

LINE FINDERS
LINE TESTS USING TEST SET SD-90210-01 (J34704A) OR
SD-90416-01 (J94704A)
STEP-BY-STEP SYSTEMS

1. GENERAL

1.01 This section describes a method of testing the line circuit and line finder equipment, by means of a call through test, from any particular line finder terminal using test set SD-90210-01 or SD-90416-01.

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 The test covered are:

A. Line Finder Line Test - Flat Rate: This test checks the operating features of the line circuit and the line finders from any particular terminal in a flat-rate line group and provides a means of making a call through test from this particular terminal.

B. Line Finder Line Test - Coin: This test checks the operating features of the line circuit and the line finders from any particular terminal in a coin line group and provides a means of making a call through test from this particular terminal.

C. Line Finder Line Test - Message Rate: This test checks the operating features of the line circuit and the line finders from any particular terminal in a message-rate line group and provides a means of making a call through test from this particular terminal.

D. Line Finder Line Test - Lines Modified for PBX Service: This test checks the operating features of the line circuit and line finders from any particular terminal modified for PBX service and provides a means of making a call through test from this particular terminal.

E. Line Finder Alternating Arrangement Test: This test checks that successive calls are served by alternate finders by transfer of the start lead ground.

1.04 These tests are intended primarily for verification purposes in connection with subscriber or operator reports.

1.05 When testing message-rate group lines, if for any reason during dialing, or following completion of dialing, a circuit condition is encountered that causes the operation of the line message register, a record of the register operations shall be forwarded in accordance with local instructions for the purpose of correcting register records.

1.06 These tests are made from the line finder bank terminal strip.

1.07 These tests should preferably be made during periods of light traffic, so as not to result in a call block condition, when the line finders are removed from service.

1.08 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.

1.09 Lettered Steps: The letters a, b, c, etc, are added to a step number to indicate that the steps cover an action which may or may not be required, depending on 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. Where a condition does not apply, the associated steps should be omitted.

2. APPARATUS

All Tests

2.01 Line finder test set, J34704A (SD-90210-01) or J94704A (SD-90416-01).

2.02 Head telephone set or No. 1011G handset (dial hand test set), equipped with a W2CL cord, a No. 471A jack, and a No. 240A plug (2W39A cord).

2.03 P3K cord, 12 feet long, equipped with No. 310 plugs (3P15B cord) (for use where battery supply jack is available).

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2.04 W2M cord, 9 feet long, equipped with one No. 310 plug and two No. 59 cord tips (2W12A cord) (for use where battery supply jack is not available).

2.05 W2C cord, 10 feet long, equipped with a No. 310 plug (tip and ring connection), and two No. 59 cord tips (2W6A cord) (for use with soldered-wire type terminal strips).

2.06 W2W cord, 10 feet long, equipped with a No. 310 plug (tip and ring connection) and a No. 360B and a No. 360C tool (2W17C cord). A No. 624B tool is connected to the black (ring) conductor. (for use where line finder bank terminal strip is equipped with wire-wrapped terminals).

2.07 W2W cord, 10 feet long, equipped with a No. 310 plug (tip and ring connection), a No. 360B and No. 360C tool (2W17C cord). In addition, two No. 624B tools are required (for use where line finder bank terminal strip is equipped with wire-wrapped terminals).

2.08 W1B cord, 10 feet long, equipped with a No. 310 plug (ring connection), and one KS-6780 connecting clip and a No. 108 cord tip (1W5A cord).

2.09 No. 258C (make busy) plugs, as required.

Tests B, D, and E

2.10 Two W1M cords and one No. 63S resistance, to be assembled locally as shown in Fig. 1.

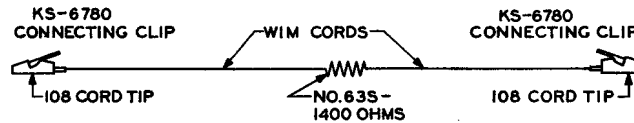


Fig. 1

3. PREPARATION

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
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All Tests

1a If battery supply jack is available -
Connect BAT G jack to 48V frame battery supply using P3K cord

Note: To avoid possible grounding of battery supply lead, connect cord to test set first and, when disconnecting, remove cord from test set last.

2b If battery supply jack is not available -
Insert No. 310 plug of W2M cord into BAT G jack

3b Connect red (sleeve) conductor of W2M cord to frame ground and white (tip) conductor to equipment side of a convenient fuse (not over 3 amperes)

Note: When disconnecting, remove cord from test set last.

4 Connect head telephone set to TEL jacks or dial hand test set to HS jack

Note 1: When using a dial hand test set with test set SD-90210-01, operate TRS key or, with test set SD-90416-01, operate HS key. Also operate the dial hand test set switch to TALK position and the W2CL cord switch to the ON position.

Note 2: When using head telephone set with either test set SD-90210-01 or SD-90416-01, the TRS key should be left in normal position except when necessary to talk on line.

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
5c	If terminal strip has soldered-wire terminals - Insert No. 310 plug of W1B cord into C jack	
6c	Insert No. 310 plug of W2C cord into T jack	
7d	If terminal strip has wrapped-wire terminals - Insert No. 310 plug of a W2W cord (having one No. 624B tool) into C jack	
8d	Insert No. 310 plug of other W2W cord (having two No. 624B tools) into T jack	
9e	If test set SD-90210-01 is used - Operate SD key	

Tests B, D, and E

- 10 Connect one KS-6780 clip of special test cord, shown in Fig. 1, to ground at line finder frame

4. METHOD

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>A. Line Finder Line Test - Flat Rate</u>		
10c	If terminal strip has soldered-wire terminals - Connect No. 59 cord tip of W1B cord to sleeve terminal of line under test	BSY lamp not lighted <u>Note:</u> If BSY lamp is lighted, line is busy, and test should be deferred until line is idle.
11c	Connect No. 59 cord tip of W2C cord (white conductor) to tip terminal and other No. 59 cord tip (blue conductor) to ring terminal of line under test	
12d	If terminal strip has wrapped-wire terminals - Connect No. 624B tool of W2W cord (having only one No. 624B tool) to sleeve terminal of line	BSY lamp not lighted <u>Note:</u> If BSY lamp is lighted, line is busy, and test should be deferred until line is idle.
13d	Connect No. 624B tool (white conductor) of the other W2W cord (having two No. 624B tools) to tip terminal and the other No. 624B tool (black conductor) to ring terminal of line under test	
14f	If testing flat-rate lines - Operate LP key	First choice line finder operates smoothly and stops on terminals of line under test Dial tone heard REV lamp not lighted <u>Note:</u> If first choice finder of particular line under test is busy, the next idle line finder in proper sequence will be selected and stops on terminals of line under test.

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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
15g	If testing lines in a line finder group used for concentrating manual lines - Operate LP key	First choice line finder operates smoothly and stops on terminals of line being tested Ringing induction heard Operator answers <u>Note:</u> If first choice finder of particular line under test is busy, the next idle line finder in proper sequence will be selected and stops on terminals of line under test.
16g	Request operator to disconnect when she receives disconnect signal	
17g	Proceed to Step 20	
18	Dial connector multiple test line in reverse battery group in local or distant office	Dial tone removed Ringing tripped Interrupted tone heard REV lamp lights during test line loop closures
19h	If connector multiple test line is not available - Dial the local office telephone number	Ringing induction heard Ringing tripped <u>Note:</u> If tripping does not occur during first or second ringing interval, operate TRS key and remain on the connection for a short time and, if a subscriber or operator answers, advise that a test is being made.
20	Restore LP key	Line finder restores to normal
21	Make line finder, just tested, busy in approved manner	
22	Proceed as in Steps 14f through 21 on as many choices of finders as may be judged necessary	
23	When test is completed - Restore busied line finders to service and remove test connections from line terminals	
<u>B. Line Finder Line Test - Coin</u>		
11c	If terminal strip has soldered-wire terminals - Connect No. 59 cord tip of W1B cord to sleeve terminal of line under test	BSY lamp not lighted <u>Note:</u> If BSY lamp is lighted, line is busy, and test should be deferred until line is idle.
12c	Connect No. 59 cord tip of W2C cord (white conductor) to tip terminal and other No. 59 cord tip (blue conductor) to ring terminal of line under test	
13d	If terminal strip has wrapped-wire terminals - Connect No. 624B tool of W2W cord (having only one No. 624B tool) to sleeve terminal of line under test	BSY lamp not lighted <u>Note:</u> If BSY lamp is lighted, line is busy, and test should be deferred until line is idle.

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
14d	Connect No. 624B tool (white conductor) of the other W2W cord (having two No. 624B tools) to tip terminal and the other No. 624B tool (black conductor) to ring terminal of line under test	
15	Operate LP key	First choice line finder operates smoothly and stops on terminals of line under test <u>Note:</u> If the first choice line finder being tested is busy, the next idle line finder in proper sequence will be selected and will stop on bank terminals of line under test.
16e	If test set SD-90210-01 is used - Momentarily short-circuit A and B binding posts	Dial tone heard <u>Note:</u> Dial tone will be heard before short-circuiting the terminals, if trunk circuit is arranged for dial tone before coin deposit.
17f	If test set SD-90416-01 is used - Momentarily operate SW key	Dial tone heard <u>Note:</u> Dial tone will be heard before SW key operation, if trunk circuit is arranged for dial tone before coin deposit.
18g	If coin line is arranged for ground start operation (ten-cent initial deposit) - Touch KS-6780 clip of special cord shown in Fig. 1 to ring of line terminal until line is seized	First choice line finder operates smoothly and stops on terminals of line under test Dial tone heard <u>Note:</u> If the first choice line finder being tested is busy, the next idle line finder in proper sequence will be selected and will stop on bank terminals of line under test.
19	Dial connector multiple test line in reverse battery group <u>Note:</u> If connector multiple test line is not available, the local office telephone number should be dialed. The tester should trip ringing to ascertain that the call is correctly completed.	Dial tone silenced after first digit is dialed Ringing tripped Interrupted tone heard REV lamp not lighted during test line loop closures <u>Note:</u> If tripping does not occur during first or second ringing interval, operate the TRS key, remain on connection for a short time and, if call is answered, advise that a test is being made.
20	Restore LP key	Line finder restores to normal
21	Make line finder, just tested, busy in approved manner	
22	Proceed as in Steps 15 through 21 until as many choices of line finders have been tested as may be judged necessary	
23	When test is completed - Restore busied line finders to service and remove connections from line terminals	

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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>C. Line Finder Line Test - Message Rate</u>		
10c	If terminal strip has soldered-wire terminals - Connect No. 59 cord tip of W1B cord to sleeve terminal of line under test	BSY lamp not lighted <u>Note:</u> If BSY lamp is lighted, line is busy and test should be deferred until line is idle.
11c	Connect No. 59 cord tip of W2C cord (white conductor) to tip terminal and other No. 59 cord tip (blue conductor) to ring terminal of line under test	
12d	If terminal strip has wrapped-wire terminals - Connect No. 624B tool of W2W cord (having only one No. 624B tool) to sleeve terminal of line under test	BSY lamp not lighted <u>Note:</u> If BSY lamp is lighted, line is busy and test should be deferred until line is idle.
13d	Connect No. 624B tool (white conductor) of the other W2W cord (having two No. 624B tools) to tip terminal and the other No. 624B tool (black conductor) to ring terminal of line under test	
14	Operate LP key	First choice line finder operates smoothly and stops on terminals of line under test Dial tone heard REV lamp not lighted <u>Note:</u> If the first choice line finder being tested is busy, the next idle line finder in proper sequence will be selected and will stop on terminals of line under test.
15	Dial nonreversing number, such as, code for test desk or operator	Testman or operator answers REV lamp not lighted <u>Note:</u> If for any reason a reversal is encountered, such as reaching a subscriber in a reverse battery connector group, which causes the line message register to operate, a record of the register operations shall be forwarded in accordance with local instructions for the purpose of correcting register records.
16	Operate TRS key Advise that a test is being made	
17	Restore LP key	Line finder releases
18	Busy line finder, just tested, in approved manner	
19	Proceed as in Steps 13 through 17 on as many choices of line finders as may be judged necessary	
20	When test is completed - Restore busied line finders to service and remove connections from line terminals	

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>D. Line Finder Line Test - Lines Modified for PBX Service</u>		
11c	If terminal strip has soldered-wire terminals - Connect No. 59 cord tip of W1B cord to sleeve terminal of line under test	BSY lamp not lighted <u>Note:</u> If BSY lamp is lighted, line is busy, and test should be deferred until line is idle.
12c	Connect No. 59 cord tip of W2C cord (white conductor) to tip terminal and other No. 59 cord tip (blue conductor) to ring terminal of line under test	
13d	If terminal strip has wrapped-wire terminals - Connect No. 624B tool of W2W cord (having only one No. 624B tool) to sleeve terminal of line under test	BSY lamp not lighted <u>Note:</u> If BSY lamp is lighted, line is busy, and test should be deferred until line is idle.
14d	Connect No. 624B tool (white conductor) of the other W2W cord (having two No. 624B tools) to tip terminal of line and the other No. 624B tool (black conductor) to ring terminal of line under test	
15	Operate LP key	
16	At line finder bank terminal strip - Touch KS-6780 clip of special test cord, shown in Fig. 1, to ring terminal of line being tested until line is seized	First choice line finder operates smoothly and stops on terminal of line under test Dial tone heard REV lamp not lighted <u>Note:</u> If the first choice line finder is busy, the next idle finder in proper sequence is selected and stops on terminals of line under test.
17	Remove clip from ring terminal	
18	Dial connector multiple test line in reverse battery group <u>Note:</u> If a connector multiple test line is not available, the local office telephone number should be dialed. The tester should trip ringing to ascertain that the call is properly completed.	Dial tone silenced after first digit is dialed Ringing tripped Interrupted tone heard REV lamp lighted during test line loop closures <u>Note:</u> If tripping does not occur during first or second ringing interval, operate the TRS key, remain on the connection for a short time and, if call is answered, advise that a test is being made.
19	Restore LP key	Line finder releases
20	Busy line finder, just tested, in approved manner	
21	Proceed as in Steps 15 through 20 on as many choices of line finders as may be judged necessary	
22	When test is completed - Restore busied line finders and remove connections from line terminals	

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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>E. Line Finder Alternating Arrangement Test</u>		
11c	If terminal strip has soldered-wire terminals - Connect No. 59 cord tip of W1B cord to sleeve of any line associated with two idle alternating line finders in a subgroup (such as 1 and 11, or 3 and 13)	BSY lamp not lighted <u>Note:</u> If BSY lamp is lighted, line is busy, and test should be deferred until line is idle.
12c	Connect No. 59 tip of W2C cord (white conductor) to tip terminal and the other No. 59 cord tip (blue conductor) to ring terminal of line under test	
13d	If terminal strip has wrapped-wire terminals - Connect No. 624B tool of W2W cord (having only one No. 624B tool) to sleeve terminal of line	BSY lamp not lighted <u>Note:</u> If BSY lamp is lighted, line is busy, and test should be deferred until line is idle.
14d	Connect No. 624B tool (white conductor) of the other W2W cord (having two No. 624B tools) to tip terminal and other No. 624B tool (black conductor) to ring terminal of line under test	
15	Operate LP key <u>Note:</u> Where testing coin lines arranged for ground start or lines modified for PBX service, it will be necessary to hold clip of special cord (Fig. 1) against ring terminal of line used for test until line finder stops on bank terminals of this line.	One line finder in subgroup operates and stops on terminal of line under test
16	Restore LP key	Line finder releases
17	Reoperate LP key and repeat note, Step 15, where necessary	Other finder in same subgroup operates smoothly and stops on terminal of line under test
18	Restore LP key	Line finder releases
19	Repeat Steps 11c through 18 on as many alternating line finders as judged necessary	
20	When tests are completed - Remove all test cords and test equipment	