TRANSFER REGISTERS AND NUMBER MATCH CIRCUIT USING AUTOMATIC MONITOR, REGISTER AND SENDER TEST CIRCUIT (SD-25680-01 AND ST-521130) NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes methods of testing the Transfer Register Circuit (ST-521128) and Number Match Circuit using the Master Test Frame — Automatic Monitor, Register and Sender Test Circuit in No. 5 Crossbar Offices.

1.02 It is reissued to:

- Update the format to conform to Pacific Bell's standards.
- Include the appropriate legend on Page 1 in accordance with System Instruction (SI) 178.

Note: Marginal arrows used to denote changes are omitted.

1.03 The tests covered are:

(a) ***Regular Call:*** The following features are checked.

(1) Registration of trunk link frame number.

(2) Registration of subscriber class of service.

(3) Registration of dial pulses or ***Touch-Tone**** signals for each digit.

(4) Ability to connect to the transfer power supply.

(b) ***Double Connection:*** This test checks the ability of the register to recognize a double connection in the incoming register link switch and to time-out when this connection is encountered.

(c) ***Abandoned Call:*** This test checks the ability of the register to release on abandoned calls.

(d) ***Reorder:*** This test checks the ability of the register to recognize a failure to receive pulses when pulsing is expected.

(e) ***Dial Tone:*** This test checks that dial tone is received from the register.

(f) ***Transfer Class:*** This test checks the ability of the register to recognize a ground on the class "o" lead.

(g) ***Verification of Trouble Recorder Leads:*** This test checks the ability of the register to send correct identifying information to the trouble recorder.

(h) ***Over-All Timing:*** This test checks the long and short timing intervals of the over-all timer.

(i) ***Number Match:*** This test checks that cross-connections have been made in the class of service and number match circuit to conform with office records.

(j) ***Cancel Number Match:*** This test checks the ability of the number match circuit to cancel matching functions, when the cancel number match key is operated. Test should be performed during periods of light traffic.

(k) ***AC, LR, and DT Timing:*** This test checks the timing intervals of the AC, LR and DT timers.

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(l) ***Class of Service:*** This test checks the ability to register the correct class of service and office indication.

(m) ***Automatic Test Line:*** This test checks the test line cross connections of the register.

(n) ***Make Busy Test:*** This test checks the ability to make the transfer registers busy from the master test frame and ensures the transfer register is made busy to the transfer register link.

2. TEST EQUIPMENT

Tests D and J

2.01 KS-3008 stop watch, or equivalent.

Tests K and N

2.02 No. 322A (Make Busy) plug.

Test K

2.03 Test set (J-27453A).

3. PREPARATION

STEP	ACTION	VERIFICATION
	Preparation for Tests A through J, L, M	
1	At master test frame restore all keys.	
2	Operate RL key momentarily.	All lamps extinguished.
3	Operate MAC key.	NVA lamp lighted momentarily.
4	After about 1 minute — operate IR, STT, TR keys.	
5	Operate CU- CT- CRU- and CGB (if needed) keys for official class of service. (See Note 1.)	
6	Operate IG- switch corresponding to transfer register link group.	
7	Operate SRS- switch corresponding to number of register in transfer register group.	
7a	Operate IC- key.	

4. METHOD

	A. Regular Call	
8	Operate A- through D- or E- keys as required and operate a pulses-per-second key, as indicated, for first regular test call in Table A.	

STEP	ACTION	VERIFICATION

TABLE A

REGULAR TEST CALL	DIGIT KEYS OPERATED					PULSES-PER-SECOND KEY OPERATED
	A	B	C	D	E*	
1	6	7	3	0	4	7 MIN
2	7	3	0	1	2	7 MAX
3	3	0	1	6	3	24 MIN
4	2	1	6	7	7	24 MAX
5	4	1	5	2	6	SURGE

*When needed for 5 digit translation.

9	Operate ST key momentarily.	OK lamp lighted.
10	Operate RL key momentarily.	All lamps extinguished.
11	Repeat Steps 7 through 10 for regular test calls 2, 3, 4, 5 in Table A.	
12	Operate PB key (Touch-Tone Signal Test).	
13	Repeat Steps 7 through 10 for regular test calls 1 through 5 in Table A. ***Note:*** The pulses-per-second keys are not required for this test.	
14	Restore keys not required for next test.	
	B. Double Connection	
8	Operate DC key.	
9	Operate ST key momentarily.	OK lamp lighted.
10	Operate RL key momentarily.	All lamps extinguished.
11	Restore keys not required for next test.	
	C. Abandoned Call	
8	Operate RAB key.	
9	Operate ST key momentarily.	OK lamp lighted.
10	Operate RL key momentarily.	All lamps extinguished.
11	Restore keys not required for next test.	

STEP	ACTION	VERIFICATION
	D. Reorder	
8	Operate RPS, RRO keys.	
9	Operate ST key momentarily.	About 25 seconds after D- lamp lights, OK lamp lighted.
10	Operate RL key momentarily.	All lamps extinguished.
11	Restore RPS, RRO keys.	
	E. Dial Tone	
8	Operate A- through D- or E- keys as required.	
9	Operate 24 MIN key.	
10	Operate DTT, DSS, MIRT keys.	
11	Operate ST key momentarily.	D lamp lighted. Dial tone heard.
12	Operate ST key momentarily.	Dial tone removed.
13	Operate RL key momentarily.	All lamps extinguished.
14	Restore all keys not required for next test.	
	F. Transfer Class	
8	Operate TRS key.	
9	Operate A- through D- or E- keys as required.	
10	Operate 24 MIN key.	
11	Operate ST key momentarily.	OK lamp lighted.
12	Operate RL key momentarily.	All lamps extinguished.
13	Restore TRS key to TR position.	
	G. Verification of Trouble Recorder Leads	
8	Operate A- through D- or E- keys as required.	
9	Operate CT-O, CRU- and CU-2 keys. (See Note 1.)	

STEP	ACTION	VERIFICATION
10	Operate 24 MIN key.	
11	Operate OCK key.	
12	Operate ST key momentarily.	
13	When OSB lamp lights — change setting of key in row A.	Trouble record taken. Perforations FR, CN, RG, CT, CU and CGA should agree with number of marker connector frame, connector on frame, register in connector, and operated class of service. When not using tandem features in office, trunk numbers are X-Conn to the Class Punching.
14	Operate RL key momentarily.	All lamps extinguished.
15	Repeat Steps 8 through 14 using combinations of keys CT-1 and CUO, then CT-2 and CU-3 with CGB when needed.	
16	Restore keys not required for next test.	
	H. Over-All Timing	
8	Operate RPS, RRO keys.	
9	Operate ST key momentarily and when D lamp lights, start timing.	D lamp lighted within 20 to 32 seconds, OK lamp lighted.
10	Operate RL key momentarily.	All lamps extinguished.
11	At relay rack frame — block operated RB2 relay in group busy circuit associated with register being tested.	
12	Operate ST key momentarily and when D lamp lights, start timing.	D lamp lighted in 4 to 7 seconds, OK lamp lighted.
13	Operate RL key momentarily.	All lamps extinguished.
14	At relay rack frame remove blocking tool from RB2 relay.	
15	At master test frame restore all keys not required for next test.	

STEP	ACTION	VERIFICATION
	I. Number Match	
8	Operate A- through D- or E- keys as required for digit cross-connections to be tested.	
9	Operate CU-, CT-, CRU- and CGB keys as required for class of service cross-connections to be tested. (See Note 1.)	
10	If checking for a no-match condition operate RRO key.	NMM relay should operate on a No-Match call.
11	Operate ST key momentarily.	OK lamp lighted.
12	Operate RL key momentarily.	All lamps extinguished.
13	Restore all keys not required for next test.	
	J. Cancel Number Match	
8	Operate A- through D- or E- keys as required for a no-match condition.	
9	Operate CU-, CRU- and CT- keys, as required for a no-match condition. (See Note 1.)	
10	Operate CNM key.	
11	Operate ST key momentarily.	OK lamp lighted.
12	Operate RL key momentarily.	All lamps extinguished.
13	Restore all keys not required for next test.	
	K. AC, LR, and DT Timing	
8	Insert make-busy plug into TRMB- jack associated with register being tested.	
9	Measure AC, LR, DT timing intervals using circuit requirement tables and J-24753A test set for timing tests.	

STEP	ACTION	VERIFICATION
	L. Class of Service	
8	Operate A- through D- or E- keys as required for Centrex customer under test.	
9	Operate CU-, CT- and CGB keys, as required to match directory number in Step 8. (See Note 1.)	
10	Operate OA, OB or AB keys as required to match directory number in Step 8.	
11	Operate ST key momentarily.	OK lamp lighted.
12	Operate RL key momentarily.	All lamps extinguished.
13	Repeat Steps 8 through 12 for each Centrex customer group.	
	M. Automatic Test Line	
8	Restore A- through E- keys.	
9	Operate DSS, OCK keys.	
10	Operate TT switch ATL position.	
11	Operate ST key momentarily.	Trouble record taken. Perforations A- through D-, OA or OB should agree with test line directory digits.
12	Operate RL key momentarily.	All lamps extinguished.
	N. Make Busy Test	
1	Insert 322A make busy plug in jack associated with transfer register under test.	MB Relay operates in associated register. Check that all RB- relays associated with the transfer register, under test, operates in the transfer register link.
2	Repeat Step 1 until all transfer registers have been tested.	

Note 1. Operate CSU and CST keys when hundred class service is provided. Operate CRU- key when class rate treatment is used.