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HP References in this Manual

This manual may contain references to HP or Hewlett-Packard. Please note that Hewlett-Packard's former test and measurement, semiconductor products and chemical analysis businesses are now part of Agilent Technologies. We have made no changes to this manual copy. In other documentation, to reduce potential confusion, the only change to product numbers and names has been in the company name prefix: where a product number/name was HP XXXX the current name/number is now Agilent XXXX. For example, model number HP8648A is now model number Agilent 8648A.

Installation Note

HP 8753ETU Option 004 Attenuator Upgrade



HP Part Number 08753-90499

Printed in USA December 1999

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Attenuator Upgrade Kit

Products Affected:	HP 8753ET and all options
Serial Numbers:	All
Compatibilities:	N/A
To Be Performed By:	HP Service Center, Personnel Qualified by HP, or Customer
Estimated Installation Time:	1 hour
Estimated Verification Time:	1 hour

Purpose

The Option 004 upgrade kit provides the network analyzer with the optional 70 dB step attenuator.

Items Included in the Kit

Table 1 describes the parts included in this upgrade kit. Check the contents of this kit against Table 1.

Table 1 Option 004 Upgrade Kit Contents

Quantity	Description	HP Model or Part Numbers
1	Installation Note	08753-90499
3	Screw, metric 3.0 mm, 25 mm, conical washer, pan head, TORX (not used)	0515-0667
1	RF semirigid cable, Attenuator input (A3W3)	08753-20106
1	RF semirigid cable, Attenuator output (A3W4)	08753-20111
1	RF semirigid cable, R Channel output (W24)	08753-20291
2	Screw, 4-40, 0.375 in. external tooth washer, pan head, Pozidriv	2200-0107
1	Attenuator, 70 dB	33321Q

Equipment and Tools Required

Table 2 Required Equipment and Tools

Item	HP Part Number
HP 8753ET/ES Network Analyzer Service Guide	08753-90484
3.5-inch Floppy Disk	HP 92192A (box of 10)
Attenuator: 20 dB, Type-N	HP 8491A Option 020
Frequency Counter	HP 5350B/51B/52B
Low-pass Filter	9135-0198
Power Meter	HP 436A/437B/438A or HP E4418B/4419B
Power Sensor	HP 8482A
Adapter: APC-3.5 (f) to Type-N (f)	1250-1745
Adapter: Type-N (f) to BNC (m)	1250-0077
Adapter: BNC alligator clip	8120-1292
Cable: BNC-to-BNC	8120-1840
Cable: 50Ω, Type-N, 24 inch	8120-4781
HP-IB Cable	HP 10833A
TORX T-10 Screwdriver	8710-1623
TORX T-15 Screwdriver	8710-1622
TORX T-20 Screwdriver	8710-1615
TORX T-25 Screwdriver	8710-1617
Small Slot screwdriver	
Needle Nose Pliers	
5/16-inch Open-end Torque Wrench (set to 10 in-lbs.)	
Antistatic Wrist Strap	9300-1367
Antistatic Wrist Strap Cord	9300-0980
Static-control Table Mat and Ground Wire	9300-0797

Safety Considerations

WARNING **Before you disassemble the instrument, turn the power switch off and unplug the ac power cord. Failure to unplug the instrument can result in personal injury.**

CAUTION Electrostatic discharge (ESD) can damage or destroy electronic components. All work on electronic assemblies should be performed at a static-safe workstation. Refer to the documentation that pertains to your instrument for information about static-safe workstations and ordering static-safe accessories.

Installation Procedure for the Option 004 Upgrade Kit

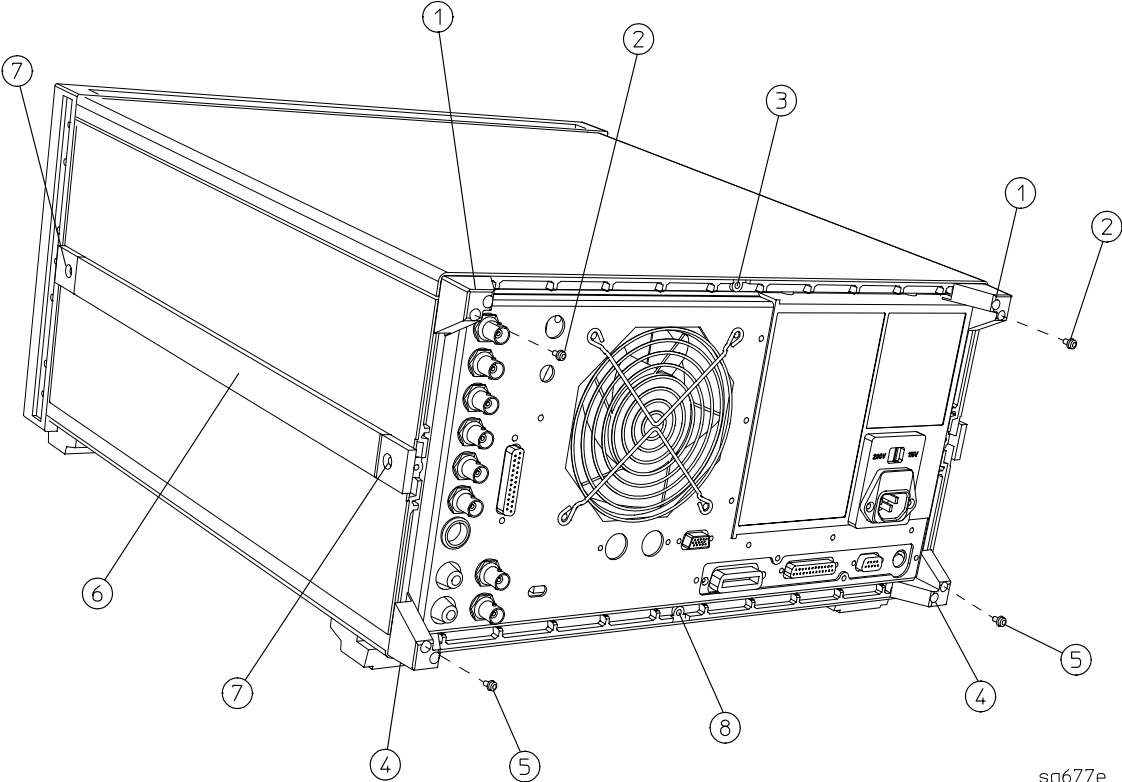
NOTE The network analyzer must be in proper working condition prior to installing this option. Any necessary repairs must be made before proceeding with this installation.

Remove Covers

Refer to *Figure 1*.

1. Disconnect the power cord.
2. Remove the top cover:
 - a. Remove both upper rear feet (item 1) by loosening the attaching screws (item 2).
 - b. Loosen the top cover screw (item 3).
 - c. Slide the cover off towards the rear of the analyzer.
3. Remove the bottom cover:
 - a. Remove both lower rear feet (item 4) by loosening the attaching screws (item 5).
 - b. Loosen the bottom cover screw (item 8).
 - c. Slide the cover off towards the rear of the analyzer.

Figure 1 Covers



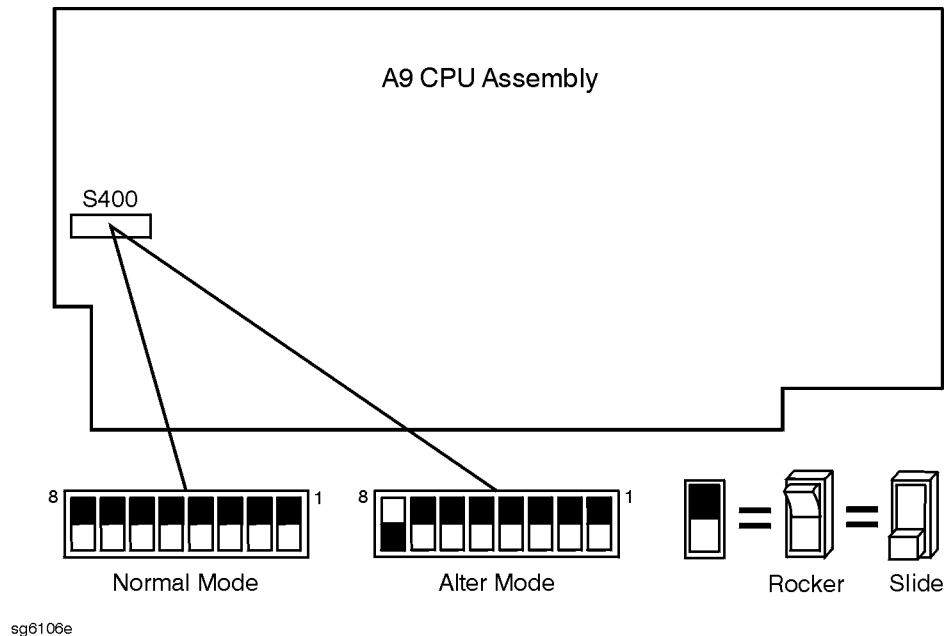
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Set the A9 Switch

Refer to [Figure 2](#).

4. Turn the analyzer upside down.
5. Locate the switch, S400, on the A9 CPU assembly.
6. Set the A9 switch to the Alter mode.

Figure 2 A9 Switch Location

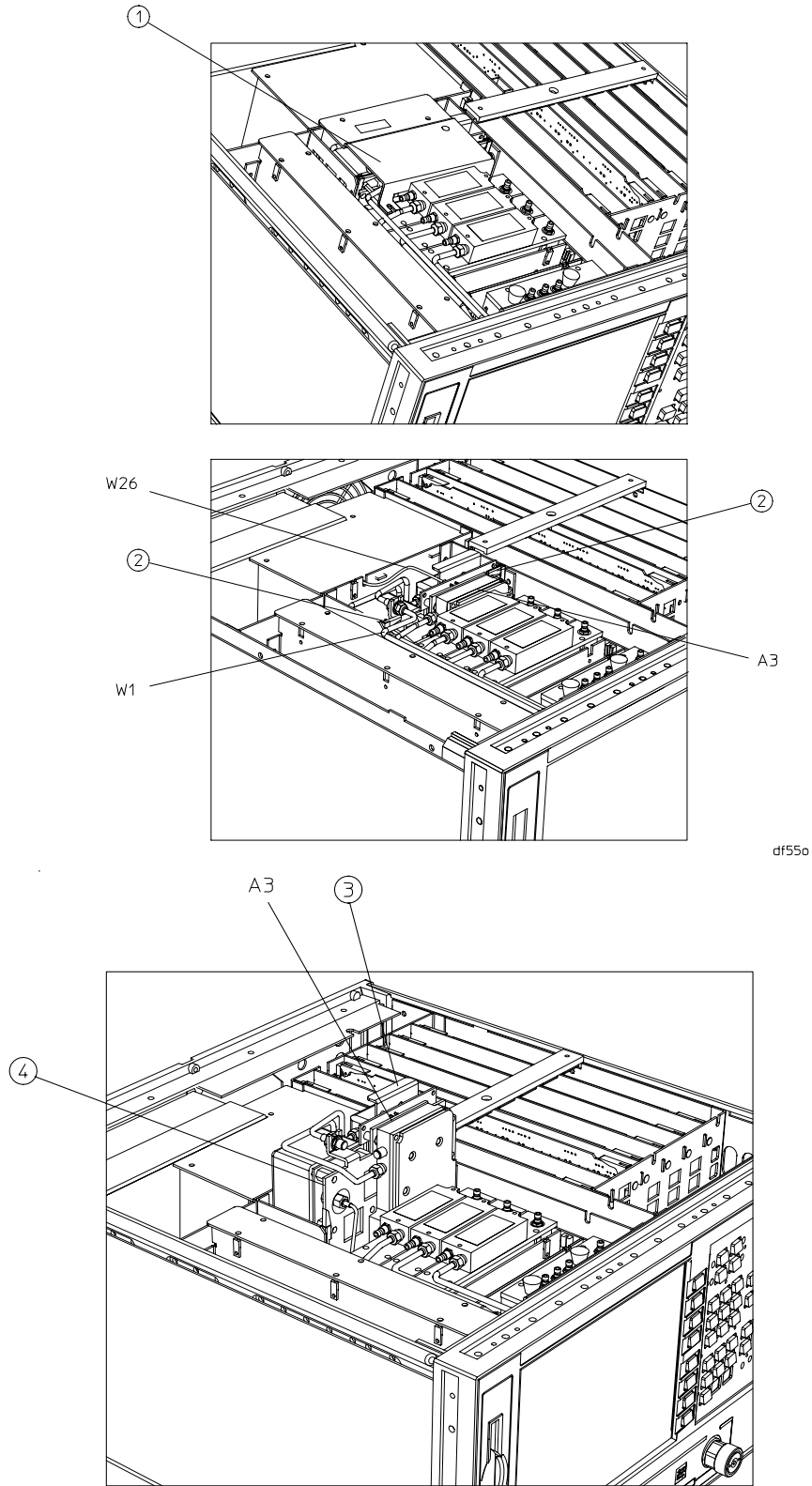


A3 Source Assembly

Refer to [Figure 3](#).

7. Remove the source bracket (item 1) by removing the four screws.
(It might be necessary to disconnect a flexible cable from the B sampler.)
8. Disconnect the flexible cable W26.
9. Disconnect the semirigid cable W1.
10. Lift the two retention clips (item 2) at the sides of the source assembly to an upright position.
11. To lift the A3 source assembly, use the source bracket handle (item 3).
12. Remove the source assembly from the instrument.

Figure 3 A3 Source Assembly

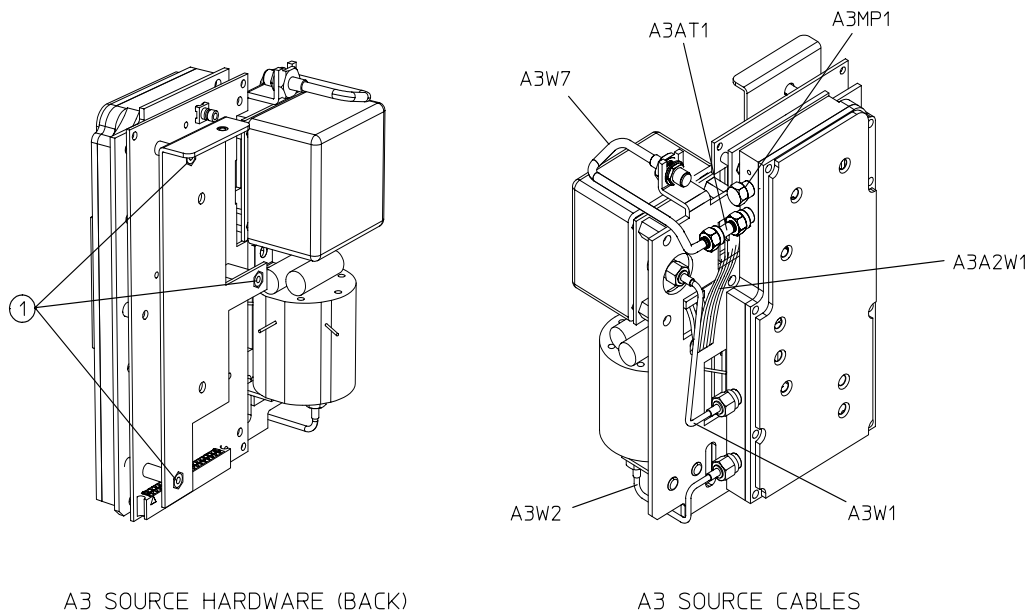


Attach the Attenuator

Refer to [Figure 4](#).

13. Remove the semirigid cable (A3W7) and the 4 dB attenuator (A3AT1) from the source assembly.
14. Remove and reserve the connector cap (A3MP1) from the source.
15. Remove and retain the three screws (item 1) attaching the shielding to the A3 source assembly.

Figure 4 Source Disassembly Locations (HP 8753ET: Cables, Source)



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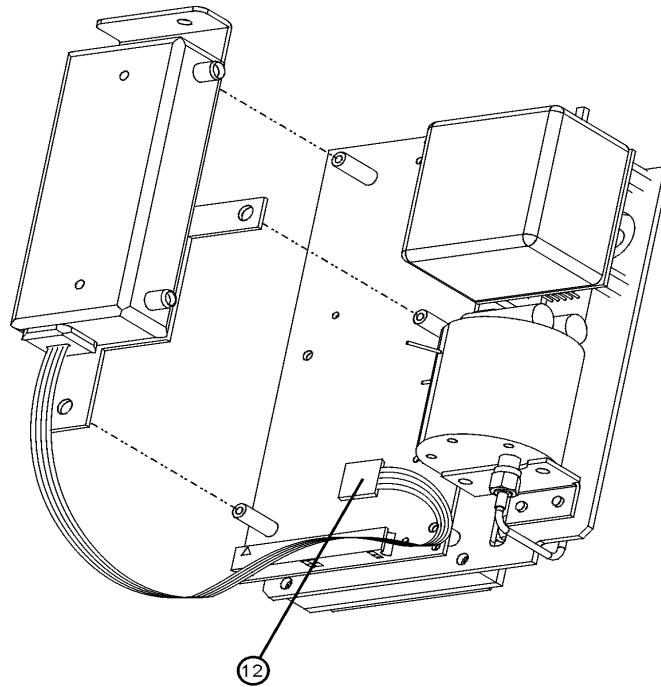
Refer to [Figure 5](#).

16. Attach the 70 dB step attenuator to the shielding, using the two English screws (HP part number 2200-0107) that are provided in the kit.
17. Attach the attenuator ribbon cable connector to the socket on the A3 PC board (item 12). Make sure that the red edge of the cable is connected to the pin 1 position, indicated by a notch on the PC board connector receptacle.
18. Reattach the shielding to the A3 PC board, using the screws that were removed in step 15, and fold the ribbon cable under the attenuator.

Refer to [Figure 6](#).

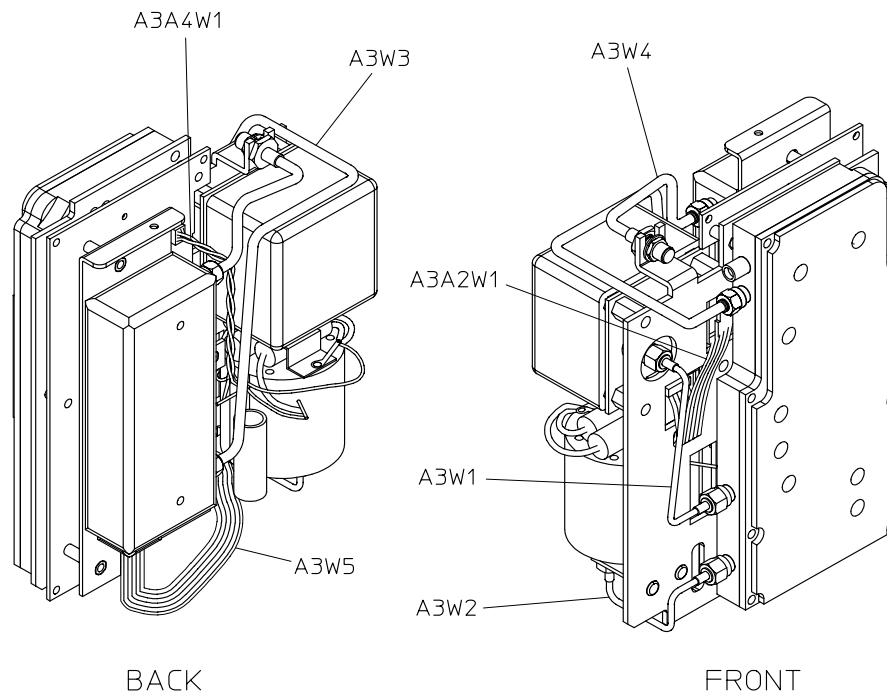
19. Connect the semirigid cable, A3W3, from the source output to the attenuator input connections. Torque these connections to 10 in-lbs.
20. Connect the semirigid cable, A3W4, provided in the upgrade kit, from the attenuator output to the A3 source assembly output. Torque these connections to 10 in-lbs.

Figure 5 Attenuator Attachment Locations



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Figure 6 Attenuator Cable Attachment Locations (HP 8753ET Option 004: Cables and Source)



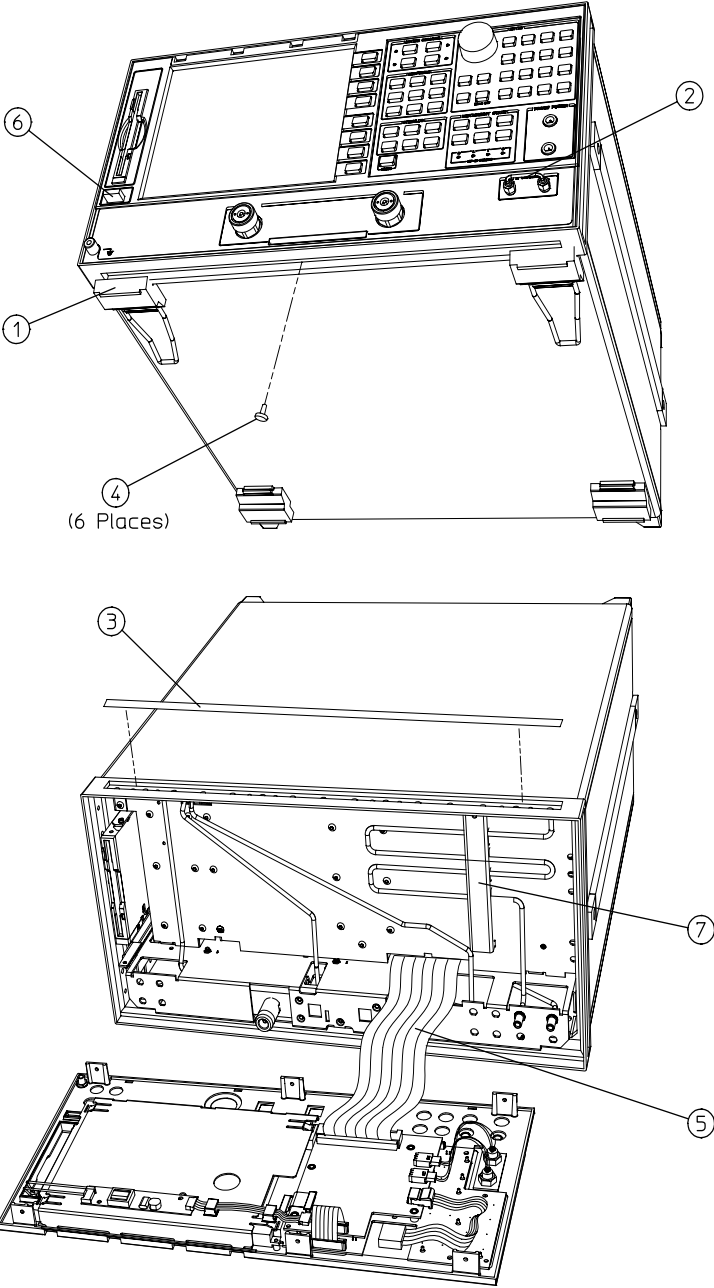
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Front Panel Assembly Removal

Refer to [Figure 7](#).

21. Remove the RF cable that is attached to the front panel (item 2).
22. Remove the line button (item 6) by pulling it out.
23. Remove the trim strip (item 3) from the top edge of the front frame by prying under the strip with a small slot screwdriver.
24. Remove the six screws (item 4) from the top and bottom edges of the frame.
25. Slide the front panel over the test port connectors.
26. Disconnect the ribbon cable (item 5). The front panel is now free from the instrument.
27. Remove the cable bracket (item 7) from the front panel assembly.

Figure 7 Front Panel Assembly



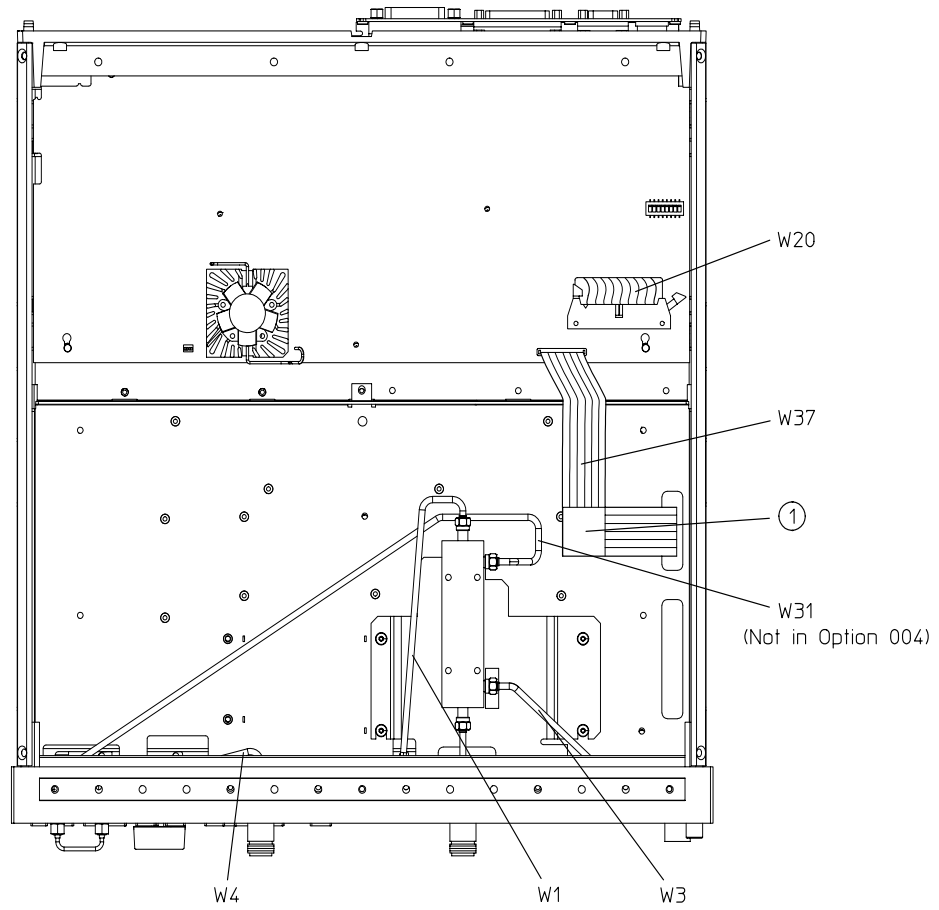
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Change the R Channel Cabling

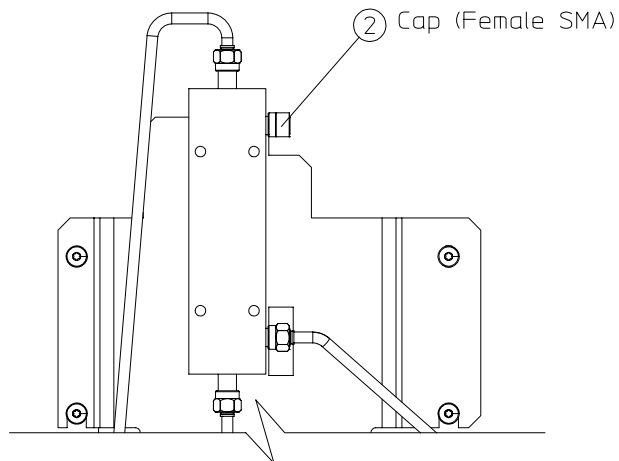
Refer to [Figure 8](#).

28. Disconnect and remove the semirigid cable W31 from the R channel out and the dual coupler.
29. Place the connector cap (that you removed and retained earlier in this procedure) on the exposed coupler connector (item 2).

Figure 8 R Channel Cable Exchange (HP 8753ET: Cables, Bottom)



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Refer to [Figure 9](#).

30. Run the semirigid cable (W24) (provided in installation kit) through the front panel and over the top of the instrument to the A3 source assembly.

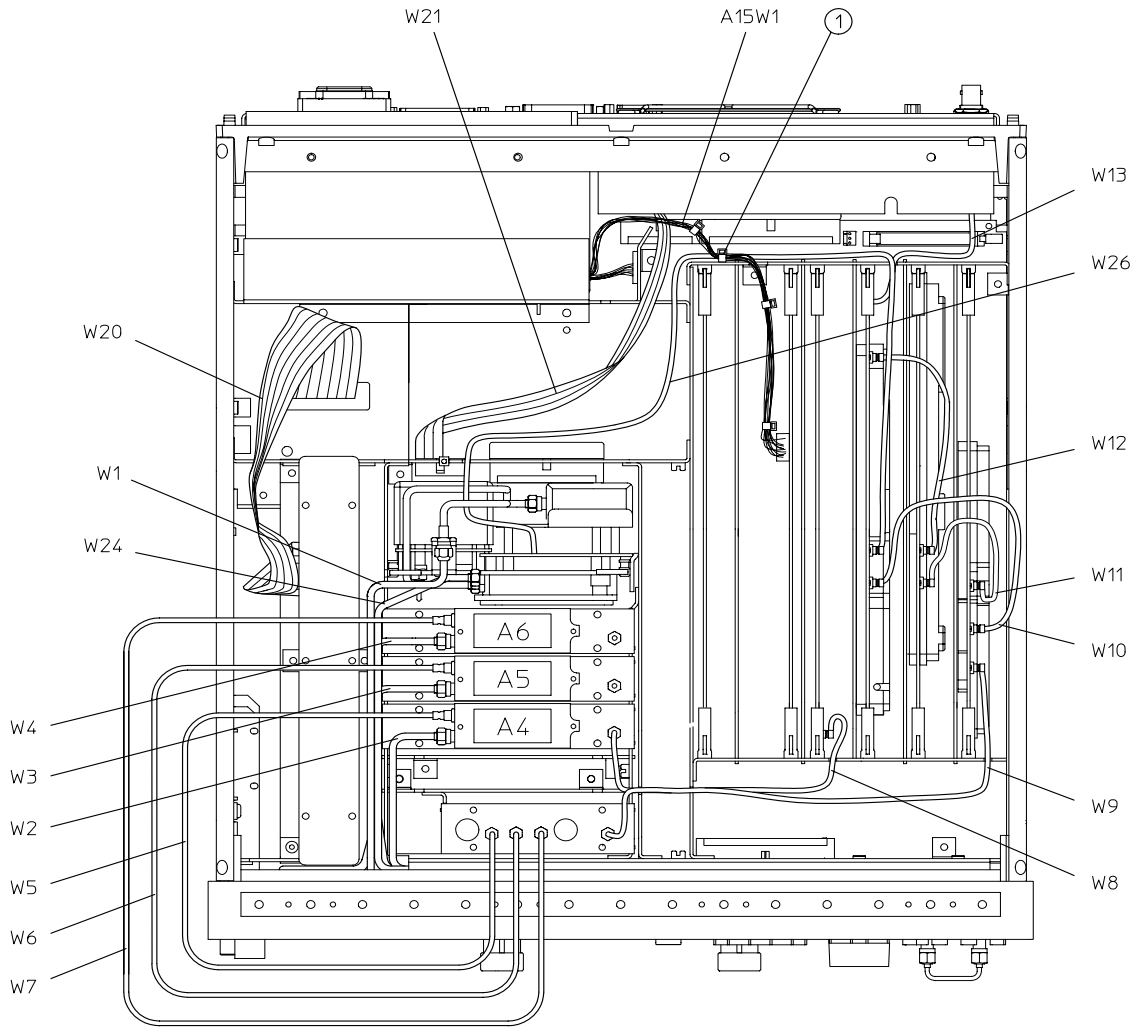
31. Connect W24 to the R channel out.

NOTE When reconnecting the semirigid cables, it is recommended that the connections be torqued to 10 in-lbs.

32. Reinstall the cable bracket over cables W2 and W24.

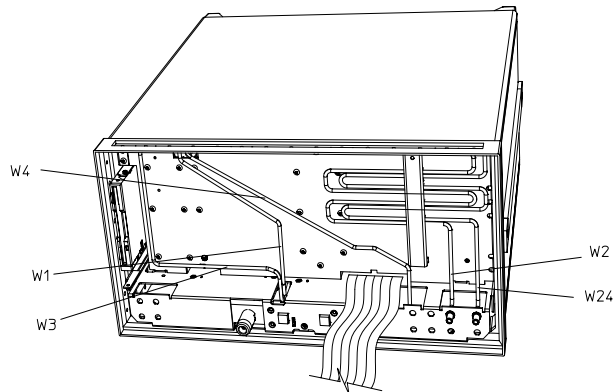
33. Reverse the steps in [“Front Panel Assembly Removal” on page 12](#), to reassemble the analyzer front panel.

Figure 9 Cable W24 Routing



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HP 8753ET Option 004 with Cable Bracket Installed



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Replace the Source

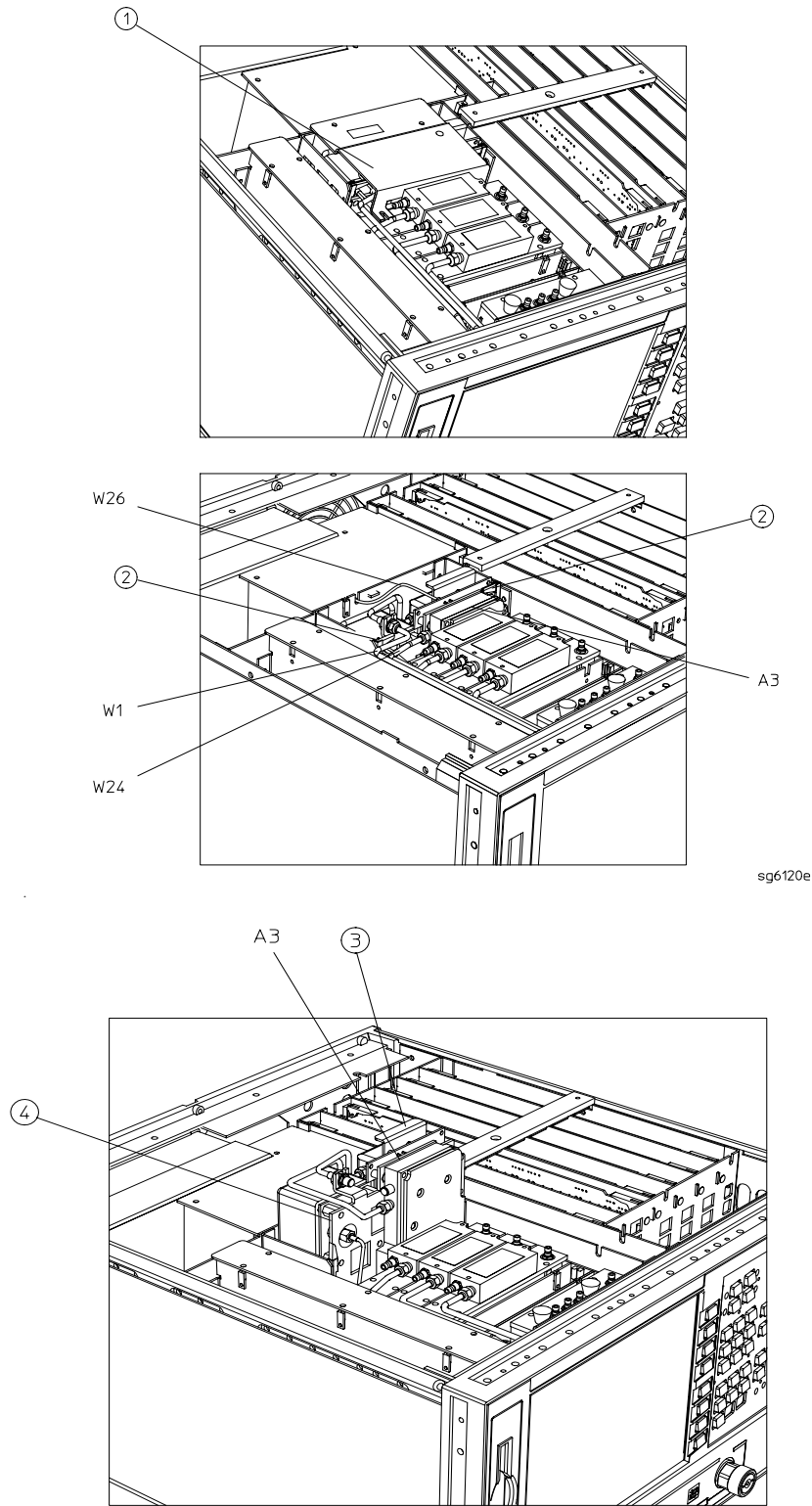
Refer to [Figure 10](#).

34. Check the connector pins on the motherboard before reinstallation.
35. Slide the edges of the sheet metal partition (item 4) into the guides at the sides of the source compartment. Press down on the module to ensure that it is well seated in the motherboard connector.
36. Push down the retention clips (item 2). Reconnect the two semirigid cables (W1 and W24) and one flexible cable (W26) to the source assembly.

NOTE When reconnecting semirigid cables, it is recommended that the connections be torqued to 10 in-lb.

37. Reinstall the source bracket (item 1).
38. Reconnect the flexible cable to the B sampler.
39. Reinstall the instrument covers by reversing the order of [“Remove Covers” on page 6](#). Do not reinstall the feet to the instrument at this time.

Figure 10 A3 Source Assembly



Adjustments

1. Refer to “Adjustments and Correction Constants” in the *HP 8753ET/ES Network Analyzer Service Guide* and perform the following:
 - “A9 Switch Position”
 - “Source Default Correction Constants Test 44”
 - “Source Pretune Default Correction Constants Test 45”
 - “Analog Bus Correction Constants Test 46”
 - “Source Pretune Correction Constants Test 48”
 - “RF Output Power Correction Constants Test 47”
 - “Sampler Magnitude and Phase Correction Constants Test 53”
 - “Cavity Oscillator Frequency Correction Constants Test 54”
 - “Source Spur Avoidance Tracking Adjustment”
 - “Unprotected Hardware Option Numbers Correction Constants”
2. Remove the bottom cover to the instrument by performing step 3 of the [“Remove Covers” on page 6](#).
3. Perform the procedure for the [“Set the A9 Switch,” on page 8](#), to set the A9 switch (S400) to the Normal mode.
4. Reinstall the bottom cover and feet to the instrument by reversing the [“Remove Covers” on page 6](#).
5. Perform the “EEPROM Backup Disk Procedure” in the *HP 8753ET/ES Network Analyzer Service Guide*.

NOTE The correction constants, which are unique to your instrument, are stored in the EEPROM on the A9 controller assembly. By creating an EEPROM backup disk, you will have a copy of all the correction constant data should you need to replace or repair the A9 assembly.

Option 004 System Verification

1. Refer to “System Verification and Performance Tests” in the *HP 8753ET/ES Network Analyzer Service Guide* and perform the following system tests:
 - Reflection Test Port Output Frequency Range and Accuracy
 - Reflection Test Port Output Power Level Accuracy
 - Reflection Test Port Output Power Linearity (Analyzers with Option 004)

Hewlett-Packard Sales and Service Offices

Table 3 Hewlett-Packard Sales and Service Offices

UNITED STATES		
Instrument Support Center Hewlett-Packard Company (800) 403-0801		
EUROPEAN FIELD OPERATIONS		
Headquarters Hewlett-Packard S.A. 150, Route du Nant-d'Avril 1217 Meyrin 2/ Geneva Switzerland (41 22) 780.8111	France Hewlett-Packard France 1 Avenue Du Canada Zone D'Activite De Courtaboeuf F-91947 Les Ulis Cedex France (33 1) 69 82 60 60	Germany Hewlett-Packard GmbH Hewlett-Packard Strasse 61352 Bad Homburg v.d.H Germany (49 6172) 16-0
Great Britain Hewlett-Packard Ltd. Eskdale Road, Winnersh Triangle Wokingham, Berkshire RG41 5DZ England (44 118) 9696622		
INTERCON FIELD OPERATIONS		
Headquarters Hewlett-Packard Company 3495 Deer Creek Rd. Palo Alto, CA 94304-1316 USA (650) 857-5027	Australia Hewlett-Packard Australia Ltd. 31-41 Joseph Street Blackburn, Victoria 3130 (61 3) 895-2895	Canada Hewlett-Packard (Canada) Ltd. 17500 South Service Road Trans-Canada Highway Kirkland, Quebec H9J 2X8 Canada (514) 697-4232
Japan Hewlett-Packard Japan, Ltd. Measurement Assistance Center 9-1, Takakura-Cho, Hachioji-Shi, Tokyo 192-8510, Japan TEL (81) -426-56-7832 FAX (81) -426-56-7840	Singapore Hewlett-Packard Singapore (Pte.) Ltd. 150 Beach Road #29-00 Gateway West Singapore 0718 (65) 291-9088	Taiwan Hewlett-Packard Taiwan 8th Floor, H-P Building 337 Fu Hsing North Road Taipei, Taiwan (886 2) 712-0404
China China Hewlett-Packard Co. 38 Bei San Huan X1 Road Shuang Yu Shu Hai Dian District Beijing, China (86 1) 256-6888		