M997A3 Ambulance Technical Overview Packet
The M997A3 Ambulance consists of a modified M997 ambulance box integrated on a modified M1152A1 chassis.
Box and Chassis History

- **Modified M997 Ambulance box**
  - M997 achieved TC/MR 11 Sep 1998
  - Achieved 40,000 miles of endurance testing (two vehicles at 20,000 miles each) IAW the HMMWV mission profile – no major issues
  - There are 1,255 4-litter ambulances currently in ARNG inventory
  - ARNG has been using 4-litter ambulances for more than 20 years

- **Modified M1152A1 chassis**
  - Achieved TC/MR 24 Oct 2007
  - Achieved 16,000 miles of endurance testing (two vehicles at 8,000 miles each) IAW the HMMWV mission profile – no major issues
  - 7,900 M1152’s currently in Army inventory
  - M1152 uses the same user interface in cab as M1151, M1165, M1167: there are 29,228 M1151/65/67’s currently in Army inventory
  - M1151/52/65/67 platforms have been operated by Soldiers in the field for over three years

= **M997A3**
Integration Overview

A. Cargo Bed D-ring Tie Downs Removed
B. Upgraded lighting in ambulance box
C. B-partition removed
D. Upper B-pillar/Roll bar removed
E. Roof removed
F. Straps/Hardware to support communication and medical equipment: SINCGARS, DAGR, suction device, cargo net for nosecone, Oxygen concentrators. ARNG will install components on their own.
G. Windshield frame/glass removed
H. Half Doors removed
I. Stronger compressor replaces existing M1152A1 compressor. Need new bracketry/hardware. Some surrounding hoses/fittings need to be modified to fit the new compressor. Possible serpentine accessory drive system modifications as well.
J. Rear seat back removed
K. Fuel line relocation to support fuel-fired heater
L. New A/C lines
M. Footman loops removed
N. Tailgate & Tailgate chains removed
Integration Overview (cont’d)

- P. ECV Body Harness w/ Backup Light & Blackout Circuits
- Q. M997A2 seat belts will be used versus new style
- R. New Nosecone-to-cab Body Closeout Panels
- S. M997A2 Windshield Frame & Glass replace those of the M1152A1
- T. New Hood Assembly
- U. New Front Engine Dress A/C Mounting Bracket
- O. New Electrical Wiring to Support Ambulance Box LED lighting
- CC. New Access Plates for REV Brakes
- BB. New Access Plates for A/C Condensers
- AA. Aux. Fuel Pickup in Fuel Tank added (for fuel fired heater)
- Z. M1025 Doors replace those of the M1152A1
- Y. M997A2 Shifter w/ backup Light Switch added
- X. Arctic Cold Start Kit for 3 vehicles (Alaska) only
Integration Overview (cont’d)

- FF. Longer straps added to supports spineboards
- DD. Four straps for oxygen bottles
- EE. Removable shelf to support oxygen concentrator
- FF. Longer straps added to supports spineboards
- GG. Cargo nets
- HH. Litter rack that folds up and down
- II. Stowage straps for MES box
- JJ. Three DC power outlets
- KK. 400A alternator with reduced diameter pulley
- LL. Single Door RH Stowage for Oxygen bottles
A. Cargo Bed D-ring Tie Downs are removed so that the ambulance box can be installed without interference. Also the D-rings would not be useable.

B. Upgraded lighting in the ambulance box is provided by LED lighting. Such LED lighting is a technically mature system and was requested by the ARNG, based on their favorable review of the Medical Mission Module in San Antonio, TX.

C. B-partition, normally on with B-kitted armor, is removed. It is removed so that there would be no interference with the ambulance’s box entry doors to the vehicle cab area.

D. Upper B-pillar/Roll bar is removed so that the Ambulance box can be installed without interference and also they would not be useable for vehicle cab seat belt installation.

E. Roof is removed so that the ambulance box can be installed without interference to the A-pillar.

F. Any new straps/hardware to support communication and medical equipment: SINCGARS, DAGR, suction device, cargo net for nose cone, oxygen concentrators, the ARNG will install components on their own.

G. Windshield frame/glass is removed from the M1152A1 chassis and the ballistic glass provided in the M997A2 ambulance will used.

H. Half Doors are removed so that the ambulance box can be installed without interference. The ambulance box fills that void after the half doors are removed.

I. Stronger A/C compressor replaces the existing M1152A1 compressor. The newer compressor is needed to provide sufficient cooling capacity to cool the vehicle cab and the ambulance box. The compressor is a technically mature design and has been validated on a similar A/C system and completed over 10,000 miles on 3 vehicles and 9,000 miles on one vehicle.
J. Rear seat backs are removed, so that the ambulance box can be installed without interference. The old flat style seat back from early ambulances will be utilized.

K. Fuel line relocation to support the ambulance box fuel fired heater. Currently on the M1152A1 chassis the auxiliary fuel lines need to be relocated because they aren’t positioned to mate with the ambulance box heater.

L. New A/C lines are needed because the M1152A1 A/C condensers are located under the rear fenders.

M. Footman loops are removed so that the ambulance box can be installed without interference. Also the footman loops would not be useable.

N. Tailgate and tailgate chains are removed so that the ambulance box can be installed without interference to the vehicle chassis.

O. New electrical wiring is needed to support ambulance box LED lighting.

P. ECV electrical body harness w/backup light and blackout circuits may need some rework due to the LED lighting.

Q. The M997A2 seatbelts will be used because the seatbelt retractors are located inboard and attached to the ambulance box partition and because the B-pillars had to be removed.

R. New Nosecone-to-cab body closeout panels to account for relocated A/C condensers in the rear fenders.

S. M997A2 windshield frame and glass added to match the ambulance configuration and not the M1152A1 configuration.
T. New hood assembly is needed to accommodate M997A2 windshield frame.

U. New front engine dress A/C mounting bracket needed to accommodate the new A/C compressor.

X. Arctic Cold Start Kit as a price negotiated add-on by ARNG.

Y. M997A2 shifter with backup light switch added. M1152A1 shifter does not have back-up lamp switch.

Z. M1025 doors added. Current M1152A1 doors could either be softtop doors or AMG standard threat doors while the M1025 doors offer the same protection of the M997A2 doors.

AA. Auxiliary Fuel pickup in the fuel tank added for fuel fired heater. Currently that pickup is not there.

BB. New access plates for A/C condensers due to ambulance box possible interference.

CC. New access plates in ambulance box to access REV brakes to allow brake servicing.

DD. Four straps will be added to secure each oxygen bottle; additional strap will be added to support Sequal oxygen concentrator.

EE. Removable shelf will be added to the left hand side of the ambulance box, behind the litter bays to support option to stow Eclipse 2 oxygen concentrator.

FF. Longer straps will be added to support the extra spineboards. STS to integrate.

GG. Cargo nets will be added to the left and right hand sides of the ambulance above the oxygen bottles, as well as in the nose cone on the left hand side.
HH. Litter rack will be modified to fold both up and down, instead of just down.
II. Straps to provide the option to stow the large MES box on one of the upper litter bays.
JJ. 3 DC power outlets to be added in ambulance box
KK. 400A alternator with reduced diameter pulley
LL. Single door RH stowage for Oxygen bottles.