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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 006
6 GHz Operation Upgrade Kit

HP Part Number 08753-90500
Printed in USA December 1999

Notice.

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6 GHz Operation Upgrade Kit

Products Affected:.	HP 8753ET and all options
Serial Numbers:	All
Compatibilities:	N/A
To Be Performed By:	Personnel Qualified by HP
Estimated Installation Time:	30 minutes
Estimated Verification Time:	2 hours

Purpose

The Option 006 upgrade kit provides the network analyzer with 6 GHz operation. The upgrade kit is keyed to the serial number of a specific analyzer and cannot be used to upgrade other instruments.

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 006 Upgrade Kit Contents

Quantity	Description	HP Model or Part Numbers
1	Installation note	08753-90500
1	6 GHz Source Assembly	08753-60233
1	Cap, SMA (f)	1250-0590
1	Keyword Label (attached to page 6)	9320-6215
1	Keyword Label (to affix to the instrument)	9320-5805
1	6 GHz Nameplate	08753-80204

Equipment and Tools Required

Table 2 Required Equipment and Tools

Item	HP Part or Model Number
HP 8753ET/ES Network Analyzer Service Guide	08753-90484
3.5-inch Floppy Disk	Any
Attenuator: 20 dB, Type-N	HP 8491A Option 020
Low-pass Filter	HP 360B/C (f_c = 1.2/2.2 GHz)
Frequency Counter	HP 5350B
Power Meter	HP 436A/437B/438A or HP E4418B/4419B
Power Sensor	HP 8482A
Power Sensor	HP 8481A
Adapter: APC-3.5 (f) to Type-N (f)	1250-1745
Adapter: APC-3.5 (m) to Type -N (f)	1250-1750
Adapter: APC-7 to N (f)	HP 11524A
Adapter: Type-N (f) to BNC (m)	1250-0077
Adapter (2), Type-N (m) to APC-7	11525A
Adapter: BNC-Alligator clip	8120-1292
Cable: BNC-to-BNC	8120-1840
Cable: 50Ω, Type-N, 24 inch	8120-4781
Calibration Kit, 50 Ω Type-N	HP 85032B
HP-IB Cable Assembly	HP 10833A
TORX T-10 Screwdriver	8710-1623
TORX T-15 Screwdriver	8710-1622
TORX T-20 Screwdriver	8710-1615
Small Needle-Nose Pliers	
5/16-inch Open-End Wrench	
5/16-inch Open-End Torque Wrench (set to 10 in-lbs.)	
Electrostatic discharge (ESD) Grounding Wrist Strap and Mat	

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.

Conventions

This installation note uses the following conventions for front-panel keys and softkeys. (Front-Panel Key) represents a key physically located on the instrument. **SOFTKEY** represents a "softkey," a key whose label is determined by the instrument's firmware.

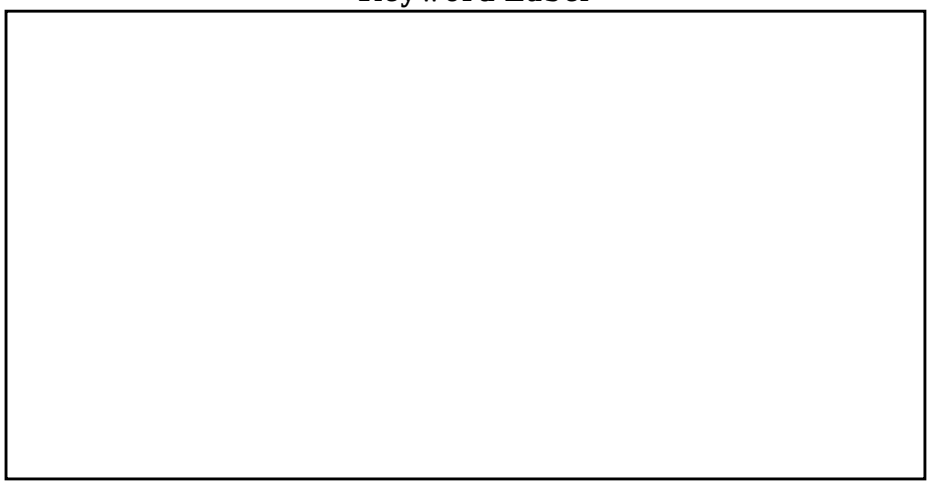
Installation Procedure for the Option 006 Upgrade Kit

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.

Verify the Serial Number

Refer to the keyword label in the box below. First, verify that the analyzer's serial number matches the serial number on the keyword label. Second, verify that the option number on the keyword label matches the option number for this installation note. If in either step, the serial number or the option number does not match the expected results, the keyword will not enable the option. If this is the case, refer to Table 3, on page 19, and contact the nearest sales or service office for assistance.

Keyword Label

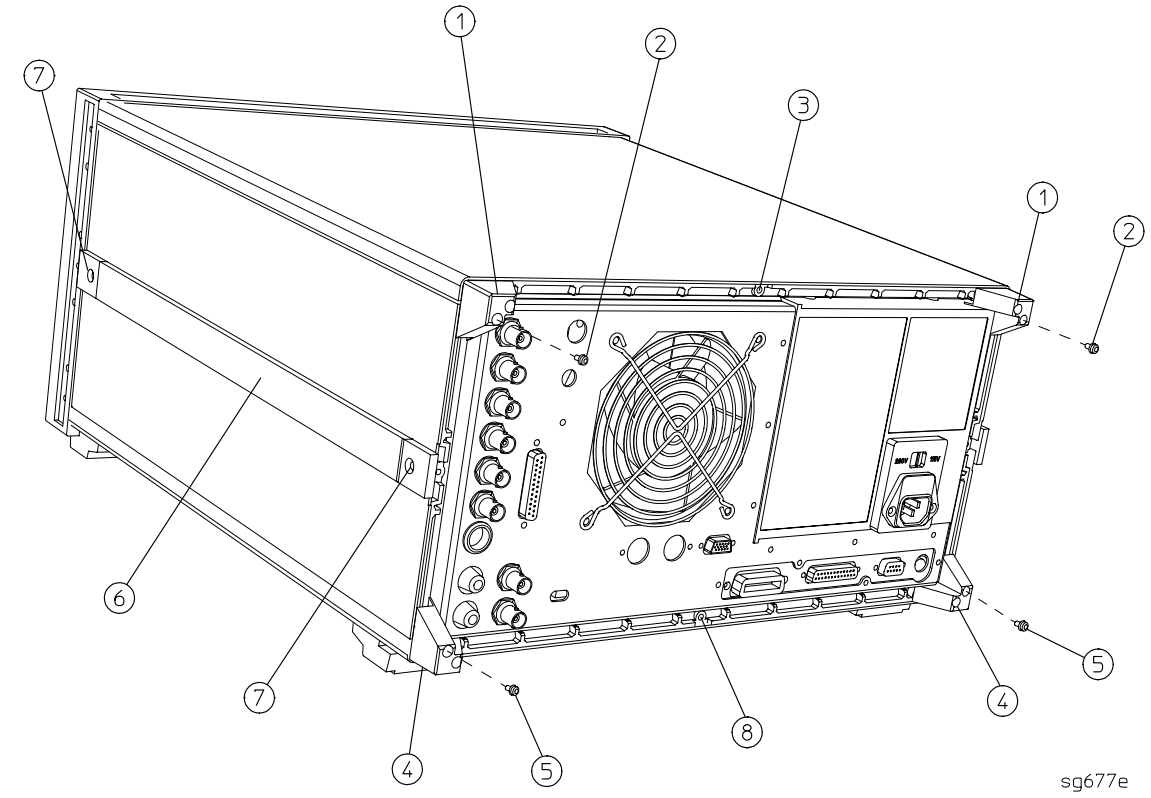


Remove Covers

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 TORX T-10 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 TORX T-10 screws (item 5).
   b. Loosen the bottom cover screw (item 8).
   c. Slide the cover off towards the rear of the analyzer.

Figure 1 Cover Removal

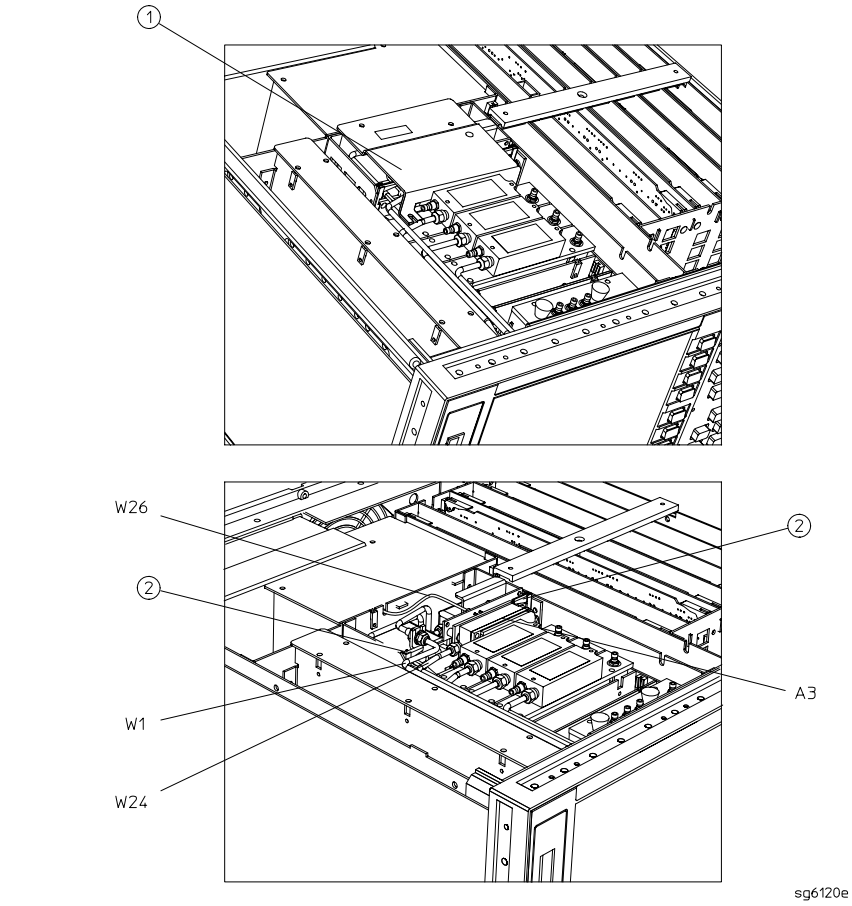


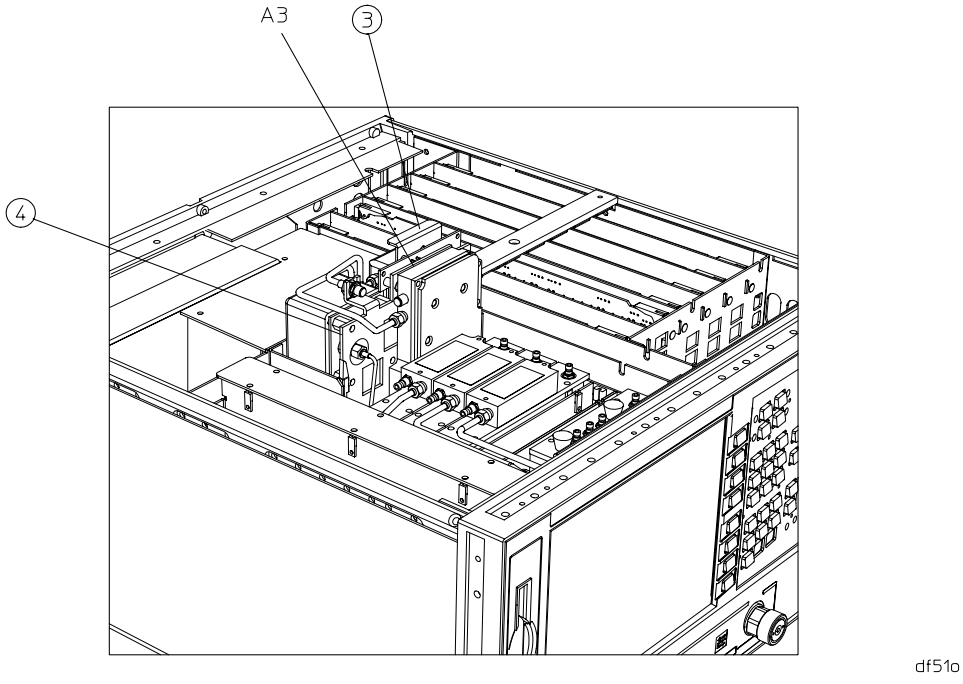
Remove the A3 3 GHz Source Assembly from the Network Analyzer

Refer to Figure 2.

4. Remove the source bracket (item 1) by removing the four screws.
   (It might be necessary to disconnect a flexible cable from the B sampler.)
5. Disconnect the flexible cable W26 from the A3 source assembly.
6. Disconnect the semirigid cable W1 from the A3 source assembly.
7. Lift the two retention clips (item 2) at the sides of the source assembly to an upright position.
8. Determine if the network analyzer is equipped with Option 004 (step attenuator).
   - If the network analyzer *is not* equipped with the Option 004, lift the A3 source assembly using the source bracket handle (item 3). Proceed to step 19.
   - If the network analyzer *is* equipped with Option 004, move W1 to the side while lifting the source high enough to provide wrench clearance for cable W24 to be removed. Then lift the A3 source assembly out of the analyzer using the source bracket handle (item 3). Proceed with steps 9 through 18.

Figure 2 A3 Source Assembly with Option 004 Shown Installed



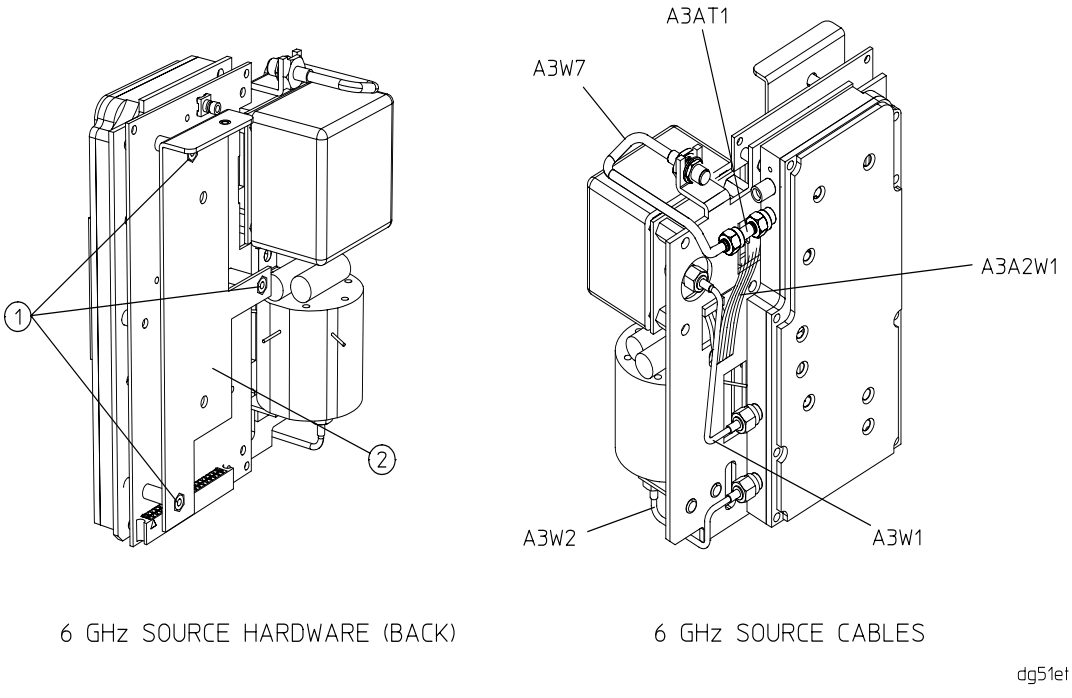


Preparation of the New 6 GHz Source Assembly for Step Attenuator Attachment

Refer to Figure 3.

9. Remove and retain the three screws (item 1) attaching the shield (item 2) to the 6 GHz source assembly. This shield will not be used when the step attenuator is installed.
10. Remove the semirigid cable (A3W7) and the 4 dB attenuator (A3AT1) from the 6 GHz source assembly.

Figure 3 6 GHz Source Disassembly Locations

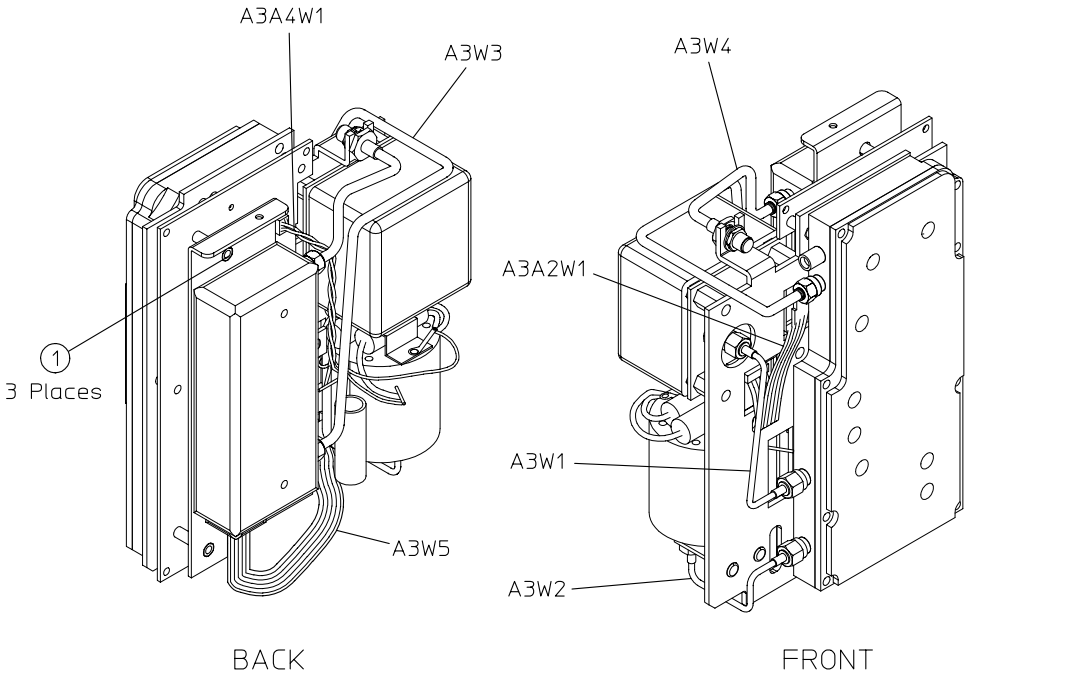


Removal of the Step Attenuator from the 3 GHz Source Assembly

Refer to Figure 4.

11. Remove and retain the semirigid cable (A3W3) from the 3 GHz source assembly.
12. Remove and retain the semirigid cable (A3W4) from the 3 GHz source assembly.
13. Remove the three screws (item 1) attaching the shield and the attenuator to the 3 GHz source assembly.

Figure 4 3 GHz Source Disassembly



Refer to Figure 5.

14.Disconnect the attenuator ribbon cable from the socket (item 12) on the 3 GHz PC board.

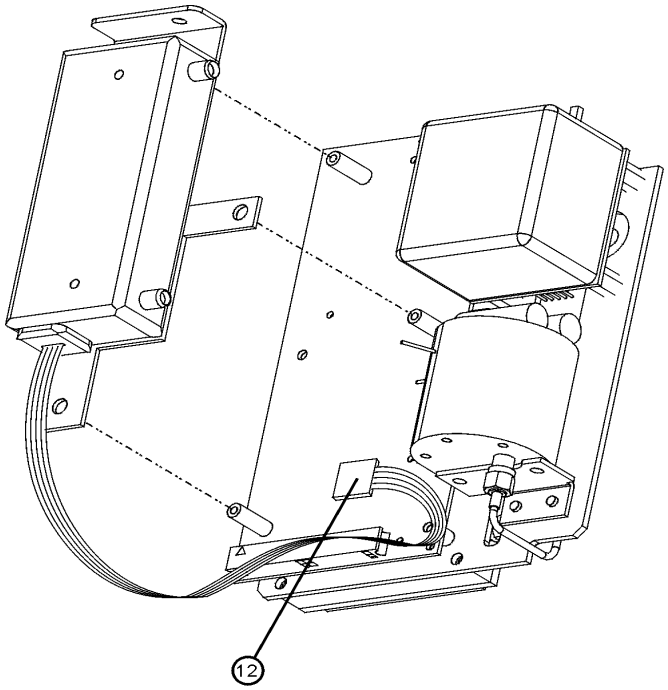
Installation of the Step Attenuator to the New 6 GHz Source Assembly

Refer to Figure 5.

15.Connect the step attenuator ribbon cable connector to the socket on the 6 GHz source assembly 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.

16.Attach the shield and the step attenuator to the 6 GHz source assembly, using the screws that were removed in step 9, and fold the ribbon cable under the attenuator.

Figure 5 Attenuator Attachment Locations



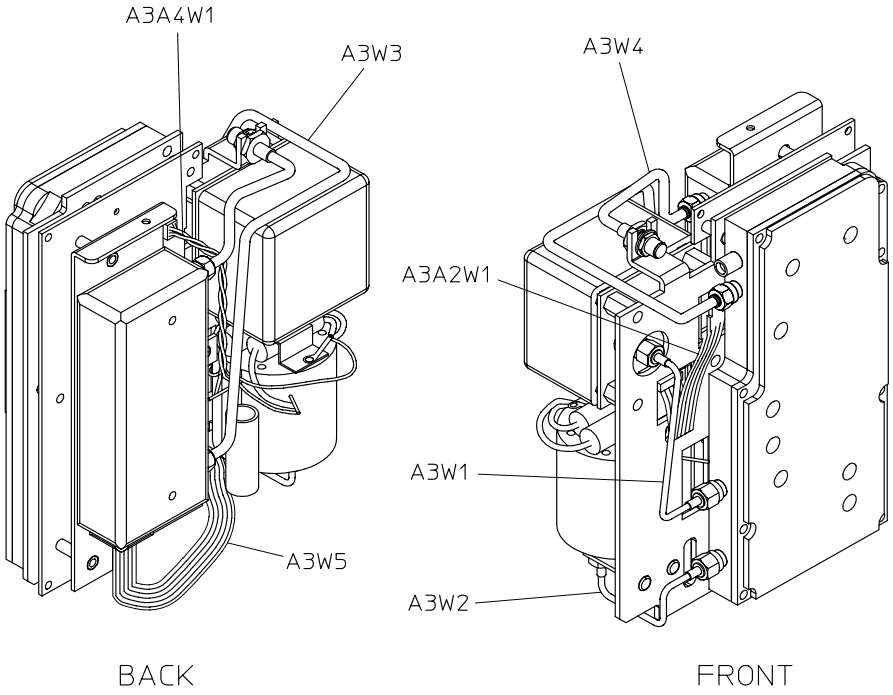
Refer to Figure 6.

17. Connect the semirigid cable A3W3 (retained in step 11) from the 6 GHz source output to the attenuator input connection.

18. Connect the semirigid cable A3W4 (retained in step 12) from the attenuator output to the 6 GHz source assembly output. Proceed to step 20.

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

Figure 6 6 GHz Source and Attenuator Cable Attachment Locations

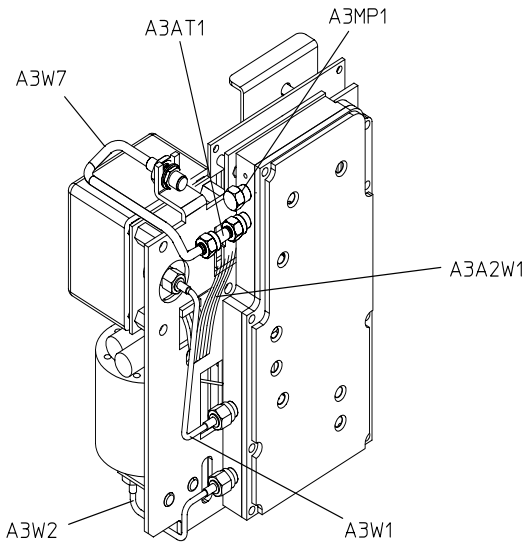


Install the Cap on the 6 GHz Source Assembly

Refer to Figure 7.

19. If installing the 6 GHz source into an analyzer without Option 004, connect the cap (HP part number 1250-0590), A3MP1, to the port above A3AT1.

Figure 7 Cap Installation Location



Install the 6 GHz Source Assembly in the Network Analyzer

Refer to Figure 8.

20. Check the connector pins to the motherboard before reinstallation.
21. Slide the edges of the sheet metal partition (item 4) of the 6 GHz source assembly into the guides at the sides of the source compartment.
22. Press down on the source assembly to ensure that it is well seated in the motherboard connector. Push down on the retention clips.

Refer to Figure 2.

23. Connect the semirigid cable, W1. If installing the 6 GHz source into an analyzer with Option 004, connect the semirigid cable, W24, to the source assembly.

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

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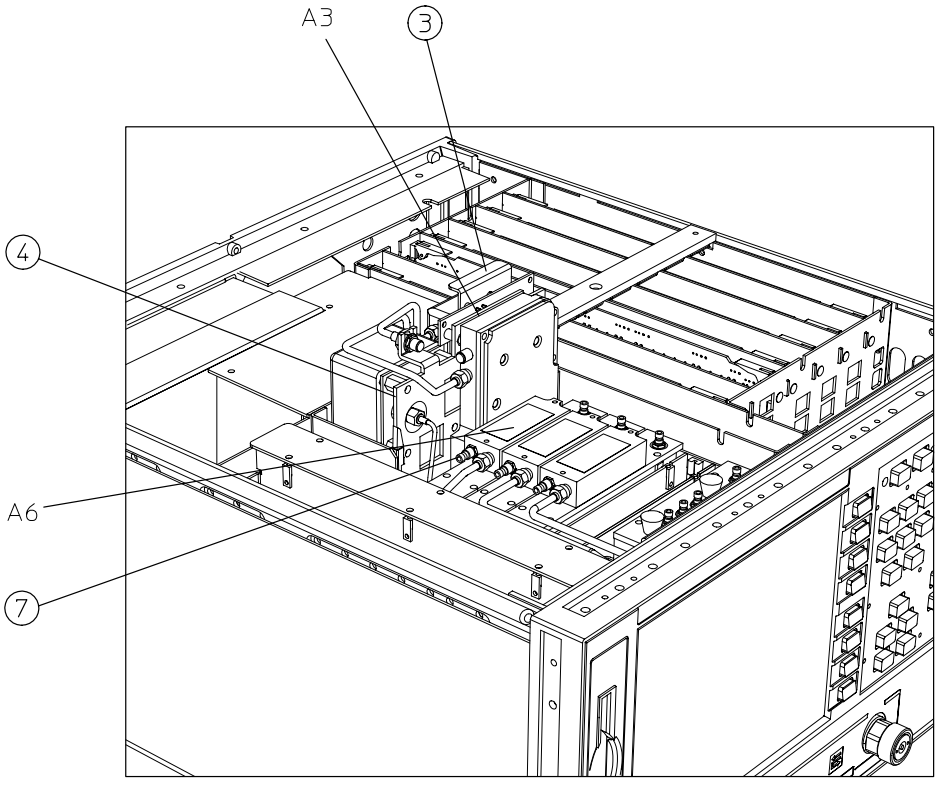
24. Connect the flexible cable (W26) to the source assembly.
25. Reinstall the source bracket (item 1).
26. Reconnect the flexible cable to A6 and ensure that it is seated properly.

Figure 8 A3 Source Assembly

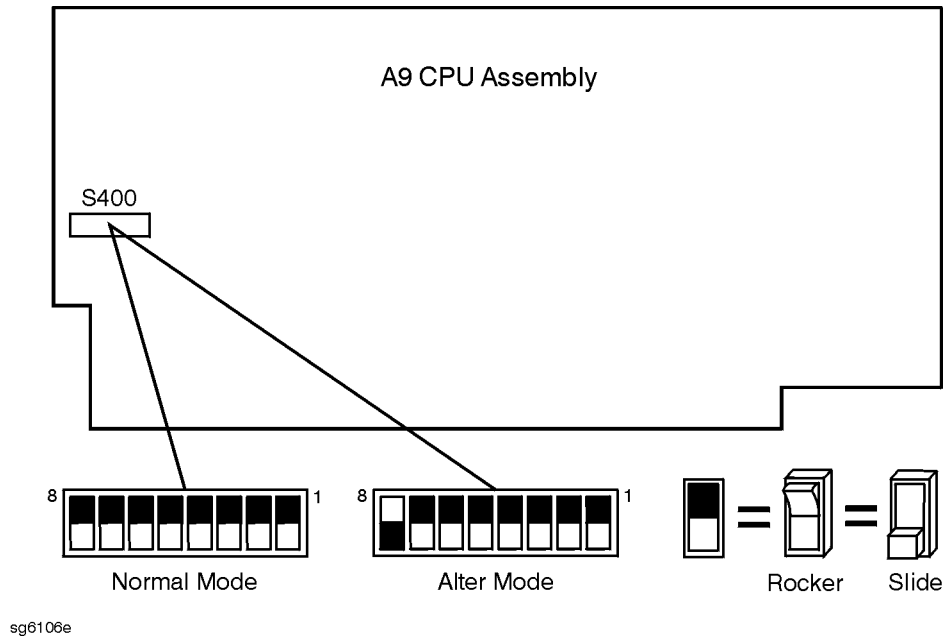


Configure the Analyzer for 6 GHz Operation

Refer to Figure 9.

27. Turn the analyzer upside down.
28. Locate the switch, S400, on the A9 CPU assembly.
29. Set the A9 switch to Alter Mode.

Figure 9 A9 Switch Location



30. Reverse the procedure for "Remove Covers," on page 7, to reinstall the top and bottom covers.
31. Reconnect the analyzer power cord and switch on the power.
32. Press (Preset) (Display) **MORE** **TITLE** **ERASE TITLE** to erase the HP logo.
33. Enter the keyword from the label located on page 6. Use a keyboard attached to the analyzer or rotate the front panel knob to position the arrow below each character of the keyword. Press **SELECT LETTER** to enter each character. When all characters are entered, press **DONE**.

NOTE Be sure to use upper-case letters when entering via a keyboard.

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34. Press (System) **SERVICE MENU** **TESTS** (56) (x1). At the prompt, press **EXECUTE TEST** **YES**.

    The analyzer will display `Option Cor DONE` when the test is complete.

35. Press **RETURN** **TESTS** (44) (x1). At the prompt, press **EXECUTE TEST** **YES**.

    The analyzer will display `*Source Def DONE` when the test is complete.

36. Press **RETURN** **TESTS** 45 x1. At the prompt, press **EXECUTE TEST** **YES**.

    The analyzer will display `*Pretune Def DONE` when the test is complete.

37. Press **RETURN** **TESTS** 46 x1. At the prompt, press **EXECUTE TEST** **YES**.

    The analyzer will display `ABUS Cor DONE` when the test is complete.

38. Press **RETURN** **TESTS** 48 x1. At the prompt, press **EXECUTE TEST** **YES**.

    The analyzer will display `Pretune Cor DONE` when the test is complete.

39. Refer to "Adjustments and Correction Constants" in the *HP 8753ET/ES Network Analyzers Service Guide* and perform the following:

    - "RF Output Power Correction Constants"
    - "Sampler Magnitude and Phase Correction Constants"
    - "Cavity Oscillator Frequency Correction Constants"
    - "Source Spur Avoidance Tracking Adjustment"
    - "EEPROM Backup Disk Procedure"

40. Refer to "System Verification and Performance Tests" in the *HP 8753ET/ES Network Analyzers Service Guide* and perform the following:

    - "Reflection Test Port Output Frequency Range and Accuracy"
    - "Reflection Test Port Output Power Level Accuracy"
    - "Reflection Test Port Output Power Linearity" (with or without Option 004)

41. Switch off the analyzer and disconnect the power cord.

Refer to Figure 1.

42. Perform "Remove Covers" on page 7, to remove the instrument's top and bottom covers.

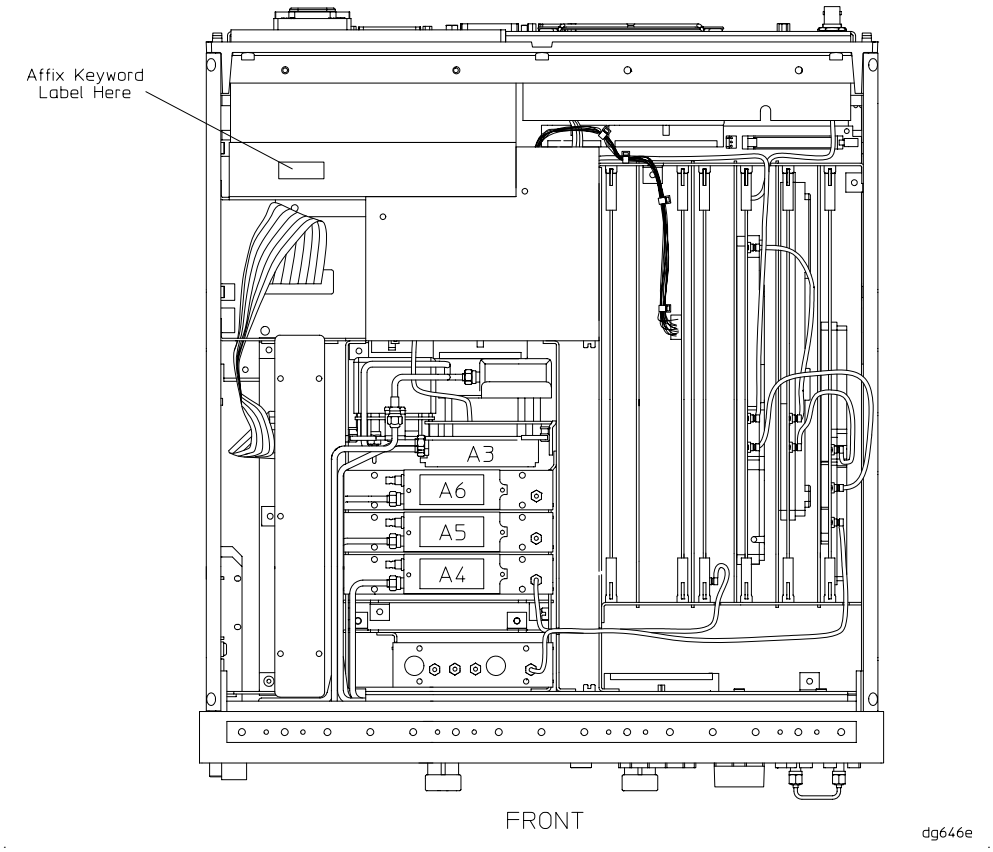
Refer to Figure 9.

43. Set the A9 switch to Normal Mode.

Affix the Keyword Label

44.Locate the keyword label in the small envelope and remove it from its backing. Affix the label onto the location shown in Figure 10.

Figure 10 Location of Keyword Label, Top View of Analyzer



Reassemble the Instrument

Refer to Figure 1.

45.Reverse the procedure for "Remove Covers," on page 7, to reinstall the top and bottom covers.

Replace the Analyzer's Nameplate

46.Use a sharp knife to carefully peel away the old nameplate located on the analyzer's front panel.

47.Adhere the new nameplate, which is included in the upgrade kit.

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 (415) 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		