OUTGOING TRUNK TRANSMISSION TESTS USING MANUAL OUTGOING TRUNK TEST FRAME SD-32349-01 STEP-BY-STEP SYSTEMS

1. GENERAL

1.01 This section describes a method of making an over-all transmission test of outgoing trunk connections to other offices.

1.02 The tests covered are:

A. ***Equivalent Code 104:*** This test checks trunks requiring 2-way transmission measurements when the distant office provides access to an equivalent code 104 transmission measuring and noise checking circuit.

B. ***Loop-around:*** This test checks trunks requiring 2-way transmission measurements when the distant office does not provide access to an equivalent code 104 circuit but a "loop-around" test circuit is available.

C. ***Man-to-Man:*** This test checks trunks requiring 2-way transmission measurements when the distant office does not provide an equivalent code 104 circuit or a "loop-around" circuit.

D. ***Dial Trunks to Milliwatt Test Line:*** This test checks trunks requiring one-way transmission measurements when distant office provides dial access to a milliwatt test line.

E. ***Trunks to Switchboards:*** This test checks trunks terminating at switchboards.

1.03 Transmission test requirements should be furnished locally.

1.04 Action and verification will be required at remote locations when making Tests C and E.

1.05 The results of these tests should be entered on the proper form.

1.06 Precautions should be taken when performing these tests so as not to affect normal traffic adversely.

1.07 ***Lettered Steps:*** A letter a, b, c, etc, added to a step number in Part 3 and 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

2.01 Manual outgoing trunk test frame test circuit, SD-32349-01.

2.02 Transmission measuring set, 23A or 12-type. The 23A TMS shall be used for Tests A and B and is preferred for all tests.

2.03 Patching cords, six P3F cords, 6 feet long, each equipped with a 309 plug and a 310 plug (3P12E cord) (for interconnecting the various test circuits as required).

2.04 Patching cords, three P3F cords (as required), 4 feet long, each equipped with a 309 plug and a 310 plug (3P12E cord) (for interconnecting the test circuits as required).

3. PREPARATION

STEP	ACTION	VERIFICATION
All Tests		
1	At outgoing trunk test frame — Restore all keys to normal.	
2a	If trunk to be tested has a nominal impedance of 600 ohms or if 23A TMS is used — Patch transmission measuring set to REC1 jack, using 3P12E cord.	
3b	If trunk to be tested has a nominal impedance of 900 ohms and 12-type TMS is used — Patch TMS to M jack, and LN jack to REC1 jack, using 3P12E cords.	
4	Connect receiver to RCVR jack.	
5c	If testing trunks requiring 3-conductor test connections, and ringing signal is not required to originate test — Patch TST1 jack to DIAL jack using 3P12C cord.	
6d	If testing trunks requiring 3-conductor test connections, and ringing signal is required to originate test — Patch TST1 jack to MR2 jack, patch MR1 jack to DIAL jack using 3P12C cord.	
7e	If testing trunks requiring 3-conductor test connections — Patch trunk test jack T to CTA jack using 3P12E cord. *Note:* For trunks having ground on tip and battery on ring, operate REV3 key.	If trunk is idle — Idle trunk buzzer sounds. If trunk is busy — Lamp CT-BY lighted, busy trunk buzzer sounds.
8e	Remove plug from CTA jack, insert in TRK1 jack (except trunks having switchboard terminations, in which case proceed to Step 18g, Test E).	
9f	If testing trunks requiring 4-conductor test connections — Patch TST1 jack to ST2 jack, using 3P12C cord.	
10f	Patch ST1 jack to PC2 jack using 3P12C cord.	
11f	Patch PC1 jack to DIAL jack, using 3P12C cord.	T,R lamps of simplex test lamp circuit glow with equal brilliance.
12f	Operate ITB key.	

STEP	ACTION	VERIFICATION
13f	Patch trunk test jacks T1, R1 to CTA, CTB jacks, respectively, using 3P12E cords.	If trunk is idle — Idle trunk buzzer sounds. If trunk is busy — Lamp CT-BY lighted, busy trunk buzzer sounds.
14f	Restore ITB key.	
15f	Remove plugs from CTA, CTB jacks, insert in jacks T,R(TRK 3), respectively.	
16f	Remove cord from PC2 jack and ST1 jack.	
17f	Remove plug from ST2 jack, insert in PC2 jack.	

Tests A, B, and C

18g	If trunk to be tested is 600 ohms — Operate 6C key.	

4. METHOD

STEP	ACTION	VERIFICATION
	A. Equivalent Code 104	
19	At OGT test frame — Dial code of test line circuit in distant office. ***Caution: When testing outgoing CAMA trunks with ANI, dial the proper code to seize the test number terminal, since all other codes would be identified as a service call and billed accordingly.***	
20	Operate TMS1 key.	S (supv) lamp lighted, or test progress tone heard.
21	Operate, hold SD key approximately 3 seconds. ***Note:*** Near-to-far transmission loss measured and data stored at transmission measuring circuit.	
22	After 3-second period — Restore SD key.	10-second tone received at OGT test circuit.
23	Record far-to-near transmission loss, as indicated by TMS during 10-second interval.	
24g	If near-to-far loss was less than 10 db — Record loss, as indicated by TMS, during 10-second interval. This loss reading will be near-to-far, plus far-to-near loss.	After about 2-second interval, 10-second tone received at OGT frame.

STEP	ACTION	VERIFICATION
25h	If near-to-far loss was greater than 10 db — Record loss, as indicated by TMS, during 10-second interval. This loss reading is 10 db less than actual value of near-to-far plus far-to-near.	At OGT test frame — "On-hook" signal received for about 1/2 second. After about a 2-second interval, 10-second tone received.
26	When 10-second interval is completed — Tone disconnected. *Note:* Noise level now observed on trunk test connection.	Test line circuit originates a steady or flashing signal to OGT frame, depending on noise level.
27	Disconnect from trunk test jack T, or T1, R1.	
28	Test remaining trunks, as required, repeating Steps 1 through 27.	
29	When tests are completed, disconnect all cords, restore all keys.	
	B. Loop-Around Tests	
19	At OGT test frame — Dial code of milliwatt test trunk in distant office.	
20	Operate TMS1 key.	S lamp lighted. Tone signal heard in receiver.
21	Record far-to-near transmission loss as indicated by TMS.	
22	Restore TMS1 key.	
23	Disconnect cord from trunk test jack and connect to test jack of next trunk to be tested.	
24	Repeat Steps 19 through 23 for remaining trunks in group.	
25	When all trunks have been tested — Select one trunk of group as a reference trunk.	
26e	If testing trunks requiring 4-conductor test connections — Patch reference trunk test jacks T1, R1, to T,R, (TRK4) jacks using 3P12E cords.	
27c	If testing trunks requiring 3-conductor test connections — Patch reference trunk test jack T to TRK2 jack using 3P12E cord.	
28	Remove plug from TST1 jack, insert in TST2 jack.	

STEP	ACTION	VERIFICATION
29	Remove plug from REC1 jack, insert in REC2 jack.	
30	Dial code of first appearance of "loop-around" test termination circuit.	
31	Operate TMS2 key. *Note:* Reference trunk held by secondary termination circuit.	
32	Remove plug from TST2 jack and reinsert in TST1 jack.	
33e	If testing trunks requiring 4-conductor test connections — Patch jacks T,R, (TRK3) to idle trunk jacks T1, R1, respectively, using 3P12E cords.	
34c	If testing trunks requiring 3-conductor test connections — Patch TRK1 jack to an idle trunk T jack, using 3P12E cord.	
35	Dial code of second appearance of "loop-around" test termination circuit.	
36	Operate TMS1 key.	S lamp lighted.
37	Operate SD key.	Test tone received at transmission measuring set connected to REC2 jack.
38	Record "loop-around" test transmission loss from meter.	
39	Restore SD, TMS1 key.	
40	Remove connections set up in Step 33e or 34c.	
41	Repeat Steps 33e through 40 for remaining trunks in group.	
42	When all trunks have been tested, remove all patching cords, restore all keys.	

C. Man-to-Man

19	At OGT test frame — Dial code of distant office test trunk.	Ringing induction heard in test receiver.
20	At remote jack, key and lamp circuit — Operate TRK key.	At OGT test circuit — S (supv) lamp lighted. Ringing induction silenced.
21	At remote office — Patch transmission measuring set to TM jack of jack ended trunk.	

STEP	ACTION	VERIFICATION
22	At OGT test frame — Operate TMS1 key, then SD key.	At remote office — Test tone received. Near-to-far transmission reading made.
23	Restore SD key.	
24	At remote office — Disconnect transmission measuring set, operate SD key if OGT frame SD-32349-01 is provided, or patch test tone to TM jack.	At OGT test frame — Test tone received.
25	Record far-to-near transmission loss as indicated by TMS. *Note:* Test readings from remote office can be passed to OGT test man via headset position if so desired.	
26	At remote office — Restore TRK key.	At OGT test frame — S lamp extinguished. Ringing induction heard.
27	At OGT test frame — Remove connections from T or T1 and R1 jacks.	
28	Repeat Steps 1 through 27 for remaining trunks.	
29	When tests are completed — Remove all test connections, restore all keys.	

D. Dial Trunks to Milliwatt Test Line

18	At OGT test frame — Dial code of milliwatt test trunk in distant office.	
19	Operate TMS1 key.	S lamp lighted. Tone signal heard in receiver.
20	Record far-to-near transmission loss as indicated by TMS.	
21	Restore TMS1 key.	
22	Disconnect cord from trunk test jack and connect to test jack of next trunk to be tested.	
23	Repeat Steps 18 through 22 for remaining trunks in group.	
24	When tests are completed — Remove all test connections, restore all keys.	

STEP	ACTION	VERIFICATION
	E. Trunks to Switchboards	
18g	If testing straightforward trunks — Remove plug from CTA jack, insert in TRK1 jack.	At switchboard — Trunk lamp lighted. Call answered.
19h	If testing trunk requiring ringing signal to originate test — Remove plug from CTA jack, insert in TRK1 jack. Operate MR key. ***Note:*** In cases where a trunk requires ringing on the tip to terminate a call, it will be necessary to operate the REV1 key in the primary termination circuit.	Ringing induction heard in receiver. At switchboard — Call answered. At OGT test frame — Ringing induction silenced.
20	At switchboard — Connect to transmission test line (1000-cycle supply).	
21	At OGT test frame — Operate TMS1 key.	Test tone received.
22	Record transmission loss as indicated by TMS.	
23	Restore MR, TMS1 keys.	
24	Remove test cord from trunk test jack.	
25	Repeat Steps 1 through 7C PREPARATION and Steps 18g through 24 for remaining trunks in group.	
26	When tests are completed — Remove all patching cords, restore all keys.	