

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

SUPERSEDES: NONE

**6814A AC Source****Serial Numbers:** 0000A00000 / 9999Z99999**Affected Units:**

All 6814A/B with firmware Rev A.00.16 or lower  
 All 6834A/B with firmware Rev A.00.16 or lower  
 All 6843A with serial number suffix 00210 or lower

**Reliability Upgrade and Safety Check****Duplicate Service Notes:**

6814A-04  
 6814B-04  
 6834A-05  
 6834B-05  
 6843A-05

**To Be Performed By:** Agilent-Qualified Personnel*Continued*

DATE: September 1999

## ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:			
<b>MODIFICATION RECOMMENDED</b>			
ACTION CATEGORY:	<input type="checkbox"/> IMMEDIATELY <input type="checkbox"/> ON SPECIFIED FAILURE <input checked="" type="checkbox"/> AGREEABLE TIME	STANDARDS: LABOR 3.0 Hours	
LOCATION CATEGORY:	<input type="checkbox"/> CUSTOMER INSTALLABLE <input type="checkbox"/> ON-SITE <input checked="" type="checkbox"/> SERVICE CENTER	SERVICE INVENTORY: <input type="checkbox"/> RETURN <input type="checkbox"/> SCRAP <input checked="" type="checkbox"/> SEE TEXT	USED PARTS: <input type="checkbox"/> RETURN <input type="checkbox"/> SCRAP <input checked="" type="checkbox"/> SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE		
AUTHOR: PS		ENTITY: 2100	
AGILENT RESPONSIBLE UNTIL: December 2001			
ADDITIONAL INFORMATION: This is a multiple model service note			

**Parts Required:**

Depending upon the model number and vintage, various parts and assemblies may be required.

Part required for all models:

<b>P/N</b>	<b>Description</b>
5060-9672	Restored A10 Auxiliary P.S. Assy.

**Note:** Contact PPD product support if assembly not readily available.

**Note:** If part number on the presently installed A10 is 5001-703-1 rev P or 5001-726-1 rev A, the A10 has been upgraded and does not need to be replaced.

Parts Required for 6814A/B and 6834B only:

<b>P/N</b>	<b>Description</b>	<b>Quantity</b>
5080-2390	A8U734, ROM Rev A.00.17 or greater	1
5080-2391	A8U735, ROM Rev A.00.17 or greater	1

Part Required only if motherboard requires replacement:

Restored A4 motherboard:

6814A/B: p/n 5060-9695  
 6834A/B and 6843A: p/n 5060-9673

Parts required only if Amplifier Assemblies do not match:

Restored A1,A2,A3 Switching Amplifier Assy.

6814A/B & 6834A/B: p/n 5063-3415  
 6843A: p/n 5060-9696

**Note:** 3 amplifier assy's would be required for the 6834 and 6843 and only 2 would be required for the 6814.

Special tools and equipment required:

Hipot tester or high resistance ohmmeter ("megger") having a test voltage of 500v.

Flashlight

Dental mirror.

Service Manual:

6814B,6834B,6843A p/n 5962-0892 Available on-line at:

[http://www.tmo.agilent.com/tmo/support/English/68xx\\_service2.html](http://www.tmo.agilent.com/tmo/support/English/68xx_service2.html)

**Situation:**

This is a major reliability improvement upgrade for the 6814,34 and 43 series of AC Sources. Included with the upgrade is a safety Check for input and output terminal leakage to chassis ground.

**Solution / Action:****WARNING:**

DANGEROUS VOLTAGES ARE PRESENT WITHIN THE AC SOURCE WHILE IT IS CONNECTED TO THE AC LINE (MAINS). PHYSICALLY REMOVE THE AC INPUT POWER LINE FROM THE AC SOURCE. WAIT AT LEAST 5 MINUTES AFTER REMOVING INPUT POWER BEFORE PROCEEDING.

**Safety check for input and output terminal leakage to chassis:**

Follow the operating manual for the high resistance ohm- meter (megger or hipot tester) for the following procedure:

1. Set the test voltage to 500 V.
2. Measure the resistance between each output terminal to chassis ground and from "com" to chassis ground.
3. Measure the resistance between each AC line input terminal and chassis ground.
4. If any of the resistances measured are less than 10 MOhm (10E+6), contact PPD product support for more information.

**Auxiliary bias supply (A10) Upgrade:**

1. Remove the 15 top cover screws and remove the cover.
2. Measure the voltage across C1 (3900 uF, 400V, capacitor) located near the front of the instrument to make sure it has discharged to less than 5 volts. See Fig 6-1 in Service Manual.
3. Locate the A10 board perpendicular to the center of the front panel. See Fig 6-1 in Service Manual.
4. Note the p/n and revision of the A10 near the lower right corner of the board. If the p/n and rev is 5001-703-1-rev P or 5001-726-1-rev A, continue to the firmware upgrade(the A10 has already been upgraded).
5. Unplug the 5 cable assemblies from their connectors on the A10 board.
6. Remove the two screws at the top of the A10 board.

**Warning:**

Hold the A10 board by the top corners only, to avoid shock due to residual charge on C4.

7. Lift the board straight up a few millimeters and wiggle the board gently to free the four keyhole slots from their slotted posts.
8. To minimize shock hazard due to charge that can remain up to several weeks on the 100uF, 400V cap (C4), lift the board out of the instrument by grasping it by its top corners only.

9. Identify C4 as the largest diameter capacitor on the board near the two largest transformers. Lay the board component-side down on a static-shielding work surface.
10. Using an insulated clip lead, or a 2k ohm resistor held by an insulated tool, discharge C4 by shorting the two large pads at the base of C4. The pads are between the center right and left keyholes on the circuit side board, near three smaller pads numbered 5, 6, and 7.
11. Install the replacement A10 assembly reversing the above removal procedure.

**Firmware Upgrade:** For 6814A/B and 6834A/B only:

Install the new ROMS, 5080-2390 and 5080-2391, (must be labeled A.00.17 or later) following the procedure for ROM replacement in section 3 of the service manual. If the AC source has special options, the re-initialization procedure might be different. Contact PPD product support for information on special options.

*Motherboard (A4) Inspection:*

**General:**

Three toroidal chokes on the underside of the mother board have been found to overheat. It is possible to check these chokes visually without removing the mother board. The bright red wire wound on the toroid becomes brown and the normally white toroid becomes yellow.

To view the toroids:

A space exists between the large chassis-mounted capacitor and the front edge of the mother board. In this space, using a small flashlight, illuminate the underside of the motherboard and angle the mirror until each of the three toroids can be inspected for discoloration. The two ribbon cables in the space can be carefully moved to either side. If any of the toroids show signs of overheating, the mother board must be replaced. Please contact PPD product support for more information.

*Output Amplifiers (A1, A2, and A3) Check: (A3 not used in 6814A/B)*

Remove the red fiber glass cover holding the power amplifiers in place. Mark each amplifier so they can be returned to the same position. Check the CI part numbers on each amplifier assembly (A1, A2, and A3) to see if they match and are of the same revision (the p/n is hand-written on edge of the heatsink with a felt-tipped pen). Also check the part numbers and revisions of each subassembly to see if they agree with the subassemblies in the other amplifiers. If there is any disagreement, A1, A2, and A3 must be replaced as a set having the same part numbers and revisions.

*Reassembly After Upgrades and Checks:*

Reinstall the output amplifiers into their correct position and reinstall the red fiber glass cover. If the amplifiers were replaced, perform "Switching Amplifier Output Balance Adjust- ments" in section 3 of the service manual. Reinstall the top cover. Calibration should not be required after performing the above upgrades/checks.