

**AUTOMATIC INCOMING TRUNK
TEST CIRCUIT SD-25161-01
TESTS
NO. 1 CROSSBAR OFFICES**

1. GENERAL

1.01 This section describes a method of testing the automatic incoming trunk test circuit (SD-25161-01). The tests are intended to detect trouble not readily evident in the normal use of the test frame.

1.02 This section is reissued to change title to agree with schematic drawing and to revise timing intervals of Tests D and E.

1.03 The tests covered are:

- A. Resistance Measurements:** Verifies critical resistance values.
- B. Relay Timing:** Verifies timing requirements of critical relays.
- C. Relay Pulsing:** Verifies pulsing requirements of critical relays.
- D. Busy Timing:** Checks the busy timing interval of test frame.
- E. Trouble Timing:** Checks trouble timing interval of test frame.
- F. Cross-Connection Verification:** Verifies that revertive pulsing compensating resistances are cross-connected as assigned.

1.04 Office records should be consulted to determine the punchings assigned in Test F for each G relay.

2. APPARATUS

Tests A and F

2.01 Volt-ohm-milliammeter, KS-14510 List 1, or equivalent.

Test B

2.02 Test set for timing tests, J24753A (SD-25707-01).

2.03 Patching cord, P3K cord, 6 feet long, equipped with two 310 plugs (3P15A cord).

2.04 Testing cord, W3M cord, 6 feet long, equipped with one 310 plug, one 360A tool, one 360B tool, and one 360C tool (3W4A cord), one KS-6278 connecting clip and two 419A (test connector) tools.

Test C

2.05 Pulse checking test set, J94723A (SD-96362-01).

2.06 Two patching cords, P3K cord, 6 feet long, equipped with two 310 plugs (3P15A cord).

2.07 Testing cord, W3M cord, 6 feet long, equipped with one 310 plug, one 360A tool, one 360B tool and one 360C tool (3W4A cord), with two 364 (spade terminal) tools, one 364 tool attached to the 360A tool and the other attached to the 360C tool. This cord is used for connecting to pulsing circuits specifying tip and sleeve connections. The 310 plug is inserted into the jack specified on the pulsing requirement table and the 364 tool attached to the 360C tool is connected to the P binding post. The 364 tool attached to the 360A tool is connected to the G binding post on the pulse checking test set.

Test D

2.08 322A (make-busy) plug.

2.09 Stop watch, KS-3008 or equivalent.

Test E

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

2.11 Stop watch, KS-3008 or equivalent.

3. METHOD

STEP	ACTION	VERIFICATION
A. Resistance Measurements		
1	Set volt-ohm-milliammeter OHMS switch to proper scale.	
2a	If frame is arranged for revertive pulsing — At cross-connection terminal strips on ITT frame — Connect and read volt-ohm-milliammeter as per Table A.	
3a	Disconnect volt-ohm-milliammeter from circuit.	
4b	If frame is arranged for automatic transmission testing — Insulate 5 top and 2 bottom of VNL relay.	
5b	At ATTC frame — Insulate 1 top and 1 bottom of SND relay.	
6b	At ITT frame — Connect volt-ohm-milliammeter across TL and TL1 resistance.	Volt-ohm-milliammeter reads 22* ohms.
		* Minus any resistance strapped out, as noted by observation.
7b	Disconnect volt-ohm-milliammeter from TL, TL1 resistance.	
8b	Connect volt-ohm-milliammeter across RL and RL1 resistance.	Volt-ohm-milliammeter reads 22* ohms.
		* Minus any resistance strapped out, as noted by observation.
9b	Disconnect volt-ohm-milliammeter from RL, RL1 resistance.	
10b	Remove insulators placed in Steps 4b and 5b.	
11c	If ring-forward feature is provided — Connect volt-ohm-milliammeter across RFT resistor.	Volt-ohm-milliammeter reads approximately 2000 Ω .
12c	Disconnect volt-ohm-milliammeter from RFT resistor.	
13c	Connect volt-ohm-milliammeter across RFR resistor.	Volt-ohm-milliammeter reads approximately 2000 Ω .
14c	Disconnect volt-ohm-milliammeter from RFR resistor.	
15	Set volt-ohm-milliammeter OHMS switch to OFF position.	

TABLE A

TERMINAL STRIP DESIGNATION	CONNECT VOLT-OHM-MILLIAMMETER TO PUNCHINGS	VOLT-OHM-MILLIAMMETER READS*
L OPR COMP RES	0 and 1	290 Ω to 310 Ω
"	1 and 2	"
"	2 and 3	"
"	3 and 4	"
"	4 and 5	"
"	5 and 6	385 Ω to 415 Ω 4.08
"	6 and 7	"
"	7 and 8	560 Ω to 600 Ω 4.50
MISC COMP RES	9 and 10	485 Ω to 515 Ω
"	10 and 11	"
"	11 and 12	"
"	12 and 13	"
"	13 and 14	"
"	14 and 15	"
"	15 and 16	"
"	16 and 17	"
"	17 and 18	"
"	18 and 19	"
"	19 and 20	"
"	20 and 21	"
"	21 and 22	"
"	22 and 23	"
"	23 and 24	"
"	24 and 25	"
"	25 and 26	"
"	26 and 27	"

* The deviation from the nominal value (half way between the readings given) of the resistance is the allowable tolerance in the resistors and the volt-ohm-milliammeter.

STEP	ACTION	VERIFICATION
	B. Relay Timing	
1	Perform timing tests on CTT, FS1, FS2, and MV relays, where provided, as covered in timing requirements table and Section 100-130-101.	Requirements of table are met.
	C. Relay Pulsing	
1	Perform per cent break and pulse speed tests on CKP, P, PGA, and PLS relays, where provided, as covered in circuit requirements table and Section 163-653-501.	Requirements are met.

SECTION 216-784-501

STEP	ACTION	VERIFICATION
D. Busy Timing		
1	Restore all keys to normal.	
2	From office records — Select any trunk that can complete a test line test.	
3	Set G, S, and H selectors, by means of G-, S-, and H- keys, to selected trunk.	G-, S-, H- lamps light corresponding to selected trunk.
4	At TMB frame — Make selected trunk busy.	
→5	Operate REP and ST keys.	BY lamp lights. After 4 to 4-1/2 minutes — TA lamp lights. Audible alarm sounds. Aisle pilot lamp lights. If provided — TA lamp multiples on other test frames light.
6	Operate ACO key.	Audible alarm silenced. Aisle pilot lamp extinguished.
7	Release ACO key.	Audible alarm sounds. Aisle pilot lamp lights.
8	Operate TA key.	TA lamp extinguished. Audible alarm silenced. Aisle pilot lamp extinguished. If provided — TA lamp multiples on other test frames extinguished.
9	Restore TA key.	
10a	If short busy timing on continuity and polarity test is provided — Operate CP key.	
11a	Operate CA key.	
→12a	Restore CA key.	BY lamp lights. After 56 to 63 seconds — TA lamp lights.
13	Restore ST key.	
14	Operate CA key.	BY lamp extinguished. If lighted — TA lamp extinguished.
15	Restore CA key.	
16	Operate RN key.	N lamp lights.
17	Restore REP and RN keys.	N lamp extinguished.
18	At TMB frame — Restore trunk made busy in Step 4 to service.	

STEP	ACTION	VERIFICATION
E. Trouble Timing		
1	Restore All keys to normal.	
2	From office records— Select any idle trunk can complete a test line test.	
3	Set G, S, and H selectors, by means of G ₋ , S ₋ , and H ₋ keys, to selected trunk.	G ₋ , S ₋ , H ₋ lamps lighted corresponding to selected trunk.
4	Insulate top 7 and 8 of TR relay.	
5	Operate REP and ST keys.	KP or TG lamp lighted. After 60 to 90 seconds— TA lamp lighted. Audible alarm sounds. Aisle pilot lamp lighted. If provided— TA lamp multiples on other test frames lighted.
6	Operate TA key.	TA lamp extinguished. Audible alarm silenced. Aisle pilot lamp extinguished. If provided— TA lamp multiples on other test frames extinguished.
7	Restore ST, TA keys to normal.	
8	Operate CA key.	KP or TG lamp extinguished.
9	Restore CA key.	
10a	If short trouble timing on continuity and polarity testing is provided— Operate CP key.	
11a	Operate ST key.	KP or \blacklozenge CP \blacklozenge lamp lighted. After 14 to 21 seconds— TA lamp lighted. Audible alarm sounds. Aisle pilot lamp lighted. If provided— TA lamp multiples on other test frames lighted.
12a	Restore ST key.	
13a	Operate CA key.	TA lamp and KP or \blacklozenge CP \blacklozenge lamp extinguished. Audible alarm silenced. Aisle pilot lamp extinguished. If provided— TA lamp multiples on other test frames extinguished.
14	Operate RN key.	N lamp lighted.

STEP	ACTION	VERIFICATION
15	Restore REP and RN keys.	N lamp extinguished.
16	Remove insulator from top 7 and 8 of TR relay.	

F. Cross-Connection Verification

Note: Table B shows resistance values measured between L OPR COMP RES punching 0 and each individual punching.

- 1 Set volt-ohm-milliammeter OHMS switch to proper scale.
- 2 At terminal strip designated L OPR COMP RES—
Connect one volt-ohm-milliammeter lead to punching 0.
- 3 Connect other lead of volt-ohm-milliammeter to 8 top of G0 relay.

TABLE B

TERMINAL STRIP DESIGNATION	PUNCHING NO.	RESISTANCE VALUE
L OPR COMP RES	1	300Ω
"	2	600Ω
"	3	900Ω
"	4	1200Ω
"	5	1500Ω
"	6	1900Ω
"	7	2300Ω
"	8	2880Ω
MISC COMP RES	10	500Ω
"	11	1000Ω
"	12	1500Ω
"	13	2000Ω
"	14	2500Ω
"	15	3000Ω
"	16	3500Ω
"	17	4000Ω
"	18	4500Ω
"	19	5000Ω
"	20	5500Ω
"	21	6000Ω
"	22	6500Ω
"	23	7000Ω
"	24	7500Ω
"	25	8000Ω
"	26	8500Ω
"	27	9000Ω

STEP	ACTION	VERIFICATION
4	Manually operate an assigned G- relay.	Volt-ohm-milliammeter reads approximate assigned L-OPR resistance value.
5	Release operated G- relay.	
6	Repeat Steps 4 and 5 for each remaining assigned G- relay.	
7	Move volt-ohm-milliammeter lead of Step 3 from 8 top to 6 top of G0 relay.	
8	Manually operate an assigned G- relay.	Volt-ohm milliammeter reads approximate assigned A-OPR resistance value.
9	Release operated G- relay.	
10	Repeat Steps 8 and 9 for each remaining assigned G- relay.	
11	Move volt-ohm-milliammeter lead of Step 7 from 6 top to 4 top of G0 relay.	
12	Manually operate an assigned G- relay.	Volt-ohm-milliammeter reads approximate assigned L-NOPR resistance value.
13	Release operated G- relay.	
14	Repeat Steps 12 and 13 for each remaining assigned G- relay.	
15	Move volt-ohm-milliammeter lead of Step 11 from 4 top to 2 top of G0 relay.	
16	Manually operate each assigned G- relay.	Volt-ohm-milliammeter reads approximate assigned A-NOPR resistance value.
17	Release operated G- relay.	
18	Repeat Steps 16 and 17 for each remaining assigned G- relay.	
19	Move volt-ohm-milliammeter lead of Step 15 from 2 top to 5 bottom of G0 relay.	
20	Manually operate each assigned G- relay.	Volt-ohm-milliammeter reads approximate assigned L-NOPR RI resistance value.
21	Release operated G- relay.	
22	Disconnect both volt-ohm-milliammeter leads from the circuit.	

