AUXILIARY LINE AND LINE AUXILIARY CIRCUITS
SERVING ONE OFFICE
TESTS USING MASTER TEST FRAME
NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes a method of testing auxiliary line and line auxiliary circuits serving one office using the master test frame (MTF) in No. 5 crossbar offices. The circuits tested in this section are:

SD-25649-01
SD-25658-01
SD-25688-01
SD-25699-01
SD-25907-01
SD-26164-01
SD-26165-01
SD-27543-01
SD-56143-01

1.02 The reasons for reissuing this section are listed below. Revision arrows are used to emphasize the more significant changes. Equipment Test List are affected.

(a) To revise Tests F, G to include App. Fig. 3 in SD-26165-01. This feature applies to 2-way PBX trunks arranged for gound start.

(b) To make minor changes as required.

1.03 The tests covered are:

LINE AUXILIARY CIRCUITS FOR USE WITH PBX TRUNKS SELECTED BY DIALING AT PBX (SD-25658-01)

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A. Seizure: The following features are checked: (1) Seizure of the line auxiliary circuit on a dial tone connection. (2) Seizure of the line auxiliary circuit when used with PBX combination (2-way) trunks on a terminating connection. (3) Continuity of the tip, ring, and sleeve leads. 5

B. Busy Conditions—Line Auxiliary Circuit Used With PBX Combination (2-Way) Trunks: This test checks that the line auxiliary circuit will give a busy indication from the relay rack frame and test busy in the number group when the circuit is in use. . 6

AUXILIARY LINE CIRCUITS—10-PARTY SUBSCRIBER LINES WITH STATIONS EQUIPPED WITH TUBE SETS (SD-25688-01)

C. Seizure: This test checks the seizure of the auxiliary line circuit through the line link frame. It also checks the continuity of the tip and ring leads. 8

D. Ringing: This test checks ringing conditions at the auxiliary line circuit. 9

AUXILIARY COIN LINE CIRCUITS FOR USE WITH COIN SUBSCRIBER LINES EQUIPPED WITH 191-TYPE COIN COLLECTORS, OR EQUIVALENT (SD-25907-01)

E. Seizure and Coin Return: The following features are checked: (1) Seizure of the auxiliary coin line circuit through the line link frame. (2) Continuity of tip, ring, and sleeve leads. (3) Application of coin return potential on disconnect. (4) Operation of the line

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AUXILIARY LINE CIRCUIT FOR DATA SERVICE TERMINATING ONLY (SD-27543-01)

1.04 These tests should be completed without delay because interference with originating or terminating calls is possible. If a blocked subscriber call resulting from equipment under test is noted, immediately restore the equipment to service.

1.05 Tests I, J, and K are performed at a switchboard position provided with an appearance of the auxiliary line circuit under test.

1.06 Tests P and Q are performed at the auxiliary line circuit relay rack frame.

1.07 Actions and verifications are required for all tests at the master test frame (MTF) and/or the relay rack frame, line link frame, remote telegraph testboard, or switchboard.

1.08 ***Lettered Steps:*** A letter a, b, c, etc, added to a step number in Part 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.

1.09 The manner of selecting some circuits and test conditions at the master test frame (MTF) and its associated circuits varies depending on the apparatus options furnished with these circuits. Therefore, where variable means of selection are provided, precise instructions for the selection of circuits and test conditions are not given. Precise instructions for the use of these variable means are given in Section 218-106-301.

1.10 The location statement, At MTF—, is used to refer to all apparatus located on the four basic bays of the MTF.

1.11 ▶On issue 76D of SD-25800-01, a group of 18 "class of test" lamps were replaced by a single "start test" lamp designated STT. Since the designation given to the lamp is not specific, the lamp will not be called out in the section, as well as the 18 discontinued lamps, such as DT, ORIG, ITDO, ITNP, OGT, etc.◀

2. APPARATUS

2.01 The apparatus required for each test is indicated in Table A. The details of each item are covered in the paragraph indicated by the number in parentheses.

2.02 Master test control circuit, SD-25800-01.

2.03 Trunk test circuit, SD-25918-01.

2.04 Jack, lamp, and key circuit, SD-25762-01.

2.05 Telephone, key and lamp circuit, SD-25744-01.

2.06 Voltmeter test circuit, SD-25792-01.

2.07 Miscellaneous circuit, SD-25748-01.

2.08 ▶1014A◀ dial hand test set (handset) equipped with a 2W41A cord assembly consisting of a W2CJ cord, a 471A jack, a 360A tool, a 360B tool, and two 419A or 624B tools, as required (used to monitor tip and ring leads of circuit under test by connecting to the tip and ring terminals of the terminal strip on the unit or to relay springs.

2.09 67C test set or equivalent equipped with one KS-6278 connecting clip or 624B tool as required and one 411B tool (for checking the presence of ground, battery, or ringing voltage).

2.10 191-type coin collector telephone set or equivalent.

♦TABLE A♦

APPARATUS	TESTS															
	A	B	C	D	E	F	G	H	I,J,K	L	M	N	O	P,Q	R	S
Master Test Frame (2.02 through 2.07)	1	1	1	1	1	1	1	1		1	1	1	1		1	1
Handset (2.08)	1		1			1	1	1	1		1	1		1	1	
Head Telephone Set									1							
67C Test Set (2.09)		1		1												1
Coin Collector (2.10)					1											
351C or 459E (Make-Busy) Plug*							1					1	1			
Cord (2.11)	1	1					1							1		1
Cord (2.12)					1											
Cord (2.13)					1											

* *Note:* 351C (make-busy) plug for regular size crossbar switches 459E (make-busy) plug for small size crossbar switches.

2.11 Testing cord, 6 feet long, equipped with two 360A tools (1W13B cord), one or two KS-6278 connecting clips as required (for applying ground to terminal strip terminals or connecting battery to terminal strip terminals).

2.12 Testing cord, W2D cord, 19 feet 6 inches long (used to connect tip and ring leads of the coin collector to tip and ring terminals on unit terminal strip).

2.13 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one KS-6278 connecting clip, and one 364 tool (used to ground the coin collector telephone set).

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

3. PREPARATION

STEP	ACTION	VERIFICATION
Tests A Through H, L Through O, R, S		
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.

STEP	ACTION	VERIFICATION

4. METHOD

STEP	ACTION	VERIFICATION

LINE AUXILIARY CIRCUITS FOR USE WITH PBX TRUNKS SELECTED BY DIALING AT PBX (SD-25658-01)

A. Seizure

3	At relay rack frame— Set handset switch to MON.	
4	Connect handset to tip and ring lead terminals in accordance with Table B for circuit under test.	

TABLE B

SD-25658-01				
CIRCUIT	TERMINALS			
	TIP	RING	BS	TBT
1st	1	2	17	18
2nd	9	10	21	22

5	Set handset switch to TALK.	
6	Apply ground to ring lead terminal in accordance with Table B.	Dial tone heard.
7	Remove ground from ring lead terminal.	
8	Set handset switch to MON.	Dial tone removed.
9a	If circuit under test is used with PBX combination (2-way) trunks— At MTF— Select office designation as required.	
10A	Select A_, B_, C_, D_ digits for line number.	
11a	Select special marker M0 or M1.	
12a	Operate T, LT keys.	
13a	Momentarily operate ST key.	S lamp lighted.

STEP	ACTION	VERIFICATION
14a	At relay rack frame— Set handset switch to TALK.	At MTF— S lamp extinguished.
15a	Talk over established connection between relay rack frame and MTF.	Transmission satisfactory.
16a	At relay rack frame— Set handset switch to MON.	At MTF— S lamp lighted.
17a	Momentarily operate RL key.	All lamps extinguished.
18a	Restore all keys and switches not required in next test.	
19a	At relay rack frame— Disconnect handset.	
B.	**Busy Conditions—Line Auxiliary Circuit Used With PBX Combination (2-Way) Trunks**	
3	Select line location of circuit under test.	
4	Select class of service and rate treatment as required.	
5	Select office designation as required.	
6	Select A_, B_, C_, D_ digits for line number.	
7	Select ringing combination.	
8	Select special marker M0 or M1.	
9a	If line is free line— Operate FNA/FNB key.	
10	Operate MLV key.	
11	At relay rack frame— Insulate 7T of SR relay.	
12	Insulate 7T of S2 relay.	
13	Block operated S2 relay.	S1, SR relays operated.
14	At MTF— Momentarily operate ST key.	BY lamp lighted.
15	Momentarily operate RL key.	All lamps extinguished.
16	At relay rack frame— Remove insulator from S2 relay.	

STEP	ACTION	VERIFICATION
17	Strap 3T, 4T of SR relay.	
18	At MTF— Momentarily operate ST key.	BY lamp lighted.
19	Momentarily operate RL key.	All lamps extinguished.
20	At relay rack frame— Insulate 7T of S2 relay.	
21	Remove insulator from SR relay.	
22	At MTF— Momentarily operate ST relay.	BY lamp lighted.
23	Momentarily operate RL key.	All lamps extinguished.
24	Restore all keys and switches.	
25	At relay rack frame— Remove insulator from S2 relay.	
26	Remove strap from SR relay.	
27	Connect battery to BS lead terminal in accordance with Table B.	
28	Insulate 8B of SR relay.	Battery present on TBT lead terminal in accordance with Table B.
29	Remove insulator from SR relay.	
30	Insulate 7B of S2 relay.	Battery present on TBT lead terminal in accordance with Table B.
31	Disconnect battery from BS lead terminal.	
32	Remove insulator from S2 relay.	
33	Remove blocking tool from S2 relay.	S1, SR relays released.
34	Block operated SR relay.	Ground present on tip lead terminal in accordance with Table B. Battery present on ring lead terminal in accordance with Table B.
35	Remove blocking tool from SR relay.	

STEP	ACTION	VERIFICATION

AUXILIARY LINE CIRCUITS—10-PARTY SUBSCRIBER LINES WITH STATIONS EQUIPPED WITH TUBE SETS (SD-25688-01)

C. Seizure

3	Select office designation as required.	
4	Select A_, B_, C_, D_ digits for line number.	
5	Select special marker M0 or M1.	
6	Operate T, LT keys.	
7	At relay rack frame— Set handset switch to MON.	
8	Connect handset to tip and ring lead terminals of circuit under test in accordance with Table C.	

TABLE C

SD-25688-01				
CKT	TERMINAL STRIP TYPE			
	227		D	
	TERMINALS			
	TIP	RING	TIP	RING
1st	1	2	48	38
2nd	8	9	47	37
3rd	14	15	46	36

9	At MTF— Momentarily operate ST key.	S lamp lighted.
10	At relay rack frame— Set handset switch to TALK.	At MTF— S lamp extinguished.
11	Talk over established connection between MTF and relay rack frame.	Transmission satisfactory.
12	At relay rack frame— Disconnect handset.	At MTF— S lamp lighted.
13	Momentarily operate RL key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
14	Restore all keys and switches not required in next test.	
D. Ringing		
3	Select A_ through G_ digits for local office code and directory number which will provide ringing with negative superimposed voltage on the ring lead of circuit under test.	
4	Operate GPA/GPB as required for selected group when trunk is in an allotted subgroup.	
5	Select special marker M0 or M1.	
6	Select IAO class of test.	
7	Operate KY, TLK keys.	
8	Select class of service and rate treatment as required.	
9	At relay rack frame— Insulate 2T of T1 relay.	
10	Insulate 2B of R1 relay.	
11	At MTF— Momentarily operate ST key.	AS lamp lighted. At relay rack frame— R, R1 relays operate and release in unison with ringing sequence for the selected directory number.
12	At MTF— Momentarily operate RL key.	All lamps extinguished.
13	Select A_ through G_ digits for local office code and directory number which will provide ringing with negative superimposed voltage on the tip lead of circuit under test.	
14	Momentarily operate ST key.	AS lamp lighted. At relay rack frame— T, T1 relays operate and release in unison with ringing sequence for the selected directory number.
15	At MTF— Momentarily operate RL key.	All lamps extinguished.
16a	If marker group rings both 8-party and 10-party lines from a 6-wire ringing selection switch—	

STEP	ACTION	VERIFICATION
	Select A_ through G_ digits for local office code and directory number which will provide ringing with positive superimposed voltage on the ring lead of circuit under test.	
17a	Momentarily operate ST key.	AS lamp lighted. At relay rack frame— RA, R1 relays operate and release in unison with ringing sequence for the selected directory number.
18a	At MTF— Momentarily operate RL key.	All lamps extinguished.
19a	Select A_ through G_ digits for local office code and directory number which will provide ringing with positive superimposed voltage on the tip lead of circuit under test.	
20a	Momentarily operate ST key.	AS lamp lighted. At relay rack frame— TA, T1 relays operate and release in unison with ringing sequence for the selected directory number.
21a	At MTF— Momentarily operate RL key.	All lamps extinguished.
22	Restore all keys and switches not required in next test.	
23	At relay rack frame— Remove insulators from T1, R1 relays.	
24	Test for continuous ringing voltage at 1T of T1 relay.	Voltage present.
25	Test for continuous ringing voltage at 1B of R1 relay.	Voltage present.
26	Test for ground at 1B of T1 relay.	Ground present.
27	Test for ground at 1B of R1 relay.	Ground present.

AUXILIARY COIN LINE CIRCUITS FOR USE WITH COIN SUBSCRIBER LINES EQUIPPED WITH 191-TYPE COIN COLLECTORS OR EQUIVALENT (SD-25907-01)

E. Seizure and Coin Return

3	Select office designation as required.	

STEP	ACTION	VERIFICATION
4	Select A_, B_, C_, D_ digits for line number.	
5	Select special marker M0 or M1.	
6	Operate T, LT keys.	
7	Connect coin collector telephone set to tip and ring lead terminals for circuit under test in accordance with Table D. Use relay rack frame ground for connection to telephone set ground.	

TABLE D

SD-25907-01			
TERMINAL STRIP TYPE			
227		D	
TERMINALS			
TIP	RING	TIP	RING
1	2	34	24

8	At MTF— Momentarily operate ST key.	S lamp lighted.
9	At relay rack frame— After CT relay operated— Remove handset from telephone set switchhook.	At MTF— S lamp extinguished.
10	Deposit proper coins in telephone set.	At MTF— Coin deposit gong heard. Dial tone heard.
11	At relay rack frame— Replace handset on switchhook.	At MTF— S lamp lighted.
12	Momentarily operate RL key.	At relay rack frame— Proper coins returned. At MTF— S lamp extinguished.
13	Restore all keys and switches not required in next test.	

STEP	ACTION	VERIFICATION

AUXILIARY LINE CIRCUITS TERMINATING SERVICES FOR USE WITH SUBSCRIBER LINES, MANUAL PBX LINES, ORDER TURRETS, AND KEY EQUIPMENT (SD-25699-01) ◗AND 2-WAY PBX TRUNKS ARRANGED FOR GROUND START (SD-26165-01)◖

F. Seizure

3a	◗If circuit under test is used for terminating service or with PBX 2-way trunks (SD-25699-01, SD-26165-01)—◖ At MTF— Select office designation as required.	
4a	Select A_, B_, C_, D_ digits for line number.	
5a	Select special marker M0 or M1.	
6a	Operate T, LT keys.	
7a	At relay rack frame— Set handset switch to MON.	
8a	Connect handset to tip and ring lead terminals of circuit under test in accordance with Table E.	
9a	At MTF— Momentarily operate ST key.	S lamp lighted.
10a	At relay rack frame— Set handset switch to TALK.	At MTF— S lamp extinguished.

◗TABLE E◖

CKT	SD-25699-01								SD-26165-01			
	TERMINAL STRIP TYPE								TERMINALS APP. FIG. 1/APP. FIG. 3			
	227				D							
	TERMINALS											
	TIP	RING	BS	TBT	TIP	RING	BS	TBT	TIP	RING	BS	TBT
1st	1	2	21	22	38	28	58	48	38/38	28/28	58/58	48/48
2nd	5	6	23	24	37	27	57	47	37/36	27/26	57/56	47/46
3rd	9	10	25	26	36	26	56	46	36/34	26/24	56/54	46/44
4th	13	14	27	32	35	25	55	45	35	25	55	45
5th	17	18	29	30	34	24	54	44				

STEP	ACTION	VERIFICATION
		Talking path established between relay rack frame and MTF.
11a	▶Talk over established connection between relay rack frame and MTF.	Transmission satisfactory.◀
12a	At relay rack frame— Set handset switch to MON.	At MTF— S lamp lighted.
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore all keys and switches.	
15b	▶If circuit under test is used with PBX 2-way trunks (SD-26165-01)— At relay rack frame— Connect handset to tip and ring lead terminals in accordance with Table E for circuit under test.	
16b	Set handset switch to TALK.	
17b	Momentarily apply ground to tip lead terminal in accordance with Table E.	Dial tone heard.
18b	Set handset switch to MON.	
19b	Disconnect handset.◀	
G. Busy Condition		
3	Select line location of circuit under test.	
4	Select class of service and rate treatment as required.	
5	Select office designation as required.	
6	Select A_, B_, C_, D_ digits for line number.	
7	Select ringing combination.	
8	Select special marker M0 or M1.	
9a	If line is free line— Operate FNA/FNB key.	
10	Operate MLV key.	
11	At line link frame— When hold magnet of circuit under test is normal and the associated select magnets are	Hold magnet operated. Select magnets on same switch ***not*** operated.

STEP	ACTION	VERIFICATION
	released— Insert make-busy plug into line vertical location. ▶Refer to Table A.◀	
	Note: Before proceeding, assure that all crosspoints associated with the operated hold magnet are open.	
12	At MTF— Momentarily operate ST key.	BY lamp lighted.
13	Momentarily operate RL key.	All lamps extinguished.
14	At line link frame— Remove make-busy plug from line vertical location.	
15	At relay rack frame— Set handset switch to MON.	
16	Connect handset to tip and ring lead terminals in accordance with Table E for circuit under test.	
17	When circuit is idle— Set handset switch to TALK.	
18b	▶If circuit under test is used with 2-way PBX trunks (SD-26165-01)— Momentarily apply ground to tip lead terminal.	Dial tone heard.◀
19	At MTF— Momentarily operate ST key.	BY lamp lighted.
20	Momentarily operate RL key.	All lamps extinguished.
21	Restore all keys and switches not required in next test.	
22	At relay rack frame— Disconnect handset.	
23c	If SD-25699-01 provided with options Y and Z is under test— Block operated S relay.	
24c	Connect battery to BS lead terminal in accordance with Table E.	Battery present on TBT lead terminal in accordance with Table E.
25c	Remove blocking tool from S relay.	

STEP	ACTION	VERIFICATION
26d	If SD-25699-01 provided with options Y, Z and W is under test— Block operated S, L relays.	
27d	Insulate 2B of L relay.	
28d	Connect battery to BS lead terminal in accordance with Table E.	Battery present on TBT lead terminal in accordance with Table E.
29d	Remove insulator from L relay.	
30d	Insulate 6T of S relay.	Battery present on TBT lead terminal in accordance with Table E.
31d	Disconnect battery from BS lead terminal.	
32d	Remove insulator from S relay.	
33d	Remove blocking tools from S, L relays.	
34e	If SD-26165-01 is under test— Block operated S relay.	
35e	Insulate contact of S relay. ◗App. Fig. 1, 10 contact. App. Fig. 3, 5 contact.◖	
36e	Connect battery to BS lead terminal in accordance with Table E.	Battery present on TBT lead terminal in accordance with Table E.
37e	Remove insulator from S relay.	
38e	Insulate contact 11 of SR relay. ◗App. Fig. 1 and 3.◖	Battery present on TBT lead terminal in accordance with Table E.
39e	Remove blocking tool from S relay.	
40e	Block operated L relay.	Battery present on TBT lead terminal in accordance with Table E.
41e	Disconnect battery from BS lead terminal.	
42e	Remove insulator from SR relay.	
43e	Remove blocking tool from L relay.	

STEP	ACTION	VERIFICATION
	NO. 3C OR 3CL TOLL SWITCHBOARD OUTGOING AUXILIARY LINE CIRCUIT WITH OR WITHOUT EMERGENCY FEATURE AND NO. 3 TOLL SWITCHBOARD WHERE AUXILIARY LINE CIRCUITS ARE USED WITH TRUNK AUXILIARY SLEEVE CIRCUITS (SD-56143-01)	
	H. Seizure—From No. 5 Crossbar Office	
3	Select office designation as required.	
4	Select A_, B_, C_, D_ digits for line numbers.	
5	Select special marker M0 or M1.	
6	Operate T, LT keys.	
7	At relay rack frame— Set handset switch to MON.	
8	Connect handset to tip and ring terminals 1 and 2 of circuit under test.	
9	At MTF— Momentarily operate ST key.	S lamp lighted.
10	At relay rack frame— Set handset switch to TALK.	At MTF— S lamp extinguished. Talking path established between relay rack frame and MTF.
11	At relay rack frame— Disconnect handset.	At MTF— S lamp lighted.
12	Momentarily operate RL key.	All lamps extinguished.
13	Restore all keys and switches not required in next test.	
	I. Seizure—Idle Line From Switchboard	
1	At relay rack frame— Set handset switch to MON.	
2	Connect handset to tip and ring terminals 1 and 2 of circuit under test.	
3	At switchboard— Insert head telephone set plug into position jacks.	
4	Operate idle front cord TALK key.	

STEP	ACTION	VERIFICATION
5	When line is idle— Insert front cord plug into jack of line under test.	Supervisory lamp lighted.
6	At relay rack frame— Set handset switch to TALK.	At switchboard— Supervisory lamp extinguished. Talking path established between relay rack frame and switchboard.
7	At relay rack frame— Disconnect handset.	At switchboard— Supervisory lamp lighted.
8	Remove front cord plug from jack.	Supervisory lamp extinguished.
9	Restore TALK key.	
10	Remove head telephone set from jacks.	

J. Seizure—Busy Line From Switchboard—Emergency Feature (Z option) Provided

1	At relay rack frame— Set handset switch to MON.	
2	Connect handset to tip and ring terminals 1 and 2 of circuit under test.	
3	Block operated C relay.	
4	At switchboard— Insert head telephone set plug into position jacks.	
5	Operate idle front cord TALK key.	
6	Perform sleeve busy test.	Busy click heard.
7	Insert front cord into line jack.	Supervisory lamp ***not*** lighted.
8	At relay rack frame— Set handset switch to TALK.	At switchboard— Supervisory lamp ***not*** lighted.
9	Operate key associated with line jack of circuit under test.	Supervisory lamp ***not*** lighted.
10	At relay rack frame— Set handset switch to MON.	At switchboard— Supervisory lamp lighted.
11	At relay rack frame— Disconnect handset.	
12	Remove blocking tool from C relay.	

STEP	ACTION	VERIFICATION
13	At switchboard— Restore key associated with line jack of circuit under test.	
14	Remove front cord plug from jack.	Supervisory lamp extinguished.
15	Restore TALK key.	
16	Remove head telephone set from jacks.	

K. Ringing From Switchboard

1	At relay rack frame— Block nonoperated TR relay.	
2	Block operated S1 relay.	
3	Insulate 5T, 3B of S relay.	
4	Set handset switch to MON.	
5	Connect handset to 3T, 3B of TR relay.	
6	At switchboard— Insert head telephone set plug into position jacks.	
7	Operate idle front cord TALK key.	
8	When line is idle— Insert front cord plug into jack of line under test.	Supervisory lamp lighted.
9	Operate RING key.	At relay rack frame— Ringing tone heard.
10	At switchboard— Release RING key.	
11	Restore TALK key.	
12	Remove front cord plug from jack.	Supervisory lamp extinguished.
13	Remove head telephone set from position jacks.	
14	At relay rack frame— Disconnect handset.	
15	Remove insulator from S relay.	
16	Remove blocking tools from TR, S1 relays.	

STEP	ACTION	VERIFICATION
L. Busy Conditions		
3	Select line location of circuit under test.	
4	Select class of service and rate treatment as required.	
5	Select office designation as required.	
6	Select A_, B_, C_, D_ digits for line number.	
7	Select ringing combination.	
8	Select special marker M0 or M1.	
9a	If line is free line— Operate FNA/FNB key.	
10	Operate MLV key.	
11	At relay rack frame— Block operated C relay.	
12	At MTF— Momentarily operate ST key.	BY lamp lighted.
13	Momentarily operate RL key.	All lamps extinguished.
14	At relay rack frame— Block operated S1 relay.	
15	Remove blocking tool from C relay.	
16	At MTF— Momentarily operate ST key.	BY lamp lighted.
17	Momentarily operate RL key.	All lamps extinguished.
18	At relay rack frame— Block operated L1 relay.	
19	Remove blocking tool from S1 relay.	
20	At MTF— Momentarily operate ST key.	BY lamp lighted.
21	Momentarily operate RL key.	All lamps extinguished.
22	Restore all keys and switches not required in next test.	

STEP	ACTION	VERIFICATION
23	At relay rack frame— Remove blocking tool from L1 relay.	

AUXILIARY LINE CIRCUITS FOR PUBLIC EMERGENCY REPORTING SERVICE (SD-25649-01, SD-26164-01)

M. Seizure

3	Select office designation as required.	
4	Select special marker M0 or M1.	
5	Operate G, VMT1, LT keys.	
6a	If circuit under test is SD-25649-01— At relay rack frame— Block operated G relay.	
7a	Insulate 1B, 3T or R1 relay.	
8a	Set handset switch to MON.	
9a	Connect handset to tip and ring lead terminals in accordance with Table F.	
10b	If circuit under test is SD-26164-01— At relay rack frame— Insulate 4M, 8M of RB relay.	
	Note: Before proceeding with test, ensure that all RA_ relays are released. If a RA_ relay operates while test is in progress, immediately restore the circuit to normal.	
11b	Block nonoperated all RA_ relays except the RA_ relay corresponding to circuit under test.	
12b	Set handset switch to MON.	

TABLE F

SD-25649-01						SD-26164-01			
TERMINAL STRIP TYPE								OPTIONS R, W AND TM RELAY PROVIDED	
227			D						
TERMINALS									
TIP	RING	A	TIP	RING	A	TIP	RING	TIP	RING
5	6	7	34	24	14	34	24	36	26

STEP	ACTION	VERIFICATION
13b	Connect handset to tip and ring lead terminals in accordance with Table F.	
14	At MTF— Select A_, B_, C_, D_ digits for line number.	
15	Momentarily operate ST key.	S lamp lighted.
16c	If customer terminated to circuit under test has telephone set equipped with tube-type ringer— Operate -STA key.	Voltmeter deflects slightly.
17c	Restore -STA key.	
18d	If customer terminated to circuit under test has telephone set equipped with other than tube-type ringers— Operate T1 REV key.	Momentary voltmeter reading of at least 10 volts.
19d	Restore T1 REV key.	Momentary voltmeter reading of at least 10 volts.
20	Operate T key. ***Note:*** Before proceeding with test, ensure that only one call is terminated to circuit under test by determining that only one LS_ or SL_ relay is operated. If more than one call terminates to the circuit while test is in progress, immediately restore circuit to service.	
21a	If circuit under test is SD-25649-01— At relay rack frame— Remove blocking tool from G relay.	RC- relay operated.
22a	Block operated G relay.	
23	At MTF— Operate ±key for approximately 2 seconds.	At relay rack frame— If circuit under test is SD-25649-01— LD relay operated for approximately 2 seconds. If circuit under test is SD-26164-01— One RA_ relay operated.
24	Set handset switch to TALK.	PT relay operated. D relay ***not*** operated. At MTF— S lamp extinguished. Talking path established between relay rack frame and MTF.

STEP	ACTION	VERIFICATION
25	At relay rack frame— Set handset switch to MON.	At MTF— S lamp lighted.
26	Restore T key.	S lamp extinguished.
27	Momentarily operate RL key.	All lamps extinguished.
28	Repeat Steps 6a or 10b through 27 for each circuit provided.	
29	Restore all keys and switches not required in next test.	
30	At relay rack frame— Disconnect handset.	
31	Remove insulator from R1 or RB relay.	
32	Remove all blocking tools.	

N. Ringing Trip

3	Select A_ through G_ digits for local office code and directory number for circuit under test.	
4	Operate GPA/GPB as required for selected group when trunk is in an allotted subgroup.	
5	Select special marker M0 or M1.	
6	Select MISC class of test.	
7	Select route advance 0.	
8	Select class of service and rate treatment as required.	
9	Operate KY, REC, TLK keys.	
10a	If circuit under test is SD-25649-01— At relay rack frame— Insulate 1B, 3T of R1 relay.	
11b	If circuit under test is SD-26164-01— At relay rack frame— Block nonoperated RB relay.	
12	Set handset switch to MON.	
13	Connect handset to tip and ring lead terminals in accordance with Table F.	

STEP	ACTION	VERIFICATION
14	At MTF— Momentarily operate ST key.	AS lamp lighted. Ringing tone heard. Two trouble records taken.
15	Select trouble record with FLG designation perforated.	FUT_, FTT_, VGT_, HGT_, VFT_ designations perforated.
16	At line link frame— Insert make-busy plug into line location corresponding to designations perforated on trouble record from Step 15. ▶Refer to Table A.◀	
17a	If circuit under test is SD-25649-01— At relay rack frame— Block operated G relay. ***Note:*** Before proceeding with Step 18b, ensure that only one call is terminated to circuit under test by determining that only one SL_ relay is operated. If more than one call terminates while test is in progress, immediately restore circuit to service.	
18b	If circuit under test is SD-26164-01— Block nonoperated all SL_ relays except SL_ relay associated with line number used in test.	
19	Set handset switch to TALK.	At MTF— Ringing tone silenced.
20	Momentarily operate RL key.	All lamps extinguished.
21	Restore REC key.	
22	Momentarily operate ST key. ***Note:*** Before proceeding with Step 23a or 24b, ensure that only two calls are terminated to circuit under test by determining that no more than two LS_ or SL_ relays are operated. If more than two calls terminate to the circuit while test is in progress, immediately restore circuit to service.	AS lamp lighted. Ringing tone heard.
23a	If circuit under test is SD-25649-01— At relay rack frame— Remove blocking tool from G relay.	At MTF— Ringing tone ***not*** heard.

STEP	ACTION	VERIFICATION
24b	If circuit under test is SD-26164-01— Remove blocking tool from SL_ relay corresponding to pulsing R_, RA_ relays.	At MTF— Ringing tone ***not*** heard.
25	At relay rack frame— Disconnect handset.	
26	If circuit under test is SD-25649-01— Remove insulators from R1 relay.	
27b	If circuit under test is SD-26164-01— Remove blocking tools from all SL_ relays.	
28	At MTF— Momentarily operate RL key.	All lamps extinguished.
29	Restore all keys and switches not required in next test.	
30	At line link frame— Remove make-busy plug from line location.	

O. Busy Condition

3	Select an originating line location.	
4	Select class of service and rate treatment as required.	
5	Select office designation as required.	
6	Select A_, B_, C_, D_ digits for line number.	
7	Select ringing combination.	
8	Select special marker M0 or M1.	
9a	If line is free line— Operate FNA/FNB key.	
10	Operate MLV key.	
11	Momentarily operate ST key.	CK lamp lighted.
12	Momentarily operate RL key.	All lamps extinguished.
13	At line link frame— When hold magnet of circuit under test is normal and the associated select magnets are released— Insert make-busy plug into line location. ▶Refer to Table A.◀	Hold magnet operated. Select magnets on same switch ***not*** operated.

STEP	ACTION	VERIFICATION
	Note: Before proceeding, ensure that all other crosspoints associated with the operated hold magnet are released.	
14	At MTF— Momentarily operate ST key.	BY lamp lighted.
15	Momentarily operate RL key.	All lamps extinguished.
16	At line link frame— Remove make-busy plug from line location.	
17	Repeat Steps 3 through 15 for each line number associated with circuit under test.	
18	Restore all keys and switches not required in next test.	

P. Maintenance Alarm

1a	If circuit under test is SD-25649-01— Block operated G relay.	
2b	If circuit under test is SD-26164-01— Block nonoperated all SL_ relays.	
3	Set handset switch to MON.	
4	Connect handset to tip and ring lead terminals in accordance with Table F.	
5	Set handset switch to TALK; ***start timing.***	PT relay operated. D relay ***not*** operated. At jack, lamp, and key circuit— If circuit under test is SD-25649-01— In 1.5 to 3 minutes— ERL lamp lighted. Major alarm sounds. If circuit under test is SD-26164-01— In 4.1 to 10.7 minutes— ERL lamp lighted. Major alarm sounds.
6	At relay rack frame— Set handset switch to MON.	PT relay released.
7	At jack, lamp, and key circuit— Momentarily operate ERL-AR key.	ERL lamp extinguished. Major alarm silenced.
8b	If circuit under test is SD-26164-01— At relay rack frame— Block nonoperated D2 relay.	

STEP	ACTION	VERIFICATION
9b	Connect ground to ring lead terminal in accordance with Table F; and operate switch of handset simultaneously; ***start timing.***	If false tip and ring ground detection alarm feature is not provided— At jack, lamp, and key circuit— In 4.1 to 10.7 minutes— ERL lamp lighted. Major alarm sounds. If false tip and ring ground detection alarm feature is provided— At jack, lamp, and key circuit— In 4 to 6 seconds— ERL lamp lighted. Major alarm sounds.
10b	At relay rack frame— Set handset switch to MON.	
11b	Disconnect ground from ring lead terminal.	
12b	At jack, lamp, and key circuit— Momentarily operate ERL-AR key.	ERL lamp extinguished. Major alarm silenced.
13b	At relay rack frame— Connect ground to ring lead terminal in accordance with Table F.	D relay operated. PT relay ***not*** operated. At jack, lamp, and key circuit— In 4 to 6 seconds— ERL lamp lighted. Major alarm sounds.
14b	At relay rack frame— Disconnect ground from ring lead terminal.	D relay released.
15b	At jack, lamp, and key circuit— Momentarily operate ERL-AR key.	ERL lamp extinguished. Major alarm silenced.
16b	If circuit under test is SD-26164-01 and TD relay is provided— At relay rack frame— Momentarily apply ground to ring lead terminal in accordance with Table F for no more than 1 second.	D relay momentarily operated. TD relay remains ***not*** operated. At jack, lamp, and key circuit— In 4 to 6 seconds— ERL lamp ***not*** lighted. Major alarm ***not*** heard.
17	At relay rack frame— Remove blocking tools.	
18	Disconnect handset.	

Q. Public Emergency Alarm Actuating Feature .

SD-25649-01 Provided

1	At relay rack frame— Block operated G relay.	

STEP	ACTION	VERIFICATION
2	Insulate 5T of R1 relay.	
3a	If option Z is provided— Insulate 2B of R2 relay.	
4	Connect ground to ring lead terminal in accordance with Table F.	Continuous ±105 volt ringing voltage on 5T of LD relay.
5	Disconnect ground from ring lead terminal.	No ringing voltage on 5T of LD relay.
6a	If option Z is provided— Remove insulator from R2 relay.	
7a	Connect ground to A lead terminal in accordance with Table F.	
8a	Momentarily connect ground to ring lead terminal in accordance with Table F.	R ballast lamp momentarily lighted.
9a	Disconnect ground from A lead terminal.	
10	Remove insulator from R1 relay.	
11	Remove blocking tool from G1 relay.	
SD-26164-01 Provided		
12	At relay rack frame— Block nonoperated all SL_ relays.	
13	Insulate 8B of RB relay.	
14a	If an auxiliary relay set is connected to A lead terminal— Insulate 4M of D1 relay.	
15	Block nonoperated ALB relay.	
16b	If TM relay is provided— Block operated PTB relay.	
17b	Momentarily apply ground to ring lead terminal in accordance with Table F for more than 2 seconds; ***start timing.***	D2 relay operated. D2 relay released as follows: Option Q provided—in 0.5 to 1.5 minutes Option N provided—in 2.0 to 2.5 minutes Option M provided—in 3.0 to 3.5 minutes Options Q, N, or M ***not*** provided—in 4.0 to 5.0 minutes.
18	Connect ground to ring lead terminal in accordance with Table F.	Continuous ±105 volt ringing voltage or -130 volts on contacts of D1 relay, in accordance

STEP	ACTION	VERIFICATION
		with options provided, as indicated in Table G.

TABLE G

X		W
D1 RELAY CONTACTS		
Y ± 105V	6F & 4M	3F & 4M
Z - 130V	6F & 4M	3F & 4M

19	Disconnect ground from ring lead terminal.	No voltage on contacts of D1 relay indicated in Table G.
20	Remove insulator from RB relay. ***Note:*** Use extreme care when replacing the D1 relay cover. Operation of the D1 relay will cause the public alarm system to sound where an auxiliary relay is connected to the A lead terminal.	
21a	If auxiliary relay is connected to A lead terminal— Remove insulator from D1 relay.	
22	Remove blocking tools from SL_, ALB relays.	

AUXILIARY LINE CIRCUIT FOR DATA SERVICE—TERMINATING ONLY (SD-27543-01)

R. Seizure

3	Operate LT key.	
4	Select office designation as required.	
5	Select special marker M0 or M1.	
6	Select A_, B_, C_, D_ digits for line number.	
7	Operate T key.	

STEP	ACTION	VERIFICATION
8	At relay rack frame— Set handset switch to MON.	
9	Connect handset to tip and ring lead terminals in accordance with Table H.	

TABLE H

SD-27543-01				
CKT	TERMINALS			
	TIP	RING	BS	TBT
1st	35	25	55	45
2nd	36	26	56	46
3rd	37	27	57	47
4th	38	28	58	48

10	At MTF— Momentarily operate ST key.	S lamp lighted.
11	At relay rack frame— Set handset switch to TALK.	
12	Talk over established connection between relay rack frame and MTF.	Transmission satisfactory.
13	Disconnect handset.	
14	At MTF— Momentarily operate RL key.	All lamps extinguished.
15	Restore all keys and switches not required in next test.	

S. Busy Condition

3	Select INC class of test.
4	Select office designation as required.
5	Select special marker M0 or M1.
6	Select A_ through E_ digits for line number.
7	Select trunk link frame.
8	Operate PBXH key.

STEP	ACTION	VERIFICATION
9	Operate S_ key associated with units digits of line used in test.	
10	At relay rack frame— Block operated S relay.	SR relay operated.
11	At MTF— Momentarily operate ST key.	BY lamp lighted.
12	Momentarily operate RL key.	All lamps extinguished.
13	At relay rack frame— Remove blocking tool from S relay.	SR relay released.
14	Connect ground to ring lead terminal in accordance with Table H for circuit under test.	L, SR relays operated.
15	At MTF— Momentarily operate ST key.	BY lamp lighted.
16	Momentarily operate RL key.	All lamps extinguished.
17	At relay rack frame— Connect battery to BS lead terminal in accordance with Table H.	
18	Insulate 8M of L relay.	Battery present on TBT lead terminal in accordance with Table H.
19	Remove insulator from L relay.	
20	Insulate 11M of SR relay.	Battery present on TBT lead terminal in accordance with Table H.
21	Disconnect ground from ring lead terminal.	L, SR relays released.
22	Block operated S relay.	Battery present on TBT lead terminal in accordance with Table H.
23	Remove blocking tool from S relay.	
24	Disconnect battery from BS lead terminal.	
25	Remove insulator from SR relay.	
26	At remote telegraph test board— Using test control trunk, dial digits associated with line used in test.	
27	Dial order digit 2.	At relay rack frame— SR relay operated.

STEP	ACTION	VERIFICATION
28	At MTF— Momentarily operate ST key.	BY lamp lighted.
29	Momentarily operate RL key.	All lamps extinguished.
30	At remote telegraph testboard— Dial order digit 2.	At relay rack frame— SR relay released.
31	At MTF— Restore all keys and switches.	