Field Service Spares Replacement Procedure -- 70/140MHz Receiver Troubleshooting

Approval:

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Revision History

Rev.	ECO	Description of Change	Date
X1	8878	Initial release	08-18-2011
A	9059	Clerical revisions	10-30-2011

1. Brief Summary:

Troubleshooting document for diagnosing a fault with and replacing the 70MHz or 140MHz tracking receivers in the DAC-03 and 2302.

2. Checklist:

- Connection Issue
- LNB Power

3. Theory of Operation:

The LNB converts the satellites RF signal (C/Ku-Band) into IF (either 70MHz or 140MHz depending on the configuration) so it can be passed down a coax cable into the DAC for tracking purposes. Early RF equipment used 70MHz or 140MHz for the IF so the tracking receiver had to uses the same frequency (as did the satellite modems etc).

The IF satellite signal is passed from the transceiver down through a coaxial cable which runs through the pedestal and is then fed into the tracking receiver inside the DAC. The DC voltage level from the receiver is then passed to the DAC motherboard where it's converted into the numerical AGC (Average Gain Count) value which is displayed on the screen of the DAC.

4. Troubleshooting:

A failure in the RF path of the system will result in a low AGC value. An AGC of around 100 counts is typically an indication that the internal tracking receiver in the DAC has failed, or no signal is being received from the LNB. In this instance potential causes could be a bad connection in the RF path, no voltage to the LNA/LNB or LNA/LNB failure.

5. RF Path Connections:

If no signal is being received from the LNA/LNB, then further troubleshooting will need to be undertaken. Verify all the connections throughout the receive line. This can be done by pining out coax cables, bypassing the rotary joint or switching cables in the installation (for verification purposes) from the LNB down to the receiver in the DAC. If troubleshooting a system where the pedestal communications are multiplexed onto the receive path, the connections between the ADE and BDE MUX's will be good, provided the DAC is communicating with the PCU.

6. LNB Voltage:

The LNB requires DC voltage to operate with the pedestal energized, 13VDC - 18VDC should be measured on the coax cable entering the LNB. If no voltage is present further troubleshooting needs to be undertaken to diagnose the fault. Possible causes are a damaged cable, incorrect System Type or hardware failure.

Systems which require voltage from the tracking receiver to power the LNB require "64" to be preset in the System Type parameter.

Note: In some cases the satellite modem can provide the voltage to power the LNB depending on how the system has been configured.

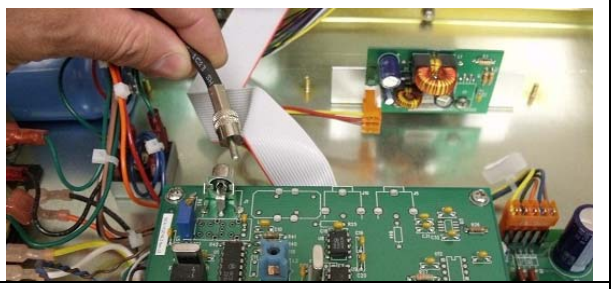
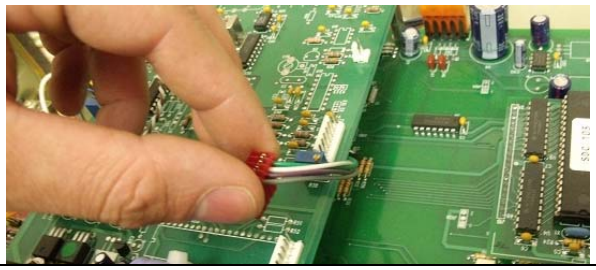
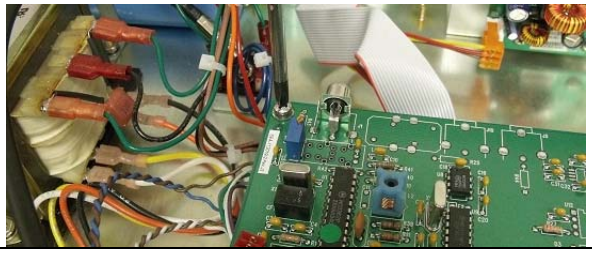
7. Replacing the 70/140MHz SCPC Receiver:

7.1. Tools.

- #1 Phillips Screwdriver

7.2. Procedure.

Procedure for replacing the 70MHz and 140MHz SCPC receiver found in the DAC-03 and DAC-2302, Sea Tel kit part numbers: 135542-2 (70MHz) and 135542-3 (140MHz). Receiver part numbers: 112019-2 (70MHz) and 112019-3 (140MHz).

***CAUTION:** Power down the pedestal before following this procedure. 1. Using a #1 Phillips screwdriver remove the lid of the DAC-03/2302. 2. Disconnect the RCA cable from the SCPC receiver.	
3. Disconnect the IDC connectors from the PCB	
4. Remove the 3 screws securing the SCPC receiver to the standoffs.	
5. Install the replacement SCPC receiver 6. Install the IDC connectors. 7. Connect the RCA cable. 8. Install the DAC lid applying Loctite 242 to the screws.