

MARKUP COPY

Installation Note

Option 103, Quasi-Peak Detector/Demodulator Retrofit Kit 11946-60001/2/3



**HP Part No. 11946-90004 Supersedes: 11946-90003
Printed in USA May 1996**

Notice.

The information contained in this document is subject to change without notice.

Hewlett-Packard makes no warranty of any kind with regard to this material, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Copyright © 1994, 1996 Hewlett-Packard Company. All Rights Reserved. Reproduction, adaptation, or translation without prior written permission is prohibited, except as allowed under the copyright laws.
1400 Fountaingrove Parkway, Santa Rosa, CA 95403-1799, USA

Option 103, Quasi-Peak Detector/Demodulator Retrofit Kit

INSTRUMENTS AFFECTED: HP 8591 A- and E-Series spectrum analyzers
HP 8593 A- and E-Series spectrum analyzers

SERIAL NUMBERS: 0000A00000/9999A99999
0000U00000/9999U99999

TO BE PERFORMED BY: HP or qualified customer

Purpose

This installation note describes how to install Option 103, quasi-peak detector/demodulator, for an HP 8590 Series spectrum analyzer.

Note Option 103 is not designed for an analyzer with a 75 Ω input. Option 103 should not be installed into an analyzer with Option 001 or 011.

This installation note applies to all of the retrofit kits for Option 103:

Retrofit Kit Part Number	Description
11946-60001	Option 103 retrofit kit without firmware; for 8590 E-Series ONLY.
11946-60002	Option 103 retrofit kit with firmware; for 8591A ONLY.
11946-60003	Option 103 retrofit kit with firmware; for 8593A, 8594A or 8595A ONLY.

Note Analyzers with firmware dated prior to 03.01.90 need the firmware updated. The firmware is provided in retrofit kit 11946-60002 or 11946-60003.

Safety Considerations

Warning Before disassembling, turn the power switch OFF, and unplug the analyzer. Failure to unplug the analyzer can result in personal injury.

Electrostatic Discharge

Electrostatic discharge (ESD) can damage or destroy electronic components. All work on electronic assemblies should be performed at a static-safe work station. Refer to the User's Guide for your instrument for information about a static-safe work station and ordering static-safe accessories.

Parts Supplied

Table 1 lists the parts shipped with the quasi-peak detector/demodulator (Option 103) retrofit kit, HP part number 11946-60001. Retrofit kit 11946-60002 includes the latest firmware for the HP 8591A in addition to the quasi-peak detector/demodulator retrofit kit. Retrofit kit 11946-60003 includes the latest firmware for the 8593A, 8594A or 8595A in addition to the quasi-peak detector/demodulator retrofit kit.

**Table 1. Quasi-Peak Detector/Demodulator Retrofit Kit, 11946-60001,
Parts List**

Quantity	Description	HP Part Number
1	Board assembly, quasi-peak detector/demodulator	5062-1983
4	Machine screw 3.0 mm by 8 mm	0515-0372
1	Bezel	5041-8962
1	RFI plate	1000-0897
1	Speaker assembly	08590-60134
1	Cable assembly, earphone	08590-60135
1	Cable assembly, volume	08590-60136
1	Bracket, speaker	5001-8786
1 piece	Tape, double-sided adhesive	0460-1242
3	Tie, cable	1400-0249
1	Installation note	11946-90004
1	Option 103 Manual Supplement	5961-0433
1	ROM card, quasi-peak detector driver	11946-10004

Required Tools

Required Tools

Description	HP Part Number
4 mm hex (Allen) wrench	8710-1755
3 mm hex (Allen) wrench	8710-1392
TORX T-10 driver	8710-1623
TORX T-15 driver	8710-1622
Small #1 Pozidriv screwdriver	8710-0899
Large #2 Pozidriv screwdriver	8710-0900
Needle nose pliers	8710-0595

Removing the Instrument Cover

1. Disconnect the analyzer from ac power.
2. Since the analyzer must be placed face down to remove the instrument cover, remove anything that protrudes past the front frame—adapters, connectors, or an inserted memory card.
3. Carefully place the analyzer on the work surface with the front panel facing down.

Caution To prevent damage to the front panel, use a soft cloth or towel between the work surface and the front panel.

4. Remove the four screws and washers attaching the instrument cover to the rear frame. See Figure 1.
5. Unscrew, but do not remove, the four rear-foot screws, using a 4 mm hex wrench.
6. Pull the instrument cover off towards the rear of the instrument.

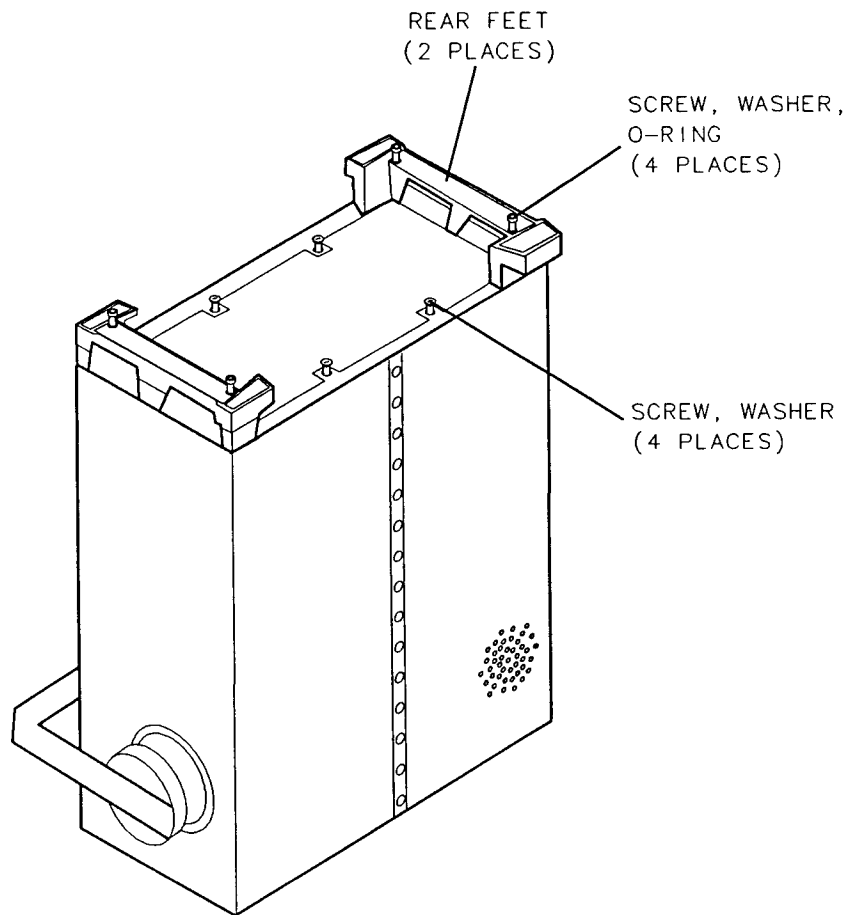


Figure 1. Removing the Instrument Cover

Installing the Firmware (Kit Number 11946-60002 or 11946-60003 Only)

Analyzers with firmware dated prior to 03.01.90 need the firmware updated. The firmware is provided in retrofit kit 11946-60002 or 11946-60003. Refer to the installation note included in the firmware kit for instructions on how to replace the firmware. After replacing the firmware, proceed to step 1 (do not replace the analyzer cover).

Installing the Quasi-Peak Detector/Demodulator, Option 103

Note If Option 102 (AM/FM speaker and TV synch trigger circuitry) is installed in the analyzer, skip steps 1 to 18 and proceed to step 19.

1. Place the analyzer on the work surface with bottom side facing up.
2. Cut the double sided tape into two equal lengths. Remove the backing from the tape and place each piece, one on top of the other, on the chassis. Center the tape within the four speaker standoffs. See Figure 2.

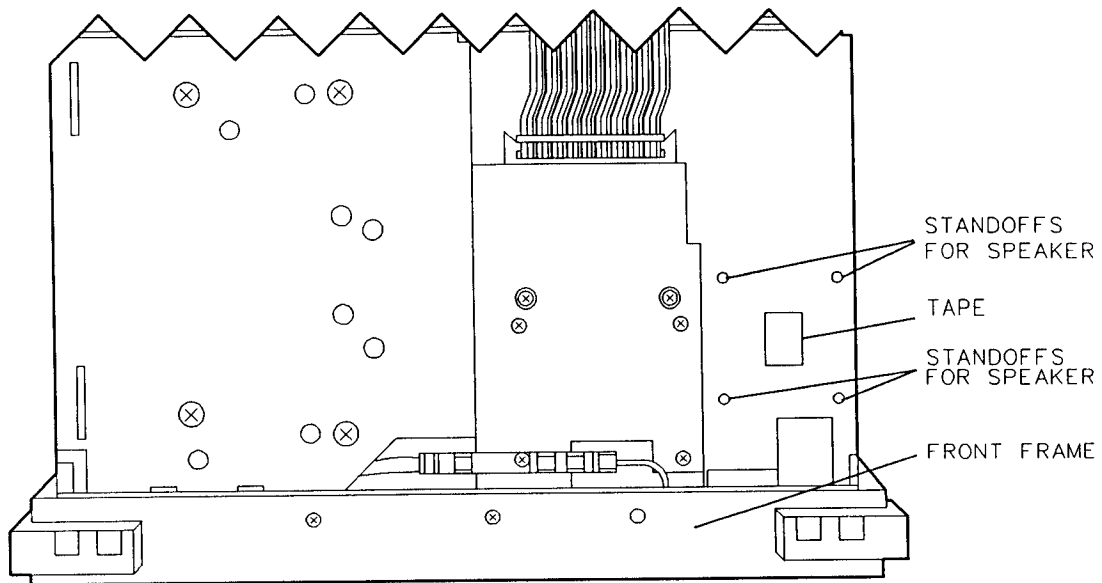


Figure 2. Placement of Tape

3. Place the speaker assembly on top of the tape with the speaker wire terminals facing the side of the analyzer and the speaker wires pointing toward the center of the analyzer. See Figure 3.

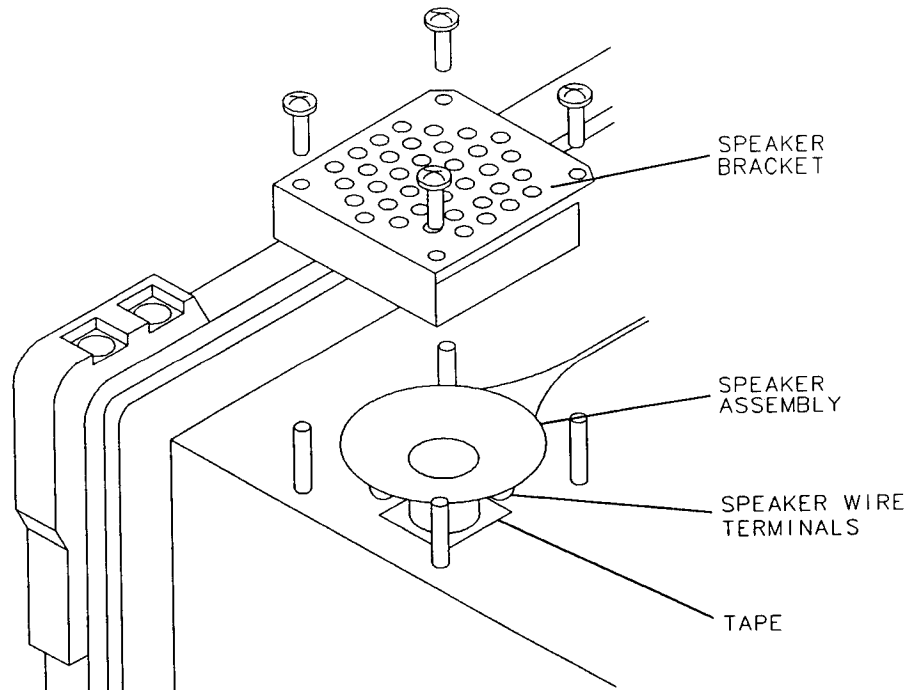


Figure 3. Attaching the Speaker Assembly and Bracket

4. Place the speaker bracket on top of the speaker assembly. Be sure not to pinch any cables between the chassis and the speaker bracket. Attach the bracket to the chassis with the four 3.0 mm by 8 mm machine screws.

Refer to Figure 4 when performing steps 5 through 11.

5. Disconnect W14 from the memory card assembly. (1)
6. Route the speaker cable (from the retrofit kit) under W14. The speaker cable is the cable with white and red wires.

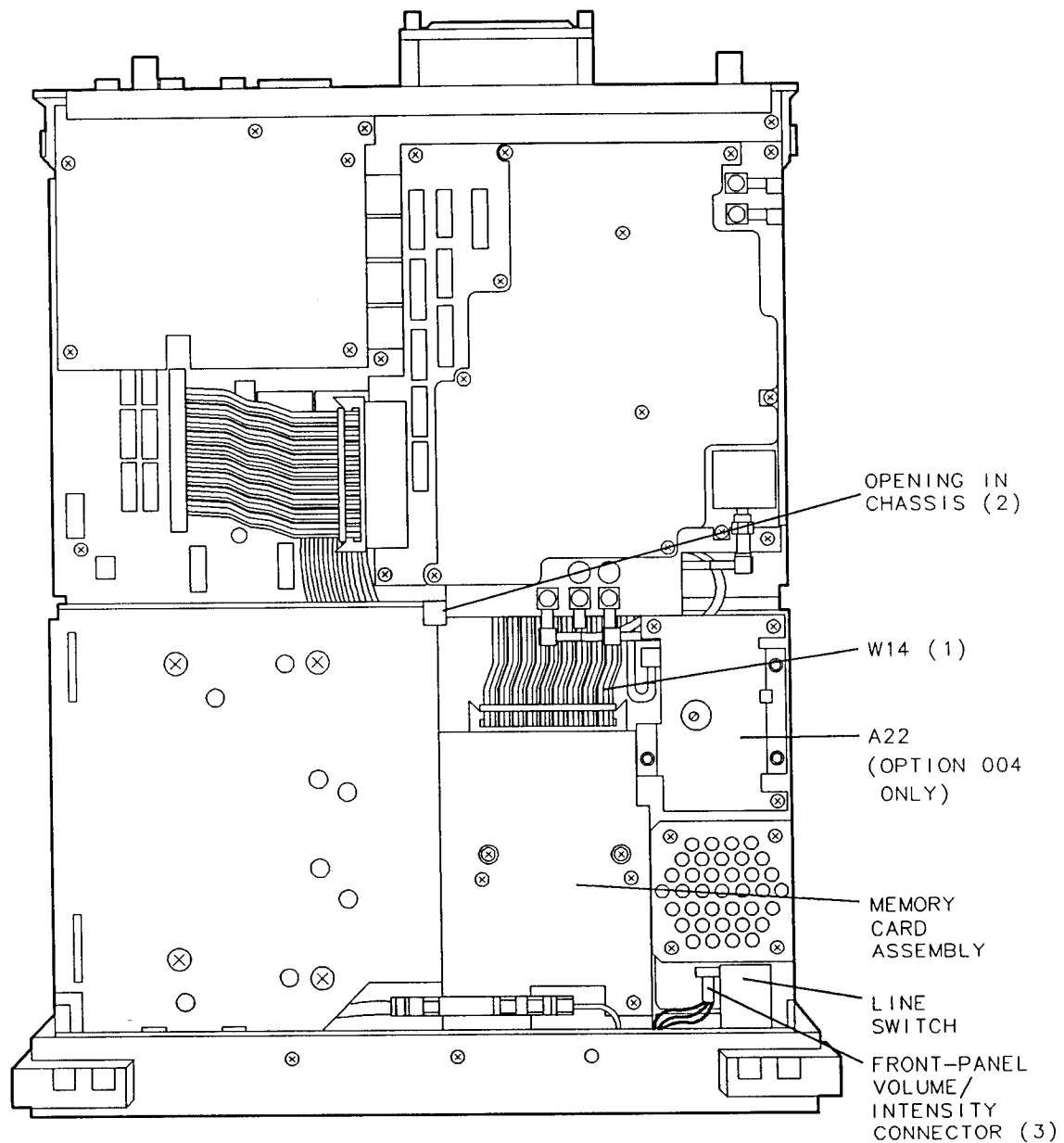


Figure 4. Connecting the Volume Cable

7. Locate the front panel volume/intensity cable (violet, gray, and blue wires with an unconnected connector). (3)
8. Connect the volume cable (from the retrofit kit) to the front panel volume/intensity connector. The volume cable is the cable with violet, gray, and blue wires.
9. Route the volume cable under W14.

10. If necessary, straighten the unconnected end of the speaker and the volume cables.
11. Push the speaker cable assembly through the opening in the center of the analyzer chassis.
(2)
12. Place the analyzer on its side.
13. To route the speaker cable through the chassis, push the speaker cable from the bottom side of the analyzer while pulling the speaker cable (gently) from the top side of the analyzer. If necessary, use needle nose pliers to guide the cable through the chassis. (See Figure 5.)
14. Continue to route the cable through the chassis until the speaker cable is flush, but not taut, against the bottom of the chassis.
15. Repeat steps 11 to 14 with the volume cable.

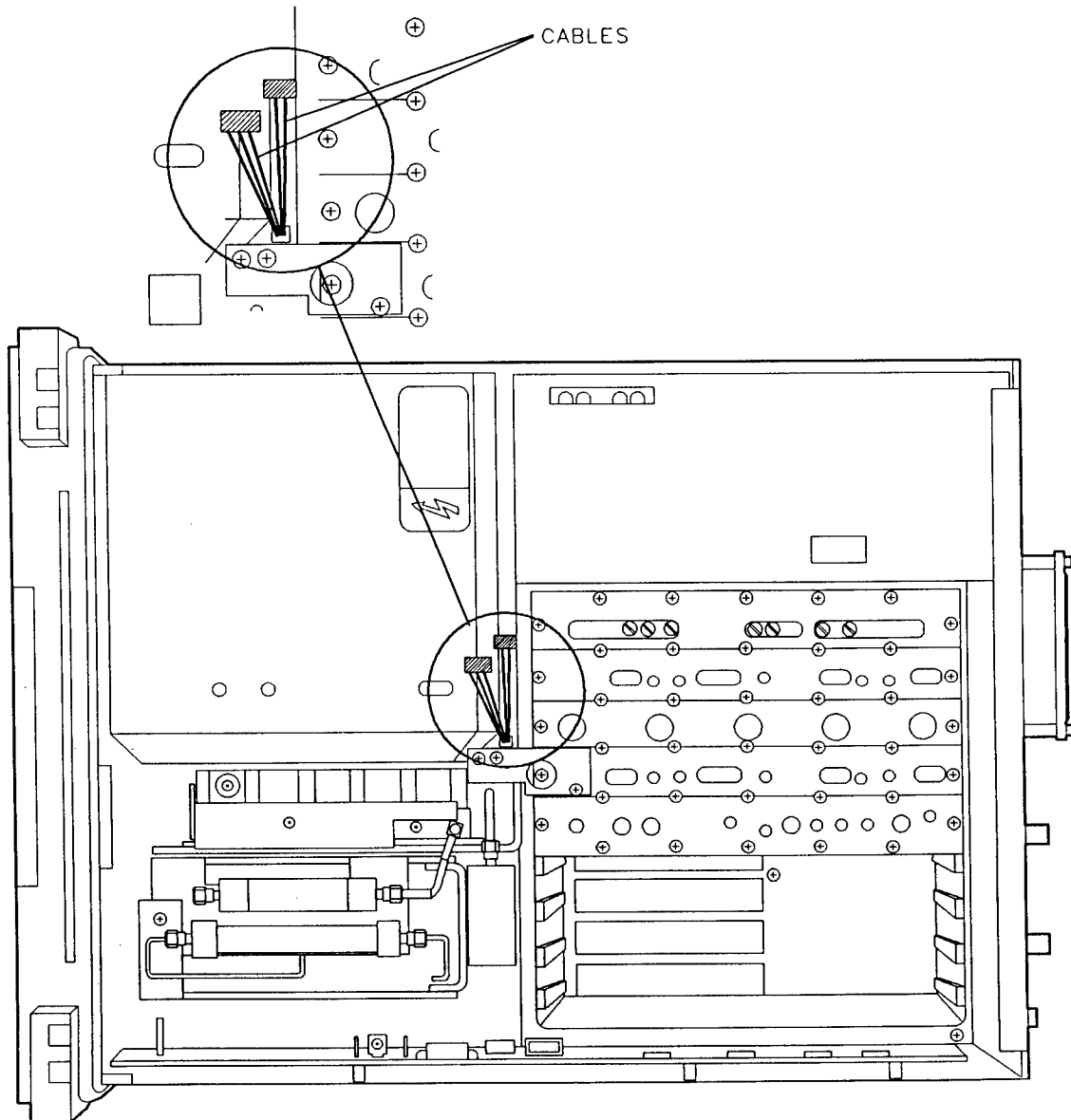


Figure 5. Routing the Cable through the Chassis

16. Place the analyzer on the work surface with bottom side facing up.
17. Use a tie wrap to bundle the speaker cable, the volume cable, and the wires to the line switch. The speaker and the volume cables should be routed under the W14 cable. See Figure 6.

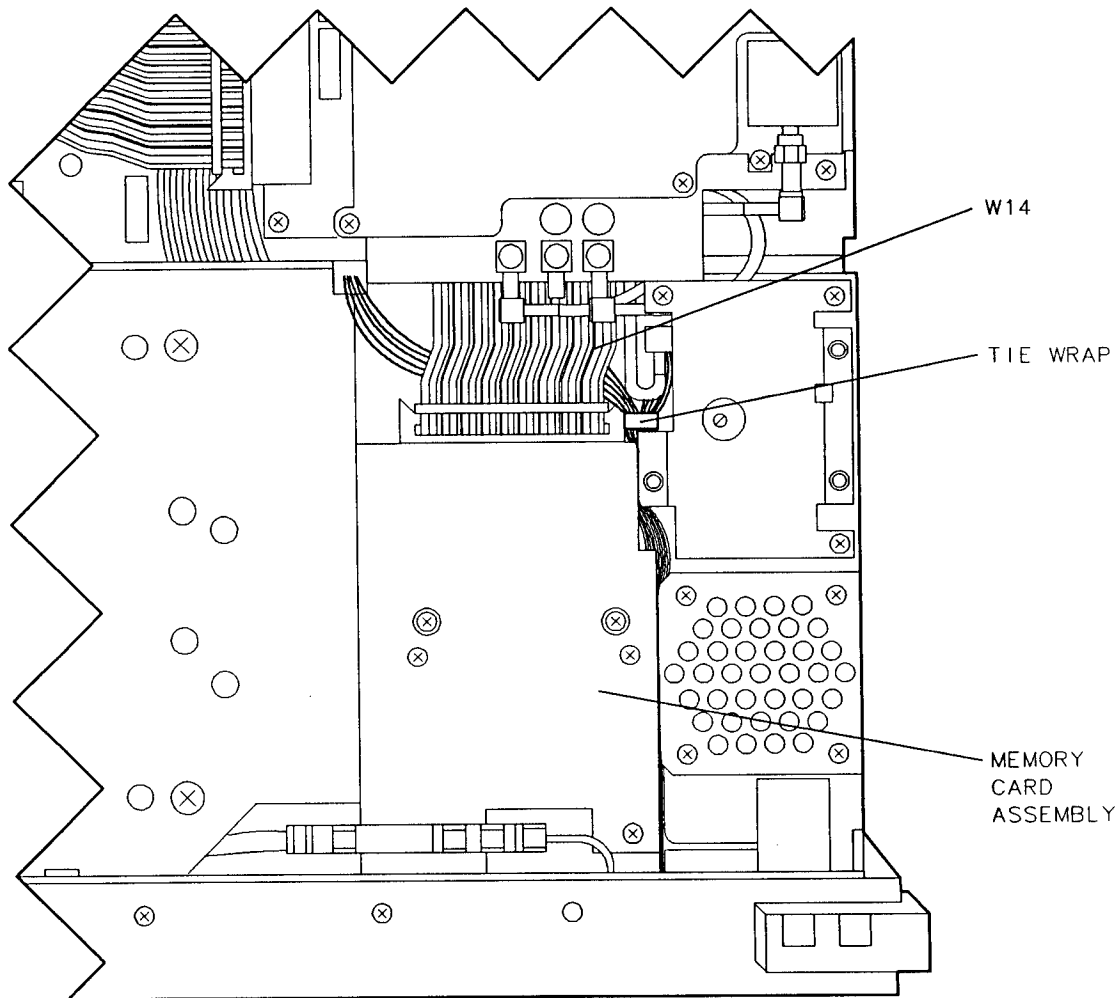


Figure 6. Routing of Cables

18. Reconnect W14 to the memory card assembly.
19. Place the analyzer on the work surface with top side facing up.
20. With the component side of the board facing slots 1, 2, and 3, insert the quasi-peak detector/demodulator board assembly in slot 4 of the four slots near the rear panel of the analyzer. (See Figure 7.)

Note If the circuit board of another option is installed in slot 4, place the quasi-peak detector/demodulator board into the next available slot.

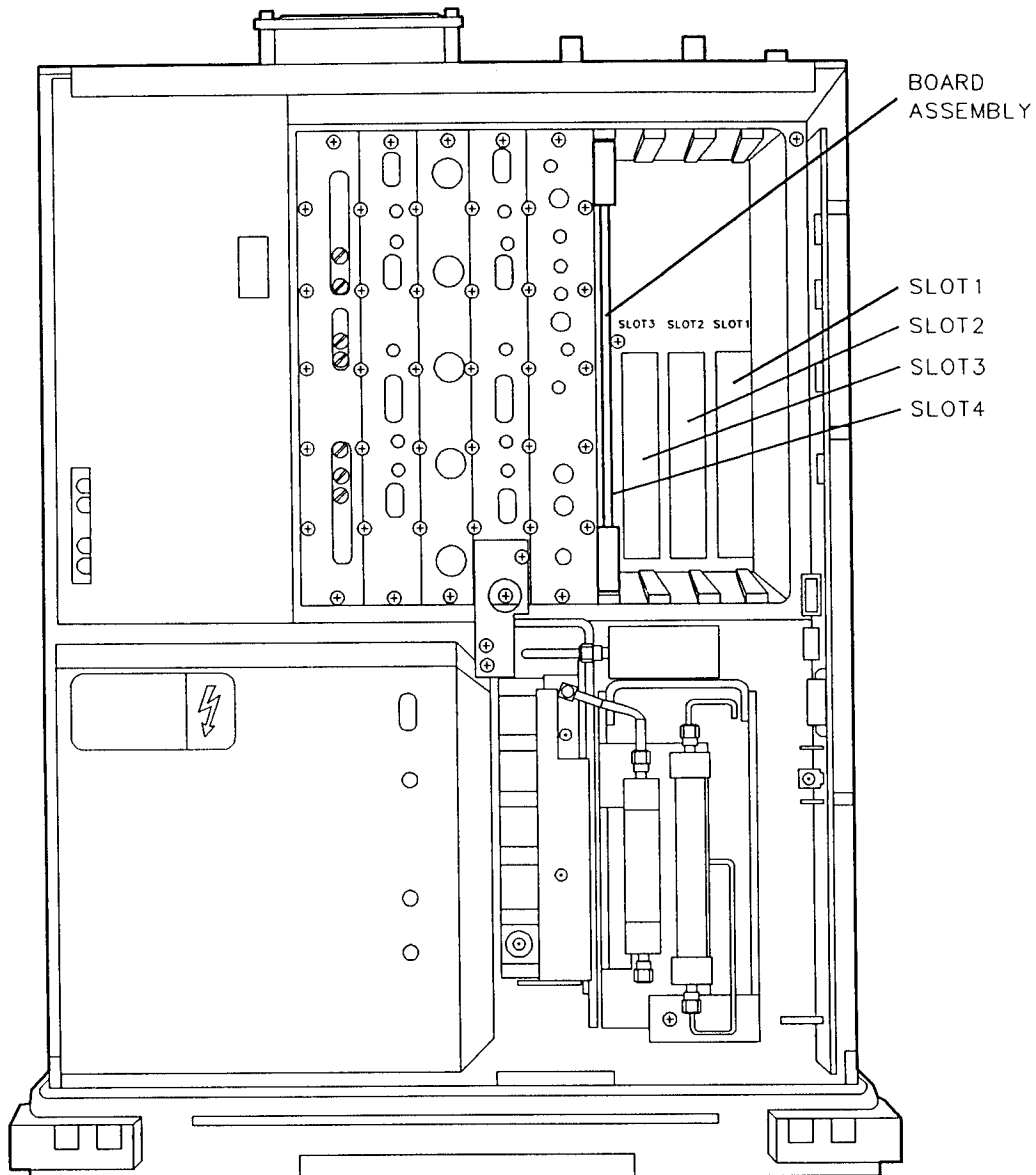


Figure 7. Inserting Board Assembly

21. *If Option 102 (AM/FM speaker and TV synch trigger circuitry) is installed in the analyzer:* Disconnect the volume cable assembly (violet, gray, blue), the earphone cable assembly (black, red, yellow), and the speaker cable assembly (white, red) from the AM/FM speaker and TV synch trigger board. Do not remove the TV trig cable from the AM/FM speaker and TV synch trigger board.

Note Step number 21 is necessary even though the demodulation circuitry of Option 102 is the same as Option 103. If Option 103 and Option 102 are installed in the analyzer, the analyzer recognizes the demodulation capabilities of Option 103, not of Option 102.

22. Attach the volume cable assembly (violet, gray, blue) to the quasi-peak detector/demodulator board at P3. (See Figure 8.)

23. Attach the earphone cable assembly (black, red, yellow) to the quasi-peak detector/demodulator board at P4.
24. Connect the speaker cable assembly (white, red) to P5 on the quasi-peak detector/demodulator board.

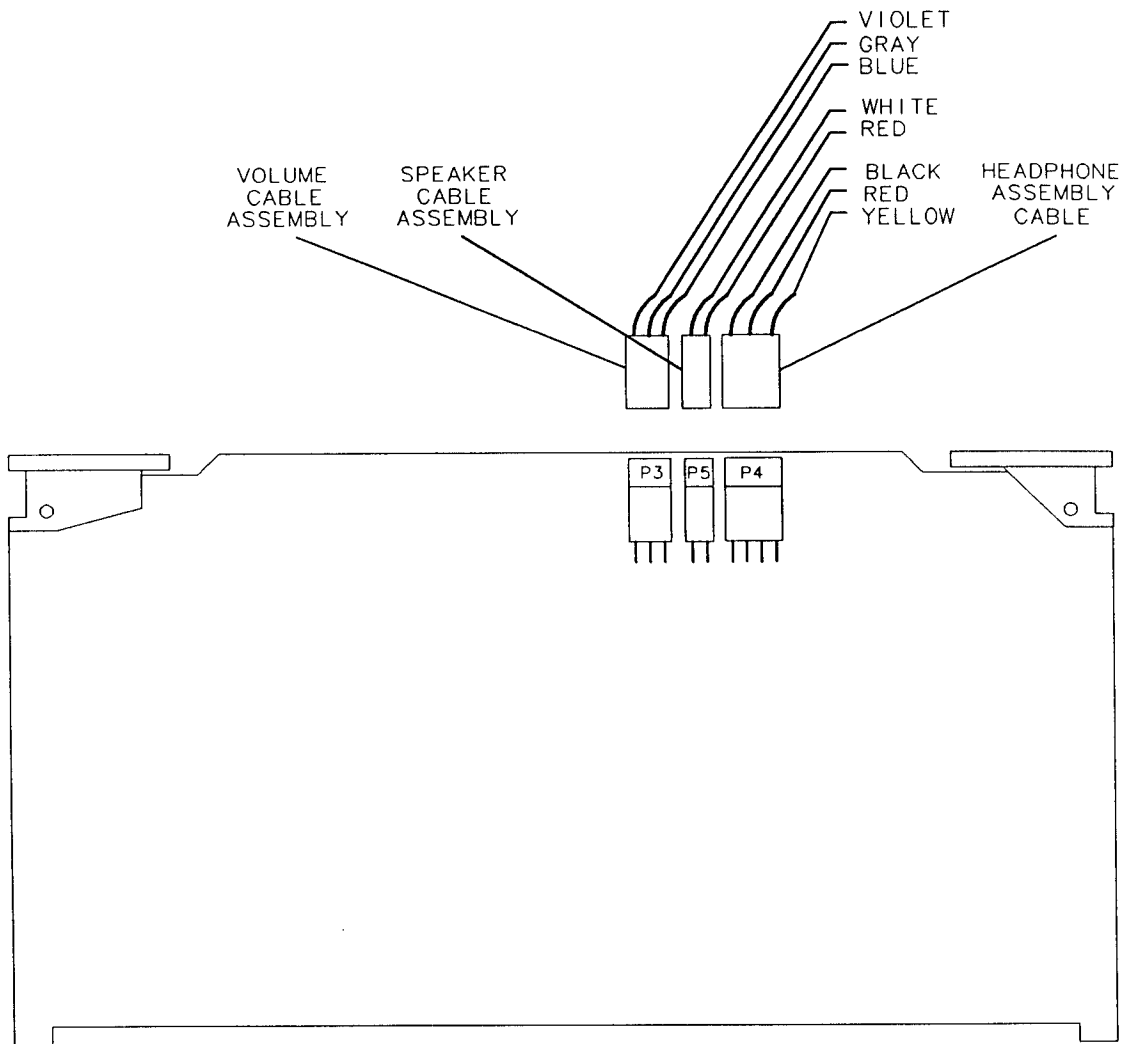


Figure 8. Attaching Cables to Board Assembly

25. Remove three screws on each side of the rear panel, and pull the rear panel gently away from the instrument a few inches.
26. Using the needle nose pliers, remove the plug from the rear panel opening marked EARPHONE.
27. Attach the earphone connector to the rear panel with the nut provided. Use needle nose pliers to tighten the nut.
28. Being careful not to pinch or damage any cable, replace the rear panel assembly.
29. Replace the three screws on each side of the rear panel.
30. Bundle the wires with the tie wraps as shown in Figure 9. The tie wraps should secure the cables to prevent damage to the cables when the analyzer cover is replaced.

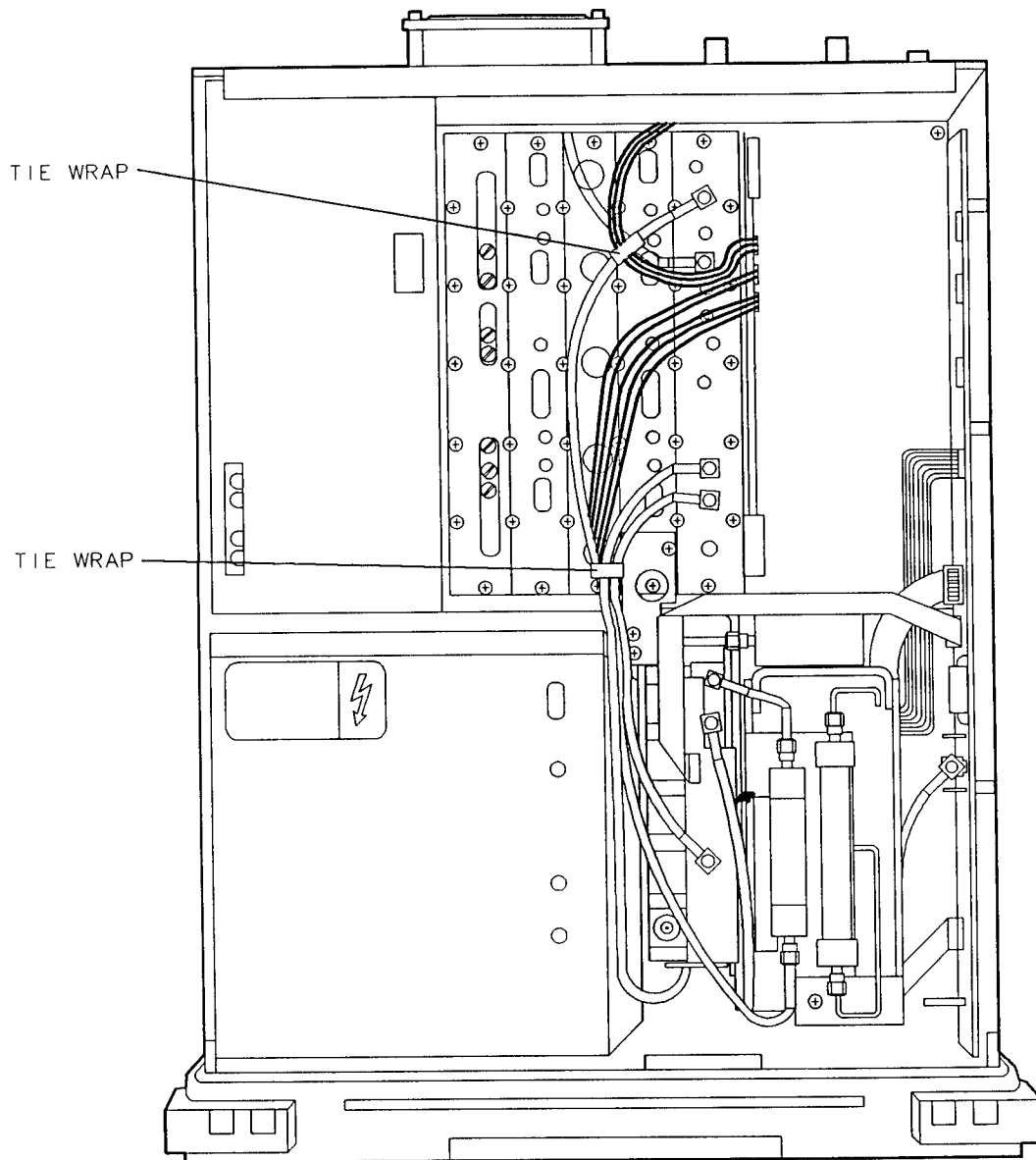


Figure 9. Location of Tie Wraps

Replacing the Instrument Cover

-
- Caution** To prevent damage when replacing the instrument cover:
- Use a soft cloth or towel between the work surface and the front panel.
 - Ensure cables do not bind between the instrument cover and its internal assemblies.
-

1. Carefully place the analyzer on the work surface with the front panel facing down.
2. Replace the instrument cover assembly, locating the seam to the bottom side of the analyzer.
3. Tighten the four rear-feet screws with a 4 mm hex wrench.

4. Replace the four screws and washers attaching the instrument cover assembly to the rear frame.

Installing the Radio Frequency Interference (RFI) Plate

The RFI plate replaces the plastic analyzer screen covering. It prevents electromagnetic radiation from the analyzer screen.

1. Place the analyzer on its rear feet.
2. Remove the four hex nuts that attach the bezel to the analyzer with the 3 mm hex wrench (see Figure 10).

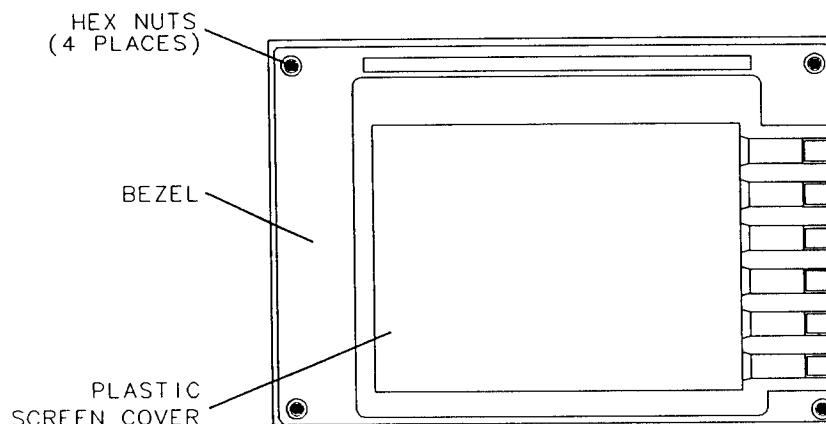


Figure 10. Removing the Bezel

3. Remove the plastic analyzer screen cover.

Note The RFI plate has a metallic border on one side of the plate. The metallic border *must* make contact with the front frame to prevent electromagnetic radiation from the analyzer screen.

4. Replace the plastic analyzer screen cover with the RFI plate. The side of the RFI plate with the metallic border *must* be placed against the front frame (away from the bezel).
5. Replace the bezel with the bezel provided in the kit.
6. Reattach the bezel to the analyzer with the hex nuts. Use the 3 mm hex wrench to tighten the screws.

Caution For HP 8591A spectrum analyzers with serial numbers prior to 02943A00404 or HP 8593A spectrum analyzers with serial numbers prior to 02943A00362 only: The opening for the RFI plate was not machined flat for these analyzers. Because the front frame is not flat, it is possible to break the RFI plate by overtightening the nuts. The RFI plate should make electrical contact with the front frame, but do *not* overtighten the nuts attaching the bezel to analyzer. For some analyzers, it may not be possible to tighten the bezel properly without breaking the RFI plate. If necessary, the front frame can be replaced. The HP part number for an HP 8591A front frame assembly is 08591-60006, for an HP 8593A it is 08593-60003. Contact a Hewlett-Packard Service Center for more information.

Adjustments and Performance Tests

No adjustments are necessary.

If the firmware was replaced, perform the self-calibration routines described in the Installation Note in the firmware kit.

Load the quasi-peak detector driver into the analyzer memory as described in "Installing the Quasi-Peak Detector Driver" in the *HP 8590 Series Option 103 Manual Supplement* (part number 5961-0433).

Perform the verification test "CISPR Pulse Response" in the *HP 8590 Series Option 103 Manual Supplement* (part number 5961-0433) to verify the functionality of the Option 103 quasi-peak detector. Perform the procedure "Demodulating and Listening to an AM or FM Signal" in the *HP 8590 Series Spectrum Analyzer Operating Manual* to verify the functionality of the Option 103 AM/FM demodulator.

Customer Order Number

Printed in USA

May 1996

** For HP Internal Reference Only **

Manufacturing Part Number

11946-90004

