A-B TOLL TRANSMISSION SELECTORS
OPERATION TESTS USING TEST SET SD-31858-01 (J34701A)
355A COMMUNITY DIAL OFFICES

1. GENERAL

1.01 This section describes a method of testing A-B toll transmission selectors, using test set SD-31858-01 (J34701A).

1.02 This section is reissued to incorporate material from the addendum in its proper location. In this process marginal arrows have been omitted.

1.03 The tests and features tested are:

A. Idle Line Test - Loop - Using Connector Multiple Test Line SD-31263-01, SD-31642-01, or SD-31932-01

This test checks the pulsing, ringing supervision, and cut-through features of A-B toll transmission selectors.

B. Idle Line Test - Loop - Using Connector Test Line (99 Terminal)

This test checks the pulsing, ringing, cut-through, and supervision features of A-B toll transmission selectors.

C. Idle Line Test - Loop - Coin Control - Using Nearby Station

This test checks the pulsing, ringing, coin return, and coin collect features of A-B toll transmission selectors.

D. Busy Line Test - Loop With Leak - Using Connector Test Line (99 Terminal)

This test checks the ability of A-B toll transmission selectors to follow and repeat pulses and to return an indication of a busy-line condition.

E. All-paths-busy Test - Loop With Leak

This test checks the ability of A-B toll transmission selectors to return an indication of an all-paths-busy condition.

F. Digit Absorbing and Blocking Tests

This test checks the ability of A-B toll transmission selectors to absorb digits or to block digits on selectors arranged for these features.

1.04 Test C requires the assistance of an operator or an assistant and the use of a local coin station in addition to a noncoin station, the latter to be used as a talking line. If either the talking line or the coin station is not available, check the coin control feature from the toll office in accordance with sections covering tests of toll switching trunks to step-by-step offices.

Note: Test C does not apply in the case of toll offices arranged for the 110-volt position circuit method of coin control. Check the coin control feature from the toll office in accordance with sections covering tests of toll switching trunks to step-by-step offices and use Test A, B, or C to cover the remaining tests of the selectors.

1.05 Resistances provided in the test set are used for simulating either the 1200- or 2000-ohm loop condition of the A-B toll transmission selectors. The resistance values are inserted in the test circuit dialing circuit by operating keys indicated:

Keys Operated	Loop Resistance
300 and 600	900 ohms
1200	1200 ohms
300, 600, and 1200	2100 ohms

The proper resistance value to be used for Test A, B, C, or E is the one which most nearly represents the maximum pulsing loop over which the switch operates in service. When making leak test, Test D, if the circuit under test has a maximum pulsing loop limit of 1200 ohms, or a limit of 2000 ohms with 1000-ohm compensation in the selector, the loop resistance should be zero, all of the resistance keys being normal; if it has a maximum pulsing loop limit of 2000 ohms, and no compensation, the loop resistance should be 900 ohms.

1.06 While conducting tests, the trunks should be made busy in the approved manner. Restore trunks to service when tests are completed.

1.07 A different level should be used each time Tests A through E are performed so that eventually every selector will have been tested on each working level.

1.08 When testing A-B toll transmission selectors arranged to absorb the first

digit on all levels or the first digit on the level under test, or arranged to restrict service until a digit is absorbed, it will be necessary to dial an extra digit and then proceed with the tests when the switch restores (see Test F).

1.09 Local instructions should be followed with reference to recording any traffic register operations caused by performing these tests.

1.10 All lamps, keys, and jacks referred to are located in the test set unless otherwise specified.

1.11 These tests should preferably by made during periods of light traffic.

1.12 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.

1.13 Lettered Steps: The letters a, b, c, etc., are added to a step number to indicate that the steps cover an action which may or may not be required, depending upon local conditions. The conditions on which a lettered step or series of steps should be made are given in the action column, and all steps governed by the same condition are designated by the same letter. When a condition does not apply, the associated steps should be omitted.

2. APPARATUS

All Tests

2.01 Test set J34701A (SD-31858-01).

2.02 Head telephone set (part of the J34701A test set).

2.03 Patching cord - P3H cord, 10 feet long, equipped with a No. 310 plug and a No. 240A plug (3P2A cord), or equivalent, used in connecting the test set to the selector test jack.

2.04 Patching cord - P3E cord, 6 feet long, equipped with a No. 310 plug at each end (3P7A cord), or equivalent, used in connecting the frame battery supply to the test set, or to the test line circuit in Test B.

Test B

2.05 Patching cord - P3E cord, 6 feet long, equipped with a No. 310 plug at each end (3P6D cord), used in connecting the test set to the test line circuit.

Test E

2.06 Testing cord - W2W cord, 6 feet long, equipped at one end with a No. 310 plug and at the other with a No. 360B tool and a No. 360C tool (2W17A cord). In addition, a No. 411A tool should be connected to the No. 360C tool (tip conductor), used in connecting the trunk test set to the selector test jack.

3. PREPARATION

STEP	ACTION	VERIFICATION
All Tests Except Test B		
1	Using P3E cord - Connect BAT G jack to frame battery supply jack Note: To avoid possible grounding of the battery supply lead, connect the cord to the test set first, and when disconnecting, remove the cord from the test set last.	
All Tests		
2	Insert No. 310 plug of P3H cord into test set T jack	
3	Connect head telephone set to TEL jacks	
4	Insert proper resistance in dialing circuit as indicated in 1.05	

STEP	ACTION	VERIFICATION
	Test B	
5	Using P3E cord with red shells - Connect R jack to connector test line R jack Note: To avoid grounding of battery supply, connect plug to the test set first, and when disconnecting, remove plug from test set last.	
6	Using P3E cord with black shells - Connect B jack to connector test line B jack	
	Test E	
7	Insert No. 310 plug of W2W cord into B jack Operate BY key	

4. METHOD

STEP	ACTION	VERIFICATION
	A. Idle Line Test - Loop - Using Connector Multiple Test Line SD-31263-01, SD-31642-01, or SD-31932-01	
5	Note that selector under test is normal Insert No. 240A plug of P3H cord into selector test jack	BSY lamp does not light
6	Operate and restore DL ST key	SL lamp lighted and remains lighted
7	Dial connector multiple test line number	Ringing induction heard in receiver
8	Ringing tripped by connector test line Note: If tripping does not occur during the first or second ringing interval (as indicated by ringing induction), the indication is that the connector is ringing on another terminal. In this case, remain on the connection for a short time, and if a subscriber or operator answers, operate TRS key and advise that a test is being made.	Ringing induction ceases REV lamp flashes Test line tone heard in telephone receiver while lamp is lighted
9	Operate and hold FL key	Selector releases SL and REV lamps extinguished
10	Release FL key	
11	Remove plug from selector test jack unless other tests are to be performed on this selector	
	B. Idle Line Test - Loop - Using Connector Test Line (99 Terminal)	
7	Note that selector under test is normal Insert No. 240A plug of P3H cord into selector test jack	BSY lamp does not light
8	Operate TOLL key Operate and restore DL ST key	SL lamp lighted and remains lighted
9	Dial connector test line terminal Note: Use ring side code if connectors are of the terminal-per-line type.	Audible ringing heard in telephone receiver Test set buzzer relay sounds

STEP	ACTION	VERIFICATION
10	Operate and restore ANS key three times at slow flashing rate	REV lamp lights in unison Buzzer relay operates while lamp is lighted
11	Reoperate ANS key	REV lamp lighted Steady tone heard in telephone receiver Buzzer relay operates continuously
12	Operate and hold FL key	Selector releases SL and REV lamps extinguished
13	Release FL key and restore ANS, TOLL keys	
14	Remove plug from selector test jack Remove connections made in Steps 5 and 6, Part 3, unless this test is to be performed on other selectors	

C. Idle Line Test - Loop - Coin Control - Using Nearby Station

5	Call toll office from position where coin is to be controlled Inform assistant or toll operator that line is to be used as talking circuit until Test C has been performed on all selectors associated with coin trunks to be tested (see 1.04)	
6a	If office is arranged for associated jack method of coin control - Request assistant at toll office to connect coin control cord to coin control jack associated with trunk connected to selector under test	
7b	If office is arranged for coin control selector method of coin control - Request assistant at toll office to connect coin control cord to an idle coin control trunk and dial toll switching trunk number associated with selector under test	
8	Note that selector under test is normal Insert No. 240A plug of P3H cord into selector test jack	BSY lamp does not light
9	Operate and restore DL ST key	SL lamp lighted and remains lighted
10	Dial connector terminal number of coin station used for test	REV lamp lighted when station is seized Audible ringing heard in telephone receiver
11	Remove station receiver	REV lamp extinguished
12	Deposit coin in coin box and leave receiver off hook	
13	Request assistant to return coin	Coin returned Note: In coin control selector method offices, high (coin return) tone will be heard as coin returns
14	Restore station receiver	REV lamp lighted
15	Deposit another coin	

STEP	ACTION	VERIFICATION
16	Request assistant to collect coin	Coin collected Note: In coin control selector method offices, low (coin collect) tone will be heard as coin is collected.
17	Operate and hold FL key	Selector releases SL and REV lamps extinguished
18	Release FL key Remove plug from selector test jack unless other tests are to be performed on these selectors	
19	When tests have been completed - Advise assistant and disconnect from line	

D. Busy Line Test - Loop With Leak - Using Connector Test Line (99 Terminal)

5	Note that selector under test is normal Insert No. 240A plug of P3H cord into selector test jack	BSY lamp does not light
6	Operate LK key Operate and restore DL ST key	SL lamp lighted and remains lighted
7	Dial connector test line (99 terminal)	REV lamp flashes at busy rate Busy tone heard in telephone receiver
8	Operate and hold FL key	Selector releases SL and REV lamps extinguished
9	Release FL key	
10	Remove plug from selector test jack unless other tests are to be performed on this selector	

E. All-paths-busy Test - Loop With Leak

8	Note that selector under test is normal Insert No. 240A plug of P3H cord into selector test jack	BSY lamp does not light
9	Operate LK key Operate and restore DL ST key	SL lamp lighted and remains lighted
10	With BY key operated - Hold No. 411A tool against sleeve wiper cord terminal on selector test jack assembly	
11	Dial any level not arranged to absorb digits repeatedly or to block (see 1.08)	Switch rotates to eleventh rotary position, REV lamp flashes at all-paths-busy rate
12	When eleventh rotary position is reached to stop undue vibration of rotary magnet - Remove No. 411A tool from selector test jack	
13	Operate and hold FL key	Selector releases SL and REV relays extinguished
14	Restore FL key	
15	Remove No. 240A plug from selector test jack unless other tests are to be performed on selector	

STEP	ACTION	VERIFICATION
	F. Digit Absorbing and Blocking Tests	
5	Note that selector under test is normal Insert No. 240A plug of P3H cord into selector test jack	BSY lamp does not light
6	Operate and restore DL ST key	SL lamp lighted and remains lighted
7a	If level to be tested is arranged to absorb once - Dial level	Selector steps to level and releases
8a	Dial same level again	Selector steps to level and cuts in on idle terminal
9a	Operate FL key momentarily	Selector releases SL lamp extinguished
10b	If level to be tested is arranged to restrict service until digit has been previously absorbed - Dial level	Selector steps to level and rotates to eleventh rotary position REV lamp flashes at all-paths-busy rate
11b	Operate FL key momentarily	Selector releases SL lamp extinguished
12c	If level to be tested is arranged to absorb repeatedly - Dial level several times	Selector steps to level and restores each time
13c	Dial level arranged to restrict service until digit has been previously absorbed	Selector steps to level and cuts in on first idle terminal
14c	Operate FL key momentarily	Selector restores to normal SL lamp extinguished
15	Repeat Steps 7a to 14c for all levels	
16	Remove No. 240A plug from selector test jack when all levels have been tested	