

**LINE FINDERS**  
**LINE TESTS USING 2-PARTY MESSAGE RATE TYPE TEST SET**  
**SD31151-01 (X61404A), SD31258-01 (J34702A)**  
**OR SD31456-01 (J34715A)**  
**STEP-BY-STEP SYSTEMS**

1. GENERAL

1.01 This section describes a method of testing the line circuit and the line finder equipment from any particular line finder terminal using the 2-party message rate type test sets SD31151-01 or SD31456-01.

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 tests 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 the 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 use in connection with operator or subscriber reports of irregularities involving originating service.

1.05 Test C applies to lines associated with message rate groups. If for any reason during the dialing, or following the 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 are based on the use of a remote control set. If the remote control set is not used, substitute key operations are included as options in the paragraphs involved.

1.08 In performing Tests A through D, service may be adversely affected if too many line finders are made busy.

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 Parts 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.

**SECTION 226-200-509**

**2. APPARATUS**

- 2.01 Line finder test set, X61404A (SD31151-01), J34702A (SD31258-01) or J34715A (SD31456-01).
- 2.02 Head telephone set (associated with line finder test set).
- 2.03 No. 40B (or No. 40A) (remote control) test set. (See 1.07.)
- 2.04 P3K cord, 12 feet long, equipped with two No. 310 plugs (3P15B cord).

2.05 W3A cord, 12 feet long, equipped with three KS-6780 clips, three No. 108 cord tips and a No. 310 plug (3W3A cord). (For use where line finder bank terminal strip is equipped with soldered wire terminals.)

2.06 W3M cord, 15 feet long, equipped with a No. 310 plug and three No. 360 type tools (3W4B cord). In addition, three No. 624B (terminal connector) tools are required. (For use where line finder bank terminal strip is equipped with wrapped-wire type terminals.)

2.07 No. 258C (dummy) plugs, as required.

**3. PREPARATION**

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

- 1 Connect BAT G (or BAT) test set jack to 48V battery supply jack on finder frame 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.
- 2 Connect No. 40B (remote control) test set plugs, red, black, and gray to test set jacks R, BL and G respectively (see 1.07)
- 3 Insert plug of W3A or W3M cord into test set PL jack, connect tip (white), ring (blue or black), sleeve (red) conductors of cord to tip, ring, sleeve terminals, respectively, of line under test at line finder bank terminal strip  
Note: In Test E the line under test should be a flat-rate line associated with any two idle alternating line finders in a subgroup, such as 1 and 11, 3 and 13, etc.
- 4 Operate LP key

BY lamp not lighted

Note: If BY lamp lights, it indicates that line is busy.

All Tests, Except Test E

- 5 Connect test telephone set to test set TEL jacks  
Note: TRS key shall be in normal position except when necessary to talk over line being tested.

Tests A, C, and E

- 6a If remote control is used - Operate RC and RP keys

Tests B, D

- 7a If remote control is used - Operate RC and CL keys

4. METHODSTEPACTIONVERIFICATIONA. Line Finder Line Test - Flat RateFlat Rate Lines

- 7a If remote control is used -  
Depress ST (No. 1) key momentarily
- ST lamp lighted  
First choice line finder associated with line under test operates smoothly and stops on bank terminal of that line  
Dial tone heard  
REV lamp not lighted
- Note: If first choice finder is busy, the next idle finder in proper sequence operates and stops on bank terminals of line.
- 8b If test set control is used -  
Operate RP key
- ST lamp lighted  
First choice line finder associated with line under test operates smoothly and stops on bank terminal of that line  
Dial tone heard  
REV lamp not lighted
- Note: If first choice finder is busy, the next idle finder in proper sequence operates and stops on bank terminals of line.

Finders Used for Concentrating Manual Lines

- 9a If remote control is used -  
Depress ST (No. 1) key momentarily
- ST lamp lighted  
First choice line finder associated with line under test operates smoothly and stops on bank terminals of that line  
Ringing induction heard in most cases  
Operator answers
- Note: If first choice finder is busy, the next idle finder in proper sequence operates and stops on bank terminals of line.
- 10b If test set control is used -  
Operate RP key
- ST lamp lighted  
First choice line finder associated with line under test operates smoothly and stops on bank terminals of that line  
Ringing induction heard in most cases  
Operator answers
- Note: If first choice finder is busy, the next idle finder in proper sequence operates and stops on bank terminals of line.
- 11 Request operator to disconnect when disconnect signal is received

Flat Rate Lines

- 12 Dial connector multiple test line number in reverse battery group
- Test line seized  
Ringing tripped  
REV lamp lighted during test line loop closures
- Note: If tripping does not occur during first or second ringing interval, remain on the connection for a short time and, if a subscriber or operator answers, operate TRS key and advise that a test is being made.

SECTION 226-200-509

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>For All Lines</u>		
13a	If remote control is used - Depress RLS (No. 3) key momentarily	ST and REV lamps extinguished Line finder releases
14b	If test set control is used - Restore RP key	ST and REV lamps extinguished Line finder releases
15	Make line finder busy in approved manner	
16	Proceed as in Steps 7A through 14b to test as many choices of line finders as judged necessary	
17	When test is completed - Restore busied line finders to service and remove all test equipment	
<u>B. Line Finder Line Test - Coin</u>		
8a	If remote control is used - Depress ST (No. 1) key momentarily	ST lamp lighted First choice line finder associated with line under test operates smoothly and stops on bank terminals of that line Dial tone heard REV lamp not lighted <u>Note:</u> If first choice finder is busy, the next idle finder in proper sequence op- erates and stops on bank terminals of line.
9b	If test set control is used - Operate CL key	ST lamp lighted First choice line finder associated with line under test operates smoothly and stops on bank terminals of that line Dial tone heard REV lamp not lighted <u>Note:</u> If first choice finder is busy, the next idle finder in proper sequence op- erates and stops on bank terminals of line.
10	Dial connector multiple test line in re- verse battery group	Test line seized Ringing tripped REV lamp not lighted Tone heard during test line loop closures <u>Note:</u> If tripping does not occur during first or second ringing interval, remain on the connection for a short time and, if a subscriber or operator answers, operate TRS key and advise that a test is being made.
11a	If remote control is used - Depress RLS (No. 3) key momentarily	ST lamp extinguished Line finder releases
12b	If test set control is used - Restore CL key	ST lamp extinguished Line finder releases
13	Make line finder busy in approved manner	
14	Proceed as in Steps 8a through 13 to test as many choices of line finders as judged necessary	
15	When test is completed - Restore busied line finders to service and remove all test equipment	

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>C. Line Finder Line Test - Message Rate</u>		
7a	If remote control is used - Depress ST (No. 1) key momentarily	ST lamp lighted First choice line finder associated with line under test operates smoothly and stops on bank terminals of that line Dial tone heard REV lamp not lighted  <u>Note:</u> If first choice line finder is busy, the next idle finder in proper sequence operates and stops on bank terminals of line.
8b	If test set control is used - Operate RP key	ST lamp lighted First choice line finder associated with line under test operates smoothly and stops on bank terminals of that line Dial tone heard REV lamp not lighted  <u>Note:</u> If first choice line finder is busy, the next idle finder in proper sequence operates and stops on bank terminals of line.
9	Dial nonreversing number such as code for test desk or operator	Test desk or operator answers REV lamp not lighted  <u>Note:</u> If for any reason the REV lamp lights, indicating a false 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.
10	Operate TRS key and advise test desk or operator that test is being made	
11a	If remote control is used - Depress RLS (No. 3) key momentarily	ST lamp extinguished Line finder releases
12b	If test set control is used - Restore RP key	ST lamp extinguished Line finder releases
13	Make line finder busy in approved manner	
14	Proceed as in Steps 7a through 13 to test as many choices of line finders as judged necessary	
15	When test is completed - Restore busied line finders to service and remove all test equipment	
<u>D. Line Finder Line Test - Lines Modified For PBX Service</u>		
8a	If remote control is used - Depress ST (No. 1) key momentarily	ST lamp lighted First choice line finder associated with line under test operates smoothly and stops on bank terminals of that line Dial tone heard REV lamp not lighted  <u>Note:</u> If first choice finder is busy, the next idle finder in proper sequence operates and stops on bank terminals of line.

SECTION 226-200-509

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
9b	If test set control is used - Operate CL key	ST lamp lighted First choice line finder associated with line under test operates smoothly and stops on bank terminals of that line Dial tone heard REV lamp not lighted  <u>Note:</u> If first choice finder is busy, the next idle finder in proper sequence operates and stops on bank terminals of line.
10c	If PBX line is arranged for flat-rate service - Dial connector multiple test line in reverse battery group	Test line seized Ringing tripped REV lamp flashes during test line loop closures  <u>Note:</u> If tripping does not occur during first or second ringing interval, remain on the connection for a short time and, if a subscriber or operator answers, operate TRS key and advise that a test is being made. In the event the call is answered and the REV lamp lights steadily, causing a false operation of the message register, a record of the register operations shall be forwarded in accordance with local instructions for the purpose of correcting register records.
11d	If PBX line is arranged for message-rate service - Dial nonreversing number such as code of test desk or operator	Test desk or operator answers REV lamp not lighted  <u>Note:</u> If for any reason the REV lamp lights, indicating a false 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.
12a	If remote control is used - Depress RLS (No. 3) key momentarily	ST and REV lamps extinguished Line finder releases
13b	If test set control is used - Restore CL key	ST and REV lamps extinguished Line finder releases
14	Make line finder in approved manner	
15	Proceed as in Steps 8a through 14 to test as many choices of line finders as judged necessary	
16	When test is completed - Restore busied line finders to service and remove test equipment	

E. Line Finder Alternating Arrangement Test

Remote Control

7	Depress ST (No. 1) key momentarily	One line finder in subgroup operates smoothly and stops on terminals of line used in test  <u>Note:</u> The first finder in any subgroup may or may not be seized first, depending upon which start lead was used last.
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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
8	Depress RLS (No. 3) key momentarily	Line finder releases
9	Depress ST (No. 1) key momentarily	Other line finder in same subgroup (or next idle line finder in another subgroup) operates smoothly and stops on terminals of line used in test.
10	Depress RLS (No. 3) key momentarily	Line finder releases
11	Proceed to Step 16 and 17	
<u>Test Set Control</u>		
12	Operate RP key	One line finder in subgroup operates smoothly and stops on terminals of line used in test  <u>Note:</u> The first finder in any subgroup may or may not be seized first, depending upon which start lead was used last.
13	Release RP key	Line finder releases
14	Reoperate RP key	Other line finder in same subgroup (or next idle line finder in next subgroup) operates smoothly and stops on terminals used in test
15	Release RP key	Line finder releases
<u>Remote or Test Set Control</u>		
16	Repeat Steps 7 through 11 or Steps 12 through 15 on as many alternating line finders as judged necessary	
17	When tests are completed - Remove all test connections	