

LINE CONCENTRATOR ASSOCIATED WITH 520-TYPE PBX
OUTGOING TRUNK CIRCUITS
OPERATION TESTS
EMERGENCY REPORTING SYSTEM

1. GENERAL

1.01 This section describes a method of testing the outgoing trunk circuits for over-all operation in conjunction with associated circuits at the concentrator and headquarters location. Miscellaneous tests individual to each trunk or trunk group are also covered.

1.02 This section is reissued to revise the title of the section, to bring it up to date with changes made in equipment, and to remove the restrictive notice.

1.03 The circuits on which these tests are performed are part of a fire and police reporting system and precautions must be taken that service from station lines is not affected.

1.04 The tests covered are:

A. *Make-Busy*: This test checks the make-busy features of outgoing trunk circuits.

B. *Sender Selection Chain*: This test checks the sender selection chain associated with outgoing trunk circuits.

C. *Trunk Loop Open (LO)*: This test checks the trunk loop failure feature for operation of proper visual and audible signals and making the trunk in trouble busy to service calls.

D. *Call Through*: This test checks the control, supervisory, and transmission features of each outgoing trunk circuit and associated incoming trunk circuit on connections from a calling line to the headquarters switchboard.

1.05 When trunks not under test are made busy to direct a test call to a desired trunk circuit, the busied trunks shall be made available for service calls as soon as the desired trunk is seized for test.

1.06 Call through tests (Test D) require action and verification at both the concentrator location and headquarters switchboard at which trunk under test terminates.

1.07 Call through tests (Test D) shall be terminated temporarily at the request of headquarters operator when they might interfere with the efficient handling of service calls and dispatch duties at the headquarters switchboard.

1.08 If an alarm condition occurs at the concentrator location during testing, the tests shall be stopped until the alarm condition is cleared.

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

Tests A and B

2.01 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one KS-6278 connecting clip, and one 624A (terminal connector) tool (for connecting ground to relay winding terminals).

Test C

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

3. PREPARATION

STEP	ACTION	VERIFICATION
All Tests		
→ 1a	If test circuit is in use on automatic test cycle — Wait until unit cycle is completed before proceeding with tests.	

4. METHOD

STEP	ACTION	VERIFICATION
A. Make-Busy		
2	At test panel — Operate MB- key associated with first idle outgoing trunk (OGT) of trunk group under test. <i>Note:</i> Busy trunk is indicated by operated B and/or D relay of OGT circuit.	MB- lamp lights. At OGT circuit — MB- relay operates. At outgoing selection control (OGT SEL CONT) unit — T- relay operates.
3	At test panel — Release MB- key.	MB- lamp dark. At OGT circuit — MB- relay releases. At OGT SEL CONT unit — T- relay remains operated.
→ 4	At OGT SEL CONT unit — Connect ground momentarily to U (upper) winding of released TF or TL relay associated with trunk group of trunk under test. <i>Note:</i> When TF or TL relay is operated, all operated T- relays which are associated with assigned idle trunks of the group under test release.	TF or TL relay operates, releases. T- relays release.
B. Sender Selection Chain		
2	At outgoing trunk (OGT) — Connect ground momentarily to U (upper) winding terminal of N3 relay on highest numbered assigned idle trunk. <i>Note:</i> Busy trunk is indicated by operated B and/or D relay of trunk unit.	N3 relay operates.
→ 3	Connect ground in sequence for approximately 1 second to U (upper) winding terminal of each MB and TR2 relay on next lower numbered idle trunk unit. <i>Note:</i> Omit operation of MB relay if "N" option has not been provided.	N3 relay remains operated.

STEP	ACTION	VERIFICATION
4	Repeat Step 2 on next lower numbered idle trunk unit.	N3 of higher numbered trunk unit releases. N3 of lower numbered trunk unit operates.
5	Repeat Step 3 on next lower numbered idle trunk unit from unit with operated N3 relay.	N3 relay remains operated.
6	Repeat Steps 4, 5 until N3 relay of lowest numbered idle trunk unit is operated.	Lowest numbered N3 operated. All others released.
7	Repeat Step 2.	Lowest numbered N3 remains operated. Highest numbered N3 operates, releases.
8	Connect ground momentarily to U (upper) winding terminal of MB relay on unit with operated N3 relay.	MB relay operates, releases. N3 relay releases.

C. Trunk Loop Open (LO)

→ *Caution: When insulating movable springs of wire-spring relays, use care not to dislodge the movable springs from the groove of comb.*

2	At outgoing trunk (OGT) — Insulate 2M, 8M contacts of B relay on idle trunk unit, block operated B relay, insulate 8B contact of B relay. <i>Note:</i> Busy trunk is indicated by operated B and/or D relay of trunk unit.	LO relay releases.
3	Remove blocking tool from B relay.	MB relay operates. At test panel — LO-, TA lamps light. Office minor alarm operates.
4	Operate ACO key momentarily.	Office alarms silenced.
5	At OGT unit — Block operated B relay, remove insulator from 8B contact B relay.	MB relay releases. At test panel — LO-, TA lamps dark.
6	At OGT unit — Remove blocking tool from B relay, remove insulators from 2M, 8M contacts of B relay.	LO relay operates.

D. Call Through

2	At outgoing selection control (OGT SEL CONT) unit — Operate momentarily released TF or TL relay associated with outgoing trunk (OGT) group of trunk to be tested.	All T- relays associated with assigned idle trunks of group release.
→ 3	When T- relay associated with OGT to be selected is released — At test panel — Operate and release MB- key associated with all OGTs of headquarters group except selected idle OGT.	MB- lamps light momentarily. At OGT SEL CONT unit — T- relays operate. At OGT units — MB- relays operate, release.

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STEP	ACTION	VERIFICATION
→ 4	<p>At test panel — Remove handset from hanger, operate FHQ- or PHQ- key associated with OGT group of trunk under test.</p> <p><i>Note:</i> When attendant answers, tester should announce "This is a test call" and request attendant to verify items listed under headquarters in verification column.</p>	<p>Ringling heard until attendant answers. At headquarters — Before attendant answers — Trunk lamps flash. Audible alarm sounds. Test ticket printed. After attendant answers — Trunk lamps steady. Audible alarm silenced. Transmission satisfactory. Test number displayed and printed.</p>
5	<p>At test panel — Request attendant to perform actions covered by Steps 6b through 11b and 13b through 14b or 15c through 21c and 23c through 24c.</p>	
6b	<p>If call was answered by operation of TRK key — At headquarters — Operate HOLD key.</p>	<p>TRK lamps wink. Number display off. No transmission.</p>
7b	<p>Operate TRK key.</p>	<p>TRK lamps steady. Test number displayed. Transmission satisfactory.</p>
8b	<p>Repeat Step 6b.</p>	
9b	<p>At TRK jack position of trunk under test — Insert ANS cord of cord circuit in TRK jack.</p>	<p>TRK lamps steady.</p>
10b	<p>Operate cord TALK-DIAL key.</p>	<p>Test number displayed. Transmission satisfactory.</p>
11b	<p>After attendant announces completion of Steps 8b through 12b — Release cord TALK-DIAL key.</p>	<p>Number display off. No transmission.</p>
12b	<p>At test panel — Release FHQ- or PHQ- key, replace handset on hanger.</p>	<p>At headquarters — ANS cord supervisory lamp lights.</p>
13b	<p>At headquarters — Operate cord TALK-DIAL key.</p>	<p>Test number displayed.</p>
14b	<p>Remove cord from TRK jack and release TALK-DIAL key.</p>	<p>Number display off. Lamps dark.</p>
15c	<p>If call was answered by cord and operation of cord TALK-DIAL key — At headquarters — Release cord TALK-DIAL key.</p>	<p>Number display off. No transmission.</p>
16c	<p>Operate cord TALK-DIAL key.</p>	<p>Test number displayed. Transmission satisfactory.</p>

STEP	ACTION	VERIFICATION
17c	Repeat Step 15c.	
18c	Operate TRK key associated with trunk under test.	Test number displayed. Transmission satisfactory.
19c	Remove cord from TRK jack, operate HOLD key.	TRK lamps wink. Number display off. No transmission.
20c	Operate TRK key.	TRK lamps steady. Test number displayed. Transmission satisfactory.
21c	After attendant announces completion of Steps 13b through 20c — Operate HOLD key.	TRK lamps wink. Number display off. No transmission.
22c	At test panel — Release FHQ- or PHQ- key, replace handset on hanger.	At headquarters — Position RLS lamp lights.
23c	At headquarters — Operate TRK key.	TRK lamps steady. Test number displayed.
24c	Operate position RLS key.	Number display off. Lamps dark.