TELETYPEWRITER COMPATIBLE "DATASPEED*" 40/2

INSTALLATION

CONTENTS PAGE

CONTENTS PAGE

*Registered Trademark of AT&TCo.

Prepared for American Telephone and Telegraph Company by Teletype Corporation

1. GENERAL

1.01 This section provides the installation procedures and methods for a Teletypewriter Compatible DATASPEED 40/2 Station.

1.02 This section is reissued to include the following:

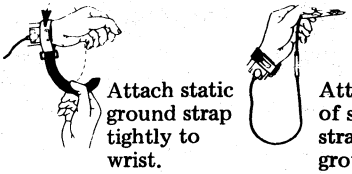
- Free standing stations
- New printer circuit cards (410071, 410072 and 410076)
- Data sets options for 108F and G, 113C and D, 212A, 408B, and all registered sets.
- This is a general revision, arrows ordinarily used to indicate changes have been omitted.

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

1.03 The following Warnings and Danger are to be used as safety measures for the apparatus and the craftsperson.

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.

Fig. 1

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

Warning 3: Place listed card in an RM150592 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.

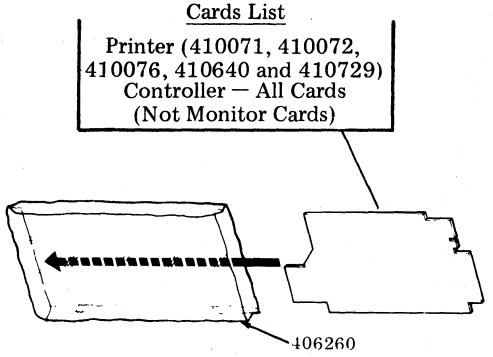


Fig. 2

2. IDENTIFICATION

GENERAL

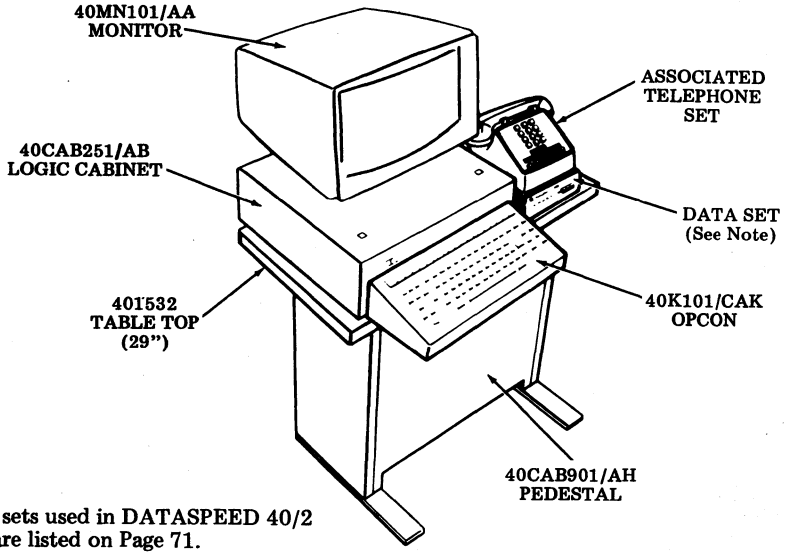
2.01 Identification of the DATASPEED 40/2 terminal and its features is important to the Service Center or field craftsperson. Knowing what features are provided and how those features are programmed to operate provide the basic understanding necessary for installation, operational checkout, or "in the field" service call routines. Several methods are presented in the following paragraphs for determining terminal features and optioning.

2.02 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.

2.03 Service Center optioning or optioning in the field by a craftsperson must be recorded on the Station Features and Options Record W-4DIXB. Features and options must be recorded by checking ☒ on the variable number (ie, Option 17.d.) in the appropriate square. Features and modifications on the terminal that are not listed on the Station Features and Options Record W-Plan should be written in. This plan should stay with the station.

KD (Keyboard Display)

2.04 The KD consists of a keyboard (opcon) and monitor, with the terminal logic mounted under the monitor. The KD may be mounted on a pedestal top or on the customer's own office furniture.

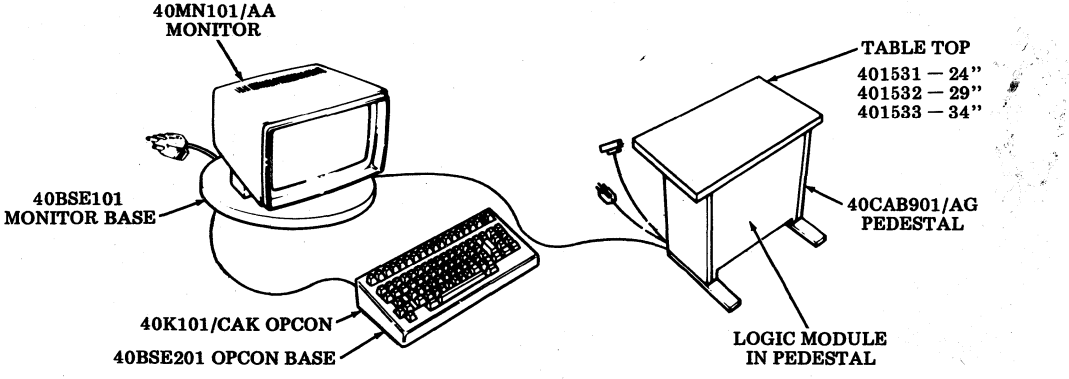


Note: Data sets used in DATASPEED 40/2 applications are listed on Page 71.

Fig. 3—KD Station

KD (Remote Opcon and Monitor) (Ref 50907S)

2.05 The KD consists of an opcon, opcon base, monitor and monitor base, with the logic module mounted in the pedestal.

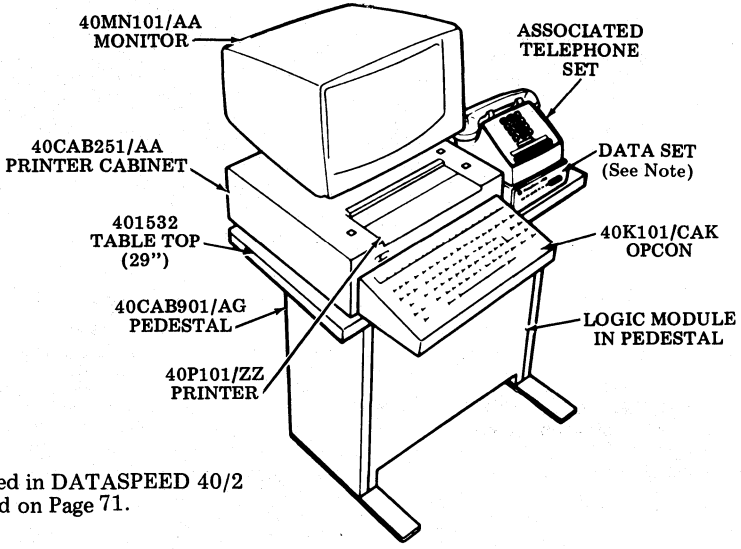


Note: Data set is not shown but can be placed on either the pedestal top or the customer provided furniture.

Fig. 4—KD Station (Remote)

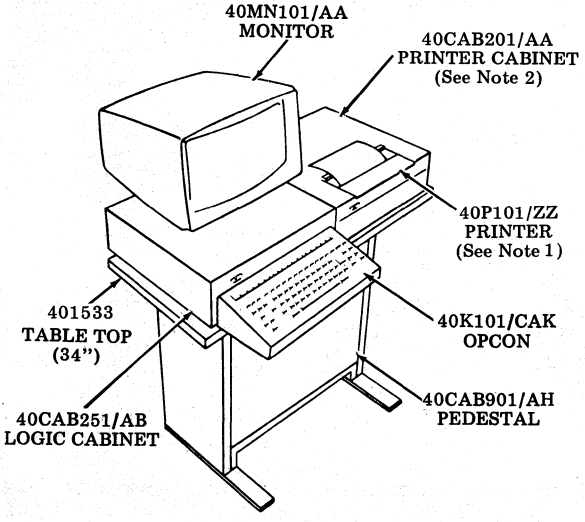
KDP (Keyboard Display With Printer)

2.06 The KDP consists of a KD terminal with a printer mounted either under the monitor or adjacent to the KD. The adjacent printer may be either tractor or friction feed. Tractor feed printers may be either 80- or 132-column printers.



Note: Data sets used in DATASPEED 40/2 applications are listed on Page 71.

Fig. 5—KDP Station (Printer Under Monitor)



Note 1: When printer is adjacent, may be either friction feed, 80-column tractor feed (40P151/ZZ), or 132-column tractor feed (40P201/ZZ). Tractor feed printers require a separate pedestal.

Note 2: Printer cabinet for 80-column tractor feed is 40CAB351/AA. 132-column tractor feed printer cabinet is 40CAB353/AA.

Note 3: When printer is adjacent, other provisions must be made for mounting data set and attendant set; there is no space allowed on the table top.

Fig. 6—KDP Adjacent Printer on Same Top and Pedestal (See Note 3)

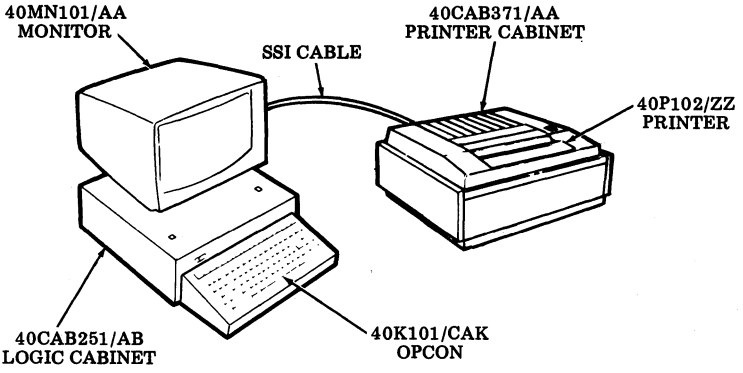
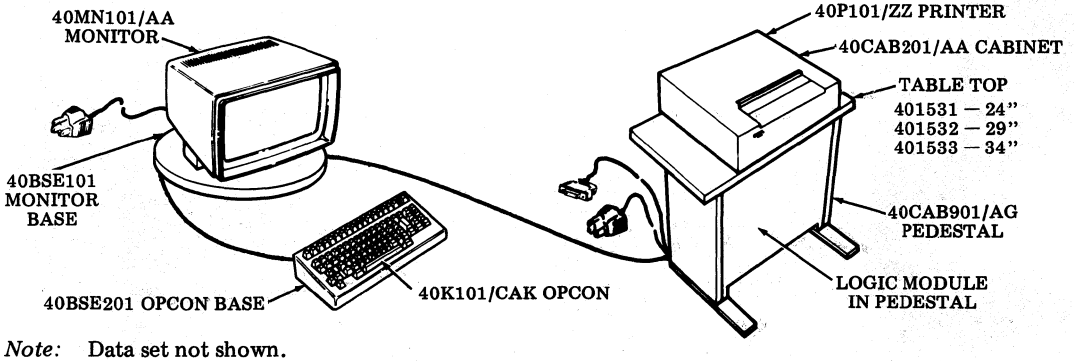


Fig. 7—KDP With Adjacent Noise Reduced Friction Feed Printer

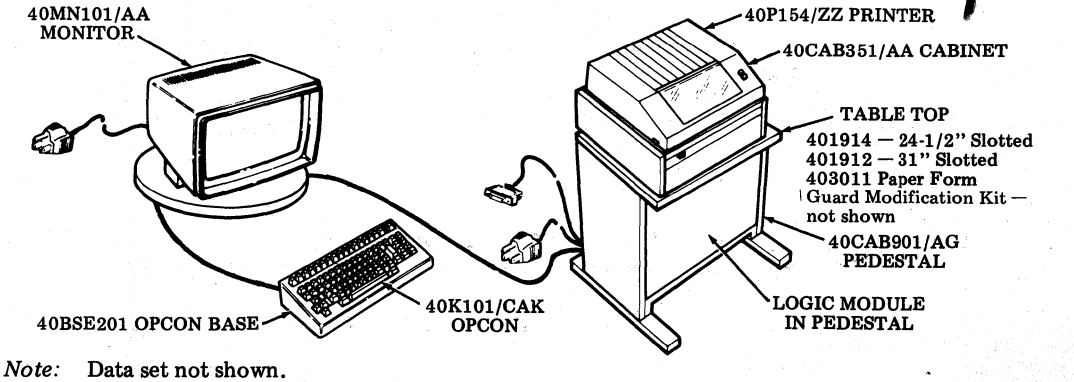
KDP (Remote Opcon and Monitor With Printer) (Ref 50907S)

2.07 The KDP consists of a KD terminal (with remote opcon and monitor) and a printer. The printer may be 80-column friction feed or 80- or 132-column tractor feed.



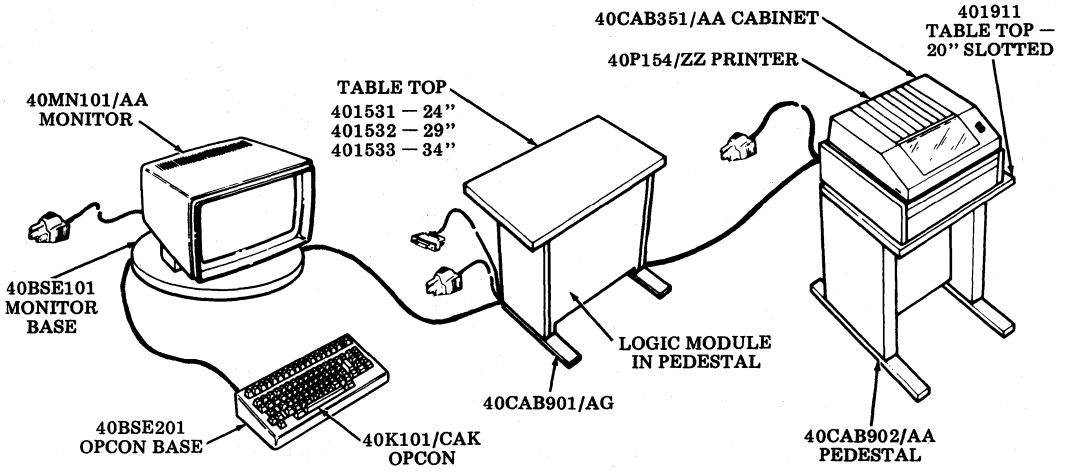
Note: Data set not shown.

Fig. 8—KDP Station (Remote) With 80-Column Friction Feed Printer



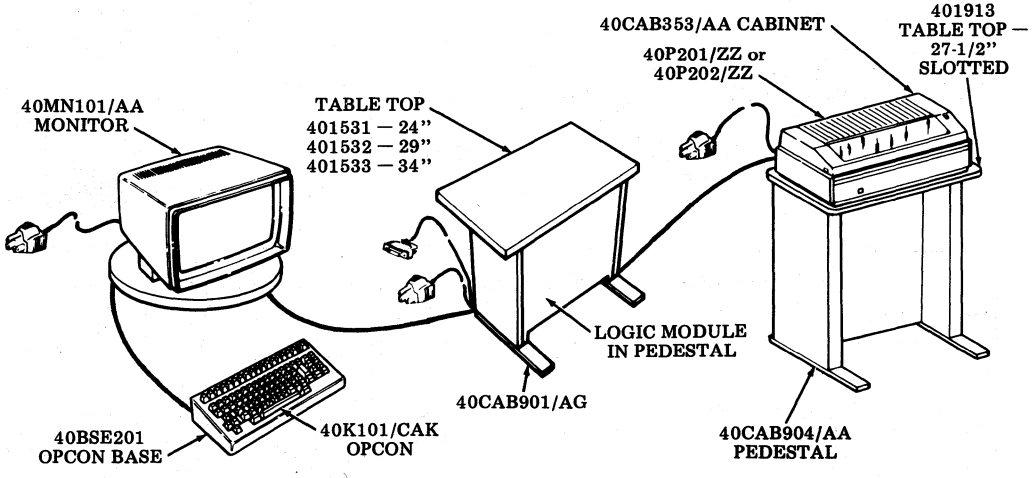
Note: Data set not shown.

Fig. 9—KDP Station (Remote) With 80-Column Tractor Feed Printer



Note: Data set not shown.

Fig. 10—KDP Station (Remote) With Pedestal for 80-Column Tractor Feed Printer



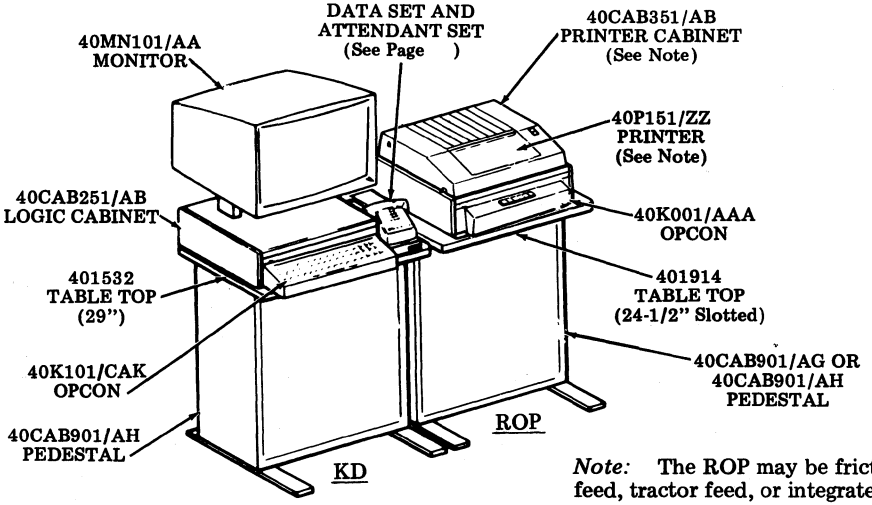
Note: Data set not shown.

Fig. 11—KDP Station (Remote) With Pedestal for 132-Column Tractor Feed Printer

KD-ROP (Keyboard Display With Receive-Only Printer)

2.08 The KD-ROP consists of a KD terminal, using a ROP as an adjacent printer. The ROP may be friction feed, tractor feed, or integrated controller. For installation information on ROP terminals, refer to the following:

582-200-200 Installation (DATASPEED 40/1 ROP Used in DATASPEED 40/2 KD-ROP Applications)
582-200-204 Installation (Integrated Controller)



Note: The ROP may be friction feed, tractor feed, or integrated controller. (Codes will vary for each arrangement.)

Fig. 12—KD-ROP Station

ROP (Receive-Only Printer)

2.09 The ROP consists of either an 80-column or 132-column printer and either an integrated controller (40C303AA/001) mounted under the printer in the printer cabinet or a 40C103 controller mounted in the pedestal. Information for installing the integrated controller ROP is found in 582-200-204.

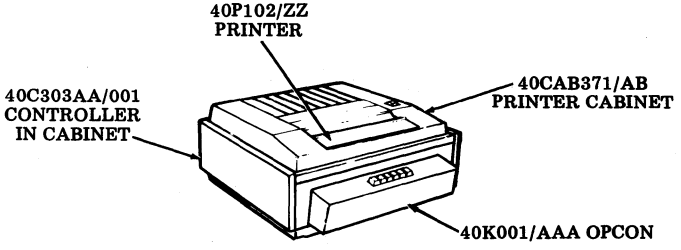


Fig. 13—Integrated ROP Station With Friction Feed Printer 40P102 (Noise Reduced)

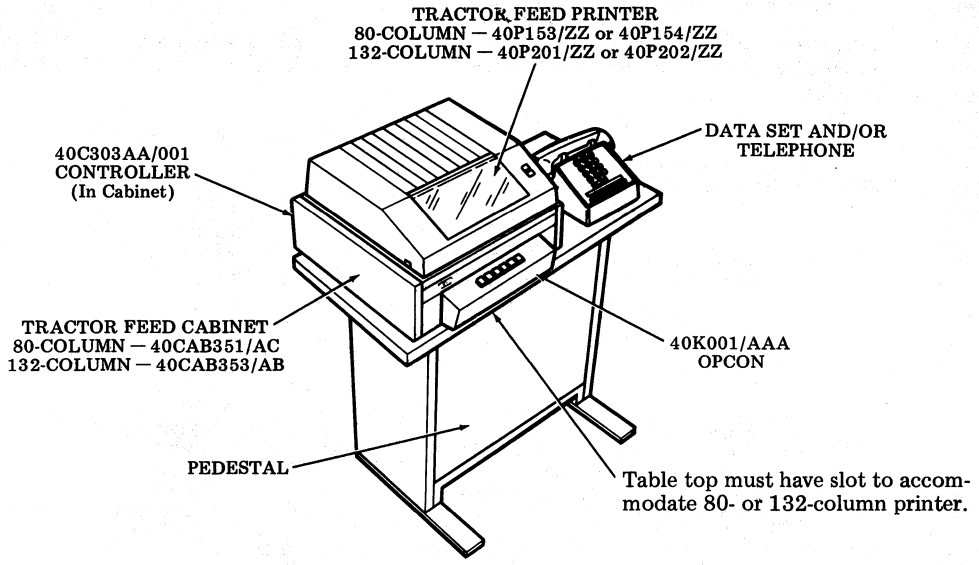


Fig. 14—Integrated ROP Station With 80- or 132-Column Tractor Feed Printer

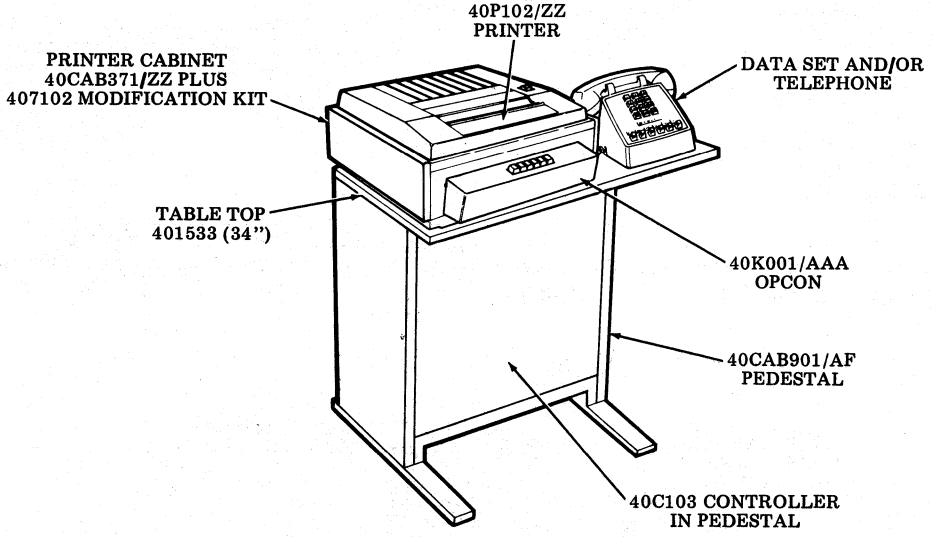


Fig. 15—40P102 Friction Feed Printer (Noise Reduced)

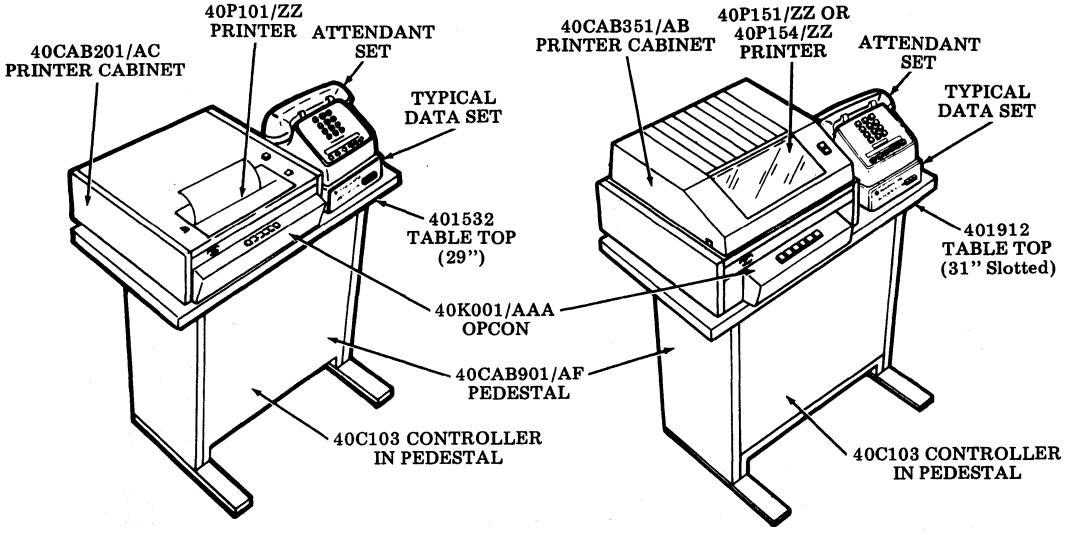


Fig. 16—ROP Station Equipped With 40C103/AD or /AE Controller

ACCESSORIES

2.10 Section 582-200-102 includes a listing of modification kits and accessories used in DATASPEED 40/2 applications. References are also given where applicable to appropriate 50,000 Specifications and BSPs for installation information.

CIRCUIT CARD ARRANGEMENTS

A. Controller Logic

Full Editing — Teletypewriter Compatible — EIA (Electronic Industries Association)

KD/KDP Controller Arrangements

Position Number	40C204/BA	Circuit Card Description
01	410770†	Printer Access
02	410679	Full Duplex Interface
03	410672	Opcon Interface
	410676	Send Variations
04	410675	Message Control
05	410674	Data Bus and Decode
Frame Number	402176*	

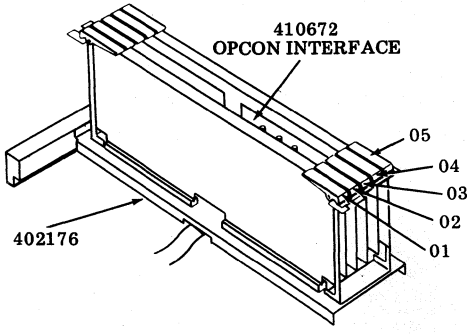


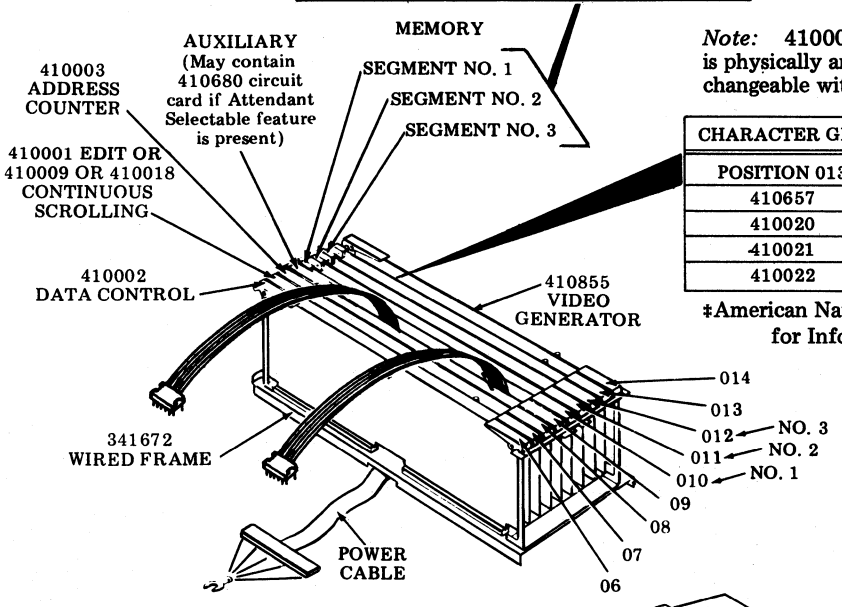
Fig. 17

*This wired frame, together with the proper circuit cards, can be used to make up the controller arrangement for replacement purposes.

†Not present on sets without printer or conversational (S/R) mode. The 410770 card is not part of 40C204/BA but is part of USOC ordering codes for DATASPEED 40/2.

B. Display Logic

DISPLAY LOGIC ARRANGEMENTS (40DL291)			
Memory Segment	Full Edit 24 Lines	Full Edit 48 Lines	Full Edit 72 Lines
No. 1	410015	410015	410015
No. 2	None	410015	410015
No. 3	None	None	410015



Note: 410005 card (early design) is physically and functionally interchangeable with 410015 card.

CHARACTER GENERATOR OPTIONS	
POSITION 013	DISPLAY TYPE
410657	Standard ASCII‡
410020	Line Drawing
410021	Fractions
410022	Weather

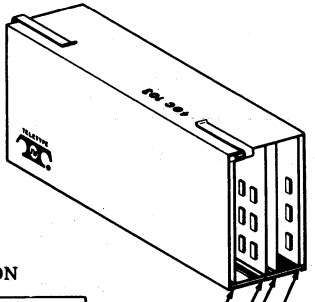
‡American National Standard Code for Information Interchange

Fig. 18

C. ROP Controller Logic

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

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



CIRCUIT CARD LOCATION

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

410581 and 410585 are interchangeable.

Fig. 19

KEYSWITCH AND KEYTOP IDENTIFICATION

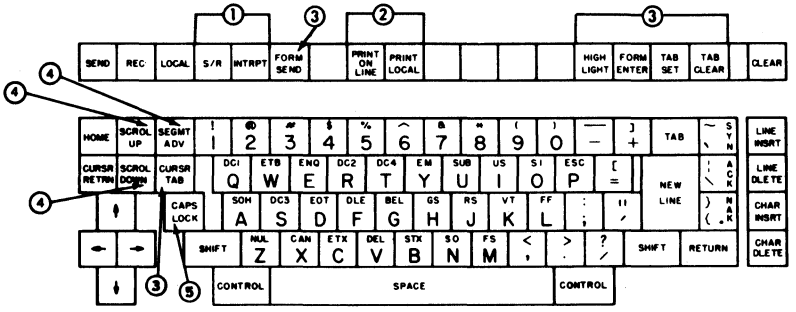


Fig. 20

① Keytops present for S/R (expanded conversation mode).

② Keytops present when terminal is equipped with page printer (see Notes 1 and 2).

③ Keytops are present with full edit feature (see Note 1).

④ Keytops present only if terminal has 48 or 72 line display memory (see Note 1).

⑤ If CAPS LOCK keytop is not present, keyswitch plunger is latched (down) for monocase — all caps — operation; blocking type keytop is installed over switch housing. First depression latches keyswitch (down); second depression unlatches keyswitch (up).

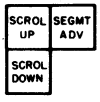
Warning: If keytop is present and removal is required, do not remove keytop from switch shaft unless switch plunger is operated into unlatched up position.

Note 1: If keytop is not provided within console arrangement, a blocking type keytop (unmarked) is installed over housing of keyswitch. Keytops are not present under blocking cap.

Note 2: Some console arrangements may have the PRINT ON LINE and PRINT LOCAL keytops replaced by BLOCKING keytops, respectively.

ADDITIONAL FEATURES

Expanded Memory



These edit controls are provided when terminal display memory is expanded to either 48 or 72 lines.

48 LINE expanded memory terminals have two 410014 or 410015 circuit cards (in Segment 1 and Segment 2 positions) in the display logic module.

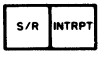
72 LINE expanded memory terminals have three 410014 or 410015 circuit cards (in Segment 1, 2, and 3 positions) in the display logic module.

Note: The 410004 or 410005 circuit card (early design) is physically and functionally interchangeable with the 410014 or 410015 circuit card, respectively.

Full Edit

These edit controls are provided when a terminal has a complete edit complement.

Conversation Mode



Provided on operator console for "line-at-a-time" or "multiple line" operation except with 40/2 Stations where S/R operation is a character-at-a-time.

Page Printer

Provided in operator console arrangement when 40/2 page printer is provided with terminal.

STANDARD FEATURES FOR 40-TYPE ROP/ STATIONS

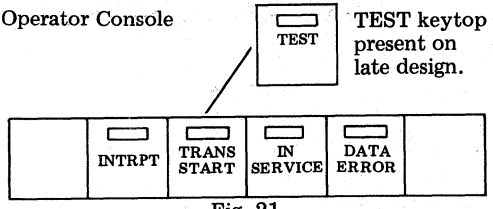


Fig. 21

ROP stations with a 40C103/AD Controller have a 1000-character storage unit. ROP stations with a 40C103/AE Controller do not have the storage capability. ROP stations with a 40C303AA/001 Integrated Controller have a 825-character storage unit.

3. INSTALLATION

INSTALLATION OUTLINE

- ☐ Review service order.
- ☐ Unpack equipment (3.01).
- ☐ Assemble components for station.
- ☐ Install options in controller (see 4. OPTIONS).
- ☐ Install and option printer if KDP.
- ☐ Install and option data set (or modem).
- ☐ Perform operational checkout; refer to Section 582-200-502.
- ☐ Have customer try out station arrangement.
- ☐ Complete the installation:
  - (a) Give How to Operate Manual to customer.
  - (b) Clean up.
  - (c) Complete service order.

UNPACKING INSTRUCTIONS

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

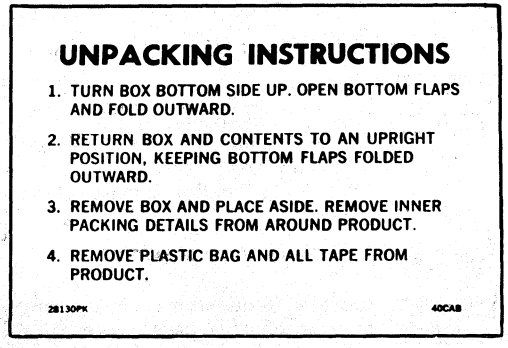


Fig. 22

3.02 Follow these procedures when unpacking.

(a) Before unpacking the cartons, confirm order with unit codes marked on the cartons.

(b) Select an assembly area to unpack the cartons so that damage to the components will not occur.

(c) When unpacking, be sure to wear approved safety glasses.

(d) Unpack each carton — refer to instructions on the container.

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

(e) The pedestal should be unpacked first so that the printer and operator console can be placed on it.

(f) Suitable quantities of packing containers can be saved and reused for reshipment.

(g) Check option requirements against factory programmed options. If option changes are to be made, refer to the procedures in 4. OPTIONS.

(h) Assembly station or set.

STATION ASSEMBLY

A. Pedestal Assembly

Step 1. Unpack all cartons following the unpacking instructions on the individual cartons.

Step 2. Mount pedestal top to pedestal (four screws with lockwashers).

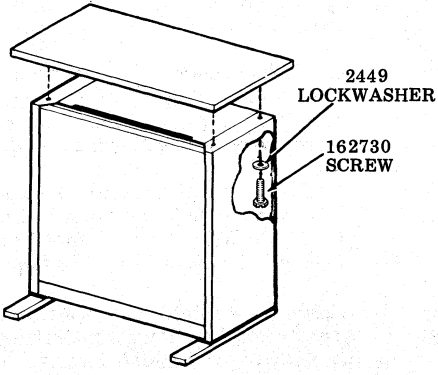


Fig. 23

B. 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.

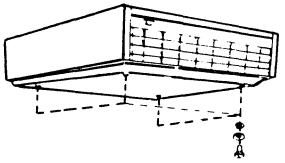


Fig. 24

Step 2. Open lid.

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

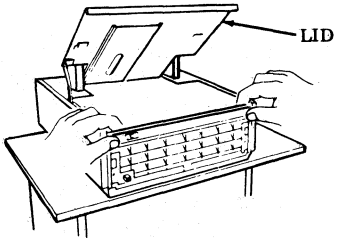


Fig. 25

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

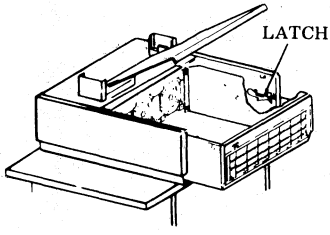


Fig. 26

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

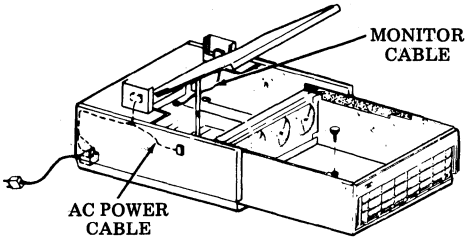


Fig. 27

Step 6. Remove 408050 ventilation assembly by removing three screws and the flat washer, lockwasher, and nut.

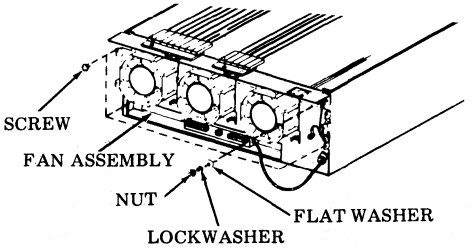


Fig. 28

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

Memory Segment	Full Edit 24 Lines	Full Edit 48 Lines	Full Edit 72 Lines
No. 1	410015	410015	410015
No. 2	None	410015	410015
No. 3	None	None	410015

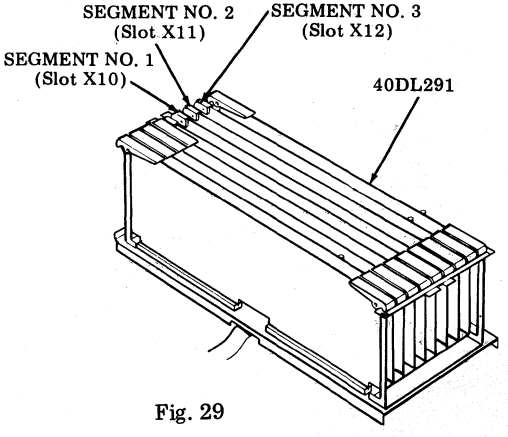


Fig. 29

Step 8. Remove muslin bag containing 341819 shoulder screw and 181204 flat washer used to mount the display logic into the frame and retain for later assembly.

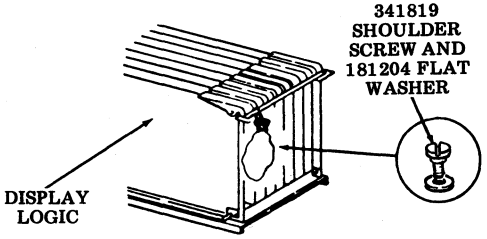


Fig. 30

Step 9. Install display logic into frame.

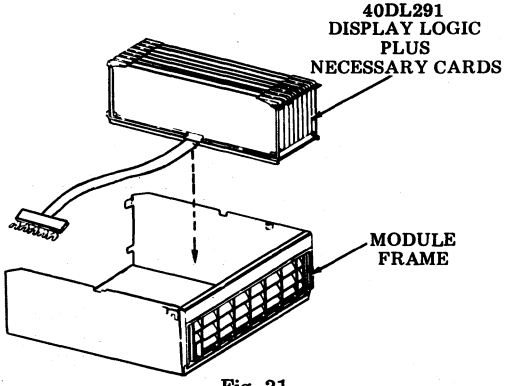


Fig. 31

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.

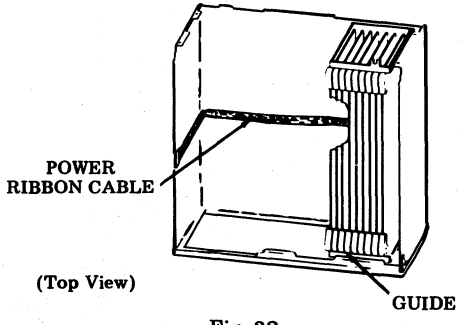


Fig. 32

Step 11. Remove muslin bag containing 341819 shoulder screw and 181204 flat washer used to mount the controller logic into the frame and retain for later assembly.

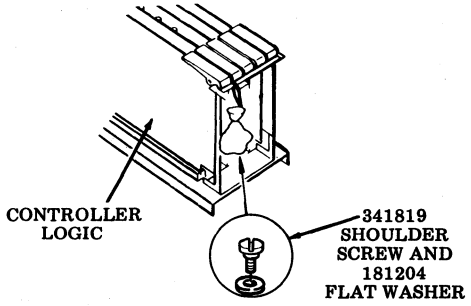


Fig. 33

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.

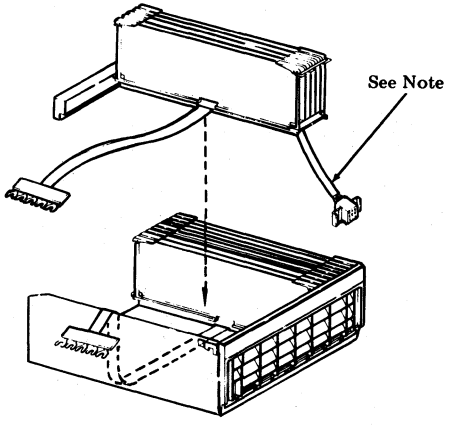


Fig. 34

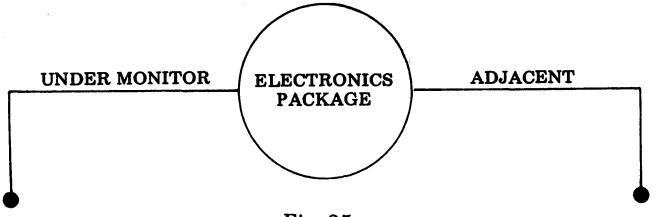


Fig. 35

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.

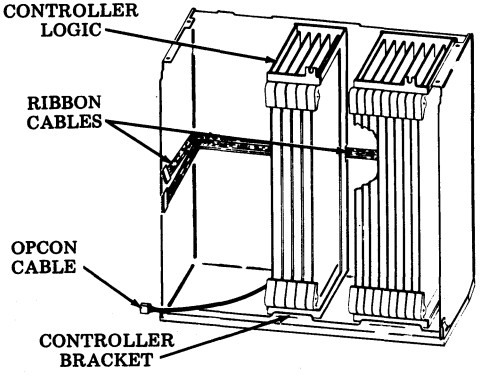


Fig. 36

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.

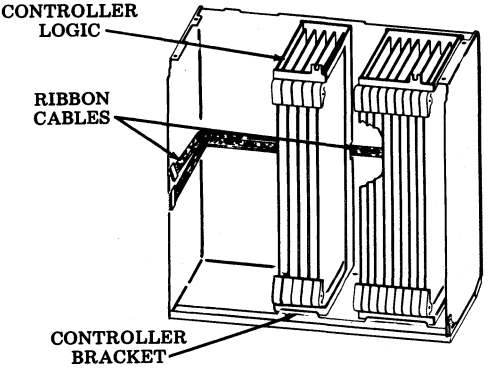


Fig. 37

Step 14. Install 341740 ribbon cable.

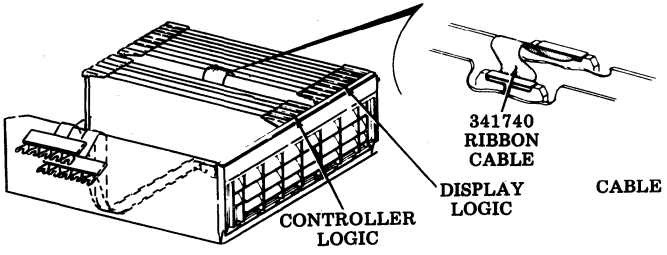
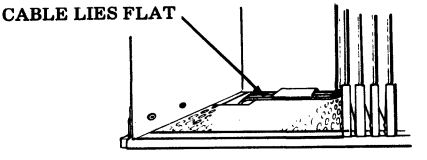


Fig. 38

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

Omit Steps 15 and 16; continue with Step 17.



(Top View)

Fig. 39

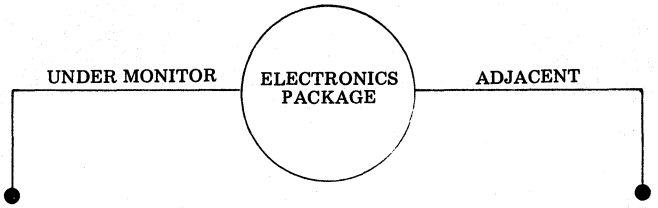


Fig. 40

Step 16a. Remove front panel Ⓐ. Insert opcon connector through the frame opening. Attach 402166 retainer plate and hardware (tied in muslin bag to the frame) to clamp opcon cable.

Step 16b. Insert opcon connector (keys up) into the front panel. Install panel back onto frame.

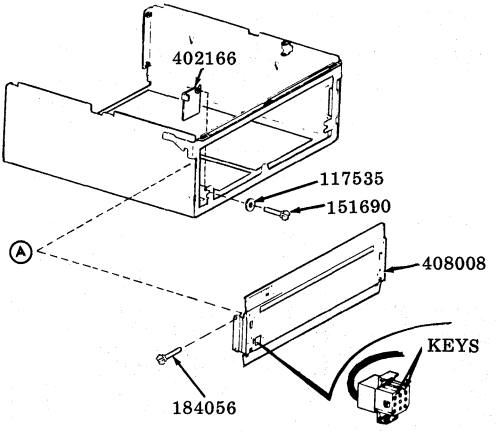


Fig. 41

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

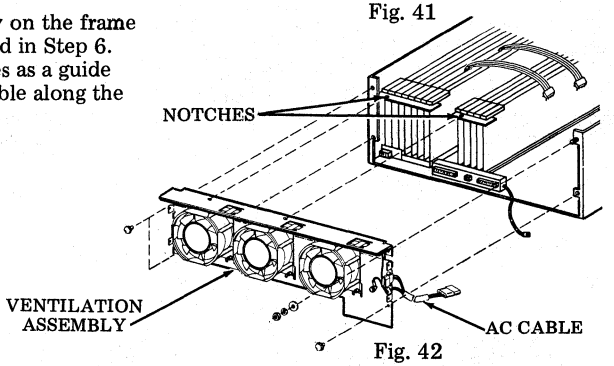


Fig. 42

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.

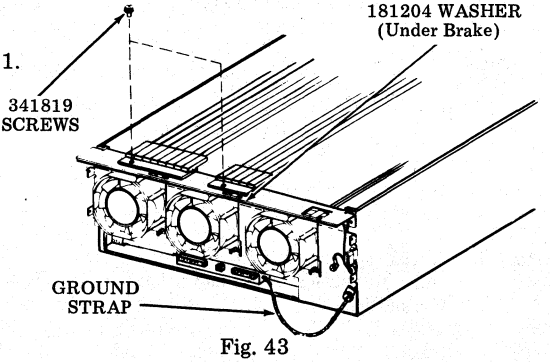


Fig. 43

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

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

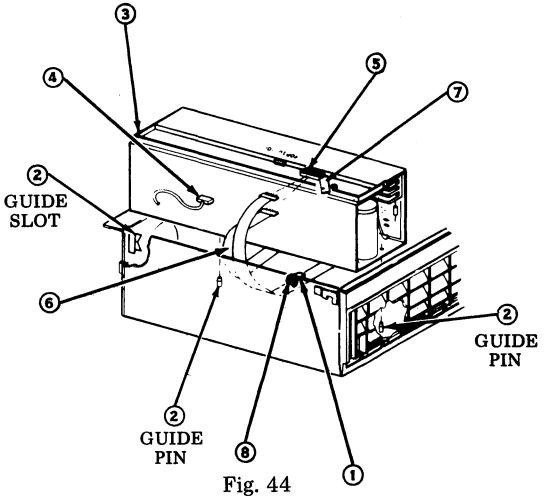


Fig. 44

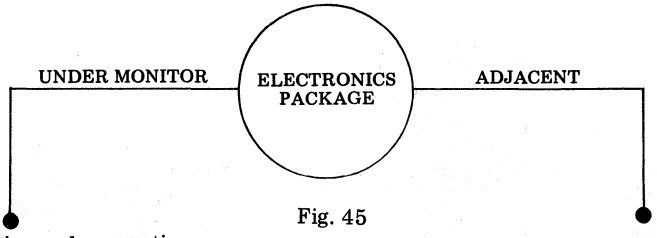


Fig. 45

Step 20. Cable routing and connections:

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

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

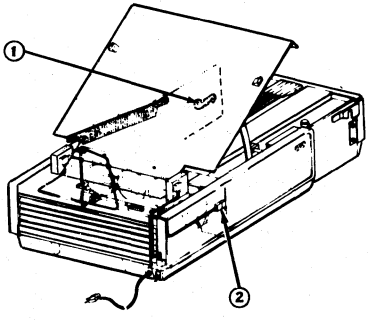


Fig. 46

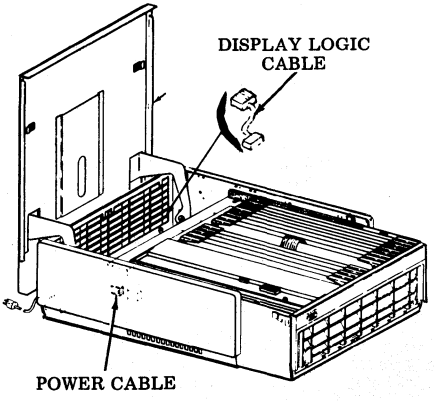


Fig. 47

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

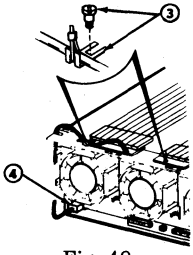


Fig. 48

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

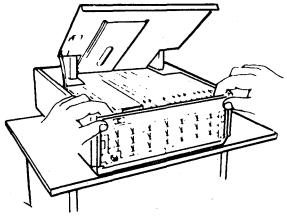


Fig. 49

C. 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.

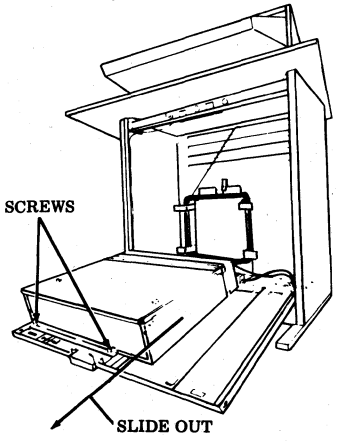


Fig. 50

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

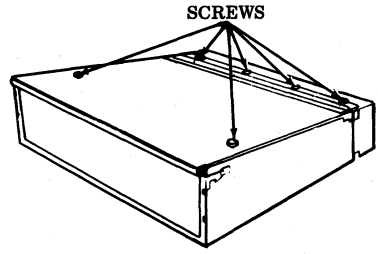


Fig. 51

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

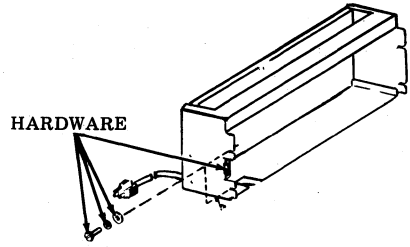


Fig. 52

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

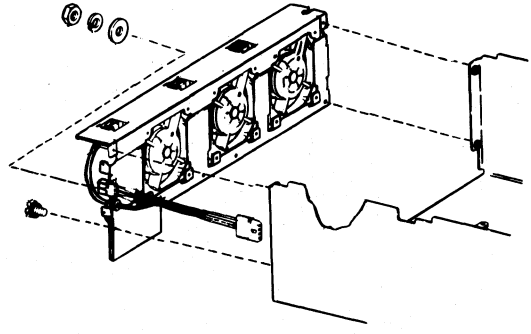


Fig. 53

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

Memory Segment	Full Edit 24 Lines	Full Edit 48 Lines	Full Edit 72 Lines
No. 1	410015	410015	410015
No. 2	None	410015	410015
No. 3	None	None	410015

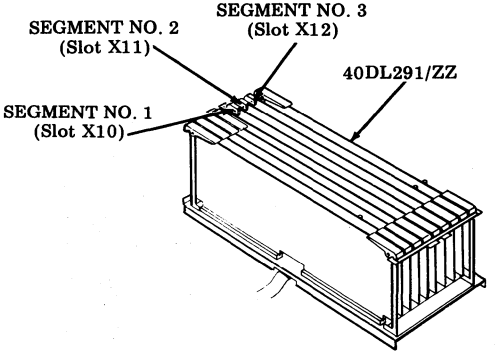


Fig. 54

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

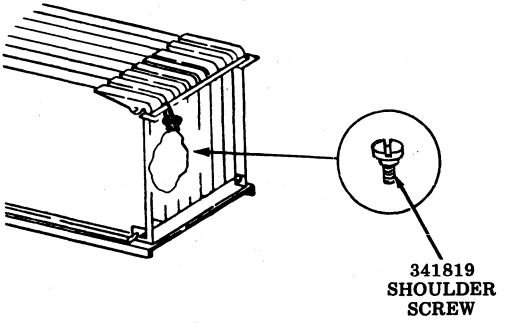


Fig. 55

Step 7. Install display logic into frame.

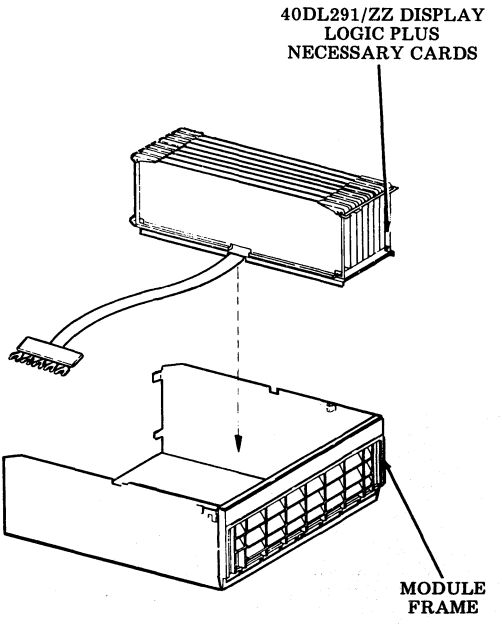
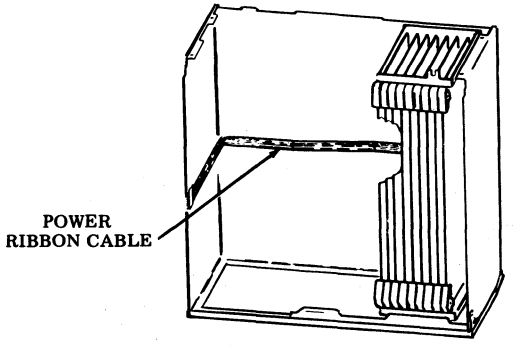


Fig. 56

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



(Top View)

Fig. 57

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

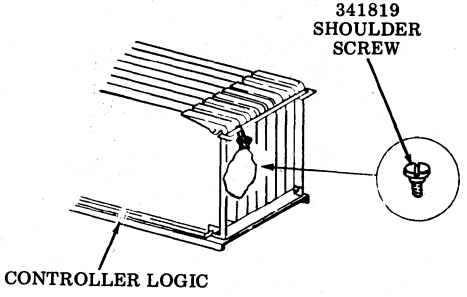


Fig. 58

Step 10. Install controller logic into module frame.

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

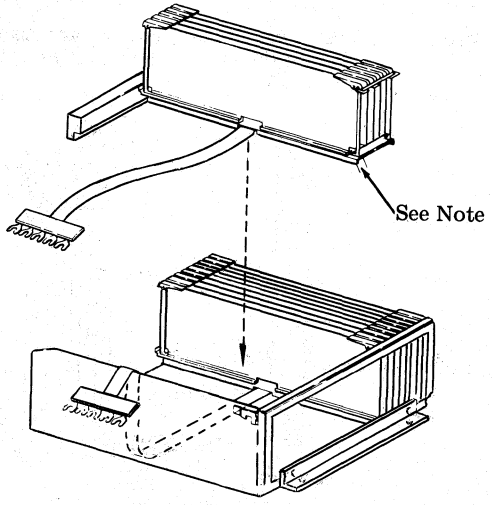


Fig. 59

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

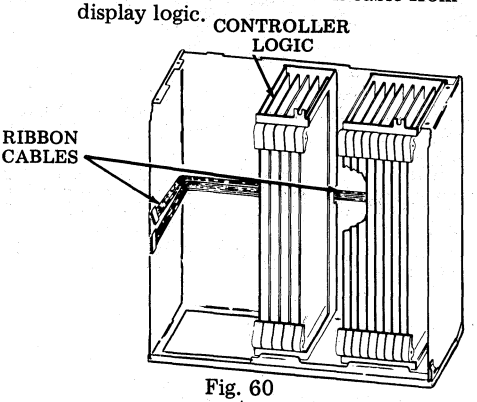


Fig. 60

Step 12. Install 341740 ribbon cable.

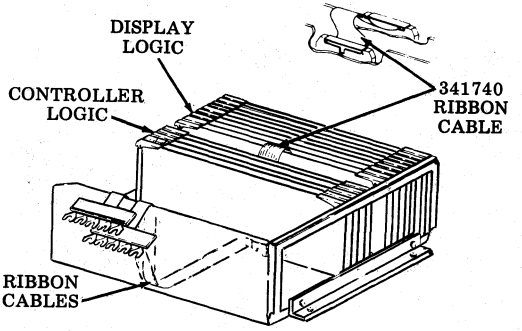


Fig. 61

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.

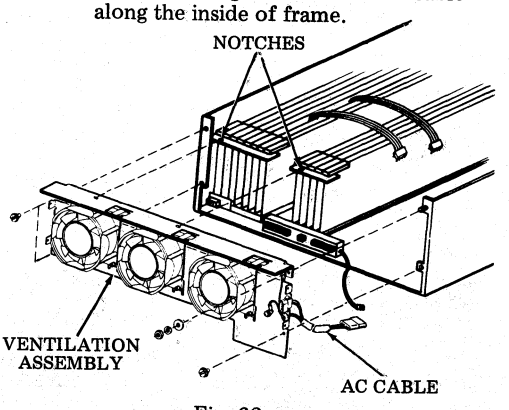


Fig. 62

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.

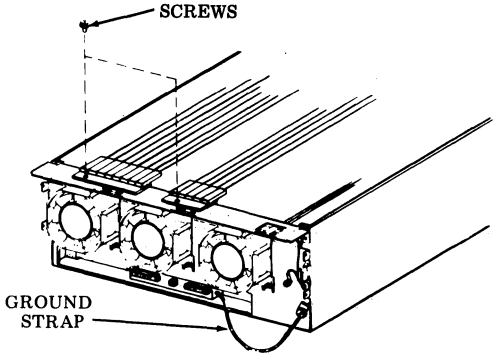


Fig. 63

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

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

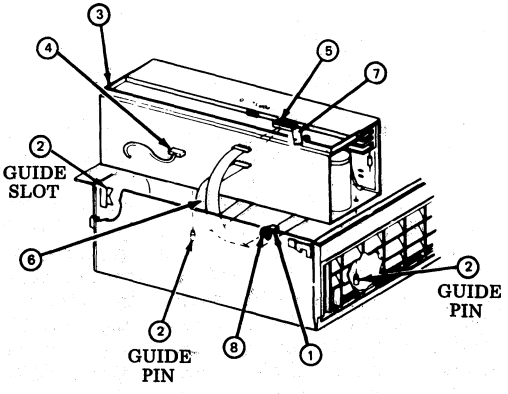


Fig. 64

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

D. Electronics Package — ROP with 40C103 Controller

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

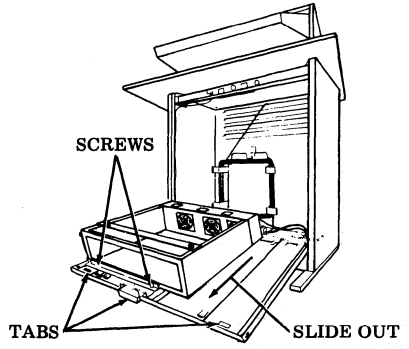


Fig. 65

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

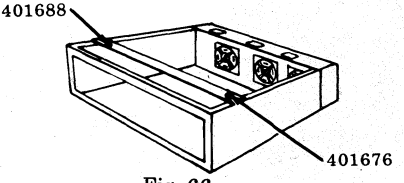


Fig. 66

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.

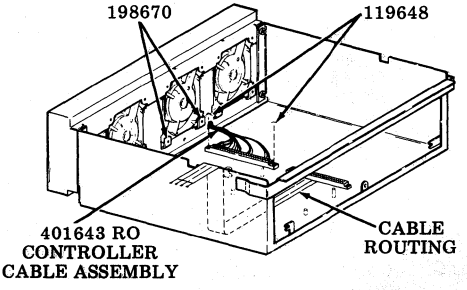


Fig. 67

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

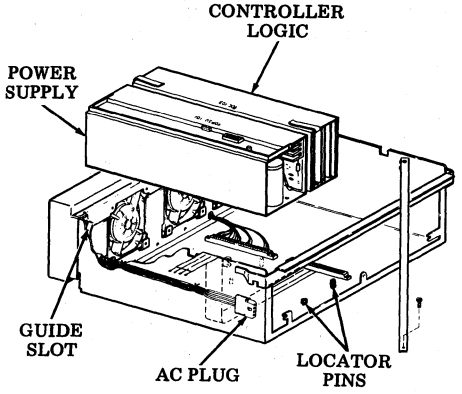


Fig. 68

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

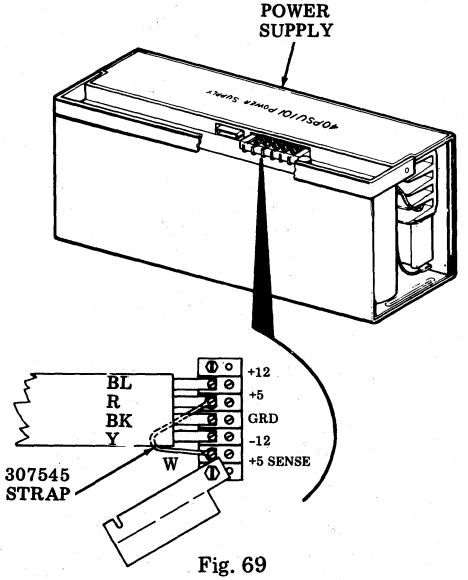


Fig. 69

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

E. 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.

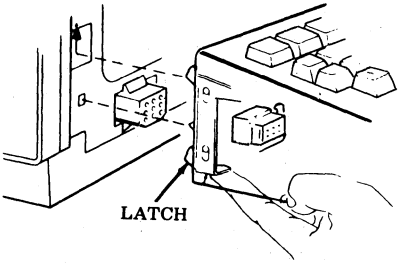


Fig. 70—RO, KD, and KDP Opcon

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.

F. 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 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 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 beyond the first or second.

Wheel Type Tilt Mechanism

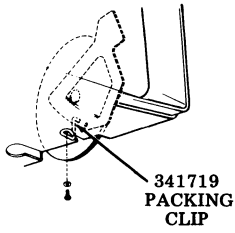


Fig. 71

Lever Type Tilt Mechanism

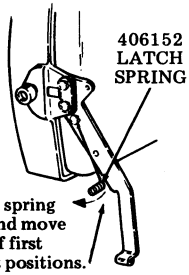


Fig. 72

Step 2. Install bottom plate to underside of monitor:

- Push studs until they snap into place.

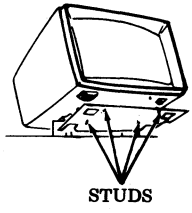


Fig. 73

Step 3. Grasp monitor securely from the rear and mount it into the two cabinet posts:

- Monitor slides over the posts freely — there is no locking device.
- Make sure connectors inside the posts are positioned fully.

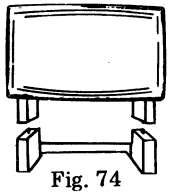


Fig. 74

G. Friction Feed Printer Assembly

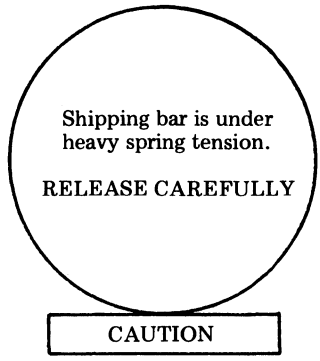


Fig. 75

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

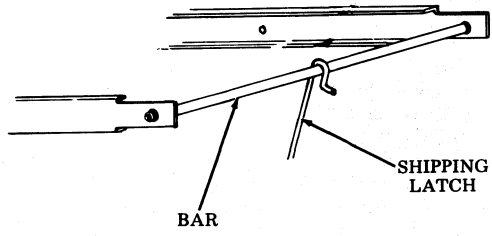


Fig. 76

Step 2. Slide printer into track:

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

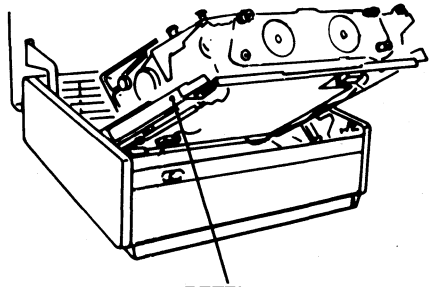


Fig. 77

Step 3. Connect ac power cable and SSI cable.

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

Step 5. Install carrier.

Step 6. Install ribbon.

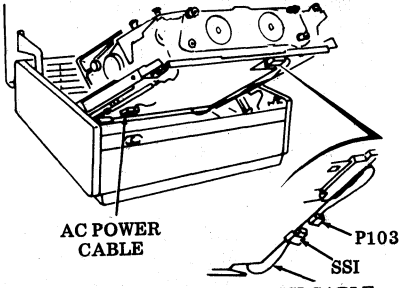


Fig. 78

Step 7. Option the 410640 card or 410076 card.

- Remove card.
- To avoid damage to the card, wear the approved 346392 static discharge strap before handling it.
- Avoid touching components on the card as much as possible.
- Option 410640 circuit card (see Pages 52 and 53) or 410076 card (see Pages 62 and 63).
- Reinstall card.

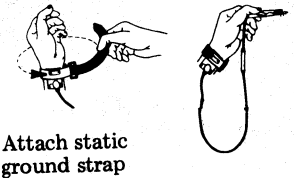


Fig. 79

Step 8. Lower printer and install paper.

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

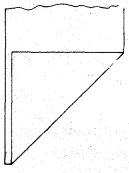


Fig. 80

H. Tractor Feed Printer (80- and 132-Column) Assembly

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

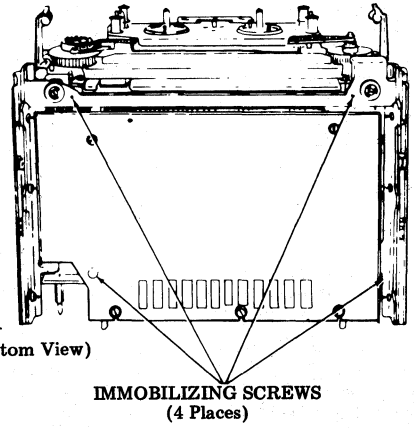


Fig. 81

Step 2. Option printer card per system requirements:

80-Column

- Remove card.
- Install ground strap as shown.
- Option 410640 circuit card (see Pages 52 and 53) or 410076 circuit card (see Pages 62 and 63).
- Reinstall card.

132-Column

- Option card by positioning appropriate 410729 circuit card (see Pages 54 and 55) or 410072 circuit card (see Pages 59, 60, and 61.)
(It is not necessary to remove 410729 or 410072 card.)

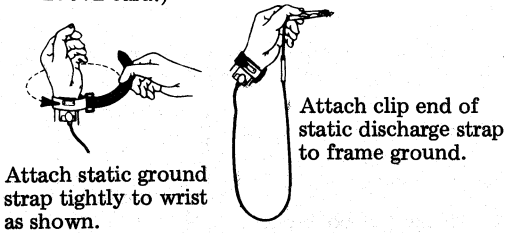


Fig. 82

Step 3. 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.

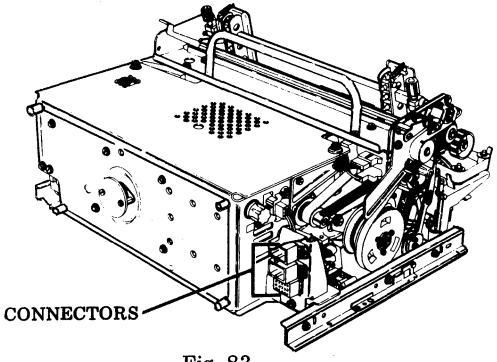


Fig. 83

Step 4. Install paper forms:

- Make sure forms are loaded in front of mylar strips on both sides.
- Position form-out lever for proper form out.
- Do not position the form into the tractors at this point. Ribbon has to be installed first.

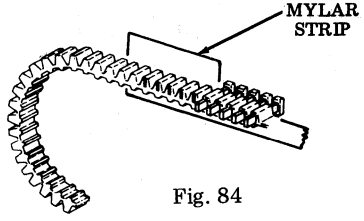


Fig. 84

Step 5. Install ribbon. See decal on printer cover for proper routing.

I. Cabling

INDEX OF FIGURES

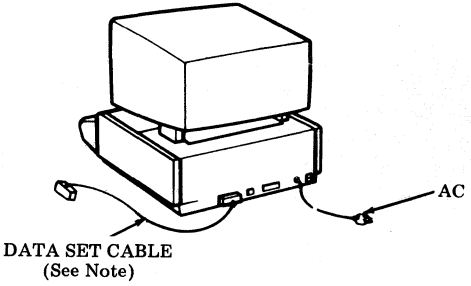


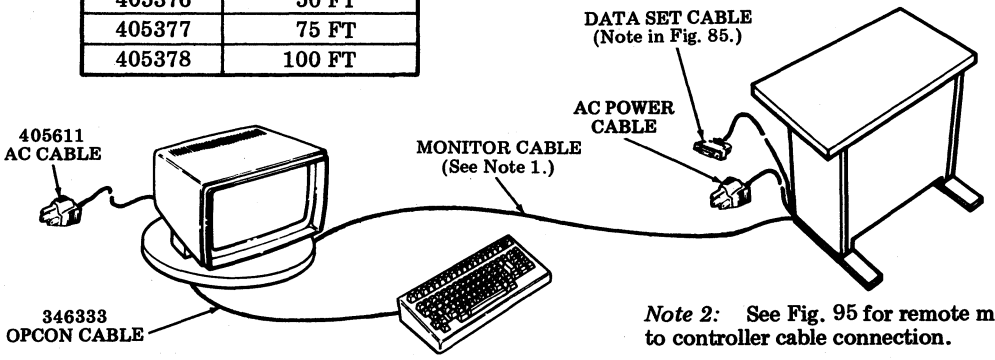
Fig. 85—KD

Note: The following shielded cables of various lengths are preferred. In certain applications where shielding is not a consideration, the 341896 nonshielded cable (7 ft.) may be used.

DATA SET INTERFACE	
SHIELDED CABLES	
CABLE PART NO.	TOTAL CABLE LENGTH
408065	7 FT
408066	12 FT
408067	25 FT
408068	50 FT
430569	3 FT

Note 1: Monitor cables of various lengths may be used.

MONITOR CABLES	
CABLE PART NO.	TOTAL CABLE LENGTH
405373	6 FT
405374	12 FT
405375	25 FT
405376	50 FT
405377	75 FT
405378	100 FT



Note 2: See Fig. 95 for remote monitor to controller cable connection.

Fig. 86—KD Remote Opcon and Monitor

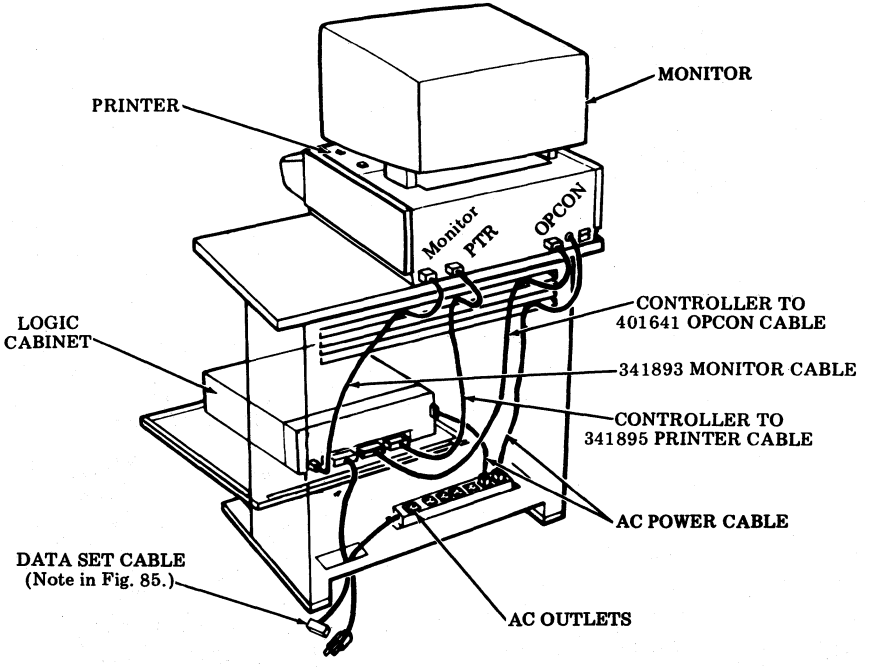


Fig. 87—KDP Pedestal-Mounted, Friction Feed Printer Under Monitor

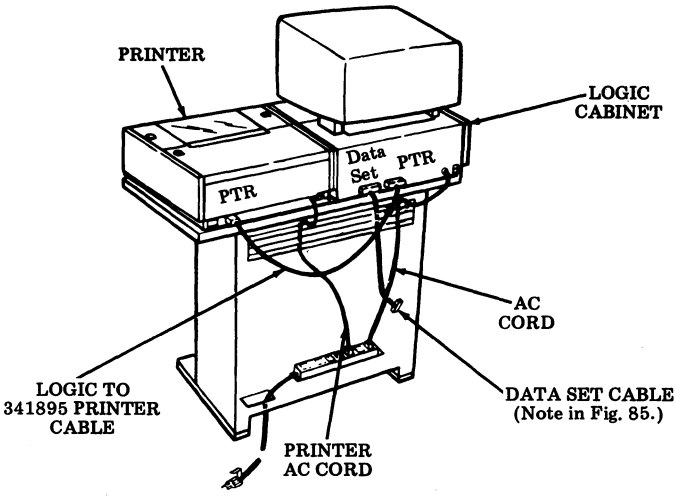
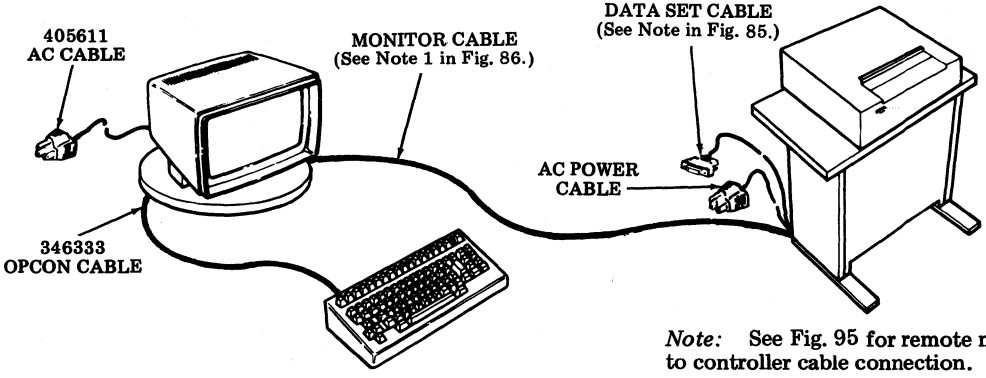


Fig. 88—KDP Pedestal-Mounted, Friction Feed Printer



Note: See Fig. 95 for remote monitor to controller cable connection.

Fig. 89—KDP Remote Opcon and Monitor 80-Column Friction or Tractor Feed Printer

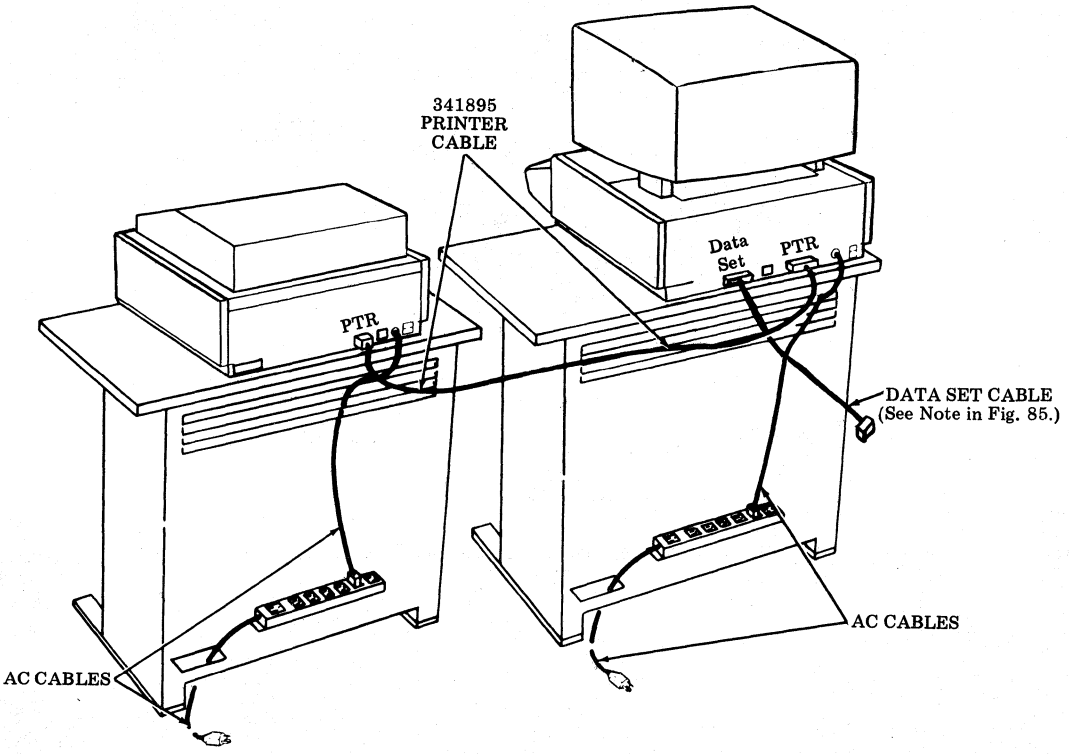


Fig. 90—KDP Pedestal-Mounted, 80-Column or 132-Column Tractor Feed Printer Adjacent

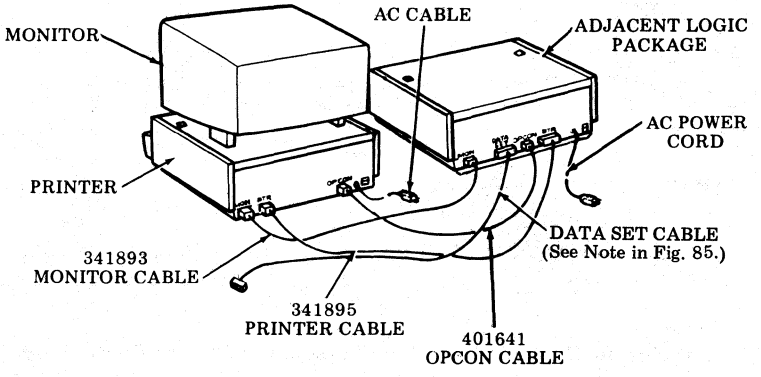


Fig. 91—KDP Table-Mounted, Adjacent Logic, Friction Feed Printer Under Monitor

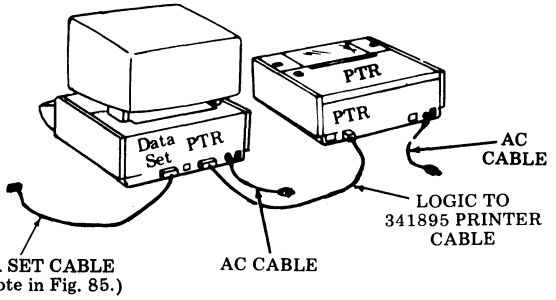


Fig. 92—KDP Table-Mounted, Adjacent Friction Feed Printer

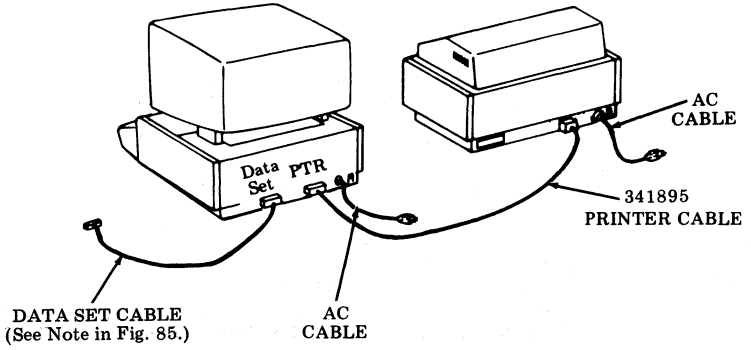
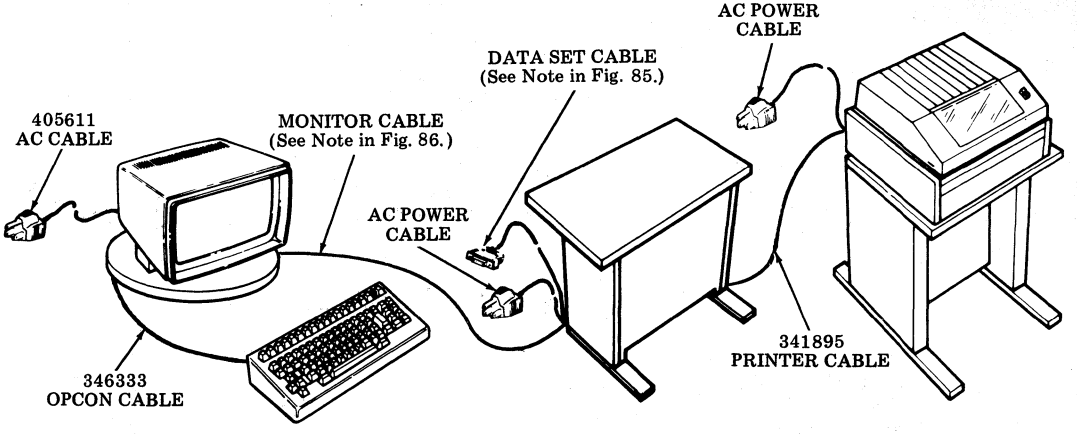


Fig. 93—KDP Table-Mounted, Adjacent Tractor Feed Printer (80-Column or 132-Column)



Note: See Fig. 95 for remote monitor to controller cable connection.

Fig. 94—KDP Remote Opcon and Monitor With Pedestal for 80- or 132-Column Tractor Feed Printer

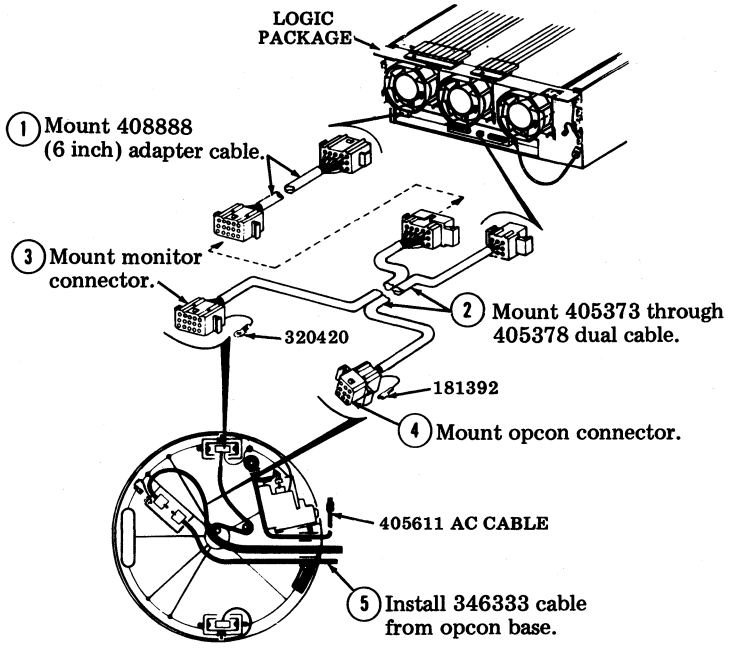


Fig. 95–Remote Monitor to Controller Cable Connection

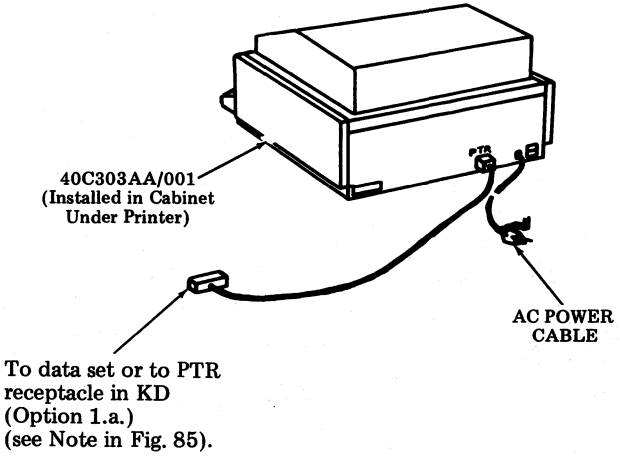
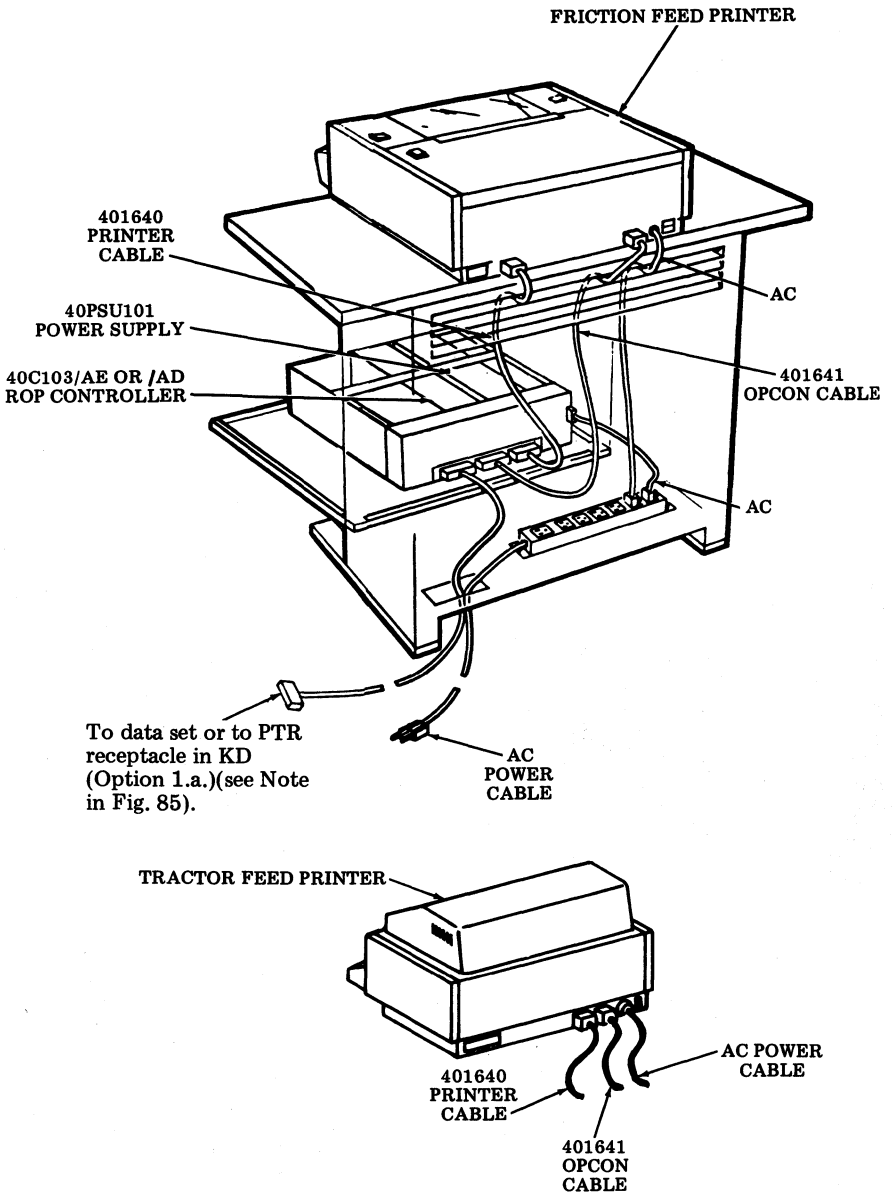


Fig. 96–ROP (40C303AA/001 Integrated Controller, 80- or 132-Column Printer)



Note: Connection of cables is the same with tractor feed or friction feed printer.

Fig. 97—ROP for KD-ROP (40C103/AD or 40C103/AE Controller, Friction Feed or Tractor Feed 80-Column Printer)

J. Data Set Installation

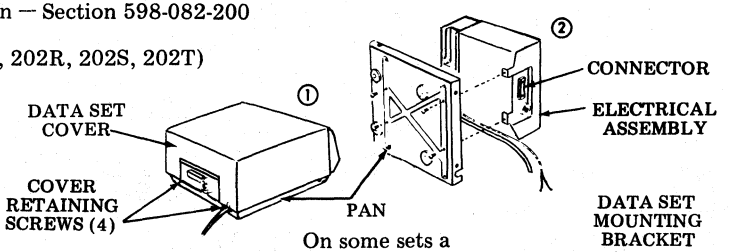
3.03 Option the data set using options given on Pages 71-93. Further information on data set installation may be found in the following BSPs:

Data Set 103G Installation — Section 591-026-200
Data Set 103J Installation — Section 591-039-200
Data Set 103JR Installation — Section 591-044-200
Data Set 108F Installation — Section 591-042-100
Data Set 108G Installation — Section 591-042-100
Data Set 113A Installation — Section 591-033-200
Data Set 113C Installation — Section 591-041-200
Data Set 113CR Installation— Section 591-046-200
Data Set 113D Installlation — Section 591-040-200
Data Set 113DR Installation —Section 591-047-200
Data Set 201C Installation — Section 592-029-200
Data Set 201CR Installation— Section 592-036-200
Data Set 202C Installation — Section 592-015-200
Data Set 202R Installation — Section 592-025-200
Data Set 202S Installation — Section 592-028-200
Data Set 202SR Installation— Section 592-037-200
Data Set 202T Installation — Section 592-031-200
Data Set 208A Installation — Section 592-027-200
Data Set 208B Installation — Section 592-030-200
Data Set 208BR Installation— Section 592-038-200
Data Set 212A Installation — Section 592-034-200
Data Set 212AR Installation—Section 592-039-200
829 Data Auxiliary Set Installation — Section 598-082-200

3.04 Data Set Mounting (202D, 202R, 202S, 202T)

① Remove data set cover by loosening four screws.

② Separate the pan from the electrical assembly by removing four screws from the bottom (retain screws).



Note 1: The following procedure applies to Data Set 202D only. Proceed to Step 7 for Data Set 202R.

③ Remove the data set mounting bracket from the pedestal door (four screws). Use a right angle screwdriver to loosen the two screws inside the electronic package enclosure. If necessary, remove one or more circuit cards to create accessibility.

④ Assemble the pan to the mounting bracket so that the connector end of the data set faces the front when the pedestal front panel is opened.

⑤ Reassemble the electrical assembly to the pan (four screws from Step 2 through access openings in bracket).

⑥ Mount the entire assembly to the pedestal door and module frame (four screws), and replace circuit cards (if removed earlier — Step 3).

⑦ Data Set 202R only:
With the cover removed (Step 1), mount the data set to the bracket in the pedestal with four screws so that the connector end of the data set faces the front when the pedestal front panel is opened.

⑧ Reinstall data set cover.

Note 2: WES63 — mounting bracket for 202D (180A bracket)
WES6X — mounting bracket for 202R (401725)
WES64 — mounting bracket for 202S and 202T (345604 set of parts, 193A mounting bracket).

Fig. 98

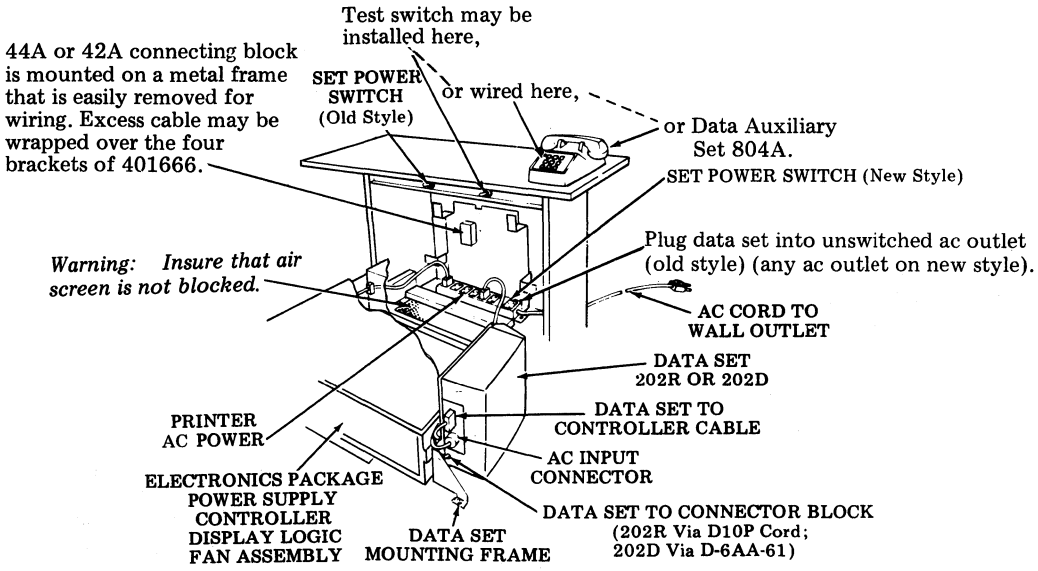


Fig. 99

3.05 The following is the EIA interface for the 40/2:

PIN NO.	EIA LEAD DESIGNATIONS
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)
11	Secondary Request to Send (SCA) - See Note 2.
12	Secondary Received Line Signal Detector (SCF)
20	Data Terminal Ready (CD)
22	Ring Indicator (CE)
23	Alarm (ROP with Integrated Controller) or Speed Selection

Cinch or Cannon Plug — DB-19604-432

Note 1: On an ROP with an Integrated Controller, the following leads are used for current applications:

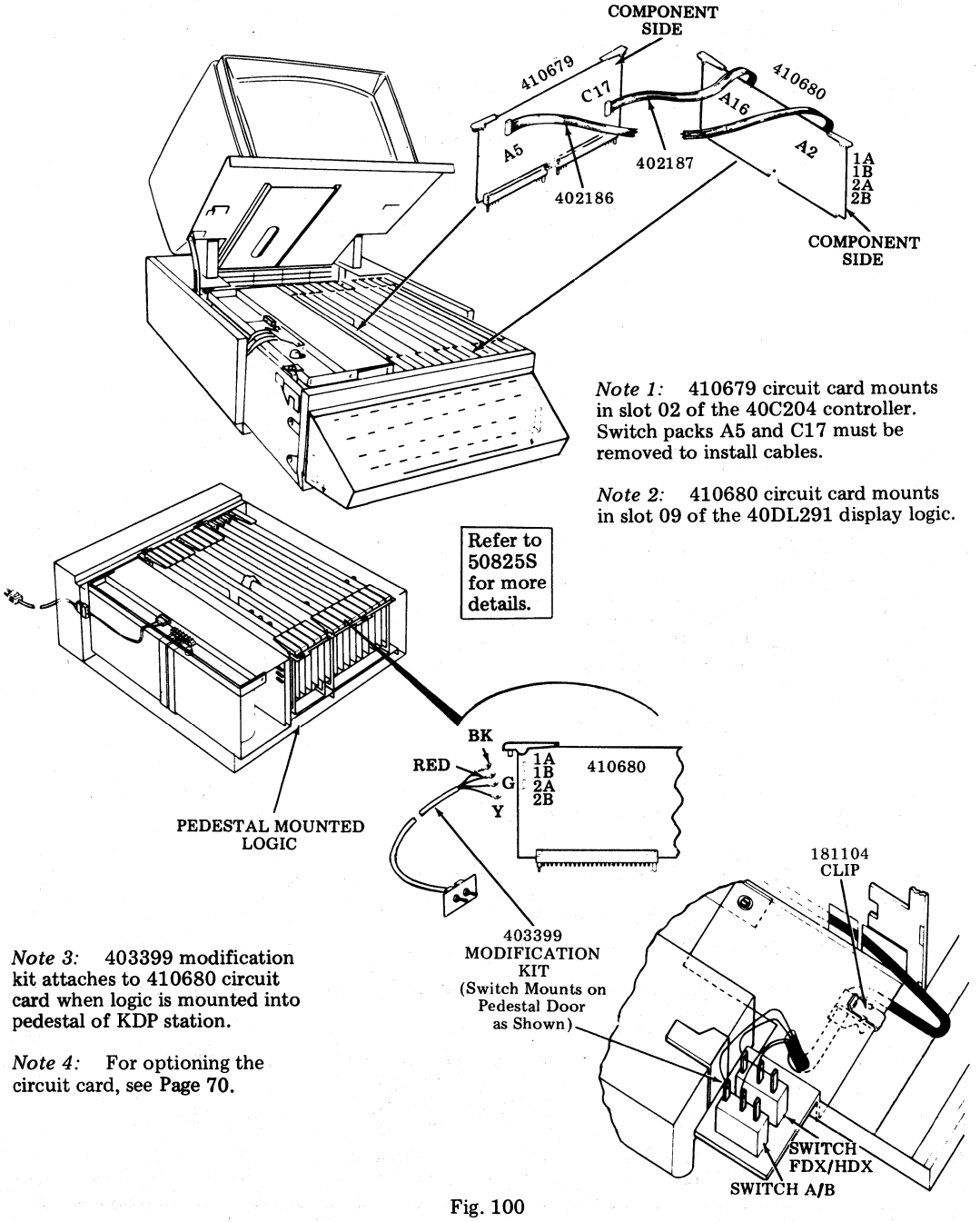
Pin 14 — 20/60 mA Transmit+ with respect to pin 7 (lead not present in EIA cable)
Pin 15 — 20/60 mA Receive+
Pin 17 — 20/60 mA Receive-

Note 2: Some customer interfaces use pin 19 as Secondary Request to Send (SCA).

Data and control circuits in accordance with EIA RS-232-C.

Voltage	Control	Line Signal	Binary State
-5 V to -25 V	Off	Mark	1
+5 V to +25 V	On	Space	0

K. Attendant Selectable Features (403400 and 403399 Modification Kits)



Note 1: 410679 circuit card mounts in slot 02 of the 40C204 controller. Switch packs A5 and C17 must be removed to install cables.

Note 2: 410680 circuit card mounts in slot 09 of the 40DL291 display logic.

Note 3: 403399 modification kit attaches to 410680 circuit card when logic is mounted into pedestal of KDP station.

Note 4: For optioning the circuit card, see Page 70.

Fig. 100

4. OPTIONS

GENERAL

4.01 This part includes all options that are utilized in the DATASPEED 40/2 Station and associated data sets. It also covers handling of circuit cards, location of circuit card switch packs, and information on how to activate or change switch positions.

4.02 The controller and printer option switches are enabled per service order request. The options enabled should be checked on the Station Features and Options Record, W-4DIXB (see 4.26).

4.03 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 346392 ground strap. See 1.03 of this section.

EXTRACTING CIRCUIT CARDS FROM THE CONTROLLER

4.04 To extract circuit cards from the controller:

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

(b) Lift circuit card straight up.

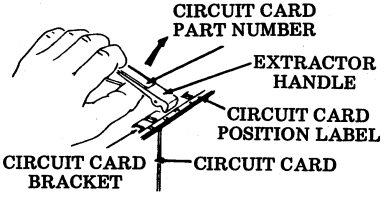


Fig. 101

EXTRACTING CIRCUIT CARDS FROM THE PRINTER

4.05 Friction Feed Printer

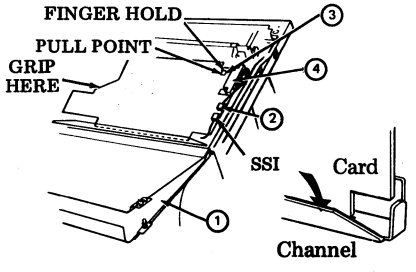


Fig. 102

① With the printer in the "ribbon changing or maintenance position," remove two screws that secure paper chute to bottom of printer and allow the chute to hinge down.
② Disconnect P103 printer cable connector from the 400921 SSI connector.
③ Using finger hold and a firm grip of card edge on opposite side as shown, use an even pulling force and unplug 410640 card from two rows of magnet assembly contacts.
④ Carefully lift bottom edge of card out from metal channel and unplug J3 connector from edge contacts of card. Remove card.

Note: During reassembly, make certain that the J3 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.

4.06 Tractor Feed Printers

① Remove two screws.
② Loosen three screws.
③ Slide plate out.
④ Remove connector from 410640 or 410076 card, and using pull points, pull card down and out.

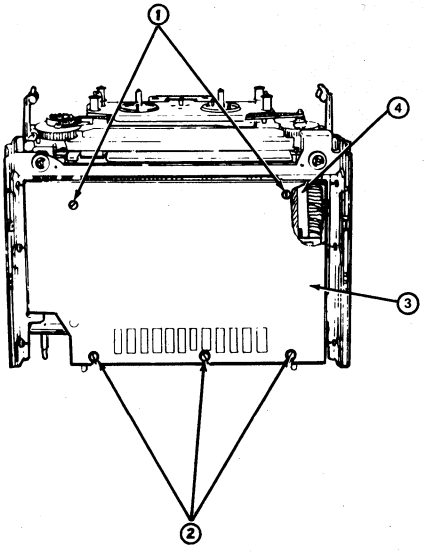


Fig. 103

Note: It is <u>not necessary</u> to remove the 410071, 410072, or 410729 card to activate or change switch positions.

ACTIVATING SET OR STATION OPTIONS

4.07 To activate or change options on the 40/2 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 Table A.)

(c) Remove circuit card.

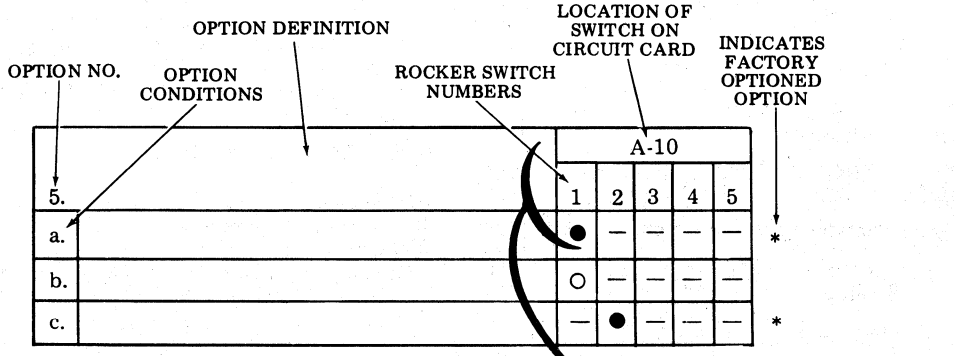
Warning: To avoid possible damage to MOS circuitry, attach 346392 static ground strap to wrist and frame ground before handling circuit cards.

(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.

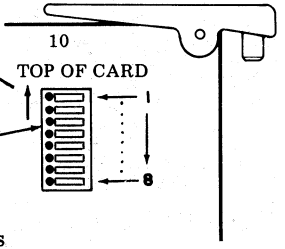


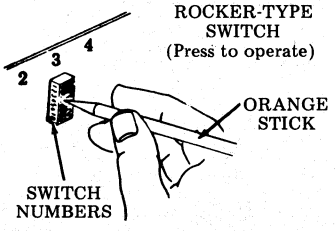
Legend:

- ● Indicates dot end of rocker switch depressed.
- O Indicates blank end of rocker switch depressed.
- – Switch position does not affect option.
- * Factory optioned.

Switch OFF = O (Depress or flip right)
Switch ON = ● (Depress or flip left)

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.





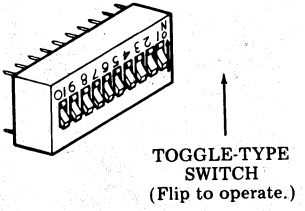


Fig. 104

FIELD OPTIONS AND DESCRIPTIONS

4.08 The options listed below are numbered, and provide brief descriptions to facilitate choices available. A list of suggested data sets and data set options is provided in 4.30.

4.09 Options marked with an asterisk (*) are factory options (shipped with set unless otherwise ordered) for 40/2 Stations.

4.10 The factory options may have been changed by the Service Center according to the service order, and should be entered on the Station Features and Options Record, W-4DIXB.

4.11 Option Listings:

1. Interface to Printer
   a. EIA
   b. SSI*] Choose 1

2. Not Used on DATASPEED 40/2 Stations

3. EIA Send/Receive Data Baud Rate

	(KD)		(ROP)
a.	1050	Not Applicable on DATASPEED 40/2 KD or KDP Stations	a. 1050
b.	1200*		b. 1200*
c.	2400		
d.	1800	Not Applicable on DATASPEED 40/2 KD or KDP Stations	
e.	2100		
f.	4800		
g.	600		
h.	300		
i.	150		
j.	110		

4. EIA Reverse Channel (see Note 1)
   a. Reverse Channel Required to Send* (see Note 2)
   b. Reverse Channel Not Required to Send] Choose 1

Note 1: If using integrated ROP, Option 143.b. must be used to operate in print local mode.

Note 2: Applies to 202-type data set interface only for DATASPEED 40/2 Stations.

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 410674 Circuit Card Only

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

*Factory Installed Option

7. Errored Character on Receive (See Note)
   a. Not Displayed on Vertical Parity Error* — Required for DATASPEED 40/2 Stations
   b. Displayed on Vertical Parity Error — Not Used on DATASPEED 40/2 Stations

Note: Controllers used in DATASPEED 40/1 and 40/3 have Option 7.b. factory optioned.

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* (Required)
   f. Do Not End on EOT — (Not Optional on DATASPEED 40/2 Stations) (see Note)
   g. End on GS*
   h. Do Not End on GS — Choose 1

Note: End on EOT must be optioned for DATASPEED 40/2 Stations. In 202-type data set operation, a received EOT causes RTS to turn on even through set is in local. If station is in local with PRINT ON LINE lighted, a received DLE-EOT is not a disconnect sequence. Received carrier must be dropped to cause a disconnect.

9. Highlight
   a. Delimiters Not Sent (Except in Form Send Mode)
   b. Delimiters Sent (Modifies 13.)* — Choose 1

10. Line Ending Sequence (Batch mode only)
    a. CR LF
    b. CR CR LF* — Choose 1
    c. LF

11. Mode After Send
    a. Local*
    b. Receive (See Note) — Choose 1
    c. EXT Mode — Not Used on DATASPEED 40/2 Stations

Note: If DLE-EOT is used as a sent disconnect sequence, Option 11.b. will cause REC to light, DTR stays on, and disconnect will not occur.

12. Form Enter
    a. Disable in Local
    b. Enabled in Local* — Choose 1

13. Send Variations (All Without Delimiters Except as Modified by 9.b.). In Form Send, Protect and Unprotect Sent as Displayed With Delimiters.
    a. Send All as Displayed
    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 — Choose 1

14. Not Used on DATASPEED 40/2 Stations

*Factory Installed Option

15. Not Used on DATASPEED 40/2 Stations

16. Not Used on DATASPEED 40/2 Stations

17. Printer Margin and Form Width — Choose 1
    - c. Last Character on 80th Column*
    - d. Last Character on 79th Column
    - d. Last Character on 78th Column
    - d. Last Character on 77th Column
    - d. Last Character on 76th Column
    - d. Last Character on 75th Column
    - d. Last Character on 74th Column
    - d. Last Character on 73rd Column

Note: Options 17.a. and 17.b. are not used on DATASPEED 40/2 Stations.

18. Printer Paper Feed Out — Choose 1
    - a. No Paper Feed Out
    - b. Paper Feed Out on DSR Loss — 16 Lines
    - c. Paper Feed Out on DSR Loss and ETX*

Note: Option 18.c. is not recommended for tractor feed printers.

19. Printer Errored Character Symbol
    - a. Printed on Even Parity Error
    - b. Printed on Odd Parity Error
    - c. Not Printed on Parity Error* — Required for DATASPEED 40/2 Stations
    - d. Printers With 96 Character Set — Choose 1 (Must match type carrier ordered)
    - e. Printers With 64 Character Set
    - f. Printers With Extended ASCII Character Set

20. Line Feed on Printer — Choose 1
    - a. Single*
    - b. Double

21. Foldover on Up-Low Printer — Choose 1 (Per type carrier ordered)
    - a. Lower Case and Upper Case Print*
    - b. Lower Case Prints as Upper Case

22. Foldover on Monocase Printer
    - a. Lower Case Prints as Error Symbol
    - b. Lower Case Prints as Upper Case*

23. Extended ASCII on Printer (Extended ASCII) — For future use — do not change.
    - a. Prints Extended ASCII Characters
    - b. Does Not Print Extended ASCII (See 19.a., b., or c.).*

24. ROP — Odd/Even Character Parity Check — Choose 1
    - a. Even Vertical Parity (Response for Odd Parity)*
    - b. Odd Vertical Parity (Response for Even Parity)

25. ROP — Response to Receive Parity Error — Choose 1
    - a. Printer Receives Odd Parity Null
    - b. Printer Receives Character Even Though it has Parity Error*
    - c. DATA ERROR Key Lights — Choose 1
    - d. DATA ERROR Key Does Not Light*

26. Not Used on DATASPEED 40/2 Station.

*Factory Installed Option

27. Message Start
    a. Home on Transmit (Local Mode Only)
    b. Send From Cursor*

    Choose 1

28. Disconnect on Loss of Carrier
    a. Disconnect After 45 Seconds*
    b. Does Not Disconnect — Timer Disabled

    Choose 1

29. Printer Message Mode
    a. When in Print On-Line Mode, Copies Display in Send or Copies the Line in Receive or Local*
    b. Not Used on DATASPEED 40/2 Stations
    c. Permanent Print On-Line Received Data Only (See Note)
    d. When in Print On-Line Mode, Copies Received Data when in Receive or Local (See Note)

    Choose 1

Note: Not recommended for DATASPEED 40/2 applications.

30. Not Used on DATASPEED 40/2 Stations.

31. Not Used on DATASPEED 40/2 Stations.

32. Not Used on DATASPEED 40/2 Stations.

33. Not Used on DATASPEED 40/2 Stations.

34. Not Used on DATASPEED 40/2 Stations.

35. Printer Motor Control
    a. "Data Set Ready" Controls Printer Motor*
    b. "Carrier Detect" Controls Printer Motor

    Choose 1

36. Printer Paper Alarm
    a. Paper Alarm Affects DTR at End of Call. DTR Off Until Paper is Restored.*
    b. Paper Alarm Affects DTR Immediately. DTR Off Until Paper is Restored.

    Choose 1

37. Not Used on DATASPEED 40/2 Stations.

38. Data Stacking
    a. Enable Data Stacking
    b. Disable Data Stacking*

    Choose 1

39. Forms (Tractor Feed Only)
    a. On
    b. Off*

    Choose 1

40. Go Receive on CR, S/R Mode Only (See Note 1)
    a. Go Receive on Sending CR (See Note 2)
    b. Do Not Go Receive on Sending of CR*

    Choose 1

Note 1: Applies to Issues 4B and later of the 410674 circuit card only.

Note 2: Applies to HDX Operation With Data Set 202 on DATASPEED 40/2 Stations Only.

*Factory Installed Option

41. Mode of Operation (See Notes 1 and 2)
    a. Half-Duplex
    b. Full Duplex*] Choose 1

Note 1: 202-type data sets which have a local copy feature provided, require the full duplex option to be selected for proper operation.

Note 2: If Interrupt is used with 202-type data set, Option 41.a. must be chosen.

42. Parity Generation
    a. Send Even Parity*
    b. Send Odd Parity
    c. Send 8th Bit as Mark
    d. Send 8th Bit as Space] Choose 1

43. Stop Bit Generation
    a. Send One Stop Bit*] Choose 1
    b. Send Two Stop Bits

44. EIA Receive Data
    a. Enable EIA Receive Data*] Choose 1
    b. Disable EIA Receive Data

45. Current Loop Data
    a. Enable Receive Data From Current Loop] Choose 1
    b. Disable Receive Data From Current Loop*

46. Interface Select (See Note)
    a. 103-Type Data Set Interface] Choose 1
    b. 202-Type Data Set Interface*

Note: If option 46.a. is selected, EOT will cause a disconnect (recommend for low speed station). If option 46.b. is selected, EOT will cause a mode change (recommend for high speed station).

47. Printer Interface (See Note)
    a. Enable Printer Interface] Choose 1
    b. Disable Printer Interface*

Note: Option 47 affects operation only when LOCAL is lighted. With 47.a., Ring Indicator automatically turns on PRINT ON LINE, and allows automatic answer of calls. With 47.b., POL turns on but call will not be answered automatically. If REC is lighted, POL turns on with either 47.a. or 47.b., the call is answered, and the printer and display copy.

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 48.b. delays paper alarm until end of form out.

49. Interrupt Feature (See Note 1)
    a. Enable Interrupt Feature* (See Note 2)] Choose 1 for KD Station
    b. Disable Interrupt Feature

Note 1: This option applies to KD sets only. KDP sets with 202-type data sets contain the interrupt feature without enabling an option (providing reverse channel is used).

Note 2: Applies to Issues 2A and later of the 410770 circuit card when used in a KD station arrangement with 202-type data sets.

*Factory Installed Option

50. Action Upon Printer SSI Loss (See Notes 1 and 2)
    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 50.a., 50.b., or 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.

51. Remote Control (See Note)
    a. 4210 character control*
    b. Not Used on DATASPEED 40/2
    c. Data Set 212A Operation (See Note 2)

    Choose 1

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

Note 2: The DATASPEED 40/2 will not control Pin 23 going to the 212A Data Set. The HS button must be operated manually.

52. Print On Line Control (See Note)
    a. Copy All Sent Data
    b. Printer Copies as Option 29*

    Choose 1

Note: PRINT ON LINE is automatically turned on when SEND is lighted for Option 52.a. (either Batch or S/R mode). Card issues before 3A are permanently equipped with Option 52.b. Selection of 52.a. still allows use of DC2 and DC4 printer motor control when the RECEIVE is lighted (either Batch or S/R mode).

53. Printer Motor Hold Timer (See Note 1)
    a. Enabled (See Note 2)
    b. Disabled*

    Choose 1

Note 1: With Option 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 53.b.

Note 2: If both 52.a. and 53.a. Options are selected, cut strap A on the 410770 card.

54. Printing of Escape Sequences Suppressed (See Note)
    a. Not Suppressed (Required)*
    b. Suppressed

    Choose 1

Note: Option 54.a. must be used in 40/2 KDP arrangement and Option 54.b. is recommended in 40/2 KD-ROP arrangement.

55. Shift In/Shift Out Detection
    a. Not used*
    b. Enables Printing Additional Characters

    Choose 1

*Factory Installed Option

56. Friction Feed/Tractor Feed Printers
    a. Friction — Motor Held On After Paper Alarm*
    b. Tractor — Motor Turned Off After Paper Alarm

    Choose 1

57. SSI/OEM Interface
    a. SSI*
    b. OEM — Not Used on DATASPEED 40/2

    Choose 1

58. Idle Line Motor Control
    a. Disabled — Motor Held On During Idle Line*
    b. Enabled — Motor Turned Off After 40 Second Idle Line

    Choose 1

59. Not Used on DATASPEED 40/2 Stations

60. Aux Alarm
    a. Enable
    b. Disable (or Alarm Mechanism Not Present)*

    Choose 1

61. Regulator Grounding
    a. SSI (Circuit and Frame Ground at PTR)
    b. SSI/OEM (Circuit and Frame Ground at PTR, +12 V)*
    c. OEM (Circuit Ground EXT to PTR, +12 V)

    Choose 1

*Factory Installed Option

TABLE A

40/2 OPTION LOCATION

Option Number	Location	Page No.	Option Number	Location	Page No.
1.	410770	45	27.	410675	49
2.	Does Not Apply	—	28.	410770	45
3.	410580	68	29.	410770	45
	410679	47	30. - 34.	Does Not Apply	—
	410680	70	35.	410580	68
4.	410679	47	36.	410580	69
	410680	70	37.	Does Not Apply	—
5.	410674	50	38.	410582	69
6.	410674	50	39.	Printer	67
7.	410674	50	40.	410674	51
8.	410674	51	41.	410679	47
9.	410674	51		410680	70
10.	410675	49	42.	410679	48
11.	410675	49		410680	70
12.	410675	49	43.	410679	48
13.	410676	48		410680	70
14. - 16.	Does Not Apply	—	44.	410679	48
17.	410640	52		410680	70
	410729	54	45.	410679	48
	410071	56		410680	70
	410072	59	46.	410679	48
	410076	62		410680	70
18.	410640	52	47.	410679	48
	410729	54	48.	410729	55
	410071	57		410071	57
	410072	60		410072	60
	410076	63		410076	63
19.	410640	53	49.	410770	46
	410729	55	50.	410770	46
	410071	57	51.	410770	46
	410072	60	52.	410770	46
	410076	63	53.	410770	46
20.	Printer	66	54.	410071	58
21.	410640	53		410072	61
	410729	55		410076	64
	410071	57	55.	410071	58
	410072	60		410072	61
	410076	63		410076	64
22.	410640	53	56.	410076	64
	410729	55	57.	410071	58
	410071	57		410072	61
	410072	60		410076	64
	410076	63	58.	410071	58
23.	410640	53		410072	61
	410729	55		410076	64
	410071	57	59.	410071	58
	410072	60		410072	61
	410076	63		410085	65
24.	410580	68	60.	410071	58
25.	410580	68		410072	61
26.	Does Not Apply	—	61.	410151	65

CONTROLLER OPTIONS (KD)

4.12 410770 Circuit Card (Independent Printer Access) — Card Position X101

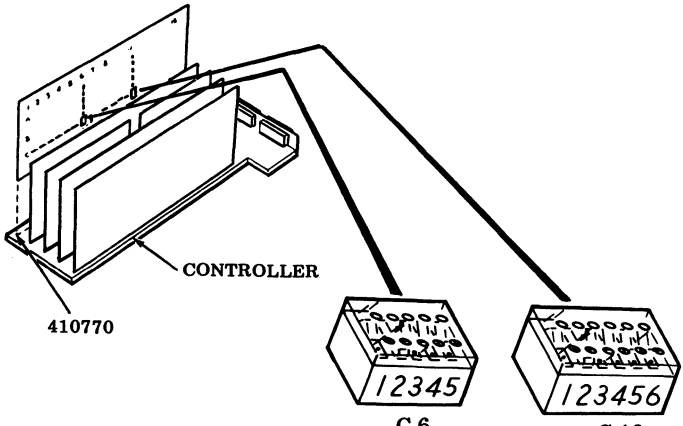


Fig. 105

		C-6 (Note 3)					
1.	Interface to Printer	1	2	3	4	5	
a.	EIA (Use for KD-ROP)	O	●	—	—	—	
b.	SSI (Use for KDP or KD)	●	O	—	—	—	*

		C-6					
28.	Disconnect on Loss of Carrier	1	2	3	4	5	
a.	Disconnect After 45 Seconds	—	—	O	—	—	*
b.	Does Not Disconnect — Timer Disables	—	—	●	—	—	

		C-6					
29.	Printer Message Mode	1	2	3	4	5	
a.	When in Print On-Line Mode, Copies Display in Send or Copies Line in Receive or Local.	—	—	—	O	●	*
b.	Not used on DATASPEED 40/2 stations	—	—	—	—	—	
c.	Permanent Print On-Line, Received Data Only.(See Notes 1&2)	—	—	—	●	O	
d.	When in Print-On-Line, Copies Received Data When in Receive or Local. (See Notes 1&2)	—	—	—	O	O	

Note 1: Not recommended for DATASPEED 40/2 applications.

Note 2: Applies to 202-type data set operation only.

Note 3: The switch pack shown in position C-6 was in position C-7 on Issue 2A and earlier circuit cards.

(See Legend for ●, O, —, and * on Page 36.)

410770 Circuit Card (Contd)

49.	Interrupt Feature (for KD Stations Only)	C-6					C-10					
		1	2	3	4	5	1	2	3	4	5	6
a.	Enable KD Interrupt Feature (See Note)	●	O	—	—	—	O	O	—	—	—	—
b.	To Disable Interrupt Feature on KD or KDP Stations, Place a Blocking Keytop Over the Interrupt Key on the Operator Console											

Note: Issue 2A or earlier 410770 circuit card assemblies require the circuit path (component side) between MLB6-1 and the plated through hole be cut in addition to optioning C-6 switches. (The C-10 switch pack is not present on Issue 2A or earlier.) Issue 3A and later cards require optioning of C-6 and C-10 option switches only (land cut is not required).

50.	Action upon Ptr. SSI Loss (See Note below) (Issue 3A and Later)	C-10						
		1	2	3	4	5	6	
a.	Go Local and hold	●	O	—	—	—	—	
b.	Go Local and release	O	●	—	—	—	—	
c.	No mode change	O	O	—	—	—	—	*

Note: Print On Line (POL) turned off in 50.a., b., and c. Card Issue 1 will not change mode (and POL stays on) if SSI fails. Card Issue 2 will not change mode (but POL goes off) if SSI fails.

51.	Remote Control (See Note below)	C-10						
		1	2	3	4	5	6	
a.	4210 Character Control	—	—	●	O	—	—	*
b.	Not used on DATASPEED 40/2	—	—	—	—	—	—	
c.	Data Set 212A Operation (For Future Use)	—	—	O	O	—	—	

Note: Card Issues 1 and 2 are permanently equipped with Option 51.a. Switch pack C-10 is only present on Issue 3A and later.

52.	PRINT ON LINE Control (See Note below)	C-10						
		1	2	3	4	5	6	
a.	Copy all sent data	—	—	—	—	●	—	
b.	POL as determined by Option 29	—	—	—	—	O	—	*

Note: POL is automatically turned on when SEND is lighted for Option 52.a. (either Batch or S/R mode). Card Issues 1 and 2 are permanently equipped with Option 52.b. Switch pack C-10 is only present on Issue 3A or later circuit card. Selection of Option 52.a. will allow use of DC2 and DC4 printer motor control when RECEIVE is lighted (either Batch or S/R mode).

53.	Ptr. Motor Hold Timer (See Notes below.)	C-10						
		1	2	3	4	5	6	
a.	Enabled	—	—	—	—	—	●	
b.	Disabled	—	—	—	—	—	O	*

Note 1: Switch pack C-10 is only present on Issue 3A or later circuit card. If Option 53.a. is selected, printer motor is held on for two minutes following end of message. This is useful if messages are ever less than 2 minutes apart. Card Issue 1 is equipped with Option 53.b. Card Issue 2, labeled "Motor hold option," is equipped with Option 53.a. Card Issue 2 not labeled "Motor hold option" is equipped with Option 53.b.

Note 2: If both Options 53.a. and 52.a. are selected, cut strap A (land between coordinates B1 and B2). Otherwise strap A must be left intact on 410770 card.

(See Legend for ●, O, —, and * on Page 36.)

4.13 410679 Circuit Card (Full Duplex Interface) — Card Position X02

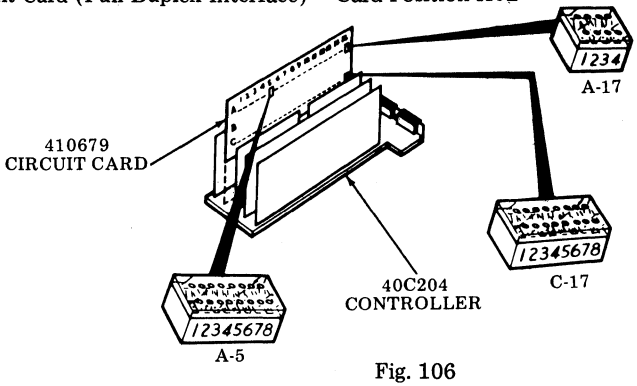


Fig. 106

3.	EIA Send/Receive Data Baud Rate	C-17 1	2	3	4	5	6	7	8	A-17 1	2	3	4	
a.	1050 Baud (Do Not Use)	—	—	—	—	—	—	—	—	—	—	—	—	
b.	1200 Baud	—	●	●	●	O	O	O	O	—	—	●	—	*
c.	2400 Baud	—	●	●	O	O	O	O	O	—	—	●	—	
d.	1800 (Do Not Use)	—	—	—	—	—	—	—	—	—	—	—	—	
e.	2100 (Do Not Use)	—	—	—	—	—	—	—	—	—	—	—	—	
f.	4800 Baud	—	●	O	O	O	O	O	O	—	—	●	—	
g.	600 Baud	—	●	●	●	●	O	O	O	—	—	●	—	
h.	300 Baud	—	●	●	●	●	●	O	O	—	—	●	—	
i.	150 Baud	—	●	●	●	●	●	●	O	—	—	●	—	
j.	110 Baud (See Note)	—	●	●	●	O	●	O	●	—	—	O	—	
k.	9600 Baud (w/209A)	—	O	O	O	O	O	O	O	—	—	●	—	

Note: Switch A-17 Number 3 is normally open for Option 3.j., except when an ROP is being used in a KD-ROP arrangement EIA, then this switch should be closed.

4.	EIA Reverse Channel	A-5 1	2	3	4	5	6	7	8	C-17 1	2	3	4	5	6	7	8	A-17 1	2	3	4	
a.	Reverse Channel Required to Send (202-Type Data Set)	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	*
b.	Reverse Channel Not Required to Send (202, 212, 108 or 103-Type Data Set)	O	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

41.	Mode of Operation	A-5 1	2	3	4	5	6	7	8	C-17 1	2	3	4	5	6	7	8	A-17 1	2	3	4	
a.	Half-Duplex (See Note)	—	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
b.	Full Duplex	—	O	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	*

Note: Don't use "41.a." and "local copy on primary channel" data set option.

(See Legend for ●, O, —, and * on Page 36.)

410679 Circuit Card (Contd)

42.	Parity Generation	A-5 1	2	3	4	5	6	7	8	C-17 1	2	3	4	5	6	7	8	A-17 1	2	3	4	
a.	Send Even Parity	—	—	O	●	—	O	—	—	—	—	—	—	—	—	—	—	—	—	—	—	*
b.	Send Odd Parity	—	—	●	●	—	O	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
c.	Send 8th Bit as Mark	—	—	O	O	—	O	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
d.	Send 8th Bit as Space	—	—	O	O	—	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

43.	Stop Bit Generation	A-5 1	2	3	4	5	6	7	8	C-17 1	2	3	4	5	6	7	8	A-17 1	2	3	4	
a.	Send One Stop Bit	—	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	*
b.	Send Two Stop Bits	—	—	—	—	O	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

44.	EIA Received Data	A-5 1	2	3	4	5	6	7	8	C-17 1	2	3	4	5	6	7	8	A-17 1	2	3	4	
a.	Enable EIA Receive Data	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—	—	—	*
b.	Disable EIA Receive Data	—	—	—	—	—	—	O	—	—	—	—	—	—	—	—	—	—	—	—	—	

45.	Current Loop Data	A-5 1	2	3	4	5	6	7	8	C-17 1	2	3	4	5	6	7	8	A-17 1	2	3	4	
a.	Enable Receive Data From Current Loop	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—	—	
b.	Disable Receive Data From Current Loop	—	—	—	—	—	—	—	O	—	—	—	—	—	—	—	—	—	—	—	—	*

46.	Interface Select	A-5 1	2	3	4	5	6	7	8	C-17 1	2	3	4	5	6	7	8	A-17 1	2	3	4	
a.	103-Type Modem Interface or 20/60 Milliampere Interface (also 113A)	—	—	—	—	—	—	—	—	O	—	—	—	—	—	—	—	—	—	—	—	
b.	202-Type Modem Interface	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—	*

47.	Printer Interface (See Note Page 32)	A-5 1	2	3	4	5	6	7	8	C-17 1	2	3	4	5	6	7	8	A-17 1	2	3	4	
a.	Enable Printer Interface	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	O	—	—	
b.	Disable Printer Interface	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	*

4.14 410676 Circuit Card (Send Variations) — Card Position X03

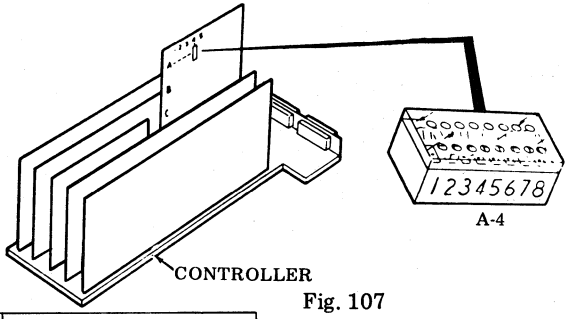


Fig. 107

13.	Send Variations (All Without Delimiters Except as Modified by Option 9.b.)	A-4 1	2	3	4	5	6	7	8	
a.	Send All as Displayed	●	O	●	●	●	●	●	O	
b.	Send All as Displayed With Unprotected HT to Space	●	O	●	●	●	●	●	●	*
c.	Send Protect as Space and Unprotected as Displayed	O	●	O	O	●	O	●	O	
d.	Send Protect as Space, Unprotected as Displayed and HT to Space	O	●	O	O	●	O	●	●	
e.	Send Protect as Delete, Unprotected as Displayed	O	●	O	O	O	O	●	O	
f.	Send Unprotected Only as Displayed	O	●	O	●	●	●	●	O	
g	Send Unprotected Only and HT at End of Field	O	●	O	●	●	O	O	●	
h.	Send Unprotected Only With Unprotect HT to Space	O	●	O	●	●	●	●	●	

(See Legend for ●, O, —, and * on Page 36.)

4.15 410675 Circuit Card (Message Control) — Card Position X04

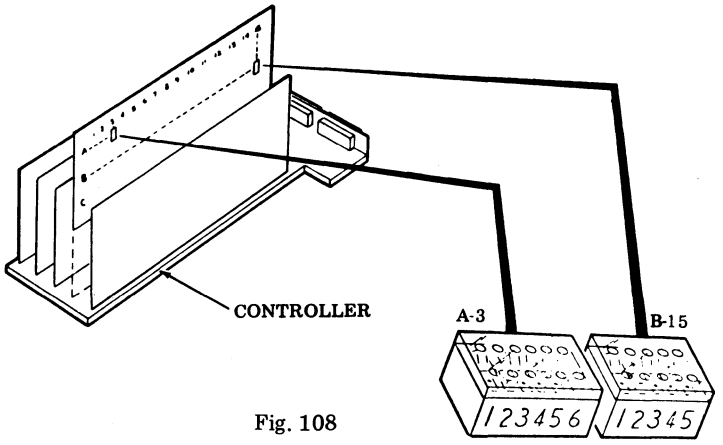


Fig. 108

10.	Line Ending Sequence (Bath Mode Only)	A-3 1	2	3	4	5	6	B-15 1	2	3	4	5	
a.	CR LF	—	—	—	—	O	—	●	●	O	O	O	
b.	CR CR LF	—	—	—	—	O	—	O	O	●	●	●	*
c.	LF	—	—	—	—	●	—	●	●	O	O	O	

11.	Mode After Send	A-3 1	2	3	4	5	6	B-15 1	2	3	4	5	
a.	Local (Goes REC on Sent EOT)	—	O	●	●	—	—	—	—	—	—	—	*
b.	Receive (See Note)	—	●	O	●	—	—	—	—	—	—	—	
c.	Not used in DATASPEED 40/2 Stations	—	O	●	O	—	—	—	—	—	—	—	

Note: If DLE EOT is used as a sent disconnect sequence, Option 11.b. will cause REC to light, DTR stays on, and disconnect will not occur.

12.	Form Enter	A-3 1	2	3	4	5	6	B-15 1	2	3	4	5	
a.	Disabled in Local	●	—	—	—	—	—	—	—	—	—	—	
b.	Enabled in Local	O	—	—	—	—	—	—	—	—	—	—	*

27.	Message Start	A-3 1	2	3	4	5	6	
a.	Home on Transmit (Local Mode Only)	—	—	—	—	—	●	
b.	Send From Cursor	—	—	—	—	—	O	*

(See Legend for ●, O, —, and * on Page 36.)

4.16 410674 Circuit Card (Data Bus and Decode) — Card Position X05

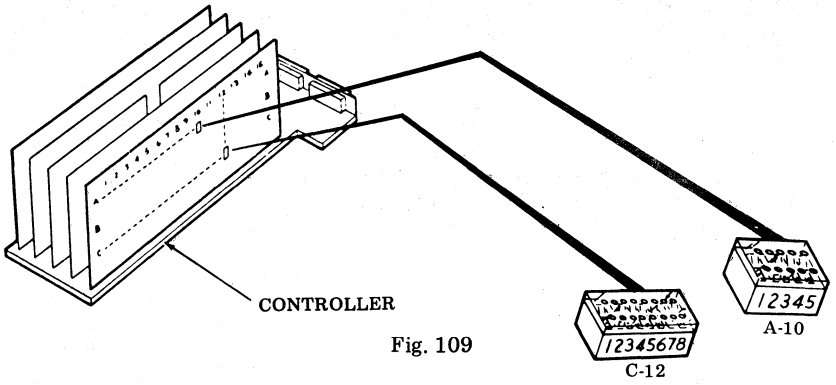


Fig. 109

5.	Response to Received Characters	A-10 1	2	3	4	5	C-12 1	2	3	4	5	6	7	8	
a.	Reject Null	●	—	—	—	—	—	—	—	—	—	—	—	—	*
b.	Accept Null	O	—	—	—	—	—	—	—	—	—	—	—	—	
c.	Reject CR	—	●	—	—	—	—	—	—	—	—	—	—	—	*
d.	Accept CR	—	O	—	—	—	—	—	—	—	—	—	—	—	
e.	Reject Delete	—	—	●	—	—	—	—	—	—	—	—	—	—	*
f.	Accept Delete	—	—	O	—	—	—	—	—	—	—	—	—	—	
g.	Reject DC_1 (See Note)	—	—	—	—	—	—	—	—	—	—	●	—	—	*
h.	Accept DC_1 (See Note)	—	—	—	—	—	—	—	—	—	—	O	—	—	
i.	Reject DC_3 (See Note)	—	—	—	—	—	—	—	—	—	—	—	●	—	*
j.	Accept DC_3 (See Note)	—	—	—	—	—	—	—	—	—	—	—	O	—	

Note: Applies to Issues 4B and later of the 410674 circuit card.

6.	Functions on Receive	A-10 1	2	3	4	5	C-12 —	—	—	—	—	—	—	—	
a.	All Escape Sequences Displayed as Received (Function not Performed)	—	—	—	O	—	—	—	—	—	—	—	—	—	
b.	All Escape Sequences are Performed as Received but Not Displayed	—	—	—	●	—	—	—	—	—	—	—	—	—	*

7.	Errored Character on Receive (See Note)	A-10 1	2	3	4	5	C-12 —	—	—	—	—	—	—	—	
a.	Not Displayed on Vertical Parity Error (Required for Standard 40/2)	—	—	—	—	●	—	—	—	—	—	—	—	—	*
b.	Displayed on Vertical Parity Error	—	—	—	—	O	—	—	—	—	—	—	—	—	

Note: Controllers used in DATASPEED 40/1 and 40/3 have Option 7.b. factory optioned.

(See Legend for ●, O, —, and * on Page 36.)

410674 Circuit Card (Contd)

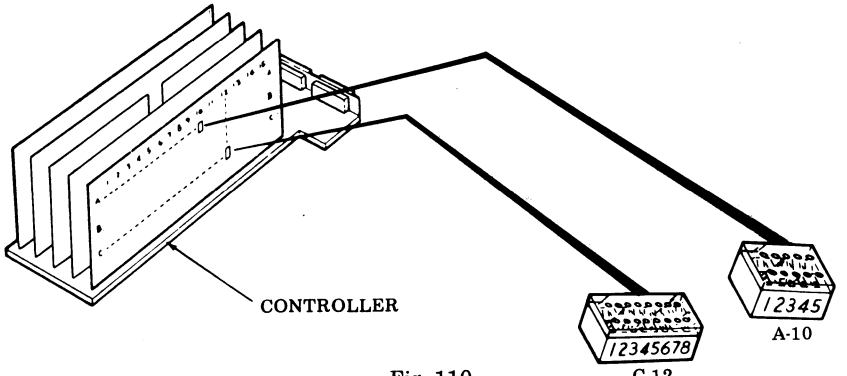


Fig. 110

8. Send Message Ending Character	A-10					C-12								
	1	2	3	4	5	1	2	3	4	5	6	7	8	
a. End on FF	—	—	—	—	—	—	—	●	—	—	—	—	—	
b. Do Not End on FF	—	—	—	—	—	—	—	O	—	—	—	—	—	*
c. End on ETX	—	—	—	—	—	●	—	—	—	—	—	—	—	*
d. Do Not End on ETX	—	—	—	—	—	O	—	—	—	—	—	—	—	
e. End on EOT (Required) (See Note)	—	—	—	—	—	—	●	—	—	—	—	—	—	*
f. Do Not End on EOT	—	—	—	—	—	—	O	—	—	—	—	—	—	
g. End on GS	—	—	—	—	—	—	—	—	●	—	—	—	—	*
h. Do Not End on GS	—	—	—	—	—	—	—	—	O	—	—	—	—	

Note: In 202-type data set operation, a received EOT causes RTS to turn on even though set is in local. No further messages can then be received even if PRINT ON LINE is on. If station is in local with PRINT ON LINE lighted, a received DLE EOT is not a disconnect sequence. Received carrier must be dropped to cause a disconnect.

9. Highlight (See Note)	A-10					C-12								
	1	2	3	4	5	1	2	3	4	5	6	7	8	
a. Delimiters Not Sent (Except in Form Send Mode)	—	—	—	—	—	—	—	—	—	●	—	—	—	
b. Delimiters Sent (Modifies Option 13)	—	—	—	—	—	—	—	—	—	O	—	—	—	*

Note: Highlight delimiters are ESC 3 (on) and ESC 4 (off).

40. Go Receive on Sending CR (←) (S/R Mode Only) (See Note)	C-12								
	1	2	3	4	5	6	7	8	
a. Go Receive on Sending CR	—	—	—	—	—	—	—	●	++
b. Do Not Go Receive on Sending CR	—	—	—	—	—	—	—	O	*

Note: Applies to Issues 4B and later of the 410674 circuit card.

(See Legend for ●, O, —, and * on Page 36.)
++Applies to operation with 202-type data set — HDX.

PRINTER OPTIONS

4.17 410640 Circuit Card (Printer Logic)

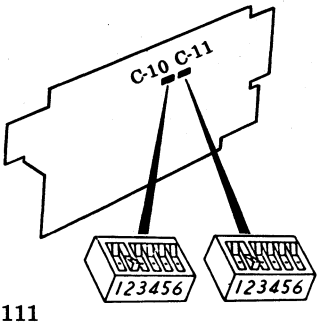


Fig. 111

17. Printer Margin and Form Width		C-10						C-11						
		1	2	3	4	5	6	1	2	3	4	5	6	
c.	Last Character on 80th Column	—	—	—	—	—	—	O	●	●	O	—	—	*
d.	Last Character on 79th Column	—	—	—	—	—	—	O	●	●	●	—	—	
d.	Last Character on 78th Column	—	—	—	—	—	—	●	O	O	●	—	—	
d.	Last Character on 77th Column	—	—	—	—	—	—	●	O	●	O	—	—	
d.	Last Character on 76th Column	—	—	—	—	—	—	●	O	●	●	—	—	
d.	Last Character on 75th Column	—	—	—	—	—	—	●	●	O	●	—	—	
d.	Last Character on 74th Column	—	—	—	—	—	—	●	●	●	O	—	—	
d.	Last Character on 73rd Column	—	—	—	—	—	—	●	●	●	●	—	—	

Note: Option 17.a. and 17.b. are not used on DATASPEED 40/2 Stations.

18. Printer Paper Feed Out		C-10						C-11						
		1	2	3	4	5	6	1	2	3	4	5	6	
a.	No Paper Feed Out	●	—	—	—	—	—	—	—	—	—	—	O	
b.	Paper Feed Out on DSR Loss — 16 Lines (See Note)	O	—	—	—	—	—	—	—	—	—	—	O	
c.	Paper Feed Out on DSR Loss or ETX	O	—	—	—	—	—	—	—	—	—	—	●	*

Note: "DSR Loss" assumes that data set operation is used; the actual controlling SSI signal is loss of Receive Message. The feed out will be 16 lines, as stated, only if Option 39.b. (Forms switch Off) is selected; if Option 39.a. (Forms switch On) is selected, the printer will feed out paper to the next form feed position.

19. Printer Errored Character Symbol (Option 19.c. is required for Standard 40/2)		C-10						C-11						
		1	2	3	4	5	6	1	2	3	4	5	6	
a.	Printed on Even Parity Error	—	—	—	●	O	—	—	—	—	—	—	—	
b.	Printed on Odd Parity Error	—	—	—	O	●	—	—	—	—	—	—	—	
c.	Not Printed on Parity Error	—	—	—	●	●	—	—	—	—	—	—	—	*
d.	Printers With 96 Character Set	—	●	O	—	—	—	—	—	—	—	—	—	
e.	Printers With 64 Character Set	—	O	●	—	—	—	—	—	—	—	—	—	
f.	Printers With Extended ASCII Character Set	—	O	O	—	—	—	—	—	—	—	—	—	

(See Legend for ●, O, —, and * on Page 36.)

410640 Circuit Card (Contd)

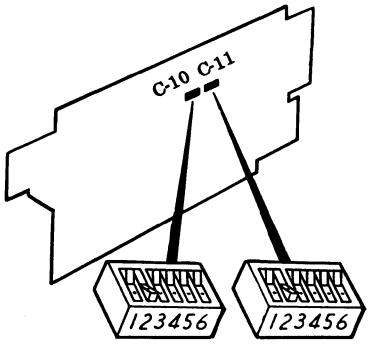


Fig. 112

21. Foldover on Up-Low Printer		C-10						C-11						
		1	2	3	4	5	6	1	2	3	4	5	6	
a.	Lower Case and Upper Case Print	—	—	—	—	—	—	—	—	—	—	O	—	*
b.	Lower Case Prints as Upper Case	—	—	—	—	—	—	—	—	—	—	●	—	

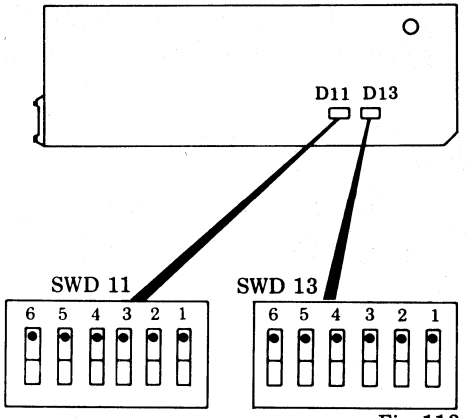
22. Foldover on Monocase Printer		C-10						C-11						
		1	2	3	4	5	6	1	2	3	4	5	6	
a.	Lower Case Not Folded Over	—	—	—	—	—	—	—	—	—	—	O	—	
b.	Lower Case Printed as Upper Case	—	—	—	—	—	—	—	—	—	—	●	—	*

23. Extended ASCII on Printer (Option 23.b. is Required)		C-10						C-11						
		1	2	3	4	5	6	1	2	3	4	5	6	
a.	†Prints Extended ASCII Characters (No Parity Check)	—	—	—	O	O	—	—	—	—	—	—	—	
b.	Does Not Print Extended Characters (See Option 19.a., b., or c.)	—	—	—	—	—	—	—	—	—	—	—	—	*

(See Legend for ●, O, —, and * on Page 36.)

† Option 23.a. requires local engineering.

4.18 410729 Circuit Card (Printer Logic)



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

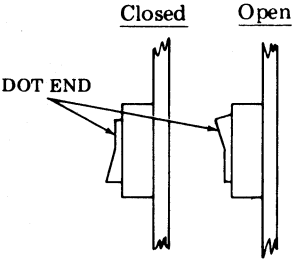


Fig. 113

17. Printer Margin and Form Width		D-11 6	5	4	3	2	1	D-13 6	5	4	3	2	1	
e.	Last Character on Column 132	—	—	—	—	—	—	○	○	○	●	—	—	*
f.	Last Character on Column 131	—	—	—	—	—	—	○	○	●	○	—	—	
g.	Last Character on Column 130	—	—	—	—	—	—	○	○	●	●	—	—	
h.	Last Character on Column 129	—	—	—	—	—	—	○	●	○	●	—	—	
i.	Last Character on Column 128	—	—	—	—	—	—	○	●	●	○	—	—	
j.	Last Character on Column 127	—	—	—	—	—	—	○	●	●	●	—	—	
k.	Last Character on Column 126	—	—	—	—	—	—	●	○	○	●	—	—	
l.	Last Character on Column 125	—	—	—	—	—	—	●	○	●	○	—	—	
m.	Last Character on Column 124	—	—	—	—	—	—	●	○	●	●	—	—	
n.	Last Character on Column 123	—	—	—	—	—	—	●	●	○	●	—	—	
o.	Last Character on Column 122	—	—	—	—	—	—	●	●	●	○	—	—	
p.	Last Character on Column 121	—	—	—	—	—	—	●	●	●	●	—	—	

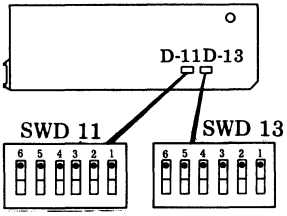
Note: Options 17.a., 17.b., 17.c., and 17.d. are not used.

18. Printer Paper Feed Out		D-11 6	5	4	3	2	1	D-13 6	5	4	3	2	1	
a.	No Paper Feed Out	—	—	●	—	—	—	—	—	—	—	—	○	
b.	Paper Feed Out on DSR Loss — 16 Lines (See Note)	—	—	○	—	—	—	—	—	—	—	—	○	
c.	Paper Feed Out on DSR Loss or ETX	—	—	○	—	—	—	—	—	—	—	—	●	*

Note: "DSR Loss" assumes that data set operation is used; the actual controlling SSI signal is loss of Receive Message. The feed out will be 16 lines, as stated, only if Option 39.b. (Forms switch Off) is selected; if Option 39.a. (Forms switch On) is selected, the printer will feed out paper to the next form feed position.

(See Legend for ●, ○, —, and * on Page 36.)

410729 Circuit Card (Contd)



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

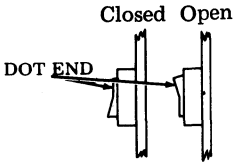


Fig. 114

19. Printer Errored Character Symbol (Option 19.c. is Required for Standard 40/2)		D-11 6	5	4	3	2	1	D-13 6	5	4	3	2	1	
a.	Printed on Even Parity Error	—	—	—	●	O	—	—	—	—	—	—	—	
b.	Printed on Odd Parity Error	—	—	—	O	●	—	—	—	—	—	—	—	
c.	Not Printed on Parity Error	—	—	—	●	●	—	—	—	—	—	—	—	*
d.	Printers With 96-Character Set	●	O	—	—	—	—	—	—	—	—	—	—	
e.	Printers With 64-Character Set	O	●	—	—	—	—	—	—	—	—	—	—	
f.	Printers With Extended ASCII Character Set	O	O	—	—	—	—	—	—	—	—	—	—	
g.	Printers With Longest Character Set Having Less Than 64 Characters	O	●	—	—	—	—	—	—	—	—	—	—	

21. Foldover on Up-Low Printer		D-11 6	5	4	3	2	1	D-13 6	5	4	3	2	1	
a.	Lower Case and Upper Case Print	—	—	—	—	—	—	—	—	—	—	O	—	*
b.	Lower Case Prints as Upper Case	—	—	—	—	—	—	—	—	—	—	●	—	

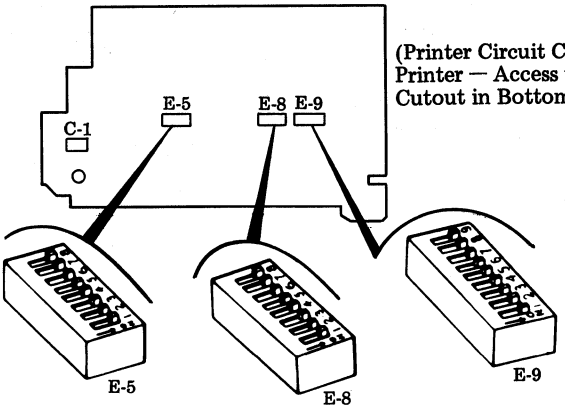
22. Foldover on Monocase Printer		D-11 6	5	4	3	2	1	D13 6	5	4	3	2	1	
a.	Lower Case Prints as Error Symbol	—	—	—	—	—	—	—	—	—	—	O	—	
b.	Lower Case Prints as Upper Case	—	—	—	—	—	—	—	—	—	—	●	—	*

23. Extended ASCII on Printer (Extended ASCII)		D-11 6	5	4	3	2	1	D-13 6	5	4	3	2	1	
a.	Prints Extended ASCII Characters (No Parity Check)	—	—	—	O	O	—	—	—	—	—	—	—	
b.	Does Not Print Extended ASCII (See 19.a., b., or c.)	—	—	—	(As in 19.)			—	—	—	—	—	—	*

48. Incomplete Form Suppresses Paper Alarm		D11 6	5	4	3	2	1	D13 6	5	4	3	2	1	
a.	No (Paper Out Not Gated With Form Out)	—	—	—	—	—	●	—	—	—	—	—	—	
b.	Yes (Paper Out Gated With Form Out)	—	—	—	—	—	O	—	—	—	—	—	—	*

(See Legend for ●, O, —, and * on Page 36.)

4.19 410071 Circuit Card (Printer Logic)



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

Fig. 115

410071 — 80-Column Tractor Feed Printer Logic Circuit Card

17.	Printer Left Margin and Form Width	E-5								
		1	2	3	4	5	6	7	8	
a.	First Printed Column — Column 1	—	—	●	●	●	●	—	—	*
b.2.	First Printed Column — Column 2	—	—	●	●	O	●	—	—	
b.3.	First Printed Column — Column 3	—	—	●	●	O	O	—	—	
b.4.	First Printed Column — Column 4	—	—	●	O	O	O	—	—	
b.5.	First Printed Column — Column 5	—	—	O	O	●	O	—	—	
b.6.	First Printed Column — Column 6	—	—	O	O	O	●	—	—	
b.7.	First Printed Column — Column 7	—	—	O	●	O	O	—	—	
b.8.	First Printed Column — Column 8	—	—	●	O	●	O	—	—	
b.9.	First Printed Column — Column 9	—	—	O	O	●	●	—	—	
b.10.	First Printed Column — Column 10	—	—	O	●	O	●	—	—	
b.11.	First Printed Column — Column 11	—	—	●	●	●	O	—	—	
b.12.	First Printed Column — Column 12	—	—	●	O	O	●	—	—	
b.13.	First Printed Column — Column 13	—	—	O	●	●	O	—	—	

410071 — 80-Column Tractor Feed Printer Logic Circuit Card

17.	Printer Right Margin and Form Width																										
	Last Char Printed Column Number	E-9									E-5								E-8								
		1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	
c.	80	O	●	—	●	O	—	—	—	—	●	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	●	*
d. (X)	73 61 49 37 25	●	●	—	●	●	—	—	—	—	●	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	●	
	74 62 50 38 26	O	●	—	●	●	—	—	—	—	●	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	●	
	75 63 51 39 27	●	O	—	●	●	—	—	—	—	●	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	●	
	76 64 52 40 28	●	●	—	O	●	—	—	—	—	●	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	●	
	77 65 53 41 29	O	●	—	O	●	—	—	—	—	●	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	●	
	78 66 54 42 30	●	O	—	O	●	—	—	—	—	●	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	●	
	79 67 55 43 31	●	●	—	●	O	—	—	—	—	●	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	●	
	68 56 44 32	O	●	—	●	O	—	—	—	—	●	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	●	
	69 57 45 33	●	O	—	●	O	—	—	—	—	●	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	●	
	70 58 46 34	●	●	—	O	O	—	—	—	—	●	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	●	
	71 59 47 35	O	●	—	O	O	—	—	—	—	●	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	●	
	72 60 48 36	●	O	—	O	O	—	—	—	—	●	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	●	

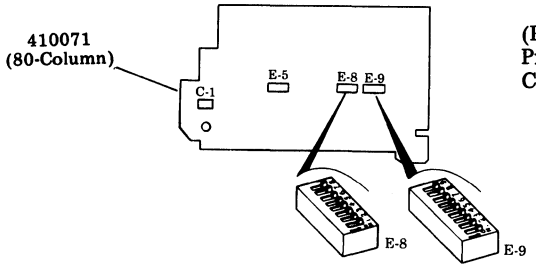
To obtain counts:

73 through 80 program as shown.
61 through 72 program as shown, then operate E-8 position 8 to OFF.
49 through 60 program as shown, then operate E-5 position 1 to OFF.
37 through 48 program as shown, then operate E-5 position 7 to OFF.
25 through 36 program as shown, then operate E-5 position 8 to OFF.

(X) Indicates desired column number.

(See Legend for ●, O, —, and * on Page 36.)

410071 Circuit Card (Contd)



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

Fig. 116

18. Printer Paper Feedout	E-8								
	1	2	3	4	5	6	7	8	
a. No Paper Feedout	—	—	●	—	—	—	—	—	
b. Paper Feedout on DSR or RM Loss — 16 Lines or One Form	—	O	O	—	—	—	—	—	
c. Paper Feedout on DSR or RM Loss or ETX — 16 Lines or One Form	—	●	O	—	—	—	—	—	*

19. Printer Errored Character Symbol	E-9									E-8							
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8
a. Printed on Even Parity Error	—	—	—	—	—		●	—	—	—	—	—	—	—	—	—	—
b. Printed on Odd Parity Error	—	—	—	—	—	●	O	—	—	—	—	—	—	—	—	—	—
c. Not Printed on Parity Error	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	—	—
d. Printers With 96-Character Set	—	—	—	—	—	—	—	—	—	—	—	—	—	●	O	—	—
e. Printers With 64-Character Set	—	—	—	—	—	—	—	—	—	—	—	—	—	O	●	—	—
f. Printers With Extended ASCII Character Set	—	—	—	—	—	—	—	—	—	—	—	—	—	O	O	—	—
g. Printers With Longest Character Set Having Less Than 64 Characters	—	—	—	—	—	—	—	—	—	—	—	—	—	O	O	—	—

21. Foldover on Printers With 96-Character Set	E-8								
	1	2	3	4	5	6	7	8	
a. Lower Case and Upper Case Print	O	—	—	—	—	—	—	—	*
b. Lower Case Prints as Upper Case	●	—	—	—	—	—	—	—	

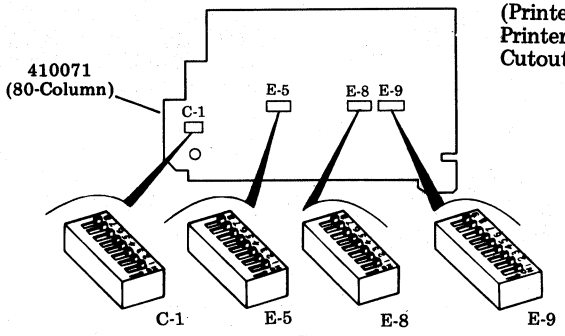
22. Foldover on Printers With 64-Character Set	E-8								
	1	2	3	4	5	6	7	8	
a. Lower Case Prints as Error Symbol	O	—	—	—	—	—	—	—	
b. Lower Case Prints as Upper Case	●	—	—	—	—	—	—	—	*

23. Extended ASCII on Printer (Extended ASCII)	E-9									
	1	2	3	4	5	6	7	8	9	
a. Prints Extended ASCII Characters (No Parity Check)	—	—	—	—	—	O	O	—	—	
b. Does Not Print Extended ASCII (See Option 19.a., b. or c.)	—	—	—	(As in 19.)		—	—	—	—	*

48. Incomplete Form Suppresses Paper Alarm	E-9									
	1	2	3	4	5	6	7	8	9	
a. No (Paper Out Not Gated With Formout)	—	—	—	—	—	—	—	—	●	
b. Yes (Paper Out Gated With Formout)	—	—	—	—	—	—	—	—	O	*

(See Legend for ●, O, —, and * on Page 36.)

410771 Circuit Card (Contd)



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

Fig. 117

		E-9									
		1	2	3	4	5	6	7	8	9	
54.	Printing of Escape Sequences Suppressed										
a.	Character After ESC Printed as Received	—	—	—	—	—	—	—	O	—	*
b.	Printing of Character After ESC Suppressed (Not used in 40/2 KDP application.)	—	—	—	—	—	—	—	●	—	+++

		E-9									
		1	2	3	4	5	6	7	8	9	
55.	SI/SO Detection										
a.	SI/SO Detection Not Used	—	—	O	—	—	—	—	—	—	*
b.	SI/SO Detection Enables Printing Additional Characters	—	—	●	—	—	—	—	—	—	

		E-8								
		1	2	3	4	5	6	7	8	
57.	SSI/OEM Interface									
a.	SSI	—	—	—	—	—	—	●	—	*
b.	OEM†	—	—	—	—	—	—	O	—	

†An option screw change may be required on 410151 circuit card in power module. If Option 57.b. is selected, option screw B on 410151 must be installed from the component side.

		E-8								
		1	2	3	4	5	6	7	8	
58.	Idle Line Motor Control									
a.	Disabled — Motor Held On Indefinitely During Idle Line	—	—	—	O	—	—	—	—	*
b.	Enabled — Motor Turned Off After 40-Second Idle Line	—	—	—	●	—	—	—	—	

		C-1								
		1	2	3	4	5	6	7	8	
59.	Speed Selection (Applies only if Option 57.b. is selected)									
a.	75 Baud	●	O	O	O	O	O	O	O	
b.	150 Baud	O	●	O	O	O	O	O	O	
c.	300 Baud	O	O	O	O	O	O	O	●	
d.	600 Baud	O	O	●	O	O	O	O	O	
e.	1200 Baud	O	O	O	O	O	●	O	O	
f.	2400 Baud	O	O	O	●	O	O	O	O	*
g.	4800 Baud	O	O	O	O	●	O	O	O	
h.	9600 Baud	O	O	O	O	O	O	●	O	

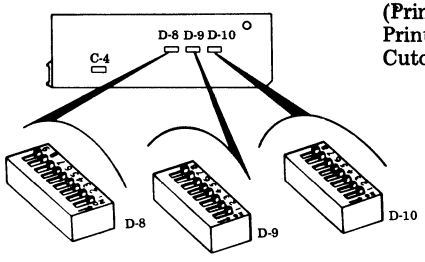
		E-5								
		1	2	3	4	5	6	7	8	
60.	Aux Alarm (See Note)									
a.	Enable	—	O	—	—	—	—	—	—	
b.	Disable	—	●	—	—	—	—	—	—	*

Note: Switch must be closed when paper jam alarm mechanism is not present. Switch must be opened when 402920 paper jam alarm modification kit is present.

+++ Option 54.b. should not be used on a 40/2 KDP (SSI interface). The character after escape is already suppressed by the KD. This option is recommended on a 40/2 KD-ROP or a ROP (EIA interface).

(See Legend for ●, O, —, and * on Page 36.)

4.20 410072 Circuit Card (Printer Logic)



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

Fig. 118

410072 — 132-Column Printer Logic Circuit Card

17.	Printer Left Margin and Form Width	D-8									
		1	2	3	4	5	6	7	8	9	
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	—	—	○	●	●	○	—	—	—	

410072 — 132-Column Printer Logic Circuit Card

17.	Printer Right Margin and Form Width																											
	Last Char Printed	D-8									D-9								D-10									
	Column Number	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	
e.	132	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	●	●	●	○	—	○	○	—	—	—	—	*
f.(X)	121 109 97 85 73	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	●	●	●	●	—	●	—	—	—	—	—	
	122 110 98 86 74	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	●	●	○	●	—	●	●	—	—	—	—	
	123 111 99 87 75	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	●	●	●	○	—	●	●	—	—	—	—	
	124 112 100 88 76	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	●	●	●	●	—	○	●	—	—	—	—	
	125 113 101 89 77	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	●	●	○	●	—	○	●	—	—	—	—	
	126 114 102 90 78	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	●	●	●	○	—	○	●	—	—	—	—	
	127 115 103 91 79	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	●	●	●	●	—	●	○	—	—	—	—	
	128 116 104 92 80	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	●	●	○	●	—	●	○	—	—	—	—	
	129 117 105 93 81	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	●	●	●	○	—	●	○	—	—	—	—	
	130 118 106 94 82	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	●	●	●	●	—	○	○	—	—	—	—	
	131 119 107 95 83	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	●	●	○	●	—	○	○	—	—	—	—	
	120 108 96 84	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	●	●	●	○	—	○	○	—	—	—	—	

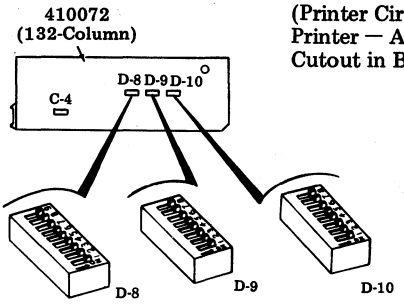
To obtain counts:

121 through 132 program as shown.
109 through 120 program as shown, then operate D-9 position 7 OFF.
97 through 108 program as shown, then operate D-9 position 8 OFF.
85 through 96 program as shown, then operate D-8 position 7 OFF.
73 through 84 program as shown, then operate D-8 position 8 OFF.

(X) Indicates desired column number.

(See Legend for ●, ○, —, and * on Page 36.)

410072 Circuit Card (Contd)



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

Fig. 119

18. Printer Paper Feedout	D-9 1	2	3	4	5	6	7	8	
a. No Paper Feedout	—	—	●	—	—	—	—	—	
b. Paper Feedout on DSR or RM Loss — 16 Lines or One Form	—	○	○	—	—	—	—	—	
c. Paper Feedout on DSR or RM Loss or ETX — 16 Lines or One Form	—	●	○	—	—	—	—	—	*

19. Printer Errored Character Symbol	D-10 1	2	3	4	5	6	7	8	D-8 1	2	3	4	5	6	7	8	9	
a. Printed on Even Parity Error	—	—	—	—	—	○	●	—	—	—	—	—	—	—	—	—	—	
b. Printed on Odd Parity Error	—	—	—	—	—	●	○	—	—	—	—	—	—	—	—	—	—	
c. Printed on Parity Error	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—	—	—	*
d. Printers With 96-Character Set	—	—	—	—	—	—	—	—	●	○	—	—	—	—	—	—	—	
e. Printers With 64-Character Set	—	—	—	—	—	—	—	—	○	●	—	—	—	—	—	—	—	
f. Printers With Extended ASCII Character Set	—	—	—	—	—	—	—	—	○	○	—	—	—	—	—	—	—	
g. Printers With Longest Character Set Having Less Than 64 Characters	—	—	—	—	—	—	—	—	○	○	—	—	—	—	—	—	—	

21. Foldover on Printers With 96-Character Set	D-9 1	2	3	4	5	6	7	8	
a. Lower Case and Upper Case	○	—	—	—	—	—	—	—	*
b. Lower Case Prints as Upper Case	●	—	—	—	—	—	—	—	

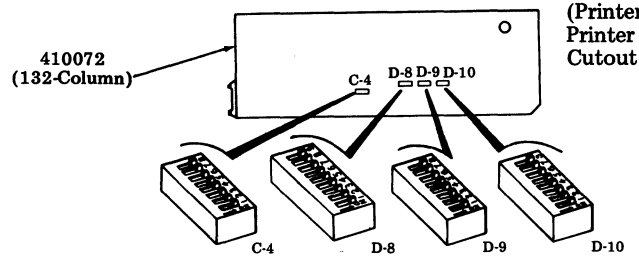
22. Foldover on Printers With 64-Character Set	D-9 1	2	3	4	5	6	7	8	
a. Lower Case Prints as Error Symbol	○	—	—	—	—	—	—	—	
b. Lower Case Prints as Upper Case	●	—	—	—	—	—	—	—	*

23. Extended ASCII on Printer (Extended ASCII)	D-10 1	2	3	4	5	6	7	8	
a. Prints Extended ASCII Characters (No Parity Check)	—	—	—	—	—	○	○	—	
b. Does Not Print Extended ASCII (See Option 19.a., b. or c.)	—	—	—	(As in 19.)		—	—	—	*

48. Incomplete Form Suppresses Paper Alarm	D-9 1	2	3	4	5	6	7	8	
a. No (Paper Out Not Gated With Formout)	—	—	—	●	—	—	—	—	
b. Yes (Paper Out Gated With Formout)	—	—	—	○	—	—	—	—	*

(See Legend for ●, ○, —, and * on Page 36.)

410072 Circuit Card (Contd)



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

Fig. 120

54.	Printing of Escape Sequences Suppressed	D-10								
		1	2	3	4	5	6	7	8	
a.	Character After ESC Printed as Received	—	—	—	—	—	—	—	○	*
b.	Printing of Character After ESC Suppressed (Not used in 40/2 KDP application.)	—	—	—	—	—	—	—	●	+++

55.	SI/SO Detection	D-10								
		1	2	3	4	5	6	7	8	
a.	SI/SO Detection Not Used	—	—	○	—	—	—	—	—	*
b.	SI/SO Detection Enables Printing Additional Characters	—	—	●	—	—	—	—	—	

57.	SSI/OEM Detection	D-8									
		1	2	3	4	5	6	7	8	9	
a.	SSI	—	—	—	—	—	—	—	—	●	*
b.	OEM †	—	—	—	—	—	—	—	—	○	

†An option screw change may be required on 410151 circuit card in power module. If Option 57.b. is selected, option screw B on 410151 must be installed from the component side.

58.	Idle Line Motor Control	D-9								
		1	2	3	4	5	6	7	8	
a.	Disabled — Motor Held On Indenfinitely During Idle Line	—	—	—	—	—	○	—	—	*
b.	Enabled — Motor Turned Off After 40-Second Idle Line	—	—	—	—	—	●	—	—	

59.	Speed Selection (Applies Only if Option 57.b. is Selected)	C-4								
		1	2	3	4	5	6	7	8	
a.	75 Baud	●	○	○	○	○	○	○	○	
b.	150 Baud	○	●	○	○	○	○	○	○	
c.	300 Baud	○	○	○	●	○	○	○	○	
d.	600 Baud	○	○	●	○	○	○	○	○	
e.	1200 Baud	○	○	○	○	○	○	●	○	
f.	2400 Baud	○	○	○	○	●	○	○	○	*
g.	4800 Baud	○	○	○	○	○	●	○	○	
h.	9600 Baud	○	○	○	○	○	○	○	●	

60.	Aux Alarm (See Note)	D-9								
		1	2	3	4	5	6	7	8	
a.	Enable	—	—	—	—	○	—	—	—	
b.	Disable	—	—	—	—	●	—	—	—	*

Note: Switch must be closed when paper jam alarm mechanism is not present. Switch must be opened when 402920 paper jam alarm modification kit is present.

+++Option 54.b. should not be used on a 40/2 KDP (SSI interface). The character after escape is already suppressed by the KD. This option is recommended on a 40/2 KD-ROP or a ROP (EIA interface).

(See Legend for ●, ○, —, and * on Page 36.)

4.21 410076 Circuit Card (Printer Logic)

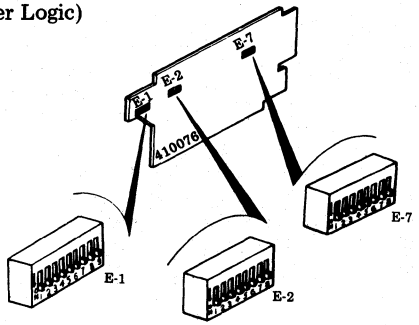


Fig. 121

410076 — 80-Column Printer Logic Circuit Card

17.	Printer Left Margin and Form Width	E-7								
		1	2	3	4	5	6	7	8	
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	—	—	○	●	●	○	—	—	

410076 — 80-Column Printer Logic Circuit Card

17.	Printer Right Margin and Form Width																										
	Last Char Printed Column Number	E-1									E-2								E-7								
		1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	
c.	80	—	—	—	—	○	●	—	●	○	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	*
d. (X)	73 61 49 37 25	—	—	—	—	●	●	—	●	●	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	
	74 62 50 38 26	—	—	—	—	●	●	—	●	○	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	
	75 63 51 39 27	—	—	—	—	●	●	—	○	●	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	
	76 64 52 40 28	—	—	—	—	●	○	—	●	●	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	
	77 65 53 41 29	—	—	—	—	●	○	—	●	○	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	
	78 66 54 42 30	—	—	—	—	●	○	—	○	●	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	
	79 67 55 43 31	—	—	—	—	○	●	—	●	●	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	
	68 56 44 32	—	—	—	—	○	●	—	●	○	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	
	69 57 45 33	—	—	—	—	○	●	—	○	●	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	
	70 58 46 34	—	—	—	—	○	○	—	●	●	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	
	71 59 47 35	—	—	—	—	○	○	—	●	○	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	
	72 60 48 36	—	—	—	—	○	○	—	○	●	—	—	—	—	—	—	●	●	●	●	—	—	—	—	—	—	—	

To obtain counts:

73 through 80 program as shown.
61 through 72 program as shown, then operate E-7 position 2 to OFF.
49 through 60 program as shown, then operate E-7 position 1 to OFF.
37 through 48 program as shown, then operate E-2 position 7 to OFF.
25 through 36 program as shown, then operate E-2 position 8 to OFF.

(X) Indicates desired column number.

(See Legend for ●, ○, —, and * on Page 36.)

410076 Circuit Card (Contd)

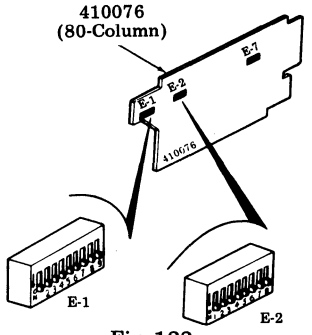


Fig. 122

18. Printer Paper Feedout	E-1									E-2								
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	
a. No Paper Feedout	●	–	–	–	–	–	–	–	–	–	–	–	–	–	O	–	–	
b. Paper Feedout on DSR or RM Loss – 16 Lines or One Form	O	–	–	–	–	–	–	–	–	–	–	–	–	–	O	–	–	
c. Paper Feedout on DSR or RM Loss or ETX – 16 Lines or One Form	O	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	*

19. Printer Errored Character Symbol	E-1									E-2								
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	
a. Printed on Even Parity Error	–	–	●	O	–	–	–	–	–	–	–	–	–	–	–	–	–	
b. Printed on Odd Parity Error	–	–	O	●	–	–	–	–	–	–	–	–	–	–	–	–	–	
c. Not Printed on Parity Error	–	–	●	●	–	–	–	–	–	–	–	–	–	–	–	–	–	*
d. Printers With 96-Character Set	–	–	–	–	–	–	–	–	–	–	–	–	O	●	–	–	–	
e. Printers With 64-Character Set	–	–	–	–	–	–	–	–	–	–	–	–	●	O	–	–	–	
f. Printers With Extended ASCII Character Set	–	–	–	–	–	–	–	–	–	–	–	–	O	O	–	–	–	
g. Printers With Longest Character Set Having Less Than 64 Characters	–	–	–	–	–	–	–	–	–	–	–	–	O	O	–	–	–	

21. Foldover on Up-Low Printer	E-2								
	1	2	3	4	5	6	7	8	
a. Lower Case and Upper Case Print	–	–	O	–	–	–	–	–	*
b. Lower Case Prints as Upper Case	–	–	●	–	–	–	–	–	

22. Foldover on Monocase Printer	E-2								
	1	2	3	4	5	6	7	8	
a. Lower Case Prints as Error Symbol	–	–	O	–	–	–	–	–	
b. Lower Case Prints as Upper Case	–	–	●	–	–	–	–	–	*

23. Extended ASCII on Printer (Extended ASCII)	E-1								
	1	2	3	4	5	6	7	8	9
a. Prints Extended ASCII Characters (No Parity Check)	–	–	O	O	–	–	–	–	–
b. Does Not Print Extended ASCII (See Option 19.a., b. or c.)	–	–	–	(As in 19.)	–	–	–	–	*

48. Incomplete Form Suppresses Paper Alarm	E-2								
	1	2	3	4	5	6	7	8	
a. No (Paper Out Not Gated With Formout)	–	●	–	–	–	–	–	–	
b. Yes (Paper Out Gated With Formout)	–	O	–	–	–	–	–	–	*

(See Legend for ●, O, –, and * on Page 36.)

410076 Circuit Card (Contd)

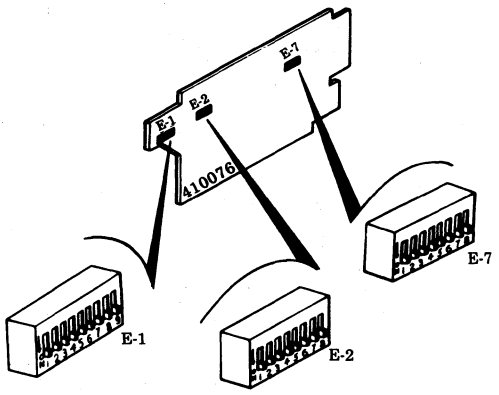


Fig. 123

54.	Printing of Escape Sequences Suppressed	E-1									
		1	2	3	4	5	6	7	8	9	
a.	Character After ESC Printed as Received	—	O	—	—	—	—	—	—	—	*
b.	Printing of Character After ESC Suppressed (Not used in 40/2 KDP application.)	—	●	—	—	—	—	—	—	—	+++

55.	Shift In/Shift Out Detection	E-1									
		1	2	3	4	5	6	7	8	9	
a.	SI/SO Detection Not Used	—	—	—	—	—	—	O	—	—	*
b.	SI/SO Detection Enables Printing Additional Characters	—	—	—	—	—	—	●	—	—	

56.	Friction Feed/Tractor Feed Printer	E-2								
		1	2	3	4	5	6	7	8	
a.	Friction Feed Printer — Motor Held On After Paper Alarm	O	—	—	—	—	—	—	—	*
b.	Tractor Feed Printer — Motor Turned Off After Paper Alarm	●	—	—	—	—	—	—	—	

57.	SSI/OEM Interface	E-7								
		1	2	3	4	5	6	7	8	
a.	SSI	—	—	—	—	—	—	●	—	*
b.	OEM	—	—	—	—	—	—	O	—	++

58.	Idle Line Motor Control	E-7								
		1	2	3	4	5	6	7	8	
a.	Disabled — Motor Held On Indefinitely During Idle Line	—	—	—	—	—	—	—	O	*
b.	Enabled — Motor Turned Off After 40-Second Idle Line	—	—	—	—	—	—	—	●	

++Requires use of 410085 OEM card and selection of Option 61.b. or 61.c.

+++Option 54.b. should not be used on a 40/2 KDP (SSI interface). The character after escape is already suppressed by the KD. This option is recommended on a 40/2 KD-ROP or a ROP (EIA interface).

(See Legend for ●, O, —, and * on Page 36.)

4.22 410151 Circuit Card (Located in Printer Module or Power Supply)

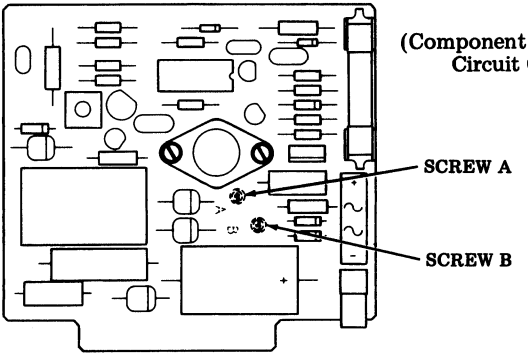


Fig. 124

61. Regulator Grounding		Screw A		Screw B		
		Component	Noncomponent	Component	Noncomponent	
a.	SSI (CKT and Fr Gnd at PTR)	In	—	—	In	
b.	SSI/OEM (CKT and Fr Gnd at PTR, +12 V)	In	—	In	—	*
c.	OEM (CKT Gnd EXT to PTR, +12 V)	—	In	In	—	

4.23 410085 Circuit Card (OEM)

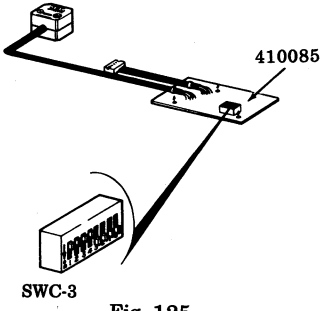


Fig. 125

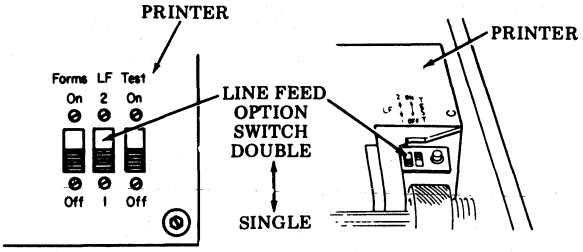
59. Speed Selection (Applies Only if Option 57.b. is Selected)		SWC-3							
		1	2	3	4	5	6	7	8
a.	75 Baud	●	O	O	O	O	O	O	O
b.	150 Baud	O	●	O	O	O	O	O	O
c.	300 Baud	O	O	O	O	O	O	O	●
d.	600 Baud	O	O	●	O	O	O	O	O
e.	1200 Baud	O	O	O	O	O	●	O	O
f.	2400 Baud	O	O	O	●	O	O	O	O *
g.	4800 Baud	O	O	O	O	●	O	O	O
h.	9600 Baud	O	O	O	O	O	O	●	O

Note: The 410085 circuit card (part of 346745 modification kit) is mounted on the 410076 printer logic circuit card in OEM applications. (The installation specification for 346745 modification kit is 50906S.)

(See Legend for ●, O, —, and * on Page 36.)

4.24 Line Feed Switch (on Printer)

20.	Line Feed on 80-Column Printer (See adjacent figure.)
a.	Single
b.	Double



80-Column Tractor Feed

80-Column Friction Feed

Fig. 126

20.	Line Feed on 132-Column Printer (See figure below.)
a.	Single
b.	Double

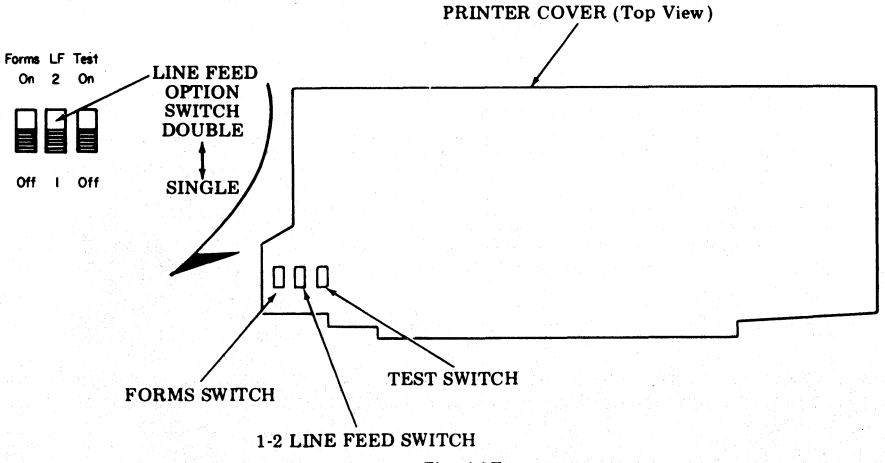


Fig. 127

4.25 Form Switch (on Printer)

Forms Switch (Under Tractor Feed Printer Cover)
(80-Column Printer)

39. Forms (Tractor Feed Printer Only)	
a.	On
b.	Off *

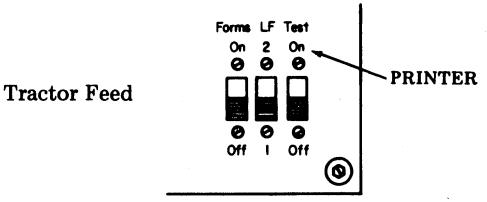


Fig. 128

Forms Switch (132-Column Printer)

39. Forms	
a.	On
b.	Off *

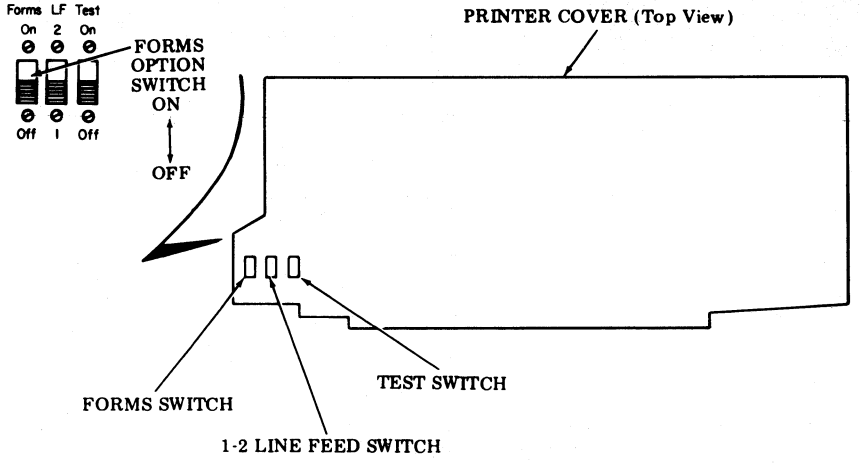
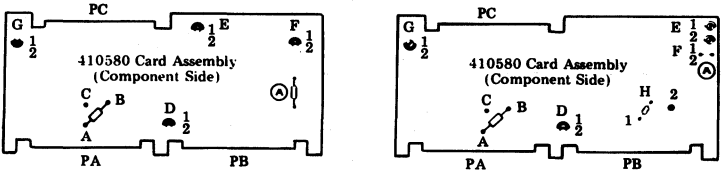


Fig. 129

*Factory Installed Option

4.26 Controller Options (ROP)

410580 Circuit Card (EIA Interface) Card Position JC in ROP 40C103/ — Controller



Early Issue 7A Late Issue 7B

Fig. 130

3. EIA/Send/Receive Data Baud Rate		Insulator D Position	Insulator E Position	
a.	1050	1	2	
b.	1200	1	1	*

24. Odd/Even Character Parity Check		Strap Condition	
a.	Even Vertical Parity (Response for Odd Parity)	Strap A to B	*
b.	Odd Vertical Parity (Response for Even Parity)	Strap A to C	

25. Response to Receiving Parity Error		Insulator F Position	Strap Ⓐ Condition	
a.	Printer Receives Odd Parity Null (1-7 Bits Spacing, 8 Bit Marking)	2	—	
b.	Printer Receives Character Even Though it has Parity Error.	1	—	*
c.	DATA ERROR Key Lights.	—	Removed	
d.	DATA ERROR Key Does Not Light.	—	Installed	*

35. Printer Motor Control (See Note 1)		Strap Condition	
a.	"Data Set Ready" Controls Printer Motor	Strap H to 1	*
b.	"Carrier Detect" Controls Printer Motor (See Note 2)	Strap H to 2	

Note 1: H strap location is on component side at coordinates D-11. Strap H position present only on Issue 7B (and higher) 410580 circuit card.

Note 2: Normally used on private line applications.

*Factory Installed Option

410580 Circuit Card (Contd)

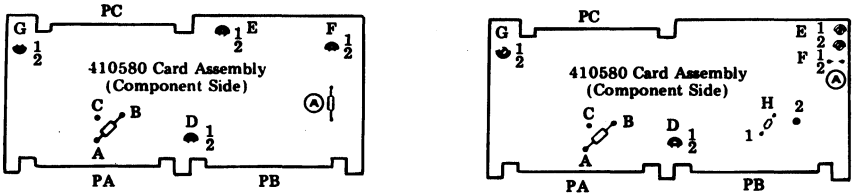


Fig. 131

36. Printer Paper Alarm		Insulator G Position	
a.	Paper Alarm Affects "Data Terminal Ready" at End of Call. DTR Held Off Until Paper is Restored.	2	*
b.	Paper Alarm Affects "Data Terminal Ready" Immediately. DTR Held Off Until Paper is Restored.	1	

4.28 410582 Circuit Card (SSI I/O) — Card Position JA in ROP 40C103/ — Controller

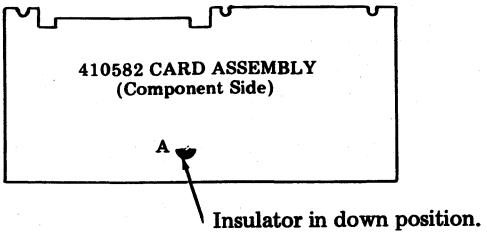


Fig. 132

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

Note 1: When using a 40C103/AE ROP controller (without a buffer) Option 38.a. is to be enabled. Select Option 38.b. when using 40C103/AD (with buffer).

Note 2: The following strapping is required on Issue 1 of the 410587 circuit card used in 40C103/AE. Issue 2A of the 410587 circuit card has these straps incorporated in the board layout.

PC — Pin 20 to MLB1 Pin 1
MLB1 Pin 2 to MLB1 Pin 3
MLB1 Pin 4 to MLA1 Pin 2
(Connector PC-22)

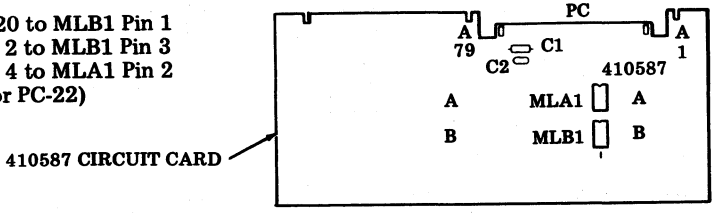


Fig. 133

*Factory Installed Option

403400 MODIFICATION KIT OPTIONS (Attendant Selectable Features)

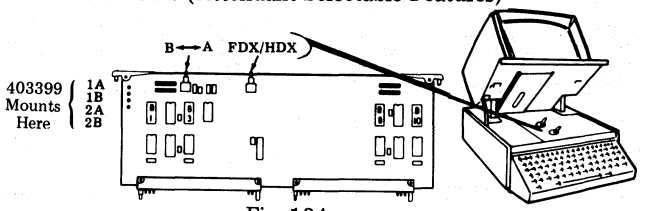


Fig. 134

410680 Circuit Card (In Position 09 of Display Logic)

		Switch Position "B"															Switch Position "A"															
		B-1								B-8								B-3								B-10							
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
4. EIA Reverse Channel	4.																	4.															
Requires Reverse Channel to Send (202)	a.	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	a.	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ignore Reverse Channel to Send (202 or 103)	b.	○	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	b.	○	–	–	–	–	–	–	–	–	–	–	–	–	–	– *
41. Mode of Operation	41.																	41.															
Half Duplex } See Notes 1 and 2.	a.	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	a.	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–
Full Duplex }	b.	–	○	–	–	–	–	–	–	–	–	–	–	–	–	–	–	b.	–	○	–	–	–	–	–	–	–	–	–	–	–	–	– *
42. Parity Generation	42.																	42.															
Send Even Parity	a.	–	–	○	●	–	○	–	–	–	–	–	–	–	–	–	–	a.	–	–	○	●	–	○	–	–	–	–	–	–	–	–	–	– *
Send Odd Parity	b.	–	–	●	●	–	○	–	–	–	–	–	–	–	–	–	–	b.	–	–	●	●	–	○	–	–	–	–	–	–	–	–	–	–
Send 8th Bit as Mark	c.	–	–	○	○	–	○	–	–	–	–	–	–	–	–	–	–	c.	–	–	○	○	–	○	–	–	–	–	–	–	–	–	–	–
Send 8th Bit as Space	d.	–	–	○	○	–	●	–	–	–	–	–	–	–	–	–	–	d.	–	–	○	○	–	●	–	–	–	–	–	–	–	–	–	–
43. Stop Bit Generation	43.																	43.															
Send One Stop Bit	a.	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	–	a.	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	– *
Send Two Stop Bits	b.	–	–	–	–	○	–	–	–	–	–	–	–	–	–	–	–	b.	–	–	–	–	○	–	–	–	–	–	–	–	–	–	–	–
44. EIA Received Data	44.																	44.															
Enable EIA Receive Data	a.	–	–	–	–	–	–	●	–	–	–	–	–	–	–	–	–	a.	–	–	–	–	–	–	●	–	–	–	–	–	–	–	–	– *
Disable EIA Receive Data	b.	–	–	–	–	–	–	○	–	–	–	–	–	–	–	–	–	b.	–	–	–	–	–	–	○	–	–	–	–	–	–	–	–	–
45. Current Loop Data	45.																	45.															
Enable Receive Data From Current Loop	a.	–	–	–	–	–	–	–	●	–	–	–	–	–	–	–	–	a.	–	–	–	–	–	–	–	●	–	–	–	–	–	–	–
Disable Receive Data From Current Loop	b.	–	–	–	–	–	–	–	○	–	–	–	–	–	–	–	–	b.	–	–	–	–	–	–	–	○	–	–	–	–	–	–	– *
46. Interface Sheet	46.																	46.															
103-Type Modem or 20/60 mA Loop	a.	–	–	–	–	–	–	–	–	○	–	–	–	–	–	–	–	a.	–	–	–	–	–	–	–	–	○	–	–	–	–	–	–	–
202-Type Modem Interface	b.	–	–	–	–	–	–	–	–	●	–	–	–	–	–	–	–	b.	–	–	–	–	–	–	–	–	●	–	–	–	–	–	–	– *
3. EIA S/R Data Baud Rate	3.																	3.															
110 Baud	j.	–	–	–	–	–	–	–	–	–	●	●	●	○	●	○	●	j.	–	–	–	–	–	–	–	–	–	●	●	●	○	●	○	●
150 Baud	i.	–	–	–	–	–	–	–	–	–	●	●	●	●	●	●	○	i.	–	–	–	–	–	–	–	–	–	●	●	●	●	●	●	○
300 Baud	h.	–	–	–	–	–	–	–	–	–	●	●	●	●	●	○	○	h.	–	–	–	–	–	–	–	–	–	●	●	●	●	●	○	○
600 Baud	g.	–	–	–	–	–	–	–	–	–	●	●	●	○	○	○	○	g.	–	–	–	–	–	–	–	–	–	●	●	●	●	○	○	○
1200 Baud	b.	–	–	–	–	–	–	–	–	–	●	●	●	○	○	○	○	b.	–	–	–	–	–	–	–	–	–	●	●	●	○	○	○	○ *
2400 Baud	c.	–	–	–	–	–	–	–	–	–	●	●	○	○	○	○	○	c.	–	–	–	–	–	–	–	–	–	●	●	○	○	○	○	○
4800 Baud	f.	–	–	–	–	–	–	–	–	–	●	○	○	○	○	○	○	f.	–	–	–	–	–	–	–	–	–	●	○	○	○	○	○	○
9600 Baud	k.	–	–	–	–	–	–	–	–	–	○	○	○	○	○	○	○	k.	–	–	–	–	–	–	–	–	–	○	○	○	○	○	○	○

410679 Circuit Card of 40C204 Controller	A-17 1	2	3	4	
Clock Divide	–	–	●	–	See Note 3.

(See Legend on Page 36.)

Note 1: When the 403400 modification kit is used, this option may be optioned one of two ways:

(a) When the A/B switch is to be used to determine FDX or HDX operation, the attendant selectable FDX/HDX switch must be in "HDX" position.

(b) When the HDX/FDX switch is to be used to determine FDX or HDX operation, then switch B1-2 and B3-2 must both have the dot end of the rocker switch depressed (closed position).

Note 2: When the 403399 and 403400 modification kits are used, the station is optioned as follows:

(a) When the A/B switch (on pedestal door) is to control half- and full duplex operation, the HDX/FDX switch (on 410680 card) must be permanently positioned to HDX. The H/F switch (on pedestal door) operation is then ignored by the circuit logic (the switch is dead).

(b) When the H/F switch (on pedestal door) is to control half- and full duplex operation, both miniature switches B1-2 and B3-2 (on 410680 card) must have the dot end of each rocker switch depressed (closed position). The FDX/HDX switch (on 410680 card) must be permanently positioned to FDX.

(c) The OPTION A/OPTION B switch (on 410680 card) must be permanently positioned to OPTION B.

Note 3: To use the 403400 modification kit, the switch (A17-3) on 410679 circuit card must have the dot end of the rocker switch depressed.

STATION FEATURES AND OPTIONS RECORD

4.29 The Station Features and Options Record provides a means by which the options and special features in the DATASPEED 40/2 can be recorded and kept with the station for later servicing or maintenance purposes. The Station Features and Options Record is contained in the wiring plan W-4D1XB, and should be left with the station after the options have been recorded in pencil.

DATA SET OPTIONS

4.30 The following data sets are used in the DATASPEED 40/2. The Table associated with each data set lists the options for that data set.

DATA SET	MAXIMUM BAUD RATE	TABLE	PAGE NUMBER
103G	300	B	72
103J	300	C	73
103JR	300	C	73
108F	300	D	74
108G	300	D	74
113A	300	E	76
113C	300	F	78
113CR	300	F	78
113D	300	G	79
113DR	300	G	79
201C	2400	H	80
201C-LIC	2400	I	82
201CR-LIC	1200	I	82
202C	1200	J	83
202R	1200	K	85
202S-LI or LIA	1200	L	86
202S-LIC	1200	M	88
202SR-LIC	1200	M	88
202T-LI	1800	N	89
202T-LIA	1800	O	90
208A	4800	P	92
208B	4800	Q	93
208BR	4800	Q	93
212A-LI	1200	R	94
212A-LIA	1200	S	95
212AR-LIA	1200	S	95

TABLE B

DATA SET 103G OPTIONS

FEATURE OR OPTION		DESIG	CP NO.	SCREW SETTING	
				LOOSEN	TIGHTEN
Answer mode indication	CE ON	X*	CJ9 or CJ14	1	2
	CE OFF	W†		2	1
Space disconnect	LONG	V*†	CJ10	3	8
	SHORT	H			3 and 8
	NONE	W/O V, H		3 and 8	
Send disconnect	YES	T*	CJ10		1
	NO	W/O T		1	
Loss of carrier disconnect	YES	S	CJ10		4
	NO	W/O S*†		4	
Common grounds	YES	Q*†	CJ9 or CJ14		10
	NO	W/O Q		10	
Originate only test	YES	G	CJ10		12
	NO	W/O G*		12	
ANS/ORG transfer	WITHOUT	N*†	CJ10		10
	WITH	W/O N		10	
Answer Control	COMBINED	M*†	CJ9		9
	SEPARATE	W/O M		9	
CB and CF indications	COMMON	A†	CJ9 or CJ14	5 and 7	4 and 6
	SEPARATE	B*		4 and 6	5 and 7
CC Indication Early	YES	ZD	CJ14		12
	NO	W/O ZD*		12	

*Factory furnished options.
†Service equivalent to 103A.

TABLE C

DATA SET 103J and 103JR OPTIONS

FEATURE		OPTION	FACTORY FURNISHED OPTION	SWITCH SETTING S2 SWITCH ON CM1 CONTACT SETTING 1	2	3	4	5	6	7
Receive Space Disconnect	YES	V	√	—	—	O	—	—	—	—
	NO	Y		—	—	X	—	—	—	—
Send Space Disconnect	YES	T	√	X	—	—	—	—	—	—
	NO	U		O	—	—	—	—	—	—
Loss of Carrier Disconnect	YES	S	√	—	—	—	O	—	—	—
	NO	R		—	—	—	X	—	—	—
CC Indication	EARLY	ZD	√	—	—	—	—	—	—	O
	DELAYED	ZC		—	—	—	—	—	—	X
CB and CF Indications	COMMON	A	√	—	X	—	—	—	—	—
	SEPARATE	B		—	O	—	—	—	—	—
CC Indication for Analog Loop	ON	ZF	√	—	—	—	—	O	—	—
	OFF	ZE		—	—	—	—	X	—	—
Automatic Answer	YES	ZH	√	—	—	—	—	—	O	—
	NO	ZG		—	—	—	—	—	X	—
				S3 SWITCH ON CP1 CONTACT SETTING 1	2	3	4	5	6	7
Fail Safe State of CN Circuit	ON	K		—	X	—	—	—	—	—
	OFF	J	√	—	O	—	—	—	—	—
Common Ringer	YES	ZB*		X	—	—	—	—	—	—
	NO	ZA†	√	O	—	—	—	—	—	—
Tip-Ring Make Busy	YES	F		—	—	X	—	—	—	—
	NO	E	√	—	—	O	—	—	—	—
Contact to Ground Make Busy Floating Contact Make Busy	For use with 40A-type data mounting			Not available when option ZB is used						
Common Grounds	YES	Q	√	Close S1 screw switch on 47C1 DM						
	NO	P		Open S1 screw switch on 47C1 DM						

X = Contact closed O = Contact open — = Contact not applicable

* Strap C to B on CP1. † = Strap C to A on CP1.

TABLE D

DATA SET 108F OR G OPTIONS

FEATURE		OPTION	SWITCH SETTING (S1-)	
			OPEN	CLOSED
Facility	4-Wire	Z	4	3
	2-Wire	Y*	3	4
Mark or Space Hold	Mark	U*	2	1
	Space	V	1	2
			SWITCH SETTING (S2-)	
CB Internally Connected to	None	E	5,6	—
	RS	W	6	5
	CA	X*	7	6
Carrier Control	Via CA	D	2,4,6	7
	Via RS	T	2,7	4
	Always on in Data Mode	S*	4,7	2
	Always off in Data Mode	H	2,4,7	—
Remote Test Connection via J1	Yes	P	—	1
	No	N*	1	—
Local Copy in Test Mode	Yes	G	—	3
	No	F*	3	—
			OPTION STRAP	
Receiver dB Gain Reduction	6	K*	E2—E3	
	0	J	E1—E2	
			SCR SWITCH (S4-)	
Ground Wire (GRD) Connected to Signal Ground (SG)	Yes	M*	—	B
	No	L	B	—
Resistor Bypass for Negative Voltage (-P) on J1	Yes	R	—	A
	No	Q*	A	—

* Factory furnished option.

TABLE E

DS 108F OR G TRANSMIT LEVEL SETTING

TRANSMIT LEVEL (IN dBm)	SWITCH SETTING (S1 –)	
	OPEN	CLOSED
–1	5, 6, 7, 8	–
–3	5, 7, 8	6
–5	5, 6, 8	7
–7	5, 6, 7	8
–9*	6, 7, 8	5
–11	7, 8	5, 6
–13	6, 8	5, 7
–15	6, 7	5, 8

* Factory furnished option.

TABLE F

WIRE CONNECTIONS TO IMPLEMENT DATA SET 113A — L1(A)/2 OPTIONS

STEP	COLOR CODE	CONNECT	DISCONNECT	FROM	TO
Option X — Data Lamp and CD Lead Control (Factory Provided)					
1	Strap		√	APP Unit — Term. L1	ER1 CP — Term. E6
2	SL	√		Data Key — Term. 2	ER1 CP — Term. E6
3	R-3W	√		HH1 CP — Term. 10	ER1 CP — Term. E6
4	BR	√		Data Key — Term. 1	APP Unit — Term. L1
5	G-3R	√		HH1 CP — Term. 11	APP Unit — Term. L1
6	Strap		√	Lamp Strip — Term. HL	HH1 CP — Term. 7
7	W	√		Test Key — Term. 4	HH1 CP — Term. 7
8	0-3W	√		ER1 CP — Term. E14	HH1 CP — Term. 8
9	BL-3W	√		ER1 CP — Term. E1	HH1 CP — Term. 9
10	R (Note 1)	√		D4BJ-61 Cord	HH1 CP — Term. 1
11	Y	√		D4BJ-61 Cord	One side of 2012B Trans.
12	BK	√		D4BJ-61 Cord	Other side of 2012B Trans.
Option V — Data Lamp and Disabled CD Lead Control					
1	Strap		√	APP Unit — Term. L1	ER1 CP — Term. E6
2	G-3R	√		HH1 CP — Term. 11	APP Unit — Term. L1
3	BR	√		Data Key — Term. 1	APP Unit — Term. L1
4	R-3W	√		HH1 CP — Term. 10	ER1 CP — Term. E6
5	SL	√		Data Key — Term. 2	ER1 CP — Term. E6
6	W (Note 2)		√	HH1 CP — Term. 7	Test Key — Term. 4
7	Strap	√		Lamp Strip — Term. HL	HH1 CP — Term. 7
8	0-3W	√		ER1 CP — Term. E14	HH1 CP — Term. 8
9	BL-3W	√		ER1 CP — Term. 1	HH1 CP — Term. 9
10	R (Note 1)	√		D4BJ-61 Cord	HH1 CP — Term. 1

TABLE F (Contd)

WIRE CONNECTIONS TO IMPLEMENT DATA SET 113A — L1(A)/2 OPTIONS

STEP	COLOR CODE	CONNECT	DISCONNECT	FROM	TO
Option V — Data Lamp and Disabled CD Lead Control (Cont)					
11	Y	√		D4BJ-61 Cord	One side of 2012B Trans.
12	BK	√		D4BJ-61 Cord	Other side of 2012B Trans.
Option W — Disabled Data Lamp and Disabled CD Lead Control					
1	Y		√	D4BJ-61 Cord	One side of 2012B Trans.
2	BK		√	D4BJ-61 Cord	Other side of 2012B Trans.
3	G-3R (Note 3)		√	APP Unit — Term. L1	HH1 CP — Term. 11
4	BR (Note 3)		√	APP Unit — Term. L1	Data Key — Term. 1
5	SL (Note 4)		√	ER1 CP — Term. E6	Data Key — Term. 2
6	R-3W (Note 4)		√	ER1 CP — Term. E6	HH1 CP — Term. 10
7	R		√	D4BJ-61 Cord	HH1 CP — Term. 1
8	R	√		D4BJ-61 Cord	ER1 CP — Term. E6
9	Strap	√		APP Unit — Term. L1	ER1 CP — Term. E6
10	0-3W (Note 5)		√	HH1 CP — Term. 8	ER1 CP — Term. E14
11	BL-3W (Note 6)		√	HH1 CP — Term. 9	ER1 CP — Term. E1
12	Strap		√	Lamp Strip — Term. HL	HH1 CP — Term. 7
13	W	√		Test Key — Term. 4	HH1 CP — Term. 7

Note 1: If Option W is presently in data set, R wire must be disconnected from ER1 CP — Terminal E6.

Note 2: Disconnect from HH1 CP — Terminal 7; tape, and store.

Note 3: Disconnect from APP Unit — Terminal L1; tape, and store.

Note 4: Disconnect from ER1 CP — Terminal E6; tape, and store.

Note 5: Disconnect from HH1 CP - Terminal 8; tape, and store.

Note 6: Disconnect from HH1 CP — Terminal 9; tape, and store.

TABLE G

DATA SET 113C and 113CR OPTIONS

FEATURE		OPTION	FACTORY FURNISHED OPTION	SWITCH SETTING S2 SWITCH ON CM1 CONTACT SETTING						
				1	2	3	4	5	6	7
Receive Space Disconnect	YES	V	√	—	—	—	—	O	—	—
	NO	Y		—	—	—	—	X	—	—
Send Space Disconnect	YES	T	√	—	—	—	—	—	X	—
	NO	U		—	—	—	—	—	O	—
Loss of Carrier Disconnect	YES	S	√	—	O	—	—	—	—	—
	NO	R		—	X	—	—	—	—	—
CC Indication	EARLY	ZD	√	X	—	—	—	—	—	—
	DELAYED	ZC		O	—	—	—	—	—	—
CB and CF Indications	COMMON	A	√	—	—	—	X	—	—	—
	SEPARATE	B		—	—	—	O	—	—	—
CC Indication for Analog Loop	ON	ZF	√	—	—	O	—	—	—	—
	OFF	ZE		—	—	X	—	—	—	—
Common Grounds	YES	Q	√	Close S1 screw switch on 47F1 DM						
	NO	P		Open S1 screw switch on 47F1 DM						

X = Contact closed O = Contact open — = Contact not applicable

TABLE H

DATA SET 113D AND 113DR OPTIONS

FEATURE		OPTION	FACTORY FURNISHED OPTION	SWITCH SETTING S2 SWITCH CONTACT SETTING						
				1	2	3	4	5	6	7
Receive Space Disconnect	YES	V	√	—	—	O	—	—	—	—
	NO	Y		—	—	X	—	—	—	—
Send Space Disconnect	YES	T	√	—	—	—	—	—	—	X
	NO	U		—	—	—	—	—	—	O
Loss of Carrier Disconnect	YES	S	√	—	—	—	—	O	—	—
	NO	R		—	—	—	—	X	—	—
CB and CF Indications	COMMON	A	√	—	X	—	—	—	—	—
	SEPARATE	B		—	O	—	—	—	—	—
CC Indication for Analog Loop	ON	ZF	√	—	—	—	O	—	—	—
	OFF	ZE		—	—	—	X	—	—	—
Automatic Answer	YES	ZH	√	—	—	—	—	—	O	—
	NO	ZG		—	—	—	—	—	X	—
Fail Safe State of CN Circuit	ON	K		X	—	—	—	—	—	—
	OFF	J	√	O	—	—	—	—	—	—
				S3 SWITCH CONTACT SETTING						
Tip-Ring Make Busy	YES	F		X	—					
	NO	E	√	O	—					
Contact to Ground Make Busy Floating Contact Make Busy	For use with 40A-type data mounting			Not available when option ZB is used						
Common Grounds	YES	Q	√	Close S1 screw switch on 47E1 DM						
	NO	P		Open S1 screw switch on 47E1 DM						

X = Contact closed O = Contact open — = Contact not applicable

TABLE I

DATA SET 201C-OPTIONS

FEATURE	OPTION			STRAPPING ON ANALOG BOARD (CP JB1)		STRAPPING ON DIGITAL BOARD (CP JB2)		PROVIDE
				INSTALL RED STRAPS	REMOVE RED STRAPS	INSTALL RED STRAPS	REMOVE RED STRAPS	
Transmit Line Signal Level	0 dBm	For Private Line	ZA	27-28, 29-30, 31-32, 33-34	19-20, 21-22, 23-24, 25-26			One Per Set
	−1 dBm	For Switched Network	ZB	19-20, 29-30, 31-32, 33-34	27-28, 21-22, 23-24, 25-26			
	−2 dBm		ZC	27-28, 21-22, 31-32, 33-34	19-20, 29-30, 23-24, 25-26			
	−3 dBm		ZD	19-20, 21-22, 31-32, 33-34	27-28, 29-30, 23-24, 25-26			
	−4 dBm		ZE	27-28, 29-30, 23-24, 33-34	19-20, 21-22, 31-32, 25-26			
	−5 dBm		ZF	19-20, 29-30, 23-24, 33-34	27-28, 21-22, 31-32, 25-26			
	−6 dBm		ZG	27-28, 21-22, 23-24, 33-34	19-20, 29-30, 31-32, 25-26			
	−7 dBm		ZH	19-20, 21-22, 23-24, 33-34	27-28, 29-30, 31-32, 25-26			
	−8 dBm		ZI	27-28, 29-30, 31-32, 25-26	19-20, 21-22, 23-24, 33-34			
	−9 dBm		ZJ	19-20, 29-30, 31-32, 25-26	27-28, 21-22, 23-24, 33-34			
	−10 dBm		ZK	27-28, 21-22, 31-32, 25-26	19-20, 29-30, 23-24, 33-34			
	−11 dBm		ZL	19-20, 21-22, 31-32, 25-26	27-28, 29-30, 23-24, 33-34			
	−12 dBm		ZM	27-28, 29-30, 23-24, 25-26	19-20, 21-22, 31-32, 33-34			
	−13 dBm		ZN	19-20, 29-30, 23-24, 25-26	27-28, 21-22, 31-32, 33-34			
	−14 dBm		ZO	27-28, 21-22, 23-24, 25-26	19-20, 29-30, 31-32, 33-34			
	−15 dBm		ZP	19-20, 21-22, 23-24, 25-26	27-28, 29-30, 31-32, 33-34			
Line Impedance	600 ohms		ZQ	16-17	17-18			One Per Set
	900 ohms		ZR	17-18	16-17			
Compromise Equalizer (Note 2)	In		ZS	8-9, 11-12	9-10, 12-13			One Per Set
	Out		ZT	9-10, 12-13	8-9, 11-12			
Carrier On Sensitivity	−24 dBm for Private Line		ZU		1-2			One Per Set
	−44 dBm for Switched Network		ZV	1-2				
New Sync	Not Used		YA			20-21	19-20	One Per Set
	Under Customer Control		YB			19-20	20-21	
Transmitter Timing	Internal		YC				13-14	One Per Set
	External		YD			13-14		
Automatic Answer	Not Provided or Provided Under Control of Customer Interface Circuits RDY and DTR		YE				17-18	One Per Set
	Provided Under Control of DTR Only		YF			17-18		
Ring Indication on Customer Interface	EIA Interface on Terminal 22		YG			22-24	22-23	One Per Set
	Contact Interface Between Terminals 22 and 23		YH			22-23	22-24	

FEATURE	OPTION			STRAPPING ON ANALOG BOARD (CP JB1)		STRAPPING ON DIGITAL BOARD (CP JB2)		PROVIDE
				INSTALL RED STRAPS	REMOVE RED STRAPS	INSTALL RED STRAPS	REMOVE RED STRAPS	
External Control of DSR	Yes		YI				15-16	One Per Set
	No		YJ			15-16		
Grounding	Signal Ground Connected to Frame Ground		YK			25-26		One Per Set
	Signal Ground Not Connected to Frame Ground		YL				25-26	
Type of Operation and Clear-to-Send Delay	4-Wire Private Line	Switched Carrier, 7-ms CS Delay	XA	35-36	4-5	1-3, 4-6, 28-29, 11-12	2-3, 5-6, 27-28, 133-134	One Per Set
		Continuous Carrier, 7-ms CS Delay	XB	35-36	4-5	1-3, 5-6, 28-29, 11-12	2-3, 4-6, 27-28, 133-134	
		Continuous Carrier, 0-ms CS Delay	XC	35-36	4-5	2-3, 5-6, 28-29, 11-12	1-3, 4-6, 27-28, 133-134	
	2-Wire Switched Network	Switched Carrier, 150-ms CS Delay	XD	4-5	35-36	1-3, 4-6, 27-28	2-3, 5-6, 11-12, 28-29, 133-134	
	2-Wire Private Line	Switched Carrier, 150-ms CS Delay	XE	4-5, 35-36		1-3, 4-6, 11-12, 133-134	2-3, 5-6, 27-28, 28-29	

Note 1: DO NOT REMOVE ANY BLACK TEST STRAPS.

Note 2: Use Option ZS for all installations.

TABLE J
DATA SET 201C-L1C AND 201CR-L1C OPTIONS

FEATURE		OPTION	LINE CONTROL BOARD (TP1) STRAP IN (VERTICAL)	LINE CONTROL BOARD (TP1) STRAP OUT (HORIZONTAL)	PROVIDE
Transmit Line Signal Level	0 dBm	ZA		1, 2, 4, 8	One Per Station
	−1 dBm	ZB	1	2, 4, 8	
	−2 dBm	ZC	2	1, 4, 8	
	−3 dBm	ZD	1, 2	4, 8	
	−4 dBm	ZE	4	1, 2, 8	
	−5 dBm	ZF	1, 4	2, 8	
	−6 dBm	ZG	2, 4	1, 8	
	−7 dBm	ZH	1, 2, 4	8	
	−8 dBm	ZI	8	1, 2, 4	
	−9 dBm	ZJ*	1, 8	2, 4	
	−10 dBm	ZK	2, 8	1, 4	
	−11 dBm	ZL	1, 2, 8	4	
	−12 dBm	ZM	4, 8	1, 2	
	−13 dBm	ZN	1, 4, 8	2	
	−14 dBm	ZO	2, 4, 8	1	
	−15 dBm	ZP	1, 2, 4, 8		

FEATURE		OPTION	SWITCH SETTING 1	2	3	4	5	6	7	8	DIGITAL BOARD (JB4)	PROVIDE
Transmitter Timing	INTERNAL	YC*					X					One Per Station
	EXTERNAL	YD					O					
Automatic Answer	RDY & DTR CONTROLLED OR NOT PROVIDED	YE								O		One Per Station
	DTR CONTROLLED ONLY	YF*								X		
Grounding Option	SIGNAL GRD CONNECTED TO FRAME GRD	YK*									Install E1-E1	
	SIGNAL GRD NOT CONNECTED TO FRAME GRD	YL									Remove E1-E2	
Function of EIA Interface Pin 18	INITIATES LOCAL ANALOG LOOPBACK	YS				X					Install E3-E4	One Per Station
	PROVIDES RECEIVE SYMBOL CLOCK	YT*				O					Install E4-E5	
Cont Receiver Bit Clock	IN	YO							O			One Per Station
	OUT	YP*							X			
Satellite Option	IN	YQ*			X							One Per Station
	OUT	YR			O							

* Factory-furnished option

X - Closed

O = Open

TABLE K

DATA SET 202C OPTIONS AND CONNECTIONS

FEATURE OR OPTION			WIRING OPTION	STRAP TERMINALS ON TB2	PROVIDE
Automatic Answering Feature	Key Controlled (Voltage Interface)		ZE	48-49	1 Per Station (Note 1)
	Permanent (Voltage Interface)		Q*	59-60	
	Key Controlled (Contact Interface)		ZC	49-50	
	Permanent (Contact Interface)		ZD	50-51	
	Not Provided		—	Remove ZE, Q, ZC, and ZD wiring.	
Bit Rate	900 or less bps		ZA	14-15	1 Per Station (Note 2)
	Greater than 900 bps		ZB*	15-16	
Amplitude Equalizer		IN	F*	18-19	1 Per Station
		OUT	E	17-18	
Delay Equalizer		IN	B*	61-62, 64-65	1 Per Station
		OUT	A	62-63, 63-64	
Interface	Voltage (EIA)		N*	1-2, 4-5, 6-7, 8-9	1 Per Station
	Contact		M	2-3, 5-6, 9-10, 12-13	
Squelch		IN	R*	46-47	1 Per Station
		OUT	ZM†	47-55 (Remove R wiring.)	
Demodulator Clamp		ON	V*	20-21	1 Per Station
		OFF	U	21-22	
2-Wire Operation			Z*	~~27-28~~, ~~31-32~~, ~~33-34~~, ~~35-36~~, 38-39, 41-42, 53-54, 56-57	1 Per Station (Note 3)
4-Wire Operation			Y	30-31, 36-37, 37-38, 40-41, 54-55, 57-58	
Termination	600-ohm		X	44-45	1 Per Station
	900-ohm		W*	43-44	
Data Transmit Levels	0 dBm		K	11-12	1 Per Station (Note 4)
	−3 dBm		J	24-25	
	−6 dBm		H*	22-23	
	−9 dBm		G	23-24	

*Factory-furnished option.
†Wiring furnished by installer.

TABLE K (Contd)

DATA SET 202C OPTIONS AND CONNECTIONS

FEATURE OR OPTION		WIRING OPTION	STRAP TERMINALS		PROVIDE
			TERMINAL NUMBERS	TERMINAL BOARD	
Reverse Channel	IN	T	1-2, 6-7	TB3	1 Per Station (Note 5)
	OUT	S	2-3, 7-8		
Reverse-Channel Transmit Level	−3 dBm	ZF	White lead to 1	TB4	1 Per Station (Note 4)
	−6 dBm	ZG*	White lead to 2	TB4	
	−9 dBm	ZH	White lead to 3	TB4	
801-Type ACU	Provided	ZJ	19-23 (Note 6)	TB1	1 Per Station
	Not Provided	—	17-20	TB1	
6017 AP Key	Provided	—	Remove ZV Wiring		1 Per Station
	Not Provided	ZV*	7-9	TB1	
Carrier Soft Turn-Off	IN	ZY*	1-2	AS87 CP	1 Per Station (Note 7)
	OUT	ZZ	3-4	AS87 CP	

*Factory-furnished option.
†Wiring furnished by installer.

Note 1: When automatic answer is specified and data set is wired for voltage interface (Option N), provide Option ZE or Q as required. If data set is wired for contact interface (Option M) and automatic answer is specified, provide Option ZC or ZD as required.

Note 2: Option ZB must be used for all applications.

Note 3: In addition to strapping arrangements on TB2, the following arrangements must be made on telephone circuit (11C apparatus unit):

(a) 2-wire (Option Z) — white conductor of handset cord to GN of 4010B network, other white conductor of handset cord to R of 4010B network.

(b) 4-wire (Option Y) — white conductor of handset cord to terminal 1 of TB6, other white conductor of handset cord to terminal 2 of TB6.

Note 4: Equipped only on early series data sets.

Note 5: 202C-1, C-3, C-5, C-7, C-9, C-11 — Factory furnished with Option S. 202C-2, C-4, C-6, C-8, C-10, C-12 — Factory furnished with Option T. Install Option T only if Option Z is used.

Note 6: Install Options in DAS 801 as directed in Table B in Section 592-015-200.

Note 7: Available only on 202C-5, C-6, C-7, C-8, C-9, C-10, C-11, C-12.

TABLE L

DATA SET 202R OPTIONS

REQUIRES	OPTION DESIG.	DESCRIPTION OF OPTION		CLOSE SWITCH	OPEN SWITCH	CIRCUIT PACK
One per station	Z	2-wire	Jumpers S4 and S5 and slide switch S1 (See *Note*)	S1 to "2-wire" S4, S5 *Note*	—	AR593
	Y	4-wire		S1 to "4-wire"	S4, S5 *Note*	
One per station	X	Data set carrier under control of customer request-to-send lead		S3B	S3A	
	W	Continuous carrier (4-wire point-to-point or 2-wire transmit-only service)		S3A	S3B	
	V	No carrier (receive-only service)		—	S3A, S3B	
	T	Fast carrier turn-off		—	S2	AR591
	S	Soft carrier turn-off		S2	—	
One per station	R	Squelch of carrier detector		S3	—	
	Q	No squelch of carrier detector		—	S3	
One per station	N	20-ms carrier acquisition timer		S1	—	
	M	40-ms carrier acquisition timer		—	S1	
One per station	K	Carrier detector "OFF" clamps received data lead		S5	—	
	J	No clamp of received data lead		—	S5	
One per station	G	200-ms clear-to-send timer		—	S4A, S4B	
	F	60-ms clear-to-send timer		S4A	S4B	
	E	30-ms clear-to-send timer		S4B	S4A	

Note: AR593 CPs, series 6 and later, contain jumpers which are used as switches S4 and S5. The "open switch" condition is obtained by plugging one end of the jumper into the other end of the same jumper. The "closed switch" condition is obtained by plugging the jumper into two adjacent posts on the circuit board. The "open switch" condition allows digital loop-back test. To perform the "beeper" 4-wire loop-back test, close switches S4 and S5. All data sets with AR593, series 6 and later, are factory furnished in the "open switch" condition.

TABLE M

DATA SET 202S — L1 OR L1A OPTIONS

FEATURE	OPTION	DESCRIPTION		SWITCH SETTING										PROVIDE
		WITHOUT REVERSE CHANNEL	WITH REVERSE CHANNEL	S3 SWITCH CONTACT SETTING ON TRANSMITTER-RECEIVER										
				1	2	3	4	5	6	7	8	9	0	
Transmit Line Signal Level	ZK	0	−1	—	X	—	X	X	X	X	X	X	—	One Per Set
	ZL	−1	−2	—	X	—	0	X	X	X	X	X	—	
	ZM	−2	−3	—	X	—	X	0	X	X	X	X	—	
	ZN	−3	−4	—	X	—	X	X	0	X	X	X	—	
	ZO	−4	−5	—	X	—	X	X	X	0	X	X	—	
	ZP	−5	−6	—	X	—	X	0	X	0	X	X	—	
	ZQ*	−6	−7	—	X	—	0	X	0	0	X	X	—	
	ZR	−7	−8	—	0	—	0	X	X	X	0	X	—	
	ZS	−8	−9	—	0	—	0	X	0	X	0	X	—	
	ZT	−9	−10	—	0	—	X	X	X	X	X	0	—	
	ZU	−10	−11	—	0	—	0	X	X	0	X	0	—	
	ZV	−11	−12	—	0	—	X	0	X	X	0	0	—	
	ZW	−12	−13	—	0	—	0	0	0	0	0	0	—	
Reverse Channel†	ZC‡	In		0	—	0	—	—	—	—	—	—	—	One Per Set
	ZD*	Out (Remove CP)		X	—	X	—	—	—	—	—	—	—	
Transmit Only	YG	IN		—	—	—	—	—	—	—	—	—	X	One Per Set**
	YH*	OUT		—	—	—	—	—	—	—	—	—	0	
		SOFT TURNOFF	SQUELCH	S2 SWITCH CONTACT SETTING ON TRANSMITTER-RECEIVER										
				1	2	3	4	5	6	7	8	9	0	
Soft Turnoff and Squelch Intervals	Z	0	0	—	—	0	X	—	—	—	—	0	X	One Per Set
	Y	8 ms	0	—	—	0	X	—	—	—	—	0	0	
	X	24 ms	0	—	—	0	X	—	—	—	—	X	0	
	W	0	9 ms	—	—	0	0	—	—	—	—	0	X	
	V	0	156 ms	—	—	X	0	—	—	—	—	0	X	
	T	8 ms	9 ms	—	—	0	0	—	—	—	—	0	0	
	S	8 ms	156 ms	—	—	X	0	—	—	—	—	0	0	
	R*	24 ms	156 ms	—	—	X	0	—	—	—	—	X	0	
Fast Carrier Detection§	Q	In (7 ms)		—	—	—	—	0	—	—	—	—	—	One Per Set
	N*	Out (23 ms)		—	—	—	—	X	—	—	—	—	—	

(See Legend on Page 87.)

TABLE M (Contd)

DATA SET 202S — L1 OR L1A OPTIONS

FEATURE		OPTION	DESCRIPTION	SWITCH SETTING										PROVIDE
				S2 SWITCH CONTACT SETTING ON TRANSMITTER-RECEIVER										
				1	2	3	4	5	6	7	8	9	0	
Clear-to-Send Interval		M	8 ms	—	—	—	—	—	0	0	—	—	—	One Per Set
		K	30 ms	—	—	—	—	—	0	X	—	—	—	
		J	60 ms	—	—	—	—	—	X	0	—	—	—	
		G*	180 ms	—	—	—	—	—	X	X	—	—	—	
Automatic Answer		B*	In	—	—	—	—	—	—	—	X	—	—	One Per Set
		A	Out	—	—	—	—	—	—	—	0	—	—	
Local Copy On Primary Channel	202S-L1	ZA	In	X	—	—	—	—	—	—	—	—	—	One Per Set
		ZB*	Out	0	—	—	—	—	—	—	—	—	—	
	202S-L1A	ZA	In	0	—	—	—	—	—	—	—	—	—	
		ZB*	Out	X	—	—	—	—	—	—	—	—	—	
Clamp (202S-L1 Only)		F*	In	—	0	—	—	—	—	—	—	—	—	Must be Provided
Condition of CC (DSR) During Analog Loop-Back (202S-L1A Only)		YI	On	—	X	—	—	—	—	—	—	—	—	One Per Set
		YJ*	Off	—	0	—	—	—	—	—	—	—	—	
Local Copy on Reverse Channel				STRAPPING ON REVERSE CHANNEL										One Per JY1 or JY2 CP†
		ZE	In	Install E21-E22										
		ZF*	Out	Install E21-E23										
Grounding Option				SCREW SWITCH SETTING ON INTERFACE CIRCUIT										One Per 47A1 Data Mounting
		ZG*	Signal Ground Connected to Frame Ground	Screw Switch S1 Closed										
		ZH	Signal Ground Not Connected to Frame Ground	Screw Switch S1 Open										

X Rocker down on side adjacent to numbers.
0 Rocker up on side adjacent to numbers.
— Rocker may be in either position.
* Factory Furnished.
† DS 202S-L1A operates with JY2 only.
‡ Factory furnished instead of Option ZD when reversed channel board is installed.
§ Same as carrier acquisition timing in earlier model DS 202-type.
Note that IN or OUT status of option requires the opposite position for contact 1 of switch S2 between models L1 and L1A.
** The transmit-only out Option (YH) must be selected.
CP Circuit Pack.

TABLE N

DATA SET 202S-L1C AND 202SR-L1C OPTIONS

FEATURE	OPTIONS	OUTPUT LEVEL	SWITCH SETTING													PROVIDE
			S4 SWITCH CONTACT SETTING ON TRANSMITTER-RECEIVER (CPIC)													
			WITHOUT REVERSE CHANNEL							WITH REVERSE CHANNEL						
			1	2	3	4	5	6	7	1	2	3	4	5	6	7	
TRANSMIT LINE SIGNAL LEVEL	* ZO	–4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	ONE PER SET
	ZP	–5	O	X	X	X	X	X	X	O	X	X	X	X	X	X	
	ZQ	–6	X	O	X	X	X	X	X	O	O	X	X	X	X	X	
	ZR	–7	O	O	X	X	X	X	O	X	X	O	X	X	X	O	
	ZS	–8	X	X	O	X	X	X	O	X	O	O	X	X	X	O	
	ZT	–9	X	O	O	X	X	X	O	X	O	X	O	X	X	O	
	ZU	–10	X	X	X	O	X	X	O	O	O	O	O	X	X	O	
	ZV	–11	O	O	X	O	X	X	O	O	O	O	O	O	X	O	
	ZW	–12	O	O	O	O	X	X	O	O	O	O	O	O	O	O	

FEATURE	OPTIONS	SOFT TURN–OFF	SQUELCH	S2 SWITCH CONTACT SETTING ON TRANSMITTER-RECEIVER (CP C)										PROVIDE
				1	2	3	4	5	6	7	8	9	0	
SOFT TURN–OFF AND SQUELCH INTERVALS	Z	0	0	–			–	–	–	–	X	–	X	ONE PER SET
	Y	8 MSEC	0	–			–	–	–	–		–	X	
	X	24 MSEC	0	–	X		–	–	–	–		–	X	
	W	0	9 MSEC	–			–	–	–	–	X	–		
	V	0	156 MSEC	–		X	–	–	–	–	X	–		
	T	8 MSEC	9 MSEC	–			–	–	–	–		–		
	S	8 MSEC	156 MSEC	–	X	X	–	–	–	–		–		
	* R	24 MSEC	156 MSEC	–	X	X	–	–	–	–		–		

FEATURE	OPTIONS		PROVIDE
FAST CARRIER DETECTION	Q	IN (7 MSEC)	ONE PER SET
	* N	OUT (23 MSEC)	
CLEAR TO SEND INTERVAL	M	8 MSEC	ONE PER SET
	K	30 MSEC	
	J	60 MSEC	
	* G	180 MSEC	
AUTOMATIC ANSWER	* B	IN	ONE PER SET
	A	OUT	
LOCAL COPY ON PRIMARY CHANNEL	ZA	IN	ONE PER SET
	* ZB	OUT	
CONDITION OF CC (DSR) DURING ANALOG LOOPBACK	YI	ON	ONE PER SET
	* YJ	OFF	

FEATURE	OPTIONS	S3 SWITCH CONTACT SETTING ON TRANSMITTER-RECEIVER (CP1C)						PROVIDE
		1	2	3	4	5	6	
REVERSE CHANNEL	** ZC			–	–	–	–	ONE PER SET
	** ZD	X	X	–	–	–	–	
TRANSMIT ONLY	YG	–	–	X	–	–	–	ONE PER SET
	* YH	–	–		–	–	–	
ECHO SUPPRESSOR ENABLE	YQ	–	–	–		–	–	ONE PER SET
	* YR	–	–	–	X	–	–	
CARRIER CONTROLLED TURNAROUND	* YS	–	–	–	–	–		ONE PER SET
	YT	–	–	–	–	–	X	
EARLY CC (DSR) INDICATION	YU	–	–	–	–		–	ONE PER SET
	* YV	–	–	–	–	X	–	

LOCAL COPY ON REVERSE CHANNEL, GROUNDING, AND LINE HUNTING OPTIONS ARE SAME AS FOR 202S–L1 AND 202S–L1A

☒ CONTACT CLOSED
⊟ CONTACT NOT APPLICABLE
⓪ CONTACT OPEN

* FACTORY FURNISHED
** FACTORY FURNISHED INSTEAD OF OPTION ZD WHEN REVERSE CHANNEL BOARD IS INSTALLED.

TABLE O

DATA SET 202T-L1 OPTIONS

FEATURE	OPTIONS	DESCRIPTION		SWITCH SETTING										PROVIDE
				S3 Switch Contact Setting On Transmitter-Receiver										
				1	2	3	4	5	6	7	8	9	0	One Per Data Set
4-Wire Operation	ZK*			0	0	X	X	0	0	0	X	X	X	
2-Wire Operation w/o Reverse Channel	ZD			X	0	X	0	0	X	X	0	0	0	
2-Wire Operation With Reverse Channel	ZC†			X	X	0	0	X	0	X	0	0	0	
				S2 Switch Contact Setting On Transmitter-Receiver										
				1	2	3	4	5	6	7	8	9	0	One Per Data Set
4-Wire Operation	ZK*			X	–	–	–	–	–	–	–	–	–	
Local Copy on Primary Channel in 2-Wire	ZA	IN		X	–	–	–	–	–	–	–	–	–	
	ZB†	OUT		0	–	–	–	–	–	–	–	–	–	
Soft Turnoff and Squelch Intervals		Soft Turnoff	Squelch											
	Z	0	0	–	–	0	X	–	–	–	–	0	X	One Per Data Set
	Y*	8 ms	0	–	–	0	X	–	–	–	–	0	0	
	X	24 ms	0	–	–	0	X	–	–	–	–	X	0	
	W	0	9 ms	–	–	0	0	–	–	–	–	0	X	
	V	0	156 ms	–	–	X	0	–	–	–	–	0	X	
	T	8 ms	9 ms	–	–	0	0	–	–	–	–	0	0	
	S	8 ms	156 ms	–	–	X	0	–	–	–	–	0	0	
	R	24 ms	156 ms	–	–	X	0	–	–	–	–	X	0	
Fast Carrier Detection	Q*	IN		–	–	–	–	0	–	–	–	–	–	One Per Data Set
	N	OUT		–	–	–	–	X	–	–	–	–	–	
Clear-to-Send Interval	M*	8 ms		–	–	–	–	–	0	0	–	–	–	One Per Data Set
	K	30 ms		–	–	–	–	–	0	X	–	–	–	
	J	60 ms		–	–	–	–	–	X	0	–	–	–	
	G	180 ms		–	–	–	–	–	X	X	–	–	–	
Control by DAS 828- or 829-Type	B*	IN		–	–	–	–	–	–	–	0	–	–	One Per Data Set
	A	OUT		–	–	–	–	–	–	–	X	–	–	
Clamp	F*	IN		–	0	–	–	–	–	–	–	–	–	One Per Data Set
	E	OUT		–	X	–	–	–	–	–	–	–	–	
Carrier Detector Reset				Strapping on Transmitter-Receiver CP										One Per Data Set
	ZL	IN		Install E21-E23										
	ZM*	OUT		Install E22-E23										
Continuous Carrier	ZN	IN		Install E24-E25										One Per Data Set
	ZO*	OUT		Install E25-E26										
Compromise Equalization	ZU	Maximum		Install E27										One Per Data Set
	ZV	Minimum		Install E28										
Local Copy on Reverse Channel				Strapping on Reverse Channel CP										One Per Data Set
	ZE	IN		Install E21-E22										
	ZF*	OUT		Install E21-E23										
Grounding Option				Screw Switch S1 Setting on Interface Circuit										One Per Data Set
	ZG*	Signal Ground Connected to Frame Ground		S1 Closed										
	ZH	Signal Ground Not Connected to Frame Ground		S1 Open										

X Rocker down on side adjacent to numbers.
0 Rocker up on side adjacent to numbers.
— Rocker may be in either position.

* Factory furnished.
† Factory furnished instead to 4-wire option when reverse channel CP is installed.

TABLE P

DATA SET 202T-L1A OPTIONS

FEATURE	OPTION	DESCRIPTION	SWITCH SETTING										PROVIDE
			S3 Switch Contact Setting On Transmitter-Receiver										
			1	2	3	4	5	6	7	8	9	0	
4-Wire Operation	ZK*		0	–	–	0	–	X	X	X	X	X	One Per Data Set
2-Wire Operation w/o Reverse Channel	ZD		X	–	–	X	–	X	0	0	0	0	
2-Wire Operation With Reverse Channel	ZC†		X	–	–	X	–	0	0	0	0	0	
Compromise Delay Equalization	ZV	Minimum	–	X	–	–	–	–	–	–	–	–	One Per Data Set
	ZU*	Maximum	–	0	–	–	–	–	–	–	–	–	
Compromise Amplitude Equalization	ZX	Minimum	–	–	–	–	X	–	–	–	–	–	One Per Data Set
	ZW*	Maximum	–	–	–	–	0	–	–	–	–	–	
Channel Condition	ZZ	C2	–	–	X	–	–	–	–	–	–	–	One Per Data Set
	ZY*	Basic	–	–	0	–	–	–	–	–	–	–	
			S2 Switch Contact Setting On Transmitter-Receiver										
			1	2	3	4	5	6	7	8	9	0	
4-Wire Operation	ZK*		X	–	–	–	–	–	–	–	–	–	One Per Data Set
Local Copy on Primary Channel in 2-Wire	ZA	IN	X	–	–	–	–	–	–	–	–	–	
	ZB†	OUT	0	–	–	–	–	–	–	–	–	–	
Soft Turnoff and Squelch Intervals		Soft Turnoff / Squelch											One Per Data Set
	Z	0 / 0	–	X	–	–	–	0	X	0	–	–	
	Y*	8 ms / 0	–	X	–	–	–	0	0	0	–	–	
	X	24 ms / 0	–	X	–	–	–	0	0	X	–	–	
	W	0 / 9 ms	–	0	–	–	–	0	X	0	–	–	
	V	0 / 156 ms	–	0	–	–	–	X	X	0	–	–	
	T	8 ms / 9 ms	–	0	–	–	–	0	0	0	–	–	
	S	8 ms / 156 ms	–	0	–	–	–	X	0	0	–	–	
	R	24 ms / 156 ms	–	0	–	–	–	X	0	X	–	–	
Fast Carrier Detection	Q*	IN	–	–	0	–	–	–	–	–	–	–	One Per Data Set
	N	OUT	–	–	X	–	–	–	–	–	–	–	
Clear-to-Send Interval	M*	8 ms	–	–	–	0	–	–	–	–	–	0	One Per Data Set
	K	30 ms	–	–	–	0	–	–	–	–	–	X	
	J	60 ms	–	–	–	X	–	–	–	–	–	0	
	G	180 ms	–	–	–	X	–	–	–	–	–	X	

TABLE P (Contd)

DATA SET 202T-L1A OPTIONS

FEATURE	OPTION	DESCRIPTION	SWITCH SETTING	PROVIDE
External Control of CC (Data Set Ready)	B*	IN	– – – – – – – – 0 –	One Per Data Set
	A	OUT	– – – – – – – – X –	
Clamp	F*	IN	– – – – 0 – – – – –	One Per Data Set
	E	OUT	– – – – X – – – – –	
			S4 Switch Contact Setting on Transmitter-Receiver	
			1 2 3	
Carrier Detector Reset	ZL	IN	– X –	One Per Data Set
	ZM*	OUT	– 0 –	
Continous Carrier	ZN	IN	X – –	One Per Data Set
	ZO*	OUT	0 – –	
State of CC (Data Set Ready) During Analog Loopback	YB	ON	– – X	One Per Data Set
	YA*	OFF	– – 0	
Local Copy on Reverse Channel			Strapping on Reverse Channel CP	One Per Data Set
	ZE	IN	Install E21-E22	
	ZF†	OUT	Install E23-E23	
Grounding Option (Data Set)			Screw Switch S1 Setting on Interface Circuit	One Per Data Set
	ZG*	Signal Ground Connected to Frame Ground	S1 Closed	
	ZH	Signal Ground Not Connected to Frame Ground	S1 Open	
Grounding Option (Data Mounting)			Strapping on 39A1 or 40B1 Data Mounting	
	ZI*	~~Signal Ground~~ Connected to Frame Ground	~~Wire Strap of Power~~ Supply In	
	ZJ	Signal Ground Not Connected to Frame Ground	Wire Strap if Power Supply Out	

X Rocker down on side adjacent to numbers.
0 Rocker up on side adjacent to numbers.
-- Rocker may be in either position.
* Factory furnished.
† Factory furnished instead of 4-wire option when reverse channel CP is installed.

TABLE Q

DATA SET 208A OPTIONS

SWITCH	SWITCH POSITION	FEATURE
S1A (SEE NOTE)	UP	DSR ON IN AL MODE
	DOWN *	DSR OFF IN AL MODE
S1B (SEE NOTE)	UP *	NO COMP EQUALIZER TEST
	DOWN	COMP EQUALIZER TEST ENABLED
S1C	UP	CONTINUOUS REQUEST-TO-SEND
	DOWN *	SWITCHED REQUEST-TO-SEND
S3A	UP	XMIT EXTERNALLY TIMED
	DOWN *	XMIT INTERNALLY TIMED
S3B	UP *	RETRAIN AUTOMATICALLY
	DOWN	RETRAIN NOT USED
S3C	UP	DATA AUXILIARY SET IS USED
	DOWN *	DATA AUXILIARY SET NOT USED
S4A	UP *	1-SEC HOLDOVER DISABLE
	DOWN	1-SEC HOLDOVER
S4B	UP	CONTINUOUS CARRIER
	DOWN *	SWITCHED CARRIER
S4C	UP	NEW SYNCH USED BY CUSTOMER
	DOWN *	NEW SYNCH NOT USED BY CUSTOMER

Note: This option available on Data Set 208A-L1A only (CP HG23).

EQUALIZER ADJUSTMENT

SWITCH			EQUALIZATION PROVIDED
S2A	S2B	S2C	
†	†	DOWN	NONE
†	Up	UP	AMP AND DELAY (SYM) *
UP	DOWN	UP	AMP AND DELAY (HI END)
DOWN	DOWN	UP	AMP AND DELAY (SYM + HI END)

*Factory installed.
†Switch may be in either position.

TABLE R

DATA SET 208B-L1, 208B-L1A, 208B-L1B AND 208BR-L1B OPTIONS

TRANSMIT LEVEL

LEVEL (DBM)	SWITCH				OPTION
	S1A	S1B	S1C	S2A	
0 *	DOWN	UP	DOWN	UP	ZA
-1	DOWN	UP	DOWN	DOWN	ZB
-2	DOWN	UP	UP	UP	ZC
-3	DOWN	UP	UP	DOWN	ZD
-4	DOWN	DOWN	DOWN	UP	ZE
-5	DOWN	DOWN	DOWN	DOWN	ZF
-6	DOWN	DOWN	UP	UP	ZG
-7	DOWN	DOWN	UP	DOWN	ZH
-8	UP	UP	DOWN	UP	ZI
-9	UP	UP	DOWN	DOWN	ZJ
-10	UP	UP	UP	UP	ZK
-11	UP	UP	UP	DOWN	ZL
-12	UP	DOWN	DOWN	UP	ZM
-13	UP	DOWN	DOWN	DOWN	ZN
-14	UP	DOWN	UP	UP	ZO
-15	UP	DOWN	UP	DOWN	ZP

* FACTORY INSTALLED

208B-L1A DATA SET

208B-L1A DATA SET OPTIONS (HG24)

SWITCH		COMPROMISE EQUALIZER SLOPE	OPTION
S2B	S2C		
§	DOWN	NONE (0DB)	ZT
UP	UP	4DB SLOPE & SYMMETRIC DELAY	WU *
DOWN	UP	8DB SLOPE & SYMMETRIC DELAY	ZS
OPTIONS FOR S3 AND 50 SWITCHES SAME AS 208B-L1			

208B-L1 DATA SET

SWITCH	SWITCH POSITION	FEATURE	OPTION
S2C†	UP *	COMPROMISE EQUALIZER IN	ZS
	DOWN	COMPROMISE EQUALIZER OUT	ZT
S3A	UP	CC ON IN ANALOG LOOP MODE	YM
	DOWN *	CC OFF IN ANALOG LOOP MODE	YN
S3B	UP	MANUAL ANSWER	YO
	DOWN *	AUTOMATIC ANSWER	YP
S3C	UP	TRANSMITTER EXTERNALLY TIMED	YD
	DOWN *	TRANSMITTER INTERNALLY TIMED	YC
50††	IN	CA-CB INTERVAL OF 50 MSEC	
	OUT	CA-CB INTERVAL OF 150 MSEC	

* FACTORY INSTALLED
† COMPROMISE EQUALIZER SHOULD ALWAYS BE IN
†† IF NOT SPECIFIED ON SERVICE ORDER, INSTALL 50 INTERVAL
§ SWITCH MAY BE IN EITHER POSITION

208B-L1B DATA SET

SWITCH	OPTION STRAP POSITION	OPTION FEATURE	OPTION DESIGNATION
S2B	†	Compromise Equalizer Out	ZT
S2C	Down		
S2B	Up	Compromise Equalizer (4-dB Slope)	WU*
S2C	Up		
S2B	Down	Compromise Equalizer (8-dB Slope)	ZS
S2C	Up		
S3A	Up	DSR *on* in Analog Loop Mode	~~YM~~
	Down	DSR *off* in Analog Loop Mode	YN*
S3B	Up	Manual Answer	YO
	Down	Automatic Answer	YP*
S3C	Up	Transmitter Externally Timed	YD
	Down	Transmitter Internally Timed	YC*
S4A‡	Up		
	Down*		
S4B‡	Up		
	Down*		
"50"	In	RS-CS Interval of 50 ms	(Customer Switch)
	Out	RS-CS Interval of 150 ms	

* Factory installed.
† Strap may be up or down.
‡ Down position must be selected.

TABLE S
DATA SET 212-L1 OPTIONS

FEATURE	OPTION	DESCRIPTION	SWITCH SETTING											PROVIDE
			S1 SWITCH CONTACTS											
			1	2	3	4								
Tip, Ring Make Busy	F	IN	X	–	–	–								One per set
	E*	OUT	O	–	–	–								
CC Indication for Analog Loop	ZF*	ON	–	–	–	X								One per set
	ZE	OFF	–	–	–	O								
			SWITCH CONTACTS											
			S2									S5		
			1	2	3	4	5	6	7	8	9	1	2	
CN Circuit	YE	IN	–	O	–	–	–	–	–	–	–			One per set
	YF*	OUT	–	X	–	–	–	–	–	–	–			
Transmitter Timing	YC*	INTERNAL	–	–	O	O	–	–	–	–	–			One per set
	YD	EXTERNAL	–	–	O	X	–	–	–	–	–			
	WI	SLAVE	–	–	X	O	–	–	–	–	–			
1200-bps Operation	YG*	ASYNC/START-STOP	X	–	–	–	O	–	–	O	O	O	O	One per set
	YH	SYNC	X	–	–	–	X	–	–	O	O	X	X	
Character Length (Use With YG)	YI	9-BIT	–	–	–	–	–	O	–	–	–			One per set
	YJ*	10-BIT	–	–	–	–	–	X	–	–	–			
Receiver Respond to Digital Loop	YK*	IN	–	–	–	–	–	–	O	–	–			One per set
	YL	OUT	–	–	–	–	–	–	X	–	–			
			S3 SWITCH SETTINGS											
			1	2	3	4	5	6	7	8				
Loss of Carrier Disconnect	S*	IN	X	–	–	–	–	–	–	–				One per set
	R	OUT	O	–	–	–	–	–	–	–				
Receive Space Disconnect	V*	IN	–	X	–	–	–	–	–	–				One per set
	Y	OUT	–	O	–	–	–	–	–	–				
CB and CF Indications	A*	COMMON	–	–	X	–	–	–	–	–				One per set
	B	SEPARATE	–	–	O	–	–	–	–	–				
Send Space Disconnect	T*	IN	–	–	–	X	–	–	–	–				One per set
	U	OUT	–	–	–	O	–	–	–	–				
Automatic Answer	ZH*	IN	–	–	–	–	O	–	–	–				One per set
	ZG	OUT	–	–	–	–	X	–	–	–				
Answer Mode Indication	X	ON	–	–	–	–	–	X	–	–				One per set
	W*	OFF	–	–	–	–	–	O	–	–				
Speed Mode	YO	HIGH	–	–	–	–	–	–	X	–				One per set
	YP*	DUAL	–	–	–	–	–	–	O	–				
Interface Speed Indication – CI	YQ	IN	–	–	–	–	–	–	–	X				One per set
	YR*	OUT	–	–	–	–	–	–	–	O				
Signal Ground to Frame Connection	Q*	IN	S1 CLOSED											One per 47D1 DM
	P	OUT	S1 OPEN											

X = Contact Closed – = Contact Not Applicable O = Contact Open * = Factory-Provided

Note: Do not use Option X if used with a DATASPEED 40/2 Terminal.

TABLE T

DATA SET 212A-L1A AND 212AR-L1A OPTIONS

FEATURE		OPTION	SWITCH SETTINGS											PROVIDE
			SI SWITCH											
			1	2	3									
TIP RING MAKE BUSY	IN	F	X											ONE PER SET
	OUT	E	O											
CC INDICATION FOR ANALOG LOOP	ON	ZF			X									ONE PER SET
	OFF	ZE			O									
			S2 SWITCH									S5		
			1	2	3	4	5	6	7	8	9	1	2	
SPEED CONTROL	INTERFACE	XJ	O								X			ONE PER SET
	HS BUTTON	XK	X								O			
INTERFACE CONTROL MB/AL - CN LEAD	IN	YE		O										ONE PER SET
	OUT	YF		X										
TRANSMITTER TIMING	INT.	YC			O	O								ONE PER SET
	EXT.	YD			O	X								
	SLAVE	WI			X	O								
1200 BPS OPERATION	ASYNC / START STOP	YG					O					O	O	ONE PER SET
	SYNC	YH					X					X	X	
CHAR. LENGTH (USE WITH YG)	9 BIT	YI						O						ONE PER SET
	10 BIT	YJ						X						
RCVR RESPONDS TO DIGITAL LOOP	IN	YK							O					ONE PER SET
	OUT	YL							X					
INTERFACE CONTROL RDL LEAD	IN	XL								X				ONE PER SET
	OUT	XM								O				
			S3 SWITCH											
			1	2	3	4	5	6	7	8				
LOSS OF CARRIER DISCONNECT	IN	S	X											ONE PER SET
	OUT	R	O											
RCV SPACE DISCONNECT	IN	V		X										ONE PER SET
	OUT	Y		O										
CB AND CF INDICATIONS	COM	A			X									ONE PER SET
	SEP	B			O									
SEND SPACE DISCONNECT	IN	T				X								ONE PER SET
	OUT	U				O								
AUTOMATIC ANSWER	IN	ZH					O							ONE PER SET
	OUT	ZG					X							
ANSWER MODE INDICATION	CE ON	X						X						ONE PER SET
	CE OFF	W						O						
SPEED MODE	HIGH	YO							X					ONE PER SET
	DUAL	YP							O					
INTERFACE SPEED INDICATION-CI	IN	YQ								X				ONE PER SET
	OUT	YR								O				
			STRAP PLUGS											
CN AND TM INTERFACE ASSIGNMENT	CN 25, TM NC	XQ	E3-E4, E1-E2											ONE PER SET
	CN 18, TM NC	XN	E4-E5, E1-E2											
	CN 18, TM 25	XR	E4-E5, E2-E3											
SIG. GROUND TO FG. CONNECTION	IN	O	SI CLOSED											ONE PER 47D MTG.
	OUT	P	SI OPEN											

X CONTACT CLOSED

O CONTACT OPEN

FACTORY FURNISHED OPTION

CONTACT NOT USED

Note: Do not use Option X or XJ if used with a DATASPEED 40/2 Terminal.

5. ADJUSTMENTS

5.01 The only adjustments in the station are in printer and monitor.

5.02 Monitor adjustments are given in BSP 582-213-700.

5.03 The printer adjustments are given in BSP 582-210-700.

6. TOOLS AND SUPPLIES

6.01 The following tools and supplies may be required for installation or servicing of DATASPEED 40/2 apparatus. Most of these items should normally be present in standard maintenance tool kits.

6.02 Tools

Wrench	3/16" socket	125752
Wrench, open end	3/8"	125765
Wrench, open end	3/16" and 1/4"	129534
Wrench, open end	5/16" and 3/8"	152835
Wrench, open end	3/4"	129537
Nut driver	Handle	135676
Nut driver	1/4"	89954
Nut driver	5/16"	89955
Nut driver	1/4"	135677
Nut driver	5/16"	135678
Screwdriver	1/8", 2" blade	95368
Screwdriver	1/4", 6" blade	100982
Screwdriver	(blade less than 5/32")	94647
Allen wrench	0.062	124682
Tweezers		151392
Spring hook (pull)		142554
Spring hook (pull)		75675
Spring hook (push)		75503
Static ground strap		346392
Scales, spring (802)		110443
Ruler, 6"		95960
Cleaning brush (type face)		151394
Long-nose pliers		108285
Cutting pliers		108286
Terminal extractor		182697
Retaining ring pliers		160396
Terminal extractor		341983
Keyswitch extractor		346257
Keytop extractor		346260
Gauge (80-column friction and tractor feed printer)		402617
Gauge (132-column tractor feed printer)		402716
Gauge (132-column tractor feed printer)		402717
Dynamic backup bar gauge		402868
Type carrier alignment gauge		402878
Terminal extractor		402840

6.03 Supplies

Grease — Mobil No. 2 (1 lb can)	143484
Grease — Mobile No. 2 (4 oz tube)	145867
Grease — Beacon 325 (5 lb can)	195298
Oil — (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)	