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PLANT REGISTERS—PART 7
TESTS USING MASTER TEST FRAME
NO. 5 CROSSBAR OFFICES

1. GENERAL

PAGE

1.01 This section is Part 7 in a series of sections that describe methods for testing plant registers.

trouble record is requested before disconnect. **10**

1.02 The reasons for reissuing this section are listed below. Revision arrows are used to emphasize the more significant changes. Equipment Test Lists are affected.

AD. CDT Translator Access Circuit (TTA) Usage Register (TAPC Register): This test checks that a plant register operates on TA usage during service calls. **12**

(a) To add Tests AD, AE for offices equipped with Call Data Transmitter (CDT).

AE. CDT Translator Access Circuit First and Second Trial Trouble Registers (TTR, TST Registers): This test checks that a plant register operates on first trial service call failures when a trouble record is requested before disconnect. **13**

(b) To make minor changes as required.

1.03 The tests covered are:

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AA. CAMA, LAMA, and ANI Transverter Usage Registers (TVPC CAMA, TVPC LAMA, TVPC ANI Registers): This test checks that a plant register operates on CAMA, LAMA, and ANI transverter usages during service calls. **4**

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 recorder bay.

AB. CAMA Transverter Trouble Registers (CTTR, CTST Registers): This test checks that a plant register operates on first trial service call failures and on second trial service call failures when a trouble record is requested before disconnect. **8**

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

AC. AMA Transverter First and Second Trial Trouble Registers (TTR, TST Registers): This test checks that a plant register operates on first trial service call failures and on second trial service call failures when a

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.

NOTICE

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◆ TABLE A ◆

| ACTION AND/OR VERIFICATION REQUIRED AT: | TESTS | | | | |
|--|-------|----|----|----|----|
| | AA | AB | AC | AD | AE |
| Master Test Frame | ✓ | ✓ | ✓ | ✓ | ✓ |
| Plant Register Circuit | ✓ | ✓ | ✓ | ✓ | ✓ |
| Transverter Frame | ✓ | ✓ | | | |
| CAMA Line Observing Number Matching Circuit | | ✓ | | | |
| Translator Access Circuit | | | | ✓ | ✓ |

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.

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 paragraphs 2.07 and 2.08 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 | | | | |
|----------------------|-------|----|----|----|----|
| | AA | AB | AC | AD | AE |
| Test Circuit (2.02) | 1 | 1 | 1 | | |
| Cord (2.03) | 1 | | | | |
| Cord (2.04) | 1 | 1 | 1 | | |
| Cord (2.05) | 1 | | | 1 | 1 |
| Tool (2.06) | | ✓ | ✓ | ✓ | ✓ |
| 322 (make-busy) Plug | ✓ | ✓ | ✓ | | |

2.03 Testing cord, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord), two 639A (contact connector) tools, and two 651-type (contact connector holder) tools (for making connections to contacts of wire-spring-type relays).

2.04 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one KS-6278 connecting clip, and one 419A (test connector) tool (for use in connecting battery or ground to springs of nonwire-spring-type relays); one 639A tool and one 651-type tool (for connecting battery or ground to contacts of wire-spring-type relays).

2.05 Testing cord, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord) and two 419A (test connector) tools (for use in strapping contact springs).

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

2.07 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).

2.08 38B lamp socket, equipped with a 2Y lamp (required when a portable test lamp is used).

3. PREPARATION

| STEP | ACTION | VERIFICATION |
|------|--------|--------------|
|------|--------|--------------|

All Tests

Note: Refer to paragraphs 1.08 and 1.09.

- | | | |
|----|---|--|
| 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 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 | |

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

4. METHOD

| STEP | ACTION | VERIFICATION |
|--|---|--------------|
| AA. CAMA, LAMA, and ANI Transverter Usage Register (TVPC CAMA, TVPC LAMA, TVPC ANI Registers) | | |
| 14 | Insert make-busy plug into TVMB_ jack associated with transverter under test. | |
| 15 | Insert make-busy plug into TRMB TV jack associated with transverter selected. | |

CAMA Transverter SD-26010-01

| | | |
|----|---|--|
| 16 | At transverter frame— Interconnect 12 of SC, 3 of BIR relays. | |
| 17 | At MTF— Set CNA_ through CNG_ switches as required to record a working originating office code index. | |
| 18 | Select A_ through K_ digits as required for called number. | |
| 19 | Select recorder. | |
| 20 | Operate AD/OD key, as required, for automatic or operator identified call. | |
| 21 | Operate ORC_ key to record an originating rate class number associated with originating office code selected. | |

| STEP | ACTION | VERIFICATION |
|------|---|--------------|
| 22d | If transverter under test is arranged for interchangeable area and office code feature— Operate 4DG key on 7- or 10-digit calls. | |
| 23d | Select code pattern required for the called number. | |
| 24 | Operate LCD1, LCD2, or ACD key, or none, as required for terminating office code selected. | |

LAMA Transverter SD-25591-01

| | | |
|-----|---|--|
| 25 | At transverter frame— Connect ground to 7B of SC relay. | |
| 26 | At MTF— Select originating line location. | |
| 27 | Select A_ through K_ digits as required for called number. | |
| 28 | Select recorder units digit. | |
| 29 | Operate AD/OD (1/0) key to select recorder tens digit. | |
| 30 | Select message billing index. | |
| 31 | Operate OBS key to simulate an observed call. | |
| 32e | If transverter under test is not arranged for interchangeable area and office code feature— Operate 4DG, LST, 5DG, or L5D key to indicate number structure required for called number. | |
| 33f | If transverter under test is arranged for interchangeable area and office code feature— Operate 4DG key on 7- or 10-digit calls. | |
| 34f | Select code pattern required for the called number. | |

ANI transverter SD-26161-01

| | | |
|----|--|--|
| 35 | At transverter frame— Interconnect 12, 12M of SC relay. | |
| 36 | Connect ground to 8B of DNK relay. | |

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| STEP | ACTION | VERIFICATION |
|---|---|---|
| 37 | At MTF— Select originating line location. | |
| Combined LAMA-ANI Transverter SD-25591-01 | | |
| 38 | At transverter frame— Connect ground to 7B of SC relay. | |
| 39 | At MTF— Select originating line location. | |
| 40 | Select marker. | |
| 41 | Select route advance. | |
| 42 | Select code and digits required for ANI route. | |
| 43 | Select class of service. | |
| 44 | Operate GPA/GPB when route is allotted. | |
| 45 | Operate ANI key. | |
| 46 | At jack, lamp, and key circuit— Remove make-busy plug from TVMB_ jack of transverter under test. | |
| 47 | Insert make-busy plug into TVMB_ jack of transverter <i>not</i> under test. | |
| Using Automatic Monitor, Register, and Sender Test Circuit SD-25689-01 | | |
| 48 | At MTF— Select SDR class of test. | |
| 49 | Operate MAC key. <i>Note:</i> Allow 1 minute for tubes to heat. | |
| 50 | Operate STT key. | |
| 51 | Momentarily operate ST key. | At plant register circuit— TVPC (ANI) plant register associated with transverter under test scored once. |
| 52 | At MTF— Momentarily operate RL key. | All lamps extinguished. |

| STEP | ACTION | VERIFICATION |
|---|--|--|
| Using Sender Test Set SD-25674-01 (J24756A) | | |
| 53 | Patch SDT1, SDT2 jacks of sender test set to MTF. | |
| 54 | Select SDT class of test. | |
| 55 | At sender test set— Momentarily operate ST key. | TTC, A lamps lighted. D lamp momentarily lighted. 0 to 9 lamps momentarily lighted for each digit of called number outpulsed. D lamp momentarily lighted. At plant register circuit— TVPC(ANI) plant register associated with transverter under test scored once. |
| | <i>Note:</i> Proceed with Step 56 as soon as possible to avoid causing a stuck sender. | |
| 56 | At sender test set— Operate REV key. | D lamp momentarily lighted. 0 to 9 lamps momentarily lighted for information digit and each digit of calling number outpulsed. |
| 57 | Momentarily operate RL key. | All lamps extinguished. |
| 58 | At jack, lamp, and key circuit— Remove make-busy plug from TVMB_ jack. | |
| 59 | Insert make-busy plug into TVMB_ jack of transverter under test. | |
| All Transverters Under Test Except Combined LAMA-ANI SD-25591-01 | | |
| 60 | At MTF— Select TVT (AMA), TVT (ANI), or TVT (CAMA) class of test. | |
| 61 | Select transverter. | |
| 62 | Momentarily operate ST key. | At plant register circuit— TVPC (LAMA, CAMA, or ANI) plant register associated with transverter under test scored once. |
| 63 | At MTF— Momentarily operate RL key. | All lamps extinguished. |
| 64g | If transverter under test is for LAMA use only— Restore OBS key to simulate a nonobserved call condition. | |

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| STEP | ACTION | VERIFICATION |
|-------------|--|--|
| 65g | Momentarily operate ST key. | At plant register circuit— TVPC LAMA plant register associated with transverter under test score once. |
| 66g | At MTF— Momentarily operate RL key. | All lamps extinguished. |

All Transverters Under Test

- 67 At transverter frame—
Remove testing cords from SC, BIR, or DNK
relays.
- 68 At MTF—
Remove make-busy plug from TRMB TV jack.
- 69 Remove make-busy plug from TVMB_ jack.
- 70 Repeat Steps 14 through 69 as required for
each transverter to be tested for plant register
operation.
- 71 Restore all keys and switches and remove all
patching cords not required in next test.

**AB. CAMA Transverter Trouble Register (CTTR and
CTST Registers)**

- 14 Insert make-busy plug into TVMB_ jack
associated with transverter selected for test.
- 15 Insert make-busy plug into TRMB TV jack
associated with CAMA transverter.
- 16 At transverter frame—
Connect ground to 10 of TTBL relay.
- 17 At MTF—
Select TVT (CAMA) class of test.
- 18 Select transverter made busy.
- 19 Select A_ through K_ digits as required to
record working area code, office code, and
any four numerals.
- 20 Operate LCD1, LCD2, or ACD key, or none,
as required for terminating code selected.
- 21 Operate CNA_ through CNG_ to select working
originating office index not being observed on
line observing number matching equipment.

| STEP | ACTION | VERIFICATION |
|------|---|---|
| | <i>Note:</i> Do not use 0, 7, 8, 9 in the units digit for CNG_ selection. | |
| 22d | If interchangeable area and office code features are provided— Operate 4DG key on 7- or 10-digit calls. | |
| 23d | Select code pattern required for called number. | |
| 24 | Select recorder. | |
| 25 | Operate AD/OD key as required for automatic or operator identified call. | |
| 26 | Operate ORC_ key to record originating rate class mark. | |
| 27e | If line observing number matching circuit is provided— Insert make-busy plugs into NMB0, NMB1 jacks of line observing number matching circuit. | |
| 28e | At line observing number matching frame, part 0— Block operated UA7 relay. | |
| 29e | At MTF— Operate LOM0 key. | |
| 30e | Momentarily operate ST key. | At plant register circuit— CTTR plant register associated with transverter under test scored once. |
| 31e | At MTF— Momentarily operate RL key. | |
| 32e | At line observing number matching frame, part 0— Remove blocking tool from UA7 relay. | |
| 33 | At MTF— Remove make-busy plug from NMB1 jack. | |
| 34 | Operate S1L, RTBL keys. | |
| 35 | Momentarily operate ST key. | At plant register circuit— CTTR plant register associated with transverter under test scored once. |
| 36 | At MTF— Momentarily operate RL key. | All lamps extinguished. |

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| STEP | ACTION | VERIFICATION |
|------|--|---|
| 37 | Restore S1L, RTBL keys. | |
| 38 | Operate TRS key to simulate connector transfer condition. | |
| 39 | Momentarily operate ST key. | At plant register circuit— CTTR plant register associated with transverter under test scored once. |
| 40 | At MTF— Momentarily operate RL key. | All lamps extinguished. |
| 41 | Restore TRS key. | |
| 42 | Operate TI1 key. | |
| 43 | Momentarily operate ST key. | At plant register circuit— CTTR plant register associated with transverter under test scored once. |
| 44 | At MTF— Momentarily operate RL key. | |
| 45 | Operate TR2 key to simulate second trial condition. | |
| 46 | Momentarily operate ST key. | At plant register circuit— CTST plant register scored once. |
| 47 | At MTF— Momentarily operate RL key. | All lamps extinguished. |
| 48 | At transverter frame— Remove test connection from TTBL relay. | |
| 49 | Remove all make-busy plugs. | |
| 50 | Repeat Steps 14 through 49 for each CAMA transverter trouble register to be tested. | |
| 51 | Restore all keys and switches and remove all patching cords not required in next test. | |

AC. AMA Transverter First and Second Trial Trouble Registers (TTR and TST Registers)

- 14 Determine from office records if transverter is arranged to score a plant register over the TTR lead on first and second trial failures, or a plant register over the TTR lead on first trial failures and a plant register over the TST lead on second trial failures.

| STEP | ACTION | VERIFICATION |
|------|--|--|
| 15 | Insert make-busy plug into TVMB_ jack associated with transverter selected. | |
| 16 | Insert make-busy plug into TRMB TV jack associated with transverter selected. | |
| 17 | At transverter frame— Connect ground to 10B of SC relay. | |
| 18 | At MTF— Select an originating line location. | |
| 19 | Select recorder units digit. | |
| 20 | Operate AD/OD (1/0) key to select recorder tens digits. | |
| 21 | Select message billing index 9. | |
| 22 | Select code pattern required for the called number. | |
| 23 | Operate 4DG, 5DG, LST, or L5D key as required to select called number structure. | |
| 24 | Select TVT (AMA) class of test. | |
| 25d | If transverter under test is arranged for automatic number identification (ANI)— Operate SPL key. | |
| 26 | Select A_ through K_ digits as required for an area code, office code, and directory number requiring AMA treatment. | |
| 27 | Select transverter made busy. | |
| 28 | Operate REC key. | |
| 29 | Momentarily operate ST key. | At plant register circuit— TTR plant register associated with transverter under test scored once. |
| 30 | At MTF— Momentarily operate RL key. | All lamps extinguished. |
| 31 | Operate TR2 key. | |
| 32 | Momentarily operate ST key. | If transverter is arranged to score a plant register on first and second trial failures— At plant register circuit— TTR plant register associated with transverter |

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| STEP | ACTION | VERIFICATION |
|------------|--|--|
| | | under test scored once. If transverter is arranged to score separate plant registers on first and second trial failures— At plant register circuit— TST plant register scored once. |
| 33 | At MTF— Momentarily operate RL key. | All lamps extinguished. |
| 34 | Restore TR2, REC keys. | |
| 35 | At transverter frame— Remove test connection from SC relay. | |
| 36 | At MTF— Remove all make-busy plugs. | |
| 37 | Repeat Steps 14 through 36 for each transverter trouble register to be tested. | |
| 38 | Restore all keys and switches and remove all patching cords not required in next test. | |
| AD. | CDT Translator Access Circuit Usage Register (TAPC Register) | |
| 14 | At MTF— Insert make-busy plug into TVMB_ jack associated with TA under test. | |
| 15 | Select A_through K_digits as required to select AMA route. | |
| 16 | Select originating line location. | |
| 17 | Select class of service as required for selected route. | |
| 18 | Select MISC class of test. | |
| 19 | Select completing marker. | |
| 20 | Operate CDTT key. | |
| 21d | If office is arranged for dual controllers— Operate CDC 0/1 key to select controller associated with TA under test. | |
| 22e | If controller is arranged with shared TA_— Operate TAD/TAS key to select dedicated or shared TA under test. | |

| STEP | ACTION | VERIFICATION |
|--|--|--|
| 23 | At TA frame— Strap 3F to 3M of the SC relay. | |
| 24 | At MTF_ Momentarily operate ST key. | At plant register circuit_ TAPC plant register associated with TA under test scored once. |
| 25 | At MTF— Momentarily operate RL key. | |
| 26 | At TA frame— Remove strap from SC relay. | |
| 27 | At MTF— Remove make-busy plug from TVMB_ jack. | |
| 28 | Restore all keys and switches not required in next test. | |
| AE. CDT Translator Access Circuit First and Second Trial Trouble Registers (TTR, TST Registers) | | |
| 14 | At MTF_ Insert make-busy plug into TVMB_ jack associated with TA under test. | |
| 15 | Select A_ through K_digits as required to select AMA route. | |
| 16 | Select originating line location. | |
| 17 | Select class of service as required for selected route. | |
| 18 | Select MISC class of test. | |
| 19 | Select completing marker. | |
| 20 | Operate CDTT key. | |
| 21d | If office is arranged for dual controllers— Operate CDC 0/1 key to select controller associated with TA under test. | |
| 22e | If controller is arranged with shared TA_ Operate TAD/TAS key to select dedicated or shared TA under test. | |
| 23 | At TA frame— Strap 4F to 4M of the SC relay. | |
| 24 | Block CK, 2TR relays nonoperated. | |

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| STEP | ACTION | VERIFICATION |
|------|--|--|
| 25 | At MTF— Momentarily operate ST key. | At plant register circuit— TTR plant register associated with TA under test scored once. |
| 26 | At MTF— Momentarily operate RL key. | |
| 27 | At TA frame— Block 1TR relay nonoperated. | |
| 28 | Block 2TR relay operated. | |
| 29 | Momentarily operate ST key. | At plant register circuit_ TST plant register associated with TA under test scored once. |
| 30 | At MTF— Momentarily operate RL key. | |
| 31 | At TA frame_ Remove strap from SC relay. | |
| 32 | Remove all blocking tools. | |
| 33 | At MTF— Remove make-busy plug from TVMB_ jack associated with TA under test. | |
| 34 | Restore all keys and switches not required in next test.◀ | |