PLANT REGISTERS—PART 1

TESTS USING MASTER TEST FRAME

NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section is reissued for the following reasons:

(a) To delete from this section Tests G through AP. These tests are now covered in other sections of this series which describe methods for testing plant registers. See Section 218-233-000 for an index of plant register designations and their associated test sections.

(b) To make minor changes as required.

Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

1.02 This reissue affects Equipment Tests Lists.

1.03 The tests covered are:

1.04 The peg count divider register circuit operates to record singular equipment usages from positions 00 through 99. In addition, this circuit is designed to furnish operating potential on an output lead each time the register wheels reach 00. This potential is then applied to its associated peg count totalizer register circuit. This circuit is designed to record up to 99,999 multiples of 100 equipment usages.

1.05 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 trouble recorder bay.

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

TABLE A

ACTION AND/OR VERIFICATION REQUIRED AT:	TESTS				
	B	C	D	E	F
Master Test Frame	√	√	√	√	√
Marker Frame	–	–	√	–	√
Plant Register Circuit	√	√	√	√	√

√As required.

1.07 ***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.

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

1.09 The manner of selecting some circuits and test conditions at the MTF and its associated circuit 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.

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

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 2.04 and 2.05 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					
	A	B	C	D	E	F
Test Circuit (2.02)	–	–	1	1	1	1
322A (make-busy) Plug	–	1	–	2	–	2
Tools (2.03)	–	√	–	√	–	√
Cord (2.06)	1	–	–	–	–	–
Cord (2.07)	–	–	–	1	–	1
Cord (2.08)	–	–	–	1	–	1

√As required.

2.02 Master test control circuit SD-25800-01.

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

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

2.05 38B lamp socket, equipped with a 2Y lamp (required when a portable test lamp is used).

2.06 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 battery or ground to test points).

2.07 Testing cord, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord), two 639A (contact connector) tools, and two 651-type tools

(for making connections to contacts of wire-spring-type relays).

2.08 Testing cord, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord), two 419A (test connector) tools (for making connections to contacts of nonwire-spring-type relays).

2.09 When making connections to relays using testing cords listed in this section, use as covered in Section 069-131-811.

3. PREPARATION

STEP	ACTION	VERIFICATION
	Note: Refer to 1.09 and 1.10.	
Tests B through F		
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.	
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	

STEP	ACTION	VERIFICATION
	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.	
10	At MTF— Restore all keys and switches.	
11	Momentarily operate RL key.	All lamps extinguished.

Tests C and D

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

4. METHOD

STEP	ACTION	VERIFICATION
	A. Peg Count Divider Register and Associated Peg Count Totalizer Register	
1	Determine from circuit drawings and office records terminal strip and terminal location on plant register cabinet for peg count divider register to be tested.	
2	At plant register cabinet— Make note of register reading for peg count totalizer register associated with peg count divider register being tested.	
3	Momentarily apply ground to terminal strip and terminal determined in Step 1 as often as required to record 99 on peg count divider register.	
4	Momentarily apply ground to cause peg count divider register to move from position 99 to 00.	Associated peg count totalizer register scored once.

STEP	ACTION	VERIFICATION
5	Repeat Steps 1 through 4 for all peg count divider registers and associated peg count totalizer registers to be tested. *Note:* After completing this test, the peg count divider register should be restored to the same count that existed before testing.	
	B. Trouble Recorder Entries Register (TRE Register) Trouble Recorder Control and Test Circuit SD-25572-01 Provided	
14	Insert make-busy plug into TRMB jack.	
15	At trouble recorder control and test circuit— Block operated TST2 relay.	
16	Momentarily operate TRC relay manually.	At plant register circuit— TRE plant register did not score.
17	At MTF— Remove blocking tool from TST2 relay.	
18	Momentarily operate TRC relay manually.	At plant register circuit— TRE plant register scored once.
19	At MTF— Remove make-busy plug from TRMB jack.	
	Trouble Recorder Control Circuit SD-25679-01 Provided	
20	Insert make-busy plug into TRMB jack.	
21	At trouble recorder control circuit— Momentarily operate STR relay manually.	At plant register circuit— TRE plant register scored once.
22	At MTF— Momentarily operate STRA relay manually.	At plant register circuit— TRE plant register scored once.
23	At MTF— Remove make-busy plug from TRMB jack.	
	C. Combined or Completing Marker Usage Register (TPC Register)	
14	Select marker.	
15	Select ORIG class of test.	
16	Select A- through G- digits to direct call to a working intraoffice code and any directory number.	

STEP	ACTION	VERIFICATION
17	Select originating line location.	
18	Select class of service and rate treatment as required.	
19	Momentarily operate ST key.	At plant register circuit— TPC plant register associated with marker under test scored once.
20	At MTF— Momentarily operate RL key.	All lamps extinguished.
21	Repeat Steps 14 through 20 for each combined or completing marker being tested for plant register operation.	
22	Restore all keys and switches not required in next test.	

D. Combined or Completing Marker First and Second Trial Trouble Registers (MTR and CMST Register)

14	Insert make-busy plug into M-D-MB or M-MB jack associated with combined or completing marker.	
15	Insert make-busy plug into TRMB M- jack associated with combined or completing marker.	
16	At marker frame— Block nonoperated MT13 relay.	
17d	If marker is nonwire-spring-relay type and is arranged to prevent scoring of plant registers when made busy (wiring on 3B of MB relay)— Interconnect 3B on MB relay, 7B on DISA relay.	
18e	If marker is wire-spring-relay type and is arranged to prevent scoring of plant registers when made busy (wiring on 7 of MB relay)— At marker frame— Interconnect 7 on MB relay, 4 on DISA relay.	
19	At MTF— Select A- through G- digits for an intraoffice code and directory number.	
20	Select class of service and rate treatment as required.	
21	Select an originating line location.	

STEP	ACTION	VERIFICATION
22	Select ORIG class of test.	
23	Operate TRS key to simulate connector transfer condition.	
24	Select marker made busy in Step 14.	
25	Momentarily operate ST key.	At plant register circuit— MTR plant register associated with marker under test scored once. Minor alarm sounds.
26	At MTF— Momentarily operate RL key.	All lamps extinguished.
27	Momentarily operate TRR-AR key.	Minor alarm silenced.
28c	If testing 4-wire switching systems— At MTF— Restore TRS key.	
29f	If testing 2-wire switching systems— Restore TRS key.	
30g	If marker is nonwire-spring-relay type— Operate FCG key.	
31g	Momentarily operate ST key.	At plant register circuit— MTR plant register associated with marker under test scored once.
32g	At MTF— Momentarily operate RL key.	All lamps extinguished.
33g	Momentarily operate TRR-AR key.	Minor alarm silenced.
34g	Restore FCG key.	
35g	At marker frame— Block nonoperated GLH relay.	
36h	If marker is wire-spring-relay type— Block nonoperated GLH1 relay.	
37	At MTF— Momentarily operate ST key.	At plant register circuit— MTR plant register associated with marker under test scored once. Minor alarm sounds.
38	At MTF— Momentarily operate RL key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
39	Momentarily operate TRR-AR key.	Minor alarm silenced.
40	Operate TR2 key to simulate second trial call.	
41	Momentarily operate ST key.	At plant register circuit— CMST plant register scored once. Major alarm sounds.
42	At MTF— Momentarily operate RL key.	All lamps extinguished.
43	Momentarily operate TRR-AR key.	Major alarm silenced.
44	Restore TR2 key.	
45	At marker frame— Remove blocking tools from MT13, GLH or GLH1 relays.	
46i	If marker is arranged to prevent scoring of plant registers when made busy— Remove testing cord from MB, DISA relays.	
47	At MTF— Remove all make-busy plugs.	
48	Repeat Steps 14 through 47 for each combined or completing marker trouble register being tested.	
49	Restore all keys and switches and remove all patching cords not required in next test.	

E. Dial Tone Marker Usage Register (DTPC Register)

14	Select marker.	
15d	If marker is arranged to select more than one type of originating register group— Select originating register group as required.	
16	Select DT class of test.	
17	Select originating line location.	
18	Momentarily operate ST key.	At plant register circuit— DTPC plant register associated with marker under test scored once.
19	At MTF— Momentarily operate RL key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
20	Repeat Steps 14 through 19 for each dial tone marker usage register to be tested.	
21	Restore all keys and switches and remove all patching cords not required in next test.	

F. Dial Tone Marker First and Second Trial Trouble Registers (DMTR and DMST Registers)

14	Insert make-busy plug into M-D-MB or M-MB jack associated with dial tone marker.	
15	Insert make-busy plug into TRMB M- jack associated with dial tone marker.	
16	At marker frame— Block nonoperated MT13 relay.	
17d	If marker is nonwire-spring-relay type and is arranged to prevent scoring of plant registers when made busy (wiring on 3B of MB relay)— Interconnect 3B on MB relay, 7B on DISA relay.	
18e	If marker is wire-spring-relay type and is arranged to prevent scoring of plant registers when made busy (wiring on 7 of MB relay)— Interconnect 7 to MB relay, 7 on DISA relay.	
19f	If marker is arranged to select more than one type of originating register group— At MTF— Select originating register group as required.	
20	Select DT class of test.	
21	Select originating line location.	
22	Operate TRS key to simulate connector transfer condition.	
23	Select marker made busy in Step 14.	
24	Momentarily operate ST key.	At plant register circuit— DMTR plant register associated with marker under test scored once. Minor alarm sounds.
25	At MTF— Momentarily operate RL key.	All lamps extinguished.
26	Momentarily operate TRR-AR key.	Minor alarm silenced.

STEP	ACTION	VERIFICATION
27	Restore TRS key.	
28g	If marker is nonwire-spring-relay type— At MTF— Operate FCG key to simulate false cross and ground marker test.	
29g	Momentarily operate ST key.	At plant register circuit— DMTR plant register associated with marker under test scored once. Minor alarm sounds.
30g	At MTF— Momentarily operate RL key.	All lamps extinguished.
31g	Momentarily operate TRR-AR key.	Minor alarm silenced.
32g	Restore FCG key.	
33g	At marker frame— Block nonoperated GLH relay.	
34h	If marker is wire-spring-relay type— Block nonoperated GLH1 relay.	
35	At MTF— Momentarily operate ST key.	At plant register circuit— DMTR plant register associated with marker under test scored once. Minor alarm sounds.
36	At MTF— Momentarily operate RL key.	All lamps extinguished.
37	Momentarily operate TRR-AR key.	Minor alarm silenced.
38	Operate TR2 key to simulate second trial call.	
39	Momentarily operate ST key.	At plant register circuit— DMST plant register scored once. Major alarm sounds.
40	At MTF— Momentarily operate RL key.	All lamps extinguished.
41	Operate TRR-AR key.	Major alarm silenced.
42	At marker frame— Remove blocking tools from MT13, GLH or GLH1 relays.	

STEP	ACTION	VERIFICATION
43i	If marker is arranged to prevent scoring of plant registers when made busy— Remove testing cord from MB, DISA relays.	
44	At MTF— Remove all make-busy plugs.	
45	Repeat Steps 14 through 44 for each dial tone marker to be tested for plant register operation.	
46	Restore all keys and switches and remove all patching cords not required in next test.	