

MODIFICATION RECOMMENDED

66321D-08

# S E R V I C E N O T E

Supersedes:  
NONE

## 66321D - MOBILE COMMUNICATION DC SOURCE, 15V/3A WITH BATTERY EMULATION, DVM. GPIB.

Serial Numbers: MY43005670 – MY43005770    SG43005670 – SG43005770

Power-On Self test Errors, Auto reboot, Blank display. No output Communication errors.  
No communication when using the GPIB Interface.

### Parts Required:

| P/N       | Description                            | Qty. |
|-----------|----------------------------------------|------|
| 1400-3203 | Cable Tie .062-1.25-DIA .14-Wide Nylon | 1    |

## ADMINISTRATIVE INFORMATION

|                                                                                                                                                                                                                        |                                                                                                     |                                                                                                                           |                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| SERVICE NOTE CLASSIFICATION:                                                                                                                                                                                           |                                                                                                     |                                                                                                                           |                                                                                             |
| <b>MODIFICATION RECOMMENDED</b>                                                                                                                                                                                        |                                                                                                     |                                                                                                                           |                                                                                             |
| ACTION CATEGORY:                                                                                                                                                                                                       | x ON SPECIFIED FAILURE<br>x AGREEABLE TIME                                                          | STANDARDS<br>LABOR: 1.5 Hours                                                                                             |                                                                                             |
| LOCATION CATEGORY:                                                                                                                                                                                                     | x CUSTOMER INSTALLABLE<br>x ON-SITE<br>x SERVICE CENTER<br><input type="checkbox"/> CHANNEL PARTNER | SERVICE <input type="checkbox"/> RETURN<br>INVENTORY: <input type="checkbox"/> SCRAP<br><input type="checkbox"/> SEE TEXT | USED PARTS: x RETURN<br><input type="checkbox"/> SCRAP<br><input type="checkbox"/> SEE TEXT |
| AVAILABILITY:                                                                                                                                                                                                          | PRODUCT'S SUPPORT LIFE<br>NO CHARGE AVAILABLE UNTIL: (EOS)                                          |                                                                                                                           |                                                                                             |
| AUTHOR: cp                                                                                                                                                                                                             | PRODUCT LINE: sp                                                                                    |                                                                                                                           |                                                                                             |
| ADDITIONAL INFORMATION: These instruments should not require calibration when the repair described below has been implemented. It is recommended that the instrument be Hi-potted and performance tested at a minimum, |                                                                                                     |                                                                                                                           |                                                                                             |

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PRINTED IN U.S.A.

February 27, 2012

Rev. 19



The primary +5 volt bias is generated by circuits on the “A1” main control board. The primary 5 volts is required by the “A2” interface circuits. Cabling is used to bring the 5 volts from the control board to the interface assembly. The bias cable plugs into circuit reference “J206” on the “A2” interface assembly. The primary 5 volts has been designed to be between 4.85Volts and 5.15Volts.

The instrument will exhibit the defects described above when the primary 5 volts drops below the design limits described. Poor crimping of the female connectors on the bias cable is the cause of the problem. The pictures below show in detail the female connectors having the problem.

#### **Self test Errors 0 through 99 (sets Standard Event Status Register bit #3)**

0 No error

1 Non-volatile RAM RD0 section checksum failed

2 Non-volatile RAM CONFIG section checksum failed

3 Non-volatile RAM CAL section checksum failed

4 Non-volatile RAM STATE section checksum failed

5 Non-volatile RST section checksum failed

10 RAM selftest

11 VDAC/IDAC selftest 1

12 VDAC/IDAC selftest 2

13 VDAC/IDAC selftest 3

14 VDAC/IDAC selftest 4

15 OVDAC selftest

80 Digital I/O selftest error

#### **Solution/Action:**

**The problem can be solved by soldering the cable wires directly into the interface printed circuit assembly “A2”. The following procedure describes in detail how to correctly solder the bias cable into the “A2” interface printed circuit assembly. (See manual link)**

### **Disassembly Procedures** <http://cp.literature.agilent.com/litweb/pdf/5964-8176.pdf>

The following paragraphs provide instructions on how to disassemble various components of the dc source. Once disassembled, the components can be reassembled by performing the disassembly instructions in reverse order. Figure 3-3 shows the location of the major components of the unit. Note that not all boards are included with every model. Figure 3-4 shows the location of the cables that interconnect all of the boards. This figure shows only the boards, not the chassis of the unit.

**WARNING: SHOCK HAZARD.** To avoid the possibility of personal injury, turn off ac power and disconnect the line cord before removing the top cover. Disconnect the GPIB cable and any loads, and remote sense leads before attempting disassembly.

**CAUTION:** Most of the attaching hardware is metric. Use of other types of fasteners will damage threaded inserts. Refer to the list of required tools when performing disassembly and replacement.

### **List of Required Tools**

- a. 2PT Pozidriv screwdrivers.
- b. T10 and T15 Torx screwdrivers.
- c. Hex drivers: 7 mm for GPIB connector,  
3/16" for RS-232 connector,  
8 mm for toggle switch located on the back of Agilent 66311A and earlier 66311B units
- d. Long nose pliers.
- e. Antistatic wrist discharge strap.

### **Cover, Removal and Replacement**

- a. Using a T15 Torx screwdriver, unscrew the two captive screws that hold the rear bezel on the unit.
- b. Remove the two screws from the bottom of the case.
- c. Slide the cover back until it clears the rear of the dc source.

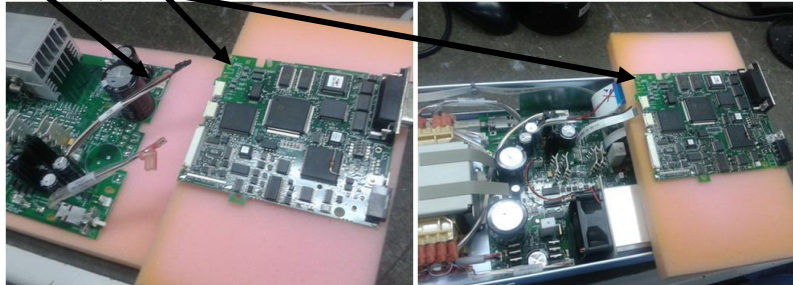
## A2 Interface Board, Removal and Replacement

To remove the Interface Board, proceed as follows:

- Remove the cover of the dc source as described under, "Cover Removal and Replacement."
- Remove the two 7 mm and two 3/16 inch hex screws that hold the GPIB and RS-232 connectors in place.
- Slide the board forward, lift up on the side of the board closest to the heatsink, and slide the board out.
- Place a piece of non-conducting material (stiff paper or cardboard) on top of the transformer, flip the interface board over, and place it on top of the non-conducting material.
- Unplug the 3-conductor cable from J206. Push down on the locking tab to release the connector.
- Unplug the ribbon cables. Note the position of the blue conductive side for reinstallation as shown in figure 3-4. Release the cable by pulling out the end tabs as shown by the arrows in figure 3-5.

This modification should be done at an ESD (Electro Static Discharge) safe work area.

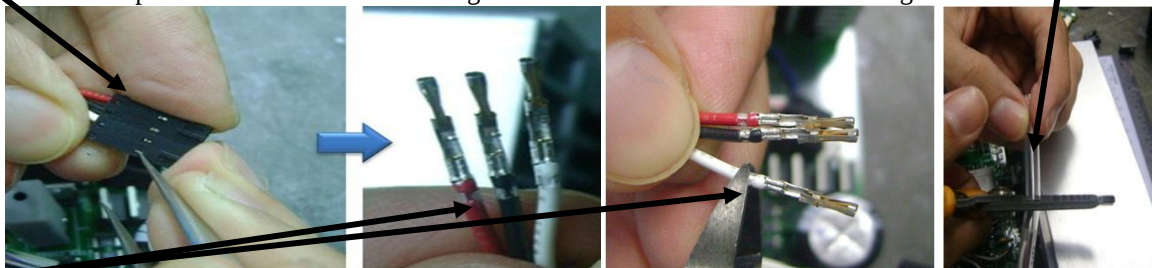
The cable P/N 5080-2452 coming from the control board should be disconnected for the mail connector (circuit reference) "J206" which is soldered on the interface board.



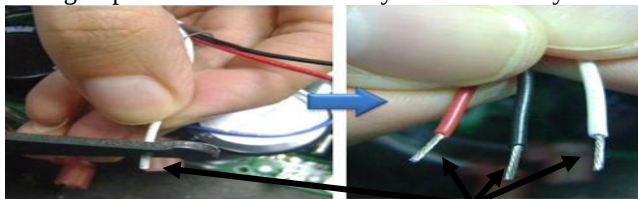
Remove the connector P/N 1252-3695 (circuit reference) "J206" on the "A2" interface assembly. When removing "J206" care should be taken not to damage the "A2" printed circuit board material or the circuit board traces. "J206" has 4 holes remove the solder from these holes as shown. Do not apply too much heat or pressure this may cause damage to the PCA



Remove the pins from the connector housing as shown. Cut 3cm off the clear tubing of the cable



Cut the crimped terminals at the crimp around the wires colored insulation. This is done so the cable length can be as long as possible a short cable may cause assembly issues.



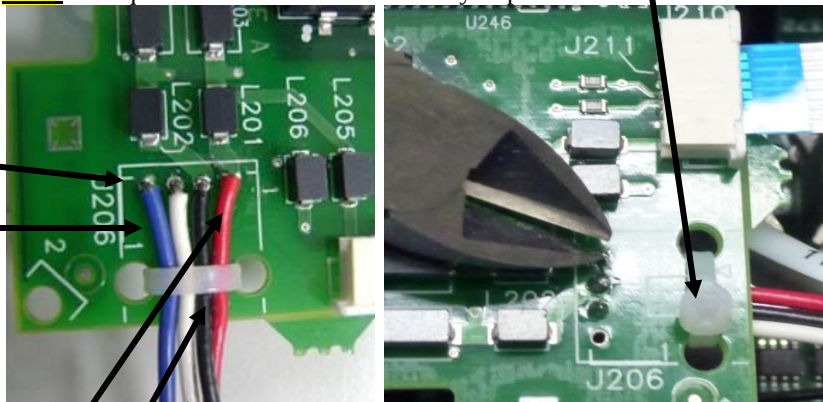
Each wire in the cable should be striped to 5mm. **CAUTION:** Inspect each wire for defects such as cut strands and damaged insulation,

Insert the cable into the open holes located on the "A2" GPIB interface assembly.

Depending on the model there may be three or four wires.  
Inspect the wires on the top and bottom of the “A2” GPIB interface assembly.  
Inspect for the following defects:

1. Cold solder joints top and bottom of the assembly
2. Good solder fillets on the top and bottom of the assembly
3. Insure that all of the wire strands are in the holes provided and there are no shorts of solder or wire strands between each wire when soldered into the “A2” GPIB interface assembly.
4. Trim the lead make sure they are not over cut and no excessive leads are left.
5. Make sure that the instrument is clean of solder and wire strands and loose wires.
6. A Wide Nylon cable tie is required as shown to support the wires after the up-grade has been completed. Cut the excess Nylon of as shown.

**Note** the sequence of the cable wires is very important!



The **Red** wire is soldered in the main control board (reference E320) and should be soldered into pin #1 or the square pad of “J206” on the “A2” interface assembly.

The **Black** wire is soldered in the main control board (reference E324) wire should be soldered into pin #2 of “J206” on the “A2” interface assembly. .

The **White** wire is soldered in the main control board (reference E321) should be soldered into pin #3 of “J206” on the “A2” interface assembly.

The **Blue** wire is required for the models shown below **ONLY**. This **Blue** wire comes from the connector on the battery emulation board P/N 5064-0131 circuit reference J001 Pin 12, the **Blue** should be soldered into pin # 4 of “J206” for the models listed below only. All other **66300X Mobile Comm DC Sources** only require 3 wires.

**66321B Mobile Comm DC Source w/ Battery Emulation**  
**66321D Mobile Comm DC Source w/ Battery Emulation, DVM**  
**66319B Dual Mobile Comm DC Source w/ Battery Emulation**  
**66319D Dual Mobile Comm DC Source w/ Battery Emulation, DVM**

**Other Related Models & Service Nots (5V cable issue)**

66309B: MY43001060 – MY43001300 66309B-07  
 66309D: MY43005870 – MY43007235 66309D-07  
 66311B: MY43003090 – MY43008950 66311B-07

66319B: MY43003910 – MY43004590 66319B-08  
 66319D: MY43005450 – MY43006410 66319D-08  
 66321B: MY43003160 – MY43003330 66321B-08  
 66321D: MY43005670 – MY43005770 66321D-08

**IMPORTANT NOTE Return scrap parts to the address below.**

**Carl Panetta**  
**Agilent Technologies**  
**550 Clark Drive, Suite 101**  
**Budd Lake, New Jersey USA 07828-4301**