DIAL PULSE OUTGOING SENDER

CONTENTS

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1. GENERAL INFORMATION

1.1 This section describes a method of testing the individual circuit functions of the Dial Pulse Outgoing Sender, SD-27762-01, using the DID Test Circuit, SD-27766-01.

1.2 Tests may be made on a manual or automatic basis as determined by operation of test frame keys MST or AST, respectively.

1.3 The test of the Outgoing Senders and Line Circuits will verify the Outgoing Sender Link Circuit, SD-27757-01.

2. RECORDS AND REQUIREMENTS

2.1 Records

2.11 Form SD-4-1313 is used to record results of these tests and should be summarized on Form SD-4-1315 or per local instruction.

2.2 Requirements

2.21 Each sender should be tested to each marker to verify the Outgoing Sender Link Circuit.

3. TEST EQUIPMENT

3.1 Test Sets

Amt	Code	Description
(E) 1	ITE-4029 or	Pulse Checking Test Set
(T) 1	J-94723A	Pulse Checking Test Set

(E) Not required if J-94723A is available.

(T) Telephone Company maintenance equipment.

3.2 Accessories

Amt	Code	Description	With ITE
As Req'd	322A	Make Busy Plug	4023
As Req'd	KS-16887L1 or 768A	Blocking Wedge	4023
1	R-9572	Test Receiver	4023
1	ITE-9650	Operator's Tel. Set	4023

4. SUPPLEMENTARY TESTS

4.1 Fusing

4.11 On shop wired and fused fuse panels inspect the panel for missing or operated fuses. If a fuse is missing or operated test the fuse terminal for the absence of low resistance ground. Clear any grounded condition and install the proper fuse. At the completion of this test all fuse panels should be fully equipped with proper fuses (dummy or other specified type fuse).

4.2 Pulsing Requirements

4.21 Using the ITE-4029 or J94723A Pulse Checking Test Set, verify that the sender PG, Pulse Generator, meets the requirements specified in the timing requirements on Sheet F2 of SD-27762-01.

5. PREPARATION

5.1 Prepare a test chart similar to the chart shown on page 13. Refer to office records and the following information to determine keys and switches to be operated for each test.

OSG- Sender group selection.
SGA/B Sender subgroup selection.
OS- Sender selection within the selected subgroup.
CR- Arbitrary digit required to reach a PBX with more than 10,000 stations or when a unique digit is required to reach the PBX attendant.
DL- Delete digits.
TRTH-) Number group address of the DID Test Frame test line.
TRH-)
TRT-)
TRU-)
OA/OB Office A or B indication.
TH-,H-) DID called station number.
T-,U-)
F- Incoming frame number.
F10 When incoming frame number is over 9.
NS- Number series indication (when required).
OB- When multi-office indication is required.
CL- See Table 1.
TNO/TNI TNO operated - If marker fails to recognize the call as a DID or intercept call the call is routed to intercept.
TNI Operated - If marker fails to recognize the call as a DID call the sender is primed to outpulse a zero to reach the PBX attendant. (See Table 1.)

5.2 At the DID Test Frame restore all keys and switches to normal.

5.3 Operate (pull out) CTR keys for all senders.

6. OPERATIONAL TESTS

At the DID Test Frame, operate keys and switches as specified on the Test Chart for the individual test to be performed.

6.01 Pulsing Test

6.011 This test verifies that the digits outpulsed by the sender match the input from the terminating sender simulator, digits Th, H, T, and U, and the translator input digit CR.

6.012 Operate key ST1. Lamps CR and SR are lighted. Lamp CR is extinguished, and Lamps TH, H, T and U light and extinguish in sequence corresponding to the digit being outpulsed by the sender.

6.013 If a failure to match occurs, lamp DKAL lights and the minor alarm sounds. Operation of key RRO will provide a lamp indication, lamps D0 to D9, of the digit registered on the counting relays.

TABLE 1

CONDITION			CLASS KEY
Old Directory Number Arranged for Intercept			TNO
Old Directory Number Arranged for Completion to PBX Operator			TN1
Supervision Required for Sender to Start Pulsing	Wink Start	Battery and Ground Pulsing	CL35
		Loop Pulsing	CL3
	On-Hook Seen by Sender	Battery and Ground Pulsing	CL5
		Loop Pulsing	CL9
Pulsing Rate		10 PPS	CL0
		20 PPS	CL4
Type of LLP Trunk		One-Way	CL1
		Two-Way	CL2

One key in each group should be operated:

CL3	CL1	CL0
CL5	CL2	CL4
CL9		
CL35		

6.014 Restore key ST1. Operate key RL. Lamp SR extinguished.

6.015 Repeat Paragraphs 6.012 and 6.014, varying the setting of switches CR-, TH-, H-, T- and U- so as to verify the various digit combinations.

6.02 Manual Wink

6.021 This test verifies the senders ability to recognize wink start signal for delayed start-dial.

6.022 Operate key ST1. Lamp CR lights.

6.023 Restore key MW. Lamp SR is lighted, lamp CR is extinguished and lamps TH, H, T, and U light and extinguish in sequence corresponding to the digit being outpulsed by the sender.

6.024 Restore key ST1. Operate key RL. Lamp SR extinguished.

6.03 Abandoned Call

6.031 This test verifies the function of the sender when the call is abandoned after seizure but before outpulsing.

6.032 Operate key ST1. Lamps CR and SR light. After 13.2 to 17.2 seconds lamp SAB is lighted and minor alarm sounds. Lamp SS- flashes at 60 IPM.

6.033 Momentarily operate key CR.

6.034 Restore key ST1. Operate key RL. Lamps CR, SR and SAB are extinguished and minor alarm is silenced.

6.035 Restore and reoperate key CTR. Lamp SS- is extinguished.

6.036 Restore key PC.

6.04 Sender Reorder

(A) This test verifies the senders ability to recognize an overflow condition.

(B) Insert plug of ITE-9650, Operators Telephone Set, into the test frame T and R jacks.

(C) Operate key ST1. Lamps CR and SR light.

(D) Restore and reoperate key PC. Lamp CR is extinguished, lamp TH lights.

(E) Operate keys RO and TLK1. Overflow tone is heard in headset.

(F) When lamp SS- flashes at 60 IPM, momentarily operate key CR. Overflow tone is silenced.

(G) Momentarily operate key SS-. Lamp SOF is lighted while key SS- is operated.

(H) Restore keys ST1 and RO. Operate key RL. Lamps SR and TH are extinguished.

(I) Release and reoperate key CTR. SS- lamp is extinguished.

(J) Restore key PC.

6.05 Delay Dialing

6.051 This test checks the ability of the sender to recognize a delay dial signal and prevent outpulsing until the start signal is received.

6.052 Operate key ST1. Lamp CR is lighted.

6.053 Restore key RVT or MW (see note 3 on test chart). Lamp SR is lighted. Lamp CR is extinguished, lamps TH, H, T, and U light and extinguish in sequence corresponding to digit being outpulsed.

6.054 Restore key ST1. Operate key RL. Lamp SR is extinguished.

6.06 Stop Pulsing

6.061 This test checks the senders ability to stop pulsing when it has received a stop-dial signal.

6.062 Operate key ST1. Lamps CR and SR are lighted. Lamp CR is extinguished. Lamp TH lights.

6.063 As soon as lamp TH lights operate key SP. Lamp TH is extinguished and lamp H lights.

6.064 Restore key SP. Lamp H is extinguished. Lamps T and U light and extinguish in sequence corresponding to digit being outpulsed.

6.065 Restore key ST1. Operate key RL. Lamp SR is extinguished.

6.07 Open Trunk

6.071 This test simulates an open supervisory loop condition and causes a sender trunk test failure.

6.072 Operate key ST1. Lamps CR and SR are lighted. In 8.5 to 11.5 seconds the sender times out. Lamp SS- flashes at 60 IPM.

6.073 Momentarily operate key CR.

6.074 Momentarily operate key SS-. Lamp NSD is lighted while key SS- is operated.

6.075 Restore key ST1. Operate key RL. Lamps SR and CR are extinguished.

6.076 Release and reoperate key CTR. Lamp SS- is extinguished.

6.077 Restore key OL.

6.08 Reversed Trunk

6.081 This test checks the function of the sender when a reversed trunk is encountered.

6.082 Operate key ST1. Lamp CR lights. In 8.5 to 11.5 seconds lamp SS- flashes at 60 IPM.

6.083 Momentarily operate key CR.

6.084 Momentarily operate key SS-. Lamps NSD and TGF are lighted while key SS- is operated.

6.085 Restore key ST1. Operate key RL. Lamp CR is extinguished.

6.086 Release and reoperate key CTR. Lamp SS- is extinguished.

6.087 Restore key RVT.

6.09 No Start Signal

6.091 This test verifies that the sender will time out to a stuck sender condition when a start-dial signal is not released.

6.092 Operate key ST1. Lamp CR is lighted. In 8.5 to 11.5 seconds lamp SS- flashes at 60 IPM.

6.093 Momentarily operate key CR.

6.094 Momentarily operate key SS-. Lamp NSD is lighted while key SS- is operated.

6.095 Restore key ST1. Operate key RL. Lamp CR is extinguished.

6.096 Release and reoperate key CTR. Lamp SS- is extinguished.

6.097 Restore key MW.

6.10 Automatic Sender Test

6.101 The DID Test Circuit is arranged to automatically progress through and test all senders that are not plugged busy or permanently stuck.

6.102 The conditions under which the senders will be tested are established by operating the appropriate keys and switches prior to starting the test. Refer to test chart and Paragraph 5.1.

6.103 Operate key AST. Lamps OSGO, SGA, and OSO light.

6.104 Restore key AST. The test circuit proceeds to test all idle senders. Lamps OSG-, SGA/B, and OS- light to indicate the sender under test. When the test circuit has progressed through all sender groups it automatically releases and restores to normal.

6.105 Should the test circuit encounter a sender which is service busy or temporarily stuck, lamp ASI (awaiting sender idle) lights. When the sender becomes idle lamp ASI is extinguished and the test of the sender proceeds.

6.106 When the test circuit recognizes that a sender position is unequipped or that a sender is plugged busy or permanently stuck the circuit times for 470 to 550 msec and advances to the next position.

6.107 Any failure detected by the test circuit will initiate an alarm and stop the automatic progression until the alarm condition is cleared.

6.108 Any trouble encountered by the marker will result in a TTI (terminating trouble indicator) display.

7. MISCELLANEOUS TESTS

7.1 False TST Relay

7.11 At the DID Test Frame, verify that all keys and switches are normal.

7.12 At the sender under test, block operated relays MB and ON. Relay TGT operates. Within 750 to 880 msec relay BD operates.

7.13 Momentarily operate relay TST. At the DID Test Frame lamp FTST lights, major alarm sounds.

7.14 At the test frame, momentarily operate key SACO. Major alarm is silenced.

7.15 At the sender, remove blocking tools from relays ON and MB.

7.16 Repeat test for all DP senders.

7.2 Plant Registers

7.21 Plant registers, SSF and TGF are furnished on a sender group basis.

7.22 At the sender, block operated relay CT.

7.23 Momentarily operate relay TRL. At the DID Test Frame verify that the sender group registers SSF and TGF score once.

7.24 At the sender, block operated relay TT.

7.25 Momentarily operate relay TRL. At the DID Test Frame, verify that register SSF scores once and that register TGF does not score.

7.26 At the sender, remove blocking tools from relays CT and TT.

7.3 TUR Lead

7.31 At the sender, block operated relay MB.

7.32 At the TUR Frame, using an R-9572 test receiver, verify that ground is present on the switch contact associated with the sender under test.

7.33 At the sender, remove blocking tool from relay MB.

7.34 Repeat test for all DP senders.

7.4 Sender Out of Service Alarm

7.41 The DID Test Frame is arranged to provide a major alarm when a certain number of senders in a particular group are in an out of service condition (plugged busy or permanently stuck). Refer to office records and SD-27766-01, Note 102B.

7.42 At the DID Test Frame, insert the required number of 322A make-busy plugs into the SMB jacks of the sender group under test.

7.43 When the maximum number is reached, lamp SSA- (red) lights and the major alarm sounds.

7.44 Remove one make-busy plug.

7.45 Operate key SACO. Lamp SSA- is extinguished and the major alarm is silenced.

7.46 Remove the remaining make-busy plugs.

7.47 Repeat test for each sender group.

ATTACHMENT
Test Chart - Page 6

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TEST CHART

TEST NO	TEST		SWITCHES													KEYS										MISC
			CR	DL	OA/ OB	TRTH	TRH	TRT	TRU	TH	H	T	U	F	NS	OSG	SBA/ SGB	OS	F10	DB	CL	CL	CL	TNO/ TN1	
		See Par.	0-10	0-4 4A		0-9	0-9	0-9	0-9	0-9	0-9	0-9	0-9	0-9	2-6	0-5		0-4			0/4	1/2	3/5 9/35		
1	Pulsing Test	6.01	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	TNO	MBR,MST,TL,TRT OS,OST
2	Manual Wink	6.02	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↓	↓	↓	↓	↓	↓	↓	↓	↑	MBR,MST,TL,TRT, OS,OST,MW
3	Abandoned Call	6.03																							MBR,MST,TL,TRT OS,OST,PC
4	Sender Recorder	6.04																			↓				MBR,MST,TL,TRT, OS,OST,PC
5	Delay Dialing	6.05																			X	↓			MBR,MST,TL,TRT, OS,OST & RVT or MW
6	Stop Pulsing	6.06																			CLO	X			MBR,MST,TL,TRT, OS,OST
7	Trunk Busy 2-Way	6.07	(SEE NOTE 1)	(SEE NOTE 2)																	X	CL2	↓		MBR,MST,TL,TRT, OS,OST,BSY
8	Open Trunk	6.08																			X	X	CL3 or CL35		MBR,MST,TL,TRL, OS,OST,OL
9	Reversed Trunk	6.09														↓	↓	↓			X	X	CL5 or CL9		MBR,MST,TL,TRT OS,OST,RVT
10	No Start Dial Signal	6.10	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	X	X	X	↓	↓	X	X	CL3 or CL35	↓	MBR,MST,TL,TRT, OS,OST,MW
11	Automatic Sender Test	6.11	X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	N	X	X	X	X	X	TNO	MBR,TL,TRT, OS,OST

NOTES:

1. When a CR Digit is not required, set the CR switch to position 10.
2. When digit deletion is not required, set the DL switch to position 0.
3. When CL3 or CL35 is used, operate key MW. When key CL5 or CL9 is used, operate key RVT.