

## SELECTOR REPEATERS

### OPERATION TESTS

USING TEST SETS SD-31858-01 (J34701A), SD-90469-01,

OR SD-90469-02 (J94710A)

### STEP-BY-STEP SYSTEMS

#### 1. GENERAL

- 1.01** This section describes methods of testing selector repeaters using test sets SD-31858-01, SD-90469-01, or SD-90469-02.
- 1.02** This section is reissued to add class-of-service test information to Test F and to generally bring the section up to date. Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.
- 1.03** The tests covered are:
- A. Selector Feature:** This test checks the ability of the selector repeater to select a trunk to the next switch in the train at the branch office. It also checks operational features under loop and leak conditions.
  - B. Repeater Feature:** This test checks the ability of the selector repeater to select a trunk to the main office. It also checks operational features under loop and leak conditions.
  - C. Release of Main Office Trunk on Permanent Signals:** This test checks the ability of the selector repeater to release the trunk to the main office after a predetermined time interval when held by a permanent signal.
  - D. First Level:** This test checks the ability of the selector repeater to select a trunk to a service code selector at the branch or main office after dialing the first or second digit 1.
  - E. Zero Level:** This test checks the ability of the selector repeater to select a zero level trunk when the digit 0 is dialed.
  - F. Restricted Service and Class-of-Service Indication:** This test checks the ability of the selector repeater to recognize levels that are arranged for restricted service. It also checks that the switch extends class-of-service indication from a line finder to succeeding switch in branch office.
- 1.04** When performing Tests A, B, or D, determine from office records which digits should be absorbed and which digits will route the call to the main or branch office.
- 1.05** Local instructions should be followed for recording and reporting any register operations caused by performing these tests.
- 1.06** The test equipment specified in this section is designed to perform tests when the circuit under test and the test equipment have an applied voltage of 48.5 to 50. In those offices where power plants are normally operated at more than 50 volts, the battery voltage should be reduced and maintained within the required limits while the tests are being performed.
- 1.07** Test C covers only a test of the feature to release the main office trunk when held by a permanent signal. Tests of the other features of the line lockout and selector repeater switch time-out release are covered in Section 226-205-500.
- 1.08 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

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be required depending on local conditions. The condition under which a lettered step or 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** Test set J34701A (SD-31858-01) or J94710A (SD-90469-01 or SD-90469-02).

**2.02** Patching cord, P2J cord, 9 feet long, equipped with two 310 plugs (2P9A cord) for connecting battery and ground to test set when test battery and ground jacks are provided.

**2.03** Patching cord, W2M cord, 9 feet long, equipped with one 310 plug and two 59 cord tips (2W12A cord) and two 108 (rubber insulated) cord tips (installed locally on 59 cord tips) for battery and ground connections to test sets when battery is picked up at 35-type fuse (not to exceed 3 amperes) and frame ground or test battery and ground block.

**2.04** Patching cord, P3H cord, 10 feet long, equipped with one 310 plug and one 240A plug (3P2A cord).

**2.05** Head telephone set.

#### Tests B and F

**2.06** Testing cord, 893 cord, 6 feet long, equipped with two 360 tools (1W13 cord) and two KS-6278 clips for connecting ground to switch jack springs.

### 3. PREPARATION

STEP	ACTION	VERIFICATION
1	At selector repeater frame — At test set — Set all keys to normal position.	
2	Insert 310 plug of battery cord into T jack.	
3	Connect other end of battery cord to battery and ground supply.  <i>Caution: Connect cord to test set first and disconnect cord from test set last to avoid possible grounding of the battery supply.</i>	
4	Connect head telephone set to TEL jacks.	
5	Operate TRS key.	

### 4. METHOD

STEP	ACTION	VERIFICATION
<b>A. Selector Feature</b>		
6	At selector repeater under test — Insert 240A plug of P3H cord into test jack using test jack springs 1, 2, 3, 4.	BSY lamp not lighted.

STEP	ACTION	VERIFICATION
7	At test set — Operate LP key.	
8	Operate DL ST key.	SL lamp lights. Dial tone heard.
9	Restore DL ST key.	SL lamp remains lighted.
10	Dial digits of branch office code (absorbed digits).	Selector repeater steps to level dialed and releases without cutting in for each digit arranged to be absorbed. Dial tone removed after first digit dialed.
11	Dial digit corresponding to working level in office.	Selector repeater steps to level dialed and rotates to first idle terminal. REV lamp does not light.
12	Operate FL key.	Selector repeater releases. SL lamp extinguishes.
13	Restore FL, LP keys.	
14	Operate LK key.	
15	Repeat Steps 8 through 12.	
16	Restore FL, LK keys.	
17a	If other levels are to be tested — Repeat Steps 8 through 16.  <i>Note:</i> Vacant levels should be tested as working levels.	When vacant levels are tested — Interrupted tone should be heard. If vacant level intercepting trunks are provided — Audible ringing should be heard until call answered. (When call answered in less than 4 seconds audible ring may not be heard.) If sleeves of vacant level are grounded — Switch should rotate to eleventh rotary step and return interrupted tone.
18b	If other switches are to be tested — Repeat Steps 6 through 17a.	
19c	If no further tests are to be made — Restore all keys and remove all cords.	

#### B. Repeater Feature

6	At selector repeater under test — Insert 240A plug of P3H cord into test jack using test jack springs 1, 2, 3, 4.	BSY lamp not lighted.
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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
7	At test set — Operate SL key.	
8	At selector repeater under test — Connect ground to switch jack spring 13 of selector repeater.	
9	At test set — Restore SL key.	
10	Operate DL ST key.	SL lamp lights. Dial tone heard.
11	Restore DL ST key.	SL lamp remains lighted.
12	Dial digit or digits to route call to a main office trunk.	Selector repeater absorbs digits as required. Interrupted tone heard.
13	At selector repeater under test — Remove ground from switch jack spring 13.	
14	At test set — Operate FL key.	SL lamp extinguishes. Selector repeater restores.
15	Restore FL key.	
16	Operate LP key.	
17	Operate DL ST key.	SL lamp lights. Dial tone heard.
18	Restore DL ST key.	SL lamp remains lighted.
19	Dial digit or digits to route call to connec- tor multiple test line in reverse battery con- nector group in main office.	Selector repeater steps and releases accord- ing to number of digits to be absorbed. Audible ringing heard. Ringing tripped. REV lamp lights intermittently correspond- ing to interruptions of test line.
20	Operate FL key.	SL lamp extinguishes. REV lamp extinguishes. Selector repeater restores.
21	Restore FL, LP keys.	
22	Operate LK key.	
23	Repeat Steps 17 through 20.	
24	Restore FL, LK keys.	

STEP	ACTION	VERIFICATION
25a	If no further tests are to be made — Remove all cords and restore all keys.	
<b>C. Release of Main Office Trunk on Permanent Signals</b>		
6	At selector repeater under test — Insert 240A plug of P3H cord into test jack using test jack springs 1, 2, 3, 4.	BSY lamp not lighted.
7	At test set — Operate DL ST key.	SL lamp lights. Dial tone heard.
8	Restore DL ST key.	SL lamp remains lighted. In approximately one minute — Shelf permanent signal lamp lights.
9	Dial main office code.	Shelf permanent signal lamp extinguishes. Interrupted tone heard.
10	Operate FL key.	SL lamp extinguishes. Selector repeater restores.
11a	If no further tests are to be made — Remove all cords and restore all keys.	
<b>D. First Level</b>		
6	At selector repeater under test — Insert 240A plug of P3H cord into test jack using test jack springs 1, 2, 3, 4.	BSY lamp not lighted.
7	At test set — Operate DL ST key.	SL lamp lights. Dial tone heard.
8	Restore DL ST key.	
<b>Branch Office Equipped with Service Code Selectors</b>		
9a	If selector repeater is arranged to absorb first digit 1 — Dial digit 1.	Selector repeater steps to first level and re- leases.
10a	Dial second digit 1.	Selector repeater steps to first level and ro- tates to first idle trunk.
11b	If selector repeater is not arranged to ab- sorb first digit 1 — Dial digit 1.	Selector repeater steps to first level and ro- tates to first idle trunk.
12	Operate FL key.	SL lamp extinguishes. Selector repeater releases.

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
13c	If no further tests are to be made — Remove all cords and restore all keys.	
<b>Branch Office Not Equipped with Service Code Selectors</b>		
14d	If selector repeater is arranged to absorb first digit 1 — Dial digit 1.	Selector repeater steps to first level and releases.
15d	Dial second digit 1.	Selector repeater steps to first level and does not cut in, or it releases, depending on type of selector repeater being tested.
16e	If selector repeater is not arranged to absorb first digit 1 — Dial digit 1.	Selector repeater steps to first level and does not cut in, or it releases, depending on type of selector repeater being tested.
17	Dial service code number in main office.	Call answered.
18	Operate FL key.	SL lamp extinguishes. Selector repeater releases.
19f	If no further tests are to be made — Remove all cords and restore all keys.	

**E. Zero Level**

6	At selector repeater under test — Insert 240A plug of P3H cord into test jack using test jack springs 1, 2, 3, 4.	BSY lamp not lighted.
7	At test set — Operate DL ST key.	SL lamp lights. Dial tone heard.
8	Restore DL ST key.	SL lamp remains lighted.
9	Dial digit 0.	Selector repeater steps to tenth level and rotates to first idle trunk. Audible ringing tone heard if not answered in less than four seconds.
10	Inform operator that a test is being performed and to disconnect.	
11	Operate FL key.	SL lamp extinguishes. Selector repeater releases.
12a	If no further tests are to be made — Remove all cords and restore all keys.	

STEP	ACTION	VERIFICATION
<b>F. Restricted Service and Class-of-Service Indication</b>		
6	At selector repeater under test — Insert 240A plug of P3H cord into test jack using test jack springs 1, 2, 3, 4.	BSY lamp not lighted.
7	At test set — Operate DL ST key.	SL lamp lights. Dial tone heard.
8	Restore DL ST key.	SL lamp remains lighted.
9a	If restricted service is provided on specified levels by adjustment of normal post springs and ground on RS lead — Connect ground to switch jack spring 17.	
10a	Dial level arranged for restriction.	Selector repeater steps to level dialed and rotates to eleventh rotary position. Interrupted tone heard.
11b	If restricted service is provided on specified levels by ground placed on RS lead by pre- ceding circuit — Connect ground to switch jack spring 17.	
12b	Dial level arranged for restriction.	Selector repeater steps to level dialed and rotates to eleventh rotary position. Interrupted tone heard.
13c	If class-of-service indication is provided from preceding circuit over A lead — Connect ground to switch jack spring 16.	
14c	Dial zero level.	Selector repeater steps to tenth level and rotates to first idle trunk. Operator answers. Class-of-service indication heard.
15	Remove ground from switch jack spring.	
16	Operate FL key.	SL lamp extinguishes. Selector repeater releases.
17d	If no further tests are to be made — Remove all cords and restore all keys.	