S E R V I C E   N O T E

SUPERSEDES: None

E1445A C-Size VXI Arbitrary Function Generator

Serial Numbers: 3144A00101 / 3144A00279

Modification to prevent or correct unit failure due to reverse-biased capacitors.

To Be Performed By: Agilent-Qualified Personnel

Parts Required:

Part No.	Qty.	Description
0180-3751	2	Electrolytic Capacitor, 1 uF, 35V, Tantalum, surface-mount
2110-0699	1	*Fuse, 5A, axial-lead

* Only required if the original fuse has opened (F302, located on the E1445-63501 motherboard).

Situation:

All E1445A modules in the indicated serial number range were shipped from the factory with two electrolytic capacitors installed physically and electrically backward. The cause was the polarizing dot on the PC board for these caps being in the wrong location on all Revision A and Revision B E1445-63503 PC boards. Because this makes the caps reverse-biased, it is possible that they could fail at any time by shorting. This may also cause fuse

Continued

DATE: 11 August 1992

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:

MODIFICATION RECOMMENDED

ACTION CATEGORY:	■ IMMEDIATELY □ ON SPECIFIED FAILURE □ AGREEABLE TIME	STANDARDS: Labor 1.0 Hour			
LOCATION CATEGORY:	□ CUSTOMER INSTALLABLE □ ON-SITE ■ SERVICE CENTER	SERVICE INVENTORY:	■ RETURN □ SCRAP □ SEE TEXT	USED PARTS:	□ RETURN ■ SCRAP □ SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE	AGILENT RESPONSIBLE UNTIL: 25 July 1995			
AUTHOR: KD	ENTITY: 0900	ADDITIONAL INFORMATION: Internal Reference PCO 09-28801			

Agilent Technologies

F302 to open on the E1445-63501 board. Symptoms may include the "Error" LED and/or the "Failed" LED on the E1445A front panel being lit, indicating a failure. Sending the SYST:ERR? command to the E1445A and entering the results in a string variable may yield one of the following error messages:

> Error -330,"SELF_TEST FAILED;LCI1* INTERUPT LINE"
> Error -330,"SELF_TEST FAILED;SINE DAC DATA"
> (or others)

Here is a sample BASIC program that can be sent over GPIB to the E1445A to read the system error queue (NOTE: There may be more than one error message in the buffer. Read the system error queue unit it returns "0, No Error".)

```
DIM A$[80]
OUTPUT 709xx;"SYST:ERR?"        xx = E1445A Secondary Address
ENTER 709xx;A$                      (Logical Address divided by 8).
PRINT A$                            Factory LA is 80 (xx = 10). END
```

Solution/Action:

CAUTION

Perform the repair steps listed below at a static-safe workstation. The E1445A contains components that can be damaged by static electricity.

Loosen (but do not remove) all of the E1445A front panel hardware before attempting to remove the sheet metal cover. Next, remove the nine screws holding the top and bottom sheet metal covers together and remove the top cover (the top cover is the larger one with all the printing on it). The E1445-63503 is the small PC board at the rear of the module that is piggy-backed to the motherboard (E1445-63501) by two mating connectors. Carefully remove the E1445-63503 board from the motherboard.

Check the ERC date code on the E1445-63503. If it is 3231 or greater, the modifications in this service note have already been implemented.

NOTE

An ERC (engineering revision code) is in the form YYWW and is usually found on a small white label on the PC board, where:

> YY = YEAR-1960   (Example: If YY=32, the year is 1992 [1992-1960=32])
> WW = WEEK (Example: If WW=10, it indicates the 10th week of YY)

If the ERC is less than 3231, proceed as follows:

Replace the two capacitors (C707 and C709) on the E1445-63503 board with new parts (p/n 0180-3751). C707 and C709 are on opposite sides of the PC board, within one-half inch of the top edge of the board. They are surface-mounted components about one-eigth inch square, typically yellow in color. Use a small-tip, low-wattage soldering iron to remove and install the caps. Be careful not to overheat the PC board or the caps.

Because it is possible that the caps installed on Rev A and Rev B E1445-63503 boards with an ERC date code less than 3231 have been damaged by reverse-bias, DO NOT RE_USE THE ORIGINAL CAPS! Replace them with new parts.

When installing the new caps, ignore the polarizing dot on the PC board. The correct way to orient the cap is with the positive polarity marking (a dot or a stripe on the cap) toward the edge of the PC board.

If fuse F302 on the E1445-63501 motherboard has opened, replace it with P/N 2110-0699. F302 is the second fuse from the bottom in the row of five axial green fuses next to the P2 connector on the motherboard.

Change the ERC date code to 3231 for modified Revision A and B boards.

Re-assemble the E1445A. Install it in a C-size VXI mainframe with an E1405A/B or E1406A Command Module in slot 0 and apply power. Verify that the E1445A completes its turn-on sequence with no errors (indicated by only the "Ready" LED remaining on after 5 seconds).

Send the "*TST?" command to the E1445A instrument and read back the self-test results. The results should be 0.

Here is a sample BASIC program that can be sent over GPIB to the E1445A to perform the self-test:

```
OUTPUT 709xx;"*TST?"
ENTER 709xx;A
PRINT A
END
```

NOTE
Re-calibration of the E1445A is not required after this modification