TRUCK, AMBULANCE, LIGHT, 4 LITTER, FFR, WINCH, MC2
– LAND ROVER 110 6X6

REPLACEMENT OF THE AIR CONDITIONING SYSTEM

MODIFICATION INSTRUCTION

This instruction is authorised for use by command of the Chief of Army. It provides direction, mandatory controls and procedures for the operation, maintenance and support of equipment. Personnel are to carry out any action required by this instruction in accordance with EMEI General A 001.

INTRODUCTION

1. The existing Land Rover 110 6x6 Ambulance air conditioning unit has become unsupportable due to lack of parts availability. This instruction details the replacement of the complete air conditioning system on the Land Rover 110 6x6 Ambulance to an upgraded air conditioning system only when the existing air conditioning system is no longer able to be repaired or parts are no longer available. The existing ambulance air conditioning system has been evaluated and considered to be capable of performing its intended purpose as long as the system is maintained and operated correctly.

2. This instruction is not a fleet wide replacement of the existing air conditioning system.

3. This instruction also provides a means of identifying the air conditioner compressor fitted and provides a fitment instruction to prevent the air conditioning hoses fouling on the engine mount webbing.

4. Associated Publications. Reference may be necessary to the latest issue of the following documents:

   b. TRAMM-L, Volume 3, Section 2, Chapter 2, Fleet Engineering Change Management Process;
   c. Electronic Supply Chain Manual (ESCM), Volume 4, Section 3 – V04S03 - Stores Accounting General;
   d. ESCM – Volume 06 - Manage Repairable Items;
   e. EMEI Vehicle G 224-1 – Truck, Ambulance, Light, 4 Litter, FFR, Winch, MC2 – Land Rover 110 6x6 – Field and Base Repair;
   f. EMEI Workshop E 520 – Safety Precautions in Workshops – Fibreglass Repair and Handling; and
   g. EMEI Electrical T 009-1 – Storage of Refrigeration and Air Conditioning Equipment, All Types.

5. Authority. CGSVSPO ECO 81/09 is the authority to conduct this modification.

GENERAL

6. Modification Application. This modification is to be applied to all stocks of Land Rover 110 6x6 Ambulances fitted with a Jakab ambulance module. Later build ambulance modules supplied by Capitol Body Works (CBW) have already had this air conditioning system fitted, but may need the air conditioning compressor replaced or the compressor hose routing reconfigured in accordance with this instruction. Those modules can be identified by an ID plate attached to the module rear foot well.

7. Items Affected. This modification alters the following assemblies:

   a. Air conditioner evaporator unit,
   b. Air conditioner compressor assy,
   c. Ambulance module condenser unit and
   d. Ambulance condenser shroud.

8. Priority – Group 2. All applicable equipment is to be modified upon failure of any one of the following components assemblies of the existing air conditioning system:

   a. Air Conditioner compressor assy,
b. Air conditioner evaporator unit, or
c. Module condenser unit.

9. **Action Required.** Actions detailed in this instruction are to be performed by accredited maintenance organisations authorised to carry out Medium or Heavy Grade Repairs. All air conditioning commissioning is to be conducted by ECN 418, Technician Electrical or appropriate trained personnel qualified to use Ozone depleting substances.

**NOTE**

On receipt of this instruction, enter all relevant information other than date completed in the modifications section of the GM 120 – Record Book for Service Equipment.

10. **Task Recording.** The conduct of this modification is to be recorded in a MILIS Work Order using Standard Job Number 000803:

11. **Estimated Work hours.** For initial planning purposes only, it is estimated that this modification will take eight work hours to perform.

12. **Stores Required.** The stores required are listed in Table 1. All stores are to be demanded through normal supply channels.

### Table 1  Stores Required

<table>
<thead>
<tr>
<th>Item</th>
<th>NSN</th>
<th>Mfr Part No</th>
<th>Designation or Description</th>
<th>Unit of Issue</th>
<th>Qty per Kit</th>
<th>Qty per Equip</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2590-66-157-6264</td>
<td>CYG9165</td>
<td>Ambulance Module A/C Kit (suppressed) Ambulance Module Retrofit (includes compressor) Note: Includes items 2 to 47</td>
<td>ea</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>NIC</td>
<td>CYG9186</td>
<td>Evaporator Assembly (suppressed)</td>
<td>ea</td>
<td>1</td>
<td>1</td>
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<tr>
<td>3</td>
<td>5331-66-158-8919</td>
<td>CYG9158</td>
<td>O ring Kit (consists of items 4 to 7)</td>
<td>ea</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>NIC</td>
<td>CYG9233</td>
<td>O ring # 10</td>
<td>ea</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>NIC</td>
<td>CYG9234</td>
<td>O ring # 8</td>
<td>ea</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>NIC</td>
<td>CYG9235</td>
<td>O ring # 6</td>
<td>ea</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>NIC</td>
<td>CYG9236</td>
<td>O ring GM pad</td>
<td>ea</td>
<td>2</td>
<td>2</td>
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<tr>
<td>8</td>
<td>NIC</td>
<td>CYG9187</td>
<td>Condenser Assembly – Rear (suppressed)</td>
<td>ea</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>NIC</td>
<td>N/A</td>
<td>Receiver Drier assembled consisting of items 10 and 11</td>
<td>ea</td>
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<td>1</td>
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<tr>
<td>10</td>
<td>NIC</td>
<td>CYG9242</td>
<td>Drier 38 MF (L/ROV RD2104)</td>
<td>ea</td>
<td>1</td>
<td>1</td>
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<tr>
<td>11</td>
<td>NIC</td>
<td>JYG0898</td>
<td>Bracket Drier - Army</td>
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<td>1</td>
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<tr>
<td>12</td>
<td>5310-99-122-5496</td>
<td>NY108041</td>
<td>Nut, self-locking, hexagon, M8 x 1.25 mm pitch, 10.4 mm H, 13 mm A/F, steel, zinc plated, w/nylon insert</td>
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<td>8</td>
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<td>13</td>
<td>5310-99-122-6476</td>
<td>WA110061</td>
<td>Washer flat, 10.5 mm ID, 21 mm OD, 2 mm Thk, RD, steel, zinc plated</td>
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<td>8</td>
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<tr>
<td>14</td>
<td>4720-66-158-8918</td>
<td>CYG9162</td>
<td>Parts Kit, hose assembly, non-metallic, air conditioning hose set (consists of items 15 to 19)</td>
<td>ea</td>
<td>1</td>
<td>1</td>
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<tr>
<td>15</td>
<td>NIC</td>
<td>CYG9225</td>
<td>Hose – No. 8 - front condenser to roof condenser -5 770 mm nominal</td>
<td>ea</td>
<td>1</td>
<td>1</td>
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<tr>
<td>16</td>
<td>NIC</td>
<td>CYG9226</td>
<td>Hose – No. 6 - roof condenser to drier – 370 mm nominal</td>
<td>ea</td>
<td>1</td>
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<tr>
<td>17</td>
<td>NIC</td>
<td>CYG9227</td>
<td>Hose – No. 6 - Evaporator to Drier – 450 mm nominal</td>
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<td>Item</td>
<td>NSN</td>
<td>Mfr Part No</td>
<td>Designation or Description</td>
<td>Unit of Issue</td>
<td>Qty per Kit</td>
<td>Qty per Equip</td>
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<td>18</td>
<td>NIC</td>
<td>CYG9228</td>
<td>Hose – No. 8 - compressor to front condenser - 1 290 mm nominal</td>
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<td>1</td>
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<td>19</td>
<td>NIC</td>
<td>CYG9229</td>
<td>Hose – No. 10 - compressor to evaporator – 4 230 mm nominal</td>
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<td>1</td>
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<td>20</td>
<td>4720-66-158-8917</td>
<td>CYG9161</td>
<td>Parts kit, hose assembly, non-metallic, drain hose kit (consists of items 21 to 22)</td>
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<td>1</td>
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<tr>
<td>21</td>
<td>NIC</td>
<td>CYG9230</td>
<td>½ Drain elbow piece</td>
<td>ea</td>
<td>2</td>
<td>2</td>
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<td>22</td>
<td>NIC</td>
<td>CYG9231</td>
<td>Drain hose ½” (DN hose ½)</td>
<td>mt</td>
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<td></td>
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<tr>
<td>23</td>
<td>4130-66-159-0561</td>
<td>BYG2773</td>
<td>Compressor unit, refrigeration air conditioning</td>
<td>ea</td>
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<td>24</td>
<td>2540-66-158-8920</td>
<td>JYG0827</td>
<td>Installation and equipment kit, vehicle mounting, condenser, ambulance module A/C kit (consists of items 25 to 44)</td>
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<td>1</td>
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<td>25</td>
<td>5340-66-158-8939</td>
<td>JYG0821</td>
<td>Bracket, mounting, condenser L/H, steel, zinc, 55 x 20 mm RHS, 671 mm O/A lg, 6 mtg holes</td>
<td>ea</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>26</td>
<td>5340-66-158-8940</td>
<td>JYG0822</td>
<td>Bracket, mounting, condenser R/H, steel, zinc, 55 x 20 mm RHS, 671 mm O/A lg, 6 mtg holes</td>
<td>ea</td>
<td>1</td>
<td>1</td>
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<tr>
<td>27</td>
<td>2510-66-158-8941</td>
<td>JYG0823</td>
<td>Grille metal, condenser fan cover, Ambulance module, steel “weld” mesh, 790 x 485 x 23 mm O/A</td>
<td>ea</td>
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<td>28</td>
<td>4130-66-158-8950</td>
<td>JYG0824</td>
<td>Bonnet, condenser, refrigeration, deflector, air intake, condenser cover, steel, cold galv painted, 780 mm O/A lg</td>
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<td>1</td>
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<td>29</td>
<td>5340-66-158-8942</td>
<td>JYG0825</td>
<td>Bracket, angle, mounting, condenser cover, L/H, steel, 35 mm x 30 mm RHS, 730 mm O/A lg, M6 x 5 nut insert</td>
<td>ea</td>
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<td>1</td>
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<tr>
<td>30</td>
<td>5340-66-158-8943</td>
<td>JYG0826</td>
<td>Bracket, angle, mounting, condenser cover, R/H, steel, 35 mm x 30 mm RHS, 730 mm O/A lg, M6 x 5 nut insert</td>
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<tr>
<td>31</td>
<td>5975-12-199-8964</td>
<td>MYH1763</td>
<td>Strap, tie down, electrical components (cable tie), 200 mm long</td>
<td>ea</td>
<td>10</td>
<td>10</td>
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<tr>
<td>32</td>
<td>5320-66-158-8956</td>
<td>MYH3956</td>
<td>Rivet, split – bulb-tite – Aluminium 3/16 in x 19 mm</td>
<td>ea</td>
<td>1</td>
<td>1</td>
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<tr>
<td>33</td>
<td>7690-66-158-8951</td>
<td>JYG0853</td>
<td>Marker identification plate A/C warning</td>
<td>ea</td>
<td>1</td>
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<tr>
<td>34</td>
<td>5305-99-796-7536</td>
<td>SE106201L</td>
<td>Screw, machine, metric, steel, pan HD, cross rec drive, zinc coated 6 mm x 20 mm long M6</td>
<td>ea</td>
<td>5</td>
<td>5</td>
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<tr>
<td>35</td>
<td>5305-99-122-5290</td>
<td>SF106161L</td>
<td>Screw, machine, ISO metric, steel, flat CSK HD, cross recess drive, zinc coated, 6 mm x 16 mm long M6</td>
<td>ea</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
### Table 1  Stores Required Continued

<table>
<thead>
<tr>
<th>Item</th>
<th>NSN</th>
<th>Mfr Part No</th>
<th>Designation or Description</th>
<th>Qty per Equip</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>5305-99-122-6643</td>
<td>SE106161L</td>
<td>Screw machine, M6 x 16 mm pan head</td>
<td>ea 2 2</td>
</tr>
<tr>
<td>37</td>
<td>5310-66-144-6236</td>
<td>NY106047L</td>
<td>M6 Nut, self-locking, hexagon, ISO metric, steel, zinc, 6 mm THD, 10 mm A/F, 7.5 mm O/A H</td>
<td>ea 12 12</td>
</tr>
<tr>
<td>38</td>
<td>5340-66-158-8952</td>
<td>MYH3950</td>
<td>Clamp, loop, 38 mm loop ID, w/o protective sleeved</td>
<td>ea 1 1</td>
</tr>
<tr>
<td>39</td>
<td>5310-66-158-8955</td>
<td>MYH3951</td>
<td>Nut, plain, cap dome, M8 thd, cres, grade 304 stainless steel</td>
<td>ea 1 1</td>
</tr>
<tr>
<td>40</td>
<td>NIC</td>
<td>MYH3985</td>
<td>Rivet – Bulb-tite Aluminium, 4.4 mm x 20 mm</td>
<td>ea 2 2</td>
</tr>
<tr>
<td>41</td>
<td>5305-99-122-5366</td>
<td>SH108201</td>
<td>Screw, cap, hexagon head, ISO metric, steel, zinc plt, 8 mm x 20 mm lg</td>
<td>ea 6 6</td>
</tr>
<tr>
<td>42</td>
<td>5305-99-122-6643</td>
<td>SE106161L</td>
<td>Screw, machine, M6 x 16 mm Pan head</td>
<td>ea 8 8</td>
</tr>
<tr>
<td>43</td>
<td>5310-99-215-9928</td>
<td>WA106042</td>
<td>Washer, flat, steel, surface zinc &amp; chromate, hole dia 6.40 mm min, 6.70 mm max, O/A dia 12.10 mm</td>
<td>ea 8 8</td>
</tr>
<tr>
<td>44</td>
<td>NIC</td>
<td>JYG0829</td>
<td>Insulation pad</td>
<td>ea 1 1</td>
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<tr>
<td>45</td>
<td>5331-99-944-0406</td>
<td>SP9003</td>
<td>Grommets MAA</td>
<td>ea 2 2</td>
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<tr>
<td>46</td>
<td>NIC</td>
<td>SP M0328</td>
<td>Grommets universal</td>
<td>ea 2 2</td>
</tr>
<tr>
<td>47</td>
<td>NIC</td>
<td>DOI-Y-1003</td>
<td>LRA Drawing Office Instructions</td>
<td>ea 1 1</td>
</tr>
<tr>
<td>48</td>
<td>NIC</td>
<td>Bostick P/N: 258946 Blackwoods P/N: 03109987</td>
<td>Bostik Matrix FC Polyurethane sealant or equivalent, 305 ml Cartridge</td>
<td>ea Unit to supply 1</td>
</tr>
</tbody>
</table>

13. **Items to be Removed.** The items to be removed are listed in Table 2. All stores removed are to be processed in accordance with ESCM, Volume 4, Section 3 – Supply Management Processes, Stores Accounting General.

### Table 2  Items to be Removed

<table>
<thead>
<tr>
<th>Item</th>
<th>NSN</th>
<th>Mfr Part No</th>
<th>Designation or Description</th>
<th>Qty per Equip</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HYL 9019</td>
<td>Evaporator assembly</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>HYL 9232</td>
<td>Module Condenser assembly</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4720-66-128-6145</td>
<td>HYL 9030</td>
<td>Hose Evaporator to Condenser</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Compressor Assembly (old style, Part Number may vary)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>AYG0579</td>
<td>Compressor mount brace</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

14. **Special Equipment Required.** Normal automotive air conditioning servicing tools, workshop hand tools and power tools are required. A refrigerant recovery unit for R134a refrigerant and an R134a charging station are also required.
REPLACEMENT OF AIR CONDITIONING SYSTEM

15. Pre-fitting Check. To ensure that the replacement air conditioning kit detailed in this instruction fits the vehicle, a check to ensure that the following modifications have been completed correctly prior to this modification is to be completed:

NOTE

The air conditioning configuration obtained at the completion of this instruction is dependant upon all the modifications listed below having been completed correctly. If the modifications listed have not been completed correctly a technical assessment will need to be conducted to confirm what tasks will need to be conducted to correctly achieve the air conditioner configuration at the completion of this instruction.

a. EMEI Vehicle G 227-2 – Replacement of air conditioner compressor mounting bracket to engine block mounting bolts.

b. EMEI Vehicle G 227-3 – Fitting of a support bracket to the air conditioner compressor hoses.

c. EMEI Vehicle G 227-5 - Air conditioning retrofit (in particular the fitment of the radiator mounted condenser MPN: HYM1088)

16. Removal of Existing System. The removal procedure detailed in this Para is conducted in accordance with EMEI Vehicle G 224-1, Ref E, Group 18 as follows:

a. Discharge the refrigerant gas from the system in accordance with Para 22.

b. Switch off the master switch on the main switch panel and disconnect the vehicle batteries.

c. Remove the Air Conditioner (A/C) condenser in accordance with Para 9.

d. Remove the A/C receiver drier in accordance with Para 17.

e. Remove all brackets so that the condenser tub area is bare except for the Mackay rubber mounts.

f. Inspect the Mackay rubber mounts for deterioration or separation and replace if required.

CAUTION

The kit includes replacement Mackay rubber mounts if required, but it is not essential, as the replacement of the mounts can require fibreglass repairs to be made, as the old mounts can bind on the module inner frame and separate with excess force requiring more extensive repair.

g. Remove the A/C evaporator unit in accordance with ref E, Para 20;

h. Remove the access panel on the front left of the module to expose the wiring and A/C hoses.

i. Remove the small access panel inside the L/H storage box inside the module.

j. Disconnect the hoses from the compressor (under bonnet) in accordance with Para 12.

k. Attach a lead wire to the hoses and withdraw from the vehicle taking note of the route for replacement with new hoses.

l. Carefully withdraw the hose from the module and leave the lead wire passing through the module.

m. Remove the A/C compressor in accordance with Para 12.
17. **Installation of Replacement Module Air Conditioning System.**
   
a. Hose installation is as follows:

   **CAUTION**

   When connecting hoses fitted with O Rings, both the O Ring and the fitting must be smeared with compressor oil. Loosely attach hoses to fittings then finger tighten to ensure the O Ring is seated correctly and that it does not pinch or foul. Finalise fitment by tightening firmly using two spanners, so as not to compromise the fittings or transfer the load to pipes. All pipes (flared or O Ring) are to be tightened in this way.

(1) The 450 mm No. 6 hose (Item 17, Table 1) runs from the evaporator to the receiver drier and will be routed through the side of the tub back into the module body using the lead wire.

(2) The 5770 mm No. 8 hose (Item 15, Table 1) runs from the front condenser out to the roof condenser 'in' and is best routed from the bottom of the module using the lead wire as a guide and then feeding it back over the fuel tank to the front condenser.

(3) The 4230 mm No. 10 hose (Item 19, Table 1) runs from the evaporator 'out' to the compressor 'in' and is best routed from the module bottom ensuring care is taken to route the fitting through the module body opening, using the lead wire.

(4) The 1290 mm No. 8 hose (Item 18, Table 1) runs from the compressor 'out' to the front condenser and can be routed after the compressor is fitted.

(5) The 370 mm No. 6 hose (Item 16, Table 1) runs from the roof condenser to the receiver drier. It can be mounted after the roof condenser and receiver drier are fitted.

(6) The No. 6, 8 & 10 hoses (as detailed above) that pass through the module body are to be fitted with the grommets (Items 45 and 46, Table 1) where they enter and exit the fibreglass panels at the tub and inner. The grommets at the tub location are also to be sealed with a suitable sealant such as Bostik Matrix FC (Item 48, Table 1) or equivalent once the hose lengths are correctly positioned.
b. Module condenser well setup is as follows:

(1) Clean well floor surface and install self adhesive insulation supplied with kit.

(2) Mount the receiver drier bracket, to the edge of the bracket, 135 mm off the RHS well wall and 3 mm down. Drill and secure with four 3/16 in x 19 mm aluminium bulb-tite rivets (Item 32, Table 1). Refer to Figure 1.

(3) Check fitment of condenser cover mounts JYG0825 L/H (Item 29, Table 1) and JYG0826 R/H (Item 30, Table 1). Holes may need to be repositioned on bracket to match bolt holes in module body. Refer to Figure 1 (remove once fitment confirmed. Final fitting in Para 17.d(4)

(4) Fit "KEEP CONDENSER FINS FREE FROM DEBRIS – USE LOW PRESSURE AIR ONLY" label. Secure with two 4.4 x 20 mm aluminium bulb-tite rivets (Item 40, Table 1) approx 140 mm from LHS rear well wall and 3 mm down from the top. Refer to Figure 2 for location.

Figure 1 Module A/C Condenser Well

Figure 2 Condenser Mounted With RFI Cage In The Module A/C Tub
(5) Mount the receiver dryer in the bracket and connect the No 6 hose and the wiring loom to the drier. Figures 2 and 3 show hose positioning and final condenser mounting.

(6) Fit the condenser mount brackets LHS JYG0821 (Item 25, Table 1) and RHS JYG0822 (Item 26, Table 1) to the condenser assembly utilizing the eight M6 bolts fitted to the sides of the condenser, by removing the nuts and fitting the mount brackets. When mounted correctly the wiring at the condenser should face the rear of the module and the No. 6 hose fitting should be on the RHS and the No. 8 on the LHS.

NOTE
During assembly of the condenser suppression cage the correct alignment of the condenser fittings may be reversed. With suppression cage and wiring loom rearmost ensure the No. 6 outlet is on the RHS and the No. 8 on the LHS. If it is incorrect simply reverse the condenser outlet fittings by undoing the pad bolt and swapping to the correct side ensuring the O rings are not damaged.

(7) Connect the hoses to the condenser before fitting the condenser, remembering to install O rings where required and tighten prior to mounting condenser on mounts.

CAUTION
Some original MacKay rubber mounts may have 5/16 Whitworth threads, use caution when fitting nuts to ensure threads do not cross and that condenser brackets are securely fastened to the mounts to prevent the condenser moving forward.

NOTE
The condenser mount brackets are slotted to allow for variation in the location of the rubber mounts. Ensure that the condenser is located as far back towards the rear of the module condenser well as possible or the condenser cover will not fit.

(8) Fit the Condenser on to the Mackay Mounts, secured with four M8 nyloc nuts (Item 12, Table 1) with flat washers (Item 13, Table 1), then tension. Older modules may be fitted with 5/16 Whitworth threads.

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Figure 3  Hose Connections Module Condenser
A 38 mm ID 'P' clamp (Item 38, Table 1) is fitted to the top of the Mackay mount N/S front and secured with an M8 stainless steel dome nut (Item 39, Table 1). The 'P' clamp secures the number 10 condenser hose. Refer to Figure 4.

Figure 4  A/C Hose To Module Interface

Connect condenser fan wiring and secure hoses and wiring.

c. Evaporator installation, Figure 5, is as follows:

(1) Check the N/S and O/S drain hose connectors. Replace with supplied ½ in elbows (Item 21, Table 1) and long ½ in diameter drain hose (Item 22, Table 1) if diameter does not match drain hose outlets on evaporator or if drain hose is deteriorated. Refer to Figure 5.
(2) Mount the evaporator and secure with three M6 nyloc nuts (Item 37, Table 1) on both sides.

(3) Connect the No. 6 hose from the receiver drier and the No. 10 hose from the compressor to the evaporator. Refer to Figure 6.

Figure 6  Evaporator Hose Connections

(4) Connect the wring loom.

(5) Connect the drain hoses to the elbows at the wall.

(6) Secure the RFI control unit to the evaporator hoses with supplied cable ties.

d. **Condenser Cover Assembly.** Mount the condenser cover as follows:

(1) Trim the cover as per Figures 7, 8 and 9, and refer to Figure 7 for placement of mesh cover.

Figure 7  Hole Positions
Centre the deflector on the underside of the cover, mark anchor points and drill. Align mesh cover Part No JYG0823 (Item 27, Table 1) and attach with five M6 x 20 mm pan head machine screws (Item 34, Table 1) with M6 nyloc nuts (Item 37, Table 1). Refer to Figure 8. The condenser deflector, JYG0824, (Item 28, Table 1) is secured to the underside of the cover by the bolts retaining the leading edge of the mesh cover.

Figure 8  Deflector Position

The mesh cover rear is secured with five M6 x 16mm C/S PH zinc screws (item 35, table 1) with M6 nyloc nuts (item 37, table1), Figure 9. Locate the anchor points by using the mesh cover as a drilling template.

Figure 9  Cover Cut Outs
(4) Condenser cover brackets L/H Part No JYG0825 (Item 29, Table 1) & R/H Part No JYG0826 (Item 30, Table 1) are fitted and secured with three M8 x 20 mm hex head set screws (Item 41, Table 1) with (pipe sealant) on the screw threads.

**NOTE**

Push the condenser cover as far rearward as possible. Even when pushed all the way back there will be some interference of approx 5 mm. When in this position not all existing holes may line up. Secure with the holes that are aligned then drill the cover holes to correspond to the mounting bracket for the remaining holes.

(5) Secure the lid to the module with eight, M6 x 16 mm pan head machine screws (Item 42, Table 1) with M6 flat washers (Item 43, Table 1).

(6) Secure the front of the condenser cover with existing screws.

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(7) Final Fit Up with **NO STEP** Stencilled as indicated in Figure 10.

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18. **Compressor Replacement.** The air conditioner compressor has been superseded. The new compressor differs from the old in that the compressor head has the ports repositioned. The fitment and alignment of the compressor ports to ensure the hoses pass through the engine mount is critical to ensure trouble free operation. The following figures can be used to ensure the correct compressor has been supplied and/or fitted.

19. **Compressor Identification.** The new compressor is a Sanden SD7H15 supplied by Land Rover Australia under MPN BYG2773 (Item 23, Table 1) and can be identified by:

   a. Figure 11 shows the differences between the old and new compressor ports and the QC marking on the new compressor head.
Figure 11  Compressor Ports

b. Figure 12 shows the pulley diameter will allow bolt access from the front of the compressor.

Figure 12  Pulley Diameter

20. Compressor Replacement.
   a. Ensure system has been evacuated of all refrigerant.
   b. Slacken the belt tension wheel and remove both notched belts.
   c. Remove the 100 Amp alternator.
   d. Uncouple the hose from the rear of the compressor.
   e. Remove the compressor by undoing the bolts attaching it to the mounting bracket.
NOTE

The bracket needs to remain in position but the bracket mount bolts should be checked to ensure the bracket is secure and the bolts are high tensile bolts in accordance with EMEI Vehicle G 227-2

f. Remove brace AYG0579, fitted during retrofit modification in accordance with EMEI Vehicle G 227-5, from engine mount and discard.

g. Retain the extensions lugs AYG0517 and AYG0518 that were fitted as part of EMEI VEH G227-2.
h. Pre-fit lugs AYG0517 and AYG0518 to mounting lug holes marked ‘B’ and ‘F’ on the compressor. AYG0517 is threaded and goes to “F” with the bolts entering from the front (pulley end) of the compressor.

NOTE

The extension lugs fitted to compressor mounting lugs ‘B’ and ‘F’ will be at the bottom of the compressor when the compressor is mounted. This is the opposite of how the lugs were fitted previously with the old style compressor.

i. Install the compressor to the mounting bracket. Ensure that the compressor drain plug is facing towards the left-hand side of the vehicle or the 9 o’clock position when viewed from behind.

NOTE

The lugs may need to be slackened off to allow the lower bolt to be inserted from the front.

j. Reconnect the air conditioning hoses by passing through the engine mount and couple to the ports on the compressor. Refer to Figure 13.

Figure 13  Hose Connections Through Engine Mount
k. Tighten all bolts and clamps after the hose alignment is correct.

l. Refit the 100 Amp alternator.

m. Check the condition of the notched belts and replace if necessary before refitting.

NOTE
The notched belts are a matched set and need to be replaced as a set.

n. Tighten the tension wheel to ensure correct belt tension.

21. **System Commissioning.** The air conditioning system is to be evacuated for at least 10 mins at 30in hg, on the low pressure gauge, and tested for air leaks before vacuuming the system for a minimum of 30 mins at 30in hg to remove any traces of moisture from the system. If there are no air leaks then the system is to be filled with 1.2 kg of R134a refrigerant and functionally tested.

NOTE
The air conditioning system has to be evacuated for 30 mins minimum; however, it is recommended that it is evacuated for at least two hours or longer especially in tropical or humid conditions to ensure all moisture is removed.

22. **Recording Action.** On completion of the modification, the following action is to be taken in accordance with TRAMM-L, Volume 3, Section 2, Chapter 2, Annex D:

   a. Deface the number 40 on the vehicle modification record plate and number 2 on the ambulance module record plate.

   b. Complete the modification details in the GM 120 – Record Book for Service Equipment.

   c. Enter the details into the MSE600 screen reference code field against number 40 by selecting ‘Y’ from the drop down menu.

   d. Forward the modification completion details using form GM 119 – Advice of Change in Build State (TRAMM-L, Volume 3, Section 2, Chapter 3, Annex C) to:
       ADFLM Light B Vehicles
       CGSV SPO, DMO
       Defence Plaza Melbourne
       661 Bourke St
       Melbourne VIC 3000

END

Distribution List: VEH G 20.2 – Code 3 (Maint Code)
(Sponsor: CGSV SPO, Light B Vehicle)
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