DIMENSION® 2000 AND CUSTOM PBX
X-RAY TESTS 00 & 01
AND MAAP TESTS

CONTENTS

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1. GENERAL INFORMATION

1.1 Description

1.11 This section describes the procedures to be followed to load the X-ray tape, to perform X-ray tests 00 & 01, and to test the MAAP (Maintenance and Administration Panel).

1.12 X-ray test 00 verifies basic processor sanity and initializes x-ray status data sets. This test is executed immediately after a tape load, after completion (approximately 2 seconds) control is automatically transferred to x-ray test 01.

1.13 X-ray test 01 (Processor x-ray) tests the control carrier, namely the processor, memory, tape interface, data links and attendant consoles. This test takes approximately 3-4 minutes to complete.

2. RECORDS

2.1 Form SD-97-1313 is required for recording the results of this test.

3. TEST EQUIPMENT

3.1 Test Sets - See Section 400 of HB 281.

4. TEST PROCEDURES

4.1 Preliminary

4.11 Prior to loading the x-ray tape, verify the following:
(If the system under test has dual processors, perform the indicated operations at both processors)

4.11 (cont'd)

a) That all the cabinet (frame) power supply AC INPUT switches are operated to the ON position.

b) At the Alarm Panel, verify the following:

EMERGENCY TRANSFER switch	NORMAL position
HALT/GO switch	GO position
TEST SELECT switch	position 9
OVERTEMP lamp	extinguished
FUSE lamp	extinguished
BIT SWAP lamp	extinguished

c) That the MAAP is plugged into the ON LINE processor control carrier connector.

4.12 Prior to loading the x-ray tape microdiagnostics 0 through 8 must have passed.

4.2 X-ray Tape Load

4.21 To initially load the x-ray tape perform the following:

a) At the Processor Control Carrier Power Supply, operate the AC INPUT switch to the OFF position.

b) Insert the x-ray tape into the mini-recorder.

Note: The x-ray tape should be at park position when the processor control carrier power supply is turned on.

c) At the Processor Control Carrier Power Supply operate the AC INPUT switch to the ON position. (In the case that a growth control carrier(s) is contained in the system under test the growth control power supply should be turned on first and the processor power supply should be turned on last.)

Note: Tape may be loaded by placing the TEST SELECT switch in position 9 and momentarily operating the ENABLE switch. This procedure may be used hereafter if the power-up loading procedure is successful.

d) In the case of a dual processor machine utilizing two x-ray tapes, set the system select switch on the Alarm Panel to NORMAL, insert both tapes and run microdiagnostic test 9 on common control 0(CC0). Verify that the associated tape loads; then run microdiagnostic test 9 on CC1 to load the other tape.

4.22 After step 4.21c has been performed verify:

a) That the tape starts to load (move).

b) That the Alarm Panel, MJ, PROC & PASS lamps light.

4.23 When the x-ray program is fully loaded from the tape, the red software controlled LED's should start cycling after they all light momentarily. Verify that the Alarm Panel LED'S light as shown in Figure 1.

4.24 The MAAP - MAJOR and MINOR lamps are hardwired to the Alarm Panel MJ and MN lamps and therefore should light in the same sequence.

4.25 The MAAP - IN USE, BUSYOUT and WAIT lamps light in sequence and then extinguish. This cycle is repeated as long as the x-ray programs continue executing.

4.26 If dual processors are provided either the PROCESSOR 0 or 1 lamp will light depending upon which one is "on line".

4.27 When the x-ray completes one full cycle of Test 01 the ALARM PANEL PASS (green) will light. On the next completed cycle the ALARM PANEL - PASS lamp will extinguish. This cycle will continue so long as Test 01 keeps executing.

4.28 The SEE NOTE MAAP, LED also lights when x-ray Test 01 has completed one full cycle. This lamp differs from the ALARM PANEL - PASS lamp in that it stays lit so long as x-ray Test 01 continues executing.

4.29 Since x-ray Test 01 takes approximateley 2 minutes to complete (tape must go to the End-of-Tape and then back to Beginning-of-Tape), perform the MAAP tests at this time. When the MAAP tests have been completed, x-ray Test 01 should have completed one cycle.

4.3 MAAP TESTS

4.31 The following describes the tests to be performed on the MAAP (Maintenance and Administration Panel).

4.32 ALPHANUMERIC DISPLAY TESTS

4.321 While x-ray Test 01 is executing, at the MAAP, momentarily operate the CHANGE FIELD, 1 keys. Verify that all characters appear in every position (each LED) in the MAAP display. (Assure all segments in each LED are operational.)

4.322 After step 4.321 has been completed, exit from the alphanumeric display pattern by momentarily operating the CHANGE FIELD, 2 keys. Verify that the x-ray-clock (Format F 1, Format Info provided in section 400.81T) is again displayed.

4.33 MAAP BUTTON TESTS

4.331 To test the MAAP buttons momentarily operate the CHANGE FIELD, 3 keys. Verify that Format F 14 is displayed with a 60 in the MAAP BUTTON CODE field.

4.332 Momentarily operate each of the MAAP buttons and verify that the correct MAAP BUTTON CODE is displayed. (See Format F 14 in section 400.81T).

4.333 After all buttons have been verified, return to x-ray clock format by momentarily operating the CHANGE FIELD, 2 buttons.

4.34 REMAINING MAAP CONNECTOR TESTS

4.341 Before continuing, verify that the SEE NOTE MAAP LED is lit (indicating that x-ray Test 01 has passed one complete cycle). If the LED is not lit and x-ray is still cycling, wait until it lights or if for some fool reason trouble exists, you probably better try to fix it.

4.342 At the ALARM PANEL, operate the HALT/GO switch to the HALT position.

4.343 Disconnect the MAAP from the processor control carrier ON LINE connector and plug it into the first Network Cabinet MAAP connector.

4.344 At the ALARM PANEL, operate the HALT/GO switch to the GO position. Verify that MAAP displays the x-ray clock format.

4.345 At the ALARM PANEL, operate the HALT/GO switch to the HALT position. Disconnect the MAAP from its Network Cabinet connector and connect it to the next untested Network Cabinet connector. Repeat step 4.344.

4.346 Repeat step 4.345 until all MAAP Network Cabinet connectors have been tested. When all connectors have been tested, plug the MAAP back into the processor control carrier ON LINE connector and operate the HALT/GO switch back to the GO position.

4.4 SYSTEM CONFIGURATION CHECKS

4.41 Before proceeding to the other x-ray tests a verification of hardware found by x-ray against actual hardware should be made. To do this, momentarily operate the MAAP-DISPLAY, 0 keys. This will display Format F 18. Verify the following displayed hardware counts against actual hardware counts:

a) Memory Boards
b) LC130 Boards
c) Network Cabinets
d) LC34B Boards
e) Attendant Consoles
f) Electronic Telephone Controllers (ETC)
g) LC171B, LC172B Circuit Packs
h) 800 KHZ channels

NOTE: Network carrier count and network board count will not be shown on Test 01.

4.42 After step 4.41 has been completed, proceed to the next x-ray test.

5. MINIMUM CIRCUIT PACK REQUIREMENTS (8K Memory, Low Speed, MD)

X-RAY Tests 00 and 01

Basic Control Carrier
J58882AA

CARRIER SLOT	CIRCUIT PACK CODE	FUNCTION
00	LC35	RAM Bit Swap
01	LC28B or C	RAM (0-1FFF*)
02	LC28B or C	RAM (2000-3FFF*)
03	LC28B or C	RAM (4000-5FFF*)
04	LC28B or C	RAM (6000-7FFF*)
05	LC28B or C	RAM (8000-9FFF*)
06	LC28B or C	RAM (A000-BFFF*)
07	LC28B or C	RAM (C000-DFFF*)
08	LC28B or C	RAM (E000-FFFF*)
09	LC28B or C	RAM (10000-11FFF*)
10	LC28B or C	RAM (12000-13FFF*)
11	LC28B or C	RAM (14000-15FFF*)
12	LC28B or C	RAM (16000-17FFF*)
13	LC28B or C	RAM (18000-19FFF*)
14	None Required	
15	None Required	
16	None Required	
17	LC36	RAM Data Buffer
18	LC37	RAM Control
19	LC147	Alarm Control
20	LC143	Processor
21	LC143	Processor
22	LC142	ROM
23	None Required	
24	LC133	I/O Memory Decode
25	LC132	I/O Buffer
26	LC29B	Tape Controller II
27	LC30B	Tape Controller I
28	None Required	
29	None Required	
30	LC34B or LC172B	Data Link**
31	None Required	
32	None Required	
33	None Required	
34	None Required	
35	None Required	
36	None Required	
37	None Required	
38	None Required	
39	None Required	
40	None Required	
41	None Required	

*Memory locations

**The tape will load and the processor x-ray will run without this circuit pack; however, MAAP I/O is not possible.

5. MINIMUM CIRCUIT PACK REQUIREMENTS (8K Memory, High Speed)

X-RAY Tests 00 and 01

Basic Control Carrier
J58882AA

CARRIER SLOT	CIRCUIT PACK CODE	FUNCTION
00	LC135	RAM Bit Swap
01	LC28C	RAM (0-1FFF*)
02	LC28C	RAM (2000-3FFF*)
03	LC28C	RAM (4000-5FFF*)
04	LC28C	RAM (6000-7FFF*)
05	LC28C	RAM (8000-9FFF*)
06	LC28C	RAM (A000-BFFF*)
07	LC28C	RAM (C000-DFFF*)
08	LC28C	RAM (E000-FFFF*)
09	LC28C	RAM (10000-11FFF*)
10	LC28C	RAM (12000-13FFF*)
11	LC28C	RAM (14000-15FFF*)
12	LC28C	RAM (16000-17FFF*)
13	LC28C	RAM (18000-19FFF*)
14	None Required	
15	None Required	
16	None Required	
17	LC136	RAM Data Buffer
18	LC137	RAM Control
19	LC147	Alarm Control
20	LC143	Processor
21	LC143	Processor
22	LC142	ROM
23	None Required	
24	LC133	I/O Memory Decode
25	LC134	I/O Buffer
26	LC29B	Tape Controller II
27	LC30B	Tape Controller I
28	None Required	
29	None Required	
30	LC34B or LC172B	Data Link**
31	None Required	
32	None Required	
33	None Required	
34	None Required	
35	None Required	
36	None Required	
37	None Required	
38	None Required	
39	None Required	
40	None Required	
41	None Required	

*Memory locations

**The tape will load and the processor x-ray will run without this circuit pack; however, MAAP I/O is not possible.

5. MINIMUM CIRCUIT PACK REQUIREMENTS (16K Memory, High Speed)

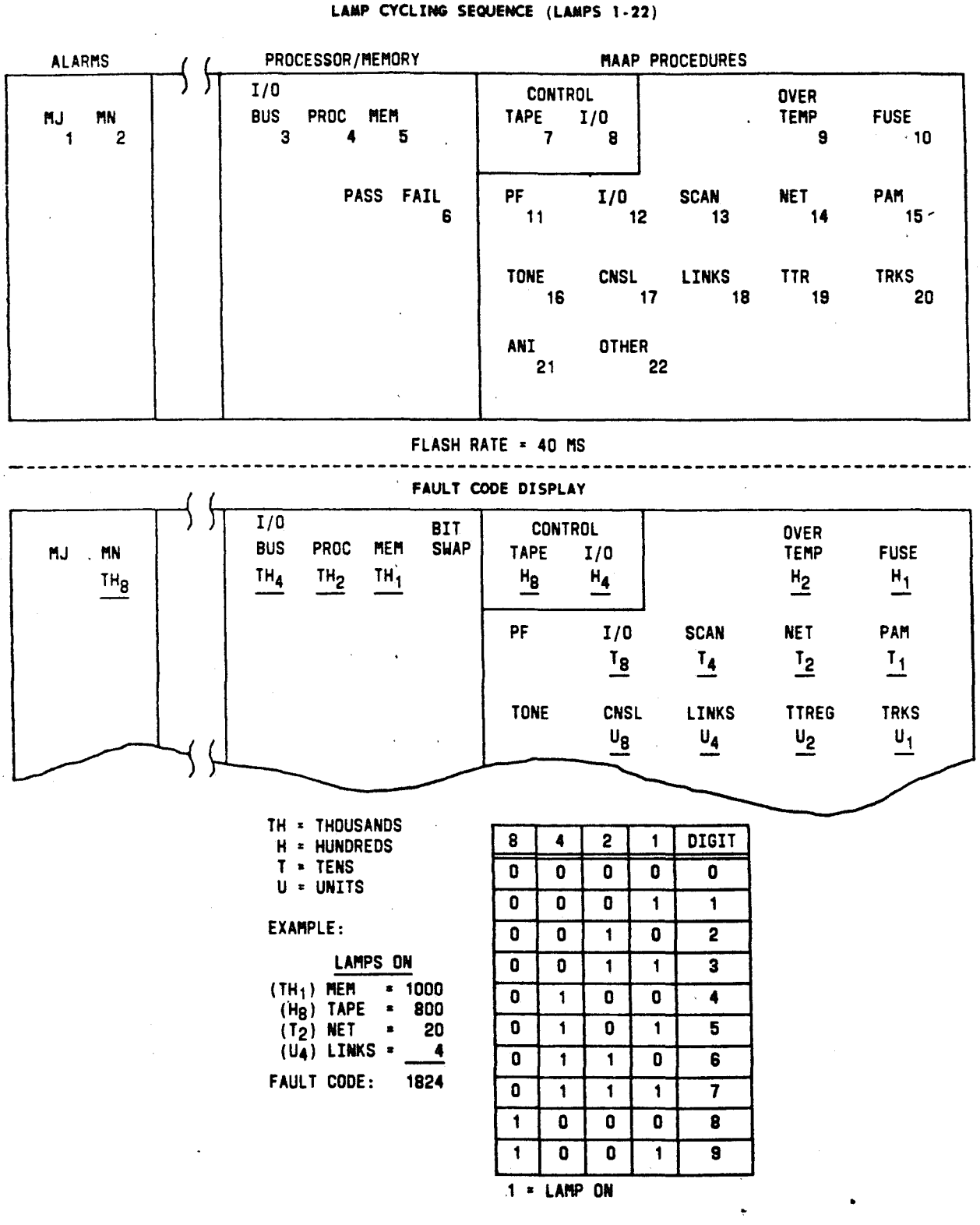
X-RAY Tests 00 and 01

Basic Control Carrier
J58882AA

CARRIER SLOT	CIRCUIT PACK CODE	FUNCTION
00	LC135	RAM Bit Swap
01	LC128B	RAM (0-3FFF*)
02	LC128B	RAM (4000-7FFF*)
03	LC128B	RAM (8000-BFFF*)
04	LC128B	RAM (C000-FFFF*)
05	LC128B	RAM (10000-13FFF*)
06	LC128B	RAM (14000-17FFF*)
07	LC128B	RAM (18000-1BFFF*)
08	None Required	
09	None Required	
10	None Required	
11	None Required	
12	None Required	
13	None Required	
14	None Required	
15	None Required	
16	None Required	
17	LC136	RAM Data Buffer
18	LC138	RAM Control
19	LC147	Alarm Control
20	LC143	Processor
21	LC143	Processor
22	LC142	ROM
23	None Required	
24	LC133	I/O Memory Decode
25	LC134	I/O Buffer
26	LC29B	Tape Controller II
27	LC30B	Tape Controller I
28	None Required	
29	None Required	
30	LC34B or LC172B	Data Link**
31	None Required	
32	None Required	
33	None Required	
34	None Required	
35	None Required	
36	None Required	
37	None Required	
38	None Required	
39	None Required	
40	None Required	
41	None Required	

*Memory locations

**The tape will load and the processor x-ray will run without this circuit pack; however, MAAP I/O is not possible.



8	4	2	1	DIGIT
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	0	0	0	8
1	0	0	1	9

Fig. 1 —**Alarm Panel Lamp Sequence and Fault Code Display**

Reason for issue:
New Section

Manager, Denver PBX PECC