Installation Note

Option 1D5 High Stability Frequency Reference Upgrade Kit

For HP 8753E, HP 8753ET, and HP 8753ES Network Analyzers

Network Analyzer Model Number	Applicable Upgrade Kit Model Number
HP 8753E	HP 8753EU Option 1D5
HP 8753ET	HP 8753ETU Option 1D5
HP 8753ES	HP 8753ESU Option 1D5

HP Part Number 08753-90416 Supersedes March 1998
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High Stability Frequency Reference Upgrade Kit

Products Affected:	HP 8753E and all options HP 8753ET and all options HP 8753ES and all options
To Be Performed By:	Personnel Qualified by HP
Estimated Installation Time:	1 hour
Estimated Verification Time:	1 hour

Purpose

The Option 1D5 Upgrade Kit provides a 50 MHz ±5 Hz (at 25 °C ±5 °C) reference signal for the network analyzer. This installation note describes the installation and performance verification procedures for the upgrade kit.

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 1D5 Upgrade Kit Contents

Quantity	Description	HP Part Number
1	A26 High Frequency Reference Board	08753-60158
1	Bracket	08753-00078
1	Adapter, coaxial	1250-1859
1	W30 Cable assembly, frequency reference	8120-6458
1	Screw, 5 mm 3.0 X 10 CW-PN-TX	0515-0374
1	Screw, 5 mm 3.0 X 6 CW-PN-TX	0515-0430
1	Washer, flat	3050-1546
1	Washer lock	2190-0068
1	Nut, specialty	2950-0054
1	Installation note	08753-90416

Required Equipment

Table 2 Required Equipment

Item	HP Part/Model Number
Frequency counter	HP 5343A
BNC to BNC cable assembly	HP 8120-1840
Adapter, Type-N (m) to BNC (f)	HP 1250-1535
T-10 TORX screwdriver	HP 8710-1623
T-15 TORX screwdriver	HP 8710-1622
Flat-head screwdriver, narrow	
Flat-head screwdriver, narrow	
3/16-inch hex-nut driver	
9/16-inch hex-nut driver	
ESD (electrostatic discharge) grounding wrist strap and mat	
Additional Equipment for Standard HP 8753E and Standard HP 8753ES	
Adapter, APC-7 to Type-N(f)	HP 85054-60031
Additional Equipment for HP 8753E Option 011 and HP 8753ES Option 011	
RF cable	HP 8120-4781
Power splitter	HP 11667A Option 001

Safety Considerations

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

CAUTION Electrostatic discharge (ESD) can damage or destroy electronic components. Perform these procedures only at a static-safe workstation and wear a grounding strap. 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 1D5 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.

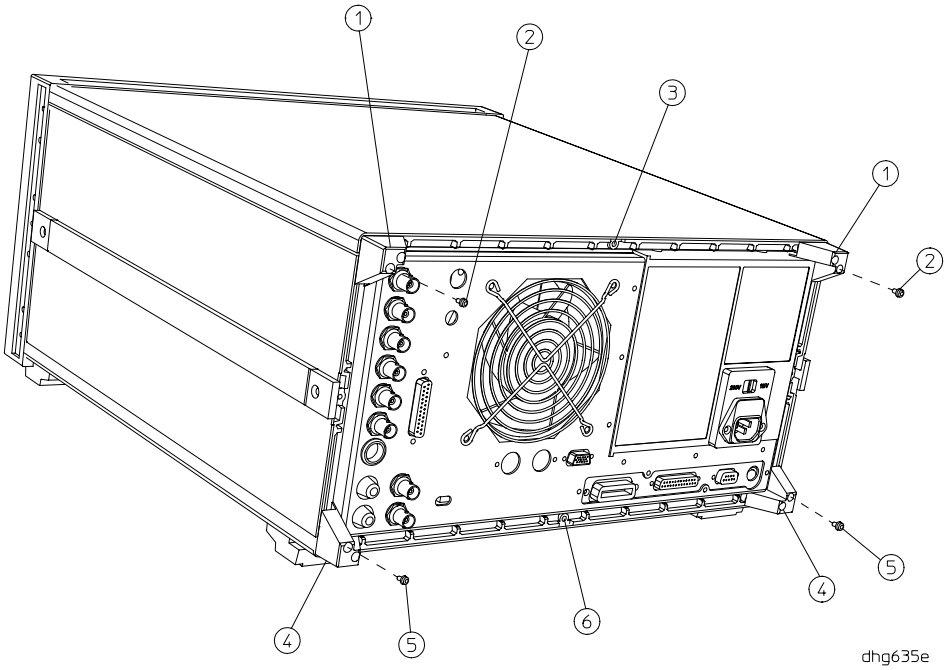
NOTE The HP 8753E network analyzer is shown in the illustrations of this installation procedure. If you have an HP 8753ET or an HP 8753ES network anlayzer, the details of these illustrations may vary slightly. However, these slight differences will not affect the procedures of this installation.

Remove Covers

Refer to Figure 1.

1. Disconnect the power cord.
2. Remove the top cover:
   a. Remove both of the 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 6).
   c. Slide the cover off towards the rear of the analyzer.

Figure 1 Removing the Top and Bottom Covers

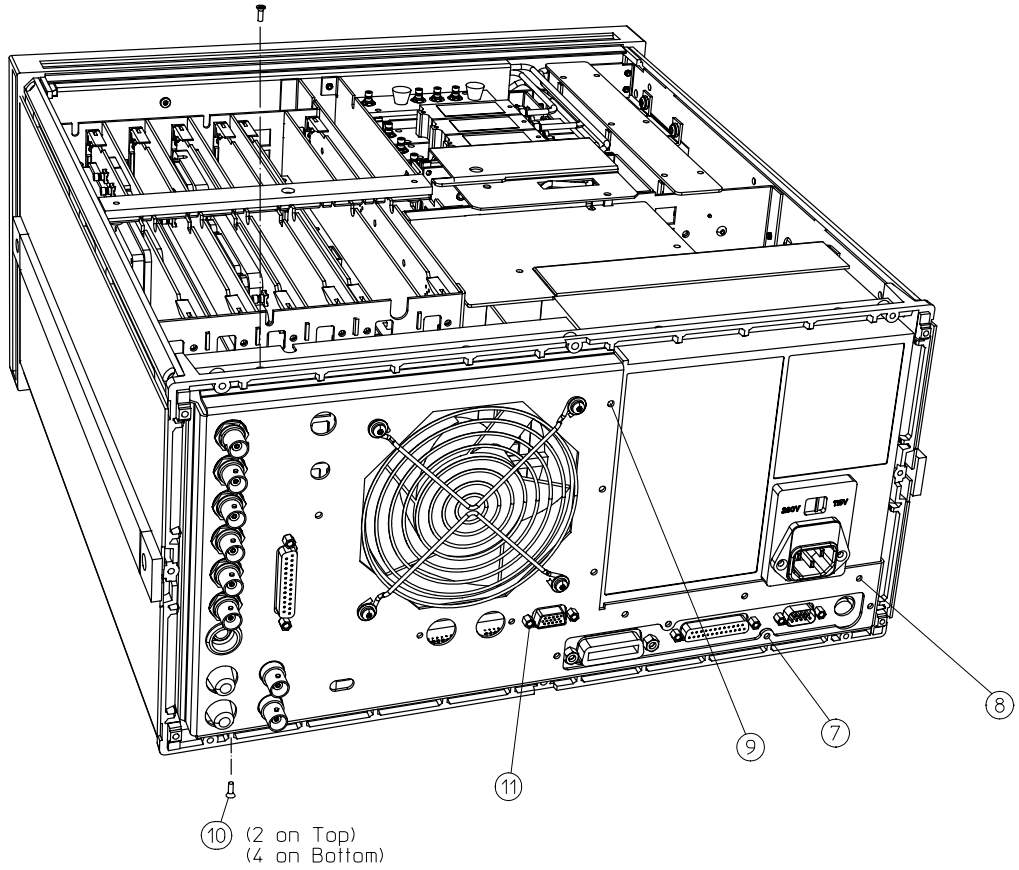


Remove the Rear Panel Assembly

Refer to Figure 2.

4. Remove the four screws (item 7) that attach the interface bracket to the rear panel.
5. Remove the six screws (item 8 and item 9), that attach the preregulator to the rear panel.
6. Remove the six screws (item 10) from the rear frame: two from the top edge and four from the bottom edge.

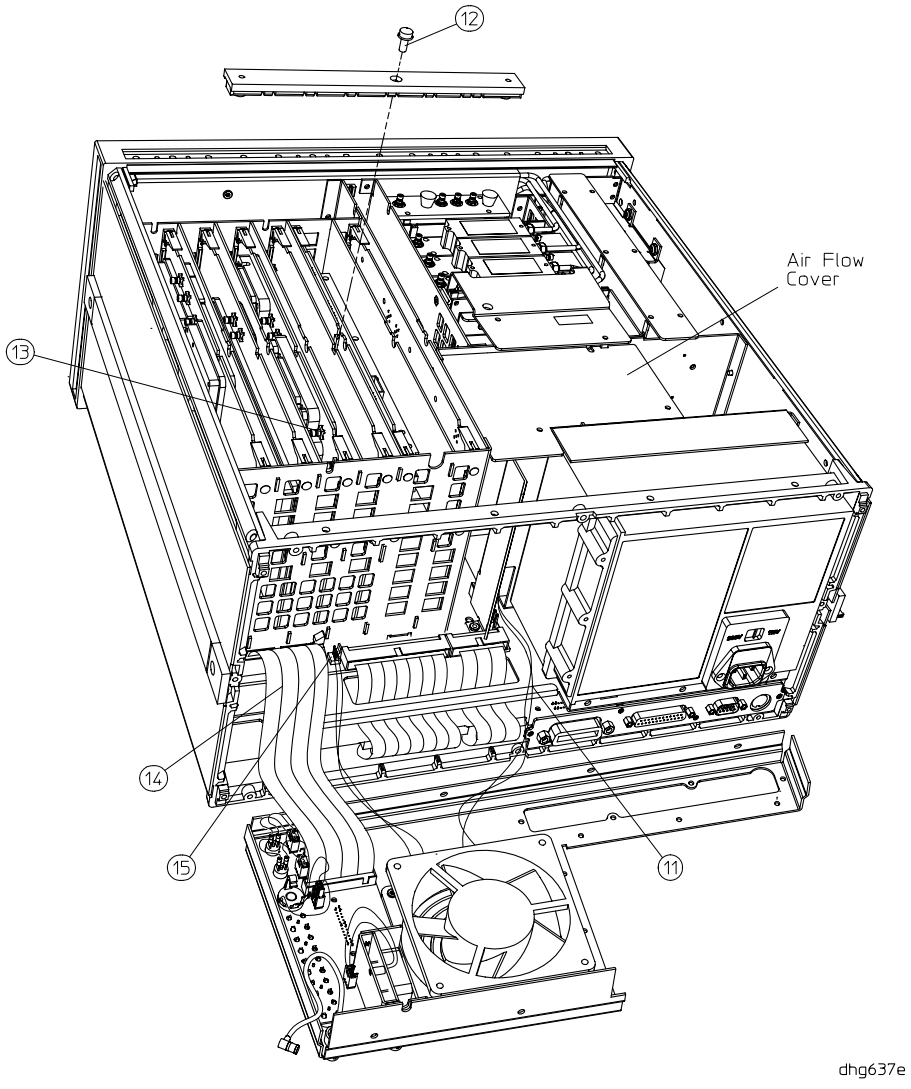
Figure 2 Disconnecting the Rear Panel



Refer to Figure 3.

7. Remove the screw (item 12) from the PC board stabilizer and remove the stabilizer.
8. Gently pull the rear panel away from the frame. Lift the reference board A12 (item 13 with the red extractors) from its motherboard connector. Disconnect the flexible RF cable leading back to the rear panel from its connector on A12.
9. Identify the wiring harness leading to the VGA connector (item 11 of Figure 2 and Figure 3). Follow this harness back to its connection on the motherboard. Remove the air flow cover, attached by two screws, to get to this connection. Disconnect the VGA wire harness at this point.
10. Pull the rear panel away from the frame. Disconnect the ribbon cable (item 14) from the motherboard connector, pressing down and out on the connector locks. Disconnect the wiring harness (item 15) from the motherboard.

Figure 3 Removing the Rear Panel



Attach the Frequency Reference Assembly

11. Remove the two plastic hole plugs from the rear panel holes that are labeled: "10 MHz PRECISION REFERENCE" and "ADJ." This is the location on the rear panel where the high-stability frequency reference assembly will be installed.

Refer to Figure 4.

12. Fasten the bracket (item 16) to the inside of the rear panel (item 17) with a screw (item 18) in the location shown.

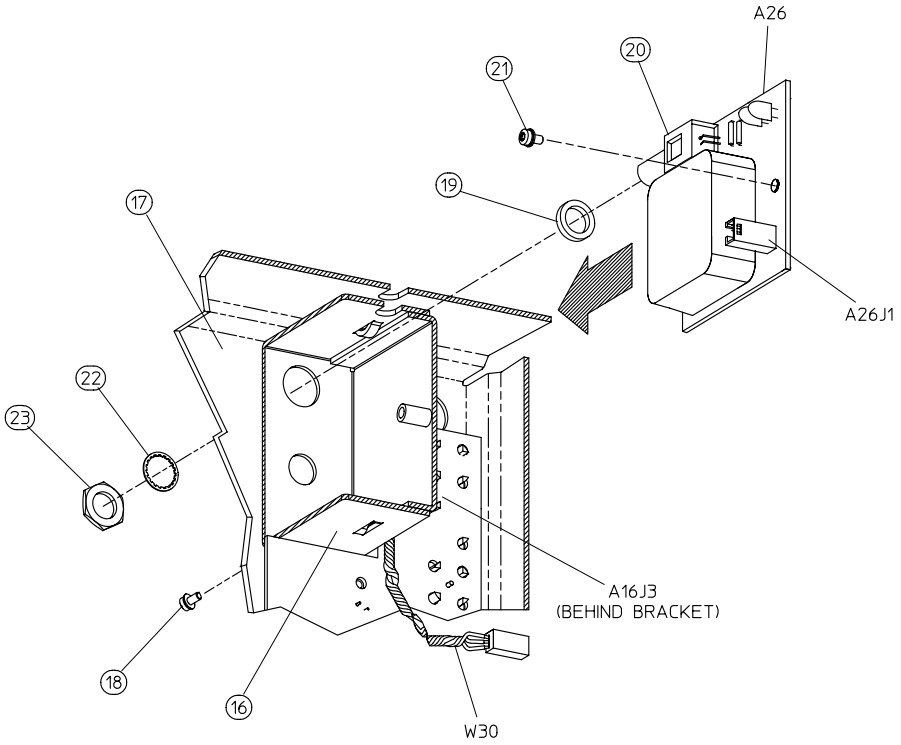
13. Place the plastic spacer washer (item 19) over the female BNC connector (item 20) on the high-stability frequency reference board (A26J1).

14. Slide the high-stability frequency reference board (A26) into the bracket (item 16) and secure it with the attaching screw (item 21).

15. Finish securing the assembly to the rear panel by attaching a washer (item 22) and nut (item 23) to the female BNC connector that protrudes through the "10 MHz PRECISION REFERENCE" hole.

16. Connect the three-wire harness (W30) from the rear-panel interface board (A16J3) to the high-stability frequency reference board (A26J1).

Figure 4 Assembling the High Stability Frequency Reference



Reassemble the Rear Panel

Refer to Figure 3.

17. Connect the wiring harness (item 15) to the motherboard.
18. Connect the ribbon cable (item 14) to the motherboard connector.
19. Connect the wiring harness (item 11) leading from the VGA connector to its connection on the motherboard.
20. Replace the air flow cover and attach with two screws.
21. Carefully fit the rear panel into the rear frame.

CAUTION Make sure W30 is not trapped or pinched while installing the rear panel into the rear frame. *Refer to Figure 4.*

22. Reconnect the flexible RF cable to its connector on A12 and reseat the reference board.
23. Replace the PC board stabilizer and attach with its screw.
24. Secure the rear panel by replacing the six screws in the top and bottom edges of the rear frame.
25. Replace the six screws that attach the preregulator to the rear panel.
26. Replace the four screws that attach the interface bracket to the rear panel.
27. Replace the top cover.

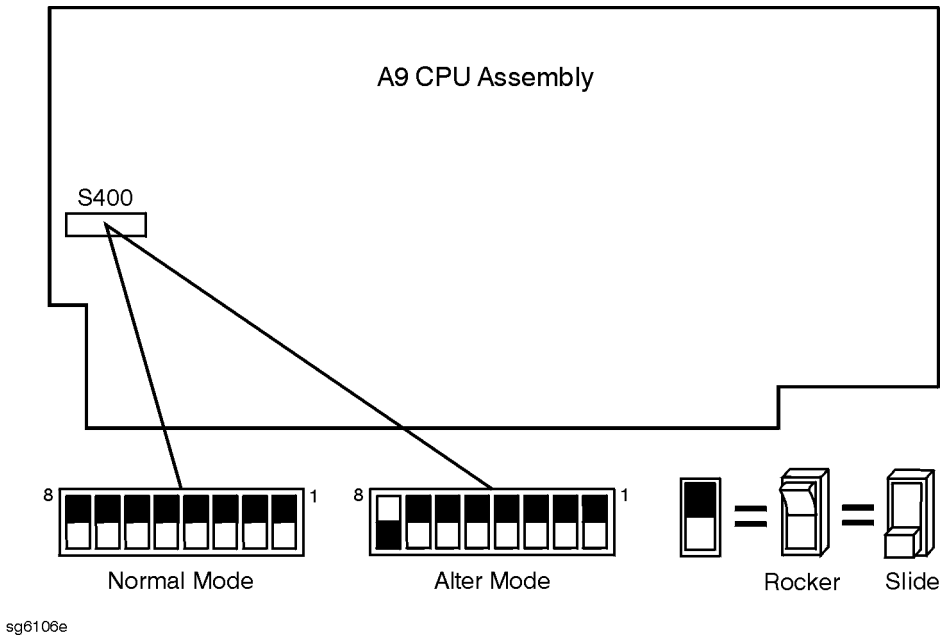
Set the A9 Switch

28.Turn the analyzer upside down.

29.Locate the A9 switch on the A9 CPU assembly at location S400. *Refer to Figure 5.*

30.Set the A9 switch to the Alter mode.

Figure 5 A9 Switch Location



Make an Addition to the Displayed Options List

31.Press System **SERVICE MENU** **PEEK/POKE** **PEEK/POKE ADDRESS** 1619001529 x1 **POKE** 1 x1 Preset.

32.Verify that the analyzer displays `OPTION 1D5` by pressing System **SERVICE MENU** **FIRMWARE REVISION**.

Return the A9 Switch

Refer to Figure 5.

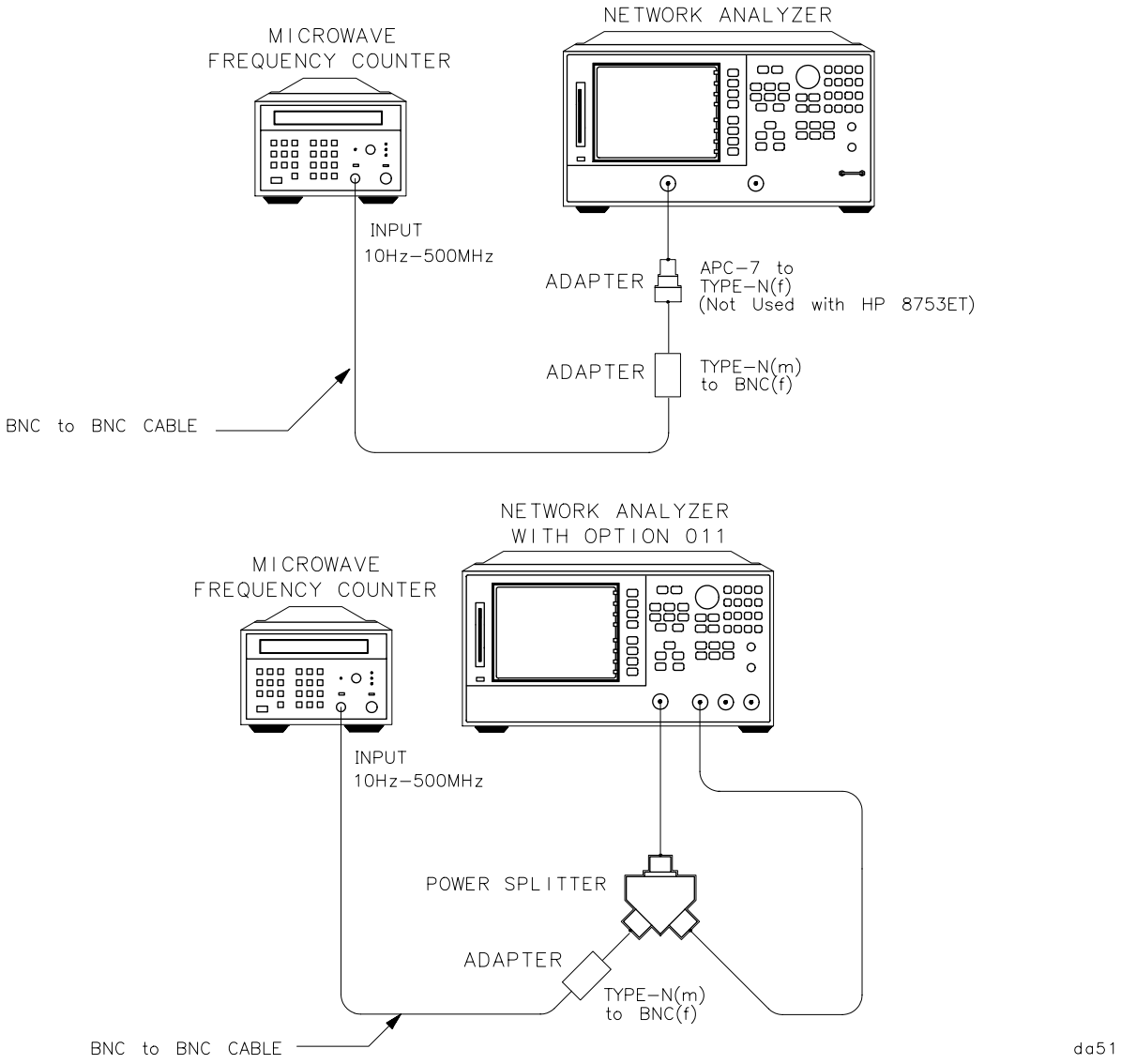
33.Return the A9 switch to Normal mode.

34.Replace the analyzer bottom cover, and all the rear panel feet.

Verify the High Stability Frequency Reference Operation

35.Connect the equipment as shown in Figure 6.

Figure 6 High Stability Frequency Reference Operation Test

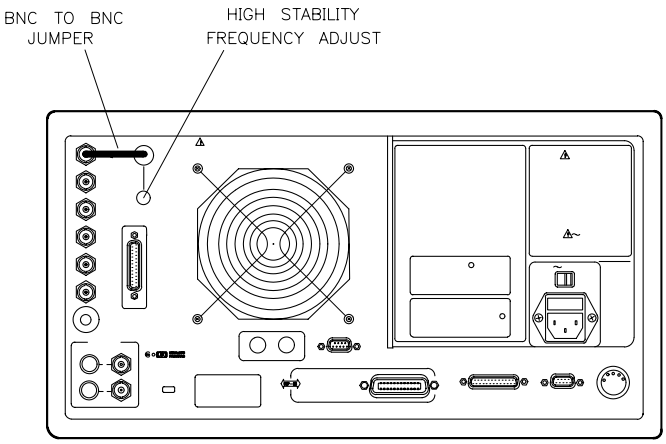


36.Press the following keys:

- On the HP 8753E, press Preset Menu **CW FREQ** 50 M/µ.
- On the HP 8753ET/ES, press Preset Sweep Setup **CW FREQ** 50 M/µ.

37. Connect the BNC to BNC jumper (supplied with the upgrade kit) between the EXT REF and the 10 MHz High Stability Reference connectors. *Refer to Figure 7.*

Figure 7 Location of the BNC to BNC Jumper

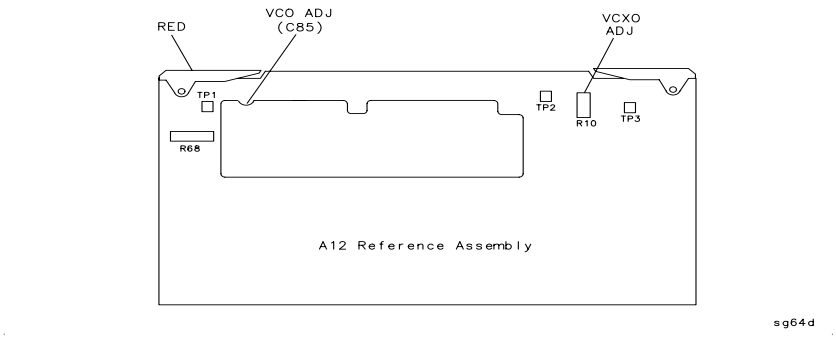


38. Use a flat-head screwdriver to remove the screw that secures the high-stability frequency adjustment as shown in Figure 7. Insert a narrow screwdriver and adjust the high-stability, frequency reference potentiometer for a frequency counter reading of 50 MHz ± 5 Hz.

In Case of Difficulty

1. Make sure that you have moved the A9 switch, and then returned it to Normal mode at the appropriate times.
2. Remove the BNC to BNC jumper.
3. Press the following keys:
   - On the HP 8753E, press Preset Menu **CW FREQ** 50 M/µ.
   - On the HP 8753ET/ES, press Preset Sweep Setup **CW FREQ** 50 M/µ.
4. Locate the A12 Reference board assembly (board with red extractors). *Refer to Figure 8.* Adjust the VCXO ADJ for a frequency counter reading of 50 MHz ± 500 Hz.

Figure 8 VCXO ADJ Adjustment Location



5. If you cannot adjust the A12 board assembly to the frequency as specified, replace the A12 assembly.
6. Reconnect the BNC to BNC jumper as shown in Figure 7. Insert a narrow screwdriver and adjust the high-stability, frequency reference potentiometer for a reading of 50 MHz ± 5 Hz.
7. If you cannot adjust for a frequency reading of 50 MHz ± 5 Hz, replace the A26 assembly.

Refer to Figure 4.

8. Repeat the procedure "Verify the High Stability Frequency Reference Operation" on page 11.

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