

LOCAL AND COMBINATION CONNECTORS
RAPID OPERATION TEST
USING CONNECTOR TEST SET SD-30502-01 (J34711A)
AND PULSING TEST SET SD-31481-01 (J34717A)
STEP-BY-STEP SYSTEMS

1. GENERAL

1.01 This section describes a method of performing a rapid operation test of local connectors and of combination connectors (local side only) by means of the wagon-type connector test set SD-30502-01 equipped with an ROT key, and pulsing test set SD-31481-01.

1.02 This section is reissued to add information covering the testing of level hunting connectors arranged to wait for the units digit before starting level hunting. Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

1.03 The tests covered are:

A. Nonlevel Hunting Connectors: This test checks the stepping features of a connector without margins. It also checks the supervisory, transmission, called hold, and release features.

B. Level Hunting Connectors: This test checks the trunk hunting features of a connector. It also checks the supervisory, transmission, called hold, and release features.

1.04 These tests are intended as a means for testing these fundamental features at more frequent intervals to supplement the complete operation tests covered in Sections 226-415-501 and 226-410-501.

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

1.06 From all positions except the BSY-L (BUSY LINE), WT-R (WAIT RING), and PRE-TRIP 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 one of the above mentioned positions, it is necessary to advance the test circuit beyond these positions by means of the STP key, where the RLS key may be used.

1.07 Test A: The test line employed is connected to terminal 99, except in case of rotary hunting connectors. In rotary hunting connector groups, terminal 99 is made busy and the test line is connected to terminal 90. The hunting feature of the connector is checked by directing the switch to terminal 99 and having it step to terminal 90. The dial on the connector test set, the dial on the remote control test set or, where the connector test set is so arranged, the pulsing test 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.

SECTION 226-415-503

1.08 When testing 10-party terminal per line connectors arranged for cut-through following the completion of code selector pulsing, it will be necessary to dial or pulse an extra digit following the test number. If the extra digit is to be dialed, and the test set is not arranged to permit the use of the dial while the pulsing test set is connected, remove the plug from the A jack of the test set before dialing.

1.09 *Test B:* The test line employed is ordinarily connected to terminal 91, except when the connectors are wired so as to hunt over a group of 100 trunks, in which case terminal 11 is used as the test line number. The pulsing test set is not used when making this test, the dial on the connector test set being used to direct the connector to the test line. However, if the pulsing test set is connected to the connector test set for making Test A, the connector test set may be so arranged that it is necessary to disconnect it in order to make Test B.

1.10 *Lettered Steps:* The letters a, b, c, etc, are added to a step to indicate that the step covers an action which may or may not be required, depending upon local conditions. The conditions under 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.

1.11 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** Connector test set J34711A (SD-30502-01).
- 2.02** One 40B test set (remote control) (optional).

- 2.03** One 723A receiver attached to an R2DB cord equipped with a 347A (or 47A) plug.
- 2.04** P3H (or P3C) cord, equipped with 240A plug and 310 plug (3P2A cord).

Test A

- 2.05** Two P3E cords, 6 feet long, each equipped with two 310 plugs (3P7A cord).

When Using Pulsing Test Set

- 2.06** Pulsing test set J34717A (SD-31481-01).
- 2.07** P2J cord, 6 feet long, equipped with two 310 plugs (2P9B cord), used where a battery supply jack is available.
- 2.08** W2M cord, equipped with a 310 plug, tip and sleeve connections, two 59 cord tips (2W12A cord), and two 108 cord tips — used where a battery supply jack is not available.
- 2.09** P3E cord, 6 feet long, equipped with two 310 plugs (3P7A cord).
- 2.10** P4N cord, 6 feet long, equipped with two 289B plugs (4P8B cord).

Test B

- 2.11** P3E cord, 6 feet long, equipped with two 310 plugs (3P7A cord).
- 2.12** W2W cord, 6 feet long, equipped with a 310 plug, 360B tool, and 360C tool (2W17A cord); W2CF cord equipped with 310 plug (replace red shell with black shell), 360B tool, and 360C tool (2W17D cord); two W1C cords, each 12 feet long; two 360C tools; 240A plug; three 141 cord tips. Connect to form special cord as shown in Fig. 1.
- 2.13** Special insulator 1/2-inch by 2-1/2 inches (the KS-7187 Bell Seal Bond No. 20 relay cleaning paper may be used).

When Connector Test Line Number Is 11

- 2.14** One 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord) and two 365 tools.

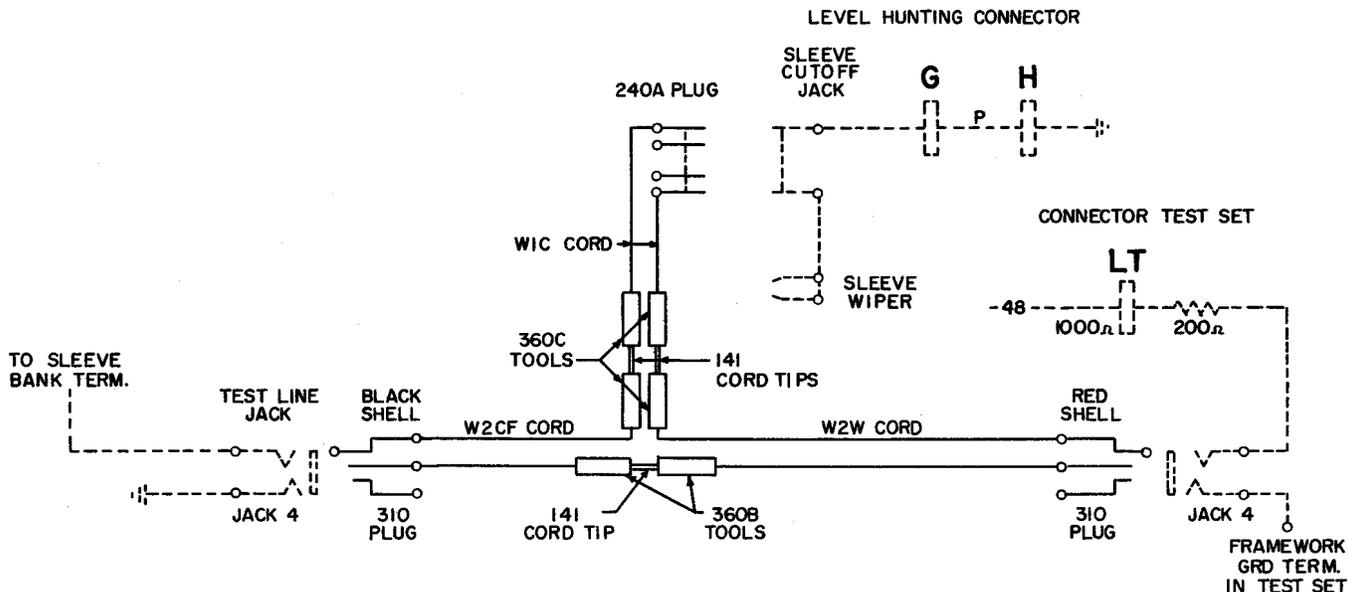


Fig. 1 - Testing Cord

TABLE A

TEST SET PER SD-30502-01
TEST SET NOT EQUIPPED TO TEST CONNECTORS
ARRANGED FOR 1400-1500 OHM LOOP

KIND OF RING	MAX EXT SUB LOOP ohms	TRIP BAT. volts	KEYS OPERATED			
			NOT USING FIG. G		USING FIG. G	
			8P TST	ADJ	SS	TST
AC-DC	1000-1115	46-50			X	X
Super-imposed	1000-1115	46-50		X		X
		60-75	X			

Note: SS and TST keys ineffective when testing 10-party TPL connectors. 8P TST key is provided only for testing 8-party semiselective ringing connectors in an ac-dc office.

TABLE B

TEST SET EQUIPPED TO TEST CONNECTORS
ARRANGED FOR 1400-1500 OHM LOOP

KIND OF RING	MAX EXT SUB LOOP ohms	TRIP BAT. volts	KEYS OPERATED			
			1000A	1000B	1400A	1400B
AC-DC	1000-	48.5-50	X			
	1115	60-75		X		
Super-imposed	1400-	48.5-50			X	
	1500	66-75				X

3. PREPARATION

All Tests

STEP	ACTION	VERIFICATION
1a	If remote control set is used — Insert remote control set plugs, red, gray, and black into test set jacks R, G, and B, respectively.	
2	Connect receiver to test set jack TEL.	

SECTION 226-415-503

STEP	ACTION	VERIFICATION
3	Insert 310 plug of P3H cord into TST jack of test set.	
4	Connect test set jack 3 to test line jack 3 on connector frame, using P3E cord.	
5b	If testing nonlevel hunting connectors — Connect test set jack 4 to test line jack 4 on connector frame, using P3E cord.	
6c	If testing level hunting connectors — Insert black shelled 310 plug of special test cord (Fig. 1) into jack 4 of test line (level hunting) on connector frame, and insert red shelled 310 plug of special test cord (Fig. 1) into jack 4 of test set.	
7	Operate test set keys as indicated in Table A or B to provide proper test condition in test set. Also operate the RR key when testing 10-party terminal per line connectors.	
8	Operate and hold RLS key long enough to extinguish any progress lamps that may be lit or, if necessary, operate and release STP key required number of times.	All lamps extinguished.
9	Operate ROT key.	
10	Holding RLS key operated, insert 240A plug of P3H cord into test jack of normal connector under test.	GD lamp does not light.
11	Restore RLS key.	GD lamp lighted.
12d	Where test set is arranged for monitoring — If it is desired to monitor on an off-normal connector, hold RLS key operated and insert 240A plug of P3H cord into test jack of off-normal connector and listen in receiver.	GD lamp lighted. Conversation heard.
13e	If testing connectors arranged for free service, with 1400-B key provided — Operate NON-REV key.	<i>Note:</i> When monitoring on a combination connector, if no conversation is heard it may indicate that the connector is being held over the toll train.

Test A

When Using Pulsing Test Set

- 14 Patch test set BAT-G jack to 48-volt battery supply jack.
- Note 1:* When using W2M cord, connect red (sleeve) conductor to frame ground and white (tip) conductor to battery. In no case should the fuse selected exceed 5 amperes.

STEP	ACTION	VERIFICATION
	<i>Note 2:</i> To avoid grounding of battery supply lead, connect cord to test set first and, when disconnecting, remove cord from test set last.	
15	Connect TL jack of pulsing test set to A jack of connector test set, using P3E cord.	
16	Connect A, B jacks of pulsing test set to LK, LP jacks, respectively, of connector test set, using P4N cord. Restore all pulsing test set keys to normal.	
17	Operate PLS key momentarily.	

Test B

- 18 Operate LH key.

4. METHOD

STEP	ACTION	VERIFICATION
A. Nonlevel Hunting Connectors		
18	Dial or pulse 99.	Connector steps smoothly to ninth level, rotates smoothly to test line terminal. BSY lamp lighted.
19f	If testing connectors arranged to reverse battery, with 1400-B key normal or not provided —	Proper transmission tone heard in receiver.
20g	If testing connectors arranged to reverse battery, with 1400-B key operated —	Proper transmission tone heard in receiver. <i>Note:</i> If transmission tone is not heard, perform Step 21g.
21g	If transmission tone is not heard — Operate PLS key momentarily.	Proper transmission tone heard in receiver.
22h	If testing connectors arranged for free service, with 1400-B key not provided — Operate and restore NON-REV key.	Proper transmission tone heard in receiver.
23e	If testing connectors arranged for free service, with 1400-B key provided — Operate PLS key momentarily.	Proper transmission tone heard in receiver.
24j	If testing connectors arranged for calling party control — Remove plug from test jack of connector.	Connector releases. BSY lamp extinguished. GD lamp extinguished.
25j	Operate RLS key momentarily.	Transmission tone removed.
26k	If testing connectors arranged for joint control — Remove plug from test jack of connector.	Connector does not release. BSY lamp remains lighted. GD lamp extinguished.

STEP	ACTION	VERIFICATION
27k	Operate RLS key momentarily.	Connector releases. Transmission tone removed. BSY lamp extinguished.
28	When tests are completed — Remove all test connections.	
B. Level Hunting Connectors		
19	Insert 240A plug (stay cord to the right) of special test cord, Fig. 1, into sleeve cutoff jack of connector. <i>Note:</i> If sleeve cutoff jack wiring is reversed, reverse 240A plug.	
20	Insert special insulator between sleeve cutoff jack guard plate and front end of 240A plug flanges.	
21m	When connector test line terminal is 91 — Dial digit which will direct connector to ninth level. <i>Note:</i> It will be necessary to dial an additional digit if the connector is wired to hunt after the units digit is received.	Connector hunts smoothly, stops on test line terminal. BSY lamp lighted.
22n	When connector test line terminal is 11 — Using 893 cord, connect ground to commutator terminal for level No. 1.	
23n	Dial any digit. <i>Note:</i> It will be necessary to dial an additional digit if the connector is wired to hunt after the units digit is received.	Connector hunts smoothly, stops on test line terminal. BSY lamp lighted.
24h	If testing connectors arranged to reverse battery, with 1400-B key normal or not provided —	Proper transmission tone heard in receiver.
25i	If testing connectors arranged to reverse battery, with 1400-B key operated —	Proper transmission tone heard in receiver. <i>Note:</i> If transmission tone is not heard, perform Step 26i.
26i	If transmission tone is not heard — Operate PLS key momentarily.	Proper transmission tone heard in receiver.
27h	If testing connectors arranged for free service, with 1400-B key not provided — Operate and restore NON-REV key.	Proper transmission tone heard in receiver.
28e	If testing connectors arranged for free service, with 1400-B key provided — Operate PLS key momentarily.	Proper transmission tone heard in receiver.
29o	When connector test line terminal is 11 — Remove ground from commutator terminal for level 1.	

STEP	ACTION	VERIFICATION
30j	If testing connectors arranged for calling party control — Remove plug from test jack of connector.	Connector releases. BSY lamp extinguished. GD lamp extinguished.
31j	Operate RLS key momentarily.	Transmission tone removed.
32k	If testing connectors arranged for joint control — Remove plug from test jack of connector.	Connector does not release. BSY lamp remains lighted. GD lamp extinguished.
33k	Operate RLS key momentarily.	Connector releases. Transmission tone removed. BSY lamp extinguished.
34	Immediately remove plug and special insulator from sleeve cutoff jack of connector.	
35	When tests are completed — Remove all test connections.	