

CALL-THRU TESTS
USING AUTOMATIC CALL-THRU TEST SET
SD-32522-01 (J34728)
NO. 1 AND 350A STEP-BY-STEP,
335A AND 35E97 COMMUNITY DIAL OFFICES

1. GENERAL	PAGE
1.01 This section describes a method of making call-thru tests from line finders, local selectors, toll selectors, intertoll selectors, and outgoing trunks using the automatic call-thru test set SD-32522-01 and the jack access circuit SD-32523-01.	location using a 32A test set if Y option (RC jack) is provided. 6
1.02 This section is reissued to revise Table B and to change Note 1.	
This reissue does not affect the Equipment Test List.	
1.03 The tests covered are:	
A. <i>Call-Thru Tests from Line Finders:</i> This test provides for originating test calls from line finder groups equipped with or without progressional circuits to test local and interlocal switch trains.	4
B. <i>Call-Thru Tests from Local or Toll Incoming and Intermediate Selectors:</i> This test provides for originating test calls from selectors to test various portions of local or interlocal switching trains.	5
C. <i>Call-Thru Tests from Intertoll Selectors:</i> This test provides for originating calls from intertoll selectors using either loop or simplex pulsing through intertoll switching trains.	5
D. <i>Remote Control Operation:</i> This test provides manual control of outpulsing and recycling from a remote	
1.04 Test calls are terminated at connector test terminations in the local office or at a test line circuit in another office. Pulsing, continuity, ringing, tripping, and cut-thru features are checked.	
1.05 These tests may be performed on local, interlocal and completing, toll or intertoll switch trains. In general, during any one cycle tests need not be confined to only one of the aforementioned categories.	
1.06 Only lines 1 and 5 are arranged to make performance tests of outgoing trunks. Both may be used for loop pulsing. Line 1 may be used for simplex pulsing. Two trunks cannot be tested simultaneously; however, tests directed to connector terminations on four lines may run concurrently with one trunk test.	
1.07 Local records should be consulted to determine limits for marginal loop, leak, pretrip and trip requirements. Ringing polarity for each connector group to be tested must also be determined. Pretrip and trip requirements can be found in SD-32522-01, sheet D1.	
1.08 Where an incoming trunk circuit is associated with an incoming local, toll or intertoll selector makes the trunk busy in the approved manner for the duration of the tests.	
1.09 The number of completed test cycles may be tabulated (total calls, number of troubles, or number of busy conditions) when required. Registers are provided in the test set for this purpose.	

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1.10 Care must be exercised during heavy load periods to avoid interference with customer access to equipment. Should call blocks or overflow conditions occur, tests on the particular line in question should be suspended until such conditions subside.

1.11 Where reference is made to the terminating test line, it is assumed SD-31636-01, SD-31642-01, or an equivalent circuit (nonsynchronous) will be used.

1.12 *Lettered Steps:* A letter a, b, c, etc, added to a step number in Parts 3 and 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 the test. Where the condition does not apply, all steps designated by that letter should be omitted.

2. APPARATUS

All Tests

2.01 Automatic call-thru test set, J34728 (SD-32522-01).

3. PREPARATION

STEP	ACTION	VERIFICATION
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All Tests

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|----|--|--|
| 1 | Place patching cords and cross-connections in accordance with Table A, as required, to connect the call-thru test set to the switches or trunks to be tested. | |
| 2a | If office visual and audible alarm system is to be used—
Patch test set ALM jack to jack access circuit ALM jack using 3P7A cord. | |
| 3 | Insert KS-15906 L5 shorting pins (provided with test set) into digit select board jacks of call-thru test set for each test line to set up digital information required to direct the test call to the test termination as follows.
Starting with column K and working toward column A, insert a KS-15906 L5 shorting pin | |

2.02 Jack access circuit, SD-32523-01.

2.03 Testing cord, W2FN cord, 6 feet long, equipped with two 310 plugs.

2.04 Patching cords, P3E cords, 6 feet long, equipped with two 310 plugs (3P7A cord), as required.

Test B

2.05 Five patching cords, P3AA cords, 10 feet long, equipped with a 310 plug and a 240A plug (3P30A cord).

Test C

2.06 Patching cord, 6P4A cord, consisting of two P3H cords, 10 feet long, each equipped with 310 plugs and both cords connected to a 240C plug.

Test D

2.07 Test set, 32A.

STEP	ACTION	VERIFICATION
	<p>into the jack representing the last digit of the test number; insert a pin in position J for the next to last digit. Continue in this manner until the complete test number is set in the digit select board. Each unused position must have a pin in the OFF jack.</p> <p>Note: In order that the wrong number check test can be made on calls to connector terminals, it is necessary that the final (units) digit pin be placed in the K column jack.</p>	
4	<p>Connect test set 48V jack to -48-volt supply jack of jack access circuit or at equipment frame using W2FN cord.</p> <p>Caution: <i>Connect cord to test set first and disconnect from test set last to avoid possible grounding of battery supply.</i></p> <p>Note: Clip-on arrangements, or cords having tinsel-type conductors must not be used with this test set.</p>	
5	Operate ST-RPT switch to normal.	
6	Operate PWR switch to ON.	PWR ON lamp lighted.
7	Check meter reading.	Meter needle indicates zero.
8b	<p>If requirement of Step 7 is not met— Adjust ZERO ADJ potentiometer to obtain a zero reading on meter.</p>	
9	Operate PS CHK switch to ON.	
10	Turn 18V-PPS-% BK key to 18V.	Meter needle rests in black portion on scale.
11	Turn 18V-PPS-% BK key to PPS.	
12	<p>Adjust PPS potentiometer to obtain pulses per second rate required for test.</p>	Meter indicates pulses per second rate.
13	Turn 18V-PPS-% BK key to % BK.	
14	<p>Adjust %BK potentiometer to obtain percent break required for test.</p>	Meter indicates percent break.
15	Restore 18V-PPS-% BK key to 18V.	
16	Restore PS CHK switch to OFF.	

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STEP	ACTION	VERIFICATION
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17	Set LOOP, LEAK, PTR, TRIP, CBRT, ITDG switches to correspond to equipment and test requirements.	
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18	Set RNG SW switches for each line to be used to polarity required (switches on unused lines should be set to HOLD).	
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19c	If wide frequency variations in the busy tone exist— Operate the TD key.	
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Note: Failure of the busy tone detector to recognize an all-paths-busy will result in a false wrong number indication.

Test C

20d	If test call is to be directed to a terminating test line in another office, with loop pulsing— Operate OGT1, OGT5 switches as required to IN.	
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21e	If test call is to be directed to a terminating test line in another office, with simplex pulsing— Operate OGT1, SX, SP switches to IN.	
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Test D

22	Connect 310 plug of 32A test set to RC jack.	
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4. METHOD

A. Call-Thru Tests From Line Finders

20	Momentarily operate ST-RPT switch to ST position for a single test cycle, or operate to RPT position for repeated test cycles.	
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LS lamps momentarily lighted.
Test set pulses digits set up on digit select board.
RNG lamps lighted during ringing cycle.
PTR lamp momentarily lighted.
RNG lamps extinguished.
REV lamps momentarily lighted.
Test set circuit restores.
If RPT switch is operated—
Test cycle repeated.

21d	If test fails to complete— Consult Table B to determine the general source of trouble.	
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Note lamp indications and test set selector position.

Note: The switch train will be held operated in most cases to facilitate trouble checking.

STEP	ACTION	VERIFICATION
21e	If no further tests are to be made— Restore all switches and disconnect all cords.	The exceptions are the connector release when a wrong number is reached (WN lamp lighted) or a complete train release when a connector B relay timing test fails or an all-paths-busy condition is encountered.
B. Call-Thru Tests from Local or Toll Incoming and Intermediate Selectors		
20	Momentarily operate ST-RPT switch to ST position for a single test cycle, or operate to RPT position for repeated test cycles.	LS lamps momentarily lighted. Test set pulses digits set up on digit select board. RNG lamps lighted during ringing cycle. PTR lamp momentarily lighted. RNG lamps extinguished. REV lamps momentarily lighted. Test set circuit restores. If RPT switch is operated— Test cycle repeated.
21d	If test fails to complete— Consult Table B to determine the general source of trouble.	Note lamp indications and test set selector position.
<i>Note:</i> The switch train will be held operated in most cases to facilitate trouble checking. The exceptions are the connector release when a wrong number is reached (WN lamp lighted) or a complete train release when a connector B relay timing test fails or an all-paths-busy condition is encountered.		
22e	If no further tests are to be made— Restore all switches and disconnect all cords.	
C. Call-Thru Tests from Intertoll Selectors		
22	Momentarily operate ST-RPT switch to ST position for a single test cycle, or operate to RPT position for repeated test cycles.	LS lamps momentarily lighted. Test set pulses digits set up on digit select board. RNG lamps lighted during ringing cycle. PTR lamp momentarily lighted. RNG lamps extinguished. Test line returns a series of signals. REV lamps flash with each signal (four reversals required). TTOK lamp lighted. REV lamps lighted. Test set circuit restores.

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STEP	ACTION	VERIFICATION
		If RPT switch is operated— Next cycle is started.
23f	If test fails to complete— Consult Table B to determine the general source of trouble.	Note lamp indications and test set selector position. <i>Note:</i> The switch train will be held operated in most cases to facilitate trouble checking. The exceptions are the connector release when a wrong number is reached (WN lamp lighted) or a complete train release when a connector B relay timing test fails or an all-paths-busy condition is encountered.
24g	If no further tests are to be made— Restore all switches and disconnect all cords.	
D. Remote Control Operation		
23	Operate ST-RPT switch to RPT.	LS lamps momentarily lighted. After about one second WN lamp lighted.
24	Momentarily depress red button on 32A test set.	WN lamp extinguished. First programmed digit outputted on line 1. WN lamp relighted.
25	Momentarily depress red button on 32A test set.	WN lamp extinguished. Second programmed digit outputted on line 1 and first programmed digit outputted on line 2. WN lamp relighted.
		<i>Note:</i> On the first operation of the red button the first programmed digit is outputted on line one. On the second operation of the red button the second digit is outputted on line one and the first digit is outputted on line two. This staggering of outputting continues each time the red button is depressed until all but the last two digits have been outputted.
26	Repeat Step 25 for all but the last digit.	WN lamp extinguished. Programmed digit outputted. WN lamp relighted.
27	Depress and hold red button on 32A test set.	Last digit outputted on all lines.
28	Release red button on 32A test set. <i>Note:</i> Red button must be held depressed	RNG lamps lighted during ringing cycle. PTR lamp momentarily lighted. RNG lamps extinguished.

STEP	ACTION	VERIFICATION
	as last digit is outputted to enable the connector busy test to be made.	If testing to connector test termination— REV lamps momentarily lighted. Test set circuit restores.
		If testing to test line termination— Test line returns a series of signals. REV lamps flash with each signal (four reversals required). TTOK lamp lighted. REV lamps lighted Test set circuit restores.
29f	If a complete test is not required— Depress white button of 32A test set.	Switch train(s) released. Test set recycled.
30f	Release white button of 32A test set.	LS lamp(s) momentarily lighted; about one second later WN lamp lighted.
	<i>Note:</i> White button of 32A test set may be used to recycle test set at any time.	
31g	If no further tests are to be made— Disconnect 32A test set, restore all switches, and disconnect all cords.	

TABLE A

CROSS CONNECTION AND PATCHING REQUIREMENTS

TEST	ORIGINATION				TERMINATION	PULSING	PATCH		CORDS REQD	CROSS CONNECT JACK TERMINATION TO NONWORKING CONNECTOR TERMINATION	PATCH		CORDS REQD
	SWITCH EQUIPMENT	TYPE OFFICE	TEST FEATURE	SWITCH TRAIN			TEST SET	JACK ACCESS CIRCUIT OR TEST JACK			FROM BELT LINE JACK	TO SWITCH TEST JACK	
A	Line Finder Group	No. 1, 350A, 360A, Incl: (Universal Type Line Finders 355A 35E97)	Line Finder Progression	Local	Connector Terminal	Loop	OL1-5	OL -	3P7A	TL1 thru TL10	-	-	-
				Interlocal	Test Line Circuit		LF1-5	LF-					
							TL1-5	TL1 thru TL10					
			Line Terminal Origination	Local	Connector Terminal		OL1 or OL5	OL -					
				Interlocal	Test Line Circuit		LF1 or LF5	LF-					
							OL1-5	OL -					
		355A 35E97 (Combined L and CO Relay)	Allotter Control Progression	Local	Connector Terminal		TL1-5	TL1 thru TL10					
				Interlocal	Test Line Circuit		OL1 or OL5	OL -					
							OL1-5	OL -					
			-	-	Local		Connector Terminal	TL1-5		TL1 thru TL10			
					Interlocal		Test Line Circuit	OL1 or OL5		OL -			
								OL1-5		OL -			
B	Incoming Selector	All	-	Local or Toll	Connector Terminal	Loop	OL1-5 TL1-5	IS1-5 TL1 thru TL10	3P7A	TL1 thru TL10	IS1 thru IS5	Incoming Selector Jack	3P30A
	Intermediate Selector		-		Test Line Circuit		OL1 thru OL5	Selector Jack		3P30A	-	-	-
C	Inter-toll Selectors	-	-	All	Connector Terminal	Simplex	OL1	IS1	3P7A	TL1 thru TL10	-	Selector Jack	6P4C
		-	-		SP1		SP1						
								TL1		TL1 thru TL10			
					OL1		IS1						
		SP1	SP1										

TABLE B

SELECTOR POSITION	LINE NO. 1						LINE NO. 2						LINE NO. 3						LINE NO. 4						LINE NO. 5						
	LS	REV	RNG	PTR	WN	ALM	LS	REV	RNG	PTR	WN	ALM	LS	REV	RNG	PTR	WN	ALM	LS	REV	RNG	PTR	WN	ALM	LS	REV	RNG	PTR	WN	ALM	
1		A				A		A				A		A				A		A				A		A				A	
2																															
3																															
4	B					B						B						B						B					B		
		A,C				A,C							C						C						C						
5	D					D						B																			
		E				E							A,C																		
6	F					F						D																			
		G				G							E																		
7	H					H						F																			
		I				I							G																		
8	J					J						H																			
		K				K							I																		
9	L					L						J																			
		M				M							K																		
10												L																			
													M																		
11																															
12																															
13	L					L						L																			
		M				M							M																		
	L					L						L																			
14					N	N									N	N															
		O				O									O																
15		P			P	P									P																
			Q			Q										Q															
16			R			R										R															
				S													S														

Note 1: This chart shows a typical 7-digit readout of the STP selector position and test set lamps lighted. This assumes no digit absorbing selectors. With digit absorbing selectors, and/or other than 7-digit numbers, steps 4 through 12 would change according to office arrangements.

Note 2: On initial seizure all sleeve lamps must be lighted to indicate ground received from selectors. The following letters and meanings refer to those used in Table B.

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|---|--|---|
| <p>A — B relay slow to release in connector.
 B — Loss of sleeve ground.
 C — Reversal of T&R leads (if sel has not stepped between LFDR bank and 1st sel A).
 D — Failure to receive sleeve ground from 2nd sel.
 E — Reversal of T&R leads (1st sel to 2nd).
 F — Failure to receive sleeve ground from 3rd sel.
 G — Reversal of T&R leads (2nd to 3rd sel).</p> | <p>H — Failure to receive sleeve ground from (4th sel).
 I — Reversal of T&R leads (3rd to 4th sel).
 J — Failure to receive sleeve ground from (5th sel).
 K — Reversal of T&R leads (4th to 5th sel).
 L — Failure to receive sleeve ground from conn.
 M — Reversal of T&R leads 5th to conn.</p> | <p>N — Call terminated at wrong number. All switches in the train should be checked for mechanical or pulsing failure.
 O — False operation of connector D relay.
 P — Tripping relay operated when pretrip resistance was inserted in line.
 Q — No ring received.
 R — Failure to trip ring.
 S — No supervision from connector.
 ■ — Indicates unlighted lamp.</p> |
|---|--|---|