SPECIFICATIONS	BIDDER COMPLIES	
	YES	NO

SPECIFICATIONS FOR
THREE (3) NEW TYPE III CLASS I STAR-OF-LIFE CERTIFIED AMBULANCES
160”X95”

The Emergency Medical Vehicles described in this specification are designed to meet or exceed the requirements of Ford Motor Company QVM Program, Federal Ambulance Specification KKK-A-1822 Revision E, and AMD Standards 001-009. **The specifications listed herein will apply to <u>all</u> vehicles furnished.**
NOTE: Throughout the written Federal Ambulance Specification KKK-A-1822, there are frequent references to items to be included WHEN SPECIFIED. The manufacturer will build into a given ambulance any WHEN SPECIFIED item, but such items may not be included in the attached specifications.

This specification covers new, commercially built surface emergency medical care vehicles herein after referred to as ambulance or vehicle. A vehicle in compliance with this specification shall be defined as a standard ambulance. This vehicle shall be in accord with the Ambulance Design Criteria of the National Highway Traffic Administration, U.S. Department of Transportation, Washington, D.C. This bid specification is based on the Federal Ambulance Specification KKK-A-1822E effective June 2002.
The purpose of this document is to provide minimum specifications and test parameters for the manufacture of emergency medical care vehicles that meets the needs and desires of this agency. It establishes essential criteria for the design, performance, equipment, and appearance of the vehicle. All dimensions listed are given as the approximate sizes required to meet the needs of this department. The object is to provide a vehicle that is in accordance with nationally recognized guidelines. All vendors and manufacturers must meet all state and local regulations regarding the manufacturing, licensing, and sale of emergency rescue vehicles and ambulances within the state of South Dakota.

This specification calls for the following type of vehicle. It is in accordance with paragraph 1.2.1 of KKK-A-1822E.

Type III: Specialty van (cutaway chassis) with integral or containerized modular body.

Class I: Two-rear wheel driven (4x2).

Configuration B: Elevating cot and squad bench for ALS (see 3.1.5.1/3.15.3 of KKK-A-1822E).

This is an engineer design, construct, and deliver type specification and it is not the intention of this agency to write out vendors or manufacturers of similar or equal equipment of the types specified. It should be noted, however, that this specification is written around the specific needs of this department. With the intent to standardize certain components, specific brands have been specified in certain places. This has been done to establish a certain standard of quality. Other brands will be accepted providing the vendor or manufacturer details how another brand will meet or exceed the quality of the actual brand specified.

The emergency medical care vehicles, chassis, ambulance bodies, equipment, devices, medical accessories, and electronic equipment to be delivered under this contract shall be standard commercial products that meet or exceed the requirements of this specification. The ambulances shall comply with all Federal Motor Vehicle Safety Standards (FMVSS) and Federal regulations applicable or specified for the year of manufacture. The chassis, components, and optional items shall be represented in the manufacturer's current technical data. Materials used in the construction shall be new and not less than the quality conforming to current engineering and manufacturing practices. Materials shall be free of defects and shall be suitable for the intended use.

Any exceptions to these specifications must be clearly pointed out. Otherwise, it will be considered that the items offered are in strict compliance with the written specifications and that the successful bidder will be responsible for delivering vehicles meeting these specifications. Any exceptions must be marked as such within the body of the bid and explained on a separate page marked "EXCEPTIONS".

INFORMATION AND DESCRIPTIVE MATERIAL

The bidder must furnish all information requested in the spaces provided on the bid forms. The manufacturer must supply a web site address for the Ford QVM program certification list as proof that they are a current member of the Qualified Vehicle Modifier Program.
The manufacturer must also supply certification to the current revision of KKK-A-1822 Specification for this particular type of vehicle, and at least one (1) complete set of sketches, descriptive literature, and complete specifications covering the products offered. Bids not meeting this requirement will be considered non-responsive and shall be rejected.

GENERAL LIABILITY

Bidders are required to submit with their bids a Certificate of Liability Insurance in the amount of five million dollars ($ 5,000,000) in general liability as issued by the bidders insurance company.

WARRANTY

The successful manufacturer shall provide a twelve (12) month/12,000 mile warranty on the vehicles which covers defective parts and/or components, the improper choice of materials, parts, and/or components, improper design or engineering, and poor or improper workmanship or quality control techniques. The warranty shall cover the complete vehicle and shall include all costs for labor and parts or materials that are required to correct all deficiencies.

There shall be provided a lifetime electrical warranty that covers all conversion circuit boards, harnesses, switches, circuit breakers, and relays.

There shall be provided a lifetime transferable modular body structural warranty. The term transferable is to cover the transfer of the warranty to a second purchaser should the department sell this unit later. The lifetime structural warranty period shall also remain in effect should the modular body be remounted onto a new chassis. This remount must be performed at a service center authorized by the original manufacturer.

There shall be a ten (10) year/50,000 mile paint warranty.

WARRANTY SURETY
To ensure quality, service, and full compliance to the above warranties, the ambulance manufacturer must construct the complete vehicle, with the exception of the chassis. Additional elements constructed and installed "in house" are required to ensure service and parts availability. Subcontractors or lease/rental agreements to outside agencies will fail to meet this requirement. NO EXCEPTIONS WILL BE ALLOWED.

- Does the ambulance manufacturer as the prime contractor construct the modular body?
- Does the ambulance manufacturer as the prime contractor apply paint?
- Are interior cabinets constructed and installed by the ambulance manufacturer as the prime contractor?
- Are the wiring harnesses, circuit boards, and oxygen systems assembled, installed and tested by the ambulance manufacturer as the prime contractor?
- Is the upholstery for seat cushions, head pads, and backrests assembled and installed by the ambulance manufacturer as the prime contractor?

SERVICE FACILITY
The successful bidder must have access to a service facility. Bidders must list below the nearest service facility and parts department to the purchaser.

Facility Name: _____

Address: _____

Phone Number: _____

Contact Name: _____

Appx. miles from agency: _____

REFERENCES
All bidders must submit a list containing a minimum of fifteen [15] customers who are operating a similar model ambulance as described in this specification. The customer reference list shall contain the Department name, address, phone number and contact person. References shall be of units sold since 2004, by the dealer who is bidding.

QUALITY ASSURANCE
To ensure the purchaser that proper engineering and production control guidelines have been implemented, the ambulance manufacturer shall employ an integrated quality and process control program including specific process controls for facets of the manufacturing process deemed to be “critical.” These critical elements of the process shall be documented and that documentation shall be available not only to manufacturing personnel but also customers who visit the manufacturing facilities.
The critical elements shall be denoted on the vehicle control document, which accompanies the vehicle through the manufacturing process. A sample of this document shall be available to the purchaser upon request. A continuous series of inspections shall be performed and signed off on the vehicle control document and shall include but not be limited to the following:

Visual inspection of the body, welds, and exterior attachments.
Visual and mechanical inspection of the heater/air conditioning lines, cables, grommets, valve connections, clamps, mounting brackets, belts, etc.
Visual inspection of cabinets, sliding/hinged cabinet doors, moldings, flooring, walls, headliner, and cushions.
Visual inspection of exterior paint, decals, and lettering.
Operational inspection of all electrical systems. This must consist of tests of battery voltage, electrical load tests, alternator output, beacons, flashers, siren, interior lighting, compartment lighting, power exhaust vent, scene lights, load lights, chassis lights, silent signal lights/buzzer, heat/cool unit, and any optional electrical devices as furnished by the manufacturer.
The current requirements of each device tested must be noted on an inspection sheet together with the total current requirements.
The oxygen and vacuum systems shall be tested both prior to and after installation to meet the requirements as listed in those individual sections of this specification. Test data indicating temperature, pressure, timing, flow, etc., shall be recorded.
All chassis fluid levels shall be checked and filled to capacity. All doors, locks, windows, tires, etc. shall be inspected for proper operation and/or condition.
The completed vehicle must be test driven a minimum of five (5) miles on paved highways and on rough terrain to check handling, brakes, acceleration, and noises.
A water spray test and visual inspection shall be performed after the road test.

STATEMENT OF FACT
The following will need to be provided by the manufacturer and dealer to ensure that the manufacturer is capable of building the units per the specifications:

1) Statement of fact, signed by an officer of the manufacturing company, disclosing that the manufacturer has delivered two hundred (200) ambulances within the last twelve (12) months of the date of this bid.
2) The size and location of manufacturing facilities and the number of production staff.
3) Interior pictures to verify plant facilities.
4) A list of on-site engineering staff with educational accreditation.
5) Statement of loaner vehicle policy by the dealer.
6) Statement of on-site service, 24/7 service, out of service policy by the dealer .

Failure to provide this information with the documentation required will be deemed non-responsive. NO EXCEPTIONS.

GENERAL VEHICLE DESIGN, TYPE, AND FLOOR PLAN
The ambulances and the allied equipment furnished under this specification shall be the manufacturers current commercial vehicle of the type and class specified. The ambulances shall be complete with the operating accessories as specified herein and furnished with such modifications and attachments as may be necessary or specified to enable the vehicle to function reliably and efficiently in sustained operation. The design of the vehicle and the specified equipment shall permit accessibility for servicing, replacement, and adjustment of component parts and accessories with minimum disturbance to other components and systems. The term "HEAVY DUTY" as used to describe an item shall mean in excess of the usual quantity, quality, or capacity that is normally supplied with the standard production vehicle or component.

COMPLETED VEHICLE DIMENSIONAL PARAMETERS
The vehicles furnished shall comply with the following dimensions at curb weight:

Length, Overall (including rear step) 259.5"
Width, Exterior (excluding mirrors) 95"
Wheelbase 158"
Height, Rear Loading 31"
Height, Ground to Step 17"
Ground Clearance 7"
Length, Patient Compartment Interior 154"
Aisle Space with Cot Installed 12"

CURB WEIGHT
The curb weight is the total weight of the complete ambulance and is defined as the chassis, cab, body, and minimum required equipment as required by KKK-A-1822E, and includes a full compliment of fuel, lubricants, and coolant.

PAYLOAD ALLOWANCE
A minimum of 1,750 pounds will be allowed over and above the curb weight for personnel, patient, and miscellaneous support equipment.

INTERIOR HEADROOM
68" of interior headroom shall be provided inside the patient area of the body. It shall be free of obstructions for the occupants safety and shall meet or exceed all transportation and regulatory requirements.

TECHNICAL REQUIREMENTS CAB/CHASSIS
The ambulance shall be a Type III, Class I, and shall have a chassis furnished with a two-door cutaway van. The cab/chassis shall be suitable for subsequent mounting of a modular (containerized) transferable equipped ambulance body conforming to the requirements specified herein.

CHASSIS MODEL AND TYPE
The cab/chassis requirement of this specification is a 2006 Ford E-450 cutaway van, 158" wheelbase, 14,050 lb. GVW package, and equipped as follows:

158 inch Wheelbase
YZ Oxford White Clearcoat Body Paint
E Medium Graphite (gray) Interior Trim 782A Preferred Equipment Package
55-Gallon Fuel Tank
4-Wheel Anti-Lock Brake System
593 Light/Convenience Group
596 Air Bags- Driver/Passenger, Gen. II
61D Hub Cap Delete
64Y 16” Steel Wheels
945 Auxiliary Fuel Port
Standard Trim

99P 6.0L Turbo Diesel Engine
44B Electronic 5-Speed Torq-Shift Automatic Transmission with Overdrive
T67 Tires- LT225/75Rx16E BSW All-Season
18A Exterior Upgrade Pkg.
Chrome Bumper and Grille Ring
18C Interior Upgrade Pkg.
Captains Chairs, Dual, Cloth
Power Locks/Windows
Insulation Package
Carpeted floor covering, front
Cloth Cab Headliner
Cloth sun visors
Cloth Cab Door Trim Panels
Dash Impact Absorber
206 GVWR- 14,050# GVWR
Heater, Engine Block
434 Under Seat Storage
47A Ambulance Builders Prep Package
4.10:1 Ratio Limited Slip Rear Axle
Front License Plate Bracket
Mirrors, Trailer Tow, RH, LH Exterior
Frame Pucks (isolators)
Four Radio speakers
Auxiliary Heater/AC Connection Pkg.,
CFC Free
Alternator, Dual Motorcraft
Front GAWR- 4600#
Rear GAWR- 9450#
Ambulance Auxiliary Idle Control Module
51A Spare Tire/Wheel
525 Speed Control, Tilt Steering Wheel
58K Dual Media AM/FM Stereo, CD & Clock
942 Daytime Running Lights
Dual Electric Horns

SELF-ADJUSTING BRAKES
The chassis brake system shall be Ford OEM standard hydraulic disc with front and rear anti-lock system.

TIRES
The vehicle shall be equipped with seven (7) wheels and tires. The tires shall be Michelin LTX 225/75R16E steel belted radials with all-season tread design.

SPARE TIRE
A spare tire shall be provided and mounted on the rear wall of the exterior D2 compartment. It shall match the tires specified for the vehicle. Shelves or equipment trays provided in this compartment will be constructed to allow for easy access to the spare tire.

REAR AXLE
The rear axle shall be of a heavy-duty truck type with full floating axle shafts. The rear axle and two (2) rear springs shall have a 9,450-pound combined rating at ground. Rear axle ratio shall be 4.10:1 Limited Slip rear axle.

SWAY BAR
An OEM supplied front sway bar and an IPD 1.50" diameter rear sway bar shall be provided to assist vehicle stability.

SHOCK ABSORBERS
Front and rear shock absorbers shall be OEM supplied and installed.

ELECTRIC THROTTLE
The OEM Stationary Elevated Idle Control (SEIC) shall be installed as part of the #47-A Ambulance Prep Package. The throttle shall be preset to initiate engine high idle at 1300 RPMs when activated. When the transmission is placed in Park and the Park Brake is engaged, the throttle will be activated. Releasing the Park Brake, depressing the brake pedal or shifting the transmission into gear shall deactivate it.

APPOINTMENTS
The manufacturer's heaviest duty heating and air conditioning package must be used. The rearview mirror shall be day/night visibility type. The vehicle shall be equipped with dual electric multi-speed, delay windshield wipers and washer mechanism. The seatbelt/shoulder harness mechanisms shall be encased with a high impact plastic trim housing color keyed to match the driver's compartment. The balance of the driver's compartment trim shall be finished with laminate, carpet, and cloth backed vinyl trim panels with .375" thick high-density foam padding color keyed to match the rest of the driver's compartment.

CAB SEATING
The driver's compartment shall be provided with OEM dual high-back captains chairs with armrests and chassis manufacturer standard features for the trim level selected.

HEADLINER
The cab headliner shall be OEM standard automotive cloth.

SIGN
One (1) "NO SMOKING OXYGEN EQUIPPED" and "FASTEN SEATBELT" sign shall be installed in the driver's compartment on the passenger side of the dash. These signs shall be engraved or molded plastic for durability.

CAB FLOORING
The cab flooring shall standard OEM supplied carpeted flooring with removable OEM floormats.

MAP BOX
A map and glove box shall be provided and installed on the bulkhead wall where the walk-thru is deleted, below the sliding window and between the driver and passenger seating positions. It shall have a minimum of three (3) dividers, two (2) glove receptacles and shall be easily accessible by either the driver or passenger. The dividers and the glove box covers shall be constructed from plexiglass and angled downward so as to retain map books etc. when the vehicle is in motion.

BATTERY SWITCH
A TST Commander 350 battery switch is to be installed. This system will have an integral timer pre-set to open the power circuit from the batteries to the main circuit board and interrupt power to all conversion functions after 5 minutes with chassis ignition OFF.

ENGINE BLOCK HEATER
The OEM chassis 1500-watt engine block heater shall be wired to the external 115 volt power source.

WHEELS
Alcoa brand “Classic” model, one-piece forged aluminum wheels shall be provided on all in-service wheels of the vehicle.

WHEEL CENTER AND LUG COVERS
Alcoa brand “Classic” model aluminum wheel center covers and lug covers shall be provided on all in-service wheels of the vehicle.

MIRRORS
The mirrors shall be Ford OEM telescoping trailer tow mirrors (54E) as included with the Ambulance Prep Package. The mirrors will be power /no heat, and manual telescopic.

VEHICLE WIRING
All insulated cable shall conform to SAE J1292 requirements and shall have type GXL high temperature thermoplastic insulation conforming to SAE J1127 and J1128. All wire shall be of a gauge size to carry 125% of the current required without overheating. All wires are to be color coded and stamped with the function of the circuit every four [4] inches for the continuous length of the line. Where practical, all wires shall be routed in high temperature looms with a rating of 300 degrees Fahrenheit. All conductors shall be annealed copper with machine crimps. Wiring harnesses shall be assembled and warranted by the vehicle manufacturer. NO EXCEPTIONS WILL BE ALLOWED. Additionally, these vehicles must meet or exceed AMD Standard 005, Ambulance 12-Volt DC Electrical System.

ALTERNATORS
Two (2) internally regulated and internally rectified Motorcraft OEM amp alternators, as included with the Ford Ambulance Prep Package, shall be supplied. The alternators must be covered by the chassis manufacturer's warranty.

PORTABLE EQUIPMENT CHARGING CIRCUIT
Two (2) additional 12 VDC circuits for charging portable battery powered devices, i.e. suction units, hand lights, defibrillators, portable radios, etc. shall be provided. These circuits shall prevent discharge of chassis batteries by only permitting the charging of portable devices when the vehicle is either running or the battery conditioner is connected to shore power (operational). This implies that a battery conditioner is required, but not included as part of this specification. A minimum of 10-amp circuit breaker protection shall be provided for each circuit. These tagged, identified leads shall be located, one (1) in the patient compartment and one (1) in the vehicle cab. These leads shall not be connected to power nor shall they have any connectors attached at either end. These circuits are intended for unspecified future use.

CIRCUIT PROTECTION
Circuit breakers and relays are to be mounted securely to the inside of the electrical control center located in the patient compartment forward of the technician seat backrest. This cabinet shall have a door large enough for complete and unobstructed inspection and maintenance, and shall hinge out of the way for free movement. The control center shall be large enough to house all circuit breakers, relays, flashers, and the medical isolator. Space for one (1) additional 15-amp single pole breaker shall be provided on the main electrical board.

All auxiliary circuitry shall incorporate overload protection devices of automatic or manual reset thermal breaker types with spade style plug-in connectors and shall continuously carry 100% of the rated capacity for a minimum of one (1) hour. Bosch, Potter & Brumfield, Hella, and Omron brand relays may be used. All circuit breakers and relays are to be spade mounted snap-in type for easy removal. The circuit board shall be screen printed with all circuits legibly numbered and labeled.

The electrical distribution panel must be a double-sided copper trace printed circuit board with a double-sided laminated isolator. Terminal strips must be mounted on the board for connection of wiring harnesses. The printed circuit board must meet or exceed a polyclad layered glass epoxy NEMA GRADE FR-4 material, and meet or exceed UL-94-V-O flammability rating and MIL-P-13949F- 4B Specifications. The printed circuit board surface protection must be Dupont Vacrel "8000" Polymer and withstand the MIL-STD-810C Corrosion Test and the MIL-STD- 055110D Thermal Shock Test. Design must be interchangeable with model styles from vehicle to vehicle without modification to wiring or compartment construction. In addition to the main circuit board, there shall be additional boards of the same design to provide control, lighting, and indication for the compartment and entry doors. All wires and connectors shall be of like resistance materials. One (1) complete set of each size relay and circuit breaker shall be included and mounted next to the main circuit board.

CIRCUIT GROUNDING
Grounding must be accomplished by use of a full ground wire harness. All ground wires shall be white in color and stamped every four inches (4") with the word "GROUND" or lettering "GRND". Ground return connections shall be made to the chassis structure, protected from corrosion, and available for service. In no case shall the aluminum body be used as a ground return. Additionally, there shall be a minimum of five (5) ground points between the chassis and body components of the ambulance and the chassis frame. These critical ground points shall be established with crimped copper ring connectors and dual star washers at each end of the ground strap. Due to the application of undercoating these grounds require no specific labeling. NO EXCEPTIONS WILL BE ALLOWED.

INSTALLATION AND PROTECTION
Wires must be grouped or harnessed where practical. Metal edges through which cables pass shall be protected with nonmetallic bushings or grommets. All auxiliary circuits shall be wired separate and distinct from the vehicle chassis circuits, color coded, and clearly numbered. All wire passing from the console head shall be encased in a heavy-duty loom. All wiring shall be clipped or otherwise attached at suitable intervals to prevent rubbing or chafing due to wire movement, vibration, etc. All wiring must be stamped, color coded, labeled to indicate wire function, and conform to SAE 1292. NO EXCEPTIONS WILL BE ALLOWED.

SEQUENCER / LOAD MANAGER
To prevent excessive loading or load spikes on the electrical generating system at system start up, a sequencer/load manager shall be integrated into the main circuit board for stepped control of the main master emergency functions. The sequencer shall sequence ON or OFF all master emergency functions at 0.5 second intervals. The sequencer/load manager shall sequence specified loads ON, in the following manner:

1. Body Warning Lights
2. Patient Compartment Dome Lights
3. Patient Compartment HVAC
4. Front Light Bar
5. Intersection and Grille Lights
6. Rear Light Bar - if installed
7. Wig-Wag Headlights - if installed

When a “low voltage” situation is detected, an audible alarm shall sound and an indicator light shall illuminate signaling the situation. When the vehicle transmission is in PARK, the load manager shall shed emergency functions until the system output voltage and the amperage draw of the systems still in operation equalize. When in PARK and the vehicle PARK BRAKE is applied the Stationary Elevated Idle Control (SEIC) will activate to provide additional voltage for the system. If the “low voltage”, (12.0 volts or lower) persists, the sequencer/load manager shall initiate the load shedding sequence at each 0.2 volt increment in the reverse order of these emergency functions. **NOTE:** Vital medical equipment such as suction aspirator system and/or electric oxygen valve shall not be included in the load shedding sequence. These systems shall remain powered until total failure of the electrical generating system occurs.

LOW VOLTAGE MONITORING SYSTEM
There shall be installed, as an integral function of the ambulance conversion main power board, circuitry that continually monitors electrical system voltage. This system shall activate an audible alarm and a steady burn red LED warning light to indicate that system voltage has reached or fallen below 11.8 volts. There shall be included a switch to deactivate the audible alarm. The audible alarm, LED indicator light and the switch shall be located on an auxiliary control panel located in the drivers control console below the main switch panel.

DRIVER SWITCHING CONSOLE
A console shall be built onto the engine cover. At the far right of the console will be housed the patient code lights and door open indicator lights. The ammeter, voltmeter, and battery indicator lights shall be located on a separate panel. The ammeter, depending on equipment/chassis manufacturer specified, shall indicate the current flow to the batteries or from the alternator. The 12 volt voltmeter shall indicate the voltage of the batteries. An audible low voltage-warning device

shall be installed with a reset cancel switch. This device shall sound whenever the voltage of the vehicle drops below 11.8 volts. This device shall automatically reset once the batteries are above 11.8 volts. A Datacon engine hour meter will be located near the bottom of the console on the driver's side and will be wired to ensure an accurate reading of running hours. Both the volt and ammeters shall be digital with LED display.

A Federal Signal brand LF Series “LIttlelite” LED gooseneck map light shall be provided and installed on the passenger side of the console. This light shall have a manual “on/off” switch on the light itself.

The complete console, manufactured of automotive plastics, shall be free of sharp edges and molded to match the contours of the engine cover. It shall contain all emergency switches, module switching, and legends according to their function and have back lighting controlled by the headlight rheostat. The switches shall be Eurostyle, moisture resistant, rocker type, and shall be UL listed and CSA approved. Switch terminals shall be 1/4" spade types. The switch legends shall be engraved plastic inserts. The back lighting shall light the words themselves rather than the background. Back lighting shall be accomplished with electro-luminescent light strips for their benefits of consistent light output, low amp draw, and extended service life.

The console shall contain the following features:

Master	Patient Status Indicator Lights
Primary/Secondary	Patient Door Open Red Light
Front Lightbar	Compartment Door Open Amber Light
Backup Alarm Disable	Hourmeter
Horn/Siren	[2] Ammeters
Leftside Scene Lights	Voltmeter
Rear Load Lights	Battery Indicator Lights
Rightside Scene Lights	Module Disconnect
Rear Domes	Spare Switch

Additional switches shall be added to the console when specified in this document.

MOVE OEM RADIO
The OEM AM-FM Radio shall be moved to a radio panel in the drivers switching console. The OEM radio hole shall be provided with a Kydex panel cover and hardware that shall facilitate the mounting of the Departments VHF two-way radio.

BATTERIES
There shall be two (2) INTERSTATE brand 31 ECL 12 volt batteries. They shall total not less than 1,400 CCA. The batteries shall be relocated from the OEM locations to a compartment/slide out tray on the curbside front of the body. Per Ford QVM Bulletin #Q-63 requirements, "There should be NO battery disconnect switches or devices installed that in any way cut-off power to the Ford Chassis. Any battery disconnect devices should interrupt power to the ambulance module only." There shall be a TST Commander 350 switch with a five-minute timer that secures power to the conversion module once the ignition has been turned off.

INTERNAL 12 VOLT DC POWER
For certain standard internal 12-volt DC power circuits, there shall be circuit protection provided by

the use of manual reset breakers mounted in the outboard panel of the driver's seat base or other easily accessible location. Potter & Brumfield 12 VDC breakers shall separately protect the radio power circuit with a 40-amp breaker; the constant power circuit with a 20-amp breaker; the Ford auto-throttle system with a 10-amp breaker; and the Isolator circuit for the two (2) additional 12 VDC charging circuits required in 21-02-00, a 20-amp breaker. Due to the potential danger associated with a separate "battery hot" circuit, no exceptions to the above will be allowed. This

Isolator circuit includes a "low voltage" Schottky Diode to isolate medical equipment batteries from any electrical loads. The diode shall be located and electrically connected between the circuit breaker and the receptacles. Additional breakers may be added for optional equipment such as power door locks, multiple radio installations or compressor pumps.

POWER OUTLET
One (1) 12 volt power point style outlet shall be installed. It shall be in the forward section of the primary action area, above the counter top.

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115 VOLT AC POWER
There shall be 115 volt AC wiring furnished. A three-wire system is used for powering medical equipment, battery charger, etc. This electrical system, including wiring and associated equipment, shall comply with AMD STD 009, 120V AC Electrical Systems. The system shall incorporate a hospital grade GFI (Ground Fault Interrupt) device with a 20 amp circuit breaker that can also be used as a disconnect switch for the interior 115 volt outlets. The GFI device shall be located on the street side in the action area. An automatic transfer switch for the inverter shall be furnished which will automatically turn off the inverter 115 volt supply when the 115 volt utility shoreline power is applied.

INVERTER
A Vanner, model #20-1050CUL inverter shall be provided and installed either on a high shelf in compartment D2 or in cabinetry underneath the primary action area or the electrical panel. Exact location will be determined at a pre-construction meeting. An ON/OFF switch for the inverter shall be provided in the patient compartment primary action area.

EXTERIOR SHORE POWER
There shall be a Kussmaul 115 volt "Auto-Eject" plug rated at 20 amps or more with a spring-loaded cover assembly, UL listed for exterior use, located on the left side of the ambulance body close to the driver's door. The plug shall be equipped with a Dynamic Disconnect Switch. This shall energize the vehicle's 115 volt AC circuit from an exterior power source. This connector must be labeled: "115 volt AC, 60 Hz,20 amp power supply".

INTERIOR 115 VOLT AC OUTLETS
There shall be four (4) three-wire duplex 115-volt AC hospital grade receptacles. Two [2] shall be located in the primary action area, one [1] in the rearward second action area, and one [1] over the squad bench toward the rear. There shall be red indicator lights located within each 115-volt outlet to indicate a live "hot" circuit. Add-on style indicators are not acceptable. The receptacles shall be clearly labeled: "115 VAC".

ELECTRICAL EQUIPMENT
All electrical equipment shall be electromagnetic radiation suppressed, filtered, or shielded to prevent interference with radio and telemetry equipment. The RFI shall not exceed SAE J551 limits.

SPOTLIGHT
There shall be one (1) Optronics "BlueEye 4000" hand-held spotlight rated at 400,000-candle power hardwired and located behind the driver seat. The spotlight must be weatherproof, corrosion and chip resistant, have a non-glare "BlueEye" bulb, and have a momentary "ON" switch. The curly cord shall be capable of extension to a length of approximately 5-feet to allow for use by either the driver or passenger. A hanger for the spotlight shall be shipped loose for installation by this department.

SPOTLIGHT BRACKET
There shall be a bracket to hold the spotlight. The bracket shall be constructed from .090 smooth aluminum with plastic trim on the edges. The plastic trim shall protect the spotlight housing from damage. The bracket provides not only a stable mounting device for the spotlight but also a heat sink type form to assist in the dissipation of heat following use of the light.

SIREN / PUBLIC ADDRESS SYSTEM
A combination siren and public address system shall be provided and mounted in the auxiliary panel of the driver's control console to the right of the driver. This unit shall be a Signal Vehicle Products Model SS730 with remote amplifier and noise canceling microphone. The remote amplifier shall be located behind the face of the drivers console. Sound patterns generated by this siren shall consist of wail, yelp, and phaser modes and shall be emitted through a matched pair of 100 watt rated speakers. This system shall function through both the horn ring and manually at the siren control head. Plug-in connectors shall be used between the front control console and the main harness for ease of electrical maintenance and quick access to the engine cover by removal of the console. The public address function shall be powered with the same switch as the siren functions but have a separately controlled volume function. The noise canceling microphone shall be hard wired to the control head and have a mounting bracket shipped loose with the completed vehicle.

ELECTRICAL SIREN
A Federal Signal, model #E-Q2B electronic siren shall be recess mounted into the front bumper. It shall sound exactly like the mechanical siren and shall be activated by the appropriate Federal Signal switch panel, mounted within easy reach of the driver and passenger on the control console.

SIREN SPEAKERS
Cast Products, Inc. dual speaker systems shall be provided. Each speaker driver shall be rated at 100 watts output. All siren speakers will be mounted either under or recessed into the chassis front bumper

AIR HORNS

Two (2) Buell trumpet air horns, shall be provided and installed under the front bumper. The air horns shall be powered by a 12-volt compressor & dual air reservoir kit installed by the manufacturer. A check valve shall be installed between the air horns and the air reservoir to prevent depletion of the air reservoir. Air horn compressors and solenoids shall not be placed under the vehicle, they will be installed either in an exterior compartment or inside the vehicle to protect them from the elements of weather.

Note: In the event Ford Motor Co. regulations prohibit mounting both sets of siren speakers and the air horn trumpets in and under the chassis front bumper in the 2006 chassis, an acceptable alternate mounting location for the air horn trumpets will be on top of the chassis cab in an exact location determined at a pre-construction meeting.
A horn ring three-position switch shall be provided to activate the air horn(s). It shall also activate the vehicle horn and siren.

BACKUP ALARM
A Preco, Model #230 backup alarm shall be installed on a floor structural member at the rear of the ambulance. This alarm shall activate whenever the ambulance is put into reverse gear. There shall be a momentary switch in the driver's switch console that will cancel the alarm. The system shall have an automatic reset to activate the alarm the next time the vehicle is placed into reverse. When activated, this alarm shall generate an intermittent warning tone at a minimum of 97 dB as prescribed by KKKA-1822E.

EXTERIOR LIGHTING
Exterior lighting shall conform to FMVSS 108 and consist of halogen headlights, ICC clearance lights with chrome brush guards, parking lights, hazard warning lights, license plate lights, tail, stop, and backup lights. Tail and stoplights shall have red, clear, and amber lenses. Electrical wires for the taillights shall be sealed and or encapsulated to protect them from the elements of weather. There shall also be two (2) LED side body rear lights with red lenses that flash with turn signals and steady burn with the DOT lights.

There shall be, included with the bid, evidence from the lighting manufacturer that all specified warning lights meet the photometric and chromaticity requirements of the current version of KKK-A-1822 as certified by a third party testing entity.

Fourteen (14) LED ICC/DOT lights shall be provided and installed on the upper ambulance module body. Each light shall be LED type with a protective chrome bezel. Two (2) each shall be installed on the side upper body corner extrusion areas. Five (5) shall be installed on the rear and front upper body corner extrusion area.

Tail and stoplights shall be red Whelen 600 Series LED with integral chrome Whelen flanges. The backup lights shall be clear Whelen 600 Series halogen with integral Whelen flanges. All LEDs and the electrical wires for the taillights and turn indicators shall be sealed and or encapsulated to protect them from the elements of weather. Turn lights shall be amber Whelen 600 Series LED arrow turns with integral Whelen flanges. The tail and stoplights shall be mounted on the rear kick plate, the turn arrows shall be mounted on the rear module body.

FRONT WARNING LIGHTS

Two (2) Whelen 700 Series strobe lights, each with a Cast Products, Inc. bezel or an integral chrome flange shall be provided in the front grille area, right side will have a clear lens, left side will have a red lens. These lights will flash alternately.

Two (2) Whelen 700 Series strobe intersection lights, each with an integral chrome 700 series flange shall be provided on the cab front fenders just to the rear of the parking lights. These lights will have a split red/clear lens (red lens to front) and will flash alternately with the intersection lights mounted over the rear wheel wells.

FRONT LIGHTBAR
A Whelen Edge 4500 Plus Series 86" front lightbar shall be provided and mounted on the front upper position on the module. This lightbar shall replace the front upper warning lights. This lightbar shall have alternating position 700 series strobe and LED modules in all lighthead positions, there will be no “empty” lighthead positions in the lightbar and there will be no rotaters or halogens. Lens colors will alternate red and clear. Similar lightheads in the lightbar will flash alternately.

SIDE BODY LIGHTS
Four (4) Whelen 900 Series Super LED side body lights with chrome flanges shall be provided and mounted one (1) in each upper corner on both sides of the body. The lens colors shall be red on both the streetside and curbside light sets. These lights will flash alternately when viewed from one side of the body.

Two (2) Whelen 700 Series strobe intersection lights, each with an integral chrome 700 series flange shall be provided and mounted one (1) directly above each rear wheel well. These lights will have a split red/clear lens (red lens to front) and will flash alternately with the intersection lights mounted on the front fenders.

SCENE LIGHTS
There shall be four (4) Whelen 900 Series Opti-Scene 8-32 degree dual halogen internal optic light head assemblies with double parabolic shaped rectangular reflectors and chrome flanges provided. Two shall be mounted on each side of the body. Each scene light shall have an integral prismatic inner lens giving a downward cast to the lightbeam. Each side shall be independently lighted and switched separately in the driver's switch console.

The two (2) curbside scene lights shall activate when the side entry door is opened and the (2) rearmost scene lights shall activate when the vehicle is placed in reverse.

REAR WARNING LIGHTS / LOAD LIGHTS
There shall be a series of seven (7) Whelen 700 Series lights provided and mounted across the upper rear of the module body, these lights will replace the rear lightbar. Five (5) of these lights will be Whelen 700 Series strobe lights and two (2) will be clear halogens that will serve as load lights. These lights shall have chrome flanges if space allows. Similar color strobe lights will flash alternately. The color sequence will be as follows from left to right:

Clear – Red - Clear load – Amber - Clear load – Red - Clear

Two (2) Whelen 900 Series Super LED rear body lights with chrome flanges shall be provided and

mounted in the mid-height position, one (1) on each side of the rear body so as to be visible through the rear door windows when the doors are open. The lens colors shall be red.

WHELEN TA837LED ARROWSTICK
A Whelen TA837 Super LED Arrowstick (Traffic Advisor) shall be provided and mounted on the rear of the module body below the Whelen 700 Series lights. The control head shall be mounted in the front console. It shall be wired to come on with the master emergency and set to "CENTER OUT" flash pattern.

WARNING LIGHT FLASH REQUIREMENTS
Within the flash pattern established for each light or light group by KKK-A-1822E, each emergency light shall flash on/off a minimum of 75 to 125 times per minute. Each light shall have a minimum of 20 square inches of illuminated viewing area. The flash pattern for the warning lights on these vehicles shall be as described in KKK-A-1822E, Section 3.8.2.1, Table 1. Compliance with this specification shall not be compromised in order to maintain a high level of conspicuity for 360-degrees around the vehicle.

STROBE SUPPLY
Sufficient Whelen strobe power supplies with “Scan-Lock” technology shall be provided and mounted in an easy to service location to power all strobe lights.

CONSTRUCTION CHARACTERISTICS
The body shall be 160" long and 83" high. All body panels, structures, and extrusions shall be fabricated of aluminum using alloys consistent with the load requirements of the vehicle. Unitized body construction will be accomplished by MIG welding all sheets, radius extrusions, corners, structural members, etc. together. All body surface aluminum side panels and roof panels shall be intermittently heliarc welded to body frame support members in such a manner as to provide maximum strength and durability without causing heat warp. All exterior metal-to-metal body seams or the area of attachment of one aluminum panel to another shall be heliarc welded. All such welds shall be ground smooth for proper paint adhesion and appearance. The body structure shall be built and warranted by the vehicle manufacturer. NO EXCEPTIONS WILL BE ALLOWED. The vehicle must additionally meet or exceed AMD Standard 001, Static Load Test for Ambulance Body Structure.

CERTIFIED WELDING PERSONNEL
To assure that the specified vehicle meets the letter, as well as the intent of the Specification, the welding of body structure, chassis attachment points, doors, any aluminum or stainless steel components or attachments shall be performed by or directly supervised by personnel Certified by the American Standard Welding Association (ASWA). Those individuals shall have proof of current certification and shall make such proof available to the department upon reasonable demand.

CORNER EXTRUSIONS
To ensure weight support and structure durability in the event of an accident or impact, high strength corner posts must be used. A radius arched type aluminum extrusion is required. Corner

posts that are a part of the exterior body skin will not be accepted as they may pull away at the

point of impact. The extrusions must have a minimum strength of 29,000 psi.

ROOF
The roof shall be constructed of one-piece minimum .090" aluminum. This aluminum shall be a highly corrosion resistant alloy with a tensile strength range of a minimum of 28,000 to 33,000 psi. The roof substructure shall be constructed of a minimum of four (4) full-length sections welded to the roof for support. Those sections shall be a series of six (6) separate pieces running full length, front to back, bridging to the roof bow frame work. They shall be of equally spaced distance, inboard to outboard, of stair stepped sizes to form a crowned roof facilitating water runoff and ice build up. The roof shall then be reinforced the entire length of the unit. For this reason, flat roofs shall be considered unacceptable. There shall be in addition to the above supports, a

minimum of twelve (12) cross members welded to the sections a maximum of 12" on center and be made of a highly corrosion resistant alloy with a tensile strength range of 31,000 to 35,000 psi. Aluminum plates shall be welded between the roof support channels to mount lighting fixtures, assist rails, hanging stretcher mounts, and IV holders. Corner gussets shall be heliarc welded to the roof extrusions to enhance roof load bearing characteristics. Horizontal corner extrusions shall be a minimum of .125" thickness and 2-1/2" radius. There shall be an integral drip rail formed into the extrusion. The horizontal extrusions shall use an interlocking method to secure the roof sheet into the envelope of the extrusion. Corner caps shall be a minimum of .125" cast aluminum and welded in place.

SIDES
The sides shall be constructed of a minimum of .125" aluminum sheets with a highly corrosion resistant alloy with a minimum tensile strength range of 28,000 to 33,000 psi. The body shall have straight sides free of waves and welding warpage. Doorjambs shall be formed integral into the sidewall aluminum sheets. Each sidewall shall have a minimum of twelve (12) vertical wall studs a maximum of 12" on center and joined to the roof supports. The wall studs shall be a highly corrosion resistant .125 aluminum alloy with a tensile strength range of 31,000 to 35,000 psi. The complete roof and sidewall structure shall be treated with a sound-deadening barrier of BUNA Rubber.

FLOOR
The body floor shall have a tubular frame structure with main members constructed of a minimum of .125" aluminum tubes, all being fully welded and gusseted. This framework shall be mounted using rubber gaskets to prevent contact of dissimilar metals. The tubular framing shall be an average of 12" on center. A minimum of a 3/4" thick aluminum plate shall be welded on top of the cushion rubber mounts installed full length of the body. This is necessary to add additional strength, ease in mounting, and ease in remounting the body later if necessary. There shall be plates welded into the floor structure to provide additional mounting support for the cot mounts and technician seat. The floor frame shall be plated the entire length with an aluminum moisture barrier mounted under the sub floor to act as a heat shield and vapor barrier. The sub floor shall be a minimum of ¾" plywood, sealed and fastened to the floor structure.

DRIVE SHAFT GUARD
A square tube steel drive shaft loop or guard shall be installed just behind the front U-joint. This is designed to prevent the drive shaft from creating a dangerous situation such as hitting the ground or whipping in the event of a universal joint failure.

EXTERIOR COMPARTMENT DEPTH

All exterior compartments shall have a clear depth of approximately 18.5", except the backboard compartment which shall have an approximate depth of 20.5".

INSULATION - WALLS / CEILING / FLOOR / SIDES / STEPWELL
Prior to installation of the insulation, the entire interior body surface will be sprayed with a heavy protective coating of sprayable latex rubber to provide sound deadening and corrosion protection.

The module shall have an expandable polyurethane spray foam type in the walls, ceiling, floor, sides and bottom of the stepwell of the patient compartment to provide maximum protection from changes in outside temperature. The insulation shall be fire retardant, non-settling, non-hydroscopic, and mildew and vermin proof.

There shall be a generous amount of undercoating applied throughout the undercarriage of the body and chassis. Undercoating must be applied according to chassis manufacturer guidelines.

FENDER INSULATOR
An additional insulator shall be provided and installed on top of the wheel well liner. This shall be a layered rubber and aluminum foil material to diminish the effects of noise created by road debris and provide additional thermal insulation for the patient compartment .

FLOOR INSULATOR
An additional insulator shall be provided and installed between the 3/4" plywood sub floor and the aluminum vapor barrier. It shall be a flash patch liner and shall provide extra sound deadening from road noise.

CAB CONNECTION
Bolting shall be accomplished by a minimum of twenty-five (25) 1/4" Grade 8 bolts with lock washers. Special care shall be taken in the installation of the neoprene gasket between the cab flange and the body to prevent the contact of dissimilar metals or deforming or tearing of the gasket.

MOUNTING
The iso-mount technique shall be used to mount the ambulance body to the chassis frame. Mounting hardware shall consist of .750” x 6” 6061T6 aluminum bar stock body sill plates, ten (10) 7/16”-14 UNC threaded Grade 8 bolts, paired rubber isolators with steel cap and collared mounting nut for each mounting point. The bolts and rubber isolators are identical to the type used to mount the vehicle cab and are provided by the chassis manufacturer. Mounting holes in the top flange of chassis frame shall be those provided by the chassis manufacturer. The .750 ” x 6” aluminum bar stock mounting plates shall be bolted through the upper mounting isolator above the upper frame flange with the OEM Grade 8 bolt. The bolt passes through and secures the second isolator below the flange with the collared nut. The body shall be lowered onto the sill plates and the body sub floor cross members shall be welded to the aluminum bar stock mounting plates. This combination of components provides the body a cushioned ride on top of the frame and allows the body and frame to flex independently diminishing frame stress. This body-mounting configuration shall not

prevent the vehicle from complying with the floor loading height requirement of KKKA-1822E for the specified type of emergency medical vehicle.

LEFT SIDE COMPARTMENTATION
FORWARD OF REAR WHEEL WELL - D1 AND D2
A full height compartment (D1) shall be provided in the forward position ahead of the wheel well. It shall have approximate exterior dimensions of:
21" wide x 73.5" high
The D1 compartment shall have a solid, flush mounted, vertically hinged door constructed of aluminum. It shall have a single, chrome, locking Tri-Mark paddle latch.
An intermediate compartment (D2) shall be provided in the rearward position ahead of the wheel well. It shall have approximate exterior dimensions of:
42" wide x 36" high.
The D2 compartment shall have double solid, flush mounted, vertically hinged doors. Each door shall be constructed of aluminum. It shall have a two (2) chrome, Tri-Mark paddle latches, one locking, one non-locking.

REAR OF WHEEL WELL - D4
An intermediate compartment (D4) shall be provided in the area rearward of the rear wheel well. It shall have the approximate exterior dimensions as follows:
29" wide x 60" high
The D4 compartment shall have a single solid, flush mounted, vertically hinged doors. The door shall be constructed of aluminum. The D4 compartment shall have inside / outside access and two (2) adjustable shelves. It shall have a single, chrome, locking Tri-Mark paddle latch.

RIGHT SIDE COMPARTMENTATION
FORWARD OF REAR WHEEL WELL - P1 AND P2
An intermediate compartment shall be provided in the upper, forward position ahead of the entry/egress door that allows easy access to the interior ALS cabinet. It shall have approximate exterior dimensions of:
23" wide x 44" high
The P1 compartment shall have a solid, flush mounted, vertically hinged door, constructed of aluminum. It shall have a single, chrome, locking Tri-Mark paddle latch.

A low compartment (P2) shall be provided in the lower, forward position ahead of the entry/egress door. It shall have approximate exterior dimensions of:
23" wide x 14" high
It shall have a slide-out tray with battery mounts. The door shall be permanently affixed to create a "drawer" for easy access of the batteries. It shall have a single, chrome, locking Tri-Mark paddle latch.

SIDE ENTRY DOOR
The entry/egress door shall be constructed of a minimum of .125" aluminum sheet box formed with a minimum of a 1-7/8" return bend supporting a minimum .090" alloy aluminum diamond plate inner liner. Extruded doors and/or door frames are not acceptable. In addition, for maximum rigidity, "C" channel bracing shall be added internally for additional door structural integrity. NO EXCEPTIONS WILL BE ALLOWED.

The door shall have a FMVSS approved chrome Tri-Mark rotary latch with a Tri-Mark locking handle and shall have a two-point rotary latch with adjustable Nader pins located on the side of the

door. It shall also be equipped with a spring assisted two-directional cam-over door check. The door shall provide a clear opening of at least 32" wide and 66" high. When opened, the door shall activate the interior dome lights. Each access door is to be stamped with an alphanumeric code, this will enable the exact replacement of a damaged door.

STEPWELL
The patient compartment access door shall have a full aluminum diamond plate stepwell. The stepwell must have a full 18" deep step which allows for easy entry and egress, a 9" high riser and be 32" wide to match the width of the side entry patient compartment door.

DOOR TRIM
The entry/egress door shall have a minimum .090" aluminum panel covered full height and full width with .028" formica, with color to match interior. It shall be impervious to moisture, easily cleaned, durable, and attractive. The lower 12" shall be faced with a bright finish aluminum diamond plate kick guard. The side entry/egress entrance door shall have a 1" diameter polished stainless steel ergonomic style assist handle.

SLIDING WINDOW
The entry/egress door shall be provided with an approximate 18" high x 19" wide horizontally sliding window. It shall have tempered, automotive, privacy safety glass and shall have a locking mechanism to keep the window panels in the desired position. A screen shall be provided, to prevent airborne particles from entering the vehicle when the window panels are in the open position.

REAR OF WHEEL WELL - P3 AND P4
A low compartment shall be provided in the forward area behind the rear wheel well. It shall have the approximate dimensions as follows:
18" wide x 15" high.
The P3 compartment shall have a solid, flush mounted, vertically hinged door, constructed of aluminum. It shall have a single, chrome, locking Tri-Mark paddle latch.
A full height compartment (P4) shall be provided in the rearward area behind the rear wheel well. It shall have the approximate dimensions as follows:
14" wide x 73.5" high
The P4 compartment shall have a solid, flush mounted, vertically hinged door, constructed of aluminum. It shall have a single, chrome, locking Tri-Mark paddle latch.
The P4 compartment will include dividers and a strap fastening system for backboards, scoop stretchers, etc.

REAR PATIENT ENTRANCE DOORS
Each patient entrance door shall be constructed of a minimum of .125" aluminum sheet, box formed with a 1-7/8" return bend supporting a minim of a .090" alloy aluminum diamond plate inner liner. Extruded doors and/or door frames are not acceptable. In addition, for maximum rigidity, "C" channel bracing shall be added internally for additional door structural integrity. NO EXCEPTIONS WILL BE ALLOWED.
Each rear patient entrance door shall have a FMVSS approved chrome Tri-Mark locking handle

keyed alike to the side entrance door. The rear streetside and curbside doors shall have two-point double rotary latches with adjustable Nader pins at the top and bottom with handles on the interior

faces of the doors. When opened, the rear doors shall provide a clear opening of at least 59" high and 50" wide. Each rear door shall be equipped with a Cast Products "grabber" style door check, which shall be located at the bottom of the door NO EXCEPTIONS. When opened, the rear doors shall activate the interior dome lights and the rear exterior load lights. Each access door is to be stamped with an alphanumeric code, this will enable the exact replacement of a damaged door.

DOOR TRIM

Each patient entrance door shall have a minimum .090" aluminum panel covered full height and full width with .028" formica, with color to match interior. It shall be impervious to moisture, easily cleaned, durable, and attractive. The lower 12" of each door shall be faced with a bright finish aluminum diamond plate kick guard. Each rear patient entrance door shall have a 1" diameter polished stainless steel 45 degree ergonomic style assist handle.

FIXED WINDOWS

The rear patient entry doors shall each be provided with an approximately 18" high x 19" wide fixed window panel. Each window shall have tempered, automotive privacy safety glass.

SIDE BODY WINDOW

A fixed, privacy automotive safety glass window shall be provided in the right body side, above the rear wheel well in the upper body side. It shall be approximately 36" wide x 18" high.

EXTERIOR COMPARTMENT FABRICATION

All exterior compartment walls and ceilings shall be constructed of a minimum of .090" smooth aluminum with .090" smooth aluminum floors, formed and heliarc welded. Exterior compartments are to be welded to both the inside wall vertical structure and floor structure components for strength and durability.

All exterior compartment floors, walls and ceilings with the exception of the D4 and P4 backboard compartments shall be painted with gray/white spatter paint. Each floor shall have weep-hole baffles to prevent road water entry.

The P4 backboard compartment and dividers and D4 compartment interiors shall be covered with a black cushioning material that will provide sound-deadening and prevent damage to backboards and equipment .

All exterior compartment doors shall be equipped with a gas charged hold open door check.

The floor and shelf of each exterior compartment shall be covered with Dri-Deck material that shall be black in color.

All exterior compartments will be provided with compartment lights that activate when the compartment door is opened.

EXTERIOR COMPARTMENT DOORS

Each exterior compartment door shall be constructed of a minimum of .125" aluminum sheet, double pan formed with a 1.5"' return bend with recessed offset supporting a minimum .063" alloy aluminum diamond plate interior liner. Extruded doors and/or door frames are not acceptable. In addition, for maximum rigidity, "C" channel bracing shall be added internally for additional door structural integrity.

The exterior face of the door and the door edges shall be formed from one [1] sheet of aluminum.

All doors shall be flush with the body side and shall be fully insulated with polyurethane spray foam.

When opened, the doors will activate their respective compartment lights.

All compartment doors shall be keyed alike.

Each access door is to be stamped with an alphanumeric code; this will enable the quick and exact replacement of a damaged door.

The inner door panels shall be affixed to the flange with stainless steel serrated spring washers and TX-25 Type F Torx-head machine screws (not Phillips head screws).

EXTERIOR COMPARTMENT DOOR HANDLES AND LATCHING

Door hinges shall be full length stainless steel #304-2B buffed and polished with a minimum of a 1/4" stainless pin and shall be fastened to the door and door frame with self-locking stainless steel screws. Hinges are to be of a slotted style with a round hole on each leaf of the hinge for permanent lifetime adjustment of the doors. Hinges shall be staked, not welded, every 4” to prevent pin from moving. NO EXCEPTIONS ALLOWED.

The locking mechanism shall be a chrome Tri-Mark #13136 outside handle, a #13028 inside handle with a #12765-01 gasket for the external handle with #14229- 01 and #14230-01 rotary latch and #10355U adjustable Nader pin. Latches shall be near flush with the door skin.

Each latch must be capable of being locked independently with an integral exterior key lock and a key matching the locks on the curbside and rear entry doors. The latch system is to be activated by the use of a plated steel rod with a single point threaded adjustment mechanism. Systems operated by cables are unacceptable due to the tendency of cable to stretch or fatigue prematurely. NO EXCEPTIONS WILL BE ALLOWED.

The latch and the Nader pin shall be mounted so as not to interrupt the continuous door seal. A hole shall be drilled into the edge of each door adjacent to the paddle handle. This lubrication access shall be sealed with a removable plastic cap for protection of the internal mechanism.

EXTERIOR OXYGEN COMPARTMENT VENT

One (1) #1031 Cast Products, polished aluminum exterior oxygen compartment vent shall be provided and installed on the door of the exterior compartment that houses the oxygen tank retention system. The vent hole shall be 3” in diameter and provide adequate ventilation for gaseous oxygen should a leak occur. A black plastic vent shall be provided and installed on the interior door liner covering the vent hole to protect it from intrusion by the elements when the door is open.

DOOR GRABBERS

A set of door Cast Products "Grabbers" shall be provided at the bottom of the rear patient entry doors. They shall be fastened to the door and module body with self-locking stainless steel screws. There will be sufficient “backing plate” material provided behind the doors and module

body where the “Grabbers” are bolted to prevent any possibility of deformation of the sheet metal surface. NO EXCEPTIONS WILL BE ALLOWED.

POWER DOOR LOCK SYSTEM - PATIENT AND SIDE ENTRY/EGRESS DOORS
The rear patient entry doors, side entry/egress door and ALS exterior door shall be equipped with a power lock that can be activated from within the cab. The switch shall be placed within easy reach of the driver.

POWER DOOR LOCK SWITCH
An additional heavy-duty, weatherproof power door lock switch shall be provided and installed in an exterior location, hidden from obvious view. It shall be in addition to the switch installed in the cab to control the power door locks installed on designated compartment doors.

POWER DOOR LOCK SWITCH
An additional power door lock switch shall be provided and installed in the patient compartment, within easy reach of the occupants. It shall be in addition to the switch installed in the cab to control the power door locks installed on designated compartment doors.

POWER DOOR LOCK ACTIVATION
The patient compartment door locks (rear patient entry and side entry/egress) shall be wired to the chassis power door locks.

STAINLESS STEEL DOOR SILL PROTECTION
There shall be stainless steel compartment door sill protection on the ALS exterior compartment (P1) opening.

EXTERIOR COMPARTMENT ILLUMINATION
Each exterior compartment shall be illuminated with 4.25” round, Liteco incandescent Model #69000200 or equivalent. These lights shall have clear Lexan lenses and be recessed into the compartment sides and/or ceiling above and below any specified shelf. Each door shall have an individual automatic switch to signal a “door or compartment open” condition and to turn on interior lighting when the door is opened. The switches shall be Sentrol heavy duty, magnetic reed switches mounted in the door frame header interior to the protective door seal.

OXYGEN TANK MOUNT
One (1) set of fully adjustable stainless steel rings shall be provided to secure an "M" type oxygen tank in exterior compartment D1. The retention system required shall consist of four (4) distinct sections including: (1) headpiece consisting of an angled, “U”-shaped plate with a retainer collar wing-nutted in place across the open “U” and one overlapping, hinged ring with wing-nut closure; (2) additional sets of hinged, overlapping rings; (1) fixed base plate with cylinder centering ring. The headpiece and ring sets shall be adjustable for height to accommodate cylinders of various dimensions. Vertical adjustment shall be accomplished by mounting these components with spring-nuts into an aluminum C-channel securely bolted to the wall of the compartment with Grade 8 bolts drilled and tapped into a minimum of a .250” aluminum plate welded to the inboard side of

the compartment wall. This oxygen tank retention system must meet or exceed AMD Standard 003, Oxygen Retention System. NO EXCEPTIONS ALLOWED.

ADJUSTABLE SHELF/DOOR PROTECTOR
Two (2) infinitely adjustable shelves shall be provided in the D4 compartment. They shall be easily adjusted to accommodate equipment/supply requirements. The D4 compartment shall also include built-in protection for the inner access plexiglass doors from damage by stair chairs, etc. stored in the lower half of the compartment

SAFETY REFLECTORS
A minimum of a 4.5" wide x 1" high red reflector shall be provided and installed on the inside, lower outboard area of each exterior door. These reflectors shall warn oncoming traffic of an open door while on scene.

GRAB RAIL
An exterior style 16" polished stainless steel grab rail shall be installed on the curbside of the vehicle to the left of the side entry/egress door. The grab rail must be bolted to the aluminum side structure with fender washers and rubber gaskets. A grab rail mounted to the body skin is unacceptable.

SIDE BODY SEAMS
All side center body seams are to be MIG welded, fully filled and body finished to create a smooth, blemish free surface for final finishing and painting.

REAR BUMPER
The rear step bumper shall be approximately 94" wide with a depth of approximately 10 1/2". The bumper shall be supported with a minimum of 3" steel angle subframe and have a minimum of 1/4" steel angle outer frame construction. The bumper shall be bolted to the chassis frame rails to reduce body damage and direct impact under the body, away from the patient area should a crash occur.
There shall be supports built into the bumper framing to reinforce the bumper end pods, which shall be removable, NO EXCEPTIONS. The height of the outer end pods shall be a minimum of 4" and have 3" radius corners. The top surface of the end pods shall be finished with a minimum of a 375" slip resistant raised pattern.
The center section of the bumper shall be approximately 8" x 46" x 2" of an open grate diamond back material and shall flip-up for ease in loading a cot. The aluminum step shall be bolted to the subframe with a minimum of 1/4" stainless steel bolts for ease of replacement.
A minimum of a .125" alloy polished aluminum diamond plate kick plate shall be secured to the full width of the body between the step and the threshold. Two (2) heavy-duty cushioning bumpers shall be affixed to the kick plate to prevent damage from the flip-up section of the bumper

TOW HOOKS
A pair of tow hooks shall be provided at the rear of the vehicle. They shall be frame mounted and shall meet or exceed all standards related to towing capacities and performance.

BODY HARDWARE
All body hardware, all compartment and entry doors shall be mounted on the body with stainless

steel fasteners. All stainless mounting fasteners shall be dipped in or sprayed with electrolysis preventive solution before installation on the body. This is required to minimize the process of electrolysis. NO EXCEPTIONS ALLOWED.

BODY PROTECTION
A full-length body rubrail shall be attached to both sides and extend at least 1-1/2" from the body below the compartment doors. This rubrail shall be a minimum of .100" alloy polished aluminum diamond plate. The rubrails shall be attached to the bottom of the body sill plate via a shearbolt system that will allow the rubrails to slide under the body and not damage the body sill plate should the vehicle be struck.

Two [2] heavy duty mudflaps shall be installed behind the rear dual wheels.

FUEL ENTRY
There shall be an approximate 7.75” x 7.75” cast aluminum fuel fill protector recessed into the body above and behind the streetside wheel well. Steel fuel fill protectors are not acceptable. This protective bezel shall be sealed to the body to prevent spilled fuel from seeping behind the bezel and shall have a rubber grommet hole to protect the fuel cap retention strap.

RUNNING BOARDS AND GUARDS
To provide for increased road splash protection and ease of driver/technician entry and exit, polished aluminum diamond plate running boards shall be installed on the vehicle. The running boards shall incorporate front splash and stone guards and be tapered out to the edge of the chassis fenders and fastened. The material used must be a minimum of .090" alloy polished aluminum diamond plate.

STONE GUARDS
The lower forward corners of the body shall have approximately 14" high minimum .063" alloy polished aluminum diamond plate rolled around the corner radius and terminated at the junction of the cab and the body.
The lower rear corners of the body shall have approximately 12.5" high minimum .063" alloy polished aluminum diamond plate rolled around the corner radius and terminated at the rear kick plate area.

FENDERETTES
Formed, minimum 16 gauge polished stainless steel fenderettes shall be provided around each rear wheel well opening. They shall help diminish damage to the wheel well area of the body caused by stones and road debris

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LICENSE PLATE
A rear license plate holder, Cast Products model #LP0002-1 shall be provided and recessed into the rear kick panel below the rear doors. It shall be constructed of polished cast aluminum and have two [2] top lights to illuminate the license plate.

UNDERCOATING
Ziebart brand undercoating shall be liberally applied to the entire undercarriage of the chassis and

vehicle body. Undercoating shall be applied according to Ford QVM guidelines to a thickness between .062” to .125” as prescribed in KKK-A-1822E.

INTERIOR PATIENT COMPARTMENT COMPONENTS
Patient Compartment Sound Levels: This vehicle shall provide an interior working environment in which the ambient noise level is less than 80 dB as measured according to AMD Standard 006, Sound Level Test Code for Ambulance Compartment Interiors.

Patient Compartment Carbon Monoxide Levels: This vehicle shall provide an interior working environment in which the carbon monoxide level is less than 10 ppm as measured in accordance with AMD Standard 007, Carbon Monoxide Levels for Ambulance Compartment Interiors.

CABINET GLASS
All cabinet doors incorporating acrylic glass, as sliding or hinged doors/windows shall have a minimum of .250” thick smoked acrylic Plexiglas® as the standard material

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CABINETRY
The cabinetry in the patient compartment shall have picture framed window face fronts fabricated from a minimum of 3/4" lightweight plywood material and laminated with a minimum .028" Formica. The shelves and the supporting structure shall be a minimum of 3/4" lightweight plywood material and laminated with a minimum of .028" Formica on both sides.
Non-supportive partitions shall be a minimum of 1/2" lightweight plywood material and laminated with a minimum of .028" Formica on both sides. All vertical outside corners and protruding edges of overhead storage shall be capped with a minimum of a 3" radius satin finish anodized aluminum moldings or color-keyed padded vinyl NO EXCEPTIONS.

All interior Formica shall have a matte finish.

The interior corners of all cabinets will be sealed for ease of clean-up.

All cabinetry shall be sealed and molded to the floor with bright-anodized aluminum molding. All interior materials, cabinetry, vinyl, foam, and installation used shall meet or exceed FMVSS 302 requirements on flammability of interior materials (where applicable).

LIGHTED CABINETS
All cabinets within the patient compartment shall be lighted. Cabinet lights shall be activated by a manual "on/off" switch in the rear switch panel.

COUNTERTOPS
The countertop in the primary action area of the patient compartment shall be Corian brand material. It shall have a radius edge and shall be scratch and dent resistant. The countertop color in the primary action area shall be determined at a pre-construction meeting.

The countertop in the second action area of the patient compartment shall be Corian brand material. It shall have a radius edge and shall be scratch and dent resistant. The countertop color

in the second action area shall be determined at a pre-construction meeting.

PATIENT COMPARTMENT LIGHTS
Patient compartment lighting shall consist of seven (7) dual intensity dome lights switched in the action area control panel. These lights shall have dual bulbs (halogen/incandescent) with Lexan lenses, and shall be activated in separate banks. There shall be one bank of three (3) over the squad bench and one bank of four (4) over the primary cot.

Two (2) switches shall be provided in the action area console, (one [1] switch for each bank of lights) with high/off/low positions. There shall also be a switch in the drivers console that will activate the dome lights.

All seven (7) dome lights shall also be activated on "LOW" when either the side patient entry/egress door or rear patient entry doors are opened. There shall be a three-minute time delay to off system activated by the opening of the patient entry doors. This system shall be battery hot.

No ceiling light or attachment shall protrude into the patient compartment by more than 1-1/4".

Two (2) Thinlite brand 39" fluorescent lights shall also be provided and installed on the ceiling of the patient compartment. One (1) on/off position switch shall be provided in the action area console. The fluorescent lights will have the capability to be switched on when the ignition of the vehicle is off and the shoreline is plugged in.

An automatic time system shall also be provided for the fluorescent lights. The system shall be preset to automatically turn the lights off after activating the on/off switch. The on/off switch shall be located on the patient compartment wall just inside and to the rear of the side entry/egress door. The timer shall be factory preset for deactivation after five or ten minutes. Deactivation time shall be determined at a pre-construction meeting after award of the bid.

WHELEN MICRO MAX (IV) LIGHT
One (1) Whelen Micro Max light shall be provided and installed in the center ceiling raceway. It shall be wired to illuminate when switched on/off at the action area panel.

CEILING HEADLINER
The patient compartment headliner shall be constructed of a durable, high-gloss white, plasticized Marlite, backed with a nonrigid plywood substrate material. The headliner shall be securely affixed to the roof bows and to the .aluminum accessory plate welded to the roof structure. There shall be a full-length inspection access/wire race in the center of the ceiling, which provides access to the wiring harness and antennae bases/leads. The access shall have color-keyed easily removable padded vinyl covers.

CONDUIT
A 1.5" flex conduit with pull wire and grommeted stainless steel cover plate shall be supplied and mounted to the underside of the vehicle. It shall be run from the cab backward to the left side interior. Exact location of the conduit end plate shall be determined at the pre-construction meeting, depending upon final cabinet configurations.

FLOORING
The sub floor of the patient compartment shall be constructed of three (3) layers of different

material each suited to a specific function in the floor structure. Over the aluminum structural floor tubes there shall be laid a single sheet of minimum .090 ” smooth aluminum to function as a heat and vapor barrier. This sheet shall be sealed around its perimeter to prevent the incursion of environmental elements such as water and exhaust fumes. Over the vapor barrier there shall be laid a minimum of .750” 7-ply marine grade plywood. The marine grade plywood may be in two sections to accommodate the extended floor length of this vehicle. The small, added section shall be laid at the front of the floor and shall be in a low traffic area.

The plywood flooring and the underlying aluminum vapor barrier shall be attached to the structural floor tubes utilizing a minimum of 1.5”x 8 square drive floor screws. This attachment shall be made at a minimum of six (6) points across each floor tube and the width of the patient compartment floor. All screw insertion sites and the front panel juncture shall be filled and sanded to provide a smooth, solid surface for the vinyl top covering.

The final layer of the floor shall be a vinyl, anti-skid, commercial grade, heavy-duty, nonporous floor covering applied to the entire floor and roll-up in a one-piece seamless application utilizing a commercial grade contact adhesive recommended by the vinyl manufacturer. This commercial inlaid sheet vinyl shall have minimums of nominal overall thickness of 2.03 mm. The flooring shall comply with ASTM F 970 (modified); in regard to static load bearing and D-2047 James Test for slip resistance.

There shall be a 5" roll-up splash guard installed on the streetside cabinet wall and the squad bench face.

The 5” roll-up shall be supported by the installation of high-quality aluminum continuous extrusions along the floor at the base of the streetside cabinet wall and the squad bench base. The extrusion shall be radiused to form the curvature for the flooring and the flooring shall be terminated at the top of the extrusion. A waterproof sealant shall be applied between the cabinetry and the floor at the cabinet and floor covering juncture.

REAR THRESHOLD
There shall be a 6" wide, minimum 16 gauge formed, polished stainless steel threshold protector installed on the rear interior of the body. The protector shall run the entire width of the floor at the door opening and be sealed with a waterproof sealer in the front to keep dirt and debris from accumulating under it. A 2" wide, adhesive-backed non-skid material shall be installed on the threshold piece to assist with safe entry and exit from the vehicle.

LOWER COLOR STRIPE
A lower accent stripe color on interior Formica shall be provided.

FLOORING TYPE AND COLOR
The flooring shall be LonPlate II brand or equivalent, color shall be determined at a pre-construction meeting.

SEATING SURFACE COLOR
Color of all seating surfaces within the patient compartment shall be determined at a pre-

construction meeting.

LEFT SIDE CABINETRY

ACTION AREA
An efficient and accessible action area shall be located to the right of the attendant seat. Oxygen and suction/aspiration equipment outlets shall be readily accessible. It shall provide a counter for the technicians use. The countertop shall have a minimum of a 3/4" lip to prevent items from falling or sliding off. The countertop in the action area Corian brand material. It shall have a radius edge (no foam padding) and shall be scratch and dent resistant. The countertop color in the action area shall be determined at a pre-construction meeting.

For the technicians safety, the foremost vertical leading edge and top horizontal edge of the action area overhead cabinet shall be trimmed with fabric backed padded vinyl. The foam padding shall be a minimum of 3/8" high-density foam and shall have a R-factor of 0.25. All seams are to be machine stitched for proper fit and durability.

ACTION AREA LIGHTING
A Thinlite brand 18" fluorescent light shall be provided and installed in the primary action area. This light shall have a manual "on/off" switch on the light itself.

A Federal Signal brand LF Series “LIttlelite” LED gooseneck map light shall be provided and installed in the primary action area. This light shall have a manual “on/off” switch on the light itself.

ACTION AREA CONTROL PANEL
All patient compartment lighting , environmental equipment and other indicators and controls critical to the care of the patient shall be controlled from a switching console located to the right side of the rear facing technicians seat. The switch console shall be located in a cabinet face cut at an approximate 30-degree angle above the action area and below the overhead cabinet. The switch panel shall be designed to provide easy operation and high visibility from either the rear facing technicians seat or side mounted CPR seat.

To facilitate easy troubleshooting and maintenance or repair, the controls for all ambulance conversion functions shall be basic, automotive style, nonprogrammable type controls. This type of control mechanism can be easily repaired by department maintenance personnel and does not require electronic interaction with a third party for programming or problem solving.

The switches shall be, moisture resistant, Euro-style, rocker-type, and shall be UL listed and CSA approved. Each switch shall have one or more LED indicator lights integral to the switch rocker indicating the function status. Switches may be simple ON/OFF type or multi-position rockers or rotary, stepped-position switches, depending upon their specific function.

The switch function legends shall be engraved plastic inserts. The backlighting shall light the words themselves rather than the background.

Backlighting and switch perimeter lighting shall be accomplished with electro-luminescent light strips attached to the backside of the switch panel. This type of light source shall be used for

consistent light output, low amp draw, and extended service life.

The switch panel shall contain the following switches and controls:

Heat/Cool Fan Speed Control: Rotary, stepped-position control selecting Hi, Med, Low, Off
Heat/Cool Mode Selector: Two-position rocker control selecting Heating or Cooling function
Left Dome Lights: Three-position rocker control selecting Low, Off, Hi for curbside dome lights
Right Dome Lights: Three-position rocker control selecting Low, Off, Hi for streetside dome lights
Suction Pump: ON/OFF control selecting Thomas suction pump
Spare Switch: (1) Spare switch and (3) Blank positions for future use
Patient Status Indicator Lights, (3) Locking push button controls, Red, Yellow, Green, selecting indication of patient status, signal to front switch panel
Exhaust Fan Control: Rotary, stepped-position control selecting Hi, Med, Low, Off for patient compartment exhaust fan

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INVERTER SWITCH
An "on/off" switch shall be mounted in the action area that shall control the inverter.

OXYGEN COMPARTMENT LIGHT CONTROL
An "on/off" switch shall be mounted in the action area control panel that shall control the light in the exterior oxygen compartment.

EXHAUST FAN
There shall be a Detroit Marine power vent supplied and installed in the patient module. The power vent shall have a 3-speed fan switch installed in the action area switch panel.

Note: All listed cabinet dimensions are approximate and may vary slightly due to vehicle construction features.

ACTION AREA OVERHEAD CABINET
A cabinet approximately 15" high x 45" wide shall be installed above the action area and shall be provided with one [1] infinitely adjustable shelf and a fixed divider. It shall have sliding Plexiglass doors. It shall have a full length aluminum handle on each door.

WRITING TRAY BELOW ACTION AREA
A pull-out writing tray shall be provided below the action area, in the rearward position. It shall have approximate dimensions of 1" high x 14" wide x 15" deep. In the closed position, it shall be flush with the front edge of the cabinetry.

CPR DOUBLE CABINET
There shall be a double cabinet above the CPR seat. It shall be approximately 24" wide x 12" high. It shall have double flip-up plexiglass doors with mini-strut hold open devices. It shall have chrome “C” handles with roller ball catches on each door.

CPR SEAT
To the rear of the first action area, there shall be a bench type CPR seat with an approximate 24"

width. This area is intended for use as an technician seat for administering aid to a patient when the center mount cot position is used. The seat shall have a fold-down backrest for use as additional counter space when seating is not required. The seat cushion must be a minimum of 3" thick x 18" deep x 22" wide.

STORAGE UNDER CPR SEAT

There will be a storage area under the CPR seat. Access to this area will be by tilting up the CPR seat cushion, which shall be hinged to tilt toward the center of the vehicle.

SECOND ACTION AREA

The 2nd Action Area, the technicians secondary work center, shall be an open countertop designed for efficiency and accessibility. The action area shall be located to the rear of the CPR seat in the streetside cabinet wall and shall be accessible from the Squad Bench also. The counter top shall have dimensions of approximately 23.5” wide x 18” deep with a minimum of a 3/4” lip to prevent items from sliding off the work surface.

The countertop in the second action area shall be Corian brand material. It shall have a radius edge (no foam padding) and shall be scratch and dent resistant. The countertop color in the second action area shall be determined at a pre-construction meeting.

The lower horizontal edge of the 2nd action area supply cabinet shall be trimmed with fabric backed padded vinyl for technicians safety. The color-keyed foam padding shall be a minimum of 3/8" high-density foam and shall have a R-factor of 0.25. All seams are to be machine stitched for proper fit and durability.

2ND ACTION AREA LOWER SUPPLY CABINET

A roll-out supply cabinet with the dimensions of approximately 23” wide x 8” high x 10” deep shall be provided just below the second action area. It shall have hinges that do not allow it to pull out more that the depth of the cabinet unless required for cleaning. It shall have a positive latching system and a handle that does not protrude into the patient compartment.

2ND ACTION AREA UPPER SUPPLY CABINET

An upper double supply cabinet shall be provided just above the second action area below the overhead cabinet. It shall have dimensions of approximately 24” wide x 6” high and be the depth of the second action area.

It shall have double flip-down Plexiglass doors with hold-open devices and a chrome handle with a roller ball catch provided on each door.

OVERHEAD CABINET

An overhead cabinet approximately 15" high x 52" wide shall be installed on the streetside interior above the 2nd action area supply cabinet and the rearward supply cabinet. It shall have one (1) infinitely adjustable shelf and a fixed divider. It shall have sliding double Plexiglass doors and a full length, extruded aluminum handle on each door.

SUPPLY CABINET

A supply cabinet shall be provided in the rearward section of the streetside interior, below the

overhead cabinet. It shall be approximately 29” wide x 35" high and shall be accessible from both the interior and the exterior (D4) compartment. It shall have sliding double Plexiglas doors and a full length, extruded aluminum handle shall be provided on each door. It shall have two (2) infinitely adjustable shelves.

RIGHT SIDE CABINETRY

SQUAD BENCH
The squad bench shall be approximately 22" deep x 73" wide and have split lids with storage underneath both sections. The front face of the squad bench shall be fabricated from a minimum of 3/4" plywood.

The forward lid shall have a gas prop style hold-open device and a latch that automatically holds the lid closed (preventing opening in case of accident). The lid shall automatically open when the latch is released.

Three [3] sets of retractable seat belts are required for seated passengers and for securing a stretcher. The retractors shall be high-quality automotive style with plastic housings.

The lid will be fitted with a removable cushion covered with a heavy grade fabric backed vinyl that meets FMVSS 302.

A matching full-length backrest will be mounted on the wall behind the squad bench. The squad bench backrests shall be comprised of two (2) full width x approximately 3” thick x 8" high protective pads. One (1) shall be mounted approximately 10" above the bench seat and be attached to the curbside wall by a minimum of five (5) sets of zinc-plated steel M/W clips. These clips shall be configured to allow for countersinking the heads of the mounting screws to maintain a near flush position on the wall. The second pad shall be affixed with high strength Velcro tabs to the upper curbside wall just below the overhead cabinetry. Both backrest pads shall be easily removed for cleaning and reinstalled without special tools.

SQUAD BENCH OVERHEAD CABINET
An overhead cabinet, approximately 8" high x 60" wide x 6’ deep, shall be located over the squad bench at the ceiling level, rearward of the entry/egress door opening. The width of this cabinet shall be the length of the crew bench, allowing for installation of an oxygen outlet in the forward area to the rear of the entry/egress door.

This cabinet shall be divided into three (3) separate sections. Any horizontal or vertical portions of this cabinet that protrude into the patient compartment shall be trimmed with fabric backed padded color-keyed vinyl that matches the standard of the rest of the patient compartment padding in this specification.

The forward section of this cabinet shall house a three (3) compartment glove box holder with plexiglass doors.

There shall be two (2) flip-up Plexiglass doors. Each door shall have spring-strut hold-open devices and chrome pull handles with roller ball catches.

ARMREST
A stainless steel "A" bar armrest and sharps/waste container shall be located at the head of the

squad bench near the entry/egress door. The sharps/waste container shall be easily accessible from the front of the squad bench.

FRONT CABINETRY

All front cabinetry that protrudes into the patient compartment shall have a minimum of 3" radius corners.

RESPONSE TECHNOLOGIES REFRIGERATION UNIT

A Response Technologies System 70 locking refrigeration unit will be provided and installed in the upper right side of the forward wall with the top of the refrigeration cabinetry being at ceiling level. It is designed as a cooling unit and shall have a minimum of one (1) additional 4" fan installed to exhaust warm air from the refrigeration cabinetry. The fan shall be wired in series to activate with the integral refrigerator fans. The exact location of this fan will be determined at a pre-construction meeting.

Note: As an option, the successful bidder will include in their bid, accepting the trade-in of two (2) of the Type III ambulances the Department presently owns with Response Technologies System 70 refrigeration units already in them. This bid shall include removing the refrigeration units from the two ambulances the department trades in and installing them in two of the new ambulances, as well as supplying and installing one (1) new Response Technologies System 70 refrigeration unit identical to the other two the Department owns in the third new ambulance.

The installation of the refrigeration units shall be such that it appears built in, there shall be no "open" spaces to the sides of the refrigerator, all walls will be finished to the side walls of the body.

ALS SUPPLY CABINET

A supply cabinet shall be provided and installed in the right side of the forward wall directly underneath the refrigeration unit. This cabinet shall be finished with the same material as the other cabinets.
It shall have approximate dimensions of 12" high x 26" wide and be the full depth to the cab bulkhead wall.
This cabinet shall be accessible from the exterior corresponding compartment (P1).
This cabinet shall have a flip-down Plexiglass door. The door shall have a spring-strut hold-open device and chrome pull handles with roller ball catches.

ALS CABINET

A cabinet shall be provided and installed in the right side of the forward wall directly underneath the ALS supply cabinet. This cabinet shall be finished with the same material as the other cabinets.
It shall have approximate dimensions of 24" high x 26" wide and be the full depth to the cab bulkhead wall.
This cabinet shall be accessible from the exterior corresponding compartment (P1).

This cabinet shall have two [2] infinitely adjustable shelves running the full width and depth of the cabinet
A durable rubber floor mat shall be installed on the bottom floor of this cabinet.

This cabinet shall have dual wood doors with plexiglass inserts and full length stainless steel piano style hinges with either Southco style non-locking latches or non-locking paddle style latches.

PORTABLE OXYGEN BOTTLE STORAGE
A double oxygen bottle storage system shall be provided and installed on the cabinet wall at floor level on the left side of the ALS cabinet. It shall provide vertical storage of two (2) "D" size oxygen bottles and each shall be mounted with a Cast Products base and ring.

WALK-THROUGH DELETE
The walk-through between the cab and module body shall be deleted and replaced with a sliding plexiglass window with approximate dimensions of 23” high x 23” wide. The space between the top of the sliding plexiglass window and the bottom of the heating and cooling cabinet shall be covered with a padded color keyed vinyl pad.

HEATING AND COOLING
The ambulance cab shall be equipped with an OEM supplied in-dash air conditioner and hot water heater.

The patient compartment shall be equipped with a combination hot water heater/air conditioner and a power exhaust vent.

Front and rear heaters and air conditioners shall operate as separate and independent environmental systems. The controls for the rear environmental systems shall be located in the action area switch panel.

The patient compartment heat and air conditioning shall be controlled and maintained through a standard, automatically controlled household type thermostat.

The addition of the rear HVAC system shall have no deleterious effect upon the chassis system and especially the windshield defroster system as described in FMVSS 103, Windshield Defrosting and Defogging System.

A combination heater/air conditioner having a minimum air output of 650 CFM at 0 static pressure, a minimum cooling capacity of 32,000 BTU and a minimum heating capacity of 35,000 BTU shall be installed over the sliding plexiglass window that replaces the walk-through.

The fan shall be a dual squirrel cage permanent magnet type with a minimum three (3) year warranty. Two (2) automatically controlled liquid shut off valves shall be installed permitting use of the system.
The fan speed shall be controlled manually by a three speed fan switch located in the action area.

All heater hoses shall be EPDM Nomex material.

ELECTRICAL CABINET
A boxed style cabinet behind the rear facing technician seat shall house the electrical components. Solenoids, relays, circuit breakers, etc. shall be on a module disconnect panel behind a door measuring approximately 26" high x 15" wide. Ample venting shall be supplied.

The cabinet shall have a vertically hinged door and shall be provided with a locking Southco type latch. This door shall hinge on the left side for ease of maintenance and repair.

CABINETS UNDER ELECTRICAL CABINET
Two cabinets with removable doors shall be provided below the electrical cabinet. Each cabinet shall be approximately 15” high x 15” wide with removable doors and non-locking Southco latches. **Note:** The noted approximate height of these cabinets may be varied, all available space underneath the electrical cabinet shall be used.

OXYGEN COMPARTMENT
The oxygen cylinder storage compartment shall be located in the streetside front compartment D1.

Access to the regulator, contents gauge, and cylinder shut-off valve from the interior of the vehicle shall be by means of a hinged minimum .250 ” thick Plexiglass door in the forward wall of the action area. This opening shall be trimmed with a black, ABS formed bezel to protect the technicians hands and provide a finished opening.

The compartment shall be vented through the exterior door with a minimum 28 square inch opening. The vent opening shall be covered with a polished aluminum vent cover attached with stainless screws.

The oxygen cylinder retention bracket shall be mounted to the wall of the compartment by Grade 8 bolts tapped into a minimum .250” aluminum plate welded onto the inboard side of the compartment wall. This retention bracket must meet or exceed AMD Standard 003, Oxygen Retention System. The finished oxygen system including regulator, contents gauge, hoses, outlets and flowmeter must meet or exceed the requirements of AMD Standard 015, Ambulance Main Oxygen System Test.

OXYGEN SYSTEM
The medical oxygen system shall be capable of storing and supplying a minimum of 3000 liters of oxygen. A suitable high-pressure hose shall be provided.

The concealed oxygen supply hose shall be minimum .250” ID, .50” OD nylon base with polyester fiber reinforcing. This electrically conductive hose shall be certified to 1,875 psi and have a 7,500 pound burst rating. The fittings shall be DISS and flare, and be securely crimped to the barbed fittings by means of compressed copper sleeves.

Oxygen supply hose shall be routed through the ceiling of the ambulance body and be secured with non-abrasive plastic "C" clamps.

The entire oxygen system shall be subjected to a 155-psi leak test for 24-hours before installation of panels or covers that may obscure or hide the system components. After the vehicle is completed, a test as prescribed by AMD Standard 015 shall be conducted for a period of four (4) hours to insure system integrity. This test shall be performed using nitrogen gas to purge the lines of all moisture and foreign debris. Upon completion of the test, the lines shall be bled free of nitrogen and capped.

This medical oxygen system shall meet or exceed AMD Standard 015, Ambulance Main Oxygen System Test.

OXYGEN SUPPLY
The oxygen system shall have three (3) outlets, (2) on the action area wall and (1) over the squad bench. The department shall specify the brand of quick-connectors to be used.

Oxygen outlets shall be Amvex brand with Ohio style fittings. These outlets shall be certified by the equipment manufacturer to meet the appropriate FDA standards for medical oxygen outlets.

One (1) gravity type Thorpe tube oxygen flowmeter shall be provided. This flowmeter shall be certified by the equipment manufacturer to meet the appropriate FDA standards for medical oxygen flow meters.
One (1) additional gravity type oxygen flowmeter shall be provided and installed within the primary action area.

OXYGEN REGULATOR
A 50 psi, preset medical oxygen regulator shall be provided and installed on the supply end of the oxygen system hose. This regulator shall be certified by the equipment manufacturer to meet the appropriate FDA standards for medical oxygen regulators.

SUCTION AND ASPIRATION SYSTEMS
An SSCOR Model 20001/02 suction aspirator system with 1200 ml disposable canister, stainless steel bracket and wall-mounted vacuum control shall be supplied and installed in the primary action area.

A Thomas brand electric suction pump, Model 107CDC20 E, shall be supplied and installed either on a high shelf in streetside compartment D2 or in cabinetry underneath the primary action area or the electrical panel. If the D2 compartment is utilized, the pump shall be covered with a protective metal grating.

The self-sealing vacuum outlet shall be mounted on the action area wall next to the oxygen outlets. To prevent premature fatigue of the suction plumbing, the line from the vacuum pump to the wall outlet shall be a minimum of .375” I.D. double braided neoprene hose.

This suction aspirator system shall have the capability of attaining a vacuum of 300 millimeters of mercury within four (4) seconds.

The vacuum control regulator panel shall be installed on the action area wall adjacent to the vacuum outlet and the oxygen outlets. This control panel shall contain a vacuum gauge calibrated on a dual scale, to read vacuum pressure in increments from 0 millimeters of Mercury or 0 inches of Mercury to 750 mmHg or 30 inHg. A quarter-turn adjustment vacuum control and shut-off valve to adjust the vacuum levels or to discontinue suction immediately shall be integral to the control panel housing the vacuum gauge.

The system as provided, shall include one (1) 10-foot length of transparent non-kinking clear plastic tubing and an operator's manual. This suction aspirator system shall be certified by the equipment manufacturer to meet the appropriate FDA standards for medical suction aspirator systems.

ATTENDANT SEAT
A high-quality rear facing, high-back attendant seat with left side armrest design, shall be located to the rear of the partition wall. The material shall be minimum 32 ounce machine stitched, fabric

backed, expanded vinyl. The seat base shall be high-quality swivel type. It shall be securely bolted through the module floor structure. A retractable two [2] point seatbelt in a color keyed totally enclosed housing shall be provided. The mounting hardware, seatbelt materials and configuration shall be in compliance with applicable FMVSS.

MACHINE STITCHED UPHOLSTERY
All seating, backrests, armrests and trim panels in the patient compartment shall be constructed of minimum 32 ounce machine stitched fabric backed expanded vinyl.
Squad bench seating covers shall be zippered at the rear so that the vinyl cover may be removed for the ease of cleaning.

IV HOLDERS
Four (4) ceiling mounted, recessed Cast Products 2008-1 IV holders shall be supplied. They shall be located at the patient head and foot areas, two (2) over the squad bench and two (2) over the primary cot. The fold-down structure shall be a flexible rubber material to prevent injury to technicians moving in the patient compartment. When not in use, the rubber fold-down shall flip up for flush storage in the recessed ceiling housing. Each holder must have the capacity to hold two (2) bags of solution and have Velcro securing straps to prevent excessive movement of the bags during transport.

ASSIST RAILS
One [1] 90" long, 1" diameter, polished stainless steel overhead assist rail shall be provided and securely fastened to the ceiling over the primary cot.

One [1] 60" long, 1" diameter, polished stainless steel overhead assist rail shall be provided and securely fastened over the squad bench.

Assist rails fastened with self-tapping machine screws will not be acceptable. These assist rails must meet or exceed AMD Standard 008, Load Test for Ambulance Patient Compartment Grab Rail.

COT MOUNT
A Stryker #6370 single position, floor cot mount shall be provided and installed. This cot mount system must meet or exceed AMD Standard 004, Litter Retention System.
Location of the cot mount will be center mount and its exact location shall be determined at a pre-construction meeting.

SIGNS
Self adhesive "NO SMOKING OXYGEN EQUIPPED" and "FASTEN SEATBELT" signs shall be installed in the primary action area.

RADIO EQUIPMENT
Three (3) 10 gauge power (battery hot) wires, one (1) switched ignition wire, three (3) ground wires, three (3) RG58U coax cables, and three (3) PL 259 connectors shall be provided and

installed. All provided ground wires shall be grounded on the non-equipment end in a manner consistent with specifications for ground wires noted elsewhere in this specification. All power, ground and coax cables shall be run in appropriate protective loom, raceway, grommets, etc. to prevent them from being damaged NO EXCEPTIONS.

All antenna coax will be run through the wiring raceway in the ceiling of the module body to the area of the roof where antenna bases are to be installed.

Department provided antenna bases shall be installed in the roof of the module body and all coax connections made at the antenna base.

One (1) set of power, ground, switched ignition and coax cables shall terminate in the primary action area with a 36” loop at the termination.

Two (2) sets of power, ground, and coax cables shall be run to an area behind the passenger seat with a 36" service loop at the termination.

All power and antenna connections will be tested for continuity and function prior to vehicles being delivered.

PHONE EQUIPMENT
One (1) department supplied Motorola cellular phone car kit, one (1) 10 gauge power, one (1) ground wire, one (1) RG58U coax cable and one (1) PL 259 connector shall be installed.

Antenna coax will be run through the wiring raceway in the ceiling of the module body to the area of the roof where cellular phone antenna base is to be installed.

A commercial, high-quality cellular phone antenna and base shall be installed in the roof of the module body and all coax connections made at the antenna base.

Cellular phone car kit (speaker, mic, hang-up cup, power box and cables) shall be installed in an area to be determined at a pre-construction meeting. All power, ground and coax connections shall be made and the system shall be tested for continuity and function prior to vehicles being delivered.

LOW VOLTAGE DISCONNECT
A Newmar model LVD 12-30 low voltage disconnect module shall be supplied and installed. The module will be wired to disconnect the refrigeration unit when battery voltage falls to a point specified by the department. The module shall be installed in a location that makes it easy to service and adjust.

COMPUTER MOUNT
A department supplied Mobile Data Terminal mount will be installed in the vehicle cab between the driver and passenger seat. The exact location of this mount will be determined at a pre-construction meeting.

FIRE EXTINGUISHERS
Two (2) 5 pound rated ABC fire extinguishers with mounting brackets shall be furnished with the ambulances. These shall be shipped loose to allow the department to install in the desired locations.

SHARPS/BIO-HAZARD
A sharps container with a crash stable mounting bracket shall be supplied and shipped loose. A biohazard container with lid and twelve [12] red biohazard bags shall be shipped loose for installation by the department.

CHASSIS PAINT
The chassis shall be repainted a single color, **Pierce #90**, utilizing a high quality base coat/clear coat paint system (Sikkens or equivalent) using the paint process standards noted below.

MODULE SURFACE PREPARATION
A corrosion inhibitor shall be used on specified exterior surfaces and on specified fasteners, hinges and accessories that are subject to the effects of corrosion due to the electrolytic process that occurs between dissimilar metals. The product, designated as ECK, is a petroleum-based substance with a very slow rate of desiccation. The substance functions as a barrier to water thus minimizes the electrolytic process. It shall be applied in the following conditions and to the following accessories and fasteners:

1. Behind stone guards or any other surface area where there is direct contact between dissimilar metals.
2. On light assemblies utilizing self-tapping mounting screws that penetrate the body.
3. On screws and screw holes for any accessory whose holes are drilled and tapped.
4. On the body surface when any accessory without a rubber or composite gasket is to be mounted; i.e. entry or compartment door hinges or light assemblies without gaskets.

ECK shall not be applied in the following conditions:

1. When mounting any accessory that has a rubber or composite gasket.
2. On light assemblies, which have, plastic inserts for mount screws.

PAINT
To produce a high quality paint finish and to comply with the requirements for support of a ten (10) year/50,000 mile warranty the preparation and painting process described below, must be used.

Prior to initiating the surface preparation process, all hardware, handles, light fixtures, door hinges, corner trim, etc. shall be removed from the body. Additionally, any portion of the chassis, which does not require refinishing, shall be protected from the ensuing process.

To rid the aluminum body of any extraneous materials or material impurities the entire surface shall be washed and wiped dry with a certified wax and grease remover. Excess weld material shall be removed by grinding all welds, seams, and any other body imperfections. The entire surface shall then be sanded with 80 - 150 grit dry sandpaper to provide good adhesion for any fillers and primers. The required areas will be filled with approved premium lightweight filler and

sanded smooth. A premium polysurfacer will be applied directly over these areas to ensure adequate base for application of primers.

The entire surface shall be cleaned again with certified wax and grease remover before application

of any primers. A self etching primer shall be applied to provide a base for adequate adherence of materials to be applied in subsequent steps of this process. A high quality urethane primer surfacer shall then be applied. The entire surface to receive topcoat will be sanded smooth to ensure a level and defect free surface.

Door edges and doorjambs shall be prepared similarly to other body surfaces and finish painted with a certified topcoat paint. The entire surface of vehicle body shall be DA finish sanded with no coarser than 320 grit dry sandpaper. The surface shall be washed and wiped once again with certified wax and grease remover and tacked for application of urethane sealer. A full wet coat of urethane primer sealer shall be applied and allowed to flash per specifications. Base coat color will be applied to ensure color correctness then clear coated with a minimum of 2 full wet coats of qualified urethane clear coat and baked at 140 degrees for 30 minutes.

Body shall then be color sanded, compounded, buffed and polished to a smooth defect free finish.

Upon final assembly, door hinges, hinge side of doorjambs and all stainless steel mounting hardware shall be coated with ECK, a corrosion inhibitor and permanently mounted to vehicle.

BODY PAINT COLOR
The body shall be painted a single color of **Pierce #90**, utilizing a high quality base coat/clear coat paint system (Sikkens or equivalent) using the same paint process standards as noted above.

MODULE BODY ROOF COLOR
The module body roof from the drip rail up shall be painted white (Ford Oxford White Clear coat or equivalent) utilizing a high quality base coat/clear coat paint system (Sikkens or equivalent) using the same paint process standards as noted above.

LETTERING AND GRAPHICS
Lettering and graphics shall be applied per the RCFD Ambulance Lettering and Graphics specification attached. Lettering requiring shading shall be shaded down and to the right.

MAIN SCOTCHLITE STRIPE
The main Scotchlite stripe shall be a white in color, "straight" design on the chassis and body sides (including the rear body). It shall start at the side of the cab and run along each side of the cab and body, just under the cab window. The stripe will angle upwards approximately 7 inches when it meets the module body and continue straight across the body. The main stripe shall wrap around the rearward section of the body, completing the perimeter. The main stripe shall not exceed 8 inches in width. Scotchlite color, stripe dimension and layout shall be as noted per the RCFD Ambulance Lettering and Graphics specification attached. Exact location will be determined at a pre-construction meeting.

OPERATOR'S MANUAL
A vehicle owner's manual (reference handbook) for <u>each</u> ambulance provided shall be provided in an 8 1/2" x 11" three-ring, hard cover, loose-leaf binder. It shall contain copies of the chassis manufacturer's warranties and chassis owner's manual, copies of the ambulance manufacturer's

warranties and New Vehicle Owners Manual, component manufacturer's equipment information, installation, operating, service instructions, warranties, etc., and a complete set of wiring diagrams or schematics with circuits and components clearly and accurately labeled. Verification of the chassis predelivery inspection, and a copy of the ambulance manufacturer's quality assurance form with results of the final vehicle release inspection shall be supplied upon the request of the department.

OPERATING INSTRUCTIONS
To provide a safe working environment for emergency medical technicians to provide care of patients, this emergency vehicle must be operated in the safest manner possible. To provide proper training for all operators of this emergency vehicle, a professionally produced operations videotape or DVD shall be included with the vehicle at the time of delivery. The videotape shall present all aspects of the operation of the vehicle including front and rear switch panel operation; daily check-out and maintenance procedures; location of and precautions about the main electrical panel and components. The authorized representative of the manufacturer shall present the videotape and review its contents with the potential operators of the vehicle and shall answer any questions regarding its optional features and safe and correct operation.

ELECTRICAL SCHEMATICS CD
To provide for continued quality operations of the new ambulance and timely information regarding the vehicles electrical system, the manufacturer shall provide a compact disc with the basic electrical schematics for this emergency vehicle. This CD shall be delivered to this department as an item included in the New Vehicle Owners Manual.

PAINT WARRANTY
The manufacturer shall warranty the paint on each new ambulance for a period of ten (10) years or fifty thousand miles, whichever occurs first, from the date of manufacturers certification. The finished areas shall be covered for the following failures:

A. Durability and Appearance of the Topcoat
Gloss, color retention and cracking will be covered one hundred percent
Loss of gloss
Clear coat, for the entire one hundred and twenty months the gloss will not fall below sixty gloss units. Gloss measurements will be taken at a twenty-degree geometry.
Poor color retention
Clear coat for the entire one hundred and twenty months the color shift will be no greater than a Delta E of 3.0.
Cracking , cracking of the paint system (as set out in ASTM D661-86).

B. Integrity of the Entire Coating System
Items related to the integrity of the entire coating system (adhesion) will be covered one hundred percent (100%) for the first thirty-six (36) months; from the thirty-seventh (37) month to the eight-fourth (84) month coverage will be fifty percent (50%); from the eighty-fifth (85) month to the one hundred and twentieth (120) month coverage will be twenty-five percent (25%).

Loss of Adhesion, bad adhesion of any element of the Paint System resulting in appearance below the standards set out in ASTM 1654-79a, Table 2, rating 6 or lower.

Exclusions:

The vehicle undercarriage, or the cab or body interior, or compartment interiors. Hazing, chalking, or loss of gloss caused by improper care, abrasive polishes, cleaning agents, heavy-duty pressure washing, or aggressive mechanical wash systems. Paint deterioration caused by abuse, accidents, acid rain, chemical fallout or acts of nature. Accidents, scratches, chips, bruises, and gloss reduction due to normal vehicle use and maintenance. Custom finishes, exotic finishes or any other finish than standard refinish procedure. Failures resulting from product misuse or abuse. Repairs done to previously refinished areas unless stripped to bare metal or appropriate substrate. Claims presented without proper documentation. Application and removal of stickers from a painted surface. Should repairs become necessary under the terms of this warranty, the extent of that repair shall be determined solely by the manufacturer and shall be performed solely by the manufacturer or a Commercial Repair Facility designated by the manufacturer. The expense of any transportation to or from such repair facility shall be that of the purchaser and shall not an item covered by this warranty. **C. Corrosion** The manufacturer warrants each new ambulance against corrosion damage and damage caused by electrolysis for a period of five (5) years, from the date of manufacturers certification. Coverage for damage due to corrosion and electrolysis damage shall be administered according to the following prorated schedule: Year 1- 100% of repair cost Year 2- 80% of repair cost Year 3- 60% of repair cost Year 4- 40% of repair cost Year 5- 20% of repair cost _____ **OPTION #1 - VEHICLE TRADE-IN** The successful bidder shall include as part of their bid, accepting two (2) of the departments present Type III ambulances as trade-ins. The value of the trade-ins shall be noted as a separate figure in the bid document but shall be included in the over-all bid price.		