INTEGRATED ASYNCHRONOUS "DATASPEED*" 40 RECEIVE-ONLY PRINTER STATION

TESTING AND TROUBLESHOOTING

CONTENTS

1. GENERAL

1.01 This section provides procedures for off-line and on-line testing, and all troubleshooting of Integrated DATASPEED 40 Receive-Only Printer (ROP) Stations in both DATAPHONE (40/1 and 40/2) and multipoint private line (40/3) service.

1.02 This section is reissued to include the 40C303AD controller and forms access arrangements. Since this reissue is a general revision, no revision arrows have been used to denote significant changes.

Note: When ordering replaceable components, unless otherwise specified, prefix each part number with the letters "TP" (ie, TP410055).

2. OPERATIONAL CHECKOUT

GENERAL

2.01 An operational checkout should be performed after installation or on trouble calls. On maintenance or trouble calls at a location, confine the checkout to the specified trouble area. Perform a complete checkout after an extensive repair.

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Prepared for American Telephone and Telegraph Company by Teletype Corporation

2.02 The checkout routines are presented in tables. Each table covers a particular checkout, depending on the type of station.

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

PRELIMINARY CHECK

2.04 Before turning on the equipment, check the following:

(a) Is station connected to a properly grounded ac service?

(b) Are all cable connectors fully seated?

(c) Is cabinet lid closed?

(d) Are printer paper and ribbon properly installed?

2.05 In addition to the above, check the Station Feature and Option Record or wiring plan 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 table.

OFF-LINE CHECKOUT

2.06 Off-line checkout (Table A) provides a check of the operating condition of the Integrated ROP Terminal. The off-line checkout should be performed before attempting any on-line procedures.

ON-LINE CHECKOUT — "DATAPHONE" SERVICE (40/1 and 40/2)

2.07 On-line checkout for stations using 40/1 or 40/2 service is performed between the station under test and a Data Test Center (DTC) equipped with a DATASPEED 40 Test Set. The DTC operator controls the checkout using standard test procedures. Table B provides on-line checkout for stations equipped with Data Sets 113AR, 212AR, or equivalent and Table C provides checkout for stations equipped with Data Sets 202C, 202SR, 208BR, or equivalent.

2.08 When ready for on-line checkout, contact th· DTC serving your area.

2.09 When calling a DTC be prepared to furnish any information requested by the operator as to options and features (reverse channel characteristics, speed option, etc). To establish a standard line protocol, the DTC operator will normally request the station under test to hang up and wait for a return call. If an unplanned disconnect occurs at any time during the test, place data set in talk mode, hang up, and wait for the DTC operator to re-establish the call.

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE (40/3)

2.10 On-line checkout for stations using 40/3 service is performed between the station under test and a Serving Test Center (STC). The STC operator controls the checkout using standard test procedures. Table D provides checkout for stations equipped with Data Sets 108D, 108E, 202T, 208A, or equivalent. This table is arranged so that is 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.

2.11 Caution should be exercised that valid tests are not omitted. Example: If the Post Message Recall feature is used but the option for "Copy After STX" is not used, then the steps titled "Check for initialization of optional AB on Start of Heading/Start of Text 2" should be performed to check that the circuit works as intended.

2.12 In order to perform tests without interference from the line controller (data communications processor), the station under test must be disconnected from the data link to the line controller.

TABLE A

OFF-LINE CHECKOUT

This table checks the basic operation of Asynchronous Integrated DATASPEED 40 ROP Terminals.

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
1	Preliminary Requirements: (a) Data set or KD (if KD-ROP station) connected. (b) Ribbon and paper loaded. (c) Switches (top right for 40P102/ZZ and 40P153/ZZ printer; top left for 40P154/ZZ, 40P201/ZZ, 40P202/ZZ and 40P253/ZZ printers) set as follows: LF — 1 (Option 20.a.) TEST — Off FORMS — On (Option 39.a.) (Tractor Feed Only) (d) Cabinet cover closed. (e) In addition to those options in (c) the following printer options must be selected: 17.a.‡,17.c. (80 column) or 17.e. (132 column), 18.a. or .b., 19.c., 23.b., 48.a. (40P102/ZZ only) 54.a.‡, 55.a.‡,56.a. (40P102/ZZ only use 56.b. when 410076 circuit card is used with 40P153/ZZ printer), 57.a.‡, 58.a.‡, 60.b.‡, 61.c. (40P154/ZZ, 40P201/ZZ, 40P202/ZZ and 40P253/ZZ only). ‡Not on printers with 410640 or 410729 circuit cards. (f) For terminals employing a 40C303AD Controller Options 101 and 192 must be implemented before OFF-LINE CHECKOUT can be started.		
2	Turn on power. 40C303AA/001 Controller	All lamps may turn on momentarily then DATA ERROR, TEST (TRANS START) and INTRPT go off and IN SERV stays on.	Check that power cord is plugged into properly operating ac source. Check Option 60 for proper selection of .b.

TABLE A (Cont)

OFF-LINE CHECKOUT

This table checks the basic operation of Asynchronous Integrated DATASPEED 40 ROP Terminals.

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
2 (Contd)	40C303AD Controller	Audible alarm sounds momentarily, DATA ERROR lamp flashes then IN SERV lamp turns on. Fan moves air in printer cabinet (table top cabinet only). Power lamp lights (Forms access cabinet only).	Integrated ROP Analysis Table E Page 94. Check Cabinet Wiring-Section 582-212-400.
3	Momentarily depress PAPER button (red) on cover of printer cabinet (table top only).	Paper feeds out as long as button is depressed.	80- or 132-Column Printer Analysis - Section 582-210-500. Check Cabinet Wiring-Section 582-212-400.
4	Tractor feed terminals only: Depress and release FORM ADVANCE switch (black button on cover of table top printer cabinet; red rocker switch on top cover of form access cabinet).	Paper feeds out until first line of next form is reached, then stops.	80- or 132-Column Printer Analysis - Section 582-210-400.
5	Unlatch and raise printer cabinet cover (open doors to forms access printer cabinet).	IN SERV lamp extinguishes. Audible alarm sounds if present. *Note:* Audible alarm always present with 40K003/AAC and 40K005/AAC opcons.	Check Cabinet Wiring - Section 582-212-400. Opcon Analysis - Section 582-211-500.
6	Raise Cover interlock to maintenance position.	IN SERV lamp lights. Audible alarm (if present) stops.	Check Cabinet Wiring-Section 582-212-400.

TABLE A (Cont)

OFF-LINE CHECKOUT

This table checks the basic operation of Asynchronous Integrated DATASPEED 40 ROP Terminals.

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
7	Momentarily set test switch to ON position then return to OFF position.	Printer motor starts. IN SERV lamp extinguishes. Audible alarm (if present) may sound intermittently. Font identification symbol (such as ΞAΞ ΞAΞ ΞAΞ ,ΞBΞ, etc. depending on type carrier) prints repeatedly while switch is on. Single line feed occurs. Motor turns off when switch is returned to OFF. DATA ERROR, TEST and/or IN SERV lamps may flash while printer TEST switch is in ON position. Printing stops and motor turns off when TEST switch is returned to the OFF position.	80- or 132-Column Printer Analysis - Section 582-210-500.
8	FRICTION FEED ONLY: To simulate a paper alarm, replace paper roll with a roll containing 3/16" of paper (measured radially). Replace original paper roll (must contain more than 1/4" of paper (measured radially)). TRACTOR FEED PRINTERS ONLY: Tear off next form on perforations (end of form) at bottom of printer cabinet, then slowly roll paper out until last form is fed completely out of printer. *Note:* The FORM-OUT contact may be closed by placing the printer FORMS switch in the ON position and then depressing the FORMS button/switch on the top of the cabinet.	Paper lamp lights; IN SERV lamp extinguishes and audible alarm (if present) sounds. Paper lamp extinguishes: IN SERV lamp lights (IN SERV key may have to be depressed to get lamp to light) and audible alarm (if present) turns off. With Option 48.a. in printer PAPER lamp lights and IN SERV lamp extinguishes when form is partly through printer. Audible alarm sounds (if present). *Note:* 40P153/ZZ printers with 410640 circuit cards are permanently arranged for Option 48.a. With Option 48.b. in printer PAPER lamp lights, when form is partly through printer, but IN SERV does not extinguish until FORM-OUT CONTACT closes. (See note as left.)	80- or 132-Column Printer Analysis - Section 582-210-500.

TABLE A (Cont)

OFF-LINE CHECKOUT

This table checks the basic operation of Asynchronous Integrated DATASPEED 40 ROP Terminals.

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
8 (Cont)		Audible alarm (if present) sounds when FORM-OUT CONTACT closes.	
	Reload forms and close cabinet.	PAPER lamp extinguishes. IN SERV lamp lights (IN SERV key may have to be depressed to get lamp to light) and audible alarm (if present) turns off.	
9	Depress IN SERV key. Depress TEST (TRANS START) key on opcon, then depress again after a few seconds.	IN SERV lamp extinguishes. TEST (TRANS START) lamp lights, printer motor starts and character set is printed repeatedly as shown. Lamp extinguishes and printing stops when the key is depressed a second time. DATA ERROR lamp may light. Form out occurs if Option 39.a. is enabled; if Option 39.b. is enabled there will be no paper advance. About 20 seconds after TEST lamp extinguishes the audible alarm (if present) will sound momentarily with the printer motor turning off approximately 30 seconds after the TEST lamp extinguishes if Option 148.a. is enabled; if Option 148.b. is enabled the audible alarm (if present) will sound intermittently and the printer motor will turn off in approximately 2 minutes.	If approximately half of the characters are printed as type carrier symbols verify that Option 19.c. is installed. If printer continually line feeds verify that if Option 121.a. is enabled 131.a. is also enabled. 80- or 132 Column Printer Analysis - Section 582-212-500. Integrated ROP Terminal Analysis Table E Page 94.
	Depress IN SERV key.	IN SERV lamp lights.	
	!"#$%&'()*+,-./0123456789:; <=> ?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\ ]^_ Local Test Message Generated by TEST (TRANS START) key (Options 19.c. (printer) must be enabled)		

TABLE A (Cont)

OFF-LINE CHECKOUT

This table checks the basic operation of Asynchronous Integrated DATASPEED 40 ROP Terminals.

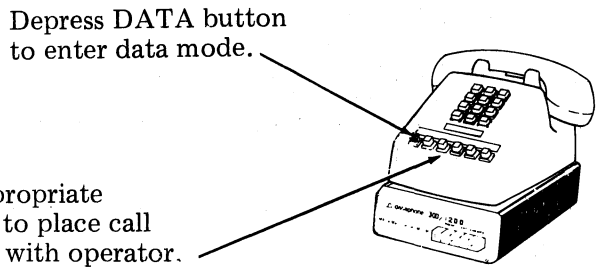
STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
10	Check printing quality.	Characters should be clearly legible and unbroken on original copy. *Note:* The TEST (TRANS START) test does not check all printing columns.	80- or 132-Column Printer Analysis-Section 582-212-500.
11	Raise printer cabinet cover and set LF switch to position 2. Close Cover. Depress IN SERV key. Depress TEST (TRANS START) key. While printer is printing, raise cover.	IN SERV lamp extinguishes and audible alarm (if present) sounds. IN SERV lamp lights and audible alarm (if present) turns off. IN SERV lamp extinguishes. Repeated character set prints with double line spacing. Printing stops and audible alarm (if present) sounds.	80- or 132-Column Printer Analysis - Section 582-212-500.
12	Restore setting of LF switch (or leave in position 2 if Option 20.b. is required). Set forms switch to OFF (Option 39.b.). Depress TEST (TRANS START) key. Close cabinet cover. Depress and release FORM ADVANCE button.	TEST (TRANS START) extinguishes, audible alarm (if present) sounds intermittently. 40C303AD Controller Motor starts; audible alarm momentarily sounds approximately 15 seconds after cover is closed. Motor turns off after approximately 30 seconds. 40C303AA/001 Controller Motor does not start and audible alarm (if present) does not sound. Paper feeds out as long as button is depressed at same rate as form PAPER button.	80- or 132-Column Printer Analysis - Section 582-212-500.

TABLE A (Cont)

OFF-LINE CHECKOUT

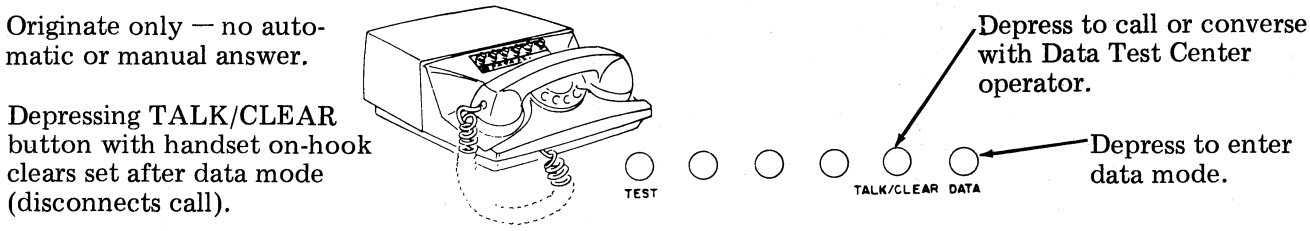
This table checks the basic operation of Asynchronous Integrated DATASPEED 40 ROP Terminals.

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
13	Raise cover and restore setting of FORM switch (or leave in OFF position if Option 39.b. is required). Close cabinet cover. Depress IN SERV key.	IN SERV lamp lights.	
14	KD-ROP Only: Required Options 40C303AA/001 Options 101.f. and 143.b. 40C303AD Options 143.b. and 193.b. 40C303AD Only: PRINT-ON-LINE lamp extinguishes (if lit depress PRINT-ON-LINE key so lamp extinguishes). Place message on display of KD and depress PRINT LOCAL key. *Note 1:* KDs for 40/1 applications require 410670 circuit card to be Issue 5A or later; KDs for 40/2 applications require 410770 circuit card to be Issue 5A or later. KD must also be optioned for EIA interface to printer (Option 1.a.). *Note 2:* Refer to appropriate BSP section for ON-LINE testing of KD-ROP. On ROPs with 40C303AD controllers when the PRINT-ON-LINE lamp of the ROP is lit the ROP is interfaced to the transmission line at the baud rate selected by Option 101.a. through .e.	PRINT LOCAL key of KD lights and message is transferred from display of KD to printer. When printing stops printer motor times out per Option 148.	Check Options 101, 143 and 149 for proper selection. Integrated ROP Terminal Analysis Table E, Page 94.
THIS COMPLETE OFF-LINE CHECKOUT OF INTEGRATED ROP TERMINALS.			



Note: Depress DATA button first if attended sending station is using a 212AR DATA Set.

Data Set 212AR and Associated Telephone



Data Set 113AR

Fig. 1

TABLE B

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SET 113AR, 212AR OR EQUIVALENT

This table checks the operation of DATASPEED 40 Integrated ROP Station operating on the switched network via a Data Set 113AR, 212AR (Fig. 1), or equivalent.

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
1	Preliminary requirements: (a) Data set connected. (b) Ribbon and paper loaded. (c) Switches (top right for 40P102/ZZ and 40P153/ZZ printers; top left for 40P154/ZZ, 40P201/ZZ, 40P202/ZZ and 40P253/ZZ printer) set as follows: LF — 1 or 2 (Option 20.a. or b.) Test — Off Forms — On or Off (Tractor Feed Only) (Option 39.a. or b.) (d) Cabinet cover closed.		If results are not as stated for a particular option, verify installation of that option.

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SET 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
1 (Cont)	(e) In addition to those options in (c) the following printer options must be selected: 17.a., 17.c. (80 column) or 17.e. (132 column), 18.a. or .b., 19.c., 23.b., 54.a. §, 55.a. §, 56.a. (40P102/ZZ only — use 56.b. when 410076 circuit card is used with a 40P153/ZZ Printer), 57.a. §, 58.a. §, 60.b. §, 61.c. (40P154/ZZ, 40P201/ZZ, 40P202/ZZ and 40P253/ZZ only). § Not on printers with 410640 or 410729 circuit cards. (f) If the data set used is a 212AR data set this test should be conducted at low speed (Option 101.d.) except for Step 26. Option 193.a. must also be selected. It is recommended that 212AR data sets be used only with 40C303AD controllers. The 40C303AA/001 controllers are not compatible with Automatic Answer starts switched network answer-back option (Option 142.b.) with 212AR Data Sets.		
2	Turn power on. 40C303AA/001 40C303AD	All lamps (or DATA ERROR and IN SERV only) on opcon may light momentarily, then all extinguish except IN SERV lamp which remains on. Audible alarm may sound momentarily, DATA ERROR lamp may flash then IN SERV lamp turns on. Fan moves air in printer cabinet. (Table top only.) Power lamp lights (forms access cabinet only).	Check that power cable is plugged into a properly operating ac power source. Integrated ROP Terminal Analysis-Table E, Page 94.
3	Place data set in talk mode (by depressing CLEAR/TALK or TALK/CLEAR button) and call Data Test Center (DTC). Request on-line checkout of Integrated ROP Station equipped with a Data Set 113AR, 212AR, or equivalent for 40/2 (Teletypewriter Compatible) service. Inform the DTC operator how the set is optioned.	*Note:* To establish proper line protocol, DTC operator will request station requesting test to hang up and wait for return call unless Data Set 113AR is used. When DTC calls back, follow instructions of DTC operator. If Data Set 113AR is used, the DTC cannot call you. Go into data mode directly by	

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SET 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
3 (Cont)	*Note:* Unless otherwise stated, factory-installed options are assumed throughout this table, with the following exceptions: 101.c. — 300 baud. 144.b. — Monitor Receive Data on Recognition of CC ON (113A Data Set Only).	depressing DATA button when ready to test; do not hang up until test is concluded. If cut off, call the DTC back promptly.	
AUTO AND MANUAL ANSWER TEST — APPLIES TO STATIONS EQUIPPED WITH DATA SET 212AR OR EQUIVALENT ONLY. FOR STATIONS EQUIPPED WITH DATA SET 113A OR EQUIVALENT, DEPRESS DATA BUTTON AND GO TO STEP 6. This test checks ability of ROP station to answer calls automatically and respond with an answer-back. Both operators will go to talk mode when test is concluded to evaluate results.			
4	Replace handset on switchhook. *Note 1:* Data Set 212AR must be equipped with Option ZH (Automatic Answer-IN). *Note 2:* For telephone sets equipped with an AUTO ANS button depress button before replacing handset on switchhook.	DATA button lights automatically and printer motor starts when DTC calls station. With Option 142.a. (factory installed), 143.b. (not recommended), or 151.b., no action. With Options 142.b., 143.a., and 151.a., answer-back sent to DTC as determined by Options 119. and 120. DTC will inform you of answer-back received. With Option 145.a., no other action; with Option 145.b., answer-back is printed correctly by printer when sent.	If answer-back is garbled, verify Options 119., 120., 156., 157., and 158. Integrated Controller Analysis-Table F or G. If printer motor does not start when DATA button lights, verify that Option 151.a. is present.
5	After 30 seconds, depress CLEAR/TALK button to converse with DTC operator and discuss results of test. Replace handset on switchhook. See Notes 1 and 2. *Note 1:* Data Set 212AR must be equipped with Option ZG (Automatic Answer-OUT). *Note 2:* For telephone sets equipped with a MAN ANS button depress button before replacing handset on switchhook.		

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SET 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
5 (Cont)	Answer phone when DTC calls back. When instructed by DTC operator, but no sooner than ten seconds answering, go to data mode by depressing DATA button and hanging up handset.	DATA button lights and printer motor starts, if off. No other action, since an answer-back should not be generated at this time (entering data mode more than ten seconds after manual answer).	Integrated Controller Analysis- Table F, Page 97 or Table G, Page 100.
6	(DTC send ENQ character after short pause.)	With Option 124.a. (factory installed) or 141.b., no action. With Option 124.b. and 141.a., answer-back sent to DTC as determined by Options 119. and 120.: with Option 145.a., no other action; with Option 145.b., answer-back is printed correctly by printer when sent.	Check Options 119, 120, 124, 141 and 145 for proper selection. Integrated Controller Analysis- Table F, Page 97 or Table G, Page 100.
FOX TEST In this test, DTC will send single FOX test message, then repeating FOX message. The ROP will receive and print message and check ability to interrupt transmission. Both operators will go to talk mode to evaluate results.			
7	(DTC sends single FOX test message ending in ETX, then goes back to talk mode.)	With Options 141.a. 144.b., 156.c. or d., and 157.a. (for 150 or 300 baud operation) or 157.b. (for 110 baud operation)printer prints single FOX message: THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 123456789Ø With Option 141.b., nothing is printed. Change option to 141.a. if this occurs, but first go to talk mode to inform DTC of results.	Check Options 141, 144, 156 and 157 for proper selection. Integrated ROP Terminal Analysis- Table E, Page 94. If continous form feed occurs, check Option 156. Verify that Option 144.b. is present. If all ^ or ~ characters or type carrier symbols are printed, check Option 158.

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 113AR, 212AR, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
7 (Cont)		With Option 156.a. or b., test message will be garbled (unless one of these options is required and DTC is able to send the proper 5- or 6-level code); change option to 156.c. or d., as required, if this occurs (also see information below), but first go to talk mode to inform DTC operator of results.	If approximately one-half of the characters are type carrier symbols check printer Option 19.c.
		With Option 157. selected incorrectly (a. for 110 baud operation or b. for 150 or 300 baud operation), test message will be garbled; change option as required if this occurs, but first go to talk mode to inform DTC operator of results.	
		With Option 144.b., extraneous "hit" characters may be printed in addition to FOX message here and in following tests.	
		With Option 121.a. or 131.a. (factory installed), left margin of FOX message begins at column 1.	Check for proper selection of Options 17, 121, and 131.
		With Option 131.b., left margin begins at first column number determined in Option 121.b. or 122.b. (normally Option 121.b., but if Options 121.a., 122.b., and 131.b. are selected, the first column determined for Option 122.b. will be interpreted as left margin). If this occurs erroneously, change Option 131.b. to 131.a., but first go to talk mode to inform DTC operator of results.	Check for proper selection of Options 17, 121, and 131.
		With Option 18.a., 39.a. or .b, no feed out or form-out; motor turns off approximately 45 seconds (148.a.) or 2 minutes (148.b.) after printing stops.	Check for proper selection of Options 18, 39, 48 and 148. Check that form-out contact closes when on form-out belt nub.

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 113AR, 212AR, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
7 (Cont)		With Option 18.b., no immediate feed out. Feeds out to nub on form-out belt (39.a. or .b.) or 16 lines (39.b.) approximately 30 seconds (148.a.) or 2 minutes after printing stops. Motor turns off approximately 15 seconds later. With Option 18.c. (Not recommended), immediately forms out (39.a.) or feeds out to nub on form-out belt or 16 lines (39.b.). No further feed out with 39.a. or 39.b. if immediate feed out resulted in form-out contact resting on form-out belt nub; however if immediate feed out did not result in form-out contact resting on form-out belt nub (39.b.) a second feed out will occur approximately 30 seconds (148.a.) or 1 minute and 45 seconds (148.b.) later. The second feed out will result in the form-out contact resting on a form-out belt nub or be 16 lines. The motor turns off approximately 45 seconds (148.a.) or 2 minutes (148.b.) after printing stops. *Note 1:* Friction feed printers act as though they are arranged for Option 39.b.. *Note 2:* If a form out or feed out results in the form being ejected from the printer the motor will turn off immediately (48.a.) or will turn off after the form-out contact closes (form-out contact rests on a form-out belt nub) (48.b.).	Check for proper selection of Options 18, 39, 48 and 148. Check that form-out contact closes when on form out belt nub.
	Note 3: The above assumes Option 135.a. is used. The use of Option 135.b. may cause line feeds and feed outs along with the IN SERV lamp flashing off to occur at approximately 30 second intervals as long as the motor runs.	See Note 3 at left.	

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
8	Go to talk mode and discuss results with DTC operator. When instructed by DTC operator, go to data mode by depressing DATA button and hanging up handset. (DTC sends repeating FOX test message for approximately 45 seconds, then goes back to talk mode.) While message is being received, depress INTRPT key on opcon; then depress key a second time to release. Repeat.	Printer printer repeating FOX message: THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890 THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890 THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890 INTRPT lamp lights when INTRPT key is depressed. With Option 143.a., an 0.4 second spacing tone is sent to DTC when INTRPT key is depressed. (DTC operator hears this tone by opening line from ROP and listening with handset.) With Option 143.b. (not recommended), no tone sent. INTRPT lamp extinguishes when INTRPT key is depressed a second time.	Check Option 143 for proper selection. Integrated Controller Analysis-Table F, Page 97 or Table G, Page 100.
9	Go to talk mode and discuss results with DTC operator.		
MODIFIED FOX TEST This test checks the ability of the ROP station to disconnect on receipt of DLE EOT, EOT, approximately 30-second idle line, no carrier for approximately 15 seconds, and paper alarm.			
10	When instructed by DTC operator, go to data mode by depressing DATA button and hanging up handset. (DTC sends brief repeating FOX message and terminates with DLE EOT, then goes to talk mode.)	FOX message printed when data mode established. With Option 133.a. (factory installed), or 133.b. station disconnects (IN SERV lamp flashes off for approximately 1 second) on receipt of DLE EOT sequence at end of message.	Check Option 133 for proper selection. Integrated ROP Terminal Analysis - Table E, Page 94.

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
10 (Cont)	(If station under test has Data Set 212AR or equivalent, DTC will call back after sending DLE EOT if disconnect occurs.)	With Option 18.a. With 39.a. and form-out contact off of nub of form-out belt the printer forms out; with 39.b. the printer line feeds. With Option 18.b. or .c. (.c. not recommended) With 39.a. and form-out contact off of nub of form-out belt printer forms out; with 39.b. printer line feeds immediately with a feed out immediately (148.a.) or 2 minutes after disconnect (148.b.). Motor turns off aproximately 1 minute (148.a.) or 2 minutes and 15 seconds (148.b.) after disconnect. *Note 1:* Friction feed printers act as though they are arranged for Option 39.b. *Note 2:* If a form out or feed out results in the form being ejected from the printer the motor will turn off immediately (48.a.) or will turn off after the form-out contact closes (form-out contact rest on the nub of the form-out belt) or approximately 45 seconds (148.a.) or 2 minutes (148.b.) after disconnect occurs (148.b.). *Note 3:* The above assumes Option 135.a. is used. The use of 135.b. may cause line feeds and feed outs along with the IN SERV lamp flashing off at 30 second intervals as long as the motor runs.	
11	If station under test has Data Set 113AR or equivalent, call DTC in talk mode. Discuss results with operator. When instructed by DTC operator, go to data mode. (DTC sends brief repeating FOX message and terminates with EOT alone, then goes to talk mode.	FOX message printed when data mode established. With Option 133.a. (factory installed), no disconnect. DATA button remains lit after printer stops. Go to talk mode.	Check Option 133 for proper selection.

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
11 (Cont)		With Option 133.b., station disconnects on receipt of EOT (IN SERV lamp flashes OFF for approximately 1 second) at end of message. Refer to Step 10 for form out or feed out after disconnect.	Integrated Controller Analysis-Table F, Page 97 or Table G, Page 100.
12	If station under test has Data Set 113A or equivalent; call DTC in talk mode. Discuss results with operator. When instructed by DTC operator, go to data mode. (DTC sends brief repeating FOX message and then allows line to go idle for about 50 seconds, then goes to talk mode.)	FOX message printed when data mode established. With Options 135.a. and 148.a. (factory installed), motor turns off approximately 45 seconds after message stops, but station is not disconnected. DATA button remains lit after motor goes off. Wait 10 more seconds, then go to talk mode. With Options 135.a. (factory installed), and 148.b., motor turns off approximately 2 minutes after message stops, but station is not disconnected. DATA button remains lit after motor goes off. Go to talk mode after motor stops. With Option 135.b. and 148.a. (factory installed), station disconnects (IN SERV lamp flashes OFF for approximately 1 second) approximately 30 seconds after printing stops and motor goes off approximately 45 seconds later. Printer forms out or line feeds. Refer to Step 10 for form out or feed out after disconnect. Go to talk mode and call DTC. With Options 135.b. and 148.b., station disconnects (IN SERV lamp flashes off for approximately 1 second) approximately 30 seconds after printing stops. Printer forms out for line feeds.	Check Options 135 and 148 for proper selection. Integrated Controller Analysis - Table F, Page 97 or Table G, Page 100.

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
12 (Cont)		Refer to Step 10 for form out or feed out after disconnect. Motor remains on approximately 2 minutes after message stops. Go to talk mode after motor stops and call DTC.	
13	Discuss results with operator. When instructed by DTC operator, go to data mode. (DTC sends brief repeating FOX message and then goes to talk mode but does not talk for about 50 seconds.)	FOX message printed when data mode extablished. With Options 135.a., 137.a., and 148.a. (factory installed), motor turns off approximately 45 seconds after message stops, but station is not disconnected. DATA button remains lit after motor goes off. Wait 10 more seconds then go to talk mode. With Options 135.a., 137.a. (factory installed), and 148.b., motor turns off approximately 2 minutes after message stops, but station is not disconnected. DATA button remains lit after motor goes off. Go to talk mode after motor stops. With Options 135.a., 137.b., and 148.a. (factory installed), or 135.b., 137.a. or b., and 148.a., station disconnects (IN SERV lamp flashes off for approximately 1 second) approximately 15 seconds after printing stops and motor goes off approximately 45 seconds later. Printer forms out or line feeds (Refer to Step 10 for form out or feed out after disconnect). Go to talk mode and call DTC. With Options 135.a., 137.b., and 148.b., or 135.b., 137.a. or b., and 148.b., station disconnects (IN SERV lamp flashes OFF for approximately 1 second) approximately 15 to 30 seconds	Check Options 135, 137 and 148 for proper selection. Integrated Controller Analysis Table F, Page 97 or Table G, Page 100.

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
13 (Cont)		after printing stops. Printer forms out or line feeds (refer to Step 10 form out or feed out after disconnect). Motor remains on until approximately 2 minutes after message stops. Go to talk mode after motor stops and call DTC.	
14	Discuss results with operator. Friction Feed Only: Open cover, lift interlock, remove paper roll, depress low paper lever. When instructed by DTC operator, go to data mode. (DTC sends repeating FOX message with additional line feeds for 20 seconds, then goes to talk mode). While message is being received release low paper lever. *Note:* Printer Option 56.a. must be enabled. DTC calls back. Reload paper roll. Tractor Feed Only: Tear off forms below printer cabinet. When instructed by DTC operator, go to data mode. (DTC sends repeating FOX message with additional line feeds for 20 seconds, then goes to talk mode.)	FOX message printed when data mode established. Paper lamp lights. Option 146.a. Printing will continue until an end of transmission character (DLE EOT (Option 133.a.) or EOT (Option 133.b.)) is recognized. IN SERV lamp extinguishes. Option 146.b. Immediate disconnect occurs (IN SERV extinguishes) printing continues for a short time (until buffer empties). *Note:* TEST (TRANS START) lamp will not flash at disconnect. Terminal will not answer. IN SERV lamp lights. FOX message printed when data mode established. Paper lamp lights when some portion of last form remains in printer. Option 48.a. (40P153/ZZ printer with 410640 circuit card is permanently arranged for 48.a.) printing stops, motor turns off, and audible alarm (if present) sounds.	Check Options 48, 133, 137 and 146 for proper selection. Integrated ROP Terminal Analysis-Table E, Page 94.

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
14 (Cont)	*Note:* This action occurs for 40C303AA/001 only. For 40C303AD the IN SERV and INTRPT lamps will not extinguish and the TEST lamp will not flash.	Option 48.b. (40P153/ZZ printer with 410640 circuit card cannot be optioned for 48.b.), printing continues until form out contact closes (form-out contact rests on form-out belt nub). Audible alarm (if present) sounds when printing stops. Option 146.a. INTRPT lamp lights shortly after printing stops. No disconnect occurs. IN SERV lamp extinguishes approximately 45 seconds after printing stops. INTRPT extinguishes when IN SERV extinguishes (137.a.) or remains on (137.b.). With 137.a. the TEST (TRANS START) will flash three times when IN SERV lamp extinguishes. See note at left. With Option 137.b. no flashing occurs when the IN SERV lamp extinguishes. Option 146.b. IN SERV lamp extinguishes when printing stops. Immediate disconnect occurs. INTRPT lamp does not light. The TEST (TRANS START) lamp may flash with 137.a. (if there were any characters in the buffer when the disconnect occured) or will not flash with 137.b. when the IN SERV lamp extinguishes. *Note:* DATA ERROR lamp may light, depress DATA ERROR key to extinguish.	
15	Reload forms (Without removing power.) If forms are reloaded with power removed by opening of the interlock switch the IN SERV lamp will light and printing will not resume when the interlock switch is closed. Flashing of the IN SERV lamp (at approximately 15 second intervals) will not occur.	IN SERV lamp lights, audible alarm (if present) turns off. Motor starts. With 146.a. printing resumes until buffer empties (INTRPT lamp extinguishes shortly after printing resumes); with 146.b. printing does not resume (one or two characters may print). With 137.a. IN SERV lamp remains lit after printing stops, (or motor starts if no printing) with 137.b. IN SERV lamp	Check Options 137 and 146 for proper selection

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
15 (Cont)	Discuss results with operator.	extinguishes momentarily after printing stops (or motor starts if no printing) and flashes off at approximately 15 second intervals. Motor turns off approximately 30 seconds to 2 minutes after printing stops (or motor starts if no printing).	
RO TEST This test checks enabling of the buffer and (825 characters for 40C303AA/001 and 3900 characters for 40C303AD) and associated options.			
16	When instructed by DTC operator, go to data mode. (DTC sends single-character lines of numbers in sequence for 45 seconds or until transmission is stopped by ROP, followed by twelve 80-character lines of the letter "C". *Note:* Low baud rates (110, 150 etc) may require more than 45 seconds of transmission to fill the buffer and stop the sender or cause the printer to "data stack".	With Options 17.c. or .e., 121.a., 131.a., 143.a.,147.a. and 191.a., printer prints test message (only if DTC is arranged to stop transmitting on a received line break)(See Note 3 at end of Step 16). 1 2 3 4 5 6 7 8 9 Ø 1 2 etc (pauses after about 35 seconds and resumes) CCCCCCCCCCCCCCCCCC etc CCCCCCCCCCCCCCCCCC etc With Options 17.c. or .e., 121.a., 131.a., 143.a. (if DTC is not arranged to stop transmitting on a received line break) or 143.b., 147.a., and 191.a., printer prints test message:	Check Options 17, 121, 131, 143 and 147 for proper selection. Integrated ROP Terminal Analysis - Table E, Page 94.

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 113AR. 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
16 (Cont)		1 2 3 4 5 6 7 8 9 Ø 1 2 . . . 6 789Ø1234567 89Ø1234567 89Ø12345678 etc CCCCCCCCCCCCCCCCC etc CCCCCCCCCCCCCCCCC etc With Option 143.a., DTC operator should hear tone as in Step 8 when buffer becomes full. Lines containing 80 "C" characters will be printed unless the left hand margin setting (Options 121 and 131) and the right hand margin settings (Options 122 and 191) are chosen so that there are less than 80-characters per line. If ther are less than 80-characters per line a full line of "C" characters followed by a line containing the difference between 80 and the number of characters per line will alternate. With options 121.b. and 131.b. the left hand margin will start as specified by Option 121.b.. The right hand margin will be different than that specified by 17.c. or e. if the last printing column specified by Option 122 is different than 80 column (17.c.) or 132 column (17.e.) (if this happens then Option 191.b. must be specified also).	

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
16 (Cont)		If results are different than that shown, check to make sure that the following option combinations are used: 17.c. or 17.e. 121.a. and 131.a. or 121.b. and 131.b. 191.a. and a diode removed representing either the 80th or 132nd printing column or 191.b. and a diode removed representing a last printing column other than 80 or 132. With Option 147.b. (not recommended), printer prints test message: 1 2345678901 23456789012 3456789012 34567901 2345678901 23456789 etc CCCCCCCCCCCCCCCCCCCCC etc CCCCCCCCCCCCCCCCCCCCC etc Lines of single characters are stacked approximately as shown. Printer does not stop, regardless of the state of Option 143. Lines of C characters are printed as described above for Option 147.a. With Option 18.a., 39.a. or .b. No feed out or form out; motor turns off approximately 45 seconds (148.a.) or 2 minutes (148 .b.) after printing stops. With Option 18.b. No immediate feed out. Feeds out to nub on form-out belt (39.a. or .b.) or 16 lines (39.b.) approximately 30 seconds (148.a.) or 2 minutes (148.b.) after printing stops.	

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
16 (Cont)		With Option 18.c. (Not Recommended) Immediately forms out (39.a.) or feeds out to nub on form-out belt or 16 lines (39.b.). No further feed out with 39.a. or with 39.b. if immediate feed out resulted in form-out contact resting on form out belt nub; however, if immediate feed out did not result in form-out contact resting on form-out belt nub (39.b.) a second feed out will occur approximately 30 seconds (148.a.) or 1 minute and 45 seconds (148.b.) later. The second feed out will result in the form-out contact resting on a form-out belt nub or be 16 lines. The motor turns off approximately 45 seconds (148.a.) or 2 minutes (148.b.) after printing stops. *Note 1:* Friction feed printers act as though they are arranged for Option 39.b. *Note 2:* If a form out or feed out results in the form being ejected from the printer the motor will turn off immediately (48.a.) or will turn off after the form-out contact rests on a form-out belt nub or approximately 45 seconds (148.a.) to 2 minutes (148.b.) after printing stops(148.b.). *Note 3:* INTRPT lamp will light when buffer becomes full and transmits a break signal (Option 143.a.) or drops reverse channel (Option 143.b.). *Note 4:* The above assumes Option 135.a. is used. The use of Option 135.b. may cause line feeds and feed outs along with the IN SERV lamp flashing off to occur at approximately 30 second intervals as long as the motor runs.	
17	Go to talk mode and discuss results with DTC operator.		

TABLE B (Cont)

ON-LINE CHECKOUT -- "DATAPHONE" SERVICE USING
DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
OPTIONS TEST This test checks the error detection capability and other options of the ROP station. Both operators should go to the talk mode to discuss the results of the test.			
18	When instructed by DTC operator, go to data mode. (DTC sends message consisting of 5 NULLS, 5 DELETES, 5 CRS, 5 bad parity characters, and 5 BELLS, each preceded by identifying text, then ETX, then goes to talk mode.)	With Option 22.a., 149.a. and 152.a. (factory installed) or 158.c., printer prints test message: 5 NULLS 5 DELETES 5 CRS 5 BAD PARITY 12345 5 BELLS With Options 22.a., 149.a., 152.b., and 158.b., monocase printer prints test message: 5 NULLS 5 DELETES 5 CRS 5 BAD PARITY (5 type carrier symbols) 5 BELLS *Note:* If Option 22.b. (foldover) is used instead of 22.a. then ^ will be printed instead of type carrier symbol. With Options 21.a., 149.a., 152.b., and 158.b., up-low printer prints test message: 5 NULLS 5 DELETES 5 CRS 5 BAD PARITY ~~~~~ 5 BELLS *Note:* If Option 21.b. (foldover) is used instead of 21.a. then ^ will be printed instead of ~. With Options 149.b. and 152.a. or 158.c., printer prints test message: 5 NULLS 5 DELETES	Check Options 126, 149. 150, 152 and 158 for proper selection. Integrated ROP Terminal Analysis- Table E, Page 94.

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
18 (Cont)		5 CRS 5 BAD PARITY 12345 5 BELLS With Options 22.a., 149.b., 152.b., and 158.b., monocase printer prints test message: 5 NULLS 5 DELETES 5 CRS 5 BAD PARITY (5 type carrier symbols) 5 BELLS *Note:* If Option 22.b. (foldover) is used instead of 22.a. then ^ will be printed instead of type carrier symbol. With Options 21.a., 149.b., 152.b., and 158.b., up-low printer prints test message: 5 NULLS 5 DELETES 5 CRS	

TABLE B (Cont)

ON-LINE CHECKOUT -- "DATAPHONE" SERVICE USING
DATA SETS 113AR, 212AR, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
18 (Cont)		5 BAD PARITY ~ ~ ~ ~ ~ 5 BELLS *Note:* If Option 21.b. (foldover) is used instead of 21.a. then ^ will be printed instead of ~. (With Option 158.a., all characters in all preceding test messages would be printed as substitute characters — type carrier symbol, ~ or ^ — if the DTC used even parity; if DTC uses odd parity for all preceding tests and even parity for the 5 bad parity characters in this test message, the results are the same as described for Option 158.b.) With Options 150.a. (factory installed) and 158.b. (or 158.a. with odd parity used), the DATA ERROR lamp lights when the 5 bad parity characters are received. Depress DATA ERROR key to extinguish lamp. With Option 150.b. or 158.c., DATA ERROR lamp does not light. With Option 126.a. (factory installed) or 403418 audible alarm modification kit (40C303AA/001 only) not provided, no tone is sounded when 5 BELLS are received. *Note:* Audible alarm is part of opcon 40K003/AAC and 40K005/AAC. With Option 126.b. and 403418 audible alarm modification kit (40C303AA/001 only) provided, a one second tone sounds when 5 BELLS are received.(See Note above.) Refer to Step 7 for form out and feed out after receipt of ETX.	

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
19	Go to talk mode and discuss results with DTC operator.		
FULL ASCII TEST This test checks the response of the ROP station to all characters of the ASCII code. Both operators should go to talk mode to discuss results of test.			
20	When instructed by DTC operator, go to data mode. (DTC sends message consisting of STX FS CR LF, CR LF, two lines of control characters, two lines of symbols and numerals, two lines of upper-case letters and symbols, and two lines of lower-case letters and symbols, terminating with EOT ETX FS.)	With monocase printer with Options 19.e., 22.b., and 23.b., printer prints test message: !"#$%&'()*+,-./0123456789:;<=>? !"#$%&'()*+,-./0123456789:;<=>? @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ With monocase printer with Options 19.e., 22.a., and 23.b., printer prints test message as above except that last two lines are replaced by font identification symbols. With monocase printer with Option 19.d., f., or g. or Option 23.a., font identification symbols appear in message, particularly in last two lines, and message may be garbled. Change Options to 19.e. and 23.b. if this occurs, but first go to talk mode and inform DTC operator of results. With up-low printer with Options 19.d., 21.b., and 23.b., printer prints test message: !"#$%&'()*+,-./0123456789:;<=>? !"#$%&'()*+,-./0123456789:;<=>? @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ With up-low printer with Options 19.d., 21.a., and 23.b., printer prints test message as above except that last two lines are printed in lower case, including symbols.	Check Options 19, 22 and 23 for proper selection. 80-Column or 132-Column Printer Analysis Section 582-210-500.

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
20 (Cont)		With up-low printer with Option 19.e., f., or g. or Option 23.a., font identification symbols appear in message, particularly in last two lines, and message may be garbled. Change options 19.d. and 23.b. if this occurs, but first go to talk mode and infrom DTC operator of results. Refer to Step 10 for form out or feed out after disconnect with Option 133.b. or Step 7 for form out or feed out after receipt of ETX with Option 133.a.	
21	Go to talk mode and discuss results with DTC operator. (For the remainder of the integrated ROP test you may have to instruct the operator on how to conduct the test.)		

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
TABS TEST This test checks the horizontal and vertical tab and form feed features and options of the ROP station. Both operators should go to the talk mode to discuss the results of the test.			
22	When instructed by DTC operator, go to data mode. (DTC sends following special test message using its preset tabs: S T Ø H1 H2 H3 H4 H5 H6 H7 H8 H9 N X T T T T T T T T T L 1 V2 V3 V4 V5 V T T T T T E E E S2 S6 (10 SPACES) S1 (10 C C C E C SPACES) S1 C R COL. 1 H T COL. 10 H T COL. 20 HNNNNNN TLLLLLL E E F S5 NNNNNN S5 C LLLLLL C F LINE 1 V T LINE 6 V T LINE 12 VF TS) *Note:* The 40/2 set used by DTC must be equipped with Option 13.a., not b. (factory installed).	*Note:* All results for this test assume Option 132.b., printing of escape sequences suppressed and the diode representing the last printing column (R17,b1 - R33,b3) is removed, also if the last printing column is not 80 for 80-column printers and 132 for 132-column printers Option 191.b. must be enabled. With Option 132.a. (factory installed), 26 is over-printed on COL. 1 and 1 on COL. 10 and COL. 20. With Options 122.a. or b. and 129.a., horizontal tab portion of test is printed as follows: Ø123456789 . . . COL. 1 COL. 10 COL. 20 . . . With the last printing column as 80 for 80-column printers and 132 for 132-column printers, 122.a., and 129.b., horizontal tab portion of test is printed as follows: Ø123456789 . . . COL. 1 COL. 10 COL. 20 . . . With the last printing column as 80 for 80-column printers and 132 for 132-column printers, 122.b. (9 or more preselected tab settings), and 129.b., horizontal tab portion of test is printed as follows: Ø 1 2 3 4 5 6 7 8 9 . . . COL. 1 COL. 10 COL. 20 . . .	Check Options 17, 122, 129 for proper selection. Integrated Controller Analysis-Table F, Page 97 or Table G, Page 100.

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
22 (Cont)		With the last printing column as 80 for 80-column printers and 132 for 132-column printers, 122.b. (less than 9 preselected tab settings — 6 shown as example), and 129.b., horizontal tab portion of test is printed as follows: Ø 1 2 3 4 5 6 7 8 9 . . . COL. 1 COL. 10 COL. 20 . . .	
		With the last printing column other than 80 for 80-column printers and 132 for 132-column printers, horizontal tabs appear in wrong columns after first line. Example for 6 tab settings: Ø 1 2 3 4 5 6 7 8 9	
		If this condition occurs, change either Option 17.c. or .e. or Option 129.b., but first go to talk mode to inform DTC operator of results.	Check for Option 17.c. (80-column printer), 17.e. (132-column printer) or proper selection of last printing column in Integrated Controller.
		With Options 123.a. or b. and 130.a., vertical tab portion of test is printed as follows: 1 2 3 4 5 . . . (FORM FEED)	Check for Option 20.b. (double line feed) and form feed belt selection if results differ from those shown. Check for Option 149.b. (new line substituted for CR) if extra line feeds appear.

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
22 (Cont)		LINE 1 LINE 6 LINE 12 With Options 123.a. and 130.b., vertical tab portion of test is printed as follows: . . . 1 2 3 4 5 . . . (FORM FEED) LINE 1 LINE 6 LINE 12 With Options 123.b. (5 or more preselected tab settings) and 130.b., vertical tab portion of test is printed as follows: . . . 1 2 3	

TABLE B (Cont)

ON-LINE CHECKOUT -- "DATAPHONE" SERVICE USING
DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
22 (Cont)		4 5 . . . (FORM FEED) LINE 1 LINE 6 LINE 12 With Options 123.b. (less than 5 pre-selected tab settings — 3 shown as example) and 130.b., vertical tab portion of test is printed as follows: . . . 1 2 3 (FORM FEED) 4 5 . . . (FORM FEED)	

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 113AR, 212AR, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
22 (Cont)		LINE 1 LINE 6 LINE 12	
23	Go to talk mode and discuss results with DTC operator.		
SPECIAL OPTIONS TEST This test checks the special options of the integrated controller: on-line printer control and SI/SO response. Both operators should go to talk mode to discuss results of test.			
24	When instructed by DTC operator, go to data mode. (DTC sends following special test message: STX SI [Full ASCII message with SI, SO, and ¦ omitted] SO [Full ASCII message with SI, SO, and ¦ omitted] SI [Full ASCII message with SI, SO, and ¦ omitted] DC2 XXX DC4 XXX DC2 CR LF FS)	With Options 22.b., 128.a., 134.a., and 136.a. or b., monocase printer prints test message: !"#$%&'()*+,-./0123456789:;<=>? !"#$%&'()*+,-./0123456789:;<=>? @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ _ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ _ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^ !"#$%&'()*+,-./0123456789:;<=>? !"#$%&'()*+,-./0123456789:;<=>? @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ _ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ _ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^ !"#$%&'()*+,-./0123456789:;<=>? !"#$%&'()*+,-./0123456789:;<=>? @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ _ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ _ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^ XXXXXX	Check for proper selection of Options 22, 128, 134, and 136. -Integrated Controller Analysis-Table F, Page 97 or Table G, Page 100.

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 113AR, 212AR, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
24 (Cont)		With Options 22.a., 128.a., 134.a., and 136.a. or b., monocase printer prints test message as shown above except that last two lines of each Full ASCII message are replaced by font identification symbols. With Options 21.a., 128.a., 134.a., and 136.a. or b., up-low printer prints test message as shown above except that last two lines of each Full ASCII message are printed in lower case. With Options 21.b., 128.a., 134.a., and 136.a. or b., up-low printer prints test message as shown above. With Option 134.b., last line of test message is printed as follows: XXX With Options 128.b. and 136.a., first and third Full ASCII messages are printed as described above (depending on whether printer is monocase or up-low and selection of Option 21. or 22.), but second Full ASCII message is replaced by different characters — special characters if proper type carrier is used, gibberish if AA, AB, AG, or AL carrier is used. With Options 128.b. and 136.b., second Full ASCII message is printed as described above (depending on whether printer is monocase or up-low and selection of Option 21. or 22.), but first and third Full ASCII messages are replaced by different characters — special characters is proper type carrier is used, gibberish if AA, AB, AG, or AL carrier is used. If gibberish (no special symbols) is printed, indicating wrong option selection or wrong type carrier, change Option 128.b. or type carrier	

TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 113AR, 212AR, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
24 (Cont)		as required, but first go to talk mode to inform DTC operator of results.	
25	Go to talk mode and discuss results with DTC operator.		
132-COLUMN LINES TEST This test checks the ability of an 80- or 132-column ROP to receive 132-column lines. Both operators should go to talk mode to discuss results of test.			
26	When instructed by DTC operator, go to data mode. (DTC sends 132-column test message in one of two ways:) (1) Model 37 wide platen test tape or equivalent sent from DATA-SPEED Magnetic Tape Set or equivalent. (2) DATASPEED 40 test position or equivalent sends continuous characters without new lines.) *Note:* (1) is assumed throughout this step unless otherwise mentioned, since (2) is much less desirable.	80-column printer with Options 191.a., 121.a. or 131.a., and last printing column as 80 printer prints test message correctly as transmitted except that first 80 characters of each line are printed on first line with remaining 52 (or less) characters on second line, and each alternate line is printed similarly. 80-column printer with Options 191.a. or .b., 121.b., and 131.b., and last printing column as 80 (or changed) printer prints test message correctly as transmitted except that left margin begins selected number of columns to right, less than 80 characters are printed on first line (depending on the number of columns optioned for the left and right margins), and second line also has correct left margin and remainder of characters (more than 52) from first line of test message. Alternate lines are printed similarly.	Check for proper selection of Options 17, 121, 131, 191 and last printing column. 80-Column and 132-Column Printer Analysis-Section 582-210-500.

TABLE B (Cont)

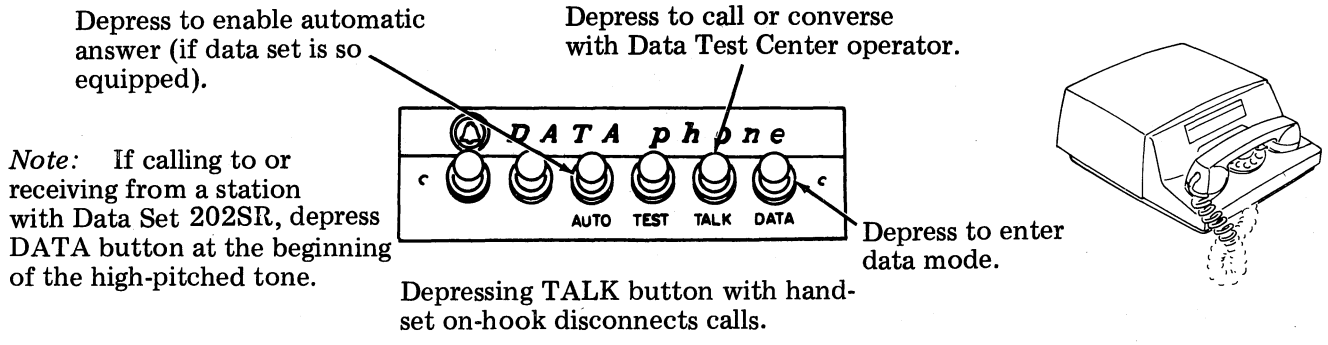
ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 113AR, 212AR, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
26 (Cont)		With 132-column printer with Options 191.a. and 121.a. or 131.a. and last printing column as 132, printer prints test message correctly as transmitted. With 132-column printer with Options 191.a. or .b., 121.b., 131.b. and last printing column as 132 (or changed), printer prints test message correctly as transmitted except that left margin begins selected number of columns to right. If full lines of 132 characters are sent, less than 132 characters are printed on first line (depending on the number of columns optioned for the left and right margin) and second line has remainder of characters from first line of test message. Alternate lines are printed similarly.	

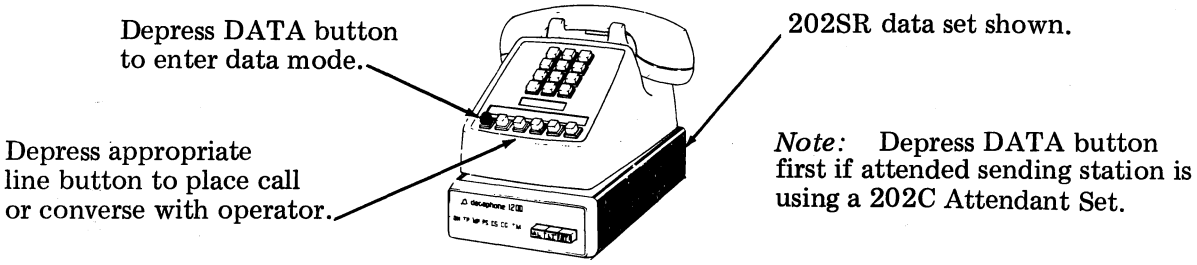
TABLE B (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 113AR, 212AR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
27	Go to talk mode and discuss results with DTC operator.		
28	Repeat the full ASCII test (Steps 18 and 19) with the 212AR Data Set in the low speed range. DTC sends at rate selected by Option 101.a. through .d.	See the results for Step 18.	Check Options 101 and 193 for proper selection. Integrated ROP Terminal Analysis - Table E, Page 94.
29	Go to talk mode and discuss results with DTC operator.		
THIS COMPLETES ON-LINE CHECKOUT OF INTEGRATED ROP.			



Data Set 202CR



Data Set 202SR or 208BR and Associated Telephone

Fig. 2

TABLE C

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

This table checks the operation of a DATASPEED 40 Integrated ROP Station operating on the switched network via a Data Set 202C, 202SR or 208BR (Fig. 2) or equivalent.

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
1	Preliminary requirements: (a) Data set connected. (b) Ribbon and paper loaded. (c) Switches (top right for 40P102/ZZ and 40P153/ZZ printers; top left 40P154/ZZ, 40P201/ZZ, 40P202/ZZ and 40P253/ZZ printers, cabinet cover raised) set as follows: LF — 1 or 2 (Option 20.a. or b.) Test — Off Forms — On or Off (Tractor Feed Only) (Option 39.a. or b.).		If results are not as stated for a particular option, verify installation of that option.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
1 (Cont)	(d) Cabinet cover closed. (e) In addition to those options in (c) the following printer options must be selected: 17.a., 17.c. (80 column) or 17.e. (132 column), 18.a. or 18.b., 19.c., 23.b., 54.a.¶, 55.a.¶, 56.a. (40P102 only - use 56.b. when 410076 circuit card is used with a 40P153/ZZ printer), 57.a.¶, 58.a.¶, 60.b.¶, 61.c. (40P154/ZZ, 40P201/ZZ, 40P202/ZZ and 40P253/ZZ only). ¶ Not on printers with 410640 or 410729 circuit cards. (f) If data set 208B or equivalent is used Options 101.m., 189.a., 190.a. and 192.c. must be specified (40C303AD controller only).		
2	Turn power on. If ROP is part of KD-ROP go to Step 14 and perform this step only; remainder of test should be performed as part of appropriate KDP test. The following options must be enabled for KD-ROP operation: 143.b. 193.b. (40C303AD only) For print local operation the PRINT-ON-LINE lamp on the ROP Opcon (40C303AD only) must be extinguished (this allows ROP to interface	40C303AA/001 All lamps (or DATA ERROR and IN SERV only) on opcon may light momentarily, then all extinguish except IN SERV lamp which remains on. 40C303AD Audible alarm sounds momentarily, DATA ERROR lamp flashes three times then IN SERV lamp turns ON. Fan moves air in printer cabinet. (Table Top only). Power lamp lights (forms access cabinet only).	Integrated ROP Terminal Analysis- Table E, Page 94.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202C, 202S OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
2 (Cont)	at KD at 1200 baud, when the PRINT-ON-LINE lamp is lit the ROP is interfaced to the signal line at the speed selected by Option 101.a. through .l. In addition to the above options the following KD option and circuit card issues are required: Option 1.a. 410670 (40/1) Issue 5A or later 410770 (40/2) Issue 5A or later		
3	Place data set in talk mode (by depressing TALK button on Data Set 202C or appropriate line button on Data Set 202SR) and call Data Test Center (DTC). Request on-line checkout of Integrated ROP Station equipped with a Data Set 202C, 202SR, or equivalent, for 40/1 (Switched Network) or 40/2 (Teletypewriter Compatible) service. Inform the DTC operator how the set is optioned.	*Note:* To establish proper line protocol, DTC operator will request station requesting test to hang up and wait for return call. When DTC calls back, follow instructions of DTC operator.	
AUTO AND MANUAL ANSWER TEST This test checks ability of ROP station to answer calls automatically and respond with an answer-back. Both operators will go to talk mode when test is concluded to evaluate results.			
4	With Data Set 202C with permanent automatic answer or no automatic answer, no action required. With Data Set 202C with key controlled automatic answer, depress AUTO button and replace handset on switchhook. With Data Set 202SR, no action required.	With Data Set 202C, DATA and TALK buttons light and printer motor starts when DTC calls station (unless automatic answer is not provided — wait ten seconds and go to Step 5). With Data Set 202SR, line button and MR lamp light and printer motor starts when DTC calls station. With Option 142.a. or 151.b., no action. With Options 142.b. and 151.a., answer-back sent to DTC as determined by Options 119. and 120. DTC will inform you of answer-back received.	Integrated Controller Analysis - Table F, Page 97 or Table G, Page 100. If printer motor does not start when DATA button lights, verify that Option 151.a. is present. If answer-back is not received by DTC, verify that data set is equipped with reverse channel

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
4 (Cont)		With Option 145.a., no other action (except with Data Set 202CR—answer-back always copied). With Option 145.b., answer-back is printed correctly when sent (except with Data Set 202CR–answer-back always garbled; change option to 145.a.).	if Option 143.b. is enabled. If answer-back is garbled, verify Options 101., 119., 120., 156., 157., and 158. and ZB in Data Set 202S.
5	After 30 seconds, 202CR: depress TALK button; 202SR: lift handset and depress appropriate line button. Discuss results of test with DTC operator. Answer phone when DTC calls back. When instructed by DTC operator, but no sooner than ten seconds, go to data mode by depressing DATA button and hanging up handset.	DATA button lights and printer motor starts, if off. No other action, since an answer-back should not be generated at this time (entering data mode more than ten seconds after manual answer).	Integrated Controller Analysis-Table F, Page 97, or Table G, Page 100.
6	(DTC sends ENQ after short pause.)	With Option 124.a. (factory installed) or 141.b., no action. With Options 124.b. and 141.a., answer-back sent to DTC as determined by Options 119. and 120. With Option 145.a., no other action; with Option 145.b., answer-back is printed correctly by printer when sent.	Check Options 124, 141, and 145 for proper selection. Integrated Controller Analysis-Table F, Page 97 or Table G, Page 100.
FOX TEST In this test, DTC will send single FOX test message, then repeating FOX message. The ROP will receive and print message and check ability to interrupt transmission. Both operators will go to talk mode to evaluate results.			
7	(DTC sends single FOX test message ending in ETX, then goes back to talk mode.)	With Options 141.a., 156.c. or d., and 157.a. and 144.a. or b., printer prints single FOX message: THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890g	Check Option 141, 144, 156 and 157 for proper selection. Integrated ROP Terminal Analysis Table E, Page 94.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
7 (Cont)			If continuous form feed occurs, check Option 156.
		With Option 141.b., nothing is printed. Change option to 141.a. if this occurs, but first go to talk mode to inform DTC of results.	If all ^ or ~ characters or type carrier symbols are printed check Option 158. If approximately one half of the characters are type carrier symbols check printer Option 19.c.
		With Option 156.a. or b., test message will be garbled (unless one of these options is required and DTC is able to send the proper 5- or 6-level code); change option to 156.c. or d., as required, if this occurs (also see information below) but first go to talk mode to inform DTC operator of results.	
		With Option 157. selected incorrectly (b.), test message will be garbled; change option as required if this occurs, but first go to talk mode to inform DTC operator of results.	
		With Option 144.b., extraneous "hit" characters may be printed in addition to FOX message here and in following tests.	
		With Option 121.a. or 131.a. (factory installed), left margin of FOX message begins at column 1.	Check for proper selection of Option 17, 121 and 131.
		With Option 131.b., left margin begins at first column number determined in Option 121.b. or 122.b. (normally Option 121.b., but if Options 121.a., 121.b., and 131.b. are selected, the first column determined for Option 122.b. will be interpreted as the left margin). If this occurs erroneously, change Option 131.b. to a., but first go to talk mode to inform DTC operator of results.	Check for proper selection of Option 17, 21, and 131.
		With Option 18.a., 39.a. or b. No feed out or form out; motor turns off approximately 45 seconds (148.a.) or 2 minutes (148.b.) after printing stops.	Check that form-out contact closes when on form out belt nub.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
7 (Cont)		With Option 18.b., no immediate feed out. Feeds out to nub on form out belt (39.a. or .b.) or 16 lines (39.b.) approximately 30 seconds (148.a.) or 2 minutes (148.b.) after printing stops. Motor turns off approximately 15 seconds later. With Option 18.c. (Not recommended), immediately forms out (39.a.) or feeds out to nub on form-out belt or 16 lines (39.b.). No further feed out with 39.a. or 39.b. if immediate feed out resulted in form-out contact resting on form-out belt nub; however if immediate feed out did not result in form-out contact resting on form-out belt nub (39.b.) a second feed out will occur approximately 30 seconds (148.a.) or 1 minute and 45 seconds (148.b.) later. The second feed out will result in the form-out contact resting on a form-out belt nub or be 16 lines. The motor turns off approximately 45 seconds (148.a.) or 2 minutes (148.b.) after printing stops. *Note 1:* Friction feed printers act as though they are arranged for Option 39.a. *Note 2:* If a form out or feed out results in the form being ejected from the printer the motor will turn off immediately (48.a.) or will turn off after the form-out contact closes (form-out contact rests on a form-out belt nub) (48.b.). *Note 3:* The above assumes Option 135.a. is used. The use of Option 135.b. may cause line feeds and feed outs along with the IN SERV lamp flashing off to occur at approximately 30 second intervals as long as the motor runs.	

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
8	Go to talk mode and discuss results with DTC operator. When instructed by DTC operator, go to data mode by depressing DATA button and hanging up handset. (DTC sends repeating FOX test message for approximately 45 seconds, then goes back to talk mode.) While message is being received depress INTRPT key on opcon; then depress key a second time to release. Repeat.	Printer prints repeating FOX message: THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890 THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890 THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890 INTRPT lamp lights when INTRPT key is depressed. With Option 143.a. (factory installed) and data set with or without reverse channel, sender does not stop (but incoming data is interrupted briefly) and local copy is garbled. No change when INTRPT key is released, except that lamp extinguishes. With Option 143.b. and data set with reverse channel, sender stops but there is no garble or loss of data. Printing resumes and lamp extinguishes when INTRPT key is depressed a second time. With Option 143.b. and data set without reverse channel, sender does not stop and data is not affected. No change when INTRPT key is released, except that lamp extinguishes.	Check Option 143 for proper selection. Integrated Controller Analysis - Table F, Page 97 or Table G, Page 100. Verify that reverse channel feature of data set is enabled.
9	Go to talk mode and discuss results with DTC operator.		

MODIFIED FOX TEST
This test checks the ability of the ROP station to disconnect on receipt of DLE EOT, EOT, approximately 30-second idle line, no carrier for approximately 15 seconds, and paper alarm.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
10	When instructed by DTC operator, go to data mode by depressing DATA button and hanging up handset. (DTC sends brief FOX message and terminates with DLE EOT, then goes to talk mode. If disconnect occurs, DTC will call back.)	FOX message printed when data mode established. With Options 133.a. (factory installed) or 133.b., station disconnects (IN SERV lamp flashes off for approximately 1 second) on receipt of DLE EOT sequence at end of message. With Option 18.a. With Option 39.a. and form-out contact off of nub of form out belt the printer forms out; with 39.b. the printer line feeds. With Option 18.b. or .c. (.c. not recommended) With Option 39.a. and form-out contact off of nub of form out belt printer forms out; with 39.b. printer line feeds immediately followed by an immediate feed out (148.a.) or a feed out (148.b.) 2 minutes after disconnect. Motor turns off approximately 1 minute (148.a.) or 2 minutes and 15 seconds (148.b.) after disconnect. *Note 1:* Friction feed printers act as though they are arranged for Option 39.b. *Note 2:* If a form out or feed out results in the form being ejected from the printer the motor will turn off immediately (48.a.) or will turn off after the form-out contact closes (form-out contact rests on the nub of the form-out belt) or approximately 45 seconds (148.a.) or 2 minutes (148.b.) after disconnect occurs (48.b.). *Note 3:* The above assumes Option 135.a. is used. The use of 135.b. may cause line feeds and form outs along with the IN SERV lamp flashing off at 30 second intervals as long as the motor runs.	Check Option 133 for proper selection. Integrated ROP Terminal Analysis-Table E, Page 94.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
11	Discuss results with operator. When instructed by DTC operator, go to data mode. (DTC sends brief FOX message and terminates with EOT alone, then goes to talk mode. If disconnect occurs, DTC will call back.)	FOX message printed when data mode established. With Option 133.a. (factory installed), no action. DATA button remains lit after printer stops. Go to talk mode. With Option 133.b., station disconnects (IN SERV lamp flashes off for approximately 1 second) on receipt of EOT at end of message. Refer to Step 10 for form-out or feed out after disconnect.	Check Option 133 for proper selection. Integrated Controller Analysis-Table F, Page 97 or Table G, Page 100.
12	Discuss results with operator. When instructed by DTC operator, go to data mode. (DTC sends brief repeating FOX message and then allows line to go idle for about 50 seconds, then goes to talk mode.)	FOX message printed when data mode established. With Options 135.a. and 148.a. (factory installed), motor turns off approximately 45 seconds after message stops, but station is not disconnected. DATA button remains lit after motor goes off. Wait 10 more seconds, then go to talk mode. With Options 135.a. (factory installed) and 148.b., motor turns off approximately 2 minutes after message stops, but station is not disconnected. DATA button remains lit after motor goes off. Go to talk mode after motor stops. With Options 135.b. and 148.a. (factory installed), station disconnects (IN SERV lamp flashes off for approximately 1 second) approximately 30 seconds after printing stops; motor goes off approximately 45 seconds after printing stops. Printer forms out or line feeds. Refer to Step 10 for form out or feed out after disconnect. Go to talk made and call DTC.	Check Options 135 and 148 for proper selection. Integrated Controller Analysis-Table F, Page 97 or Table G, Page 100.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
12 (Cont)		With Options 135.b. and 148.b., station disconnects (IN SERV lamp flashes off for approximately 1 second) approximately 30 seconds after printing stops. Printer forms out or line feeds. Refer to Step 10 for form out or feed out after disconnect. Motor remains on until approximately 2 minutes after message stops. Go to talk mode after motor stops and call DTC.	
13	Discuss results with operator. When instructed by DTC operator, go to data mode. (DTC sends brief repeating FOX message and then goes to talk mode but does not talk for about 50 seconds.)	FOX message printed when data mode established. With Options 135.a., 137.a., and 148.a. (factory installed), motor turns off approximately 45 seconds after message stops, but station is not disconnected. DATA button remains lit after motor goes off. Wait 10 more seconds, then go to talk mode. With Options 135.a., 137.a. (factory installed), and 148.b., motor turns off approximately 2 minutes after message stops, but station is not disconnected. DATA button remains lit after motor goes off. Go to talk mode after motor stops. With Options 135.a., 137.b., and 148.a. (factory installed), or 135.b., 137.a. or b., and 148.a., station disconnects (IN SERV lamp flashes off for approximately 1 second) approximately 15 seconds after printing stops and motor goes off approximately 45 seconds after printing stops. Printer forms out or line feeds. Refer to Step 10 for form out or feed out after disconnect. Go to talk mode and call DTC.	Check Options 135, 137 and 148 for proper selection. Integrated Controller Analysis-Table F, Page 97 or Table G, Page 100.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
13 (Cont)		With Options 135.a., 137.b., and 148.b., or 135.b., 137.a. or b., and 148.b., station disconnects (IN SERV lamp flashes off for approximately 1 second) approximately 30 seconds after printing stops. Printer forms out or line feeds. Refer to Step 10 for form out or feed out after disconnect. Motor remains on until approximately 2 minutes after message stops. Go to talk mode after motor stops and call DTC.	
14	Discuss results with operator. Friction Feed Only: Open cover, lift interlock, remove paper roll, depress low paper lever. When instructed by DTC operator, go to data mode, (DTC sends repeating FOX message with additional line feeds for 20 seconds then goes into talk mode). While message is being received release low paper lever. *Note:* Printer Option 56.a. must be enabled. DTC calls back. Reload paper roll.	Paper lamp lights. Option 146.a. Printing will continue until an end of transmission character (DLE EOT (Option 133.a. or .b.) or EOT (Option 133.b.)) is recognized IN SERV lamp extinguishes. Option 146.b. Immediate disconnect occurs (IN SERV lamp extinguishes). Printing continues for a short time (until buffer empties). *Note:* TEST (TRANS START) lamp will not flash at disconnect. Terminal will not answer. IN SERV lamp lights.	Check Options 48, 133, 137 and 146 for proper selection. Integrated ROP Terminal - Table E, Page 94.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
14 (Cont)	Tractor Feed only: Tear off forms below printer cabinet. When instructed by DTC operator, go to data mode. (DTC sends repeating FOX message with additional line feeds for 20 seconds, then goes to talk mode.) *Note:* This action occurs for 40C303AA/001 only. For 40C303AD the IN SERV lamp and INTRPT lamps will not extinguish and the TEST lamp will not flash.	Paper lamp lights when some portion. of last form remains in printer. Option 48.a. — (40P153/ZZ printer with 410640 circuit card is permanently arranged for 48.a.) Printing stops, motor turns off and audible alarm (if present) sounds. Option 48.b. — (40P153/ZZ printer with 410640 circuit card cannot be optioned for 48.b.) Printing continues until form-out contact closes (form-out contact rests on form-out belt nub). Audible alarm (if present) sounds when printing stops. Option 146.a. — INTRPT lamp lights shortly after printing stops. No disconnect occurs. IN SERV lamp extinguishes approximately 45 seconds after printing stops. INTRPT extinguishes when IN SERV extinguishes (Option 137.a.) or remains on (Option 137.b.). With Option 137.a. the TEST (TRANS START) will flash three times when IN SERV lamp extinguishes. With Option 137.b. no flashing occurs when the IN SERV lamp extinguishes (see note at left). Option 146.b. -- IN SERV lamp extinguishes when printing stops. Immediate disconnect occurs. INTRPT lamp does not light. The TEST (TRANS START) lamp may flash with Option 137.a. (If there were any characters in the buffer when the disconnect occurred) or will not flash with Option 137.a. when the IN SERV lamp extinguishes. *Note:* DATA ERROR lamp may light, depress DATA ERROR key to extinguish.	

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
15	Reload forms (without removing power). If forms are reloaded with power removed by opening of the interlock switch the IN SERV lamp will light and printing will not resume when the interlock switch is closed. Flashing of the IN SERV lamp (at approximately 15 second intervals) will not occur.	IN SERV lamp lights, audible alarm (if present) turns off and motor starts. With Option 146.a., printing resumes until buffer empties (INTRPT lamp extinguishes shortly after printing resumes); with Option 146.b. printing does not resume (one or two characters may print). With Option 137.a. IN SERV lamp remains lit after printing stops (motor starts if no printing). With Option 137.b. IN SERV lamp extinguishes momentarily after printing stops (or motor starts if no printing) and flashes off at approximately 15 second intervals. Motor turns off approximately 30 seconds to 2 minutes after printing stops (or motor starts if no printing).	
ROP TEST This test checks enabling of the (825-characters for 40C303AA/001 and 3900-characters for 40C303/AD) buffer and associated options.			
16	When instructed by DTC operator, go to data mode. (DTC sends single-character lines of numbers in sequence for 45 seconds or until transmission is stopped by ROP, followed by twelve 80-character lines of the letter C and ETX, then goes to talk mode.) *Note:* Low baudrates (110, 150 etc) may require more than 45 seconds of transmission to fill the buffer and stop the sender or cause the printer to "data stack".	With Options 17.a., 121.a., 131.a., 143.b. with data set equipped with reverse channel, 147.a. and 191.a. (factory installed), printer prints test message: 1 2 3 4 5 6 7 8 9 Ø 1 2 etc (pauses after about 35 seconds and resumes) CCCCCCCCCCCCCCCCCCCCCC etc CCCCCCCCCCCCCCCCCCCCCC etc	Check Options 17, 121, 131, 143, 147 and 191 for proper selection. Integrated ROP Terminal Analysis - Table E, Page 94.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
16 (Cont)		All numbers should be printed on single character lines (no data stacking). With Options 121.a., 131.a., 143.a., (or 143.b. with data set not equipped with reverse channel), 147.a. and 191.a., printer prints test message: 1 2 3 4 5 6 7 8 9 Ø 1 2 . . . 6 789Ø1234567 89Ø1234567 89Ø12345678 etc CCCCCCCCCCCCCCCCCCCCCC etc CCCCCCCCCCCCCCCCCCCCCC etc Lines containing 80 C characters will be printed unless the left hand margin setting (Options 121 and 131) and the right hand margin settings (Options 122 and 191) are chosen so that there are less than 80 characters per line. If there are less than 80 characters per line a full line of C characters followed by a line containing the difference between 80 and the number of characters per line will alternate. With Options 121.b. and 131.b. the left hand margin will start as specified by Option 121.b. The right hand margin will be different than that specified by 17.c. or 17.e. if the last printing column specified by Option 122 is different than 80	

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
16 (Cont)		column (17.c.) or 132 column (17.e.) (if this happens than Option 191.b. must be specified also). If results are different than that shown check options to make sure that the following option combinations are used: 17.c. or 17.e., 121.a. and 131.a. or 121.b. and 131.b., 191.a. and a diode removed representing either the 80th or 132nd printing column or 191.b. and a diode removed representing a last printing column other than 80 or 132. With Option 147.b. (not recommended), printer prints test message: 1 2345678Ø1 23456789Ø12 3456789Ø12 345678Ø1 2345678Ø1 234567890 etc CCCCCCCCCCCCCCCCCCCCCC etc CCCCCCCCCCCCCCCCCCCCCC etc Lines of single characters are stacked approximately as shown. Printer does not stop, regardless of the state of Option 143. Lines of C characters are printed as described above for Option 147.a. With Option 18.a., 39.a. or .b. No feed out or form out; motor turns off approximately 45 seconds (148.a.) or 2 minutes (148.b.) after printing stops. With Option 18.b. No immediate feed out. Feeds out to nub on form-out belt (39.a. or .b.) or 16 lines (39.b.) approximately 30 seconds (148.a.) or 2 minutes (148.b.) after printing stops.	

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
16 (Cont)	*Note 4:* This step assumes Option 135.a. is used. The use of Option 135.b. may cause line feeds and feed outs along with the IN SERV lamp flashing off to occur at approximately 30 second intervals as long as the motor runs.	With Option 18.c. (Not Recommended) Immediately forms out (39.a.) or feeds out to nub on form-out belt or 16 lines (39.b.). No further feed out with 39.a. or with 39.b. if immediate feed out resulted in from out contact resting on form-out belt nub; however, if immediate feed out did not result in form-out contact resting on form-out belt nub (39.b.) a second feed out will occur approximately 30 seconds (148.a.) or 1 minute and 45 seconds (148.b.) later. The second feed out will result in the form out contact resting on a form-out belt nub or be 16 lines. The motor turns off approximately 45 seconds (148.a.) or 2 minutes (148.b.) after printing stops. *Note 1:* Friction feed printers act as though they are arranged for Option 39.b. *Note 2:* If a form out or feed out results in the form being ejected from the printer the motor will turn off immediately (48.a.) or will turn off after the form-out contact closes (form-out contact rests on a form out belt nub) or approximately 45 seconds (148.a.) to 2 minutes (148.b.) after printing stops (48.b.). *Note 3:* INTRPT lamp will light when buffer becomes full and transmits a break signal (Option 143.a.) or drops reverse channel (Option 143.b.) See Note 4 at left.	
17	Go to talk mode and discuss results with DTC operator.		
OPTIONS TEST This test checks the error detection capability and other options of the ROP station. Both operators should go to the talk mode to discuss the results of the test.			
18	When instructed by DTC operator, go to data mode. (DTC sends message consisting of 5 NULLS, 5 DELETES, 5 CRS, 5 bad parity characters, and	With Options 149.a. and 152.a. (factory installed) or 158.c. printer prints test message:	Check Options 126, 149, 150, 152 and 158 for proper selection.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
18 (Cont)	5 BELLS, each preceded by identifying text, then ETX, then goes to talk mode.)	5 NULLS 5 DELETES 5 CRS 5 BAD PARITY 12345 5 BELLS With Options 22.a., 149.a., 152.b., and 158.b., monocase printer prints test message: 5 NULLS 5 DELETES 5 CRS 5 BAD PARITY (5 type carrier symbols) 5 BELLS Note: If Option 22.b. (foldover) is used instead of 22.a. then ^ will be printed instead of type carrier symbol. With Options 21.a., 149.a., 152.b., and 158.b., up-low printer prints test message: 5 NULLS 5 DELETES 5 CRS 5 BAD PARITY~ ~~~~ 5 BELLS *Note:* If Option 21.b. (foldover) is used instead of 21.a. then ^ will be printed instead of ~. With Options 149.b. and 152.a. or 158.c., printer prints test message: 5 NULLS 5 DELETES 5 CRS 5 BAD PARITY 12345 5 BELLS	Integrated ROP Terminal Analysis- Table E, Page 94.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
18 (Cont)		With Option 22.a., 149.b., 152.b., and 158.b., monocase printer prints test message: 5 NULLS 5 DELETES 5 CRS 5 BAD PARITY (5 type carrier symbols) 5 BELLS *Note:* If Option 22.b. (foldover) is used instead of 22.a. then ^ will be printed instead of type carrier symbol. With Options 21.a., 149.b., 152.b., and 158.b., up-low printer prints test message: 5 NULLS 5 DELETES 5 CRS 5 BAD PARITY ~ ~ ~ ~ ~ 5 BELLS *Note:* If Option 21.b. (foldover) is used instead of 21.a. then ^ will be printed instead of type carrier symbol.	

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
18 (Cont)		(With Option 158.a., all characters in all preceding test messages would be printed as substitute characters — type carrier symbol, ~ or ^ if the DTC uses even parity; if the DTC used odd parity for all preceding tests and even parity for the 5 bad parity characters in this test message, the results are the same as described for Option 158.b.) With Options 150.a. (factory installed) and 158.b. (or 158.a. with odd parity used), the DATA ERROR lamp lights when the 5 bad parity characters are received. Depress DATA ERROR key to extinguish lamp. With Options 150.b. or 158.c., DATA ERROR lamp does not light. With Option 126.a. (factory installed) or 403418 audible alarm modification kit (40C303AA/001 only) not provided, no tone is sounded when 5 BELLS are received. *Note:* Audible alarm is part of opcons 40K003/AAC and 40K005/AAC. With Option 126.b. and 403418 audible alarm modification kit 40C303AA/001 only provided, a one second tone sounds when 5 BELLS are received. (See note above.) Note: Audible alarm is part of opcons 40K003/AAC and 40K005/AAC. Refer to Step 7 for form out and feed out after receipt of ETX.	
19	Go to talk mode and discuss results with DTC operator.		

FULL ASCII TEST
This test checks the response of the ROP station to all characters of the ASCII code. Both operators should go to talk mode to discuss results of test.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
20	When instructed by DTC operator, go to data mode. (DTC sends message consisting of STX FS CR LF, CR LF, two lines of control characters, two lines of symbols and numerals, two lines of upper-case letters and symbols, and two lines of lower-case letters and symbols, terminating with EOT ETX FS.)	With monocase printer with Options 19.e., 22.b., and 23.b., printer prints test message: !"#$%&'()*+,-./0123456789:;<=>? !"#$%&'()*+,-./0123456789:;<=>? @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ With monocase printer with Options 19.e., 22.a., and 23.b., printer prints test message as above except that last two lines are replaced by font identification symbols. With monocase printer with Option 19.d., f., or g. or Option 23.a., font identification symbols appear in message, particularly in last two lines, and message may be garbled. Change options to 19.e. and 23.b. if this occurs, but first go to talk mode and inform DTC operator of results. With up-low printer with Options 19.d., 21.b., and 23.b., printer prints test message: !"#$%&'()*+,-./0123456789:;<=>? !"#$%&'()*+,-./0123456789:;<=>? @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ With up-low printer with Options 19.d., 21.a., and 23.b., printer prints test message as above except that last two lines are printed in lower case, including symbols. With up-low printer with Option 19.e., f., or g. or Option 23 .a. font identification symbols appear in message, particularly in last two	Check Options 19, 22 and 23 for proper selection. 80-Column or 132-Column Printer Analysis-Section 582-210-500.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
20 (Cont)		lines, and message may be garbled. Change options to 19.d. and 23.b. if this occurs, but first go to talk mode and inform DTC operator of results. Refer to Step 10 for form out or feed out after disconnect with Option 133.b. or Step 16 for form out or feed out after receipt of ETX with Option 133.a.	
21	Go to talk mode and discuss results with operator. (For the remainder of the integrated ROP test you may have to instruct the operator on how to conduct the test.)		
TABS TEST This test checks the horizontal and vertical tab and form feed features and options of the ROP station. Both operators should go to the talk mode to discuss the results of the test.			
22	When instructed by DTC operator, go to data mode. (DTC sends following special test message using its preset tabs:	*Note:* All results for this test assume Option 132.b., printing of escape sequences suppressed and the diode representing the last printing column (R17, bl — R33, b3) is removed, also if the last printing column is not 80 for 80-column printers and 132 for 132-column printers Option 191.b. must be enabled. With Options 122.a. or b. and 129.a., horizontal tab portion of test is printed as follows: Ø123456789 . . . COL. 1 COL. 10 COL. 20 . . . With the last printing column as 80 for 80-column printers and 132 for 132-column printers, and Options 122.a., and 129.b., horizontal tab portion of test is printed as follows: Ø123456789 . . . COL. 1 COL. 10 COL. 20 . . .	Check Options 17, 122 and 129 for proper selection. Integrated Controller Analysis-Table F, Page 97 or Table G, Page 100.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
22 (Cont)	S T Ø H_T 1 H_T 2 H_T 3 H_T 4 H_T 5 H_T 6 H_T 7 H_T 8 H_T 9 N X L 1 V_T 2 V_T 3 V_T 4 V_T 5 V_T E E E S2 S6 (10 SPACES) S1 (10 C C C SPACES) $\overset{E}{S1}\overset{C}{R}$ C COL. 1 H_T COL. 10 H_T COL. 20 HNNNNNN TLLLLLL E E S5 NNNNNN S5 F C LLLLLL C F LINE 1 V_T LINE 6 V_T LINE 12 $\overset{VF}{TS}$)	With the last printing column as 80 for 80-column printers and 132 for 132-column printers, Options 122.b. (9 or more pre-selected tab settings), and 129.b., horizontal tab portion of test is printed as follows: Ø 1 2 3 4 5 6 7 8 9 . . . COL. 1 COL. 10 COL. 20 . . . With the last printing column as 80 for 80-column printers and 132 for 132-column printers, Options 122.b. (less than 9 pre-selected tab settings—6 shown as example), and 129.b., horizontal tab portion of test is printed as follows: Ø 1 2 3 4 5 6 7 8 9 . . . COL. 1 COL. 10 COL. 20 . . . With the last printing column other than 80 for 80-column printers and 132 for 132-column printers, horizontal tabs will appear in wrong columns after first line. Example for 6 tab settings: Ø 1 2 3 4 5 6 7 8 9 If this condition occurs, change to either Option 17.c. or e. or Option 129.b., but first go to talk mode to inform DTC operator of results. With Options 123.a. or b. and 130.a., vertical tab portion of test is printed as follows: 1 2 3 4	Check for Option 17.c. (80-column printer), 17.e. (132-column printer) or proper selection of last printing column in Integrated Controller.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
22 (Cont)		5 . . . (FORM FEED) LINE 1 LINE 6 LINE 12 With Options 123.a. and 130.b., vertical tab portion of test is printed as follows: . . . 1 2 3 4 5 . . . (FORM FEED) LINE 1 LINE 6 LINE 12 With Options 123.b. (5 or more preselected tab settings) and 130.b., vertical tab portion of test is printed as follows: . . . 1 2 3	Check for Option 20.b. (double line feed) and form-feed belt selection if results differ from those shown. Check for Option 149.b. (new line substituted for CR) if extra line feeds appear.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
22 (Cont)		4 5 . . . (FORM FEED) LINE 1 LINE 6 LINE 12 With Options 123.b. (less than 5 preselected tab settings — 3 shown as example) and 130.b., vertical tab portion of test is printed as follows: . . . 1 2 3 (FORM FEED) 4 5 . . . (FORM FEED)	

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
22 (Cont)		LINE 1 LINE 6 LINE 12	
23	Go to talk mode and discuss results with DTC operator.		

SPECIAL OPTIONS TEST

This test checks the special options of the integrated controller: on-line printer control and SI/SO response. Both operators should go to talk mode to discuss results of test.

24	When instructed by DTC operator, go to data mode. (DTC sends following special test message: STX SI [Full ASCII message with SI, SO, and ¦ omitted] SO [Full ASCII message with SI, SO, and ¦ omitted] SI [Full ASCII message with SI, SO, and ¦ omitted] DC2 XXX DC4 XXX DC2 CR LF FS)	With Options 22.b., 128.a., 134.a., and 136.a. or b., monocase printer prints test message: !"#$%&'()*+,-./Ø123456789:;<=>? !"#$%&'()*+,-./Ø123456789:;<=>? @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ _ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^ _ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^ !"#$%&'()*+,-./Ø123456789:;<=>? !"#$%&'()*+,-./Ø123456789:;<=>? @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ _ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ _ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^ !"#$%&'()*+,-./Ø123456789:;<=>? !"#$%&'()*+,-./Ø123456789:;<=>? @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ _ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ _ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^ XXXXXX With Options 22.a., 128.a., 134.a., and 136.a. or b., monocase printer	Check for proper selection of Options 22, 128, 134 and 136. Integrated Controller Analysis-Table F, Page 97 or Table G, Page 100.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
24 (Cont)		prints test message as shown above except that last two lines of each Full ASCII message are replaced by font identification symbols. With Options 21.a., 128.a., 134.a., and 136.a. or b., up-low printer prints test message as shown above except that last two lines of each Full ASCII message are printed in lower case. With Options 21.b., 128.a., 134.a., and 136.a. or b., up-low printer prints test message as shown above. With Option 134.b., last line of test message is printed as follows: XXX With Options 128.b. and 136.a., first and third Full ASCII messages are printed as described above (depending on whether printer is monocase or up-low and selection of Option 21. or 22.), but second Full ASCII message is replaced by different characters — special characters if proper type carrier is used, gibberish if AA, AB, AG, or AL carrier is used. With Options 128.b. and 136.b., second Full ASCII message is printed as described above (depending on whether printer is monocase or up-low and selection of Option 21. or 22.), but first and third Full ASCII messages are replaced by different characters — special characters if proper type carrier is used, gibberish if AA, AB, AG, or AL carrier is used. If gibberish (no special symbols) is printed, indicating wrong option selection or wrong type carrier,	

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
24 (Cont)		change Option 128.b. or type carrier as required, but first go to talk mode to inform DTC operator of results.	
25	Go to talk mode and discuss results with DTC operator.		
132-COLUMN LINES TEST This test checks the ability of an 80- or 132-column ROP to receive 132-column lines. Both operators should go to talk mode to discuss results of test.			
26	When instructed by DTC operator, go to data mode. (DTC sends 132-column test message in one of two ways: (1) Model 37 wide platen test tape or equivalent sent from DATASPEED Magnetic Tape Set or equivalent. (2) DATASPEED 40 test position or equivalent sends continuous characters without new lines). *Note:* (1) is assumed throughout this step unless otherwise mentioned, since (2) is much less desirable.	80-column printer with Option 191.a., 121.a. or 131.a., and last printing column as 80 printer prints test message correctly as transmitted except that first 80 characters of each line are printed on first line with remaing 52 (or less) characters on second line, and each alternate line is printed similarly. 80-column printer with Options 191.a. or .b., 121.b., and 131.b., and last printing column as 80 (or changed) printer prints test message correctly as transmitted except that left margin begins selected number of columns to right, less than 80 characters are printed on first line (depending on the number of columns optioned for the left and right margins), and second line also has correct left margin and remainder of characters (more than 52) from first line of test message. Alternate lines are printed similarly. 132-column printer with Options 191.a. and 121.a. or 131.a., and last printing column as 132 printer prints test message correctly as transmitted.	Check for proper selection of Options 17, 121, 131, 191 and last printing column. 80-Column or 132-Column Printer Analysis—Section 582-210-500.

TABLE C (Cont)

ON-LINE CHECKOUT — "DATAPHONE" SERVICE USING
DATA SETS 202CR, 202SR, 208BR OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
26 (Cont)		132-column printer with Options 191.a. or .b., 121.b., 131.b., and last printing column as 132 (or changed) printer prints test message correctly as transmitted except that left margin begins selected number of columns to right. If full lines of 132 characters are sent, less than 132 characters are printed on first line (depending on the number of columns optioned for the left and right margin) and second line has remainder of characters from first line of test message. Alternate lines are printed similarly.	
27	Go to talk mode and discuss results with DTC operator.		
THIS COMPLETES ON-LINE CHECKOUT OF INTEGRATED ROP.			

TABLE D

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

This table checks the operation of an Integrated ROP Station in multipoint private line service via a Data Set 108D, 108E, 202T, 208A, or equivalent.

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
Check Ready-To-Receive Response to CDC			
1	Preliminary requirements: (a) Data set connected. (b) Ribbon and paper loaded. (c) Switches (top right for 40P102/ZZ and 40P153/ZZ printers; top left for 40P154/ZZ, 40P201/ZZ, 40P202/ZZ and 40P253/ZZ printers; cabinet cover raised) set as follows: LF — 1 or 2 (Option 20.a. or .b.) Test — Off Forms — On or Off (Tractor feed only) (Option 39.a. or .b.) (d) Cabinet cover closed. (e) In addition to those options in (c) the following printer options must be selected: 17.a., 17.c. (80 column) or 17.e. (132 column), 18.a. or 18.b., 19.c., 23.b., 54.a.**, 55.a.**, 56.a.**, (40P102 only - use 56.b. when 410076 circuit card is used with a 40P153/ZZ printer), 57.a.**, 58.a.**, 60.b.**, 61.c. (40P154/ZZ, 40P201/ZZ, 40P202/ZZ and 40P253/ZZ only). ** Not on printer with 410640 or 410729 circuit cards. (f) If data set 208A or equivalent is used Options 101.m., 189.a., 190.a. and 192.c. must be specified (40C303AD controller only). Turn on power.	IN SERV key is lit (if not, depress key; it should light). With Option 151.b., printer motor is not running. With Option 151.a., printer motor runs continuously with power on. If this condition occurs, change option to 151.b. Fan moves air in printer cabinet (tabletop only). Power lamp lights (Forms access cabinet only).	If results are not as stated for a particular option, verify installation of that option. Integrated ROP Terminal Analysis — Table E, Page 94.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
2	None. (Test Center sends End of Transmission code — Option 102.n. — normally ETX or EOT, followed by CDC 1.) With Option 103.a., CDC 1 is 1 character (Option 102.a.); with Option 103.b., CDC 1 is 2 characters (Options 102.a. and b.). With Option 106.a., CDC 1 is not followed by DELETE; with Option 106.b., CDC 2 is followed by DELETE.	Printer motor starts. Test Center will inform you of AB received. With Options 117.a., 127.a., 138.a., 139.a., 141.b., and 151.b. answerback is AB 1, Character 1 (Option 102.g.); with Options 117.b., 127.a., 138.a., 139.a., and 141.b., answerback is AB 1, Character 1 followed by AB 1, Character 2 (Option 102.g., 102.h.). This AB is sent immediately or almost immediately (Option 111.a.) or after a 1 to 2 second delay (Option 111.b.). With Option 127.b., 138.b., 139.b., or 141.a., no AB is received. Stop test and change options(s). *Note 1:* If CDC 1 is a single character then 102.a. and 102.b. must be coded the same. *Note 2:* If AB to CDC 1 is a single character then 102.g. and 102.h. must be coded the same.	Verify that Options 127.a., 138.a., 139.a., 141.b. and 151.b. are installed. If HDX and no AB, check for selection of Option 118.a. together with short or no clear-to-send interval at ROP data set; AB may be coming back too fast to be detected by Test Center. Verify Options 101., 102., 103., 106., 117., 156., 157., and 158. Verify that Option 140 is installed correctly for the data set supplied: all Data Sets 202 and Data Sets 108 with Option W on AR17 circuit pack require Option 140.a.; Data Sets 108 with Option V on AR17 circuit pack (not recommended) require Option 140.b.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
2 (Cont)			For Data Sets 108, verify that EIA pins 6 and 8 are strapped together. Integrated Controller Analysis-Table F, Page 97 or Table G, Page 100.
3	None. (Test Center sends End of Transmission code — Option 102.n. — normally ETX or EOT, followed by CDC 2, if different from CDC 1; otherwise, go to Step 5.) With Option 104.a., CDC 2 is 1 character (Option 102.c.); with Option 104.b., CDC 2 is 2 characters (Options 102.c. and d.). With Option 107.a., CDC 2 is not followed by DELETE; with Option 107.b., CDC 2 is followed by DELETE.	With Option 109.a., AB is sent as in Step 2; with Option 109.b., no AB sent. *Note:* If CDC 2 is a single character then 102.c. and 102.d. must be coded the same.	Verify Options 104., 107., 109., for proper selection. Integrated Controller Analysis—Table F, Page 97 or Table G, Page 100.
4	None. (Test Center sends End of Transmission code — Option 102.n. — normally ETX or EOT, followed by CDC 3, if different from CDC 2; otherwise, go to Step 5.) With Option 105.a., CDC 3 is 1 character (Option 102.e.); with Option 105.b., CDC 3 is 2 characters (Options 102.e. and f.). With Option 108.a., CDC 3 is not followed by DELETE; with Option 108.b., CDC 3 is followed by DELETE.	With Option 110.a., AB is sent as in Step 2; with Option 110.b., no AB sent. *Note:* If CDC 3 is a single character then 102.e. and 102.f. must be coded the same.	Verify Options 105., 108., and 110 for proper selection. Integrated Controller Analysis — Table F, Page 97 or Table G, Page 100.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
Check Printer Motor Turn-Off While Selected to Receive			
5	None. (Test Center sends End of Transmission code — Option 102.n.— normally ETX or EOT.) *Note 1:* Time outs may vary by as much as 50 percent. *Note 2:* With Option 148.a. the motor turns off at approximately 45 seconds after printing stops; with Option 148.b. the motor turns off between 2 and 3 minutes after printing stops. *Note 3:* Feeds will be 16 lines or to nub on form-out belt. *Note 4:* If a form out or line feed results in the form-out contact being closed (form-out contact resting on form-out belt nub - tractor feed only) subsequent form outs or feed outs may not occur. *Note 5:* Friction Feed printers act as though they are arranged for Option 39.b. *Note 6:* If a form out or feed out results in the form being ejected from the printer the motor will turn off immediately (48.a.) or will turn off after the form-out contact closes or approximately 45 seconds (148.a.) or 2 minutes (148.b.) after printing stops (48.b.).	18.a., 39(.a. or .b.), 112.a., 135.a., 137.a., and 148.a. or 18.a., 39(.a. or .b.), 112.a., 135.a., 137(.a. or .b.), 148 No feed out or form out. 18(.b. or .c.), 39(.a. or .b.), 112.a., 135.a., 137(.a. or .b.), 148(.a. or .b.) or 18(.b. or .c.), 39.a., 112.a., 135.b., 137(.a. or .b.), 148(.a. or .b.) or 18.a., 39(.a. or .b.), 112.a., 135.a., 137.a., 148.a. or 18.a., 39.a., 112.a., 135.b., 137(.a. or .b.), 148.a. or 18.a., 39.a., 112.a., 135.b., 137.b., 148.b. No immediate feed out. Form out (39.a.) or feed out (39.b.) at 30 seconds (148.a. or 135.b.) or 2 minutes and 10 seconds (148.b. and 135.a.). 18(.c. or .d.), 39.b., 112.a., 135.b., 137(.a. or .b.), 148.a. No immediate feed out. Line feed followed by feed out at 30 seconds. 18.a., 39.b., 112.a., 135.b., 137(.a. or .b.), 148.b. or 18(.b. or .c.), 39.b., 112.a., 135.b., 137(.a. or .b.), 148.b. No immediate feed out. Line feed at 30 seconds, 1 minute and 15 seconds, 1 minute and 45 seconds and 2 minutes and 15 seconds. A feed out will follow the line feed at 2 minutes and 10 seconds if the printer is optioned for 18 (.b. or .c.).	Verify Options 18, 39, 48, 112, 135, 137 and 148 for proper selection. Integrated Controller Table F, Page 97 or Table G, Page 100.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
5 (Cont)		18(.a. or .b. or .c.), 39.b., 112.b., 135.b., 137(.a. or .b.), 148.b. Immediate line feed with line feeds at 30 seconds, 1 minute and 45 seconds and 2 minutes and 10 seconds. A feed out will follow the line feed at 2 minutes and 10 seconds if the printer is optioned for 18.c. 18(.a. or .b. or .c.), 39.a., 135(.a. or .b.), 137(.a. or .b.), 148(.a. or .b.) Immediate form out, no other feed out. 18(.a. or .b. or .c.), 39.b., 112.b., 135.a., 137(.a. or .b.), 148(.a. or .b.) Immediate line feed. No other feed out (18.a.) or feed out (18.b. or .c.) at 30 seconds (148.a.) or 2 minutes and 15 seconds (148.a.). 18(.a. or .b. or .c.), 39.b., 112.b., 135.b., 137(.a. or .b.), 148.a. Immediate line feed. Line feed also at 30 seconds (18.a.) or line feeds also at 30 seconds followed by a feed out (18.b. or .c.).	
Check of Not-Ready-To-Receive Response to CDC			
6	Raise printer cabinet lid (Tabletop) or open front doors (Forms access). Friction Feed Printer Remove paper roll. Tractor Feed Printer Remove forms from printer. Place cabinet interlock switch in maintenance (extended) position.	IN SERV lamp extinguishes. Paper lamp lights, audible alarm (if present) sounds. *Note:* Audible alarm is always present with 40K003/AAC and 40K005/AAC Opcons. IN SERV lamp lights. Audible alarm (if present) stops.	Integrated ROP Terminal Analysis - Table E, Page 94.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
7	None. (Test Center sends CDC 1.)	Test Center will inform you of AB received. With Option 117.a., answer-back is AB 2 (Option 102.i.); with Option 117.b., answer-back is AB 2, AB 2 (Option 102.i. twice).	Verify Option 117 for proper selection. Integrated Controller Analysis-Table F, Page 97 or Table G, Page 100.
8	Restore paper to printer. Lower and latch printer cabinet lid (Tabletop) or close cabinet doors (Forms Access).	IN SERVICE lamp lights. PAPER lamp extinguishes.	
Check That Station Receives FOX Message			
9	None. (Test Center sends CDC 1 and receives response of Step 2.)	Printer motor starts.	
10	None. (Test Center sends a few alpha characters and then Start of Heading/ Start of Text 2 (Option 102.m.) — normally STX — and FOX.)	With Option 116.a., no characters are printed before FOX message. With Option 116.b., some characters are printed before FOX message. Printer copies FOX message correctly. Motor stays on provided ETX is not coded as Option 102.n.	Verify Option 116 for proper selection. Integrated ROP Terminal Analysis — Table E, Page 94. If half font identification symbols ≣A≣, ≣a≣, ≣5≣, or ≣J≣ are printed, verify that Option 19.c. is installed in printer.
Check Post Message Recall Feature			
11	None. (Test Center sends Interrupt character — Option 102.k. — and CDC 1 and receives AB 1 or AB 1, AB 2 as in Step 2; however, the answer-back will be sent immediately or almost immediately.)	None. (Printer motor still runs.) *Note:* If DATA ERROR lamp lit and/or substitute character printed during message response should be: 40C303AA/001 — AB3 (Option 117.a.) or AB3, AB3 (Option 117.b.). 40C303AD — If 153.a. is enabled AB1 (Option 117.a.) or AB1, AB2 (Option 117.b.). If 153.b. is enabled AB3 (Option 117.a.) or AB3, AB3 (Option 117.b.).	Verify Options 102.k., 117 and 153 for proper selection. Integrated Controller Anlaysis — Table F, Page 97 or Table G, Page 100.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
12	None. (Test Center sends Options test message.)	Printer receives Options message. With Options 20.a., 115.a., 149.a., and 152.a. or 158.c., printer prints test message: 5 NULLS 5 DELETES 5 CRS 5 BAD PARITY 12345 5 BELLS With Options 20.a., 21.a., 115.a., 149.a., 152.b., and 158.b., monocase printer prints test message: 5 NULLS 5 DELETES 5 CRS 5 BAD PARITY (5 Type Carrier Symbols) 5 BELLS *Note:* If Option 22.b. (foldover) is used instead of 22.a. then ^ will be printed instead of type carrier symbol. With Option 20.a., 21.a., 115.a., 149.a., 152.b., and 158.b., up-low printer test message: 5 NULLS 5 DELETES 5 CRS 5 BAD PARITY~~~~~ 5 BELLS *Note:* If Option 21.b. (foldover) is used instead of 21.a. then ^ will be printed instead of ~ . With Options 20.a., 115.a., 149.b. and 152.a. or 158.c., printer prints test message: 5 NULLS 5 DELETES	Verify Options 20, 115, 149, 152, and 158 for proper selection. Integrated ROP Terminal Analysis — Table E, Page 94.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
12 (Cont)		5 CRS 5 BAD PARITY 12345 5 BELLS With Options 20.a., 22.a., 115.a., 149.b., 152.b., and 158.b., monocase printer prints test message: 5 NULLS 5 DELETES 5 CRS 5 BAD PARITY (5 type carrier symbols) 5 BELLS *Note:* If Option 22.b. (foldover) is used instead of 22.a. then ^ will be printed instead of type carrier symbol. With Options 20.a., 21.a., 115.a., 149.b., 152.b., and 158.b., up-low prints test message: 5 NULLS 5 DELETES 5 CRS 5 BAD PARITY ~~~~~ 5 BELLS *Note:* If Option 21.b. (foldover) is used instead of Option 21.a. then ´ will be printed instead of ~ .	

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
12 (Cont)		(With Option 158.a., all characters in all preceding test messages would be printed as substitute characters — type carrier symbol or ~ — if the Test Center uses even parity; if the Test Center used odd parity for all preceding tests and even parity for the 5 bad parity characters in this test message, the results are the same as described for Option 158.b.) With Option 20.b., message is printed with double line spacing. With Options 150.a. (factory installed) and 158.b. (or 158.a. with odd parity used), the DATA ERROR lamp lights when the 5 bad parity characters are received. Depress DATA ERROR key to extinguish lamp. With Options 150.b. or 158.c., DATA ERROR lamp does not light. With Option 126.a. (factory installed) or 403418 audible alarm modification kit (40C303AA/001 only) not provided, no tone is sounded when 5 BELLS are received. With Option 126.b. and 403418 audible alarm modification kit (40C303AA/001 only) provided, a 1 second tone sounds when 5 BELLS are received. *Note:* An audible alarm is part of opcon 40K003/AAC and 40K005/AAC. With Option 115.b., a 4/10 second line break will be generated on the first bad parity character. (Test Center operator hears this line break as a change in tone by opening line from ROP and listening with handset.)	

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
13	None. (Test Center sends Interrupt character — Option 102.k. — and CDC 1 and receives:) 40C303AA/001 — AB 3 (117.a.) or AB 3, AB 3 (117.b.) 40C303AD — If 153.a. is enabled AB 1 (117.a.) or AB 1, AB 2 (117.b.); if 153.b. is enabled AB 3 (117.a.) or AB 3, AB 3 (117.b.).	None. (Printer motor still runs.)	Verify Options 102.k., 117 and 153 for proper selection. Integrated Controller Analysis — Table F, Page 97 or Table G, Page 100.
	Check for initialization of optional AB on Start of Heading/Start of Text 2		
14	None. (Test Center sends Start of Heading/Start of Text 2 (Option 102.m.) — normally STX, Interrupt, and CDC 1 and receives:) 40C303AA/001 — AB 3 (117.a.) or AB 3, AB 3 (117.b.) 40C303AD — If 153.a. is enabled AB 1 (117.a.) or AB 1, AB 2 (117.b.); if 153.b. is enabled AB 3 (117.a.) or AB 3, AB 3 (117.b.).		Verify Options 102.m. for proper selection. Integrated Controller Analysis — Table F, Page 97 or Table G, Page 100.
	Check for initialization of A/B on Deselect		
15	None. (Test Center sends deselect code — Option 133. — and CDC 1, receives AB 1 or AB 1, AB 2, and then sends Start of Heading/Start of Text 2 (Option 102.m.) — normally STX — (no response.))		Verify Option 133 for proper selection. Integrated Controller Analysis— Table F, Page 97 or Table G, Page 100.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
Check That Station Deselects on Received Break Signal			
16	None. (Test Center sends Break signal.)	*Note:* Refer to Step 5 for paper feed outs and motor time outs.	Verify Options 18, 39, 48, 112, 135, 137 and 148 for proper selection. Integrated ROP Terminal Analysis-Table E, Page 94.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
Check of Receiving Operation and Options			
	FOX Test		
17	None. (Test Center sends CDC 1, receives AB 1 as in Step 2, then sends Start of Heading/Start of Text 1 (Option 102.l.) — normally SOH or STX — and approximately 45 seconds of repeated FOX message, followed by twelve 80-character lines of the letter C.)	With Options 144.a., 156.c. or d., and 157.a. (for all speeds of 150 baud and above) or 157.b. (for 110 baud only), printer prints repeating FOX message correctly: THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 123456789Ø etc With Option 156.a. or b., test message will be garbled. Change option to 156.c. or d., as required, if this occurs (also see information below). Stop test and inform Test Center. With Option 157. selected incorrectly (a. for 110 baud operation or b. for 150 baud operation or higher), test message will be garbled. Change option as required if this occurs. Stop test and inform Test Center. With Option 144.b., extraneous "hit" characters may be printed in addition to FOX message here and in following tests. Change option to 144.a. if this occurs. Stop test and inform Test Center.	Verify Options 144, 156, and 157 for proper selection. Integrated ROP Terminal Analysis — Table E, Page 94. If continuous form feed occurs, check Option 156.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
17 (Cont)		With Option 17.a., 17.c. or .e. 121.a. and 131.a. (factory installed), left margin of FOX message begins at column 1.	Verify Options 17, 131, 121, and 122 for proper selection.
		With Options 17.a., 17.c. or e. and 131.b., left margin begins at first column number selected in Option 121.b. or 122.b. (normally Option 121.b., but if Options 121.a., 122.b., and 131.b. are selected, the first column selected for Option 122.b. will be interpreted as the left margin). If this occurs erroneously, change Option 131.b. to a. Stop test and inform Test Center.	If continuous form feed or line feed occurs, check Options 121 and 131. If Option 131.b. is selected either Option 121.b. or 122.b. must be selected.
		Lines containing 80 C characters will be printed unless the left hand margin setting (Options 121 and 131) and the right hand margin settings (Options 122 and 191) are chosen so that there are less than 80-characters per line. If there are less than 80 characters per line a full line of C characters followed by a line containing the difference between 80 and the number of characters per line will alternate.	
		With Options 121.b. and 131.b. the left hand margin will start as specified by Option 121.b.. The right hand margin will be different than that specified by 17.c. or .e. if the last printing column specified by Option 122 is different than 80 column in (17.c.) or 132 column (17.e.), if this happens then Option 191.b. must be specified.	Verify that diodes representing the last printing column is removed.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
	132-Column Lines Test		
18	None. (Test Center sends 132-column test message in one of two ways: (1) Model 37 wide platen test tape or equivalent sent from DATASPEED Magnetic Tape Set or equivalent. (2) DATASPEED 40 test position or equivalent sends continuous characters without new lines.) *Note:* (1) is assumed throughout this step unless otherwise mentioned, since (2) is much less desirable. In each case the test message is preceded by a Start of Heading/Start of Text 2 character (Option 102.m.) — normally STX.	80-column printer with Options 191.a. and 121.a. or 131.a., and last printing column as 80 printer prints test message correctly as transmitted except that first 80 characters of each line are printed on first line with remaining 52 (or less) characters on second line, and each alternate line is printed similarly. With 80-column printer with Options 191.a. or .b., 121.b., and 131.b., and last printing column as 80 (or changed) printer prints test message correctly as transmitted except that left margin begins selected number of columns to right, less than 80 characters are printed on first line (depending on the number of columns optioned for the left and right margins), and second line also has correct left margin and remainder of characters (more than 52) from first line of test message. Alternate lines are printed similarly. 132-column printer with Options 191.a., 121.a., 131.a., and last printing column as 132 printer prints test message correctly as transmitted. 132-column printer with Options 191.a. or .b., 121.b., and 131.b., and last printing column a 132 (or changed) printer prints test message correctly as transmitted except that left margin begins selected number of columns to right. If full lines of 132 characters are sent, less than 132 characters are printed on first line (depending on the number of columns optioned for the left and right margins) and second line also has correct left margin and remainder of characters from first line of test message. Alternate lines are printed similarly.	Verify Options 121, 131 and 191 for proper selection. 80-Column and 132-Column Printer Analysis - Section 582-210-500.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
	Full ASCII Test		
19	None. (Test Center sends Full ASCII test message without VT, HT, and FF.)	With monocase printer with Options 19.e., 22.b., and 23.b., printer prints test message: !"#$%&'()*+,-./0123456789:;<=>? !"#$%&'()*+,-./0123456789:;<=>? @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ With monocase printer with Options 19.e., 22.a., and 23.b., printer prints test message as above except that last 2 lines are replaced by font identification symbols. With monocase printer with Option 19.d., f., or g. or 23.a., font identification symbols appear in message, particularly in last 2 lines, and message may be garbled. Change options to 19.e. and 23.b. if this occurs. Stop test and inform Test Center. With up-low printer with Options 19.d., 21.b., and 23.b., printer prints test message: !"#$%&'()*+,-./0123456789:;<=>? !"#$%&'()*+,-./0123456789:;<=>? @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ With up-low printer with Options 19.d., 21.a., and 23.b., printer prints test message as above except that last 2 lines are printed in lower case, including symbols. With up-low printer with Option 19.e., f., or g. or 23.a., font identification symbols appear in message, particularly in last 2 lines,	Verify Options 19, 22 and 23 for proper selection. Integrated ROP Terminal Analysis — Table E, Page 94.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
19 (Cont)		and message may be garbled. Change options to 19.d. and 23.b. if this occurs. Stop test and inform Test Center. With Option 133.b. or 102.n. selected for EOT and Option 148.a., station deselects — motor turns off approximately 30 seconds later. With Option 133.b. or 102.n. selected for EOT and Option 148.b., station deselects — motor turns off approximately 2 minutes 30 seconds later. With Option 133.a. and Option 102.n. not selected for EOT, no deselect — motor remains on. Refer to Step 5 for form out or feed out after deselect. *Note:* If station does not deselect paper feed outs or form outs will take place depending on Options 18, 39, 112, 135, 137 and 148. Feed outs or form outs will be similar to those of Step 5 except that there will be no immediate feed or form outs.	
	RO Test		
20	None. (If station deselected in Step 19, Test Center sends CDC 1, receives AB 1 as in Step 2, then sends Start of Heading/Start of Text 2 (Option 102.m.) — normally STX — followed by RO test message. If station did not deselect in Step 19, Test Center sends RO test message.)	With Options 143.a. and 147.a., printer prints test message (only if Test Center is arranged to stop transmitting on a received line break): 1 2 3 4 5 6 7	Verify Options 143 and 147 for proper selection. Integrated ROP Terminal Analysis — Table E, Page 94.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
20 (Cont)		8 9 Ø 1 2 etc (pauses after about 35 seconds and resumes) *Note:* INTRPT lamp lights while ROP is sending break signal to DTC. With Options 143.a. (if Test Center is not arranged to stop transmitting on a received line break) or 143.b. (not recommended) and 147.a. (factory installed), printer prints test message: 1 2 3 4 5 6 7 8 9 Ø 1 2 . . . 6 789Ø1234567 89Ø1234567 89Ø12345678 etc With Option 143.a., Test Center operator should hear 4/10 second line break after 15 to 40 seconds as in Step 12. *Note:* INTRPT lamp lights while ROP is sending break signal to DTC. With Option 147.b. (not recommended), printer prints test message: 1 2345678Ø1 23456789Ø12 3456789Ø12	

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
20 (Cont)		345678Ø1 2345678Ø1 234567890 etc Lines of single characters are stacked approximately as shown. Printer does not stop, regardless of the state of Option 143.	
	Deselect Test		
21	None. (Test Center sends EOT).	With Option 133.b., station deselects on receipt of EOT. If station deselects, motor turnoff and paper feed-out occur as in Step 5.	Verify Option 133 for proper selection. Integrated Controller Analysis — Table F, Page 97 or Table G, Page 100.
22	None. (If no deselect occurred in Step 21, Test Center sends DLE EOT; if a deselect did occur in Step 21, Test Center sends CDC 1, receives AB 1 as in Step 2, then sends Start of Heading/ Start of Text 2 (Option 102.m.) — normally STX — followed by brief FOX message and DLE EOT).	If no deselect occurred in Step 21, nothing is printed. If deselect did occur in Step 21, brief FOX message is printed. With Option 133.a. or .b., station deselects. Motor turnoff and paper feed-out occur as in Step 5.	Verify Option 133 for proper selection. Integrated Controller Analysis — Table F, Page 97 (40C303AA/001) or Table G, Page 100 (40C303AD).
23	Friction Feed Only: Open cover, lift interlock, remove paper roll depress low paper lever. (If a deselect occured in Step 22, TEST CENTER sends CDC1, receives AB 1 as in Step 2, then sends Start of Heading/Start of Text 2 (Option 102.m.) — normally STX) DTC sends repeating FOX message for 30 seconds. While message is being received release low paper lever.	Paper lamp lights. 146.a. Printing will continue until	Verify Options 48 and 146 for proper selection. Integrated ROP Terminal Analysis- Table E, Page 94.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURES	RESULTS	TROUBLE ANALYSIS
23 (Cont)	*Note:* Printer Option 56.a. must be enabled.	a deselect character (DLE EOT (133.a. or .b.) or EOT (133.b.) or Option 102.m. character) is recognized. IN SERV lamp extinguishes. Option 146.b. (Not Recommended) Immediate deselect occurs (IN SERV lamp extinguishes) Printing continues for a short time (until buffer empties). *Note:* TEST (TRANS START) lamp will not flash at deselect.	
	Tractor Feed Only: Tear off forms below printer cabinet and advance paper so that form just enters cabinet. (If a deselect occured in Step 22, Test Center sends CDC 1, receives AB 1 as in Step 2, then sends Start of Heading/Start of Text 2 (Option 102.m.) — normally STX —) DTC sends repeating FOX message for 30 seconds. *Note:* This action occurs for 40C303AA/001 only. For 40C303AD the IN SERV and INTRPT lamps will not extinguish and the TEST lamp will not flash.	Paper lamp lights when some part of form remains in printer. Option 48.a. (40P153/ZZ printer with 410640 circuit card is permanently arranged for 48.a.). Printing stops, motor turns off and audible alarm if present sounds. Option 48.b. (40P153/ZZ printer with 410640 circuit card cannot be optioned for (48.b.). Printing continues until form-out contact closes (form-out contact rest on form-out belt nub). Audible alarm (if present) sounds when printing stops. Option 146.a. INTRPT lamp lights shortly after printing stops. IN SERV and INTRPT lamps extinguish approximately 45 seconds after printing stops. TEST (TRANS START lamp) flashes three times when IN SERV lamp extinguishes. (See note at left.) Option 146.b. IN SERV lamp extinguishes when printing stops. INTRPT lamp does not light. The TEST (TRANS START) lamp may flash three times approximately 30 seconds after the IN SERV lamp extinguishes. DATA ERROR lamp may light.	

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURES	RESULTS	TROUBLE ANALYSIS
23 (Cont)	Friction or Tractor Feed.	With Option 113.a. (factory installed), or 113.b. and 146.a. no deselect occurs. With Options 113.b. and 146.b., station deselects when IN SERV lamp extinguishes. With Options 114.a. (factory installed), or 113.b. and 114.b. no line break. With Options 114.b. and 113.a., 400 ms line break generated when IN SERV lamp extinguishes. Test Center will inform you if break is received correctly.	
	None. (If ROP did not deselect, Test Center sends Interrupt character (with IN SERV lit) (Option 102.k.) followed by CDC 1.)	With Option 146.a. and IN SERV still lit, Test Center receives AB 1, Character 1 or AB 1 Character 1 followed by AB 1 Character 2 as in Step 2. If IN SERV extinguishes before interrupt character and CDC 1 are sent the Test Center will not receive an answer-back. With Option 146.b. (IN SERV extinguished), Test Center does not receive answer-back.	
	Tabs Test		
24	Reload paper without removing power. (Open cover but do not turn terminal off by switch at rear.) (Test Center sends End of Transmission code (Option 102.n.) — normally ETX or EOT — followed by CDC 1. AB 1 received as in Step 2. Test Center then sends Start of Heading/Start of Text 2 (Option 102.m.) — normally STX — followed by the following special test message:	PAPER lamp extinguishes when paper is restored. Printing resumes until buffer empties (146.a.) or printing does not resume (one or two characters may be printed) (146.b.) when paper is reloaded and cover closed. If power to the terminal is removed (by switch at rear) printing will not resume (146.a. or .b.).	Verify Options 17, 122, 129, 132, 146 and 191 for proper selection. Integrated Controller Analysis — Table F, Page 97 or Table G, Page 100.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURES	RESULTS	TROUBLE ANALYSIS
24 (Cont)		*Note:* All results for this test assume Option 132.b., printing of escape sequences suppressed and the diode representing the last printing column (R17,b1- R33,b3) is removed, also if the last printing column is not 80 for 80-column printers and 132 for 132-column printers Option 191.b. must be enabled. With Option 132.a. (factory installed), 26 is overprinted on COL. 1 and 1 on COL. 10 and 20.	
	$\underset{X}{\overset{S}{T}}\emptyset\overset{H}{\underset{T}{1}}\overset{H}{\underset{T}{2}}\overset{H}{\underset{T}{3}}\overset{H}{\underset{T}{4}}\overset{H}{\underset{T}{5}}\overset{H}{\underset{T}{6}}\overset{H}{\underset{T}{7}}\overset{H}{\underset{T}{8}}\overset{H}{\underset{T}{9}}\overset{N}{L}$	With Options 122.a. or b. and 129.a., horizontal tab portion of test is printed as follows:	
	$1\overset{V}{\underset{T}{2}}\overset{V}{\underset{T}{3}}\overset{V}{\underset{T}{4}}\overset{V}{\underset{T}{5}}\overset{V}{T}$	Ø123456789 . . . COL. 1 COL. 10 COL. 20 . . .	
	$\underset{C}{\overset{E}{S2}}\ \underset{C}{\overset{E}{S6}}$ (10 SPACES) $\underset{C}{\overset{E}{S1}}$ (10 SPACES) $\underset{C}{\overset{E}{S1}}\overset{C}{R}$	With the last printing column as 80 for 80-column printers and 132 for 132-column printers and Options 122.a., and 129.b., horizontal tab portion of test is printed as follows:	
	COL. 1 $\overset{H}{T}$		
	COL. 10 $\overset{H}{T}$		
	COL. 20 $\underset{TLLLLLL}{HNNNNNN}$	Ø123456789 . . . COL. 1 COL. 10 COL. 20 . . .	
	$\underset{C}{\overset{E}{S5}}\underset{LLLLLL}{NNNNNN}\underset{C}{\overset{E}{S5}}\overset{F}{F}$		
	LINE 1 $\overset{V}{T}$	With the last printing column as 80 for 80-column printers and 132 for 132-column printers and Options 122.b. (9 or more preselected tab settings), and 129.b., horizontal tab portion of test is printed as follows:	
	LINE 6 $\overset{V}{T}$		
	LINE 12 $\underset{TS}{\overset{VF}{}}$)	Ø 1 2 3 4 5 6 7 8 9 . . . COL. 1 COL. 10 COL. 20 . . .	

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
24 (Cont)		With the last printing column as 80 for 80-column printers and 132 for 132-column printers and Options 122.b. (less than 9 preselected tab settings — 6 shown as example), and 129.b., horizontal tab portion of test is printed as follows: Ø 1 2 3 4 5 6 7 8 9 . . . COL. 1 COL. 10 COL. 20 . . . With the last printing column other than 80 for 80-column printers and 132 for 132-column printers horizontal tabs will appear in wrong columns after first line. Example for 6 tab settings: Ø 1 2 3 4 5 6 7 8 9 If this condition occurs, change to either Option 17.c. or e. or Option 129.b.. Stop test and inform Test Center. With Options 123.a. or b. and 130.a., vertical tab portion of test is printed as follows: 1 2 3 4 5 . . . (FORM FEED) LINE 1 LINE 6 LINE 12	Check for Option 17.c. (80 column or 17.e. (132 column) or proper selection of last printing column in integrated controller. Check for Option 20.b. (double line feed) and form feed belt selection if results differ from those shown. Check for Option 149.b. (new line substituted for CR) if extra line feeds appear.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
24 (Cont)		With Options 123.a. and 130.b., vertical tab portion of test is printed as follows: . . . 1 2 3 4 5 . . . (FORM FEED) LINE 1 LINE 6 LINE 12 With Options 123.b. (5 or more pre-selected tab settings) and 130.b., vertical tab portion of test is printed as follows: . . . 1 2 3 4	

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
24 (Cont)		5 . . . (FORM FEED) LINE 1 LINE 6 LINE 12 With Options 123.b. (less than 5 pre-selected tab settings — 3 shown as example) and 130.b., vertical tab portion of test is printed as follows: . . . 1 2 3 (FORM FEED) 4 5 . . .	

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURES	RESULTS	TROUBLE ANALYSIS
24 (Cont)		(FORM FEED) LINE 1 LINE 6 LINE 12	
	Special Options Test		
25	None. (Test Center sends the following special test message: SI [Full ASCII test message with SI, SO, and | omitted] SO [Full ASCII test message with SI, SO, and | omitted] SI [Full ASCII test message with SI, SO, and | omitted] D C2 D XXX D C4 D XXX D C2 CLF RFS)	With Options 22.b., 128.a., 134.a., and 136.a. or b., monocase printer prints test message: !"#$%&'()*+,-./0123456789:;<=>? !"#$%&'()*+,-./0123456789:;<=>? @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[] @ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^ | !"#$%&'()*+,-./0123456789:;<=>? !"#$%&'()*+,-./0123456789:;<=>? @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[] @ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^ | !"#$%&'()*+,-./0123456789:;<=>? !"#$%&'()*+,-./0123456789:;<=>? @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ @ABCDEFGHIJKLMNOPQRSTUVWXYZ[] @ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^ XXXXX |	Verify Options 21, 22, 128, 134 and 136 for proper selection Integrated ROP Terminal Analysis — Table E, Page 94.

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
25 (Cont)		With Options 22.a., 128.a., 134.a., and 136.a. or b., monocase printer prints test message as shown above except that last 2 lines of each Full ASCII message are replaced by font identification symbols. With Options 21.a., 128.a., 134.a., and 136.a. or b., up-low printer prints test message as shown above except that last 2 lines of each Full ASCII message are printed in lower case. With Options 21.b., 128.a., 134.a., and 136.a. or b., up-low printer prints test message as shown above. With Option 134.b., last line of test message is printed as follows: XXX With Options 128.b. and 136.a., first and third Full ASCII messages are printed as described above (depending on whether printer is monocase or up-low and selection of Option 21. or 22.), but second Full ASCII message is replaced by different characters — special characters if proper type carrier is used, gibberish if AA, AB, AG, or AL carrier is used. With Options 128.b. and 136.b., second Full ASCII message is printed as described above (depending on whether printer is monocase or up-low and selection of Option 21. or 22.), but first and third Full ASCII messages are replaced by different characters — special characters if proper type carrier is used, gibberish if AA, AB, AG, or AL carrier is used. If gibberish (no special symbols) is printed, indicating wrong option selection or wrong type carrier, change Option 128.b. or type carrier as required. Stop test and inform Test Center.	

TABLE D (Cont)

ON-LINE CHECKOUT — MULTIPOINT PRIVATE LINE SERVICE USING DATA SETS 108D, 108E, 202T, 208A, OR EQUIVALENT

STEP	PROCEDURES	RESULTS	TROUBLE ANALYSIS
	Diagnostic Test on ENQ Test		
26	None. (Test Center sends ENQ.)	With Options 124.a. and 145.a. or b., no action (not recommended). With Options 124.b. and 145.a., Test Center receives AB consisting of the 14 characters selected for the station as Option 102.a. through n.. With Options 124.b. and 145.b., Test Center receives AB as described above and AB is also printed by ROP.	Verify Options 124 and 145 for proper selection. If more than 14 characters are sent., verify that diode R14, bit 7 is cut. Integrated Controller Analysis — Table F, Page 97 or Table G, Page 100. If AB is copied with Option 145.a., or is garbled with Option 145.b., make certain data set is optioned for no local copy, if possible (Option Q for Data Sets 108D and E, Option ZB for Data Set 202T).
27	None. (Test Center sends End of Transmission code — Option 102.n. — normally ETX or EOT.)	Motor turnoff and paper feed-out occur as in Step 5.	
THIS COMPLETES ON-LINE CHECKOUT OF INTEGRATED ROP.			

3. TROUBLESHOOTING

GENERAL

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

Note: In the absence of instructions to the contrary, return all components not repairable in the field to Western Electric per local instructions.

3.02 Once the trouble has been corrected, the terminal should be checked out to be sure that it is performing properly. Refer to Part 2 for Operational Checkout.

3.03 The following caution procedures must be observed when troubleshooting a DATASPEED 40 Station or Set.

Caution 1: Turn off all power before removing or replacing any component of the DATASPEED 40 Station or Set.

Caution 2: To avoid possible internal damage to MOS circuitry, use a 346392 static discharge strap as discussed in Section 582-200-204.

3.04 To locate components, circuit cards, connectors, test switches, indicator lamps and other elements indicated in the troubleshooting information, refer to Section 582-200-704.

3.05 The troubleshooting information is divided into:

Terminal Analysis — Table E
Controller Analysis — Tables F and G

3.06 Recommended Procedures: If trouble is known, proceed with the appropriate Component Analysis, ie, printer, etc. If trouble is not known, begin with Terminal Analysis and then proceed with Controller Analysis.

TERMINAL ANALYSIS

TABLE E

INTEGRATED ROP TERMINAL ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Is IN SERVICE key lit?	Go to 2.	Make certain that PAPER alarm light if off. Make certain that power switch is on. Make certain that plug on power cord is properly seated in power outlet. If fans are running and no lamps are lit verify that printer Option 60.b. is enabled. Check Fuses: Tractor Feed — printer fuses F100, F3 and F4 (left and rear) Friction Feed — printer fuse F100 (left side), cabinet fuses F1, F2 and F3 (left side). If fuses are blown replace. If they continue to blow refer to 80-Column or 132-Column Printer Analysis Section 582-210-500 or Cabinet Analysis Section 582-212-400.

TABLE E (Cont)

INTEGRATED ROP TERMINAL ANALYSIS

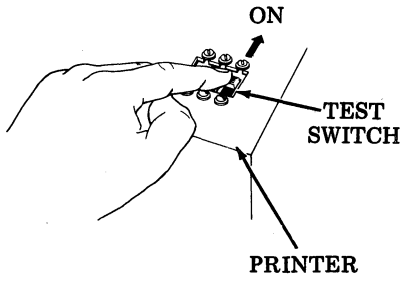
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. (Cont)		If power plug is properly connected all switches are on, and no lamps are lit, determine whether power supply in the building has failed by checking lights in the room, etc. Make certain that all connectors inside cabinet are securely mated and that printer cover is closed. For 40C303AD — Make certain that Options 101 and 192 have been implemented. Go to Cabinet Analysis — Section 582-212-400. Go to Integrated Controller Analysis — Table F, Page 97 or Table G, Page 100.
2. Does test message print correctly when TEST (TRANS START) key is depressed (IN SERV key off)?	Go to 4.	If about half of test message is replaced by font identification symbols (, etc), verify that Option 19.c. is installed. Otherwise, go to 3.
3. Does type carrier symbol print in every column when printer test switch is on and cover closed?  Open cover. Slide Test switch to ON position. Rethread paper through guide window in cover. Close cover.	Go to Integrated Controller Analysis - Table F, Page 97 or Table G, Page 100.	Go to 80-Column or 132-Column Printer Analysis — Section 582-210-500.

TABLE E (Cont)

INTEGRATED ROP TERMINAL ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
3. (Cont) Type carrier symbols should be printed until cover is reopened. Slide Test switch to OFF position.		
4. Are messages received on-line?	Go to 5.	Check data set and associated cables. Go to Integrated Controller Analysis — Table F, Page 97 or Table G, Page 100.
5. Do received messages contain errors?	Check data set and associated cables. Go to Integrated Controller Analysis — Table F, Page 97 or Table G, Page 100. Go to 80-Column or 132-Column Printer Analysis — Section 582-210-500.	Place set in service.

TABLE F

INTEGRATED CONTROLLER 40C303AA/001 ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Were any opcon lamps flashing (not ON steady or flickering rapidly)?	Refer to Opcon Lamp Analysis below. If controller trouble is indicated, go to 2; if not, take step indicated.	If no lamps are ON, verify that P3 (left side) and P12 (rear) connectors are connected firmly, printer Option 60.b. is installed and fuse F1 (143306) (left side of tractor feed printer or left side of friction feed cabinet) is good; if so, check voltages to controller using wiring diagram in Section 582-200-404. If good, go to 2. If all four lamps are ON steady, press keys. If lamps do not reset, check both fuses (4 A SL-BL fuses (129919) on rear of tractor feed printer or 1.25 A SL-BL fuses (185843) on left side of friction feed cabinet); if good, replace printer. If lamps reset when depressed, go to 4. If lamps are flickering rapidly, verify that P12 (rear) connector is connected firmly; if so, go to 5.

TABLE F (Cont)

INTEGRATED CONTROLLER 40C303AA/001 ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. (Cont)		

Opcon (40K001/AA or 40K004/AAA) Lamps Flashing

INTRPT	TEST (TRANS START)	IN SERVICE	DATA ERROR	Required Action
X				Replace data set**
X			X	Verify that connector P12 is securely mated to card. If so, replace data set**
X	X	X	X	Replace data set**
			X	Verify that SSI cable (connector P1) is securely mated to card. If so, refer to 80-Column and 132-Column Printer Analyses — Section 582-210-500**
		X	X	Verify that printer Option 57.a. is installed; if so, refer to 80-Column and 132-Column Printer Analyses — Section 582-210-500**
	X			Refer to 80-Column and 132-Column Printer Analyses — Section 582-210-500**††
	X		X	Refer to 80-Column and 132-Column Printer Analyses — Section 582-210-500**
		X		Refer to Integrated Controller Analysis — Table F, Page 97.
	X	X	X	Refer to Integrated Controller Analysis — Table F, Page 97.

**If replacing data set does not clear trouble, or if printer analysis indicates printer is good, refer to Integrated Controller Analysis — Table F, Analysis Question 2, Page 99.

††This will happen in normal operation when a tractor feed printer is used and a paper alarm occurs on-line.

Opcon Lamp Analysis

TABLE F (Cont)

INTEGRATED CONTROLLER 40C303AA/001 ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
2. Have compatible (usable) options been selected?	Go to 3.	Review Section 582-200-204 and eliminate any incompatible or undesirable option selections. Change options and retest.
3. Have all controller options (101, through 158 and 191) been verified?	Go to 4.	Check for wrong switch settings for Options 101., 156., through 158. Check for removed or open diodes of Options 102. through 155. and 191. by using modification kit 407346. Compare matrix printout with options list. Compare diode locations with locations given in Section 582-200-204 for 40C303AA/001 controller. Replace 410141 card or replace any open or incorrectly cut diodes on card with 407336 (or 177108) diodes and remove any diodes that should not be in. If all options are good, go to 4.
4. Measure voltage between P11-2 (GRD) and P11-1 on piggyback connector for 410140 variable bit timer card. Is voltage: 0 V? about +3 V? +5 V?	 Check Option 101. If good, replace 410140 card and retest. If trouble remains, replace 410727 card. Go to 5. Replace 410140 card.	
5. Replace 410727 and 410142 cards as a unit and retest. Is trouble cleared?	Go to 6.	Replace 410140 card.
6. Replace 410727 card alone (use original 410142 card) and retest. Is trouble cleared?	Original 410727 card is defective.	Original 410142 card is probably defective. Replace it alone and retest. Further trouble may indicate cables or connectors are defective. Go to Opcon Analysis — Section 582-211-500.

TABLE G

INTEGRATED CONTROLLER 40C303AD ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Were any opcon lamps flashing (not ON steady or flickering rapidly)?	Refer to Opcon Lamp Analysis below. If controller trouble is indicated, go to 2; if not, take step indicated.	If no lamps are ON, verify that P6 (left side) and P21 (rear) connectors are connected firmly. Options 60.b., 101 and 192.b. or .c. are installed and fuse F1 (143306) (left side of tractor feed printer or left side of friction feed cabinet) is good; if so, check voltages to controller using wiring diagram in Section 582-200-404. If good, go to 2. If all four lamps are ON steady, press keys. If lamps do not reset, check both fuses (4 amp SL-BL fuses (129919) on rear of printer or 1.25 A SL-BL fuses (185843) on left side of friction feed cabinet); if good, replace printer. If lamps reset when depressed, go to 4.

Opcon (40K003/AAC or 40K005/AAC) Lamps Flashing

INTRPT	TEST	IN SERV	DATA ERROR	Required Action
	X			Verify that Printer Option 57.a. is enabled. If so, refer to 80-Column and 132-Column Printer Analyses — Section 582-210-500‡‡
X		X		Refer to 80-Column and 132-Column Printer Analyses — Section 582-210-500‡‡
		X		Refer to 80-Column and 132-Column Printer Analyses — Section 582-210-500‡‡
X	X	X	X	Refer to Integrated Controller Analyses — Table G, Page 100 (Lamps are on steady-no flashing)
X				Replace Data Set‡‡
			X	Verify that SSI cable (connector P5) is securely mated to card. If so, refer to 80-Column and 132-Column Printer Analyses — Section 582-210-500‡‡
		X	X	Refer to 80-Column and 132-Column Printer Analyses — Section 582-210-500‡‡
	X	X	X	Refer to Integrated Controller Analyses — Table G, Page 100.

‡‡If replacing data set does not clear trouble, or if printer analysis indicates printer is good, refer to Integrated Controller Analysis — Table G, Analysis Question 2, Page 101.

TABLE G (Cont)

INTEGRATED CONTROLLER 40C303AD ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
2. Have compatible (usable) options been selected?	Go to 3.	Review Section 582-200-204 and eliminate any incompatible or undesirable opton selections. Change options and retest.
3. Have all controller options 101. through 158. and 189. through 193) been verified?	Go to 4. *Note:* The diode matrix print out can be obtained only if the controller is options for ASCII character set (ie. Options 127.a., 138.a. and 139.a.).	Check for wrong switch settings for Options 140, 189 and 190. Check for removed or open diodes of Options 101. through 153., 156 through 158. and 191. through 193. by removing the right most blocking keytop and depressing the key switch (with the IN SERV lamp extinguished). The printer will print out a matrix of —s for diodes "IN" and x's for diodes "OUT" or "OPEN". Compare printout with options list. Replace blocking keytop. See not at left. Replace 410734 circuit card or replace any open or incorrectly cut diodes on card with 407336 diodes and cut out any diodes that should not be in. If all options are good, go to 4.
4. Replace 410733 and 410735 cards as a unit and retest. Is trouble cleared?	Go to 5.	Replace 410734 card.
5. Replace 410737 card alone (use original 410735 card) and retest. Is trouble cleared?	Original 410737 card is defective.	Original 410735 card is probably defective. Replace it alone and retest. Further trouble may indicate cables or connectors are defective. Go to Opcon Analysis — Section 582-211-500. *Note:* Opcon Anaylsis for the 40K003/AAC can be used for the 40K005/AAC.