

POSITION OCCUPIED COUNTER UNIT

PTS-1005

INSTALLATION AND MAINTENANCE TESTS

TRAFFIC MANAGEMENT SYSTEMS

Contents	Page
1. GENERAL.....	1
2. APPARATUS.....	2
3. TEST SET-UP.....	2
4. METHOD.....	3
5. TROUBLE LOCATING PROCEDURES.....	5
6. GENERAL NOTES.....	5

1. GENERAL

1.01 This section contains detailed installation and maintenance test procedures for the Position Occupied Counter (POC) unit, PTS-1005. The POC unit is used in TSPS, #5ACD, and 23-type directory assistance positions, as well as No. 1, 3, and 3C type toll switchboards, to display the number of occupied positions.

1.02 (Reserved for future use)

1.03 The installation and maintenance tests covered are:

A. *Lead Integrity:* This test checks lead integrity of the A50B cable from the POC to the associated terminal strip using the PTS-1005 to verify lead continuity and to detect open or cross-leads. (See Note.)



*Caution: Improper installation of this unit in a TSP office may cause a slow down in call processing and could result in a complete system failure.*

B. *Unit Capacity:* This test checks each CP1 register circuit (G3) to ensure that the PTS-1005 digit display indicates the correct number when all input leads are grounded. (See Note.)

C. *Position Circuit:* This test checks that the position circuit grounds its associate OP-lead when an operator headset is inserted in the position telephone jack and increments the digit display.

D. *Word Display:* This test checks that the PLUS, EVEN, and MINUS LEDs light in the PTS-1005 unit.

E. *Lamp Test:* This test checks the elements of the digit display LEDs.

*Note:* Tests A and B of this section are installation tests and can only be performed when this equipment is initially installed.

1.04 Installation tests A and B must be performed before cabling to position circuits is completed.

1.05 Test C shall be performed after cabling to the position circuits has been verified and connected.



*Caution: In a TSPS office, crossed OP leads from the position buffer to the POC will cause call processing to be interrupted while the base unit enters into maintenance diagnostic to identify trouble condition. The base unit MUST be notified before connecting the cable leads at the position buffer frames.*

1.06 When replacing circuit packs, consult Section 032-173-301 for precautions to be used when working with semiconductor devices.

NOTICE

Not for use or disclosure outside the Bell System except under written agreement

**SECTION 252-102-900PT**

**1.07 Lettered Steps:** A letter a, b, c, etc, added to a step number in Part 4 of this section indicates an action which may or may not be required depending on local conditions. The condition under which a letter 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.

**2. APPARATUS**

**Tests A and B**

- 2.01** One 893 cord, 3 feet long equipped with two 360A tools (1W13A cord).
- 2.02** One KS-6278 connecting clip.
- 2.03** One 411A test pick.

**2.04** Apparatus listed in 2.01 through 2.03 is used to apply ground at terminal strip.

**Test C**

**2.05** Operator head telephone set.

**3. TEST SET-UP**

- 3.01** Before attempting any test, verify the PC switch position setting required as shown in Table A.
- 3.02** Remove the PTS-1005, G6 circuit pack CP4 and position the PC switch and replace CP4.
- 3.03** Install the PTS-1005 power source fuse at the fuse panel and connect battery supply leads at the distribution terminal strip.
- 3.04** Refer to notes in Part 5 on trouble locating procedures.

**TABLE A**

TYPE OF OFFICE	PC SWITCH POSITION	G-3 CIRCUIT PACK	SOCKET NUMBER	OP-LEAD NUMBER	UNIT POSITION CAPACITY	REMARKS
TSPS	+24V	1ST	4	1-32	32	ALWAYS REG POS #-02 TO -31 REQ FOR POS #-32 TO -64 NOT REQUIRED
		2ND	3	33-64	64	
		3RD	2			
CACD PHASE 1 AND 2	+48V	1ST	4	1-32	32	ALWAYS REG POS #-01 TO -32 REQ FOR POS #-33 TO -60 NOT REQUIRED
		2ND	3	33-64	64	
		3RD	2			
23 TYPE DESK	+48V	1ST	4	1-32	32	ALWAYS REG POS #01 TO 32 REQ FOR POS #33 UP NOT REQUIRED
		2ND	3	33-64	64	
		3RD	2			
TOLL BOARD 1, 3 AND 3C TYPE	+48V	1ST	4	1-32	32	ALWAYS REG POS #-01 TO -32 REQ FOR POS #-33 TO -64 REQ FOR POS #65 UP
		2ND	3	33-64	64	
		3RD	2	65-96	96	

## 4. METHOD

STEP	ACTION	VERIFICATION
	<b>A. Lead Integrity</b>	
1	At terminal strip, test for battery and ground.	BATT — Terminal GRD — Terminal
2	At the PTS-1005 unit, connect unit to connectorized cable.	At PTS-1005, digit display (DD) reads = 00.
3	At terminal strip, connect one end of the 893 cord using a KS-6278 connecting clip to terminal 98 GRD (connect 411A test pick to the other end of cord).	
4	At terminal strip, apply ground to OP1 lead using the 411A test pick.	At PTS-1005, DD = 01.
5	At terminal strip, remove ground from OP1 lead.	At PTS-1005, DD = 00.
6	At terminal strip, repeat Steps 4 and 5 for OP2 through OP32. (Spared OP- leads shall also be checked.)	At PTS-1005, DD = Same as Steps 4 and 5.
7a	If the PTS-1005 unit is equipped with more than one G-3 circuit pack, repeat Steps 4 and 5 for every 2nd and 3rd G-3. (See Table A.)	At PTS-1005, DD = Same as Steps 4 and 5.
8b	If any digit display does not conform with the verification, refer to the trouble locating procedures in Part 5.	
	<b>B. Unit Capacity</b>	
1	Perform after Test E.	
2	At terminal strip, strap the OP1 through OP32 leads (1st G-3 CP) to the ground terminal. (If any OP- leads are unassigned in the G-3 CP1, strap to last equipped terminal.)	At PTS-1005, DD = 32.
2a	If the PTS-1005 unit is equipped with more than one G-3 circuit pack, repeat Step 2 as follows:  At terminal strip, strap the OP33 through OP64 leads (second and G-3 CP) to OP32. Repeat test.  At terminal strip, strap OP65 through OP96 leads (3rd G-3 CP) to OP64. Repeat test.  (If any OP- leads are unassigned in the 2nd, or 3rd G-3 CP, strap to last assigned terminal.)	At PTS-1005 —  DD = 64  DD = 96

## SECTION 252-102-900PT

STEP	ACTION	VERIFICATION
3	At PTS-1005, set TC and UC (tens and units comparator) switches = digit display.	At PTS-1005, word display (WD) reads EVEN.
4	At PTS-1005, set TC and UC switches less than digit display ( $\neq 00$ ).	
5	At terminal strip, remove OP- lead strap.	At PTS-1005, WD reads MINUS. DD = 00
6b	If any display does not conform with the verification, refer to the trouble locating procedures covered in Part 5.	
<b>C. Position Circuit</b>		
1a	At position, if required, make busy position to incoming traffic.	
2	At position, insert operation telephone set in position tel jack.	At PTS-1005, DD increments one digit.
3	At position, remove operator telephone set from position tel jack.	At PTS-1005, DD deincrements one digit.
4a	At position, if the position has been MB in Step 1a, return to service.	
5	At position, repeat Test C on each position to be tested.  <i>Note:</i> Notify the Operator Services Manager when it is necessary to vacate positions in order to perform this test.	Same as Steps 1a to 4a.
<b>D. Word Display</b>		
1	At PTS-1005, set TC and UC switches = the digit display.	At PTS-1005, WD reads EVEN.
2	At PTS-1005, set TC and UC switches < than digit display.	At PTS-1005, WD reads PLUS.
3	At PTS-1005, set TC and UC switches > than digit display.	At PTS-1005, WD reads MINUS.
<b>E. Lamp Test</b>		
1	At PTS-1005, momentarily operate LT key.	At PTS-1005, DD reads 88.

**5. TROUBLE LOCATING PROCEDURES**

5.01 Trouble clearing procedures associated with installation and testing the PTS-1005 unit are illustrated in flow charts. See Charts A through E. An explanation of the symbols and abbreviations used are shown in Table B.

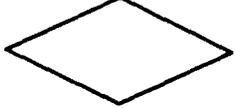
5.02 If verification of a test is not met by replacing circuit packs, consider the PTS-1005 unit as defective and return to the manufacturer for repair and return. Procedures for this are covered in the GTP Catalog.

**6. GENERAL NOTES**

6.01 Field repairs that involve replacement of components within the PTS-1005 unit are not recommended.

6.02 Instruction for ordering the PTS-1005 equipment and for returning defective units are contained in GAEL 1754 and in the GTP catalog.

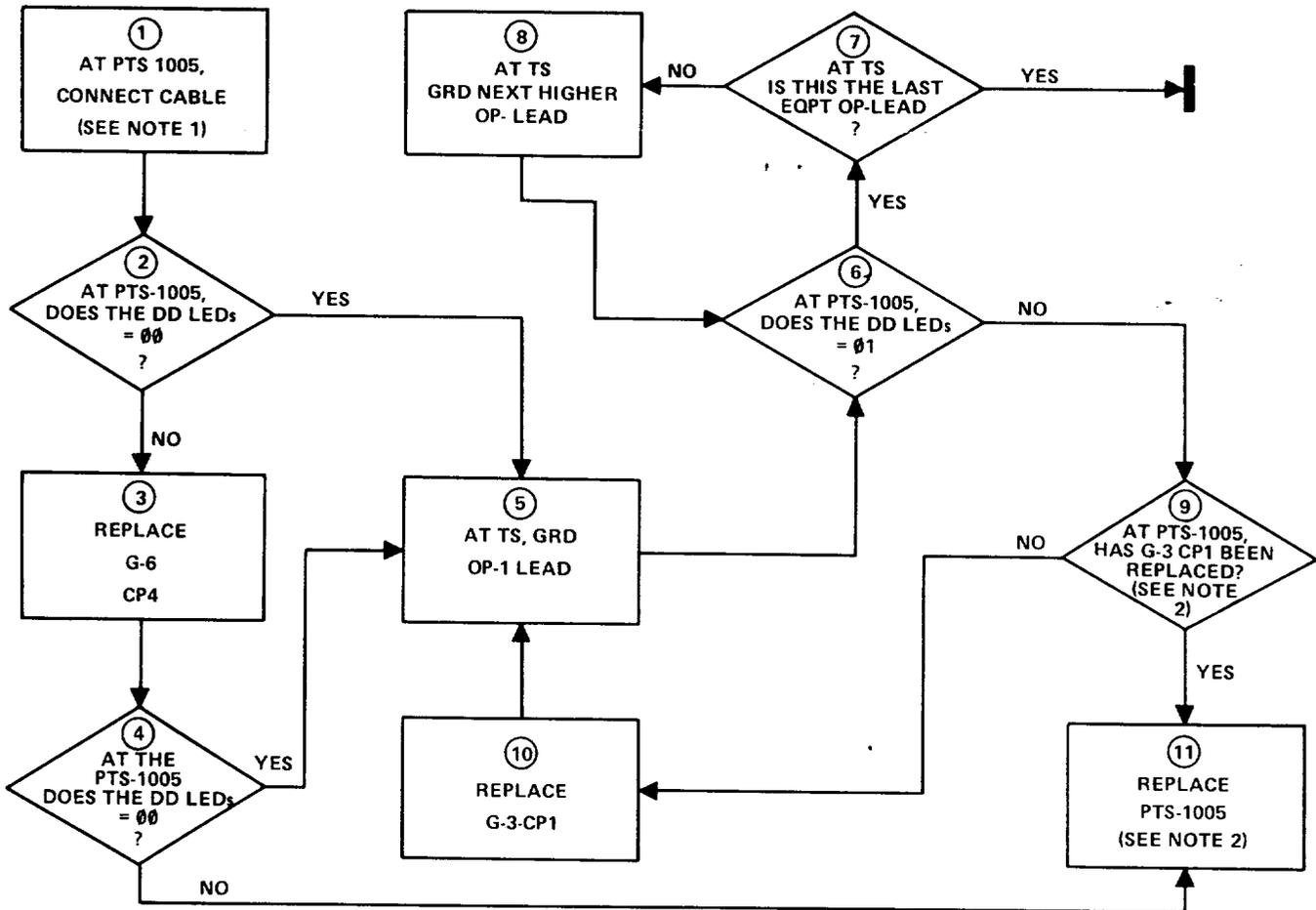
**TABLE B****FLOWCHART SYMBOLS USED ON CHARTS A THROUGH E**

SYMBOL	MEANING
 INSTRUCTION BLOCK	PROVIDES INSTRUCTIONS
 DECISION BLOCK	ASKS FOR AN OBSERVATION
 COMPLETION BAR	PROCEDURE IS COMPLETED

**LEGEND - TERMS USED ON FLOWCHARTS**

CP- = CIRCUIT PACK NUMBER  
 C-SW = COMPARATOR SWITCHES TENS AND UNITS  
 DD = DIGIT DISPLAY LEDs  
 G- = CIRCUIT PACK GROUP NUMBER  
 GRD = GROUND  
 LT = LAMP TEST KEY  
 OP- = OPERATE LEAD NUMBER  
 PC SW = POWER CONTROL SWITCH  
 TS = TERMINAL STRIP  
 WD = WORD DISPLAY

CHART A  
TEST A

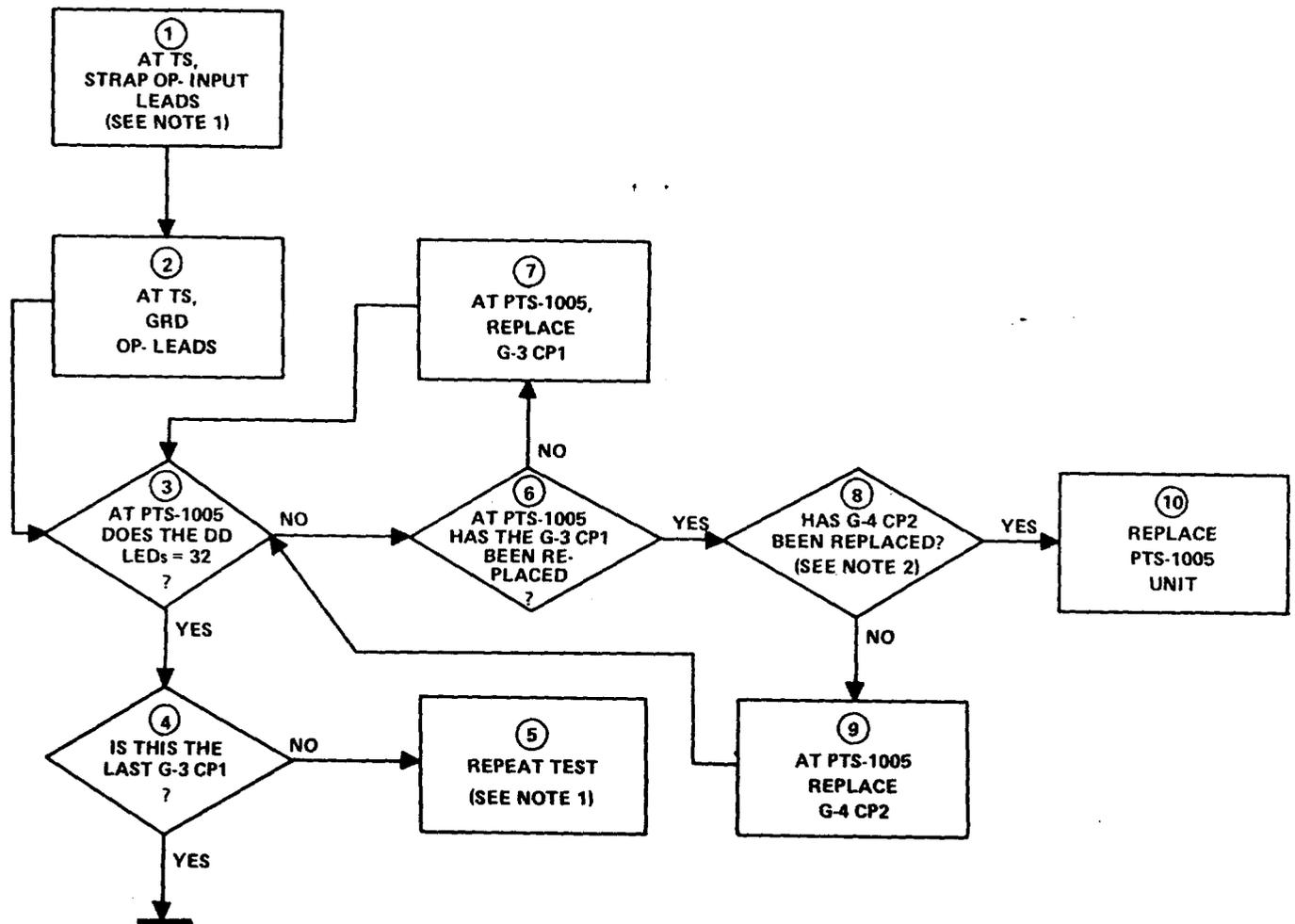


Notes:

1. Before connecting the PTS-1005 unit, verify connecting cable per Western Electric (WE) handbook. Visually inspect the unit connectors and cable plugs to ensure terminals are not shorted or damaged.
2. If verification of a Step (indicated by an encircled number) is not met after replacing circuit packs, replace the PTS-1005 unit.

## CHART B

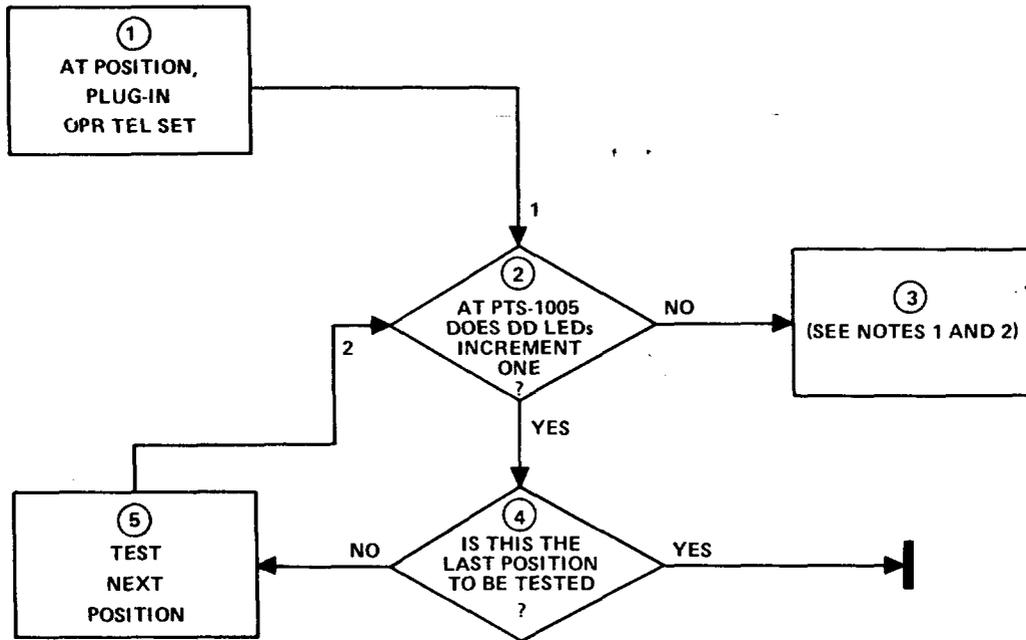
## TEST B



## Notes:

- At Terminal Strip (TS), strap OP- input leads OP1-OP32 for first G-3 Circuit Pack (CP1). Test first CP1.
  - If the PTS-1005 is equipped with a second G-3 CP1, at the TS strap OP-32 to OP-33-64, repeat test. Step ③ digit display should read 64.
  - If the PTS-1005 is equipped with a third G-3 (last CP1), at TS strap OP-64 to OP-65-96, repeat test. Step ③ digit display should read 96.
- Replace the CP1 first if the digit display does not read 32, 64, or 96 when testing 1st, 2nd and 3rd CP1, respectively. Replace the G-4 CP2 next. If verification of Step ③ is not met by replacing circuit packs, replace the PTS-1005 unit.

CHART C  
TEST C



Notes:

1. If the digit display does not increment, the trouble could be caused by either an open or falsely grounded OP- leads. If the digit display increments more than one digit, trouble could be caused by either crossed OP- leads in the cabling or in the PTS-1005 components. Always verify the OP- lead integrity before replacing circuit packs.
2. If verification of Step 2 is not met, replace the following circuit packs one at a time in order shown below, repeating Steps 1 and 2 after each replacement until trouble is cleared.  
G-3-CP1 Register Circuit  
G-4-CP2 Digit Display and Counter Circuit

CHART D

TEST D

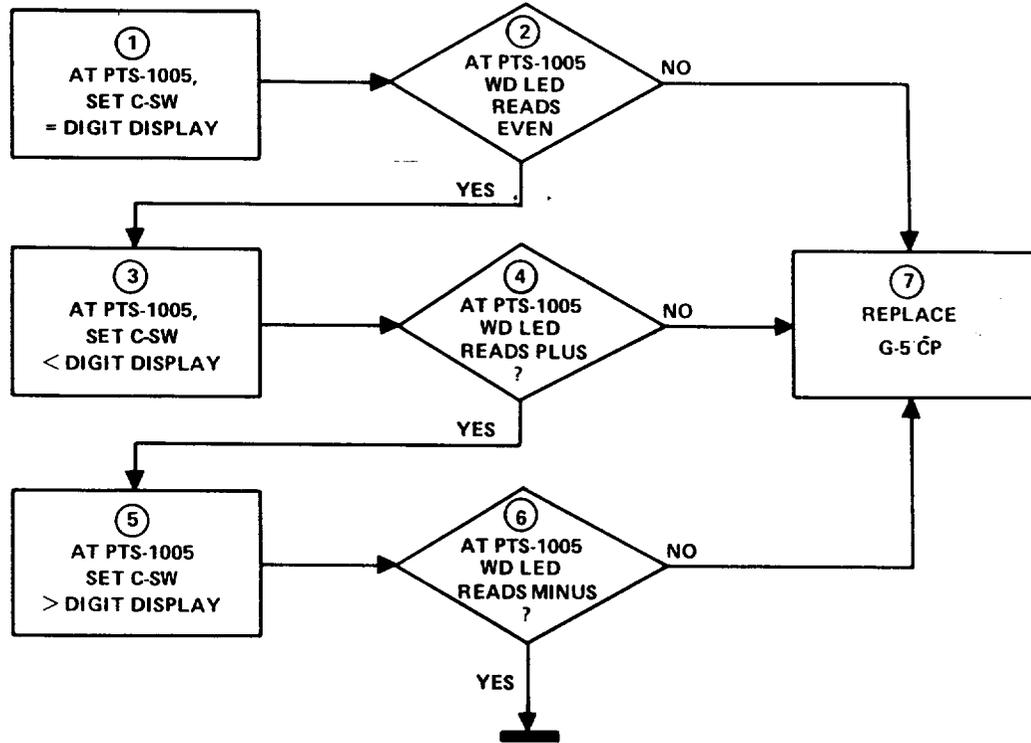


CHART E

TEST E

