

**LOCAL AND TOLL 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 toll selectors in 355A, 356A, and 35-E-97 community dial offices, using test set SD-31859-01. Reverting call selectors are not covered in this section.

**1.02** This section is reissued to change the title and to add information pertaining to dial tone supplied by first selectors where office is equipped with common control or TOUCH-TONE. Test C is changed to include restricted service on coin calls on trunks to a CAMA office. Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

**1.03** The tests covered are:

**A. Local Selectors:** This test checks the following selector features: vertical stepping to proper level and rotating to idle terminal; blocking; digit absorbing; cut-through and release; interrupted tone on blocked levels; and dial tone on first selector not associated with common control or TOUCH-TONE.

**B. Toll Selectors (355A Offices Only):** This test checks the vertical stepping to proper level and rotating to idle terminal feature. It also checks blocking, interrupted tone on blocked levels, digit absorbing, cut-through, and release features of selector.

**C. Restricted Service and Class-of-Service Indication Features (355A and 35-E-97 Offices Only):** This test checks that a selector will rotate past any idle terminal on levels arranged for restricted service and return interrupted tone. It also checks that a selector can receive restricted service or class-of-service condition from preceding circuit or extend same to succeeding circuit.

**1.04** The term "blocking" is applied to switches that either do not cut in when the level dialed is reached and return interrupted tone or, if arranged to cut in, will rotate to the eleventh rotary position and return interrupted 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 (except levels with trunks to switchboard positions) should be used each time the tests are performed so that eventually every selector will have been tested on each working level.

**1.08** On alternate tests, the first trunk should be made busy on the level under test when making Tests A and B. On the other tests, 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 performed.

## SECTION 226-305-502

**1.10** In offices arranged for common control or TOUCH-TONE, the associated first selectors will not supply dial tone. This function will be performed by the originating register or converter circuits.

**1.11** *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.

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

## 2. APPARATUS

### All Tests

**2.01** 477A or 258C make-busy tools, as required.

**2.02** 1011G handset (dial hand test set), equipped with a 2W39A cord assembly consisting of a W2CL cord, a 471A jack, and a 240A plug. The KS-8011 switch on the cord in the OFF position cuts in 1200 ohms resistance.

### Tests A and B

**2.03** Test set J34722B (SD-31859-01).

**2.04** Patching cord, P3K cord, 6 feet long, equipped with two 310 plugs (3P15A cord) for connecting battery and ground to test set when test battery and ground jacks are provided.

**2.05** Patching cord, W2M cord, 9 feet long, equipped with one 310 plug, two 59 cord tips (2W12A cord), and two 108 (rubber insulated) cord tips (install 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.

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

### Test A

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

### Test B

**2.08** Patching cord, P4K cord, 12 feet long, equipped with one 289B plug and 240B plug (4P4A cord).

### Test C

**2.09** Testing cord, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord), one 365 tool, and one 419A tool.

## 3. PREPARATION

STEP	ACTION	VERIFICATION
<b>Tests A and B</b>		
1	At selector frame — At test set — Set all keys to normal position.	
2	Insert 310 plug of battery cord into BAT G jack.	
3	Connect other end of battery cord to battery and ground supply.	

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

**Caution:** To avoid possible grounding of battery supply lead, connect cord to test set first. When disconnecting, remove cord from test set last.

**Note:** When using fuse or test battery, 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).

- |   |  |  |
|---|--|--|
| 4 | At test set —<br>Insert 240A plug of handset into TJ jack of test set. |  |
|---|--|--|

#### 4. METHOD

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

##### A. Local Selectors

- |   |  |  |
|---|--|--|
| 5 | Insert 310 plug of P3H cord into T jack of test set. |  |
|---|--|--|

- |    |  |  |
|----|--|--|
| 6a | At selector frame —<br>If test is one where first trunk is made busy on level under test —<br>Invert 240A plug of P3H cord and insert into test jack of 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. |  |
|----|--|--|

- |    |   |  |
|----|---|--|
| 7a | At test set —<br>Operate handset switch to TALK position. |  |
|----|---|--|

Dial tone heard on local first selectors.

**Note:** Dial tone is not heard if first selector is associated with common control or TOUCH-TONE equipment.

- |    |                        |  |
|----|------------------------|--|
| 8a | Dial level under test. |  |
|----|------------------------|--|

Selector steps to level dialed, rotates to first terminal, and cuts through.  
Dial tone removed on first selector.

- |    |  |  |
|----|--|--|
| 9a | At selector frame —<br>Insert make-busy tool between sleeve and ground springs 3, 4 of selector test jack. |  |
|----|--|--|

- |     |   |  |
|-----|---|--|
| 10a | Remove 240A plug from selector test jack. |  |
|-----|---|--|

Selector held by make-busy tool.

- |     |  |  |
|-----|--|--|
| 11a | At test set —<br>Operate handset switch to MON position. |  |
|-----|--|--|

SECTION 226-305-502

STEP	ACTION	VERIFICATION
12	At selector frame — Insert 240A plug of P3H cord into test jack of idle selector under test.	C lamp not lighted.  <i>Note:</i> If C lamp lights, wait for lamp to be extinguished or move plug to another selector.
13b	If testing SD-32183-01 selector — Using a toothpick, insulate auxiliary test jack springs 5, 6.	
14	At test set — Operate cord switch to OFF position and handset switch to TALK position.	C lamp lights. Dial tone heard on local first selectors.  <i>Note:</i> Dial tone is not heard if first selector is associated with common control or TOUCH-TONE equipment.
15c	If selector requires a preliminary ground forward over S lead, as with H-59467 used as a local selector — Momentarily operate SL key.	C lamp remains lighted.
16d	If selector is arranged to absorb digits repeatedly on certain levels — Dial level so arranged at least twice.	Selector steps to level dialed and releases after each series of pulses. Dial tone removed on first selectors after first series of pulses.
17e	If selector is arranged to absorb first digit on all levels — Dial any level.	Selector steps to level dialed and releases. Dial tone removed on first selectors.
18e	If selector is arranged to block on certain levels. Dial level so arranged.	Selector steps to level dialed and blocks. Interrupted tone heard.
19e	Momentarily operate handset switch to MON position.	Selector releases.
20	Dial level under test.	Selector steps to level dialed. Rotates past first terminal if made busy, and stops on an idle terminal. Dial tone removed on first selectors. REV-BAT lamp does not light. C lamp remains lighted.
21	Dial another digit.	No vertical kick of shaft.
22	Operate handset switch to MON position.	C lamp extinguishes. Selector releases.
23	Operate LEAK key.	

STEP	ACTION	VERIFICATION
24	Operate handset switch to TALK position and cord switch to ON position.	C lamp lights. Dial tone heard on local first selectors.
		<i>Note:</i> Dial tone is not heard if first selector is associated with common control or TOUCH-TONE equipment.
25	Repeat Steps 15c through 22 as required.	
26	Restore LEAK key.	
27	At selector frame — Remove 240A plug from selector test jack.	
28b	If testing SD-32183-01 selector — Remove insulating tool from auxiliary test jack springs.	
29	Repeat Steps 12 through 28b as required on other selectors to be tested.	
	<i>Note:</i> If test is one where first trunk is made busy, substitute another selector previously tested for the one to hold first trunk busy and repeat Steps 6a through 28b on this selector.	
30f	At test set — If no further tests are to be made — Remove all cords and restore all keys.	
31a	At selector frame — If test is one where first trunk is made busy on level under test — Remove make-busy tool.	
<b>B. Toll Selectors (355A Offices Only)</b>		
5	At test set — Insert 289B plug of P4K cord into test set TT jack.	
6a	At selector frame — If test is one where first trunk is made busy on level under test — Insert make-busy tool between springs 3, 4 of test jack of idle selector on same shelf as selector under test.	
7a	Insert make-busy tool between springs 1, 2.	
8a	Remove and reinsert make-busy tool between springs 1, 2 intermittently to step selector to level under test.	Selector steps to level under test and rotates to first terminal.

**SECTION 226-305-502**

STEP	ACTION	VERIFICATION
	<i>Caution: To avoid personal contact with make-busy tool used to step selector, one end of tool should be insulated with tape or suitable material.</i>	
9a	When selector reaches level under test — Leave both make-busy tools in test jacks.	Selector holds in this position.
10	Insert 240B plug of P4K cord into test jack of idle selector under test.	C lamp not lighted.
		<i>Note:</i> If C lamp lights, wait for lamp to be extinguished or move plug to another selector.
11	At test set — Operate SL key.	
12	Operate cord switch to OFF position and handset switch to TALK position.	
13b	If selector is arranged to absorb digits repeatedly on certain levels — Dial level so arranged at least twice.	Selector steps to level dialed and releases after each series of pulses.
14c	If selector is arranged to block on certain levels — Dial level so arranged.	Selector steps to level dialed and blocks. Interrupted tone heard.
15c	Momentarily operate switch on handset to MON position.	
16c	Momentarily restore SL key on test set.	Selector releases.
17d	If selector is arranged to absorb first digit on all levels — Dial any level.	Selector steps to level dialed and releases.
18	Dial level under test .	Selector steps to level dialed. Rotates past first terminal if made busy and stops on an idle terminal.
19	Dial another digit.	No vertical kick of shaft.
20	Operate handset switch to MON position.	
21	Momentarily restore SL key on test set.	Selector releases.
22	Operate LEAK key.	
23	Operate handset switch to TALK position and cord switch to ON position.	
24	Repeat Steps 13b through 20 as required.	
25	Restore SL key.	Selector releases.

STEP	ACTION	VERIFICATION
26	Restore LEAK key.	
27	At selector frame — Remove 240B plug from selector.	
28	Repeat Steps 10 through 27 as required on other selectors to be tested.	
	<i>Note:</i> If test is one where the first trunk is made busy on level under test, substitute another selector previously tested for the one to hold trunk busy and repeat Steps 5 through 27 on this selector.	
29e	At test set — If no further tests are to be made — Remove all cords and restore all keys.	
30a	At selector frame — If test is one where first trunk is made busy on level under test — Remove make-busy tools.	
<b>C. Restricted Service and Class-of-Service Indication Features (355A and 35-E-97 Offices Only)</b>		
1	At selector frame — Insert 240A plug of handset into test jack of idle selector under test.	
2	Operate cord switch to ON position and handset switch to TALK position.	Dial tone heard on local first selectors.
		<i>Note:</i> Dial tone is not heard if first selector is associated with common control or TOUCH-TONE equipment.
3a	If selector is arranged to restrict service on specified levels on first digit — Dial level arranged for restriction.	Selector steps to level dialed and rotates to eleventh rotary position. Dial tone removed on first selectors. Interrupted tone heard.
4b	If selector is arranged to restrict service on levels until first digit is absorbed — Dial any level not arranged for digit absorption.	Selector steps to level dialed and rotates to eleventh rotary position. Interrupted tone heard.
5b	Momentarily operate handset switch to MON position.	Selector releases.
6b	Dial level arranged for digit absorption.	Selector steps to level dialed and releases. Dial tone removed on first selectors.

SECTION 226-305-502

STEP	ACTION	VERIFICATION
7b	Dial level selected in Step 4b.	Selector steps to level dialed and rotates to first idle terminal.
8c	If selector is arranged to restrict service on levels until first digit absorbed and then on specified levels under control of fourth lead (A lead) from preceding switch — Connect 365 tool of 893 cord to selector frame ground.	
9c	Connect 419A tool of 893 cord to jack springs as follows — For Western Electric Company shelves, jack spring 6. For Automatic Electric Company shelves, jack spring 13.	
10c	Dial level arranged for restriction under control of fourth lead.	Selector steps to level dialed and rotates to eleventh rotary position. Interrupted tone heard.
11c	Momentarily operate handset switch to MON position.	Selector releases.
12c	Dial level arranged for digit absorption.	Selector steps to level dialed and releases. Dial tone removed from first selectors.
13c	Dial level selected in Step 10c.	Selector steps to level dialed and rotates to eleventh rotary position. Interrupted tone heard.
14d	If selector is arranged to extend restricted service or class-of-service condition over fourth lead (A lead) to succeeding switch — Connect 893 cord as in Steps 8c, 9c.	
15d	Dial code ( ) to direct selector to level so arranged and restricted level of succeeding switch.	Selector steps to level dialed, rotates to first idle terminal and cuts through. When second digit is dialed — Appropriate indication received.  <i>Note:</i> In some cases, it may be necessary to check with operator as the indication may not always be received by tester.
16	Remove 240A plug from selector test jack.	Selector releases.
17c	If selector is arranged to restrict service on levels until first digit absorbed and then on specified levels under control of fourth lead (A lead) from preceding switch — Disconnect 893 cord from jack spring.	
18	Repeat Steps 1 through 17c as required on other selectors to be tested.	
19e	If no further tests are to be made — Remove all cords and restore all keys.	