

TELETYPEWRITER COMPATIBLE "DATASPEED*" 40/2
TESTING AND TROUBLESHOOTING

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1. GENERAL

1.01 This section provides the testing and troubleshooting procedures for the Teletypewriter Compatible DATASPEED 40/2 Station arrangements. This section does not provide information on testing associated modification kits. Refer to the appropriate 50000 Specification for information on testing the modification kits.

1.02 This section is reissued to add list of BSPs for additional Data Set Test Procedures. Revision arrows are used to indicate the changes.

1.03 When ordering or referring to replaceable components, unless otherwise specified, prefix each part number with the letters "TP" (ie, TP410055).

1.04 An operational checkout should be performed after installation or on trouble calls. It may be a brief checkout to make sure the station is operable, or a complete checkout to exercise all features and options. Both types of checkout are provided. Since off-line checkout procedures do not check the interface or send and receive capabilities, an on-line checkout is also required to completely test the DATASPEED 40/2.

1.05 With the station arrangement properly interfaced to the system where it will be used, conduct a complete checkout of send and receive capabilities taking into account all option and feature variables. Check all operational modes in sending to or receiving from another station in the system.

1.06 Use the brief checkout upon installation, if a complete checkout has been performed prior to installation. Continue with a complete checkout, if needed, to check all features and options.

1.07 On maintenance or trouble calls at a location, confine the checkout to the specified trouble area. Use the brief checkout to isolate poorly defined trouble areas. Perform a complete checkout after an extensive repair.

1.08 The checkout routines are presented in tables. Each table is identified as to the type of station under test, and the nature of the checkout procedures.

1.09 If the indicated response is not obtained in any step of a checkout procedure, repeat the step to make sure that the procedure has been performed correctly. If the results are still unsatisfactory, perform the indicated trouble analysis. Always perform the checkout in the order given in the table. The trouble analysis steps are based on satisfactory results of all previous steps.

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SECTION 582-200-502

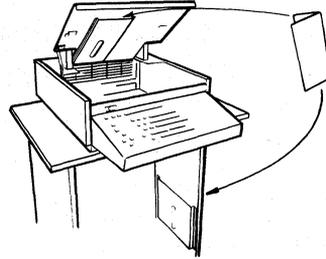
1.10 As a further aid to troubleshooting, refer to the wiring diagrams for the DATASPEED 40/2 in Section 582-200-402. For help in identifying components, refer to Section 582-200-702, Disassembly/Reassembly and Parts.

2. PRELIMINARY CHECK

2.01 Before turning on any equipment, check the following:

- (a) Is station connected to a properly grounded ac service?
- (b) Are all circuit cards and cable connectors fully seated?
- (c) Are all cabinet lids and pedestal doors closed?
- (d) In KDP, are printer paper and ribbon properly installed?

2.02 ♦ In addition to the above, check the Station Feature and Option Record (stored in lid of logic module cabinet or in pedestal) or W-4D1XB to determine the options and features present in the station. ♦ In cases where the results are affected by options, alternate results for each option are provided in the charts.



Located in pedestal when
logic is mounted in pedestal.

3. OFF-LINE CHECKOUT

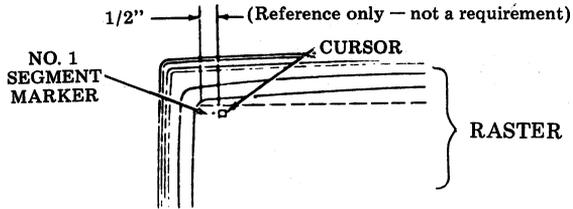
3.01 Off-line checkout provides a check of the operating condition of the DATASPEED 40/2 terminal. Table A provides a brief checkout for KD or KDP terminals. Table B provides a complete off-line checkout for KD or KDP terminals. The off-line checkout should be performed before attempting any on-line procedures.

BRIEF OFF-LINE CHECKOUT

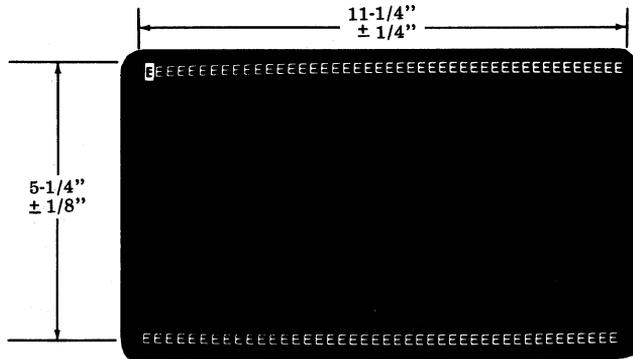
3.02 The brief off-line checkout is provided in Table A. Use the brief checkout just to make sure that the station is operable. The brief checkout does not exercise all the features and options. If these should also be checked, perform Complete Off-Line Checkout in Table B.

TABLE A
BRIEF OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
1	Turn on power switches.	LOCAL indicator lights. Fans operate.	Terminal Analysis (Page 55)
2	Turn on power to monitor and set brightness to maximum.	Within 10 seconds, raster appears with No. 1 segment marker and cursor as in Fig. 1. <i>Note:</i> If random characters appear or if cursor is not at home position, depress HOME and CLEAR keys.	Terminal Analysis (Page 55) 40MN101 Display Monitor (Section 582-213-500)
3	Adjust brightness and tube tilt to personal preference.	Cursor and segment marker clearly displayed, with raster barely visible. Glare from external light on screen should be minimal.	Section 582-213-700, Display Monitor Adjustments
4	Lightly depress cursor right (→), down (↓), left (←), and up (↑), in that order.	Cursor moves one position in the direction indicated for each depression.	Terminal Analysis (Page 55)
5	Repeat Step 4, but depress cursor controls fully and hold depressed until cursor stops moving.	Cursor traces outer perimeter of display, stopping at each corner, and ends at home position.	Display Logic (Page 58)
6	If keyboard has CAPS LOCK keytop, depress CAPS LOCK key. Enter a line of Es at top and bottom of display, then HOME cursor.	Display appears as in Fig. 2, with all requirements as indicated.	Terminal Analysis (Page 55) Refer to adjustments of monitor to meet requirements (Section 582-213-700).
STEPS 7 THROUGH 14 APPLY TO KDP TERMINALS ONLY.			
7	Preliminary requirements of printer: a. Ribbon and paper loaded. b. Switches (top right of printer, cabinet cover raised) set as in Fig. 3. LF-1 Test-Off Forms (Tractor Feed Only) — On. c. Cabinet cover closed.		



◆ Fig. 1—Raster ◆



Requirements:

- Raster aligned vertically and horizontally.
- All Es sharply defined.
- Height and width of display as indicated.
- Es uniform across full width.
- Height of Es same at top and bottom lines.

Fig. 2—Display Monitor

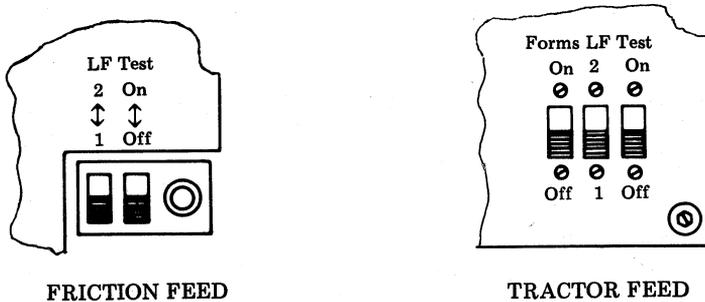


Fig. 3— Printer Switches

Note: Fig. 1, 2 and 3 refer to Procedures in Table A.

TABLE A (Cont)

BRIEF OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
8	Momentarily depress PAPER button (red) on cover of printer cabinet.	Paper feeds out as long as button is depressed.	Printer (Section 582-210-500)
9	TRACTOR FEED PRINTER ONLY Depress and release FORMS ADVANCE button (black) on printer cabinet cover.	Paper feeds out until first line of next form is reached, then stops.	
10	Unlatch and raise printer cabinet cover.		
11	Raise cover interlock switch to maintenance position.		
12	Set test switch (Fig. 3) to ON, allow printer to print several lines, then turn test switch OFF.	Printer turns on and prints one of the font identification symbols such as $\overline{\text{E}}$ repeatedly until switch is turned off.	Printer (Section 582-210-500)
13	FRICION FEED PRINTER Lift paper roll to simulate a paper alarm. Lower paper roll, guide paper through window, and close cabinet cover. TRACTOR FEED PRINTER Tear off next form under pedestal top, then depress PAPER button on cabinet top until last form passes through printer. Reload forms, guide first form through window, and close cabinet cover.	LOW PAPER indicator lights. LOW PAPER indicator goes out. PAPER indicator lights. PAPER indicator goes out.	Printer (Section 582-210-500)
14	Depress PRINT LOCAL key, and while cursor is moving through third or fourth line of display, depress LOCAL key. 	LOCAL indicator goes out. PRINT LOCAL and SEND indicators light. Cursor moves through line of Es at top of display, returns to left, and moves through lines of spaces (blank lines).	Terminal Analysis (Page 55)

TABLE A (Cont)

BRIEF OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
14 (Cont)		<p>Printer prints line of Es.</p> <p><i>Note:</i> Printing may occur in all 80 character positions or some Es may be carried over to next line, depending on Option 17.</p> <p>Printer line feeds but does not print for each line of spaces.</p> <p>When LOCAL key is depressed, SEND and PRINT LOCAL indicators go out and LOCAL indicator lights. Printer turns off.</p> <p><i>Note:</i> Printer may or may not feed out 16 lines of paper before turning off, depending on Option 18. Tractor printer may form-out depending on Option 18 and Forms switch.</p>	Printer (Section 582-210-500)
This ends BRIEF OFF-LINE CHECKOUT — KD AND KDP TERMINALS.			

COMPLETE OFF-LINE CHECKOUT

3.03 The Complete Off-Line Checkout in Table B exercises all the features of the KD or KDP terminal off-line. These procedures do not check the interface or send and receive capabilities, therefore, an on-line checkout is also required to completely test the DATASPEED 40/2.

TABLE B
COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
1	Power on. Monitor brightness adjusted for desired viewing level. LOCAL key depressed. Depress HOME and CLEAR keys. Put CAPS LOCK key in down position.	Cursor goes to home position and all data is cleared from screen.	Terminal Analysis (Page 55) Display Logic (Page 58)
2	Starting with top row and moving from left to right, depress each unshaded key in Fig. 4. Depress RETURN and NEW LINE keys.	Characters displayed as in Fig. 7. Cursor goes to beginning of next line.	Terminal Analysis (Page 55)
3	If keyboard has CAPS LOCK keytop, depress and release CAPS LOCK key so it returns to upper position, then repeat Step 2.	Characters displayed as in Fig. 7. Cursor goes to beginning of next line.	
4	Hold left SHIFT key depressed. Starting with top row and moving from left to right, depress each unshaded key in Fig. 5. Hold right SHIFT key depressed and depress <input type="checkbox"/> ? / <input type="checkbox"/> key. Depress NEW LINE key.	Characters displayed as in Fig. 7. Cursor moves to beginning of next line.	
5	Hold left CONTROL key depressed. Depress all unshaded keys of Fig. 6 in sequence shown by circled numbers. Hold right CONTROL key depressed and depress <input type="checkbox"/> FS <input type="checkbox"/> M <input type="checkbox"/> key. Depress NEW LINE key.	Characters displayed (Page 10). Cursor moves to beginning of next line.	

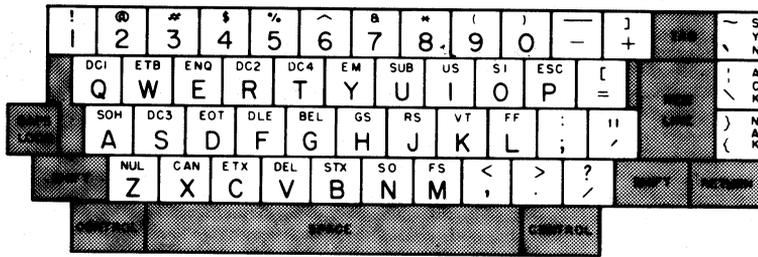


Fig. 4

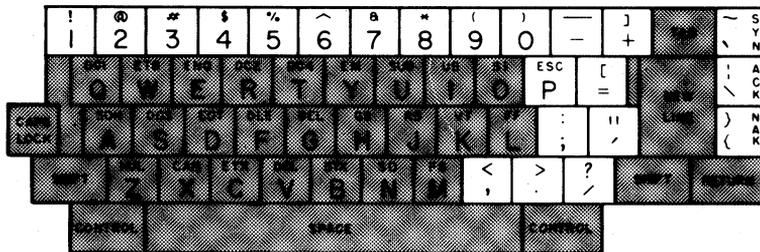


Fig. 5

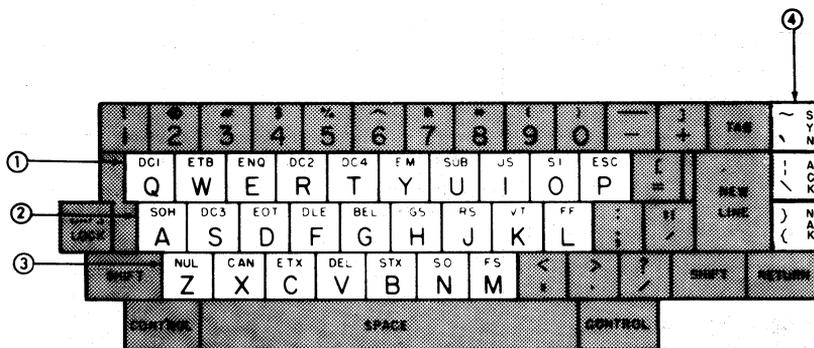


Fig. 6

TABLE B (Cont)

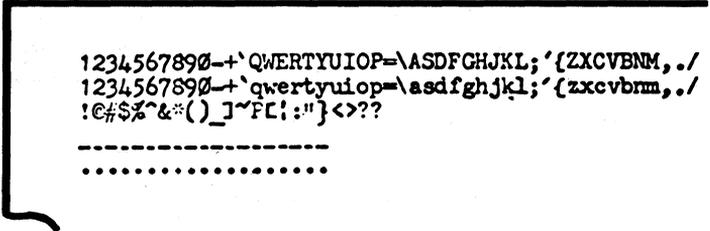
COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
6	Fully depress and hold  key until about half line of characters are displayed. Depress NEW LINE key.	Repeated - characters and \equiv symbol displayed as in Fig. 7. Cursor moves to beginning of next line.	Terminal Analysis (Page 55) Operator Console (Opcon) (Section 582-211-500)
7	Repeat Step 6 using  key, and then again using Spacebar.	Repeated . characters followed by \equiv symbol, and repeated spaces followed by \equiv symbol, displayed as in Fig. 7. Cursor moves to beginning of next line.	Controller Logic (Page 62)
8	Depress cursor keys as necessary to position cursor over E_M character in line of control characters.		
9	Lightly depress CHAR INSRT key.	All characters to right of and including E_M move one position to right as in Fig. 7.	
10	Fully depress and hold CHAR INSRT key until characters stop moving.	All characters to right of and including E_M move right continuously until \equiv symbol reaches right edge as in Fig. 7.	
11	Lightly depress CHAR DLETE key.	E_M and all subsequent characters move one position to left.	
12	Fully depress and hold CHAR DLETE key until characters stop moving.	E_M and subsequent characters move left continuously and are deleted from display as they reach cursor position as in Fig. 7.	
13	THIS STEP APPLIES ONLY TO KDP WITH TRACTOR FEED PRINTER Hold CONTROL key depressed and depress  key three times. <i>Note:</i> Make sure forms switch of printer is on.	Three FF characters are entered in display to the right of the D4.	

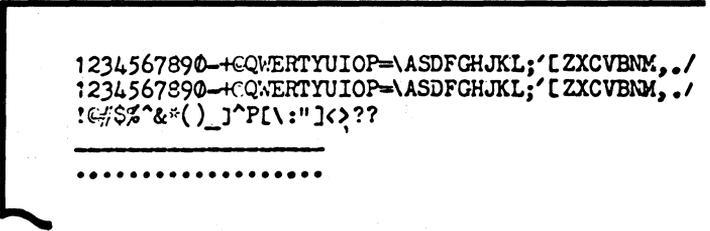
TABLE B (Cont)

COMPLETE OFF-LINE CHECKOUT — K_D AND KDP TERMINALS

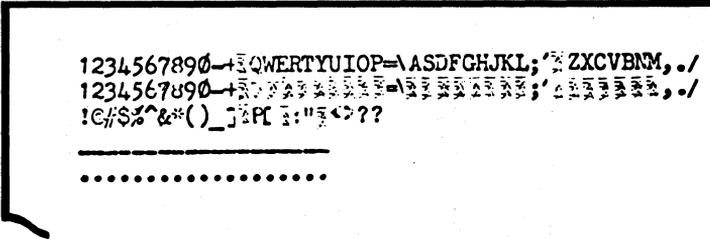
STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
14	Depress HOME.	Cursor goes to home position.	
15	<p>KDP ONLY</p> <p>Depress PRINT LOCAL key. When complete message on monitor has been sent to printer, depress LOCAL key.</p>	<p>LOCAL indicator goes out; PRINT LOCAL and SEND indicators light.</p> <p>Cursor moves through display and printer prints according to features and options as in Fig. 8.</p> <p>When LOCAL key is depressed, SEND and PRINT LOCAL indicators go out, printer turns off, and LOCAL indicator lights.</p> <p>TRACTOR PRINTER</p> <p>Form-out occurs when first F_F character is sent from display.</p> <p>Lines of - and . characters print on next form. (Only one form-out occurs — second and third F_F characters have no effect.) Spacing from first line of first form to line of - characters on next form equals form length selected by form belt and form selector setting.</p>	<p>Terminal Analysis (Page 55)</p> <p>Printer (Section 582-210-500)</p>



Up-Low Printer w/o Foldover — Option 21.a.



Up-Low Printer w/Foldover — Option 21.b.
 or
 Monocase Printer — Option 22.b.



Monocase Printer w/o Foldover — Option 22.a.

Note 1: Line 2 in all three figures present only if opcon keyboard has CAPS LOCK key.

Note 2: Characters shown are for basic type carrier.

Note 3: For tractor feed printers with form-out mechanism, lines of - and . characters appear on next form.

Note 4: Figures shown are for monospace and up-low ASCII.

Fig. 8

TABLE B (Cont)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
16	Depress HOME, then CLEAR key.	Cursor goes to home position and all information is cleared from display.	Terminal Analysis (Page 55)
17	Enter a line of 80 *s across top of display.	*s are displayed, and cursor remains at right of line.	
18	Depress LINE INSRT key, then enter a line of 80 Us across top of display.	Cursor returns to home position and *s move down one line. Us are displayed above *s.	Display Logic (Page 58)
STEPS 19 THROUGH 22 APPLY ONLY TO TERMINALS WITH ONE SEGMENT. IF TERMINAL IS EQUIPPED WITH TWO OR THREE SEGMENT DISPLAY, GO TO STEP 23.			
19	Repeatedly depress LINE INSRT key until *s move to to last line of display.	Cursor returns to home position and *s and Us both move down one line each time LINE INSRT key is depressed. Movement stops when *s reach bottom of display. Cursor stays at home position.	Terminal Analysis (Page 55) Display Logic (Page 58)
20	Depress cursor down (↓) and then cursor right (→) to move cursor to about the middle of the line of Us.		Terminal Analysis (Page 55)
21	Depress LINE DELETE key.	Cursor returns to left margin, and Us are removed. *s move up one line to replace Us.	
22	Depress LINE INSRT key several times.	*s move down one line to bottom of display and stop. Cursor does not move.	
STEPS 23 THROUGH 36 APPLY ONLY TO TERMINALS EQUIPPED WITH TWO OR THREE SEGMENT DISPLAY.			
23	Depress HOME.	Cursor goes to home position.	Terminal Analysis (Page 55)

TABLE B (Cont)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
24	Depress SEGMENT ADV key twice for terminals with two segments, or three times for terminals with three segments.	<p>Segment marker changes from segment 1 marker (·) to segment 2 (:), and on terminals with three segments to segment 3 marker (:), and back to segment 1 marker.</p> <p>*s and Us disappear as segment changes, and reappear at top of display when segment 1 marker reappears.</p> <p>Cursor does not move.</p>	
25	Depress SCROL UP key one time.	<p>◆ Segment 1 marker and Us disappear from top of display. ◆</p> <p>◆ *s move to top of display, and segment 2 marker appears at bottom left of display. ◆</p> <p>Cursor does not move.</p>	
26	<p>Depress SCROL UP key fully.</p> <p><i>Note:</i> Operation with 410009 or 410018 continuous scrolling circuit card.</p>	<p>Segment 2 marker (then 3 marker if terminal has three segments) moves up the display.</p> <p>◆ *s disappear from top of display. ◆</p> <p>Scrolling stops when segment marker of last segment reaches top line of display.</p> <p>Cursor does not move (see Note).</p> <p>Scrolling will not stop when segment marker of last segment reaches top line of display, but will continue while key is fully depressed.</p>	

TABLE B (Cont)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
27	<p>Depress SCROL DOWN key once, then fully.</p> <p><i>Note:</i> Operation with 410009 or 410018 continuous scrolling circuit card.</p>	<p>Segment marker at upper left moves down one line, then moves down continuously and disappears as segment marker of previous segment appears at top left. When segment 1 marker appears at top left of display, scrolling stops.</p> <p>*s and Us reappear in original position at top of display when segment 1 returns to display.</p> <p>Cursor does not move (see Note).</p> <p>Scrolling will not stop when segment marker of last segment reaches top line of display, but will continue while key is fully depressed.</p>	<p>Terminal Analysis (Page 55)</p> <p>Display Logic (Page 58)</p>
28	<p>Repeatedly depress LINE INSRT key until *s move to last line of segment.</p>	<p>*s and Us both move down one line each time LINE INSRT key is depressed.</p> <p>Cursor does not move.</p>	<p>Terminal Analysis (Page 55)</p> <p>Display Logic (Page 58)</p>
29	<p>Depress cursor down (↓), and then cursor right (→) to position cursor at about the middle of the line of Us.</p>		
30	<p>Depress LINE DLETE key.</p>	<p>Cursor returns to left margin and Us are removed.</p> <p>*s move up one line to replace Us.</p>	
31	<p>Depress LINE INSRT key several times.</p>	<p>*s move down one line to bottom of display on first depression, then disappear from display on second depression.</p> <p>Cursor does not move.</p>	

TABLE B (Cont)

COMPLETE OFF-LINE CHECKOUT – KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
32	Depress SEGMENT ADV key.	Segment 2 marker appears at top left of display. *s appear a few lines down from top in segment 2. Cursor does not move.	
33	Depress HOME and CLEAR.	Cursor goes to home position. Segment 1 is displayed.	
34	Depress SEGMENT ADV key to display last segment of page.	Segment marker of last segment appears at upper left of display. *s have been cleared from segment 2. Cursor remains in home position.	Terminal Analysis (Page 55)
35	Depress cursor down (↓) to position cursor at about next to last line of display, then enter a few Us in this line.		
36	Depress LINE INSRT key several times.	Cursor returns to left margin and Us move to bottom of display, then stop.	
IF TERMINAL IS EQUIPPED WITH FULL EDIT FEATURE, GO TO STEP 37. IF NOT, THIS COMPLETES OFF-LINE CHECKOUT.			
37	Depress HOME, then CLEAR.	Cursor goes to home position and display is cleared.	Terminal Analysis (Page 55)
38	Alternately depress TAB SET key and Spacebar until cursor reaches end of line.	Column of tab marks is displayed in every character position of page. Alarm sounds at 73rd and 80th character positions. (On terminals with more than one segment, depress SEGMENT ADV key as necessary to view tab columns on other segment(s), then return to segment 1.)	Controller Logic (Page 62) Display Logic (Page 58) Operator Console (Opcon) (Section 582-211-500)

TABLE B (Cont)

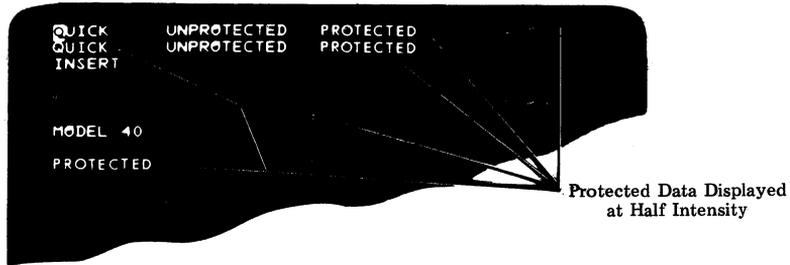
COMPLETE OFF-LINE CHECKOUT – KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
39	Home cursor and depress TAB CLEAR.	All tab marks (on all segments) are cleared.	Terminal Analysis (Page 55)
40	Depress HIGH LIGHT key.	HIGH LIGHT indicator lights.	
41	Enter a full line of *s at top of display.	*s continuously flash between half- and full intensity. Alarm sounds at 73rd and 80th character positions. Cursor remains at right end of line.	
42	Depress HIGH LIGHT key again.	HIGH LIGHT indicator goes out.	
43	Depress LINE INSRT key.	Cursor moves to left margin, and highlighted *s move down one line.	Terminal Analysis (Page 55)
IF OPTION 12.a. IS ENABLED ON 410675 CARD (SEE STATION FEATURES AND OPTION RECORD), TEMPORARILY CHANGE TO OPTION 12.b. UNTIL CHECKOUT IS COMPLETE.			
44	Depress FORM ENTER key.	FORM ENTER indicator lights.	Controller Logic (Page 62)
45	Enter a full line of Us at top of display.	Us are displayed at half intensity (protected). Alarm sounds at 73rd and 80th character positions. Cursor remains at right end of line.	Terminal Analysis (Page 55) Display Logic (Page 58)
46	Depress LINE INSRT key.	Cursor moves to left margin and lines of *s and Us both move down one position. Cursor remains in home position.	
47	Depress CLEAR.	Screen is cleared.	
48	Depress FORM ENTER key.	FORM ENTER indicator goes out.	

TABLE B (Cont)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
49	Enter message of Fig. 9 in lines 1 through 9 of display.	Message appears as in Fig. 9. (To observe protected spaces, increase monitor brightness and note that all protected data has darker background than unprotected data.)	
50	Depress CHAR INSRT key fully and hold until movement stops.	Word QUICK in line 1 moves to tab column and stops. No other characters affected.	Terminal Analysis (Page 55)
51	Depress CHAR DLETE key twice.	Word QUICK in line 1 moves two positions left. No other characters affected.	
52	Depress TAB.	Cursor moves to tab column. Tab symbol (►) appears at original position of cursor. All characters passed over by cursor are erased from display.	
53	Depress CHAR INSRT key fully and hold until movement stops.	Word UNPROTECTED moves three positions to right, stopping when it reaches word PROTECTED. No other characters affected.	
54	Depress CHAR DLETE key fully and hold until movement stops.	Word UNPROTECTED is moved left and completely erased. No other characters affected.	
55	Depress TAB.	Cursor moves to first character position after word PROTECTED. Tab symbol (►) appears at original position of cursor.	
56	Depress Spacebar once, then depress it fully.	Alarm sounds once when Spacebar is depress first time. Cursor moves to character position preceding protected New Line symbol. Alarm sounds continuously, and cursor does not advance beyond this position.	



Note: Depress each key once unless number of depressions is indicated in parentheses.

LINE 1

Type QUICK
 Depress Space (5)
 Depress TAB SET
 Type UNPROTECTED
 Depress Space (3)
 Depress FORM ENTER
 Type PROTECTED
 Depress FORM ENTER
 Depress Space (8)
 Depress FORM ENTER
 Depress NEW LINE

LINE 4 AND 5

Depress Cursor
 Right (→) until
 cursor is under
 NEW LINE symbol.
 Depress NEW LINE

(Repeat for Line 5)

LINE 8

Depress CURSR RTRN
 Depress Cursor
 down (↓) twice

LINE 2

Type QUICK
 Depress FORM ENTER
 Depress Space (5)
 Type UNPROTECTED
 Depress Space (3)
 Depress FORM ENTER
 Type PROTECTED
 Depress FORM ENTER
 Depress Space (8)
 Depress FORM ENTER
 Depress NEW LINE
 Depress FORM ENTER

LINE 6

Depress Cursor
 Right (→) until
 cursor is at about
 23rd character
 position.
 Depress NEW LINE.
 Depress FORM ENTER.

LINE 9

Depress FORM ENTER
 Type PROTECTED
 Depress FORM ENTER
 Depress HOME

LINE 3

Type INSERT
 Depress Space until
 cursor is under
 NEW LINE symbol.
 Depress FORM ENTER
 Depress NEW LINE

LINE 7

Type MODEL
 Depress Space
 Type 40

Fig. 9

TABLE B (Cont)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
57	Depress TAB.	Cursor moves to end of protected word QUICK in line 2.	
58	Depress CURSOR TAB three times.	Cursor moves to tab mark on first depression. Cursor moves to space following word PROTECTED on second depression. Cursor moves to beginning of word INSERT in line 3 on third depression. No characters altered in any way.	Terminal Analysis (Page 55) Operator Console (Opcon) (Section 582-211-500) Display Logic (Page 58)
59	Depress LINE INSRT three times.	Word INSERT moves down two lines and stops. Rest of display does not change.	
60	Position cursor over M in word MODEL, then depress LINE INSRT twice.	Words MODEL 40 move down one position and stop.	
61	Move cursor over P at beginning of line 9, and type some miscellaneous characters.	Alarm sounds each time a key is depressed. (No characters can overwrite a protected character.)	
62	Depress HOME, CLEAR, then TAB CLEAR.	Cursor goes to home position. All unprotected characters and tab columns are cleared. Protected characters remain on display.	
63	Depress FORM ENTER.	FORM ENTER indicator lights.	
64	Depress CLEAR.	All characters are cleared from display.	
65	Depress FORM ENTER.	FORM ENTER indicator goes out.	
66	If Option 12.a. was originally present on 410675 card, restore this option (unless further checkout is to be performed).	With Option 12.a. selected, FORM ENTER indicator will no longer light when FORM ENTER is depressed in local mode.	
THIS COMPLETES OFF-LINE CHECK OF KD OR KDP.			

4. ON-LINE CHECKOUT

4.01 On-line checkout is performed between the DATASPEED 40/2 Station under test and a Data Test Center equipped with a DATA-SPEED 40/2 Test Set. The Data Test Center operator controls the checkout using standard test messages generated by the test set. Table C provides a brief on-line checkout for KD or KDP terminals. Table D provides a complete on-line checkout for KD or KDP terminals. The off-line checkout procedures should be performed before attempting any on-line procedures.

4.02 Instructions are provided in Tables C and D for establishing a data connection with a switched network data set. If a Private Line Data Set (202T) is used, different line connection procedures are performed.

4.03 If station is equipped with a private line data set and private line(s) is (are) available, use those lines for on-line testing with the Test Center. If private lines are not available between the station and Test Center, switched

network lines may be used by following the procedures in 4.04.

4.04 The Private Line Data Set (202T, 201C, or 208A) can be connected to switched network lines by using the equipment and connections shown in Fig. 10. Cable length restrictions are shown in Fig. 11.

4.05 Once line connections have been completed for a station using a Private Line Data Set 202T, test the station using the procedures in Table C for brief on-line checkout or Table D for complete on-line checkout. With a Data Set 202T, however, the station does not disconnect and drop the line as in switched network service. Disregard disconnect information when testing with Private Line Data Sets 202T.

BRIEF ON-LINE CHECKOUT

4.06 The brief on-line checkout is provided in Table C. Use the brief on-line checkout for a quick check of the ability of the DATA-SPEED 40/2 KD or KDP to send and receive data on-line. The brief checkout does not test all features of the station.

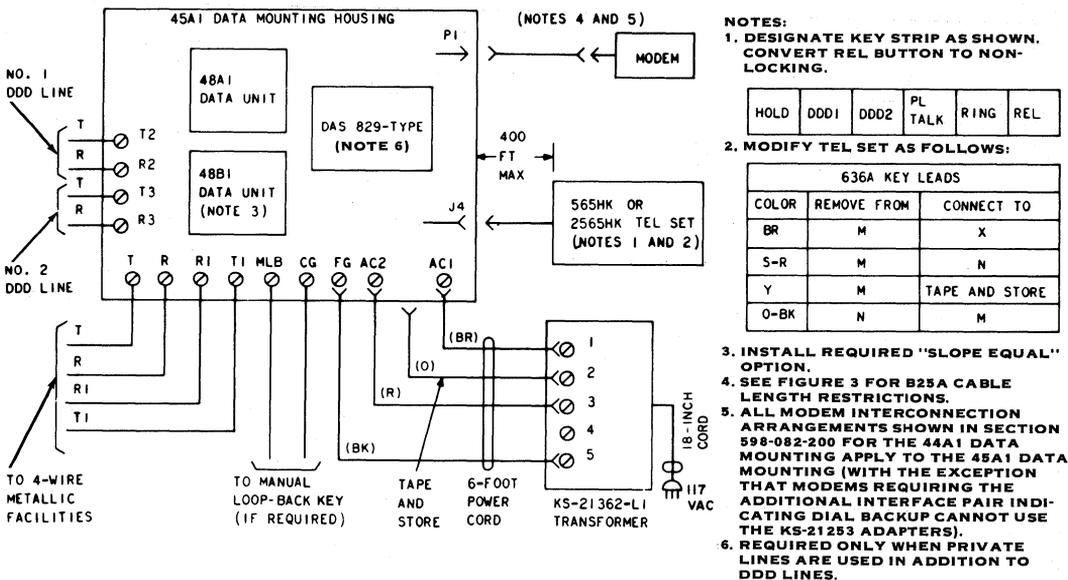
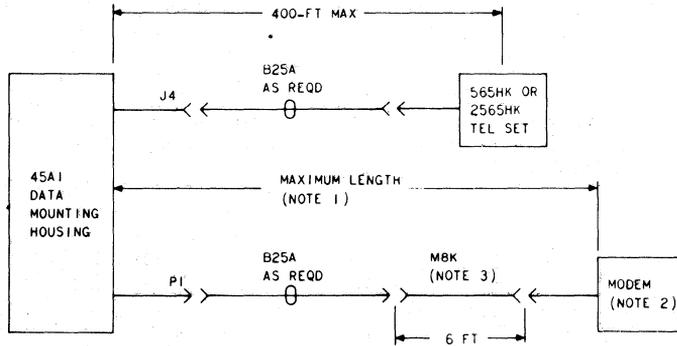


Fig. 10—Connection Diagram for Full Data-Dial Backup of Station



NOTES:

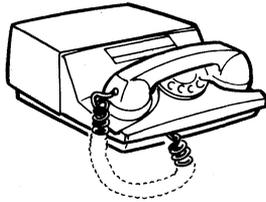
- | 1. DATA SET | MAX LENGTH IN FT. |
|-------------|-------------------|
| 201C | 1400 |
| 202D | 500 |
| 202T | 200 |
| 208A | 1400 |
| 209A | 1400 |
- ALL MODEM INTERCONNECTION ARRANGEMENTS SHOWN IN SECTION 598-082-200 FOR THE 44A1 DATA MOUNTING APPLY TO THE 45A1 DATA MOUNTING (WITH THE EXCEPTION THAT MODEMS REQUIRING THE ADDITIONAL INTERFACE PAIR INDICATING DIAL BACKUP CANNOT USE THE KS-21253 ADAPTERS).
 - THE MBK CORD IS NOT USED WITH DATA SET 202D. USE D50AA-3 IN PLACE OF D6AA-6I SUPPLIED WITH DATA SET 202D.

Fig. 11—Connection Diagram Showing Cable Length Restrictions

TABLE C

BRIEF ON-LINE CHECKOUT — KD AND KDP TERMINALS

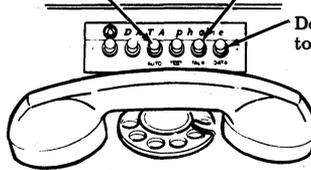
STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
1	With power ON and local mode selected, depress HOME and CLEAR.	LOCAL lit. Cursor goes home and all data is cleared from screen.	Terminal Analysis (Page 55) Controller Logic (Page 62)
2	Depress REC. For KDP, also depress PRINT ON LINE. <i>Note:</i> Print-on-line mode for Teletypewriter Compatible DATASPEED 40/2 is determined by Option 29. This step is for Option 29.a. only.	REC lights (LOCAL goes out). For KDP, PRINT ON LINE also lights.	Operator Console (Opcon) (Section 582-211-500)
3	Place data set in talk mode and call Data Test Center to request on-line checkout (see Fig. 13 for data set configurations). <u>Data Set 202C</u> Depress TALK key, lift handset, and dial Data Test Center. <u>Data Set 202R</u> Lift handset, and dial Data Test Center. <u>Data Set 202S</u> Depress appropriate line key, lift handset, and dial Data Test Center. <u>Data Set 103A3</u> Depress CLEAR/TALK key, lift handset, dial Data Test Center.	<i>Note 1:</i> To establish proper line protocol, Data Test Center will normally request station requesting test to hang up and wait for return call. When Data Test Center calls back, answer call in talk mode and follow instructions of Data Test Center operator. <i>Note 2:</i> If Private Line Data Set 202T is used, follow line connections procedures given in 4.06.	
<p><u>FOX TEST</u> In this test, the Data Test Center will send the FOX test message. Station under test will receive message, then send it back to the Data Test Center for comparison with original. Both operators will go to talk mode for evaluation of test.</p>			



Depress AUTO key to enable auto-answer, if data set is so equipped.

Depress TALK key to call or converse with Data Test Center operator.

Depress DATA key to enter data mode.



Data Set 202C

Depress DATA key to enter data mode.

Depress appropriate line key to place call or converse with operator.



Data Set 202S and Attendant Set

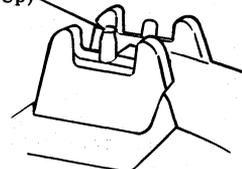
EXCLUSION KEY



TALK POSITION



DATA POSITION
(Key Pulled Up)



Data Set 202R

Fig. 12

TABLE C (Cont)

BRIEF ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
4	<p>When instructed by Data Test Center, go to data mode per standard procedure for data set used:</p> <p>☐☐☐ THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890☐☐☐ THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890☐☐☐</p> <p><u>Data Set 202C or 202S</u> Depress DATA key and place handset on switchhook.</p> <p><u>Data Set 202R</u> Lift exclusion key. Do not place handset on switchhook.</p> <p><u>Data Set 103A3 (or 113A)</u> Depress DATA key and place handset on switchhook.</p> <p>THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890 THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890</p>	<p>FOX message displayed on screen (and printed on printer, if KDP) as below:</p> <p><i>Note:</i> One or more CR (Carriage Return) symbols (←) may appear as above if Option 5.d. enabled. CR rejected if Option 5.c. enabled.</p>	<p>Controller Logic (Page 62)</p> <p>Operator Console (Opcon) (Section 582-211-500) Data Set Problem (Page 57)</p>
5	<p><i>Note 1:</i> If Option 8.c. is enabled, do not perform Step 5; go to Step 6.</p> <p>If Option 8.d. is enabled, go to local mode and change ETX at end of message to EOT.</p> <p><i>Note 2:</i> Do not go from receive to local manually in switched network service. Depress SEND, first, then LOCAL, to prevent a disconnect.</p>	<p>Display appears as in Step 4, but but E_X replaced by E_T.</p> <p>For KDP, printer motor stops immediately (Option 53.b.) or after a two minute delay (Option 53.a.).</p>	
6	<p>Home cursor and depress SEND.</p> <p><i>Note:</i> 103A3 equipped stations will disconnect when EOT is sent. If disconnect occurs, call Data Test Center.</p>	<p>SEND lights (LOCAL goes out).</p> <p>Cursor moves through message and stops after end character. Printer prints message if KDP.</p> <p>Revert to local if Option 11.a. is enabled.</p>	<p>Operator Console (Opcon) (Section 582-211-500)</p> <p>Controller Logic (Page 62)</p> <p>Display Logic (Page 58)</p>

TABLE C (Cont)

BRIEF ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
6 (Cont)		For KDP, printer feeds out 16 lines of paper if Option 18.c. enabled.	Data Set Problem (Page 57)
7	<p>Go to talk mode and evaluate results of test with Data Test Center operator:</p> <p><u>Data Set 202C, 103A3, or 113A</u></p> <p>Lift handset and depress TALK key.</p> <p><u>Data Set 202R</u></p> <p>Lower exclusion key to talk position. Do not depress all the way or call will disconnect.</p> <p><u>Data Set 202S</u></p> <p>Lift handset and depress appropriate line key.</p>	Returned message should compare with message transmitted originally by Data Test Center (except for change in end character if Option 8.d. is enabled).	
This ends the BRIEF ON-LINE CHECKOUT — TELETYPEWRITER COMPATIBLE "DATASPEED" 40/2 KD AND KDP STATIONS IN "DATAPHONE**" SERVICE. For further on-line checkout go to Table D.			

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COMPLETE ON-LINE CHECKOUT

4.07 The complete on-line checkout is provided in Table D. These procedures provide a complete check of the receiving options and send variations on the DATASPEED 40/2 KD or KDP.

TABLE D

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

This table provides a complete checkout of options and variable features of Teletypewriter Compatible DATASPEED 40/2 KD and KDP stations.

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS																																		
1	<p>Proceed to Step 50 for Teletypewriter Compatible DATASPEED 40/2 using 103-type modem interface.</p> <p>For a complete on-line checkout using a 202-series data set, perform the following steps. If no options are given, option the DATASPEED 40/2 as follows:</p> <table border="0"> <thead> <tr> <th data-bbox="199 628 291 651"><u>OPTION</u></th> <th data-bbox="383 628 458 651"><u>TITLE</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="236 676 278 699">4.a.</td> <td data-bbox="316 676 543 815">— Reverse Channel Required to Send (only if data set is equipped with reverse channel, otherwise choose 4.b.)</td> </tr> <tr> <td data-bbox="224 815 278 837">41.b.</td> <td data-bbox="316 815 517 906">— Full Duplex (if local copy feature is provided in data set, HDX if not)</td> </tr> <tr> <td data-bbox="224 906 278 928">42.a.</td> <td data-bbox="316 906 429 928">— Even Parity</td> </tr> <tr> <td data-bbox="224 928 278 951">44.a.</td> <td data-bbox="316 928 480 975">— Enable EIA Rec Data</td> </tr> <tr> <td data-bbox="224 975 278 997">45.b.</td> <td data-bbox="316 975 517 1021">— Disable Rec Data From Current Loop</td> </tr> <tr> <td data-bbox="224 1021 278 1043">47.a.</td> <td data-bbox="316 1021 492 1067">— Enable PTR Interface (KDP only)</td> </tr> <tr> <td data-bbox="224 1067 278 1090">43.a.</td> <td data-bbox="316 1067 505 1090">— Send One Stop Bit</td> </tr> <tr> <td data-bbox="236 1090 278 1112">3.b.</td> <td data-bbox="316 1090 429 1112">— 1200 Baud</td> </tr> <tr> <td data-bbox="224 1112 278 1134">29.a.</td> <td data-bbox="316 1112 454 1158">— PRINT ON LINE Normal</td> </tr> <tr> <td data-bbox="236 1158 278 1181">1.b.</td> <td data-bbox="316 1158 454 1204">— SSI to Printer (KDP only)</td> </tr> <tr> <td data-bbox="224 1204 278 1227">8.a., c.,e.,g.</td> <td data-bbox="316 1204 505 1251">— End on EOT, ETX, GS, FF</td> </tr> <tr> <td data-bbox="236 1251 278 1273">7.a.</td> <td data-bbox="316 1251 480 1297">— Disable Vertical Parity Detection</td> </tr> <tr> <td data-bbox="224 1297 278 1319">10.b.</td> <td data-bbox="316 1297 492 1372">— Line Ending Sequence CR, CR LF (← ← ≡)</td> </tr> <tr> <td data-bbox="224 1372 278 1394">11.a.</td> <td data-bbox="316 1372 517 1394">— Go Local After Send</td> </tr> <tr> <td data-bbox="224 1394 278 1417">46.b.</td> <td data-bbox="316 1394 580 1417">— 202-Type Modem Interface</td> </tr> <tr> <td data-bbox="224 1417 278 1439">19.c.</td> <td data-bbox="316 1417 543 1492">— PTR Errored Character Symbol Not Printed on Parity Error</td> </tr> </tbody> </table>	<u>OPTION</u>	<u>TITLE</u>	4.a.	— Reverse Channel Required to Send (only if data set is equipped with reverse channel, otherwise choose 4.b.)	41.b.	— Full Duplex (if local copy feature is provided in data set, HDX if not)	42.a.	— Even Parity	44.a.	— Enable EIA Rec Data	45.b.	— Disable Rec Data From Current Loop	47.a.	— Enable PTR Interface (KDP only)	43.a.	— Send One Stop Bit	3.b.	— 1200 Baud	29.a.	— PRINT ON LINE Normal	1.b.	— SSI to Printer (KDP only)	8.a., c.,e.,g.	— End on EOT, ETX, GS, FF	7.a.	— Disable Vertical Parity Detection	10.b.	— Line Ending Sequence CR, CR LF (← ← ≡)	11.a.	— Go Local After Send	46.b.	— 202-Type Modem Interface	19.c.	— PTR Errored Character Symbol Not Printed on Parity Error		
<u>OPTION</u>	<u>TITLE</u>																																				
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19.c.	— PTR Errored Character Symbol Not Printed on Parity Error																																				

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT —KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
2	With power on and local mode selected, depress FORM ENTER, HOME, CLEAR, TAB CLEAR, and FORM ENTER.	LOCAL lit Cursor goes home and all data is cleared from screen.	Terminal Analysis (Page 55)
3	Depress REC. For KDP depress PRINT ON LINE.	REC lights. (LOCAL goes out). For KDP, PRINT ON LINE lights.	Controller Logic (Page 62)
4	<p>If call is not already established as a result of Brief On-Line Checkout (Table C), call Data Test Center in talk mode and request complete on-line checkout:</p> <p><u>Data Set 202C</u></p> <p>Depress TALK key, lift handset, and dial Data Test Center.</p> <p><u>Data Set 202R</u></p> <p>Lift handset and dial Data Test Center.</p> <p><u>Data Set 202S</u></p> <p>Depress appropriate Line key, lift handset, and dial Data Test Center.</p>	<p><i>Note:</i> If this is original call, Data Test Center will normally request station requesting test to hang up and wait for return call. When Data Test Center calls back, answer call in talk mode and follow instructions of Data Test Center operator.</p>	
<p><u>REPEATED FOX TEST</u></p> <p>In this test, Data Test Center will send a repeating FOX message. Station under test will receive message, then send it back to Data Test Center for comparison with original message. Both operators will go to talk mode for evaluation of test.</p>			
5	<p>When instructed by Data Test Center operator, go to data mode per standard procedure for data set used:</p> <p><u>Data Set 202C or 202S</u></p> <p>Depress DATA key and place handset on switchhook.</p>	<p>Repeated FOX message displayed on screen (and printed on printer, if KDP) as below:</p>	<p>Terminal Analysis (Page 55)</p> <p>Data Set Problem (Page 57)</p>
<pre> <<=> THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890<<=> THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890<<=> </pre>			

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
5 (Cont)	<p><u>Data Set 202R</u></p> <p>Lift exclusion key. Do not place handset on switchhook.</p> <p>THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890 THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890</p> <p>If terminal is equipped for interrupt feature, depress INTRPT key while message is being received, then depress again to release.</p>	<p><i>Note 1:</i> One or more CR (Carriage Return) symbols (←) may appear as shown on Page 28 if Option 5.d. enabled. CR rejected if Option 5.c. enabled.</p> <p>If terminal is equipped with interrupt feature, reception will stop when INTRPT key is depressed first time (indicator lights), and will resume when key is depressed second time (indicator goes out).</p> <p><i>Note 2:</i> KD stations must have an Issue 2A or later of 410770 circuit card to have the interrupt feature.</p> <p>KD/KDP goes to local if Option 8.c. is used.</p>	
6	<p>Go to local mode and type EOT over the ETX at end of message.</p> <p><i>Note:</i> If terminal is in Receive, depressing LOCAL will disconnect call. Depress SEND first, then LOCAL, to prevent call from disconnecting.</p>	<p>Display appears as in Step 5, but E_X is replaced by E_T.</p>	
7	<p>Home cursor and depress SEND. If KDP, also depress PRINT ON LINE.</p> <p>If Option 27.a. is enabled, cursor will go home on depressing SEND. Try it when cursor is not in the home position.</p>	<p>SEND lights (LOCAL goes out).</p> <p>Cursor moves through message. Printer prints message, if KDP, and Option 29.a. enabled.</p>	<p>Operator Console Opcon (Section 582-211-500)</p> <p>Controller Logic (Page 62)</p>

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
7 (Cont)		<p>If reverse channel Option 4.a. enabled, Data Test Center may produce interrupt during message transfer, causing transmission to pause, then resume.</p> <p>KD/KDP reverts to receive.</p>	
8	<p>Go to talk mode per standard procedure for data set used and evaluate results with Data Test Center.</p> <p><u>Data Set 202C</u></p> <p>Lift handset and depress TALK key.</p> <p><u>Data Set 202R</u></p> <p>Lower exclusion key to talk position. Do not depress exclusion key all the way or call will disconnect.</p> <p><u>Data Set 202S</u></p> <p>Lift handset and depress line key.</p>		
9	<p>If results of fox test are satisfactory, home cursor and clear screen (local mode), then depress REC.</p>		
<p><u>MODIFIED FOX TEST ONE</u></p> <p>In this test, the Data Test Center will send FOX message again, this time with Form Feed (FF) as the ending character. Both operators will go to talk mode for evaluation of test.</p>			
10	<p>For KDP with tractor feed printer, make sure the FORMS switch is on. Depress PRINT ON LINE if KDP.</p>		
11	<p>When instructed by Data Test Center, go to data mode per standard procedure for data set used.</p>	<p>FOX message displayed on screen (and printed if KDP).</p>	<p>Terminal Analysis (Page 55)</p>

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT – KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
11 (Cont)		<p><i>Note:</i> One or more CR (Carriage Return) symbols (←) may precede New Line symbol (≡) if Option 5.d. enabled. CR rejected if Option 5.c. enabled.</p> <p>If KDP has tractor feed printer, form out occurs on receipt of FF at end-of-message (FORM switch on). Check for proper form out length.</p> <p>Upon receipt of FF at end-of-message, terminal reverts to local, if Option 8.a. is enabled.</p>	<p>Controller Logic (Page 62)</p> <p>Printer (Section 582-210-500)</p> <p>Controller Logic (Page 62)</p>
12	<p>Go to talk mode per standard procedure for data set used and evaluate results of test with Data Test Center operator.</p> <p>If results of test are satisfactory, home cursor and clear screen then depress REC.</p>		
<u>MODIFIED FOX TEST TWO</u>			
<p>In this test, Data Test Center will send FOX message again, this time with GS (Group Separator) as the ending character. Both operators will go to talk mode for evaluation of test.</p>			
13	<p>When instructed by Data Test Center, enter data mode per standard procedure for data set being used.</p>	<p>FOX message is received and displayed on screen with GS (Group Separator) as end character.</p> <p><i>Note:</i> One or more CR (←) symbols may be displayed preceding New Line symbol (≡) if Option 5.d. enabled. CR (←) rejected if Option 5.c. enabled.</p> <p>Revert to local, if Option 8.g. is enabled.</p>	<p>Terminal Analysis (Page 55)</p> <p>Controller Logic (Page 62)</p>
14	<p>Home cursor, depress SEND.</p> <p>Go to talk mode per standard procedure for data set being used to evaluate results with Data Test Center operation.</p>	<p>Message is sent.</p> <p>Revert to local (goes to receive if Option 11.b. is enabled).</p>	<p>Terminal Analysis (Page 55)</p> <p>Controller Logic (Page 62)</p>

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
15	If results are satisfactory, enter local mode, home cursor, and clear screen. Depress REC.	All data is cleared, REC lights.	Controller Logic (Page 62)
<p><u>MODIFIED FOX TEST THREE</u></p>			
<p>In this test, Data Test Center will send FOX message again, this time with DLE-EOT sequence at end-of-message. If data set has auto-answer capability, the auto-answer operation will be checked during this test.</p>			
16	<p>If data set is arranged for auto-answer, hang up to disconnect call and set station for auto-answer per standard procedure for data set used:</p> <p><u>Data Set 202C</u></p> <p>Depress AUTO key on data set. Place handset on switchhook. Depress REC on KD, or PRINT ON LINE on KDP if Option 29.a. present (indicator lights).</p> <p><u>Data Set 202S</u></p> <p>Depress appropriate Line key. Place handset on switchhook. Depress REC on KD, or PRINT ON LINE on KDP (indicator lights).</p> <p><u>Data Set 202R</u></p> <p>Auto-answer not available. If not equipped for auto-answer, depress REC on terminal, and go to data mode manually when instructed by Data Test Center operator.</p>	<p>For auto-answer operation (Data Set 202S equipped with auto-answer), DATA button or indicator lights automatically when Data Test Center calls station.</p> <p>Printer of KDP may copy message with KDP in local mode if PRINT ON LINE key lit. KD copies message. Characters (D_L) and (E_T) are not printed on printer at station under test.</p> <p>Station will disconnect on receipt of DLE-EOT. Terminal goes to local mode. (Data Set 202C or 202S drops out of data mode and disconnects from line. On Data Set 202R handset must be placed on switchhook.)</p>	<p>Terminal Analysis (Page 55)</p> <p>Controller Logic (Page 62)</p>
17	<p>Call Data Test Center in talk mode and evaluate results of test.</p> <p>If results are satisfactory, home cursor and clear screen. Depress REC.</p>		

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT – KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
<p><u>MODIFIED FULL ASCII TEST ONE</u></p>			
<p>In this test, Data Test Center will send a test message containing all ASCII code characters except D₂, D₃, and D₄ should be removed. Station under test will receive message, then send it back to Data Test Center for comparison with original message. Both operators will go to talk mode for evaluation of test.</p>			
<p>18</p>	<p>For KDP equipped with tractor feed printer, set FORMS switch on printer to OFF. Depress PRINT ON LINE if KDP. When instructed by Data Test Center, enter data mode.</p>	<p>Full ASCII message displayed on screen (and suitable characters printed if KDP and PRINT ON LINE selected).</p>	<p>Terminal Analysis (Page 55) Controller Logic (Page 62)</p>
		<p><i>Note 1:</i> CR symbols (←) appear if Option 5.d. enabled; do not appear if Option 5.c. enabled. NULL symbols (NU) appear if Option 5.b. enabled; do not appear if Option 5.a. enabled. DEL symbols (/) appear if Option 5.f. enabled; do not appear if Option 5.e. enabled.</p>	
<pre>!"#\$%&'()*+,-./0123456789:;<=>? !"#\$%&'()*+,-./0123456789:;<=>? @ABCDEFGHIJKLMN0PQRSTUVWXYZ[\]^_`~ @ABCDEFGHIJKLMN0PQRSTUVWXYZ[\]^_`~ @ABCDEFGHIJKLMN0PQRSTUVWXYZ[\]^_`~ @ABCDEFGHIJKLMN0PQRSTUVWXYZ[\]^_`~</pre>		<p><i>Note 2:</i> Illustration shows print-out for up-low printer with Option 21.b. enabled or monospace printer with Option 22.b. enabled.</p>	
<pre>!"#\$%&'()*+,-./0123456789:;<=>? !"#\$%&'()*+,-./0123456789:;<=>? @ABCDEFGHIJKLMN0PQRSTUVWXYZ[\]^_`~ @ABCDEFGHIJKLMN0PQRSTUVWXYZ[\]^_`~ `abcdefghijklmnopqrstuvwxyz{ }~ `abcdefghijklmnopqrstuvwxyz{ }~</pre>		<p><i>Note 3:</i> Illustration shows print-out for up-low printer with Option 21.a. enabled, last two lines will print lower case. For monospace printer with Option 22.a. enabled, last two lines will print as errored character symbols (⌘).</p>	
<p>Terminal reverts to local mode.</p>			

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
19	<p>Home cursor; depress PRINT ON LINE for KDP and depress SEND.</p> <p><i>Note:</i> Print on line function will be determined by Option 29.a.</p> <p>Go to talk mode and evaluate results of test with Data Test Center.</p> <p>If results are satisfactory, enter local mode, home cursor, clear screen. Depress REC.</p>	<p>Cursor moves through message.</p> <p>Printer prints if KDP and Option 29.a. enabled.</p> <p>Transmission stops, terminal reverts to receive upon sending EOT.</p>	Terminal Analysis (Page 55)
<u>MODIFIED FULL ASCII TEST TWO</u>			
<p>In this test, Data Test Center will send a test message containing all ASCII code characters except D₂ and D₄. Station under test will receive message, then send it back to Data Test Center. If terminal has Issue 4B or later of 410674 circuit card, make sure Option 5.j. is used.</p>			
20	For KDP, depress PRINT ON LINE. Depress REC. When instructed by the Data Test Center, enter data mode.	<p>Full ASCII message is displayed minus the characters D₂ and D₄. Message will be displayed as in Step 18 except for absence of D₂ and D₄ characters.</p> <p>Revert to LOCAL.</p>	Terminal Analysis (Page 55) Controller Logic (Page 62)
21	<p>Home cursor, depress PRINT ON LINE for KDP, depress SEND.</p> <p><i>Note:</i> Terminal is now in expanded conversational mode. Keyboard on-line, a character at-a-time.</p>	<p>Cursor moves through message and stops on D₃ character. Data Test Center receives all data through D₃. SEND goes out. S/R lights. REC lights.</p> <p>Opcon is now active for expanded conversational mode testing.</p>	Terminal Analysis (Page 55) Controller Logic (Page 62) Operator Console (Opcon) (Section 582-211-500).
22	Test Center send E _C f character sequence.	<p>SEND key lights. REC key goes out. S/R still lighted.</p> <p><i>Note:</i> If 410674 circuit card is earlier than Issue 4B, you must manually depress SEND key to light it.</p>	Operator Console (Opcon) (Section 582-211-500) Controller Logic (Page 62)

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT – KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
23	Type several U*U* characters on operator console.	U*U* characters should appear on display monitor as characters are typed on operator console. The Data Test Center should have received U*U*.	Controller Logic (Page 62) Display Logic (Page 58)
24	<p>Type the following escape sequences and characters on the operator console. Characters are sent on-line while being typed.</p> <p><i>Note:</i> "E_C" is "ESC" key on opcon.</p> <p>D₂ RYRY D₄</p> <p style="margin-left: 100px;">E_C3 } FOX } E_C4 }</p> <p style="margin-left: 100px;">E_C1 E_C2 E_C0 E_CB E_CC E_C7 E_CG E_CJ U*U* E_CB U*U (Cursor left) (←) E_CL E_CM E_CW } FOX } E_CX }</p> <p style="margin-left: 100px;">E_CH E_CT E_CS</p>	<p>The display monitor of station under test should display the data and functions performed.</p> <p><i>Note:</i> If FDX is selected as an option (Option 41.b.), display will not follow sequences sent if no local copy is provided in data set.</p> <p>Escape sequences will be performed if Option 6.b. is enabled and displayed if 6.a. is enabled.</p> <p>KDP only: PRINT ON LINE turns on, printer copies RYRY, then PRINT ON LINE turns off.</p> <p>FOX should be displayed as highlighted characters.</p> <p>◆ Tab (Column) Set ◆ Tab Clear Single Tab Set Cursor Down Cursor Right Cursor Up Cursor Return Clear (Single tab does not clear). U*U* is displayed. Cursor Down U*U is displayed. Backspace is sent. Line Insert Line Delete FOX should be displayed as protected characters.</p> <p>Cursor Home Scroll Down Scroll Up</p>	<p>Terminal Analysis (Page 55)</p> <p>Controller Logic (Page 62)</p> <p>Display Logic (Page 58)</p>

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
24 (Cont) <i>Note:</i> Enter E _C U for each memory segment present in station.	{ E _C U E _C U E _C U E _C @ E _C R U*U* E _C G E _C P E _C ^ DL EX	Seg Adv (to 2nd segment) Seg Adv (to 3rd segment) Seg Adv (to 1st segment) Cursor Tab Clear ALL, Cursor Home U*U* is displayed. Cursor Return Character Delete Character Insert Station should revert to local mode and data set should remain in data mode.	{ For two or three segment terminals only. { For three segment terminals only.
25	Depress S/R. Depress SEND and send (by typing) following characters: U*U* E _T from operator console. If Issue 4B of 410674 circuit card is present and Option 40.a. is enabled, depress SEND and repeat this step, ending with ← instead of E _T .	S/R and REC light. S/R and SEND light. U*U* is received at Data Test Center. Station should revert to S/R receive mode.	Terminal Analysis (Page 55) Controller Logic (Page 62)
<u>OPTIONS TEST</u>			
In this test, Data Test Center will send a test message to check the on-line options in the terminal under test. Station under test will receive message, then send it back to Data Test Center for comparison with original message. Both operators will go to talk mode for evaluation of test.			
26	When instructed by the Data Test Center, depress RECEIVE and PRINT ON LINE, and enter data mode per standard procedures from data set being used.	Option test message displayed on screen (printed if KDP as follows:  Display shows factory programmed options — Reject NULS (Option 5.a.) DEL (Option 5.e.), and CR (Option 5.c.).	Controller Logic (Page 62)

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
<p>26 (Cont)</p>		 <p>Exceptions to factory programed options — NUL displayed as NU (Option 5.b.), DEL displayed as / (Option 5.f.), and CR displayed as ← (Option 5.d.).</p> <p>Print-out for Option 19.c.:</p> <p>5 NULLS 5 DELETES 5 CRS 5 BAD PARITY 12345 5 BELLS</p> <p><i>Note:</i> Message received on printer may “data stack” (carriage returns inserted during line of data, data “stacked” together, no missing characters).</p> <p>Printer will feed out 16 lines on receipt of ETX, if Option 18.c. is enabled. Upon receipt of Ex at end-of-message, station will revert to local mode, if Option 8.c. is enabled. Data set does not disconnect. Option 18.c. should not be used with tractor feed printers.</p>	<p>Printer (Section 582-210-500)</p>
<p>27</p>	<p>Change ETX at end-of-message to EOT.</p> <p>Home cursor and depress SEND.</p> <p><i>Note:</i> If Option 27.a. is enabled, cursor automatically homes on depressing SEND.</p> <p>Check Option 27.a. when cursor is not in home positon.</p>	<p>Ex is replaced by Et.</p> <p>SEND lights and cursor moves through message. Printer prints if KDP.</p> <p>Station reverts to receive after sending EOT.</p> <p>For KDP, printer stops immediately (Option 53.b.) or after a two minute delay (Option 53.a.).</p>	<p>Operator Console (Opcon) (Section 582-211-500)</p> <p>Controller Logic (Page 62)</p> <p>Display Logic (Page 58)</p>

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

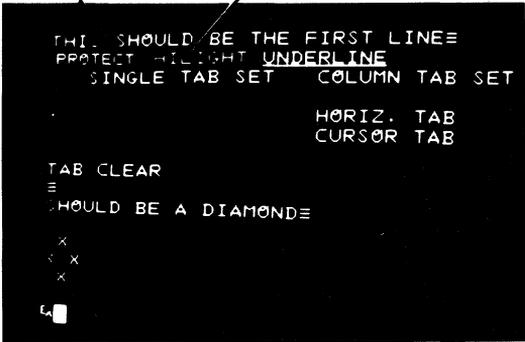
STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
28	Go to talk mode and evaluate results of test with Data Test Center operator. If results are satisfactory, home cursor and clear screen (local mode).		
<p><u>STEPS 29 THROUGH 36. APPLY ONLY TO FULL-EDIT KD OR KDP WITH OPTION 6.b. ENABLED. FOR FULL-EDIT TERMINALS WITH OPTION 6.a. ENABLED, GO TO STEP 37.</u></p> <p><u>EDIT TEST</u></p> <p>In this test, Data Test Center will send a test message to check the response to escape sequences of the terminal under test. Station under test will receive message, then send it back to Data Test Center for comparison with original message. Both operators will go to talk mode for evaluation of test.</p>			
29	<p>When instructed by Data Test Center operator, depress RECEIVE, PRINT ON LINE, and enter data mode.</p> <p>HALF INTENSITY</p> <p>FLASHING</p> 	<p>REC and PRINT ON LINE light.</p> <p>Cursor automatically goes home.</p> <p>Edit test message displayed on screen (and printed, if KDP) as below:</p>	<p>Terminal Analysis (Page 55)</p> <p>Controller Logic (Page 62)</p> <p>Printer (Section 582-210-500)</p>
<p>Note: Printed message should <u>NOT</u> contain suffixes of escape sequences sent by Data Test Center.</p>		<p>Upon receipt of ETX at end-of-message, station should revert to the local mode if Option 8.c. is enabled.</p>	

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
29 (Cont)		For KDP, friction feed printer feeds out 16 lines of paper on receipt of ETX, if Option 18.c. is enabled. <i>Note:</i> Option 18.c. should not be used with tractor feed printers.	
30	Change ETX at end-of-message to EOT.	E _X is replaced by E _T .	Operator Console (Opcon) (Section 582-211-500) Controller Logic (Page 62)
31	Depress PRINT ON LINE if KDP. Depress FORM SEND.	PRINT ON LINE and FORM SEND keys light.	Operator Console (Opcon) (Section 582-211-500) Controller Logic (Page 62)
32	Home cursor, depress SEND. <i>Note 1:</i> If Option 27.a. is enabled, cursor will automatically home on depressing SEND.	SEND lights and cursor moves through message. Printer prints if KDP. Upon sending EOT, station reverts to receive mode. <i>Note 2:</i> Option 18.c. should not be used with tractor feed printers.	Operator Console (Opcon) (Section 582-211-500) Controller Logic (Page 62)
33	Go to talk mode and evaluate results of test with Data Test Center operator.		
34	Depress LOCAL, HOME, and SEND. <i>Note:</i> If Option 27.a. is enabled, cursor will automatically home on depressing SEND.	Cursor goes home and SEND lights.	Controller Logic (Page 62)
35	When instructed by Data Test Center operator, go to data mode.	Cursor moves through message. Printer prints if KDP. After sending EOT, station reverts to receive mode.	Operator Console (Opcon) (Section 582-211-500) Controller Logic (Page 62)

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
36	<p>Go to talk mode and evaluate results of test with Data Test Center operator.</p> <p>If results are satisfactory, depress LOCAL, home cursor (local mode) and depress FORM ENTER, TAB CLEAR, and CLEAR, then depress FORM ENTER again.</p> <p><i>Note:</i> Option 12.b. must be enabled to clear or change protected data.</p>		
<p><u>STEPS 37 THROUGH 49 APPLY ONLY TO FULL-EDIT KD OR KDP WITH OPTION 6.a. ENABLED. FOR FULL-EDIT TERMINALS WITH OPTION 6.b. ENABLED, PERFORM STEP 29 THROUGH STEP 36.</u></p> <p><u>EDIT TEST</u></p> <p>In this test, Data Test Center will send a test message to check the response to escape sequences of the terminal under test. Both operators will go to talk mode for evaluation of test. Stations will then disconnect while message is prepared manually on terminal under test. Station under test will call Data Test Center and send prepared message. Both operators will go to talk mode to evaluate results.</p>			
37	<p>When instructed by Data Test Center operator, depress PRINT ON LINE of KDP, depress REC, go to data mode.</p> <div data-bbox="110 1011 798 1094" style="background-color: black; color: white; padding: 5px;"> <pre> * * * * * * THIS SHOULD BE THE FIRST LINE * * PROTECT * * * * * HIGHLIGHT * * * * * UNDERLINE * * * * * SINGLE TAB SET * * * * * COLUMN TAB SET * * * * * * HORIZ. TAB * * * * * CURSOR * * * * * TAB * * * * * CLEAR * * * * * * SHOULD BE A DIAMOND * * * * * * * * * * * SHOULD NOT REMAIN ON DISPLAY * * * * * </pre> </div> <p>THIS SHOULD BE THE FIRST LINE PROTECT HIGHLIGHT UNDERLINE SINGLE TAB SET COLUMN TAB SET HORIZ. TABCURSOR TABTAB CLEAR SHOULD BE A DIAMOND XXXXSHOULD NOT REMAIN ON DISPLAY</p>	<p>Edit test message displayed on screen (and printed, if KDP) as below:</p> <p>Upon receipt of ETX at end-of-message, terminal will go to local mode, if Option 8.c. is enabled. For KDP, friction feed printer feeds out 16 lines of paper on receipt of ETX if Option 18.c. is enabled. Option 18.c. should not be used with tractor feed printers.</p>	<p>Terminal Analysis (Page 55)</p> <p>Controller Logic (Page 62)</p>
38	<p>Go to talk mode and evaluate results of test with Data Test Center operator.</p>		

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
39	When instructed by Data Test Center operator, hang up to disconnect call.		
40	<p>With terminal in local mode, enter following message on display: (Procedure is indicated in message.)</p>  <p>① — FORM ENTER on ② — FORM ENTER off; HIGHLIGHT on, one space ③ — HIGHLIGHT off, then Depress spacebar three times Depress TAB SET Depress cursor left (←) once Depress TAB Depress spacebar once Depress CONTROL and EOT.</p>		
41	Home cursor, depress FORM SEND, depress PRINT ON LINE if KDP, depress REC.	FORM SEND, PRINT ON LINE, and REC keys light.	Operator Console (Opcon) (Section 582-211-500)
42	Place call to Data Test Center in talk mode and advise operator that message has been prepared for transmission.		
43	When instructed by Data Test Center operator, go to data mode, and depress SEND.	<p>SEND lights and cursor moves through message. Printer prints if KDP. Printing depends upon Option 29.</p> <p>Transmission stops and terminal reverts to receive mode upon transmitting EOT at end-of-message.</p>	
44	Go to talk mode and evaluate results of test with Data Test Center operator.		

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
45	Depress LOCAL and HOME.	LOCAL lights, FORM SEND goes out. Cursor goes to home position.	Terminal Analysis (Page 55) Controller Logic (Page 62) Operator Console (Opcon) (Section 582-211-500)
46	Depress PRINT ON LINE if KDP, depress REC.	PRINT ON LINE lights. LOCAL goes out and REC lights.	
47	When instructed by Data Test Center operator, go to data mode, then depress SEND.	SEND lights and cursor moves through message as before. Printer prints if KDP. Transmission stops and terminal reverts to receive mode upon transmission of EOT at end-of-message.	
48	Go to talk mode and evaluate results of test with Data Test Center operator.		
49	Depress LOCAL, HOME, then TAB CLEAR. Depress FORM ENTER, then CLEAR. Depress FORM ENTER.	LOCAL lights, cursor goes home, and tab marks are cleared. FORM ENTER lights, and all data is cleared from screen. FORM ENTER goes out.	
THIS COMPLETES ON-LINE CHECKOUT PROCEDURES FOR KD/KDP STATIONS USING 202-TYPE DATA SETS. FOR CHECKOUT OF KD/KDP STATIONS OPERATING WITH 103-TYPE DATA SETS, REFER TO STEP 50.			
50	For complete on-line checkout of KD/KDP stations, utilizing 103-type modem interface, if no options are given, option Teletypewriter Compatible DATASPEED 40/2 as follows: 3.h. — 300 Baud 4.b. — Reverse Channel Not Required to Send 5.a., — Reject Null, Delete, c.,e., CR, DC ₁ , and DC ₃ . g.,i.	<i>Note:</i> This checkout can be used for stations operating with 113-A type data sets provided all calls are placed from station, not Data Test Center.	

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT – KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
50 (Cont)	6.b. – Perform Escape Sequences 7.b. – Disable Vertical Parity Detection 8.a., – End on EX, ET, c.,e.,g. FF, GS 9.b. – Send Highlight Delimiters 11.a. – Go Local After Sending 19.c. – Not Printed on Parity Error (KDP is being checked out) 40.a. – Go Rec on Sending CR (if Issue 4B of 410674 circuit card is present) 41.a. – Half-Duplex 42.a. – Send Even Parity 43.a. – Send One Stop Bit 44.a. – Enable EIA Rec Data 45.b. – Disable Rec Data From Current Loop 46.a. – 103-Type Modem Interface 47.a – Enable PTR Interface (if KDP only) 49.a. – Enable Interrupt Feature (if KD only)		
51	With power on and local mode selected, depress FORM ENTER, HOME, CLEAR, TAB CLEAR, and FORM ENTER.	LOCAL lit. Cursor goes home and all data is cleared from screen.	Terminal Analysis (Page 55)
52	Depress REC. For KDP, depress PRINT ON LINE. If call is not already established as a result of Brief On-Line Checkout (Table C), call Data Test Center in talk mode and request complete on-line checkout: For Data Set 103A3: Depress CLEAR/TALK key, lift handset, and dial Data Test Center.	REC lights (LOCAL goes out). For KDP, PRINT ON LINE lights. <i>Note:</i> If this is original call, Data Test Center will normally request station requesting test to hang up and wait for return call. When Data Test Center calls back, answer call in talk mode and follow instructions of Data Test Center operator.	Controller Logic (Page 62)

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
<u>REPEATED FOX TEST</u>			
In this test, Data Test Center will send a repeating FOX message. Station under test will receive message, then send it back to Data Test Center for comparison with original message.			
53	When instructed by Data Test Center, go to data mode per standard procedure.	<p>Repeated FOX message displayed on screen (and printed on printer, if KDP) as below:</p> <pre data-bbox="268 536 1081 600"> <←≡ THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890<←≡ THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890<←≡ </pre> <p><i>Note:</i> One or more CR (Carriage Return) symbols (←) may appear as above if Option 5.d. enabled. CR rejected if Option 5.c. enabled.</p> <p>THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890 THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890</p>	<p>Data Set Problem (Page 57)</p> <p>Terminal Analysis (Page 55)</p>
54	Go to local mode and type EOT over the ETX at the end of the message.	Display appears as in Step 53, but E _X is replaced by E _T .	
55	<p>Home cursor and depress SEND. If KDP, also depress PRINT ON LINE.</p> <p>If Option 27.a. is enabled, cursor will go home on depressing SEND. Try it when cursor is not in home position.</p>	<p>SEND lights (Local goes out).</p> <p>Cursor moves through message.</p> <p>Printer prints message if KDP, and Option 29.a. enabled.</p> <p>KD and KDP revert to local upon sending EOT. Data Set Disconnects.</p>	<p>Operator Console (Opcon) (Section 582-211-500)</p> <p>Controller Logic (Page 62)</p> <p>Data Set Problem (Page 57)</p>
56	<p>If results of fox test are satisfactory, home cursor and clear screen (local mode).</p> <p>Depress REC.</p>	<p>Cursor goes home, screen clears.</p> <p>LOCAL goes out.</p> <p>REC lights.</p>	Terminal Analysis (Page 55)

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — K_D AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
<u>MODIFIED FOX TEST ONE</u>			
In this test, the Data Test Center will send FOX message again, this time with Form Feed (FF) as the ending character. Both operators will go to talk mode for evaluation of test.			
57	For KDP with tractor feed printer, make sure the FORMS switch is on. Depress PRINT ON LINE if KDP.		
58	Depress CLEAR/TALK key, lift handset, and dial Data Test Center. When instructed by Data Test Center, go to data mode per standard procedure for data set used.	<p>FOX message displayed on screen (and printed if KDP).</p> <p><i>Note:</i> One or more CR (carriage Return) symbols (←) may precede New Line symbol (≡) if Option 5.d. enabled. CR rejected if Option 5.c. enabled.</p> <p>If KDP has tractor feed printer, form out occurs on receipt of FF at end-of-message (FORM switch on). Check for proper form out length.</p> <p>Upon receipt of FF at end-of-message, terminal reverts to local, if Option 8.a. is enabled.</p>	<p>Terminal Analysis (Page 55)</p> <p>Controller Logic (Page 62)</p> <p>Printer (Section 582-210-500)</p>
59	<p>Go to talk mode per standard procedure for data set used and evaluate results of test with Data Test Center operator.</p> <p>If results of test are satisfactory, home cursor and clear screen then depress REC.</p>		
<u>MODIFIED FOX TEST TWO</u>			
In this test, Data Test Center will send FOX message again, this time with G _S (Group Separator) as the ending character. Both operators will go to talk mode for evaluation of test.			
60	When instructed by the Data Test Center, enter the data mode per standard procedure for the data set being used.	FOX message is received and displayed on screen with G _S (Group Separator) as end character.	<p>Terminal Analysis (Page 55)</p> <p>Controller Logic (Page 62)</p>

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
60 (Cont)		<p><i>Note:</i> One or more CR (←) symbols may be displayed preceding New Line symbol (≡) if Option 5.d. enabled. CR (←) rejected if Option 5.c. enabled. At end-of-message, the terminal will revert to local, if Option 8.g. is enabled.</p>	
61	<p>Home cursor, depress SEND. After cursor stops at ending character, go to talk mode per standard procedure for data set being used to evaluate results with Data Test Center operator.</p>	<p>Message is sent. Revert to local (goes to receive, if Option 11.b. is enabled.)</p>	<p>Terminal Analysis (Page 55) Controller Logic (Page 62)</p>
62	<p>If the results are satisfactory, enter local mode, home cursor and clear screen. Depress REC.</p>	<p>All data is cleared. REC lights.</p>	<p>Controller Logic (Page 62)</p>
<p>MODIFIED FULL ASCII TEST</p> <p>In this test, Data Test Center will send a test message containing all ASCII code characters except, D₂, D₃, and D₄ should be removed. Station under test will receive message, then send it back to Data Test Center for comparison with original message. Both operators will go to talk mode for evaluation of test.</p>			
63	<p>For KDP equipped with tractor feed printer, set FORMS switch on printer to OFF. Depress PRINT ON LINE if KDP. Depress REC. When instructed by Data Test Center, enter data mode per standard procedures for data set being used.</p>	<p>Full ASCII message displayed on screen (and suitable characters printed if KDP and PRINT ON LINE selected).</p>	<p>Terminal Analysis (Page 55) Controller Logic (Page 62)</p>



TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
63 (Cont)	<pre> ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 ; : < = > ? ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 ; : < = > ? @ ABCDEFGHIJKLMNOPQRSTUVWXYZ [\] ^ _ @ ABCDEFGHIJKLMNOPQRSTUVWXYZ [\] ^ _ @ ABCDEFGHIJKLMNOPQRSTUVWXYZ [\] ^ _ @ ABCDEFGHIJKLMNOPQRSTUVWXYZ [\] ^ </pre>	<p><i>Note 1:</i> CR symbols (←) appear if Option 5.d. enabled; do not appear if Option 5.c. enabled. NULL symbols (NU) appear if Option 5.b. enabled; do not appear if Option 5.a. enabled. DEL symbols (/) appear if Option 5.f. enabled; do not appear if Option 5.e. enabled.</p> <p><i>Note 2:</i> Illustration shows print-out for up-low printer with Option 21.b. enabled or monospace printer with Option 22.b. enabled. For up-low printer with Option 21.a. enabled, last two lines will print lower case. For monospace printer with Option 22.a. enabled, last two lines will print as errored characters symbols (⌘^A⌘_A).</p> <p>Terminal reverts to local mode. Data set disconnects.</p>	
64	<p>Enter local mode and change EOT at end-of-message to ETX. Home cursor, depress PRINT ON LINE for KDP. Depress REC. Recall Data Test Center, and when instructed, enter data per standard procedure for data set being used.</p> <p>Test Center sends Ecf character sequence.</p>	<p>EOT is replaced by ETX in message. REC lights. SEND lights (see Note) and cursor moves through message. Printer prints if KDP and Option 29.a. enabled. Transmission stops after ETX is sent. Station now reverts to local (goes to receive, if Option 11.b. is enabled).</p> <p><i>Note:</i> If 410674 circuit card is earlier than Issue 4a, you must manually depress SEND key to light it.</p>	Terminal Analysis (Page 55)
65	<p>Go to talk mode and evaluate results of test with Data Test Center.</p> <p>If results are satisfactory, home cursor and clear screen.</p>	LOCAL lights, screen clears.	Terminal Analysis (Page 55)

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
<u>MODIFIED FULL ASCII TEST TWO</u>			
In this test, Data Test Center will send a test message containing all ASCII code characters except D ₂ and D ₄ . Station under test will receive message, then send it back to Data Test Center.			
66	For KDP, depress PRINT ON LINE. Depress REC. When instructed by Data Test Center, enter data mode.	Full ASCII message is displayed minus characters D ₂ and D ₄ . Message will be displayed as in Step 18, except for absence of D ₂ and D ₄ characters. Station goes to local data set disconnects.	Terminal Analysis (Page 55) Controller Logic (Page 62)
67	Recall Test Center. Home cursor, depress REC. Depress PRINT ON LINE for KDP. Enter data mode per standard procedure when instructed then depress SEND. <i>Note:</i> Terminal is now in expanded conversational mode. Keyboard on-line, a character at-a-time. Receipt of DLE ETX, DLE GS or DLE FF will force station to local mode. Sending DLE ETX, DLE FF, DLE GS will force the station to local mode, but the data set will not disconnect.	SEND lights PRINT ON LINE lights. Cursor moves through message and stops on D ₃ character. Data Test Center receives all data up to D ₃ . S/R, SEND, and RECEIVE light. Opcon is now active for expanded conversational mode testing.	Terminal Analysis (Page 55) Controller Logic (Page 62) Operator Console (Opcon) (Section 582-211-500)
68	Type several U*U* characters on operator console.	U*U* characters should appear on display monitor as characters are typed on operator console. The Data Test Center should have received U*U*.	Controller Logic (Page 62) Display Logic (Page 58)
69	Type the following escape sequences and characters on the operator console. Characters are sent on-line while being typed. <i>Note:</i> "E _c " is "ESC" key on opcon.	The display monitor of station under test should display the data and functions performed. <i>Note:</i> If FDX is selected as an option (Option 41.b.), display will not follow sequences sent. Escape sequences will be performed if Option 6.b. is enabled and displayed if 6.a. is enabled.	Terminal Analysis (Page 55) Controller Logic (Page 62) Display Logic (Page 58)

TABLE D (Cont)
COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
<p>69 (Cont)</p> <p><i>Note:</i> Enter E_CU for each memory segment present in station.</p>	<p>D₂ RYRY D₄</p> <p>E_C3 } FOX } E_C4 }</p> <p>E_C1 E_C2 E_C0 E_CB E_CC E_C7 E_CG E_CJ U*U* E_CB U*U CURSOR left (←) E_CL E_CM E_CW } FOX } E_CX }</p> <p>E_CH E_CT E_CS</p> <p>{ E_CU E_CU E_CU</p> <p>E_C@ E_CR U*U* E_CG E_CP E_C ^ DLE E_X</p>	<p>{ KDP only: PRINT ON LINE turns on, printer copies RYRY, then PRINT ON LINE turns off.</p> <p>FOX should be displayed as high-lighted characters.</p> <p>◆ Tab (Column) Set ◆ Tab Clear Single Tab Set Cursor Down Cursor Right Cursor Up Cursor Return Clear (single tab does not clear). U*U* is displayed. Cursor Down U*U is displayed. Backspace is sent. Line Insert Line Delete FOX should be displayed as protected characters.</p> <p>Cursor Home Scroll Down Scroll Up</p> <p>Seg Adv (to 2nd segment) ← Seg Adv (to 3rd segment) ← Seg Adv (to 1st segment)</p> <p>Cursor Tab Clear ALL, Cursor Home Cursor Return Character Delete Character Insert Station should revert to local mode and data set should remain in data mode.</p>	<p>For two or three segment terminals only. For three segment terminals only.</p>
<p>70</p>	<p>Depress S/R.</p> <p>Send (by typing) the following characters: U*U* from operator console.</p> <p>Send E_T.</p>	<p>S/R, REC, and SEND light.</p> <p>U*U* is received at Data Test Center and displayed on display monitor.</p> <p>Station reverts to local mode. Data set disconnects.</p>	<p>Terminal Analysis (Page 55)</p> <p>Controller Logic (Page 62)</p>

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
71 (Cont)		Printer will feed out 16 lines on receipt of ETX if Option 18.c. is enabled. Option 18.c. should not be used with tractor feed printers. Station will revert to local mode if Option 8.c. is enabled. Data set does not disconnect.	
72	Change ETX at end-of-message to EOT. Home cursor and depress SEND. <i>Note:</i> If Option 27.a. is enabled, cursor automatically homes on depressing SEND. Try when cursor is not in home position.	Ex is replaced by Et. SEND lights and cursor moves through message. Printer prints if KDP. Station reverts to local after sending EOT. Data set disconnects. <i>Note:</i> Data Set 113A does not disconnect although data set at Data Test Center does.	Operator Console (Opcon) (Section 582-211-500) Controller Logic (Page 62) Display Logic (Page 58)
73	Depress CLEAR/TALK key, lift handset, and dial Data Test Center. Evaluate results of test with Data Test Center operator. If results are satisfactory, home cursor and clear screen (local mode).		
<p><u>STEPS 74 THROUGH 78. APPLY ONLY TO FULL-EDIT KD OR KDP WITH OPTION 6.b. ENABLED. FOR FULL-EDIT TERMINALS WITH OPTION 6.a. ENABLED, GO TO STEP 79.</u></p> <p><u>EDIT TEST</u></p> <p>In this test, Data Test Center will send a test message to check the response to escape sequences of the terminal under test. Station under test will receive message, then send it back to Data Test Center for comparison with original message. Both operators will go to talk mode for evaluation of test.</p>			
74	When instructed by Data Test Center operator, depress RECEIVE, PRINT ON LINE, and enter data mode.	REC and PRINT ON LINE light. Cursor automatically goes home. Edit test message displayed on screen (and printed, if KDP) as follows:	Terminal Analysis (Page 55) Controller Logic (Page 62) Printer (Section 582-210-500)

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

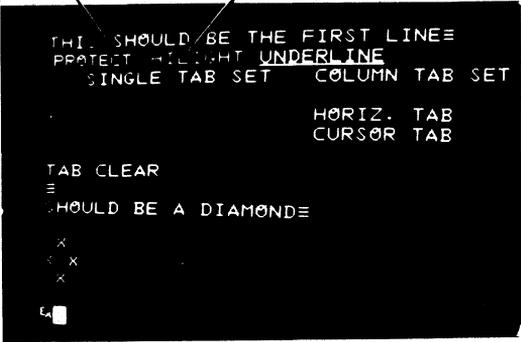
STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
<p>74 (Cont)</p>	<p>HALF INTENSITY FLASHING</p>  <p><i>Note:</i> KDP printed message should <u>NOT</u> contain suffixes of escape sequences sent by Data Test Center.</p>	<p>Upon receipt of ETX at end-of-message, station should revert to the local mode, if Option 8.c. is enabled.</p> <p>For KDP, friction feed printer feeds out 16 lines of paper on receipt of ETX if Option 18.c. is enabled.</p> <p><i>Note:</i> Option 18.c. should not be used with tractor feed printers.</p>	
<p>75</p>	<p>Depress PRINT ON LINE if KDP. Depress FORM SEND.</p>	<p>PRINT ON LINE and FORM SEND keys light.</p>	<p>Operator Console (Opcon) (Section 582-211-500) Controller Logic (Page 62)</p>
<p>76</p>	<p>Home cursor, depress SEND. <i>Note 1:</i> If Option 27.a. is enabled, cursor will automatically home on depressing SEND.</p>	<p>SEND lights and cursor moves through message. Printer prints if KDP.</p> <p>Upon sending ETX, station reverts to local mode, if Option 8.c. is enabled.</p> <p>FORM SEND light goes out.</p> <p><i>Note 2:</i> Option 18.c. should not be used with tractor feed printers.</p>	<p>Operator Console (Opcon) (Section 582-211-500) Controller Logic (Page 62)</p>

TABLE D (Cont)

COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
77	<p>Home cursor, depress SEND.</p> <p><i>Note:</i> If Option 27.a. is enabled, cursor will automatically home on depressing SEND.</p>	<p>SEND lights and cursor moves through message.</p> <p>After sending ETX, station reverts to local mode.</p>	<p>Operator Console (Opcon) (Section 582-211-500)</p> <p>Controller Logic (Page 62)</p>
78	<p>Go to talk mode and evaluate results of test with Data Test Center operator.</p> <p>If results are satisfactory, home cursor (local mode) and depress FORM ENTER, TAB CLEAR, and CLEAR, then depress FORM ENTER again.</p> <p><i>Note:</i> Option 12.b. must be enabled to clear or change protected data.</p>		
<p>STEPS 79 THROUGH 81 APPLY ONLY TO FULL-EDIT KD OR KDP WITH OPTION 6.a. ENABLED. FOR FULL-EDIT TERMINALS WITH OPTION 6.b. ENABLED, PERFORM STEPS 74 THROUGH 78.</p>			
<p>EDIT TEST</p> <p>In this test, Data Test Center will send a test message to check the response to escape sequences of the terminal under test. Both operators will go to talk mode for evaluation of test. Stations will then disconnect while message is prepared manually on terminal under test. Station under test will call Data Test Center and send prepared message. Both operators will go to talk mode to evaluate results.</p>			
79	<p>When instructed by Data Test Center operator, depress PRINT ON LINE of KDP, depress REC, go to data mode.</p> <div data-bbox="139 1090 826 1166" style="background-color: black; color: white; padding: 5px;"> <pre> ^RPE LWTHI, SHOULD BE THE FIRST LINE# LWPROTECT&X 5HILIGHT& UNDERLINE# 6SINGLE TAB SET 5ICOLUMN TAB SET&R& HORIZ. TAB&CURSOR TAB&CURSOR TAB&CURSOR2TAB CLEAR&R&G SHOULD BE A DIAMOND &B&X&Y &X&B&X&B SHOULD NOT REMAIN ON DISPLAY&R&J&B& </pre> </div> <p>THIS SHOULD BE THE FIRST LINE PROTECT HILIGHT <u>U N D E R L I N E</u> SINGLE TAB SET COLUMN TAB SET HORIZ. TABCURSOR TABTAB CLEAR SHOULD BE A DIAMOND XXXXSHOULD NOT REMAIN ON DISPLAY</p>	<p>Edit test message displayed on screen (and printed, if KDP) as below:</p> <p>Upon receipt of ETX at end-of-message, terminal will go to local mode, if Option 8.c. is enabled. For KDP, friction feed printer feeds out 16 lines of paper on receipt of ETX if Option 18.c. is enabled. Option 18.c. should not be used with tractor feed printers.</p>	<p>Terminal Analysis (Page 55)</p> <p>Controller Logic (Page 62)</p>

TABLE D (Cont)
COMPLETE ON-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
80	Home cursor. Depress SEND.	SEND lights. Message is sent. Upon sending ETX, station reverts to local.	Terminal Analysis (Page 55)
81	Go to talk mode and evaluate results with Data Test Center.		
THIS COMPLETES THE ON-LINE CHECKOUT OF A TELETYPEWRITER COMPATIBLE DATASPEED 40 KD OR KDP USING A 103-TYPE DATA SET.			

5. TROUBLESHOOTING

5.01 The troubleshooting information contained herein is divided into two parts:

(a) Terminal Analysis — A step-by-step procedure to determine which component of the Teletypewriter Compatible DATASPEED 40 Station or Set is failing.

(b) Component Analysis — A step-by-step procedure to determine which subcomponent or part (or related adjustment) of the component (display logic, controller logic, etc) is causing failure.

5.02 To use the troubleshooting information, always start with Analysis Question 1 of the Terminal Analysis, and follow the indicated procedure to the directive which specifies jumping into the Component Analysis section. Then follow the specific Component Analysis indicated (ie, display logic, controller logic, etc) starting with Analysis Question 1 to isolate and correct the trouble by replacing the indicated defective component.

5.03 To locate components, circuit cards, connectors, test switches, indicator lamps and other elements indicated in the troubleshooting information, refer to Section 582-200-702, Disassembly/Reassembly, and Parts.

5.04 For wire color codes, cable, connector, and other wiring indicated for continuity checks etc, in troubleshooting, refer to Section 582-200-402, Wiring Diagrams.

5.05 If replacement of the part or subcomponent indicated in the Component Analysis does not correct the trouble, replace the next higher order of component (ie, fuse, power distribution assembly, display monitor, or entire terminal).

5.06 When installing a replacement component, make certain that all options (if present) in this component are implemented for proper set operation.

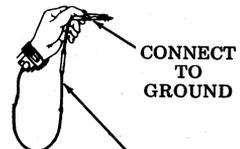
5.07 Where more than one component is specified for replacement, they shall be substituted one at a time in the order specified. The original component shall be replaced if the trouble is not corrected before making the next indicated substitution.

5.08 Once the trouble has been corrected, the terminal should be checked out to be sure that it is performing properly. Refer to the appropriate On-Line or Off-Line Checkout procedures.

5.09 The following caution procedures must be observed when troubleshooting the DATASPEED 40:

Warning 1: Turn off all power or signal sources before removing or replacing any component.

Warning 2: Personnel working with the Model 40 must wear a static protection ground strap when handling circuit cards with MOS devices. The strap must be worn so as to make firm contact with the skin at all times.



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Note: Service personnel are never to be connected directly to ground but rather through a high resistance discharge path of a minimum of one megohm where 115 V ac is present.

TABLE E
TERMINAL ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Do the fans turn when power is ON?	Go to 2.	Check ac to fan. Ref: Section 582-200-402, Wiring Diagrams Section 582-200-702, Disassembly/Reassembly, and Parts. Fan cable connected. Power switch(es) ON. AC present at fan assembly connector.
2. Does the LOCAL lamp on the opcon turn ON when power is turned ON?	Go to 4.	Go to 3.
3. Are all three LED indicators in the power supply ON?	Go to Section 582-211-500, Operator Console (Opcon). Go to Page 62, Controller Logic.	Go to Section 582-214-500, 40PSU101 Power Supply.
4. Is the red drive lamp I5 (in display monitor) ON?	Go to 5.	Go to Page 58, Display Logic. Go to Section 582-213-500, 40MN101 Display Monitor.
5. Is the red pilot lamp I7 (next to fuse on power distribution assembly in display monitor) ON?	Go to 6.	Go to Section 582-213-500, 40MN101 Display Monitor.
6. With the monitor OFF/ON control switch ON (CCW) and the operator brightness control to full intensity (CCW), is the raster visible?	Go to 8.	Go to 7.
7. Is the I6 high voltage lamp in the display monitor ON?	Check Master Brightness adjustment (Section 582-213-700, Display Monitor adjustments). Go to 8.	Go to Section 582-213-500, 40MN101 Display Monitor.
8. Is the cursor displayed on the monitor?	Go to 10.	Go to 9.

TABLE E (Cont)
TERMINAL ANALYSIS

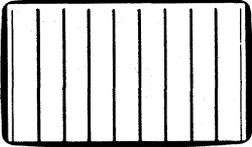
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>9. Turn operator brightness to full intensity (CCW). Depress test switch No. 1 (TS1) in display logic. Does a flashing vertical black bar pattern appear in the raster with no white pattern?</p> 	<p>Go to Section 582-213-500, 40MN101 Display Monitor.</p> <p>Go to Page 58, Display Logic.</p>	<p>Go to Page 58, Display Logic.</p>
<p>10. In the local mode, can all data (including editing functions) be input from the opcon to the display monitor on all segments?</p>	<p>Go to 11.</p>	<p>Go to Section 582-211-500, Operator Console (Opcon).</p> <p>Go to Page 58, Display Logic.</p> <p>Go to Page 62, Controller Logic</p>
<p>11. Are the characters displayed on the display monitor distorted?</p>	<p>Go to Section 582-213-500, 40MN101 Display Monitor.</p> <p>Go to Page 58, Display Logic.</p>	<p>Go to 12.</p>
<p>12. Do characters displayed on the display monitor correspond to those generated from the opcon?</p>	<p>Go to 13.</p>	<p>Go to Page 58, Display Logic</p> <p>Go to Page 62, Controller Logic.</p> <p>Go to Section 582-211-500, Operator Console (Opcon).</p>
<p>13. Does the terminal have a printer?</p>	<p>Go to 14.</p>	<p>Go to 18.</p>
<p>14. Does the printer respond properly when the PRINT LOCAL key on the opcon is depressed?</p>	<p>Go to 18.</p>	<p>Go to 15.</p>

TABLE E (Cont)
 TERMINAL ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
15. Does the PRINT LOCAL key on the opcon light?	Go to 16.	Go to Local Loop-Back Tests (Section 582-211-500). If PRINT LOCAL lamp fails test, replace opcon. If PRINT LOCAL lamp passes test, remove opcon from loop-back mode and go to 16.
16. Does the type carrier symbol ( or ) print in every column when the printer TEST switch TS9 is ON and the printer cover is closed or the interlock switch is in the maintenance up position?	Go to 17.	Go to Section 582-210-500, Printer.
17. Does the printer feed paper when PAPER ADVANCE is depressed?	Go to Page 62, Controller Logic. Go to Section 582-210-500, Printer.	Replace 341895 printer cable. Go to Page 62, Controller Logic. Go to Section 582-210-500, Printer.
18. Does the station perform on-line tests properly?	Place in service.	Go to Page 62, Controller Logic.

COMPONENT ANALYSIS

5.10 The following tables contain the Trouble Analysis for the logic in the DATASPEED 40/2 Station. Table F contains analysis for the Display Logic, and Table G contains analysis for the Controller Logic.

5.11 Trouble Analysis for components other than the Display Logic and Controller Logic can be found in the following BSPs:

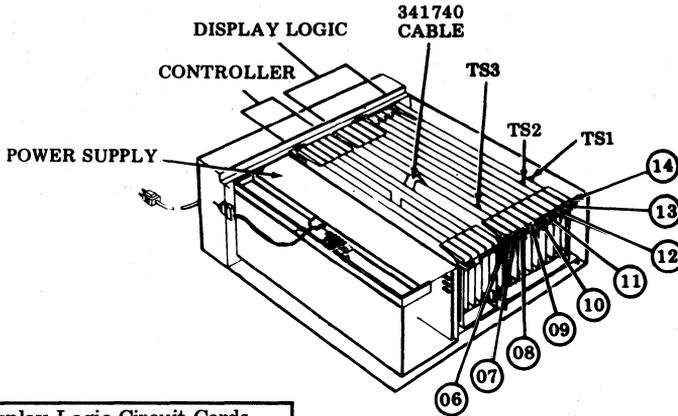
582-210-500 Printer
 582-211-500 Operator Console (Opcon)
 ♦ 582-213-500 40MN101 or 40MN201 Display Monitor ♦
 582-214-500 40PSU101 Power Supply

♦ 5.12 If Data Set problems are suspected, refer to the following BSPs for Data Set Test Procedures:

103G — 591-026-200
 103J — 591-039-200

103JR — 591-044-200
 108F — 591-042-100
 108G — 591-042-100
 113A — 591-033-200
 113C — 591-041-200
 113CR — 591-046-200
 113D — 591-040-200
 113DR — 591-047-200
 201C — 592-029-200
 201CR — 592-036-200
 202C — 592-015-200
 202R — 592-025-200
 202S — 592-028-200
 202SR — 592-037-200
 202T — 592-031-200
 208A — 592-027-200
 208B — 592-030-200
 208BR — 592-038-200
 209A — 592-032-200
 212A — 592-034-200
 212AR — 592-039-200
 829 DATA AUXILIARY SET — 598-082-200 ♦

TABLE F
DISPLAY LOGIC



Display Logic Circuit Cards	
Pos.	
06	410002
07	410001, 410009 or 410018
08	410003
09	AUX
10	410005 (See Note 1.)
11	410005 (See Note 1.)
12	410005 (See Note 1.)
13	410657, 410020, 410021, 410022
14	410855
Wired Frame	341672 (See Note 2.)

Note 1: For 1 segment (24 lines), card is in position 10. For 2 segments (48 lines), cards are in position 10 and 11. For 3 segments (72 lines), cards are in positions 10, 11, and 12.

Note 2: If trouble is not cleared after replacing all components listed, check or replace wired frame.

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>1. Depress TS1 test switch on 410855 circuit card.</p> <p>Is the following pattern generated on the display?</p> <p>Are all of the elements shown in enlarged view I and II present?</p>	Go to 2.	Replace 410855 circuit card.

TABLE F (Cont)

DISPLAY LOGIC

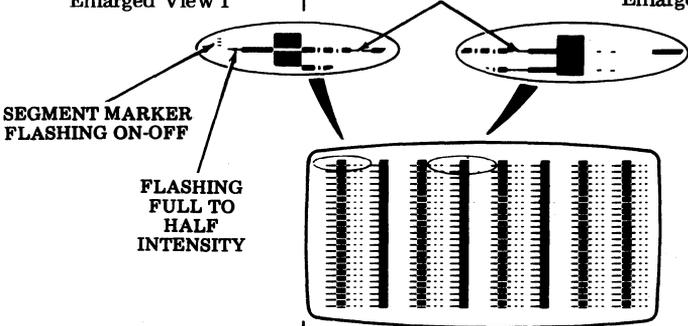
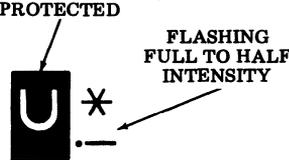
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>1. (Cont)</p> <p>Enlarged View I</p>  <p>SEGMENT MARKER FLASHING ON-OFF</p> <p>FLASHING FULL TO HALF INTENSITY</p> <p>TS1 Test Pattern</p>	<p>FLASHING FULL TO HALF INTENSITY</p>	<p>Enlarged View II</p>
<p>2. Depress TS2 test switch on 410657, 410020, 410021, or 410022 circuit card.</p> <p>Is the U* (or *U) pattern, with protected and high-lighted elements as indicated below, generated across all lines of the display?</p>  <p>PROTECTED</p> <p>FLASHING FULL TO HALF INTENSITY</p> <p>TS2 Test Pattern (Generated across all lines of the display.)</p>	<p>Go to 3.</p>	<p>Replace 410657, 410020, 410021, or 410022 circuit card.</p>
<p>3. Depress and hold down TS3 test switch on 410001, 410009, or 410018 circuit card.</p> <p>Is the * character generated across all lines of the display in all character positions?</p> <p>Also check segments 2 and 3 (if present) by scrolling.</p>	<p>If data appears on screen that is not sent from opcon: Replace 410005 circuit card for segment affected. Replace 410002 circuit card.</p> <p>Go to 8.</p>	<p>Go to 4.</p>

TABLE F (Cont)

DISPLAY LOGIC

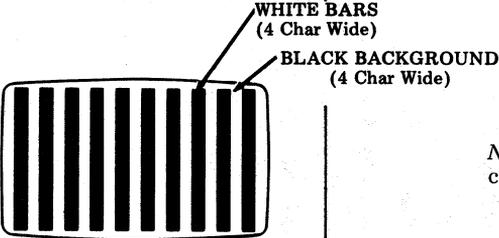
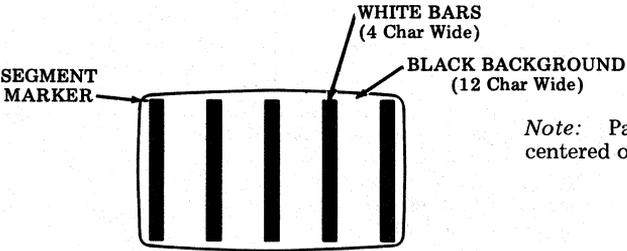
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>4. With TS3 depressed, is a black and white bar pattern generated on the display with bars that are 4 character positions wide as shown below?</p>  <p>WHITE BARS (4 Char Wide)</p> <p>BLACK BACKGROUND (4 Char Wide)</p> <p>TS3 Test Pattern</p> <p><i>Note: Pattern is not necessarily centered on the display as illustrated.</i></p>	<p>Go to 5.</p>	<p>Go to 6.</p>
<p>5. Remove 341740 cable. Depress TS3.</p> <p>Is the test pattern from Question 4 still generated on the display?</p>	<p>Replace 410002 circuit card.</p>	<p>Trouble is in controller. Go to Controller Logic (Page 62).</p>
<p>6. With TS3 depressed, is a black and white bar pattern generated on the display with white bars 4 character positions wide and black bars 12 characters positions wide as shown below?</p>  <p>SEGMENT MARKER</p> <p>WHITE BARS (4 Char Wide)</p> <p>BLACK BACKGROUND (12 Char Wide)</p> <p>TS3 Test Pattern</p> <p><i>Note: Pattern is not necessarily centered on the display as illustrated.</i></p>	<p>Replace 410005 circuit card. for the segment indicated by the segment marker displayed in the test pattern.</p>	<p>Go to 7.</p>

TABLE F (Cont)

DISPLAY LOGIC

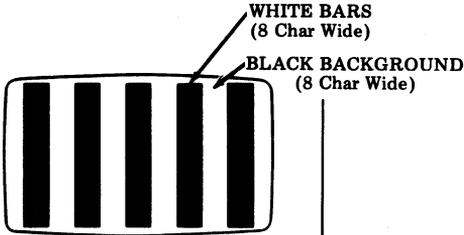
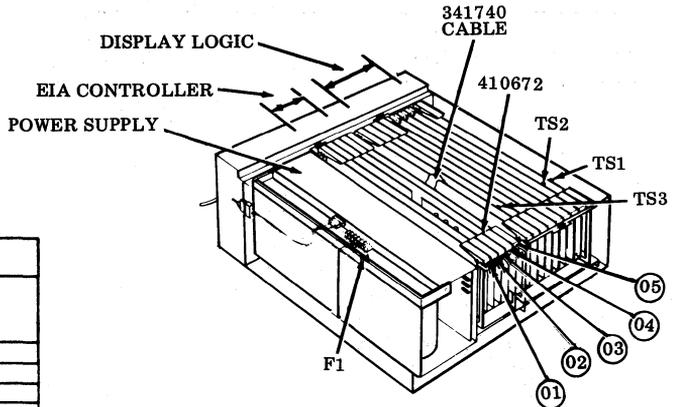
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>7. With TS3 depressed, is a black and white bar pattern generated on the display with bars that are 8 character positions wide as shown below?</p>  <p style="text-align: center;">TS3 Test Pattern</p>	<p>Replace 410003 circuit card.</p>	<p>Replace 410001, 410009, or 410018 circuit card.</p> <p style="text-align: center;"><i>Note:</i> Pattern is not necessarily centered on the display as illustrated.</p>
<p>8. With TS3 depressed, does the cursor and first segment marker come to rest in a stationary condition at the HOME position?</p>	<p>Display logic is good. Trouble is elsewhere.</p>	<p>Replace 410003 circuit card.</p>

TABLE G

CONTROLLER LOGIC



*410770 required for KDP or S/R operation.

Controller Circuit Cards	
Pos	Full Edit W/P or S/R
01	410770*
02	410679
03	410672
03	410676
04	410675
05	410674
Wired Frame	402176

Note: If trouble is not cleared after replacing all components listed, check or replace wired frame.

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Can characters be entered from the opcon to the display in the local mode?	Go to 2.	Refer to Operator Console (Opcon) (Section 582-211-500) Replace 410672 circuit card. Replace 410674 circuit card. Replace 410675 circuit card.
2. Can the characters be entered and displayed properly?	Go to 3.	Replace 410672 circuit card. Replace 410674 circuit card. Replace 410002 circuit card. Check 341740 display logic interface cable.
3. Do any keys fail to light on the opcon when depressed?	Replace 410672 circuit card. Go to Operator Console (Opcon) (Section 582-211-500).	Go to 4.
4. Do all mode selection and editing features operate properly (ie send lamp lights with 202 modem and HDX)? (Refer to <u>Mode Charts</u> , Pages 65,66).	Go to 5.	Replace 410672 circuit card. Replace 410674 circuit card. Replace 410675 circuit card.

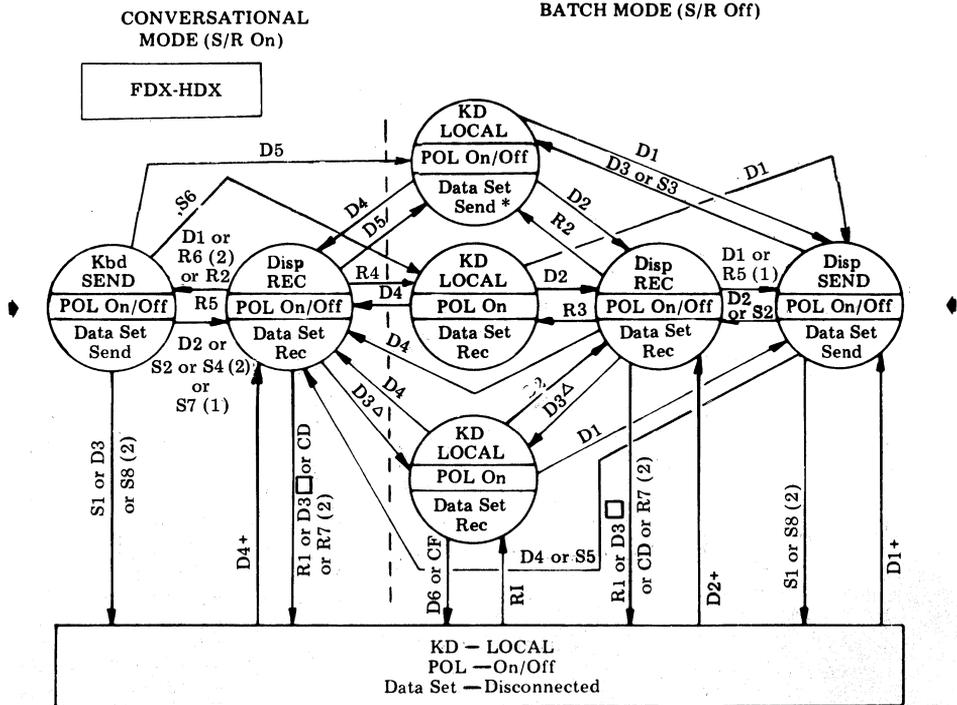
TABLE G (Cont)
CONTROLLER LOGIC

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
4. (Cont)		Replace 410679 circuit card. Check CTS lead (pin 5) of EIA interface for "on" condition with data set in data mode, station in send mode. Replace 410002 circuit card. Go to Operator Console (Opcon) (Section 582-211-500).
5. Can the station send and receive properly on line?	Go to 8.	Replace 410679 circuit card. Check data set, 408065 data set cable or transmission line facilities. Go to 6.
6. With the 410676 circuit card removed, is the station able to send properly — excluding Send Variations (Option 13.) responses?	Replace with new 410676 circuit card.	◆ Reinsert 410676 card and:◆ Replace 410679 circuit card. Replace 410675 circuit card. Replace 410674 circuit card. Replace 410002 circuit card. Go to Display Logic (Page 58). Go to 7.
7. Does the station respond properly to control characters and sequences?	Go to 8.	Replace 410674 circuit card. Replace 410675 circuit card. Replace 410679 circuit card. Replace 410770 circuit card.
8. Does the terminal have a printer?	Enter U*U* across the first two lines of the display. Go to 9.	Go to 10.
9. Does the terminal respond properly to the PRINT LOCAL function and the PRINT ON LINE function?	Go to 10.	Replace 410770 circuit card. Replace 410674 circuit card. Replace 410679 circuit card.
10. Can the proper escape sequences be sent on line? (Refer to <u>Mode Charts</u> Pages 65,66).	Go to 11.	Replace 410676 circuit card. Replace 410675 circuit card.

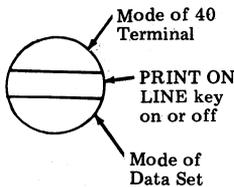
TABLE G (Cont)
CONTROLLER LOGIC

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
10. (Cont)		Replace 410674 circuit card. Replace 410002 circuit card.
11. Are the proper line ending sequences (LF, CR LF, CR CR LF) sent on line?	Go to 12.	Replace 410675 circuit card. Replace 410674 circuit card.
12. Does the S/R mode operate properly?	Controller is good. Trouble is elsewhere.	Replace 410679 circuit card. Replace 410674 circuit card. Replace 410770 circuit card.

MODE CHART 1
202-TYPE MODEM INTERFACE

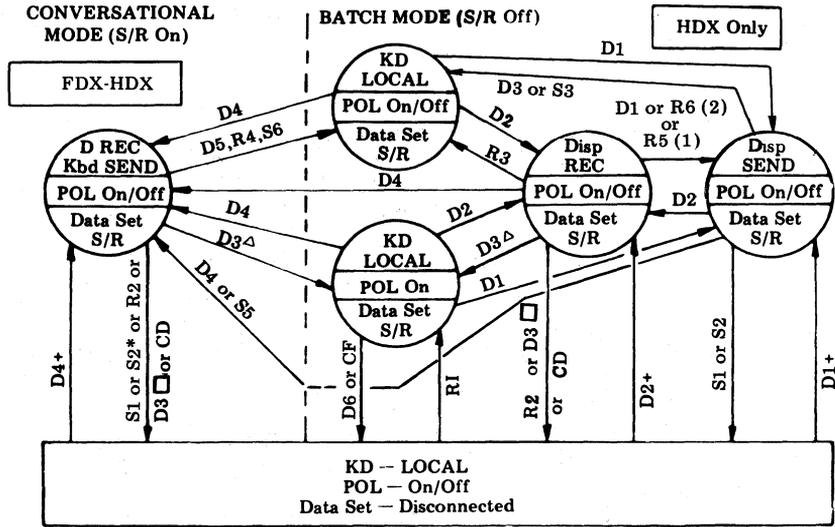


<u>DEPRESS</u>	<u>SEND</u>	<u>RECEIVE</u>
D1 SEND key	S1 DLE EOT	R1 DLE EOT
D2 REC key	S2 EOT	R2 EOT
D3 LOCAL key	S3 ETX or GS or FF	R3 ETX or GS or FF
D4 S/R key (on)	S4 DC3 (2)	R4 DLE ETX, FF, GS
D5 S/R key (off)	S5 DC3	R5 ESCf (1)
D6 INTRPT key (on) or PRINT ON LINE key (off) (DC4)	S6 DLE ETX, GS, FF	R6 DC1 (2)
	S7 RETURN (←) (1)	R7 EOT (2)
	S8 EOT (2)	



- (1) - Applies to Issue 4B and later 410674 circuit card.
- * - STD (Reverse Channel) off.
- RI - Detection of ring indicator from the data set with PRINT LOCAL off, INTRPT off and KD in LOCAL.
- CD - No carrier detected for 45 seconds.
- ↔ - Change in mode.
- + - Then make connection or auto-answer.
- △ - If PRINT ON LINE is on.
- - If PRINT ON LINE is off.
- (2) - Requires 407414 modification kit.
- CF - Loss of Carrier Detect.

MODE CHART 2
103-TYPE MODEM INTERFACE



DEPRESS

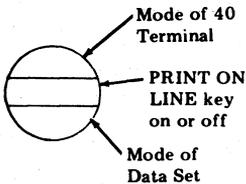
- D1 SEND key
- D2 REC key
- D3 LOCAL key
- D4 S/R key (on)
- D5 S/R key (off)
- D6 INTRPT key (on) or PRINT ON LINE key (off) (DC4)

SEND

- S1 DLE EOT
- S2 EOT
- S3 ETX or GS or FF
- S5 DC3
- S6 DLE ETX, FF, GS (HDX, or Echoplex Only)

RECEIVE

- R1 DLE EOT
- R2 EOT
- R3 ETX or GS or FF
- R4 DLE ETX, FF, GS
- R5 ESCf (1)
- R6 DC1 (2)



- (1) - Applies to Issue 4B and later 410674 Circuit Card.
- * - HDX Only
- RI - Detection of ring indicator from the data set with PRINT LOCAL off, INTRPT off and KD in LOCAL.
- CD - No carrier detected for 45 seconds.
- ↗ - Change in mode.
- + - Then make connection or auto-answer.
- △ - If PRINT ON LINE is on.
- - If PRINT ON LINE is off.
- (2) - Requires 407414 modification kit.
- CF - Loss of Carrier Detect.