

TRAFFIC REGISTERS FOR 4-WIRE ROUTING PROGRAM

TESTS

NO. 5 CROSSBAR OFFICES

ARRANGED FOR MULTILEVEL PREEMPTION

1. GENERAL

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1.01 This section describes a method of testing traffic registers, which are associated with the 4-wire routing program and wired directly to the markers or to a peg count auxiliary circuit SD-27745-01, using the trunk test circuit SD-25918-01 and the master test frame (MTF) in No. 5 crossbar offices arranged for multilevel preemption.

1.02 This section is reissued to add Test F for testing traffic registers associated with operator originating line circuits and to make minor changes as required. This reissue affects Equipment Test Lists.

1.03 The test covered are:

A. Peg Count Registers for Tandem Outgoing Calls (TOG) or Subscriber Outgoing Calls (SOG) Peg Count (T- or S- Leads or PTR- Leads): This test checks that the peg count registers operate on tandem through-switched or SOG calls.

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B. Overflow Registers for Tandem Outgoing Calls (TOG) and Subscriber Outgoing Calls (SOG) Overflow Count (OR- Leads or OTR Lead): This test checks that the overflow registers operate when the marker finds all associated trunk groups busy.

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C. Peg Count Registers for Preempting Tandem Outgoing Calls (TOG) or Subscriber Outgoing Calls (SOG) Peg Count (P- Leads or PCP Lead): This test checks that the peg count registers operate when preempting outgoing calls are completing.

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D. Overflow Registers for Preempting Tandem Outgoing Calls (TOG) and Subscriber Outgoing Calls (SOG) Overflow Count (DP- Leads or OEP Lead): This test checks that the overflow registers operate when preempting outgoing calls find all associated trunk groups busy.

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E. Static Checks for Peg Count and Overflow Registers Associated With Peg Count Auxiliary Circuit (T-, S-, P-, OR-, OP- Leads): This test checks the multicontacts of program, peg count, and overflow relays necessary to operate peg count and overflow registers.

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F. Group-Busy Register for Operator Originating Line Circuits (PB Lead): This test checks that the group-busy register operates when all operator originating line circuits of the associated group are busy.

9

1.04 Determine from office records precedence, priority, grade, and routing. Also, consult cross-connection and wiring charts for the local office to determine route program relay terminals associated with the peg count auxiliary circuit and traffic register assignment.

1.05 Tests A through E require actions and verifications at the traffic register cabinet, MTF, and marker circuit.

1.06 Test F requires action and verification at the traffic register cabinet and switchboard.

1.07 Local instructions should be followed for recording and reporting the register operations caused by performing Tests A through F.

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1.08 The Test Chart provided shows priming information required for each test. Spaces are provided on the chart for listing specific priming information depending on local conditions. The chart should be filled in from local records in accordance with the instructions provided in Part 5, Preparation of Test Chart.

1.09 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.

1.10 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.

1.11 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 A. 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) Two head telephone sets.
- (b) 32A test set (required when the MTF is controlled from a remote point).
- (c) Ten 26 cords are required in offices where it is necessary to patch the traffic register

to the circuit under test and to patch the traffic register to a battery supply.

TABLE A

APPARATUS	TESTS				
	A	B	C	D	E
Master Test Frame (2.02)	1	1	1	1	
Cord (2.03)					✓
Cord (2.04)					✓
322A (make-busy) Plugs	1	1	1	1	1
Tools (2.05)	✓	✓	✓	✓	

✓ As required.

2.02 MTF circuits as follows:

- (a) Master test control circuit SD-25800-01
- (b) Trunk test circuit SD-25918-01
- (c) Telephone, key, and lamp circuit SD-25744-01
- (d) Voltmeter test circuit SD-25792-01
- (e) Miscellaneous circuit SD-25574-01
- (f) Jack, lamp, and key circuit SD-25762-01.

2.03 Testing cord, 1W1C cord, 20 feet long, equipped with one 360A tool, 1C plug (1W9A cord), and one KS-6278 connecting clip (for connecting ground to terminals).

2.04 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one KS-6278 connecting clip, and one 509B (test connector) tool (for connecting ground to relay winding).

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

3. PREPARATION

STEP	ACTION	VERIFICATION
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All Tests

- | | | |
|----|---|--|
| 1a | If traffic registers are arranged for patching—
At traffic register cabinet—
Insert cord tip of 26 patching cord into P-jack for circuit associated with register to be tested. | |
| 2a | Insert cord tip on other end of 26 patching cord into black jack associated with register to be tested (black jack is located on mounting plate with register). | |
| 3a | Insert cord tip of 26 cord into red jack on mounting plate with register to be tested. | |
| 4a | Insert cord tip on other end of 26 cord into any S- jack located at bottom of jack field. | |
| 5b | If traffic registers are arranged for patching, if battery supply for register to be tested is controlled by C- toggle switch, and if C- toggle switch is in OFF position—
Operate C- toggle switch to ON. | |
| 6c | If traffic registers are not arranged for patching—
Determine from local office records functional designation of peg count BAT key associated with register to be tested. | |
| 7c | Operate BAT key associated with register to be tested. | |
| 8 | Establish talking path between frames where test is to be performed and where observations are to be made. | |
| 9 | At MTF—
Restore all keys and switches. | |

Tests A Through E

- | | | |
|----|---|-------------------------|
| 10 | Momentarily operate RL key. | All lamps extinguished. |
| 11 | Select marker. | |
| 12 | Insert make-busy plug into M-C-MB jack of completing marker selected. | |

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STEP	ACTION	VERIFICATION
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Tests A Through D

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|----|--|--|
| 13 | Operate 4W key. | |
| 14 | At marker—
Block nonoperated MT18 relay associated with marker made busy. | |

4. METHOD

STEP	ACTION	VERIFICATION
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A. Peg Count Registers for Tandem Outgoing Calls (TOG) or Subscriber Outgoing Calls (SOG) Peg Count (T- or S- Leads or PTR- Leads)

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|-----|---|---|
| 15 | At MTF—
Select ORIG class of test. | |
| 16 | Operate keys and set switches in accordance with Test Chart, Test 1. | |
| 17 | Momentarily operate ST key. | At traffic register cabinet—
If peg count auxiliary circuit is provided—
Register associated with S- lead scored once.
If peg count auxiliary circuit is <i>not</i> provided—
Register associated with PTR- lead scored once. |
| 18 | At MTF—
Momentarily operate RL key. | All lamps extinguished. |
| 19d | If peg count auxiliary circuit is provided—
Restore all keys and switches. | |
| 20d | Select INC class of test. | |
| 21d | Select TAN subclass of test. | |
| 22d | Operate keys and set switches in accordance with Test Chart, Test 2. | |
| 23d | Momentarily operate ST key. | At traffic register cabinet—
Register associated with T- lead scored once. |
| 24d | At MTF—
Momentarily operate RL key. | All lamps extinguished. |
| 25 | At marker—
Remove blocking tool from MT18 relay. | |

STEP	ACTION	VERIFICATION
26	At MTF— Remove make-busy plug from M-C-MB jack.	
27	Restore all keys and switches not required in next test.	
28a	If traffic registers are arranged for patching— At traffic register cabinet— Remove all cords and plugs.	
B. Overflow Registers for Tandem Outgoing Calls (TOG) and Subscriber Outgoing Calls (SOG) Overflow Count (OR- Leads or OTR Lead)		
15	At MTF— Select ORIG class of test.	
16	Operate keys and set switches in accordance with Test Chart, Test 3.	
17	Momentarily operate ST key.	At traffic register cabinet— If peg count auxiliary circuit is provided— Register associated with OR- lead scored once. If peg count auxiliary circuit is <i>not</i> provided— Register associated with OTR lead scored once.
18	At MTF— Momentarily operate RL key.	All lamps extinguished.
19	Restore all keys and switches.	
20	Select INC class of test.	
21	Select TAN subclass of test.	
22	Operate keys and set switches in accordance with Test Chart, Test 4.	
23	Momentarily operate ST key.	At traffic register cabinet— If peg count auxiliary circuit is provided— Register associated with OR- lead scored once. If peg count auxiliary circuit is <i>not</i> provided— Register associated with OTR lead scored once.
24	At MTF— Momentarily operate RL key.	All lamps extinguished.
25	At marker— Remove blocking tool from MT18 relay.	
26	At MTF— Remove make-busy plug from M-C-MB jack.	

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STEP	ACTION	VERIFICATION
27	Restore all keys and switches not required in next test.	
28a	If traffic registers are arranged for patching— At traffic register cabinet— Remove all cords and plugs.	
C. Peg Count Registers for Preempting Tandem Outgoing Calls (TOG) or Subscriber Outgoing Calls (SOG) Peg Count (P- Leads or PCP Lead)		
15	At MTF— Select ORIG class of test.	
16	Operate keys and set switches in accordance with Test Chart, Test 5.	
17	Momentarily operate ST key.	At traffic register cabinet— If peg count auxiliary circuit is provided— Register associated with P- lead scored once. If peg count auxiliary circuit is <i>not</i> provided— Register associated with PCP lead scored once.
18	At MTF— Momentarily operate RL key.	All lamps extinguished.
19	Restore all keys and switches.	
20	Select INC class of test.	
21	Select TAN subclass of test.	
22	Operate keys and set switches in accordance with Test Chart, Test 6.	
23	Momentarily operate ST key.	At traffic register cabinet— If peg count auxiliary circuit is provided— Register associated with P- lead scored once. If peg count auxiliary circuit is <i>not</i> provided— Register associated with PCP lead scored once.
24	At MTF— Momentarily operate RL key.	All lamps extinguished.
25	At marker— Remove blocking tool from MT18 relay.	
26	At MTF— Remove make-busy plug from M-C-MB jack.	
27	Restore all keys and switches not required in next test.	

STEP	ACTION	VERIFICATION
28a	If traffic registers are arranged for patching— At traffic register cabinet— Remove all cords and plugs.	
D. Overflow Registers for Preempting Tandem Outgoing Calls (TOG) and Subscriber Outgoing Calls (SOG) Overflow Count (OP- Leads or OFP Lead)		
15	At MTF— Select ORIG class of test.	
16	Operate keys and set switches in accordance with Test Chart, Test 7.	
17	Momentarily operate ST key.	At traffic register cabinet— If peg count auxiliary circuit is provided— Register associated with OP- lead scored once. If peg count auxiliary circuit is <i>not</i> provided— Register associated with OFP lead scored once.
18	At MTF— Momentarily operate RL key.	All lamps extinguished.
19	Restore all keys and switches.	
20	Select INC class of test.	
21	Select TAN subclass of test.	
22	Operate keys and set switches in accordance with Test Chart, Test 8.	
23	Momentarily operate ST key.	At traffic register cabinet— If peg count auxiliary circuit is provided— Register associated with OP- lead scored once. If peg count auxiliary circuit is <i>not</i> provided— Register associated with OFP lead scored once.
24	At MTF— Momentarily operate RL key.	All lamps extinguished.
25	At marker— Remove blocking tool from MT18 relay.	
26	At MTF— Remove make-busy plug from M-C-MB jack.	
27	Restore all keys and switches not required in next test.	

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STEP	ACTION	VERIFICATION
28a	If traffic registers are arranged for patching— At traffic register cabinet— Remove all cords and plugs.	
E. Static Checks for Peg Count and Overflow Registers Associated With Peg Count Auxiliary Circuit (T-, S-, P-, OR-, OP- Leads)		
13	At peg count auxiliary circuit— Using five 1W13B testing cords, connect one end of each cord to a 509B connector attached to T winding of PE0, SOG0, OFR0, TOG0, OFP0 relays.	
14	Install KS-6278 connecting clips on 360A tools of testing cords and connect to ground.	All relays in peg count auxiliary circuit operated.
15	At marker— Determine from local office records the cross-connections between terminals RG(1-6)11 and RMC(00-11)11 and between RG(1-6)12 and RMC(00-11)12 associated with corresponding RM(00-143) relays.	
16	Using two 1W9A testing cords, connect terminals RG(____)11 and RG(____)12 associated with one group of RM relays to ground.	
17	Momentarily block operated first RM relay in group selected in Step 16.	At traffic register cabinet— Registers associated with T-, S-, P-, OR-, OP- leads scored once.
18	At marker— Repeat Step 17 for remaining RM- relays associated with terminals selected in Step 16.	At traffic register cabinet— Registers associated with T-, S-, P-, OR-, OP- leads scored once for each manual operation of an RM relay.
19	At marker— Remove two testing cords from RG(____)11 and RG(____)12 terminals.	
20	Repeat Steps 15 through 19 until all registers associated with peg count auxiliary circuit have been tested.	
21	At marker— Remove all testing cords.	
22	At peg count auxiliary circuit— Remove all testing cords.	All relays released.

STEP	ACTION	VERIFICATION
23	At MTF— Momentarily operate RL key.	All lamps extinguished.
24	Restore all keys and switches.	
25	Remove make-busy plug from M-C-MB jack.	
26a	If traffic registers are arranged for patching— At traffic register cabinet— Remove all cords and plugs.	

F. Group-Busy Register for Operator Originating Line Circuits (PB Lead)

9 Determine from office records numbers of operator originating lines in group associated with register being tested.

10 At switchboard—
For lines determined in Step 9, insert front cord plugs into operator originating line jacks of idle lines in group.

Caution: *Do not hold all lines busy longer than necessary, as this may interfere with service.*

11 Momentarily remove plug from one operator originating line jack.

At traffic register cabinet—
Register scored once.

12 At switchboard—
Repeat Step 11 for each operator originating line in group.

13 Remove all plugs from operator originating line jacks.

14 At traffic register cabinet—
Restore all keys and switches.

15 Remove all cords placed for test.

5. PREPARATION OF TEST CHART

Note: Refer to 1.08 and 1.10.

5.01 It is necessary to test the trunk route group relays associated with the peg count auxiliary

circuit on a one-time basis. Consult local office records to determine trunk route group cross-connections and control digits required to test all route groups.

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The route groups that must be tested are as follows:

TEST	ROUTE GROUP
1	Voice grade, home grid, one route group
2, 7, 8	Voice grade, external grid, most direct route group
3	Special grade, home grid, one route group
4	Special grade, external grid, one route group
5	Voice grade, external grid, second best alternate route group
6	Voice grade, external grid, best alternate route group

5.02 The Test Chart is used as a particular number chart and provides the priming information required for each test. Information obtained from local office records should be used to fill in the Test Chart in the following manner.

- (a) In CLASS OF SERVICE column, record a class of service having access to trunk group associated with the register to be tested.
- (b) In RATE TREAT. column, record rate treatment as required to select originating line rate treatment and rate treatment group.
- (c) In CONTROL DIGITS columns, record required control digits information for the routing group to marker.
- (d) In TRK LK FR columns, record trunk link frame associated with register under test.
- (e) In TRUNK NO. columns, record trunk number required if tandem or toll incoming trunk is to be simulated.

5.03 Test A

- (1) Apply (a) through (e) of 5.02.

- (2) In ROUTE ADVANCE column, record route advance required to select route group.
- (3) For Test 1, in A through G columns, record office code required for voice grade, home grid, and one route.
- (4) For Test 2, in A through G columns, record office code required for voice grade, external grid, and most direct route.

5.04 Test B

- (1) Apply (a) through (e) of 5.02.
- (2) In ROUTE ADVANCE column, record route advance for one more route than maximum number of routes in available routing groups.
- (3) For Test 3, in A through G columns, record office code required for special grade, home grid, and one route.
- (4) For Test 4, in A through G columns, record office code required for special grade, external grid, and one route.

5.05 Test C

- (1) Apply (a) through (e) of 5.02.
- (2) In ROUTE ADVANCE column, record route advance required to select route group.
- (3) In CONTROL DIGITS columns, record a level of priority with precedence for required routing group.
- (4) For Test 5, in A through G columns, record office code required for voice grade, external grid, and second best alternate route.
- (5) For Test 6, in A through G columns, record office code required for voice grade, external grid, and best alternate route.

5.06 Test D

- (1) Apply (a) through (e) of 5.02.

(2) In ROUTE ADVANCE column, record route advance for one more route than maximum number of routes in available routing groups.

(3) In CONTROL DIGITS columns, record a level of priority with precedence for required routing group.

(4) In A through G columns, record office code required for voice grade, external grid, and most direct route.

TEST CHART

TEST	TYPE OF TEST	TEST NO.	MASTER TEST FRAME PRIMING INFORMATION																							TEST NO.	TEST						
			LINE LOCATION							CLASS OF SERVICE	RATE TREAT.		DIGITS — CODE (S) AND NUMBER (CALLED NUMBER)							TRK LK FR		TRUNK NO.			ROUTE ADVANCE			MISCELLANEOUS KEYS AND/OR SWITCHES					
			FRAME NO.		VERT GR		HOR GR	VERT FILE	TENS		UNITS	A	B	C	D	E	F	G	TENS	UNITS	HT-	TT-	UT-										
			TENS	UNITS	TENS	UNITS																											
A	Nonpreempting Peg Count	SOG	1	0	0	0	0	0	0							1	2	3	4													1	A
		TOG	2													1	2	3	4													2	
B	Nonpreempting Overflow	SOG	3	0	0	0	0	0	0							1	2	3	4													3	B
		TOG	4													1	2	3	4													4	
C	Preempting Peg Count	SOG	5	0	0	0	0	0	0							1	2	3	4											CPN		5	C
		TOG	6													1	2	3	4										CPN		6		
D	Preempting Overflow	SOG	7	0	0	0	0	0	0							1	2	3	4										CPN		7	D	
		TOG	8													1	2	3	4									CPN		8			