

DISTRICT JUNCTOR TEST CIRCUIT TESTS NO. 1 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes a method of testing the No. 1 crossbar automatic district junctor test circuit. The tests covered in this section are intended to detect trouble in the test circuit that would not be evident in the normal operation of the test frame.

1.02 The tests covered are:

(A) Supervisory Relay - District Junctor S Relay Resistance Tests: This test checks the resistances used to make district junctor S relay operate and release tests.

(B) Supervisory Relay - District Junctor CS Relay Resistance Tests: This test checks the resistances used to make district junctor CS relay operate and release tests.

(C) Dial Loop Resistance Test: This test checks the resistance used in the dialing loop.

(D) Message Register Pulse Timing - TMI Relay Resistance Tests: This test checks that the resistances associated with the TMI relay are within limits.

(E) Message Register Pulse Check - MR Relay Resistance Tests: This test checks that the resistances associated with the MR relay are within limits.

(F) District Junctor Release Timing - TRS Relay Resistance Tests: This test checks that the resistances associated with the TRS relay are within limits.

~~(G) Coin Control - LT Relay Resistance Tests:~~
This test checks the resistances used to make coin control LT relay operate and non-operate tests.

~~(H) Coin Control - CB Relay Resistance Tests:~~
This test checks the resistances used to make coin control CB relay operate and non-operate tests.

(I) Message Register Pulse Check - MR Relay Test: This test checks the MR relay used to determine that the message register pulses are above a certain minimum current value.

(J) Message Register Pulse Timing - TMI Relay Test: This test checks the TMI relay used to determine that the message register pulses are of sufficient length to properly operate a message register.

(K) District Junctor Release Timing - TRS Relay Test: This test checks the TRS relay used to test the release time of the district junctor TC, S and Sl relays.

(L) Dial Pulsing - Pulse Generator Tests:
This test checks the pulse generator circuit used to send dial pulses to the sender.

~~(M) Revertive Pulsing - STP and L Relay Tests:~~
This test checks the STP and L relays used to send revertive pulses to the sender when making charge tests of AMA district junctors.

1.03 Lettered Steps: The letters a, b, c, etc, are added to a step number to indicate that the steps cover an action which may or may not be required, depending on local conditions. The conditions under which a lettered step or series of steps should be made are given in the ACTION column, and all steps governed by the same condition are designated by the same letter. Where a condition does not apply, the associated step should be omitted.

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 paragraphs.

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Apparatus	No. Required for Tests										
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J),(K)	(L),(M)
Volt-Ohm-Milliammeter (2.02)	1	1	1	1	1	1	1	1	-	-	-
Test Cord (2.03)	-	1	2	-	1	1	-	2	-	-	-
Test Cord (2.04)	2	2	-	2	1	2	2	-	-	-	-
SI Timer (2.05)	-	-	-	-	-	-	-	-	-	1	-
No. 35F Test Set (or equivalent) (2.06)	-	-	-	-	-	-	-	-	1	1	1
No. 258E (dummy) Plug	-	-	-	1	-	-	-	-	-	-	-

2.02 KS-14510, List 1 Volt-Ohm-Milliammeter and one pair of List 2 test prod leads. This instrument is referred to throughout the section as an ohmmeter.

2.03 No. 893 Cord, 6 feet long, equipped with two No. 360A Tools (1W13B Cord), one KS-6278 Connecting Clip, and one No. 419A Tool (for connecting ohmmeter test prods to contact springs).

2.04 No. 893 Cord, 6 feet long, equipped with two No. 360A Tools (1W13B Cord) and two KS-6278 Connecting Clips (for connecting ohmmeter test prods to terminals).

2.05 The SI Timer with one W2W Cord, 10 feet long, equipped with one No. 310 Plug, one No. 360B Tool and one No. 360C Tool (2W17C Cord) and two No. 364 Tools.

2.06 No. 35F Test Set with one W2W Cord, 6 feet long, equipped with one No. 310 Plug, one No. 360B Tool, one No. 360C Tool (2W17A Cord), one KS-6780 Tool, and one No. 419A Tool.

3. PREPARATION

STEP	ACTION	VERIFICATION
<u>Preparation For All Tests</u>		
1	Restore all keys to normal.	
2	Momentarily operate CA key.	
3	Operate RN key.	N lamp is lighted.
4	Restore RN key.	N lamp is extinguished.

4. METHOD

(A) Supervisory Relay - District Junctor S Relay Resistance Tests

- 5 Connect ohmmeter to punchings 1 and 2 of the (G) 0-9 terminal strip.
- 6 Block relays operated and observe readings as shown in Table A.

<u>STEP</u>	<u>ACTION</u>							<u>VERIFICATION</u>
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TABLE A

<u>TR1</u>	<u>OS</u>	<u>DT1</u>	<u>RS</u>	<u>RCN</u>	<u>UA</u>	<u>UAC</u>	Observe readings:
X	X	X					1963 to 2003 ohms.
X	X	X	X				6584 to 6696 ohms.
X	X	X		X			1616 to 1646 ohms. Note 1
X	X	X	X	X			4579 to 4671 ohms. Note 1
X	X	X		X			1223 to 1247 ohms. Note 2
X	X	X	X	X			3698 to 3772 ohms. Note 2
X	X	X			X		3000 to 3060 ohms.
X	X	X	X		X		9634 to 9834 ohms.
X	X	X				X	1783 to 1807 ohms.
X	X	X	X			X	4747 to 4843 ohms.

Note 1: When coin district junctor S relay adjustment A is specified.

Note 2: When coin district junctor S relay adjustment B is specified.

- 7 Remove all relay blocking tools.
- 8 Disconnect ohmmeter.

(B) Supervisory Relay - District Junctor CS Relay Resistance Tests

- 5 Insulate B contact of BB interrupter.
- 6 Connect ohmmeter to punchings 63 and 73 of MISC terminal strip.

Observe readings:
315,800 to 322,200 ohms. Note 1
99,600 to 101,600 ohms. Note 2

Note 1: For 206 CM (CS) relays adjusted for 5500-or 8000-ohm range.

Note 2: For 206 GU or 280 BP (CS) relays or CS relays adjusted for 6500-ohm range.

- 7 Change ohmmeter connection from punching 63 of MISC terminal strip to 4B of CS relay.

Observe readings:
6534 to 6666 ohms. Note 3
9426 to 9616 ohms. Note 4
7797 to 7965 ohms. Note 5

Note 3: For CS relays adjusted for 5500-ohm range.

Note 4: For CS relays adjusted for 8000-ohm range.

Note 5: For CS relays adjusted for 6500-ohm range.

- 8 Disconnect ohmmeter.
- 9 Remove insulator from B contact of BB interrupter.

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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>(C) Dial Loop Resistance Test</u>		
5	Block operated PU relay.	
6	Insulate 7B and 8B of OS relay.	
7	Connect ohmmeter to 10B of DT1 relay and 8B of OS relay.	Observe reading of 1584 to 1616 ohms.
8	Disconnect ohmmeter.	
9	Remove blocking tool from PU relay.	
10	Remove insulator from OS relay.	

(D) Message Register Pulse Timing - TML Relay Resistance Tests

5	Insert No. 258E plug into TM jack.	
6	Connect ohmmeter to top and bottom of B resistance.	Observe reading of 1386 to 1414 ohms.
7	Change ohmmeter connections to top and bottom of C resistance.	Observe reading of 1386 to 1414 ohms.
8	Change ohmmeter connections to top and bottom of F resistance.	Observe reading of 1980 to 2020 ohms.
9	Change ohmmeter connections to top and bottom of CAL resistance.	Observe reading of 99 to 101 ohms.
10	Disconnect ohmmeter.	
11	Remove No. 258E plug from TM jack.	

(E) Message Register Pulse Check - MR Relay Resistance Tests

5	Connect ohmmeter to 2B of MCH relay and 48V test battery.	Observe reading of 114 to 116 ohms.
6a	If provided - block operated FV relay.	Observe reading of 460 to 470 ohms.
7a	Remove blocking tool from FV relay.	
8	Disconnect ohmmeter.	

(F) District Junctor Release Timing - TRS Relay Resistance Tests

5	Insulate 2T and 3T of MR3 relay.	
6	Insulate 2T and 3T, 2B and 3B of TC1 relay.	
7	Connect ohmmeter to 2B of TC1 relay and 48V test battery.	Observe reading of 3881 to 3959 ohms.
8	Change ohmmeter connection from 2B to 4B of TC1 relay.	Observe reading of 3069 to 3131 ohms.
9	Change ohmmeter connections to top and bottom of TRS resistance.	Observe reading of 198 to 202 ohms.

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
10	Disconnect ohmmeter.	
11	Remove insulators from MR3 and TCl relays.	
<u>(X) Coin Control - LT Relay Resistance Tests</u>		
5	Block TR1, ST, and LT relays operated.	
6	Operate CN-CON key.	
7	Connect ohmmeter to punching 1 of the (G) 0-9 terminal strip and ground.	
8	Operate OLT key.	Observe reading of 4836 to 4934 ohms.
9	Operate NO-LT key.	Observe reading of 6786 to 6924 ohms.
10	Disconnect ohmmeter.	
11	Restore NO-LT and CN-CON keys.	
12	Remove blocking tools from TR1, ST, and LT relays.	
<u>(X) Coin Control - CB Relay Resistance Tests</u>		
5	Insulate 2T and 3T of CN2 relay.	
6	Connect ohmmeter to 4B of CB relay and 3T of CN2 relay.	
7	Operate OCB key.	Observe reading of 2534 to 2646 ohms.
8	Operate NO CB key.	Observe reading of 4087 to 4229 ohms.
9	Restore NO CB key.	
10	Disconnect ohmmeter.	
<u>(I) Message Register Pulse Check - MR Relay Test</u>		
5	Perform current flow tests of MR relay using 35-F test set and circuit requirement tables.	Circuit requirements are met.
<u>(J) Message Register Pulse Timing - TMI Relay Test</u>		
5	Perform timing tests of TMI relay using BSP Section 030-111-501 and circuit requirement tables.	Circuit requirements are met.
<u>(K) District Junctor Release Timing - TRS Relay Test</u>		
5	Perform timing tests of TRS relay using BSP Section 030-111-501 and circuit requirement tables.	Circuit requirements are met.

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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
	<u>(L) Dial Pulsing - Pulse Generator Tests</u>	
5	Perform per cent break and pulse per second tests using BSP Section 163-653-501 and circuit requirement tables for P, P1 and P2 relays.	Circuit requirements are met.
	<u>(M) Revertive Pulsing - STP and L Relay Tests</u>	
5	Perform current flow tests of STP and L relays using 35-F test set and circuit requirement tables.	Circuit requirements are met.