

## LOOP AND REPEATED DIALING A-B TOLL TRANSMISSION SELECTORS OPERATION TESTS USING TEST SET SD-90469-01 (J94710A) STEP-BY-STEP SYSTEMS

### 1. GENERAL

1.01 This section describes a method of testing loop dialing and repeated dialing A-B toll transmission selectors, using trunk test set J94710A (SD-90469-01). The tests covered are as follows:

- (A) Idle Line Test-Loop - Using Connector Multiple Test Line
- (B) Idle Line Test-Loop - Using Nearby Station
- (C) Busy Line Test - Loop with Leak
- (D) All Paths Busy Test-Loop

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 Test (A) is, in general, intended for use as the idle line test. However, if the connector multiple test line is reached through a combination connector which is arranged for joint control, the test line must be one arranged to await ringing. If, in such cases, the office is not equipped with this type of test line, the selector should be tested in accordance with Test (B).

1.04 In Test (A) it is necessary that the test line be multiplied to sufficient connector groups so that it may be reached through every transmission selector.

1.05 Test (C) is based upon the use of the connector test line (99 terminal).

1.06 Resistances provided in the test set are used for compensating the various loop conditions of the A-B toll transmission selectors. The following resistance values are inserted in the dialing circuit of the test set by operating the keys indicated.

<u>Keys Operated</u>	<u>Compensating Resistance</u>
300 key	300 ohms
600 key	600 ohms
300 and 600 keys	900 ohms
LP key	1200 ohms

The proper resistance value to be used is the one which most nearly represents the external pulsing loop over which the switch operates in service.

Note: When making Test (C), if the conductor loop resistance is such that the LP key (1200 ohms) would ordinarily be employed, it will be necessary to operate the 300 and 600 keys (900 ohms) instead, as Test (C) calls for the operation of the LK key which is the same unit as the LP key.

1.07 When testing A-B toll transmission selectors arranged to absorb all first digits, it will be necessary to dial an extra digit before each operation test.

1.08 While conducting these tests on switches directly connected to the trunks, the trunks should be made busy in the approved manner. They should be restored to service when the tests have been completed, except those on which failures are encountered.

1.09 If a failure is encountered on a switch directly connected to the trunk, the trunk should be held busy in the approved manner until the trouble is cleared. If a failure is encountered on a switch which is preceded by another switch, the switch on which the trouble is found should be held busy.

1.10 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.

### 2. APPARATUS

#### All Tests

- 2.01 Trunk Test Set J94710A (SD-90469-01).
- 2.02 Operator's Telephone Set.
- 2.03 One P3C Cord equipped at one end with a No. 110 Plug and at the other end with a No. 240A Plug (J99213A-L2 Cord).
- 2.04 One P3E Cord equipped with No. 110 Plugs at each end (J99213A-L6 Cord) - used where a battery supply jack is available.

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2.05 One W2T Cord equipped with one No. 110 Plug and two No. 59 and two No. 90 Cord Tips (J99212B-L17 Cord equipped with two No. 90 Cord Tips) - used where a battery supply jack is not available.

### Test (C) Only

2.06 One No. 110 Plug having the tip, ring and sleeve strapped. (Not required in No. 350A offices.)

### Test (D) Only

2.07 One W2W Cord equipped at one end with a No. 110 Plug, and at the other end with a No. 360C Tool and a No. 411A Tool connected to the tip (white) conductor (J99212B-L18 Cord) - used where the wiper cords terminate at the test jack assembly.

2.08 One W1M Cord equipped at one end with a 360 type Tool and a No. 365 Tool, and at the other end with a KS-6780 Cord Tip and a No. 108 Cord Tip - used where the wiper cords do not terminate at the test jack assembly.

## 3. PREPARATION

### All Tests

3.01 Connect 48-volt battery and ground to the BAT-G jack of the test set. Use a P3E cord if a battery supply jack is provided. If a battery supply jack is not available, use a W2T cord, connecting the No. 59 cord tip of the white (tip) conductor to a spare 48-volt battery fuse or to the equipment side of a battery fuse in service, and the red (sleeve) conductor to ground. In no case should the fuse selected exceed 5 amperes.

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.

3.02 Insert the No. 110 Plug of the P3C cord into the T jack of the test set.

3.03 Connect the operator's telephone set to the test set jacks TEL.

3.04 Insert the proper resistance in the dialing circuit as indicated in 1.06.

### Test (C) Only

3.05 Insert the No. 110 Plug, having the tip, ring and sleeve strapped, into the No. 4 jack of one of the connector test lines to which the A-B toll transmission selectors to be tested have access. In doing this, choose the test line which is reached from the highest of the levels having access to the test lines. (Omit this operation in No. 350A offices as the test line is normally busy.)

### Test (D) Only

3.06 If testing switches on which the wiper cords terminate at the test jack assembly, insert the No. 110 plug of the W2W cord into the TL jack of the test set and operate the ID key of the test set.

3.07 If testing switches on which the wiper cords do not terminate at the test jack assembly, connect the No. 365 tool of the W1M cord to ground.

## 4. METHOD

### (A) Idle Line Test-Loop - Using Connector Multiple Test Line

4.01 With the resistance keys operated as in 1.06, note that the selector to be tested is in the normal position and then insert the No. 240A plug of the P3C cord into the test jack. If the switch is busy the BSY lamp will light, in which case the plug may either be removed in order to proceed with other tests, or left in the test jack and the test delayed until the BSY lamp is extinguished.

4.02 Operate and restore the DL ST key. Note that the SL lamp lights and remains lighted.

4.03 When testing A-B toll transmission selectors arranged to absorb the digit zero, before proceeding with the test starting with 4.04, dial zero and note that the switch releases. If the selectors are arranged to absorb the digit zero repeatedly, again dial zero and note that the switch releases. The SL lamp should remain lighted.

4.04 Dial the connector multiple test line number. If the test line is of the type which delays the tripping of the ringing, ringing induction should be heard. In such cases note that the REV lamp does not light until the ringing is tripped.

4.05 Note that the REV lamp flashes after the ringing is tripped. Tone should be heard in the receiver while the lamp is lighted.

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 an operator answers, operate the TRS key and advise that a test is being made.

4.06 Operate and hold the FL key. Note that the switch releases and that the SL and REV lamps are extinguished. Release the FL key.

4.07 Remove the plug from the test jack of the selector unless other tests are to be conducted on this switch.

(B) Idle Line Test-Loop - Using Nearby Station

- 4.08 With the resistance keys operated as in 1.06, note that the selector to be tested is in the normal position and then insert the No. 240A plug of the P3C cord into the test jack. If the switch is busy the BSY lamp will light, in which case the plug may either be removed in order to proceed with other tests, or left in the test jack and the test delayed until the BSY lamp is extinguished.
- 4.09 Operate and restore the DL ST key. Note that the SL lamp lights and remains lighted.
- 4.10 Dial the connector terminal number of the local station to be used for the test. Note that the bell of the station rings, that audible ringing is heard in the receiver, and that the REV lamp does not light.
- 4.11 Remove the receiver from the station. Note that the REV lamp lights.
- 4.12 Restore the receiver of the station. Note that the REV lamp is extinguished.
- 4.13 Operate and hold the FL key. Note that the switch releases and that the SL lamp is extinguished. Release the FL key.
- 4.14 Remove the plug from the test jack of the selector unless other tests are to be conducted on this switch.
- (C) Busy Line Test-Loop with Leak
- 4.15 With the resistance keys operated as in 1.06, note that the selector to be tested is in the normal position and then insert the No. 240A plug of the P3C cord into the test jack. If the switch is busy the BSY lamp will light, in which case the plug may either be removed in order to proceed with other tests, or left in the test jack and the test delayed until the BSY lamp is extinguished.
- 4.16 Operate the LK key and then operate and restore the DL ST key. Note that the SL lamp lights and remains lighted.
- 4.17 Dial the busy connector test line. See 3.05. Note that the REV lamp flashes at the busy rate and that busy tone is heard in the receiver.
- 4.18 Operate and hold the FL key. Note that the switch releases and that the SL and REV lamps are extinguished. Release the FL and LK keys.
- 4.19 Remove the plug from the test jack of the selector unless other tests are to be conducted on this switch.

- 4.20 Remove the No. 110 plug from the No. 4 jack of the connector test line unless Test (C) is to be conducted on other switches.

(D) All Paths Busy Test-Loop

- 4.21 With the resistance keys operated as in 1.06, note that the selector to be tested is in the normal position and then insert the No. 240A plug of the P3C cord into the test jack. If the switch is busy the BSY lamp will light, in which case the plug may either be removed in order to proceed with other tests, or left in the test jack and the test delayed until the BSY lamp is extinguished.
- 4.22 Operate and restore the DL ST key. Note that the SL lamp lights and remains lighted.
- 4.23 With the ID key of the test set operated, hold the No. 411A tool (test pick) of the W2W cord against the sleeve wiper cord terminal on the test jack assembly and dial any level (except the zero level of A-B toll transmission selectors arranged to absorb the digit zero).

Note: If testing connectors not arranged for test jack termination of the wiper cords the ID key of the test set is not used. Follow the same procedure as outlined above except, in this case, use the KS-6780 cord tip of the W1M cord instead of the No. 411A tool and connect it directly to the sleeve wiper. It is permissible to span the two wiper springs with the KS-6780 cord tip in order to make this connection.

- 4.24 Note that the switch rotates to the 11th rotary position. Remove the No. 411A (or KS-6780) tool as soon as the switch reaches the 11th rotary position in order to stop the vibration of the rotary magnet. Note that the REV lamp flashes at the all paths busy rate.
- 4.25 Operate and hold the FL key. Note that the switch releases and that the SL and REV lamps are extinguished. Release the FL key.
- 4.26 Remove the plug from the test jack of the selector unless other tests are to be conducted on this switch.

5. REPORTS

- 5.01 The required record of these tests should be entered on the proper form.