MANUAL TEST CIRCUIT SD-32362-01 (J38927)

TESTS

STEP-BY-STEP COMMON CONTROL OFFICES

1. GENERAL

1.01 This section describes a method of testing the manual test circuit SD-32362-01 used in No. 1, 350A, or 355A step-by-step common control offices.

1.02 This section is reissued to add a TOUCH-TONE frequency supply test.

1.03 The tests covered are:

A. High-Speed Pulse Generator: This test checks the timing requirements of the pulse generator.

B. Outpulsing Repeat and Pulse Counter: This test checks the ability of the A relay to repeat dial pulses and the ability of the outpulsing test control circuit to count pulses and display them on the manual test set.

C. TOUCH-TONE Frequency Supply: This test checks the various frequencies and signal levels of the TOUCH-TONE frequency supply circuit.

2. APPARATUS

Test A

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

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

Test B

2.03 Manual test set circuit J34727 (SD-32363-01).

2.04 Two patching cords, W35A cord, 12 feet long, equipped with KS-14554, L2 connector on the frame end and KS-14555, L2 connector on the test set end.

2.05 Two testing cords, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord), two 639A relay contact connectors, and one 651-type relay contact connector holder.

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

Test C

2.07 Hewlett-Packard 521C electronic counter.

2.08 Patching cord, P2CT cord, 4 feet long, equipped with one KS-13737 plug and one 310 plug.

2.09 400D Hewlett-Packard vacuum tube voltmeter (VTVM).

2.10 Testing cord, W2J cord, 9 feet 6 inches long, equipped with one 310 plug and two 29 cord tips (2W9A cord).

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

3. METHOD

STEP	ACTION	VERIFICATION
	A. High-Speed Pulse Generator	
1	At manual test circuit frame — Connect BAT G jack of pulse checking test set to 48-volt battery supply jack on frame using P3K cord.	
2	Calibrate pulse checking test set in accordance with test set requirements or as covered in Section 163-653-501.	
3	Connect P jack of pulse checking test set to PG jack of manual test circuit using P3K cord.	
4	At pulse checking test set — Operate SCALE switch to 20.	
5	Operate key to PPS position.	
6	Check pulses-per-second requirements as specified in timing requirements table, SD-32362-01.	Pulsing requirements specifications are met.
7	Operate key to PCB position.	
8	Check percent break requirements as specified in timing requirements table, SD-32362-01.	Percent break requirements specifications are met.
9	Remove all cords and restore all keys.	
	B. Outpulsing Repeat and Pulse Counter	
1	At manual test circuit — Connect A, B jacks of manual test set J34727 to A, B jacks, respectively, of manual test circuit using W35A cords.	
2	Bridge fixed contacts 1 and 3, 2 and 4 of CN1 relay using 893 cords.	
3	Block operated CN1 relay.	
4	At manual test set — Operate TST, DL keys.	

STEP	ACTION	VERIFICATION
5	Dial digits 0 through 9.	At manual test set — Digital indicator lamps lighted to indicate digits dialed. *Note:* Each lamp extinguished after first pulse of next digit.
6	At manual test circuit — Remove blocking tool from CN1 relay.	Digital indicator lamp of last digit dialed extinguished.
7	Remove 893 cords from contacts of CN1 relay.	
8	At manual test set — Restore TST, DL keys.	
9	Disconnect manual test set from manual test circuit.	

C. TOUCH-TONE Frequency Supply

STEP	ACTION	VERIFICATION
1	Connect power cords of counter and VTVM to ac power supply; operate power switches to ON. *Note:* Allow at least 5 minutes for equipment warmup.	
2	Adjust counter for a 10-second gate.	
3	At manual test circuit — Connect INPUT jack of counter to VL jack using P2CT cord.	
4	Block operated CN2, HL, SFH, HF2 relays.	Counter indicates between 1334.7 and 1337.3 cps.
5	Remove blocking tools from HF2, SFH relays.	
6	Block operated SFL, LF3 relays.	Counter indicates between 769.3 and 770.7 cps.
7	Remove blocking tool from LF3 relay.	
8	Block operated SFH, TF relays.	Counter indicates between 1900 and 2100 cps.
9	Remove blocking tools from TF, SFL relays.	
10	At manual test circuit — Disconnect P2CT cord from VL jack.	

STEP	ACTION	VERIFICATION
11	Operate VTVM RANGE switch to 1 volt.	
12	At manual test circuit — Connect INPUT jack of VTVM to VL jack using W2J cord.	
13	Block operated HF2 relay.	VTVM indicates between 0.62 and 0.64 volt.
14	Remove blocking tools from HF2, SFH relays.	
15	Block operated SFL, LF3 relays.	VTVM indicates between 0.62 and 0.64 volt.
16	Remove blocking tool from LF3 relay.	
17	Block operated SFH, TF relays.	VTVM indicates between 0.70 and 0.73 volt.
18	Remove blocking tools for TF, SFL, HL relays.	
	Note: If conditions of Steps 4 through 17 are met, proceed with Step 19.	
19	Operate VTVM RANGE switch to 0.3 volt.	
20	Block operated HF2 relay.	VTVM indicates between 0.19 and 0.21 volt.
21	Block operated LL relay.	
22	Operate VTVM RANGE switch to 0.1 volt.	VTVM indicates between 0.049 and 0.051 volt.
23	Disconnect VTVM.	
24	Remove blocking tools from LL, SFH, HF2 relays.	
25	At manual test circuit — Connect INPUT jack of counter to VL jack using P2CT cord.	
26	Block operated HL, SFL, MN, LF0 relays.	Counter indicates between 685.8 and 687.2 cps.
27	Remove blocking tool from LF0 relay.	
28	Block operated LF3 relay.	Counter indicates between 757.7 and 759.2 cps.
29	Remove blocking tool from LF3 relay.	

STEP	ACTION	VERIFICATION
30	Block operated LF6 relay.	Counter indicates between 838.4 and 840.1 cps.
31	Remove blocking tool from LF6 relay.	
32	Block operated LF9 relay.	Counter indicates between 925.9 and 927.8 cps.
33	Remove blocking tools from LF9, MN relays.	
34	Block operated MX, LF0 relays.	Counter indicates between 706.8 and 708.2 cps.
35	Remove blocking tool from LF0 relay.	
36	Block operated LF3 relay.	Counter indicates between 780.8 and 782.3 cps.
37	Remove blocking tool from LF3 relay.	
38	Block operated LF6 relay.	Counter indicates between 863.9 and 885.6 cps.
39	Remove blocking tool from LF6 relay.	
40	Block operated LF9 relay.	Counter indicates between 954.2 and 956.1 cps.
41	Remove blocking tools from LF9, SFL, MX relays.	
42	Block operated SFH, MN, HF1 relays.	Counter indicates between 1189.7 and 1192.1 cps.
43	Remove blocking tool from HF1 relay.	
44	Block operated HF2 relay.	Counter indicates between 1314.6 and 1317.3 cps.
45	Remove blocking tool from HF2 relay.	
46	Block operated HF3 relay.	Counter indicates between 1453.4 and 1456.3 cps.
47	Remove blocking tool from HF3 relay.	
48	Block operated HF4 relay.	Counter indicates between 1606.9 and 1610.1 cps.
49	Remove blocking tool from HF4, MN relays.	

STEP	ACTION	VERIFICATION
50	Block operated MX, HF1 relays.	Counter indicates between 1225.9 and 1228.3 cps.
51	Remove blocking tool from HF1 relay.	
52	Block operated HF2 relay.	Counter indicates between 1354.7 and 1357.4 cps.
53	Remove blocking tool from HF2 relay.	
54	Block operated HF3 relay.	Counter indicates between 1497.7 and 1500.6 cps.
55	Remove blocking tool from HF3 relay.	
56	Block operated HF4 relay.	Counter indicates between 1655.9 and 1659.1 cps.
57	Remove blocking tools from HF4, MX, SFH, HL, CN2 relays.	
58	Disconnect counter.	