.

### COMPARTMENT R2 SHALL CONTAIN:

#### ADJUSTABLE SHELVES:

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 to the Uni-Strut channels provided.

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### 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 R4 SHALL CONTAIN:

#### ADJUSTABLE SHELVES:

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 to the Uni-Strut channels provided.

#### REAR BODY SKID/TANK AREA:

The body shall be open in the center of the apparatus from the rear of body to the front wall of the body. This compartment shall measure approximately 130" long x 49" wide. The floor framework of this portion of the body to be reinforced to hold the load intended. The interior floor sheet material to be .188" thick aluminum diamond plate for structural strength and safety.

The entire area, including floor, front wall, and body side walls shall be coated with Linex lining. At the rear opening to this area the floor edge and side wall edges shall be trimmed with brushed stainless steel. Provide floor drains in each of the forward corners.

#### END GATE, OPEN CENTER DECK:

End gate to be provided at rear of center deck area. Gate to be approximately ~~twelve inches (12")~~ tall and be constructed of reinforced aluminum with .125" aluminum sheeting. Gate to include latches at each side of gate. Gate to include a stainless-steel hinge that allows end gate to open downward. End gate to be painted job color with Chevrons installed.

Gate to be eighteen inches (18") tall. Add chains or limiting cables at each side of gate to hold gate open at a 90° angle.

#### FUEL TANK:

A Lund 100 Gallon (or equivalent) fuel tank with white powder coat finish to be provided and installed. Tank to be plumbed to the rear driver side compartment fuel fill reel. The tank to be installed at the front of the center deck compartment.

Add 2" Farias brand fuel gauge with sender. Gauge to be mounted below the BlueSea power accessory on driver side in center console.

## BUILD SPECIFICATIONS

### **OVERCAB STORAGE RACK:**

There shall be a custom rack provided and installed over the top of the body that extends over the cab. Rack to be fabricated of 2.0" x 2.0" x .125" 6063-T52 alloy square aluminum tubing. The front of rack that extends over the cab to be enclosed on three (3) sides with .125" smooth aluminum.

Storage rack design to incorporate a transverse cross-member at each vertical upright support. The rear two (2) cross-members to be removable via quick release pins in order to facilitate more expedited and safer loading/unloading. Both storage rack frame and front enclosure to be painted job color.

Rear two (2) horizontal cross-bars to be removable and fully supported by boxed brackets. Quick-release pins shall be provided to retain the cross-bars in a stored position, tethered to the vertical upright at each location. Inflatable boat dimensions: 14' L x 5' 10" W, weight 280 lbs.

Install Versatie Series 3 track mount to the inside of both tubes that run full length of the rack front to back, including the over cab area. Track will be surface mounted and attached with tapped stainless-steel fasteners. Three (3) sections of eight-foot (8') Versatie track to be custom cut/fit to storage rack.

Note: Twelve (12) Versatie down rings to be shipped loose.

### **ELECTRICAL SYSTEM**

#### **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 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).

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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 minimum flame retardant to 280-degrees Fahrenheit and moisture resistant.

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.

### **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.

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.

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### **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.

PDQ to be installed underneath the rear passenger seat inside the chassis cab.

### **BATTERY CONTROL SYSTEM, IGNITION SWITCH:**

Battery Master control through the chassis ignition switch. Heavy-duty 200-Amp constant duty solenoid to provide 12-volt battery power to the vehicle.

### **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.

~~Note: To be installed in the street side running board towards the rear.~~

Auto eject to be located on driver's side, front rear wheel well.

### **"DOOR OPEN" WARNING LIGHT:**

A red LED warning light, Weldon 1500 Series, shall be installed on the cab console and shall flash when any compartment door is open.

Door switches to be magnetic.

### **COMPARTMENT STRIP LIGHTING:**

Maxxima MLS Series LED, SMD 5050, modular compartment lighting, shall provide even distribution of lighting 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 magnetic switch when opening the compartment door.

This lighting system to be 12V D.C. solid state operation rated at 50,000 hours, Waterproof, shock, and vibration resistant, white color



## BUILD SPECIFICATIONS

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

### **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 shall be located within the front bumper area.

Note: Two (2) Speakers to be recessed mounted, one (1) under each front corner of the chassis bumper.

### **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.

### **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.

### **FRONT LOWER WARNING LIGHTS:**

There shall be Federal Signal MicroPulse Wide LED lights with chrome bezels MPSW9 installed in the front lower area of the grille.

Note: Red LED lights with clear lenses.

### **SIDE LOWER WARNING LIGHTS:**

There shall be Four (4) Federal Signal MicroPulse Wide LED lower warning lights with chrome bezels (MPSW9) installed on the vehicle.

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

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

NOTE: Red LED lights with clear lenses.

**BUILD SPECIFICATIONS****ADD REAR UPPER WARNING/SCENE LIGHTS:**

There shall be two (2) Federal QuadraFlare LED, combination rear upper warning/scene lights with chrome bezels installed on the vehicle. Two (2) lights shall be mounted, one (1) in each upper rear corner.

Precon Note: Install two (2) Dual split color QuadraFlare 6x4 lights. One (1) amber/clear QL64C-AW on the upper driver's side and one (1) red/clear QL64C-RW on the upper passenger side. Clear lights to be activated as scene lights and back up lights.

**ADD REAR UPPER SCENE LIGHTS:**

There shall be two (2) Federal Signal Micropulse Wide Angle LED scene lights with chrome bezels installed on the vehicle.

One (1) light installed on each side of the front wall in the rear bed area.

Lights shall be white with clear lenses model MPSW9-W.

**ADD REAR LOWER WARNING LIGHTS:**

There shall be two (2) Federal Signal MicroPulse Wide Angle LED lower warning lights with chrome bezels installed on the vehicle.

Two (2) lights installed, one (1) on each side of the lower rear body.

Lights shall be red with clear lenses model MPSW9-R.

**ADD TRAFFIC DIRECTING LIGHT BAR:**

Federal Signal CN SignalMaster dual four (4) head light bars to be installed, model CNSM4R-3433618. Each light bar to incorporate Solaris LED narrow-angle reflectors and be synchronized to operate as one unit. This split-module design to provide RDL function when the apparatus body has a rear open center deck area.

Control of light bars via the PF200R siren controller.

Each module will be mounted high on the rear of the body, and above the warning lights. Each module to include a three-sided aluminum diamond plate protective cover, mounted flush with the top of the body.

**ADD REVERSE ACTIVATED REAR SCENE LIGHTS:**

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

**REAR TURN, BACK-UP, AND STOP LIGHTS:**

The rear turn signal, backup and stop/taillights shall be Grote LED lights.

Two (2) Grote LED red combination stop/tail and turn signal lights shall be mounted, one (1) each side on the rear body.

Two (2) Grote LED white back-up lights shall be mounted, one (1) each side on the rear body.

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### **LED CLEARANCE LIGHTS:**

Nine (9) Weldon 1500 Series LED Low Amp Draw Marker Lamps seven (7) Red (Model #9186-1500-10) and two (2) Amber (Model #9186-1500-20), with stainless steel brush guard (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 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.

### **CHASSIS RELATED ACCESSORIES**

#### **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 supplied radios

Two (2) internal beverage cup holders

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

Precon Note: Add a fuel tank gauge (see previous note). Install below the Blue Seas 4365 panel on the driver's side.

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

**INSTALL CUSTOMER RADIOS:** Installation of customer provided radios and other equipment TBD.

#### **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.

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### **WARN TRANS4MER GRILLE GUARD FOR WINCH MOUNTING:**

A Warn Gen III Trans4mer grille guard with winch carrier and headlight protection to be installed on the front of the chassis. To be constructed of heavy-gauge two-inch (2") tube steel with a black powder coat finish. For installation of large and mid-frame winches.

### **WARN 16,500 LB. WINCH:**

There shall be 12-Volt electric Warn 16,500 lb. winch will be provided and installed on/in the front bumper winch carrier. The winch features reversible electric worm-gear winch drive and a thermometric indicator which provides operator feedback during the winching process. The winch will be supplied with 80' of 3/8" lightweight Spydura Pro synthetic rope. The rope's heat-treated construction provides maximum tensile strength, and the temperature-resistant sleeve on the first layer provides maximum heat protection and has a clevis, EPIC hook and 4-way roller lead. There shall be a 12' cable lead and remote included.

### **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~~.

The rear step to be constructed of NFPA aluminum diamond plate. Kickplate shall be approximately four-inches (4") high.

### **TRAILER HITCH:**

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

Trailer Hitch shall be a Class V. If bolts used, apply protective coating. Hitch framework and receiver shall be coated with protective linex..

### **TRAILER PLUG CONNECTOR:**

A trailer plug connector wired to the taillights shall be provided and recessed into the rear bumper

Note: Reference previous Paramedic Squad build for location.

Connector to be 7-pin/4-pin.

### **DD TRAILER WARNING LIGHT CONNECTOR:**

A Pollak Heavy-Duty 4-Pole Round Pin Trailer Wiring Socket model# PK11404 shall be provided and mounted in the rear bumper next to the trailer 7-pin/4-pin connector. The Pollak connector shall be used to operate the rear warning lights on the trailer.

### **TRAILER BRAKE CONTROLLER**

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

### **BACK-UP CAMERA:**

Chassis OEM camera to be used. Camera installation location to be centered in kick panel above rear bumper. Reference previous Paramedic Squad build for location.

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

## BUILD SPECIFICATIONS

### **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.

### **TIRE PRESSURE MONITORING DEVICES:**

Each tire shall be equipped with an LED tire alert pressure management system (Vecsafe equal.) A chrome plated brass sensor shall be provided on the valve stem of each tire and calibrate to the tire pressure when installed on the valve stem for pressures between 20 and 120 psi. The sensor shall activate an integral battery-operated LED when the pressure of that tire drops 8 psi.

Tire monitors to be shipped loosed and installed for calibration after vehicle is loaded with equipment.

### **TOW EYES - REAR:**

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

### **MUD FLAPS - REAR:**

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

**WARNING LABELS AND INFORMATION PLATES:** Labels by Innovative Controls and Warning Labels

### **DELIVERY REQUIREMENTS:**

#### **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.

**Precon Note: Customer radio model KCH20R Kenwood.**

#### **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 Paramedic Squad build for location of headsets.

Note: Customer to install the radio interface.

#### **VEHICLE ROAD AND SYSTEMS INTEGRITY TESTING:**

Road test and systems integrity test including a full 12-volt electrical test conducted at the time of vehicle completion. All systems having a mechanical function to be tested.

**MANUALS:** All manuals related to sub-system components for included optional equipment to be provided

## BUILD SPECIFICATIONS

### **WHEEL CHOCs/HOLDERS:**

Two (2) wheel chocs 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: Wheel Chocs/Holders to be model ZICO AC-1. Mounting location to be determined. To be mounted one (1) each in the L1 & R1 compartments on the bottom side of the lower adjustable shelf.

### **EXTINGUISHER:**

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

Note: To ship loose for customer installation.

### **EMERGENCY KIT:**

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

### **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.