Replacing an EM40 with an EM41

1 Required Parts and Equipment

1.1 IMPORTANT NOTE:

This work should be carried out by an electrically competent person.

To replace an EM40 with an EM41 you will require:

Sargent part AT-EM41-Adapt. This contains the following parts:

EM41 Interface Fuse Box
EM41 Input Harness – Power
Large MNL terminals
Small MNL terminals
3 Way MiniFit Sr plug
2 Way MiniFit Sr plug
MiniFit Sr terminals

A suitable heavy duty crimp tool for uninsulated crimp terminals.
Wire cutters suitable for large cables.
Wire strippers suitable for large cables.
Hand tools as required to access the EM40 and associated areas.

2 Removing the EM40

Remove the leisure battery fuse and turn off the PSU at the system shutdown button. If you have a solar panel, you should remove the fuse / disconnect the output.

The EM40 should now be unscrewed to allow access to the connections on the rear:

FIG 1
Note the red and white 6-way connectors are empty for clarity in the FIG1. In the van they will have connectors fitted. These are plug and play, simply being moved to the matching connectors on the EM41 later.

Unplug the RED 4-way connector (top RHS of FIG1). This is the main heavy current supply from the vehicle. This cable will be replaced with a new part, so trace the cable back to the B Pillar where it plugs into the vehicle (this will be under the plastic cover at the base of the door frame behind the driver's seat. Unplug the cable from the vehicle, and remove the cable.

Unplug all other connectors from the EM40, and remove the EM40.

Locate the white 4-way connector (top RHS in FIG1). Cut the two White/Orange wires close to the connector, and strip the insulation back enough to fit the MiniFit Sr terminal. Both of these wires will be fitted into the same terminal.

Load a MiniFit Sr terminal into the crimp tool as in FIG2. Place both the White/Orange wires into the terminal and crimp it on. Repeat the process for the two Brown/Green wires.

FIG 2

When this is done, they should look like FIG3:

FIG3

The two wires can now be inserted into the 2-way MiniFit Sr moulding. Note carefully the orientation of the terminals in the moulding and the polarity FIG FIG4A, FIG4B & FIG5:

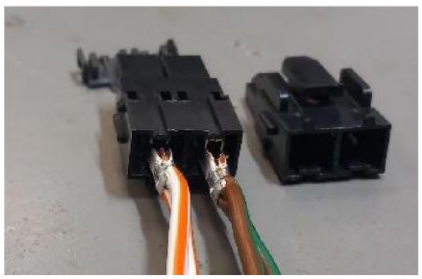

FIG4A

FIG4B

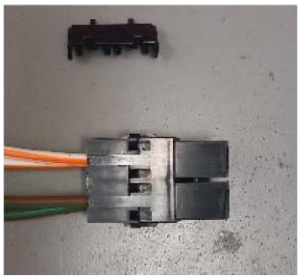

FIG5

Notice that the anti backout clip has been snapped from the connector. This now needs to be fitted to the connector to ensure that the wires cannot come loose. Looking at the anti backout, you will see it has small tabs to clip it to the body of the connector. Fit clip and ensure it is secure, then pull the cables to ensure they don't pull out of the connector. This connector is now ready.

When completed the connector should look like FIG 6:

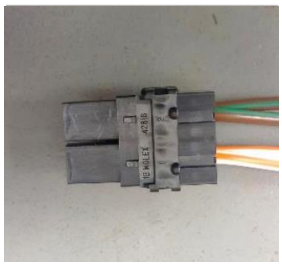
FIG 6

Now the procedure needs to be repeated for the fridge connector. The process for crimping the terminals onto the wires is the same, however note that you are taking heavy current Red/Yellow and White/Black cables from two connectors and fitting them into a single connector, and that a Yellow/Orange signal wire is fitted into the existing 3-way connector 'TOWING' (middle RHS in FIG1) which contains a Red wire and a Yellow wire.

Locate the Black 4-way (bottom RHS in FIG1) and the Green 4-way (top LHS in FIG1). Cut the Yellow/Orange wire, strip back the insulation and crimp on the a small MNL terminal. (Note, some models may have two Orange/Yellow wires, in which case these should both be crimped together in a large MNL terminal.

Cut the two Red/Yellow wires and follow the procedure to crimp them together into a single MiniFit Sr terminal. Do the same for the White/Black wires.
When this is done, they should look like FIG7:


FIG7


FIG 8


FIG 9

Once the terminals have been crimped on, you can insert the wires into the moulding again noting polarity as in FIG8 and fit the anti backout clip. Do the pull test to ensure the cables are in secure. Fit the Yellow/Orange wire into the 3-way moulding as per FIG 9.

Now that all the cables changes are complete you can fit the new EM41.

FIG 10

Fit all the connectors as per FIG 10.
Note the red and white 6-way connectors are empty for clarity as in FIG1; these should now be fitted.
Fit the other end of the high current input cable at the B pillar.

The correct functions of the EM41 should now be tested tested (i.e vehicle battery voltage shown on control panel, fridge runs on 12V when engine started etc.)