LINE VERIFICATION CIRCUIT - STEP BY STEP

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1. GENERAL INFORMATION

1.1 This section describes the tests to be made on the Line Verification circuit per SD-32246-01.

1.2 Cross connections to an intercept trunk per telephone company assignment should be installed before tests per Paragraph 7.3 are performed.

1.3 Timing tests on this circuit should be performed per Section 128 of this handbook.

2. RECORDS AND REQUIREMENTS

2.1 Records

2.11 The results of tests per this section should be recorded on forms ID-1313 and ID-1315 as described in Handbook 50, Section 3.

2.2 Requirements

2.21 Tests of this section conform with performance requirements as listed in BSP's AA632.007, AA633.006 or AA634.008.

3. TEST EQUIPMENT

3.1 Test Sets

Amt.	ITE	Description
1	4442	Volt-Ohmmeter
★1	2580B	Combination Talking Set

3.2 Test Accessories

Amt.	No.	Description
★1	ITE-9650	Cord (Operator's Tel. Set)
1	ITE-2260	Call Wire Telephone Jack
★1	R-9572	Test Receiver

★ Furnished with ITE-2360 SXS Cord and Accessory Set.

4. FUSING

4.1 Fusing tests for this circuit are contained in Section 107 of this handbook.

5. PREFERENCE RELAYS

5.1 Insulate contact 12 make (OPS) relay.

5.2 Operate the highest numbered (PP-) relay, which locks operated.

5.3 Operate the next lower numbered (PP-) relay, which locks operated and releases the higher numbered (PP-) relay.

5.4 Repeat Paragraph 5.3 until all (PP-) relays have been operated. ←

5.5 Operate relay (RLS) momentarily, which releases the lowest numbered (PP-) relay.

6. CONTROL POSITION LEADS TESTS

6.01 At the control position operate (ST) key momentarily. (ON) lamp lights, Relays (PP-), (PA-), (SL-) associated with the control position under test operate and all (BSY-) relays except the one associated with the control position under test operate. Relay (PPA) operates.

6.02 Operate and release each key listed below and check that the indicated relays operate at the relay unit while the key is operated.

OPERATE KEY	RELAY OPERATES
PTO	PTO
PTNO	PTNO
RTC	RTC
RTT	RTT
CMT	CMT, TTl, OPS
SLT	SLT, TTl, OPS
DL) If Provided	DL
DTL)	DTL

6.03 TD Key Preference

6.031 Operate all odd numbered (TD-) keys. Only the lowest odd numbered (TD-) lamp lights.

6.032 Release each odd numbered (TD-) key beginning with the lowest numbered. Check that as each key is released the next higher odd numbered (TD-) lamp lights.

6.033 Operate all even numbered (TD-) keys. Only the lowest even numbered (TD-) lamp lights.

6.034 Release each even numbered (TD-) key beginning with the lowest numbered. Check that as each key is released the next higher even numbered (TD-) lamp lights.

6.04 At the relay unit operate and release each relay listed below and check that the indicated lamp lights at the control position while the relay is operated.

Operate Relay	Lamp Lights
MP	MP
TMF	TO
TBL	TBL
TTB	TTB
TT	SC

6.05 At the relay unit, insulate 10 break (PTO) relay and block relay (STM) operated, if provided.

6.06 Operate (SLT) and (PTO) keys at the control position. Relay (SL-) operates.

6.07 Release (PTO) key. (SL-) relay releases.

6.08 Operate (PTNO) key. (SL-) relay operates.

6.09 Release (SLT) and (PTNO) keys. (SL-) relay releases.

6.10 Remove insulation from 10 break (PTO) relay and release (STM) relay.

6.11 Momentarily operate (RLS) key. All relays at the relay unit are released. (ON) lamp is extinguished at the control position.

6.12 Momentarily operate and release in turn relays (SL-) and (BSY-) associated with the control position under test. Lamps (LBY) and (BSY), respectively, light at the control position.

6.13 Operate (ST) key at the control position. Manually operate the relays listed in Chart 1, which lock operated. Check that the correct digits light on the indicator tubes at the control position. Operate (RLS) key after each step to extinguish the tubes.

CHART 1

	OPERATE RELAYS					DIGITS LIGHT				
STEP	OF	TH	H	T	U	OF	TH	H	T	U
1	1	0,1	0,1	0,1	0,1	1	1	1	1	1
2	2	0,2	0,2	0,2	0,2	2	2	2	2	2
3	3	1,2	1,2	1,2	1,2	3	3	3	3	3
4	4	0,4	0,4	0,4	0,4	4	4	4	4	4
5	5	1,4	1,4	1,4	1,4	5	5	5	5	5
6	-	2,4	2,4	2,4	2,4	-	6	6	6	6
7	-	0,7	0,7	0,7	0,7	-	7	7	7	7
8	-	1,7	1,7	1,7	1,7	-	8	8	8	8
9	-	2,7	2,7	2,7	2,7	-	9	9	9	9
10	0	4,7	4,7	4,7	4,7	0	0	0	0	0

6.14 Release (ST) key.

6.15 Repeat the tests described above for each control position provided.

7. MISCELLANEOUS TESTS

7.1 Leads to Test Distributor Selector

7.11 In offices using a test distributor selector, check that the selector is idle. Connect ground temporarily to lead "B" at the selector jack spring 16.

7.12 At the Line Verification circuit operate relay (TD1). Relay (TTB) operates.

7.13 Release relay (TD1) and remove ground from "B" lead. Releay (TTB) releases.

7.2 Leads to Test Distributors

7.21 If a test distributor selector is not provided in this office, perform the following tests.

7.211 Test Distributor Shared With Test Desk #12

7.2111 At the Test Desk #12 test line circuit, check that the (BUSY) lamp is not lighted and operate (R) relay. Relay (BTD-) associated with the test distributor under test operates at the Line Verification circuit and (TD-) lamp lights at the control position.

7.2112 Operate (RLS) key at test line circuit. (BTD-) relay releases at L.V.Ckt. and (TD-) lamp is extinguished.

7.2113 Connect ground to lead "B" at the test distributor incoming terminal strip. Relay (SB) operates at the test line.

7.2114 Operate (TD-) relay at the L.V.Ckt. Relay (SB) releases at the test line and relay (TTB) operates at the L.V.Ckt.

7.2115 Release (TD-) relay and remove ground from "B" lead at the test distributor. Relay (TTB) releases.

7.2116 Repeat tests per this paragraph for each test distributor.

7.212 Test Distributors Shared With Test Desk #14

7.2121 Operate relay (TD-) associated with the test distributor under test. Relay (BTD-) operates.

7.2122 At the test distributor momentarily operate relay (F). Relay (TTB) operates at L.V.Ckt.

7.3 Verification Thru Office Switch Train Provided

7.31 Connection to Intercept Trunk

7.311 At the second selector to which this circuit is connected, connect an ITE-2580B Combination Talking set to the switch jack after checking that the selector is idle.

7.312 Dial the digit required to reach the selector level to which this circuit is connected. When an intercept operator answers make a talking test with the operator and then remove the telephone set from the selector.

7.32 Talking Circuit

7.321 At one control position operate keys (ST), (DTL), (CMT) and (TD1).

7.322 Connect an ITE-9650 cord (headset) equipped with an ITE-2260 Call Wire Telephone jack to the "TT" and "TR" leads at the test distributor selector, if provided, on the first test distributor.

7.323 Make a two way talking test between the control position handset and the ITE-9650 headset.

7.324 If a test distributor selector is provided, repeat this test between each control position and the test distributor selector.

7.325 If a test distributor selector is not provided, repeat this test between each control position and a test distributor using the associated (TD-) key at the control position.

7.326 Release all keys and remove headset.

7.4 Leads to Outpulser Connector

7.41 Block relay (ST) operated. At the Outpulser Connector check for ground on leads TST, PS, and R at (LV) relay contacts 2 make, 7 make, and 11 make using a test receiver.

7.42 Connect ground momentarily to the (SP) lead at (LV) relay contact 3 make. Relay (SP) operates at the L.V.Ckt. and locks operated.

7.43 Connect ground to lead R at the outpulser connector LV relay contact 11 make. Relay (ID) operates at the L.V.Ckt.

7.44 Remove ground from R lead. Relay (ID) releases an L.V.Ckt. Release ST relay.

7.5 Oscillator Leads

7.51 Connect ground temporarily to (ID) relay contact 2 and block relay (ID) operated. Operate ST and CMT key.

7.52 Connect a test receiver between ground and (TD1) relay contact 10 make. Tone (5800 cycles) is heard in the test receiver.

7.53 Remove ground from (ID) relay contact 2. No tone is heard in test receiver.

7.54 Unblock relay (ID) and remove test receiver.

7.55 Remove insulation from (OPS) relay contact 12.

8. OVER-ALL OPERATIONS TESTS

8.1 General Instruction

8.11 In order to perform the following tests a list of unassigned line numbers which may be used for testing purposes should be obtained from the telephone company. The following types of lines are required for each office in which ANI is being installed.

QUANTITY	TYPE OF SERVICE
★3	Individual Lines (flat or message rate) or Ring Party (flat rate)
★★1	Tip Party (flat rate)
★★1	Ring Party (message rate)
★★1	Tip Party (message rate)

★ Two of these lines must be in the same hundreds group and one must be in a different thousands or hundreds group.

★★ If the office under test serves these types of lines.

8.12 The line number displayed in the following tests consists of office, thousands, hundreds, tens and units digits. The office digit is the arbitrary digit used to represent a 3-digit office code.

8.2 Verification Using Patch Cord

8.201 Perform the following test at each control position which is associated with a distributing frame (B) jack and patch cord.

8.202 At the control position check that all keys are restored to normal.

8.203 At the distributing frame patch cord location insert 347A plug of patch cord into (B) jack.

8.204 Connect 234 or 415A plug of patch cord to the distributing frame terminals of one subscriber line which is being used for testing. (Use the Tip Party Message Rate Line, if available, since this type of line cannot be verified per Paragraph 8.3).

8.205 At the control position observe that (LBY) lamp is not lighted, and operate (SLT) key.

8.206 Operate (PTO/PTNO) key according to Table 1.

TABLE 1

Type of Service	Key Position
Individual Line (flat or message rate)	PTNO
Ring Party (flat rate)	PTNO
Tip Party (flat rate)	PTO
Ring Party (message rate)	PTNO
Tip Party (message rate)	Normal

8.207 Observe that (BS4) lamp is not lighted. Operate (ST) key momentarily. (ON) lamp lights and the five-digit line number is displayed on indicator tubes. After 16-30 seconds the display is extinguished and (TO) lamp lights.

8.208 Operate (RC) momentarily. Line number is redisplayed, (TO) lamp is extinguished.

8.209 Operate (RLS) key. Indicator tubes and (ON) lamp are extinguished.

8.210 Restore all keys to normal and disconnect patch cord from (B) jack and line terminals.

8.3 Verification Using Test Train Only

8.31 Perform the following tests at each control position for each office served by this circuit.

8.32 At the control position check that all keys are restored to normal.

8.33 If test distributor selector is used operate (TD1) key.

8.34 If test distributor selector is not used check that (TD-) lamp associated with the office under test is not lighted. If lighted wait until lamp is extinguished. Operate associated (TD-) key.

8.35 Individual or Ring Party (flat rate) Lines

8.351 Operate (PTNO) key and (DL) key if provided. Check that (BSY) lamp is not lighted and operate (ST) key. (ON) and (TD-) lamps lights.

8.352 (If test distributor selector is used dial digit corresponding to C digit of one of the two lines in the same hundreds group.) Dial digits corresponding to thousands, hundreds, tens and units digits of line under test. If (TTB) lamp lights wait until lamp is extinguished.

8.353 If test distributor selector is not used, dial digits corresponding to the thousands, hundreds, tens and units digits of one of the two lines in the same hundreds group. If (TTB) lamp lights wait until lamp is extinguished.

8.354 Operate (CMT) key. A five digit number corresponding to the line under test is displayed on indicator tubes. After 16-30 seconds display is extinguished and (TO) lamp lights. Operate (RC) key momentarily to redisplay line number. (TO) lamp is extinguished.

8.355 Operate and hold (RTC) key for approximately 1 second. Dial two digits corresponding to tens and units digits of the other line in the same hundreds group. If (TTB) lamp lights wait until lamp is extinguished.

8.356 Operate (RC) key momentarily. Previous display on (TO) lamp is extinguished and new line number is displayed.

8.357 Operate and hold (RTT) key for approximately 1 second. (If test distributor selector is used dial digit corresponding to C digit of the line number in a different thousands or hundreds group. If (TTB) lamp lights wait until lamp is extinguished.) Dial digits corresponding to thousands, hundreds, tens, units digits of the line number in a different thousands or hundreds group. If (TTB) lamp lights wait until lamp is extinguished.

8.358 Operate (RC) key momentarily. Previous display or (TO) lamp is extinguished and new line number is displayed.

8.359 Release (ST) key, operate (RLS) key. All lamps and display are extinguished. Release (PTNO), (DL), (CMT) keys.

8.36 Tip Party (flat rate) or Ring Party (message rate) Lines

8.361 If line verification using Test Train and Office Switch Train is provided, omit tests per this paragraph and perform tests per Paragraph 8.4.

8.362 Operate (PTO/PTNO) key according to Table 1.

8.363 Check that (BSY) lamp is not lighted and operate (ST) key. (ON) and (TD-) lamps light.

8.364 If test distributor selector is used dial the digit corresponding to C digit of line under test. If (TTB) lamp lights wait until lamp is extinguished.

8.365 Dial digits corresponding to thousands, hundreds, tens, units digits of line under test. If (TTB) lamp lights wait until lamp is extinguished.

8.366 Operate (CMT) key. Line number is displayed on inductor tubes.

8.367 Release (ST) key and operate (RLS) key. All lamps and display are extinguished release all keys.

8.4 Verification Using Test Train and Office Switch Train

8.41 Perform the following tests at each control position for each office served by this circuit. At each control position perform tests for each type of line listed in Table 1 which is served the office under test.

8.42 Test Setup

8.421 At the control position check that all keys are restored to normal.

8.422 If test distributor selector is used operate (TD1) key.

8.423 If test distributor selector is not used check that (TD-) lamp associated with the office under test is not lighted. If lighted wait until lamp is extinguished. Operate associated (TD-) key.

8.424 Operate (PTO/PTNO) key according to Table 1 and operate (DL) key.

8.425 Check that (BSY) lamp is not lighted and operate (ST) key. (ON), (TD-) lamps light.

→ Arrowed lines indicate new or changed information.

8.43 Dialing Line Number

8.431 If test distributor selector is used dial the digit corresponding to C digit of line under test. If (TTB) lamp lights wait until lamp is extinguished.

8.432 Dial digits corresponding to thousands, hundreds, tens, units digits of line under test. If (TTB) lamp lights wait until lamp is extinguished.

8.44 Reaching Office Selector Level

8.441 Release (DL) key, then operate (DTL) key. Dial tone is heard in control position handset.

8.442 Dial two digits required to reach office selector level to which line verification circuit is connected. (SC) lamp lights momentarily, then line number is displayed on indicator tubes.

8.45 Release

8.451 Release (ST) key, operate (RLS) key. All lamps and display extinguish.

8.452 Restore all keys to normal.

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To make minor changes.

Replaces Section 124 dated 8-17-61.