

INTEGRATION PROCEDURES AND TESTS OF EADAS/NM INTERFACES—ENGINEERING AND ADMINISTRATIVE DATA ACQUISITION SYSTEM NETWORK MANAGEMENT

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6. PBC LINK TEST	10	1.01 This section describes methods of performing procedures and tests of the interface links to transmit and receive between the EADAS/NM and the following:	
A. Local Loop-Around	10	• Basic Engineering and Administrative Data Acquisition System (EADAS)	
B. Remote Loop-Around	11	• No. 4A or No. 4M Electronic Translation System (ETS) teletypewriter port (channel 2)	
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- Traffic data converter (TDC) links.

This section provides procedures for isolating portions of the link and associated equipment for testing and verification procedures on new links and links with failures.

1.02 This section affects the Equipment Test List.

1.03 When the EADAS/NM exception system is running, the line check, ETS link, and TCT tests can be performed at the KDP. The ETS test and E2A test can be performed at the DECwriter.*

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1.04 When the exception system is not running, all tests can be run from the DECwriter. However, the tests should be performed from locations designated in tests. The EADAS link test must be run at the DECwriter with the exception system off.

1.05 The procedures covered are:

(a) **E2A Link Test:** This test checks the ability of the E2A telemetry link between the EADAS/NM and the No. 4A or No. 4M ETS, No. 4A or No. 4M card translator and crossbar tandem switching machine to transmit and receive data.

(b) **Traffic Data Converter (TDC) Discretes and Controls Test:** This test checks the ability of the TDC to accept reverse controls from EADAS/NM and to transmit discrete status information from No. 5 crossbar and small crossbar tandem machines.

(c) **4A or 4M/ETS—Channel 2 TTY Link Test:** This test checks the ability of the teletypewriter (TTY) telemetry link (channel 2) between the EADAS/NM and a No. 4A and No. 4M ETS to transmit and receive data. It also checks segments of the link by means of local

and remote loop-around to determine the performance of the segments.

(d) **PBC Link Test:** This test checks the data link and segments of the link between the EADAS/NM and the PBC by means of local and remote loop-around to determine the performance of the segments.

(e) **EADAS Link Test:** This test checks the ability of the telemetry link between EADAS/NM and the basic EADAS to transmit and receive data. It also checks segments of the link by means of local and remote loop-around to determine the performance of the segments.

1.06 If these tests detect a trouble in transmitting or receiving data on the telemetry links, refer to 252-116-302 for trouble sectionalization.

1.07 These tests should be run during light traffic conditions or when a trouble is suspected. Consideration should be given to data lost during testing period.

1.08 **Lettered Steps:** A letter a, b, c, etc, added to a step number in parts 3 through 7 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 PROCEDURE column, and all steps governed by the same condition are designated by the same letter within a part. Where a condition does not apply, all steps designated by a letter should be omitted.

2. APPARATUS

2.01 The following cards and test equipment are used in the test procedures in this section.

- Jumper wire 12 inches long equipped with two alligator clips.
- H315A card.

3. E2A LINK TEST (FIG. 1)

STEP

PROCEDURE

Note: A loop-around test cannot be performed on the E2A link due to the half-duplex design of the E2A Telemetry System. Therefore, the entire link has to be included in the testing.

- 1 At KDP—
To a function response—
Type: **e2a test <return>**

Response: **tct number (0-7)?**
- 2 Type: **(0-7)<return>**
TCTs are numbered 0 through 7. Enter TCT number being tested. TCT (0-7) corresponds to (1-8) in SD-3B230-01.

Response: **e2a address?**
- 3 From office records—
Type: **(0-32) <return>**
E2A addresses are numbered 0 through 32. Enter address number of E2A being tested.

Response: **b**
is exception system running?
- 4 Check with operating personnel to determine if exception system is running.
- 5a If exception system is running—
Type: **y <return>**

Response: **y**
testing/dev/tct w e2a address b enter h for help mode?
- 6b If exception system is not running—
Type: **n <return>**

Response: **n**
testing/dev/tct w e2a address b enter h for help mode?
- 7 Type: **t <return>**

Response: **t**
remote ones/zeros test words received ones test y zeros test y test ended mode?

STEP	PROCEDURE
	<p>Note: y is the number of words received. This number will vary with the type of office (XBT-12, 4ETS-8, 4CT-14).</p>
8c	<p>If remote ones/zeros test fails, the probable cause is as follows—</p> <ul style="list-style-type: none"> ● Data link failure ● TCT failure ● Remote E2A unit failure <p>Rerun test at DECwriter to verify failure.</p> <p>Note: Step 9 (reverse control test) can be performed only if the E2A remote is equipped with option y of SD-3B233-01 or SD-3B234-01.</p>
9	<p>Type: c <return></p> <p>Response: c reverse control test test ended mode?</p>
10d	<p>If reverse control test fails, the probable cause is as follows—</p> <ul style="list-style-type: none"> ● Data link failure ● TCT failure
11	<p>Type: p <return></p> <p>Response: 8 words 0 40 0 0 1 0 0 122130</p> <p>Note: This example illustrates discrettes being received from the office being tested. To decode this message, each word must be rewritten in its binary equivalent, then the SS-number formed from the word-bit combination as shown in Table B. Each SS-number then corresponds to a signal shown in the CAD 1 figures of either SD-3B233-01 or SD-3B234-01 as shown in Table B.</p>
12e	<p>If the poll test fails, the probable causes are as follows—</p>

STEP	PROCEDURE
	<ul style="list-style-type: none"> ● Data link failure ● TCT failure
13	<p>Type: v <return></p> <p>Response: warning!!!! this test may activate switching controls which affect traffic.</p> <p>Note: Enter 1 to close, 0 to open.</p>
14	<p>Type: 1 <return></p> <p>Response: Relay number (card-relay)</p> <p>Note: Relay numbers are labeled CC-numbers on CAD 1 of SD-3B233-01 or SD-3B234-01. Determine which relay is to be tested and type in that number.</p>
15	<p>Type: (a-b) <return> (a-b) is relay number from CAD 1 of SD-3B233-01 or SD-3B234-01.</p> <p>Response: ok mode?</p>
16	Repeat Step 11 (the p test) to verify receipt of the associated discrete. This is verification that the control went in.
17	Repeat Steps 13 through 15 except type 0 in Step 14. This will remove control. Verify this by performing Step 11 (p test).
18	Verify all controls cabled to the E2A remote unit under test by repeating Steps 13 through 17 for each control.

4. TRAFFIC DATA CONVERTER (TDC) DISCRETES AND CONTROLS TEST

STEP	PROCEDURE
	<p>Note: The TDC links directly to the EADAS central unit which in turn links to the EADAS/NM central unit (Fig. 16). Therefore, ensure that the TDC to EADAS and EADAS to EADAS/NM links are in operation and functioning properly. For testing information see Section 252-115-516—Channel Definition and Validation, and tests in Part 6 of this section.</p>
1	<p>At EADAS/NM KDP in response to function— Type: tdctest <return></p>

STEP

PROCEDURE

Response: **tdc reverse control and discrete**
test version x
eadas number (0-5)

- 2 Type: **(0-5) <return>**
 (0-5) = EADAS channel number (consult office records).

Response: **tdc channel (0-99)**

- 3 Type: **(0-99) <return>**
 (0-99) = TDC channel number (consult office records).

Response: **testing eadas (0-5) tdc channel (0-99)**
enter h for help
mode?

- 4 Type: **h <return>**

Response: **h---help**
p---poll
m---master clear
v---verify individual controls
x---exit
mode?

- 5 Type in: **p <return>**

Response: **aaaaaa**
bbbbbb
cccccc
dddddd
mode?

Note: The above four words must be decoded using Table C. These words will show which P-numbers in SD-3B234-01 or SD-3B235-01 have active discretetes (1 = on, 0 = off). Use Table C to analyze which discretetes are active. Compare the discretetes with known controls in the office during the time the poll was conducted. All discretetes should be explainable.

- 6 Type: **v <return>**

Response: **(warning message)**
enter 1 to operate 0 to release

- 7 Type: **1 <return>**

Response: **relay number (0-63)**

STEP	PROCEDURE
8	Type: (0-63) (0-63) is relay number as chosen from SD-3B234-01 or SD-3B235-01 (designated as RC-number) Response: ok mode?
9	Perform Step 5 (p test) to verify receipt of the associated discrete. This is verification the control was received.
10	Remove the control using Steps 6 through 8 (v test) and verify its removal with Step 5 (p test).
11	Continue with the v and p tests and verify all controls cabled to the TDC under test.
12	To remove all controls cabled to the TDC under test— Type: m <return>
13	To exit from the TDCTEST— Type: x <return>

5. 4A OR 4M/ETS—CHANNEL 2 TTY DATA LINK TEST

STEP	PROCEDURE
A. Local Loop-Around (Fig. 2)	
1	Place jumper wire on pin 3 and pin 10 of local 108D data set of link being tested.
2	At KDP console— Type: etslop <return> Response: this is an ets line 'loop test'. the transmit leads must be looped back onto the receive leads between the dh11 and the data set on the ets link being tested. if the loop around has not been inserted this test should be terminated. has the loop around been inserted? (y or n)
3	Type: y <return> Response: tty number?
4	Type: (0-15) <return> 0 through 15 are the channel numbers assigned and can be taken from office records.

STEP	PROCEDURE
	Response: type in character string < = 25 characters
5	Type: abcde <return> After approximately 5 seconds— Response: abcde Note: This response signifies passage of test.
6a	If no response received or open failed is received, test failed. Probable causes of test failure are as follows— <ul style="list-style-type: none"> • DH11 optioned incorrectly or malfunctioned. • Local data set failure or optioned incorrectly. (See SD-3B230-01 for data set options.)
7	Remove jumper from 108D local data set.
	B. Remote Loop-Around (Fig. 3)
1	Place a jumper wire on pin 3 and pin 10 of remote 108E data set connector of data link being tested.
2	At KDP console— Type: etslop <return> Response: this is an ets line 'loop test'. the transmit leads must be looped back to the receive leads between the dh11 and the data set on the data link being tested. if the loop around has not been inserted this test should be terminated. has the loop around been inserted? (y or n)
3	Type: y <return> Response: tty number?
4	Type: (0-15) <return> 0 through 15 are the channel numbers assigned and can be taken from office records. Response: type in character string < = 25 characters
5	Type: abcde <return> After approximately 5 seconds— Response: abcde Note: This response signifies passage of test.

STEP	PROCEDURE
6a	If no response received or open failed is received, test failed. Probable causes of test failure are as follows— <ul style="list-style-type: none"> <li data-bbox="472 432 829 459">● DH11 optioned incorrectly. <li data-bbox="472 495 716 522">● Data link failure. <li data-bbox="472 558 1588 585">● Remote data set failure or optioned incorrectly. (See SD-3B230-01 for data set options). <p data-bbox="407 621 1555 680">Note: If a message such as open failed is received, then perform ETS program outlined in Steps 7a through 11.</p>
7a	Type: ets <return> Response: ets number?
8a	Type: (number of ets under test) <return > Response: add or delete?
9a	Type: a <return> Response: function?
10a	Repeat Steps 2 through 5.
11	Remove jumper from remote 108E data set.
C. End-to-End (Fig. 4)	
1	Repeat Steps 1 through 5 of 5(B) to verify failure. Note: Test will produce failure due to jumper being removed and answering y (yes) to Step 3.
2	At KDP console— Type: etstest <return> Response: ets tty number?
3	Type: (0-15) 0-15 are the numbers assigned to ETS TTYs. At KDP and at ETS TTY— Response: the quick brown fox jumped over the lazy dogs \$/-'01234567890
	Note: This response signifies passage of test.

STEP	PROCEDURE
4a	If no response received or open failed is received, test failed. If test fails, check channel 2 TTY buffer circuit operation (SD-68642-01) and local TTY operation.

6. PBC LINK TEST

STEP	PROCEDURE
	A. Local Loop-Around
1	At data set associated with the data link of the PBC to be tested— Operate AL key.
2	At KDP— Type: linechk <return>
	Response: pbc line (0-15)=
3	Type: (0-15) <return> (0-15) are line identification numbers assigned to PBCs. Enter number of PBC being tested.
	Response: is exception system running? Answer y or n.
4	Check with operating personnel to determine if exception system is running.
5a	If exception system is running— Type: y <return>
	Response: is pbc (0-15) on line?
	Note: If n is typed in Step 5a, test will terminate.
6	Type: n <return>
	At DECwriter—
	Response: 401
	404xx
	xxxxx
	xxxxx
	n = the DH11 number (0 or 1) m = the remainder (0-7) after dividing PBC number (0-15) by 8. (Example: If PBC number = 13 then n = 1 and m = 5).
	pattern received for dh11 n line m 401

STEP

PROCEDURE

Response: **404xx**
xxxxx
xxxxx

Note: When test is executed and received message words are identical to the transmitted message data, the test succeeds.

7b If test fails—
 Return equipment to Fig. 6 configuration and rerun Steps 2 through 6. Other probable causes are:

- 202T data set failure or optioned incorrectly.
- Incorrect options on DH11, or DH11 port cabled to wrong data set.

Note: If a message such as **open failed** is received, then perform ETS program outlined in Steps 8 through 12.

8 Type: **ets** <return>

Response: **ets number=**

9 Type: **(e)** <return>
 e = number of ETS under test.

Response: **add or delete?**

10 Type: **a** <return>

Response: **function?**

11 Repeat Steps 2 through 6.

12 At data set referenced in Step 1—
 Release AL key.

B. Remote Loop-Around

1 At 202T data set at PBC location—
 Operate RT key..

2 Repeat Steps 2 through 6 of Local Loop-Around Test (A).

3 If test fails—

- Remote 202T data set failure or optioned incorrectly.
- Data link failure.

STEP

PROCEDURE

C. End-to-End

- 1 Ensure that PBC generic PG68500 Issue 4.1 or later is being used.
- 2 Ensure that the DCU of the PBC has a value of 1. To check this, perform Step 3a.

3a If DCU value of PBC is to be checked—
At PBC machine—

Type: **ver: core:ud,544,1, <return>**

Response: **030402**

Note: This is interpreted to a DCU value of 1 as follows: 030402 (octal) = 0 011 000 100 000 010 (binary). The first 8 digits of the binary number convert to 61 octal (the last 8 digits do not matter). Octal 61 converts to ASCII 1.

- 4 To enable the EADAS/NM channel, at the PBC machine—

Type: **enbl: dport: eadas <return>**

Response: **ok**

- 5 Type: **ver core:kd 174100 4 <return>**

Response: **175 (or 135)**

xxx

xxx

xxx

- 6b If a 175 or 135 is not the first word of the response in Step 5—
Repeat Steps 4 and 5 two or three times until a 175 (or 135) is printed.

Note: A 171 or 131 indicates data link failure.

- 7 At KDP—

Type: **linechk <return>**

Response: **pbk (0-15) =**

- 8 Type: **(0-15) <return>**
(0-15) is identification number of the PBC line being tested.

Response: **is exception system running?**

- 9 Repeat Steps 2 through 6 of Local Loop-Around Test (A)

- 10c If test fails—

- Repeat Steps 1 through 6b.

STEP	PROCEDURE
	<ul style="list-style-type: none"> ● 202T data sets (local and remote) failure or optioned incorrectly. ● Check vector address strapping and DC11 interface per SD-68746-01. ● Perform diagnostic service on DC11. ● Check cable between 202T data set and DC11.

7. EADAS LINK TEST

STEP	PROCEDURE
	<p>A. Local Loop-Around Conducted From EADAS/NM (Fig. 9) (DQ Test)</p>
1	Check with office personnel to see if exception system is running.
2a	If exception system is running— Secure approval from office personnel for stopping exception system.
3	Obtain H315A card from DEC supplied equipment and insert it in cord from DQ11 associated with channel being tested.
4a	After securing permission to stop exception system— At DECwriter— Type: stop <return> Response: ex 999 system termination complete function=
5	Type: dqmsg <return> Response: loop test from eadas/nm to eadas via dq11 channel number (0-5)=
6	Type: (0-5) <return> (0-5) is the EADAS being tested. Response: dqmsg: fd = (2 or 3) message from channel (0-5) dq msg: fd (2 or 3) channel (0-5) enter 'stop' to terminate test enter test message
7	Type: abcdefg <return>

STEP	PROCEDURE
	Response: tx ok message from channel (0-5) abcdefg enter test message
8	Type: stop <return> Response: test terminated function:
9b	If response in Step 7 is not received— <ul style="list-style-type: none"> ● Check DQ11 clock straps per Fig. 10 for null modem option. ● Perform diagnostic service of DQ11.
	B. Local Loop-Around Conducted From EADAS (Fig. 9) (DQ Test)
1	At EADAS location— Plug H315A card into cord from DQ11 at EADAS location.
2	At EADAS teletypewriter— Type: nm:abcdefg!
	Response: nm>abcdefg
3a	If response in Step 2 not received— <ul style="list-style-type: none"> ● Check DQ11 clock straps per Fig. 10 for null modem option. ● Perform diagnostic service of DQ11.
	C. Local End-To-End Conducted From EADAS/NM (Fig. 11)
1	Check with office personnel to see if exception system is running.
2a	If exception system is running— Secure approval from office personnel for stopping exception system.
3a	At DECwriter— Type: stop <return>
	Response: ex 999 system termination complete function =
4	Type: dqmsg <return>

STEP	PROCEDURE
5	<p>Response: loop test from eadas/nm to eadas via dq11 channel (0-5)</p> <p>Type: (0-5) (0-5) is channel number of EADAS being tested.</p> <p>Response: dqmsg: fd = (2 or 3) message from channel (0-5) dqmsg: fd (2 or 3) channel (0-5) enter 'stop' to terminate test enter test message</p>
6	<p>Type: abcdefg <return></p> <p>At EADAS teletypewriter— Response: nm>abcdefg</p>
7b	<p>If response in Step 6 is not received—</p> <ul style="list-style-type: none"> • Cabling problem. • Check DQ11 clock straps per Fig. 10 for null modem option. • Perform DQ diagnostic service.
D. Local End-to-End Conducted From EADAS (Fig. 11)	
Note: To perform the following steps, the DQMSG program must be running in EADAS/NM.	
1	<p>At EADAS teletypewriter— Type: nm:abcdefg!</p> <p>At EADAS/NM DECwriter— Response: ok abcdefg</p>
2a	<p>If response in Step 1 not received—</p> <ul style="list-style-type: none"> • Cabling problem. • Check DQ11 clock straps per Fig. 10 for null modem option. • Perform DQ diagnostic service.
E. Local Loop-Around Conducted From EADAS/NM When 209A Data Set is Provided (Fig. 12)	
1	<p>At EADAS/NM— Depress AC button on data set associated with link under test.</p>

STEP	PROCEDURE
	<p>Note: Prior to performing this portion of the test, the DQ11 clocks on EADAS and EADAS/NM must be optioned per Fig. 10 for the 209A data set provided option.</p>
2	Perform Steps 1 through 8 of Test A.
3a	If response in Step 7 not received—
	<ul style="list-style-type: none"> ● Check for data set failure. ● Check for DQ failure or optioned incorrectly.
4	Release AL button on 209A data set.
	F. Local Loop-Around Conducted From EADAS When 209A Data Set is Provided (Fig. 12)
1	At EADAS location— Depress AL button on 209A data set associated with link being tested.
2	At EADAS teletypewriter— Type: nm: this is a test!
	Response: nm > this is a test
3a	If response in Step 2 not received—
	<ul style="list-style-type: none"> ● Check for data set failure. ● Check for DQ failure or optioned incorrectly.
4	Release AL button on 209A data set.
	G. Remote Loop-Around Conducted From EADAS/NM When 209A Data Set is Provided
1	At EADAS location— Depress DL button on 209A data set associated with link being tested.
	Note: Prior to performing this portion of the test, the DQ clocks on EADAS and EADAS/NM must be optioned per Table A for the 209A data set provided option.
2	Perform Steps 1 through 8 of Test A.
3	If response in Step 7 of Test A not received—
	<ul style="list-style-type: none"> ● Check for data set failure. ● Check for DQ failure or optioned incorrectly. ● Check for data link failure.

STEP	PROCEDURE
4	At EADAS location— Release DL button on 209A data set operated in Step 1.
	H. Remote Loop-Around Conducted From EADAS When 209A Data Set is Provided (Fig. 14)
1	At EADAS/NM location— Operate DL button on 209A data set associated with link being tested.
2	At EADAS teletypewriter— Type: nm: this is a test!
	Response: nm > this is a test
3a	If response in Step 2 not received— <ul style="list-style-type: none"> ● Check for data set failure. ● Check for DQ failure or optioned incorrectly. ● Check for data link failure.
4	At EADAS/NM location— Release DC button on 209A data set operated in Step 1.
	I. End-to-End Conducted From EADAS/NM When 209A Data Set is Provided (Fig. 15)
1	Perform Steps 1 through 6 of Test A.
2	At EADAS/NM DECwriter— Type: abcdefg <return>
	Response: nm < abcdefg
3a	If response in Step 2 not received— <ul style="list-style-type: none"> ● Check cabling. ● Check DQ11 clock straps per Fig. 10 for null modem option. ● Check data link. ● Perform DQ diagnostic service.
	J. End-to-End Conducted From EADAS When 209A Data Set is Provided (Fig. 15)
	Note: To perform the following test, the DQMSG program must be running in EADAS/NM.
1	At EADAS teletypewriter— Type: nm: this is a test!

STEP	PROCEDURE
	At EADAS/NM DECwriter— Response: ok this is a test
2a	If response in Step 1 not received— <ul style="list-style-type: none"> ● Check for cabling problem. ● Check DQ11 clock straps per Fig. 10 for null modem option. ● Check for data link failure. ● Perform DQ diagnostic service.

TABLE A
DATA SET OPTIONS

108 DATA SETS

"A" SCREW SWITCH SETTING			
OPTION	FUNCTION	CLOSE (CW)	OPEN (CCW)
Y	2-WIRE	2-3	1-2, 3-4

FACEPLATE SWITCH SETTINGS			
OPTION	FUNCTION	SWITCH	POSITION
Y	DUPLEX OPERATION	DX	F
V*	SPACE HOLD ON TL	TL	S
U**	MARK HOLD ON TL	TL	M
		RL	DON'T CARE

* Use Option V for 108D (CCU end)

** Use Option U for 108E (ETS end)

TABLE A (Cont)

202T DATA SETS

202T OPTIONS FOR PBC									
<u>S3 SWITCH CONTACT SETTINGS</u>									
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>0</u>
0	0	X	X	0	0	0	X	X	X
<u>S2 SWITCH CONTACT SETTINGS</u>									
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>0</u>
X	0	0	X	0	0	0	X	0	0
OPTION STRAPPING					E24-E25				
INSTALL E22-E23									
202T OPTIONS FOR E2A									
<u>S3 SWITCH CONTACT SETTINGS</u>									
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>0</u>
0	0	X	X	0	0	0	X	X	X
<u>S2 SWITCH CONTACT SETTINGS</u>									
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>0</u>
X	0	0	X	0	0	0	X	0	X
OPTION STRAPPINGS					E25-E26				
INSTALL E21-E23									
202T OPTIONS FOR DATASPEED 40									
<u>S3 SWITCH CONTACT SETTINGS</u>									
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>0</u>
X	X	0	0	X	0	X	0	0	0
<u>S2 SWITCH CONTACT SETTINGS</u>									
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>0</u>
0	0	0	X	0	0	X	X	0	0
OPTION STRAPPING					E25-E26				
INSTALL E22-E23									
OPTION ON "DAUGHTER BOARD"									
E21-E23									

Note: The 202T Data Sets at both ends of the link have the same options.

TABLE A (Cont)

209A DATA SETS

OPTION	FUNCTION	REMOVE		ADD	
		SWITCH	POSITION	SWITCH	POSITION
YC	TIMING	S6	3	S6	2
YM	DSR ON IN AL	S6	8	S5	1
WJ	SLAVE OUT	S6	5	S6	4
WB	STORE OUT	S2	1	S3	4
WD	STORE OUT	S2	3	S3	6
WF	STORE OUT	S2	5	S2	4
WH	STORE OUT	S2	7	S2	8
XI	CONT. CARRIER	S5	3 or 6 or 7	S5	8
YI*	DAS USED	S3	8	S6	6
YJ*	DAS NOT USED	S6	6	S3	8
YX	HOLDER IN	S5	4	S5	5

* TELCO choice.

TABLE B

WORD	OCTAL	BINARY	SS-NUMBER OF DISCRETE
1	0	0	NONE
2	40	100 000	2-6
3	0	0	NONE
4	0	0	NONE
5	1	1	5-1
6	0	0	NONE
7	0	0	NONE
8	122130	001 010 010 001 011 000	8-4 8-5 8-7 8-11 8-14 8-16

Note: The first number of the SS-number is the word number (first column in table) and the second number is the position, counting from the right, of the 1(s) in the Binary number (third column in table).

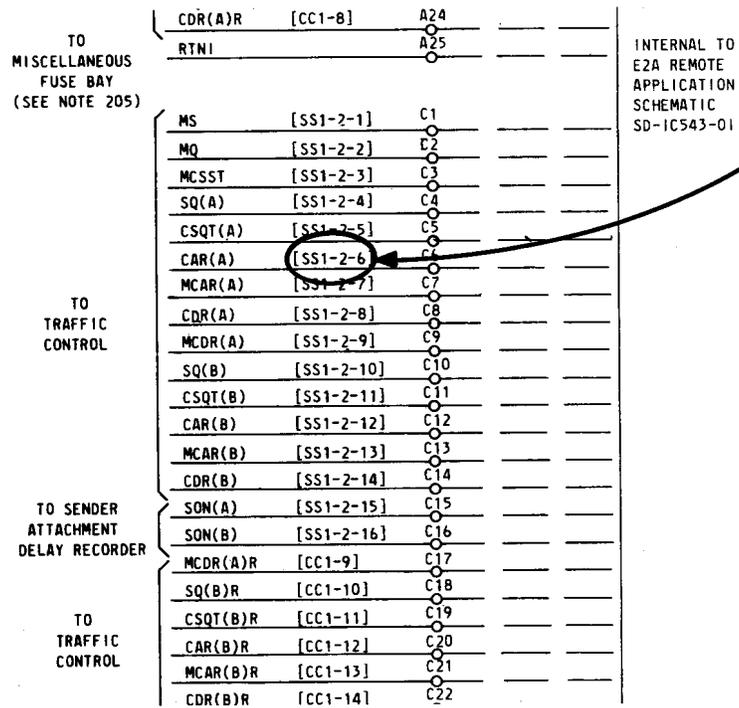


TABLE C

POLL TEST EXAMPLE

<p>Word 1 (example)</p>	<p>1 ┌───┐ 1 ↑ P992 (ON)</p>	<p>2 ┌───┐ 010 ↑ P993 (OFF)</p>	<p>3 ┌───┐ 011</p>	<p>4 ┌───┐ 100</p>	<p>5 ┌───┐ 101</p>	<p>7 ┌───┐ 111 ↑ P1007 (ON)</p>
<p>Word 2 (example)</p>	<p>0 ┌───┐ 0 ↑ P992 (OFF)</p>	<p>1 ┌───┐ 001 ↑ P993 (OFF)</p>	<p>2 ┌───┐ 010</p>	<p>3 ┌───┐ 011</p>	<p>4 ┌───┐ 100</p>	<p>5 ┌───┐ 101 ↑ P1007 (ON)</p>
<p>Word 3 (example)</p>	<p>1 ┌───┐ 1 ↑ P992 (ON)</p>	<p>5 ┌───┐ 101 ↑ P993 (ON)</p>	<p>4 ┌───┐ 100</p>	<p>3 ┌───┐ 011</p>	<p>2 ┌───┐ 010</p>	<p>0 ┌───┐ 000 ↑ P1007 (OFF)</p>

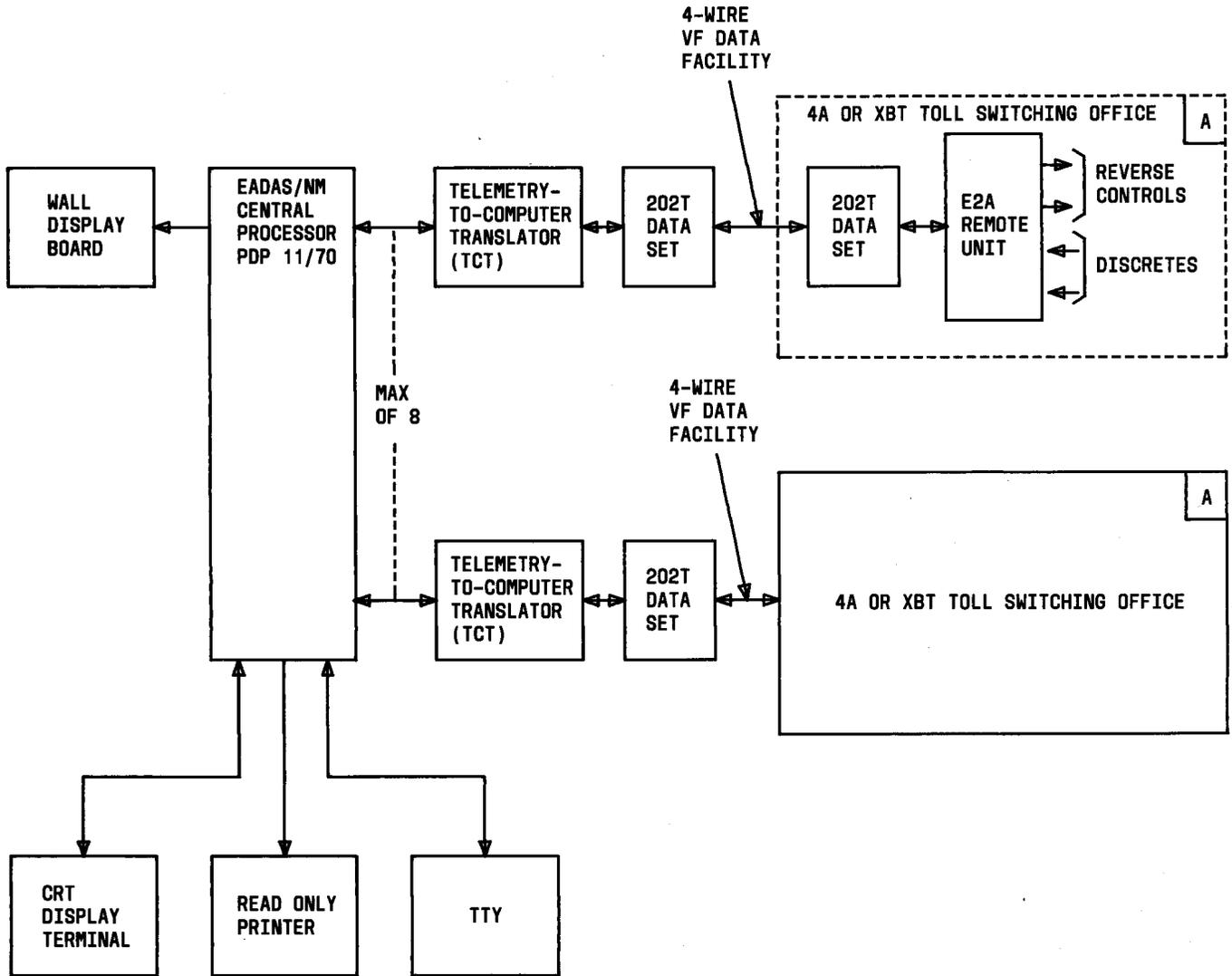


Fig. 1-E2A Data Link

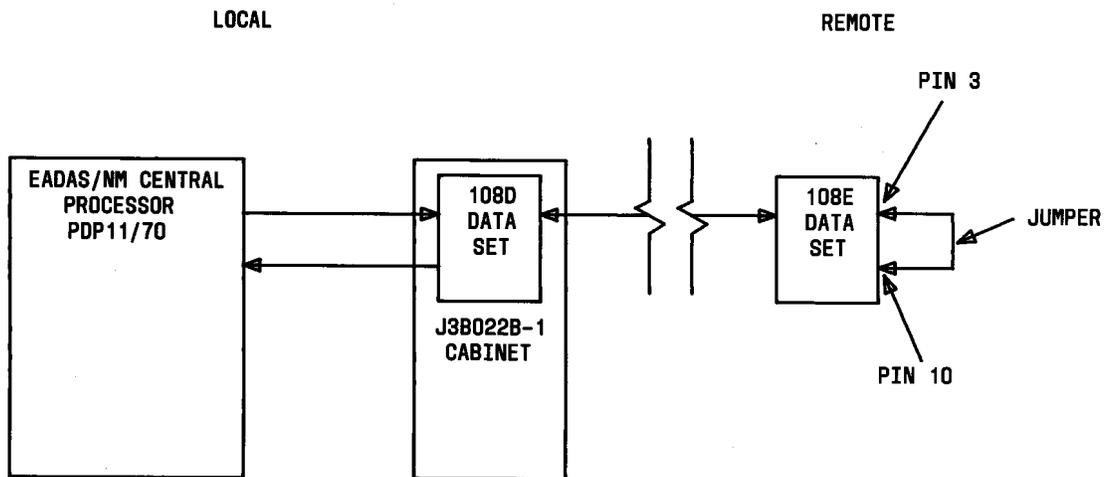


Fig. 2—Remote Loop-around on 4A or 4M/ETS Channel 2 TTY

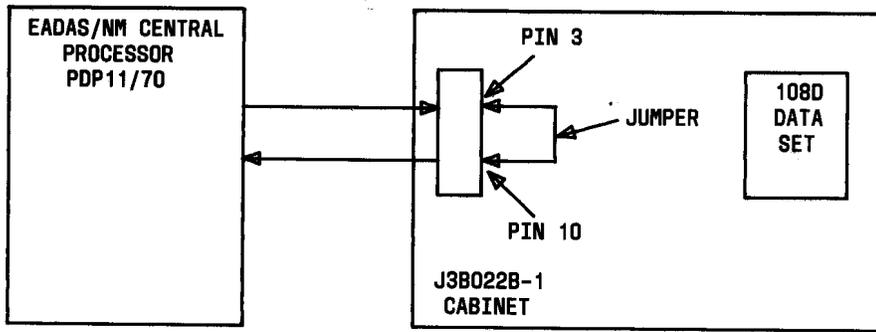


Fig. 3—Local Loop-Around on 4A or 4M/ETS Channel 2 TTY Data Link

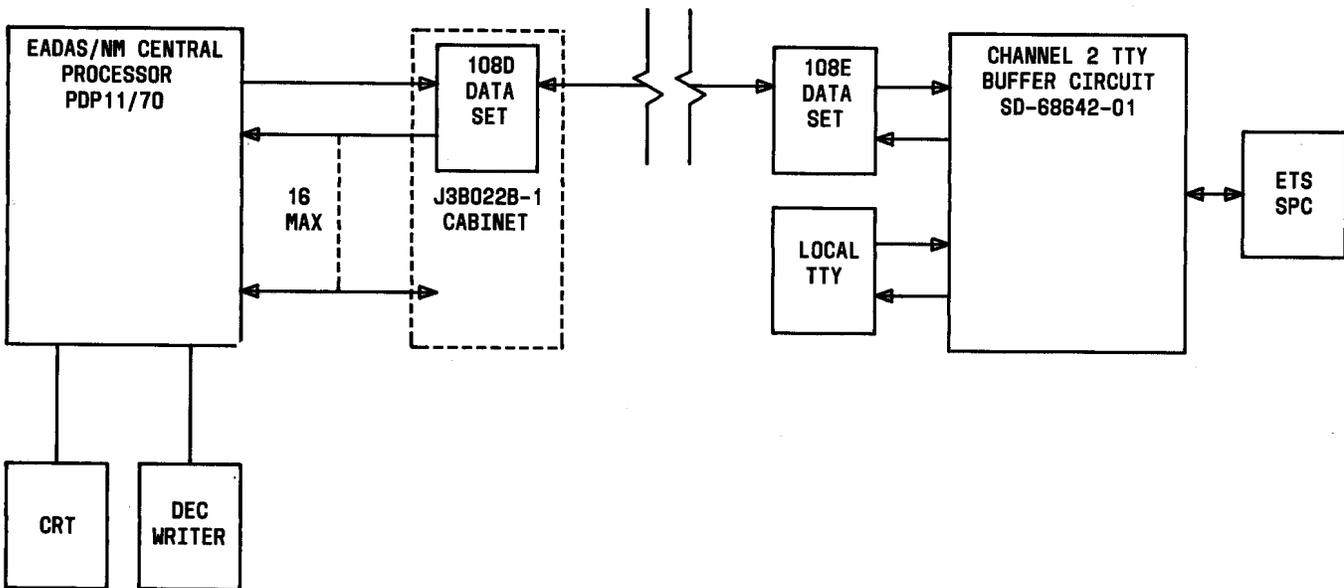


Fig. 4—End-to-End Test on 4A or 4M/ETS Channel 2 TTY Data Link

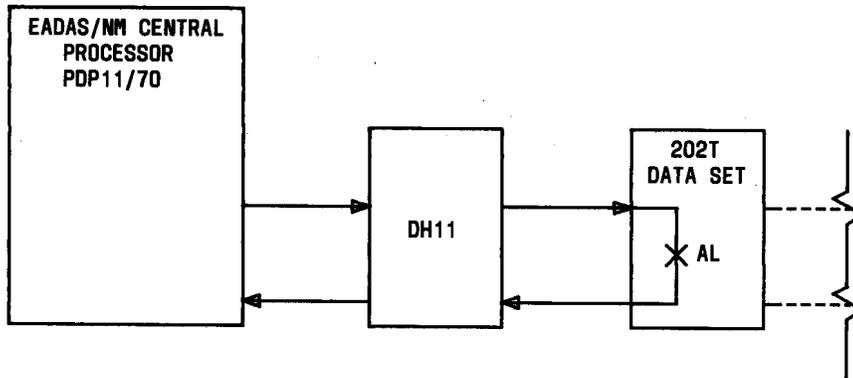


Fig. 5—Local Loop-Around Via AL Button on Local 202T Data Set in the PBC Data Link

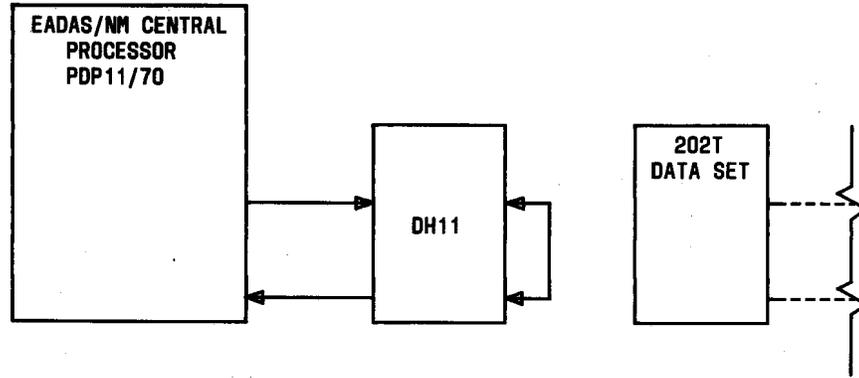


Fig. 6—Local Loop-Around in PBC Data Link

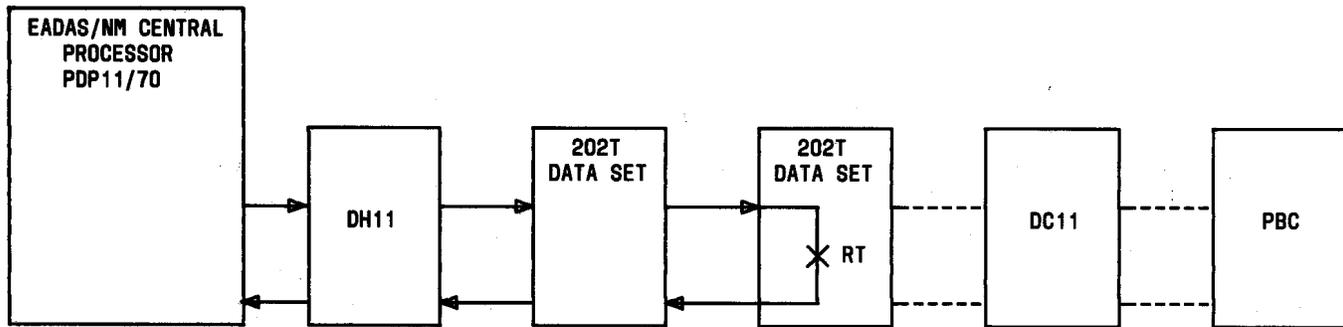


Fig. 7—Remote Loop-Around Via AL Button on Remote 202T Data Set in the PBC Data Link

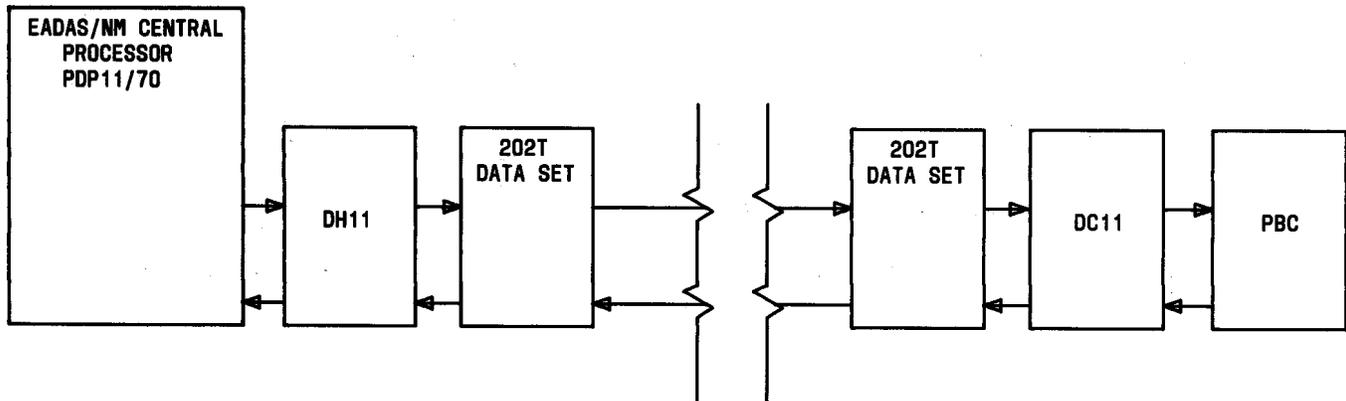


Fig. 8—End-to-End Test on PBC Data Link

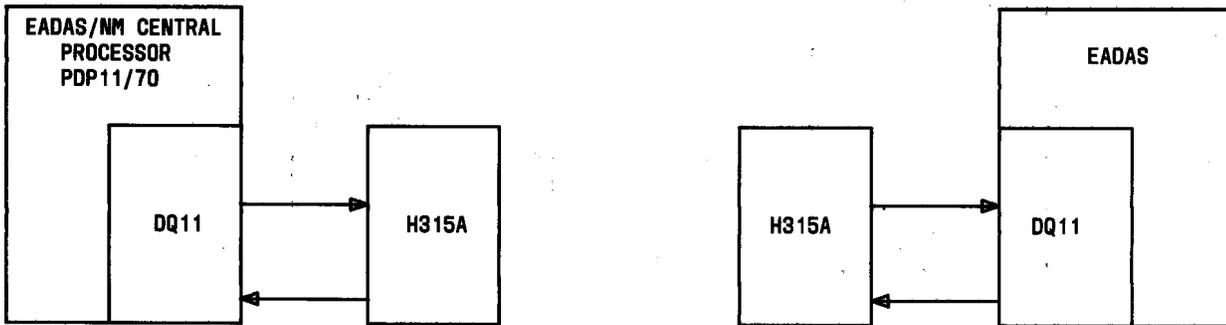


Fig. 9—Local Loop-Around in EADAS Data Link

BOARD M7812	
NULL MODEM	209A DATA
PROVIDED	SET PROVIDED
SW1 ON	SW1 OFF
SW2 OFF	SW2 OFF
SW3 ON	SW3 OFF
SW4 OFF	SW4 OFF
SW5 OFF	SW5 ON

BOARD M7813
SW 1 ON SW2 ON SW3-SWB OFF
BOARD M7815
ALL JUMPERS IN
BOARD M7818
ALL OFF

Note: The DQ11-KA clock is equipped regardless of whether the 209A data set is equipped. However, the options on board M7812 provide for use of the DQ11-KA clock only when the data set is not provided. When the data set is provided, the data set clock provides the transmit timing for the DQ11-DA.

On the DQ11-KA clock board (M4050), all jumpers must be provided except jumpers W7 and W8 (SD-3B237-01) which must be removed. This provides for 9600 baud operation.

Fig. 10—Strapping Options and Switch Setting Options Which Must be Provided on the DQ11-DA Interface

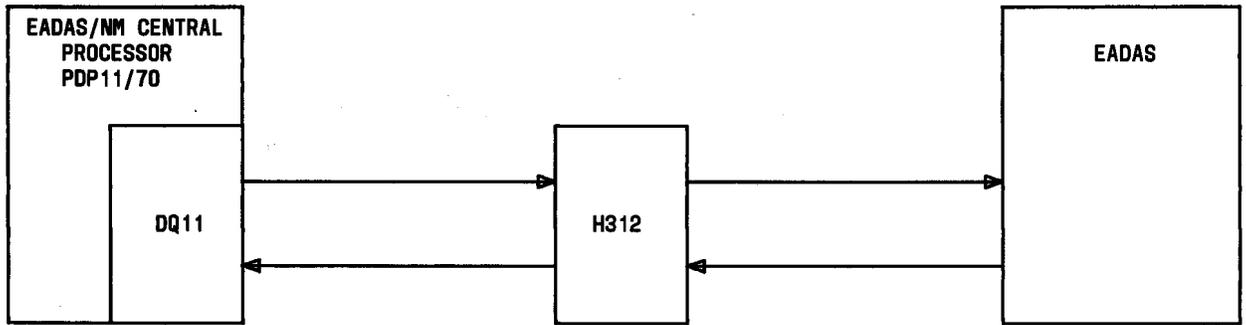


Fig. 11—Local End-to-End in EADAS Data Link

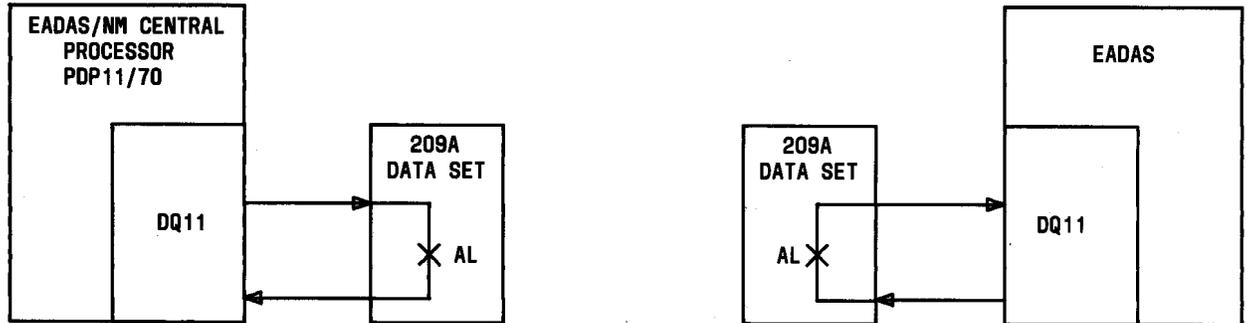


Fig. 12—Local Loop-Around Via AL Button on 209A Data Set in EADAS Link

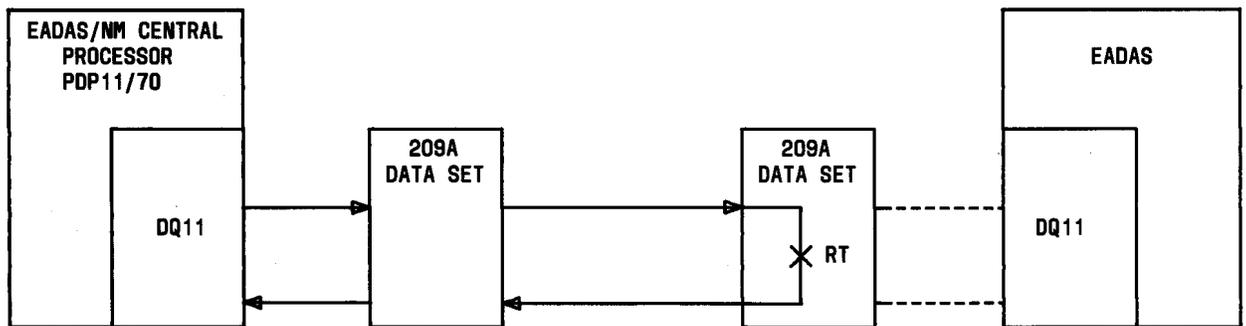


Fig. 13—Remote Loop-Around at EADAS/NM Via RT Button on 209A Data Set at EADAS Location

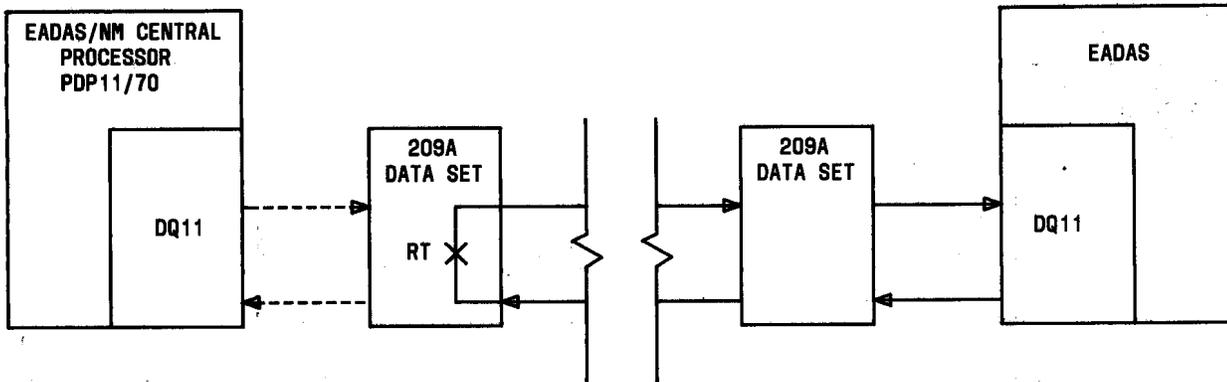


Fig. 14—Remote Loop-Around at EADAS Via RT Button on 209A Data Set at EADAS/NM on EADAS Link

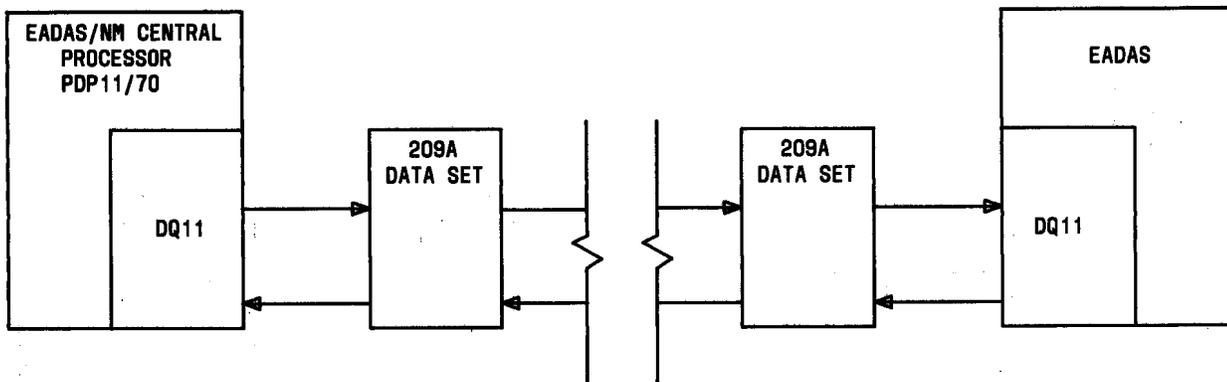


Fig. 15—End-To-End Test on EADAS Link

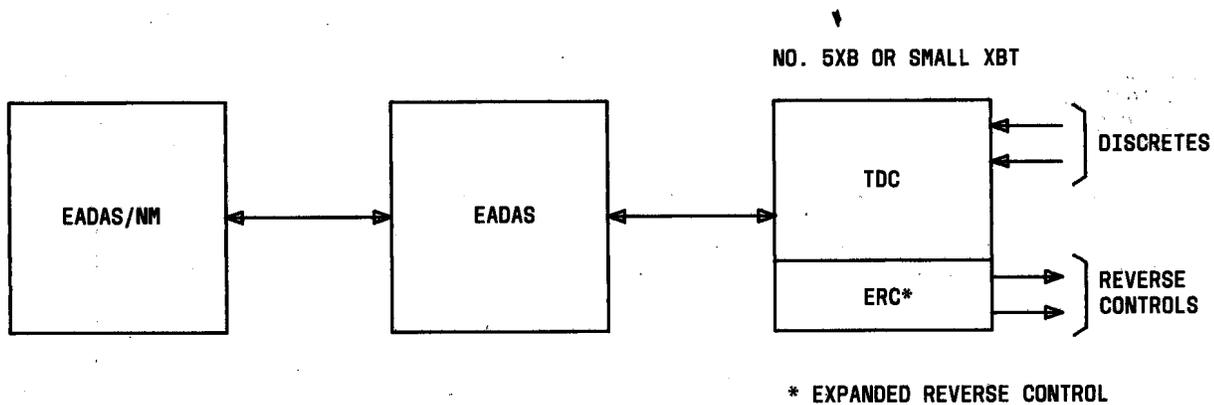


Fig. 16—TDC Data Link