

**PLANT REGISTERS—PART 6**  
**TESTS USING MASTER TEST FRAME**  
**NO. 5 CROSSBAR OFFICES**

**1. GENERAL**

**PAGE**

**1.01** This section is Part 6 in a series of sections that describe methods for testing plant registers.

**1.02** This section is reissued to change Test W and to make other minor changes.

This issue does not affect Equipment Test Lists.

**1.03** The tests covered are:

**PAGE**

**W. Coin Zone Sender Timed Release Awaiting Operator Register (CZSR Register)—Using Automatic Monitor, Register, and Sender Test Circuit or Register and CAMA Sender Test Set:** This test checks that a plant register operates when a marker encounters an all-senders-busy condition on MF senders after one or more senders have timed out while awaiting operator answer. . . . .

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**X. CAMA Sender Time-Out—No Position Attached Register (NPA Register):** This test checks that a plant register operates when a CAMA sender time-out occurs prior to position seizure. . . . .

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**Y. Originating Register, Incoming Register, and Outgoing Sender Automatic Monitor Registers (OR, IR, and OS Registers):** This test checks that a plant register operates to record the number of calls monitored by the automatic monitor, register, and sender test circuit. . . . .

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**Z. Originating Register, Incoming Register, and Outgoing Sender Automatic Monitor Registers (ORF, IRF, and OSF Registers):** This test checks that a plant register operates when a failure is detected while monitoring a service call. . . . .

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**1.04** Plant registers are located either in a self-contained register cabinet and referred to as the plant register circuit or just above the trouble recorder perforator on the master test frame (MTF) trouble record bay.

**1.05** Table A indicates the tests requiring action and verification at more than one location.

**TABLE A**

ACTION AND/OR VERIFICATION REQUIRED AT:	TESTS			
	W	X	Y	Z
Master Test Frame	✓	✓	✓	✓
Plant Register Circuit	✓	✓	✓	✓
MF Sender Frame	✓	—	—	—
Outgoing Sender Group Release Circuit	✓	—	—	—
Automatic Monitor, Register and Sender Test Circuit	—	—	—	✓

✓ As required.

**NOTICE**

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**1.06 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 a test. Where a condition does not apply, all steps designated by that letter should be omitted.

**1.07** Local instructions should be followed for recording and reporting any register operations caused by performing these tests.

**1.08** The manner of selecting some circuits and test conditions at the MTF and its associated circuits varies depending on the apparatus options furnished with these circuits. Therefore, where variable means of selection are provided, precise instructions for the selection of circuits and test conditions are not given. Precise instructions for the use of these variable means are given in Section 218-106-301.

**1.09** The location statement, At MTF—, is used to refer to all apparatus located on the four basic bays of the MTF.

**1.10** On Issue 76D of SD-25800-01, a group of 20 "class of test" lamps was replaced by a single "start test" lamp designated STT. Since the designation given to the lamp is not specific, the lamp will not be called out in the section, as well as the 20 discontinued lamps, such as ATNT, DT, IAO, IMS, INC, IR, IT, ITDO, ITNP, ITP, IT1, LT, MISC, MLV, OGT, OR, ORIG, PTT, SDR, TVT.⚡

## 2. APPARATUS

**2.01** The apparatus required for each test is listed in Table B. The details of each item are covered in the paragraph indicated by the number in parentheses. In addition, the following apparatus may also be required.

(a) Apparatus covered in 2.11 and 2.12 is required when a portable lamp is used to determine register operation.

(b) Two head telephone sets are required when a portable lamp is not used.

(c) A 32A test set is required when the MTF is controlled from a remote point.

TABLE B

APPARATUS	TESTS			
	W	X	Y	Z
Test Circuit (2.02)	1	1	1	1
Test Circuit (2.03)	1		1	1
Test Circuit (2.04)	1			
Test Circuit (2.05)		1		
Test Set (2.06)	1			
Test Set (2.07)		1		
Cord (2.08)	2	1		
Tools (2.09)	2			2
Dial Hand Test Set (2.10)	1			
32A (make-busy) Plugs	1	1		1

**2.02** Master test control circuit, SD-25800-01.

**2.03** Automatic monitor, register, and sender test circuit, SD-25680-01.

**2.04** Sender test circuit, SD-25675-01 (for use in testing senders when the automatic monitor, register, and sender test circuit is not provided).

**2.05** Test circuit for register and CAMA sender circuits, SD-25988-01.

**2.06** Sender test set, J24756A (SD-25674-01) (for use with the sender test circuit when the automatic monitor, register, and sender test circuit is not provided).

**2.07** Test set circuit for register and CAMA sender circuits (test set), SD-25676-01 (for use with test circuit for register and CAMA sender circuit).

**2.08** Patching cord, 20-conductor, 6 feet long, equipped with one KS-13875 plug and one

KS-13895 plug (W20C cord) (for patching test circuit for register and CAMA sender circuit to test set [one cord] or for patching sender test circuit to sender test set [two cords]).

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

**2.10** #1014A dial hand test set (handset), equipped with a 2W38A cord assembly consisting of one W2CK cord, one 310 plug, and one 471 jack.

**2.11** Two W2W cords, 10 feet long, each equipped with a 310 plug, two 360-type tools (2W17C cords), two KS-6278 connecting clips, and two 108 cord tips (required when a portable test lamp is used).

**2.12** 38B lamp socket equipped with a 2Y lamp (required when a portable test lamp is used).

### 3. PREPARATION

#### STEP

#### ACTION

#### VERIFICATION

*Note:* Refer to 1.07 and 1.08.

#### All Tests

- 1a If tests are to be performed without portable test lamp—  
Establish talking circuit between frames where test is to be performed and where observations are to be made.
- 2b If tests are to be performed with portable test lamp—  
At frame where action is to be taken—  
Insert plug of 2W17C cord, equipped with two KS-6278 connecting clips, into SP jack of miscellaneous circuit.
- 3b Determine from circuit drawing of circuit associated with register to be tested, location of terminal on terminal strip at which plant register circuit is connected.
- 4b Connect one lead of 2W17C cord to terminal on terminal strip associated with plant register being tested.
- 5b Connect other lead of 2W17C cord to battery.
- 6b Connect leads of 38B lamp socket to leads of another 2W17C cord, equipped with two KS-6278 connecting clips.
- 7b Insert plug of this 2W17C cord into any appearance of selected SP jack of miscellaneous circuit close to position where test is to be performed.

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
8b	Place portable test lamp so that it can be easily observed.	
9b	If tests are to be performed with portable test lamp— To observe scoring of register when using portable test lamp, proceed as follows: (a) For first observation of scoring of register, observe that portable test lamp indicates proper condition on lead and that register scores as required. (b) For subsequent observations of scoring of same register, observe portable test lamp indications only.  <i>Note:</i> When the register to be tested scores at timed intervals, the portable test lamp will flash with the scoring of the register.	
10	At MTF— Restore all keys and switches.	
11	Momentarily operate RL key.	All lamps extinguished.

**Tests W, X**

- 12c If testing 4-wire switching systems—  
Operate 4W key.
- 13c Select control digits.

**4. METHOD**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
<b>W. Coin Zone Sender Timed Release Awaiting Operator Register (CZSR Register)—Using Automatic Monitor, Register, and Sender Test Circuit or Register and CAMA Sender Test Set</b>		
<b>Automatic Monitor, Register, and Sender Test Circuit Provided</b>		
14	At MTF— Select A_ through K_ digits to direct call to an interoffice code.	
15	Select SDR class of test.	
16	Select multifrequency (MF) sender equipped for dial coin zone operation.	

STEP	ACTION	VERIFICATION
17	Operate MAC key.	
18	Approximately 1 minute after operating MAC key, operate STT key.	
19d	If trunk group associated with selected office code has allotted trunks and all trunks do not have access to MF sender group associated with register under test— Operate GPA/GPB key as required.	
20	Operate TMT key to simulate a sender time-out failure.	
21	Select class of service and rate treatment for coin originating customer.	
22	Insert make-busy plug into MB- jack associated with sender being tested.	
23	At MF sender circuit— Insulate ♦8M♦ of ♦TBL♦ relay to prevent operation of SS- plant register.	
24	Select marker.	
25	Select route advance 0.	
26	At outgoing sender group release circuit— Block operated R_ relay for sender group associated with register under test.	
27	At MTF— Release (push-in) CTR key, if operated.	
28	Momentarily operate ST key.	At plant register circuit— In 25 to 48 seconds— CZSR plant register associated with sender group containing sender under test scored once.
29	At MTF— Momentarily operate RL key.	All lamps extinguished.
30	At MF sender circuit— Remove insulator from CT relay.	
31	At MTF— Remove make-busy plug from MB- jack.	
32	Repeat Steps 14 through 31 for all senders to be tested.	

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
33	At outgoing sender group release circuit— Remove blocking tool from R_ relay.	
34	Restore all keys and switches and remove all patching cords not required in next test.	

**Sender Test Circuit Provided**

35	At MTF— Patch SDT1, SDT2 jacks to sender test set SDT1, SDT2 jacks, respectively.	
36	At test set— Patch handset to REC jack.	
37	At MTF— Set SDT switch to MF.	
38	Select A_ through K_ digits as required for an interoffice call.	
39	Select class of service and rate treatment for coin originating customer.	
40	At MF sender circuit— Insulate ♦8M♦ of ♦TBL♦ relay to prevent SS_ plant register from scoring.	
41	At MTF— Select SDT class of test.	
42	Select MF sender equipped for dial coin zone operation.	
43	Insert make-busy plug into MB_jack associated with sender under test.	
44d	If trunk group associated with selected office code has allotted trunks and all trunks do not have access to MF sender group associated with register under test— Operate GPA/GPB key as required.	
45	Operate TMT key to simulate a sender time-out failure.	
46	Select completing marker.	
47	Select route advance 0.	

STEP	ACTION	VERIFICATION
48	At outgoing sender group release circuit— Block operated R_ relay for sender group selected.	
49	At MTF— Release (push-in) CTR key if operated.	
50	Momentarily operate ST key.	At plant register circuit— In 25 to 48 seconds— CZSR plant register associated with sender group containing sender under test scored once.
51	At MTF— Momentarily operate RL key.	
52	At MF sender circuit— Remove insulator from CT relay.	
53	At MTF— Remove make-busy plug from MB- jack.	
54	Repeat Steps 14 through 53 for each sender associated with sender group under test.	
55	At outsender group release circuit— Remove blocking tool from R_ relay.	
56	Restore all keys and switches and remove all patching cords not required in next test.	

**X. CAMA Sender Time-Out—No Position Attached Register (NPA Register)**

14	Patch IRT jack of test circuit for register and CAMA sender circuit to IRT jack of test set.
15	At test set— Set L switch to OFF.
16	At MTF— Set SG switch to 0.
17	Set POS switch to 0.
18	Set MF switch to MAX L.
19	Select CAMS class of test.
20	Select marker.

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
21	Operate CAM0/1 as required to select trunk supervision and call class.	
22	Operate TCB key to select trunk auxiliary class mark.	
23	Select from office records CAMA incoming trunk with access to CAMA sender used in test.	
24	Insert make-busy plug into SMB_ jack of CAMA sender used in test.	
25	Release (push-in) CTR_ key.	
26	Select CAMA sender used in test.	
27	Select trunk number.	
28	Select recorder associated with trunk selected.	
29	Operate ORC_ key to select originating rate class associated with trunk selected.	
30	Select A_ through K_ digits as required to select route having access to trunk and sender used in test.	
31	Operate REC, CAT keys.	
32	Operate ST key.	At plant register circuit— In 21 to 31 seconds— NPA plant register scored once.
33	At MTF— Momentarily operate RL key.	All lamps extinguished.
34	Remove make-busy plug from SMB_ jack.	
35	Repeat Steps 14 through 34 for each CAMA sender in marker group to be tested for plant register operation.	
36	Restore all keys and switches and remove all patching cords not required in next test.	
<b>Y. Originating Register, Incoming Register, and Outgoing Sender Automatic Monitor Registers (OR, IR, and OS Registers)</b>		
12	Operate MAC key.	

STEP	ACTION	VERIFICATION
13	Approximately 1 minute after operation of MAC key— Operate MOR key.	
14	Operate STM key.	At plant register circuit— After originating register is monitored— OR plant register scored once. OS, IR plant registers did not score.
15	At MTF— Restore STM key.	
16	Restore MOR key.	
17	Operate MIR key.	
18	Operate STM key.	At plant register circuit— After incoming register is monitored— IR plant register scored once. OR, OS plant registers did not score.
19	At MTF— Restore STM key.	
20	Restore MIR key.	
21	Operate MOS key.	
22	Operate STM key.	At plant register circuit— After outgoing sender is monitored— OS plant register scored once. OR, IR plant registers did not score.
23	At MTF— Restore STM key.	
24	Restore MOS key.	
25	Restore MAC key unless monitoring is to be continued at this time.	
<b>Z. Originating Register, Incoming Register, and Outgoing Sender Automatic Monitor Registers (ORF, IRF, and OSF Registers)</b>		
12	Operate MAC key.	
13	Approximately 1 minute after operation of MAC key— Operate MOR key.	
14	Insulate 5B of STM1 relay, 12B of TRR1 relay.	

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STEP	ACTION	VERIFICATION
15	Insert make-busy plug into TRMB-AM jack associated with automatic monitor, register, and sender test circuit.	
16	Block nonoperated CKN relay to simulate number check failure.	
17	Operate STM key.	At plant register circuit— After originating register is monitored— ORF plant register scored once. IRF, OSF plant registers did not score.
18	At MTF— Restore STM key.	
19	Restore MOR key.	
20	Operate MIR key.	
21	Operate STM key.	At plant register circuit— After incoming register is monitored— IRF plant register scored once. ORF, OSF plant registers did not score.
22	At MTF— Restore STM key.	
23	Restore MIR key.	
24	Operate MOS key.	
25	Operate STM key.	At plant register circuit— After outgoing sender is monitored— OSF plant register scored once. ORF, IRF plant registers did not score.
26	At MTF— Restore STM key.	
27	Restore MOS key.	
28	Remove blocking tool from CKN relay.	
29	Remove insulators from STM1, TRR1 relays.	
30	Remove make-busy plug from TRMB-AM jack.	
31	Restore MAC key unless monitoring is to be continued at this time.	