TRUNK FINDERS FOR CONCENTRATING INTERCEPTING AND VERIFICATION REQUEST TRUNKS OPERATION TESTS USING TEST SET SD-31456-01 (J34715A) OR SD-31524-01 (J34718A) STEP-BY-STEP SYSTEMS

1. GENERAL

1.01 This section describes methods of testing the trunk finders employed for concentrating, intercepting, and verification request trunks using line finder and trunk finder test set SD-31456-01 or SD-31524-01 in step-by-step offices. It also covers trunk finder tests in those community dial offices where the finders are of the newer type, with the test jack located on the switch.

1.02 This section is reissued to include the testing of trunk finders SD-35045-01. These trunk finders are used on automatic intercept service in step-by-step offices with ANI-C, or ANI-D.

This reissue does not affect the Equipment Test List.

1.03 The tests covered are:

1.04 Tests A, B, D, and E are made from the test line jacks provided for each trunk finder group. In the case of 50- and 100-point trunk finders, the T, R, and S leads of bank terminals 19 or 10 are permanently wired to jack A on the trunk finder frame. In the case of 200-point trunk finders, the bank terminals 110 and 10 are permanently wired to jacks A and B, respectively, on the trunk finder frame.

1.05 Test A is used where the outgoing trunk from the trunk finder is arranged to signal the operator when battery or ringing current is connected to the tip and ring of the trunk. This trunk circuit then returns a ground on the sleeve to hold the trunk finder before the operator answers.

1.06 Test B is used where the outgoing trunk from the trunk finder is arranged to signal the operator during the ringing interval of the ringing cycle and is not arranged to return a ground on the sleeve to hold the trunk finder until after the operator answers in all cases except trouble-intercepted calls. In the case of trouble-intercepted calls, the trunks are arranged to provide a ground as soon as the trunk is seized to hold the trunk finder and are also arranged to signal the operator after a short interval if it fails to do so during the ringing interval of the ringing cycle. This test simulates a trouble-intercepted call.

1.07 Test C is used where the outgoing trunk from the trunk finder is arranged as in 1.06, except that the trouble-intercepting feature is not provided. This test requires the use of a vacant intercepted connector terminal and dialing of this terminal from an office telephone, or by means of a dial hand test set. In order to test all trunk finders in a group, it is necessary to busy out each finder as it is tested until the last finder in the group is being tested and has reached the test terminals. Test C does not provide a marginal test of the E relay. If it is desired to perform a marginal test of the E relays of trunk finders, other than those in position 2, 12, or 22, Test D may be used to supplement Test C. This test should preferably be made during periods of light traffic.

1.08 Test D is used, where desired, to test the fundamental operating features of the trunk finder at frequent intervals to supplement the complete operation test covered by Test B or C. Test D cannot be used to supplement Test A.

1.09 Test E assumes that test set SD-31456-01 is equipped with A or ZW wiring and apparatus, and that test set SD-31524-01 is equipped with ZB or ZX wiring. It also assumes that both test sets are equipped with a BF NO key. This test requires the use of the PL jack of the test set and a nonbusy trunk circuit on the same level as the test line terminals. In the case of 200-point trunk finders, the mate trunk circuit of the nonbusy trunk circuit is also required, the mate trunk circuit being 115 if 15 is used or vice versa.

1.10 Test H is intended to supplement Test A, B, or D for trunk finders in position 2, 12, or 22 and provides a means of testing the operation of the E relay of these trunk finders on a marginal basis.

1.11 All other trunk finder features such as the group and chain circuits, traffic registers, and alarms are tested in the same manner as outlined in the sections covering line finders.

1.12 Tests A, B, and C require actions and verifications with the operator.

1.13 In performing these tests, service may be adversely affected by possible dial tone delays or denial of service, as in Test C.

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 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 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

2.01 The apparatus required for each test is listed in Table A. The details for each item are covered in the indicated paragraphs.

2.02 Trunk finder test set J34715A (SD-31456-01) or J34718A (SD-31524-01).

2.03 P3E cord, 10 feet long, equipped with 310 plugs (3P6F cord) for connecting the test set to the test jack when the test jack is not located on the trunk finder. Also used for connecting the test set to the test line jacks ◗ (see 2.17 if testing trunk finders SD-35045-01).◖

Note: Only two required when testing 50- or 100-point trunk finders.

2.04 P3AJ reversing cord, 10 feet long, equipped with two 310 plugs with black shells (3P36A cord). Used to connect test set to test line in Step 8e.

2.05 P3AA cord, 10 feet long, equipped with one 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 (for connecting the test set to the test jack when the test jack is located on the trunk finder).

2.06 P3K cord, 12 feet long, equipped with 310 plugs (3P15B cord) (for use in connecting battery supply to test set).

2.07 40B (or 40A) test set (remote control) (for use with test set SD-31456-01 only).

2.08 52S or equivalent head telephone set (associated with test set).

2.09 375A plug (for use where outgoing trunks are equipped with a T1 jack).

2.10 1014A dial hand test set (or equivalent), equipped with a 2W39A cord assembly.

2.11 W3AJ cord, 12 feet long, equipped with a 310 black shell plug and a 620A tool. The red (sleeve) conductor is connected to the terminal of the 620A tool located on the same side as the code marking on the tool. The white (tip) conductor is connected to the other terminal and the blue (ring) conductor is cut off at the body of the cord. The modified Frankel clip on the cord is provided to clip on the bank rod to take the weight off the 620A tool when inserted in the bank.

2.12 Test cord, shown in Fig. 1, to be made up locally, consisting of one 92A key, one 893 cord (1W13B cord) with one 360 tool removed, one W1W cord (1W17A cord) with the 59 cord tip removed, one W1B cord (1W5B cord) with the KS-6780 clip removed, and one 411A tool (for connecting ground to A relay and to the commutator segment of the trunk finder).

2.13 716C receiver attached to a W2AB cord, 6 feet long, equipped with two 360A tools (2W21A cord), a 411A tool, and a KS-6278 (connecting clip) tool.

2.14 W3M cord, equipped with a 310 plug and three 360 tools (3W4B cord). A W2W cord, 6 feet long, equipped with a 310 plug and two 360 tools (2W17A cord). One 893 cord, 6 feet long, with a 360 tool at each end (1W13B cord). One 419A tool and three 141 cord tips. Connect as shown in Fig. 2 (for connecting test set to A relay and commutator segment of trunk finder when the test jack is not located on trunk finder).

2.15 W3M cord, 15 feet long, equipped with a 310 plug and three 360 tools (3W4B cord) and two 419A tools. Connect a 419A tool to the 360A (sleeve) tool and the other 419A tool to the 360B (ring) tool (for connecting the test set to the A relay and commutator segment of the trunk

TABLE A

APPARATUS	TESTS							
	A	B	C	D	E	F	G	H
Test set (2.02)	1	1		1	1			1
Patching cord (2.03)	3	3		3	3			
Patching cord (2.04)	1							
Patching cord (2.05)	1	1		1	1			1
Patching cord (2.06)	1	1		1	1			1
Test set (2.07)	1	1		1	1			1
Head telephone set (2.08)	1	1						
W1U Cord	1	1						
Test plug (2.09)		1						
258-Type (dummy) plug			√					
Hand test set (2.10)			1					
477A (or 375A) Make-busy tool				1				
Testing cord (2.11)					1			
Special test cord (2.12)						1		
38B Lamp socket equipped with a 2Y lamp						1		
Test receiver (2.13)							1	
Testing cord (2.14)								1
Testing cord (2.15)								1
Testing cord (2.16)								1
Testing cord (2.17)	1	1		1	1			
Blocking tools (2.18)								2

√ As required

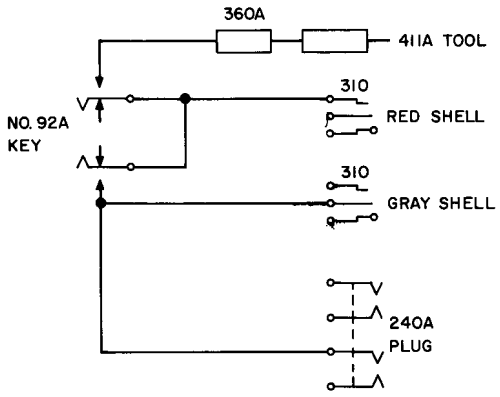

Fig. 1—

finder, where the test jack is located on the trunk finder).

2.16 W1W cord, 10 feet long, equipped with a 310 plug on one end and a 59 alligator clip on the other (1W7A cord).

2.17 ▶P3H cord, 10 feet long, equipped with one 310 plug, and one 240A plug (3P2A cord). For connecting jack A of test set to test line jack A on trunk finder frame for trunk finders SD-35045-01.◀

2.18 Blocking and insulating tools as required. Use tools and apply as covered in Section 069-020-801.

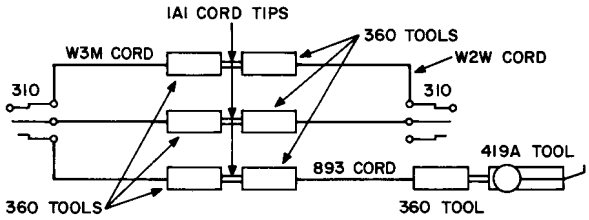

Fig. 2—

3. PREPARATION

STEP	ACTION	VERIFICATION
Tests A, B, D, E, and H		
1	Using P3K cord, connect BAT G jack to 48-volt 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.	
2	Operate TRS and INT TF keys.	

STEP	ACTION	VERIFICATION
3a	If using remote control feature of test set SD-31456-01— Insert remote control red, gray, and black plugs into jacks R, G, and BL, respectively.	
4a	Operate RC and RP keys.	
5b	If using test set control feature of test set SD-31456-01— Leave RC and RP keys in normal position.	
Tests A, B, D, and E		
6c	If testing 50- or 100-point trunk finders— Using P3E cord, connect test set jack A to test line jack A. ▶***Note:*** When testing trunk finders SD-35045-01, use a P3H cord in place of the P3E cord.◀	
7d	If testing 200-point trunk finders— Using P3E cords, connect test set jacks A and B to test line jacks A and B, respectively.	
8e	If testing trunk finders for automatic intercept service and test line level is CL2— Using P3AJ cord, connect test set jack A to test line jack A.	
9e	Using P3E cord, connect test set jack B to test line jack B. ***Note:*** Connections to the A and B test line jacks shall be reversed on each alternate testing cycle, unless otherwise specified, in order to make a complete test of the trunk finder B and F relays.	
Tests A and B		
10	Connect head telephone set to TEL jacks.	
Test E		
11	Insert plug of W3AJ cord (equipped with 620A tool) into PL jack.	
Test F		
12	Insert red-shelled plug of special test cord shown in Fig. 1 into 48-volt battery supply jack.	

STEP	ACTION	VERIFICATION
Test G		
13f	If outgoing intercept trunk is not equipped with MB jack— Connect 59 alligator clip of 1W7A cord to ground.	
Test H		
14g	If test jack is not located on trunk finder— Insert 310 plug of W3M cord (2.13) into LF jack.	
15h	If test jack is located on trunk finder— Insert plug of 15-foot W3M cord (2.14) into LF jack.	

4. METHOD

STEP	ACTION	VERIFICATION
A. Trunk Finder Operation Test—Outgoing Trunk Returns Ground on Sleeve Before Operator Answers		
11f	If test jack is not located on trunk finder— Using P3E cord, connect LF jack to trunk finder test jack.	
12g	If test jack is located on trunk finder— Using P3AA cord, connect LF jack to trunk finder test jack. ***Note:*** If test jack is located on trunk finder, it will be necessary to have ZS option in test set SD-31456-01 and ZR option in test set SD-31524-01.	
13a	If using remote control feature of test set SD-31456-01— With trunk finder normal— Momentarily depress key 1.	ST lamp lighted Trunk finder operates smoothly and stops on test line terminal. Operator answers or announcement heard. REV lamp may light, but disregard.
14a	If operator answers— Advise operator of test. ***Note:*** If toll identification tone is provided in the outgoing trunk or operator cord circuit, verify with the operator that "high" tone was heard before the tone removal or flashing key was operated. The REV lamp may light at this time, but disregard it.	

STEP	ACTION	VERIFICATION
15a	Request operator to disconnect from trunk jack.	
16a	Depress key 3 momentarily.	ST lamp extinguished. Trunk finder releases.
17b	If using test set control feature of test set SD-31456-01— With trunk finder normal— Operate RP key.	ST lamp lighted. Trunk finder operates smoothly and stops on test line terminals. Operator answers or announcement heard. REV lamps may light, but disregard.
18b	If operator answers— Advise operator of test (see note, Step 14a).	
19b	Request operator to disconnect from trunk jack.	
20b	Restore RP key.	ST lamp extinguished. Trunk finder releases.
21h	If using test set SD-31524-01— With trunk finder normal— Operate LP key.	Trunk finder operates smoothly and stops on test line terminals. Operator answers or announcement heard. R lamp may light, but disregard.
22i	If operator answers— Advise operator of test (see note, Step ▶14a◀).	
23i	Request operator to disconnect from trunk jack.	
24i	Restore LP key.	Trunk finder releases.
25	Remove plug from trunk finder test jack.	
26	Repeat Steps 11f through 25 on remaining switches.	
27j	If no further tests are to be made— Remove all remaining cords.	

B. Trunk Finder Operation Test—Outgoing Trunk Returns Ground on Sleeve After Operator Answers in All Cases Except Trouble-Intercepted Calls—Trouble-Intercepting Feature Provided

11f	If test is not located on trunk finder— Using P3E cord, connect LF jack to trunk finder test jack.	

STEP	ACTION	VERIFICATION
12g	If test jack is located on trunk finder— Using P3AA cord, connect LF jack to trunk finder test jack. ***Note:*** If test jack is located on trunk finder, it will be necessary to have ZS option in test set SD-31456-01 or ZR option in test set SD-31524-01.	
13	With trunk finder normal— Using a W1U cord, connect together the S and A terminals at the trunk finder terminal strip. ***Note 1:*** If outgoing trunks are located near trunk finders and are equipped with a T1 jack, the S and A terminals may be connected together by inserting the 375A plug into T1 jack. ***Note 2:*** In Steps 12, 16, and 20, ringing induction may not be heard if operator answers or announcement heard in less than 4 seconds.	
14a	If using remote control feature of test set SD-31456-01— With trunk normal— Depress key 1 momentarily.	ST lamp lighted. Trunk finder operates smoothly and stops on test line terminals. After 5 to 10 seconds, ringing induction heard. Operator answers or announcement heard. REV lamp may light, but disregard.
15a	If operator answers— Advise operator of test. ***Note:*** If toll identification tone is provided in the outgoing trunk or operator cord circuit, verify with operator that "high" tone was heard before the tone removal or flashing key was operated. REV lamp may light at this time, but disregard.	
16a	Request operator to disconnect cord from trunk jack.	
17a	Depress key 3 momentarily.	ST lamp extinguished. Trunk finder releases.
18b	If using test set control feature of test set SD-31456-01— With trunk finder normal— Operate RP key.	ST lamp lighted. Trunk finder operates smoothly and stops on test line terminals. After 5 to 10 seconds, ringing induction heard.

STEP	ACTION	VERIFICATION
		Operator answers or anouncement heard. REV lamp may light, but disregard.
19b	If operator answers— Advise operator of test (see note, Step 15a).	
20b	Request operator to disconnect cord from trunk jack.	
21b	Restore RP key.	ST lamp extinguished. Trunk finder releases.
22h	If using test set SD-31524-01— With trunk finder normal— Operate LP key.	Trunk finder operates smoothly and stops on test line terminals. After 5 to 10 seconds, ringing induction heard. Operator answers or announcement heard. R lamp may light, but disregard.
23h	If operator answers— Advise operator of test (see note, Step 15a).	
24h	Request operator to disconnect cord from trunk jack.	
25h	Restore LP key.	Trunk finder releases.
26	Remove plug from trunk finder test jack.	
27	Repeat Steps 11f through 25h on all remaining switches.	
28i	If no further tests are to be made— Remove all remaining cords.	

C. Trunk Finder Operation Test—Outgoing Trunk Returns Ground on Sleeve After Operator Answers—Trouble-Intercepting Feature Not Provided

1a	If dial handset is available— Insert 240A plug of handset into test jack of an idle local connector or local test jack of an idle combination connector. Operate switch of handset to TALK position.	
2a	Dial a vacant intercepted connector terminal connected to a trunk in trunk finder group under test.	Ringing induction heard in most cases. Operator answers or announcement heard.
3b	If dial handset is not available,— Using an office telephone, dial a vacant intercepted connector terminal connected to a trunk in trunk finder group under test.	Audible ringing heard in most cases. Operator answers or announcement heard.

STEP	ACTION	VERIFICATION
4b	If operator answers— Advise operator that test is being made.	
5b	Verify with operator that call was received on the regular intercepting answering jack and that no tone (toll identification) was heard when operator answered.	
6b	Request operator to disconnect cord from trunk jack.	
7c	If announcement is heard— Verify that it is the proper announcement for the vacant connector terminal dialed.	
8d	If test jack is not located on trunk finder— Insert 258C plug into test jack of trunk finder under test to make it busy and to permit directing the next call to next idle trunk finder.	
9e	If test jack is located on trunk finder— Operate MB key of trunk finder under test.	
10	Replace receiver on switchhook of office telephone or operate switch of hand test set to MON position.	
11	Repeat Steps 1a through 10 inclusive on all trunk finders to be tested.	
12	When last trunk finder has been tested— Replace receiver on switchhook of office telephone ***immediately*** or operate key of hand test set to MON position.	
13	***Immediately*** remove 258C plugs from test jacks or restore MB keys of all finders used in test.	

D. Rapid Operation Test—Outgoing Trunk Returns Ground on Sleeve After Operator Answers

10f	If test jack is not located on finder— Using P3E cord, connect LF jack to trunk finder test jack.	
11f	With the trunk finder normal— Insert 477A (or 375A) make-busy tool into the monitor jack of trunk finder.	

STEP	ACTION	VERIFICATION
	Caution: Do not insert the make-busy tool into the monitor jack of any trunk finder that is off-normal.	
12g	If test jack is located on trunk finder— With trunk finder normal— Using P3AA cord, connect LF jack to trunk finder test jack.	
	Note: If test jack is located on trunk finder, it will be necessary to have ZS option in test set SD-31456-01 or ZR option in test set SD-31524-01.	
13g	Using a KS-6278 (or similar type) connecting clip, short springs 1 and 2 of trunk finder test jack (or springs 1 and 2 of 240A plug).	
	Caution: Do not short the springs of any trunk finder that is off-normal.	
14a	If using remote control feature of test set SD-31456-01— Momentarily depress key 1.	ST lamp lighted. Trunk finder operates smoothly and stops on test line terminals. REV lamp lighted for a short interval. Trunk finder releases.
15a	Remove tool from monitor jack or connecting clip from test jack.	
16a	Remove plug from trunk finder test jack.	
17a	Depress key 3 momentarily.	ST lamp extinguished.
18b	If using test set control feature of test set SD-31456-01— Operate RP key.	ST lamp lighted. Trunk finder operates smoothly and stops on test line terminals. REV lamp lighted for short interval. Trunk finder releases.
19b	Remove tool from monitor jack or connecting clip from test jack.	
20b	Remove plug from trunk finder test jack.	
21b	Restore RP key.	ST lamp extinguished.
22h	If using test set SD-31524-01— Operate LP key.	Trunk finder operates smoothly and stops on test line terminals. R lamp lighted for short interval. Trunk finder releases.

STEP	ACTION	VERIFICATION
23h	Remove tool from monitor jack or connecting clip from test jack.	
24h	Remove plug from trunk finder test jack.	
25h	Restore LP key.	
26	Repeat Steps 10f through 25h for remaining switches.	
27i	If no further tests are to be made— Remove all remaining cords.	

E. Trunk Finder B, C, and F Relay Test

12f	If test jack is not located on trunk finder— Using P3E cord, connect LF jack to trunk finder jack.	
13g	If test jack is located on trunk finder— Using P3AA cord, connect LF jack to trunk finder jack. ***Note:*** If test jack is located on trunk finder, it will be necessary to have ZS option in test set SD-31456-01 or ZR option in test set SD-31524-01.	
14	Select idle trunk finder other than one under test and make busy or select bank with cleaned terminals, not equipped with trunk finder.	
15	Insert 620A tool into sleeve bank from left side in same level as test line. Select bank where test trunk is in some level between 4 and 9 inclusive to avoid interference between tool and commutator or designation card.	
16a	If using remote control feature of test set SD-31456-01— Operate BF NO key and then B key.	
17a	Move 620A tool to select an idle trunk (or pair of trunks for 200-point trunk finders) near middle of bank (see 1.09).	
18a	Operate and hold key 3.	***50- and 100-Point Finders*** TMR lamp not lighted. ***Note:*** If TMR lamp lights, trunk is busy. Move 620A tool until idle trunk is found.

STEP	ACTION	VERIFICATION
		200-Point Finders TMR and RMR lamps not lighted. ***Note:*** If TMR lamp lights, marked trunk is busy. If RMR lamp lights, mate trunk is busy. In either case, move the 620A tool until idle pair of trunks is found.
19a	Release key 3.	
20a	Depress key 1 momentarily.	ST lamp lighted. Trunk finder operates smoothly and stops on terminals to which 620A tool is connected. ***Note 1:*** Dirty bank terminals or improperly adjusted wipers may cause C relay to fail its hold test. ***Note 2:*** Failure of trunk finder to stop indicates that C relay failed to meet hold requirements, or that marked or mate trunk became busy before being seized by trunk finder. To test that marked or mate trunks have not become busy, perform Step 21h.
21h	If finder failed to stop on marked terminal and it is desired to test whether marked or mate trunk is busy— Depress key 3 momentarily.	Trunk finder releases. TMR and RMR lamps not lighted while RLS key is depressed. If either lamp lights, marked or mate line became busy. Repeat Steps 17a through 19a.
22i	If testing trunk finders associated with outgoing trunks which return ground on sleeve before operator answers— Depress key 2 momentarily.	Trunk finder resumes rotary stepping and stops on test line terminals.
23i	Depress key 3 momentarily.	ST lamp extinguished. Trunk finder releases.
24j	If testing trunk finders associated with outgoing trunks which return ground on sleeve after operator answers— Depress key 2 momentarily.	Trunk finder resumes rotary stepping, stops on test line terminals, and releases.
25j	Depress key 3 momentarily.	ST lamp extinguished.
26b	If using test set control features of test set SD-31456-01— Move 620A tool to select an idle line near middle of bank (see 1.09).	BY lamp not lighted.

STEP	ACTION	VERIFICATION
27d	If testing 200-point trunk finders— Remove plug from PL jack and touch tip of plug to sleeve of jack.	BY lamp not lighted. ***Note:*** If BY lamp lights, mate line is busy and another pair of lines must be selected.
28d	Reinsert plug into PL jack.	
29d	With trunk finder normal— Operate keys BF NO, B, RP.	ST lamp lighted. Trunk finder operates smoothly and stops on terminal to which 620A tool is connected. ***Note 1:*** Dirty bank terminals or improperly adjusted wipers may cause C relay to fail its hold test. ***Note 2:*** Failure of trunk finder to stop indicates that C relay failed to meet hold requirements or that marked or mate line because busy before being seized by trunk finder. To test that trunks have not become busy, perform Step 30k.
30k	If finder failed to stop on marked terminal and it is desired to test whether marked or mate line is busy— Restore keys BF NO, B, RP.	Trunk finder releases. ***Note:*** If BY lamp lights, the marked trunk is busy. If it does not light, and 200-point finders are being tested, remove plug from PL jack and touch tip of plug to sleeve of jack. If BY lamp lights, the mate trunk is busy. If either trunk is found busy, select another pair of trunks and repeat Steps 26b through 28d.
31i	If testing trunk finders associated with outgoing trunks which return ground on sleeve before operator answers— Operate C key momentarily.	Trunk finder resumes rotary stepping and stops on test line terminals.
32i	Restore RP key.	ST lamp extinguished. Trunk finder releases.
33j	If testing trunk finders associated with outgoing trunks which return ground on sleeve after operator answers— Operate C key momentarily.	Trunk finder resumes rotary stepping, stops on test line terminals, and releases.
34j	Restore RP key.	ST lamp extinguished.
35l	If using test set SD-31524-01 with "C" key— Move 620A tool to select an idle line near middle of bank (see 1.09).	BY lamp not lighted.

STEP	ACTION	VERIFICATION
36d	If testing 200-point trunk finders— Remove plug from PL jack and touch tip of plug to sleeve of jack.	BY lamp not lighted. ***Note:*** If BY lamp lights, mate line is busy, and another pair of lines must be selected.
37d	Reinsert plug into PL jack.	
38d	With trunk finder normal— Operate BF NO, LK keys.	Trunk finder operates smoothly and stops on terminals to which 620A tool is connected. ***Note 1:*** Dirty bank terminals or improperly adjusted wipers may cause C relay to fail its hold test. ***Note 2:*** Failure of trunk finder to stop indicates that C relay failed to meet hold requirements, or that marked or mate trunk became busy before being seized by trunk finder. To test that marked or mate trunks have not become busy, perform Step 39k.
39k	If finder failed to stop on marked terminal and it is desired to test whether marked or mate trunk is busy— Restore BF NO, LK keys.	Trunk finder releases. ***Note:*** If BY lamp lights, the marked trunk is busy. If it does not light, and 200-point finders are being tested, remove plug from PL jack and touch tip of plug to sleeve of jack. If BY lamp lights, the mate trunk is busy. If either trunk is found busy, select another pair of trunks and repeat Steps 35l through 38d.
40i	If testing trunk finders associated with outgoing trunks which return ground on sleeve before operator answers— Operate C key momentarily.	Trunk finder resumes rotary stepping and stops on test line terminals.
41i	Restore LK key.	Trunk finder releases.
42j	If testing trunk finders associated with outgoing trunks which return ground on sleeve after operator answers— Operate C key momentarily.	Trunk finder resumes rotary stepping, stops on test line terminals, and releases.
43j	Restore LK key.	
44m	If using test set SD-31524-01 with LF key— Move 620A tool to select an idle line near middle of bank (see 1.09).	BY lamp not lighted.

STEP	ACTION	VERIFICATION
45d	If testing 200-point trunk finders— Remove plug from PL jack and touch tip of plug to sleeve of jack.	BY lamp not lighted. ***Note:*** If BY lamp lights, mate line is busy and another pair of lines must be selected.
46d	Reinsert plug into PL jack.	
47d	With trunk finder normal— Operate keys BF NO, LK.	Trunk finder operates smoothly and stops on terminals to which 620A tool is connected. ***Note 1:*** Dirty bank terminals or improperly adjusted wipers may cause C relay to fail its hold test. ***Note 2:*** Failure of trunk finder to stop indicates that C relay failed to meet hold requirements, or that marked or mate trunk became busy before being seized by trunk finder. To test that marked or mate trunks have not become busy, perform Step 48k.
48k	If finder failed to stop on marked terminal and it is desired to test whether marked or mate trunk is busy— Restore keys BR NO, LK.	Trunk finder releases. ***Note:*** If BY lamp lights, the marked trunk is busy. If it does not light, and 200-point finders are being tested, remove plug from PL jack and touch tip of plug to sleeve of jack. If BY lamp lights, the mate trunk is busy. If either trunk is found busy, select another pair of trunks and repeat Steps 44m through 47d.
49	Operate LF key to CH position.	Trunk finder remains on marked terminal. ***Note:*** If finder resumes rotary hunting, the C relay has failed its hold test.
50i	If testing trunks finders associated with outgoing trunks which return ground on sleeve before operator answers— Operate LF key to CR position.	Trunk finder resumes rotary stepping and stops on test line terminals. ***Note:*** If finder fails to resume rotary hunting, the C relay has failed its release test.
51i	Restore keys BF NO, LK, LF.	Trunk finder releases.
52j	If testing trunk finders associated with outgoing trunks which return ground on sleeve after operator answers— Operate LF key to CR position.	Trunk finder resumes rotary stepping, stops on test line terminals, and releases. ***Note:*** If trunk finder fails to resume rotary hunting, the C relay has failed its release test.

STEP	ACTION	VERIFICATION
53j	Retore keys BF NO, LK, LF.	
54	Repeat Steps 12f through 52j on remaining trunk finders.	
55n	If no further tests are to be made— Remove all cords and restore all keys.	
F. Normal Post Spring Operation Test		
13f	If test jack is not located on trunk finder— Insert gray-shelled 310 plug of special test cord (Fig. 1) into trunk finder test jack.	
14g	If test jack is located on trunk finder— Insert 240A plug of special test cord (Fig. 1) into trunk finder test jack.	
15	With trunk finder normal— Connect 48-volt battery through the 2Y test lamp to the A terminal at trunk finder terminal strip.	
16	Touch 411A tool of the special test cord to commutator segment corresponding to level on which normal post springs are adjusted to operate.	
17	Depress and hold 92A key.	Trunk finder steps to proper level, rotates to eleventh rotary step (tenth step on 100-point finders), then releases. Test lamp lighted during rotary action of switch. ***Note:*** When testing 100-point trunk finders associated with trunks that return ground on the sleeve before operator answers, it will be necessary to release the trunk finder by removing the switch cover and operating the release armature manually.
18	Release the 92A key and remove the 411A tool from commutator segment.	
19	Repeat Steps 16 through 18 for each level on which normal post springs are adjusted to operate.	Test lamp lighted during rotary action of switch.
20	Repeat Steps 16 through 18 for each level above and below the operating levels.	Test lamp does not light.
21	Remove plug from trunk finder test jack.	

STEP	ACTION	VERIFICATION
22	Repeat Steps 13f through 21 for other trunk finders to be tested.	
23h	If no further tests are to be made— Remove battery from A terminal and disconnect special test cord from 48V battery supply jack.	
	G. Make Busy From Circuit Beyond	
14g	If trunk finder has test jack located in jack panel— Insert 258-type make-busy plug in test jack.	
15h	If trunk finder has test jack on the trunk finder— Operate MB switch. ***Note:*** When two trunk finders are associated with the same outgoing intercept trunk, both trunk finders must be made busy.	
16i	If outgoing intercept trunk is equipped with MB jack— Insert 258-type make-busy plug in MB jack of trunk associated with trunk finder(s) busied in Step 14g or 15h.	D relay in trunk finder(s) operated. ***Note:*** When two trunk finders are associated with the same outgoing intercept trunk, both D relays should be operated.
17i	Remove 258-type make-busy plug from outgoing intercept trunk MB jack.	D relay in trunk finder(s) released.
18f	If outgoing intercept trunk is not equipped with MB jack— Insert 310 plug of 1W7A cord into T jack of trunk associated with trunk finder busied in Step 14g or 15h.	D relay in trunk finder operated.
19f	Remove 310 plug of 1W7A cord from T jack of outgoing intercept trunk.	D relay in trunk finder released.
20j	If outgoing intercept trunk is equipped with T1 jack (trouble intercept) but not with T jack— Insert 375A plug into T1 jack of trunk associated with trunk finders busied in Step 14g or 15h.	
21j	Using test receiver with KS-6278 tool connected to ground, touch 411A tool to A lead (terminal 3 of switch jack) two or three times slowly in succession.	Note by sound that D relay operates and releases with each application and removal of ground.

STEP	ACTION	VERIFICATION
22j	Remove 375A plug from T1 jack of outgoing intercept trunk.	
23k	If outgoing intercept trunk is not equipped with either T or T1 jacks— At outgoing intercept trunk associated with trunk finder made busy in Step 14g or 15h— Block H relay operated.	D relay in trunk finder operated.
24k	Remove blocking tool from H relay outgoing intercept trunk.	D relay in trunk finder released.
25l	If no further tests are to be made— At trunk finder— Remove 258-type plug from test jack on jack panel or restore MB key on trunk finder.	
26l	Disconnect all test cords.	

H. Test of E Relay of Trunk Finders in Position 2, 12, or 22

16g	If test jack is not located on trunk finder— Insert 310 plug of W2W cord (2.13) into test jack of trunk finder to be tested.	
17g	Connect 419A tool to a commutator segment on some level other than tenth level.	
18h	If test jack is located on trunk finder— Clip 419A tool connected to black (ring) conductor of 15-foot W3M cord (2.14) to contact spring 3 of test jack of trunk finder under test.	
19h	Clip 419A tool connected to red (sleeve) conductor of 15-foot W3M cord (2.14) to commutator segment on some level other than tenth level.	
20a	If using remote control feature of SD-31456-01— With trunk finder normal— Momentarily depress key 1.	ST lamp lights. Trunk finder steps vertically to level on which 419A tool is connected, cuts in, rotates to eleventh rotary step (tenth rotary step in the case of 100-point finder), then releases.
	Note: For 100-point trunk finders associated with trunks that return ground on the sleeve before the operator answers, it may be necessary to release the trunk finder by removing the switch cover and operating the release armature manually.	

STEP	ACTION	VERIFICATION
21a	Remove cord from trunk finder test jack.	
22a	Momentarily depress key 3.	ST lamp extinguished.
23b	If using test set control features of test set SD-31456-01— With trunk finder normal— Operate RP key (see note, Step 20a).	ST lamp lighted. Trunk finder steps vertically to level on which 419A tool is connected, cuts in, rotates to eleventh rotary step (tenth rotary step in the case of 100-point finders), then releases.
24b	Remove cord from trunk finder test jack.	
25b	Restore RP key.	ST lamp extinguished.
26i	If using test set SD-31524-01— With trunk finder normal— Operate LP key (see note, Step 20a).	Trunk finder steps vertically to level on which 419A tool is connected, cuts in, rotates to eleventh rotary step (tenth rotary step in the case of 100-point finders), then releases.
27i	Remove cord from trunk finder test jack.	
28i	Restore LP key.	
29j	If no further tests are to be made— Remove remaining cords and restore all keys.	