LOOP DIALING TOLL CONNECTORS
OPERATION AND PULSING TESTS
USING CONNECTOR TEST SET SD-31637-01 OR SD-31637-02 (J34719A)
AND PULSING TEST SET SD-31481-01 (J34717A)
STEP-BY-STEP SYSTEMS

1. GENERAL

1.01 This section describes a method of performing operation tests, or combined operation and pulsing tests, on 100-point toll connectors (except the level hunting type), and on 100- and 200-point combination connectors (toll side only), in loop dialing toll trains, by means of the connector test set SD-31637-01 or SD-31637-02 and pulsing test set SD-31481-01.

1.02 This section is reissued to include testing of 200-point combination connectors, to expand Test B to include a machine intercept test, 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. Busy Line Test — Leak: This test checks the stepping features of a connector under a leak condition, except when the pulsing test set is used as a dialing device without margins. It also checks the ability of the connector to return busy tone or busy flash and to release.

B. Idle Line Test — Loop: This test checks the stepping features of a connector under a loop condition, except where the pulsing test set is used as a dialing device without margins. It also checks the ringing, pretrip, trip, transmission, and release features. Eight-party semiselective connector ringing is indicated either by test line bells or visual signals on the test set. It also checks the H or J relay of combination connectors for open secondary windings. With 200-point connectors, cut-through to machine intercept is checked.

C. Ringing Polarity Test — 8-party Semiselective Ringing Connectors: This test makes a complete check of toll connector H and J relays or combination connector K and N relays, and is intended for use only when testing a connector in connection with clearing a specific case of trouble. On a routine basis, the 8-party connectors should be tested as outlined under Tests A and B.

1.04 The pulsing test set, the dial on the connector test set, or the dial on the remote-control set may be used to direct the connector to the test line.

Caution: When dialing or pulsing the test line number, if the connector stops on any other terminal, immediately release the connector so as to avoid ringing on a subscriber line.

1.05 When using the pulsing test set, the loop and leak conditions in the connector test set are ineffective. The pulsing test set can be used either with or without pulsing margins depending on whether the pulsing tests are to be combined with the operation test.

1.06 *Toll Connectors:* The pulsing test may either be combined with the operation tests as described in this section or scheduled as a separate test in accordance with Section 226-400-500. In the latter case, Tests A and B would ordinarily be made without pulsing margins. Section 226-400-500 also covers an E relay hold test which is not included in this section.

1.07 *Combination Connectors:* The combining of the pulsing test and operation tests as described in this section is intended for use only when investigating pulsing trouble experienced on the toll side of the connector. Otherwise Tests A and B would ordinarily be made without pulsing margins, and the pulsing test made in accordance with Section 226-400-500 from the local

side of the connector, using loop and leak values which have been selected for a particular office. Section 226-400-500 also covers an E relay hold test which is not included in this section.

1.08 When the pulsing test is combined with Test A, a magnet pulsing test should be performed on any switch on which a pulsing failure is encountered in order to determine if the trouble indicated by Test A is due to the switch mechanism. The method of making the magnet test is described in Section 226-400-500 covering pulsing tests of connectors.

1.09 The general procedure for the analysis and correction of pulsing failures encountered in making pulsing tests of connectors is covered in Section 226-170-700.

1.10 ***100-point Connectors:*** The test line for these connectors is connected to terminal 99 except in the case of rotary hunting connector groups where terminal 99 is made busy and the test line is connected to terminal 90. The hunting feature is checked by directing the switch to terminal 99 and having it step to 90.

1.11 ***200-point Connectors:*** The test line for nonrotary hunting connectors is connected to terminal 99 of the upper and lower banks. The test line for rotary hunting connectors is connected to terminal 99 of the upper banks, and to terminal 90 of the lower bank, terminal 99 of the lower bank being made busy. The rotary hunting feature of the switch is tested, with the test set LO-UP key in the normal position, by directing the switch to terminal 99 and having it step to 90.

1.12 Wherever the preparation or method calls for the operation of the STP, PLS, or RLS key, or the dial, it is to be understood that either the STP, PLS, or RLS key or the dial of the connector test set, or the STP (No. 1), PLS (No. 2), or RLS (No. 3) key, or the dial of the remote-control test set is meant, depending upon whether or not the remote-control test set is being used.

1.13 The testing methods require that the test circuit be advanced through the various positions in which the proper conditions for the tests are applied. This is accomplished by momentarily operating the STP key. The progress lamps designated BSY-L (BUSY LINE), IDLE-L (IDLE LINE), DEL-R (DELAYED RINGING), PRETRIP, RING, T-TRIP (TONE TRIP), and T-CO (TONE CUTOFF) indicate the particular test which is applied at the time the lamp is lighted.

1.14 From all positions, except the BSY-L and IDLE-L positions, the test circuit can be returned to normal by operating and holding the RLS key until none of the progress lamps is lighted. If the test circuit is in the BSY-L or IDLE-L position, it is necessary to advance the test circuit beyond these positions by means of the STP key, then the RLS key may be used.

1.15 In Test B, some steps provide spaces for writing in the interval during which the pretrip and trip tests are to be made as indicated in Table A or B.

1.16 ***Toll Connectors:*** When testing toll connectors arranged for 1400- or 1500-ohm maximum external subscriber loop, any ring-trip relay which fails on the pretrip or trip test (test set test resistance values) shall be readjusted mechanically and electrically to meet the requirements specified in Sections 040-803-701 and 040-236-701, and in the circuit requirement table. The initial tests shall then be repeated. If the relay continues to fail, operate the test set keys as indicated for READJ in Table B, to apply the test set readjust resistance values and again repeat the tests, changing the tension in the No. 1 spring, as required.

1.17 When testing connectors arranged for 1000- or 1115-ohm maximum external subscriber loop, which have a 60- to 75-volt silent interval tripping battery, and for which ac requirements are specified, any ring-trip relays which fail on the pretrip or trip test (test set test resistance values) shall be readjusted mechanically to meet the requirements specified in Sections 040-803-701 and 040-236-701, and the readjust ringing current values provided by the test set. These values are obtained by operating the test set keys as indicated for READJ in Table A or B.

1.18 ***Combination Connectors:*** There is magnetic interference between the ring-trip relay and the H relay, if operated, of some combination connectors. Due to this interference,

when testing these connectors arranged for 1400- or 1500-ohm maximum external subscriber loop, the following shall apply.

(a) ***Pretrip:*** Any ring-trip relay which fails on the pretrip test shall be readjusted mechanically and electrically to meet the requirements specified in Sections 040-803-701 and 040-236-701, and in the circuit requirement table. If the connector is of the type where the H relay is not operated on local calls, the connector shall then be tested from the local side and the ring-trip relay further readjusted, if necessary, to meet the pretrip and trip tests as covered in Section 226-415-500. Make the trip test from the toll side.

(b) ***Trip:*** Any connector which fails on the trip test shall then be tested from the local side, and if necessary, the ring-trip relay readjusted to meet the pretrip and trip tests, as covered in Section 226-415-500. When the trip test is met from the local side, failure to trip during the silent period from the toll side is due to magnetic interference. In this case, tripping during the ringing period shall be considered sufficient.

Note: If the ring-trip relay was readjusted and the connector tested from the local side following pretrip failure, it is not necessary to test the connector from the local side following trip failure.

1.19 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.

1.20 ***Lettered Steps:*** A letter a, b, c, etc, added to a step number in Part 3 or 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.

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

2. APPARATUS

ALL TESTS

2.01 Connector test set, J34719A (SD-31637-01 or SD-31637-02).

2.02 Connector test line, SD-31653-01.

2.03 No. 40B (or No. 40A) (remote control) test set (optional).

2.04 No. 723A receiver, attached to an R2DB cord equipped with a No. 347A plug (or equivalent receiver).

2.05 Patching cords, two P3E cords, 6 feet long, each equipped with two No. 310 plugs (No. 3P7A cord).

2.06 Patching cord, P4K cord equipped with No. 240B and 289B plugs (No. 4P4A cord) (for use with 100-point toll connectors).

2.07 Patching cord, P4K cord equipped with No. 240C and 289B plugs (No. 4P5A cord) (for use with 100-point combination connectors).

2.08 Patching cord, consisting of a P4K cord equipped with a No. 289B plug and a P3H cord equipped with a No. 310 plug, both cords connected to a No. 240C plug (No. 5P5A cord) (for use with 200-point combination connectors).

When Using Pulsing Test Set

2.09 Pulsing test set, J34717A (SD-31481-01).

2.10 Patching cord, P2J cord, 6 feet long, equipped with two No. 310 plugs (No. 2P9B cord) (for use where a battery supply jack is available).

2.11 Test cord, 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 (for use where a battery supply jack is not available).

2.12 Patching cord, P3E cord, 6 feet long, equipped with two No. 310 plugs (No. 3P7A cord).

2.13 Patching cord, P4N cord, equipped with two No. 289B plugs (No. 4P8B cord).

TEST B FOR COMBINATION CONNECTORS

2.14 Patching cord, P3E cord, 10 feet long, equipped with two No. 310 plugs (No. 3P6F cord) (for use when PS or PERM T jacks are provided).

2.15 Testing cord, W2W cord, 10 feet long, equipped with No. 310 plug, No. 360B tool, and No. 360C tool (No. 2W17C cord). Connect KS-6278 connecting clip to No. 360C tool on tip side (white conductor) (for use when PS or PERM T jacks are not provided).

TEST B FOR 8-PARTY CONNECTORS AND TEST C

When Audible Ringing Signal Is Provided

2.16 No. 310 plug, designated A, with tip, ring, and sleeve open.

2.17 No. 184B plug, designated B, with ring and sleeve strapped.

2.18 No. 310 plug, designated C, with tip and ring strapped.

Note: The designation A, B, or C, as required, should be stamped locally on the shells of the plugs.

When Visual Ringing Signal Is Provided

2.19 Patching cord, P3E cord, 10 feet long, equipped with two No. 310 plugs (No. 3P6F cord).

3. PREPARATION

STEP	ACTION	VERIFICATION
All Tests		
1	Using 6-foot P3E cord, connect test line jack 3 to test set jack 3, using another 6-foot P3E cord, connect test line jack 4 either to test set jack 4 or 4-100 in offices having 100-point connectors only, or to test set jack 4-200 in offices having both 100- and 200-point connectors.	
2a	If remote control set is used — Insert red, gray, black plugs into test set R, G, B jacks, respectively.	
3	Connect receiver to TEL jack.	
4	Operate TOLL key.	
5	Operate, hold RLS key long enough to extinguish any progress lamps that may be lighted; or if necessary, operate, release STP key required number of times.	All lamps extinguished.
When Using Pulsing Test Set		
6b	If battery supply jack is available — Patch pulsing test set BAT G jack to battery and ground supply jack on connector frame, using P2J cord. *Note:* To avoid possible grounding of battery supply lead, connect cord to test set first and, when disconnecting, remove cord from the test set last.	

STEP	ACTION	VERIFICATION
7c	If battery supply jack is not available — Insert No. 310 plug of W2M cord into pulsing test set BAT G jack.	
8c	Connect No. 59 cord tip of white (tip) conductor to equipment side of 48-volt battery fuse (not over 5 amperes), red (sleeve) conductor to ground. ***Note:*** When disconnecting, remove the cord from test set last.	
9	Connect pulsing test set TL jack to connector test set A jack, using 6-foot P3E cord.	
10	Connect pulsing test set A, B jacks to connector test set LK, LP jacks, using P4N cord.	
11d	If using pulsing test set without margins — Restore all keys on pulsing set to normal position.	
12e	If using pulsing test set with margins — On pulsing set operate 400, 800, LK A keys for toll connectors, or operate 400, LK B keys for combination connectors.	
13f	If testing toll connectors — Insert No. 289B plug of P4K cord, equipped with No. 240B plug (No. 4P4A cord), into connector test set TT jack.	
14g	If testing 100-point combination connectors — Insert No. 289B plug of P4K cord equipped with No. 240C plug (No. 4P5A cord) into test set TT jack.	
15h	If testing 200-point combination connectors — Insert No. 289B plug of P4K cord, (No. 5P5A cord) into test set TT jack, No. 310 plug of P3H cord into test set RU jack.	
16h	Operate LO-UP key to UP position. ***Note:*** On alternate test cycles, leave LO-UP key normal.	
Test A for 10-party Connectors		
17	Operate 10P-TPS key when testing 10-party terminal-per-station connectors or 10-party terminal-per-line connectors arranged for reverting calls.	

STEP	ACTION	VERIFICATION
Test B		
18	Operate test set keys as indicated for TEST in Table A or B to provide proper pretrip and trip conditions in test set. Operate 10P-TPL key, if provided, when testing 10P-TPL connectors. *Note:* For tests during silent interval, silent interval tripping battery shall be within the voltage limits shown in tables.	

TABLE A

TEST SET PER SD-31637-01

KIND OF RING	MAX. EXT SUB. LOOP (OHMS)	TRIP BAT. VOLTS	FOR		KEYS OPERATED					PRETRIP	TRIP
					NOT USING FIG. C		USING FIG. C				
			TEST	READJ	SUP TST	SUP ADJ	SS	TST	ADJ		
AC-DC	1000-1115	46-50	X				X	X		Ringing period	Silent period
SUPER-IMPOSED	1000-1115	46-50	X		X			X		Ringing period	Silent period
		60-75	X		X					Ringing period	Ringing period
				X		X			X		

TABLE B

TEST SET PER SD-31637-02

KIND OF RING	MAX. EXT SUB. LOOP (OHMS)	TRIP BAT. VOLTS	FOR		KEYS OPERATED					PRETRIP	TRIP
			TEST	READJ	1000A	1000B	1400A	1400B	ADJ.		
AC-DC and/or SUPER-IMPOSED	1000-1115	48.5-50	X		X					Silent period	Silent period
		60-75	X			X				Ringing period	Ringing period
				X		X			X		
	1400-1500	48.5-50	X				X			Silent period	Silent period
				X			X		X		
		66-75	X					X			
				X				X	X		

STEP	ACTION	VERIFICATION
Test B for Combination Connectors		
19i	If PS or PERM T jack is provided on connector shelf — Connect P jack to PS or PERM T jack of connector switch trouble alarm circuit on particular shelf under test using 10-foot P3E cord.	
20j	If PS or PERM T jack is not provided on connector shelf — Connect No. 310 plug of W2W cord to P jack, connect KS-6278 connecting clip of cord to PERM lamp socket terminal in connector switch trouble alarm circuit on particular shelf under test.	
Test B for 8-party Connectors and Test C		
21k	If testing 8-party connectors and audible ringing signal is provided — A, B, or C plug should be inserted into 8-PTY jack of test line when applying Test B to 8-party connectors. ***Note 1:*** Use a different plug on each test cycle. In performing Test C, use plugs as outlined therein. ***Note 2:*** By using A plug, an operate test of toll connector H relay, or combination connector K relay is applied; by using B plug, an operate test of toll connector J relay, or combination connector N relay is applied; and by using C plug a nonoperate test of J or N relay is applied.	
22m	If testing 8-party connectors and visual ringing signal is provided — Using 10-foot P3E cord, connect 8-PTY jack of test set to 8-PTY jack of test line.	
23m	J-O, J-NO, H-O key should be operated to one of three positions when applying Test B to 8-party connectors. ***Note 1:*** Use a different position on each test cycle. In performing Test C, use test line and test set as outlined therein. ***Note 2:*** By using position H-O, an operate test of toll connector H relay, or combination connector A relay, is applied; by using position J-O, an operate test of toll connector J relay, or combination connector N relay, is applied; and by using position J-NO, a nonoperate test of J or N relay is applied.	

4. METHOD

STEP	ACTION	VERIFICATION
	A. Busy Line Test — Leak	
18f	If testing toll connectors — Insert No. 240B plug of P4K cord into test jack of connector to be tested.	GD lamp does not light. *Note:* If connector is busy, GD lamp lights, in which case disconnect from switch.
19g	If testing 100-point combination connectors — Insert No. 240C plug of P4K cord into test jack of connector to be tested.	GD lamp does not light. *Note:* If connector is busy, GD lamp lights, in which case disconnect from switch.
20h	If testing 200-point combination connectors — Insert No. 240C plug of P4K cord into test jack of connector to be tested.	GD lamp does not light. *Note:* If connector is busy, GD lamp lights, in which case disconnect from switch.
21	Operate, release STP key to advance test circuit to BSY-L position.	BSY-L, GD, C lamps lighted.
22	Dial or pulse 99. *Note:* When testing 10-party terminal-per-line connector arranged for busy test of called line following completion of code selector pulsing, it will be necessary to dial or pulse an extra digit following test number.	Connector steps to ninth level, rotates smoothly to test line terminal. BSY lamp lighted. C lamp extinguished. If flashing is provided, CT lamp flashes at busyback rate. Busy tone heard in receiver.
23	Operate RLS key momentarily.	Connector restores. Busy tone removed. BSY, GD lamps extinguished momentarily. C lamp lighted.
24	Repeat Steps 18f through 23, as required, on other connectors to be tested.	
25	Remove all test connections.	BSY, GD, C lamps extinguished.
	B. Idle Line Test — Loop	
24f	If testing toll connectors — Insert No. 240B plug of P4K cord into test jack of connector to be tested.	GD lamp does not light. *Note:* If connector is busy, GD lamp lights, in which case disconnect from switch.
25g	If testing 100-point combination connectors — Insert No. 240C plug of P4K cord into test jack of connector to be tested.	GD lamp does not light. *Note:* If connector is busy, GD lamp lights, in which case disconnect from switch. If P lamp on test set lights before dialing test number, it is an indication that at least one of connectors in shelf under test is in a calling party hold position and has not been in that condition long enough to bring in an alarm. This condition must be cleared before test is continued.

STEP	ACTION	VERIFICATION
26h	If testing 200-point combination connectors — Insert No. 240C plug of P4K cord into test jack of connectors to be tested.	GD lamp does not light (see note, Step 25g).
27	Operate, release STP key to advance test circuit to IDLE-L position.	IDLE-L, GD, C lamps lighted.
Machine Intercept Test (200-point Connectors Only)		
28	Operate MI key.	
29	Dial or pulse 99.	Connector steps to ninth level, rotates smoothly to test line terminal. BSY lamp not lighted. Recorded message heard in test receiver.
30	Operate RLS key momentarily.	Connector releases. GD lamp extinguished momentarily. IDLE-L lamp remains lighted.
31	Restore MI key to normal.	
Line Seizure and Ringing Test		
32	Dial or pulse 99. *Note:* When testing 10-party terminal-per-line connectors, dial an extra digit following test number to set ringing code. Operate RR key if ring-party code is to be dialed, or operate RT key if tip-party code is to be dialed. A different ringing code should be used on each test cycle.	Connector steps to ninth level, rotates smoothly to test line terminal. BSY lamp lighted. C lamp extinguished. Audible ring not heard in receiver. With combination connectors, P lamp does not light or flash during pulsing.
33	Operate, release STP key.	DEL-R lamp lighted. IDLE-L lamp extinguished. RS lamp lights during ringing intervals. Audible ring heard in receiver. With 2-ring or code ringing connectors, first audible ring should be full code ring.
34k	If testing 8-party connectors and audible ringing signal is provided — Insert either A, B, or C plug in 8-PTY jack of test line.	R− bell rings when A or C plug is used. R+ bell rings when B plug is used.
35k	Remove A, B, or C plug from 8-PTY jack of test line; proceed to Step 38.	
36m	If testing 8-party connectors and visual ringing signal is provided — Operate J-O, J-NO, H-O key to either J-O, J-NO, or H-O position.	R− lamp lights when key is in either H-O or J-NO position. R+ lamp lights when key is in J-O position.
37m	Remove plug from 8-PTY jack of test line, proceed to Step 40.	R− or R+ lamp extinguished.

STEP	ACTION	VERIFICATION
Pretrip Test		
38	Operate STP key momentarily at start of ( ) interval. (This step shall be completed within the same interval by immediately performing Step 39.)	PRE-TRIP lamp lighted. DEL-R lamp extinguished.
39	Operate, release STP key.	RING lamp lighted. PRE-TRIP lamp extinguished. RS lamp lights during ringing intervals. Audible ring continues to be heard in receiver. ***Note:*** If RS lamp fails to light and audible ring is not heard, it is an indication that RING-TRIP relay operated falsely on pretrip.
Tripping Test		
40	Operate, release STP key at start of ( ) interval.	T-TRIP lamp lighted. RING lamp extinguished. Proper transmission tone heard in receiver. CT, REV-C lamps lighted. ***Note:*** If this test was applied in the silent interval, check that the audible ringing signal is not heard again in the receiver, or if applied in the ringing interval, check that the audible ringing signal is immediately stopped upon the application of the test. The RS lamp is disconnected when this test is applied and cannot be considered as an indication that the ringing has tripped. Failure of both CT and REV-C lamps to light and transmission tone to be heard, indicates an open in the talking circuit. Failure of REV-C lamp to light indicates that wiper cords are probably reversed.
Supervisory Test		
41n	If test set is arranged to open loop of called party (SD-31637-01 with T option which releases D relay or SD-31637-02) — Operate, release STP key.	T-CO lamp lighted. Tone removed. T-TRIP, CT, REV-C lamps extinguished.
42	Operate RLS key momentarily.	Connector restores. T-CO, CT, REV-C, BSY lamps extinguished. GD lamp extinguished momentarily.
43p	If test set is arranged to test wiper cords (SD-31637-01 with W option) — Operate, release STP key.	T-CO lamp lighted. Tone removed. T-TRIP lamp extinguished. CT, REV-C lamps remain lighted.
44p	Move wiper cords slightly while listening in receiver.	No noise heard in receiver. BSY lamp does not flash.

STEP	ACTION	VERIFICATION
45p	Operate RLS key momentarily.	Connector restores. T-CO, CT, REV-C, BSY lamps extinguished. GD lamp extinguished momentarily.
46	Repeat Steps 24f through 45p, as required, on other connectors to be tested.	
47	Remove all test connections.	GD lamp extinguished.

C. Ringing Polarity Test — 8-party Semiselective Ringing Connectors

24f	If testing toll connectors — Insert No. 240B plug of P4K cord into test jack of connector to be tested.	GD lamp does not light. ***Note:*** If connector is busy, GD lamp lights, in which case disconnect from switch.
25g	If testing 100-point combination connectors — Insert No. 240C plug of P4K cord into test jack of connector to be tested.	GD lamp does not light. ***Note:*** If connector is busy, GD lamp lights, in which case disconnect from switch.
26h	If testing 200-point combination connectors — Insert No. 240C plug of P4K cord into test jack of connector to be tested.	GD lamp does not light. ***Note:*** If connector is busy, GD lamp lights, in which case disconnect from switch.
27k	If testing 8-party connectors and audible ringing signal is provided — Insert A plug into 8-PTY jack of test line.	
28k	Operate, release STP key to advance test circuit to IDLE-L position.	IDLE-L, GD, C lamps lighted.
29k	Dial or pulse 99.	Connector steps to ninth level, rotates smoothly to test line terminal. BSY lamp lighted. C lamp extinguished. Audible ring not heard in receiver.
30k	Operate, release STP key.	DEL-R lamp lighted. IDLE-L lamp extinguished. RS lamp lights during ringing intervals. R− bell rings, follows ringing code. Audible ring heard in receiver.
31k	Remove A plug from 8-PTY jack, insert C plug during silent interval.	R− bell continues to ring, follows ringing code.
32k	Remove C plug from 8-PTY jack, insert B plug during silent interval.	R− bell silenced. R+ bell rings, follows ringing code.
33k	Operate RLS key momentarily.	Connector releases. R+ bell silenced. BSY lamp extinguished. GD lamp extinguished momentarily.
34k	Remove B plug from 8-PTY jack.	

STEP	ACTION	VERIFICATION
35m	If testing 8-party connectors and visual ringing signal is provided — Operate J-O, J-NO, H-O key to H-O position.	
36m	Operate, release STP key to advance test circuit to IDLE-L position.	IDLE-L, GD, C lamps lighted.
37m	Dial or pulse 99.	Connector steps to ninth level, rotates smoothly to test line terminal. BSY lamp lighted. C lamp extinguished. Audible ring not heard in receiver.
38m	Operate, release STP key.	DEL-R lamp lighted. IDLE-L lamp extinguished. R− lamp flashes, follows ringing code. Audible ring heard in receiver.
39m	Operate J-O, J-NO, H-O key to J-NO position during silent ringing interval.	R− lamp continues to follow ringing code.
40m	Operate J-O, J-NO, H-O key to J-O position during silent ringing interval.	R− lamp extinguished. R+ lamp flashes, follows ringing code.
41m	Operate RLS key momentarily.	Connector restores. R+ lamp extinguished. BSY lamp extinguished. GD lamp extinguished momentarily.
42	Repeat Steps 24f through 41m, as required, on other connectors to be tested.	
43	Remove all test connections.	GD lamp extinguished.