

LINE CONCENTRATOR NO. 2A
CONTROL CIRCUIT
SUPPLEMENTARY TESTS

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1. GENERAL

1.1 This section provides methods for supplementary tests of the 2A Line Concentrator Control Circuit, SD-94815-01.

1.2 If the operating company requires Load Tests per Section 928, tests per this section and Sections 923 (Control Circuit), 924, and 925 (Remote Circuit) must be performed first.

1.3 Refer to Section 921 of this handbook for use of ITE-4251 Rapidohm Test Set and ITE-4261A Whistler Test Set.

1.4 Caution: Observe precautions when testing electronic devices as written in Section 0.3 of this handbook. Never connect -24V, -48V, +130V or any test battery to a test point. Application of test battery will invariably damage the preceding transistor logic stage. Direct ground may be applied to any test point when necessary.

2. TEST EQUIPMENT

2.1 Test Sets

Amt.	ITE	Description
1	4011	Universal Test Set
1	4251	Rapidohm Test Set
1	4261A	Whistler Test Set
1	4442	Volt-Ohmmeter

2.2 Cords: All cords necessary for tests of this section are included in the test sets specified.

3. RECORDS

3.1 The results of tests per this section shall be recorded on forms SD-4-1313 and SD-4-1315 as described in Handbook 50, Section 3.

4. FUSING AND ALARMS

4.1 These tests must be performed before circuit packs are installed.

4.11 The control circuit is in a normal released state when a remote circuit is attached to it and with certain relays normally operated. They are: Relays TM3, one of relays TK-- in each group, ET0 or OT0, ET1 or OT1, W0 or Z0, W1 or Z1, and any combination of relays TPR01 to TPR05, and TPR11 to TPR15.

4.2 Fuses: Verify the fuse panel for missing or operated fuses. If a fuse is missing or operated, verify the fuse terminal for absence of low resistance ground with ITE-4442 Volt-ohmmeter. Clear any ground condition and install the proper fuse. At the completion of test, the fuse panel should be fully equipped with proper fuses or dummies.

4.3 Alarms

4.31 Block operated relay TM3 and block nonoperated relays TML, TM2, TM4, TM5, and TM6.

4.32 Insert an operated fuse under the first fuse cap. Relay FA should operate, lamp FA should light, the red aisle pilot, red main aisle pilot, and floor pilot should light and the major alarm should sound. Remove the operated fuse and the alarms should be extinguished and silenced. Repeat using the last fuse cap with the same results.

4.33 Manually operate relay ALM1. It should lock, lamp TRT should be lighted, and the major alarm should be activated. Momentarily operate key AR to release relay ALM1, extinguish lamp TRT and retire the alarm. Momentarily operate relay ALM2. It should lock, lamp RLT should be lighted and the major alarm should again be activated. Momentarily operate key AR to release relay ALM2, extinguish lamp RLT and retire the alarm.

5. SUPPLEMENTARY TESTS

NOTE: Perform these tests after all fuses have been installed, but before the circuit packs have been installed.

5.1 Cross Detection

5.11 At control circuit under test, manually release any operated hold magnets (HM). Manually operate relay TK00 in group 0 and 1. Momentarily operate relays RL1 and RL2 to release any possible frame off normal condition. Block non-operated relay D0 and D1. Insulate contacts 3 and 11 of relay TIS.

5.12 With ITE-4251 Rapidohm test set verify leads S of lines 00 to 77 in groups 0 and 1 on terminal strip A at top of frame. The test set should read -2450 on all leads.

5.13 With ITE-4261A Whistler test set verify leads T and R of lines 00 to 77 in groups 0 and 1 on terminal strip A. All leads to the same switch should have approximately the same tone. In the same manner verify leads T and R of trunks 00 to 15 in groups 0 and 1 on terminal strip A. All leads in the same group should have approximately the same tone.

5.14 At the conclusion of this test remove the insulation from relay TIS.

5.2 Linkage Test

5.21 Service Request, Disconnect and Terminating calls will be simulated as illustrated in Table 1 for switches A, B, and C and Table 2 for switch D. Each line will be verified to one even and one odd trunk for continuity using ITE-4011. These tests must be performed in the numerical sequence of Tables 1 and 2 testing one switch at a time. These tests must be applied to groups 0 and 1 separately.

5.211 At ITE-4011 operate key BG. Using ITE cords and alligator clips furnished with ITE-4011, setup as follows:

JACK	ITE CORD	OTHER END
OR-T	9548	BG-LP T
OR-R	9548	BG-LP R
O JK-S	9548	REV1-R1
REV1-T	9548	GRD-G1
T JK T	9548	POL +
T JK R	9548	POL -
A	9598	JACK A (FRAME -48V TEST BATTERY)
O	9639	T.S.A Line (T, R and S to T, R and S respectively)
T	9639	T.S.A Trunk (T and R to T and R respectively)

This setup is illustrated in Figure A.

5.22 Service Request Calls

5.221 According to the test number from Tables 1 or 2, connect ITE-4011 to the line and trunk under test per Figure A. Manually operate the relay TK-- which should lock. Block nonoperated relay D0 and D1. Manually operate relay SRO (Group 0) or SR1 (Group 1) which should also lock.

5.222 Block operated two relays A and two relays B. The control circuit should function, as illustrated in SC3, to operate the HM of the line under test.

5.223 Remove the blocking tools from relays A and B and momentarily operate relay R11 manually to restore the circuit to normal with the HM of the line under test operated.

5.224 At ITE-4011 operate key ST0. Lamps BG, BGI, and POL should light. At the control circuit relay TS-- associated with trunk under test should operate. At ITE-4011 operate key REV1. At the control circuit relays TBA-- and TB--

associated with the trunk under test should operate and release relay TS--. Block operated relay TB--.

5.225 Release ITE-4011 keys ST0 and REV1 to extinguish all lamps before moving cords to next line and trunk to be tested.

5.226 Repeat Paragraphs 5.221 to 5.225 for each SR call illustrated in Tables 1 and 2.

5.23 Disconnect Calls (D)

5.231 To prepare for a D call remove the blocking tool from relay TB-- per Tables 1 or 2. A D call is started by removing the blocking tool from relay D0 (Group 0) or D1 (Group 1) permitting it to operate. The control circuit should function as illustrated in SC8 to release the HM of the line and trunk under test. Momentarily operate relay R11 manually to restore the circuit to normal with relay TK-- operated.

5.232 Block nonoperated relay D0 or D1 before proceeding with next test.

5.233 Repeat Paragraphs 5.231 and 5.232 for each D call illustrated in Tables 1 and 2.

5.24 Terminating Calls (T)

5.241 According to the test number from Tables 1 or 2, connect ITE-4011 to the line and trunk under test per Figure A. A T call is started by operating key REV1 of ITE-4011. The control circuit should function as illustrated in SC7 to operate the HM of the line under test.

5.242 As a test of the line lockout feature, manually operate an SL-- relay of the next higher numbered tens and units. (Example: Relay SL00 operated per Paragraph 5.241; operate relay SL11.) The result should be that none of the remaining LT- or LU- relays operate.

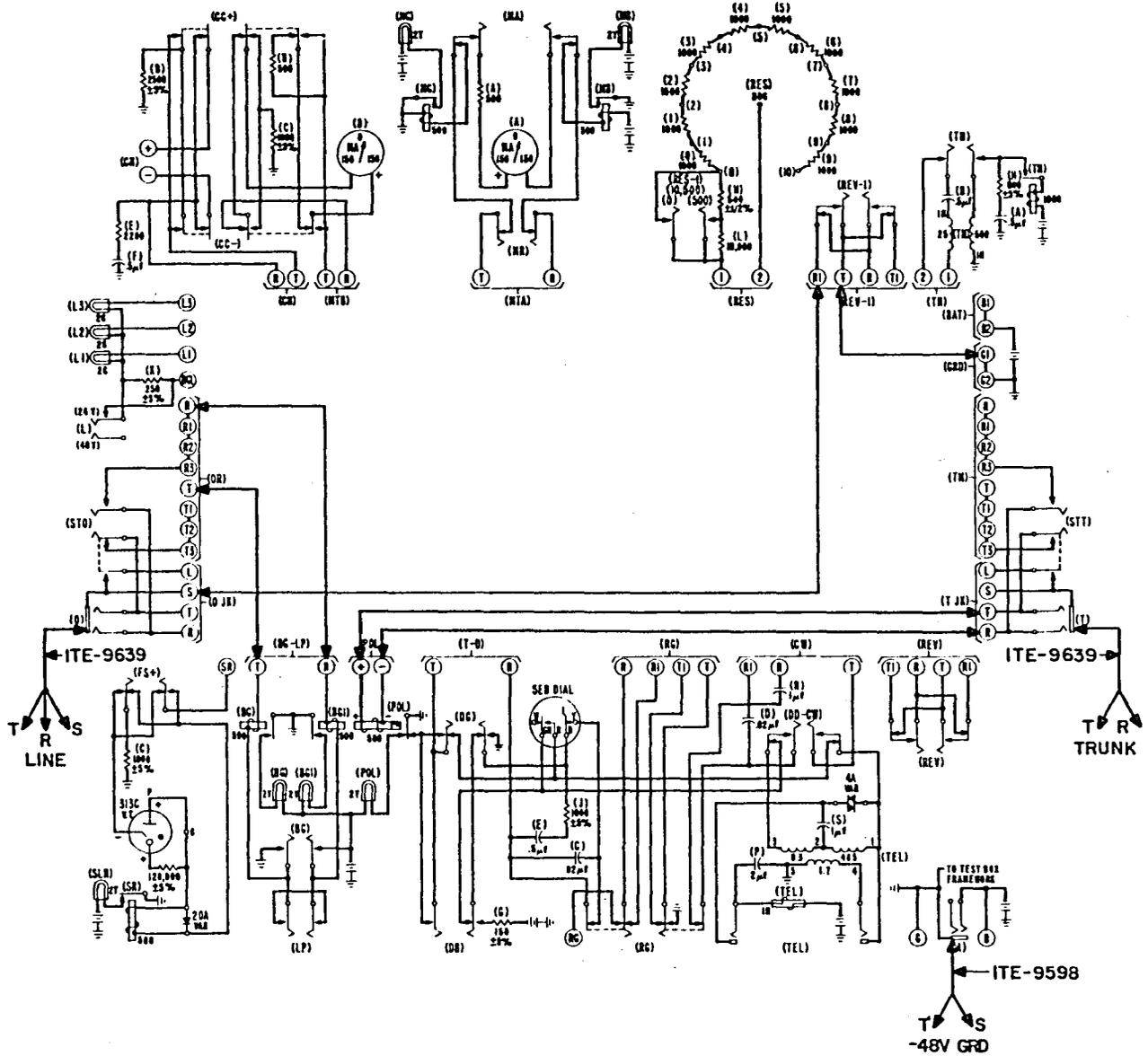
5.243 Momentarily operate relay R11 manually to restore the circuit to normal with the HM of the line under test operated.

5.244 At ITE-4011 operate key ST0. Lamps BG, BGI, and POL should light. At the frame relay TB-- of the trunk under test should operate; block it operated.

5.245 Release ITE-4011 keys ST0 and REV1 to extinguish all lamps before moving cords to next line and trunk to be tested.

5.246 Repeat Paragraphs 5.241 to 5.245 for each T call illustrated in Tables 1 and 2.

5.25 At the conclusion of these tests all hold magnets and all relays, excepting those listed in Paragraph 4.11, should be released. Remove the connections to ITE-4011.



NOTE: ARROWS ON KEY CHART INDICATE KEYS OPERATED BEFORE START OF TEST.

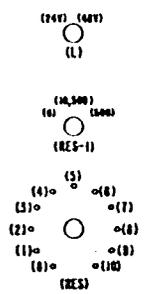
CIRCUIT REQUIREMENTS					
DESCR.	CODE	RES. %	TEST	GRADE	TEST
				NA	NA
POL	230FD	5%	0	-10	5.0
			0	15	1.0
			0	-12	1.0
POL	280J	10%	0	-12	0.2
			0	12	1.7
			0	12	0.1
TR	2000	5%	0	12	12
			0	12	11
			0	12	10
NA, 001		5%	0	12	11
NA, 001	B-475	5%	0	0.0	0.3
NA		5%	0	1	0.0

* APPLIED WITH TENSION OF MASSING SPRING RELEASED.

COMBS AND ACCESSORIES					
REQ.	AMT.	ITE	LENGTH	QTY	END
0	0047	12"	1	2400	2400
1	0001	12"	3	310	310
1	0000	12"	3	310	300
0	0010	12"	0	310	3-2400
10	0540	0"	1	2400	2400
1	0000	12"	2	310	310
2	0310	12"	0	310	3-4000
0	0507	ALLIATOR CLIPS			
0	2100	PLUGS			
0	0100	SPRING TIPS			
2	0412	CONNECTOR 2-POINT			
2	0413	CONNECTOR 4-POINT			

MISCELLANEOUS TEST SET, ITE-4011

	CC+	LP	NO-CW
STO	CC+	DC	REV-1
TR	NA	DC	REV-1
STY	DC	DC	FS+



NOTE: ALL RESISTOR VALUES ARE 5% UNLESS OTHERWISE SPECIFIED.

FIGURE A

5.3 Trunk Selection

5.31 Preparation: Block nonoperated relay D0 and D1. Manually release any operated relay TK-- in both groups 0 and 1 and ascertain that relays TPR01, W0, TPR11, and W1 only are operated. Block operated relays TUK and TIS. Start the test by removing the blocking tool from and permitting relay D0 to operate with results as follows:

STEP	ACTION	RESULT
1	Permit relay D0 to operate.	Relays TK01, TPR02, and Z0 operate.
2	Release and block nonoperated relay D0.	
3	Release relay TK01.	Relay W0 releases.
4	Remove blocking tool from relay TIS.	
5	Permit relay D0 to operate.	Relay TK02 operates, relay Z0 releases.
6	Release and block nonoperated relay D0.	
7	Release relay TK02.	Relay W0 operates.
8	Permit relay D0 to operate.	Relays TK03, TPR03, and Z0 operates.
9	Release and block nonoperated relay D0.	
10	Release relay TK03.	Relay W0 releases.
11	Block operated relay HMK.	
12	Permit relay D0 to operate.	Relay TK04 operates, relay Z0 releases.
13	Release and block nonoperated relay D0.	
14	Release relay TK04.	Relay W0 operates.
15	Permit relay D0 to operate.	Relays TK05, TPR04, and Z0 operate.
16	Release and block nonoperated relay D0.	
17	Release relay TK05.	Relay W0 releases.
18	Remove blocking tool from relay TUK.	
19	Permit relay D0 to operate.	Relay TK06 operates, relay Z0 releases.
20	Release and block nonoperated relay D0.	
21	Release relay TK06.	Relay W0 operates.
22	Permit relay D0 to operate.	Relays TK07, TPR05, and Z0 operate.
23	Block relays TUK, TIS, and ABK operated. Remove blocking tool from relay HMK.	Relay TPR01 releases.
24	Release and block nonoperated relay D0.	
25	Release relay TK07.	Relay W0 releases.
26	Remove blocking tool from relay ABK.	
27	Permit relay D0 to operate.	Relay TK08 operates, relay Z0 releases.
28	Release and block nonoperated relay D0.	
29	Release relay TK08.	Relay W0 operates.
30	Permit relay D0 to operate.	Relays TK09 and Z0 operate, relay TPR02 releases.
31	Release and block nonoperated relay D0.	
32	Release relay TK09.	Relay W0 releases.
33	Remove blocking tool from relay TIS.	
34	Permit relay D0 to operate.	Relay TK10 operates, relay Z0 releases.
35	Release and block nonoperated relay D0.	

(Continued on Page 5)

STEP	ACTION	RESULT
36	Release relay TK10.	Relay W0 operates.
37	Permit relay D0 to operate.	Relays TK11 and Z0 operate. Relay TPR03 releases.
38	Release and block nonoperated relay D0.	
39	Release relay TK11.	Relay W0 releases.
40	Block operated relay HMK.	
41	Permit relay D0 to operate.	Relay TK12 operates, relay Z0 releases.
42	Release and block nonoperated relay D0.	
43	Release relay TK12.	Relay W0 operates.
44	Permit relay D0 to operate.	Relays TK13 and Z0 operate, relay TPR04 releases.
45	Release and block nonoperated relay D0.	
46	Release relay TK13.	Relay W0 releases.
47	Remove blocking tool from relay TUK.	
48	Permit relay D0 to operate.	Relay TK14 operates, relay Z0 releases.
49	Release and block nonoperated relay D0.	
50	Release relay TK14.	Relay W0 operates.
51	Permit relay D0 to operate.	Relays TK15 and Z0 operate, relay TPR05 releases.
52	Release and block nonoperated relay D0.	Relay TPR01 operates.
53	Release relay TK15.	Relay W0 releases.
54	Permit relay D0 to operate.	Relay TK00 operates, relay Z0 releases.
55	Release relay D0.	

5.32 Paragraph 5.31 tests Group 0 only. Repeat the test on Group 1 substituting relays D1 for D0, W1 and Z1 for W0 and Z0, and TPR11 to TPR15 for TPR01 to TPR05.

5.33 At the conclusion of this test return the control circuit to a normal state per Paragraph 4.11. Block nonoperated relays TAO and TA1. At this time install the circuit packs into their jacks.

5.34 The control circuit is now in a condition to proceed with tests per Section 923.

5.4 Preference Circuits

5.41 Disconnect Preference: Verify that relays W2 and Z2 are released, if operated manually release relay W2 which should release both. Manually operate relay DIS 02; relay W2 should operate. Release relay DIS 02; relay Z2 should operate. Again manually operate relay DIS 02; relay W2 should release. Release relay DIS 02; relay Z2 should release. Repeat this procedure using relay DIS 12 with the same results.

5.42 Terminating Preference: Relays TER00 and TER10 should effect relays W3 and Z3 in the same manner as Paragraph 5.41.

5.43 Line Lockout Preference: Verify that relays W4, W5, Z00, Z01, Z10 and Z11 are released. Block operated relays TUK, ATC00 and ATC10; relays W4 and W5 should operate. Manually operate and release relay TIS observing results as follows:

Relay TIS		Relays Operate	Relays Release
Operate	Release		
X		W4, W5 Z00, Z02, Z10, Z12	
	X		W4, W5
X		Z01, Z03, Z11, Z13 W4, W5	
	X		Z00, Z02, Z10, Z12 W4, W5
X			Z01, Z03, Z11, Z13
	X	W4, W5	

Remove the blocking tools from relays TUK, ATC00 and ATC10.

5.44 Call Preference: Verify that relays Z2, Z3, W2 and W3 are released. With ITE-4442 Volt-Ohmmeter set to use -50V DC scale, test for -48V according to the following:

BLOCK OPERATED RELAY (S)	UNBLOCK RELAY (S)	RELAYS		TEST THAT -48V IS		TEST AT
		OPERATE	RELEASE	PRESENT	ABSENT	
SRC 1					X	1,2,3,4,5
	SRC 1			X		1,2,3,4,5
TER 00		W3			X	1,4,5
TC 0				X		1,4,5
TER 10					X	1,4,5
TC 1				X		1,4,5
	TER 00, TC 0 TER 10, TC 1	Z3		X		2,3
TER 10			W3	X		3
TER 00	TER 10			X	X	2
					X	3
DIS 00.02		W2	Z3	X		4
					X	5
DIS 10.12	DIS 00.02			X		5
					X	4
	DIS 10.12	Z2		X		4,5
DIS 10,12			W2	X		5
					X	4
DIS 00.02	DIS 10,12			X		4
					X	5
	DIS 00,02		Z2			

TERM	RELAY	TERM	RELAY	TERM	RELAY
1 2L	SDP 0, SDP 1	2 L	TER 00, TER 01	5 L	SC 10-13
1 2U	RDP 0, RDP 1	3 L	TER 10, TER 11	5 L	DIS 10, DIS 11
1 L	TST 00, TST 10	4 L	SC 00-03		
		4 L	DIS 00, DIS 01		

5.5 Trunk Group Busy, Line Overflow and Dial Tone Speed Register

5.51 Insert a 349 A make-busy plug into jack TB00 in group 0; relay TB00 should operate. Plug busy all jacks TB00-15 observing that each TB- relay operates. As relay TB15 operates, relay TGBO should operate. Block operated relay TER00; relay TGBO should not release. Momentarily operate key TST0; relay TGBO should release and not re-operate. Remove the blocking tool from relay TER00; relay TGBO should operate. With a test receiver connected to ground verify the R lead of each line (00-77) of group 0 for the present of overflow tone as

the S lead of each line is grounded. Remove and reinsert each busy plug and verify that relay TGBO releases and reoperates. With a test receiver verify the presence of -48V at T.S.B. terminal 40 and ground at terminals 00-15 and 41. Remove the busy plug from jack TB00. Verify T.S.B. terminal 40 for the absence of -48V and terminals 00 and 41 for the absence of ground. Remove the busy plugs from jacks TB01 to 15 verifying T.S.B. terminals 01-15 for the absence of ground as each plug is removed.

5.52 Repeat Paragraph 5.51 for group 1 using relays TGB1 and TER10, key TST1 and T.S.B. terminals 50, 51 and 20-35.

5.53 When tests of this section are completed and unless tests of Section 923 are to be applied, remove the blocking tools from relays TM1, TM2, TM3, TM4, TM5 and TM6.

→ Arrowed lines indicate new or changed information.

ATTACHMENT

Tables 1 and 2 on Pages 7, 8 and 9.

Manager, Crossbar Product Engineering Control Center

Reason for Reissue:
To correct Paragraph 5.44 and add Paragraph 5.53.

Replaces Section 922 dated 2-16-67.

TABLE 1

TEST NO.	TYPE CALL	CIRCUITS UNDER TEST ITE-4011 CONNECTED TO				PRE-OPERATED RELAYS TK--	REMOVE BLOCK FROM RELAY TB--	HOLD MAGNET		OPERATE RELAYS				TK-- RELAYS OPERATED	RELEASE RELAY TK--	BLOCK OPERATED RELAY TB--
		LINE SWITCH			TRUNK					A	A	A	B			
		A	B	C												
		A	B	C	A			B	C	A-C						
1	SR	00	20	40	00	00		00		4,7	0,2	0,4	4,7			00
2	SR	01	21	41	01	01		01		4,7	0,2	0,4	0,1			01
3	SR	02	22	42	02	02		02		4,7	0,2	0,4	0,2			02
4	SR	03	23	43	03	03		03		4,7	0,2	0,4	1,2			03
5	SR	04	24	44	04	04		04		4,7	0,2	0,4	0,4			04
6	SR	05	25	45	05	05		05		4,7	0,2	0,4	1,4			05
7	SR	06	26	46	06	06		06		4,7	0,2	0,4	2,4			06
8	SR	07	27	47	07	07		07		4,7	0,2	0,4	0,7			07
9	SR	08	28	48	08	08		08		4,7	0,2	0,4	1,7			08
10	SR	09	29	49	09	09		09		4,7	0,2	0,4	2,7			09
11	SR	10	30	50	10	10		10		0,1	1,2	1,4	4,7			10
12	SR	11	31	51	11	11		11		0,1	1,2	1,4	0,1			11
13	SR	12	32	52	12	12		12		0,1	1,2	1,4	0,2			12
14	SR	13	33	53	13	13		13		0,1	1,2	1,4	1,2			13
15	SR	14	34	54	14	14		14		0,1	1,2	1,4	0,4			14
16	SR	15	35	55	15	15		15		0,1	1,2	1,4	1,4			15
17	D						00		00					00		
18	SR	16	36	56	00			16	00	0,1	1,2	1,4	2,4			00
19	D						01		01					01		
20	SR	17	37	57	01			17	01	0,1	1,2	1,4	0,7			01
21	D						02		02					02		
22	SR	18	38	58	02			18	02	0,1	1,2	1,4	1,7			02
23	D						03		03					03		
24	SR	19	39	59	03			19	03	0,1	1,2	1,4	2,7			03
25	D						04		04					04	X	
26	D						05		05					05		
27	T	00	20	40	05			00								05
28	D						06		06					06		
29	T	01	21	41	06			01								06
30	D						07		07					07		
31	T	02	22	42	07			02								07
32	D						08		08					08		
33	T	03	23	43	08			03								08
34	D						09		09					09		
35	T	04	24	44	09			04								09
36	D						10		10					10		
37	T	05	25	45	10			05								10
38	D						11		11					11		
39	T	06	26	46	11			06								11
40	D						12		12					12		
41	T	07	27	47	12			07								12
42	D						13		13					13		
43	T	08	28	48	13			08								13
44	D						14		14					14		
45	T	09	29	49	14			09								14

TABLE 1 (Cont.)

TEST NO.	TYPE CALL	CIRCUITS UNDER TEST ITE-4011 CONNECTED TO				PRE-OPERATED RELAYS TK--	REMOVE BLOCK FROM RELAY TB--	HOLD MAGNET		OPERATE RELAYS				TK-- RELAYS OPERATED	RELEASE RELAY TK--	BLOCK OPERATED RELAY TB--
		LINE SWITCH			TRUNK					OPERATED	RELEASED	A	A			
		A	B	C				SWITCH								
		A	B	C				A	B	C	A-C					
46	D						15		15					15		
47	T	10	30	50	15			10		16				00		15
48	D						00									
49	T	11	31	51	00			11								00
50	D						01							01		
51	T	12	32	52	01			12								01
52	D						02							02		
53	T	13	33	53	02			13								02
54	D						03							03		
55	T	14	34	54	03			14								03
56	T	15	35	55	04	04		15								04
57	D						05			00				05		
58	T	16	36	56	05			16						06		05
59	D						06			01						
60	T	17	37	57	06			17								06
61	D						07			02				07		
62	T	18	38	58	07			18								07
63	D						08			03				08		
64	T	19	39	59	08			19								08
65	D						09			04				09	X	
66	D						10			05				10	X	
67	D						11			06				11	X	
68	D						12			07				12	X	
69	D						13			08				13	X	
70	D						14			09				14	X	
71	D						15			10				15	X	
72	D						00			11				00	X	
73	D						01			12				01	X	
74	D						02			13				02	X	
75	D						03			14				03	X	
76	D						04			15				04	X	
77	D						05			16				05	X	
78	D						06			17				06	X	
79	D						07			18				07	X	
80	D						08			19				08	X	

TABLE 2

TEST NO.	TYPE CALL	CIRCUITS UNDER TEST ITE-4011 CONNECTED TO		PRE-OPERATED RELAY TK--	REMOVE BLOCK FROM RELAY TB--	HOLD MAGNET		OPERATE RELAYS		TK-- RELAY OPERATED	RELEASE RELAY TK--	BLOCK OPERATED RELAY TB--
		LINE	TRUNK			OPERATED	RELEASED	A	B			
1	SR	60	00	00		00		2,4	4,7			00
2	SR	61	01	01		01		2,4	0,1			01
3	SR	62	02	02		02		2,4	0,2			02
4	SR	63	03	03		03		2,4	1,2			03
5	SR	64	04	04		04		2,4	0,4			04
6	SR	65	05	05		05		2,4	1,4			05
7	SR	66	06	06		06		2,4	2,4			06
8	SR	67	07	07		07		2,4	0,7			07
9	SR	68	08	08		08		2,4	1,7			08
10	SR	69	09	09		09		2,4	2,7			09
11	SR	70	10	10		10		0,7	4,7			10
12	SR	71	11	11		11		0,7	0,1			11
13	SR	72	12	12		12		0,7	0,2			12
14	SR	73	13	13		13		0,7	1,2			13
15	SR	74	14	14		14		0,7	0,4			14
16	SR	75	15	15		15		0,7	1,4			15
17	D				00		00			00		
18	SR	76	00			16		0,7	2,4	01		00
19	D				01		01					
20	SR	77	01			17		0,7	0,7			01
21	D				02		02			02	X	
22	D				03		03			03		
23	T	60	03			00						03
24	D				04		04			04		
25	T	61	04			01						04
26	D				05		05			05		
27	T	62	05			02						05
28	D				06		06			06		
29	T	63	06			03						06
30	D				07		07			07		
31	T	64	07			04						07
32	D				08		08			08		
33	T	65	08			05						08
34	D				09		09			09		
35	T	66	09			06						09
36	D				10		10			10		
37	T	67	10			07						10
38	D				11		11			11		
39	T	68	11			08						11
40	D				12		12			12		
41	T	69	12			09						12
42	D				13		13			13		
43	T	70	13			10						13
44	D				14		14			14		
45	T	71	14			11						14
46	D				15		15			15		
47	T	72	15			12						15
48	D				00		16			00		
49	T	73	00			13						00
50	D				01		17			01		
51	T	74	01			14						01
52	T	75	02	02		15						02
53	D				03		00			03		
54	T	76	03			16						03
55	D				04		01			04		
56	T	77	04			17						04
57	D				05		02			05	X	
58	D				06		03			06	X	
59	D				07		04			07	X	
60	D				08		05			08	X	
61	D				09		06			09	X	
62	D				10		07			10	X	
63	D				11		08			11	X	
64	D				12		09			12	X	
65	D				13		10			13	X	
66	D				14		11			14	X	
67	D				15		12			15	X	
68	D				00		13			00	X	
69	D				01		14			01	X	
70	D				02		15			02	X	
71	D				03		16			03	X	
72	D				04		17			04		