

PERMANENT SIGNAL HOLDING TRUNK SD-95554-01
AND CONCENTRATING CIRCUIT SD-25766-01

TESTS

NO. 1 CROSSBAR OFFICES

1. GENERAL

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1.01 This section describes a method of testing permanent signal holding trunk SD-95554-01 and concentrating circuit SD-25766-01 by means of outgoing trunk test frame (OGTT) SD-25177-01 in No. 1 crossbar offices.

permanent signal tone (60 ipm) to the ring side of the customer line

1.02 This section is reissued to revise tests B and E, Step 8 VERIFICATION to delete reference to receiver off-hook tone on PBX and carrier class subscribers. The Equipment Test List is not affected.

(4) The ability of the concentrating circuit to locate the trunk and close it through to the switchboard with the correct line signal, thereby checking the continuity of the S1 lead.

1.03 The tests covered are:

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A. **False Ground on S Lead:** This test checks the sleeve of the trunk for false ground. 4

C. **Ring and False Ground Test:** This test checks the ability of the concentrating and trunk circuits to apply ringing current to the customer line and "ringing" signal to the operator. This test also provides a check of the "remove ground" feature. 5

B. **Trunk L Relay Operate Test—S and S1 Leads Continuity Test:** This test checks:

D. **Coin Control Features Test:** This test checks the ability of the concentrating and trunk circuits to apply coin collect and return potential to the customer line and "coin present" signal to the operator. 5

(1) The ability of the trunk L relay to operate on a line loop of approximately 6500 ohms

E. **Trunk L Relay Release Test:** This test checks the ability of the trunk L relay to release on a 15,000-ohm line loop. 6

(2) The continuity of the S lead

(3) The ability of the trunk to connect steady permanent signal tone or, announcement and receiver off-hook tone (no ROH tone on PBX or carrier class subscribers) prior to steady permanent signal tone or, in the case of trunks arranged to release hold relays in 1A key equipment, interrupted

F. **Receiver Off-Hook Tone Test:** This test checks the ability of the concentrating and trunk circuits to apply receiver off-hook tone to the customer line and to the operator. 7

G. **Monitoring, Time-Out, and Alarm Indication:** This test

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checks the ability of the trunk to maintain a "monitoring only" connection at the sender make-busy frame when a cord is in the CC jack at the switchboard. This test also checks that, at the end of the timing interval, the line lamp changes to a rapid flash and an audible and visual alarm is operated and that the line lamp is changed to a slow flash and the audible and visual alarm retired when a cord is inserted into the jack at the sender make-busy frame.	8	
H. Time Release Test: This test checks the ability of the concentrating circuit to time-out and transfer the start lead to the succeeding circuit and to give an audible and visual alarm.	8	
I. Sleeve Tone: This test checks for the presence of permanent signal tone on the sleeve of the trunk within 90 seconds after the PST key is operated at the LDF or at the MDF.	9	
J. Permanent Signal Holding Trunks Arranged to Release Hold Relays in 1A Key Equipment—Test for Interrupter Ground on Ring Side of Trunk: This test checks that an intermittent shunting ground is applied to the ring side of the trunk at a 60-ipm rate.	10	
1.04 Tests B through I require actions and verifications at the sender monitor position of the switchboard.		
1.05 Tests A through I require actions and verifications at the sender make-busy frame.		
1.06 Test H requires action at the equipment frame.		
1.07 When trunks are used jointly by customers having different classes of service, Tests A through I shall be made from the following office link frame appearances:		
TEST		APPEARANCE
A, C, E, H, I		C (Coin), NC (Noncoin) and PBX

	PAGE	
		C, NC, and PBX
		C
		C and NC
		C (if immediate alarm is provided)
		NC (if immediate alarm is not provided)

At the switchboard, each trunk has three ANS jacks and three TST jacks. One pair of ANS and TST jacks is designated CN for coin; one pair, NC for noncoin; and the third pair, PBX for private branch exchange.

1.08 Only those OGTT lamps which verify a circuit function that is being tested are listed in the verification column.

1.09 Lettered Steps: A letter a, b, c, etc, added to a step number in Part 3 or 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.

2. APPARATUS

All Tests

- 2.01** Outgoing trunk test frame, SD-25177-01.
- 2.02** One P3F cord (slate), 4 feet long, equipped with 309 plug and 310 plug (3P12A cord).

Tests A Through I

- 2.03** One P3F cord (red), 4 feet long, equipped with 309 plug and 310 plug (3P12B cord).
- 2.04** 322A (make-busy) plugs as required.

Tests B Through J

- 2.05** Head telephone set.

Test I

2.06 716E receiver attached to W2AB cord, equipped with two 360A tools (2W21A cord), a KS-6278 connecting clip, and a 411 tool.

Tests G and H

2.07 KS-3008 stopwatch.

3. PREPARATION

STEP	ACTION	VERIFICATION
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Tests A Through I

1	At OGTT— Restore all keys to normal and operate DISC1 key.	At OGTT— ON1 lamp lighted.
2	Insert plug of head telephone set into A, B jacks.	
3a	If test frame telephone circuit is equipped with 102A, 178A, or 181B induction coil— Operate A, OPR, COM keys to equal 5500 ohms in non-AMA offices or 4500 ohms in AMA offices.	
4b	If test frame telephone circuit is equipped with 102C, 178C, or 178E induction coil— Operate A, OPR, COM keys to equal 5000 ohms in non-AMA offices or 4000 ohms in AMA offices.	
5	Patch T1 jack to T jack of trunk to be tested.	BY1 lamp extinguished. Note: BY1 lamp lighted indicates busy trunk.
6	Patch MB jack to T&MB jack of trunk to be tested.	
7	At sender make-busy frame— Insert make-busy plugs into all but one concentrating circuit busy jack.	At sender make-busy frame— Associated CCB lamps lighted.

Note: Select a different concentrating circuit for each trunk under test until all concentrating circuits have been tested. On subsequent cycles of test, vary the combination of trunks with concentrating circuits so that eventually each trunk will have been tested with each concentrating circuit.

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STEP	ACTION	VERIFICATION
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4. METHOD

STEP	ACTION	VERIFICATION
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A. False Ground on S Lead

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|-----|---|--------------------------------|
| 8 | At OGTT—
Operate TST1, SUB REC, NO SDR1, RSG keys. | At OGTT—
SUP1 lamp lighted. |
| 9 | Restore RSG, NO SDR1, SUB REC, TST1 keys. | SUP1 lamp extinguished. |
| 10 | Momentarily operate DISC1 key. | |
| 11c | If no further tests are to be performed—
Remove patching cords from T, T&MB jacks. | |

B. Trunk L Relay Operate Test—S and S1 Leads Continuity Test

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|----|---|--|
| 8 | At OGTT—
Operate TST1, MISC TRK, NO SDR1 keys. | At OGTT—
SUP1 lamp lighted.
If announcement and receiver off-hook tone circuits are provided with the permanent signal holding trunk SD-95554-01—
Announcement (approximately 10-second duration) heard.
Receiver off-hook tone heard for 30 to 60 seconds (except on PBX or carrier class subscribers) .
Permanent signal tone heard.
If announcement and receiver off-hook tone circuits are not provided—
Permanent signal tone heard.
At sender make-busy frame—
Class of service line lamp lighted.
CCB lamp lighted.
At switchboard—
Class of service line lamp flashes (60 ipm).
Auxiliary lamp lighted.
Auxiliary alarm sounded. |
| 9 | At switchboard—
Call answered. | At OGTT—
Permanent signal tone not heard.
At switchboard—
Class of service line lamp lighted.
Auxiliary lamp extinguished.
Auxiliary alarm silent. |
| 10 | At OGTT—
Restore NO SDR1, MISC TRK, TST1 keys. | At OGTT—
SUP1 lamp extinguished. |

STEP	ACTION	VERIFICATION
11	Momentarily operate DISC1 key.	At switchboard— Class of service line lamp extinguished.
12c	If no further tests are to be performed— Remove patching cords from T, T&MB jacks.	
C. Ringing and False Ground Test		
8	At OGTT— Operate TST1, MISC TRK, NO SDR1 keys.	At OGTT— SUP1 lamp lighted. At switchboard— Class of service line lamp flashes (60 ipm).
9	At switchboard— Call answered.	At switchboard— Class of service line lamp lighted.
10	Momentarily operate ring key.	At OGTT— Customer set bell sounded. At switchboard— Class of service line lamp momentarily extinguished. Audible ringing signal received.
11	Operate “remove ground” key.	Class of service line lamp extinguished.
12	Momentarily operate ring key.	At OGTT— Customer set bell silent. At switchboard— Audible ringing signal not received.
13	Restore “remove ground” key.	Class of service line lamp lighted.
14	At OGTT— Restore NO SDR1, MISC TRK, TST1 keys.	At OGTT— SUP1 lamp extinguished.
15	Momentarily operate DISC1 key.	At switchboard— Class of service line lamp extinguished.
16c	If no further tests are to be performed— Remove patching cord from T, T&MB jacks.	
D. Coin Control Features Test		
8	At OGTT— Operate TST1, MISC TRK, NO SDR1, RCT keys.	At OGTT— SUP1 lamp lighted. At switchboard— CN class of service line lamp flashes (60 ipm).
9	At switchboard— Call answered.	At switchboard— CN line lamp lighted.

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STEP	ACTION	VERIFICATION
10	Momentarily operate coin collect key.	At OGTT— CC lamp momentarily lighted. At switchboard— CN line lamp momentarily extinguished. "Coin present" signal received.
11	At OGTT— Restore RCT key.	
12	At switchboard— Momentarily operate coin collect key.	At OGTT— CC lamp remains extinguished. At switchboard— CN line lamp momentarily extinguished. "Coin present" signal not received.
13	At OGTT— Operate RCT key.	
14	At switchboard— Momentarily operate coin return key.	At OGTT— CR lamp momentarily lighted. At switchboard— CN line lamp momentarily extinguished. "Coin present" signal received.
15	At OGTT— Restore RCT key.	
16	At switchboard— Momentarily operate coin return key.	At OGTT— CR lamp remains extinguished. At switchboard— CN line lamp momentarily extinguished. "Coin present" signal not received.
17	At OGTT— Restore NO SDR1, MISC TRK, TST1 keys.	At OGTT— SUP1 lamp extinguished.
18	Momentarily operate DISC1 key.	CN line lamp extinguished.
19c	If no further tests are to be performed— Remove patching cords from T, T&MB jacks.	
E. Trunk L Relay Release Test		
8	At OGTT— Operate TST1, PERM SIG, NO SDR1 keys.	At OGTT— If announcement and receiver off-hook tone circuits are provided with the permanent signal holding trunk SD-95554-01— Announcement (approximately 10-second duration) heard. Receiver off-hook tone heard for 30 to 60 seconds (except on PBX or carrier class subscribers).

STEP	ACTION	VERIFICATION
		Permanent signal tone heard. If announcement and receiver off-hook tone circuits are not provided— Permanent signal tone heard. At sender make-busy frame— Class of service line lamp lighted. CCB lamp lighted.
9	At switchboard— Call answered.	At OGTT— Permanent signal tone not heard.
10	Remove cord from trunk jack.	At OGTT— Permanent signal tone heard. At sender make-busy frame— CCB lamp extinguished.
11	At OGTT— Operate and hold RFL key for 3 seconds.	Permanent signal tone not heard. At sender make-busy frame— Class of service line lamp extinguished.
12	Restore NO SDR1, PERM SIG, TST1 keys.	
13	Momentarily operate DISC1 key.	
14c	If no further tests are to be performed— Remove patching cords from T, T&MB jacks.	

F. Receiver Off-Hook Tone Test

8	At OGTT— Operate TST1, PERM SIG, NO SDR1 keys.	At switchboard— Class of service line lamp flashes (60 ipm).
9	At switchboard— Call answered.	Class of service line lamp lighted.
10	Operate receiver off-hook tone key. Caution: Hold receiver of operator telephone set away from ear when receiver off-hook tone is on trunk.	At OGTT— Receiver off-hook tone heard on trunk. At switchboard— Class of service line lamp extinguished. Cord lamp flashes (120 ipm).
11	Again operate receiver off-hook tone key.	At OGTT— Receiver off-hook tone heard on trunk.
12	At OGTT— Restore NO SDR1 key before howler cycle is completed.	At switchboard— Class of service line lamp extinguished. At sender make-busy frame— Class of service line lamp extinguished. CCB lamp extinguished.
13	Restore PERM SIG, TST1 keys.	

STEP	ACTION	VERIFICATION
14	Momentarily operate DISC1 key.	
15c	If no further tests are to be performed— Remove patching cords from T, T&MB jacks.	
G. Monitoring, Time-Out, and Alarm Indication		
8	At OGTT— Operate TST1, PERM SIG, NO SDR1 keys.	At switchboard— Class of service line lamp flashes (60 ipm).
9	At switchboard— Call answered and remains on trunk.	At switchboard— Class of service line lamp lighted.
10	At sender make-busy frame— Connect patching cord to trunk jack.	A monitoring-only connection established.
11	Remove cord from trunk jack until line lamp flashes.	
12	At switchboard— Disconnect cord from trunk jack.	At sender make-busy frame— Class of service line lamp flashes (120 ipm). Aisle pilot lamp lighted. Minor alarm sounded.
13	At sender make-busy frame— Reconnect to trunk at end of time interval. <i>Note:</i> The time interval of timing circuit is dependent upon optional wiring as listed below: (a) 14 to 30 minutes—W and U wiring. (b) 20 to 42 minutes—W wiring. (c) 30 to 62 minutes—U wiring. (d) 42 to 86 minutes—No optional wiring. When testing other trunks in the group, the normal time interval may be reduced by blocking operated the timing circuit A relay.	At sender make-busy frame— Class of service line lamp flashes (60 ipm). Aisle pilot lamp extinguished. Minor alarm silent.
14	At OGTT— Restore NO SDR1, PERM SIG, TST1 keys.	
15	Momentarily operate DISC1 key.	
16c	If no further tests are to be performed— Remove patching cords from T, T&MB jacks.	
H. Time Release Test		
8	At equipment frame— Block nonoperated CO relay of concentrating circuit under test.	

STEP	ACTION	VERIFICATION
9	At OGTT— Operate TST1, PERM SIG, NO SDR1 keys.	At sender make-busy frame— Class of service line lamp lighted. Within 13 to 32 seconds— Aisle pilot lamp lighted. Minor alarm sounded.
10	At sender make-busy frame— Remove make-busy plug from one concentrating circuit.	At sender make-busy frame— Associated CCB lamp momentarily extinguished. Aisle pilot lamp extinguished. Minor alarm silent.
11	At switchboard— Call answered.	
12	Remove cord from CC jack.	At sender make-busy frame— CCB lamp extinguished.
13	At OGTT— Restore NO SDR1, PERM SIG, TST1 keys.	
14	Momentarily operate DISC1 key.	
15c	If no further tests are to be performed— Remove patching cords from T, T&MB jacks.	
16	At equipment frame— Remove blocking tool from CO relay.	
I. Sleeve Tone		
8	At LDF or MDF— Operate PST key.	
9	At OGTT— Operate TST1, PERM SIG, NO SDR1 keys.	At switchboard— Class-of-service line lamp flashes (60 ipm).
10	At switchboard— Call answered and then disconnected.	At switchboard— Class-of-service line lamp lighted.
11	At OGTT— Remove patching cord from MB jack and test tip of plug with test receiver connected to ground.	At OGTT— Permanent signal tone heard on tip of plug.
12	Reconnect patching cord to MB jack.	
13	Restore NO SDR1, PERM SIG, TST1 keys.	
14	Momentarily operate DISC1 key.	
15	Remove patching cords from T, T&MB jacks.	

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STEP	ACTION	VERIFICATION
16	At LDF or MDF— Restore PST key.	
J. Permanent Signal Holding Trunks Arranged to Release Hold Relays in 1A Key Equipment—Test for Interrupter Ground on Ring Side of Trunk		
1	At OGTT— Restore all keys to normal and operate DISC1 key.	At OGTT— ON1 lamp extinguished.
2	Patch T1 jack to T jack of trunk to be tested.	BY1 lamp extinguished.
3	Operate VM TLK, REV, VM1 keys.	SV lamp flashes (60 ipm). Permanent signal tone heard on trunk.
4	At switchboard— Call answered.	At OGTT— SV lamp lighted. Permanent signal tone removed from trunk.
5a	If option M is furnished— At switchboard— Disconnect cord from trunk jack.	At OGTT— SV lamp flashes (60 ipm). Permanent signal tone heard on trunk.
6b	If option ZF is furnished— At switchboard— Disconnect cord from trunk jack.	At OGTT— SV lamp lighted. Permanent signal tone heard on trunk.
7	At OGTT— Operate FEMF, G, 1000Ω keys.	
8	Restore REV, VM TLK keys.	SV lamp extinguished. Permanent signal tone no longer heard. If option M is furnished— Voltmeter needle swings between an upscale reading and zero at a 60-ipm rate. If option ZF is furnished— Voltmeter indicates 48 volts.
9	Restore VM1, FEMF, G, 1000Ω keys.	
10	Momentarily operate DISC1 key.	
11	Remove patching cord from T jack of trunk tested.	