

DIMENSION® 600/2000 PBX
LOCAL CALL BILLING TEST
(PROC 535)

1. GENERAL

- 1.1 This section is issued in order to make available the information contained in the Administration and Maintenance Manual, 500-497, PROC 535.
- 1.2 The attachment provides a test procedure for message register circuits (LC16Bs) and their associated CO trunks.

ATTACHMENT

PROC 535 (7 pages)

Reason for Issue:
New Section

Manager, Denver PBX PECC

PRIVATE

THE INFORMATION CONTAINED HEREIN SHOULD NOT BE DISCLOSED TO UNAUTHORIZED PERSONS. IT IS MEANT SOLELY FOR USE BY AUTHORIZED BELL SYSTEM EMPLOYEES.

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PROCEDURE 535 - LOCAL BILLING TEST CALL

PROC 535

A. DESCRIPTION

Procedure 535 should be used when the following conditions exist:

- The NETWORK OTHER-515 and MINOR alarm indicators on the alarm panel are turned on.
- Procedure 515 indicates Procedure 535 should be used to find the source of the alarm.

Procedure 535 is used to:

- Display failures associated with message register circuits.
- Test all message register circuits and their associated central office trunks.
- Retire the alarm when all failed circuits pass Test 1 or 2.

TEST 1: ALLOWS TESTING OF ALL MESSAGE REGISTER CIRCUITS WHICH HAVE FAILED. USE 'CLEAR DATA', 'EXECUTE' TO CLEAR FAILURE HISTORY. USE 'NEXT CIRCUIT' TO DISPLAY NEXT FAILED CIRCUIT	TEST 2: ALLOWS TESTING OF ALL MESSAGE REGISTER CIRCUITS USE 'NEXT CIRCUIT' TO DISPLAY NEXT CIRCUIT.	FAILURE CODE (FLD 8): 0-PASS 1-FAIL 9-NETWORK ORDER INCOMPLETE	EQUIPMENT TYPE (FLD 2): 0-MESSAGE REGISTER 1-CENTRAL OFFICE TRUNK 2-TEST LINE BUSY STATUS (FLD 8): 0-NOT BUSIED 1-BUSIED OUT	OTHER CODES: STATE (FLD 10): 0-TEST LINE OR TRUNK NOT AVAILABLE 1-TEST LINE ON-HOOK 2-DIAL TONE THRU DIAL COMPLETION 3-CO RESPONSE (DIAL TONE OR RINGING) 4-TRUNK BUSY OR INTERCEPT TONE 5-ALL CIRCUITS TESTED 6-CALL ABORTED 7-NO REGISTER OR TIME SLOT AVAILABLE 8-NO TRUNK AVAILABLE	BILLING SIGNAL (FLD 12): 0-NO SIGNAL PRESENT 1-SIGNAL PRESENT
USE 'NEXT UNIT' TO ADVANCE TO NEXT EQUIPMENT TYPE.		NOTES: FAILURE HISTORY IS DISPLAYED ONLY FOR CIRCUITS WHICH WERE RECORDED AS FAILURES BY ON-LINE MAINTENANCE.			
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FLIPCHART ISSUE 5		LOCAL BILLING TEST CALL										PROC 535			
TEST NO	EQUIPMENT LOCATIONS							FAILURE	STATE	BILLING COUNT	BILLING SIGNAL	TEST 1		FAILURE HISTORY	
	TYPE	MODULE	CAB	CAR	SLOT	CKT	TOTAL FAILED CIRCUITS					FAILED CIRCUIT INDEX	FAILURES PER HOUR	FAILURES BEGAN (HOURS AGO)	
							TOTAL MSG REGISTER CKTS					NUMBER OF CKTS TESTED			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

2	1	0	1	1	5	0	0	0	3	1	0	5	0	-	-	-	-	535
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A. DESCRIPTION (Contd)

Two tests are available:

- Test 1 - Displays the failure history and allows testing of all message register circuits and associated trunks that have failed on-line maintenance testing.

NOTE

Issue L5 of Feature Package 9 software does not contain on-line maintenance testing for local billing. Therefore, no failure will be recorded for the local billing message register and Test 1 will not display nor test any message register circuits. Test 2 may be used for testing of specific circuits.

- Test 2 - Allows testing of all message register circuits in the system and their associated central office trunks.

B. FIELD DEFINITIONS AND CODES

Field	Code	Definition
1	1,2	Test number.
2	0 1 2	Equipment type: Message register circuit. Central office trunk. Test line.

Field	Code	Definition
3	0-24	Module number. See Table 2-3 for encode range.
4	0-4	Cabinet number.
5	0-4	Carrier number.
6	0-28	Slot number.
7	0-7	Circuit number.
8	0 1	Maintenance Busy Status: Not busy. Busy.
9	0 1 9	Failure Code: Passed. Failed. Network order incomplete.
10	0 1 2 3 4 5 6 7 8	State: Test line or trunk not available. Test line on hook. Dial tone through dial completion. Central office responded with dial tone or ringing. Trunk busy or intercept tone. All circuits tested. Call aborted. No time slot or register available. No trunk available.
11	0-99	Billing Count.

B. FIELD DEFINITIONS AND CODES (Contd)

Field	Code	Definition
12	0 1	Billing Signal: Not present Present
13	0-5 0-256	Test 1: Number of failed message register circuits Test 2: Number of message register circuits in system
14	0 1-6 0-256	Test 1: Failure summary Index into failure history Test 2: Number of circuits tested
15	1-99	Failure summary: Sum of approximate number of failures per hour for all failing circuits. Failure history: Approximate number of failures per hour for circuit being displayed.
16	0-17	Failure summary: Number of hours since the oldest individual failure started (to the nearest hour) Failure history: Number of hours since failures started in the displayed circuit (to the nearest hour).

C. TEST PROCEDURE

A list of message register circuit tests, what each one does, and how each is run follows:

Call in Procedure 535:

PROC NO.; 535; ENTER

Test 1 is automatically selected.

Depressing the NEXT TEST key repeatedly advances the procedure to the desired test.

Test 1:

Test 1 provides:

- A failure history of message register circuits and associated central office trunk failures as detected by on-line maintenance.
- Testing of those message register circuits and associated trunks that have failed on-line maintenance testing.

When Test 1 is first called in, the default test line (field 2-2) is displayed in fields 3 through 7 (equipment location). Depressing the NEXT UNIT key repeatedly changes field 2 (equipment type) and displays the equipment location of the corresponding default circuit or trunk in fields 3 through 7, if there is a failed circuit.

C. TEST PROCEDURES (Contd)

The module field (3) of the test line equipment location is flashed, indicating it is an optional entry field. To select another test line circuit, enter its equipment location in fields 3 through 7; eg:

(Module); ENTER; (Cabinet); Enter; (Carrier); ENTER; (Slot); ENTER; (Circuit); ENTER

NOTE

Values can be entered in fields 3 through 7 only if field 2=2; ie, only the location of the test line can be changed.

The equipment type (field 2) = 2 is used to display and/or change the location of the test line. In both Tests 1 and 2, using the EXECUTE and NEXT CIRCUIT keys will result in an error code 00 when field 2=2.

If the equipment type is changed from encode 2 to 0 or 1, the equipment location associated with the equipment type is displayed.

To start the test, select Test 1 but do not depress EXECUTE. The test line equipment location and failure summary are displayed as follows:

Field	Contents
2	2, Test line equipment type
3-7	Equipment location of test line

To display the failure summary, use the NEXT UNIT key or the change field sequence to display equipment type 0 or 1 in field 2. Use the NEXT CIRCUIT key to increment through each failed message circuit (field 2=0) or associated trunk (field 2=1).

Depressing EXECUTE allows the test call to be placed and displays the first failed message register circuit or associated central office trunk and the failure history of the associated central office trunk. The display includes the following:

Field	Contents
2	Equipment type
3-7	Equipment location associated with equipment type displayed in field 2
8	Maintenance busy status
9	Failure code
10	State of test
11	Billing count
12	Billing signal
13	Number of failed circuits
14	Failure index
15	Failure rate
16	Number of hours since last failure

C. TEST PROCEDURES (Contd)

A test call is then placed in the following manner. Field 10 displays a 1. Take the test line off-hook and field 10 changes to a 2. Dial the central office trunk access code and field 10 changes to a 3. Dial a 7-digit listed directory number. Field 12 displays a 0 with a 1 flashing intermittently. This indicates that the billing signal has been transmitted. At the same time that encode 1 appears in field 12, field 11 increments the billing count, which will wrap around after 99.

If a busy tone is returned on the test call, field 10 displays a 4. If a failure occurs, field 10 displays 0, 4, 6, 7, 8, or 9.

Depressing NEXT CIRCUIT displays the next failed message register circuit, and depressing EXECUTE starts the test call. The NEXT UNIT key can now be used to change the equipment type; ie, depressing NEXT UNIT again displays the failed trunk associated with the message register circuit just displayed. The failure history (fields 15 and 16) display does not change. When the equipment type is 2 (test line), the failure history displays dashes. After the first failing message register circuit, or its associated central office trunk, is displayed, depressing the NEXT CIRCUIT key repeatedly displays the failure histories of the remaining failing circuits. Depressing NEXT CIRCUIT after all failure histories have been displayed dashes fields 3 through 16.

Field 10 displays a 5 if all failed circuits have been successfully tested.

Refer to paragraph 2C in Section 4 for information on clearing the failure history.

Test 2:

Test 2 allows testing of all message register circuits and associated central office trunks. It also is used to retire the NETWORK OTHER-515 alarm indicator after all failures have been cleared.

When Test 2 is called in, the display is as follows:

Field	Contents
2	Equipment type
3-7	Equipment location
8	0 or 1, Maintenance busy status
9	0 or 1, Failure code
13	Number of message register circuits in the system
14	Number of circuits tested
15,16	0, Failure history

Fields 2 through 7 display a default circuit, trunk, or test line. The default is either the first message register circuit in the system or the trunk associated with the first circuit. This circuit can be used or another can be selected.

The equipment type field (2) is flashed, indicating it is an optional entry field. To select another equipment type and location, enter the appropriate encode in field 2 and equipment location in fields 3 through 7, eg:

C. TEST PROCEDURES (Contd)

(Equipment Type); ENTER; (Module); ENTER;
 (Cabinet); ENTER; (Carrier); ENTER; (Slot);
 ENTER; (Circuit); ENTER

To start the test, select Test 2 and depress the EXECUTE key. The WAIT indicator on the MAAP flashes momentarily.

A test call is then placed in the following manner. Take the test line off-hook; field 10 will display a 2. Dial access code field 10 goes to 3. Dial a 7-digit listed directory number. Field 12 will display a 0 with a 1 flashing intermittently. This indicates that the billing signal has been transmitted. At the same time that encode 1 appears in field 12, field 11 increments the billing count, which will wrap around after 99.

If a busy tone is returned on the test call, field 10 displays a 4. If a failure occurs, field 10 displays 0, 4, 6, 7, 8, or 9.

On completion of the test call, the message register circuit or associated trunk is displayed as follows:

Field	Contents
2	Equipment type
3-7	Equipment location associated with equipment type displayed in field 2
8	Maintenance busy status
9	Failure code
10	Last state of test
11	Billing count

Field	Contents
12	Billing signal
13	Number of message register circuits in the system
14	Number of message register circuits tested
15	Failure rate*
16	Number of hours since last failure*

* Dashes appear if the circuit was not detected as a failure by on-line maintenance.

The NEXT CIRCUIT key can be depressed repeatedly to display the remaining circuits. Depressing NEXT CIRCUIT after all the circuits have been displayed dashes all fields. If all message registers and associated trunks in the system have been tested, field 10 will contain a 5.

Depressing the NEXT UNIT key repeatedly sequences the equipment type through its three encodes. When the equipment type is 2 (test line), the failure history displays dashes.

To enter a specific message register circuit or central office trunk location (fields 3 through 7), use the CHANGE FIELD key, eg:

CHANGE FIELD; 3; ENTER; (Module); ENTER; (Cabinet); ENTER; (Carrier); ENTER; (Slot); ENTER; (Circuit); ENTER

The change field sequence may be used to change fields 1 through 7; ie, test number, equipment type, and equipment location.

D. REPAIR GUIDE

When a message register circuit fault is indicated, the following steps should be performed in the order shown to isolate and repair the faulty unit.

- | Step | Isolation Procedure |
|-------------|--|
| 1. | Using Test 1, step through the failure history and record the results. |
| 2. | Using Test 1, test the failed circuit individually. |
| 3. | If the message register circuit is still failing, replace the LC16 circuit pack displayed. |

4. Rerun Test 1 with the circuit pack. If the circuit still fails, test the circuit again using a manual billing signal (-48 Volts) on the M lead of the trunk at the wall board without making a complete test call. If there is no indication of a billing signal on the MAAP (field 12 stays at 0), check the wiring from the cross-connect field to the message register circuit. If there is an indication of a billing signal on the MAAP (field 12 flashing 0 to 1 to 0), check the wiring from the cross-connect field to the central office. Make the necessary repairs.
5. After all failures have been corrected, repeat Test 1 or 2 to clear the failure history and to retire the alarms.