

Keysight N9010B EXA Signal Analyzer

Option BUN, 40 MHz Analysis Bandwidth (B40) and
Microwave Preselector Bypass (MPB)
Upgrade Kit for Options 532, 544

Notices

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Option BUN, 40 MHz Analysis Bandwidth (B40) and Microwave Preselector Bypass (MPB) Upgrade Kit for Options 532, 544

Products Affected:	N9010B EXA Signal Analyzer
Serial Numbers:	All
Options:	B40, MPB, 532, 544
To Be Performed By:	(X) Keysight Service Center (X) Personnel Qualified by Keysight ^a () Customer
Estimated Installation Time:	3.0 Hours
Estimated Adjustment Time:	5.5 Hours
Estimated Verification Time:	3.5 Hours

- 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

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 532 or 544 EXA signal analyzer to add Option B40, 40 MHz Analysis Bandwidth, and Option MPB, Microwave Preselector Bypass.

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

- N9010B-B40, 40 MHz Analysis Bandwidth
- N9010B-DP2, Digital Processor & 2 GB Capture Memory
- N9010B-RTL, Real Time Link
- N9010A-MPB, Microwave Preselector Bypass

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 verify that this upgrade kit is appropriate for the analyzer.

Installation Kit Parts List

Quantity	Description	Keysight Part Number
1	A3 40 MHz Digital IF Assembly	N9020-60016
1	Opt B40/BUN Cable Kit with Wire Markers (includes cables W36 through W43, listed below)	N9020-60301
1	Bracket, Bypass	N9020-00021
1	Cable Assembly, Low Band Switch to PSBTSW Port 1 (W45)	N9010-20009
1	Cable RF, Semi-Rigid PSBTSW Port 4 - Pre Sel In (W48)	N9020-20128
1	Cable RF, Semi-Rigid Pre Sel Out - PSBTSW Port 3 (W47)	N9020-20129
1	Cable RF, Semi-Rigid PSBTSW Port 2 - RF HB In (W46)	N9020-20130
1	Cable Assembly, Switch Control (W30)	E4410-60159
1	EM Switch, Transfer, DC - 50 GHz (SW4)	87222-60031
1	Cable Assembly, Coaxial 530 mm LG (W50)	8121-1401 ^a with ends labeled '726' and '17'
1	Cable Assembly, Coaxial 530 mm LG (W37) ^b	8121-1401 ^a with ends labeled '900' and '100'
1	Cable Assembly, Coaxial 560 mm LG (W54)	8121-2288 ^a with ends labeled '716' and '14'
1	Cable Assembly, Coaxial 620 mm LG (W38)	8121-1861 ^a with ends labeled '901' and '15'
1	Cable Assembly, Coaxial 280 mm LG (W41)	8120-8868 ^a with ends labeled '601' and '19'
1	Cable Assembly, Coaxial 240 mm LG (W36) ^b	8121-1862 with ends labeled '900' and '7'
1	Cable Assembly, Coaxial 525 mm LG (W39) ^b	8121-2028 with one end labeled '1100'
2	Screw, M3 x 0.5, (8 mm long), Pan head	0515-0372
12	Screw, M3 x 0.5, (6 mm long), flathead	0515-1946
2	Screw, M3 x 0.5, (8 mm long), flathead	0515-2032
3	Screw, M2.5 x 0.45, (6 mm long), Pan head	0515-1934
1	Connector Body Housing Receptacle, 3-Pos, 1-Row	1252-1873
6	Cable Tie, Self-Locking, Nylon Gray	1400-0249
1	Entitlement Certificate	5964-5178

Introduction

Quantity	Description	Keysight Part Number
1	Entitlement Certificate Envelope	5967-7169
1	Installation Note	This note

- a. This cable is included in the Option B40/BUN Cable Kit with Wire Markers, p/n N9020-60301
- b. Cables W36, W37, and W39 are not used in the N9010BU-BUN kit; they are only required for the N9010BU-B40 kit.

Tools Required

- T-8 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.16.00 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 online at the following URL:
www.keysight.com/find/N9010B_service_guide
- Microsoft Windows based personnel computer with internet access and USB port

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.

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.

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.

N9010B-503 _____

N9010B-507 _____

N9010B-513 _____

N9010B-526 _____

N9010B-532 _____

N9010B-544 _____

N9010B-B25 _____

N9010B-B40 _____

N9010B-DP2 _____

N9010B-MPB _____

Refer to the following conditions:

- If the analyzer is equipped with N9010B-B40, do not proceed with the installation of this upgrade kit. If this option is already installed, you do not need this upgrade kit, since the necessary license and hardware is already present.
- If the analyzer has a frequency range option of N9010B-503, N9010B-507, N9010B-513, or N9010B-526, do not proceed with the installation of this kit. This kit can only be installed on analyzers with frequency range options of 532 or 544.

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

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

5. Refer to step 3 and step 4:

- If the analyzer has N9010B-DP2 and/or N9010B-MPB installed, verify that it also has a Front End Controller with Hw Id of 75 or 170 and a Digital IF with Hw Id of 34. If any of the listed options is present and the Front End Controller has Hw Id of 75 or 170 and the Digital IF has Hw Id of 34, all the necessary hardware is already installed. It is only necessary to redeem the license entitlement for N9010BU-BUN, install the licenses, and perform the necessary adjustments and performance verification tests.

Installation Procedure

Update Instrument Software

If the analyzer does not have instrument software that supports the new hardware, many errors will occur onscreen when the analyzer boots up. 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

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 N9010B-BUN upgrade product on the Option Upgrade Entitlement Certificate (5964-5178) 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 similar to the one shown in Figure 2. If 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:

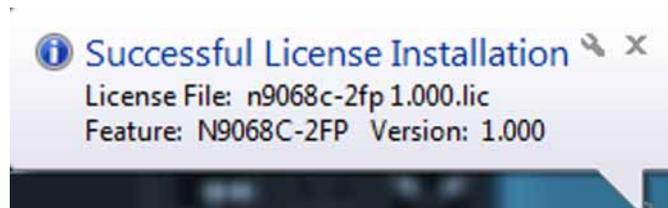
N9010BU-CR3, 2nd IF Output

N9010BU-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 **System** and **Exit Program**. An Exit Program dialog box will appear; tap **OK** to confirm the exit.
2. Double-tap 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:
 - N9010B-B40 Analysis bandwidth, 40 MHz
 - N9010B-DP2 Digital Processor, 2 GB Deep Capture Memory
 - N9010B-FS1 Fast Sweep Capability
 - N9010B-MPB Microwave Preselector
 - N9010B-RTL Real Time Link

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.

NOTE

If the analyzer has Option PRC, Portable Configuration, refer to the “**Portable Instrument (Option PRC)**” section on **page 16** to remove the outer case.

NOTE

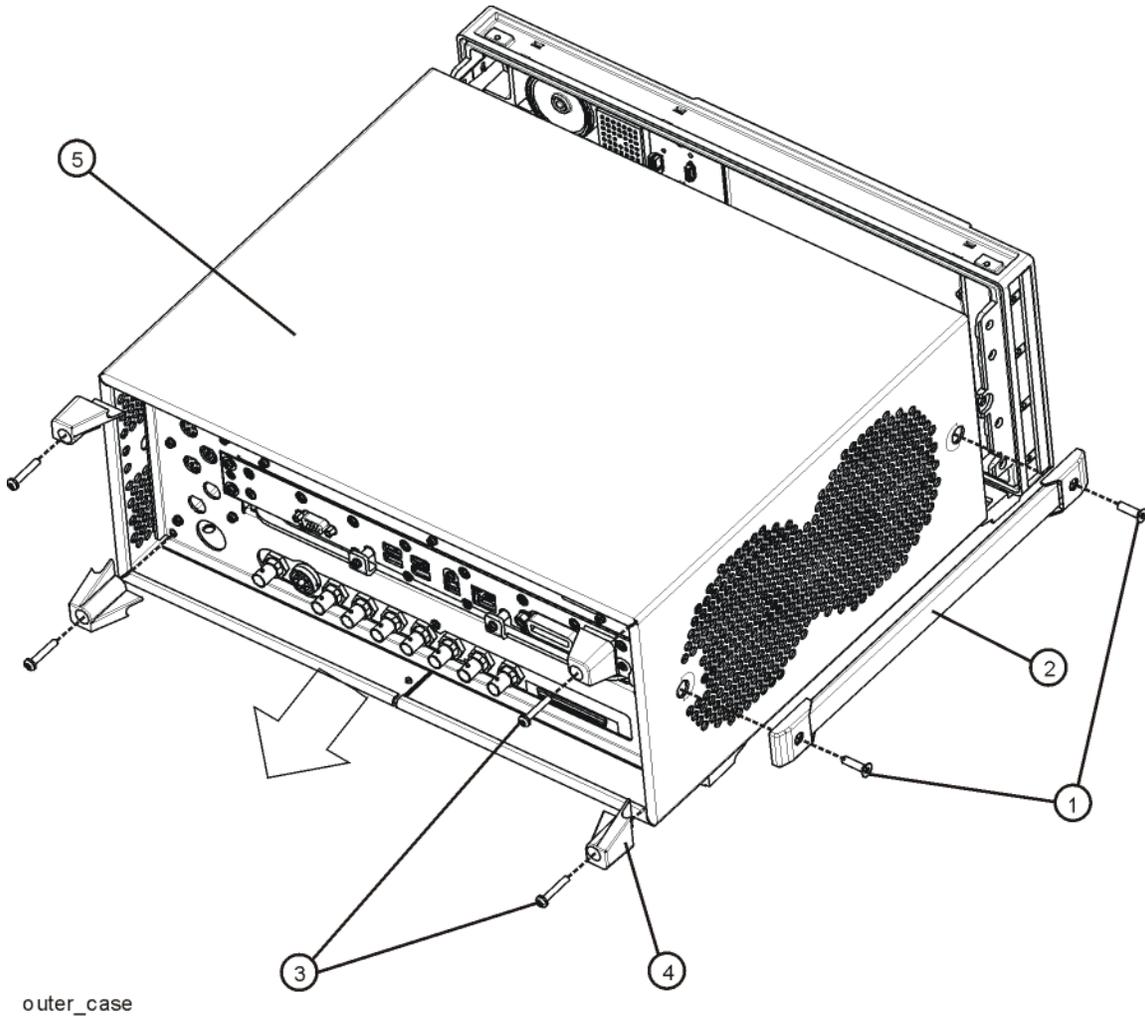
Make sure any adapters on the front panel are removed.

Refer to the data in the Analyzer Information procedure. If the analyzer has N9010B-DP2 and/or N9010B-MPB installed and has a Front End Controller with Hw id of 75 or 170 and a Digital IF with Hw Id of 34, it is not necessary to install any hardware. Instead, skip to the “**Verify Optional Functionality**” on **page 44**.

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. Remove the four key locks from the instrument four bottom feet.
4. Remove the four instrument bottom feet.
5. Using the T-20 driver, remove the four screws (including washers) (3) that hold the rear feet (4) in place.
6. Pull the instrument cover (5) off towards the rear of the instrument.

Figure 3 Benchtop Configuration Outer Case Removal



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

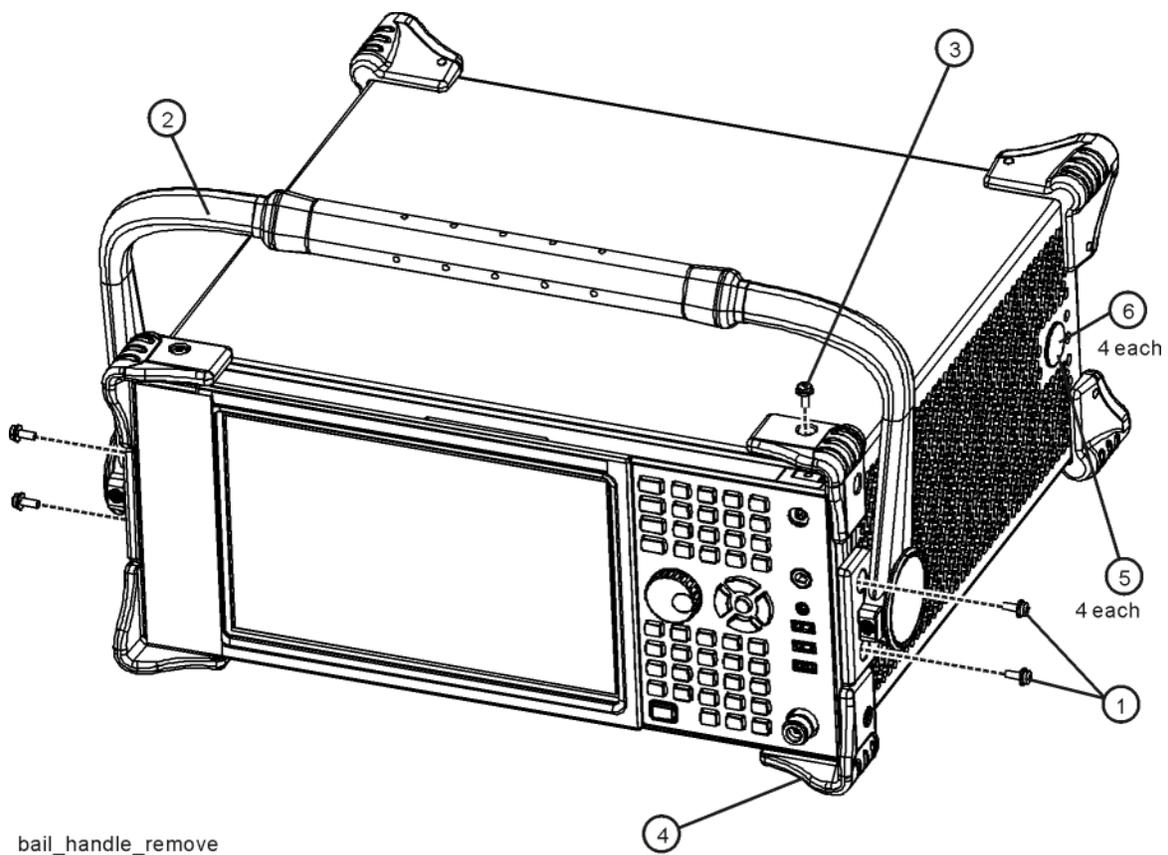
Portable Instrument (Option PRC)

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.

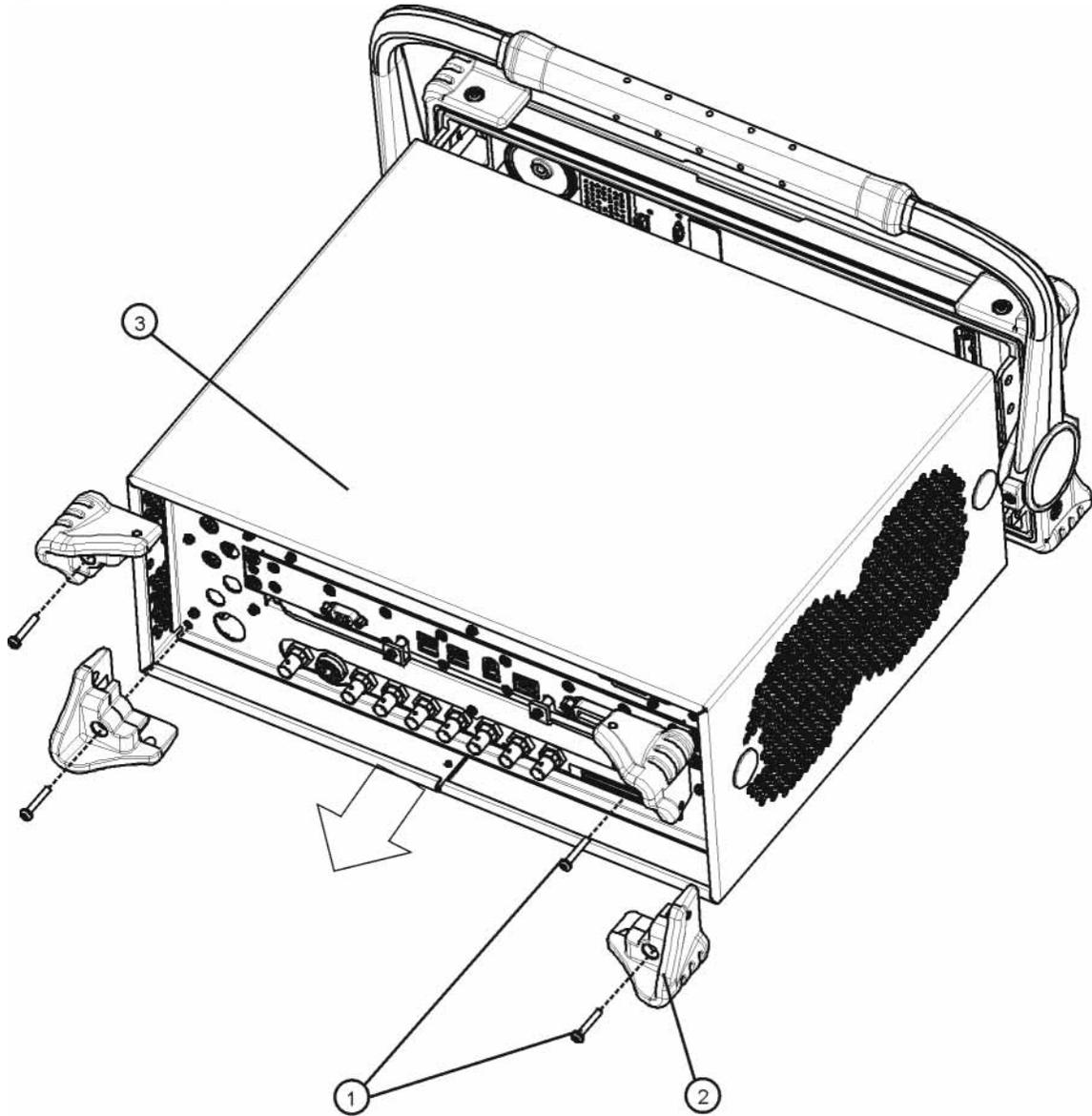
Figure 4 Bail Handle and Front Bumpers Removal (Option PRC)



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

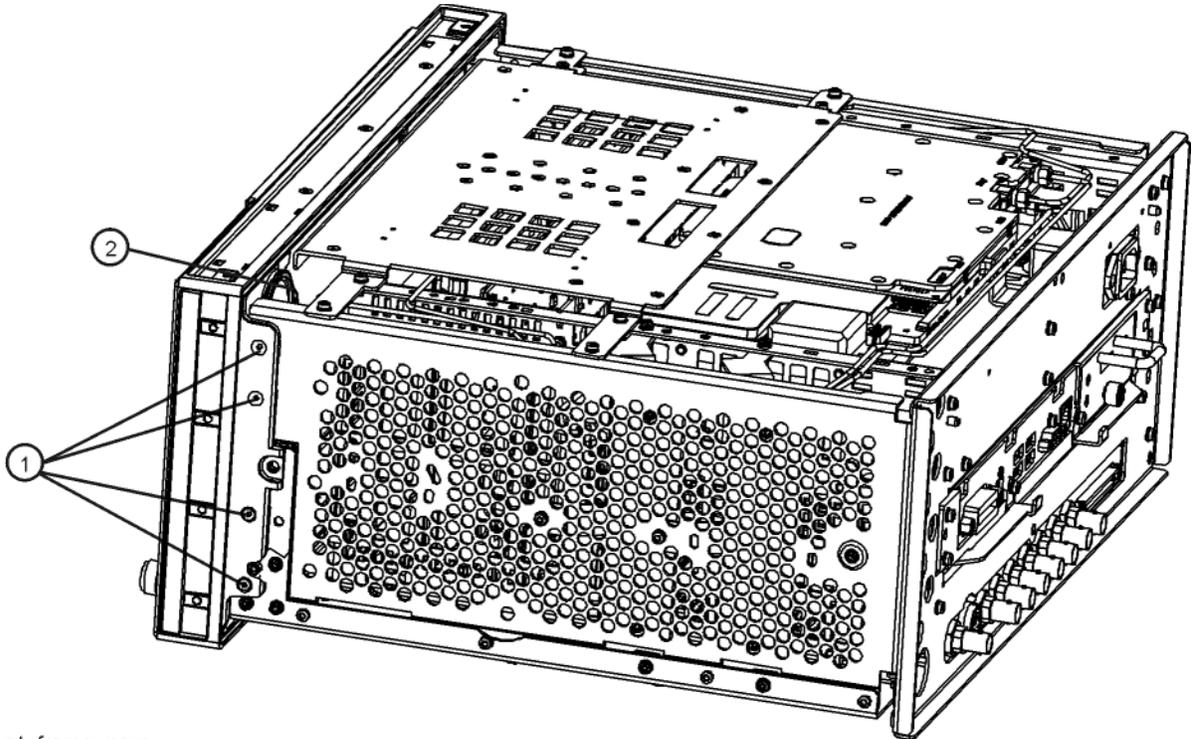


rear_bumper_remove

Front Frame Assembly Removal

1. Refer to Figure 6. If Option EXM, External Mixing, is present, disconnect the cable connection (2) between W27 and W28.
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



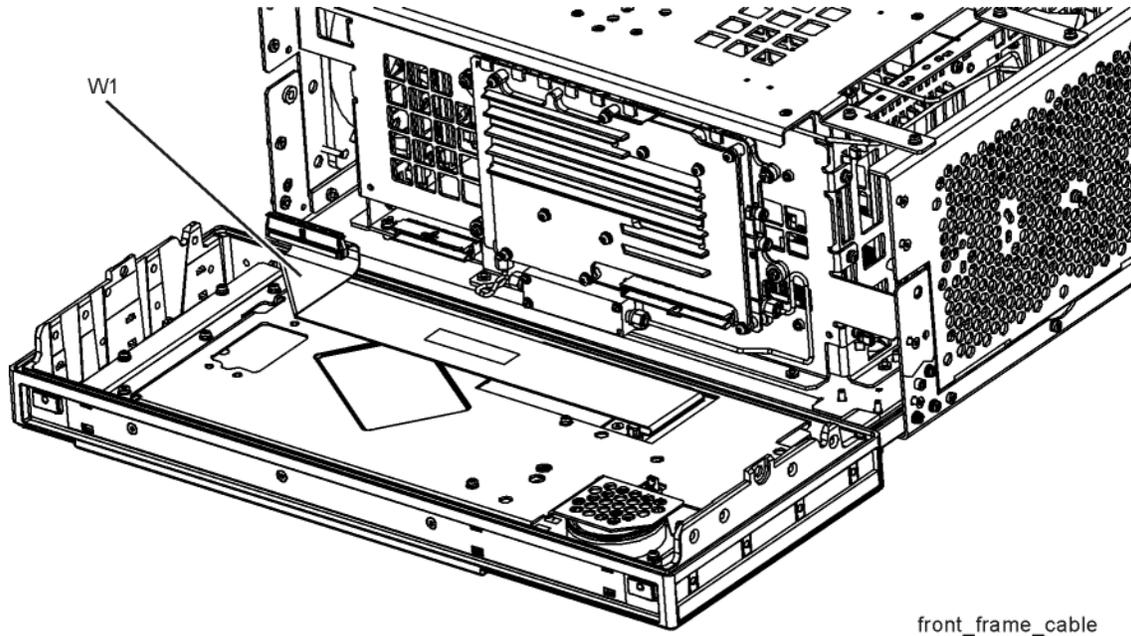
front_frame_new

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.

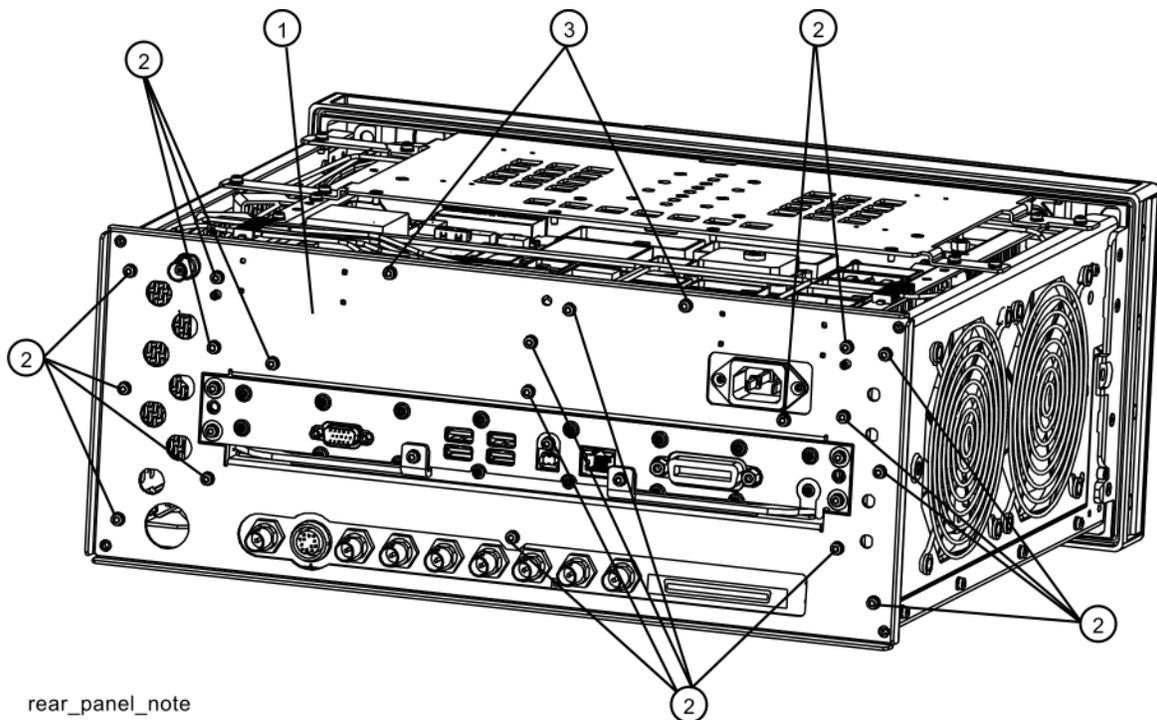
Figure 7 Front Panel Cable



Rear Panel Removal

1. Refer to Figure 8. Using the T-10 driver, remove the twenty screws (2) and (3) 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.
3. Disconnect the cable connected to the Aux IF Out port on the rear panel using a 5/16-inch open-end wrench or 5/16-inch nut driver.
4. The rear panel can now be removed.

Figure 8 Rear Panel Removal

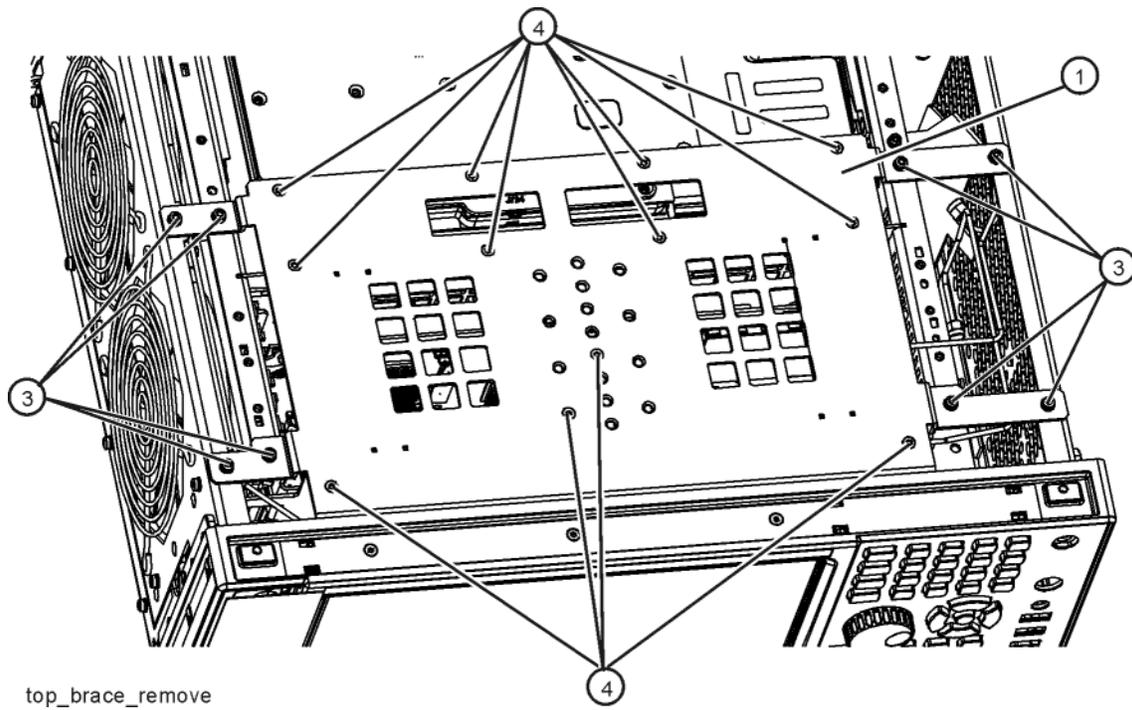


rear_panel_note

Top Brace

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 flathead screws (4) (0515-1946) attaching the top brace to the boards.

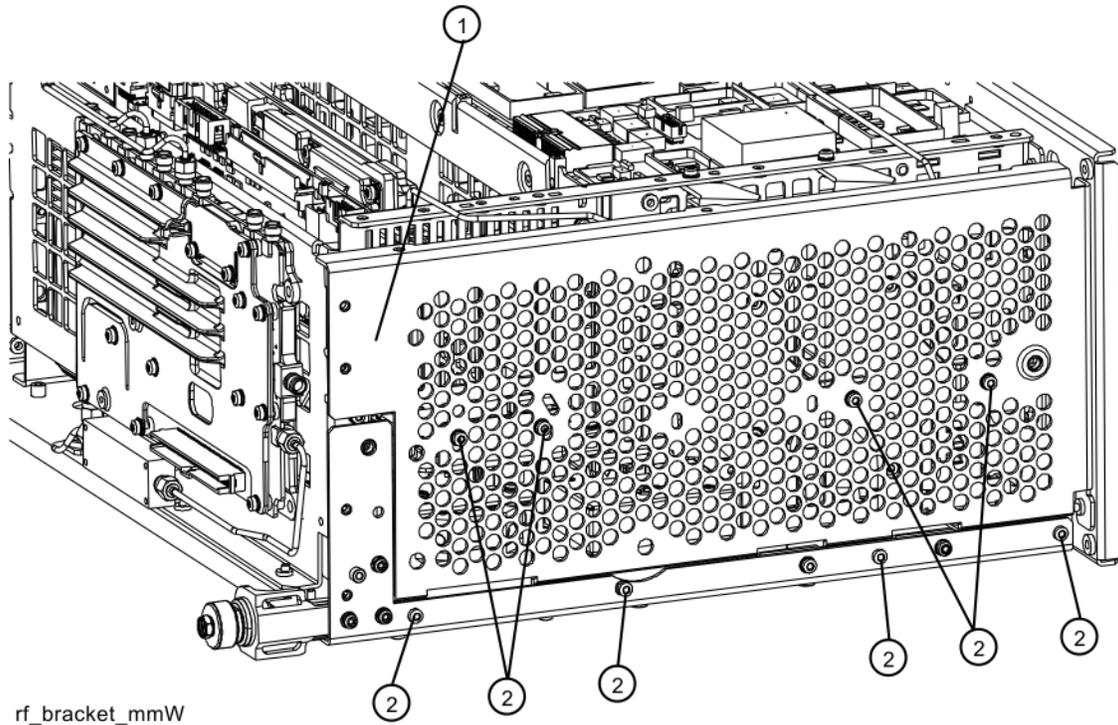
Figure 9 Top Brace Removal



RF Bracket Removal

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

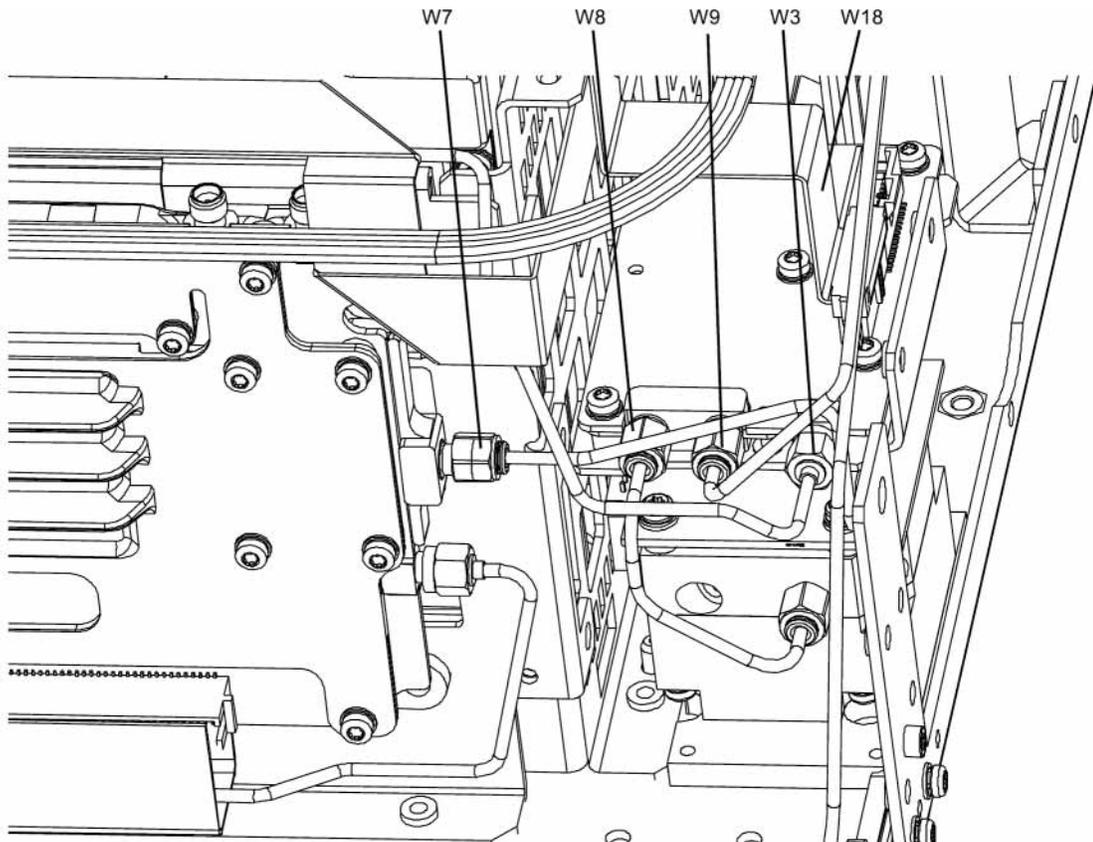
Figure 10 RF Bracket Removal



Installing Microwave Preselector Bypass Switches

1. Refer to Figure 11. Disconnect ribbon cable W18 from the A11 Low Band Switch.
2. Remove the semi-rigid cables W3, W7, W8, and W9 using the 5/16 inch wrench. W3 and W9 will be re-used later but W7 and W8 will not be re-used.

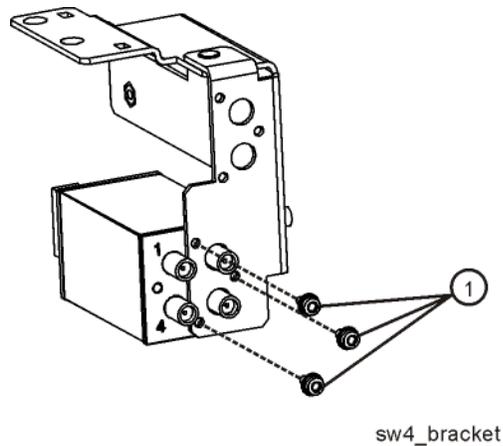
Figure 11 Low Band Switch Cable Removal



lb_switch_mmW

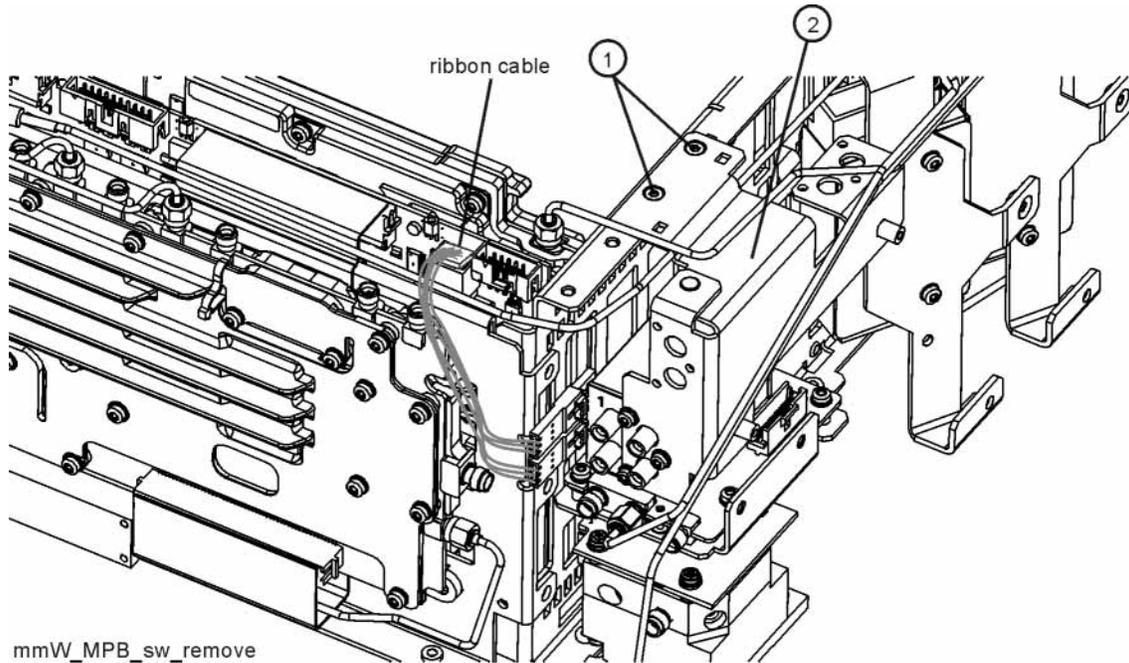
3. Locate the preselector bypass transfer switch (87222-60031), the bypass bracket (N9020-00021) and the three M2.5x0.45 6mm long screws (0515-1934) in the kit.
4. Refer to Figure 12. Mount the preselector bypass transfer switch (SW4) to the bypass bracket using the three 0515-1934 screws (1) as shown. Note the location of ports 1 and 4 on the transfer switch relative to the bracket as shown in Figure 12. Torque to 6 inch-pounds.

Figure 12 SW4 Bracket



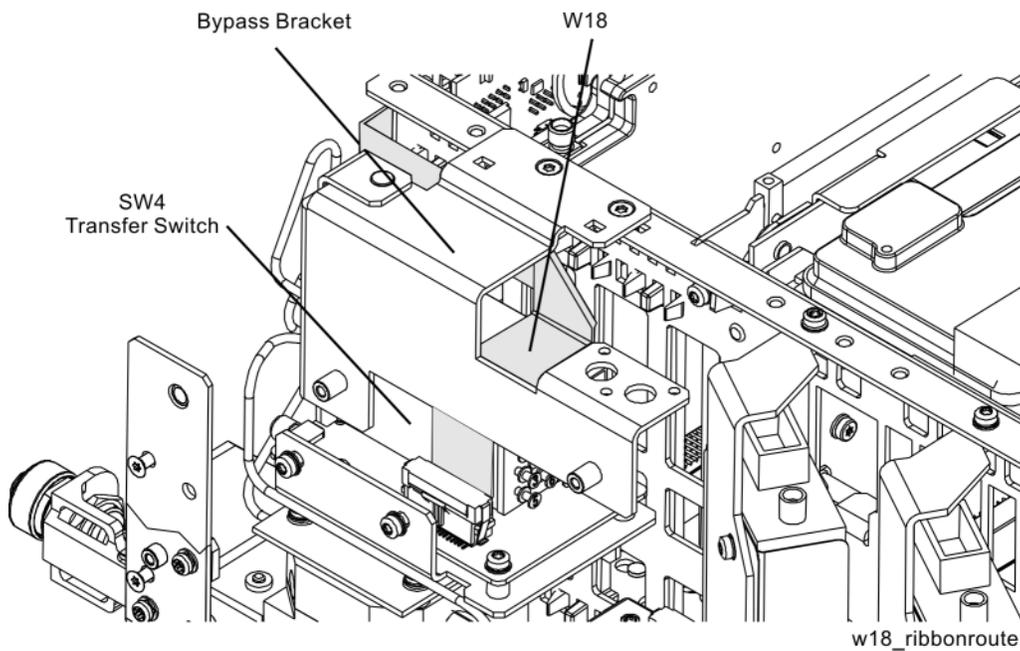
5. Locate the switch control cable harness (E4410-60159) (W30) and the connector body housing receptacle (1252-1873) in the kit. Note that one end of the W30 harness has two 3-contact connectors, one with wire colors of green, black, and purple and the other with wire colors green, black and orange. Insert the connector body housing receptacle into the connector with the green, black, and orange wires.
6. Connect the remaining 3-contact connector, with the green, black, and purple wires, to the pigtail harness on SW4.
7. Orient the two 3-contact connectors of the W30 harness such that the connectors are just to the left of ports 1 and 4 of SW4.
8. Refer to Figure 13. Secure the bypass bracket (2) to the chassis using two 0515-2032 screws (1) included in the kit. Torque to 9 inch pounds.

Figure 13 Securing Bypass Bracket to Chassis



9. Refer to Figure 14. Route ribbon cable W18 between the SW4 Transfer Switch and the bypass bracket. Connect W18 to A11J4.

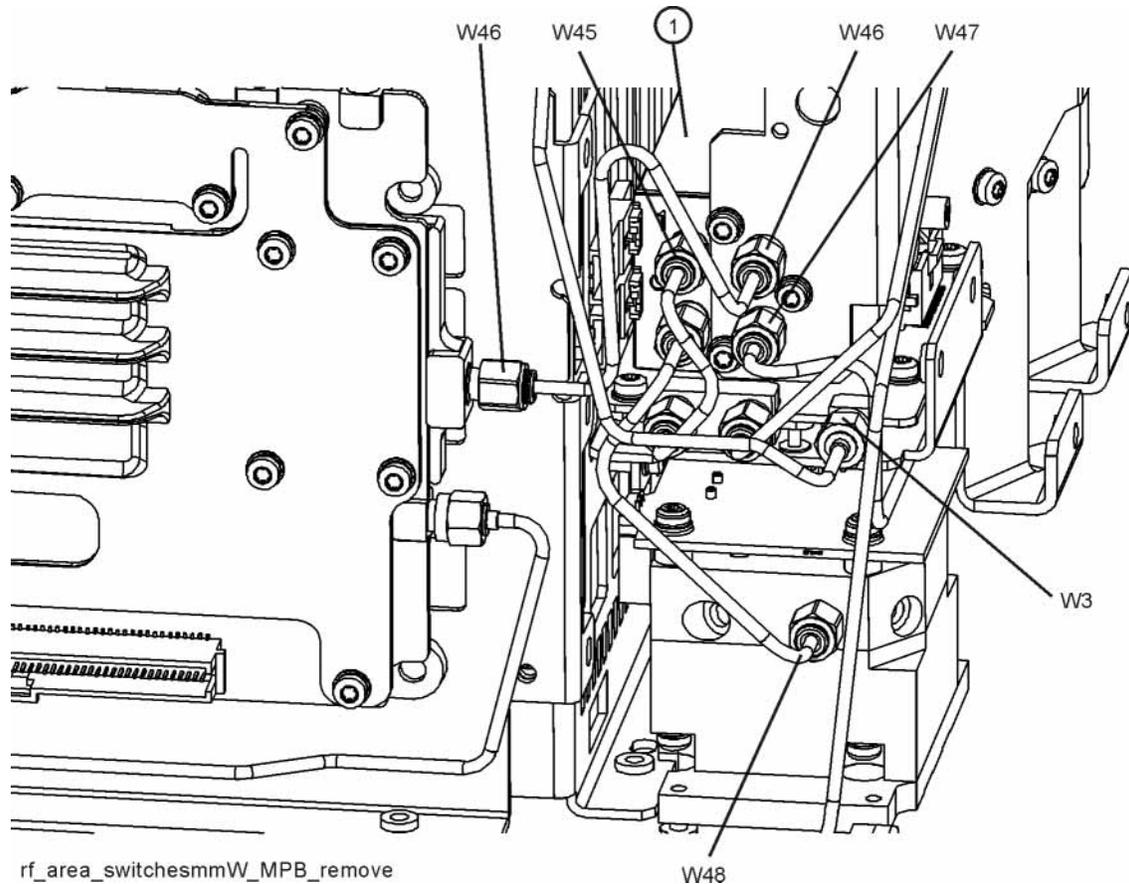
Figure 14 W18 Ribbon Cable Routing



10. Connect the remaining end of the W30 harness to A15J801.

Installing New Coax Cables

Figure 15 Installing New Coax Cables

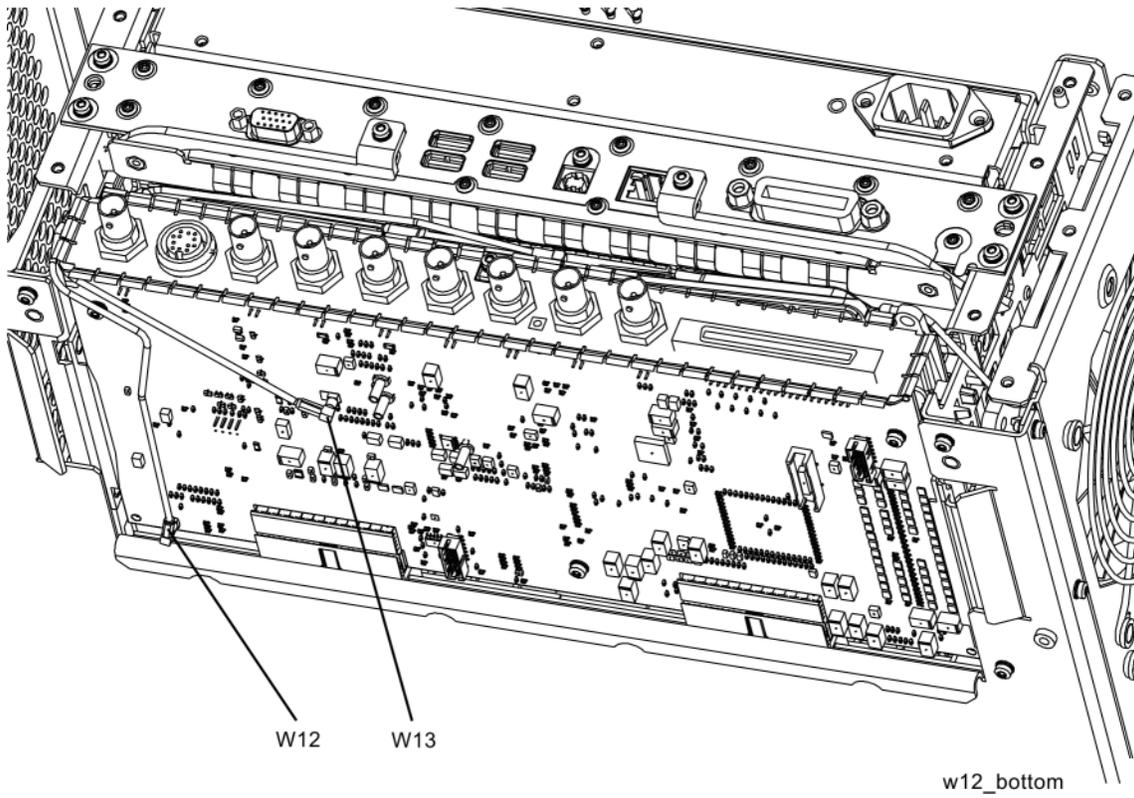


1. Refer to Figure 15. Locate W48 N9020-20128 semi-rigid coax cable in the kit. Install W48 between the input of the A12 Preselector and Port 4 of the SW4 Transfer Switch. Torque to 10 inch-pounds.
2. Locate W45 N9010-20009 semi-rigid coax cable in the kit. Install W45 between A11J3 and Port 1 of the SW4 Transfer Switch. Torque to 10 inch-pounds
3. Locate W47 N9020-20129 semi-rigid coax cable in the kit. Install W47 between the output of the A12 Preselector and Port 3 of the SW4 Transfer Switch. Torque to 10 inch-pounds
4. Re-install W9 semi-rigid coax cable between the output of the A10 Input Attenuator B and A1J1. Torque to 10 inch-pounds
5. Locate W46 N9020-20130 semi-rigid coax cable in the kit. Install W46 between A13J9 and Port 2 of the SW4 Transfer Switch. Torque to 10 inch-pounds
6. Re-install W3 semi-rigid coax cable between A11J2 and A13J2. Torque to 10 inch-pounds.

Replace A3 Digital IF Assembly

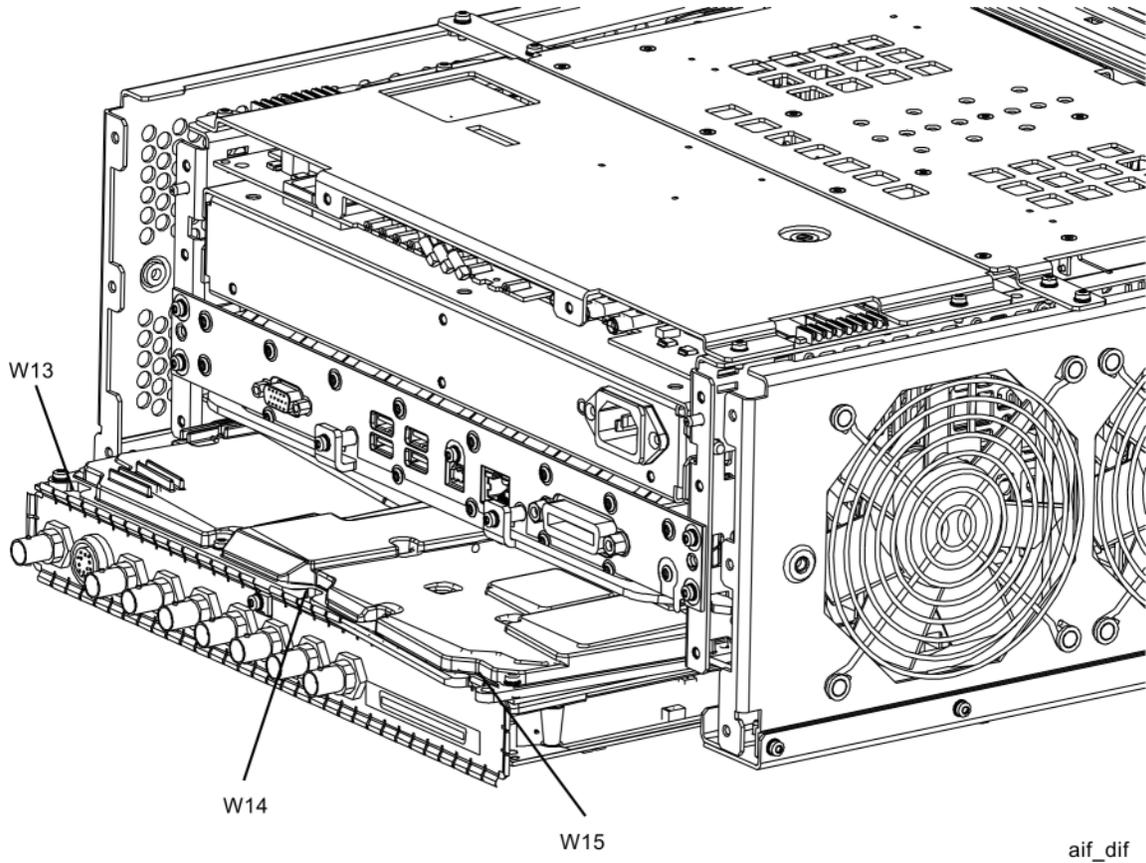
1. Refer to Figure 16. Disconnect cables W12 and W13 from the bottom of the DIF assembly.

Figure 16 W12 and W13 Removal



2. Refer to Figure 17. Pull the AIF/DIF assembly part way out of the chassis. Disconnect cables W13, W14, and W15 from the AIF assembly.

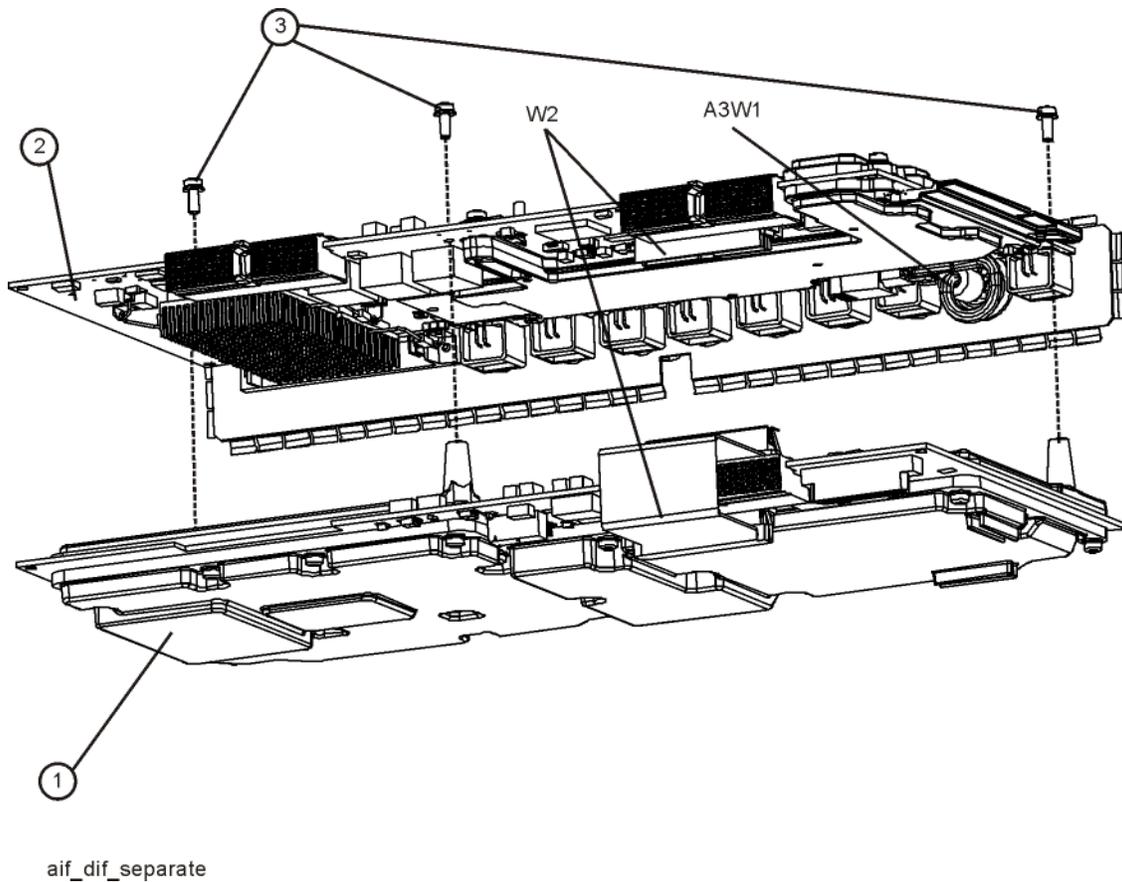
Figure 17 AIF/DIF Assembly Removal



3. Discard cable W13.
4. The AIF/DIF assembly can be removed from the chassis by pulling straight out the back.
5. Disconnect ribbon cable W2 from A2J820. Separate the A2 AIF from the A3 DIF by removing the three screws securing the two boards together. These screws and the A2 AIF assembly will be re-used, but the A3 DIF assembly will be replaced.
6. Locate A3 40 MHz Digital IF (N9020-60016) assembly in the kit.

7. Refer to Figure 18. 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 earlier. Torque to 9 inch-pounds, starting with the middle screw.

Figure 18 AIF/DIF Pairing



8. Connect the ribbon cable W2 to J820 on the AIF (1).
9. 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 19 AIF Cables

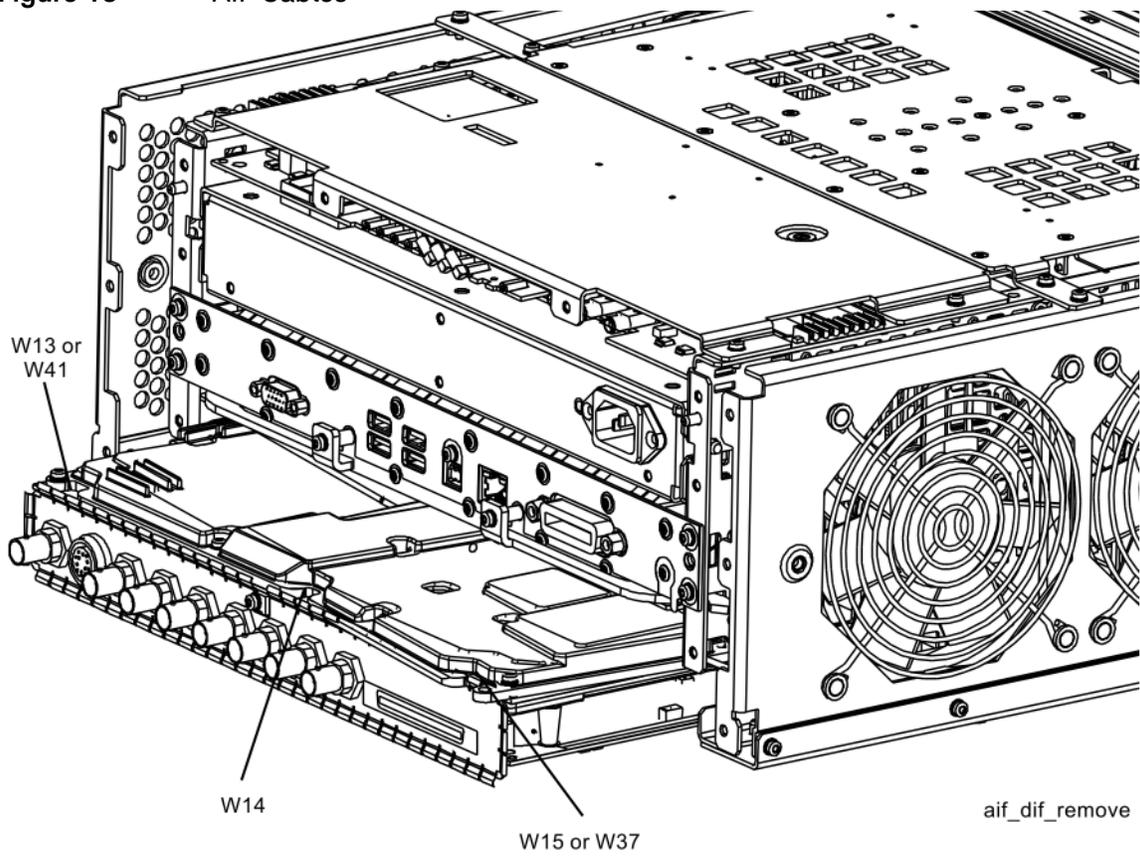
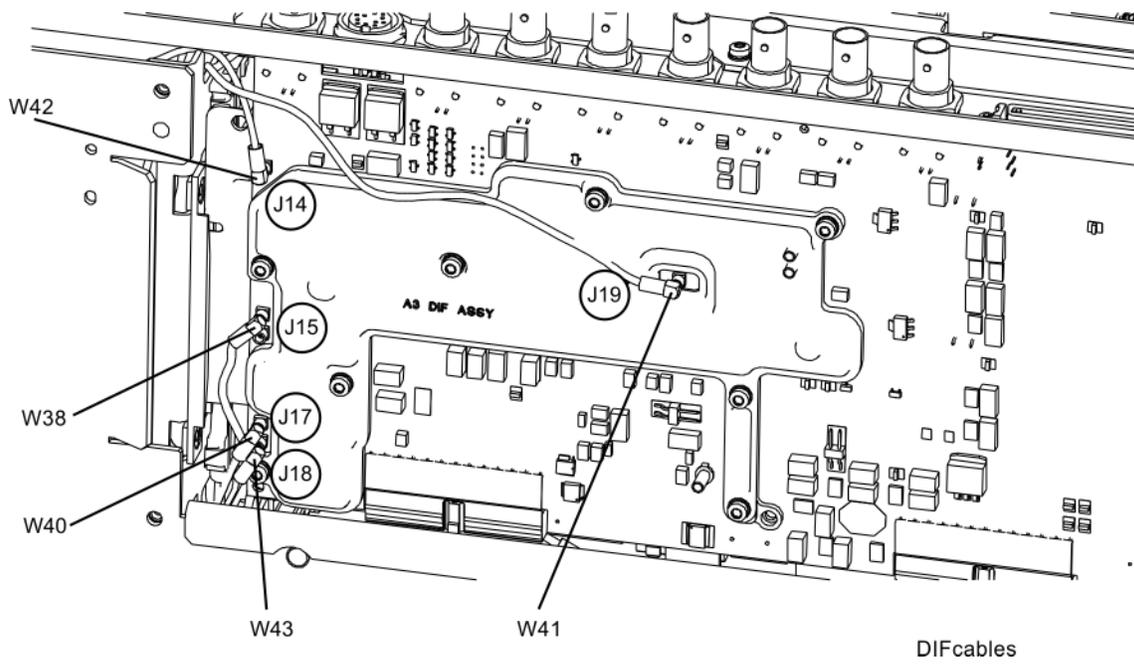


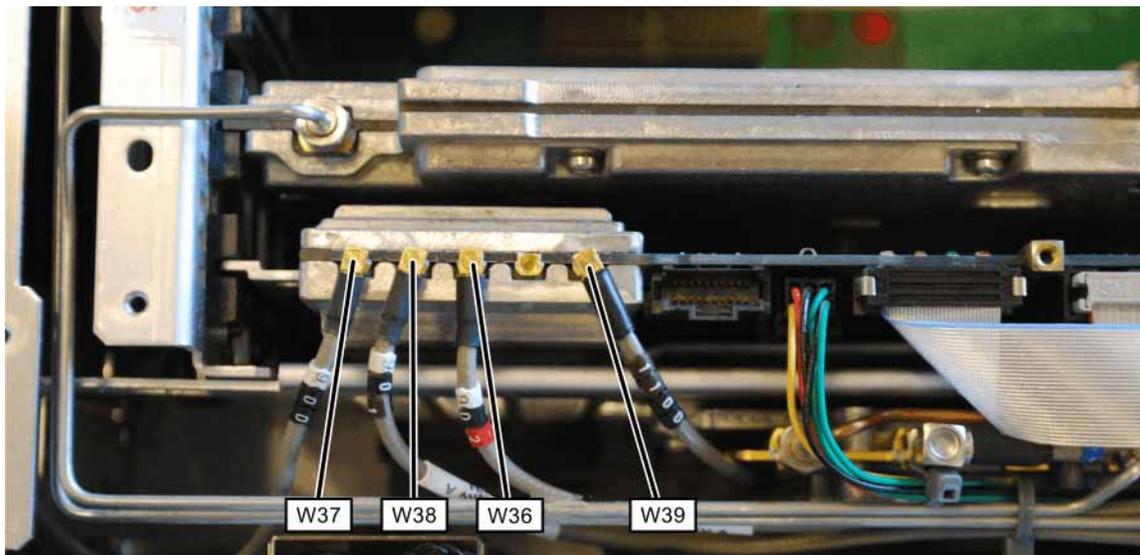
Figure 20 DIF Cables



Cable Installation

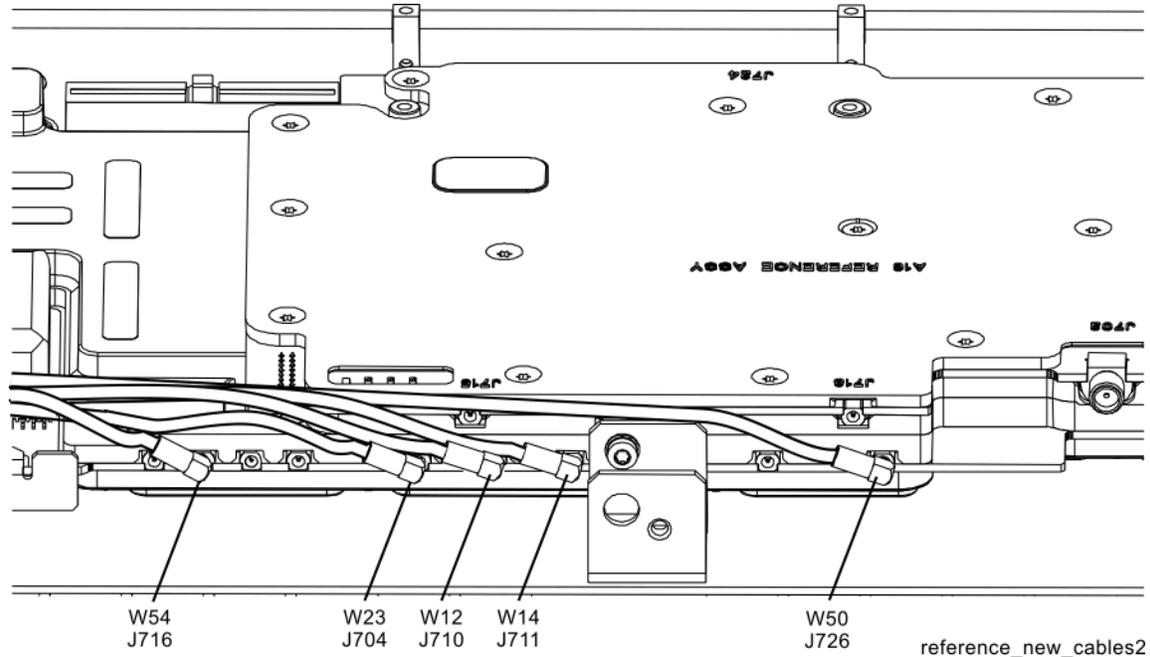
10. Remove the wire cable hold-down on the right side of the chassis to free the gray coax cables going to the A16 Reference Assembly.
11. Refer to Figure 21. Locate W38 in the Opt B40/BUN Cable Kit. This cable will have part number 8121-1861 and will be labeled “901” on one end and “15” on the other. 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 21 W36, W37, W38, and W39 Cables



12. Refer to Figure 22. Disconnect cable W12 from A16J710 on the A16 Reference Assembly and discard.

Figure 22 Reference Cables



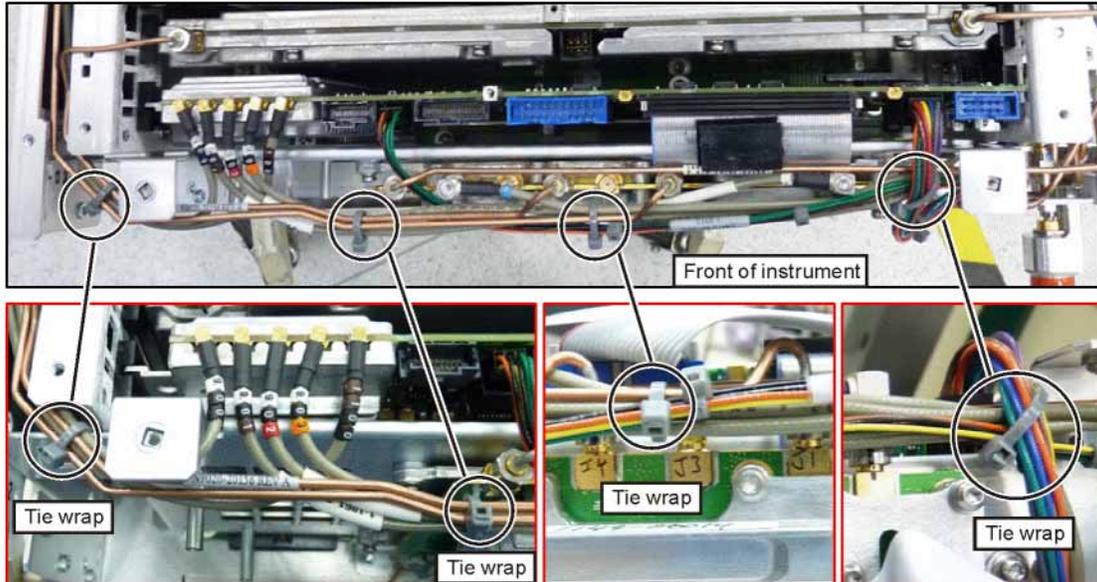
13. Refer to Figure 22. Locate W54 in the B40/BUN Cable Kit. This cable has part number 8121-2288 and will be labeled “716” on one end and “14” on the other. Connect the end labeled “716” to A16J716 on the A16 Reference Assembly. Route the cable along the right side wall to A3J14 on the A3 DIF Assembly. Add this cable to the spiral wrap around W14.
14. Refer to Figure 19 and Figure 20. Locate W41 in the Opt B40/BUN 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.
15. Refer to Figure 19. Connect W14 to A2J300 on the A2 EAIF Assembly.
16. Connect W37 to A2J100 on the A2 EAIF Assembly.
17. Refer to Figure 22. Locate W50 in the Opt B40/BUN 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.

- 18.** Refer to Figure 19 and Figure 20. Locate W41 in the Opt B40/BUN Cable Kit. This cable will have part number 8121-8868 and will be labeled "601" on one end and "19" on the other. Connect the end labeled "19" to A3J19 on the A2 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.

Dressing Cables

1. Refer to Figure 23. Dress the coaxial cables and semi-rigid cables neatly and tie together using cable ties (1400-0249) at the locations indicated.

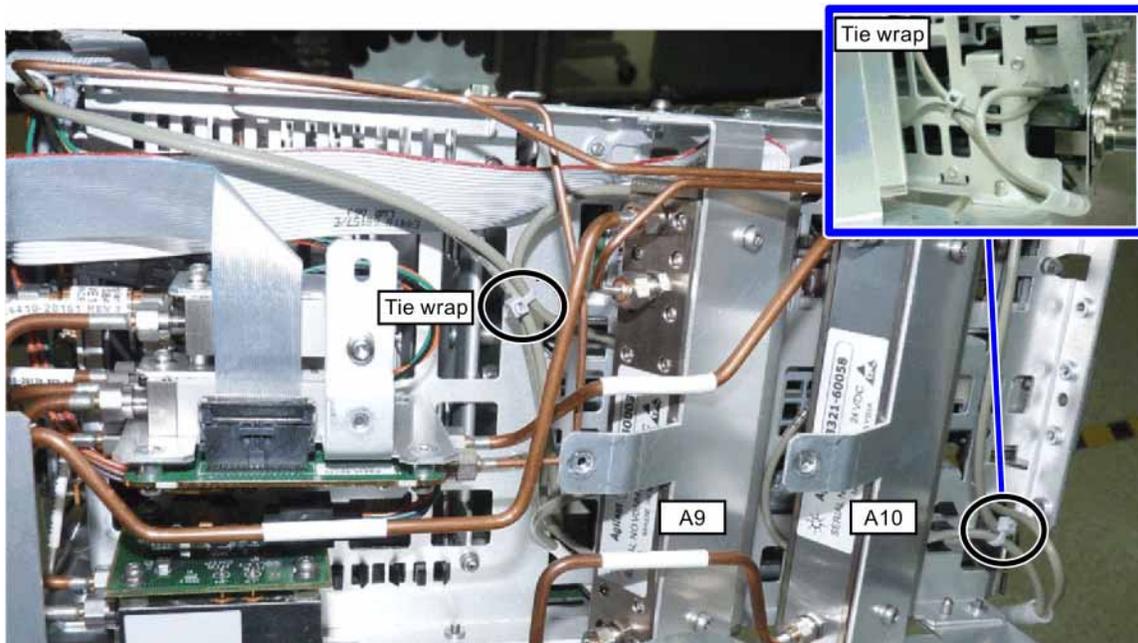
Figure 23 Adding Cable Ties near A13 and A15 Assemblies



tie_wraps_A13_A15

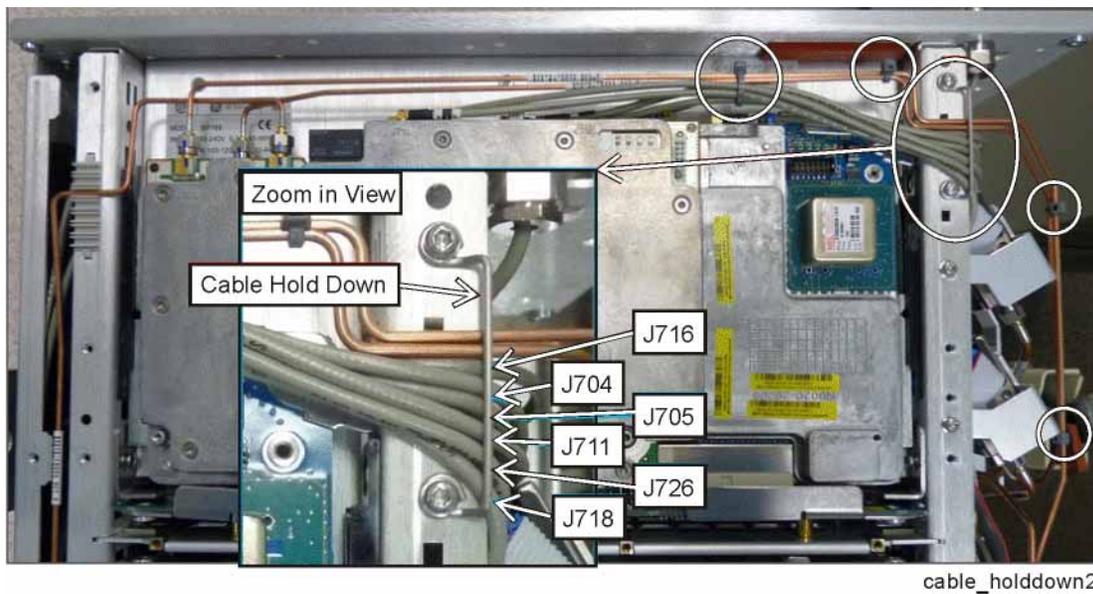
2. Refer to Figure 24. Dress the coaxial cables and semi-rigid cables neatly and tie together using cable ties (1400-0249) at the locations indicated.

Figure 24 Adding Cable Ties near A9 and A10 Assemblies



3. Refer to Figure 25. 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.

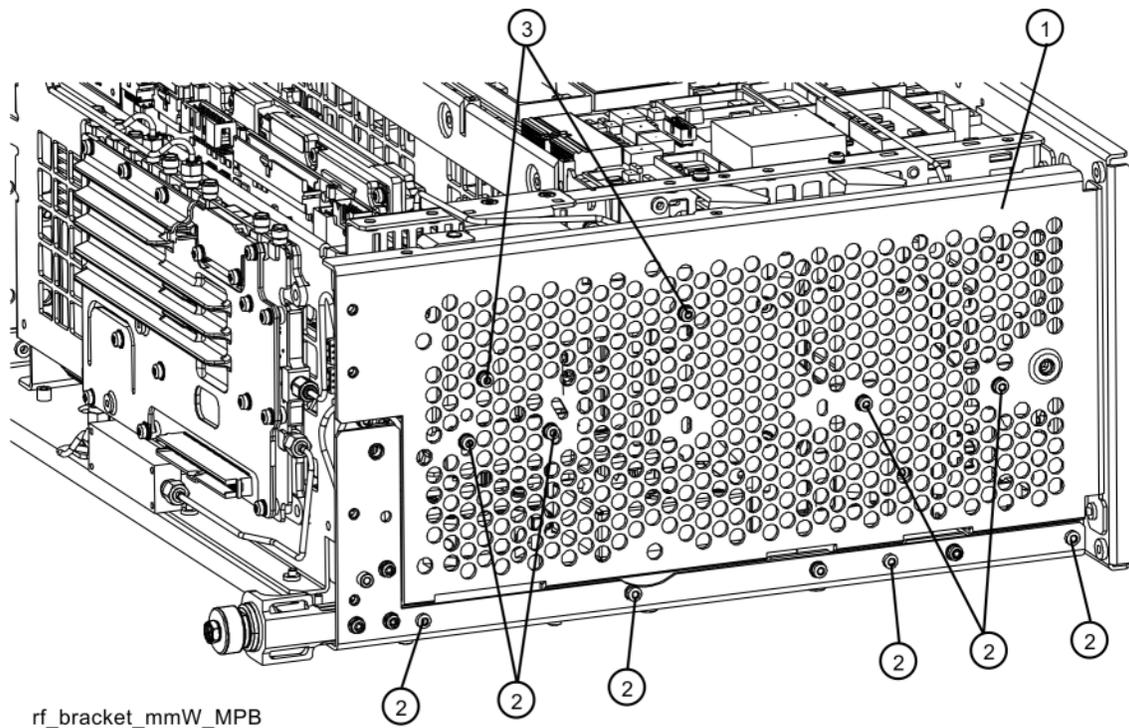
Figure 25 Cables Under Cable Hold Down



Reassembly

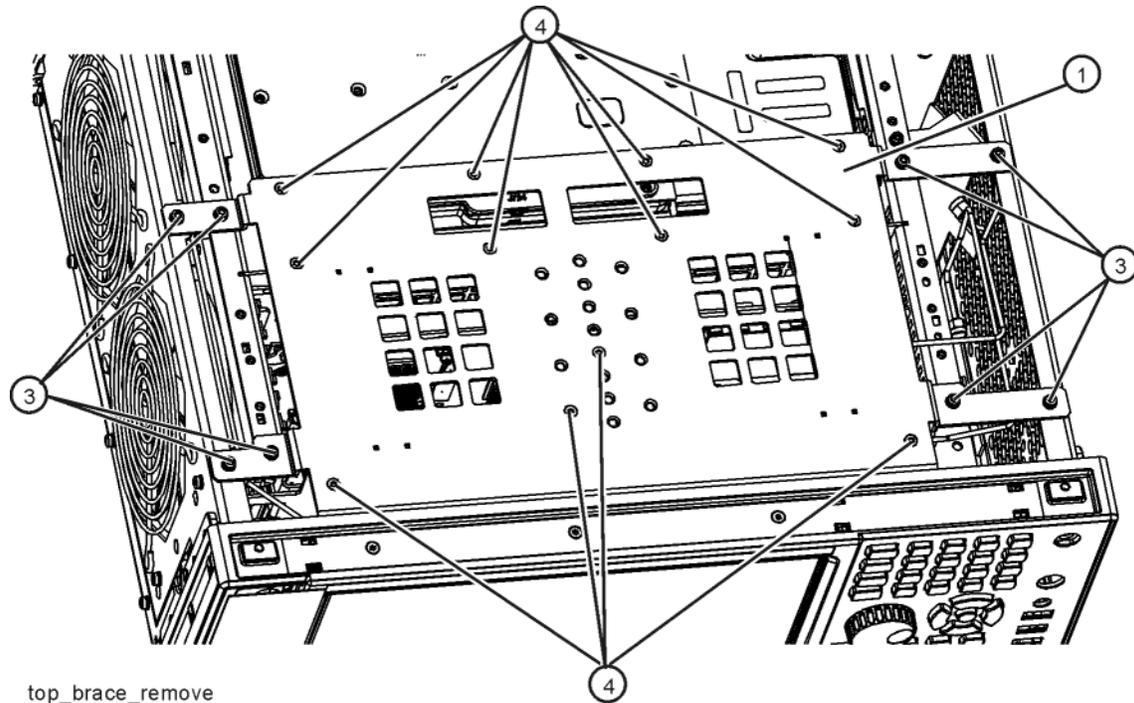
1. Refer to Figure 26. Using the RF Bracket included in the kit, position the RF bracket (1) onto the chassis and replace the eight screws (2).
2. Secure the Bypass Bracket to the RF Bracket using two 0515-0372 screws (3) provided in the kit. Torque to 9 inch-pounds.

Figure 26 RF Bracket Replacement



3. Refer to Figure 27. To replace the top brace (1), place it in the correct position on the chassis and attach using the 0515-1946 (4) screws included in this kit and the 0515-0372 (3) screws removed earlier. Torque to 9 inch-pounds.

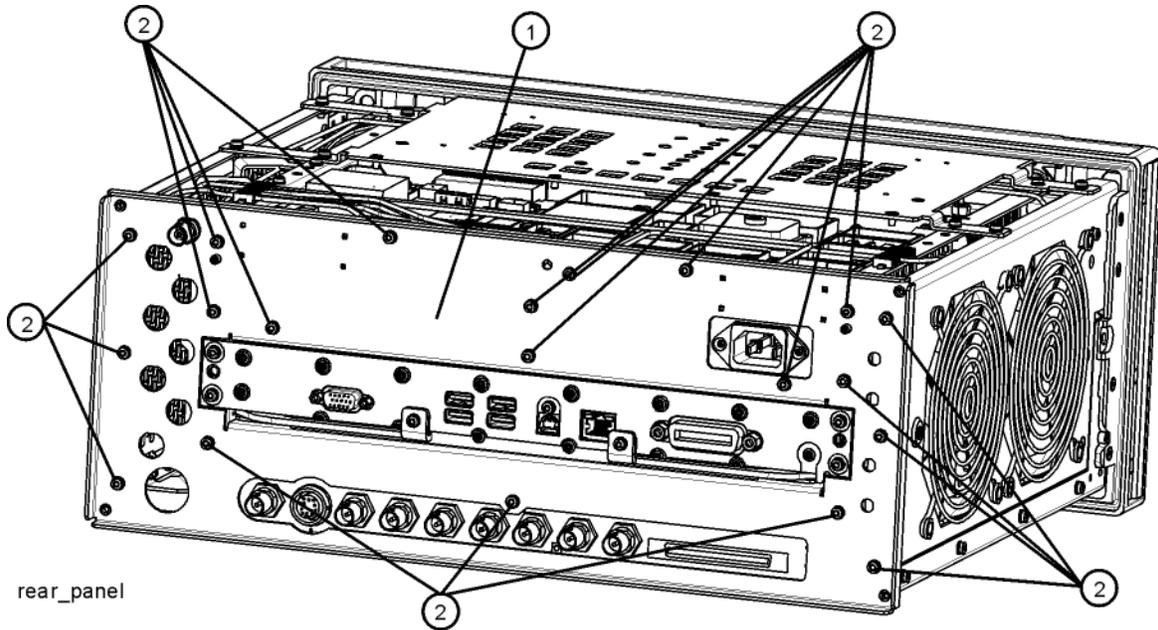
Figure 27 Top Brace Replacement



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.

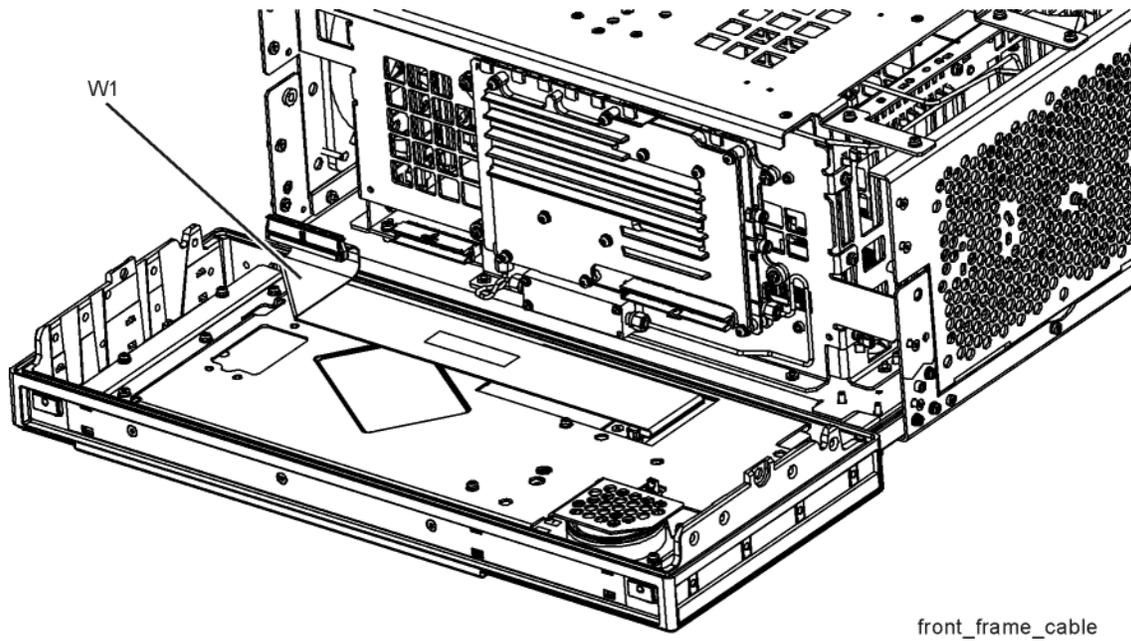
6. Refer to Figure 28. Place the rear panel (1) into position in the chassis. Replace the twenty screws (2) to attach the rear panel to the chassis. Torque to 9 inch-pounds.

Figure 28 Rear Panel Replacement



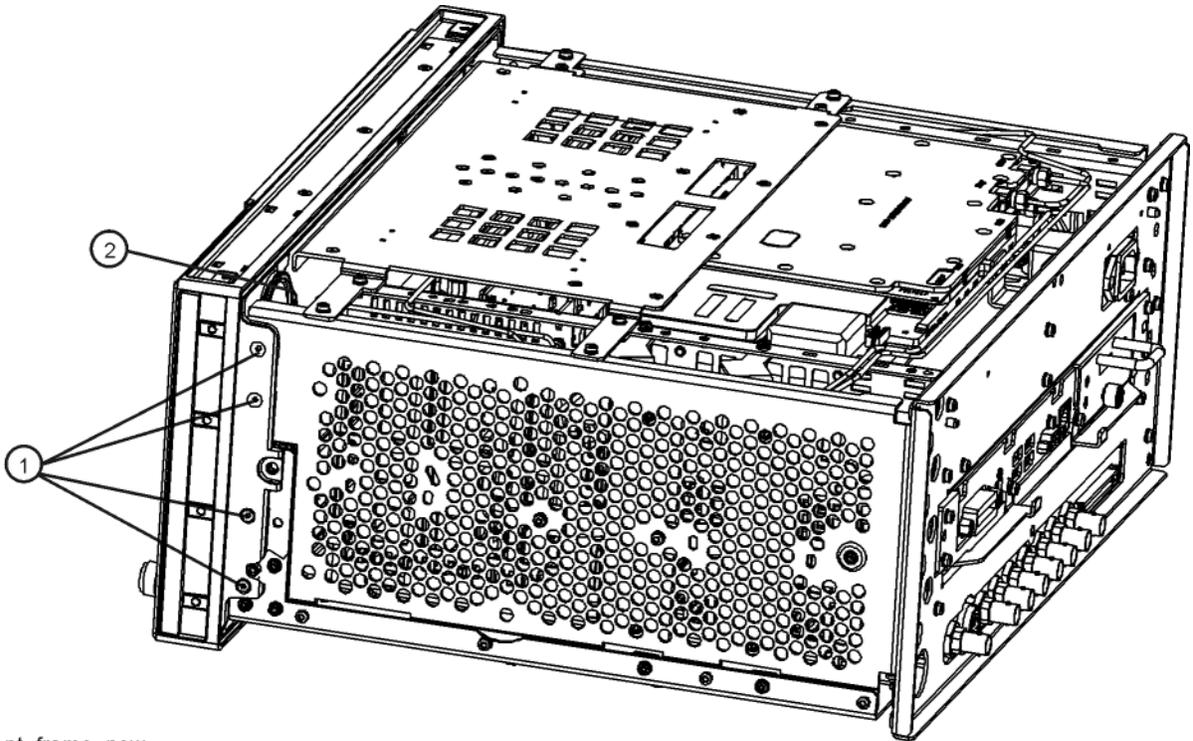
7. Refer to Figure 29. Reattach the ribbon cable W1.

Figure 29 Front Panel Cable



8. Refer to Figure 30. 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.
9. If Option EXM, External Mixing, is present, attach semi-rigid LO/IF cables. Torque to 10 inch-pounds.

Figure 30 Front Frame Replacement



front_frame_new

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. Continue to Verify Hardware Installation.

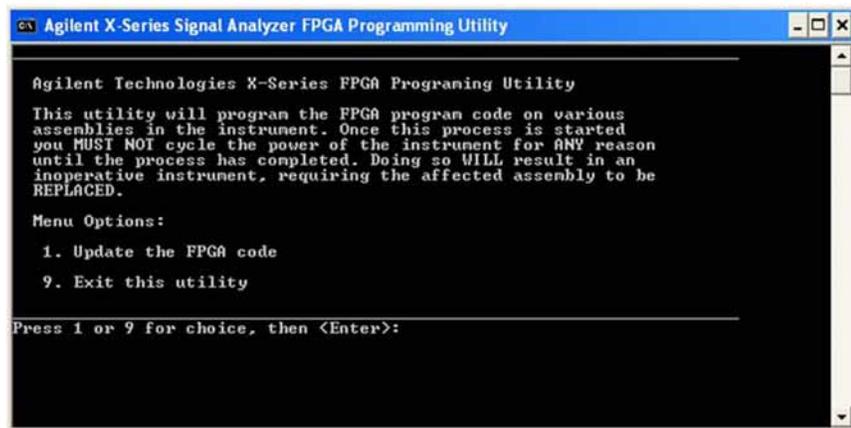
Update FPGA Code

On the first boot-up after installing the new hardware, the analyzer will detect the new A3 40 MHz BW Digital IF. 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 by pressing **System** and **Exit Program**. An Exit Program dialog box will appear; tap **OK** to confirm the exit.
3. Tap **Start**, and select **Log Off** from the **Shut Down** drop-down list.
4. Tap the keyboard icon in the lower left or the Keyboard key below the numeric keypad. Re-login as “administrator”. The default password is “Keysight4u!”. Tap **OK**.
5. On the desktop, tap **Start, Computer**, and select the C: drive. Navigate to the following folder:
C:\Program Files\Keysight\SignalAnalysis\Physics
6. In this folder find and execute the file named:
FPGA_Prog.bat

7. The FPGA Programming Utility will start and a window as shown in Figure 31 will appear.

Figure 31 FPGA Programming Utility



```
Agilent X-Series Signal Analyzer FPGA Programming Utility

Agilent Technologies X-Series FPGA Programing Utility

This utility will program the FPGA program code on various
assemblies in the instrument. Once this process is started
you MUST NOT cycle the power of the instrument for ANY reason
until the process has completed. Doing so WILL result in an
inoperative instrument, requiring the affected assembly to be
REPLACED.

Menu Options:
  1. Update the FPGA code
  9. Exit this utility

Press 1 or 9 for choice, then <Enter>:
```

8. To program the FPGA code, press **1** on the numeric keypad and press **Enter**. You will need to confirm this selection by pressing **1** and **Enter** one more time.
9. 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 new DIF board identifies itself as:
 - Digital IF (Hw Id = 34)

Verify Optional Functionality

1. Press **MODE/MEAS, I/Q Analyzer (Basic), OK**.
2. Press **MEAS SETUP, IF Path**, and select the **IF Path** drop-down menu.
3. Verify that selections appear labeled **“25 MHz”** and **“40 MHz”**.
4. Press **AMPTD, Signal Path, uW Path Control**.
5. Verify that selections appear labeled **“Standard Path”** and **“uW Presel Bypass”**.
6. Tap **uW Presel Bypass**. If the path was previously set to **Standard Path**, you should hear a click.
7. Tap **Standard Path**. If the path was previously set to **uW Presel Bypass** path, you should hear a click.

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)



This information is subject to change without notice.

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