Installation Note

Agilent Technologies PSG Series Signal Generators
E8241A, E8244A, E8251A, and E8254A
Add Option 1E1 (Attenuator) Upgrade Kit

Kit Part Number: E8251-60088

Agilent Technologies

Part Number E8251-90045
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E8251-90045

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PSG Series Signal Generators E8241A, E8244A, E8251A, and E8254A Add Option 1E1 (Attenuator) Upgrade Kit Part Number: E8251-60088

Product Affected:	E8241A, E8244A, E8251A, and E8254A
Serial Numbers:	All
Options:	
To Be Performed By:	(X) Agilent Technologies Service Center ( ) Personnel Qualified by Agilent Technologies ( ) Customer
Estimated Installation Time:	1.5 hours
Estimated Verification Time:	E8241A/51A = 8.0 hours E8244A/54A = 15.0 hours

Introduction

This upgrade kit adds Option 1E1 (Attenuator) to the:

- 250kHz to 20GHz PSG-L Series CW E8241A
- PSG-A Series Analog E8251A
- 250kHz to 40GHz PSG-L Series CW E8244A
- PSG-A Series Analog E8254A.

Installation includes the following major steps:

1. Remove the instruments covers.
2. Install the attenuator hardware for Option 1E1.
3. Access the Agilent PSG webpage to activate Option 1E1.
4. Re-assemble the signal generator.

Installation Kit Parts List

Item	Quantity	Description	Part Number
1	1	Attenuator 115dB	E8251-60070
2	1	Semi Rigid Cable (40GHz)	E8251-20025
3	1	Semi Rigid Cable (20GHz)	E8251-20026
4	1	Semi Rigid Cable (20GHz)	E8251-20027
5	1	Semi Rigid Cable (40GHz)	E8251-20028
6	2	Mounting Screw	0515-1035
7	1	Label	7120-1232
8	1	Installation Note	E8251-90045

Tools Required

- TORX T-10 driver
- TORX T-15 driver
- TORX T-20 driver
- 5/16” Open ended wrench
- Long nose pliers
- Scissors

Safety Considerations

WARNING **Before you disassemble the instrument, turn the power switch off and unplug the signal generator. Failure to unplug the signal generator 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.

Checking Signal Generator Functionality

Use the following procedure to confirm that the signal generator powers up and that the internal check identifies no errors. The internal check evaluates the operation of the signal generator and returns an error message if it detects a problem.

NOTE When signal generators with Option 1E5 are first connected to ac line power, the error message `ERROR 514, Reference Oven Cold` occurs, which causes both the `OVEN COLD` annunciator and the `ERR` annunciator to turn on.

After approximately five minutes, the `OVEN COLD` annunciator automatically clears, but the ERR annunciator remains on until all errors are cleared from the error queue.

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1. Turn on the signal generator and let it warm up for at least five minutes.
2. Run the instrument self-test by pressing **Utility** > **Instrument Info/Help Mode** > **Self Test** > **Run Complete Self Test**. Upon completion, a summary of the self-test is displayed. Use the service guide to troubleshoot any failures detected by this test.

NOTE Some circuits can require up to 50 minutes to warm up before passing the self-test. If self-tests continue to fail after 50 minutes of warm up, troubleshoot the instrument.

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3. Check to see if the `ERR` annunciator is on.
   - If the `ERR` annunciator is on, review the error messages in the error queue by pressing **Utility** > **Error Info** > **View Next Error Message**. The first error message in the error queue appears in the display text area. (Refer to the signal generator error messages document for information about each error message.)

     After resolving all problems causing errors, press **Clear Error Queue(s)**.
   - If the `ERR` annunciator is off, the signal generator functionality check has passed.

Removing Outer and Inner Covers

Tools Required

- T-10 driver
- T-15 driver
- T-20 driver

Removing the Outer Cover

Refer to Figure 1.

1. Disconnect the power cord.
2. Using a T-20 driver, remove the two strap handles (1) by loosening the screws (2).
3. Using a T-15 driver, remove the center screws (3) on the four rear-panel feet (4).
4. Remove the four bottom feet (5) from the cover by pulling the tab and pushing the foot.
5. Slide the outer cover (6) off the frame.

Removing the Inner Top Cover

Refer to Figure 2.

1. Using a T-10 driver, remove the ten screws (1) from the inner-top cover (2).
2. Remove the inner-top cover.

Figure 1 Outer Instrument Cover Removal

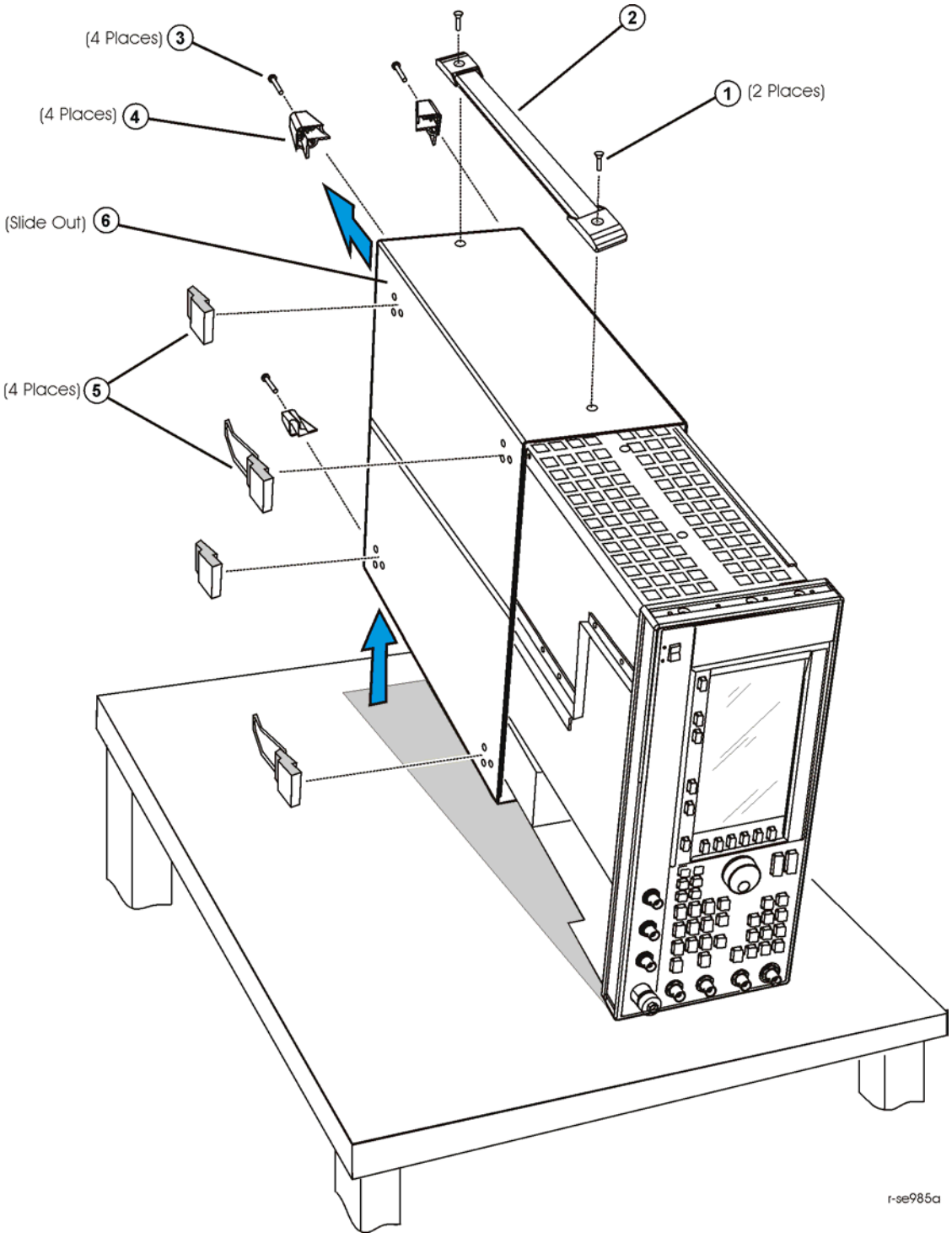
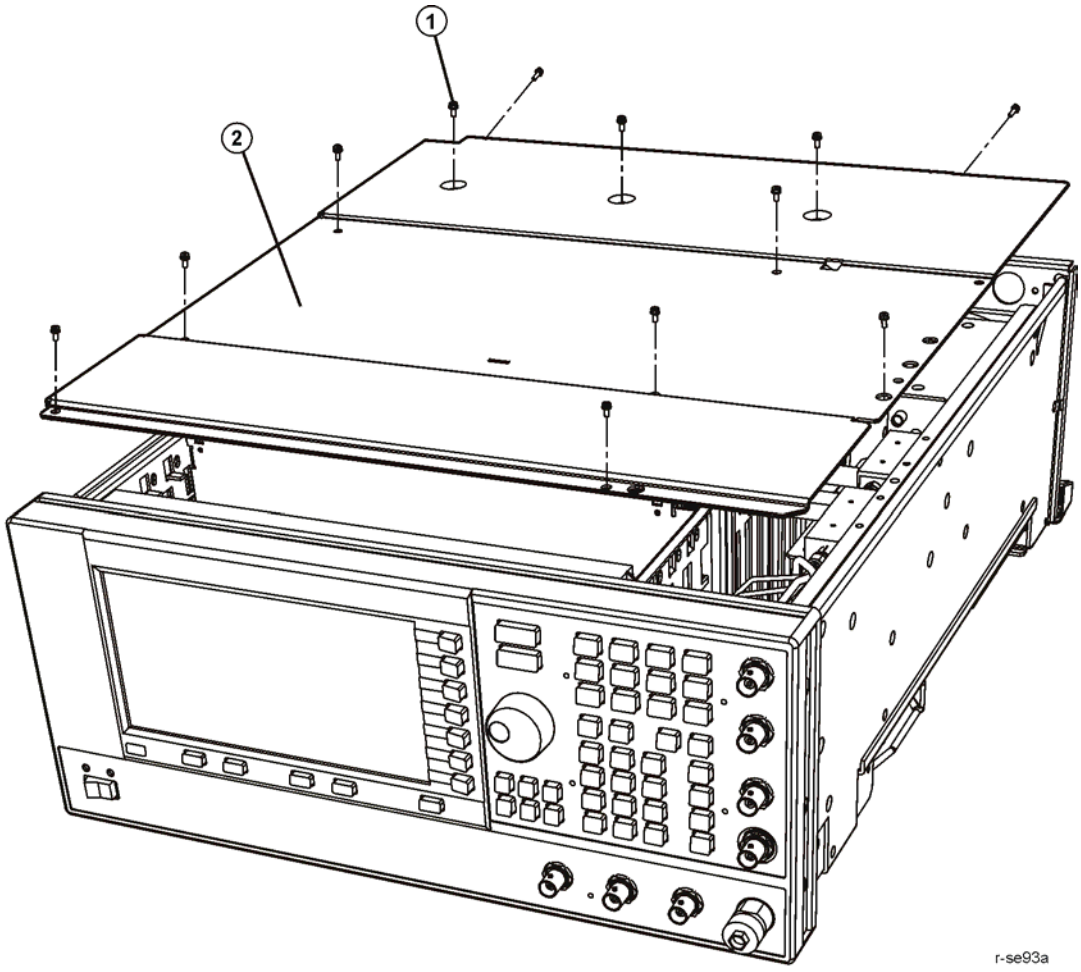


Figure 2 Inner Instrument Cover Removal



Installation Procedure

Remove the RF Cable from the Coupler Detector to the RF Output Connector

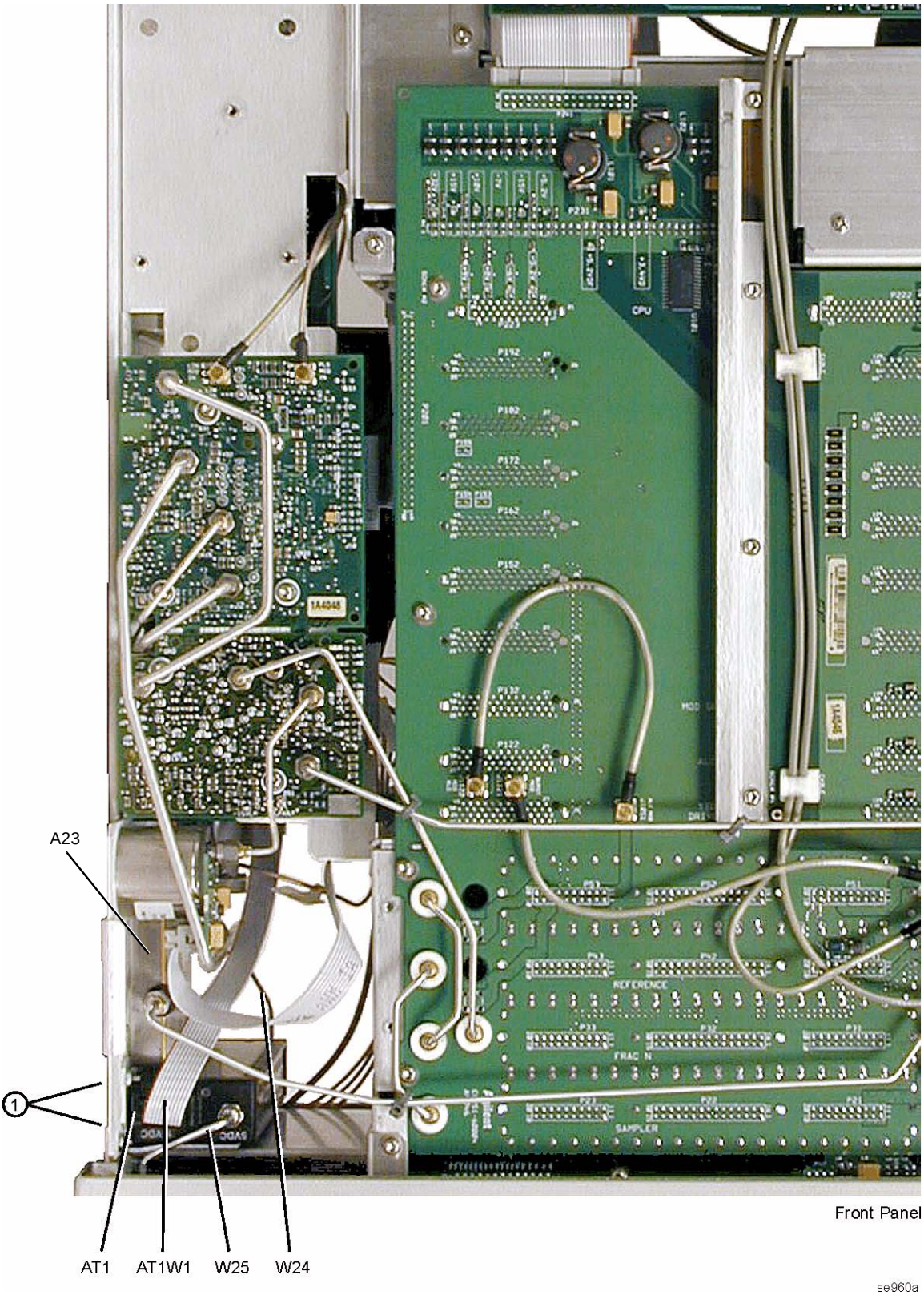
1. Position the signal generator with the A31 Motherboard facing you and the RF deck on top.
2. Using a 5/16” open wrench, remove the semi-rigid RF cable connecting the A23 Coupler Detector to the RF output connector.

Installing the AT1 115 dB Attenuator to the RF deck

Refer to Figure 3.

1. Position the attenuator (AT1) so it can be attached to the RF deck.
2. Using the T-10 driver, insert the two screws (1) through the side deck into the metal bracket that is attached to the attenuator. Torque these screws to 9 in-lbs.
3. Using the 5/16” open ended wrench, attach the semi rigid cable W24 between the A23 Coupler Detector output connector and the attenuator input connector; torque to 8 in-lbs.
   - 20 GHz models : use E8251-20026
   - 40 GHz models: use E8251-20025
4. Using the 5/16” open ended wrench, attach the semi rigid cable W25 between the A23 Coupler Detector output connector and the 3.5mm RF output connector; torque to 8 in-lbs.
   - 20 GHz models : use E8251-20027
   - 40 GHz models: use E8251-20028

Figure 3 AT1 dB 115 Attenuator (Option 1E1)



Activate Option 1E1

1. Reconnect the power cord.
2. Turn the instrument on and let it warm up for 5 minutes.
3. To activate Option 1E1;
   a. go to the PSG (E8200) service home page at the following URL:
   http:mktwww.soco.agilent.com/field/service/sources/psg/kits/litlist.htm
   b. Follow the Option 1E1 upgrade instructions.

Verify that Option 1E1 has been added to the instrument

1. Press **Utility** > **Instrument Adjustments** > **Instrument Options** > **Hardware Options**.
2. Verify that the [x] on the left side of option "1E1" is highlighted.

CAUTION If you enable an option that does not have the required hardware installed, the menu for that option is activated, but the option will not operate.

Re-Assembling the Instrument

Refer to Figure 2.

1. Reinstall the inner and outer instrument covers by reversing the order for removal.
2. Torque all T-10 screws to 9 in-lbs.
3. Torque all T-15 and T-20 screws to 21 in-lbs.
4. Cut out an Option 1E1 label and attach it to the rear panel, near the original serial number label.

Re-Calibrating the Instrument

1. Turn the instrument on and let it warm up for 20 minutes.
2. Using Tables 4-1 and 4-2 in the Post-Repair chapter of the PSG Series Service Guide (part number E8251-90030) complete the adjustments, in the order listed, for the A10 ALC and the AT1 115 dB Attenuator.

Verifying Instrument Calibration

Using Tables 4-3 and 4-4 in the Post-Repair chapter of the PSG Series Service Guide (part number E8251-90030) complete the performance tests, in the order listed, for the A10 ALC and the AT1 116 dB Attenuator.