

## Keysight E8257D/67D PSG Signal Generators

Add Option UNR (Enhanced Phase Noise)

Kit Part Number E8251-60380

NOTE: For the latest revision of this installation note, go to the following website:

<http://www.keysight.com/find/psg>

# Notices

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## Manual Part Number

E8251-90380

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## Add Option UNR (Enhanced Phase Noise) Kit Part Numbers E8251-60380

Product Affected: .....	E8257D/67D
Serial Numbers: .....	All
Options: .....	
To Be Performed By: .....	(X) Keysight Technologies Service Center (X) Personnel Qualified by Keysight Technologies (X) Customer
Estimated Installation Time: .....	2.0 hours
Estimated Verification Time: .....	2.0 hours

### Introduction

This upgrade kit adds Option UNR (Enhanced Phase Noise) to the E8257D (Analog) and E8267D (Vector) PSG Signal Generators.

Installation includes the following major steps, starting on [page 4](#):

1. Check signal generator functionality.
2. Remove the outer and inner signal generator covers.
3. Install the A32 10 MHz Crystal Oscillator.
4. Install the A7 Reference assembly.
5. Verify proper installation of Option UNR.
6. Re-assemble the signal generator.
7. Verify signal generator calibration.

### Installation Kit Parts List

Item	Quantity	Description	Part Number
1	1	Installation Note	E8251-90380
2	2	Screw M3x0.5 8mm-LG	0515-0372
3	1	A32 10 MHz Crystal Oscillator	E8251-60071
4	1	A7 Reference Board (Option UNR)	E8251-60048

### Tools Required

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

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— Needle-nose pliers

## 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.

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**CAUTION** Electrostatic discharge (ESD) can damage or destroy electronic components. All work on electronic assemblies should be performed at a static-safe workstation.

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## 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.

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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, E8251-90359, 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.

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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**. 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 screws (1) from the inner-top cover (2). There are twelve screws for E8257D and eleven screws for E8267D.
2. Remove the inner-top cover.

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Figure 1 Outer Cover Removal

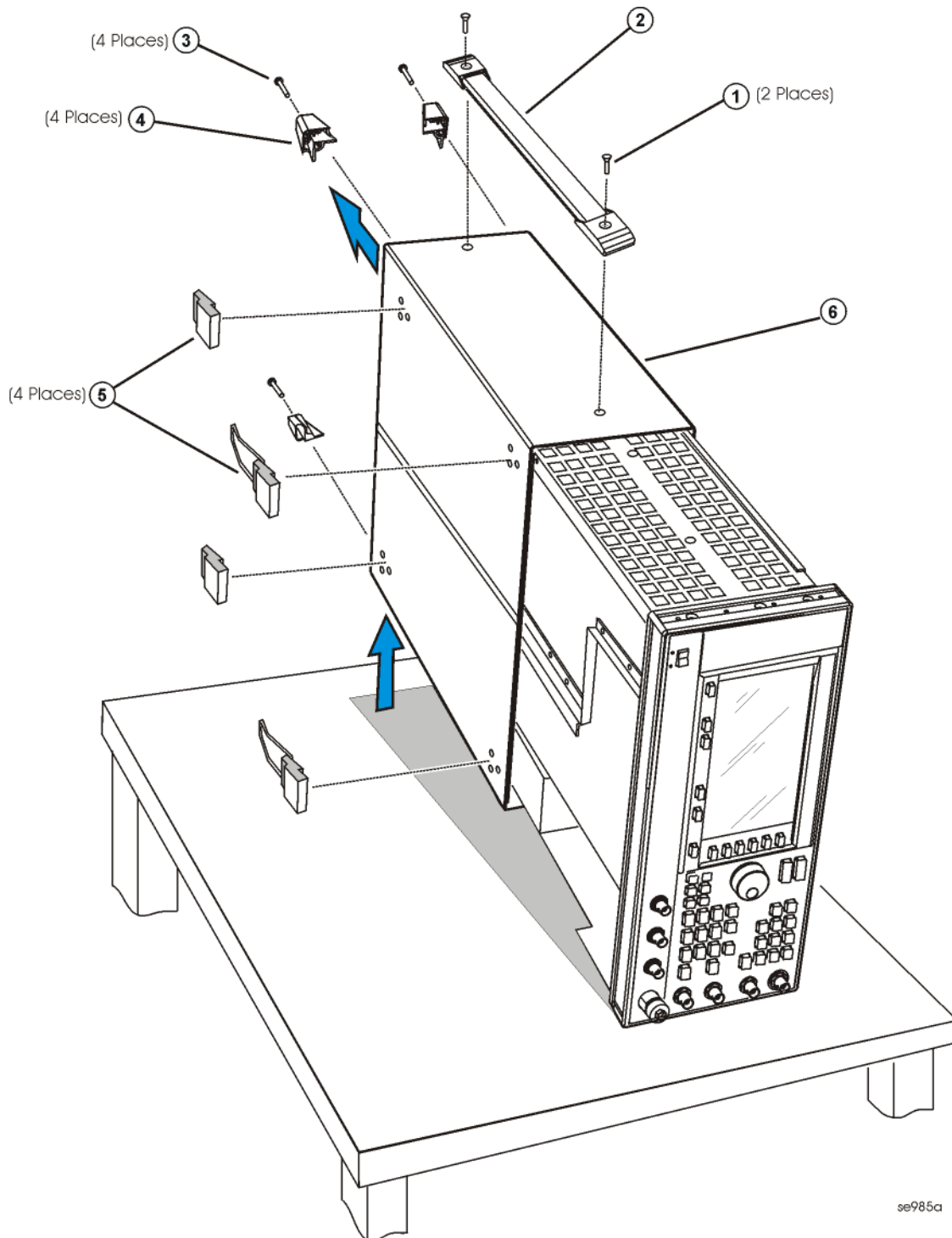
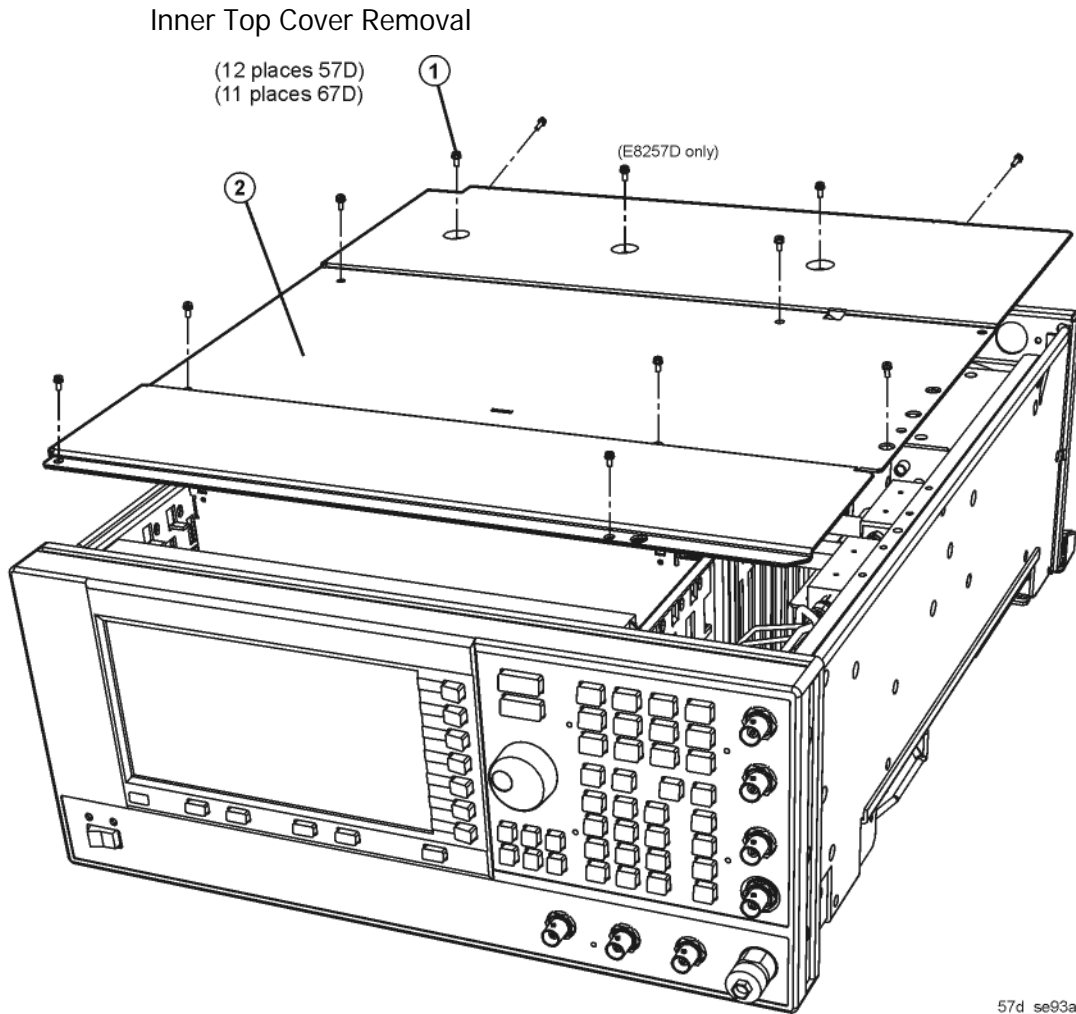


Figure 2

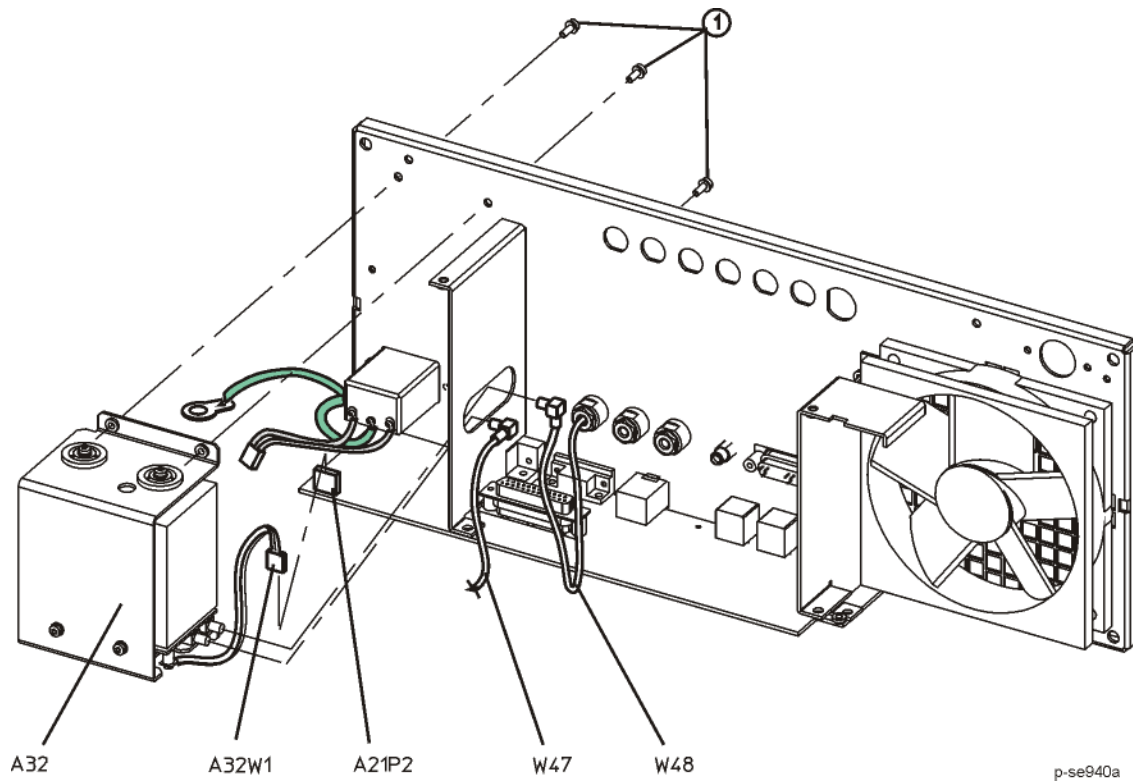


## Install the A32 10 MHz Crystal Oscillator

Refer to **Figure 3**.

1. Position the signal generator with the rear panel facing you.
2. Using a T-10 driver, install the three screws (1) to secure the A32 10 MHz Crystal Oscillator to the rear panel.
3. Connect A32W1 bias cable to the A21 Rear Panel Interface Board, A21P2.
4. Using needle-nose pliers, connect W48 flexible cable from 10 MHz EFC (rear panel connector) to A32J1.
5. Using needle-nose pliers, connect W47 flexible cable from J1041 of the A31 Motherboard to A32J2.

Figure 3 A32 10 MHz Crystal Oscillator



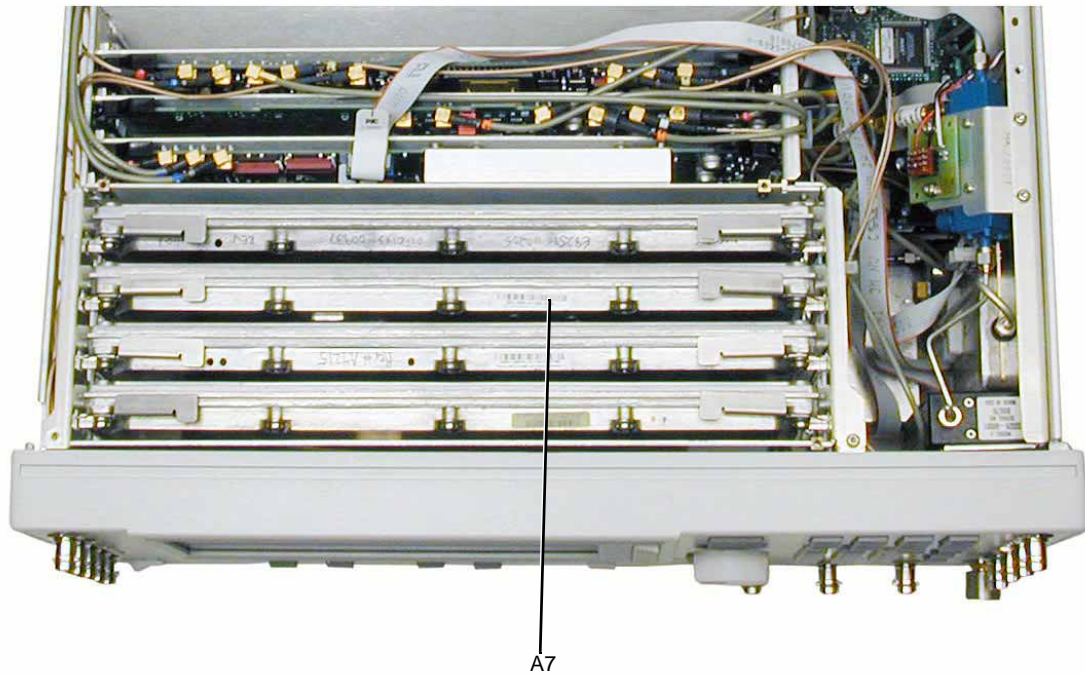
### Install the New A7 Reference Board

Refer to **Figure 4**.

1. Position the signal generator with the front panel facing you.
2. Lift the retention levers and disconnect the A7 Reference board from the A31 Motherboard.
3. Lift the board out of the slot.
4. Install the new A7 Reference board into the empty slot.



Figure 4 A7 Reference



p2\_a5

### Verify Proper Installation of Option UNR

1. Press: **Utility** > **Instrument Info/Help Info** > **Options Info**.
2. Make sure Option UNR is listed.

**NOTE** If you enable an option that does not have the required hardware installed, the menus for that option will be activated but the option cannot operate.

### Re-Assemble the Signal Generator

Refer to **Figure 1** and **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.

### Verify Signal Generator Calibration

1. Turn the signal generator on and allow it to warm up for 30 minutes.

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2. Perform the following adjustment/performance tests to verify signal generator calibration. Refer to the PSG Family Signal Generators Calibration Software:

- ADC Calibration
- Self Tests
- Harmonic Spurious
- Sub-Harmonic Spurious
- Non-Harmonic Spurious
- Single-Sidedband Phase Noise



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