STOCK 12’ Rescue - 237062
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.

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.

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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 .125 and 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.

UNDERCOATING:
The underside of the vehicle including all metal work shall be sprayed with Sem Rock-It- RC automotive undercoating. The Sem 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 adhered 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 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.

Note: Body to be painted matched to match the chassis color

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.

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DRIP RAILS:
There shall be polished aluminum rain gutters installed on the side and rear of the body, the rain gutters shall be adhered 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.

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:
Bolted removable aluminum inner liners shall be provided at both rear wheel wells.

WHEEL WELL SURROUND PANELS PAINTED:
The bolted 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 side compartments in front of and behind the rear wheels shall have lowered door sill configuration with 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 fastened in place for ease of access.

BODY COMPARTMENT COATING:
All body compartments shall be fully coated with a gray splatter tone acrylic textured finish to aid in abrasion resistance.

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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 DOOR CONSTRUCTION, AMDOR:
AMDOR brand roll-up style doors with satin aluminum finish shall be provided at the specified door locations. Each door shall be manufactured in the United States. Replacement parts shall be available within 2-3 working days.

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

Door slats to have interlocking end shoes on every slat to be secured by a punch dimple process. The door slats shall have interlocking joints with a folding locking flange. A PVC/vinyl inner seal to prevent any metal-to-metal contact shall be provided between each slat.

Each track shall be one piece construction with attaching flange and finishing flange incorporated into the design. The flange design eliminates any requirement for additional trim or caulk. Each track shall have a replaceable seal to prevent water and dust from entering the compartment.

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

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

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

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

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

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SIDE DOOR SILL PLATE:
Each compartment door shall have a brushed stainless steel sill plate installed.

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

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

The lights shall be WHITE in color. Lights shall be activated by opening the compartment doors.

COMPARTMENT L1 SHALL CONTAIN:

FLOOR EXTENSION:
Floor height at the area over the frame rails to be continued on the same plane to with 2.0” of the inside of the body sidewalls. 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.

SLIDE OUT TRAY:
A SlideMaster SM3-MP 100% extension slide out tray shall be provided and installed. The tray shall be constructed from 3/16" smooth aluminum and have a 3" lip on all four sides. The tray shall have a capacity of 600-pounds and shall be mounted on SlideMaster steel slides. An IMS push/pull red ball latch on the front of the slide shall lock the tray in the "in" or "out" position.

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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.

SLIDE OUT TRAY:
A SlideMaster SM3-MP 100% extension slide out tray shall be provided and installed. The tray shall be constructed from 3/16" smooth aluminum and have a 3" lip on all four sides. The tray shall have a capacity of 600-pounds and shall be mounted on SlideMaster steel slides. An IMS push/pull red ball latch on the front of the slide shall lock the tray in the "in" or "out" position.

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.

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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 SM3-MP 100% extension slide out tray shall be provided and installed. The tray shall be constructed from 3/16" smooth aluminum and have a 3" lip on all four sides. The tray shall have a capacity of 600-pounds and shall be mounted on SlideMaster steel slides. An IMS push/pull red ball latch on the front of the slide shall lock the tray in the "in" or "out" position.

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.

ELECTRICAL SYSTEM –WHELEN CORE C399
A Whelen COREC399 Electrical System shall be provided and installed. The system shall consist of all solid-state components contained inside aluminum module. The system shall consist off eighteen (18) output channels and twelve (12) input channels. All inputs and outputs shall be configured into a scale-able electrical harness utilizing plug-in connectors.

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

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

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

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

POWER DISTRIBUTION QUARTERS: CHASSIS CAB CREW FLOOR AREA
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 cover that is removable via recessed positive type door latches. The compartment and access door shall be fabricated from 5052-H32 aluminum alloy, finished to match with cab interior, 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.

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The distribution panel, including all circuits, shall be documented and made part of the records available at time of delivery. PDQ to be installed beneath the rear seat of the chassis cab.

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.

BATTERY CHARGER:
A Kussmaul Auto Charge Low Profile LPC 20 Series Model #091-207-12 shall be installed for a single battery system. The charger shall include a status display mounted on the Kussmaul Auto-Eject Cover.

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

KUSSMAUL 120-VOLT SUPER AUTO EJECT:
Kussmaul Super Auto Eject, model 091-55-20-120 BW with a 091-55-194B Yellow Cover, 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.

The Kussmaul Cover shall have a built in digital display. The cover has two (2) 3-digit LED displays showing the charger output voltage and current. Two (2) individual LED’s are used to provide additional battery charger status such as High and Low Voltage, current-limit and over-current.

The Auto-Eject location shall be at the front left of the body on a welded angle to the outside of the body. See attached Photo for location and style of the mount.

"DOOR OPEN" WARNING LIGHT:
A Weldon 1500 red warning light shall be installed on the cab console and shall flash when any compartment door is open.

ELECTRONIC SIREN:
The Whelen Siren Amplifier shall be part of the Whelen CORE system. This control head shall include functions: wail, yelp, manual, hands-free, piercer tones, PA, and radio-rebroadcast. The siren shall have the ability to drive a 100-watt output. Control to be backlit with soft LED non-glare lighting.

The operating controls will consist of a power switch, manual button, PA volume switch, horn button, lighting controls, and a microphone.

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SPEAKER SYSTEM:
There shall be one (1) Whelen SA315 Series siren speaker recessed behind the front grille.
The 100-watt composite speaker to be wired to the CORE Controller.

FRONT LIGHT BAR:
Whelen Liberty II light bar shall be provided and installed on the vehicle. The light bar shall be 54" long and include two (2) front corner RED, four (4) front linear, two (2) RED and two (2) WHITE, two (2) rear corner RED.

FRONT LOWER WARNING LIGHTS:
There shall be Whelen ION “T” series Super LED lights with chrome bezels installed. Four (4) warning lights shall be mounted in the grille. The warning lights shall be red LED's with clear lenses.

SIDE UPPER WARNING LIGHTS:
There shall be Whelen M9RC series Super LED upper warning lights with chrome bezels installed.
Two (2) warning lights shall be mounted on the left upper body panel.
Two (2) warning lights shall be mounted on the right upper body panel.
The warning lights shall be red LED's with clear lenses.

SIDE LOWER WARNING LIGHTS:
There shall be Whelen M2RC series Super LED lower warning lights with chrome bezels installed on the vehicle.
Two (2) lights installed, one (1) on each front fender of the chassis.
Two (2) lights installed, one (1) above each rear wheel well.
Two (2) lights installed, one (1) at each side of bumper tail.

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

REAR UPPER WARNING LIGHTS:
There shall be Whelen M9RC series Super LED rear upper warning lights with chrome bezels installed.
Two (2) lights shall be mounted, one (1) in each upper rear corner.
The warning lights shall be red LED's with clear lenses.

SIDE BODY SCENE LIGHTS:
There shall be Whelen M9 LED series clear scene lights installed.
Two (2) lights shall be mounted with chrome bezels on the upper street side of the body.
Two (2) lights shall be mounted with chrome bezels on the upper curb side of the body.
The scene lights shall be controlled in pairs at the cab console.

REAR BODY SCENE LIGHTS:

There shall be Whelen M9 LED series clear scene lights installed.
Two (2) lights shall be mounted with chrome bezels on the rear upper body.
The scene lights shall be controlled in pairs at the cab console.

REVERSE ACTIVATED REAR SCENE LIGHTS
The rear scene lights to automatically activate whenever the apparatus transmission is in reverse mode.

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

The eight (8) lamp module shall be controlled at the Whelen Control Head with functions: arrow-left, arrow-right, center-out, and alternating flash.

REAR D.O.T. QUAD CLUSTER W/WARNING LIGHTS:
A four (4) light vertical cluster with chrome bezel shall be mounted on the rear of the body, one (1) each side.
The cluster will utilize Whelen M6 series LED lights:
Model #M6BTT LED red combination stop/taillight.
Model #M6T LED amber turn signal.
Model #M6BUW LED white back-up light.
Model #M6RC LED red warning light.

LED CLEARANCE LIGHTS:
Eleven (11) Whelen OSA00M CR LED clearance lights, seven (7) red and four (4) amber, shall be installed to meet ICC, FMVSS, and other applicable regulations.

LED UNDERBODY LIGHTS:
There shall be Ten (10) TecNiq Series E10-WS00-1 LED underbody lights mounted on stainless steel brackets.
Four (4) under the cab entry doors, Two (2) 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-BOB-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 “BLACK” 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. The lamp head and mounting arm shall be 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. Each pole shall have the “Steady Rest” lower bracket cup.

LIGHT POLE GUARDS:
The area above each light pole head on the body radius extrusion shall be a formed brushed stainless protection panel to help protect the body from possible light head contact with the body.

LICENSE PLATE BRACKET WITH LIGHT:
There shall be a license plate bracket with light supplied and mounted at the rear of the apparatus.

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.

NOTE: Two (2) sealed (non-leaking) cupholders to be provided, mounting location to be determined.

The console shall be coated with a Black acrylic finish 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.

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.

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 or diamond plate material.

TRAILER HITCH:
Class IV trailer hitch shall be installed on the rear of the rescue vehicle.

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

PORTABLE WINCH RECEIVERS, LOWER:
Two (2) heavy duty receiver type hitches for a portable winch shall be installed to the framework of the chassis under the rear compartments of the apparatus body. The winch shall be held in place in the receiver with a locking hardened pin that is secured to the apparatus with coated aircraft cable of sufficient size to keep the pin from being lost or separated from the apparatus.

PORTABLE WINCH POWER PORT, 12-VOLT:
There shall be three (3) 12-Volt DC plugs with quick-connect provided, one (1) at each receiver and at the rear towing hitch for portable winch power. Each plug shall have a tethered weatherproof cover to reduce water intrusion into the electrical plug.

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.

CAB STEP LIGHTS:
There shall be four (4) Whelen 0AC0EDCR 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:
There shall be a Safety Vision rear mounted camera system with audio installed. System shall include one (1) camera mounted on the upper rear of the body.

Monitor shall attach to the windshield in replacement of the chassis rear view mirror.

CHASSIS CAB DOOR REFLECTIVE PANELS:
The inside of each of the four chassis cab doors shall have .125 smooth aluminum panels with diamond grade red reflective material.

BACK-UP ALARM:
A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse shall be provided.

The devise shall sound at 60 pules per minute and automatically adjust its volume to maintain a minimum ten (10) DBA above surrounding environmental noise levels.

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.

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.

STAINLESS STEEL WHEEL COVERS:
One (1) complete set of stainless-steel wheel covers will be provided on the front and rear exterior wheels. Each simulator will have a top hat, wheel cover, lug nut covers, and valve covers.

MUD FLAPS - REAR: There shall be black rubber mud flaps installed for the Rear wheels.

VEHICLE EXHAUST SYSTEM, WARD FILTERS NO SMOKE 2, DIESEL ENGINE:
The exhaust system to be installed will reduce gaseous matter in the diesel exhaust generated by the chassis internal combustion engine, meeting all applicable federal, state, and local standards. An apparatus-mounted system negates the requirement for any other exhaust after-treatment system to be used. The System shall assist to help protect operating personnel both in the fire station and on-scene.

SYSTEM OPERATION:
The system shall reduce gaseous matter from the engine and the system shall be completely automatic, not requiring action by any personnel at any time, except for "normal maintenance." Normal functioning of the system is in no way detrimental to the operation of the vehicle. Further, the system has an indicator light on the cab dash if the back pressure exceeds 1.5 PSI. At 1.5 PSI the system needs servicing by an authorized Ward Diesel technician.

SYSTEM COMPONENTS:
The system shall consist of a catalyst made of a porous ceramic or metal material with proprietary wash coat, measurements are determined by engine horsepower and will be custom built to fit within any space restrictions.

The catalyst is designed and manufactured specifically to reduce gaseous matter from diesel exhaust. The system is also designed to handle the higher exhaust temperatures seen in 2007 and newer vehicles during active regeneration.

BUILD SPECIFICATIONS
The substrate is encased in steel with a high- temperature cushioning material between the substrate and steel. In most applications, the system is installed in line with the vehicle exhaust.
System installation shall be completed at Ward Apparatus. Additionally, the provider will explain the operation and maintenance of the system to the personnel who will be responsible for routine maintenance.

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.

VEHICLE FINAL STAGE MANUFACTURER LABEL: A final stage manufacturer label shall be installed by the fire apparatus body manufacturer in compliance to applicable motor vehicle standards.

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

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

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

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

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

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

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

DELIVERY REQUIREMENTS:

VEHICLE ROAD AND SYSTEMS INTEGRITY TESTING:

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

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

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

MANUALS:

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