OPERATIONAL OVERVIEW

Medical Ambulance Bus (MAB)
Major Emergency Response Vehicle Operation (MERV)
Questions email joel.vetter@suffolkcountyny.gov

Introduction

• The course should focus heavily towards “hands on” instruction, demonstration, and evaluation to ensure that personnel have a mastery with the operation of all equipment. This “hands on” instructional component should focus heavily on operator and patient safety. As the MERV is often not a daily use piece of equipment, periodic refresher and review is essential to maintaining competency and safety.

Objectives

• Participants should complete the course with a “bumper to bumper” base of knowledge about the installed equipment
• Personnel should understand the expectations for each defined role on the MAB / MERV
• Personnel should be able to identify emergency practices for Fires, Medical Emergencies and hazardous conditions.

Specifications

2013 Thomas / Freightliner EFX, Commercial Chassis

• Length: 41’8”
• Width: 96”
• Height: 11’8”
• GRVW: 36,000lbs
• Engine: Cummins ISB 6.7 L, 260 hp
• Transmission: Allison, Automatic
• Generator: Cummins, 20 KW / 1GPH
• Fuel Tank: 100 Gallons (shared) / 8-10 MPG
• DEF Tank: 5 Gallons / 1500 HWY
• Oxygen System: 30 “D” Cylinders

The Vehicle

• TIRES
  Front Size: 275/70R22.5 Pressure: 125psi
  Rear Size: 255/70R22.5 Pressure: 120psi
• FLUIDS
  Transmission : Trans-Syd
  Engine oil: 15W40 CJ4
  Engine Coolant: Alliance 50/50 mix recommended
  Power steering: Dextron III
Access Doors

• The primary front access door has been retrofitted with an “RV” style door latch, replacing the original actuated bus door.
• When in transit, confirm that the door is securely shut and locked from the interior.
• The rear door can only be opened from inside the vehicle.
• The door should be locked whenever the vehicle is in motion, using both the lever latch and the bolt.

Up To 24 Stretchered Patients

7 Neonate Islets – 12 Wheel Chairs

Sliding Stretcher Assembly

Load Master Rules…

Lighter to the top and Sickest to the rear

Crew of 3-4 Medical Attendants

Roles and Responsibilities

• There are three primary roles for personnel operating the MERV. These include the Loadmaster, the Operator, and the Transport Medical Personnel. Each role has some defined responsibilities, during both normal operations and under emergency conditions.

Primary Roles for the Loadmaster

1. Captain Of the Ship

• The Crew, Operator, and Bus are your responsibility
• Decide the tasking associated with the mission
• Delegate to maintain situational awareness
• Communicate (Verbal and Radio)
• Direct if an emergency arises
• Liaison with others in the command structure
2. Crew Safety Officer (With the Operator)
   • Maintain a safe, operational atmosphere

3. “Pre-Flight” Preparation of Cabin
   • Power Systems Readiness
     • Communications / Technology Systems
     • Radio
     • Data
     • Navigation
     • Medical Readiness
     • Equipment
     • Supplies
     • Crew Items

Primary Roles for the Loadmaster
4. Mission Documentation
   • ICS – 214 “Activity Maintenance Log”
   • Interface with Command Structure
   • Radio Communications during transit and at scene

5. Assist Operator with Safe Operations

6. Lead on Patient Safety
   • Staging
   • Movement
   • Loading
   • Care

Primary Roles for the Operator
1. Mans the Wheel
   • Safe operation of the vehicle from mission start to termination
   • Monitor all mechanical systems for proper working order
   • Operate all functions controlled in the Operator’s position

2. Crew Safety Officer (With the Loadmaster)
   • Maintain a safe, operational atmosphere

Primary Roles for the Operator
3. “Pre-Trip” Inspection of the Vehicle
   • Mechanical systems, including brakes, tires
   • Ensure all compartment doors secured
   • All shorelines disconnected from vehicle
   • Fuel at full capacity

4. Deployment of the Vehicle
   • In as level as the situation will permit
   • Avoiding potential hazards
   • Managing the leveling of the vehicle
   • Direct the assembly and attachment of the ramp

Primary Roles for the Transporting Medical Personnel (TMP)
1. Mission-Appropriate Inventory
   • Based on the mission, ensure that proper caches of equipment are loaded prior to departure
   • Configure interior of vehicle based on the mission
   • Check levels on oxygen systems
   • Ensure proper readiness of portable medical equipment

2. Patient Preparation
   • Assist Loadmaster with triage of patients
   • Facilitate transfer of patients to MERV stretchers outside of vehicle
   • Reassess patients after loading onto vehicle

Primary Roles for the Operator
5. Oversee Patient Placement
   • Coordinate with Loadmaster on patient placement within the vehicle based on size and acuity
   • Oversee placement of patients in berths
   • Ensure that all stretchers are securely locked into place
3. Patient Care
- Monitor condition of assigned patients, providing care and comfort measures during transport
- Complete proper documentation of care provided

4. Vehicle Readiness
- Under direction of Operator, assist in returning vehicle to established level of readiness after the mission

On-Board Emergencies
**Must now “STOP THE BUS”**
- ANY type of Fire
- Environmental Event/Fumes (incl. alarms)
- Emergent Patient Care Issue (including crew)
- Loss of On-Board Power and/or Oxygen
- Vehicle Accident involving MAB
- Vehicle Breakdown – Tires, Belts, etc.

“WE HAVE AN ON-BOARD EMERGENCY”
Pull Stretcher with Both Hands

Stretcher will lift out once slid in the “out” position

Hand Placement
Correct
Incorrect

Fluid Collection Trays

Fluid Tray Release Pins
Fluid Tray Removal

Rolling Cots

Rolling Cot Release

Plenty of Room in the aisle for Patient Transfer

Electrical System

110/220V
- Rooftop AC/Heat Units
- Electrical Outlets (Interior & Exterior)
- Baseboard Heaters
- Oxygen Manifold
- Oxygen Pressure Alarms
- Interior Electrical Outlets
- Exterior Electrical Outlets

12V
- Interior Lighting
- Emergency Lighting
- Suction Pumps
- Flashlights
- 12V Outlets
Master Battery Shut Off Switch

SMART TRUCK
- In-Motion Tech Link
  - Internet and 4G VOIP
- Intercom and Wireless head set ×4
- 11 Wireless Vital Signs Monitors (WVSM)
- Assets Tracking
- Temp Reporting
- 2 Toughbook CF19

20KW Martin Generator

Slides Out for Maintenance

20KW Martin Generator Slides Out for Maintenance

Generator Slide Pin

100 amp breaker

Pin Location

Glow

On / Off

100 amp breaker
Generator / Bus Fuel Door

Charger Shoreline / Air Inlet

Regeneration

BlueTec SCR technology

Exhaust leaves the engine with the pollutants NOx and Particulate Matter PM

DEF injected into the exhaust stream

Particulate Matter (PM) is trapped in the Diesel Particulate Filter (DPF)

DEF Tank

SCR Device

Trendline Chart

DEF Line III

DEF Line II

DEF Line I

DEF Line 0
DEF solution hydrolyzes into ammonia gas (NH₃) which mixes with the exhaust.

Ammonia and Nitrogen Oxides react in the catalyst to form Nitrogen and Water.

**Regeneration**

110 / 220 Breaker Panel

A/C only powered from generator

Shore Power Switch

“Safety Dividing Guard Installed”
Switch Positions

Chassis 12V Panel

Pigtail Cheater

Fully labeled 12V Breaker Panel with resettable fuses

Main Battery Bank
Winch Battery Bank

Air Outlet

Battery Level Indicator (x2)
Vehicle and Generator Batteries
Ground Lights x3 sides  Scene Lights x4

Sirens & Horns

Carbon Monoxide Alarm & Portable 4 gas metering

110/220 Outlets

Fire Extinguishers (2)

12V Outlets

Patient Loading Ramp

Ramp Deployed

Dump Valve
Ramp Stored Behind Rear Bumper

Ramp Receiver Assembly

Ramp Sections Slide Out

Ramp Locking Pins

Align Pins To Assemble Ramp
Ataching Ramp

Handrail Storage and Attachment

Folding Handrail

Flip Door

Proper Loading Procedure
Separate Hands On Session

Miscellaneous Equipment Operation

On-Board Emergencies
Separate Hands On Session
Winch Operation

Rope Extended
Attached to Stretcher Frame

Wireless Remote

Rear/Side – View Cameras
Full color, IR w/ Sound

Awning

Driver’s Area

Additional

• ~240 Bottles of Water
• Immobilization for 20
• Smart Triage for 80
• Triage Tarps
• Rehab Air Management Tarps
• Electrical support
• Mobile Fit Testing
Other Uses

The MERV is a functional tool for more than just multiple patient transportation. Other examples of use could include:
- Patient triage on a multiple patient, low acuity event – such as a carbon monoxide exposure in an apartment building, hotel, or school
- Responder rehabilitation at incident scenes. Allows removal of personnel from the scene with good lighting and climate control (both warm and cool)
- Personnel staging point, such as during searches or law enforcement events. Provides quiet location for briefings, debriefings, or team planning
- Cooling station – at large outdoor events during hot seasons (can reduce transports significantly)

Call Out Procedures

- The Major Emergency Response Vehicle (MERV), will be staffed with a minimum of one FRES “Operator” and one County Employee to function as “Operator / Load Specialist”, additional staffing will be determined by the Commissioner, or his designee.

Emergency Response requests to the FRES Communication Center 24 hrs. at 631.852.4815.

Upon receipt of a request for the MERV, the following information should be obtained:
- Requesting agency and Point of Contact (POC).
- Who the OIC is.
- Location of the Command Post.
- Nature of the alarm and mission being requested to provide.
- Will they provide Medical Support Staff or are they requesting a task force response.
- Special routes or staging/reporting locations the MERV needs to take to access the incident.
- Do you request the Mobile Command Post or other County resources to respond?

The on duty ESD II shall page:
- The administrative staff group and MERV Qualified paging group with the notifications.
- Duty Officer to call in.
- On-Duty FRES staff shall call in and accept the assignment within two (2) minutes.
- The MERV Task Force Agency group with the “ALERT” notifications. The duty supervisor shall use the MERV Task Force Response Procedure to fill the Operational needs of the mission.

Pre-Planned Events/Drills

- All requests for pre-planned events/drills shall be forwarded to the ESD III in writing. Pre-planned events/drills shall be staffed with a minimum of 1 FRES staff member, and others as authorized by the Commissioner. Staffing for the MERV shall be determined by the MERV rotational list in the Supervisor’s Manual.

WRAP UP

The MERV is a dynamic tool for use in a variety of situations for an EMS agency to meet multiple needs. While it is another emergency vehicle in the fleet, it is one that requires specialized training for key personnel to ensure a safe, efficient operation. This presentation was designed as a keystone to that training. It requires personnel to regularly utilize the vehicle in order to remain proficient in all aspects of the vehicle. The first rule to using the MERV should always be SAFETY. Whether responding, loading, or providing care while moving, the safety of the personnel and patients is priority.