

# Installation Note

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**ESG Vector Signal Generator**

**E4438C Add Option 005 (Internal Hard Drive)**

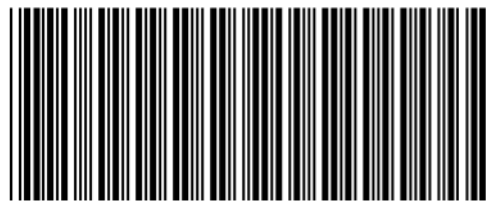
**Kit Part Number E4400-60599**

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**Agilent Technologies**

Part Number E4400-90551  
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E4400-90551

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## ESG Vector Signal Generator E4438C

### Add Option 005(Internal Hard Drive)

### Kit Part Number E4400-60599

Product Affected: .....	E4438C
Serial Numbers: .....	All
Options: .....	
To Be Performed By: .....	(X) Agilent Technologies Service Center (X) Personnel Qualified by Agilent Technologies (X) Customer
Estimated Installation Time: .....	1.0 hours
Estimated Verification Time: .....	0.1 hours

## Introduction

This upgrade kit adds Option 005, Internal Hard Drive, to the E4438C.

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**NOTE** This upgrade kit requires that Option 001, 002, 601, or 602 be already installed in the signal generator.

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Installation includes the following major steps:

1. Check signal generator operation.
2. Remove the instrument covers.
3. Remove the front panel. (For instruments with serial prefix numbers <US4426/MY4426.)
4. Install the Internal Hard Drive, Option 005.
5. Obtain Option 005 license key (For instruments with serial prefix numbers  $\geq$ US4426/MY4426.)
6. Re-install the front panel. (For instruments with serial prefix numbers <US4426/MY4426.)
7. Verify installation of Option 005.
8. Re-assemble the signal generator.
9. Perform a functionality test on the signal generator.

## Installation Kit Parts List

Item	Quantity	Description	Part Number
1	1	Installation Note <sup>a</sup>	E4400-90551
2	8	Insulated Bushing	0340-1525
3	4	Screw SMM 3.0 12 CWPNTX	0515-0664
4	4	Screw SMM 3.0 14 PNTX <sup>a</sup>	0515-0681
5	1	Hard Drive Mount (serial prefix numbers < US4426/MY4426)	E4400-00526
6	1	Tested Hard Drive	E4400-60253
7	1	Ribbon Cable (installed on hard drive)	8121-0685
8	1	Label	7120-1232
The following items are required for signal generators with serial prefix numbers ≥ US4426/MY4426			
9	1	Hard Drive Mount	E4400-00547
10	1	Entitlement Certificate	5964-5143
11	1	Entitlement Certificate <sup>b</sup>	5964-5143

a. This item cannot be ordered separately.

b. Must be ordered separately if installed by the Agilent Service Center.

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**IMPORTANT** If the Agilent Service Center orders the Option 005 hard drive m kit using the 5x5 part number, then they must contact Agilent and order the entitlement certificate.

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### Tools Required

- TORX T-10 driver
- TORX T-15 driver
- TORX T-20 driver
- Long-nose pliers
- Scissors

## Safety Considerations

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<b>WARNING</b>	<b>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.</b>
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<b>CAUTION</b>	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 Operation

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

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

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<b>NOTE</b>	When signal generators with Option 1E5 are first turned on, the reference oven will be cold and an error message ERROR 514, Reference Oven Cold appears on the front-panel display. In addition, both the OVEN COLD annunciator and the ERR annunciator appear on the front-panel display.
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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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2. Run the instrument self test. Press **Utility > Instrument Info/Help Mode > Self Test > Run Complete Self Test**. Upon completion of the self test, a summary is displayed. Use the service guide to troubleshoot any failures detected by the self test.

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<b>NOTE</b>	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 > 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 operation check passed.

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## Make a backup copy of the Internal Waveform(s) from non-volatile memory

Perform the following steps to make a backup copy of the waveform(s) stored in the internal non-volatile memory prior to installing the hard drive.

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**CAUTION** Without performing this step, once the hard drive is installed, the waveform(s) will no longer be accessible and removal of the hard drive by unplugging the W26 ribbon cable would have to be done to re-access the waveform(s).

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### Using the Command Window (PC or UNIX)

Extracting Unencrypted I/Q Data

```
get /user/waveform/<file_name>
```

```
get /user/markers/<file_name>
```

```
get /user/header/<file_name>
```

Extracting Encrypted Waveform Data

```
get /user/securewave/<file_name>
```

### Using Microsoft's Internet Explorer thru FTP

1. Enter the signal generator's hostname or IP address as part of the FTP URL.

```
ftp://<host name> or
```

```
ftp://<IP address>
```

2. Press **Enter** on the keyboard or **Go** from the Internet Explorer window. The signal generator files appear in the Internet Explorer window.
3. Drag and drop files between the Internet Explorer window and the PC using the folder names below.

Extracting Unencrypted I/Q Data

```
get /user/waveform/<file_name>
```

```
get /user/markers/<file_name>
```

```
get /user/header/<file_name>
```

Extracting Encrypted Waveform Data

```
get /user/securewave/<file_name>
```

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## Remove the Instrument Covers

### Tools Required

- T-10 driver
- T-15 driver
- T-20 driver
- Long-nose pliers

### Remove 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 (2) on the four rear-panel feet (3).
4. Remove the four bottom feet (4) and (5) from the cover by pushing and pulling the tab.
5. Slide the outer cover (6) off the frame.

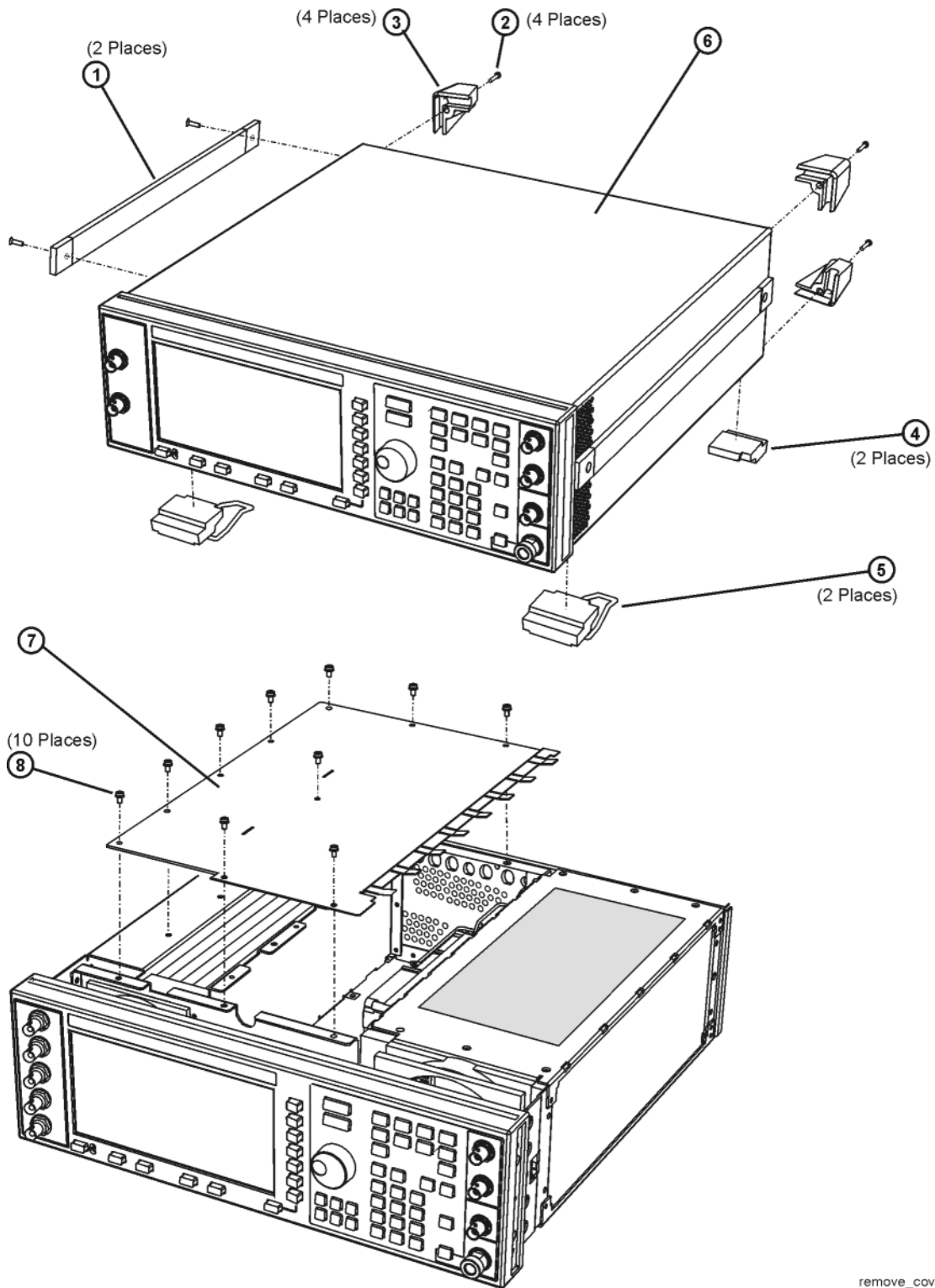
### Remove the Top Inner Cover

Refer to [Figure 1](#).

1. Using a T-10 driver, remove the ten screws (8) from the inner cover (7).
2. Remove the inner cover.

**Figure 1**

**Outer and Top Inner Instrument Cover Removal**





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## Remove the Front Panel

### (For Instruments with Serial Prefix Numbers < US4426/MY4426)

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

1. Remove the side trims that cover the four screws (2).
2. Using a T-15 driver, remove the four screws (1) from the sides of the frame.

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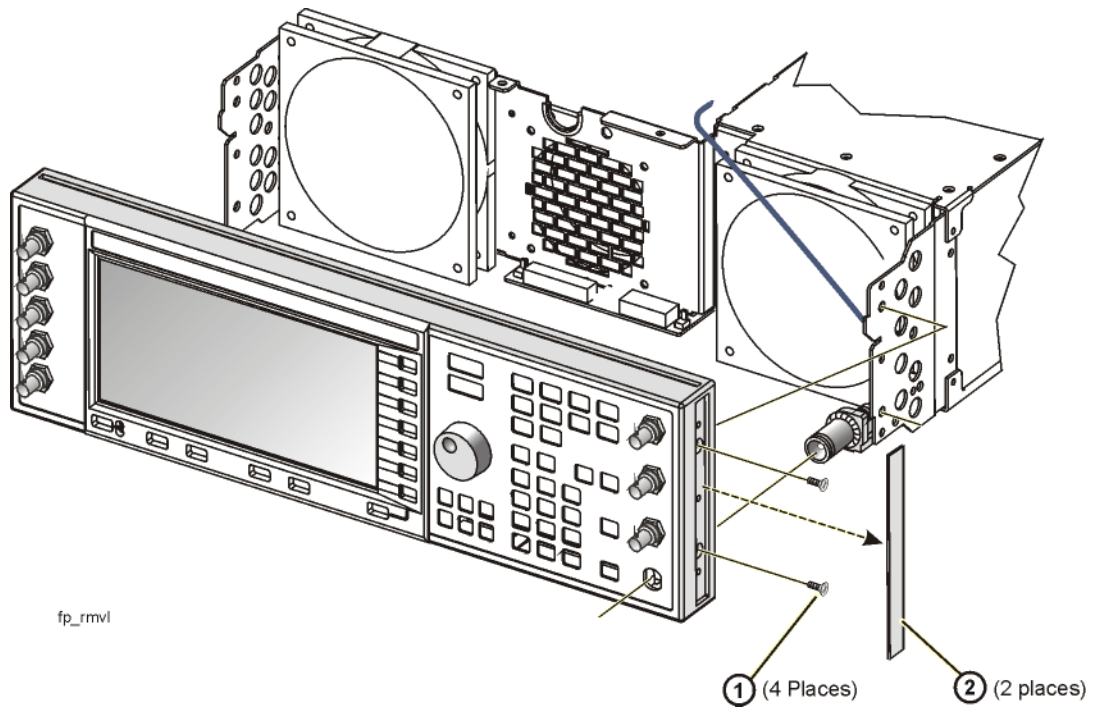
**CAUTION** Before removing the front panel from the signal generator, lift and support the front of the signal generators frame.

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3. Slide the front panel over the RF output connector.
4. Disconnect the W35 A3 Front Panel Auxiliary Board cable from J30 of the A23 Motherboard.
5. Disconnect the W36 A1 Keyboard cable from J32 of the A23 Motherboard.
6. Using long-nose pliers, disconnect the following cables:
  - W1 (I INPUT) from J7 of the A10 I/Q Multiplexer
  - W2 (Q INPUT) from J8 of the A10 I/Q Multiplexer
  - W3 (DATA INPUT) from J24 of the A23 Motherboard
  - W4 (DATA CLOCK) from J21 of the A23 Motherboard
  - W5 (SYMBOL SYNC) from J23 of the A23 Motherboard
  - W6 (EXT 1 INPUT) from the A19 Daughterboard  
(refer to the connector diagram located on the A19 Daughterboard cover)
  - W7 (EXT 2 INPUT) from the A19 Daughterboard  
(refer to the connector diagram located on the A19 Daughterboard cover)
  - W8 (LF OUTPUT) from the A19 Daughterboard  
(refer to the connector diagram located on the A19 Daughterboard cover)
7. Remove the front panel and lay it upside down on the table.

**Figure 2**

**Front Panel Removal**



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## **Install the A5 Hard Drive**

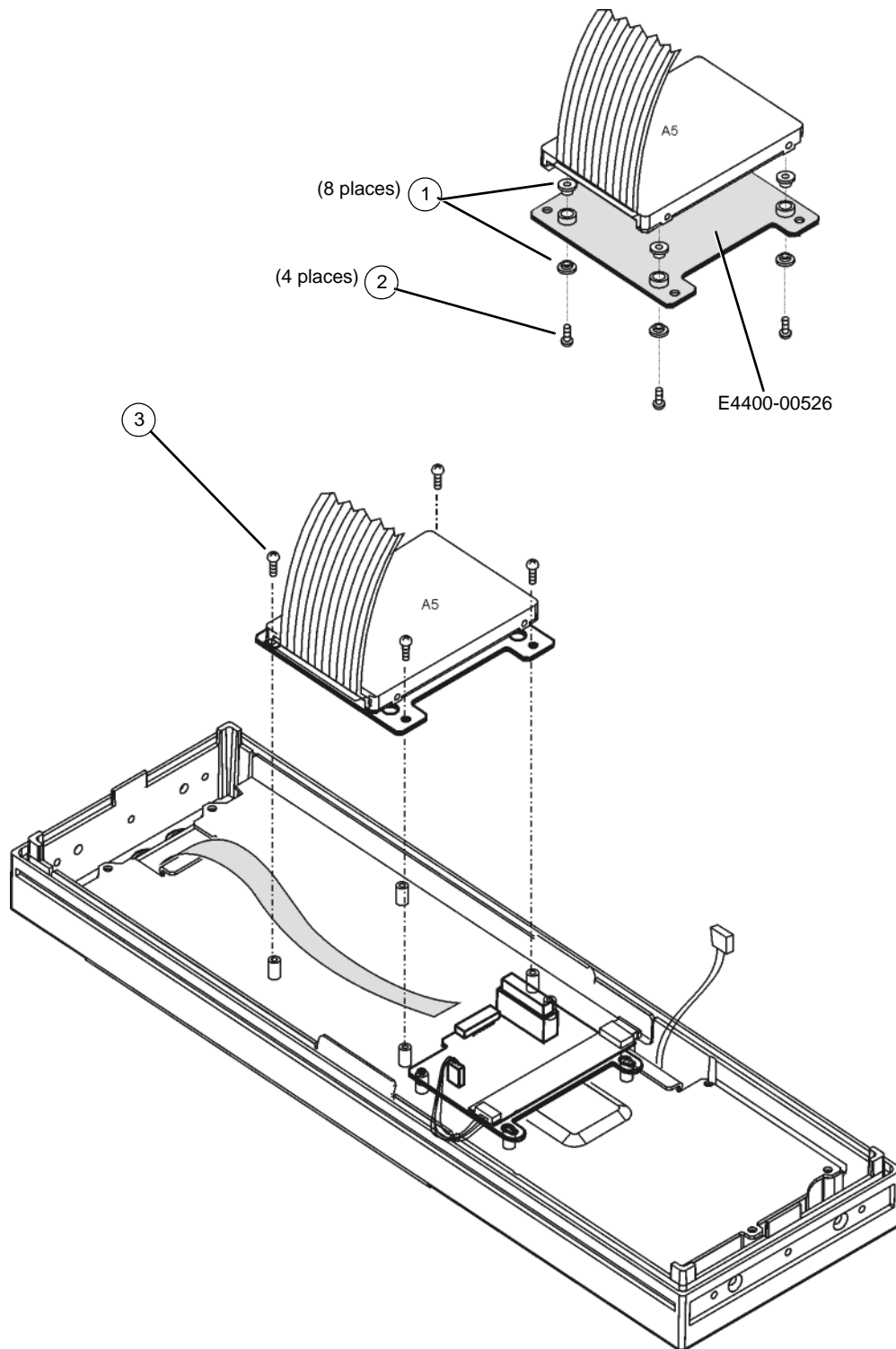
### **(For Instruments with Serial Prefix Numbers < US4426/MY4426)**

Refer to [Figure 3](#) .

1. Position the hard drive mount (E4400-00526) so that the standoffs are pointing upward.
2. Attach two spacers (1) to each standoff, with the small side down on each side of the standoff.
3. Place a screw (2) through each hard drive mount bracket standoff. Align the spacers and screw into the bottom of the hard drive.
4. Torque the screws to 3 in-lbs.
5. Place the hard drive on the front panel standoffs.
6. Insert four screws (3) through the hard drive into the front panel standoffs.
7. Torque the screws to 9 in-lbs.

**Figure 3**

**A5 Hard Drive (Option 005) for serial prefix numbers < US4426/MY4426**



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## Install the A5 Hard Drive

(For Instruments with Serial Prefix Numbers  $\geq$  US4426/MY4426)

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<b>NOTE</b>	Front panel removal is not required for hard drive installation in signal generator's with serial prefix numbers $\geq$ US4426/MY4426.
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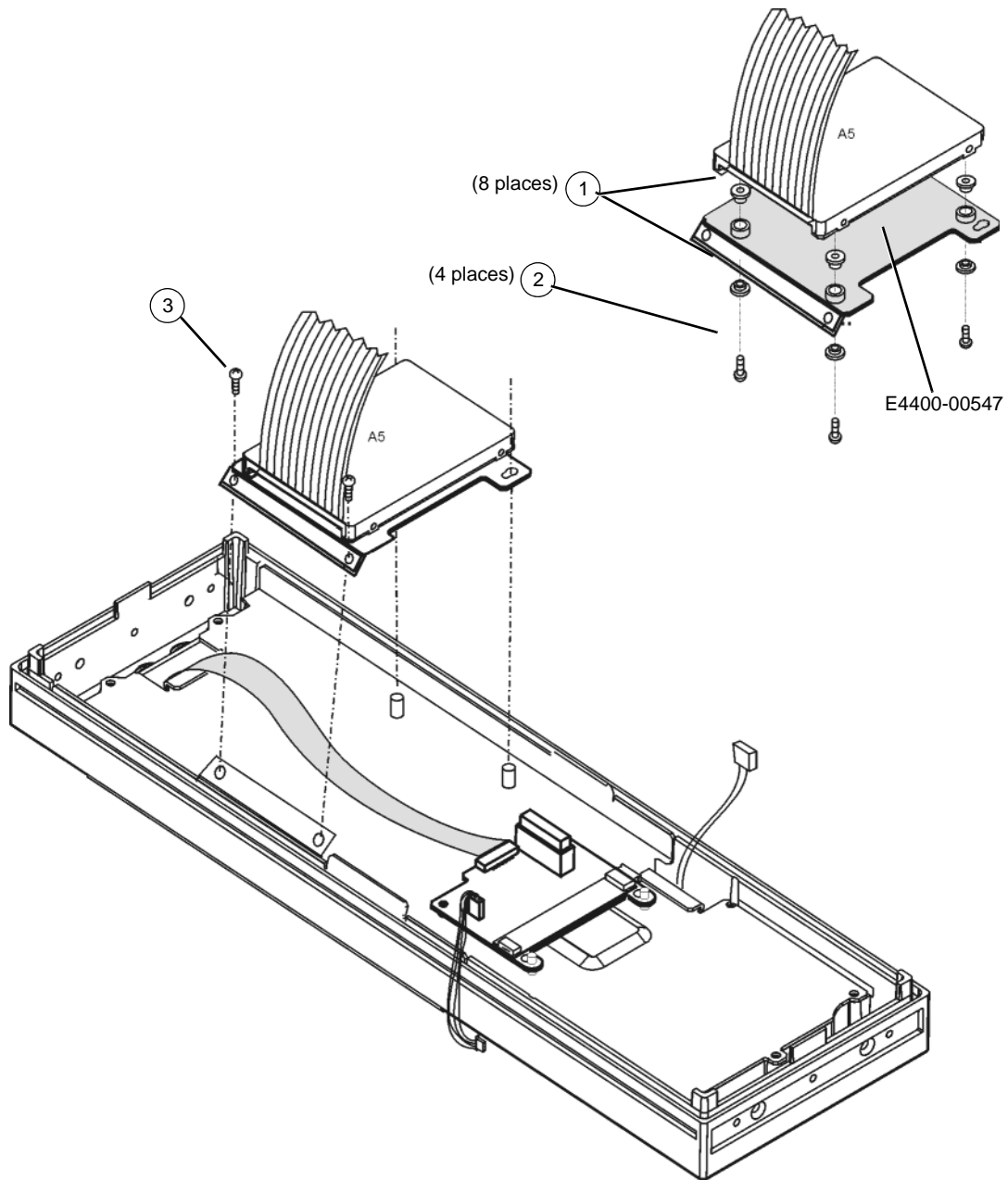
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Refer to [Figure 4](#).

1. Position the hard drive mount (E4400-00547) so that the standoffs are pointing upward.
2. Attach two spacers (1) to each standoff, with the small side down on each side of the standoff.
3. Place a screw (2) through each hard drive mount bracket standoff. Align the spacers and screw into the bottom of the hard drive.
4. Torque the screws to 3 in-lbs.
5. Position the hard drive so that the angle bend is towards the front panel.
6. Slide the hard drive over the two lower standoffs and align the top two screw holes.
7. Insert two screws through the hard drive bracket into the top two front panel standoffs.
8. Torque to 9 in-lbs.
9. Attach W26 to P3 of the A12 CPU board.

**Figure 4**

**A5 Hard Drive (Option 005) for serial prefix numbers  $\geq$  US4426/MY4426**



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## Obtain Option 005 License Key

### (For Instruments with Serial Prefix Numbers $\geq$ US4426/MY4426)

1. Turn on the signal generator.
2. Retrieve the signal generator's Host ID. Press **Utility > Instrument Adjustments > Instrument Options > Software Options**. The Host ID is shown in the front-panel display and is needed in order to obtain the license key for Option 005.
3. Retrieve the Option 005 license. Go to the Global Software Distribution Center (GSDC) website, <http://www.agilent.com/find/softwarelicense> with your Entitlement certificate. Follow the instructions shown on this website to retrieve the license key for Option 005. An email will be sent to you with the license key and a procedure for installing the license key in the signal generator.

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## Re-install the Front Panel Assembly

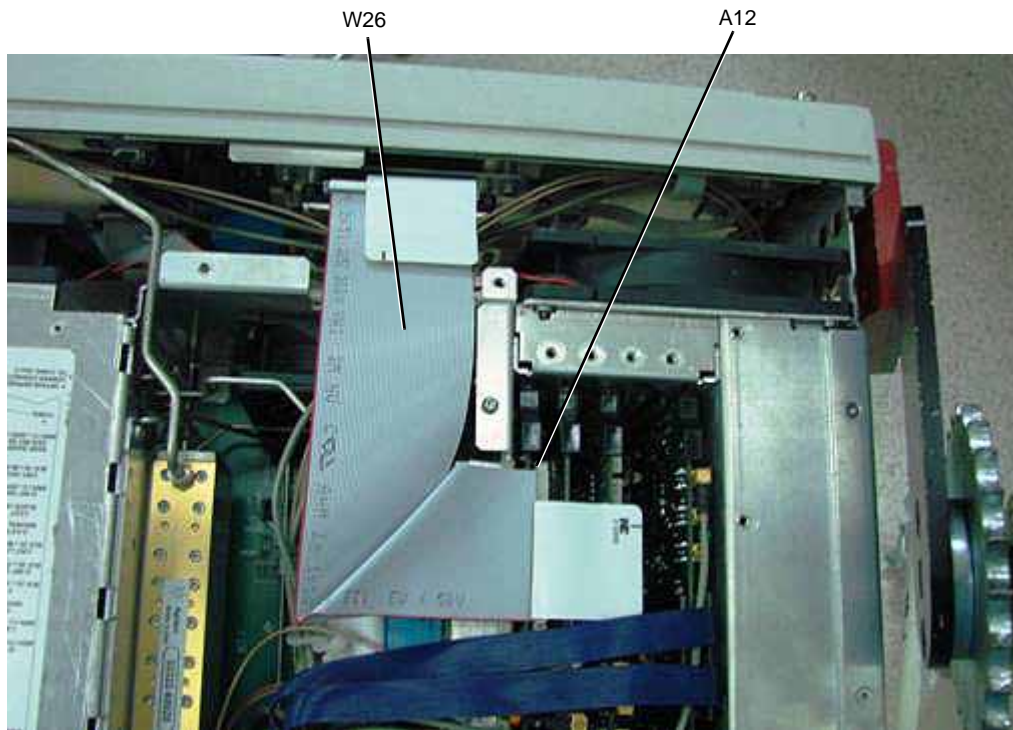
### (For Instruments with Serial Prefix Numbers $<$ US4426/MY4426)

Refer to [Figure 2](#) and [Figure 5](#).

1. Reverse the order of the removal procedure. Refer to "[Remove the Front Panel \(For Instruments with Serial Prefix Numbers  \$<\$  US4426/MY4426\)](#)" on page 9.
2. Torque all screws to 21 in-lbs.
3. Connect W26 to P3 of the A12 CPU board.

**Figure 5**

**W26**



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## Verify Installation of Option 005

1. Turn the instrument on and allow the instrument to warm up for five minutes.
2. Access instrument option information. From the front panel press **Utility > Instrument Info/Help Mode > Options Info**.
3. Review the display and verify that 005 HARD DRIVE is listed. If the option is listed, the installation was successful.

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**CAUTION** If an option is enabled that does not have the required hardware installed, the menus for that option will be activated, but the option will not operate.

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## Re-Assemble the Instrument

Refer to [Figure 1](#).

1. Turn the instrument off.
2. Unplug the instrument.
3. Reinstall the inner and outer instrument covers by reversing the order for removal.
4. Torque all T-10 screws to 9 in-lbs.
5. Torque all T-15 and T-20 screws to 21 in-lbs.
6. Attach the Option 005 label provided to the rear panel, near the original serial number label.

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## Perform Functionality Check of the Signal Generator

1. Reboot the instrument to check for error messages.
2. If error messages are present, see [“Check Signal Generator Operation” on page 5](#).

