PLANT REGISTERS—PART 10

TESTS USING MASTER TEST FRAME

NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section is Part 10 in a series of sections that describe methods for testing plant registers.

1.02 This section is reissued to add a test for a master timing trouble register for LAMA-magnetic tape recording offices. This reissue affects Equipment Test Lists.

1.03 The tests covered are:

1.04 Registers associated with Test AK are located on the line insulation test frame. All other 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 recorder 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				
	AI	AI.1	AJ	AK	AL
Master Test Frame			✓		
Master Timing Frame	✓	✓			
Plant Register Circuit	✓	✓	✓		✓
Coin Supervisory Link Frame			✓		
Coin Supervisory Frame			✓		
Line Insulation Test Frame				✓	
Alarm Receiving Circuit					✓

✓ As required.

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 2.05 and 2.06 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.

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

TABLE B

APPARATUS	TESTS				
	AI	AI.1	AJ	AK	AL
Test Circuit (2.02)			1		
Cord (2.03)	1	1		1	1
Tools (2.04)	✓	✓	✓	✓	
322A (make-busy) Plug			✓		
KS-3008 Stopwatch or Equivalent			✓		

✓ As required.

2.03 Testing cord, 893 cord, 3 feet long, equipped with two 360A tools, one KS-6278 connecting clip, and one 411A (test pick) tool (for applying ground to test points).

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

2.05 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).

2.06 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 through 1.09.	
	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.	

STEP	ACTION	VERIFICATION
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.	
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. *Note:* When the register to be tested scores at timed intervals, the portable test lamp will flash with the scoring of the register.	
Test AJ		
10	At MTF— Restore all keys and switches.	
11	Momentarily operate RL key.	All lamps extinguished.
12c	If testing 4-wire switching systems— Operate 4W key.	
13c	Select control digits.	

4. METHOD

STEP	ACTION	VERIFICATION
AI.	**Master Timing Trouble Register (MTTRO, MTTRE Registers)** ***Caution: No test should be made on the master timing circuit during the period 5 minutes before and 5 minutes***	

STEP	ACTION	VERIFICATION
	after every hour ▸for 6 second timing or during the interval from 1 minute before or after any 10 minute period for one second timing.◂	
	Even Master Timing Circuit	
10	At master timing frame— Operate CMBE key.	CMBE lamp lighted.
11	At even master timing circuit— Insulate 3T of TIB relay, 7T of TMR relay.	
12	Momentarily apply ground to 4B of DL1 relay.	At plant register circuit— MTTRE plant register associated with even master timing circuit scored once.
13	At even master timing circuit— Remove insulators from TIB, TMR relays.	
14	At master timing frame— Restore CMBE key.	CMBE lamp extinguished.
15	Operate CMBO key.	CMBO lamp lighted.
	Odd Master Timing Circuit	
16	At odd master timing circuit— Insulate 3T of TIB relay, 6T of TMR relay.	
17	Momentarily apply ground to 4B of DL1 relay.	At plant register circuit— MTTRO plant register scored once.
18	In recorder test circuit on master timing frame— Insulate 7T, 11T of ON relay.	
19	Block operated ON, RW2 relays.	
20	At odd master timing circuit— Momentarily apply ground to 4B of DL1 relay.	At plant register circuit— MTTRO plant register scored once.
21	In recorder test circuit on master timing frame— Remove insulators from ON relay.	
22	Remove blocking tools from RW2, ON relays.	
23	Remove insulators from TIB, TMR relays.	
24	At master timing frame— Restore CMBO key.	CMBO lamp extinguished.

STEP	ACTION	VERIFICATION
A.	**Master Timing Trouble Register — LAMA-Magnetic Tape Recording (MTTRO and MTTRE Register)**	
	Caution: No test should be made on the master timing circuit during the period 5 minutes before or after every hour for 6 second timing or during the interval from 1 minute before or after any 10 minute period for one second timing.	
	Even Master Timing Circuit	
10	At master timing frame— Operate MBE key.	MGB lamp lighted.
11	At even master timing circuit— Block operated C4 (even) relay.	
12	Momentarily apply ground to M24 of C4 (even) relay.	At plant register circuit MTTRE plant register associated with ***even*** master timing circuit scored once.
13	At even master timing circuit— Remove blocking tool from C4 (even) relay.	
14	At master timing frame— Restore MBE key.	MGB lamp extinguished.
15	Operate MBO key.	MGB lamp lighted.
	Odd Master Timing Circuit	
16	At odd master timing circuit— Block operated C4 (odd) relay.	
16	Momentarily apply ground to M24 of C4 (odd) relay.	At plant register circuit MTTRO plant register associated with ***odd*** master timing circuit scored once.
18	At odd master timing circuit— Remove blocking tool from C4 (odd) relay.	
19	At master timing frame— Restore MBO key.	MGB lamp extinguished.
AJ.	**Coin Supervisory Trouble Register (CSTR Register)**	
14	Select from office records an intraoffice trunk arranged for coin service which has access to coin supervisory circuit under test.	

STEP	ACTION	VERIFICATION
15	At coin supervisory link (CSL) frame— Determine trunks having appearances in same horizontal group as trunk selected.	
16	At relay rack or OGT trunk frame— Make busy all trunks in same horizontal group.	
17d	If CSL circuit is nonwire-spring-relay type— At CSL frame— Block operated all RB_ relays in same horizontal group as selected trunk, except RB0 relay.	
18d	Block operated all RB_ relays associated with coin supervisory circuit under test for all other horizontal groups.	
19e	If CSL circuit is wire-spring-relay type— At CSL frame— Block operated all SB_ relays in same horizontal group as selected trunk, except SB0 relay.	
20e	Block operated all SB_ relays associated with coin supervisory circuit under test for all other horizontal groups.	
21f	If other CSL frames are associated with coin supervisory circuit used in test— At CSL frame— Block operated SB_ or RB_ relays for each additional CSL frame.	
22	At coin supervisory key and lamp panel— Restore HLD key, if operated, associated with coin supervisory circuit selected for lead test.	
23	At coin supervisory circuit— Insulate 2B of LA relay.	
24	At MTF— Select A_, B_, C_ digits as required to select intraoffice code and trunk type.	
25	Select originating line class of service for coin operation and rate treatment.	
26	Select trunk link frame and trunk appearance of intraoffice trunk selected.	
27	Select IAO class of test.	
28	Select route advance 0.	

STEP	ACTION	VERIFICATION
29	Operate CN, TLK, TTL keys.	
30	Select ringing combination.	
31g	If trunk group associated with selected intraoffice code has allotted trunks and all trunks do not have access to sender group associated with register being tested— Operate GPA/GPB key to select trunk group desired.	
32	Select a combined or completing marker.	
33	Momentarily operate ST key.	
34	Restore TLK key.	At plant register circuit— CSTR plant register scored once every 1/2 second. Major alarm sounds.
35	At coin supervisory circuit— Remove insulator from LA relay.	
36	At coin supervisory circuit key and lamp panel— Momentarily operate AR key. ***Caution: Restore coin supervisory circuits to service as soon after alarm sounds as possible to minimize possibility of service interference.***	Major alarm silenced. At plant register circuit— CSTR plant register stopped scoring.
37	At MTF— Restore CN key.	
38	Momentarily operate RL key.	All lamps extinguished.
39	At coin supervisory circuit— Insulate 5B of OW relay.	
40	At MTF— Operate SCN, TLK keys to simulate stuck coin condition.	
41	Momentarily operate ST key.	
42	Restore TLK key; ***start timing.***	At plant register circuit— In 20 to 35 seconds— CSTR plant register scored once. Major alarm sounds.

STEP	ACTION	VERIFICATION
43	At coin supervisory circuit— Remove insulator from OW relay.	
44	At coin supervisory circuit key and lamp panel— Momentarily operate AR key.	Major alarm silenced.
45	At MTF— Restore SCN key.	
46	Momentarily operate RL key.	
47	Operate CN, TLK keys.	
48	At coin supervisory circuit under test— Block nonoperated CO relay.	
49	Momentarily operate ST key.	
50	Restore TLK key.	At plant register circuit— CSTR plant register scored once. Major alarm sounds.
51	Momentarily operate RL key.	All lamps extinguished.
52	At coin supervisory key and lamp panel— Momentarily operate AR key.	Major alarm silenced.
53	At coin supervisory circuit under test— Remove blocking tool from CO relay.	
54	Repeat Steps 12c through 53 for remaining coin supervisory circuits on same link frame.	
55	At coin supervisory key and lamp panel— Restore HLD key to original position.	
56	Repeat Steps 12c through 55 for remaining coin supervisory circuits in same marker group.	
57	At CSL frame— Remove blocking tools from RB_ or SB_ relays.	
58	At relay rack or OGT bay (as required)— Restore to service trunks made busy.	
59	Restore all keys and switches and remove all patching cords not required in next test.	

STEP	ACTION	VERIFICATION
AK.	**Line Insulation Cycles Completed Registers (FEMF-LIT, SRG1-LIT, SRG2-LIT, TRG-LIT Registers)**	
	Preparation for Steps 11 Through 20	
10	At line insulation test (LIT) frame— Block nonoperated ON relay.	
	When Testing FEMF Register	
11	At LIT frame— Momentarily operate S7 key.	
12	Momentarily apply ground to 4T of EC1 relay.	FEMF-LIT plant register scored once.
13	Momentarily operate RN key.	
	When Testing SRG1 Register	
14	At LIT frame— Momentarily operate S1 key.	
15	Momentarily apply ground to 4T of EC1 relay.	SRG1-LIT plant register scored once.
16	Momentarily operate RN key.	
	When Testing SRG2 Register	
17	At LIT frame— Momentarily operate S3 key.	
18	Momentarily apply ground to 4T of EC1 relay.	SRG2-LIT plant register scored once.
19	Momentarily operate RN key.	
	When Testing TRG Register	
20	At LIT frame— Momentarily apply ground to 4T of EC1 relay.	TRG-LIT plant register scored once.
21	Remove blocking tool from ON relay.	
AL.	**Alarm Receiving Circuit Load Alarm and First Trial Failure Registers (LA, 1TF Registers)**	
	Load Alarms	
10	At alarm receiving circuit— Ground 3T of A5A relay.	At plant register circuit— Within 6 seconds— LA register associated with alarm receiving circuit under test scored once.

STEP	ACTION	VERIFICATION
11	At alarm receiving circuit— Remove ground from A5A relay.	
12	Repeat Steps 10 and 11 for all equipped alarm receiving circuits.	
First Trial Failures		
13	At alarm receiving circuit— Ground 8T of A1A relay.	At plant register circuit— 1TF register associated with alarm receiving circuit under test scored once.
14	At alarm receiving circuit— Remove ground from A1A relay.	
15	Repeat Steps 13 and 14 for all equipped alarm receiving circuits.	