

TRUNK FINDERS FOR CONCENTRATING INTERCEPTING  
AND VERIFICATION REQUEST TRUNKS  
OPERATION TESTS USING TRUNK TEST SET SD-90469-01 (J94710A)  
OR SD-90469-02 (J94710A)  
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 trunk test set SD-90469-01 or SD-90469-02 in step-by-step offices. It also covers trunk finder tests in those community dial offices in which the trunk finders are of the newer type, with the test jack located on the switch.

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. Trunk Finder Operation Test - Outgoing Trunk Returns Ground on Sleeve Before Operator Answers: This test checks the operating features of trunk finders and the signaling, supervision, and continuity of trunks to an operator.

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: This test checks the operating features of trunk finders and the signaling, supervision, and continuity of trunks where the trouble intercepting feature is provided.

C. Trunk Finder Operation Test - Outgoing Trunk Returns Ground on Sleeve After Operator Answers - Trouble-Intercepting Feature Not Provided: This test checks the operating features of trunk finders and the continuity and polarity of trunks to selectors or trunk circuits beyond, where no trouble intercepting feature is provided.

D. Rapid Operation Test - Outgoing Trunk Returns Ground on Sleeve After Operator Answers: This test checks the ability of trunk finders to find the test line under normal operating conditions.

E. Trunk Finder B, C, and F Relay Test: This test checks the operating features of trunk finders and checks the trunk B and F relay for nonoperate requirements and the C relay for hold and release requirements.

F. Normal Post Spring Operation Test: This test checks that the normal post springs are operating satisfactorily on specified levels and are not operating on the level above or below these levels.

G. Make Busy From Circuit Beyond: This test checks the sleeve circuit through the trunk finders, in normal position, to the trunk finder D relay.

H. Test of E Relay of Trunk Finders in Position 2, 12, or 22: This test checks the operation of the E relay of trunk finders on a marginal basis, and is intended to supplement Test A, B, or D. This test is necessary due to the test line appearing on the tenth level of these line finders and this level being permanently connected to solid ground. Therefore, some level other than the tenth level is used for applying the resistance ground to the commutator segment for marginally checking the E relay on these finders.

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 10 and 110 are permanently wired to jacks B and A, 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 or 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. They are also arranged to signal the operator after a short interval if they fail to do so during the ringing interval of the ringing cycle. This test simulates a trouble-intercepted call.

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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 spare or idle connector intercepting trunk located on the trunk finder frame to which the test set is connected. The test set is arranged to send a ground forward on the sleeve to hold the trunk finder. In order to test all finders in a group, it is necessary to make each finder busy 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. In performing this test, service may be adversely affected by dial tone delays and possible denial of service to subscribers.

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 is based upon the use of test set SD-90469-02 equipped with "J" wiring and apparatus, and a BF NO key. This test requires a test cord equipped with a No. 620A tool, the use of the C 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. Test set SD-90469-01 is not arranged to perform Test E.

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

1.11 If the newer type line finders with the test jack located 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.

1.12 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.

1.13 In the tests, reference to "older" trunk finders, means finders having the test jacks located in a jack panel. "Newer" trunk finders are those having the test jack located on the finder itself.

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

1.15 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 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.

1.16 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 shown in the following list. The details of each item are covered in the indicated paragraphs:

Apparatus	No. Required for Test							
	A	B	C	D	E	F	G	H
Trunk test set (2.02)	1	1	1	1	1			1
Patching cord (2.03)	1	1	1	1	1			1
Patching cord (2.04)	3	3	1	3	3			
Patching cord (2.05)	1	1		1	1			
Head telephone set (2.06)	1	1	1					
Testing cord (2.07)		1						
Test plug (2.08)		1						
No. 258C plugs			*					
Testing cord (2.09)			1					
Testing cord (2.10)					1			
No. 477A (or No. 375A) (make busy) tool							1	
Special test cord (2.11)							1	
Test receiver (2.12)								1
Testing cord (2.13)								1
Testing cord (2.14)								1
No. 38B lamp socket equipped with a 2Y lamp							1	

\*As required

2.02 Trunk test set J94710A (SD-90469-01 or SD-90469-02).

2.03 P3K cord, 12 feet long, equipped with two No. 310 plugs (3P15B cord) (for connecting battery to the test set).

2.04 P3E cord, 10 feet long, equipped with two No. 310 plugs (3P6F cord). Only two required when testing 50- or 100-point line finders (for connecting the test set to the test line and for other uses).

2.05 P3AA cord, 10 feet long, equipped with a No. 310 plug on one end and a No. 240A plug on the other end (3P30A cord). The No. 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 trunk finders with the test jack located on the trunk finder).

2.06 52A head telephone set (associated with test set.)

2.07 No. 893 cord, 3 feet long, equipped with two No. 360A tools (1W13A cord). Equip with two KS-6278 connecting clips with No. 108 cord tips when connecting to soldered terminals, or with two No. 624B tools when connecting to wire-wrapped terminals (for strapping terminals together at a terminal strip).

2.08 No. 310 plug, with tip and ring elements short circuited (for use where outgoing trunks are equipped with a T1 jack).

2.09 W3M cord, 15 feet long, equipped with a No. 310 plug and three No. 360 tools (3W4B cord). Equip with three KS-6278 connecting clips with No. 108 cord tips when connecting to soldered terminals, or with three No. 624B tools when connecting to wire-wrapped terminals (for connecting the test set to a terminal strip).

2.10 Test cord, W3AJ cord, 12 feet long, equipped with a 310 red-shell plug and a 620A tool (3W13A cord). A modified Frankel clip attached to the cord is provided to clip on bank rod when the 620A tool is inserted into the bank.

2.11 Special test cord, connected as in Fig. 1, consisting of one 92A key, one 1W13B cord with one No. 360A tool removed and a No. 411A tool attached to the remaining No. 360A tool, one 1W7A cord with the No. 59 cord tip removed, one 1W5B cord with the KS-6780 connecting clip removed, and one No. 893 cord, 6 feet long, with a No. 240A plug connected to one end (for testing normal post spring operation of trunk finders).

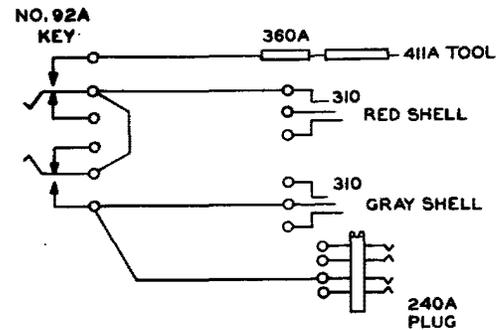


Fig. 1

2.12 No. 716E receiver, attached to a W2AB cord equipped with two No. 360A tools (2W21A cord), a No. 411A tool, and a KS-6278 tool.

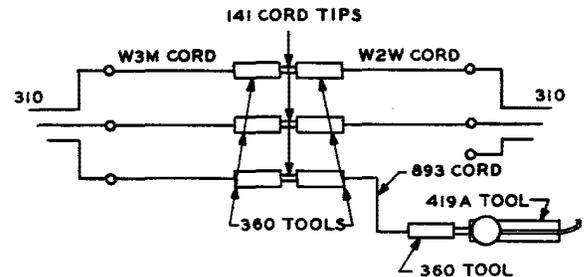


Fig. 2

2.13 Test cord assembly, shown in Fig. 2, consisting of the following: One W3M cord, 6 feet long, equipped with a No. 310 plug and one each of No. 360A, 360B, and 360C tools (3W4A cord); a W2W cord, 6 feet long, equipped with a No. 310 plug and No. 360B and 360C tools (2W17A cord); No. 893 cord, 6 feet long, with No. 360 tools at each end (1W13B cord); a No. 419A tool and three No. 141 cord tips (for connecting test set to older trunk finders whose test jack is located in a jack panel).

2.14 W3M cord, 15 feet long, equipped with a No. 310 plug and three No. 360 tools (3W4B cord); and two No. 419A tools. Connect one No. 419A tool to the No. 360A (red) sleeve tool and the other No. 419A tool to the No. 360B (black) ring tool (for connecting test set to newer trunk finders, having the test jack on the finder itself).

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3. PREPARATION

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>Tests A, B, C, D, E, and H</u>		
1	Connect one plug of P3K cord to BAT G jack of test set	
<u>Tests A, B, and C</u>		
2	Insert plug of head telephone set into TEL jacks Operate TRS key	
<u>Tests A, B, D, and E</u>		
For 50- or 100-point Trunk Finders		
3	Connect T jack to test line A jack using P3E cord	
For 200-point Trunk Finders		
4	Connect T and TL jacks to test line A and B jacks respectively using P3E cords  Note: Connections to the test line A and B jacks should 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.	
5	Operate TP or TP BT key	
<u>Tests A, B, D, and E</u>		
6	Insert No. 310 plug of P3E or P3AA cord into LF jack	
<u>Test C</u>		
7	Connect together the C and TL jacks using a P3E cord	
8	Insert No. 310 plug of W3M cord into T jack and connect the KS-6278 clips or No. 624B tools of white (tip), black (ring), and red (sleeve) conductors to tip, ring, and sleeve terminals of an intercepting trunk from connector multiple	BSY lamp not lighted  Note: If BSY lamp is lighted, select another trunk.
<u>Test E</u>		
9	Insert No. 310 plug of W3AJ cord into C jack of test set The J-NO J-O H-O (552E) key shall be in the J-O (normal) position	
<u>Test F</u>		
10	Insert No. 310 red shelled plug of special test cord (Fig. 1) into battery supply jack located on trunk finder frame	

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
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Test H

- 11 Insert plug of W3M cord (Fig. 2)  
into LF jack

4. METHOD

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
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A. Trunk Finder Operation Test - Outgoing Trunk Returns Ground on Sleeve Before Operator Answers

- 7 Connect free plug of P3K cord to  
48-volt frame battery supply jack

Note: When testing the newer type trunk finders having the test jack located on the switch, the plug should be disconnected from the battery supply jack as soon as the testing routine permits, to remove ground from the commutator.

- 8 Operate CT key

- 9 With trunk finder under test normal -  
Insert the free plug of P3E or P3AA  
cord connected to LF jack into trunk  
finder test jack

Trunk finder operates smoothly and stops  
on test line terminals  
Operator answers  
C lamp may light, but disregard

- 10 Disconnect P3E or P3AA cord from trunk  
finder test jack (to remove ground  
from commutator of older trunk finders  
which have the test jacks located in a  
jack panel)

- 11 Advise operator that test is being made

C lamp may light when tone removal or  
flashing key is operated, but disregard

Note: If toll identification tone is provided in outgoing trunk or operator's cord circuit, verify with operator that "high" tone was heard before she operated the tone removal or flashing key.

- 12 Request operator to disconnect cord from  
trunk jack

Trunk finder releases

- 13 Restore CT key

- 14 Unless further tests are to be made -  
Disconnect plug from 48-volt jack  
Restore all keys and remove 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

- 7 With trunk finder under test normal -  
Connect together S and A terminals at  
the trunk finder terminal strip using  
the No. 893 cord

Note: When testing trunk finders associated with outgoing trunks that are located near the trunk finders, and the trunk circuits are equipped with a T1 jack, the S and A terminals may be

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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
	connected together by inserting the No. 310 plug, with tip and ring elements short-circuited, into T1 jack.	
8	Connect free plug of P3K cord to 48-volt frame battery supply jack	
	<u>Note:</u> When testing the newer type trunk finders having the test jack located on the switch, the plug should be disconnected from the 48-volt battery supply jack as soon as the testing routine permits, to remove ground from the commutator.	
9	Operate CT key	
10	Insert free plug of P3E or P3AA cord connected to LF jack into test jack of trunk finder	Trunk finder operates smoothly and stops on test line terminals
11	Disconnect P3E or P3AA cord from trunk finder test jack (to remove ground from commutator of older type trunk finders where the test jacks are located in a jack panel)	
12	Operate and restore REV key once or twice	Audible ringing heard in receiver, unless operator answers in less than four seconds Operator answers C lamp may light, but disregard
	<u>Note:</u> Audible ringing may be heard before operating the REV key if this is delayed for more than approximately 5 seconds after the trunk finder reaches test line. Do not operate REV key in this case.	
13	Advise operator that test is being made	C lamp may light when tone removal or flashing key is operated, but disregard
	<u>Note:</u> If toll identification tone is provided in the outgoing trunk or operator cord circuit, verify with operator that "high" tone was heard before she operated the tone removal or flashing key.	
14	Request operator to disconnect from trunk jack	Trunk finder releases
15	Restore CT key	
16	Remove cord from S and A terminals at trunk finder terminal strip or remove No. 310 plug from T1 jack of outgoing trunk circuit	
17	Unless further tests are to be made - Disconnect plug from 48-volt jack Restore all keys and disconnect remaining cords	
	<u>C. Trunk Finder Operation Test - Outgoing Trunk Returns Ground on Sleeve After Operator Answers - Trouble Intercepting Feature Not Provided</u>	
9	Connect free plug of P3K cord to 48-volt frame battery supply jack	
	<u>Note:</u> When testing the newer type trunk finders having the test jack located on the switch, the plug should be disconnected from the battery supply jack as	

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
	soon as the testing routine permits, to remove ground from the commutator.	
10	With BSY lamp not lighted - Operate DL ST key	
11	Operate CT key, then T key	SL lamp lighted Trunk finder operates smoothly and stops on terminals used for test
12	Rapidly operate and restore REV key several times  <u>Note:</u> If audible ringing is not heard, or if the operator does not answer in ten seconds, operate and restore the REV key again to signal the operator.	Audible ringing heard, unless operator answers in less than four seconds Operator answers C lamp may light, but disregard
13	Advise operator that test is being made  <u>Note:</u> If toll identification tone is provided in the outgoing trunk or operator cord circuit, verify with operator that "high" tone was heard before she operated the tone removal or flashing key.	C lamp may light when tone removal or flashing key is operated, but disregard
14	Restore T key	Trunk finder remains operated SL lamp remains lighted
15	Request operator to disconnect cord from trunk jack	Trunk finder releases SL lamp extinguished
16	Restore CT key	
17	Make trunk finder busy by inserting No. 258C plug into test jack (older finders) or by operating MB key (newer finders) of trunk finder just tested	
18	Repeat Steps 11 through 17 on the remaining trunk finders in the group until the last trunk finder is reached	
19	When testing last trunk finder - Operate CT key, then T key	SL lamp lighted Trunk finder operates smoothly and stops on terminals used for test
20	When the last trunk finder stops on test line - <u>Immediately</u> remove the No. 258C plugs from test jacks or restore all MB keys of all trunk finders used in test	
21	Repeat Steps 12 through 16 on last trunk finder	
22	Unless further tests are to be made - Disconnect plug from 48-volt jack Restore all keys and disconnect all remaining cords	

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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>D. Rapid Operation Test - Outgoing Trunk Returns Ground on Sleeve After Operator Answers</u>		
<u>Test Jack Not Located on Trunk Finder</u>		
7	Connect free plug of P3K cord to 48-volt frame battery supply jack	
8	With trunk finder under test normal - Insert No. 477A tool into monitor jack of trunk finder	
	<u>Caution: Do not insert tool into monitor jack of any trunk finder that is off-normal. If switch starts to operate when tool is inserted, immediately remove the tool.</u>	
9	Operate CT key	
10	Insert free plug of P3E cord connected to LF jack into trunk finder test jack	Trunk finder operates smoothly, stops on test line terminals for a short interval, then releases C lamp lighted for a short interval, then extinguished
11	Disconnect immediately from trunk finder test jack to remove ground from commutator	
12	Remove tool from monitor jack	
<u>Test Jack Located on Trunk Finder</u>		
13	Connect free plug of P3K cord to 48-volt frame battery supply jack	
	<u>Note: This plug should be disconnected from the 48-volt jack as soon as possible after the tests are completed, to remove ground from commutator.</u>	
14	With trunk finder under test normal - Short springs 1 and 2 of trunk finder test jack using a KS-6278 (or similar type) connecting clip	
	<u>Caution: Do not short the springs of any switch that is off-normal. If switch starts to operate while shorting the jack springs, immediately remove the shorting tool.</u>	
15	Operate CT key	
16	Insert free plug of P3AA cord into trunk finder test jack	Trunk finder operates smoothly and stops on test line terminals for a short interval, then releases C lamp lighted for a short interval, then extinguished
17	Disconnect from trunk finder test jack	
18	Disconnect plug from 48-volt jack and remove shorting tool from trunk finder test jack	
19	Restore all keys and remove remaining cords	

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>E. Trunk Finder B, C, and F Relay Test</u>		
10	Select an idle trunk finder other than one under test and make busy, or select bank with cleaned terminals, not equipped with a trunk finder	
11	Insert No. 620A tool into sleeve bank on same level in which test line appears, as follows	
<u>For 50-point and 100-point 3-wire Trunk Finders and 200-point 3-wire Trunk Finders (B Relay)</u>		
12	Insert No. 620A tool from left side of sleeve bank (Select bank where test line is in some level between 4 and 9 inclusive to avoid interference between tool and commutator or designation card.)	
<u>For 50-point and 100-point 4-wire Trunk Finders and 200-point 3-wire Trunk Finders (F Relay)</u>		
13	Insert No. 620A tool from right side of sleeve bank	
<u>For All Line Finders</u>		
14	Connect free plug of P3K cord to 48-volt frame battery supply jack	
	Note: When testing the newer type trunk finders having the test jack located on the switch, the plug should be disconnected from the battery supply jack as soon as the testing routine permits, to remove ground from the commutator.	
15	Select an idle line near middle of bank by moving tool until an idle line is found This becomes the marked line (see 1.09)	BSY lamp not lighted  Note: With 200-point trunk finders note that the C lamp is not lighted. If C lamp lights it indicates that mate line is busy and another pair of lines must be selected.
16	Operate BF NO and LP keys	
17	Operate DL ST, T, REV, and ID keys	
18	With trunk finder under test normal - Insert free plug of P3E or P3AA cord into trunk finder test jack	Line finder operates smoothly and stops on terminal to which No. 620A tool is connected  Note: Failure of trunk finder to stop indicates C relay failed to meet hold requirements or that marked or mate line became busy before being seized by line finder under test. In this event, disconnect cord from LF jack and restore all keys to normal. The BSY lamp will light if marked line is busy. With 200-point finders if the C lamp lights it indicates the mate line is busy. If either line is busy it will be necessary to select another pair of lines repeating Steps 15 through 18.

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
19	Operate C key momentarily	Line finder resumes rotary stepping and stops on test line terminals REV lamp lighted
20	Disconnect immediately from trunk finder test jack Restore BF NO key	Trunk finder releases REV lamp extinguished
21	Unless further tests are to be made - Disconnect plug from 48-volt jack Restore all keys and disconnect remaining cords	

F. Normal Post Spring Operation Test

11a	If test jack is not located on trunk finder - Insert gray-shelled No. 310 plug of special test cord (Fig. 1) into trunk finder test jack	
12b	If test jack is located on trunk finder - Insert No. 240A plug of special test cord (Fig. 1) into trunk finder test jack	
13	With trunk finder normal - Connect 48-volt battery through 2Y test lamp to the A terminal at the trunk finder terminal strip	
14	Touch No. 411A tool of the special test cord to commutator segment corresponding to level on which normal post springs are adjusted to operate	
15	Depress and hold No. 92A key  <u>Note:</u> When testing 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.	Trunk finder steps to proper level - Rotates to eleventh rotary step (tenth rotary step on 100-point finders), then releases Test lamp lighted during rotary action of switch
16	Release No. 92A key and remove No. 411A tool from commutator segment	
17	Repeat Steps 14 through 16 for each level on which normal post springs are adjusted to operate	
18	Repeat Steps 14 through 16 for each level above and below the operating levels	Test lamp does not light
19	Remove gray-shelled plug or No. 240A plug from trunk finder test jack	
20	Remove all remaining test cords	

G. Make Busy From Circuit Beyond

1a	If the outgoing trunk returns ground on sleeve before operator answers - Touch 48-volt battery through test receiver to ring spring of monitor jack (older finders) or spring No. 1 of switch test jack (newer finders) two or three times in slow succession	Note by sound that D relay operates and releases with each application and removal of battery  <u>Caution: Do not apply battery to jack springs of any trunk finder that is off-normal. If the trunk finder starts to operate at the instant battery is applied, remove the No. 411A tool immediately.</u>
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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
2b	If the outgoing trunk returns ground on sleeve after operator answers (except in the case of trouble intercepted calls) - Touch ground through test receiver to sleeve (S) terminal at trunk finder terminal strip two or three times in slow succession	Note by sound that D relay operates and releases with each application and removal of ground
<u>H. Test of E Relay of Trunk Finders in Position 2, 12, or 22</u>		
12a	If test jack is not located on trunk finder - Insert plug of W2W cord (Fig. 2) into test jack of trunk finder to be tested	
13a	Connect No. 419A tool to commutator segment on some level other than the tenth level	
14b	If test jack is located on trunk finder - Connect No. 419A tool connected to black (ring) conductor of 15 foot W3M cord to contact spring No. 3 of test jack of trunk finder under test	
15b	Connect No. 419A tool connected to red (sleeve) conductor of cord to commutator segment on some level other than tenth level	
16	Connect free plug of P3K cord to 48-volt frame battery supply jack	
	<u>Note:</u> When testing the newer type trunk finders having the test jack located on the switch, the plug should be disconnected from the battery supply jack as soon as the testing routine permits, to remove ground from the commutator.	
17	With trunk finder normal - Insert No. 310 plug of W3M special test cord (Fig. 2) or plug of 15 foot W3M cord into test set LF jack	Trunk finder steps vertically to level on which No. 419A tool is connected, cuts in and rotates to the eleventh rotary step (tenth rotary step in the case of 100-point finders), then releases
	<u>Note:</u> For trunk finders associated with trunks that return ground on the sleeve before the operator answers, it will be necessary to release the trunk finder by removing the switch cover and operating the release armature manually.	
18	Remove cord from test jack of trunk finder and the No. 419A tool from the commutator segment	
19	Unless other tests are to be made, disconnect plug from 48-volt jack	