

RINGDOWN INTERTOLL TRUNKS

NO. 1 TOLL OFFICE

1. GENERAL

1.01 This section describes tests of the ring-down intertoll trunk circuit and associated apparatus at No. 1 toll switchboards.

1.02 This section is reissued to change the title of the section, to add a method of testing line relays with or without the varistor arrangement on an ac voltage basis, using the AC relay and signaling test set SD-63674-01. Also added is a test of idle indicating lamp circuits. The ac continuity test of multiple has been removed since this test is covered in other sections of the A200 Division. As this is a general revision the use of arrows has been omitted.

1.03 The tests and features tested are:

(A) Operation Test - Line Signal and Continuity: This test verifies operation of the trunk line lamp and continuity of line and equipment to distant office.

(B) Cutoff Relay Test: This test checks operation of cutoff relay associated with inward and through board multiple.

(C) Busy Signals: This test checks the operation of busy signal relays associated with toll trunks.

(D) Busy Lamps: This test verifies the operation of the busy lamps associated with toll trunks.

(E) Idle Indicating Lamps: This test verifies the operation of idle indicating lamps associated with toll trunks.

(F) Line Signaling Relays: This test checks operation of line relay.

(G) Transfer Features: This test checks operation of through and night transfer keys.

1.04 An assistant is required for Tests (B) and (G) where the different positions are widely separated.

1.05 All tests covered in this section should be made during light traffic periods.

2. APPARATUS

2.01 The apparatus required for each test is shown in the following list. The details for each item are covered in the indicated paragraph.

Apparatus	No. Required for Test						
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
Test Circuit (2.02)	1						
Test Circuit (2.03)			1				
Test Circuit (2.04)							1
Test Set (2.05)							1
Test Set (2.06)		1					
Test Set (2.07)							1
Test Cord (2.08)		3					2*
Test Cord (2.09)							1
Operator's Telephone Set	1	2					

* One required when test circuit SD-62259-01 is jack ended.

2.02 Any one of the test circuits listed below:

SD-62140-01	SD-62148-01	SD-62218-01
SD-62140-02	SD-62148-02	SD-62359-01
		SD-62646-01

2.03 Test Circuit SD-62439-01.

2.04 Test Circuit SD-62259-01. (For line relays without varistors.)

2.05 AC Relay and Signaling Test Set J68602AJ (SD-63674-01). (For line relays with or without varistors.)

2.06 Portable Control Set. (Potentiometer and Receiver) J64703A or B.

2.07 Portable Control Set SD-62259-01, Fig. 2. (For use with Test Circuit SD-62259-01.)

2.08 P3E Cord, 6 feet long, equipped with two No. 310 Plugs (3P7A Cord).

2.09 P2J Cord, 6 feet long, equipped with two No. 310 Plugs (2P9B Cord).

3. PREPARATION

PREPARATION FOR TESTS (A), (B), AND (G)

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
1	Connect operator's telephone set to switch-board position jack.	
	<u>Note:</u> Check that the night transfer key (if provided) is not operated.	

PREPARATION FOR TEST (F)

Using AC Relay and Signaling Test SD-63674-01

1	Check the 20-cycle ringing supply for specified limits.	
2	Set all keys to normal.	
3	Set all sliders to extreme front.	
4	Patch BAT-G jack of test set to 24V BAT-G jack of battery and ground supply.	
	<u>Note:</u> To avoid possible grounding of the battery and ringing supply leads in performing the tests, connect the battery and ringing supply cords to the test set first and when disconnecting remove these cords from the test set last.	
5	Patch TST jack to REC jack.	S lamp lighted.
6	Patch (1000 or 20CYC) jack to 20CYC ringing supply jack.	
7	Operate CON key to TST position.	
8	Adjust 20 OPR slider.	TR lamp lighted.
9	Momentarily operate CON key to RLS position.	S and TR lamps extinguished. TR lamp remains extinguished when CON key returns to normal.
10	Adjust 20 OPR slider to extreme front.	
11	Remove patch cord from TST and REC jacks.	S lamp extinguished.

Using Test Circuit SD-62259-01

1	Operate TR key to AC, AC1, or AC2 as required for relay under test.	
2	Operate key to OPR position.	
3	Adjust OPR potentiometer slider.	Read on the milliammeter the test operate current value for the relay to be tested.

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
4	Operate key to NO position.	
5	Adjust NO potentiometer slider.	Read on the milliammeter the test non-operate or release current value for the relay to be tested.

4. METHOD

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>(A) Operation Test - Line Signal and Continuity</u>		
<u>Note:</u> This test should be made from an inward position.		
2	Insert the plug of idle toll cord into an idle toll trunk to be tested.	Busy signals operate, busy lamp lighted, or idle indicating lamp stepped to next idle trunk.
3	Operate RING key of cord pair.	Line lamp lighted in distant office. Busy signals operate or busy lamp lighted, in distant office. Distant operator answers and distant office line lamp extinguished. Busy signal or busy lamp remains operated in distant office.
4	Operate TALK key of cord pair.	Verify that conversation in both directions is distinct.
5	Request distant office to ring on toll trunk and immediately remove toll cord from toll trunk jack.	Line lamp lighted. Busy signal operated, busy lamp lighted, or idle indication lamp stepped to next idle trunk.
6	Reinsert plug of toll cord into trunk jack.	Line lamp extinguished. Busy signal remains operated, busy lamp remains lighted, or idle indicating lamp remains on trunk of Step 2.
7	Remove toll cord from trunk jack.	Busy signal released, busy lamp extinguished, or idle indicating lamp moves to lowest idle numbered trunk.

(B) Cutoff Relay Test

Note: This test should be made from a position at through board.

2	Patch toll trunk jack to be tested to TOLL or T jack of test circuit.
3	Operate JK key of test circuit.
4	Patch CKT or T jack of portable control set (potentiometer and receiver) to REC jack of test circuit.

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
5	Move pointer to extreme right or left position.	
6	Patch multiple of jack being tested of any position other than a through board to TRK jack of test circuit.	Tone should be heard in receiver of portable control set.
7	Touch sleeve of an idle toll cord to sleeve of plug in multiple jack of through position.	No change in tone in receiver.
8	Remove plug placed in inward or outward position in Step 6.	
9	Reinsert plug removed in Step 8.	Tone should not be heard in receiver.
10	Remove plug sleeve of idle toll cord from sleeve of plug placed in Step 7.	Tone should be heard in receiver.
11	Remove all patch cords.	
	<u>Note:</u> If interlocking sleeve arrangements are not in use between through and inward or outward positions, no tone will be heard in Step 7.	

(C) Busy Signals

1	Operate R key of test circuit to normal.	
2	Insert plugs of busy signal test circuit cords into toll trunk jacks to be tested. The odd numbered cords to be inserted into odd numbered trunk jacks. The even numbered cords to be inserted into even numbered trunk jacks.	
3	Operate F key of test circuit to FLASH ODD position.	Observe all busy signals associated with multiple under test. All odd busy signals flash at 120 ipm. All even busy signals hold operated.
4	Operate R key.	All even busy signals flash at 120 ipm. All odd busy signals hold operated.

(D) Busy Lamps

1	Insert plug of an idle toll cord circuit into trunk jack of trunk to be tested.	Busy lamps associated with toll trunk should light in all appearances. Check for dim lamps.
2	Remove the plug from trunk jack.	Busy lamps are extinguished.
3	Repeat Steps 1 and 2 until a cord has been connected to each idle trunk in group.	Busy lamps associated with toll trunk should be lighted and extinguished for each step.

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>(E) Idle Indicating Lamps</u>		
1	Insert plug of an idle toll cord circuit into trunk jack of trunk to be tested.	Associated idle indicating lamp extinguished and idle indicating lamp associated with next idle trunk lights.
2	Repeat Step 1 until a cord has been connected to each idle trunk in group or subgroup.	Idle indicating lamps continue to move to next highest numbered trunk as each trunk is made busy and idle indicating lamp is extinguished.
3	Remove cords one at a time.	Idle indicating lamp lighted only on lowest numbered idle trunk.

(F) Line Signaling Relays

Line Signaling Relays With or Without Varistor Arrangement
Using AC Relay and Signaling Test Set (SD-63674-01)

12	Patch TST jack of test set to trunk jack of trunk being tested.	
13	Operate V SH key as required.	
14	Operate CON key to TST positions.	
15	Adjust 20 CYC-OPR potentiometer.	Read on AC meter test operate voltage value of relay being tested.
16	Operate TST key to NO position.	
17	Adjust 20 CYC-NO potentiometer.	Read on AC meter test nonoperate voltage value of relay being tested.
18	Restore CON key to normal.	
19	Restore TST key to normal.	
20	Momentarily operate CON key to RLS position.	Line lamp should be extinguished.
21	Operate TST key to NO position.	
22	Operate CON key to TST position.	Line lamp remains extinguished.
23	Operate TST key to OPR position.	Line lamp lighted.
24	Momentarily operate CON key to RLS position.	Line lamp extinguished.
25	Remove patch cord from trunk jack.	
26	Remove all patch cords from test set.	

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>Line Signaling Relays Without Varistor Arrangement Using Test Circuit SD-62259-01</u>		
6	Insert red plug of cord of portable control set into TA jack of test circuit.	
7	Insert black plug of cord of portable control set into D jack of test circuit.	
8	Insert test cord of test circuit into toll trunk to be tested. If test circuit is jack ended, patch from test circuit test jack to toll trunk jack of circuit to be tested.	
9	Operate OPR-NO key of portable control set to OPR position.	
10	Dial digit zero on portable control set dial.	Line lamp associated with trunk lighted.
11	Operate RES-TST key of portable control set to RES position.	Line lamp is extinguished.
12	Restore RES-TST key to normal.	
13	Operate OPR-NO key to NO position.	
14	Operate RES-TST key to TST position.	Line lamp does not light.
15	Remove all cords.	

(G) Transfer FeaturesInward to Through Position

2	Insert plug of a toll cord of an inward position into the jack of the toll trunk to be tested.	
3	Momentarily depress TA key.	Line lamp lighted at the through position.
4	Insert plugs of a toll cord at the through position into jack of toll trunk.	Line lamp is extinguished.
5	Remove toll cords.	

Inward to Outward Position

2	Insert plug of a toll cord of an inward position into jack of toll trunk to be tested.	
3	Momentarily depress T key.	Line lamp lighted at outward position.
4	Insert plug of a toll cord at outward position into jack of toll trunk.	Line lamp is extinguished.
5	Remove toll cords.	

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>Night Transfer</u>		
2	Operate night transfer key.	
3	Insert a toll cord into jack of toll trunk to be tested.	
4	Operate ringing key of toll cord.	Distant office operator answers.
5	Request distant office to ring on trunk circuit.	
6	Remove toll cord from trunk jack.	Line lamp lighted at transferred position.
7	Insert toll cord into trunk jack associated with lighted line lamp.	Line lamp is extinguished.
8	Remove toll cord.	
9	Restore night transfer key to normal.	