

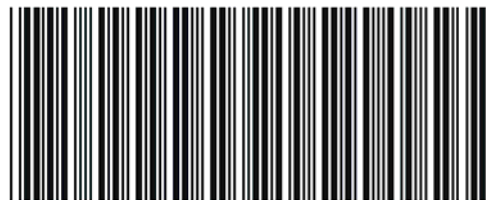
Installation Note

**Agilent Technologies ESG and ESG-D Series Signal Generators
Attenuator Replacement Kit for E4400-60042 and E4400-60205
Attenuators**



Agilent Technologies

**Part Number E4400-90590
Printed in USA August 2003**



E4400-90590

Notice

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E4400-60681 Attenuator Replacement Kit for E4400-60042 and E4400-60205 Attenuators

Product Affected:	ESG-A and ESG-D
Models Affected:	E4400A/B, E4420A/B, E4421A/B, E4422A/B, E4423A/B, E4424B, E4425B, E2426B, E4430A/B, E4431A/B, E4432A/B, E4433A/B, E4434B, E4435B, E4436B, E4437B
Serial Numbers:	All
To Be Performed By:	(X) Agilent Technologies Service Center (X) Personnel Qualified by Agilent Technologies () Customer
Estimated Installation Time:	1.0 hours
Estimated Verification Time:	

Introduction

This kit contains parts and instructions for replacing the E4400-60042 and the E4400-60205 attenuators with the new E4400-60680 attenuator. This attenuator update also requires that W14 be replaced using cable part number E4400-20558, included in this kit. If Option 1E6 is installed in the signal generator, then W46 must be replaced with cable part number E4400-20726, included in this kit.

Installation includes the following major steps:

1. Remove the outer and inner signal generator covers.
2. Remove A25 Pulse Modulator, Option 1E6, if installed in the signal generator.
3. Remove AT1 Electronic Attenuator
4. Replace W14 semi rigid cable.
5. Install E4400-60680 attenuator.
6. Re-install the pulse modulator, Option 1E6, if removed in step 2.
7. Re-assemble the signal generator.
8. Perform the Adjustments and Performance Tests.

Installation Kit Parts List

Item	Quantity	Description	Part Number
1	1	Installation Note	E4400-90590
2	1	AT1 Attenuator	E4400-60680
3	1	W14 Cable Out-Atten M51	E4400-20558
4	1	Retainer Ring	0510-1643
5	1	Retainer Cable	E4400-40002
6	1	W46 Cable Pulse Mod Out	E4400-20726

Tools Required

- TORX T-10 driver
- TORX T-15 driver
- TORX T-20 driver
- 5/16" open wrench
- MILBAR 2R snap-ring pliers (used to remove snap rings from cable retainers)

Safety Considerations

WARNING Before you disassemble the signal generator, turn the power switch off and unplug the power cord. 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.

Remove the Outer and Inner Signal Generator Covers

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.
3. Using a T-15 driver, remove the center screws (3) on the four rear-panel feet (2).
4. Remove the four bottom feet (5) and (6) from the cover by lifting the tab and sliding the foot.
5. Slide the outer cover (4) off the frame.

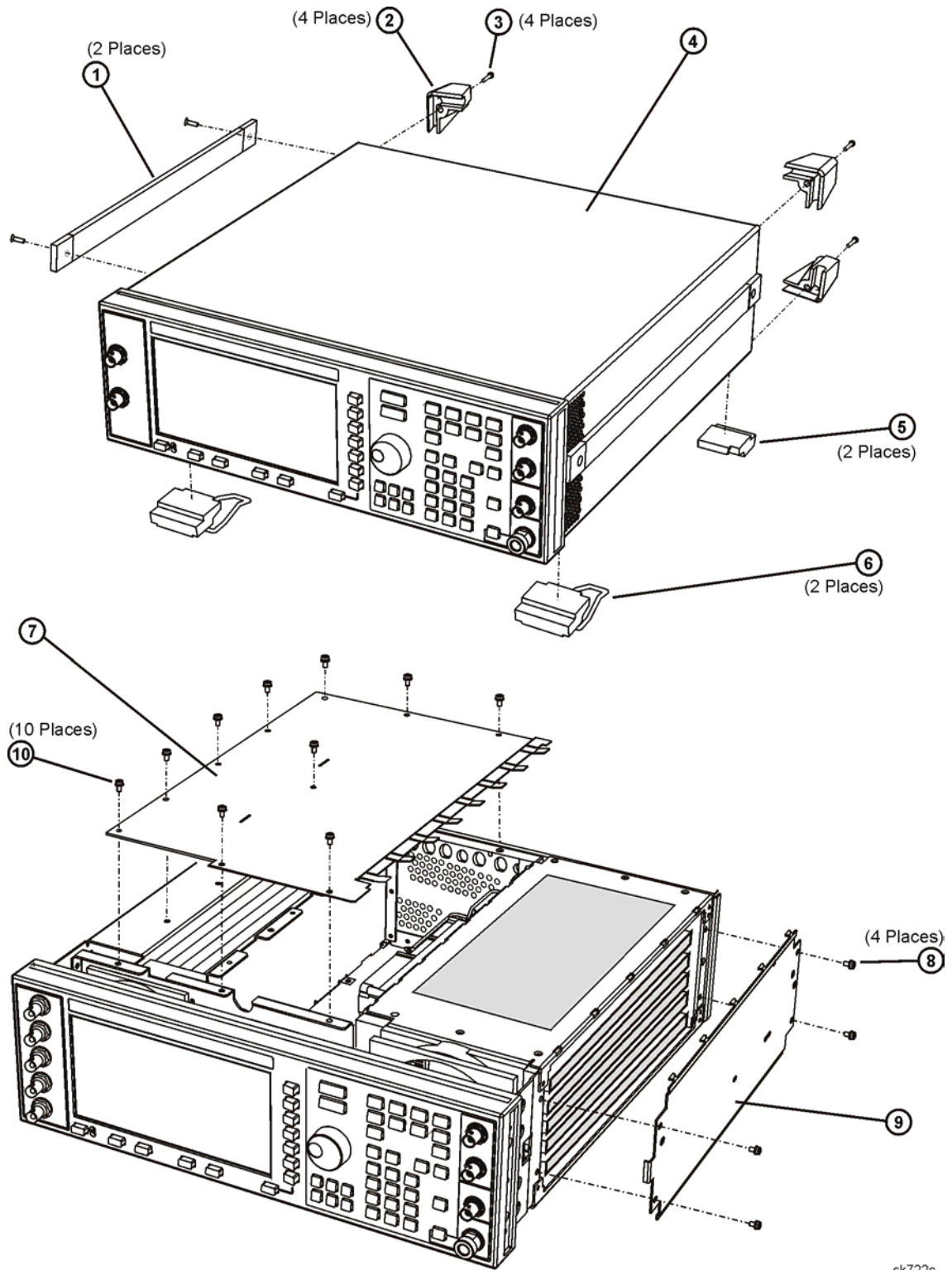
Removing the Inner Top and Side Covers

Refer to [Figure 1](#).

1. Using a T-10 driver, remove the ten screws (10) from the inner-top cover (7).
2. Remove the inner-top cover.
3. Using the T-10 driver, remove the four screws (8) from the inner side cover (9).
4. Slide the inner side cover forward to unlock the sheet metal from the chassis.
5. Remove the inner side cover.

Figure 1

Outer and Inner Cover Removal



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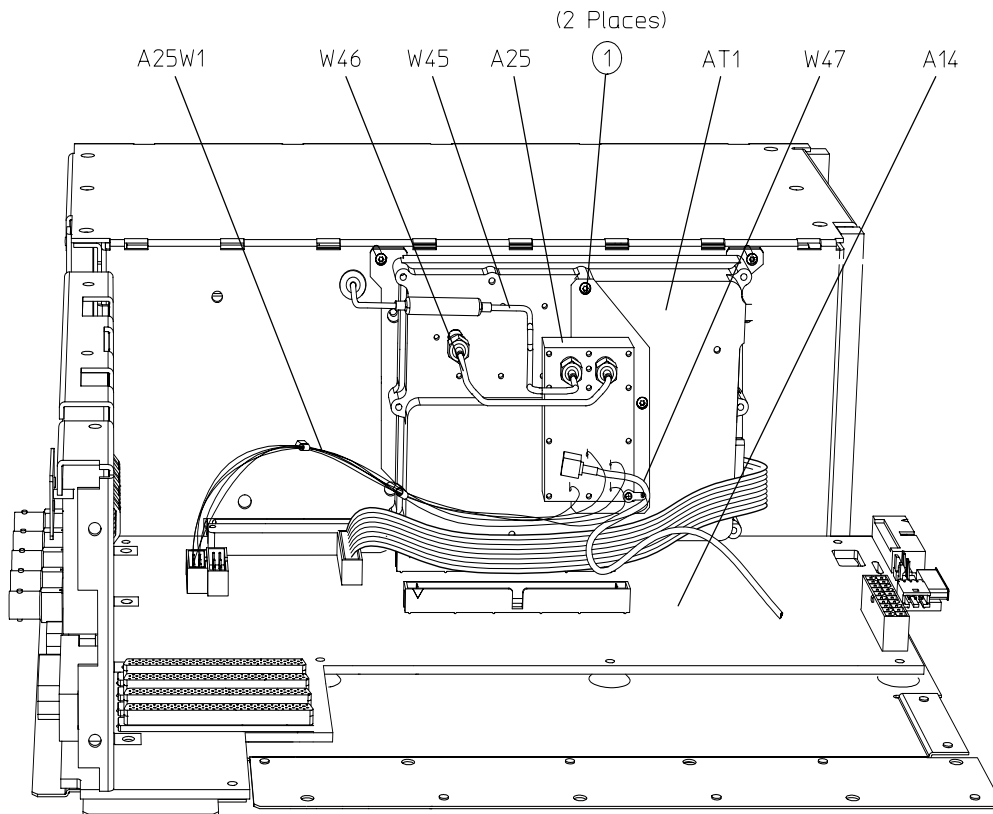
Remove A25 Pulse Modulator, Option 1E6

NOTE If Option 1E6 is not installed in your signal generator, skip this procedure.

Refer to [Figure 2](#) for this procedure.

1. Disconnect W45 and W47 from the A25 Pulse Modulator.
2. Disconnect W46 from the A25 Pulse Modulator and the AT1 Electronic Attenuator, and discard it.
3. Disconnect A25W1 from the A14 CPU/Motherboard.
4. Remove the two screws (1) connecting A25 pulse Modulator to AT1 Electronic Attenuator.
5. Slide the assembly out and up to remove.

Figure 2 A25 Pulse Modulator



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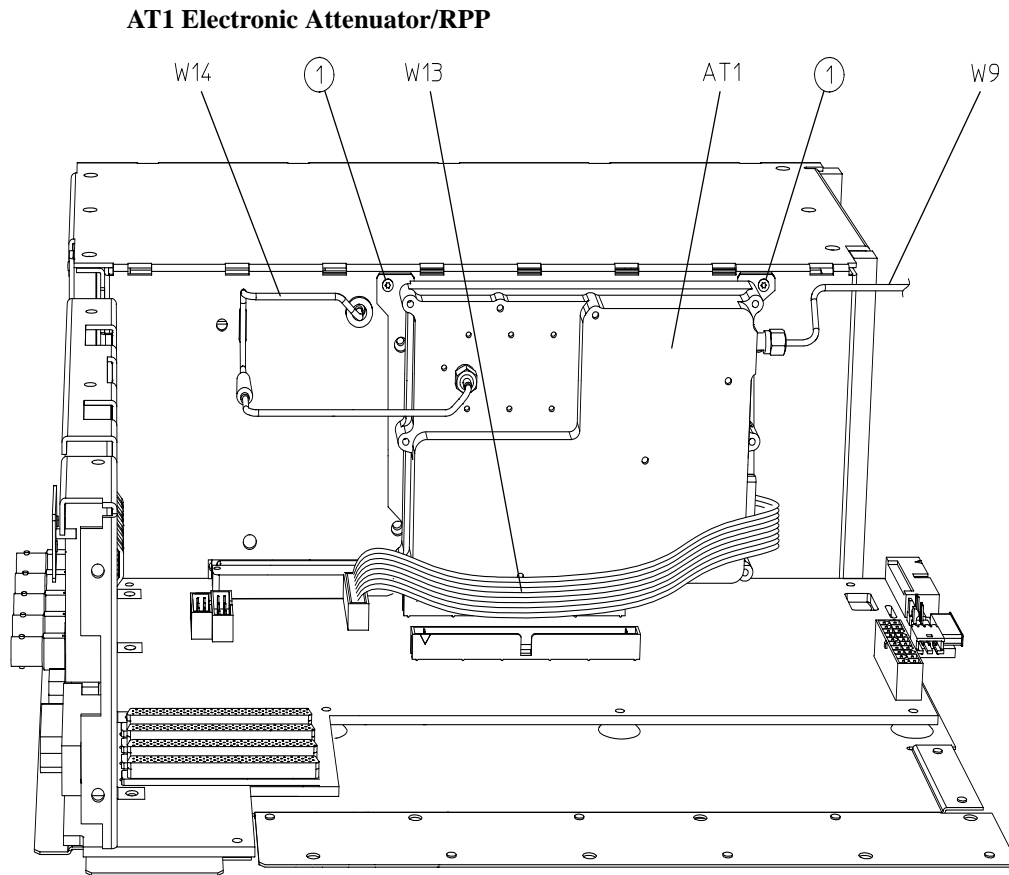
Remove AT1 Electronic Attenuator

Refer to [Figure 3](#) for this procedure.

1. Disconnect W9, W13, and W14 from AT1 Electronic Attenuator.
2. Remove the two screws (1) connecting AT1 Electronic Attenuator to the instrument chassis.
3. Tilt the attenuator away from the chassis wall and remove it.

NOTE There are two hinged tabs at the bottom of the attenuator that fit into slots on the instrument chassis. Tilting the attenuator away from the chassis wall, allows the tabs to be guided out of the slots.

Figure 3



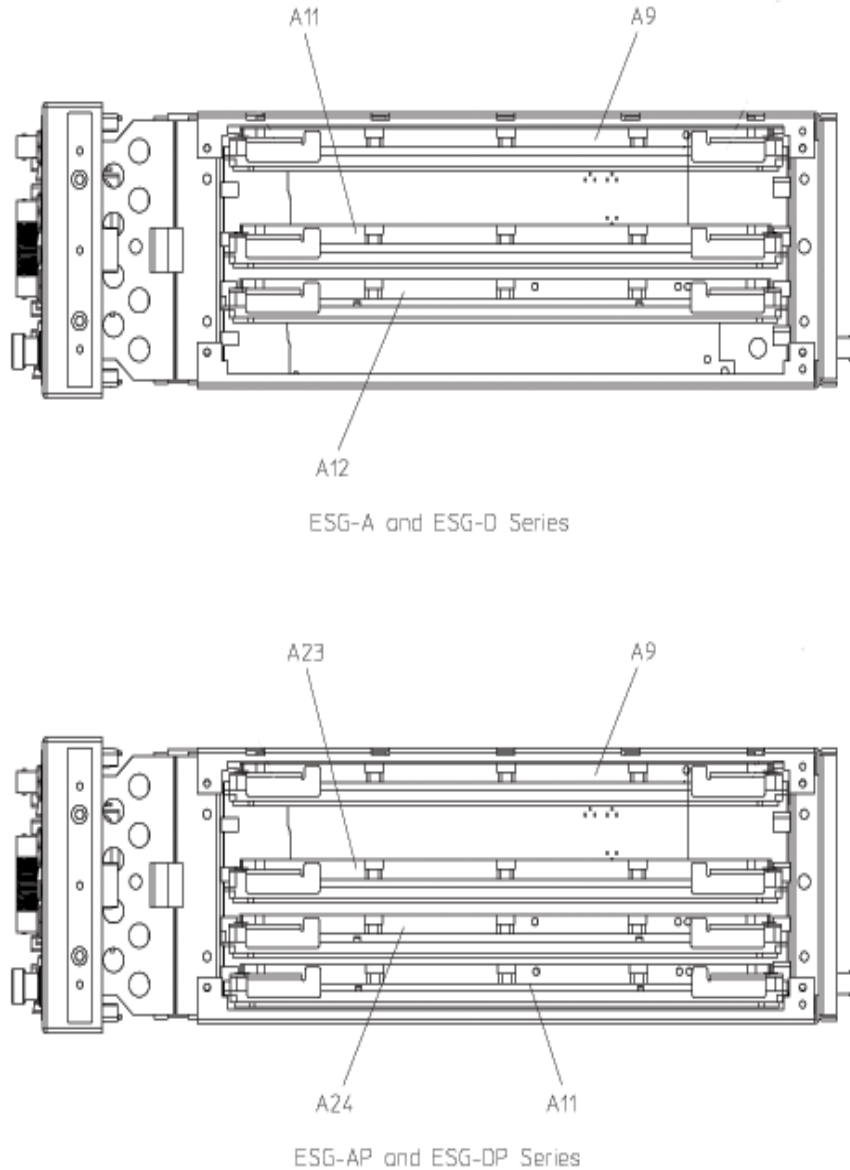
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Replace W14 Semi-Rigid Cable

NOTE The W14 cable must be replaced when replacing the E4400-60042 and E4400-60205 attenuators with the new E4400-60680 attenuator.

1. Refer to [Figure 4](#). Remove all of the daughterboard card cage boards.

Figure 4 Daughterboard Card Cage Boards



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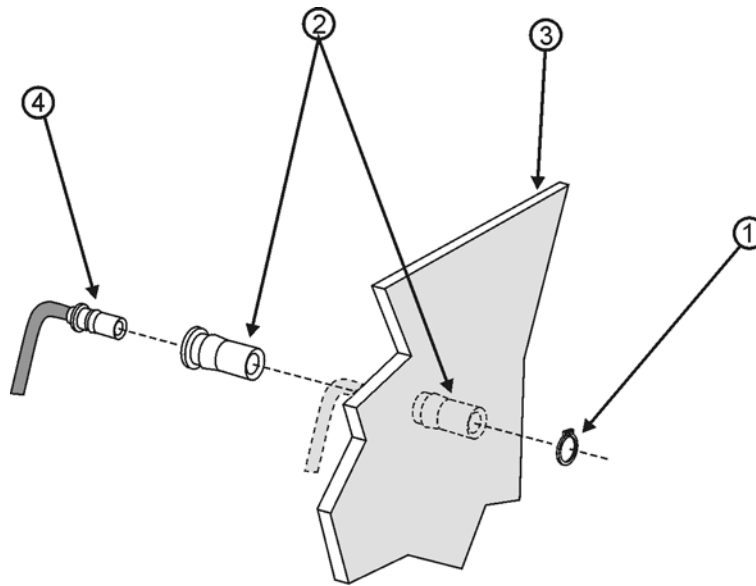
2. Refer to [Figure 5](#). Remove the snap ring (1) from the cable retainer (2) of W14. The old W14 cable is now disconnected from the instrument chassis (3) and can be discarded.

3. Attach the new cable retainer to the new W14 cable; both are provided in this installation kit.

NOTE To verify that the cable retainer is correctly attached to the W14 cable, listen for an audible “click” as you slide the retainer over the end of the cable.

4. Attach the W14 cable end with the retainer to the instrument chassis (3), secure it with the retainer ring provided in this installation kit.
5. Re-install the daughterboard card cage boards.

Figure 5 Cable Retainer



smb_rtnr-ring

Install E4400-60680 AT1 Electronic Attenuator

Refer to [Figure 3](#) for this procedure.

1. Insert the hinged tabs into the slots located at the base of the chassis wall.
2. Re-install the two screws (1) connecting AT1 Electronic Attenuator to the instrument chassis. Torque to 9 in-lbs.
3. Connect W9, W13, and W14. Torque W9 and W14 to 9 in-lbs.

Re-install A25 Pulse Modulator, Option 1E6

NOTE If Option 1E6 is not installed in your signal generator, skip this procedure.

Refer to [Figure 2](#) for this procedure.

1. Attach the new W46 cable, provided in this installation kit, to the A25 Pulse Modulator.
2. Slide the A25 Pulse Modulator into place.
3. Re-install the two screws (1) connecting A25 pulse Modulator to AT1 Electronic Attenuator. Torque to 9 in-lbs.
4. Connect A25W1 to A14 CPU/Motherboard.
5. Connect W45 and W47 to A25 Pulse Modulator.
6. Connect the loose end of W46 to the AT1 Electronic Attenuator. Torque to 9 in-lbs.

Re-Assembling the Instrument

Refer to [Figure 1](#).

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.

Perform the Following Adjustments and Performance Tests

NOTE These adjustments are automated using the ESG Series Support Software Analog / Digital E4400-10001.

Adjustments

1. Gain Adjust
2. ALC adjustments
3. Power Level Accuracy

Performance Tests

1. Power Level Accuracy
2. Pulse Rise/Fall Time (Option 1E6)
3. Alternate Timeslot (Option UNA)
4. Digital Mod: Internal I/Q Quality (Options UN3, UN4, and UN8)

