



LOCAL CONNECTORS—OPERATION TESTS
USING TEST SET SD-31859-01 (J34722B)
AND TEST LINE SD-31857-01
STEP-BY-STEP OFFICE

1. GENERAL

1.001 This addendum supplements Section 226-405-501, Issue 6. The attached pages must be inserted in the section in accordance with the filing instructions above.

1.002 This addendum is issued to add information to Parts 1 and 4 of the section to include operation of the LO-UP key for testing ringing combinations of rotary connectors. This addendum does not affect the Equipment Test List.

Attached:

Page 1 dated June 1971, revised
Page 2 dated June 1971, revised
Page 11 dated June 1971, reissued
Page 12 dated June 1971, revised
Page 12.1 dated June 1971, added

1. GENERAL

The following change applies to Part 1 of the section:

- (a) Paragraph 1.05 - revised

4. METHOD

The following changes apply to Part 4 of the section:

- (a) Test C, Steps 31k and 34i - revised.

LOCAL CONNECTORS—OPERATION TESTS
USING TEST SET SD-31859-01 (J34722B)
AND TEST LINE SD-31857-01
STEP-BY-STEP OFFICES

1. GENERAL

1.01 This section describes a method of testing the operating features of local connectors and local operating features of combination connectors of the 100- and 200-point type in No. 355A and 35-E-97 offices by means of test set SD-31859-01 and test line SD-31857-01.

1.02 This section is reissued to add a method of testing the ringing control features of 200-point rotary hunting connectors.

1.03 The tests covered are:

A. *Busy Line Test—Leak:* This test checks the stepping features of a connector under a leak condition and its ability to return busy tone, busy flash if provided, and to release.

B. *Idle Line Test—Loop—Other Than 8-Party Semiselective Connectors:* This test checks the stepping features of a connector under a loop condition and its ability to ring, trip, reverse battery, provide a proper transmission path, and to release, 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-release feature. Connector ringing is indicated by a relay buzzer in the test set. On 200-point connectors, cut through to machine intercept is checked.

C. *Idle Line Test—Loop—8-Party Semiselective Connectors:* This test checks the stepping features of a connector under a loop condition and its ability to ring, trip, reverse battery, provide a proper transmission path, and to release, 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 release feature. It also makes a complete check of 100-point local connector H and J relays, or

combination connector K and N relays and 200-point local connector G and L relays, or combination connector G and N relays when testing terminal-per-station connectors. Connector ringing polarity is checked either by means of test line bells or by lamps on the test set. On 200-point connectors, cut through to machine intercept is checked.

D. *Reverting Call Test:* This test checks the reverting call feature of both 10-party terminal-per-station and 10- or 20-party terminal-per-line connectors.

E. *Free Service Feature—Rotary Hunting Connectors:* This test checks that rotary hunting connectors arranged for free service on certain levels will not reverse the battery on the calling line.

1.04 *100-Point Connectors:* This test line for these connectors is connected to terminal 99, except in the case of rotary hunting connectors and, in some cases, 20-code ringing connectors as described in 1.07. In rotary hunting groups, terminal 99 is made busy and the test line is connected to terminal 90. The hunting feature is checked by dialing 99 and also an additional digit, where required, and noting that the switch steps to 90 (see 1.07).

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 of the lower bank being made busy. The rotary hunting feature of the switch is tested, with the test set LO-UP key in its normal position, by directing the switch to terminal 99 and having it step to 90 (see 1.07). With the LO-UP key in the operated position the ringing feature of a rotary connector can be tested,

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by directing the switch to terminal 99 with contacts 1L and 2L of the normal post springs insulated. This makes it possible to test the ringing combinations with the OP-NOR-NO key of the test line circuit.⚡

Caution: *If the connector stops on any other terminal, immediately release the connector so as to avoid ringing on a customer line.*

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

1.07 When testing 20-code ringing connectors, codes 11 to 20 must be used to make a complete check of the ringing. If the ninth level is arranged to close the normal post springs, codes 1 to 20 will be tested by dialing 99. If the ninth level is not so arranged, cross connect the test line circuit to a nonworking terminal on a level which is arranged to close the normal post springs and use this nonworking terminal as the test terminal.

1.08 In Tests B and C, spaces are provided in the steps for writing in the interval during which the pretrip and trip tests are to be made, as indicated in Table A or B.

1.09 When testing connectors which have a 60- to 75-volt silent tripping battery and for which ac requirements are specified, any ring trip relays which fall on the pretrip or trip test (test set or test line test resistance values) shall be readjusted to meet the requirements specified in Sections 040-803-701 and 040-236-701 and the readjust ringing current values provided by the test line. These values are obtained, as indicated for READJUST in Tables A and B, by connecting the TL jack of the test set to the AC jack of the test line.

1.10 When testing 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 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 requirements table. Repeat the test. If the relay continues to fail, operate the test keys as indicated for READJUST

in Table B to apply the test set readjust resistance values, and again repeat the tests, changing the tension of the No. 1 spring as required.

1.11 When testing connectors arranged for busy flash over a fourth wire and also when testing the operation of the D relay on those switches arranged for free service on the ninth level, it is necessary for the connector "F" lead to be wired to No. 5 spring of the connector test jack, and the test set must be equipped with a TR1 key.

1.12 Test E is intended as a means for making a check of the free service feature of rotary hunting connectors. The method involves the removal of the switch cover, but it is expected that the test will be made at rather infrequent intervals or in connection with checking the performance of individual switches on which trouble may have been encountered.

1.13 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.

1.14 *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.

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

2. APPARATUS

All Tests

2.01 Test set SD-31859-01.

STEP	ACTION	VERIFICATION
C. Idle Line Test—Loop—8-Party Semiselective Connectors		
15	With handset cord switch in OFF position— Operate handset switch to TALK position.	C lamp lighted.
8-Party Semiselective Terminal-per-Line Connectors		
16k	If test set arranged for audible ringing— Operate REV-L key.	
17k	Operate BELL-T key.	
18k	Dial 99, then dial code digit for ringing over tip.	Connector steps smoothly to ninth level, rotates smoothly to test line terminal. Audible ringing heard in receiver. R+ or R- bell rings. Buzzer relay sounds, follows ringing code.
19k	Operate handset switch to MON position.	Connector releases. C lamp extinguished.
20k	Operate handset switch to TALK position.	C lamp lighted.
21k	Restore REV-L key.	
22k	Operate BELL-R key.	
23k	Dial 99, then dial code digit for ringing over ring. <i>Note:</i> Different code digits should be dialed on each test cycle so that eventually all codes will have been tested on each switch.	Connector steps smoothly to ninth level, rotates smoothly to test line terminal. Audible ringing heard in receiver. R+ or R- bell rings. Buzzer relay sounds, follows ringing code. <i>Note:</i> Check that first audible ring is a full code ring in order to check pickup feature.
24i	If test set arranged for visual ringing— Operate REV-L, T keys.	
25i	Dial 99, then dial code digit for ringing over tip.	Connector steps smoothly to ninth level, rotates smoothly to test line terminal. Audible ringing heard in receiver. (+) or (-) lamp lighted. Buzzer relay sounds, follows ringing code.
26i	Operate handset switch to MON position.	Connector releases. C lamp extinguished.
27i	Operate handset switch to TALK position.	C lamp lighted.

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STEP	ACTION	VERIFICATION
28i	Restore REV-L, T keys.	
29i	Operate R key.	
30i	Dial 99, then dial code digit for ringing over ring. <i>Note:</i> Different code digits should be dialed on each routine test cycle so that eventually all codes will have been tested on each switch.	Connector steps smoothly to ninth level, rotates smoothly to test line terminal. Audible ringing heard in receiver. (+) or (-) lamp lighted. Buzzer relay sounds, follows ringing code. <i>Note:</i> Check that first audible ring is a full code ring in order to check pickup feature.

8-Party Semiselective Terminal-per-Station Connectors

31k	◆If test set arranged for audible ringing— Operate BELL-R key. <i>Note:</i> When testing 200-point rotary hunting connectors operate LO-UP key.◆	
32k	Dial 99.	Connector steps smoothly to ninth level, rotates smoothly to test line terminal. Audible ringing heard in receiver. R- bell rings during ringing interval when OP-NOR-NO key is in either NOR or NO position. R+ bell rings during ringing interval when OP-NOR-NO key is in the OP position. Buzzer relay sounds during ringing interval. <i>Note:</i> When testing 2-ring connectors, check that first audible ring is a full code ring in order to check pickup feature.
33i	◆If test set arranged for visual ringing— Operate R key. <i>Note:</i> When testing 200-point rotary hunting connectors operate LO-UP key.◆	
34i	Dial 99.	Connector steps smoothly to ninth level, rotates smoothly to test line terminal. Audible ringing heard in receiver. (-) lamp lights during ringing interval when OP-NOR-NO key is in either NO or NOR position. (+) lamp lights during ringing interval when OP-NOR-NO key is in OP position. Buzzer relay sounds during ringing interval.

STEP	ACTION	VERIFICATION
35	Operate switch on handset cord to ON position.	<i>Note:</i> When testing 2-ring connectors, check that first audible ring is a full code ring in order to check pickup feature.
36l	If testing connectors arranged to test operation of D relay when free service provided on ninth level— Operate TR1 key to L position.	C lamp extinguished.