

LOCAL AND TOLL SELECTORS
OPERATION TESTS
USING TEST SET SD-31858-01 (J34701A)
STEP-BY-STEP SYSTEMS

1. GENERAL

1.01 This section describes a method of testing local and toll selectors in 355A and 35-E-97 community dial offices, using test set SD-31858-01 (J34701A). 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 modified 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; release; interrupted tone on blocked levels; and dial tone on first selectors 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:* 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 do not cut in when the level 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 in Tests A and B. On the other tests, the first trunk should be left idle to test that the selector 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

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more than 50 volts, the battery voltage should be reduced and maintained within the required limits while the tests are being performed.

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.

Test A

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

3. PREPARATION

STEP	ACTION	VERIFICATION
Tests A and B		
1	At relay rack — 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.	

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

Tests A and B

2.04 Test set, J34701A (SD-31858-01).

2.05 Head telephone set.

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

2.07 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.

Test B

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

Test C

2.09 1011G handset (dial hand test set) equipped with one 2W39A cord consisting of a W2CL cord, a 471A jack, and a 240A plug.

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

STEP	ACTION	VERIFICATION
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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.

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

4	Connect head telephone set to test set TEL jacks.	
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Test A

5	Insert 310 plug of P3H cord into test set T jack.	
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Test B

6	At test set — Connect 289B plug of P4K cord to test set TT jack.	
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4. METHOD

STEP	ACTION	VERIFICATION
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A. Local Selectors

6a	At selector frame — If test is one where first trunk is made busy on level under test — 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.	
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7a	At test set — Operate DL ST key.	Dial tone heard on first selectors.
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Note: Dial tone is not heard if first selector is associated with common control or TOUCH-TONE equipment.

8a	Restore DL ST key.	
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9a	Dial level under test.	
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Selector steps to level dialed, rotates to first terminal, and cuts through.
Dial tone removed on first selectors.

10a	At selector frame — Insert make-busy tool between sleeve and ground springs 3, 4 of selector test jack.	
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11a	Remove 240A plug from selector test jack.	Selector held by make-busy tool.
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STEP	ACTION	VERIFICATION
12b	If testing SD-32183-01 selector — Using a toothpick, insulate test jack springs 5, 6.	
13	Insert 240A plug of P3H cord into test jack of idle selector.	BSY lamp not lighted.
14	At test set — Operate LK key.	
15	Operate DL ST key.	SL 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.
16	Restore DL ST key.	SL lamp remains lighted.
17c	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.
18d	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.
19e	If selector is arranged to block on certain levels — Dial level so arranged.	Selector steps to level dialed and blocks. Interrupted tone heard.
20e	Momentarily operate FL key.	SL lamp extinguishes. Selector releases.
21	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.
22	Dial another digit.	No vertical kick of shaft.
23	Momentarily operate FL key.	SL lamp extinguished. Selector releases.
24	Restore LK key.	
25	Operate LP key.	
26	Repeat Steps 15 through 23 as required.	
27	Restore LP key.	
28	At selector frame — Remove 240A plug from selector test jack.	
29b	If testing SD-32183-01 selector — Remove insulating tool from auxiliary test jack springs.	

STEP	ACTION	VERIFICATION
30	Repeat Steps 12b through 29b 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 29b on this selector.	
31f	At test set — If no further tests are to be made — Remove all cords and restore all keys.	
32a	At selector frame — If test is one where first trunk is made busy on level under test — Remove make-busy tool.	
B. Toll Selectors (355A Offices Only)		
7a	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.	
8a	Insert make-busy tool between springs 1, 2.	
9a	Remove and reinsert make-busy tool between springs 1, 2 intermittently to step selector to level under test. <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>	Selector steps to level under test and rotates to first terminal.
10a	When selector reaches level under test — Leave both make-busy tools in test jacks.	Selector holds in this position.
11	Insert 240B plug of P4K cord into test jack of idle selector under test.	
12	At test set — Operate SL key.	BSY lamp not lighted.
13	Operate LK key.	
14	Operate DL ST key.	C, BSY lamps light.
15	Restore SL key.	BSY lamp extinguishes.
16b	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.

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STEP	ACTION	VERIFICATION
17c	If selector is arranged to block on certain levels — Dial level so arranged.	Selector steps to level dialed and blocks. Interrupted tone heard.
18c	Operate SL key.	Selector releases.
19d	If selector is arranged to absorb first digit on all levels — Dial any level.	Selector steps to level dialed and releases.
20	Dial level under test.	Selector steps to level dialed. Rotates past first terminal if made busy and stops on an idle terminal.
21	Dial another digit.	No vertical kick of shaft.
22	Restore DL ST, LK keys.	
23	Operate SL key.	C lamp extinguishes. Selector releases.
24	Restore SL key.	
25	Operate LP key.	
26	Operate 1200 key.	
27	Repeat Steps 12 through 20 as required.	
28	Restore DL ST, LP, and 1200 keys.	
29	Operate SL key.	C lamp extinguishes. Selector releases.
30	Restore SL key.	
31	At selector frame — Remove 240B plug from selector test jack.	
32	Repeat Steps 11 through 31 as required on other selectors to be tested.	
	<i>Note:</i> If test is one where first trunk is made busy on level under test, substitute another selector previously tested for the one to hold first trunk busy and repeat Steps 7a through 31 on this selector.	
33e	At test set — If no further tests are to be made — Remove all cords and restore all keys.	
34a	At selector frame — If test is one where first trunk is made busy on level under test — Remove make-busy tools.	

STEP	ACTION	VERIFICATION
C. Restricted Service and Class-of-Service Indication Features		
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 — 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.
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 is 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 spring 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.

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STEP	ACTION	VERIFICATION
12c	Dial level arranged for digit absorption.	Selector steps to level dialed and releases. Dial tone removed on 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 circuit — 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 is absorbed and then on specified levels under control of fourth lead (A lead) from preceding switch — Disconnect 893 cord from jack spring of selector.	
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.	