SUPERSEDES
3456A-15A

-hp- MODEL 3456A DIGITAL VOLTMETER

Serial Numbers Prior To: 2201A04796

ENHANCEMENT OF MAIN CONTROLLER BOARD (A4)

Instruments in the above range of instruments may be subject to a wide variety of Outguard digital problems caused by a speed deficiency of the microprocessor, A4U15, and the two RAMs, A4U10 and A4U11. The symptoms can be seen in one or more of the following descriptions:

1. Unit will not pass selectable Self-Test #2 at turn-on, or after being completely warmed up.

2. Unit "locks up" and won't respond to front panel commands.

3. Unit will not respond to HP-IB commands.

4. Unit becomes unstable.

5. Unit "hangs up" HP-IB or sends false SRQ.

These symptoms will almost always be intermittent and are likely to disappear temporarily if the instrument is reset or power is cycled off and on again. The only positive cure is as described below.

MODIFICATION PROCEDURE

Refer to the 3456A Operating and Service Manual (-hp- P/N 03456-90004) for board locations, disassembly procedures, and safety precautions.

W/OF/WO

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3456A-15B

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CAUTION

The assembly and components involved in the following steps are all static sensitive, and should be handled at a static free work area, and in accordance with approved procedures.

1. Remove the Outguard Main Controller assembly (A4) from the instrument.

2. Remove and discard U10, U11, and U15 from the assembly.

3. Use the following components to replace the previous components in step 2.

Designator	-hp- Part Number	
U10	1818-1877	
U11	1818-1877	
U15	1820-2137	with a DATE CODE of 81-36 or later

4. Return the board to its proper position in the instrument, reconnect the cable, and reassemble.

To verify proper operation, perform the instrument self-tests by pressing the "SELF TEST" button. The instrument should respond by alternately displaying all LEDs and annunciators, blanking out, and then repeating the cycle again. Press the "SELF TEST" button to resume normal operation.

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3456A-14A
SERVICE NOTE

SUPERSEDES
3456A-14

-hp- MODEL 3456A DIGITAL VOLTMETER

Serial Numbers Prior to: 2201A06299

ENHANCING ANALOG CIRCUITRY

Instruments in the above range of serial numbers may be subject to a wide variety of operational characteristics caused by intermittent ground paths in the Inguard analog circuitry. The enhancement described below should be performed on each of these instruments the first time the symptoms are observed, or on customer request. The intermittent symptoms can manifest themselves through one or more of the following operational descriptions:

1. Unit will fail any one of the Self-Tests, #3 to #12.

2. Unit will not operate in any mode of operation, but will respond to keyboard operations.

3. Unit display will be in constant over-load.

These symptoms will almost always be intermittent and are likely to disappear temporarily upon any type of service effort, such as re-seating P.C. boards, cleaning contacts, mechanical vibrations, replacing components, etc. the only positive cure is as described below.

MODIFICATION PROCEDURE

Refer to the 3456A Operating and Service Manual (-hp- P/N 03456-90004) for board locations, disassembly procedures and safety precautions.

CAUTION

The assemblies and components involved in the following steps are all static sensitive, and should only be handled at a static free work area, and in accordance with approved procedures.

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1. Remove the Inguard Controller (A30), Analog (A20), AC Converter (A40), and Inguard Power Supply (A10) assemblies from the instrument.

2. Place the instrument upside down.

3. Observe the inter-board post connector pins; J15-1, J15-8, J30-1, J21-10, J17-1, and J18-10.

4. Remove only the rivets associated with the connector pins noted above, and allow the solder lugs to remain.

5. Use the following parts in the next step:

Description	-hp- Part Number
2-56 Panhead Pozidrive Screw .25LG	0520-0128
2-56 Nut	0610-0001
2-56 Lock Washer	2190-0014

6. Use the parts in step 5 to replace the rivets and firmly tighten the screws.

7. Return the boards to their original positions in the instrument, reconnect all cables, and reassemble.

To verify proper operation, perform the instrument self-tests by pressing the "SELF TEST" button. the instrument should respond by alternately displaying all LEDs and annunciators, blanking out, and then repeating the cycle again. Press the "SELF TEST" button to resume normal operation.

SUPERSEDES
3456A-13

-hp- MODEL 3456A DIGITAL VOLTMETER

Serial Numbers Prior To: 2201A05331

MODIFICATION FOR DIGITAL CIRCUITRY ENHANCEMENT

Instruments in the above range of serial numbers may be subject to a wide variety of digital operational characteristics caused by intermittent IC sockets. The modification described below should be performed on each of these instruments the first time characteristics are observed.

CHARACTERISTICS

Intermittent IC sockets may manifest themselves through one or more of the following ways:

1. Unit "locks up" and won't respond to front panel commands.
2. Unit shows only a single very bright digit in the front panel display area.
3. Unit intermittently changes range, function, mode, etc. to some random setting.
4. Unit becomes unstable by cycling rapidly and randomly among modes, ranges, functions, etc.
5. Unit "hangs up" HP-IB or sends false SRQ.

These symptoms will almost always be intermittent and are likely to disappear temporarily upon any type of service effort, such as re-seating P.C. boards, cleaning contacts, etc. The suggested modification procedure is described below.

MODIFICATION PROCEDURE

Refer to the 3456A Operating and Service Manual (-hp- P/N 03456-90004) for board locations, disassembly procedures and safety precautions.

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CAUTION

The assemblies and components involved in the following steps are all static sensitive, and should only be handled at a static free work area, and in accordance with approved procedures.

1. Remove the Outguard Controller (A4), Inguard Controller (A30), and HP-IB/Isolation Logic (A3) assemblies from the instrument.

2. Remove ICs A4U15, A3U13, and A3U9 from their sockets and set aside, preferably on a piece of conductive foam.

3. Remove and discard the sockets from which these ICs came. These will be the 40 pin red sockets. Do not remove any of the other IC sockets from the boards, as they are necessary for service.

4. Return the ICs to their original locations and orientations on the boards, soldering them directly in place.

5. Return the boards to their original positions in the instrument, reconnect all cables and reassemble.

VERIFICATION

To verify proper operation, perform the digital self-tests as follows:

1. Press the "SELF TEST" button. The instrument should respond by alternately displaying all LEDs and annunciators, blanking out, and then repeating the cycle again. Press the "SELF TEST" button to resume normal operation.

2. Any display other than that mentioned indicates failure. A full description of this test and hints are given in the Service Group sections of the 3456A Operating and Service Manual.

The most complete way to verify the HP-IB/Isolation Logic board (A3) involves connecting a controller to the 3456A and testing various types of commands for proper operation.