

N5173B-10A

Information Only Service Note

Supersedes:
N5173B-10

N5173B X-Series EXG μ Wave Signal Generator

Serial Numbers: ALL

The Problem - A3 RF assembly boards showing Heater and Unlock errors

Parts Required:

P/N	Description	Qty.
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NONE

ADMINISTRATIVE INFORMATION

<input type="checkbox"/>	Calibration Required
X	Calibration NOT Required

PRODUCT LINE: 15
AUTHOR: PY

ADDITIONAL INFORMATION:

Situation:

Recently we noticed several A3 RF Assemblies return to factory with the following Heater and Unlock errors at the Annunciators area. It can also include errors 619, FPGA revision is invalid. Do refer to Figure 1a and 1b for the details.

Figure 1a – Heater and Unlock Errors with Invalid FPGA Rev #

FREQUENCY 6.000 000 000 000 GHz RF OFF -144.00 dBm

HEATER **UNLOCK ERR**

Name	Part#/Rev#	Serial#	HUID	OFR	PIC	Opts	Extr
RF	N5180-69238	23144700080	0000	000	000	0000	0000
Analog FPGA	0,0000,0000:0000						
PCI FPGA	7,0130,0000:feb9						
Ref FPGA	0,0000,0000:0000						
Synth FPGA	0,0000,0000:0000						
Invalid FPGA Rev#							
BB	N5180-60145	23140900119	0000	000	000	0000	0000
IF FPGA	2,0c11,0138:f2a7						
BBG FPGA	40c8,0762,1000:e88e						
Memory	2GB + 2GB						

ERROR: 530, ALC Detector Heater Failed

Or

FREQUENCY 6.000 000 000 000 GHz RF OFF -144.00 dBm

HEATER **ERR**

Name	Part#/Rev#	Serial#	HUID	OFR	PIC	Opts	Extr
RF	N5180-69238	23141900058	0000	000	000	0000	0000
Analog FPGA	ffff,ffff,ffff:ffff						
PCI FPGA	7,0130,0000:feb9						
Ref FPGA	ffff,ffff,131a:0000						
Synth FPGA	0,0000,0000:0000						
Invalid FPGA Rev#							
BB	N5180-60145	23122000012	0000	000	000	0000	0000
IF FPGA	2,1462,112e:da60						
BBG FPGA	40d6,1794,0338:e524						
Memory	2GB + 2GB						

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Figure 1b – Multiple Error 619

FREQUENCY		RF OFF
6.000 000 000 000 GHz		-144.00 dBm
HEATER		ERR
Error Queue		
619, FPGA revision is invalid; FPGA: ANALOG (found 0, expected 7).		(neu) 1/10
619, FPGA revision is invalid; FPGA: ANALOG (found 0, expected 1db01501).		(neu) 2/10
619, FPGA revision is invalid; FPGA: REFERENCE (found 0, expected 2).		(neu) 3/10
619, FPGA revision is invalid; FPGA: REFERENCE (found 0, expected 12ba131a).		(neu) 4/10
11/30/2022 11:27		

FREQUENCY		RF OFF
6.000 000 000 000 GHz		-144.00 dBm
HEATER		ERR
Error Queue		
619, FPGA revision is invalid; FPGA: SYNTH (found 0, expected 12d).		(neu) 5/10
617, Configuration Error; The backup memory contains license keys for serial number CN83000142. Use the service procedure to overwrite the backup memory.		(neu) 6/10
533, RF Analog FPGA DCM unlocked		(neu) 7/10
508, Synthesizer Unlocked; FracN Loop.		(neu) 8/10
11/30/2022 11:28		

Solution/Action:

This Service Note is to emphasize on the proper handling of the A3 RF Assembly board, from removal of the assembly from the carton box, handling on the workbench to removal from instrument and the replacement procedure.

A. Removal from the carton box

Below figures 3 and 4 shows the correct and incorrect method to remove the A3 RF assembly board from the carton box.



Figure 3



Figure 4

B. While working with the board

Avoid tilting the board where components touches the workbench. This would give pressure on the PCA and potentially can damaged the PCA as well as the components in the area. Always lay the board flat on the workbench. Refer to Figure 5.

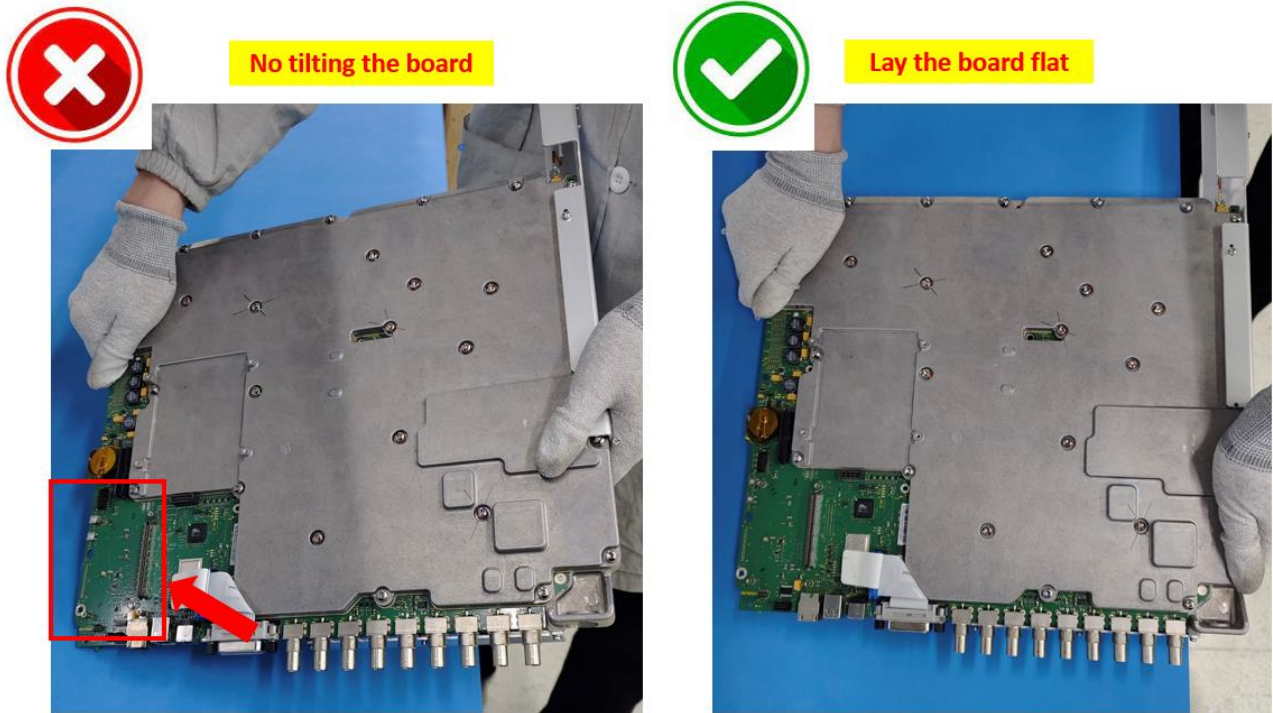


Figure 5

Figure 6 shows the correct and incorrect method of holding the board while removing and fixing the fixture.

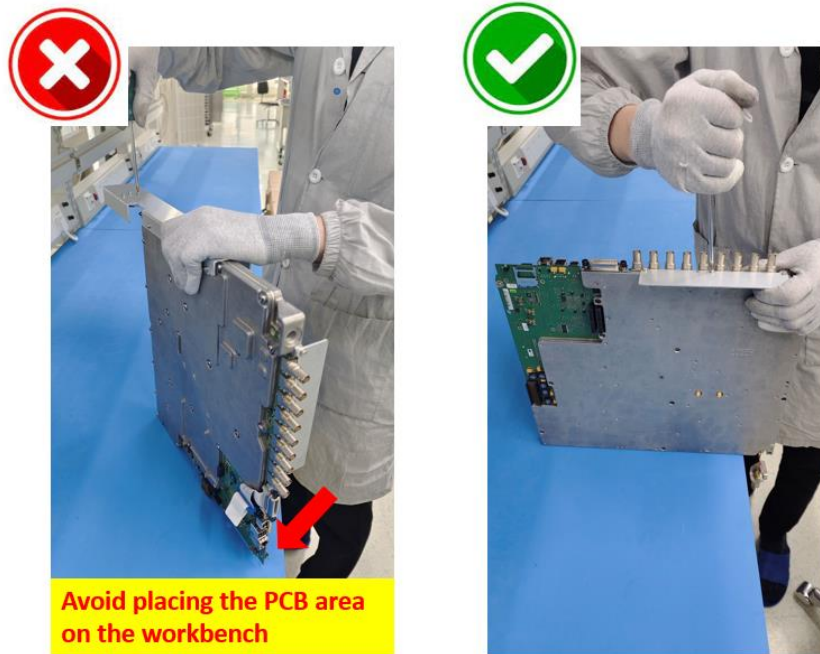


Figure 6

C. Removal from the instrument

Pry slots are provided on both sides of the A3 RF assembly to aid in removing of the board. Use a flat head (a wedge-shaped flat tip) screwdriver to loosen the board from the chassis as shown in Figure 7.

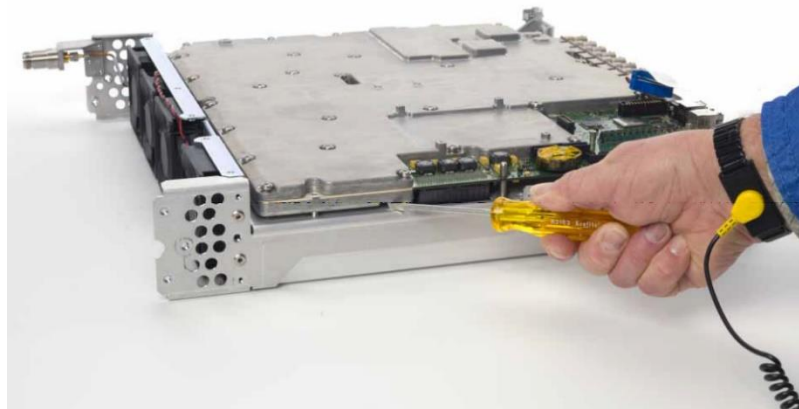


Figure 7

Figure 8 shows the correct and incorrect method of holding the board while removing and installing the board to the instrument.

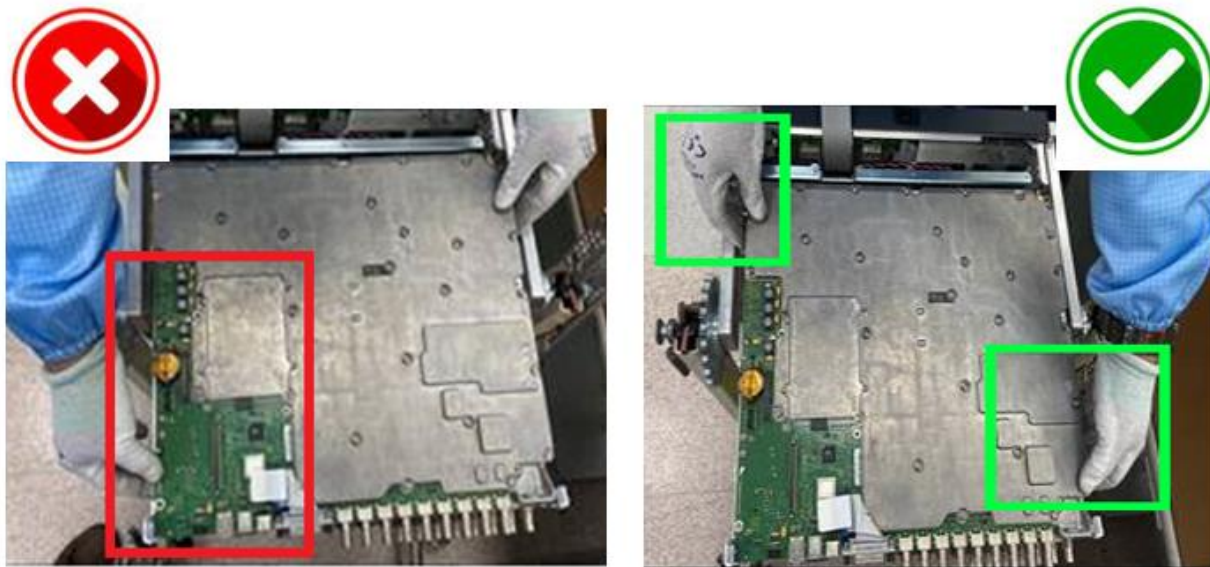


Figure 8

Another precaution is when removing and reinstalling back the screw (refer to Figure 9), it is not necessary to remove the ribbon cable to avoid re-attaching the ribbon cable back.

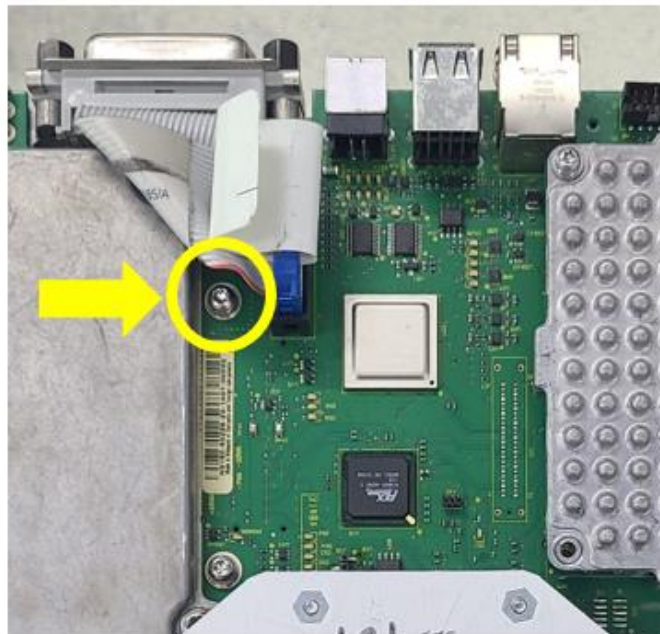


Figure 9

This service note is to complement the X-Series Signal Generator Service Guide (N5180-90059), Assembly Replacement Section for A3 RF assembly.

Revision History:

Date	Service Note Revision	Author	Reason for Change
13 Dec 2022	01	Petrina Yong	As Published
14 June 2023	02	Petrina Yong	Added more handling procedure