"DATASPEED*" 40/3
WITH 9140 STATION CONTROLLER
TESTING AND TROUBLESHOOTING

CONTENTS PAGE

1. GENERAL

1.01 This section provides the testing and troubleshooting procedures for the Teletypewriter DATASPEED 40/3 Station arrangements, hereafter referred to as 40/3 type. This section does not provide information on testing all associated modification kits. Refer to the appropriate 50,000 Specification for information on testing the modification kits.

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

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 40/3-type equipment.

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

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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.

1.10 As a further aid to troubleshooting, refer to the wiring diagrams for the 40/3-type equipment in Section 582-200-403. For help in identifying components, refer to Section 582-200-703, Disassembly/Reassembly and Parts.

1.11 In reference to options, a prefix 4 indicates the option pertains to the KD (or KDP) logic controller, the printer logic or the ROP logic controller. A prefix 9 indicates the option pertains to the 9140 Station Controller.

Example: Option 4-17.a.
Option 9-17.a.

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 and ROP, are printer paper and ribbon properly installed?

2.02 In addition to the above, check the Station Feature and Option Record, W-DJOAC, (stored with logic module cabinet or in pedestal) 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 tables.

3. OFF-LINE CHECKOUT

3.01 Off-line checkout provides a check of the operating condition of the 40/3-type terminal. Table A provides a brief off-line checkout for KD and KDP terminals. Table B provides a complete off-line checkout for KD and KDP terminals. Table C provides off-line checkout for ROP 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 or C.

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, Table M (Page 106)
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. *Note:* If random characters appear or if cursor is not at home position, depress HOME and CLEAR keys.	Terminal Analysis, Table M (Page 106) 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, Table M (Page 106)
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, Table O (Page 134)
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, Table M (Page 106) 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.		

†Includes KD (or KDP) portion of KD-ROP, KD&ROP, KDP&ROP, KD-ROP with IRS (Individual Receiver Selection Modification Kit 344555) and KDP-ROP with IRS.

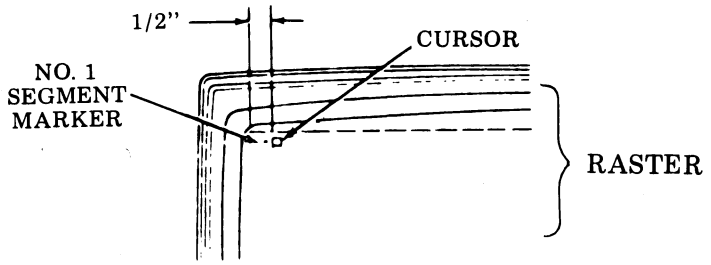
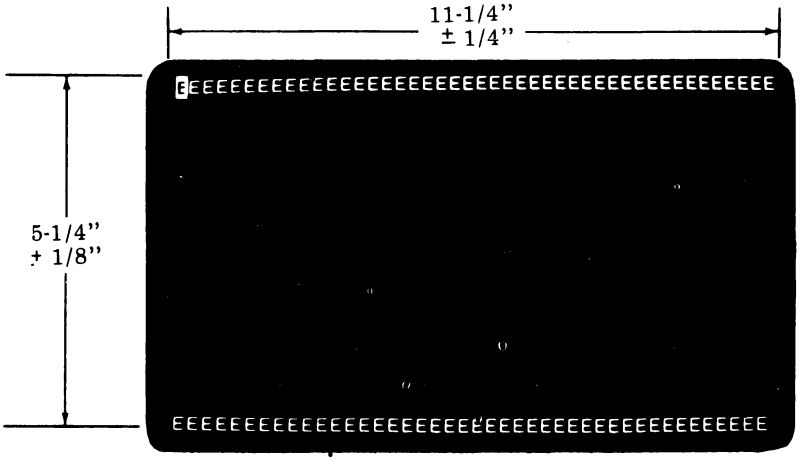


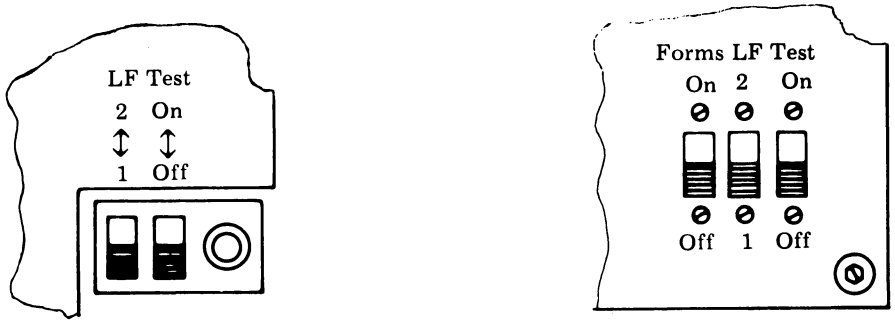
Fig. 1—Raster



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



FRICTION FEED TRACTOR FEED

Fig. 3— Printer Switches

Note: Figures 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 repeatedly until switch is turned off.	Printer (Section 582-210-500)
13	FRICTION 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	Type an EOT in the lower right hand corner of the display on home cursor. 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, Table M (Page 106)

TABLE A (Cont)

BRIEF OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
14 (Cont)	*Note:* a. KD of KD&ROP does not have PRINT LOCAL feature. b. KDP printer of KDP&ROP responds to PRINT LOCAL, printer of ROP does not respond.	Printer prints line of Es. *Note:* Printing may occur in all 80 character positions or some Es may be carried over to next line, depending on Option 17. Printer line feeds but does not print for each line of spaces. When LOCAL key is depressed, SEND and PRINT LOCAL indicators go out and LOCAL indicator lights. Printer turns off. *Note:* 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.	Printer (Section 582-210-500)
THIS COMPLETES 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 40/3-type equipment. This includes KD (or KDP) portion of KD-ROP, KD&ROP, KDP&ROP, KD-ROP with IRS and KDP-ROP with IRS.

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, Table M (Page 106) Display Logic Table O (Page 134)

TABLE B (Cont)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
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, Table M (Page 106)
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 [?/] 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 [FS M] key. Depress NEW LINE key.	Characters displayed (Page 10). Cursor moves to beginning of next line. *Note:* With Option 4-30.a. installed, SEND key will automatically light and the cursor will go home when a valid message ending character is entered. If this occurs, depress the LOCAL key and return cursor to the position after the message ending character using the cursor positioning controls.	

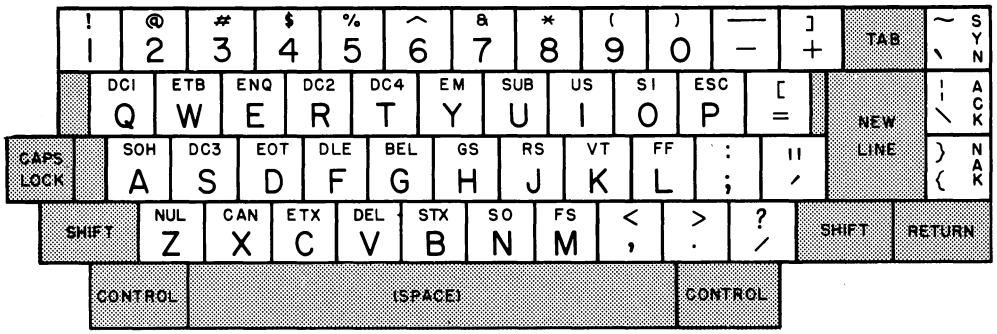


Fig. 4

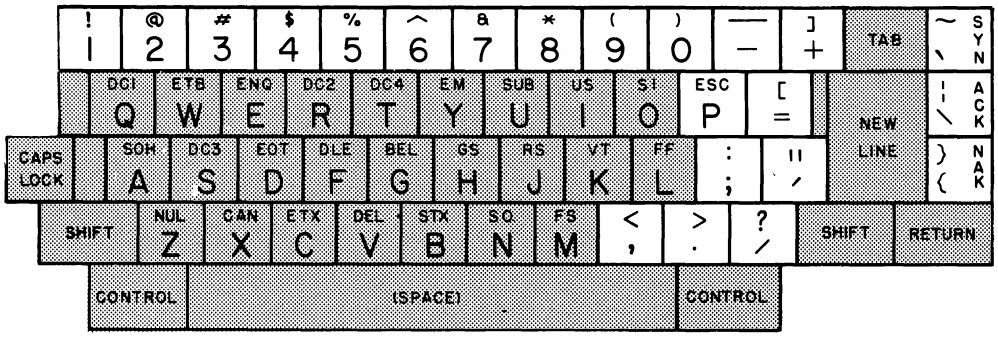


Fig. 5

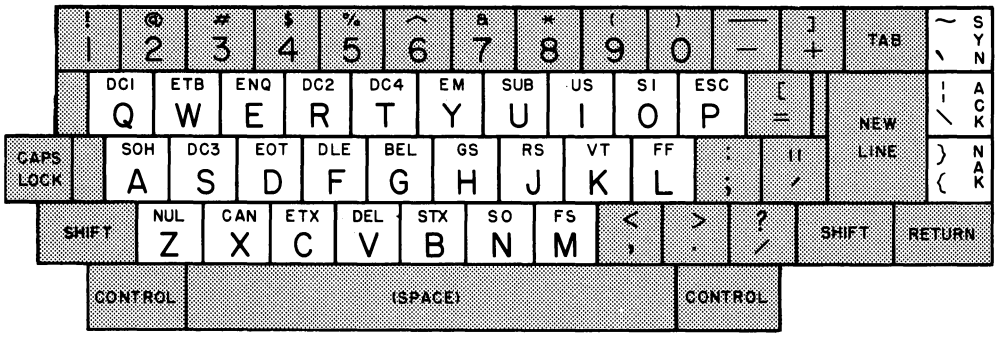
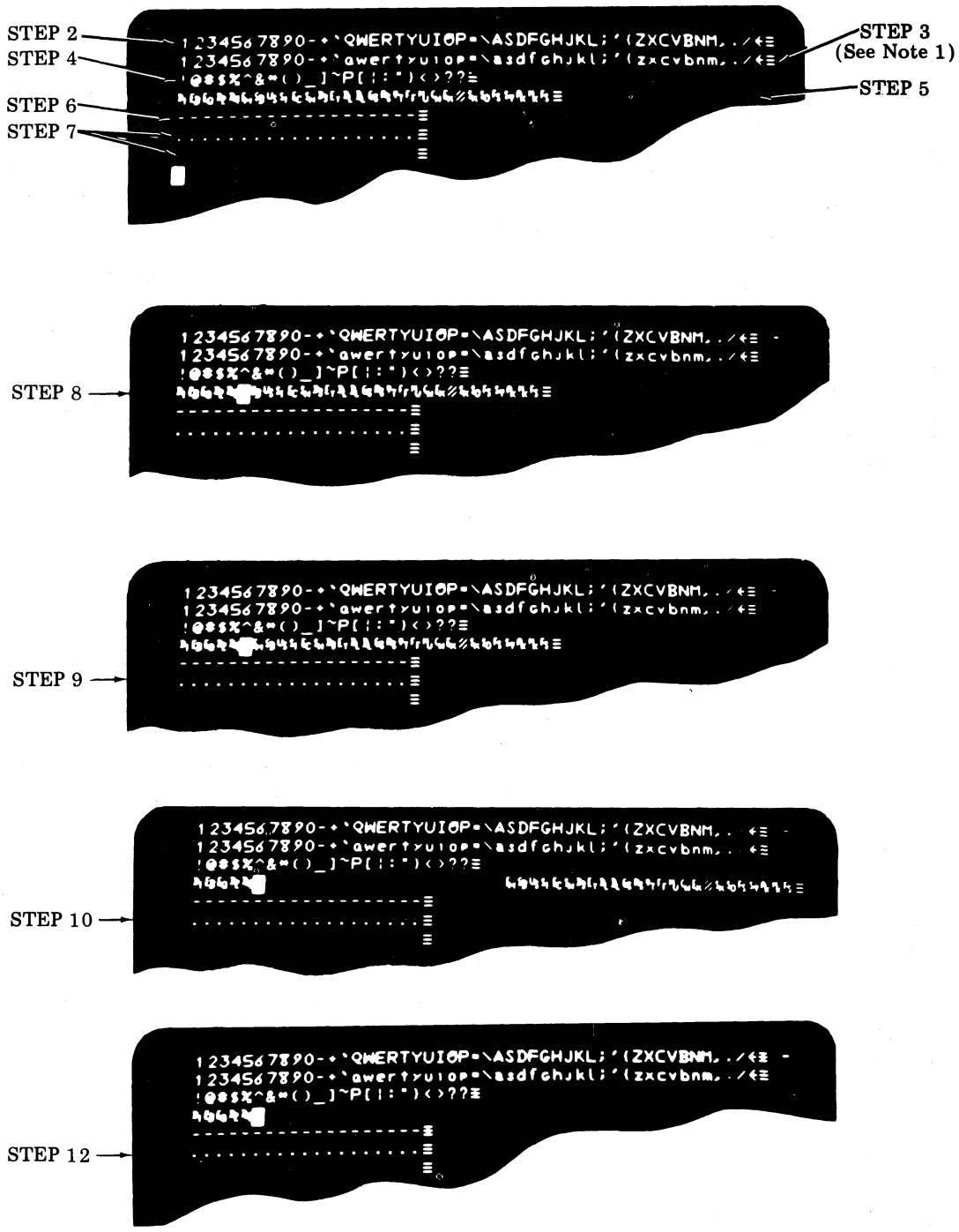


Fig. 6

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 ≡ symbol displayed as in Fig. 7. Cursor moves to beginning of next line.	Terminal Analysis, Table M (Page 106) Operator Console (Opcon) (Section 582-211-500)
7	Repeat Step 6 using [>/.] key, and then again using Spacebar.	Repeated . characters followed by ≡ symbol, and repeated spaces followed by ≡ symbol, displayed as in Fig. 7. Cursor moves to beginning of next line.	Controller Logic, Table P (Page 137)
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 ≡ 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 if Fig. 7.	
13	THIS STEP APPLIES ONLY TO KDP WITH TRACTOR FEED PRINTER Hold CONTROL key depressed and depress [FF/L] key three times. *Note:* Make sure forms switch of printer is on.	Three F_F characters are entered in display to the right of the D4.	



Note 1: Step 3 applies only if keyboard has CAPS LOCK key.

Note 2: Figures shown are for opcons which have monocase and up-low ASCII.‡

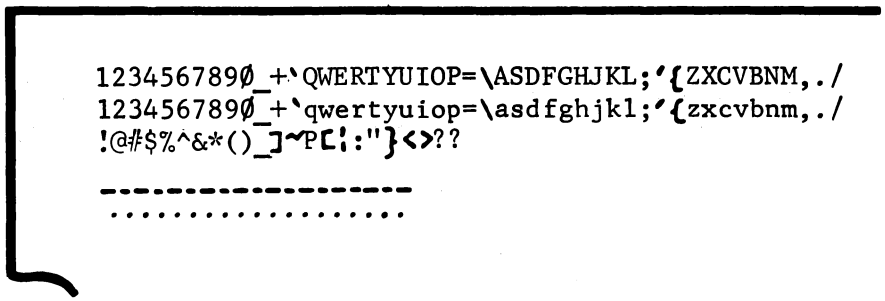
‡ American National Standard Code for Information Interchange.

Fig. 7

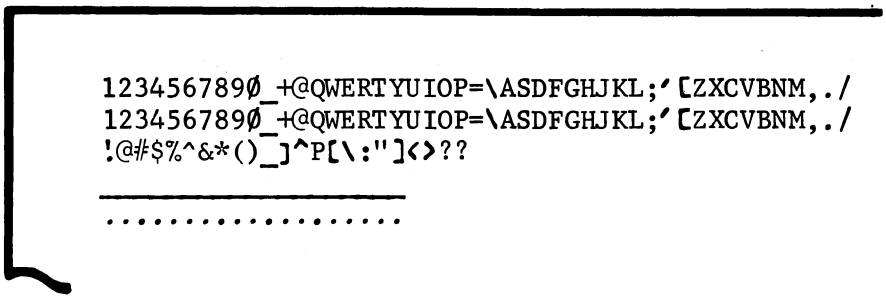
TABLE B (Cont)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

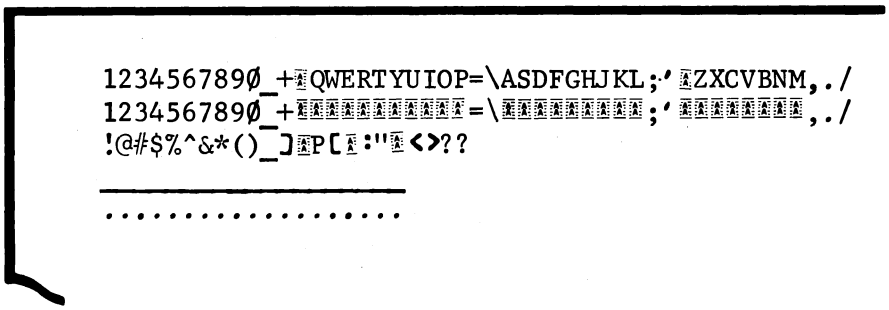
STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
14	Depress HOME.	Cursor goes to home position.	
15	KDP, KDP&ROP or KDP-ROP with IRS only. Depress PRINT LOCAL key. When complete message on monitor has been sent to printer, depress LOCAL key.	LOCAL indicator goes out; PRINT LOCAL and SEND indicators light. Cursor moves through display and printer prints according to features and options as in Fig. 8. When LOCAL key is depressed, SEND and PRINT LOCAL indicators go out, printer turns off, and LOCAL indicator lights. TRACTOR PRINTER Form-out occurs when first F_F character is sent from display. 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.	Terminal Analysis, Table M (Page 106) Printer (Section 582-210-500)



Up-Low Printer w/o Foldover — Option 4-21.a.



Up-Low Printer w/Foldover — Option 4-21.b.
or
Monocase Printer — Option 4-22.b.



Monocase Printer w/o Foldover — Option 4-22.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 monocase 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, Table M (Page 106)
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, Table O (Page 134)
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, Table M (Page 106) Display Logic, Table O (Page 134)
20	Depress cursor down (↓) and then cursor right (→) to move cursor to about the middle of the line of Us.		Terminal Analysis, Table M (Page 106)
21	Depress LINE DLETE 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, Table M (Page 106)

TABLE B (Cont)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

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

TABLE B (Cont)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
27	Depress SCROL DOWN key once, then fully. *Note:* Operation with 410009 or 410018 continuous scrolling circuit card.	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. *s and Us reappear in original position at top of display when segment 1 returns to display. Cursor does not move (see Note). Scrolling will not stop when segment marker of last segment reaches top line of display, but will continue while key is fully depressed.	Terminal Analysis, Table M (Page 106) Display Logic, Table O (Page 134)
28	Repeatedly depress LINE INSRT key until *s move to last line of segment.	*s and Us both move down one line each time LINE INSRT key is depressed. Cursor does not move.	Terminal Analysis, Table M (Page 106) Display Logic, Table O (Page 134)
29	Depress cursor down (↓), and then cursor right (→) to position cursor at about the middle of the line of Us.		
30	Depress LINE DLETE key.	Cursor returns to left margin and Us are removed. *s move up one line to replace Us.	
31	Depress LINE INSRT key several times.	*s move down one line to bottom of display on first depression, then disappear from display on second depression. Cursor does not move.	

TABLE B (Cont)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
32	Depress SEGMT 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 SEGMT 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, Table M (Page 106)
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, Table M (Page 106)
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 SEGMT ADV key as necessary to view tab columns on other segment(s), then return to segment 1.)	Controller Logic, Table P (Page 137) Display Logic, Table O (Page 134) Operator Console (Opcon) (Section 582-211-500)

TABLE B (Cont)

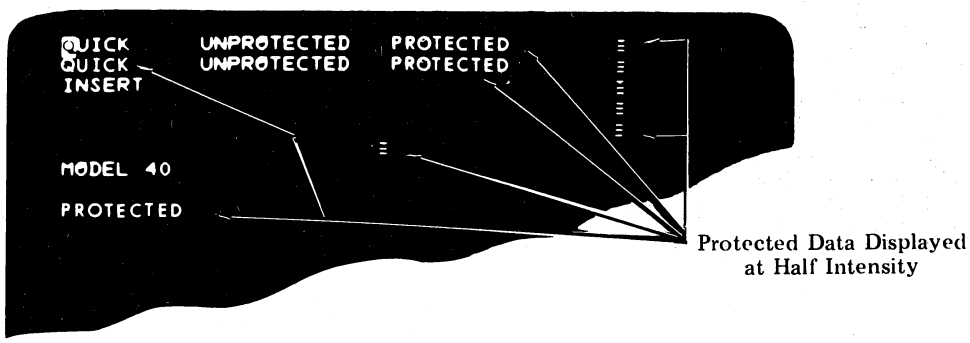
COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
39	Home cursor and depress TAB CLEAR.	All tab marks (on all segments) are cleared.	Terminal Analysis, Table M (Page 106)
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, Table M (Page 106)
IF OPTION 4-12.a. IS ENABLED ON 410675 CARD (SEE STATION FEATURES AND OPTION RECORD), TEMPORARILY CHANGE TO OPTION 4-12.b. UNTIL CHECKOUT IS COMPLETE.			
44	Depress FORM ENTER key.	FORM ENTER indicator lights.	Controller Logic, Table P (Page 137)
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, Table M (Page 106) Display Logic, Table O (Page 134)
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, Table M (Page 106)
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 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 3

Type INSERT
Depress Space until
cursor is under
NEW LINE symbol.
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 6

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

LINE 7

Type MODEL
Depress Space
Type 40

LINE 8

Depress CURSR RTRN
Depress Cursor
down (↓) twice

LINE 9

Depress FORM ENTER
Type PROTECTED
Depress FORM ENTER
Depress HOME

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, Table M (Page 106) Operator Console (Opcon) (Section 582-211-500) Display Logic, Table O (Page 134)
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.			

TABLE C

OFF-LINE CHECKOUT — ROP TERMINALS

This table checks the basic operation of 40-type ROP terminals w/40C103 controller.

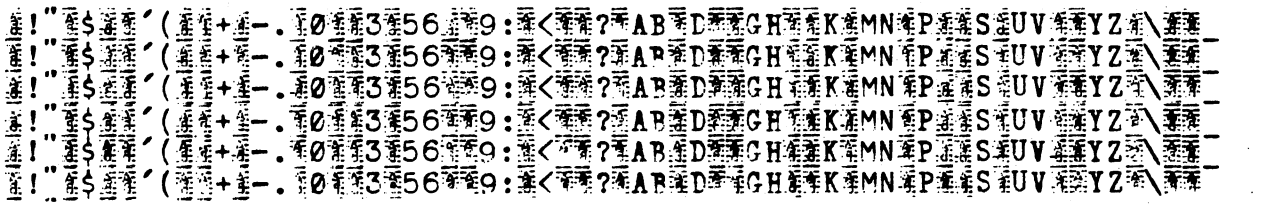
Note: Checkout procedures for 40-type ROP terminals with 40C303 integrated controller are provided in Section 582-200-504.

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
1	Preliminary requirements: a. Ribbon and paper loaded. b. Switches (top right of printer cabinet, cover raised) set as follows: LF-1 Test-Off Forms (Tractor Feed Only)-On. c. Cabinet cover and pedestal door closed.		
2	Turn on power.	IN SERVICE indicator lights. Fans move air in pedestal. In tractor feed printer, fan in printer cabinet cover also turns on.	Terminal Analysis, Table M (Page 106) 40C103 ROP Controller, Table Q (Page 140)
3	Momentarily depress PAPER button (red) on cover of printer cabinet.	Paper feeds out as long as button is depressed.	Opcon (Section 582-211-500)
4	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.	Printer (Section 582-210-500)
5	Unlatch and raise printer cabinet cover.	IN SERVICE indicator goes out.	
6	Raise cover interlock to maintenance position.	IN SERVICE indicator lights .	Terminal Analysis, Table M (Page 106)
7	Momentarily set test switch to ON position then return to OFF position.	Font identification symbol (≡A≡ or ≡A≡) prints repeatedly while switch is on.	40C103 ROP Controller, Table Q (Page 140)
8	FRICTION FEED PRINTER Lift paper roll to simulate a paper alarm.	PAPER indicator lights; IN SERVICE indicator goes out.	Opcon (Section 582-211-500) Printer (Section 582-210-500)

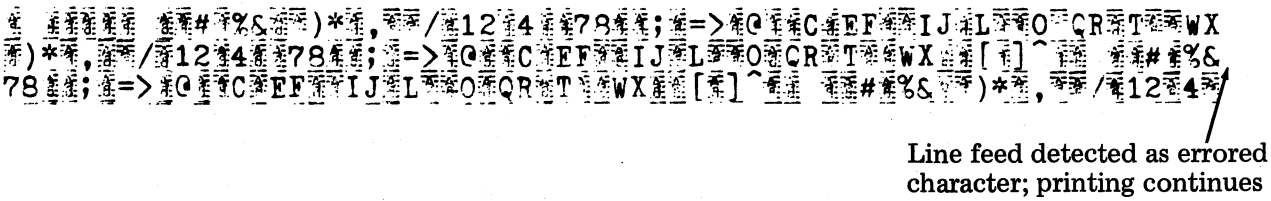
TABLE C (Cont)

OFF-LINE CHECKOUT — ROP TERMINALS

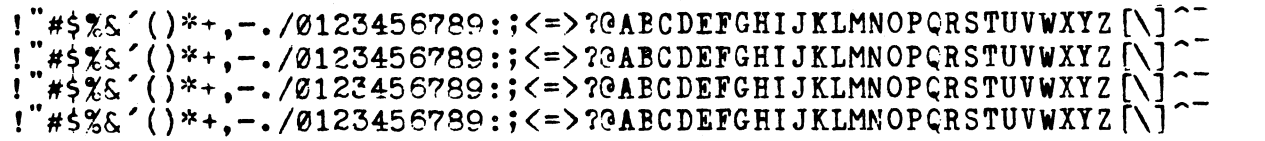
STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
8 (Cont)	Lower paper roll. Guide paper through window and close cabinet cover. TRACTOR FEED PRINTER Tear off next form under pedestal top, then depress PAPER button on cabinet top until last form passes through printer. Reload forms and close cabinet cover.	LOW PAPER indicator goes out; IN SERVICE indicator lights. PAPER indicator lights; IN SERVICE indicator goes out. PAPER indicator goes out; IN SERVICE indicator lights.	Printer (Section 582-210-500)
9	Depress TEST (early design designated TRANS START) key (if present) on opcon, then after a few seconds depress again. *Note:* If key is not present on opcon, remove blocking key to left of IN SERVICE key. Depress switch once to turn on and second time to turn off.	TEST or TRANS START indicator lights and character set is printed repeatedly (Fig. 10). Indicator goes out and printing stops when depressed second time.	
10	Raise printer cabinet cover and set LF switch to position 2. Close cover and depress TRANS START key. While printer is printing, raise cover.	Repeated character set prints with double line spacing. When cover is raised, printer stops and IN SERVICE indicator goes out.	
11	Restore setting of LF switch (or leave in position 2 if double line spacing is desired). Depress (release) TEST or TRANS START key. If blocking key was removed in Step 9, restore key to opcon. Close cabinet cover.	 IN SERVICE indicator lights.	
THIS COMPLETES OFF-LINE CHECKOUT — ROP TERMINALS.			



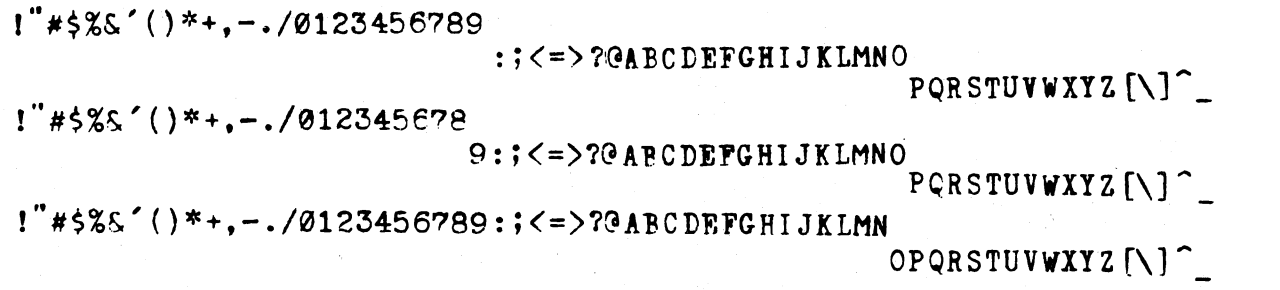
Option 4-19.a. Enabled



Option 4-19.b. Enabled



Option 4-19.c. Enabled



The TEST (early design designated TRANS START) character set will print as above if Option 4-19.c. is enabled and the data stacking Option 4-38 is enabled in the 40C103/AE RO Controller (410580 circuit card). The locations of the line feeds may vary from the example shown.

Note: Printed characters shown for basic up-low type character (identification symbol). For other type carriers, substitute characters as necessary.

Fig. 10

4. ON-LINE CHECKOUT

General

4.01 The station must have passed the applicable tests in the off-line checkout before proceeding with the on-line checkout.

4.02 Check that paper is in the printer (or printers), if a printer is part of the station to be tested.

4.03 Power switches should be turned on or off as this test procedure indicates. These switches are located at the rear of each module and under the top of the pedestal (at the front). To turn on power, all such switches must be turned on. To turn off power (to the KD (or KDP) portion only) only the pedestal switch need be turned off.

4.04 The 9140 Station Controller and data set have no power switch; to remove power to either, it is necessary to remove the power cord plug from the receptacle.

Caution: Always remove the power before removing or replacing circuit cards (or other components).

4.05 Perform the applicable tests in the order given since some steps require prior steps to obtain correct responses.

Interim Test Method

4.06 The following on-line tests are to be performed under the direction of the Serving Test Center (STC). If the DATASPEED Test Set is not available at the STC, on-line tests can still be performed provided one of the following interim test sets is available.

(a) Preferred method: A Private Line 40/1-type KD (USOCs 4TCAF, 4T200, 4T500 and 410771), and Data Set 202D, R, or T (without reverse channel). Omit 341896 data set cable from USOC 4TCAF and add 345603 EIA cable.

(b) Alternate method: A Switched Network Full Edit 40/1-type KD (USOCs 4TCAF, 4T200, 4T500 and 410671) and Data Set 202D, R, or T (without reverse channel).

Note: The above USOCs assume 1200 wpm operation.

4.07 In order to perform tests without interference to or from the line controller, the station under test must be electrically removed from the line controller.

4.08 If a switched network KD is used as a test set, the following options should be selected in the KD: (1 and 2 do not apply), 3.b., 4.b., 5.b., 5.d., 5.f., 6.a., 7.b., 8.b., 8.d., 8.e., 8.g., 9.b., 10.c., 11.b., 12.b., 13.a., (14 through 26 do not apply), 27.b., (28 does not apply).

4.09 If a private line KD is used as a test set, the following options should be selected in the KD: (1 and 2 do not apply), 3.b., 4.b., 5.b., 5.d., 5.f., 6.a., 7.b., 8.b., 8.d., 8.e., 8.g., 9.b., 10.c., 11.b., 12.b., 13.a., (14 through 26 do not apply), 27.b., (28 and 29 do not apply), 30.b., 31.a., 32.a., 33.b., 34.a., (35 and 36 do not apply), 37.a., (38 and 39 do not apply).

4.10 Theory of operation when interim test set is used:

(a) With the GS character selected as a message ending character at the test set only, the test set is able to go out of the send mode without affecting the station under test. With the "go receive after send" option at the test set, the test set is able to go receive in sufficient time to receive in response to CDCs and TSCs from a station under test, and to receive messages from a station under test as required in the test procedures. The GS character must be entered after CDCs and TSCs at the test set before CDCs or TSCs are sent. The obvious restriction is that GS cannot be sent as data from the test set (without causing the test set to go receive).

(b) To send EOT, CDC, and GS from the test set, start in local with the cursor over EOT. Depress SEND key; EOT is sent, REC key lights, and cursor moves to first character of CDC. Depress SEND key again; CDC and GS are sent, cursor moves to position after GS, and REC key lights. If the station sends an answerback, the test set display will copy it within two seconds.

Line Connections

4.11 If the station to be tested is equipped for 2-wire operation, use the line connection procedure shown in Fig. 11 or 12 as follows:

(a) Fig. 11 — Station equipped with Data Set 202D or 202R.

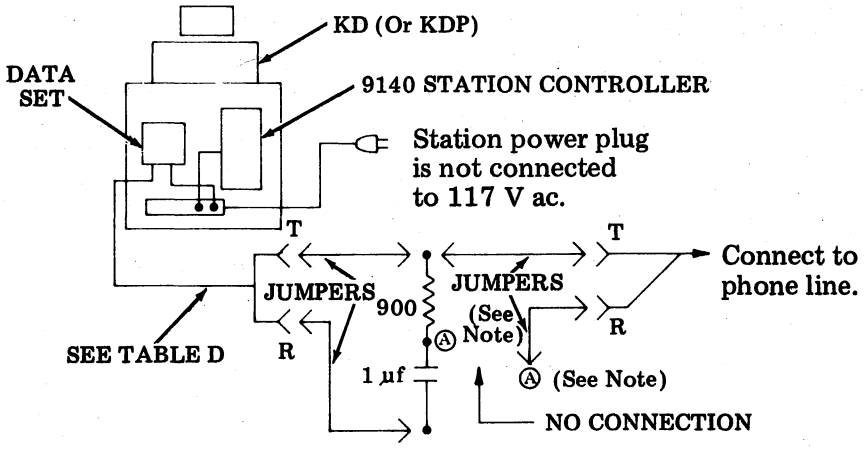
(b) Fig. 12 — Station equipped with Data Set 202T. Proceed to 4.13.

4.12 If the station to be tested is equipped for 4-wire operation, use the line connection procedure shown in Fig. 13 or 14 as follows:

(a) Fig. 13 — Station equipped with Data Set 202D or 202R.

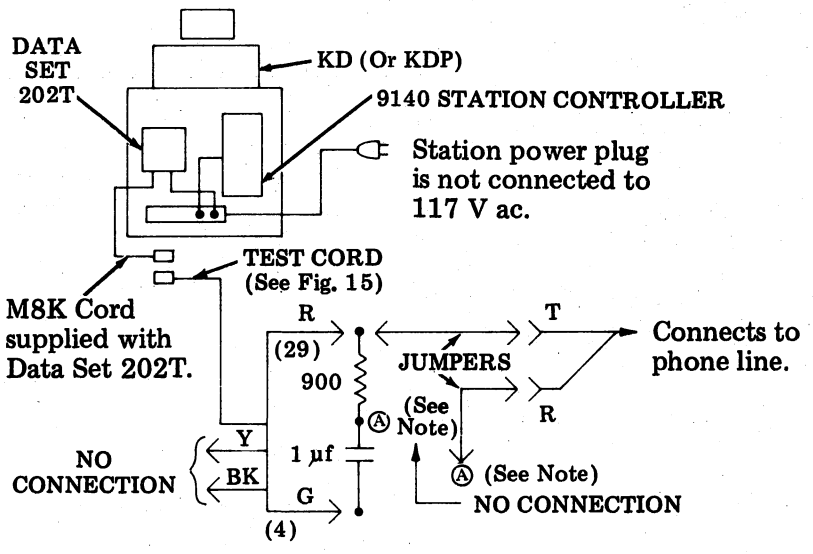
(b) Fig. 14 — Station equipped with Data Set 202T. Proceed to 4.13.

Line Connection for On-Line Test



Note: Points labeled Ⓐ are to be connected according to instructions in 4.20.

Fig. 11—2-Wire Operation Using Data Set 202D or 202R



Note: Points labeled Ⓐ are to be connected according to instructions in 4.20.

Fig. 12—2-Wire Operation Using Data Set 202T

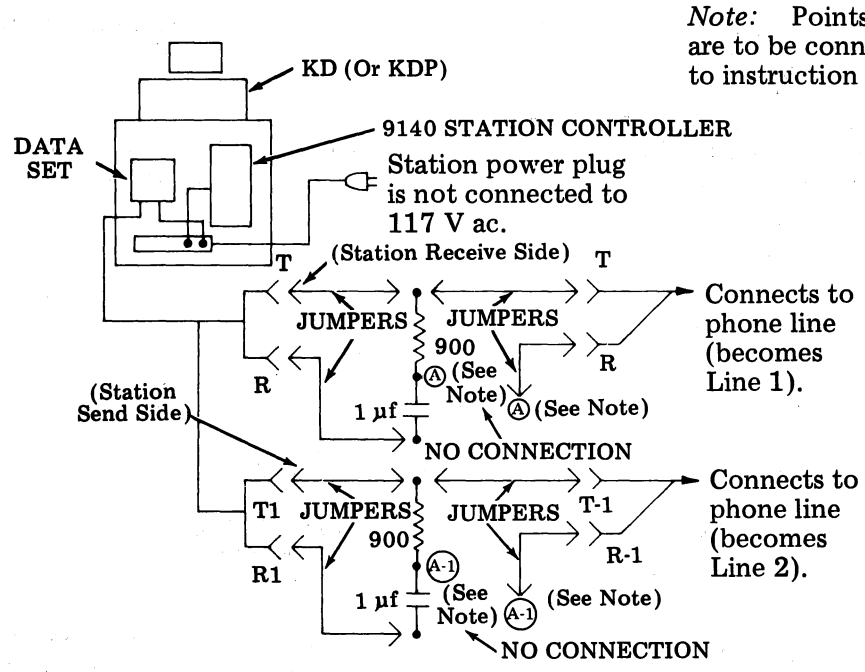


Fig. 13—4-Wire Operation Using Data Set 202D or 202R

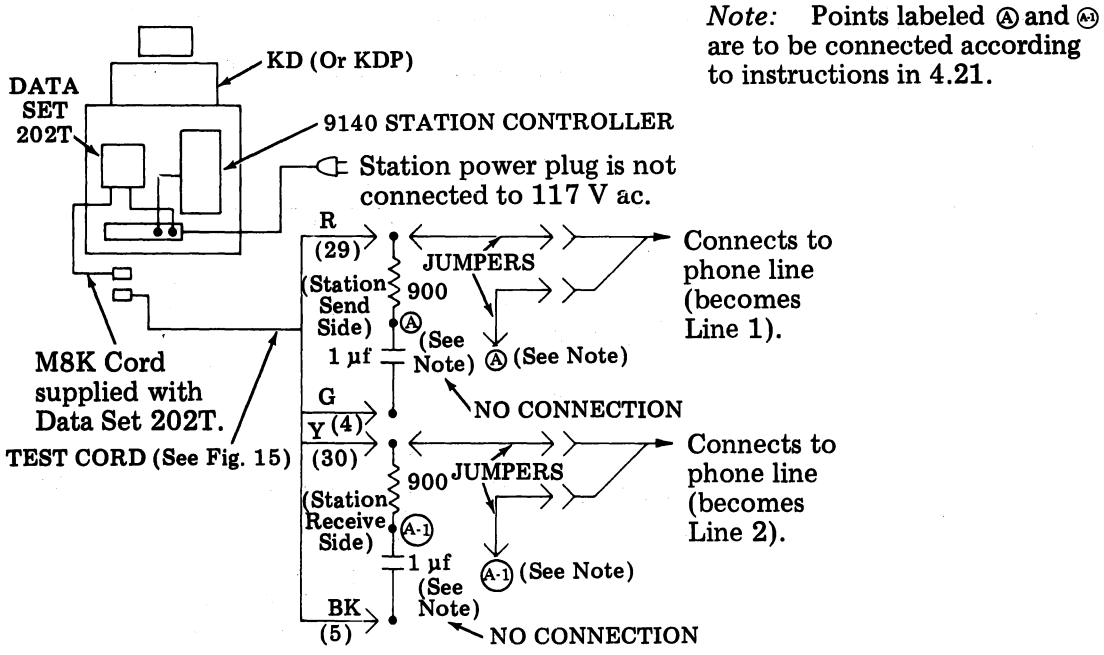


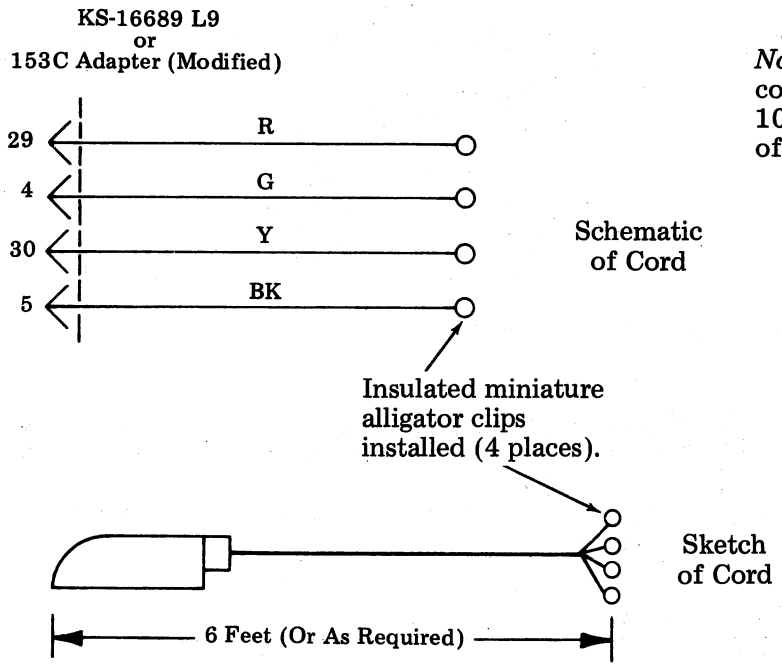
Fig. 14—4-Wire Operation Using Data Set 202T

Data Set 202T Test Cord

4.13 If the station is equipped with a Data Set 202T, a test cord is required between the M8K cord supplied with the Data Set 202T and the line. The cord should be made locally. Refer to the following material list and to Fig. 15.

4.14 Acceptable materials are:

24-gauge flexible stranded wire with polyvinylchloride insulation
Miniature alligator clips (4 required)
Red (or black) slip-on insulators (4 required)
KS-16689 L9 connector (or rewired 153C adapter)



Note: Pins 29, 4, 30, and 5 correspond to pins 7, 8, 9, and 10, respectively, at the rear of the 202T.

Fig. 15

Required Data Set Connections

TABLE D

CONNECTION OF STATION DATA SET TO PHONE LINE

DATA SET	TYPE OF SERVICE	CONNECTIONS REQUIRED FOR TELEPHONE CORD AT DATA SET§
202D	2W	TB1-1(T), TB1-3(R)
	4W	REC: TB1-1(T), TB1-3(R) XMIT: TB1-4(T1), TB1-6(R1)
202R	2W	TB1-1(T), TB1-2(R)
	4W	REC: TB1-1(T), TB1-2(R) XMIT: TB1-3(T1), TB1-4(R1)
202T	2W	Pin 7(T), Pin 8(R) of Telephone Interface Plug
	4W ¶	REC: Pin 9(DT), Pin 10(DR) of Telephone Interface Plug XMIT: Pin 7(DT1), Pin 8(DR1) of Telephone Interface Plug

(Refer to the Legend for Table D, if required)

§ 202T Only: The pin numbers given in this table apply at the interface between the data set and the 25-pin connector of the associated cable. The corresponding pin numbers at the 50-pin connector of the cable are 29 (for 7), 4 (for 8), 30 (for 9), and 5 (for 10).

¶ Observe that the receive side of the 202T for 4-wire operation is not pin 7 and pin 8 as might be expected from comparing pin assignments of the 202D and 202R.

Legend for Table D:

2W — 2-wire operation
4W — 4-wire operation
REC — Receive side
XMIT — Transmit side
(T) — Tip of tip and ring
(T1) — Tip of transmit tip and ring (used for 4-wire only)
(R) — Ring of tip and ring
(R1) — Ring of transmit tip and ring (used for 4-wire only)
(DT1) — Tip of first tip and ring pair
(DR1) — Ring of first tip and ring pair
(DT) — Tip of second tip and ring pair
(DR) — Ring of second tip and ring pair
TB1 — Terminal block on data set

Station Options

4.15 The following are suggestions for coding the 9140 Station Controller of the station under test. Use these suggestions only if the 9140 Station Controller is not coded and no customer options are specified. See Section 582-200-203 for information on coding the variable characters and options in the 9140 Station Controller.

Note: Verify that both CDCs are coded, even if only one is used.

9140 OPTION NUMBER	CHARACTER SELECTED
1.a.	\
1.b.	ACK
1.c.	*
1.d.	BEL
1.e.	DC1
1.f.	DLE
1.g.	ACK
1.h.	NULL
1.i.	DLE
1.j.	A
1.k.	B
1.l.	C
1.m.	D
1.n.	E

9140 OPTION SELECTED	9140 OPTION SELECTED
2.a.	14.b.
3.a.	15.b.
4.a.	17.a., 17.d., 17.g.
5.a.	18.a.
6.b.	19.a., 19.d., 19.f.
7.a.	20.b.
8.b.	21.a.
9.b.	22.b.
10.a.	23.b.
11.a.	24.a.
12.b.	25.d.
13.b.	26.a., 26.c.

4.16 If the Data Set 202D, R, or T (as applies) under test is not coded and no customer options are specified, code the following options. See Section 582-200-203 for coding information on the data set.

202R Options (See Note) — Y, X, T, Q, M, J, G
202T Options — ZB, Y, Q, M, F, ZL, ZO, ZF, ZG
202D Options — Y, X, U, S, ZL, Not Q, N, H, F, A, ZE, ZH, ZJ, ZM, YN, YP, ZZ

Note: If Option R is required for the Data Set 202R, this will result in loss of the answer-back sent 150 ms after a TSC or CDC, unless Options X, T, N, J, and G are also specified.

4.17 The following are suggestions for coding KD (or KDP) Terminal under test. Use these suggestions only if 40/3-type is not coded and no customer options are specified. See Section 582-200-203 for information on coding the options in the KD (or KDP) Terminal.

KD (Or KDP) OPTIONS SELECTED	KD (Or KDP) OPTIONS SELECTED
1.b.	29.a.
3.b.	30.a.
4.a.	31.a.
5.a., 5.c., 5.e., 5.g., 5.i.	32.a.
6.b.	33.b.
7.b.	34.a.
8.b., 8.c., 8.e., 8.g.	37.a.
9.b.	39.a.
10.b.	40.b.
11.a.	48.a.
12.b.	50.c.
13.b.	51.a.
17.c.	52.b.
18.c.	53.b.
19.a., 19.e.	54.a.
20.a	55.a.
21.a.	57.a.
22.b.	58.a.
23.b.	59.e.
27.b.	60.b.
28.b.	61.b.

4.18 If the terminal is a KD and ROP, the following suggested options also apply: 24.a., 25.b., 25.d., 26.b., 26.d., 35.a., 36.a., 38.b. and 54.b.

4.19 When test setup is complete, apply 117 V ac power. All power switches should be in the "on" position due to off-line testing. Check that no printer PAPER key is lighted (if a printer is part of the test setup). If a PAPER key is lighted when the paper supply is adequate, then the printer or the printer card is defective. If printer immediately begins printing errored character symbols, raise printer cabinet lid and operate printer test switch to the "off" position. Lower the lid. The printer motor should remain off.

Further Line Connection Procedures

4.20 Further line connection procedure for 2-wire operation.

(a) Observe that the station data set tip and ring is connected across the test fixture and that only one side of the phone line is connected to the test fixture. If required, refer to Fig. 11 or 12 as applies.

(b) Call the Test Center on a nearby phone. Ask the attendant to call your station on its number. Keep the nearby phone off-hook throughout the test procedure.

(c) When the attendant informs you that your station phone is ringing (he hears the ringback), make the connection shown as Ⓐ in Fig. 11 or 12. Observe that the phone line is now connected to the test fixture.

(d) Proceed to 4.22.

4.21 Further line connection procedure for 4-wire operation.

(a) Observe that the phone line side of the station data set is connected across two test fixtures and that only one side each of the two phone lines is connected to a test fixture. If required, refer to Fig. 13 or 14, as applies.

(b) Call the Test Center on a nearby phone. Keep the nearby phone off-hook throughout the test procedure. Ask the attendant to call your station on its "Line 1" number (see Fig. 13) with his "Line 1" phone. When the attendant informs you that he hears your "Line 1" phone ringback, make the connection shown as Ⓐ in Fig. 13 or 14. Observe that the phone "Line 1" is now connected to the station receive side test fixture.

(c) Now ask the attendant to call your station on its "Line 2" number with his "Line 2" phone. When the attendant informs you that he hears your "Line 2" phone ringback, make the connection shown as Ⓐ² in Fig. 13. Observe that phone "Line 2" is now connected to the station send-side test fixture.

(d) Proceed to 4.22.

Performing On-Line Tests

4.22 General

(a) Test setup is now complete.

(b) Tables F through L provide information on making the on-line test via telephone lines with a DATASPEED Test Center. The test procedures specify the use of the DATASPEED Test Set which is equipped with a special test controller, control panel, and two data sets.

(c) The 345625 alarm modification kit (an option) provides the ability to initiate the optional answer-back during post message recall procedures. The optional answer-back is initiated during post message recall procedures if a parity error was detected in the test. The audible alarm is activated when the 9140 Station Controller recognizes its CDC but is unable to receive.

(d) The 344555 individual receiver selection (IRS) modification kit (an option) provides the ability to copy incoming data on either the primary or secondary receiver. The primary receiver is conditioned by the 9140 Station Controller to respond to all incoming data when addressed by the primary or broadcast call directing codes, CDC1 or CDC2, respectively. The secondary receiver responds to data when addressed by the auxiliary receiver call directing code, CDC3.

(e) One or both of the following optional features may be provided by the 9140 Station Controller.

(1) Recognition of a third CDC character sequence with a 322409 circuit card.

(2) A variable substitute character generated by the 322018 (the F2 card) in 9140 Station Controller to the 40/3-type when the 9140 Station Controller senses an odd parity character from the line. It is not anticipated that this option will be ordered since the 40/3-type has its own substitute character feature.

Note: Optional features not specifically mentioned in headings within the test procedures are not tested in the procedures; however, if the Test Center is informed of the feature — particularly, added wiring and diodes — tests can be made. Many of these types of modifications have their own test procedures and can be found in BSTSEA Book B (NTFS+ and NTFT+ series). IT IS THE RESPONSIBILITY OF THE TESTER TO INFORM THE TEST CENTER OF SPECIAL FEATURES.

(f) Table E defines terms used in the test procedures.

TABLE E

40/3-TYPE RESPONSES AND CONTROL FUNCTIONS

FUNCTION	CHARACTER	DESCRIPTION
TSC (Transmitter Start Code)	Two variable characters, ie, DC3 (or other character) followed by an alpha character (see Note 1).	Station response to polling is as follows: When there is traffic to send, station will respond with message; otherwise, station will give a "no-traffic" answer-back in accordance with Option 9-18.
CDC (Call Directing Code)	Two variable characters, ie, alpha alpha (see Note 1).	Code sent by Test Center indicating it has a message to deliver. After a CDC, Test Center monitors line for station answer-back.
AB (Answer-Back)	Two variable characters. *Note:* No traffic answer-back to a TSC depends on Option 9-18. It will be either A/B1, A/B2 or A/B4, A/B4.	There are four possible A/B responses to a CDC. These are: A/B1, A/B2 — When station is able to receive message (see Note 2). A/B3, A/B3 — (Optional, requires 345625 modification kit) When station has received a parity error in text (see Note 3). A/B4, A/B4 — When station is unable to receive due to being off-line or having low paper (see Note 4). No answer-back — when more than one station is addressed using a common CDC.
Start of Text	STX	This character terminates select or polling mode and causes station (only if selected) to copy transmission.
End of Transmission	EOT	This code character terminates transmission and causes station to become unselected. After an EOT is detected, station monitors for CDCs and TSCs.
Delete	DEL	This character is sent by processor after a line break to allow stations to get back in synchronization with signal line. It may be required after a CDC in some systems.
FDX INT (Interrupt Character)	Character used depends on system. It may be NULL.	This is an interrupt code sent by Test Center to halt and blind selected receivers and conditions stations to minitor for their CDCs and TSCs.

Note 1: Some systems require a Delete (DEL) after a CDC or TSC. A DEL should only be used when system requirements make it necessary.

Note 2: (Alpha alpha recommended) This answer-back can also be used as a No-Traffic Response to a TSC.

Note 3: (Some character sent twice) This answer-back can be used during Post Message Recall to indicate that a parity error was received.

Note 4: (Some character sent twice) This answer-back can be used as a No-Traffic Response to a TSC.

(g) The following Tables (F through L) have been arranged so that they can be reproduced and red lined to indicate the proper responses for a given customer. Red lining a copy can decrease testing time and reduce testing errors. Where responses or actions are dependent on options, the options are noted in the text. Titles within the testing paragraphs have been included as a guide to the function being tested in various steps.

(h) Caution should be exercised that valid tests are not omitted. Example: If the Post Message Recall feature is used but the option for "reset on STX" is not used, then the steps titled "Check for initialization of optional AB on STX" should be performed to check that the circuit works as intended.

(i) The Test messages referred to by FOX, FULL ASCII, EDIT, RO, OPTIONS and FOX/U* in the following ON-LINE tests are special function keys on the TSM 7725S test set.

(j) IF THE INTERIM TEST SET IS USED INSTEAD OF THE DATASPEED TEST SET (TSM 7725S), STEPS THAT INVOLVE TEST SET GENERATION OF AN ODD PARITY CHARACTER OR BREAK SIGNAL CANNOT BE PERFORMED DUE TO TEST SET RESTRICTIONS.

(k) Proceed to the applicable table in accordance with the following information. IF THE STATION FAILS ANY STEP OF ITS ON-LINE TESTS, GO TO TABLE M TERMINAL ANALYSIS FOR ASSISTANCE IN LOCATING THE TROUBLE.

If you are testing a	Proceed to	On Page
KD Station	Table F	33
KDP Station	Table G	39
ROP Station	Table H	53
KD-ROP Station	Table G	39
**KD&ROP Station	Table I	59
**KDP&ROP Station	Table J	69
††KD-ROP Station equipped with Individual Receiver Selector modification kit (IRS)	Table K	78
††KDP-ROP Station equipped with Individual Receiver Selector modification kit (IRS)	Table L	88

**Table I and Table J assume full duplex operation. If this is not the case, check as KDP. KD&ROP does not have print-on-line and print local functions. ROP of KD&ROP and KDP&ROP can only receive on-line. KD portion cannot receive on-line.

††The Individual Receiver Selector (IRS) modification kit is 344555, if it is used with a 345605 mounting frame and power supply and a 322409 circuit card.

TABLE F

KD STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
Check Ready-To-Receive Response to a CDC		
1	Depress REC key.	REC key lights.
2	None. (Test Center sends EOT CDC1.)	None. (Test Center will inform you of AB received. If optioned for no AB (Option 9-17.c.), then STX and FOX will be sent. Answer-back should be A/B1, A/B2. This AB is sent almost immediately (Option 9-21.b.), or after a 2-second delay (Option 9-21.a.).
3	None. (Test Center sends CDC2 if different from CDC1; otherwise, go to Step 4.) If optioned for no AB to CDC2, then depress REC after EOT is received.	None. (Test Center will inform you of AB received. If optioned for no AB, then EOT, CDC2, STX, and FOX will be sent.) AB should be A/B1, A/B2.
4	None. (Test Center sends CDC3 if your station is so equipped; otherwise, go to Step 5.) If optioned for no AB to CDC3, then depress REC after EOT is received.	None. (Test Center will inform you of AB received. If optioned for no AB, then EOT, CDC3, STX, and FOX will be sent.) AB should be A/B1, A/B2.
Check Not Ready-To-Receive Response to a CDC		
5	None. (Test Center sends EOT.)	LOCAL key lights. REC key light goes out.
6	None. (Test Center sends CDC1 and receives A/B4, A/B4 (Option 9-17.a.), or no response (Option 9-17.c. or 9-19.b..))	If 345625 alarm modification kit is part of the station, an audible alarm sounds at station. Duration of alarm is set by assembler to be approximately 30, 60, or 90 seconds. Check that the duration is as specified in the order.
7	Depress EOT and SEND key.	EOT displayed. SEND key lights. LOCAL key light goes out.
8	None. (Test Center sends CDC1 and receives response as in Step 6 or A/B3, A/B3 if Option 9-20.a. (or 9-20.d.) is used, and station is equipped with "send mode response" feature -- NTFT5.)	If alarm modification kit is part of the station, audible alarm sounds at station (listen for it, do not time it again).
9	Depress LOCAL, HOME, CLEAR and REC key.	REC key lights. SEND key light goes out.

TABLE F (Cont)

KD STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
	Check That Station Receives FOX Message	
10	None. (Test Center sends CDC1 and receives response of Step 2.)	REC key remains lighted.
11	None. (Test Center sends a few alpha characters and then STX and FOX .) The FOX ends in ETX.	Observe that no characters are received before FOX message. Station receives FOX message. REC key remains lighted provided ETX is not an ending character to the KD (or KDP) Controller (Option 4-8.c.) or 9140 Station Controller.
	Check Post Message Recall Feature *Note:* If Post Message Recall is not used, do not perform Step 12, go to Step 15.	
12	None. (Test Center sends FDX INT and CDC1 and then receives A/B1, A/B2 as in Step 2.)	REC key remains lighted.
13	None. (Test Center sends OPTIONS message.)	Station receives OPTIONS message and remains in the receive mode. Option 4-7.a.: Errored parity characters are displayed as "12345." Option 4-7.b.: Errored parity characters displayed $S_BS_BS_BS_BS_B$. If the 9140 Station Controller uses the F2 card, the parity errored characters are displayed as optioned.
14	None. (Test Center sends FDX INT and CDC1 and then receives A/B3, A/B3 provided Options 9-17.a. (or 9-17.b.) and 9-20.b. are installed.)	REC key remains lighted.
	Check for initialization of optional AB on STX	
	(Test Center sends STX, FDX INT and CDC1 and receives A/B1, A/B2 (Option 9-27.d.) or A/B3, A/B3 (Option 9-27.e..)) If A/B1, A/B2 is received, proceed to Step 15. If A/B3, A/B3 is received, proceed to Step 17.	

TABLE F (Cont)

KD STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
	Check for initialization of optional AB on EOT	
15	None. (Test Center sends OPTIONS message.)	Response as Step 13.
16	None. (Test Center sends FDX INT and CDC1 and then receives A/B3, A/B3 provided Options 9-17.a. (or 9-17.b.) and 9-20.b. are installed.)	
17	None. (Test Center sends EOT.)	Local key lights, REC key light goes out.
18	Depress REC key.	REC key lights.
19	None. (Test Center sends CDC1, receives A/B1, A/B2 and then sends STX.)	
20	None. (Test Center sends EOT.)	LOCAL key lights. REC key light goes out.
Check Station "No Traffic" Responses		
21	Depress HOME, CLEAR, and REC keys.	Cursor goes to home position; display is cleared. REC key lights. LOCAL key light goes out.
22	None. (Test Center sends TSC and then receives A/B1, A/B2.)	REC key remains lighted.
23	Depress LOCAL key.	LOCAL key lights. REC key light goes out.
24	None. (Test Center sends TSC and then receives A/B4, A/B4 (Option 9-18.a.), or A/B1, A/B2 (Option 9-18.b..))	None.
Check Station Sending		
25	Type STX, THE QUICK BROWN FOX, and EOT. (Also read "RESULTS" column.)	STX and FOX message are displayed. Option 4-30.a: When EOT is typed, cursor goes home and SEND key lights automatically. Option 4-30.b: Manually home cursor and depress SEND key after EOT. SEND key lights.

TABLE F (Cont)

KD STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
26	None. (Test Center sends TSC and copies station message including EOT.) Message will be sent almost immediately (Option 9-21.b.) or after a 2-second delay (Option 9-21.a.).	Station sends message, stops on EOT. REC key lights.
Check That Station Stops on Received Break Signal		
	Note: If the station is not a "4-wire" station, do not perform Steps 27 through 31; proceed to Step 32.	
27	Depress LOCAL key. Place cursor over EOT after message prepared in Step 25 and type a "space." Home cursor and depress SEND key.	EOT is erased from display. Cursor returns home and SEND key lights.
28	None. (Test Center sends TSC and begins copying FOX.	Station transmits FOX message and cursor continues scanning throught the display.
29	None. (Test Center sends "break" and stops copying FOX.)	Cursor stops. Option 4-31.a. only: REC key lights. Option 4-31.b. only: SEND key remains lighted.
	Option 4-31.b. only: Depress REC key.	It lights.
30	None. (Test Center sends EOT and CDC1 and then receives A/B1, A/B2 as in Step 2.	REC key still lighted.
31	None. (Test Center sends STX and EOT.	LOCAL key lights. REC key light goes out.
Check of KD Sending and Receiving Operation and Options		
32	Depress REC key.	It lights.
	FOX/U* Test	
33	None. (Test Center sends CDC1, receives AB as in Step 2, and then sends repeated FOX/U* message.)	Station copies FOX/U* message for 1, 2, or 3 segments depending on capacity. Check it for errors.

TABLE F (Cont)

KD STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
34	Depress LOCAL, EOT, HOME, and SEND keys. *Note:* Operation of HOME and SEND keys not required if Option 4-30.a. is installed.	EOT is entered on display, cursor goes home, and SEND key lights.
35	None. (Test Center sends EOT and TSC, then copies message, and checks copy for errors.)	Station sends FOX/U* message, stops on EOT, and goes to receive.
36	Depress LOCAL, HOME, CLEAR, and REC keys.	Display is cleared. REC key is lighted.
	FULL ASCII Test	
37	None. (Test Center sends CDC1, receives AB as in Step 2, and then sends FULL ASCII test message.)	Station copies FULL ASCII test message. LOCAL key lights on EOT. REC key light goes out.
38	Depress HOME and SEND keys.	Cursor goes home and SEND key lights.
39	None. (Test Center sends TSC, then copies message, and checks copy for errors.)	Station sends FULL ASCII message and stops on EOT. REC key lights. (See Step 40 now.)
40	If station sent both upper- and lower-case letters, proceed to Step 42. If the station stopped sending before it sends both upper-case and lower-case characters, then the character to the left of the cursor is probably coded to be X-OFF (Option 9-1.f.) and Option 9-8.b. is installed. If this is so, then go local and use cursor positioning controls to place cursor over X-OFF and depress the SPACE bar once. Repeat for second X-OFF. Now depress HOME and SEND keys.	None. LOCAL key lights. Both X-OFF characters are removed from display. Cursor goes home. SEND key lights.
41	Perform this step only if X-OFF had to be removed from display. None. (Test Center sends TSC, then copies message, and checks copy for errors.)	Station sends FULL ASCII message and stops on EOT. REC key lights.
	OPTIONS Test	
42	None. (Test Center sends CDC1, receives AB as in Step 2 and then sends OPTIONS test message.)	Responses depend on Options 4-5 and 4-7. (NULL, CR, DEL, S_B.)

TABLE F (Cont)

KD STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
43	Depress LOCAL, EOT, HOME, and SEND keys. Note of Step 34 applies.	EOT is entered on display, cursor goes home. SEND key lights.
44	None. (Test Center sends EOT and TSC, then copies message, and checks copy for errors.) Response depends on Options 4-5, 4-7 and 4-10.	Station sends OPTIONS test message and stops on EOT. REC key lights.
	EDIT Test	
45	None. (Test Center sends CDC1, receives AB as in Step 2, and then sends EDIT test.)	Station copies EDIT test message. Responses depend on Option 4-6. (Display or act on ESC sequences.)
46	Depress LOCAL, EOT, HOME, and SEND keys. (Note of Step 34 applies.)	EOT is entered on display. Cursor goes home. SEND key lights.
47	None. (Test Center sends TSC, then copies message, and checks copy for errors. Response depends on Options 4-6, 4-9, 4-10 and 4-13.) *Note:* If FORM SEND key position is blocked with a blocking key, proceed to Step 50, do not perform Step 48.	Station sends EDIT message and stops on EOT, REC key lights.
48	Depress LOCAL, HOME, FORM SEND and SEND keys.	Cursor goes home, FORM SEND and SEND keys light.
49	None. (Test Center sends TSC, then copies message, and checks copy for errors.)	Station sends EDIT message and stops on EOT, REC key lights.
50	When directed by Test Center, depress LOCAL, FORM ENTER, HOME, CLEAR, TAB CLEAR, and FORM ENTER keys.	All data including protected data and tab marks is cleared from display. Cursor is home and LOCAL key is lighted. FORM ENTER key is not lighted.

Note: Tell Test Center attendent of your intentions. Connections should be dropped now.

THIS ENDS THE KD TESTS.

TABLE G

KDP OR KD-ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
Check Ready-To-Receive Response to CDC		
1	Depress REC and PRINT ON LINE keys. If tractor feed printer is part of station, first raise printer cabinet lid, check that forms switch is in ON position, and then lower and latch lid.	REC and PRINT ON LINE keys light. Printer motor is not running.
2	None. (Test Center sends EOT and CDC1.)	Printer motor starts on CDC1. Test Center will inform you of AB received unless optioned for no AB (Option 9-17.c.). Answer-back should be A/B1, A/B2. This AB is sent almost immediately (Option 9-21.b.) or after a 2-second delay (Option 9-21.a.).
3	None. (Test Center sends CDC2 if different from CDC1; otherwise, go to Step 4.) If optioned for no AB to CDC2 (Option 9-17.f.), then EOT and CDC2 are sent.	Printer motor still on. If station is equipped with Option 9-17.f., printer motor will be turned off by EOT (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.) and started by CDC2. Answer-back should be A/B1, A/B2.
4	None. (Test Center sends CDC3 if your station is so equipped; otherwise, go to Step 5. If optioned for no AB to CDC3, then EOT and CDC3 will be sent.)	Printer motor still on. If station is equipped with Option 9-17.i., printer motor will be turned off by EOT (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.) and started by CDC3.
Check Not-Ready-To-Receive Response to CDC		
5	None. (Test Center sends EOT.)	LOCAL key lights. REC key light goes out. Printer motor stops.
6	Depress PRINT ON LINE key.	PRINT ON LINE key light goes out.
7	None. (Test Center sends CDC1 and receives A/B4, A/B4 (Option 9-17.a.) or no response (Option 9-17.c. or 9-19.b.)	If 345625 alarm modification kit is part of station, audible alarm sounds at station. Duration of the alarm is set by assembler to be approximately 30, 60, or 90 seconds. Check that the duration is as specified in the order.
8	Depress PRINT ON LINE key.	PRINT ON LINE key lights.

TABLE G (Cont)

KDP OR KD-ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
9	None. (Test Center sends CDC1 and receives response as given at right unless Option 9-17.c. or 9-19.b. (as applies) is installed. *Note:* If Option 4-32.b. is installed, go to Step 11.	LOCAL key is still lighted. Option 4-32.a.: Printer motor starts. (Test Center receives A/B1, A/B2.) Option 4-32.b.: Audible alarm sounds at station if 345625 is part of station. (Test Center receives A/B4, A/B4.)
10	None. (Test Center sends EOT.)	Printer motor stops.
11	Depress EOT, SEND key and PRINT ON LINE key.	EOT displayed. SEND key lights. LOCAL and PRINT ON LINE key lights go out.
12	None. (Test Center sends CDC1 and receives response of A/B4, A/B4 (Option 9-17.b.) or no response (Option 9-17.c. or 9-19.b.) or A/B3, A/B3 if Option 9-20.a. (or 9-20.d.) is used, provided station is equipped with "send mode response" feature.)	If alarm modification kit is part of station, audible alarm sounds at station (listen for it, do not time it again).
13	Depress LOCAL, HOME, CLEAR, REC key and PRINT ON LINE key. Raise printer cabinet lid. Friction Feed Printer only: Lift paper roll from back of printer. Lift printer cabinet interlock switch lever into latched position. Tractor Feed Printer only: Tear off paper just below printer. Depress PAPER ADVANCE key. Lift printer cabinet interlock switch lever into latched position.	REC and PRINT ON LINE keys light. PAPER lamp lights when paper is removed. REC key light goes out. LOCAL key lights. KD-ROP only: IN SERVICE key light goes out when cover is raised. *Note:* This is also a check of the printer cabinet interlock switch.
14	None. (Test Center sends CDC1 and receives A/B4, A/B4 (Option 9-17.a.) or no response (Option 9-17.c. or 9-17.b.))	When alarm modification kit is part of station, audible alarm sounds at station.
Check That Station Receives FOX Message		
15	Friction Feed Printer only: Replace paper roll. Lower and latch printer cabinet lid. Tractor Feed Printer only: Restore paper to printer. Lower and latch printer cabinet lid. KDP only: Depress REC key.	PAPER lamp goes out when paper is restored. REC and PRINT ON LINE key still lighted. KD-ROP only: IN SERVICE key lights when lid is lowered: REC key lights.

TABLE G (Cont)

KDP OR KD-ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
16	None. (Test Center sends CDC1 and receives response of Step 2.)	Printer motor starts.
17	None. (Test Center sends a few alpha characters and then STX and FOX.	Observe that no characters are received before FOX message. Station receives FOX message on display and printer. REC and PRINT ON LINE keys remain lighted provided ETX is not an ending character to the KD (or KDP) logic controller or 9140 Station Controller.
Check Post Message Recall Feature		
	Note: If Post Message Recall is not used, do not perform Step 18, go to Step 21.	
18	None. (Test Center sends FDX INT and CDC1 and then receives A/B1, A/B2 as in Step 2.)	REC and PRINT ON LINE keys remain lighted. Printer motor still runs.
19	None. (Test Center sends OPTIONS test message.)	Station receives OPTIONS message and remains in the receive mode.
	Note: This procedure specifically mentions only two printer errored character symbols. Others exist and would appear in the same places as the symbols given if such a type carrier is part of the station.	Option 4-7.a.: Errored parity characters are displayed as "12345."
		Option 4-7.b.: The errored parity characters are displayed as "S_B."
		Option 4-19.a.: The errored parity characters are printed as "Ξ$\frac{A}{A}$Ξ" on monocase printer (or "Ξ$\frac{A}{B}$Ξ" on up-low printer).
		Option 4-19.c.: The errored parity characters are printed as "12345."
		If the 9140 Station Controller uses the F2 card, errored parity characters, are printed and displayed as optioned on the card (use of F2 overrides Option 4-7).
		The short lines received on the printer will "stack" or run together but no characters will be lost. (If printer is an ROP with buffer, there is no data stacking.)

TABLE G (Cont)

KDP OR KD-ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
19 (Cont)		KD-ROP only: ERROR key lights provided Options 4-24.a. and 4-25.c. are installed but F2 card is not installed in 9140 Station Controller. (If key lights, depress key; light goes out.)
20	None. (Test Center sends FDX INT and CDC1 and then receives A/B3, A/B3 provided Options 9-17.a. (or 9-17.b.) and 9-20.b. are installed.)	REC key remains lighted. Printer motor remains on.
	Check for initialization of optional AB on STX	
21	None. (Test Center sends STX FDX INT, and CDC1 and receives A/B1, A/B2 (Option 9-27.d.) or A/B3, A/B3 (Option 9-27.e.)) If A/B1, A/B2 is received, proceed to Step 22 below. If A/B3, A/B3 is received, proceed to Step 24 below.	REC key remains lighted. Printer motor remains on.
	Check for initialization of optional AB on EOT	
22	None. (Test Center sends OPTIONS message.)	Response as Step 19.
23	None. (Test Center sends FDX INT and CDC1 and then receives A/B3, A/B3 provided Options 9-17.a. (or 9-17.b.) and 9-20.b. are installed.)	REC key remains lighted.
24	None. (Test Center sends EOT.)	LOCAL key lights. REC key light goes out. Printer motor stops immediately (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.).
	a. Depress REC key.	It lights.
	b. None. (Test Center sends CDC1, receives A/B1, A/B2, and then sends STX (no response.)) Proceed to Step 25.	Printer motor starts.

TABLE G (Cont)

KDP OR KD-ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
25	None. (Test Center sends EOT.)	When station receives EOT, LOCAL key lights. Option 4-18.a.: There is no paper feed out. Printer motor stops immediately (Option 4-53.b.) or after a two-minute (Option 4-53.a.). Option 4-18.b. or 4-18.c.: Printer feeds out 16 lines of paper; motor stops immediately (Option 4-53.b.) or after a two-minute (Option 4-53.a.).
Check Station "No-Traffic" Responses		
26	Depress HOME and CLEAR keys. Depress REC key.	PRINT ON LINE key still lighted. Cursor goes to home position. Display is cleared. REC key is lighted.
27	None. (Test Center sends TSC and then receives A/B1, A/B2.)	REC key remains lighted. Printer motor still not running.
28	Depress PRINT ON LINE and LOCAL keys.	LOCAL key lights. REC and PRINT ON LINE key lights go out.
29	None. (Test Center sends TSC and receives A/B4, A/B4 (Option 9-18.a. or A/B1, A/B2 (Option 9-18.b.))	None.
Check Station Sending		
30	Type STX, "THE QUICK BROWN FOX" and EOT. Depress PRINT ON LINE key. (Also read "RESULTS" column.)	STX and FOX message are displayed. Option 4-30.a.: When EOT is typed, cursor goes home and SEND key lights automatically. Option 4-30.b.: Manually home cursor and depress SEND key after EOT is entered. SEND key lights. PRINT ON LINE key lights and printer motor starts.

TABLE G (Cont)

KDP OR KD-ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
31	None. (Test Center sends TSC and then receives message.) Message will be sent almost immediately (Option 9-21.b.) or after a two-second delay (Option 9-21.a.).	Station sends message and stops on EOT. REC key lights. Option 4-29.a. only: Printer copies message. Printer motor stops on EOT (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18. Option 4-29.d. only: Printer does not copy message. PRINT ON LINE key light goes out. Printer motor stops immediately (Option 4-53 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18. PRINT ON LINE key lights on EOT.
Check That Station Stops on Received Break Signal		
	Note: If station is not a "4-wire" station, do not perform Steps 32 through 36; proceed to Step 37.	
32	Depress LOCAL and PRINT ON LINE keys. Place cursor over EOT after FOX message and type a "space." Move cursor to last line and depress EOT. Home cursor and depress SEND key.	PRINT ON LINE key lights goes out. Cursor returns home and SEND key lights.
33	None. (Test Center sends TSC and begins copying FOX.)	Station transmits FOX message, and cursor continues scanning through the display.
34	None. (Test Center sends "BREAK" and stops copying FOX.	Cursor stops. PRINT ON LINE key still not lighted. Printer motor still not running. Option 4-31.a. only: REC key lights. Option 4-31.b. only: SEND key remains lighted.
	Option 4-31.b. only: Depress REC key.	It lights.
35	None. (Test Center sends EOT and CDC1 and then receives A/B1, A/B2 as in Step 2.)	REC key still lighted.
36	None. (Test Center sends STX and EOT.)	LOCAL key lights on EOT.

TABLE G (Cont)

KDP OR KD-ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
Check of Sending and Receiving Operation and Options		
37	Depress REC key and PRINT ON LINE key.	They both light.
	FOX Test	
38	None. (Test Center sends CDC1, receives AB as in Step 2, then sends STX, and approximately 45 seconds of repeated FOX.	Printer motor starts on CDC1. Station copies message on the display (up to capacity) and the printer. Check both printer and display for errors.
39	At end of message, press LOCAL, EOT, HOME, and SEND keys. *Note:* Operation of HOME and SEND keys are not required if Option 4-30.a. is installed.	EOT is entered on display, and cursor goes home. SEND key lights.
40	None. (Test Center sends EOT and TSC, then copies message, and checks copy for errors.)	Printer motor keeps running. Station sends FOX, stops on EOT, (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.) and goes receive. Option 4-29.a. only: Printer copies message. Printer motor stops on EOT, (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18. Option 4-29.d. only: Printer does not copy message. PRINT ON LINE key light goes out. Printer motor stops immediately (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18. PRINT ON LINE key lights on EOT.
	FOX/U* Test	
41	None. (Test Center sends CDC1, receives AB of Step 2, and then sends approximately 45 seconds of repeated FOX/U* message.)	Printer motor starts on CDC1. Station copies FOX/U* message on display (up to capacity) and printer. Check both printer and display for errors.
42	Depress LOCAL, EOT, HOME, and SEND keys. (Note of Step 39 applies.)	EOT is entered on display, cursor goes home, and SEND key lights.

TABLE G (Cont)

KDP OR KD-ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
43	None. (Test Center sends EOT and TSC, then copies message, and checks copy for errors.)	Printer motor keeps running. Station sends FOX/U* message, stops on EOT, and goes receive. Option 4-29.a. only: Printer copies message. Printer motor stops on EOT (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18. Option 4-29.d. only: Printer does not copy message. PRINT ON LINE key light goes out. Printer motor stops immediately (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feedout dependent on Option 4-18. PRINT ON LINE key lights on EOT.
44	Depress LOCAL, HOME, CLEAR, and REC keys.	Cursor goes to home position. Display is cleared. REC key is lighted PRINT ON LINE key is still lighted.
	FULL ASCII Test	
45	None. (Test Center sends CDC1, receives AB as in Step 2, and then sends FULL ASCII test message.)	Printer motor starts on CDC1. Station copies FULL ASCII test message. LOCAL key lights on EOT. Printer motor stops immediately (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18.
	a. Tractor feed printer only: None. (Test Center sends EOT.)	LOCAL key lights if not already lighted.
	b. Tractor Feed Printer only: Depress REC key.	REC key lights.
	c. None. (Tractor Feed Printer only: Test Center sends CDC1, receives AB as in Step 2, and then sends FULL ASCII message without VT.)	Printer motor starts on CDC1. Station copies FULL ASCII test message without VT. LOCAL key lights on EOT. Printer motor stops immediately (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18.
46	Friction Feed or Tractor Feed Printer: Depress HOME and SEND keys.	Cursor goes home; SEND key lights. Printer motor starts.
47	None. (Test Center sends TSC, then copies message, and checks copy for errors.)	Station sends FULL ASCII message and stops on EOT.

TABLE G (Cont)

KDP OR KD-ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
47 (Cont)		Option 4-29.a. only: Printer copies message. Printer motor stops on EOT (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18. Option 4-29.d. only: Printer does not copy message. PRINT ON LINE key light goes out. Printer motor stops immediately (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18. PRINT ON LINE key lights on EOT. REC key lights (see Step 48 now).
48	If station sent both the upper and lower case letters, proceed to Step 50. If station stopped sending before it sends both upper-case and lower-case characters, then the character to the left of the cursor is probably coded to be X-OFF (Option 9-1.f. and Option 9-8.b.) is installed. If this is so, then go local and use the cursor positioning controls to place the cursor over X-OFF and depress the SPACE bar once. Repeat for second X-OFF. Now depress HOME and SEND keys.	None. LOCAL key lights. Both X-OFF characters are removed from display. Cursor goes home. SEND key lights.
49	Perform this step only if X-OFF had to be removed from display. None. (Test Center sends TSC, then copies message, and checks copy for errors.)	Station sends FULL ASCII message and stops on EOT. Option 4-29.a. only: Printer copies message. Printer motor stops on EOT (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18. Option 4-29.d. only: Printer does not copy message. PRINT ON LINE key light goes out. Printer motor stops immediately (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18. PRINT ON LINE key lights on EOT. REC key lights.

TABLE G (Cont)

KDP OR KD-ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
	OPTIONS Test	
50	None. (Test Center sends CDC1, receives AB as in Step 2, and then sends the OPTIONS test message.)	Printer motor starts on CDC1. Listen for bell to ring. Responses depend on Options 4-5 and 4-7. (NULL, CR, DEL, S_B.)
51	Depress LOCAL, EOT, HOME, and SEND keys. (Note of Step 39 applies.)	EOT is entered on display, and cursor goes home. SEND key lights.
52	None. (Test Center sends EOT and TSC, then copies message, and checks copy for errors.) Response depends on Options 4-5, 4-7 and 4-10.	Station sends OPTIONS test message and stops on EOT. Option 4-29.a. only: Printer copies message. Printer motor stops on EOT (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feedout dependent on Option 4-18. Option 4-29.d. only: Printer does not copy message. PRINT ON LINE key light goes out. Printer motor stops immediately (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18. PRINT ON LINE key lights on EOT. REC key lights.
	EDIT Test	
53	None. (Test Center sends CDC1, receives AB of Step 2, and then sends EDIT test.)	Printer motor starts on CDC1. Station copies EDIT test message. Response depends on Option 4-6. (Display or action on ESC sequences.)
54	Depress LOCAL, EOT, HOME, and SEND keys. (Note of Step 39 applies.)	EOT is entered on display. Cursor goes home. SEND key lights.
55	None. (Test Center send TSC, then copies message, and checks copy for errors.) Response depends on Options 4-6, 4-9, 4-10 and 4-13.	Station sends EDIT message and stops on EOT. Option 4-29.a. only: Printer copies message. Printer motor stops on EOT immediately (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18.

TABLE G (Cont)

KDP OR KD-ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
55 (Cont)		Option 4-29.d. only: Printer does not copy message. PRINT ON LINE key light goes out. Printer motor stops immediately (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18. PRINT ON LINE key lights on EOT. REC key lights. PRINT ON LINE key is still lighted.
56	*Note:* If FORM SEND key position is blocked with a blocking key, proceed to Step 58; do not perform Step 56. Depress LOCAL, HOME, FORM SEND, and SEND keys.	Cursor goes home. FORM SEND and SEND keys light. Printer motor starts.
57	None. (Test Center sends TSC, then copies message, and checks copy for errors.)	Station sends EDIT message and stops on EOT. Option 4-29.a. only: Printer copies message. Printer motor stops on EOT (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18. Option 4-29.d. only: Printer does not copy message. PRINT ON LINE key light goes out. Printer motor stops immediately (Option 4-53.b.) or after a two-minute delay(Option 4-53.a.). Feed out dependent on Option 4-18. PRINT ON LINE key lights on EOT. REC key lights.
58	When directed by Test Center, depress LOCAL, FORM ENTER, HOME, CLEAR, FORM ENTER, and REC keys.	All data, including protected data and tab marks, is cleared from the display. Cursor is home; REC key is lighted. FORM ENTER key is not lighted. PRINT ON LINE key is still lighted.
	RO Test	
59	None. (Test Center sends EOT and CDC1 and receives AB of Step 2.)	Printer motor starts on CDC1. REC key still lighted.

TABLE G (Cont)

KDP OR KD-ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
60	None. (Test Center sends RO test message.)	Station copies message. Station copies: Sx ≡ 1 ≡ 2 ≡ 3 ≡ (etc) KDP printer copies without missing characters. KD-ROP printer, without USOC 4T900 (40C103/AE), copies without missing any characters. KD-ROP printer with USOC 4T900 (40C103/AD) copies as display (but slower). Sx and ≡ do not print.
Check of Printer Motor Turn-Off While Selected to Receive		
	Note: KDP only: Proceed to Step 69. KD-ROP only: Proceed to Step 61.	
61	None. (Test Center sends EOT.)	Printer motor stops. Feed out dependent on Option 4-18. PRINT ON LINE key still lighted. LOCAL key lights.
62	Friction Feed Printer only: Raise printer cabinet lid and lift up printer cabinet interlock switch lever into latched position. Lift paper roll from back of printer (and place on top of printer). Place suitable weight (this can be another roll of paper) on printer paper sensing lever. Depress REC key.	None.
63	*Danger: (Friction Feed Printer only) Printer motor will start in this step.* None. (Test Center sends CDC1, receives AB of Step 2, and then sends STX and FOX.)	REC key remains lighted. PAPER key is not lighted. Printer motor starts. Printer copies FOX. (Display also copies.) Printer motor continues to run.

TABLE G (Cont)

KDP OR KD-ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
64	Friction Feed Printer only: Remove weight from paper sensing lever.	PAPER key lights. Option 4-36.a.: Printer motor still runs. Option 4-36.b.: Printer motor stops immediately (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18.
65	Tractor Feed Printer only: Tear off paper below printer and depress PAPER ADVANCE key.	PAPER key lights when internal paper sensing lever senses no paper. Option 4-36.a.: Printer motor still runs. Option 4-36.b.: Printer motor stops immediately (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18.
66	None. (Test Center sends EOT.)	LOCAL key lights. PAPER key stays lighted. Option 4-36.a.: Printer motor stops immediately (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feed out dependent on Option 4-18. Option 4-36.b.: Printer motor remains stopped.
67	Depress REC key.	REC key lights.
68	None. (Test Center sends CDC1 and receives AB of Step 7.)	Printer motor does not start. REC and PRINT ON LINE key still lighted.
Check That Station Can Receive While in Local and Print-On-Line Modes		
69	None. (Test Center sends EOT.)	Printer motor stops immediately, if it was running (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.). Feedout dependent on Option 4-18. LOCAL key lights. PRINT ON LINE key still lighted.
70	None. (Test Center sends CDC1 and receives AB of Step 2 or AB of Step 7.)	Option 4-32.a. only: Printer motor starts (AB of Step 2 was sent).

TABLE G (Cont)

KDP OR KD-ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
70 (Cont)		Option 4-32.b. only: Printer motor does not start (AB of Step 7 was sent).
71	None. (Test Center sends STX and FOX.)	Option 4-32.a. only: Printer copies; display does not copy. Option 4-32.b. only: Neither printer nor display copies.
Check That Station Can Receive While in Send and Print-On-Line Modes		
72	Depress SEND key.	SEND key lights. LOCAL key light goes out. Option 4-32.a. only: Printer motor still runs. Option 4-32.b. only: Printer motor still turned off.
73	None. (Test Center sends EOT, CDC1 and receives AB of Step 2 or AB or Step 7.)	Option 4-32.a. only: Printer motor keeps running. Option 4-32.b. only: Printer motor does not start (AB of Step 7 was sent).
74	None. (Test Center sends STX and FOX.)	Option 4-32.a. only: Printer copies; display does not. Option 4-32.b. only: Neither printer nor display copies.
75	Depress LOCAL key.	LOCAL key lights. SEND key light goes out.
76	None. (Test Center sends EOT.)	Printer motor stops immediately (Option 4-53.b.) or after a two-minute delay (Option 4-53.a.), if it was running. Feed out dependent on Option 4-18.

THIS ENDS THE KDP OR KD-ROP STATION ON-LINE TESTS.

Note: Tell Test Center attendant of your intentions. Connections should be dropped now.

TABLE H

ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
Check Ready-To-Receive Response to CDC		
1	Make sure adequate paper supply is present, lid is closed and latched, and IN SERVICE key is lighted. If tractor feed printer is part of station, first raise printer cainbet lid, check that forms switch is in ON position, then lower and latch lid.	IN SERVICE key is lighted (if not, depress key; it should light). Printer motor is not running.
2	None. (Test Center sends EOT and CDC1.)	Printer motor starts. Test Center will inform you of AB received unless optioned for no AB (Option 9-17.c.). Answer-back should be A/B1, A/B2. This AB is sent almost immediately (Option 9-21.b.) or after a two-second delay (Option 9-21.a.).
3	None. (Test Center sends CDC2 if different from CDC1; otherwise, go to Step 4.) If optioned for no AB to CDC2 (Option 9-17.f.), then EOT and CDC2 is sent.	Printer motor still on. If station is equipped with Option 9-17.f., printer motor will be turned off by EOT and started by CDC2. Answer-back should be A/B1, A/B2.
4	None. (Test Center sends CDC3 if your station is so equipped; otherwise, go to Step 5.) If optioned for no AB to CDC3 (Option 9-17.i.), then EOT and CDC3 is sent.	Printer motor still on. If station is equipped with Option 9-17.i., printer motor will be turned off by EOT and started by CDC3.
5	None. (Test Center sends EOT.)	Option 4-18.a.: No paper feed out; motor turns off. Option 4-18.b. or 4-18.c.: Printer feeds out 16 lines of paper and motor turns off.
Check of Not-Ready-To-Receive Response to CDC		
6	Raise printer cabinet lid. Friction Feed Printer only: Lift paper roll from back of printer. Lift printer cabinet interlock switch lever up into latched position.	IN SERVICE key light goes out. PAPER lamp lights. *Note:* This is also a check of the printer cabinet interlock switch.

TABLE H (Cont)

ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
Check of Not-Ready-To-Receive Response to CDC (Cont)		
6 (Cont)	Tractor Feed Printer only: Tear off paper below printer. Depress PAPER ADVANCE key. Lift printer cabinet interlock switch lever into latched position.	
7	None. (Test Center sends CDC1 and receives A/B4, A/B4 (Option 9-17.a.) or no response (Option 9-17.c. or 9-19.b.))	If 345625 alarm modification kit is part of station, audible alarm sounds at station. Duration of alarm is set by assembler to be approximately 30, 60, or 90 seconds. Check that the duration is as specified in the order.
8	Friction Feed Printer only: Replace paper roll. Close printer cabinet lid. Tractor Feed Printer only: Restore paper to printer. Lower and latch printer cabinet lid.	IN SERVICE key lights. PAPER lamp light goes out.
Check That Station Receives FOX Message		
9	None. (Test Center sends CDC1 and receives response of Step 2.)	Printer motor starts.
10	None. (Test Center sends a few alpha characters and then STX and FOX.)	Observe that no characters are received before FOX message. Printer copies FOX message. Motor stays on provided ETX is not an ending character to the KD (or KDP) or 9140 Station Controller.
Check Post Message Recall Feature		
11	*Note:* If Post Message Recall is not used, do not perform Step 11; go to Step 14. None. (Test Center sends FDX INT and CDC1 and receives A/B1, A/B2.)	None. (Printer motor still runs.)
12	None. (Test Center sends OPTIONS test message.) *Note:* This procedure specifically mentions only two printer errored character symbols. Others exist and would appear in the same places as the symbols given if such a type carrier is part of the station.	Printer receives OPTIONS message. Option 4-19.a.: Errored parity characters are printed as "$\overset{\Xi A\Xi}{\Xi A\Xi}$" on monocase printer (or "$\overset{\Xi A\Xi}{\Xi B\Xi}$" on up-low printer). Option 4-19.c.: Errored parity characters are printed as "12345."

TABLE H (Cont)

ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
Check Post Message Recall Feature (Cont)		
12 (Cont)		If the 9140 Station Controller uses the F2 card, the errored parity characters will be printed as optioned on the card (use of F2 overrides Option 4-7). DATA ERROR key lights, provided Options 4-24.a. and 4-25.c. are installed but F2 card is not installed (if key lights, depress key; its light goes out). If the buffer, USOC 4T900 (40C103/AD) is part of the station, then the message should be received with no "data stacking" of short lines.
13	None. (Test Center sends FDX INT and then receives A/B3, A/B3 provided Options 9-17.a. (or 9-17.b.) and 9-20.b. are installed.	None. (Printer motor still runs.)
	Check for initialization of optional AB on STX	
14	None. (Test Center sends STX, FDX INT and CDC1 and receives A/B1, A/B2 (Option 9-27.d.) or A/B3, A/B3 (Option 9-27.c.)) If A/B1, A/B2 is received, proceed to Step 15. If A/B3, A/B3 is received proceed to Step 17.	
	Check for initialization of optional AB on EOT	
15	None. (Test Center sends OPTIONS message.)	Response as Step 12.
16	None. (Test Center sends FDX INT and CDC1 and then receives A/B3, A/B3 provided Options 9-17.a. (or 9-17.b.) and 9-20.b. are installed.)	
17	None. (Test Center sends EOT and CDC1, receives A/B1, A/B2, and then sends STX (no response.)) Proceed to Step 18.	Printer motor stops on EOT and starts on STX.

TABLE H (Cont)

ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
Check That Station Deselects on Received Break Signal		
18	None. (Test Center sends "break.")	Printer motor stops. Feed out dependent on Option 4-18.
Check Station "No-Traffic" Responses		
19	None. (Test Center sends TSC and then receives A/B1, A/B2.)	IN SERVICE key is lighted.
20	Raise printer lid.	IN SERVICE key light goes out.
21	None. (Test Center sends TSC and then receives A/B4, A/B4 (Option 9-18.a.) or A/B1, A/B2 (Option 9-18.b.).	None.
22	Lower printer lid.	IN SERVICE key lights.
Check of ROP Receiving Operation and Options		
	FOX Test	
23	None. (Test Center sends CDC1, receives AB as in Step 2, then sends STX, and approximately 45 seconds of repeated FOX.)	Station copies message. Check printer copy for errors.
	FOX/U* Test	
24	None. (Test Center sends approximately 45 seconds of repeated FOX/U* message.)	Station copies message. Check printer copy for errors.
	FULL ASCII Test	
25	None. (Test Center sends FULL ASCII test message.)	Station copies FULL ASCII test message. Printer motor stops on EOT. Feed out dependent on Option 4-18.
	a. None. (Tractor Feed Printer only: Test Center sends EOT.)	If printer motor is not stopped, it will stop.
	b. Tractor Feed Printer only: Depress REC key.	REC key lights.

TABLE H (Cont)

ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
25 (Cont)	c. None. (Tractor Feed Printer only: Test Center sends CDC1, receives AB as in Step 2, and then sends FULL ASCII message without VT.)	Printer motor starts on CDC1. Station copies FULL ASCII test message without VT. Printer motor stops. Feed out dependent on Option 4-18.
	OPTIONS Test	
26	None. (Test Center sends CDC1, receives AB as in Step 2, and then sends OPTIONS test message.)	Printer motor starts on CDC1.
	EDIT Test	
27	None. (Test Center sends EDIT test.)	Station copies EDIT test message.
	RO Test	
28	None. (Test Center sends RO test message.)	Station copies message. Printer, without USOC 4T900 (40C103/AE), copies without missing any characters. Printer with USOC 4T900 (40C103/AD) copies: 1 2 3 4 (etc)
Check Printer Motor Turn-Off While Selected to Receive		
29	None. (Test Center sends EOT.)	Printer motor stops. Feed out dependent on Option 4-18.
30	Friction Feed Printer only: Raise printer cabinet lid; lift up printer cabinet interlock switch lever into latched position. Lift paper roll from back of printer (and place on top of printer). Place a suitable weight (this can be another roll of paper) on printer paper sensing lever.	None.
31	*Caution: (Friction Feed Printer only) Printer motor will start in this step.* None. (Test Center sends CDC1, receives AB of Step 2, and then sends STX and FOX.)	PAPER key is not lighted. Printer motor starts. Printer copies FOX. Printer motor continues to run.

TABLE H (Cont)

ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
32	Friction Feed Printer only: Remove weight from paper sensing lever.	PAPER key lights. Option 4-36.a.: Printer motor still runs. Option 4-36.b.: Printer motor stops. Feed out dependent on Option 4-18.
33	Tractor Feed Printer only: Tear off paper below printer; depress PAPER ADVANCE key.	PAPER key lights when internal paper sensing lever senses no paper. Option 4-36.a.: Printer motor still runs. Option 4-36.b.: Printer motor stops. Feed out dependent on Option 4-18.
34	None. (Test Center sends EOT.)	PAPER key stays lighted. Option 4-36.a.: Printer motor stops. Feed out dependent on Option 4-18. Option 4-36.b.: Printer motor remains stopped.
35	None. (Test Center sends CDC1 and receives AB of Step 7.)	Printer motor does not start.
36	Lift printer cabinet lid (if not raised), and restore paper to printer. Lower and latch lid.	PAPER key light goes out when paper is restored.
37	None. (Test Center sends CDC1, receives AB of Step 2, and sends STX and FOX.)	Printer motor starts on CDC1. Printer copies FOX.
Check of Tractor Feed Printer on FF		
	Note: If station is equipped with friction feed printer, go to Step 42.	
38	None. (Test Center sends FOX message and then FF character.)	Printer copies FOX message then executes FF function.
39	None. (Test Center sends FF and EOT only.)	Printer does not execute FF function. Printer motor stops on EOT. Feed out dependent on Option 4-18.

TABLE H (Cont)

ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
Check of Tractor Feed Printer on FF (Cont)		
40	Raise printer cabinet lid. Operate forms switch to OFF position. Lower and latch printer cabinet lid.	IN SERVICE key light is out while printer cabinet lid is raised.
41	None. (Test Center sends CDC1, receives AB of Step 2, and sends STX FOX message and FF.)	Printer motor starts on CDC1. Printer copies FOX message but does not execute FF function. Printer motor still runs.
42	None. (Test Center sends EOT.)	Printer motor stops. Automatic feed out is so optioned.
	Note: The remaining tests do not require a connection to a Test Center. Tell attendant of your intentions. The connection should be dropped now.	
43	Tractor Feed Printer only: Raise cabinet lid.	IN SERVICE key light goes out.
44	Tractor Feed Printer only: Operate forms switch back to ON.	None.
45	Tractor Feed Printer only: Lower and latch lid.	IN SERVICE key lights.

END OF ROP TESTS

TABLE I

KD&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
Check Ready-To-Receive Response to CDC		
1	Make sure adequate paper supply is present in ROP, lid is closed, and both the IN SERVICE key and LOCAL key are lighted. If tractor feed printer is part of station, first raise printer cabinet lid, check that forms switch is in ON position, and then lower and latch lid.	IN SERVICE key and LOCAL key are lighted. (If not, depress key; it shall light.) Printer motor is not running.

TABLE I (Cont)

KD&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
2	None. (Test Center sends EOT and CDC1.)	Printer motor starts. Test Center will inform you of AB received unless optioned for no AB (Option 9-17.c.). Answer-back should be A/B1, A/B2. This AB is sent almost immediately (Option 9-21.b.) or after a 2-second delay (Option 9-21.a.).
3	None. (Test Center sends CDC2 if different from CDC1; otherwise, go to Step 4.) If optioned for no AB to CDC2 (Option 9-17.f.) then EOT and CDC2 are sent.	Printer motor still on. If station is equipped with Option 9-17.f., printer motor will be turned off by EOT and started by CDC2. Answer-back should be A/B1, A/B2.
4	None. (Test Center sends CDC3 if your station is so equipped; otherwise, go to Step 5. If optioned for no AB to CDC3 (Option 9-17.i.) then EOT and CDC3 are sent.)	Printer motor still on. If station is equipped with Option 9-17.i., printer motor will be turned off by EOT and started by CDC3.
5	None. (Test Center sends EOT.)	Option 4-18.b. or 4-18.c.: Printer feeds out 16 lines of paper and motor turns off. Option 4-18.a.: No paper feed out, but motor turns off.
Check Not-Ready-To-Receive Response to CDC		
6	Raise printer cabinet lid. Friction Feed Printer only: Lift paper roll from back of printer. Lift printer cabinet interlock switch lever into latched position. Tractor Feed Printer only: Tear off paper below printer. Depress PAPER ADVANCE key. Lift printer cabinet interlock switch lever into latched position.	IN SERVICE key light goes out. PAPER key lights. *Note:* This is also a check of the printer cabinet interlock switch.
7	None. (Test Center sends CDC1 and receives A/B4, A/B4 (Option 9-17.a.) or no response (Option 9-17.c. or 9-19.b.))	If 345625 alarm modification kit is part of station, audible alarm sounds at station. Duration of alarm is set by assembler to be approximately 30, 60, or 90 seconds. Check that duration is as specified in the order.

TABLE I (Cont)

KD&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
Check "No Traffic" Response to TSC		
8	None. (Test Center sends TSC and receives A/B4, A/B4 (Option 9-18.a.) or A/B1, A/B2 (Option 9-18.b.))	IN SERVICE key on ROP still not lighted. LOCAL key on KD still lighted.
9	Friction Feed Printer only: Replace paper roll. Lower and latch printer cabinet lid. Tractor Feed Printer only: Restore paper to printer. Lower and latch printer cabinet lid.	IN SERVICE key lights.
10	None. (Test Center sends TSC and receives A/B1, A/B2.)	None.
Check That Station Receives FOX Message While Prepared to Send		
11	Depress HOME and CLEAR keys. Type STX, THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 0123456789 TIMES, and EOT.) (Also read RESULTS column.)	STX and FOX message are displayed. Option 4-30.a.: When EOT is typed, cursor goes home and SEND key lights automatically. Option 4-30.b.: Manually home cursor and depress SEND key after EOT. SEND key lights.
12	None. (Test Center sends CDC1 and receives response of Step 2.)	Printer motor turns on. SEND key still lighted on KD.
13	None. (Test Center sends a few alpha characters, STX, and then FOX message.)	ROP does not copy the alpha characters before STX. ROP copies FOX message. SEND key still lighted. Printer motor still on.
Check of Post Message Recall Feature — Part I		
	Note: If Post Message Recall is not used, do not perform Step 14; go to Step 15.	
14	None. (Test Center sends FDX INT and CDC1 and then receives A/B1, A/B2.)	SEND key still lighted. Printer motor still runs.

TABLE I (Cont)

KD&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
Check of ROP Action on Received Break Signal		
15	None. (Test Center sends "break" signal.)	ROP motor stops, feed out dependent on Option 4-18. (Action of KD is irrelevant to this step.)
16	Depress SEND key.	SEND key lights if not already lighted.
17	None. (Test Center sends CDC1 and receives AB of Step 2.)	Printer motor starts.
Check Station Sending While Selected to Receive		
18	None. (Test Center sends FDX INT and TSC but receives no AB.)	SEND key still lighted. Printer motor still on.
19	None. (Test Center sends STX and then receives the FOX prepared in Step 11.) Message will be sent almost immediately (Option 9-21.b.), or after a 2-second delay (Option 9-21.a.).	KD portion of station sends message of Step 11 and stops at EOT. RECEIVE key lights.
20	None. (Test Center sends FDX INT and X-OFF.)	None.
21	None. (Test Center sends EOT.)	Option 4-18.a.: No paper feed out but motor stops. Option 4-18.b. or 4-18.c.: ROP feeds out 16 lines of paper, motor stops.
Check That KD Stops on Received Break Signal		
	a. Depress LOCAL key. Place cursor over EOT of message of Step 11 and type a "space." Move cursor to last line and depress EOT. Home cursor and depress SEND key.	LOCAL key lights. EOT is removed from display. Cursor goes home. SEND key lights.
	b. None. (Test Center sends FDX INT, then TSC, but receives no AB.)	SEND key still lighted. Printer motor still not running.
	c. None. (Test Center sends STX and then receives the FOX prepared in Step 11.)	KD portion of station sends message of Step 11; cursor continues scanning through the display.

TABLE I (Cont)

KD&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
21 (Cont)	d. None. (Test Center sends "break" and stops copying message.)	Cursor stops. Option 4-31.a. only: REC key lights. Option 4-31.b. only: SEND key remains lighted.
	e. None. (Test Center sends FDX INT, X-OFF, and EOT.)	None.
	f. Option 4-31.b. only: Depress REC key.	It lights.
Check of Station Receiving While Sending		
22	Depress LOCAL and HOME keys.	Cursor goes to home position. Message is retained on display from Step 11.
23	None. (Test Center sends CDC1 and receives AB as in Step 2.)	Printer motor starts.
24	Depress SEND key.	SEND key lights. Printer motor still on.
25	None. (Test Center sends TSC but receives no AB.)	None.
26	None. (Test Center sends STX followed by OPTIONS test message.) *Note:* This procedure specifically mentions only two printer errored character symbols. Others exist and would appear in the same places as the symbols given if such a type carrier is part of the station.	KD sends FOX message (and stops on EOT) at same time ROP receives OPTIONS message. REC key lights at end of FOX message. Option 4-19.a.: Errored parity characters are received as ≡A≡ on monocase printer (or ≡A≡ on up-low printer). Option 4-19.c.: Errored parity characters are printed as "12345." If the 9140 Station Controller uses the F2 card, errored parity characters will be printed as optioned on the card (use of F2 card overrides Option 4-7). DATA ERROR key lights provided Options 4-24.a. and 4-25.c. are installed but F2 card is not installed. (If key lights, depress key; its light goes out.)

TABLE I (Cont)

KD&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
26 (Cont)		Option 4-18.a.: No paper feed out, but printer motor stops. Option 4-18.b. or 4-18.c.: ROP feeds out 16 lines of paper, and then printer motor stops.
Check of Post Message Recall Feature — Part II		
27	None. (Test Center sends FDX INT, X-OFF, and CDC1.) If Post Message Recall is used, then Test Center will receive A/B3, A/B3 provided Options 9-17.a. (or 9-17.b.), and 9-20.b. are installed.	REC key still lighted. Printer motor still on.
	Check for initialization of optional AB on STX	
28	None. (Test Center sends STX, FDX INT and CDC1 and receives A/B1, A/B2 (Option 9-27.d.) or A/B3, A/B3 (Option 9-27.e.)) If A/B1, A/B2 is received, proceed to Step 29. If A/B3, A/B3 is received, proceed to Step 31.	
29	None. (Test Center sends OPTIONS message.)	Response as Step 26.
30	None. (Test Center sends FDX INT and CDC1 and then receives A/B3, A/B3 provided Options 9-17.a. (or 9-17.b.) and 9-20.b. are installed.	
31	None. (Test Center sends EOT and CDC1, receives A/B1, A/B2, and then sends STX (no response.))	
32	None. (Test Center sends EOT.)	Option 4-18.a.: No paper feed out, but printer motor stops. Option 4-18.b. or 4-18.c.: ROP feeds out 16 lines of paper, then printer motor stops.

TABLE I (Cont)

KD&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
Check of ROP Receiving Operations and Options		
	FOX Test	
33	None. (Test Center sends CDC1, receives AB as in Step 2, then sends STX, and approximately 45 seconds of repeated FOX.)	ROP copies message. Check printer copy for errors.
	FOX/U* Test	
34	None. (Test Center sends approximately 45 seconds of repeated FOX/U* message.)	ROP copies message. Check printer copy for errors.
	FULL ASCII Test	
35	None. (Test Center sends FULL ASCII test message.)	ROP copies FULL ASCII test message. Printer motor stops on EOT. Feed out dependent on Option 4-18.
	a. Tractor Feed Printer only: None. (Test Center sends EOT.)	If printer motor not stopped, it stops.
	b. Tractor Feed Printer only: None. (Test Center sends CDC1, receives AB as in Step 2, and then sends FULL ASCII message without VT.)	Printer motor starts on CDC1. Station copies FULL ASCII test message without VT. Printer motor stops on EOT. Feed out dependent on Option 4-18.
	OPTIONS Test	
36	None. (Test Center sends CDC1, receives AB of Step 2, and then sends OPTIONS test message.)	Printer motor starts on CDC1. Responses depend on Options 4-5 and 4-7.
	EDIT Test	
37	None. (Test Center sends EDIT test.)	ROP copies EDIT test message. Responses depend on Option 4-6.
	RO Test	
38	None. (Test Center sends RO test message.)	Station copies message. Printer, without USOC 4T900 (40C103/AE), copies without missing any characters.

TABLE I (Cont)

KD&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
38 (Cont)		Printer, with USOC 4T900 (40C103/AD) copies: 1 2 3 4 (etc)
Check of ROP Tractor Feed Printer on FF		
	Note: If ROP is equipped with friction feed printer, go to Step 43.	
39	None. (Test Center sends FOX message and then FF character.)	ROP printer copies FOX message and then executes FF function.
40	None. (Test Center sends FF and EOT only.)	ROP printer does not execute FF function. ROP printer motor stops on EOT. Feed out dependent on Option 4-18.
41	Raise ROP printer cabinet lid. Operate forms switch to OFF position. Lower and latch ROP printer cabinet lid.	IN SERVICE key light is out while ROP printer cabinet lid is raised.
42	None. (Test Center sends CDC1, receives AB of Step 2, and sends STX FOX message and FF.)	ROP printer motor starts on CDC1. ROP printer copies FOX message but does not execute FF function. ROP printer motor still runs.
43	None. (Test Center sends EOT.)	ROP printer motor stops. Feed out dependent on Option 4-18.
Check of KD Sending Operations and Options		
44	Depress LOCAL key. Message of Step 11 is still displayed. Use cursor positioning controls to place the cursor over EOT. Depress NEW LINE key. Depress FORM ENTER key and enter PROTECT. Depress FORM ENTER and HIGH LIGHT keys and then enter HILIGHT. Depress HIGH LIGHT key and enter EOT. *Note:* If Option 4-30.a. is installed, cursor goes home and SEND key lights automatically. If Option 4-30.a. is not installed, depress HOME and SEND keys.	LOCAL key lights. EOT is removed from display, and NEW LINE is entered. Second line reads PROTECT (in protect) HILIGHT (in highlight) followed by EOT. Cursor is in home position, SEND key is lighted.

TABLE I (Cont)

KD&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
45	None. (Test Center sends EOT, TSC, and STX and receives and checks message prepared in Step 44.) Response depends on Options 4-9 and 4-13.	Station sends message. REC key lights.
46	Depress LOCAL, HOME, FORM SEND, and SEND keys.	Cursor goes home. SEND and FORM SEND keys light.
47	None. (Test Center sends EOT, TSC, and STX and receives and checks message prepared in Step 44.)	Station sends message. REC key lights.
48	Depress FORM SEND key. Tilt monitor to rear, raise logic cabinet lid, and depress test switch 3 on 410001 or 410018 card. Lower logic lid, and tilt monitor forward. Use cursor positioning controls to place cursor in the last position on the bottom line of the last segment. Depress EOT, HOME, and SEND keys. (The Note of Step 44 applies.) *Note:* Once you know where test switch 3 is, it is not necessary to tilt monitor to gain access.	FORM SEND key light goes out. After test switch is depressed, display is filled with * characters. EOT is entered as the last character Cursor is in home position; SEND key is lighted. FORM SEND key is not lighted.
49	None. (Test Center sends EOT, TSC, and STX and receives and checks message prepared in Step 48.)	Station sends message. REC key lights. Printer is <u>not</u> running.
<u>Check of Printer Motor Turn-Off While Selected to Receive</u>		
50	Friction Feed Printer only: Raise printer cabinet lid, and lift up printer cabinet interlock switch lever into latched position. Lift paper roll from back of printer (and place on top of printer). Place a suitable weight (this can be another roll of paper) on printer paper sensing lever.	None.
51	*Danger: (Friction Feed Printer only) — Printer motor will start in this step.* None. (Test Center sends EOT and CDC1, receives AB of Step 2, and then sends STX and FOX.)	PAPER key is <u>not</u> lighted. Printer motor starts. Printer copies FOX. Printer motor continues to run.

TABLE I (Cont)

KD&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
52	Friction Feed Printer only: Remove weight from paper sensing lever.	PAPER key lights. Option 4-36.a.: Printer motor still runs. Option 4-36.b.: Printer motor stops. Feed out dependent on Option 4-18.
53	Tractor Feed Printer only: Tear off paper below printer, and depress PAPER ADVANCE key.	PAPER key lights when internal paper sensing lever senses no paper. Option 4-36.a.: Printer motor still runs. Option 4-36.b.: Printer motor stops. Feed out dependent on Option 4-18.
54	None. (Test Center sends EOT.)	PAPER key stays lighted. Option 4-36.a.: Printer motor stops. Feed out dependent on Option 4-18. Option 4-36.b.: Printer motor remains stopped.
55	None. (Test Center sends CDC1 and receives AB of Step 7.)	Printer motor does not start.

THIS ENDS THE KD&ROP STATION ON-LINE TESTS

Note: Tell Test Center attendant of your intentions. Connections should be dropped now.

TABLE J

KDP&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
Check Ready-To-Receive Response to CDC		
1	Make sure adequate paper supply is present in ROP, lid is closed, and both the IN SERVICE key and LOCAL key are lighted.	IN SERVICE key and LOCAL key are lighted. (If not, depress key; it should light.) KDP and ROP printer motors are not running.

TABLE J (Cont)

KDP&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
1 (Cont)	If tractor feed printer is part of station, first raise printer cabinet lid, check that forms switch is in ON position, and then lower and latch lid.	
2	None. (Test Center sends EOT and CDC1.)	ROP printer motor starts. Test Center will inform you of AB received unless optioned for no AB (Option 9-17.c.). Answer-back should be A/B1, A/B2. Answer-back is sent almost immediately (Option 9-21.b.) or after a 2-second delay (Option 9-21.a.).
3	None. (Test Center sends CDC2 if different from CDC1; otherwise, go to Step 4.) If optioned for no AB to CDC2 (Option 9-17.f.), then EOT and CDC2 are sent.	ROP printer motor still on. If station is equipped withOption 9-17.f., KDP printer motor will be turned off by EOT (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.), and started by CDC2. Answer-back should be A/B1, A/B2.
4	None. (Test Center sends CDC3 if your station is so equipped; otherwise, go to Step 5.)	ROP printer motor still on. If station is equipped with Option 9-17.i., KDP printer motor will be turned off by EOT (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.), and started by CDC3.
5	None. (Test Center sends EOT.)	ROP Option 4-18.a.: No paper feed out, but ROP printer motor turns off. ROP Options 4-18.b. and 4-18.c.: ROP printer feeds out 16 lines of paper and motor turns off.
Check Not-Ready-To-Receive Response to CDC		
6	Raise printer cabinet lid on ROP. Friction Feed Printer only: Lift paper roll from back of printer. Lift printer cabinet interlock switch lever into latched position. Tractor Feed Printer only: Test off paper below ROP printer. Depress PAPER ADVANCE key. Lift ROP printer cabinet interlock switch lever into latched position.	IN SERVICE key light goes out. PAPER lamp lights.

TABLE J (Cont)

KDP&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
7	None. (Test Center sends CDC1 and receives A/B4, A/B4 (Option 9-17.a.) or no response (Option 9-17.c. or 9-19.b.))	If 345625 alarm modification kit is part of station, audible alarm sounds in station. Duration of alarm is set by assembler to be approximately 30, 60 or 90 seconds. Check that duration is as specified in the order.
Check "No Traffic" Response to TSC		
8	None. (Test Center sends TSC and receives A/B4, A/B4 (Option 9-18.a.) or A/B1, A/B2 (Option 9-18.b.))	LOCAL key still lighted. IN SERVICE key on ROP still not lighted.
9	Friction Feed Printer only: At ROP, replace paper roll. Lower and latch printer cabinet lid. Tractor Feed Printer only: Restore paper to ROP printer. Lower and latch ROP printer cabinet lid.	IN SERVICE key lights. PAPER key goes out. *Note:* This is also a test of the printer cabinet interlock switch.
10	None. (Test Center sends TSC and receives A/B1, A/B2.)	None. (KDP and ROP printer motors are still not running.)
Check That Station Receives FOX Message While Prepared to Send		
11	Depress HOME and CLEAR keys. Type STX, THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 0123456789 TIMES, and EOT. Depress PRINT ON LINE key. (Also read "RESPONSE" column.)	STX and FOX message are displayed. Option 4-30.a.: When EOT is typed, cursor goes home and SEND key lights automatically. Option 4-30.b.: Manually home cursor and depress SEND key after EOT. SEND key lights. PRINT ON LINE key lights. KDP printer motor starts.
12	None. (Test Center sends EOT and CDC1 and receives response of Step 2.)	ROP printer motor turns on. PRINT ON LINE and SEND keys still lighted.
13	None. (Test Center sends a few alpha characters and then STX and FOX message.)	ROP does not copy the alpha characters before STX. ROP copies FOX message. SEND key still lighted. Both printer motors are still on.
Check of Post Message Recall Feature — Part I		
	Note: If Post Message Recall is not used, go to Step 15.	

TABLE J (Cont)

KDP&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
14	None. (Test Center sends FDX INT and CDC1 and then receives A/B1, A/B2.)	PRINT ON LINE and SEND keys are still lighted. Both KDP and ROP printer motors are still running.
Check of ROP Action on Received Break Signal		
15	None. (Test Center sends "break" signal.)	REC key lights. ROP printer motor stops; feed out dependent on Option 4-18 in ROP. KDP printer motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.); feed out dependent on Option 4-18 in KDP. SEND key light goes out.
16	Depress SEND key.	SEND key lights. PRINT ON LINE key still lighted. KDP printer motor starts.
17	None. (Test Center sends EOT and CDC1 and receives AB of Step 2.)	ROP printer motor starts.
Check Station Sending While Selected to Receive		
18	None. (Test Center sends FDX INT and TSC but receives no AB.)	PRINT ON LINE and SEND keys are still lighted. Both KDP and ROP printer motors are still on.
19	None. (Test Center sends STX and then receives the FOX message prepared in Step 11. Message will be sent almost immediately (Option 9-21.b.) or after a 2-second delay (Option 9-21.a.))	Message on display of KDP from Step 11 is sent to Test Center and also copied on KDP printer. (Option 4-29.a. must be installed for KDP printer to copy.) Cursor stops at EOT. RECEIVE key lights. PRINT ON LINE key remains lighted. KDP Option 4-18.a.: No paper feed out, but KDP printer motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). KDP Option 4-18.b. or 4-18.c.: KDP printer feeds out 16 lines of paper and motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). RO printer motor remains running.
20	None. (Test Center sends FDX INT and X-OFF.)	None.

TABLE J (Cont)

KDP&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
21	None. (Test Center sends EOT.)	ROP Option 4-18.a.: No paper feed out, but ROP printer motor stops. ROP Option 4-18.b. or 4-18.c.: ROP printer feeds out 16 lines of paper and motor stops.
Check That KDP Stops on Received Break Signal		
	a. Depress LOCAL key and PRINT ON LINE key. Place cursor over EOT of message of Step 11 and type a "Space." Move cursor to last line and depress EOT. Home cursor and depress SEND key.	LOCAL key lights. PRINT ON LINE key light goes out. Cursor goes home. SEND key lights.
	b. None. (Test Center sends FDX INT, then TSC, but receives no AB.)	SEND key still lighted. Neither printer motor is running.
	c. None. (Test Center sends STX and then receives the FOX message prepared in Step 11.)	KD portion of station sends message of Step 11; cursor continues scanning through the display.
	d. None. (Test Center sends "break" and stops copying message.)	Cursor stops. Option 4-31.a. only: REC key lights. Option 4-31.b. only: SEND key remains lighted.
	e. None. (Test Center sends FDX INT, X-OFF, and EOT.)	None.
	f. Option 4-31.b. only: Depress REC key.	It lights.
Check Station Receiving While Sending		
22	Depress LOCAL and HOME keys.	Cursor goes to home position. FOX message is retained on display from Step 11. Both KDP and ROP printer motors are not running. LOCAL key lights.
23	None. (Test Center sends CDC1 and receives AB as in Step 2.)	ROP printer motor starts. PRINT ON LINE key still lighted.
24	Depress SEND key.	SEND and PRINT ON LINE keys are lighted. ROP printer motor still on. KDP printer motor starts.
25	None. (Test Center sends TSC but receives no response.)	None.

TABLE J (Cont)

KDP&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
26	None. (Test Center sends STX followed by OPTIONS message but does not receive FOX message.) *Note:* This procedure specifically mentions only two printer errored character symbols. Others exist and would appear in the same places as the symbols given if such a type carrier is part of the station.	FOX message (prepared in Step 11) is sent from display and is copied on KDP printer. Cursor stops at EOT of message and REC key lights at end of FOX message. At the same time, OPTIONS message from Test Center is copied on ROP printer. ROP Option 4-19.a.: Errored parity characters are received as ≡A≡ ≡A≡ on monocase printer (or ≡A≡ ≡B≡ on up-low printer). ROP Option 4-19.c.: Errored parity characters are printed as "12345." If 9140 Station Controller uses F2 card, errored parity characters will be printed as optioned on the card (use of F2 card overrides Option 4-7). DATA ERROR key lights, provided Options 4-24.a. and 4-25.c. are installed but F2 card is not installed. (If key lights, depress key; its light goes out.) KDP Option 4-18.a.: No paper feed out, but KDP printer motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.b.). KDP Option 4-18.b. or 4-18.c.: KDP printer feeds out 16 lines of paper, and then motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.).
Check of Post Message Recall Feature — Part II		
27	None. (Test Center sends FDX INT, X-OFF, and CDC1.) If Post Message Recall is used, then Test Center will receive A/B3, A/B3 provided Option 9-17.a. (or 9-17.b.) and 9-20.b. are installed.	REC key still lighted. ROP printer motor still on.
Check for initialization of optional AB on STX		
28	None. (Test Center sends STX, FDX INT and CDC1 and receives A/B1, A/B2 (Option 9-27.d.) or A/B3, A/B3 (Option 9-27.e.)) If A/B1, A/B2 is received, proceed to Step 29. If A/B3, A/B3 is received, proceed to Step 31, the second procedure.	ROP printer motor still running. KDP printer motor still not running. REC key is still lighted.

TABLE J (Cont)

KDP&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
	Check for initialization of optional AB on EOT	
29	None. (Test Center sends OPTIONS message.)	ROP printer copies message. ROP Option 4-19.a.: Errored parity characters are received as =A= =A= on monocase printer (or =A= =B= on up-low printer). ROP Option 4-17.c.: Errored parity characters are printed as "12345." If 9140 Station Controller uses F2 card, errored parity characters will be printed as optioned on the card. DATA ERROR key lights, provided Option 4-24.a. and 4-25.c. are installed. (If key lights, depress key, its light goes out.)
30	None. (Test Center sends FDX INT and CDC1 and then receives A/B3, A/B3 provided Options 9-17.a. (or 9-17.b.) and 9-20.b. are installed.)	KDP printer motor still not running. ROP printer motor still running. REC key still lighted.
31	None. (Test Center sends EOT and CDC1, receives A/B1, A/B2, and then sends STX (no response.)) None. (Test Center sends EOT.)	ROP printer motor stops on EOT and starts on CDC1. ROP Option 4-18.a.: No paper feed out, but motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.).
Check of ROP Receiving Operations and Options		
	FOX Test	
32	None. (Test Center sends CDC1, receives AB as in Step 2, then sends STX, and approximately 45 seconds of repeated FOX.)	ROP copies message. Check printer copy for errors. KDP printer motor still not running.
	FOX/U* Test	
33	None. (Test Center sends approximately 45 seconds of repeated FOX/U* message.)	ROP copies message. Check printer copy for errors.
	FULL ASCII Test	
34	None. (Test Center sends FULL ASCII test message.)	ROP copies FULL ASCII test message. ROP printer motor stops on EOT. Feed out dependent on ROP Option 4-18.

TABLE J (Cont)

KDP&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
34 (Cont)	a. None. (Tractor Feed Printer only: Test Center sends EOT.)	If ROP printer motor not stopped, it stops.
	b. None. (Tractor Feed Printer only: Test Center sends CDC1, receives AB as in Step 2, and then sends FULL ASCII message without VT.)	ROP printer motor starts on CDC1. ROP printer copies FULL ASCII test message without VT. ROP printer motor stops on EOT. Feed out dependent on ROP Option 4-18.
	OPTIONS Test	
35	None. (Test Center sends EOT and CDC1, receives AB as in Step 2, and then sends OPTIONS test message.)	ROP printer motor starts. Response depends on ROP Options 4-5 and 4-7. KDP printer motor still not running.
	EDIT Test	
36	None. (Test Center sends EDIT test.)	ROP copies EDIT test message. Responses depend on ROP Option 4-6.
	RO Test	
37	None. (Test Center sends RO test message.)	ROP copies message. ROP printer, without USOC 4T900 (40C103/AE), copies without missing any characters. ROP printer with USOC 4T900 (40C103/AD) copies: 1 2 3 4 (etc)
Check of KDP Sending Operations and Options		
38	Depress PRINT ON LINE key and LOCAL key. Message of Step 11 is still displayed. Use cursor positioning controls to place cursor over EOT. Depress NEW LINE key. Depress FORM ENTER key and enter PROTECT. Depress FORM ENTER and HIGH LIGHT keys and then enter HILIGHT. Depress HIGH LIGHT key and enter EOT. *Note:* If Option 4-30.a. is installed, cursor goes home and SEND key lights automatically. If Option 4-30.a. is not installed, then depress HOME and SEND keys.	PRINT ON LINE key light goes out. LOCAL key lights. EOT is removed from display and NEW LINE is entered. Second line reads PROTECT (in protect) HILIGHT (in highlight) followed by EOT. Cursor is in home position, SEND key is lighted. KDP printer motor is still not running.

TABLE J (Cont)

KDP&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULT
39	None. (Test Center sends EOT, TSC, and STX and receives and checks message prepared in Step 32.) Response depends on Options 4-9 and 4-13.	ROP printer motor stops on EOT. Feed out dependent on ROP Option 4-18. Station sends message. REC key lights.
40	Depress LOCAL, HOME, FORM SEND, and SEND keys.	Cursor goes home. SEND and FORM SEND keys light.
41	None. (Test Center sends EOT, TSC, and STX and receives and checks message prepared in Step 38.)	Station sends message. REC key lights. PRINT ON LINE key remains not lighted.
42	Depress FORM SEND key. Printer under display only: Lower pedestal door (if not lowered). Loosen screws on lid of electronics package. Raise lid, depress test switch 3 (on 410001 or 410018 card), and lower lid. Adjacent printer only: Tilt monitor to rear, raise logic cabinet lid, depress test switch 3 (on 410001 or 410018 card). Lower lid, tilt monitor back forward. (Once you know where test switch 3 is, it is not necessary to tilt monitor to gain access.) Use cursor positioning controls to place cursor in the last position on the bottom line of the last segment. Depress EOT, HOME, and SEND keys (the Note of Step 38 applies).	FORM SEND key light goes out. After the test switch is depressed, display is filled with * characters. EOT is entered as last character. Cursor is in home position. SEND key is lighted. FORM SEND key is not lighted.
43	None. (Test Center sends EOT, TSC, and STX and receives and checks message prepared in Step 42.)	Station sends message. Rec key lights. KDP and ROP printer motors are not running.
Check of ROP Printer Motor Turn-Off While Selected to Receive		
44	Friction Feed Printer only: Raise ROP printer cabinet lid and lift up ROP printer cabinet interlock switch lever into latched position. Lift paper roll from back of ROP printer (and place on top of ROP printer). Place a suitable weight (this can be another roll of paper) on ROP printer paper sensing lever.	None.
45	*Caution: (Friction Feed Printer only) ROP printer motor will start in this step.*	

TABLE J (Cont)

KDP&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
45 (Cont)	None. (Test Center sends EOT and CDC1, receives AB of Step 2, and then sends STX and FOX message.	PAPER key is not lighted. ROP printer motor starts. ROP printer copies FOX message. ROP printer motor continues to run.
46	Friction Feed Printer only: Remove weight from paper sensing lever.	PAPER key lights. ROP Option 4-36.a.: ROP printer motor still runs. ROP Option 4-36.b.: ROP printer motor stops. Feed out dependent on ROP Option 4-18.
47	Tractor Feed Printer only: Tear off paper below ROP printer; depress PAPER ADVANCE key.	PAPER key lights when internal paper sensing lever senses no paper. ROP Option 4-36.a.: ROP printer motor still runs. ROP Option 4-36.b.: ROP printer motor stops. Feed out dependent on ROP Option 4-18.
48	None. (Test Center sends EOT.)	PER key stays lighted. ROP Option 4-36.a.: ROP printer motor stops. Feed out dependent on ROP Option 4-18. ROP Option 4-36.b.: ROP printer motor remains stopped.
49	None. (Test Center sends CDC1 and receives AB of Step 7.)	ROP printer motor does not start.
	Note: The remaining tests do not require a connection to a Test Center. Tell attendant of your intentions. The connection should be dropped now.	
Check of ROP Tractor Feed Printer on FF		
	Note: The following steps apply only to ROP tractor feed printers. If station is not so equipped, testing is complete.	
50	Turn off all power to entire station. Disconnect ROP printer cable from ROP printer. Disconnect KDP printer cable from KDP printer, and connect it to ROP printer. ROP printer will now act as KDP printer.	All lights on station go out. All motors stop. ROP printer cabinet PTR connector is connected to KD cabinet PTR connector.

TABLE J (Cont)

KDP&ROP STATION ON-LINE TESTS

STEP	PROCEDURE	RESULTS
51	Turn on all power. Test action of KDP printer (on received FF characters only) in the off-line mode.	Printer shall pass the tests.
52	Turn off all power to entire station. Restore the ROP printer and KDP printer connections.	Proper station connections are restored.

THIS ENDS THE KDP&ROP STATION ON-LINE TESTS

TABLE K

KD-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
Check Ready-To-Receive Response to CDC		
	For KD	
1	Depress REC key. If tractor feed printer is part of station, first raise printer cabinet lid, check that forms switch is in ON position, then lower and latch lid.	REC key lights.
2	None. (Test Center sends EOT, CDC3.)	None. (Test Center will inform you of AB received.) If optioned for no AB (Option 9-17.c.), then STX and FOXwill be sent and will appear only on the display. AB should be A/B1, A/B2. This answer-back is sent almost immediately (Option 9-21.b.) or after a 2-second delay (Option 9-21.a.).
	For ROP	
3	IN SERVICE key should be lighted. (Test Center sends CDC1 and receives A/B1, A/B2.)	Printer motor starts. (Test Center will inform you of AB received.) If optioned for no AB (Option 9-17.c.), then STX and FOX will be sent and will appear only on the printer. AB should be A/B1, A/B2. This answer-back is sent almost immediately (Option 9-21.b.) or after a 2-second delay (Option 9-21.a.).

Note: This test procedure is written for the ROP being the primary receiver and the KD being the secondary receiver. The primary receiver is defined as the receiver assigned to CDC1 and CDC2, and affects the "No-Traffic" response to TSC. This test procedure can be used if the KD is the primary receiver provided this note is kept in mind.

TABLE K (Cont)

KD-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
4	None. (Test Center sends CDC2 if different from CDC1, otherwise, go to Step 5.)	Printer motor still on. (Test Center will inform you of AB received.) If optioned for no AB (Option 9-17.f.), printer motor will be turned off by EOT and started by CDC2. AB should be A/B1, A/B2.
Check Not-Ready-To Receive Response to CDC		
	For KD	
5	None. (Test Center sends EOT.)	Local key lights. REC key light goes out. Option 4-18.a.: No paper feedout, but motor stops. Option 4-18.b. or 4-18.c.: Printer feeds out 16 lines of paper, then motor stops.
6	None. (Test Center sends CDC3 and receives A/B4, A/B4 (Option 9-17.g.), or no response (Option 9-17.i. or 9-19.f.))	If 345625 alarm modification kit is part of the station, an audible alarm sounds at station. Duration of alarm is set by assembler to be approximately 30, 60, or 90 seconds. Check that the duration is as specified in the order.
7	Depress EOT and SEND key.	EOT displayed. SEND key lights. LOCAL key light goes out.
8	None. (Test Center sends CDC3 and receives response as in Step 6.)	If alarm modification kit is part of the station, audible alarm sounds (listen for it, do not time it again).
	For ROP	
9	Raise printer cabinet lid. Friction Feed Printer only: Lift paper roll from back of printer. Lift printer cabinet interlock switch lever into latched position. Tractor Feed Printer only: Tear off paper above printer. Remove paper (downward) from printer. Lift printer cabinet interlock switch lever into latched position.	IN SERVICE key light goes out. *Note:* This is also a check of the printer cabinet interlock switch.

TABLE K (Cont)

KD-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
10	None. (Test Center sends CDC1, and receives A/B, A/B4 (Option 9-17.a.), or no response (Option 9-17.c. or 9-19.b.))	If alarm modification kit is part of the station, audible alarm sounds again.
11	Friction Feed Printer only: Replace paper roll. Lower and latch printer cabinet lid. Tractor Feed Printer only: Restore paper to printer. Lower and latch printer cabinet lid.	PAPER key light goes out. IN SERVICE key lights.
Check That Station Receives FOX Message		
	For KD	
12	Depress LOCAL, HOME, CLEAR and REC key.	REC key lights. SEND key light goes out.
13	None. (Test Center sends CDC3, and receives response of Step 2.)	REC key remains lighted.
14	None. (Test Center sends a few alpha characters, then STX and FOX.) The FOX ends in ETX.	Observe that no characters are displayed before FOX message. Station receives FOX message on display only. REC key remains lighted provided ETX is not a message ending character to the Option 4-8.c. or 9140. Printer motor is off.
	For ROP	
15	None. (Test Center sends EOT CDC1 and receives response of Step 3.)	LOCAL key lights on EOT. Printer motor starts.
16	None. (Test Center sends STX, FOX.)	Station receives FOX message on printer only. Printer motor still runs.
Check for initialization of optional AB on STX		
17	If Post Message Recall is not used, do not perform Step 17, go to Step 24. None. (Test Center sends FDX INT, CDC1 and then receives A/B1, A/B2 as in Step 3.)	Printer motor still runs.

TABLE K (Cont)

KD-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
18	None. (Test Center sends OPTIONS message.) *Note:* This procedure specifically mentions only two printer errored character symbols. Others exist and would appear in the same places as the symbols given if such a type carrier is part of the station.	Printer copies OPTIONS message. Option 4-19.a.: Errored characters are printed as ⁝A≡ ⁝A≡ on monocase printers (or ⁝A≡ ⁝8≡ on up-low printers). Option 4-19.c.: Errored parity characters are printed as "12345." If 9140 is equipped with an F2 card, errored parity characters are printed as optioned on the card (use of F2 card overrides Option 4-7). DATA ERROR key lights, provided Options 4-24.a. and 4-25.c. are installed but F2 card is not installed. (If key lights, depress key, its light goes out.)
19	None. (Test Center sends FDX INT, CDC1, and then receives A/B3, A/B3, provided Options 9-17.g. (or h.) and 9-20.b. are installed.	Printer motor still runs.
	Check for initialization of optional AB on STX	
20	None. (Test Center sends STX, FDX INT, CDC3 and receives A/B1, A/B2 (Option 9-27.d.) or A/B3, A/B3 (Option 9-27.e.)) If A/B1, A/B2 is received, proceed to Step 21. If A/B3, A/B3 is received, proceed to Step 23.	Printer motor still runs.
	Check for initialization of optional AB on EOT	
21	None. (Test Center sends the OPTIONS message.)	Response as Step 18.
22	None. (Test Center sends FDX INT, CDC1 and then receives A/B3, A/B3, provided Options 9-17.g. (or h.) and 9-20.b. is installed.)	None.
23	None. (Test Center sends EOT, CDC1, and receives A/B1, A/B2, then sends STX (no response.))	Printer motor stops on EOT, starts on CDC1.
24	None. (Test Center sends EOT.)	Printer motor stops.

TABLE K (Cont)

KD-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
Check of Station "No Traffic" Responses		
25	Depress HOME, CLEAR, and REC keys.	Cursor goes to home position, display is cleared. REC key lights. LOCAL key light goes out.
26	None. (Test Center sends TSC and then receives A/B1, A/B2.)	REC key remains lighted.
27	Depress LOCAL key.	LOCAL key lights. REC key light goes out.
28	None. (Test Center sends TSC and then receives A/B4, A/B4 (Option 9-18.a.) or A/B1, A/B2 (Option 9-18.b.))	None.
Check of Station Sending		
29	Type STX, THE QUICK BROWN FOX EOT. (Also read RESPONSE column.)	STX and FOX message are displayed. Option 4-30.a.: When EOT is entered, cursor goes home and SEND key lights automatically. Option 4-30.b.: Manually home cursor and depress SEND key after EOT is entered. SEND key lights.
30	None. (Test Center sends TSC, then copies station message including EOT.) Message will be sent almost immediately (Option 9-21.b.) or after a 2-second delay (Option 9-21.a.).	Station sends message, stops on EOT. REC key lights.
Check That Station Stops on Received Break Signal		
	Note: If station is not a "4-wire" station, do not perform Step 31, proceed to Step 36.	
31	Depress LOCAL key. Place cursor over EOT and type a "space". Home cursor and depress SEND key.	EOT is erased from display. Cursor returns home. SEND key lights.
32	None. (Test Center sends TSC and begins copying FOX.)	Station sends FOX and cursor continues scanning through the display.

TABLE K (Cont)

KD-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
33	None. (Test Center sends "break" and stops copying FOX.)	Cursor stops. Option 9-31.a. only: REC key lights. Option 9-31.b. only: SEND key remains lighted.
	Option 9-31.b. only: Depress REC key.	It lights.
34	None. (Test Center sends EOT, CDC3 and then receives A/B1, A/B2 as in Step 2.)	REC key is still lighted.
35	None. (Test Center sends STX, EOT.)	LOCAL key lights on EOT. REC key light goes out.
Check of KD Sending and Receiving Operation and Options		
36	Depress REC key.	It lights.
	Long FOX/U* Test (KD)	
37	None. (Test Center sends CDC3, receives AB as in Step 2 and then sends the long repeated FOX/U* message.)	Station displays the long FOX/U* message for 1, 2 or 3 segments, depending on capacity. Check it for errors.
38	Depress LOCAL, EOT, HOME and SEND keys. *Note:* Operation of HOME and SEND keys not required if Option 4-30.a. is installed.	EOT is entered on display, cursor goes home, SEND key lights.
39	None. (Test Center sends EOT, TSC, and then copies message, then checks for errors.)	Station sends long FOX/U* message, stops on EOT, goes REC.
40	Depress LOCAL, HOME, CLEAR, and REC keys.	Display is cleared. REC key is lighted.
	FULL ASCII Test (KD)	
41	None. (Test Center sends CDC3, then receives AB as in Step 2, then sends FULL ASCII test message.)	Station display copies FULL ASCII test message.

TABLE K (Cont)

KD-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
42	Depress LOCAL, HOME and SEND keys.	Cursor goes home, SEND key lights.
43	None. (Test Center sends TSC, then copies message and checks copy for errors.)	Station sends FULL ASCII message and stops on EOT. REC key lights (see Step 44 now).
44	If station sent both upper and lower case letters, proceed to Step 46.	
	If station stopped sending before it sends both upper and lower case characters, the character to the left of the cursor is probably coded to be "X-OFF" (Option 9-1.f.) and Option 9-8.b. is installed. If this is so, then go local and use cursor positioning controls to place the cursor over "X-OFF" and depress the SPACE bar once. Repeat for second "X-OFF".	LOCAL key lights.
		Both "X-OFF" characters are removed from display.
	Now depress HOME and SEND keys.	Cursor goes home. SEND key lights.
45	Perform this step only if "X-OFF" had to be removed from display.	
	None. (Test Center sends TSC then copies message and checks for errors.)	Station sends FULL ASCII message and stops on EOT. REC key lights.
	OPTIONS Test (KD)	
46	None. (Test Center sends CDC3, receives AB as in Step 2, then sends OPTIONS test message.)	Listen for bell to ring. Responses depend on Options 4-5 and 4-7. (NULL, CR, DEL, Sb)
47	Depress LOCAL, EOT, HOME and SEND keys. Note of Step 38 applies.	EOT is entered on display, cursor goes home. SEND key lights.
48	None. (Test Center sends EOT, TSC, and copies message and checks for errors.) Response depends on Options 4-5, 4-7 and 4-10.	Station sends OPTIONS test message and stops on EOT. REC key lights.
	EDIT Test (KD)	
49	None. (Test Center sends CDC3, receives AB of Step 2, then sends EDIT test.)	Station copies EDIT test message. Responses depend on Option 4-6. (Display or action on ESC sequences.)

TABLE K (Cont)

KD-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
50	Depress LOCAL, EOT, HOME and SEND keys. Note of Step 38 applies.	EOT is entered on display. Cursor goes home. SEND key lights.
51	None. (Test Center sends TSC, then copies message and checks for errors. Response depends on Options 4-6, 9, 10 and 13.)	Station sends EDIT message and stops on EOT. REC key lights.
52	*Note:* If FORM SEND key position is blocked with blocking key, do not perform Step 52, proceed to Step 54.	
	Depress LOCAL, HOME, FORM SEND and SEND keys.	Cursor goes home; FORM SEND and SEND keys light.
53	None. (Test Center sends TSC, then copies message and checks for errors.)	Station sends EDIT message and stops on EOT. REC key lights.
54	When directed by Test Center, depress LOCAL, FORM ENTER, HOME, CLEAR, TAB CLEAR, and FORM ENTER keys.	All data including protected data and tab marks is cleared from display. Cursor is home. LOCAL key is lighted. FORM ENTER key is not lighted.
Check of ROP Receiving Operation and Options		
	Short FOX Test (ROP)	
55	None. (Test Center sends CDC1, receives AB as in Step 3, then sends STX, approximately 45 seconds of repeated short FOX.)	Printer motor starts. Printer copies message. Check printer copy for errors.
	Long FOX/U* Test (ROP)	
56	None. (Test Center sends approximately 45 seconds of repeated long FOX/U* message.)	Printer copies message. Check printer copy for errors.
	FULL ASCII Test (ROP)	
57	None. (Test Center sends FULL ASCII test message.)	ROP copies FULL ASCII test message. Printer motor stops on EOT. Feedout dependent on Option 4-18.
	a. None. Tractor Feed Printer only: (Test Center sends EOT.)	If printer motor is running, it stops.

TABLE K (Cont)

KD-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
57 (Cont)	b. None. Tractor Feed Printer only: (Test Center sends CDC1, receives AB as in Step 3, then sends FULL ASCII message without VT.)	Printer motor starts on CDC1. Station copies FULL ASCII test message without VT on printer only. Printer motor stops on EOT. Feedout dependent on Option 4-18.
	OPTIONS Test (ROP)	
58	None. (Test Center sends CDC1, receives AB as in Step 3, then sends OPTIONS test message.)	Printer copies message. Check copy for errors.
	EDIT Test (ROP)	
59	None. (Test Center sends EDIT test.)	Printer copies message. Check copy for errors.
	RO Test (ROP)	
60	None. (Test Center sends RO test message.)	Printer copies message. Printer without USOC 4T900 copies without missing any characters. Printer with USOC 4T900 (40C103/AD) copies: 1 2 3 4 (etc)
Check of ROP Tractor Feed Printer on VT and FF		
	Note: If ROP is equipped with friction feed printer, go to Step 66.	
61	None. (Test Center sends VT character only.)	ROP printer executes NL function.
62	None. (Test Center sends FOX message, then FF character.)	ROP printer copies FOX message, then executes FF function.
63	None. (Test Center sends FF, EOT only.)	ROP printer does not execute FF function. ROP printer motor stops on EOT. Feedout dependent on Option 4-18.

TABLE K (Cont)

KD-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
64	Raise ROP printer cabinet lid, operate forms switch to OFF position. Lower and latch ROP printer cabinet lid.	IN SERVICE key light is out while ROP printer cabinet lid is raised.
65	None. (Test Center sends CDC1, receives AB of Step 3, sends STX, FOX message and FF.)	ROP printer motor starts on CDC3. ROP printer copies FOX message but does not execute FF function. ROP printer motor still runs.
Check of Printer Motor Turn-Off While Selected to Receive		
66	None. (Test Center sends EOT.)	Printer motor stops. Feedout dependent on Option 4-18.
67	Friction Feed Printer only: Raise printer cabinet lid, lift up printer cabinet interlock switch lever into latched position. Lift paper roll from back of printer (and place on top of printer). Place a suitable weight (this can be another roll of paper) on printer paper sensing lever.	None.
68	*Danger: (Friction Feed Printer only) Printer motor will start in this step.* None. (Test Center sends CDC1, receives AB of Step 3, then sends STX and FOX.)	PAPER key is not lighted. Printer motor starts. Printer copies FOX. Printer motor continues to run.
69	Friction Feed Printer only: Remove weight from paper sensing lever.	PAPER key lights. Option 4-36.a.: Printer motor still runs. Option 4-36.b.: Printer motor stops. Feedout dependent on Option 4-18.
70	Tractor Feed Printer only: Tear off paper below printer, depress PAPER ADVANCE key.	PAPER key lights when internal paper sensing lever senses no paper. Option 4-36.a.: Printer motor still runs. Option 4-36.b.: Printer motor stops. Feedout dependent on Option 4-18.

TABLE K (Cont)

KD-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
71	None. (Test Center sends EOT.)	PAPER key stays lighted. Option 4-36.a.: Printer motor stops. Feedout dependent on Option 4-18. Option 4-36.b.: Printer motor remains stopped.
72	None. (Test Center sends CDC1, receives AB of Step 10.)	Printer motor does not start.
73	None. (Test Center sends EOT.)	Printer motor stops if running. Feedout dependent on Option 4-18. LOCAL key still lighted.

THIS ENDS THE KD-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS.

TABLE L

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
Check Ready-To-Receive Response to CDC		
	For KDP	
1	Depress REC and PRINT ON LINE keys. If tractor feed printer(s) is (are) part of station, first raise printer cabinet lid, check that forms switch on printer is in ON position, then lower and latch lid.	REC and PRINT ON LINE keys light.
2	None. (Test Center sends EOT, CDC3.)	KDP printer motor starts. (Test Center will inform you of AB received.) If optioned for no AB (Option 9-17.c.), then STX and FOX will be sent and will appear only on the display. AB should be A/B1, A/B2. This answer-back is sent almost immediately (Option 9-21.b.) or after a 2-second delay (Option 9-21.a.).

Note: This test procedure is written for the ROP being the primary receiver and the KDP being the secondary receiver. The primary receiver is defined as the receiver assigned to CDC1 and CDC2, and affects the "No Traffic" response to TSC. This test procedure can be used if the KDP is the primary receiver provided this note is kept in mind.

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
	For ROP	
3	IN SERVICE key should be lighted. Test Center sends CDC1 and receives A/B1, A/B2 (Option 9-17.a. or b.) or no response (Option 9-17.c.).	ROP printer motor starts. (Test Center will inform you of AB received.) If optioned for no AB (Option 9-17.c.), then STX and FOX will be sent and will appear only on the printer. AB should be A/B1, A/B2. This answer-back is sent almost immediately (Option 9-21.b.) or after a 2-second delay (Option 9-21.a.).
4	None. (Test Center sends CDC2 if different from CDC1, otherwise go to Step 5.)	ROP printer motor still on. (Test Center will inform you of AB received.) If optioned for no AB (Option 9-17.f.), then printer motor will be turned off by EOT and started by CDC2. AB should be A/B1, A/B2.
Check Not-Ready-To-Receive Response to CDC		
	For KDP	
5	None. (Test Center sends EOT.)	LOCAL key lights. REC key light goes out. Option 4-18.a. in KDP: No paper feedout at KDP printer but motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Option 4-18.b. or 4-18.c. in KDP: KDP printer feeds out 16 lines of paper, then motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Option 4-18.a. in ROP: No paper feedout at ROP printer but motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Option 4-18.b. or 4-18.c. in ROP: RO printer feeds out 16 lines of paper, then motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.).

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
6	Depress PRINT ON LINE key.	PRINT ON LINE key light goes out.
7	None. (Test Center sends CDC3 and receives A/B4, A/B4 (Option 9-17.g.) or no response (Option 9-17.i. or 9-19.f.))	If 345625 alarm modification kit is part of the station, an audible alarm sounds at station. Duration of alarm is set by assembler to be approximately 30, 60, or 90 seconds. Check that the duration is as specified in the order.
8	Depress PRINT ON LINE key.	PRINT ON LINE key lights.
9	None. Test Center sends CDC3 and receives A/B4, A/B4 (Option 9-17.a.) or no response (Option 9-17.c. or 9-19.f.).	LOCAL key is still lighted. Option 4-32.a.: KDP printer motor starts. (Test Center receives A/B1, A/B2.) Option 4-32.b.: Audible alarm sounds at station if 345625 alarm modification kit is part of the station. (Test Center receives A/B4, A/B4.)
10	If Option 4-32.b. is installed, go to Step 11. None. (Test Center sends EOT.)	KDP printer motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.).
11	Depress EOT, SEND key and PRINT ON LINE key.	EOT displayed. SEND key lights. LOCAL and PRINT ON LINE key lights go out..
12	None. (Test Center sends CDC3 and receives response as in Step 7.)	If alarm modification kit is part of the station, audible alarm sounds (listen for it, do not time it again).
13	Depress LOCAL, HOME, CLEAR, REC key and PRINT ON LINE keys at KDP, raise printer cabinet lid. Lift paper roll from back of printer. Lift printer interlock switch lever into latched position.	REC and PRINT ON LINE keys light. PAPER lamp lights. SEND key light goes out.
14	None. Test Center sends CDC3 and receives A/B4, A/B4 (Option 9-17.g.) or no response (Option 9-17.i. or 9-19.f.).	When alarm modification kit is part of station, audible alarm sounds at station.
15	At KDP, replace paper roll. Lower and latch printer cabinet lid.	At KDP, PAPER lamp light goes out. REC and PRINT ON LINE keys are still lighted.

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
	For ROP	
16	Raise ROP printer cabinet lid. Friction Feed Printer only: Lift paper roll from back of printer. Lift printer cabinet interlock switch lever into latched position. Tractor Feed Printer only: Tear off paper above printer. Remove paper (downward) from printer. Lift printer cabinet interlock switch lever into latched position.	IN SERVICE key light goes out. PAPER lamp lights. *Note:* This is also a check of the printer cabinet interlock switch.
17	None. Test Center sends CDC1 and receives A/B4, A/B4 (Option 9-17.g.), or no response (Option 9-17.i. or 9-19.b.).	If alarm modification kit is part of the station, audible alarm sounds again.
18	Friction Feed Printer only: Replace paper roll. Lower ROP and latch printer cabinet lid. Tractor Feed Printer only: Restore paper to printer. Lower and latch printer cabinet lid.	IN SERVICE key lights. PAPER lamp light goes out. Printer motor remains off at both KDP and ROP.
Check That Station Receives FOX Message		
	For KDP	
19	None. (Test Center sends CDC3 and receives response of Step 2.)	REC key and PRINT ON LINE key remain lighted. KDP printer motor starts on CDC3. ROP printer motor remains off.
20	None. (Test Center sends a few alpha characters, then STX and FOX.) The FOX ends in ETX.	Observe that no characters are displayed before FOX message. Station receives FOX message on display and KDP printer only. REC key and PRINT ON LINE key remain lighted provided ETX is not a message ending character to the Option 4-8.c. or 9140. KDP printer motor is still on.

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
	For ROP	
21	None. (Test Center sends EOT, CDC1, and receives response of Step 3.)	LOCAL key lights on EOT. ROP printer motor starts. REC key light goes out, KDP printer motor stops, feedout dependent on KDP Option 4-18. PRINT ON LINE key remains lighted.
22	None. (Test Center sends STX, FOX.)	Station receives FOX message on ROP printer only. ROP printer motor still runs.
Check of Post Message Recall Feature		
23	If Post Message Recall is not used, do not perform Step 23, go to Step 30.	
	None. (Test Center sends FDX INT, CDC1 and then receives A/B1, A/B2 as in Step 3.)	ROP printer motor still runs.
24	None. (Test Center sends OPTIONS message.)	ROP printer copies OPTIONS message.
	Note: This procedure specifically mentions only two printer errored character symbols. Others exist and would appear in the same places as the symbols given if such a type carrier is part of the station.	Option 4-19.a.: Errored characters are printed as ⁝A⁝ ⁝A⁝ on monocase printers or ⁝A⁝ ⁝B⁝ on up-low printers. Option 4-19.c.: Errored parity characters are printed as "12345." If 9140 is equipped with an F2 card, errored parity characters are printed as optioned on the card (use of F2 card overrides Option 4-7). DATA ERROR key lights, provided Options 4-24.a. and 4-25.c. are installed in the ROP controller but F2 card is not installed in the 9140. (If key lights, depress key, its light goes out.)
25	None. (Test Center sends FDX INT, CDC1 and then receives A/B3, A/B3 provided Options 9-17.a. (or b.) and 9-20.b. are installed.)	ROP printer motor still runs.

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
	Check for initialization of optional AB on STX	
26	None. Test Center sends STX, FDX INT, CDC3 and receives A/B1, A/B2 (Option 9-27.d.) or A/B3, A/B3 (Option 9-27.e.). If A/B1, A/B2 is received, proceed to Step 27. If A/B3, A/B3 is received, proceed to Step 29.	ROP printer motor still runs. KDP printer motor still not running.
	Check for initialization of optional AB on EOT	
27	None. (Test Center sends the OPTIONS message.)	Response as in Step 24.
28	None. (Test Center sends FDX INT, CDC1 and then receives A/B3, A/B3 provided Options 9-17.g. (or h.) and 9-20.b. is installed.	None.
29	None. (Test Center sends EOT, CDC1 and receives A/B1, A/B2, then sends STX (no response).)	ROP printer motor stops on EOT, starts on CDC1.
30	None. (Test Center sends EOT.)	ROP printer motor stops. KDP printer motor still not running.
Check of Station "No Traffic" Responses		
31	Depress HOME, CLEAR and REC keys.	PRINT ON LINE key still lighted. Cursor goes to home position, display is cleared. REC key lights. LOCAL key light goes out.
32	None. (Test Center sends TSC and then receives A/B1, A/B2.)	REC key remains lighted.
33	Depress PRINT ON LINE and LOCAL keys.	LOCAL key lights. REC and PRINT ON LINE key lights go out.
34	None. Test Center sends TSC and then receives A/B4, A/B4 (Option 9-18.a.) or A/B1, A/B2 (Option 9-18.b.).	None.

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
Check of Station Sending		
35	Type STX, THE QUICK BROWN FOX EOT. (Also, read "RESPONSE" column.)	STX and FOX message are displayed. Option 4-30.a.: When EOT is entered, cursor goes home and SEND key lights automatically. Option 4-30.b.: Manually home cursor and depress SEND key after EOT is entered. SEND key lights. PRINT ON LINE key lights (Option 4-52.a) and KDP printer motor starts.
36	None. (Test Center sends TSC, then copies station message including EOT.) Message will be sent almost immediately (Option 9-21.b.) or after a 2-second delay (Option 9-21.a.).	Station sends message, stops on EOT. REC key lights. Option 4-29.a. only: KDP printer copies message. KDP printer motor stops on EOT immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18. Option 4-29.d. only: KDP printer does not copy message. PRINT ON LINE key light goes out. KDP printer motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18. PRINT ON LINE key lights on EOT.
Check That Station Stops on Received Break Signal		
	Note: If station is not a 4-wire station, do not perform Step 37, proceed to Step 42.	
37	Depress LOCAL and PRINT ON LINE keys. Place cursor over EOT and type a SPACE. Home cursor and depress SEND key.	PRINT ON LINE key light goes out. EOT is erased from display. Cursor returns home. SEND key lights.
38	None. (Test Center sends TSC and begins copying FOX.)	Station sends FOX and cursor continues scanning through the display.
39	None. (Test Center sends "break" and stops copying FOX.)	Cursor stops. Option 4-36.a. only: REC key lights. Option 4-36.b. only: SEND key remains lighted.

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
39 (Cont)	Option 4-31.b. only: Depress REC key.	It lights.
40	None. (Test Center sends EOT CDC3 and then receives A/B1, A/B2 as in Step 2.)	REC key is still lighted.
41	None. (Test Center sends STX, EOT.)	LOCAL key lights on EOT. REC key light goes out.
Check of DATASPEED 40 KDP Sending and Receiving Operation and Options		
42	Depress REC key and PRINT ON LINE key.	They both light.
	Short FOX Test (KDP)	
43	None. (Test Center sends CDC3, receives AB as in Step 2, then sends STX, approximately 45 seconds of repeated short FOX.)	KDP printer motor starts on CDC3. Station copies message on the display (up to capacity) and KDP printer. Check both printer and display for errors.
44	At end of message, depress LOCAL, EOT, HOME and SEND keys. *Note:* Operation of HOME and SEND keys not required if Option 4-30.a. is installed.	EOT is entered on display, cursor goes home. SEND key lights.
45	None. (Test Center sends EOT, TSC and then copies message, checks for errors.)	KDP printer motor keeps running. Station sends FOX, stops on EOT, goes REC. Option 4-29.a. only: KDP printer copies message. KDP printer motor stops on EOT immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18. Option 4-29.d. only: KDP printer does not copy message. PRINT ON LINE key light goes out. KDP printer motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.).
	Long FOX/U* Test (KDP)	
46.	None. (Test Center sends CDC3, receives AB as in Step 2 and then sends the long repeated FOX/U* message.)	KDP printer motor starts on CDC3. Station copies the long FOX/U* message on display (up to capacity) and on printer. Check both for errors.

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
47	Depress LOCAL, EOT, HOME and SEND keys. *Note:* Operation of HOME and SEND keys not required if Option 4-30.a. is installed.	EOT is entered on display, cursor goes home, SEND key lights.
48	None. (Test Center sends EOT TSC and then copies message, then checks for errors.)	KDP printer motor keeps running. Station sends long FOX/U* message, stops on EOT, goes REC. Option 4-29.a. only: KDP printer copies message. KDP printer motor stops on EOT (Option (Option 4-53.b.) or after a 2-minute-delay Option 4-53.a.). Feedout dependent on KDP Option 4-18. Option 4-29.d. only: KDP printer does not copy message. PRINT ON LINE key light goes out. KDP printer motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18. PRINT ON LINE key lights on EOT.
49	Depress LOCAL, HOME, CLEAR and REC keys.	Display is cleared. REC key is lighted. PRINT ON LINE key is still lighted.
	FULL ASCII Test (KDP)	
50	None. (Test Center sends CDC3, receives AB as in Step 2, then sends FULL ASCII test message.)	Printer motor starts on CDC1. Station copies FULL ASCII test message. LOCAL key lights on EOT. KDP printer motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18.
	a. None. Tractor Feed Printer only: (Test Center sends EOT.)	LOCAL key lights if not already lighted. If KDP printer motor not stopped, it stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.).
	b. Tractor Feed Printer only: Depress REC only.	REC key lights.

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
50 (Cont)	c. None. Tractor Feed Printer only: (Test Center sends CDC1, receives AB as in Step 2, then sends FULL ASCII message without VT.)	KDP printer motor starts on CDC1. KDP copies FULL ASCII test message without VT. LOCAL key lights on EOT. KDP printer motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18.
51	Depress LOCAL, HOME and SEND keys.	Cursor goes home, SEND key lights.
52	None. (Test Center sends TSC, then copies message and checks copy for errors.)	KDP printer motor keeps running. Station sends FULL ASCII message and stops on EOT. Option 4-29.a. only: KDP printer copies message. KDP printer motor stops on EOT (Option 4-53.b.) or after a 2-minute-delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18. Option 4-29.d. only: KDP printer does not copy message. PRINT ON LINE key light goes out. KDP printer motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18. PRINT ON LINE key lights on EOT. REC key lights.
53	If station sent both upper and lower case letters proceed to Step 55. If station stopped sending before it sends both upper and lower case characters, the character to the left of the cursor is probably coded to be "X-OFF" (Option 9-1.f.) and Option 9-8.b. is installed. If this is so, then go local and use cursor positioning controls to place the cursor over "X-OFF" and depress the SPACE bar once. Repeat for second "X-OFF." Now depress HOME and SEND keys.	LOCAL key lights. Both "X-OFF" characters are removed from display. Cursor goes home. SEND key lights.
54	Perform this step only if "X-OFF" had to be removed from display.	

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
54 (Cont)	None. (Test Center sends TSC then copies message, and checks for errors.)	Station sends FULL ASCII message and stops on EOT. Option 4-29.a. only: KDP printer copies message. KDP printer motor stops on EOT (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18. Option 4-29.d. only: KDP printer does not copy message. PRINT ON LINE key light goes out. KDP printer motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18. PRINT ON LINE key lights on EOT. REC key lights.
	OPTIONS Test (KDP)	
55	None. (Test Center sends CDC3, receives AB as in Step 2, then sends OPTIONS test message.)	KDP printer motor starts on CDC1. Listen for bell to ring. Responses depend on Options 4-5 and 4-7. (NULL, CR, DEL, Sb)
56	Depress LOCAL, EOT, HOME and SEND keys. Note of Step 47 applies.	EOT is entered on display, cursor goes home. SEND key lights.
57	None. (Test Center sends EOT, TSC, then copies message and checks for errors.) Response depends on Options 4-5 and 4-7.	Station sends OPTIONS test message and stops on EOT. Option 4-29.a. only: KDP printer copies message. KDP printer motor stops on EOT (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18. Option 4-29.d. only: KDP printer does not copy message. PRINT ON LINE key light goes out. KDP printer motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18. PRINT ON LINE key lights on EOT. REC key lights.

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
	EDIT Test (KDP)	
58	None. (Test Center sends CDC3, receives AB of Step 2, then sends EDIT test.)	KDP printer motor starts on CDC1. Station copies EDIT test message. Responses depend on Option 4-6. (Display or action on ESC sequences.)
59	Depress LOCAL, EOT, HOME and SEND keys. Note of Step 47 applies.	EOT is entered on display. Cursor goes home. SEND key lights.
60	None. (Test Center sends TSC, then copies message and checks for errors. Response depends on Options 4-6, 9, 10, 13.)	Station sends EDIT message and stops on EOT. Option 4-29.a. only: KDP printer copies message. KDP printer motor stops on EOT (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18. Option 4-29.d. only: KDP printer does not copy message. PRINT ON LINE key light goes out. KDP printer motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18. PRINT ON LINE key lights on EOT. REC key lights. PRINT ON LINE key is still lighted.
61	*Note:* If FORM SEND key position is blocked with blocking key, do not perform Step 61, proceed to Step 63. Depress LOCAL, HOME, FORM SEND and SEND keys.	Cursor goes home. FORM SEND and SEND keys light. Printer motor starts.
62	None. (Test Center sends TSC, then copies message and checks for errors.)	Station sends EDIT message and stops on EOT. Option 4-29.a. only: KDP printer copies message. KDP printer motor stops on EOT (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18.

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
62 (Cont)		Option 4-29.d. only: KDP printer does not copy message. PRINT ON LINE key light goes out. KDP printer motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). Feedout dependent on KDP Option 4-18. PRINT ON LINE key lights on EOT. REC key lights.
63	When directed by test center, depress LOCAL, FORM ENTER, HOME, CLEAR, TAB CLEAR, FORM ENTER and REC keys.	All data, including protected data and tab marks, is cleared from display. Cursor is home. REC key is lighted. FORM ENTER key is not lighted. PRINT ON LINE key is still lighted.
	RO Test (KDP)	
64	None. (Test Center sends EOT CDC3 and receives AB of Step 2.)	KDP printer motor starts.
65	None. (Test Center sends RO test message.)	KDP portion of station copies message. Display copies: $S_X \equiv$ 1 ≡ 2 ≡ 3 ≡ (etc) KDP printer copies without missing characters (although it will ignore some new line characters).
Check of DATASPEED 40 ROP Receiving Operation and Options		
	Short FOX Test (ROP)	
66	None. (Test Center sends EOT, CDC1, receives AB as in Step 3, then sends STX, approximately 45 seconds of repeated short FOX.)	ROP printer motor starts after CDC3. KDP printer motor stops on EOT (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). LOCAL key lights on EOT. ROP printer copies message. Check ROP printer copy for errors.
	Long FOX/U* Test (ROP)	
67	None. (Test Center sends approximately 45 seconds of repeated long FOX/U* message.	ROP printer copies message. Check ROP printer copy for errors.

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
	FULL ASCII Test (ROP)	
68	None. (Test Center sends FULL ASCII test message.)	ROP copies FULL ASCII test message. Printer motor stops on EOT. Feedout dependent on ROP Option 4-18.
69	None. Tractor Feed Printer only: (Test Center sends EOT.)	LOCAL key lights if not already lighted. If ROP printer motor not stopped, it stops.
70	Tractor Feed Printer only: Depress REC key.	REC key lights.
71	None. Tractor Feed Printer only: (Test Center sends CDC1, receives AB as in Step 3, then sends FULL ASCII message without VT and FF.)	ROP printer motor starts on CDC1. ROP copies FULL ASCII test message without VT and FF. LOCAL key lights on EOT. ROP printer motor stops. Feedout dependent on ROP Option 4-18.
	OPTIONS Test (ROP)	
72	None. (Test Center sends CDC1, receives AB as in Step 3, then sends OPTIONS test message.)	ROP printer copies message. Check copy for errors.
	EDIT Test (ROP)	
73	None. (Test Center sends EDIT test.)	ROP printer copies message. Check copy for errors.
	RO Test (ROP)	
74	None. (Test Center sends RO test message.)	ROP printer copies message. Printer, without USOC 4T900, copies without missing any characters (except some new line characters). Printer with USOC 4T900 (40C103/AD) copies: 1 2 3 4 (etc)

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
Check of ROP Printer Motor Turn-Off While Selected to Receive		
75	None. (Test Center sends EOT.)	ROP printer motor stops. Feedout dependent on ROP Option 4-18.
76	Friction Feed Printer only: Raise ROP printer cabinet lid, lift up ROP printer cabinet interlock switch lever into latched position. Lift paper roll from back of ROP printer (and place on top of printer). Place a suitable weight (this can be another roll of paper) on ROP printer paper sensing lever.	None.
77	*Danger: (Friction Feed Printer only) ROP printer motor will start in this step.* None. (Test Center sends CDC1, receives AB of Step 3, then sends STX and FOX.)	PAPER key is not lighted. ROP printer motor starts. ROP printer copies FOX. ROP printer motor continues to run.
78	Friction Feed Printer only: Remove weight from paper sensing lever.	PAPER key lights. Option 4-36.a.: ROP printer motor still runs. Option 4-36.b.: ROP printer motor stops. Feedout dependent on Option 4-18.
79	Tractor Feed Printer only: Tear off paper below printer, depress PAPER ADVANCE key.	PAPER key lights when internal paper sensing lever senses no paper. Option 4-36.a.: ROP printer motor still runs. Option 4-36.b.: ROP printer motor stops. Feedout dependent on Option 4-18.
80	None. (Test Center sends EOT.)	PAPER key stays lighted. Option 4-36.a.: ROP printer motor stops. Feedout dependent on Option 4-18. Option 4-36.b.: ROP printer motor remains stopped.

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
81	None. (Test Center sends CDC1, receives AB of Step 17.)	ROP printer motor does not start.
Check that KDP Can Receive While in Local and Print-On-Line Modes		
82	None. (Test Center sends CDC3, receives AB of Step 2 or AB of Step 7.)	LOCAL key and PRINT ON LINE key still lighted. Option 4-32.a. only: KDP printer motor starts (AB of Step 2 was sent). Option 4-32.b. only: KDP printer motor does not start (AB of Step 7 was sent).
83	None. (Test Center sends STX and FOX.)	Option 4-32.a. only: KDP printer copies, display and ROP printer do not copy. Option 4-32.b. only: Neither printer nor display copies.
Check that KDP Can Receive While in Send and Print-On-Line Modes		
84	Depress SEND key.	It lights. LOCAL key light goes out. Option 4-32.a. only: Printer motor still runs. Option 4-32.b. only: Printer motor still turned off.
85	None. (Test Center sends EOT, CDC1, receives AB of Step 2 or AB of Step 7.)	Option 4-32.a. only: KDP printer motor keeps running. Option 4-32.b. only: Printer motor does not start (AB of Step 7 was sent).
86	None. (Test Center sends STX and FOX.)	Option 4-32.a. only: KDP printer copies, display and ROP printer do not. Option 4-32.b. only: Neither printer nor display copies
87	Depress LOCAL key.	It lights. SEND key light goes out.

TABLE L (Cont)

KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS

STEP	ACTION	RESPONSE
88	None. (Test Center sends EOT.)	ROP printer motor still not running. KDP printer motor stops if it was running (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.). (Feedout dependent on KDP Option 4-18.)
	Note: The remaining tests do not require a connection to a Test Center. Tell attendent of your intentions. The connection should be dropped now.	
Check of ROP Tractor Feed Printer on VT and FF		
	Note: The following steps apply only to ROP tractor feed printers. If station is not so equipped, testing is complete.	
89	Turn off all power to entire station. Disconnect ROP printer-ROP controller cable from ROP printer. Disconnect KD-KDP printer cable from KDP printer, and connect it to ROP printer. ROP printer will now act as KDP printer.	All lights on station go out. All motors stop. (KDP printer stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.)) ROP printer cabinet "PTR" connector is connected to KD cabinet "PTR" connector.
90	Turn on all power. Test action of connected printer (on received VT and FF characters only) in the off-line mode.	Printer shall pass the tests.
91	Turn off all power to entire station. Restore the ROP printer-ROP controller and KD-KDP printer connections.	Proper station connections are restored.

THIS ENDS THE KDP-ROP STATION EQUIPPED WITH IRS ON-LINE TESTS.

5. TROUBLESHOOTING

GENERAL

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

(a) Terminal Analysis — A step-by-step procedure to determine which component of the KD (or KDP) or ROP Set is failing in an off-line condition (Table M).

(b) Station Analysis — A step-by-step procedure of the 40/3-Type Station (including the 9140 Station Controller and the data set) is causing failure in an on-line condition (Table N).

(c) Component Analysis — A step-by-step procedure to determine which subcomponent or part (or related adjustment) of the component (opcon, monitor, etc) is causing failure (Tables O through R).

5.02 To use the troubleshooting information, always start with Step 1 of Terminal Analysis, and follow the indicated procedure to the directive which specifies jumping into the Station Analysis or Component Analysis section. Then, follow the specific analysis indicated starting with Step 1 to isolate and correct the trouble by replacing the indicated defective component.

5.03 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).

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

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

5.06 Once the trouble has been corrected, the terminal should be checked out to be sure that it is performing properly. Refer to appropriate Off-Line Checkout and ON-LINE CHECKOUT of this section.

5.07 The following caution procedures must be observed when troubleshooting:

Caution 1: Turn off all power or signal sources before removing or replacing any component of the 40/3-Type Station or Set.

Caution 2: To avoid possible internal damage to MOS circuitry, touch frame ground first to allow static discharge before handling circuit cards for removal or replacement. Avoid touching circuit lands and components as much as possible.

5.08 To locate components, circuit cards, connectors, test switches, indicator lamps and other elements indicated in the troubleshooting information, refer to Section 582-200-703, Disassembly/Reassembly and Parts.

5.09 For wire color codes, cable, connector and other wiring indicated for continuity checks, etc, in troubleshooting, refer to Section 582-200-403, Wiring.

TERMINAL ANALYSIS

TABLE M

TERMINAL ANALYSIS

Note 1: Always start with Step 1.

Note 2: Answer analysis questions, and follow appropriate response directive.

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Is the set an ROP?	Go to 20.	KD, KDP, KD-ROP, KD& ROP, KD-ROP W/IRS, KDP&ROP, KDP-ROP W/IRS. Go to 2.‡‡
2. Do the fans turn when power is ON?	Go to 3.	Check ac to fan. Ref: Section 582-200-403, Wiring Diagrams. Section 582-200-703, Disassembly/Reassembly and Parts. Fan cable connected. Power switch(es) ON. AC present at fan assembly connector.
3. Does the LOCAL lamp on the opcon turn ON when power is turned ON?	Go to 5.	Go to 4.
4. Are all three LED indicators in the power supply ON?	Go to Section 582-211-500, Operator Console (Opcon). Go to Table P, KD or KDP Controller (Page 137).	Go to Section 582-214-500, 40PSU101 Power Supply.
5. Is the red drive lamp I5 (in display monitor) ON?	Go to 6.	Go to Table O, Display Logic (Page 134). Go to Section 582-213-500, 40MN101 Display Monitor.

‡‡"NO" column of Analysis Question includes KD-ROP, KD-ROP With IRS (Individual Receiver Selector Modification Kit (344555) and "KDP-ROP With IRS."

TABLE M (Cont)

TERMINAL ANALYSIS

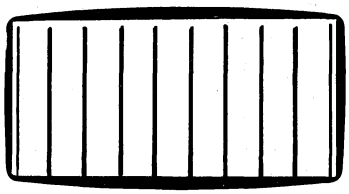
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
6. Is the red pilot lamp I7 (next to fuse on power distribution assembly in display monitor) ON?	Go to 7.	Go to Section 582-213-500, 40MN101 Display Monitor.
7. With the monitor OFF/ON control switch ON (CCW) and the operator brightness control to full intensity (CCW), is the raster visible?	Go to 9.	Go to 8.
8. Is the I6 high voltage lamp in the display monitor ON?	Check DISPLAY MONITOR MASTER BRIGHTNESS adjustment in Section 582-213-500, 40MN101 Display Monitor. Go to 9.	Go to Section 582-213-500, 40MN101 Display Monitor.
9. Is the cursor displayed on the monitor?	Go to 11.	Go to 10.
10. 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? 	Go to Section 582-213-500, 40MN101 Display Monitor. Go to Table O, Display Logic (Page 134).	Go to Table O, Display Logic (Page 134).

TABLE M (Cont)

TERMINAL ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
11. In the local mode, can all data (including editing functions) be input from the opcon to the display monitor on all segments?	Go to 12.	Go to Section 582-211-500, Operator Console (Opcon). Go to Table O, Display Logic (Page 134). Go to Table P, KD or KDP Controller (Page 137).
12. Are the characters displayed on the display monitor distorted?	Go to Section 582-213-500, 40MN101 Display Monitor. Go to Table O, Display Logic (Page 134).	Go to 13.
13. Do characters displayed on the display monitor correspond to those generated from the opcon?	Go to 14.	Go to Table O, Display Logic (Page 134). Go to Table P, KD or KDP Controller (Page 137). Go to Section 582-211-500, Operator Console (Opcon).
14. Is the station a KD?	Go to 19.	Go to 15.
15. Is the station a KDP, KDP&ROP, KD-ROP or KDP-ROP With IRS.	Go to 16.	Go to 20.
16. Does printer respond properly to PRINT LOCAL key on opcon? (For KDP&ROP or KDP-ROP With IRS, this printer is KDP printer.)	KDP: Go to 19. KDP&ROP; KDP-ROP With IRS; KD-ROP: Go to 20.	All stations: Go to 17.
17. Does PRINT LOCAL key on opcon light?	Go to 18.	Go to KD or KDP Opcon Tests — Local Loopback Tests (Section 582-211-500). If PRINT LOCAL lamp fails test, replace opcon. If PRINT LOCAL lamp passes test, remove opcon from loopback mode (depress RETURN and P keys simultaneously beyond their normal stop) and go to 18.

TABLE M (Cont)

TERMINAL ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
18. Does the type carrier symbol (≡A≡ or ≡A≡ / ≡B≡) print in every column when the printer test switch TS9 is ON and the printer cover is closed or the interlock switch PS5 is in the maintenance up position?	Go to 19.	Go to Section 582-210-500, Printer.
19. Does the station perform on-line tests properly?	Place in service.	Go to Table N, Station Analysis (Page 113). Go to Table P, KD or KDP Controller (Page 137).
20. Does the IN SERVICE lamp on the opcon in the ROP turn ON when power is turned ON?	Go to 21.	Go to 25.
21. In an off-line mode, does the TRANS START lamp turn ON when the key is depressed? (The key lights when depressed and stays ON until depressed again to stop the test.)	Go to 22.	Go to Section 582-211-500, Operator Console (Opcon). Go to Table Q, 40C103 ROP Controller (Page 140).
22. In an off-line mode, is the test pattern printed properly with no errors when the TRANS START key is depressed?	Go to 27.	Go to 23.
23. Does the printer turn ON or run at all when the TRANS START key is depressed?	Go to Section 582-210-500, Printer. Go to Table Q, 40C103 ROP Controller (Page 140).	Go to 24.
24. Does paper advance when the the red PAPER key is depressed?	Go to Table Q, 40C103 ROP Controller (Page 140).	Check SSI cable and feed through for continuity at terminals A to B and C to D on J102 connector to printer circuit card, and

TABLE M (Cont)

TERMINAL ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
24. (Cont)		terminals 1 to 2 and 3 to 6 on printer connector at rear of cabinet. Go to Section 582-214-500, 40PSU101 Power Supply. If printer is tractor feed, check continuity of paper advance contact (P114 connector, terminals 3 to 4) when switch is depressed. Go to Section 582-210-500, Printer. Go to Table Q, 40C103 ROP Controller (Page 140).
25. Does paper advance when the red PAPER key is depressed?	Go to 26.	Check PS5 interlock switch for continuity when switch activator is down and in maintenance up positions. Friction Feed: J106 connector, terminals 1 to 2. Tractor Feed: P114 connector, terminals 6 to 7 and 3 to 5. Check SSI cable and feed through for continuity at terminals A to B and C to D on J102 connector to printer circuit card, and terminals 1 to 2 and 3 to 6 on printer connector at rear of cabinet. If printer is tractor feed, check continuity of paper advance contact (P114 connector, terminals 3 to 4) when switch is depressed. Go to Section 582-210-500, Printer. Go to Table Q, 40C103 ROP Controller (Page 140).

TABLE M (Cont)

TERMINAL ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
26. Does the type carrier symbol (≡A≡ ≡A≡ or ≡A≡ ≡B≡) print in every column when the TS9 printer test switch is ON and the printer cover is closed, or the PS5 interlock switch is in the maintenance up position?	Check SSI cable and feed through for continuity at terminals A to B and C to D on J102 connector to printer circuit card, and terminals 1 to 2 and 3 to 6 on printer connector at rear of cabinet. Go to Section 582-211-500, Operator Console (Opcon).	Go to Section 582-210-500, Printer.
27. Does paper advance when the red PAPER key is depressed?	Go to 28.	If printer is tractor feed, check continuity of paper advance contact (P114 connector, terminals 3 to 4) when switch is depressed. Go to Section 582-210-500, Printer.
28. Does the printer have tractor feed paper drive?	Go to 29.	Go to 30.
29. When the black FORM ADVANCE key is depressed, does the paper advance one form (printer form switch ON) or advance continuously (printer form switch OFF)?	Go to 30.	Check FORM ADVANCE switch for continuity when depressed (P114 connector, terminals 3 to 4 and 3 to 5). Go to Section 582-210-500, Printer. Check Form Out Contact Gap.
30. Does the type carrier symbol (≡A≡ ≡A≡ or ≡A≡ ≡B≡) print in every column when the TS9 printer test switch is ON and the printer cover is closed, or the PS5 interlock switch is in the maintenance up position?	Go to 31.	Go to Section 582-210-500, Printer.

TABLE M (Cont)

TERMINAL ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
31. Does the station perform on-line tests properly?	Place in service.	Go to 32.
32. Is the station a KD-ROP With IRS or a KDP-ROP With IRS?	Go to Table R, IRS Analysis.	Go to Table N, Station Analysis Go to Section 582-210-500, Printer. Go to Table Q, 40C103 ROP Controller (Page 113).

STATION ANALYSIS

5.10 If symptom is intermittent, be sure to exercise the station long enough to see the problem as you perform the analysis.

5.11 ALWAYS TURN OFF POWER BEFORE REMOVING OR RESTORING CIRCUIT CARDS.

5.12 When a new circuit card or data set is tried in the analysis, be sure that straps or switches are optioned the same as those in the removed circuit card or data set. If no change in symptom occurs, restore original circuit card or data set to avoid additional problems.

5.13 ROP, KDP (printer under monitor), KDP-ROP (printer under monitor), or KDP&ROP With IRS (printer under monitor) station: If required, remove two screws that mount the 9140 Station Controller mounting frame and power supply to the pedestal door. This allows the 9140 Station Controller to be moved to gain access to the circuit card connector pins.

No voltage checks are performed within the 40/3-Type Terminal or data set.

5.14 When analysis states that an option affects a step, check which option your station has.

5.15 The analysis assumes in a large part that all 9140 Station Controller options and any modifications are correctly installed. Any changes or modifications to the 40/3-Type Station can alter these analysis tables.

5.16 The test set referred to in the analysis is a DATASPEED 40 Test Set or a DATA-SPEED Test Set.

5.17 If the 9140 Station Controller circuit cards indicated in the analysis do not solve the problem, replace the 9140 Station Controller 328812 wired frame.

Warning: Removal or application of power to the 9140 Station Controller or data set can cause bits on the circuit.

STATION ANALYSIS

TABLE N

STATION ANALYSIS

ANALYSIS	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Is the test set connected to other stations on the line while troubleshooting this station?	Go to 2. *Note:* If an answer-back problem or misdirected message problem is reported, it might be caused by another station on the line. This procedure will show the bad answer-back or misdirected message (if that is the problem), but isolation to the faulty station may require disconnecting the other stations from the line to the test set.	Go to 2. *Note:* If an answer-back problem or misdirected message problem is reported, it might be caused by another station on the line. This procedure will not show the bad answer-back or misdirected message (if that is the problem). If the reported symptom is being caused by the station under analysis, however, following this trouble analysis will isolate the problem.
2. Station with ROP: IN SERVICE key must be lighted and TRANS START key must not be lighted for this step. Station with KD or KDP: REC key must be lighted for this step. Station with KDP: PRINT ON LINE key must be lighted for this step. All stations: If any of the above conditions cannot be met, trouble is in the KD (or KDP) or ROP. From test set, send EOT and CDC1. Does test set copy AB? *Note:* Option 9-17.b. is installed, then CDC1 is CDC1 character 1, CDC1 character 2. Delete.	Test set copies some character or characters. Option 9-17.a. or 9-17.b.: Go to 3. Option 9-17.c.: Replace 322013 circuit card (C2).	Option 9-17.a. or 9-17.b.: Go to 5. Option 9-17.c.: Go to 4.

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
3. Does station data set carrier remain on after AB is sent? (*Note:* RS and CS lamps remain on in Data Set 202T.)	Replace 322083 circuit card (G3). Also 322641 card, if used. Replace 322451 circuit card (E2). Replace 322014 circuit card (D1). Replace 322013 circuit card (C2).	Go to 14.
4. From test set, send STX, text, and EOT. Does station copy text? (Text can be a short message.)	From test set, send CDC1. Test set will not copy an AB. Go to 23.	Go to 17.
5. From test set, send STX, text, and EOT. Does station copy text? (Text can be a short message.)	Go to 6.	Go to 9.
6. From test set, send TSC of the station. Does test set copy an AB? *Note:* If Option 9-2.b. is installed, then TSC is TSC character 1, TSC character 2, Delete.	Replace 322013 circuit card (C2). Replace 322442 circuit card (C2-2).	KD, KDP: Go to 7. ROP: Go to 8.
7. Bypass the 9140 Station Controller by the following method: Disconnect "9140 Station Controller to data set" cable from data set. Disconnect the 9140 X-connector interconnect cable from 9140 Station Controller and connect it to the data set.	Trouble is in 9140 Station Controller. Reconnect 9140 Station Controller and replace 322083 circuit card (G3). Replace 322451 circuit card (E2). Replace 322014 circuit card (D1).	Replace data set. Reconnect 9140 Station Controller.

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
7. (Cont) In the local mode, prepare a short message ending in EOT. Depress HOME and SEND keys. Does test set copy message without error?	Replace 322013 circuit card (C2). Replace 322442 circuit card (C2-2).	
8. Just after TSC is sent from the test set, make this measurement. Measure voltage between circuit card connector E, pin A19 and connector E, pin A4. Is the voltage at E-A19 ever approximately +9 V dc (+3 V dc to +25 V dc is acceptable)? In this step, a momentary positive deflection of the meter can be considered to be +9 V dc?	Replace data set. Replace 322083 circuit card (G3). Replace 322451 circuit card (E2). Replace 322014 circuit card (D1). Replace 322013 circuit card (C2). Replace 322442 circuit card (C2-2).	Replace 322083 circuit card (G3). Replace 322451 circuit card (E2). Replace 322014 circuit card (D1). Replace 322013 circuit card (C2). Replace 322442 circuit card (C2-2).
9. From test set, send TSC of station. Does test set copy A/B1, A/B2? (A/B1, A/B2 is answer-back character 1 followed by answer-back character 2.)	Go to 10.	Go to 26.
10. From test set, send CDC1. Station still does not AB. From test set, send STX, text, and EOT. Does station copy text?	Replace 322013 circuit card (C2). Replace 322442 circuit card (C2-2).	Go to 11.
11. Measure voltage between circuit card connector A, pin 20 and connector A, pin 4 just after CDC1 is sent from test set. Is A20 approximately +5 V dc?	Go to 12.	Replace 322010 circuit card (A).

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
12. Does the voltage on circuit card connector A, pin 20 (see Step 11) stay at approximately +5 V dc? (Watch only for a minute.)	Replace 322013 circuit card (C2).	Go to 13.
13. Measure voltage between circuit card connector A, pin 10 and connector A, pin 4 just after CDC1 is sent from test set. Is voltage on A10 ever approximately +5 V dc?	Replace 322017 circuit card (F1). Replace 322013 circuit card (C2).	Replace 322013 circuit card (C2). Replace 322010 circuit card (A).
14. Was the delay in receiving AB approximately 2 seconds in Step 2?	Option 9-21.a. is installed. Go to 15.	Delay is not noticeable. Option 9-21.b. is installed. Go to 16.
15. Does customer want Option 9-21.a.?	Go to 19.	Install strap 68. If AB delay after EOT and CDC1 sent from test set is still 2 seconds, replace 322442 circuit card (C2-2).
16. Does customer want Option 9-21.b.?	Go to 19.	Cut strap 68. If AB delay after EOT and CDC1 sent from test set is still not 2 seconds, replace 322442 circuit card (C2-2).
17. From test set, send TSC of station. Does test set receive A/B1, A/B2?	Go to 23.	Go to 18.
18. Is any AB copied at test set in Step 17?	Go to 23.	Go to 26.
19. Was A/B1, A/B2 (answer-back character 1 followed by answer-back character 2) copied by test set in Step 2?	Go to 20.	Go to 22.

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
20. In addition to A/B1, A/B2, was some other character copied by the test set in Step 2?	Go to 21.	Go to 23.
21. Was the additional character received after A/B1, A/B2?	If the option for hard turn-off of the station data set carrier was selected, try some soft turn-off option. If a soft turn-off of station data set carrier was selected, replace data set or try a longer soft turn-off.	Additional character was before A/B1, A/B2. Replace station data set or try a longer squelch or clear-to-send interval at station data set.
22. Was a single character AB like NULL or a not valid two or more character AB like NULL and ACK copied by the test set?	Replace 322442 circuit card (C2-2). If trouble remains, check test set data set squelch. It may be too long (do not use 156 ms squelch). Data Set 202R: If Option R is selected, then Options X, T, N and G are also required.	Go to 34.
23. From test set, send text and STX. Does the station copy text? (Text must not contain the CDC or TSC of station.)	Replace 322451 circuit card (E2). Replace 322013 circuit card (C2).	Go to 24.
24. From test set, send CDC1. Does test set receive AB? *Note:* Ignore response to CDC1.	Replace 322017 circuit card (F1). Replace 322013 circuit card (C2). Replace 322010 circuit card (A).	Go to 25.
25. From test set, send text and EOT. Did station copy text without error?	Go to 43.	Go to 41. (Station copied with error or did not copy at all.)

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
26. Bypass 9140 Station Controller by removing "9140 Station Controller to data set" cable from data set. Disconnect the 9140 X-connector interconnect cable from 9140 Station Controller and connect it to the data set. ROP: IN SERVICE key must be lighted. KD or KDP: REC key must be lighted. Send a short message from the test set. CDC and STX are not required. Does the station copy the message without error?	Go to 29. (Trouble is in the 9140 Station Controller.)	Go to 27.
27. Is the station data set a Data Set 202T?	Go to 28.	If line is OK, replace the data set. If the new data set does not pass Step 26, isolate the trouble to the 40/3-Type Station component.
28. Does the CO lamp light on the station Data Set 202T when the test set sends as in Step 26?	Trouble is in data set. Refer to Section 592-031-500.	If the line is OK, the trouble is in the data set. Refer to Section 592-031-500.
29. Put the 9140 Station Controller back in the circuit by disconnecting the 9140 X-connecter interconnect cable from the data set and connecting it to the 9140 Station Controller. Also connect the "9140 Station Controller to data set" cable to the data set. Turn off all power to the station. Check the three fuses in the 333669 power supply and the fuse on the 9140 Station	Replace blown fuses. After all good fuses are reinstalled, restore power to the station. If fuse blows again, replace 333669 power supply. If fuse blows with new power supply, restore original power supply and isolate to a circuit card or the wired frame of the 9140 Station Controller.	Restore all fuses. Restore power to the station. Go to 30.

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
29. (Cont) Controller. Use an ohmmeter. Are any fuses blown? *Note:* The 333669 power supply provides dc power to the 9140 Station Controller.		
30. Check 333669 power supply outputs with voltmeter at "N" connector while "N" connector is plugged into "JN" connector of 333669 power supply. Purple wire (pin 6) is circuit common. Measure between -12 V dc and -18 V dc on blue-white wire (pin 4). Measure between +12 V dc and +18 V dc on orange wire (pin 2). Are readings within specified voltage range?	Go to 31.	Replace 333669 power supply.
31. Measure voltage between circuit card connector G, pin A1 and circuit card connector G, pin A4. Is voltage on G-A1 between +5.0 V dc and +5.5 V dc?	Go to 32.	Replace 303808 circuit card (under heat sink of 9140 Station Controller). If new circuit card does not provide proper voltage, check 9140 Station Controller wiring or replace 328812 9140 Station Controller wired frame.
32. Do any CDC straps on 322010 circuit card (A) touch bottom of baud timer circuit card A-3 (piggyback on card A)? *Note:* If in doubt, follow "Yes" Response Directive.	Add 345699 insulator (if available) to bottom of piggyback card. Use electrical tape if insulator is not available.	Go to 33.

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
33. Check coding of all CDCs, TSC, X-ON, X-OFF, ACK and FDX INT. Does each level (1 through 7) of each character have either an "M" strap or "S" strap cut? *Note:* EACH LEVEL MUST HAVE ONE STRAP CUT AND THE OTHER STRAP LEFT IN.	Replace 303805 circuit card (A-3C 1050 baud) or 303839 circuit card (A-3E 1200 baud). Replace 322010 circuit card (A). Replace 322011 circuit card (B). Replace 322411 circuit card (B-1). *Note:* Remove B-1 circuit card. If station works without B-1 circuit card, then circuit card was bad. Replace 322017 circuit card (F1). Replace 322013 circuit card (C2).	Cut the proper straps.
34. Was A/B4, A/B4 (answer-back character 4 followed by answer-back character 4) received by test set in Step 2?	Go to 35.	Go to 37.
35. Measure voltage between circuit card connector E, pin 19 and circuit card connector E, pin A4. Is voltage on E-B19 about +9 V dc (from +3 V dc to +25 V dc)?	Go to 36.	Isolate trouble to KD or KDP controller or 9140 X-connector interconnect cable.
36. Measure voltage between circuit card connector E, pin A36 and circuit card connector E, pin A4. Is voltage on E-A36 approximately +5 V dc?	Replace 322013 circuit card (C2). Replace 322442 circuit card (C2-2).	Replace 322451 circuit card (E).

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
37. Was A/B3, A/B3 (answer-back character 3 followed by answer-back character 3) received by test set in Step 2?	Go to 38.	Go to 40.
38. Turn off all power to the station. Is either strap 73 or 74 (or both) installed on 322442 circuit card (C2-2)?	Restore original C2 and C2-2 circuit cards. Restore all power to the station. Go to 39.	Replace 322442 circuit card (C2-2).
39. Measure voltage between circuit card connector C, pin A5 and circuit card connector C, pin A4. Is voltage on C-A5 approximately +5 V dc?	Replace 322442 circuit card (C2-2).	Replace 322442 circuit card (C2-2). Check wiring at circuit card connector C, pin A5.
40. On station equipped with printer, raise printer lid. KD or KDP: Depress LOCAL key. All stations: From test set, send CDC1. Does test set receive A/B4, A/B4 (answer-back character 4 followed by answer-back character 4)?	Replace 322442 circuit card (C2-2) if A/B1, A/B2 strapping is correct.	Replace 322442 circuit card (C2-2). Replace 322013 circuit card (C2). Replace 322011 circuit card (B).
41. Bypass 9140 Station Controller by disconnecting "9140 Station Controller to data set" cable from data set. Disconnect the 9140 X-connector interconnect cable from 9140 Station Controller and connect it to the data set. KD or KDP: REC key must be lighted. ROP: IN SERVICE key must be lighted. Send a short message from the test set (no CDC or STX is	Go to 42.	Isolate trouble to KD or KDP controller or 9140 X-connector interconnect cable.

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
41. (Cont) required). Does the KD (or KDP) or ROP copy the message without error?		
42. If 9140 Station Controller is still bypassed, place it back in the circuit (connect KD (or KDP) or ROP to 9140 Station Controller, and 9140 Station Controller to data set). When text 2 was sent in Step 25, did the station copy anything?	Replace 322451 circuit card (E2). Replace 322011 circuit card (B).	Replace 322017 circuit card (F1). Replace 322013 circuit card (C2). Replace 322451 circuit card (E2).
43. KD or KDP: In Step 25, did the station go to local mode upon receiving EOT? ROP or KDP: In Step 25, did the printer motor stop upon receiving EOT? (KDP printer stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.).) *Note:* Printer paper feed out is not checked in this step.	Go to 45.	Go to 44.
44. KD or KDP: Measure voltage between circuit card connector E, pin A10 and circuit card connector E, pin A4. Is the voltage on E-A10 approximately -9 V dc (-3 V dc to -25 V dc is acceptable)? ROP: Measure voltage between circuit card connector E, pin B36 and circuit card connector E, pin B4. Is the voltage on E-B36 approximately -9 V dc (-3 V dc to -25 V dc is acceptable)?	Isolate trouble to the KD or KDP or the 9140 X-connector interconnect cable. *Note:* If Option 4-37.b. is installed, change Option to 4-37.a.	

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
45. KD or KDP: LOCAL key is lighted. ROP: Raise printer cabinet lid. All stations: From test set, send CDC1. Does test set copy A/B4, A/B4?	Go to 48.	Option 9-19.c.: Go to 46. Option 9-19.b.: Go to 48.
46. Did test set copy A/B1, A/B2 in Step 45?	Go to 47.	Option 9-17.a. or 9-17.b.: Replace 322442 circuit card (C2-2). Replace 322013 circuit card (C2). Option 9-17.c.: Go to 48.
47. Measure voltage between circuit card connector E, pin B19 and circuit card connector E, pin B4. Is voltage at E-B19 approximately -9 V dc (-3 V dc to -25 V dc is acceptable)?	Replace 322442 circuit card (C2-2). Replace 322013 circuit card (C2).	Isolate trouble to KD or KDP or the 9140 X-connector interconnect cable.
48. From test set, send TSC. Does test set copy A/B4, A/B4? *Note:* Option 9-2.b. is installed, then TSC is TSC character 1, TSC character 2, Delete.	Option 9-18.a.: Go to 52. Option 9-18.b.: Replace 322442 circuit card (C2-2).	Go to 49.
49. Did test set receive A/B1, A/B2 in Step 48?	Option 9-18.a.: Replace 322442 circuit card (C2-2). Option 9-18.b.: Go to 52.	Go to 50.
50. Was a single character AB like NULL or a not valid two or more character AB like NULL and ACK copied by the test set?	Replace 322442 circuit card (C2-2). If trouble remains, check test set data set squelch. It may be too long (do not use 156 ms squelch).	Go to 51.

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
50. (Cont)	Data Set 202R: If Option R is selected, then Options X, T, N and G are also required.	
51. Measure voltage between circuit card connector D, pin B9 and circuit card connector D, pin B4 when TSC is sent from the test set. Is the voltage at D-B9 ever approximately +5 V dc? In this step, a momentary positive deflection of the meter can be considered to be +5 V dc.	Option 9-17.a. or 9-17.b.: Replace 322442 circuit card (C2-2). Replace 322013 circuit card (C2). Replace 322014 circuit card (D1). Option 9-17.c.: Replace the data set. If station still does not send AB to a TSC, replace the circuit cards listed above.	Check TSC coding on 322014 circuit card (D1). If correct, replace the circuit card (D1).
52. In addition to A/B1, A/B2 (or A/B4, A/B4), was some other character copied by the test set in Step 48?	Go to 53.	Go to 54.
53. Was the additional character after the A/B1, A/B2 (or A/B4, A/B4)?	If the option for hard turn-off of station data set carrier was selected, try some soft turn-off option. If a soft turn-off of the station data set was selected, replace data set or try a longer soft turn-off.	Additional character was before A/B1, A/B2 (or A/B4, A/B4). Replace station data set or try a longer squelch or clear-to-send interval at station data set.
54. KD or KDP: Depress REC key. ROP: Lower and latch printer cabinet lid. All stations: From test set, send TSC. Does test set copy A/B1, A/B2?	Go to 55.	Replace 322442 circuit card (C2-2). Replace 322013 circuit card (C2).

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
55. Is station a KD or KDP? (If KD or KDP is only part of the station, treat the station as if it is a KD or KDP.)	Go to 56.	Station is an ROP. Go to 64.
56. In the local mode, prepare a short message on the display: STX, 20 or 30 "U*" characters, and EOT. If cursor is not in home position, depress HOME key. If SEND key is not lighted, depress SEND key. (If these actions cannot be performed, trouble is in KD or KDP controller.) Does cursor begin moving?	Turn off all power to the station. Check that Option 4-37.a. is installed, as required. If Option 4-37.a. is installed, replace 410771 circuit card in KD or KDP controller. If trouble remains, isolate problem within KD or KDP controller. Refer to Table P, KD or KDP Controller.	Go to 57.
57. From test set, send TSC. Does test set copy message?	Go to 58.	Go to 59.
58. Is message received at test set in Step 57 without error?	Go to 62.	Go to 61.
59. Did test set receive any AB in Step 57?	Go to 60.	Go to 61.
60. Measure voltage between circuit card connector E, pin B33 and circuit card connector E, pin B4. Is voltage at E-B33 approximately +9 V dc (+3 V dc to +25 V dc is acceptable)?	Replace 322451 circuit card (E2). Replace 322014 circuit card (D1). Replace 322442 circuit card (C2-2). Replace 322013 circuit card (C2).	Isolate to KD (or KDP) or ROP controller or the 9140 X-connector interconnect cable.

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
61. Depress LOCAL and HOME keys. Bypass 9140 Station Controller by disconnecting "9140 Station Controller to to data set" cable from the data set. Disconnect the 9140 X-connector interconnect cable from 9140 Station Controller and connect it to the data set. Depress SEND key. Does test set copy without error?	Trouble is in 9140 Station Controller. Reconnect 9140 Station Controller and replace 322451 circuit card (E2). Replace 322014 circuit card (D1). Replace 322011 circuit card (B). Replace 322013 circuit card (C2). Replace 322083 circuit card (G3). Replace 322442 circuit card (C2-2).	Refer to Table P, KD or KDP Controller (Page 137).
62. Did cursor on KD or KDP keep moving after EOT?	Refer to Table P, KD or KDP Controller.	Go to 63.
63. Does station data set carrier remain on after EOT is sent?	Replace 322083 circuit card (G3). Replace 322014 circuit card (D1). Replace 322017 circuit card (F1). Replace 322013 circuit card (C2). Replace 322451 circuit card (E2).	Go to 64.
64. Is CDC2 coded different than CDC1?	Go to 65.	Go to 70.

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
65. ROP: IN SERVICE key must be lighted. KD or KDP: REC key must be lighted. KDP: PRINT ON LINE key must be lighted. All stations: From test set, send CDC2. Does test set copy some answer-back?	Go to 66.	Option 9-17.d. or 9-17.e.: Check CDC2 strapping on 322010 circuit card (A). If straps are correct, replace circuit card (A). Option 9-17.f.: Go to 69.
66. In Step 65, was answer-back A/B1, A/B2?	Option 9-17.d. or 9-17.e. is installed. Check that order calls for this option. Go to 67.	Answer-back to CDC2 must be correct if AB to CDC1 was correct. Go back to 2.
67. ROP: Raise printer cabinet lid. KD or KDP: Depress LOCAL key. All stations: From test set, send EOT and CDC2. Does test set copy A/B4, A/B4?	Option 9-19.c. is installed. ROP: Lower and latch printer cabinet lid. KD or KDP: Depress REC key. All stations: Go to 70.	Go to 68.
68. Is Option 9-19.d. installed?	ROP: Lower and latch printer cabinet lid. KD or KDP: Depress REC key. All stations: Go to 70.	Replace 322010 circuit card (A).
69. From test set, send STX, text, and EOT. Does station copy text?	Go to 70.	Check CDC2 strapping on 322010 circuit card (A). If straps are correct, replace circuit card (A).
70. Is 322409 circuit card (A-1) present in 9140 Station Controller?	Go to 71.	Go to 75.

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTVE	"NO" RESPONSE DIRECTIVE
71. From test set, send CDC3. Is answer-back received at test set?	Go to 72.	Option 9-17.g. or 9-17.h.: Check CDC3 strapping on 322409 circuit card (A-1). If straps are correct, replace circuit card (A-1). Option 9-17.i.: Go to 74.
72. ROP or KDP: Raise printer cabinet lid. KD or KDP: Depress LOCAL key. All stations: From test set, send EOT and CDC3. Does test set copy A/B4, A/B4?	ROP or KDP: Lower and latch printer cabinet lid. KD or KDP: Depress REC key. All stations: Go to 75.	Go to 73.
73. Is Option 9-19.f. installed?	KD or KDP: Depress REC key. ROP or KDP: Lower and latch printer cabinet lid. All stations: Go to 75.	Replace 322409 circuit card (A-1).
74. From test set, send STX, text, and EOT. Does station copy text?	Go to 75.	Check CDC3 strapping on 322409 circuit card (A-1). If straps are correct, replace circuit card (A-1). Replace 322010 circuit card (A).
75. Is station equipped with 345625 alarm modification kit? Identify by the presence of 322641 circuit card (mounted piggyback on G3 circuit card).	Go to 76.	Go to 89.

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
76. KD or KDP: Depress LOCAL key. ROP or KDP: Raise printer cabinet lid. All stations: From test set, send CDC1. Does the alarm sound for approximately the time chosen in Option 9-27?	Go to 79.	Go to 77.
77. Does the alarm sound at all in Step 76?	Check strapping on 322641 circuit card (piggyback on G3). If strapping is correct, replace 322641 circuit card. Replace 322083 circuit card (G3).	Go to 78.
78. Remove black clip-on wire from circuit card connector G, pin B33. Touch it to circuit card connector G, pin B4. Does the alarm sound?	Restore black wire to pin B33 on connector G. Replace 322641 circuit card (piggy-back on G3 circuit card). Replace 322083 circuit card (G3).	Replace 345626 alarm assembly.
79. KD or KDP: Depress REC key. ROP or KDP: Lower and latch printer cabinet lid. All stations: Is Option 9-1.h. (FDX INT) used in the system the station is part of?	Go to 80.	Go to 89.
80. From test set, send CDC1. Test set copies A/B1, A/B2 if Option 9-17.a. or 9-17.b. is used. From test set, send STX, text, FDX INT, and CDC1. Does test set copy A/B1, A/B2 after FDX INT and CDC1?	Go to 83.	Go to 81.

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
81. Did test set receive A/B3, A/B3 in Step 80?	Replace 322442 circuit card (C2-2). Replace 322641 circuit card (piggyback on G3). Replace 322411 circuit card (B-1).	Go to 82.
82. Does test set copy any AB?	Check A/B3 strapping on 322442 circuit card (C2-2). If strapping is correct, replace C2-2 circuit card.	Option 9-17.a. or 9-17.b.: Check FDX INT strapping on 322013 circuit card (C2). Replace 322013 circuit card (C2). Replace 322014 circuit card (D1). Option 9-17.c.: Go to 83.
83. From test set, send EOT and CDC1. Does test set copy A/B1, A/B2?	Go to 84.	Option 9-17.c.: Go to 84. Option 9-17.a. or 9-17.b.: Station should have failed other tests. Go to 2.
84. From test set, send STX, text (with parity error), FDX INT, and CDC1. Does test set copy A/B3, A/B3?	Go to 85.	Option 9-20.b. or 9-20.d. must be installed. Replace 322442 circuit card (C2-2). Replace 322641 circuit card (piggyback on G3). Replace 322411 circuit card (B-1).
85. From test set, send STX, FDX INT, and CDC1. Does test set copy A/B3, A/B3?	Option 9-27.d.: Replace 322641 circuit card (piggyback on G3). Option 9-27.e.: Go to 87.	Go to 86.

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
86. Was the AB received in Step 85 A/B1, A/B2?	Option 9-27.d.: Go to 87. Option 9-27.e.: Replace 322641 circuit card (piggyback on G3). Replace 322442 circuit card (C2-2).	Replace 322641 circuit card (piggyback on G3). Replace 322442 circuit card (C2-2).
87. From test set, send EOT and CDC1. AB from station depends on Option 9-17. From test set, send STX, text (with parity error), FDX INT, and CDC1. Test set copies A/B3, A/B3. From test set, send EOT and CDC1. Does test set copy A/B1, A/B2?	Go to 89.	Option 9-17.a. or 9-17.b.: Go to 88. Option 9-17.c.: Go to 90.
88. Does test set copy A/B3, A/B3 in Step 87?	Replace 322442 circuit card (C2-2). Replace 322641 circuit card (piggyback on G3).	Station should have failed other steps also. Go to 2.
89. From test set, send EOT. Is LOCAL key lighted at station? *Note:* LOCAL key may already be lighted.	Depress REC key. Go to 90.	Go to 90.
90. From test set, send EOT and CDC (where CDC is another station CDC). If the station is receiving messages directed to another station, the other station CDC should be tried in this step. The other station must not be connected to the test set. Does the test set copy an AB?	Check CDC coding on 322010 circuit card (A) and 322409 circuit card (A-1), if present. If both M and S straps of some level (1 through 7) are cut, that is the problem. If coding is correct, replace 322010 circuit card (A). Replace 322409 circuit card (A-1), if present.	Go to 91.

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
91. From test set, send STX, text, and EOT. Does station copy text?	Check CDC coding on 322010 circuit card (A) and 322409 circuit card (A-1), if present. If both M and S straps of some level (1 through 7) are cut, that is the problem. If coding is correct, replace 322010 circuit card (A). Replace 322409 circuit card (A-1), if present.	Go to 92.
92. Is KD or KDP part of station?	Go to 93.	Station is an ROP. Go to 94.
93. From test set, send EOT and TSC (where TSC is another station TSC). If the station is sending a response to another station TSC, the other station TSC should be tried in this step. The other station must not be connected to the test set. Does the test set copy an AB?	Check TSC coding on 322014 circuit card (D1). If both M and S straps of some level (1 through 7) are cut, that is the problem. If coding is correct, replace 322014 circuit card (D1).	Go to 94.
94. Is the station part of a system that uses "break" operation to deselect receivers and/or halt senders? *Note:* "Break" is a 300 ms space sent from the computer data set.	Go to 95.	"Break" is not used in this system. Place station in service.
95. Does the station contain a KD or KDP?	Go to 96.	Station is an ROP. Go to 97.
96. With a long message on the display and the SEND key lighted, send TSC from the test set. After the test set begins receiving, send a break signal from the test set. Does the station cursor stop, REC key light, and SEND key light go out?	Place station in service.	Go to 98.

TABLE N (Cont)

STATION ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
97. From test set, send EOT and CDC1. Printer motor will start. Disregard AB. Send a break signal from the test set. Does printer motor stop?	Place station in service. (KDP printer motor stops immediately (Option 4-53.b.) or after a 2-minute delay (Option 4-53.a.).)	Go to 98.
98. Depress LOCAL, HOME, and SEND keys. From test set, send TSC, After the test set begins receiving, it sends a break signal. While "break" is being sent, measure voltage between circuit card connector D, pin B36 and circuit card connector D, pin B4. Is the voltage at D-B36 ever approximately +12 V dc? *Note:* A momentary positive deflection of the meter can be considered to be +12 V dc.	Isolate trouble to the 9140 X-connector interconnect cable, or 410771 circuit card (in the KD or KDP controller), or KD or KDP controller. (All stations.)	Voltage is approximately 0 V dc. Replace 322014 circuit card (D1). Replace 322013 circuit card (C2). Replace 322451 circuit card (E1).

COMPONENT ANALYSIS

5.18 The following tables contain the Trouble Analysis for the logic in the 40/3 Station.

If You Are Troubleshooting The	Proceed To	On Page
Display Logic	Table O	134
KD or KDP Controller Logic	Table P	138
40C103 ROP Controller	Table Q	140
IRS Analysis	Table R	142

5.19 Trouble Analysis for components other than those previously specified can be found in the following sections:

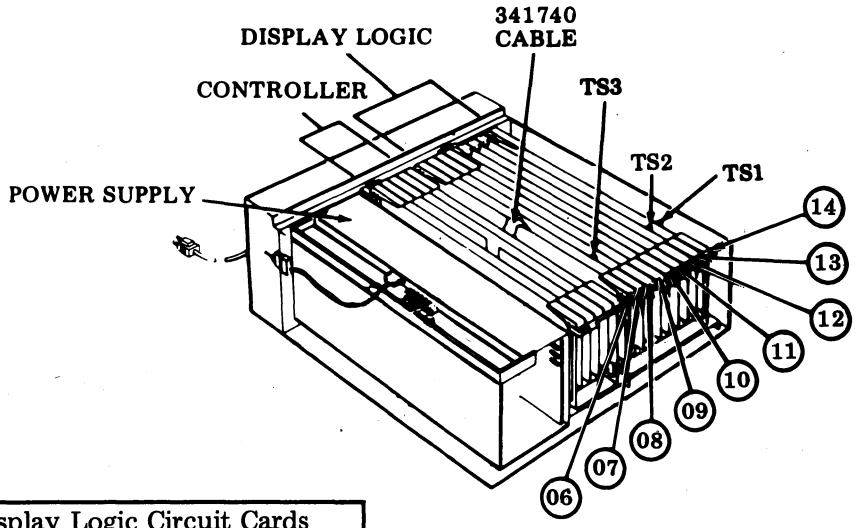
582-210-500	Printer
582-211-500	Operator Console (Opcon)
582-213-500	40MN101 Display Monitor
582-214-500	40PSU101 Power Supply

5.20 If data set problems are suspected, refer to the following sections for Data Set Test Procedures:

Data Set 103A3	—	Section 591-014-501
Data Set 103G	—	Section 591-026-500
Data Set 103J	—	Section 591-039-500
Data Set 113A	—	Section 591-033-500
Data Set 201C	—	Section 592-029-500
Data Set 202C	—	Section 592-015-500
Data Set 202R	—	Section 592-025-500
Data Set 202S	—	Section 592-028-500
Data Set 202T	—	Section 592-031-500
Data Set 208A	—	Section 592-027-500

TABLE O

DISPLAY LOGIC



Display Logic Circuit Cards	
Pos.	
06	410002
07	410001, 410009 or 410018
08	410003
09	AUX
10	410015 (See Note 1.)
11	410015 (See Note 1.)
12	410015 (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
1. Depress TS1 test switch on 410855 circuit card. Is the following pattern generated on the display? Are all of the elements shown in enlarged view I and II present?	Go to 2.	Replace 410855 circuit card.

TABLE O (Cont)

DISPLAY LOGIC

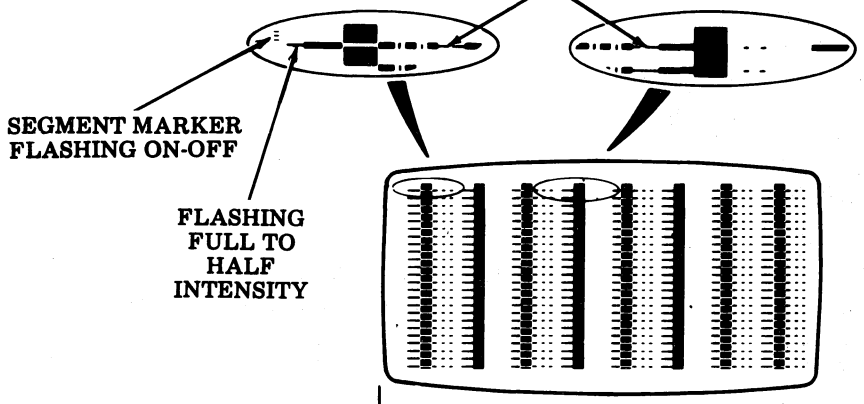
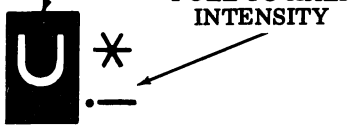
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. (Cont) Enlarged View I  	TS1 Test Pattern	
2. Depress TS2 test switch on 410657, 410020, 410021, or 410022 circuit card. Is the U* (or *U) pattern, with protected and high-lighted elements as indicated below, generated across all lines of the display? PROTECTED FLASHING FULL TO HALF INTENSITY  TS2 Test Pattern (Generated across all lines of the display.)	Go to 3.	Replace 410657, 410020, 410021, or 410022 circuit card.
3. Depress and hold down TS3 test switch on 410001, 410009, or 410018 circuit card. Is the * character generated across all lines of the display in all character positions? Also check segments 2 and 3 (if present) by scrolling.	If data appears on screen that is not sent from opcon: Replace 410015 circuit card for segment affected. Replace 410002 circuit card. Go to 8.	Go to 4.

TABLE O (Cont)

DISPLAY LOGIC

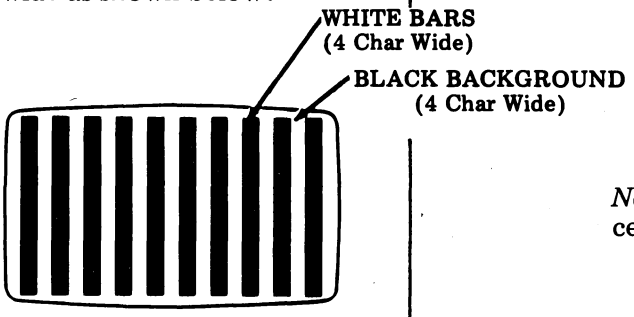
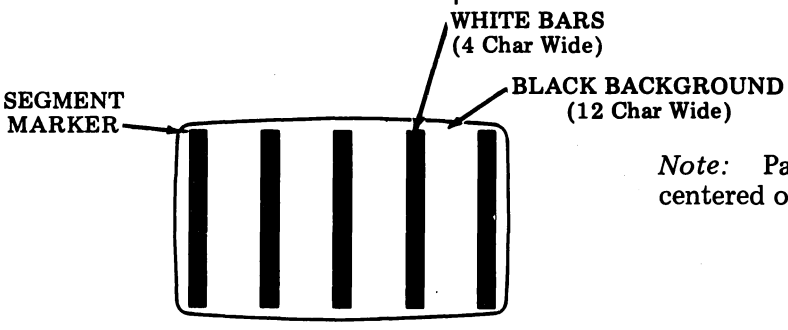
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
4. With TS3 depressed, is a black and white bar pattern generated on the display with bars that are 4 character positions wide as shown below?  TS3 Test Pattern	Go to 5.	Go to 6. *Note:* Pattern is not necessarily centered on the display as illustrated.
5. Remove 341740 cable. Depress TS3. Is the test pattern from Question 4 still generated on the display?	Replace 410002 circuit card.	Trouble is in controller. Go to Table P, KD or KDP Controller (Page 137).
6. With TS3 depressed, is a black an white bar pattern generated on the display with white bars 4 character positions wide and black bars 12 characters positions wide as shown below?  TS3 Test Pattern	Replace 410015 circuit card. for the segment indicated by the segment marker displayed in the test pattern.	Go to 7. *Note:* Pattern is not necessarily centered on the display as illustrated.

TABLE O (Cont)

DISPLAY LOGIC

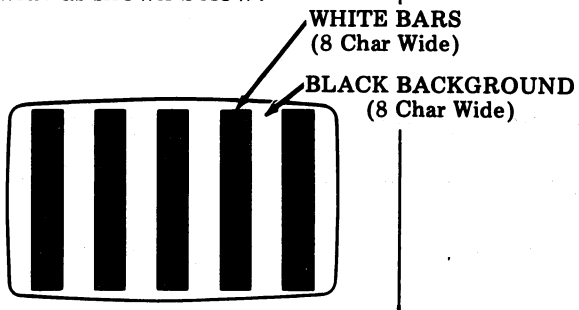
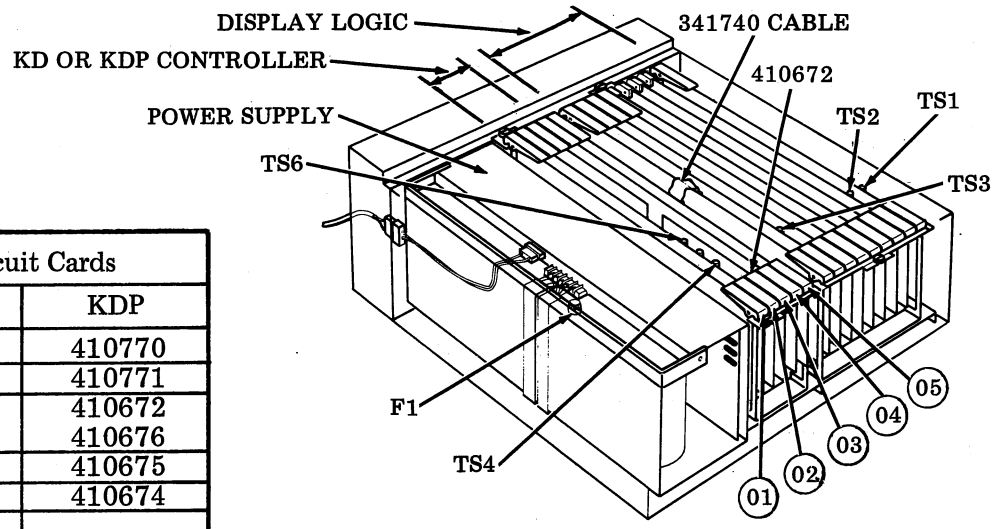
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
7. With TS3 depressed, is a black and white bar pattern generated on the display with bars that are 8 character positions wide as shown below?  TS3 Test Pattern	Replace 410003 circuit card. *Note:* Pattern is not necessarily centered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

TABLE P

KD OR KDP CONTROLLER



Controller Circuit Cards		
Pos	KD	KDP
01	—	410770
02	410771	410771
03	410672 410676	410672 410676
04	410675	410675
05	410674	410674
Wired Frame	341909	341909

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

TABLE P (Cont)

KD OR KDP CONTROLLER

Note: DL refers to Display Logic.

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Can anything be entered from opcon onto the display?	Go to 3.	Go to 2.
2. Depress TS4 test switch on 410771 circuit card. Is "?" (Option 4-7.a.) or "S_B" (Option 4-7.b.) displayed on the monitor?	Replace 410672 circuit card. Replace 410675 circuit card. Replace opcon.	Replace 410675 circuit card. Replace 410674 circuit card. Replace 410002 circuit card in DL. Replace 341740 cable to DL.
3. Can characters be entered from opcon (in local mode) and displayed properly?	Go to 4.	Replace 410672 circuit card. Replace 410674 circuit card. Replace 410002 circuit card in DL. Replace 341740 cable to DL.
4. Do edit and alarm features operate properly in local mode? *Note:* Refer to Complete Off-Line Checkout — Table B, KD and KDP Terminals.	Go to 5.	Replace 410675 circuit card. Replace 410672 circuit card. Replace 410674 circuit card. Replace 410002 circuit card in DL. Replace 341740 cable to DL. Replace opcon.
5. Can set send and receive properly on-line?	Go to 7.	Go to 6.

TABLE P (Cont)

KD OR KDP CONTROLLER

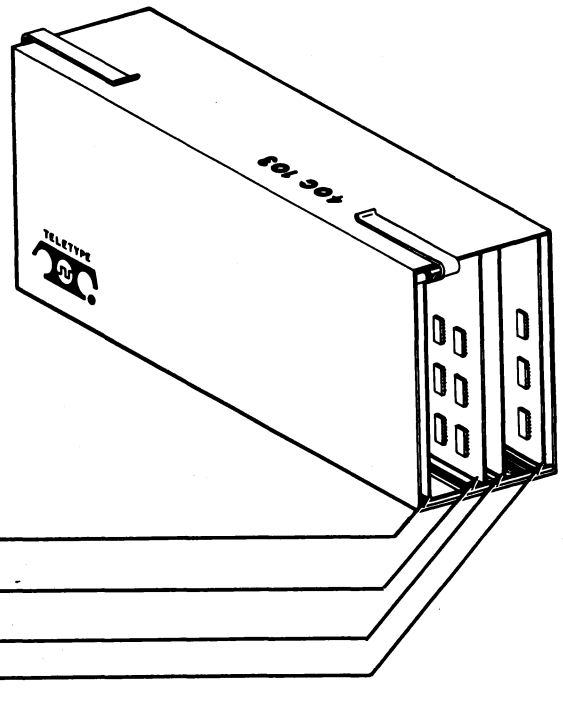
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
6. Enter the sequence U*U* across the first line. With cursor in home position and REC key lighted, depress TS6 test switch on 410771 circuit card. Does cursor move across line and *s change to Us? (SEND and REC key lights flash on and off while TS6 test switch is depressed.)	Check 9140 Station Controller and the 9140 interconnect cable using Table N, Station Analysis (Page 113).	Replace 410771 circuit card. Replace 410674 circuit card. Replace 410675 circuit card.
7. Does set respond properly to control characters and sequences? (Example: VT and EOT.)	Go to 8.	Replace 410674 circuit card. Replace 410675 circuit card. Replace 410770 circuit card (if so equipped).
8. Can proper escape sequence be sent on-line? (Example: ESC3 for highlight, ESC4 for no highlight.)	Go to 9.	Replace 410676 circuit card. Replace 410675 circuit card. Replace 410674 circuit card. Replace 410002 circuit card in DL.
9. With ≡ displayed on monitor, can proper line ending sequence (LF, CR LF, CR CR LF) be sent on-line? (The sequence is dependent on the Option 4-10.)	Go to 10.	Replace 410675 circuit card. Replace 410674 circuit card.
10. KDP, KD-ROP, KDP portion of "KDP&ROP" or "KDP-ROP With IRS" only: Do the PRINT ON LINE and PRINT LOCAL operations function properly? (Step 10 does not apply to KD&ROP or KD-ROP With IRS, Note of Step 4 applies.)	Go back to Table N, Station Analysis (Page 113).	Replace 410770 circuit card. Replace 410674 circuit card. KD-ROP only: Go to Table Q, 40C103 ROP Controller (Page 140). KDP only: Replace printer.

TABLE Q

40C103 ROP CONTROLLER

Note 1: 40C103/AD ROP controller includes a buffer (character storage).

Note 2: 40C103/AE ROP controller does not include a buffer.



CIRCUIT CARD LOCATION

40C103/AD	40C103/AE	POSITION
410582	410582	JA
410581 or 410585	410587	JB
410580	410580	JC
410583	410583	JD

410581 and 410585 are interchangeable.

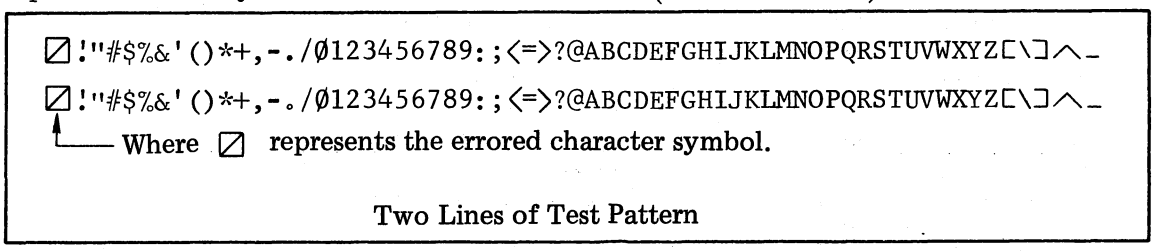
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Does IN SERVICE lamp on ROP opcon fail to light?	Replace 410580 circuit card.	Go to 2.
2. Is the correct test message printed when the TRANS START key on the ROP opcon is depressed, and does the TRANS START lamp turn ON? (See Fig. 16 for sample test message.)	Go to 3.	Replace 410583 circuit card. Replace 410582 circuit card. Replace 410580 circuit card.
3. Are messages received on-line?	Go to 4.	Check data set and transmission line facilities. Replace 410580 circuit card. Replace 410582 circuit card.

TABLE Q (Cont)

40C103 ROP CONTROLLER

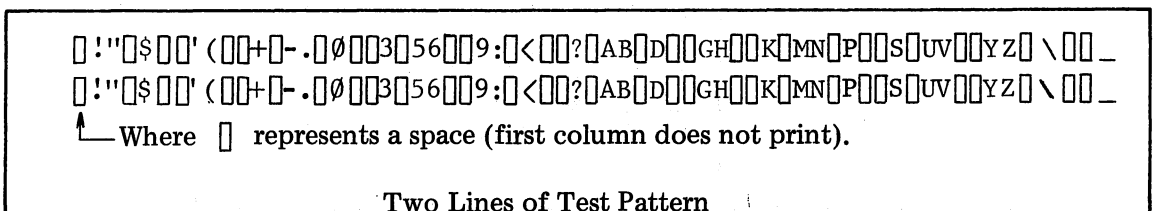
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
4. Do messages received on-line contain errors? (Does the DATA ERROR lamp, if used, remain OFF when errors are received, or turn ON when errors are not received?)	Replace 410580 circuit card. Replace 410582 circuit card. Replace 410584 circuit card (interconnecting.	If controller code is 40C103/AE, go to 5. If controller code is 40C103/AD, go to 6.
5. Does data stacking feature operate properly — no loss of characters (40C103/AE)? *Note:* Data stacking prevents data loss by placing more characters on printed lines (no buffer).	ROP controller is OK. Trouble is elsewhere.	Check to see that controller has a 410587 circuit card in position JB, Issue 2 or later. Check to see that Option 4-38.a. on 410582 is enabled. Replace 410582 circuit card.
6. Is the buffer (character storage) operating properly — no lost characters or blocks of characters, no erroneous message termination, etc?	ROP controller is OK. Trouble is elsewhere.	Replace 410581 or 410585 circuit card. *Note:* These two cards are interchangeable. Replace 410580 circuit card. Replace 410582 circuit card.

Option 4-19.c. only: (See Note below.)



Two Lines of Test Pattern

Option 4-19.a. only: (See Note below.)



Two Lines of Test Pattern

Note: Test patterns for Analysis Question 2 of Table Q are as shown above for early design RO controllers; however, for present design RO controllers, what is given as the second line will appear as the first line (up to 80 characters) with the remainder on the second line (and so on). In other words, the order of the characters remain the same but all character positions of the line are tested. Observe for early design RO controllers that all character positions of the line can be tested using the printer test switch.

Fig. 16—Test Patterns for Analysis Question 2 of Table Q

TABLE R

IRS ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Turn off all power. Check the four fuses associated with IRS (three on power supply, one on IRS heat sink). Are any open? *Note:* If the station has not passed its On-Line Test (in some type of valid 40/3 Type Station Arrangement(s)) before the IRS modification kit was installed, then the trouble may be in any component of the station.	Replace open fuse. Go to 2.	Go to 4.
2. Turn on all power. Attempt the test in Table K or Table L that the station failed. Does the station still fail?	The station still fails. Turn off all power. Recheck fuses of Question 1, go to 3.	Return to Table K (Page 78) or Table L (Page 88).
3. Did same fuse open again? Try applicable instructions A-E, one at a time, until trouble is corrected. *Note:* Check that 303808 voltage regulator card in the 9140 Station Controller is Issue 7A or greater. If not, then the 303808 circuit card may be at fault.	Power is off. If fuse on power supply is open: a. Replace power supply. b. Replace "R" card. c. Replace 344543 card. d. Replace IRS. e. Replace 344545 cable. If fuse on IRS heat sink is open: a. Replace "R" card. b. Replace power supply. c. Replace 344543 card. d. Replace IRS. e. Replace 344545 cable.	Replace fuse, go to 2.

Note: This information is written for the KD (or KDP) being the secondary receiver and the ROP being the primary receiver. The primary receiver is defined as the receiver assigned to CDC1, and affects the "No-Traffic" response to TSC. This test procedure can be used if the KD (or KDP) is the primary receiver provided this information is kept in mind.

TABLE R (Cont)

IRS ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
4. Power is off. Are all cables connected, and all power cords plugged in, and power switches "ON"? 344545 cable: At "X TERM" and "X 9140" end ("X TERM" to 345603 cable) ("X 9140" to 9140 "X" connector. At "X TERM" and "X IND REC" end ("X TERM" to RO controller) ("X IND REC" to IRS "X" connector) Other end of 345603 cable to "DATA SET" connector of KD (or KDP). These and other cables are shown in Section 582-200-203.	Go to 5.	Make connection, plug in power cord, or turn on switch. Repeat test in Table K (Page 78) that failed.
5. Turn all power off. Connect KD to 9140 with 345603 cable. Connect 9140 to data set with 9140 cable. No connections to ROP, IRS, or 344545 cable. Turn on power to KD, 9140, and data set. Go to Table N and follow applicable steps for KD (or KDP). Does station pass all such steps?	Problem is in IRS, associated power supply, 344545 cable or ROP. Go to 6.	Problem is in KD, 9140, 345603 cable or data set as indicated in Table N (Page 113).
6. Restore connection to ROP, IRS and 344545 cable. Does station fail a corresponding test in Table K or Table L that it passed as a KD (or KDP) in Table N? Examples: Receiving, transmitting or sending AB to a CDC.	Go to 7.	Go to 7.

TABLE R (Cont)

IRS ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
7. Is it a sending failure, not a receiving failure?	ROP or IRS power supply is not at fault. Replace IRS, 344545 cable.	Go to 8.
8. Is it a receiving failure, not a sending failure?	Go to 9.	Go to 11.
9. Does the ROP and KD (or KDP) both fail to receive?	Replace IRS, 344545 cable.	Just one fails. Go to 10.
10. Does KD or KDP fail to receive?	Replace IRS, 344545 cable.	Replace IRS, 344545 cable, ROP controller.
11. Is it both a sending and receiving failure?	Replace IRS, associated power supply, 344545 cable.	Go to 12.
12. Is it a failure not covered above?	Replace IRS, 344545 cable, RO controller, associated power supply (for IRS). Other parts of station cannot cause failure.	Return to step in this procedure that station fails.