AUTOMATIC NUMBER IDENTIFICATION TROUBLE TICKETER CIRCUIT TESTS USING OUTPULSER-IDENTIFIER TEST CIRCUIT SD-95815-01 AND AUTOMATIC TRUNK TEST CIRCUIT SD-95889-01 NO. 1 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes a method of testing the automatic number identification (ANI) trouble ticketer circuit SD-95816-01 in No. 1 crossbar offices.

1.02 This section is reissued to include additional steps in all tests for offices equipped with automatic trouble analysis (ATA). The Equipment Test List is not affected.

1.03 The tests covered are:

PAGE

*A. **Registration and Printing:*** This test checks the ability of the trouble ticketer circuit to register and print the following information in the appropriate character positions on a ticket: outpulser number, identifier number, identifier group number, calling line directory number or AIOD PBX trunk number, party designation of calling line, some progress information concerning the outpulser and identifier, time of day, index mark, margin marks, spare and spacer indications, and the appropriate marks for overregistration and lack of information. 2

*B. **Trunk Subgroup and Trunk Number Registration:*** This test checks the ability of the trouble ticketer to register and print the digits required to identify any of the associated ANI trunk circuits in the appropriate character positions. 3

*C. **Number of Tickets Counter:*** This test checks that the trouble ticketer will be made busy and cause a major alarm to occur when a specific number of tickets are printed within a 2-minute interval. The number of tickets can be from two to five, depending upon cross-connections used for the particular trouble ticketer circuit being tested. Cancellation of the number of tickets counter feature is also tested. . . 5

*D. **Clock Pulse Control:*** This test checks that the P selector follows the clock pulse by stepping once every 6 seconds. The selector relays HT, HU, MT, and MU, which are controlled by the P selector, are also checked. . 6

*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. 7

1.04 No sequence of tests is proposed which checks the ability of the trouble ticketer circuit to register and print every possible entry on a trouble ticket. However, the trouble tickets produced in Tests A and B will contain a variety of progress and information digit entries which give a reasonable check of the ability of the trouble ticketer circuit to register and print this type of information.

1.05 Local instructions should be followed for recording and reporting any register operations caused by performing these tests.

1.06 Office records should be consulted to determine equipment location assignments which correspond with trunk numbers for Test B and for the cross-connection information for Test C.

1.07 If Test A, B, C, or D indicates trouble in a timing network, check timing intervals as specified in circuit requirements table.

1.08 Analysis of trouble tickets is covered in Section 216-901-302.

1.09 During Tests A, C, and E, the test call (TC) register will score. During Test B the trunk test (CT) register will score each time a trunk circuit is seized and tested. Local instructions should be followed for recording and reporting register operation caused by performing these tests.

1.10 ***Lettered Steps:*** A letter a, b, c, etc, added to a step number in Parts 3 or 4 of this section, indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION column, and all steps governed by the same condition are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

2. APPARATUS

Tests A and C

2.01 Outpulser-identifier test circuit SD-95815-01.

Tests B

2.02 Automatic trunk test circuit SD-95889-01.

Test D

2.03 KS-3008 stopwatch.

Test E

2.04 Blocking and insulating tools as required. Use tools and apply as covered in Section 069-020-801.

3. PREPARATION

STEP	ACTION	VERIFICATION
Tests A, B, and C		
1	At outpulser-identifier trunk test frame (OITT)— Restore all keys to normal.	

4. METHOD

STEP	ACTION	VERIFICATION
A. Registration and Printing		
2	Operate test circuit keys as shown in Test Chart 1.	
3	At trouble ticketer frame— Operate BAT key.	
4a	♦If office is equipped for automatic trouble analysis and this feature is cancelled during this test— At trouble ticketer frame— Insert a 329A plug into the CATA jack.	CATA lamp lighted.♦

STEP	ACTION	VERIFICATION
5	At OITT— Operate ST key.	At trouble ticketer frame— TTR lamp lighted. Minor alarm occurred. Trouble ticket printed. ***Note:*** If DL lamp at trouble ticketer frame should light, a minor alarm will occur and a major alarm may occur.
6	At trouble ticketer frame— Momentarily operate AR key.	Minor alarm retired. TTR lamp extinguished.
7	Momentarily operate CT key.	Trouble ticket advanced and cut.
8	At OITT— Restore ST key.	At OITT— All lamps extinguished.
9	Compare trouble ticket with corresponding information on Test Chart 1.	All entries agree with Test Chart 1. ***Note:*** Numbers shown in positions 21, 22, and 23, Tests 15 through 20 on Test Chart 1, are typical numbers only. Each type of test would not necessarily produce a ticket identical to the examples shown. In a particular office, because of variations in the operating or releasing of individual relays, circuits, and timing devices, these numbers may vary.
10a	◗If office is equipped for automatic trouble analysis and this feature is cancelled during this test— At trouble ticketer frame— Remove the 329A plug from the CATA jack.	CATA lamp extinguished.◖
11	At trouble ticketer frame— Restore BAT key.	

B. Trunk Subgroup and Trunk Number Registration

2a	If trouble ticketer is not arranged to work with more than 48 subgroups of trunks in any identifier group— Operate test circuit keys in accordance with Test Chart 2.	
3b	If trouble ticketer is arranged to work with more than 48 subgroups of trunks in any identifier group— Operate test circuit keys in accordance with Test Chart 3.	

STEP	ACTION	VERIFICATION
4c	▶If office is equipped for automatic trouble analysis and this feature is cancelled during this test— At trouble ticketer frame— Insert a 329A plug into the CATA jack.	CATA lamp lighted.◀
5	At trouble ticketer frame— Operate BAT key.	
6	At OITT— Operate TT key.	
7	Operate ST key.	At trouble ticketer frame— TTR lamp lighted. Minor alarm occurred. ***Note:*** If DL lamp at trouble ticketer frame should light, a minor alarm will occur and a major alarm may occur.
8	At trouble ticketer frame— Momentarily operate AR key.	Minor alarm retired.
9	Momentarily operate CT key.	Trouble ticket advanced and cut. TTR lamp extinguished.
10	At OITT— Restore ST key.	At OITT— All lamps extinguished.
11a	If trouble ticketer is not arranged to work with more than 48 subgroups of trunks in any identifier group— Compare trouble ticket with corresponding information on Test Chart 2.	Entries in character positions 4, 5, and 6 agree with Test Chart 2.
12b	If trouble ticketer is arranged to work with more than 48 subgroups of trunks in any identifier group— Compare trouble ticket with corresponding information on Test Chart 3.	Entries in character positions 4, 5, 6, and 17 agree with Test Chart 3.
13	At OITT— Restore TT key.	
14c	▶If office is equipped for automatic trouble analysis and this feature is cancelled during this test— At trouble ticketer frame— Remove the 329A plug from the CATA jack.	CATA lamp extinguished.◀
15	At trouble ticketer frame— Restore BAT key.	

STEP	ACTION	VERIFICATION
C. Number of Tickets Counter		
2	Operate test circuit keys in accordance with Test Chart 1 for Test 1.	
3a	▶If office is equipped for automatic trouble analysis and this feature is cancelled during this test— At trouble ticketer frame— Insert a 329A plug into the CATA jack.	CATA lamp lighted.◀
4	At trouble ticketer frame— Operate BAT key.	
5	At OITT— Operate ST key.	At trouble ticketer frame— TTR lamp lighted. Minor alarm occurred. ***Note:*** If DL lamp on trouble ticketer frame should light, a minor alarm will occur and a major alarm may occur.
6	Restore ST key.	
7	Repeat Steps 4 and 5 several times; allow sufficient time for trouble ticketer to release before seizure. Stop action when NTA lamp at trouble ticketer frame is lighted. ***Note:*** At least six seizures of the trouble ticketer should be attempted within a 2-minute interval.	Trouble tickets repeatedly printed until major alarm occurs. TOS and HTA lamps lighted.
8	At trouble ticketer frame— Momentarily operate AR key.	Alarms retired. TTR and NTA lamps extinguished.
9	Momentarily operate CT key.	Last trouble ticket advanced and cut.
10	At OITT— Restore ST key.	At OITT— All lamps extinguished.
11	Remove and count tickets produced by test.	Number of tickets produced should be equal to number expected from cross-connections of number of tickets counter feature.
12	At trouble ticketer frame— Operate CTC key.	At trouble ticketer frame— TOS lamp, if still lighted, extinguished.
13	Repeat Step 2.	

STEP	ACTION	VERIFICATION
14	Repeat Steps 4 and 5 at least six times within 2 minutes; allow sufficient time for trouble ticketer to release before reseizure.	
15	Restore all keys.	
16a	▶If office is equipped for automatic trouble analysis and this feature is cancelled during this test— At trouble ticketer frame— Remove the 329A plug from the CATA jack.	CATA lamp extinguished.◀
D. Clock Pulse Control		
1a	▶If office is equipped for automatic trouble analysis and this feature is cancelled during this test— At trouble ticketer frame— Insert a 329A plug into the CATA jack.	CATA lamp lighted.◀
2	At trouble ticketer— Time operation of P selector; time for at least 2 minutes.	At trouble ticketer— P selector steps once every 6 seconds.
3	Operate TMS key.	
4	Operate P, HT, MT, MU keys so that associated selector relays each step through one complete rotation.	P selector steps to position 21, then recycles to position 1. HT selector steps to position 3, then recycles to position 0. HU selector steps to position 10, then recycles to position 0. MT selector steps to position 6, then recycles to position 0. MU selector steps to position 10, then recycles to position 0.
5	Operate HT, HU, MT, MU keys to set selector switches to 23.59 hours. Operate P key to set selector at position 10 or 20.	At next operation of P selector, HT, HU, MT, MU selectors step to position 0.
6	Operate HT, HU, MT, MU keys to set associated selectors to correct time of day.	
7	Restore TMS key.	
8a	▶If office is equipped for automatic trouble analysis and this feature is cancelled during this test— At trouble ticketer frame— Remove the 329A plug from the CATA jack.	CATA lamp extinguished.◀

STEP	ACTION	VERIFICATION
E. Permanent Signal Ticket		
1a	▶If office is equipped for automatic trouble analysis and this feature is cancelled during this test— At trouble ticketer frame— Insert a 329A plug into the CATA jack.	CATA lamp lighted.◀
2	At trouble ticketer— Block operated PSR relay.	
3	Block nonoperated PST relay.	
4	Insert plug of PS cord into any idle PS_ jack.	At trouble ticketer— Trouble ticket printed.
5	Remove blocking tools from PST and PSR relays. ***Caution: The blocking tools should be removed as soon as possible to restore trouble ticketer to normal operation.***	
6	Remove plug from PS_ jack.	
7	Momentarily operate CT key.	Trouble ticket advanced and cut.
8	Examine ticket for permanent signal indication.	Number 9 in character position 3. Ticket is 35-character position ticket.
9a	▶If office is equipped for automatic trouble analysis and this feature is cancelled during this test— At trouble ticketer frame— Remove the 329A plug from the CATA jack.	CATA lamp extinguished.◀

5. PREPARATION OF TEST CHART

5.01 Test Chart 1 is intended to be used as a guide for Test A.

5.02 The appropriate Test Chart 2 or 3 is intended to be used as a particular trunk number chart. It shows the trunk test frame keys to be operated for each test of Test B. Information obtained from office records should be used to fill in the S-PCS, H-PCS, and SC-PCS columns.

TEST CHART 1

REGISTRATION AND PRINTING

KEYS AT TEST CIRCUIT

TEST NO.	TT/ OIT	OP	ID	OFF	THO	HO	TO	UO	WT	IG	DX	TS
1	OIT	↑	0	↑	0	1	2	3	1	↑	—	—
2	OIT		1		1	2	3	4	1		—	—
3	OIT		0	Note 2	2	3	4	5	1	Note 5	—	—
4	OIT		1		3	4	5	6	1		—	—
5	OIT		0		4	5	6	7	1		—	—
6	OIT		1	↓	5	6	7	8	1	↓	—	—
7	OIT		0	↑	6	7	8	9	1	↑	—	↑
8	OIT		1	Note 3	7	8	9	0	1	Note 6	—	Note 7
9	OIT		0	↓	8	9	0	1	1	↓	—	
10	OIT		1	↑	9	0	1	2	1	↑	—	↓
11	OIT	Note 1	0		0	1	2	3	1		—	—
12	OIT		1	Note 1	1	2	3	4	1		—	—
13	OIT		0		2	3	4	5	1		—	—
14	OIT		1	↓	3	4	5	6	1		—	—
15	OIT		0	—	—	—	—	—	—	Note 5	DX	—
16	OIT		0	Note 4	0	0	0	0	—		DX	—
17	OIT		0	↑	1, 2	0	0	0	—		DX	—
18	OIT		0	Note 2	0	1, 2	0	0	—		DX	—
19	OIT		0		0	0	1, 2	0	—		DX	—
20	OIT	↓	0	↓	0	0	0	1, 2	—	↓	DX	—

TICKET PRODUCED BY TEST

TEST NO.	1	2	CALL TYPE 3	TRK LOCATION 4	5	6	OP 7	ID 8	IDG 9	TRANS 10	OFF 11	TH 12	H 13	T 14	U 15	PARTY INFO. 16	TRK LOC 17	18	19
1	*	*	5	—	—	—	↑	9	0	—	↑	0	1	2	3	—	↑	*	—
2	*	*	5	—	—	—		9	1	—		1	2	3	4	—		*	—
3	*	*	5	—	—	—		9	2	—		2	3	4	5	—		*	—
4	*	*	5	—	—	—		9	0	—		3	4	5	6	—		*	—
5	*	*	5	—	—	—		9	1	—		4	5	6	7	—		*	—
6	*	*	5	—	—	—		9	2	—		5	6	7	8	—		*	—
7	*	*	5	—	—	—		9	0	—		6	7	8	9	—		*	—
8	*	*	5	—	—	—		9	1	—		7	8	9	0	—		*	—
9	*	*	5	—	—	—		9	2	—		8	9	0	1	—		*	—
10	*	*	5	—	—	—	Note 8	9	0	—	Note 9	9	0	1	2	—	Note 10	*	—
11	*	*	5	—	—	—		9	1	—		0	1	2	3	—		*	—
12	*	*	5	—	—	—		9	2	—		1	2	3	4	—		*	—
13	*	*	5	—	—	—		9	0	—		2	3	4	5	—		*	—
14	*	*	5	—	—	—		9	1	—		3	4	5	6	—		*	—
15	*	*	5	—	—	—		2	0	—		—	—	—	—	2		*	—
16	*	*	5	—	—	—		2	0	*		0	—	—	—	2		*	—
17	*	*	5	—	—	—		2	0	—		*	0	0	0	2		*	—
18	*	*	5	—	—	—		2	0	—		0	*	0	0	2		*	—
19	*	*	5	—	—	—		2	0	—		0	0	*	0	2		*	—
20	*	*	5	—	—	—	↓	2	0	—	↓	0	0	0	*	2	↓	*	—

TEST NO.	OP 20	PROGRESS ID 21	22	23	24	OP 25	26	AIOD 27	28	INFO DIGIT 29	DIGIT CK 30	31	OP INFO 32	33	34	TIME OF DAY 35	36	37	38	39	40
1	9	0	0	0	—	3	0	—	—	—	8	0	0	1	—	↑	↑	↑	↑	*	*
2	9	0	0	0	—	3	0	—	—	—	8	0	0	1	—					*	*
3	9	0	0	0	—	3	0	—	—	—	8	0	0	1	—					*	*
4	9	0	0	0	—	3	0	—	—	—	8	0	0	1	—					*	*
5	9	0	0	0	—	3	0	—	—	—	8	0	0	1	—					*	*
6	9	0	0	0	—	3	0	—	—	—	8	0	0	1	—					*	*
7	9	0	0	0	—	3	0	7	—	—	8	0	0	1	—					*	*
8	9	0	0	0	—	3	0	7	—	—	8	0	0	1	—					*	*
9	9	0	0	0	—	3	0	7	—	—	8	0	0	1	—					*	*
10	9	0	0	0	—	3	0	—	—	—	8	0	0	1	—					*	*
11	9	0	0	0	—	3	0	—	—	—	8	0	0	1	—	Hours Tens	Hours Units	Minutes Tens	Minutes Units	*	*
12	9	0	0	0	—	3	0	—	—	—	8	0	0	1	—					*	*
13	9	0	0	0	—	3	0	—	—	—	8	0	0	1	—					*	*
14	9	0	0	0	—	3	0	—	—	—	8	0	0	1	—					*	*
15	5	8	2	0	—	0	0	—	—	—	—	0	3	9	—					*	*
16	5	4	1	0	—	0	0	—	—	—	0	0	3	9	—					*	*
17	5	9	9	5	—	0	0	—	—	—	4	0	3	9	—					*	*
18	5	9	9	5	—	0	0	—	—	—	5	0	3	9	—					*	*
19	5	9	9	5	—	0	0	—	—	—	6	0	3	9	—					*	*
20	5	9	9	5	—	0	0	—	—	—	7	0	3	9	—	↓	↓	↓	↓	*	*

Notes:

1. Operate any OP key. Change selected outpulser for each succeeding test.
2. Operate any non-AIOD office key. Change office for each succeeding test.
3. Operate the AIOD office key.
4. Operate any two non-AIOD office keys.
5. If IG key is provided, select any identifier group. Change identifier group for each succeeding test.
6. If IG key is provided, select the identifier group serving the AIOD unit. If two serve the AIOD unit, change identifier group for each succeeding test.
7. Operate TSO key. If more than one translator is provided, change selected translator for each succeeding test.
8. Number will correspond with OP key operated.
9. Number will correspond with OFF key operated.
10. If more than 48 subgroups of trunks are in any identifier group, position 17 indicates the trunk tens digit; however when the OIT key is operated a dash (-) will be printed on line 17.

TEST CHART 2

TRUNK SUBGROUP AND TRUNK NUMBER REGISTRATION
FOR NOT MORE THAN 48 SUBGROUPS IN ANY IDENTIFIER GROUP

TEST NO.	ANI TRUNK			KEYS AT TRUNK TEST SET			TROUBLE TICKET CHARACTER POS		
	SGT	SGU	TRK NO.	S-PCS	H-PCS	XC-PCS	4	5	6
1	0	0	00	(See Notes 1 and 2)			0	0	0
2	1	1	01				1	1	1
3	2	2	02				2	2	2
4	3	3	03				3	3	3
5	4	4	04				4	4	4
6	0–4	5	05				0–4	5	5
7	0–4	6	06				0–4	6	6
8	0–4	7	07				0–4	7	7
9	0–4	8	08				0–4	8	8
10	0–3	9	09				0–3	9	9
11	0	0–9	10				5	0–9	0
12	1	0–9	11				6	0–9	1
13	2	0–9	12				7	0–9	2
14	3	0–9	13				8	0–9	3
15	4	0–7	10				9	0–7	0

Notes:

1. S-PCS, H-PCS, and XC-PCS keys are operated in accordance with office records for trunk numbers.
2. The MS key on the trunk set is operated prior to operation of the S-PCS, H-PCS, and XC-PCS keys and released before each test.
3. Disregard trouble ticket entries in character positions other than 4, 5, and 6.

ST CHART 3

D TRUNK NUMBER REGISTRATION

GROUPS IN ANY IDENTIFIER GROUP

KEYS AT TRUNK TEST SET			SGT	SGU	TU	TKT
			TROUBLE TICKET CHARACTER POS			
S-PCS	H-PCS	XC-PCS	4	5	6	17
(See Notes 1 and 2)			0	0	0	0
			1	1	1	0
			2	2	2	0
			3	3	3	0
			4	4	4	0
			5	5	5	0
			6	6	6	0
			0–6	7	7	0
			0–6	8	8	0
			0–6	9	9	0
			0–6	0–9	0	1
			0–6	0–9	1	1
			0–6	0–9	2	1
			0–6	0–9	3	1

operated in accordance with office records for trunk

ıted prior to operation of the S-PCS, H-PCS, and
test.

acter positions other than 4, 5, 6, and 17.

TEST CHART 3

TRUNK SUBGROUP AND TRUNK NUMBER REGISTRATION FOR MORE THAN 48 SUBGROUPS IN ANY IDENTIFIER GROUP

TEST NO.	ANI TRUNK SGT	ANI TRUNK SGU	ANI TRUNK TRK NO.	KEYS AT TRUNK TEST SET S-PCS / H-PCS / XC-PCS	SGT TROUBLE TICKET CHARACTER POS 4	SGU TROUBLE TICKET CHARACTER POS 5	TU TROUBLE TICKET CHARACTER POS 6	TKT TROUBLE TICKET CHARACTER POS 17
1	0	0	00	(See Notes 1 and 2)	0	0	0	0
2	1	1	01		1	1	1	0
3	2	2	02		2	2	2	0
4	3	3	03		3	3	3	0
5	4	4	04		4	4	4	0
6	5	5	05		5	5	5	0
7	6	6	06		6	6	6	0
8	0–6	7	07		0–6	7	7	0
9	0–6	8	08		0–6	8	8	0
10	0–6	9	09		0–6	9	9	0
11	0–6	0–9	10		0–6	0–9	0	1
12	0–6	0–9	11		0–6	0–9	1	1
13	0–6	0–9	12		0–6	0–9	2	1
14	0–6	0–9	13		0–6	0–9	3	1

Notes:

1. S-PCS, H-PCS, and XC-PCS keys are operated in accordance with office records for trunk numbers.
2. The MS key on the trunk set is operated prior to operation of the S-PCS, H-PCS, and XC-PCS keys and released before each test.
3. Disregard trouble ticket entries in character positions other than 4, 5, 6, and 17.