

LOCAL AND COMBINATION CONNECTORS
RAPID OPERATION TEST
USING DIAL HAND TEST SET AND TEST LINE SD-31653-01
STEP-BY-STEP SYSTEMS

1. GENERAL

1.01 This section describes a method of making a rapid operation test of local connectors and of the local functions of combination connectors of the 100- and 200-point type by means of the dial hand test sets and special test cord per Fig. 1.

1.02 This section is reissued to add in Test B, 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. Regular and Rotary-Hunting Connectors—100 and 200 Point. This test checks the stepping features of connectors, tip and ring continuity, including both banks of 200 point connectors, and the release features, including the timed release of the connector when the calling party fails to hang up. A test for false ground is also made on the timed-release feature.

B. Level-Hunting Connectors — 100 Point. This test checks the operation of level-hunting connectors, tip and ring continuity, and the release features, including the timed release of a connector when the calling party fails to hang up. A false ground test is also made on the timed-disconnect feature.

1.04 100-Point Connectors. The test line used for testing 100-point connectors is connected to terminal 99, except in the case of rotary-hunting and level-hunting connectors. In rotary-hunting 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. In the case of level-hunting connectors, the test line is ordinarily connected to terminal 91. When the connectors are wired so as to hunt over a single group of 100 terminals, terminal 11 is used as the test line number. (See 1.06).

1.05 200-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 banks, terminal 99 being made busy. The rotary-hunting feature of the switch is tested by directing the switch to terminal 99 and having it step to 90. (See 1.06.)

1.06 For regular connectors, the disconnect time is within 12 to 30 seconds; for rotary-hunting connectors, the disconnect time is 25 to 37 seconds. For level-hunting connectors the disconnect time is within 23 to 37 seconds.

1.07 In performing these tests, service may be adversely affected by possible delay or denial of service.

1.08 Action and verification are required at the operator position when making the connector timed-disconnect test in conjunction with the associated intercept trunk.

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

1.10 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 letter are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

2. APPARATUS

Tests A and B

2.01 1011G handset, connected to a W2CL cord, modified locally to replace the 240A plug with a 240F plug equipped with a 2Y lamp. In addition, connect one end of a 9-foot single conductor test lead to the upper terminal of the lamp socket. Attach a 59 cord tip to the test lead. Connect the lower lamp terminal to the plug sleeve terminal (for testing timed-release feature of connectors).

2.02 Connector test line, SD-31653-01.

2.03 Patching cord, P3H cord, 10 feet long, equipped with one 310 plug and one 240A plug (3P2A cord) (the 240A plug to be equipped with a 30 cord tip). One 893 cord equipped with two 360 tools and one 419A or KS-6278 tool. Connect as shown in Fig. 1.

2.04 1011G handset (dial hand test set) connected to a W2CL cord equipped with a 471A jack and a 240A plug (2W39A cord) (for use when checking for false ground on the timed-release lead, where necessary).

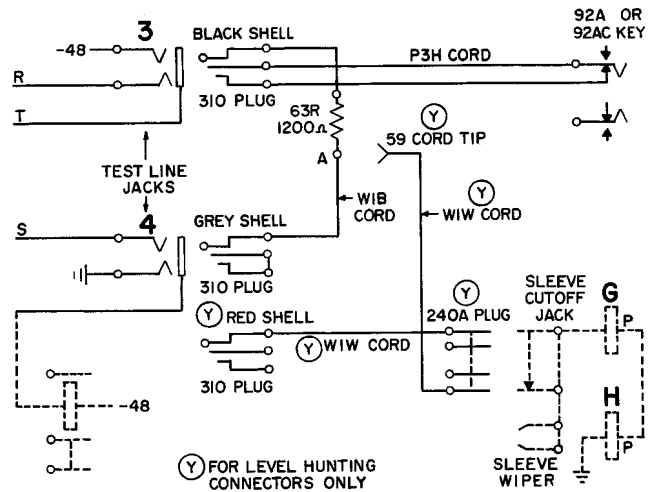


Fig. 1 — Testing Cord

Test A

2.05 1011G handset (dial hand test set), connected to a W2CJ cord, equipped with a 360A tool, a 360B tool, and a 471A jack (2W41A cord), in addition, a 240B plug, and three 30 cord tips. Connect a cord tip to plug springs 1, 2, and 6, and strap springs 3 and 4 together (used for connecting to 100- and 200-point connectors).

Test B

2.06 Testing cord, 893 cord, equipped with two 360A tools (1W13B cord) and two 365 tools (connecting clips) (used for connecting ground to test line terminal 11).

2.07 Special insulator 1/2 by 2-1/2 inches (the KS-7187 Bell Seal Bond No. 20 relay cleaning paper may be used).

3. PREPARATION

STEP	ACTION	VERIFICATION
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Tests A and B

- 1 Insert black shell 310 plug of special test cord (Fig. 1) into connector test line jack 3.

STEP	ACTION	VERIFICATION
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2a	If testing 100-point connectors without timed-release feature — Using handset connected to W2CJ cord, connect 360A tool, 360B tool to 30 cord tips attached to 240B plug springs 1 and 2, respectively.	
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Testing on Lower Banks

3b	If testing 200-point connectors without timed-release feature — Using the handset connected to W2CJ cord, connect 360A tool, 360B tool to 30 cord tips attached to 240B plug springs 1 and 2, respectively.	
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Testing on Upper Banks

4b	If testing 200-point connectors without timed-release feature — Connect 360A tool, 360B tool of W2CJ cord to plug springs 2 and 6, respectively.	
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Test A

5	Insert gray shell 310 plug of special test cord (Fig. 1) into connector test line jack 4.	
6c	When false-ground test on timed-disconnect lead is desired — Determine from office records proper connector terminal to dial to seize intercepting trunk which controls timed-release ground to connector under test (apply test where applicable).	

Test B

7	Connect 59 cord tip of special test cord to 1200-ohm resistor at point A (Fig. 1).	
8	Insert red shell 310 plug of special test cord (Fig. 1) into connector test line jack 4.	

4. METHOD**A. Regular and Rotary-Hunting Connectors — 100 and 200 Point**

STEP	ACTION	VERIFICATION
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7a	If testing 100-point connectors without timed-release feature — Insert 240B plug into test jack of idle connector, with handset switch in MON position.	
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	No dialing or talking heard.
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Note: If dialing or talking is heard, disconnect and wait until switch is idle or connect to another switch.

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STEP	ACTION	VERIFICATION
8a	Operate handset switch to TALK position.	
9b	If testing 200-point connectors without timed-release feature — Insert 240B plug into test jack of idle connector, with handset switch in MON position (see Step 3b).	No dialing or talking heard. <i>Note:</i> If dialing or talking is heard, disconnect and wait until switch is idle or connect to another switch.
10b	Operate handset switch to TALK position.	
11d	If testing connectors with timed-release feature — Insert 240F plug of modified handset cord into test jack of idle connector with handset switch in TALK position.	
12d	Connect 59 cord tip of test lead to test battery supply.	Test lamp lighted.
13	Dial 99.	Connector steps to ninth level, rotates smoothly to terminal 99 (or 90 in the case of rotary-hunting connectors). <i>Caution: If the connector stops on any other terminal, release immediately to avoid ringing on a subscriber line.</i>
14	Operate, release 92 key of special test cord several times.	Clicks heard in test receiver indicating transmission path is complete.
15e	If connector is arranged for calling-party control without timed-release feature — Remove plug of handset from connector test jack.	Connector releases.
16f	If connector is arranged for joint control — Remove plug of handset from connector test jack.	Connector does not release.
17f	Operate 92 key of special test cord momentarily.	Connector releases.
18g	If connector is arranged for calling-party control with timed-release feature — Operate, hold operated 92 key of special test cord until timed-release functions. <i>Note:</i> If Steps 18g and 21h both apply, select one switch per shelf and perform Steps 21h through 27h, instead of Step 18g. Perform Step 18g on the remaining switches on the shelf.	Within timed interval, test lamp extinguished momentarily, indicating timed-disconnect functioned (see 1.06).

STEP	ACTION	VERIFICATION
19g	Remove 59 cord tip from battery connection.	Test lamp extinguished.
20g	Remove handset plug from connector test jack.	Connector releases.
21h	If connector under test is arranged for timed release from ground supplied under control of intercepting trunk — Insert plug of second handset into test jack of second connector having access to intercept trunk associated with connector under test.	
22h	Dial terminal connected to intercept trunk.	Connector stops on proper terminal. Audible ringing heard. At switchboard position — Call answered, ringing silenced.
23h	At operator position — Disconnect when disconnect signal is received.	
24h	At connector under test — Operate, hold operated 92 key of special test cord until timed release functions.	Within timed interval, test lamp does not extinguish momentarily, indicating that false ground is not present on timed-release lead (see 1.06).
25h	Disconnect handset from connector having access to intercept trunk.	Connector releases.
26h	Remove 59 cord tip from fuse connection.	Test lamp extinguished.
27h	Disconnect handset plug from connector under test.	Connector releases.
28	Unless other tests are to be made on switch — Remove all remaining test connections.	

B. Level-Hunting Connectors — 100 Point

STEP	ACTION	VERIFICATION
9a	If testing 100-point connectors without timed-release feature — Insert 240B plug of handset into test jack of idle connector with handset switch in MON position.	No dialing or talking heard. <i>Note:</i> If dialing or talking is heard, disconnect and wait until switch is idle or connect to another switch.
10a	Operate handset switch to TALK position.	
11d	If testing 100-point connectors with timed-release feature — Insert 240F plug of modified handset cord into test jack of idle connector with handset switch in TALK position.	

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STEP	ACTION	VERIFICATION
12d	Connect 59 cord tip of test lead to test battery supply.	Test lamp lighted.
13	Insert 240A plug of special test cord (Fig. 1) into connector sleeve cut-off jack so that No. 4 spring and stay cord of plug are to the right.	
14	Insert special insulator (see 2.07) between sleeve cut-off jack guard plate and front end of 240A plug flanges (to prevent springs of plug from becoming crossed with guard plate due to weight cords attached to plug).	
15e	If connector test line terminal number is 11 — Connect ground to commutator terminal for No. 1 level, using 893 cord.	
Test B		
16e	Dial any digit. <i>Note:</i> It will be necessary to dial an additional digit if the connector is wired to start hunting after the unit digit is dialed.	Connector steps to test line terminal.
17f	If test line number is 91 — Dial digit which will direct switch to ninth level. <i>Note:</i> It will be necessary to dial an additional digit if the connector is wired to start hunting after the units digit is received.	Connector steps to test line terminal.
18	Operate, restore 92 key several times.	Clicks heard in test receiver indicating transmission path is complete.
19g	If connector is arranged for calling-party control without timed-release feature — Remove plug of handset from switch test jack.	Connector releases.
20h	If connector is arranged for joint control — Remove plug of handset from switch test jack.	Connector does not release.
21h	Operate 92 key of special test cord momentarily.	Connector releases.

STEP	ACTION	VERIFICATION
22i	<p>If connector is arranged for calling-party control with timed-release feature — Operate, hold operated 92 key of special test cord until timed-release feature functions.</p> <p><i>Note:</i> If Steps 22i and 25j both apply, select one switch per shelf and perform Steps 25j through 31j instead of Step 22i. Perform Step 22i on the remaining switches on the shelf.</p>	<p>Within timed interval test lamp extinguished momentarily, indicating timed-disconnect function.</p>
23e	<p>If connector test line terminal number is 11 — Remove 59 cord tip from battery connection.</p>	<p>Test lamp extinguished.</p>
24i	<p>If connector is arranged for calling-party control with timed-release feature — Remove handset plug from connector test jack.</p>	<p>Connector releases.</p>
25j	<p>If connector under test is arranged for timed release from ground supplied under control of an intercepting trunk — Insert plug of second handset into test jack of second connector having access to intercept trunk associated with connector under test.</p>	
26j	<p>Dial connector connected to intercept trunk.</p>	<p>Connector stops on proper terminal. Audible ringing heard. At switchboard position — Call answered, ringing silenced.</p>
27j	<p>At operation position — Disconnect when disconnect signal is received.</p>	
28j	<p>At connector under test — Operate, hold operated 92 key of special test cord until timed-release functions.</p>	<p>Within timed interval, test lamp does not extinguish momentarily, indicating that false ground is not present on timed-release lead (see 1.06).</p>
29j	<p>Disconnect handset from connector having access to intercept trunk.</p>	<p>Connector releases.</p>
30j	<p>Remove 59 cord tip from battery connection.</p>	<p>Test lamp extinguished.</p>
31j	<p>Disconnect handset plug from connector under test.</p>	<p>Connector releases.</p>
32	<p>Remove insulator from switch.</p>	
33	<p>Unless other tests are to be made on switch — Remove all remaining test connections.</p>	