ROM Upgrade Procedure:

NOTE: In order to upgrade your firmware to version A.03.00 or higher you must order Agilent part number **5182-9091**. The following are instructions on how to install Agilent part number 5182-9091 into your 66319B, 66319D, 66321B, or 66321D. These instructions are more detailed as compared to the instructions provided in the Agilent 14565A Device Characterization Software's help files under "System Information>>Firmware Upgrade."

ROM Upgrade

Before you decide you need to upgrade your firmware it is always a good idea to check to see if you already have the latest firmware installed. The following describes how to do so.

Identifying the Firmware

You can use the *IDN? query to identify the revision of the supply's firmware. The query will read back the revisions of the Primary Interface ROM located on the GPIB board. The manufacturer and model number of the supply are also returned. The following is a sample program:

```
10      ALLOCATE L$[42]
20      OUTPUT 705;"*IDN?"
30      ENTER 705;L$
40      DISP L$
50      END
```

The computer will display the manufacturer's name, the model number, a "0," and then the firmware revision. Example: "AGILENT, 66319D,0,A.03.00". The revision level of the ROM can also be found on the label affixed to the physical IC chip itself.

You can also check the firmware revision from the front panel by turning on the unit, pressing the address key and using the large up/down scroll keys until you see something like "ROM: A.03.00".

After checking the firmware revision you conclude that you need to upgrade the firmware in your 66319B/D or 66321B/D follow the instructions below.

Disassembly Procedures

The following paragraphs provide instructions on how to disassemble various components of the dc power supply. Once disassembled, the components can be reassembled by performing the disassembly instructions in reverse order. Figure 1 shows the location of the major components of the unit.

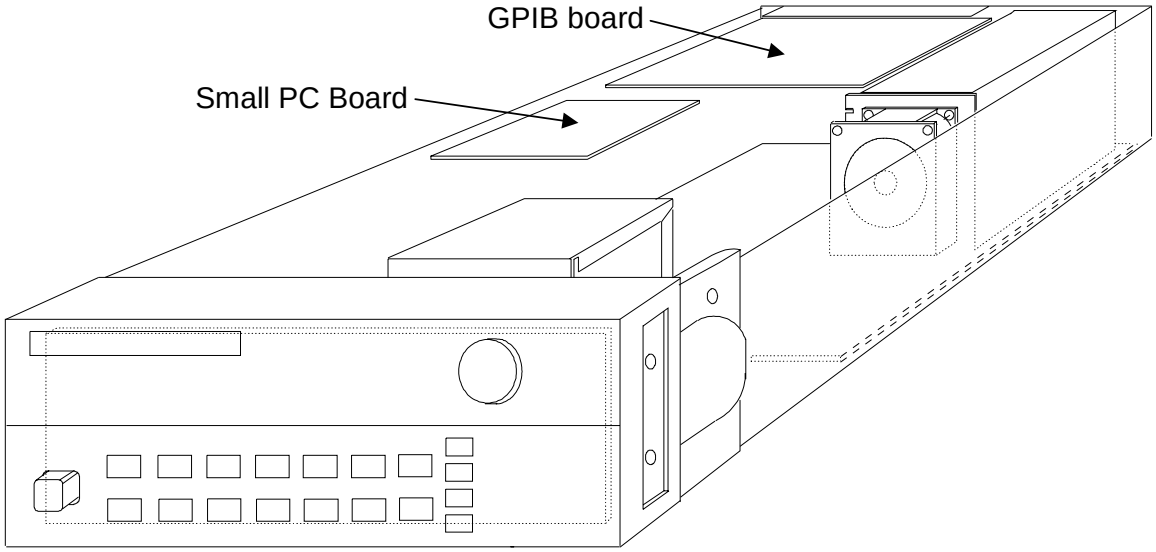

Figure 1. Component Location

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 GP-IB 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 GP-IB connector,
3/16" for RS-232 connector

d. Long nose pliers.

e. Antistatic wrist discharge strap.

Cover, Removal and Replacement

a. Using a T15 Torx screwdriver, unscrew the two captive screws which hold the rear bezel to the dc power supply, and then remove the two screws from the bottom of the case (A diagram of the location of these screw is provided in the software help files).

b. Slide the cover backward until it clears the rear of the power supply.

GPIB Board & Small PC Board, Removal and Replacement

To remove the GPIB Board and Small PC board, proceed as follows (left and right referenced from the rear panel of the power supply):

a. Remove the cover of the power supply as described under, "Cover Removal and Replacement."

b. Remove the two 7 mm and two 3/16 inch hex screws that hold the GP-IB and RS-232 connectors in place (A diagram of the location of these screw is provided in the software help files).

c. Remove the Small PC Board by unscrewing the one screw on right the side of the chassis. Sliding it to the left and gently place it over the right side of the chassis. The wires connected to it will suspend it freely. (A picture of the disassembled board is provided in the help files)

d. Now slide the GPIB board forward and lift the right side of the board and slide it out. You should **not** have to unplug any of the connectors.

e. Place a piece of non-conductive material (cardboard, static bag, etc…) on top of the power transformer, fold the GPIB board over, and lay it on top of the power transformer.

f. The board is now in a good position to replace the ROM. Either use a SMT chip remover tool, or a paper clip bent into a small hook and a pair of needle-nose pliers, you can carefully pry the chip out from the openings in the two diaganol corners.

g. Should you need to unplug any of the connectors, unplug the 3-conductor cable from J206. Depress the release button located at the end of the connector where the wires enter the housing.

h. Unplug the flat cables. Note the position of the conductive side for reinstallation. Connectors release the cable by pulling out end tabs as shown by the arrows in Figure 2 below.

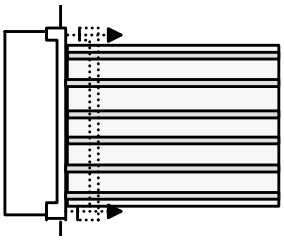

Figure 2. Connector Release

i. Once the original ROM has been removed, install the new ROM in its place. Pay close attention to the angled corner, which in Figure 3 below is the bottom left corner where the arrow is located.

j. To reinstall the GPIB board, perform the above steps in reverse order.

k. Once the cover is back on, you must reinitialize the power supply. Follow the instructions below under "Initialization Upgrade Procedure."

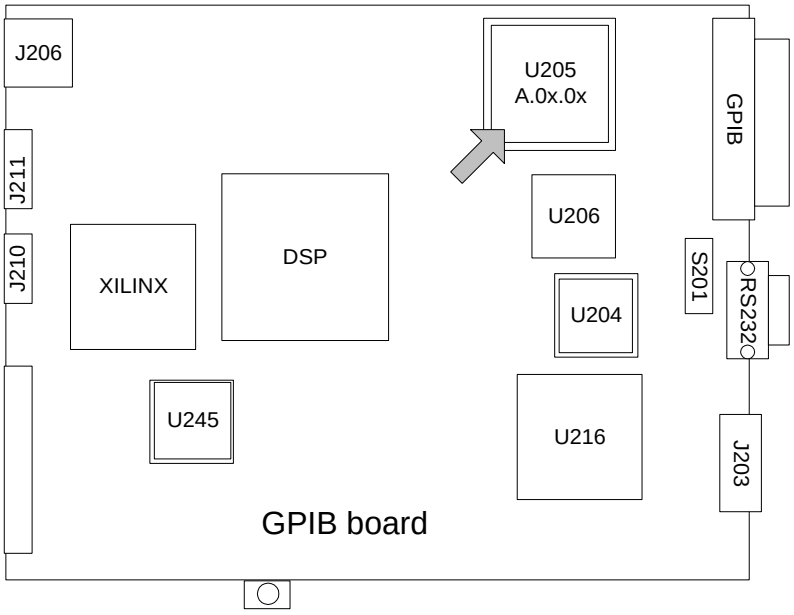

Figure 3. GPIB Board Layout

Initialization Upgrade Procedure

Once the GPIB board ROM is upgraded you can re-initialize the supply without affecting the calibration. Be sure that the supply's Language is set to the "**SCPI**" command language.

(To check the language setting, press the front panel "address" key. Then press the small "up" arrow and scroll to the **LANG** command. The two choices are **SCPI** and **COMP**atibility, choose **SCPI** and press "Enter".)

a. Enable the Calibration mode, by pressing Shift then Cal. then press "Enter".

b. Simultaneously depress the "0" and "1" keys. EEINIT <model> will be displayed, **DO NOT PRESS ENTER!** or the unit will need to be calibrated.

c. Using the Down Function key select ROMUPD <model>.

d. Using the small Up/Down Entry keys select the appropriate model number, press ENTER.

The supply will go through the turn-on self test sequence and return to the power supply metering mode. If there is any problems getting into CAL. mode you might check if there is a password set, or the S201 switch settings on the GPIB board. These switches can inhibit the CAL mode, bypass the password or enable "SCPI" as the power on default language!