

**E2A TELEMETRY**  
**CABLE PRESSURE MONITORING SYSTEM**  
**TELEMETRY-TO-COMPUTER TRANSLATOR AND REMOTE MAINTENANCE**

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used in the Cable Pressure Monitoring System (CPMS). Separate procedures are provided for the telemetry-to-computer translator (TCT) maintenance and the E2A remote maintenance.

**1.02** Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

**1. INTRODUCTION**

**1.01** This section provides the maintenance procedures for the E2A telemetry equipment

**2. TCT MAINTENANCE**

**2.01** A spare TCT should be provided at each CPMS central terminal for maintenance purposes. If a TCT malfunctions, it is replaced with the spare as set forth in Chart 1. The defective TCT is sent to the Western Electric repair center.

**CHART 1**

**REPLACEMENT OF THE TCT**

**APPARATUS:**

None

**STEP**

**PROCEDURE**

- |   |   |
|---|---|
| 1 | Notify the CPMS central operator that the particular TCT is about to be replaced.   |
| 2 | Determine the location of the defective TCT per Section 637-600-400 (all TCT's are located in the data cabinet at the CPMS central terminal). |
| 3 | Disconnect the power cord and the three cables from connectors J1, J2, and J3 on the back of the TCT.   |

CHART 1 (Cont)

STEP	PROCEDURE
4	Slide the defective TCT out of the data cabinet and replace it with the spare unit.
5	Connect the three cables and power cord removed in Step 3 to the spare TCT.
6	Notify the CPMS central operator that the defective TCT has been replaced.

**Note:** The defective TCT should be replaced as soon as possible since each TCT may have many remote stations assigned to it.

3. REMOTE MAINTENANCE

**3.01** The E2A remote can be maintained by either an E-telemetry station test set (KS-20937) or by the CPMS central. If the CPMS central is used, precautions should be taken not to commit the central to maintenance for a prolonged period of time.

**3.02** The E2A remote for CPMS contains seven circuit packs. Each circuit pack is assigned a circuit pack (CP) number and a specific slot within the E2A remote basket. Location codes are stamped on the remote basket for each slot. The circuit pack numbers and location codes are given in Table A.

TABLE A

E2A REMOTE CIRCUIT PACKS

CP NUMBER	LOCATION CODE
1	AM
2	AL
3	AK
4	AF
5	AJ
34	AG
37	AA

A. Utilizing the E-Telemetry Station Test Set

**3.03** E2A remote maintenance is required when the remote does not respond to the central station or responds with incorrect data. If the remote fails to respond, an initial check should be made for correct supply voltages to the remote. The voltages should be measured from the terminal strip at the rear of the remote to ground using a KS-14510-L1 Volt-Ohm-Milliammeter or equivalent. The voltage levels shall be as indicated below:

TERMINAL STRIP	TERMINAL	VOLTAGE LEVEL
TSA	+5	+5 ±0.25 Vdc
TSA	+15	+15 ±1 Vdc
TSA	-15	-15 ±1 Vdc

**3.04** If any of the voltage levels are absent or not within the prescribed limits, consult Section 201-612-201 for the correctional procedures. If the voltage levels are within limits, remote trouble is probably due to circuit pack failure. Chart 2 provides the procedure for isolating defective circuit packs.

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**CHART 2**
**E2A REMOTE MAINTENANCE USING  
THE E-TELEMETRY STATION TEST SET**


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**APPARATUS:**

E-Telemetry Station Test Set (KS-20937, L1)

General Purpose Plug-In (KS-20937, L4)

E2A Test Cable (KS-20937, L6)

**STEP****PROCEDURE**

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- 1 Insert and connect the general purpose plug-in in the E-telemetry station test set.
  - 2 Unplug the remote cable from connector J1 of the 202S data set and plug it into the female end of the E2A test cable. Plug the other end of the E2A test cable into the J1 connector on the back of the E-telemetry station test set.
  - 3 Set the switches on the E-telemetry station test set as indicated below:

SWITCH	POSITION
POWER	OFF
SYSTEM	E2A
PARITY	B
BIT RATE	1200
MODE	CONT
ENABLE	NORMAL
DISPLAY ERROR WORD	OFF
DISPLAY WORD SELECT	1
MESSAGE LENGTH	1
RCU	OFF
WORD 1	01011111111000000
WORD 2 through WORD 4	00000000000000000

CHART 2 (Cont)

STEP	PROCEDURE
4	Set POWER switch to ON.
5	Depress, in order, the MASTER CLEAR and START pushbuttons.  <b>Requirement:</b> The VALID WORD, TMT, and RCV lamps shall blink. If the ERROR WORD lamp blinks or neither lamp blinks, go to Step 10.
6	Hold the TEST switch on CP34 of the E2A remote in the 1 (up) position.  <b>Requirement:</b> RECEIVE lamps 1 through 17 shall light.
7	Hold the TEST switch on CP34 of the E2A remote in the 0 (down) position.  <b>Requirement:</b> RECEIVE lamp 1 shall remain lit, and lamps 2 through 17 shall extinguish.  If the requirements of Steps 6 and 7 are met, continue with Step 8. If either requirement is not met, replace CP24 with a known good spare and repeat this step. If either requirement is not met after CP24 is replaced, go to Step 10.
8	Depress the MASTER CLEAR pushbutton and set the switches on the E-telemetry station test set as indicated below:

SWITCH	POSITION
MESSAGE LENGTH	3
WORD 1	01001111111011111
WORD 2	10011111111000000
WORD 3	10000000000000000
WORD 4	00000000000000000

9	Depress the START pushbutton.  <b>Requirement:</b> If the VALID WORD lamp blinks and the relay on circuit pack HY5 in the CPMS logic and measuring panel operates, go to Step 13. If the ERROR WORD lamp blinks or neither lamp blinks or the relay does not operate, go to Step 10.
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10	Replace all of the following circuit packs with spares:  CP 1
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**CHART 2 (Cont)**


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STEP	PROCEDURE
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CP 2

CP 3

CP 4

CP 5

Remove and inspect CP34 for proper strappings per Note 104 of SD-1C538-01).

11 Repeat Steps 2 through 9.

**Requirement:** If the remote meets the requirements, go to Step 12. If the remote does not, either a spare circuit pack(s) or the backplane wiring is defective. Refer to SD-1C538-01.

12 Determine the defective circuit pack in the following manner. Install the original circuit packs back in the remote, one at a time, performing Steps 2 through 9, after each replacement. If all the requirements for the steps are met, proceed with Step 13. If any requirement is not met, the last originally installed circuit pack is defective and shall be replaced with a spare. Continue this procedure until all the circuit packs have been checked.

13 Disconnect the E2A test cable from the remote cable. Reconnect the remote cable to connector J1 of the data set.

14 Retest the E2A remote from the central terminal by performing the CPMS Acceptance Programs to E2A. These are the Interface 1 test (INF1) and the One-Zero (1/0) test described in Section 637-600-400.

**Requirement:** If the remote fails the test(s), replace CP24 and retest the remote with the INF1 and 1/0 tests.

If the remote passes the INF1 and 1/0 test, the maintenance of the E2A remote is complete. Return the defective circuit packs to the Western Electric repair center.

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**B. Utilizing the CPMS Central**

within proper limits, proceed with Chart 3—E2A Remote Maintenance Utilizing the CPMS Central.

**3.05** The initial tests of the remote are stated in parts 3.03 and 3.04. Once the voltages are

CHART 3

E2A REMOTE MAINTENANCE  
USING CPMS CENTRAL

STEP	PROCEDURE
1	Notify CPMS central operator that maintenance of this E2A remote is required, and verify that the operator is ready to run the Acceptance Test Program.
2	Replace all seven circuit packs (see Table A) with spares. (Spare circuit packs are stored in the J1C013AD spare circuits kit. Ensure that the spare CP34 is strapped per Note 104 of SD-1C538-01.)
3	Request that the central operator perform the CPMS Acceptance Test Programs for E2A. These are the Interface 1 Test (INTF 1) and the One-Zero (1/0) test described in Section 637-600-400.
4	If the central operator indicates that the remote has passed these tests, proceed to Step 5. If not, consult SD-1C538-01 for backplane wiring problems.
5	Locate the defective circuit pack as follows: Remove each circuit pack, one at a time, and replace it with the original circuit pack. Perform the INF1 and 1/0 program test after each replacement, until the remote fails. The last original CP installed is defective and shall be replaced with a spare. Continue this procedure until all of the original CPs have been checked.
6	After the defective circuit pack(s) have been replaced, notify the CPMS central operator that maintenance of the E2A remote is complete.
7	Return the defective circuit pack(s) to the Western Electric repair center.

4. REFERENCES

4.01 The following is a list of Bell System Practices (BSPs), Circuit Descriptions (CDs) and Schematic Drawings (SDs) associated with the maintenance of the TCT and E2A remote.

SECTION	TITLE	DRAWING	TITLE
637-600-050	CPMS—Description and Operation		
637-600-400	CPMS—Maintenance		
		1C538-01	CPMS Application Schematic
103-117-101	E-Telemetry Station Test Set—Description, Operation, and Maintenance	1C535-01	Computer Circuit Interface, Circuit Modules
201-653-103	E2A Telemetry—CPMS—Description	1C542-01	TCT Application Schematic