

# Keysight N9038A MXE EMI Receiver Option LSN LISN Control Upgrade

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## Installation Note

**Notice.**

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## LISN Control Upgrade

Products Affected:	MXE N9038A
Requirements:	Instrument Software Version A.13.00 or newer
To Be Performed By:	(X) Agilent Service Center (X) Advanced User ( ) User
Estimated Installation Time:	1.5 Hours
Estimated Adjustment and Verification Time:	0 Hours

This document provides detailed instructions for the installation of Option LSN - LISN Control board assembly in an N9038A MXE EMI Receiver. Please be sure to read this entire document before attempting to perform this upgrade.

### Contents

Quantity	Description
1	A30 LISN Control Board Assembly
1	MP6 Rear Panel
1	W9 LISN Control Cable
1	Hex Standoff
1	Flat Head Screw
1	Option N9038AK-LSN License Entitlement Certificate

### Tools Required

- ☐ Torx Driver T-20
- ☐ Torx Driver T-10
- ☐ 9/16" Nut Driver
- ☐ 5/16" Nut Driver
- ☐ 3/16" Nut Driver
- ☐ USB Storage Device

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## ESD Information

### Protection from Electrostatic Discharge

Electrostatic discharge (ESD) can damage or destroy electronic components. All work on electronic assemblies should be performed at a static-safe workstation. [Figure 1](#) shows an example of a static-safe workstation using two types of ESD protection:

- ❑ Conductive table-mat and wrist-strap combination.
- ❑ Conductive floor-mat and heel-strap combination.

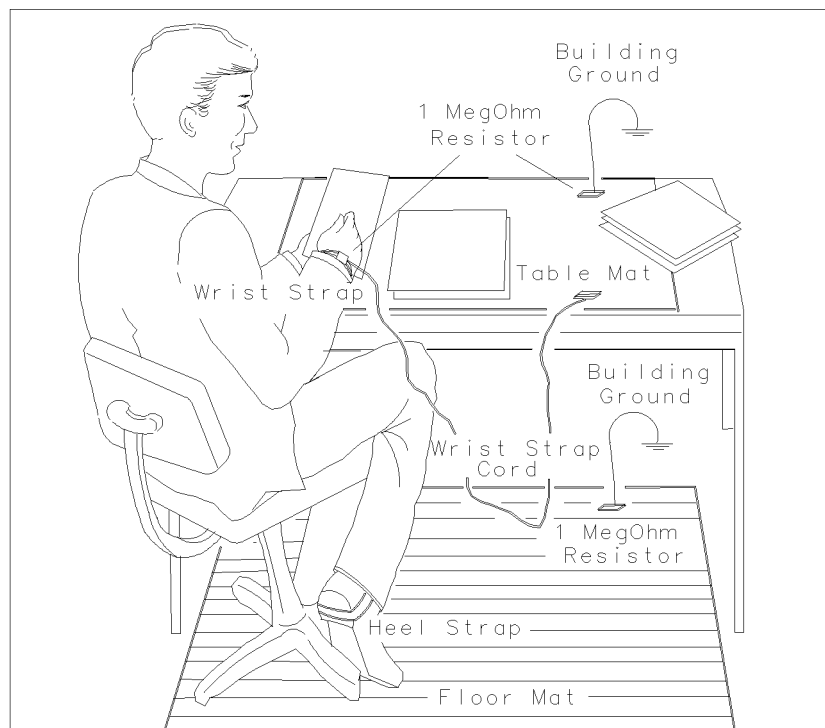
Both types, when used together, provide a significant level of ESD protection. Of the two, only the table-mat and wrist-strap combination provides adequate ESD protection when used alone. To ensure user safety, the static-safe accessories must provide at least 1 megohm of isolation from ground.

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<b>WARNING</b>	<b>These techniques for a static-safe workstation should not be used when working on circuitry with a voltage potential greater than 500 volts.</b>
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**Figure 1**                      **Example of a Static-Safe Workstation**



### Handling of Electronic Components and ESD

The possibility of unseen damage caused by ESD is present whenever components are transported, stored, or used. The risk of ESD damage can be greatly reduced by paying close attention to how all components are handled.

- ☐ Perform work on all components at a static-safe workstation.
- ☐ Keep static-generating materials at least one meter away from all components.
- ☐ Store or transport components in static-shielding containers.

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### CAUTION

Always handle printed circuit board assemblies by the edges. This will reduce the possibility of ESD damage to components and prevent contamination of exposed plating.

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### Test Equipment Usage and ESD

- ☐ Before connecting any coaxial cable to an analyzer connector, momentarily short the center and outer conductors of the cable together.
- ☐ Personnel should be grounded with a 1 megohm resistor-isolated wrist-strap before touching the center pin of any connector and before removing any assembly from the analyzer.
- ☐ Be sure that all analyzers are properly earth-grounded to prevent build-up of static charge.

### For Additional Information about ESD

For more information about preventing ESD damage, contact the Electrical Over Stress/Electrostatic Discharge (EOS/ESD) Association, Inc. The ESD standards developed by this agency are sanctioned by the American National Standards Institute (ANSI).

## Installation Instructions

### Instrument Software Version Verification

1. Determine what version of instrument software is currently installed in the MXE being upgraded by pressing the following front panel keys:

**System, Show, System**

The software revision can be found on this screen as the:

**Instrument S/W Revision**

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<b>NOTE</b>	If the instrument software version is not <b>A.13.00</b> or higher it will need to be updated before proceeding with this upgrade.
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If a software update is required, the latest version of MXE instrument software and installation instructions can be downloaded from:

[http://www.agilent.com/find/mxe\\_software](http://www.agilent.com/find/mxe_software)

Once the instrument software requirement has been met proceed to step 2.

### Instrument Dress Cover Removal

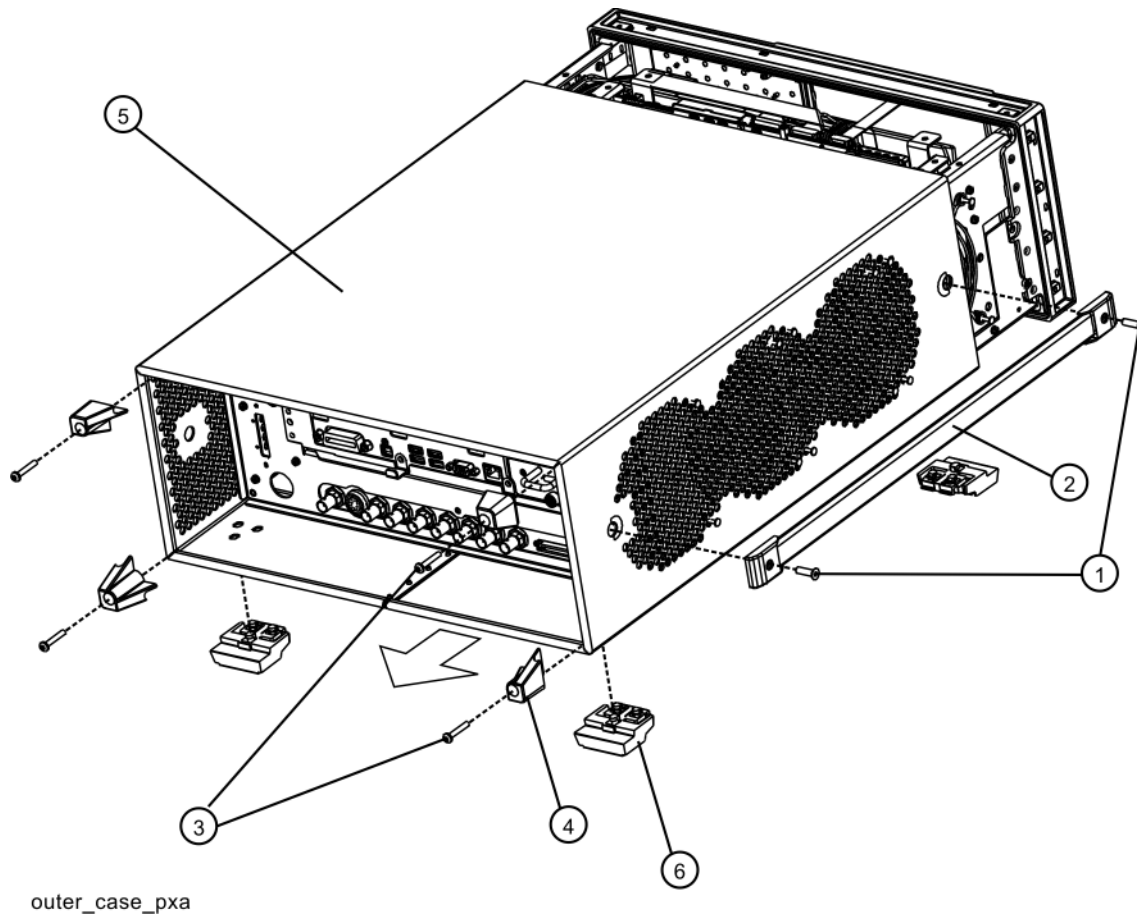
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<b>CAUTION</b>	If the instrument is placed on its face during any of the following procedures, be sure to use a soft surface or soft cloth to avoid damage to the front panel, keys, or input connector.
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2. Turn the instrument off and remove the ac power cord.
3. Refer to [Figure 2](#). Using the T-20 driver, remove the four screws **(1)** that attach the strap handles **(2)** to each side of the instrument.
4. Remove the four bottom feet and locks **(6)** by lifting the tabs on the feet and sliding them to disengage from the outer case.
5. Using the T-20 driver, remove the four screws and washers **(3)** that hold the four rear feet **(4)** in place.
6. The instrument dress cover **(5)** can now be removed by pulling it off to the rear of the instrument.

**Figure 2 Instrument Dress Cover Removal**

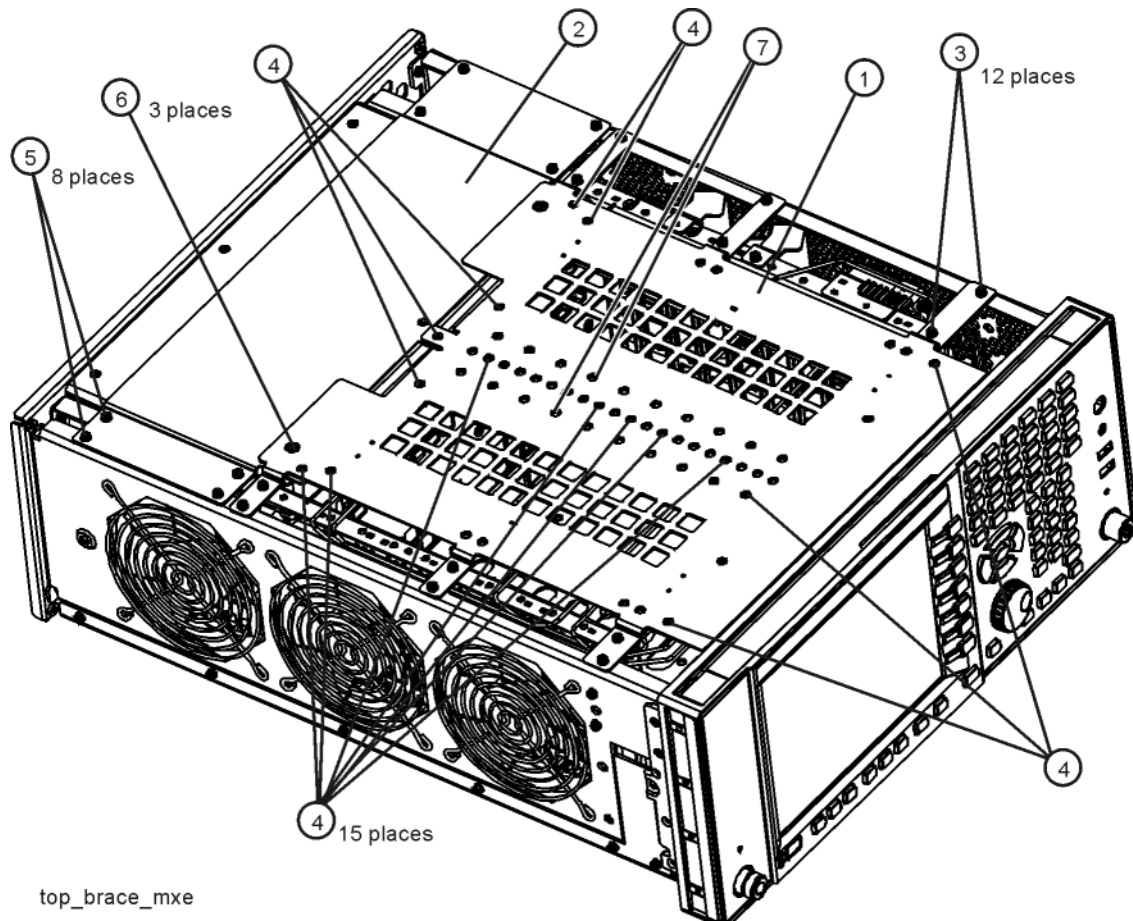


### Top Brace and Power Supply Bracket Removal

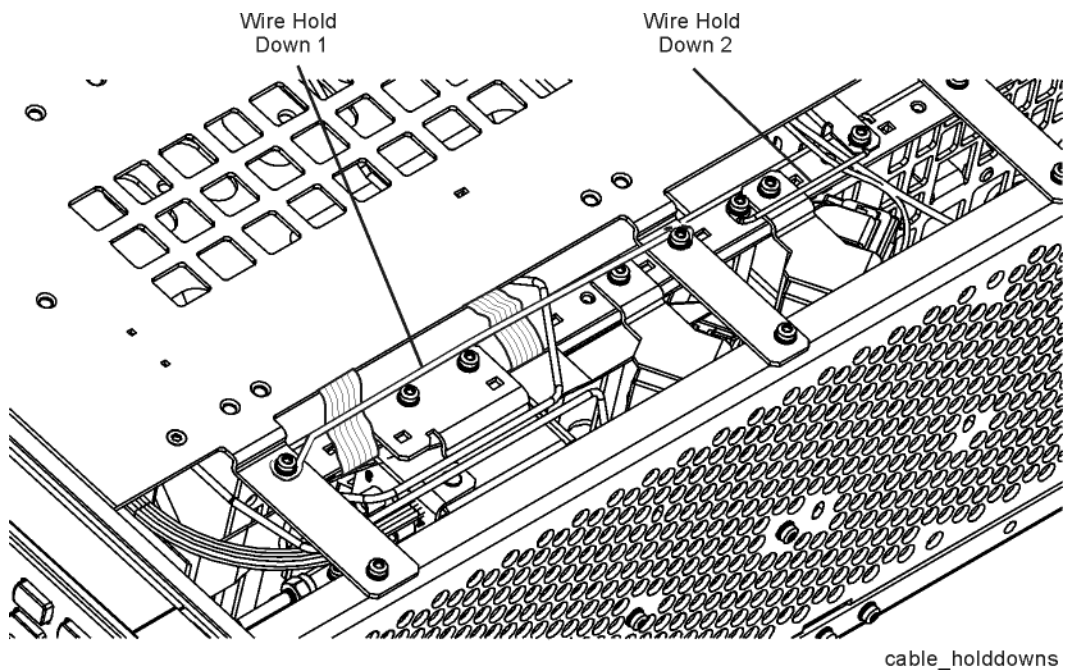
7. Refer to [Figure 3](#). Using the T-10 driver remove the twelve pan head screws **(3)** (0515-0372) attaching the MP10 Top Brace **(1)** to the chassis, along the Wire Hold Down 1 as shown in [Figure 4](#).
8. Remove the fifteen flat head screws **(4)** (0515-1227) attaching the top brace to the board assemblies. The top brace can now be removed.
9. Using the T-10 driver remove Wire Hold Down 2 by removing the two pan head screws (0515-0372) as shown in [Figure 4](#).
10. Using the T-10 driver remove the eight pan head screws **(5)** (0515-0372) and the three flat head screws **(6)** (0515-1227) attaching the MP9 Power Supply Bracket **(2)** to the instrument. The power supply bracket can now be removed.



**Figure 3**                      **Top Brace and Power Supply Bracket Removal**



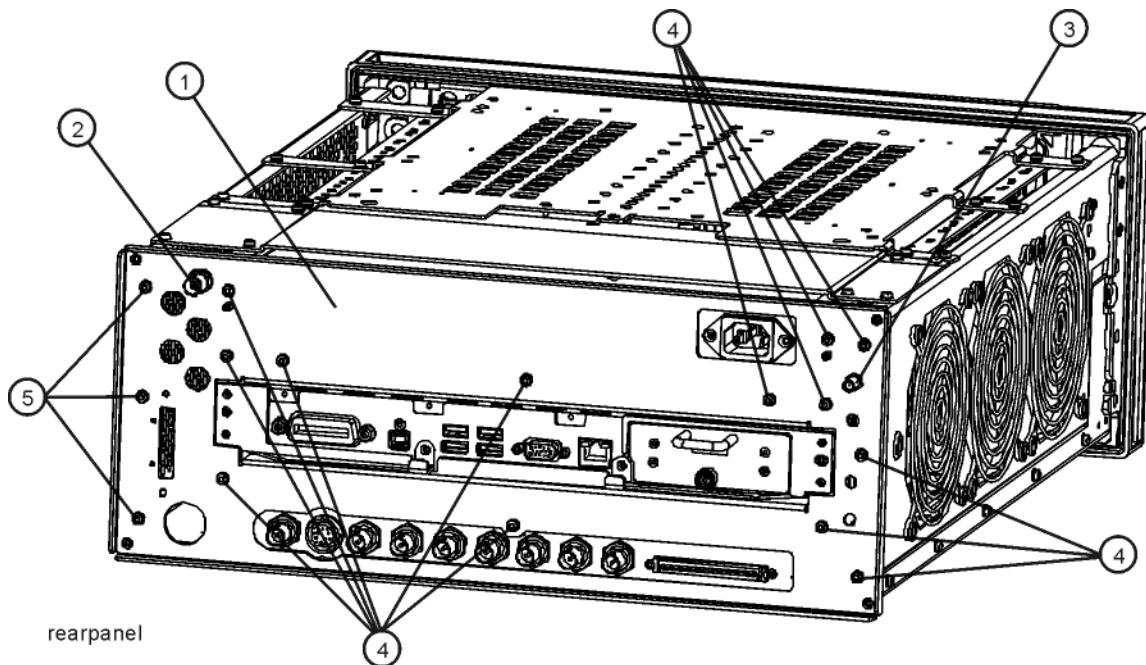
**Figure 4**                      **Wire Hold Downs**



### Rear Panel Removal

11. Refer to [Figure 5](#). Using the 9/16" nut driver remove W21 External Reference Input Cable **(2)** from the instrument rear panel EXT REF IN port.
12. If it exists, using a 5/16" nut driver remove W22 AUX IF Output Cable **(3)** from the instrument rear panel AUX IF OUT port.
13. Using the T-10 driver, remove the thirteen pan head screws **(4)** (0515-0372) and three pan head screws **(5)** attaching the MP6 Rear Panel **(1)** to the instrument. The rear panel can now be removed.

**Figure 5**                      **Rear Panel Removal**



### Right Outer Chassis Side Removal

14. Refer to [Figure 6](#). Using the T-10 driver remove the two flat head screws **(3)** (0515-1035) attaching the MP5 Right Outer Chassis Side **(1)** to the front frame assembly.

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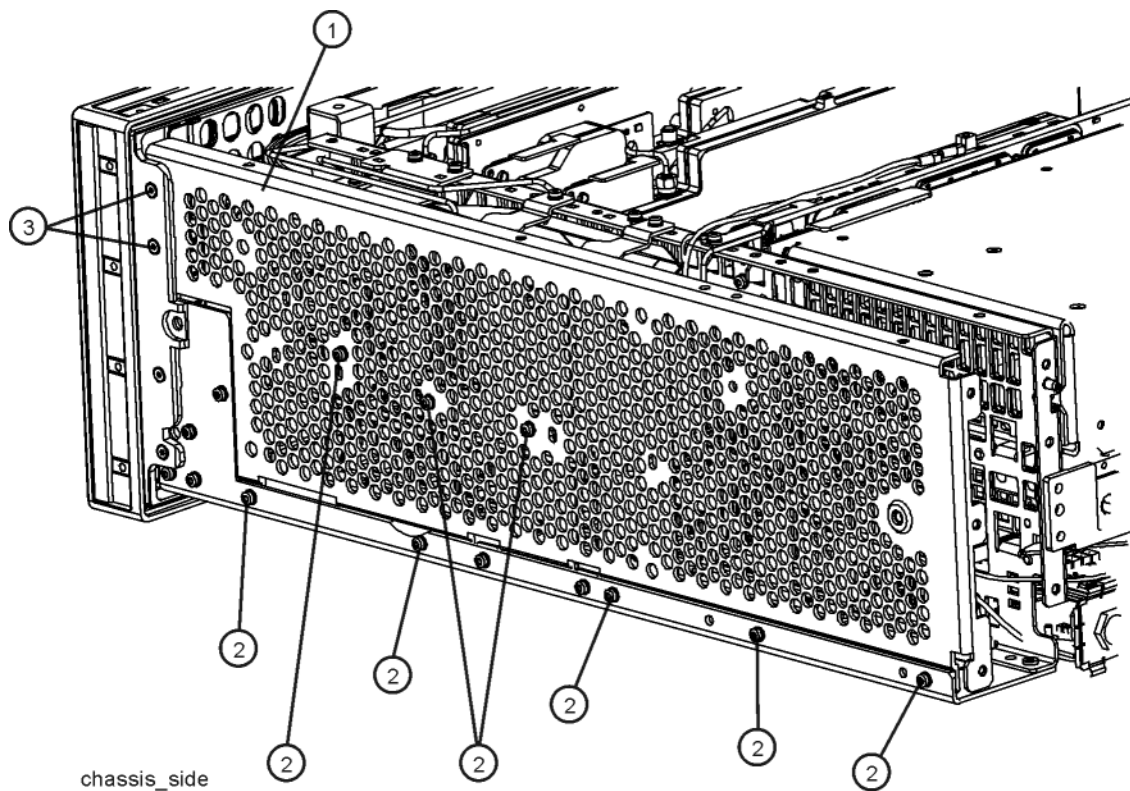
**NOTE**

The two flat head screws (0515-1035) used to attach the MP5 Right Outer Chassis Side to the front frame assembly are longer than the rest of the flat head screws removed during this upgrade. Be sure to note this fact once they are reused so that they will be sure to go back to the correct location during reassembly

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15. Using the T-10 driver, remove the eight pan head screws **(2)** (0515-0372) attaching the right outer chassis side to the instrument. The right side outer chassis can now be removed.

**Figure 6** Right Outer Chassis Side Removal



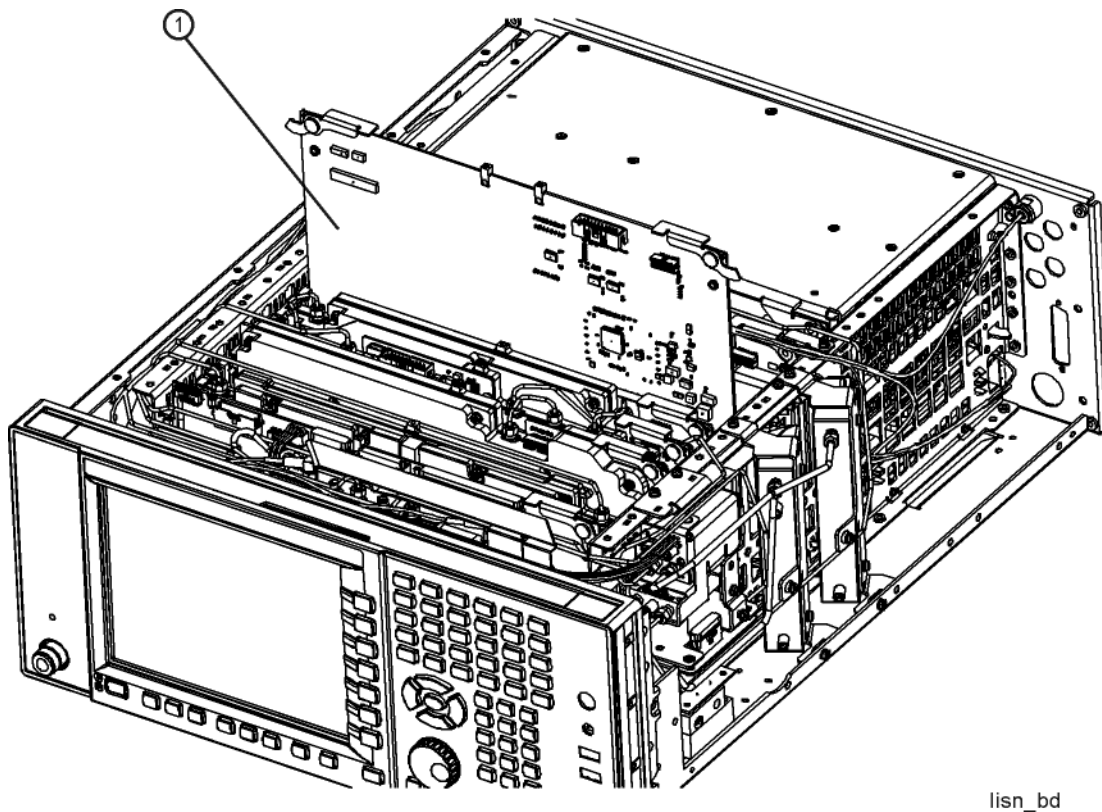
### New Rear Panel Installation

16. Remove the clear protective film from the outer surface of the new MP6 Rear Panel.
17. Refer to [Figure 5](#). Position the new MP6 Rear Panel **(1)** onto the rear of the instrument. If one exists, insert W22 AUX IF Output Cable **(3)** into the AUX IF OUT port on the new rear panel and hand tighten the fastener as the rear panel is positioned onto the instrument.
18. Attach the new MP6 Rear Panel **(1)** to the instrument with the thirteen pan head screws **(4)** (0515-0372). Torque to 9 inch-lbs.
19. If it exists, using the 5/16" nut driver tighten W22 AUX IF Output Cable **(3)** to the instrument rear panel AUX IF OUT port. Torque to 10 inch-lbs.
20. Using the 9/16" nut driver reinstall W21 External Reference Input Cable **(2)** to the instrument rear panel EXT REF IN port. Torque to 21 inch-lbs.
21. Carefully remove any labels and hole plugs from the old rear panel and attach them to the new one.

### A30 LISN Control Board Installation

22. Refer to [Figure 7](#). Lift the board locks on the A30 LISN Control board **(1)** and gently insert it into slot #5 of the instrument motherboard, closing the locks as it is inserted.

**Figure 7**                      **A30 LISN Control Board Installation**

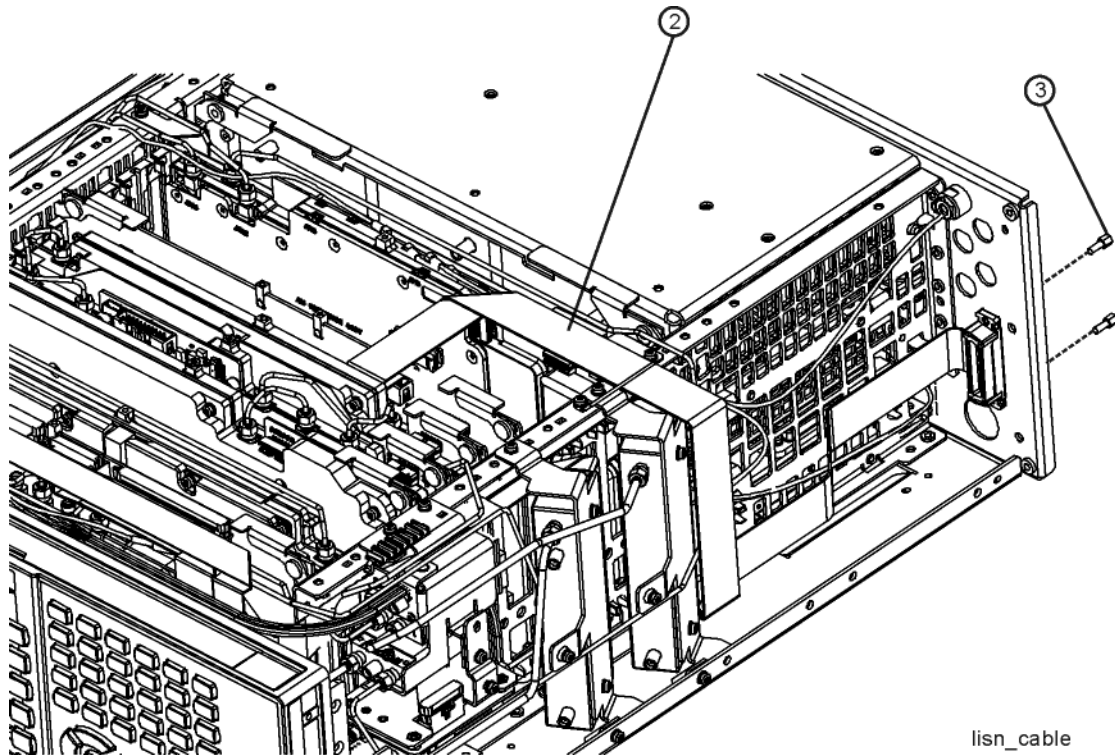




**LISN Control Cable Installation**

23. Refer to [Figure 8](#). Install the W9 LISN Control Ribbon Cable **(2)** between A30 J1 and the rear panel AUX I/O port.

**Figure 8**                      **A30 LISN Cable Installation**

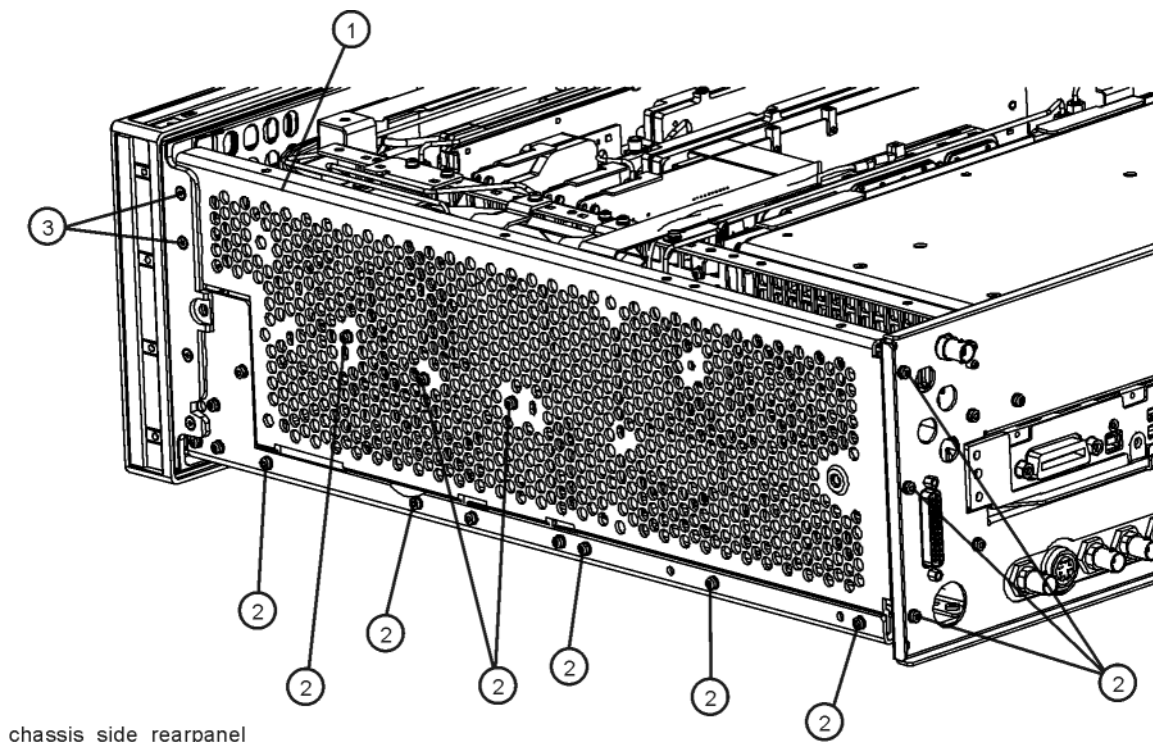


24. Using the 3/16" nut driver attach the W9 LISN Control Ribbon Cable **(2)** to the rear panel with the two hex standoffs **(3)** (0380-1858) provided as shown in [Figure 8](#). Torque to 9 inch-lbs.
25. Using the T-10 driver attach Wire Hold Down 2 to the instrument with the two screws (0515-0372) as shown in [Figure 4](#)Figure 4, with the new A9 LISN Control Cable also being secured by it.

### Right Outer Chassis Side Installation

26. Refer to [Figure 9](#). Using the T-10 driver attach the MP5 Right Outer Chassis Side **(1)** to the instrument with the eleven pan head screws **(2)** (0515-0372) and the two flat head screws **(3)** (0515-1035). Torque to 9 inch-lbs.

**Figure 9** Right Outer Chassis Side Installation



### Top Brace and Power Supply Bracket Installation

27. Refer to [Figure 3](#). Using the T-10 driver attach the MP9 Power Supply Bracket **(2)** to the instrument with the eight pan head screws **(5)** (0515-0372) and the three flat head screws **(6)** (0515-1227). Torque to 9 inch-lbs.
28. Using the T-10 driver attach the MP10 Top Brace **(1)** to the instrument with the fifteen flat head screws **(4)** (0515-1227) and the twelve pan head screws **(3)** (0515-0372), along the Wire Hold Down 1 as shown in [Figure 4](#). Torque to 9 inch-lbs.
29. Using the T-10 driver install the two flat head screws **(7)** (0515-1227) provided with this upgrade kit to secure the A30 LISN Control board assembly to the top brace. Torque to 9 inch-lbs.

### Instrument Dress Cover Installation

30. Before reinstalling the dress cover inspect the instrument to be sure that there are no loose screws or cables, and that no cables are being pinched.
31. Refer to [Figure 2](#). Install the instrument dress cover by carefully sliding it onto the instrument from the rear.
32. While making sure that the front edge of the dress cover fits evenly into the gasket at the rear of the front frame, use the T-20 driver to attach the four screws and washers **(3)** that hold the four rear feet **(4)** to the instrument. Torque to 21 inch-lbs.
33. Using the T-20 driver, attach the two strap handles **(2)** to the instrument with the four screws **(1)**. Torque to 21 inch-lbs.
34. Install the four bottom feet **(6)** by inserting them into the holes in the bottom of the instrument and slide them to engage them with the dress cover. Insert the locks so that the feet cannot accidentally disengage.

### License Key Retrieval and Installation

35. Plug the instrument into the ac power source and turn it on.
36. Following the instructions on the Option N9038AK-LSN License Entitlement Certificate redeem the Option LSN license key for the instrument being upgraded.
37. Once the Option LSN license key has been redeemed follow the installation instructions that come with the license to install it into the instrument.

### Installation Verification

38. Once the new option hardware and license key have been installed cycle the instrument power so that they will be completely initialized and recognized by the instrument software.
39. On the instrument front panel press **System, Show, System** and verify that there is an entry for:  
N9038A-LSN LISN Hardware Support
40. Press **System, Show, Hardware** and verify that there is an entry for:  
General Purpose IO Control N903860027
41. The installation of Option LSN is now complete.

## **Adjustments and Performance Verification**

Adjustments and performance verification testing requires the use of the calibration software. The latest software information and downloads are available at:

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

### **Adjustments Required**

None

### **Performance Testing Recommended**

None

For assistance, contact your nearest Agilent Technologies Sales and Service Office. To find your local Agilent office access the following URL:

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