Keysight E8267D
PSG Signal Generators

Upgrade Kit for Option 602
Kit Part Number E8267DK-602

KEYSIGHT

INSTALLATION NOTE

Notices

Digital Bus Baseband Generator Upgrade Kit

Product Affected:	E8267D
Serial Numbers:	All
Options:	
To Be Performed By:	(X) Keysight Technologies Service Center (X) Personnel Qualified by Keysight Technologies (X) Customer
Estimated Installation Time:	0.5 hours
Estimated Verification Time:	1.0 hours

Introduction

This upgrade kit adds the Digital Bus Baseband Generator with 64 Msample memory to the E8267D.

> **NOTE**   This kit requires a PC or UNIX computer with LAN, GPIB, or RS232 access.

Installation includes the following major steps, starting on :

1. Check signal generator functionality.

2. Initialize the signal generator memory.

3. Remove the outer and inner signal generator covers.

4. Install the A14 Digital Bus Baseband Generator board.

5. Verify proper installation of Option 602.

6. Re-assemble the signal generator.

7. Run the I/Q Calibration.

8. Verify signal generator calibration.

Digital Bus Baseband Generator Upgrade Kit

Installation Kit Parts List

Item	Quantity	Description	Part Number
1	1	Installation Note	E8251-90388
2	1	W64 Ribbon Cable Assembly	8121-1328
3	1	W90 Digital Bus Cable	8121-0690
4	1	Hex Nut 15/21-32 (AUX I/O)	2950-0035
5	1	Washer .4721D (BNC)	2190-0102
6	1	A14 Digital Bus Baseband Generator 64 Msample	E4400-60765[a]
7	1	W65 Cable A33/A04 400G	8121-0643
8	1	Entitlement Certificate	n/a

a. Requires firmware version C.06.00 or greater. Visit: the E8257D, E8257N, E8267D, E8663D PSG Signal Generator Firmware page on Keysight.com.

Tools Required

— TORX T-10 driver

— TORX T-15 driver

— TORX T-20 driver

— 9/16" nut driver

— 5 mm nut driver

— 9/16" socket

— 5 mm socket

— Torque Wrench Ratchet (9-21 in-lb)

— Small Phillips screw driver

— Needle-nose pliers

— Standard screw driver

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.

Check Signal Generator Functionality

Use the following procedure to confirm that the signal generator powers up and 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 the signal generator is 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.

1. Turn on the signal generator and let it warm up for at least five minutes.

2. Run the signal generator self-test by pressing **Utility** > **Instrument Info/Help Mode** > **Self Test** > **Run Complete Self Test**. Upon completion, a summary of the self-test will be displayed. Use the E8257D/67D PSG Service Guide to troubleshoot any failures detected by the test.

NOTE	Some circuits may 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.

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**. The first page of error messages 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.

Remove the Outer and Inner Signal Generator Covers

Remove the Outer Cover

Refer to Figure 1.

1. Disconnect the power cord.

2. Using a T-20 driver, loosen the two screws (1) and remove the strap handle (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 lifting the tab and sliding the foot toward the tab.

5. Place the signal generator on its side.

6. Tilt the signal generator forward and slide the outer cover (6) back to remove it from the frame.

Remove the Inner Top Cover

Refer to Figure 2.

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

2. Remove the inner-top cover.
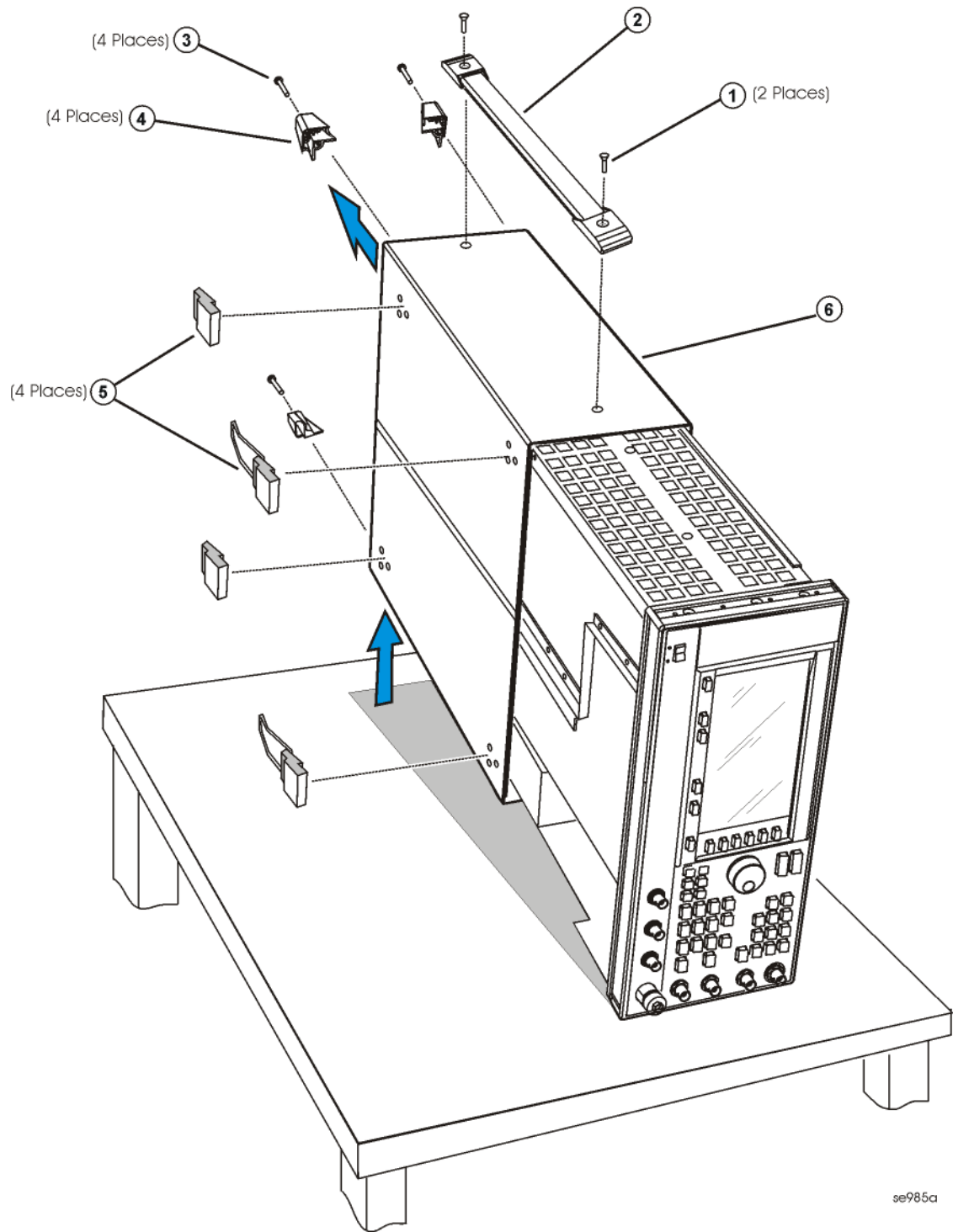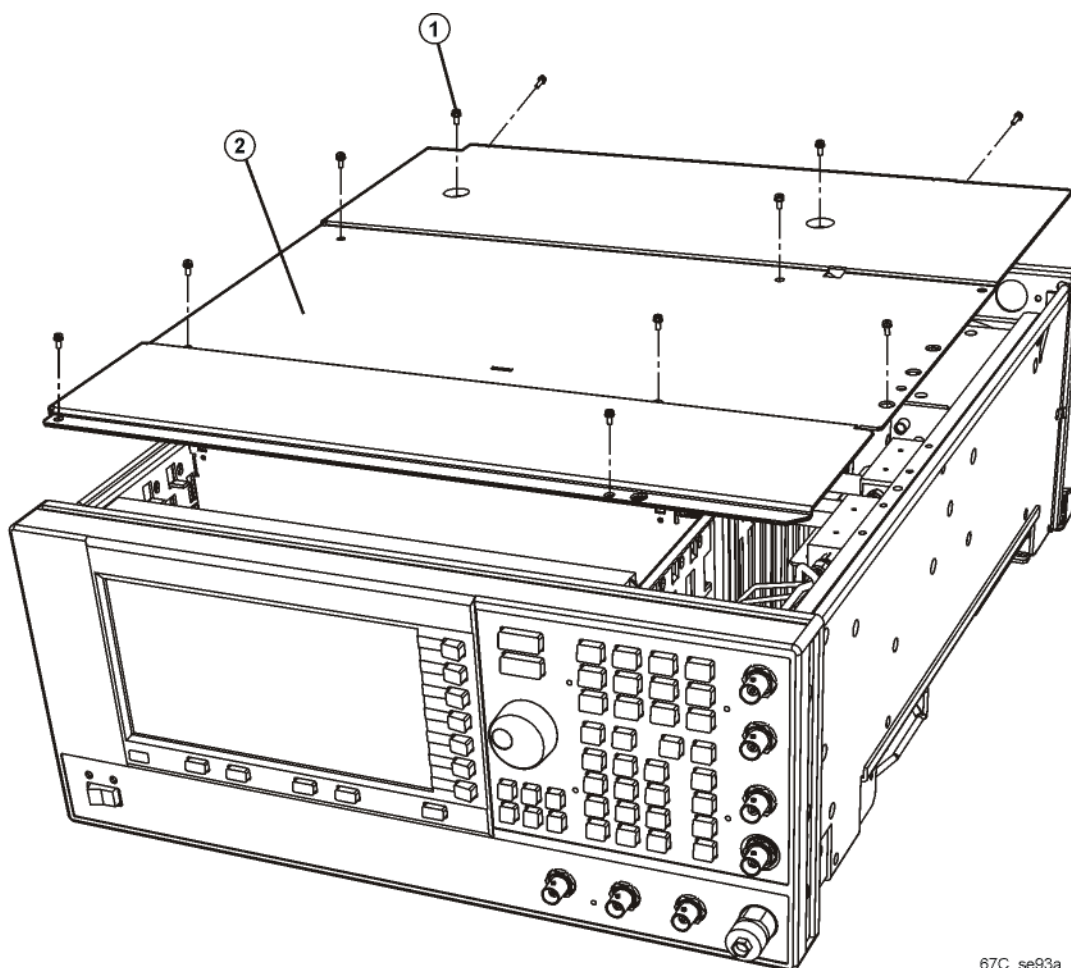
Figure 1   **Outer Cover Removal**

Figure 2   Inner Top Cover Removal

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Install the A14 Digital Bus Baseband Generator Board

Remove the A40 Compact Flash Drive Assembly

If the unit has a flash drive, remove the flash drive. Otherwise, proceed to "Install the Baseband Board".

Refer to Figure 3 and Figure 4 for this procedure.

1. Disconnect the power cord.

2. Disconnect the W66 ribbon cable from A18P2.

3. Using the standard screwdriver, unlock the A41 door latch screw by rotating counter–clockwise.

4. Remove the flash card (if applicable).

5. Using the T–10 driver, remove the two upper screws (1) that attach the A40 PCA/CF drive assembly to the rear panel.
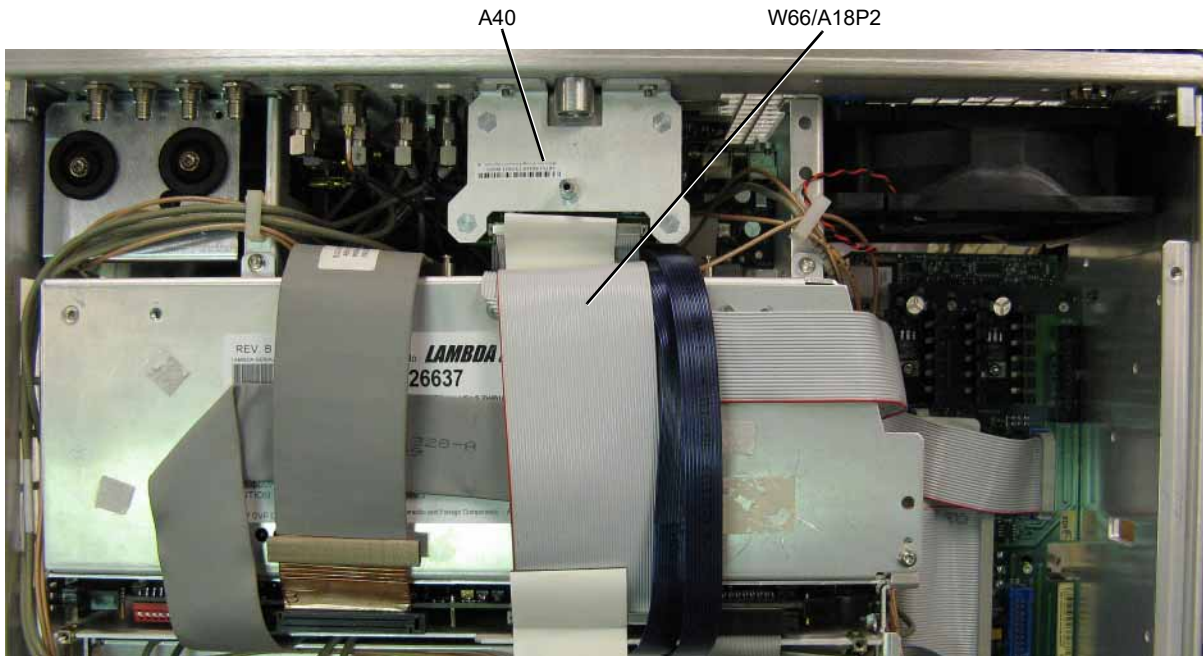
Figure 3   A40 Flash Drive Assembly

Figure 4   A41 Flash Drive Door Assembly

Door Latch Screw

Install the Baseband Board

Digital Bus Baseband Generator Upgrade Kit

Refer to Figure 5, Figure 6, Figure 7, and Figure 8.

1. Remove the four screws from the baseband cover as shown in Figure 5.

2. Set the baseband cover aside.

3. Insert the new A14 Digital Bus Baseband Generator board into the card cage guides.

4. Connect the W64 ribbon cable to A17P2.

5. Connect the W90 cable end with foam attached to it, to A14J21.

6. Connect the W90 cable to A17P1.

7. Connect the W90 cable to A14J21.

8. Connect the W64 ribbon cable to A14J13.

9. Install the W65 cable to the rear panel slot labeled "BASEBAND GEN CLK IN." Use a lock washer and a hex-nut to secure one end of the cable to the rear panel. Torque the hex-nut to 21 in-lb.

10. Connect the loose end of the W65 cable to A14J801.

11. Reinstall the baseband cover.
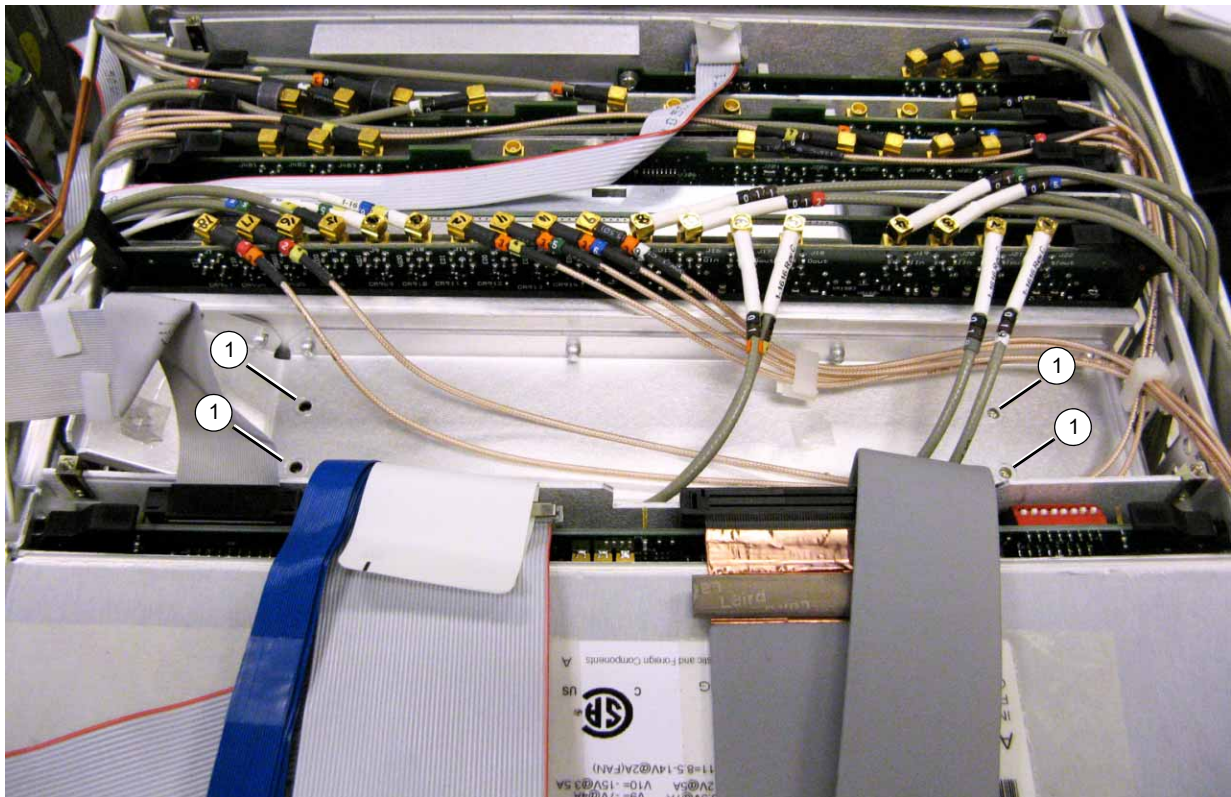
Figure 5   Baseband Cover Removal

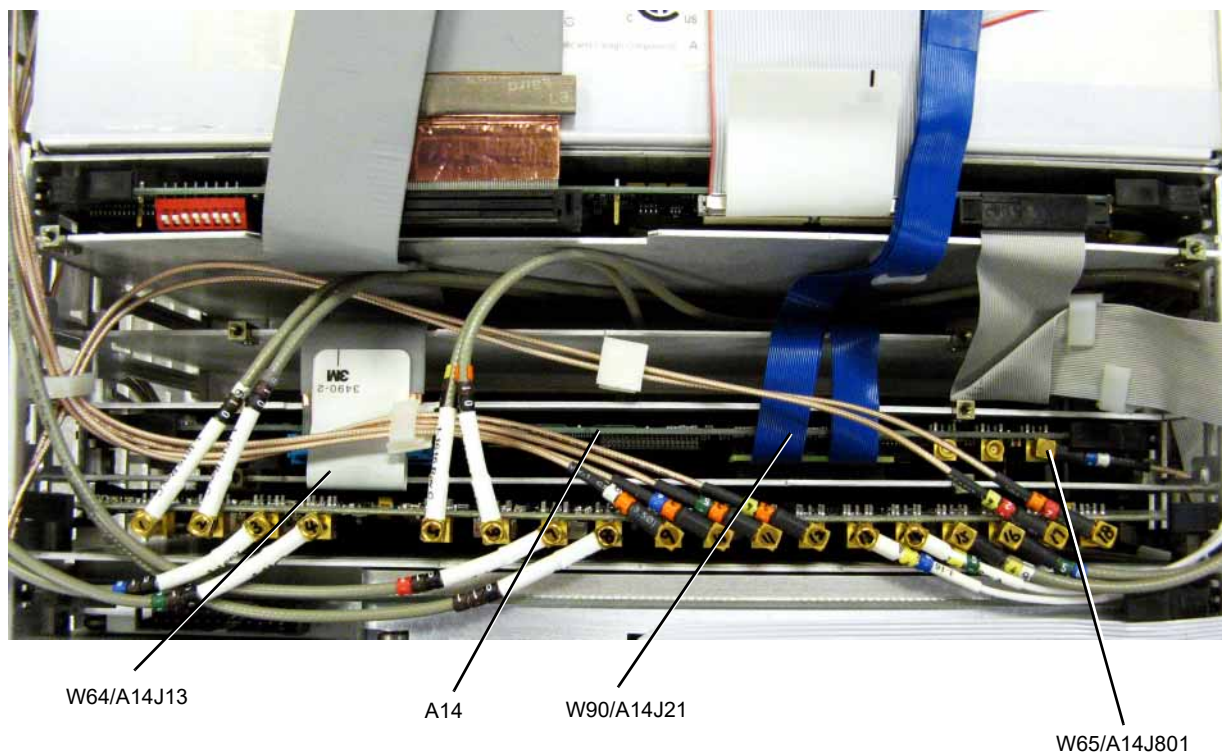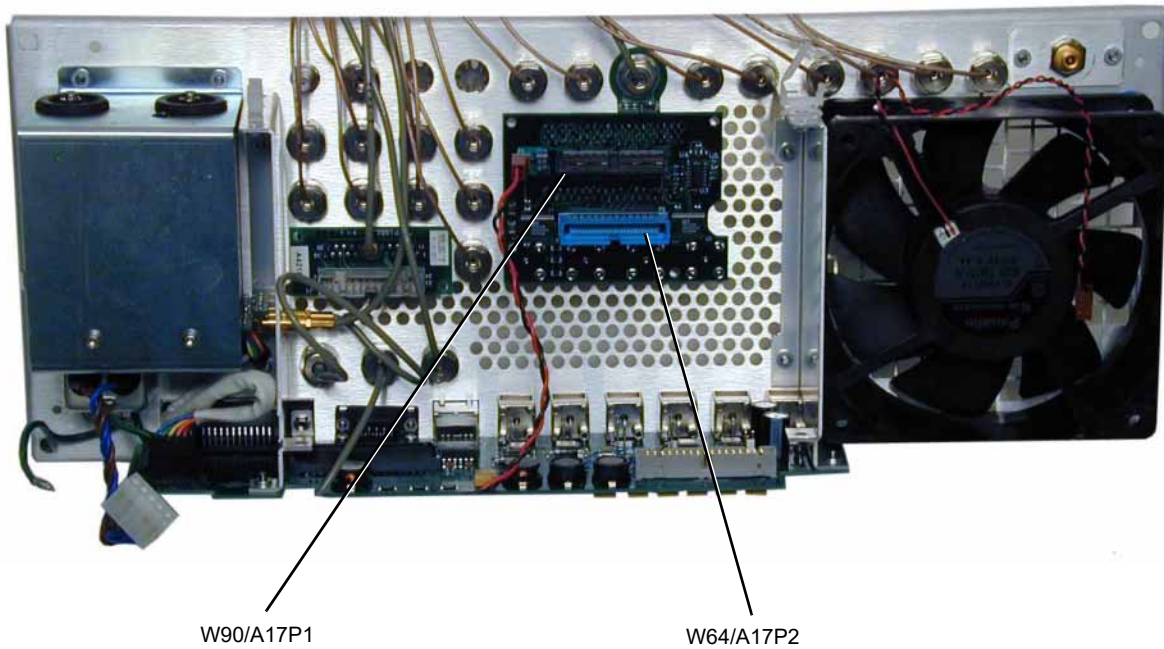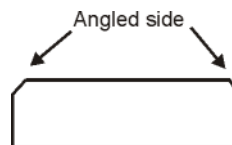Figure 6 A14 Internal Baseband Generator Board

W64/A14J13

A14 W90/A14J21

W65/A14J801

Figure 7   A17 Baseband Generator Interface Board

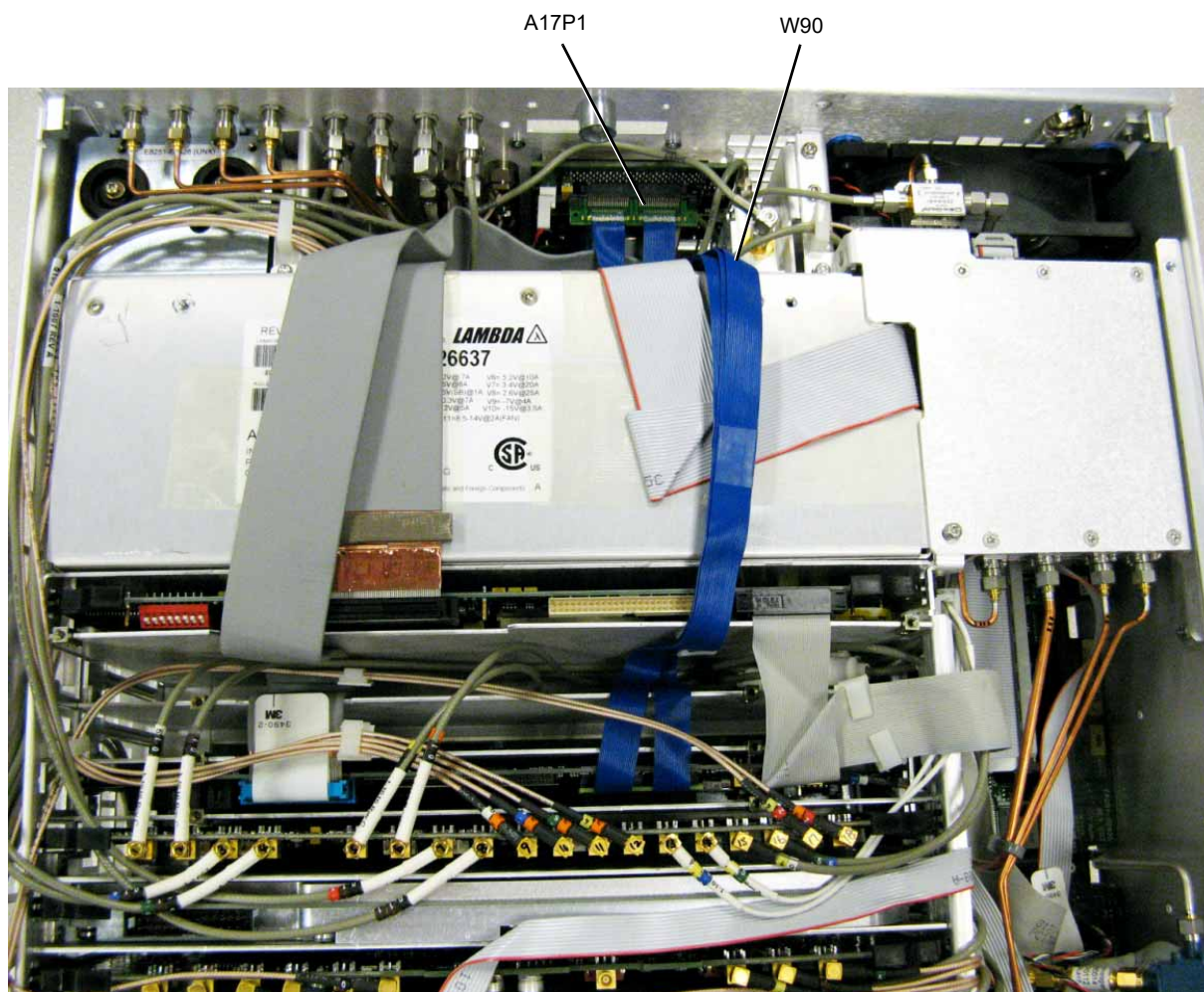W90/A17P1   W64/A17P2

CAUTION   Make sure the angled side of the cable connector on W90 is facing up.

Angled side

Failure to do so could result in damage to the A17 Rear Panel Interface Board connector.

Figure 8   Digital Bus Cable Installation

Activate Option 602

1. Follow the instructions on the Entitlement Certificate.

Verify Proper Installation of Option 602

1. Turn the signal generator on and allow it to warm up for 5 minutes.

2. Check that Option 602 is installed by pressing **Utility** > **Instrument Info/Help Mode** > **Options Info**.

3. If the firmware is < C.06.00, upgrade the firmware.

   Ensure that the Baseband Generator 1 firmware is the same as the main firmware or else it will show **Config Error 617, Unexpected BBG1 Firmware**.

4. Perform the "Checking Signal Generator Functionality" procedure, as described on .

5. Verify that the Baseband Generator self-tests all pass.

Re-Assemble the Signal Generator

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.

4. Attach the Digital Bus label over "DIG I/Q I/O" on the rear panel.

Run the I/Q Calibration

1. Turn the instrument on and let it warm up for 30 minutes.

2. Press: **I/Q** > **I/Q Calibration** > **Calibration Type Full** > **Execute Cal**

Verify Signal Generator Calibration

The new baseband generator will function properly in most applications, without re-calibrating the signal generator. If error vector magnitude (EVM) is critical to the application, the following adjustment/performance tests are recommended. Refer to the PSG Family Signal Generators Calibration Software:

1. Self Test

2. I/Q Prelevel Gain Mixer Bias, and Digital Gain Cal

3. I/Q Impairment Calibration

4. EVM and IQ Offset

5. External Digital Modulation Level Accuracy Relative to CW

6. Dual Arbitrary Waveform Generator Check

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