

**EADAS TRAFFIC DATA CONVERTER (ETDC) SD-3B213-01
TROUBLE LOCATING PROCEDURES**

ENGINEERING AND ADMINISTRATIVE DATA ACQUISITION SYSTEM (EADAS)

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1. GENERAL

1.01 This section describes the methods used for locating troubles in the EADAS Traffic Data Converter (ETDC) from the Central Unit (CU) location via the teletypewriter and the line printer. This section also contains suggested corrective procedures for the troubles. In most cases the corrective procedures take place at the ETDC location.

- 1.02** This issue affects the Equipment Test List.
- 1.03** The procedures in this section are used when the tests in Section 252-115-511 and Section 252-115-512 have failed.
- 1.04** Before any of the procedures in this section are performed, it is important that consideration be given to the data which is blocked while maintenance procedures are being performed.
- 1.05** Refer to Section 252-115-301 for operating procedures.
- 1.06** Refer to Section 252-115-511 for tests of ETDC at CU location.
- 1.07** Refer to Section 252-115-512 for tests of ETDC at ETDC location.
- 1.08** Refer to Section 252-115-514 and Section 252-115-515 for connection verification tests.
- 1.09** For trouble locating procedures of the CU, Refer to Section 252-115-302.
- 1.10** In this section the PROBABLE CAUSE column contains the units or items that are likely to be the trouble. These probable causes are numbered and there is a corresponding numbered suggested corrective procedure listed in the SUGGESTED CORRECTIVE PROCEDURE column.

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2. ETDC DOES NOT RESPOND TO COMMANDS: This procedure isolates the cause of the ETDC not to respond to

commands given locally (at the ETDC), remotely (at the CU), or locally nor remotely.

SYMPTOM	PROBABLE CAUSE	SUGGESTED CORRECTIVE PROCEDURE
Home or Remote ETDC does not respond at all. (To CU nor local commands.)	<ol style="list-style-type: none"> 1. CP9 (AR 641) at affected ETDC 2. CP18 (AR 650) 	<ol style="list-style-type: none"> 1. Replace CP9 and try local commands. 2. Replace CP18.
All ETDCs on a channel respond to local commands but not to CU commands.	<ol style="list-style-type: none"> 1. Data link to CU 2. DSH Data set at home ETDC 3. CP10 (AR 642) at home ETDC 4. CP18 (AR 650) at home ETDC 	<ol style="list-style-type: none"> 1. Check the data link. 2. Follow procedure A in Part 7. 3. Replace CP10. 4. Replace CP18.
Home ETDC responds to all commands, but all Remote ETDCs respond to local commands but not to CU commands. <i>Note: If only one remote ETDC is present, use next procedure</i>	<ol style="list-style-type: none"> 1. CP17(AR649) in home ETDC 	<ol style="list-style-type: none"> 1. Replace CP17
A single Remote ETDC responds to local commands but not to CU commands. Home ETDC performs properly.	<ol style="list-style-type: none"> 1. Data link between home and remote ETDCs. 2. DSR data set at home unit or DSH data set at remote unit. 3. CP10 (AR 642) in remote ETDC. 4. CP18 (AR 650) in remote ETDC. 5. CP17 (AR 649) in home ETDC. 	<ol style="list-style-type: none"> 1. Check the data link 2. Follow procedure A in Part 7. 3. Replace CP10 in remote ETDC. 4. Replace CP18 in remote ETDC. 5. Replace CP17 in home ETDC.
Home or remote ETDC does not respond to TUR control commands (CU or local commands)	<ol style="list-style-type: none"> 1. CP9 (AR 641) 2. CP18 (AR 650) 	<ol style="list-style-type: none"> 1. Replace CP9 2. Replace CP18
Home or remote ETDC does not respond to CU TUR control commands but does respond to local TUR control commands.	<ol style="list-style-type: none"> 1. CP18 (AR 650) 	<ol style="list-style-type: none"> 1. Replace CP18

Home or remote ETDC does not respond to ETDC test commands (CU or local commands)	<ol style="list-style-type: none"> 1. CP9 (AR 641) 2. CP8 (AR 640) 	<ol style="list-style-type: none"> 1. Replace CP9 2. Replace CP8
Home or remote ETDC does not respond to CU ETDC test commands but does respond to local commands.	<ol style="list-style-type: none"> 1. CP18 (AR 650) 	<ol style="list-style-type: none"> 1. Replace CP18

3. **MAINTENANCE TESTS:** This part uses the results of maintenance tests to isolate the cause of troubles in the ETDC.

<p>Fail inhibit test (Fail 1)</p> <p>(a) All or most assigned registers</p> <p>(b) A block of registers associated with one input circuit pack</p> <p>(c) A few registers or single register</p>	<ol style="list-style-type: none"> 1. CP9 (AR 641) 2. CP8 (AR 640) <ol style="list-style-type: none"> 1. Input circuit pack associated with block of registers that failed. <ol style="list-style-type: none"> 1. Circuit pack or packs associated with registers that failed. 2. CP11 (AR643) 3. CP7 (AR639) 4. CP8 (AR650) 5. CP5 (AR637) 	<ol style="list-style-type: none"> 1. Replace CP9 2. Replace CP8 <ol style="list-style-type: none"> 1. Replace associated input circuit pack. (See Table A for locating an input circuit pack.) <ol style="list-style-type: none"> 1. Replace associated circuit pack or packs. (See Table A for locating an input circuit pack.)
<p>Fail busy test (Fail 2)</p> <p>(a) All or most assigned registers (with no conspicuous pattern).</p> <p>(b) A block of registers associated with one input circuit pack. <i>Note:</i> See Part 4 if more than one block of data fails.</p> <p>(c) A few registers or a single register.</p>	<ol style="list-style-type: none"> 1. CP9 (AR 641) 2. CP8 (AR 640) 3. CP11 (AR 643) 4. CP5 (AR 637) <ol style="list-style-type: none"> 1. Input circuit pack associated with block of registers that failed 2. CP4 (AR 636) <ol style="list-style-type: none"> 1. Circuit pack or packs associated with registers that failed 	<ol style="list-style-type: none"> 1. Replace CP9 2. Replace CP8 3. Replace CP11 4. Replace CP5 <ol style="list-style-type: none"> 1. Replace associated input circuit pack. (See Table A for locating an input circuit pack). 2. Replace CP4. <ol style="list-style-type: none"> 1. Replace associated input circuit pack. (See Table A for locating an input circuit pack).

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<p>Fail Inhibit and busy tests (Fail 3)</p>	<p>1. Fail 1 and Fail 2 at the same time.</p>	<p>1. Perform corrective procedures outlined in Fail 1. Repeat maintenance tests. 2. Perform corrective procedures outlined in Fail 2 if necessary.</p>
<p>Fail map test (Fail 4)</p> <p>(a) Data looks like that of another type of input card.</p> <p>(b) No data from single input card.</p> <p>(c) Data from unequipped location.</p>	<p>1. Input circuit pack interchanged with another type pack.</p> <p>1. Missing input card. 2. Busy failure on all inputs on input circuit pack.</p> <p>1. Extra input card.</p>	<p>1. Arrange cards properly.</p> <p>1. Mount input card in vacant slot. 2. Replace defective input circuit pack. (See Table A for locating an input circuit pack).</p> <p>1. Remove extra input card.</p>
<p>Fail inhibit and map tests (Fail 5)</p>	<p>1. Fail 1 and Fail 4 at the same time.</p>	<p>1. Perform corrective procedures for Fail 1 and repeat maintenance test. 2. Perform corrective procedures for Fail 4 if needed.</p>
<p>Fail Busy and map tests. (Fail 6)</p>	<p>1. Fail 2 and Fail 4 at the same time. <i>Note:</i> The busy test can fail in such a manner as to cause the map test to fail also.</p>	<p>1. Perform corrective procedures for Fail 2 and repeat maintenance test. 2. Perform corrective procedures for Fail 4 if needed.</p>
<p>Fail inhibit, busy, and map test (Fail 7)</p>	<p>1. Fail 1, Fail 2, and Fail 4 at the same time.</p>	<p>1. Perform corrective procedures for Fail 1 and repeat the maintenance test. 2. Perform corrective procedures for Fail 2 and repeat the maintenance test. 3. Perform corrective procedures for Fail 4 and repeat the maintenance test.</p>

Busy test failures having consistent failures (Groups of 2, 4, 8, 16, or 32 adjacent registers with score of 0.)	<ol style="list-style-type: none"> 1. CP7 (AR 639) 2. CP4 (AR 636) 3. CP11 (AR 643) 	<ol style="list-style-type: none"> 1. Replace CP7 2. Replace CP4 3. Replace CP11
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4. **DATA ERRORS:** This part locates probable causes of no data or incorrect data being received at the central unit.

SYMPTOM	PROBABLE CAUSE	SUGGESTED CORRECTIVE PROCEDURE
No data being received at the central unit anytime.	<ol style="list-style-type: none"> 1. ETDC in maintenance mode 2. No power at ETDC [PWR INT lamp lighted on CP17 (AR 649)] 3. Missing voltage at ETDC. 4. Data Link 5. Data set 6. CP4 (AR 636) 7. CP5 (AR 637) 8. CP8 (AR 640) 9. CP7 (AR 639) 10. CP11 (AR 643) 	<ol style="list-style-type: none"> 1. Follow procedure B in part 7. 2. Check power by following procedure C in part 7. 3. Follow ETDC turn-on procedure 4. Check data link 5. Follow procedure A in part 7. 6. Replace CP4 7. Replace CP5 8. Replace CP8 9. Replace CP7 10. Replace CP11
Consistent parity errors	<ol style="list-style-type: none"> 1. CP5 (AR 637) 	<ol style="list-style-type: none"> 1. Replace CP5
Inconsistent parity errors	<ol style="list-style-type: none"> 1. Data link 2. Data Set 3. CP5 (AR 637) 	<ol style="list-style-type: none"> 1. Check data link 2. Follow procedure A in part 7. 3. Replace CP5.
Excessive data or unassigned addresses	<ol style="list-style-type: none"> 1. CP5 (AR 637) 2. CP11 (AR 643) 3. CP4 (AR 636) 4. CP7 (AR 639) 5. CP8 (AR 640) 	<ol style="list-style-type: none"> 1. Replace CP5 2. Replace CP11 3. Replace CP4 4. Replace CP7 5. Replace CP8

5. **REMOTE ETDC FAILURE:** This procedure isolates the probable cause of remote ETDC failure to either the home ETDC or remote ETDC.

SYMPTOM	PROBABLE CAUSE	SUGGESTED CORRECTIVE PROCEDURE
Maintenance test failure at home and remote ETDC	<ol style="list-style-type: none"> 1. Failure in home ETDC. 	<ol style="list-style-type: none"> 1. Clear problem in home ETDC first by following procedures in part 2.

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Maintenance test failure at remote ETDC only.	<ol style="list-style-type: none"> 1. See Part 3 for causes of maintenance failures. 2. Data link between home and remote ETDCs. 3. DSR data set at home ETDC or DSH data set at remote ETDC. 4. CP16 (AR 648) in home ETDC. 	<ol style="list-style-type: none"> 1. See Part 3 for procedures to correct maintenance failure conditions. 2. Check data link 3. Follow procedure A in part 7. 4. Replace CP16 (AR 648) in home ETDC.
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6. MISCELLANEOUS CONDITIONS: This part identifies the probable cause of inputs overscoring or underscoring and usage and discrete failure.

SYMPTOM	PROBABLE CAUSE	SUGGESTED CORRECTIVE PROCEDURE
Usage and discrete failures	<ol style="list-style-type: none"> 1. CP8 (AR 640) 2. CP9 (AR 641) 3. CP11 (AR 643) 	<ol style="list-style-type: none"> 1. Replace CP8 2. Replace CP9 3. Replace CP11
Input registers underscore during normal operation	<ol style="list-style-type: none"> 1. CP11 (AR 643) 2. CP7 (AR 639) 	<ol style="list-style-type: none"> 1. Replace CP11 2. Replace CP7

TABLE A

TDC INPUT CARD NO.	ADDRESSES ON PRINTOUT	TDC INPUT CARD NO.	ADDRESSES ON PRINTOUT
0	00000 — 00031	16	00512 — 00543
1	00032 — 00063	17	00544 — 00575
2	00064 — 00095	18	00576 — 00607
3	00096 — 00127	19	00608 — 00639
4	00128 — 00159	20	00640 — 00671
5	00160 — 00191	21	00672 — 00703
6	00192 — 00223	22	00704 — 00735
7	00224 — 00255	23	00736 — 00767
8	00256 — 00287	24	00768 — 00799
9	00288 — 00319	25	00800 — 00831
10	00320 — 00351	26	00832 — 00863
11	00352 — 00383	27	00864 — 00895
12	00384 — 00415	28	00896 — 00927
13	00416 — 00447	29	00928 — 00959
14	00448 — 00479	30	00960 — 00991
15	00480 — 00511	31	RESERVED FOR DISCRETE EVENTS

7. CHECKING PROCEDURES**A. Data Set Check**

The local self test can be performed on the data set as follows.

- (1) Depress and hold the LT key for approximately 15 seconds. All the indicators on the data set faceplate shall remain lighted while the LT key is depressed.
- (2) If the TM indicator is extinguished while LT key is depressed, repeat (1) four additional times. The TM indicator shall not extinguish during any of the four additional trials.
- (3) If the test requirements cannot be met, the data set is defective and shall be replaced.
- (4) If the data set does meet the requirements, report the results to the central unit location.

B. Restore From Maintenance Mode

- (1) If ETDC is not in maintenance mode, the TST lamp on CP11 (AR 643) will be extinguished. This condition shall be reported to the central unit location.
- (2) If the ETDC is in the maintenance mode, the TST lamp on CP11 (AR 643) will be lighted. Remove the ETDC from the maintenance mode and restore as follows:
 - (a) At the ETDC, set the A0 through A3 switches to 0-0-0-0.
 - (b) Operate LT1 switch to LCL.
 - (c) Operate LT2 switch to LCL.
 - (d) Set A0 through A3 switches to 0-0-0-1 respectively.
 - (e) Operate the TST switch to TST. The TST lamp on CP11 (AR 643) should extinguish when switch is operated.

(f) Set switch A0 through A3 switches to 0-0-0-0.

(g) Set LT2 switch to RMT.

(h) Set LT1 switch to RMT.

C. Power Check:

Perform the following procedure step-by-step until the trouble is encountered.

- (1) Check the PWR switch to ensure it is in the on position.
- (2) Using the VOM, check the voltage at terminal (CP-17-104). There should be -48 Vdc present. No voltage indicates bad -48A fuse.
- (3) Using VOM, check the voltage at terminals 16 and 17 of J1 connector (at back of frame).

There should be between +4.8 and +5.2 Vdc present. No voltage or incorrect voltage indicate defective converter.

- (5) Using VOM, check voltage at terminal 40 at 03-19 (at back of frame). There should be between -21.6 and -26.4 Vdc present. No voltage indicates bad -24 fuse or defective dc-dc converter.
- (6) Using VOM, check the voltage at terminal 11 at 03-16 (at back of frame).

There should be between +4.8 and +5.2 Vdc present. No voltage indicates bad PF fuse.

- (7) Using the VOM, check the voltage at terminal 16 at 03-19 (at back of frame). There shall be between -2.8 and -3.2 Vdc present. No voltage indicates faulty CP18.
- (8) Using the VOM, check the voltage between pins 30 and 31 and between pins 31 and 32 of equipped data sets. There shall be +12.2 - +14.8 Vdc present. No voltage indicates bad data set fuse or defective dc-dc converter.