66102A-08

S E R V I C E   N O T E

Supersedes:
None

66102A DC Power Supply

Serial Numbers: MY40006665/MY40007235

The instrument will not communicate or will not complete self test.

To Be Performed By: Agilent-Qualified Personnel or Customer

Parts Required:

P/N	Description	Qty.
1200-1274	SOCKET-IC- 68-CONT PLCC	1
1821-1479	IC 16-Bit MCU 16 MHZ CMOS 68PLCC	1
6610X-61022	PCA-TSTD PWRMESH	1

IMPORTANT

Consult the Service Manual for the 6610XA Power Modules p/n 5959-3364. The information in the Service Manual should be used during the disassembly and reassembly see page 57. The Service Manual can be viewed on line at the web address described below.

When doing this Modification the following steps are required.
1. Follow proper procedures to eliminate ESD damage to the instrument and components.
2. The AC line MUST be turned OFF at the source and disconnected from the instrument.
3. The correct hand tools should be used for disassembly and assembly procedures.

http://cp.literature.agilent.com/litweb/pdf/5959-3364.pdf

ADMINISTRATIVE INFORMATION

Agilent Technologies

SPECIAL NOTE:
When a 6610XA comes in for calibration or repair and the instrument has a serial number with in the range shown above the socket may need to be replaced?

To identify if the socket is defective see Figure 2 below for specific details.

SPECIAL REPAIR NOTE! (Circuit Reference "U001").
The 16-Bit processor p/n1821-1479 should only be replaced if the package is cracked, broken or the pins are bent or broken during the modification.
Remove the 16-Bit processor p/n1821-1479 from the socket before the 68 pin PLCC socket p/n 1200-1274 is replaced.
The 16-Bit processor package p/n1821-1479 must be inspected for cracked bent or broken pins before it is reinstalled in the NEW socket.

It is recommended that an authorized technician or operator that has been trained to solder delicate components and multi layer printed circuit board assemblies remove and replace the 68 pin PLCC socket p/n 1200-1274.

The PCA-TSTD, PWRMESH p/n 6610X-61022 should only be replaced if the traces on the printed circuit board are damaged during the removal of the 68 Pin PLCC socket p/n 1200-1274 (Circuit Reference "U001").

It is very unlikely that the PCA-Tested assembly p/n 6610X-61022 will need to be replaced if the 68 pin PLCC socket p/n 1200-1274 is removed and replace with care**.**
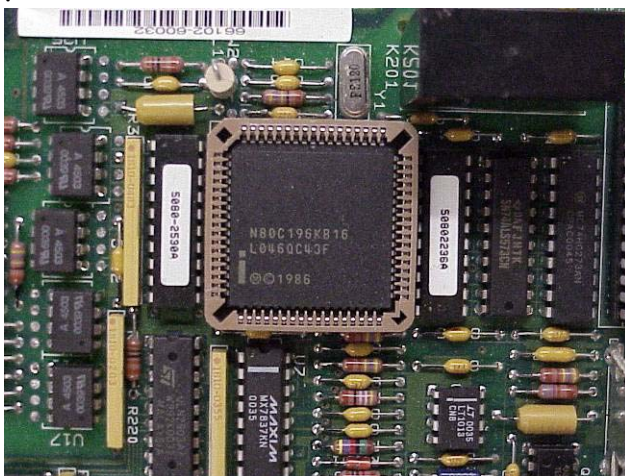
> **Situation:**
> When the 16-Bit processor p/n1821-1474 is installed in the 68 pin PLCC SOCKE**T** P/N 1200-1274 "U001" if there is not a gas tight connection between the processer pins and the socket pins an intermittent connection will occur.
>
> The pin connections may not be reliable. Over time the pins may become intermittent which will cause the instrument not to communicate or not complete self test.
>
> **IMPORTANT**
> Simply removing the 16-Bit processor p/n 1821-1474 and reinstalling it will not insure a gas tight connection or guarantee that the instrument will be reliable. To insure reliability the socket must be removed and replaced.
>
> Figure 1 will help to identify the **68-PIN PLCC SOCKET location -** P/N 1200-1274 (Circuit Reference "U001")
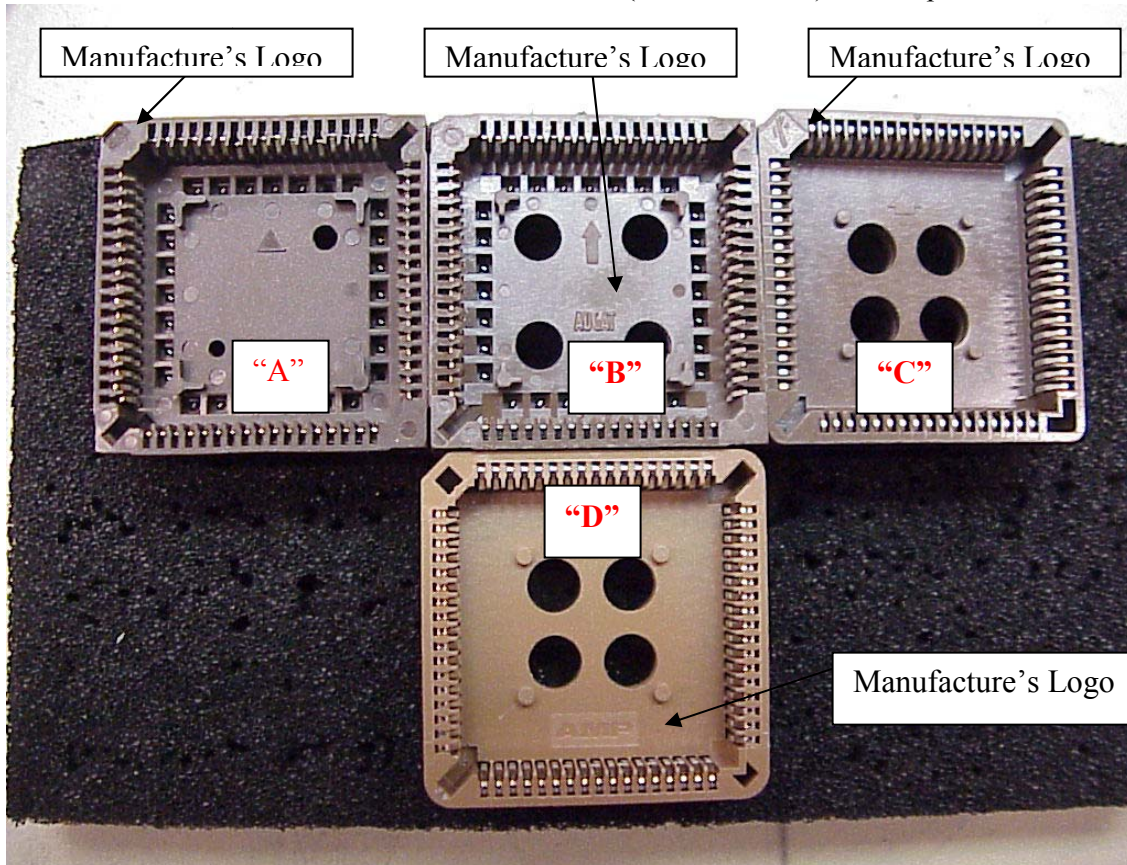
This picture shows the required tool used to remove the processor.

Figure1

Figure 2
This figure should be used to identify **GOOD** socket**s** and a potential defective socket.
The **16-Bit MCU 16 MHZ 68PLCC CMOS IC (**P/N 1821-1479) is <u>NOT</u> pictured.

The following information will help identify each socket type and manufacturer. The manufactures logo can be identified as shown. After the **16-Bit MCU 16 MHZ 68PLCC CMOS IC** has been removed There are also mold markings that can be easily viewed these markings should be used to identify a **Good or Defective socket**.

Socket **"A"** is a sample of a GOOD AMP socket.
Socket **"B"** is a sample of a GOOD Tyco/Augit socket.
Socket **"C"** is a sample of a GOOD FCI socket.
Socket **"D"** is a sample of a DEFECTIVE Tyco socket.

The sockets above labeled "**A","B" or "C**" are good and should NOT be replaced.
The socket above labeled "**D"** is considered defective should replaced.

The information described in the following documents is the Corrective Action Plan from Tyco related to the 68 pin PLCC socket MFPN **1-822473-6**.

Discipline "A" & "B"

**Discipline A – Permanent Corrective Action Plan "The socket shown in the pictures are for reference ONLY"**

The condition of the recessed beams has been corrected by a design enhancement implemented in production. This design enhancement increased the spring height dimension by 0.04mm and decreased the spring height tolerance by 40%. The spring height dimension is shown in the drawing below.
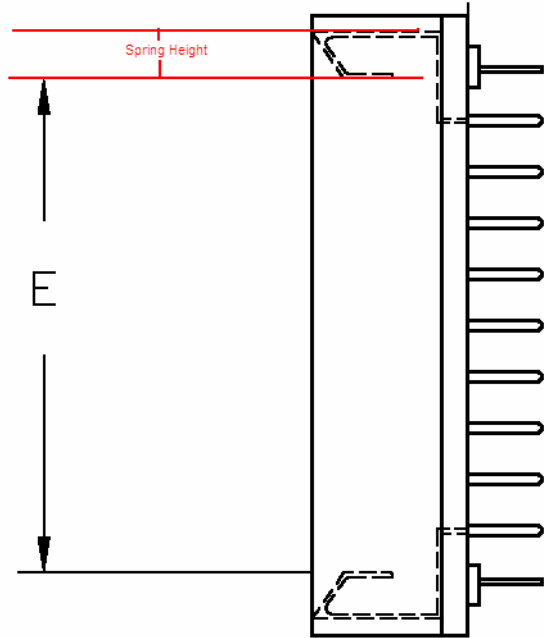
This design enhancement is intended to position the contact beams closer to the middle of the socket and increase the normal force exerted on the contacts of the chips mated to the socket.

Discipline B – Verification of Corrective Action "The socket shown in the pictures are for reference ONLY"

The effectiveness of this design enhancement was tested by comparing the mating and un-mating forces on the older and newer designs. The test results for sockets with the increased spring height (newer design) showed an increase in the mean mating force of 18.9% and an increase in the mean un-mating force of 23.4%. The increase in the un-mating force test results between the old design and the new design indicate that a greater normal force is being exerted on the test chip contacts by the socket contact beams. The two revisions of this contact beam design were visually examined after the mating and un-mating force testing. Photos of the two sockets are shown below. The photo on the left shows the older version socket prior to the enhanced contact beam design. The photo on the right shows a socket with the design enhancement. The contacts with the older design appear to be recessed farther into the housing after un-mating.
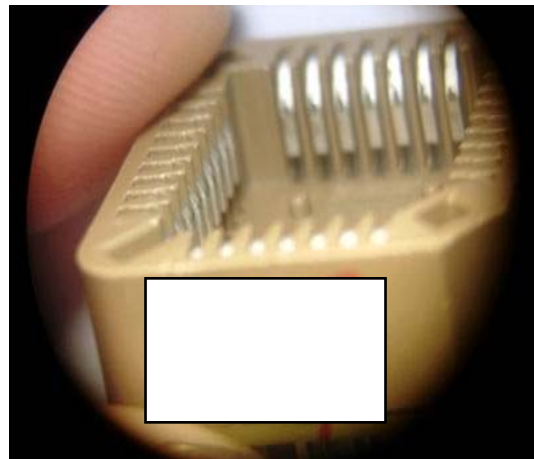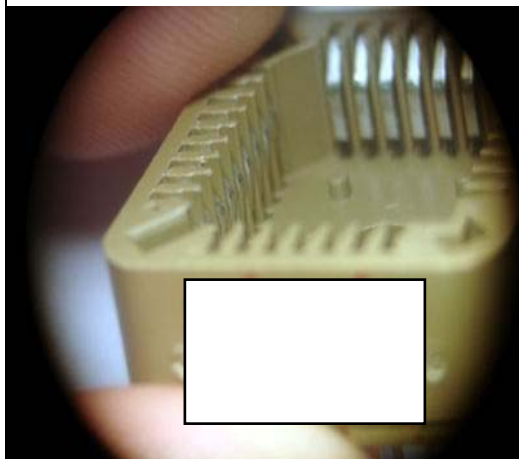
Material with this design enhancement will be labeled with a 2007 date code

Solution/Action:
Any Model having a serial number starting and ending with the serial numbers shown in the chart below should have the socket 68-PIN PLCC SOCKET - P/N 1200-1274 (Circuit Reference "U001") **REPLACED!**

Agilent's manufacturing center has removed all Tyco socket MFPN 1-822473-6. From Finished Goods Inventory and Work in Process.

Agilent's Support Parts Organization world wide inventory has been purged the Tyco socket MFPN 1-1-822473-6 will be removed and replaced as required.

Tyco suggested we use their p/n 1-571541-3 instead of their p/n 1-822473-6. They claim this socket is more robust.

Since Tyco has suggested to use a more robust socket. Agilent's materials engineering group will proactively investigate other sources for the 68-PIN PLCC SOCKET - P/N 1200-1274 that may be used in the future.

<table>
<tr><th></th><th colspan="2">Serial number Range</th></tr>
<tr><th>Models</th><th>Starting</th><th>Ending</th></tr>
<tr><td>66101A</td><td>MY40005108</td><td>MY40005405</td></tr>
<tr><td>66102A</td><td>MY40006665</td><td>MY40007235</td></tr>
<tr><td>66103A</td><td>MY40005783</td><td>MY40006268</td></tr>
<tr><td>66104A</td><td>MY40002823</td><td>MY40003051</td></tr>
<tr><td>66105A</td><td>MY40001188</td><td>MY40001225</td></tr>
<tr><td>66106A</td><td>MY40000389</td><td>MY40000589</td></tr>
</table>

Testing & Calibration NOTE
When this modification is complete the instrument should be turned on using the 66000A mainframe. The 6610XA should complete self test. The instrument should also be programmed for voltage and current. Complete performance testing is NOT required.

The instrument should output the programmed voltage and current and should pass the self test.

Changing either the 68 pin PLCC SOCKET P/N 1200-1274 or the 16-Bit processor p/n1821-1474 does NOT require calibration.

Special Note
The following Service Notes described below are other models that may have the same problem as described above.

66101A-09	66103A-08	66105A-09
66102A-08	66104A-09	66106A-08