

Keysight Technologies
EXA Signal Analyzer

Option HL7, 40 MHz Analysis Bandwidth (B40) and
Microwave Preselector Bypass (MPB)
Upgrade Kit for Options 532, 544,
Serial Prefix < MY/SG/US5648

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Option HL7, 40 MHz Analysis Bandwidth (B40) and Microwave Preselector Bypass (MPB) Upgrade Kit for Options 532, 544

Products Affected:	N9010A, EXA Signal Analyzer
Serial Numbers:	< MY/SG/US56480000
Options:	B40, MPB, 532, 544
To Be Performed By:	<input checked="" type="checkbox"/> Keysight Service Center <input checked="" type="checkbox"/> Personnel Qualified by Keysight ^a <input type="checkbox"/> 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 older 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:

- 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, enabled with B40, DP2, or MPB
- N9010A-MPB, Microwave Preselector Bypass
- N9060A-3FP, Amplitude Correction and Limit Lines
- N9060A-4FP, TOI and Harmonics
- N9060A-5FP, ACP 18 Carrier Measurement
- N9060A-6FP, TV Trigger and IQ Analyzer Enhancement
- N9060A-7FP, Zero Span, Register, Trace and Spurious Enhancement

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	N9020-60165
1	Opt HL7 Cable Kit with Wire Markers (includes cables W36 through W43, listed below)	N9010-60011
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 (W43)	8121-1401 ^a with ends labeled '705' and '18'
1	Cable Assembly, Coaxial 530 mm LG (W42)	8121-1401 ^a with ends labeled '706' and '14'
1	Cable Assembly, Coaxial 560 mm LG (W40)	8121-1940 ^a with ends labeled '6' and '17'
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'
2	Screw M3 x 0.5 (8 mm long)	0515-0372
2	Screw M3 x 0.5 (8 mm long) Flathead	0515-1035
3	Screw M2.5 x 0.45 (6 mm long)	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
1	Entitlement Certificate Envelope	5967-7169
1	Installation Note	This note

a. This cable is included in the Option HL7 Cable Kit with Wire Markers, p/n N9010-60011

Introduction

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.10.00 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://www.keysight.com/find/exa_manuals
 - p/n N9010-90050
- 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.

N9010A-503 _____

N9010A-507 _____

N9010A-513 _____

N9010A-526 _____

N9010A-532 _____

N9010A-544 _____

N9010A-B25 _____

N9010A-B40 _____

N9010A-DP2 _____

N9010A-MPB _____

4. 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.

5. Refer to the data in **step 3** above. If the analyzer has N9010A-503, 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 options 532 and 544.
6. Refer to the data in **step 2** above. If the analyzer is an N9010A and the serial number is \geq MY/SG/US56480000, do not proceed with the installation of this kit. This kit is only for older N9010A analyzers.

Installation Procedure

7. Refer to the data in **step 2** above. If the Instrument S/W Revision is earlier than A.12.00, you must upgrade the instrument software. The hardware and licenses being added with this upgrade are only supported by software revisions A.12.00 and later.

Even if the Instrument S/W Revision is A.12.00 or later, we recommend upgrading to the latest software revision to ensure that you get the benefit of any defect fixes that have been made since A.12.00.

The latest instrument software can be downloaded from the following web site:

http://www.keysight.com/find/xseries_software

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 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**.

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-MPB Microwave Preselector Bypass
 - N9010A-RTL Real Time Link
 - N9060A-3FP Amplitude Correction and Limit Lines
 - N9060A-4FP TOI and Harmonics
 - N9060A-5FP ACP 18 Carrier Measurement
 - N9060A-6FP TV Trigger and IQ Analyzer Enhancement
 - N9060A-7FP Zero Span, Registers, Trace and Spurious Enhancement
4. Press **System, Show, Errors, Clear Error Queue**. This will remove out-of-date errors.
5. Press **System, Alignments, Align Now, All**.
6. Several alignments will be performed related to optional functionality you just installed.
7. Watch for any errors during the alignments.
8. Press **System, Show, Errors** to view the instrument error log.
9. Verify that there were no errors during alignment.

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 15](#) to remove the outer case.

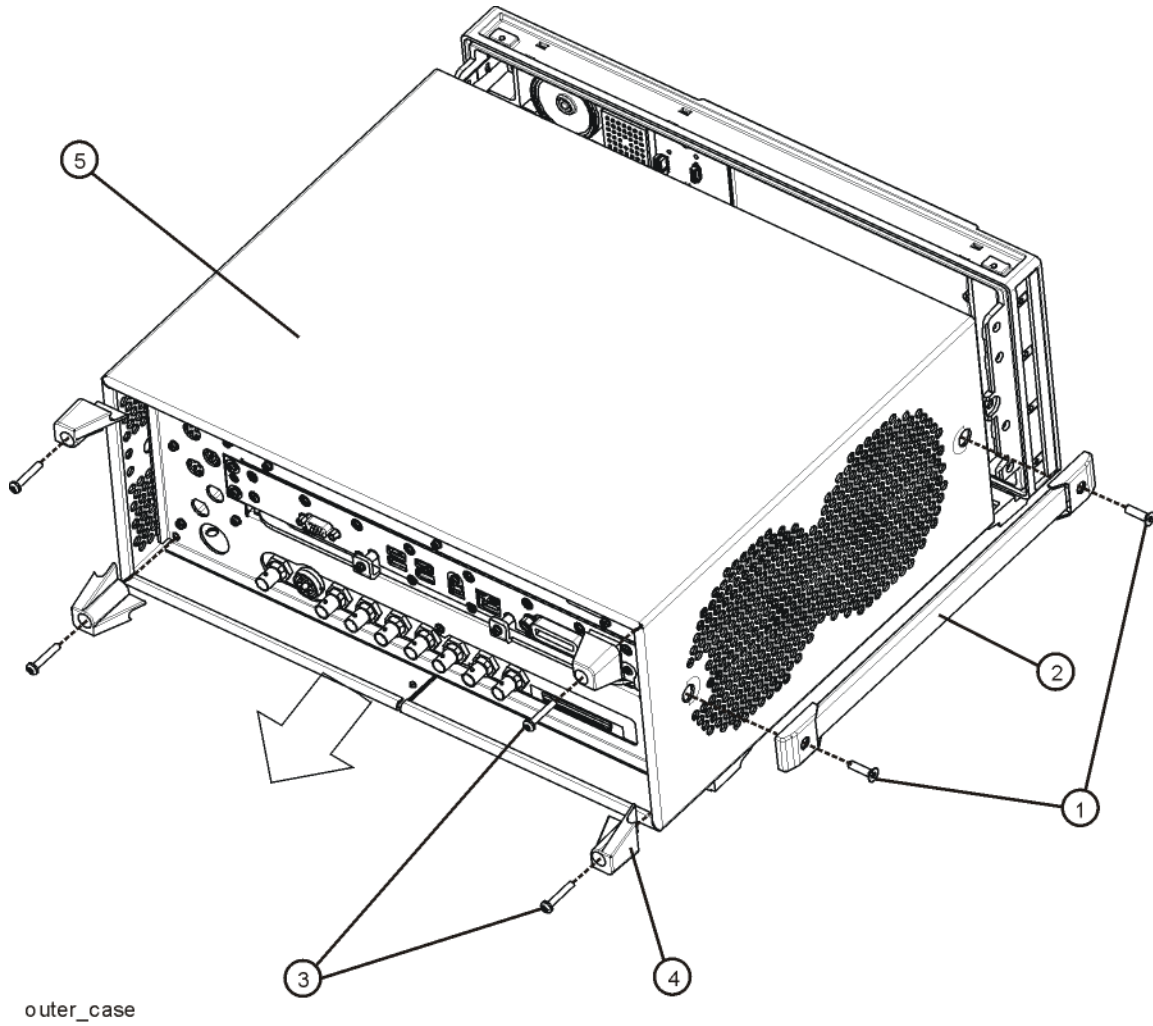
NOTE

Make sure any adapters on the front panel are removed.

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.

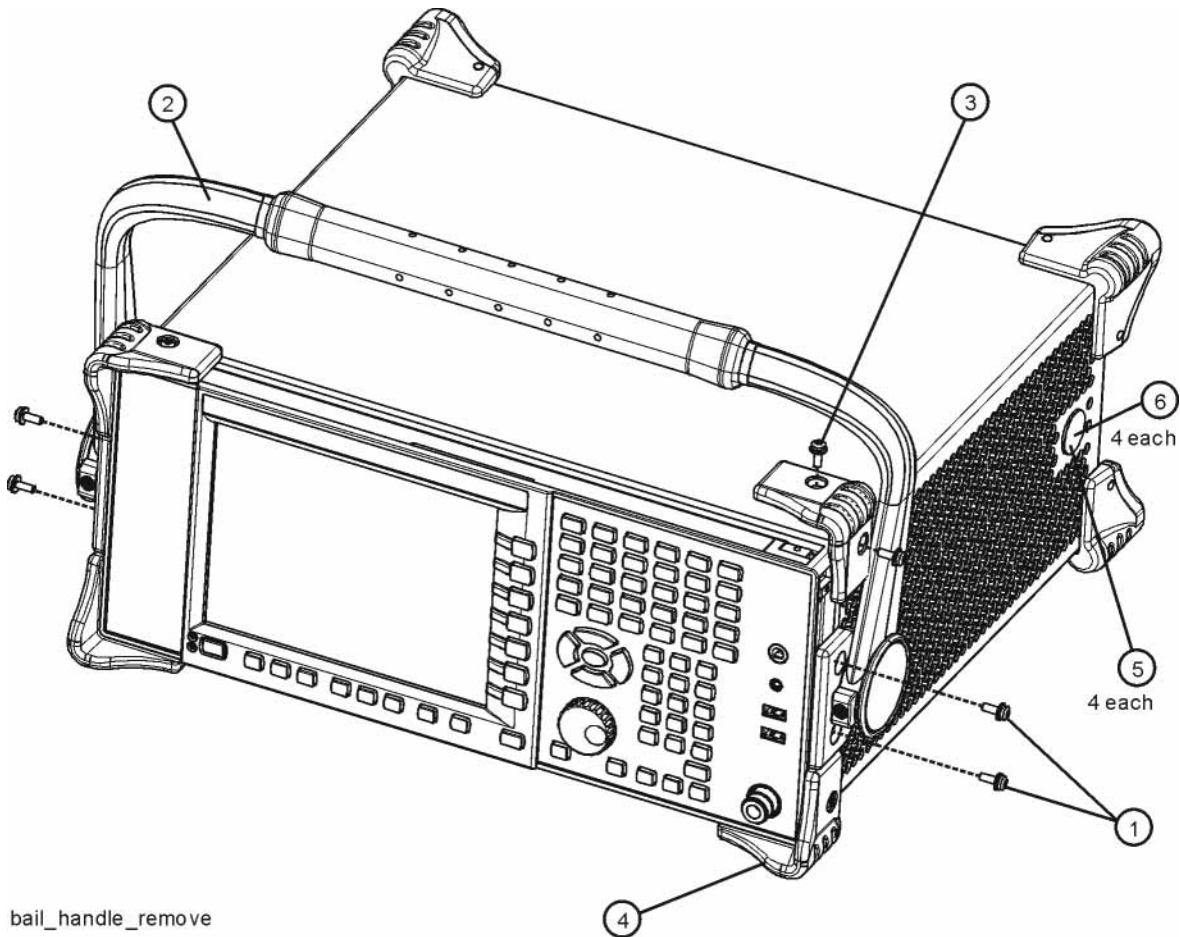
Portable Instrument (Option PRC)

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.

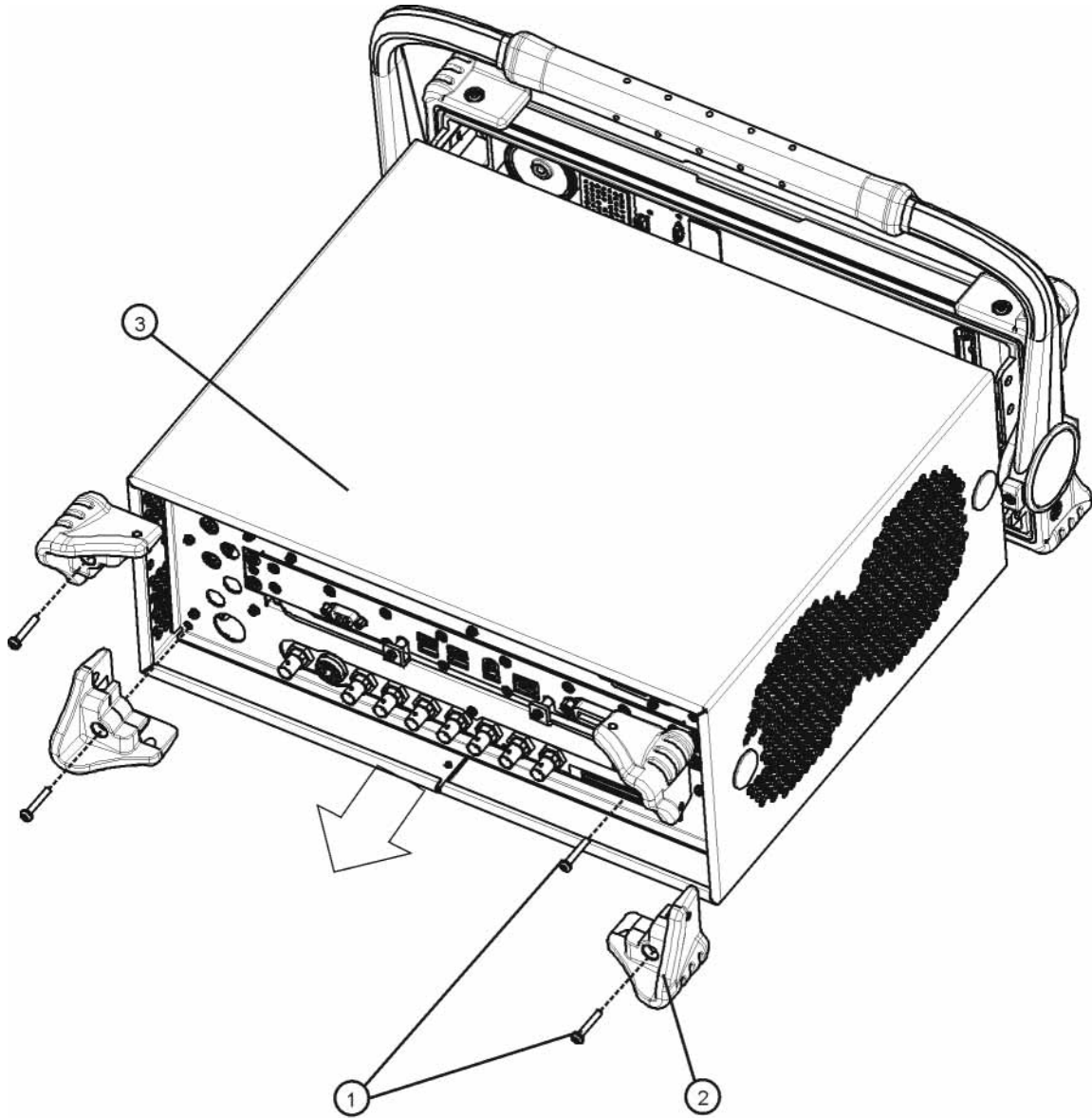
Figure 4 Bail Handle and Front Bumpers Removal (Option PRC)



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

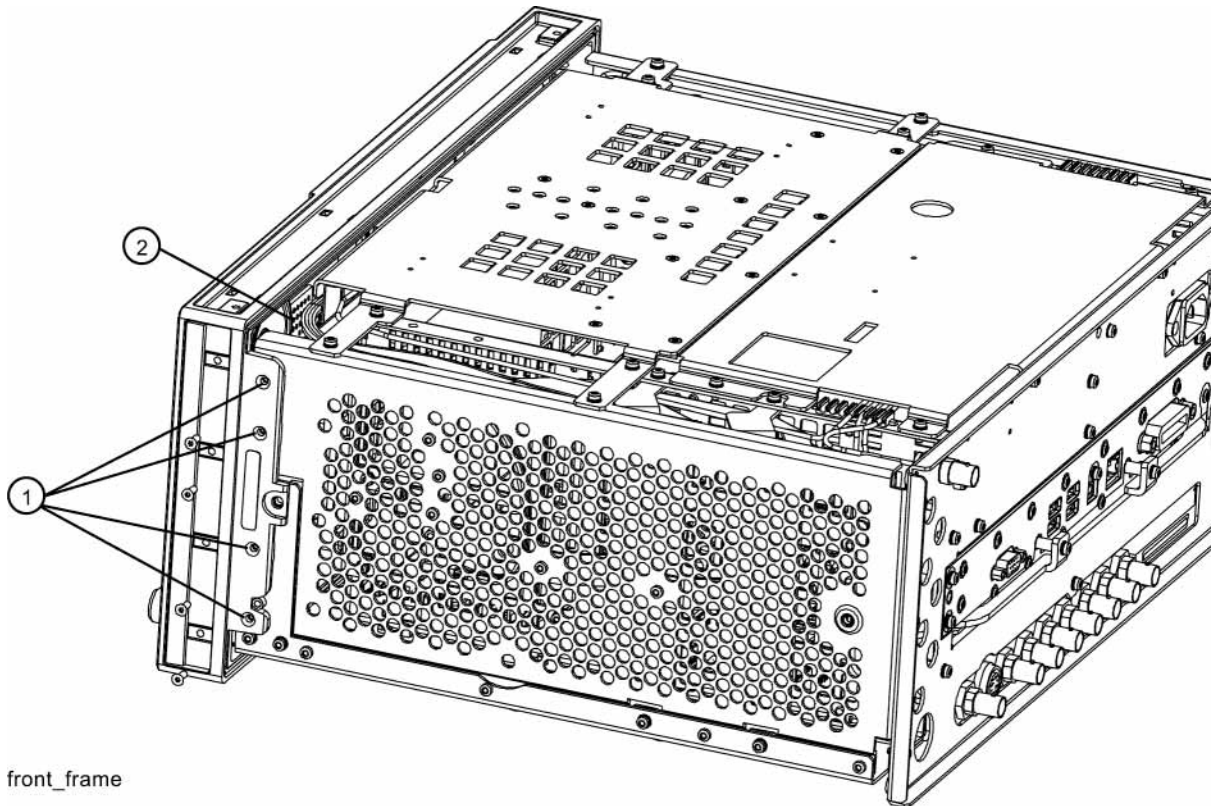


rear_bumper_remove

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



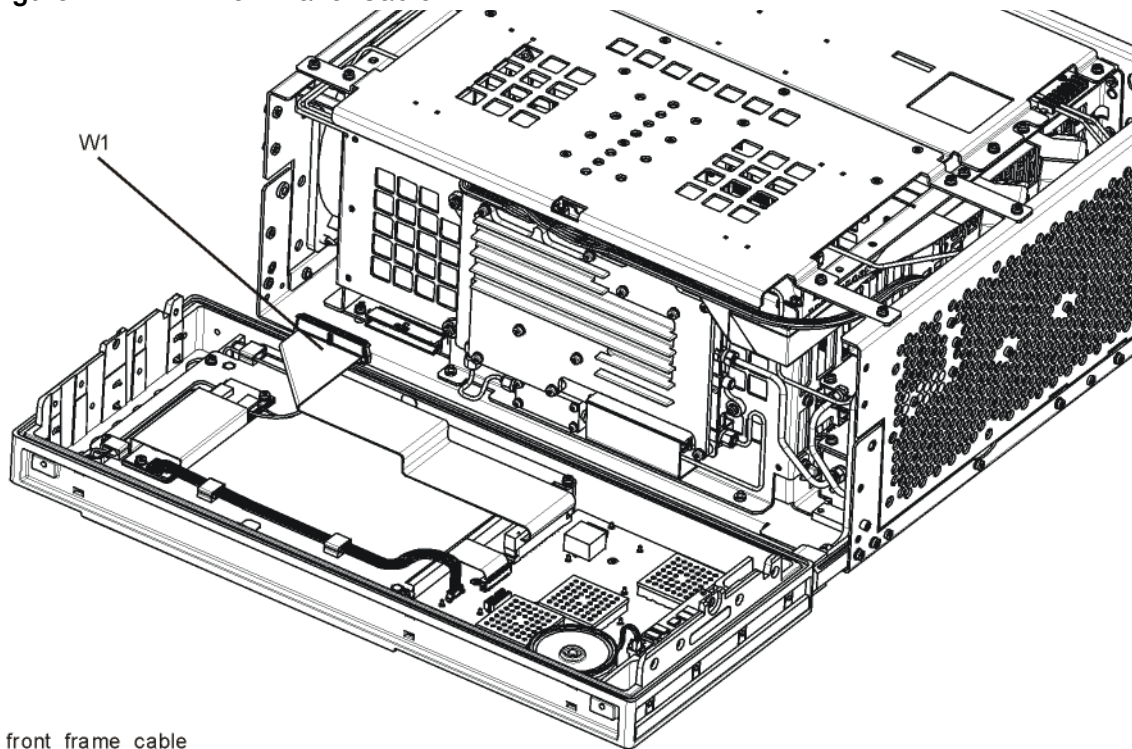
front_frame

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

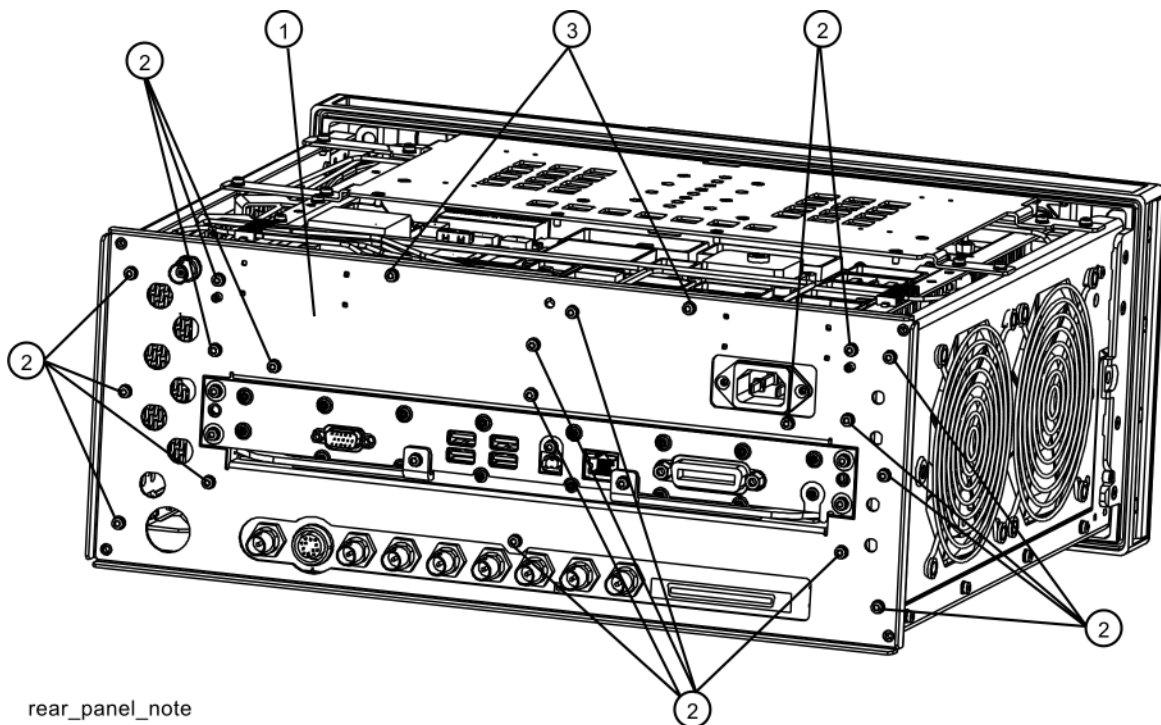


front_frame_cable

Rear Panel Removal

1. Refer to **Figure 8**. Using the T-10 driver, remove the 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.

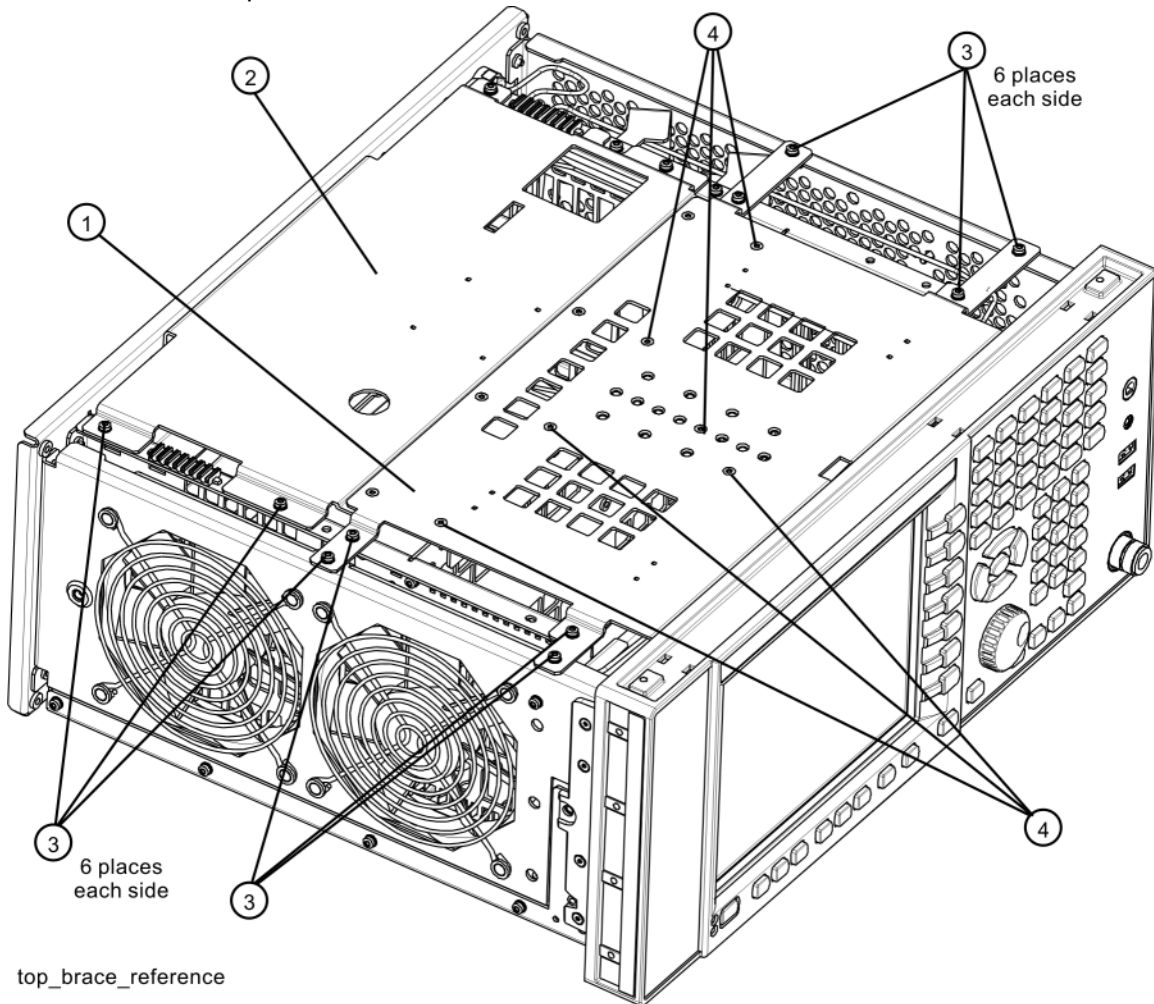
Figure 8 Rear Panel Removal



Top Brace and Reference Bracket

1. Refer to **Figure 9**. To remove the top brace (1) and reference bracket (2), use the T-10 driver to remove the twelve panhead screws (3) (0515-0372), six on each side, attaching the braces to the chassis. Also remove the six flathead screws (4) (0515-1227) attaching the top brace to the boards.

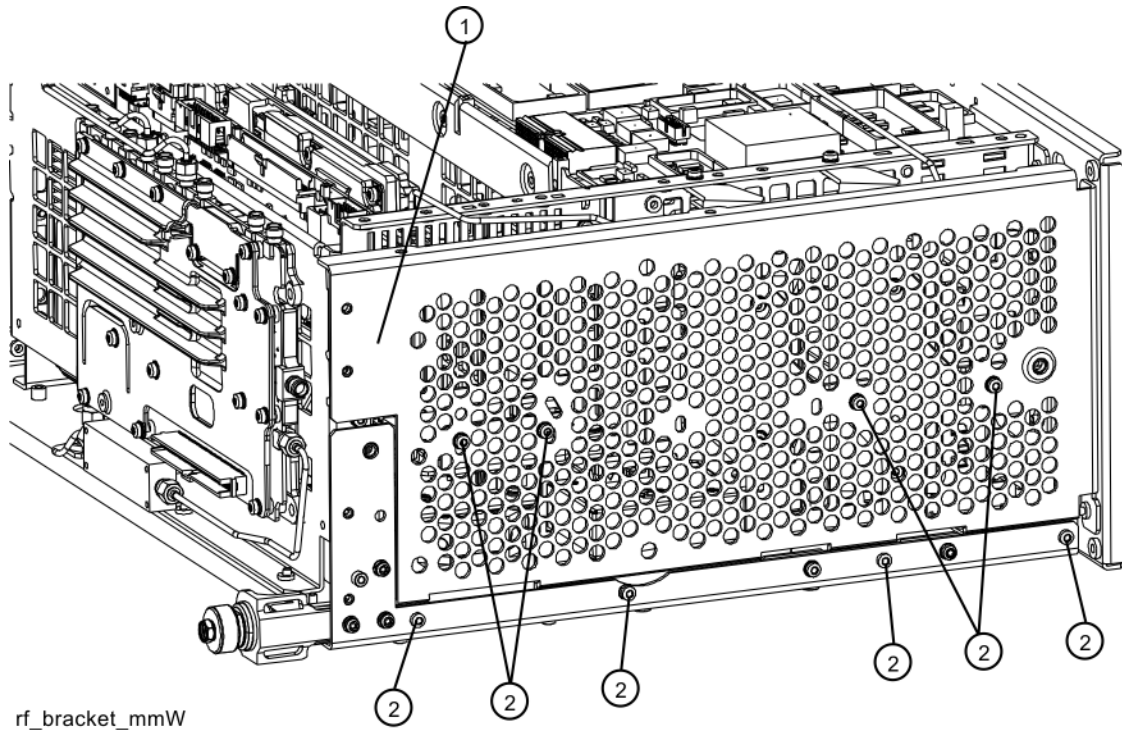
Figure 9 Top Brace and Reference Bracket Removal



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.

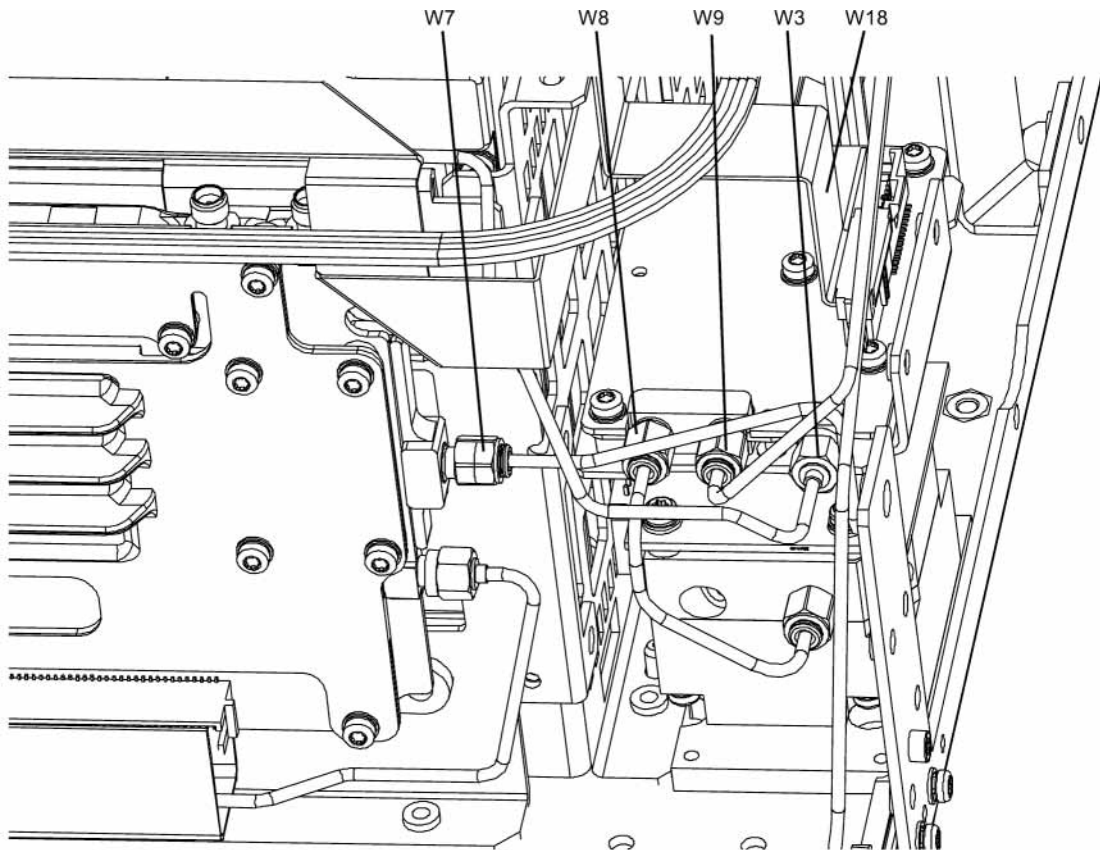
Figure 10 RF Bracket Removal



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.

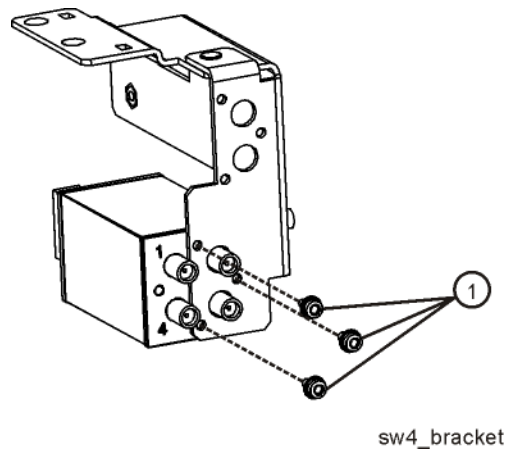
Figure 11 Low Band Switch Cable Removal



lb_switch_mmW

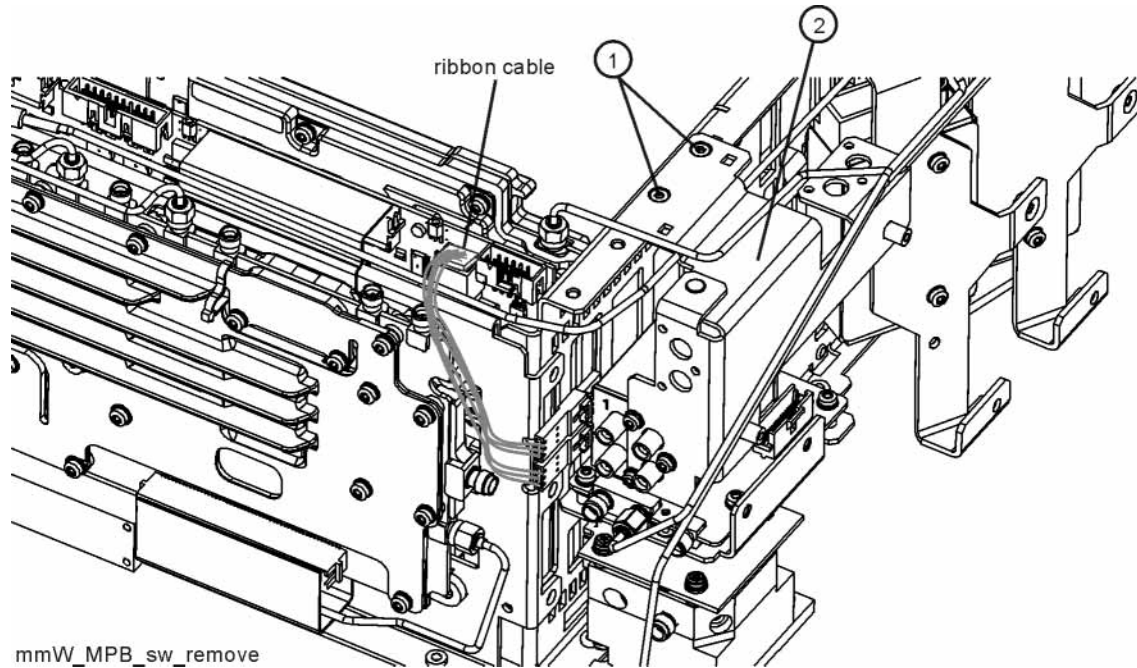
3. Locate the preselector bypass transfer switch (87222-60031), the bypass bracket (N9020-00021) and the three M2.5x0.45 6mm long screws (0515-1934) in the kit.
4. Refer to **Figure 12**. Mount the preselector bypass transfer switch (SW4) to the bypass bracket using the three 0515-1934 screws (1) as 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



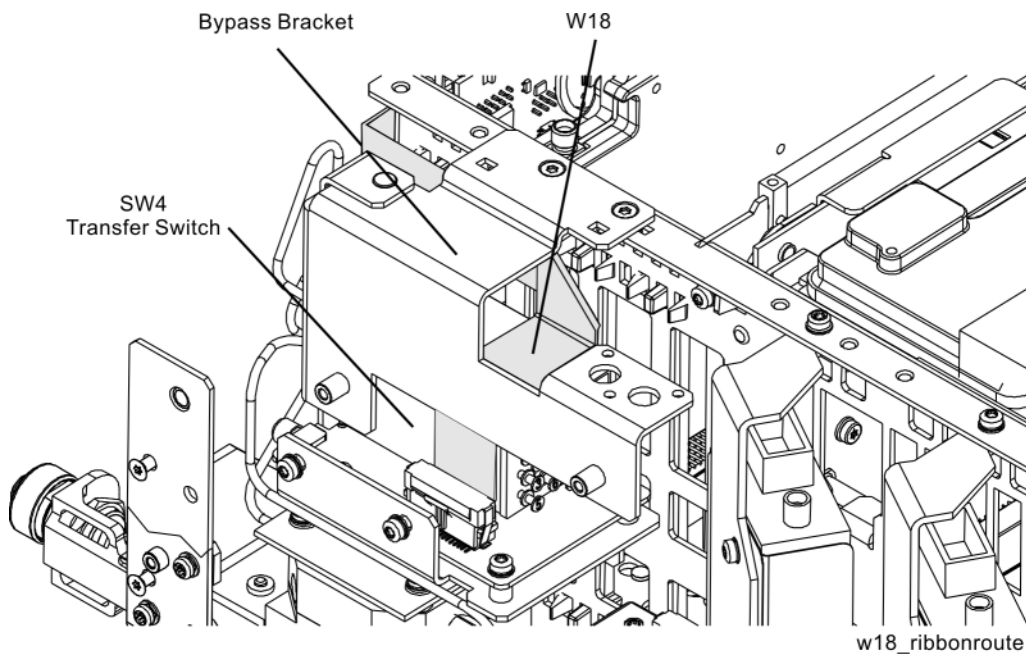
5. Locate the switch control cable harness (E4410-60159) (W30) and the connector body housing receptacle (1252-1873) in the kit. Note that one end of the W30 harness has two 3-contact connectors, one with wire colors of green, black, and purple and the other with wire colors green, black and orange. 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 0515-1035 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.

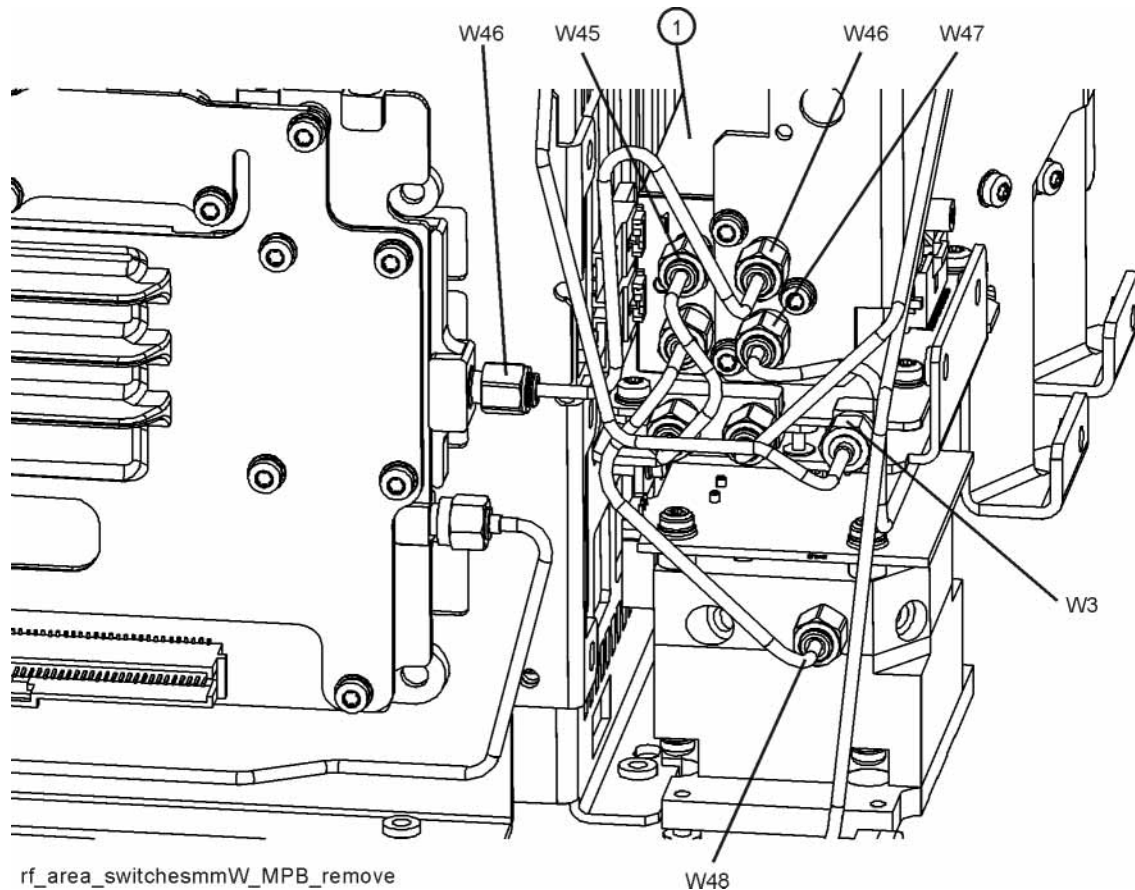
Figure 14 W18 Ribbon Cable Routing



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

Installing New Coax Cables

Figure 15 Installing New Coax Cables

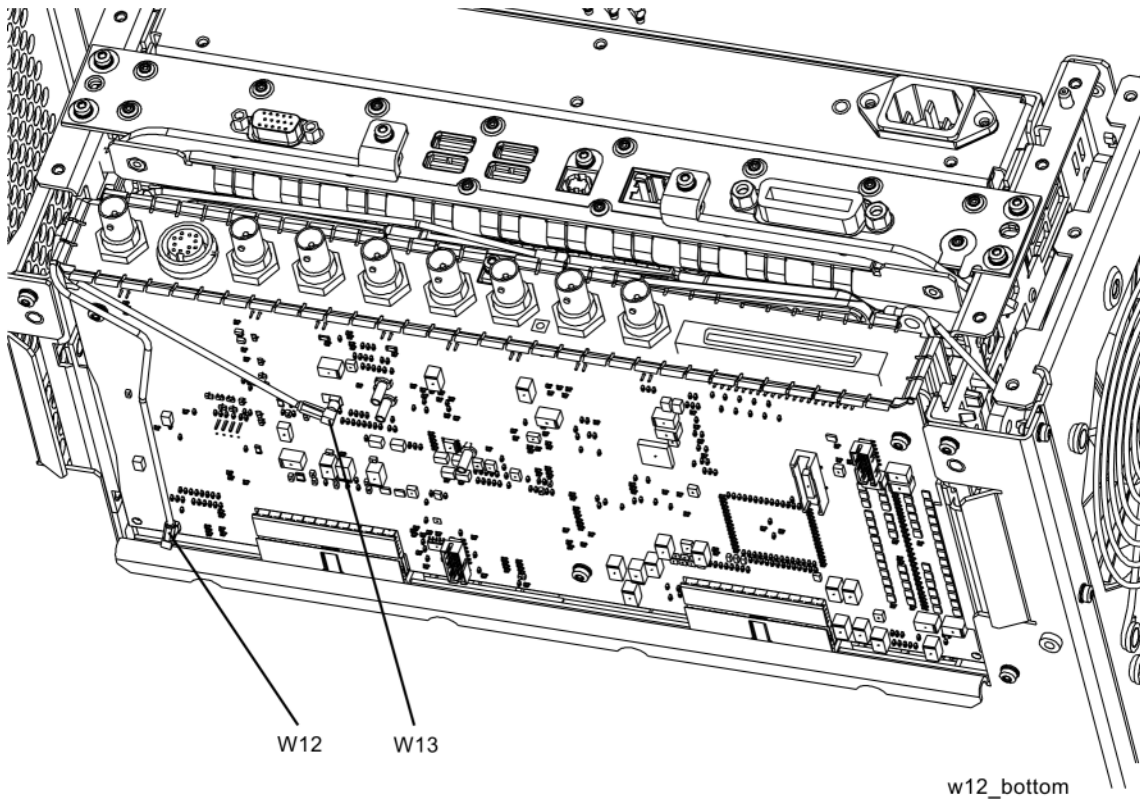


1. Refer to **Figure 15**. Locate W48 **N9020-20128** semi-rigid coax cable in the kit. Install W48 between the input of the A12 Preselector and Port 4 of the SW4 Transfer Switch. Torque to 10 inch-pounds.
2. Locate W45 **N9010-20009** semi-rigid coax cable in the kit. Install W45 between A11J3 and Port 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

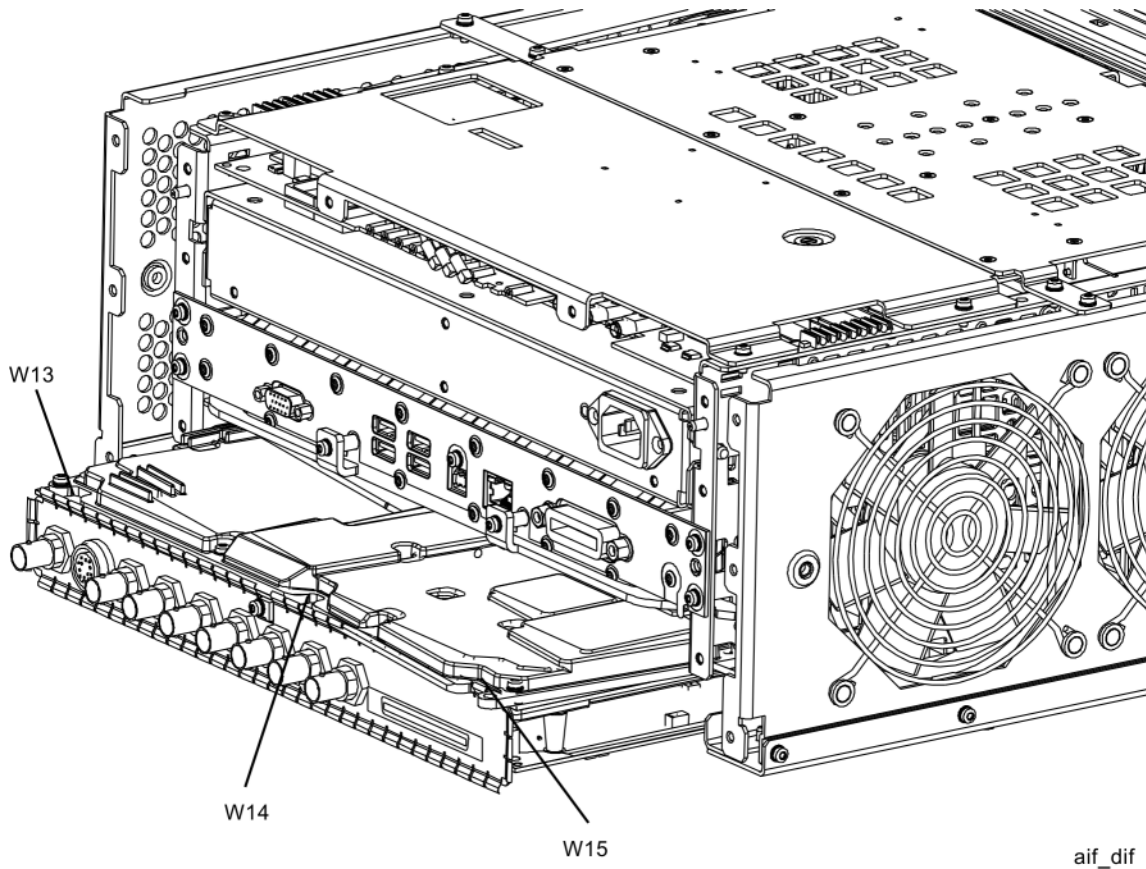
1. Refer to **Figure 16**. Disconnect cables W12 and W13 from the bottom of the DIF assembly.

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.

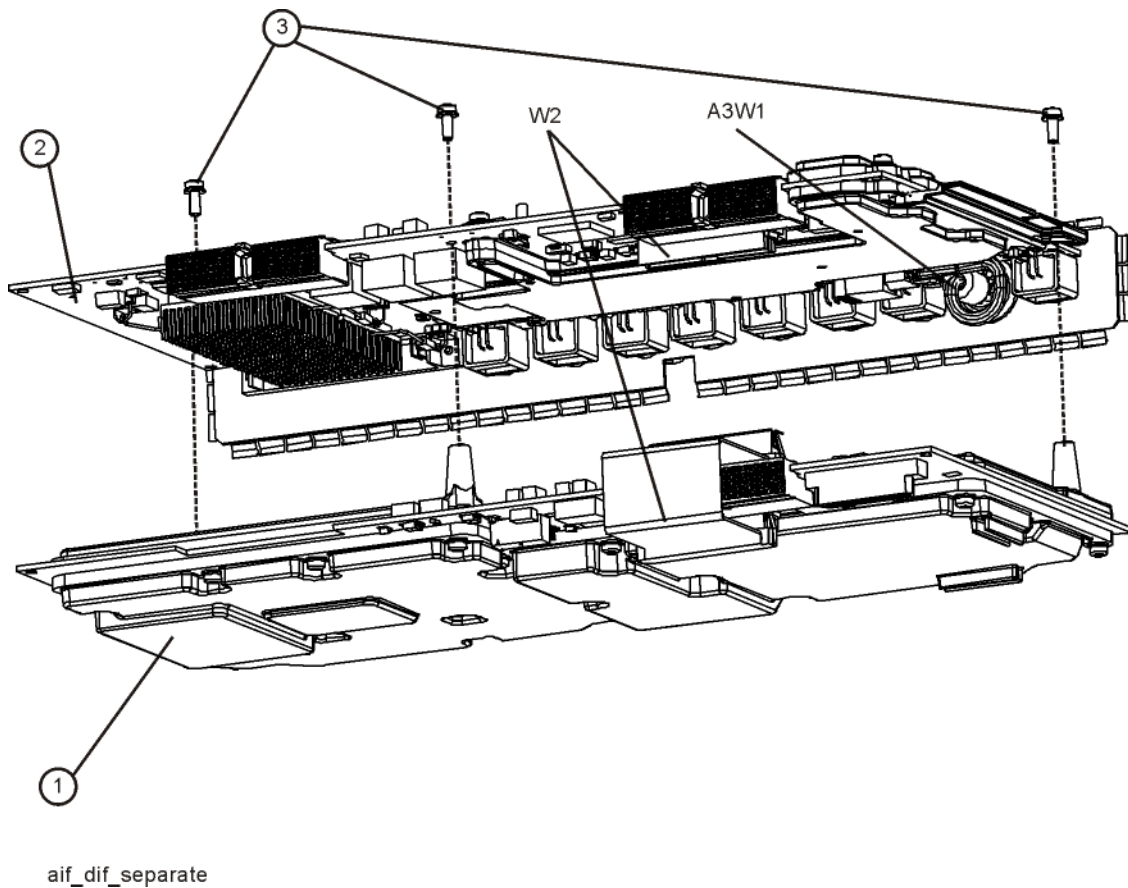
Figure 17 AIF/DIF Assembly Removal



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 (**N9020-60165**) 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

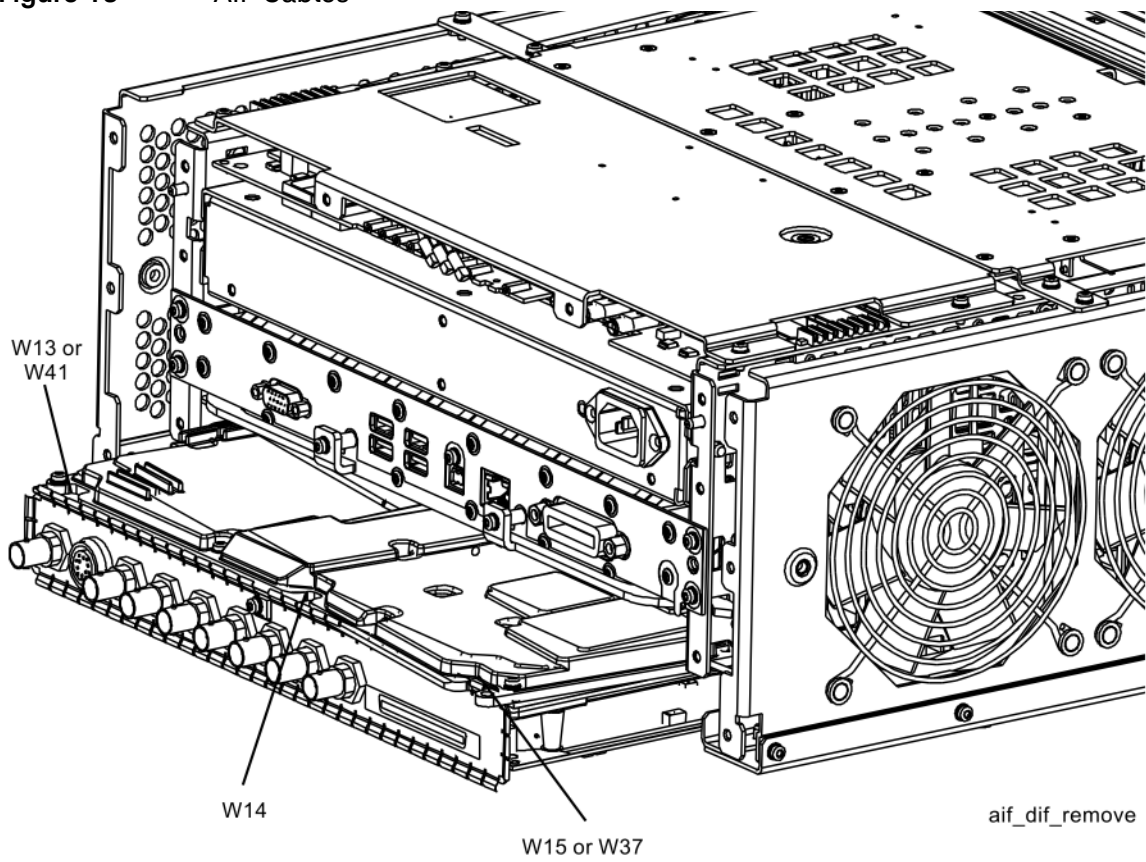
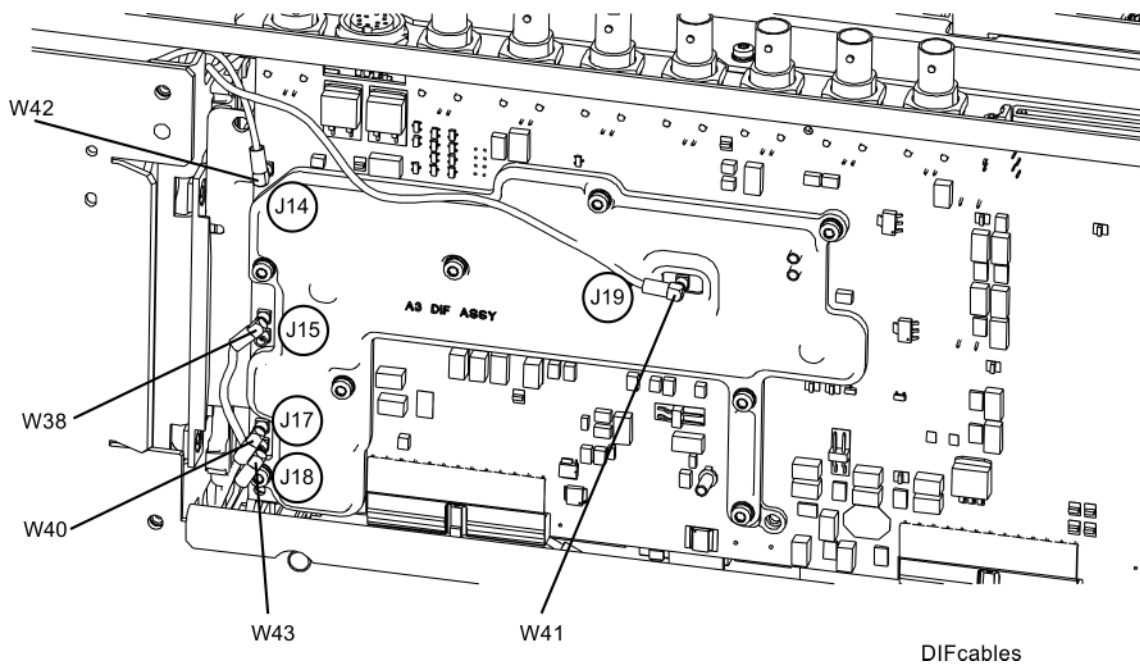


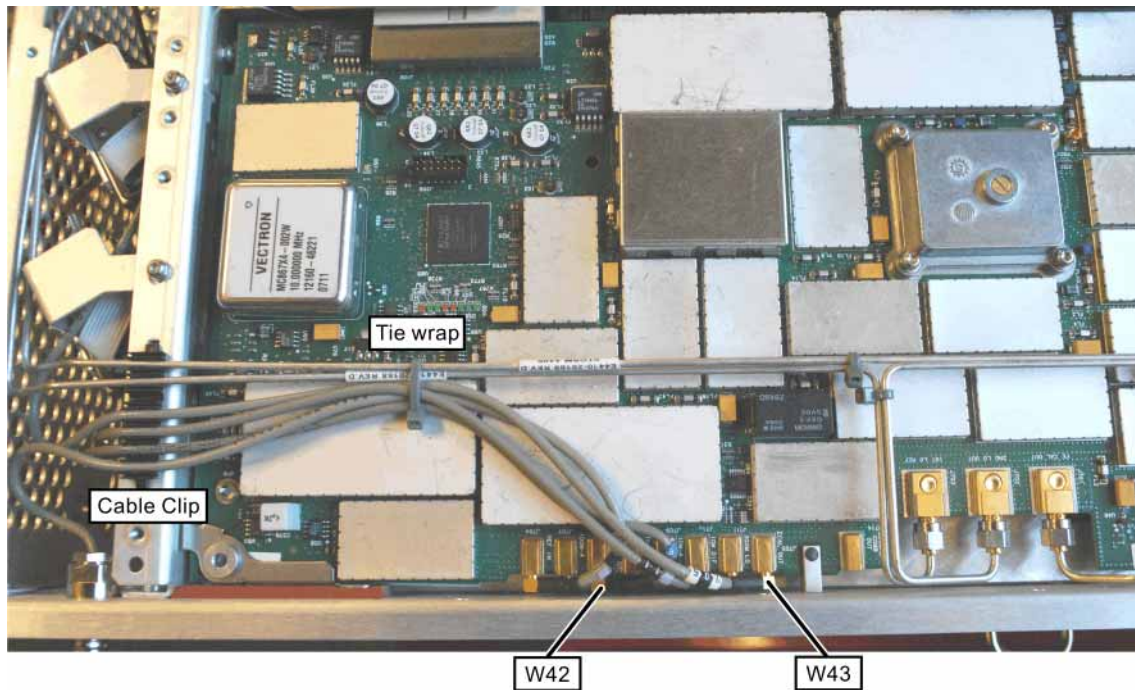
Figure 20 DIF Cables



Installation Procedure

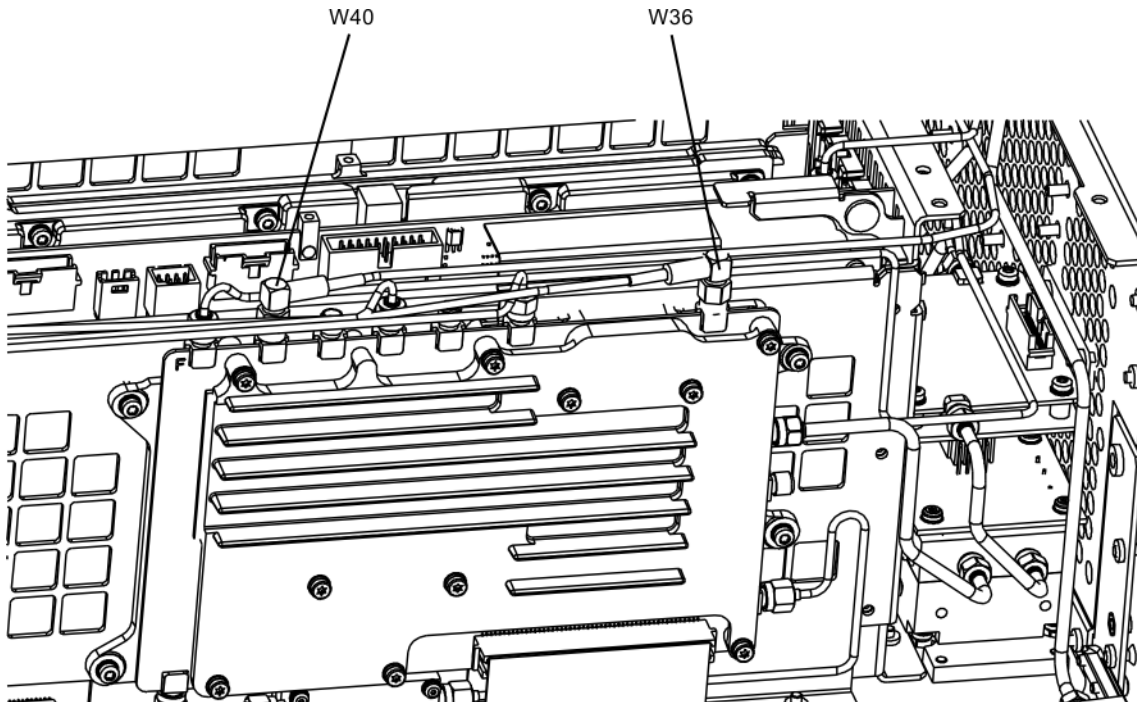
10. Remove W20 from between A16J705 on the A16 Reference Assembly and A13J6 on the A13 RF Front End.
11. Refer to **Figure 20** and **Figure 20-1**. Locate W43 in the Opt HL7 Cable Kit. This cable will be one of two that have part number 8121-1401, but only W43 will be labeled “705” on one end and “18” on the other. Connect the end labeled “705” to A16J705 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 A3J18 on the A3 Digital IF (DIF) Assembly.

Figure 20-1 W42 and W43 Cables



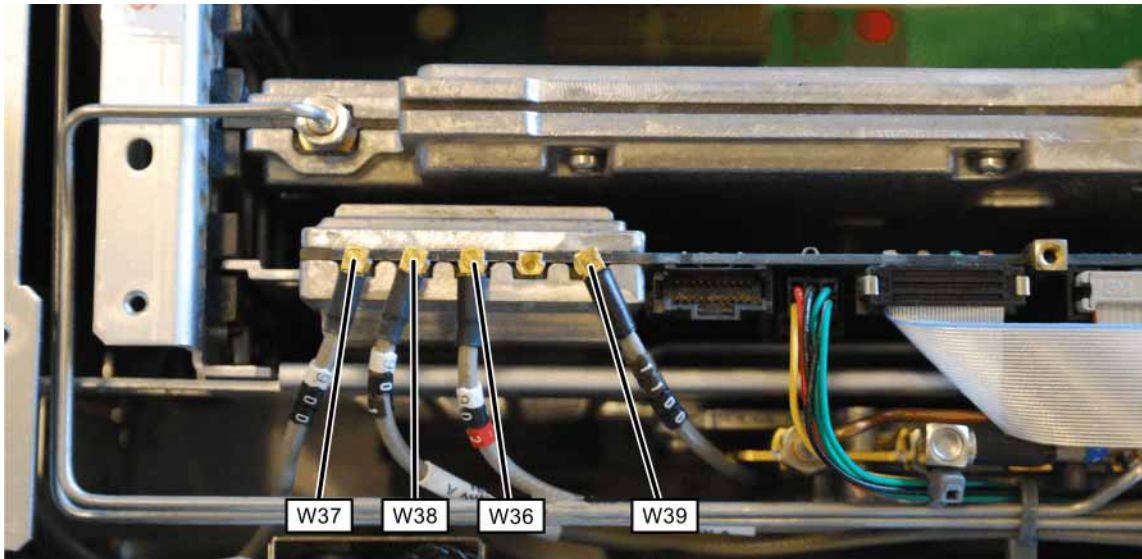
12. Refer to **Figure 20-2**. Locate W40 in the Opt HL7 Cable Kit. This cable will have a part number of 8121-1940 and will be labeled “6” on one end and “17” on the other. Connect the end labeled “6” to A13J6 on the A13 RF Front End Assembly. Route the cable along the right side of the analyzer and through the cutout in the chassis between A9 and A12. Connect the other end to A3J17 on the A3 DIF Assembly. Torque the connector on A13J6 to 10 inch-pounds.

Figure 20-2 W36 and W40 Cables



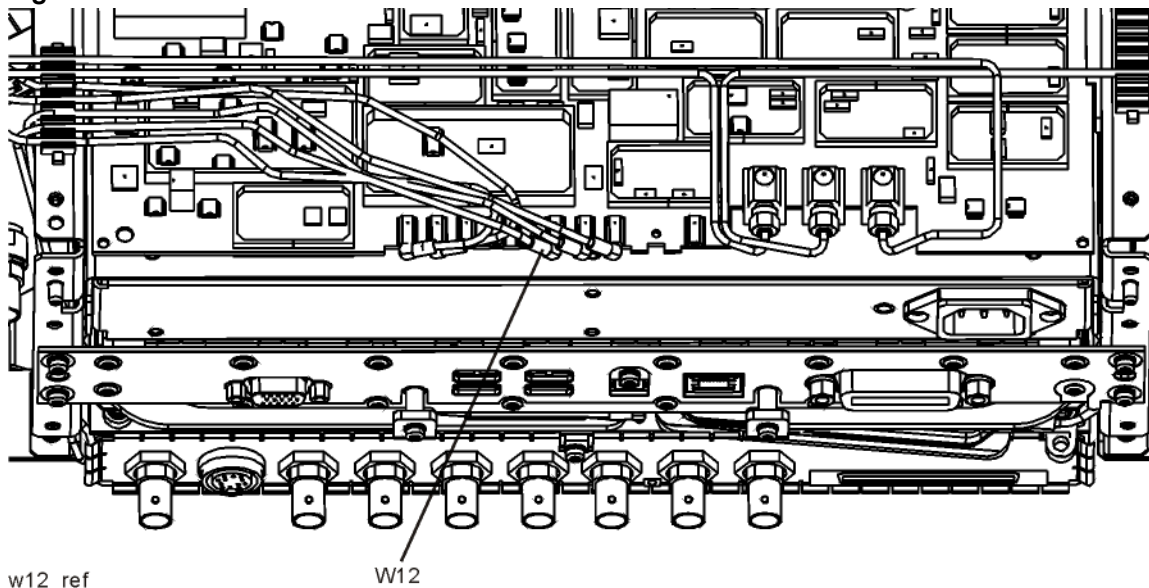
13. Refer to **Figure 20-3**. Locate W38 in the Opt HL7 Cable Kit. This cable will have part number 8121-1861 and will be labeled “901” on one end and “15” on the other. Connect the end labeled “901” to A15J901 on the A15 Enhanced Front End Controller (EFEC) Assembly. Route the cable along the side of 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 20-3 W36, W37, W38, and W39 Cables



14. Refer to **Figure 20-4**. Disconnect W12 from A16J710 on the A16 Reference Assembly and discard.

Figure 20-4 W12 Cable

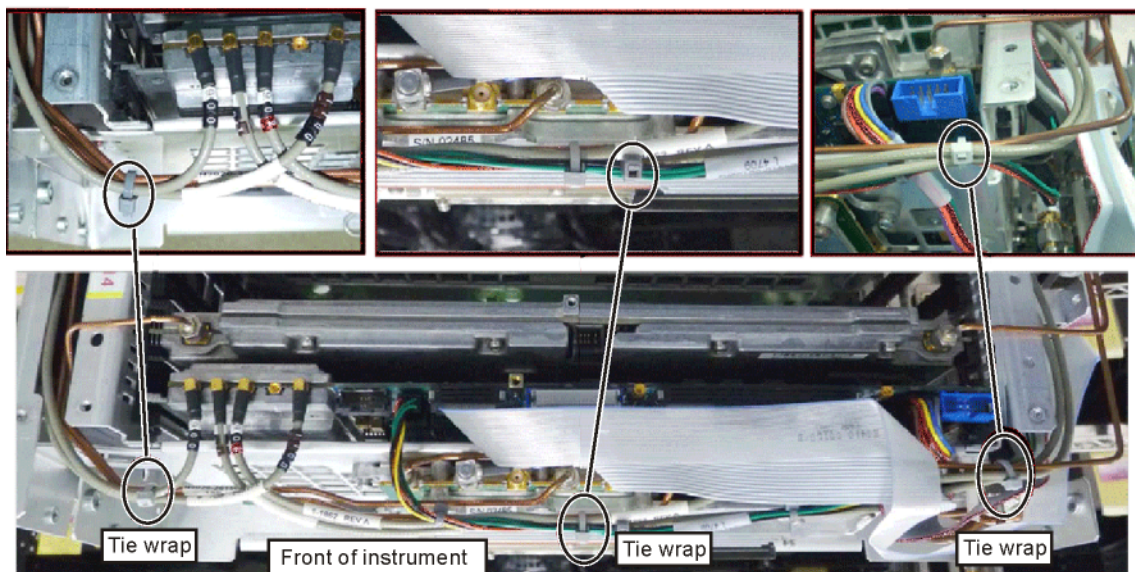


w12_ref

W12

15. Refer to **Figure 20-1**. Locate W42 in the Opt HL7 Cable Kit. This cable will be the remaining cable 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.
16. Refer to **Figure 19** and **Figure 20**. Locate W41 in the Opt HL7 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 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.
17. Refer to **Figure 19**. Connect W14 to A2J300 on the A2 EAIF Assembly.
18. Connect W37 to A2J100 on the A2 EAIF Assembly.
19. 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.

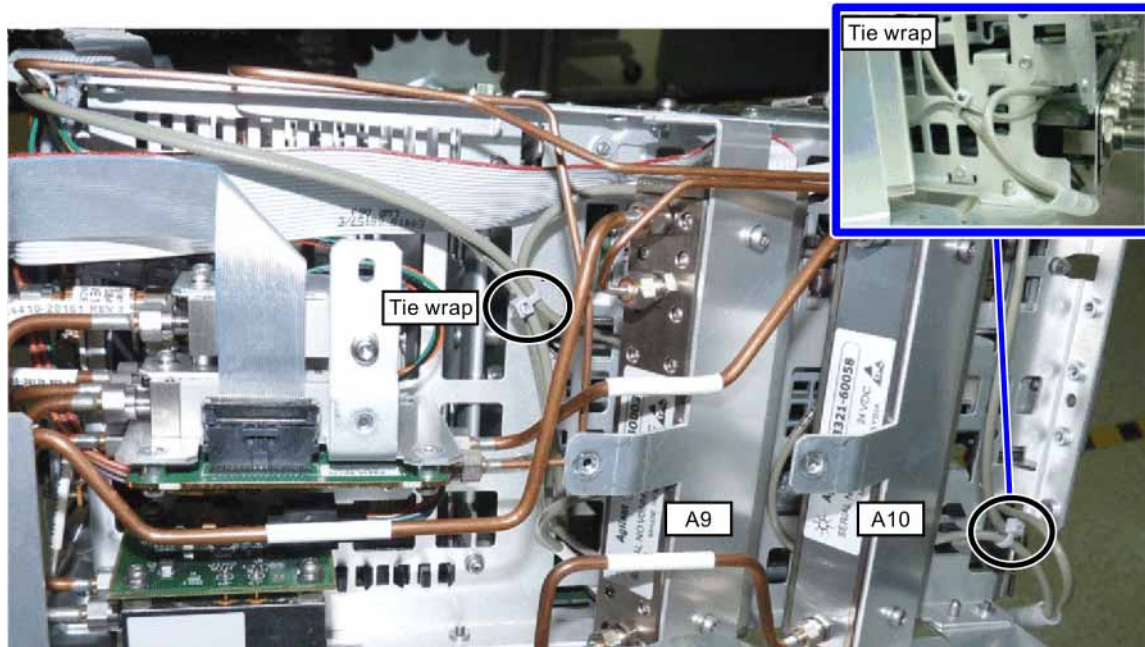
Figure 21 Adding Cable Ties near A13 and A15 Assemblies



tiewrap

20. 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

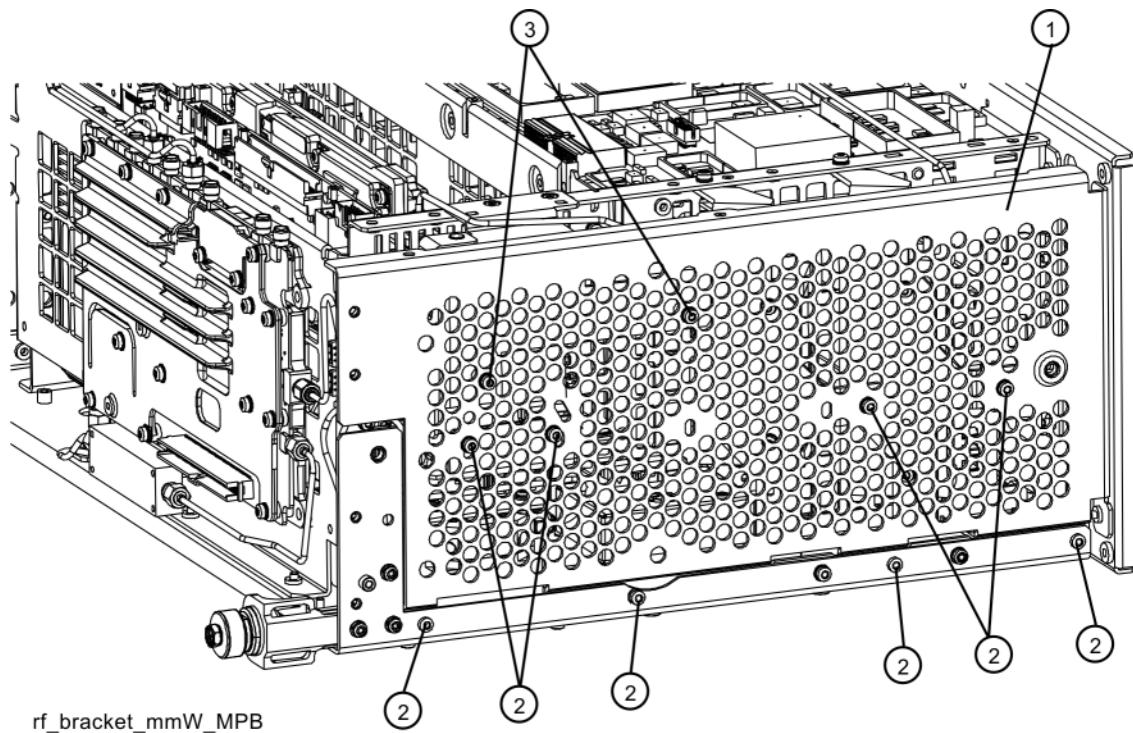


21. Refer to **Figure 20-1**. Attach the flexible and semi-rigid coax cables in the cable clip as indicated.
22. Dress the coaxial cables and semi-rigid cables neatly and tie together using cable ties (1400-0249) at the locations indicated.

Reassembly

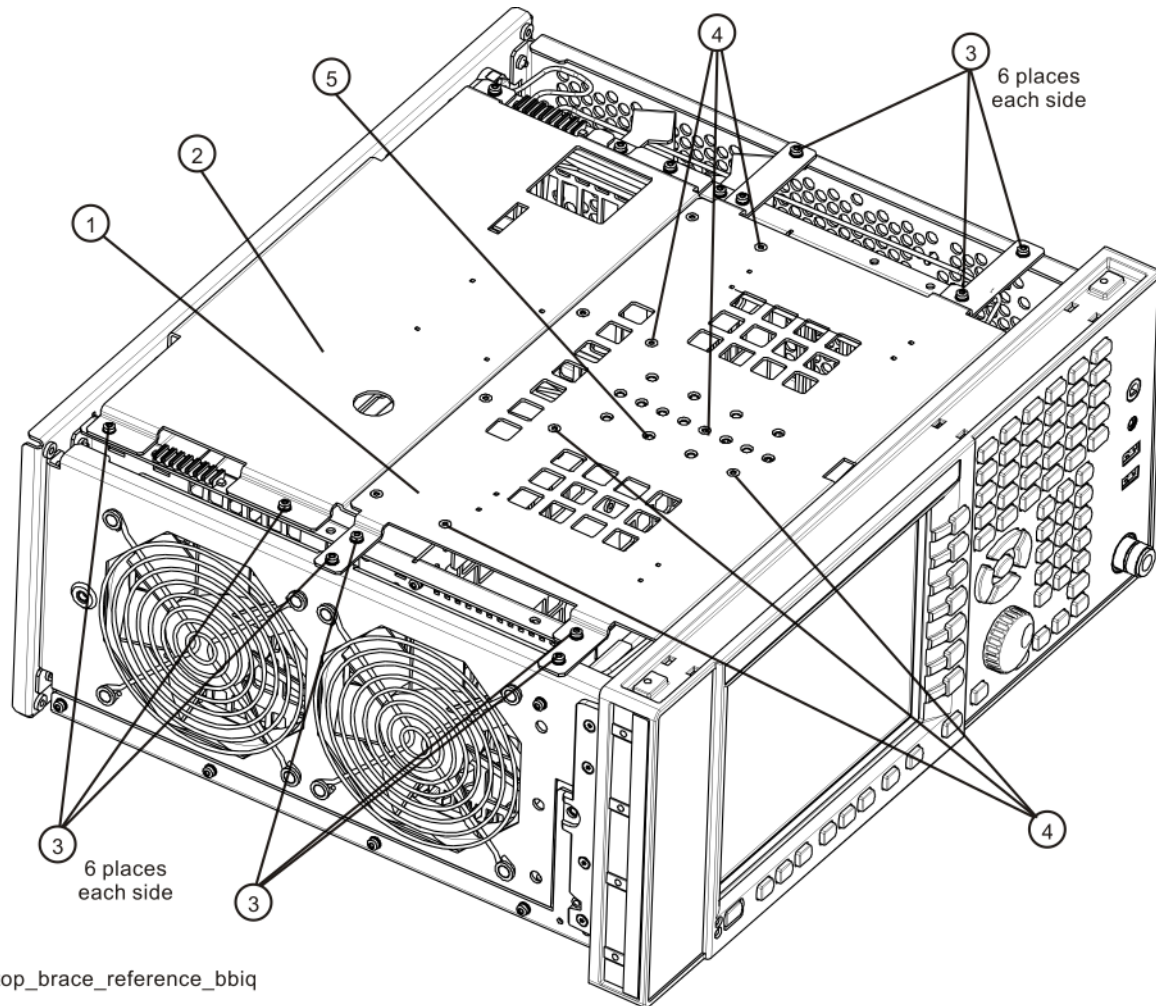
1. Refer to **Figure 23**. Using the RF Bracket included in the kit, position the RF bracket (1) onto the chassis and replace the eight screws (2).
2. Secure the Bypass Bracket to the RF Bracket using two 0515-0372 screws (3) provided in the kit. Torque to 9 inch-pounds.

Figure 23 RF Bracket Replacement



3. Refer to **Figure 24**. To replace the top brace (1) and the reference bracket (2), place them in the correct position and attach the appropriate screws. Torque to 9 inch-pounds.

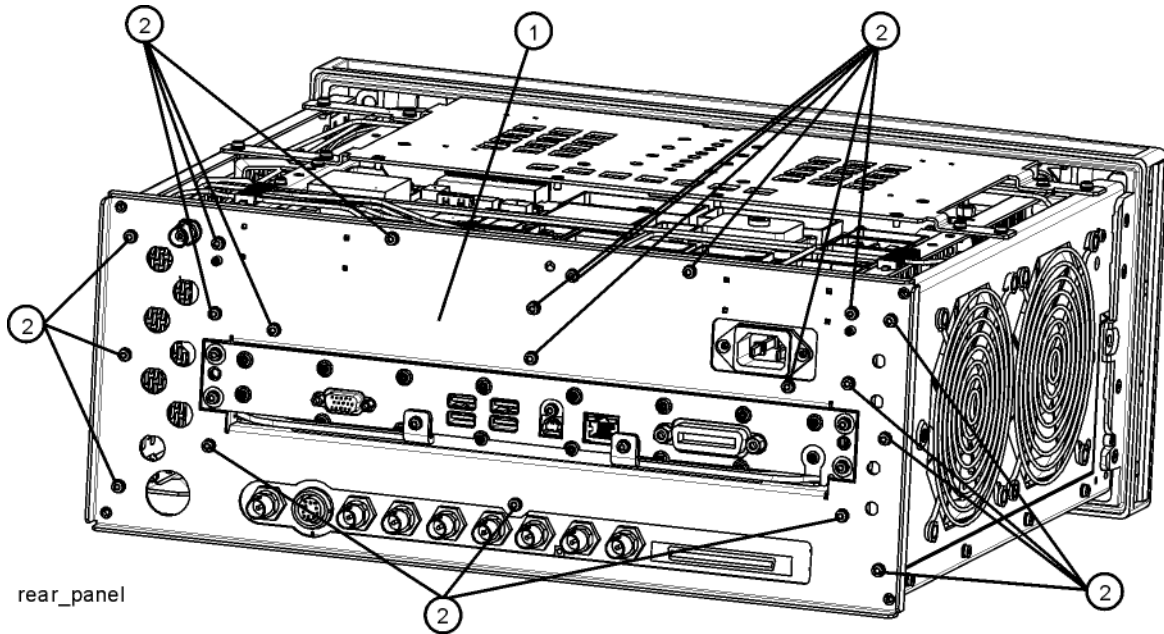
Figure 24 Top Brace and Reference Bracket Replacement



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.

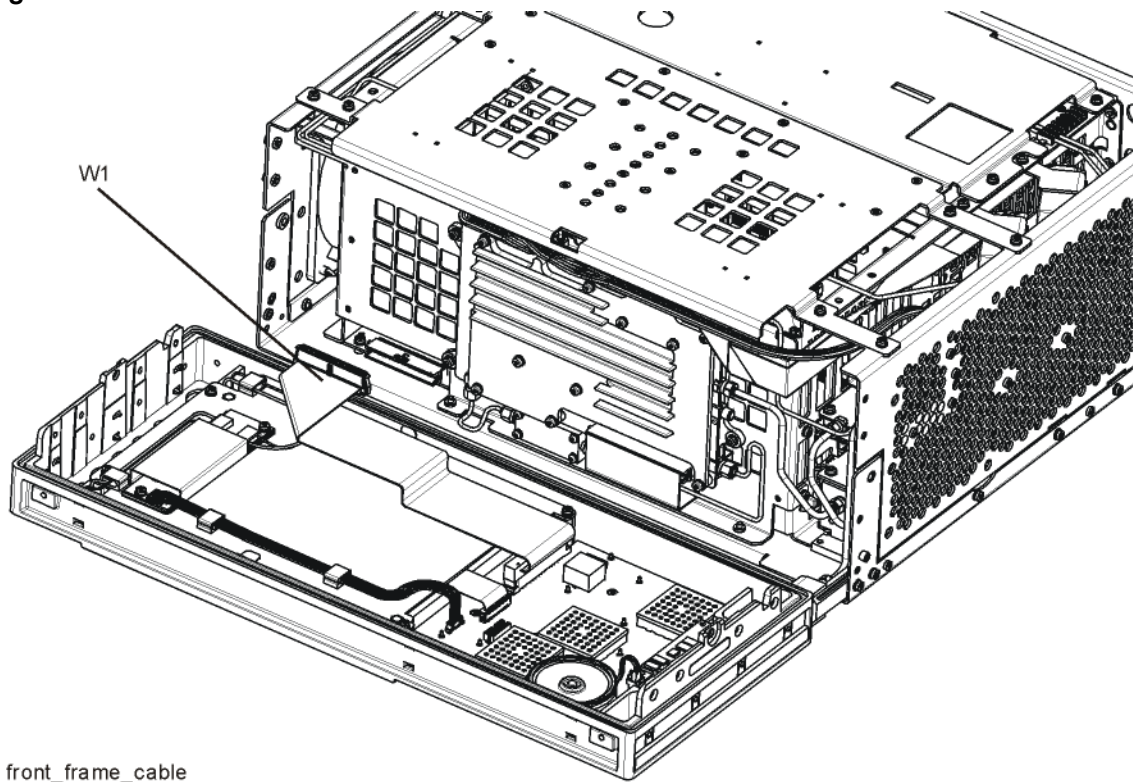
6. Refer to **Figure 25**. Place the rear panel (1) into position in the chassis. Replace the twenty screws (2) to attach the rear panel to the chassis. Torque to 9 inch-pounds.

Figure 25 Rear Panel Replacement



7. Refer to **Figure 26**. Reattach the ribbon cable W1.

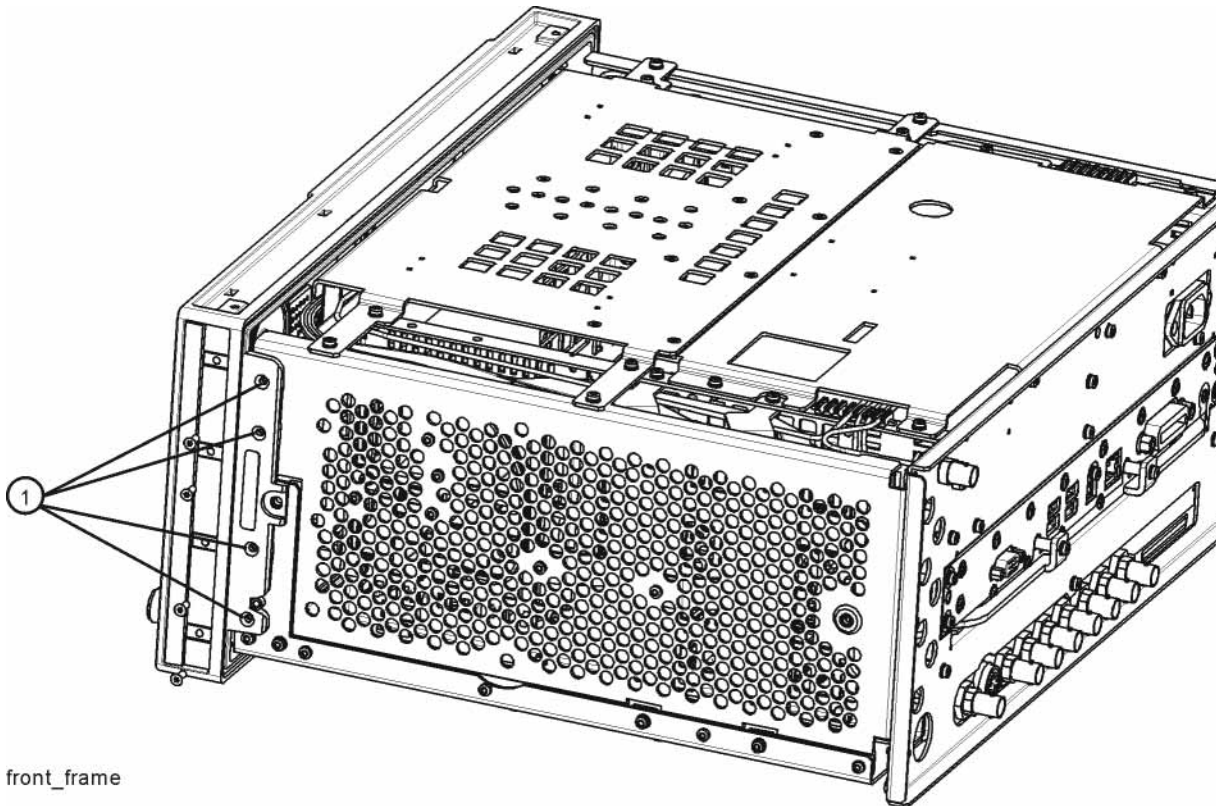
Figure 26 Front Panel Cable



front_frame_cable

8. Refer to **Figure 26-5**. 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 26-5 Front Frame Replacement



front_frame

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 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. Relogin 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:

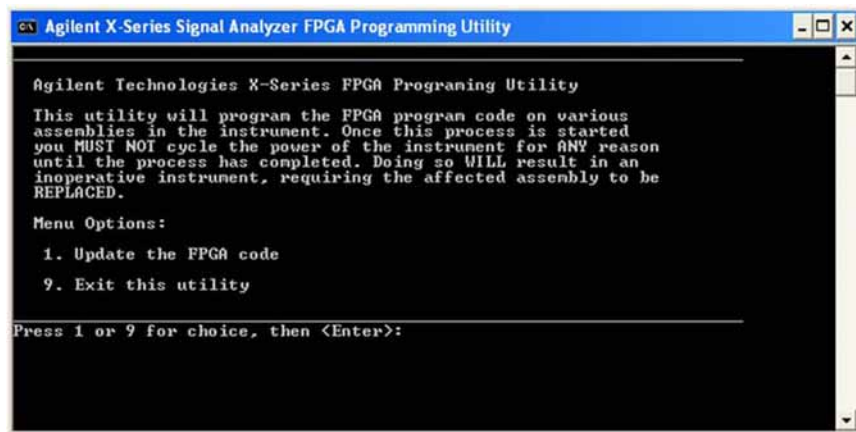
C:\Program Files\Keysight\SignalAnalysis\Physics

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 27** will appear.

Figure 27 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 new DIF board identifies itself as:
 - Digital IF (Hw Id = 72)

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**”.
5. Press **AMPTD Y Scale, More 1 of 2, uW Path Control**.
6. Verify that softkeys appear labeled “**Standard Path**” and “**uW Preselector Bypass**”.
7. Press **uW Preselector Bypass**. If the path was previously set to **Standard Path**, you should hear a click.
8. Press **Standard Path**. If the path was previously set to **uW Preselector Bypass** path, you should hear a click.

Utilities, Adjustments, and Performance Verification Tests

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)



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