Keysight Add 4-Port Capability Upgrade Kit
For Version 6, Single-Source Synthesizers

To Upgrade PNA N5224B or N5225B Option 200 to Option 400
Upgrade Kit Order Numbers: N5224BU- 600 and N5225BU- 600
Keysight Kit Number: N5225-60116

NOTICE: This document contains references to Agilent Technologies. Agilent's former Test and Measurement business has become Keysight Technologies. For more information, go to **www.keysight.com.**

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Safety Notices

CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Keysight Add 4-Port Capability Upgrade Kit
Upgrade Kit Number: N5224–60116
Installation Note

Description of the Upgrade

This upgrade converts your N5224B or N5225B Option 200 2-port analyzer to a N5224B or N5225B Option 400 4-port analyzer by adding:

— an additional source

— an additional source synthesizer

— two additional doublers

— an additional mixer brick

— two additional reference couplers

— two additional test port couplers

— a splitter

— a modified front panel

— new cables

Refer to .

CAUTION	This repair must be done at a service center or a self-maintainer service center! Refer to .

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Getting Assistance from Keysight

Installing this upgrade kit requires special skills and experience. If you think you may not be qualified to do the work, or need advice, contact Keysight.

Contacting Keysight

Assistance with test and measurements needs and information on finding a local Keysight office are available on the Web at:
http://www.keysight.com/find/assist

If you do not have access to the Internet, please contact your Keysight field engineer.

NOTE	In any correspondence or telephone conversation, refer to the Keysight product by its model number and full serial number. With this information, the Keysight representative can determine whether your product is still within its warranty period.

If You Have Problems With the Upgrade Kit Contents

Keysight stands behind the quality of the upgrade kit contents. If you have problems with any item in the kit, refer to www.keysight.com and the **Contact Keysight** (Contact) link.

Getting Prepared

CAUTION	The PNA contains extremely sensitive components that can be ruined if mishandled. Follow instructions carefully when making cable connections, especially wire harness connections.

The person performing the work accepts responsibility for the full cost of the repair or replacement of damaged components.

NOTE	**IMPORTANT!**

— This document contains references to legacy and new A25 HMA26.5 Multiplier/Amplifier and A27/A28 mixer brick assemblies. Your model instrument may have either legacy assemblies or the new parts installed.

— To verify your instrument's A25 HMA26.5 Multiplier/Amplifier, refer to "Verify the Model/Version of HMA26.5 Installed" on page 7.

— The A27/A28 mixer bricks might be a legacy part number 5087-7323 (with (x2) discrete 3dB attenuators, 08490-60039) or new part number 5087-7417 (with integrated 3 dB attenuators).

— See also your instrument's PDF Service Guide [a].

a. See "Downloading the Online PNA Service Guide" on page 8.

To successfully install this upgrade kit, you will need the following:

— A PDF copy or a paper copy of the PNA Service Guide - refer to "Downloading the Online PNA Service Guide" below.

— An ESD-safe work area - refer to "Protecting Your Workspace from Electrostatic Discharge" below.

— Correct tools - refer to "Tools Required for the Installation" on page 9.

— Enough time - refer to "About Installing the Upgrades" on page 9.

— Test equipment for the post-upgrade adjustments. To view the equipment list, click the Chapter 3 bookmark "Tests and Adjustments" in the PDF Service Guide[1].

1. See "Downloading the Online PNA Service Guide" on page 8.

License Key Redemption

NOTE	If you are unfamiliar with the licensing process, refer to https://www.keysight.com/us/en/assets/9018-04534/installation-guides/9018-04534.pdf (N5242-90024).

NOTE	Ensure that you are connected to an external server, before attempting to download your email and license key file.

— Refer to the https://www.keysight.com/us/en/assets/9018-04534/installation-guides/9018-04534.pdf (N5242-90024).

NOTE	The enclosed Software Entitlement Certificate is a receipt, verifying that you have purchased a licensed option for the PNA of your choice. You must now use a Keysight Web page to request a license key file for the instrument that will receive the option.

To enable the option product(s), you must request license key(s) file from the Keysight Software Manager:
http://www.keysight.com/find/softwaremanager:

To complete the request, you will need to gather the following information:

— From the certificate

  — Order number

  — Certificate number

— From your instrument

  (Instrument information is available in the network analyzer - on the toolbar, click Help, then click About Network Analyzer.)

  — Model number

  — Serial number

Using the information just gathered, you must request license key(s) from the Keysight Software Manager:
http://www.keysight.com/find/softwaremanager.

You will need to provide an email address, to which Keysight will promptly email your license key file(s) as a message attachment. Refer to "License Key Redemption" on page 6.

Verify the License Contents

Refer to the license message you received from Keysight:

If the model number, serial number, or option number do not match those on the license message you received from Keysight, you will not be able to install the license key file. If this is the case you received from Keysight, you will not be able to install the license key file. If this is the case, contact Keysight for assistance. Refer to "Getting Assistance from Keysight" on page 4.

Verify the Model/Version of HMA26.5 Installed

This upgrade kit contains components for use with PNA models using the legacy HMA26.5 part number 5086-7765. If your PNA has the newer HMA26.5 part number N5240-60101 installed you may discard these parts:

— A26 splitter 5067-4086

— W52 N5245-20013

— W53 N5245-20023

— W54 N5245-20022

(If you have the legacy 5086-7765 HMA26.5, please discard the N5245-20195 semi-rigid cables. Refer to Figure 1 on page 7.)

The new N5240-60101 HMA26.5 has the splitter integrated into the assembly. Refer to Figure 1 on page 7.

Figure 1   Comparison of Legacy HMA26.5 (5087-7765) and New HMA26.5 (N5240-60101)

New HMA26.5 -- N5240-60101
Requires (x1) Cable.

Legacy HMA26.5 -- 5087-7765
Requires A26 Splitter and (x3) Cables.
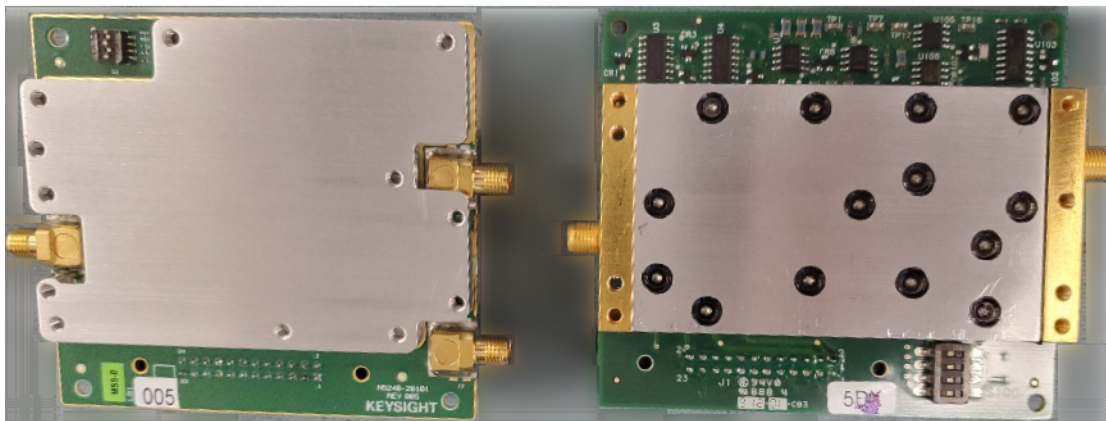
Downloading the Online PNA Service Guide

To view the online Service Guide for your PNA model number, use the following steps:

1. Go to www.keysight.com.

2. In the Search box, enter the model number of the analyzer (e.g., N5225B) and click **Search**.

3. Click **Support** > **Keysight Product Support**.

4. In the **Search Support** area type your instrument's model number (e.g., N2225B).

5. Press **Enter**.

6. Scroll down to the **PRINT DOCUMENTATION** section and click to select **Service Manual**.

   The **Service Manual** for your instrument will be displayed near the top of the right column.

7. Click the hyperlink of the Service Guide title to download the PDF file.

8. When the PDF of the Service Guide is displayed, scroll through the Contents section bookmarks to locate the information needed.

Protecting Your Workspace from Electrostatic Discharge

— For information, click on the Chapter 1 bookmark, "Electrostatic Discharge Protection" in the PDF Service Guide[1].

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1. See "Downloading the Online PNA Service Guide" on page 8.

ESD Equipment Required for the Installation

Description	Keysight Part Number
ESD grounding wrist strap	9300-1367
5-ft grounding cord for wrist strap	9300-0980
2 x 4 ft conductive table mat and 15-ft grounding wire	9300-0797
ESD heel strap (for use with conductive floors)	9300-1308

Tools Required for the Installation

Description	Qty	Part Number
T-6 TORX driver - set to 4 in-lbs (0.45 N.m)	1	N/A
T-10 TORX driver - set to 9 in-lbs (1.02 N.m)	1	N/A
T-20 TORX driver - set to 21 in-lbs (2.38 N.m)	1	N/A
5/16-in (8 mm) nutsetter or open end torque wrench - set to 10 in-lbs (1.13 N.m)	1	N/A
3/16-in (5 mm) nutsetter or open end torque wrench - set to 6 in-lbs (0.68 N.m)	1	N/A
5/8-in (16 mm) nutsetter or open end torque wrench - set to 21 in-lbs (2.38 N.m)	1	N/A
9 mm nutsetter or open end torque wrench - set to 21 in-lbs (2.38 N.m)	1	N/A
1-in (25.4 mm) torque wrench - set to 72 in-lbs (8.15 N.m)	1	N/A

CAUTION   Use a 5/16-in torque wrench set to 10 in-lbs on all cable connections except the front and rear panel bulkhead connectors. On these, use a 9 mm nutsetter or open end torque wrench set to 21 in-lb.

About Installing the Upgrades

Products affected	N5224B and N5225B Option 200
Installation to be performed by	Keysight service center or personnel qualified by Keysight
Estimated installation time	5 hours
Estimated adjustment time	0.5 hours
Estimated full instrument calibration time	4.5 hours

Items Included in the Upgrade Kit

Check the contents of your kit against the following list. If any part is missing or damaged, contact Keysight Technologies. Refer to "Getting Assistance from Keysight" on page 4.

Table 2   Contents of Upgrade Kit N5225-60116

Ref Desig.	Description	Qty	Part Number
-	Installation note (this document)	1	N5225-90116
-	Software Entitlement Certificate	1	5964-5145
-	China RoHS Addendum for kits	1	9320-6722
A10	26.5 GHz source (2) board	1	5087-7342
A12	40 GHz doubler assembly port 3	2	5087-7349
A13	40 GHz doubler assembly port 4		
A17	13.5 GHz (source 2) synthesizer board	1	N5240-60074
A26[a]	Splitter	1	5067-4086
A28	Mixer brick (2)	1	5087-7417
A30	Test port 3 reference coupler	2	5087-7760
A31	Test port 4 reference coupler		
A34	Test port 3 coupler	2	5087-7793
A35	Test port 4 coupler		
-	Dress panel, lower 4-port	1	N5240-00009
-	Machine screw, M2.0 x 6, flat head (8 to attach two reference couplers to brackets)	8	0515-1602
-	Machine screw, M2.5 x 20, pan head (4 to attach A34 and A35 reference coupler assemblies to test set deck)	4	0515-0374
-	Machine screw, M4.0 x 10, pan head (2 each to attach the following boards to the analyzer chassis: A17 13.5 GHz synthesizer board, A10 26.5 GHz source board, A12 40 GHz doubler assembly port 3, and A13 40 GHz doubler assembly port 4.)	7	0515-0380
-	Machine screw, M3.0 x 6, flat head (to attach front frame to coupler plate)	2	0515-1946
-	Machine screw, M3.0 x 12, pan head (1 to attach cable bracket to test set deck.	1	0515-0664
-	Machine screw, M3.0 x 8, pan head (3 to attach shield to A28 mixer brick)	4	0515-0372
-	Machine screw, M2.5 x 16, pan head (2 to attach splitter to mixer brick)	2	0515-2007
-	Machine screw, M3.0 x 25, pan head (3 to attach A28 mixer brick to block)	3	0515-0667
-	Machine screw, M3.0 x 20, flat head (2 to attach bracket to A10 26.5 GHz source)	2	0515-2078

Table 2　　　　　　　Contents of Upgrade Kit N5225-60116

Ref Desig.	Description	Qty	Part Number
-	Machine screw, M3.0 x 18, pan head (1 to attach bracket to A10 26.5 GHz source)	1	0515-0666
-	Front panel overlay (label), 4-port	1	N5227-80019
-	Test set front plate, 4-port	1	N5224-00005
-	Gap pad (between mixer brick A28 and shield)	4	N5245-20125
-	Gap pad (between each test coupler and the test set front plate)	4	E4403-20033
-	Shield, mixer brick	1	N5245-00023
-	2.4 mm dust cap for A28 mixer brick	1	N5247-20138
-	50 ohm load, attached to A13 40 GHz doubler	2	1250-4261
-	Vibration mount (between couplers 1 & 3 and 2 & 4)	2	0460-2725
-	Mounting nuts (for port 3 & 4 test port couplers)	2	5022-1087
-	Cable tie	10	1400-0249
-	Cable clamp	10	1400-1334
-	Dust caps for test ports	4	1401-0214
-	Bracket for reference coupler	2	N5245-00017
-	Bracket for cables	1	N5245-00022
-	Bracket for A10 26.5 GHz source (2) board	1	N5247-20136
W2	RF cable, A10 source (2) P1 to A17 13.5 GHz source (2) synthesizer J1207 (4-port)	1	N5245-20100
W7	RF cable, A10 source (2) P5 to A12 port 3 doubler	1	N5245-20034
W8	RF cable, A10 source (2) P3 to A13 port 4 doubler	1	N5245-20035
W9	RF cable, A10 source (2) P4 to A12 port 3 doubler	1	N5245-20032
W10	RF cable, A12 port 3 doubler to A13 port 4 doubler	1	N5245-20033
W13	RF cable, A12 port 3 doubler to W14	1	N5245-20036
W14	RF cable, A30 port 3 receiver coupler to W13	1	N5245-20043
W15	RF cable, A13 port 4 doubler to W16	1	N5245-20036
W16	RF cable, A31 port 4 receiver coupler to W15	1	N5245-20044
W52[a]	RF cable, A25 HMA26.5 to A26 splitter	1	N5245-20013
W53[a]	RF cable, A26 splitter to A27 mixer brick	1	N5245-20023
W54[a]	RF cable, A26 splitter to A28 mixer brick	1	N5245-20022

Table 2   Contents of Upgrade Kit N5225-60116

Ref Desig.	Description	Qty	Part Number
W62	RF cable, A27 mixer brick (R1) to A24 IF multiplexer (P411)	1	N5242-60021
W63	RF cable, A27 mixer brick (R2) to A24 IF multiplexer (P412)	1	N5242-60022
W65	RF cable, A28 mixer brick (D) to A24 IF multiplexer (P801)	1	N5242-60024
W66	RF cable, A28 mixer brick (R4) to A24 IF multiplexer (P414)	1	N5242-60019
W67	RF cable, A28 mixer brick (R3) to A24 IF multiplexer (P413)	1	N5242-60020
W68	RF cable, A28 mixer brick (C) to A24 IF multiplexer (P601)	1	N5242-60023
W70	RF cable, A24 IF multiplexer board P203 to A16 SPAM board J2	1	N5242-60013
W72	RF cable, A24 IF multiplexer board P603 to A16 SPAM board J5	1	N5242-60015
W77	RF cable, A14 frequency reference board J7 to A17 13.5 GHz (source 2) synthesizer board J5 (Located on bottom of board.)	1	N5242-60030
W108	RF cable, A30 port 3 receiver coupler to A28 mixer brick (R3)	1	N5224-20024
W109	RF cable, A31 port 4 receiver coupler to A28 mixer brick (R4)	1	N5224-20047
W110	RF cable, A32 port 2 receiver coupler to A27 mixer brick (R2)	1	N5224-20028
W111	RF cable, A29 port 1 receiver coupler to A33 port 1 coupler	1	N5224-20013
W112	RF cable, A30 port 3 receiver coupler to A34 port 3 coupler	1	N5224-20015
W113	RF cable, A31 port 4 receiver coupler to A35 port 4 coupler	1	N5224-20016
W114	RF cable, A32 port 2 receiver coupler to A36 port 2 coupler	1	N5224-20014
W115	RF cable, A33 port 1 coupler to A27 mixer brick (A)	1	N5224-20022
W116	RF cable, A34 port 3 coupler to A28 mixer brick (C)	1	N5224-20023
W117	RF cable, A35 port 4 coupler to A28 mixer brick (D)	1	N5224-20026
W118	RF cable, A36 port 2 coupler to A27 mixer brick (B)	1	N5224-20025
W203[b]	RF cable, A25 HMA26.5 (top) to A28 mixer brick (top)	1	N5245-20195
-	Ribbon cable, A23 test set motherboard J552 to A28 mixer brick (2) J52	1	N5247-60015

a. The A26 splitter (5067-4086) and N5245-20013, N5245-20022, N5245-20023, N545-20101, and N5245-20150 cables are only used with a legacy HMA26.5 p/n: 5087-7765. If you are unclear which HMA26.5 assembly your PNA has installed, refer to Chapter 7 Repairs and Figure 1 on page 7 and for details on A26 splitter and cabling, refer to your option-model in Chapter 6 "2-Port Configurations, Serial Number Prefix <6021" and "4-Port Configuration, Serial Number Prefix <6021".

b. The N5245-20195 cable is used only with instruments that have a newer HMA26.5 installed. If your PNA has a legacy 5087-7765 HMA26.5 assembly installed, then this cable can be discarded. If you are unclear which HMA26.5 assembly your PNA has installed, refer to Figure 1 on page 7.

> **NOTE** Extra quantities of items such as protective plastic caps, screws, cable ties, and cable clamps may be included in this upgrade kit. It is normal for some of these items to remain unused after the upgrade is completed.

Installation Procedure for the Upgrade

The network analyzer must be in proper working condition prior to installing this option. Any necessary repairs must be made before proceeding with this installation.

> **WARNING** This installation requires the removal of the analyzer's protective outer covers. The analyzer must be powered down and disconnected from the mains supply before performing this procedure.

Overview of the Installation Procedure

"Step 1. Obtain a Keyword and Verify the Information."

"Step 2. Remove the Outer Cover."

"Step 3. Remove the Inner Cover."

"Step 4. Remove the Front Panel Assembly."

"Step 5. Remove the A23 Test Set Motherboard."

"Step 6. Remove Some Bottom-Side (Test Set) Cables."

"Step 7. Remove the A27 Mixer Brick Assembly."

"Step 8. Assemble the A28 Mixer Brick Assembly."

"Step 9. Install the A27/A28 Mixer Brick Assemblies."

"Step 10. Assemble the A34 and A35 Reference Coupler Assemblies."

"Step 11. Install the A34 and A35 Reference Coupler Assemblies."

"Step 12. Assemble the A33 - A36 Test Port Coupler Assemblies."

"Step 13. Install the LED Boards, Bulkhead Connectors, and Test Port Coupler Assemblies to the 4-Port Test Set Front Plate."

"Step 14. Install the 4-Port Coupler Plate Assembly to the Deck."

"Step 15. Assemble and Install the A12 and A13 40 GHz Doubler Assemblies."

"Step 16. Install Bracket to A10 Source Assembly."

"Step 17. Assemble the A10 26.5 GHz Source 2 Assembly."

"Step 18. Install the A10 26.5 GHz Source 2 Assembly and Cables."

"Step 19. Install the A17 13.5 GHz (Source 2) Synthesizer Board and Cables."

"Step 20. Install the Cable Bracket Mount."

"Step 21. Install the Test Set Cables."

"Step 22. Reinstall the A23 Test Set Motherboard."

"Step 23. Install Cable on the A23 Test Set Motherboard."

"Step 24. Replace the Front Panel's Lower Dress Panel."

"Step 25. Reinstall Front Panel Assembly."

"Step 26. Install the Overlay."

"Step 27. Position the Cables and Wires to Prevent Pinching."

"Step 28. Reinstall the Inner Cover."

"Step 29. Reinstall the Outer Cover."

"Step 31. Enable Option 400."

"Step 32. Perform Post-Upgrade Adjustments and Calibration."

"Step 33. Prepare the PNA for the User."

Step 1. Obtain a Keyword and Verify the Information

Follow the instructions on the Software Entitlement Certificate supplied to obtain a license key for installation of this upgrade. Refer to "License Key Redemption" on page 6.

Verify that the model number, serial number, and option number information on the license key match those of the instrument on which this upgrade will be installed.

Once the license key file has been received and the information verified, you can proceed with the installation at step 2.

NOTE   If the model number, serial number, or option number do not match those on your license key file, you will not be able to install the option. If this is the case, contact Keysight for assistance before beginning the installation of this upgrade. Refer to "Contacting Keysight" on page 4.

Step 2. Remove the Outer Cover

For instructions, click the Chapter 7 bookmark "Removing the Covers" in the PDF Service Guide.

Step 3. Remove the Inner Cover

For instructions, click the Chapter 7 bookmark "Removing the Covers" in the PDF Service Guide[1].

Step 4. Remove the Front Panel Assembly

For instructions, click the Chapter 7 bookmark "Removing and Replacing the Front Panel Assembly" in the PDF Service Guide[1].

Step 5. Remove the A23 Test Set Motherboard

For instructions, click the Chapter 7 bookmark "Removing and Replacing the A23 test set motherboard" in the PDF Service Guide[1].

Step 6. Remove Some Bottom-Side (Test Set) Cables

CAUTION	Be careful not to damage the center pins of the semirigid cables. Some flexing of the cables may be necessary but do not over-bend them.

NOTE	When removing a cable, also remove the plastic cable clamp, if present. It is normal for some of the cable clamp's adhesive to remain.

1. Place the analyzer bottom-side up on a flat surface.

2. Remove the following cables. To see an image showing the location of these cables, click the Chapter 6 bookmark "Bottom RF Cables, Standard 2-Port Configuration, Option 200 (S/N Prefixes <6021)" or "Bottom RF Cables, Standard 2-Port Configuration, Option 200 (S/N Prefixes ≥6021)" in the PDF Service Guide[1].

These cables may be discarded - they will not be reinstalled.

— W62   (N5242-60025) A27 mixer brick (R1) to A24 IF multiplexer (P601)

— W63   (N5242-60026) A27 mixer brick (R2) to A24 IF multiplexer (P801)

— W70   (N5247-60024) A24 IF multiplexer board P203 to A16 SPAM board J5

— W72   (N5247-60023) A24 IF multiplexer board P603 to A16 SPAM board J2

— W80   (N5245-20048) A25 HMA26.5 to A27 mixer brick

— W110   (N5224-20006) A32 port 2 receiver coupler to A27 mixer brick (R2)

— W111   (N5224-60012) A29 port 1 receiver coupler to A33 port 1 coupler

— W114   (N5224-20011) A32 port 2 receiver coupler to A36 port 2 coupler

— W115   (N5224-20010) A33 port 1 coupler to A27 mixer brick (A)

— W118   (N5224-20009) A36 port 2 coupler to A27 mixer brick (B)

These cables must be saved - they will be reinstalled.

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1. See "Downloading the Online PNA Service Guide" on page 8.

— W12   (N5245-20109) A29 port 1 reference coupler to W11

— W18   (N5245-20111) A32 port 2 reference coupler to W17

Step 7. Remove the A27 Mixer Brick Assembly

Remove the A27 mixer brick assembly from the PNA. For instructions, click the Chapter 7 bookmark, "Removing and Replacing the A27 and A28 Mixer Bricks" in the PDF Service Guide.

Step 8. Assemble the A28 Mixer Brick Assembly

1. Follow the instructions shown in Figure 1. New parts are listed in Table 2 on page 10 of this document.

Figure 1   A28 Mixer Brick Assembly (5087-7417, N5245-20125, 0515-0667, N5247-20138)

① Turn mounting block around and install L-Brick 5087-7417 . Secure with screws 0515-0667 X3. Torque to 9 in-lbs.

② Add Gap pads N5245-20125 X4 to L-Brick as shown.

Not necessary to remove A27 mixer brick shield as shown.

③ Add dust cap N5247-20138 X1 (not shown) to L-Brick.

U13

U10

U19

U16
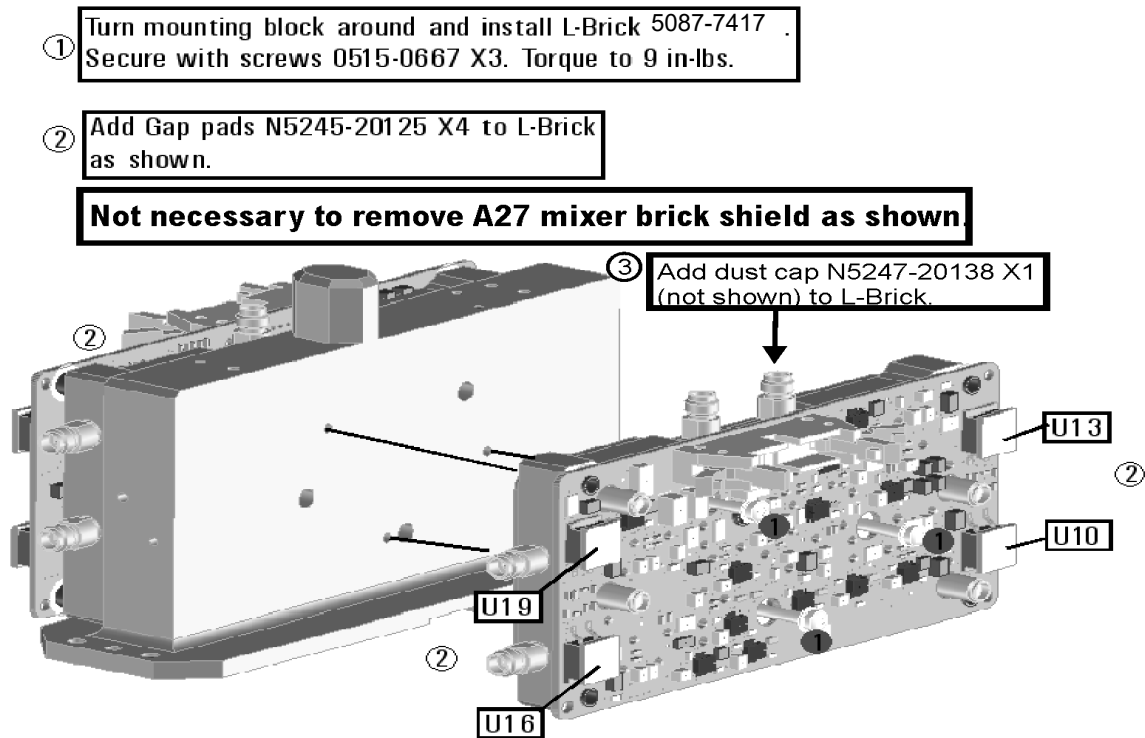
N5225_124_04

2. Follow the two instructions shown in Figure 2.

Figure 2   A28 Mixer Brick Shield Installation (N5245-00023, 0515-0372)

① Add L-Brick Shield N5245-00023 X1 to A28 Mixer Brick as shown.

② Secure with Screws 0515-0372 X3. Torque to 9 in-lbs.
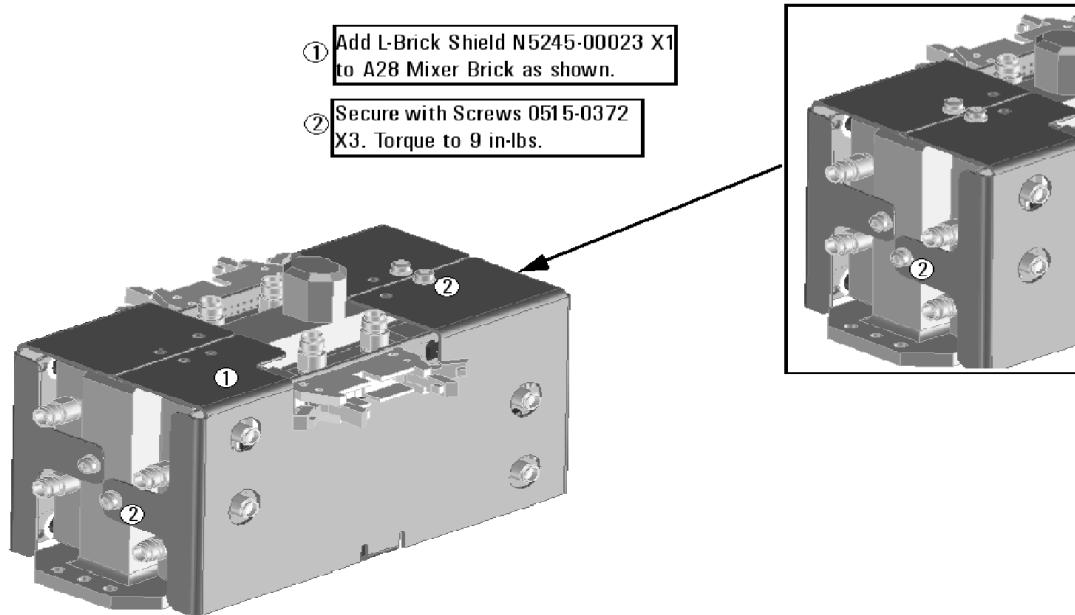
N5225_124_05

3. If the PNA contains legacy HMA26.5 p/n: 5087-7765, follow the instructions shown in Figure 3. Skip this step if the PNA contains the newer HMA26.5 p/n: N5240-60101.

Figure 3 A26 Splitter[1] Installation (5067-4086, 0515-2007)
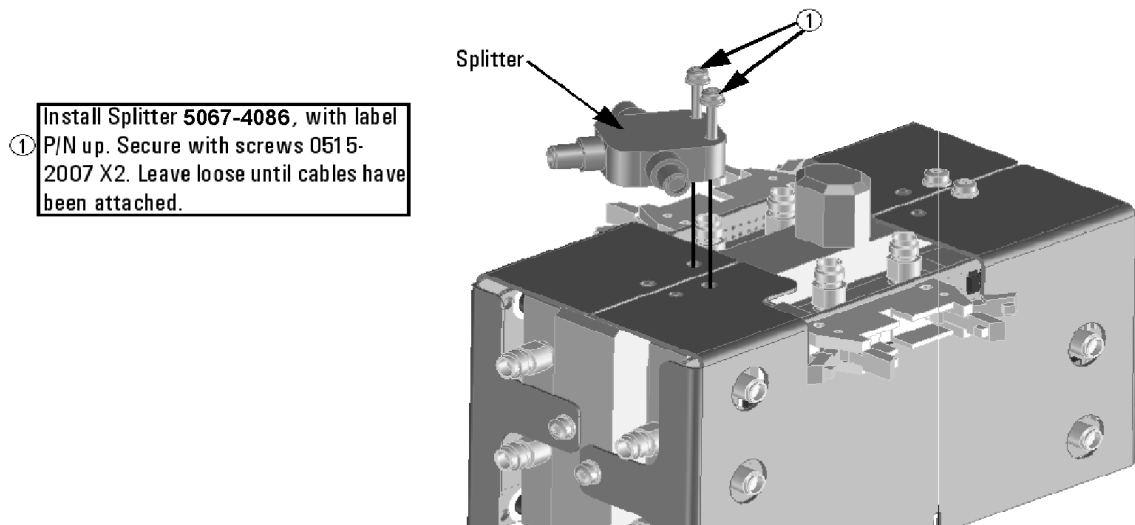
Install Splitter **5067-4086**, with label ① P/N up. Secure with screws 0515-2007 X2. Leave loose until cables have been attached.

Splitter

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1. The A26 splitter (5067-4086) and N5245-20013, N5245-20022, N5245-20023, N545-20101, and N5245-20150 cables are only used with a legacy HMA26.5 p/n: 5087-7765. If you are unclear which HMA26.5 assembly your PNA has installed, refer to Chapter 7 Repairs and Figure 1 on page 7 and for details on A26 splitter and cabling, refer to your option-model in Chapter 6 "2-Port Configurations, Serial Number Prefix <6021" and "4-Port Configuration, Serial Number Prefix <6021".

4. Connect the gray flexible cables to the A28 mixer in the order shown in
Figure 4. The other ends of the cables will be connected when the IF board
is reinstalled later.

Figure 4   A28 Mixer Brick Cable Installation (N5242-60019, N5242-60020,
N5242-60023, N5242-60024)[1, 2]
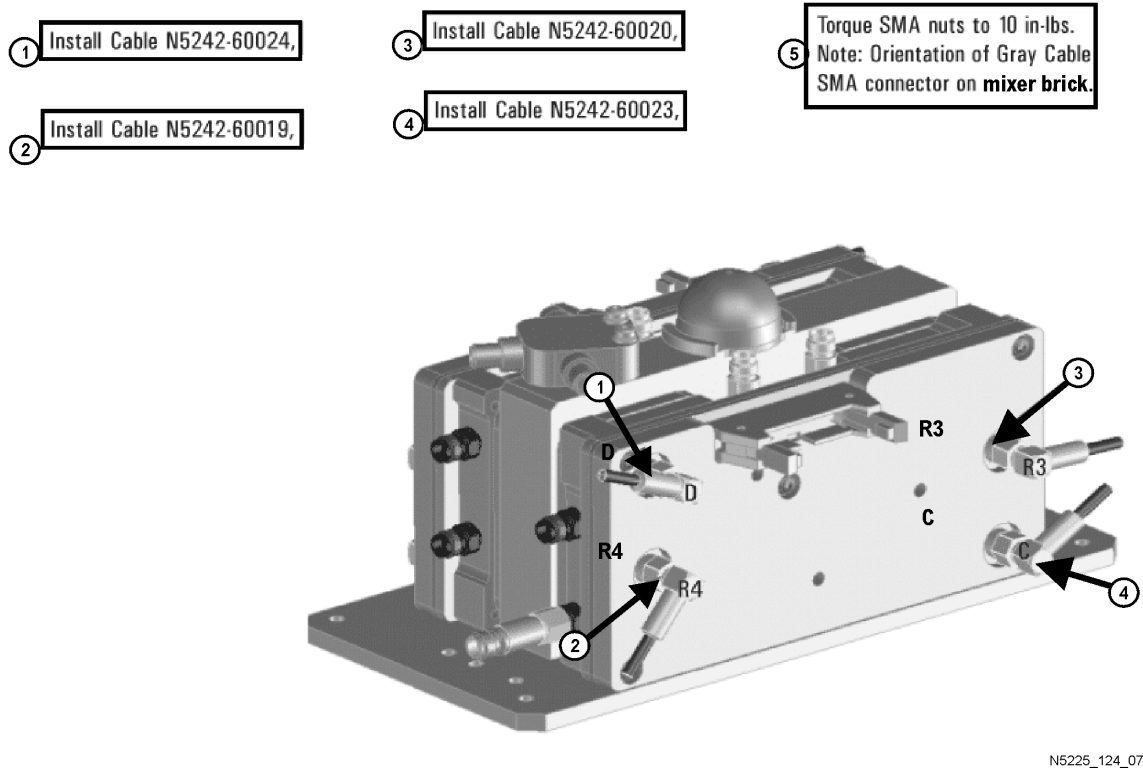
① Install Cable N5242-60024,

② Install Cable N5242-60019,

③ Install Cable N5242-60020,

④ Install Cable N5242-60023,

⑤ Torque SMA nuts to 10 in-lbs.
Note: Orientation of Gray Cable
SMA connector on **mixer brick.**

N5225_124_07

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1. The A26 splitter (5067-4086) and N5245-20013, N5245-20022, N5245-20023, N545-20101, and
   N5245-20150 cables are only used with a legacy HMA26.5 p/n: 5087-7765. If you are unclear
   which HMA26.5 assembly your PNA has installed, refer to Chapter 7 Repairs and Figure 1 on page 7
   and for details on A26 splitter and cabling, refer to your option–model in Chapter 6"2-Port Config-
   urations, Serial Number Prefix <6021" and "4-Port Configuration, Serial Number Prefix <6021".
2. Attenuator 08490-60039 is shown in the figure, but is not included in this upgrade and not required with the
   A28 mixer brick (5087-7417).

Step 9. Install the A27/A28 Mixer Brick Assemblies

Reinstall the A27 mixer brick cables, and then install the A27/A28 mixer brick assembly, reusing the four existing screws. For instructions, click the Chapter 7 bookmark, "Removing and Replacing the A27 and A28 Mixer Bricks" in the PDF Service Guide[1]. New parts are listed in Table 2 on page 10 of this document.

Step 10. Assemble the A34 and A35 Reference Coupler Assemblies

Follow the instructions shown in Figure 5 and Figure 6. New parts are listed in Table 2 on page 10 of this document.

Figure 5   A34 Reference Coupler Port 3 Assembly (5087–7760, N5245–00017, 0515–1602)

> ① Prefab internal Coupler 5087-7760 to Bracket N5245-00017. Secure with Screws 0515-1602 X4.
> Note: Orientation of coupler to bracket.
> Torque to 4 in-lbs.

Coupler Port 3

Note Orientation

Screw X4

N5225_124_09

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1. See "Downloading the Online PNA Service Guide" on page 8.

Figure 6   A35 Reference Coupler Port 4 Assembly (5087-7760, N5245-00017, 0515-1602)

Prefab internal Coupler 5087-7760 to
Bracket N5245-00017. Secure with
① Screws 0515-1602 X4.
Note orientation of coupler to
bracket. Torque to 4 in-lbs.

Note Orientation

Coupler Port 4

Screw X4
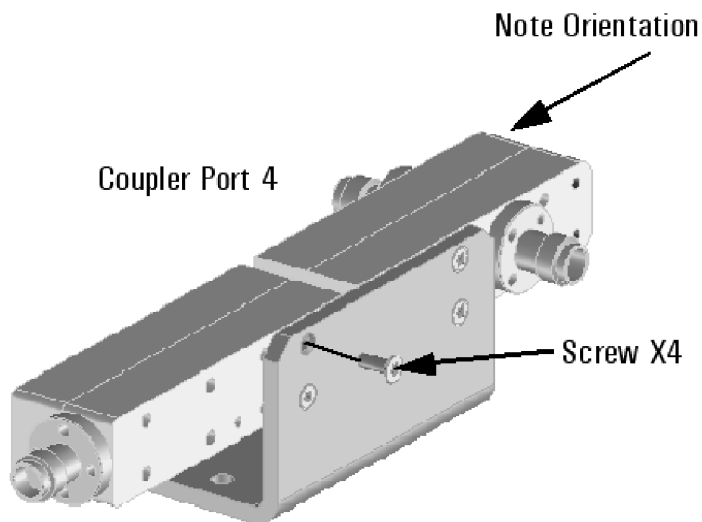
N5225_124_11

Step 11. Install the A34 and A35 Reference Coupler Assemblies

Follow the instructions shown in **Figure 6-1**. New parts are listed in **Table 2 on page 10** of this document.

Figure 6-1   A34 and A35 Reference Coupler Assemblies Installation (0515-0374)[1, 2]

Install Coupler/Bracket assemblies X2 to deck as shown. Note: Orientation and position of couplers. Secure with screws 0515-0374 X4. Torque to 9 in-lbs.
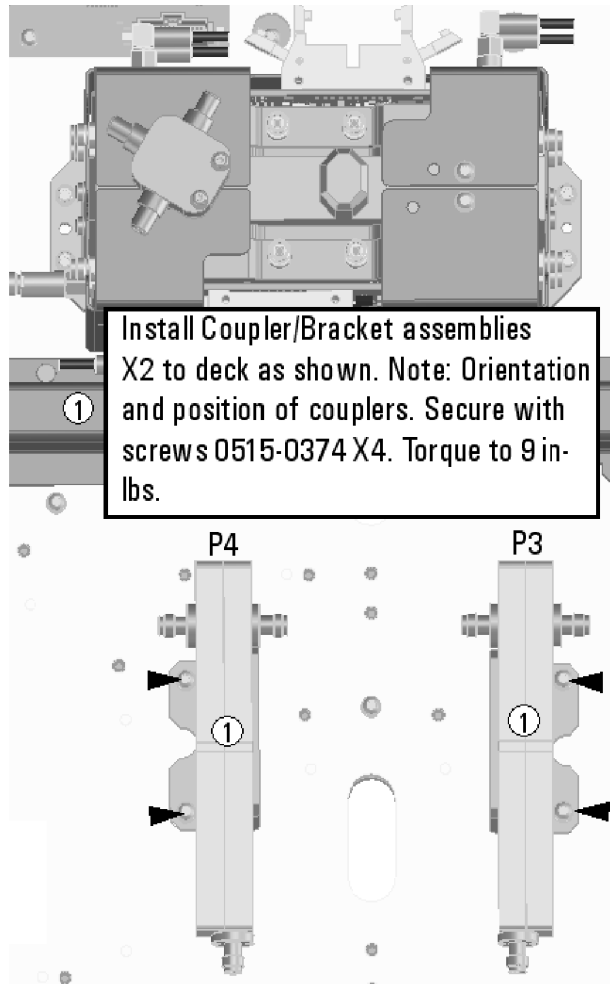
N5247_106_10

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1. The A26 splitter (5067-4086) and N5245-20013, N5245-20022, N5245-20023, N545-20101, and N5245-20150 cables are only used with a legacy HMA26.5 p/n: 5087-7765. If you are unclear which HMA26.5 assembly your PNA has installed, refer to Chapter 7 Repairs and Figure 1 on page 7 and for details on A26 splitter and cabling, refer to your option–model in Chapter 6"2–Port Config-urations, Serial Number Prefix <6021" and "4–Port Configuration, Serial Number Prefix <6021".
2. Attenuator 08490-60039 is shown in the figure, but is not included in this upgrade and not required with the A28 mixer brick (5087-7417).
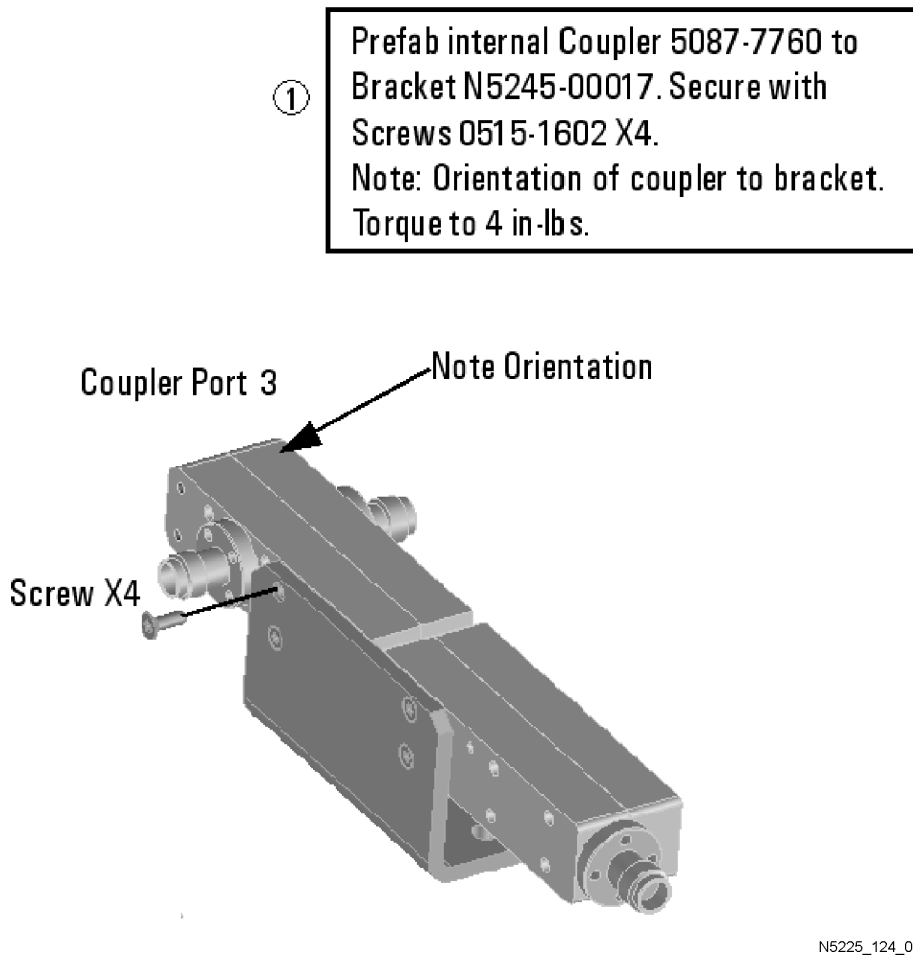
Step 12. Assemble the A33 – A36 Test Port Coupler Assemblies

1. Remove two screws from each LED board and remove the boards from the 2-port test set front plate of the PNA.

2. Remove the 2-port test set front plate from the test set deck.

3. Follow the two instructions shown in Figure 7 of this document. New parts are listed in Table 2 on page 10 of this document.

Figure 7   A33 – A36 Test Port Coupler Assembly (E4403-20033, 0460-2725, 5087-7793)

gap pad
E4403-20033

vibe mount
0460-2725

Reuse 2x coupler, 5087-7793

① Remove tan adhesive liner from 4x gap pad E4403-20033.
Adhere to 4x coupler **5087-7793**.
Remove blue adhesive liner

② Remove adhesive liner from 2x vibe mount 0460-2725.
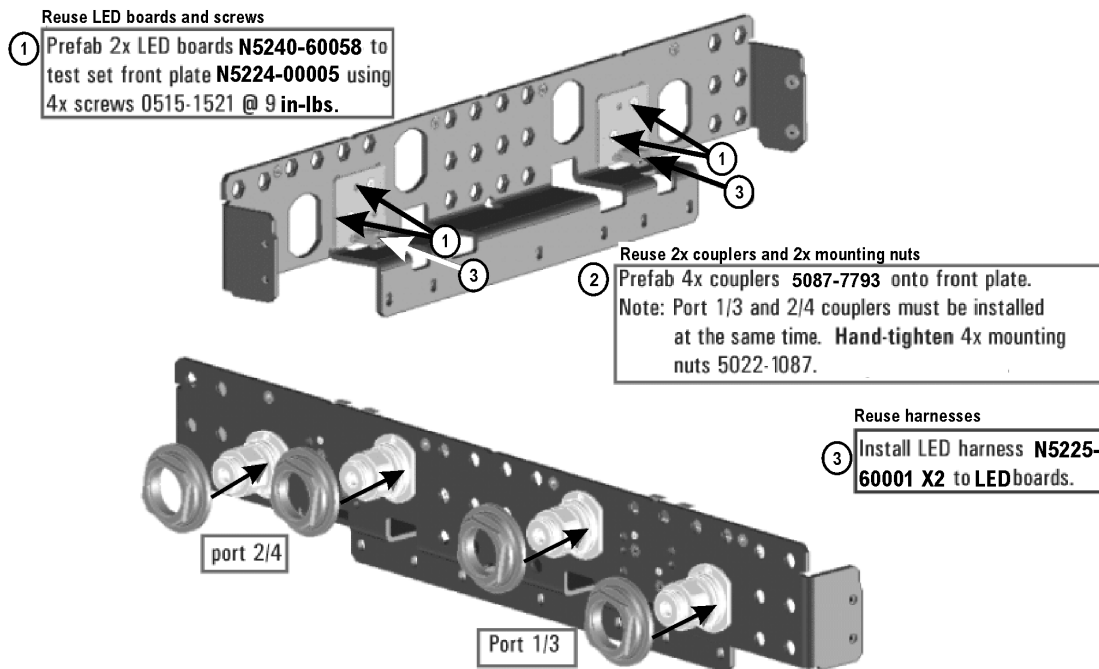Adhere to 2x couplers. Center vibe mount on coupler body
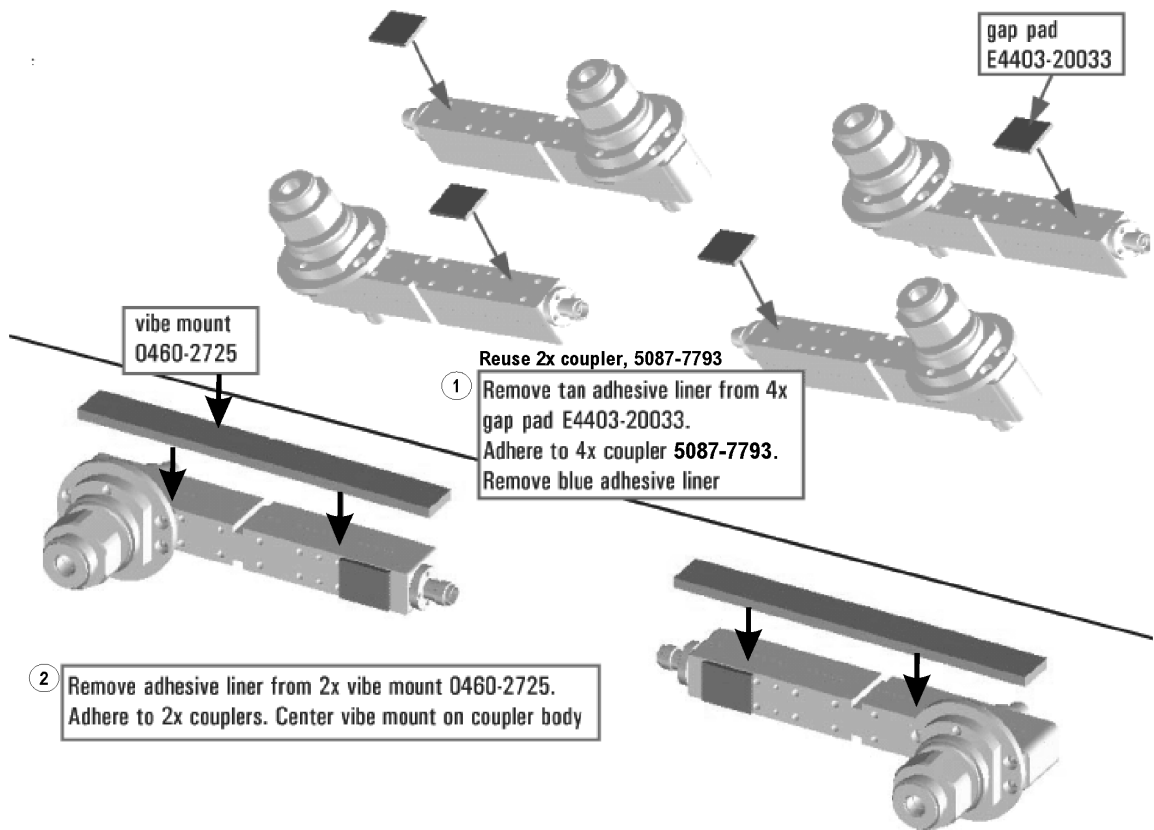
N5225_124_18

Step 13. Install the LED Boards, Bulkhead Connectors, and Test Port Coupler Assemblies to the 4-Port Test Set Front Plate

1. Remove two screws from each LED board and remove the boards from the 2-port test set front plate of the PNA.

2. Remove the 2-port test set front plate from the test set deck. Keep the screws for reuse later.

3. Follow the two instructions shown in Figure 8.

Figure 8　　　　LED Board Assemblies and Test Port Coupler Assemblies Installation (N5240-60058, N5224-00005, 5087-7793, 5022-1087, N5225-60001, 0515-1521)

Reuse LED boards and screws

① Prefab 2x LED boards **N5240-60058** to test set front plate **N5224-00005** using 4x screws 0515-1521 @ 9 **in-lbs**.

Reuse 2x couplers and 2x mounting nuts

② Prefab 4x couplers **5087-7793** onto front plate. Note: Port 1/3 and 2/4 couplers must be installed at the same time. **Hand-tighten** 4x mounting nuts 5022-1087.

Reuse harnesses

③ Install LED harness **N5225-60001 X2** to **LED** boards.

port 2/4

Port 1/3

N5225_124_19

Step 14. Install the 4-Port Coupler Plate Assembly to the Deck

Follow the four instructions shown in Figure 9.

Figure 9   Coupler Plate Assembly Installation (0515-0372, 0515-1227)

Reuse screws
① Install coupler plate assy to deck. Install 7x screws 0515-0372. **Do not torque**.

③ Torque the 7x screws in step 1 to 9 in-lbs.

④ Torque 4X coupler mounting nuts to 72 in-lbs.

Reuse screws
② Install 4x screws 0515-1227 to 9 in-lbs. Alternate sides in torque sequence, as shown in circles A through D.
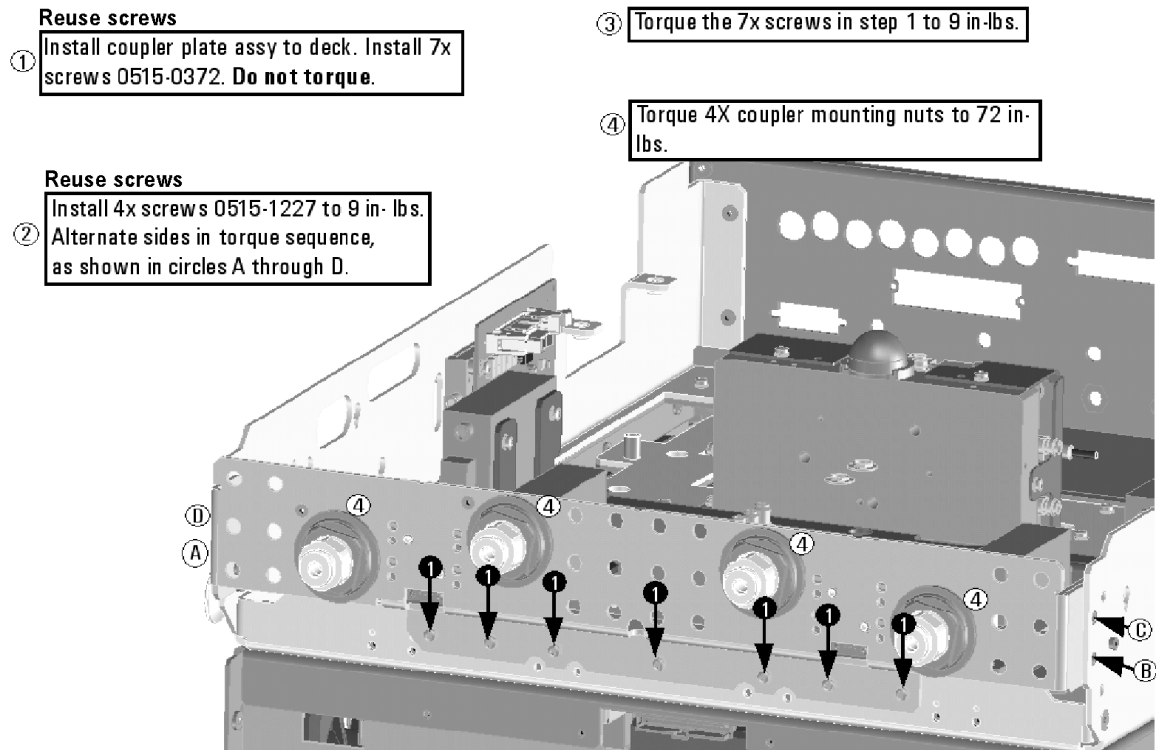
N5225_124_20

Step 15. Assemble and Install the A12 and A13 40 GHz Doubler Assemblies

Follow the instructions shown in **Figure 10**.

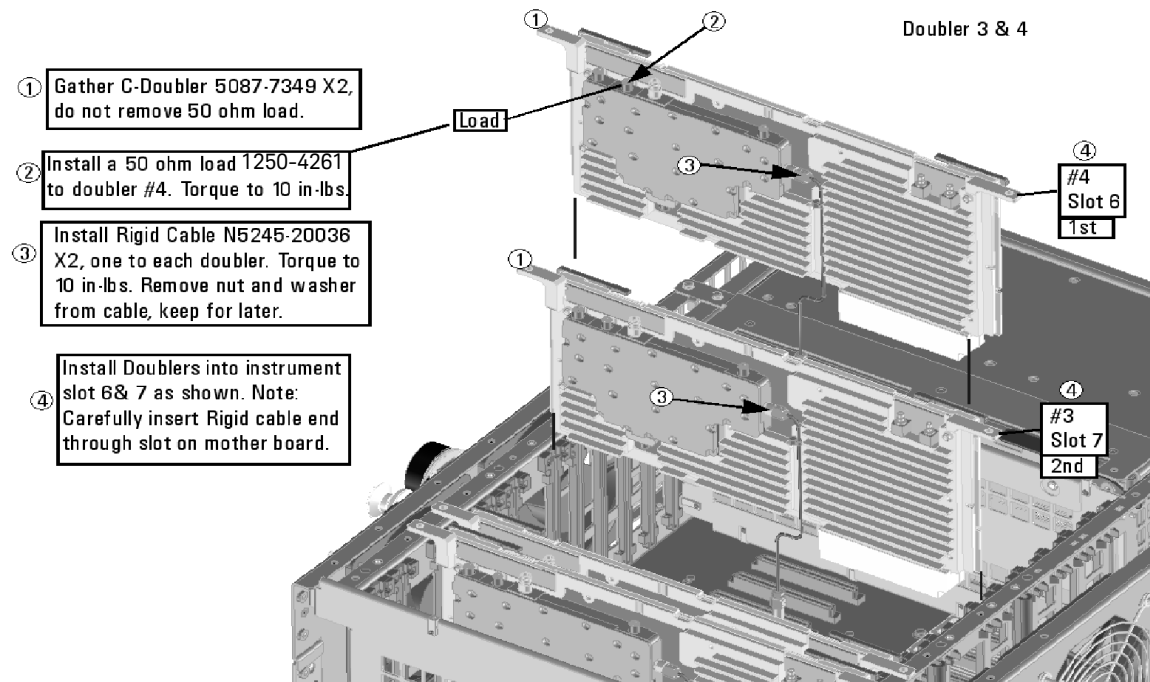**Figure 10** A12 and A13 40 GHz Doubler Installation (5087-7349, 1250-4261, N5245-20036)

① Gather C-Doubler 5087-7349 X2, do not remove 50 ohm load.

② Install a 50 ohm load 1250-4261 to doubler #4. Torque to 10 in-lbs.

③ Install Rigid Cable N5245-20036 X2, one to each doubler. Torque to 10 in-lbs. Remove nut and washer from cable, keep for later.

④ Install Doublers into instrument slot 6& 7 as shown. Note: Carefully insert Rigid cable end through slot on mother board.

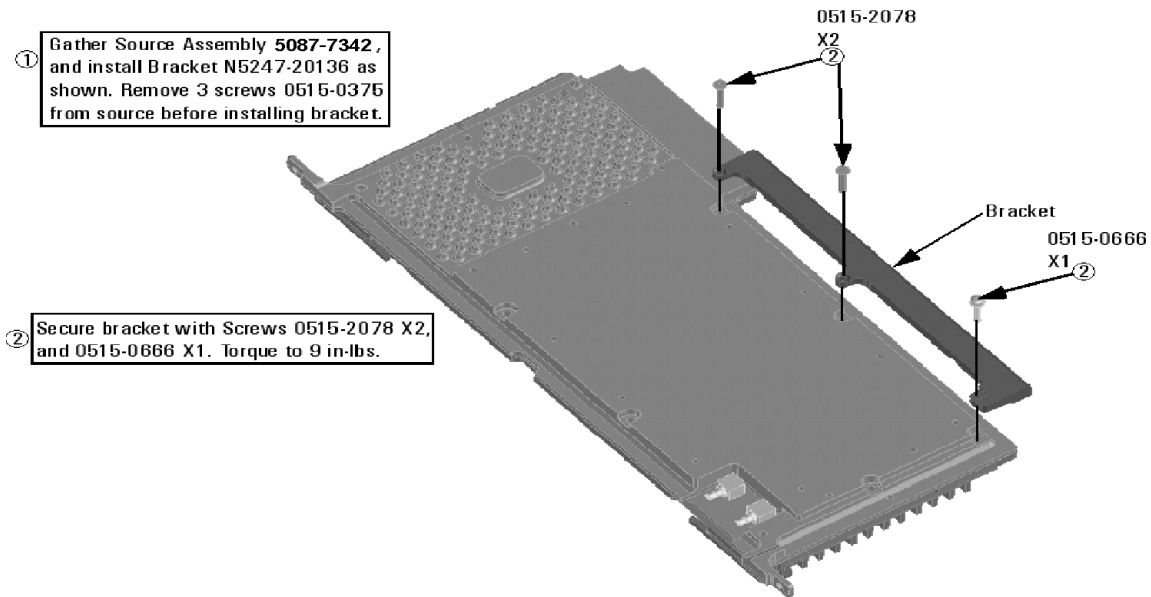Doubler 3 & 4

Load

④ #4 Slot 6 1st

④ #3 Slot 7 2nd

N5225_124_24

Step 16. Install Bracket to A10 Source Assembly

Follow the two instructions shown in Figure 11.

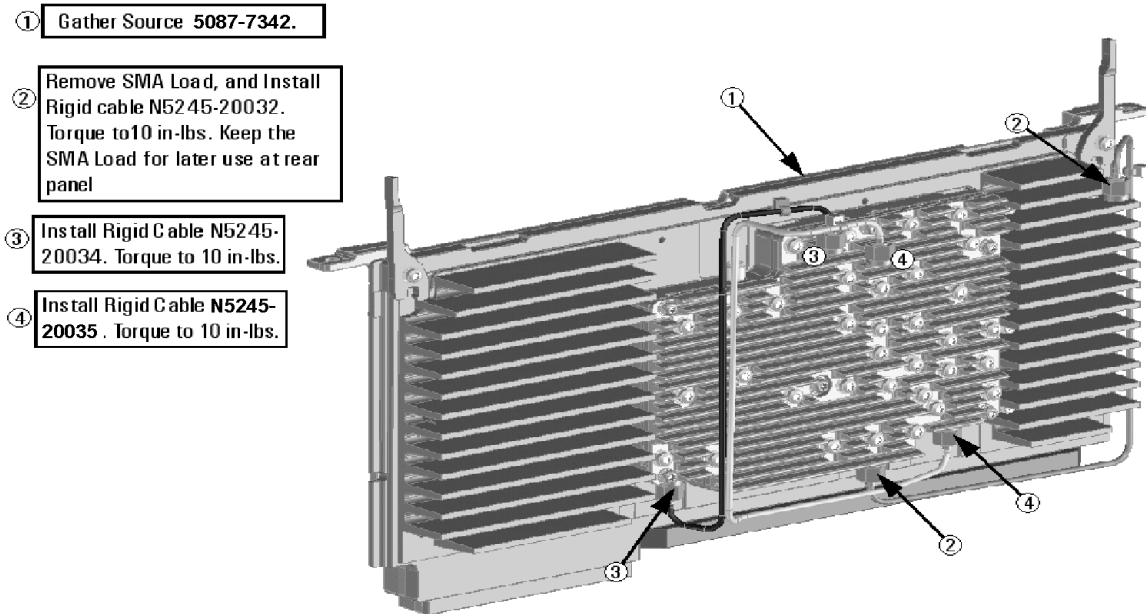Figure 11   A10 Source 2 Assembly Bracket Installation (5087-7342, N5247-20136, 0515-0375, 0515-2078, 0515-0666)

N5225_124_21

Step 17. Assemble the A10 26.5 GHz Source 2 Assembly

Follow the two instructions shown in **Figure 12**.

Figure 12   A10 Source 2 Assembly (5087-7342, N545-20032, N5245-20034, N5245-20035)

① Gather Source **5087-7342.**

② Remove SMA Load, and Install Rigid cable N5245-20032. Torque to 10 in-lbs. Keep the SMA Load for later use at rear panel

③ Install Rigid Cable N5245-20034. Torque to 10 in-lbs.

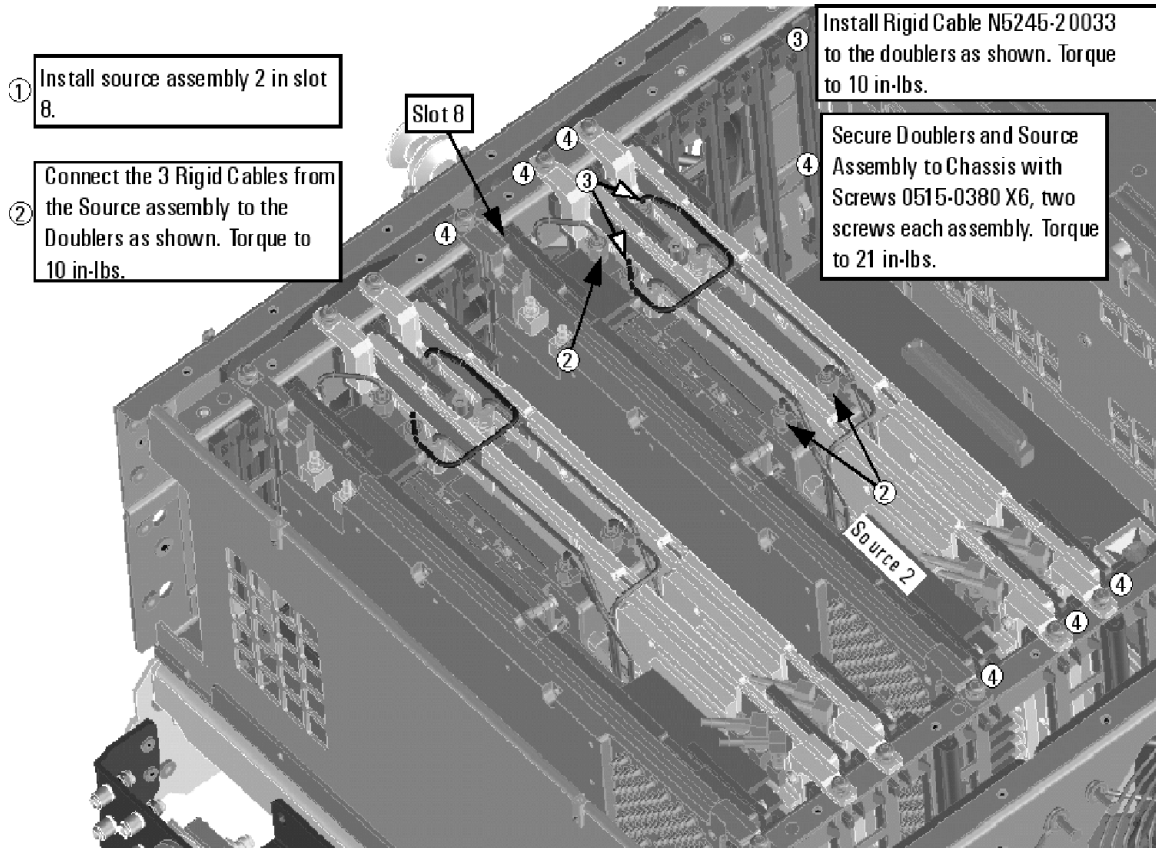④ Install Rigid Cable **N5245-20035** . Torque to 10 in-lbs.

N5225_124_22

Step 18. Install the A10 26.5 GHz Source 2 Assembly and Cables

Follow the two instructions shown in Figure 13.

Figure 13   A10 Source 2 Assembly Installation (N5245-20033, 0515-0380)

① Install source assembly 2 in slot 8.

② Connect the 3 Rigid Cables from the Source assembly to the Doublers as shown. Torque to 10 in-lbs.

③ Install Rigid Cable N5245-20033 to the doublers as shown. Torque to 10 in-lbs.

④ Secure Doublers and Source Assembly to Chassis with Screws 0515-0380 X6, two screws each assembly. Torque to 21 in-lbs.

N5225_124_26

Step 19. Install the A17 13.5 GHz (Source 2) Synthesizer Board and Cables

1. Install new gray cable W77 (N5242-60030) to connector J5 of the new A17 (source 2) synthesizer board (N5240-60074). The loose end of the cable will be connected on the A14 frequency reference board (J7) after the A17 board has been installed in the analyzer.

2. Install the A17 board into slot 2 in the motherboard. Secure the board into the chassis using two screws (0515-0380). To see an image showing the location of the A17 board in the motherboard, click the Chapter 6 bookmark "Top Assemblies, All Options" in the PDF Service Guide[1].

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1. See "Downloading the Online PNA Service Guide" on page 8.

3. Connect cable W2 (N5245-20100) between the A10 source 2 board and the A17 (source 2) synthesizer board, positioning the cable in the wire looms. Tighten the cable connectors to 10 in-lbs using a 5/16-in torque wrench.

4. Connect the loose end of new gray flex cable W77 (N5242-60030) on the A14 frequency reference board (J7). (The other end of this cable was previously connected to J5 of the source 2 synthesizer board.)

Step 20. Install the Cable Bracket Mount

1. Follow the two instructions shown in Figure 14. New parts are listed in Table 2 on page 10 of this document.

Figure 14   Cable Bracket Mount Installation (N5245-00022, 0515-0664, N5245-20036)
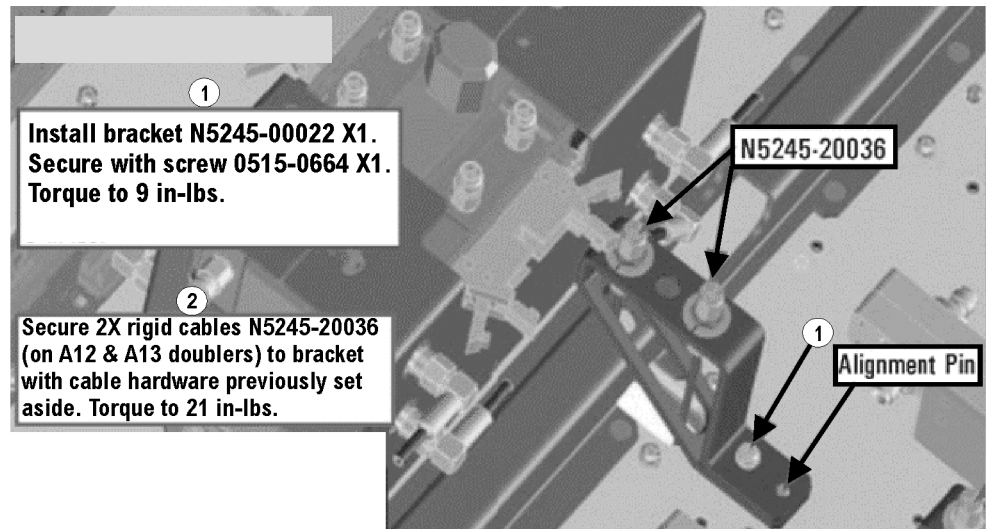
N5225_124_25

Step 21.Install the Test Set Cables

CAUTION	Follow instructions carefully when making cable connections, especially wire harness connections. Incorrect connections can destroy components, resulting in additional customer costs.
CAUTION	Be careful not to damage the center pins of the semirigid cables. Some flexing of the cables may be necessary but do not over-bend them.
CAUTION	Use a 5/16-in torque wrench set to 10 in-lbs on all cable connections except the front and rear panel bulkhead connectors. On these, use a 9 mm nutsetter or open end torque wrench set to 21 in-lb.
CAUTION	Cables that are to be reinstalled are designated with "reuse."

Flexible Cables Required for Upgrading to an Option 400 PNA

Install the following gray flexible cables in the order listed. Mixer brick cables were connected to the mixer bricks earlier in this procedure, but the other ends of these cables still require a connection. To see images showing the location of these cables, click either of the Chapter 6 bookmarks "Bottom RF Cables, 4-Port, Option 400, **S/N Prefixes** <**6021**" in the PDF Service Guide[1]. New parts are listed in Table 2 on page 10.

— W70 (N5242-60013) A24 IF multiplexer board P203 to A16 SPAM board J2

— W72 (N5242-60015) A24 IF multiplexer board P603 to A16 SPAM board J5

— W62 (N5242-60021) A27 mixer brick (R1) to A24 IF multiplexer (P411)

— W63 (N5242-60022) A27 mixer brick (R2) to A24 IF multiplexer (P412)

— W65 (N5242-60024) A28 mixer brick (D) to A24 IF multiplexer (P801)

— W66 (N5242-60019) A28 mixer brick (R4) to A24 IF multiplexer (P414)

— W67 (N5242-60020) A28 mixer brick (R3) to A24 IF multiplexer (P413)

— W68 (N5242-60023) A28 mixer brick (C) to A24 IF multiplexer (P601)

Semirigid Cables Required for Upgrading to an Option 400 PNA

To see images showing the location of these cables, click the Chapter 6 bookmark "Bottom RF Cables, 4-Port, Option 400, S/N Prefixes <6021" or "Bottom RF Cables, 4-Port, Option 400, S/N Prefixes ≥6021" in the PDF Service Guide[1]. New parts are listed in Table 2 on page 10.

— W109 (N5224-20047) A31 port 4 receiver coupler to A28 mixer brick (R4)

  * As shown in Figure 15, install clamp (part number 1400-1334) to secure W109.

— W108 (N5224-20024) A30 port 3 receiver coupler to A28 mixer brick (R3)

   * As shown in **Figure 16**, install clamp (part number 1400-1334) to secure W108 (N5224-20024).

— W114 (N5224-20014) A32 port 2 receiver coupler to A36 port 2 coupler

— W113 (N5224-20016) A31 port 4 receiver coupler to A35 port 4 coupler

— W111 (N5224-20013) A29 port 1 receiver coupler to A33 port 1 coupler

— W112 (N5224-20015) A30 port 3 receiver coupler to A34 port 3 coupler

— W117 (N5224-20026)A35 port 4 coupler to A28 mixer brick (D)

   * As shown in **Figure 15**, install clamp (part number 1400-1334) to secure W117.

— W118 (N5224-20025)A36 port 2 coupler to A27 mixer brick (B)

   * As shown in **Figure 15**, install clamp (part number 1400-1334) to secure W118.

— W110 (N5224-20028)A32 port 2 receiver coupler to A27 mixer brick (R2)

   * As shown in **Figure 15**, install clamp (part number 1400-1334) to secure W118.

Figure 15   Location of Cable Clamps for W109 (N5224-20047), W110 (N5224-20028), W117 (N5224-20026), and W118 (N5224-20025)[1, 2]
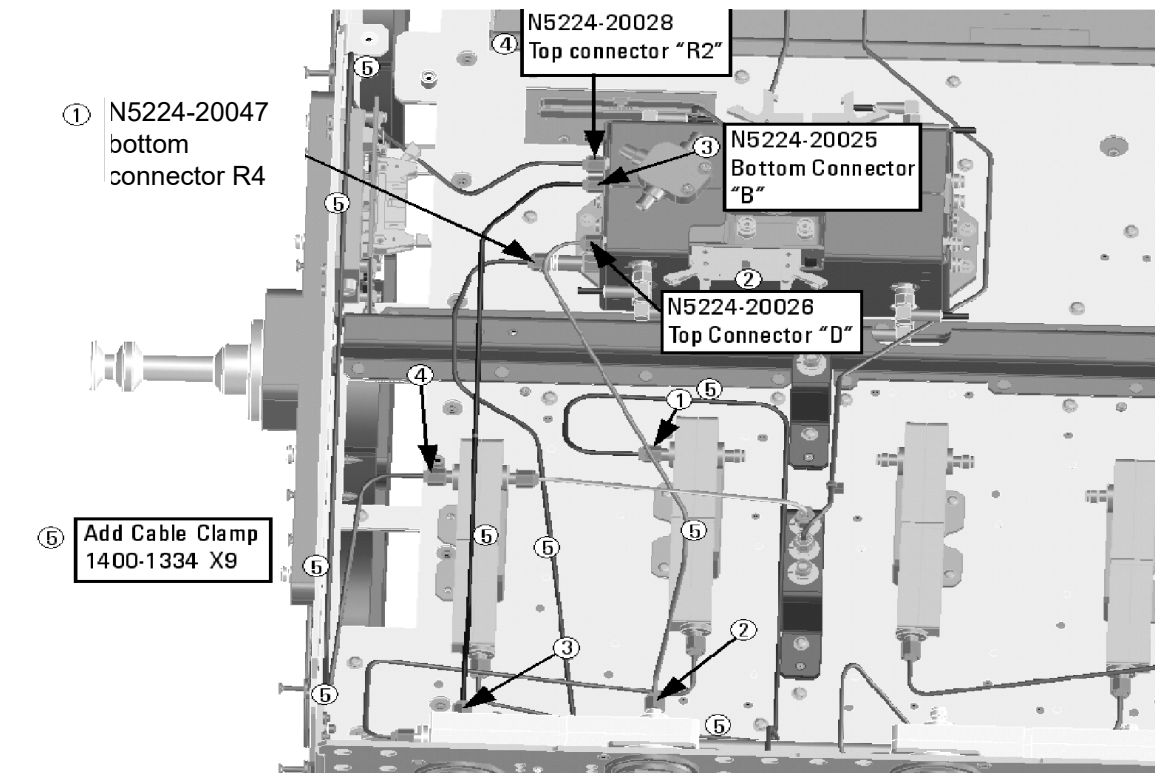

N5225_120_01

— W18 (reuse) (N5245-20111)A32 port 2 reference coupler to W17

— W116 (N5224-20023) A34 port 3 coupler to A28 mixer brick (C)

* As shown in Figure 16, install clamp (part number 1400-1334) to secure W116 (N5224-20023).

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1. The A26 splitter (5067-4086) and N5245-20013, N5245-20022, N5245-20023, N545-20101, and N5245-20150 cables are only used with a legacy HMA26.5 p/n: 5087-7765. If you are unclear which HMA26.5 assembly your PNA has installed, refer to Chapter 7 Repairs and Figure 1 on page 7 and for details on A26 splitter and cabling, refer to your option-model in Chapter 6 "2-Port Configurations, Serial Number Prefix <6021" and "4-Port Configuration, Serial Number Prefix <6021".

2. Attenuator 08490-60039 is shown in the figure, but is not included in this upgrade and not required with the A28 mixer brick (5087-7417).

Figure 16   Location of Cable Clamps for W108 (N5224-20024) and W116
(N5224-20023)[1, 2]
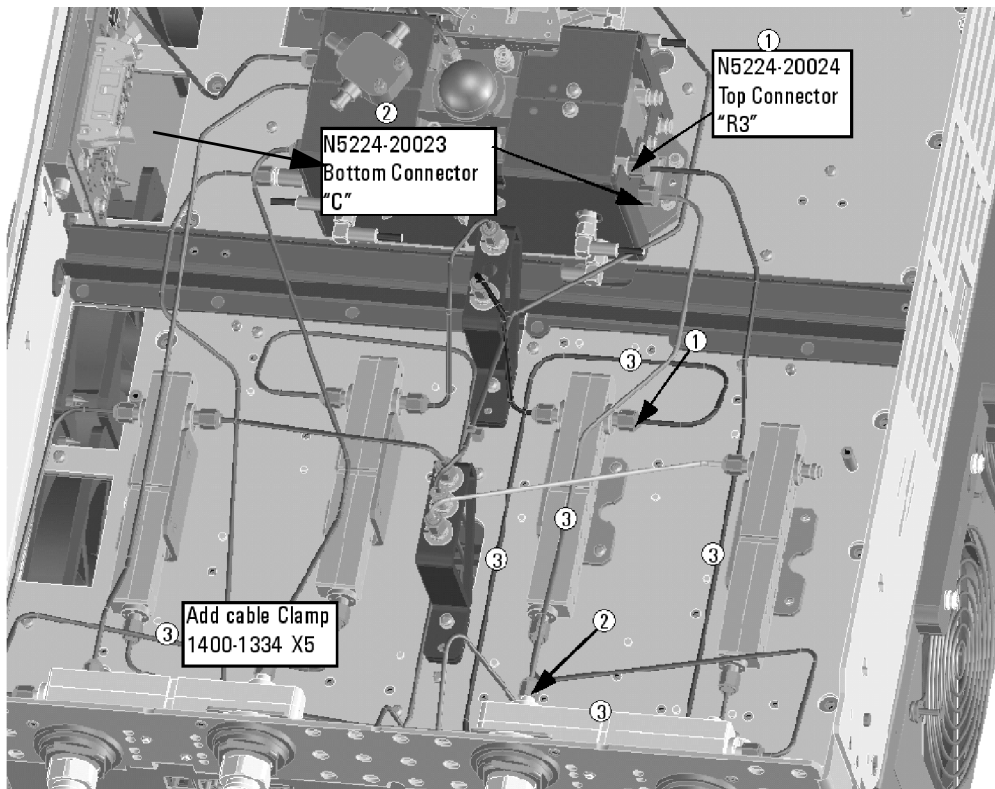
- W14 (N5245-20043)A30 port 3 reference coupler to W13

- W16 (N5245-20044) A31 port 4 reference coupler to W15

- W12 (reuse) (N5245-20109) A29 port 1 reference coupler to W11

- W115 (N5224-20022) A33 port 1 coupler to A27 mixer brick (A)

  * As shown in Figure 17, install clamp (part number 1400-1334) to secure
  W115 (N5224-20022).

---

1. The A26 splitter (5067-4086) and N5245-20013, N5245-20022, N5245-20023, N545-20101, and
   N5245-20150 cables are only used with a legacy HMA26.5 p/n: 5087-7765. If you are unclear
   which HMA26.5 assembly your PNA has installed, refer to Chapter 7 Repairs and Figure 1 on page 7
   and for details on A26 splitter and cabling, refer to your option-model in Chapter 6 "2-Port Con-
   figurations, Serial Number Prefix <6021" and "4-Port Configuration, Serial Number Prefix <6021".
2. Attenuator 08490-60039 is shown in the figure, but is not included in this upgrade and not required with the
   A28 mixer brick (5087-7417).

Figure 17   Location of Cable Clamp for W115 (N5224-20022, 1400-1334)[1, 2]
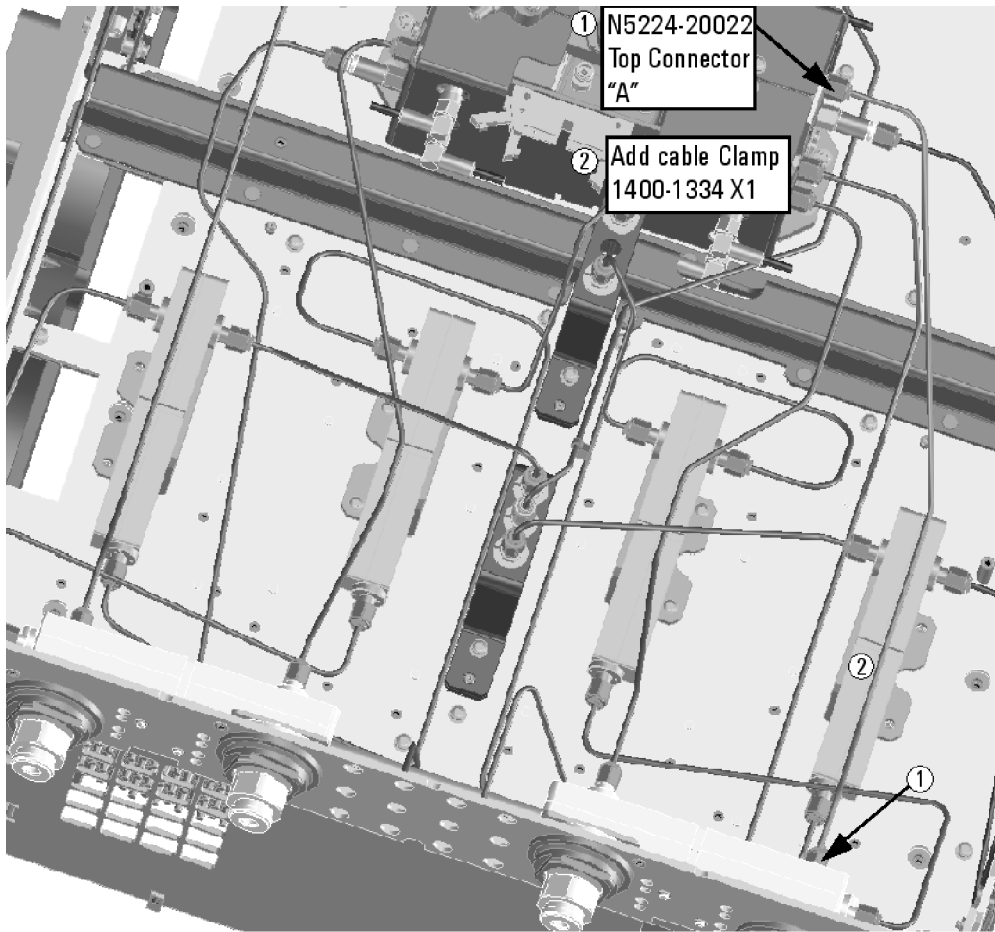
Install New Cable(s) – A21 HMA26.5 to A23/A24 Mixer Brick

If your instrument has a new HMA26.5 (N5240-60101) installed:

(If you have a legacy HMA26.5 (5087-7765) installed, you can discard this cable.)

— W203 (N5245-20195) RF cable, A24 mixer brick (top connector) to A21 HMA25.6 A24 mixer brick (top connector)

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1. The A26 splitter (5067-4086) and N5245-20013, N5245-20022, N5245-20023, N545-20101, and N5245-20150 cables are only used with a legacy HMA26.5 p/n: 5087-7765. If you are unclear which HMA26.5 assembly your PNA has installed, refer to Chapter 7 Repairs and Figure 1 on page 7 and for details on A26 splitter and cabling, refer to your option–model in Chapter 6"2–Port Configurations, Serial Number Prefix <6021" and "4–Port Configuration, Serial Number Prefix <6021".
2. Attenuator 08490-60039 is shown in the figure, but is not included in this upgrade and not required with the A28 mixer brick (5087-7417).

| NOTE | You will need to remove the cap that is installed on the HMA26.5 top connector, before connecting the other end of the W203 cable. You can discard the cap. |

See also, "Verify the Model/Version of HMA26.5 Installed" on page 7.

If your instrument has a legacy HMA26.5 (5087-7765) installed:

(If you have a new HMA26.5 (N5240-60101) installed, you can discard these cables.)

— W52 (N5452-20013) A21 HMA26.5 to A22 splitter
   NOTE: Tighten both screws on the splitter to 9 in-lbs.

— W53 (N5245-20023) A22 splitter to A24 mixer brick

— W54 (N5245-20022) A22 splitter to A23 mixer brick

(If you have the legacy 5086-7765 HMA26.5, please discard N5245-20195[1] semi-rigid cable. Refer to Figure 1 on page 7.)

See also, "Verify the Model/Version of HMA26.5 Installed" on page 7.

Step 22. Reinstall the A23 Test Set Motherboard

For instructions on reinstalling the board, click the Chapter 7 bookmark "Removing and Replacing the A23 test set motherboard (S/N Prefixes <6021)" or "Removing and Replacing the A23 test set motherboard (S/N Prefixes ≥6021)" in the PDF Service Guide.

Step 23. Install Cable on the A23 Test Set Motherboard

| CAUTION | Follow instructions carefully when making cable connections, especially wire harness connections. Incorrect connections can destroy components, resulting in additional customer costs. |

If not already done in a previous step, install the following new ribbon cable.

— N5247-60015 A28 mixer brick (2) J52 to A23 test set motherboard J552

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1. The N5245-20195 cable is used only with instruments that have a newer HMA26.5 installed. If your PNA has a legacy 5087-7765 HMA26.5 assembly installed, then this cable can be discarded. If you are unclear which HMA26.5 assembly your PNA has installed, refer to Figure 1 on page 7.

To see an image showing its locations, click the Chapter 6 bookmark "Bottom Ribbon Cables and Wire Harnesses, 4-Port, Option 400" in the PDF Service Guide[1]. New parts are listed in Table 2 on page 10.

Step 24. Replace the Front Panel's Lower Dress Panel

Before the front panel's lower dress panel can be replaced, the 2-port lower dress panel and the lower front panel label must be removed from the front panel assembly. Refer to Figure 18 on page 39. New parts are listed in Table 2 on page 10.

1. Remove the 2-Port lower front panel label (item ①).

2. Remove the 10 screws (save the screws for reuse) from the 2-port dress panel and remove the dress panel (item ② and ③ respectively).

3. Reassemble the front panel's lower dress panel assembly with the new 4-port dress panel (N5240-00009) by reversing the order of step 2 in the instructions previously followed.

NOTE

IMPORTANT! To avoid possible damage to the lower front panel overlay (label), do not attempt to attach the lower front panel label until "Step 26. Install the Overlay" on page 39.

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1. See "Downloading the Online PNA Service Guide" on page 8.

Figure 18   Replacing the Front Panel's Lower Dress Panel and label
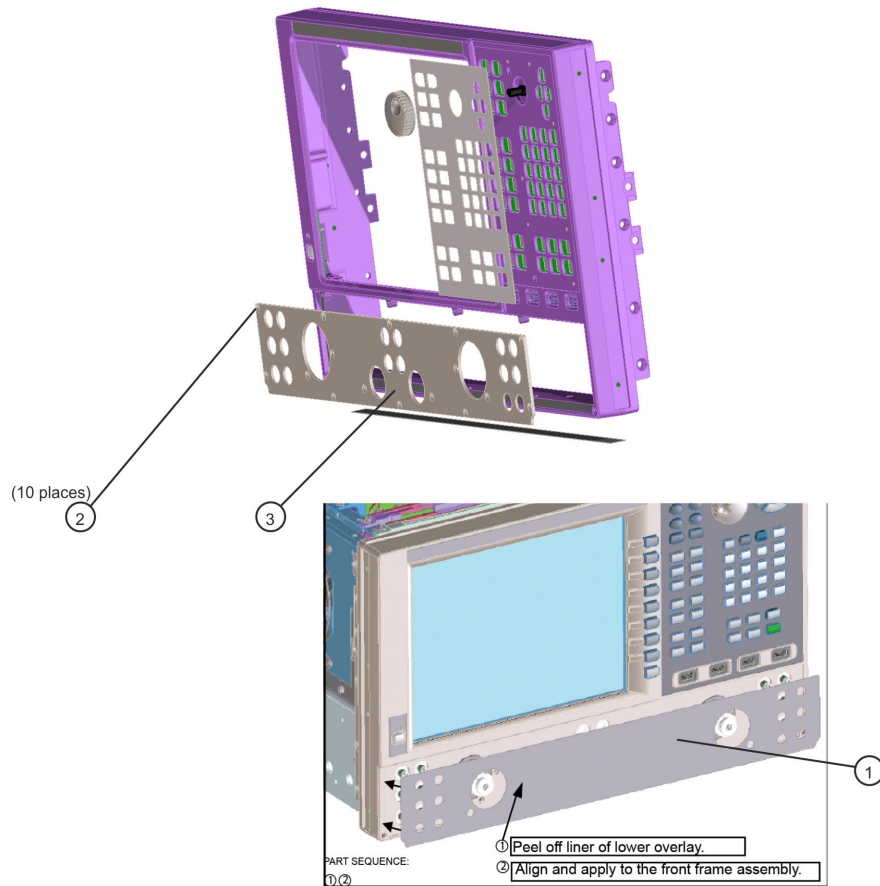
Step 25. Reinstall Front Panel Assembly

For instructions on reinstalling the front panel assembly, click the Chapter 7 bookmark "Removing and Replacing the Front Panel Assembly" in the PDF Service Guide[1].

— Be sure to install the two new screws (0515-1946) in the front panel, next to test ports 3 and 4. Torque these screws to 9 in-lbs.

Step 26. Install the Overlay

To see an image of the front panel overlay (N5227-80019), click the Chapter 6 bookmark "Front Panel Assembly, Front Side, All Options" in the PDF Service Guide[1]. New parts are listed in Table 2 on page 10.

1. Remove the protective backing from the new front panel overlay (N5227-80019).

2. Loosely place the overlay in the recess on the lower front panel.

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1. See "Downloading the Online PNA Service Guide" on page 8.

3. Placing two fingers at the middle, press the overlay firmly onto the frame while sliding your fingers in opposite directions towards the ends of the overlay. Repeat on all areas of the overlay.

4. Install the front panel jumpers.

Step 27. Position the Cables and Wires to Prevent Pinching

On the top side of the PNA, carefully position the gray flex cables so they can't be pinched between the covers and the rails.

On the bottom side of the PNA, carefully fold or push down the ribbon cables and wires so they can't be pinched between the hardware and the outer cover. Ribbon cables and wires must never be positioned on top of hardware.

Step 28. Reinstall the Inner Cover

For instructions, click the Chapter 7 bookmark "Removing the Covers" in the PDF Service Guide[1].

Step 29. Reinstall the Outer Cover

For instructions, click the Chapter 7 bookmark "Removing the Covers" in the PDF Service Guide[1].

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1. See "Downloading the Online PNA Service Guide" on page 8.

Step 30. Remove Option 200 License

Procedure Requirements

— The analyzer must be powered up and operating to perform this procedure.

— The Network Analyzer program must **not** be running.

— A keyboard and mouse must be connected to the network analyzer.

Option 400 License Removal Procedure

1. To start the Keysight License Manager, press **Start** > **Keysight License Manager** > **Keysight License Manager**. A Keysight License Manager dialog box will appear.

2. Right click the on the desired option and click **Delete**.

3. In the Keysight License Manager dialog box that appears, press or click **Yes** to confirm delete.

4. A message displays stating that the option removal was successful.

Step 31. Enable Option 400

Procedure Requirements

| NOTE | For this step, you will need a USB flash drive. |

— The analyzer must be powered up and operating to perform this procedure.

— The network analyzer program must **not** be running.

— A keyboard and mouse must be connected to the network analyzer.

Option Enable Procedure

| NOTE | For this step, you will need a USB flash drive.
A single license file may contain more than one feature. |

1. Locate the email(s) from Keysight which contain license file attachments. These emails are a result of "Step 1. Obtain a Keyword and Verify the Information" on page 14.

2. Copy the license file(s) from the email(s) to the **root directory** of the USB flash drive.

   More than one license file may be copied to the USB flash drive.

| NOTE | A single file may contain more than one feature. |

3. Insert the USB flash drive to the PNA's USB drive slot. Within 5 seconds, the PNA should display a small "New licenses installed" message.

   Else, load the license key file(s), manually move your license file(s) to `C:\Program Files\Agilent\licensing`. It may take Keysight License Manager an extra ~5 seconds to enable the licenses.

| NOTE | Attempting to re-install a license file that is already installed may generate a "Corrupt Media" error message. Ignore this message. |

4. Disconnect the USB flash drive from the PNA.

5. On the analyzer, click or press to open the KLM software from your PNA's Windows taskbar by pressing **Start** > **More Programs** > **Keysight License Manager folder** > **Keysight License Manager** and verify the options are correct.

Option Verification Procedure

Once the analyzer has restarted and the Network Analyzer program is again running:

1. Start the Network Analyzer program.

2. Once the Network Analyzer program is running:

   – Press **Help** > **About NA** and verify that Option 400 is listed in the PNA application.

NOTE	If the options have not been enabled, perform the "Option Enable Procedure" again. If the options are still not enabled, contact Keysight Technologies. Refer to "Getting Assistance from Keysight" on page 4.

3. After successful installation of all upgrades, some features require some adjustments to ensure the instrument meets its specified performance. Refer to the following Web site: http://mktwww.srs.is.keysight.com/field/service/network/pna/.

Step 32. Perform Post-Upgrade Adjustments and Calibration

Adjustments

NOTE	**IMPORTANT!** The 10 MHz reference crystal oscillator is the most accurate after running for three hours. The 10 MHz Frequency Reference Adjustment can be run after the PNA has warmed up for 90 minutes, and the other adjustments can be completed in the order presented, but then the 10 MHz Frequency Reference Adjustment should be repeated after the PNA has been able to warm up for three hours.

The following adjustments must be made due to the hardware changes of the analyzer.

— 10 MHz frequency reference adjustment

— EE default adjustment: Src 2 Synth Only (Version 6 synthesizers)

— synthesizer bandwidth adjustment (only run if the EE default adjustment is not sufficient)

— source adjustment

— IF gain adjustment

— receiver characterization

— receiver adjustment

— IF response adjustment (Option S93090xA/B, S93093A/B, or S93094A/B Only)

These adjustments are described in the PNA Service Guide and in the PNA on-line HELP. A list of equipment required to perform these adjustments is also found in the service guide.

To view this service guide information, click the Chapter 3 bookmark "Tests and Adjustments" in the PDF Service Guide[1].

After the specified adjustments have been performed, the analyzer should operate and phase lock over its entire frequency range.

EEPROM Backup

The analyzer uses arrays of correction constants to enable the analyzer to produce accurate, leveled source signals and receive clean test signals. These constants are stored in non-volatile EEPROM memory and in flash memory files.

The adjustments listed here generate new correction constants. The analyzer must have a backup of this new data in case any of the data becomes corrupted.

To store the backup data, perform these steps:

— Navigate to the EEPROM Backup Utility, located at:

  — Windows 7 -- `C:\Program Files (x86)\Keysight\Network Analyzer\Service\eebackup.exe`

    — Windows 10 -- `C:\Program Files\Keysight\Network Analyzer\Service\eebackup.exe`

— Run the program.

— Click Backup EEPROM.

— Click Backup TSMB Mem.

— Click Backup Synth Mem. (Applies to Version 7 Synthesizers Only)

— Click Exit when the program has finished.

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1. See "Downloading the Online PNA Service Guide" on page 8.

Figure 19   EEPROM Backup Menu
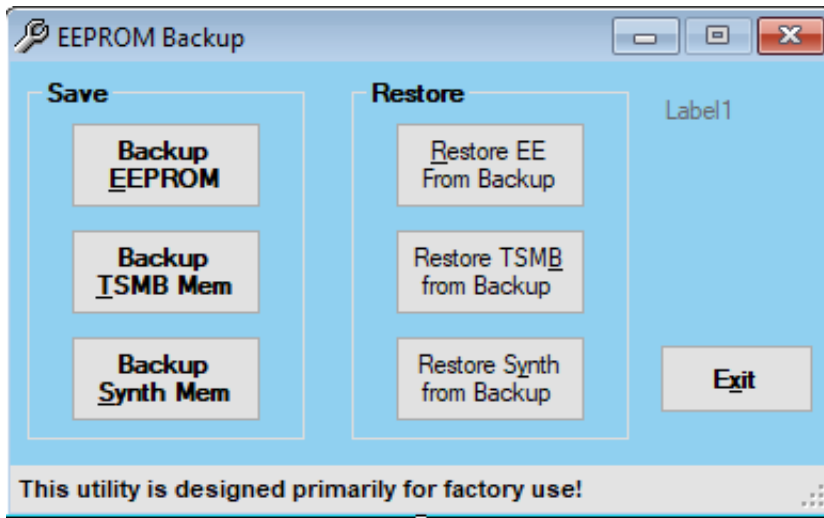
Operator's Check

Perform the Operator's Check to check the basic functionality of the analyzer. For instructions, click the Chapter 3 bookmark "Tests and Adjustments" in the PDF Service Guide[1].

If you experience difficulty with the basic functioning of the analyzer, contact Keysight. Refer to "Contacting Keysight" on page 4.

Calibration

Although the analyzer functions, its performance relative to its specifications has not been verified. It is recommended that a full instrument calibration be performed using the analyzer's internal performance test software. To view information on the performance test software, click the Chapter 3 bookmark "Tests and Adjustments" in the PDF Service Guide[1].

Step 33. Prepare the PNA for the User

1. If necessary, reinstall front jumper cables.

2. Install the cable guards, pushing them over the front jumper cables until the cushioning material touches the front panel of the PNA.

3. Install the dust caps on the test ports.

4. Clean the analyzer, as needed, using a damp cloth.

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1. See "Downloading the Online PNA Service Guide" on page 8.

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