INDIVIDUAL LINE MESSAGE RATE TRUNKS—LINE FINDER TYPE OPERATION TESTS USING 2-PARTY MESSAGE RATE TYPE TEST SET SD-31258-01 (J34702A) OR SD-31456-01 (J34715A) STEP-BY-STEP SYSTEMS

1. GENERAL

1.01 This section describes methods of testing the operating features of individual line message rate trunks of the line finder type using 2-party message rate type test set SD-31258-01 or SD-31456-01.

1.02 This section is reissued to

(a) Revise Test D for overtime registration tests on message rate trunk circuits SD-31493-01, SD-31493-02 and SD-32082-01 or equivalent.

(b) Eliminate reference to older type test equipment

(c) Make minor revisions in all tests for clarification.

This revision does not affect the Equipment Test List.

1.03 The tests covered are:

1.04 The tests are intended for use as follows:

(a) Test A applies to delayed charge type trunks only and is based on the use of connector multiple test line SD-31636-01 or SD-31642-01.

(b) Test B applies to immediate charge type trunks having access to a delayed charge type connector multiple test line SD-31636-01 or SD-31642-01, located either in the same office as the trunks or in a connecting office. The test covers those trunks in which the armature of the polarized relay is either connected directly to ground, or connected to the sleeve circuit. A trunk wired in accordance with the former arrangement will hold the line finder operated in case the polarized relay fails to release.

(c) Test C applies to immediate charge type trunks which do not have access to a connector multiple test line arranged to test delayed charge type trunks. It is based on the use of the connector test line (99 terminal) in a nonlevel hunting connector group arranged for calling party control. If the office is arranged for

automatic disconnect, this feature should be disabled in the connector group used for test while the test is being made.◀ Test C covers trunks in which the polarized relay armature is either connected directly to ground or connected to the sleeve circuit. In the 350A community dial offices where the older type connector test line SD-31261-01 is employed, Test C does not apply.

(d) ▶Test D applies to delayed charge type trunks arranged for overtime registration only. Automatic disconnect feature, if provided, should be disabled in connector group used for tests while this test is in progress.◀

1.05 When testing trunks that use the sleeve lead for operating the message register, the lighting of the RMR lamp is controlled by the operation of the RMR register. Therefore, it will be sufficient to use the RMR lamp indications as indications of the test set RMR register operations.

1.06 All tests are made from the test line jacks provided for each group of line finders associated with message rate trunks. The test line jacks are located on the line finder frame.

1.07 ▶This routine will normally be performed using the 40B test set but may be performed without using the 40B test set by leaving the RC key in its nonoperated position. The TP-RLS-RP key is operated to RP to start the line finder and restored to RLS to release the line finder.◀

1.08 If the newer type line finders with the test jack on the switch are added to an existing shelf containing older line finders where the test jacks are mounted in a jack panel, it is assumed that both old and new line finders will be tested from the jack panel.

1.09 ***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 upon local conditions. The condition under which a lettered step or 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.

1.10 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 Line finder test set J34715A (SD-31456-01) or J34702A (SD-31258-01).

Note: Test set SD-31456-01 is the only one arranged for testing trunks that uses a fourth lead for operating the message register.

2.02 40B (remote control) test set.

2.03 Head telephone set (associated with test set).

2.04 Two P3E cords, 10 feet long, equipped with 310 plugs (3P6F cords).

Note: Three required for testing trunks associated with 50- or 100-point, 4-wire line finders.

2.05 P3AA cord, 10 feet long, equipped with a 310 plug and a 240A plug (3P30A cord). The 240A plug is modified by removing the red lead from terminal 3 and transferring the black lead from terminal 1 to terminal 3 (used where test jack is located on line finders).

2.06 P6B cord, 11 feet long, equipped with one 310 red shell plug, one 310 black shell plug, and two 240B plugs (6P6A cord) for making connections to test lines of 200-point line finders associated with trunks that use a fourth lead for operating message registers.

2.07 P3K cord, 12 feet long, equipped with 310 plugs (3P15B cord).

Tests B and C

2.08 477A (or 375A) (make-busy) tool, for use where test jacks are not located on finders.

2.09 411A tool (or equivalent) test pick for use where test jacks are located on finders.

Tests C and D

2.10 For No. 1 step-by-step offices, one special patching cord (to be made up locally) equipped with two 310 plugs, with sleeve and ring elements short-circuited and a 63R resistor, connected as shown in Fig. 1.

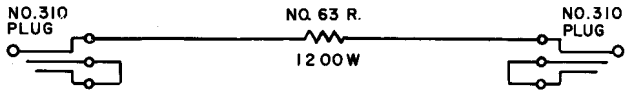

Fig. 1

2.11 For 350A community dial offices, one W2C cord, 10 feet long, equipped with a 310 plug and two 59 cord tips (2W6A cord).

3. PREPARATION

STEP	ACTION	VERIFICATION
	All Tests	
1	Restore all test set keys to normal.	
2	Using P3K cord, patch BAT G (or BAT) jack to 48V frame battery supply jack. ***Note:*** To avoid possible grounding of battery supply lead, connect cord to test set first and, when disconnecting, remove from test set last.	
3	Connect head telephone set to TEL jacks. ***Note:*** Leave TRS key normal except when necessary to talk.	
4	Connect 40B remote control test set red, black, and gray plugs to jacks, R, BL, and G, respectively.	
5	Operate RC and MR keys.	
	Test A	
	For Trunks Associated With 50- or 100-Point 4-Wire Line Finders	
6	Using P3E cords, connect A and M jacks to test line jacks A and B, respectively.	

STEP	ACTION	VERIFICATION
	For Trunks Associated With 100- or 200-Point 3-Wire Line Finders	
7	Using P3E cord, connect A jack to test line jack A.	
	For Trunks Associated With 200-Point 4-Wire Line Finders	
8	Connect red and black plugs of P6B cord to jacks A and MA, respectively, and connect the 240B plugs connected to the red and black plugs to test line jacks A and B, respectively.	
	Tests B, C and D	
9	Using P3E cord, connect A jack to test line jack A.	
10	Turn L-S key, where provided, to L position for 1400- or 1500-ohm range trunks or to S position for trunks with less range.	
	Tests C and D	
11a	If testing in No. 1 step-by-step office— Using special patching cord shown in Fig. 1, connect connector test line jacks 3 and 4 in nonlevel hunting group together at connector frame or at coin trunk relay rack. Insert one plug into jack 4 and then the other into jack 3.	
12b	If testing in 350A community dial office— Insert 310 plug of W2C cord into connector test line TL jack and connect 59 cord tips to ground.	

4. METHOD

A. Delayed Charge Type Trunks

9c	If test jack is not located on line finder— Using P3E cord, patch LF jack to test jack of finder associated with trunk to be tested.	
10d	If test jack is located on line finder— Using P3AA cord, patch LF jack to test jack on line finder associated with trunk to be tested.	

STEP	ACTION	VERIFICATION
11	Operate LP and RP keys. With line finder normal— Momentarily depress ST (No. 1) key.	ST lamp lighted. Line finder operates smoothly and stops on test line terminals. Dial tone heard.
12	Dial connector multiple test line in reverse battery connector group. ***Note:*** If ringing is not tripped during the first or second interval, operate TRS key; remain on connection for short time; and, if a subscriber or operator answers, advise that a test is being made.	Test line seized. Ringing tripped. REV lamp lighted during test line loop closures. **Trunks That Use Sleeve Lead for Operating Message Register** RMR (red) lamp lights during relatively long (about 5 seconds) test line loop closure. **Trunks That Use Fourth Lead for Operating Message Register and Do Not Apply a Guarding Ground to Fourth Lead** RMR lamp lights during relatively long (about five seconds) test line loop closure. **Trunks That Use a Fourth Lead for Operating Message Register and Apply a Guarding Ground to the Fourth Lead** RMR lamp lights immediately, is extinguished during the relatively long (about five seconds) test line loop closure, then relights.
13	Momentarily depress RLS (No. 3) key.	ST, RMR, and REV lamp extinguished. Line finder releases. BY lamp lights momentarily with test set SD-31456-01.
14	Restore RP key.	
15	Restore LP key and remove P3E or P3AA cord from line finder test jack.	
16e	If no further tests are to be made— Restore all test set keys and remove remaining cords.	

B. Immediate Charge Type Trunks—Using Connector Multiple Test Line of Delayed Charge Type

11c	If test jack is not located on line finder— Using P3E cord, patch LF jack to test jack of line finder associated with trunk to be tested.	

STEP	ACTION	VERIFICATION
12d	If test jack is located on line finder— Using P3AA cord, patch LF jack to test jack on line finder associated with trunk to be tested.	
13	Operate LP and RP keys. With line finder normal— Momentarily depress ST (No. 1) key.	ST lamp lighted. Line finder operates smoothly and stops on test line terminal. Dial tone heard.
14c	If test jack is not located on line finder— Dial all but last digit of connector multiple test line in reverse battery connector group.	
15c	When dial has returned to normal— Insert 477A tool into line finder monitor jack for about one second (to soak polarized relay in trunk circuit). Immediately dial last digit. ***Note:*** If ringing is not tripped during the first or second ringing interval, operate TRS key and remain on the connection a short time and, if a subscriber or operator answers, advise that a test is being made.	Test line seized. Ringing tripped. RMR lamp lighted. REV lamp lighted during test line loop closures.
16d	If test jack is located on line finder— Dial all but last digit of connector multiple test line in reverse battery group.	
17d	When dial has returned to normal— Using test pick, short the tip and ring of 240A plug for about one second (to soak polarized relay in trunk circuit). Immediately dial last digit. (See note, Step 15c.) ***Note:*** It is necessary to perform Steps 18c through 20c or 21d through 23d within the relatively long (about five seconds) test line loop closure.	Test line seized. Ringing tripped. RMR lamp lighted. REV lamp lighted during test line loop closures.
18c	If test jack is not located on line finder— Immediately after start of long closure— Insert make-busy tool into monitor jack of line finder.	REV lamp extinguished.

STEP	ACTION	VERIFICATION
19c	Immediately after make-busy tool is inserted into monitor jack of line finder— Momentarily depress RLS (No. 3) key.	ST lamp extinguished.
20c	Approximately one second after depressing RLS key— Remove make-busy tool.	RMR lamp extinguished. Line finder releases. BY lamp lighted momentarily with test set SD-31456-01.
21d	If test jack is located on line finder— Immediately after start of long closure— Using test pick, short tip and ring on 240A plug.	REV lamp extinguished.
22d	Immediately after connecting test pick— Momentarily depress RLS (No. 3) key.	ST lamp extinguished.
23d	Approximately one second after depressing RLS key— Remove test pick from 240A plug.	RMR lamp extinguished. Line finder releases. BY lamp lighted momentarily with test set SD-31456-01.
24e	If testing trunk in which polarized relay armature is connected to sleeve circuit— Momentarily depress ST (No. 1) key.	ST lamp lighted. Line finder operates smoothly and stops on test line terminals. Dial tone heard. RMR lamp not lighted.
25e	Dial connector multiple test line.	Test line seized. Ringing tripped. REV lamp lighted after ringing is tripped. RMR lamp lighted.
26e	Momentarily depress RLS (No. 3) key.	ST, RMR, and REV lamps extinguished. Line finder releases. BY lamp lighted momentarily with test set SD-31456-01.
27	Restore LP and RP keys; remove P3E or P3AA cord from line finder test jack.	
28f	If no further tests are to be made— Restore all test set keys and remove remaining cords.	

C. Immediate Charge Type Trunks—Using Connector Test Line (99 Terminal)

13c	If test jack is not located on line finder— Using P3E cord, patch LF jack to test jack of finder asssociated with trunk to be tested.	

STEP	ACTION	VERIFICATION
14d	If test jack is located on line finder— Using P3AA cord, patch LF jack to test jack of finder associated with trunk to be tested.	
15	Operate LP and RP keys.	
16	With line finder normal— Momentarily depress ST (No. 1) key.	ST lamp lighted. Line finder operates smoothly and stops on test line terminals. Dial tone heard.
17c	If test jack is not located on line finder— Dial all but last digit of connector test line (99 terminal) which has been selected for test.	
18c	After dial has returned to normal— Insert 477A tool into line finder monitor jack for about one second (to soak polarized relay in trunk circuit).	
19c	Immediately dial last digit. ***Note:*** If tripping does not occur during first or second ringing interval, operate TRS key; remain on the connection a short time; and is a subscriber or operator answers, advise that a test is being made.	Test line seized. Ringing tripped. REV lamp lighted after ringing is tripped. RMR lamp lighted.
20d	If test jack is located on line finder— Dial all but last digit of connector test line (99 terminal) which has been selected for test.	
21d	After dial has returned to normal— Using test pick, short tip and ring of 240A plug for about one second (to soak polarized relay in trunk circuit).	
22d	Immediately dial last digit. ***Note:*** If tripping does not occur during first or second interval, operate TRS key; remain on the connection a short time; and if a subscriber or operator answers, advise that a test is being made.	Test line seized. Ringing tripped. REV lamp lighted after ringing is tripped. RMR lamp lighted.
23c	If test jack is not located on line finder— Insert make-busy tool into line finder monitor jack.	REV lamp extinguished.
24d	If test jack is located on line finder— Using test pick, short tip and ring of 240A plug.	REV lamp extinguished.

STEP	ACTION	VERIFICATION
25	Momentarily depress RLS (No. 3) key.	ST lamp extinguished.
26	After about one second— Remove make-busy tool or test pick.	RMR lamp extinguished. Line finder releases. BY lamp lighted momentarily with test set SD-31456-01.
27e	If testing a trunk in which polarized relay armature is connected to sleeve circuit— Momentarily depress ST (No. 1) key.	ST lamp lighted. Line finder operates smoothly and stops on test line terminals. Dial tone heard. RMR lamp not lighted.
28e	Dial connector multiple test line.	Test line seized. Ringing tripped. REV lamp lighted after ringing is tripped. RMR lamp lighted.
29e	Momentarily depress RLS (No. 3) key.	ST, RMR, and REV lamps are extinguished. Line finder released. BY lamp lighted momentarily with test set SD-31456-01.
30	Restore RP and LP keys.	
31	Remove P3E or P3AA cord from line finder test jack.	
32f	If no further tests are to be made— Restore all test set keys and remove remaining cords.	
33a	If testing in No. 1 step-by-step office— First remove plug from jack 3 and then jack 4 of connector test line.	
34b	If testing in No. 350A community dial office— Remove 310 plug from connector test line TL jack and disconnect 59 cord tips.	
	D. Delayed Charge Type Trunks—Arranged for Overtime Registration	
13c	If test jack is not located on line finder— Using P3E cord, patch LF jack to test jack of finder associated with trunk to be tested.	
14d	If test jack is located on line finder— Using P3AA cord, patch LF jack to test jack of finder associated with trunk to be tested.	
15	Operate LP and RP keys.	

STEP	ACTION	VERIFICATION
16	With line finder normal— Momentarily depress ST (No. 1) key.	ST lamp lighted. Line finder operates smoothly and stops on test line terminals. Dial tone heard.
17	Dial connector test line (99 terminal) which has been selected for test.	Test line seized. Ringing tripped. REV lamp lighted after ring is tripped. After a 2 to 5.5 second delay— RMR lamp lighted for approximately 1/2 second.
18	Remain on connection while timer times 5-minute interval.	At completion of 5-minute interval— RMR lamp lighted for approximately 1/2 second.
19	Momentarily depress RLS (No. 3) key.	ST, REV lamp extinguished. Line finder releases.
20	Restore RP and LP keys.	
21	Remove P3E or P3AA cord from line finder test jack.	
22e	If no further tests are to be made on other trunks— Restore all test set keys and remove remaining cords.	