Installation Note

Option 002 Harmonics Operation 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 002
HP 8753ET	HP 8753ETU Option 002
HP 8753ES	HP 8753ESU Option 002

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Harmonics Operation Upgrade Kit

Products Affected:	HP 8753E and all options HP 8753ES and all options HP 8753ET and all options
To Be Performed By:	HP Service Center, Personnel Qualified by HP, or Customer
Estimated Installation Time:	30 minutes
Estimated Verification Time:	1 hour

Purpose

This Option 002 upgrade kit provides the network analyzers with harmonic operation. The upgrade kit is keyed to the serial number of a specific network 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 002 Upgrade Kit Contents

Quantity	Description	HP Part Number
1	Installation note	08753-90419
1	Keyword label (attached to page 6)	9320-6215
1	Keyword label (to affix to instrument)	9320-5805
1	Envelope	9230-0023

Equipment and Tools Required

Table 2   Required Equipment and Tools for Installation

Item	HP Part Number
RF cable (for verifying HP 8753E Option 011 and HP 8753ES Option 011)	8120-4781
T-15 TORX screwdriver	
T-10 TORX screwdriver	
Electrostatic discharge (ESD) grounding strap and mat	

Table 3   Required Equipment for Verification Tests

Item	HP Part or Model Number
Adapter, APC-7 to Type-N(f)	HP 11524A
Attenuator (2), 20 dB, APC-7	HP 8492A Option 020
Attenuator (2), 20 dB, Type-N	HP 8491A Option 020
Cable, (50 Ω) 24–inch, APC–7 (2)	8120-4779
HP-IB cable	HP 10833A
Power meter	HP 436A/437B/438A
Power sensor	HP 8482A
Power sensor	HP 8481A (Option 006 Analyzers only)
RF cable set (2)	HP 11500B
3.5-inch floppy disk	HP 92192A (box of 10)
Service guide appropriate for your network analyzer model: • HP 8753E Network Analyzer • HP 8753E Option 011 Network Analyzer • HP 8753ET/ES Network Analyzers • HP 8753ES Option 011 Network Analyzer	 08753-90374 08753-90404 08753-90484 08753-90485
Option 011 Analyzers Only	
Adapter, Type-N (m) to Type-N (m)	1250-1475
Adapter, Type-N (f) to Type-N (f)	1250-1472
Attenuator, 10 dB	HP 8491A Option 010
Attenuator, 30 dB	HP 8491A Option 030
Cable, BNC 24-inch	8120-1840
External source	HP 83620A
Power sensor	HP 8481A (Option 006 Analyzers only)
Power splitter, 2-way	HP 11667A Option 001
Power splitter, 3-way, 50 Ω	HP 11850C
RF cable set, 50 Ω Type-N	HP 11851B
75 Ω Analyzers Only	
Cable, (75 Ω) 24-inch, Type-N (2)	8120-2408
Pad, minimum loss (2)	HP 11852B
Power sensor	HP 8483A Option HO3

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 002 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.

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 4, "Hewlett-Packard Sales and Service Offices," on page 12 and contact the nearest sales or service office for assistance.
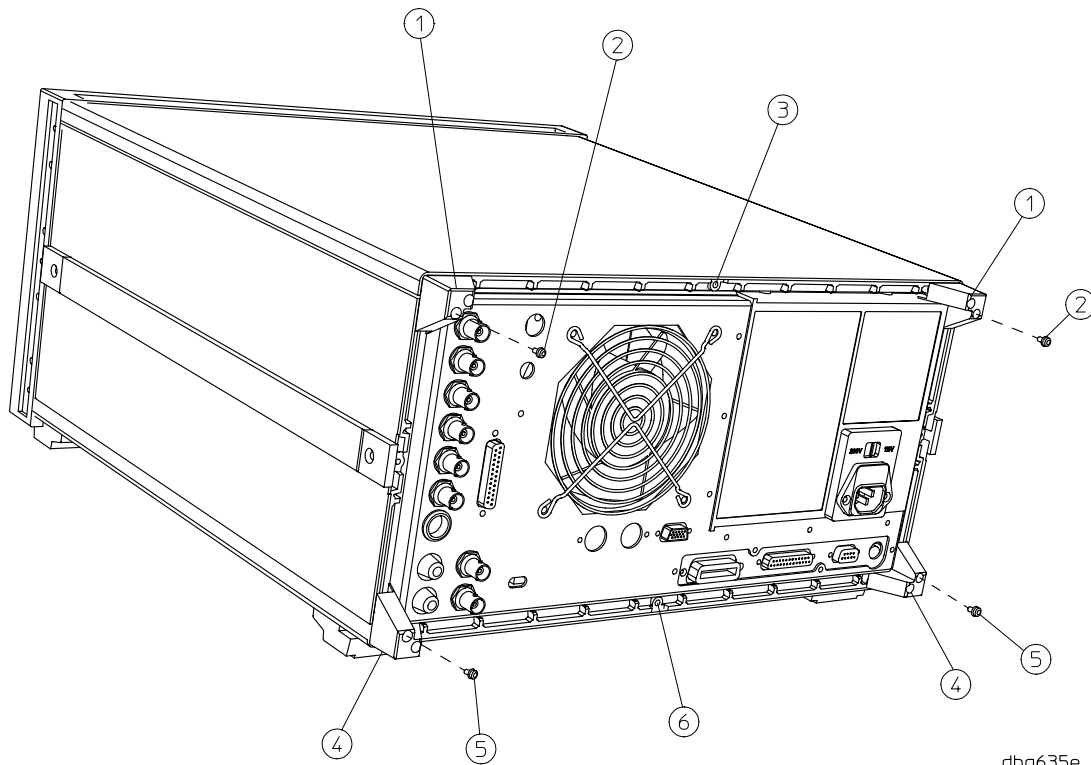
Keyword Label

Remove the Bottom Cover

Refer to Figure 1.

1. Disconnect the power cord from the instrument and set the analyzer on its side.

2. Remove both lower rear feet (item 4) by loosening the TORX T-10 screws (item 5).

3. Loosen the captive TORX T-15 screw (item 6). This will cause the cover to pull away from the front frame.

4. Slide the cover towards the rear of the instrument, then pull it out and away. (The cover has a tight fit and may need to be worked loose.)
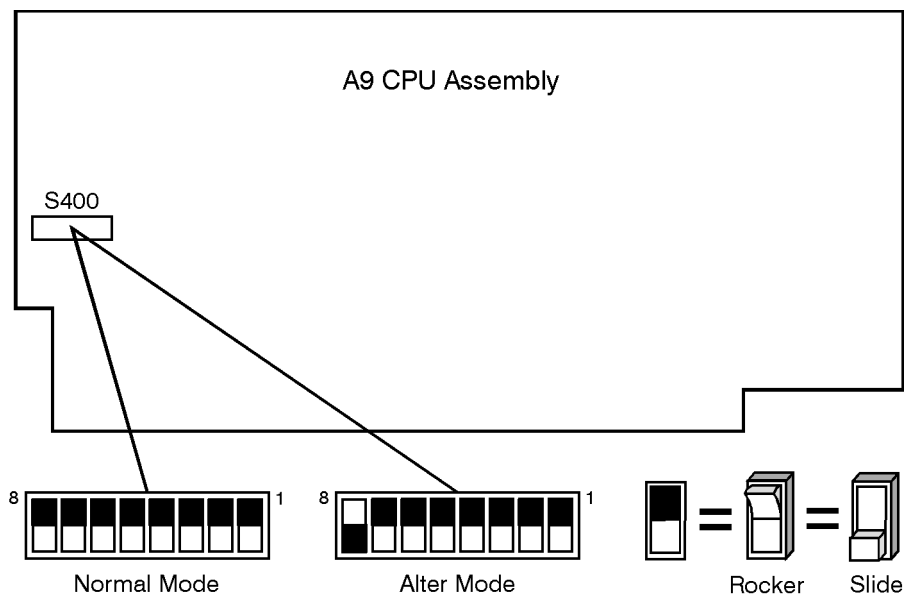
Figure 1   Cover Removal

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Configure the Instrument for Harmonics Operation

Refer to Figure 2.

1. Locate the A9 switch on the A9 CPU assembly at location S400.

2. Set the A9 switch to the Alter Mode.

Figure 2   A9 Switch Location

3. Replace the bottom cover and set the analyzer upright for normal operation.

4. If this installation is being performed on a network analyzer equipped with Option 011, connect the RF cable (8120-4781) between the RF Out and Reference connectors on the front of the instrument.

5. Reconnect the ac power cord and switch on the power.

6. After the instrument has initialized, press ⟨Preset⟩ ⟨Display⟩ **MORE**   **TITLE**   **ERASE TITLE** to erase the HP logo.

7. Enter the keyword from the label on page 6. There are two methods to do this: use a keyboard connected to the analyzer's mini DIN connector on the rear panel, or rotate the front panel knob to position the arrow below each character of the keyword and press **SELECT LETTER** to enter each character. When all characters are entered, press **DONE**. Be sure to use upper-case letters when entering via a keyboard.

8. Press ⟨System⟩ **SERVICE MENU**   **TESTS** ⟨56⟩ ⟨x1⟩. At the prompt, press **EXECUTE TEST**   **YES**.

9. If the display shows:

- `TEST 56 Option Cor DONE`, **press** (`Preset`). **Proceed to** "Correction Constants and EEPROM Backup Procedures."

- `Test 56 Option Cor FAIL`:

  ❏ Press (`System`) **SERVICE MENU** **FIRMWARE REVISION** . Compare the serial number shown on the analyzer's display to the one on the keyword label on page 6.

  ❏ Make sure that you entered the keyword correctly by repeating the previous steps.

  ❏ If the serial numbers do not match, or if Test 56 fails repeatedly, refer to Table 4 on page 12 and contact the nearest HP sales or service office for assistance.

Correction Constants and EEPROM Backup Procedures

1. Refer to "Adjustment and Correction Constants" in the network analyzer's service guide and perform the following adjustments:

   ❏ Sampler Magnitude and Phase Correction Constants

   ❏ EEPROM Backup Disk Procedure

2. Remove the bottom cover and return the A9 switch to the Normal Mode.
   Refer to Figure 1 *and* Figure 2.

3. Replace the bottom cover.

Verify Harmonics Operation

Refer to "System Verification and Performance Tests" in the network analyzer's service guide and perform the following tests:
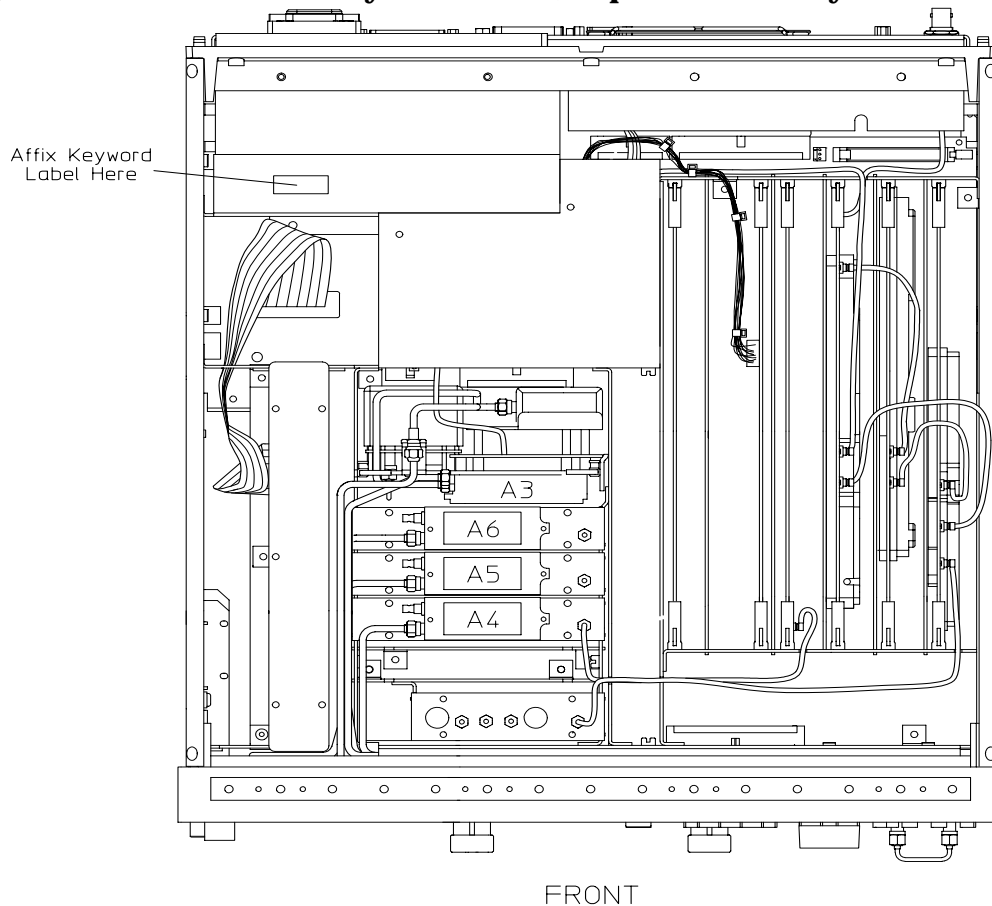
- For the HP 8753E, perform:

  ❏ Test Port Output/Input Harmonics (Option 002 Analyzers without Option 006 Only)

  ❏ Test Port Input Frequency Response

- For the HP 8753E Option 006, perform:

  ❏ Test Port Output/Input Harmonics (Option 002 Analyzers with Option 006 Only)

  ❏ Test Port Input Frequency Response

- For the HP 8753E Option 011, perform:

  ❏ Source and Receiver Harmonics (Option 002 Only)

  ❏ Receiver Magnitude Frequency Response (Option 002)

- For the HP 8753ES, perform:

  ❏ Test Port Output/Input Harmonics (Analyzers with Option 002)

  ❏ Test Port Input Frequency Response

- For the HP 8753ES Option 011, perform:

  ❑ Source and Receiver Harmonics (Option 002 Only)

  ❑ Harmonic Measurement Accuracy (Option 002 Only)

- For the HP 8753ET, perform:

  ❑ Transmission Test Port Input Frequency Response

Affix the Keyword Label

1. Remove the instrument top cover. *Refer to Figure 1.*

   a. Remove both upper feet (item 1) by loosening the attaching TORX T-10 screws (item 2).

   b. Loosen the captive TORX T-15 screw (item 3) in the top cover.

   c. Slide the cover towards the rear of the instrument, then pull it out and away. (The cover has a tight fit and may need to be worked loose.)

2. Locate the keyword label in the small envelope and remove it from its backing. Affix the label onto the location shown in Figure 3.

3. Replace the top cover of the instrument.

4. Replace the feet on the rear corners of the instrument (item 1 and item 4 of Figure 1).

Figure 3   Location of Keyword Label, Top View of Analyzer

Table 4   **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
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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
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