

Keysight MXA Signal Analyzer Option HLB, 40 MHz to 85 MHz Analysis Bandwidth Upgrade Serial Prefix < MY/SG/US5233

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.

Installation Note

Part Number N9020-90239
Printed in USA August 2014



N9020-90239

Notice.

The information contained in this document is subject to change without notice.

Agilent Technologies makes no warranty of any kind with regard to this material, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Agilent Technologies shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Option HLB, 40 MHz to 85 MHz Analysis Bandwidth Upgrade Serial Prefix < MY/SG/US5233

Products Affected:	N9020A, MXA Signal Analyzer
Serial Numbers:	< MY52330000 < SG52330000 < US52330000
Options:	B40, MPB
To Be Performed By:	(X) Agilent Service Center (X) Personnel Qualified by Agilent () Customer
Estimated Installation Time:	2.0 Hours
Estimated Adjustment Time:	1.5 Hours
Estimated Verification Time:	4.0 Hours

Introduction

This installation note explains how to install the hardware and provides guidelines for adjustment and verification for Option HLB, 40 MHz to 85 MHz Analysis Bandwidth Upgrade for MXA signal analyzers with serial number prefixes < MY/SG/US5233. A similar kit, Option HLC, is available for newer MXA signal analyzers.

Installing this kit requires that the analyzer already have hardware and licenses installed to provide analysis bandwidths up to 40 MHz. If the analyzer does not already have the necessary hardware and licenses to provide analysis bandwidths up to 40 MHz, other upgrade kits are available. Refer to http://www.agilent.com/find/mxa_upgrades for information of available upgrades.

If the analyzer already has Options MPB and/or DP2 installed, the upgrade to 40 MHz analysis bandwidth, N9020AK-B40, can be installed at the same time as this kit.

There are also license-key-enabled upgrades to allow the analysis bandwidths provided by this kit to be further extended to 125 MHz or 160 MHz. These kits are N9020AK-BU4 (85 MHz to 125 MHz upgrade) and N9020AK-BU5 (85 MHz to 160 MHz upgrade). The N9020AK-BU4 or N9020AK-BU5 kits can also be installed at the same time as the N9020AK-HLB kit.

Option HLB, 40 MHz to 85 MHz Analysis Bandwidth Upgrade Serial Prefix < MY/SG/US5233

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.agilent.com/find/calibrationsoftware

NOTE	Instrument software revision A.13.15 or later is required to install this upgrade.
-------------	--

NOTE	The instrument must be readjusted and the performance tested to assure the instrument meets specifications following the hardware installation. The X-Series Performance Verification and Adjustment Software must be used. All adjustments are automated. This software is included in the N7814A, Agilent X-Series Signal Analyzer Calibration Application software.
-------------	--

Installation Kit Parts List

Quantity	Description	Agilent Part Number
1	Power Supply, AC/DC Switching 350W 12-Output	0950-5012
1	A3 40 MHz Digital IF Assembly	N9020-60016
1	A25 Wideband Analog IF	N9020-60044
1	A26 Wideband Digital IF	N9020-60257
1	A16 MXA Reference Assembly	N9020-60200
1	Rear Panel Replacement Kit, MXA Prefix MY/SG/US5233	N9020-60149
1	Reference Support Bracket	E4410-00108
1	Opt HLB/HLC Cable Kit with Wire Markers (includes cables W51 through W56, listed below)	N9020-60153
1	Cable Assembly, 2nd LO, LO Synth (W6)	N9020-20033
1	Cable Assembly, Ref, Front End (W5)	N9020-20064
1	Cable Assembly, Ref, Attenuator A (W19)	N9020-20065
1	Cable Assembly, Flat Flexible 80-conductor 3-in-LG (W44)	8121-1854
1	Cable Assembly, Coaxial 700 mm LG (W20)	8121-1400 ^a with ends labeled '705' and '6'
1	Cable Assembly, Coaxial 530 mm LG (W51)	8121-1401 ^a with ends labeled '301' and '718'
1	Cable Assembly, Coaxial 380 mm LG (W52)	8121-2288 ^a with ends labeled '102' and '15'
1	Cable Assembly, Coaxial 380 mm LG (W54)	8121-2288 ^a with ends labeled '716' and '14'
1	Cable Assembly, Coaxial 480 mm LG (W55)	8121-2290 ^a with ends labeled '805' and '17'
1	Cable Assembly, Coaxial 710 mm LG (W56)	8121-2291 ^a with ends labeled '806' and '726'
1	Cable Assembly, Coaxial 570 mm LG (W53)	8121-2292 ^a with ends labeled '901' and '101'
1	Screw, M3 x 0.5 (8 mm long)	0515-0372
6	Screw, M3 x 0.5 (6 mm long) flathead	0515-1227
15	Cable Tie	1400-0249
1	Coaxial Cable Clip	5041-9690
1	Entitlement Certificate	5964-5178
1	Entitlement Certificate Envelope	5967-7169
1	Installation Note	This note

a. This cable is included in the Option HLB/HLC Cable Kit with Wire Markers, p/n [N9020-60153](#)

Tools Required

- T-10 TORX Driver
- T-20 TORX Driver
- 5/16-inch torque wrench
- 9/16-inch nut driver
- 1/4-inch socket on 4-pound torque wrench
- Scissors or knife
- Diagonal cutters
- Agilent Calibration and Adjustment Software, N7814A (revision E.11.00 or later)
- Test equipment and computer supported by the X-Series Performance Tests and Adjustment Software
- MXA Signal Analyzer Service Guide. This manual is available as:
 - N9020A Option 0BW or p/n N9020-90218
- 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.
----------------	---

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.

N9020A-B40 _____

N9020A-DP2 _____

N9020A-MPB _____

N9020A-BBA _____

N9020A-508 _____

N9020A-513 _____

N9020A-526 _____

4. Refer to the data in [step 2](#) above. If the Product Number is not N9020A, **do not proceed** with the installation of this kit. This kit is to be installed only on N9020A signal analyzers.
5. Refer to the data in [step 2](#) above. If the Serial Number prefix (the first six characters of the serial number) is not earlier than MY5233, SG5233, or US5233 **do not proceed** with the installation of this kit. This kit is to be installed only on N9020A signal analyzers with earlier serial numbers.
6. Refer to the data in [step 3](#) above. If option N9020A-BBA is present, **do not proceed** with the installation of this kit. MXA signal analyzers with Option BBA do not have sufficient room to install the two additional boards required for analysis bandwidths of 85 MHz and wider.
7. Refer to the data in [step 3](#) above. If neither Options N9020A-B40, N9020A-MPB, or N9020A-DP2 are not already present, **do not proceed** with the installation of this kit. One of two different kits is available for this situation. Refer to www.agilent.com/find/mxa_upgrades.
8. Refer to the data in [step 3](#) above. If option N9020A-B40 is not already present but either N9020A-DP2 and/or N9020A-MPB are present, an additional upgrade kit, N9020AK-B40 will also need to be installed to upgrade the analysis bandwidth to 40 MHz. This 40 MHz analysis bandwidth upgrade should be performed prior to installing this 40 MHz to 85 MHz analysis bandwidth upgrade kit.
9. Refer to the data in [step 3](#) above. If Option N9020A-MPB is not already present and either frequency range option N9020A-508, N9020A-513, or N9020A-526 is present, it will be necessary to upgrade the analyzer to add option N9020A-MPB before installing this kit. Refer to www.agilent.com/find/mxa_upgrades for details on how to upgrade to N9020A-MPB.

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.

NOTE	The minimum instrument software version is A.13.15.
-------------	---

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

http://www.agilent.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

NOTE If N9020AK-BU4, Analysis Bandwidth Upgrade, 85 MHz to 125 MHz, N9020AK-BU5, Analysis Bandwidth Upgrade, 85 MHz to 160 MHz, or N9020AK-B40, Analysis Bandwidth Upgrade, 40 MHz will also be installed, the licenses provided by these kits should be installed at this time.

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



Installation Procedure

7. The signal analyzer will automatically consume the License File. (This may take a few minutes) When the License File is consumed the Agilent 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.

Figure 2 **Successful License Installation**



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.
----------------	---

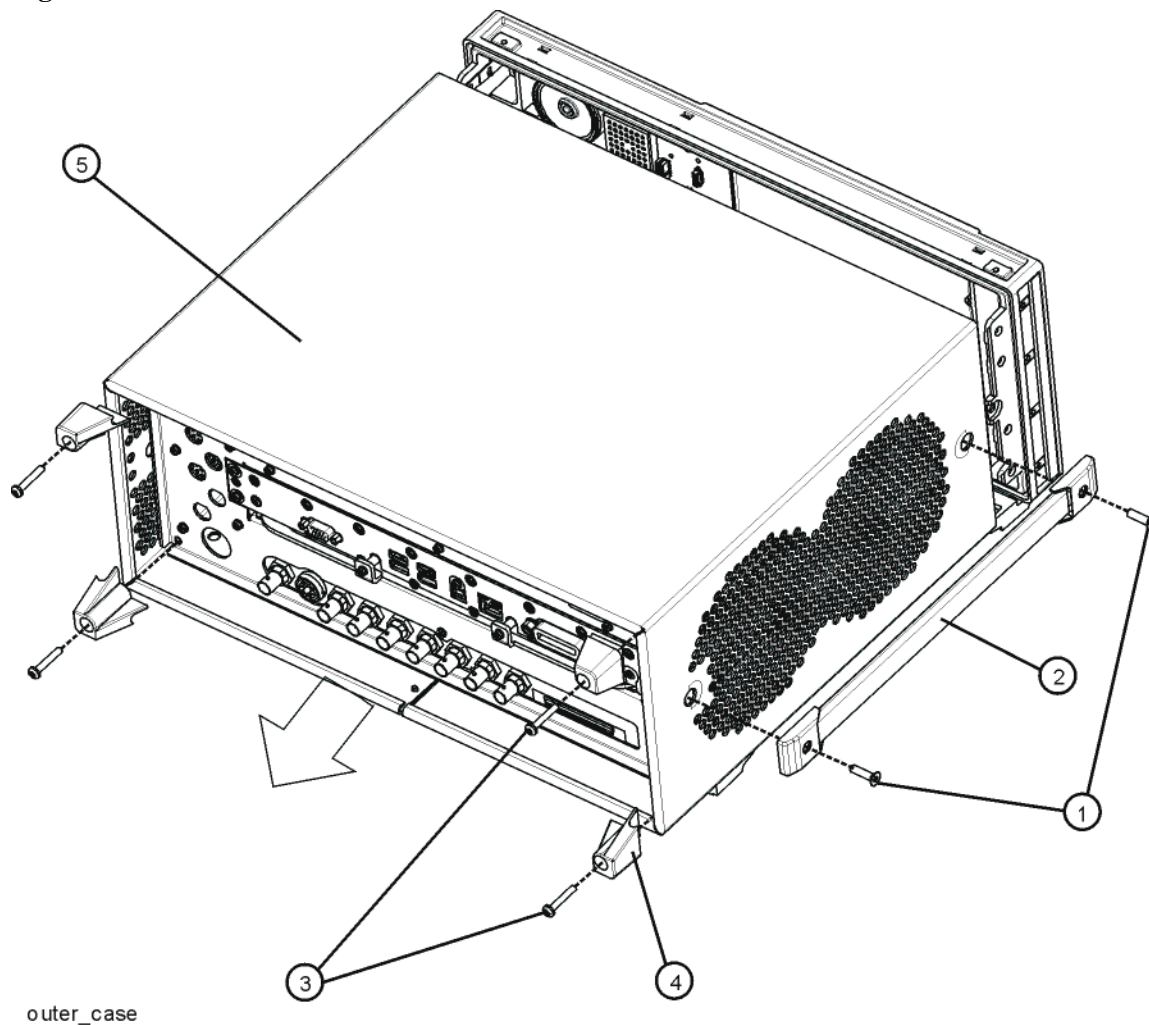
NOTE	If the analyzer has Option PRC, Portable Configuration, refer to the “ Portable Instrument (Option PRC) ” section on page 13 to remove the outer case.
-------------	--

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. 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**



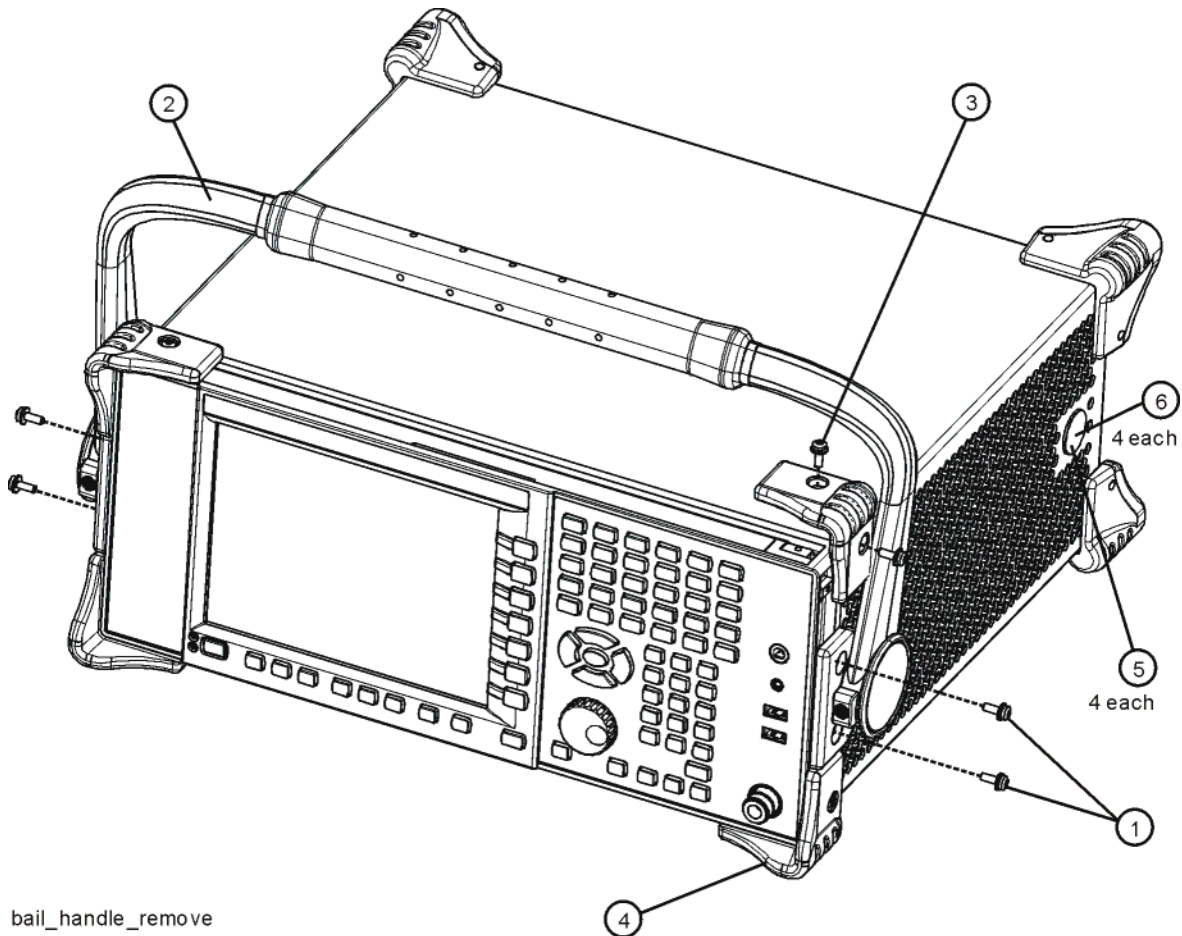
outer_case

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.

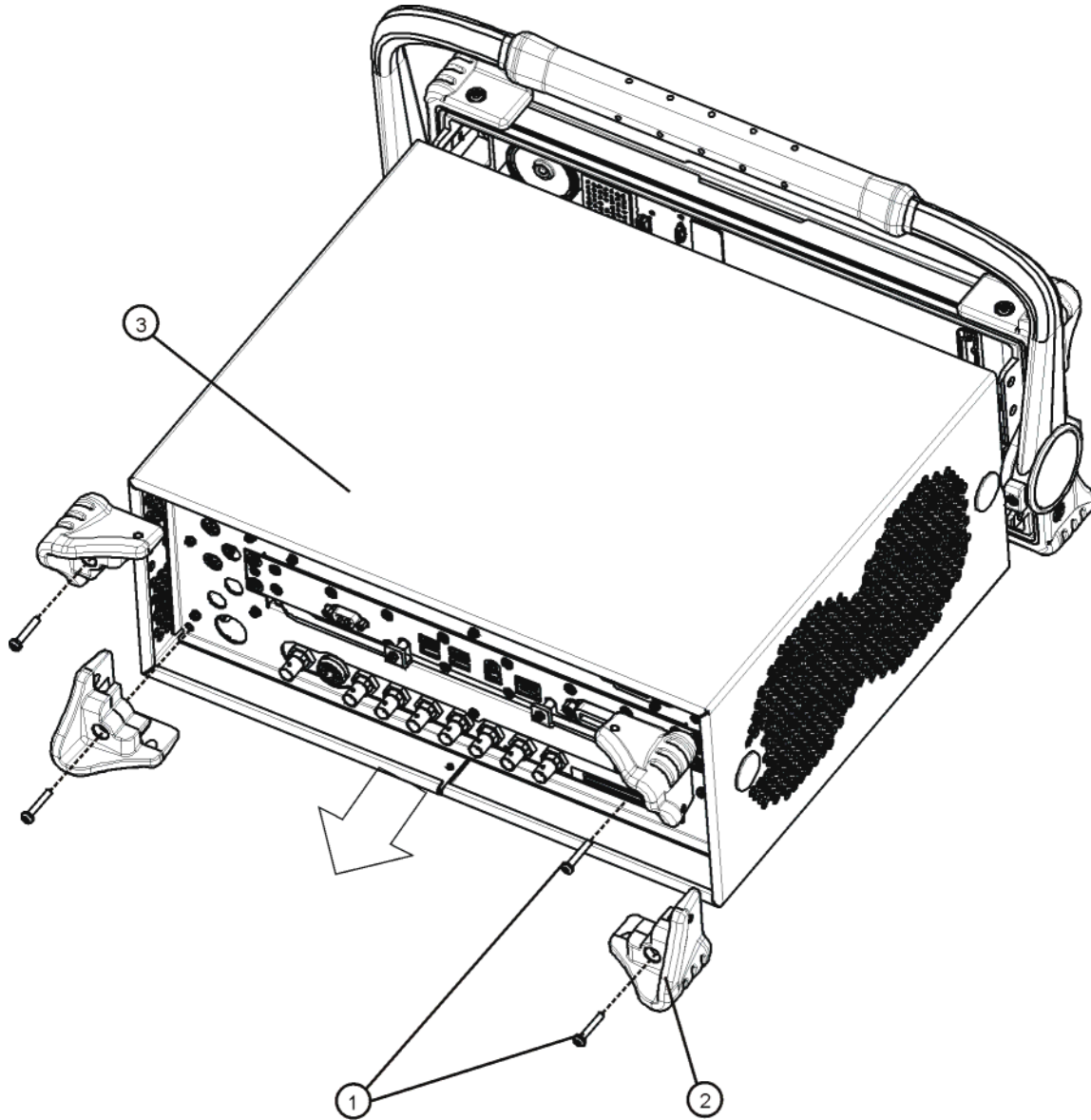
Figure 4 Bail Handle Removal

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

Installation Procedure

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**

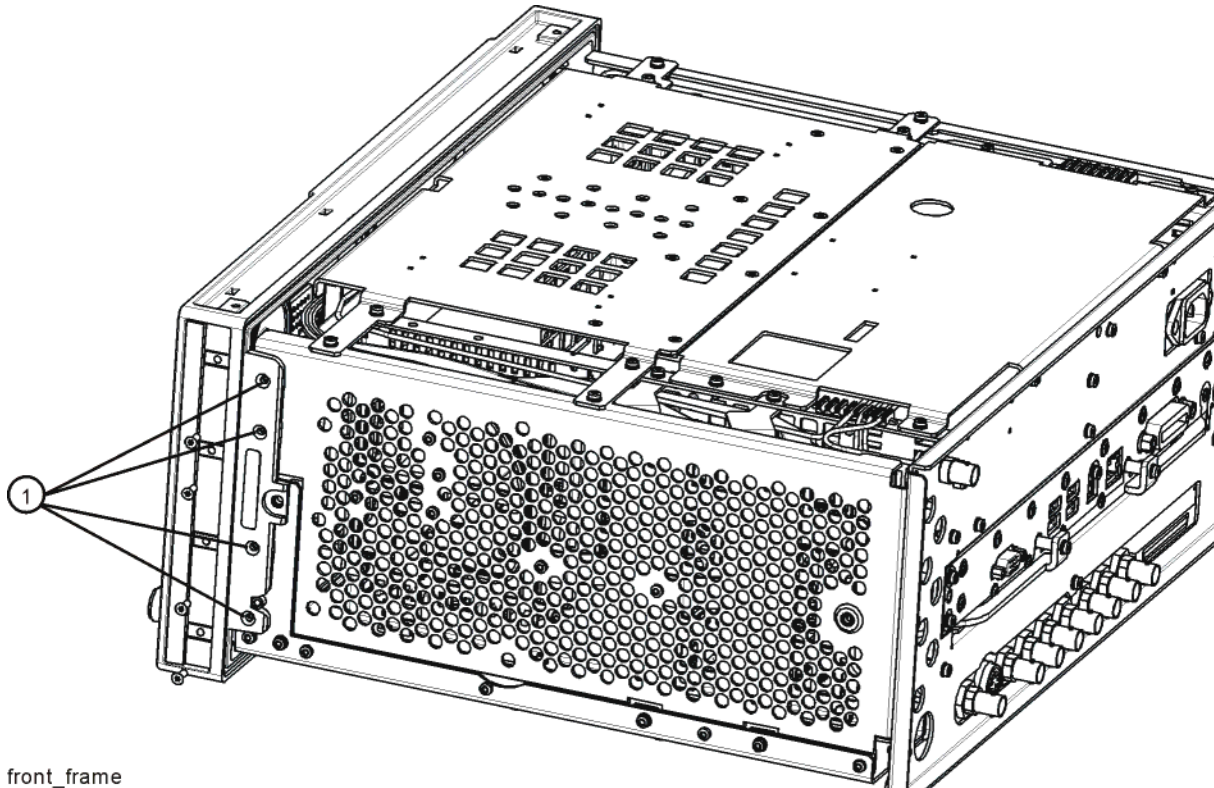


rear_bumper_remove

Front Frame Assembly Removal

1. Refer to [Figure 6](#). 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**

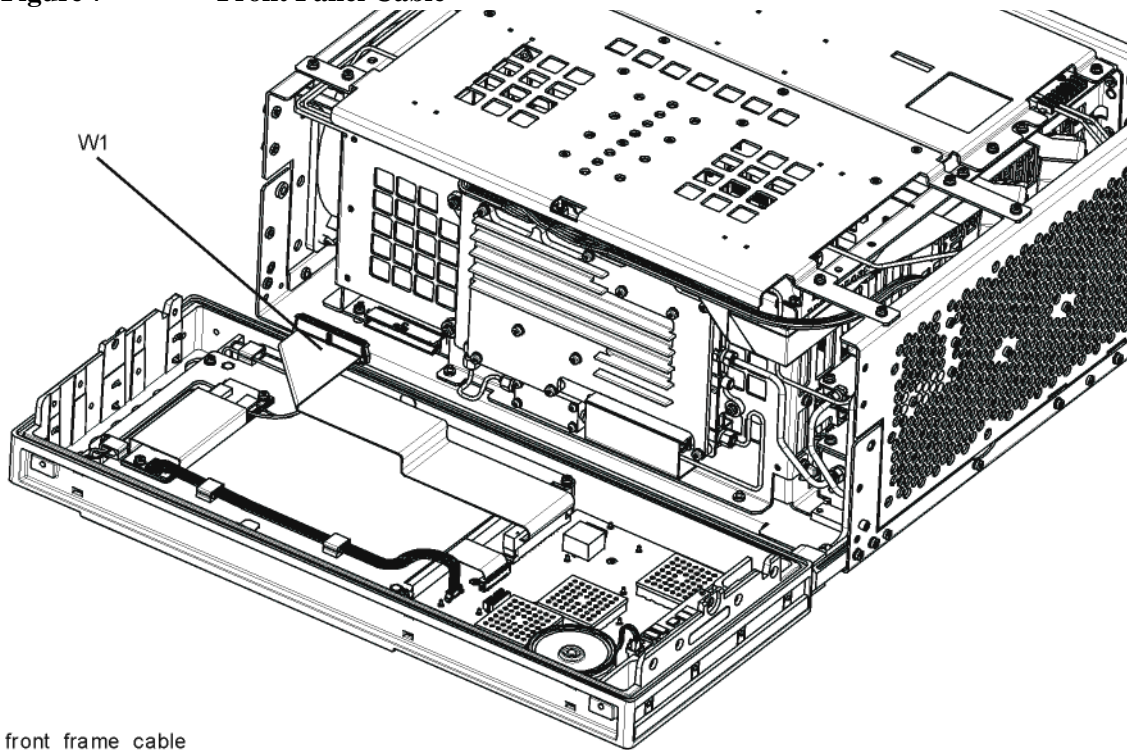


Installation Procedure

2. 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

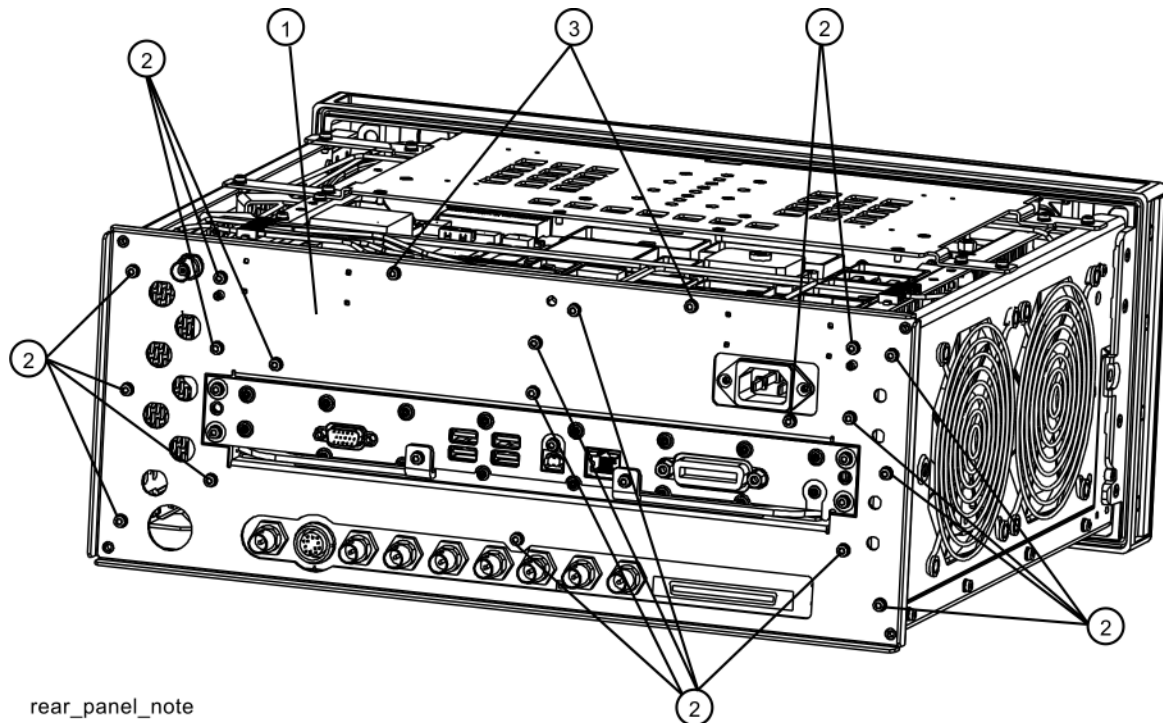


3. Pull the Front Frame Assembly carefully away from the chassis. Remove the ribbon cable W1 from the motherboard.

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.

Figure 8 **Rear Panel Removal**



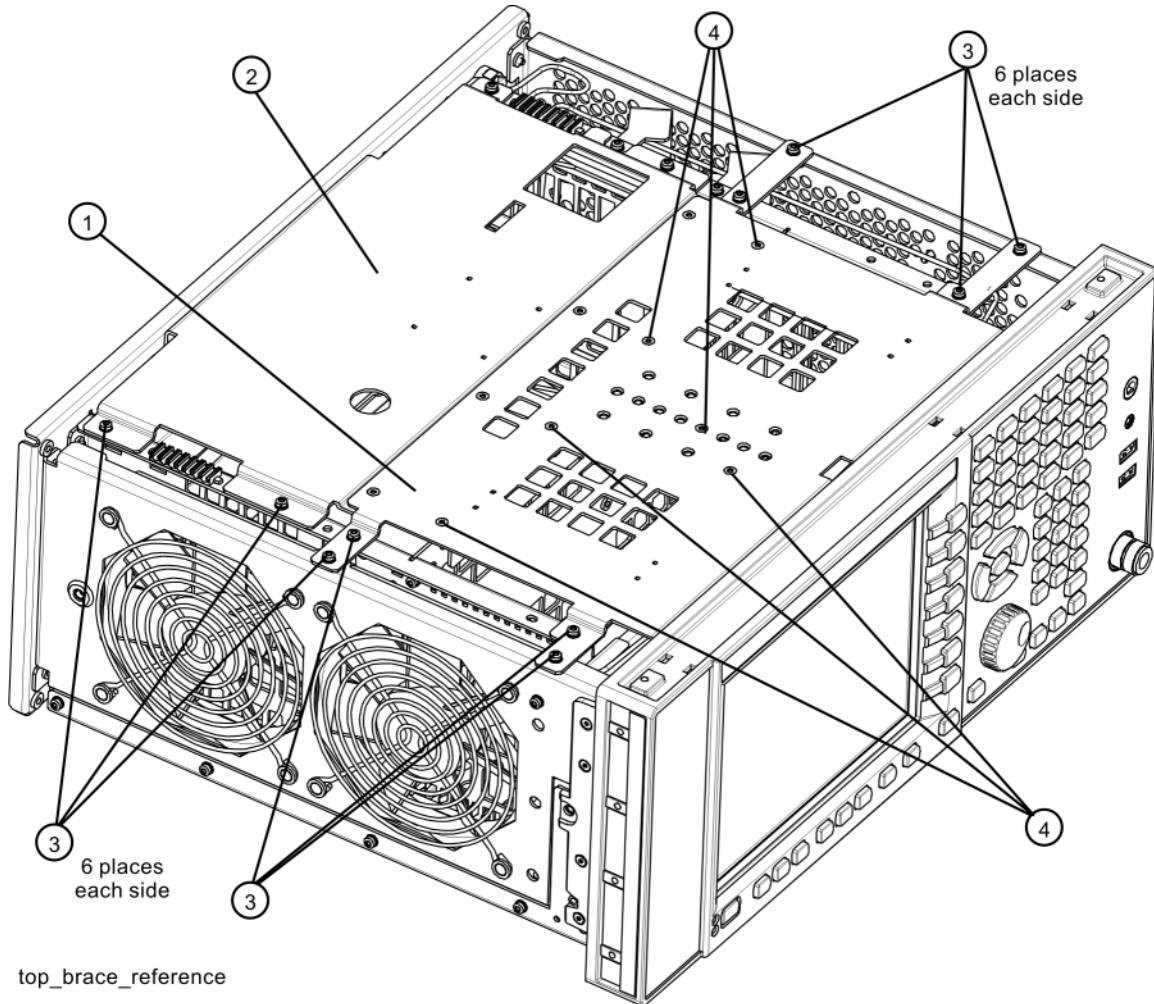
3. Instruments with Option CR3 or CRP will have an additional cable W39 that is attached to the rear panel. Remove W39 using either a 5/16" nut driver or a 5/16" open-end wrench.
4. The rear panel can now be removed.

Installation Procedure

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

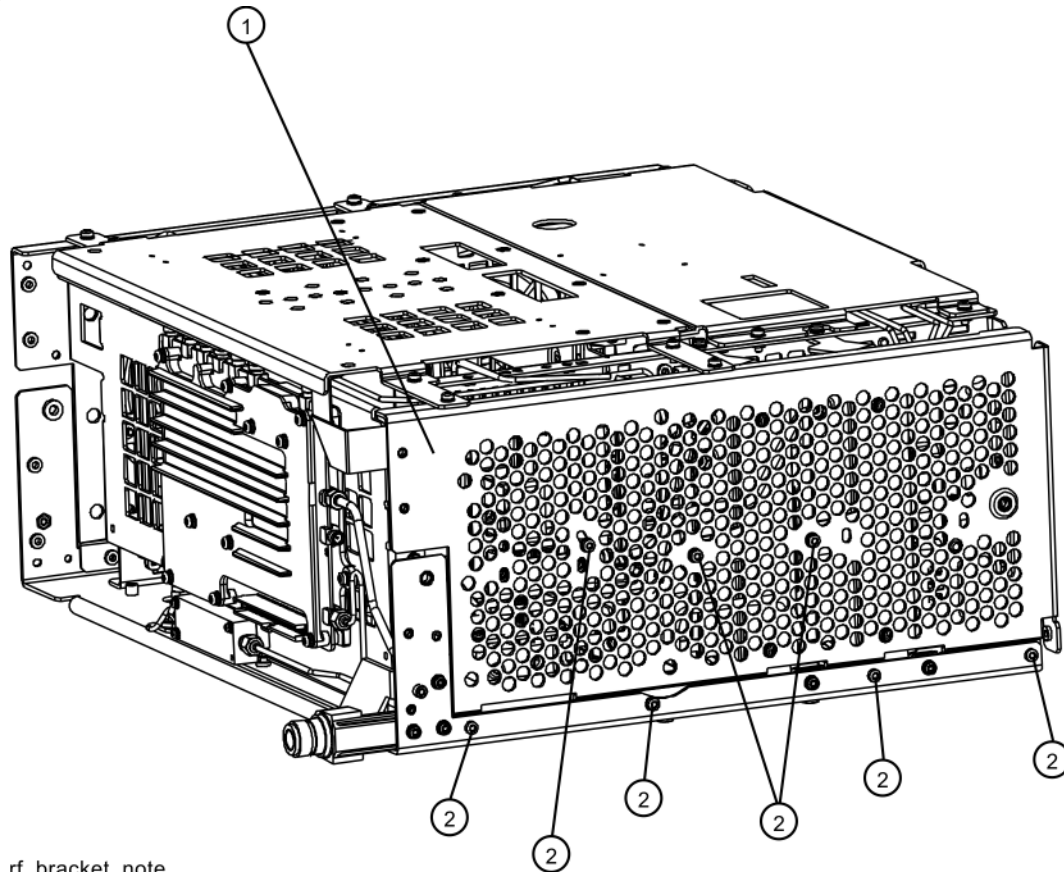


2. Remove the four flat head screws securing the reference bracket to the top brace. The top brace will be reinstalled later, but the reference bracket will not be reused.

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



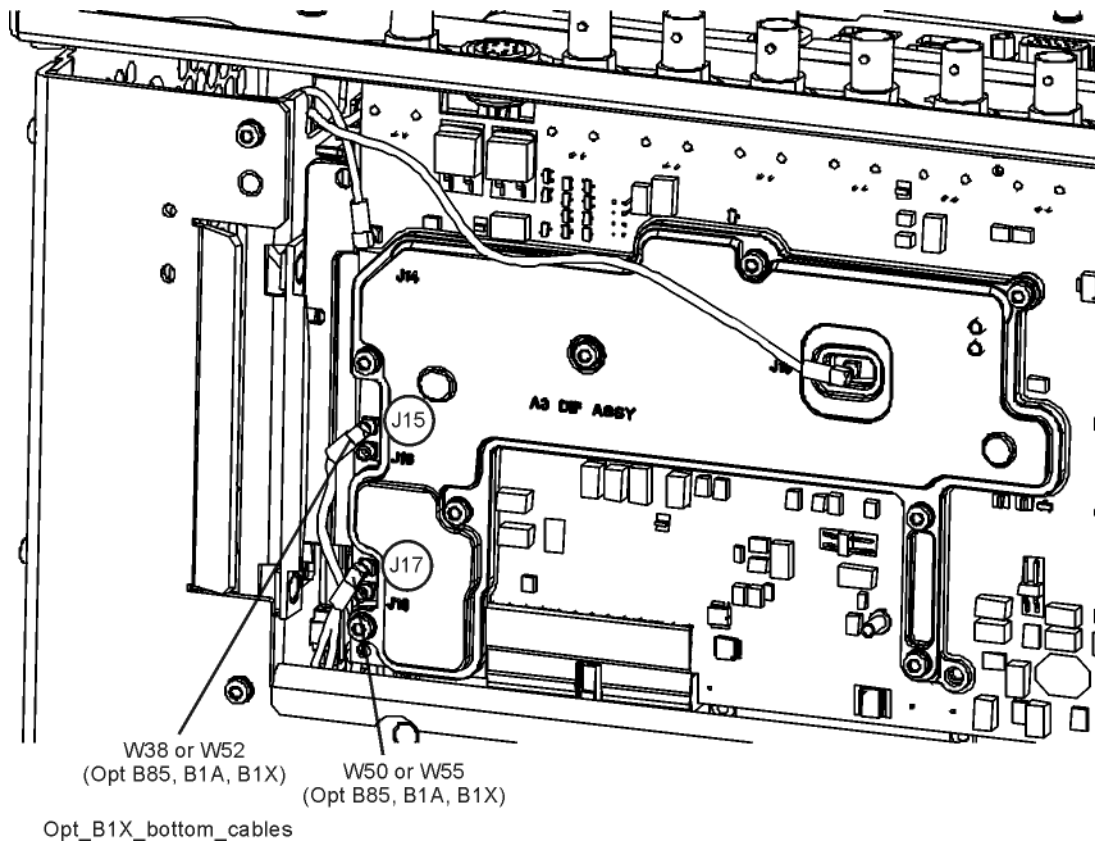
rf_bracket_note

Installation Procedure

Removing Cables

1. Refer to [Figure 11](#). Remove cable W50 connecting A3 Digital IF J17 to A16 Reference Assembly J726. Note cable routing from Digital IF J17 through the opening in the side panel. This cable will not be reused.
2. Remove cable W38 connecting A15 Front End Controller J901 to A3 Digital IF J15. Note cable routing from Digital IF J15 through the attenuator brackets and switches. This cable will not be reused.

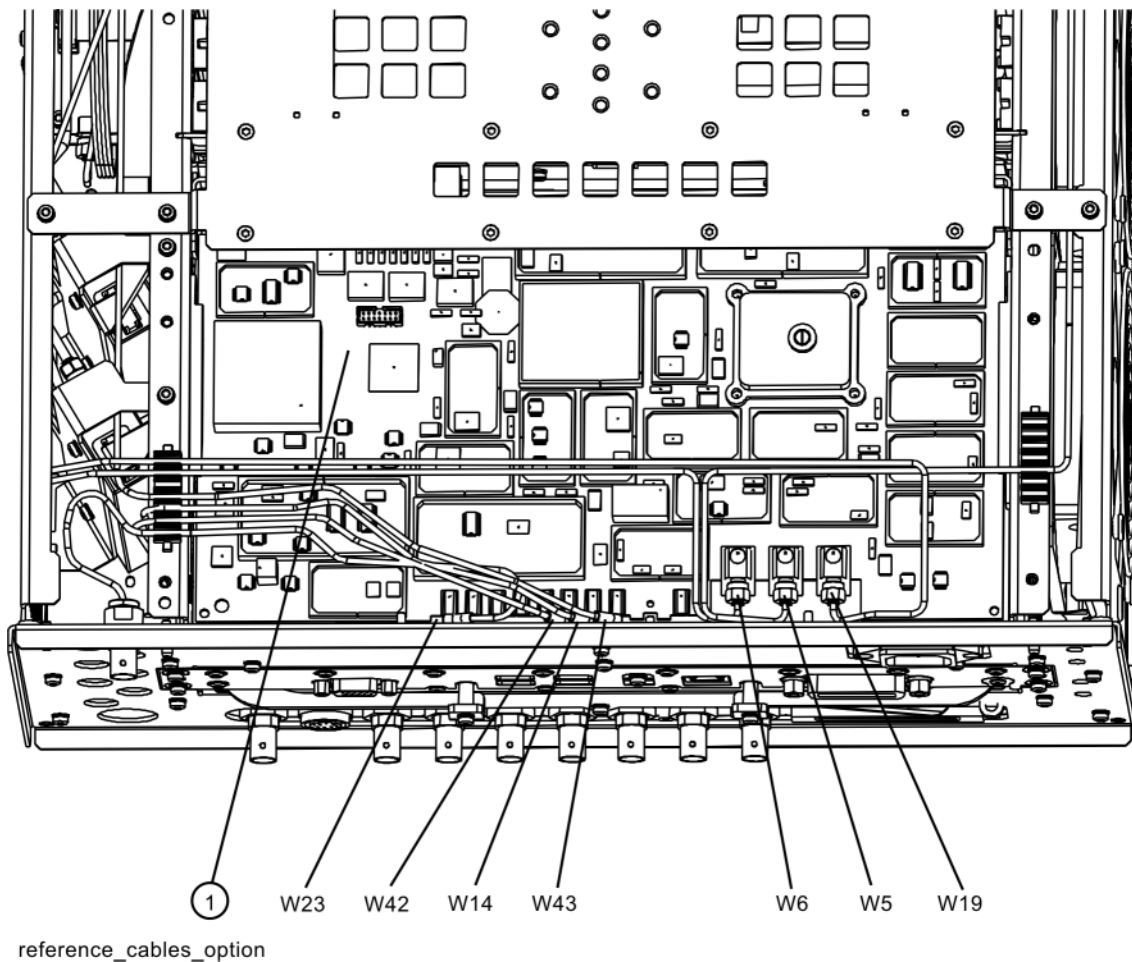
Figure 11 A3 Digital IF Assembly Cables



Replace A16 Reference and A6 Power Supply Assemblies

1. Refer to [Figure 12](#). Remove the cable ties securing the flexible coax cables and semi-rigid cables to each other above the A16 Reference Assembly.
2. Using a 5/16-inch wrench, disconnect each end of semi-rigid coax cables W5, W6, and W19. These cables will not be re-used.
3. Disconnect flexible coax cables W14, W23, W42, and W43 from the A16 Reference Assembly (1).
4. Remove the reference assembly from the chassis by leveraging up on the ejector and pulling the board out on the other side.

Figure 12 Reference Board Cables, Options B40, MPB, DP2



Installation Procedure

5. Refer to [Figure 13](#) and [Figure 14](#). Remove the six screws (1) attaching the CPU assembly to the chassis.
6. Remove the CPU assembly from the chassis by pulling straight out the back. Use the two ejectors to pull the CPU assembly out from the chassis.

Figure 13 Current CPU Assembly - Rear Panel View

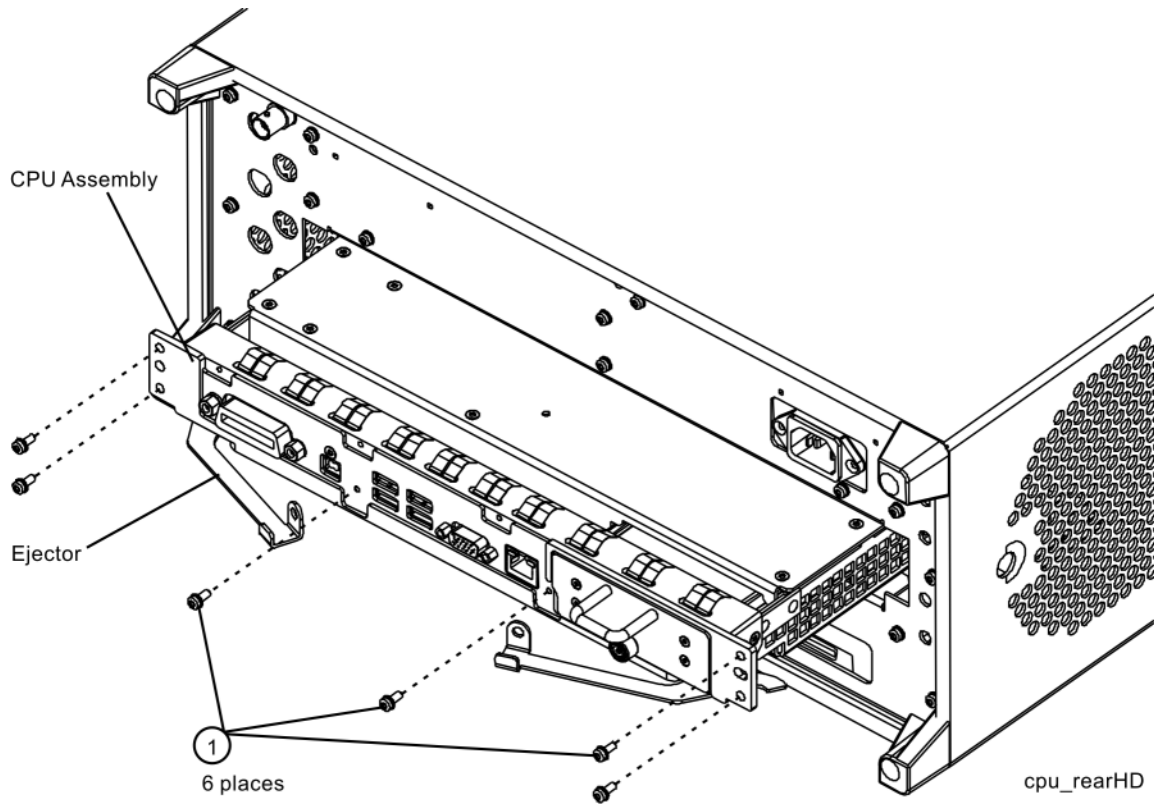
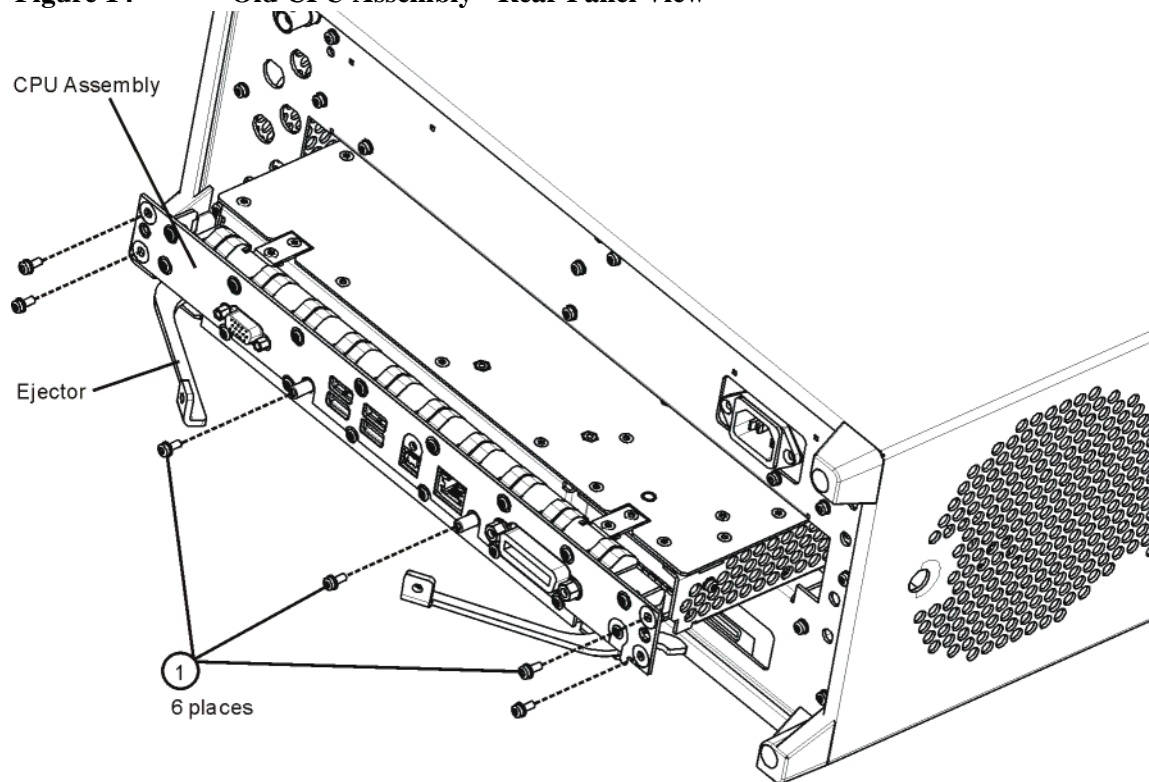


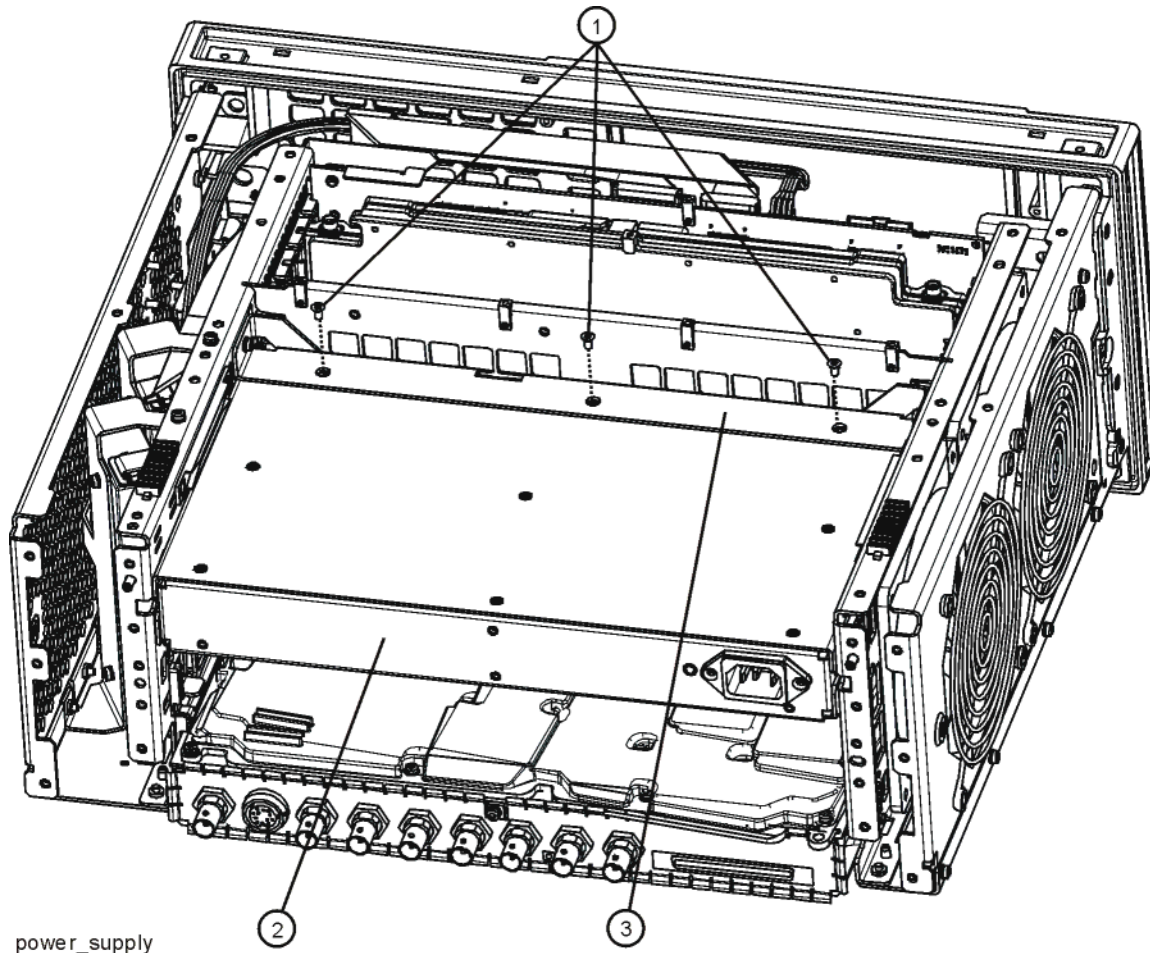
Figure 14 Old CPU Assembly - Rear Panel View



Installation Procedure

7. Refer to [Figure 15](#). Remove the three screws **(1)** attaching the power supply **(2)** to the power supply bracket **(3)**. Keep these screws; they will be used later.

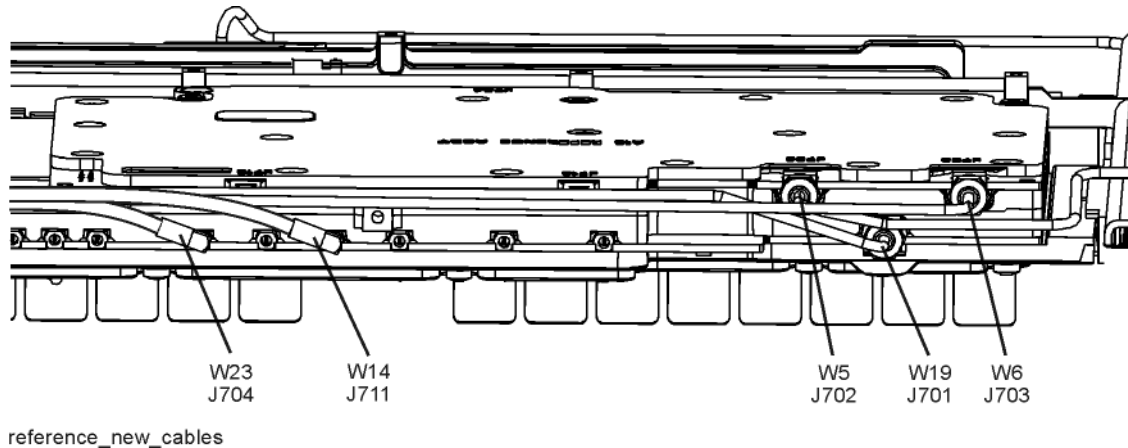
Figure 15 **Power Supply Assembly Removal**



8. Remove the power supply assembly from the chassis by pulling straight out the back.
9. Locate the new A6 Power Supply assembly, 0950-5012, in the kit. Slide the power supply assembly into the slot at the rear of the instrument push on assembly to mate the connectors to the Midplane assembly.
10. Refer to [Figure 15](#). Replace the three screw **(1)** through the power supply bracket **(3)** and into the power supply **(2)**. Torque to 9 inch-pounds.
11. Refer to [Figure 13](#) and [Figure 14](#). Slide the CPU assembly into the slot at the rear of the instrument and use the ejectors to push on the assembly to mate the connectors to the Midplane assembly. Secure the board with the ejectors.
12. Replace the six screws **(1)** that attach the CPU assembly to the chassis. Torque to 9 inch-pounds.

13. Locate the new A16 Reference assembly, N9020-60200, in the kit. Slide the reference assembly into the slot at the rear of the instrument and push on the assembly to mate the connectors to the Midplane assembly. Secure with the ejector.
14. Refer to [Figure 16](#). Locate semi-rigid coax cable N9020-20064 (W5) in the kit. Connect this cable between A16J702 on the A16 Reference Assembly and A13J1 on the A13 Front End Assembly. Torque to 10 inch-pounds.

Figure 16 **Reference Board Cables - Options B85, B1A, B1X, B40, MPB, DP2**

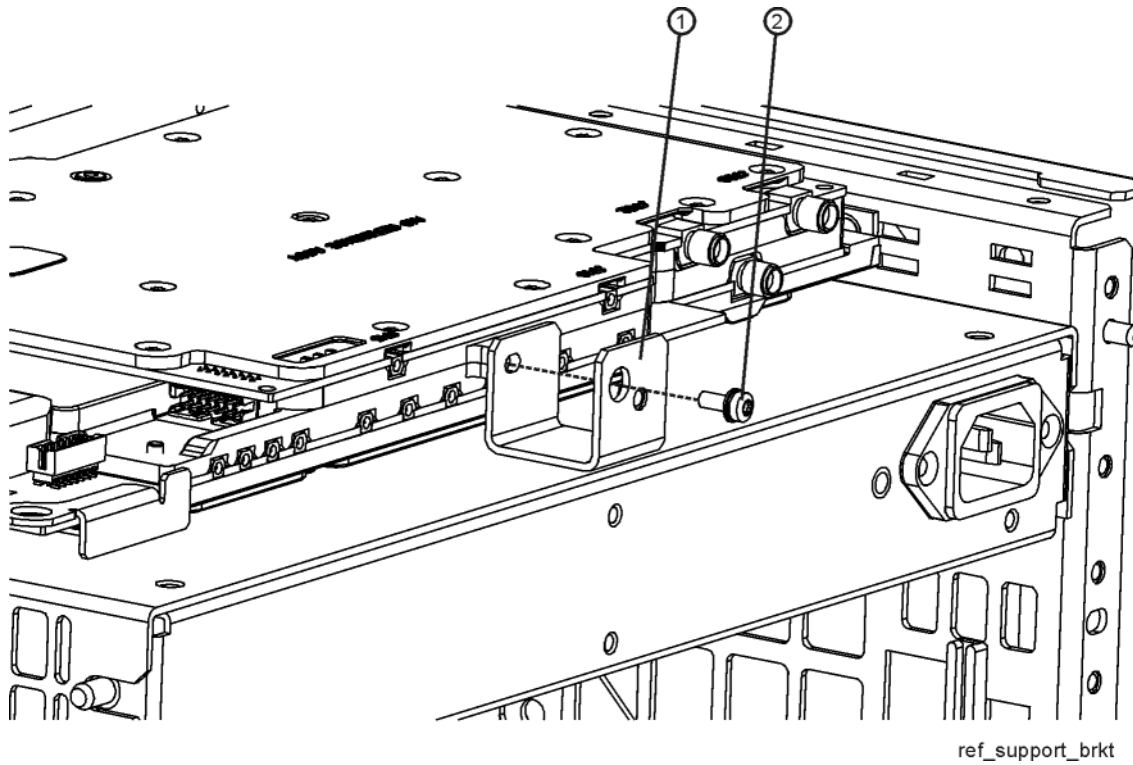


15. Locate semi-rigid coax cable N9020-20033 (W6) in the kit. Connect this cable between A16J703 on the A16 Reference Assembly and A14J200 on the A14 LO Synthesizer Assembly. Torque to 10 inch-pounds.
16. Locate semi-rigid coax cable N9020-20065 (W19) in the kit. Connect this cable between A16J701 on the A16 Reference Assembly and Port 2 of A9 Input Attenuator A. Torque to 10 inch-pounds.
17. Reconnect flexible coax cable W14 to A16J711 on the A16 Reference Assembly.
18. Reconnect flexible coax cable W23 to A16J704 on the A16 Reference Assembly.

Installation Procedure

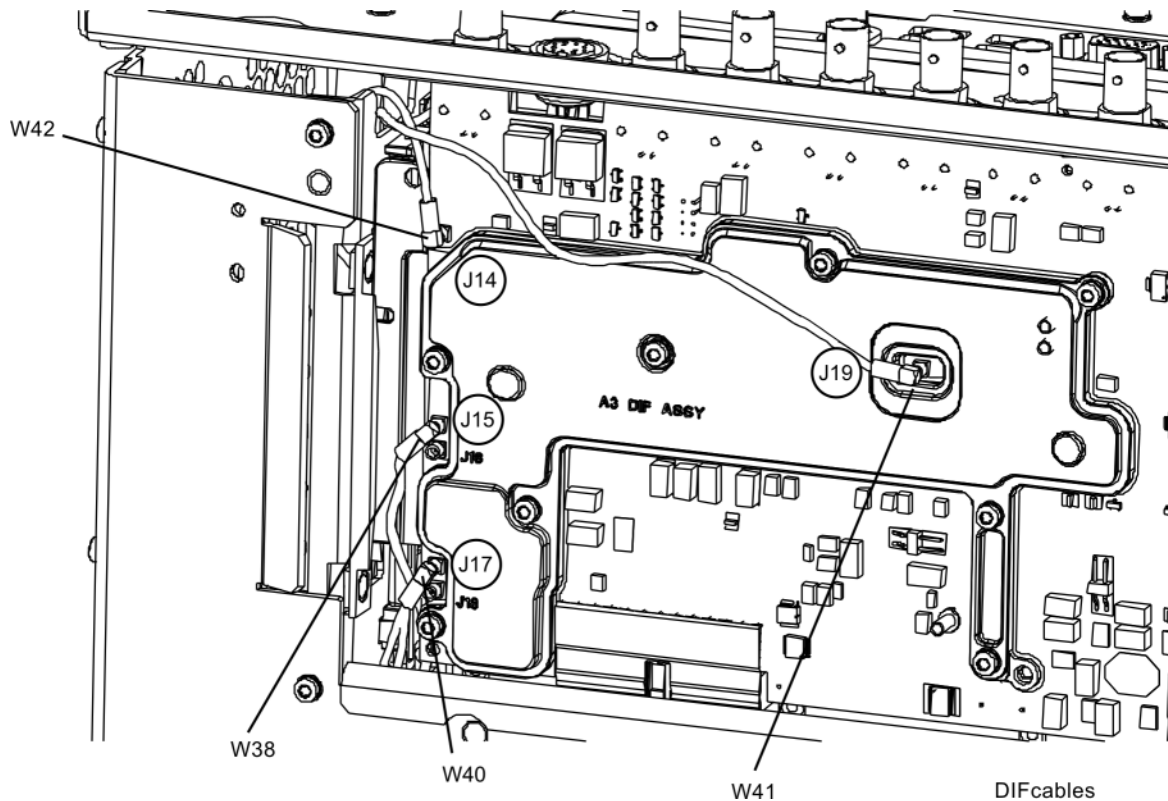
19. Refer to [Figure 17](#). Locate the reference support bracket, [E4410-00108](#) and 0515-0372 screw in the kit. Secure the reference support bracket to the A16 Reference assembly as shown. Torque to 9 inch-pounds. The original reference bracket will not be reused.

Figure 17 **Install Reference Support Bracket**



20. Refer to [Figure 18](#). Remove cable W38 connecting A15 Front End Controller J901 to A3 Digital IF J15. Note cable routing from Digital IF through the attenuator brackets and switches. This cable will not be reused.

Figure 18 W38, W40, W42, W43 Removal - Option B40, MPB, or DP2

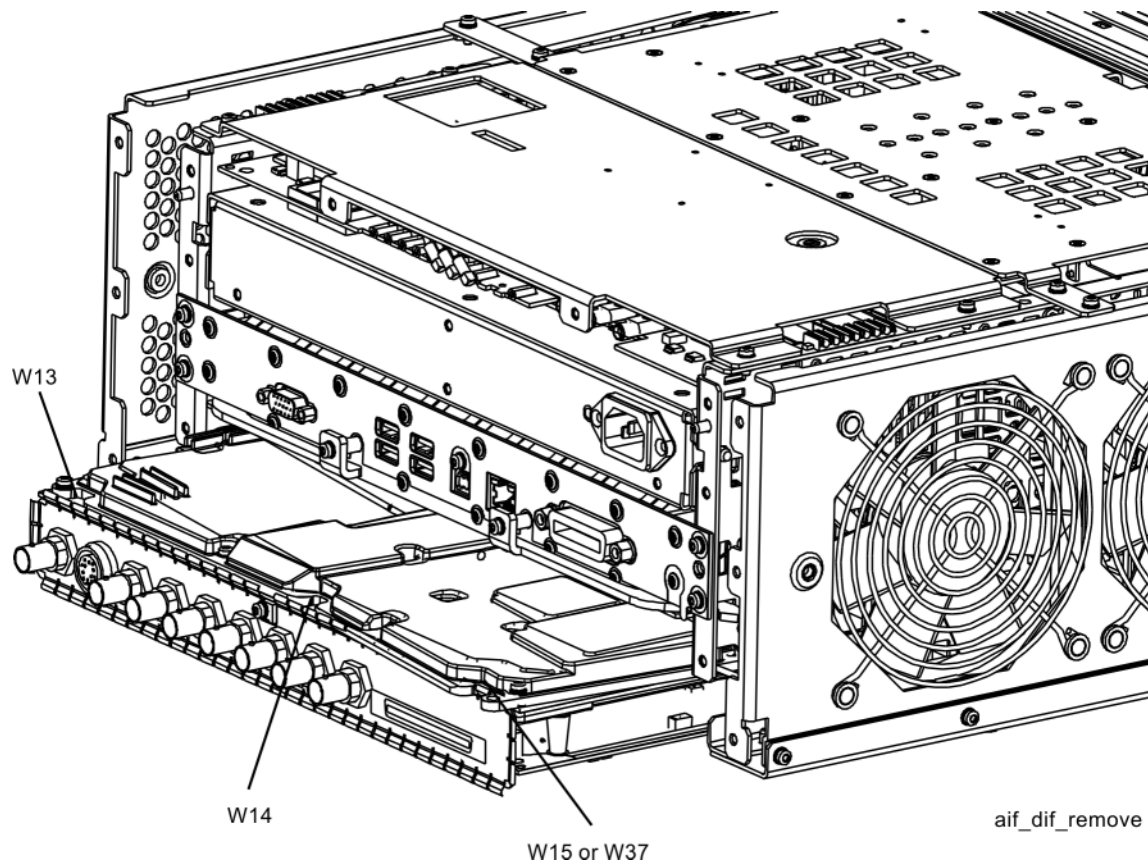


21. Remove cable W40 connecting A3 Digital IF J17 to A13 Front End J6. Note the cable routing from the Digital IF through the opening in the side panel. This cable will not be reused.
22. Disconnect cable W42 from A3 Digital IF J14. The other end of W42 was disconnected earlier from the A16 Reference. Remove the cable; it will not be reused.
23. Disconnect cable W43 from A3 Digital IF J18. The other end of W43 was disconnected earlier from the A16 Reference. Remove the cable; it will not be reused.

Replace A3 Digital IF

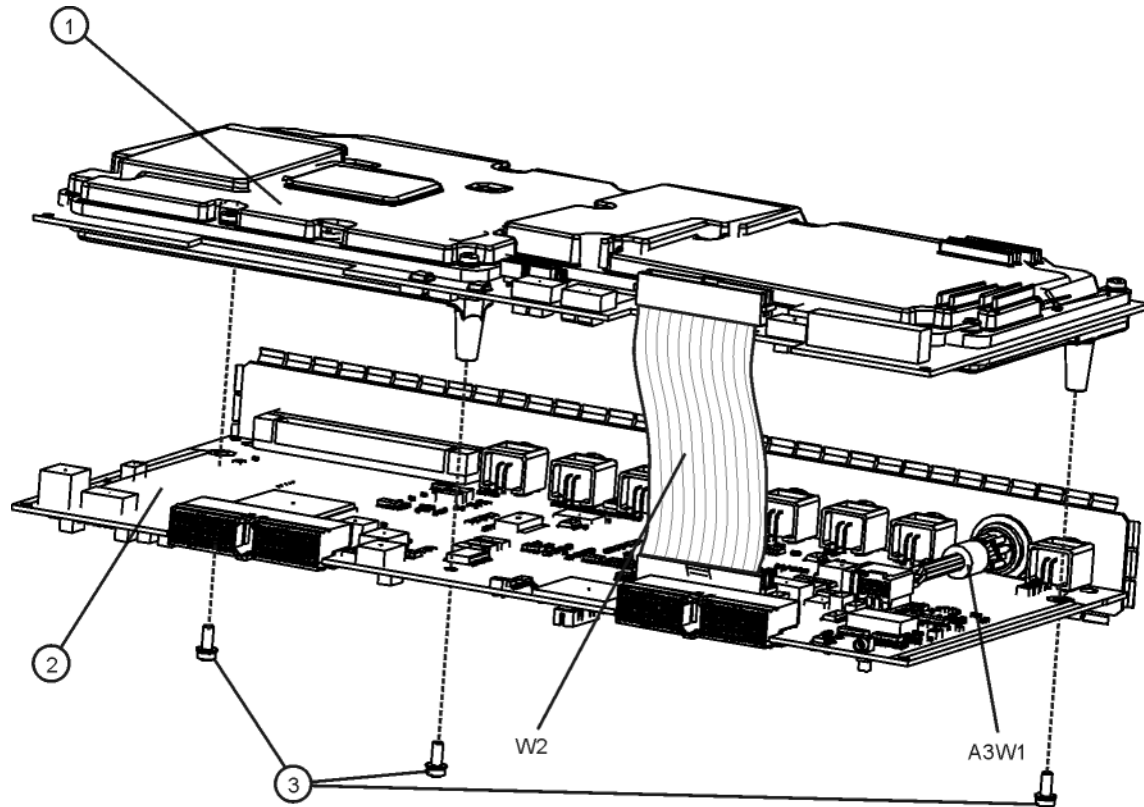
1. Disconnect any remaining cables from the bottom the A3 Digital IF assembly.
2. Refer to [Figure 19](#). Pull the AIF/DIF assembly part way out of the chassis. Remove cables W13, W14, and W37 from the AIF assembly.
3. Remove the AIF/DIF assembly from the chassis by pulling straight out the back.

Figure 19 AIF/DIF Assembly Removal



4. Refer to [Figure 20](#). To separate the AIF (1) from the DIF (2), unplug ribbon cable W2 from the AIF assembly.
5. From underneath the assembly, remove the three screws (3).

Figure 20 AIF/DIF Separation



aif_dif_separate1

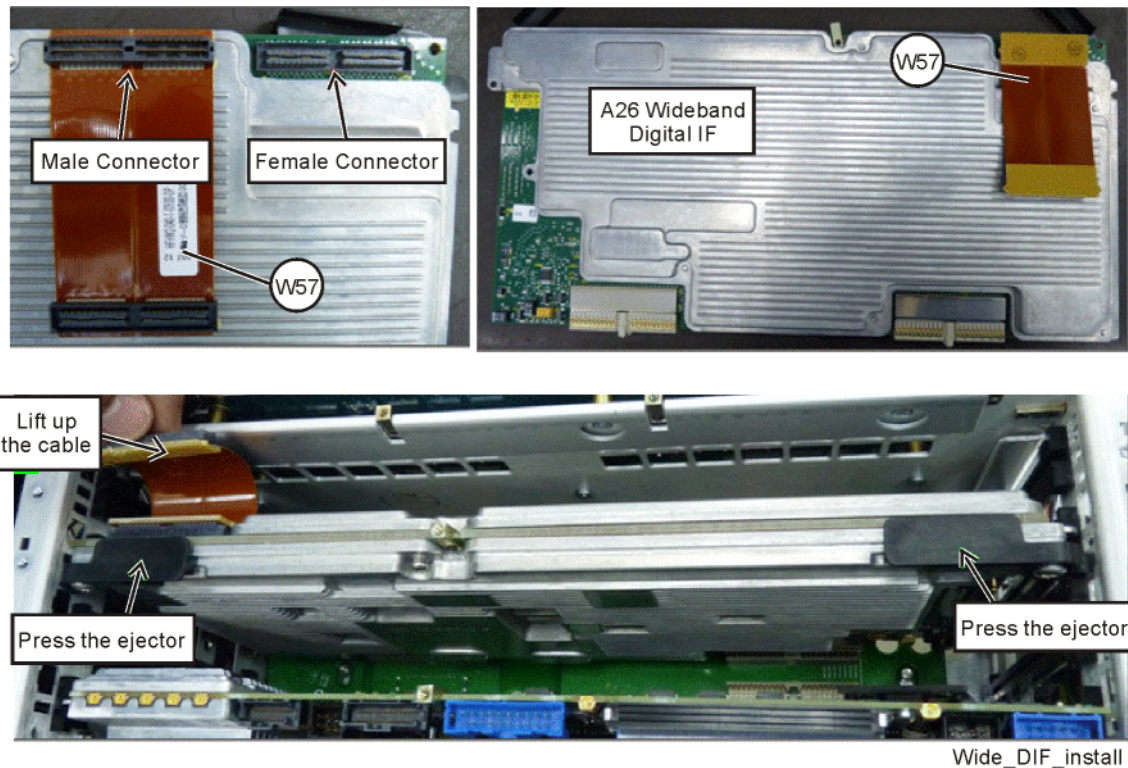
6. Disconnect ribbon cable W2 from the DIF assembly.
7. Locate the new A3 DIF assembly in the kit. Connect ribbon cable W2 to the new A3 DIF.
8. Set the DIF in position over the AIF. Reinstall the three screws removed before. Torque to 9 inch-pounds, starting with the middle screw.
9. To reconnect the AIF and the DIF, reconnect the ribbon cable W2 to the AIF.
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 Midplane assembly.
11. Refer to [Figure 19](#). Reconnect cables W13, W14, and W37 to the AIF assembly.
12. Refer to [Figure 18](#). Reconnect W41 to A3J19 on the A3 Digital IF.

Installation Procedure

Installing Boards and Cables

1. Refer to [Figure 21](#). Locate ribbon cable 8121-1854 (W57) and the A26 Wideband Digital IF in the kit. Connect W57 to the ribbon cable connector on the A26 Wideband Digital IF.
2. Install the A26 Wideband Digital IF into slot 4 by pressing the ejector. Lift the free end of the ribbon cable up as shown in [Figure 21](#).

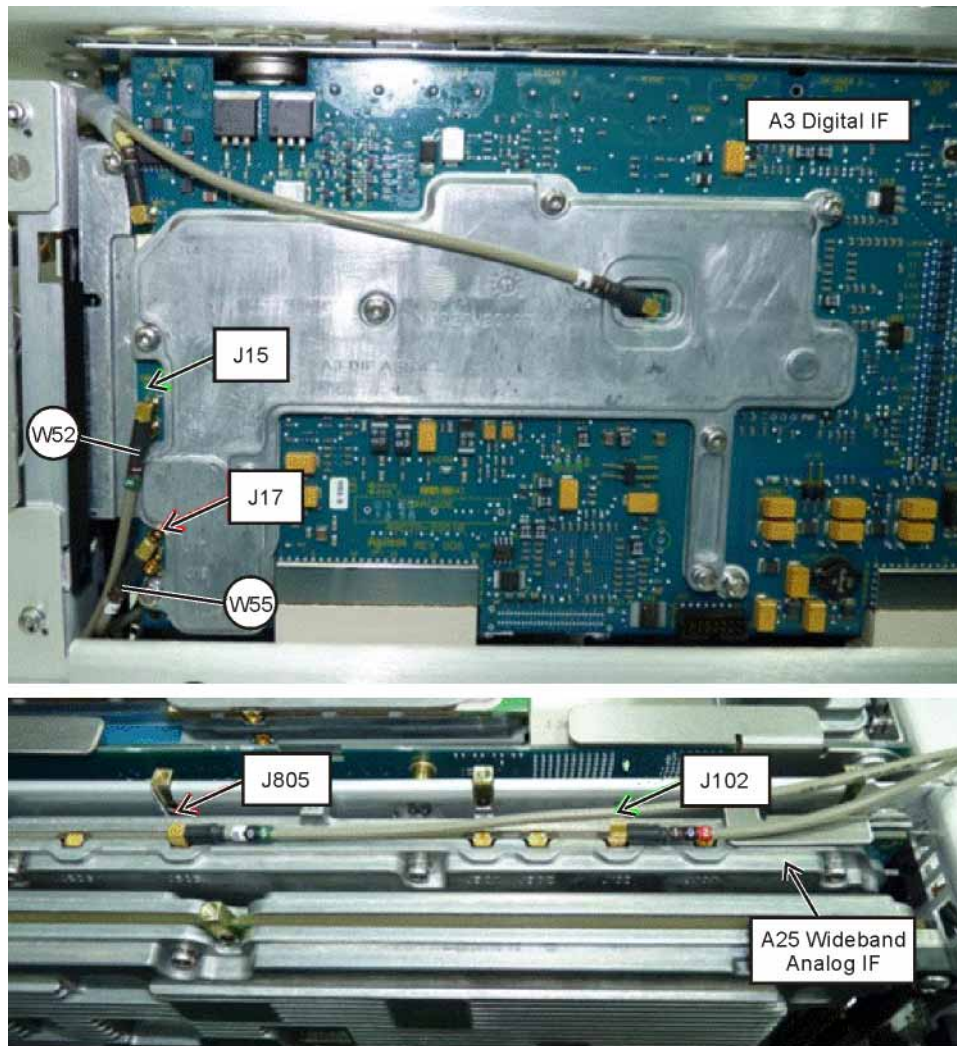
Figure 21 **Installing A26 Wideband Digital IF**



3. Locate A25 Wideband Analog IF in the kit. Insert A25 loosely into slot 3. Do not seat A25 completely in the slot.
4. Lift A25 up slightly and connect ribbon cable W44 to the ribbon cable connector on A25.
5. Use the ejectors to fully seat the A25 Wideband Analog IF into slot 3.

6. Refer to [Figure 22](#). Locate W55 in the Opt HLB/HLC Cable Kit. This cable will have part number 8121-2290 and will have ends labeled “805” and “17”. Connect the end labeled “17” to A3J17 on the A3 DIF Assembly. Route the cable through cutout in the right side chassis near A10 Attenuator B and connect the other end to A25J805 on the A25 Wideband Analog IF Assembly.
7. Locate W52 in the Opt HLB/HLC Cable Kit. This cable will have part number 8121-2288 and will have ends labeled “102” and “15”. Connect the end labeled “15” to A3J15 on the A3 DIF Assembly. Route the cable through cutout in the right side chassis near A10 Attenuator B and connect the other end to A25J102 on the A25 Wideband Analog IF Assembly.

Figure 22 Connecting Cables W55 and W52

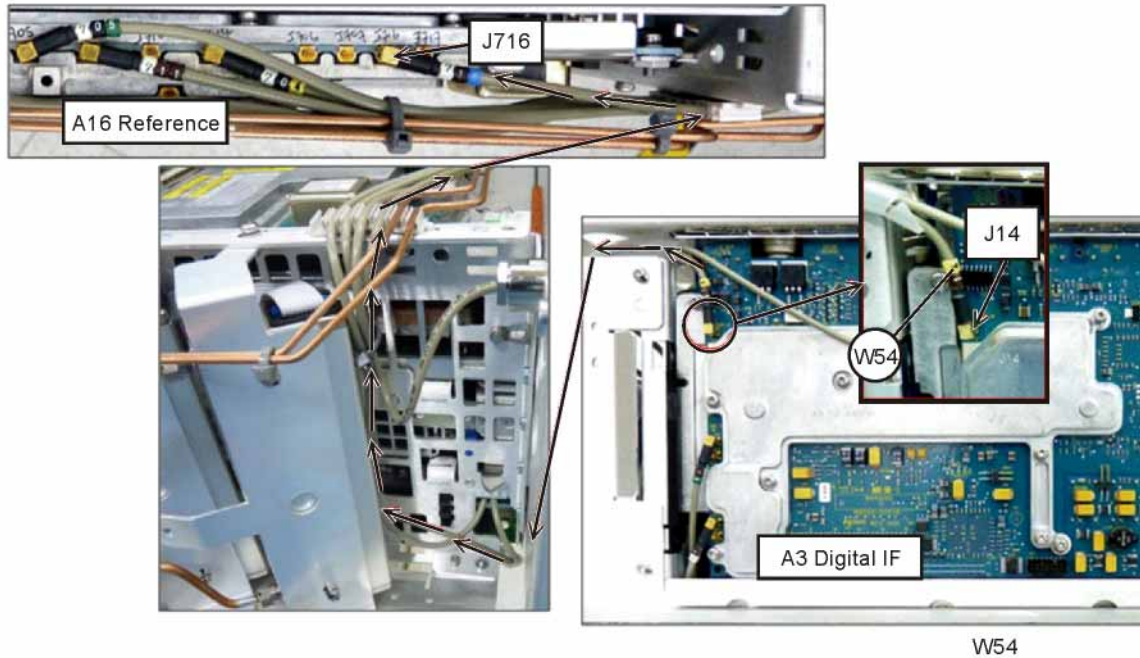


W52_W55

Installation Procedure

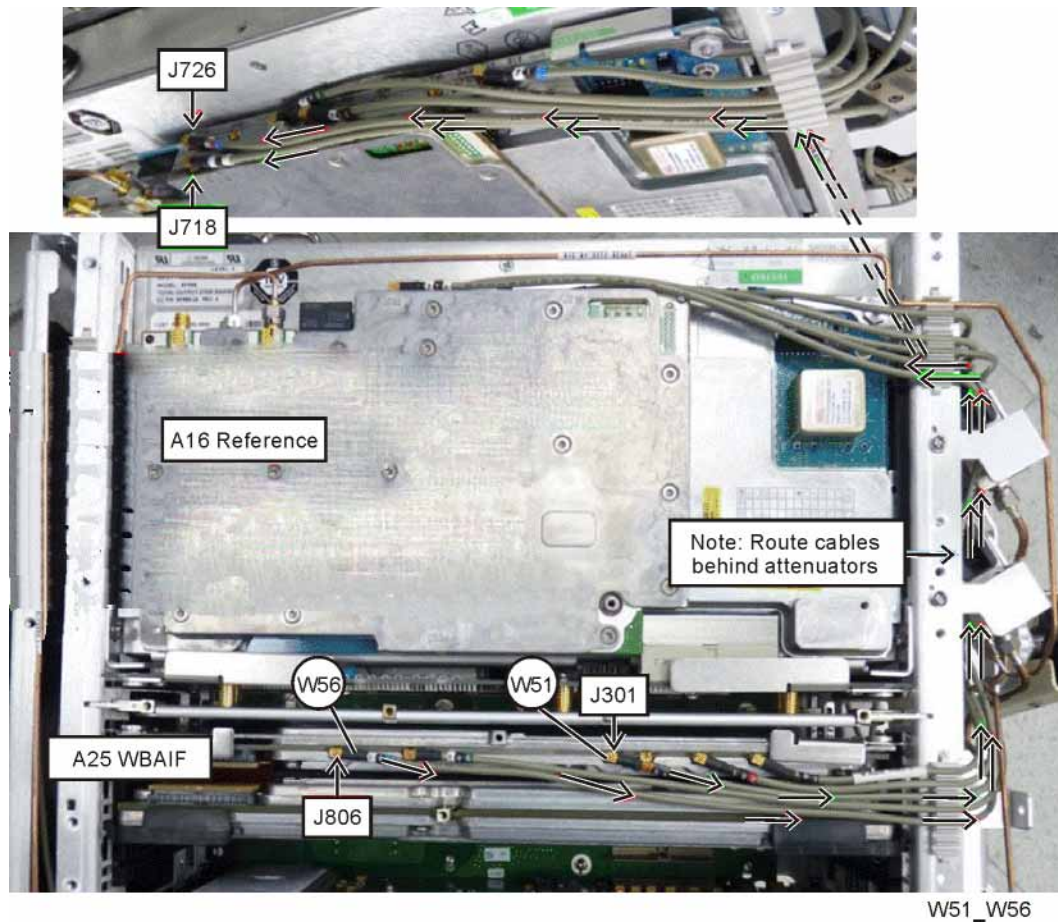
8. Refer to [Figure 23](#). Locate W54 in the Opt HLB/HLC Cable Kit. This cable will have part number 8121-2288 and will have ends labeled “716” and “14”. Connect the end labeled “14” to A3J14 on the A3 Digital IF Assembly. Route the cable from the DIF board through the cutout in the right side chassis and connect the other end to A16J716 on the A16 Reference Assembly.

Figure 23 **Connecting Cable W54**



9. Refer to [Figure 24](#). Locate W56 in the Opt HLB/HLC Cable Kit. This cable will have part number 8121-2291 and will have ends labeled “806” and “726”. Connect the end labeled “806” to A25J806 on the A25 Wideband Analog IF Assembly. Route the cable along the right side chassis behind attenuators A9 and A10 and connect the other end to A16J726 on the A16 Reference Assembly.
10. Locate W51 in the Opt HLB/HLC Cable Kit. This cable will have part number 8121-1401 and will have ends labeled “301” and “718”. Connect the end labeled “301” to A25J301 on the A25 Wideband Analog IF Assembly. Route the cable along the right side chassis behind attenuators A9 and A10 and connect the other end to A16J718 on the A16 Reference Assembly.

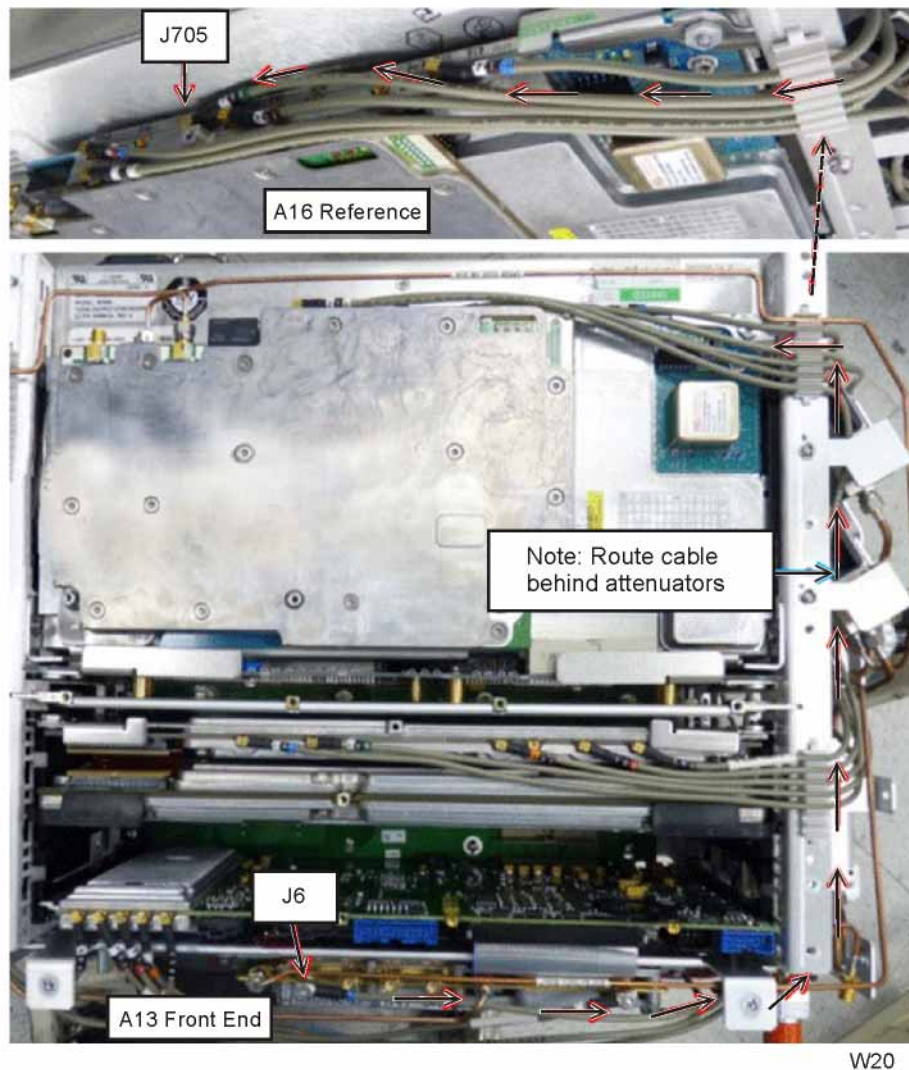
Figure 24 **Connecting Cables W56 and W51**



Installation Procedure

11. Refer to [Figure 25](#). Locate W20 in the Opt HLB/HLC Cable Kit. This cable will have part number 8121-1400 and will have ends labeled “705” and “6”. Connect the end labeled “705” to A16J705 on the A16 Reference Assembly. Route the cable along the right side of the chassis as shown and connect the other end to A13J6 on the A13 Front End Assembly.

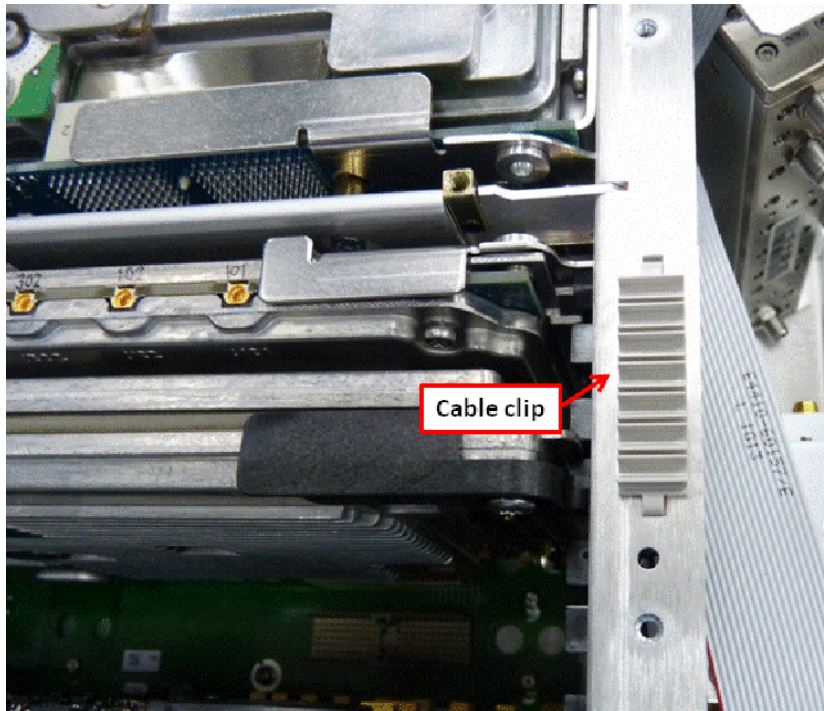
Figure 25 **Connecting Cable W20**



12. Locate W53 in the Opt HLB/HLC Cable Kit. This cable will have part number 8121-2292 and will have ends labeled “901” and “101”. Connect the end labeled “901” to A15J901 on the A15 Enhanced Front End Control Assembly. Route the cable along the right side chassis and connect the other end to A25J101 on the A25 Wideband Analog IF Assembly.

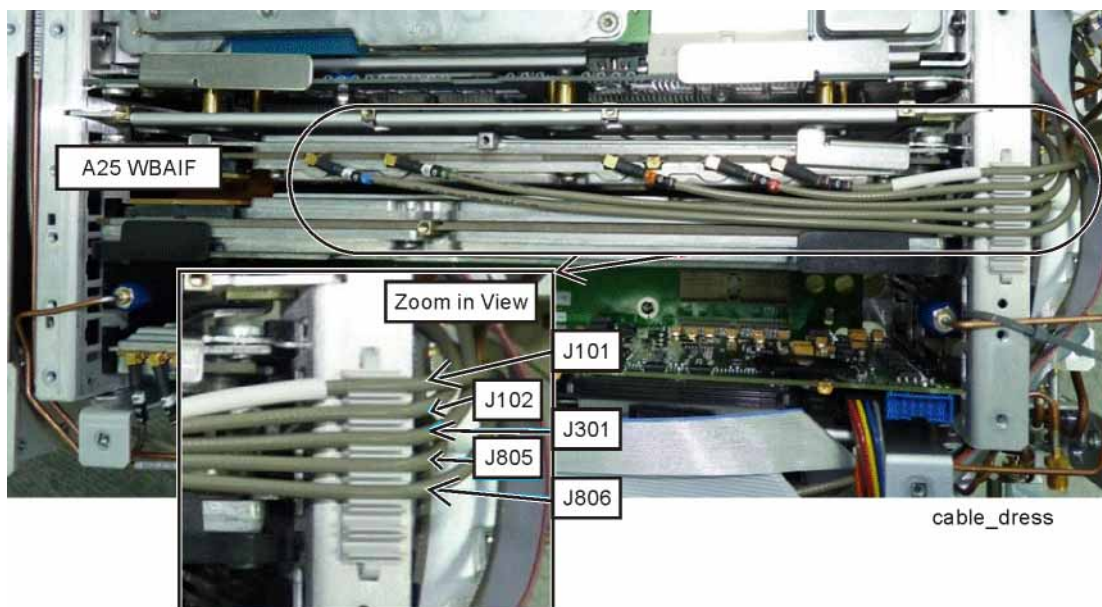
13. Refer to [Figure 26](#). Locate the cable clip (5041-9690) in the kit. Secure the coax cable clip to the right side chassis as shown.

Figure 26 **Installing Coax Cable Clip**



14. Refer to [Figure 27](#). Dress the coaxial cables neatly and snap into the cable clip with the correct sequence as shown in Figure 8.

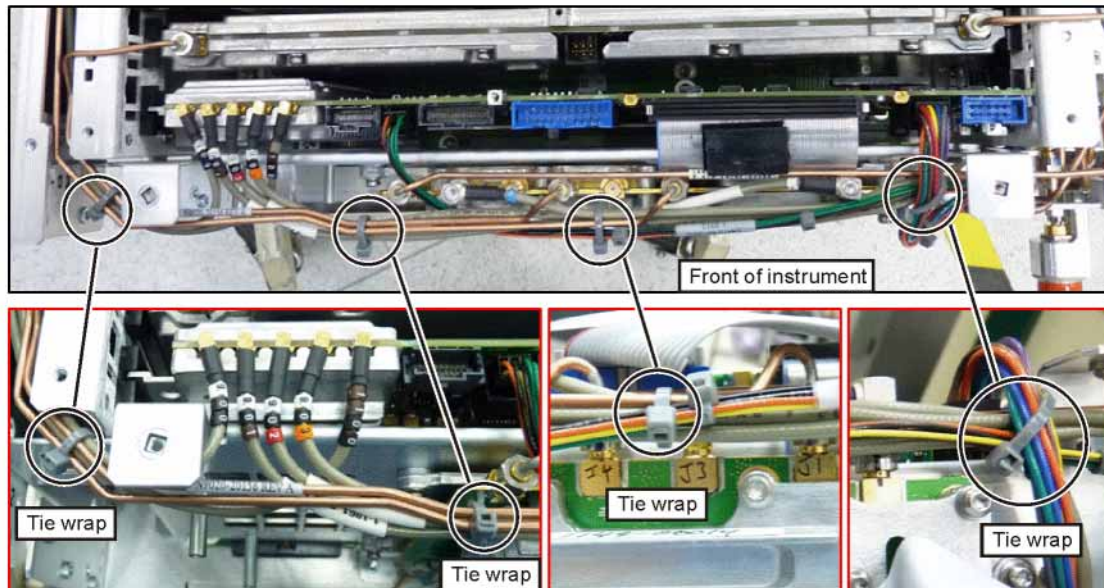
Figure 27 **Dressing Cables to A25 Wideband Analog IF**



Dressing Cables

1. Refer to [Figure 28](#). Dress the coaxial cables and semi-rigid cables neatly and tie together using cable ties (1400-0249) at the locations indicated.

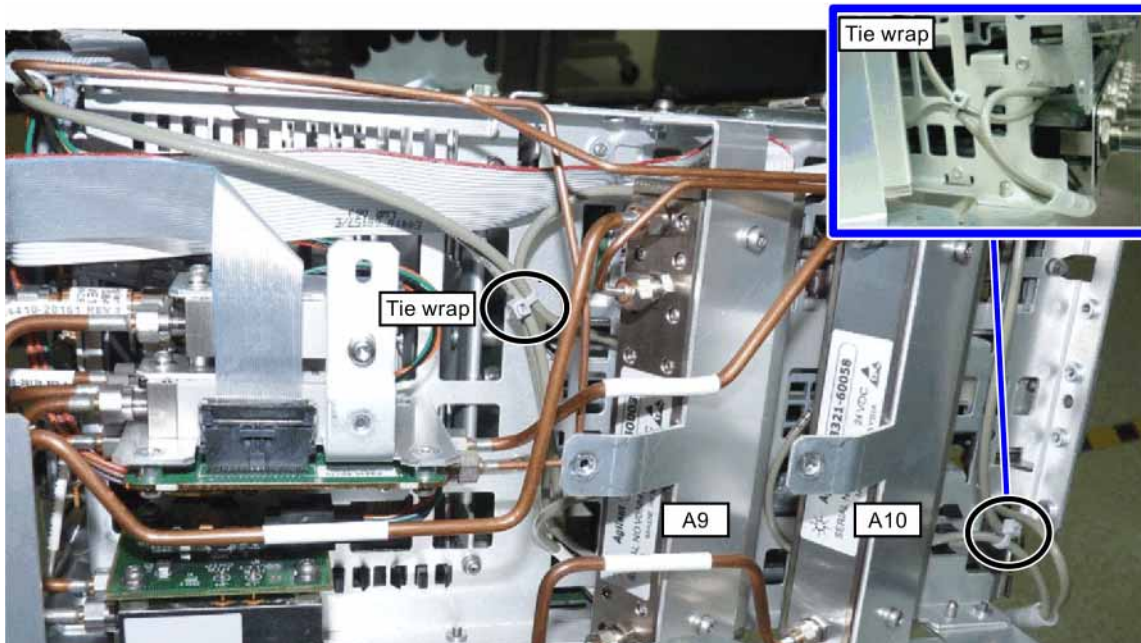
Figure 28 Adding Cable Ties near A13 and A15 Assemblies



tie_wraps_A13_A15

2. Refer to [Figure 29](#). Dress the coaxial cables and semi-rigid cables neatly and tie together using cable ties (1400-0249) at the locations indicated.

Figure 29 Adding Cable Ties near A9 and A10 Assemblies



3. Refer to [Figure 30](#). Install the semi-rigid coaxial cables cable clip as shown. Note that the rear-most semi-rigid cable, W6, should not be in cable clip, but the semi-rigid cable next to it, W19, should be in the rear-most position of the cable clip. Use two cable ties (1400-0249), one to the left of the cable clip and one to the right of the cable clip, to secure W6 and W19 together. Do not tighten these cable ties too tight to avoid bending the cables.
4. Install the flexible coaxial cable in the cable clip as shown.
5. Dress the coaxial cables and semi-rigid cables neatly and tie together using cable ties (1400-0249) at the locations indicated. Attach two cable ties around the bundle of gray cables.

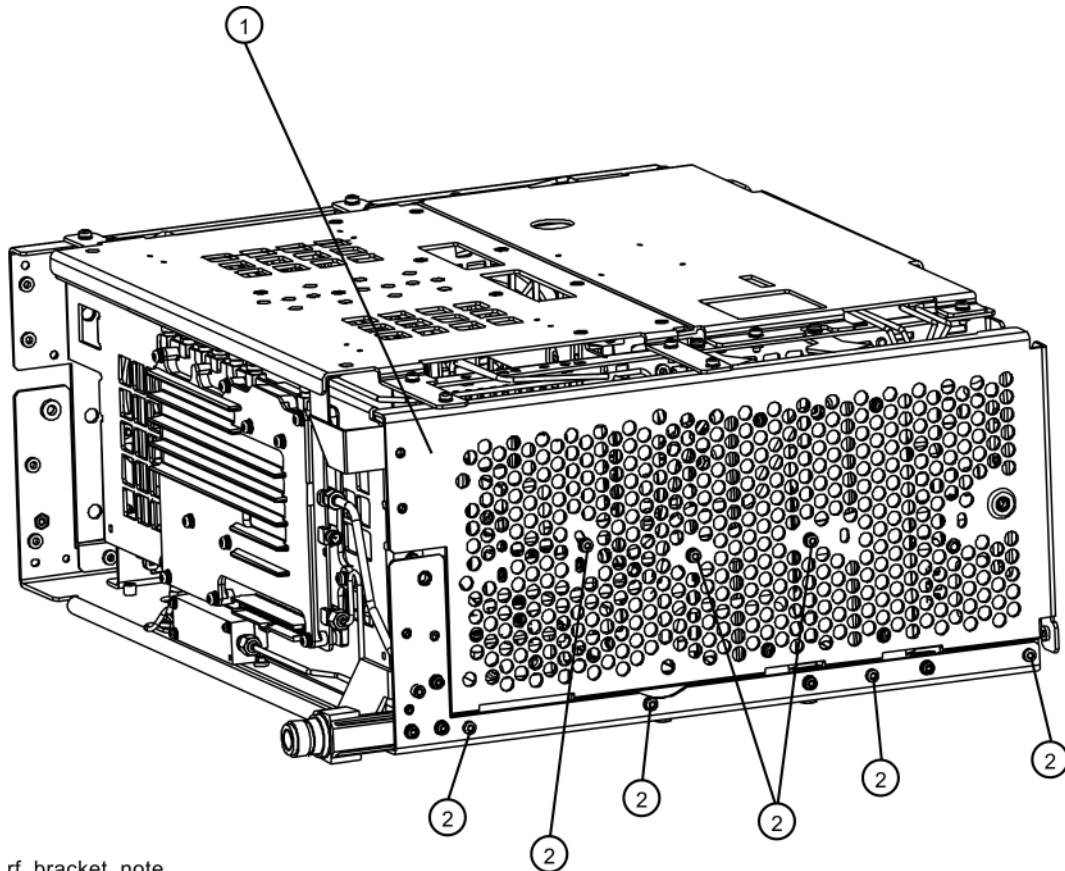
Figure 30 Dressing Cables to A16 Reference



Reassembly

1. Refer to [Figure 31](#). Reinstall the RF bracket (1) onto the chassis using seven screws (2). Torque to 9 inch-pounds.

Figure 31 RF Bracket Replacement

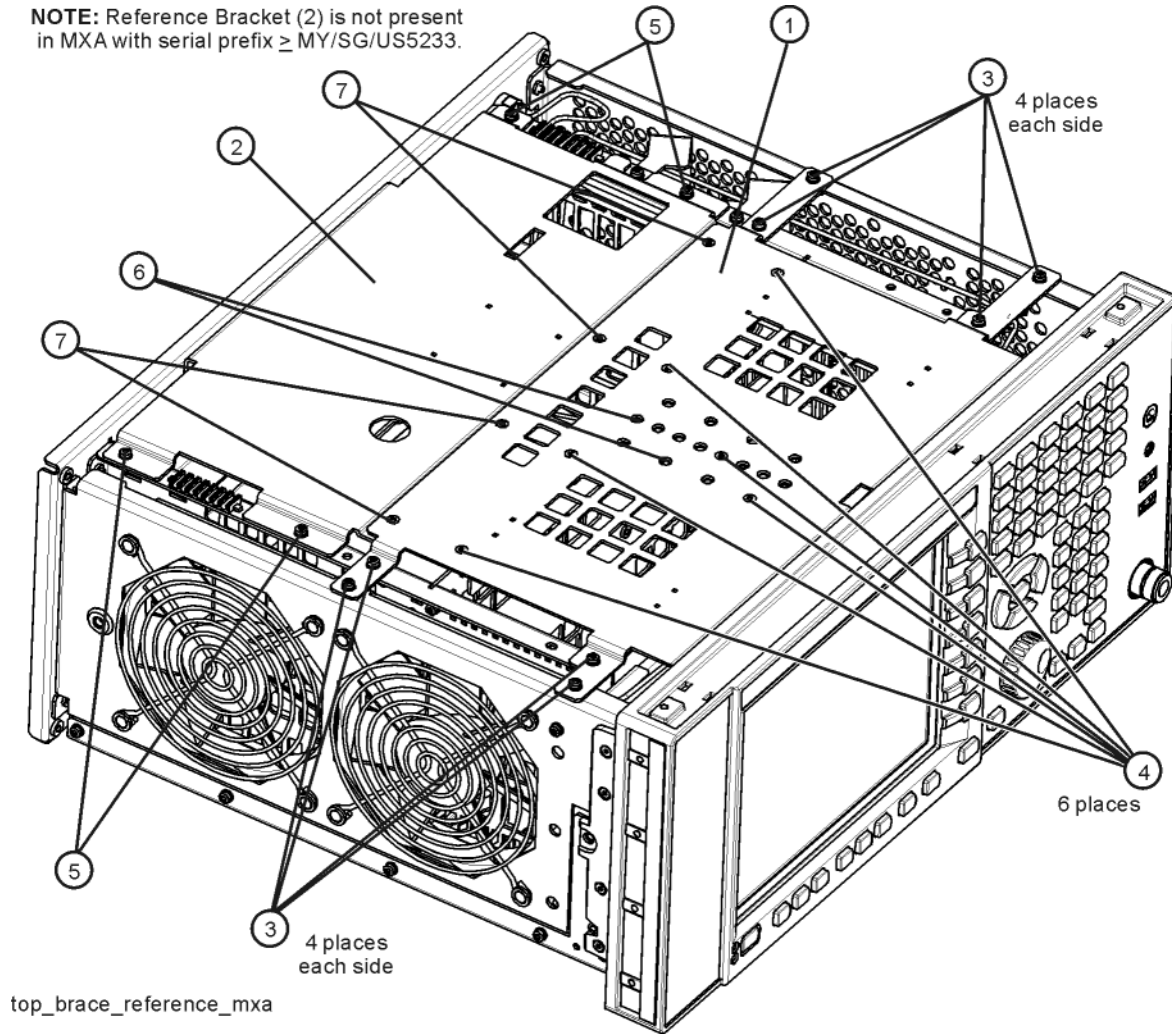


rf_bracket_note

- Refer to [Figure 32](#). To replace the top brace (**1**), place it in the correct position and attach the appropriate screws. The kit includes six additional 0515-1227 flathead screws (**6**), (**7**) to secure the top brace to the A25, A26, and A16 assemblies. Torque to 9 inch-pounds.

Figure 32 Top Brace Replacement

NOTE: Reference Bracket (2) is not present in MXA with serial prefix \geq MY/SG/US5233.

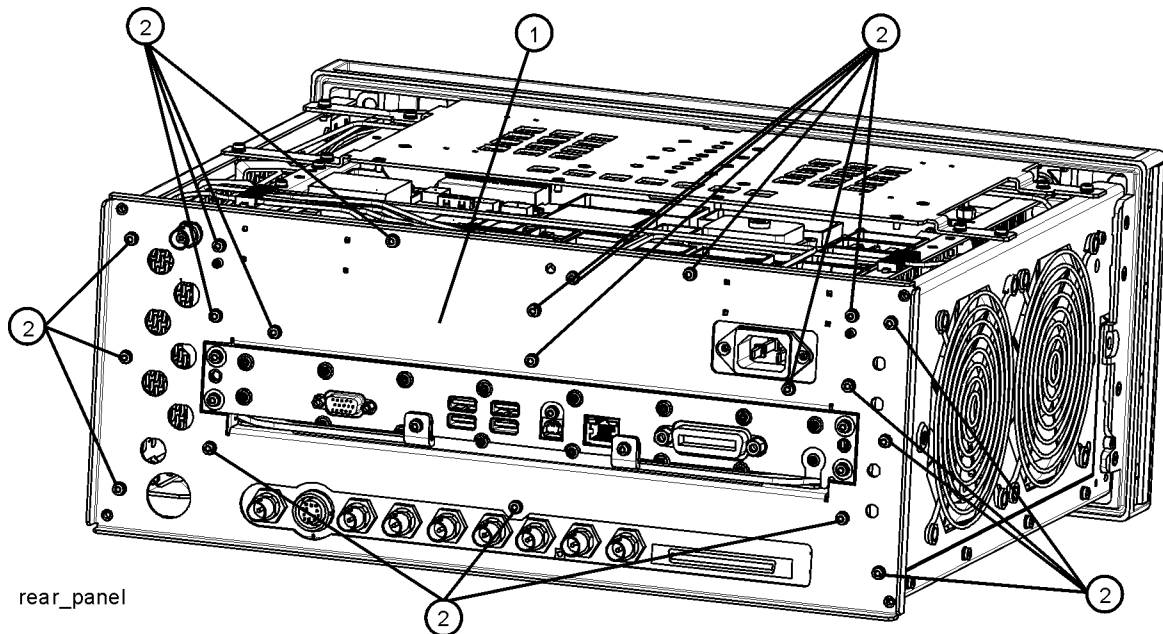


- Locate the rear panel replacement kit, [N9020-60149](#), included in the kit. Use the rear panel from this kit in the following steps.
- Remove the hole plug from the AUX IF OUT hole.
- Attach the W23 External Reference cable to the rear panel and secure with a lock washer (2190-0102) and nut (0590-2332). Torque to 21 inch-pounds using a 9/16" nut driver.
- 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.

Installation Procedure

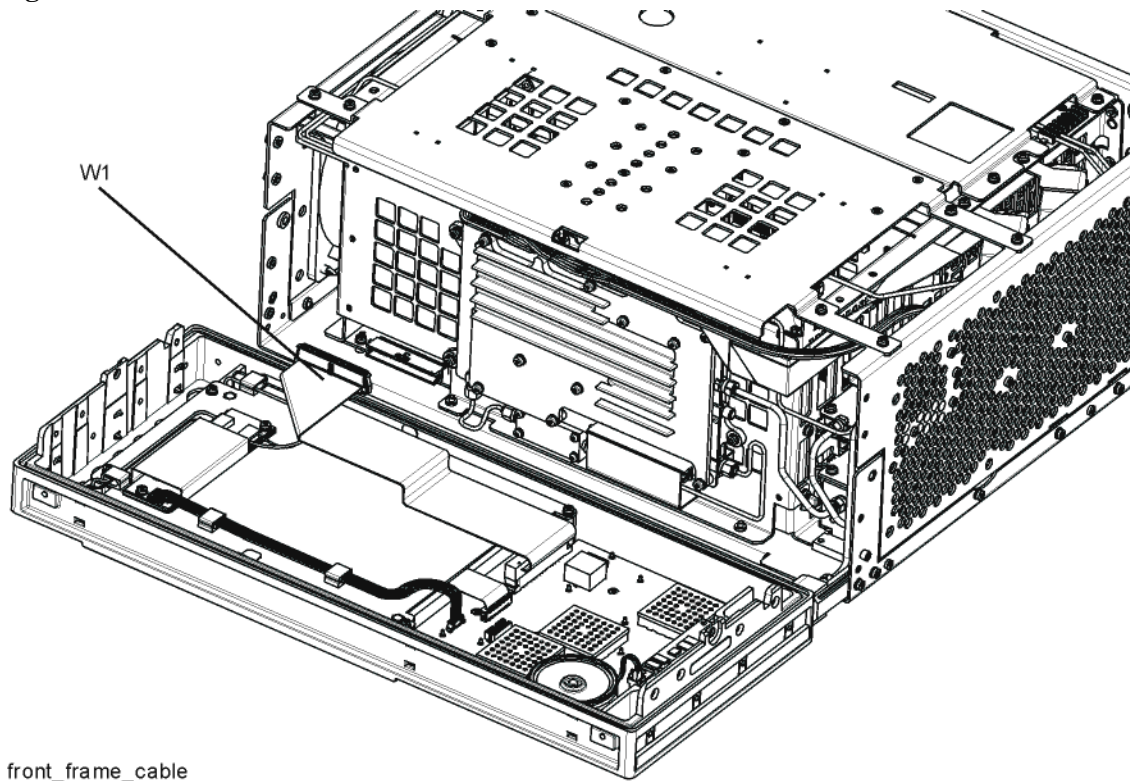
7. Refer to [Figure 33](#). Place the rear panel (1) into position in the chassis. Replace the twenty screws (2) to attach the rear panel to the chassis. Torque to 9 inch-pounds.

Figure 33 **Rear Panel Replacement**



8. Refer to [Figure 34](#). Reattach the ribbon cable W1.

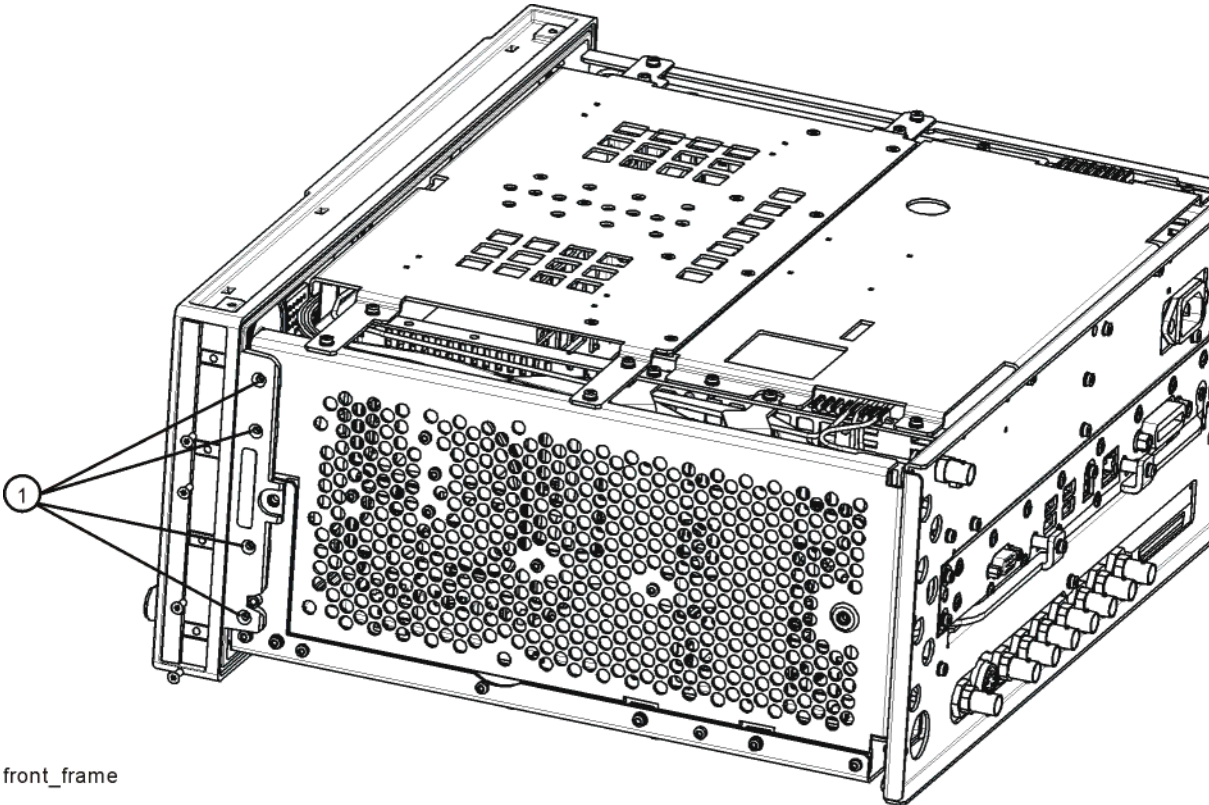
Figure 34 **Front Panel Cable**



Installation Procedure

9. Refer to [Figure 35](#). 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 35 **Front Frame Replacement**



**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.

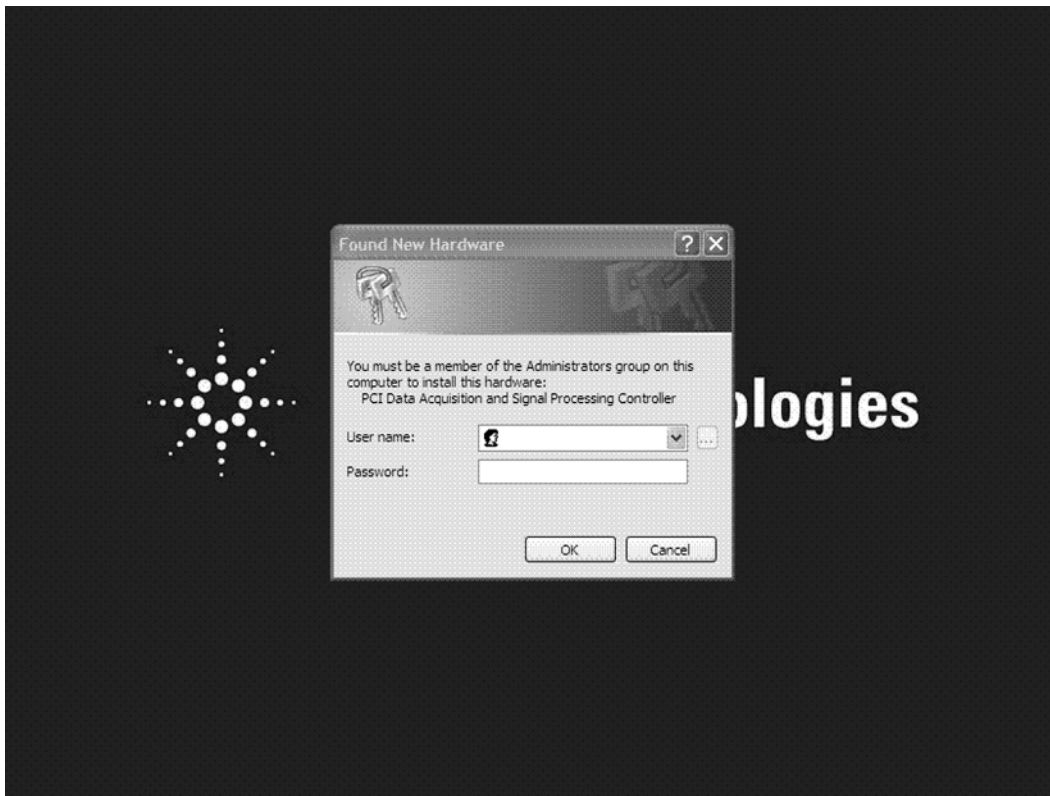
**Final Installation for Portable Instruments
(Option PRC, Figure 4 and Figure 5)**

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.

Power Up and New Hardware Wizard

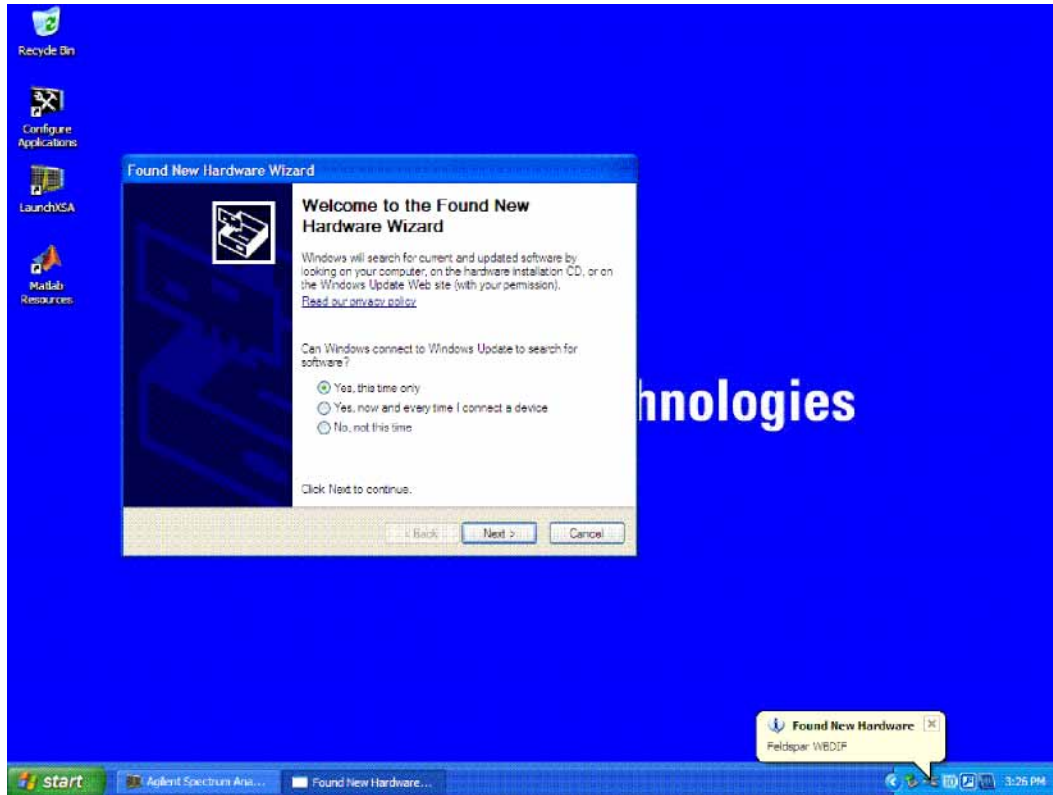
1. Connect a keyboard and mouse to the instrument.
2. Power on the instrument.
3. During the boot up process you may notice that the “Found New Hardware” bubble appears in the lower right screen, and a “Found New Hardware” message window appears for a short period, and then is covered by the analyzer splash screen.
4. After the instrument is completely booted, press the front panel File key, select Exit, and click OK to view the desktop and see the “Found New Hardware” window shown in [Figure 36](#).

Figure 36



5. Enter **administrator** as the user name, and **agilent4u** as the password. Select OK.
6. The screen in [Figure 37](#) appears. Select Yes, This time only. Click Next.

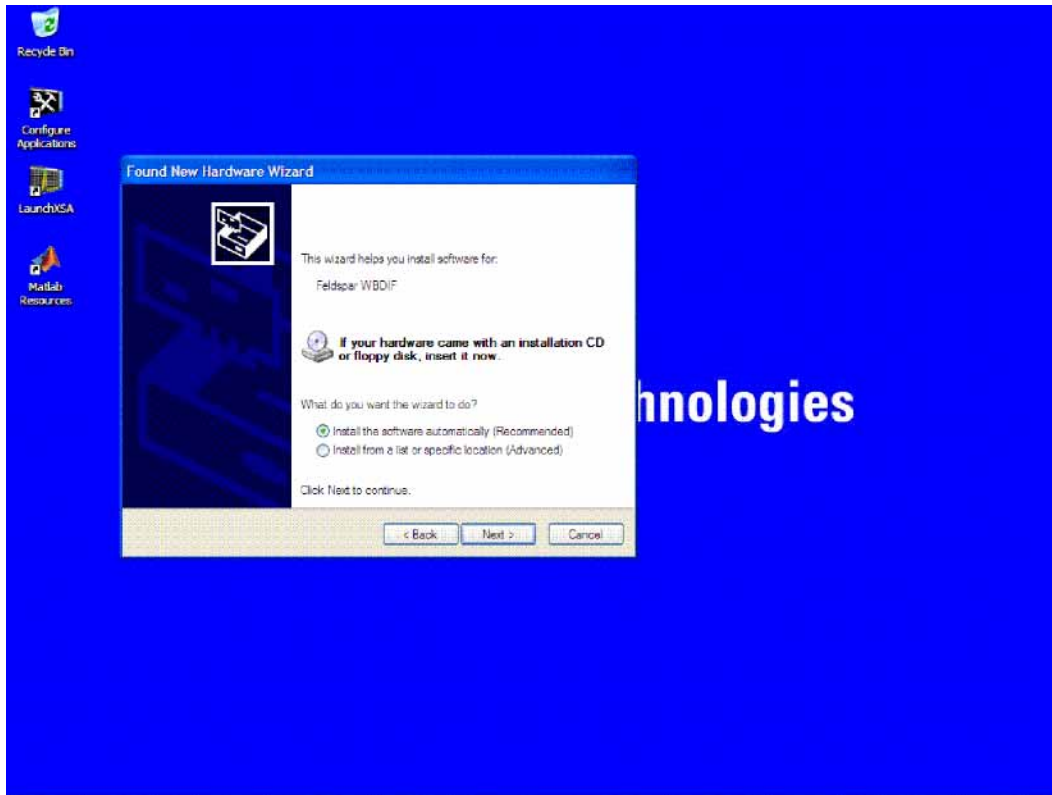
Figure 37



Installation Procedure

7. The screen in [Figure 38](#) appears. Ensure “Install the software automatically” is selected and click Next.

Figure 38



8. The wizard will install the required software. Once you see the “Completing the Found New Hardware Wizard” screen appear, click Finish.

Update the instrument Software

NOTE

Instrument software revision A.13.15 or later is required.

1. Loading the latest instrument software is required to assure all FPGAs and drivers located on both the newly installed hardware and on the base instrument are synchronized. Therefore, even if the instrument contains the latest revision of software, you must reinstall the software to assure proper operation.

The latest revision of software may be downloaded from:

http://www.agilent.com/find/Xseries_software

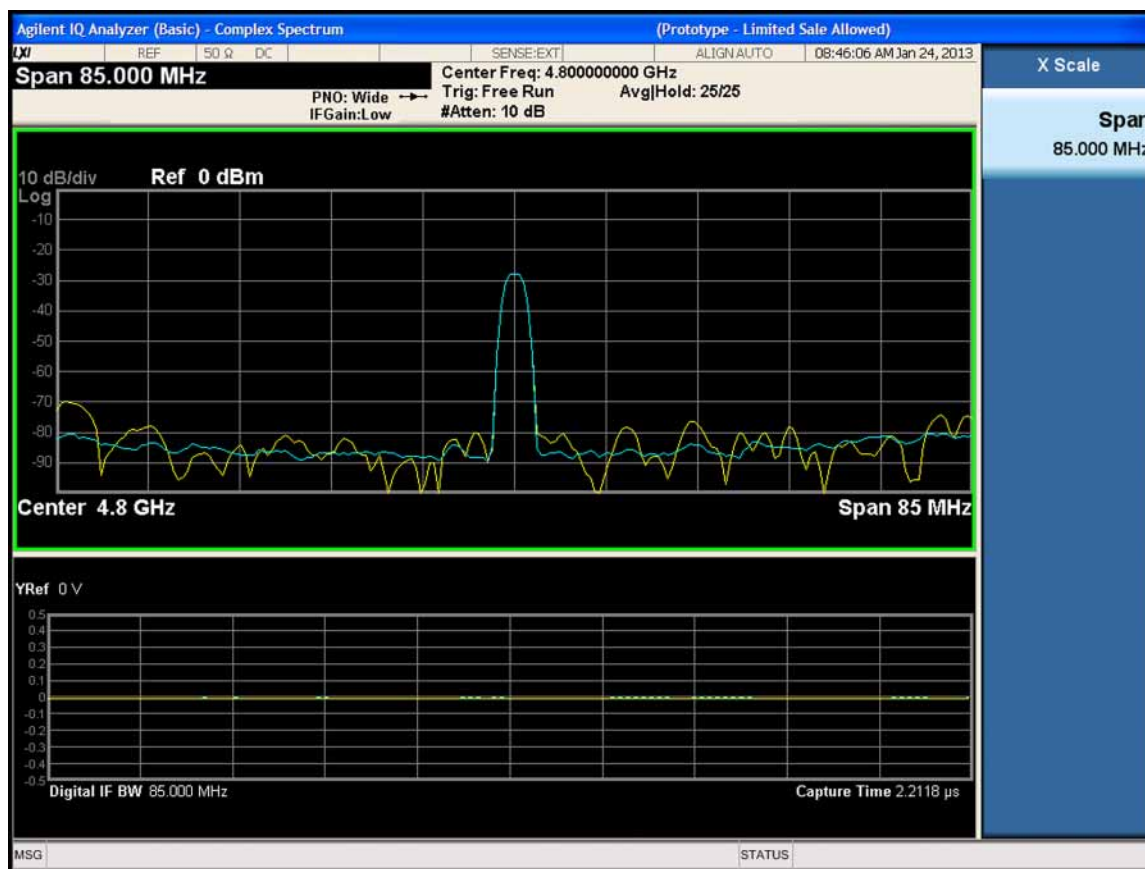
Verify the Option

1. Turn the analyzer on and verify no errors are reported at power up through the power-on alignment of the analyzer.
2. Press **Mode, IQ Analyzer (Basic)**.
3. Press **Mode Setup, IF Path, 85 MHz** (or **125 MHz**, or **160 MHz**, if available).
4. Press **Frequency, Center, 4.8 GHz**.
5. Press **Input/Output, RF Calibrator, 4.8 GHz**.
6. Press **Span, 85 MHz**.
7. The analyzer should display a signal in the center of the screen with an amplitude of approximately -28 dBm (see [Figure 39](#)).

NOTE

If the MXA upper-frequency range is 3.6 GHz (Option 503), use a signal source set to 1 GHz and -28 dBm instead of the 4.8 GHz calibrator. Set the MXA center frequency to 1 GHz.

Figure 39 **4.8 GHz Signal**



Utilities, Adjustments, and Performance Verification Tests

Calibration software and specified test equipment is required to perform the adjustments and can be used to automate the performance verification testing.

Obtain Agilent X-Series Signal Analyzer Calibration Application SW, N7814A TME Calibration Application, version E.11.00 or later. Information on how to obtain this software can be found at:

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

The following tests are required to assure the installation was performed correctly. The instrument may not have been in spec before the upgrade was begun. Performing only these tests does not guarantee that the analyzer meets all specifications.

Utilities Required

- None

Adjustments Required

Adjustment Name
10 MHz Reference Adjustment
50 MHz Calibrator Amplitude Adjustment
4800 MHz Calibrator Amplitude Adjustment (for instruments with Option MPB)
IF Frequency Response Adjustment

Performance Tests Required

Verification Test Name
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. If a full calibration is required, arrangements regarding the level of the calibration must be made between the end user and the calibration provider.

End of installation.

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

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

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