LOCAL AND INCOMING SELECTORS
OPERATION TESTS
USING TEST SET SD-31859-01 (J34722B)
STEP-BY-STEP SYSTEMS

1. GENERAL

1.01 This section describes a method of testing local and incoming selectors, other than reverting call selectors, in Nos. 355A, 356A, and 35-E-97 community dial offices, using test set SD-31859-01 in Tests A and B, and a dial hand test set in Test C. Test B applies to No. 355A offices only and Test C to No. 355A and 35-E-97 offices only.

1.02 This section is reissued to change Test B to Test C and to add a new Test B to provide a test of toll incoming and toll intermediate selectors in No. 355A community dial offices; to include in Test A a check for no-such-number tone on selectors arranged to "block"; to add information regarding the voltage applied to the equipment and to the test facilities covered in the section; to include information on insulating auxiliary test jack springs 5 and 6 when making tests on SD-32183-01 selectors, and to bring the section generally 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. Local and Incoming Selector Operation: This test checks that a selector steps vertically to the proper level and rotates to an idle terminal. It also checks for presence of dial tone on first selectors; in the case of "blocking" selectors, for no-such-number tone on "blocked" levels; for digit absorbing on levels so arranged; and for proper release of the selector.

B. Toll Incoming and Toll Intermediate Selector Operation: This test checks that a selector steps vertically to the proper level and rotates to an idle terminal; in the case of "blocking" selectors, for no-such-number tone on "blocked" levels; for digit absorbing on levels so arranged; and for proper release of the selector.

C. Restricted Service for Selectors, other than "Blocking," and Class of Service Indication Features: This test checks that a selector will rotate past any idle terminal on levels arranged for restricted service.

1.04 The term "blocking" is applied to switches that either do not cut in when the level dialed is reached and return "no-such-number" tone, or, if arranged to cut in, will rotate to the eleventh rotary position and return "paths busy" tone.

1.05 When testing local selectors associated with line finder circuits in which the AB lead is normally extended through contacts of the VON assembly to the RLS lead, make the associated line finder busy by operating the MB (make-busy) key. When operating MB keys to make line finders busy care should be exercised in determining the number made busy at one time so as not to adversely affect service in this group.

1.06 When testing an incoming selector, the trunk should be made busy at the originating end in the approved manner for the duration of the test. It will also be necessary to insert a make-busy plug into the test jack of the associated trunk circuit.

1.07 A different level should be used each time the tests are performed so that eventually every selector will have been tested on each

working level, except levels with trunks to switchboard positions. When testing selectors arranged to absorb digits repeatedly, or to "block" on the level under test, another level on which the selector is not so arranged should be used for making tests for passing busy trunks and for faulty adjustment of the cut-through relay. A test to the level on which digits are absorbed once, twice or repeatedly should be included in order to make a complete test of selectors.

1.08 On alternate test cycles, the first trunk should be made busy on the level under test when making Tests A and B. On the other test cycles the first trunk should be left idle to test that the switch does not overstep during rotary hunting.

1.09 The test equipment specified in this section is designed to apply proper marginal tests (simulated critical circuit conditions) 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 made.

1.10 ***Lettered Steps:*** A letter a, b, c, etc, added to a step number in Parts 3 and 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.

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

2. APPARATUS

ALL TESTS

2.01 No. 477A tools and No. 258C plugs as required.

TESTS (A) AND (B)

2.02 Test set J34722B (SD-31859-01).

2.03 P3K cord, 6 feet long, equipped with two No. 310 plugs (No. 3P15A cord).

2.04 W2M cord, 9 feet long, equipped with a No. 310 plug, tip and sleeve connections, and two No. 59 cord tips (No. 2W12A cord) and two No. 108 cord tips.

2.05 No. 1011G dial hand test set (handset), equipped with a No. 2W39A cord consisting of a W2CL cord, a No. 471A jack and a No. 240A plug. The KS-8011 switch on the cord in the OFF position cuts in 1200 ohms resistance.

2.06 Toothpicks as required for insulating auxiliary test jack springs 5 and 6 when testing SD-32183-01 selectors.

TEST A

2.07 P3H cord, 10 feet long, equipped with a No. 310 plug and a No. 240A plug (No. 3P2A cord).

TEST B

2.08 P4K cord, 12 feet long, equipped with a No. 289B plug and a No. 240B plug.

TEST C

2.09 No. 1011G dial hand test set (handset), equipped with a No. 2W39A cord consisting of a W2CL cord, one No. 471A jack and a No. 240 plug.

2.10 No. 893 cord, 3 feet long, equipped with two No. 360A tools (No. 1W13A cord), one No. 365 tool and one No. 419A tool.

3. PREPARATION

STEP	ACTION	VERIFICATION
TEST A AND B		
1a	If battery supply jack is available — Connect one end of P3K cord to test set BAT G jack and the other end to BAT G frame jack.	
	Note: To avoid possible grounding of the battery supply lead, connect the cord to the test set first. When disconnecting remove the cord from the test set last.	
2b	If battery supply jack is not available — Connect No. 310 plug of W2M cord to test set BAT G jack.	
3b	Connect red (sleeve) conductor of W2M cord to frame ground and white (tip) conductor to equipment side of a convenient fuse (not over 3 amperes).	
	Note: When disconnecting, remove cord from test set last.	

4. METHOD

STEP	ACTION	VERIFICATION
	A. Local and Incoming Selector Operation	
4	Insert No. 240A plug of handset into TJ jack of test set.	
5	Insert No. 310 plug of P3H cord into T jack of test set.	
6c	If test cycle is one where first trunk is to be made busy on level under test — Invert No. 240A plug of P3H cord and insert into test jack of an idle selector on same shelf as selector under test so that tip and ring of plug make contact with ring and tip of test jack — Operate handset switch to TALK position and dial selector to level under test.	Selector steps to level dialed, rotates to first terminal and cuts through.
7c	Insert a make-busy tool between sleeve and ground springs of the test jack to hold selector in this position.	
8c	Remove No. 240A plug from selector test jack and operate handset switch to MON position.	Selector holds in this position from the make-busy tool.

STEP	ACTION	VERIFICATION
9	Insert No. 240A plug of P3H cord into test jack of selector under test.	C lamp not lighted. *Note:* If C lamp lights wait for lamp to be extinguished or move plug to another selector.
10d	If testing SD-32183-01 selectors — Insulate auxiliary test jack springs 5 and 6 with a toothpick.	Check that toothpick is holding auxiliary test jack springs 5 and 6 open.
11	Operate switch on cord to OFF position and switch on handset to TALK position.	C lamp lights. Dial tone heard on local first selectors.
12e	If selector requires a preliminary ground forward over S lead, as with H-59467 used as a local selector — Operate SL key momentarily.	C lamp remains lighted.
13f	If selector is arranged to absorb digits on certain levels repeatedly — Dial level so arranged at least twice.	Selector steps to level dialed and restores properly after each series of pulses. On first selectors — Dial tone removed after first series of pulses.
14g	If selector is arranged to "block" on any level — Dial level so arranged.	Selector steps to level dialed and "blocks." Interrupted tone heard in receiver.
15g	Operate switch on handset to MON position momentarily.	Selector restores properly.
16h	If selector is arranged to absorb first digit on all levels — Dial any level.	Selector steps vertically to level dialed and restores properly. On first selectors — Dial tone removed after first series of pulses.
17	Dial level under test.	Selector steps vertically to level dialed and rotates to first idle terminal. REV-BAT lamp does not light. C lamp remains lighted. On first selectors other than digit absorbing or "blocking" — Dial tone removed.
18	Operate switch on handset to MON position.	Selector releases. C lamp extinguished.
19	Operate LEAK key.	
20	Operate switch on handset to TALK position and switch on cord to ON position.	C lamp lights. Dial tone heard on local first selectors.
21	Repeat Steps 12e through 18 as required.	

STEP	ACTION	VERIFICATION
22	Restore LEAK key.	
23	Remove No. 240A plug from selector test jack.	
24d	If testing SD-32183-01 selector — Remove toothpick from auxiliary test jack springs 5 and 6.	
25	Repeat Steps 9 through 24d, as required, on other selectors to be tested. ***Note:*** If test cycle is one where first trunk is made busy, substitute another selector previously tested for the one to hold the first trunk busy and repeat Steps 6c through 24d on this selector.	
26i	If no further tests are to be performed — Remove all test set connections.	
27c	If test cycle is one where first trunk is made busy — Remove make-busy tool.	

B. Toll Incoming and Toll Intermediate Selector Operation

4	Insert No. 289B plug of P4K cord into test set TT jack.	
5c	When test cycle is one where first trunk is to be made busy proceed as follows: Insert a make-busy tool between No. 3 and 4 springs of test jack on one of the idle selectors on same shelf as the one being tested — Insert another make-busy tool between springs No. 1 and No. 2. Pulse the selector to the test level by removing and reinserting the latter tool as required to simulate dialing. ***Caution: To avoid personal contact with the make-busy tool used to pulse a selector, one end of the tool should be insulated with tape or suitable material.***	Selector steps to level (by simulated dialing) and cuts through on the first terminal.
6c	When selector reaches level under test leave both make-busy tools in test jacks.	Selector holds in this position.
7	Insert No. 240B plug of P4K cord into test jack of switch under test.	C lamp not lighted. ***Note:*** If C lamp lights, wait for lamp to be extinguished or move plug to another selector.

STEP	ACTION	VERIFICATION
8	Operate SL key.	
9	Operate switch on cord to OFF position and switch on handset to TALK position.	
10d	If selector is arranged to absorb digits on certain levels repeatedly — Dial level so arranged at least twice.	Selector steps to level dialed and restores properly after each series of pulses.
11e	If selector is arranged to "block" on any level — Dial level so arranged.	Selector steps to level dialed and "blocks." Interrupted tone heard in receiver.
12e	Operate switch on handset to MON position momentarily.	
13e	Restore SL key on test set momentarily.	Selector restores properly.
14f	If selector is arranged to absorb first digit on all levels — Dial any level.	Selector steps to level dialed and releases properly.
15	Dial level under test.	Selector steps vertically to level dialed and rotates to first idle terminal.
16	Operate switch on handset to MON position.	
17	Restore SL key on test set momentarily.	Selector releases properly.
18	Operate LEAK key.	
19	Operate switch on handset to TALK position and switch on cord to ON position.	
20	Repeat Steps 10d through 16 as required.	
21	Restore SL key.	Selector releases properly.
22	Restore LEAK key.	
23	Remove No. 240B plug from selector.	
24	Repeat Steps 7 through 23, as required, on other selectors to be tested. ***Note:*** If test cycle is one where the first trunk is made busy substitute another selector previously tested for the one to hold the trunk busy and repeat Steps 4 through 23 on this selector.	
25g	If no further tests are to be performed — Remove all test set connections.	
26c	If test cycle is one where first trunk is busy — Remove make-busy tools.	

STEP	ACTION	VERIFICATION
	C. Restricted Service for Selectors, other than "Blocking," and Class of Service Indication Features	
1	Insert No. 240A plug of handset into test jack of selector under test.	
2	Operate switch of handset cord to ON position and switch on handset to TALK position.	
3a	If selector is arranged to absorb the first digit on level selected for test — Dial digit of the level.	Selector steps to level dialed and releases.
4b	If testing selectors arranged for restricted service on individual levels and not dependent upon an indication from the preceding circuit — Dial level so arranged.	Selector steps to level dialed and rotates to 11th rotary position. Paths busy tone heard.
5c	If testing selectors arranged for restricted service until a digit is absorbed — Dial a level so arranged.	Selector steps to level dialed and rotates to the 11th rotary position. Paths busy tone heard.
6d	If testing selectors arranged to receive the restricted service or class of service condition over a fourth wire (A lead) from the preceding selector — Connect No. 365 tool of No. 893 cord to switch frame ground and No. 419A tool to shelf jack spring of selector under test, as follows: No. 6 spring for Western Electric Company shelves. No. 13 spring for Automatic Electric Company shelves.	
7d	Dial level arranged for restricted service.	Selector steps to level dialed and rotates to the 11th rotary position. Paths busy tone heard.
8e	If testing selectors arranged to extend the restricted service or class of service condition over a fourth wire (A lead) to a succeeding switch — Connect No. 893 cord as in Step 6d.	
9e	Dial the code ( ) which will direct the switch to proper level or trunk.	Selector steps to proper level. Proper indication is received. *Note:* In some cases it may be necessary to check with the operator as the indication may not always be received by the tester.

STEP	ACTION	VERIFICATION
10f	If using No. 893 cord — Disconnect No. 365 tool from shelf jack ground and No. 419A tool from shelf jack spring.	
11g	If no other tests are to be performed — Remove No. 240A plug of handset from selector test jack.	Selector releases.