Installation Manual

Agilent Technologies 86383A/B/C Upgrade Kits for the 8757C/D/E Scalar Network Analyzers

Part Number 86383-90002

Printed in USA October 1992

Hewlett-Packard to Agilent Technologies Transition

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HP 86383A/B/C Upgrade Kits for the HP 8757C/D/E Scalar Network Analyzers

HP Part No. 86383-90002
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HP 86383A/B/C Upgrade Kits

The Upgrade Packages

HP 86383A

Use this package to upgrade an HP 8757E to an HP 8757D.

Installation is included in the price of this upgrade.

This upgrade must be installed by a HP service center.

HP 86383B

Use this package to upgrade an HP 8757C to an HP 8757D.

HP 86383C Option 001

Use this package to add Option 001 (fourth detector input) to an HP 8757D.

HP 86383C Option 002

Use this package to add Option 002 (internal calibrator) to an HP 8757D.

HP 86383C Option 001/002

Use this package to add Option 001 and Option 002 to an HP 8757D.

Procedure

Ensure That Your Work Station is Static-Safe

Check for the following:

- The static mat is on a clean, flat, sturdy surface.
- The static mat is connected to earth ground.
- A wrist strap is connected to the static mat.

Check the Upgrade Package Contents

Use the table provided in the chapter for your upgrade to check for a complete shipment. (Refer to Table 1-1 for the correct chapter.) If you have a problem, contact your local Hewlett-Packard office (see table inside the back cover of this manual).

Obtain the Equipment Required

If additional equipment is required for the upgrade that is not included in the upgrade kit, it is listed in the chapter for your upgrade.

Follow the Upgrade Instructions

Follow the instructions provided in the chapter for your upgrade. Refer to Figure 1-1 through Figure 1-6 as required for component locations.

Self-Test

1. Connect the analyzer to line power and turn the LINE switch on.
2. The self-test runs automatically and takes approximately five seconds. If the test runs successfully and passes, the graticule appears on the display. If the self-test fails, the CRT displays an error or warning message.

   If the instrument fails this test, refer to "Self-Test and Error Codes" in the analyzer service manual.

Warranty Information

If an HP customer engineer installs the upgrade package, the upgraded analyzer has an on-site warranty for 90 days following the installation date.

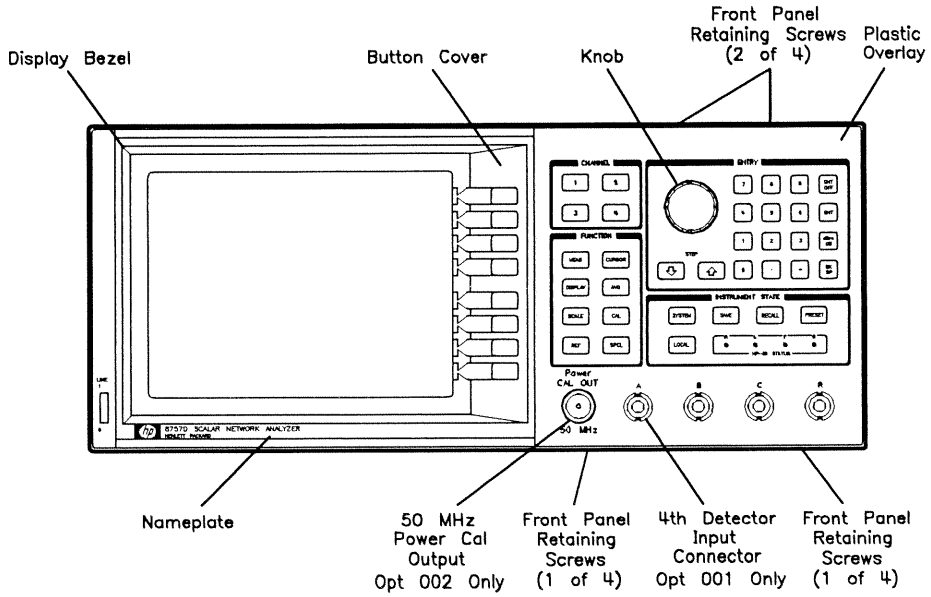

Figure 1-1. HP 8757D Front Panel

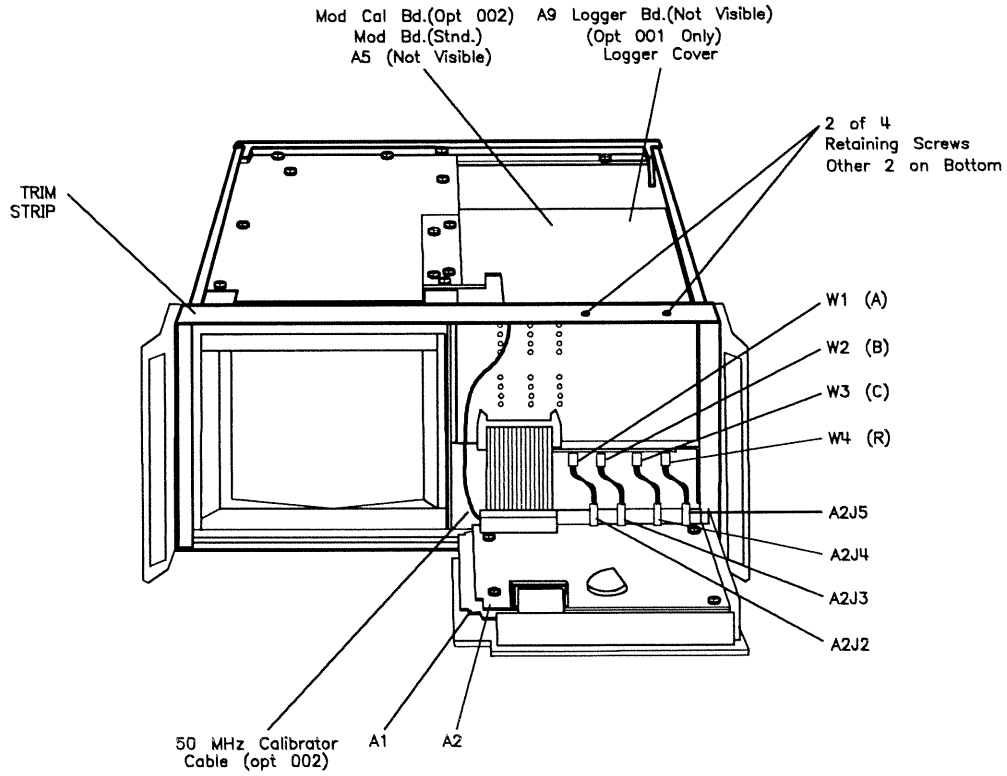

Figure 1-2. Front View Interior

Table 1-1.
The Upgrade Packages and
Their Documentation

HP Upgrade Package	HP Model Revision	Use
86383A	8757E to 8757D	Chapter 2
86383B	8757C to 8757D	Chapter 3
86383C Option 001	8757D to 8757D Option 001	Chapter 4
86383C Option 002	8757D to 8757D Option 002	Chapter 5
86383C Option 001/002	8757D Standard to 8757D Option 001/002	Chapter 6

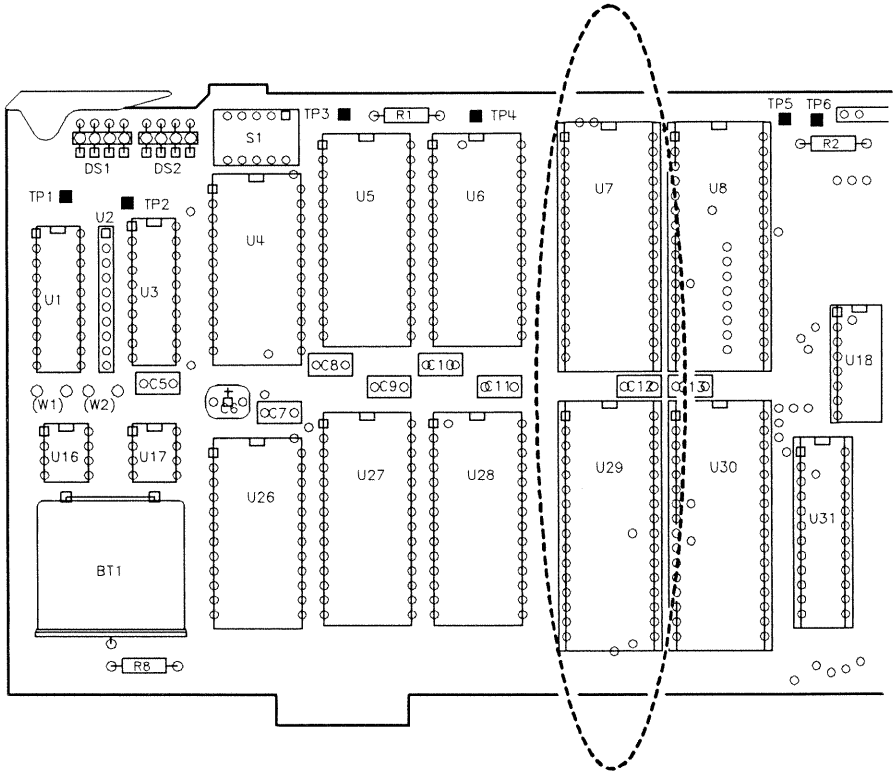

Figure 1-3. A3 EPROM Locations

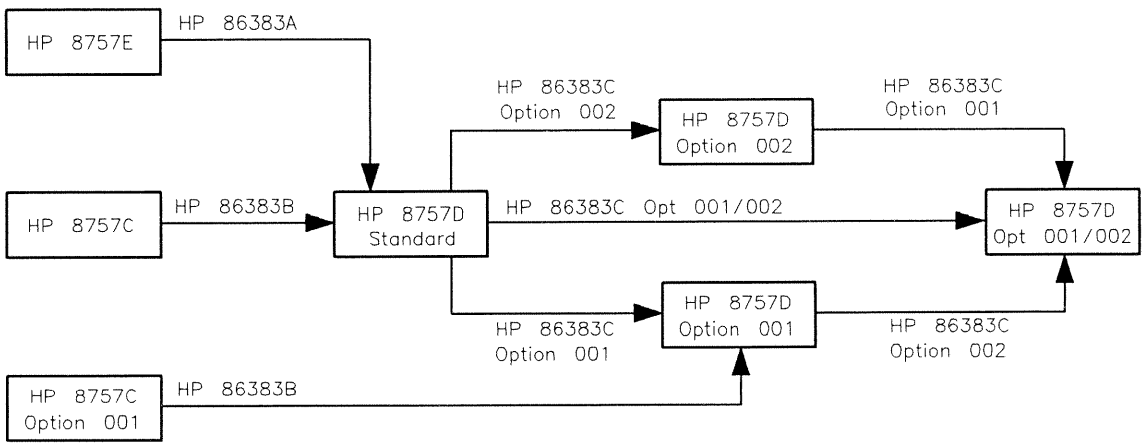

Figure 1-4. Upgrade Paths and Kits to Order

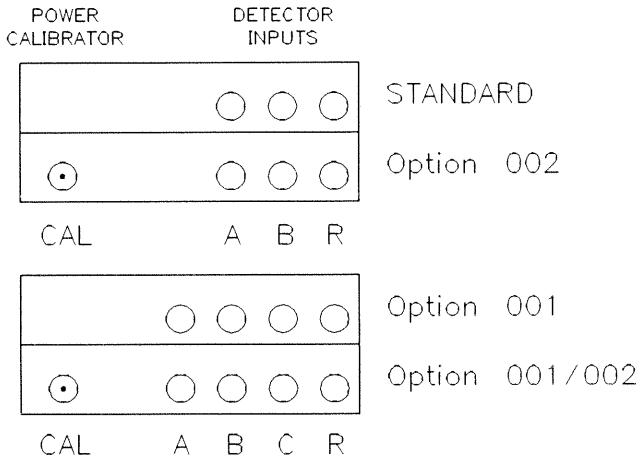

Figure 1-5. HP 8757D Front Panel Options

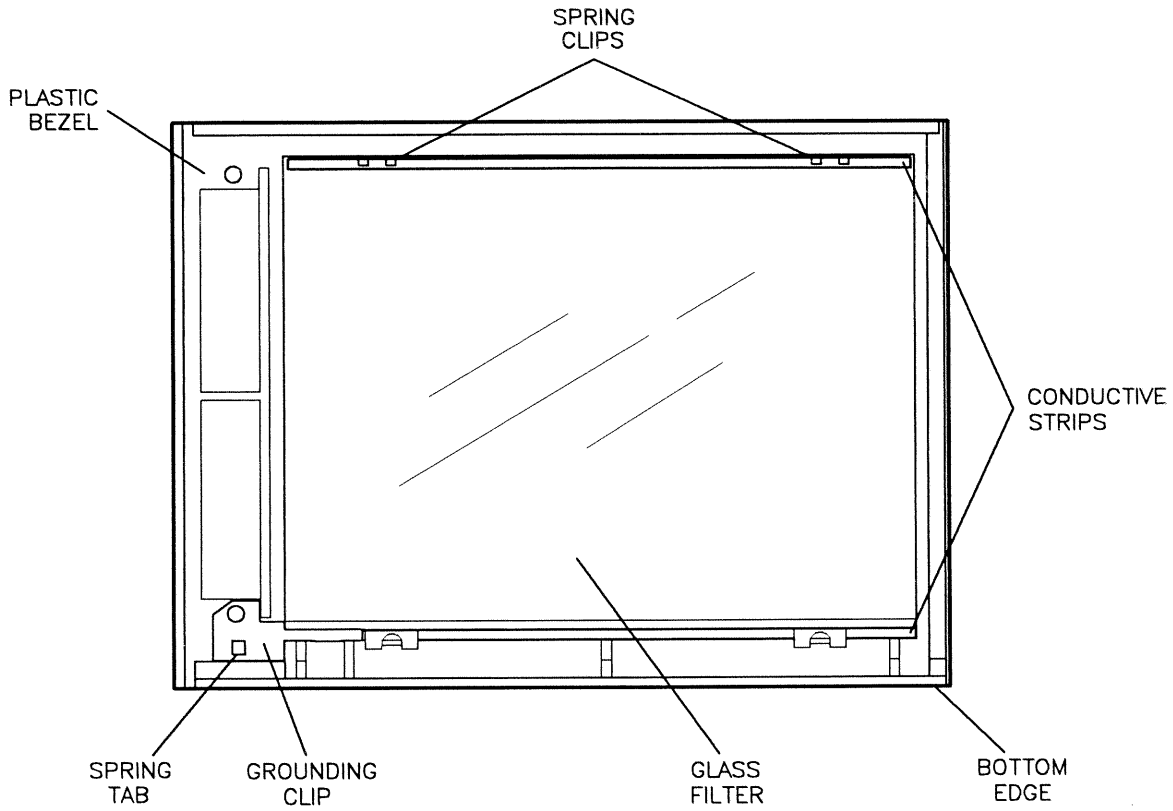

Figure 1-6. CRT Bezel Assembly (Inside)

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HP 86383A Upgrade Kit

Introduction

This kit converts an HP 8757E to an HP 8757D.

Caution The analyzer contains parts which can be damaged by electrostatic discharge. Observe static-safe guidelines while performing the upgrade. Antistatic mats and wrist straps should be used to prevent instrument damage.

Table 2-1. HP 86383A Upgrade Package Contents

Description	Qty	Part Number
Video interface	1	08757-60077
Nameplate HP 8757D	1	08757-80071
EPROM kit (set of 2)	1	08757-60129
Front panel overlay (std)	1	08757-80084
Installation manual	1	86383-90002
HP 8757D manual set	1	08757-90107
Upgrade software	1	86383-10001
Washer locking .472	3	2190-0102

Description	Qty	Part Number
Hex nut 15/32-32	3	2950-0035
Front panel assembly	1	08757-60116
Bezel clip	2	5181-5501
Bezel grounding contact	1	5001-6124
Bezel frame	1	5041-9104
Screw M3.5 8FL	4	0515-1400

Description

This installation note contains the information required to upgrade an HP 8757E to an HP 8757D. This upgrade requires installation by an HP service center. Installation is provided at no additional cost, however, any needed repairs are not covered unless the instrument is still under warranty.

To have the upgrade kit installed, return this complete upgrade kit (including this installation manual) along with your HP 8757E analyzer to any HP service center. Check the serial number of the analyzer you are returning to ensure that it is the one for which the upgrade kit was ordered. The HP service center will install the upgrade, verify its operation, and return the analyzer to you. The upgraded portions of the analyzer will have a 90 day warranty. Contact your local HP sales or service office to coordinate installation of this upgrade.

Procedure

For HP Service Centers only

Installation of this kit requires the use of an HP 3000 series 200/300 computer with BASIC 2.1 or higher. Installation time is about one hour and no special test equipment is required.

1. Load BASIC into the computer.
2. Install the 3.5 inch disk into the MSI drive.
3. Type: `LOAD "UPGRADE"`.
4. Press [EXECUTE] or [ENTER].
5. Press [RUN].
6. Follow the instructions on the computer screen.

Note To complete this program a password is required. Refer to the instructions provided within the program.

When the upgrade is complete, verify proper operation of the R, G, and B outputs with an oscilloscope:

- Using the built-in display test pattern #5 (16-step gray scale), verify that there is a 0.8 volt, 16-step staircase waveform when terminated with 75 ohms.
- The G output should also have a negative 0.3 volt (or greater) sync signal superimposed on it at the beginning of each staircase.

Charge all labor to HP 86383A warranty code 02F. Include the serial numbers of both the HP 86383A and the HP 8757E that was upgraded.

3

HP 86383B Upgrade Kit

Introduction

This kit converts an HP 8757C standard or Option 001 to an 8757D standard or Option 001, respectively.

Caution 

The analyzer contains parts which can be damaged by electrostatic discharge. Observe static-safe guidelines while performing the upgrade. Antistatic mats and wrist straps should be used to prevent instrument damage.

Table 3-1. HP 86383B Upgrade Package Contents

Item	Qty	HP Part or Model Number
EPROM kit (set of 2)	1	08757-60129
Front panel overlay (opt 001)	1	08757-80085
Front panel overlay (std)	1	08757-80084
Installation Manual	1	86383-90002
HP 8757D manual set	1	08757-90107
Front panel assembly	1	08757-60116

Item	Qty	HP Part or Model Number
Nameplate	1	08757-80071
Bezel clip	2	5181-5501
Bezel grounding contact	1	5001-6124
Bezel frame	1	5041-9104
Screw M3.5 8FL	4	0515-1400

Equipment Required But Not Supplied

- T-10 and T-15 Torx screwdrivers
- Needle nose pliers

Procedure

1. Remove the screw on the back of the analyzer using a T-15 Torx screwdriver and then lift off the top cover.
2. Remove the logger cover using a T-10 Torx screwdriver.
3. Unsnap the trim strip from top of the instrument.
4. Unsnap and remove the button cover and remove the two screws located behind the button cover.
5. Remove the four screws holding the keyboard assembly. There are two on the top and two on the bottom.
6. Remove the glass display bezel and partially remove the A1/A2 keyboard assembly.

7. Disconnect the ribbon cable between the A2 front panel interface and the motherboard.
8. Unplug each of the three (four on Option 001) detector inputs from the motherboard.
9. At this point the front panel assembly should be completely free of the instrument.
10. Discard this front panel assembly.
11. If your instrument was a standard and *not* an Option 001 (with the fourth detector input), remove the fourth detector connector from the new front panel. This is the connector on the far left as you face the front of the panel.
12. Remove the rotary knob from the shaft on the front panel.
13. Using the proper overlay for your option mix, peel off the protective backing and very carefully align the overlay over the keys and apply pressure to adhere it to the front panel.

Note 

Ensure that none of the keys stick under the plastic overlay and that each key moves freely.

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14. Reconnect each of the input plugs and the ribbon cable into the motherboard.

    If your instrument had soft, flexible, rubber keys, go to step 15.

    If your instrument had hard, plastic, front panel keys, perform the following steps:

    a. Carefully remove the glass filter from the CRT bezel assembly. Either pry the two holding spring clips from the bezel frame (on the newer instruments), or break away the melted plastic stakes (on the older instruments).

    b. Connect the bezel grounding clip to the new plastic bezel by placing the clip as shown and by pressing down on the spring tab.

    c. If needed, install the two spring clips on the top edge of the glass filter (along the conductive strip). Center the clips about 2.7 cm (1.1 inch) in from the edge of the glass and position each so that the side of the clip with two contacts is along the conductive strip.

    d. Insert the glass filter into the bezel, inserting the bottom edge first with the spring clips at the top and the conductive strips toward the inside (instrument side) of the bezel. Be careful to ensure proper contact with the bezel grounding clip. Clean both sides of the glass filter to remove any finger prints.

15. Reattach the front panel bezel and reattach the front panel assembly with the four screws provided. Attach the new nameplate.
16. Reattach the knob and button cover.
17. Remove the two EPROMs (A3U7 and A3U29) from the A3 CPU board (see Figure 1-3) and replace them with the new ones provided. Ensure that they are installed in the correct location and in the proper orientation.
18. Reinstall the A3 CPU board assembly.
19. Replace the logger cover.
20. The upgrade is now complete, replace the top cover when completed.
21. Turn the instrument on and verify a proper display.

4

HP 86383C Option 001 Upgrade Kit

Introduction

This Option 001 kit converts a standard HP 8757D to an HP 8757D Option 001. It contains the parts needed to add a fourth detector input.

Caution The analyzer contains parts which can be damaged by electrostatic discharge. Observe static-safe guidelines while performing the upgrade. Antistatic mats and wrist straps should be used to prevent instrument damage.

Table 4-1. HP 86383C Option 001 Performance Upgrade Package Contents

Item	Qty	HP Part or Model Number
Log amp assembly	1	08757-60058
Front panel overlay (Opt. 001)	1	08757-80085
Front panel overlay (Opt. 001/002)	1	08757-80083
Cable assembly	1	08757-60034

Item	Qty	HP Part or Model Number
Washer M3	2	2190-0584
Nut M3	2	0535-0004
Installation Manual	1	86383-90002

Equipment Required But Not Supplied

- T-10 and T-15 Torx screwdrivers
- Needle nose pliers
- HP 11613A/B calibrator
- HP 9000 series 200/300 computer with BASIC

Procedure

1. Remove the screw on the back of the analyzer using a T-15 Torx screwdriver and then lift off the top cover.
2. Remove the logger cover screws using a T-10 Torx screwdriver.
3. Unsnap the trim strip from the top of the instrument.
4. Unsnap and remove the button cover. (The button cover is the plastic cover through which the front panel soft keys protrude). Insert a thin flat screwdriver blade, or a fingernail, between the cover and the glass filter. Be careful not to scratch the glass. Remove the two screws located behind the button cover.
5. Remove the four screws holding the keyboard assembly. There are two on the top and two on the bottom.
6. Remove the screws that hold the glass display bezel and separate it from the A1/A2 keyboard assembly.
7. Disconnect the 20-pin ribbon cable between the A2 front panel interface and the motherboard.
8. Unplug each of the three detector inputs from the motherboard.

   For Option 002 Only:

   - If this is an Option 002 to 001/002 upgrade, disconnect the 50 MHz SMC cable from the A5 mod calibrator board.
   - Remove the Type-N connector from the front panel with needle nose pliers.
9. At this point the front panel assembly should be completely free of the instrument.
10. Remove the rotary knob from the shaft on the front panel.
11. Peel off the plastic front panel a overlay from the front of the instrument.

Note The glue is *very* adhesive and it may require considerable force to remove the overlay.

12. Install the new detector input assembly using the hardware provided. (Two washers and two hex nuts.) Observe the orientation of the inputs already installed and be sure that the orientation of the new input matches them.
13. Move the detector input jack that was connected to A2J4 to A2J5.
14. Move the detector input jack that was connected to A2J3 to A2J4.
15. Connect jack on new input assembly to J3.
16. Using the proper overlay for your option mix, peel off the protective backing and very carefully align the panel over the keys and apply pressure to adhere it to the front panel.

Note Ensure that none of the keys stick under the plastic overlay and that each key moves freely.

For Option 002 Only

- If this is an Option 002 to 001/002 upgrade, reinstall the power cal connector on the front panel and reconnect the power cal cable to the A5 board.

17. Reconnect each of the input plugs and the ribbon cable into the motherboard.
18. Reattach the front panel bezel and front panel assembly with the six screws.
19. Reattach knob and button cover.
20. Install new A9 logger board assembly into the open A9 slot of motherboard.
21. Replace logger cover.
22. Using a 11613A/B calibrator perform the cal constant adjustment procedure described in the HP 8757D manual.
23. The upgrade is now complete, replace the top cover.

5

HP 86383C Option 002 Upgrade Kit

Introduction

This Option 002 kit converts a standard or Option 001 HP 8757D to an HP 8757D Option 002 or Option 001/002 respectively. It contains the parts needed to add the internal power calibrator.

Caution

The analyzer contains parts which can be damaged by electrostatic discharge. Observe static-safe guidelines while performing the upgrade. Antistatic mats and wrist straps should be used to prevent instrument damage.

Table 5-1. HP 86383C Option 002 Performance Upgrade Package Contents

Item	Qty	HP Part or Model Number
Mod/cal assembly	1	08757-60111
Front panel overlay (Opt. 001/002)	1	08757-80083
Front panel overlay (Opt. 002)	1	08757-80086
Cable	1	00438-60026
Washer .439 ID	1	2190-0104
Nut 7/16-28	2	2950-0132

Item	Qty	HP Part or Model Number
Coaxial adapter N(m)-3.5mm(f)	1	08485-60005
Installation Manual	1	86383-90002
Option 002 calibration software	1	08757-10002

Equipment Required But Not Supplied

- T-10 and T-15 Torx screwdrivers
- Needle nose pliers
- HP 9000 series 200/300 computer with BASIC
- HP8902A Measuring receiver
- HP 432A power meter
- HP 478A Option H76 power sensor
- 4 1/2 digit voltmeter

Procedure

1. Remove the screw on the back of the analyzer using a T-15 Torx screwdriver and then lift off the top cover.
2. Remove the logger cover using a T-10 Torx screwdriver.
3. Unsnap the trim strip from the top of the instrument.
4. Unsnap and remove the button cover. (The button cover is the plastic cover through which the front panel soft keys protrude). Insert a thin flat screwdriver or a fingernail, between the cover and the glass filter. Be careful not to scratch the glass. Remove the two screws located behind the button cover.
5. Remove the four screws holding the keyboard assembly. There are two on the top, and two on the bottom.
6. Remove the screws that hold the glass display bezel and separate it from the A1/A2 keyboard assembly.
7. Disconnect the 20-pin ribbon cable from between the A2 front panel interface and the motherboard.
8. Unplug each of the three (four on Option 001) detector inputs from the motherboard.
9. At this point the front panel assembly should be completely free from the instrument.
10. Remove the rotary knob from the shaft on the front panel.
11. Peel off the plastic front panel b overlay from the front of the instrument.

Note The glue is *very* adhesive and it may require considerable force to remove the overlay.

12. Install the type-N connector output assembly using the hardware provided. (One washer and two hex nuts.)
13. Using the proper overlay for your option mix, peel off the protective backing. Very carefully align the panel over the keys and apply pressure to adhere it to the front panel.

Note Ensure that none of the keys stick under the plastic overlay and that each key moves freely.

14. Install the type-N connector cable assembly onto the front panel in the hole provided. Secure with lock washer and two nuts. Tighten using a pair of needle nose pliers.
15. Remove the existing A5 mod board and replace it with the new A5 mod calibrator board. Connect both the modulator drive cable and the 50 MHz power out cable to the board.
16. Reconnect each of the input plugs and the ribbon cable into the motherboard.
17. Reattach the front panel bezel and front panel assembly with six screws.
18. Reattach the knob and the button cover.
19. Reinstall the A3 CPU board assembly.

20. Replace logger cover.
21. Using the calibration software and the listed test equipment, perform the 50 MHz power calibration procedure described in the *HP 8757D Operating Reference* manual.
22. The upgrade is now complete, replace the top cover.

6

HP 86383C Option 001/002 Upgrade Kit

Introduction

This Option 001/002 kit converts an HP 8757D standard to an HP 8757D Option 001/002. It contains the parts needed to add the internal power calibrator and a fourth detector input.

Caution The analyzer contains parts which can be damaged by electrostatic discharge. Observe static-safe guidelines while performing the upgrade. Antistatic mats and wrist straps should be used to prevent instrument damage.

Table 6-1.
HP 86383C Option 001/002 Performance Upgrade Package Contents

Item	Qty	HP Part or Model Number
Log amp assembly	1	08757-60058
Mod/Cal assembly	1	08757-60111
Front panel overlay (Opt. 001/002)	1	08757-80083
Cable assembly-50 MHz	1	00438-60026
Cable assembly-front panel	1	08757-60034
Washer.439 ID	1	2190-0104

Item	Qty	HP Part or Model Number
Nut 7/16-28	2	2950-0132
Installation manual	1	86383-90002
Calibration software 002	1	08757-10002
Washer M3	2	2190-0584
Nut M3	2	0535-0004
Coaxial adapter N(m)-3.5(f)	1	08485-60005

Equipment Required But Not Supplied

- T-10 and T-15 Torx screwdrivers
- Needle nose pliers
- HP 11613A/B calibrator
- HP 9000 series 200/300 computer with BASIC.
- HP 8902A measuring receiver
- HP 432A power meter
- HP 478A H76 power sensor
- 4 1/2 digit voltmeter

Procedure

1. Remove the screw on the back of the analyzer using a T-15 Torx screwdriver and then lift off the top cover.
2. Remove the logger cover screws using a T-10 Torx screwdriver
3. Unsnap the trim strip from the top of the instrument.
4. Unsnap and remove button cover. (The button cover is the plastic cover through which the front panel soft keys protrude). Insert a thin flat screwdriver blade, or a fingernail, between the cover and the glass filter. Be careful not to scratch the glass. Remove the two screws located behind the button cover.
5. Remove the four screws holding the keyboard assembly (two on the top, two on the bottom).
6. Remove the the screws that hold the glass display bezel and separate it from the A1/A2 keyboard assembly.
7. Disconnect the 20 pin ribbon cable between the A2 front panel interface and the motherboard.
8. Unplug each of the three detector inputs from the motherboard.
9. At this point the front panel assembly should be completely free of the instrument.
10. Remove the rotary knob from the shaft on the front panel.
11. Peel off the plastic front panel c overlay from the front of the instrument.

Note The glue is *very* adhesive and it will require considerable force to remove the overlay.)

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12. Install the new detector input assembly using the hardware provided. (Two washers and two hex nuts.) Observe the orientation of the inputs already installed and be sure that the orientation of the new input matches those.
13. Move the detector input jack that was connected to A2J4 to A2J5.
14. Move the detector input jack that was connected to A2J3 to A2J4.
15. Connect jack on new input assembly to J3.
16. Using the Option 001/002 overlay, peel off the protective backing and very carefully align panel over keys and apply pressure to adhere to front panel.

Note Ensure that none of the keys stick under the plastic overlay and that each key moves freely.

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17. Install the type-N connector cable assembly onto the front panel in the holes provided. Secure with lock washer and two nuts. Tighten using a pair of needle nose pliers.
18. Remove exsisting A5 mod board and replace with new A5 mod calibrator board. Connect both the modulator drive cable and the 50 MHz power out cable to the board.
19. Reconnect each of the input plugs and the ribbon cable into the motherboard.

20. Reattach the front panel bezel and front panel assembly with the six screws.
21. Reattach knob and button cover.
22. Install the new A9 logger board assembly into the open A9 slot of the motherboard.
23. Replace logger cover.
24. Using an HP 11613A/B calibrator perform the cal constant adjustment procedure described in the HP 8757D manual.
25. Using the calibration software and the listed test equipment, perform the 50 MHz power calibration procedure described in the *HP 8757D Operating Reference* manual.
26. The upgrade is now complete, replace the top cover.