

hp Model 4800A Vector Impedance Meter  
serials prefixed 805 and below

Thermistor A17R14 Replacement  
hp Modification Kit 04800-61043

Modification Kit 04800-61043 is a replacement kit for thermistor 0837-0045 in the hp Model 4800A Vector Impedance Meter, serials prefixed 805 and below. Later instruments do not use the thermistor.

### Parts Furnished in Modification Kit 04800-61043

Quantity	Description	hp Stock No.
1	Photocell-lamp module	1990-0079
1	R: fxd, met flm, 6.19 K $\Omega$ , 1%, 1/8 w	0757-0290
1	R: fxd, met flm, 348 $\Omega$ , 1%, 1/2 w	0698-3403
1	Transistor: NPN, Si, 2N3053	1854-0039
1	Heat dissipator	1205-0033
2	Feedthru, teflon insulated	0340-0105
1	R: fxd, met flm, 6.81 K $\Omega$ , 1%, 1/8 w	0757-0439
1	C: fxd, ta, 10 $\mu$ F, 10%, 20 vdcw	0180-0374

### Modification Procedure

1. Remove power from instrument.
2. Remove R1, 2.87 K resistor mounted on TEST-OPERATE Switch, S1. (located between XA14 and XA16).
3. Remove A17 (Stock No. 04800-61002) from the instrument. Remove thermistors R14 and R15 including shock absorber and strap.
4. Replace R13 with jumper.
5. Drill (7/32") (5.5 mm.) hole in location shown in Figure 1. **CAUTION:** Start with a small size drill and enlarge hole in steps to prevent drill from seizing.
6. Install press-fit feedthru.

7. Connect short wire from hole "A" (Figure 2) to feedthru on back side of board.

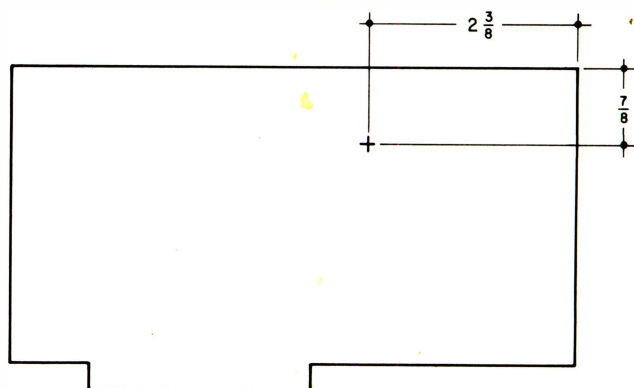


Figure 1. Feedthru Location - A17 Board



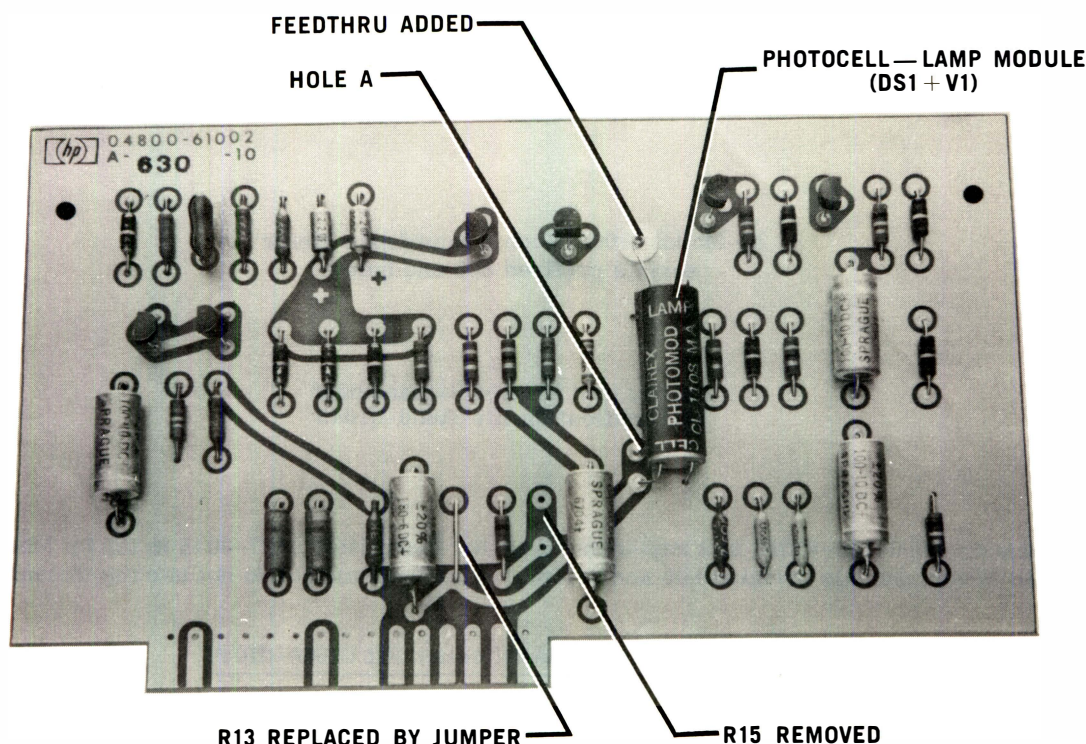


Figure 2. A17 After Modification

8. Install photocell-lamp module, DS1 + V1. Cell end of module is mounted closest to the plug-in connections.

## NOTE

Figure 2 shows A17 after modification.

9. Reinstall A17 and remove A14 (Stock No. 04800-61011).

10. Replace A14CR1-4 (four diodes) with jumpers.

11. Remove Q9.

12. Drill (7/32") (5.5 mm.) hole in location shown in Figure 3. As in step 4 above, enlarge hole in steps to final size.

13. Install feedthru; clip lead off back of board.

14. Replace R13 with 6.19 K $\Omega$ .

15. Replace R29 with 348  $\Omega$ .

16. Connect R31, 6.81 K $\Omega$  from feedthru to R30. Tack-solder to R30.

## NOTE

Figure 4 shows A14 after modification.

17. Connect C4, 10  $\mu$ F from standoff to R13. Note polarity: + lead to feedthru.

18. Place heat dissipator on new Q9; install on board with 1/2" leads. Leads must be long enough to allow moving Q9 and heat dissipator away from chassis. Q9 case must not be grounded; it is electrically connected to the collector.

19. Reinstall A14. Check clearance of A14Q9 heat dissipator. This completes the modification.

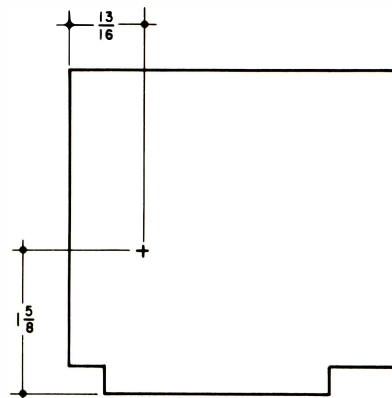


Figure 3. Feedthru Location - A14 Board

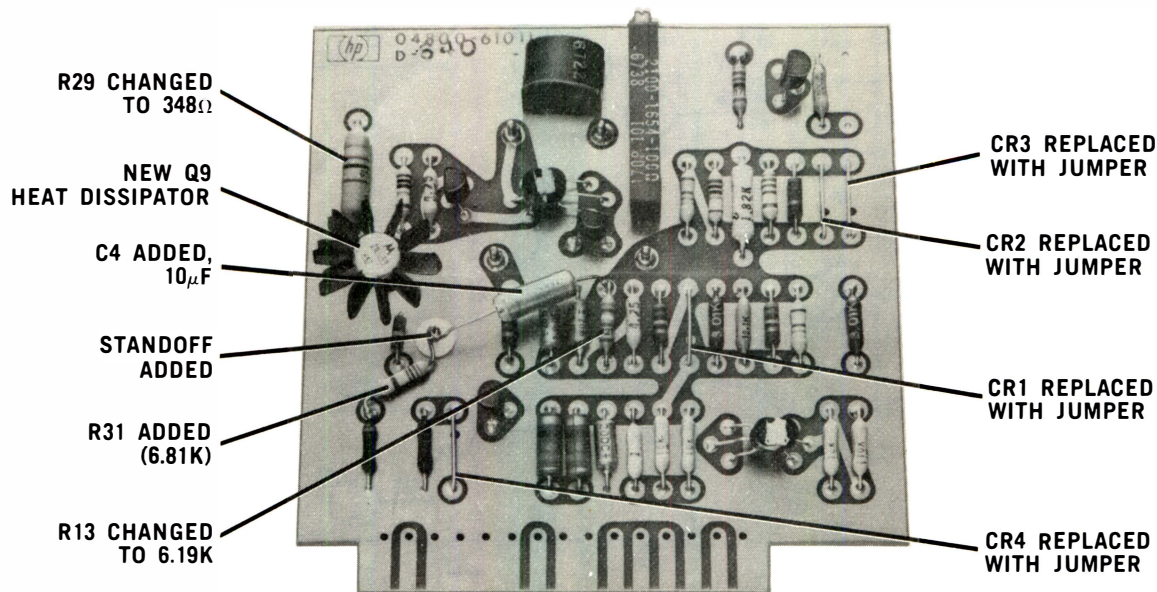


Figure 4. A14 After Modification

Recalibration Procedure

1. Turn instrument on. Place Type 13525A calibration resistor (1 K $\Omega$ ) on test terminals.

2. Set 4800A controls as follows:

Z RANGE	X100
FREQUENCY RANGE	X100
FREQUENCY dial	1.59 (LC)

3. Adjust A14R25 for full scale OHMS meter reading.

4. Switch Z RANGE to X1K. Meter reading should still be full scale. If not, readjust CHANNEL GAIN EQUALIZATION control, R2, so meter reads the same on X100 and X1K ranges. (Readjust A14R25 for full scale if necessary.)

NOTE

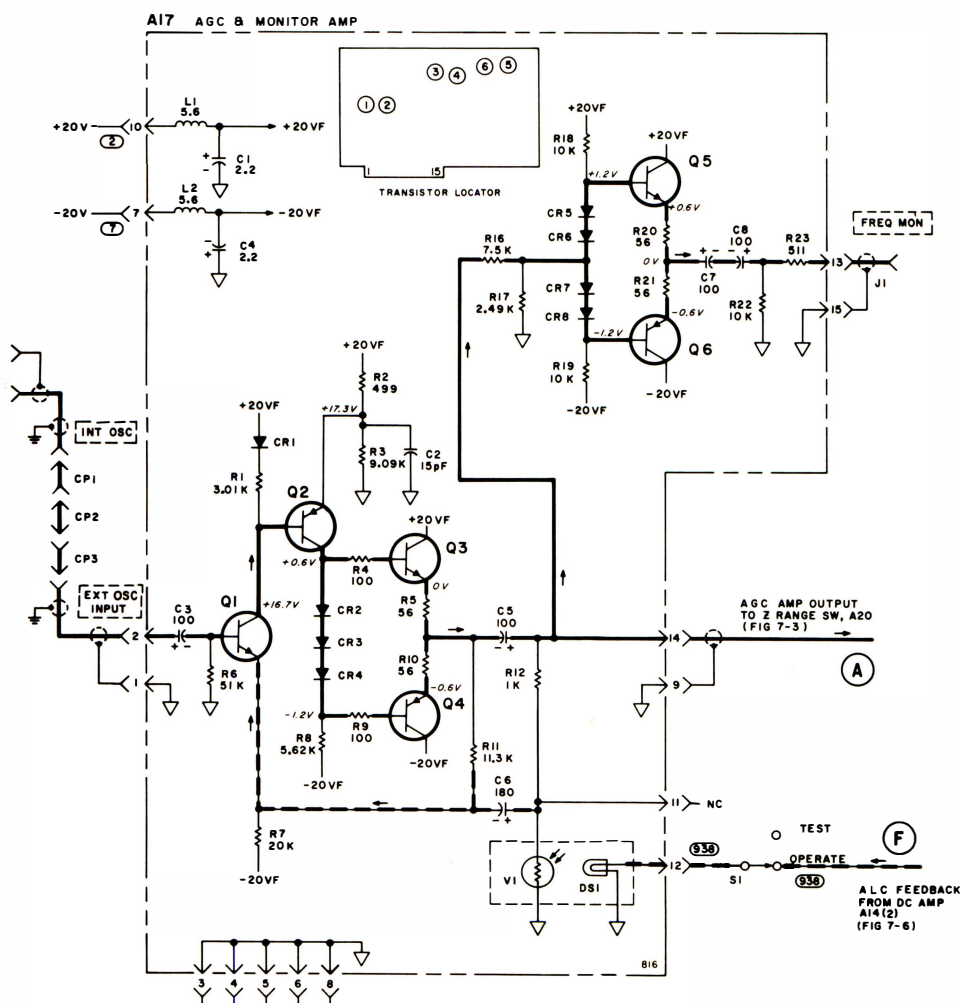
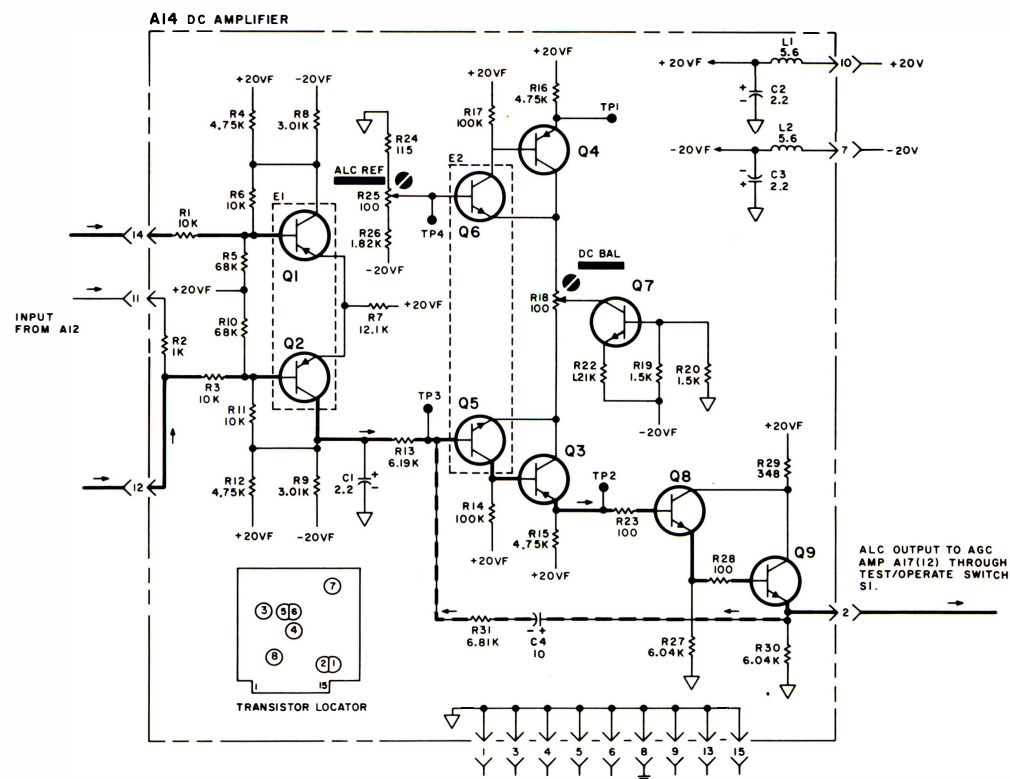
For further calibration, troubleshooting, and updating information refer to Service Note 4800A-1 available from your Hewlett-Packard Sales and Service Office.

Troubleshooting Hint

R1, the 2.87 K resistor on S1, Test-Operate Switch, was removed during the modification. When the switch is placed in the test position, the leveling loop feedback is opened and A17 gain drops to one. The resulting A17 output is now more predictable, making troubleshooting of the 4800A simpler.

Revised A14 and A17 schematics are included in this Service Note which should be kept for future reference.





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

## HP Model 4800A Transformer Wiring

A minor wiring error has been discovered in 4800A. The effect of the error is to place the Power On indicator directly across the input line at all times. In 230-volt line operation the lamp life is shortened to about 60 hours.

The error can be identified by the presence of a red wire on pin 4 of the power transformer. To correct the wiring, move the red wire from pin 4 to pin 3 on the transformer.

WW:keg

6/69-10

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# 4800A-4 S E R V I C E N O T E

Supersedes:  
None

HP Model 4800A Vector Impedance Meter

Serial Prefix: 805 and below

## POWER SUPPLY MODIFICATION

A slight value change in the current sensing resistors of the 4800A Power Supply may eliminate erratic operation due to power supply loading. The change, is to substitute a  $10\Omega$  resistor for the A19R5, R13, and R20. The recommended part is: 0757-0346, R: fxd met flm  $10\Omega$  1% 1/4w.

This change moves the normal operating point of the current limiter further from turn-on, thus preventing marginal operation as a result of ambient temperature changes or variations in transistor parameters. Marginal operation of the Power Supply will give front panel symptoms of oscillator distortion, or erratic meter readings.

This change has been included in instruments with serial prefix 935 and above.

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# MANUAL CHANGES

MODEL: 4800A and 4801A Plug-In

Manual Serial Prefixed: 816

HP Part No.: 04800-91014

To adapt this manual to instruments with other serial prefixes check for errata below, and make changes shown in tables.

Instrument Serial Prefix	Make Manual Changes
935	1

Instrument Serial Prefix	Make Manual Changes

Δ New or revised item.

## NOTE

Supplement "A" contains changes for the 4800A only. For 4801A changes see supplement "B".

## ERRATA

Page 3-4, Paragraph 3-17.

After the last sentence, add the following: In addition to the precautions mentioned, care should be taken not to apply more than 1 volt rms of external ac to the 4801A measurement terminals; otherwise damage may result to protective diodes CR1-4 in the 4801A.

Page 5-3, Table 5-3.

After sentence 1a add the following: Set **Z** RANGE to X1K.

Page 7-7, Figure 7-3.

Correct the connection to Magnitude Range switch A20S1DR as follows: Change A23 (11) to A23 (3) connecting K1 to the switch. Change A23 (13) to A23 (5) connecting K2 to the switch.

Page 7-13, Figure 7-6.

Correct the wiring of A20S1CF to show A12 (3) connected via a 967 wire to the three low range positions X1, X10, X100, and A5 (3) connected via a 968 wire to the four high range positions X1K, X10K, X100K, and X1M.

Page 7-17, Figure 7-8.

Correct the wiring of the line transformer as follows: Add a connecting wire between the lower left contact of S3 and the 98 wire which is the right hand side of the input ac line. Change the notation on the lower contact of the upper section of the transformer primary from (2) to (4).

7/17/68	8/26/69
10/18/68	9/30/69
6/16/69	

Supplement A for 04800-91014

Page 5-3, Table 5-3.

In the tolerance chart, opposite X100, under LC low limit, correct 6-3 634.6ms to read 634.6 $\mu$ s.

Page 6-2, Table 6-1.

Change part number and description of A1R8 to read: 0757-0200 R: fxd, met flm 5.62K 1% 1/8w

Page 6-7, Table 6-1.

Add: A14R9 0757-0288 R: fxd met flm 9.09K 1% 1/8w.

Delete: A14R9 from Reference Designator column for A14R8,9.

Page 7-13, Figure 7-6.

A14R27 should connect to ground vice -20V.

Page 7-15, Figure 7-7.

Delete: pin 1 from list of ground connection points on left edge of A13 schematic.

Page 7-17, Figure 7-8.

Change: A18R11 to read 2K vice 1K.

On Transistor Locator (upper right of A18 schematic) reverse position of Q11 and 12.

# CHANGE 1.

Page 6-13, Table 6-1.

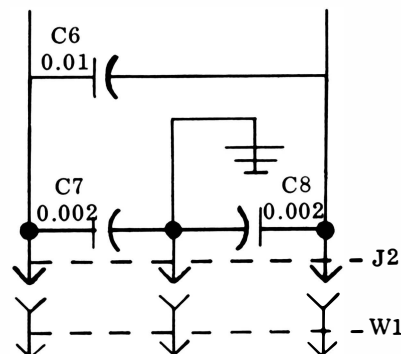
Delete: part number and description for C3. Mark: not used after serial prefix 816.

Add: C6 0150-0123 C: fxd cer 0.001 20% 250 wvac.

C7, 8 0160-2108 C: fxd cer 0.002 $\mu$ F 20% 250 wvac.

Page 7-17, Figure 7-8.

Revise the input line schematic as shown in the diagram below.



Page 6-11, Table 6-1.

Change: A19R5, R13, and R20 part number and description to read 0757-0346 R: fxd met flm 10 $\Omega$  5% 1/4w.

Page 7-17, Figure 7-8.

Change A19R5, R13 and R20 from 12 to 10 $\Omega$ .





# MANUAL CHANGES

**MODEL** 4800A and 4801A Plug-In

**Manual Serial Prefixed:** 816

**HP Stock No.** 04800-91014

To adapt this manual to instruments with other serial prefixes check for errata below, and make changes shown in tables.

Instrument Serial Prefix	Make Manual Changes	Instrument Serial Prefix	Make Manual Changes
826 and above	1		

Δ New or revised item.

## NOTE

Supplement "B" contains changes for the 4801A Plug-in only. For 4800A changes see Supplement "A".

Δ **CHANGE 1** Page 6-18, Table 6-3  
Add: index no. 153, 04801-00001, shield, for reed relay K1.