

# Keysight Technologies EXA Signal Analyzer

Option HL9, 40 MHz Analysis Bandwidth (B40)  
for Option 503 Upgrade Kit  
Serial Prefix  $\geq$  MY/SG/US5648

Notice: This document contains references to Agilent. Please note that Agilent's Test and Measurement business has become Keysight Technologies. For more information, go to [www.keysight.com](http://www.keysight.com).

# Notices

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## **Manual Part Number**

N9010-90058

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## Option HL9, 40 MHz Analysis Bandwidth (B40) for Option 503 Upgrade Kit

Products Affected:	N9010A, EXA Signal Analyzer
Serial Numbers:	≥ MY56480000 ≥ SG56480000 ≥ US56480000
Options:	B40, 503
To Be Performed By:	(X) Keysight Service Center (X) Personnel Qualified by Keysight ( ) Customer
Estimated Installation Time:	2.0 Hours
Estimated Adjustment Time:	4.0 Hours <sup>a</sup>
Estimated Verification Time:	3.0 Hours <sup>a</sup>

- a. To ensure that these newly installed options are functioning properly, the procedure that follows includes the requirement of performing certain adjustments and performance verification tests. However, the completion of these tests does not guarantee that the instrument meets all advertised specifications.

Software and test equipment is required for making adjustments and for performance verification testing.

Information on how to obtain this software can be found at:

[www.keysight.com/find/calibrationsoftware](http://www.keysight.com/find/calibrationsoftware)

While Keysight does recommend that a full calibration be performed after the installation of this upgrade, the end user must ultimately determine whether they want this service or not. If a full calibration is required, arrangements regarding the level of calibration must be made between the end user and the calibration provider.

### Introduction

This kit includes parts to upgrade any Option 503 EXA signal analyzer with serial number prefix  $\geq$  MY/SG/US5648 to add Option B40, 40 MHz analysis bandwidth. Some parts might not be necessary if other certain options are already installed.

In addition to installing the hardware to support Option B40, licenses for the following options will also be installed:

- N9010A-B40, 40 MHz Analysis Bandwidth
- N9010A-B25, 25 MHz Analysis Bandwidth
- N9010A-DP2, Digital Processor & 2 GB Capture Memory
- N9010A-RTL, Real Time Link
- N9010A-FS1, Fast Sweep Capability

The installation procedure begins with an “inventory” of the analyzer serial number, currently-installed options, installed hardware, and software version. This information will be used to determine which sub-procedures, if any, can be skipped.

## Installation Kit Parts List

Quantity	Description	Keysight Part Number
1	A3 40 MHz Digital IF Assembly	N9020-60016
1	A15 Front End Controller w/ IF MUX	N9020-60172
1	Opt HL9/HLA Cable Kit with Wire Markers (includes cables W36, W37, W38, W39, W41, W42, and W50 listed below)	N9020-60155
1	Cable Assembly, Coaxial 530 mm LG (W50)	8121-1401 <sup>a</sup> with ends labeled '726' and '17'
1	Cable Assembly, Coaxial 380 mm LG (W42)	8121-2288 <sup>a</sup> with ends labeled '716' and '14'
1	Cable Assembly, Coaxial 530 mm LG (W37)	8121-1401 <sup>a</sup> with ends labeled '900' and '100'
1	Cable Assembly, Coaxial 620 mm LG (W38)	8121-1861 <sup>a</sup> with ends labeled '901' and '15'
1	Cable Assembly, Coaxial 240 mm LG (W36)	8121-1862 <sup>a</sup> with ends labeled '902' and '7'
1	Cable Assembly, Coaxial 280 mm LG (W41)	8120-8868 <sup>a</sup> with ends labeled '601' and '19'
1	Cable Assembly, Coaxial 525 mm LG (W39)	8121-2028 <sup>a</sup> with one end labeled '1100'
6	Cable Tie, Self-Locking, Nylon Gray	1400-0249
1	Entitlement Certificate	5964-5178
1	Entitlement Certificate Envelope	5967-7169
1	Installation Note	This note

a. This cable is included in the Option HL9/HLA Cable Kit with Wire Markers, p/n **N9020-60155**

## Introduction

### Tools Required

- T-8 TORX Driver
- T-6 TORX Driver
- T-10 TORX Driver
- T-20 TORX Driver
- 5/16-inch torque wrench
- 9/16-inch nut driver
- Scissors or knife
- Diagonal cutters
- Keysight Calibration and Adjustment Software, N7814A (revision E.17.00 or later)
- Test equipment and computer supported by the X-Series Performance Tests and Adjustment Software
- EXA Signal Analyzer Service Guide. This manual is available at:  
<http://literature.cdn.keysight.com/litweb/pdf/N9010-90050.pdf>
- Microsoft Windows based personal computer with internet access and USB port
- USB storage device with >2GB free memory

### Initial Instrument Functionality Check

Power on the instrument and allow the instrument to boot up. Run an alignment and display the measurement screen. (The instrument will probably display a spectrum analyzer screen and you will see the instrument sweeping.)

There should be no alignment failures. If there are failures, investigate and fix the problem before continuing.

#### **WARNING**

Before you disassemble the instrument, turn the power switch to Standby. After the instrument has completely shut down, unplug the instrument. Failure to unplug the instrument 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. Refer to the documentation that pertains to your instrument for information about static-safe workstations and ordering static-safe accessories.

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## Installation Procedure

### Analyzer Information

1. Connect a power cord to the analyzer and turn on the analyzer.
2. After the analyzer has completed turning on, press **System, Show, System**. Make note of the following information from the Show System screen:

Product Number \_\_\_\_\_

Serial Number \_\_\_\_\_

Instrument S/W Revision \_\_\_\_\_

3. Check for the presence of the options listed below in the Show System screen. Put a check mark or "X" after each option listed below that appears in the Show System menu.

N9010A-507 \_\_\_\_\_

N9010A-513 \_\_\_\_\_

N9010A-526 \_\_\_\_\_

N9010A-B25 \_\_\_\_\_

N9010A-CR3 \_\_\_\_\_

N9010A-CRP \_\_\_\_\_

N9010A-B40 \_\_\_\_\_

N9010A-DP2 \_\_\_\_\_

N9010A-MPB \_\_\_\_\_

4. On the analyzer, press **System, Show, Hardware**. Note the Part #, Matl Rev, Rev, OF Rev, and Hw Id of the Front End Controller in the table below.

Assembly Name	Part #	Matl Rev	Rev	OF Rev	Hw Id
Front End Controller					

5. If the analyzer is equipped with any of the following options (refer to the data in **step 3** above),

N9010A-B40

N9010A-DP2

N9010A-MPB

do not proceed with the installation of this upgrade kit. If any of these options are already installed, you do not need this upgrade kit, since the necessary hardware is already present.

6. Refer to the data in **step 3** above. If the analyzer has frequency range option N9010A-507, N9010A-513, or N9010A-526 **do not** proceed with the installation of this kit. This kit can only be installed in analyzers with frequency range option 503.
7. Refer to the data in **step 2** above. If the serial number is less than either MY56480000 or SG56480000 or US56480000, **do not** proceed with the installation of this kit. This kit is only for newer EXAs with Option 503.
8. Refer to the data in **step 3** and **step 4** above. If the analyzer has N9010A-CR3 and/or N9010A-CRP installed, verify that it also has a Front End Controller with Hw Id of 41 or 75. If the Front End Controller has a Hw ID of 41 or 75, you do not need to perform the Replace Front End Controller procedure.



## Update Instrument Software

Updating the instrument software and installing the necessary licenses before installing the new hardware will help ensure that the hardware installation was successful.

Go to the following website and determine whether or not the analyzer has the latest instrument software already installed:

[http://www.keysight.com/find/xseries\\_software](http://www.keysight.com/find/xseries_software)

If the analyzer does not have the latest instrument software already installed, download and install the latest version.

## Licensing the New Options

### License Installation Procedure over USB

1. Locate the Option Upgrade Entitlement Certificate (5964-5178) from the kit.
2. Redeem the Option Upgrade Entitlement Certificate by following the instructions on the Certificate.
3. After redeeming your Option Upgrade Entitlement Certificate you will receive an email with an attached License File.
4. Locate a USB storage device. Perform a virus scan on this device before use.
5. Save the License File to the root directory of the USB Storage Device.
6. Connect the USB Storage Device to one of the analyzer's USB ports. Connect a mouse to another USB port. Windows will detect the new hardware and may display the configuration menu shown in **Figure 1**. This menu may be configured according to your preferences.

**Figure 1** USB Storage Device Configuration Menu



7. The signal analyzer will automatically consume the License File. (This may take a few minutes) When the License File is consumed the Keysight License Manager will display a “Successful License Installation” message as shown in **Figure 2**. Since the license file contains multiple licenses, multiple “Successful License Installation” messages will appear. Wait until all licenses have been consumed before removing the USB Storage Device.

**NOTE**

If you will also be installing any of the following upgrade products:

N9010AK-CR3, 2nd IF Output

N9010AK-CRP, Arbitrary IF Output

now would be the best time to install the licenses for these other upgrades, By installing the licenses now, the adjustments and performance verifications for these other upgrades will also be performed.

**Figure 2** Successful License Installation



## Alternate Installation Procedure

The License File can be manually installed over USB or LAN by placing the license file in the following analyzer folder: C:\Program Files\Agilent\licensing.

### Verify the License Installation

1. Before the licenses will be recognized, the XSA application must be restarted. Press **File, Exit**. An Exit Analyzer dialog box will appear; press Enter to confirm the exit.
2. Double-click on the LaunchXSA icon on the Windows desktop. Wait for the XSA application to finish starting (the analyzer should be sweeping).
3. Press **System, Show, System** on the analyzer to display a list of all displayed options. You should see the following options listed:
  - N9010A-B40    Analysis bandwidth, 40 MHz
  - N9010A-B25    Analysis bandwidth, 25 MHz
  - N9010A-DP2    Digital Processor, 2 GB Deep Capture Memory
  - N9010A-RTL    Real Time Link
  - N9010A-FS1    Fast Sweep Capability, enabled with B40, DP2, or MPB

## Analyzer Disassembly

**CAUTION**

If the instrument is placed on its face during any of the following procedures, be sure to use a soft surface or soft cloth to avoid damage to the front panel, keys, or input connector.

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**NOTE**

If the analyzer has Option PRC, Portable Configuration, refer to the “Portable Instrument (Option PRC)” **“Portable Instrument (Option PRC)”** section on **page 15** to remove the outer case.

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**NOTE**

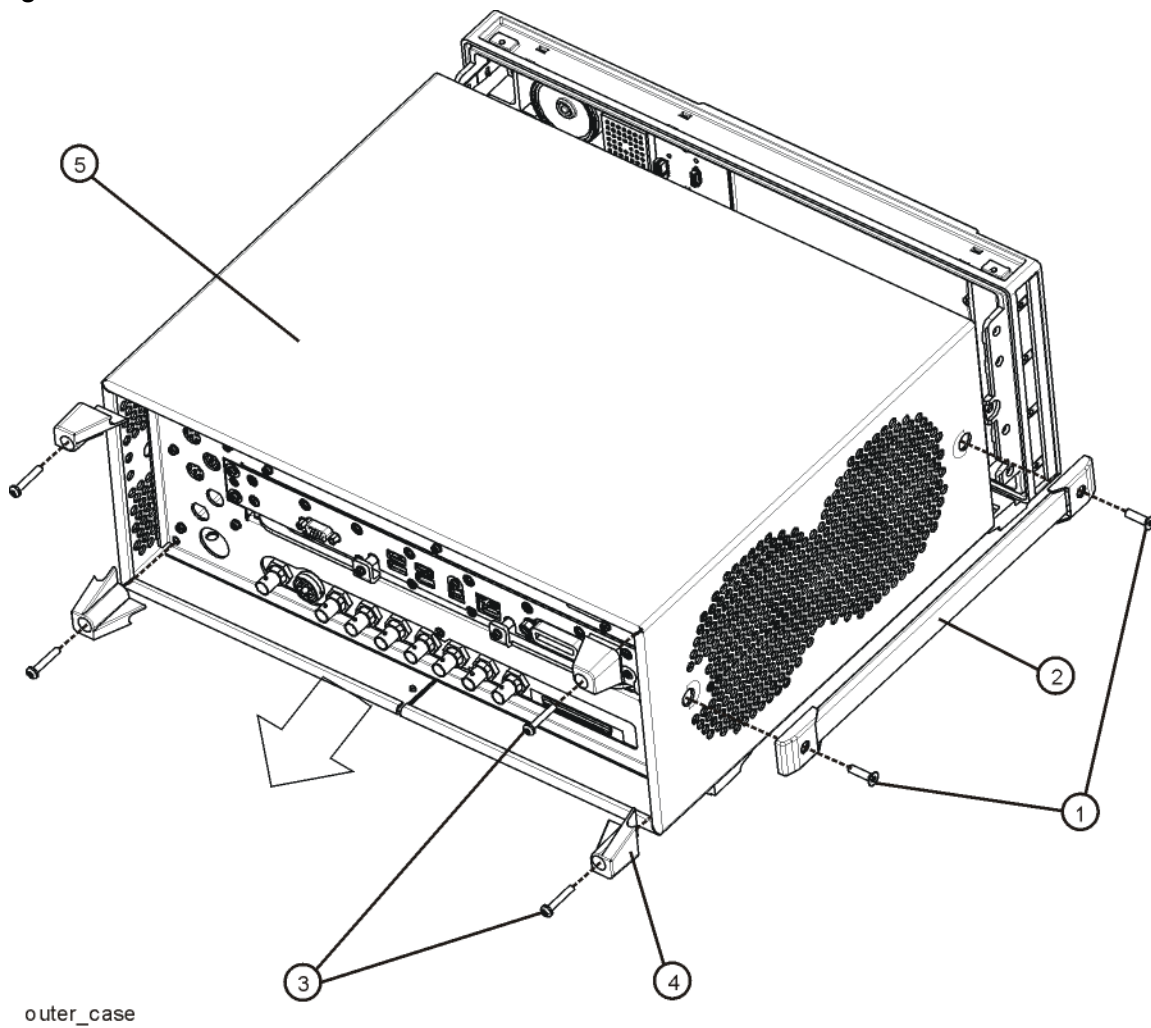
Make sure any adapters on the front panel are removed.

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### Standard Instrument (Benchtop Configuration)

1. Disconnect the instrument from ac power.
2. Refer to **Figure 3**. Using the T-20 driver, remove the four screws (two on each side) (1) that attach the handle strap (2) on each side of the instrument.
3. Using the T-20 driver, remove the four screws (including washers) (3) that hold the rear feet (4) in place.
4. Pull the instrument cover (5) off towards the rear of the instrument.

**Figure 3** Standard Instrument Outer Case Removal



5. Proceed to the Front Frame Assembly Removal section to remove the front frame.

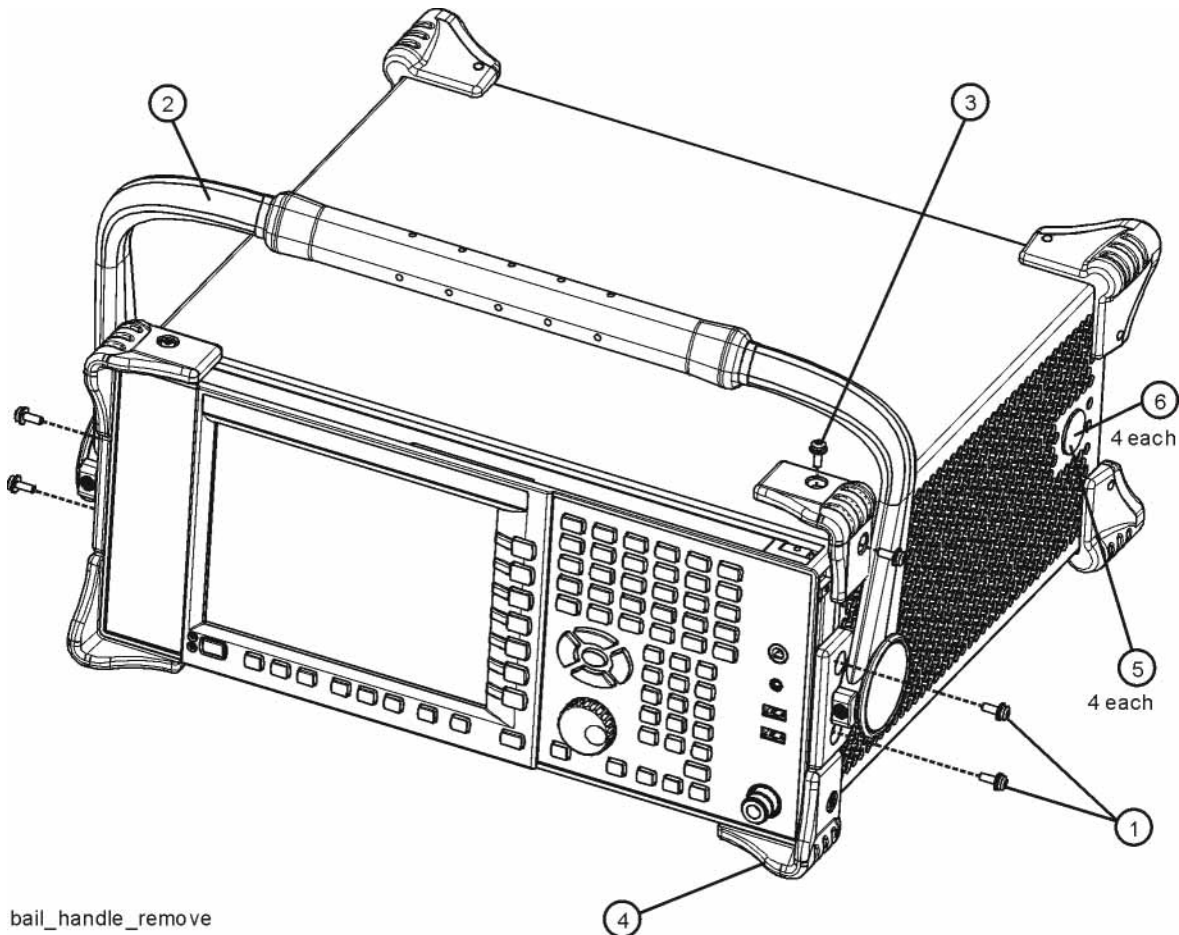
## Portable Instrument (Option PRC)

**NOTE**

Make sure any adapters on the front panel are removed.

1. Disconnect the instrument from ac power.
2. Refer to **Figure 4**. Using the T-20 driver, remove the four screws (two on each side) (1) that hold the bail handle (2) to the front frame.

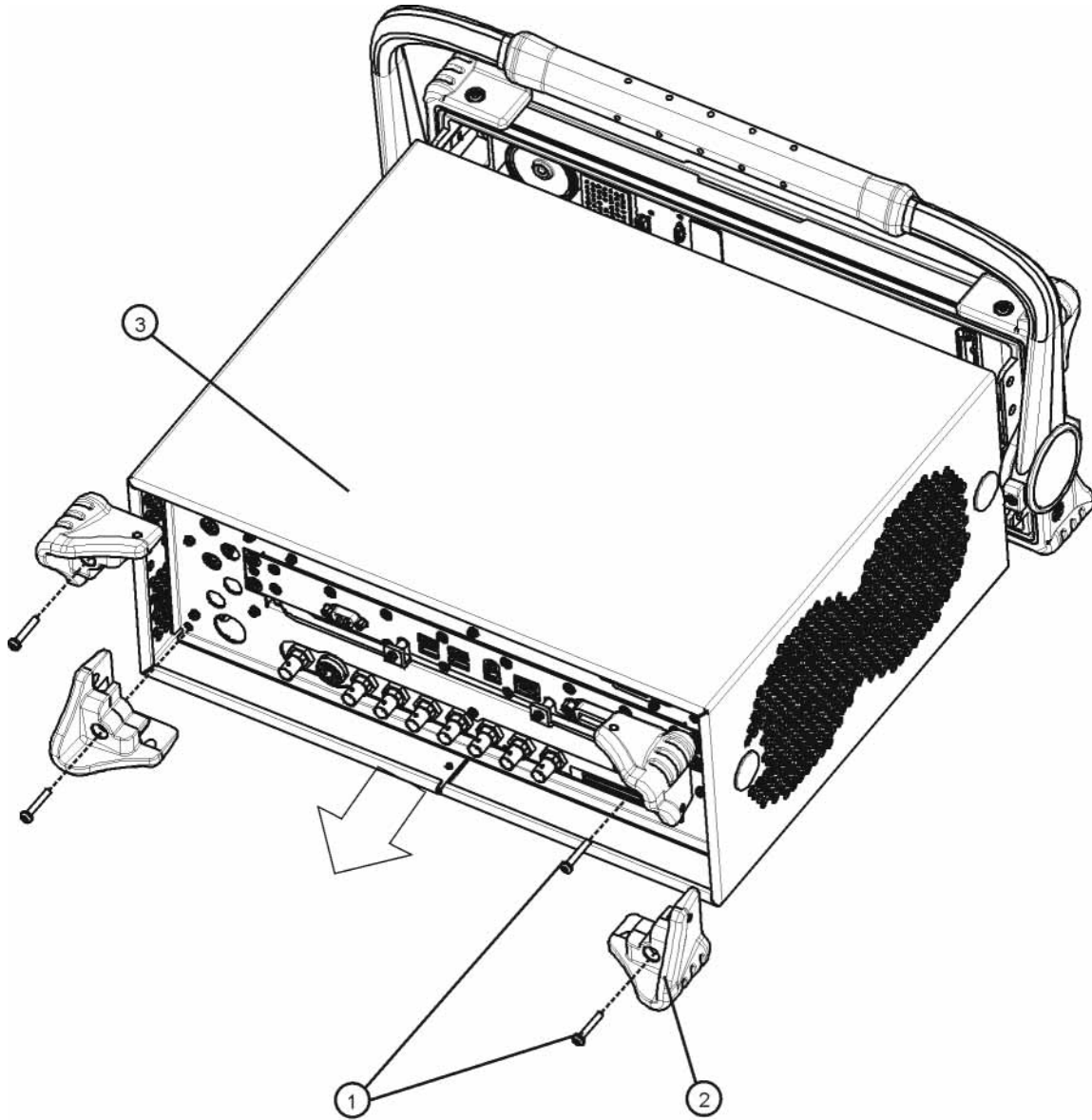
**Figure 4** Bail Handle Removal



3. Using the T-20 driver, remove the four screws (two on each side) (6) that hold the strap handle plugs (5) in place.

4. Refer to **Figure 5**. Using the T-20 driver, remove the four screws including washers (1) that hold the rear bumpers (2) in place.
5. Pull the instrument cover (3) off towards the rear of the instrument.

**Figure 5** Option PRC Instrument Outer Case Removal



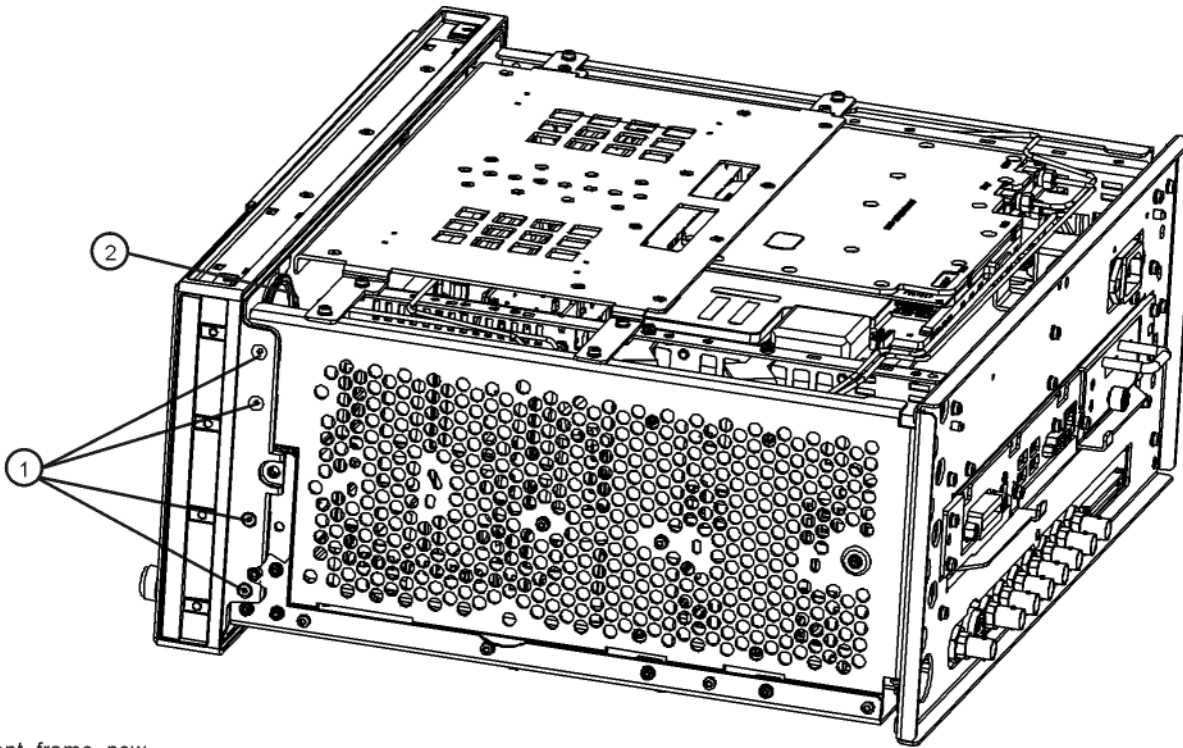
rear\_bumper\_remove



## Front Frame Assembly Removal

1. Refer to **Figure 6**. If Option EXM, External Mixing, is installed disconnect semi-rigid cable connection (2) on LO/IF cable.
2. Using the T-10 driver, remove the eight screws (1), four on each side, to detach the front frame from the chassis.

**Figure 6** Front Frame Removal



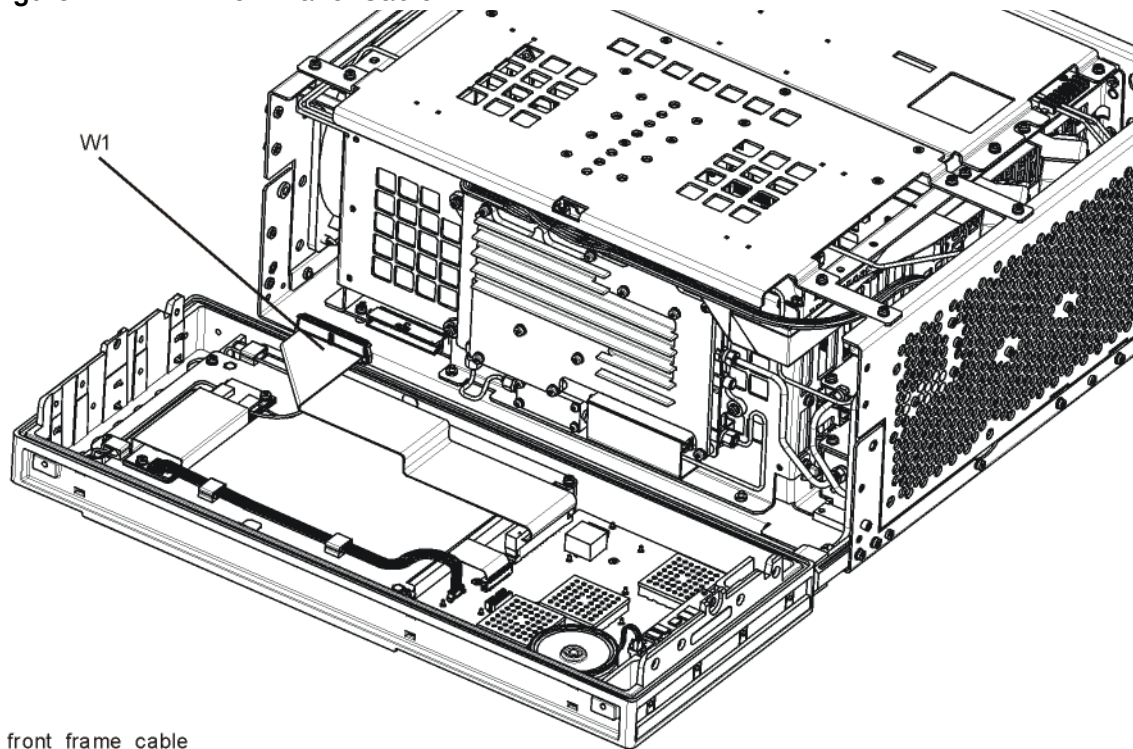
front\_frame\_new

3. Refer to **Figure 7**. Pull the front frame carefully away from the chassis. Remove the ribbon cable W1 from the A8 Motherboard.

**NOTE**

W1 may have locking springs on each side. Depress the spring on each side of the connector to remove from the motherboard.

**Figure 7** Front Panel Cable

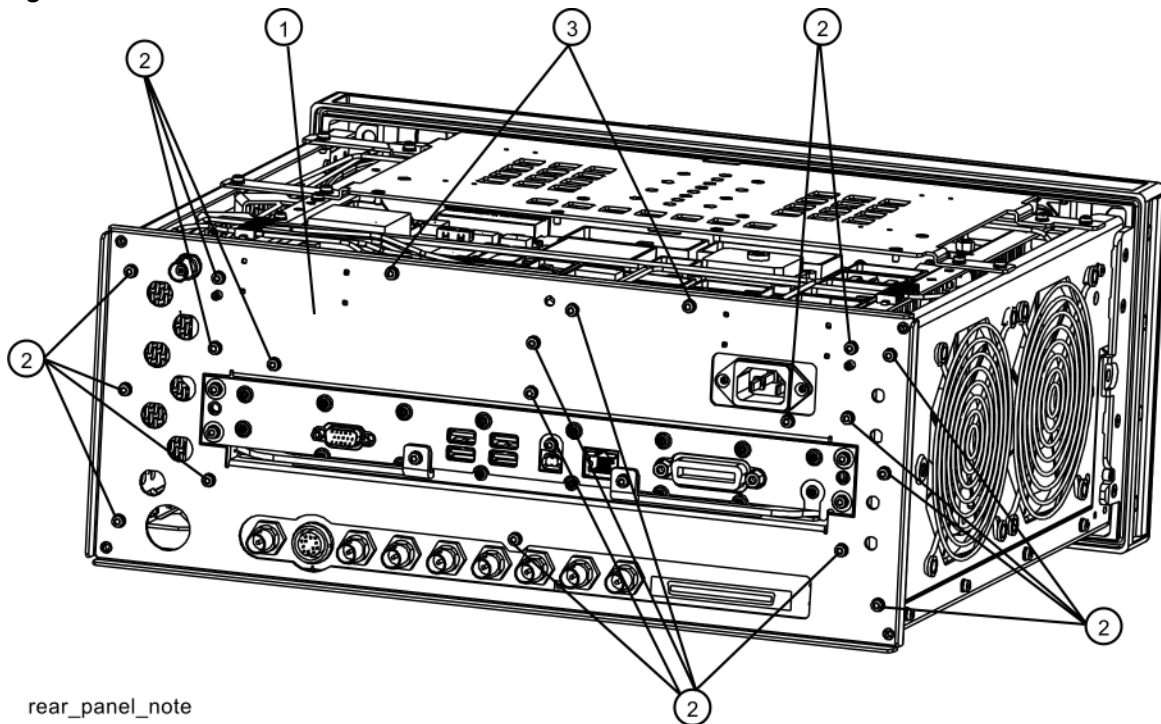


front\_frame\_cable

## Rear Panel Removal

1. Refer to **Figure 8**. Using the T-10 driver, remove the screws (2) attaching the rear panel (1) to the chassis. The rear panel can now be removed.
2. Use a 9/16-inch socket wrench to remove the nut securing the EXT REF IN connector from the rear panel.

**Figure 8** Rear Panel Removal

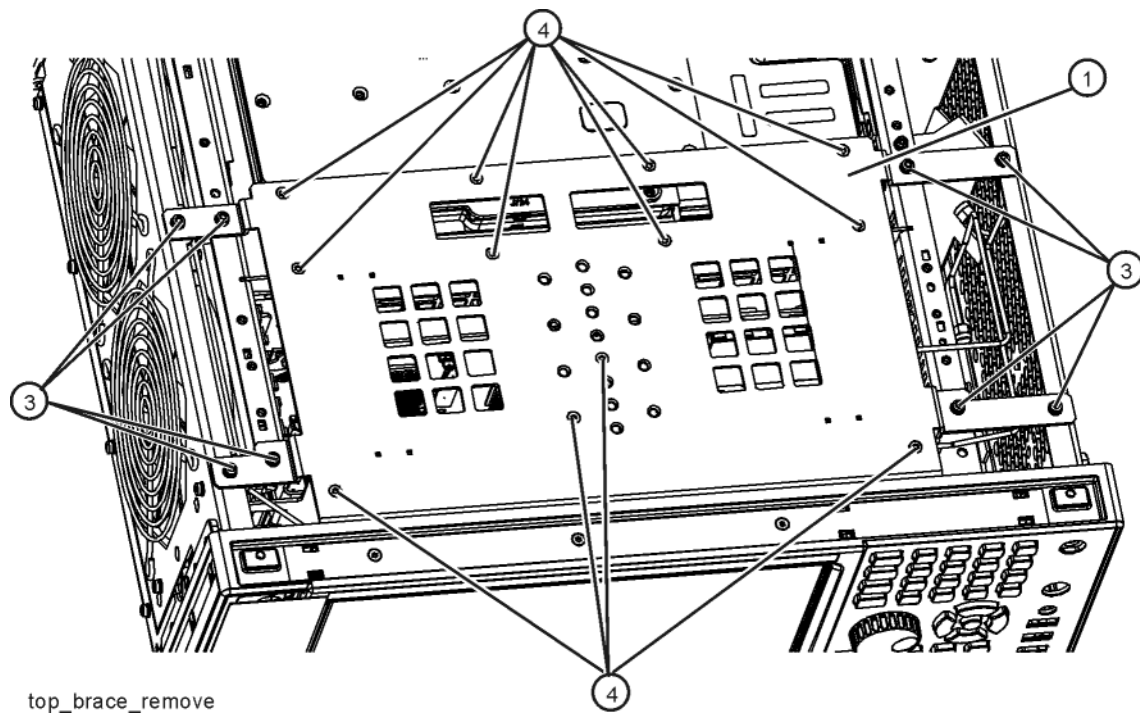


3. Instruments with Option CR3 or CRP will have an additional cable W39 that is attached to the rear panel. Remove W39 using either a 5/16" nut driver or a 5/16" open-end wrench.
4. The rear panel can now be removed.

## Top Brace Removal

1. Refer to **Figure 9**. To remove the top brace (1), use the T-10 driver to remove the eight panhead screws (3) (0515-0372), four on each side, attaching the brace to the chassis. Also remove and discard the twelve flat head screws (4) (0515-1996) attaching the top brace to the chassis and the boards.

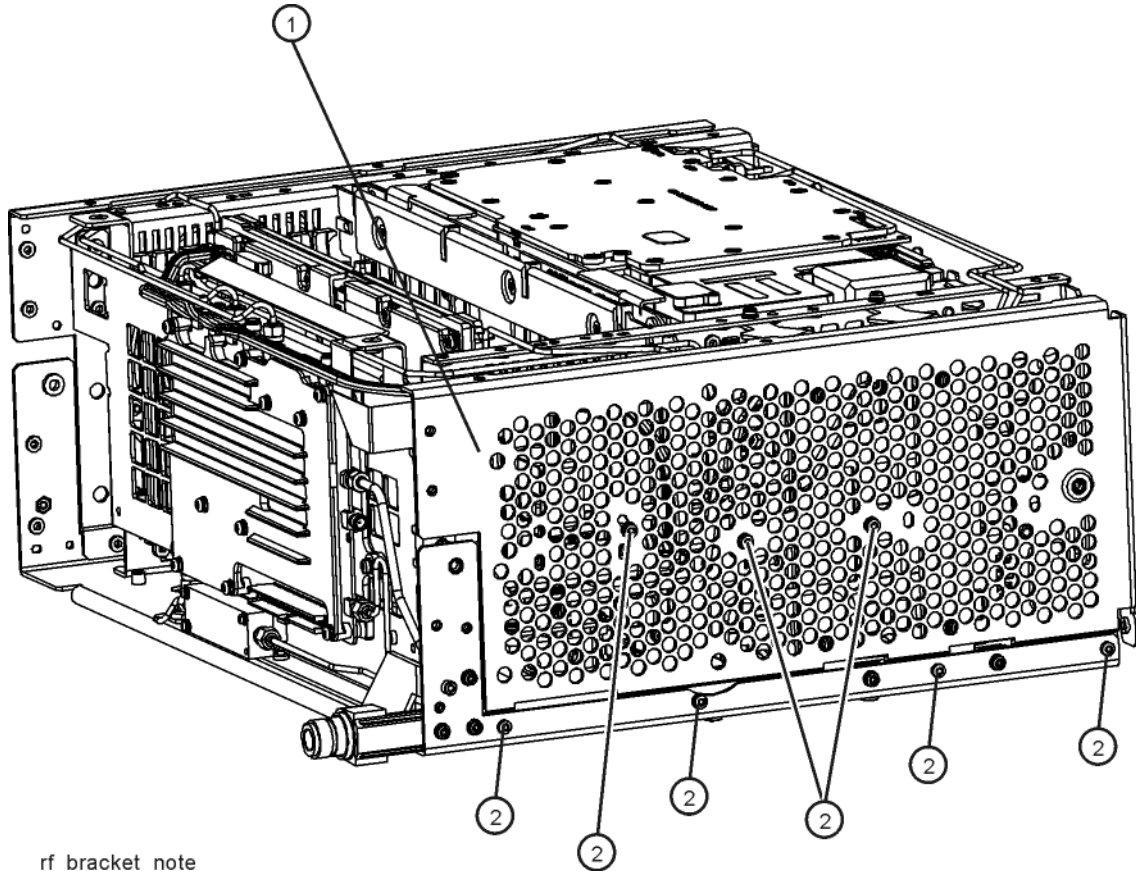
Figure 9 Top Brace Removal



## RF Bracket Removal

1. Refer to **Figure 10**. Remove the RF bracket (1) by removing the remaining seven screws (2) using the T-10 driver.

**Figure 10** RF Bracket Removal



rf\_bracket\_note



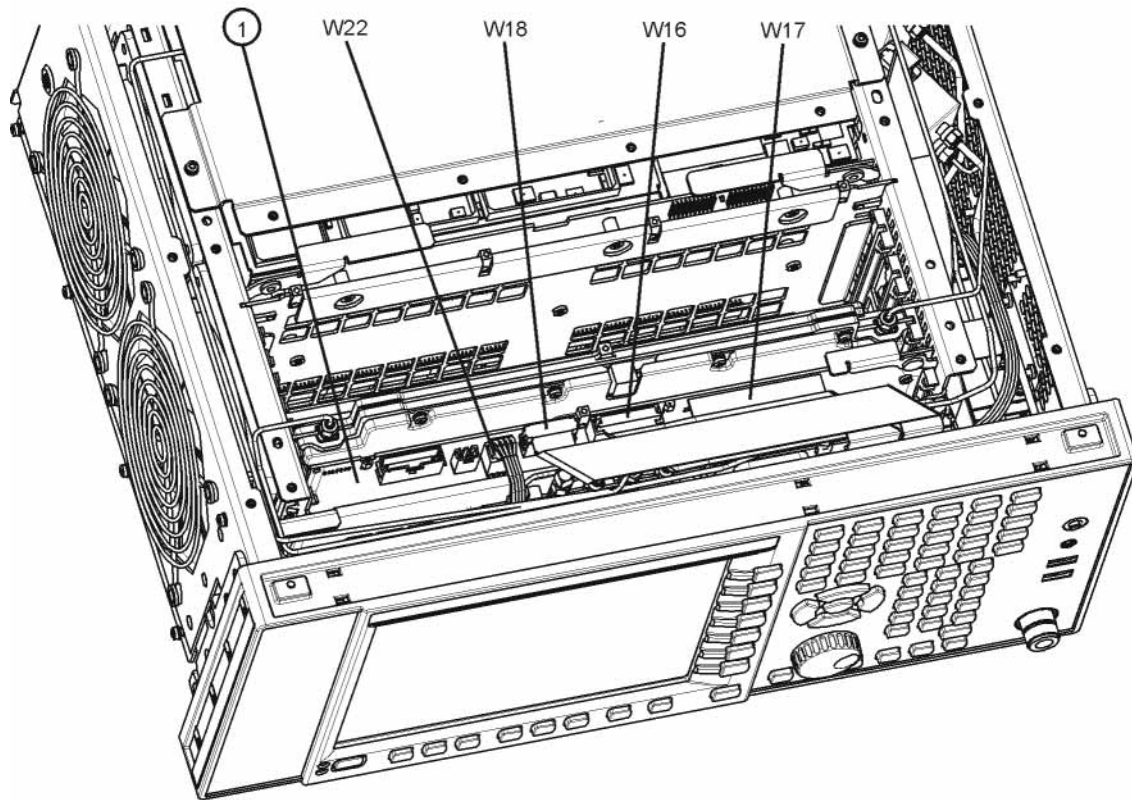
## Replace Front End Control Assembly

**NOTE**

Refer to Analyzer Information at the beginning of the Installation Procedure. Do not perform this procedure if the Front End Controller has a Hw Id of 41 or 75.

1. Refer to **Figure 11**. Remove the ribbon cables W16, W17, and W18 from the Front End Control assembly (1).
2. The Front End Control assembly can now be unplugged from the motherboard by leveraging up on the ejector and lifting the board up on the other side.

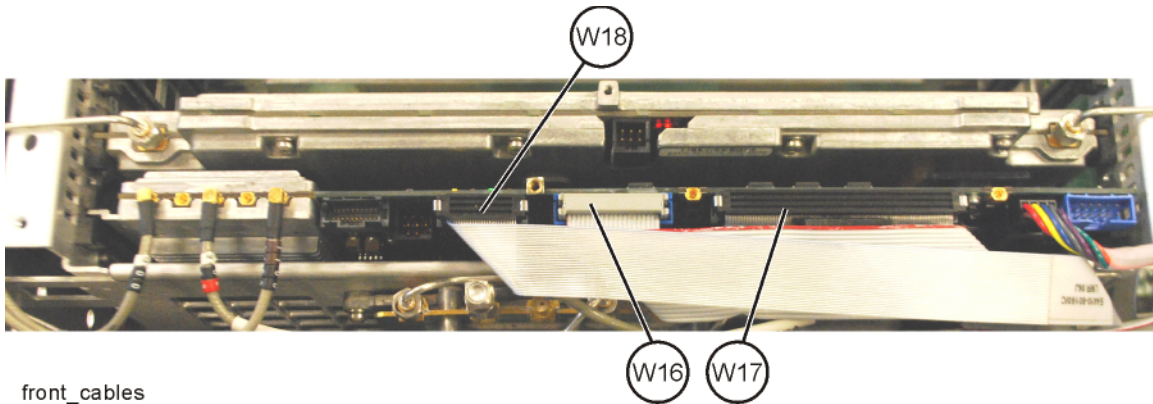
**Figure 11** Front End Control Assembly Removal



front\_end\_control

3. Refer to **Figure 12**. Install the Enhanced Front End Control assembly included in this kit into slot 6 in the chassis securing with the ejector.
4. Reattach the ribbon cables W16, W17, and W18 to the Front End Control assembly (1).

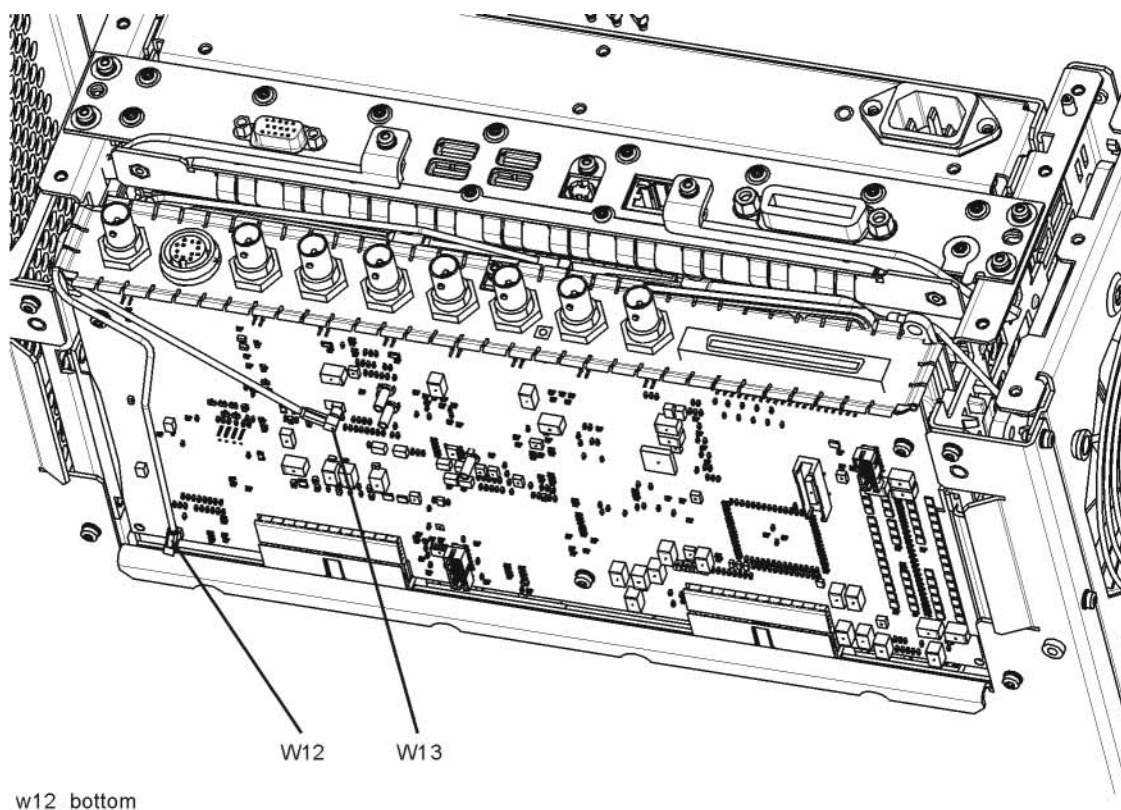
**Figure 12** Enhanced Front End Control Assembly Installation



## Replace A2 Analog IF and A3 Digital IF Assemblies

1. Refer to **Figure 13**. Disconnect cables W12 and W13 from the bottom of the DIF assembly.

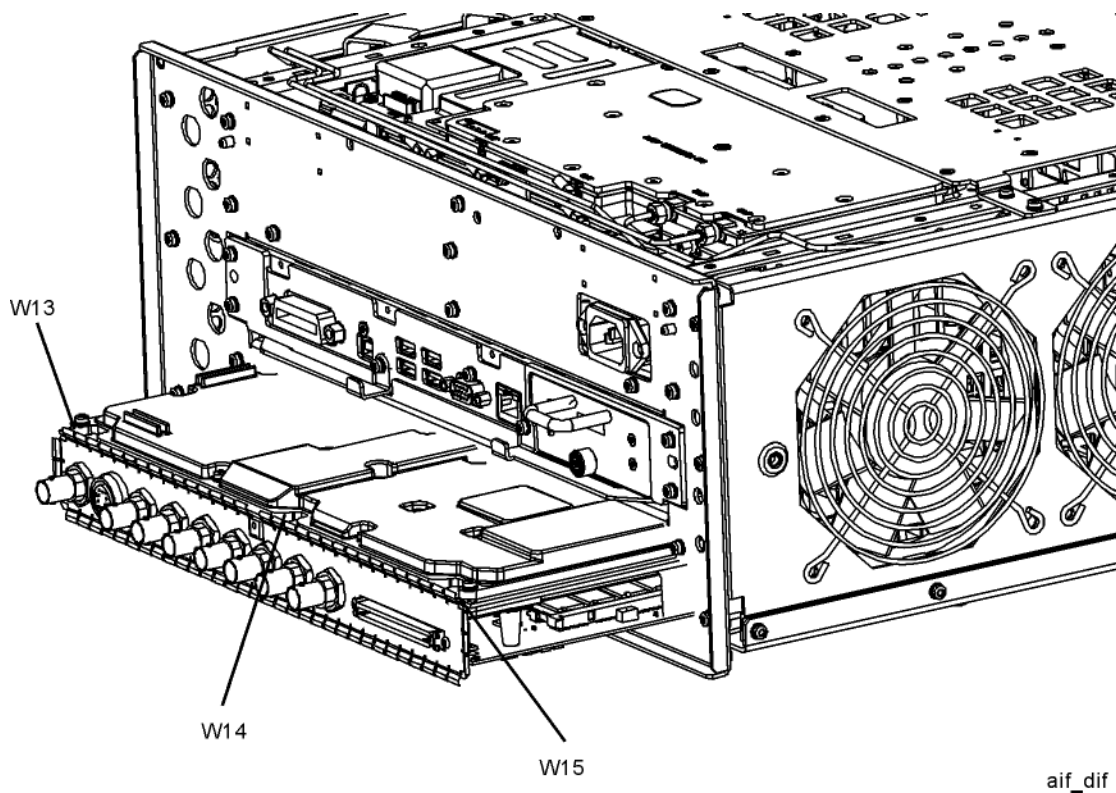
**Figure 13** W12 and W13 Removal





2. Refer to **Figure 14**. Pull the AIF/DIF assembly part way out of the chassis. Disconnect cables W13, W14, and W15 from the AIF assembly.

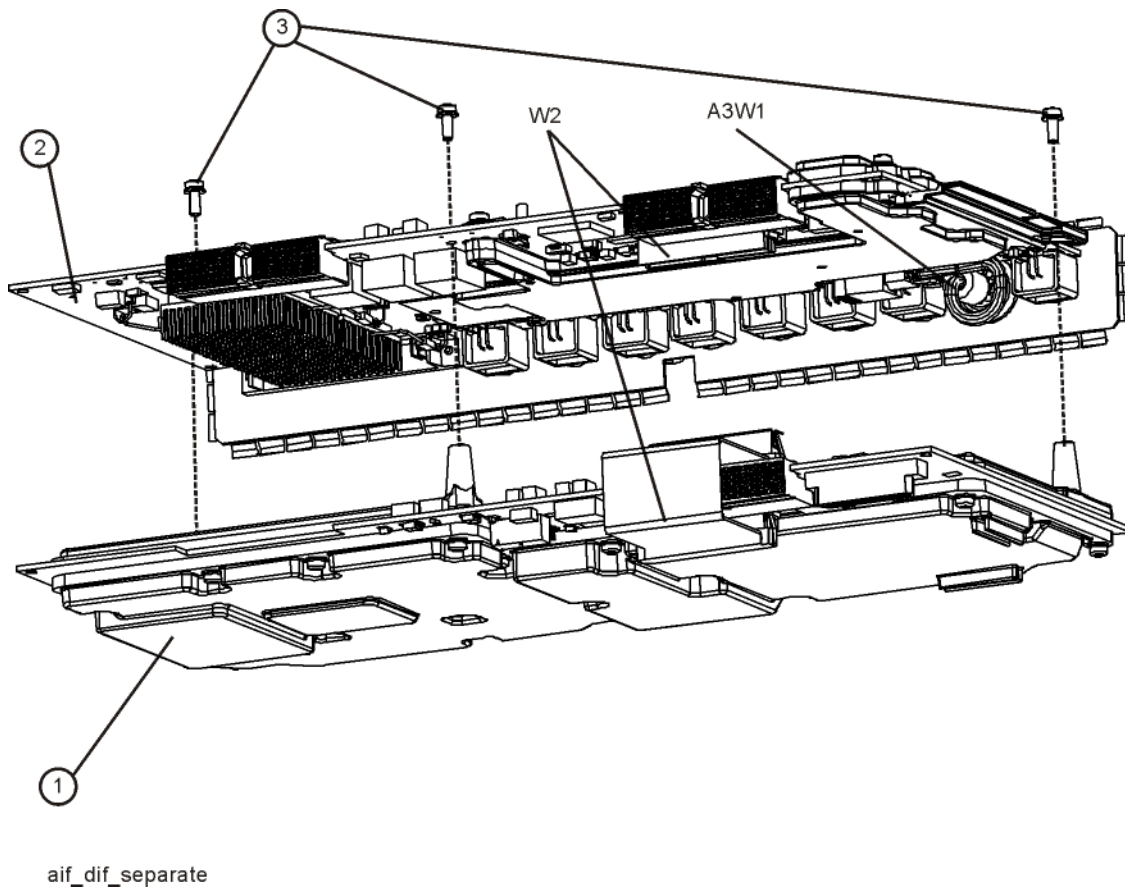
**Figure 14** AIF/DIF Assembly Removal



3. Discard cable W13.
4. The AIF/DIF assembly can be removed from the chassis by pulling straight out the back.
5. Separate the A2 Enhanced Analog IF and the A3 25 MHz Digital IF. The A2 will be re-used but the A3 will be replaced with the A3 40 MHz Digital IF (**N9020-60016**) included in the kit. Retain the screws.
6. Locate the new A3 40 MHz Digital IF (**N9020-60016**) included in this kit.
7. Connect the W2 ribbon cable to J20 on the DIF (2).

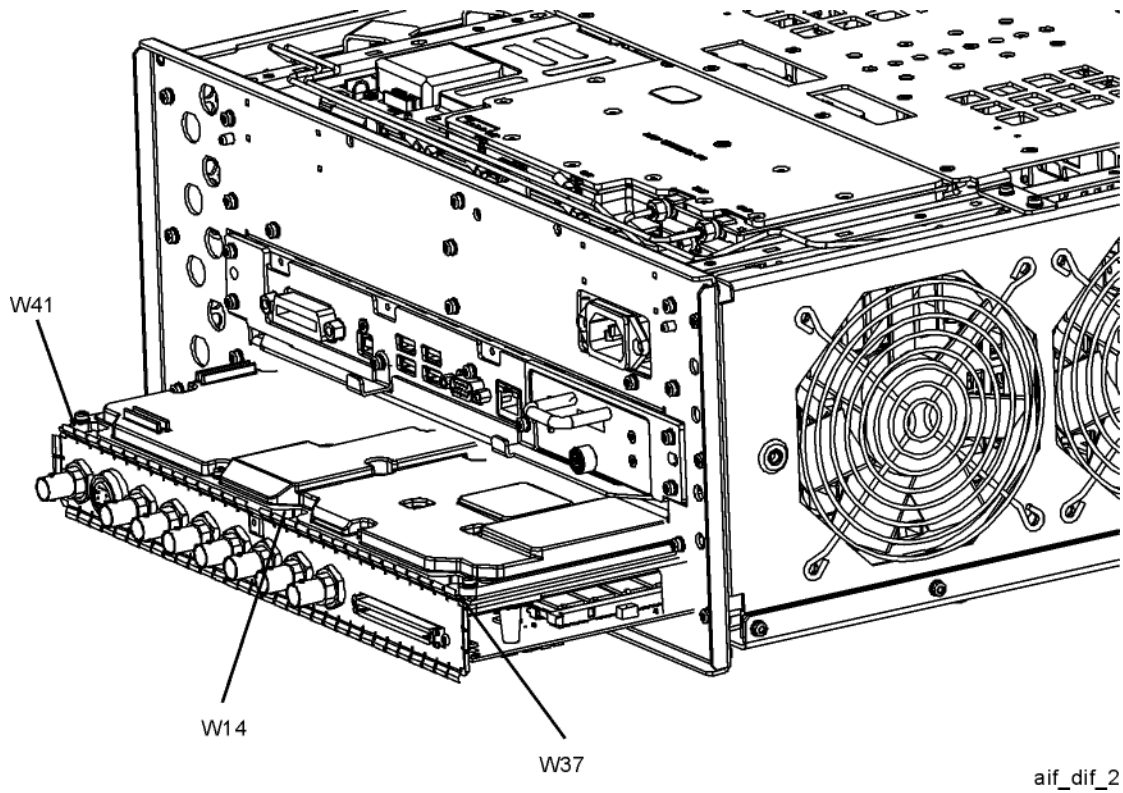
8. Refer to **Figure 15**. To pair the AIF and DIF together again, set the DIF (2) in position over the AIF (1). Attach the AIF to the DIF with three screws (3) (0515-0372) removed in **step 5**. Torque to 9 inch-pounds, starting with the middle screw.

**Figure 15**      AIF/DIF Pairing

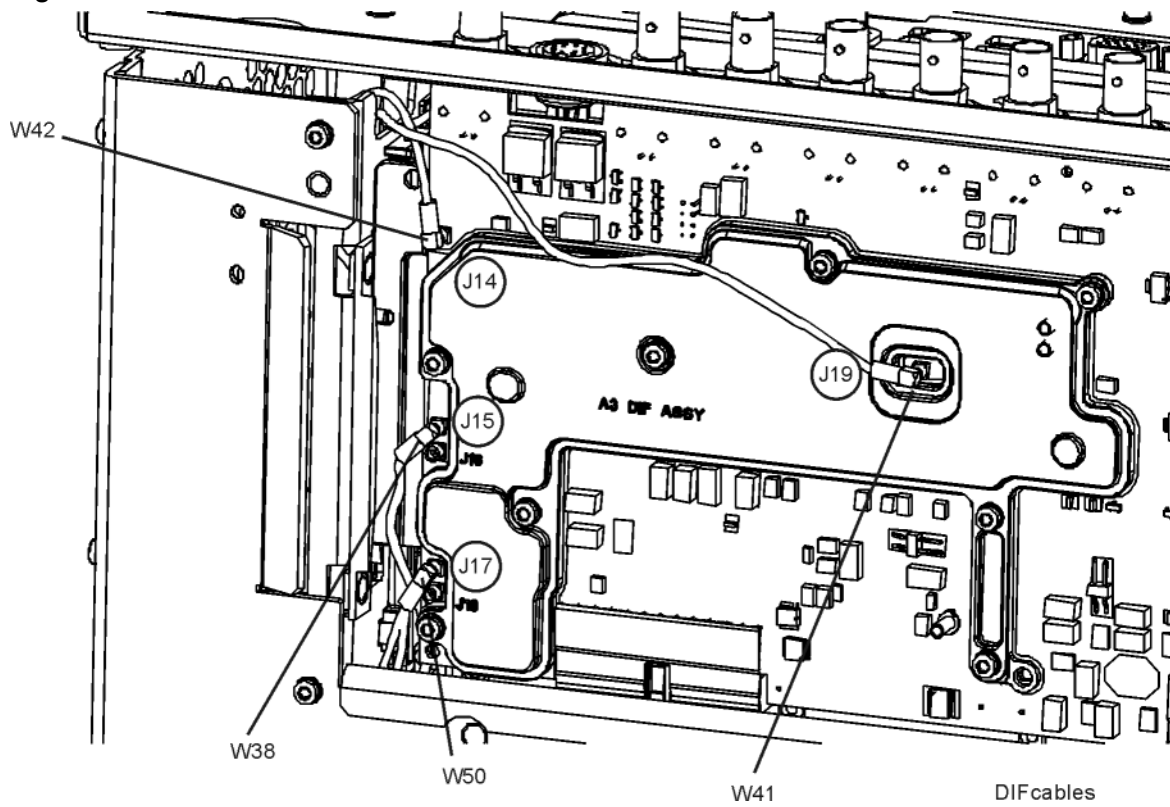


9. Connect the ribbon cable W2 to J820 on the AIF (1).
10. Slide the AIF/DIF assembly into the slot at the rear of the instrument and push on the assembly to mate the connectors to the motherboard assembly.

**Figure 16** AIF Cables



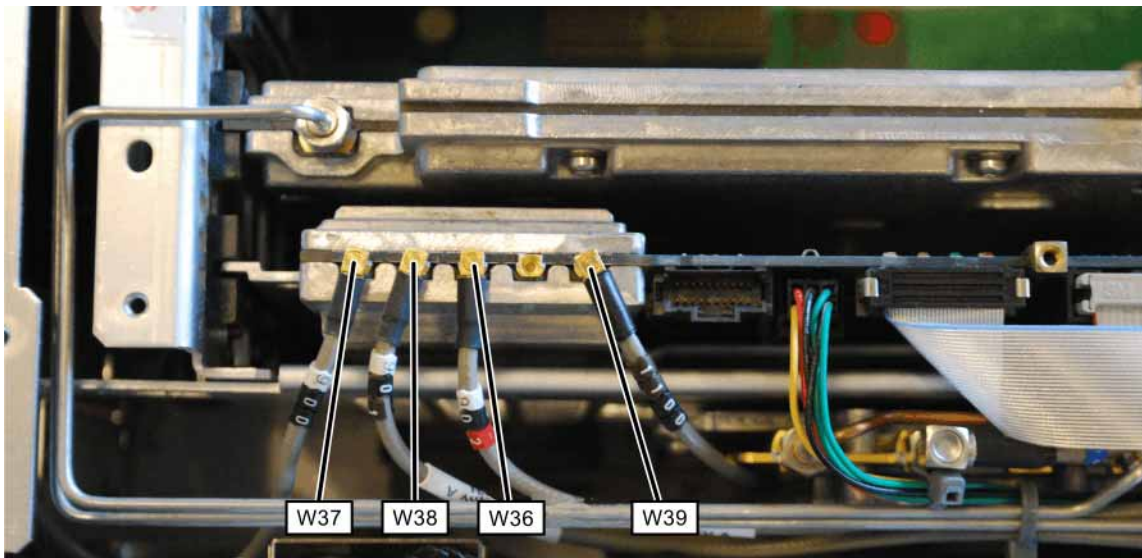
**Figure 17** DIF Cables



## Cable Installation

11. Remove the wire cable hold-down on the right side of the chassis to free the gray coax cables going to the A16 Reference Assembly.
12. Remove W20 from between A16J705 on the A16 Reference Assembly and A13J6 on the A13 RF Front End.
13. Refer to **Figure 18**. Locate W38 in the Opt HL9/HLA Cable Kit. This cable will have part number 8121-1861 and will be labeled “901” on one end and “15” on the other. Connect the end labeled “901” to A15J901 on the A15 Enhanced Front End Controller (EFEC) Assembly. Route the cable along the side of the EFEC board to the right side of the instrument and through the cutout in the chassis between A9 and A12. Connect the other end to A3J15 on the A3 DIF Assembly.

**Figure 18** W36, W37, W38, and W39 Cables

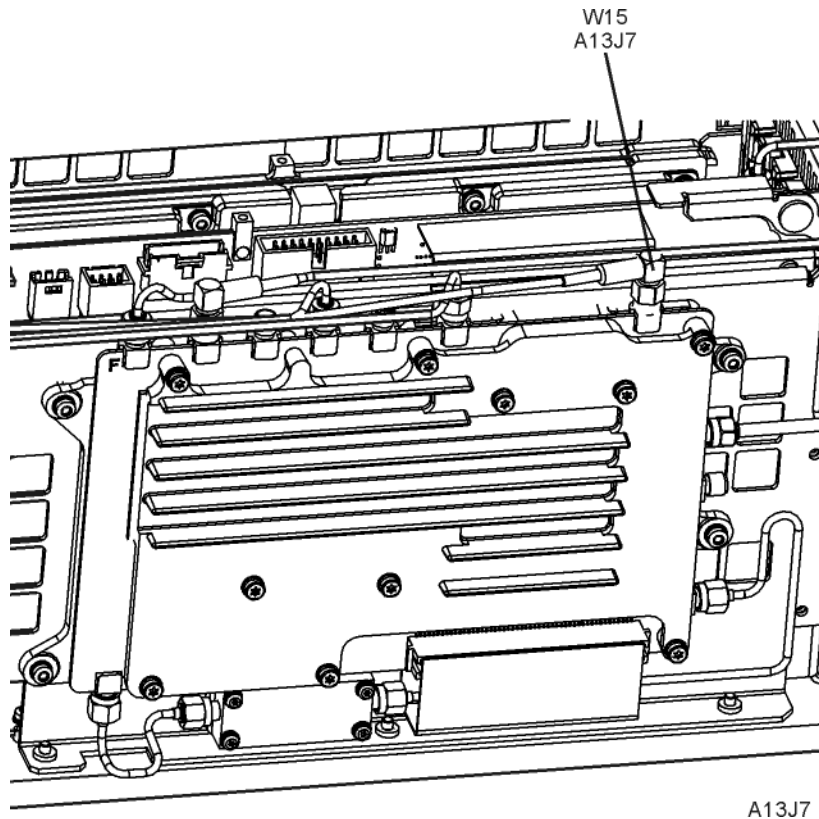


**NOTE**

Refer to Analyzer Information at the beginning of the Installation Procedure. Do not perform **step 14** and **step 15** below if the Front End Controller has a Hw Id of 41 or 75.

14. Refer to **Figure 19**. Disconnect W15 from A13J7 of the A13 RF Front End Assembly and remove the cable; it will not be used.

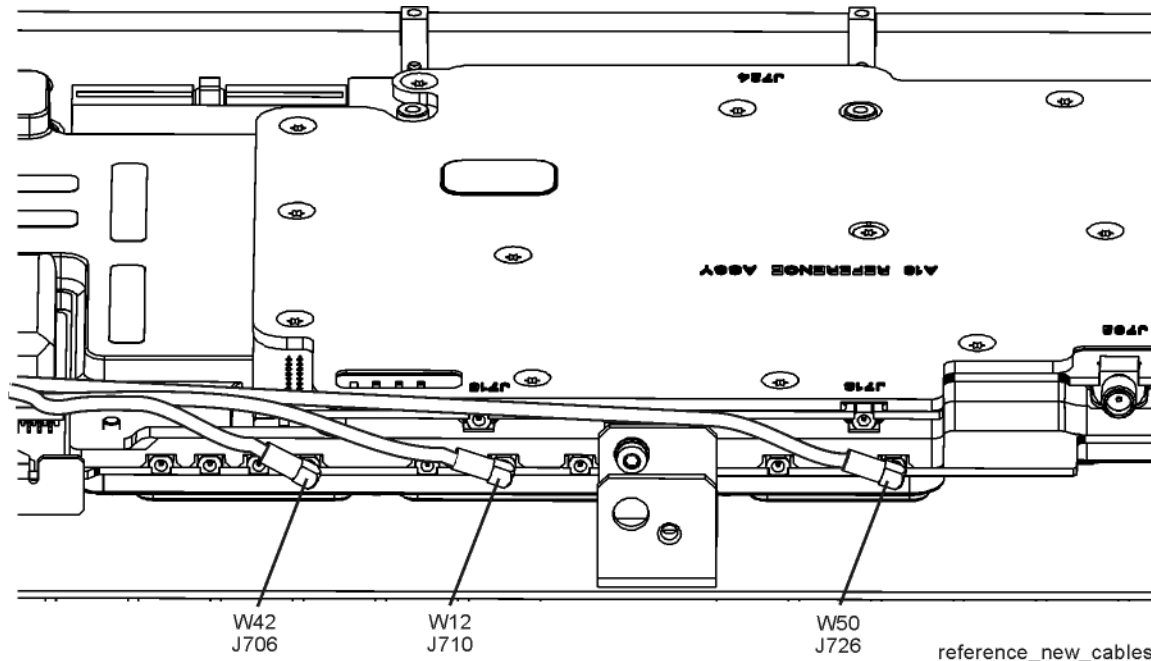
**Figure 19** W15 A13J7



15. Refer to **Figure 18** and **Figure 19**. Locate W36 in the Opt HL9/HLA Cable Kit. This cable will have part number 8121-1862 and will be labeled “902” on one end and “7” on the other. Connect the end labeled “902” to A15J902 on the A15 EFEC Assembly. Connect the other end to A13J7 on the A13 Front End Assembly. Torque the connector on A13J7 to 10 inch-pounds.

16. Refer to **Figure 20**. Disconnect cable W12 from A16J710 on the A16 Reference Assembly and discard.

**Figure 20** Reference Cables



17. Refer to **Figure 20**. Locate W42 in the Opt HL9/HLA Cable Kit. This cable will be one of two that has part number 8121-1401, but only W42 will be labeled “706” on one end and “14” on the other. Connect the end labeled “706” to A16J706 on the A16 Reference Assembly. Route the cable along the right side wall to A3J14 on the A3 DIF Assembly. Add this cable to the spiral wrap around W14.
18. Refer to **Figure 16** and **Figure 17**. Locate W41 in the Opt HL9/HLA Cable Kit. This cable will have part number 8120-8868 and will be labeled “601” on one end and “19” on the other. Connect the end labeled “19” to A3J19 on the A3 DIF Assembly. Route the cable to the right side of the instrument and up to the A2 EAIF Assembly. Connect the cable to A2J601 with the cable routed behind the screw head near A2J601.
19. Refer to **Figure 16**. Connect W14 to A2J300 on the A2 EAIF Assembly.

**NOTE**

Refer to Analyzer Information at the beginning of the Installation Procedure. Do not perform **step 20** through **step 22** below if the Front End Controller has a Hw Id of 41 or 75.

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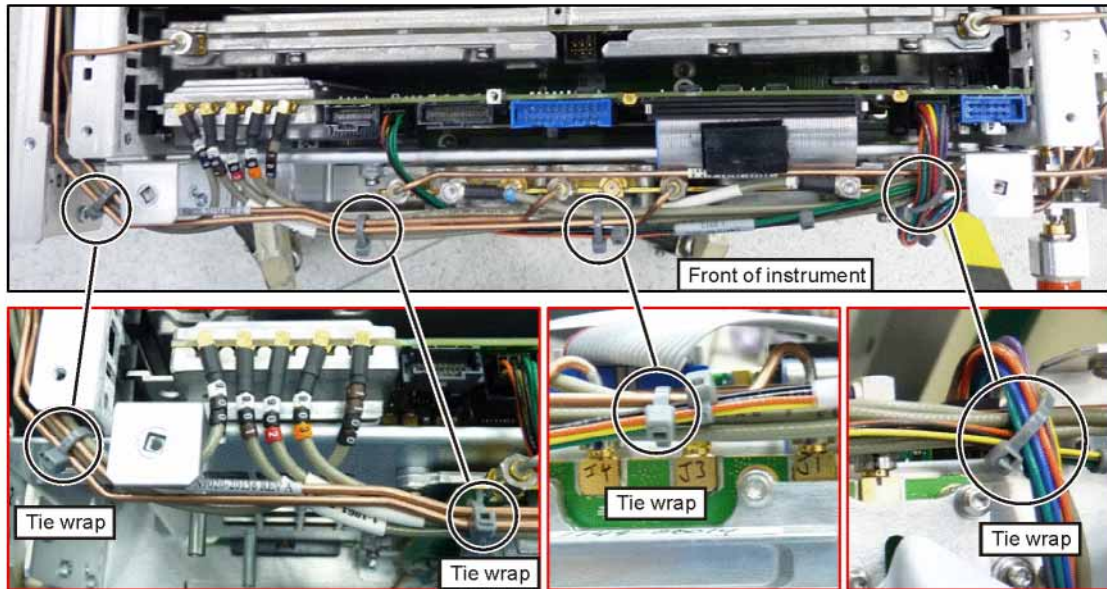
- 20.** Refer to **Figure 16**. Locate W37 in the Opt HL9/HLA Cable Kit. This cable will have part number 8121-1401 and will be labeled “900” on one end and “100” on the other. Connect the end labeled “900” to A15J900 on the A15 EFEC Assembly. Route the cable along the left side of the instrument above the fans. Route the cable down behind the rear of the second (rearmost) fan.
- 21.** Connect W37 to A2J100 on the A2 EAIF Assembly.
- 22.** Locate W39 in the Opt HL9/HLA Cable Kit. This cable will have part number 8121-2028 and will be labeled “1100” one end and no label on the other. Connect the end labeled “1100” to A15J1100 on the A15 EFEC Assembly. Route the cable along the left side of the chassis above the fans toward the rear panel. The other end of the connector will be secured to the rear panel later.
- 23.** Refer to **Figure 20**. Locate W50 in the Opt HL9/HLA Cable Kit. This cable will have part number 8121-1401 and will be labeled “726” on one end and “17” on the other. Connect the end labeled “726” to A16J726 on the A16 Reference Assembly. Route the cable along the right side wall behind the A9 and A10 Input Attenuators and through the cutout in the chassis between A9 and A12. Connect the other end to A3J17 on the A3 Digital IF (DIF) Assembly.



## Dressing Cables

1. Refer to **Figure 21**. Dress the coaxial cables and semi-rigid cables neatly and tie together using cable ties (1400-0249) at the locations indicated.

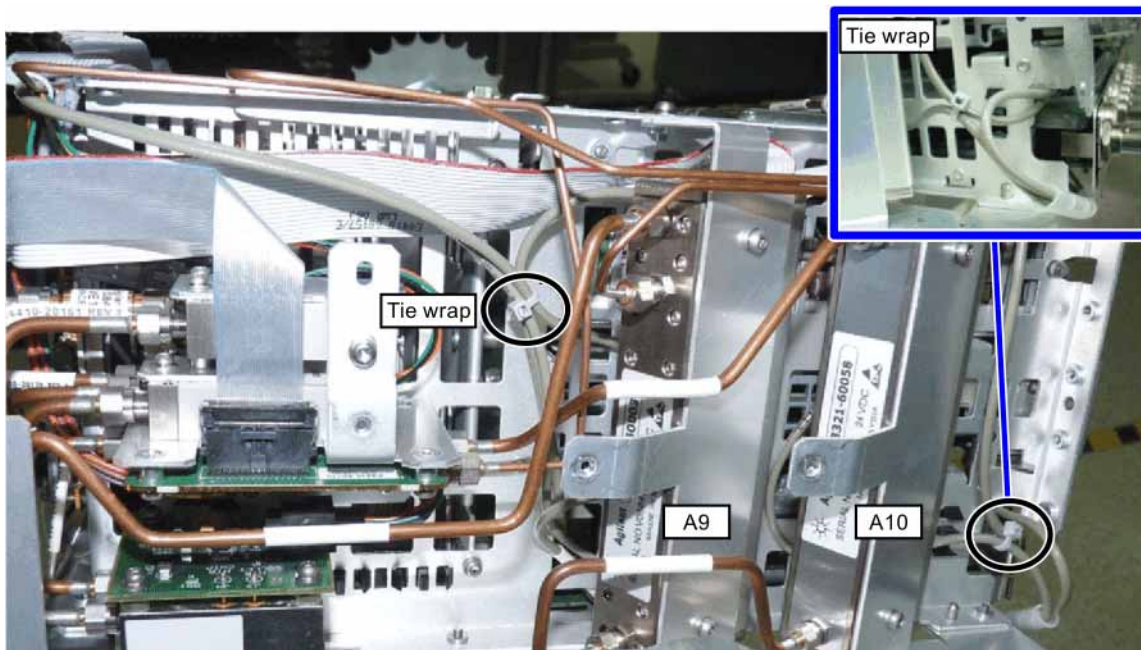
**Figure 21** Adding Cable Ties near A13 and A15 Assemblies



tie\_wraps\_A13\_A15

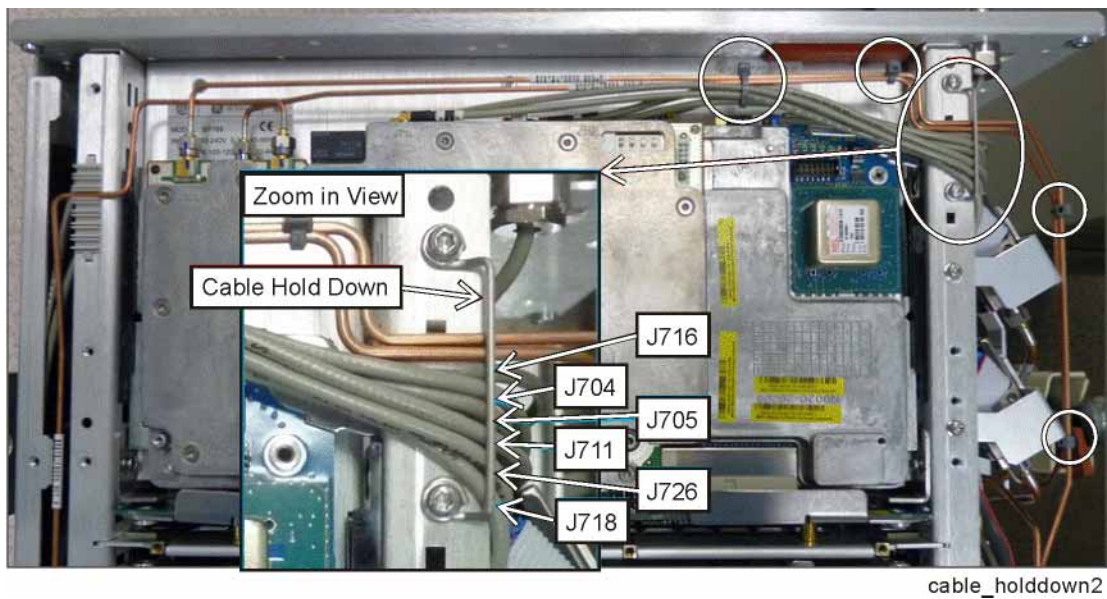
2. Refer to **Figure 22**. Dress the coaxial cables and semi-rigid cables neatly and tie together using cable ties (1400-0249) at the locations indicated.

**Figure 22** Adding Cable Ties near A9 and A10 Assemblies



3. Refer to **Figure 23**. Reinstall the wire cable hold down. Assure the cables lie flat.
4. Dress the coaxial cables and semi-rigid cables neatly and tie together using cable ties (1400-0249) at the locations indicated.

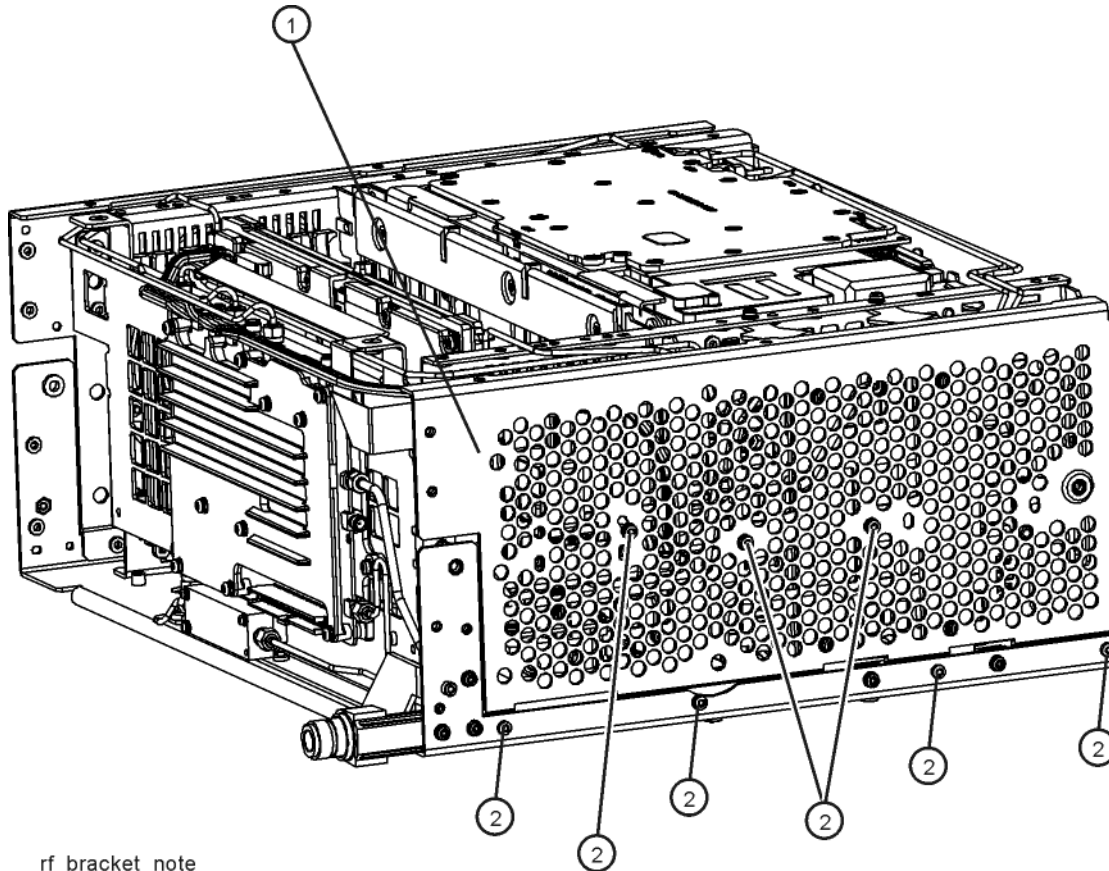
**Figure 23** Cables Under Cable Hold Down



## Reassembly

1. Refer to **Figure 24**. Reinstall the RF bracket (1) onto the chassis using seven screws (2). Torque to 9 inch-pounds.

**Figure 24** RF Bracket Replacement

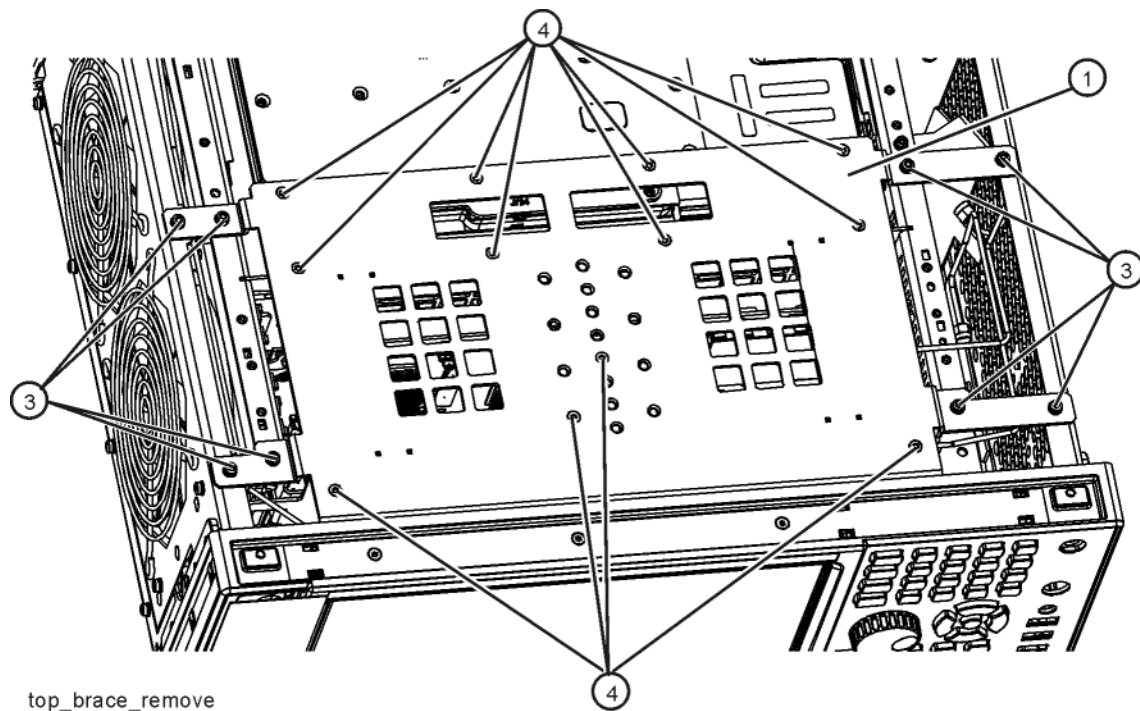


rf\_bracket\_note



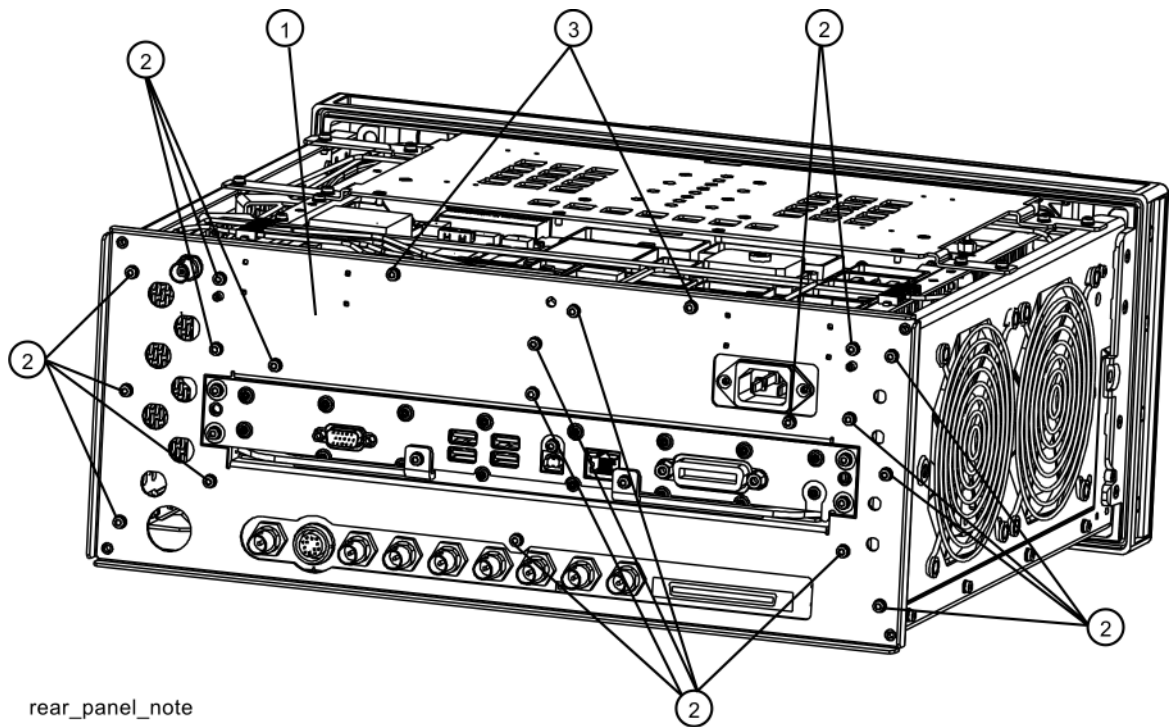
2. Refer to **Figure 25**. To replace the top brace (1), place it in the correct position and attach the appropriate screws. Torque to 9 inch-pounds.

**Figure 25**      Top Brace Replacement



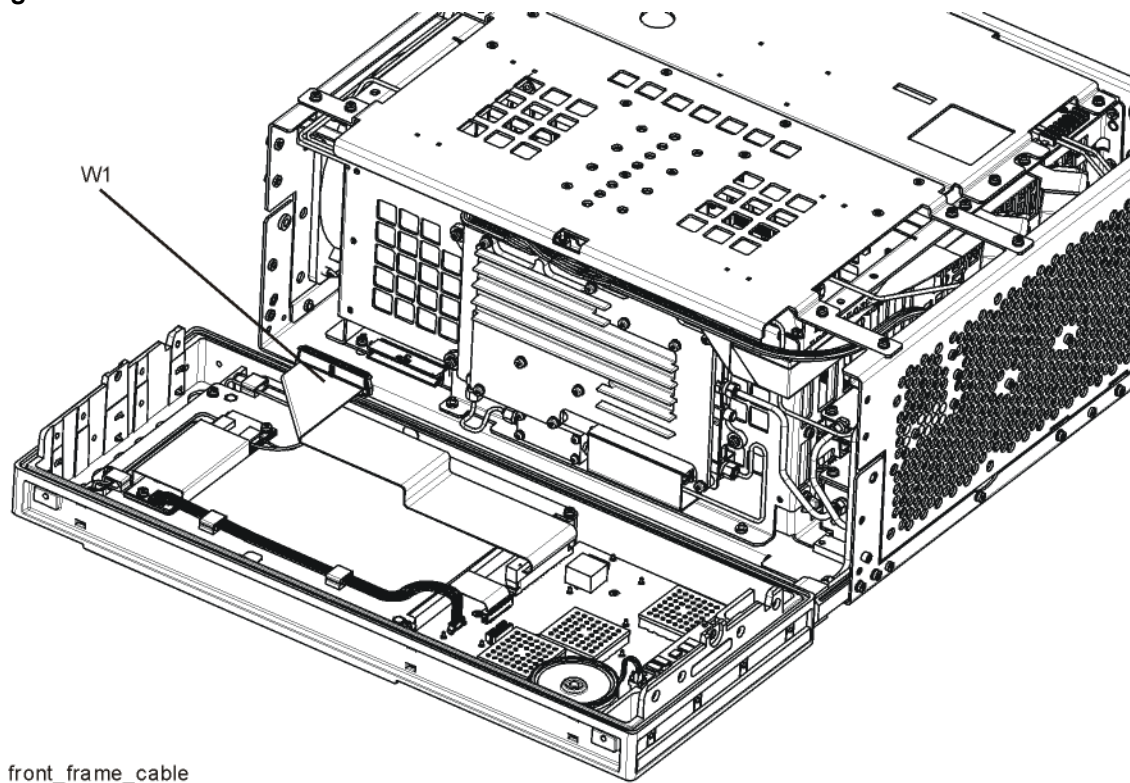
3. Remove the hole plug from the AUX IF OUT hole.
4. Attach the W23 External Reference cable to the rear panel and secure with a lock washer (2190-0102) and nut (0590-2332). Torque to 21 inch-pounds using a 9/16" nut driver.
5. Attach the W39 Aux IF Out cable to the rear panel and secure with the lock washer and nut that came with the cable. Torque to 9 inch-pounds with a 5/16" nut driver.
6. Refer to **Figure 26**. Place the rear panel (1) into position in the chassis. Replace the screws (2) to attach the rear panel to the chassis. Torque to 9 inch-pounds.

**Figure 26**      Rear Panel Replacement



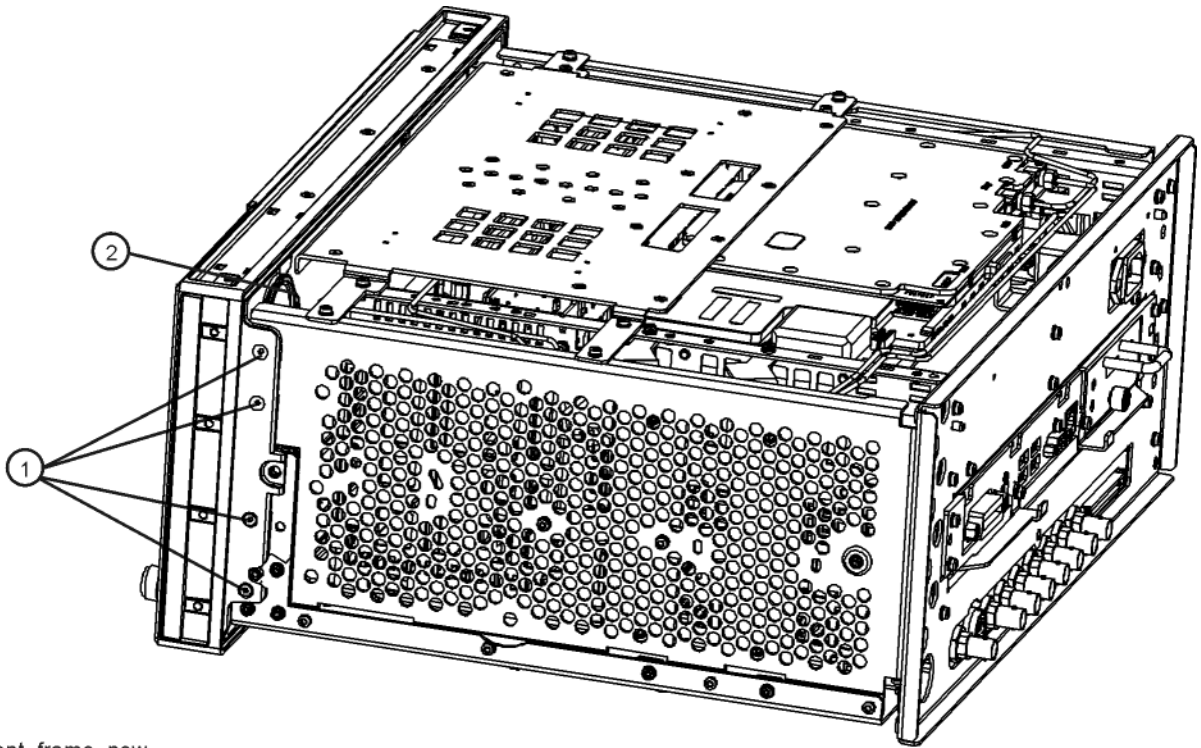
7. Refer to **Figure 27**. Reattach the ribbon cable W1.

**Figure 27** Front Panel Cable



8. Refer to **Figure 28**. Carefully position the Front Frame Assembly onto the chassis. Ensure no cables are crushed. Replace the eight screws (1), four on each side of the chassis. Torque to 9 inch-pounds.

**Figure 28** Front Frame Replacement



front\_frame\_new

9. If Option EXM, External Mixing, is installed, reconnect the semi-rigid cable connection (2) on LO/IF cable. Torque to 10 inch-pounds.

### Final Installation for Standard Instruments (Benchtop Configuration, [Figure 3](#))

1. Refer to [Figure 3](#). Carefully slide the instrument cover back onto the instrument from the rear of the analyzer, making sure not to damage any internal cables. The seam on the cover should be on the bottom of the instrument. Be sure the cover seats into the gasket groove in the Front Frame Assembly.
2. Replace the four rear feet (4) to the rear of the instrument using the four screws (3). Torque to 21 inch pounds.
3. Replace the strap handles (2) on both sides of the instrument using the four screws (1). Torque to 21 inch pounds.
4. Replace the four instrument bottom feet.
5. Replace the four key locks to the bottom feet.

### Final Installation for Portable Instruments (Option PRC, [Figure 4](#) and [Figure 5](#))

1. Refer to [Figure 5](#). Carefully slide the instrument cover back onto the instrument from the rear of the analyzer, making sure not to damage any internal cables. The seam on the cover should be on the bottom of the instrument. Be sure the cover seats into the gasket groove in the Front Frame Assembly.
2. Refer to [Figure 5](#). Replace the four rear bumpers (2) to the rear of the instrument using the four screws (1). Torque to 21 inch pounds.
3. Refer to [Figure 4](#). Replace the four hole plugs (5) to both sides of the instrument.
4. Refer to [Figure 4](#). Replace the bail handle (2) (using the four screws (1)) to the Front Frame Assembly. Torque to 21 inch pounds.



## Loading New Hardware Drivers

On the first boot-up after installing the new hardware, the analyzer will detect the new hardware and will need to load drivers for the new hardware. The analyzer will boot-up as Instrument user, but loading the new drivers requires administrator privileges.

1. Turn on the analyzer and wait for the XSA application to launch.
2. During the start up of the XSA application, it will detect the new hardware and need to load new drivers. You will be prompted for an administrator login and password. The default administrator login is “administrator” and the default password is “Keysight4u!”.
3. You will receive two prompts as described above. The first prompt is for the “Agilent PXA DIF” and the other is for the “Agilent Receiver Module”. Both of these relate to the new A3 40 MHz Digital IF Assembly.
4. After the hardware drivers have been installed, the XSA application will continue to start up.

## Update FPGA Code

On the first boot-up after installing the new hardware, the analyzer will detect the new A3 40 MHz BW Digital IF and A15 Front End Controller. However, the FPGA code in the new assemblies will not necessarily be synchronized with the instrument software installed earlier. The following procedure ensures that the FPGA code in the new assemblies is updated to the correct revision.

1. Turn on the analyzer and wait for the XSA application to launch.
2. Close the instrument application software by pressing **File, Exit, Enter** using the front panel keys.
3. Connect a USB mouse to one of the instrument front panel USB ports.
4. Using the mouse, click **Start, Log Off, Log Off**.
5. Re-login as “administrator”. The default password is “Keysight4u!”. Click **OK**.
6. Using the mouse, double-click on the Windows Explorer link on the desktop and navigate to the following folder:

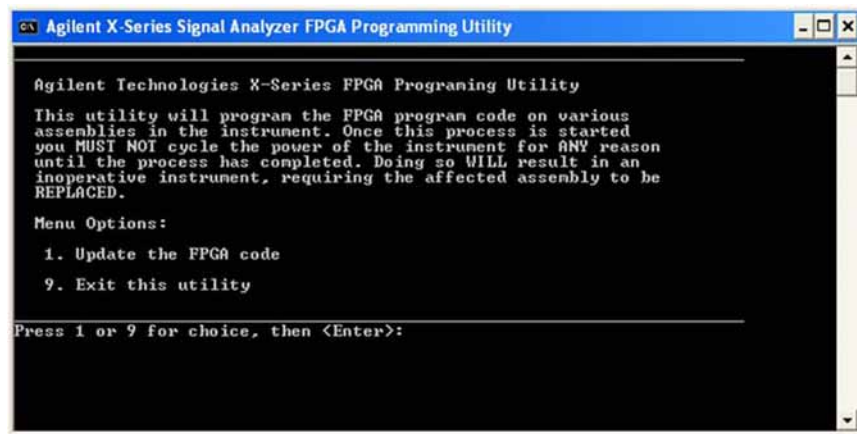
C:\Program Files\Keysight\SignalAnalysis\Physics

7. In this folder find and execute the file named:

FPGA\_Prog.bat

8. The FPGA Programming Utility will start and a window as shown in **Figure 29** will appear.

**Figure 29**      FPGA Programming Utility



9. To program the FPGA code enter 1 and press Enter. You will need to confirm this selection by pressing 1 and Enter one more time.
10. The programming of the FPGA code could take several minutes to complete. Once it has finished the instrument will reboot itself to use the new code and this process will then be completed.

## Verify Hardware Installation

1. Verify the spectrum analyzer application loads and sweeps as expected.
2. Press **System, Show, Hardware** on the analyzer and verify that the DIF, EAlF, and EFEC boards identify themselves as:
  - Analog IF (Hw Id = 57)
  - Digital IF (Hw Id = 34)
  - Front End Controller (Hw Id = 41 or 75)

## Verify Optional Functionality

1. Press **Mode, IQ Analyzer (Basic)**.
2. Press **Mode Setup**.
3. Press **IF Path**.
4. Verify that softkeys appear labeled “**25 MHz**” and “**40 MHz**”.

## Utilities, Adjustments, and Performance Verification Tests

Calibration software and specified test equipment is required to perform the adjustments and performance verification testing. Information on how to obtain this software can be found at

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

### Utilities Required

- None

### Adjustments Required

The following adjustments are the minimum set required to ensure that the newly installed hardware is functioning properly.

- Perform all adjustments

### Performance Tests Required

The following performance verification tests are the minimum set required to ensure that this newly installed option is functioning properly.

- Perform all performance tests

### **A full calibration is required to assure the instrument meets all specifications**

The end user must ultimately determine whether they want a full calibration to be performed after the installation of this upgrade or not. If a full calibration is required, arrangements regarding the level of the calibration must be made between the end user and the calibration provider.

For assistance, get in touch with your nearest Keysight Technologies Sales and Service Office. To find your local Keysight office access the following URL, or if in the United States, call the following telephone number:

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

1-800-829-4444 (8am–8pm EST Monday –Friday)

