

## CIM CHECKING PROCEDURE

I. If the Master Switch is turned on and the CIM does not boot up (black display):

A. Check the battery voltage. There must be at least 20 volts.

1) If the batteries are discharged, charge them or slave cable the generator set to a fully charge 24 volt power source. Return to Step I.

2) If there is sufficient battery voltage proceed to Step B.

B. Check the Network Failure light on the Control Panel:

1) If the Network Failure light is off, check the ambient temperature.

a. If ambient temperature is high, try cooling CIM down by closing the door, shading the control panel, etc. If unreadable after cooling, replace CIM.

b. If temperature is normal, adjust Contrast using procedure below.

c. If contrast cannot be adjusted, **Call your LAR**.

2) If the Network Failure light is on, then turn off the master switch. Remove the screws holding the CIM to the set. Pull the CIM partially out of the set and remove the P27 cable from the back of the CIM. Turn on the master switch.

a. If the CIM boots up and its heart is beating on the screen, the CIM is functioning properly. Troubleshoot the P27 Cable and DCS components.

b. If the CIM does not boot up. Turn off the master switch, and disconnect P31 from the back of the CIM. Turn the Master Switch on and check if 24 VDC is present between Pins 1 & 6 and Pins 3 & 7. Pins 1 & 8 are positive and Pins 3 & 7 are connected to ground. The pin configuration of connector P31 can be found on the Wiring Diagram, Sheet 1 of 2, F0-3.

c. If generator set battery voltage (normally 24 VDC) is not present between Pins 1, 6 and Pins 3, 7, troubleshoot and repair the wiring between the batteries and the CIM.

b. If there is Battery voltage (at least 20 VDC) present at P31, the CIM has failed is broken and must be replaced.

## II EMERGENCY CONDITIONS.

If the CIM is dark and the network failure light is off after one minute, attempt to start the set following the appropriate procedures.

If the set starts, then you can close the contactor and carefully check the voltage and frequency using a multimeter across the load terminals. If voltage and frequency are within acceptable

limits then the set is operational and can be monitored using the remote operation system. The protective devices should operate, however, you will have to check the fuel manually.

Other troubleshooting hints and information:

P27 is the data connector for the CIM. P31 provides 24VDC from the Master Switch, S3 to power the CIM.

The CIM boots after at least 20 VDC is applied to the CIM power connector, J31. The CIM can be checked by disconnecting P27, and turning on the Master Switch which will apply 24 VDC to the CIM.

If the CIM doesn't boot with P27 disconnected, the power to the CIM should be checked with a VOM. If at least 20 VDC is present at P31 (Pins 1 & 6 are positive, Pins 3 & 7 are ground) and the CIM doesn't boot, the CIM is defective.

To check the P27 cable, connect it to a working CIM and DCS. With the master switch ON remove one connection at a time from the individual components at the other end of the P27 cable. If the CIM boots up when a connection is removed from a component, that section of P27 is broken.

Testing procedures for the DCS Load Sharing Synchronizer A2, DCS Speed Control Unit A3, Automatic Voltage Regulator A4, Backplane Module A1, and I/O Interface Module A5 can be found in the respective Generator Set TMs.

## **CIM CONTRAST ADJUST PROCEDURE**

MCII has found a pattern in the failure modes (about 40% according to MCII) for the CIM coming back on warranty claims. Many CIMs come back with the contrast out of whack. There are two pins in the P27 connector that, when shorted to ground, will adjust the contrast set point to higher or lower than normal. This will either cause the CIM display to go fully dark or fully light. The problem is that some of the wires in the ribbon cable that are connected to these two pins are not cut short enough in the manufacturing process. Vibration, transportation, shock, etc. can cause one or both of these wires to make contact now and then with the metal case of the P27 connector. Each time this happens, the contrast is adjusted a little more away from normal range. In the end this yields a set that is producing power but cannot be monitored.

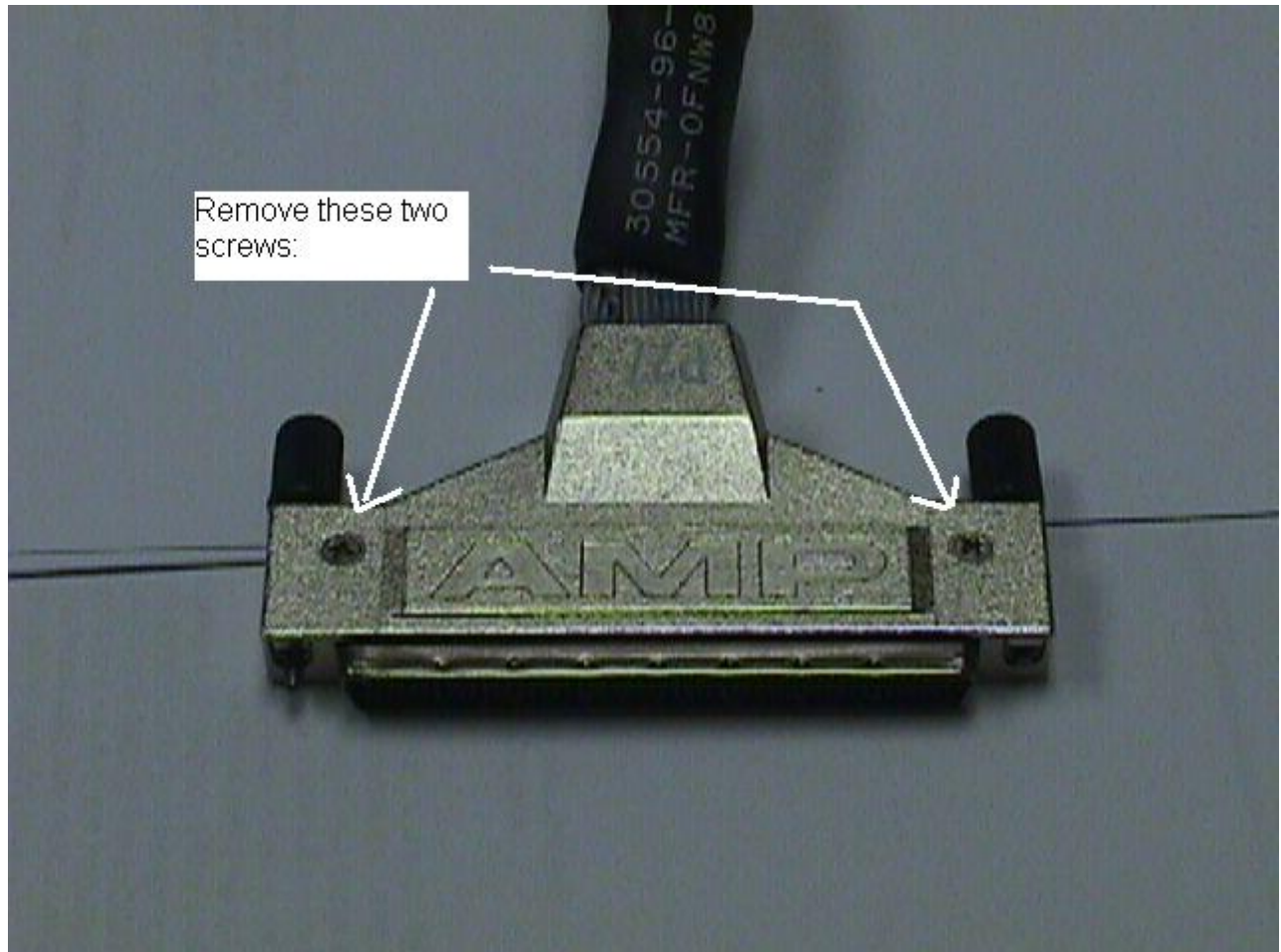
I have included a procedure for repairing the P27 connector.

### **Equipment Required**

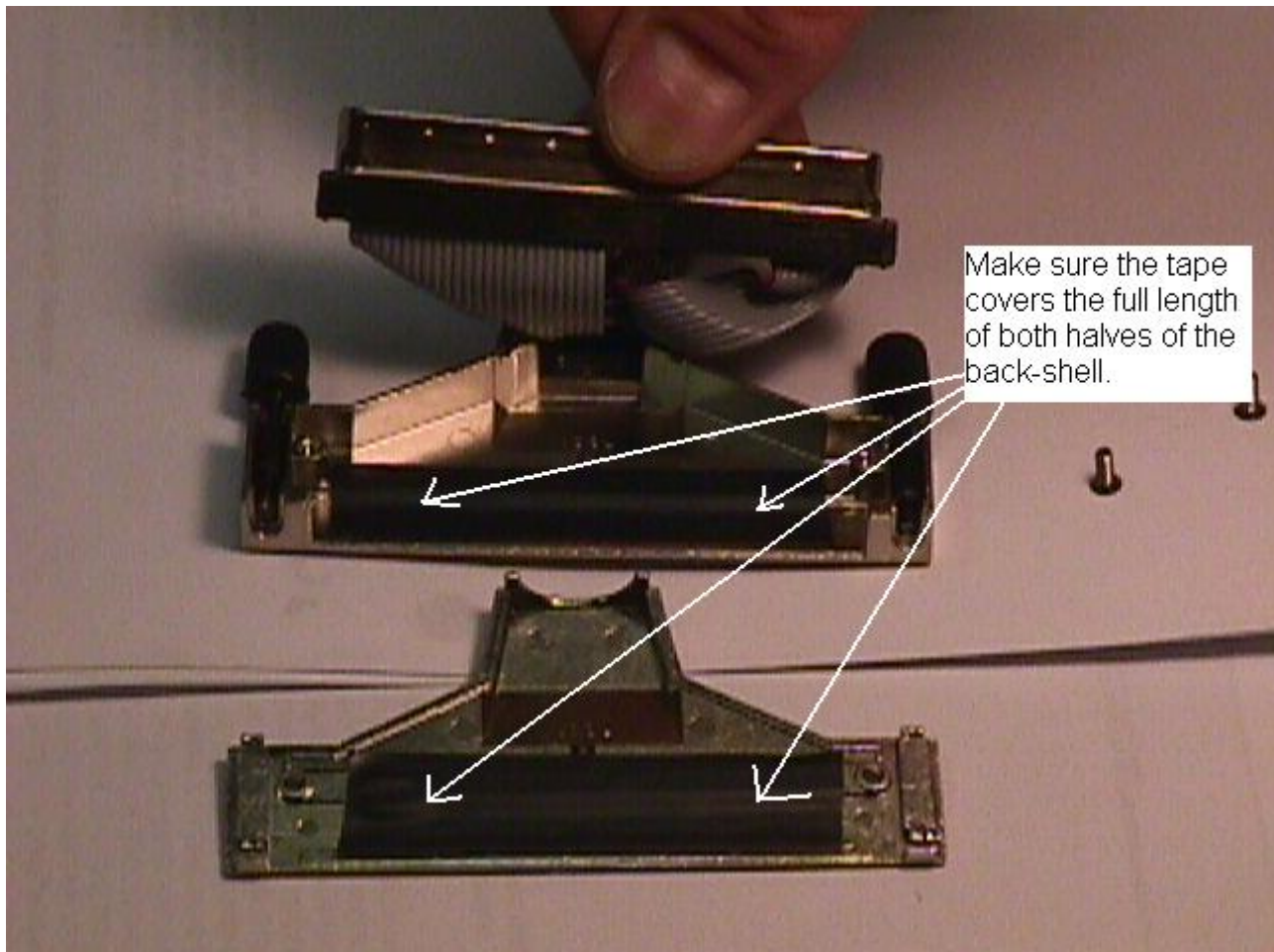
1. #1 Phillips Screwdriver
2. Electrical Insulating tape, 1/2" wide

### **Instructions**

1. Remove CIM from TQG in accordance with Tech Manual instructions.
2. Using #1 Phillips screwdriver, remove the back-shell screws from P27 as shown below.



3. Apply electrical insulating tape as shown below. It may be necessary to trim the tape so that it is less than ½" wide.



4. Reassemble the back-shell making sure that the thumb screws and ribbon cable fit properly.  
This will prevent unwanted changes in the contrast of the CIM display screen.

Use the adjustment cable to set the contrast back to normal. To make the contrast adjustment, attach the adjustment cable to P27 connection on the CIM and connect the P31 power supply. Power the CIM up and make the contrast adjustments by repeated clicks of the toggle switch in one direction. If this does not produce a change after a few clicks try the other direction on the switch. Each click on the switch increases or decreases the contrast by a set amount depending on the direction the switch is activated. After you have achieved the desired contrast, reinstall the repaired P27 cable.

The above procedures could be used with the CIM checking procedures below, which we sent previously. This is a rough draft, however we thought you needed the adjustment cable and some instruction on its use ASP.

# Draft CIM CHECKING PROCEDURE

