DIMENSION® 2000 AND CUSTOM PBX
CSS 201L
X-RAY TEST 21
(TOUCH TONE® RECEIVER AND REGISTER)

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1. GENERAL INFORMATION

1.1 Description

1.11 This section describes the procedures to be followed to perform X-Ray Test 21.

1.12 X-Ray Test 21 allows a manual testing of each TOUCH-TONE register receiver. (X-Ray Test 40 provides an automatic test verifying correct interpretation of the tone signals by the Touch-Tone registers.)

1.2 Test-Description

1.21 X-Ray Test 21 executes the TTRECREG subroutine, which checks each LC10B, LC54B (LC10C) board pair, and requires manual interaction. Each board pair has an automatic analog path test run on it and then the craftsperson tests each Touch-Tone digit, by operating a button from a Touch-Tone test station, and observing the MAAP for a correct digit.

1.22 During this test the tone boards, LC04 & LC05B (LC204) can be audibly verified from the test station.

1.23 The LC10B, LC54B (LC10C) boards at the lowest numbered module (probably Module 0), at the highest numbered cabinet, at the highest port is checked first. The next lower numbered port is checked next and this sequence continues until the last cabinet is reached, then the next higher numbered module is checked, etc.

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 Handbook 281

4. TEST PROCEDURES

4.1 Preliminary

4.11 This test requires craftsperson manual interaction via a TOUCH-TONE station set. Before this test is performed, Test 05 should have passed.

4.2 Test Execution

4.21 At each module, remove one set of LC04 and LC05B (LC204) boards. Each module should only contain one set of tone boards during this test.

4.22 To execute X-Ray Test 21, momentarily operate the EXECUTE 2, 1 keys at the MAAP.

4.23 In approximately 1 minute the MAAP should display Format F2. The Format will display the port that the TOUCH-TONE station set should be plugged into.

Note: The port specified is usually port 0 of the LC02 closest to the tone boards.

4.24 Via a 249A adapter, plug the TOUCH-TONE station set into the LC02 T & R test points as specified by the MAAP.

4.25 At the station set go off-hook. The MAAP should now display a 14 in the right most two positions and the equipment location of the first LC10B board to be tested will also be displayed. (See Format F2).

4.26 At the station set, momentarily operate each TOUCH-TONE key. Verify that the correct number is displayed in the CODE field and that when the key is released that the proper tone is received at the station set (tone outputs only need to be verified once per module). See Table 1.

TABLE 1

Button Number	Tone
1	Dial
2	Recall Dial
3	Miscellaneous
4	Intercept
5	Busy
6	Reorder
7	Audible Ringing
8	Special Audible Ringing

4.27 Again at the station set, momentarily operate each of the TOUCH-TONE keys. Verify that the correct LED's light at the LC10 under test. For information as to which LED's should light, see Table 2.

TABLE 2

TOUCH-TONE BUTTON	MAAP CODE	LC10B, LC54B/LC10C LED's
1	1	8 and 12
2	2	8 and 13
3	3	8 and 14
4	4	9 and 12
5	5	9 and 13
6	6	9 and 14
7	7	10 and 12
8	8	10 and 13
9	9	10 and 14
0	10	11 and 12
*	11	11 and 13
#	12	11 and 14

4.28 At the MAAP, momentarily operate the NEXT CIRCUIT key. The equipment location should display the location of the next LC 10B, LC54B (LC10C) to be tested. Repeat steps 4.26 and 4.27.

4.29 Repeat step 4.28 until all TT Receivers within the module have been tested. If another module with TT Receivers does not exist, the CODE field should display a digit 15, otherwise the new equipment location for the TT Station set is displayed.

4.210 If more modules are to be tested, plug the TT station set in at the new displayed equipment location and repeat steps 4.25 through 4.29, otherwise go to the next step.

4.211 If a 15 is displayed in the CODE field remove each of the LC04, LC05B (LC204) board pairs that were used for testing and insert the ones that were removed in step 4.21 into their respective locations.

4.212 At the MAAP, momentarily the EXECUTE, 2, 1 keys. After approximately 1 minute the MAAP should display the new equipment location for the TOUCH-TONE Station Set.

4.213 Plug the TT station set in at the displayed equipment location and repeat repeat steps 4.25 and 4.26 to verify each of the tone outputs.

4.214 After all tone outputs have been verified, at the MAAP, momentarily operate the NEXT CIRCUIT key until either a new TT station location is displayed or until the digit 15 is displayed in the CODE field.

4.215 If new TT station equipment is displayed repeat steps 4.213 and 4.214 otherwise go to the next step.

4.216 If the digit 15 is displayed, reinsert the LC04, LC05B (LC204) tone boards that were removed in step 4.211. Remove the TT station set.

4.3 Test Pass Indications

4.31 If all TOUCH-TONE Receiver-Registers and the tone boards (LC04, LC05B or LC204) pass all of the above tests, the test has passed.

4.4 This completes the X-Ray testing per X-Ray test 21.

5. TROUBLESHOOTING AIDS

5.1 Code 14 Failure

5.11 Failure to get a code 14 at the MAAP possibly indicates one of the following:

a) TT Station Set not connected to the correct line (LC02) circuit.

b) TT Station Set not off-hook or connected properly.

5.2 TOUCH-TONE Digit Code Failure

5.21 If no Touch-Tone signals are heard at the Touch-Tone Station Set receiver, the tip and ring leads to the LC02 are probably reversed.

5.22 If no digits are displayed in the CODE field and TT signals are heard at the TT station set, the LC10B or LC54B (LC10C) board is probably defective.

Reason for Issue:
New Section

Manager, Denver PBX PECC