

ANI TROUBLE TICKETER
SUPPLEMENTARY TESTS

CONTENTS

1. GENERAL INFORMATION	5. CONNECTOR CONTROL CHAIN CIRCUIT
2. RECORDS AND REQUIREMENTS	6. PRINTING CONTROL PROGRESS CIRCUIT
3. TESTING EQUIPMENT	7. TIMEOUT AND ALARM CIRCUIT
4. MISCELLANEOUS TESTS	8. NUMBER OF TICKETS ALARM

1. GENERAL INFORMATION

1.1 Description

1.11 This section provides a method for checking various features of:

TROUBLE TICKETER CIRCUIT, ANI

SD-95816-01 & SD-95823-01

1.12 The tests of this section verify the outpulser connector chain, printing control progress, and alarm circuits of the trouble ticketer circuit.

1.13 Information concerning the IA Message Ticketer is contained in BSP 030-360-701.

2. RECORDS AND REQUIREMENTS

2.1 Records

2.11 Results of the tests of this section shall be recorded on forms ID-1313 and ID-1315. For further information on test records, see Section 3 of Handbook 50.

2.2 Requirements

2.21 The tests of this section conform with the performance requirements for ANI equipment as specified in BSP AA632.007, BSP AA633.006 and BSP AA634.008.

3. TESTING EQUIPMENT

3.1 Test Sets

<u>Amt</u>	<u>ITE or Code</u>	<u>Description</u>
1	4137	AC Continuity Test Set
1	4442	Volt-Ohmmeter
1	2580B	Combination Talking Set (Step-by-Step)

3.2 Cords

<u>Amt</u>	<u>ITE</u>	<u>Lgth</u>	<u>Cdrs</u>	<u>One End</u>	<u>Other End</u>	<u>See Note</u>
1	9601	12'	3	310 Plug	310 Plug	1
or						
1	9600	6'	3	310 Plug	310 Plug	1
1	9624	6'	3	309 Plug	3 Cord Tips	1
1	9627	12'	3	508A Key	310 Plug	1,2
2	9650	15'	4	Operator's Set	Telephone Set	1

3.3 Accessories

<u>Amt</u>	<u>ITE or Code</u>	<u>Description</u>	<u>See Note</u>
As Req.	329A	MB Plug	3
1	R-1824	Pencil Lamp	1,4
	R-2931	Toothpick	1
	R-9572	Receiver & Cords, Tester's	1
2	Rolls KS-9784	Ticket Paper (Tape)	5

NOTES:

- (1) Step-by-Step, Panel or Crossbar Test Accessory Sets.
- (2) Step-by-Step - Order separately or use equivalent telephone company equipment.
- (3) ← Furnished with Miscellaneous Circuit for Trouble Ticketer.
- (4) Panel - Order separately.
- (5) Order from installation stockkeeping if not available from telephone company.

4. MISCELLANEOUS TESTS

4.1 Fuse Alarms

4.11 Using the ITE-4442 Volt-Ohmmeter, check that 48V battery pulses appear at 6 second intervals at terminal 07 of the MISC T.S.

4.12 Operate the 1-1/3 ampere 48V fuse or insert an operated fuse into the fuse holder. Observe that lamp FA lights, aisle pilot lamp lights, and audible alarm sounds. Remove the operated fuse after test and replace with an unoperated fuse of the same rating. Check that lamp FA and the aisle pilot are extinguished and the alarm is silenced.

4.13 Insert one plug of an ITE-9601 or ITE-9600 cord into the battery jack designated (48V) or (A). Using the ITE-4442 Volt-Ohmmeter, check for -48V on the tip and ground on the sleeve of the plug at the unconnected end of the cord. Check for -48V at the TBS terminal of the frame test battery block. Disconnect cord after test.

4.14 Insert the plug of an ITE-9624 cord into the (C) or (+130) jack. Using the ITE-4442, check for +130 volts at the tip conductor and ground at the sleeve conductor of the test cord. Disconnect cord after test.

4.15 Check that direct ground is present on the G terminal of the test battery supply block, and that high resistance (12,000 ohm) ground appears on the HRG terminal.

4.2 Miscellaneous Jacks

4.21 Frame Line (Panel & No. 1 Cross-bar)

4.211 Determine whether the frame line appearance at the trouble ticketer frame is extended to a distributing frame or cabled to an adjacent frame. If cross connections are not in, check that a 4-wire cross connection is run to the existing frame line multiple.

4.212 When the jacks have been properly terminated, insert the plug of an ITE-9650, Telephone Set, into the TEL jacks at the trouble ticketer frame. Plug in a second telephone set at a frame known to have a working frame line. Check that satisfactory voice transmission is obtained in both directions.

4.22 Spare Jack

4.221 Using the ITE-4137, AC Continuity Test Set, or any other convenient means of checking continuity, insert an ITE-9601 or ITE-9600 cord into the spare jack and check that the T,R, & S segments of the unconnected plug are extended to corresponding terminals at the assigned distributing frame. Disconnect cord from jack after test.

4.23 Remote Control Jack

4.231 Insert the plug of an ITE-9627, remote control cord into the RC jack at the trouble ticketer frame. At the outputer-identifier test circuit, check that operation of the white (AV) button of the 508A key operates the AV relay. Check that operation of the red (CA) button operates the CA relay in the outputer-identifier test circuit. Check that relays release when buttons are released.

4.232 Disconnect remote control cord from RC jack.

4.24 Switchman's Talking Line Jack (Step-by-Step Offices Only)

4.241 Check that the 2-wire talking line circuit is extended to the working multiple.

4.242 Insert the plug of the matching telephone set into the SWMN jacks at the trouble ticketer frame. Check for satisfactory voice transmission in both directions over the talking line. Disconnect telephone set after test.

4.3 Make Busy Jacks

4.31 Identifier Make Busy Jack

4.311 At the trouble ticketer jack panel, insert a shorting type make busy plug into the IOB jack for the first identifier. Observe that IOB relay operates in the trouble ticketer frame, the MB relay operates in the identifier circuit and relay MBIO operates in all outputers. Remove MB plug and check that all relays release.

4.312 Repeat the above test for the IIB jack if the second identifier is equipped.

4.32 Individual Outputer Identifier MB Jack

4.321 At the trouble ticketer, insert a shorting type make busy plug in jack IOBOP- associated with outputer 0. At the outputer, check that relay MBIO operated. Block relay IOT operated in the outputer. Check that relay MBIO operates in all other outputers.

4.322 Remove the make busy plug and release relay IOT. All MBIO relays release.

4.323 Insert a make busy plug in jack IIBOP- associated with outputer 0. At the outputer check that relay MBII operated. Block relay IIT operated in the outputer. Check that relay MBII operates in all other outputers.

4.324 Remove the make busy plug and release relay IIT. All MBII relays release.

4.325 Repeat the preceding tests for each outputer equipped.

4.33 Outputer Make Busy Jack

4.331 At the trouble ticketer jack panel, insert a shorting type MB plug into the OP-B jack for each equipped outputer. At the associated outputer circuit, observe that relay MB operates. When all outputers in a group have been made busy, check that relay BI operates in the trouble ticketer. Operate lamp battery cutoff key (BAT) and check that lamp AOB lights. After the alarm timing interval, relay B will operate and lamp AOBA lights.

4.332 Remove all plugs from the OP-B jacks and check that MB relay releases in each outputer. Check that lamps AOB and AOBA are extinguished. Operate AR key to extinguish AOBA lamp.

4.4 Trouble Ticketer MB Jack for Individual Outputer

4.41 At the trouble ticketer jack panel, insert a shorting type MB plug into the first (TTBOPO) jack.

4.42 At the corresponding outputer, operate relay TTST. Observe that relay TTB operates in the outputer. Check that the associated OP- relay does not operate at the trouble ticketer. Release TTST relay at the outputer. Check that TTB relay is released.

4.43 Remove the MB plug from the (TTBOP-) jack.

4.44 Repeat the above test for each equipped outputer.

4.5 Usage Lamps

4.51 OP- Lamps

4.511 Operate key BAT at the trouble ticketer key panel. At each equipped outputer, momentarily operate relay ONI and check that the associated (OP-) lamp lights at the trouble ticketer lamp panel. Check that the lamp extinguishes when the relay is released.

4.512 Repeat the above test for each equipped (OP-) lamp.

TABLE 1
CONNECTOR CONTROL CHAIN TEST

Test Operation Outpulser			Observe Results					
Test No.	Block Oper.	Release	Outpulser			Trouble Ticketer		
			Relays Operate	Not Operated	Relays Release	Relays Operate	Not Operated	Relays Release
1	TTST(6)	(See Note 1)	TCK(6) TTC-(6)	TTB(6)		OP(6)		
2	TTST(5)		TTB(5)				OP(5)	
3	TTST- 4 thru 0 as equipped		TTB- 4 thru 0 as equipped				OP- 4 thru 0 as equipped	
4		All TTST- Relays			TCK(6) TTC-(6) All TTB- Relays			OP(6)
5	TTST(5)		TCK(5) TTC-(5)	TTB(5)		OP(5)		
6	TTST(6)		TTB(6)				OP(6)	
7	TTST(4)		TTB(4)				OP(4)	
8	TTST- 3 thru 0 as equipped		TTB- 3 thru 0 as equipped				OP- 3 thru 0 as equipped	
9	(See Note 2)	All TTST- Relays			TCK(5) TTC-(5) All TTB- Relays			OP(5)

NOTE 1: Begin test with TTST relay for the highest numbered equipped outpulser. Perform the test as indicated, working down to OP-(0) for the last test.

NOTE 2: Repeat procedures shown in Test Numbers 5 to 9 for each remaining outpulser in the chain. Verify the following results:

- (1) When TTST(-) relay of outpulser under test is operated, relays TCK(-) and TTC 0-6(-) in the same outpulser operate and the associated OP(-) relay in the trouble ticketer operates.
- (2) When TTST(-) relays of all other outpulsers are operated, the associated TTB(-) relays operate in these outpulsers and the associated OP(-) relays in the trouble ticketer do not operate.

4.52 ID- Lamps

4.521 At each identifier circuit, momentarily operate relay ON1 and check that the associated ID0 or ID1 lamp lights at the trouble ticketer frame.

4.53 DL- Lamps

4.531 At each equipped outpulser, momentarily operate relay DL. Observe that relay locks operated and the associated (DL-) lamp lights at the trouble ticketer lamp panel. Momentarily operate AR key and check that the lamp is extinguished.

4.532 Repeat the above test for all outpulsers.

4.6 Alarm Indications

4.61 Identifier MB Alarm

4.611 If two identifiers are equipped, insert make-busy plugs in jacks IOB and I1B. Observe that relay IMBA operates and lamp IMBA lights at the trouble

ticketter. Check that removal of either plug extinguishes IMBA lamp. Remove both make-busy plugs.

4.612 If one identifier is equipped, insert a make-busy plug in IOB jack. Observe that relay IMBA operates and IMBA lamp lights in the trouble ticketer. Remove make-busy plug. Check that lamp IMBA is extinguished.

4.62 PA Lamp

4.621 Check that printing unit is plugged into position. Relieve tension on the paper tape by unrolling or removing the roll of paper tape to permit operation of the tape alarm switch. Check that relay PA operates and lamp PA lights.

4.622 Restore paper tape into position and restore proper position of the tape. Check that lamp PA is extinguished. Release BAT key at the trouble ticketer key panel.

TABLE 2
PRINTING CONTROL PROGRESS CHECK TEST

Test No.	Test Operation		Observe Results Pencil Lamp Lights	Note
	Relay Under Test	Momentarily Operate		
1	PK1	IK	X	
2		L1	X	
3		TRS	X	
4		TKC1	X	
5		PT1	X	(V) option
6		PK.	X	
7	Remove block from PK1, block down relay PK2			
8	Move pencil lamp to 1U PK2	OFOS	X	
9		OF1S	X	
10		OF2S	X	
11		OF3S	X	
12		OF4S	X	
13		OF5S	X	
14		OFES	X	
15		IDO	X	
	Remove block from PK2 Block nonoperated re- lay PK3			
16	Move pencil lamp to 1L PK3	H TH	X X	
	Remove block from PK3 Block nonoperated re- lay PK3A			
17	Move pencil lamp to 1U PK3A	ES1 T	X X	
	Remove block from PK3A Block nonoperated relay PK4			
18	Move pencil lamp to 1L PK4	ES1, TH	X	
19		ES1, H ES1, T ES1, U ES2, ES	X X X X	
	Remove block from PK4 Block nonoperated relay PK5			
20	Move pencil lamp to 1U PK5	IDS	X	
21		KP	X	
22		SP	X	
23		IRL	X	
24		CS	X	
25		BS	X	
26		AS	X	
	Remove block from PK5 Block nonoperated relay PK6			
27	Move pencil lamp to 1L PK6	STS	X	
28		US	X	
29		HS	X	
30		THS	X	
31		EP	X	
32		RL	X	

5. CONNECTOR CONTROL CHAIN CIRCUIT (FS-9)

5.1 From the job wiring lists or other specifications, determine the order of outpulsers in the identifier group chain. Determine also whether the trouble ticketer serves a second identifier group.

5.2 At each outpulser in the chain, remove electron tubes TAL and TTT from their sockets, and block nonoperated relay DL. At the trouble ticketer, block nonoperated relays ON and ON1.

→ 5.21 At each outpulser in the chain, beginning with the last preference outpulser, perform the tests outlined in Table 1. The number in parentheses following the relay designation shown in Table 1 represents the order of each

outpulser in the chain. The reference to relay TTC(-) in the table includes the seven trouble ticketer connector relays, TTC(0-6), in each outpulser.

5.3 After completing tests of Table 1, check that all TTST(-) relays are released in the outpulser. Remove block from relay DL and replace tubes TAL and TTT in sockets at each outpulser. Remove blocks from relays ON and ON1 at the trouble ticketer and check that all relays are released.

5.4 Momentarily operate and manually release, one at a time, in succession, each of the following relays. Verify

that relay TTB operates in the miscellaneous circuit for the trouble ticketer while each relay is operated:

Relays Operated

DISC	TME	CT
RLS	TOS	

5.5 Insert a busy plug into jack TTB at the miscellaneous circuit for the trouble ticketer frame and check that relay TTB operates. Remove plug and check that TTB relay is released.

6. PRINTING CONTROL PROGRESS CIRCUIT (FS-12)

6.1 Disconnect plug of printing unit from the J1 connector. Block operated relay ON1. Check that relays PR1-6) are nonoperated. At relay PK1, block relay nonoperated and connect one side of an

R-1824, Pencil Lamp to the 1 lower winding of relay PK1. Connect the other end of the lamp to 48V battery. Perform tests as outlined in Table 2 and observe that the pencil lamp lights when the designated relays operate. Manually release relays that lock operated.

6.2 After completing tests of Table 2, remove block from relay PK6 and disconnect pencil lamp from the relay winding and from 48V battery.

6.3 After performing tests of Table 2, manually operate and release, one set at a time, the relays shown in Table 3. Check that the associated relays operate and release as indicated in Table 3. Manually release relays that lock operated.

6.4 After completing tests of Table 3, remove block and release relay ON1.

TABLE 3
PRINTING CONTROL PROGRESS CONNECTOR TEST

Test No.	Test Operation		Observe Results		Note	
	Block Operated	Release	Relay Operates	Relay Releases		
1	PR1		P0		(V) Option " "	
2	TKC1		P1			
3	PK	TKC1	P2	P1		
4	IK	PK	P3	P2		
5	TRS	IK	P4	P3		
6	L1	TRS	P5	P4		
7	PT1	L1	P6	P5		
8	PK,PIK	PT1	P7	P6		
9		PK,PIK		P7		
10		PR1		P0		
11	PR2,IDO		P0,P1		P0 remains operated until Test No. 20	
12	IDI	IDO	P0,P1			
13	OF0S	IDI	P2	P1		
14	OF1S	OF0S	P3	P2		
15	OF2S	OF1S	P4	P3		
16	OF3S	OF2S	P5	P4		
17	OF4S	OF3S	P6	P5		
18	OF5S	OF4S	P7	P6		
19	OFES	OF5S	P8	P7		
20		OFES,PR2		P0,P8		
21	PR3,TH		P0,P1		P0 remains operated until Test No. 27	
22	H	TH	P2	P1		
23	T	H	P3	P2		
24	U	T	P4	P3		
25	ES	U	P5	P4		
26	ES1	ES	P6	P5		
27		ES1,PR3		P0,P6		
28	PR4		P0			P0 remains operated until Test No. 34
29	ES1,TH		P1			
30	H	TH	P2	P1		
31	T	H	P3	P2		
32	U	T	P4	P3		
33	ES2,ES	ES1,U	P5	P4		
34		ES2,ES,PR4		P0,P5		
35	PR5		P0		P0 remains operated until Test No. 43	
36	IRL		P1			
37	SP	IRL	P2	P1		
38	KP	SP	P3	P2		
39	IDS	KP	P4	P3		
40	AS	IDS	P5	P4		
41	BS	AS	P6	P5		
42	CS	BS	P7	P6		
43		CS,PR5		P0,P7		
44	PR6		P0			P0 remains operated until Test No. 52
45	THS		P1			
46	HS	THS	P2	P1		
47	TS	HS	P3	P2		
48	US	TS	P4	P3		
49	STS	US	P5	P4		
50	EP	STS	P6	P5		
51	RL	EP	P7	P6		
52		RL,PR6		P0,P7		

TABLE 4
TIMEOUT AND ALARM TEST

Test No.	Test Operation P Relay		TM- Relay Operates	Other Results
	Operate	Release		
1	Operate		TMA	
2		Release	TMB	
3	Operate		TMC	
4		Release	TMD	
5	Operate		TME	
6		Release	(TME Locks TM (A-D) Release)	Lamp TTO lights. Minor audible alarm sounds

TABLE 5
NUMBER OF TICKETS ALARM TEST

Test No.	Test Operation		Observe Results			
	Operate	Release	Relay Operates	Relay Releases	Terminal Grounded	See Note
1	RGK		A			
2		RGK	B			
3	RGK		C		NT2(F)	1
4		RGK		A		
5	RGK		D		NT3(F)	1
6		RGK		C		
7	RGK		A		NT4(F)	1
8		RGK		B		
9	RGK		C		NT5(F)	1

NOTE 1: For the particular numbered NT- terminal cross-connected to term NTC, observe the following results:

- (a) Relays NTC and TOS operate.
- (b) Lamps NTA and TOS light at miscellaneous ckt. for the ticketer frame.
- (c) Major alarm is sounded.
- (d) Number counting relays (A-D) are released.
- (e) Relay NTC releases.
- (f) Subsequent operation of relay RGK does not operate any counting relays.

7. TIMEOUT AND ALARM CIRCUIT (FS-19)

7.1 Operate BAT key at key panel. Block operated relay ON1. Manually operate and release relay P, in succession, the number of times shown in Table 4. Observe that the alarm timing relays TM(A-E) operate in succession as indicated.

7.2 After completing tests of Table 4, operate key AR to silence the audible alarm. Operate key LR to extinguish lamp TTO. Check that relays TM(A-E) are released after key LR is operated.

7.3 Momentarily operate relay AL. Check that lamp TDA lights and the audible alarm sounds. Momentarily operate keys AR and LR to silence and extinguish alarm indications.

7.4 Momentarily operate relay TTA. Check that lamp PTO lights and the audible alarm sounds. Momentarily operate keys AR and LR to extinguish alarm indications.

7.5 Release relay ON1.

8. NUMBER OF TICKETS ALARM (FS-20)

8.1 The trouble ticketer is arranged to indicate an alarm when a predetermined maximum number of trouble tickets is obtainable during a specified time interval. This maximum number (2,3,4 or 5) is specified by the local operating company. Determine this assignment from the operating company representative or job information papers. Verify that the associated cross connection is installed at the trouble ticketer frame terminal strip (F) as shown below:

Max. No. Tickets	Cross Connect
2	NTC-NT2
3	NTC-NT3
4	NTC-NT4
5	NTC-NT5

8.2 Reconnect plug of printing unit to J1 connector. Operate and release relay RGK alternately, as indicated in Table 5. Relay DISC follows RGK and causes the operation and release of the ticket counting relays (A-D) as indicated.

When the specified number of counts is reached, the alarm condition is brought in as described in Table 5.

8.3 After performing tests of Table 5, momentarily operate relay ET to release relay TOS and extinguish TOS lamp. Momentarily operate key AR at the miscellaneous circuit to silence the alarm and extinguish the NTA lamp.

8.4 Operate key CTC at the miscellaneous circuit for the Trouble Ticketer frame. Operate and release relay RGK several times and observe that the counting relays (A-D) do not operate. Release key CTC.

8.5 Block operated relay ET and operate and release relay RGK several times. Observe that the counting relays do not operate. Remove block and release relay ET. Restore BAT key to normal at key panel.

➔ Arrowed lines indicate new or changed information.

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Engineer of Installation

Reason for Reissue:
To revise tests of Table 1.

Replaces Section 118 dated 5-18-61.