

ROUTE VERIFICATION TESTS  
USING ROUTE VERIFICATION UNIT PJ25012  
CROSSBAR TANDEM OFFICES

1. GENERAL

- 1.01 This section describes a method of testing marker routing information automatically via the Route Verification Unit (RVU) (PJ25012) in offices equipped with either trouble indicator or marker test frame circuits.
- 1.02 The RVU checks information cross-connected to the route relay and Foreign Area Translator frame (FAT) by alternately sending each area code and each office code (6 digits) or local office codes (3 digit) to first one marker and then to the next higher numbered marker.
- 1.03 Route information obtained from the first marker is stored in the verification unit. Information from the second marker is then received and compared. If it is the same, the storage circuit releases. The unit repeats this action using the same code. This checks allotted trunk groups routing information, when assigned, or makes a recheck of the original information.
- 1.04 When the second check is successful, the circuit advances to the next code.
- 1.05 In the event there is a mismatch of information, the verification unit will block, sound an alarm, and light a lamp display on the control panel indicating the information which did not match.
- 1.06 A key (RPD) is provided to retest a particular code.
- 1.07 A perforated teletypewriter (TTY) tape (5-level) of route information from the first marker of the pair being tested may be obtained by operating the RO key. The tape may be used to establish records in a data processing center to verify the office cross-connects.
- 1.08 Testing should be done during light traffic conditions since certain equipment is made busy to the trouble indicator/trouble recorder and two markers are removed from service. It is suggested that the trouble registers for the equipment made busy to the trouble indicator/trouble recorder be logged and read periodically to alert the maintenance crew to possible trouble.
- 1.09 The following lamps are provided on the RVU:
- RTA— First sending (priming) of office code shown on counter to markers.
  - RTB— Second sending of office code to markers.
  - LT -- Low tape on 28 LARP reperforator.
  - ET -- End of test cycle.
- Note: The failure to match lamps listed below will light when information from the first marker does not match information from the second marker.
- AD -- A digit transmitted from the RVU to marker.
  - BD -- B digit transmitted from unit to marker.
  - CD -- C digit transmitted from unit to marker.
  - DD -- D digit transmitted from unit to marker.
  - ED -- E digit transmitted from unit to marker.
  - FD -- F digit transmitted from unit to marker.
  - CL -- Class of call.
  - OG -- Office group.

## SECTION 220-121-900PT

TL — Trunk level.

GS — Group start.

GE — Group end.

CR — Compensating resistance.

OB — Office brush.

OF — Office link frame.

MISC A — Sender outpulse instructions.

MISC B — Sender outpulse instructions.

1.10 When a failure to match occurs, make note of the code and failure. Investigate the mismatch manually via the trouble indicator/trouble recorder equipment after the RVU has completed its run and is disconnected.

1.11 It is understood that some offices have large trunk groups and do not use the same routing information in all markers. These differences in routing should be noted prior to testing and they should also be checked using the trouble indicator/marker test circuit equipment. A failure to match will occur when these codes are sent to the markers from the verification unit. The verification unit should be manually advanced to the next code in these cases.

1.12 Markers are tested in adjacent pairs (ie, marker 0 is compared to marker 1, marker 1 is compared to marker 2, etc).

1.13 The first marker of the pair is the lowest numbered marker. The second marker of the pair is the higher numbered marker.

1.14 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 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.

## 2. APPARATUS — ALL TESTS

2.01 Route Verification Unit, PSD-25012-01 — Equipped with three 10-foot cables with 80-pin connectors and a LARP reperforator.

2.02 As required — 322A (make-busy) plugs.

2.03 Blocking and insulating tools as required.

*Note:* Use and apply tools as described in Section 069-020-801.

2.04 Trouble Indicator Frame, SD-25363-01, or Marker Test Circuit, SD-27048-01 — Used in offices equipped with trouble recorders.

## 3. METHOD

| STEP | ACTION  | VERIFICATION  |
|------|---|---|
|      | <i>Note:</i> Steps 1 through 19b require action in the trouble indicator bays or marker test bays.  |   |
| 1    | Restore all keys and switches.  |   |
| 2    | Insert 322A plugs into DB jack of adjacent markers.   |   |
| 3a   | At the trouble indicator frame, operate LP key.   |   |
| 4    | Momentarily operate RL key.   | All lamps extinguished.   |
| 5    | Set DT keys/marker switch, and G100 key if required, for first marker of pair selected in Step 2.   |   |
| 6a   | At trouble indicator frame, operate keys and switches as outlined in Section 220-121-501, Test A.   |   |
| 7b   | At marker test bay operate keys and switches as outlined in Section 220-121-503, Test A.  |   |
| 8    | Momentarily operate ST key.   | Trouble indication/trouble record taken. Note office frame and trunk level.                         |
| 9    | Momentarily operate RL key.   | All lamps extinguished.   |
| 10   | Set marker switch to test second marker of pair.  |   |
| 11   | Momentarily operate ST key.   | Trouble indication/trouble record taken. Note office frame and trunk level.                         |
| 12   | Momentarily operate RL key.   |   |
| 13c  | If the office frame and trunk level in Step 11 does not match that of Step 8, repeat Steps 11 and 12.   | Trouble indication trouble record taken. Office frame and trunk level identical for Steps 8 and 11. |
|      | <i>Note:</i> Steps 8 through 13c synchronizes the markers to be matched in regard to office frame and trunk level selections as this information is compared by the RVU. A mismatch will cause an alarm when testing using the RVU. |   |
| 14   | Restore A,B,C (D,E,F, if used) digit keys/switch to the OFF position.   |   |
| 15a  | At the trouble indicator, set DT key to normal.   |   |

## SECTION 220-121-900PT

| STEP | ACTION  | VERIFICATION   |
|------|---|--|
| 16b  | At marker test bay, set marker switch to Position 8 (designated RVU).   |  |
| 17   | Insert 322A plugs into TIB/TRMB jacks for all markers except those selected in Step 2.  |  |
| 18b  | At marker test bay, insert 322A plugs into TRMB jacks for all transverters.   |  |
| 19b  | At marker test bay, insulate 4B of relay TRC1.<br><br><i>Note:</i> This prevents trouble records from being taken on RVU tests.   |  |
| 20   | If office is equipped with FAT, block first marker to seize only FAT A. Block second marker to seize only FAT B.<br><br><i>Note:</i> Step 20 is only required for first pair of markers tested. The following action is taken at the RVU. |  |
| 21   | Connect 80-pin patch cables AC, BC, CC, to their designated jack circuits.<br><br><i>Caution:</i> To seat plugs properly, insert the left edge of the plug into a slot on the jack then press plug home on right side under spring clip.  |  |
| 22   | Connect 28 LARP reperforators power plug to 110Vac socket.  |  |
| 23   | Set MKR switch to test markers MB at Step 2.  |  |
| 24   | Operate TO key.   |  |
| 25   | Operate 6-DIGIT key.  |  |
| 26   | If tape printout is desired, operate RO key and ON/OFF key of reperforator to ON position.  |  |
| 27   | If testing marker group 100, operate G100 key.  |  |
| 28   | Operate RESET key momentarily.  | Counter reads 200000.  |
| 29   | Operate ST key.   | RTA lamp lights.<br>RTA lamp extinguishes.<br>RTB lamp lights.<br>RTB lamp extinguishes. |

| STEP | ACTION  | VERIFICATION  |
|------|---|---|
|      |   | Counter advances. Sequence repeats until all codes tested. When counter reaches 999999, ET lamp lights. Counter restores to 200000. |
| 30d  | If buzzer sounds, a failure to match is indicated.  | Failure to match lamp(s) light. Record code on counter and mismatched information. (See 1.09 and 1.10.)                             |
| 31d  | To silence buzzer, operate BUZ RLS/RST key to BUZ RLS position.   | Buzzer silenced.  |
| 32d  | To retest failed code operate RPD key and hold. Operate RST key. Sequence will repeat as long as RPD key is held operated.  | RTA/RTB lamp lights. Counter does not advance. Same failure to match, lamp lights unless allotted trunk group.                      |
| 33d  | To restart verification unit, operate BUZ RLS/RST key to RST position.  | Action resumes as in Step 29.   |
| 34e  | If it is desired to change the counter to a different code, wait until RTB lamp is extinguished then restore ST key to normal.<br><br><i>Note:</i> If unit stops with lamps lighted, operate and release ST key until lamps are extinguished. This is necessary to keep markers synchronized as in Steps 8 through 13c. | All lamps extinguished.   |
| 35e  | To reset counter to 200000, operate RESET key.  | Counter reads 200000.   |
| 36e  | To advance the counter, operate SCS switch to the counter (digit) to be advanced and depress STP button. Start at the right most counter and work left until the desired code is indicated on the counter. Restart unit as described in Step 29.  | Desired code reads on counter.  |
| 37   | Operate RL key.   | All lamps extinguished. Counter returns to 200000.  |
| 38   | Repeat Steps 2 through 36e until all marker pairs are tested.   |   |
| 39   | When the last pair of markers are tested: operate the RL key; remove insulation from all contacts; remove blocking tools, plugs, and connector jacks.   |   |

