

# SVI Trucks

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## **APPARATUS DELIVERY**

The Adams-JeffCo Hazardous Response Authority shall pick up finished apparatus at Contractor's facility. The Contractor shall be responsible for notifying the Adams-JeffCo Hazardous Response Authority a minimum of two (2) weeks prior to the completion of apparatus, so that the Adams-JeffCo Hazardous Response Authority has sufficient time to schedule pickup.

## **SUPPLIED CAB CHASSIS SPECIFICATION**

The cab/chassis shall be supplied by Adams-JeffCo Hazardous Response Authority and drop shipped to successful Contractor. The cab/chassis shall be specified as follows;

Make: Ford

Model: F750

Model Year: 2012

Front Axle Weight Rating: 12,000 lbs.

Rear Axle Weight Rating: 23,000 lbs.

Gross Vehicle Weight Rating: 35,000 lbs.

Wheelbase: 242 "

Cab to Axle: 168 "

Engine: Cummins ISB 360 HP

Transmission: Allison EVS 3000

Cab shall be a two-tone: White over Silver metallic

## **CAB TO AXLE DIMESION**

Cab to axle will be 168".

## **CHASSIS MODIFICATIONS**

## **LUBRICATION AND TIRE DATA PLATE**

A permanent label in the driving compartment shall specify the quantity and type of the following fluids used in the vehicle and tire information:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Pump transmission lubrication fluid . . (if applicable)

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- Pump priming system fluid, if applicable . . (if applicable)
- Drive axle(s) lubrication fluid
- Air conditioning refrigerant . . (if applicable)
- Air conditioning lubrication oil . . (if applicable)
- Power steering fluid
- Cab tilt mechanism fluid . . (if applicable)
- Transfer case fluid . . (if applicable)
- Equipment rack fluid (if applicable)
- CAFS air compressor system lubricant . . (if applicable)
- Generator system lubricant . . (if applicable)
- Front tire cold pressure
- Rear tire cold pressure
- Maximum tire speed ratings

## **VEHICLE DATA PLATE**

A permanent label in the driving compartment which indicates the following:

- Filter part numbers for the;
  - Engine
  - Transmission
  - Air
  - Fuel
- Serial numbers for the;
  - Engine
  - Transmission
- Delivered Weights of the Front and Rear Axles
- Paint Brand and Code(s)
- Sales Order Number

## **OVERALL HEIGHT, LENGTH DATA PLATE (US)**

The fire apparatus manufacturer shall permanently affix a high-visibility label in a location visible to the driver while seated.

The label shall show the height of the completed fire apparatus in feet and inches, the length of the completed fire apparatus in feet and inches, and the GVWR in pounds.

Wording on the label shall indicate that the information shown was current when the apparatus was manufactured and that, if the overall height changes while the vehicle is in service, the fire department must revise that dimension on the plate.

## **ACCIDENT PREVENTION**

There shall be a placard in the cab seating area which reads, "**ALL OCCUPANTS MUST BE SEATED AND BELTED WHEN THE APPARATUS IS IN MOTION**".

## **PERSONNEL CAPACITY**

A label that states the number of personnel the vehicle is designed to carry shall be located in an area visible to the driver.

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## **ACCIDENT PREVENTION**

If the rear bumper is 8" deep or more, there shall be a placard on the rear face of the body, in clear sight from the ground, which reads, "**WARNING - DO NOT RIDE ON STEPS OR DECK AREAS WHILE THE APPARATUS IS IN MOTION. DEATH OR SERIOUS INJURY MAY RESULT**".

## **WEARING HELMET WARNING**

A label stating "**DO NOT WEAR HELMET WHILE SEATED**" shall be visible from each seating location.

## **FINAL STAGE MANUFACTURER VEHICLE CERTIFICATION**

A final stage manufacturer vehicle certification label shall be provided and installed in the driver cab door jamb area.

## **FRONT BUMPER**

The front bumper shall be as provided by the cab/chassis manufacturer. No other alteration or modifications are required.

## **AIR HORNS**

There shall be no air horns provided on the completed vehicle.

## **FRONT TOW PROVISIONS**

The front tow provisions shall be supplied and installed by the cab/chassis manufacturer.

## **EXHAUST**

The exhaust system shall be as provided by cab/chassis manufacturer. The tailpipe may require some modifications for proper ground clearances and fit with body.

The exhaust piping and discharge outlet shall be located or shielded so as not to expose any portion of the vehicle or equipment to excessive heating.

Exhaust pipe discharge shall be directed away from any operator's position or entry doors on body.

Where parts of the exhaust system are exposed so that they are likely to cause injury to operating personnel, protective guards shall be provided.

## **RADIO/ANTENNA INSTALLATION**

There shall be two (2) Adams-JeffCo Hazardous Response Authority supplied radio(s) with antenna installed in the cab within easy reach of driver. The location of radio shall be determined by the Adams-JeffCo Hazardous Response Authority at the pre-construction meeting. All required radio programming shall be responsibility of Adams-JeffCo Hazardous Response Authority. Radio(s) may not be fully tested if no radio program is provided with radio and will be responsibility of Adams-JeffCo Hazardous Response Authority after delivery.

Radio shall be installed per Manufacturer's requirements and wired for proper 12 volt power and ground.

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## **SEAT BELT COLOR AND MOUNTING**

Section 14.1.3.4 of the NFPA 1901 Standards, 2009 edition, requires all seat belt webbing in cab to be bright red or bright orange in color, and the buckle portion of the seat belt shall be mounted on a rigid or semi rigid stalk such that the buckle remains positioned in an accessible location.

Per Adams-JeffCo Hazardous Response Authority specification for a commercial chassis, this emergency vehicle may not have the required seat belt webbing colors or buckle in an accessible location. These belts may not provide visibility to driver that seat belts are on or buckle is easily accessible. This specifications for an emergency fire apparatus for these seat belts shall be non-compliant to NFPA 1901 standards, effective at the time of the bid opening.

## **SEAT BELT WEB LENGTH - COMMERCIAL CAB**

Sections 14.1.3.2 and 14.1.3.3 of the NFPA 1901 standards, 2009 edition, require the effective seat belt web length for a Type 1 lap belt for pelvic restraint to be a minimum of 60", and a Type 2 pelvic and upper torso restraint-style seat belt assembly to be a minimum of 110".

The chassis seat belt web length as supplied by the commercial chassis manufacturer shall be compliant to NFPA Standards 14.1.3.2 and 14.1.3.3.

Per Adams-JeffCo Hazardous Response Authority specification for a commercial chassis, this emergency vehicle may not have seat belts of this required length. These belts may not provide sufficient length for large firefighters in bunker gear. This specification for an emergency fire apparatus for these seat belts shall be non-compliant to NFPA 1901 standards, effective at the time of the bid opening.

## **SEAT BELT MONITORING SYSTEM - COMMERCIAL CAB**

Section 14.1.3.10 of the NFPA 1901 Standards, 2009 edition, requires that a seat belt warning system be provided. The seat belt warning device is intended to assist the driver or officer in determining whether all occupants are seated and belted before the vehicle is driven.

Per Adams-JeffCo Hazardous Response Authority specification for a commercial chassis, this emergency vehicle may not have a seat belt monitoring system. Without this device, the driver must manually determine that all occupants are seated and belted before the apparatus is placed in motion. This specification for an emergency fire apparatus for the seat belt monitoring system shall be non-compliant to NFPA 1901 standards, effective at the time of the bid opening.

## **HELMET STORAGE**

No helmet storage is required in the cab driving or crew area.

## **CAB MIRRORS, DRIVER ADJUSTABLE**

Section 14.3.5 of the NFPA 1901 Standards, 2009 edition, requires all primary rear view mirrors used by the driver to be adjustable from the driver's position.

## **MUDFLAPS**

There shall be 1/4" rubber mudflaps provided and installed behind each set of tires to prevent throwing road debris and lower road spray.



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## AIR BRAKE SYSTEM QUICK BUILD-UP

~~There shall be one (1) Milton male quick connector type air shoreline inlet to provide air to the chassis air tanks from an external source compressed air shoreline hookup in order to maintain full operating air pressure while the vehicle is not running. Air inlet shall be located near driver's door. The female end of the connector shall be supplied by the Adams-JeffCo Hazardous Response Authority.~~

~~The quick buildup system shall provide sufficient air pressure so that the apparatus has no brake drag and is able to stop under the intended operating conditions following the 60-second buildup time.~~



## BODY DESIGN

The importance of public safety associated with emergency vehicles requires that the construction of this vehicle meet the following specifications. These specifications are written to establish the minimum level of quality and design. All Bidders shall be required to meet these minimum requirements.

It is the intent of these specifications to fully describe the requirements for a custom built emergency type vehicle. In order to extend the expected service life of this vehicle, the body module shall be removable from the chassis frame and be capable of being installed on a new chassis.

The sheet metal material requirements, including alloy and material thickness, throughout the specifications are considered to be a minimum. Since such materials are available to all Manufacturers, the material specifications shall be strictly adhered to.

The fabrication of the body shall be formed sheet metal. Formed components shall allow the Adams-JeffCo Hazardous Response Authority to have the body repaired locally in the case where any object has struck the body and caused damage. The use of proprietary extrusions will prevent the Adams-JeffCo Hazardous Response Authority from such repair and shall NOT be used.

Following construction of the subframe, which supports the apparatus body, the sheet metal portion of the body shall be built directly on the subframe. The joining of the subframe and body shall be of a welded integral construction.

The sheet metal fabrication of the body shall be performed using inert gas continuous feed welders only. The entire body shall be welded construction. The use of pop rivets in any portion of structural construction may allow premature failure of the body structure. Therefore, pop rivets shall NOT be used in the construction of the structural portions of the body. This includes side body sheets, inner panels of compartment doors, and any other structural portions of the body.

## EXTERIOR ALUMINUM BODY

The fabrication of the body shall be constructed from aluminum 3003H-14 alloy smooth plate. This shall include compartment front panel, vertical side sheets, side upper rollover panels, rear panels and compartment door frames.

The body compartment floors and exterior panels shall be constructed with not less than 3/16" (.187) aluminum 3003H-14 smooth plate. Interior compartment dividing walls shall be constructed with not less than 1/8" (.125) aluminum 3003H-14 smooth plate. Lighter gauge sheet metal will not be acceptable in these areas, No Exceptions.

The front and rear corners of body shall be formed as part of the front or rear body panels. This provides a stronger body corner and finished appearance. The use of extruded corners, or caps will not be acceptable, No Exceptions.

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The door side frame openings shall be formed "C" channel design. An electrical wiring conduit raceway running the full length of exterior compartments shall be provided. This raceway shall contain all 12 volt wiring running to the rear of the apparatus, permitting easy accessibility to wiring.

Individual compartment modules, with dead air space voids between compartments, will not be an acceptable method of compartment construction.

The compartments shall be an integral part of the body construction. Compartment floors from front of body to ahead of rear axle, also from rear axle to rear of body shall be single one-piece sections. Compartment floors shall be preformed, then positioned in body and welded into final position.

Compartment floors shall have a "sweep-out" design with door opening threshold positioned lower than compartment floor, permitting easy cleaning of compartments. Angles, lips, or door moldings are not acceptable in the base of compartment door opening. One-way rubber drain valves shall be provided in compartment floors so that a water hose may be used to flush-out compartment area.

All exterior seams in sheet metal below frame, and around the rear wheel well area shall be welded and caulked to prevent moisture from entering the compartments. All other interior seams and corners shall be sealed with silicone based caulk prior to painting.

Only stainless steel bolts, nuts, and sheet metal screws shall be used in mounting exterior trim, hardware and equipment.

Exterior compartments shall have louvers in lower back wall of compartment for ventilation.

## **DRIP RAILS**

The body shall have drip rails over the side full height compartments. The drip rails shall be formed into the upper body panels providing a ridged lower panel and a flat upper body panel surface. The use of mechanically fastened, taped or glued on drip rails will not be acceptable, No Exceptions.

## **ROOF CONSTRUCTION**

The roof shall be integral with the body and shall be all welded construction. The roof of the body shall not be less than 3/16" aluminum 3003H-14 alloy NFPA nonskid compliant tread plate, fully and continuously welded. The roof shall be reinforced with 2" x 2" x 1/4" aluminum tubing running the full width of the body. A 2" rounded radius shall be provided along the body sides.

## **BODY SUBFRAME**

The chassis frame rails shall be fitted with 1/4" custom extruded UHMW polyethylene rail cap to isolate the body frame members from direct contact with chassis frame rails.

The body subframe shall be constructed from 6061T6 aluminum alloy tubing. Subframe shall consist of two (2) 2" x 6" x 1/4" aluminum tubes, the same width as the chassis frame rails, NO EXCEPTION. Welded to this tubing shall be cross members of 2" x 6" x 1/4" aluminum. These cross members shall extend the full width of the body to support the compartments. Cross members shall be located at front and rear of the body, below compartment divider walls, and in front and rear of wheel well opening. Additional aluminum cross members shall be located on 16" centers, or as necessary to support walkway or heavy equipment.

To form the frame, the tubing shall be beveled and welded at each joint using 5356 aluminum alloy welding wire.

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## **BODY MOUNTING**

The body subframe shall be fastened to the chassis frame with a minimum of eight (8) spring loaded body mounts. Each mount shall be configured using a two-piece encapsulated slide bracket. The two (2) brackets shall be fabricated of heavy duty 1/4" thick steel and shall have a powder coat finish to prevent any corrosion. Each mounting assembly shall utilize two (2) 3/4" diameter x 6" long grade 8 bolts and two (2) heavy duty springs. The assembly design shall allow the body and subframe to act as one (1) component, separate from the chassis. As the chassis frame twists under driving conditions, the spring mounting system shall eliminate any stress from being transferred into the body. The spring loaded body mounts shall also prevent frame side rail or body damage caused by unevenly distributed stress and strains due to load and chassis movement.

Body mountings that do not allow relief from chassis movement will not be acceptable.

## **10" REAR STEP BUMPER**

The full width rear bumper shall be constructed from 2" x 2" x 1/4" aluminum tubing frame and covered with 3/16" NFPA compliant aluminum tread plate. The bumper shall extend from the rear vertical body panel 10" and provide a rear step with a minimum of 1/2" space at body for water drainage.

## **REAR TOW EYES**

There shall be two (2) heavy duty rear mounted tow eyes securely attached to the body subframe, below the apparatus body. The tow eyes shall be fabricated from 3/4" thick steel plate and shall have a black powder coat finish.

## **GROUND LIGHTS**

There shall be two (2) OnScene 9" Night Axe LED lights installed below bumper capable of providing illumination at a minimum level of 2 fc (20 lx) on ground areas within 30 in. (800 mm) of the edge of the vehicle in areas designed for personnel to climb onto or descend from the vehicle to the ground level.

Lighting shall be switchable but activated automatically when the vehicle park brake is set.

## **FOLD-DOWN STEP**

There shall be one (1) fold-down step mounted on top of bumper to reduce the distance from the ground to the first step. The step surface shall be NFPA compliant aluminum treadplate and shall manually fold up onto the bumper with an over-center gas shock to hold step in position during travel. The step shall activate the "Hazard Warning Light" in the cab when not in the stowed position.

## **WHEEL WELL EXTERIOR PANEL**

The exterior panel of the body wheel well enclosure shall be constructed from 3/16" smooth aluminum panels.

## **DIEFORMED BEADED EDGE BODY FENDERS**

A die formed beaded edge shall be provided along the radius of the wheel well opening for a finished appearance.

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## **WHEEL WELL LINERS**

The wheel wells shall be constructed by the compartment walls that surround the wheel well area. The interior wheel well area shall be designed so that it does not accumulate dirt or water.

## **BODY PAINT SPECIFICATIONS**

### **BODY PAINT PREPARATION**

After the body and components have been fabricated they shall be disassembled prior to painting so when the vehicle is complete there shall be finish paint beneath the removable components. The body shall be totally removed from chassis during the paint process to insure the entire unit is covered. The body and components shall be metal finished as follows to provide a superior substrate for painting.

The exterior body shall undergo a thorough cleaning process starting with a biodegradable phosphoric acid solution to begin the etching process followed by a complete clear water rinse. The next step shall consist of a chemical conversion coating applied to seal the metal substrate and become part of the metal surface for greater film adhesion. If the compartment interior is to be painted the interior shall be acid etched as described above then primed with an epoxy primer and all seams caulked.

All bright metal fittings, if unavailable in stainless steel or polished aluminum, shall be chrome plated. Iron fittings shall be copper under plated prior to chrome plating.

### **PAINT PROCESS**

The paint process shall follow the strict standards set forth by PPG Industries guidelines. Painters applying PPG products will be PPG Certified Commercial Technicians, and re-certified every two (2) years.

The body shall go through an eight-stage paint process;

- 1) Clean bare metal using a solvent base wax & grease remover.
- 2) Finish all exterior body seams as necessary, followed by a thorough sanding of all bare metal to be painted.
- 3) Re-clean bare metal using a solvent base wax & grease remover.
- 4) Bare Metal Epoxy Primer Coat - PPG Delfleet® Evolution corrosion resistance epoxy primer to be applied at 1.0-2.0 mills DFT over clean abraded bare metal.
- 5) Primer Filler Coat - PPG Delfleet® Evolution urethane build primer to achieve total thickness of 3.0-6.0 mills DFT after sanding.
- 6) Base coat (Color) - PPG Delfleet® Evolution High Solids Polyurethane Base coat. Apply 1.0-3.0 mills DFT of base coat color to achieve full hiding.
- 7) Clear coat PPG Delfleet® Evolution polyurethane premium quality clear coat with improved mar resistant finish. The clear coat shall be applied to achieve a total dry film thickness of 2.0-3.0 mils.
- 8) Curing process of the painted body shall go through a force dry/bake cycle process. The painted components shall be baked 180 degrees for 2 hours to achieve a complete coating cure on the finished product.

### **MACHINE POLISHED**

After the force dry/bake cycle and ample cool down time, the coated surface shall be sanded using 1,000, 1,500, and or 3,000 grit sandpaper to remove surface defects. In the final step, the surface shall be buffed then polished to an extra high gloss smooth finish. Total dry film thickness of paint will average between 8.0-12.0 mils.

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## **PAINT - ENVIRONMENTAL IMPACT**

The contractor shall meet or exceed all current State (his) regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. PPG Delfleet® Evolution paint shall be free of all heavy metal (lead & chromate) components. Paint emissions from sanding and painting shall be filtered and collected. All paint wastes shall be disposed of in an environmentally safe manner. Solvents used in cleanup operations shall be collected, sent off-site for distillation and returned for reuse.

## **PAINT FINISH - TWO COLOR**

The body shall be painted with a two-tone color of PPG Delfleet® Evolution paint per approved customer sprayout.

Prior to the assembly and reinstallation of exterior components; i.e. warning and DOT lights, handrails, steps, door hardware, and miscellaneous items, an isolation tape, or gasket shall be used to prevent damage to the finish painted surfaces. These components shall be fastened to body using either a plastic insert into body metal with stainless steel screws or zinc coated nutserts into body surface using stainless steel bolts to prevent corrosion from dissimilar metals.

Touch-up paint shall be provided with completed vehicle.

- Paint Color: Match cab/chassis supplied paint color.

## **BODY UNDERCOATING**

The entire underside of body shall be sprayed with black automotive undercoating. Undercoating shall cover all areas underside of body and wheel well area to help prevent corrosion under the vehicle.

## **UNDERCOAT WARRANTY**

The body undercoating shall have a warranty provided by the manufacturer for the lifetime of the vehicle or twenty (20) years, whichever occurs first. The warranty shall be transferable between vehicle owners. Should the undercoating material applied to the underside of the body and wheel wells of the vehicle ever flake off, peel, chip or crack due to drying out, the damaged area shall be re-sprayed without charge to the vehicle owner.

## **PAINT WARRANTY**

The vehicle shall be provided with a ten (10) year non-prorated warranty to the original owner. Warranty is provided by PPG Inc. A warranty sheet with all conditions and maintenance procedures shall be provided with the delivered vehicle. **Pro-rated warranties will not be acceptable.**

## **COMPARTMENT INTERIOR FINISH**

The interior of all exterior body compartments shall be a "Maintenance Free" smooth unpainted finish. All body seams shall be finished with a caulk sealant for both appearance and moisture protection.

## **REFLECTIVE STRIPE REQUIREMENTS**

### Material

All retroreflective materials shall conform to the requirements of ASTM D 4956, *Standard Specification for Retroreflective Sheeting for Traffic Control*, Section 6.1.1 for Type I Sheeting.

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All retroreflective materials used that are colors not listed in ASTM D 4956, Section 6.1.1, shall have a minimum coefficient of retroreflection of 10 with observation angle of 0.2 degrees and entrance angle of -4 degrees.

Any printed or processed retroreflective film construction used shall conform to the standards required of an integral colored film as specified in ASTM D 4956, Section 6.1.1.

## Minimum Requirements

A retroreflective stripe(s) shall be affixed to at least 50 percent of the cab and body length on each side, excluding the pump panel areas, and at least 25 percent of the width of the front of the apparatus.

The stripe or combination of stripes shall be a minimum of 4 in. (100 mm) in total width.

The 4 in. (100 mm) wide stripe or combination of stripes shall be permitted to be interrupted by objects (i.e., receptacles, cracks between slats in roll up doors) provided the full stripe is seen as conspicuous when approaching the apparatus.

## GRAPHICS PROOF

A color graphics proof of the reflective striping layout shall be provided for approval by Adams-JeffCo Hazardous Response Authority prior to installation. The graphics proof shall be submitted to Adams-JeffCo Hazardous Response Authority on 8.5" x 11" sheets with front, sides, rear and plan views, each on one (1) sheet. In addition if there is any special art work an additional sheet shall be provided showing all details.

## REFLECTIVE STRIPE - CAB SIDE

The reflective stripe material shall be 4" wide, 3M Scotchcal 680 series.

- This reflective stripe shall be red in color.

## REFLECTIVE STRIPE - CAB FRONT

The reflective stripe material shall be 4" wide, 3M Scotchcal 680 series.

- This reflective stripe shall be red in color.

## REFLECTIVE STRIPE - CAB DOOR INTERIOR

Any door of the apparatus designed to allow persons to enter or exit the apparatus shall have at least 96 in.2 (62,000 mm2) of retroreflective material affixed to the inside of the door.

The stripe material shall be 3M Scotchlite 680.

- This reflective stripe shall be white in color.

## REFLECTIVE STRIPE - BODY SIDES

The reflective stripe material shall be two (2) 4" wide, 3M Scotchcal 680 series with a 2" gap between.

- This reflective stripe shall be red in color.

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The stripe shall extend from the front of cab in a straight line, then on the forward most compartment doors the stripe shall angle up and extend straight back to the rear of the body.

## **REFLECTIVE STRIPE - REAR OF BODY**

Two (2) 4" reflective stripes with 2" space between shall be affixed to the rear face of the body.

- The stripe material shall be 3M Scotchlite 680.
- This reflective stripe shall be red in color.

## **LETTERING**

### **GRAPHICS PROOF**

A color graphics proof of the lettering layout shall be provided for approval by Adams-JeffCo Hazardous Response Authority prior to installation. The graphics proof shall be submitted to Adams-JeffCo Hazardous Response Authority on 8.5" x 11" sheets with front, sides, rear and plan views, each on one (1) sheet. In addition if there is any special art work an additional sheet shall be provided showing all details.

The following lettering shall be provided and installed on the completed unit as follows;

### **SIDE CAB DOOR LETTERING**

#### **UPPER BODY SIDE LETTERING**

There shall be twenty eight (28) 6" high reflective letters furnished and installed on the vehicle.

"HAZ-MAT"  
"RESPONSE"

- This reflective lettering shall be red in color.

### **REAR BODY LETTERING**

#### **FRONT OF CAB LETTERING**

#### **CUSTOM DECAL LOGO - 12" -18"**

One (1) custom designed 12" - 18" Scotchcal type retroreflective logo shall be provided and located on the completed vehicle. The exact design and/or artwork shall be provided by the Adams-JeffCo Hazardous Response Authority prior to construction.

One (1) copy of the above custom logo shall be provided and located on the completed vehicle as directed by Adams-JeffCo Hazardous Response Authority.

### **EXTERIOR COMPARTMENT DOORS**

#### **ROLL-UP DOOR CONSTRUCTION - ROBINSON (ROM)**

# SVI Trucks

The apparatus shall be equipped with Robinson ROM Series III roll-up exterior compartment doors. Robinson roll-up doors shall be complete with the following features;

- Doors shall be front roll with drum positioned at upper front portion of compartment to afford maximum clearances and head room for mounting equipment to ceiling of compartment
- There shall be a non-abrasive side brush seals
- Every slat must have interlocking end shoes to prevent slat from moving side-to-side and binding the door
- Between each slat must be a co-extruded PVC inner seal to prevent metal-to-metal contact and to repel moisture. This inner seal is not visible to detract from appearance of door
- Slat are to have interlocking joints with a folding locking flange to provide security and prevent penetration by sharp objects
- Slat to be double-wall extrusion 1.366" high by .315" thick. Exterior surface to be flat and interior surface to be concave to prevent loose equipment from interfering with door operation
- Latch system to be a full width one piece lift bar operable by one (1) hand
- A 2" wide finger pull integrated into the bottom rail extrusion for easy one (1) hand opening and closing
- Clip system that connects the curtain slats to the operator drum which allows for easy tension adjustment without tools
- Each roll-up door shall have a 4" diameter counterbalance operator drum to assist in lifting the door.
- Track shall be one-piece aluminum that has an attaching flange and finishing flange incorporated into its design
- Drip rail will have specially designed seal that prevents the seal from scratching the door
- Bottom rail extrusion must have smooth back to prevent loose equipment from jamming the door
- Bottom rail to have "V" shaped double seal to prevent water and debris from entering the compartment
- Standard replacement parts to be shipped from the United States and available in as little as 48 hours
- Will be free from manufacturing defects for a period of up to 7 years from date of purchase provided that the Product is used under conditions of normal use, that regular periodic maintenance and service is performed and that the product was installed in accordance with R•O•M's instructions.

Each shutter door shall decrease the compartment door frame opening approximately 2.00" in width and approximately 4.50" in height for the bottom section of door assembly.

The specified retroreflective stripe material shall be applied on the roll-up compartment doors. The stripe shall be precision machine cut for each door slat of the roll-up doors. Under no circumstance will the stripe material be cut on roll-up door surface.

## **BODY HEIGHT MEASUREMENTS**

The vertical body dimensions shall be as follows:

### **AHEAD OF REAR AXLE**

	<u>Description</u>	<u>Dimension</u>
A	Bottom of Subframe to Top of Body	88.7"
B	Bottom of Subframe to Bottom of Body	22.5"
C	Total Body Height	111.2"
D	Compartment Height Above Frame	48.0"
E	Compartment Height Below Frame	25.0"
F	Vertical Door Opening - (Full Height Compartment):	
	-with roll-up door	65.0"
	-with hinged door	68.0"
G	Vertical Door Opening (Below Frame Compartment):	
	-with hinged door	19.0"

### **ABOVE REAR AXLE**



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	<u>Description</u>	<u>Dimension</u>
H	Vertical Door Opening - Above Rear Wheel -with roll-up door -with hinged door	34.0" 37.0"

## BEHIND REAR AXLE

	<u>Description</u>	<u>Dimension</u>
I	Bottom of Subframe to Bottom of Body	20.0"
J	Compartment Height Above Frame	48.0"
K	Compartment Height Below Frame	22.5"
L	Vertical Door Opening - (Full Height Compartment): -with roll-up door -with hinged door	62.0" 65.0"
M	Vertical Door Opening - (Below Frame Compartment):	
N	-with hinged door	16.5"

## GENERAL

	<u>Description</u>	<u>Dimension</u>
O	Bottom of Drip Rail to Top of Body	38.5"
P	Walk-in Interior Height	78.0" (min.)

(Dimensions are general and subject to change during the actual design process)

## BODY WIDTH DIMENSIONS

The walk thru body shall be 100.0" wide, not including drip rail or non-permanent fixtures. Interior compartment depth dimensions shall be approximately:

<u>Area Description</u>	<u>Dimension</u>
Transverse Area above Subframe (If Specified)	95.0"
Compartment Depth above Subframe	31.0"
Compartment Depth below Subframe	24.5"

## STREETSIDE COMPARTMENT - FRONT (S1)

The interior useable compartment width shall be approximately 64.0" wide.

The compartment door opening shall be approximately 57.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door shall have an unpainted satin aluminum finish on the door slats and the door trim components.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- There shall be NO keyed lock on this roll-up compartment door.
- A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

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## **COMPARTMENT LAYOUT**

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.
- There shall be three (3) adjustable shelf/shelves approximately 30" deep. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edges.
- One (1) OnScene 64" Access LED compartment light, vertically mounted.
- The 12 volt electrical distribution panel shall be located in the front lower compartment.

## **STREETSIDE COMPARTMENT - AHEAD OF REAR WHEELS (S2)**

The interior useable compartment width shall be approximately 64.0" wide.

The compartment door opening shall be approximately 57.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door shall have an unpainted satin aluminum finish on the door slats and the door trim components.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- There shall be NO keyed lock on this roll-up compartment door.
- A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

## **COMPARTMENT LAYOUT**

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.
- There shall be two (2) adjustable shelf/shelves approximately 30" deep. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edges.
- There shall be one (1) 400 lbs. slide-out tray(s) approximately 24" deep and as wide as the compartment layout or door opening permits. Each tray shall be vertically adjustable. Each tray top shall be fabricated from 3/16" 3003 aluminum sheet with a 3" vertical lip and welded corners to form a box type tray surface. The sliding tracks shall extend 100% of the slide length. The tray assembly shall utilize a pneumatic cylinder mounted on underside to hold the tray in both the extended and closed positions.
- There shall be one (1) SCBA cylinder storage module for 8" OD (maximum) SCBA bottles. The maximum length of the SCBA cylinder shall be 24.75". The module shall have an exterior shell fabricated from 1/8" (.125) 3003H-14 aluminum alloy sheet. The module shall have a 2" slope, front to back to prevent cylinders from sliding out. The SCBA cylinder storage tubing shall be fabricated from PVC pipe to prevent damage or abrasion to cylinders. In addition there shall be rubber matting provided in the base of each storage tube for bottle protection and to prevent slipping.

## **SHOP NOTES**

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Brand: \_\_\_\_\_

Diameter: \_\_\_\_\_" (Must be less than 7.625")

Length: \_\_\_\_\_" (with valve)

- The SCBA cylinder module shall be capable of storing six (6) SCBA cylinders up to 7.5" diameter.
- One (1) OnScene 64" Access LED compartment light, vertically mounted.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

## **STREETSIDE COMPARTMENT - ABOVE REAR WHEELS (S3)**

The interior useable compartment width shall be approximately 59.0" wide.

The compartment door opening shall be approximately 52.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door shall have an unpainted satin aluminum finish on the door slats and the door trim components.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- There shall be NO keyed lock on this roll-up compartment door.
- A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

## **COMPARTMENT LAYOUT**

- One (1) OnScene 36" Access LED compartment light, vertically mounted.

There shall be a one (1) of 120v AC fourplex straight blade 20a interior receptacles located in this compartment. Receptacle shall be located on the rear wall of the compartment at approximately mid height.

There shall be a cutout in the back wall of compartment S3 to serve as a pass-thru area to the body interior. Pass thru width shall be a minimum of 18" wide.  
A sliding door shall be installed over this cutout.

## **STREETSIDE COMPARTMENT - REAR (S4)**

The interior useable compartment space shall be approximately 70.0" wide.

The compartment door opening shall be approximately 63.0" wide.

This compartment shall have a ROM roll-up door.

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- The roll-up door shall have an unpainted satin aluminum finish on the door slats and the door trim components.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- There shall be NO keyed lock on this roll-up compartment door.
- A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

## **COMPARTMENT LAYOUT**

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.
- There shall be two (2) adjustable shelf/shelves approximately 24" deep. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edge.
- The floor of the compartment above the frame rails shall cover the area directly above the frame rails ONLY (non-extended floor).
- One (1) OnScene 64" Access LED compartment light, vertically mounted.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

## **CURBSIDE COMPARTMENT - FRONT (C1)**

The interior useable compartment width shall be approximately 64.0" wide.

The compartment door opening shall be approximately 57.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door shall have an unpainted satin aluminum finish on the door slats and the door trim components.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- There shall be NO keyed lock on this roll-up compartment door.
- A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

## **COMPARTMENT LAYOUT**

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.
- There shall be one (1) adjustable shelf/shelves approximately 46" deep. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edges.

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- There shall be one (1) OnScene Solutions 81 series aluminum tray base with 100% extension, and rating of 750 lbs. Slide-out tray(s) base shall be approximately 60" deep and as wide as the compartment layout or door opening permits located above the body subframe and shall be vertically adjustable in height. Each slide shall have a cable operated, spring loaded latch complimented by a large hand opening and red pull handle (Pull to Release) which will lock the tray in the closed and full extension positions. Each tray shall be fabricated from 3/16" 3003 aluminum sheet and shall have welded corners to form a box type tray surface with an internal depth of approximately 3 ½".
- The floor of the compartment above the frame rails shall be extended to the interior edge of the door. The floor shall have a 2" vertical lip and a 1" return to increase strength. NO lower compartment is provided due to engine DEF tank. Access to fill DEF shall be provided in this area.
- One (1) OnScene 64" Access LED compartment light, vertically mounted.

## **CURBSIDE COMPARTMENT - AHEAD OF REAR WHEEL (C2)**

The interior useable compartment width shall be approximately 64.0" wide.

The compartment door opening shall be approximately 57.0" wide.

This compartment shall have a ROM roll-up door.

- The roll-up door shall have an unpainted satin aluminum finish on the door slats and the door trim components.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- There shall be NO keyed lock on this roll-up compartment door.
- A compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

## **COMPARTMENT LAYOUT**

- There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body.
- There shall be one (1) adjustable shelf/shelves approximately 46" deep. Each shelf shall be fabricated from 3/16" 3003 aluminum sheet with a 2" vertical flange along the front and rear edges.
- There shall be one (1) OnScene Solutions 81 series aluminum tray base with 100% extension, and rating of 750 lbs. Slide-out tray(s) base shall be approximately 60" deep and as wide as the compartment layout or door opening permits located above the body subframe and shall be vertically adjustable in height. Each slide shall have a cable operated, spring loaded latch complimented by a large hand opening and red pull handle (Pull to Release) which will lock the tray in the closed and full extension positions. Each tray shall be fabricated from 3/16" 3003 aluminum sheet and shall have welded corners to form a box type tray surface with an internal depth of approximately 3 ½".
- There shall be one (1) equipment storage module supplied. Module shall be capable of holding 10" OD (maximum) PVC tubes. The maximum length of the equipment tubes shall be 86" long. The module shall have an exterior shell fabricated from 1/8" (.125) 3003H-14 aluminum alloy sheet. The module shall have a 2" slope, front to back to prevent

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equipment from sliding out. The tube storage shall be fabricated from PVC pipe to prevent damage or abrasion to the equipment.

## SHOP NOTES

Brand: \_\_\_\_\_

Diameter: \_\_\_\_\_" (Must be less than 7.625")

Length: \_\_\_\_\_" (with valve)

– The shall be 10" PVC tubes installed into the storage module. The tubes shall be capable of storing two (2) of misc equipment such as folding tents.  
The storage shall be "capped off" on the streetside. Shall only have access on the curbside compartment.

- The floor of the compartment above the frame rails shall be extended to the interior edge of the door. The floor shall have a 2" vertical lip and a 1" return to increase strength.
- One (1) OnScene 64" Access LED compartment light, vertically mounted.

There shall be a one (1) of 120v AC fourplex straight blade 20a interior receptacles located in this compartment. Receptacle shall be located on the rear wall of the compartment at approximately mid height.

- There shall be one (1) two-gang 12 VDC outlet(s) provided inside compartment on the rearward wall near the bulkhead chase.
- There shall be one (1) pair of BNC type video connectors inside compartment, on the rearward wall, wired to location inside body area.
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

## **CURBSIDE COMPARTMENT - REAR (C4)**

The interior useable compartment space shall be approximately 70.0" wide.

The compartment door opening shall be approximately 63.0" wide.

- This compartment shall have a horizontally hinged, drop-down style box pan door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.
- The door shall be equipped with a CPI harsh environment mechanical type door ajar switch located inside compartment interior lower door track.
- The hinged door(s) shall have a stainless steel 6" offset bent D-ring non-locking handle. A gasket shall be placed between handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.
- The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching.

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## **COMPARTMENT LAYOUT**

- There shall be one (1) 1,000 lbs. slide-out tray(s) with a SlideMaster painted structural steel base approximately 24" deep and as wide as the compartment layout or door opening permits located below the level of the chassis frame rails. Each slide base shall have a gravity latch which will lock the tray in the closed and full extension positions. Each tray shall be fabricated from 3/16" 3003 aluminum sheet and shall have welded corners to form a box type tray surface with an internal depth of approximately 3 1/2".
- Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in the lower compartment.

## **REAR ENTRY DOOR**



Access to the interior body compartment shall be provided through a rear entry door. The door opening shall be approximately 32" wide (with a 34" walkway width) x full height. A grey vinyl head protector shall be provided over top of doorway.

Construction of the rear entry door shall be with 1/8" aluminum exterior smooth plate, the interior door pan shall be constructed from 1/8" aluminum treadplate.

The door shall be hung on full height 14 gauge stainless steel hinges with 1/4" stainless steel pins. The hinge shall be bolted to the door and body with stainless steel machine screws at 5" offset centers. The hinge shall be slotted horizontally and vertically for ease of adjustment. A polyester barrier film gasket shall be placed between the stainless steel hinge and door.

A polyester barrier film gasket shall be placed between the stainless steel handles and the aluminum door panels. The door latch shall be a double catch two-point safety slam latch recessed inside the double panel door with strike plate mounted top and bottom of the door frame.

The latch mechanism shall include a stainless steel paddle handle on the inside.

- The hinged door(s) shall have a stainless steel 6" offset bent D-ring locking handle. A gasket shall be placed between handle and door. Door latches shall be a two-point rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

## **ENTRY HANDRAILS**

There shall be two (2) handrails provided at entry door, one (1) 24" vertical on exterior of body on door handle side, and one (1) 48" on inside of door. The interior handrail shall be angled for optimum use when entering or exiting the walk-in portion of the body.

Handrails shall be NFPA compliant 1-1/4" knurled 304 stainless steel with welded end stanchions.

## **ROLL-OUT AWNING STREETSIDE**

A Carefree Fiesta awning shall be installed on the apparatus body. The awning shall be approximately 22' long with approximately 8' of extension length.

The awning shall be manufactured with satin finish extruded aluminum arms and braces. The arm channels shall utilize nylon bearings for a smooth operation. Awning shall lock while in stored position to prevent any rattling during travel. Awning shall lock and unlock with a remote brake control located on awning arm, not requiring the use of a wand.

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The awning shall activate the door ajar warning system in the cab when not in the stowed position.

Features of the awning are:

- Awning hangers
- Durable multi-layer laminated vinyl fabric that resists scratches, stains, fading and mildew
- The awning fabric color shall be white.

## **ADD-A-ROOM AWNING ATTACHMENT**

An enclosed area under the awning shall be provided for increased protection from the elements. The length of the Add-A-Room shall match the length of the awning.

Features of the Add-A-Room are:

- Webbing reinforced eyelets
- Nickel plated twist fasteners
- Completely reversible
- Heavy-duty zippers
- 15oz. 1000 denier reinforced Vinyl fabric
- Zippered privacy panels
- Three foot zippered door
- Storage bag

The color of the Add-A-Room shall be white.

## **WALK-IN INTERIOR FINISH DETAILS**

### **DESK, CABINET, CONSOLE FINISH**

All specified interior desks, cabinets, overhead cabinets, or consoles shall be fabricated from formed 1/8" 3003 H14 alloy smooth aluminum. After fabrication is completed they shall be painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray.

The use of wood materials or laminated surfaces in the construction of desks, cabinets, overhead cabinets, or consoles will not be allowed. There will be **No Exceptions** allowed on specified ruggedized finish.

## **INTERIOR SPECIFICATIONS**

### **INTERIOR INSULATION**

Following the sheet metal fabrication the roof area, upper exterior walls and the entry door of the apparatus body shall be insulated with Dow Thermax, or equal 1-1/2" glass-fiber reinforced polyisocyanurate foam core laminated between 1.0 mil smooth, reflective aluminum foil facers on both sides, with an R9.8 value. The reinforcement, along with chemical modifications, contributes to fire resistance and dimensional stability. This insulation shall be the type that will not absorb moisture, move once in place or deteriorate. Mat type fiberglass or spray in foam insulation is not acceptable.



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## **INTERIOR FINISH**

The interior of the apparatus body shall have a fully maintenance free and durable finish. The interior finish shall be installed on the ceiling, front wall, and interior side walls from top of exterior compartments to ceiling height.

The interior panels shall be installed with sheet metal screws with gray plastic plugs covering the screws. The seams between FRP panels, interior corners, and exterior corners shall be trimmed with gray plastic molding.

The interior finish shall be pearl gray pebble grain FRP.

## **INTERIOR WALKWAY FLOOR**

There shall be Lonseal, Loncoin-II Flecks installed on the floor substrate. Loncoin II Flecks is a heterogeneous resilient sheet vinyl with a decorative raised coin texture, breathtaking color, and intriguing style. The fleck coloration provides camouflage for simpler maintenance while the raised coin embossing provides enhanced traction. Excellent for interior, retail, commercial, or institutional use where design parameters call for a high performance, sophisticated flooring solution.

Loncoin II Flecks is composed of polyvinyl chloride (PVC) resin, plasticizers, fillers, and pigments. The co-calendared wear layer is formulated to provide maximum resistance to foot traffic and most commercial and healthcare chemicals.

The middle layer provides dimensional stability, sound-absorbing properties, and resiliency under foot. The backing layer provides strength and stability of the flooring and enhances the bonding strength of the adhesive.

The material shall be black in color (Loncoin-II Flecks - Onyx).

Lonseal, Inc. warrants that Lonseal flooring products shall be free from manufacturing defects for a period of one (1) year from the date of purchase and that, when properly installed and maintained, shall not wear through as a result of normal foot traffic for a period of 7 years from the date of installation.

## **INTERIOR SUB-FLOOR**

Above the body subframe shall be an isolation sheet that shall prevent outside elements from permeating the full length sound and thermal barrier of 3/4" thick grade plywood. The sheet shall be fabricated from the same type of material as is used in the subframe. The isolation sheet shall be flanged on both sides with a 1" high vertical break.

## **AIR CONDITIONER - HEATER**

One (1) Coleman Mach 3, 120 VAC, 60 cycle, single phase air conditioner(s) shall be provided and installed on the body roof. The unit shall be a roof top integral evaporator/condenser type with built-in heating elements.

Each unit shall be rated at 13,500 BTU cooling capacity with a heating element rated at 5,600 BTU.

A two-speed fan shall supply a maximum of 320 CFM air flow capacity.

The roof mounted air conditioner shall be approximately 13" high x 29" wide x 43" long and weigh approximately 85 pounds. The opening in roof shall be properly reinforced to support the air conditioner.

Unit shall be wired to 30 amp shore power system.

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## **EXHAUST FAN**

One (1) Fantastic model 6000RBTA, 12 VDC, 3-speed ventilation fan(s) shall be provided for air circulation. Each fan shall be wired to a wall switch located near fan location.

### Technical Information:

- Durable, proven longevity
- Quiet, 12 – volt ceiling fan with 3-speeds
- Polycarbonate dome/Lifetime guarantee
- Removable screen for easy cleaning
- Reversible fan blade motor (in or out)
- Low AMP draw insures full-time use

Performance:	SCFM	AMPS	Decibels
High	920	3.00	40
Medium	653	2.29	39
Low	478	1.86	39

### Specifications:

- Rooftop weight: 11lbs.
- Dimensions: 16 1/2 x 16 1/2 x 4 1/2 (Fits Most Standard 14"x14" Openings)
- CSA / UL Certified

## **FRONT INTERIOR AREA (IF1)**

- There shall be one (1) full height cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray. Each cabinet shall be approximately 48" W x Full Height x 24" D x 75" high x 24" deep.
- One (1) OnScene 64" Access LED compartment light, vertically mounted.
  - There shall be four (4) vertically adjustable shelves in each of the above cabinets.
- There shall be one (1) 120 volt outlet(s) located inside this cabinet against the back wall unless noted otherwise.
  - The outlet receptacle(s) shall be 20 amp, straight-blade (NEMA 5-20R).
- There shall be one (1) approximate 4' long 120 VAC outlet strip(s) with straight blade household type outlets provided. Power strip to be mounted vertically on the back wall of the cabinet.
  - Outlet(s) shall be powered through both the shore power system, and the chassis inverter.

## **STREETSIDE INTERIOR AREA (IS3)**

- There shall be one (1) full height cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray. Each cabinet shall be approximately 60" W x Full Height x 24" D x 75" high x 24" deep.

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- One (1) OnScene 64" Access LED compartment light, vertically mounted.
  - The above cabinet(s) shall have an open front face (no door).
- There shall be two (2) vertically adjustable shelves in each of the above cabinets.

## **STREETSIDE INTERIOR AREA (IS4)**


- There shall be one (1) cabinet(s) provided on interior above the interior deck surface formed by exterior compartment ceilings. Cabinet(s) shall be framed in from the top of the interior deck surface to the ceiling of the walk-in area. Each cabinet shall be approximately 70" W x \_\_\_" H x 24" D.
- There shall be one (1) magnetic whiteboard(s), approximately 50" wide x 36" tall located on interior opposite of compartments S3, and S4.  
The forward section of the whiteboard shall be a sliding section so there will be access to the exterior compartment S3, by sliding this section of the whiteboard rearward. When open, the pass thru shall be a minimum of 18" wide.
- The above cabinet(s) shall have double vertically hinged aluminum door(s) and painted with a hammer tone powder coat paint finish to match cabinet color choice.
  - There shall be one (1) vertically adjustable shelf in each of the above cabinets. It shall have a 1.25" lip to contain items while minimizing space used.
- The interior deck area over the top of the exterior side compartments shall be un-painted smooth aluminum.

## **CURBSIDE INTERIOR AREA (IC3)**

### **WINDOW(S)**

There shall be one (1) 32"  x 16" high, double-paned insulated, horizontal sliding window(s) installed. The window shall slide open towards the front of the vehicle such that wind pressure would tend to shut the window. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish. Sliding style windows shall be complete with a sliding screen.

- There shall be two (2) 42" wide x 14" high x 20" deep overhead cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray.
- A 2" lip shall be installed across the bottom of the cabinet to retain equipment. There shall be no doors on the cabinet.
- There shall be two (2) 120 volt outlet(s) located; one (1) on center of work surface backsplash area, and one (1) in upper cabinet with access to outlet from each cabinet.
  - The outlet receptacle(s) shall be 20 amp, straight-blade (NEMA 5-20R).
- There shall be two (2) 120 volt outlet strip(s) approximately 4' long with straight blade household type outlets provided: mounted on backsplash above work surface, and inside upper cabinet with access from each cabinet.
  - Outlet(s) shall be powered through both the shore power system, and the chassis inverter.

There shall be two (2) of 12v DC power points installed above the work desk. There shall one on each side of the 120v power strip against the backsplash area. 

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## CURBSIDE INTERIOR AREA (IC4)

- There shall be one (1) full height cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray. Each cabinet shall be approximately 20" wide x 75" high x 24" deep.
- One (1) OnScene 64" Access LED compartment light, vertically mounted.
  - The above cabinet(s) shall have an open front face (no door).
  - There shall be two (2) vertically adjustable shelves in each of the above cabinets.

## LOW VOLTAGE ELECTRICAL SYSTEM- 12 VDC

### General

Any low voltage electrical systems or warning devices installed on the fire apparatus shall be appropriate for the mounting location and intended electrical load.

Where wire passes through sheet metal, grommets shall be used to protect wire and wire looms. Electrical connections shall be with double crimp water-tight heat shrink connectors.

All 12 VDC wiring running from front to back of vehicle body shall be run in full length electrical wiring raceway down each side of body.

### Wiring

All electrical circuit feeder wiring supplied and installed by the fire apparatus manufacturer shall meet the requirements of NFPA Chapter 13.

The circuit feeder wire shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 % 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 %. The use of star washers for circuit ground connections shall not be permitted.

All circuits shall otherwise be wired in conformance with SAE J1292, *Automobile, Truck, Truck-Tractor, Trailer, and Motor Coach Wiring*.

### Wiring and Wire Harness Construction

All insulated wire and cable shall conform to SAE J1127, *Low Voltage Battery Cable*, or SAE J1128, *Low Voltage Primary Cable*, type SXL, GXL, or TXL.

All conductors shall be constructed in accordance with SAE J1127 or SAE J1128, except where good engineering practice dictates special strand construction. Conductor materials and stranding, other than copper, shall be permitted if all applicable requirements for physical, electrical, and environmental conditions are met as dictated by the end application. Physical and dimensional values of conductor insulation shall be in conformance with the requirements of SAE J1127 or SAE J1128, except where good engineering practice dictates special conductor insulation. The overall covering of conductors shall be moisture-resistant loom or braid that has a minimum continuous rating of 194°F (90°C) except where good engineering practice dictates special consideration for loom installations exposed to higher temperatures. The overall covering of jacketed cables shall be moisture resistant and have a minimum continuous

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temperature rating of 194°F (90°C), except where good engineering practice dictates special consideration for cable installations exposed to higher temperatures.

All wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection. The wiring connections and terminations shall be installed in accordance with the device manufacturer's instructions. All ungrounded electrical terminals shall have protective covers or be in enclosures. Wire nut, insulation displacement, and insulation piercing connections shall not be used.

Wiring shall be restrained to prevent damage caused by chafing or ice buildup and protected against heat, liquid contaminants, or other environmental factors.

Wiring shall be uniquely identified at least every 2 ft (0.6 m) by color coding or permanent marking with a circuit function code. The identification shall reference a wiring diagram.

Circuits shall be provided with properly rated low voltage overcurrent protective devices. Such devices shall be readily accessible and protected against heat in excess of the overcurrent device's design range, mechanical damage, and water spray. Circuit protection shall be accomplished by utilizing fuses, circuit breakers, fusible links, or solid state equivalent devices.

If a mechanical-type device is used, it shall conform to one of the following SAE standards:

- 9) SAE J156, *Fusible Links*
- 10) SAE J553, *Circuit Breakers*
- 11) SAE J554, *Electric Fuses (Cartridge Type)*
- 12) SAE J1888, *High Current Time Lag Electric Fuses*
- 13) SAE J2077, *Miniature Blade Type Electrical Fuses*

Switches, relays, terminals, and connectors shall have a direct current (dc) rating of 125 % of maximum current for which the circuit is protected.

## Power Supply

A 12 V or greater electrical alternator shall be provided. The alternator shall have a minimum output at idle to meet the minimum continuous electrical load of the vehicle, at 200°F (93°C) ambient temperature within the engine compartment, and shall be provided with full automatic regulation.

## Minimum Continuous Electrical Load

The minimum continuous electrical load shall consist of the total amperage required to simultaneously operate the following in a stationary mode during emergency operations:

- 1) The propulsion engine and transmission
- 2) All legally required clearance and marker lights, headlights, and other electrical devices except windshield wipers and four-way hazard flashers
- 3) The radio(s) at a duty cycle of 10 percent transmit and 90 % receive (for calculation and testing purposes, a default value of 5 A continuous)
- 4) The lighting necessary to produce 2 fc (20 lx) of illumination on all walking surfaces on the apparatus and on the ground at all egress points onto and off the apparatus, 5 fc (50 lx) of illumination on all control and instrument panels, and 50 percent of the total compartment lighting loads
- 5) The minimum optical warning system, where the apparatus is blocking the right-of way
- 6) The continuous electrical current required to simultaneously operate any fire pumps, aerial devices, and hydraulic pumps
- 7) Other warning devices and electrical loads defined by the purchaser as critical to the mission of the apparatus

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If the apparatus is equipped to tow a trailer, an additional 45 A shall be added to the minimum continuous electrical load to provide electrical power for the federally required clearance and marker lighting and the optical warning devices mounted on the trailer.

The condition of the low voltage electrical system shall be monitored by a warning system that provides both an audible and a visual signal to persons on, in, or near the apparatus of an impending electrical system failure caused by the excessive discharge of the battery set.

The charge status of the battery shall be determined either by direct measurement of the battery charge or indirectly by monitoring the electrical system voltage.

If electrical system voltage is monitored, the alarm shall sound if the system voltage at the battery or at the master load disconnect switch drops below 11.8 V for 12 V nominal systems, 23.6 V for 24 V nominal systems, or 35.4 V for 42 V nominal systems for more than 120 seconds.

A voltmeter shall be mounted on the driver's instrument panel to allow direct observation of the system voltage.

## Electromagnetic Interference

Electromagnetic interference suppression shall be provided, as required, to satisfy the radiation limits specified in SAE J551/1, *Performance Levels and Methods of Measurement of Electromagnetic Compatibility of Vehicles, Boats (up to 15 m), and Machines (16.6 Hz to 18 GHz)*.

## Wiring Diagram

A complete electrical wiring schematic of actual system shall be provided with finished apparatus. Similar or generic type electrical schematics shall NOT BE ACCEPTABLE.

## Low Voltage Electrical System Performance Test

A low voltage electrical system test certification shall be provided with delivered apparatus.

## **12 VOLT DIAGNOSTIC RELAY CONTROL CENTER**

The 12 volt power distribution shall be conveniently located with easy access for service. All relays and circuit breakers shall be plug-in type allowing for removal for repairs without necessitating soldering or tools. The sockets mounts for both the relays and circuit breakers shall be of a design that permits the use of standard automotive type components.

The 12 volt distribution panel shall utilize printed circuit boards mounted in high strength enclosure. Each printed circuit board shall be provided with twelve (12) heavy duty independent switching relays. Each relay shall have the ability to be configured either normally open or normally closed and be protected by a 20 amp automatic reset breaker. Each circuit will be provided with a LED for visual diagnostic.

Power distribution panel shall be located in apparatus body within a protected enclosure with removable or hinged cover.

## **CAB CONSOLE**

A center cab console shall be provided between the Driver's and Officer's seats. Console shall be as large as possible and fabricated of 1/8" smooth aluminum. A textured powder coat paint finish shall be provided for durability and finished appearance.

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The rear portion of the console shall be provided with open top storage for notebooks or maps. Two (2) adjustable dividers shall be provided in the storage area. The forward portion of console shall be slanted for mounting of siren head, radio or 12 volt control panel, and etc, with easy access to both Driver and Officer.

The final design of console shall be determined by the Adams-JeffCo Hazardous Response Authority at the pre-construction meeting.

## **ROCKER SWITCH PANEL**

The 12 volt switch control shall be supplied through the specified siren control head system.

## **ELECTRICAL SYSTEM MANAGER**

### **LOAD MANAGEMENT**

If the total continuous electrical load exceeds the minimum continuous electrical output rating of the installed alternator(s), an automatic electrical load management system shall be required. The minimum continuous electrical loads shall not be subject to automatic load management.

The apparatus 12 volt electrical system shall be provided with a system manager for:

- Monitoring chassis battery voltage
- Shedding pre-determined electrical circuits
- Sequencing pre-determined electrical circuits
- Automatically controlling chassis engine fast-idle
- Monitor master switch and parking brake applications
- Automatically control warning light modes ("Calling-For" and "Blocking Right of Way")
- Provide low voltage alarm
- Programmable control circuits
- Remote system status indicator panel

System manager shall perform all electrical functions required by current NFPA 1901 Standards.

## **BATTERY MONITORING**

The system manager shall monitor the vehicle battery voltage. When electrical loads exceed the alternator output and the voltage drops, the load manager shall start shutting down electrical outputs. The system shall shut down only as many outputs required to maintain the system voltage. A special indicator to show different states of the electrical system by flashing at rate proportional to the battery discharge.

## **LOAD SEQUENCING AND SHEDDING**

The system shall be capable of sequentially switching and shedding 12 volt loads. The Master light switch starts the sequential switch when it is turned "On". Likewise turning the Master Switch "Off" will sequentially de-energize the loads.

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## **BATTERY SYSTEM**

The battery connectors shall be heavy duty type with cables terminating in heat shrink loom. Heavy duty battery cables shall provide maximum power to the electrical system. Where required, the cables shall be shielded from exhaust tubing and the muffler. Large rubber grommets shall be provided where cables enter the battery compartment.

Batteries shall be of the high-cycle type. With the engine off, the battery system shall be able to provide the minimum continuous electrical load for 10 minutes without discharging more than 50 percent of the reserve capacity and then to restart the engine. The battery system cold cranking amps (CCA) rating shall meet or exceed the minimum CCA recommendations of the engine manufacturer. The batteries shall be mounted to prevent movement during fire apparatus operation and shall be protected against accumulations of road spray, snow, and road debris. The batteries shall be readily accessible for examination, testing, and maintenance.

A means shall be provided for jump-starting the engine if the batteries are not accessible without lifting the cab of a tilt-cab apparatus.

Where an enclosed battery compartment is provided, it shall be ventilated to the exterior to prevent the buildup of heat and explosive fumes. The batteries shall be protected against vibration and temperatures that exceed the battery manufacturer's recommendation.

A master load disconnect switch shall be provided between the starter solenoid(s) and the remainder of the electrical loads on the apparatus. The starter solenoids shall be connected directly to the batteries.

Electronic control systems and similar devices shall be permitted to be otherwise connected if so specified by their manufacturer.

The alternator shall be wired directly to the batteries through the ammeter shunt(s), if one is provided, and not through the master load disconnect switch.

A green "battery on" pilot light that is visible from the driver's position shall be provided.

A sequential switching device shall be permitted to energize the optical warning devices and other high current devices required in minimum continuous electrical load, provided the switching device shall first energize the electrical devices required in minimum continuous electrical load within 5 seconds.

## **BATTERY SWITCH**

One (1) battery "On/Off" switch in cab located within easy reach of Driver with green "BATTERY ON" pilot light that is visible from the driver's position shall be provided.

## **BATTERY SOLENOID**

Battery switch shall consist of a minimum 200 ampere, constant duty solenoid to feed from positive side of battery.

## **BATTERY CONDITIONER**

The battery conditioner shall be supplied by Adams-JeffCo Hazardous Response Authority and installed on completed unit.



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## **SHORE POWER INLET**

One (1) Kussmaul 120 VAC, 20 amp Super Auto-Eject shore power inlet(s) shall be provided. The shore power connection shall automatically disengage from vehicle when chassis ignition is engaged.

The protective ground from the shoreline inlet shall be bonded to the vehicle frame.

- The outlet cover shall be yellow.
- The shore power inlet shall be located on the streetside front of body, below compartment S1.

## **ENGINE COMPARTMENT LIGHT**

There shall be one (1) light(s) mounted in the engine compartment with integral switch with a light output of at least 20 candlepower (250 lumens). The engine compartment light(s) shall operate only when the master battery switch is turned "On".

## **CAB HAZARD WARNING LIGHT**

A red flashing or rotating light, located in the driving compartment, shall be illuminated automatically whenever the vehicles parking brake is not fully engaged and any of the following conditions exist:

- Any passenger or equipment compartment door is not closed.
- Any ladder or equipment rack is not in the stowed position.
- Stabilizer system is not in its stowed position.
- Powered light tower is not stowed.
- Any other device permanently attached to the apparatus is open, extended, or deployed in a manner that is likely to cause damage to the apparatus if the apparatus is moved.

Compartments and equipment meeting all of the following conditions shall be permitted to be exempt from being wired to the hazard light:

- The volume is less than or equal to 4 ft<sup>3</sup> (0.1 m<sup>3</sup>).
- The compartment has an opening less than or equal to 144 in.<sup>2</sup> (92,900 mm<sup>2</sup>).
- The open door does not extend sideways beyond the mirrors or up above the top of the fire apparatus.
- All equipment in the compartment is restrained so that nothing can fall out if the door is open while the apparatus is moving.
- Manually raised pole lights with an extension of less than 5 ft (1.5 m).

The hazard light shall be labeled "DO NOT MOVE APPARATUS WHEN LIGHT IS ON".

An audible alarm shall be provided for the door ajar light.

## **BACK-UP ALARM**

An electronic back-up alarm shall be supplied and installed by the cab/chassis manufacturer. The back-up alarm shall actuate automatically when the transmission gear selector is placed in reverse.

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## **INTERIOR LED LIGHTS**

Four (4) OnScene Solution model #70156, 10" x 10" x 7/8", 10-30 VDC, surface mount dual red and white LED light(s) with clear lens shall be provided throughout the vehicle. Each light shall be individually switched with a high/low intensity setting switchable at the entry door(s). In addition light(s) will be capable of a five (5) second delay after switching off.

## **TAIL LIGHTS**

Rear body tail lights shall be vertically mounted and located per Federal Motor Vehicle Safety Standards, FMVSS and Canadian Motor Vehicle Safety Standards CMVSS. The following lights shall be furnished;

- Two (2) Whelen amber LED 600 Series 60A00TAR turn signal lights
- Two (2) Whelen red LED 600 Series 60BTT stop/tail lights
- Two (2) Whelen Halogen 600 Series 60J000CR back-up lights with clear lens

Each of the lights above shall be mounted in a 6EFLANGE, chrome finish bezel.

## **MIDSHIP MARKER/TURN SIGNAL**

Two (2) Whelen model T0A00MAR 2" round amber LED midship body clearance marker/turn signal lights shall be provided and installed, one (1) light on each side of the body, in forward wheel well of rear axle. Midship marker/turn lights shall be wired to the headlight circuit of the chassis.

## **MARKER LIGHTS**

The body shall be equipped with all necessary clearance lights and reflectors in accordance with Federal Motor Vehicle Safety Standards (FMVSS) and Canadian Motor Vehicle Safety Standards (CMVSS) regulations. All body clearance lights shall be Truck-Lite Model 18 LED to reduce the need for maintenance and lower the amp draw. Clearance lights shall be wired to the headlight circuit of the chassis.

## **CAB STEP LIGHTS / GROUND LIGHTS**

There shall be two (2) OnScene 9" Night Axe LED light(s) installed on the vehicle capable of providing illumination at a minimum level of 2 fc (20 lx) on ground areas within 30 in. (800 mm) of the edge of the vehicle in areas designed for personnel to climb onto or descend from the vehicle to the ground level.

Lighting designed to provide illumination on areas under the driver and crew riding area exits shall be switchable but activated automatically when the exit doors are opened.

## **LICENSE PLATE LIGHT**

One (1) Arrow #437 chrome plated LED license plate light shall be installed on the rear of the body. License plate light shall be wired to the headlight circuit of chassis. A fastener system shall be provided for license plate installation.

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## **ELECTRONIC SIREN**

One (1) Whelen model 295HFSA5 6-function electronic siren head with Si-Test function, plug-in microphone, air horn button switch and 9 light/accessory switches shall be provided in cab. Siren to be installed in cab within easy access of Driver.

A switch shall be provided at the 12 volt control panel so that the steering wheel horn ring can be used to activate electronic siren.

## **SIREN SPEAKERS**

Two (2) Cast Products Inc. model SH500-4 100 watt siren speaker shall be provided recessed in the front bumper, one (1) on the streetside and one (1) on the curbside.

## **SIDE SCENE LIGHTS**

There shall be six (6) Whelen M6 series (6" X 4") surface mounted Super-LED Scene lights (M6ZC) provided on the upper body. Light quantity shall be divided equally per side. Each light will have an 8-32 degree gradient lens and chrome flange.

Two (2) switches shall be provided, one (1) for the streetside scene lights, and one (1) for the curbside scene lights.

The lights shall be switched as follows:

The pair of outside lights shall be switched at control panel in the cab.

The single center light shall be on a separate circuit and shall be activated from a separate switch in the cab. One (1) switch shall control the curbside center light, and one (1) switch shall control the streetside center light.

## **REAR SCENE LIGHTS**

Two (2) Whelen M6 series (6" x 4") surface mounted Super-LED Scene lights shall be provided on the upper rear body to light the work area immediately behind the vehicle to a level of at least 3 fc (30 lx) within a 10 ft x 10 ft (3 m x 3 m) square. Each light will have a 26 degree lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

The rear scene lights shall also be activated when the apparatus is in reverse.

## **WARNING LIGHT PACKAGE**

Each apparatus shall have a system of optical warning devices that meets or exceeds the requirements of this section.

The optical warning system shall consist of an upper and a lower warning level. The requirements for each level shall be met by the warning devices in that particular level without consideration of the warning devices in the other level.

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For the purposes of defining and measuring the required optical performance, the upper and lower warning levels shall be divided into four (4) warning zones. The four zones shall be determined by lines drawn through the geometric center of the apparatus at 45 degrees to a line drawn lengthwise through the geometric center of the apparatus. The four (4) zones shall be designated A, B, C, and D in a clockwise direction, with zone A to the front of the apparatus.

Each optical warning device shall be installed on the apparatus and connected to the apparatus's electrical system in accordance with the requirements of this standard and the requirements of the manufacturer of the device.

A master optical warning system switch that energizes all the optical warning devices shall be provided.

The optical warning system on the fire apparatus shall be capable of two (2) separate signaling modes during emergency operations. One (1) mode shall signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right-of-way. One (1) mode shall signal that the apparatus is stopped and is blocking the right-of-way. The use of some or all of the same warning lights shall be permitted for both modes provided the other requirements of this chapter are met.

A switching system shall be provided that senses the position of the parking brake or the park position of an automatic transmission. When the master optical warning system switch is closed and the parking brake is released or the automatic transmission is not in park, the warning devices signaling the call for the 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 the right-of-way shall be energized. The system shall be permitted to have a method of modifying the two (2) signaling modes.

The optical warning devices shall be constructed or arranged so as to avoid the projection of light, either directly or through mirrors, into any driving or crew compartment(s). The front optical warning devices shall be placed so as to maintain the maximum possible separation from the headlights.

## **UPPER LEVEL OPTICAL WARNING DEVICES**

The upper-level optical warning devices shall be mounted as high and as close to the corner points of the apparatus as is practical to define the clearance lines of the apparatus. The upper-level optical warning devices shall not be mounted above the maximum height, specified by the device manufacturer.

### **ZONE A - FRONT WARNING LIGHTS**

There shall be one (1) Whelen Edge FN60QLED LED 60" lightbar permanently mounted to the cab roof.

The lightbar configuration (streetside to curbside) shall be:

<u>SECTION</u>	<u>INTERNAL COMPONENTS</u>	<u>LENS COLOR</u>
1	Red Side Linear LED	Clear
2	Red Front Corner Linear LED	Clear
3	Clear Linear LED	Clear
4	Blank	Clear
5	Red Linear LED	Clear
6	Blank (Opticom if specified)	Clear
7	Blank (Opticom if specified)	Clear

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8	Red Linear LED	Clear
9	Blank	Clear
10	Clear Linear LED	Clear
11	Red Front Corner Linear LED	Clear
12	Red Side Linear LED	Clear

All clear lights shall shut down when the parking brake is set to comply with "Blocking" mode requirements as outlined in NFPA 1901.

## SHOP NOTES

Add MK8H lightbar mount on Wecad program if there is a brow light on cab

The lightbar shall be separately switched at the 12 volt control panel in the cab.

## ZONES B AND D - SIDE WARNING LIGHTS

### UPPER REAR CORNER WARNING LIGHTS

There shall be two (2) Whelen M6 series red linear Super-LED lights (M6RC) provided, one (1) each side. Each light shall have a clear lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

### UPPER FORWARD CORNER WARNING LIGHTS

There shall be two (2) Whelen M6 series red linear Super-LED lights (M6RC) provided, one (1) each side. Each light shall have a clear lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

### ZONE C - REAR WARNING LIGHTS

There shall be two (2) Whelen M6 series red linear Super-LED lights (M6RC) provided, one (1) each side. Each light shall have a clear lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

## LOWER LEVEL OPTICAL WARNING DEVICES

To define the clearance lines of the apparatus, the optical center of the lower-level optical warning devices in the front of the vehicle shall be mounted on or forward of the front axle centerline and as close to the front corner points of the apparatus as is practical.

The optical center of the lower-level optical warning devices at the rear of the vehicle shall be mounted on or behind the rear axle centerline and as close to the rear corners of the apparatus as is practical. The optical center of any lower-level device shall be between 18 in. and 62 in. (460 mm and 1600 mm) above level ground for large apparatus, and 18 in. and 48 in. (460 mm and 1220 mm) above level ground for small apparatus.

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A midship optical warning device shall be mounted right and the left sides of the apparatus if the distance between the front and rear lower-level optical devices exceeds 25 ft (7.6 m) at the optical center. Additional midship optical warning devices shall be required, where necessary, to maintain a horizontal distance between the centers of adjacent lower-level optical warning devices of 25 ft (7.6 m) or less. The optical center of any midship mounted optical warning device shall be between 18 in. and 62 in. (460 mm and 1600 mm) above level ground.

## ZONE A - FRONT WARNING LIGHTS

There shall be two (2) Whelen M6 series Red Linear Super-LED lights (M6RC) provided, one (1) each side. Each light shall have a clear lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

## ZONES B AND D - CAB INTERSECTOR LIGHT (CAB FRONT CORNERS)

There shall be two (2) Whelen M6 series Red Linear Super-LED lights (M6RC) provided, one (1) each side. Each light shall have a clear lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

## ZONES B AND D - BODY INTERSECTOR LIGHT (BODY WHEELWELL AREA)

There shall be two (2) Whelen M6 series Red Linear Super-LED lights (M6RC) provided, one (1) each side. Each light shall have a clear lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

## ZONES B AND D - BODY INTERSECTOR LIGHT (BODY REAR CORNERS)

There shall be two (2) Whelen M6 series Red Linear Super-LED lights (M6RC) provided, one (1) each side. Each light shall have a clear lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

## ZONE C - REAR WARNING LIGHTS (LOWER REAR CORNERS)

There shall be two (2) Whelen M6 series Red Linear Super-LED lights (M6RC) provided, one (1) each side. Each light shall have a clear lens and chrome flange.

The lights shall be switched at the 12 volt control panel in the cab.

## LINE VOLTAGE ELECTRICAL SYSTEM

### CIRCUIT BREAKER BOX

There shall be a Newmar 120/240 VAC distribution/breaker panel provided on completed vehicle. All circuit breakers shall be rated to the wire size and load demand.

There shall be color coded LED indicator lights provided to indicate the status of each branch breaker.

Each individual switch and all meters shall be back lit for identification in low light situations.

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The panel shall have four (4) meters:

- One (1) to monitor frequency
- One (1) to monitor line voltage
- One (1) to monitor load current (amps)
- One (1) hour meter to register genset run time

Each circuit breaker shall be hydraulic/magnetic trip free style with a manual reset.

The Newmar panel shall also control the manual switch over from shore to generator power.

The entire panel shall be mounted via a piano style hinge that allows the front panel to open for access to the breakers.

## **SHORE POWER INLET - BATTERY CHARGER**

The above mentioned shore power inlet, and battery conditioner shall be specified in the 12 volt section.

## **SHORE POWER INLET - AIR CONDITIONER UNITS**

To protect both the generator and external power source from back feed, two (2) 120 volt, 30 ampere, 4PST auxiliary contact with safety interlock relay shall be installed. Relay shall cut-off the connection between the generator supply circuit and device circuits when shore power is connected.

Transfer equipment, including transfer switches, shall operate such that all ungrounded conductors of one power source are disconnected before any ungrounded conductors of the second power source are connected. The neutral conductor shall be switched through the transfer switch. The apparatus shall have a label permanently affixed at the power inlet that indicates the line voltage, and amperage.

## **SHORE POWER INLET**

One (1) Kussmaul 120 VAC, 30 amp Super Auto-Eject shore power inlet(s) shall be provided. The shore power connection shall automatically disengage from vehicle when chassis ignition is engaged.

The protective ground from the shoreline inlet shall be bonded to the vehicle frame.

- The outlet cover shall be blue.
- The shore power inlet shall be located on the streetside front of body, below the door of compartment S1.

Shore power shall be wired to the specified 120 VAC air conditioning unit(s), (maximum of two (2) units).

## **INVERTER**

Two (2) Kussmaul inverter(s) model 12-1500-PS shall be provided and installed on completed vehicle. The Kussmaul 12-1500-PS is an advanced true sine wave power inverter perfect for operating equipment requiring up to 1500 watts. Delivering high surge power to start motor loads and appliances makes it a great AC power source for emergency and commercial vehicles. Unit shall have following features;

- 1500 watt Continuous / 3000 watt surge
- True Sine Wave AC power

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- High Surge Power
- Built in Safety Protection
- Power Saving Mode
- Lightweight and Compact Design
- Remote Control Capabilities
- 3 Year Warranty

## **SHORE POWER INLET - INVERTER**

A transfer switch shall be required to isolate one power source from the other where a circuit(s) is intended to be supplied from more than one power source. To protect both the generator and external power source from back feed, two (2) 120 volt, 30 ampere, 4PST auxiliary contact with safety interlock relay shall be installed. Relay shall cut-off the connection between the generator supply circuit and device circuits when shore power is connected.

Transfer equipment, including transfer switches, shall operate such that all ungrounded conductors of one power source are disconnected before any ungrounded conductors of the second power source are connected. The neutral conductor shall be switched through the transfer switch. The apparatus shall have a label permanently affixed at the power inlet that indicates the line voltage, and amperage.

## **SHORE POWER INLET**

One (1) Kussmaul 120 VAC, 30 amp Super Auto-Eject shore power inlet(s) shall be provided. The shore power connection shall automatically disengage from vehicle when chassis ignition is engaged.

The protective ground from the shoreline inlet shall be bonded to the vehicle frame.

- The outlet cover shall be red.
- The shore power inlet shall be located on the streetside front of body, below the door of compartment S1.

Shore power shall be wired to the specified 120 volt inverter.

## **EQUIPMENT PAYLOAD WEIGHT ALLOWANCE**

In compliance with NFPA 1901 standards, the special service vehicle shall be designed for an equipment loading allowance of 4,000 lbs. of Adams-JeffCo Hazardous Response Authority provided equipment based on a 30,001 - 40,000 pound gross vehicle weight rating.

## **SHORE POWER EXTENSION CORD**

A 50' shore power extension cord shall be provided with 30 amp plugs to match body with completed unit. Extension cord shall be properly sized as to required amperage and extension cord length.

## **REMAINING NFPA MINOR EQUIPMENT BY PURCHASER**

All other minor equipment not specified above, but required by NFPA 1901, section 10.5.1 shall be supplied and mounted by Adams-JeffCo Hazardous Response Authority before the unit is placed in emergency service.