

CALL-THRU TESTS  
USING AUTOMATIC CALL-THRU TEST SET  
SD-32522-01 (J34728)  
NO. 1 AND 350A STEP-BY-STEP,  
355A AND 35E97 COMMUNITY DIAL OFFICES

1. GENERAL

1.01 This section describes a method of making call-through 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.

1.02 The tests covered are:

A. *Call-Thru Tests from Line Finders:* This test provides for originating test calls from line finder groups equipped with or without progressional circuits to test local and interlocal switch trains.

B. *Call-Thru Tests from Local or Toll Incoming and Intermediate Selectors:* This test provides for originating test calls from selectors to test various portions of local or interlocal switching trains.

C. *Call-Thru Tests from Intertoll Selectors:* This test provides for originating calls from intertoll selectors using either loop or simplex pulsing through intertoll switching trains.

1.03 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-through features are checked.

1.04 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.

1.05 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.

1.06 Where an incoming trunk circuit is associated with an incoming local, toll or intertoll selector make the trunk busy in the approved manner for the duration of the tests.

1.07 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.

1.08 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.

1.09 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.

1.10 *Lettered Steps:* A letter a, b, c, etc, added to a step number in Part 3 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

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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).
- 2.02 Jack access circuit, SD-32523-01.
- 2.03 Testing cord, W2FN cord 6 feet long, equipped with two 310 plugs.

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

2.05 A 1011G hand set (dial hand test set), equipped with a 2W38A cord, consisting of a W2CK cord, a 471A jack, and a 310 plug.

**TEST B**

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

**TEST C**

2.07 Patching cord, 6P4 cord, consisting of two P3H cords, 10 feet long, each equipped with 310 plugs and both cords connected to a 240C plug.

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**3. METHOD**

STEP	ACTION	VERIFICATION
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**All Tests**

- |    |  |  |
|----|--|--|
| 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 —<br>Patch test set ALM jack to jack access circuit ALM jack using 3P7A cord.  |  |
| 3  | Insert pins (provided with test set) into digit select board jacks of call-thru test set for each test line used to write up digital information required to direct the test call to the test termination. |  |

*Note 1:* Insert a pin into a jack on a level corresponding to the desired numerical digit under each alphabetical position for each digit necessary to be outputted to reach the test termination. Each unused digit position must have a pin in the OFF jack.

*Note 2:* 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.

STEP	ACTION	VERIFICATION
4	Connect test set 48V jack to -48-volt supply jack of jack access circuit or at equipment frame using W2FN cord.  <i>Caution: Connect cord to test set first and disconnect from test set last to avoid possible grounding of battery supply.</i>  <i>Note:</i> Clip-on arrangements, or cords having tinsel-type conductors must not be used with this test set.	
5	Operate PWR key to ON position.	PWR ON lamp lighted.
6	ST key must be in normal position.	
7	Check meter reading.	Meter needle indicates zero.
8b	If requirement of Step 7 is not met — Adjust ZERO ADJ potentiometer to obtain a zero reading on meter.	
9	Operate PS CHK key to ON position.	
10	Turn meter switch to 18V position.	Meter needle rests in black portion on scale.
11	Turn meter switch to PPS position.	
12	Adjust PPS potentiometer to obtain pulses per second rate required for test.	Meter indicates pulse per second rate.
13	Turn meter switch to %BK position.	
14	Adjust %BK potentiometer to obtain per cent break required for test.	Meter indicates per cent break.
15	Restore PS CHK key to OFF position.	
16	Set LOOP, LEAK, PTR, TRIP, CBRT switches and IT DG key to correspond to equipment and test requirements.	
17	Set RNG SW switches for each line to be used to polarity required (switches on unused lines should be set on HOLD position).	
18c	If test call is to be directed to a terminating test line in another office, with loop pulsing — Operate OGT1, OGT5 keys as required.	
19d	If test call is to be directed to a terminating test line in another office, with simplex pulsing — Operate OGT1, SX OUT, SP IN keys.	

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STEP	ACTION	VERIFICATION
20e	If testing to connector test termination — Operate start key to ST position momentarily for a single test cycle, or to RPT position for repeated test cycles.	LS lamps lighted momentarily. Test set pulses digits set up on digit select board. RNG lamps lighted during ringing cycle. PTR lamp lighted momentarily. RNG lamps extinguished. REV lamps lighted momentarily. Test set circuit restores. If RPT key is operated — Starts next test cycle.
21f	If testing to test line termination — Operate start key to ST position momentarily for a single test cycle, or to RPT position for repeated test cycles.	LS lamps lighted momentarily. Test set pulses digits set up on digit select board. RNG lamps lighted during ringing cycle. PTR lamp lighted momentarily. RNG lamps extinguished. Test line returns a series of signals. RV lamps flash with each signal (four reversals required). TTOK lamp lighted. RV lamps lighted. Test set circuit restores, If RPT key is operated — Starts next cycle.
22g	If either test fails to complete — Note lamp indications and test set selector position.	
23g	Consult Table B to determine the general source of trouble.	
	<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.	

**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 -												
				Interlocal	Test Line Circuit		TL1-5	TL1 thru TL10												
			Line Terminal Origination	Local	Connector Terminal		OL1 or OL5	OL -						TL1 thru TL10	TL1 thru TL10					
				Interlocal	Test Line Circuit		LF1 or LF5	LF -						—						
				Interlocal	Test Line Circuit		OL1-5	OL -						TL1 thru TL10	TL1 thru TL10					
		355A 35E97 (Combined L and CO Relay)	Allotter Control Progression	Local	Connector Terminal		OL1 or OL5	OL -		TL1 thru TL10				TL1 thru TL10						
				Interlocal	Test Line Circuit		OL1-5	OL -		TL1 thru TL10				—						
				Interlocal	Test Line Circuit		TL1-5	TL1 thru TL10		—										
		B	Incoming Selector	All	—		Local or Toll	Connector Terminal		Loop				OL1-5	IS1-5	3P7A	TL1 thru TL10	IS1 thru IS5	Incoming Selector Jack	3P30A
			Intermediate Selector		—			Test Line Circuit						OL1 thru OL5						
		C	Inter-toll Selectors	—	—		All	Connector Terminal		Simplex				OL1	3P7A	TL1 thru TL10	IS1 (Red Shell of Cord)	Selector Jack	6P4C	
—	—			SP1	SP1															
	—			—	TL1	TL1 thru TL10														
	—			—	OL1	IS1														
—	—	—	—	Test Line Circuit	—	—	SP1	SP1	—	SP1 (Black Shell of Cord)										

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	B				B	B				B	B			B
			C				C	C				C	C				C	C				C	C				C	C			C
	5	D					D	B				B	B				B	B				B	B				B	B			B
			E				E	C				C	C				C	C				C	C				C	C			C
	6	F					F	D				D	D				D	D				D	D				D	D			D
			G				G	E				E	E				E	E				E	E				E	E			E
	7	H					H	F				F	F				F	F				F	F				F	F			F
			I				I	G				G	G				G	G				G	G				G	G			G
	8	J					J	H				H	H				H	H				H	H				H	H			H
			K				K	I				I	I				I	I				I	I				I	I			I
	9	L					L	J				J	J				J	J				J	J				J	J			J
			M				M	K				K	K				K	K				K	K				K	K			K
10							L				L	L				L	L				L	L				L	L			L	
							M				M	M				M	M				M	M				M	M			M	
11																															
12																															
13	L					L	L				L	L				L	L				L	L				L	L			L	
		M				M	M				M	M				M	M				M	M				M	M			M	
	L					L	L				L	L				L	L				L	L				L	L			L	
14	N					N	N				N	N				N	N				N	N				N	N			N	
		O				O	O				O	O				O	O				O	O				O	O			O	
15		P				P	P				P	P				P	P				P	P				P	P			P	
		Q				Q	Q				Q	Q				Q	Q				Q	Q				Q	Q			Q	
		R				R	R				R	R				R	R				R	R				R	R			R	
16		S				S	S				S	S				S	S				S	S				S	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, Steps 5 through 12 would change according to office switch 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.

- |   |  |   |
|---|--|---|
| <p>A — B relay slow to release in connector.<br/>         B — Loss of sleeve ground.<br/>         C — Reversal of T&amp;R leads (if sel has not stepped between LFDR bank and 1st sel A).<br/>         D — Failure to receive sleeve ground from 2nd sel.<br/>         E — Reversal of T&amp;R leads (1st sel to 2nd).<br/>         F — Failure to receive sleeve ground from 3rd sel.<br/>         G — Reversal of T&amp;R leads (2nd to 3rd sel).</p> | <p>H — Failure to receive sleeve ground from (4th sel).<br/>         I — Reversal of T&amp;R leads (3rd to 4th sel).<br/>         J — Failure to receive sleeve ground from (5th sel).<br/>         K — Reversal of T&amp;R leads (4th to 5th sel).<br/>         L — Failure to receive sleeve ground from conn.<br/>         M — Reversal of T&amp;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.<br/>         O — False operation of connector D relay.<br/>         P — Tripping relay operated when pretrip resistance was inserted in line.<br/>         Q — No ring received.<br/>         R — Failure to trip ring.<br/>         S — No supervision from connector.<br/>         ■ — Indicates unlighted lamp.</p> |
|---|--|---|