

12. Do this step regardless of memory size.

Turn PDP-8/A power OFF.

For a C etch revision: Set S1-3, 5, and 7 OFF; set S1-8 ON.

For a D etch revision: Set S1-1, 3, 4, 8, and 9 ON; set S1-2, 5, and 7 OFF.

Continue for either revision. Remove all Termi-point jumpers. Replace Teletype cable on J3, being sure the pin letters on the cable and board connector match. Remove the BC08R cable from J4 and J5. Re-install parallel I/O cables (if used). Remove the W987 Quad Extender from the PDP-8/A, and re-install the M316. Be careful not to alter switch settings accidentally while inserting the M8316.

2.9.3 KM8-A Extended Option Board Test

NOTE

Make sure you have the correct diagnostic program. MAINDEC-08-DJKMA-A- is for M8317 modules having ROMs E82 and E87 labeled 87A2 and 88A2; MAINDEC-08-DJKMA-B- is for ROMs labeled 158A2 and 159A2.

The KM8-A Extended Option Board Test program tests the circuitry contained on the M8317 module. As in the previous test, the module under test is placed on a W987 Quad Module Extender to allow the operator to alter switch settings without turning off power to the PDP-8/A. Again, it is advisable to have a table to support the Programmer's Console.

The following series of tests are designed for operation on a PDP-8/A with 4K or more of memory, since two of the three options on this module require at least 4K of memory. Also available for this option are test programs which will run in 1K of memory. Consult your local DIGITAL sales office if more information on the 1K programs is needed.

1. Turn OFF power to the PDP-8/A, and place the M8317 on the W987 Quad Extender. The M8317 must be plugged into slot 2 or 3 of the Omnibus.
2. Write on paper the position of all switches on the M8317, and then place all these switches in the OFF position. Unplug the controllers for any bootstrappable options (such as the PC8-E, TA8-E, RK8-E controllers and the KA8-E Positive I/O adapter), but leave the Teletype connected.
3. Turn on power, and load RIM at address 7756 using the keys. Do not attempt to use the bootstrap – it was disabled at step 2. Load the Binary Loader (see Paragraphs 2.7.1 and 2.7.3).
4. Read in the tape (MAINDEC-08-DJKMA-PB) using the Binary Loader. (See Paragraph 2.7.4).
5. Set up location 0021 as follows:

Press 0021 then LA.

Deposit one of the following numbers (depending on memory size) by entering it via the numeric keys and then pressing D THIS.

| Memory Size | Enter |
|--------------------|--------------|
| 4K | 7003 |
| 8K | 7007 |
| 12K | 7013 |
| 16K | 7017 |
| 32K | 7037 |

Start program:

Press 0000, LXA, then LSR.
Press 0200, INIT, then RUN

6. Allow program to run for 10 minutes. Then:

Press 0400 and LSR.

Program will halt.

7. Turn S2-1 on. Then:

Press 4255 then LA.
Press 0000, LSR, INIT, and then RUN.

Program will halt.

8. Set up for bootstrap test:

Press 4465, LA, INIT, then RUN.

Program will halt.

9. Test the paper tape bootstrap as follows:

Turn ON S2-5, S2-6, S2-7, S1-1, S1-2, S1-3, S1-6, S1-7, and S1-8. Make sure Teletype reader lever is in either the STOP or FREE position.

Press:

BOOT
BOOT
HLT/SS
0000, then LSR
4401, LA, INIT, and then RUN

Program will halt with ADDR5 = 04462 if paper tape bootstrap is correct.

NOTE

There is no point in checking a bootstrap unless your PDP-8/A is equipped with the option, (e.g., unless your PDP-8/A is equipped with an RK8-E, do not bother to test the RK8-E bootstrap).

10. Check any other bootstraps as follows:

Repeat step 8.

Set switches according to Table 2-14 or 2-15, depending on the bootstrap you are testing. Leave S1-6, S1-7, and S1-8 ON.

Press:

BOOT
BOOT
HLT/SS

NOTE

There are two different types of ROMs for the M8317 module. Those modules that have ROMs labeled 87A2 and 88A2 should use Table 2-14 for bootstrap select switch settings (see Figure 2-18 for switch and ROM locations). Those modules that have ROMs labeled 158A2 and 159A2 should use Table 2-15 for switch settings.

Enter the value of SR from Tables 2-14 and 2-15, then press in order;

LSR, 4400, LA, INIT, then RUN

Program will halt with ADDR5 = 04462 if Bootstrap is correct.

Table 2-14
Bootstrap Switch Settings for ROMs (E82 and E87)
Labeled 87A2 and 88A2

| Bootstrap | S2-5 | S2-6 | S2-7 | S2-8 | S1-1 | S1-2 | S1-3 | SR |
|------------|------|------|------|------|------|------|------|------|
| HI LO RIM | ON | ON | ON | OFF | ON | ON | ON | 0000 |
| RK8-E | ON | OFF | ON | OFF | ON | OFF | ON | 0004 |
| TC08 | ON | OFF | OFF | ON | OFF | ON | ON | 0001 |
| RF08/DF32D | OFF | ON | ON | ON | ON | OFF | OFF | 0002 |
| TA8-E | OFF | ON | ON | OFF | ON | OFF | OFF | 0003 |

Table 2-15
Bootstrap Switch Settings for ROMs (E82 and E87)
Labeled 158A2 and 159A2

| Bootstrap | S2-5 | S2-6 | S2-7 | S2-8 | S1-1 | S1-2 | S1-3 | SR |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------|
| HI LO RIM | ON | ON | ON | OFF | ON | ON | ON | 0000 |
| RK8-E | ON | OFF | ON | OFF | ON | OFF | ON | 0004 |
| RX8-E | ON | OFF | OFF | ON | OFF | ON | ON | 0003 |
| RF08/DF32D | OFF | ON | OFF | ON | OFF | ON | OFF | 0001 |
| TA8-E | OFF | ON | OFF | OFF | OFF | ON | OFF | 0002 |

11. Make sure the BATTERY CHARGING light on the Limited Function panel is off. If this light is on, leave PDP-8/A power on but do not attempt the following test until the BATTERY CHARGING light is off.

NOTE

Unless you have experienced a recent power failure while the PDP-8/A was running or have unplugged the PDP-8/A power cord without first turning the ON/OFF switch to OFF, it is very unlikely that the BATTERY CHARGING light will be on by the time you get to this test.

12. Turn ON S1-1, 3, 6, 7, and 8; S2-3, 5, and 7. Turn OFF S1-2, 4, and 5; S2-1, 2, 4, 6 and 8.

13. Enter the following:

Press 4600 then LA.
Press 0000, LSR, INIT, then RUN.

PDP-8/A will halt.

14. Press 0002, LSR, INIT, and then RUN.
15. Without operating the panel ON/OFF switch, unplug the power cord of the PDP-8/A from the wall receptacle. ADDR5 should display 04764, and the RUN lights on the Limited Function Panel and the Programmer's Console should be off.

Re-insert the power cord. The program should begin running again. Do not leave power cord unplugged any longer than necessary, since the batteries will discharge.

16. Repeat step 15 four times.
17. Turn OFF power. Return the M8317 switches to the original positions, written down at step 2. Remove the W987 Quad Extender, and replace the M8317 in the PDP-8/A box. Be careful not to disturb the switch settings on this module or any adjacent modules while so doing. Replace the Programmer's Console.