TELETYPE CORPORATION

Scanned

MODEL 40/3

Sets &
Stations

with 9140 STATION CONTROLLER

INSTALLATION MANUAL 395

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On the following page is a list of Teletype Corporation Product Service locations which provide maintenance service and repair on all Teletype Corporation products. For more information call toll free (US 800-323-2326) (IL 800-942-4192) 7:00 A.M. — 4:00 P.M. CST.

In addition, Teletype Corporation provides Customer Technical Training at its headquarters at 5555 W. Touhy Avenue, Skokie, IL in the northwest suburban area of Chicago. The training covers the installation, maintenance and repair of all Teletype Corporation products. Arrangements can also be made for training to be conducted at customer-selected field sites.

For information about class schedules, enrollment, tuition, on-site training or any special training needs, please contact:

Customer Technical Training Center
Teletype Corporation
5555 W. Touhy Avenue
Skokie, Illinois 60077
Telephone (312) 982-2940
TLX 25-4661
TWX 910-223-3611

SERVICE CENTERS

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	TUCSON	2050 N. FORBES BLVD., SUITE 106, TUCSON, AZ 85705	[illegible]
CALIFORNIA	▲ LOS ANGELES	5885 SHEILA, CITY OF COMMERCE, CA 90040	[illegible]
	OAKLAND	7000 EDGEWATER, SUITE 2, OAKLAND, CA 94621	[illegible]
	ORANGE COUNTY	[illegible] AVE., SUITE 5, GARDEN GROVE, CA [illegible]	[illegible]
	SACRAMENTO	4327 NORTHGATE BLVD., SACRAMENTO, CA 95834	[illegible]
	SAN DIEGO	7980 ENGINEER RD., SUITE B, SAN DIEGO, CA 92111	[illegible]
	SAN JOSE	2050 KIFER RD., SANTA CLARA, CA 95051	[illegible]
	VENTURA COUNTY	[illegible] COURT, SUITE 1, NEWBURY PARK, CA 91320	[illegible]
COLORADO	COLORADO SPRINGS	805 GARDEN OF THE GODS RD., SUITE B, COLORADO SPRINGS, CO 80907	[illegible]
	▲ DENVER	7100 BROADWAY, BUILDING 3-L, DENVER, CO 80221	[illegible]
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DIST. OF COLUMBIA	▲ LORTON, VA	NORTHERN VA INDUSTRIAL, 8001 TELEGRAPH RD., LORTON, VA 22079	[illegible]
FLORIDA	FT. LAUDERDALE	6650 N. W. 20TH AVE., FT. LAUDERDALE, FL 33309	[illegible]
	JACKSONVILLE	3601 ATLANTIC BLVD., SUITE 424, JACKSONVILLE, FL 32211	[illegible]
	MIAMI	[illegible] 167TH ST., SUITE 100, MIAMI, FL 33169	[illegible]
	ORLANDO	103 LIVE OAKS BLVD., CASSELBERRY, FL 32707	[illegible]
	TAMPA	[illegible] INDUSTRIAL BLVD., TAMPA, FL 33614	[illegible]
GEORGIA	▲ ATLANTA	2520 PARK CENTRAL BLVD., DECATUR, GA 30035	[illegible]
ILLINOIS	▲ CHICAGO NORTH	2000 EASTERN AVE., ELK GROVE VILLAGE, IL 60007	[illegible]
	▲ CHICAGO SOUTH	2800 21ST AVE., BROADVIEW, IL 60153	[illegible]
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IOWA	DES MOINES	[illegible] UNIVERSITY BLVD., DES MOINES, IA [illegible]	[illegible]
KANSAS	KANSAS CITY	8206 W. 110TH ST., OVERLAND PARK, KS 66211	[illegible]
LOUISIANA	NEW ORLEANS	5625 JEFFERSON HWY., NEW ORLEANS, LA 70123	[illegible]
MARYLAND	BALTIMORE	8800 ROUTE 108, OAKLAND RIDGE IND. CNTR., COLUMBIA, MD 21045	[illegible]
MASSACHUSETTS	BOSTON	121 FLANDERS RD., P.O. BOX 986, WESTBORO, MA 01581	[illegible]
MICHIGAN	DETROIT	12016 FARMINGTON RD., LIVONIA, MI 48150	[illegible]
	KALAMAZOO	106 E. KILGORE RD., KALAMAZOO, MI 49001	[illegible]
	LANSING	3322 S. PENNSYLVANIA AVE., LANSING, MI 48910	[illegible]
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MISSOURI	KANSAS CITY	8206 W. 110TH ST., OVERLAND PARK, KS 66211	[illegible]
	ST. LOUIS	[illegible] INDUSTRIAL DR., ST. LOUIS, MO [illegible]	[illegible]
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NEW HAMPSHIRE	MANCHESTER		[illegible]
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	EDISON	1395 ROUTE 1, EDISON, NJ 08817	[illegible]
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NEW YORK	ALBANY	4 NORMANSKILL BLVD., ELSMERE, NY 12054	[illegible]
	BUFFALO	1505 CLEVELAND DR., CHEEKTOWAGA, NY 14225	[illegible]
	LONG ISLAND	100 PARK AVENUE, BETHPAGE, NY 11714	[illegible]
	MANHATTAN	42 BROADWAY, SUITE 1632, NEW YORK, NY 10004	[illegible]
	ROCHESTER	115 METRO PARK, ROCHESTER, NY 14623	[illegible]
	SYRACUSE	6 ADLER DR., EAST SYRACUSE, NY 13057	[illegible]
NORTH CAROLINA	CHARLOTTE	[illegible] ROAD, CHARLOTTE, NC [illegible]	[illegible]
	DURHAM	[illegible], APEX, NC [illegible]	[illegible]
	GREENSBORO	701 E. MOUNTAIN ST., KERNERSVILLE, NC 27284	[illegible]
OHIO	CINCINNATI	[illegible] DRIVE, CINCINNATI, OH 45215	[illegible]
	CLEVELAND	[illegible] PKWY., SUITE F, SOLON, OH 44139	[illegible]
	COLUMBUS	2850 WORTHINGTON GALENA RD., WORTHINGTON, OH 43085	[illegible]
	TOLEDO	1100 S. REYNOLDS RD., SUITE 1, TOLEDO, OH 43615	[illegible]
OKLAHOMA	OKLAHOMA CITY	[illegible] PKWY., SUITE 350, OKLAHOMA CITY, OK 73108	[illegible]
	TULSA	[illegible] EAST AVE., TULSA, OK [illegible]	[illegible]
OREGON	PORTLAND	[illegible] DR., BEAVERTON, OR 97005	[illegible]
PENNSYLVANIA	HARRISBURG	3601 MARKET ST., CAMP HILL, PA 17011	[illegible]
	PHILADELPHIA	[illegible] ROAD, HORSHAM, PA 19044	[illegible]
	PITTSBURGH	2148 SALTSBURG ROAD, VERONA, PA 15147	[illegible]
TENNESSEE	MEMPHIS	[illegible] BLVD., SUITE B, MEMPHIS, TN 38115	[illegible]
	NASHVILLE	230 GREAT CIRCLE RD., SUITE 104, NASHVILLE, TN 37228	[illegible]
TEXAS	▲ DALLAS	[illegible] RD., SUITE 110, IRVING, TX [illegible]	[illegible]
	HOUSTON	4400 S. WAYSIDE, SUITE 105, HOUSTON, TX 77087	[illegible]
	SAN ANTONIO	[illegible] BROADWAY, SAN ANTONIO, TX 78217	[illegible]
UTAH	SALT LAKE CITY	3650 W. 2100 SOUTH, SALT LAKE CITY, UT 84120	[illegible]
VIRGINIA	LORTON (DC AREA)	NORTHERN VA INDUSTRIAL PARK, 8001 TELEGRAPH RD., LORTON, VA 22079	[illegible]
	RICHMOND	[illegible] AVE., RICHMOND, VA 23225	[illegible]
WASHINGTON	SEATTLE	825 STRANDER BLVD., KOLL COMMERCE CENTER, SEATTLE, WA 98188	[illegible]
WISCONSIN	APPLETON	224 W. WISCONSIN AVE., SUITE 3, APPLETON, WI 54911	[illegible]
	EAU CLAIRE	[illegible] ST., EAU CLAIRE, WI 54701	[illegible]
	MADISON	[illegible] BLVD., MADISON, WI 53713	[illegible]
	MILWAUKEE	440 W. RAWSON AVE., OAK CREEK, WI 53154	[illegible]
	WAUSAU	120 E. STEWART AVE., WAUSAU, WI 54401	[illegible]
CANADA	▲ TORONTO	[illegible] DR., WESTON, ONTARIO, CANADA M9L 1E1	[illegible]

▲ REGIONAL OFFICES

MODEL 40/3 SETS AND STATIONS

INSTALLATION

CONTENTS PAGE

1. GENERAL 3

2. IDENTIFICATION 4

A. GENERAL 4

B. TYPICAL STATION ARRANGEMENTS 4
1. KD (Keyboard Display) 4
2. KDP (Keyboard Display with Printer) 5
3. ROP (Receive Only Printer) 11
4. KD/ROP (Keyboard Display with Receive Only Printer) 12
5. KD & ROP (Keyboard Display and Receive Only Printer) 14
6. KDP & ROP (Keyboard Display Printer and Receive Only Printer) 16
7. KD+ROP (Keyboard Display or Receive Only Printer) 19
8. KDP+ROP (Keyboard Display with Printer or Receive Only Printer) 21
9. KD/ROP+ROP† (Keyboard Display with Receive Only Printer or Receive Only Printer) 23

C. CIRCUIT CARD ARRANGEMENTS 25
1. DISPLAY LOGIC 25
2. CONTROLLER LOGIC (KD or KDP) 26
3. CONTROLLER LOGIC (ROP) 26
4. 9140 CONTROLLER LOGIC 27

D. OPCON KEYTOP ARRANGEMENTS 30
1. ROP OPCON — 40K301/AAA 30
2. KEYBOARD OPCON — 40K301/CAH 30
3. KEYBOARD OPCON — 40K301/CAG 31
4. KEYBOARD OPCON — 40K301/CAN 31
5. KEYBOARD OPCON — 40K301/CAL 32

3. INSTALLATION

A. INSTALLATION OUTLINE 32

B. UNPACKING INSTRUCTIONS 33

C. STATION ASSEMBLY 34
1. PEDESTAL ASSEMBLY 34
2. ELECTRONICS PACKAGE ASSEMBLY (Electronics Under Monitor or Adjacent for KD and KDPs) 34
3. ELECTRONICS PACKAGE ASSEMBLY (Electronics in Pedestal for KDPs) 41
4. ELECTRONICS PACKAGE — ROP WITH 40C103 CONTROLLER 45
5. OPCON ASSEMBLY 46
6. MONITOR ASSEMBLY 46
7. FRICTION FEED PRINTER ASSEMBLY 48
8. TRACTOR FEED PRINTER ASSEMBLY 50
9. FORMS ACCESS PRINTER ASSEMBLY 51
10. 9140 STATION CONTROLLER ASSEMBLY 55
11. CABLING 57
12. DATA SETS 69
13. MODIFICATION KITS 70

MODEL 40/3 SETS AND STATIONS

INSTALLATION (Contd)

CONTENTS

PAGE

4. OPTIONS 73
   - A. GENERAL 73
   - B. ACTIVATING SET OR STATION OPTIONS 77
   - C. 40/2 OPTION LOCATION CHART 79
   - D. 9140 CONTROLLER OPTION LOCATION CHART 80
   - E. 40C202 CONTROLLER OPTIONS 81
   - F. 40C103 CONTROLLER OPTIONS 86
   - G. PRINTERS OPTIONS 88
   - H. 9140 CONTROLLER OPTIONS 98
   - I. INDIVIDUAL RECEIVER SELECTION (IRS) MODIFICATION KIT OPTIONS 110
   - J. 40/3 STATION FEATURES AND OPTIONS RECORD 114

5. TESTING AND TROUBLESHOOTING 123
   - A. GENERAL 123
   - B. PRELIMINARY CHECK 124
   - C. BRIEF OFF-LINE CHECKOUT 124
   - D. OFF-LINE CHECKOUT 124
     - TABLE A — BRIEF OFF-LINE CHECKOUT — KD AND KDP TERMINALS 125
     - TABLE B — COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS 139
     - TABLE C — OFF-LINE CHECKOUT — ROP TERMINALS 143
   - E. TROUBLESHOOTING 146
     - TABLE D — TERMINAL ANALYSIS 147
     - TABLE E — DISPLAY LOGIC 154
     - TABLE F — KD OR KDP CONTROLLER 157
     - TABLE G — 40C103 ROP CONTROLLER 160

6. WIRING DIAGRAMS 163
   - A. GENERAL 163
   - B. WIRING DIAGRAMS 164

7. ADJUSTMENTS 201

8. TOOLS AND SUPPLIES 201

PART 1 — GENERAL

This manual provides the procedures for installation and checkout of Model 40/3 Sets and Stations with 9148 Station Controllers, hereafter referred to as 40/3.

Supplemental information can be found in the following Service Manuals:

352 Model 40 Shop Manual
355 Model 40 Printer Shop Manual
368 Integrated Model 40 ROP Stations
398 Model 40 Printers — Service
400 Model 40 Operator Consoles — Service
401 Model 40 Display Monitor — Service
402 Model 40 Power Supply — Service
403 Model 40 Cabinets, Paper Winder and Facilities — Service
426 Model 40 Printers — Installation

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

The following Danger and Warning notices are to be observed as safety measures for the craftsperson and the apparatus.

Danger: Safety glasses must be worn whenever monitor cover is removed or whenever monitor is replaced.

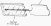
Warning 1: Turn off all power and signal sources before removing or replacing any component.

Warning 2: To avoid possible internal damage to circuitry, wear a 346392 static discharge strap connected to ground to allow static discharge before handling circuit cards for removal or replacement. Avoid touching circuit lands or components as much as possible.

Attach static ground strap tightly to wrist.

Attach clip end of static discharge strap to frame ground.

Warning 3: Place each circuit card, except monitor circuit cards in a 406260 static bag immediately after removal from unit. Do not place any printer paper in the bag with the card. Keep the card in the static bag at all times. Never handle the card outside the bag without wearing a properly grounded 346392 static ground strap.



PART 2 – IDENTIFICATION
A. GENERAL

Identification of the 40/3 terminal and its features is important to the shop or field craftsperson. Knowing what features are provided and how those features are programmed to operate provide the basic understanding necessary for installation, operational checkout, or "in the field" service call routines. Several methods are presented in the following paragraphs for determining terminal features and optioning.

Features included in a terminal can be identified by observing if certain keytops are provided on the operator console, or if a certain type or quantity of printed circuit cards are present in the display controller and display logic circuitry.

Optioning on the 40/3 terminal should be recorded in J. 40/3 STATION FEATURES AND OPTIONS RECORD (Pages 112 through 122). Features and options must be recorded by checking (✓) on the variable number in the appropriate square. Features and modification on the terminal that are not listed in J. 40/3 STATION FEATURES AND OPTIONS RECORD should be written in, using the available space.

B. TYPICAL STATION ARRANGEMENTS

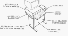
Note 1: The 40MN101 display monitor is used with a 60 Hz power source. Substitute the 40MN201 display monitor for 50/60 Hz power source.

Note 2: Specific opcon codes and keytop arrangements are detailed on Pages 30, 31, 32.

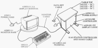
Note 3: Data sets used in 40/3 applications are listed on Page 69.

1. KD (Keyboard Display)

KD Stations consist of a keyboard (opcon), display monitor, logic package, 8140 Station Controller and a data set assembled in either of the arrangements shown following. The free standing arrangement requires the 408890 modification kit for remote operation of the opcon and display monitor.



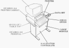
KD Station, Pedestal Mounted


40MS101/AA
DISPLAY MONITOR
40S611
POWER CORD
MONITOR
CABLE
DATA SET
CABLE
TABLE TOP
(401531 – 24")
(401532 – 28")
(401533 – 34")
40PS1/41
POWER SUPPLY
40C201/BE
CONTROLLER
40DL201/ZZ
DISPLAY LOGIC
40MB101
MONITOR BASE
9140 STATION CONTROLLER
AND 345665 CABLE
40CAB601/AG
PEDESTAL
40K101
OPCON
40BK201
OPCON BASE

KD Station, Free Standing

2. KDP (Keyboard Display with Printer)

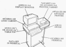
KDP stations resemble KD stations, with a printer added to provide copy of transmitted and received data. In the arrangements detailed below and on succeeding pages, printers shown on separate pedestals may be mounted on user supplied tables having, if tractor feed printers, the proper paper feed slot. The free standing arrangements require the 408550 modification kit for remote operation of the opcon and display monitor.


40MS101/AA
DISPLAY MONITOR
40P101/ZZ
OR 40P102/ZZ
PRINTER
40CAB201/AA
PRINTER CABINET
DATA SET
40K101
OPCON
401532 (28")
TABLE TOP
LOGIC
MODULE
40CAB601/AG
PEDESTAL
9140 STATION
CONTROLLER

KDP Station, Single Pedestal, Friction Feed Printer Under Monitor

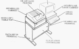
B. TYPICAL STATION ARRANGEMENTS (Cont'd)

2. KDP (Keyboard Display with Printer) (Cont'd)

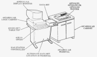

40EN101/AA
DISPLAY MONITOR
*40CAB371/AA
OR 40CAB381/AA
PRINTER CABINET
40P101/ZZ OR
40P102/ZZ
PRINTER
40CAB351/AB
LOGIC CABINET
40K101
OPCON
401311 (30")
OR 401322 (34")
TABLE TOP
40CAB901/AB
PEDESTAL
DATA SET
IN PEDESTAL
9140 STATION
CONTROLLER

*Noise reduced cabinet.

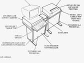
KDP Station, Single Pedestal, Friction Feed Printer Adjacent to Logic Cabinet


40EN101/AA
DISPLAY MONITOR
40P151/ZZ
OR 40P154/ZZ
PRINTER
40CAB561/ZZ
CABINET
40CAB351/AB
LOGIC CABINET
40K101
OPCON
401313 (30")
TABLE TOP
40CAB901/AB
PEDESTAL
DATA SET IN
PEDESTAL
9140 STATION
CONTROLLER

KDP Station, Single Pedestal, 80-Column Tractor Feed Printer Adjacent to Logic Cabinet


40DSU11/AA
DISPLAY MONITOR
DATA SET
40P152/ZZ,
40P153/ZZ OR
40P215/ZZ
PRINTER
40CAB211/AB
LOGIC CABINET
40US2 (29")
TABLE TOP
40CAB302/AB
CABINET
40K131
OPCON
9140 STATION
CONTROLLER
40CAB201/AB
PEDESTAL
ALTERNATE DATA SET
LOCATION IN PEDESTAL

KDP Station, Single Pedestal, Separate Forms Access Printer and Cabinet

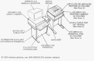

40DSU11/AA
DISPLAY MONITOR
*40CAB711/AA
OR 40CAB201/AA
PRINTER CABINET
40P131/ZZ OR
40P200/ZZ
PRINTER
40CAB201/AB
LOGIC CABINET
40US11 (20")
TABLE TOP
(Paper Slot
Unused)
40US2 (29")
TABLE TOP
40CAB601/AA
PEDESTAL
DATA SET
40K131
OPCON
ALTERNATE DATA SET
LOCATION IN PEDESTAL
9140 STATION
CONTROLLER
40CAB601/AB
PEDESTAL

*Noise reduced cabinet.

KDP Station, Friction Feed Printer on Separate Pedestal

B. TYPICAL STATION ARRANGEMENTS (Cont'd)

2. KDP (Keyboard Display with Printer) (Cont'd)


40MN101/AA
DISPLAY MONITOR
40K101
OPCON
40P151/ZZ OR 40P154/ZZ
PRINTER 80 COLUMN
(See Note 2)
40CAB211/AB
LOGIC CABINET
40CAB351/AA
PRINTER CABINET
80 COLUMN
(See Note 1)
401914 TABLE TOP
(24" Slotted)
(See Note 3)
401502 (29")
TABLE TOP
40CAB902/AA
PEDESTAL FOR
80 COLUMN
(See Note 4)
ALTERNATE DATA SET
LOCATION IN PEDESTAL
DATA SET
8143 STATION
CONTROLLER
40CAB901/AB
PEDESTAL

Note 1: If 132 column printer, use 40CAB352/ZZ printer cabinet.

Note 2: If 132 column printer, use either 40P201/ZZ or 40P202/ZZ printer.

Note 3: If 132 column printer, use 401913 table top (27 inch slotted).

Note 4: If 132 column printer, use 40CAB904/AA pedestal.

KDP Station, Tractor Feed Printer (80- or 132-Column) on Separate Pedestal

*Noise reduced cabinet.

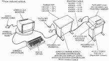


TABLE TOP
(401531 — 24")
(401531 — 29")
(401533 — 34")
PRINTER CABLE
241893 — 3 Ft
403306 — 6 Ft
403307 — 10 Ft
403308 — 25 Ft
403309 — 50 Ft
*40CAB071/AA
OR 40CAB001/AA
PRINTER CABINET
40MON181/AA
MONITOR
405411
POWER CORD
DATA SET
CABLE
40MBE101
MONITOR
BASE
40P101/ZZ OR
40P102/ZZ
PRINTER
40CAB001/AG
PEDESTAL
40CAB001/AA
PEDESTAL
40OBE001
OPCON BASE
40K101
OPCON
40PSU101 POWER SUPPLY,
40C002BP CONTROLLER
40DL201/ZZ DISPLAY LOGIC
AND 9148 STATION CONTROLLER
WITH 243603 CABLE
401911 TABLE
TOP (30")
(Paper Slot Unused)

KDP Station, Free Standing Opcon and Monitor, Friction Feed Printer on Separate Pedestal

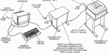
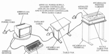


TABLE TOP
(401531 — 24")
(401531 — 29")
(401533 — 34")
40CAB051/ZZ
PRINTER
CABINET
40P151/ZZ
OR 40P154/ZZ
PRINTER
40MON181/AA
MONITOR
405411
POWER CORD
DATA SET
CABLE
40MBE101
MONITOR
BASE
40OBE001
OPCON BASE
40K101
OPCON
40CAB001/AG
PEDESTAL
40PSU101 POWER SUPPLY,
40C002BP CONTROLLER
40DL201/ZZ DISPLAY LOGIC
AND 9148 STATION CONTROLLER
WITH 243603 CABLE
401911 TABLE
TOP (30" Slotted)
40CAB001/AA
PEDESTAL

KDP Station, Free Standing Opcon and Monitor, Tractor Feed Printer (80-Column) on Separate Pedestal

8. TYPICAL STATION ARRANGEMENTS (Contd)

2. KDP (Keyboard Display with Printer) (Contd)


40PSU161 POWER SUPPLY,
40C203BF CONTROLLER
40DL201/ZZ DISPLAY LOGIC
AND 9140 STATION CONTROLLER
WITH 243632 CABLE
40CAB161/ZZ PRINTER CABINET
40P201/ZZ PRINTER
40MN161/AA MONITOR
485611 POWER CORD
DATA SET CABLE
40MBS161 MONITOR BASE
40MBS201 OPCON BASE
40B161 OPCON
40CAB001/AC PEDESTAL
TABLE TOP
(401531 — 24")
(401531 — 29")
(401533 — 34")
40CAB001/AA PEDESTAL
401913 TABLE TOP (17" Sloped)

KDP Station, Free Standing Opcon and Monitor, Tractor Feed Printer (132 Column) on Separate Pedestal

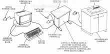
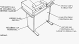


TABLE TOP
(401531 — 24")
(401531 — 29")
(401533 — 34")
40P155/ZZ
40P613/ZZ
OR 40P553/ZZ
PRINTER
40MN161/AA MONITOR
485611 POWER CORD
DATA SET CABLE
40MBS161 MONITOR BASE
40MBS201 OPCON BASE
40B161 OPCON
40CAB001/AC PEDESTAL
40PSU161 POWER SUPPLY,
40C203BF CONTROLLER
40DL201/ZZ DISPLAY LOGIC
AND 9140 STATION CONTROLLER
WITH 243632 CABLE
40CAB203/AB CABINET

KDP Station, Free Standing Opcon and Monitor, Separate Forms Access Printer and Cabinet

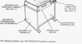
3. ROP (Receive Only Printer)

These ROP arrangements have pedestal mounted 40C103AD Controllers that include a 1,000 character buffer. ROP friction, tractor or forms access stations having printer cabinet mounted 40C303 Integrated Controllers and described in Manual 380 may be substituted for the ROP arrangements shown here.


40P101/ZZ OR 40P102/ZZ PRINTER
DATA SET
*40CAB071/AA OR 40CAB081/AC PRINTER CABINET
40C133 (29") TABLE TOP
40K0011/AAA OPCON
8140 STATION CONTROLLER
40CAB001/AF PEDESTAL
40C103/AD CONTROLLER LOGIC IN PEDESTAL

*Noise reduced cabinet.

ROP Station, Friction Feed Printer


40P151/ZZ OR 40P154/ZZ PRINTER (See Note 2)
DATA SET
40CAB051/AD PRINTER CABINET (See Note 1)
401913 TABLE TOP (31" Slotted) (See Note 3)
40C103/AD CONTROLLER LOGIC IN PEDESTAL
8140 STATION CONTROLLER
40CAB001/AF PEDESTAL
40K001/AAA OPCON

Note 1: If 132 column printer, use 40CAB353/ZZ printer cabinet.

Note 2: If 132 column printer, use either 40P201/ZZ or 40P202/ZZ printer.

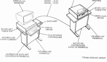
Note 3: If 132 column printer, use 401915 table top (39 inch slotted).

ROP Station, Tractor Feed Printer (80 or 132 Column)

B. TYPICAL STATION ARRANGEMENTS (Cont'd)

4. KD-ROP (Keyboard Display with Receive Only Printer)

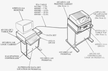
With these KD-ROP arrangements the operator may direct received data to the KD, ROP, or both. The 40C103/AD controller associated with the ROP includes a 1,000 character buffer that eliminates printer data stacking when successive short lines of data are received. The operator may also direct transmitted data to the ROP when local copy is desired. ROP friction, tractor or forms access sets having printer cabinet mounted 40C103 Integrated Controllers and described in Manual 393 may be substituted for the ROP portion of the arrangements shown.



EIA CABLE
341096 — 3 Ft
400065 — 7 Ft
400066 — 12 Ft
400067 — 25 Ft
400068 — 50 Ft
*40CAB371/AA OR 40CAB381/AC PRINTER CABINET
40P101/ZZ OR 40P102/ZZ PRINTER
40MN101/AA MONITOR
401501 (24") TABLE TOP
40MS01/AAA OPCON
DATA SET
40B101 OPCON
40 STATION CONTROLLER
401502 (28") TABLE TOP
40CAB351/AB LOGIC CABINET
40CAB601/AF PEDESTAL
40C103/AD CONTROLLER LOGIC IN PEDESTAL
40CAB601/AE PEDESTAL
ALTERNATE DATA SET LOCATION IN PEDESTAL

*Noise reduced cabinet.

KD-ROP Station, Friction Feed Printer


40MN101/AA
MONITOR
EIA CABLE
841590 — 5 Ft
408365 — 7 Ft
408366 — 12 Ft
408367 — 25 Ft
408368 — 50 Ft
40CAB351/AB
PRINTER CABINET
(See Note 1)
40P151/ZZ
OR 40P164/ZZ
PRINTER
(See Note 2)
401501 (36")
TABLE TOP
DATA SET
401914 (24")
TABLE TOP
(See Note 3)
40CAB101/AB
LOGIC CABINET
40K101
OPCON
40K001/AAA
OPCON
40CAB901/AF
PEDESTAL
40C133/AD
CONTROLLER
LOGIC IN PEDESTAL
8140 STATION
CONTROLLER
40CAB901/AB
PEDESTAL
ALTERNATE DATA SET
LOCATION IN PEDESTAL

Note 1: If 132 column printer, use 40CAB353/ZZ printer cabinet.

Note 2: If 132 column printer, use either 40P201/ZZ or 40P202/ZZ printer.

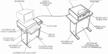
Note 3: If 132 column printer, use 401933 table top (27.6 inch slotted).

KD-KDP Station, Tractor Feed Printer (80 or 132 Column)

E. TYPICAL STATION ARRANGEMENTS (Contd)

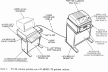
1. KD & ROP (Keyboard Display and Receive Only Printer)

KD & ROP arrangements provide simultaneous send and receive capability. Received data is directed only to the ROP and transmitted data emanates from the KD. There is no provision for using the ROP for local copy or on line copy of transmitted data. ROP friction, tractor or forms access sets having printer cabinet mounted 40C102 Integrated Controllers and described in Manual 380 may be substituted for the ROP position of the arrangements shown.


40BB0411AA
MONITOR
245613
INTERFACE
CABLE
*40CAB711AA
OR 40CAB701AC
PRINTER CABINET
40P101ZZ
OR 40P101EZ
PRINTER
401321 (24")
TABLE TOP
40B001AAA
OPCON
DATA SET
40CAB711AB
LOGIC CABINET
40K101
OPCON
401322 (28")
TABLE TOP
40CAB801AB
PEDESTAL
9140 STATION
CONTROLLER
ALTERNATE DATA SET
LOCATION IN PEDESTAL
40CAB801AF
PEDESTAL
40C101AB
CONTROLLER
LOGIC IN PEDESTAL

*Noise reduced cabinet.

KD & ROP Station, Friction Feed Printer


40CAB351/AB
PRINTER CABINET
(See Note 1)
40MN151/AA
MONITOR
240613
INTERFACE
CABLE
40P151/ZZ
OR 40P152/ZZ
PRINTER
(See Note 2)
401590 (30")
TABLE TOP
401814
TABLE TOP
(24" Slotted)
(See Note 3)
DATA SET
40K181
OPCON
40CAB301/AB
LOGIC CABINET
9140 STATION
CONTROLLER
40K201/AAA
OPCON
40C100/AB
CONTROLLER
LOGIC IN PEDESTAL
ALTERNATE DATA SET
LOCATION IN PEDESTAL
40CAB601/AH
PEDESTAL
40CAB601/AF
PEDESTAL

Note 1: If 132 column printer, use 40CAB352/ZZ printer cabinet.

Note 2: If 132 column printer, use 40P201/ZZ or 40P202/ZZ printer.

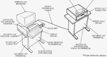
Note 3: If 132 column printer, use 401912 table top (27.6 inch slotted).

KD & ROP Station, Tractor Feed Printer (80 or 132 Column)

B. TYPICAL STATION ARRANGEMENTS (Contd)

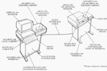
6. KDP & ROP (Keyboard Display Printer and Receive Only Printer)

KDP & ROP arrangements provide simultaneous send and receive capability. Received data is directed only to the ROP. Transmitted data emanates from the KDP with the associated printer providing on-line or local copy, as desired. ROP friction, tractor or forms access sets having printer cabinet mounted 40C303 Integrated Controllers and described in Manual 303 may be substituted for the ROP portion of the arrangements shown.


40BM101/AA MONITOR
40P101/ZZ OR 40P102/ZZ PRINTER
40CAB201/AA PRINTER CABINET
401332 (29") TABLE TOP
40CAB001/AG PEDESTAL
245613 INTERFACE CABLE
DATA SET
40E101 OPCON
LOGIC MODULE IN PEDESTAL
5145 STATION CONTROLLER
40P101/ZZ OR 40P102/ZZ PRINTER
*40CAB271/AA OR 40CAB201/AC PRINTER CABINET
401331 (34") TABLE TOP
40E001/AAA OPCON
40CAB001/AF PEDESTAL
40C303/AD CONTROLLER LOGIC IN PEDESTAL

*Noise reduced cabinet.

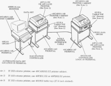
KDP & ROP Stations, Friction Feed Printers


40CAB201/AA PRINTER CABINET
40MN101/AA MONITOR
40P101/ZZ OR 40P102/ZZ PRINTER
345613 INTERFACE CABLE
40P101/ZZ OR 40P102/ZZ PRINTER
*40CAB271/AA OR 40CAB201/AC PRINTER CABINET
DATA SE
40K001/AA OPCON
40CAB251/AB LOGIC CABINET
401333 (34") TABLE TOP
40K101 OPCON
401332 (29") TABLE TOP
40CU251/AD CONTROLLER LOGIC IN PEDESTAL
40CAB801/AB PEDESTAL
2540 STATION CONTROLLER
40CAB801/AF PEDESTAL
ALTERNATE DATA SET LOCATION IN PEDESTAL
*Note reduced cabinet

KDP & ROP Stations, Friction Feed Printers (Contd)

B. TYPICAL STATION ARRANGEMENTS (Contd)

6. KDP & ROP (Keyboard Display Printer and Review Only Printer) (Contd)


40MN110/AA
MONITOR
40CAB311/AB
LOGIC CABINET
DATA SET
40P131/ZZ
OR 40P134/ZZ
PRINTER
(See Note 2)
40CAB351/AB
PRINTER CABINET
(See Note 1)
40IR14
TABLE TOP
(24" Slotted)
(See Note 3)
40K101
OPCOS
40CAB001/AB
PEDESTAL
9140 STATION
CONTROLLER
ALTERNATE DATA SET
LOCATION IN PEDESTAL
40CAB001/AB
PEDESTAL
94568
PRINTER
INTERFACE
CABLE
40CAB351/AB
PRINTER CABINET
(See Note 1)
40IR14
TABLE TOP
(24" Slotted)
(See Note 3)
41E301/AAA
OPCOS
40P131/ZZ
OR 40P134/ZZ
PRINTER
(See Note 2)
40CAB001/AF
PEDESTAL
40C101/AD
CONTROLLER
LOGIC IN PEDESTAL

Note 1: If 132 column printer, use 40CAB352/ZZ printer cabinet.

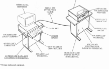
Note 2: If 132 column printer, use 40P201/ZZ or 40P202/ZZ printer.

Note 3: If 132 column printer, use 40IR13 table top (27.6 inch slotted).

KDP & ROP Station, Tractor Feed Printers (80 or 132 Column)

7. KD+ROP (Keyboard Display or Receive Only Printer)

KD+ROP arrangements include the 244555 Individual Receive Selection (IRS) modification kit and other components required for selectively directing incoming data to the KD or to the ROP. The primary receiver, usually the ROP, is selected to receive and print data addressed with the primary (CDC 1) or broadcast (CDC 2) call directing codes. The secondary receiver, usually the KD, receives and displays data addressed with the secondary (CDC 3) call directing code. An optional feature is to have the ROP print local copy of data transmitted from the KD in response to a Transmitter Start Code (TSC). ROP friction, tractor or form access sets having printer cabinet mounted 40C303 Integrated Controllers and described in Manual 260 may be substituted for the ROP portion of the arrangements shown provided a pedestal is included with the friction or tractor sets for housing the IRS logic and power supply package.

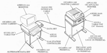

*40CAB371/AA
OR 40CAB301/AC
PRINTER CABINET
40BN101/AA
MONITOR
244545 IRS
INTERFACE
CABLE
10 Ft
40P101/ZZ
OR 40P102/ZZ
PRINTER
401321 (24")
TABLE TOP
DATA SET
40K301/AAA
OPCON
40CAB301/AB
LOGIC CABINET
40K101
OPCON
40CAB301/AF
PEDESTAL
401322 (29")
TABLE TOP
0146-STATION
CONTROLLER
40C303/AD
CONTROLLER
LOGIC IN PEDESTAL
ALTERNATE DATA SET
LOCATION IN PEDESTAL
40CAB301/AE
PEDESTAL
IRS LOGIC AND
POWER SUPPLY
IN PEDESTAL

*Noise reduced cabinet.

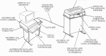
KD+ROP Station, Friction Feed Printer

8. TYPICAL STATION ARRANGEMENTS (Contd)

7. KD+ROP (Keyboard Display or Receive Only Printer) (Contd)


40MN001/AA MONITOR
344043 DES INTERFACE CABLE 10 Ft
40CAB011/AB PRINTER CABINET
40P101/XZ OR 40P104/XZ PRINTER
40K001/AAA OPCON
401814 TABLE TOP (24" Slotted)
40CAB011/AB LOGIC CABINET
DATA SET
401332 (29") TABLE TOP
40K101 OPCON
9140 STATION CONTROLLER
40C193/AD CONTROLLER LOGIC IN PEDESTAL
ALTERNATE DATA SET LOCATION IN PEDESTAL
40CAB001/AB PEDESTAL
40CAB001/AF PEDESTAL
DSS LOGIC AND POWER SUPPLY IN PEDESTAL

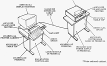
KD+ROP Station, Tractor Feed Printer (80 Column)


40CAB033/XZ PRINTER CABINET
40MN001/AA MONITOR
344043 DES INTERFACE CABLE 10 Ft
40P301/XX OR 40P302/XZ PRINTER
40CAB011/AB LOGIC CABINET
401812 TABLE TOP (71.5" Slotted)
DATA SET
401332 (29") TABLE TOP
40K001/AAA OPCON
40K101 OPCON
40CAB001/AB PEDESTAL
40CAB001/AF PEDESTAL
40C193/AD CONTROLLER LOGIC IN PEDESTAL
9140 STATION CONTROLLER
ALTERNATE DATA SET LOCATION IN PEDESTAL
DSS LOGIC AND POWER SUPPLY IN PEDESTAL

KD+ROP Station, Tractor Feed Printer (132 Column)

8. KDP+ROP (Keyboard Display with Printer or Receive Only Printer)

KDP+ROP arrangements include the 344558 Individual Receiver Selection (IRS) modification kit and other components required for selectively directing incoming data to the KDP or to the ROP. These stations function similar to the KD+ROP stations described in 7. KD+ROP (Keyboard Display or Receive Only Printer), except that the KD associated printer provides copy of data transmitted from or directed to the KD. The ROP only serves as a primary receiver called in by CDC 1 or CDC 2. Any of the KDP stations described in 2. KDP (Keyboard Display With Printer) may be substituted for the KDP portion of the arrangements shown here. Similarly, ROP friction, tractor or forms access sets described in Manual 380 may be substituted for the ROP portion of the arrangements shown provided a pedestal is included with the friction and tractor sets for housing the IRS logic and power supply package.

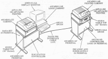

*40CAB871/AA OR 40CAB891/AC PRINTER CABINET
40MN101/AA DISPLAY MONITOR
344545 IRS INTERFACE CABLE 10 Ft
40P101/ZE OR 40P102/ZE PRINTER
401581 (34") TABLE TOP
40K101/AAA OPCON
40P101/ZE OR 40P102/ZE PRINTER
DATA SET
40CAB891/AA PRINTER CABINET
40K101 OPCON
40C101/AD CONTROLLER LOGIC IN PEDESTAL
401583 (52") TABLE TOP
40CAB891/AF PEDESTAL
IRS LOGIC AND POWER SUPPLY IN PEDESTAL
LOGIC MODULE IN PEDESTAL
40CAB891/AD PEDESTAL
8140 STATION CONTROLLER

*Noise reduced cabinet.

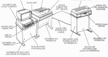
KDP+ROP Station, Friction Feed Printers

B. TYPICAL STATION ARRANGEMENTS (Contd)

8. KDP+ROP (Keyboard Display with Printer or Receive Only Printer) (Contd)


40MN101/AA
DISPLAY MONITOR
40CAB551/AB
LOGIC CABINET
40P151/ZZ
OR 40P154/ZZ
PRINTER
40CAB551/ZZ
CABINET
40K101
OPCON
DATA SET
IN PEDESTAL
344545 IRS
INTERFACE
CABLE
15 Ft
401R33
TABLE TOP
(33" Slotted)
40CAB851/AH
PEDESTAL
9040 STATION
CONTROLLER
40CAB551/AB
PRINTER CABINET
40P151/ZZ
OR 40P154/ZZ
PRINTER
401R14
TABLE TOP
(34" Slotted)
40K801/AAA
OPCON
40CAB901/AF
PEDESTAL
40C103/AD
CONTROLLER
LOGIC IN PEDESTAL
IRS LOGIC AND
POWER SUPPLY
IN PEDESTAL

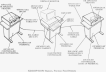
KDP+ROP Station, Tractor Feed Printers (80 Column)


40MN101/AA
DISPLAY MONITOR
40CAB551/ZZ
CABINET
40P201/ZZ
OR 40P202/ZZ
PRINTER
40CAB551/AB
LOGIC CABINET
DATA SET
401R33
TABLE TOP
(37" Slotted)
40CAB553/ZZ
PRINTER CABINET
40P201/ZZ
OR 40P202/ZZ
PRINTER
401R32 (33")
TABLE TOP
40K101
OPCON
344545 IRS
INTERFACE
CABLE
40CAB904/AA
PEDESTAL
40K801/AAA
OPCON
40CAB851/AH
PEDESTAL
9140 STATION
CONTROLLER
IRS LOGIC AND
POWER SUPPLY
IN PEDESTAL
40CAB901/AF
PEDESTAL
40C103/AD
CONTROLLER
LOGIC IN PEDESTAL
ALTERNATE DATA SET
LOCATION IN PEDESTAL

KDP+ROP Station, Tractor Feed Printers (132 Column)

9. KD-ROP+ROP† (Keyboard Display with Receive Only Printer or Receive Only Printer)

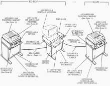
KD-ROP+ROP† arrangements include the 344555 Individual Receiver Selection (IRS) modification kit and other components required for selectively directing incoming data to the KD-ROP or to the ROP†. These stations function similar to the KDP+ROP stations described in 8. KDP+ROP (Keyboard Display Printer or Receive Only Printer), except that the ROP of the KD-ROP has a separate 40C101/AD controller with a 1,000 character buffer which eliminates printer data stacking when successive short lines of data are received. The ROP† serves as a primary receiver responding to CDC 1, CDC 2, and the KD-ROP serves as a secondary receiver responding to CDC 3. ROP friction, tractor or forms access sets having printer cabinet mounted 40C383 Integrated Controllers and described in Manual 383 may be substituted for either or both of the ROP, ROP† portion of the arrangements shown. Pedestals must however be provided for housing the IRS logic and power supply package(s) when friction or tractor sets are substituted.


KD-ROP
ROP†
40DSV161/AA DISPLAY MONITOR
40P101/ZZ OR 40P102/ZZ PRINTER
40K0051/AAA OPCON
40D102 (29") TABLE TOP
DATA SET
40D101 (24") TABLE TOP
40P101/ZZ OR 40P102/ZZ PRINTER
40K0051/AAA OPCON
40D101 (24") TABLE TOP
40K001 OPCON
EIA CABLE (See 2.07)
344545 IRS INTERFACE CABLE
40CAB001/AF PEDESTAL
40CAB011/AB LOGIC CABINET
40CAB011/AH PEDESTAL
40CAB001/AF PEDESTAL
40C101/AD CONTROLLER LOGIC IN PEDESTAL
8140 STATION CONTROLLER
IRS LOGIC AND POWER SUPPLY IN PEDESTAL
40C101/AD CONTROLLER LOGIC IN PEDESTAL

KD-ROP+ROP† Station, Friction Feed Printers

B. TYPICAL STATION ARRANGEMENTS (Contd)

9. KD-ROP+ROP† (Keyboard Display with Receive Only Printer or Receive Only Printer) (Contd)


KD-ROP
+
ROP†
40MN131/AA DISPLAY MONITOR
DATA SET
40CAB351/AB PRINTER CABINET (See Note 1)
40P151/ZZ OR 40P154/ZZ PRINTER (See Note 2)
40D001/AAA OPCON
40CAB351/AB LOGIC CABINET
EIA CABLE (See 4., Page 11)
401914 (24") TABLE TOP (See Note 3)
40CAB801/AF PEDESTAL
40C103/AD CONTROLLER LOGIC IN PEDESTAL
40C101 OPCON
8148 STATION CONTROLLER
401322 (19") TABLE TOP
401914 (24") TABLE TOP (See Note 3)
40D001/AAA OPCON
344540 IRS INTERFACE CABLE
40CAB801/AH PEDESTAL
IRS LOGIC AND POWER SUPPLY IN PEDESTAL
40C103/AD CONTROLLER LOGIC IN PEDESTAL
40CAB351/AB PRINTER CABINET (See Note 1)
40P151/ZZ OR 40P154/ZZ PRINTER (See Note 2)
40CAB801/AF PEDESTAL

Note 1: For 132 column printer, use 40CAB353/ZZ printer cabinet.

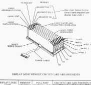
Note 2: For 132 column printer, use 40P201/ZZ or 40P202/ZZ printer.

Note 3: For 132 column printer, use 401913 table top (27.6 inch slotted).

KD-ROP+ROP† Station, Tractor Feed Printers (80 or 132 Column)

C. CIRCUIT CARD ARRANGEMENTS

1. DISPLAY LOGIC


AUXILIARY
MEMORY
410005 ADDRESS COUNTER
SEGMENT NO. 1
SEGMENT NO. 2
SEGMENT NO. 3
(See chart below for the circuit cards required per display logic code.)
410001 EDIT
410002 DATA CONTROL
410657 CODE AND CHARACTER GENERATOR
410655 VIDEO GENERATOR
014
013
012
NO. 3
011
NO. 2
010
NO. 1
09
08
07
06
841872 WIRED FRAME
POWER CABLE

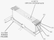
DISPLAY LOGIC MEMORY CIRCUIT CARD ARRANGEMENTS

DISPLAY LOGIC CODE	MEMORY SEGMENT	FULL EDIT MEMORY LINES	CIRCUIT CARD AND POSITION NO.		
			010	011	012
6DDL391-BJ	No. 1	24	410015	None	None
6DDL391-BK	No. 1, 2	48	410015	420015	None
6DDL391-BL	No. 1, 2, 3	72	410015	420015	420015

Note: The 410605 circuit card (early design) is physically and functionally interchangeable with 400815 card.

C. CIRCUIT CARD ARRANGEMENTS (Contd)

2. CONTROLLER LOGIC (KD or KDE)



POSITION NUMBER		40C202BE	40C202BF	40C202BG (3)	CIRCUIT CARD DESCRIPTION
X01			410773		S/R and PTR Interface
X02		410771	410771		Modified EIA Interface
X03	Front	410672	410672	410672	Opcon Interface
	Rear	410676	410676	410676	Feed Variations
X04		410675	410675	410675	Message Control
X05		410674	410674	410674	Data Bus and Decode
Frame No.		341909	341909	341909	

3. 40C103 CONTROLLER LOGIC (ROP)

Note 1: 40C103:AD ROP controller includes buffer (1,000 character storage).

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

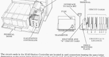
CIRCUIT CARD LOCATION

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

410581 and 410585 are interchangeable.

4. 9140 CONTROLLER LOGIC

9140 Station Controllers consist of a plate on which are mounted seven circuit card connectors and a heat sink/regulator circuit card assembly. The controller mounts to a separately ordered 345605 mounting frame/power supply assembly, which in turn is mounted to a Model 40 pedestal door as illustrated below.


345605 ASSEMBLY
INTERFACE TO TERMINAL
INTERFACE TO DATA SET
CIRCUIT CARDS
FUSE
PEDESTAL DOOR
9140 STATION CONTROLLER
TRANSISTOR
HEAT SINK AND "R" CIRCUIT CARD
A B C D E F G
CIRCUIT CARD LOCATION
329812 MOUNTING PLATE

The circuit cards in the 9140 Station Controller are located in card connectors bearing the same letter designation as the initial letter designation on the circuit card. Card D1 is therefore located in the "D" card connector. A circuit card with a hyphen (-) in its designation is mounted piggyback on the card bearing the same letter designation. Card C2-2 is therefore mounted piggyback on card C2 in the "C" connector. The table following details the circuit card complement of the four coded controller arrangements.

CIRCUIT CARD / 9140 STATION CONTROLLER UNIT CODE	322310 "A" CDC DETECTOR	322685 "A2" CDC DETECTOR	322051 "B" R/T DISTRIBUTOR	322411 "B1" PARITY ERROR DET.	322913 "C2" REC. CNTRL LOGIC	322462 "C2-2" A/B AND MOTOR CONTROL	322914 "D1" S/R LOGIC	322401 "E2" EIA INTERFACE	322317 "F1" SOH, ETX, EOT DET.	322318 "F2" SOH, ETX, EOT DET. -SUB. CHAR. GEN.	303988 "R" VOLTAGE REGULATOR
9140/YH	X		X	X	X	X	X	X	X		X
9140/YJ	X		X	X	X	X	X	X		X	X
9140/YK		X	X	X	X	X	X	X	X		X
9140/YL		X	X	X	X	X	X	X		X	X

X = indicates circuit card supplied with coded controller.

C. CIRCUIT CARD ARRANGEMENTS (Cont'd)

4. 9140 CONTROLLER LOGIC (Cont'd)

Signaling rate timer circuit cards are not supplied with coded 9140 Station Controllers but must be ordered separately to meet system requirements. Select the appropriate circuit card from the following table.

CARD	PART NO.	BAUD RATE
A-3C	303805	1050 Baud Timer x
A-3E	303838	1200 Baud Timer x
A-3F	303863	1800 Baud Timer ‡
A-3G	303864	2400 Baud Timer ‡

x For use with and mounted piggyback on the 322310 "A" circuit card.
‡ For use with and mounted piggyback on the 322085 "A2" circuit card.

9140 Station Controllers operating at 600 baud or higher must have the following separately ordered circuit card installed in card connector "G".

CARD	PART NO.	FUNCTION
G3	322083	Channel Control Store and Forward

The following chart provides a list of circuit card designations, circuit card location within the 9140, part number of card and circuit card function. A circuit card with a hyphen (-) in its designation is mounted piggyback on the card bearing the same letter designation.

CIRCUIT CARDS	CIRCUIT CARD LOCATION	PART NO.	FUNCTION
A	A	322010	CDC Detector
or			
A2	A	322685	CDC Detector — 1800 and 2400 Baud Timer
*A-1	MTD on Card A or A2	322409	Third CDC Detector
A-3C	Mounted on Card A	333835	1050 Baud Timer
or		or	
A-3E	Mounted on Card A	333839	1200 Baud Timer
or		or	
A-3F	Mounted on Card A2	333863	1800 Baud Timer
or		or	
**A-3G	Mounted on Card A2	333864	2400 Baud Timer
B	B	322011	R/T Distributor
B-1	Mounted on Card B	322411	Parity Error Detection
C2	C	322013	REC Control Logic
C2-2	Mounted on Card C2	322442	A/B and Motor Control (Selected)
D1	D	322014	Send/Receive Logic
or		or	
D2	D	302724	Receive Only Logic
E2	E	322451	EIA Interface
F1	F	322017	Character Recognition
or		or	
F2	F	322018	Substitute Character
G3	G	322063	Channel Control Store and Forward
††MC641	Mounted on Card G3	322641	Alarm/Parity Error Response
or		or	
**MC642	Mounted on Card G3	322642	2400 Baud, Isochronous, Parity Detect and Alarm
R	Under Heat Sink	303808	Voltage Regulator

* 322409 third CDC circuit card assembly which is optional.

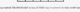
** 402228 modification kit updates a 9040 Station Controller to operate at 2400 baud isochronous operation with a parity detect and alarm feature.

†† Part of 345625 alarm modification kit which is optional. The other parts of 345625 modification kit are the 345626 alarm assembly and mounting hardware.

D. OPCON KEYTOP ARRANGEMENTS

40/3 stations generally use the coded opcon arrangements shown following. For opcon keytop arrangements such as fractions, weather symbols, refer to Manual 332, Part 3. In the arrangements pictured, certain keyswitches have repeat or latch-unlatched capability, or may be equipped with an indicator light. These features are indicated in the following manner:

1. ROP OPCON — 40K101/AAA

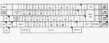


DUMMY KEY
INTRPT
TEST
IN SERVICE
DATA ERROR
DUMMY KEY

Note: Keytop marked TRANS START in lieu of TEST may be present on early model opcon units.

2. KEYBOARD OPCON — 40K101/CAS

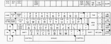
For KD stations with 40DL291/BJ display logic.



LOCAL
CLEAR
TAB SET
TAB CLEAR
HOME
1 2 3 4 5 6 7 8 9 0
TAB
LINE INSERT
CURSOR RETURN
CURSOR TAB
Q W E R T Y U I O P
NEW LINE
LINE DELETE
A S D F G H J K L
CHAR INSERT
SHIFT
Z X C V B N M
SHIFT
RETURN
CHAR DELETE
CONTROL
SPACE
CONTROL

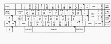
3. KEYBOARD OPCON — 40K101/CAG

For KD stations with 40D1.291/BK or 40D1.291/BL display logic.



4. KEYBOARD OPCON — 40K101/CAN

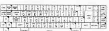
For KDP stations with 40D1.291/BJ display logic.



D. OPCON KEYTOP ARRANGEMENTS (Cont'd)

5. KEYBOARD OPCON — 40K101/CAL

For KDP stations with 40DL290/BK or 40DL291/BL display logic.

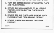

SEND
LOCAL
FORM ENTER
TAB SET
TAB CLEAR
CLEAR
HOME
TAB
LINE INSERT
CURSOR TAB
Q W E R T Y U I O P
NEW LINE
LINE DELETE
A S D F G H J K L
CHAR INSERT
SHIFT
Z X C V B N M
SHIFT
RETURN
CHAR DELETE
CONTROL
SPACE
CONTROL
1 2 3 4 5 6 7 8 9 0

PART 2 — INSTALLATION
A. INSTALLATION OUTLINE

☐ Verify that equipment at hand matches service order material list.
☐ Unpack components per B. UNPACKING INSTRUCTIONS.
☐ Review service order option requirements. Refer to PART 4 — OPTIONS and option printer(s), controller(s), IBS modification kit (if used) and data set to match service order requirements.
☐ Record the component options on J. 40/3 STATION FEATURES AND OPTIONS CHART of PART 4 — OPTIONS.
☐ Assemble the components into station arrangement specified in service order.
☐ Perform operational checkout as detailed in PART 5 — TESTING AND TROUBLESHOOTING.
☐ Have customer try out station arrangement.
☐ Complete the installation:
  (a) Give How to Operate Manual to customer.
  (b) Clean up.
  (c) Complete service order.

B. UNPACKING INSTRUCTIONS

Any special instructions necessary to open a box will be affixed to the top of the box. A sample instruction label is shown.



UNPACKING INSTRUCTIONS

1. TURN BOX BOTTOM SIDE UP. OPEN BOTTOM FLAPS AND FOLD OUTWARD.
2. RETURN BOX AND CONTENTS TO AN UPRIGHT POSITION, KEEPING BOTTOM FLAPS FOLDED OUTWARD.
3. REMOVE BOX AND PLACE ASIDE. REMOVE INNER PACKING DETAILS FROM AROUND PRODUCT.
4. REMOVE PLASTIC BAG AND ALL TAPE FROM PRODUCT.

Follow these procedures when unpacking.

- Before unpacking the cartons, confirm customer's order with unit codes marked on the cartons.
- Select an assembly area to unpack the cartons so that damage to the components will not occur.
- When unpacking, be sure to wear approved safety glasses.
- Unpack each carton — refer to instructions on the container.

Note: Observe all "caution" notes printed on the carton.

- The pedestal should be unpacked first so that the printer and operator console can be placed on it.
- Cartons and containers can be saved and returned to a shop location for packing components for storage or movement.

C. STATION ASSEMBLY

1. PEDESTAL ASSEMBLY

2449 LOCKWASHER
182739 SCREW

Step 1. Mount pedestal top to pedestal (four screws with lockwasher.

Step 2. Install 408045 modification kit (ac distribution assembly and cable storage plate), if specified, following method detailed in 50802 Specification packed with the modification kit.

2. ELECTRONICS PACKAGE ASSEMBLY (Electronics Under Monitor or Adjacent for KD and KDPs)

If display logic and controller logic are already assembled in the electronics package, proceed with the power supply assembly, Step 19.

Step 1. Tilt up cabinet or place over edge of table and remove mounting hardware.

Step 2. Open lid.

Step 3. Insert fingers as shown and lift. Then pull module forward until it engages the stop.

Step 4. Insert screwdriver under latch and lift up on latch. Lift up on module and slide forward.

MONITOR CABLE
AC POWER CABLE

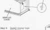
Step 5. Reach in and disconnect ac power cable. Slide module completely out of cabinet.

Step 6. Remove 408550 ventilation assembly by removing three screws and the flat washer, lockwasher, and nut.

Fan Assembly
SCREW
NUT
FLAT WASHER
LOCKWASHER

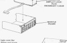
Step 7. Check the display logic making sure the cards are seated and properly positioned.

Refer to 1. DISPLAY LOGIC (Page 35) to verify circuit type and position in the display logic wired frame.


341819
SHOULDER
SCREW
DISPLAY
LOGIC

Step 8. Remove muslin bag containing 341819 shoulder screw used to mount the display logic into the frame and retain for later assembly.

Step 9. Install display logic into frame.


430L081/22
DISPLAY LOGIC
PLUS
NECESSARY CARDS
MODULE
FRAME

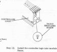
Step 10. Position the display logic over the guide in the module frame and route power ribbon cable flat against bottom of module frame to the opposite side.

POWER
RIBBON CABLE
GUIDE
(Top View)

C. STATION ASSEMBLY (Contd)

2. ELECTRONICS PACKAGE ASSEMBLY (Electronics Under Monitor or Adjacent for KD and KDP) (Contd)

Step 11. Remove metallic bag containing 341819 shoulder screw used to mount the controller logic into the frame and retain for later assembly.

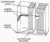

CONTROLLER LOGIC
341819 SHOULDER SCREW

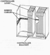
Step 12. Install the controller logic into module frame.

Note: In terminals with adjacent logic, make sure unused opcon cable and connector are tied back under wired frame.

UNDER MONITOR
ELECTRONICS PACKAGE
ADJACENT

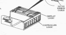
Step 13. Position controller bracket over guide in the frame. Route cables as shown (flat cable in center and opcon cable near front of cabinet). Slots in controller must fit over ribbon cable from the display logic.


CONTROLLER LOGIC
RIBBON CABLES
OPCON CABLE
CONTROLLER BRACKET


CONTROLLER LOGIC
RIBBON CABLES
CONTROLLER BRACKET

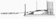
Position controller bracket over guide in the frame. Route flat cable in center as shown. Slots in controller must fit over ribbon cable from the display logic.

Step 14. Install 341740 ribbon cable.


341740 RIBBON CABLE
DISPLAY LOGIC
CONTROLLER LOGIC

Step 15. Route opcon cable in the module so that the cable lies flat against front of the module in protective channel.

Omit Steps 15 and 16; continue with Step 17.

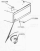

CABLE LIES FLAT

(Top View)

C. STATION ASSEMBLY (Cont'd)

2. ELECTRONICS PACKAGE ASSEMBLY (Electronics Under Monitor or Adjacent for KD and KDPs) (Cont'd)

Step 16. Insert opcon connector (keys up) into frame. Use retainer plate and hardware (tied in muslin bag to the frame) to clamp opcon cable.


482168
171886
117935
KEYS

NOTCHES
VENTILATION ASSEMBLY
AC CABLE

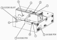
Step 17. Install ventilation assembly on the frame using the hardware removed in Step 6. Use notches on logic frame as a guide for alignment. Route ac cable along the inside of frame.

Step 18. Attach braided ground strap to the slip-on terminal on the ventilation assembly. Align the controllers and tighten screws retained in Steps 8 and 11.

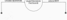
SCREWS
GROUND STRAP

Step 19. Mounting the 40PSU101 power supply into module frame:

①Loosen clamp screw and move clamp aside.
②Install power supply through slot and seat onto guide pins.
③Drop handle.
④Connect ac plug from ventilation assembly.
⑤Loosen rear insulator screw and swing insulator aside. Loosen terminal block screws.
⑥Place display logic cable on terminal strip (flat terminals) and then controller cable (formed terminals) on top. Tighten terminal screws.
⑦Replace insulator.
⑧Attach clamp in place over handle and tighten clamp screw.



Note: Frame grounding of circuit common is provided physically in the set power supply for display monitors with serial numbers 10,000 and up and in lower serial numbered monitors which have 453394 modification kit installed. Display monitors and 40PSU101 power supplies with serial numbers below 10,000 were originally manufactured to provide frame ground in the display monitor. The two grounding arrangements are not compatible and should not be mixed within a set. Refer to Service Manuals 401 and 403 if incompatibility exists.



Step 20. Cable routing and connections:

①Slide module back into the cabinet far enough to engage the latch on the right side of the cabinet.
②Reach in and connect the ac power cable to the base of ventilation assembly.

C. STATION ASSEMBLY (Cont'd)

2. ELECTRONICS PACKAGE ASSEMBLY (Electronics Under Monitor or Adjacent for KD and KDPs) (Cont'd)

Slide electronics package half way into the cabinet. Connect cable from display logic. Connect power cable at rear of the ventilation assembly.

DISPLAY LOGIC CABLE
POWER CABLE

③ Loosen shoulder screw. Slip clip on monitor cable under screw and tighten screws.
④ Connect monitor cable.

Step 21. Slide module back into position. Lift up slightly on module to seat in position.

3. ELECTRONICS PACKAGE ASSEMBLY (Electronics in Pedestal for KDPs)

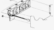
If display logic and controller logic are already installed in the electronics package, proceed with the power supply assembly, Step 15.

Step 1. Slide tabs inward and open panel carefully. Remove two screws and slide module out.

SCREWS
Slide Out

Step 2. Loosen two captive screws and remove four rear screws.

Step 3. Remove guard from back of module by removing four screws, flat washers and lockwashers.



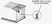
Step 4. Remove 408050 ventilation assembly by removing three screws, nut, lockwasher, and flat washer.

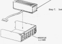
Step 5. Check the display logic making sure the cards are seated and properly positioned.

Refer to 1. DISPLAY LOGIC (Page 23) to verify circuit card type and position in the display logic wired frame.

3. ELECTRONICS PACKAGE ASSEMBLY (Electronics in Pedestal for KDPs) (Contd)

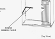
Step 6. Remove the muslin bag containing the 341819 shoulder screw and 181204 flat washer used to mount the display logic into frame and retain for later assembly.


341819 SHOULDER SCREW AND 181204 FLAT WASHER


4028281 DISPLAY LOGIC PLUS NECESSARY CARDS
MODULE 2 J ASM

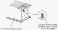
Step 7. Install display logic into frame.

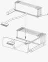
Step 8. Route power ribbon cable flat against bottom of the module frame to the opposite side.


POWER RIBBON CABLE

(Top View)

Step 9. Remove muslin bag containing 341819 shoulder screw and 161204 flat washer used to mount the controller logic into frame and retain for later assembly.


CONTROLLER LOGIC
341819 SHOULDER SCREW AND 161204 FLAT WASHER

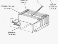


Step 10. Install controller logic into module frame.

Note: Make sure unused cable and connector at front of controller are tied back under frame.

CONTROLLER LOGIC
RIBBON CABLES

Step 11. Route cables as shown. Slots in controller must fit over ribbon cable from display logic.

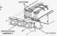

DISPLAY LOGIC
CONTROLLER LOGIC
341740 RIBBON CABLE
RIBBON CABLES

Step 12. Install 341740 ribbon cable.

C. STATION ASSEMBLY (Cont'd)

3. ELECTRONICS PACKAGE ASSEMBLY (Electronics in Pedestal for KDPs) (Cont'd)

Step 13. Install ventilation assembly on the frame using the hardware removed in Step 4. Use notches on logic frames as a guide for alignment. Route ac cable along the inside of frame.

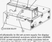


SCREWS
GROUND STRAP

Step 14. Attach the braided ground strap to the slip-on terminal on the ventilation assembly. Align controllers and tighten screws retained in Steps 6 and 9.

Step 15. Mounting the PSU101 power supply into module frame:

- ① Install power supply through slot and seat onto guide pins.
- ② Drop handle.
- ③ Connect plug from ventilation assembly.
- ④ Loosen rear insulator screw and swing insulator aside. Loosen terminal block screws.
- ⑤ Place display logic on terminal strip (flat terminals) and then controller cable (formed terminals) on top. Tighten terminal screws.
- ⑥ Replace insulator.



Note: Frame grounding of circuit common is provided physically in the set power supply for display monitors with serial numbers 10,000 and up and in lower serial numbered monitors which have 433594 modification kit installed. Display monitors and 40PSU101 power supplies with serial numbers below 10,000 were originally manufactured to provide frame ground in the display monitor. The two grounding arrangements are not compatible and should not be mixed within a set. Refer to Service Manuals 401 and 402 if incompatibility exists.

Step 16. Complete installation by reversing Steps 3, 2 and 1.

4. ELECTRONICS PACKAGE — ROP WITH 46C100 CONTROLLER

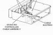
Step 1. Slide tabs inward and open panel carefully. Remove two screws and slide module out.

401688
401676

SCREWS
TABS
Slide Out

Step 2. Loosen 401676 screw, remove 401688 thumbscrew and swing bar aside out of the way.

Step 3. Install 401643 controller cable to bottom of module using two 119648 retaining rings. Install cable bracket to ventilation assembly with two 198670 screws. Route cables as shown.


198670
119648
401643 RO CONTROLLER CABLE ASSEMBLY
CABLE ROUTING

POWER SUPPLY
CONTROLLER LOGIC
GUIDE SLOT
AC PLUG
LOCATOR PINS

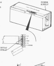
Step 4. Locate the controller logic and power supply over their locator pins and seat. Connect ac plug from ventilation assembly.

C. STATION ASSEMBLY (Cont'd)

4. ELECTRONICS PACKAGE – KDP WITH 40C133 CONTROLLER (Cont'd)

Step 5. Loosen insulator screw and swing insulator aside. Mount ribbon cables and strap to terminal block. Replace insulator. Tighten screw.

Step 6. Complete installation by reversing Step 2 and then Step 1.



5. OPCON ASSEMBLY

Remove packing clips before assembly.

Step 1. Assembly procedures for RO, KD and KDP opcon are the same:

- Align connectors.
- Engage latches.
- Slide latches all the way up.
- Check that opcon is secure before releasing it.

KD, KDP Opcon

Step 2. Install CAPS LOCK or the blocking keytop (both provided in plastic bag) on KD or KDP opcon:

- If all caps are required, depress plunger and install blocking keytop.
- If upper and lower case are being used, install CAPS LOCK key.

Warning: *The CAPS LOCK keytop must be in the fully extended, unlatched position before attempting to remove the keytop. Failure to observe this precaution will result in a damaged keyswitch.*

6. MONITOR ASSEMBLY

Note: Frame grounding of circuit common is provided physically in the set power supply for display monitors with serial numbers 10,000 and up and in lower serial numbered monitors which have 403594 modification kit installed. Display monitors and 40P81131 power supplies with serial numbers below 10,000 were originally manufactured to provide frame ground in the display monitor. The two grounding arrangements are not compatible and should not be mixed within a set. Refer to Service Manuals 461 and 402 if incompatibility exists.

Step 1.

Place monitor upside down. Remove packing clip. (Retain for possible future repacking.)

Monitors With . . .

Remove corrugated packing detail taped to tilt lever (if present). To disengage the tilt lever immobilization latch spring (if present), slide the spring toward the front of the unit until it clears the tilt lever, and move the tilt lever to the right and up into any detent position behind the first or second.

Wheel Type
Tilt Mechanism

341719
PACKING
CLIP

Lever Type
Tilt Mechanism

498150
LATCH
SPRING

Move latch spring forward, and move lever out of first two detent positions.

Push studs until they snap into place.

Step 2. Install bottom plate to underside of monitor.

Step 3. Grasp monitor securely from the rear and mount it onto both cabinet or separate monitor base posts, whichever is present.

- Monitor slides down on the posts freely — there is no locking device.
- Make sure connectors inside the posts are fully engaged.

C. STATION ASSEMBLY (Contd)

7. FRICTION FEED PRINTER ASSEMBLY

Shipping bar is under heavy spring tension.

RELEASE CAREFULLY

CAUTION

Step 1. Remove shipping latch and bar. Discard. If printer is to be shipped at later date, retain bar and latch.

SHIPPING LATCH
BAR

DETENT
(Both Sides)

Step 2. Slide printer into track:

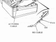
- Make sure ac and SSI cables are not pinched.
- Make sure detents snap into place.

Step 3. Connect ac power cable and SSI cable.

Step 4. Connect interlock cable at right rear corner of cabinet.

Step 5. Install type carrier.

Step 6. Install ribbon. See instructions on printer top plate.


AC POWER CABLE
P103
SSI
SSI CABLE

Caution: Wear a 246392 static discharge strap before proceeding further.

Attach static discharge strap tightly to wrist as shown.

Attach clip end of static discharge strap to frame ground.

Step 7. Option the printer circuit card per system requirements.

- Avoid touching components on the card as much as possible.
- Option 410640 or 410076 circuit card per information in PART 4, B. ACTIVATING SET OR STATION OPTIONS.
- Reinstall card after optioning.

Step 8. Lower Printer and install paper.

- Before inserting paper in paper chute, make a sharp crease on the paper as shown.

8. TRACTOR FEED PRINTER ASSEMBLY

Step 1. Loosen four immobilizing screws a minimum of four turns until base rides freely on the shock mounts.

Step 2. Install type carrier.

Step 3. Install ribbon. See instructions on printer top plate.

(Bottom View)

IMMOBILIZING SCREWS
(4 Places)

8. TRACTOR FEED PRINTER ASSEMBLY (Cont'd)

Caution: *Wear a 346392 static discharge strap* *before* *proceeding further with an 80 column printer equipped with a 419649 or 410676 circuit card.*

Attach static discharge strap tightly to wrist as shown.

Attach clip end of static discharge strap to frame ground.

Step 4. Option printer circuit card per system requirements:

80-Column

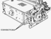
- Remove 410640 or 410676 circuit card and option it per information in PART 4, B. ACTIVATING SET OR STATION OPTIONS.
- Reinstall card.
- Option 410671 card by positioning appropriate switches at bottom of printer. (It is not necessary to remove 410671 card.)

132-Column

- Option 410729 or 410672 circuit card by positioning appropriate switches at bottom of printer per information in PART 4, B. ACTIVATING SET OR STATION OPTIONS. (It is not necessary to remove 410729 or 410672 card.)

Step 5. Slide printer in place:

- Make sure two latches on either side are fully engaged.
- Make sure three connectors at rear of printer are fully seated.



Step 6. Install paper forms:

- Open tractor lids.
- Feed forms up through pedestal and cabinet slots, continuing up into the throat of the printer paper chute.
- Make sure forms are loaded in front of mylar strips on both sides.
- Position forms in the tractor mechanism and close the tractor lids.
- Position printer form-out lever to match the length of installed forms.

MYLAR
STRIP

Note: The dark blue 402572 form-out belt is supplied with the printer. Refer to the following table for selecting a different belt to match other form lengths.

Form Selector Setting				Color of Belt	Part No.
4	3	2	1		
Length of Form					
**3-1/3	2-1/2	5	10	Amber	402571
**3-2/3	##2-3/4	5-1/2	11	Dk Blue	402572
4	3	6	12	Yellow	402573
**4-1/3	##3-1/4	6-1/2	13	Brown	402574
**4-2/3	3-1/2	7	14	Red	402575
5	##3-3/4	7-1/2	15	Pink	402576
**5-1/3	4	8	16	Lt Green	402577
**5-2/3	##4-1/4	8-1/2	17	Green	402578
6	4-1/2	9	18	Lt Blue	402579
**7-1/3	5-1/2	11	22	White	402580

** For six lines per inch
For eight lines per inch

9. FORMS ACCESS PRINTER ASSEMBLY

Step 1. Loosen four immobilizing screws far enough so that the base rides freely on the shock mounts.

Step 2. Install type carrier.

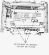
Step 3. Install ribbon. See instructions on printer top plate.

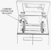
IMMOBILIZING SCREWS
(4 Places)

8. FORMS ACCESS PRINTER ASSEMBLY (Cont'd)

Step 4. Option printer circuit card according to system requirements.

- Option 410071 circuit card according to information in PART 4, 8, ACTIVATING SET OR STATION OPTIONS by setting appropriate option switches. It is not necessary to remove the 410071 card as the option switches protrude through slots in the printer bottom plate.

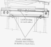

SLOTS FOR ACCESSING OPTION SWITCHES


CABINET CONNECTOR BRACKET

Step 5. Lower printer into cabinet and onto the rail assemblies. Slide the printer rearward making sure two latches (one on each side) are fully engaged. Connect cabinet connector bracket (left rear) to the printer.

Step 6. With the printer positioned and latched in its rearmost location on the rail assembly frame, make the following printer to cabinet positioning adjustments.

- Loosen and back off the four rail assembly frame mounting screws to where they are friction tight.


LATCH (One on each side.)
RAIL ASSEMBLY FRAME MOUNTING SCREWS (2 Each Side)

(Right Side View)

- Move the printer rail assembly frame forward or rearward so that the printer forms exit gap is located half to three-fourths of the way back in the forms chute opening (as gauged by eye).
- Tighten the four rail assembly frame mounting screws.
- With a scale resting on the printer tear bar top surface and against the front edge of the forms chute opening, the tear bar should be located 3/32 inch to 5/32 inch below the form of the cabinet forms chute opening.

FORMS CHUTE OPENING
3/4 OPENING
1/2 OPENING
PRINTER FORMS EXIT GAP RANGE
FORMS CHUTE
CABINET TOP COVER
3/32" to 5/32"
PRINTER FORMS EXIT GAP
PRINTER TEAR BAR

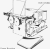
(Right Side View)

INTERMEDIATE RAIL BRACKET MOUNTING SCREWS (3 Each Side)

- To adjust, loosen the six intermediate rail bracket mounting screws friction tight. Place the blade of a screwdriver between the frame and the intermediate rail. Pry intermediate rail assembly up at alternate left and right front corners until requirement is met. Tighten the forward most screws.
- After making adjustment, tighten remaining screws.

Step 7. Install paper forms:

- Open left and right tractor lids.
- If multiple forms separate, fold one form down and insert paper.
- Insert paper up through the paper guide chute, behind the ribbon shield and out the slot between the tear bar and top cover before engaging feed holes.


TEAR BAR
TOP COVER

Paper Routing

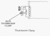
C. STATION ASSEMBLY (Contd)

9. FORMS ACCESS PRINTER ASSEMBLY (Contd)

- Unlock and set the right tractor for paper width as follows:
  - (a) Lift clamp on the right tractor assembly.
  - (b) Position the right tractor to align tractor pins in paper feed holes.
  - (c) Close right tractor lid and close clamp lever.

LEFT TRACTOR
RIGHT TRACTOR
CLAMP LEVER

Right Tractor Positioning



Thumbscrew Clamp

- To align forms to desired first column printing, loosen blue thumbscrew clamp and position forms drive assembly to align first position on paper with first printing character position. Tighten thumbscrew clamp.
- Pull out paper advance knob (blue) and turn to position form tearline perforation directly behind the edge of the printer tear bar.

Note 1: The dark blue 402572 form-out belt is supplied with the printer. Refer to the following table for selecting a different belt to match other form lengths.

Forms Selector Setting				Color of Belt	Part No.
4	3	2	1		
Length of Form					
**3-1/3	2-1/2	5	10	Amber	402571
**3-2/3	##2-3/4	5-1/2	11	Dk Blue	402572
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**4-2/3	3-1/2	7	14	Red	402575
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**5-2/3	##4-1/4	8-1/2	17	Green	402578
6	4-1/2	9	18	Lt Blue	402579
**7-1/3	5-1/2	11	22	White	402580

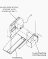
** For six lines per inch
For eight lines per inch

Note 2: The forms access printer is factory adjusted to accept 0.005 to 0.010 inch form stock. If other form stock thickness is being used in the particular installation, paper jams may be experienced or print quality may not be satisfactory due to ink smudge. If necessary, refer to Manual 426, Model 40 Printers — Installation (packed with printer) and check and/or refine the following adjustments.

40P254 and 40P255 Printer (Ribbonless)
TEAR BAR (Preliminary)
TOP COVER (Preliminary)

40P252 and 40P253 Printer
TOP COVER (Preliminary)
TEAR BAR AND TOP COVER (Final)

10. 9140 STATION CONTROLLER ASSEMBLY

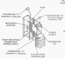

345605 MOUNTING
FRAME AND
POWER SUPPLY
9140 STATION
CONTROLLER
PEDESTAL
DOOR

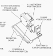
Step 1. Assembly 345605 mounting frame and power supply, and the 9140 Station Controller.

Step 2. Route the cables along mounting support, and plug "N" connector into "2N" connector on power supply.

Step 3. Install 322083 G3 circuit card in position G.

Step 4. Remove circuit card in position A. Mount specified timer circuit card piggy-back on removed card and reinstall in position A. Refer to PART 2, C., 4. 9140 CONTROLLER LOGIC for description and part number chart of available timer circuit cards.


POST
CONNECTOR "T"
(Interface to Data Set)
CONNECTOR "N"
(To Power Supply
Connector "2N")
MOUNTING
SUPPORT
POWER
SUPPLY
345605 MOUNTING
FRAME WITH
POWER SUPPLY
CONNECTOR
"2N"
CONNECTOR "X"
(Interface to Terminal)
9140 STATION
CONTROLLER


345605 MOUNTING
FRAME AND
POWER SUPPLY
9140 STATION
CONTROLLER
322083
CIRCUIT CARD
PEDESTAL
DOOR
POSITION G
CARD CONNECTOR
POSITION A
CARD CONNECTOR

C. STATION ASSEMBLY (Contd)

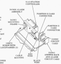
10. 9140 STATION CONTROLLER ASSEMBLY (Contd)

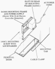
Perform Steps 5 through 7 only if 345625 alarm/party response modification kit is used.

Step 5. Install 345626 alarm assembly to 345601 mounting frame with two 199870 screws with lockwashers.

Step 6. Install 322641 answer-back and alarm circuit card on 322583 circuit card in position G.

Step 7. Route the cable of 345626 alarm assembly between mounting posts and 345601 mounting frame. Slip the terminal of the red wire on pin B35 of card connector in position E. Slip the terminal of the black wire on pin B33 of card connector in position G.


9140 STATION CONTROLLER
345626 ALARM ASSEMBLY
POSITION E CARD CONNECTOR
345601 MOUNTING FRAME
POSITION G CARD CONNECTOR
322583 CIRCUIT CARD
199870 SCREW WITH LOCKWASHER (2)
322641 ANSWER-BACK AND ALARM CIRCUIT CARD
CABLE ROUTING
RED WIRE
BLACK WIRE


SLOT ON REAR OF MOUNTING FRAME (345601)
AC POWER CORD
345605 MOUNTING FRAME AND POWER SUPPLY (Shown With 9140 Station Controller Removed)
181871 MOUNTING SCREW WITH LOCKWASHER
MOUNTING TAB
PEDESTAL DOOR
CABLE CLAMP

Step 8. Remove cable clamp, if present, from right side of pedestal door.

Step 9. Install entire 9140 Station Controller assembly with 345605 mounting frame and power supply on pedestal door. Slide the slot at rear of 345601 mounting frame under the mounting tab on the door. Secure the frame with two 181871 screws with lockwashers. (Circuit cards in positions G and F may have to be removed to gain access to one of the holes.)

Step 10. Connect ac power cord to the unswitched receptacle of a 403665 ac distribution assembly or to any receptacle of a 407285 ac distribution assembly, whichever has been installed in the pedestal.

11. CABLING

Refer to the Index of Cabling Figures to find the intersult cabling layout for a particular 40/3 Station Arrangement. Refer to Manual 360 for additional cabling information when ROP sets having 40C302 Integrated Controllers are substituted for the printer and ROP controllers shown in the cable layout diagrams. It should be noted that information exchange between a Model 40 printer and an associated 40C103 (ROP) or 40C302 controller will always require an SSI type cable.

INDEX OF CABLING FIGURES

Note: •ROP indicates an ROP equipped with the 344555 Individual Receiver Selection (IRS) modification kit.

FIGURE	CONTENT	PAGE
1	ROP Station	58
2	KD Station	58
3	KD-ROP Station	59
4	KD-ROP•ROP Station	60
5	KD•ROP Station	61
6	KD & ROP Station	61
7	KDP Station, Friction Feed Printer Under Monitor	62
8	KDP Station, Tractor or Friction Feed Printer Adjacent	62
9	KDP Station, Tractor or Friction Feed Printer on Separate Pedestal	63
10	KDP•ROP Station, KDP Friction Feed Printer Under Monitor	63
11	KDP•ROP Station, KDP Tractor or Friction Feed Printer Adjacent	64
12	KDP•ROP Station, KDP Tractor or Friction Feed Printer on Separate Pedestal	65
13	KDP & ROP Station, KDP Friction Feed Printer Under Monitor	66
14	KDP & ROP Station, KDP Tractor or Friction Feed Printer Adjacent	66
15	KDP & ROP Station, KDP Tractor or Friction Feed Printer on Separate Pedestal	67
16	Free-Standing Monitor Base and Option Cabling to Logic Assembly for KD, KDP Stations	68

C. STATION ASSEMBLY (Contd)

11. CABLING (Contd)

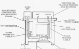

FRICTION OR
TRACTOR PRINTER
AND RO OPCON
DATA
SET
9140 STATION
CONTROLLER
AND MOUNTING
FRAME
PTR
OPCON
483562
OPCON CABLE
"X" CONNECTOR
ROP
CONTROLLER
241896
INTERFACE
CABLE
483563
PRINTER
CABLE
DATA SET
TIP AND RING
AC POWER
CABLE
AC POWER
DISTRIBUTION
ASSEMBLY

Fig. 1—ROP Station

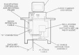
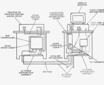

DISPLAY
MONITOR
9140 STATION
CONTROLLER
AND MOUNTING
FRAME
LOGIC CABINET
AND OPCON
DATA
SET
PTR
845503
INTERFACE
CABLE
BELL SYSTEM
202S, 202R
103T DATA SET, OR
EQUIVALENT
"X" CONNECTOR
DATA SET
TIP AND RING
AC POWER
DISTRIBUTION
ASSEMBLY
AC POWER
CABLE

Fig. 2—KD Station

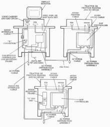

DISPLAY MONITOR
TRACTOR OR FRICTION PRINTER AND RO OPCON
403840 PRINTER CABLE
8148 STATION CONTROLLER AND MOUNTING FRAME
LOGIC CABINET AND KSD OPCON
202B, 202R, OR 202T DATA SET
PTR
OPCON
DATA SET
PTR
ROP CONTROLLER
403841 OPCON CABLE
345883 INTERFACE CABLE
DATA SET TIP AND RING
"X" CONNECTOR
AC POWER DISTRIBUTION ASSEMBLY
(See Note)
AC POWER CABLES
AC POWER DISTRIBUTION ASSEMBLY

Note: 341896 or 408868 through 408868 EIA cable assembly, dependent on length required.

Fig. 3—KD-ROP Station

C. STATION ASSEMBLY (Contd)

11. CABLING (Contd)


DISPLAY MONITOR
TRACTOR OR FRICTION PRINTER AND RO OPCON
LOGIC CABINET AND KSO OPCON
DATA SET
PTR
202S, 202R, OR 202T DATA SET
401840 PRINTER CABLE
401841 OPCON CABLE
PTR
OPCON
ROP CONTROLLER
345833 INTERFACE CABLE
"X" CONNECTOR
8140 STATION CONTROLLER AND MOUNTING FRAME
DATA SET TIP AND RING
AC POWER DISTRIBUTION ASSEMBLY
(See Note)
AC POWER CABLE
AC POWER DISTRIBUTION ASSEMBLY
AC POWER CABLE
TRACTOR OR FRICTION PRINTER AND RO OPCON
401840 PRINTER CABLE
401841 OPCON CABLE
344545 IRS INTERFACE CABLE
345835 MOUNTING FRAME
"X" DU3 REC
PTR
OPCON
IRS
X
ROP CONTROLLER
AC POWER CABLE
AC POWER DISTRIBUTION ASSEMBLY

Note: 341896 or 408063 through 408065 EIA cable assembly, dependent on length required.

Fig. 4—KD-ROP+ROP Station

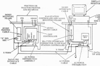

FRICTION OR
TRACTOR PRINTER
AND RO OPCON
245805
MOUNTING
FRAME
4E3565
PRINTER
CABLE
"X" IND
BRK
PTR
OPCON
EIA
BOX
DATA
SET
OPCON
PTR
4E3561
OPCON CABLE
ROP
CONTROLLER
X TERM
844545 EIS
INTERFACE
CABLE
AC POWER
DISTRIBUTION
ASSEMBLY
241682
INTERFACE
CABLE
8140 STATION
CONTROLLER AND 245805
MOUNTING FRAME
EIA TYPE INTERFACE
CONNECTOR (X) OF 8140
STATION CONTROLLER
X TERM
AC POWER
CABLE
AC POWER
DISTRIBUTION
ASSEMBLY
DISPLAY
MONITOR
LOGIC
CABINET
AND
KSD OPCON
DATA
SET
PTR
8140
DATA
SET
DATA SET
TIP AND RING

Fig. 5—KD+ROP Station

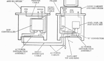

FRICTION OR
TRACTOR PRINTER
AND RO OPCON
4E3565
PRINTER
CABLE
4E3561
OPCON
CABLE
PTR
OPCON
ROP
CONTROLLER
AC POWER
DISTRIBUTION
ASSEMBLY
845613
INTERFACE
CABLE
AC POWER
CABLES
8140 STATION
CONTROLLER
AND MOUNTING
FRAME
DATA
SET
PTR
DISPLAY
MONITOR
LOGIC CABINET
AND KSD OPCON
202D, 202R, OR
202T DATA SET
"X" CONNECTOR
AC POWER
DISTRIBUTION
ASSEMBLY
DATA SET
TIP AND RING

Fig. 6—KD & ROP Station

C. STATION ASSEMBLY (Contd)

11. CABLING (Contd)

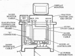

DISPLAY MONITOR
241665 MONITOR CABLE
DATA SET
MON
PTR
OPCON
FRICTION PRINTER AND KSR OPCON
9140 STATION CONTROLLER AND MOUNTING FRAME
451061 OPCON CABLE
"X" CONNECTOR
241685 PRINTER CABLE
MODEL 40 CONTROLLER
241682 INTERFACE CABLE
AC POWER DISTRIBUTION ASSEMBLY
DATA SET TIP AND RING
AC POWER CABLE

Fig. 7—KDP Station, Friction Feed Printer Under Monitor

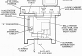

FRICTION OR TRACTOR PRINTER
241680 PRINTER CABLE
DISPLAY MONITOR
PTR
DATA SET
PTR
LOGIC CABINET AND KSR OPCON
9140 STATION CONTROLLER AND MOUNTING FRAME
"X" CONNECTOR
241682 INTERFACE CABLE
BELL SYSTEM 202D, 202R, 201T DATA SET, OR EQUIVALENT
AC POWER DISTRIBUTION ASSEMBLY
AC POWER CABLE
DATA SET TIP AND RING

Fig. 8—KDP Station, Tractor or Friction Feed Printer Adjacent

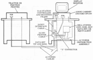

TRACTOR OR FRICTION PRINTER
PTR
DISPLAY MONITOR
9140 STATION CONTROLLER AND MOUNTING FRAME
DATA SET
PTR
LOGIC CABINET AND KSO OPCON
345603 INTERFACE CABLE
BELL SYSTEM 202C, 202R, 201T DATA SET, OR EQUIVALENT
341095 PRINTER CABLE
AC POWER DISTRIBUTION ASSEMBLY
DATA SET TIP AND RING
"X" CONNECTOR
AC POWER CABLES

Fig. 9—KDP Station, Tractor or Friction Feed Printer on Separate Pedestal

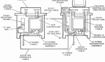

FRICTION OR TRACTOR PRINTER
9140 STATION CONTROLLER AND MOUNTING FRAME
DISPLAY MONITOR
401640 PRINTER CABLE
PTR
OPCON
401641 OPCON CABLE
DATA SET
PTR
OPCON
FRICTION PRINTER AN KSR OPCON
345605 MOUNTING FRAME
"X" CONNECTOR
401641 OPCON CABLE
KDP CONTROLLER
341095 PRINTER CABLE
"X" IND REC
DATA SET TIP AND RING
MODEL 40 CONTROLLER
AC POWER CABLE
AC POWER DISTRIBUTION ASSEMBLY
AC POWER DISTRIBUTION ASSEMBLY
345603 INTERFACE CABLE
AC POWER CABLE
344540 ISS INTERFACE CABLE

Fig. 10—KDP-KDP Station, KDP Friction Feed Printer Under Monitor

C. STATION ASSEMBLY (Contd)

11. CABLING (Contd)

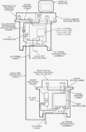

DISPLAY MONITOR
FRICTION OR TRACTOR PRINTER
241995 PRINTER CABLE
PTR
DATA SET
PTR
LOGIC CABINET AND KBD OPCON
8140 STATION CONTROLLER AND MOUNTING FRAME
BELL SYSTEM 201B, 201B, 208T DATA SET, OR EQUIVALENT
"X" CONNECTOR
AC POWER DISTRIBUTION ASSEMBLY
AC POWER CABLE
DATA SET TIP AND RING
TRACTOR OR FRICTION PRINTER AND RO OPCON
244343 DBS INTERFACE CABLE
243693 MOUNTING FRAME
PTR
OPCON
401841 OPCON CABLE
430840 PRINTER CABLE
"X" IND REC
ROP CONTROLLER
AC POWER DISTRIBUTION ASSEMBLY
AC POWER CABLE

Fig. 11—KDP+ROP Station, KDP Tractor or Friction Feed Printer Adjacent

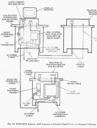

LOGIC CABINET AND KBD OPCON
DISPLAY MONITOR
8140 STATION CONTROLLER AND MOUNTING FRAME
DATA SET
PTR
TRACTOR OR FRICTION PRINTER
PTR
343603 INTERFACE CABLE
BELL SYSTEM 202D, 202R, 202T DATA SET OR EQUIVALENT
AC POWER CABLE
"S" CONNECTOR
AC POWER DISTRIBUTION ASSEMBLY
AC POWER CABLE
DATA SET TIP AND RING
TRACTOR OR FRICTION PRINTER AND RO OPCON
241893 PRINTER CABLE
401840 PRINTER CABLE
PTR
OPCON
344345 ISS INTERFACE CABLE
401841 OPCON CABLE
343603 MOUNTING FRAME
ROP CONTROLLER
"S" ISS REC
AC POWER CABLE
AC POWER DISTRIBUTION ASSEMBLY

Fig. 12—KDP+ROP Station, KDP Tractor or Friction Feed Printer on Separate Pedestal

C. STATION ASSEMBLY (Contd)

11. CABLING (Contd)

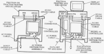

FRICTION OR TRACTOR PRINTER AND RO OPCON
PTR
OPCON
401641 OPCON CABLE
401646 PRINTER CABLE
ROP CONTROLLER
AC POWER CABLE
AC POWER DISTRIBUTION ASSEMBLY
340613 INTERFACE CABLE
FRICTION PRINTER AND KSR OPCON
DISPLAY MONITOR
DATA SET
PTR
OPCON
401641 OPCON CABLE
341695 PRINTER CABLE
"X" CONNECTOR
MODEL 40 CONTROLLER
AC POWER CABLE
AC POWER DISTRIBUTION ASSEMBLY
DATA SET TIP AND RING
9140 STATION CONTROLLER AND MOUNTING FRAME

Fig. 13—KDP & ROP Station, KDP Friction Feed Printer Under Monitor

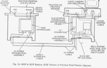

401646 PRINTER CABLE
TRACTOR OR FRICTION PRINTER AND RO OPCON
PTR
OPCON
401641 OPCON CABLE
ROP CONTROLLER
AC POWER DISTRIBUTION ASSEMBLY
340613 INTERFACE CABLE
DISPLAY MONITOR
LOGIC CABINET AND KSR OPCON
TRACTOR OR FRICTION PRINTER
PTR
DATA SET
PTR
341695 PRINTER CABLE
9140 STATION CONTROLLER AND MOUNTING FRAME
"X" CONNECTOR
AC POWER DISTRIBUTION ASSEMBLY
AC POWER CABLE
DATA SET TIP AND RING
BELL SYSTEM 202D, 202R, 201T DATA SET OR EQUIVALENT

Fig. 14—KDP & ROP Station, KDP Tractor or Friction Feed Printer Adjacent

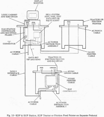

DISPLAY MONITOR
LOGIC CABINET AND KBD OPCON
DATA SET
PTR
BELL SYSTEM 202D, 208B, 209T DATA SET OR EQUIVALENT
TRACTOR OR FRICTION PRINTER
PTR
9140 STATION CONTROLLER AND MOUNTING FRAME
AC POWER CABLE
"X" CONNECTOR
AC POWER DISTRIBUTION ASSEMBLY
AC POWER CABLE
241895 PRINTER CABLE
DATA SET TIP AND RING
TRACTOR OR FRICTION PRINTER AND RO OPCON
PTR
OPCON
24563 X INTERFACE CABLE
401541 OPCON CABLE
401840 PRINTER CABLE
ROP CONTROLLER
AC POWER CABLE
AC POWER DISTRIBUTION ASSEMBLY

Fig. 15—KDP & ROP Station, KDP Tractor or Friction Feed Printer on Separate Pedestal

C. STATION ASSEMBLY (Contd)

11. CABLING (Contd)

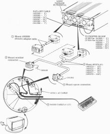

LOGIC
PACKAGE
IN PEDESTAL
DATA SET CABLE
(430049 — 3')
(409365 — 7')
(409366 — 12')
(409367 — 25')
(409368 — 50')
(341896 — 7')
① Mount 435555
(9-inch) adapter cable.
TO PRINTER OR ROP
(37 RO Use 341895 — 5')
(37 KSA Use 341896 — 7')
409365 — 7'
409366 — 12'
409367 — 25'
409368 — 50'
① Mount monitor
connector.
330436
② Mount 405373 (6')
(405374 — 12')
(405375 — 25')
(405376 — 50')
(405377 — 75')
(405378 — 100')
191392
④ Mount opcon connector.
405611 ac CABLE
⑤ 345093 CABLE (4 1/2')

Fig. 16—Free-Standing Monitor Base and Opcon Cabling to Logic Assembly for KD, KDP Stations

12. DATA SETS

The following Bell System data sets or equivalent modems may be used with Model 40/2 sets and stations.

BELL SYSTEM DATA SET	MAXIMUM BAUD RATE
202C	1200
202D	1200
202R	1200
202T	1200
201C	2400

The following data set functional interface designations and connector pin assignments are used with Model 40/2 systems via the 9140 controller "T" cable.

CONNECTOR PIN NO.	INTERFACE DESIGNATION USING EIA RS-232-C NOMENCLATURE
1	Protective Ground (AA)
2	Transmitted Data (BA)
3	Received Data (BB)
4	Request-to-Send (CA)
5	Clear-to-Send (CB)
6	Data Set Ready (CC)
7	Signal Ground (AB)
8	Data Carrier Detector (CF)
12	Secondary Data Carrier Detector (SCF)
20	Data Terminal Ready (CD)

EIA RS-232-C specifies data and control signal levels as follows:

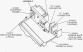
VOLTAGE	CONTROL SIGNAL	DATA SIGNAL	BINARY STATE
-5 V to -25 V	Off	Mark	1
+5 V to +25 V	On	Space	0

C. STATION ASSEMBLY (Cont'd)

13. MODIFICATION KITS

Audible Alarm and Answer-Back

The 345633 modification kit will supply an audible alarm and optional answer-back if the station is not ready to receive (DTR off) or a vertical parity error is detected in the message text. A ready to receive answer-back is sent if DTR is on and no errors are detected. The 9140YH controller must contain a 332083 (G3) card and its wiring must conform to Issue 8 or higher of 8123WD Wiring Diagram. Installation of the 345626 alarm assembly and 322641 circuit card are shown below with details given in Specification 568038 and the 2086SD Schematic Diagram.

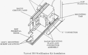

9140YH STATION CONTROLLER
345626 ALARM ASSEMBLY
345601 MOUNTING FRAME
"B" CARD CONNECTOR
"C" CARD CONNECTOR
332083 CHANNEL CONTROL
195579 SCREW W/LOCKWASHER (2 Places)
322641 ANSWER-BACK AND ALARM CIRCUIT CARD
10CAB001 PEDESTAL DOOR

Typical Audible Alarm and Answer-Back Modification Kit Installation

Individual Receive Selection

The 344555 modification kit provides interconnecting and control facilities in 43-type set combination KD/ROP (private line version). The ROP designated as the primary receiver must be equipped with a 345608 mounting frame and power supply. The KD secondary receiver must be equipped with a 345608 mounting frame with power supply, 9143 Station Controller, and 322409 circuit card (3rd code). The 344545 interface cable is used between the primary receiver, secondary receiver, individual receiver selection assembly, and the 9140 Station Controller. A typical KD+ROP arrangement equipped with an individual receiver selection modification kit is shown in Fig. 3, Page 61.

The Specification 566005 describes the use of the primary receiver and the ROP as the secondary receiver but this should not be used for full duplex operation and is not recommended for half-duplex because the "No-Traffic" replies "Ready/Not Ready" reflect the primary receiver status. Installation of the 344545 interface cable, the 344546 mounting plate and the 344545 interface cable is given in Specification 566005. The actual wiring diagram for the 344545 mounting plate and connector assembly is 9011WD. The schematic wiring diagram for the 344553 logic circuit card is 1210SD.


345483 MOUNTING FRAME AND POWER SUPPLY
ROP PEDESTAL
344553 CIRCUIT CARD
MOUNTING TAB
ROP PEDESTAL DOOR
"X" CONNECTOR
145871 MOUNTING SCREW LOCATIONS
344546 MOUNTING PLATE AND CONNECTOR ASSEMBLY

Typical ISS Modification Kit Installation

2400 Baud Isochronous Operation With Private Detection and Alarm Feature.

The 402326 modification kit provides 2400 baud isochronous operation and requires a 201C or equivalent data set. The kit also supplies the alarm and vertical parity error features of the 345025 modification kit. The 9140 Station Controller must contain a 322083 card and this modification kit updates a 322010 "A" card into a 322080 "A3" card. The modification may be used with either a KD having a 410771 card or a ROP using a 410580 card. Installation procedures of the modification are given in Specification 568756 which accompanies the modification kit.

NOTES

PART 4 — OPTIONS
A. GENERAL

This part includes all options that are utilized in the 40/3 Station. It also covers handling of circuit cards, location of circuit card switch packs and information on how to activate or change switch positions.

The options enabled should be checked on J. 40/3 STATION FEATURES AND OPTIONS CHART. (See Page 106.)

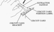
If any field options are to be changed, turn off power and remove cards using the following procedures. Check card to see that pins are not bent before reinserting card.

Warning: Wear the 346393 ground strap before removing or handling controller or printer circuit cards. See Part 1 of this manual.

Extracting Circuit Cards From the Controller

(a) Lift up on the extractor handles of the circuit card.

(b) Lift circuit card straight up.



Printer Circuit Card Removal

Only 410076 or 410640 printer circuit cards require removal to gain access to the option setting switches. Printers with other circuit card types do not require bottom plate and circuit card removal.

Remove 410076 or 410640 Circuit Card From 80-Column Friction Feed Printer

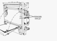
Remove two screws that secure circuit card cover to the bottom of the printer and allow cover to hang down.

Using finger hold and a firm grip of the card edge on opposite side as shown, apply an even pulling force and unplug card from the two rows of magnet assembly contacts.

Lift left (bottom) end of card up and out of channel (bypassing printer base shipping screws) first, then right side of card up and out. Remove card from connector.

A. GENERAL (Cont'd)

Note: During reassembly, make certain that the connector is plugged onto the card and that the card is located within the channel before plugging it into the two rows of magnet assembly contacts. Apply slight pressure at both ends and middle of card to fully seat it on magnet contacts.



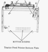
Friction Feed Printer Circuit Card Removal

Remove 410076 or 410640 Circuit Card From 80-Column Tractor Feed Printer

Remove two top screws and loosen three bottom screws.

Slide bottom plate out.

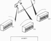
Remove connector from card; using pull points, pull card down and out.



Tractor Feed Printer Bottom Plate

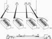
Optioning the 410070 or 410640 Circuit Card of 40P102 Friction Feed or 40P151, 40P152, 40P153 Tractor Feed Printers

Either circuit card may be optioned after removal from the printer by setting the option switches as detailed in B. ACTIVATING SET OR STATION OPTIONS.



Optioning the 410071 Circuit Card of 40P252 Through 40P255 80-Column Forms Access Tractor Feed Printers or 40P154 80-Column Tractor Feed Printer

It is not necessary to remove the 410071 circuit card from the printer to set the option switches. The option switches are accessible through openings in the printer bottom plate.



SLOTS FOR ACCESSING
OPTION SWITCHES

Forms Access Printer

SLOTS FOR ACCESSING
OPTION SWITCHES

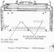
40P154 Printer

A. GENERAL (Contd)

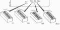
Optioning the 410072 or 410729 Circuit Card for 132-Column Tractor Feed Printer

It is not necessary to remove the 410072 or 410729 circuit card from the printer in order to option it. Option switches on the card are accessible through openings in the bottom plate of the printer.

410729
D11 D13
SWD 11
SWD 13

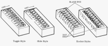

SLOTS FOR ACCESSING OPTION SWITCHES
No slot here with 410729 card.

Tractor Feed Printer — 132-Column


410072
C4
D8 D9 D10
C4
D8
D9
D10

Option Switch Styles

Several styles of option selecting switches may be present on the printer and/or controller circuit cards. On toggle or slide type switches, options are activated by positioning the toggle or slide toward the ON designation. On rocker type switches, the dotted rocker end or the rocker end adjacent to a dot are positioned down (depressed) to activate an option. Conversely, to deactivate or switch OFF an option, position the toggle or slide away from ON or depress the blank end of the rocker switch.



Toggle Style　　Slide Style　　Rocker Styles

(Toggles and Slides Shown in OFF Position, Option Deactivated)

(Rockers Shown in ON Position, Option Activated)

The option selecting switches are of various sizes, having between 4 and 10 toggles, slides or rockers, numbered accordingly.

B. ACTIVATING SET OR STATION OPTIONS

To activate or change options on the circuit cards, perform the following procedures.

(a) Turn off all power to the station.

(b) Locate the circuit card that contains the option to be activated. (A complete list of options available can be found on Pages 79, 80.)

(c) Remove circuit card.

Warning: To avoid possible damage to MOS circuitry, attach 346292 static ground strap to wrist and frame ground before handling circuit cards.

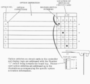
8. ACTIVATING SET OR STATION OPTIONS (Contd)

(d) Locate the proper option switch or screw and activate as required.

(e) Return the circuit card to its proper location.

(f) Turn on station power.

(g) Perform a checkout of the station to verify proper operation of the option.



OPTION NO.
OPTION CONDITIONS
OPTION DEFINITION
ROCKER SWITCH NUMBERS
LOCATION OF SWITCH ON CIRCUIT CARD
A-10
1 2 3 4 5
5.
a.
b.
c.
d.
e.
f.
TOP OF CARD

Option switches on circuit cards in the controller and display logic are addressed with the Number "1" switch being towards the board top. Printer card option switches are addressed as in the illustrations accompanying the specific option activation information.

Legend:

● Indicates dot end of rocker switch depressed, toggle or slide positioned to ON.
○ Indicates blank end of rocker switch depressed, toggle or slide positioned to OFF.
* Factory optioned.
— Switch position does not affect option.

C. 40/3 OPTION LOCATION CHART

DATASPEED 40/3 OPTION NUMBER	LOCATION (Circuit Card or Printer)	PAGE NUMBER
4-1.	410770	82
4-3.	410580, 410771	81, 86
4-4.	410771	81
4-(5.-8.)	410674	83
4-(10.-12.)	410675	84
4-13.	410676	83
4-17.	410640, 410729, 410671, 410672, 410676	89, 90, 91, 93, 95
4-(18.-19.)	410640, 410729, 410671, 410672, 410676	88, 90, 92, 94, 96
4-20.	On Printer	88
4-(21.-23.)	410640, 410729, 410671, 410672, 410676	89, 90, 92, 94, 96
4-(24.-25.)	410580	86
4-27.	410675	84
4-(28.-29.)	410770	82
4-(30.-32.)	410771	81
4-(33.-34.)	410771	81
4-(35.-36.)	410580	86
4-37.	410771	81
4-38.	410582	87
4-39.	On Printer	88
4-40.	410674	85
4-48.	410729, 410671, 410672, 410676	90, 92, 94, 96
4-50.	410770	82
4-(51.-53.)	410770	82
4-(54.-55.)	410671, 410672, 410676	92, 94, 96
4-56.	410676	96
4-(57.-58.)	410671, 410672, 410676	92, 94, 96
4-(59.-60.)	410671, 410672	92, 94
4-61.	410151	97

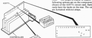
D. 9140 CONTROLLER OPTION LOCATION CHART

9140 OPTION NUMBER	LOCATION	PAGE NUMBER
9-1. (a.-d.)	322442 C2-2	103
9-1. (e.-g.)	322014 D1	104
9-1. h.	322013 C2	102
9-1. (i-j.)	322014 D1	104
9-1. (k.-n.)	322010 A	99
9-1. (o.-p.)	322489 A-1	100
9-1. q.	322018 F2	107
9-2.	322014 D1	104
9-3.	322011 B	101
9-4.	322010 A	99
9-5.	322011 B	101
9-6.	322014 D1 322451 E2	104 106
9-7.	322014 D1	105
9-8.	322011 B 322451 E2 322642 —	101 106 109
9-9.	322013 C2 322014 D1	102 105
9-10.	322014 D1	105
9-11.	322063 G3	108
9-12.	322442 C2-2	103
9-13.	322451 E2	106
9-14. — 9-15.	322010 A	99
9-16.	322489 A-1	100
9-17.	322013 C2	102
9-18.	322442 C2-2	103
9-19. (a.-d.)	322010 A	100
9-19. (e.-f.)	322489 A-1	100
9-20. — 9-21.	322442 C2-2	103
9-22. — 9-23.	322013 C2	102
9-24.	322451 E2	106
9-25.	322017 F1 322018 F2	107 107
9-26.	322451 E2	106
9-27.	322641 — 322642 —	108 109

E. 40C202 CONTROLLER OPTIONS

410771 — Full Duplex Interface Circuit Card — Card Position X22

Note: The straps to enable or disable the following options are on the component side (front) of the 410771 circuit card. Early cards have the lands on the rear. The cards are furnished without straps.



Sketch of present 410771 showing location of Straps (circuit lands) A through D.

			A-11						
4-3. KSR Send/Receive Data Baud Rate			1	2	3	4	5	6	
	a	4800 Baud	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	b	1200 Baud	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	*
	c	2400 Baud	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	d	1800 Baud	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
4-4. KSR Reverse Channel			1	2	3	4	5	6	
	a	Reverse Channel Required to Send	●	–	–	–	–	–	
	b	Reverse Channel Not Required to Send	○	–	–	–	–	–	*
4-30. Message Preparation			1	2	3	4	5	6	
	a	Automatic Cursor Home and Send Mode on Upon Entry of Message Ending Character	–	–	–	–	–	○	*
	b	Manual Cursor Home and Send Mode on Upon Entry of Message Ending Character	–	–	–	–	–	●	

Choose 1

Choose 1

Choose 1

4-31. KD Forced to Receive Mode When Alarm Lamp Is On			Strap A	
	a	Independent of Printer Mode	○	*
	b	Dependent on Printer Mode (Goes Receive Only if in Print On Line Mode)	●	
4-32. Printer Access From Line (When PRINT ON LINE Lamp is On)			Strap B	
	a	If KD Is in Send, Receive, or Local Mode	○	*
	b	If KD Is in Receive Mode or Local Mode	●	

Choose 1

Choose 1

See Legend for ○, ●, – and * on Page 78.

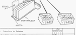
K. 40C382 CONTROLLER OPTIONS (Cont)

410771 — Full Duplex Circuit Card — Card Position X02 (Cont)

		Strap C		
4-10.	9140 Controller Mode			
a	Full Duplex (FDX) -- CTS Controls RTS	●		Choose 1
b	Half-Duplex (HDX) -- CTS Does Not Control RTS	○	*	
4-24.	Control Signal Restrictions	Strap D		
a	[illegible] Can Turn On When [illegible] Is On	○	*	Choose 1
b	[illegible] Cannot Turn On When [illegible] Is On	●		

		1	2	3	4		
4-37.	Requirement for Sending						
a	CTS Signal Required for Sending	○	●	-	-	*	Choose 1
b	CTS Signal Not Required for Sending	●	○	-	-		

410770 — Independent Printer Access Circuit Card — Card Position X01



		C-4 1	2	3	4	5		
4-1.	Interface to Printer							
a	TTL (Use for [illegible])	○	●	-	-	-		Choose 1
b	EIA (Use for [illegible])	●	○	-	-	-	*	
4-19.	Disconnect on Loss of Carrier	C-6 1	2	3	4	5		
a	Disconnect After 45 Seconds	-	-	○	-	-		Choose 1
b	Does Not Disconnect - Timer Disabled	-	-	●	-	-	*	
4-24.	Printer Message Mode	C-6 1	2	3	4	5		
a	When in Print On Line Mode, Copies Display on Send, Copies Line in Receive or Local	-	-	-	○	●	*	Choose 1
b	Not Used on 4073-Type	-	-	-	-	-		
c	Not Used on 4073-Type	-	-	-	-	-		
d	When in Print On-Line, Copies Received Data in Receive or Local	-	-	-	○	○		

		C-10 1	2	3	4	5	6		
4-30.	Action Upon Printer [illegible] Loss								
a	[illegible]	●	○	-	-	-	-		Choose 1
b	[illegible]	○	●	-	-	-	-		
c	No Mode Change In [illegible]	○	○	-	-	-	-	*	

See Legend for ○ , ●, — and * on Page 78.

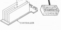
Note: The switch pack in position C-6, was in position C-7 on Issue 2 and earlier circuit cards.

410773 — Independent Printer Access Circuit Card — Card Position X31

			[illegible]						
4-51.	Remote Control		1	2	3	4	5	6	
	a	4250 Character Control	[illegible]	[illegible]	●	[illegible]	[illegible]	[illegible]	Choose 1
	b	4010 DOE Control for Split Operation	[illegible]	[illegible]	○	●	[illegible]	[illegible]	
	c	Not Used on 4010-Type Stations	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
4-52.	Print On Line Control		1	2	3	4	5	6	
	a	Stops All Next Data	[illegible]	[illegible]	[illegible]	[illegible]	●	[illegible]	Choose 1
	b	See Option 4-53	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
4-53.	Printer Motor Hold Time:		1	2	3	4	5	6	
	a	Enabled (See Note)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	●	Choose 1
	b	Disabled	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

Note: If both Options 4-51.b. and 4-53.a. or both 4-52.a. and 4-53.a. are used, Strap A (land) must be cut.

410676 — Send Variations Circuit Card — Card Position X32

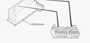


			[illegible]								
4-61.	Send Variations (All Without Definitions Except as Modified by Option 4-91)		1	2	3	4	5	6	7	8	
	a	Send All as Displayed	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Choose 1
	b	Send All as Displayed With Unprotected NT to Space	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	*
	c	Send Protect as Space and Unprotected as Displayed	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	d	Send Protect as Space, Unprotected as Displayed and NT to Space	○	●	○	○	●	○	●	●	
	e	Send Protect as Delete, Unprotected as Displayed	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	f	Send Unprotected Only as Displayed	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	g	Send Unprotected Only and NT at End of Field	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	h	Send Unprotected Only With Unprotected NT to Space	○	●	○	●	●	●	●	●	

See Legend for ○ , ● , — and * on Page 78.

K. 40C232 CONTROLLER OPTIONS (Cont'd)

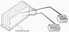
410675 — Message Control Circuit Card — Card Position 304



	A-3	B-11	
4-13. Line Ending Sequence	1 2 3 4 5 6	1 2 3 4 5	
a. CR LF	[illegible]	[illegible]	Choose 1
b. CR CR LF	[illegible]	[illegible]	
c. LF	[illegible]	[illegible]	
4-11. Mode After Send	A-3		
	1 2 3 4 5 6		
a. Local	[illegible]		Choose 1
b. Receive	[illegible]		
c. Not Used in 40/3-Type Stations	[illegible]		
4-12. Form Error	A-3		
	1 2 3 4 5 6		
a. Disabled in Local	[illegible]		Choose 1
b. Enabled in Local	[illegible]		
4-27. Message Start	A-3		
	1 2 3 4 5 6		
a. Home on Transmit	[illegible]		Choose 1
b. Send From Cursor	[illegible]		

See Legend for ○ , ● , — and * on Page 78.

410674 – Data Bus and Decode Circuit Card – Card Position X05



		A-10	C-12	
4-5.	[illegible] Response to Received Characters			
a	Reject Null	●		Choose 1
b	Accept Null	○		
c	Reject [illegible]	●		Choose 1
d	Accept [illegible]	○		
e	Reject Delete	●		Choose 1
f	Accept Delete	○		
g	Reject [illegible] (Those 1A and Higher)		●	Choose 1
h	Accept [illegible] (Those 1A and Higher)		○	
i	Reject [illegible] (Those 1A and Higher)		●	Choose 1
j	Accept [illegible] (Those 1A and Higher)		○	
4-6.	Functions on Receive			
a	All Escape Sequences Displayed as Received	○		Choose 1
b	All Escape Sequences Performed as Received But Not Displayed	●		
4-7.	Errored Character on Receive			
a	Not Displayed on Terminal Parity Error	●		Choose 1
b	Displayed on Terminal Parity Error	○		
4-8.	Message Ending Character			
a	End on FF		●	Choose 1
b	Do Not End on FF		○	
c	End on ETX		●	Choose 1
d	Do Not End on ETX		○	
e	End on EOT		●	Choose 1
f	Do Not End on EOT		○	
g	End on CR		●	Choose 1
h	Do Not End on CR		○	
4-9.	Highlight			
a	Delimiters Not Sent (Except in Form Send Mode)		●	Choose 1
b	Delimiters Sent (Modifies Option 4-12)		○	
4-10.	Go Receive on Sending CR (or) (Those 1A and Higher)			
a	Not Used in [illegible]-Type Stations		●	Choose b
b	Do Not Go Receive on Sending CR		○	

See Legend for ○, ●, – and * on Page 78.

F. 43C133 CONTROLLER OPTIONS

410586 — EIA Interface Circuit Card Options — Card Position JC in 43C133 ROP Controller

PC
410586 CARD ASSEMBLY
(Component Side)
PA
PB

Early Issue 6A

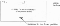
PC
410586 CARD ASSEMBLY
(Component Side)
PA
PB

Late Issue 7B

4-3.	EIA/Send/Receive Data Baud Rate	Insulator [illegible] Position	Insulator [illegible] Position		
a	[illegible]	[illegible]	[illegible]	*	Choose 1
b	[illegible]	[illegible]	[illegible]		
c	[illegible]	[illegible]	[illegible]		
4-24.	ASR/Even Character Parity Check	Strap Condition			
a	Even Terminal Parity	Strap A to B		*	Choose 1
b	Odd Terminal Parity	Strap A to C			
4-22.	Response to Receiving Parity Error	Insulator F Position	Strap A Condition		
a	Printer Receives Odd Parity Null [illegible]	2	–	*	Choose 1
b	Printer Receives Character Even Though it Has Parity Error	1	–		
c	DATA ERROR Key Lights		Removed		Choose 1
d	DATA ERROR Key Does Not Light		Installed	*	
4-21.	Printer Motor Control	Strap Condition			
a	"Data Set Ready" Controls Printer Motor	Strap B to 1		*	Choose 1
b	"Carrier Detect" Controls Printer Motor	Strap B to 2			
4-30.	Printer Paper Alarm	Insulator C Position			
a	Paper Alarm Allows "Data Terminal Ready" At End of Call. DTR Held OFF Until Paper is Restored	2		*	Choose 1
b	Paper Alarm Allows "Data Terminal Ready" Immediately. DTR Held OFF Until Paper is Restored	1			

See Legend for ☐ , ● , — and * on Page 78.

410582 – ROP Controller – Card Position JA in 40C103 ROP Controller


410582 CARD ASSEMBLY
(Component Side)
Insulator in the down position.

Note: Option 4-38b is shown enabled.

4-38.	Data Stacking	Insulator Position
a	Enable Data Stacking	Insulator Up
b	Disable Data Stacking	Insulator Down

* } Choose 1

Note: The following strapping is required on Issue 1 of the 410587 circuit card when using a 40C103/AE ROP controller (without a buffer) and Option 4-38a is to be enabled. Select Option 4-38b when using 40C103/AD (with buffer).

PC – PIN 20 to MLB1 PIN 1
MLB1 PIN 2 to MLB1 PIN 3
MLB1 PIN 4 to MLA1 PIN 2
(Connector PC-22)

410587 Circuit Card

Issue 2a of the 410587 circuit card has these straps incorporated in the board layout.

See Legend for ○, ●, – and * on Page 78.

G. PRINTERS OPTIONS

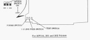
Printer – Test, LF and Form Switches

PRINTER
Forms
LF
Test
On
On
Off
Off
LINE FEED OPTION SWITCH DOUBLE
SINGLE

Tractor Feed

Friction Feed

For 40P151 and 153 Printers   For 40P101 and 102 Printers


Forms LF Test
On 2 On
Off 1 Off
FORMS OPTION SWITCH ON
OFF
PRINTER COVER (Top View)
FORMS SWITCH
1 2 LINE FEED SWITCH
TEST SWITCH

For 40P134, 201 and 202 Printers

Printer Option Switches Located on Top of Printer

4-28. Line Feed on Printer	
Single *	Choose 1
Double	
4-29. Forms Feed (Tractor Feed Printer Only)	
On	Choose 1
Off	

See Legend for ☐ , ● , – and * on Page 78.

410640 — Printer Logic Circuit Card (80 Columns) — Card Located in Lower Portion of Printer

C10 C11
123456
123456

4-17. Printer Margin and Form Width — C-11 — Choose 1
- a Last Character in 80th Column
- Last Character in 79th Column
- Last Character in 78th Column
- Last Character in 77th Column
- Last Character in 76th Column
- Last Character in 75th Column
- Last Character in 74th Column
- Last Character in 73rd Column

4-18. Printer Paper Feed Out — C-10, C-11 — Choose 1
- a No Paper Feed Out
- Paper Feed Out on [illegible]
- Paper Feed Out on [illegible]

4-19. Printer Errored Character Symbol — C-10 — Choose 1
- a Printed on Even Parity Error
- Printed on Odd Parity Error
- Not Printed on Parity Error
- Printers With 96 Character Set
- Printers With 64 Character Set
- Printers With Extended ASCII Character Set

4-21. Foldover on Up-Low Printer — C-11 — Choose 1
- a Lower Case and Upper Case Print
- b Lower Case Prints as Upper Case

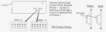
4-22. Foldover on Monocase Printer — C-11
- Lower Case Prints as Error Symbol
- Lower Case Prints as Upper Case

4-23. Extended ASCII on Printer — C-10 — Choose 1
- a Prints Extended ASCII Characters (No Parity Check) (Requires Local Engineering)
- b Does Not Print Extended Characters (See Option 4-19a, b, or c.)

See Legend for ○ , ● , — and * on Page 78.

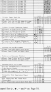
G. PRINTER OPTIONS (Contd)

410729 — Printer Logic Circuit Card (132-Column) — Access Through Printer Bottom Plate


410729
S11
S13
SWD 11
SWD 13
Closed
Open
SWITCH

(Printer Circuit Card Viewed From Beneath Printer — Access to Switches is Through a Cutout in Bottom Pan of Printer.)

132-Column Printer



Choose 1

Choose 1

Choose 1

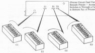
Choose 1

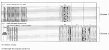
Choose 1

Choose 1

See Legend for ○ , ● , — and * on Page 78.

410071 — Printer Logic Circuit Card (80-Column) — Access Through Printer Bottom Plate


C1
E5
E8
E9
(Printer Circuit Card Viewed From Beneath Printer — Access to Switches is Through a Cutout in Bottom Pan of Printer.)
C1
E5
E8
E9


Printer Left Margin and Form Width
C1
Choose 1
Printer Right Margin and Form Width
E5
E8
E9
Choose 1

To obtain counts:

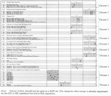
73 through 80 program as shown.
61 through 72 program as shown, then operate E8 position 8 to OFF.
49 through 60 program as shown, then operate E5 position 1 to OFF.
37 through 48 program as shown, then operate E5 position 7 to OFF.
25 through 36 program as shown, then operate E5 position 8 to OFF.

(X) Indicates desired column number.

See Legend for ○, ●, — and * on Page 78.

G. PRINTERS OPTIONS (Contd)

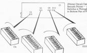
410071 — Printer Logic Circuit Card (80-Column) — Access Through Printer Bottom Plate (Contd)


Choose 1
Choose 1
Choose 1
Choose 1
Choose 1
Choose 1
Choose 1
Choose 1
Choose 1
Choose 1
Choose 1

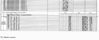
Note: Option 4-54.b. should not be used on a KDP set. The character after escape is already suppressed by the KD in 8N operation but not in EIA operation.

See Legend for O , ● , — and * on Page 78.

410072 — Printer Logic Circuit Card (132-Column) — Access Through Printer Bottom Plate



(Printer Circuit Card Viewed From Beneath Printer — Access to Switches is Through a Cutout in Bottom Pan of Printer.)



Choose

Choose

To obtain counts:

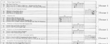
121 through 132 program as shown.
109 through 120 program as shown then operate D9 position 7 OFF.
97 through 108 program as shown, then operate D9 position 8 OFF.
85 through 96 program as shown, then operate D9 position 7 OFF.
73 through 84 program as shown, then operate D9 position 8 OFF.

(X) Indicates desired column number.

See Legend for ○ , ● , — and * on Page 78.

G. PRINTERS OPTIONS (Contd)

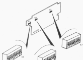
410072 – Printer Logic Circuit Card (132-Column) – Access Through Printer Bottom Plate (Contd)

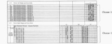

Choose 1
Choose 1
Choose 1
Choose 1
Choose 1
Choose 1
Choose 1
Choose 1
Choose 1
Choose 1
Choose 1

Note: Option 4-54.b. should not be used on a KDP set. The character after escape is already suppressed by the KD in SSI operation but not in EIA operation.

See Legend for ○ , ● , – and * on Page 78.

410076 – Printer Logic Circuit Card (80-Column) – Card Located in Lower Portion of Printer




Choose 1
Choose 1

To obtain counts:

73 through 80 program as shown.
81 through 72 program as shown, then operate E7 position 5 to OFF.
49 through 80 program as shown, then operate E7 position 5 to OFF.
37 through 48 program as shown, then operate E2 position 7 to OFF.
25 through 36 program as shown, then operate E2 position 8 to OFF.

(X) Indicates desired column number.

See Legend for O, ●, - and * on Page 79.

G. PRINTERS OPTIONS (Contd)

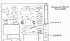
410076 – Printer Logic Circuit Card (86-Column) – Card Located in Lower Portion of Printer (Contd)

[illegible]	[illegible]	[illegible]	[illegible]	Choose 1
[illegible]	[illegible]	[illegible]	[illegible]	Choose 1
[illegible]	[illegible]	[illegible]	[illegible]	Choose 1
[illegible]	[illegible]	[illegible]	[illegible]	Choose 1
[illegible]	[illegible]	[illegible]	[illegible]	Choose 1
[illegible]	[illegible]	[illegible]	[illegible]	Choose 1
[illegible]	[illegible]	[illegible]	[illegible]	Choose 1
[illegible]	[illegible]	[illegible]	[illegible]	Choose 1
[illegible]	[illegible]	[illegible]	[illegible]	Choose 1
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	Choose 1

Note: Options 4-54.b. should not be used on a KDP set. The character after escape is already suppressed by the KD in SRI operation but not in EIA operation.

See Legend for ○, ●, — and * on Page 78.

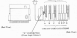
410051 — Circuit Card — Located in Printer Power Module or Power Supply


(Component Side of Circuit Card)
SCREW A
SCREW B

441.	Regulator Grounding (Circuit Ground to Frame Ground)	Screw A		Screw B		
		Component	Noncomponent	Component	Noncomponent	
a.	SSI (CKT & FR GND at PTR)	In	—	—	In	Choose 1
b.	SSI/DSM (CKT & FR GND @ PTR, +12V)	In	—	In	—	
c.	DSM (PWR GND EXT to PTR, +12V)	—	In	In	—	

H. 9140 CONTROLLER OPTIONS

The circuit cards in the 9140 Station Controller are located in card connectors bearing the same letter designation as the initial letter designation on the circuit card. Card D1 is therefore located in the "D" card connector. A circuit card with a dash (-) in its designation is mounted piggyback on the card bearing the same letter designation. Card C2-2 is therefore mounted piggyback on card C2 in the "C" connector.


TO DATA SET, "T" CONNECTOR
CIRCUIT CARDS
A
B
C
D
E
F
G
CIRCUIT CARD LOCATIONS
(End View)
"X" CONNECTOR
(From Logic Cabinet)
(Side View)

H. 9140 CONTROLLER OPTIONS (Contd)

9140 circuit cards are optioned by cutting and removing or leaving intact specific wire straps, as indicated in the following legend:

●Strap in place.
○Strap removed.
—Strap has no bearing on option.

The ASCII code chart provided here should be referred to when coding CDC, TSC or other variable characters as detailed in the 9140 Station Controller options.

ASCII CODE

(American National Standard Code for Information Interchange)

Note: Shaded boxes indicate characters with bit 8 "1" for even parity.

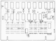
Example: Bits 1 through 7 of the bit permutation for the character M are 1011001, respectively.

1 = Mark 0 = Space

NUL — Null
SOH — Start of Heading
STX — Start of Text
ETX — End of Text
EOT — End of Transmission
ENQ — Enquiry
ACK — Acknowledge
BEL — Bell
BS — Back Space
HT — Horizontal Tab
NL — New Line
VT — Vertical Tab
FF — Form Feed
CR — Carriage Return
SO — Shift Out
SI — Shift In
DLE — Data Link Escape

DC1 — Device Control 1
DC2 — Device Control 2
DC3 — Device Control 3
DC4 — Device Control 4
NAK — Negative Acknowledge
SYN — Synchronous
ETB — End of Transmission Block
CAN — Cancel
EM — End of Media
SUB — Substitute
ESC — Escape
FS — Field Separator
GS — Group Separator
RS — Record Separator
US — Unit Separator
SP — Space
DEL — Delete

322010 – CDC Detector (A) – Card Position A



9-1.		Variable Characters (See Below)	Coding Instructions
	k.	Call Directing Code (CDC) 1, Character 1	
	l.	Call Directing Code (CDC) 1, Character 2	
	m.	Call Directing Code (CDC) 2, Character 1	
	n.	Call Directing Code (CDC) 2, Character 2	

Cut straps labeled "M" for levels that are marking.
Cut straps labeled "S" for levels that are spacing.
Every level must have one strap cut.

			Strap 50
9-4.		Unit Code of Characters Sent	
	a.	10-Unit Code	●
	b.	11-Unit Code	○

Choose 1

			Straps		
9-14.		Number of Characters in CDC1 (Exclusive of Delete, if Used)	1	2	3
	a.	One-Character CDC	●	○	●
	b.	Two-Character CDC	○	●	●

Choose 1

			Straps		
9-15.		Number of Characters in CDC2 (Exclusive of Delete, if Used)	4	5	6
	a.	One-Character CDC	●	○	●
	b.	Two-Character CDC	○	●	●
	c.	No CDC2	○	○	○

Choose 1

If no CDC2 is used, program the CDC2 characters (Option 9-1m and 9-1n identical to CDC1 (Option 9-1k and 9-1l) and install Option 9-15c.

See Legend for ○ , ● , – and * on Page 98.

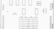
H. 9140 CONTROLLER OPTIONS (Cont)

322810 — CDC Detector (A) — Card Position A (Cont)

			Straps		
9-19.		Answer-Back to CDC (Observe That, for Example, Option 9-17c Can Override Option 9-19a or 19b) (See Option 9-17, Card C2.)	18	19	
	a.	Answer-Back CDC1 Always	O	—	Choose 1
	b.	Answer-Back to CDC1 Only When Ready to Receive	●	—	
	c.	Answer-Back to CDC2 Always	—	O	Choose 1
	d.	Answer-Back to CDC2 Only When Ready to Receive	—	●	

322489 — 2nd CDC Detector A-1 — Card Position and Piggyback to A

Note: Card A-1 not present on all stations; it is USOC DJB.



9-1.		Variable Characters (See Below)	Coding Instructions
	o.	Call Directing Code (CDC) 2, Character 1	
	p.	Call Directing Code (CDC) 2, Character 2	

Cut strap labeled "M" for levels that are marking.
Cut strap labeled "S" for levels that are spacing.
Every level must have one strap cut.

			Straps		
9-15.		Number of Characters in CDC2 (Exclusive of Delete, if Used)	10	11	
	a.	One Character CDC	●	O	Choose 1
	b.	Two Character CDC	O	●	
	c.	No CDC2	Remove Card A-1		

			Strap 31	
9-19.		Answer-Back to CDC (See Option 9-19, Card A.)		
	a.		—	Choose 1
	b.		—	
	c.		—	Choose 1
	d.		—	
	e.	Answer - Back to CDC2 Always	O	Choose 1
	f.	Answer - Back to CDC2 When Ready to Receive	●	

See Legend for O, ●, — and * on Page 98.

322888 — CDC Detector (A2) — Card Position A

Note: This card is required for 1800 or 2400 baud operation. Options are the same as A card (322010).

322011 — R/T Distributor (B) — Card Position B

9-3. Unit Code of Answer-Back Characters Sent		Strap 13	
a.	10-Unit Code	○	Choose 1
b.	11-Unit Code	●	
9-5. Code Level of Characters Sent		Strap 30	
a.	8-Unit Code	●	Choose 1
b.	7-Unit Code or Less	○	
9-8. Regeneration of Sent Data (Requirements of Options 9-6c -- 9-6f Override Option 9-8.) (See Option 9-6, Card 31.)		Strap 26	
a.	No Regeneration	○	Choose 1
b.	Regeneration	●	

Note: EOP applications require Option 9-8.b.

See Legend for ○, ●, — and * on Page 88.

H. 9140 CONTROLLER OPTIONS (Cont'd)

222013 – Receive Control Logic (CS) – Card Position C

9-1.	Variable Characters	Coding Instructions
a.	Interrupt Character	
	Cut straps labeled "M" for levels that are marking. Cut straps labeled "S" for levels that are spacing. Every level must have one strap cut.	

9-9.	Interrupt Feature	Strap 41
a.	Stop on Interrupt Character and Blind Receive Data, Start on STX (See Note Below)	●
b.	Does Not Stop on Interrupt Character	○

Choose 1

NOTE: If Option 9-9a is selected, Option 9-6a must be selected. Straps 33 and 34 must not both be closed with straps.

9-11.	Answer-Back Generated for CDCs	Straps			
		[illegible]	[illegible]	[illegible]	[illegible]
a.	Answer-Back to CDC1 (No Delete After CDC)	–	–	●	○
b.	Answer-Back to CDC1 After Delete	–	–	●	●
c.	No Answer-Back to CDC1	–	–	○	–
d.	Answer-Back to CDC2 (No Delete After CDC)	●	–	–	○
e.	Answer-Back to CDC2 After Delete	●	–	–	●
f.	No Answer-Back to CDC2	○	–	–	–
g.	Answer-Back to CDC3 (No Delete After CDC)	–	●	–	○
h.	Answer-Back to CDC3 After Delete	–	●	–	●
i.	No Answer-Back to CDC3	–	○	–	–

Choose 1

Choose 1

Choose 1

9-12.	Received Vertical Parity Error Response	Strap 36
a.	ODD Parity Causes Line Break	●
b.	ODD Parity Does Not Cause Line Break	○

Choose 1

9-13.	Loss of CTS Response (Data Terminal Ready)	Strap 37
a.	Loss of CTS Causes Line Break	●
b.	Loss of CTS Does Not Cause Line Break	○

Choose 1

See Legend for ○ , ●, – and * on Page 98.

322442 — A/B and Motor Control (C2-2) — Card Position, Piggyback to C2

9-1.	Variable Characters (See Below)	Coding Instructions				
a.	Answer-Back Character 1					
b.	Answer-Back Character 2					
c.	Answer-Back Character 3 (Optional AB)					
d.	Answer-Back Character 4 (Negative AB)					
	Cut straps corresponding to marking levels. Close straps corresponding to spacing levels.					
9-12.	1st or 2nd A/B Character Restarts Reader, or Reader Does Not Stop for A/B at All	Straps				
		[illegible]	[illegible]	[illegible]		
a.	2nd Character (If Option 9-4a, 9-4d, 9-4e, or 9-4f Must be Used) (See Option 9-6, Card B1)	○	●	○	Choose 1	
b.	1st Character (If Option 9-4c, 9-4d, 9-4e, or 9-4f is Used) or Does Not Stop (If Option 9-4a or 9-4b is Used) (See Option 9-6, Card B1) Should Not be Used in 43/3-Tape Applications.	●	○	●		
9-18.	Type of Answer-Back to TSC	Strap [illegible]				
a.	Same as Ready to Receive to a CDC Only When RTR is On	○			Choose 1	
b.	Same as Ready to Receive to a CDC (Independent of RTR)	●				
9-19.	Optional Answer-Back to CDC or TSC	Straps				
		[illegible]	[illegible]			
a.	Optional Negative Answer-Back	●	○		Choose 1	
b.	Optional Positive Answer-Back (CDC Only)	○	●			
c.	No Optional Answer-Back	○	○			
9-25.	Response Delay for Motor Start-Up	Strap AA			Choose 1	
a.	Nominal 2-Second Delay	○				
b.	Nominal 200-Millisecond Delay	●				

See Legend for ○, ●, and — on Page 98.

H. 9140 CONTROLLER OPTIONS (Contd)

322014 – Send/Receive Logic (D1) (See Note 2) – Card Position D

		9-1. Variable Character (See Below)	Coding Instructions	
	e.	Transmitter On (Recommend DC1)		Choose 1
	f.	Transmitter Off (Recommend DC3)		
	g.	Acknowledge (Recommend ACK)		
	i.	Transmitter Start Code (TSC) Character 1		
	j.	Transmitter Start Code (TSC) Character 2		
		Cut straps labeled "M" for levels that are marking. Cut straps labeled "S" for levels that are spacing. Every level must have one strap cut.		

		9-2. Number of Characters in TSC	Strap 52	
	a.	Two Characters	○	Choose 1
	b.	Two Characters Followed by Delete	●	

		9-6. XOX or FXX Stop Sending (See Note 2, Page 103.)	Straps 54	53	
	a.	Stop on 'SENT' Interrupt and EOT, Requires Option 9-6.s	○	○	Choose 1
	b.	No Stopping of Sender	○	●	

See Legend for ○, ●, and = on Page 99.

322014 – Send/Receive Logic (D1) (See Note 2) – Card Position D (Cont)

9-7.		Local Copy on RDP of KD Send Data (KD & RDP Arrangements)	Strap 15	
	a.	Local Copy (Can be Used for KD & RDP)	○	Choose 1
	b.	No Local Copy (May be Overridden by Option 4-5) (Choose for Other Arrangements or KD & RDP, if Desired)	●	

9-8.		Interrupt Feature (See Note 2 below.)	Strap 34	
	a.	Stop on Interrupt Character and Send Receive Data, Start on STX	●	Choose 1
	b.	Does not Stop on Interrupt Character	○	
9-10.		Function of EOT Sent by Terminal	Strap 51	
	a.	EOT Deselects 9150 Sender	●	Choose 1
	b.	EOT Does Not Deselect Sender	○	

Note 1: If Option 9-10.a. is used, also use 9-8.b. and KD Option 4-8.e.

Note 2: If Option 9-1.a. is selected, Option 9-6.a. must also be used. Straps 53 and 34 must not both be closed with straps.

Note 3: The RO Logic Card (D2) 363734 has no options.

See Legend for ○, ●, and – on Page 99.

H. 9140 CONTROLLER OPTIONS (Contd)

522451 — EIA Interface (E2) — Card Position E

9-8.	HDX or FDX Sending (See Option 9-9., Card 21.)	Straps [illegible]	[illegible]	[illegible]	[illegible]	
a.	Stop on "Send" Interrupt and ETX, Requires Option 9-8b.	—	—	—	○	Choose 1
b.	Non Stopping of Sender	—	—	—	○	
c.	Not Used in 40/3-Type Applications	—	—	—	—	
d.	Not Used in 40/2-Type Applications	—	—	—	—	
e.	Not Used in 40/3-Type Applications	—	—	—	—	
f.	Not Used in 40/4-Type Applications	—	—	—	—	

9-9.	Regeneration of Sent Data (See Option 9-8., Card 8.) (See Note 1 Below)	Straps [illegible]	[illegible]	[illegible]	
a.	No Regeneration	○	●	○	Choose 1
b.	Regeneration	●	○	●	

9-12.	Local KSR Copy of KD Send Data Provided/Not Provided by 9140 (See Note 2 Below)	Straps [illegible]	[illegible]	
a.	Copy All Sent Data and CPU Responses	●	●	Choose 1
b.	Copy Sent Data Only After ETX is Sent	○	○	

9-13.	Type of F Card Used	Strap [illegible]	
a.	F1 Circuit Card -- Without 9140 Substitute Character	●	Choose 1
b.	F1 Circuit Card -- With 9140 Substitute Character		

9-15.	Data Set Interface	Straps [illegible]	[illegible]	
a.	Gate Data Set CTS With 9140 Signals (Recommended)	○	—	Choose 1
b.	Do Not Gate Data Set CTS With 9140 Signals	●	—	
c.	Gate Data Set DSR With 9140 Signals (Recommended)	—	○	Choose 1
d.	Do Not Gate Data Set DSR With 9140 Signals	—	●	

Note 1: ROP applications must use Option 9-8.b.

Note 2: Local KDP printer or KD-ROP printer copy will be provided regardless of the status of Option 9-7. or 9-13., provided PRINT ON LINE key is lighted and 40/Type KD Option 4-29.a. is chosen.

See Legend for ○, ●, and — on Page 98.

322017 – Character Recognition (F1) – Card Position F1

9-25.	Y3Z6 Recognition of SOH and STX	Straps 64	65	66
a.	SOH Only (See Note 1)	●	○	○
b.	STX Only (Action of STX Requires Local Engineering)	○	●	○
c.	Both SOH and STX	○	○	○
d.	Neither SOH nor STX (Recommended)	○	○	●

Choose 1

Note 1: If customer requires SOH to act like STX, strap XXF-E29 to XXF-E31.

Note 2: Option 9-25 choice has no effect on selection of STX as INTERRUPT character.

322018 – Substitute Character – Card Position F2

9-1.	Variable Character	Coding Instructions
1.	Substitute Character	
	Cut straps corresponding to marking levels Close straps corresponding to spacing levels	

9-21.	Y3Z6 Recognition of SOH and STX	Straps 54	55	56
a.	SOH Only (See Note 1, Card F1)	●	○	○
b.	STX Only (Action of STX Requires Local Engineering)	○	●	○
c.	Both SOH and STX	○	○	○
d.	Neither SOH nor STX	○	○	●

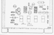
Choose 1

Note: This F2 card is ordered separately and is not required unless a substitute character other than fig is desired for KD or other than font ID character for printer.

See Legend for ○, ●, and — on Page 98.

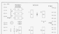
H. 9140 CONTROLLER OPTIONS (Contd)

322083 — Channel Control (G3) — Card Position G



		Straps				
9-11. Delay in Turning Off Carrier		69	70	71	72	
	a. Retain Until Last Character Is Sent	●	●	○	●	Choose 1
	b. Retain for One Character After Interrupt	●	○	●	○	
	c. Retain for Three Characters After Interrupt	○	○	●	○	

322641 — Answer-Back and Alarm — Card Position, Piggyback to G3 (Part of Alarm/Parity Error Response 345655 Modification Kit)

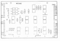


		Straps			
9-17. Alarm Time and Reset on STX or EOT		X	Y	Z	
	a. 30-Second Alarm (See Note below.)	—	○	○	Choose 1
	b. 60-Second Alarm (See Note below.)	—	●	○	
	c. 90-Second Alarm (See Note below.)	—	●	●	
	d. Initialize Optional A/B Circuit on STX or EOT	●	—	—	Choose 1
	e. Initialize Optional A/B Circuit on EOT	○	—	—	

Note: Audible Alarm on receipt of CDC is not ready to receive (DTR off).

See Legend for ○, ●, and — on Page 98.

322642 — 2400 Baud, Isochronous, Parity Detect and Alarm — Card Position, Piggyback to G2 (Part of 402326 Modification Kit)



9-8.	Regeneration of Send Data (See Option 9-8, Cards B and E1.)	Straps V	W	
a.	No Regeneration	●	○	Choose 1
b.	Regeneration	○	●	

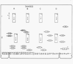
9-27.	Alarm Time and Reset on STX or EOT	Straps X	Y	Z	
a.	30-Second Alarm (See Note below.)	—	○	○	Choose 1
b.	60-Second Alarm (See Note below.)	—	●	○	
c.	90-Second Alarm (See Note below.)	—	●	●	
d.	Initialize Optional A/B Circuit on STX or EOT	●	—	—	Choose 1
e.	Initialize Optional A/B Circuit on EOT	○	—	—	

Note: Strap 74 on CS-2 card must be closed to use this modification kit.

See Legend for ○, ●, and — on Page 98.

1. INDIVIDUAL RECEIVER SELECTION (IRS) MODIFICATION KIT OPTIONS

344553 — Individual Receiver Selection — (Part of 344555 Modification Kit, 508085 Specification)



Basic Arrangements:

(a) KD+ROP† (ROP† = Primary Receiver); (KD = Secondary Receiver).

(b) KDP+ROP† (ROP† = Primary Receiver); (KDP = Secondary Receiver).

(c) KD-ROP+ROP† (ROP† = Primary Receiver); (KD-ROP = Secondary Receiver).

Optional Modifications:

(a) Six lead interchanged in the IND REC connector of the 344545 cable required to convert ROP† to Secondary and KD to Primary Receivers.

Color	From Pin	To Pin
White-Blue	18-Primary RD	16-Secondary RD
White-Red-Red	16-Secondary RD	18-Primary RD
White-Orange	24-Primary DTR	18-Secondary DTR
White-Red-Brown	18-Secondary DTR	24 Primary DTR
White-Red-Orange	14-Primary DSR	22-Secondary DSR
White-Black	22-Secondary DSR	14-Primary DSR

(b) "A" Strap: Controls Primary DSR "Off" when the station is in the (STS) Selected to Send mode — used for HDX operation only.

(c) Cut circuit land (component side) from MLC2-11 to MLA2-12 and MLA1-8. Remove Secondary DSR when the station is in the (STS) Selected to Send Mode. KD will not send with DSR "On" for HDX or FDX operation.

(d) **Add wire strap** (noncomponent side) between MLC2-11 and MLA1-2. Controls Primary DSR "Off" when Selected to Send is "On" — used for HDX operation only.

(e) **X-TERM connector** (to KD with P/s/ROP) lead change: Remove pin 19 White-Red and tape back. Remove pin 4 White-Red-Orange and reposition hole 19. This removes Secondary DSR when Primary Receiver is Selected. KD will not send with DSR "On". Selected to Receive controls Secondary DSR.

(f) **Add wire strap** (noncomponent side) between MLD5-1 and MLC2-11. This controls Secondary (RD) Received Data to monitor "Send Data" when the station is in the (STS) Selected to Send mode. The ROP† is the Secondary receiver.

Application compatibility of modifications:

Note 1: It is not recommended to have ROP† a Secondary Receiver because "No-Traffic" replies "Ready/Not Ready" reflect the Primary Receiver status and NOT to be used in FDX operation.

Note 2: This modification kit requires 3 character CDC codes having DELETE as the third character. Example: ALPHA ALPHA DELETE.

	ROP† — Primary			ROP† — Secondary	
	KD+ROP† ROP† Monitor's Sent Data	KD+ROP† KD-P/ROP+ROP† ROP† Does Not Monitor Sent Data		KD+ROP† ROP† Monitor's Sent Data	KD+ROP† KD-P/ROP+ROP† ROP† Does Not Monitor Sent Data
		HDX	FDX		
(a) IND REC Interchange	No	No	No	Yes	Yes
(b) "A" Strap	Open	Open	Open	Closed	Closed
(c) Cut Circuit Land	No	Yes	Yes	No	Yes
(d) Add DSR Wire Strap	No	Yes	No	No	Yes
(e) S/R X-TERM Change	No	Yes	Yes	No	Yes
(f) Add RD Wire Strap	No	No	No	Yes	No

J. 40/3 STATION FEATURES AND OPTIONS RECORD

The Station Features and Options Record provides a means by which the options and special features in the 40/3 can be recorded and kept with the station for later servicing or maintenance purposes.

☑ Check desired options.

KD, KDP, ROP Options

4-1. Interface to Printer
- ☐ a. EIA
- ☐ b. SSI*

Choose 1

4-3. EIA Send/Receive Data Baud Rate
- ☐ a. 1050
- ☐ b. 1200*
- ☐ c. 2400 (See Note)

Choose 1

Note: 402526 modification kit is required in 9140 for 2400 baud operation.

4-4. EIA Reverse Channel
- ☐ a. Reverse Channel Required to Send
- ☐ b. Reverse Channel Not Required to Send*

Choose 1

4-5. Response to Received Characters
- ☐ a. Reject Null*
- ☐ b. Accept Null

Choose 1
- ☐ c. Reject CR*
- ☐ d. Accept CR

Choose 1
- ☐ e. Reject Delete*
- ☐ f. Accept Delete

Choose 1
- ☐ g. Reject DC1*
- ☐ h. Accept DC1

Choose 1
- ☐ i. Reject DC3*
- ☐ j. Accept DC3

Choose 1

(Applies to issues 4B and later of the 418874 circuit card only.)

4-6. Functions Receive
- ☐ a. All ESC Seq Displayed as Received (Function Not Performed)
- ☐ b. All ESC Seq Are Performed as Received But Not Displayed*

Choose 1

4-7. Errored Character on Receive
- ☐ a. Not Displayed on Vertical Parity Error
- ☐ b. Displayed on Vertical Parity Error*

Choose 1

4-8. Page (Message) Ending Character Functions on Send
- ☐ a. End on FF
- ☐ b. Do Not End on FF*

Choose 1
- ☐ c. End on ETX*
- ☐ d. Do Not End on ETX

Choose 1
- ☐ e. End on EOT*
- ☐ f. Do Not End on EOT

Choose 1
- ☐ g. End on GS*
- ☐ h. Do Not End on GS

Choose 1

4-9. Highlight
- ☐ a. Delimiters Not Sent (Except in Form Send Mode)
- ☐ b. Delimiters Sent (Modifies Option 4-13)*

Choose 1

*Indicates factory programmed option.

☑ Check desired options. (Contd)

KD, KDP, KOP Options (Contd)

4-10. Line Ending Sequence
- ☐ a. CR LF } Choose 1
- ☐ b. CR CR LF*
- ☐ c. LF*

4-11. Mode After Send
- ☐ a. Local* (See Note) } Choose 1
- ☐ b. Receive
- ☐ c. EXT Mode (Not Used on 40/3-Type Stations)

Note: If EOT is message-ending character, the mode after sending is always RECEIVE.

4-12. Form Enter
- ☐ a. Disable in Local } Choose 1
- ☐ b. Enabled in Local*

4-13. Send Variations (All Without Delimiters Except as Modified by Option 4-9.h.). In Form Send, Protect and Unprotect Sent as Displayed With Delimiters.
- ☐ a. Send All as Displayed } Choose 1
- ☐ b. Send All as Displayed with Unprotected HT to Space*
- ☐ c. Send Protect as Space and Unprotected as Displayed
- ☐ d. Send Protect as Space and Unprotected as Displayed, HT to Space
- ☐ e. Send Protect as Delete, Unprotected as Displayed
- ☐ f. Send Unprotected Only as Displayed
- ☐ g. Send Unprotected Only and HT at End of Field
- ☐ h. Send Unprotected Only With Unprotected HT to Space

*Indicates factory programmed option.

J. 40/2 STATION FEATURES AND OPTIONS RECORD (Contd)

☑ Check desired options. (Contd)

KD, KDP, ROP Options (Contd)

4.17. Printer Left Margin and Form Width

Choose 1 — These options applicable only to printers equipped with 410071, 410072 and 410076 circuit cards.

- ☐ a. First Printed Column — Column 1*
- ☐ b.2. First Printed Column — Column 2
- ☐ b.3. First Printed Column — Column 3
- ☐ b.4. First Printed Column — Column 4
- ☐ b.5. First Printed Column — Column 5
- ☐ b.6. First Printed Column — Column 6
- ☐ b.7. First Printed Column — Column 7
- ☐ b.8. First Printed Column — Column 8
- ☐ b.9. First Printed Column — Column 9
- ☐ b.10. First Printed Column — Column 10
- ☐ b.11. First Printed Column — Column 11
- ☐ b.12. First Printed Column — Column 12
- ☐ b.13. First Printed Column — Column 13

Printer Right Margin and Form Width

Choose 1

Note: The number of right margin options available depends on the printer logic card accompanying the printer.

CARD NO.	RIGHT MARGIN OPTIONS
410071	c, d.25 through d.79
410072	e, f.73 through f.131
410076	c, d.25 through d.79
410646	c, d.73 through d.79
410729	e, f.121 through f.131

- ☐ c. Last Character on Column 80*
- ☐ d.79. Last Character on Column 79
- ☐ d.78. Last Character on Column 78
- ☐ d.77. Last Character on Column 77
- ☐ d.76. Last Character on Column 76
- ☐ d.75. Last Character on Column 75
- ☐ d.74. Last Character on Column 74
- ☐ d.73. Last Character on Column 73
- ☐ d.___ Last Character on Column ___
- ☐ e. Last Character on Column 132*
- ☐ f.131. Last Character on Column 131
- ☐ f.130. Last Character on Column 130
- ☐ f.129. Last Character on Column 129
- ☐ f.128. Last Character on Column 128
- ☐ f.127. Last Character on Column 127
- ☐ f.126. Last Character on Column 126
- ☐ f.125. Last Character on Column 125
- ☐ f.124. Last Character on Column 124
- ☐ f.123. Last Character on Column 123
- ☐ f.122. Last Character on Column 122
- ☐ f.121. Last Character on Column 121
- ☐ f.___ Last Character on Column ___

*Indicates factory programmed option.

☑ Check desired options. (Contd)

KD, KDP, ROP Options (Contd)

4-18. Printer Paper Feedout
☐ a. No Paper Feedout
☐ b. Paper Feedout on DCD or RI6 Loss — 16 Lines or One Form
☐ c. Paper Feedout on DCD or RI6 Loss or ETX — 16 Lines or One Form*
} Choose 1

4-19. Printer Errored Character Symbol
☐ a. Printed on Even Parity Error*
☐ b. Printed on Odd Parity Error
} Choose 1
☐ c. Not Printed on Parity Error
☐ d. Printem With 96-Character Set
☐ e. Printem With 64-Character Set
☐ f. Printem With Extended ASCII Character Set
} Choose 1 (Must match type carrier ordered)
☐ g. Printem With Longest Character Set Having Less Than 64 Characters

4-20. Line Feed on Printer
☐ a. Single*
☐ b. Double
} Choose 1

4-21. Foldover on Up-Low Printer
☐ a. Lower Case and Upper Case Print*
☐ b. Lower Case Prints as Upper Case

4-22. Foldover on Monocase Printer
☐ a. Lower Case Prints as Error Symbol
☐ b. Lower Case Prints as Upper Case*
} Choose 1 (For type carrier ordered)

4-23. Extended ASCII on Printer
☐ a. Prints Extended ASCII Characters
☐ b. Does Not Print Extended ASCII*
} For future use — do not change.

4-24. Controller Parity Detection (ROP)
☐ a. Even Vertical Parity*
☐ b. Odd Vertical Parity
} Choose 1

4-26. Parity Error Response (ROP)
☐ a. Odd Parity Null Sent to Printer
☐ b. Received Character Sent to Printer*
} Choose 1
☐ c. Data Error Lamp Turns on
☐ d. Data Error Lamp Does Not Turn On*
} Choose 1

4-27. Message Start
☐ a. Home on Transmit
☐ b. Send From Cursor*
} Choose 1

4-28. Disconnect on Loss of Carrier
☐ a. Disconnect After 45 Seconds
☐ b. Does Not Disconnect — Timer Disabled*
} Choose 1

4-29. Printer Message Mode
☐ a. Copies Display in Send, Copies in Receive or Local*
☐ b. Not Used on 40/3 Stations
☐ c. Not Used on 40/3 Stations
☐ d. When in Print On-Line, Copies Received Data in Receive or Local
} Choose 1

*Indicates factory programmed option.

J. 40/3 STATION FEATURES AND OPTIONS RECORD (Contd)

☑ Check desired option., KD, KDP, ROP Options (Contd)

4-29. Printer Message Mode (Contd)

Note: Options 4-29.b. and 4-29.c. are not applicable for this arrangement. With Option 4-29.d. installed and PRINT ON LINE key lighted and if SEND is depressed, the printer motor will start. When polled the PRINT ON LINE light will go out but the motor stays on. At end of message when SEND light goes out, the PRINT ON LINE will light and motor stops. If the printer is optioned for Option 4-18.b. or 4-18.c., a 16-line feedout or form feed will occur (a friction feed printer will feedout, but a tractor feedout or form feed — whichever is shorter). If this feedout is not desired, specify Option 4-18.a. and requirement that received messages include repeated NLs (with appropriate time fills) or form feeds (whichever applies). Option 4-18.a. does not affect the printer motor running when sending.

4-30. Message Preparation
- ☐ a. Automatic Home on Message-Ending Character*
- ☐ b. Manual Home on Message-Ending Character

Choose 1

4-31. KD Forced to Receive Mode (When ALARM Lead is On.)
- ☐ a. Independent of Printer Mode*
- ☐ b. Dependent on Printer Mode

Choose 1

4-32. Printer Access From Line (When PRINT ON LINE Lamp is On)
- ☐ a. If KD is in Send, Receive, or Local Mode*
- ☐ b. If KD is in Receive Mode or Local Mode

Choose 1

4-33. 9040 Station Controller Mode
- ☐ a. Full Duplex (FDX) — CTS Controls RTS
- ☐ b. Half Duplex (HDX) — CTS Does Not Control RTS*

Choose 1

Note: If operation of system is such that the computer immediately receives an answer-back after the system sends a message and Option 4-33.b. is chosen, change to Option 4-32.a. Option 4-33.a. will not allow this answer-back to occur, but should not be selected unless the "automatic" answer-back is used.

4-34. Control Signal Restrictions
- ☐ a. RTS Signal Can Turn On When STR is On*
- ☐ b. RTS Cannot Turn On if STR is On

Choose 1

4-35. Printer Motor Control (ROP)
- ☐ a. "Data Set Ready" Controls Printer Motor*
- ☐ b. "Carrier Detect" Controls Printer Motor

Choose 1

4-36. Printer Paper Alarm (ROP)
- ☐ a. Paper Alarm Turns Off "Data Terminal Ready" at End of Call. DTR Held Off Until Paper is Restored.*
- ☐ b. Paper Alarm Turns Off "Data Terminal Ready" Immediately. DTR Off Until Paper is Restored.

Choose 1

4-37. Requirement for Sending
- ☐ a. Clear-To-Send (CTS) Required for Sending*
- ☐ b. CTS Not Required for Sending

Choose 1

*Indicates factory programmed option.

☑ Check desired options. (Contd)

KD, KDP, ROP Options (Contd)

4-38. Data Stacking (ROP)
- ☐ a. Enabled Data Stacking
- ☐ b. Disable Data Stacking*

} Choose 1

Note: Must use Option 4-38.a. if 40C103/AE Controller is used.

4-39. Forms (Tractor Feed Only)
- ☐ a. On (See Note)
- ☐ b. Off*

} Choose 1

Note: Form feed will not occur if printer is on first line of a form.

4-43. Go Receive on Sending CR (4←)
- ☐ a. Not Used on 40/3-Type Stations
- ☐ b. Do Not Go Receive on Sending CR*

Note: Option on Issue 4B and later of the 410674 circuit card.

4-48. Incomplete Form Suppresses Paper Alarm
- ☐ a. No (Paper-Out Not Gated with Form Feed)
- ☐ b. Yes (Paper-Out Gated With Form-Out) (See Note.)*

} Choose 1

Note: Option 4-48.b. delays paper alarm until end of form-out.

4-50. Action Upon Printer SSI Loss
- ☐ a. Go Local and Hold
- ☐ b. Go Local and Release
- ☐ c. No Mode Change*

} Choose 1

Note 1: PRINT ON LINE is turned off in Options 4-50.a., 4-50.b., or 4-50.c.

Note 2: Card issues before 3A will not change mode if SSI fails, PRINT ON LINE also stays on with card Issue 1 and turns off with card Issue 2.

Note 3: Options 4-50. through 4-53. apply to Issue 3A or later 410770 card.

4-51. Remote Control
- ☐ a. 4213 character control*
- ☐ b. 8140 Print-on-Line Control For Split Operation
- ☐ c. Not Used on 40/3-Type Stations

} Choose 1

Note 1: Card issues before 3A are permanently equipped with Option 4-51.a.

Note 2: If both options 4-51.b. and 4-52.a. are required, cut Strap A (land on component side between coordinates H1 and H2). Otherwise leave Strap A intact.

4-52. Print On Line Control
- ☐ a. Copy All Sent Data
- ☐ b. Printer Copies as Option 4-29.*

} Choose 1

Note: PRINT ON LINE is automatically turned on when SEND is lighted for Option 4-52.a. Card issues before 3A are permanently equipped with Option 4-52.b.

*Indicates factory programmed option.

J. 40/3 STATION FEATURES AND OPTIONS RECORD (Contd)

☑ Check desired options. (Contd)

KD, KDP, ROP Options (Contd)

4-53. Printer Motor Hold Timer
☐ a. Enabled
☐ b. Disabled* } Choose 1

Note: With Option 4-53.a., printer motor is held on for two minutes following end of message (useful for messages less than 2 minutes apart). Card issues before 3A are permanently equipped with Option 4-53.b.

4-54. Printing of Escape Sequences Suppressed
☐ a. Character After ESC Printed as Received*
☐ b. Printing of Character After ESC Suppressed } Choose 1

Note: Option 4-54.b. should not be used on a KDP set. The character after escape is already suppressed by the KD in 8S1 operation but not in EIA operation.

4-55. Shift-In/Shift/Out Detection
☐ a. SI/SO Detection Not Used*
☐ b. SI/SO Detection Enables Printing Additional Characters } Choose 1

Note: This option not present on 410640 and 410729 printer circuit cards.

4-56. Friction Feed/Tractor Feed Printer — 410776 Card Only
☐ a. Friction Feed Printer — Motor Held On After Paper Alarm*
☐ b. Tractor Feed Printer — Motor Turned Off After Paper Alarm } Choose 1

4-57. SSI/OEM Interface
☐ a. SSI*
☐ b. Not Used On 40/3-Type Station

Note: This option not present on 410640 and 410729 printer circuit cards.

4-58. Idle Line Motor Control
☐ a. Disabled — Motor Held On Indefinitely During Idle Line*
☐ b. Enabled — Motor Turned Off After 40-Second Idle Line } Choose 1

Note: This option not present on 410640 and 410729 printer circuit cards.

4-59. Speed Selection (Applies Only if Option 4-57.b. is selected. Therefore, Does Not Apply For 40/3 Stations.)
☐ a. 75 Baud
☐ b. 150 Baud
☐ c. 300 Baud
☐ d. 600 Baud
☐ e. 1200 Baud
☐ f. 2400 Baud*
☐ g. 4800 Baud
☐ h. 9600 Baud

4-60. Aux Alarm
☐ a. Enabled
☐ b. Disabled (Or Alarm Mechanism Not Present)* } Choose 1

Note: This option not present on 410640 and 410729 printer circuit cards.

*Indicates factory programmed option.

☑ Check desired options. (Contd)

KD, KDP, ROP Options (Contd)

4-61. Regulator Grounding (Circuit Ground to Frame Ground)
☐ a. SSI (CKT and FR GND at PTR)
☐ b. SSI/OEM (CKT and FR GD at PTR, +12 V)*
☐ c. OEM (CKT GND EXT to PTR, +12 V)
} Choose 1

9140 Station Controller Options

9-1. Variable Characters (Enter Characters Chosen in the Boxes Provided)
☐ a. Answer-Back (A/B) Character 1
☐ b. A/B Character 2
☐ c. A/B Character 3
☐ d. A/B Character 4
☐ e. Transmitter On (X-ON) Character (DC1 Recommended)
☐ f. Transmitter Off (X-OFF) Character (DC3 Recommended)
☐ g. Acknowledge (ACK) Character (ACK Recommended)
☐ h. Interrupt Character (ETB Recommended)
☐ i. TSC (Transmitter Start Code) Character 1 (DC3 Recommended)
☐ j. TSC Character 2
☐ k. CDC (Call Directing Code) No. 1, Character 1
☐ l. CDC No. 1, Character 2
☐ m. CDC No. 2, Character 1
☐ n. CDC No. 2, Character 2
} See Note 1
☐ o. CDC No. 3, Character 1
☐ p. CDC No. 3, Character 2
} See Note 2
☐ q. Sub Character (Only When Substitute Character Other Than Sb is Required).

Note 1: If only one CDC is required, code CDC2 identical to CDC1.

Note 2: Applies only if circuit card A-1 is present. This card must be ordered separately if 3rd CDC is required.

9-2. Number of TSC Characters
☐ a. Two Characters
☐ b. Two Characters Followed by Delete
} Choose 1

9-3. Unit Code of A/B Sent
☐ a. 10-Unit Code
☐ b. 11-Unit Code
} Choose a.

9-4. Unit Code of Characters Sent
☐ a. 10-Unit Code
☐ b. 11-Unit Code
} Choose a.

9-5. Code Level of Characters Sent
☐ a. 8-Level Code
☐ b. 7-Level Code or Less
} Choose a.

*Indicates factory programmed option.

J. 40/3 STATION FEATURES AND OPTIONS RECORD (Contd)

☑ Check desired options. (Contd)

9140 Station Controller Options (Contd)

9-6. HDX or FDX Sending
☐ a. Stop on "SENT" Interrupt and EOT, Requires Option 9-9a. } Choose 1
☐ b. No Stopping of Sender

9-7. Local Copy on ROP of KD Sent Data (KD & ROP Applications)
☐ a. Local Copy } Choose 1
☐ b. No Local Copy

Note: Option 9-13.a. overrides Option 9-7.b.

9-8. Regeneration of Sent Data
☐ a. No Regeneration } Choose 1
☐ b. Regeneration

Note: Do not use Option 9-8.a. in ROP stations.

9-9. Interrupt Feature
☐ a. Stop on Interrupt Character, Bind Receive Data and Start on STX } Choose 1
☐ b. Does Not Stop on Interrupt Character

Note: If Option 9-9.a. is selected, Option 9-6.a. must also be selected. Straps 53 and 54 must not both be closed with straps.

9-10. Function of EOT Sent by Terminal
☐ a. EOT Deselects 9140 Sender } Choose 1
☐ b. EOT Does Not Deselect Sender

Note: If 9140 Station Controller Option 9-10.a. is selected, also use KD Option 4-8.b. and 4.8.e.

9-11. Delay in Turning Off Carrier
☐ a. Retain Until Last Character is Sent } Choose 1
☐ b. Retain for One Character After Interrupt
☐ c. Retain for Three Characters After Interrupt

9-12. First or Second A/B Character Restarts Sender
☐ a. Second A/B Character Restarts Sender
☐ b. Should Not be Used in 40/3 Type Applications

9-13. Local Copy of Sent Data Provided/Not Provided by 9140 (Note 1)
☐ a. Copy All Sent Data and CPU Responses } Choose 1
☐ b. Copy Sent Data After STX is Sent

Note 1: Option 9-13. has no effect on FDX operation. KD-ROP applications are affected by Option 9-13.

Note 2: If Option 9-13.a. is selected, local copy will be obtained regardless of status of Option 9-7., provided the PRINT ON LINE key on the opcon is lighted.

9-14. Number of Characters in CDC
☐ a. One Character CDC } Choose 1
☐ b. Two Character CDC

Note: Number of characters in the option is exclusive of Delete, if used (see Option 9-17.).

☑ Check desired options. (Cont'd)

9140 Station Controller Options (Cont'd)

9-15. Number of Characters in CDC2 (See Note After Option 9-14.)
☐ a. One Character CDC ⎫
☐ b. Two Character CDC ⎬ Choose 1
☐ c. No CDC2 ⎭

Note: If Option 9-15.c. is selected, code CDC2 identical to CDC1.

9-16. Number of Characters in CDC3 (See Note After Option 9-14.)
☐ a. One Character CDC ⎫
☐ b. Two Character CDC ⎬ Choose 1
☐ c. No CDC3 ⎭

Note: CDC3 requires A-1 circuit card.

9-17. Answer-Back Generated for CDCs (See Note 1.)
☐ a. A/B to CDC1 ⎫
☐ b. A/B to CDC1 After Delete ⎬ Choose 1
☐ c. No A/B to CDC1 ⎭
☐ d. A/B to CDC2 ⎫
☐ e. A/B to CDC2 After Delete ⎬ Choose 1
☐ f. No A/B to CDC2 ⎭
☐ g. A/B to CDC3 ⎫ Choose 1
☐ h. A/B to CDC3 After Delete ⎬ (See Note 2)
☐ i. No A/B to CDC3 ⎭

Note 1: All items of Option 9-17. should be consistent. All CDCs either use Delete or do not use Delete.

Note 2: If circuit card A-1 is not used, Option 9-17.g., 9-17.h. and 9-17.i. are not functional.

9-18. Type of A/B to TSC
☐ a. Same as Ready to Receive A/B to CDC when DTR is On ⎫
☐ b. Same as Ready to Receive A/B to CDC Independent of DTR ⎭ Choose 1

Note: Data Terminal Ready (DTR) signal from KD is affected by low paper only if the printer is available to copy on-line (PRINT ON LINE key lighted). It is affected by the mode of the KD portion (LOCAL or RECEIVE key lighted) only if the printer is not available (PRINT ON LINE key not lighted).

9-19. Answer-Back to CDC (See Option 9-17)
☐ a. A/B to CDC1 Always ⎫ Choose 1
☐ b. A/B to CDC1 When Ready to Receive ⎭
☐ c. A/B to CDC2 Always ⎫ Choose 1
☐ d. A/B to CDC2 When Ready to Receive ⎭
☐ e. A/B to CDC3 Always ⎫ Choose 1
☐ f. A/B to CDC3 When Ready to Receive ⎭ (See Note 1)

Note 1: If circuit card A-1 is not used, Options 9-19.e. and 9-19.f. need not be specified.

Note 2: Only one station in a group can be programmed to A/B to a group CDC.

Note 3: Options 9-19.a., 9-19.c. and 9-19.e. are recommended since Option 9-17. overrides Option 9-19.

J. 4613 STATION FEATURES AND OPTIONS RECORD (Contd)

☑ Check desired options. (Contd)

9140 Station Controller Options (Contd)

9-20. Optional Answer-Back to CDC or TSC
☐ a. Optional Negative A/B
☐ b. Optional Positive A/B (CDC Only)
☐ c. No Optional A/B
} Choose 1

Note: If the 9140 Station Controller is equipped with a 245625 alarm/parity error modification kit that provides an audible alarm and the ability to initiate the optional A/B during post message recall use Option 9-20.b.

9-21. Response Delay for Motor Start-Up
☐ a. Nominal 2-Second Delay
☐ b. Nominal 200-Millisecond Delay
} Choose 1

9-22. Received Vertical Parity Error Response
☐ a. Odd Parity Causes Line Break
☐ b. Odd Parity Does Not Cause Line Break
} Choose 1

9-23. Loss of DTR Response
☐ a. Loss of DTR Causes Line Break
☐ b. Loss of DTR Does Not Cause Line Break
} Choose 1

9-24. Type of F Card Used
☐ a. F1 Circuit Card
☐ b. F2 Circuit Card
} Choose 1

9-25. 9140 Recognition of SOH and ETX
☐ a. SOH Only
☐ b. ETX Only
☐ c. Both SOH and ETX
☐ d. Neither SOH nor ETX
} Choose 1

9-26. Data Set Interface
☐ a. Gate Data Set Clear-To-Send (CTS) With 9140 Request-To-Send (RTS) to Produce 9140 CTS.
☐ b. Do Not Gate CTS of Data Set With 9140 Signals.
} Choose 1

☐ c. Gate Data Set Data-Set-Ready (DSR) With 9140 Data-Terminal-Ready (DTR) to Produce Data Set RTS.
☐ d. Do Not Gate DSR of Data Set With 9140 Signals.
} Choose 1

Note: 202R Data Set furnishes CTS and DSR, and uses Request-To-Send (RTS), produced by Option 9-26.c.

9-27. Alarm Time and Reset on STX or EOT
☐ a. 30-Second Alarm
☐ b. 60-Second Alarm
☐ c. 90-Second Alarm
} Choose 1
☐ d. Resets Optional A/B on STX or EOT
☐ e. Resets Optional A/B on EOT Only
} Choose 1

Note: Audible alarm sounds on receipt of CDC if not ready to receive (DTR off).

PART 5 — TESTING AND TROUBLESHOOTING
A. GENERAL

This section provides the testing and troubleshooting procedures for the Model 40/3 Station arrangements. This section does not provide information on testing all associated modification kits. Refer to the appropriate 50,000 Specification for information on testing the modification kits.

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

An operational checkout should be performed after installation or on trouble calls. It may be a brief checkout to make sure the station is operable, or a complete checkout to exercise all features and options. Both types of checkout are provided. Since off-line checkout procedures do not check the interface or send and receive capabilities, an on-line test with the station interfaced to the customers system should be performed. Check all operational modes when sending to and receiving from the system, taking into account all options and feature variables.

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

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

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

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.

As a further aid to troubleshooting, refer to PART 6 — WIRING DIAGRAMS of this manual. When detailed information regarding trouble analysis, disassembly/reassembly or piece parts is required for individual components such as the keyboard, printer, etc, refer to the appropriate publication listed in Part 1 of this manual.

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

Example: Option 4.17.a.
Option 9.17.a.

B. PRELIMINARY CHECK

Before turning on any equipment, check the following:

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

(b) Are all circuit cards and cable connectors fully seated?

(c) Are all cabinet lids and pedestal doors closed?

(d) In KDP and ROP, are printer paper and ribbon properly installed?

In addition to the above, check J. 40/3 STATION FEATURES AND OPTIONS CHART to determine the options and features present in the station. In cases where the results are affected by options, alternate results for each option are provided in the tables.

C. BRIEF OFF-LINE CHECKOUT

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

D. OFF-LINE CHECKOUT

Off-line checkout provides a check of the operating condition of the 40/3-type terminal. Table A provides a brief off-line checkout for KD and KDP terminals. Table B provides a complete off-line checkout for KD and KDP terminals. Table C provides off-line checkout for ROP terminals. The off-line checkout should be performed before attempting any on-line procedures.

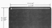
TABLE A

BRIEF OFF-LINE CHECKOUT – KD AND KDF TERMINALS*

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
1	Turn on power switches.	LOCAL indicator lights. Fans operate.	Terminal Analysis, Table D (Page 147)
2	Turn on power to monitor and set brightness to maximum.	Within 10 seconds, raster appears. Note: If random characters appear or if cursor is not at home position, depress HOME and CLEAR keys.	Terminal Analysis, Table D (Page 147) Manual 401, Model 40 Display Monitor
3	Adjust brightness and tube tilt to personal preference.	Cursor and segment marker clearly displayed, with raster barely visible. Glare from external light on screen should be minimal.	Manual 401, Model 40 Display Monitor
4	Lightly depress cursor right (→), down (↓), left (←), and up (↑), in that order.	Cursor moves one position in the direction indicated for each depression.	Terminal Analysis, Table D (Page 147)
5	Repeat Step 4, but depress cursor controls fully and hold depressed until cursor stops moving.	Cursor traces outer perimeter of display, stopping at each corner, and ends at home position.	Display Logic, Table E (Page 154)
6	If keyboard has CAPS LOCK key, depress CAPS LOCK key. Enter a line of Es at top and bottom of display, then HOME cursor.	Display appears as in Figs. 1 and 2 with all requirements as indicated.	Terminal Analysis Table D (Page 147) Refer to adjustments of monitor to meet requirements (Manual 401).
STEPS 7 THROUGH 14 APPLY TO KDF TERMINALS ONLY.			
7	Preliminary requirements of printer: a. Ribbon and paper loaded. b. Switches (top right of printer, cabinet cover raised) set as in Fig. 3 LF-1 Test-Off Forms (Tractor Feed Only) — On. c. Cabinet cover closed.		

*Includes KD or KDF portion of KD-ROP, KD & ROP, KD+ROP, KDF & ROP, KDF+ROP.

D. OFF-LINE CHECKOUT (Contd)


10 1/4"
2 1/4"
6 1/4"
2 1/8"

Requirements:

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

Fig. 1–Display Monitor

Requirement:
The display (80 characters by 24 lines) shall be centered on the CRT face as gauged by eye.

Fig. 2–Display Monitor

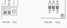

ON
OFF
FRICTION FEED
Forms
On
Off
LF
2
1
Test
On
Off
TRACTOR FEED

Fig. 3–Printer Switches

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

TABLE A (Contd)

BRIEF OFF-LINE CHECKOUT — KD AND KDP TERMINALS**

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
8	Momentarily depress PAPER button (red) on cover of printer cabinet.	Paper feeds out as long as button is depressed.	Printer (Manual 399)
9	TRACTOR FEED PRINTER ONLY Depress and release FORMS ADVANCE button (black) on printer cabinet cover.	 Paper feeds out until first line of next form is reached, then stops.	
10	Unlatch and raise printer cabinet cover.		
11	Raise cover interlock switch to maintenance position.		
12	Set test switch (Fig. 3) to ON, allow printer to print several lines, then turn test switch OFF.	Printer turns on and prints one of the font identification symbols such as [2] repeatedly until switch is turned off.	Printer (Manual 399)
13	FRICTION FEED PRINTER Lift paper roll to simulate a paper alarm. Lower paper roll, guide paper through window, and close cabinet cover. TRACTOR FEED PRINTER Tear off next form under pedestal top, then depress PAPER button on cabinet top until last form passes through printer. Reload forms, guide first form through window, and close cabinet cover.	 LOW PAPER indicator lights. LOW PAPER indicator goes out. PAPER indicator lights. PAPER indicator goes out.	Printer (Manual 399)

** Includes KD or KDP portion of KD-ROP, KD & ROP, KD+ROP, KDP & ROP, KDP+ROP.

D. OFF-LINE CHECKOUT (Contd)

TABLE A (Contd)

BRIEF OFF-LINE CHECKOUT — KD AND KDP TERMINALS**

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
14***	Type an EOT in the lower right hand corner of the display and home cursor. Depress PRINT LOCAL key, and while cursor is moving through third or fourth line of display, depress LOCAL key.	LOCAL indicator goes out. PRINT LOCAL and SEND indicators light. Cursor moves through line of Es at top of display, returns to left, and moves through lines of spaces (blank lines). Printer prints line of Es. *Note:* Printing may occur in all 80 character positions or some Es may be carried over to next line, depending on Option 17. Printer line feeds but does not print for each line of spaces. When LOCAL key is depressed, SEND and PRINT LOCAL indicators go out and LOCAL indicator lights. Printer turns off. *Note:* Printer may or may not feed out 16 lines of paper before turning off, depending on Option 18. Tractor printer may form-out depending on Option 18 and Forms switch.	Terminal Analysis, Table D (Page 147) Printer (Manual 399)
THIS COMPLETES BRIEF OFF-LINE CHECKOUT — KD AND KDP TERMINALS.			

**Includes KD or KDP portion of KD-ROP, KD & ROP, KD+ROP, KDP & ROP, KDP+ROP.

***KD of KD & ROP, KD+ROP does not have PRINT LOCAL feature. KDP printer of KDP & ROP, KDP+ROP responds to PRINT LOCAL feature. Printer of ROP does not respond.

COMPLETE OFF-LINE CHECKOUT

The Complete Off-Line Checkout in Table B exercises all the features of the KD or KDP terminal off-line. These procedures do not check the interface or send and receive capabilities, therefore, an on-line checkout is also required to completely test the 40/1type equipment. This includes KD (or KDP) portion of KD-ROP, KD & ROP, KDP & ROP, KD+ROP and KDP+ROP.

TABLE B

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
1	Power on. Monitor brightness adjusted for desired viewing level. LOCAL key depressed. Depress HOME and CLEAR keys. Put CAPS LOCK key in down position.	Cursor goes to home position and all data is cleared from screen.	Terminal Analysis, Table D (Page 147) Display Logic, Table E (Page 154)
2	Starting with top row and moving from left to right, depress each unshaded key in Fig. 4. Depress RETURN and NEW LINE keys.	Characters displayed as in Fig. 7. Cursor goes to beginning of next line.	Terminal Analysis, Table D (Page 147)
3	If keyboard has CAPS LOCK keytop, depress and release CAPS LOCK key so it returns to upper position, then repeat Step 2.	Characters displayed as in Fig. 7. Cursor goes to beginning of next line.	
4	Hold left SHIFT key depressed. Starting with top row and moving from left to right, depress each unshaded key in Fig. 5. Hold right SHIFT key depressed and depress ?/ key. Depress NEW LINE key.	Characters displayed as in Fig. 7. Cursor moves to beginning of next line.	
5	Hold left CONTROL key depressed. Depress all unshaded keys of Fig. 6 in sequence shown by circled numbers. Hold right CONTROL key depressed and depress FS M key. Depress NEW LINE key.	Characters displayed (Page 10). Cursor moves to beginning of next line. *Note:* With Option 4-30.a. installed, SEND key will automatically light and the cursor will go home when a valid message ending character is entered. If this occurs, depress the LOCAL key and return cursor to the position after the message ending character using the cursor positioning controls.	

D. OFF-LINE CHECKOUT (Cont'd)

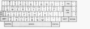

1
2
3
4
5
6
7
8
9
0
TAB
Q
W
E
R
T
Y
U
I
O
P
NEW LINE
A
S
D
F
G
H
J
K
L
SHIFT
Z
X
C
V
B
N
M
SHIFT
RETURN
CONTROL
SPACE
CONTROL

Fig. 4

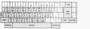

1
2
3
4
5
6
7
8
9
0
TAB
Q
W
E
R
T
Y
U
I
O
P
NEW LINE
A
S
D
F
G
H
J
K
L
SHIFT
Z
X
C
V
B
N
M
SHIFT
RETURN
CONTROL
SPACE
CONTROL

Fig. 5

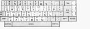

1
2
3
4
5
6
7
8
9
0
TAB
Q
W
E
R
T
Y
U
I
O
P
NEW LINE
A
S
D
F
G
H
J
K
L
SHIFT
Z
X
C
V
B
N
M
SHIFT
RETURN
CONTROL
SPACE
CONTROL

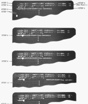
Fig. 6

TABLE B (Cont'd)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
6	Fully depress and hold [illegible] key until about half line of characters are displayed. Depress NEW LINE key.	Repeated - characters and = symbol displayed as in Fig. 7. Cursor moves to beginning of next line.	Terminal Analysis, Table D (Page 147) Operator Console (Keyboard) (Manual 408)
7	Repeat Step 6 using > key, and then again using Spacebar.	Repeated . characters followed by = symbol, and repeated spaces followed by = symbol, displayed as in Fig. 7. Cursor moves to beginning of next line.	Controller Logic, Table F (Page 159)
8	Depress cursor keys as necessary to position cursor over E4 character in line of control characters.		
9	Lightly depress CHAR INSRT key.	All characters to right of and including E4 move one position to right as in Fig. 7.	
10	Fully depress and hold CHAR INSRT key until characters stop moving.	All characters to right of and including E4 move right continuously until = symbol reaches right edge as in Fig. 7.	
11	Lightly depress CHAR DLETE key.	E4 and all subsequent characters move one position to left.	
12	Fully depress and hold CHAR DLETE key until characters stop moving.	E4 and subsequent characters move left continuously and are deleted from display as they reach cursor position as in Fig. 7.	
13	THIS STEP APPLIES ONLY TO KDP WITH TRACTOR FEED PRINTER Hold CONTROL key depressed and depress FF L key three times. Note: Make sure forms switch of printer is on.	Three FF characters are entered in display to the right of the E4.	

D. OFF-LINE CHECKOUT (Cont'd)


STEP 2
STEP 4
STEP 6
STEP 7
STEP 3 (See Note 1)
STEP 5
STEP 8
STEP 9
STEP 10
STEP 11

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

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

†††American National Standard Code for Information Interchange.

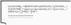
Fig. 7

TABLE B (Contd)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

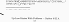
STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
14	Depress HOME.	Cursor goes to home position.	
15	KDP, KDP & KOP or KDP+KOP, KD-KOP. Depress PRINT LOCAL key. When complete message on monitor has been sent to printer, depress LOCAL key.	LOCAL indicator goes out; PRINT LOCAL and SEND indicators light. Cursor moves through display and printer prints according to features and options as in Fig. 8. When LOCAL key is depressed, SEND and PRINT LOCAL indicators go out, printer turns off, and LOCAL indicator lights. TRACTOR PRINTER Form-out occurs when first FF character is sent from display. Lines of - and . characters print on next form. (Only one form-out occurs — second and third FF characters have no effect.) Spacing from first line of first form to line of - characters on next form equals form length selected by form belt and form selector setting.	Terminal Analysis, Table D (Page 147) Printer (Manual 399)

D. OFF-LINE CHECKOUT (Cont'd)



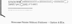
```
1234567890_+'QWERTYUIOP=\ASDFGHJKL;'[ZXCVBNM,./
1234567890_+'qwertyuiop=\asdfghjkl;'{zxcvbnm,./
!"#$%'&*()_]"?[:"}<>?
--------------------
. . . . . . . . . . 
```

Up-Low Printer Without Foldover — Option 4-22.a.



```
1234567890_+@QWERTYUIOP=\ASDFGHJKL;'[ZXCVBNM,./
1234567890_+@QWERTYUIOP=\ASDFGHJKL;'[ZXCVBNM,./
!"#$%'&*()_]"?[\:"]<>?
--------------------
. . . . . . . . . . 
```

Up-Low Printer With Foldover — Option 4-22.b.
or
Monocase Printer — Option 4-22.b.



```
1234567890_+(QWERTYUIOP=\ASDFGHJKL;'[ZXCVBNM,./
1234567890_+EEEEEEEEEE=\EEEEEEEEE;'EEEEEEE,./
!"#$%'&*()_]?[(:"]<>?
--------------------
. . . . . . . . . . 
```

Monocase Printer Without Foldover — Option 4-22.a.

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

Note 2: Characters shown are for basic type carrier.

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

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

Fig. 8

TABLE B (Cont'd)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
16	Depress HOME, then CLEAR key.	Cursor goes to home position and all information is cleared from display.	Terminal Analysis, Table D (Page 147)
17	Enter a line of 80 *s across top of display.	*s are displayed, and cursor remains at right of line.	
18	Depress LINE INSRT key, then enter a line of 80 Us across top of display.	Cursor returns to home position and *s move down one line. Us are displayed above *s.	Display Logic, Table X (Page 154)
STEPS 19 THROUGH 22 APPLY ONLY TO TERMINALS WITH ONE SEGMENT. IF TERMINAL IS EQUIPPED WITH TWO OR THREE SEGMENT DISPLAY, GO TO STEP 23.			
19	Repeatedly depress LINE INSRT key until *s move to to last line of display.	Cursor returns to home position and *s and Us both move down one line each time LINE INSRT key is depressed. Movement stops when *s reach bottom of display. Cursor stays at home position.	Terminal Analysis, Table D (Page 147) Display Logic, Table X (Page 154)
20	Depress cursor down (↓) and then cursor right (→) to move cursor to about the middle of the line of Us.		Terminal Analysis, Table D (Page 147)
21	Depress LINE DLETE key.	Cursor returns to left margin, and Us are removed. *s move up one line to replace Us.	
22	Depress LINE INSRT key several times.	*s move down one line to bottom of display and stop. Cursor does not move.	
STEPS 23 THROUGH 36 APPLY ONLY TO TERMINALS EQUIPPED WITH TWO OR THREE SEGMENT DISPLAY.			
23	Depress HOME.	Cursor goes to home position.	Terminal Analysis, Table D (Page 147)

TABLE D (Contd)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

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

TABLE B (Contd)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
27	**Depress SCROL DOWN key once, then fully.** *Note.* Operation with 410009 or 410818 continuous scrolling circuit card.	Segment marker at upper left moves down one line, then moves down continuously and disappears as segment marker of previous segment appears at top left. When segment 1 marker appears at top left of display, scrolling stops. *s and Us reappear in original position at top of display when segment 1 returns to display. Cursor does not move (see Note). Scrolling will not stop when segment marker of last segment reaches top line of display, but will continue while key is fully depressed.	Terminal Analysis, Table D (Page 147) Display Logic, Table E (Page 154)
28	**Repeatedly depress LINE INSERT key until *s move to last line of segment.**	*s and Us both move down one line each time LINE INSERT key is depressed. Cursor does not move.	Terminal Analysis, Table D (Page 147) Display Logic, Table E (Page 154)
29	Depress cursor down (↓), and then cursor right (→) to position cursor at about the middle of the line of Us.		
30	**Depress LINE DLETE key.**	Cursor returns to left margin and Us are removed. *s move up one line to replace Us.	
31	**Depress LINE INSERT key several times.**	*s move down one line to bottom of display on first depression, then disappear from display on second depression. Cursor does not move.	

D. OFF-LINE CHECKOUT (Cont'd)

TABLE B (Cont'd)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
32	Depress SEGMT ADV key.	Segment 2 marker appears at top left of display. *s appear a few lines down from top in segment 2. Cursor does not move.	
33	Depress HOME and CLEAR.	Cursor goes to home position. Segment 1 is displayed.	
34	Depress SEGMT ADV key to display last segment of page.	Segment marker of last segment appears at upper left of display. *s have been cleared from segment 2. Cursor remains in home position.	Terminal Analysis, Table D (Page 147)
35	Depress cursor down (↓) to position cursor at about next to last line of display, then enter a few Us in this line.		
36	Depress LINE INSRT key several times.	Cursor returns to left margin and Us move to bottom of display, then stop.	
IF TERMINAL IS EQUIPPED WITH FULL EDIT FEATURE, GO TO STEP 37. IF NOT, THIS COMPLETES OFF-LINE CHECKOUT.			
37	Depress HOME, then CLEAR.	Cursor goes to home position and display is cleared.	Terminal Analysis, Table D (Page 147)
38	Alternately depress TAB SET key and Spacebar until cursor reaches end of line.	Column of tab marks is displayed in every character position of page. Alarm sounds at 73rd and 80th character positions. (On terminals with more than one segment, depress SEGMT ADV key as necessary to view tab columns on other segment(s), then return to segment 1.)	Controller Logic, Table F (Page 158) Display Logic, Table E (Page 154) Operator Console (Keyboard) (Manual 480)

TABLE B (Contd)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
27	Depress SCROL DOWN key once, then fully. Note: Operation with 410009 or 410018 continuous scrolling circuit card.	Segment marker at upper left moves down one line, then moves down continuously and disappears as segment marker of previous segment appears at top left. When segment 1 marker appears at top left of display, scrolling stops. *s and Us reappear in original position at top of display when segment 1 returns to display. Cursor does not move (see Note). Scrolling will not stop when segment marker of last segment reaches top line of display, but will continue while key is fully depressed.	Terminal Analysis, Table D (Page 147) Display Logic, Table E (Page 154)
28	Repeatedly depress LINE INSRT key until *s move to last line of segment.	*s and Us both move down one line each time LINE INSRT key is depressed. Cursor does not move.	Terminal Analysis, Table D (Page 147) Display Logic, Table E (Page 154)
29	Depress cursor down (↓), and then cursor right (→) to position cursor at about the middle of the line of Us.		
30	Depress LINE DLETE key.	Cursor returns to left margin and Us are removed. *s move up one line to replace Us.	
31	Depress LINE INSRT key several times.	*s move down one line to bottom of display on first depression, then disappear from display on second depression. Cursor does not move.	

D. OFF-LINE CHECKOUT (Contd)

TABLE 8 (Contd)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
32	Depress SEGMT ADV key.	Segment 2 marker appears at top left of display. *s appear a few lines down from top in segment 2. Cursor does not move.	
33	Depress HOME and CLEAR.	Cursor goes to home position. Segment 1 is displayed.	
34	Depress SEGMT ADV key to display last segment of page.	Segment marker of last segment appears at upper left of display. *s have been cleared from segment 2. Cursor remains in home position.	Terminal Analysis, Table D (Page 147)
35	Depress cursor down (↓) to position cursor at about next to last line of display, then enter a few Us in this line.		
36	Depress LINE INSRT key several times.	Cursor returns to left margin and Us move to bottom of display, then stop.	
IF TERMINAL IS EQUIPPED WITH FULL EDIT FEATURE, GO TO STEP 37. IF NOT, THIS COMPLETES OFF-LINE CHECKOUT.			
37	Depress HOME, then CLEAR.	Cursor goes to home position and display is cleared.	Terminal Analysis, Table D (Page 147)
38	Alternately depress TAB SET key and Spacebar until cursor reaches end of line.	Column of tab marks is displayed in every character position of page. Alarm sounds at 72nd and 80th character positions. (On terminals with more than one segment, depress SEGMT ADV key as necessary to view tab columns on other segment(s), then return to segment 1.)	Controller Logic, Table F (Page 155) Display Logic, Table E (Page 154) Operator Console (Keyboard) (Manual 400)

TABLE B (Cont'd)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

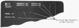
STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
39	Home cursor and depress TAB CLEAR.	All tab marks (on all segments) are cleared.	Terminal Analysis, Table D (Page 147)
40	Depress HIGH LIGHT key.	HIGH LIGHT indicator lights.	
41	Enter a full line of *s at top of display.	*s continuously flash between half and full intensity. Alarm sounds at 72nd and 80th character positions. Cursor remains at right end of line.	
42	Depress HIGH LIGHT key again.	HIGH LIGHT indicator goes out.	
43	Depress LINE INSRT key.	Cursor moves to left margin, and highlighted *s move down one line.	Terminal Analysis, Table D (Page 147)
IF OPTION 4-12.a. IS ENABLED ON 410075 CARD (SEE STATION FEATURES AND OPTION RECORD), TEMPORARILY CHANGE TO OPTION 4-12.b. UNTIL CHECKOUT IS COMPLETE.			
44	Depress FORM ENTER key.	FORM ENTER indicator lights.	Controller Logic, Table F (Page 158)
45	Enter a full line of Us at top of display.	Us are displayed at half intensity (protected). Alarm sounds at 72nd and 80th character positions. Cursor remains at right end of line.	Terminal Analysis, Table D (Page 147) Display Logic, Table E (Page 154)
46	Depress LINE INSRT key.	Cursor moves to left margin and lines of *s and Us both move down one position. Cursor remains in home position.	
47	Depress CLEAR.	Screen is cleared.	
48	Depress FORM ENTER key.	FORM ENTER indicator goes out.	

D. OFF-LINE CHECKOUT (Contd)

TABLE 8 (Contd)

COMPLETE OFF-LINE CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
49	Enter message of Fig. 9 in lines 1 through 9 of display.	Message appears as in Fig. 9. (To observe protected spaces, increase monitor brightness and note that all protected data has darker background than unprotected data.)	
50	Depress CHAR INSRT key fully and hold until movement stops.	Word QUICK in line 1 moves to tab column and stops. No other characters affected.	Terminal Analysis, Table D (Page 147)
51	Depress CHAR DLETE key twice.	Word QUICK in line 1 moves two positions left. No other characters affected.	
52	Depress TAB.	Cursor moves to tab column. Tab symbol (▶) appears at original position of cursor. All characters passed over by cursor are erased from display.	
53	Depress CHAR INSRT key fully and hold until movement stops.	Word UNPROTECTED moves three positions to right, stopping when it reaches word PROTECTED. No other characters affected.	
54	Depress CHAR DLETE key fully and hold until movement stops.	Word UNPROTECTED is moved left and completely erased. No other characters affected.	
55	Depress TAB.	Cursor moves to first character position after word PROTECTED. Tab symbol (▶) appears at original position of cursor.	
56	Depress SPACEBAR once, then depress it fully.	Alarm sounds once when Spacebar is depressed first time. Cursor moves to character position preceding protected New Line symbol. Alarm sounds continuously, and cursor does not advance beyond this position.	


QUICK UNPROTECTED PROTECTED
QUICK UNPROTECTED PROTECTED
INSERT
MODEL 40
PROTECTED
Protected Data Displayed at Half Intensity

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

LINE 1

Type QUICK
Depress Space (5)
Depress TAB SET
Type UNPROTECTED
Depress Space (2)
Depress FORM ENTER
Type PROTECTED
Depress FORM ENTER
Depress Space (8)
Depress FORM ENTER
Depress NEW LINE

LINE 2

Type QUICK
Depress FORM ENTER
Depress Space (5)
Type UNPROTECTED
Depress Space (2)
Depress FORM ENTER
Type PROTECTED
Depress FORM ENTER
Depress Space (8)
Depress FORM ENTER
Depress NEW LINE
Depress FORM ENTER

LINE 3

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

LINE 4 AND 5

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

(Repeat for Line 5)

LINE 6

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

LINE 7

Type MODEL
Depress Space
Type 40

LINE 8

Depress CURSR RTRN
Depress Cursor down (↓) twice

LINE 9

Depress FORM ENTER
Type PROTECTED
Depress FORM ENTER
Depress HOME

Fig. 9

D. OFF-LINE CHECKOUT (Cont'd)

TABLE B (Cont)

COMPLETE OFF-LINK CHECKOUT — KD AND KDP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
57	Depress TAB.	Cursor moves to end of protected word QUICK in line 2.	
58	Depress CURSOR TAB three times.	Cursor moves to tab mark on first depression. Cursor moves to space following word PROTECTED on second depression. Cursor moves to beginning of word INSERT in line 3 on third depression. No characters altered in any way.	Terminal Analysis, Table D (Page 147) Operator Console (Keyboard) (Manual 480) Display Logic, Table E (Page 134)
59	Depress LINE INSERT three times.	Word INSERT moves down two lines and stops. Rest of display does not change.	
60	Position cursor over M in word MODEL, then depress LINE INSERT twice.	Words MODEL 40 move down one position and stop.	
61	Move cursor over P at beginning of line 9, and type some miscellaneous characters.	Alarm sounds each time a key is depressed. (No characters can overwrite a protected character.)	
62	Depress HOME, CLEAR, then TAB CLEAR.	Cursor goes to home position. All unprotected characters and tab columns are cleared. Protected characters remain on display.	
63	Depress FORM ENTER.	FORM ENTER indicator lights.	
64	Depress CLEAR.	All characters are cleared from display.	
65	Depress FORM ENTER.	FORM ENTER indicator goes out.	
66	If Option 12.a. was originally present on 410675 card, restore this option (unless further checkout is to be performed).	With Option 12.a. selected, FORM ENTER indicator will no longer light when FORM ENTER is depressed in local mode.	
THIS COMPLETES OFF-LINK CHECK OF KD OR KDP.			

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

Note: Checkout procedures for 40-type ROP terminals with 40C303 integrated controller are provided in Manual 380.

TABLE C

OFF-LINE CHECKOUT — ROP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
1	Preliminary requirements: a. Ribbon and paper loaded. b. Switches (top right of printer cabinet, cover raised) set as follows: LF-1 Test-Off Forms (Tractor Feed Only)-On. c. Cabinet cover and pedestal door closed.		
2	Turn on power.	IN SERVICE indicator lights. Fans move air in pedestal. In tractor feed printer, fan in printer cabinet cover also turns on.	Terminal Analysis, Table D, (Page 147) 40C103 ROP Controller, Table G, (Page 160)
3	Momentarily depress PAPER button (red) on cover of printer cabinet.	Paper feeds out as long as button is depressed.	Operator (Manual 400)
4	TRACTOR FEED PRINTER ONLY Depress and release FORMS ADVANCE button (black) on printer cabinet cover.	Paper feeds out until first line of next form is reached, then stops.	Printer (Manual 399)
5	Unlatch and raise printer cabinet cover.	IN SERVICE indicator goes out.	
6	Raise cover interlock to maintenance position.	IN SERVICE indicator lights.	Terminal Analysis, Table D (Page 147)
7	Momentarily set Test switch to ON position then return to OFF position.	Font identification symbol ([illegible] or [illegible]) prints repeatedly while switch is on.	40C103 ROP Controller, Table G (Page 160)
8	FRICTION FEED PRINTER Lift paper roll to simulate a paper alarm.	PAPER indicator lights; IN SERVICE indicator goes out.	Operator (Manual 400) Printer (Manual 399)

D. OFF-LINE CHECKOUT (Contd)

TABLE C (Contd)

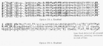
OFF-LINE CHECKOUT — ROP TERMINALS

STEP	PROCEDURE	RESULTS	TROUBLE ANALYSIS
8 (Contd)	Lower paper roll. Guide paper through window and close cabinet cover. TRACTOR FEED PRINTER Tear off next form under pedestal top, then depress PAPER button on cabinet top until last form passes through printer. Reload forms and close cabinet cover.	LOW PAPER indicator goes out; IN SERVICE indicator lights. PAPER indicator lights; IN SERVICE indicator goes out. PAPER indicator goes out; IN SERVICE indicator lights.	Printer (Manual 399)
9	Depress TEST (early design designated TRANS START) key (if present) on opcon, then after a few seconds depress again. Note: If key is not present on opcon, remove blocking key to left of IN SERVICE key. Depress switch once to turn on and second time to turn off.	TEST or TRANS START indicator lights and character set is printed repeatedly (Fig. 10). Indicator goes out and printing stops when depressed second time.	
10	Raise printer cabinet cover and set LF switch to position 2. Close cover and depress TRANS START key. While printer is printing, raise cover.	Repeated character set prints with double line spacing. When cover is raised, printer stops and IN SERVICE indicator goes out.	
11	Restore setting of LF switch (or leave in position 2 if double line spacing is desired). Depress (release) TEST or TRANS START key. If blocking key was removed in Step 9, restore key to opcon. Close cabinet cover.	IN SERVICE indicator lights.	

THIS COMPLETES OFF-LINE CHECKOUT — ROP TERMINALS.

TABLE C (Contd)

OFF-LINE CHECKOUT — ROP TERMINALS



Option 19. a. Enabled

Line feed detected as errored character, printing continues to end of line.

Option 19. b. Enabled

```
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
```

Option 19. c. Enabled

```
!"#$%&'()*+,-./0123456789
                         :;<=>?@ABCDEFGHIJKLMNO
                                               PQRSTUVWXYZ[\]^_
!"#$%&'()*+,-./012345678
                        9:;<=>?@ABCDEFGHIJKLMNO
                                               PQRSTUVWXYZ[\]^_
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN
                                              OPQRSTUVWXYZ[\]^_
```

The TEST (early design designated TRANS START) character set will print as above if Option 19.c. is enabled and the data stacking Option 38. is enabled in the 40C103/AK RO Controller (410590 circuit card). The locations of the line feeds may vary from the example shown.

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

Fig. 16

X. TROUBLESHOOTING

The troubleshooting information contained herein is divided into two parts:

(a) Terminal Analysis — A step-by-step procedure to determine which component of the Model 40/2 Station or Set is failing.

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

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

To locate components, circuit cards, connectors, test switches, indicator lamps and other elements indicated in the troubleshooting information, refer to the appropriate Model 40 publication as listed in Part 1 of this manual.

For wire color codes, cable, connector, and other wiring indicated for continuity checks etc, in troubleshooting, refer to PART 6 — WIRING DIAGRAMS of this manual.

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

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

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

Once the trouble has been corrected, the terminal should be checked out to be sure that it is performing properly. Refer to the appropriate checkout procedures.

The following warning procedures must be observed when troubleshooting Model 40 equipment:

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

Warning 2: *To avoid possible internal damage to circuitry, wear a 14C393 static discharge strap connected to ground to allow static discharge before handling circuit cards for removal or replacement. Avoid touching circuit leads or components as much as possible.*

CONNECT
TO
GROUND
14C393

Note: Service personnel are never to be connected directly to ground but rather through a high resistance discharge path of at least one megohm to provide protection from accidental contact with 115 V ac.

TABLE D

TERMINAL ANALYSIS

Note 1: Always start with Step 1.

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

Note 3: Refer to Manual 360 for analysis of ROP sets equipped with 40C353 Integrated Controllers.

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Is the set an ROP?	Go to 20.	KD, KD-ROP, KD-ROP+ROP, KD+ROP, KD&ROP, KDP, KDP+ROP, KDP&ROP. If any of above, go to 2.
2. Do the fans turn when power is ON?	Go to 3.	Check ac to fan. Refer to PART 6 — WIRING DIAGRAMS, Manual 400 — Model 40 Cabinets, Paper Winder and Facilities. Fan cable connected. Power switch(es) ON. AC present at fan assembly connector.
3. Does the LOCAL lamp on the opcon turn ON when power is turned ON?	Go to 5.	Go to 4.
4. Are all three LED indicators in the power supply ON?	Go to Manual 403 — Operator Console (Keyboard) Go to Table F, KD or KDP Controller (Page 158).	Refer to Manual 402 — Model 40 Power Supply.
5. Is the red drive lamp I5 (in display monitor) ON?	Go to 6.	Go to Table E, Display Logic (Page 154). Go to Manual 401 — Display Monitor.

5. TROUBLESHOOTING (Contd)

TABLE D (Contd)

TERMINAL ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
6. Is the red pilot lamp I5 (next to fuse on power distribution assembly in display monitor) ON?	Go to 7.	Go to Manual 401 — Model 40 Display Monitor.
7. With the monitor OFF/ON control switch ON (CCW) and the operator brightness control to full intensity (CCW), is the raster visible?	Go to 9.	Go to 8.
8. Is the I6 high voltage lamp in the display monitor ON?	Check DISPLAY MONITOR MASTER BRIGHTNESS adjustment in Manual 401 — Model 40 Display Monitor. Go to 9.	Go to Manual 401 — Model 40 Display Monitor.
9. Is the cursor displayed on the monitor?	Go to 11.	Go to 10.
10. Turn operator brightness to full intensity (CCW). Depress test switch number one (TS1) in display logic. Does a flashing vertical black bar pattern appear in the raster with no white pattern? 	Go to Manual 401 — Model 40 Display Monitor. Go to Table E, Display Logic (Page 154).	Go to Table E, Display Logic (Page 154).

TABLE D (Contd)

TERMINAL ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
11. In the local mode, can all data (including editing functions) be input from the opcon to the display monitor on all segments?	Go to 12.	Go to Manual 400 — Operator Console (Keyboard). Go to Table E, Display Logic (Page 154). Go to Table F, KD or KDP Controller (Page 158).
12. Are the characters displayed on the display monitor distorted?	Go to Manual 401 — Model 40 Display Monitor. Go to Table E, Display Logic (Page 154).	Go to 13.
13. Do characters displayed on the display monitor correspond to those generated from the opcon?	Go to 14.	Go to Table E, Display Logic (Page 154). Go to Table F, KD or KDP Controller (Page 158). Go to Manual 400 — Operator Console (Keyboard).
14. Is the station a KD?	Go to 19.	Go to 15.
15. Is the station a KD-ROP, KDP, KD-ROP+ROP, KDP&ROP, KDP+ROP?	Go to 16.	Go to 20.
16. Does printer respond properly to PRINT LOCAL key on opcon? (For KDP&ROP or KDP+ROP, this printer is KDP printer.)	KDP: Go to 19. KDP&ROP; KDP+ROP; KD-ROP: Go to 20.	All stations: Go to 17.
17. Does PRINT LOCAL key on opcon light?	Go to 18.	Go to KD or KDP Opcon Tests — Local Loopback Tests See Manual 400 — Operator Console (Keyboard). If PRINT LOCAL lamp fails test, replace opcon. If PRINT LOCAL lamp passes test, remove opcon from loopback mode (depress RETURN and P keys simultaneously beyond their normal stop) and go to 18.

E. TROUBLESHOOTING (Contd)

TABLE D (Contd)

TERMINAL ANALYSIS

ANALYZER QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
18. Does the type carrier symbol (A or B) print in every column when the printer test switch TS9 is ON and the printer cover is closed or the interlock switch PS3 is in the maintenance up position?	Go to 19.	Go to Manual 299 — Model 40 Printer.
19. Does the station perform on-line tests properly?	Place in service.	Go to Table F, KD or KDP Controller (Page 158). Recheck 91.2 Station Controller options. Checkout 9140 Controller as indicated in Manual 333, Part 8.
20. Does the IN SERVICE lamp on the opener in the ROP turn ON when power is turned ON?	Go to 21.	Go to 25.
21. In an off-line mode, does the TRANS START lamp turn ON when the key is depressed? (The key lights when depressed and stays ON until depressed again to stop the test.)	Go to 22.	Go to Manual 400 — Model 40 Operator Console (Keyboard). Go to Table G, 40C103 ROP Controller (Page 160).
22. In an off-line mode, is the test pattern printed properly with no errors when the TRANS START key is depressed?	Go to 27.	Go to 23.
23. Does the printer turn ON or run at all when the TRANS START key is depressed?	Go to Manual 299 — Model 40 Printer. Go to Table G, 40C103 ROP Controller (Page 160).	Go to 24.
24. Does paper advance when the red PAPER key is depressed?	Go to Table G, 40C103 ROP Controller (Page 160).	Check 09l cable and feed through for continuity at terminals A to B and C to D on J102 connector to printer circuit card, and terminals 1 to 2 and 3 to 6 on printer connector at rear of cabinet.

TABLE D (Contd)

TERMINAL ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
34. (Contd)		Go to Manual 402 — Model 40 Power Supply. If printer is tractor feed, check continuity of paper advance contact (P114 connection, terminals 3 to 4) when switch is depressed. Go to Manual 399 — Model 40 Printer. Go to Table G, 40C103 EOP Controller (Page 160).
35. Does paper advance when the red PAPER key is depressed?	Go to 36.	Check PS3 interlock switch for continuity when switch activator is down and in maintenance up positions. Friction Feed: J106 connector, terminals 1 to 2. Tractor Feed: P114 connector, terminals 6 to 7 and 3 to 8. See PART 6 — WIRING DIAGRAMS. Check 880 cable and feed through for continuity at terminals A to B and C to D on J133 connector in printer circuit card, and terminals 1 to 2 and 3 to 6 on printer connector at rear of cabinet. If printer is tractor feed, check continuity of paper advance contact (P114 connector, terminals 3 to 4) when switch is depressed. Go to Manual 399 — Model 40 Printer. Go to Table G, 40C103 EOP Controller (Page 160).

E. TROUBLESHOOTING (Contd)

TABLE D (Contd)

TERMINAL ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
26. Does the type carrier symbol ([illegible] or [illegible]) print in every column when the TS9 printer test switch is ON and the printer cover is closed, or the PS5 interlock switch is in the maintenance up position?	Check SSI cable and feed through for continuity at terminals A to B and C to D on J102 connector to printer circuit card, and terminals 1 to 2 and 3 to 6 on printer connector at rear of cabinet. Go to Manual 400 — Model 40 Operator Console (Keyboard).	Go to Manual 399 — Model 40 Printer.
27. Does paper advance when the red PAPER key is depressed?	Go to 28.	If printer is tractor feed, check continuity of paper advance contact (P114 connector, terminals 2 to 4) when switch is depressed. Go to Manual 399 — Model 40 Printer.
28. Does the printer have tractor feed paper drive?	Go to 29.	Go to 30.
29. When the black FORM ADVANCE key is depressed, does the paper advance one form (printer form switch ON) or advance continuously (printer form switch OFF)?	Go to 30.	Check FORM ADVANCE switch for continuity when depressed (P114 connector, terminals 3 to 4 and 3 to 5). Go to Manual 399 — Model 40 Printer. Check Form Out Contact Gap.
30. Does the type carrier symbol ([illegible] or [illegible]) print in every column when the TS9 printer test switch is ON and the printer cover is closed, or the PS5 interlock switch is in the maintenance up position?	Go to 31.	Go to Manual 399 — Model 40 Printer.

TABLE D (Contd)

TERMINAL ANALYSIS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
21. Does the station perform on-line tests properly?	Place in service.	Go to 22.
22. Is the station a KD+ROP, KD-ROP+ROP, KDP+ROP or other arrangement that includes a +ROP having an IRS (Individual Receiver Selection) Modification Kit.	Checkout IRS Modification Kit according to Manual 392, Part 8.	Recheck 9140 Station Controller options. Checkout 9140 Controller Manual 392, Part 8. Go to Manual 399 — Model 40 Printer. Go to Table G, 40C103 ROP Controller (Page 160).

COMPONENT ANALYSIS

The following tables contain the Trouble Analysis for the logic in the 4013 Station.

IF YOU ARE TROUBLESHOOTING THE	PROCEED TO	ON PAGE
Display Logic	Table E	154
KD or KDP Controller Logic	Table F	158
40C103 ROP Controller	Table G	160

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

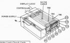
Manual 399 Model 40 — Printer
Manual 400 Model 40 — Operator Console (Keyboard)
Manual 401 Model 40 — Display Monitor
Manual 402 Model 40 — Power Supply

If data set problems are suspected, refer to the appropriate data set or modem literature.

E. TROUBLESHOOTING (Cont'd)

TABLE E

DISPLAY LOGIC



Display Logic Circuit Cards	
Pos.	
06	410002
07	410001, 410059 or 410018
08	410003
09	AUX
10	410055 (See Note 1.)
11	410055 (See Note 1.)
12	410055 (See Note 1.)
13	410007, 410020, 410021, 410022
14	410855
Wired Frame	341072 (See Note 2.)

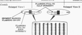
Note 1: For 1 segment (24 lines), card is in position 10. For 2 segments (48 lines), cards are in position 10 and 11. For 3 segments (72 lines), cards are in positions 10, 11, and 12.

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

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Depress TB1 test switch on 410855 circuit card. Is the following pattern generated on the display? Are all of the elements shown in enlarged view I and II present?	Go to 2.	Replace 410855 circuit card.

TABLE E (Contd)

DISPLAY LOGIC

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

E. TROUBLESHOOTING (Contd)

TABLE E (Contd)

DISPLAY LOGIC

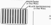
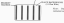
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
4. With TS3 depressed, is a black and white bar pattern generated on the display with bars that are 4 character positions wide as shown below?  WHITE BARS (4 Char Wide) BLACK BACKGROUND (4 Char Wide) TS3 Test Pattern	Go to 5.	Go to 6. Note: Pattern is not necessarily centered on the display as illustrated.
5. Remove 341740 cable. Depress TS3. Is the test pattern from Question 4 still generated on the display?	Replace 410082 circuit card.	Trouble is in controller. Go to Table F, KD or KDP Controller (Page 158).
6. With TS3 depressed, is a black an white bar pattern generated on the display with white bars 4 character positions wide and black bars 12 characters positions wide as shown below?  WHITE BARS (4 Char Wide) BLACK BACKGROUND (12 Char Wide) SEGMENT MARKER TS3 Test Pattern	Replace 410815 circuit card for the segment indicated by the segment marker displayed in the test pattern.	Go to 7. Note: Pattern is not necessarily centered on the display as illustrated.

TABLE E (Contd)

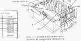
DISPLAY LOGIC

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
7. With TS3 depressed, is a black and white bar pattern generated on the display with bars that are 8 character positions wide as shown below? WHITE BARS (8 Char Wide) BLACK BACKGROUND (8 Char Wide) TS3 Test Pattern	Replace 410063 circuit card. *Note.* Pattern is not necessarily centered on the display as illustrated.	Replace 410001, 410009, or 410018 circuit card.
8. With TS3 depressed, does the cursor and first segment marker come to rest in a stationary condition at the HOME position?	Display logic is good. Trouble is elsewhere.	Replace 410003 circuit card.

TABLE F

KD OR KDP CONTROLLER

Controller Circuit Cards		
Pos	KD	KDP
01	—	419770
02	410771	419771
03	410672 410676	419672 419676
04	410675	419675
05	410674	419674
Wired Frame	341909	341909


DISPLAY LOGIC
KD OR KDP CONTROLLER
POWER SUPPLY
TS6
341768 CABLE
410672
TS1
TS2
TS3
F1
TS4
01
02
03
04
05

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

E. TROUBLESHOOTING (Contd)

TABLE F (Contd)

KD OR KDP CONTROLLER

Note: DL refers to Display Logic.

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Can anything be entered from opcon onto the display?	Go to 3.	Go to 2.
2. Depress TS4 test switch on 410771 circuit card. Is "?" (Option 4-7.a.) or "Sg" (Option 4-7.b.) displayed on the monitor?	Replace 410672 circuit card. Replace 410675 circuit card. Replace opcon.	Replace 410673 circuit card. Replace 410674 circuit card. Replace 410002 circuit card in DL. Replace 341740 cable to DL.
3. Can characters be entered from opcon (in local mode) and displayed properly?	Go to 4.	Replace 410672 circuit card. Replace 410674 circuit card. Replace 410002 circuit card in DL. Replace 341740 cable to DL.
4. Do edit and alarm features operate properly in local mode? *Note:* Refer to Complete Off-Line Checkout — Table B, KD and KDP Terminals.	Go to 5.	Replace 410675 circuit card. Replace 410672 circuit card. Replace 410674 circuit card. Replace 410002 circuit card in DL. Replace 341740 cable to DL. Replace opcon.
5. Can set send and receive properly on-line?	Go to 7.	Go to 6.

TABLE F (Cont'd)

KD OR KDP CONTROLLER

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
6. Enter the sequence U*U* across the first line. With cursor in home position and REC key lighted, depress TS6 test switch on 410771 circuit card. Does cursor move across line and *s change to Us? (SEND and REC key lights flash on and off while TS6 test switch is depressed.)	Check 9140 Station Controller and the 9140 interconnect cable. Refer to Manual 253, Part 8.	Replace 410771 circuit card. Replace 410674 circuit card. Replace 410675 circuit card.
7. Does set respond properly to control characters and sequences? (Example: VT and EOT.)	Go to 8.	Replace 410674 circuit card. Replace 410675 circuit card. Replace 410773 circuit card (if so equipped).
8. Can proper escape sequence be sent on-line? (Example: ESC3 for highlight, ESC4 for no highlight.)	Go to 9.	Replace 410676 circuit card. Replace 410675 circuit card. Replace 410674 circuit card. Replace 410002 circuit card in DL.
9. With ≡ displayed on monitor, can proper line ending sequence (LF, CR LF, CR CR LF) be sent on-line? (The sequence is dependent on the Option 4-10.)	Go to 10.	Replace 410675 circuit card. Replace 410674 circuit card.
10. KDP, KD-ROP, KDP portion of "KDP&ROP" or "KDP+ROP" only: Do the PRINT ON LINE and PRINT LOCAL operations function properly? (Step 10 does not apply to KD&ROP or KD+ROP. Note of Step 4 applies.)	Controller is OK. Trouble is elsewhere.	Replace 410770 circuit card. Replace 410674 circuit card. KD-ROP only: Go to Table G, 40C153 ROP Controller (Page 160). KDP only: Replace printer.

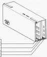
E. TROUBLESHOOTING (Contd)

TABLE G

40C103 ROP CONTROLLER

Note 1: 40C103AD ROP controller includes a buffer (character storage).

Note 2: 40C103AE ROP controller does not include a buffer.



CIRCUIT CARD LOCATION

40C103AD	40C103AE	POSITION
410582	410582	JA
410581 or 410585	410587	JB
410580	410580	JC
410583	410583	JD

410581 and 410585 are interchangeable.

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Does IN SERVICE lamp on ROP opcon fail to light?	Replace 410580 circuit card.	Go to 2.
2. Is the correct test message printed when the TRANS START key on the ROP opcon is depressed, and does the TRANS START lamp turn ON? (See Page 161 for sample test message.)	Go to 3.	Replace 410583 circuit card. Replace 410582 circuit card. Replace 410580 circuit card.
3. Are messages received on-line?	Go to 4.	Check data set and transmission line facilities. Replace 410580 circuit card. Replace 410582 circuit card.

TABLE G (Contd)

40C102 ROP CONTROLLER

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
4. Do messages received on-line contain errors? (Does the DATA ERROR lamp, if used, remain OFF when errors are received, or turn ON when errors are not received?)	Replace 410580 circuit card. Replace 410582 circuit card. Replace 410584 circuit card (interconnecting).	If controller code is 40C102(AE), go to 5. If controller code is 40C102(AD), go to 6.
5. Does data stacking feature operate properly — no loss of characters (40C102(AE))? Note: Data stacking prevents data loss by placing more characters on printed lines (no buffer).	ROP controller is OK. Trouble is elsewhere.	Check to see that controller has a 410587 circuit card in position JB, Issue 2 or later. Check to see that Option 4-18.a. on 410582 is enabled. Replace 410582 circuit card.
6. Is the buffer (character storage) operating properly — no lost characters or blocks of characters, no erroneous message termination, etc?	ROP controller is OK. Trouble is elsewhere.	Replace 410581 or 410585 circuit card. Note: These two cards are interchangeable. Replace 410593 circuit card. Replace 410582 circuit card.

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

```
▨!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
▨!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
└── Where ▨ represents the errored character symbol.
```

Two Lines of Test Pattern

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

```
[]!"[]#[]$%&'()[]*[]+,-./0[]1[]2[]3[]4[]5[]6[]7[]8[]9[]:[];<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
[]!"[]#[]$%&'()[]*[]+,-./0[]1[]2[]3[]4[]5[]6[]7[]8[]9[]:[];<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
└── Where [] represents a space (first column does not print).
```

Two Lines of Test Pattern

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

Test Patterns for Analysis Question 2 of Table G

NOTES

PART 6 — WIRING DIAGRAMS
A. GENERAL

This part provides wiring diagrams and cable components referred to in PART 5 — IDENTIFICATION and PART 2 — INSTALLATION of this manual.

The KD, and KDP drawings give the complete wiring between the various components. The components are shown as blocks and are labeled accordingly. If it becomes necessary to check the wiring of one of the above listed components, the page number for that drawing will be given in the appropriate block on the station drawing on which it appears. Drawings of the wired frames for the controller(s) and display logic are not given.

Where possible, small notes indicating voltage levels have been added to aid in trouble locating. The location of any cable can be attained by referring to the appropriate manual listed in Part 1 of this manual.

Danger: Whenever the monitor cover is removed, safety glasses should be worn. Also, the high voltage lead to the CRT should never be probed.

The wiring of the data set to the phone line (and to the telephone set, if applicable) is not given in this manual. Refer to the applicable data set or modem literature.

The wiring of ROP sets equipped with a 40C103 Integrated Controller is given in Manual 263.

If a more comprehensive presentation of the wiring information is required, the following wiring diagram packages are available from Teletype Corporation.

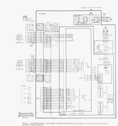
WDP0139	9140 Controller and Power Supply
WDP0290	40C202 — Controller
WDP0296	4035/ = KD & 4080/ = KDP With 40C202 — Controller
WDP0400	40MS101 Display Monitor
WDP0401	ROP Set With 40C103
WDP0402	40C103 ROP Controller
WDP0403	40K103 Operator Console
WDP0404	40R001 ROP Option
WDP0405	40PSU101 Power Supply
WDP0423	40DL201 Display Logic
WDP0435	40 Printers
WDP0436	40C202 Controller (TF Set)
WDP0441	Tractor Printer
WDP0462	40P201 Tractor Printer (132-Column)
WDP0463	Integrated Controller
WDP0481	40C303 Controller (FF Set)
WDP0487	351 Quiet Friction Printer Set
121080	Schematic Wiring Diagram of 344755 Individual Receiver Selection Modification Kit

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

B. WIRING DIAGRAMS

The following list contains the figure and page numbers of all the wiring diagrams.

FIGURE	CONTENT	PAGE
1	ROP Cabinet with 40C100 Controller	165
2	KDP Set — Adjacent Printer	166
3	KDP Set — Printer Under Monitor	168
4	Printer Cabinets	170
5	40P101/ZZ Friction Feed Printer	171
6	40P102/ZZ Friction Feed Printer	172
7	40P151/ZZ 80-Column Tractor Feed Printer (Early Design)	173
8	40P151/ZZ 80-Column Tractor Feed Printer (Late Design)	174
9	40P153/ZZ 80-Column Tractor Feed Printer (Early Design)	175
10	40P153/ZZ 80-Column Tractor Feed Printer (Late Design)	176
11	40P154/ZZ 80-Column Tractor Feed Printer	178
12	40P201/ZZ and 40P202/ZZ 132-Column Tractor Feed Printer	180
13	40P253/ZZ Forms Access Tractor Feed Printer	182
14	40PSU101 Power Supply (Early Design)	184
15	40PSU101 Power Supply (Late Design)	185
16	40K101 Operator Console (Early Design)	186
17	40K101 Operator Console (Late Design)	186
18	40MN101/AA Display Monitor	187
19	341893 Monitor Extension Cable Assembly	188
20	341895 Printer Extension Cable Assembly	189
21	341896 Data Set Cable Assembly	190
22	344545 Individual Receiver Selection Cable Assembly	191
23	345603 Interface Cable Assembly (KD, KDP, KD-ROP)	192
24	345613 Interface Cable Assembly (KD & ROP or KDP & ROP)	193
25	346333 Opcon Base Cable Assembly	194
26	431640 Printer Extension Cable Assembly	195
27	431641 Opcon Extension Cable Assembly	196
28	435306, 435307, 435308 or 435309 Printer Extension Cable Assembly	197
29	435373 Through 435375 Keyboard/Display Cable Assembly	198
30	436065 Through 436068 EIA Data Set Cable Assembly	199
31	436088 Adapter Cable Assembly	200



Note 1. To [illegible] interface cable (ROP), [illegible] printer cable (KR and ROP), or [illegible] and ROP or KSR and ROP).

Note 2. [illegible] distribution assembly early design with ON-OFF switch [illegible] on the outside of cabinet. The [illegible] distribution assembly late design with ON-OFF switch [illegible] and [illegible] to all [illegible] outlets.

Fig. 1—ROP Cabinet with 40C103 Controller

B. WIRING DIAGRAMS (Contd)

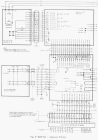


Fig. 2—KDP Set — Adjacent Printer

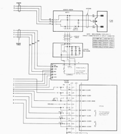


Fig. 2–KDP Set — Adjacent Printer (Contd)

B. WIRING DIAGRAMS (Contd)

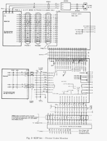

See Page 69
for Kit pin
designations.

Fig. 3-KDP Set — Printer Under Monitor

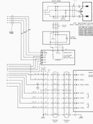


Fig. 5–KDP Set — Printer Under Monitor (Contd)

B. WIRING DIAGRAMS (Contd)

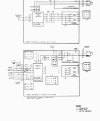

INTERLOCK SWITCH
POWER CABLE
DISTRIBUTION ASSEMBLY
FRICTION FEED PRINTER
See Figs. 5-6 for details.
TRACTOR FEED PRINTER
See Figs. 7 through 11 for details.
INTERLOCK SWITCH
LEGEND
FEMALE PIN
MALE PIN
NO PIN PRESENT

Fig. 4—Printer Cabinets

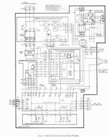


Fig. 5—40P101/ZZ Friction Feed Printer

B. WIRING DIAGRAMS (Contd)

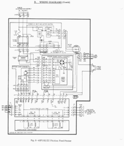


Fig. 6—40P102/22 Friction Feed Printer

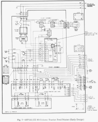


Fig. 7—40P151/ZZ 80-Column Tractor Feed Printer (Early Design)

8. WIRING DIAGRAMS (Cont'd)

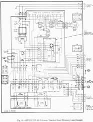
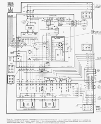


Fig. 8—40P150/CC 80-Column Tractor Feed Printer (Late Design)

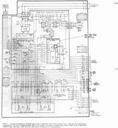


Note 1: [illegible]

Note 2: Paper low switch [illegible]

Fig. 9—10F113/ZZ 80-Column Tractor Feed Printer (Early Design)

B. WIRING DIAGRAMS (Cont'd)



Note 1: If printer contains a 410046 logic card of assembly issue [illegible] or earlier pins 1 and 44 of J1 and J2 are connected to the -24 V magnet supply line. If the printer contains a 410046 logic card of issue [illegible] or later or a 410070 logic card pins 1 and 42 of J1 and J2 are connected to circuit ground.

Note 2: Paper low switch is optional (modification kit 403050).

Fig. 10—40P153/XX 80-Column Tractor Feed Printer (Late Design)

NOTES

Note: Grounding Option – Inserting Option Screw A on component side of 410181 circuit card connects -24 V dc circuit common to chassis. Inserting Option Screw B on component side of 410181 circuit card connects -24 V dc circuit common to +11.3 V dc circuit common. Inserting Option Screw A or B into noncomponent side of card leaves connection open. Refer to Option K1.

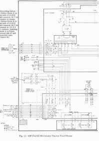


Fig. 11–40F154/XX 80-Column Tractor Feed Printer

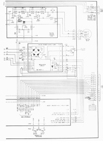


Fig. 11—40P154/XX 80-Column Tractor Feed Printer (Cont'd)

B. WIRING DIAGRAMS (Contd)

Note 1: Grounding Option — Inserting Option Screw A on component side of 410331 circuit card connects -24 V dc circuit common to chassis. Inserting Option Screw B on component side of 410331 circuit card connects -24 V dc circuit common to +11.5 V dc circuit common. Inserting either screw into noncomponent side of card leaves connection open.

Note 2: If the printer is equipped with a 410720 logic card, pins 1 and 68 of 410690 magnet bank assemblies will be connected to the -24 V magnet supply voltage. If the printer is equipped with a 410672 logic card, pins 1 and 68 of the 410690 magnet bank assemblies will be connected to magnet ground.

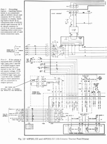


Fig. 12—40P201/ZZ and 40P202/ZZ 132-Column Tractor Feed Printer

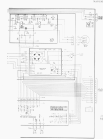
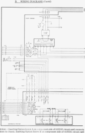


Fig. 12—40P201/22 and 40P202/22 132-Column Tractor Feed Printer (Cont'd)

B. WIRING DIAGRAMS (Cont'd)



Note: Grounding Option – Inserting Option Screw A on component side of 410151 circuit card connects -24 V dc circuit common to chassis. Inserting Option Screw B on component side of 410151 circuit card connects -24 V dc circuit common to +11.3 V dc circuit common. Inserting Option Screw A or B into noncomponent side of card leaves connection open. Refer to Option 61.

Fig. 13—40FSSJ/ZZ Forms Access Tractor Feed Printer

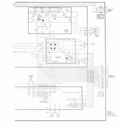
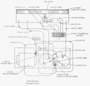


Fig. 13—40FS52/XX Forms Access Tractor Feed Printer (Contd)

B. WIRING DIAGRAMS (Contd)

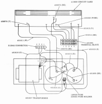

(See Note)
401612 (Y)
401609 (BK)
401607 (BK)
410600 CIRCUIT CARD
401623 (W BK)
401613 (Y)
401614 (BK)
401610 (BL)
401611 (R)
401605 TERMINAL BLOCK
310462 CONNECTOR
1 2 3 4
401618 (G)
401619 (R)
401615 (R)
401606 (BK)
156656 STRAP (BK)
401616 (G)
401607 TRANSFORMER
129820 FUSE
156685 FUSE HOLDER

Transformer
Wiring Colors

1 — R
2 — G/Y
3 — R/Y
4 — BK
5 — BK

Note: The two black wires attached to the circuit card bus bar can be removed by taking out the nut and bolt which hold both wires to the bus bar.

Fig. 14—40PSU181 Power Supply (Early Design)

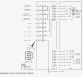

410600 CIRCUIT CARD
400070 (BK)
400876 (Y)
401620 (W-BK)
401613 (V)
401614 (BR)
401611 (W)
401603
TERMINAL BLOCK
1 2 3 4 5
312062 CONNECTOR
4 3 2 1
400079 (BK)
401619 (S)
401618 (Y)
401615 (R)
1 2 3 4 5
+
+
401609 (BK)
401616 (O)
128029 FUSE
239680 FUSE HOLDER
481007 TRANSFORMER

Transformer
Wiring Colors

1 - R
2 - G-Y
3 - R-Y
4 - BK
5 - BK

Fig. 15—40PSU101 Power Supply (Late Design)

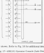
D. WIRING DIAGRAMS (Contd)



Note: Interface to controller shown.

*PRESENT ONLY ON EARLY UNITS.

Fig. 16—40K101 Operator Console (Early Design)



Note: Interface to controller shown. Refer to Fig. 16 for additional detail.

Fig. 17—40K101 Operator Console (Late Design)

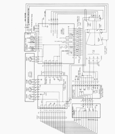
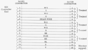
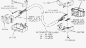


Fig. 19—40MS101AA Display Monitor

B. WIRING DIAGRAMS (Contd)


341881
CONNECTOR
341739
CONNECTOR
KD
Controller
End
1 W-Y 1
2 Y 2
3 W-O 3
6 O 6
4 DRAIN WIRE 4
5 W-G 5
7 G 7
8 W-R 8
10 R 10
9 BK 9
11 W-BR 11
13 BR 13
12 BL 12
14 P 14
15 S 15
Twisted
Twisted
Twisted
Twisted
Twisted
Monitor
support
cabinet
end.

ACTUAL WIRING


341723
121000 (2)
341887 (5)
PINS 4,9,12,14,15
341926
341723
341704 (10)
PINS 1,2,3,5,6,
7,8,10,11,13
341723
341739
341668 (5)
PINS 4,9,12,14,15
341705 (10)
PINS 1,2,3,5,6,
7,8,10,11,13
341720
15-CONDUCTOR CABLE
(10 – 26 AWG)
(4 – 22 AWG)
(1 – 24 AWG)
121000 (2)

Note: Used to connect display monitor in KDP arrangements having friction printer under monitor. Not for use with free standing monitor on separate 40SE101 monitor base.

Fig. 19—341880 Monitor Extension Cable Assembly

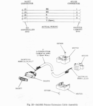
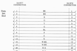

041977
CONNECTOR
401150
CONNECTOR
13
14
16
17
BK
BR
R
O
Y (Spare)
1
2
3
6
KD
CONTROLLER
END
ACTUAL WIRING
PRINTER
CABINET
END
337926
401713
401150
5'
5-CONDUCTOR
CABLE 24 AWG
(1 Spare Wire)
041872 (4)
PINS 13,14,16,17
041873
041977
041706 (4)
PINS 1,2,3,6
337926
401715

Fig. 20—041895 Printer Extension Cable Assembly

9. WIRING DIAGRAMS (Cont'd)


341977
CONNECTOR
341978
CONNECTOR
Data
Set
End
1
2
3
4
5
6
7
8
11
12
15
17
20
22
23
BK
BN
R
O
Y
G
BL
P
S
W
W-BK
W-BN
W-R
W-O
W-Y

ACTUAL WIRING

Note 1: 341896 cable is replaced by 408065 shielded cable assembly in 48/2 station arrangements.

Note 2: 341896 cable is also used in KD-ROP to connect KD to ROP.

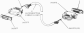

341973 (15)
341973
341979
5'
15-CONDUCTOR
CABLE 24 AWG
341973
341977
341973 (15)

Fig. 22—341896 Data Set Cable Assembly

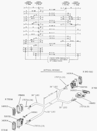

THESE WIRE ENDS WITH TERMINALS TIED BACK AT CABLE ENDS
ACTUAL ROUTING
X 3RD REC
145914
175715 (13)
24" LEG
325725
X TERM
145913
13 FT
196430
26" LEG
X TERM
175715 (16)
145915
196430
175715 (9)
56" LEG
143041
30" LEG
325725
145914
175715 (19)
X 9141

Fig. 32—344545 Individual Receiver Selection Cable Assembly
(Part of 344550 Modification Kit)

B. WIRING DIAGRAMS (Contd)

341977 CONNECTOR (X)		341976 CONNECTOR (D)
1	BK	1
2	BR	2
3	R	3
4	O	4
5	Y	5
7	BL	7
8	P	8
11	W-BK	11
12	W-BR	12
13	W-R	13
14	W-O	21
15	W-Y	15
19	W-G	6
20	W-BK-BK	20
21	W-BK-BR	21
22	W-BK-O	22
23	W-BK-BL	23

ACTUAL WIRING

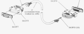

341972 (13)
341976
341978
6'
13-CONDUCTOR
CABLE 24 AWG
341975
341977
341973 (13)

Fig. 33—343633 Interface Cable Assembly (KD, KDF, KD-RDF)

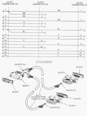
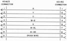

341977 CONNECTOR (X)
341975 CONNECTOR (Y)
341976 CONNECTOR (Z)
ACTUAL WIRING
341975 (14)
341973
341977
341973 (7)
341973 (8)
341976
341973
3-1/2 15-CONDUCTOR CABLE 24 AWG

Fig. 24—345613 Interface Cable Assembly (KD & ROP or KDP & ROP)

B. WIRING DIAGRAMS (Cont'd)


401623
CONNECTOR
401180
CONNECTOR
1
2
3
4
6
7
8
9
R
Y
O
W-R
G
W-BL
W-BR
DRAIN WIRE
1
2
3
4
6
7
8
9

ACTUAL WIRING

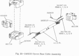
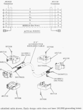

401718
337926
401623
220618
SHIELD
341647 (4)
PINS 4, 7, 8, 9
401150
341645 (3)
PINS 4, 7, 8
341704 (4)
PINS 1, 2, 3, 6
401718
337926
341705 (5)
PINS 1, 2, 3, 6, 9
4-1/2 Ft.

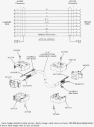
Fig. 25—240332 Opcon Base Cable Assembly


481623 Connector
481150 Connector
1
2
3
4
5
6
9
Y
R
G
BL
W
O
SHIELD (See Note)
ACTUAL WIRING
6'-2"
6-CONDUCTOR
SHIELDED CABLE
337926
481718
181392(1) (See Note)
341648(1)
481623
341793(6)
337926
481718
481150
341794(6)
341647(1)
181392(1) (See Note)
481718
337926
481718
337926

Note: Late design shielded cable shown. Early design cable does not have 181392 grounding terminals and had a bare single wire in lieu of shield.

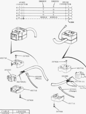
Fig. 26—481640 Printer Extension Cable Assembly

B. WIRING DIAGRAMS (Contd)


401633
Connector
401150
Connector
CABINET
END
OPCON
END
1
2
3
4
5
6
7
8
9
R
Y
G
W-Y
W-R
O
BL
K
SHIELD (See Note)
ACTUAL WIRING
337826
401718
181392(1)
(See Note)
6'-0"
8-CONDUCTOR
SHIELDED CABLE
337826
401718
401150
341648(1)
401123
341700(8)
341704(3)
341647(1)
181392(1)
(See Note)
401719
337826
401719
337826

Note: Late design shielded cable shown. Early design cable does not have 181392 grounding terminals and had a bare single wire in lieu of shield.

Fig. 27—400641 Opcon Extension Cable Assembly


LATE DESIGN
EARLY DESIGN
401623 CONNECTOR
401150 CONNECTOR
1
2
3
4
9
SHIELD
SHIELD
337926
401716
401623
341705(5)
405209 (White)
401716
337926
337926
401716
161392
341704 (4)
341647 (1 — for Pin 9)
401150
405242 (Orange)
401716
337926

CABLE	LENGTH
405306	6 FT
405307	12 FT
405308	25 FT
405309	50 FT

Fig. 39—405306, 405307, 405308 or 405309 Printer Extension Cable Assembly

B. WIRING DIAGRAMS (Contd)

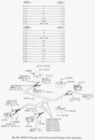
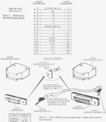

ACTUAL WIRING
405334
180714
341568 (5) PINS 4, 9, 12, 14, 15
341729
341735 (8) PINS 1, 2, 3, 6, 8, 10, 11, 13
405335
405136
401633
180714
341705 (5) PINS 1, 2, 3, 6, 9
341568 (3) PINS 4, 7, 8
341706 (8) PINS 1, 2, 3, 6, 8, 10, 11, 13
341704 (4) PINS 1, 2, 3, 6
405136
337826
341691
336428
341647 (5) PINS 4, 9, 12, 14, 15
401130
181393
341647 (4) PINS 4, 7, 8, 9
CABLE LENGTH
405373 (6 Ft)
405374 (12 Ft)
405375 (25 Ft)
405376 (50 Ft)
405377 (75 Ft)
405378 (100 Ft)

Fig. 29—405373 Through 405378 Keyboard/Display Cable Assembly

Data Set End
(See Note 1)

Note 1: RDP end in KD-RDP applications.


341977 CONNECTOR
341978 CONNECTOR
1 OUTER DRAIN 1
2 BR 2
3 R 3
4 O 4
5 Y 5
6 G 6
7 INNER DRAIN 7
8 P 8
11 S 11
12 W 12
15 W-BK 15
17 W-BR 17
20 W-R 20
22 W-O 22
23 W-Y 23
25 BL 25
ACTUAL WIRING
408031 CONNECTOR HOOD
(2) 408043 SCREW RETAINER KIT (See Note 2)
408031 CONNECTOR HOOD
16 CONDUCTOR DOUBLE SHIELDED CABLE 24 AWG
CABLE MARKER ON EACH END IDENTIFIES NUMBER OF CABLE AND SHIELDED EIA
341977 CONNECTOR
341974 CONTACT PIN (16)
341978 CONNECTOR
341973 CONTACT SOCKET (16)

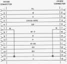
CABLE	LENGTH
408065	7 FT
408066	12 FT
408067	25 FT
408068	50 FT

Note 2: Each 408043 screw retainer kit contains two screws and retainers.

Note 3: The 341886 cable assembly is replaced by the 408065 shielded cable assembly in the 43/3 KD, KDP, and KD-RDP.

Fig. 10—408065 Through 408068 EIA Data Set Cable Assembly

B. WIRING DIAGRAMS (Contd)


341691 CONNECTOR
341691 CONNECTOR
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
BL
W
L
DRAIN WIRE
BR
W
W
W-P
R
P
W-BK
GR
BK
O
Y

ACTUAL WIRING

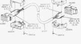

180714
405354
341647 (5) PINS 1, 2, 3, 4, 6, 14
341691
405354
341794 (8) PINS 7, 8, 9, 10, 11, 12, 13, 15
180714
2-1/2"
405354
180714
341647 (6) PINS 1, 2, 3, 4, 6, 14
341691
341794 (8) PINS 7, 8, 9, 10, 11, 12, 13, 15
405354
180714

Fig. 31—406555 Adapter Cable Assembly

PART 7 — ADJUSTMENTS

The only adjustments in the station are in printer and monitor.

Monitor adjustments are given in Manual 401.

Printer adjustments are given in Manual 299.

PART 8 — TOOLS AND SUPPLIES

The following tools and supplies may be required for installation or servicing of 40/3-type apparatus. Except for items prefixed CP, the part numbers should be prefixed with the letters "TP" (ie, TP410005) and ordered from:

Teletype Corporation
5555 W. Touhy Avenue
Skokie, Illinois 60077

Items prefixed with the letters "CP" (ie, CP23,018,000) should be ordered from:

Teletype Corporation
Custom Systems Division
5555 W. Touhy Avenue
Skokie, Illinois 60077

Tools

Wrench	3/16" socket	120752
Wrench, open end	3/8"	120760
Wrench, open end	5/16" and 1/4"	129534
Wrench, open end	5/16" and 3/8"	152838
Wrench, open end	3/4"	129537
Nut driver	Handle	135676
Nut driver	1/4"	89954
Nut driver	5/16"	89953
Nut driver	1/4"	135477
Nut driver	3/16"	135678
Screwdriver	1/8", 3" blade	90368
Screwdriver	1/4", 6" blade	100962
Screwdriver	(blade less than 3/32")	94547
Allen wrench	0.062	124682
Tweezers		151392
Spring hook (pull)		142554
Spring hook (pull)		79875
Spring hook (push)		75563
Static ground strap		346392
Scales, spring (3)		118443
Ruler, 6"		59960
Cleaning brush (type face)		151384
Long-nose pliers		108285
Cutting pliers		108286
Terminal extractor		182687
Retaining ring pliers		160386
Terminal extractor		341963
Keyswitch extractor		344337

PART 8 — TOOLS AND SUPPLIES (Contd)

Tools (Contd)

Keytop extractor	346260
Gauge (80-column friction and tractor feed printers)	402617
Gauge (132-column tractor feed printer)	402716
Gauge (132-column tractor feed printer)	402717
Dynamic backup bar gauge	402565
Type carrier alignment gauge	402676
Terminal extractor	402840
Extender card for 9140 circuit cards	343580
Extender cable for Model 40 tractor feed printers	CP10.005.083.1
Extender cable for Model 40 friction feed printers	CP10.005.084.1
Extender card for Models 40/0, 1, 2 and 3 circuit cards	CP10.015.000

Supplies

Grease — Mobil No. 2 (1 lb can)	143454
Grease — Mobil No. 2 (4 oz tube)	145807
Grease — Beacon 325 (5 lb can)	190206
Oil — 837470 (1 qt can)	88970
Ribbon	402444
Paper (friction feed) — standard 8-1/2" wide, 5" dia roll	
Paper (tractor feed)	
Freon TF degreaser (6 oz aerosol can)	337449
Thermal joint compound (obtained locally)	