



CITY OF MADISON HEIGHTS
PURCHASING DEPARTMENT
300 W. 13 MILE ROAD
MADISON HEIGHTS, MI 48071
248-837-2602

INVITATION TO BID

BID # 947

ITEM: Fire Department Rescue Vehicle

DEADLINE: 11:00 am, Monday, December 22, 2008

Bids will be accepted by the City Clerk at 300 West 13 Mile Road, Madison Heights 48071 until December 22, 2008 11:00 a.m. (EST) on Bids will be opened at 11:05 am (EST).

The City of Madison Heights is a Participating Agency in the Michigan Inter-Governmental Trade Network (MITN). Interested vendors are encouraged to register with MITN at www.MITN.info to view bid announcements and/or specifications for this and all of our open bids.

Amy J. Mischak
Purchasing and Personnel Coordinator
City of Madison Heights
248/837-2602

Madison Heights Fire Department 2009 Ambulance Specifications

1. PREPARATION OF BID

- A. Bidders are expected to examine specifications and all instructions. Failure to do so will be at the bidder's risk.
- B. Each bidder shall furnish all information required on bid form. Erasures or other changes must be initialed by the person signing the bid form.
- C. If there is any doubt as to the meaning of any part of the specifications or other conditions within this invitation, please call 248-837-2602 for clarification.

2. SUBMISSION OF BIDS

- A. All bids shall be submitted in **sealed** envelopes and shall include the following information on the face of the envelope:

Bidder's Name
Bidder's Address
Bid Number and Item

Failure to do so may result in a premature opening of, or failure to open, such proposal. All bids must be hand-delivered or mailed to:

Madison Heights City Clerk's Office
300 W. 13 Mile Road
Madison Heights, MI 48071

- B. Bidders are responsible for submitting proposals before stated closing time. Delays in the mail will not be considered. Any proposal received after the stated deadline will be rejected.
- C. In the event no bid is to be submitted, do not return the invitation. Please send a letter or postcard to the Purchasing Agent to advise whether future invitations are desired for the type of items or services covered by this invitation.
- D. Any bid may be withdrawn by giving written notice to the Purchasing Agent before stated closing time. After stated closing time, no bid may be withdrawn or canceled for a period of ninety (90) days after said closing time.
- E. The bidder shall specify a unit price for each item listed. Unit price will prevail on all items.

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3. CONSIDERATION OF PROPOSALS

- A. Proposals submitted on bid form are understood to be according to specified data.

In cases where an item is requested by a manufacturer's name, trade name, catalog number, or reference, it is understood that the bidder proposes to furnish the item so identified or an item of equal quality and value.

Reference to any of the above is intended to be descriptive but not restrictive and only indicates articles that will not be satisfactory. Bids of "equal" quality and value will be considered, provided that the bidder states in his/her proposal exactly what he/she proposes to furnish, including illustration or other descriptive matter which will clearly indicate the character of the article covered by such proposal.

- B. The Purchasing Coordinator hereby reserves the right to approve as an equal, or reject as not being an equal, any article proposed which contains major or minor variations from specification requirements but which may comply substantially therewith.
- C. The City of Madison Heights reserves the right, in its sole discretion, to reject any/or all bids, to waive any irregularities and technical defects contained therein, to award the bid in its entirety, in part or not at all and/or to determine which bid is the lowest and/or best to enter into a Contract, as it may deem to be in the best interest of the City.

4. TERMS

- A. All bids to be tax exempt, State of Michigan #B386025685.
- B. All bid quotations will be based on F.O.B. Destination – Fire Station #1, 31313 Brush Street, Madison Heights, MI. 48071

Please direct your questions to the Purchasing Department at 248-837-2602, Monday through Friday, from 8:00 a.m. to 4:30 p.m. (EST)

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**Madison Heights Fire Department
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SPECIFICATIONS FOR A NEW EMERGENCY MEDICAL VEHICLE

GENERAL INSTRUCTIONS

SCOPE:

This specification covers a new, commercially produced surface medical care vehicle. A vehicle in compliance with this specification shall be defined as a standard ambulance. This vehicle shall be in accordance 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 most current version of Federal Ambulance Specification KKK-A-1822. It is also understood this vehicle meets all Michigan Department of Health Laws and regulations regarding light rescue/ambulance. It also must meet all Michigan Department of Transportation Standards, and NFPA 1901 Standards where applicable. Most requirements in this specification exceed the federal specifications because of the specific needs of our agency.

PURPOSE:

The purpose of this document is to provide minimum specifications and test parameters for the manufacture of an emergency medical care vehicle that meets the needs and desires of our agency. It establishes essential criteria for the design, performance, equipment and appearance of the vehicle. The object is to provide a vehicle that is in accordance with nationally recognized guidelines.

CLASSIFICATION:

This specification calls for the following type of vehicle. It is in accordance with the most current version of KKK-A-1822.

Type I – Conventional cab/chassis with modular ambulance body.

Medium Duty Chassis – Two rear wheel driven (4x2).

Lighting – Current NFPA 1901 minimum.

GENERAL:

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 specific needs of this agency. With the intent to standardize certain components, therefore, in numerous places we have named specific brands of components. This has been done to establish a certain standard of quality. Other brands will be accepted providing the vendor provides documentation in the bid that the particular brand offered meets or exceeds the quality of the actual brand called for in the specification.

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MATERIALS:

The emergency medical care vehicle, chassis, ambulance body, equipment, devices, medical accessories and electronic equipment to be delivered under this contract shall be standard commercial products, (NO prototype designs or materials) which meet or exceed the requirements of this specification. The ambulance shall comply with all Federal Motor Vehicle Safety Standards (FMVSS), specified for the year of manufacture. The chassis, components and optional items shall be as 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 suitable for the service intended.

MANUFACTURING ABILITY:

It is the intent of these specifications that the manufacturer of this vehicle, have the ability to manufacture a complete ambulance within their plant facility, with the exception of the chassis. The basic modular body must be built "in house" by the manufacturing firm and not "farmed out" to another company, or corporation. Accessories such as light bars, sirens, etc., are not considered as basic components of the modular body. The ambulance manufacturer must have significant experience in the construction of modular ambulance bodies. The builder's manufacturing history shall be supported by documentation where applicable, and by the reference section within this specification.

LIABILITY:

It is the intent of this section to ensure single source responsibility for all warranties pertaining to the modular body and ambulance conversion workmanship, Modular Body Warranty from other than the final conversion manufacturer will not be acceptable. In addition, the Bidder/Manufacturer must include with this bid, proof of \$25,000,000.00 product liability coverage. In addition, the bidder is to assume any risk of loss to the ambulance until the ambulance is delivered to this purchaser.

EXCEPTIONS TO SPECIFICATIONS:

Any exceptions to these specifications must be clearly pointed out, on a separate sheet(s) marked "Exceptions".

Any exceptions must reference by:

- Page Number
- Section Heading
- Paragraph Number
- Line Number

Each exception must be explained in detail. Any bidder not complying shall be automatically rejected as being non-compliant.

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INFORMATION AND DESCRIPTIVE MATERIAL:

Each Bidder must furnish all information requested. In addition, vendors will supply at least two (2) complete sets of "D size" drawings, descriptive literature and complete specifications covering the products offered.

DELIVERY:

Since proposed delivery date by the Bidder will weigh heavily in the determination of award of bid, the delivery schedules that are submitted by the Bidder and agreed upon by the Purchaser shall automatically become binding upon the successful Bidder.

ANTI-COLLUSION STATEMENT:

By signing this bid, the Bidder agrees that his Bid is made without any understanding, agreement or connection with any other person, firm, or corporation making a bid for the same purpose and that this bid is in all respects, fair and without collusion or fraud. The attached NON-COLLUSION form must be completed, notarized and returned with the bid.

GENERAL VEHICULAR DESIGN, TYPES AND FLOOR PLAN:

The ambulance and the allied equipment furnished under these specifications shall be the manufacturer's current commercial vehicle of the type and class specified. The ambulance shall be complete with the operating accessories as specified herein. It will be furnished with such modifications and attachments as may be necessary and 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.

MINIMUM REQUIRED STANDARDS:

The highest degree of quality, both in the materials and in the building processes, is required for the emergency medical vehicle being proposed. At a minimum the manufacturer being proposed must meet all current mandated and voluntary ambulance design standards in effect at the date of the proposal submission. All current Federal Motor Vehicle Safety Standards (FMVSS) must be met, as well as all current Federal Ambulance Design Standards (KKK-A-1822).

The bidder shall state the date of certification for the current standard

KKK-A-1822: _____

The manufacturer shall also comply with Ford Motor Company's QVM program. A copy of the manufacturer's current QVM certification must be submitted with the bid.

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PROPOSAL COMPLETION PROCESS:

Various areas in the following specifications require a response from the bidder. In order to aid in the evaluation process all responses must be consistent and, most importantly, legible. Bids that are submitted hand-written shall be automatically rejected as being non-compliant.

QUOTATION:

The overall quotation shall include a firm price for a vehicle meeting these specifications. The length of time that the price will be held shall be clearly stated in the quotation. The quotation shall include a specific delivery window based on the number of calendar days following the award of the contract. The model year of both the chassis and the conversion shall be clearly stated in the contract.

WARRANTY:

The proposal shall include all warranties that are required in the following detailed specification. All warranties must have specific time durations and shall define warranties on specific components. The minimum acceptable warranty periods are noted below. In the blank lines the bidder shall note the terms of the warranties that apply to the manufacturer being proposed.

MODULAR BODY STRUCTURAL WARRANTY: 15 years/Unlimited Miles

Proposed warranty term: _____ years/_____ Miles

Note: The structural warranty, as noted in the structural section of this specification, will include the module doors, continued module body door alignment, and all interior cabinet construction. These terms and conditions must be explicitly stated in the manufacturer's warranty certificate.

ELECTRICAL WARRANTY: 10 years/100,000 Miles

Proposed warranty term: _____ years/_____ Miles

PAINT WARRANTY: 10 Years/100,000 Miles

Proposed warranty term: _____ years/_____ Miles

For verification of the completed warranty terms stated above the bidder must include printed manufacturer's warranty certificates that meet or exceed the minimum required periods stated above.

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Warranties shall not be pro-rated in any manner and shall be transferable for their duration. All warranties shall be from the manufacturer as opposed to a distributor or service center. This is necessary for the protection of the purchaser, and to guarantee a certain known level of service and warranty. If, however, the bidder feels that it is necessary to modify the manufacturer's warranties, then the bidder shall state why these modifications are necessary. In addition, the bidder shall provide a full descriptive warranty certificate describing the warranty modification and the fact that it takes specific precedence over the warranty offered by the manufacturer.

Any pro-rated warranties must be spelled out specifically, and are subject to rejection if not beyond minimum requirements stated above.

SERVICE AVAILABILITY:

Service will be a major factor in the award of this proposal. Convenience and experience will be determining factors in defining acceptable service. A service facility within a radius as described below will be required. All personnel performing these services shall be trained by the manufacturer with emphasis in the area of electrical repairs and maintenance. In order to evaluate the proposed service facility the following information shall be provided on the appropriate lines.

Distance from purchaser: Not more than _____ miles.

Facility name: _____

Address: _____

City: _____ State: _____

Contact: _____

Phone #: 1-(____)-____-_____

Training Description: _____

NAEVT (National Association of Emergency Vehicle Technicians) Certified

Yes_____ No_____

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ENGINEERING SUPPORT:

Due to the complexity of the design of the vehicle, proposals will be accepted only from manufacturers that utilize well-defined engineering techniques. Computer Aided Design (CAD) drawings of both the interior of the patient area and the overall layout of the module body will be mandatory. At a minimum these drawings shall include all exterior elevations, all interior views (4), a plan view of the roof/ceiling and a plan view of the floor. All options and elements required within these specifications shall be depicted on the prints. The purpose of this requirement is to assure this purchaser that vehicle proposals indeed meet the stated requirements as set forth in these specifications. Generic CAD drawings are not acceptable. The drawings, as submitted, shall accurately depict the exact vehicle that is being proposed.

'D' SIZE DRAWINGS:

The above-referenced drawings shall be furnished in 2' x 3' size ("D" size). Standard 8½" x 11" drawings are not deemed sufficient. Bids stating that drawings "will be furnished at a later date" will be rejected.

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DESIRED SAFETY CERTIFICATION:

The verification of construction techniques used throughout the building process must be furnished by the manufacturer/bidder. The installation methods and construction techniques associated with seat belt retention, cabinet construction and installation, oxygen cylinder retention and module to chassis mounting systems must be verified through a controlled Hygee sled test that simulates an actual impact condition. This test must be performed, under both side and frontal impact conditions, to a minimum force of 20 g's. All testing must be performed by a testing agency that is independent of the manufacturer. As proof of this verification process being performed, the bidder must provide the following information (leave blank if this is not a sled test being verified):

Testing Facility Name: _____

Date Tested: ____/____/____

'G' Force Tested To: _____ G's

In addition to the above information, a signoff letter from the testing facility must be provided with the bid documentation. Finally, a manufacturer is desired that has had an ongoing testing program. The testing, as described above, is to have been performed on a body built using the same materials and designs as those currently used by the manufacturer.

How many total sled tests has your company performed? _____

What was the date of the last test: _____

Has this specified body construction method been tested? Yes _____ No _____

If not, what body construction method was tested? _____

How many years has the testing program been in place. _____

Note: This requirement is in addition to the current minimum KKK requirements. The KKK requirements do not suffice as a substitute for this requirement as they do not address impact crash testing. It should also be noted that neither photographs of vehicles involved in accidents nor written observations of accident damage suffice to fulfill this requirement. This requirement will be fulfilled only when testing verification, signed by an accredited independent engineer, is furnished with the bid. The testing being described takes place in a controlled environment where meaningful data can be collected and used to further the design and safety of the vehicle.

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REFERENCES:

The proven durability and reliability of this product is of the utmost concern. Each bidder submitting a proposal must furnish references consisting of in-service units of similar chassis make and conversion processes being proposed. All references shall include owner, address, contact name and phone number, and the model owned.

1. Owner: _____
Address: _____
Contact: _____
Phone #: 1-(____)-____-_____
Model: _____ Year: _____
2. Owner: _____
Address: _____
Contact: _____
Phone #: 1-(____)-____-_____
Model: _____ Year: _____
3. Owner: _____
Address: _____
Contact: _____
Phone #: 1-(____)-____-_____
Model: _____ Year: _____
4. Owner: _____
Address: _____
Contact: _____
Phone #: 1-(____)-____-_____
Model: _____ Year: _____
5. Owner: _____
Address: _____
Contact: _____
Phone #: 1-(____)-____-_____
Model: _____ Year: _____
6. Owner: _____
Address: _____
Contact: _____
Phone #: 1-(____)-____-_____
Model: _____ Year: _____

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INSPECTION TRIP:

(3) Inspection trips will be provided by the bidder. The inspection trips shall take place during the pre-build, latter stages of the manufacturing, and final delivery stages. The trips shall include transportation, room, and board for one day/night stay. A trip requiring travel of more than 350 miles shall be via commercial air carrier, private or corporate aircraft.

Number of personnel: (3)

Number of trips: (3)

A cost breakdown of per person / per trip shall be provided. This figure will be used to adjust the final price if any changes occur.

PAYMENT:

Payment shall be made on delivery of the purchased item, or upon completion of all work contracted for (whichever occurs later) and performed to the satisfaction of the purchaser.

TRADE-IN:

The value of the trade-in vehicle will be listed separately in the bid. The trade-in price will be listed as: "Back-Up Vehicle Trade-In Value" in the proposal. The inclusion of the trade-in option will be at the discretion of the purchaser.

PRE PAYMENT DISCOUNT:

Any Pre-payment incentives or programs will be listed separately in the bid. Any discount incentives or programs will spell out all conditions, rates and/or durations of the program. The acceptance of any and all of these discounts will be at the discretion of the purchaser.

DELIVERY PROCESS:

The vehicle shall be delivered over the road to the purchaser. Delivery shall be stated in number of calendar days after award of contract. The purchaser has the right to reject the vehicle if it does not conform to these specifications to the satisfaction of the purchaser.

PRICE AND TAXES:

All prices quoted shall be for a definite fixed price unless otherwise specified. Prices shall exclude Federal, State, and other taxes to the extent that this purchaser is exempt. All pricing shall be F.O.B. Fire Station #1 31313 Brush, Madison Heights MI 48071. The City of Madison Heights state tax number is: B-38-6025685.

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TYPE OF BIDS TO BE SUBMITTED:

In the event that the bidder represents more than one ambulance manufacturer meeting the manufacturer requirements outlined herein, then the bidder shall only bid the highest quality vehicle that the bidder represents. Under no circumstances will multiple bids from the same bidder, on different manufacturers be accepted. Should a bidder submit two or more bids representing more than one manufacturer, then all bids submitted by that bidder will be rejected as being non-compliant with the requirements of this specification.

INFORMATION TO BE SUBMITTED WITH PROPOSAL:

The information requested within this bid must be furnished in full. If a bidder will not furnish a material or fabrication process exactly as described in this specification, then that difference must be designated in the list of exceptions. This purchaser reserves the right to require samples of any deviating material to be provided for evaluation.

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CONSTRUCTION VIDEO:

The bidder shall include a video or CD/DVD showing the construction processes from start to finish of a similar proposed vehicle. The video must show at least these specific steps in construction. This video shall be submitted for evaluation purposes. Scenes will be filmed in color and shall be large enough and clear enough to supply ample detail of each listed area.

The video submitted shall include:

1. Interior upper corner showing gusset and extrusion detail.
2. Interior sidewall including horizontal frame member.
3. Roof section showing 2" x 2" structural supports on 12" centers.
4. Detail of vertical sidewall substructure to include gussets.
5. Floor superstructure prior to installation of the aluminum sub floor.
6. Floor surface construction prior to surfacing.
7. Interior of rear door less Formica trim
8. Interior of rear door detailing door latch linkage
9. Electrical distribution panel complete and wired.
10. Backside of front console switch panel complete and wired.
11. Interior aluminum cabinet modules prior to installation.
12. Light head attachment point detailing threaded nylon hole insert.

A plant tour, prior to bid submission will fulfill the obligations in this section.

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CHASSIS

CHASSIS SPECIFICATION:

The vehicle converter shall supply a 2009 205" wheelbase International 4300 LP chassis for the ambulance conversion. This chassis shall have a 138" cab-to axle dimension.

A Navistar vehicle specifications document **MUST** be provided with the bid. It must include:

Model Profile
Electronic parameters summary
Vehicle Specifications

YES _____ NO _____

CHASSIS, 2009 NAVISTAR 4300LP, 205" WHEELBASE:

ENGINE & RELATED EQUIPMENT:

- DT466E with 255 HP @ 2,600 RPM, 660 ft. lbs. torque @ 1,400 RPM, governed @ 2,600 RPM, and with serpentine belt drive.
- Air cleaner restriction gauge installed in dash.
- 50 gallon fuel tank mounted under curbside cab step well.
- Fleetguard fuel/water separator with heater and sight glass.
- 1,000 watt engine block heater.
- Engine hour meter
- Engine tachometer
- Horton Drivemaster 2 speed fan drive
- Stainless steel muffler & exhaust with internal catalytic converter, with tail pipe routed to exhaust on right hand side of vehicle behind rear wheels.
- Low pressure oil indicator and high water temperature warning with light and buzzer
- Electronic cruise control
- 717 square inch two row aluminum radiator with 313 square inch air cooler 4.25" core.
- 2007 federal emissions

YES _____ NO _____

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TRANSMISSION:

- EVS 3000 5-speed automatic transmission close ratio
- Performance mode option
- Transmission oil temperature gauge.
- T Handle shifter
- Hydraulic transmission retarder

The transmission retarder control shall be (RET3) activated 50% by letting off the accelerator pedal or 100% by applying the brake pedal. A second on/off switch is provided to activate and deactivate the auto apply portion.

The transmission shall have the (low) spring setting for retardation force. **THIS setting is subject to change at pre-build meeting.**

The transmission retarder shall have a master "on/off" switch on the instrument panel. A red indicator light shall be provided to warn that the transmission is being overworked.

The retarder shall be wired to the brake lights so they are energized when the retarder is slowing the vehicle down.

The ABS system shall automatically disengage the auxiliary braking device, when required.

YES _____ NO _____

REAR AXLE:

- Ratio: Engineered to provide an ungoverned top speed of 70-72 mph.
- To include magnetic drain plug.

YES _____ NO _____

TIRES AND WHEELS:

- Quantity: Six (6) tires
- 2-Tire Style: Michelin XZE with highway tread
- 4-Tire Style: Michelin XDE M/S with mud & snow tread
- Tire Size: 265X19.5, 14 ply load range G
- Wheels: (4) 19.5" X 8.25" polished aluminum disk wheels (front and outside rear).
- Wheels: (2) 19.5" X 8.25" steel wheels (inside rear).
- Wheel Seals: International

YES _____ NO _____

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OVERALL WEIGHT RATINGS:

- GVW: 24,500 lbs.
- Front Axle: 9,000 lbs. Dana Spicer (I-Beam Style)
- Rear Axle: 17,500 lbs. International (Single Reduction Style)
- Front Springs: 9,000 lbs. Parabolic Style
- Rear Suspension: 12,500 lbs.-Air suspension with air reservoir and electronic dump control. Manual dump control switch is to be installed at the rear riser and in the cab. The air dump system will inflate when either the rear doors are closed or when the vehicle is placed into gear and starting to move.
- Ping tanks for air ride system.
- A dash-mounted air gauge shall be installed.
- Dual rear leveling valves shall be installed along with a manual drain valve.
- Shock Absorbers: Heavy duty front and rear.
- Front and rear sway bars
- Frame Rails: 80,000 psi. high strength steel.
- Air Compressor: 13.2 cfm. gear-driven air compressor to include Bendix air dryer mounted to battery box.
- Additional large capacity air tanks, to extend air horn use.

YES _____ NO _____

BRAKES:

- Brake system: hydraulic ABS brake system.
- Front: 15" x 1.44" hydraulically activated disk.
- Rear: 15" x 1.44" hydraulically activated disk.
- Parking Brake: 12" x 3" DSSA manual parking brake.
- Brake Control: Push-pull park brake on dash.

YES _____ NO _____

TRACTION CONTROL:

- Connected to the ABS braking system.
- Anti skid control/wheel spin control.

YES _____ NO _____

ANTI-ROLL CONTROL:

- Connected to the ABS braking system.
- Accident avoidance & maneuvering

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

INTERIOR APPOINTMENT STANDARDS:

- Premium Interior Package
- Air conditioning with integral heater and defroster
- Power windows
- Power door locks
- Grab handles (Full length NFPA style)
- Tinted glass
- Driver and passenger seats to be NFPA compliant, National Cushion Aire 195 high back air suspension seats with inside armrests, vinyl
- Power steering
- Tilt & telescoping steering
- 18" wrapped steering wheel
- Courtesy lights
- Dual padded sun visors
- Door trim panels with storage pockets
- 3 Cigar style 12V power points
- Driver Convenience group
- Molded fabric back panel
- Molded cloth headliner
- Molded instrument panel
- 'A' pillar cover
- CB radio accommodation package
- Jump start studs (located in drivers side outer step through diamond plate cover)
- Rubber floor covering
- A Panasonic AM/FM stereo/CD player with weather band. Multiple speakers installed in cab
- Low washer fluid warning light
- Factory gauges for oil pressure, fuel capacity, water temperature, air pressure, and tachometer with converter-added digital display for ammeter and voltmeter
- Tilting three-piece fiberglass hood and fenders with fixed chrome grille
- Frame-mounted front tow hooks
- Chrome plated front bumper
- Dual electric horns
- Air horn package with steering wheel mounted button
- Factory installed battery disconnect switch in base of drivers seat
- Manual reset circuit breakers
- Halogen headlamps
- Intermittent windshield wipers
- 2 Chrome towel bar type exterior grab handles mounted left & right near cab doors with anti-slip rubber inserts for cab entry
- Both deluxe and Optional H/D insulation packages
- NFPA style RED seatbelts
- Roof mounted visor with running lights

YES _____ NO _____

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BATTERIES:

The vehicle shall be equipped with three (3) 900 cca. batteries located on a slide-out tray beneath the street side cab step well. The total cca rating for this vehicle shall be 2,700 cca.

YES _____ NO _____

ALTERNATOR:

A 320 amp Leece-Neville alternator shall be installed on the chassis. The alternator is to include a 2.4" diameter alternator pulley.

YES _____ NO _____

CHASSIS INTERIOR COLOR:

The chassis interior shall be O.E.M. gray.

YES _____ NO _____

WHEEL HUB AND LUG NUT COVERS:

Polished stainless steel wheel hub and lug nut covers shall be installed on each of the four outside wheels.

YES _____ NO _____

MUD FLAPS, FRONT:

The vehicle converter shall install mud flaps behind the front wheels. The mud flaps shall attach to the chassis front fenders and shall protect the cab body panels from road debris.

YES _____ NO _____

MUD FLAPS, REAR:

The vehicle converter shall install individual rubber mud flaps behind each rear wheel. The mud flaps may incorporate the converter's corporate logo.

YES _____ NO _____

FRONT BUMPER:

Chrome plated aerodynamic front bumper

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

FRONT BUMPER EXTENSION:

The front bumper of the chassis specified above shall be extended noted below.

Length: 20" To allow for recessed air horns in bumper and recessed Q2B siren.

NOTE: Rubber bumpers shall be installed on each side of the siren to protect it from damage.
The corners of the extension and bumper mounts will be reinforced to prevent cracks from forming at the outer edges.

YES _____ NO _____

DOCK BUMPERS, REAR:

The rear step end caps shall include two heavy duty rubber dock bumpers installed on the outer face of the diamond plate. These bumpers shall serve to protect the diamond plate from damage due to minor contact.

YES _____ NO _____

TOW HOOKS, REAR:

Two tow hooks, painted black, shall be bolted to the rear bumper frame.

YES _____ NO _____

REAR STEP/BUMPER ASSEMBLY:

The rear of the vehicle shall be equipped with a step/bumper assembly to be fabricated from .125" polished aluminum diamond Tread-plate. The assembly shall be spaced out from the rear kick plate a minimum of 1.5". The center section of the assembly shall pivot up and over center on two (2) .5" bolts to stay in the 'up' position. This section shall be a minimum of 9.5" deep and shall be constructed with grip-strut on the stepping surface to provide for better footing. The ends of the assembly shall be fixed diamond tread plate. The distance between the top of the step and the ground shall not be less than 16". The fold-up portion of the step shall be firmly held down with two (2) pin and socket holders to prevent rattling while the vehicle is in motion.

YES _____ NO _____

MIRROR: OEM

The mirror set shall be OEM supplied, and installed by the chassis manufacturer.

Fully heated and motorized west coast chrome and stainless finished mirrors with the mirror arms modified to fit a 96" wide body. Mirrors to include turn signal/marker lamps.

YES _____ NO _____

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DIAMOND PLATE STEP WELL COVERS:

Diamond plate step well covers shall be installed on both the curb side and street side cab step wells. The covers shall be made of .125" thick polished diamond tread plate. The street side cover shall include a Kwikkee pull out tray for chassis batteries.

YES _____ NO _____

REVERSE ALARM:

An audible alarm shall be installed to activate when the vehicle is placed into reverse gear. There shall be, installed on the front console and wired through the vehicle electrical system, a momentary cutoff switch to disable the alarm. This switch shall automatically reset each time the vehicle is placed into reverse gear.

YES _____ NO _____

AM/FM/CD PLAYER WITH WEATHER BAND:

The OEM AM/FM/CD player with weather band shall be installed in the cab and wired to the multiple cab speakers. This unit shall also be wired to multiple patient area speakers.

YES _____ NO _____

EXHAUST REGENERATION DELAY SWITCH:

A switch located on the dash that will delay the exhaust regeneration cycle. It will inhibit diesel particulate filter regeneration.

YES _____ NO _____

PARKING BRAKE WARNING ALARM:

A parking brake warning alarm that sounds the horn when the vehicle has been turned OFF, and the brake hasn't been set.

YES _____ NO _____

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SPECIAL INSTRUCTION, CHASSIS HARDWARE:

Install: (2) Weldon model #8080-69787-68 RED/CLEAR Dome lights in each side of the cab headliner.

Location: Above inside shoulder of each seat.

NOTE: Install the RED portion of the light toward the center of the cab.
Tie the WHITE section of the light to the chassis dome theater light circuit.
The WHITE section of the light shall also light in the manual mode.

YES _____ NO _____

DRIVETRAIN WARANTEE:

A 7 year 100,000 mile warrantee shall cover all drive-train components.

YES _____ NO _____

CAB & CHASSIS WARANTEE:

A 7 year 100,000 mile warrantee shall cover all components not covered in the drive-train warrantee.

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

CONVERSION:

The following section describes the required body design, manufacturing process, and materials. Adherence to this section is of extreme importance to our agency due to space requirements and safety concerns. The bidder must meet this section as closely as possible without utilizing experimental or prototype designs in order to be considered for bid award.

MINIMUM BODY DIMENSIONS:

The completed vehicle shall have the following minimum dimensions:

(Exterior)

-Height:	91"
-Width:	96.25"
-Length:	203"

(Interior)

-Height:	72"
-Aisle	48"
-Length:	199"

OVERALL DIMENSIONS (Including Chassis, Module and Step):

-Height:	110"
-Width:	100"
-Length:	295"

YES _____ NO _____

MODULAR BODY STRUCTURAL DESIGN REQUIREMENTS:

The module body shall be designed and fabricated with the following key elements in mind:

1. The greatest possible load carrying capacity is desired.
2. The safety of all vehicle occupants is of paramount concern.
3. The body design, including construction materials and fabrication techniques shall be proven to be durable.
4. The body shall be easily retrofitted to a new chassis should that need ever arise.

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

PAYLOAD REQUIREMENTS:

The vehicle payload shall meet or exceed that called for in the current KKK-A-1822 specification. The vehicle manufacturer shall, upon notice by this purchaser, provide a written statement from an independent engineer that the model being offered has met this set of criteria. Before delivery of the completed unit the manufacturer shall weigh the vehicle. A written statement of those weights shall be affixed to the inside of the street side front #1 compartment door. This purchaser reserves the right to have the finished vehicle weighed independently upon delivery. If it is found that the written statement of weight provided by the manufacturer is inaccurate beyond what may be reasonably explained as a slight difference in the calibration of the scales, then the vehicle will be rejected. It should be noted that this purchaser, while interested in attaining the greatest possible payload, is unwilling to compromise on the structural requirements of a strong, durable, and safe body. All bidders must understand these factors supercede concern over payload, and that the lightest body (greatest payload) will not necessarily be deemed sufficient to meet the stringent quality and safety requirements set forth herein.

YES _____ NO _____

MODULE BODY CONSTRUCTION AND WARRANTY:

The module body shall be constructed per the following detailed specifications. Generally speaking the body shall be of all-aluminum construction. Aluminum is shown to reduce weight over several other materials. It also possesses anti-corrosion properties that are essential for a vehicle of this type. The exact aluminum material requirements are explained in further detail below. The choice of materials and the design shall allow the manufacturer to warrant the materials and workmanship of the module body for a period of fifteen (15) years as set forth in the "warranty" section of this specification.

The manufacturer's structural warranty shall specifically cover:

- The continued and correct alignment of both compartment and access doors.
- Seam or joint separation in door construction.
- Aluminum interior cabinetry.

The warranty shall be fully transferable to a new owner should the vehicle ever be sold.

YES _____ NO _____

CORNER POST SUPPORTS:

The body structure must be able to support the loaded weight of the vehicle in the unlikely event of a rollover. A structure is required that will enhance the safety of both patients and attendants in the event of an accidental collision. The foundation of a solidly built module body is the utilization of strong corner posts in both the sidewalls and the roof. Because the structural integrity of a body is derived from the corner posts, sub-floor, and framework, corner posts that are a part of the exterior body skin (e.g. rolled corner posts) will not be considered, nor will corner posts which do not have an integral center reinforcement as part of the extrusion.

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

ROOF EXTRUSIONS & DRIP RAILS:

The horizontal roof extrusions shall conform to the same construction description as the vertical wall extrusions. In addition there shall be drip rails installed around the entire body and above all body doors that are not full height.

YES _____ NO _____

WALL AND ROOF SKIN SUPPORTS:

The exterior wall and roof skins shall be supported on the inside by 2" square tubing with .125" wall. These structural supports shall be strategically located at the load bearing points of the module body. The roof structural support beams shall be spaced on minimum 12" centers for adequate load support. Wall tubing of .090 thickness or less will not be acceptable.

YES _____ NO _____

HORIZONTAL WALL SUPPORT:

In addition to the vertical wall supports there shall be a horizontal beam, located in the beltline area, to provide additional protection in the event of a side body collision.

YES _____ NO _____

GUSSET ENHANCEMENT:

Gusset supports, made from 2" square tubing, shall be installed throughout the vehicle for added strength.

Areas of installation shall include but not be limited to:

- all door openings
- all body corners
- above all wheel wells.

YES _____ NO _____

EXTERIOR BODY PANELS:

The minimum thickness required for exterior body panels is:

- Side, front, and rear walls: .125"
- Ceiling and floor panels: .090"

NOTE: The roof shall be constructed with a single sheet of aluminum. This one-piece construction is preferred over a multiple piece design. The roof shall incorporate a minimum of 3/8" crown designed to allow water to drain.

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

FLOOR CONSTRUCTION:

Floors that are uneven or are incapable of adequately supporting the load being carried on the vehicle are unacceptable. For that reason thin floor panels and/or a lack of floor supports are not desirable. To prevent buckling, sagging, oil canning or any other structural breakdown of the flooring system a description of the required construction process is provided. To minimize transmission of road noise and structural borne sound into the patient compartment, the body sub-floor shall be constructed of .125" aluminum. All beams shall be strategically located at the load bearing points of the floor and welded into place. The interior of this vehicle shall contain no wood or wood products of any kind. The sub-floor, above the aluminum sheet noted above, shall consist of a minimum .5" thick synthetic reinforced structural composite board that is sanded on both sides. The material is to have a composite density of at least 26 pounds per cubic foot. The sub-floor material shall not be subject to water rot or absorption, nor shall it attract mold or fungus. The floor shall be constructed to provide maximum acoustic and thermal protection to the patient area.

YES _____ NO _____

SKIN TO SUPPORT ATTACHMENT:

Each body panel shall be welded to all horizontal frame members, including the roof extrusions. In addition, the panels shall be welded to the vertical corner posts. In the case of the roof, the perimeter of the one-piece roof sheet shall be welded. This method of attachment shall provide a total welding application to the entire perimeter of the body skin and a taped/insulating application to the interior surfaces of all walls. Methods of panel attachment that utilize rivets will not be acceptable.

YES _____ NO _____

MODULAR DOOR DESIGN:

Door panel separation, dirt accumulation at seams, paint imperfections, misalignment, and even malfunctions whereupon the door cannot be operated have been observed in many styles of door construction. These problems, along with the expected rugged use of the vehicle doors, shall be eliminated with a good overall design and construction process.

OUTER DOOR SKIN:

The door facing and edges shall be formed from a single sheet of aluminum. The aluminum used for the doors shall not be less than .125" thick. All module doors shall be flush fit to the body side. The door panels must be welded at the corners.

YES _____ NO _____

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INNER DOOR REINFORCEMENT:

Each door shall include an internal extrusion for added reinforcement. The extrusions shall extend around the entire perimeter of the door. Additional reinforcement shall be installed through the center of the door and around each window where applicable. In addition to the extrusions reinforcing each outer door pan, the extrusions themselves shall be reinforced through a dual joining method. First, each mitered corner, where the frame corners join, shall be fitted with a one-way solid aluminum insertable key. This key shall prevent the corner from pulling apart, and shall act as a solid aluminum internal gusset. Secondly, each corner where the frame joins shall be welded to further prevent any separation. The end result will be a rigid door that will not bend or flex and that will eliminate the other commonly seen structural defects described above.

YES _____ NO _____

INNER DOOR PAN:

An inner door pan shall fit flush with the inner edges of the door. Inner door pans that do not fit flush will have sharp or ragged edges exposed and will not be acceptable. The panels must be attached to the door structure with machine screws and Nutserts to prevent stripping. Sheet metal screws or rivets will not be accepted.

YES _____ NO _____

DOOR SEAL:

Full rubber seals will be used around all vehicle doors. Seals will mount to door frames in all cases except center seals on two door compartments and rear patient doors.

YES _____ NO _____

DOOR JAMB:

All doorjamb must be separate from the body skin and must be welded to the 2" x 2" tubular body frame members so as to ensure continued door alignment and proper latching. The compartment frame shall be designed in such a manner as to provide extra protection around the compartment openings. For added strength, the frame shall be at least .188" thick where screws are attached. Prior to door installation the doors shall be true fit to the doorjamb. The fitting, prior to installation, shall provide added assurance that the door aligns properly with the doorjamb.

YES _____ NO _____

HINGING:

All doors shall have full-length stainless steel hinges. The hinges shall be .070" thick and shall incorporate a .25" diameter pin. All hinges shall have un-slotted mounting holes for an exact and permanent installation

YES _____ NO _____

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HOLD-OPEN DEVICES:

The following door hold-open devices shall be installed:

- Compartment doors: Gas filled extension actuator or spring-loaded devices with a minimum 100-degree opening.
- Side access door: Gas filled extension actuator or spring-loaded devices with a minimum 110-degree opening.
- Rear doors: Cast Products "grabber" style devices

YES _____ NO _____

DOOR HANDLES AND LATCHING SYSTEM:

A door latching system is required that provides safety to all on-board personnel and security to all stored equipment. The patient area must be capable of being quickly secured.

The following minimum features are to be designed into the module door latching system:

- All doors shall have an exterior key lock.
- All door latches to be of the H.D. (New York) D-Latch design.
- All three patient area access doors shall include both interior and exterior latch activators.
- A manual lock/unlock device shall be located on each door.
- No plastic products shall be used for this application.

YES _____ NO _____

PATIENT AREA DOOR OPENINGS:

REAR DOORS:

Two (2) doors shall be provided at the rear of the module body. The overall opening of the access to be a minimum of 60.4" in height x 46.75" in width.

YES _____ NO _____

SIDE DOOR:

One (1) side door shall be provided on the curb side of the module body. The opening shall have minimum overall dimensions of 80.6" in height x 30" in width.

YES _____ NO _____

MODULE FLOOR HEIGHT:

The maximum floor height in the module will be 35" with the back doors open. This is the maximum height allowed for ease of stretcher loading and unloading.

YES _____ NO _____

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MODULE TO CHASSIS MOUNTING SYSTEM:

This purchaser requires a mounting system that provides a stable and durable attachment of the module body to the chassis frame. The mounting system shall be certified through crash testing to meet or exceed current NFPA impact and rollover standards. It shall be insulated with rubber to enhance the ride quality and lower the noise level by insulating much of the vibration in the chassis from the body.

YES _____ NO _____

INSULATION:

The patient area of the vehicle shall be insulated with the highest quality thermal and acoustic insulation available. All areas of the module shall incorporate the most recent technology in sprayed, bonded, glued and injected insulation and sound deadener to maximize patient area comfort.

The minimum protection acceptable is 2" Technicon polyfiber for both thermal and acoustic insulation. The headliner area of the vehicle shall also include a barrier insulation of Reflectix material for increased protection. The compartment and access doors shall be insulated with a polydamp extensional dampening pad combined with a 3/16" layer of foil faced low emissivity foam to provide thermal and acoustical insulating properties.

YES _____ NO _____

STREETSIDE FRONT COMPARTMENT (#1): O₂ Cabinet

The compartment described above shall feature the following minimum dimensions:

Clear Door Opening:	18.7" wide x 80.6" high
Actual Dimension:	21.4" wide x 83.6" high x 21.5" deep

This compartment shall be accessed through a single hinged door. The compartment shall house the vehicle's primary O₂ cylinder and shall be vented to the outside in such a way as to prevent moisture from entering the compartment. Under no circumstances shall vents be installed within the compartment door. The compartment itself shall be constructed as an individual box and welded into the body structural framing. The material used shall be .125" polished aluminum diamond plate that is continuously welded at all seams.

YES _____ NO _____

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STREETSIDE OXYGEN COMPARTMENT SHELF: (ADJUSTABLE)

A shelf shall be installed in the location(s) noted below. All shelving is to be fabricated from aluminum diamond plate. This material is to be .125" thick. All shelving is to include a 2" integral lip to prevent equipment from sliding off of the shelf. Lastly, all shelving is to include a compartment light on the bottom of the shelf to light the area beneath the shelf. The compartment light shall meet the lighting criteria as described elsewhere within this specification.

Quantity: (3)

Locate: (1) Above the O₂ bottle
(2) Forward of the fixed divider

YES _____ NO _____

STREETSIDE OXYGEN COMPARTMENT DIVIDER: (FIXED)

A 16" deep vertical divider shall be installed as noted below. The divider shall be non-adjustable and shall be fabricated from the same material used in the construction of the compartment in which it is to be installed.

Quantity: (1)

Locate: (1) To the left of the O₂ bottle

YES _____ NO _____

STREETSIDE INTERMEDIATE COMPARTMENT (#2): EXTRACATION EQ.

The compartment described above shall feature the following minimum dimensions:

Clear Door Opening: 51.8" wide x 39.8" high
Actual Dimension: 55.5" wide x 43" high x 21.5" deep

This compartment shall be accessed through double hinged doors. A portion of this compartment shall house the vehicle's required onboard electrical components as specified for use on this vehicle. The remainder of the compartment shall be utilized for storage of miscellaneous items as required by this purchaser. This compartment shall be vented to the outside in such a way as to prevent moisture from entering the compartment. Under no circumstances shall vents be installed within the compartment door unless they are required for airflow to equipment installed within this compartment. The compartment itself shall be constructed as an individual box and welded into the body structural framing. The material used shall be .125" polished aluminum diamond plate that is continuously welded at all seams.

YES _____ NO _____

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PULL OUT TRAY FOR STREETSIDE INTERMEDIATE COMPARTMENT:

A slide-out tray shall be installed in the location(s) noted below. The tray is to be fabricated from aluminum diamond plate. The tray will be as wide and deep as possible. This material shall be .125" thick. The tray is to be fabricated with a 2" integral lip to prevent equipment from sliding off of the tray. The tray shall be installed on slides with a minimum 250 lb. load capacity. The tray shall also include a latching device to lock the tray into position.

Quantity: (1)

Locate: (1) Lower area of the compartment.

YES _____ NO _____

DIVIDER FOR PROTECTION OF ELECTRICAL EQUIPMENT:

STREETSIDE INTERMEDIATE COMPARTMENT

A protective divider shall be installed as noted below. The divider shall be non-adjustable and shall be fabricated from the same material used in the construction of the compartment in which it is to be installed. This divider is to isolate the required vehicle electrical equipment from the rest of the compartment.

Quantity: (1)

Locate: (1) Forward area of the compartment

YES _____ NO _____

STREETSIDE REAR COMPARTMENT (#4): STORAGE

The compartment described above shall feature the following minimum dimensions:

Clear Door Opening: 32" wide x 60" high

Actual Dimension: 37.4" wide x 63" high x 21.5" deep

This compartment shall be accessed through double hinged doors. This compartment shall be utilized for storage of miscellaneous items as required by this purchaser. This compartment shall be vented to the outside in such a way as to prevent moisture from entering the compartment. Under no circumstances shall vents be installed within the compartment door. The compartment itself shall be constructed as an individual box and welded into the body structural framing. The material used shall be .125" polished aluminum diamond plate that is continuously welded at all seams.

YES _____ NO _____

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SHELVING FOR STREETSIDE REAR COMPARTMENT #(4): STORAGE

A shelf shall be installed in the location(s) noted below. All shelving is to be fabricated from aluminum diamond plate. This material is to be .125" thick. All shelving is to include a 2" integral lip to prevent equipment from sliding off of the shelf. Lastly, all shelving is to include a compartment light on the bottom of the shelf to light the area beneath the shelf. The compartment light shall meet the lighting criteria as described elsewhere within this specification.

Quantity: (2)

Locate: Equally spaced

YES _____ NO _____

CURBSIDE REAR COMPARTMENT (#5): BACKBOARD

The compartment described above shall feature the following minimum dimensions:

Clear Door Opening: 25" wide x 80.6" high

Actual Dimension: 29.6" wide x 83.6" high x 21.5" deep

This compartment shall be accessed through a single hinged door. This compartment shall be utilized for storage of miscellaneous items as required by this purchaser. This compartment shall be vented to the outside in such a way as to prevent moisture from entering the compartment. Under no circumstances shall vents be installed within the compartment door. The compartment itself shall be constructed as an individual box and welded into the body structural framing. The material used shall be .125" aluminum that is continuously welded at all seams.

YES _____ NO _____

SHELVING FOR REAR COMPARTMENT #(5): BACKBOARD

A shelf shall be installed in the location(s) noted below. All shelving is to be fabricated from aluminum diamond plate. This material is to be .125" thick. All shelving is to include a 2" integral lip to prevent equipment from sliding off of the shelf. Lastly, all shelving is to include a compartment light on the bottom of the shelf to light the area beneath the shelf. The compartment light shall meet the lighting criteria as described elsewhere within this specification.

Quantity: (1)

Locate: (1) Centered forward of the divider.

YES _____ NO _____

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FIXED REAR COMPARTMENT DIVIDER #(5): BACKBOARD

A 16" vertical divider shall be installed as noted below. The divider shall be non-adjustable and shall be fabricated from the same material used in the construction of the compartment in which it is to be installed.

Quantity: (1)

Locate: (1) Centered in the compartment

NOTE: Install multiple Ziamatic 2" adjustable Velcro straps for restraining items in each area of compartment.

YES _____ NO _____

CURBSIDE FRONT COMPARTMENT (#6): PASSTHROUGH (ALS)

The compartment described above shall feature the following minimum dimensions:

Clear Door Opening: 26.1" wide x 83.6" high

Actual Dimension: 30.7" wide x 86.6" high x 30" deep

This compartment shall be accessed through a single hinged door. This compartment shall also be accessible from the vehicle interior front wall area. This compartment shall be utilized for storage of purchaser-supplied jump kits and other miscellaneous items as required by this purchaser. The compartment itself shall be constructed as an individual box and welded into the body structural framing. The material used shall be .125" aluminum that is continuously welded at all seams.

YES _____ NO _____

SHELVING FOR CURBSIDE FRONT COMPARTMENT (#6): PASSTHROUGH (ALS)

An adjustable shelf shall be installed in the location(s) noted below. All shelving is to be fabricated from aluminum diamond plate. This material is to be .125" thick. All shelving is to include a 2" integral lip to prevent equipment from sliding off of the shelf. Lastly, all shelving is to include a compartment light on the bottom of the shelf to light the area beneath the shelf. The compartment light shall meet the lighting criteria as described elsewhere within this specification.

Quantity: (1)

Locate: (1) Adjustable, set mid height in compartment.

YES _____ NO _____

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PREWIRE PASSTHROUGH (ALS) COMPARTMENT FOR SUCTION CHARGER:

A pair of Battery HOT wires (20 amp.) shall be pre-wired into the Pass through (ALS) compartment for a Suction charger. 3 ft. of wire will be left to adjust shelf or change location of charger.

YES _____ NO _____

SUCTION CHARGER:

Quantity: (1) A charger for a SSCOR 2100 Suction unit.

Locate: (1) The charger shall be mounted to the adjustable shelf. The charger shall be mounted as far inward and forward as possible so the release lever is facing the outer access door.

YES _____ NO _____

CONSPITUITY TAPE

Reflective Conspituity tape shall be applied to all outward facing surfaces in each compartment. Attached to all shelves, trays and dividers.

Reflective Conspituity tape shall be applied to all exposed edges of the wheel-well compartment.

Reflective Conspituity tape shall be applied to the outer edges of each exterior door of the module and cab.

The center of all rub-rails shall be covered in Conspituity tape for safety.

YES _____ NO _____

CHEVRON STRIPING

4" Chevron striping (red & white) shall cover the entire inside surface of all exterior compartment doors.

4" Chevron striping (red & white) shall cover the lower half of the inside surface of all exterior entrance doors.

YES _____ NO _____

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SURFACE MOUNTED WARNING LIGHTS:

Each exterior door shall have a 4" Trucklite LED flashing light installed 30" off the ground.

Each full length door shall have a 2nd 4" Trucklite LED flashing light installed in the top portion of the door.

YES _____ NO _____

KKK-A-1822 CERTIFICATION LABEL:

The vehicle shall have weight/payload, electrical load, and the current KKK-A-1822 certification stickers installed in the O₂ compartment. Failure to provide these certification labels will be cause for rejection of the completed vehicle. Labels that are found to be falsified will also be cause for rejection of the completed vehicle.

YES _____ NO _____

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SPECIAL BODY REQUIREMENTS:

The requirements set forth in the following section of this specification represent items and features that may not be offered as standard by the bidder. If the bidder is unable to furnish any items listed in this section, then that inability must be listed and explained in the bidder's list of exceptions.

CONVERSION, CUSTOM MODEL WITH CUSTOM BODY

TURN OUT GEAR COMPARTMENTS:

Description: TURN OUT GEAR COMPARTMENTS: #(SA & SB)

NOTE: Add (2) 26" wide by 86.6" high compartments to the forward area of the module body (1) EACH SIDE.

YES _____ NO _____

SHELVING FOR TURNS OUT GEAR COMPARTMENTS: #(SA & SB)

Quantity: (4)

NOTE: Install (1) adjustable shelf in the middle area of the compartment, above the SCBA mounting plate and (1) in the upper area of the compartment on **EACH SIDE** of the vehicle. Lastly, all shelving is to include a compartment light on the bottom of the shelf to light the area beneath the shelf. The compartment light shall meet the lighting criteria as described elsewhere within this specification.

YES _____ NO _____

SCBA MOUNTING PLATES FOR TURN OUT GEAR COMPARTMENTS:

Quantity: (2)

NOTE: Install (1) vertically adjustable track and mounting plate for SCBA brackets on the back wall of the compartments on **EACH SIDE** of the vehicle.

YES _____ NO _____

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SCBA MOUNTING BRACKETS:

Quantity: (2)

NOTE: Install (1) SCBA mounting bracket to each adjustable mounting plate for air pack storage. MHFD will provide brackets.

YES _____ NO _____

PROTECTED AIR CHUCKS FOR TOOL AIR:

Quantity: (2)

Install: (1) Schrader style air fitting with shut off valve in the lower area of the front module compartment **ON EACH SIDE** of the vehicle.

NOTE: These fittings shall be plumbed into the factory air reservoir.

YES _____ NO _____

**HANDLIGHT CHARGERS FOR TURNOUT GEAR
COMPARTMENTS:**

Quantity: (2)

Install: (1) Streamlight hand light and charger Model 45116 (8 watt) shall be mounted next to the air pack mounting plate in each turnout gear compartment.

NOTE: Chargers shall be wired to the battery hot circuit.

YES _____ NO _____

SAFETY NETTING

Quantity: (2)

NOTE: Safety netting mounted to cover the face of the upper storage shelf in each turnout gear compartment. Plastic quick release buckles will release the netting to hang free.

YES _____ NO _____

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SPECIAL INSTRUCTION, BODY MODIFICATIONS:

STREETSIDE WHEELWELL COMPARTMENT:

DESCRIPTION: Install a street side wheel well compartment.

SIZE: **CLEAR DOOR OPENING** of: 45" wide by 20" high.
ACTUAL DIMENSION of 50" wide by

NOTE: The compartment shall have a drop down door with cables to hold the door in the **HORIZONTAL** position of 90%. The interior shall be diamond plate with the fold down door serving as a workbench. The door shall have a diamond plate surface with stainless steel trim over the edges.

Reflective Conspituity tape shall be applied to all edges of the wheelwell compartment.

YES _____ NO _____

3" DROP SKIRT DESIGN: (CURBSIDE)

The curb side body skirt, forward of the rear wheel well, shall be dropped three **(3)** inches. The extra room is to be provided inside the compartments in this area. Two integral aluminum diamond plate steps shall be installed within the side access door step well for improved accessibility to the patient compartment. Under no circumstances shall this be accomplished by bolting an additional step to the step well. The design must be such that all steps are integral. The use of bolts, rivets, or any other type of fastener is prohibited.

YES _____ NO _____

6" DROP SKIRT DESIGN: (STREETSIDE)

STREETSIDE OF BODY LOWERED 6":

The street side body skirt, forward of the rear wheel well, shall be dropped six **(6)** inches. The extra room is to be provided inside the compartments in this area.

YES _____ NO _____

MODULE BODY HARDWARE:

The following section lists hardware items that are to be installed on the vehicle body.

BODY MOLDING:

The body skin shall be smooth and continuous. No exterior body moldings shall be installed to cover or trim seam joints of exterior body wall skin.

YES _____ NO _____

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SOUNDPROOFING:

The patient area of the vehicle shall be insulated with the highest quality thermal and acoustic insulation available. All areas of the module shall incorporate the most recent technology in sprayed, bonded, glued and injected insulation and sound deadener to maximize patient area comfort.

The patient area of the vehicle shall be constructed in a manner that is engineered to control airborne sound as well as panel vibration or resonance caused by vehicle or road conditions

YES _____ NO _____

WINDOWS, MODULE BODY ENTRY DOORS:

The module body access doors shall include windows. The two rear doors shall feature fixed windows while the side access door shall feature a sliding window. Each of these windows shall measure 16.5"h x 17"w and shall be glazed and tinted in accordance with FMVSS. The windows shall be encased in extruded aluminum frames. Under no circumstances will RV style windows, windows that rely on rubber gaskets, windows that do not feature extruded aluminum frames, or windows that do not meet the above stated minimum dimensions be acceptable.

YES _____ NO _____

PRIVACY GLASS:

All of the patient area windows, as specified above, shall feature a dark 'privacy' tint. This tint shall be incorporated into the glass. This process is required over those utilizing laminates or films due to the tendency of such materials to peel or bubble over time.

YES _____ NO _____

SPLASH SHIELDS:

Polished aluminum Diamond plate splash shields are to be installed on the lower front face of the module body just aft of the cab access doors. These shields are to have a polished diamond-plate finish and shall match the height of the diamond plate corner guards that are to wrap around the lower corner posts on the side of the body.

YES _____ NO _____

STAINLESS STEEL FENDERS:

Polished stainless steel fender flares shall be installed above each wheel well opening. The mounting of these flares shall provide for no contact between the stainless steel fender, fasteners, and the aluminum body skin. This is done to eliminate any contact between dissimilar metals and the electrolysis that may result.

YES _____ NO _____

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STAINLESS STEEL COMPARTMENT SILL PLATES:

Stainless steel sill plates shall be installed per the location description below.

Quantity: (8)

Locate: All compartments/side entrance door.

YES _____ **NO** _____

REAR ACCESS DOOR HOLD-OPEN DEVICES:

Cast Products "Grabber" style rear door hold-open devices shall be installed to maintain the rear access doors in the 'open' position. One loop shall be installed on each door, and the appropriate socket shall be installed on the body.

YES _____ **NO** _____

RECESSED LICENSE PLATE BRACKET:

A Cast Products recessed license plate bracket shall be installed as noted below. The bracket will include lighting in the top to illuminate the license plate.

LOCATE: To be determined at pre-build.

YES _____ **NO** _____

METAFLEX IN EXTERIOR COMPARTMENTS:

Metaflex (or comparable) material shall be cut to size and installed on the bottoms of all exterior compartments and shelves.

Color: Black

YES _____ **NO** _____

RUBBER-COVERED WALLS IN BACKBOARD COMPARTMENT:

The walls of the backboard compartment shall be covered with self-adhesive textured rubber matting to protect the walls and the equipment stored in this area from any damage.

Color: Gray

YES _____ **NO** _____

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SPECIAL INSTRUCTION, MODULE BODY HARDWARE:

NOTE: Install Extruded Aluminum Channel style rub rails “like Pierce uses on their trucks”. A section can be provided upon request. The center of the rub-rails shall be covered in Conspituity tape for safety.

YES _____ NO _____

PAINT AND STRIPING:

An acrylic urethane paint process is required on the module body. This process shall extend to the chassis if the vehicle converter must perform paint or body work to the chassis. Acrylic urethane possesses superior color and luster retention characteristics when compared to other types of paint. In addition, an acrylic urethane process provides a higher resistance to chemical sprays, salt sprays, humidity, and temperature changes. Lastly, this process, given the expected life of the vehicle and its heavy-duty cycle, will best resist chipping. The final paint application shall be free of material application imperfections such as orange peel, streaking, or a dull finish. Once painted, the vehicle shall be inspected under a black light to bring any small imperfections, not seen with the naked eye, to attention. Any such imperfections shall be repaired prior to the conclusion of the paint inspection process. The final application shall provide a high gloss on all body surfaces including the roof and excluding the underside.

YES _____ NO _____

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PREPARATION:

To produce an acceptable paint finish, the following paint process must be used:

- All body doors and hardware must be removed prior to any wash, prime, or final paint application.
- All material impurities and oils must be removed from the bare aluminum body.
- The entire module body, excluding the underside, will have all visible welds ground down and all material imperfections filled.
- All holes (e.g. for hinge mounting, etc.) shall be plugged at this stage to prevent any cleaning agents from entering the module body framework.
- The body shall be prepared for paint by spraying with a phosphoric acid-based cleaner to remove dirt and oil and to etch the body for superior paint adhesion.
- The application of the cleaner shall be followed with a water rinse.
- A chromium-free titanium composite coating shall be applied to the body to enhance paint adhesion and to prevent corrosion.
- The body shall be rinsed with de-ionized water to prevent salts from accumulating on the surface.
- The body will, then, be baked dry prior to the application of three (3) coats of Sikkens Colorbuild primer.
- The primed body shall be finish sanded and made ready for the final paint application. –
- All module doors, though handled separately from the body, shall undergo the same process as described above.

YES _____ NO _____

ADDITIONAL CORROSION PREVENTION MEASURES:

All locations where fasteners penetrate the outer skin of the module body shall be coated with “ECK” anti-corrosion agent. In addition, all fasteners that penetrate the outer skin of the module body shall be treated with an anti-corrosion agent to assure the maximum protection against vehicle corrosion and electrolysis.

YES _____ NO _____

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NON-METALLIC HOLE INSERTS:

All locations where light heads and fenders attach to the aluminum body shall utilize threaded Nylon inserts to isolate the fasteners from the aluminum module body skin and structure. This practice, along with the other measures described above, shall act to minimize the threat of electrolysis.

YES _____ NO _____

PAINT WARRANTY:

The paint warranty provided by the converter must meet all warranty standards as set forth elsewhere within this specification. At a minimum this warranty will be 10 years/100,000 miles. The warranty **MUST NOT** be prorated in any manner. Bidder must submit a manufacturer's paint warranty certificate with the bid.

YES _____ NO _____

CHASSIS PAINT COLOR:

The chassis shall be painted by the ambulance converter with Sikkens Autocryl acrylic urethane paint. The paint shall meet the following requirements:

Color: RED

Number: FLNA 30019

NOTE: Paint the **TOP** of the cab **WHITE** in a Pierce pattern / style (**same as R-72**).

YES _____ NO _____

BODY PAINT COLOR:

The final paint application to the vehicle body shall be made with Sikkens Autocryl acrylic urethane paint.

Color: RED

Number: FLNA 30019

NOTE: Paint the **TOP** of the module **WHITE** to the drip rails.

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

SPECIAL INSTRUCTION, PAINT & STRIPING:

Install a **WHITE SCOTCHLITE** stripe in a **1-10-1 DESIGN** to match the department's Rescue-72 vehicle. Photos provided on request.

Install second white Scotchlite stripe of a 10" width along the bottom sides of the module.

Install 4" Red/ White Chevron striping across the back of the vehicle covering the entire back and rear corner rails of the module. Leaving the rear doors blank.

YES _____ **NO** _____

MODULE INTERIOR:

CABINET DOORS, PLEXIGLAS, HANDLES AND HARDWARE:

Information relative to interior door materials, handles, and hardware is provided below:

HANDLES FOR PLEXIGLAS DOORS:

All sliding Plexiglas doors within the patient compartment of the vehicle are to have extruded handles installed the full height of each door at the outermost edge.

YES _____ **NO** _____

LATCHES FOR HINGED DOORS:

The hinged doors within the patient compartment are to utilize Southco Stainless Steel flush-style latches as noted below. These latches shall feature recessed pull ring style handles. The latches shall be both positive (mechanical latching) and passive (latches automatically).

Note: Locking latch locations are to be noted on the drawings.

YES _____ **NO** _____

PLEXIGLAS COLOR:

The Plexiglas interior cabinet doors shall be clear.

YES _____ **NO** _____

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INHALATION PANEL:

To prevent contamination of the inhalation panel the panel shall be fabricated using no wood or wood based products. The material used shall be a .5" thick synthetic polyurethane foam with layers of continuous strand fiberglass and woven roving fiberglass sanded on both sides. The material shall have a minimum composite density of 20 pounds per square foot. This material shall not absorb liquids and shall not attract bacteria, molds or fungi. The material is to be covered with Formica material in a color matching that required within this document.

YES _____ NO _____

AVONITE COUNTER TOP WITH COVED INTERIOR EDGES:

The patient area countertop(s) shall be constructed of Avonite solid surface material. The countertops shall incorporate a 1" retention lip around the perimeter of the material. The area where the lip meets the horizontal surface of the counter shall be rounded and smooth as opposed to a 90 degree mating of materials. A radius cove molding shall be installed at either end of the countertops where the material meets the cabinet wall. The rear edge of the material, adjoining the side wall of the vehicle, shall be sealed with silicone. In addition, any and all areas that require seams due to manufacturing processes shall be sealed with silicone. This material shall be uniform throughout so that scratches can be buffed out without causing adverse effects on the appearance of the material.

Color: Platinum Gray

YES _____ NO _____

INTERIOR COLORS, UPHOLSTERY AND SEATING:

The patient area interior design is specified below:

INTERIOR COLOR SCHEME: STUDIO GRAY:

Floor:	LONPLATE GUN METAL GRAY
Risers:	NEVAMAR STUDIO GRAY S6-37G
Walls:	NEVAMAR STUDIO GRAY S6-37G
Cabinets:	STUDIO GRAY PAINT
Upholstery:	SPRADLING DOVE GRAY L-100
Accent Stripe:	NEVAMAR RAVEN S8-33G

The flooring listed above shall have an ultraviolet cured urethane wear layer formulated to provide maximum resistance to foot traffic. The bidder should note that most commercial grade flooring materials do not meet this requirement. However, this floor treatment is mandatory due to the fact that it has proven to greatly reduce the staining caused by routine wear in an ambulance and because it allows for much easier cleaning of the floor.

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

INTERIOR STORAGE AREAS:

All interior storage cabinets, including the interior of the squad bench, shall be painted for ease of cleaning. Under no circumstances shall carpet be used within these storage cabinets as it is impossible to decontaminate. The paint color is listed within the "Interior Color" section of this specification.

YES _____ NO _____

RISERS:

The interior of this vehicle shall be constructed without the use of wood or wood-based products. Interior trim is to be fabricated from aluminum. Specifically, the main cabinet wall and the squad bench shall have decorative Formica riser panels located above the floor line. The risers shall be constructed of the reinforced structural composite material and shall be covered with a Formica over-laminate to match the interior of the vehicle. Vehicle interiors that include wood and/or wood-based products in their design are not acceptable under any circumstances.

YES _____ NO _____

STAINLESS STEEL STREETSIDE RISER:

The street side riser beneath the main cabinet wall shall be covered with a single sheet of stainless steel. The stainless steel shall stop at the bottom of the accent stripe. The stainless material shall be installed flush with the riser and trimmed at the top and both sides so as to cover the edges. The bottom of the material shall be formed at a 90 degree angle so that, upon installation, the 4" rolled floor will seal against the stainless steel. In addition, stainless steel risers that have exposed edges, or that are more than one piece, will not be acceptable.

YES _____ NO _____

STAINLESS STEEL CURBSIDE RISER:

The curbside riser beneath the squad bench shall be covered with a single sheet of stainless steel. The stainless material shall be installed flush with the riser and trimmed at the top and both sides so as to cover the edges. The bottom of the material shall be formed at a 90 degree angle so that, upon installation, the 4" rolled floor will seal against the stainless steel. In addition, stainless steel risers that have exposed edges, or that are more than one piece, will not be acceptable.

YES _____ NO _____

STAINLESS STEEL LOWER DOOR PANELS:

The lower portion of the patient area entry doors shall be covered with single sheets of stainless steel. The stainless steel shall stop at the bottom of the accent stripe. This area shall be Chevron striped.

YES _____ NO _____

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ATTENDANT SEAT:

A Bostrom high back bucket type seat shall be installed on a Bostrom swivel seat base. The seat shall be upholstered to match the vehicle interior, and shall be capable of adjustment from front to rear. A seatbelt shall be installed at this location for the occupant of this seat. The exact location of the seat shall be determined by measurements from our most current rescue.

YES _____ NO _____

ALUMINUM INTERIOR CABINETS:

This specification requires an all aluminum modular cabinet design. Aluminum, a minimum of .063" thickness, is required over wooden cabinetry due to its lighter weight, greater durability, and the ease with which it can be decontaminated. Wooden cabinetry can warp, expand, contract, splinter, separate, or crack. Wood will also harbor bloodborne pathogens whereas aluminum can be easily cleaned. Aluminum will remain stable and securely mounted (no fibers to compress) over many years and miles of continuous service. For these reasons, wooden cabinets, even when laminated with another material, will not be acceptable. Bids received that utilize any wood or wood by-products will be considered non-responsive and will be rejected without further consideration.

YES _____ NO _____

INTERIOR CABINETRY:

All of the aluminum cabinetry within the vehicle shall be of welded construction. Methods of cabinet construction that utilize rivets or adhesives of any type will not be considered.

YES _____ NO _____

ALUMINUM CABINET WARRANTY:

The all aluminum cabinet construction, as described within this section, shall be warranted against any structural defects for a period of time not less than 15 years. This warranty shall be stated within the manufacturer's structural warranty document, and shall not be subject to any mileage limitations.

YES _____ NO _____

ALL INTERIOR CABINETS:

All interior cabinets will be copied as closely as possible from Rescue-72. Any modifications from this design MUST be spelled out in the bid. The vehicle is available for inspection and pictures will be provided upon request.

YES _____ NO _____

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CABINET BEHIND ATTENDANT SEAT:

A vertical storage cabinet shall be located behind the attendant seat. The upper storage area shall house the primary electrical distribution area. The lower section shall be used to house the vehicle heat/ac unit. The outer surface of this area will be covered with perforated stainless steel providing intake air to the heat/ac unit. The center section can be utilized for miscellaneous storage. The electrical distribution area and the center storage area shall be accessed through hinged doors. The electrical distribution area shall include a Southco key lock/latching device. The entire cabinet shall be fabricated from aluminum and shall then be painted, unless otherwise specified.

Number of Doors: (3) (Including Electrical Cabinet)

Number of Shelves (Adjustable): (1)

Number of Shelves (Fixed): (1)

YES _____ NO _____

STREET SIDE CABINET WALL:

The street side main cabinet wall shall be constructed from aluminum as described above. Each cabinet within the cabinet wall shall be designed and constructed as an individual welded aluminum box. Each box shall be insulated and soundproofed. The boxes shall then be bolted together to form the main cabinet wall. This design will allow for future modifications to the cabinetry should equipment storage requirements be updated. The cabinet wall assembly shall be further insulated against noise and temperature extremes. The entire assembly shall be bolted to the module body structure. Cabinets mounted with the use of either rivets or adhesives of any kind will not be considered.

Cabinet wall design: See Rescue-72

YES _____ NO _____

CABINET SHELVING:

All interior cabinet shelves shall be fabricated from aluminum. The shelves shall utilize mini Unistrut adjustable shelf track.

YES _____ NO _____

SPECIAL INSTRUCTION, CABINETRY: WALKTHROUGH

In the cab walk-thru area, install interior cabinets with hinged clear Plexiglas doors, on both sides.

YES _____ NO _____

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SQUAD BENCH STORAGE:

A storage area, fabricated from aluminum, shall be installed beneath the squad bench cushions. This storage area shall be painted and trimmed per the cabinet contraction section of this specification. Access to this area shall be gained by raising the bench cushion. This area shall be as large as possible given the design mandates present in the federal 'K' specifications, and the presence of the wheelhouse directly beneath this area.

YES _____ NO _____

SQUAD BENCH:

A minimum 22" wide x 72" long squad bench cushion shall be provided on the curb side of the patient area. The cushion shall not include posts or wheel cups for a stretcher. Three seat belts shall be installed in this area for the seated position, and for backboard retention for a secondary patient. These belts shall meet all applicable testing requirements as set forth in the latest federal 'K' specs. Seam sealer and edge moldings will be used around the edges. A hinge protector to prevent liquid contamination of the bench storage area.

YES _____ NO _____

BENCH HOLD OPEN:

Two (2) 24lb. Gas piston style hold-open devices shall be installed on the flip-up squad bench cushions. These devices will provide for smooth and simple operation. For that reason substitute hold-open devices, such as ratchet style devices, will not be acceptable.

YES _____ NO _____

BENCH HOLD DOWN:

Paddle style latches shall be installed on each flip-up bench cushion to hold the cushions in the 'closed' position. The operation of these latches shall be passive and shall required intentional unlatching in order to raise the squad bench cushion. Each latch is to be flush mounted in the face of the squad bench riser.

YES _____ NO _____

SQUAD BENCH EDGE PROTECTION:

An aluminum angled trim piece shall be installed along the bottom edge of each bench cushion. Each piece shall be bent to follow the contour of each cushion on the horizontal plane. These trim pieces shall provide added protection for the upholstery against extensive wear.

YES _____ NO _____

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SQUAD BENCH CEILING CABINET:

A cabinet shall be installed at ceiling level over the full length of the squad bench. This cabinet is to be fabricated from welded aluminum. The interior of the cabinet shall be painted per the cabinet construction description listed elsewhere within this specification. The cabinet is to be accessed through sliding Plexiglas doors.

NOTE: Cabinet above the squad bench shall be **12" deep X 12" height**

YES _____ NO _____

SPECIAL INSTRUCTION, CURBSIDE CABINETRY:

Install a Sharpes/Waste A-Bar system at the head of the squad bench. The Waste can shall be located **below** the Sharpes container on the **removable** A-Bar system.

2 extra waste cans and 2 extra Sharps containers shall be provided.

YES _____ NO _____

FRONT WALL CABINET:

A cabinet shall be provided on the front wall of the patient area just inside the side access door. This cabinet shall run from floor to ceiling and shall be fabricated from .063" welded aluminum. The cabinet shall be anchored at both the top and bottom for stability. Under no circumstances shall this cabinet be welded to any module body structural member. This storage area shall be used to house purchaser supplied bagged equipment and supplies.

Finish Material: Texture painted surface

Color: Per interior color scheme section

Shelf Quantity: **(1)** (.188" thick material)

Shelf Liner: Rubber matting

NOTE: Use .188 aluminum for the front wall cabinet shelves.

YES _____ NO _____

FRONT WALL CABINET GLOVE BOX HOLDERS:

Install 2 built in glove box holders above the upper med box cabinet. Boxes to be held sideways.

YES _____ NO _____

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FRONT WALL CABINET HINGED DOORS: LOWER

Access to the front wall cabinet, as described above, shall be provided per the description below.

Type: Clear Plexiglas

Latch Style: Southco

NOTE: Lower area only

NOTE: The hinges on the front wall cabinet shall be polished stainless steel stamped from Grade 304 stainless steel to prevent corrosion.

YES _____ NO _____

FRONT WALL CABINET HINGED DOORS: UPPER

Access to the front wall cabinet, as described above, shall be provided per the description below.

Locate: Upper area of the front wall for drug storage. Customer to approve the design. Door shall be solid aluminum with a small Plexiglas window to view drug box. Install gas struts to hold the door in the open position.

NOTE: The hinges on the front wall cabinet shall be polished stainless steel stamped from Grade 304 stainless steel to prevent corrosion.

NOTE: The upper 18" area of the front wall cabinet shall be blocked off from outside access with an aluminum plate. The lower area of the cabinet shall remain open for access to the jump kits.

YES _____ NO _____

SIMPLEX COMBINATION LOCK:

A push button activated Simplex combination locking device shall be installed as noted below. The combination for this lock shall be changeable so that a new combination can be set at a later time.

Quantity: (1)

Locate: Upper drug storage area

NOTE: Use round **HEAVY DUTY** style.

YES _____ NO _____

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MODULE INTERIOR ACCESSORIES AND TRIM:

The following section addresses interior accessories and trim features. All installation locations, as noted below, shall be strictly adhered to by the bidder. The items in this section will directly influence the quality of care given to the patient, as well as the safety of the attendants. For these reasons the installation locations listed below must be met.

IV HOOKS:

Cast Products recessed swing-down IV hangers shall be installed per the instructions listed below. These hangers are to be near flush mounted into the patient area ceiling to reduce their interference with the walkway when not in use. The arms of each hanger shall be rubberized so as to reduce the possibility of injury that may occur if contact is made with them. This style IV hanger shall be sufficient to meet Federal KKK-1822-E.

Quantity: (2)

Locate: (1) Mid body over squad bench.

Locate: (1) Mid body over cot.

YES _____ NO _____

CEILING GRAB RAIL WITH ANTI-MICROBIAL COATING:

A grab rail shall be installed in the ceiling as noted below. This rail is to be constructed of stainless steel. Integral stanchions shall be welded into place at fixed points along the length of the rail for attachment to the ceiling. The rail shall attach through aluminum mounting plates that are welded to the module roof structure for strength and durability. Because contamination occurs most often as a result of contact, this feature must be treated with an anti-microbial agent consisting of an inorganic ceramic coating embedded with silver ions. This coating shall be effective against a broad range of microbes including bacteria, molds, algae and fungi.

Size: 8 foot.

Locate: Centered in ceiling.

YES _____ NO _____

PATIENT AREA DOOR GRAB RAILS:

Angled door handles shall be installed on the interior door panels of each access door. The handles shall be one-piece and shall be constructed of stainless steel. The handles shall feature smooth radius corners and flange mounts at each attachment point. Because contamination occurs most often as a result of contact, this feature must be treated with an anti-microbial agent consisting of an inorganic ceramic coating embedded with silver ions. This coating shall be effective against a broad range of microbes including bacteria, molds, algae and fungi.

YES _____ NO _____

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PATIENT AREA ENTRANCE GRAB RAILS:

NFPA style full length colored grab rails shall be installed at both sides of each entranceway.

YES _____ NO _____

COVE MOLDING:

A radius cove molding shall be installed at all areas of the floor that may have seams.

YES _____ NO _____

PROTECTIVE EDGE TRIM:

The 90 degree edges of the squad bench, the attendant seat riser, and the front wall cabinet shall be protected by a chamfered trim angle.

YES _____ NO _____

CEILING:

The patient area ceiling shall be constructed of a bright white Dibond aluminum composite material. This material shall be smooth, easy to clean, and durable. Headliner material that is padded or upholstered in any way will not be considered due to the lower degree of durability and the risk of contamination inherent in such materials.

YES _____ NO _____

COT, MOUNTS AND PATIENT HANDLING:

The completed vehicle shall have the following cot & mount installed:

COT and MOUNT:

One **(1)** Stryker cot and mount shall be installed per the instructions and recommendations of the hardware manufacturer. The cot mount shall be installed as noted below.

Cot Model: Ferno 93H ProFlexx (yellow)

Extra Features:

- Lower metal storage tray
- IV Pole
- Head end lift bar
- Head end storage Softnet
- Safety bail bar & floor mounted hook

YES _____ NO _____

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COT FLOOR PLATES:

Stainless steel floor plates, .050" thick, shall be installed on the patient area floor below the cot wheels. The floor plates shall be attached to the floor with #6 flathead stainless steel screws. The entire perimeter of each plate shall be sealed to the floor with silicone to protect the area beneath the plates from contamination.

Cot Model: Ferno 93H ProFlexx

NOTE: Dual cot mount. Full width floor plates.

YES _____ **NO** _____

COT MOUNT LOCATIONS:

NOTE: The exact cot mount locations will be provided by MHFD the measurement will be taken from the DS wall and rearmost part of the attendants seat.

YES _____ **NO** _____

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ELECTRICAL EMERGENCY VISUAL WARNING SYSTEMS:

LIGHTBARS:

Lightbar information, as may be required, is noted below:

FRONT LIGHT BAR:

The light bar, as described below, shall be provided per the information listed below. Installation of this light bar on the vehicle shall follow the instructions given under the "Light Bar Mounting" section of this specification.

Quantity: (1)

Model: CODE 3 MX/LED

Configure: Custom to department spec.

YES _____ **NO** _____

FRONT LIGHT BAR MOUNTING:

The light bar specified above shall be installed per the instructions listed below. The light bar model is also provided for clarification purposes.

Light Bar Location: Cab roof with Permanent Mount

Light Bar Model: CODE 3 MX

YES _____ **NO** _____

REAR LIGHTBAR FOR 96" BODY:

The lightbar specified below shall be installed per the lightbar mounting instructions that follow. This lightbar shall be a maximum of **88"** wide for installation with a **96"** wide body.

REAR LIGHT BAR: UPPER

Whelen 4500, 88" custom rear lightbar.

Designate all light components and lens colors for each of the **(9)** sections.

Lens Order: RLED/RLED/RLED/LL/RLED/LL/RLED/RLED/RLED

NOTE: Super LEDs

YES _____ **NO** _____

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REAR LIGHT BAR: LOWER

The light bar, as described below, shall be provided per the information listed below. Installation of this light bar on the vehicle shall follow the instructions given under the "Light Bar Mounting" section of this specification.

Quantity: (1)

Model: TRAFFIC ADVISOR TA837M

Configure: (8) SUPER LEDs

YES _____ **NO** _____

REAR LIGHT BAR MOUNTING:

The light bar specified above shall be installed per the instructions listed below. The light bar model is also provided for clarification purposes.

Light Bar Location: Rear face of module body

Model: WHELEN 4500 LED/WHELEN TA837M TRAFFIC ADVISOR

NOTE: In all cases the light bar shall be installed so that it is below the module body roofline.

YES _____ **NO** _____

HEADLIGHT FLASHER:

The vehicle headlights shall alternately flash through the activation of the appropriate switch on the cab control console. This feature shall be accomplished through a solid state, flashing device that is a part of the primary electrical control board. A programmable phase control shall be built into the system board to allow alteration of the light flashing sequence. The flash pattern must be capable of being switched from an alternating pattern to a pulsating pattern. The phase of "on" time can be programmed to flash when desired for an effective light pattern. For instance: If the left grill light is flashing "on", the right flashing headlight is desired to be "on". Different flash patterns may be achieved through programming.

YES _____ **NO** _____

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L.E.D. LIGHTING:

Whelen 900 Series red L.E.D. lighting shall be installed per the quantity and location requirements listed below. All lighting is to include the optional chrome flange.

Quantity: (10)

Location: (2) Front face of the module
(3) Each side of the module
(2) Rear of the module at window level (**LOWER**)

NOTE: Whelen Super LEDs

YES _____ **NO** _____

L.E.D. LIGHTING:

Whelen 600 Series red L.E.D. lighting shall be installed per the quantity and location requirements listed below. All lighting is to include the optional chrome flange.

Quantity: (8)

Locate: (2) Sides of front bumper extension.
(2) Mid body of module (forward of the wheel well opening)
(2) Sides of rear bumper
(2) Rear of module above the backup lights.

NOTE: Whelen Super LEDs

YES _____ **NO** _____

SUPER 500 SIDE WARNING LIGHTS:

Whelen Super 500 Series red L.E.D. lighting shall be installed per the quantity and location requirements listed below. All lighting is to include the optional chrome flange.

Quantity: (6)

Locate: (3) On each side of the module.

- (1) As far forward as possible on module body at waist height.
- (1) Directly under the center scene light, as high as possible.
- (1) As far rearward as possible on module body at waist height.

YES _____ **NO** _____

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4E SERIES INTERSECTION LIGHT HOUSINGS:

Whelen #4IITK1 housings shall be provided and installed for use with the specified Whelen 400 Series intersection lights.

YES _____ NO _____

INTERSECTION LIGHTS:

One pair of Whelen 400 series red L.E.D. light assemblies shall be installed. One light shall be installed on each chassis front fender. Each light is to include the optional chrome flange.

Locate: In the lower area of the cab fenders.

NOTE: Whelen Super LEDs

YES _____ NO _____

GRILLE LIGHTS:

One pair of Whelen 700 series red L.E.D. light assemblies shall be provided and installed on the left and right sides of the chassis grille. The installation shall be done in such a way as to not impede airflow through the chassis manufacturer's O.E.M. grille. Aftermarket, modified, or improvised grille work will not be acceptable.

NOTE: Whelen Super LEDs

YES _____ NO _____

GRILLE LIGHT HOUSINGS:

One pair of Whelen 7GILKT1 angled housings shall be provided and installed for use with the specified grille lights.

YES _____ NO _____

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AUDIBLE EMERGENCY WARNING SYSTEMS:

The following audible emergency warning features shall be installed on the vehicle:

AIR HORNS:

One pair of 24" Grover Stuttertone air horns shall be installed and activated per the information provided below by the chassis O.E.M.

Trumpet Locate: Recessed into the Extended front bumper

Activation: Driver/Passenger side foot pedals.

NOTE: Mount pedals high enough to eliminate accidental activation.

YES _____ NO _____

SIREN: ELECTRONIC

The vehicle manufacturer shall supply and install a Federal PA300 200 watt siren as noted below. The siren shall include a removable microphone and "Hi-Lo" tone.

Quantity: 1

Siren Location: Cab Radio Console

YES _____ NO _____

SIREN INSTALLATION:

The electronic siren specified above shall be installed in the designated location and wired for operation through the speakers noted below.

Siren Model: PA-300 with removable microphone.

YES _____ NO _____

SIREN SPEAKERS:

The speakers specified below shall be installed on the chassis per the instructions listed. The speakers shall be wired for operation through the siren listed above.

Quantity: (2)

Make: Cast Products

Model: SAD-P4307

Locate: Recessed in the front extended bumper.

YES _____ NO _____

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SIREN SPEAKER INSTALLATION:

The siren speakers specified above shall be bumper mounted and wired for operation.

YES _____ NO _____

SIREN: MECHANICAL

The vehicle manufacturer shall supply and install a Federal Q2B mechanical siren as noted below.

NOTE:

- Mount recessed into the center of the extended front bumper.
- Rubber bumpers shall be installed on each side of the siren for protection.
- Install foot pedals on the driver and passenger sides for activation.
- Integrate siren brake switch into MAIN switch panel.

YES _____ NO _____

ELECTRICAL, NON EMERGENCY LIGHTING:

The lighting, as noted below, shall be furnished and installed by the successful bidder:

NFPA DOOR LIGHTING:

NFPA standard, flashing, door lighting on all cab & module doors.

Quantity: **(24)**

Location: All side opening doors. 2 lights on each full length door.

YES _____ NO _____

SIDE BODY RUNNING LIGHTS:

One Whelen 700 Series L.E.D. light with a red lens and a chrome flange shall be installed on each side of the vehicle towards the rear of the body. These lights shall function as both running lights and turn signals.

YES _____ NO _____

ICC MARKER LIGHTS:

The required ICC marker lights for this vehicle are to be LED. Bidder should note that some lightbars have ICC lights already installed. In that case those lights shall be installed in lieu of the lights described here unless denoted within this document.

YES _____ NO _____

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SCENE LIGHTS:

Whelen 13 degree 900 Halogen Series Scene Lights shall be installed in the quantity and locations noted below. Each light shall include the optional chrome flange. These lights shall be activated by right and left side switches located within the front electrical control console. Additional means of activation, if any, are listed in the electrical section of these specifications.

Quantity: (6)

Locate: (1) Each side of the module "centered".
(1) Each side of the module "next to the rear **RED LED**" lights.
(1) Each side of the module in a cast recessed housing **angled 26 degrees forward** located "behind the forward **RED LED**" lights.

YES _____ NO _____

SCENE LIGHTS:

Whelen 8-32 degree 700 Series Halogen Scene Lights shall be installed in the quantity and locations noted below. Each light shall include the optional chrome flange. These lights shall be activated by right and left side switches, located within the front electrical control console. Additional means of activation, if any, are listed in the electrical section of these specifications.

Quantity: (2)

Locate: (1) Rear of the module (ON EACH SIDE) just below the outside corners of the lightbar.

YES _____ NO _____

L.E.D. SCENE LIGHTS

Whelen super-bright LED Brow / Scene Lights shall be installed as indicated. These lights shall be activated by four scene light switches located in the front console. They shall be labeled Front Scene light, Rear Scene Light, Left Side Scene Light and Right Side Scene Light. Additional means of activation, if any, are listed in the electrical section of these specifications.

Quantity: (8)

Locate: (2) Front upper edge of module,
(2) on the upper edge of each side of the module(4).
(2) Rear upper edge of module

YES _____ NO _____

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GROUND LIGHTING BENEATH MODULE BODY:

The manufacturer shall install Truck Lite #853-0375 lighting beneath the module body at the locations(s) listed below. The lighting is to include rubber mounting grommets and shall be installed utilizing custom fabricated aluminum mounting brackets.

Quantity: (14)

Location: (2) Front of chassis under the front bumper
(2) Rear of module under the rear bumper
(1) Under each cab entry door (2)
(3) Evenly spaced along the streetside of the module between the front and the rear wheel opening.
(3) Evenly spaced along the curbside of the module between the front and the rear wheel opening.
(1) Streetside rear compartment
(1) Curbside rear compartment

NOTE: Lights are to function as follows:

Lights shall activate when the vehicle is put in park.

The (4) rear “underbody” lights shall activate when the vehicle is put in reverse.

YES _____ NO _____

STEP LIGHTS:

Quantity: (4)

Location: Mounted to illuminate the steps on each side of the cab.

YES _____ NO _____

'ARROW' TURN SIGNALS:

One pair of Whelen 600 Series L.E.D. 'Arrow' turn signals shall be installed on the front of the module body per the instructions listed below. Each light shall include the optional chrome flange.

Locate: Front of the module “below the **RED** LED lights”.

YES _____ NO _____

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TAIL LIGHTS:

Whelen 600 Series L.E.D. tail/brake, back-up, and turn signal lights shall be installed on the rear of the module body per the instructions listed below. All six of these lighting assemblies shall include the optional chrome flange. The tail/brake and turn signals shall be L.E.D. style lights. The back-up light shall be halogen.

Locate: Above the rear riser in a stacked pattern as follows:

TOP:

LED Stop light
LED Arrow turn
LED Warning
Halogen Backup

BOTTOM:

YES _____ NO _____

ELECTRICAL POWER GROUP:

The vehicle electrical system is extremely important to this purchaser. The requirements for the onboard electrical system are noted in detail below. The bidder's electrical system, should it deviate in any way from that which is specified, shall be explained in great detail. This explanation shall present facts relative to the bidder's system only. The bidder shall not draw any comparisons between the electrical system being offered, and the system being specified. Any comparisons or decisions regarding one system versus another will be made solely by the purchaser and shall be based entirely on the written description as provided by the bidder at the time the proposal is submitted. All decisions made by the purchaser as to the merits of one system over another will be final and will not be subject to discussion, either verbal or written, at any point.

CONVERTER ADDED ELECTRICAL SYSTEM STANDARDS:

The converter added electrical system must meet all current KKK ambulance design standards. The converter added electrical system has proven to sometimes be the most complex and troublesome system on this type of vehicle. A system is desired that is simple in design so that electrical problem diagnosis and repair time can be minimized. The electrical system must be thoroughly engineered and manufactured to allow simple personnel operation. Finally, the system must be designed so that the probability of experiencing dead batteries, shorted electrical components and engaging in lengthy troubleshooting procedures will be reduced. Past experience has shown that the electrical output provided by the chassis charging system can be marginal and under certain circumstances the electrical load can exceed the alternator output. In addition, some electrical systems have not provided proper circuit protection and at times have not provided adequate wiring for the load. To address the above objectives, the following minimum electrical system design is required:

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CONVERTER ADDED CHASSIS CHARGING ENHANCEMENT:

The basic design for the chassis electrical output system must include equipment that provides adequate electrical needs to operate the vehicle's electrical components. In addition, a system is desired that continually monitors the chassis voltage and amperage outputs. The end result of the desired electrical output system is longer battery life, less down time associated with charging system repairs, and the fulfillment of each and every emergency response.

BATTERY SELECTOR SWITCH:

An OEM installed two-position power selector, turning the battery power to the ambulance systems either "On" or "Off" shall be furnished. The switch shall be located on or near the driver's seat base. The battery switch shall not disconnect power to the OEM chassis systems.

YES _____ NO _____

VARIABLE THROTTLE ADVANCE:

In order to reduce the number of component parts and unnecessary throttle linkages, the factory electronic throttle control shall be utilized to activate the throttle advance system. The controls shall require that the chassis be placed in "Park" or "Neutral" with the "Module Disconnect" switch in the "On" position and the "Park Brake" engaged before activation of the throttle advance. A digital display warning on the driver console, accompanied by an audible tone, must instruct the driver to "Set Park Brake" or "Release Park Brake" to engage or disengage the automatic throttle control. No Exceptions.

YES _____ NO _____

AUTOMATIC LOAD MANAGEMENT:

In order to insure that onboard personnel attention is focused on victim care rather than being occupied with monitoring vehicle systems, an automatic load management system is required. The bidder must provide a system that continually monitors the vehicle's charging system while it is sitting "on scene." The system design shall have the ability to automatically shut down not less than ten pre-programmed electrical circuits to prevent a deficit charging condition while the vehicle is sitting at idle. The system shall be programmed to automatically scan the electrical system on one-minute intervals. If a deficit charging condition continues for more than one minute, a preprogrammed circuit shall shut down, correspondingly reducing the electrical draw. If the deficit condition continues, a second circuit shall automatically shut down. This process shall continue to repeat at one-minute intervals until at least ten circuits are shut down with corresponding load reductions. In the event any circuits are being controlled (disabled) by the load management system, the driver must be informed in two ways. First, a digital display warning shall appear on the driver information panel indicating "Load Management Active." At the same time, the L.E.D. switch indicator light shall begin to flash for each specific circuit that is being disabled.

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Systems that cannot indicate specific circuits being affected by the Load Management System are not acceptable. Load management systems must be programmed through a microprocessor based logic and memory system rather than a series of mechanical relays. Systems that require manual activation of Load Management will not be acceptable. Once the deficit condition ceases to exist, the system must be capable of restarting any disabled circuit without any action required by the driver.

The bidder is required to furnish a system that permits the end user, if he so desires, to determine prior to production the order of priority for shedding loads. Although the entire system must function automatically, it must also be designed so that it can be set (by the end user) to a "System Off" mode for restocking, training, or maintenance convenience. The "System Off" setting shall not be merely a switch, which would permit the operator to easily turn off Load Management. The intent is to keep the system active at all times when the vehicle is in operation.

YES _____ NO _____

LOW AMPERAGE SWITCHING:

Electrical devices that are not activated automatically shall be controlled from either the cab or patient area control panels through the use of manual switches. A low amperage switch that sends only an "on/off" signal to the central electrical distribution area is required. The switches provided shall have documented durability ratings at a minimum of one million (1,000,000) cycles. The switch design shall include stainless steel dome technology to attain the required durability ratings. Membrane or rocker style switches will not be acceptable due to their tendency to degrade and fail in continued field use. To eliminate loose or poor contacts, it is unacceptable to have soldered connections for the switches.

YES _____ NO _____

SWITCH "ON" INDICATOR LIGHT:

All switches (unless otherwise noted) on the panels described below shall include a red L.E.D. indicator light that will indicate when power is being applied to a circuit. Designs that have indicator lights that activate to indicate switch position only are not acceptable. In addition, the indicator lights shall be independently programmable to flash or steady burn as required to meet the end user specification.

YES _____ NO _____

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SWITCH PANEL DESIGN:

Each console shall contain a combination of control switches as described above and also an integral digital vacuum florescent message center. The message center shall provide driver/attendant information as described below. The message center is preferred over the use of buttons, lights or gauges because of the ease in acknowledging the specific information.

The driver's display shall be capable of displaying at least four sets of 20 character messages at one time. The rear display shall be capable of displaying two sets of 20 character messages at the same time. Both the cab and patient area switch panels shall be fabricated on a pre-printed circuit board. The circuit boards must be common in design and must be interchangeable between models offered by the manufacturer being proposed. Switch panels that are not standard in design and are not interchangeable from one unit to another will not be considered. The switch panels shall be fabricated so that they can be removed for service in little time.

YES _____ NO _____

SWITCH PANEL DECONTAMINATION AND SPILL RESISTANCE:

Both the driver and the patient area switch panels must be designed so they can be easily decontaminated. The switch panels must be built in such a manner that there are no openings or crevices on the panel faces. The entire switch panel must be sealed with a protective overlay material. There shall be no printing or labeling on the face of this material. The panels must be cleanable with any commercially available spray type cleaner or disinfectant commonly used by fire and EMS services with no damage created by fluids leaking through openings onto the circuit boards or switch contacts. The bidder shall be required, if asked, to provide the appropriate documentation showing that the cleaning chemicals generally used produced no visible damage after at least a 24 hour exposure.

The panels shall be spill resistant to shed accidental moisture from spilled soft drinks or coffee cups.

YES _____ NO _____

SWITCH PANEL BACKLIGHTING:

Both switch panels shall have backlight with fiber optic technology. All switch perimeters shall be lighted and raised for ease of switch location at night. In addition, the driver's control panel shall include a red color-coded area to further distinguish warning and emergency controls as well as specific blue color-coded areas for vehicle operation and maintenance systems. The remainder of the switch perimeters shall be green for easy night time visibility. The switch panels shall include, on each panel, an individual intensity control. Switch panel lighting that illuminates both the front and rear panels at the same intensity will not be considered. The bidder must provide totally independent control for each panel.

YES _____ NO _____

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CAB CONTROL SWITCHING AND DIGITAL DISPLAY:

Switch Activation:

The cab control center shall include switches installed in a backlight aluminum control panel.

The following minimum circuits shall be provided on the switch panel:

- Module Disconnect
- Master Warning Circuit
- Front Light Bars
- Rear Light Bars
- Red Flashing Lights
- Primary/Secondary Override (Each position shall have a red "On" indicator light)
- Front Scene Light X2
- Right Scene Light X2
- Left Scene Light X2
- Rear Scene Lights X2
- Rear Loading Lights
- Rear Heat/AC with temperature adjustment
- Single Button Vehicle Electrical Diagnostics
- Horn/Siren
- Vehicle Trip Odometer
- Back Up Alarm Override
- Air Ride Override
- Mechanical Siren Brake
- Dome Light
- ETM Headlights
- Throttle Control (high idle)
- Pass-Through Area Light

Digital Message Center:

The following digital displays will appear on the faceplate of the cab console when selected:

- Voltage (to the nearest 0.10 volt)
- Amperage (to the nearest amp)
- Engine Tachometer
- Inside Patient Area Temperature
- Access or Compartment Door Open Warning Message
- Oxygen Warning For Both Tank and Line Pressure
- Electrical System Diagnostics
- 24 Hour Clock
- Trip Odometer
- Emergency Brake Warning
- The System Shall be Capable of Displaying Specific Verbiage As Directed By The Customer

YES _____ NO _____

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PATIENT AREA CONTROL SWITCHES AND DIGITAL DISPLAY:

Switch Activation:

The patient area control center shall include switches installed in a backlight aluminum control panel.

The following circuits shall be provided on the switch panel:

- Rear Heat/AC Activation and Separate Temperature Control
- Rear Heat/AC Fan Speed Control
- Power Vents
- Cot Dome Lights and Bench Dome Lights
- Oxygen and Suction
- Patient Status
- Stop Clock
- Oxygen Line Pressure
- Oxygen Cylinder Pressure
- Radio Volume Control
- Pass-Through Area Light
- Florescent Lights

Digital Message Center:

The following digital displays shall appear on the faceplate of the patient area control console when selected:

- Patient Area Temperature
- Thermostat Setting
- Oxygen Tank Pressure
- Oxygen Line pressure
- Oxygen Warning
- Stop Clock
- The System Shall Be Capable Of Displaying Specific Verbiage As Directed By The Customer

YES _____ NO _____

SPARE SWITCHES:

Any spare or unused switches must be capable of being programmed later for additional functions including the ability to act as “macro” switches (one switch activating multiple features) without the need for rewiring.

YES _____ NO _____

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MODULE COMPARTMENT AND ACCESS DOOR SWITCHES:

Exterior circuits such as loading lights, side scene lights and compartment lights shall be activated by low amperage, non-mechanical switches. The type of switch desired is a magnetic sensitive switch that activates the circuit when the magnetic plane is broken. Plunger type switches are not acceptable because of their short useful life and higher amperage requirements.

YES _____ NO _____

DOOR OPEN INDICATOR:

An "Door Open" warning indicator, with accompanying audible chime shall be installed in both the cab and patient area. A digital display shall appear on both consoles indicating which specific door and / or compartment has been left ajar. In the case of access doors, the display will read "Side Access Door Ajar" or "Rear Access Door Ajar." In the case of a module compartment door, the display will read "Compartment #1 Ajar" etc.

YES _____ NO _____

CENTRAL PROCESSING UNIT FUNCTION:

The central processing unit shall be fully programmable and shall control a number of functions. The minimum functions to be controlled are as follows:

- No Load Starting Circuit (as defined in subsequent sections of this specification)
- Load Management
- Sequenced Start Circuit Activation
- Electrical System Diagnostics
- Climate Control Heat/AC operation
- Intensity Controls for Patient Dome Lights
- Oxygen Warning System (high and low pressure)
- All Warning Light Flashers and Flash Patterns
- Patient Status System
- Electrical Diagnostics

YES _____ NO _____

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CIRCUIT PROTECTION:

Each converter added electrical circuit must have circuit protection for both over current limit and over temperature condition. The circuit protection shall be provided by solid-state circuit breaker / switching devices (MOSFETS) for both the input and output wire feeds for each circuit.

The circuit protection shall require no user intervention such as that required for circuit breakers or fuses. For added protection and system reliability, all MOSFETS shall have heat sinks. Lack of heat sinks will be cause for automatic rejection of the system being offered.

The system shall indicate an output fault warning on the digital display in the driver control area. Should a problem occur, the warning shall identify the specific module and the output number for easy troubleshooting and to minimize the down time of the vehicle.

YES _____ NO _____

FIELD PROVEN AND TIME TESTED ELECTRICAL SYSTEM:

The converter-added electrical system represents the most important system in the design of this ambulance. Reliability and proven performance is essential. Therefore, the bidder must be able to demonstrate that he has at least ten years experience with solid state logic-controlled electrical systems installed in emergency vehicles. Further, the bidder must be capable of all programming required by the system without turning to outside vendors. This includes custom programmed items as may be delineated in this specification. The bidder may be required to demonstrate an “in production” or “in service” vehicle in order to guarantee compliance with this requirement. Prototype or “first of a kind” electrical systems are not acceptable. The purchaser may require the bidder to furnish specific references to further document compliance.

YES _____ NO _____

SPLICE-LESS WIRING:

Each converter-added circuit shall be powered through an individual wire that is free of any splices within the wire harness. For ease of troubleshooting and for greater reliability, one end of the wire shall plug directly into the output module and the other end shall connect to the device or the pigtail of the device being powered. The use of “daisy-chain wiring” will not be acceptable. The direct wiring technique described above is the only wiring system that will be accepted.

YES _____ NO _____

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WIRING:

The following minimum wiring standards are required:

Identification: By color, by itemized number, and by actual circuit name, stamped every 4-6"

Size: Size will vary and will be dependent upon each wire being able to carry a minimum of 125% of the actual circuit load.

Wiring Protection: All wiring must be run in breakaway wire loom for protection against abrasion or chafing.

YES _____ NO _____

NO LOAD STARTING:

To assure the ability to start the unit, the vehicle electrical system must have the ability to manage electrical loads during the engine startup or cranking period. The system shall automatically shut down all converter-added electrical loads when the ignition is activated and the engine is cranking. Once the engine has started, the system shall automatically turn back on all loads that were previously in the "On" condition. This feature must be accomplished by system programming and not by means of a relay or a series of relays, which are subject to failure, thereby causing the entire converter-added electrical system to fail.

YES _____ NO _____

SEQUENCED START CIRCUIT ACTIVATION:

To prevent the heavy load burden placed on the alternator and charging system when all emergency warning circuits are activated at the same time by "pre-loading" the master switch, the vehicle electrical system shall automatically sequence all load-managed warning circuits so they come on one at a time.

YES _____ NO _____

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ELECTRICAL SYSTEM DIAGNOSTIC CHECK:

The electrical system must have built-in capability to self check each converter-added circuit and identify a short or open circuit by means of a single diagnostic switch. The diagnostic system shall be operable from the driver's seat without exiting the vehicle. The relevant information shall be displayed on a digital display. When the operator activates the "Run Diagnostic" switch, the unit will initiate the systems check. The digital display shall flash the message "Running Diagnostics" while the check is in progress. The system must go through all outputs for the vehicle to check for malfunctions. If a malfunction is found, the display will indicate the type and location of the failure. This message will direct the service staff to the correct output module and the correct wire number in order to troubleshoot and repair the system. Once a failure is identified, the operator may continue to run the remainder of the diagnostic. The bidder shall furnish with the vehicle a detailed diagram indicating each input and output module number and identifying each circuit controlled by the module.

YES _____ NO _____

ELECTRICAL SYSTEM SUPPORT DATA:

Being able to service the electrical system should the need arise is of the utmost importance. To reduce the down time associated with servicing, **(2) sets** of the following information shall be provided at the time of delivery:

1. Electrical system operating instructions
2. Patient area heating/AC schematic and parts list
3. Oxygen and vacuum system schematic, parts list and leak check instructions
4. Battery and alternator schematic and system description
5. Radio communications installation instructions
6. Wire description list for converter added wiring
7. Individual schematics for all converter added electrical circuits

YES _____ NO _____

OEM BATTERY SWITCH:

An OEM installed two position 'On-Off' "Master" battery switch shall be installed on the vehicle within easy reach of the driver. This switch shall control power to both the O.E.M. chassis circuits, as well as the converter-added electrical circuits. Items specified to be wired "Battery Hot" shall not be affected by the Master battery switch.

NOTE: The module disconnect shall default to the "ON" position when the chassis ignition is turned on.

YES _____ NO _____

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45 AMP BATTERY CONDITIONER:

A battery conditioner shall be installed in the vehicle. This unit shall be wired through the vehicle shoreline inlet. This unit shall include an external voltage regulator.

YES _____ NO _____

110V INTERIOR OUTLETS:

Duplex 110V interior electrical outlets shall be installed. Each outlet shall be GFI protected and shall illuminate when powered.

Quantity and location information is noted below:

Quantity: **(2)**

Locate: **(1)** Inhalation Area
 (1) Wall Over Bench

YES _____ NO _____

SHORELINE:

The vehicle shall be equipped with a Kussmaul Super Auto Eject non-arcng shoreline. The male shoreline inlet shall be installed as noted below. This inlet shall be a 20 amp. straight three-prong type and shall include the female adapter plug. The shoreline shall be designed so that the plug will automatically eject from the inlet in the event that the vehicle is started while still plugged in. The shoreline shall include a hinged cover to protect it from the elements. The shoreline system shall be designed to handle a 20 amp load, and shall also include a 20 amp inline GFI breaker.

Locate: Streetside rear of the module, in the riser, clear of the rear doors with the ejector door open.

NOTE: The shoreline must be hooked up to the battery conditioner and the block heater, with a block heater disconnect switch.

YES _____ NO _____

SHORELINE INDICATOR:

A small AC pilot indicator LED light shall be installed as noted below. The light shall be wired in after the applicable circuit breaker so as to indicate not only the presence of AC power, but also the fact that the circuit breaker is in the closed position.

Locate: Over Shoreline Inlet

YES _____ NO _____

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EXTRA CIRCUIT BREAKER:

A Spare 15 amp manual resetting circuit breaker shall be installed as a provision for the possible installation, at a later time, of additional equipment. This feature is in addition to any pre-wire that may be included elsewhere within this vehicle specification. The total number of spare breakers is listed below:

Quantity: (1)

YES _____ NO _____

CAB SWITCH PANEL INSTALLATION:

The cab control panel for the converter-added electrical circuits shall be flush mounted in the upper face of the cab console. The mounting surface shall be angled so that the digital readout and switches are visible to both the driver and passenger positions.

YES _____ NO _____

REVERSE ACTIVATED REAR SIDE SCENE LIGHTS:

The rear scene lights on either side of the vehicle shall be programmed to be activated when the vehicle is placed into reverse gear. This is in addition to the other modes of operation as described elsewhere within this document. This feature shall be attained through the programming of the onboard electrical system.

YES _____ NO _____

SIDE DOOR ACTIVATED SIDE SCENE LIGHTS:

The side scene lighting shall be programmed to be activated when any compartment or side access door is opened. This is in addition to the other modes of operation as described elsewhere within this document. This feature shall be attained through the programming of the onboard electrical system.

YES _____ NO _____

AIR SUSPENSION DUMP SWITCH:

A manual air dump switch shall be installed as noted. This switch shall operate the air dump system when pressed.

Switch Locate: Install in the curbside rear riser.

NOTE: Install a second switch to activate the interior dome lights in the rear riser.

YES _____ NO _____

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REVERSE ACTIVATED LOADING LIGHTS:

The load lighting on the rear of the vehicle shall be programmed to be activated when the vehicle is placed into reverse gear. This is in addition to the other modes of operation as described elsewhere within this document. This feature shall be attained through the programming of the onboard electrical system.

NOTE: (12) lights will activate when the vehicle is placed in reverse.

- (2) Rearmost side scene lights
- (2) Rear scene lights
- (2) Rear load lights
- (2) Backup lights
- (4) Rear ground lights.

YES _____ **NO** _____

MODULE DISCONNECT TIMER:

The "Module Disconnect" circuit shall be wired to shut down when left in the 'On' position with the engine not running and the battery switch 'On.' If the shoreline is plugged in, then this feature will be disabled. Toggling the Module Disconnect switch shall reset the circuit for an additional time interval. The time interval shall be adjustable through software programming.

Time out: 5 min.

Configure: Do not time out if shoreline is plugged in

NOTE: Module disconnect resets each time the ignition is turned on.

YES _____ **NO** _____

EMERGENCY BRAKE WARNING:

When the vehicle is placed into 'Park' or 'Neutral' with the "Module Disconnect" switch 'On' and the "Red Flashing Light" switch 'On', then an audible alarm, accompanied by a visual readout on the cab console digital display, shall warn the vehicle operator to engage the emergency brake. Likewise, when the vehicle is placed into gear, then the same alarm will sound with a visual display warning the operator to disengage the emergency brake. Configure: wire alarm to activate with red flasher circuit

NOTE: Wire park brake to NFPA Standard (Forward White Lights to shut down when park brake set)

YES _____ **NO** _____

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REPORT LIGHT:

Report lighting, as described below, shall be installed within the patient area. The fixture shall have three separate incandescent bulbs that can be illuminated either one, two, or all three at one time depending on the amount of light required. The fixture shall be controlled via two switches, one at either end. One switch will illuminate one bulb, the other switch shall illuminate two bulbs. Activation of both switches simultaneously will illuminate all three bulbs. The fixture will be wired through a switch on the rear electrical control panel. Activation of that switch will activate the lighting depending on the setting of the fixture switches. This design will allow for simple "one touch" operation while still providing for flexibility in terms of lighting needs.

Quantity: (1)

Locate: Action area

YES _____ NO _____

REAR SPAEKERS:

Quantity: (4)

Locate: Near the corners of the module.

NOTE: The speakers shall be connected to the front Weather band radio.

YES _____ NO _____

CLOCK:

One large-face battery operated clock with a sweep second hand shall be installed as follows. Bidder shall note that this specification does not require that the clock feature backlighting.

Locate: Centered above the rear doors

YES _____ NO _____

STEP WELL LIGHT:

A Weldon chrome light shall be installed in the side step well to light the step well area when the side access door is opened. The light shall be activated by a magnetic door switch installed on the door as described elsewhere within this document.

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

LIGHT SWITCH:

A momentary switch shall be installed as noted below to operate the specified lighting with the battery switch in the 'ON' position.

Switch Locate: Curbside rear module riser

Light(s): Florescent

NOTE: This is a second dome light switch to operate off of the module disconnect circuit.

YES _____ NO _____

PROGRAMMABLE LIGHT TIMER:

A momentary switch shall be installed as noted below to operate the specified lighting with the battery switch in the 'Off' position and the shoreline plugged in. The switch shall activate a programmable timer that will automatically shut the lights off after the specified period of time. This timer shall be field-programmable to allow the time to be adjusted after the vehicle has been delivered. The initial time setting shall be as follows:

Locate: Wall above the bench

Light(s) Controlled: Florescent

NOTE: Set elapsed time for 15 minutes.

YES _____ NO _____

FLUORESCENT LIGHTING:

39" Thinlite fluorescent lighting shall be installed in the patient area ceiling. Quantity and location information is provided below. The lighting shall be operable from the inhalation area control console, as well as through any other means that may be outlined elsewhere within this specification.

Quantity: (3)

Locate: (1) Head of the cot
(1) Center of the cot
(1) Foot of the cot

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

DOME LIGHTS:

Weldon single filament halogen dome lights shall be installed in the patient area ceiling. Quantity and location information is listed below. The lights shall be recessed into the headliner and shall not protrude from the ceiling more than 1". Each light shall not draw more than three (3) amps at full intensity. All dome lighting shall be infinitely adjustable and shall be controlled via solid state switching at the patient area electrical control console.

Quantity: (7)

Locate: (3) Over cot
(3) Over bench
(1) Walk-thru area

YES _____ NO _____

AUXILIARY BRAKE LIGHTING:

The rear lower red flashing lights, and red center light in the rear light-bar, as specified elsewhere within this document, shall be wired so that they illuminate when the brake pedal is depressed. This lighting is in addition to the specified brake/tail lights.

Configure: Emergency lighting is to override this feature

YES _____ NO _____

HEATING AND AIR CONDITIONING:

A temperature control system is desired that provides quick and simple operation while maintaining a uniform temperature throughout the patient compartment. The unit itself must be located so that it is easy to access for service. This location must also be near the O.E.M. heat/AC connection points when provided so as to increase the overall efficiency of the unit. The following minimum design standards must be adhered to in order to best meet the needs of this purchaser.

SYSTEM CONTROLS:

The climate control functions shall be controlled through a primary location in the inhalation panel, and through a secondary location in the cab electrical control console. The switches used for the operation of this system shall be identical to the switches described in the "Electrical" section of this specification. Switches shall be present in the front console to select either 'Heat', 'A/C', or 'Off' functions and to select the desired temperature. Switches shall be present in the rear control panel to select either 'Heat', 'A/C', or 'Off' functions, 'Automatic' or 'Manual' mode of operation, and to select the desired temperature.

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

THERMOSTAT:

The temperature level shall be adjustable from both the front and rear electrical control panels for the 12V system. Two switches at each location shall be used to scroll through desired temperature settings on one degree intervals. Once the desired temperature is set, then the system shall retain that setting regardless of the position of the battery switch. The temperature sensor for the system shall be located at the inhalation panel so as to attain a true patient compartment temperature. The temperature setting and the actual temperature reading shall be viewable from both the front or rear digital displays. This system is to be controlled through the converter-added electrical system. Under no circumstances shall household type thermostats be acceptable.

YES _____ NO _____

SYSTEM OPERATION:

The system shall allow for both automatic and manual operation. When set to the manual mode the fan speed shall be infinitely adjustable from the rear control panel for extra ventilation. When set to the automatic mode, the fan speed shall be controlled by the thermostat setting. The temperature that is selected shall be continuously maintained. When the selected temperature has been reached, then the system shall automatically cycle the fan speed down to reduce unnecessary electrical load.

YES _____ NO _____

HEATER WATER CONTROL:

The flow of hot water from the chassis to the converter-added heat / AC system shall be controlled by an electrically operated valve located under the hood. Water flow to the rear heater shall be activated when either the front or rear heater switch is turned to the 'On' position. It is a requirement of this specification that this type of valve be used unless the converter is supplying a self-contained heat-AC system. The term "self-contained" is defined as being a unit that does not require any water flow from the chassis. Under no circumstances will manual valves be considered. Manual valves are inconvenient and tend to leak.

YES _____ NO _____

UNIT LOCATION AND SERVICE:

It is required that the heat/AC unit be installed inside a custom-made aluminum cabinet in the forward wall. This cabinet will be ventilated to provide air flow to the heat/AC unit. This is required for efficiency, serviceability, and safety. Many O.E.M. chassis builders provide tap-in points for the converter added heat/AC unit behind the driver's seat. In the unlikely event of a system leak the specified installation location will allow the leakage to run out onto the ground. Systems that are installed above cabinetry may leak into the cabinets, thus ruining the cabinets (if they are wood) and the cabinet contents.

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

FILTRATION SYSTEM:

A replaceable carbon filter shall be installed at the air intake area of the heat/AC system. Replacement of the filter shall be simple, and shall require very little time so as to assure that the vehicle will not have to be taken out of service. Replacement filters shall be readily available and shall be capable of being cut to the proper size to fit the vehicle.

YES _____ NO _____

AIR FLOW:

The installation of the heat/AC system shall include an air duct system to direct the airflow in such a way as to provide uniform temperature levels throughout the patient compartment. Air intake shall be from the floor level. The air shall be channeled through a duct that is aft of the heat/AC unit. The air shall exit through adjustable vents at the ceiling level above the attendant's seat. This design will allow for a circular flow of air throughout the patient compartment. The specified design will separate the intake and exhaust ports. Separation of the intake and exhaust will decrease air turbulence and improve overall efficiency of the system. Systems that combine intakes and exhausts within the same grille work will not be acceptable.

YES _____ NO _____

12V HEAT/AC SYSTEM:

The 12V heat/AC system shall be installed per the instructions listed above. This system shall be designed to be independent from the chassis O.E.M. AC system. At no point shall the converter-added A/C system tap into the O.E.M. system. The system provided by the converter shall include an evaporator, compressor, and a bottom-mount condenser designed for use with the DT466 engine. The BTU and CFM ratings on this unit shall be as follows:

Heat: 65,000BTU

A/C: 32,000BTU

CFM: 650

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

POWER VENTILATION:

The power ventilation system will work in such a way as to provide a constant flow of air from the sides of the module out through the top. Venting air and any unpleasant odors from around the patient.

ROOF MOUNTED POWER VENT:

(2) power vents shall be installed on the roof of the module body and shall be wired through a switch located on the rear control panel. The vents shall also be capable of being manually closed from inside the patient area.

Quantity: (2)

NOTE: These will be Evans style 7"-8" size.

Location: Spaced evenly apart.

YES _____ **NO** _____

SIDE MOUNTED STATIC VENT:

(2) chrome plated Perko static vents shall be installed on the module body side. The vents shall connect with the patient area via a vent/duct within the patient area.

Quantity: (2)

NOTE: Intake air shall be pulled from the lower area of the module interior.

YES _____ **NO** _____

CIGAR LIGHTER OUTLETS:

(3) cigar style outlets shall be installed in the action area back wall for power supplies and chargers of various types.

Quantity: (3)

Location: Back wall of action area

YES _____ **NO** _____

Madison Heights Fire Department 2009 Ambulance Specifications

CAB CONSOLE AND COMMUNICATIONS:

The vehicle communications and console features are designated below:

ANTENNA COAX #1:

An RG 58U coax shall be installed. A removable access plate in the patient area ceiling shall be provided for access to the exterior termination point located on the module body roof. Under no circumstances shall the vehicle design necessitate disassembly of the interior finish work to access the coax termination point.

The coax shall terminate at the following locations:

Exterior Termination: Front center of module roof.

Interior Termination: Cab console.

YES _____ NO _____

ANTENNA COAX #2:

A second RG 58U coax shall be installed. A removable access plate in the patient area ceiling shall be provided for access to the exterior termination point located on the module body roof. Under no circumstances shall the vehicle design necessitate disassembly of the interior finish work to access the coax termination point.

The coax shall terminate at the following locations:

Exterior Termination: Center of module roof

Interior Termination: Action area

YES _____ NO _____

ANTENNA COAX #3:

A third RG 58U coax shall be installed. A removable access plate in the patient area ceiling shall be provided for access to the exterior termination point located on the module body roof. Under no circumstances shall the vehicle design necessitate disassembly of the interior finish work to access the coax termination point.

The coax shall terminate at the following locations:

Exterior Termination: Rear center of module roof

Interior Termination: Action area

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

NMO ANTENNA BASE:

The vehicle converter shall provide and install an NMO antenna mount. The mount shall be located per the information listed below and shall utilize coax cable as specified above.

The mount(s) are to be as follows:

Quantity: (3)
Coax Number: J01A/J01B/J01C
Exterior Termination: Module roof
Interior Termination: Action area/Cab console

YES _____ NO _____

RADIO PULL WIRE:

A pull wire shall be installed to aid radio cable installation and prevent removal of interior panels once the vehicle has been completed. The following pull wire shall be installed:

Location: Rear of driver seat
Terminate: Rear action area

YES _____ NO _____

CAB CONSOLE:

A console shall be installed in the cab. The console shall be installed at floor level and shall allow space for siren and radio head installation. The console shall be color coordinated with the cab interior. The top of the console shall be on a slant and shall house the recessed emergency control panel and integral digital display. Under no circumstances shall the console interfere with the OEM vehicle controls or gauges, nor shall the control panel be installed in such a manner as to interfere with either the OEM vehicle controls, gauges, or the driver's line of vision.

NOTE: Console shall be padded and covered in matching carpet.

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

CONSOLE EXTENSION:

An aluminum console extension shall be fabricated and installed in the vehicle cab. The extension shall attach to the front console and shall include a location to mount siren and/or radio heads, as well as three slots for storage of map books and binders.

NOTE: Console extension shall be covered in carpet to compliment the interior cab color.

YES _____ NO _____

FRONT CONSOLE RADIO HEAD INSTALLATION:

The purchaser shall supply radio heads for flush mounted installation in the front console.

The number of heads to be installed in the front console is as follows:

Quantity: (1)

Model #: CUSTOMER SUPPLIED

YES _____ NO _____

REAR CONSOLE RADIO HEAD INSTALLATION:

The purchaser shall supply radio heads for flush mounted installation in the inhalation panel.

The number of heads to be installed in the inhalation panel is as follows:

Quantity: (1)

Model #: CUSTOMER SUPPLIED

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

RADIO POWER/GROUND:

The vehicle manufacturer shall install heavy gauge cable B positive and ground for radio power. Termination is to be to insulated studs.

Quantity: (4)

Locate: (1) Cab console
(1) Rear action area
(1) Behind drivers seat
(1) Electronics cabinet

Configure: Each location shall have:
(1) Battery Hot
(1) Battery switched
(1) Ground

YES _____ NO _____

OXYGEN AND SUCTION SYSTEMS:

Reliability, safety, and ease of operation are essential characteristics of the onboard oxygen and suction systems. System design must meet the following minimum guidelines. Bidders are asked to respond to each section appropriately per the bid requirements and to explain any variations to these requirements.

SWITCHING FOR OXYGEN AND SUCTION:

The rear switch panel shall contain two switches labeled "OXYGEN" and "VACUUM". Each of these switches shall electrically activate those respective systems. That activation shall be instantaneous.

YES _____ NO _____

SYSTEM DESIGN:

A single piece manifold assembly shall serve as the basis for the oxygen delivery system. The manifold assembly shall incorporate ports for installation of O₂ lines to all specified outlets, an electrically activated oxygen delivery solenoid, and a manual bypass valve. The assembly shall be installed behind the inhalation panel and shall be easily accessible.

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

ELECTRICAL OXYGEN ACTIVATION:

The switch, located on the rear control panel and labeled "OXYGEN", shall activate the solenoid. This design will allow for the instantaneous flow of oxygen while eliminating the need to manually turn a valve to initiate oxygen flow.

YES _____ NO _____

MANUAL BYPASS:

The oxygen solenoid shall be equipped with a manual bypass valve. Located behind the inhalation panel, the valve shall be easily accessible so that, in the unlikely event of an electrical failure, administration of oxygen may continue.

YES _____ NO _____

SYSTEM REGULATION:

The patient area shall be free of high-pressure oxygen lines. To accomplish this the vehicle converter shall install a KKK approved regulator at the oxygen cylinder. The regulator shall include an integral dial type gauge to monitor the cylinder contents. A single low pressure line shall be installed from the regulator to the O₂ manifold assembly. This method shall insure that all high pressure is maintained in an exterior compartment away from the interior patient area.

YES _____ NO _____

OXYGEN LINES:

The O₂ line connecting the regulator to the manifold assembly shall be rated at 200 psi working pressure and 1,250 psi burst pressure. The line shall be UL approved. There shall be NO connections installed in the line between the regulator and manifold assembly as these create a possibility for leakage. All connections shall be DISS style and shall be specific to the gas being supplied.

YES _____ NO _____

LINE PROTECTION:

The O₂ line shall be protected from crimping through the installation of a flexible spring guard on the portion of the line in the cylinder storage compartment.

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

SYSTEM MONITORING:

The condition of the oxygen system shall be continually monitored and reported to the vehicle operators through the vehicle's onboard electrical system. Digital readouts containing the information listed below shall be available primarily at the patient area control console. The secondary location for availability of this information shall be the cab console.

The information available shall include the following:

- Cylinder Pressure
- Line Pressure

In addition, this system shall be designed to offer a warning, both audible and visual, if the condition of the oxygen system falls outside of the following pre-programmed parameters:

- Low Cylinder Pressure (500 psi or below)
- Low Line Pressure (40 psi or below)
- High Line Pressure (75 psi or above)

These oxygen system warnings shall immediately notify the personnel of a problem, again, via a digital readout and audible alarm. The system shall require the personnel to acknowledge receipt of the information.

YES _____ NO _____

PRELIMINARY SYSTEM TESTING:

The oxygen system shall be tested prior to installation in the vehicle. This test shall be performed by the vehicle manufacturer and shall subject the system to three times (3X) the working pressure. This test shall be conducted for a minimum of four (4) hours.

YES _____ NO _____

FINAL SYSTEM TESTING:

The completed system shall be tested again once it is installed in the vehicle. This test shall be performed at working pressure for a minimum of four (4) hours. After the system has passed the inspection process it shall be capped and tagged per Federal KKK specifications.

YES _____ NO _____

**Madison Heights Fire Department
2009 Ambulance Specifications**

ADDITIONAL OXYGEN AND VACUUM SUPPLIES:

The oxygen and suction systems shall be complete upon delivery with the exception of the O₂ cylinder. The cylinder shall be supplied and installed by the purchaser after delivery of the vehicle has taken place. One disposable mask shall be supplied with the completed vehicle.

YES _____ NO _____

OXYGEN BOTTLE MOUNT, VERTICAL TRACK FOR QRM-V:

Vertical track for mounting of a QRM-V O₂ cylinder mount shall be welded on the back wall of the compartment in the right hand corner. The O₂ cylinder mount is adjustable for "M" or "H" size tanks.

YES _____ NO _____

ZICO QRM-V CYLINDER BRACKET:

A Zico QRM-V oxygen cylinder bracket shall be installed in the main O₂ compartment.

Locate: Right hand wall.

Tank Size: "M"

YES _____ NO _____

OXYGEN OUTLETS:

Two oxygen outlets shall be installed in the rear inhalation panel unless otherwise noted below.

Quantity: (2)

NOTE: Relocate (1) of the action area oxygen outlets to the wall above the bench.

NOTE: Adapter type is "OHIO DIAMOND II"

YES _____ NO _____

OHIO MEDICAL OXYGEN AND SUCTION OUTLETS:

The oxygen and suction outlets installed in the vehicle shall be Ohio Medical Quick Connect style outlets.

YES _____ NO _____

CYLINDER WRENCH:

A cylinder wrench shall be installed inside the oxygen compartment. The wrench shall be installed in such a way as it will not move or rattle. The wrench shall be chained to the compartment so that it cannot be removed, however, the chain must not interfere with the operation of the wrench.

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

SSCOR ASPIRATOR:

The manufacturer shall furnish and install an SSCOR suction system. The system shall include a #90178 pump, a #22002 wall-mounted regulator, and a #22-2 canister holder. The aspirator shall be accessible for use from the inhalation area per the attached prints.

YES _____ NO _____

LETTERING:

Full lettering to vehicle in 3m contrasting reflective vinyl

NOTE: Lettering to match the most current Rescue vehicle. (Pictures available on request)

YES _____ NO _____

EMBLEMS:

Star of life emblems to identify the vehicle.

Quantity: (2)

Size: 18"

Location: Rear sides of the module. To be determined at pre-build.

YES _____ NO _____

BACKUP CAMERA:

A Safety Vision 7" color/infrared model, ceiling mounted, backup camera & monitor system.

NOTE: A preconnected interface for video input from a department laptop is required.

YES _____ NO _____

COMPUTER MOUNT:

A D&R Computer mount for a Panasonic CF-74 with power connection.

YES _____ NO _____

Madison Heights Fire Department 2009 Ambulance Specifications

ADDITIONAL ITEMS PRICED SEPERATELY:

Upgrade to a Stryker electric stretcher with all requested extra features

A Panasonic Model CF-19 Toughbook laptop computer and mount for use by passenger with interface to Safety Vision back-up system.

Stryker StairPRO-6252 Stair chair

AIR HOSE REEL:

Quantity (1)

Install: Install a retractable air hose reel, with 50' of 3/8" hose in the right side turnout gear compartment. The reel should be mounted in the upper most area above the shelf, with an opening in the bottom of the shelf for the hose to pass and guide rollers around the hole.

NOTE: Air supply shall be tapped into the large reserve side of the system.

FIRECOMM HEADSET SYSTEM:

A Firecomm headset system with 4 connection sites.

The control unit shall be installed in the front console with the 2 way radio. It shall be interfaced with the console mounted 2 way radio.

The **(4)** headset connection sites shall be:

- 1- Above and to the rear of the drivers inside shoulder.
- 1- Above and to the rear of the passengers inside shoulder.
- 1- In the action area panel near the 2 way radio.
- 1- At the rear upper corner of the squad bench.

All (4) headsets shall be H-10 2 sided soft upper strap design.

Madison Heights Fire Department 2009 Ambulance Specifications

TRADE IN VEHICLE:

The Back-Up Vehicle is a 1999 Road Rescue on an International Chassis. Further details and pictures of this vehicle are available by E-mail. An inspection can be scheduled by contacting the department representatives.

Vehicle: 1999 Navistar 4700 LP

Engine: T-444-E
210hp

Transmission: AT-545 4speed automatic

Module: Road Rescue Ultramedic
168" Module

Mileage: 79,752 (09/16/08)

Hours: 7,204 (09/16/08)

YES _____ **NO** _____

**Madison Heights Fire Department
2009 Ambulance Specifications**

BID #947

NON-COLLUSION AFFIDAVIT

Return this completed form with your sealed bid.

_____ being duly sworn deposes and says:

That he/she is _____
(state official capacity in firm)

The party making the foregoing proposal or bid, that such bid is genuine and not collusion or sham; that said bidder has not colluded, conspired, connived, or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or any other bidder, or to fix any overhead, profit, or cost element of said bid price or that of any other bidder, or to secure the advantage against the City of Madison Heights or any person interested in the proposed contract; and that all statements contained in said proposal or bid are true.

(Signature of person submitting bid)

**Subscribed and sworn this _____ day of _____, 2008 before me, a
Notary Public in and for said County.**

Notary Public

My Commission Expires:

**Madison Heights Fire Department
2009 Ambulance Specifications
PRICING SECTION**

Bid # 947 – Fire Department Rescue Vehicle

- This section must be completed in full and returned with your bid.
- Complete required information and initial all specification pages to indicate compliance or non-compliance with each item as listed and return with your bid. Be sure to include all required documents.

MAKE/MODEL: _____

MODEL YEAR: _____

A. Price: \$ _____
(include bond prices in total price see note on options page – Option E below)

B. Back Up Vehicle Trade-In Value \$ _____
1999 Navistar 4700 LP
79,752 Miles – 7,204 Hours
Call (248) 588-3605 to schedule appt. to view

C. List in detail any discounts or incentives for prepayment:

By Signature below, bidder acknowledges that all minimum specifications contained herein have been met.

Company Name: _____ Phone: _____

Contact Person: _____ Fax: _____

Email: _____

Address: _____

Authorized Signature: _____ **Date:** _____

**Madison Heights Fire Department
2009 Ambulance Specifications
PRICING SECTION – OPTIONAL ITEMS**

Bid # 947 – Fire Department Rescue Vehicle

- This section must be completed in full and returned with your bid.

Complete required information and initial all specification pages to indicate compliance or non-compliance with each item as listed and return with your bid. Be sure to include all required documents.

Option A: Upgrade to Stryker Electric Stretcher \$_____

Option B: Panasonic Model CF-19 Toughbook Laptop Computer and Mount for Use by Passenger with Interface to Safety Vision Back-Up System: \$_____

Option C: Air Hose Reel (1) Including Installation: \$_____

Option D: FireComm Headset System with Four (4) Headsets: \$_____

Option E: Performance and Labor and Material Bonds \$_____

Note Bond prices are to be included in the Base Bid price. The listed unit cost for bonds is to be shown here for informational purposes. Should the City choose to NOT to require bonds, this amount will be deducted from the Base Bid price to determine the contract price.

By Signature below, bidder acknowledges that all minimum specifications contained herein have been met.

Company Name:_____ Phone:_____

Contact Person:_____ Fax:_____

Email:_____

Address:_____

Authorized Signature:_____ Date:_____