

**BRAUN NORTHWEST, INC.**  
**DETAILED SPECIFICATIONS**  
**FOR**  
**NORTHWEST FIRE DISTRICT**  
**TUCSON, ARIZONA**  
**4170,1-1**

**1 CHASSIS**

**1.01X OEM CHASSIS**

- 2024 Ram 4500 Regular Cab 4 x 4 Tradesman, meeting all the specifications of Section 1.01
- 3 year/36,000 mile Basic Limited Warranty
- Ambulance Prep Group (**AH2**)
- Dual Rear Wheels
- Provided by Braun Northwest

**1.01.01 SPECIFIC RATINGS**

- Drive – 4 x 4
- G.V.W.R. – 16,500 lb
- Front Axle – 7,000 lb
- Rear Axle – 12,000 lb
- Wheelbase – 192.5"
- Cab to Axle – 108"
- Front Spring Capacity – 7,000 lb
- Rear Spring Capacity – 12,000 lb
- Rear Differential – 4.10 ratio, Anti-Spin Differential Rear Axle

**1.01.02X POWER TRAIN**

- Engine
  - 6.7L I6 Cummins Turbo diesel, B-20 Bio Diesel capability
  - Diesel Emission Fluid (DEF) System
  - Engine Block Heater (Cold Weather Group)
  - Diesel exhaust brake
  - Manual DPF regeneration (**XNR**)
- Heavy duty type air cleaner
- Engine Cooling System
- Transmission
  - Six speeds Heavy Duty Automatic, AISIN AS69RC
  - Auxiliary transmission oil cooler
  - Manual shift with floor-mounted shifter (**DK1**)
- Exhaust System
  - System complies with Federal Motor Carrier Safety Regulations, Part 393.83

- Suspended using three hangers, excluding manifold attachment
- Discharge at right rear side of module
- Tailpipe shall not terminate within twelve inches of the vertical axis of the fuel tank filler opening.

#### **1.01.03 STEERING**

- Power Steering
- Tilt steering wheel

#### **1.01.04 SHOCK ABSORBERS/STABILIZER BARS**

- OEM Heavy-duty shock absorbers front and rear
- OEM front and rear stabilizer bars

#### **1.01.05 BRAKES**

- Heavy duty power assisted four-wheel ABS; Front and rear disc
- Electronic Stability Control
- Trailer Sway Damping
- Hill Start Assist
- Traction Control

#### **1.01.06X TIRES AND WHEELS**

- Seven OEM 225/70R19.5G Front All Position, Rear Traction tires
- Four OEM 19.5" aluminum wheels (**WP4**)
- Three OEM 19.5" steel wheels
- Spare tire and steel wheel included

#### **1.01.07X ELECTRICAL**

- Alternators – OEM Dual 220 Amp each (440 total) (**XF7**)
  - Batteries – OEM Dual 730 CCA each
  - Voltage Monitoring Auto Idle-Up System

#### **1.01.08 INSTRUMENT PANEL AND CONTROLS**

- Push-Button Start
- Gauges
  - Speedometer
  - Tachometer
  - Fuel Level
  - Coolant Temperature
  - Oil Pressure
  - Voltmeter
  - Diesel Exhaust Fluid (DEF)
- Information Center
  - Odometer/Trip Odometer
  - Engine Hour Meter
  - Diesel engine warning lights
- Cruise Control
- Overhead console with six upfitter switches
- Audio – OEM AM/FM, Uconnect 3.0 with 3.5" display, BlueTooth, audio input jack

**1.01.09X****CAB EXTERIOR**

- Trim Level – Tradesman
- Chrome Appearance Group
  - Chrome bumper
  - Chrome grille
- Wheel Flares – Front, Black
- Tow Hooks – Two Front
- Horn – OEM dual note electric
- Windows – Tinted safety glass
- Windshield wipers – Variable, Intermittent
- Mirrors
  - Two black, Manual Folding Trailer Tow with convex
  - Supplemental signals and courtesy lamps
  - Power, heated glass
- Lighting
  - Halogen headlamps, Quad, automatic
  - Daytime running headlamps, low beam
  - Clearance lamps
- Fuel tank – OEM 52 Gallons

**1.01.10X****CAB INTERIOR**

- Seats – OEM
  - Vinyl bench seat 40/20/40
  - Delete front center seat
  - Combination lap and shoulder harness
- Climate Control – OEM
  - Heavy duty, fresh air, high capacity heater/defroster
  - Dehumidifying air conditioning system
- Interior
  - Cloth headliner
  - Cloth sun visors
  - Interior Day/Night rearview Mirror
  - Map Light
  - Upgraded Door trim
  - Black vinyl floor covering
  - Power windows & power door locks
  - Remote keyless entry with fob
  - Anti-theft system
- Rear sliding window (GFD)

**1.01.11****COLORS**

- Exterior – Flame Red (PR4)
- Interior – Black/Diesel Gray

## **1.02 CHASSIS MODIFICATIONS**

The following modifications shall be made to the chassis by Braun Northwest.

### **1.02.04 EXHAUST HEAT SHIELDS**

Shall be formed from 20 ga. galvanized steel sheets with stamped reinforcements and formed edges. Access openings shall be provided for shock absorber, mounting bolts, etc. Heat shields shall be bolted to chassis frame and extend from back of cab to the frame cross member just behind the rear axle.

### **1.02.07 AUTO THROTTLE**

The OEM SEIU high idle feature shall be configured to automatically adjust the auto throttle for changes in electrical and AC/heater loads.

### **1.02.09 MUD FLAPS**

Mud flaps with the "NORTH STAR" logo shall be installed behind each rear wheel.

### **1.02.14 SUSPENSION**

A LiquidSpring rear suspension system shall be installed, with a kneeling feature to activate when the rear streetside patient compartment entrance door opens within 60 minutes of the chassis ignition being turned off. An override switch labeled "DUMP OVERRIDE" shall be installed on the curbside rear wall, accessible from rear curbside door. The LiquidSpring control panel shall be installed on the chassis dash to the left of the steering wheel.

### **1.02.17 CHASSIS FRAME EXTENSIONS**

A 10" frame extension shall be welded to each OEM frame rail to provide rear lateral and bumper support and to provide a step height of 13.5" from the bumper to the module floor.

### **1.02.36 AUXILIARY COMPRESSOR**

A TM-21 auxiliary air conditioning compressor kit shall be added to the OEM engine (Section 5.17 related.)

### **1.02.38 CAB ROOF STIFFENER**

In order to reduce noise and vibration, a 0.190" aluminum stiffener panel shall be bonded to the inside of the cab roof. Panel shall be applied with adhesive tape and polyurethane adhesive/sealant.

### **1.02.43 CHASSIS MISCELLANEOUS**

SunTek CIR70 71% VLT ceramic tint added to the OEM window tint on the driver's, passenger's, and rear cab windows (Section 3.04.02 related). **Note: Rear tint must be added before module is mounted.**

### **1.02.60 CAB CONDUIT**

A 5.5" conduit shall be installed between the cab and module located behind the driver's seat. The driver's console harness shall be routed through the conduit.

### **1.03           MODULE-TO-CHASSIS MOUNTING SYSTEM**

#### **1.03.01       MODULE MOUNTING SYSTEM**

The module shall be bolted to the chassis frame in no fewer than twelve locations. Each mounting location shall include a hard rubber isolation pad between the chassis frame and the module lateral. The rearmost lateral(s) shall be connected to the frame extensions with 5/8" grade 8 bolts. All remaining laterals shall be connected with vertical 3/4" grade B7 eye bolts fastened to the frame rails with horizontal 3/4" grade 8 hex bolts. All bolts shall be secured with locking nuts.

#### **1.03.02       CAB-TO-MODULE ATTACHMENT**

To facilitate connection of the flexible boot, a painted aluminum frame shall be installed around the exterior of the OEM manual sliding window in the back of the cab (Sections 1.01.09 and 2.13 related).

The module shall be attached to the cab with a flexible watertight boot to allow cab-body flex as designed by the chassis manufacturer.

## **2** **MODULAR CONSTRUCTION**

All material utilized shall be of the correct type, alloy, and thickness to withstand the intended usage and provide protection against cracking, corrosion, or metal fatigue. All materials utilized shall be of open stock origin, commonly available through local sources, for rapid and economical repair or modification of the body. Any use of proprietary parts or materials in the construction of the body is unacceptable, due to potential delays or difficulties in future repairs or service. **NO EXCEPTIONS TO BE TAKEN IN THIS AREA.** This specification has been designed and written to fill specific needs of this agency. Where brand name, make, or model of equipment has been specified, no exceptions shall be allowed. Where compartment and cabinet sizes have been specified, bidder must bid substantially (plus or minus 1") the size specified.

The module shall have a transferable lifetime structural warranty.

### **2.01**

#### **MATERIAL**

<u>EXTRUSIONS</u>	<u>SIZE</u>	<u>ALLOY</u>
Structural Tubing	1" x 2" x 0.125" sq.	6063-T52
Structural Tubing	2" x 2" x 0.125" sq.	6063-T52
Cross Members	3" x 3" x 0.375"	6061-T6
Cross Members	1.5" x 3" x 0.25"	6061-T6
<u>FORMED SHEETING</u>	<u>SIZE</u>	<u>ALLOY</u>
Skin/Roof/Compartments/Subfloors/Doors	0.125"	5052-H32
Interior Cabinets	0.090"	5052-H32
Diamond Plate	0.125"/0.08"	3003-H22
Stainless Steel	16 ga., 20 ga.	304 # 4B

### **2.02**

#### **MODULE DIMENSIONS**

Overall Vehicle Dimensions (Specifications are listed as minimums.)

Length	25 ' "	2 "	302.00 "
Width (excluding mirrors)	7 ' "	10 "	94.00 "
Height (Approximate)	9 ' "	5.13 "	113.13 "

Exterior Module Dimensions (Specifications are listed as minimums.)

Length	13 ' "	11 "	167.00 "
Width	7 ' "	10 "	94.00 "
Height	7 ' "	4.375 "	88.38 "

Interior Dimensions (Specifications are listed as minimums.)

Length	Forward Wall to Rear Wall	159.00 "
Width	Left Wall to Right Wall	89.00 "
Floor Width	Left Cabinets to Squad Bench	50.25 "
Height	Floor to Ceiling	72.00 "

Load Height (Approximate)		37.00 "
	With suspension dumped	33.00 "

### **2.03 STRUCTURAL FRAMING**

Side wall and rear wall construction shall consist of 2" x 2" x 0.125" aluminum square tubing extensions welded together with a maximum of 14" centers. 1" x 2" x 0.125" aluminum tubing may be utilized in addition to 2" x 2" tubing to accommodate custom compartment sizes. The bottom of the wall structure shall be sealed with a welded 2" x 2" tube, a 2" x 2" angle, or a 0.125" plate depending upon location. The wall structure shall be capped with a 2" x 4" x 0.125" header upon which a 2" x 2" x 0.125" roof structure is welded. This process provides a unitized roll cage structure for greater occupant safety. The front wall structure shall be constructed of formed aluminum channels to allow ample space for wiring raceways, heater hoses, and A/C hoses.

### **2.04 FOUNDATION SYSTEM**

The foundation system shall consist of a 0.125" aluminum sheet subfloor with foundation members securely welded under the subfloor. Transverse members (laterals) shall consist of 3" x 3" x 0.375" structural angles. 0.25" x 1.5" aluminum stringers shall span longitudinally between the laterals.

### **2.05 MODULE SEAMS**

All body and compartment seams at or below floor level shall be full-seam-welded. The entire perimeter of the subfloor shall be completely sealed with a caulking material, creating a watertight seam.

### **2.06 EXTERIOR SKIN**

A Norton NORBOND closed-cell, polyurethane foam tape with high-performance acrylic adhesive shall be utilized full length on all front and rear wall and roof frame members. A polyurethane adhesive sealant shall be applied to the edges of framing members that are bonded with NORBOND tape. An advanced two-part methacrylate structural adhesive shall be used to bond all side wall tubes to the exterior skin and door frames.

The module shall be constructed utilizing full-size sheet construction to minimize body seams. There shall be no corner or mid-body seams.

### **2.07 MODULE ROOF**

In order to improve module strength and minimize exposed seams, the roof shall be seamed transversely, shall be crowned, shall have a 1.5" radius along the edges, and shall be welded to 2" x 4" wall header tubes 4.75" below the roof line. The roof shall be supported by positive contact between sidewall framing and roof framing. All seams on the roof surface shall be continuously welded and body-worked on the outside. In order to avoid the possibility of paint and/or weld cracking, no extrusions shall be used in the exterior construction of the roof or corners of the module.

The module roof front and rear edges shall be constructed to allow mounting of a recessed lightbar.

A contoured, 3/8" aluminum plate, painted to match the module, shall be welded to the roof structure and project through the center of the roof to serve as anchorage for personal fall arrest equipment. The anchorage is designed and rated for a single person only.

**MODULE EXTERIOR COMPARTMENTS**

All compartments shall be constructed from formed 0.125" aluminum, securely welded to the subfloor and structural framing. A baffled drain hole shall be provided in all exterior compartment bottoms that extend below the floor line. All exterior adjustable shelves shall be mounted on heavy-duty aluminum track, which is securely welded to compartment interiors. Each shelf shall support at least 300 lb of equipment.

**COMPARTMENT #1**

**Interior Dimensions** – 27"W x 70"H x 19"D

**Doorway Dimensions** – 27"W x 70"H

**Location** – Streetside, forward

**Shelving** – Two adjustable, full width. Lower shelf shall be installed just above the inverter.

**Door(s)** – Single

**Light(s)** – One LED strip light (Section 6.26 related)

**Additional Instructions** –

1. A Samlex 1200-watt inverter with perforated aluminum surround shall be installed on floor of the compartment, forward (Section 6.31 related).
2. A 120 VAC power box shall be recessed into the forward wall not to protrude (Section 6.21 related).
3. A vent with MERV 8 polyester filter media and a hex-punched stainless-steel cover shall be installed on the forward wall, with a soffit vent on back wall.

**COMPARTMENT #2**

**Interior Dimensions** – 36"W x 35"H x 19"D

**Doorway Dimensions** – 34"W x 35"H

**Location** – Streetside, forward

**Shelving** – One adjustable full width

**Door(s)** – Single

**Light(s)** – One LED strip light (Section 6.26 related)

**Additional Instructions** –

1. Three aluminum tracks shall be installed vertically on the back wall.
2. One prewire shall be provided lower aft wall for a *customer-supplied-and-installed* flashlight charger (Section 6.45 related).
3. A vent with MERV 8 polyester filter media and a hex-punched stainless-steel cover shall be installed on the aft wall.



### COMPARTMENT #3

**Interior Dimensions** – 28"W x 70"H x 19"D

**Doorway Dimensions** – 28"W x 70"H

**Location** – Streetside, rear

**Shelving** – Three adjustable.

One bin type 14.125"W,

One full width above the bin shelf

One with a 2" flanges down on the front and forward sides. For support of the forward side of this shelf, the 2" forward flange shall lap over the top of the aft side of the bin shelf.

Example photo from 3047-1:



**Door(s)** – Single

**Light(s)** – One LED strip light (Section 6.26 related)

**Additional Instructions** –

1. Three full height aluminum tracks shall be installed on the back wall to accommodate bin type shelving on either side.
2. One 10-amp 12VDC circuit with 14-gauge wire shall be provided (coil behind upper closeout) in this compartment for *customer-supplied-and-installed* thermal imaging camera charger (Section 6.46 related).
3. A vent with MERV 8 polyester filter media and a hex-punched stainless-steel cover shall be installed on the aft wall.

### COMPARTMENT #4

**Interior Dimensions** – 22"W x 77"H x 19"D

**Doorway Dimensions** – 22"W x 70"H

**Location** – Curbside, rear

**Shelving** – One 13.5"W bin type

**Door(s)** – Single

**Light(s)** – One LED strip light (Section 6.26 related)

**Additional Instructions** –

1. This compartment shall have a welded bracket, painted to match the compartment, and three ratcheting straps with UHMW stiffeners set up for storage of a *customer-supplied-and-installed* H or M-size cylinder (Section 4.10 related).
2. Two backboard restraining straps shall be installed in the aft section. A formed stainless-steel gasket cover shall be installed so that backboards do not cut gasket material.
3. A vent with MERV 8 polyester filter media and a hex-punched stainless-steel cover shall be installed on the aft wall.

## **COMPARTMENT #5**

**Interior Dimensions** – 24.75"W x 52.75"H x 29.25"D

**Doorway Dimensions** – 22.75W x 52.75"H

**Location** – Curbside, forward

**Shelving** – See Interior Cabinet #12

**Door(s)** – Single

**Light(s)** – One LED strip light (Section 6.26 related)

### **Additional Instructions –**

1. This compartment shall have a full width stainless steel threshold on the floor level shelf.
2. The compartment shall provide inside/outside access with Cabinet #12.
3. The below-floor portion of this compartment shall be used for storage.

## **2.09**

### **MODULE DOORS**

The doors shall be box pan formed with a total thickness of 2".

## **2.09.01**

### **DOOR FRAME AND SEAL**

Each door frame shall have a flange for the installation of an air cell hollow core 360-degree compression door seal. This seal creates watertight, dust-free compartment integrity. Door seal shall be knock-on type. Door frames shall be bonded to the adjacent tubes such that no exterior flange is required.

## **2.09.02**

### **DOOR HINGES**

Compartment and passage doors shall have full-length, piano-type, 2.5"W stainless steel hinges, positioned with 0.25" rivets at each end. The hinges shall be attached with #12 x 0.75" stainless steel truss head screws spaced 4" apart, sealed with Sikaflex. All curbside and streetside side-hinged doors shall be hinged on the forward sides, and all rear side-hinged doors shall be hinged on the outboard sides.

## **2.09.03A**

### **DOOR LATCHES**

Exterior door handles shall be semi-flush, chrome-plated Eberhard E Grabber #21100. Passage doors shall have release handles on the inside of each door. All exterior doors shall have rotary latches and striker posts that meet FMVSS 206 requirements. Striker posts shall be adjustable and be secured with a nut from behind the door frame. The striker washer shall not be removed. Doors greater than 45" tall shall have double rotary latches activated by stainless steel rods. Once final adjustments have been made, threads shall have Loctite or equivalent applied. All double-door compartments shall have an exterior E Grabber handle and rotary latches on each door. Doors shall latch to doorframe-mounted striker posts only and not to one another. Curbside passage and rear curbside doors shall have interior handles with dual-point, rod-actuated, rotary latch systems that are lockable inside and out. All locks shall be keyed J236.

Rear passage doors shall both have emergency release levers, one at the top and bottom of each door and accessible from the inside of the module.

## **2.09.04**

### **COMPARTMENT DOOR CONTROL**

A heavy-duty, double-spring door control capable of holding the door open at approximately a 90-degree angle on any road surface shall be installed at the top of each compartment door.

**2.09.05 CURBSIDE DOOR CONTROL**

A heavy-duty, double spring door check capable of holding the door open at approximately a 90-degree angle on any road surface shall be installed at the top of the curbside passage door.

**2.09.06 REAR DOOR CONTROL**

Rear door controls shall be one grabber-type hold-open device with replaceable rubber catch, per door.

**2.09.07 COMPARTMENT DOOR SKINS**

Each compartment door skin shall be made of 0.080" bright aluminum diamond plate, shall be removable, and have a latch service opening with a 2.25" x 4.5" black rubber plug for lubrication and service. Door skins shall be secured with #8 pan head screws and Sikaflex. Red/white 1.5" conspicuity tape shall be installed on the outboard vertical edge of each door.

**2.09.08 ENTRANCE DOOR SKINS**

Each entrance doorskin shall be made of 0.080" bright aluminum diamond plate and be removable to service door hardware. A removable stainless-steel bezel with electric step override switch (Section 4.17 related) shall be installed at mid-height on the door skin to provide access to the latch hardware. Red/white 1.5" conspicuity tape shall be installed on the top, bottom, and vertical edges of the side passage door and curbside rear door. The streetside rear door shall have conspicuity tape on the top and bottom edges.

**2.09.09 ENTRANCE DOORWAYS**

One curbside and two rear module entrance doors shall be provided. The curbside doorway dimensions shall be 31"W x 73.75"H. The rear doorway dimensions shall be 49.75"W x 66"H.

**2.09.10 THRESHOLDS**

All compartment and module access door frames shall have full-width-formed stainless-steel threshold plates to protect the lower edge of frame.

**2.10 MODULE INTERIOR CABINETS**

Shall be formed of 0.090" aluminum and shall be securely welded or mounted to the structural framing. All interior adjustable shelves shall be mounted on 1" wide aluminum track.

**CABINET #1**

**Dimensions** – 37"W x 16"H x 14.75"D

**Location** – Streetside, upper forward

**Shelving** – One adjustable

**Door(s)** – Top hinged clear 0.25" polycarbonate with a twist/slam latch and full extruded aluminum door pulls and two gas shocks

**Lighting** – Undercabinet LED strip light (Section 6.14 related)

**Additional Instructions** – None

**CABINET #2**

**Dimensions** – 29.75"W x 16"H x 14.75"D

**Location** – Streetside, upper middle, forward of CPR seat

**Shelving** – One adjustable

**Door(s)** – Top hinged clear 0.25" polycarbonate with a twist/slam latch and full extruded aluminum door pulls and two gas shocks

**Additional Instructions** – None

**CABINET #3**

**Dimensions** – 29.75"W x 12"H x 19"D

**Location** – Streetside, center middle, forward of CPR seat

**Shelving** – One adjustable

**Door(s)** – Sliding clear 0.25" polycarbonate with felt-lined anodized aluminum track, interlocking aluminum trim, and full extruded aluminum door pulls with integral door latch.

**Lighting** – Undercabinet LED strip light (Section 6.14 related)

**Additional Instructions** – None

**#4 – Action Area**

**Dimensions** – 68.75"W (overall); 38"W x 29.5"H x 19"D (fore)  
30.75"W x 16.5"H x 19" D (aft)

**Location** – Streetside

**Additional Instructions** –

1. The following items shall be installed on the Action Area wall:
  - Dual rail oxygen outlet (Section 5.11 related)
  - Suction collector (Section 5.13 related)
  - Digital thermostat (Section 5.17 related)
  - One Sage #85131 5 qt. sharps container with mailbox lid and stainless wall-mount bracket (Section 5.26 related).
  - Attendant control panel (Section 6.13 related)
  - A *customer-supplied* Motorola E5 remote radio head, mic and speaker (Sections 6.18 and 8.02 related)
  - One 120 VAC GFCI duplex receptacle (Section 6.21 related)
  - Two round Kussmaul USB A/C charging ports (Section 6.25 related)
  - One 12 VDC receptacle (Section 6.25 related)
  - Samlex inverter status panel (Section 6.31 related)
2. A full-depth countertop shall be located below the action wall. The countertop shall be one-piece 16 ga, 304 stainless steel with a 0.5" aluminum retaining lip.

**CABINET #5**

**Dimensions** – 31.5"W x 15.5"H x 19"D

**Location** – Streetside lower rear, forward of CPR seat

**Shelving** – One adjustable

**Door(s)** – Sliding clear 0.25" polycarbonate with felt-lined anodized aluminum track, interlocking aluminum trim, and full extruded aluminum door pulls with integral door latch.

**Additional Instructions** – None

**CABINET #6 – CPR Seat with Storage****Dimensions** – Bench: 30"W x 18.75"H x 19"D

Storage: 30"W x 7.625"H x 19"D

**Location** – Streetside, aft**Shelving** – None**Door(s)** – Hinged aluminum bench lid, with high-density foam padding covered with seamless vinyl shall provide access to the storage area. It shall have a 1.5" overhang, automatic hold-open device, and a stainless-steel paddle latch. The pad shall be removable.**Additional Instructions** –

1. The CPR base to be formed from aluminum and securely anchored to sub-floor. The bottom and sides of the storage area shall be sprayed with textured gray polyurea thermoplastic elastomer and painted white with gray splatter (Section 3.07 related).
2. The CPR seat back and head pads shall have high density foam padding covered with seamless vinyl (Section 3.08 related)
3. One four-point, single-buckle, energy-absorbing seat belt with below-the-bench emergency locking retractors shall be installed on the bench (Section 5.14 related).

**CABINET #7 – Squad Bench with Storage****Dimensions** – Bench: 68.5"W x 18.75"H x 19"DStorage: 52.875"W x 7.625"H x 19"D (fore)  
16.125"W x 16"H x 19"D (aft)**Location** – Curbside**Shelving** – None**Door(s)** – Hinged aluminum bench lid, with high-density foam padding covered with seamless vinyl shall provide access to the storage area. It shall have a 1.5" overhang, two automatic hold-open devices, and a stainless-steel paddle latch. The pad shall be removable.**Additional Instructions** –

1. The squad bench base to be formed from aluminum and securely anchored to sub-floor. The bottom and unfinished sides of the storage area shall be sprayed with textured polyurea thermoplastic elastomer finish and painted white with gray splatter (Section 3.07 related).
2. The squad bench back and head pads shall have high density foam padding covered with seamless vinyl (Section 3.08 related).
3. An oxygen outlet and a momentary rocker switch labeled "DOME TIMER" shall be located at the forward end of the bench near the curbside door (Sections 5.11 and 6.16 related).
4. Two four-point, single-buckle, energy-absorbing seat belts with below-the-bench emergency locking retractors shall be installed on the squad bench for sit-up occupants. Three automatic locking retractors with three lower seat belt buckle ends shall be set up for use with stretcher patients. (Section 5.14 related).
5. One Becton Dickinson 6.9 qt. sharps container and one 7 qt. waste container shall be installed at the forward end of the curbside squad bench, with a hinged clear 0.177" polycarbonate cover with a finger hole (Section 5.26 related).
6. An oxygen window and atomic clock shall be installed in the forward-facing wall at the aft end of the bench (Sections 5.29 and 5.24 related).
7. At the forward end of the curbside squad bench seat there shall be a net system installed to prevent a person seated on the bench seat from traveling forward off the seat and into the front cabinetry due to sudden braking. The net system shall be constructed of 2" webbing and shall be easily detached for cleaning or replacement. (Section 5.34 related).

8. A 120VAC GFCI duplex receptacle and a Kussmaul combination USB-A/USB-C switch-insert-style charging port shall be located at the aft end, just below the back pad (Sections 6.21 and 6.25 related).

#### **CABINET #8 – HVAC**

**Dimensions** – 34.75"W x 16.5"H x 24.75"D

**Location** – Front, right upper

**Shelving** – None

**Door(s)** – None

**Additional Instructions** –

1. This cabinet shall house the heater/AC unit and suction pump (Section 5.17 and 5.12 related).
2. Four vents shall be installed in a vertical plenum on the aisle side of right front stack, spaced evenly (Section 5.17 related).

#### **CABINET #9 – Electrical Cabinet**

**Dimensions** – 31.25"W x 15.25"H x 10"D

**Location** – Front, center over walk-thru

**Shelving** – None

**Door(s)** – Painted aluminum, hinged, swing up door with a hold-open device, and a quarter turn slotted latch

**Lights** – One automatic LED cabinet light (Section 6.14 related)

**Additional Instructions** –

1. This cabinet shall house the electrical component module, with access provided into radio cabinet (Section 6.0 related).

#### **CABINET #10 – Radio Cabinet**

**Dimensions** – 16"W x 26.5"H x 10"D

**Location** – Front, behind attendant seat

**Shelving** – None

**Door(s)** – Painted aluminum, hinged door, with upper and lower precision punched ventilation, and a keyed quarter-turn lock.

**Additional Instructions** –

1. This cabinet is intended for radio component storage and shall be supplied with access to power component panel (Section 6.18 related).
2. A *customer-supplied* Motorola APX 8500 transceiver and a *customer-supplied* Sierra Wireless modem shall be installed in this cabinet (Sections 6.18 and 8.02 related).
3. All antenna cables shall terminate in this cabinet (Section 6.19 related).

#### **CABINET #11**

**Dimensions** – 27.75"W x 15.5"H x 24.75"D

**Shelving** – One adjustable

**Door(s)** – Sliding clear 0.25" polycarbonate with felt-lined anodized aluminum track, interlocking aluminum trim, and full extruded aluminum door pulls with integral door latch.

**Location** – Right front stack, upper right

**Additional Instructions** – None

#### **CABINET #12 – Inside/Outside Access**

**Dimensions** – 28.5"W x 35.5"H x 24.75"D

**Shelving** – One adjustable, with 1" x 1" lip down facing doorway, 24" above the floor

**Door(s)** – 1" webbed net with three quick release buckles on the right doorframe. Net shall cover only the portion of the cabinet below the adjustable shelf.

**Additional Instructions** –

1. This cabinet shall provide inside/outside access to Compartment #5.
2. A 15 amp, 12VDC circuit shall be provided for *customer-supplied-and-installed* cooler/drug box, coiled behind the closeout on the back wall (Section 5.28 related).
3. One 120VAC GFCI duplex receptacle, one 12VDC receptacle and a Kusmaul combination USB-A/USB-C switch-insert-style charging port shall be installed in the back wall, upper right (Sections 6.21 and 6.25 related).

**CABINET #13**

**Dimensions** – 16"W x 24"H x 10"D

**Location** – Behind attendant seat below radio cabinet

**Shelving** – None

**Door(s)** – 1" webbed net with three quick release buckles on the right doorframe

**Additional Instructions** – None

**2.11A**

**SIDE DOORSTEP**

A recessed curbside side doorstep shall be provided which is 11.5" deep x 31" wide. There shall be a drain hole and an open grate step plate, which is removable for cleaning purposes. Polished aluminum diamond plate kick panel shall be installed on the sides and face of doorstep.

**2.13A**

**CAB TO MODULE PASSAGE**

Shall be a pass-thru measuring 15"W x 11.5"H on the cab side, 16"W x 15"H on the module side. A manual slider in the OEM cab back window shall provide isolation between cab and module (Sections 1.01.09X and 1.03.02 related).

**2.14**

**WHEEL WELL LINERS**

Wheel well liners made of formed aluminum shall be installed in the module wheel well openings.

**2.15**

**ELECTROLYSIS PREVENTION**

All external materials and fasteners shall be selected to prevent electrolysis and corrosion due to dissimilar materials and exposure to the elements. The module shall be painted before any exterior items (hinges, latches, door hold opens, etc.) Are installed to provide an isolating film between dissimilar materials. Exterior fasteners used for direct connection to painted aluminum surfaces shall be coated with a corrosion inhibitor.

### **3 COATINGS AND FINISHES**

#### **3.01 MODULE FINISH PREPARATION**

The module shall be seam sealed and all imperfections on aluminum surfaces of module shall be sanded smooth. The entire exterior shall be mechanically etched and washed with wax and grease remover to ensure proper primer and paint adhesion.

#### **3.02 MODULE PRIMER**

Module shall be primed with urethane primer prior to applying the finish coat of acrylic urethane paint.

#### **3.03 PAINT TYPE**

Shall be Sherwin Williams acrylic urethane.

#### **3.04 COLOR SCHEME**

Base color: Flame Red (GB-100236315)

<b>Stripe #1</b>	Material:	Red #983-72 and Fluorescent Green #983-23
	Width:	6"
	Style:	Diagonal stripes alternating between the two colors
	Material:	3M 983 Series Diamond Grade Rigid Reflective
	Location:	Rear of module, below drip rail, stopping short of the outboard corner radius (Includes rear passage doors, header above doors, and area outboard of doors.)
	Additional Instructions: Edges to be sealed with clear Mylar.	

#### **3.04.01 CHASSIS COLOR**

Chassis shall be OEM Flame Red (PR4) (Section 1.01.11 related).

#### **3.04.02 VEHICLE WINDOW TINTING**

The chassis driver's, passenger's side windows, and rear cab windows shall have SunTek CIR70 71% VLT ceramic tint added to the OEM window tint.

SunTek CIR5 5% VLT ceramic tint shall be added to the OEM window tint on three module windows (Section 4.08 related).

#### **3.05 LETTERING/DECALS**

##### **Rear View**

Item #R1	Decal:	Perforated privacy decals
	Qty:	Two
	Color:	Red
	Size:	18"
	Material:	Vinyl
	Location:	Rear passage door windows

#### **3.06 COMPARTMENT FINISH**

All compartments shall be sanded, etched, washed, primed, coated with textured polyurea thermoplastic elastomer finish and painted white with light gray splatter paint (G2-33631 Alt 2 / GLV-51748).

All shelves and trays shall be sanded, etched, washed, primed, and painted white with light gray splatter paint G2-33631 Alt 2 / GLV-51748).



**3.07 INTERIOR CABINETRY FINISH**

All interior cabinetry shall be sanded, etched, washed, primed, coated with textured polyurea thermoplastic elastomer finish, and painted white with light gray splatter paint (G2-33631 Alt 2 / GLV-51748).

All shelves and trays shall be sanded, etched, washed, primed, and painted white with light gray splatter paint (G2-33631 Alt 2 / GLV-51748).

**3.08 MODULE UPHOLSTERY**

Module upholstery material shall be Dove Gray Spradling Perform 60 seamless vinyl.

**3.09X MODULE FLOORING MATERIAL**

Module flooring shall be **Lonplate II Mica #421**. It shall be seamless and cove up the side walls a minimum of 5" as a seal.

An insulated floor shall be installed over the subfloor. It shall be constructed with square tubing (0.75" x 0.75" x 0.063"), filled with 0.75" thick polyiso insulation, and covered with 0.125" aluminum sheet. (Section 2.04 related)

**3.10 COMPARTMENT LINING**

Compartment floors shall be lined with light gray Mate'flex material and all shelves with easy sweep mat.

**3.11 CABINET LINING**

Interior cabinet shelves shall be lined with easy sweep mats, which are removable for ease of cleaning.

**3.12 SURFACES AND FINISHES**

All surfaces and finishes shall be impervious to soap, disinfectants, and water, to permit washing and sanitizing.

## **4      MODULE EXTERIOR**

### **4.01X      STEP/BUMPER**

The rear bumper shall be a welded construction of 3" x 3" x 0.375" aluminum angle and 1.5" x 0.25" flat bar and shall be covered by **NFPA-embossed** 0.125" bright aluminum diamond plate. The center section, below the doors, shall have a hex-punched open flow design to prevent accumulation of water and snow and provide a 7" step. Both outermost ends shall be angled to prevent dragging of corners in high angle of departure areas. Diamond plate shall be formed on front and rear edges for channel-type strength, and a formed 0.090" aluminum closeout shall be welded to the underside of the bumper. The bumper shall be bolted directly to the chassis frame using high strength Grade 5 bolts. Bumper shall be easily removable and replaceable in case of damage. Bumper to be designed to accommodate a one-person-style cot.

### **4.02      RUB RAILS**

Bright finished extruded aluminum rub rails of a double channel design shall be installed along the lower streetside and curbside edges of the module. Rub rails shall be 2.5"H x 0.75"W x 0.125"D, with a 0.5"H red/white conspicuity reflective tape installed in the insert area.

### **4.03      FENDER RINGS**

Bright polished aluminum fender rings with a rounded outer edge shall be installed on the module, following the full contour of the wheel well opening.

### **4.04      DRIP RAIL**

Extruded, anodized aluminum drip rails shall be installed the full length of the module front, rear, and sides near the roof and over each exterior compartment and passage door. Drip rails shall be installed with bonding tape and mechanical fasteners on each end that shall withstand exposure to the elements. They shall be finished with 45-degree angled ends to avoid hooking materials which brush against the vehicle causing damage.

### **4.05      ROCK GUARDS**

Bright aluminum diamond plate rock guards shall cover the front module corners, 24" up from bottom of module, 2.5" wrapped around the sides of module, and 15" across the front of the module.

### **4.06      REAR KICK PANEL**

A bright aluminum diamond plate rear kick panel shall extend from the bottom edge of the module up to the bottom of the rear doors, full-width formed and wrapped 2.5" around the sides of the module.

### **4.07      FUEL FILL**

A polished cast aluminum fill well shall be installed on the streetside of the module and be properly vented. Fill and vent hoses shall be installed and protected in accordance with the chassis bodybuilder recommendations.

OEM DEF fill located between the cab and module, streetside.

**4.08           MODULE WINDOWS**

All module windows shall have black anodized aluminum frames, rubber gaskets, be dark-tinted and shall be attached with screws for ease of replacement. The side passage door window shall be 18.75" x 18.75" with sliding glass, a positive catch, and a screen. The rear door windows shall be 18.75" x 18.75" fixed glass to prevent exhaust from entering the module.

Red window perforated vinyl privacy decals shall be installed on the rear passage door windows (Section 3.05 related).

**4.09           FUEL SPLASH GUARD**

A stainless steel fuel splash guard shall be installed below the fuel fill.

**4.10           EXTERIOR CYLINDER STORAGE**

Compartment #4 shall have a welded bracket, painted to match the compartment, and three ratcheting straps with UHMW stiffeners set up for storage of a *customer-supplied-and-installed* H or M-size cylinder.

**4.16           REAR LICENSE PLATE**

A rear license plate holder and an incandescent light shall be installed on the rear of the module, streetside lower above the kick panel.

**4.17           ELECTRIC STEP**

A Zico VS-24-11 single electric step with a 10.5" drop shall be installed under the curbside passage door and shall be wired to extend and retract with the door.

**4.34           AUTOMOTIVE UNDERCOATING SEAL**

The chassis and module underbodies (excluding the area above the fuel tank, driveline, and exhaust lines, per manufacturer's specifications) shall be sprayed with undercoating for reduced corrosion and added sound deadening.

## **5**

### **MODULE INTERIOR**

All interior hangers, supports, fasteners, latches, and hinges shall be of a near flush type design when not in use. The patient compartment shall be free of sharp projections. Exposed edges and corners shall be broken with a radius, chamfer, or covered with aluminum trim, plastic molding, or rubber edging.

#### **5.01 UPPER WALL COVERING**

The upper module interior walls shall consist of light gray, heavy-grade, 0.125" ABS vinyl panels attached to the wall structure with a closed-cell polyethylene foam tape coated on both sides with a permanent acrylic-based pressure-sensitive adhesive.

#### **5.02 HEADLINER**

The headliner shall be 0.125" aluminum which is sanded, etched, washed, primed, and coated with textured polyurea thermoplastic elastomer, and painted white with light gray splatter paint (G2-33631 Alt 2 / GLV-51748).

#### **5.03 HEAD PADS/CUSHIONS**

Head pads located over all module access openings shall be 1.5" foam covered with heavy-duty seamless vinyl upholstery.  
Seat cushions shall be 3" foam covered with heavy-duty seamless vinyl upholstery (Section 3.08 related).

#### **5.04 LOWER WALL COVERING**

The squad bench sides and lower portion of the streetside wall shall be nonporous, color-coordinated material.

#### **5.05 GRAB RAIL**

One 75"L x 1.250"D stainless steel grab rail with three support brackets shall be securely mounted to roof structural framing running through centerline.

#### **5.06 ACCESS DOOR GRAB RAILS**

Each module access door shall have a 1.250"D L-style stainless steel grab handle which may also be used as an entry assist rail.

#### **5.07X IV HANGERS**

Two retractable dual IV hangers with stabilizers shall be surface-mounted in the ceiling over the primary cot. **Buttons shall be removed.**

#### **5.08D COT MOUNT**

A *customer-supplied* Stryker Power-LOAD #6390 cot fastener system shall be installed by BNW (Section 8.02 related).

A *customer-supplied* safety hook shall be installed in the Power-LOAD floor plate.

The Power-LOAD anchor assembly shall be installed to position the aft end of the cot 11" forward of the rear doors.

To allow use of non-Power-LOAD, cots with the Power-LOAD system, a floor plate with plastic cover shall be installed for mounting the rear rail clamp.

#### **5.09 COT PLATES**

Two bright finish stainless steel 7" wide cot plates shall be installed and shall run from the rear passage doors to the forward wheel position. The cot plates shall be attached with a reinforced acrylic tape and polyurethane adhesive sealant system.

**5.10B ATTENDANT SEAT**

A Wise #1657 rear-facing high-back bucket seat with a built-in child safety seat and upholstered with heavy grade vinyl, Dove gray, shall be located at the head of the cot position and provide easy access to all action wall controls and outlets, and to the patient. Seat shall swivel, have a four-point automatic locking retractor seat belt, and be securely anchored on a #1934 swivel base.

**5.11B OXYGEN SYSTEM**

The entire oxygen system shall be assembled with certified oxygen hose (200 PSI maximum working pressure) with brass fittings, be pressure tested, and certified. A 50 PSI regulator shall be included, a bulkhead connector shall be installed in the ceiling of Compartment #4, and one oxygen tank wrench shall be attached to the compartment wall with hook-and-loop tape.

Two Ohio-type outlets shall be installed:

- One dual rail outlet in Action Area #4
- One on the curbside wall above the squad bench

One recessed oxygen outlet with 0 – 25 LPM constant flow regulator with barbed outlet shall be installed in the ceiling above primary patient with the dial facing forward.

**5.12 SUCTION PUMP**

The unit shall have an electric pump as the source of suction. Control shall be on the attendant panel. Suction pump shall be installed behind HVAC close-out and vented to the outside of the vehicle under the module body. The pump shall be controlled by an on/off switch labeled "SUCTION" on the attendant panel in Action Area #4.

**5.13 SUCTION COLLECTOR**

A Rico #RS4X-1001B suction regulator and wall-mount bracket with a 1200cc Rico disposable canister shall be installed in Action Area #4.

**5.14X SEATBELTS**

Black DOT-compliant seat belts shall be installed at each seating position. Two four-point, single-buckle, energy-absorbing seat belts with below-the-bench emergency locking retractors shall be installed on the squad bench for sit-up occupants. Three automatic locking retractors with three lower seat belt buckle ends shall be set up for use with stretcher patients. One four-point, single-buckle, energy-absorbing seat belt with below-the-bench emergency locking retractors shall be installed on the CPR seat. The attendant seat shall have a four-point, single-buckle seat belt.

**5.16 INSULATION**

The module side, ends, roof, doors, and floor shall be insulated to enhance the interior environment and to restrict heat, cold, and external noise from entering the module. The insulation shall be a non-settling foam plank material of 1.5", or 0.75" thickness depending upon location and available space.

Roof, doors, wall, and floor insulation shall be polyisocyanurate.

A 3" wide, 60-mil, closed cell polyethylene foam tape shall be used as a thermal break on the inside surface of the wall tubes.

#### **5.17X      MODULE CLIMATE CONTROL SYSTEM**

The module HVAC system shall incorporate a combination heating/air conditioning unit with 43,300 BTU/hr. heating and 32,000 BTU/hr. cooling capacity. The unit shall have a 580 CFM fan and controls independent of the cab system. A 12 VDC booster pump shall be installed to optimize the heating capacity in the module. A return air path with open area equal to at least twice the blower outlet area shall be incorporated into the evaporator closeout.

The module system shall be controllable by a digital thermostat located on the streetside wall in the Action Area #4.

Four vents shall be installed in a vertical plenum on the aisle side of right front stack, spaced evenly.

An 83,000 BTU/hr. auxiliary dual fan condenser with a white housing shall be added to the roof of the module.

A TM-21 auxiliary air conditioning compressor kit shall be added to the chassis engine.

**Check AC line routing to ensure the engine air filter can be removed without discharging the a/c system. Contact customer for pre-authorization if re-routing is needed.**

#### **5.18      EXTERNAL AIR INTAKE**

To supplement heated or cooled air with fresh air, an external air intake shall be provided on the side of the module. The intake shall consist of an opening protected by an aluminum vent cover. The interior chamber of the intake shall be made of aluminum and be formed to prevent the collection of moisture. Washable filter media shall be installed in the intake chamber.

#### **5.19      AIR RETURN**

A return air path with an open area equal to at least twice the blower outlet area shall be incorporated into the evaporator closeout.

#### **5.20      EXHAUST VENT**

A motor-powered exhaust vent with a chrome Perko cover shall be located in the streetside rear corner of the module. A switch labeled "VENT" shall be installed in the Action Area #4 attendant panel to turn the exhaust vent on/off (Section 6.13 related).

#### **5.24A      CLOCK**

An Atomic controlled clock shall be installed on the forward-facing wall, aft of the curbside squad bench. The clock shall be LCD display and show hours (12/24 selectable), minutes, seconds, date, day, and temperature. Clock shall be powered by two "AA" alkaline batteries.

#### **5.26X      SHARPS/HAZARDOUS WASTE CONTAINER**

One Becton Dickinson 8.2 qt. sharps container and one 6.9 qt. waste container shall be installed at the forward end of the curbside squad bench, with a hinged clear polycarbonate cover with a finger hole.

One Sage #85131 5 qt. sharps container with mailbox lid and stainless wall-mount bracket shall be installed on the wall of Action Area #4.

**5.28X**

**COOL CABINET**

A 15-amp 12VDC circuit shall be provided in Cabinet #12 for a *customer-supplied-and-installed* cooler/drug box, coiled loose behind a closeout.

**5.29A**

**OXYGEN WINDOW**

A 6" x 11" clear polycarbonate oxygen window with knob and self-closing hinges shall be installed on the forward-facing wall at the aft end of the squad bench.

**5.34C**

**PERSONNEL RESTRAINT**

A net system shall be installed at the forward end of the curbside bench to prevent a person seated on the bench seat from traveling forward off the seat and into the front cabinetry due to sudden braking. The net system shall be constructed of black 2" webbing and shall be easily detached for cleaning or replacement.

## **6**

## **ELECTRICAL**

All added body and chassis electrical equipment shall be served by circuits separate and distinct from the vehicle chassis circuits. All vehicle wiring shall be copper and conform to all SAE J1128 requirements. The wiring shall be colored, numbered, or function coded every 3" for permanent identification and correspond with the vehicle schematics. Solderless, insulated connectors shall be used. Slotted Panduit-style wiring duct shall be used in electrical component module to ensure air circulation throughout power component wiring. The wiring shall be routed in conduit or looms and wiring shall be secured to the underbody or frame with insulated metal cable straps. All power distribution cabling shall be covered with a protective split loom. Where wiring passes over the exhaust, a heat shield shall be installed. The electrical component module shall be equipped with positive locking plugs to provide easy disconnect for remount or repair of body. All wiring devices, switches, outlets, etc., except circuit breakers, shall be rated to carry 125% of the maximum ampere load for which the circuit is protected.

The vehicle electrical system shall be tested and certified to AMD 005 requirements.

### **6.01 ELECTRICAL LOAD DEVICES**

Body electrical wiring shall utilize overload protective devices of the automotive-type circuit breaker. In addition, one single pole, 20-amp circuit breaker shall be provided for future use. The circuit breakers, relays, and other electrical items shall be located in included as part of the enclosed electrical component module located in Cabinet #9.

### **6.02 VOLTMETER/AMMETER**

A single display voltmeter/ammeter shall be installed on the side of the console, driver's side, which simultaneously displays voltage and alternator current when the ignition is on (Section 6.09 related). Display flashes to indicate low voltage.

### **6.04 IGNITION CONTROL**

Chassis electrical circuits shall be controlled by the ignition switch as provided by the OEM chassis manufacturer. The auxiliary chassis-related functions shall be powered by one 100-amp continuous duty solenoid, triggered by the chassis ignition.

### **6.05A MODULE POWER**

Module power shall be controlled by a driver's console-mounted switch labeled "MODULE DISC." which activates an InPower #SSC42-275 solid state contactor (Section 6.09 related). An ignition interlock shall disconnect module power 15-20 minutes after the vehicle's ignition is turned off. The interlock shall also allow module power to be reactivated independently for 15-20 minutes by cycling the ignition switch.

### **6.06 WIRING ACCESS**

All cabinets and compartments shall have removable panels as needed to access wiring harnesses and hoses.

### **6.07 BACK-UP ALARM**

An SAE J994-compliant self-adjusting back-up alarm shall be installed, with a momentary disable switch labeled "BACK-UP DISABLE" in the driver's console (Section 6.09 related). If disabled while in reverse, the back-up alarm shall automatically reset when shifted out of reverse.



## 6.08

### SERVICE LOOP

A 6" service loop of wire or harness shall be provided at all electrical components, terminals, and connection points.

## 6.09

### DRIVER'S CONSOLE/MAP BOX

A custom 16"L driver's console made of black-powder-coated formed aluminum shall be installed between the seats. The console shall be installed as far back as possible to allow for installation of customer-supplied MDT mount (Section 6.18 related). It shall have:

- A digital voltmeter on the side of the console, facing the driver (Section 6.02 related)
- A cup holder plate
- Bolt-on armrests
- A map holder with four mill-finished aluminum dividers
- The forward portion of the driver's console shall be notched to allow clearance for the OEM 4x4 shifter.

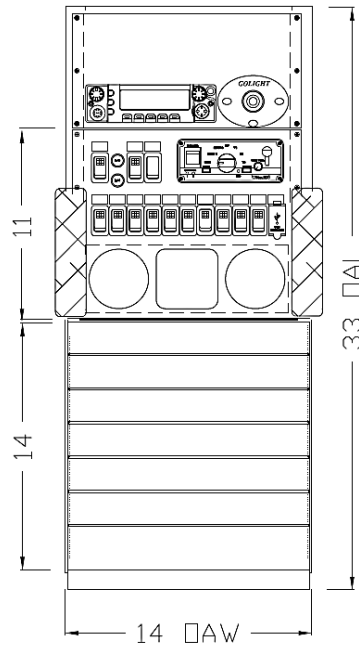
A custom 12.5" H faceplate with the following layout:

Blank
-------

<i>Customer-Supplied</i> Motorola E5 remote head (Sections 6.18 and 8.02 related)	Golight Controller (Section 6.30.05 related)
--	---

1.	Door Open Lights	2.	3.	Siren (Section 6.30.09 related)
Mod Disc		Emerg Master	Back-up Disable	

4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
Lightbar Red	Lightbar White	Flasher	Wig Wag	Opticom	Left Scene	Right Scene	Rear Scene	Spare	Blank	USB A/C



## CONSOLE PROPOSAL DRAWING

### OTHER:

A *customer-supplied* Havis MDT mount, docking station, and Lind power supply shall be installed on the front of the console, towards the passenger side (Sections 6.18 and 8.02 related).



### 6.10

#### SWITCHES

Switches installed in the driver's console and switch panel(s) shall be rocker-type and permanently marked by function.

### 6.12D

#### DOOR AJAR WARNING LIGHT(S)/BUZZER

A flashing LED light with a red lens shall warn the driver of an open module passage door, and a flashing LED light with an amber lens shall warn the driver of an open module compartment door. The lights shall be installed on the driver's console (Section 6.09 related). The lights shall flash when a door is open and the ignition is on. In addition to the lights, a buzzer shall sound when door is open and vehicle is out of park.

**6.13A****ATTENDANT CONTROL PANEL**

A six-switch attendant control panel shall be located on the streetside wall forward portion of the Action Area #4 with the following switch layout:

1.	2.	3.	4.	5.	6.
Dome (Hi-Off-Lo)	Dome (Hi-Off-Lo)	Suction	Vent	Attendant Light	Blank

A digital thermostat and an inverter status panel shall be located adjacent to the attendant control panel.

**6.14****CABINET LIGHTING**

The wall area below Cabinets #1 and 3 shall be lighted utilizing under-cabinet LED strip lighting with an on/off switch labeled "ATTENDANT LIGHT" in the streetside attendant panel (Section 6.13 related). An automatic cabinet light shall be installed in Electrical Cabinet #9.

**6.15****STEP LIGHTS**

A Whelen #3SC0CDCR Clear Lens Clear 3" LED light shall be installed on the forward wall of the curbside door stepwell.

**6.16B****MODULE INTERIOR LIGHTING**

Shall be designed to keep vehicle height to a minimum without interfering with the structural integrity of the roof. Module interior lighting shall consist of seven dual intensity Whelen #80C0EHCR LED recessed lights - one bank of four lights shall be positioned toward streetside and three lights toward curbside. There shall be a switch for each bank of lights on the Action Area wall for "DOME HI-OFF-LO" (Section 6.13 related).

The three lights on the curbside shall be automatically activated when the rear or side passage doors are opened, or by a momentary rocker switch labeled "DOME TIMER" mounted on the wall near the curbside passage door, which shall activate a battery hot timer. Pressing the switch once shall initiate 15-minute timed operation of the lights. Pressing the switch again shall cancel the timed operation.

**6.17****BASIC EXTERIOR LIGHTING**

Basic lighting shall include headlights, parking lights, directional signal lights, tail and stop lights, license plate light, back-up lights, hazard lights, identification lights, clearance lights, and side marker lights as required by FMVSS 108.

Module identification lights, clearance lights, and side marker lights, unless included on a lightbar, shall be Truck-Lite LED Model 36.

Rear and side reflex reflectors shall be installed in accordance with FMVSS 108 requirements.

Rear stop/tail, turn and back-up lights shall be Truck-Lite Model 45 series LED lights, installed in the rear kick panel, pattern from outboard in: red stop/tail light, amber turn signal, and clear back-up light. The back-up lights shall activate automatically when the vehicle is placed in reverse.

## 6.18

### COMMUNICATION EQUIPMENT

The customer shall be responsible for powering up and tuning of the radio equipment.

#### Item #1

**Description:** One *customer-supplied* Motorola APX 8500 radio transceiver with two E5 remote heads, two mics, and two auxiliary speakers shall be installed by BNW (Section 8.02 related).

**Location:** Transceiver in Cabinet #10, one remote head and mic in the driver's console with speaker on the front of the console, and one remote head, mic and speaker in Action Area #4

**Additional Instructions:** All connections shall be made, including antenna, antenna cable(s), battery power, ignition power, and grounds. Prior to powering up of the module, all in-line fuses of radio equipment shall be removed and secured to their fuse holders.

#### Item #2

**Description:** One *customer-supplied* Sierra Wireless modem shall be installed by BNW (Section 8.02 related).

**Location:** Radio Cabinet #10

**Additional Instructions:** All connections shall be made, including antenna, antenna cable(s), battery power, ignition power, and grounds. Prior to powering up of the module, all in-line fuses of modem equipment shall be removed and secured to their fuse holders.

#### Item #3

**Description:** One *customer-supplied* Havis MDT/docking station with Lind power supply shall be installed..

**Location:** Front of driver's console, passenger side

**Additional Instructions:** All connections shall be made, including antenna, antenna cable(s), battery power, ignition power, and grounds. Prior to powering up of the module, all in-line fuses of MDT equipment shall be removed and secured to their fuse holders.

## 6.19X

### ANTENNA MOUNTS AND CABLES

Four NMO universal antenna mounts with KHFUD/RG58UD cables, Larsen HyPermaste universal connectors and mini-UHF adapters shall be installed on the module roof. Antenna base access shall be through the dome light openings, and the cables shall terminate in the Cabinet #10.

Eighteen inches of coiled cable shall be provided at the roof, and thirty-six inches of cable shall be coiled in the Cabinet #10.

### 6.19.01

#### ANTENNA

The following *customer-supplied* antenna shall be installed on the antenna mounts (Section 8.02 related):

- One UHF antenna
- One 800 MHZ antenna
- One Mi-Mo (Multiple Input Multiple Output) antenna with 25' cables

The GPS antenna for the 360-camera system shall be installed on the module roof (Section 6.46X related).

## **6.20 BLOCK HEATER**

The OEM block heater connection shall not be modified.

## **6.21X 120VAC/SHORELINE CIRCUIT BOX**

Utility power shall be furnished from 120VAC shorepower via a Kussmaul 20 A Super Auto-Eject plug with a yellow cover on a stainless-steel plate with a Kussmaul 091-189-12 battery meter located on the streetside forward corner of the module, and distributed via a formed aluminum power box with an easily removable cover, recessed into the forward wall of the streetside forward compartment.

Circuit breakers shall be installed for overcurrent protection and circuit isolation:

- Block Heater (15 A)
- Inverter (20 A)
- Receptacles (15 A)

All exposed receptacles shall be ground fault circuit interrupting (GFCI) and shall have a power on indicating light.

Two interior 120 VAC GFCI duplex receptacles shall be installed:

- One in Action Area #4
- One in Cabinet #12

## **6.22 BATTERY GROUNDS**

In addition to OEM chassis grounds, the following ground circuits shall be added to reduce RF interference:

- A minimum 4 ga. ground cable from the power component panel to the chassis frame.
- Two braided ground straps from the module body to the chassis frame.

## **6.23 BATTERY CHARGER**

A 60-amp battery charger shall be provided as part of the Samlex Pure Sine 1200-watt inverter system. (Section 6.31 related)

## **6.24X BATTERY MODIFICATIONS**

Chassis batteries shall be utilized in existing locations.

## **6.25 12VDC RECEPTACLES**

Two 12VDC, 15-amp power point receptacles shall be provided;

- One in Action Area #4
- One in Cabinet #12

Five Kussmaul switch-insert style USB-A/C charging ports shall be installed:

- Two in Action Area #4
- One on back wall at aft end of Curbside Bench #7
- One in the Cabinet #12
- One port in the driver's console

All 12 VDC power point receptacles, USB charge ports, 12 VDC charging circuits, electric air compressors, powered cots, and cool cabinets, if present, shall be powered from a 12 VDC auxiliary bus. An InPower LVD20-100-SPC540 low voltage disconnect switch shall deliver power to the auxiliary bus only when the supply voltage to the vehicle batteries is at or above 13.0 VDC.

**6.26**

**COMPARTMENT LIGHTING**

LED strip lighting shall be installed in each outside compartment, and shall be activated by the respective compartment door switch.

**6.27**

**EXTERIOR DOOR SWITCHES**

Shall be 1/2" door mechanical switches.

## 6.30

### EMERGENCY WARNING SYSTEMS

Note: Opticom and white flashers shall disable when vehicle is placed in PARK (Sections 6.30.01 and 6.48 related).

#### 6.30.01X

##### FRONT LIGHTBAR

A 94" Whelen 4500 Plus Series LED lightbar shall be recessed on the front of the module, pattern curbside to streetside:

Location	Lens Color	Model	Light Color	Type	Light	Flash Pattern	Additional
Curbside	Blue	700 Series	Blue	LED	Flasher	A/F 150	
	Red	700 Series	Red	LED	Flasher	A/F 150	
	Clear	700 Series	Clear	LED	Flasher	A/F 150	
Center	Clear	792H	Visible light	Strobe	Opticom		Section 6.48 related
Streetside	Clear	700 Series	Clear	LED	Flasher	A/F 150	
	Red	700 Series	Red	LED	Flasher	A/F 150	
	Blue	700 Series	Blue	LED	Flasher	A/F 150	

The lightbar shall be recess-mounted with the horizontal plane of the roof, and protrude no more than 1/2" beyond the vertical plane of the front and sides of the module. The LED ICC clearance and identification lamps shall be an integral part of the lightbar.

The colored lightbar flashers shall be controlled by the "LIGHTBAR RED" switch in the driver's console (Section 6.09 related). The white flashers shall be controlled by the "LIGHTBAR WHITE" switch and shall be disabled when the vehicle is shifted into park.

#### 6.30.02X

##### REAR LIGHTBAR

A 94" Whelen 4500 Plus Series LED lightbar shall be recessed on the rear of the module, pattern curbside to streetside:

Location	Lens Color	Model	Light Color	Type	Light	Flash Pattern	Additional
Streetside	Blue	700 Series	Blue	LED	Flasher	A/F 150	
	Red	700 Series	Red	LED	Flasher	A/F 150	
	Clear	Triple LR11	Clear	LED	Scene Light	None	(Section 6.30.04 Related)
	Amber	700 Series	Amber	LED	Flasher	A/F 150	
Center	Red	704BTT	Red	LED	BTT		Third Brake Light
Curbside	Amber	700 Series	Amber	LED	Flasher	A/F 150	
	Clear	Triple LR11	Clear	LED	Scene Light	None	(Section 6.30.04 Related)
	Red	700 Series	Red	LED	Flasher	A/F 150	
	Blue	700 Series	Blue	LED	Flasher	A/F 150	

The lightbar shall be recess mounted with the horizontal plane of the roof and protrude no more than 1/2" beyond the vertical plane of the rear and sides of the module. The clearance lights shall be an integral part of the light bar

The red, blue and amber flashers shall be controlled by the "LIGHTBAR RED" switch on the driver's console (Section 6.09 related).

The rear scenelights shall be controlled by the "REAR SCENE" switch on the driver's console (Section 6.09 related) and shall activate when rear doors are opened or when vehicle is placed in REVERSE.

#### **6.30.03B FLASHERS**

Four Whelen #M9R Red lens Red Super LED flashers with chrome flanges shall be installed, two on each side of module in upper corners.

Two Whelen #M9A Amber lens Amber Super LED flashers with chrome flanges shall be installed on the rear of the vehicle at window height.

Lights shall be controlled by the "FLASHER" switch on driver's console (Section 6.09 related).

#### **6.30.04 SCENELIGHTS**

Four Whelen Model #M92SLC LED scenelights with chrome flange installed, two on each side on the curbside and streetside of the module in the upper corners, inboard of the flashers. The side door shall activate the curbside scenelights. The scenelights shall also be controlled by the respective switches on the driver's console (Section 6.09 related).

Two Whelen LR-11 LED scene lights shall be included in the rear lightbar. The rear scene lights shall be controlled by the "REAR SCENE" switch on the driver's console (Section 6.09 related), and shall activate when the rear curbside passage door is opened or when the vehicle is placed in reverse.

#### **6.30.05 SPOTLIGHT**

Shall be a Golight #20204GT roof-mounted LED spotlight with white housing, and a stainless-steel mounting bracket installed in the center of the cab roof. A hard-wired controller, wired ignition hot, shall be mounted on the driver's console. (Section 6.09 related)

#### **6.30.06A INTERSECTION LIGHTS**

Four Whelen #M4R Red lens Red LED flashers with chrome flanges shall be installed one on each cab fender and one above each module wheel well.

Lights shall be controlled by the "FLASHER" switch on the driver's console (Section 6.09 related).

#### **6.30.08X GRILLE LIGHTS**

Four Whelen WION series LED flashers with chrome housings shall be installed on the OEM grille.

Two #WIONSMCC Clear Lens Clear flashers shall be installed, inside the grille chrome trim area, outboard of the RAM logo, close to the head lamps.

Clear flashers be controlled by the "WIG-WAG " switch on the driver's console (Section 6.09 related).

Two #WIONSMCR Clear Lens Red flashers shall be installed, below the chrome trim area, vertically as far outboard as possible.

Red flashers to be controlled by the "FLASHER" switch on the driver's console (Section 6.09 related).

Example photos from #3047-1:





#### **6.30.09 SIREN**

A Whelen 295SLSA1, 200 watt siren shall be installed in the driver's console (Section 6.09 related). Standard features shall include Radio Rebroadcast, Public Address, Manual, Wail, Yelp, Air horn, and Piercer tones. The siren's hands free function shall operate through the OEM horn ring circuit when the sirens rotary selector is in the HF position and the emergency master switch is on.

#### **6.30.10B SIREN SPEAKERS**

Two Federal Signal DynaMax #ES100C 100-watt speakers with mounting brackets shall be installed in the OEM bumper cutout.

#### **6.31 INVERTER**

A Samlex 1200-watt pure sine wave inverter with a 60 amp battery charger shall be installed with a perforated surround on the floor of Compartment #1. For ventilation, a filtered vent shall be installed on the forward wall, and a soffit vent on the back wall, in line with the inverter. An EVO-RC Plus inverter remote control panel shall be installed in Action Area #4 The inverter shall be configured to turn on and off with ignition.

#### **6.45 ADDITIONAL LIGHTING**

A 10-amp 12VDC circuit shall be provided in Compartment #2, lower aft for *customer-supplied-and-installed* flashlight charger.

#### **6.46X AUDIO/VIDEO/RECORDING**

##### **Item #1**

**Description:** A Rostra #250-8309-W back-up camera system shall be installed, including a surface-mounted camera and a rear-view mirror/monitor with a 4.3" screen.

**Location:** Camera on the rear of the module, centered above the rear passage doors. Rearview mirror/monitor centered on chassis windshield, upper.

**Additional Instructions:** Camera shall automatically display on monitor when the vehicle is placed in reverse. The programming remote shall be shipped loose (Section 8.01 related)

##### **Item #2**

**Description:** A 10-amp 12VDC circuit shall be provided.

**Location:** Compartment #3 (behind closeout)

**Additional Instructions:** For *customer-supplied-and-installed* thermal imaging camera charger.

#### **6.48X TRAFFIC SIGNAL PREEMPTION**

Lightbar shall include a center-mounted GTT #792H visible strobe Opticom traffic preemption emitter, with BNW #65767 bracket.

The Opticom shall be controlled by the "OPTICOM" switch on the driver's console (Section 6.09 related) and shall disable when the vehicle is shifted into park.

**7.01****OWNER'S MANUAL**

Shall be provided with the vehicle and shall include the following items:

1. Braun Northwest Contact Information
2. Warranties
3. Service and Operations Manual
4. Electrical Drawings
5. Parts list
6. Specifications and Drawings
7. Certifications
  - a. AMD 005 Low Voltage Electrical System Test
  - b. AMD 015 Ambulance Main Medical Gas System Test
  - c. AMD 021 Aspirator System Test
8. Product Manuals
9. Second OEM chassis key

**7.03****LABELS**

The following labels shall be provided:

<b>Label Description</b>	<b>Location</b>
Braun Northwest Paint Label	Inside of the electrical cabinet door
FMVSS Certification Label	Adjacent to the chassis OEM stickers, typically on the B pillar (or inside of the electrical cabinet door if there is not room on the B pillar)
Tire and Loading Information Label (for under 10k GVWR only)	
Must be Seated and Belted	Visible from each seating position
No Smoking/Oxygen Equipped	One each in cab and patient compt.
Overall Height and GVWR	Visible to the driver while seated
Medical Gas Test Certification	Near the medical gas cylinder
Shorepower Inlet Rating	Near the shorepower inlet
Line Voltage Receptacle Rating	At each receptacle

## **8 MISCELLANEOUS EQUIPMENT**

### **8.01 LOOSE EQUIPMENT**

The following equipment shall be shipped loose with the vehicle:

1. Touch up paint, one bottle each:
  - Flame Red #GB-100236315
  - White (G2-33631 Alt#2)
  - Gray (GLV-51748)
2. One 20 amp auto eject cord end
3. Four coax ends
4. Two compartment keys
5. Rearview mirror programming remote
6. Spare tire and wheel

### **8.02 CUSTOMER SUPPLIED EQUIPMENT**

The customer shall provide the following equipment and have delivered to Braun Northwest within 30 days of the preconstruction meeting:

1. One Stryker Power LOAD system with safety hook
2. Havis MDT mount with docking station and Lind power supply,
3. Motorola APX 8500 transceiver with two E5 remote heads, two aux speakers, and two mics
4. One Sierra Wireless modem

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