

**MULTIFREQUENCY INCOMING REGISTERS**  
**TESTS USING OFFICE TEST FRAME**  
**NO. 5 CROSSBAR OFFICES**

**1. GENERAL**

**1.01** This section describes a method of testing multifrequency incoming registers using the office test frame in No. 5 crossbar offices.

**1.02** This section is reissued to incorporate material from the addendum in its proper location. In this process marginal arrows have been omitted.

**1.03** The tests covered are:

**A. Regular Call:** The following features are checked: (1) Registration of the trunk link frame number. (2) Registration of pulses for each digit. (3) Registration of numerals on a two-out-of-five code basis.

**B. Special Call:** This test checks the ability of the register to select a special marker.

**C. Link Release and Verification of Trouble Indicating Leads:** This test checks that the register times out and calls in the trouble indicator and releases when the CK relay fails to operate in the register.

**D. Double Connection:** This test checks that the register recognizes a double connection in the incoming register link switch and times out and calls in the trouble indicator.

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

**F. Permanent Signal:** This test checks the ability of the register to recognize a failure to receive pulses when pulsing is expected.

**G. Short Time-Out:** This test checks that the RV and LR timers operate within their allotted time.

**H. Long Time-Out and Alarm:** This test checks that the register long time-out feature and the common alarm timing circuit operate within their allotted times and that the associated lamps and alarms function properly.

**I. Marker Start Signal:** This test checks that the register, if it requires a start pulse signal before seizing a marker, does not seize a marker when a full complement of digits is received without a start pulse signal.

**J. Operator Error Detection:** This test checks that a register, arranged to detect certain types of operator errors, sends a reorder signal to the marker if the number of digits received does not match the class information.

**1.04** Test B requires action and verification at the local test desk.

**1.05 Lettered Steps:** A letter a, b, c, etc., added to a step number in Part 3 or 4 of this section, indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the 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.

**1.06** Local instructions should be followed for recording and reporting any register operations caused by performing these tests.

**2. APPARATUS**

Tests A, C, D, E, F, H, I and J

**2.01** Patching cords, P3D cord, 6 feet long, equipped with two 309 plugs (3P3A cord), as required.

**SECTION 218-443-501**

**2.02** Patching cord, P3E cord, 8 feet long, equipped with two 310 plugs (3P6E cord).

**Tests B, C, H, and I**

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

**Tests F and H**

**2.04** KS-3008 stop watch, or equivalent.

---

**Tests G and H**

**2.05** 322A make-busy plug.

**Test D**

**2.06** Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord) one 624A and one 624B (terminal connector) tools (used for connecting winding terminal of wire-spring type relays to terminal strip).

**Test G**

**2.07** Timing test set J24753A (SD-25707-01).

**3. PREPARATION**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
-------------	---------------	---------------------

**Tests A, C, D, E, F, H, I and J**

- |    |   |  |
|----|---|--|
| 1  | At jack lamp and key circuit —<br>Using P3D patch cord, interconnect the IR jack in the MB2 field and the IRMB-jack of the register being tested.     |  |
| 2  | Using P3D patch cord, interconnect the IR jacks in the MB1 field and the IRMB-jacks of all other registers of the same type as register being tested. |  |
| 3  | From office records select an incoming trunk served by the register being tested.   |  |
| 4  | Have trunk selected made busy at distant office.  |  |
| 5  | At relay rack —<br>Using P3E patch cord, interconnect the ITT and T jack of trunk to be used in test.   |  |
| 6  | At office test frame (OTF) —<br>Operate ITT, MF and ITT1 keys.  |  |
| 7a | If trunk used in test does not require a start dial signal —<br>Operate ONHK key.   |  |
| 8b | If trunk used in test has a relay ground shunt —<br>Operate GS key.   |  |

STEP	ACTION	VERIFICATION
9c	If trunk used in test has short conductor loop — Operate SLP key.	

#### 4. METHOD

STEP	ACTION	VERIFICATION
<b>A. Regular Call</b>		
10	At OTF — Operate MKR-key associated with a completing marker.	
11	Operate CB key.	
12	Operate D-key depending on incoming class of trunk used in test.	
13	Operate A- through K-DIAL switches, as required, to select any digits to be used in test.	
14	Operate ST key.	At OTF — IS lamp lights until end of pulsing. At trouble indicator and connector (TIC) — Display registered. A- through K- lamps light corresponding to digits set up on A- through K-DIAL switches. TF 2/5 lamps light identifying trunk link frame number of trunk used in test.
15	Restore ST key.	
16	At TIC — Operate RLS key momentarily.	Display released.
17d	If no other tests are to be made — At relay rack — Remove patch cord from ITT and T jacks.	
18d	At jack lamp and key circuit — Remove patch cords from IR and IRMB-jacks.	
19d	Have trunk used in test restored to service at distant office.	
20d	At OTF — Restore all keys.	

STEP	ACTION	VERIFICATION
<b>B. Special Call</b>		
1	From office records, select a no-test trunk from the local test desk and determine incoming register link (IRL) appearance.	
2	At IRL for trunk selected — Block operated RB-relays associated with register being tested in all horizontal groups except the one serving the trunk used in test.	
3	Block operated RB-relays associated with all other registers for the horizontal group serving the trunk used in test.	
4	At local test desk — Place test call to any test line using trunk selected for test.	Call completes to test line.
5	Release test connection.	
6	At IRL — Remove blocking tools from RB-relays.	
<b>C. Link Release and Verification of Trouble Indicating Leads</b>		
10	At jack lamp and key circuit — Restore CLLR key if operated.	
11	At register under test — Block CK relay nonoperated.	
12	At OTF — Operate ST key.	At TIC — Display registered. INC, DCK, and LR lamps light. CN- and RG-lamps light identifying register being tested.
13	Restore ST key.	
14	At TIC — Operate RLS key momentarily.	Display released.
15	At register under test — Remove blocking tool from CK relay.	
16d	If no other tests are to be made — At relay rack — Remove patch cord from ITT and T jacks.	

STEP	ACTION	VERIFICATION
17d	At jack lamp and key circuit — Remove patch cords from IR and IRMB-jacks.	
18d	Have trunk used in test restored to service at distant office.	
19d	At OTF — Restore all keys.	

#### D. Double Connection

10	At jack lamp and key circuit — Restore CLLR key if operated.	
11	At register under test — Connect 1U winding terminal of DCK relay to terminal D-16.	
12	At OTF — Operate ST key.	At TIC — Display registered. INC and LR lamps light. DCK lamp does not light.
13	Restore ST key.	
14	At TIC — Operate RLS key momentarily.	Display released.
15	At register under test — Remove test connection from DCK relay and D-16 terminal.	
16d	If no other tests are to be made — At relay rack — Remove patch cord from ITT and T jacks.	
17d	At jack lamp and key circuit — Remove patch cords from IR and IRMB-jacks.	
18d	Have trunk used in test restored to service at distant office.	
19d	At OTF — Restore all keys.	

#### E. Abandoned Call

10	At OTF — Operate ST key.	At OTF — IS lamp lights.
----	-----------------------------	-----------------------------

STEP	ACTION	VERIFICATION
11	Immediately after IS lamp lights — Restore ST key.	IS lamp extinguished.
12d	If no other tests are to be made — At relay rack — Remove patch cord from ITT and T jacks.	
13d	At jack lamp and key circuit — Remove patch cords from IR and IRMB-jacks.	
14d	Have trunk used in test restored to service at distant office.	
15d	At OTF — Restore all keys.	

#### F. Permanent Signal

10	Operate ST key, <i>start timing</i> .	At OTF — IS lamp lights. In 20 to 32 seconds — Overflow tone heard.
11	Restore ST key.	IS lamp extinguished. Tone removed.
12d	If no other tests are to be made — At relay rack — Remove patch cord from ITT and T jacks.	
13d	At jack lamp and key circuit — Remove patch cords from IR and IRMB-jacks.	
14d	Have trunk used in test restored to service at distant office.	
15d	At OTF — Restore all keys.	

#### G. Short Time-Out

1	At jack lamp and key circuit — Insert make-busy plug into IRMB-jack associated with register being tested.
2	At register under test — Measure RV and LR timing interval, using the circuit requirements tables and timing test set.

STEP	ACTION	VERIFICATION
3	Remove make-busy plug from IRMB-jack.	
<b>H. Long Time-Out and Alarm</b>		
10	At OTF — Operate -D key depending on incoming class of trunk used in test.	
11	Operate A- through K-DIAL switches, as required, to select any test line number.	
12	At register under test — Block MST relay nonoperated.	
13	At OTF — Operate ST key, after ED lamp lights, <i>start timing</i> .	At OTF — ED lamp lights. At jack lamp and key circuit — In 20 to 30 seconds — TO lamp lights.
14	At jack lamp and key circuit — Remove patch cord from IR and IRMB-jacks associated with register under test, <i>start timing</i> .	In 10 to 15 seconds — R- S- TOA lamp lights. Major alarm sounds.
15	Insert make-busy plug into IRMB-jack associated with register under test.	R- S- TOA lamp extinguished. Major alarm silenced.
16	At OTF — Restore ST key.	At OTF — ED lamp extinguished.
17	At register under test — Remove blocking tool from MST relay.	
18d	If no other tests are to be made — At relay rack — Remove patch cord from ITT and T jacks.	
19d	At jack lamp and key circuit — Remove patch cords from IR and IRMB-jacks.	
20d	Have trunk used in test restored to service at distant office.	
21d	At OTF — Restore all keys.	

STEP	ACTION	VERIFICATION
<b>I. Marker Start Signal</b>		
10	At OTF — Operate -D key depending on incoming class of trunk used in test.	
11	Operate A- through K-DIAL switches, as required, to select any test line number.	
12	At register under test — Block TEN relay nonoperated.	
13	Operate ST key, <i>start timing</i> .	At OTF — IS lamp lights. In 20 to 32 seconds — Overflow tone heard.
14	Restore ST key.	IS lamp extinguished. Tone removed.
15	At register under test — Remove blocking tool from TEN relay.	
16d	If no other tests are to be made — At relay rack — Remove patch cord from ITT and T jacks.	
17d	At jack lamp and key circuit — Remove patch cords from IR and IRMB-jacks.	
18d	Have trunk used in test restored to service at distant office.	
19d	At OTF — Restore all keys.	
<b>J. Operator Error Detection</b>		
10	At OTF — Operate -D key depending on incoming class of trunk used in test.	
11	Operate A- through K-DIAL switches, as required, to select all but the last digit of any test line number.	
12	Operate ST key.	At OTF — Overflow tone heard.
13	Restore ST key.	Tone removed.

STEP	ACTION	VERIFICATION
14	At relay rack — Remove patch cord from ITT and T jacks.	
15	Have trunk used in test restored to service at distant office.	
16	Repeat Steps 3 through 15 for each equipped incoming class using an incoming trunk in Step 3 associated with incoming class being tested.	
17d	If no other tests are to be made — At jack lamp and key circuit — Remove patch cords from IR and IRMB-jacks.	
18d	At OTF — Restore all keys.	

