

REVERTIVE PULSE INCOMING REGISTERS SD-26043-01 AND SD-25731-01
TESTS USING AUTOMATIC MONITOR, REGISTER, AND SENDER TEST CIRCUIT
NO. 5 CROSSBAR OFFICES

1. GENERAL

PAGE

1.01 This section describes a method of testing nonwire-spring-relay and wire-spring-relay type revertive pulse incoming registers using the master test frame (MTF) automatic monitor, register, and sender test circuit (AMRST) in No. 5 crossbar offices.

B. Long Selection Interval: This test checks that the register circuit awaits a reclosure of the fundamental loop before starting the next selection.

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1.02 This section is reissued for the following reasons:

C. Reverse Battery Not Delayed: This test checks that reverse battery from the register is not excessively delayed following final units selection.

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(a) To revise Tests A, Q, and R.

(b) To make other minor changes as required.

D. Reverse Battery Duration: This test checks that the duration of the reverse battery pulse from the register does not exceed a maximum interval.

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This reissue does not affect the Equipment Test Lists.

1.03 The tests covered are:

PAGE

A. Regular Call: 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) Recognition of the completion of a selection. (5) Translation of numbers on a two-out-of-five code basis. This test also checks that when the maximum number of selecting fingers are engaged in one direction, the selecting bars, centering springs, and snubbing springs restore to normal before the succeeding selection is registered. In addition, it checks that selecting bars, unengaged selecting fingers, and selecting off-normal contacts restore to normal and become stabilized before succeeding selection is registered.

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E. IF Timer Function: This test checks that the register IF timer (or L relay on a nonoperate test) does not cause premature reverse battery. It also checks that when the IF timer has caused reverse battery, L relay (on a nonoperate test) will not operate and prematurely remove this condition.

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F. Abandoned Call: This test checks that the register releases (on a call that is abandoned after incoming advance) independently of a release signal from the marker.

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G. STP Relay Operate and Release: This test checks that the STP relay of the register responds to measured operate and release currents imposed by the monitor. This test will not function with balanced pulsing circuits

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Not for use or disclosure outside the Bell System except under written agreement

and should not be made on balanced pulsing circuits. 4

H. Tell Tale: This test checks that the register applies reverse battery to the fundamental loop and releases without calling in a marker. 4

I. TC1 Relay Nonoperate and Operate: This test checks that the register TC1 relay functions properly on measured nonoperate and operate currents imposed by the monitor. It also checks that the register recognizes a call from the trunk test circuit and selects a marker without receiving any digits. 4

J. Link Release: This test checks that the register causes a trouble release when linkage is not established within 1 second. This test should be made in offices: (1) Where the NDT relay is provided. (2) Where the revertive pulse registers are not arranged to operate on a single class (class relay for RP registers provided.) 4

K. Double Connection: This test checks that the register times out and causes a trouble release if a double connection at the link switch is encountered. 4

L. Maximum Loop: This test checks that the register revertive pulsing feature operates under conditions of maximum loop resistance and capacitance. 4

M. Special Call: This test checks that the register recognizes and in turn signals the marker connector when the trunk with which the register is connected requires a special marker. 4

N. High Incoming Group Selection: This test checks that the register translates (upon receipt of a high incoming group selection) an AB (or ABS) signal from the register link circuit into an OB or THC indication for transmission to marker. 4

O. Overall Timeout: This test checks that the register overall timer gives the register a trouble release within allotted time intervals. 5

P. Common Alarm Timing: This test checks that the timeout lamp of the register lights and that the common alarm circuit functions within the allotted time intervals. 5

Q. Verification of Trouble Recorder Leads: This test checks that the register sends the proper identifying information to the trouble recorder. 6

R. False Grounds or Trouble Crosses (STR Relay Provided): This test checks that when false grounds or trouble crosses cause the closure of an odd- and an even-numbered register trunk link frame units (F) crosspoint, the register connects to a marker causing a trouble record to be made followed by a release of the register. 6

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 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.

1.05 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 In Test O, the RB2 relay of group busy circuit is blocked operated causing the traffic register associated with the GB lead to score. Local instructions should be followed with reference to recording and reporting this register operation.

1.08 Test charts are provided for listing specific keys and switches to be operated for each test, depending on local conditions. Entries should be made in charts from local records in accordance with instructions provided in Part 5, PREPARATION OF TEST CHART.

1.09 An interchangeable code is a code that represents both a working office code in the home area and a working foreign area code. When a pretranslator is provided, the dialing of an interchangeable code will result in the pretranslator grounding the CMB lead to the incoming register.

1.10 On Issue 76D of SD-25800-01, a group of 18 "class of test" lamps was replaced by a single "start test" lamp designated STT. Since the designation given to the lamp is not specific, the lamp will not be called out in the section, as well as the 18 discontinued lamps, such as DT, ORIG, ITDO, ITNP, OGT, etc.

1.11 When the options YV, RD, RE, FA or NQ are provided in SD-25800-01, the settings for switches TCL, ICL, CL, TRNA, and TRNC are

determined by local office cross-connection assignments. Refer to Section 218-106-301.

1.12 The trouble recorder cards perforated on Tests Q and R should be examined for the 2W (or 4W) punches for offices arranged for 2-wire and 4-wire operation.

2. APPARATUS

Tests A Through R

2.01 Master test control circuit, SD-25800-01.

2.02 Master test frame automatic monitor, register, and sender test circuit, SD-25680-01.

Tests O and P

2.03 KS-3008 stopwatch or equivalent.

Test P

2.04 322A (make-busy) plug.

Test R

2.05 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord) and two KS-6278 connecting clips (for connecting terminal strip terminals).

3. PREPARATION

| STEP | ACTION | VERIFICATION |
|------------------|--------|--------------|
| All Tests | | |

Note: Refer to 1.05 through 1.12.

| | | |
|---|---|-------------------------------|
| 1 | At MTF— Restore all keys and switches. | |
| 2 | Momentarily operate RL key. | All lamps extinguished. |
| 3 | Operate MAC key. | NVA lamp momentarily lighted. |
| 4 | After about 1 minute— Operate STT key. | |
| 5 | Select IR class of test. | |
| 6 | Select incoming register. | |

| STEP | ACTION | VERIFICATION |
|------|--------|--------------|
|------|--------|--------------|

4. METHOD

| STEP | ACTION | VERIFICATION |
|------|--------|--------------|
|------|--------|--------------|

Note: Tests A through L actions and verifications are the same as shown in steps 7 through 10.¶

Tests A Through L

| | | |
|----|---|-------------------------|
| 7 | Operate keys in accordance with Test Chart ◆Tests 1 through 35.¶ | |
| 8 | Momentarily operate ST key. | OK lamp lighted. |
| 9 | Momentarily operate RL key. | All lamps extinguished. |
| 10 | Restore all keys not required in next test. | |

M. Special Call

| | | |
|----|--|-------------------------|
| 7 | Operate SPL key. | |
| 8 | Operate keys in accordance with Test Chart ◆Tests 36 through 38.¶ | |
| 9 | Momentarily operate ST key. | OK lamp lighted. |
| 10 | Momentarily operate RL key. | All lamps extinguished. |
| 11 | Restore all keys not required in next test. | |

N. High Incoming Group Selection

| | | |
|----|--|-------------------------|
| 7 | Operate keys in accordance with Test Chart ◆Tests 39 through 42.¶ | |
| 8 | Momentarily operate ST key. | OK lamp lighted. |
| 9 | Momentarily operate RL key. | All lamps extinguished. |
| 10 | Repeat Steps 5 through 7 until Tests 39 through 42 have been made. | |
| 11 | Operate SPL key. | |
| 12 | Key up selections for Test 42. | |
| 13 | Momentarily operate ST key. | OK lamp lighted. |
| 14 | Momentarily operate RL key. | All lamps extinguished. |

| STEP | ACTION | VERIFICATION |
|-------------------------------|---|---|
| 15 | Restore all keys not required in next test. | |
| O. Overall Timeout | | |
| 7 | At register frame— Block nonoperated OVL relay of register being tested. | |
| 8 | At MTF— Operate keys in accordance with Test Chart ◆Test 43.◆ | |
| 9 | Momentarily operate ST key; <i>start timing</i> when FLT lamp lights. | FLT lamp lighted. OK lamp lighted within 20 to 32 seconds. |
| 10 | Momentarily operate RL key. | All lamps extinguished. |
| 11 | At register frame— Remove blocking tool from OVL relay. | |
| 12 | At frame on which group busy circuit is located— Block operated RB2 relay of group busy circuit associated with register being tested. | |
| 13 | At MTF— Operate keys in accordance with Test Chart. | |
| 14 | Momentarily operate ST key; <i>start timing</i> when FLT lamp lights | FLT lamp lighted. Within 4 to 8 seconds, OK lamp lighted. |
| 15 | Momentarily operate RL key. | All lamps extinguished. |
| 16 | At frame on which group busy circuit is located— Remove blocking tool from RB2 relay. | |
| 17 | At MTF— Restore all keys not required in next test. | |
| P. Common Alarm Timing | | |
| 7 | Insert make-busy plug into IRMB- jack associated with register being tested. | |
| 8 | Insulate contacts 1T, 2T, and 3T of the highest numbered IRP- relay in the chain for the group being tested. | |
| 9 | Operate keys in accordance with Test Chart ◆Test 44.◆ | |

| STEP | ACTION | VERIFICATION |
|------|--|---|
| 10 | Momentarily operate ST key; <i>start timing</i> . | Within 20 to 32 seconds, TO lamp lighted. |
| 11 | Remove make-busy plug from IRMG- jack; <i>start timing</i> . | Within 10 to 15 seconds, R-S-TOA lamp lighted and major alarm sounded. <i>Note:</i> Should another circuit seize the common alarm circuit during this test and cause the R-S-TOA lamp to light in less than 10 seconds, it may be necessary to repeat this test. |
| 12 | Reinsert make-busy plug into IRMB- jack. | R-S-TOA lamp extinguished. Major alarm silenced. |
| 13 | Momentarily operate RL key. | All lamps extinguished. |
| 14 | Remove make-busy plug from IRMB- jack. | |
| 15 | Remove insulating tools from contacts of IRP-relay. | |
| 16 | Restore all keys not required in next test. | |

Q. Verification of Trouble Recorder Leads

| | | |
|----|--|---|
| 7 | Operate keys in accordance with Test Chart Test 45. | |
| 8 | Momentarily operate ST key. | D lamp lighted. |
| 9 | When D lamp lights— Change setting of called number A- key. | Trouble record taken. FR, CN, RG, 2W perforations should agree with number of marker connector frame, the connector on frame, the register in the connector and whether the office is a 2-wire or 4-wire office. |
| 10 | Momentarily operate RL key. | All lamps extinguished. |
| 11 | Restore all keys not required in next test. | |

R. False Grounds or Trouble Crosses (STR Relay Provided)

| | | |
|----|--|--|
| 7a | At incoming register link frame— If nonwire-spring-relay type link circuit is provided— On F1 terminal strip— Connect terminal 21 to terminal 24. | |
| 8b | At incoming register link frame— If wire-spring-relay type link circuit is provided— | |

| STEP | ACTION | VERIFICATION |
|------|--|--|
| | On B terminal strip for horizontal group 0— Connect terminal 0 to terminal 3. | |
| 9 | At MTF— Block CCK relay nonoperated. | |
| 10 | Operate keys in accordance with Test Chart Test 46. | |
| 11 | Momentarily operate ST key. | OK lamp lighted. Trouble record taken. FT1, FT2, FT4, FT7, 2W perforated. All lamps extinguished. |
| 12 | Momentarily operate RL key. | |
| 13 | Remove blocking tool from CCK relay. | |
| 14 | At incoming register link frame— Remove test cord from terminals. | |

5. PREPARATION OF TEST CHART

All Tests (Except Tests J and N)

5.01 The Test Charts at the end of this section are intended for use as a particular number chart. The charts show the master test frame keys to be operated for each test. Information obtained from local records should be used to fill in the Test Charts in the following manner. Refer to 1.05 before filling in charts.

5.02 Record the required incoming class of call and translater indication as required.

5.03 Record incoming register groups as required.



TEST CHART

| TEST | TYPE OF TEST | TEST NO. | MASTER TEST FRAME PRIMING INFORMATION | | | | | | | | | | INC CLASS OF CALL | TRANSLATOR INDICATION | MISCELLANEOUS KEYS AND/OR SWITCHES | TEST NO. | TEST | | | | | | |
|------|-------------------------|----------|---------------------------------------|--|---|---|---|---|---|---|---|---|-------------------|-----------------------|------------------------------------|----------|------|---|----|---|---|---|----|
| | | | INCOMING REGISTER GROUPS | DIGITS-CODE (S) AND NUMBER (CALLED NUMBER) | | | | | | | | | | | | | | | | | | | |
| | | | | A | B | C | D | E | F | G | H | J | | | | | | K | | | | | |
| A | Regular Call | 1 | | 0 | 0 | 0 | 2 | | | | | | | | | | | | 1 | A | | | |
| | | 2 | | 2 | 6 | 1 | 2 | | | | | | | | | | | | | | 2 | | |
| | | 3 | | 5 | 2 | 2 | 0 | | | | | | | | | | | | | | 3 | | |
| | | 4 | | 7 | 8 | 3 | 0 | | | | | | | | | | | | | | | 4 | |
| | | 5 | | 8 | 4 | 4 | 0 | | | | | | | | | | | | | | | 5 | |
| | | 6 | | 3 | 1 | 5 | 5 | | | | | | | | | | | | | | | | 6 |
| | | 7 | | 1 | 5 | 6 | 6 | | | | | | | | | | | | | | | | 7 |
| | | 8 | | 4 | 7 | 7 | 7 | | | | | | | | | | | | | | | | 8 |
| | | 9 | | 6 | 3 | 8 | 8 | | | | | | | | | | | | | | | | 9 |
| | | 10 | | 9 | 9 | 9 | 9 | | | | | | | | | | | | | | | | 10 |
| | | 11 | | 8 | 3 | 0 | 2 | | | | | | | | | | | | | | | | 11 |
| | | 12 | | 4 | 4 | 0 | 3 | | | | | | | | | | | | | | | | 12 |
| | | 13 | | 6 | 2 | 9 | 0 | | | | | | | | | | | | | | | | 13 |
| | | 14 | | 1 | 0 | 8 | 0 | | | | | | | | | | | | | | | | 14 |
| | | 15 | | 3 | 1 | 7 | 0 | | | | | | | | | | | | | | | | 15 |
| | | 16 | | 3 | 0 | 5 | 0 | | | | | | | | | | | | | | | | 16 |
| | | 17 | | 1 | 5 | 4 | 0 | | | | | | | | | | | | | | | | 17 |
| | | 18 | | 8 | 2 | 2 | 0 | | | | | | | | | | | | | | | | 18 |
| | | 19 | | 8 | 7 | 9 | 0 | | | | | | | | | | | | | | | | 19 |
| | | 20 | | 8 | 2 | 0 | 2 | | | | | | | | | | | | | | | | 20 |
| | | 21 | | 5 | 0 | 2 | 0 | | | | | | | | | | | | | | | | 21 |
| | | 22 | | 5 | 1 | 2 | 0 | | | | | | | | | | | | | | | | 22 |
| | | 23 | | 0 | 0 | 3 | 0 | | | | | | | | | | | | | | | | 23 |
| | | 24 | | 5 | 2 | 1 | 2 | | | | | | | | | | | | | | | | 24 |
| B | Long Selection Interval | 25 | | 8 | 3 | 0 | 2 | | | | | | | | | | | | 25 | B | | | |



TEST CHART

| TEST | TYPE OF TEST | TEST NO. | MASTER TEST FRAME PRIMING INFORMATION | | | | | | | | | | | | | TEST NO. | TEST | | | | | |
|------|--|----------|---------------------------------------|--|---|---|---|---|---|---|---|---|---|-------------------|-----------------------|----------|------|------------------------------------|-----|--|----|---|
| | | | INCOMING REGISTER GROUPS | DIGITS-CODE (S) AND NUMBER (CALLED NUMBER) | | | | | | | | | | INC CLASS OF CALL | TRANSLATOR INDICATION | | | MISCELLANEOUS KEYS AND/OR SWITCHES | | | | |
| | | | | A | B | C | D | E | F | G | H | J | K | | | | | | | | | |
| C | Reverse Battery Not Delayed | 26 | | 4 | 4 | 0 | 3 | | | | | | | | | | | RVT1 | | | 26 | C |
| D | Reverse Battery Duration | 27 | | 6 | 2 | 9 | 0 | | | | | | | | | | | RVT | | | 27 | D |
| E | IF Timer Function | 28 | | 1 | 0 | 8 | 0 | | | | | | | | | | | RIF | | | 28 | E |
| F | Abandoned Call | 29 | | 3 | 1 | 7 | 0 | | | | | | | | | | | RAB | | | 29 | F |
| G | STP Relay Operate and Release | 30 | | 9 | 9 | 9 | 9 | | | | | | | | | | | STPO | | | 30 | G |
| H | Tell Tale | 31 | | 3 | 0 | 5 | 0 | | | | | | | | | | | RTT | | | 31 | H |
| I | TC1 Relay Nonoperate and Operate | 32 | | | | | | | | | | | | | | | | TST | | | 32 | I |
| J | Link Release | 33 | | | | | | | | | | | | | | | | RLR | | | 33 | J |
| K | Double Connection | 34 | | | | | | | | | | | | | | | | DC | | | 34 | K |
| L | Maximum Loop | 35 | | 1 | 5 | 4 | 0 | | | | | | | | | | | RLT | | | 35 | L |
| M | Special Call | 36 | | 8 | 2 | 2 | 0 | | | | | | | | | | | | | | 36 | M |
| | | 37 | | 8 | 7 | 9 | 0 | | | | | | | | | | | | | | 37 | |
| | | 38 | | 8 | 2 | 0 | 2 | | | | | | | | | | | | | | 38 | |
| N | High Incoming Group Selection | 39 | | 0 | 0 | 5 | 4 | | | | | | | | | AB | | IGH | | | 39 | N |
| | | 40 | | 0 | 5 | 6 | 7 | | | | | | | | | AB | | IGH | | | 40 | |
| | | 41 | | 1 | 0 | 7 | 6 | | | | | | | | | AB | | IGH | | | 41 | |
| | | 42 | | 1 | 5 | 8 | 9 | | | | | | | | | AB | | IGH | | | 42 | |
| O | Overall Time-Out | 43 | | 5 | 0 | 2 | 0 | | | | | | | | | | | RPS | | | 43 | O |
| P | Common Alarm Timing | 44 | | 0 | 0 | 3 | 0 | | | | | | | | | | | TA | DSS | | 44 | P |
| Q | Verification of Trouble Recorder Leads | 45 | | 5 | 2 | 1 | 2 | | | | | | | | OA | OA | ICL | TCL | CL | | 45 | Q |
| R | False Grounds or Trouble Crosses | 46 | | 0 | 1 | 0 | 2 | | | | | | | | OB | OB | ICL | TCL | CL | | 46 | R |

