TRUNK APPEARANCE CIRCUIT SD-27156-01 AND OVERFLOW LINKS ASSOCIATED WITH OVERFLOW TRUNK CIRCUIT SD-27155-01 FOR USE WITH PERMANENT SIGNAL EXPANDED ROUTING TESTS USING MASTER TEST FRAME NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 ▶This section describes methods for testing trunk appearance circuits, and overflow links, associated with overflow trunk circuits. Tests covered are for use with permanent signal expanded routing in No. 5 crossbar offices using the master test frame (MTF). Tests indicated are modified to include offices arranged for Electronic Translation Systems (ETS).◀

1.02 This section is reissued for the following reasons:

(a) To revise Tests A through C to include reference to ETS

(b) To add test of make-busy function to Test A

(c) To add Test D.

Revision arrows are used to emphasize the more significant changes.

This reissue affects Equipment Test Lists.

1.03 The tests covered are:

TRUNK APPEARANCE CIRCUIT

PAGE

A. Seizure and Release: This test checks the seizure of the trunk appearance circuit after the marker receives a PS (permanent signal) indication normally received from an originating register. It also checks the supervisory and regular release features of the trunk appearance circuit. The make-busy switch function is also verified. 3

B. False-Busy and False-Idle Conditions: This test checks the FT, BT, and F leads for crosses and continuity. 4

OVERFLOW LINKS

C. Seizure and Release: The following features are checked: (1) Seizure of individual ***overflow links*** associated with an overflow trunk circuit after the marker makes a route advance following a simulated all-trunks-busy condition. (2) Ability of the ***overflow link*** to transmit 120-ipm overflow tone to a customer line. (3) Operation of monitor and release control at the jack, lamp, and key circuit. (4) Supervisory and regular release features. . . . 5

▶OVERFLOW TRUNK

D. Verification of FT Lead: This test checks the ability of an operated S-relay, the operated FL0 relay or make-busy switch to open the FT lead and prevent seizure of the ***overflow trunk circuit.***◀ 8

1.04 An improved method of testing permanent signals provides for marker tests to detect

trouble conditions as opposed to receiver off-hook conditions. This arrangement allows the marker to test each permanent signal through a test termination using a ***trunk appearance circuit*** (dummy trunk) on the trunk link frame as a means of distinguishing between trouble conditions and receiver off-hook conditions. The marker then attempts to route advance from the ***trunk appearance circuit*** to a PSG trunk for all trouble conditions or to a ROH trunk for all receiver off-hook conditions.

1.05 The marker will complete a connection to an ***overflow link*** to terminate a customer line only after it was unable to complete a connection to a PSG group, ROH trunk group, or trunk appearance circuit due to an all trunk busy condition or no channel available condition. There are ***twenty overflow links*** provided for each overflow trunk circuit and one overflow trunk circuit is provided for each trunk link frame arranged for permanent signal expanded routing feature. Ten of these ***overflow links*** are connected directly to the left side and the other ten ***overflow links*** are connected to the right side of selected trunk switch verticals (trunk links).

1.06 The manner of selecting some circuits and test conditions at the 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.

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

1.08 ▶When the office is arranged for ETS, the distributors and scanners associated with the marker and trunk used in the test call must be in service or in a ***maintenance-busy condition — not in an out-of-service*** condition. To change a scanner or distributor from an ***out-of-service*** to a ***maintenance-busy*** condition, use the procedure given in the following section for the office arrangement.

218-799-701—Taking ETS Equipment Out-of-Service.

1.09 When the trunk under test is arranged for ETS, the first completed test call from the MTF will cause the TST bit to be set in the trunk register associated with the selected trunk, enabling trunk scanning to be repeated on the FT lamp at the MTF trunk test circuit. As long as the TST bit is set in the trunk register, scanning will continue to be repeated on the lamp, even on service calls. The TST bit will remain set in the trunk register until (1) a test call is made from the MTF to another trunk, or (2) the command ***STOP:TRK TST*** is entered at the maintenance TTY.

1.10 ***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 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.

1.11 On Issue 76D of SD-25800-01, a group of 18 "class of test" lamps was 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, INC, OR, SDR, IR, MISC, IAO, MLV, LT, IMS, PTT, TVT, ATNT, and IMT.◀

2. APPARATUS

Tests A, C

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

2.02 Trunk test circuit, SD-25918-01.

2.03 Voltmeter test circuit, SD-25792-01

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

Test B

2.05 Oscillator J94730B (SD-95616-01), part of 1A fault locator test set, J94730A.

2.06 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one

KS-6278 connecting clip, and one 419A (test connector) tool or one 624B tool as required (for making test connections to terminals of terminal strip.

Test C

2.07 Testing cord, P3F cord, 4 feet long, equipped with a 309 and 310 plug (3P12A cord).

3. METHOD

▶Refer to paragraphs 1.06 through 1.11◀

TRUNK APPEARANCE CIRCUIT

STEP	ACTION	VERIFICATION
A. Seizure and Release		
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Select MISC class of test.	
4	Select originating class of call and LT translator indication.	
5	Operate TLK, REC keys.	
6	Select class of service and rate treatment as required for any line except coin or two-party.	
7	Select marker.	
8	Select PS auxiliary originating translation indication.	
9	Operate FS, TS keys.	
10a	▶If ETS provided— Operate PCS, PTS keys.◀	
11	Operate DYTS key.	
12	Select trunk link frame associated with trunk appearace circuit under test.	
13	Select route advance 0.	
14	Select trunk appearance circuit.	
15	Momentarily operate ST key.	RBT2, BTOF, MRL lamps lighted. Two trouble records taken. ***First trouble record.*** PS designation perforated.

STEP	ACTION	VERIFICATION
		FS_, TS_, TB_, TG_ designations perforated indicating location of trunk appearance circuit under test. Disregard second trouble record. ▶If ETS provided— FT lamp lighted.◀
16	Momentarily operate RL key.	All lamps extinguished.
17	▶Operate make-busy switch at overflow trunk circuit to MB position.	▶If ETS provided FT lamp lighted.◀
18	Momentarily operate ST key.	TB lamp lighted.
19	Momentarily operate RL key.	All lamps extinguished. If ETS provided— FT lamp remains lighted.
20	At overflow trunk circuit restore make busy switch to normal position.	▶If ETS provided— FT lamp extinguished.◀
21	Restore all keys and switches not required in next test.	

B. False-Busy and False-Idle Conditions

▶(ETS not Provided)◀

1	At relay rack frame— Connect power to 1A fault locator; set W-T switch to W and HR-LRT switch to HR.	Whistle heard.
2	Connect WT jack of 1A fault locator to terminal 22 (FT lead) on terminal strip B of unit using cord equipped with 624B tool.	Whistle not heard.
3	While circuit being tested is idle— Operate MB switch.	Whistle heard while MB switch is operated.
4	Remove test connection from terminal 22 (FT lead) and connect to terminal 25 (BT lead) of terminal strip B of unit.	Whistle heard.
5	Connect HRG terminal to terminal 14 (F lead) of terminal strip B on unit.	Whistle not heard.
6	Remove test connections from terminal strip B.	
7	Restore MB switch.	
8	Remove power from 1A fault locator.	

STEP	ACTION	VERIFICATION
OVERFLOW LINKS		
C. Seizure and Release		
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Select MISC class of test.	
4	Select originating class of call and LT translator indication.	
5	Operate TLK, NTC, FS keys.	
6	Select class of service and rate treatment as required for any line except coin or two-party.	
7	Select marker.	
8	Select PS auxiliary originating translation indication.	
9	Operate APS/NPS key to APS position.	
10	Select route advance as required.	
11a	◗If ETS provided— Operate PCS, PTS keys.◖	
12	Select trunk link frame associated with ***overflow link*** within overflow trunk circuit under test (see 1.04).	
13	Select channel corresponding to trunk link S_ relay number as shown on Table A.	

STEP	ACTION	VERIFICATION

TABLE A

OVERFLOW LINK SELECTION

TLF_OVFL LINK APPEARANCE		TRK LK S_RLY NO.	SELECT CH_	TLF_OVFL LINK APPEARANCE		TRK LK S_RLY NO.	SELECT CH_
T SW	VERT			T SW	VERT		
9	0R	10	0	9	9L	09	9
8	1R	11	1	8	8L	08	8
7	2R	12	2	7	7L	07	7
6	3R	13	3	6	6L	06	6
5	4R	14	4	5	5L	05	5
4	5R	15	5	4	4L	04	4
3	6R	16	6	3	3L	03	3
2	7R	17	7	2	2L	02	2
1	8R	18	8	1	1L	01	1
0	9R	19	9	0	0L	00	0

14	Select junctor sequence 0.	
15	Operate STP1 key.	
16b	If testing ***overflow link*** on left side of trunk link frame trunk switch— Select line location in line link frame 00.	
17c	If testing ***overflow link*** on right side of trunk link frame trunk switch— Select line location in line link frame 01.	
18	Momentarily operate ST key.	LK2, ROH, RA_, MRL lamps lighted. TL-PC_ lamp lighted associated with overflow trunk circuit under test if not already lighted. 120-ipm overflow tone heard. Trouble record taken. PS designation perforated. TB_, TG_ designations ***not*** perforated. FS_, CH_ designations perforated indicating location of ***overflow link*** under test.

STEP	ACTION	VERIFICATION
		RK or LK designation perforated indicating ***overflow link*** on right or left side of selected trunk switch. ▶If ETS provided— FT lamp lighted.◀
19	Momentarily operate (pull-push) TL-PC_ key associated with lighted TL-PC_ lamp of selected overflow trunk circuit.	MON lamp lighted. TL-PC_ lamp lighted associated with ***overflow link*** under test. ***Note:*** Additional TL-PC_ lamps lighted indicate other ***overflow links*** busy within same overflow trunk circuit under test.
20	Patch MON jack (associated with all overflow links of ***all*** overflow trunk circuits) to T1 jack of voltmeter test circuit.	
21	Operate (pull) TL-PC_ key associated with ***overflow link*** under test.	120-ipm overflow tone silenced.
22	Momentarily operate RLS-PC key.	TL-PC_ lamp extinguished associated with ***overflow link*** under test.
23	Release (push) TL-PC_ key associated with overflow link under test.	
24	Momentarily operate RL key.	All lamps extinguished except any TL-PC indicating other ***overflow links*** busy within same overflow trunk circuit.
25	Select channel corresponding to another trunk link S_ relay within same overflow trunk circuit as shown on Table A.	
26	Momentarily operate ST key.	LK2, ROH, RA_, MRL lamps lighted. TL-PC_ lamp lighted associated with ***overflow link*** under test. 120-ipm overflow tone heard. Trouble record taken. PS designation perforated. TB_, TG_ designations ***not*** perforated. FS_, CH_ designations perforated indicating location of ***overflow link*** under test. RK or LK designation perforated indicating ***overflow link*** on right or left side of selected trunk switch.
27	Operate (pull) TL-PC_ key associated with ***overflow link*** under test.	

STEP	ACTION	VERIFICATION
28	Momentarily operate RLS-PC key.	TL-PC_ lamp extinguished associated with overflow link under test.
29	Release (push) TL-PC_ key associated with ***overflow link*** under test.	
30	Momentarily operate RL key.	All lamps extinguished except any TL-PC_ indicating other ***overflow links*** busy within same overflow trunk circuit.
31	Repeat Steps 25 through 30 as required to test remaining ***overflow links*** within same overflow trunk circuit.	
32	Momentarily operate RLS-TL key.	MON lamp extinguished. TL-PC_ lamp(s) if lighted now indicates overflow trunk circuits with one or more busy ***overflow links.***
33	Restore all keys and switches not required in next test.	
34	Remove patching cords from MON and T1 jacks.	
35	Operate APS/NPS key to required position.	

▶OVERFLOW TRUNK CIRCUIT

D. Verification of FT-LEAD

1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Select MISC class of test.	
4	Select originating class of call and LT translator indication.	
5	Select marker.	
6	Select class of service and rate treatment as required for any line except coin or two-party.	
7	Select PS auxiliary originating translation indication.	
8	Operate TLK, NTC keys.	
9	Operate FS, TS keys.	

STEP	ACTION	VERIFICATION
10a	If ETS provided— Operate PCS, PTS keys.	
11	Select route advance as required.	
12	Select trunk link frame associated with overflow trunk under test.	
13	Select channel corresponding to a trunk link S_ relay as shown on Table A.	
14	Select junctor sequence 0.	
15	Operate STP1 key.	
16b	If testing ***overflow trunk*** using overflow link on left side of trunk link frame trunk switch— Select line location in line link frame 01.	
16c	If testing ***overflow trunk*** using overflow link on right side of trunk link frame trunk switch— Select line location in line link frame 00.	
17	Momentarily operate ST key.	LK2, ROH, RA-, MRL lamps lighted. TL-PC-lamp lighted associated with ***overflow trunk circuit*** under test if not already lighted. 120-ipm overflow tone heard. If ETS provided— FT lamp lighted.
18	Momentarily operate RL key.	All lamps extinguished.
19	At ***overflow trunk circuit—*** Block S_ relay operated as selected in Step 13.	If ETS provided— FT lamp lighted.
20	AT MTF— Momentarily operate ST key.	TB lamp lighted.
21	Momentarily operate RL key.	All lamps extinguished. If ETS provided— FT lamp remains lighted.
22	At ***overflow trunk circuit—*** Remove blocking tool from S-relay.	If ETS provided— FT lamp extinguished.
23	Repeat Steps 13, and 19 through 22, as required, to test ability of all remaining S_	

STEP	ACTION	VERIFICATION
	relays to open FT lead and prevent ***overflow trunk circuit*** seizure.	
24	At ***overflow trunk circuit***— Block FL0 relay operated.	IF ETS provided— FT lamp lighted.
25	At MTF— Momentarily operate ST key.	TB lamp lighted.
26	Momentarily operate RL key.	All lamps extinguished. If ETS provided— FT lamp remains lighted.
27	At ***overflow trunk circuit***— Remove blocking tool from FL0 relay.	If ETS provided— FT lamp extinguished.
28	At ***overflow trunk circuit***— Operate make-busy switch to MB position.	If ETS provided— FT lamp lighted.
29	At MTF— Momentarily operate ST key.	TB lamp lighted.
30	Momentarily operate RL key.	All lamps extinguished. If ETS provided— FT lamp remains lighted.
31	At ***overflow trunk circuit***— Restore make-busy switch to normal position.	If ETS provided— FT lamp extinguished.
32	At MTF— Restore all keys and switches not required in next test.◀	