

REVERTIVE PULSE INCOMING REGISTER SD-25731-01, SD-26043-01

TESTS USING TEST SET SD-25676-01 (J24756B)

NO. 5 CROSSBAR OFFICES

1. GENERAL

PAGE

1.01 This section covers a method of testing revertive pulse incoming register circuits using the test circuit for register and CAMA sender circuits SD-25988-01 and the test set circuit for register and CAMA sender circuits SD-25676-01 in No. 5 crossbar offices.

1.02 This section is reissued to provide for testing revertive pulse incoming registers in offices equipped for interchangeable codes, for testing registers which work with marker groups arranged for 2- or 4-wire service, and to make other minor changes as required. This issue does not affect Equipment Test Lists.

1.03 The tests covered are:

A. Registration: The following features are checked: (1) Registration of trunk link frame number. (2) Registration of trunk number. (3) Registration of pulses on each selection. (4) Ability to recognize the completion of a selection. (5) Translation of number on a 2-out-of-5 basis. (6) Ability of selecting bars and centering and snubbing springs to restore to normal before following selection is registered when maximum number of fingers are engaged in one direction. (7) Test calls 1 through 7 check the ability of the register to apply battery and ground to the cable conductors before returning supervision to the trunk. (8) Ability to receive calls in the usual manner when false grounds or trouble crosses cause the simultaneous operation of an odd- and even-numbered register trunk link frame units crosspoint. **3**

B. Minimum Interdigital Time: **5**

C. Telltale: This test checks the ability of the register to apply reverse battery to the fundamental loop and to release without calling in a marker. **6**

D. Unused Selections: This test checks the ability of the register to send a reverse battery signal to the originating end on the first or second closure of the fundamental after an unused selection is received. **6**

E. Overall Timeout: This test checks that the overall timer will cause a trouble release within the required interval. **7**

F. Link Release: This test checks the ability of the register to cause a trouble release when linkage is not established within 1 second. **8**

G. High Incoming Group Selection: **9**

H. Common Alarm Timing: **10**

I. Trouble Release: **11**

J. IF Timing: **11**

K. Double Connection: This test checks that the register recognizes a double connection at the link switch. **12**

1.04 **Lettered Steps:** A letter a, b, c, etc, added to a step number in Part 4 of this section indicates an action which may or may not be required depending on local conditions. The conditions under which a lettered step or a series of lettered steps should be made is given in the

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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.

1.05 The manner of selecting some circuits and test conditions at the MTF and its associated circuits varies depending on the apparatus options furnished with these circuits. Therefore, where variable means of selection are provided, precise instructions for the selection of circuits and test conditions are not given. Precise instructions for the use of these variable means are given in Section 218-106-301.

1.06 The location statement, At MTF—, is used to refer to all apparatus located on the four basic bays of the MTF.

1.07 When tests are made at the register frame or to avoid duplicate trouble recorder cards, release the ITRR key.

1.08 Test E requires that the RB2 relay in a register group busy circuit be blocked operated, producing register group busy timing conditions.

1.09 If all other registers in the group become busy during any test, the traffic register associated with the GB lead will score. Local instructions should be followed for recording any of these register operations.

2. APPARATUS

Tests A Through J

2.01 Test circuit for register and CAMA sender circuits SD-25988-01.

2.02 Test set circuit for register and CAMA sender circuits (test set) SD-25676-01.

2.03 Testing cord, 20-conductor cord, 6 feet long, equipped with one KS-13875 plug and one KS-13895 plug (W20C cord) (for connecting IRT jack of test set to IRT jack of test circuit for register and CAMA sender circuits).

Tests A, K

2.04 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord) and two KS-6278 tools (for connecting ground to terminal strip punchings).

Tests E, F, H, J, K

2.05 KS-3008 stopwatch or equivalent.

Tests E, H, K

2.06 322A (make-busy) plugs as required.

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

3. PREPARATION

STEP

ACTION

VERIFICATION

Tests A Through J

- 1 At MTF—
Select incoming register to be tested.
- 2 Set TCL switch to select trunk class.
- 3 At test set—
Patch IRT jack to IRT jack of test circuit for register and CAMA sender circuits.
- 4 Operate RP key.
- 5 Set L switch to OFF.

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STEP	ACTION	VERIFICATION
		designations perforated. ♦If office arranged for interchangeable codes— TCA designation perforated. If marker group is arranged for 2-wire and 4-wire operation and register is wire-spring-relay type— 2W designation perforated.♦
10	At test set— Restore SF-IA key.	
11	Momentarily operate RL key.	All lamps extinguished.
12	Repeat Steps 7 through 11 for test calls 2 through 7 as shown in Table A.	
13	At MTF— Operate MAX key.	
14	At test set— Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
15	At test set— Key selections for test call 8 as shown in Table A.	
16	Operate SF-IA key.	IA-OF lamp lighted. RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. Number shown for test call in Table A, trunk frame number, and trunk class designations perforated. ♦If office is arranged for interchangeable codes— TCA designation perforated. If marker group is arranged for 2-wire and 4-wire operation and register is wire-spring-relay type— 2W designation perforated.♦
17	At test set— Restore SF-IA key.	IA-OF lamp extinguished.
18	Momentarily operate RL key.	All lamps extinguished.
19	Repeat Steps 14 through 19 for test calls 9 through 15 as shown in Table A.	

STEP	ACTION	VERIFICATION
20	At MTF— Restore MAX, ITRR keys.	
21a	If STR relay provided— At incoming register link frame— <i>Nonwire-spring-relay type circuit</i> On F1 terminal strip, connect punching 21 to punching 24. <i>Wire-spring-relay type circuit</i> On B terminal strip for horizontal group 0, connect punching 0 to punching 3.	
22a	Repeat Steps 7 through 10.	Trouble record taken. FT1, FT2, FT4, FT7 designations perforated.
23a	Momentarily operate RL key.	All lamps extinguished.
24	Restore all keys and switches not required in next test.	
25	Disconnect testing cord if not required in next test.	
B. Minimum Interdigital Time		
6	At MTF— Operate ITRR key.	
7	At test set— Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
8	At test set— Operate FOT key.	
9	Operate and hold 3 key for IB selection. After P lamp has flashed once and lighted steadily, release key.	P lamp extinguished.
10	Operate and hold 2 key for FB selection. After P lamp has flashed once and lighted steadily, release key.	P lamp extinguished.
11	Key digit 3 for FU selection.	P lamp momentarily lighted. RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. Called number 7723 designations perforated.

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STEP	ACTION	VERIFICATION
12	At test set— Momentarily operate RL key.	All lamps extinguished.
13	Restore all keys and switches not required in next test.	
14	Disconnect test cord if not required in next test.	
C. Telltale		
6	Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
7	At test set— Operate SF-IA key.	IA-OF lamp momentarily lighted. RR lamp extinguished. At MTF— IRON lamp extinguished.
8	At test set— Restore SF-IA key.	
9	Momentarily operate RL key.	All lamps extinguished. Register should release without calling in a marker (no trouble record).
10	Restore all keys and switches not required in next test.	
11	Disconnect patching cord if not required in next test.	
D. Unused Selections		
6	At MTF— Operate MAX key.	
7	At test set— Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
8	At test set— Key selections for test call 1 shown in Table B.	IA-OF lamp lighted momentarily during selection shown in Table B. RR lamp extinguished. At MTF— IRON lamp extinguished.
9	At test set— Momentarily operate RL key.	All lamps extinguished.

STEP

ACTION

VERIFICATION

TABLE B

TEST CALL	SELECTIONS TO BE KEYED				IA-OF LAMP LIGHTED MOMENTARILY DURING
	IB	IG	FB	FT	
1 Overstep IB	5 to 9	2	2	—	FB selection
2 Overstep IG	2	4 or 9	2	—	FB selection
3 Overstep FB	2	2	5 to 9	2	FT selection
4 Overstep IG*	2	5 to 8	2	—	FB selection

* If the register is not equipped for high incoming group selection.

- 10 Repeat Steps 7 through 9 until all selections shown in test calls 1 through 3 of Table B have been tested.
- 11a If register is *not* equipped for high incoming group selection—
Repeat Steps 7 through 9 until all selections in test call 4 of Table B have been tested.
- 12 At MTF—
Restore MAX key.
- 13 Restore all keys and switches not required in next test.
- 14 Disconnect patching cord if not required in next test.

E. Overall Timeout

- 6 At MTF—
Insert make-busy plug in IRMB jack.
- 7 At register under test—
Block nonoperated OVL relay.
- 8 At test set—
Momentarily operate STT key. RR lamp lighted.
At MTF—
IRT, IRON lamps lighted.
- 9 At test set—
Key digit 3 for IB selection. P lamp momentarily lighted.
- 10 When P lamp lights momentarily, *start timing*.
- 11 After 12 seconds—
Key digit 3 for IG selection. P lamp momentarily lighted.

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STEP	ACTION	VERIFICATION
12	When P lamp lights momentarily, <i>start timing</i> .	
13	After 12 seconds— Key digit 3 for FB selection.	P lamp momentarily lighted.
14	When P lamp lights momentarily, <i>start timing</i> .	At MTF— After 20 to 25 seconds— IRON lamp extinguished.
15	At test set— Momentarily operate RL key.	All lamps extinguished.
16	At register under test— Remove blocking tool from OVL relay.	
17	At group busy circuit associated with register under test— Block operated RB2 relay.	
18	At test set— Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
19	At test set— Key digit 3 for IB selection.	P lamp lighted momentarily.
20	When P lamp lights momentarily, <i>start timing</i> .	At MTF— After 5 to 8 seconds— IRON lamp extinguished.
21	At test set— Momentarily operate RL key.	All lamps extinguished.
22	At group busy circuit associated with register under test— Remove blocking tool from RB2 relay.	
23	At MTF— Remove make-busy plug from IRMB jack.	
24	Restore all keys and switches not required in next test.	
25	Disconnect patching cord if not required in next test.	

F. Link Release

- | | |
|---|-----------------------------------|
| 6 | At MTF—
Set TCL switch to OFF. |
| 7 | Operate ITRR key. |

STEP	ACTION	VERIFICATION
8	At test set— Momentarily operate STT key.	At MTF— IRT, IRON lamps lighted. After 1 second— IRON lamp extinguished. Trouble record taken. LR designation perforated.
9	At test set— Momentarily operate RL key.	All lamps extinguished.
10	Restore all keys and switches not required in next test.	
11	Disconnect patching cord if not required in next test.	

G. High Incoming Group Selection

6	At MTF— Operate ITRR key.	
7	At test set— Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
8	At test set— Key selections for test call 1 as shown in Table C.	
9	Operate SF-IA key.	IA-OF lamp momentarily lighted— RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. Number shown for test call in Table C, trunk link frame number, trunk number, and trunk class designations perforated.

TABLE C

TEST CALL	SELECTIONS TO BE KEYED					PERFORATIONS ON TROUBLE RECORDER CARD			
	IB	IG	FB	FT	FU	A	B	C	D
1	0	5	0	5	4	0	0	5	4
2	0	6	0	6	7	0	5	6	7
3	0	7	0	7	6	1	0	7	6
4	0	8	0	8	9	1	5	8	9
5	0	0	0	9	8	0	0	9	8

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STEP	ACTION	VERIFICATION
10	At test set— Restore SF-IA key.	
11	Momentarily operate RL key.	All lamps extinguished.
12	Repeat Steps 7 through 11 for test calls 2 through 5 as shown in Table C.	
13	Repeat Steps 7 through 11 for each trunk class for which the register is equipped.	
14	At MTF— Restore ITRR key.	
15	Restore all keys and switches not required in next test.	
16	Disconnect patching cord if not required in next test.	

H. Common Alarm Timing

6	At MTF— Insert make-busy plug in IRMB jack.	
7	At register under test— Block nonoperated OVL, TRL relays.	
8a	If nonwire-spring-relay type register— Insulate 3B of M relay.	
9b	If wire-spring-relay type register— Insulate 4M of M relay.	
10	At test set— Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
11	Key selection of a test call shown in Table A.	After FU selection— P lamp lighted.
12	After P lamp lights, <i>start timing</i> .	At MTF— After 20 to 32 seconds— TO lamp lighted.
13	Remove make-busy plug from IRMB jack; <i>start timing</i> .	Within 10 to 15 seconds— R-S-TOA lamp lighted.

Note: If the R-S-TOA lamp is lighted in less than 10 seconds, it may be necessary to repeat the test as another circuit may have seized the common alarm circuit.

STEP	ACTION	VERIFICATION
14	At register under test— Remove blocking tool from OVL, TRL relays.	
15	Remove insulator from M relay contact.	
16	At test set— Momentarily operate RL key.	All lamps extinguished.
17	Restore all keys and switches not required in next test.	
18	Disconnect patching cord if not required in next test.	
I. Trouble Release		
6	At MTF— Operate IRBT key.	
7	At test set— Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
8	At test set— Key selections for a test call as shown in Table A.	
9	Operate SF-IA key.	IA-OF lamp momentarily lighted. RR lamp extinguished. At MTF— IRON lamp extinguished.
10	At test set— Restore SF-IA key.	
11	Momentarily operate RL key.	All lamps extinguished.
12	Restore all keys and switches not required in next test.	
13	Disconnect patching cord if not required in next test.	
J. IF Timing		
6	Momentarily operate STT key.	RR lamp lighted.
7	Key selections for a test call as shown in Table A.	After FU selection keyed— P lamp lighted.

STEP	ACTION	VERIFICATION
8	When P lamp lights, <i>start timing</i> .	At register under test— Within 1 to 2 seconds— RV1 relay operated.
9	At test set— Operate SF-IA key.	IA-OFF lamp momentarily lighted. RR lamp extinguished.
10	Momentarily operate RL key.	All lamps extinguished. At register under test— RV1 relay released.
11	Restore all keys and switches not required in next test.	
12	Disconnect patching cord if not required in next test.	

K. Double Connection

1	At MTF— Insert make-busy plug into IRMB jack of register under test.	
2	Operate IRBT key.	
3a	If nonwire-spring-relay type register— At register control unit— Ground HM lead (punching C18 or C25).	H, RV3 relays operated.
4b	If wire-spring-relay type register— At register control unit— Ground HM lead (punching C21).	H, RV3 relays operated.
5	Block nonoperated TRL relay.	
6	Manually operate ON relay.	Within 1 second— TC1, TC2 relays operated. DCK relay <i>not</i> operated.
7	Release ON relay.	
8	Remove blocking tool from TRL relay.	
9	Remove ground from HM lead.	H, RV3 relays released.
10	Block operated H relay.	RV3 relay operated.
11	Manually operate ON relay.	CDK relay operated.
12	Remove blocking tool from H relay.	RV3 relay released.

STEP	ACTION	VERIFICATION
13	At MTF— Restore IRBT key.	
14	Remove make-busy plug from IRMB jack.	