

Vehicle Build Specification

FastLane Emergency Vehicles | 37241 E Richardson Lane | Purcellville, VA 20132 | (877) 327-8526



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Heavy Duty Collapse Rescue, FL-HDV-CRU

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Job/Quote ID: Q00286.1

Client/Department Name: NCSA

Rep: Sean Swanson

Conversion Up-fit of a(n) Freightliner M2 112

FastLane to supply vehicle? YES

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Chassis Specifications

If indicated above and vehicle is supplied by FastLane, the following specifications shall be considered "included in contract" Only specifications listed herein shall be considered inclusive. FastLane shall not be responsible for chassis specifications outside this document.

The vehicle, a(n) Freightliner M2 112 shall be supplied by FastLane.

Please see the chassis specification document attached to the quote.

GENERAL BUILD SPECIFICATIONS

This section describes the minimum standards for how your new FastLane vehicle shall be converted/upfitted; specifically for the wiring, connections & terminations, mounting of equipment and power distribution.

WIRING

Wiring to be automotive type meeting or exceeding SAE J1128-GXL rated for minimum of +125 degrees centigrade. All wiring to be stamped with permanent, indelible marking describing both circuit identification and plain word function not less than 6 inches apart for the entire length of the wire. Each run to be rated for 125% the specified ampacity of the connected load. All wires to be run in split corrugated, nylon loom with minimum temperature rating of +115 degrees Centigrade. Loomed harnesses to be wire tied to frame and chassis not greater than 16 inches apart. All communication and data lines to be shielded and in independent harness from all other wires. All pass-through holes cut in body of vehicle where wire harnesses travel to have standard Heyco style bushings to protect from chaffing. All holes that pass to exterior of body to have approved, expanding sealing compound to seal wires from weather.

CONNECTIONS & TERMINATIONS

All connections made within the body, away from possible weather to be standard crimp style terminals with nylon insulation. Terminals must be crimped with approved tool specific to connector being used. All exterior or engine compartment connections (made on outside vehicle cabin) to be either heat shrink crimp style or Deutsch style, sealed connector and must protect against moisture, dirt and dust, minimum rating of -40 to 120 degrees Centigrade. All ground connections made on chassis frame or body on remote appliances to utilize star (toothed) ring terminal and be coated from weather and corrosion with silicon or approved sealant. Interface to OEM wiring shall be done in accordance with body builder and up-fitter specifications. Where possible any connection to OEM wiring shall use a tee style no-cut harness or shall be soldered into place using standard no-clean flux solder. This soldered connection shall then be covered in a dual wall, polyolefin, sealant lined heat-shrink tubing and heated into place with heat gun or portable torch. Under no circumstances shall fuse taps or crimp tee-taps be used to interface with OEM wiring.

MOUNTING OF EQUIPMENT

All FastLane added equipment to be mounted in accordance with manufacturers specifications. All interior cab items to be mounted with airbag safety standards followed. Modifications to the OEM frame assembly or suspension systems are prohibited. Any modification to bumper systems must be done such that not more than 10% of the entire surface area of the bumper assembly is breeched or modified. All cuts made to any chassis or body panel must be sealed with self-galvanizing, anti-rust sealer prior to equipment being mounted. All exterior hardware including screws and fasteners to be minimum of 18-8 stainless steel. All exterior lighting and thru-body equipment shall be fastened to the sheet metal of the vehicle using approved rivet nut fasteners, allowing the use of machine thread screws. The use of sheet metal screws directly into the body skin is prohibited.

POWER DISTRIBUTION (noise free power)

The main FastLane power feed is rated for 200% of total expected ampacity of the carried load. One large gauge cable run from vehicle's battery bank must be circuit protected within a minimum distance of 16 inches from power source (battery) and can be disconnected by user quickly in the event of emergency or maintenance. This protected power feed will power all FastLane added appliances and warning systems. Specified, lug style power studs will be in vehicle console and rear cabinet (if specified) to provided clean, capable power. Additionally main ground studs shall be placed in the

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front console and rear cabinet (if specified) for clean, noise free central grounding of all equipment. These ground cables shall be of matching size to main power feed and be bolted to frame rails using stainless steel fasteners and coated with approved sealing compound.

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LIGHTBARS

As it is necessary to make an opening in the vehicle roof for lightbar cable(s) to be routed, proper and effective sealing of these hole(s) is of paramount importance. All wire holes through the vehicle roof will be protected with self-sealing, waterproof, hole-grommets when clearance is available (otherwise FastLane shall seal the hole using standard pliable "duct" seal agent).

FASTLANE SHALL SUPPLY/INSTALL THE FOLLOWING ITEMS:

The following lightbar shall be installed on the vehicle:

Type: FREEDOM

Model: K422DDDD

Description: Freedom VI Duo 55-Inch Lightbar, Red/White Corners

To include the following options:

Option Model	Description	Quantity	Special Instructions
F42DLD	One DUO Long 24 LED Module, RED/WHITE	8	All front inner LEDs
F4A6	Freedom Series LED Alley Lights, 6-Element, Pair	1	
F4TS6	Freedom Series LED Take Down Lights, 6-Element, Pair	1	

TRAFFIC STICKS

The following rear traffic stick shall be installed on the roof of the vehicle:

Manufacturer: WHELEN

Type: DUOLED

Model: TADF8 - RA: Traffic Advisor, Front Load, DUO Super-LED, 8 Red/Amber Modules

BODY & WARNING LIGHTS

All exterior lighting shall be installed using approved rivnut fasteners and stainless-steel machine screws. Any holes or cuts in the vehicle's body shall be back primed with a self-etching primer to prevent corrosion. All connections between fixtures and cabling will be made with either heat shrink sealed or Delphi Deutsch style weatherproof connectors, wherever the likelihood of extensive exposure to the elements exists.

FASTLANE SHALL SUPPLY/INSTALL THE FOLLOWING ITEMS:

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Item	Mounting Location	Quantity	Special Instructions
90RC5FCR: Whelen 900 Series Super LED Red/White, Over/Under with Clear Outer Lens with Scan-Lock™	*SEE NOTES THIS ITEM	8	Top corners, high, two each side of the body.
90FLANGB: Whelen Black Flange Kit for 900 Series Super-LED® Only	*SEE NOTES THIS ITEM	8	Mounting flanges for 900 Series LED
70RA6FCR: Whelen 700 Series Super LED, Red/Amber LED	Body, Rear	2	
70RC6FCR: Whelen 700 Series Super LED, Red/White	*SEE NOTES THIS ITEM	6	Lower body, three down each side.
7FLANGEB: Whelen Mounting Flange for 700 Series LED, BLACK	*SEE NOTES THIS ITEM	8	Mount for 700 series LEDs

SIRENS & AUDIBLE DEVICES

The following represents any audible warning devices being provided and/or installed as part of this upfit/conversion.

FASTLANE SHALL SUPPLY/INSTALL THE FOLLOWING ITEMS:

Siren Model: 295SL101, Hands Free Full Function Siren (2-100W) w/ Detachable Mic Speaker (Qty: 1): SA315P, Compact 100W Poly Siren Speaker,

- Air Horn

WORK LIGHTING

FastLane shall supply and/or install the following work lighting in your vehicle:

Qty Rear Hatch Liftgate Lighting:

Qty Front Off-Road Bar Light:

Spotlight:

Additional items for this section:

Item	Mounting Location	Quantity	Special Instructions
904SLB: Whelen 900 EZ Scene Light, White, Includes Black Flange, Includes Slow Ramp Up and Ramp	*SEE NOTES THIS ITEM	8	Flood scene lights, high mounted, two each side of body.
WSLB: Whelen WorkSide™ light, Includes Black Flange	*SEE NOTES THIS ITEM	2	Two, curbside under awning.
PCPSM2B: Whelen Pioneer Series Dual Panel Surface Mount Flood/Spot 115V, Black Housing	*SEE NOTES THIS ITEM	2	Body, high, one each side.

FRONT CONSOLE

FastLane will provide and install a custom front console to house all necessary switching, signaling and communications controls, as well as cup holders, map books and 12-volt power-points, as specified below. The primary console construction, if

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fabricated by FastLane (sides, front, rear), shall be of cabinet grade " lumber core or veneer core ply material, covered a durable polyurea coating, black. Where map book or other slots are provided, these spaces shall also feature the same coating. Whenever functions of the OEM installation are interrupted by the console such as rear radio, HVAC controls and ducting, these features shall be reintegrated into the new console (where possible). Installation of console includes mounting of all equipment listed herein for control and use by driver and passenger. FastLane reserves the right for production changes that require adjusting console appliance locations to fit according to size and use. Any mic clips will be shipped loose for installation at time of delivery. Consoles are fastened to vehicle chassis using threaded fasteners to floor. Dashboard support may be added for stability if needed. The face surface (top) of all front consoles shall be constructed of .090 aluminum sheet. These faceplates will be cut to size using CNC machining (not hand cut). All holes necessary in the faceplate (radios, switching, etc.) will be die-cut to a maximum allowable tolerance of +/- 0.05" through the aluminum. Gaps around mounted appliances will not be tolerated and shall be deemed unacceptable. The finished product will feature rounded edges and corners to prevent injury to people or equipment. These faceplates shall be finished with a black polyester powder-coat finish, producing a textured/wrinkle, scratch resistant coating.

Floor Console Selected: Full Floor Console

Standard Options:

12V Power Points: 1 Adjustable Armrest:
Cup Holders: 2 USB Power Points: 2

Overhead Console Selected:

RADIOS

All listed radio equipment to be tested and operate within manufacturer's specifications prior to delivery of the vehicle described herein. The radios must be noise free (less than 10dB of spurious noise per unit) and be functional upon delivery (please note that it may not be possible to test all aspects of transmission and reception on Client's system. FastLane shall not be responsible for defects or damage to customer supplied radio equipment prior to possession by FastLane. All equipment shall be provided to FastLane, free from defects, programmed and in good working order. FastLane does not have the capability to program all makes and models of radios, therefore it shall not be the responsibility of FastLane to ensure proper function of the radio systems if any radios are supplied in an un-programmed state. Further, some systems require a home signal in order to function and therefore cannot be 100% tested at the FastLane facility).

INSTALL THE FOLLOWING IN FRONT CONSOLE:

Item	Install Qty	Antenna?	Special Instructions	Rear Head Qty
CSRADIO: Cust. Supplied Radio/Two-Way	1	Yes		0

INSTALL THE FOLLOWING IN REAR CABINET:

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Item	Install Qty	Antenna?	Special Instructions	Rear Head Qty
CSRADIO: Cust. Supplied Radio/Two-Way	0	No		0

Additional items for this section:

Item	Mounting Location	Quantity	Special Instructions
ANT/COAXRUN (mft MBBU25): Coax Pre-Wire with MOT Mount	Roof - Centered	1	

EXTERIOR ACCESSORIES

All exterior accessories shall be matched to vehicle make and model and installed following manufacturer recommendations and instructions. By no means shall the original vehicle be modified (structurally) in order to install the equipment listed on this page.

FastLane shall provide/install the following exterior accessories:

Item	Mounting Location	Quantity	Special Instructions
V000335015-362243: Solera XL Motorized Awning, Black Arms, 21ft Wide x 9 ft 8 in Protection	*SEE NOTES THIS ITEM	1	Curbside, high over side door.
917XC24: Brown 24ft Van Body 102" Wide x 98" H RU Rear Door, Side Walk Door (see full spec sheet)		1	Custom body, see attached specs for details.
1704310: Black Steel Undermount Toolbox, 24" x 24" x 48" with Dual T-Handle Latches	*SEE NOTES THIS ITEM	4	Two each side.
1725130: Black Underbody Truck Box, 24X24X24	*SEE NOTES THIS ITEM	1	Curbside, forward of side door.

GRAPHICS

FastLane shall utilize only premium cast vinyl with a minimum life rating of 3 years outdoor durability on printed and gradient materials and a minimum of 5-years outdoor durability on all other lettering and striping materials. All efforts shall be made to avoid any bubbles or contaminants in the vinyl field, however small visual imperfections in vinyl are common. While a blemish free application is desired, any blemishes that cannot be seen with the naked eye by a reasonable witness from not less than three (3) feet shall be deemed acceptable and deliverable. To conform stiff materials such as reflective vinyl around complex curves, it may be necessary to perform "slack folds" inside door jambs and behind lighting fixtures, this practice shall be performed as little as possible, however some wrinkling in the vinyl may exist in these areas.

Lettering

FastLane shall produce and install the following lettering and markings on your vehicle:

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Lettering	Location	Size [in]	Quantity	Material	Outline / Shadow	Special Instructions
Allowance for 90 Letters		1	3	Graphics Material, Reflective Vinyl, Custom Printed Color	Printed Outline and Shadow	

Striping

FastLane shall produce and install the following striping and markings on your vehicle:

Size [in]	Material	Add to Rear?	Special Instructions
8	Graphics Material, Reflective Vinyl, Premium	No	
1	Graphics Material, Reflective Vinyl, Premium	No	
1	Graphics Material, Reflective Vinyl, Premium	No	

Additional Emblems & Decals

FastLane shall produce and/or install the following decals/emblems on your vehicle:

Emblem	Size [in]	Quantity	Special Instructions
Custom Printed Decal/Seal, 8-12" (customer supplies artwork)	14	2	

Chevron

FastLane shall produce and install the following chevron marking on your vehicle:

Chevron Std Red/Lime NFPA, Full Rear Hatch, Truck Cap or Body

ELECTRICAL ANALYSIS & UPGRADES

Vehicle OEM Alternator	400
Total Amperage Added	47
Reserve %	88

FastPlex Control System

The FastPLEX Multiplexed Electrical System is an advanced CAN BUS based control system specifically engineered for FastLane to provide reliability, vehicle specific function and control for this type of conversion. FastPLEX features J-1939 CAN BUS communications, scalable control modules, solid-state switching of ALL loads, integrated flasher and specialized functions, primary touch screen message display center for operator interface, audible prompts. All functions are fully programmable via laptop computer. The actual distribution of power occurs using solid-state module(s) which are standard and interchangeable with other like conversions produced by FastLane. FastPLEX features built-in load management and control and provides system status feedback to the user via a full color 4.3-inch touch screen located in view of the driver. Real time switch feedback tells the user the status of each output during automatic operation. FastPLEX features quick start for all "eMaster" switched circuits allowing soft

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start turn on prolonging charging systems and extended load life. All loads are protected using solid-state circuit protection. This system shall interface with the OEM circuitry via a no-load interface. This module shall sense all OEM functions via computer signal and relay that information on the CAN BUS network for use by any module via programmable function. The front touch screen panel is unitized, modular and communicates with all modules via CAN BUS communications on two wires running a redundant loop. This control panel is a common part found in all conversions produced by FastLane, such that it could be interchanged with a panel from a similar vehicle. This touch screen panel features full color display with vehicle icon feedback of system status, CAN BUS communications and is fully programmable for easy screen reconfiguration in the future. The touch screen is fully IP67 compliant and is fully weather resistant. Every FastPLEX system includes one front touch screen display (FP3860) and one main control module (FP2820) yielding 24 inputs and 24 solid state outputs. Additional modules provided if specified below.

Shoreline PN: Description: None Color: N/A
Battery Charger:
Inverter: None

Additional Electrical Items:

Item	Quantity	Special Instructions
091-159-30-120: 30-Amp 3-Pin AutoEject 120V, 12V Trigger	1	
DBT-LD: Databus Throttle Control Module, High Idle and SEIC Control	1	
HD16OUTPS46: Long Heavy Duty Power Strip, 16 Outlet Large Metal Power Strip, 15 FT Cord 15A, 125V, 46" Long	6	
PD5110010: 120 VAC 30-Amp Automatic Transfer Switch	1	
185CFM-10kW-TEFC-FLM2: Bossair 185CFM Compressor, 10kW Generator Underdeck Combination, PTO Drive with Fan Cooler	1	
110VGWP: 110V GFI Weatherproof Duplex Receptacle	4	Final locations on exterior, TBD
110VGFI: 110V GFI 20A Receptacle	4	Final locations interior, TBD

MISCELLANEOUS ITEMS

FastLane shall supply and/or install the following items that otherwise have not yet been specified in this document:

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Item	Quantity	Special Instructions
CRTR-GS-RACK: Custom Aluminum General Storage Rack, 40"W x 72"H x 120"L	1	
CRTR-PL-RACK: Custom Aluminum Plywood and Lumber Rack, 40"W x 72"H x 134"L	1	
CRTR-SR-RACK: Custom Aluminum Strut and Raker Rack, 40"W x 72"H x 134"L	1	
CRTR-TS-RACK: Custom Aluminum Small Tools Rack, 40"W x 72"H x 48"L	1	
EA33112 L12D: Heavy Duty 12V Elec Motor Driven Hose Reel, 3/4-inch x 100Ft Capacity	1	Air hose, not included.
EA33112 L12D: Heavy Duty 12V Elec Motor Driven Hose Reel, 3/4-inch x 100Ft Capacity	1	Cordage, not included.
ALTRACK: Airline Style Recessed L-Track Cargo Tiedown System (8ft Section, Includes 4 Loop Tie Fittings)	10	One run set at 36" AFF, one set at 65" AFF

END OF BUILD SPECIFICATIONS