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ANI TROUBLE TICKETER
FUNCTIONAL OPERATION TESTS

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1. GENERAL INFORMATION

1.1 Description

1.11 *The tests of this section provide a procedure for verifying the operation of the trouble ticketer SD-95816-01 using an R-4751A trouble ticket and reader.*

1.12 The tests of this section require the use of other office test equipment as determined by the type of system in which the circuit is used. The other test circuits are:

(a) All Systems: Outputser Identifier Test Circuit, SD-95815-01.

(b) Crossbar & Panel: Automatic Trunk Test Circuit SD-95889-01.

(c) Step-by-Step: Automatic Trunk Test Circuit SD-32315-01.

1.13 The features covered are:

(a) Registration and Printing: This test checks the ability of the trouble ticketer circuit to register and print in the appropriate character positions on a ticket, equipment and line identification, switching progress information, time of day, reference marks, and indications of incorrect or missing information.

(b) Trunk Subgroup and Trunk Number Registration: This test checks the ability of the trouble ticketer to register and print in the appropriate character positions, the digits required to identify any of the associated automatic number identification trunk circuits.

(c) Number of Tickets Counter: This test checks that the trouble ticketer will be made busy and cause a major alarm to sound when an assigned number of tickets are printed within a 2 minute interval. The number of tickets will be from two to five, depending on the cross connection used at the particular installation. Manual cancellation of this feature is tested also.

(d) Clock Pulse Control: This test checks that the P selector follows the clock pulse by stepping once every 6 seconds. Selector relays HT, HU, MT and MU are checked also.

(e) Permanent Signal Ticket: This test checks the ability of the trouble ticketer to print a 35-character position ticket without making an actual permanent signal record.

1.2 References

1.21 Refer to office records or wiring list assignments to determine the equipment location assignments for trunk numbers and for the number of tickets cross-connection assignments.

2. RECORDS AND REQUIREMENTS

2.1 Records

2.11 The results of the tests of this section shall be recorded on forms SD-97-1313 and SD-97-1315.

2.2 Requirements

2.21 The tests of this section conform with the performance requirements for ANI equipment as covered in BSP's 815-015-180, 814-200-180, and 816-200-180. The detailed procedures in this section are based in part on the specifications of BSP's 215-603-501 and 227-555-500.

3. TESTING EQUIPMENT

3.1 Accessories

Amt	ITE or Code	Description	With ITE
1	R-3314 or Equivalent	Stop Watch With Case	(See Note)
As Req	KS-16887-L1 or 768A	Blocking Wedge	Test Accessory Set
1	R-4751A	Trouble Ticket Card Reader	(See Note)

NOTE: Order from Installation Stock-keeping.

4. REGISTRATION AND PRINTING TESTS

4.1 Test Setup

4.11 This test uses the outpulser-identifier test unit at the outpulser-identifier-trunk test frame. A series of test calls are set up on the keys at the test frame, and a trouble ticket is obtained for each call.

4.12 Check that all keys at the test circuit are in the normal position. Operate the test setup keys for Test No. 1 shown in Figure 1.

4.2 Test Operations

4.21 Perform the test operations shown in Table 1. A trouble ticket will be printed for the test call. Mark this ticket with a notation to indicate that it is the result of Test No. 1 under registration and printing tests (e.g. R & P-1).

4.22 Repeat the tests of Table 1 for each test of Figure 1, changing test setup keys as required for each test. In the normal operation of the Trouble Ticketer Circuit, a properly set up call will sound a minor audible alarm when a ticket is called for. In Test Nos. 1-10 of Figure 1, test keys are set up for a normal call. If missing or erroneous digits are set up, as in Test Nos. 11-16 of Figure 1, a major alarm will be sounded. If both major and minor audible alarms are sounded for any test, a circuit trouble is indicated.

Test No.	TT or OIT	TEST KEYS OPERATED										
		OP	ID	OFF	TH	H	T	U	WT	IG	DX	TS
1	OIT	0	0	0	0	1	2	3	1			
2	OIT	1	1	1	1	2	3	4	1			
3	OIT	0	0	0	2	3	4	5	1			
4	OIT	1	1	1	3	4	5	6	1			
5	OIT	0	0	0	4	5	6	7	1			
6	OIT	1	1	1	5	6	7	8	1			
7	OIT	0	0	0	6	7	8	9	1			
8	OIT	1	1	1	7	8	9	0	1			
9	OIT	0	0	0	8	9	0	1	1			
10	OIT	1	1	3	9	0	1	2	1			
11	OIT	0	-	-	-	-	-	-	-		DX	-
12	OIT	0	**	0	0	0	0	0	-		DX	-
13	OIT	0	0	1,2	0	0	0	0	-		DX	-
14	OIT	0	0	0	1,2	0	0	0	-		DX	-
15	OIT	0	0	0	0	1,2	0	0	-		DX	-
16	OIT	0	0	0	0	0	1,2	-	-		DX	-

FIG. 1 OIT TEST KEY SETUPS FOR PRINTING AND REGISTRATION TESTS

NOTES:

- Operate any OP- key. Use each OP-key at least once.
 - Operate any non-AIOD office key. Use each non-AIOD office key at least once.
 - Operate the AIOD office key.
 - If key IG- is provided, use each IG-key at least once.
 - If key IG- is provided, select each identifier group serving the AIOD unit at least once.
 - Operate any TS- key. Use each TS-key at least once.
- ** Operate any two non-AIOD office keys.

4.3 Verification of Output

4.31 After completing all the tests shown in Figure 1, twenty trouble tickets will have been printed. Check that each ticket is printed or marked in each character position as shown in the associated test result of Figure 2.

TABLE 1
PRINTING AND REGISTRATION TESTS

Test No.	Test Operation	Observe Results
1	Operate test keys as shown in Figure 1.	
2	Operate ST key at OIT frame	The trouble ticket is seized and a printed ticket is produced Lamp TRR lights. Minor audible alarm sounds. (See Note)
3	At trouble ticketer frame, momentarily operate AR key.	TTR lamp is extinguished. Minor audible alarm is silenced. (See Note)
4	Momentarily operate CT key.	The trouble ticket is advanced and cut.
5	Release ST key and momentarily operate RN key at OIT frame.	All test circuit lamps are extinguished.
6	Mark ticket with type of test and test number.	After completing all tests, verify tickets against chart of Figure 2.
7	At OIT frame, restore keys not required for next test.	
<p>NOTE: Minor audible alarm sounds when a complete complement of correct digits are set up, as in Test Nos. 1-10. Major audible alarm will sound when an incomplete or erroneous combination of digits are set up, as in Test Nos. 11-16.</p>		

TABLE 2
TRUNK SUBGROUP AND TRUNK NUMBER TESTS

Test No.	Test Operation	Observe Results
1	Operate key TT. Operate key MS then select keys S, H and XC for the trunk assignment.	
2	Release MS key. Operate ST key.	Trouble ticketer is seized and produces a printed ticket. Minor audible alarm sounds.
3	At the trouble ticketer frame, momentarily operate AR key.	Minor audible alarm is silenced.
4	Operate CT key.	The trouble ticket is advanced and cut.
5	At the trunk test frame, restore key ST. Momentarily operate key RN.	All test circuit lamps are extinguished.
6	Mark ticket with type of test and test number.	After completing all tests, verify tickets against the chart of Figure 4.

Test No.	CHARACTER POSITION																																											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40				
	Call Type	Trunk Location	OP	ID	IDG		OFF	TH	H	T	U	Party Info.				OP	Progress-Identifier	Progress-Outpulser			Info. Digit	Digits Check	Outpulser Information																		Time of Day HT HU MT MU			
1	**5	---	↑	9	0	-	↑	0	1	2	3	-	-	*	-	9	0	0	0	-	3	0	-	-	-	-	-	8	0	0	1	-									**	*		
2	**5	---		9	1	-		1	2	3	4	-	-	*	-	9	0	0	0	-	3	0	-	-	-	-	-	8	0	0	1	-											**	*
3	**5	---		9	2	-		2	3	4	5	-	-	*	-	9	0	0	0	-	3	0	-	-	-	-	-	8	0	0	1	-											**	*
4	**5	---		9	0	-		3	4	5	6	-	-	*	-	9	0	0	0	-	3	0	-	-	-	-	-	8	0	0	1	-											**	*
5	**5	---		9	1	-		4	5	6	7	-	-	*	-	9	0	0	0	-	3	0	-	-	-	-	-	8	0	0	1	-											**	*
6	**5	---		9	2	-		5	6	7	8	-	-	*	-	9	0	0	0	-	3	0	-	-	-	-	-	8	0	0	1	-											**	*
7	**5	---		9	0	-		6	7	8	9	-	-	*	-	9	0	0	0	-	3	0	7	-	-	-	-	8	0	0	1	-											**	*
8	**5	---		9	1	-	Note 2	7	8	9	0	-	-	*	-	9	0	0	0	-	3	0	7	-	-	-	-	8	0	0	1	-											**	*
9	**5	---	Note 1	9	2	-	Note 2	8	9	0	1	-	-	*	-	9	0	0	0	-	3	0	7	-	-	-	-	8	0	0	1	-											**	*
10	**5	---	Note 1	9	0	-	Note 3	9	0	1	2	-	-	*	-	9	0	0	0	-	3	0	-	-	-	-	-	8	0	0	1	-											**	*
11	**5	---		2	0	-		-	-	-	-	2	-	*	-	5	¢	¢	0	-	0	0	-	-	-	-	-	0	0	3	9	-										**	*	
12	**5	---		2	0	*		0	-	-	-	2	-	*	-	5	¢	¢	0	-	0	0	-	-	-	-	-	0	0	3	9	-										**	*	
13	**5	---		2	0	-		*	0	0	0	2	-	*	-	5	¢	¢	0	-	0	0	-	-	-	-	-	4	0	3	9	-										**	*	
14	**5	---		2	0	-		0	*	0	0	2	-	*	-	5	¢	¢	¢	-	0	0	-	-	-	-	-	5	0	3	9	-										**	*	
15	**5	---		2	0	-		0	0	*	0	2	-	*	-	5	¢	¢	¢	-	0	0	-	-	-	-	-	6	0	3	0	-										**	*	
16	**5	---	↓	2	0	-	↓	0	0	0	*	2	-	*	-	5	¢	¢	¢	-	0	0	-	-	-	-	-	7	0	3	9	-										**	*	

FIG. 2 PRINTED TROUBLE TICKETS FROM PRINTING AND REGISTRATION TESTS

¢ The numeral printed in this position depends on the progress of the identifier when the trouble ticketer is seized.
 - Actual printout in character positions specified. If A - or * is printed in any other character position, see SD-95816-01.
 * Notes 301 and 302 for explanation.
 NOTE 1: Number will correspond with OP- key operated.
 NOTE 2: Number will correspond with TS- key operated.
 NOTE 3: Number will correspond with OFF- key operated.

4.32 If test results do not match the reference layout shown in Figure 2, refer to the complete listing of all trouble ticket indications shown in Paragraph 3 of CD-95816-01, Section II for helpful information in tracking down the cause of any discrepancy.

5. TRUNK SUBGROUP AND TRUNK NUMBER REGISTRATION TESTS

5.1 Test Setup

5.11 At the OITTF, operate the OIT-TT key to the TT position. In this test, the automatic trunk test circuit is used to select a particular trunk for a test call, and a trouble ticket is obtained for each call.

5.12 From job wiring list or telephone company assignments, obtain the S, H and XC numerical arrangements corresponding with the trunk subgroups and trunk number shown for each test in Figure 3. For convenience, these numbers may be written into the blank spaces of Figure 3 with a light pencil. A separate sheet should be used to record this information permanently.

5.13 Check that all keys other than TT at the test circuit are in the normal position.

5.2 Test Operations

5.21 Perform test operations for the first trunk as outlined in Table 2. A trouble ticket will be printed for this test. Mark the ticket with a notation to indicate that it is the result of Test No. 1 under trunk subgroup and trunk number tests (e.g. TSG-TN-1).

5.22 Repeat the tests of Table 2 for each test shown in Figure 3, changing the setup keys as required for each test.

5.3 Verification of Output

5.31 After completing all tests shown in Figure 3, fifteen trouble tickets will have been printed. Check that character positions 4,5,6 and 17 (ZN option only) are printed as shown for each test in Figure 3. Entries at all other character positions may be ignored for this test.

Test No.	TRUNK ASSIGNMENT			Trunk No.	KEYS AT TRUNK TEST CIRCUIT				TROUBLE TICKET CHARACTER POSITION				
	SGT		SGU		S	H	XC	MS	4		5	6	17
	Option ZM	Option ZN							Option ZM	Option ZN			Option ZN Only
1	0	0	0	00					0	0	0	0	0
2	1	1	1	01					1	1	1	1	0
3	2	2	2	02					2	2	2	2	0
4	3	3	3	03					3	3	3	3	0
5	4	4	4	04					4	4	4	4	0
6	0	5	5	05	As Determined from Job Information			See Table 2	0	5	5	5	0
7	1	6	6	06		1	6		6	6	0		
8	2	0	7	07		2	0		7	7	0		
9	3	1	8	08		3	1		8	8	0		
10	3	2	9	09		3	2		9	9	0		
11	0	3	0	10		5	3		0	0	1		
12	1	4	1	11		6	4		1	1	1		
13	2	5	2	12		7	5		2	2	1		
14	3	6	3	13		8	6		3	3	1		
15	4	0	4	10		9	0		4	0	1		

ZM Option = 48 or less Subgroups
 ZN Option = over 48 Subgroups

FIG. 3

TEST SETUP AND PRINTED TICKET OUTPUT

TABLE 3

NUMBER OF TICKETS COUNTED TEST		
Test No.	Test Operation	Observe Results
1	At OIT, test frame, operate ST key.	Trouble ticketer is seized and produces a trouble ticket. Minor audible alarm sounds.
2	Restore ST key to normal.	
3	Repeat Test Nos. 1 and 2 ten times, allowing sufficient time for the trouble ticketer to release before reseizure. <u>NOTE:</u> Attempt at least six seizures within a 2-minute interval.	Trouble ticketer is seized repeatedly, until major alarm sounds. Lamps TOS, NTA, TTR light at ticketer frame.
4	Momentarily operate AR key at ticketer frame.	Major alarm is silenced. Lamps TTR and NTA are extinguished.
5	Momentarily operate CT key at ticketer frame.	Last ticket printed is advanced and cut.
6	At OIT frame, restore ST key and momentarily operate RN key.	All lamps extinguished at test frame.
7	Remove tickets produced by test, and count them.	Number of tickets should equal number expected from NTC - cross connection. (2, 3, 4 or 5).
8	Operate CTC key at trouble ticketer frame.	TOS lamp is extinguished if still lighted.
9	Using same test call setup, operate and release ST key at least six times in 2-minutes. Allow sufficient time for ticketer to release before reseizure.	Trouble ticketer is not taken out of service. Lamp TOS does not light.
10	Restore all keys to normal.	All lamps extinguished.

TABLE 4

CLOCK PULSE CONTROL TESTS

Test No.	Test Operation	Observe Results
1	Operate TMS key. Operate P key a sufficient number of times to step P selector through one complete rotation.	P selector steps to position 21, then recycles to position 1.
2	Operate HT key repeatedly to step HT selector through one complete rotation.	HT selector steps to position 3, then recycles to position 0.

TABLE 4 (Cont'd)

Test No.	Test Operation	Observe Results
3	Operate HU key repeatedly to step HU selector through one complete rotation.	HU selector steps to position 10, then recycles to position 0.
4	Operate MT key repeatedly to step MT selector through one complete rotation.	MT selector steps to position 6, then recycles to position 0.
5	Operate MU key repeatedly to step MU selector through one complete rotation.	MU selector steps to position 10, then recycles to position 0.
6	Operate above setup keys to set selectors at 23.59 hours. Operate P key to set selector at position 10 or 20.	At next timed operation of P selector, HT, HU, MT and MU selectors step to position 0.
7	Operate setup keys to set selectors at correct time of day. Then release TMS key.	

6. NUMBER OF TICKETS COUNTER TEST6.1 Test Setup

6.11 Repeat the test setup as outlined in Paragraph 4.1. Operate test setup keys as shown for Test No. 1 of Figure 1.

6.2 Test Operations

6.21 Perform test operations as outlined in Table 3. The number of trouble tickets issued before bringing in the alarm will be determined by the NTC-cross connection as described in the supplementary test section for the trouble ticketer.

7. CLOCK PULSE CONTROL TESTS

7.1 Using a stop watch or a reliable wrist watch with a sweep second hand, observe the operation of the P selector at the trouble ticketer frame for at least 2-minutes. Check that the P selector steps every 6 seconds.

7.2 Perform test operations as outlined in Table 4. After completing tests, verify that the selectors are set at the actual time of day for the particular installation.

8. PERMANENT SIGNAL TICKET TEST

8.1 At the trouble ticketer frame, block operated relay PSR, and block non-operated relay PST. Then insert the plug of PS cord into any idle PS- jack.

8.2 Observe that the trouble ticketer is seized and a ticket is printed. Remove blocks from relays PSR and PST as soon as the ticket is obtained. Disconnect plug from PS- jack.

8.3 Momentarily operate CT key at trouble ticketer. Observe that the ticket is advanced and cut.

8.4 Examine the printed ticket for a digit 9 in character position 3, which indicates a permanent signal indication. Check that the printed ticket contains 35 character positions.

Lines presented in Script indicate new or changed information.

Manager, Product Engineering
Control Center

Reason for Reissue:

To change 1.11 & 3.1 to add reference to trouble ticket card readers.