

ANI LEADS TESTS - PART 2

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1. <u>GENERAL INFORMATION</u>	4. <u>AUTOMATIC TRUNK TEST CIRCUIT TO MISCELLANEOUS CIRCUIT TRUNK FRAME</u>																												
1.1 This section and Section 108 of this handbook describe the leads tests to be performed on ANI circuits.	4.1 <u>No. 1 Crossbar and Panel</u>																												
1.2 Fusing tests per Section 107 of this handbook should be performed prior to tests of this section.	4.1.1 Perform leads tests between the automatic trunk test circuit and each appearance of the trunk frame miscellaneous circuit. Refer to Table A.																												
1.3 These leads tests are arranged so that, if desired, two groups of testers may perform leads tests at the same time, one group using this section and the other group using Section 108 of this handbook. Tests per Paragraph 4 of this section may be performed at the same time as Paragraph 4 of Section 108, etc.	4.2 <u>Step-by-Step</u>																												
1.4 Sleeve leads tests per Section 117, Paragraph 7 may be performed any time after these leads are connected at the Number Network frames.	4.2.1 Perform leads tests between the automatic trunk test circuit and each appearance of the trunk frame miscellaneous circuit. Refer to Table B.																												
2. <u>RECORDS</u>	5. <u>OUTPUTS-IDENTIFIER TEST CIRCUIT TO IDENTIFIER CIRCUIT</u>																												
2.1 The results of tests per this section shall be recorded on forms ID-1313 and ID-1315 as described in Handbook 50, Section 6B.	5.1 <u>Test of Leads to Identifier</u>																												
3. <u>TEST EQUIPMENT</u>	5.1.1 At the OITTF and at the first identifier circuit of a group, operate and release relays and keys as indicated in the tests of Table C and observe results as shown. Block relays operated for each test unless the test sequence indicates that the relays are to be released in the following test operation.																												
<table border="0"> <thead> <tr> <th style="text-align: left;"><u>Amt</u></th> <th style="text-align: left;"><u>Code</u></th> <th style="text-align: left;"><u>Description</u></th> <th style="text-align: left;"><u>With ITE</u></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>R-9572</td> <td>Test Receiver</td> <td></td> </tr> <tr> <td>1</td> <td>ITE-4442</td> <td>Volt-Ohmmeter</td> <td></td> </tr> <tr> <td>1</td> <td>ITE-9536</td> <td>Cord</td> <td>2360,4570</td> </tr> <tr> <td>1</td> <td>ITE-9501</td> <td>Cord</td> <td>2367,2360</td> </tr> <tr> <td></td> <td>or</td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>ITE-9547</td> <td>Cord</td> <td>4023</td> </tr> </tbody> </table>	<u>Amt</u>	<u>Code</u>	<u>Description</u>	<u>With ITE</u>	1	R-9572	Test Receiver		1	ITE-4442	Volt-Ohmmeter		1	ITE-9536	Cord	2360,4570	1	ITE-9501	Cord	2367,2360		or			1	ITE-9547	Cord	4023	5.1.2 After completing tests of Table C, check that all keys and relays are released and all lamps are extinguished.
<u>Amt</u>	<u>Code</u>	<u>Description</u>	<u>With ITE</u>																										
1	R-9572	Test Receiver																											
1	ITE-4442	Volt-Ohmmeter																											
1	ITE-9536	Cord	2360,4570																										
1	ITE-9501	Cord	2367,2360																										
	or																												
1	ITE-9547	Cord	4023																										
	5.1.3 Repeat the tests of Table C at each identifier frame. If identifier circuits are multiplied with shop wiring on the same frame, tests should be made at the last appearance on the frame.																												

5.2 Identifier Number Network Leads

5.21 Locate an ITE-4442, Volt-Ohmmeter, at the Identifier frame. At the test network and connector unit on the frame, identify the junction point between the L- and N- resistors for leads NO-N9, and the junction between the K- and P- resistors for leads PO-P9. Set the selector switch on the ohmmeter to the RX1 scale and connect one test lead to ground.

5.22 At the Outputser-Identifier Test Frame connect one end of the ITE-9501 or ITE-9547 cord to frame ground. Con-

nect the other end to terminal 5 at the (UT) dry reed relay. The terminal layout at the equipment side of the 295A type (UT) relay is shown below:

	4	6	8	10	12
2					14
1					13
	3	5	7	9	11

TABLE A

Lead	Misc. Ckt. Trk. Frame	Contact Relay	Auto. Trk. Tst. Fr.	Contact Relay
	OPERATION		RESULT	
TT1	Use ITE-9536 or Similar Cord. Connect Ground to Make Contact of Relay in Adjacent Column	2 FR0,3,6	Using R-9572 Test Receiver Test for Presence of Ground on Contact of Relay in Adjacent Column	7 Fixed BT1
A		3 " " "		10 Make AT2
XCL		4 " " "		CLX Operates
TI		5 " " "		11 Fixed CA5
RI		6 " " "		9 " CA5
TO		7 " " "		12 " CA5
RO		8 " " "		10 " CA5
CTP		9 " " "		9 " CT
CS2		10 " " "		7 " CA5
CS1		11 " " "		6 " OPX
CTD		12 " " "		11 Make CT
CL1		Using R-9572 Test Receiver, Connect 48V Battery to Make Contact of Relay in Adjacent		2 FR1
CL2	2 " " "		CL2 " "	
CL3	4 " " "		CL3 " "	
CL4	5 " " "		CL4 " "	
CL5	6 " " "		CL5 " "	
CL6	7 " " "		CL6 " "	
CL7	8 " " "		CL7 " "	
CL8	9 " " "		CL8 " "	
CL9	2 FR7		CL9 " "	
CL10	3 " " "		CL10 " "	
CL11	4 " " "		CL11 " "	
CL12	5 " " "		CL12 " "	
CL13	2 FR4		CL13 " "	
CL14	3 " " "		CL14 " "	
CL15	4 " " "		CL15 " "	
CL16	5 " " "		CL16 " "	
CL17	6 " " "		CL17 " "	
CL18	7 " " "		CL18 " "	
S	Use ITE-9536 or Similar Cord. Connect Ground to Make Contact of Relay in Adjacent Column	10 " 7	Using R-9572 Test Receiver, Test for Presence of Ground on Contact of Relay in Adjacent Column	1 Fixed CA5
FR		12 " ",1		5 Make CLXB or 5 Make CLPN
CT1		1 FR2,5,8		CT1 Operates
CTL		2 " " "		6 Make CLXB
IS		3 " " "		12 " CLPN or 1 Make CLXB
TM		4 " " "		3 " CSR
SI		5 " " "		6 Fixed CA5
SPI		6 " ",8		12 Make ACS

TABLE A (Cont'd.)

Lead	Misc. Ckt. Trk. Frame OPERATION		Auto. Trk. Tst. Fr. RESULT	
	Contact Relay		Contact Relay	
TPI	8 FR2,5,8		12 Make TP or 12 Make PTY 12 Fixed CTO	
TTO	9 " " "		5 Make EPT	
EP	10 " " "		LO Operates	
L	7 FR5		CN1 Operates	
CN1	11 " "		1 Fixed CL 14, 17,18	
RV	12 "		11M CST(Opt ZM) 11F RBT4 7M EMLT	
TM1	4 FR5(Opt V)			
E	1 FR3,6			
M	1 FR4,7			

TABLE B

Lead	Misc. Ckt. Trk. Frame OPERATION		Auto. Trk. Tst. Fr. RESULT		
	Contact Relay		Contact Relay		
TTO	Use ITE-9536 or Similar Cord Connect Ground To Make Contact of Relay in Adjacent Column	1	FR1	Using R-9572 Test Receiver Test for Presence of Ground on Contact of Relay in Adjacent Column	10 Make CS0
TT1		2	"		11 Fixed STA
SS		3	"		12 " CL1
C		4	"		6 " SL
E		5	"		5 " CL2
TO		6	"		4 " S1MW
RO		7	"		2 " S1MW
TO1		8	"		11 Make CL2
RO1		9	"		10 " CL2
T		3	FRO		1 " 2DGA
R		4	"		2 " 2DGA
SP1	5	"		12 " TCI	
TPT	6	"		10 " TCI	
AB	7	"		8 " TCI	
TI	8	"		10 Fixed S1MW	
RI	9	"		8 " S1MW	
S	10	"	Observe that the Lamps Indicated in Adjacent Column	SL Lamp	
XCL	Apply Res. Grd. Using R-9572 Test Receiver, Connect -48V Battery to make Contact of Relay in Adjacent Column	11	"		CLX Lamp
CL1		1	FRO		CL1 Lamp
CL2		2	"	Light	CL2 Lamp

TABLE C (Opt. ZX)

TEST OF LEADS TO IDENTIFIER

Test No.	Lead Under Test	Test Operation				Observe Results	
		At OITTF		At Identifier		At OITTF	At Identifier
		Operate	Release	Operate	Release		
1	ES1	ON SVN Key		ON,TST1, ES1	ON,TST1, ES1	ON1 Operates ES1 Operates & Locks Lamp ES1 lights	
2			ON SVN Key			ES1 Releases ON1 Releases Lamp ES1 out	

TABLE C (Cont'd.)

Test No.	Lead Under Test	Test Operation				Observe Results	
		At OITTF Operate	Release	At Identifier Operate	Release	At OITTF	At Identifier
3	HTC	HTR Key		TST		HTR Operates	
4			HTR Key			HTR Releases	
5	HTR			HTR1		HTR Operates	
6					HTR1	HTR Releases	
7	OFX			OFX5		OFX Operates	
8					OFX5	OFX Releases	
9	SXS	ICA Key AV Key		ON1		PG Operates	
10	AV		AV Key			AV Releases	
11			ICA Key		ON1	P,PG Release	
12	TST1	ON1				TST1 Operates	
13			ON1			TST1 Releases	
14	IEP			PTK,EP*		IEP Lamp Lights	
15	NPK			ON2	PTK	NPK Lamp Lights	
16					ON2, EP	NPK Lamp Extinguished IEP Lamp Extinguished	
17	ID0			ON		ID0 Operates (Ident. 0 only)	
18	ID1			ON		ID1 Operates (Ident. 1 only)	
19	OFE			TST1, OFEA	TST	OFE2 Operates OFE Lamp Lights	
20	OFE				TST1, OFEA	OFE2 Releases OFE Lamp Extinguished	
21	OSC	ID		ON,OIT		OSC Operates in Oscillator Unit at Test Frame	
22			ID		ON,OIT	OSC Releases	
23	TP			First TST2, then TPA		TPB Operates	
24					First TPA then TST2	TPB Releases	

* Operate PTK, then EP.

TABLE D (OPT. ZX)

TEST OF IDENTIFIER NUMBER NETWORK LEADS

Test No.	Lead Under Test	T.S. E Term.	Test Operation		Observe Results Meter Reads (ohms)	Note	
			At OITTF	At Identifier			
			Block Operated	Depress Key	Connector Ohmmeter to Resistor Junction		
1	N0	60	*IGAO		N0-L0	11-15	Term. 5 grounded at (UT) Relay.
2	"	"	"		"	0-7	
3	N1	61	"		N1-L1	11-15	
4	"	"	"	U01	"	0-7	
5	N2	62	"		N2-L2	11-15	
6	"	"	"	U02	"	0-7	
7	N3	63	"		N3-L3	11-15	
8	"	"	"	U03	"	0-7	
9	N4	64	"		N4-L4	11-15	
10	"	"	*IGAO	U04	"	0-7	
11	N5	65	*IGBO		N5-L5	11-15	Release IGAO after test 10.
12	"	"	"	U05	"	0-7	
13	N6	66	"		N6-L6	11-15	
14	"	"	"	U06	"	0-7	
15	N7	67	"		N7-L7	11-15	
16	"	"	"	U07	"	0-7	
17	N8	68	"		N8-L8	11-15	
18	"	"	"	U08	"	0-7	
19	N9	69	"		N9-L9	11-15	
20	"	"	*IGBO	U09	"	0-7	Release IGBO after test 20.
21	P0	70	*IGAO		K0-P0	11-15	Move ground from term. 5 of (UT) relay to term. 2 at (TT) relay.
22	"	"	"	T00	"	0-7	
23	P1	71	"		K1-P1	11-15	
24	"	"	"	T01	"	0-7	
25	P2	72	"		K2-P2	11-15	
26	"	"	"	T02	"	0-7	
27	P3	73	"		K3-P3	11-15	
28	"	"	"	T03	"	0-7	
29	P4	74	"		K4-P4	11-15	
30	"	"	*IGAO	T04	"	0-7	Release IGAO after test 30.
31	P5	75	*IGBO		K5-P5	11-15	
32	"	"	"	T05	"	0-7	
33	P6	76	"		K6-P6	11-15	
34	"	"	"	T06	"	0-7	
35	P7	77	"		K7-P7	11-15	
36	"	"	"	T07	"	0-7	
37	P8	78	"		K8-P8	11-15	
38	"	"	"	T08	"	0-7	
39	P9	79	"		K9-P9	11-15	
40	"	"	*IGBO	T09	"	0-7	
41	NS0	49	*IGBO NP		LS0-NS0	11-15	Move ground from (TT) term. 2 to relay. NP solid contact 3
42	"	"	*IGBO	(NP R1sd.)	"	0-7	
43	PS0	59	*IGBO		KS0-PS0	11-15	
44	"	"	NP		"	0-7	Release IGBO after test 44
45	NPY	48	*IGBO NP		LPY-NPY	11-15	Move ground from (NP) term. 3 to (NP) solid
	"	"	(IGAO)		"		

TABLE D (Cont'd.)

Test No.	Lead Under Test	T.S. E Term.	Test Operation		Observe Results Meter Reads (ohms)	Note
			At OITTF Block Operated	At Identifier Connector Ohmmeter to Resistor Junction		
46	NPY	48	*IGAO	(NP R1sd.)	0-7	
47	PPY	58			11-15	
48	"	"	NP, *IGAO		0-7	Release NP,IGAO after test 47

* Optional relays (provided only when more than one identifier group is provided).

TABLE E (OPT. ZY)

Test No.	Lead Desig.	T.S. Pchg.	Block Operated	Depress Key	At Ident. Fr. (0) Gnd 1 Lead Of Ohmmeter Other Lead To	Obser. Res.	Apply Temp. GND At
1	UP0	E-60	*IGA		CPNT A15 Pin 1	14	8M NP1
2	"	"	"	U00	" " 2	0	
3	UP1	E-61	"		" " 3	14	
4	"	"	"	U01	" " 4	0	
5	UP2	E-62	"		" " 5	14	
6	"	"	"	U02	" " 6	0	
7	UP3	E-63	"		" " 7	14	
8	"	"	"	U03	" " 8	0	
9	UP4	E-64	"		" " 9	14	
10	"	"	"	U04	" " 10	0	
11	UP5	E-65	IGB		CPNT A16 Pin 1	14	
12	"	"	"	U05	" " 2	0	
13	UP6	E-66	"		" " 3	14	
14	"	"	"	U06	" " 4	0	
15	UP7	E-67	"		" " 5	14	
16	"	"	"	U07	" " 6	0	
17	UP8	E-68	"		" " 7	14	
18	"	"	"	U08	" " 8	0	
19	UP9	E-69	"		" " 9	14	
20	"	"	"	U09	" " 10	0	

* Optional block when provided.

21-40 Repeat steps 1-20 for lead UN0-9 T.S. E pchg 70-79. Connect 1 lead of Ohmmeter to CPNT A7,T A7, A8 to pin 1-5 and other lead to Gnd. Move Temp Gnd. to 8B of (NP1) Rel.

41-60 Remove Temp. Gnd. from 8M(NP1) Rel. Apply 1 lead of ohmmeter to 8M(NP1) Rel and the other lead to 4M(NP1) Rel. Read open ckt. Operate U00 key, read 14 ohms. Operate UN00 key read zero resistances. Operate UN01 key read 28 ohms. Repeat for U01 to U09 and UN01 to UN09. The stepping procedure may be followed.

61-80 Move ohmmeter to 8B and 4B(NP1) rel. and repeat steps 41-60.

81-100 Block operated IGG and IGF relays if provided. Lead Desig. T00-T09 T.S. 'B' Pchg 80-89. Connect 1 lead of ohmmeter to CPNT A5, A6 pins 1-5 and other lead to Gnd. Apply Temp. Gnd at 7B(NP1) rel. Repeat steps 1 to 20.

101-120 Move Temp. Gnd to 7M(NP1) rel. Apply lead 2 to CPNT A13, A14 pins 1-5. Repeat steps 1-20.

121-140 Remove Temp. Gnd. 7M(NP1) rel. Apply 1 lead of ohmmeter to 7M(NP1) Rel and the other lead to 3M(NP1) Rel. Operate T00-9 and TN00-9 Keys as in steps 41-60. Repeat steps 41-60.

- 141-160 Move ohmmeter lead from 7M to 7B and from 3M to 3B. Repeat steps 121-140. After completing step 160 remove blocks IGG_ and IGF_ and block operated IGE_ if provided.
- 161-180 Leads HNO-9 T.S. B 90-99. Connect 1 lead of ohmmeter to CPNT A3, A4 pins 1-5. Connect other lead to Gnd. Apply Temp Gnd at 2B(NP1) Rel. Repeat steps 1-20. Operate H00-H09 keys.
- 181-200 Remove Temp. Gnd. from 2B(NP1) and apply at 2M(NP1) relay. Apply lead 1 of ohmmeter at CPNT A11, A12 pins 1-5. Repeat steps 1-20. Operate H00-H09 keys.
- 201-220 Remove Temp. Gnd. Apply lead 1 of ohmmeter to 2M(NP1) relay and other lead to 6M (NP1). Operate keys H00-9 and HN00-9. Repeat steps 41-60.
- 221-240 Move lead 1 ohmmeter from 2M to 2B of (NP1) relay and from 6M to 6B of (NP1) relay. Repeat steps 201-220.
- 241-260 Block operated IGF_ if provided. Do not remove block from IGE_. Leads TH00-9. Apply Temp. Gnd. at 1M(NP1) relay. Connect 1 lead of ohmmeter to CPNT A9, A10 pins 1-5. Repeat steps 1-20. Operate TH00-TH09 keys.
- 261-280 Move Temp. Gnd. from 1M to 1B(NP1) relay. Lead 1 of ohmmeter to CPNT A1, A2 pins 1-5. Repeat steps 1-20. Operate TH00-TH09 keys.
- 281-300 Remove Temp. Gnd. Apply lead 1 of ohmmeter to 1B(NP1) relay and other lead to 5B (NP1) relay. Operate keys TH00-9 and THN00-9. Repeat steps 41-60.
- 301.320 Move ohmmeter lead 1 from 5B to 5M(NP1) relay and from 1B to 1M(NP1) relay. Repeat steps 281-300.

Test No.	Lead	T.S.	Block	Operate	VOM Lead 1 GND Other End	RES	GND
321	ONPY	G-80			Pin 3 A17	14 ohms	NP 2F
322	"	"			"	0	"
323	OPPY	G-81			Pin 4 A17	14 ohms	NP 2M
324	"	"		IGA	"	0	"
325	1NPY	G-82	IGG		Pin 5 A17	14 ohms	1H 7
326	"	"	"	OFF1	"	0	"
327	1PPY	G-83	"		Pin 1 A18	14 ohms	5H 4
328	"	"	"	NP-1,OFF5	"	0	"
329	2NPY	G-84	"		Pin 2 A18	14 ohms	2T 4
330	"	"	"	OFF2	"	0	"
331	2PPY	G-85	"		Pin 3 A18	14 ohms	6T 7
332	"	"	"	NP-1,OFF6	"	0	"
333	3NPY	E-48	"		Pin 4 A18	14 ohms	OTH 7
334	"	"	"	OFF0	"	0	"
335	3PPY	E-58	"		Pin 5 A18	14 ohms	4TH 7
336	"	"	"	NP-1,OFF4	"	0	"
	RELEASE IGG						
337	NSO	G-49			Pin 1 A17	14 ohms	NP 3F
338	"	"		IGB	"	0	"
339	PSO	E-59			Pin 2 A17	14 ohms	NP 3M
340	"	"		IGB	"	0	"

TABLE F

NOTE 1: Under the columns headed operate: Momentarily operate the indicated relay manually.

NOTE 2: After all operations or blockings of relays or keys, release them before going on to the next test.

Test No.	Lead Under Test	Test Operation		Observed Result	
		At Outputser Operate	At O.I. Test Frame Operate	At Outputser	At O.I. Test Frame
1	1TR	1TR,07	Block ON operated	-	1TR operates and locks
2	RL1	RL,0T1	Block ON operated	-	RL operates and locks
3	2TR	2TR,0T7	Block ON operated	-	2TR operates and locks
4	RL	0T1	BYA	RL operates	-
5	CTO	0T1	CTO and IDO keys	CTO operates	-
6	TSN	OCC,CTO	-	(TSN operates if equipped)	-
7	CTT	0T1	CTT Key	CTT operates	-
8	CTOR	ST	SVN and CTO keys, OIT relay, (IG-relay if equipped)	-	CTOR operates
9	AB	0T6,TRS	0TC1,SP2,AB key	AB operates	-
10	ABK	AB,0T3	Block ON operated	-	ABK locks up.
11	CCKF	CCKF,0T3	Block ON operated	-	CCKF locks up
12	KP	KP,0T6	Block ON operated	-	KP locks up
13	EP	EP,0T6	" " "	-	OEP locks up
14	(GRF)	GRF,0T7	" " "	-	(GRF locks up if equipped)
15	(GRT)	GRT,0T2	Block ON operated	-	(GRT locks up if equipped)
16	THK	THK,0T4	Block ON operated	-	THK locks up
17	HK	HK,0T4	" " "	-	HK locks up
18	TK	TK,0T5	" " "	-	TK locks up
19	UK	UK,0T5	" " "	-	UK locks up
20	L1	L1,0T2	" " "	-	L1 locks up
21	PT1	PT1,0T7	" " "	-	(PT1 locks up if equipped)
22	TM2	ETM2,0T3	Block ON operated	-	TM2 locks up
23	TA	TAL1,0T3	" " "	-	TA locks up
24	TM1	EMTA,0T3	" " "	-	TM1 locks up
25	TNC	TNC,0T2	" " "	-	TNC operates
26	OON	Block ST and OT operated	Block OTL operated Operate BTR	-	BTR locks up
27	CO	OT	OB	OT1 operates	-
28	OTC1	Operate OT1,ON Block RL and TAL1 nonoperated	ON1	-	OTC1 operates
29	OTL	Block ON1,OT operated	OTL	-	OTL locks up
30	OTO	-	OIT,(IG- if equipped), OPO key	OT operates	-
31	OT1	-	OIT,(IG- if equipped), OP1 key	OT operates	-
32	OT2	-	OIT,(IG- if equipped), OP2 key	OT operates	-
33	OT3	-	OIT,(IG- if equipped), OP3 key	OT operates	-

TABLE F (Cont'd.)

Test No.	Lead Under Test	Test Operation		Observed Result	
		At Outputpulser Operate	At O.I. Test Frame Operate	At Outputpulser	At O.I. Test Frame
34	OT4	-	OIT,(IG- if equipped), OP4 key	OT operates	-
35	OT5	-	OIT,(IG- if equipped), OP5 key	OT operates	-
36	OT6	-	OIT,(IG- if equipped), OP6 key	OT operates	-
37	OF0	OF,OT3	ON	-	OF0D operates and locks
38	OF1	OF1,OT3	ON	-	OF1D operates and locks
39	OF2	OF2,OT3	ON	-	(OF2D operates and locks, if equipped)
40	OF3	OF3,OT3	ON	-	(OF3D operates and locks if equipped)
41	OF4	OF4,OT3	ON	-	(OF4D operates and locks, if equipped)
42	OF5	OF5,OT3	ON	-	(OF5D operates and locks, if equipped)
43	IOT	OT1	OIT,ID0 key	(IOT operates, if equipped)	-
44	I1T	OT1	OIT,ID1 key	(I1T operates, if equipped)	-
45	OT	OT	OTCI	OT2,3,4,5,6,7 relays operate	-
46	IDG0	OT7,ID0	Block ON operated	-	IDG0 operates and locks
47	IDG1	OT7,ID1	Block ON operated	-	IDG1 operates and locks
48	IDG2	OT7,ID2	Block ON operated	-	IDG2 operates and locks
49	IK	OT2,IK	Block ON operated	-	IK operates and locks
50	TRS	OT2,TRS	Block ON operated	-	TRS operates and locks
51	OP0,1,2,3,4,5,6	RC,SPL1	Block ON operated	-	(OP01,2,3,4,5,6, whichever supplied, operate and lock)
52	TP	OT2,TP	Block ON operated	-	TP operates and locks
53	RP	OT2,RP	Block ON operated	-	RP operates and locks
54	PT	OT2,PT	Block ON operated	-	(PT operates and locks, if equipped)
55	PK	OT2,PK	Block ON operated	-	PK operates and locks
56	PIK	OT2,PIK	Block ON operated	-	(PIK operates and locks, if equipped)
57	TNC	OT2,TNC			TNC operates
58	IRL	OT2,IRL	Block ON operated	-	IRL operates and locks

TABLE F (Cont'd.)

Test No.	Lead Under Test	Test Operation		Observed Result	
		At Outpulser Operate	At O.I. Test Frame Operate	At Outpulser	At O.I. Test Frame
59	IYK	OT7,IYK	Block ON operated	-	(IYK operates and locks if equipped)
60	TNK	OT2,TNK	Block ON operated	-	TNK operates and locks
61	SPK	OT7,SP	Block ON operated	-	SPK operates and locks
62	S0	OT7,S0	Block ON operated	-	S0 operates and locks
63	PTY	PTY,OT7	Block ON operated	-	PTY operates and locks
64	TH0	OT4,TH0	DCA	-	TH0 operates
65	TH1	OT4,TH1	DCA	-	TH1 operates
66	TH2	OT4,TH2	DCA	-	TH2 operates
67	TH4	OT4,TH4	DCA	-	TH4 operates
68	TH7	OT4,TH7	DCA	-	TH7 operates
69	H0	OT4,H0	DCA	-	H0 operates
70	H1	OT4,H1	DCA	-	H1 operates
71	H2	OT4,H2	DCA	-	H2 operates
72	H4	OT4,H4	DCA	-	H4 operates
73	H7	OT4,H7	DCA	-	H7 operates
74	T0	OT5,T0	DCB	-	T0 operates
75	T1	OT5,T1	DCB	-	T1 operates
76	T2	OT5,T2	DCB	-	T2 operates
77	T4	OT5,T4	DCB	-	T4 operates
78	T7	OT5,T7	DCB	-	T7 operates
79	U0	OT5,U0	DCB	-	U0 operates
80	U1	OT5,U1	DCB	-	U1 operates
81	U2	OT5,U2	DCB	-	U2 operates
82	U4	OT5,U4	DCB	-	U4 operates
83	U7	OT5,U7	DCB	-	U7 operates
84	T	OT6	OTCI,TPA,ON	I2 operates	-
85	R	OT6	OTCI,ON	I1 operates	-
86	SP	OT6,IK	OTCI	SPL operates	SP operates
87a	TPT	OT6 (Panel Only)	OTCI,GRF key	I4 operates	-
87b	TPT	OT6 (SXS Only)	OTIC,GRFFR key	I4 operates	-

- 5.23 At the Identifier frame, touch the test pick of the ITE-4442 to the first resistor junction shown in Table D. Observe that the ohmmeter reads approximately 13 ohms (11-15 ohms). At the OITTF, depress the key shown in Table D for the first lead under test. Observe that the ohmmeter reads approximately zero ohms. Release the depressed key and move the ohmmeter lead to the next junction point. Repeat the above procedure until all tests of Table D have been completed. Operate and release relays and shift ground connection as described in the notes of Table D. The terminal strip location information shown in Table D is provided only as an aid in trouble location.
- 5.24 After completing tests of Table D, disconnect ground cord from NP relay terminal and disconnect ITE-4442 test connections.
6. OUTPUTSERS TO OUTPUTSERS-IDENTIFIER TEST CIRCUIT
- 6.1 Perform the tests of Table E between the Outpulser and the Outpulser-Identifier test frame, and observe the proper results.
7. OUTPUTSERS-IDENTIFIER TEST CIRCUIT TO AUTOMATIC TRUNK TEST CIRCUIT
- 7.1 At the OITTF and at the Automatic Trunk Test Circuit, operate and release relays and keys as indicated in the tests

- of Table G and observe results as shown. Where a system option is indicated, apply the tests only where that system is installed.
- 7.2 After completing tests of Table G, check that all relays are released and all keys restored to normal.
- 7.3 Panel and No. 1 Crossbar
- 7.31 At the OITTF, block operated relay ON1. At the Automatic Trunk Test Circuit, block operated relay SP0. Using an R-9572, Test Receiver, connect one end to battery. At relay CA5 of the ATT circuit, check that a low resistance ground is present at contact 12. Disconnect the test receiver from battery and connect the test receiver across contacts 10 and 12 of relay CA5. Verify that lamp TGD lights at the OITTF.
- 7.32 Release relay ON1 at the OITTF and relay SP0 at the ATT circuit. Disconnect test receiver and check that lamp TGD at the OITTF is extinguished.
- 7.33 Block operated relay OSC and verify that a 5800-cycle tone is present at one side of resistor OT or OT1, using a test receiver connected to ground. Operate key TT at the OITTF and verify that the tone is present at contact 4 make of relay REC at the Automatic Trunk Test Circuit.
- 7.34 Release key TT and check that tone is removed from relay REC. Release relay OSC and disconnect test receiver.
- 7.4 Step-by-Step
- 7.41 At the Automatic Trunk Test Circuit, block operated relay SP1. Block operated relay ON1 at OITTF. Verify that lamp SP1 lights at the OITTF. Using an R-9572 Test Receiver, connect one end to battery. At relay S1M of the ATT circuit, check that a low resistance ground is present at contact 2. Disconnect the test receiver from battery and connect the test receiver across contacts 2 and 4 of relay S1M, TGD lamp lights.
- 7.42 Release relay SP1 at the ATT circuit. Disconnect test receiver and check that lamp TGD is extinguished at the Automatic Trunk Test Circuit. Remove block from ON1 at OITTF.
- 7.43 Block OSC relay operated and verify that 5800-cycle tone is heard at one side of resistor OT or OT1, using a test receiver connected to ground. Operate key TT at the OITTF and verify that tone is heard at contact 3 make of relay SP1 at the ATT circuit.

TABLE G
TEST OF LEADS TO AUTOMATIC TRUNK TEST CIRCUIT

Test No.	Lead Under Test	Test Operation		Observe Results	
		At OITTF	At ATT Ckt.	At OITTF	At ATT
1	ON		Operate ON1	ON1 operates	
2			Release ON1	ON1 releases	
3	CA	Operate TT & CA keys		CA operates	
4		Release TT & CA keys		CA releases	
5	RN,RN1	Operate RN key			RN operates
6		Release RN key			RN releases
7	TP	Operate TP key	Block ON1 nonoperated, Block STTA operated (Panel & No. 1) or STA (SXS)		TPT operates
8		Release TP key	Release STTA or STA, unblock ON1		TPT releases
9	GRF (SXS only)	Operate GRFFR key	Block GRT operated		GRF operates
10		Release GRFFR key	Release GRT		GRF releases
11	HA	Operate TT & ST keys	Block ST nonoperated		HA operates
12		Release TT & ST keys	Unblock ST		HA releases

TABLE H
TEST OF OUTPUTS DIGIT PATTERN

Test No.	Test Operation										Momentarily Operate to Release IOK Relay
	Manually operate relays to operate IOK										
	I-	A-	B-	C-	TH-	H-	T-	U-			
1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	I10
2	0 2	0 2	0 2	0 2	0 2	0 2	0 2	0 2	0 2	0 2	A10
3	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	B10
4	0 4	0 4	0 4	0 4	0 4	0 4	0 4	0 4	0 4	0 4	C10
5	1 4	1 4	1 4	1 4	1 4	1 4	1 4	1 4	1 4	1 4	TH10
6	2 4	2 4	2 4	2 4	2 4	2 4	2 4	2 4	2 4	2 4	H10
7	0 7	0 7	0 7	0 7	0 7	0 7	0 7	0 7	0 7	0 7	T10
8	1 7	1 7	1 7	1 7	1 7	1 7	1 7	1 7	1 7	1 7	U10
9	2 7	2 7	2 7	2 7	2 7	2 7	2 7	2 7	2 7	2 7	TPA*
10	4 7	4 7	4 7	4 7	4 7	4 7	4 7	4 7	4 7	4 7	TBP*

* Does not lock operated.

TABLE I
TEST OF LEADS OF MF RECEIVER (SD-95536-01)

Test No.	Lead Under Test	Test Operation (SEE NOTE)		Observe Results			
		Relays Operate in MF REC.	Release	Lamps Lighted	at OIT Out	Relays Operate at OIT	Release
1	J L	SP				RAV, SCA,(LK in MF REC)	
2			SP			IS	(LK in MF REC), RAV
3	I10	Block LK (0),10	10	I10	I10	I10	I10
4	I7	7	7	I7	I7	I7	I7
5	I4	4	4	I4	I4	I4	I4
6	I2	2	2	I2	I2	I2	I2
7	I1	1	1	I1	I1	I1	I1
8	I0	0	0,LK	I0	I0	I0	I0
9		SP				(LK),RAV SCB AS	SCA (LK),RAV
10 11-16	A10- A0	(Repeat Test No.s 3 through 8)	SP	A(10-0)	A(10-0)	A(10-0)	A(10-0)

TABLE I (Cont'd.)

Test No.	Lead Under Test	Test Operation (SEE NOTE) Relay in MF REC.		Observe Results			
		Operate	Release	Lamps Lighted	at OIT Out	Relays Operate	at OIT Release
17		SP				(LK),RAV SCC	SCB (LK),RAV
18			SP			BS	
19-24	B10- B0	(Repeat Test Nos. 3 through 8)		B(10-0)		B(10-0)	B(10-0)
25		SP				(LK), RAV,SCA	SCC
26			SP			CS	RAV,(LK)
27-32	C10- C0	(Repeat Test Nos.) 3 through 8)		C(10-0)		C(10-0)	C(10-0)
33		SP				(LK), RAV,SCB	SCA
34			SP			THS	RAV,(LK)
35-40	TH10- TH0	(Repeat Test Nos.) 3 through 8)		TH(10-0)		TH(10-0)	TH(10-0)
41		SP				(LK), RAV,SCC	SCB
42			SP			HS	RAV,(LK)
43-48	H10- H0	(Repeat Test Nos.) 3 through 8)		H(10-0)		H(10-0)	H(10-0)
49		SP				(LK), RAV,SCA	SCC
50			SP			TS	(LK),RAV
51-56	T10- T0	(Repeat Test Nos.) 3 through 8)		T(10-0)		T(10-0)	T(10-0)
57		SP				(LK), RAV,SCB	SCA
58			SP			US	RAV,(LK)
59-64	U10- U0	(Repeat Test Nos.) 3 through 8)		U(10-0)		U(10-0)	U(10-0)
65		SP				(LK), RAV,SCC	SCB
66			SP			STS	RAV,(LK)
67	ST10- ST0	(Repeat Test Nos.) 3 through 8)		ST(10-0)		ST(10-0)	ST(10-0)
68			(Release ON1 in OITTF)				IS,AS,BS,CS, THS,HS,TS,US, STS,SCC

NOTE: Operation and release of relay SP should be simulated by momentarily grounding make contact of relay SP with test pick of test receiver connected to ground.

7.44 Release key TT and check that tone is removed from relay SP1. Release relay OSC and remove test receiver.

7.5 Outputser Digit Pattern Check

7.51 At the OITTF, locate the outputser ditit registration relays, I-, A-, B-, C-, TH-, H-, T- and U-. Block operated relay ON1 and block operated relays ST7 and ST10. Observe that relay IOK is not operated in the Automatic Trunk Test Circuit.

7.52 Manually operate, one set at a time, the digit indicating relays shown in the first test of Table H. Observe that the relays lock operated and that relay IOK in the Auto. Trk. Test Ckt. operates after the complete set of digit relays is operated. Then momentarily operate the relay shown in the first test of Table H. Observe that the relay locks operated and relay IOK is released. Remove block from relay ON1 and release ON1 to release all locked relays.

- 7.53 Repeat the procedure outlined above for each test of Table H. Observe that relay IOK operates and releases as indicated. In the last two tests of Table H, the relays operated to release relay IOK do not lock operated.
- 7.54 After completing tests of Table H, remove blocks from relays ON1, ST7 and ST10.
8. OUTPULSER-IDENTIFIER TEST CIRCUIT TO M.F. RECEIVER
- 8.1 In this test, the operation of relay SP in the MF Receiver circuit is used to operate relay RAV in the test circuit. Since the SP relay is a finely adjusted polar relay, it may be advisable to use a test receiver connected to ground at the MF receiver and touch the make contact of relay SP with the test pick to simulate the operation and release of relay SP as shown in Table H.
- 8.2 At the OITTF, insulate contacts 11 & 12 make of relay ON1 and block operated relay ON1. At the MF Receiver, observe that relays KP, KP1 and KP2 are operated.
- 8.3 Perform test operation as outlined in Table I and observe results as indicated for each test. Momentarily grounding make contact of relay SP will advance steering relays in the test circuit. Within each digit group, observe that operation of each outpulser number digit relay causes relay RGK to operate, except that relays STO, ST1, ST2 and ST4 do not operate relay RGK.
- 8.4 After completing tests of Table I, release relay ON1 in the test circuit and disconnect test receiver at the MF Receiver. Check that all relays are released and all lamps extinguished.
- 8.5 TC1 and TC2 Leads
- 8.51 At the MF Receiver, insulate the break contacts of polar relay KP. At the OITTF, locate the DKP and DKP1 capacitors, which connect to leads TC1 and TC2 from the MF Receiver Circuit.
- 8.52 Using a test receiver at the OITTF, connect one end to ground and check that a resistance battery appears on one common side (TC1 lead) of the capacitor DKP and DKP1. Connect test receiver to battery and check that a resistance ground is present on the other common side (TC2 lead) of the capacitors. Remove insulator from the break contacts of relay KP at the MF Receiver and check that a solid ground appears on lead TC1 instead of a resistance battery. After completing test, disconnect test receiver.

No changes are indicated due to extensive revision.

Manager, Product Engineering
Control Center

Reason for Reissue:
To meet the changes for Identifier IC593-01.