

SERVICE MANUAL ...



- PRINTER
- OPERATOR CONSOLE
- DISPLAY MONITOR
- POWER SUPPLY
- CABINETS



SERVICE MANUAL

for

“DATASPEED*” 40 and 4540 COMPONENTS

This service manual provides information for general usage of DATASPEED 40 components such as the printer, operator console, display monitor, power supply and cabinets. In so doing, it supplements the DATASPEED 40 Station Service Manuals.

40 COMPONENTS

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Note: Reference information on other equipment not included in this service manual can be found in the following sections:

DATASPEED 40 Answer-Back	582-0J1-201
EIA Data Terminal Switch	582-001-200
DATASPEED Magnetic Tape	582-900 Series
Teletypewriter Stationery and Supplies	570-008-010

“DATASPEED*” 40 PRINTER

INSTALLATION

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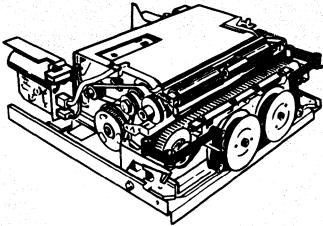
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1. GENERAL

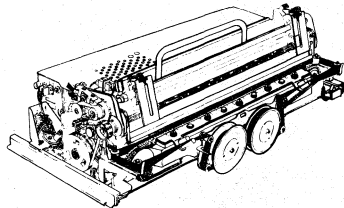
1.01 This section provides installation for the DATASPEED 40 printer, friction and tractor feed, 80- and 132-column (Fig. 1).

1.02 This section is reissued to add information concerning the paper jam alarm, to add optioning information and to clarify information covering adjustments which may have to be refined depending on forms used in a particular installation.

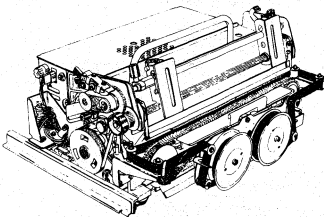
40P101 or 40P102
Friction Feed Printer
(80-Column)



40P201, 40P202, 40P203 or 40P204
Tractor Feed Printer
(132-Column)



40P151, 40P153 or
40P154 Tractor Feed
Printer (80-Column)



40P253 Forms Access
Tractor Feed Printer
(80-Column)

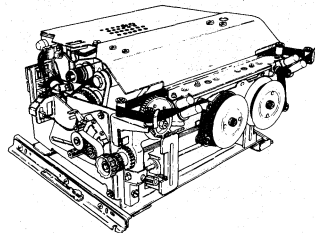


Fig. 1—DATASPEED 40 Printers

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

2. UNPACKING

FRICITION FEED PRINTER

2.01 Open carton and remove polysterene pack. Remove printer from polysterene pack (Fig. 2).

Note: Retain polysterene pack for transporting the printer locally.

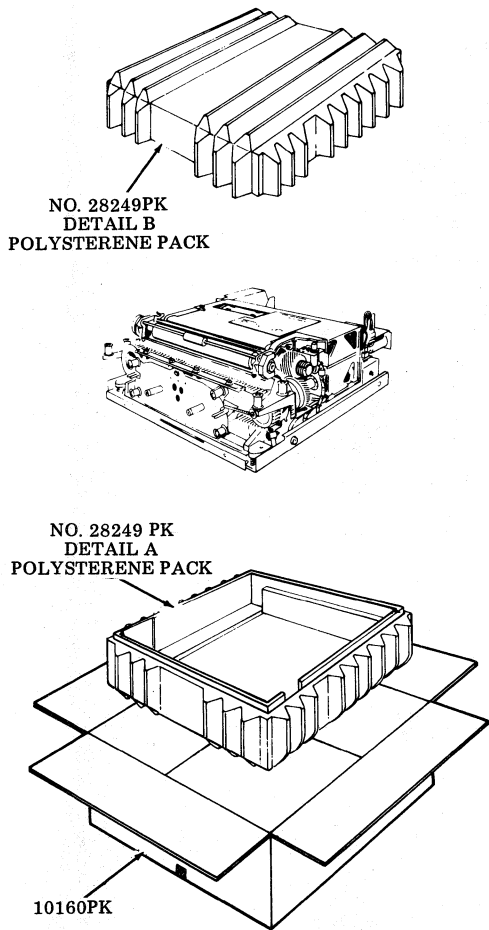


Fig. 2—Printer Carton and Pack

FRICITION FEED PRINTER CABINET

2.02 Unpack the cabinet and open the lid.

Danger: Shipping bar is under heavy spring tension — RELEASE SLOWLY (Fig. 3).

Carefully depress the bar, disengage latch from bar and slowly release the bar. Remove shipping latch and bar. Discard. If printer is to be shipped at a later date, retain bar and latch.

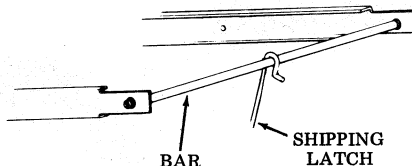


Fig. 3—Shipping Bar and Latch

TRACTOR FEED PRINTER

2.03 80-Column — Open carton and remove pack. Remove printer from polysterene pack (Fig. 4).

Note: Retain polysterene pack for transporting the printer locally.

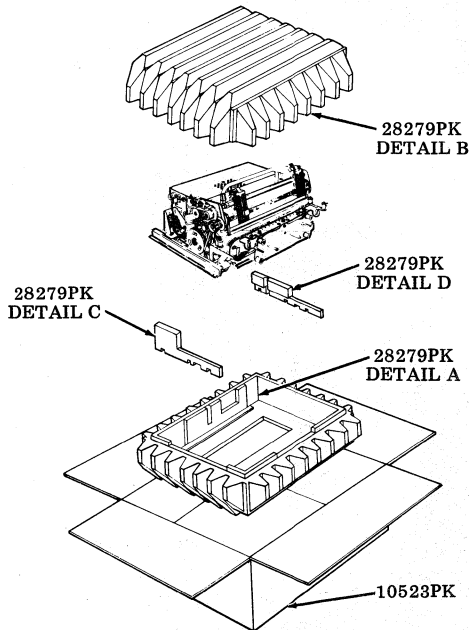


Fig. 4—Printer Carton and Pack

2.04 132-Column and Forms Access — Open printer carton and remove corner details (Fig. 5).

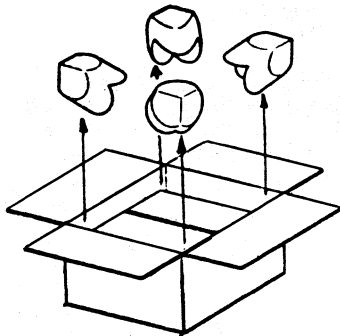


Fig. 5—Printer Carton Packing Details

2.05 Lift printer carton out, open it and remove packing detail (Fig. 6). Lift printer out.

2.06 Remove packing details from the printer (Fig. 6).

2.07 40P203 and 40P204 Printer — Remove ribbon cartridge set and meter roller set from well in top packing detail. Installation instructions for these reinking mechanism parts are included in the carton.

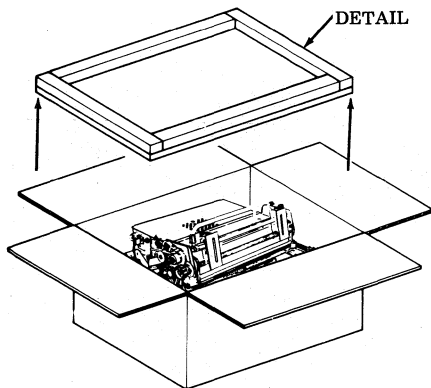


Fig. 6—Printer Packing Details

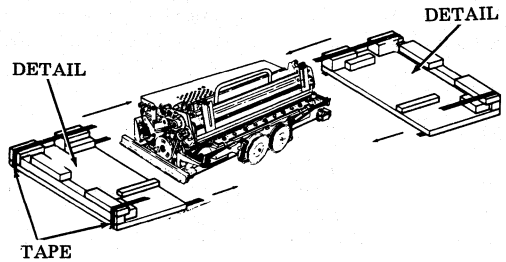


Fig. 6—Printer Packing Details (Contd)

3. VISUAL INSPECTION

3.01 Look for any pinched or crimped wires or cables. Check that no terminal pins are bent or damaged. Make sure all connectors are seated properly and securely.

4. GROUNDING PRECAUTIONS

4.01 The 410071, 410072, 410076, 410640 and 410729 printer circuit cards contain MOS logic which requires careful handling. If the printer card is not already installed in the unit, it should be handled while stored in its protective 406260 static bag (Fig. 7).

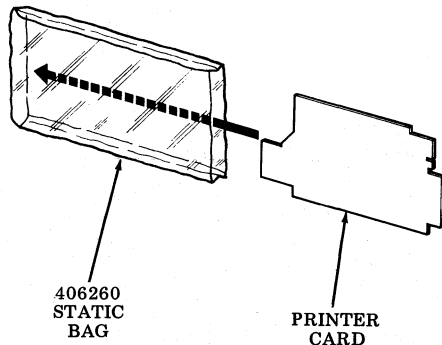


Fig. 7—Circuit Card Protective Bag

- 4.02 The 346392 static discharge strap must be worn when handling the printer card outside its protective bag. Attach the strap tightly to wrist as shown in Fig. 8. Attach clip end of static discharge strap to frame ground.

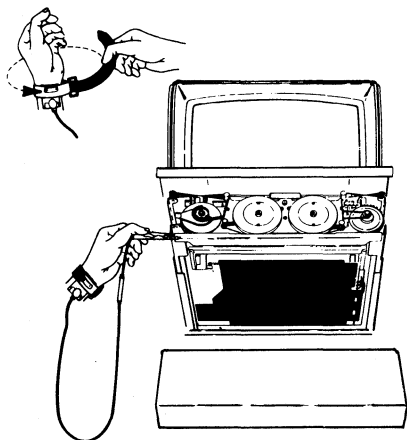


Fig. 8—346392 Static Discharge Strap

5. OPTION CIRCUIT CARD

GENERAL

Warning: Install the 346392 static discharge strap before removing the 410076 or 410640 circuit card.

- 5.01 This part includes all printer options that are utilized in the printer. It also covers handling of circuit cards, removal of the 410076 or 410640 circuit card, location of the circuit card switch packs, and information on how to activate or change switch positions.

- 5.02 The options enabled should be checked on the Printer Options Record. (See 5.22.)

REMOVE 410076 OR 410640 CIRCUIT CARD FROM 80-COLUMN FRICTION FEED PRINTER

- 5.03 Remove two screws that secure circuit card cover to the bottom of the printer and allow cover to hang down (Fig. 9).

- 5.04 Using finger hold and a firm grip of the card edge on opposite side as shown in Fig. 9, apply an even pulling force and unplug card from the two rows of magnet assembly contacts.

- 5.05 Lift left (bottom) end of card up and out of channel (bypassing printer base shipping screws) first, then right side of card up and out. Remove card from connector. Refer to paragraph 5.14 or 5.19 for options on the printer logic card.

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

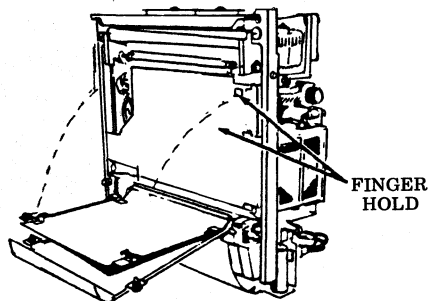


Fig. 9—Circuit Card Removal

REMOVE 410076 OR 410640 CIRCUIT CARD FROM 80-COLUMN TRACTOR FEED PRINTER (Fig. 10)

- 5.06 Remove two top screws and loosen three bottom screws.
- 5.07 Slide bottom plate out.
- 5.08 Remove connector from card; using pull points, pull card down and out. Refer to paragraph 5.14 or 5.19 for options on the printer logic card.

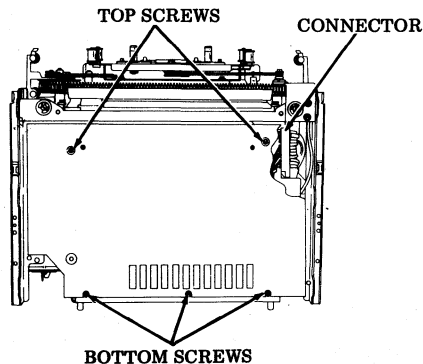


Fig. 10—Tractor Feed Printer Bottom Plate

OPTIONING THE 410071 CIRCUIT CARD FOR 40P253 80-COLUMN FORMS ACCESS TRACTOR FEED PRINTER OR 40P154 80-COLUMN TRACTOR FEED PRINTER

5.09 It is not necessary to remove the 410071 circuit card from the printer in order to option it. Option switches on the card are accessible through openings in the bottom plate of the printer (Fig. 11 and 12). Refer to paragraph 5.16 for options on the printer logic card.

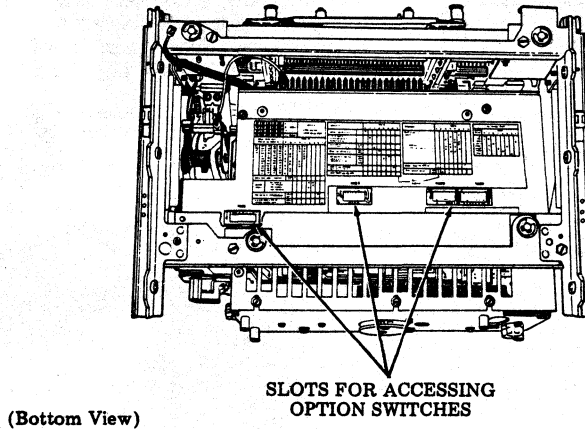


Fig. 11—Forms Access Printer (80-Column)

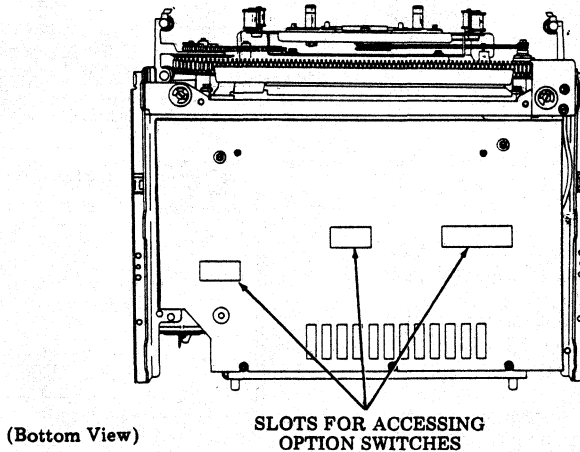
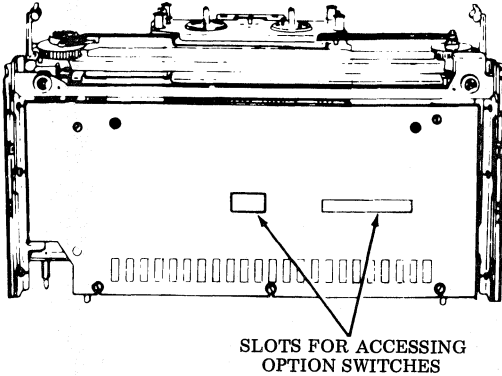


Fig. 12—40P154 Printer (80-Column)

OPTIONING THE 410072 OR 410729 CIRCUIT CARD FOR 132-COLUMN TRACTOR FEED PRINTER

5.10 It is not necessary to remove the 410072 or 410729 circuit card from the printer in order to option it. Option switches on the card are accessible through openings in the bottom plate of the printer (Fig. 13). Refer to paragraph 5.15 or 5.18 for options on the printer logic card.



(Bottom View)

Fig. 13—132-Column Printer

PRINTER OPTIONS

5.11 Options are presented in a tabular format as illustrated in Fig. 14.

OPTION NO.	ROCKER SWITCH NUMBERS (See Fig. 15)	LOCATION OF SWITCH ON CIRCUIT CARD					INDICATES FACTORY PROGRAMMED OPTION
		1	2	3	4	5	
5.							
a.		●	-	-	-	-	*
b.		○	-	-	-	-	*
c.		-	●	-	-	-	*
d.		-	○	-	-	-	*
e.		-	-	○	-	-	*
f.		-	-	-	●	-	*

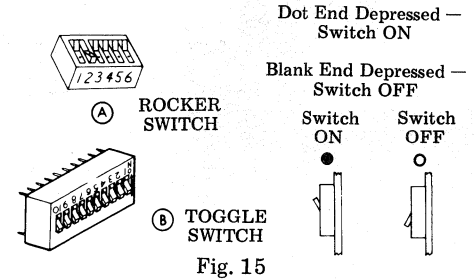
Legend:

- Indicates switch ON — dot end of rocker switch depressed.
- Indicates switch OFF — blank end of rocker switch depressed.
- Switch position does not affect option.
- * Factory programmed.

Fig. 14

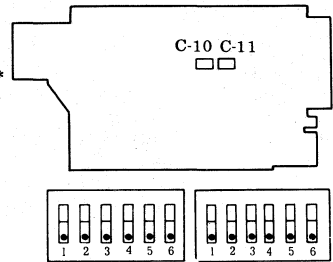
5.12 Printer card option switches are addressed as in the illustrations accompanying the specific option activation information (Fig 15).

5.13 A number of different switches have been used to option cards. Fig. 15 shows rocker switch (A), and toggle switch (B), and their respective ON/OFF positions.



5.14 410640 — 80-Column Printer Logic Circuit Card

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	—	—	—	—	—	—	○	●	●	○	—	—
d.79.	Last Character on 79th Column	—	—	—	—	—	—	○	—	—	—	—	—
d.78.	Last Character on 78th Column	—	—	—	—	—	—	●	○	○	●	—	—
d.77.	Last Character on 77th Column	—	—	—	—	—	—	●	○	●	○	—	—
d.76.	Last Character on 76th Column	—	—	—	—	—	—	●	○	—	—	—	—
d.75.	Last Character on 75th Column	—	—	—	—	—	—	—	—	—	—	—	—
d.74.	Last Character on 74th Column	—	—	—	—	—	—	●	●	●	○	—	—
d.73.	Last Character on 73rd Column	—	—	—	—	—	—	●	●	●	●	—	—



Note: Options 17a and 17b are not used.

18. Printer Paper Feedout		C-10						C-11					
		1	2	3	4	5	6	1	2	3	4	5	6
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	○	—	—	—	—	—	—	—	—	—	—	●

C-10

C-11

19. Printer Errored Character Symbol		C-10						C-11					
		1	2	3	4	5	6	1	2	3	4	5	6
a.	Printed on Even Parity Error	—	—	—	●	○	—	—	—	—	—	—	—
b.	Printed on Odd Parity Error	—	—	—	○	●	—	—	—	—	—	—	—
c.	Not Printed on Parity Error	—	—	—	●	●	—	—	—	—	—	—	—
d.	Printers with 96 Character Set	—	●	○	—	—	—	—	—	—	—	—	—
e.	Printers with 64 Character Set	—	○	●	—	—	—	—	—	—	—	—	—
f.	Printers with Extended ASCII Character Set	—	○	○	—	—	—	—	—	—	—	—	—

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	—	—	—	—	—	—	—	—	—	—	—	○
b.	Lower Case Prints as Upper Case	—	—	—	—	—	—	—	—	—	—	—	●

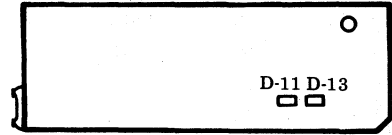
22. Foldover on Monospace Printer		C-10						C-11					
		1	2	3	4	5	6	1	2	3	4	5	6
a.	Lower Case Prints as Error Symbol	—	—	—	—	—	—	—	—	—	—	—	○
b.	Lower Case Prints as Upper Case	—	—	—	—	—	—	—	—	—	—	—	●

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

†Option 23a requires local engineering.

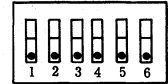
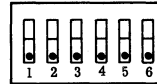
5.15 410729 — 132-Column Printer Logic Circuit Card

17. Printer Margin and Form Width		D-11					D-13					
		6	5	4	3	2	1	6	5	4	3	2	1
e.	Last Character on Column 132	--	--	--	--	--	○	○	○	○	--	--
f.131.	Last Character on Column 131	--	--	--	--	--	○	○	○	○	--	--
f.130.	Last Character on Column 130	--	--	--	--	--	○	○	○	○	--	--
f.129.	Last Character on Column 129	--	--	--	--	--	○	○	○	○	--	--
f.128.	Last Character on Column 128	--	--	--	--	--	○	○	○	○	--	--
f.127.	Last Character on Column 127	--	--	--	--	--	○	○	○	○	--	--
f.126.	Last Character on Column 126	--	--	--	--	--	○	○	○	○	--	--
f.125.	Last Character on Column 125	--	--	--	--	--	○	○	○	○	--	--
f.124.	Last Character on Column 124	--	--	--	--	--	○	○	○	○	--	--
f.123.	Last Character on Column 123	--	--	--	--	--	○	○	○	○	--	--
f.122.	Last Character on Column 122	--	--	--	--	--	○	○	○	○	--	--
f.121.	Last Character on Column 121	--	--	--	--	--	○	○	○	○	--	--



D-11

D-13



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

18. Printer Paper Feedout		D-11					D-13					
		6	5	4	3	2	1	6	5	4	3	2	1
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	--	○	--	--	--	--	--	--	--	--	●

(410729 printer circuit card viewed from beneath printer — access to switches is through a cutout in bottom of printer.)

19. Printer Errored Character Symbol		D-11					D-13					
		6	5	4	3	2	1	6	5	4	3	2	1
a.	Printed on Even Parity Error	--	--	●	○	--	--	--	--	--	--	--
b.	Printed on Odd Parity Error	--	--	○	●	--	--	--	--	--	--	--
c.	Not 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 Char. Set Having Less Than 64 Char.	○	●	--	--	--	--	--	--	--	--	--

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

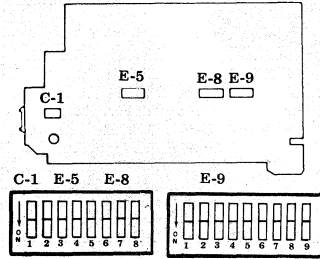
22. Foldover on Monocase Printer		D-11					D-13						
		6	5	4	3	2	1	6	5	4	3	2	1
a.	Lower Case Prints as Error Symbol	--	--	--	--	--	--	--	--	--	--	○	--
b.	Lower Case Prints as Upper Case	--	--	--	--	--	--	--	--	--	--	●	--

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

48. Incomplete Form Suppresses Paper Alarm		D-11					D-13					
		6	5	4	3	2	1	6	5	4	3	2	1
a.	No (Paper-Out Not Gated With Formout)	--	--	--	--	●	--	--	--	--	--	--
b.	Yes (Paper-Out Gated With Formout)	--	--	--	--	○	--	--	--	--	--	--

5.16 410071 80-Column Tractor Feed Printer Logic Circuit Card

17. Printer Left Margin and Form Width			E-5							
		80-Column Printer	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	—	—	○	●	●	○	—	—



(Printer circuit card viewed from beneath printer — access to switches is through a cutout in bottom pan of printer.)

17. Printer Right Margin and Form Width			SWITCH SETTINGS (Preliminary)																							
		80-Col. Printer — Last Printed Column	E-9									E-5								E-8						
			1	2	3	4	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	○	●	—	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

X = last column to be printed

18. Printer Paper Feedout		E-8							
		1	2	3	4	5	6	7	8
a.	No Paper Feedout	—	—	●	—	—	—	—	—
b.	Paper Feedout on D8R or RM Loss — 16 Lines or One Form	—	○	○	—	—	—	—	—
c.	Paper Feedout on D8R or RM Loss or ETX — 16 Lines or One Form	—	●	○	—	—	—	—	—

19. Printer Errored Character Symbol		E-9								
		1	2	3	4	5	6	7	8	9
a.	Printed on Even Parity Error	—	—	—	—	—	○	●	—	—
b.	Printed on Odd Parity Error	—	—	—	—	—	●	○	—	—
c.	Not Printed on Parity Error	—	—	—	—	—	—	—	●	—

19. Character Set		E-8							
		1	2	3	4	5	6	7	8
d.	Printers With 96-Character Set	—	—	—	—	○	○	—	—
e.	Printers With 84-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		E-8							
		1	2	3	4	5	6	7	8
a.	Lower Case and Upper Case Print	○	—	—	—	—	—	—	—
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	○	—	—	—	—	—	—	—
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)	—	—	—	—	○	○	—	—	—
b.	Does Not Print Extended ASCII (See Option 19a, 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 Form-Out)	—	—	—	—	—	—	—	—	—
b.	Yes (Paper-Out Gated With Form-Out)	—	—	—	—	—	—	—	○	●

54. Printing of Escape Sequences Suppressed		E-9								
		1	2	3	4	5	6	7	8	9
a.	Character After ESC Printed as Received	—	—	—	—	—	—	—	—	—
b.	Printing of Character After ESC Suppressed	—	—	—	—	—	—	—	—	●

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

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

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

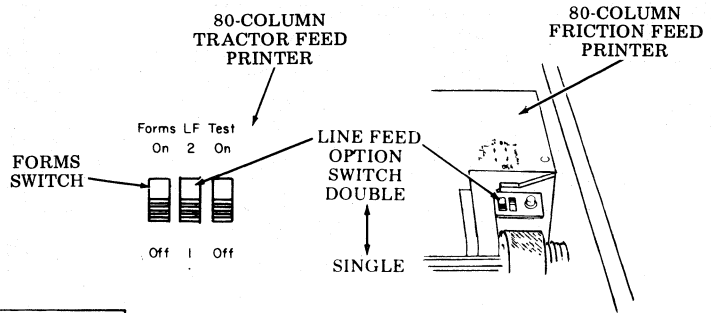
58. Idle Line Motor Control		E-8							
		1	2	3	4	5	6	7	8
a.	Disabled — Motor Held On Indefinitely During Idle Line				○				
b.	Enabled — Motor Turned Off After 40-Second Idle Line				●				

59. Speed Selection (Applies only if Option 57b is selected)		C-1							
		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)		E-5							
		1	2	3	4	5	6	7	8
a.	Enable	—	○	—	—	—	—	—	—
b.	Disable	—	●	—	—	—	—	—	—

Note: Auxiliary Alarm is for future use. Aux Alarm Disabled (Option 60b) is required selection when alarm mechanism is not present. Paper jam alarm (402920 modification kit) is not Aux Alarm.

5.17 Switches on Printer



LF Switch

20. Line Feed	
a.	Single
b.	Double

Forms Switch

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

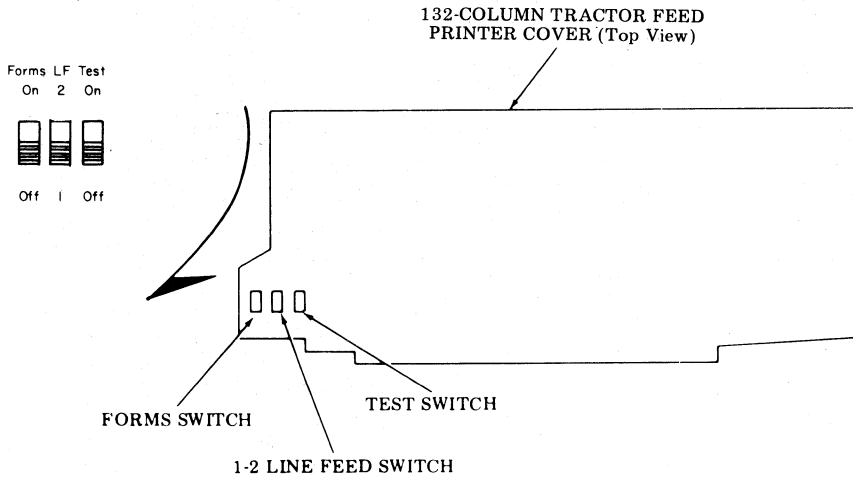


Fig. 16

SECTION 582-210-200

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 19a, 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 Form-Out)	-	-	-	●	-	-	-	-
b.	Yes (Paper-Out Gated With Form-Out)	-	-	-	○	-	-	-	*

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	-	-	-	-	-	-	-	●

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 57b 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 Indefinitely During Idle Line	-	-	-	-	-	-	○	-
b.	Enabled - Motor Turned Off After 40-Second Idle Line	-	-	-	-	-	●	-	-

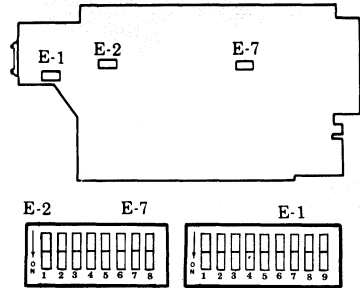
59. Speed Selection (Applies Only if Option 57b is Selected)		C-4							
		1	2	3	4	5	6	7	8
a.	75 Baud	●	○	○	○	○	○	○	○
b.	150 Baud	○	●	○	○	○	○	○	○
c.	300 Baud	○	○	○	●	○	○	○	○
d.	600 Baud	○	○	●	○	○	○	○	○
e.	1200 Baud	○	○	○	○	○	○	●	○
f.	2400 Baud	○	○	○	○	●	○	○	○
g.	4800 Baud	○	○	○	○	○	○	●	○
h.	9600 Baud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

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

Note: Auxiliary Alarm is for future use. Aux Alarm Disabled (Option 60b) is required selection when alarm mechanism is not present. Paper jam alarm (402920 modification kit) is not Aux Alarm.

5.19 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	—	—	○	○	●	○	—	—



17. Printer Right Margin and From Width			SWITCH SETTINGS (Preliminary)																							
c.	Last Printed Column		E-1								E-2								E-7							
			1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
	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		—	—	—	○	○	—	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			SWITCH SETTINGS (Final)																							
73 through 80		program as shown.																								
61 through 72		program as shown, then operate E-7 position 2 OFF.																								
49 through 60		program as shown, then operate E-7 position 1 OFF.																								
37 through 48		program as shown, then operate E-2 position 7 OFF.																								
25 through 36		program as shown, then operate E-2 position 8 OFF.																								

X = Last column to be printed.

18. Printer Paper Feedout		E-1								E-2							
		1	2	3	4	5	6	7	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	○	—	—	—	—	—	—	—	—	—	—	—	—	○	—	—
c.	Paper Feedout on DSR or RM Loss or ETX — 16 Lines or One Form	○	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—

19. Printer Errored Character Symbol		E-1								
		1	2	3	4	5	6	7	8	9
a.	Printed on Even Parity Error	—	—	●	○	—	—	—	—	—
b.	Printed on Odd Parity Error	—	—	○	●	—	—	—	—	—
c.	Not Printed on Parity Error	—	—	●	●	—	—	—	—	—

19. Character Set		E-2							
		1	2	3	4	5	6	7	8
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 Up-Low Printer		E-2							
		1	2	3	4	5	6	7	8
a.	Lower Case and Upper Case Print	-	-	○	-	-	-	-	-
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	-	-	○	-	-	-	-	-
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)	-	-	○	○	-	-	-	-	-
b.	Does Not Print Extended ASCII (See Option 19a, 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 Form-Out)	-	●	-	-	-	-	-	-
b.	Yes (Paper-Out Gated With Form-Out)	-	○	-	-	-	-	-	-

54. Printing of Escape Sequences Suppressed		E-1								
		1	2	3	4	5	6	7	8	9
a.	Character After ESC Printed as Received	-	○	-	-	-	-	-	-	-
b.	Printing of Character After ESC Suppressed	-	●	-	-	-	-	-	-	-

55. Shift In/Shift Out Detection		E-1								
		1	2	3	4	5	6	7	8	9
a.	SI/SO Detection Not Used	-	-	-	-	-	-	○	-	-
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	○	-	-	-	-	-	-	-
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	-	-	-	-	-	-	○	-

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

§ Requires use of 410085 OEM card.

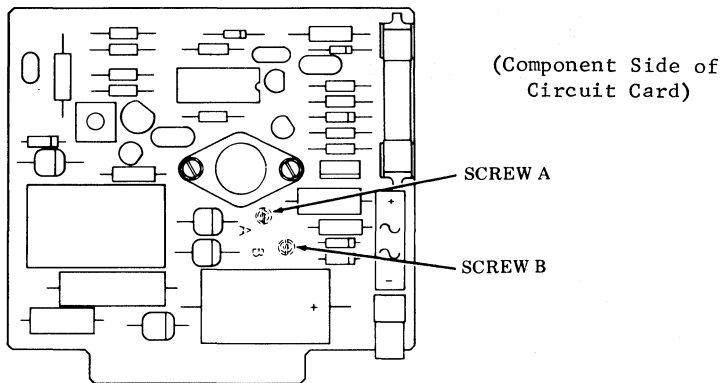


Fig. 17

5.20 410151 Circuit Card (Located in Printer Power Module)

61. Regulator Grounding		Screw A		Screw B	
		Component	Noncomponent	Component	Noncomponent
a.	SSI (Circuit and Frame Ground at PTR)	In	—	—	In
b.	SSI/OEM (Circuit and Frame Ground at PTR, +12 V)	In	—	In	—
c.	OEM (Circuit Ground External to PTR, +12 V)	—	In	In	—

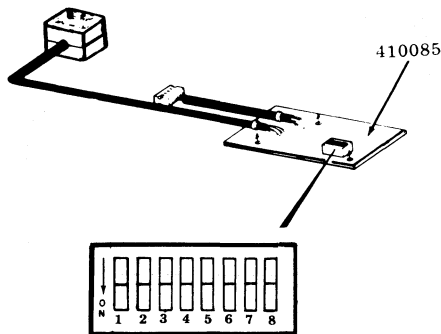


Fig. 18

5.21 410085 Circuit Card (OEM) (Required only if Option 57b on 410076 card is selected, see Note.)

59. Speed Selection.		SWC-3							
		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	○	○	○	○	○	○	○	●

Note: The 410085 circuit card is mounted on the 410076 printer logic circuit card in OEM application.

PRINTER OPTIONS RECORD

5.22 The Printer Options Record provides a means by which the options can be recorded for later servicing or maintenance purposes.

Check desired option.

PRINTER OPTIONS	
17. Printer Margin and Form Width	
a. First Printed Col. — Col. 1	* <input type="checkbox"/>
b2. First Printed Col. — Col. 2	<input type="checkbox"/>
b3. First Printed Col. — Col. 3	<input type="checkbox"/>
etc	
b13. First Printed Col. — Col. 13	<input type="checkbox"/>
c. Last Char. Printed — Col. 80	* <input type="checkbox"/>
d79. Last Char. Printed — Col. 79	<input type="checkbox"/>
d78. Last Char. Printed — Col. 78	<input type="checkbox"/>
d77. Last Char. Printed — Col. 77	<input type="checkbox"/>
etc	
d25. Last Char. Printed — Col. 25	<input type="checkbox"/>
e. Last Char. Printed — Col. 132	* <input type="checkbox"/>
f131. Last Char. Printed — Col. 131	<input type="checkbox"/>
f130. Last Char. Printed — Col. 130	<input type="checkbox"/>
f129. Last Char. Printed — Col. 129	<input type="checkbox"/>
etc	
f73. Last Char. Printed — Col. 73	<input type="checkbox"/>
18. Printer Paper Feed-Out	
a. No Paper Feed-Out	<input type="checkbox"/>
b. Paper FO 16 Lines on DSR Loss	<input type="checkbox"/>
c. Paper FO on DSR Loss or ETX	* <input type="checkbox"/>
19. Printer Errored Character Symbol	
a. Symbol on Even Parity Error	* <input type="checkbox"/>
b. Symbol on Odd Parity Error	<input type="checkbox"/>
c. No Symbol on Parity Error	<input type="checkbox"/>
d. 96 Character Set	<input type="checkbox"/>
e. 64 Character Set	<input type="checkbox"/>
f. Extended ASCII Character Set	<input type="checkbox"/>
g. Less Than 64 Char. Set	<input type="checkbox"/>
20. Line Feed	
a. Single	<input type="checkbox"/>
b. Double	<input type="checkbox"/>
21. Foldover on Up-Low Printer	
a. Lower Case and Upper Case Print.	* <input type="checkbox"/>
b. Lower Case Prints as Upper Case.	<input type="checkbox"/>
22. Foldover on Monocase Printer	
a. Lower Case Prints as Error Symbol.	<input type="checkbox"/>
b. Lower Case Prints as Upper Case.	* <input type="checkbox"/>
23. Extended ASCII on Printer	
a. Prints Extended ASCII Characters.	<input type="checkbox"/>
b. Does Not Print Extended ASCII Char.	* <input type="checkbox"/>
39. Forms (Tractor Feed Printers)	
a. On	<input type="checkbox"/>
b. Off	* <input type="checkbox"/>

PRINTER OPTIONS (Cont)	
48. Incomplete Form Suppresses Paper Alarm	
a. No (Paper-Out Not Gated W/Form-Out)	<input type="checkbox"/>
b. Yes (Paper-Out Gated W/Form-Out). *	<input type="checkbox"/>
54. Printing of Escape Sequence Suppressed	
a. Char. After ESC Printed as Received. *	<input type="checkbox"/>
b. Printing of Char. After ESC Suppressed.	<input type="checkbox"/>
55. Shift-In/Shift-Out (SI/SO) Detection	
a. SI/SO Detection Not Used. *	<input type="checkbox"/>
b. SI/SO Detection Enables Printing Add. Char.	<input type="checkbox"/>
56. Friction Feed/Tractor Feed Printer	
a. FF Ptr — Motor Held on After Paper Alarm. *	<input type="checkbox"/>
b. TF Ptr — Motor Turned Off After Paper Alarm.	<input type="checkbox"/>
57. SSI/OEM Interface	
a. SSI *	<input type="checkbox"/>
b. OEM	<input type="checkbox"/>
58. Idle Line Motor Control	
a. Disabled — Motor Held On Indefinitely During Idle Line. *	<input type="checkbox"/>
b. Enabled — Motor Turned Off After 40-Second Idle Time.	<input type="checkbox"/>
59. Speed Selection	
a. 75 Baud	<input type="checkbox"/>
b. 150 Baud	<input type="checkbox"/>
c. 300 Baud	<input type="checkbox"/>
d. 600 Baud	<input type="checkbox"/>
e. 1200 Baud	<input type="checkbox"/>
f. 2400 Baud	<input type="checkbox"/>
g. 4800 Baud	<input type="checkbox"/>
h. 9600 Baud *	<input type="checkbox"/>
60. Auxiliary Alarm	
a. Enable	<input type="checkbox"/>
b. Disable *	<input type="checkbox"/>
61. Regulator Grounding	
a. SSI	<input type="checkbox"/>
b. SSI/OEM *	<input type="checkbox"/>
c. OEM	<input type="checkbox"/>

6. INSTALL PRINTER INTO CABINET

FRICITION FEED PRINTER

6.01 Loosen four immobilizing screws a minimum of four turns until base rides freely on the shock mounts (Fig. 19).

IMMOBILIZING
SCREWS

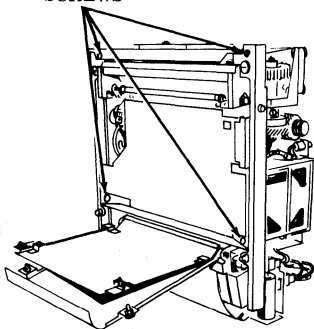
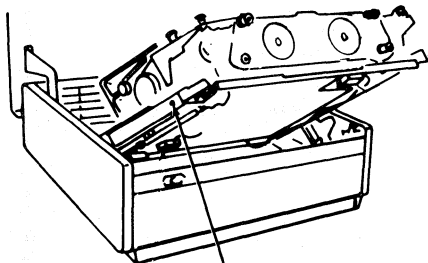


Fig. 19—Friction Feed Immobilization

6.02 Slide printer into track. Make sure ac and SSI cables are not pinched. Make sure detents snap into place (Fig. 20).



DETENT
(Both Sides)

Fig. 20—Printer Tracks

6.03 Connect ac power cable and SSI cable (Fig. 21).

6.04 Depress latchlevers, and push printer down until it latches. Connect interlock cable at right rear corner of printer (Fig. 22).

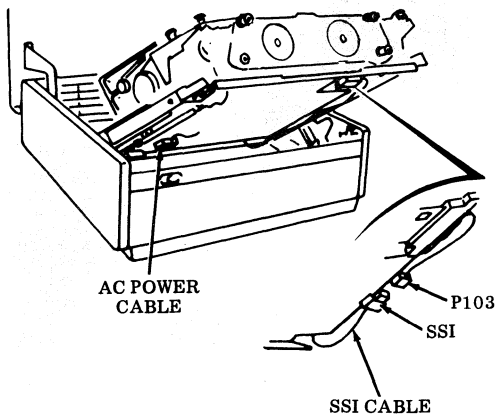


Fig. 21—Cable Connections

Note: Installation of printer under monitor and printer adjacent is similar. For printer under monitor arrangement the printer mounting tracks slide out by releasing latches on both sides of the cabinet and pulling forward. See Fig. 22 for location of latches.

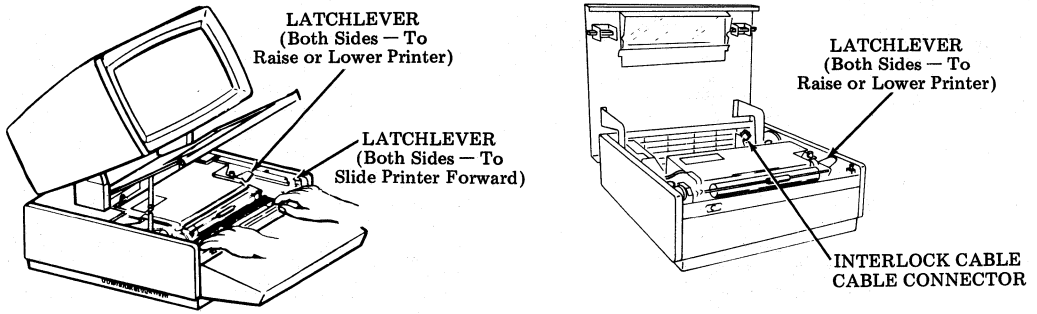


Fig. 22—Printer Under Monitor and Printer Adjacent

TRACTOR FEED PRINTERS

6.05 Loosen four immobilizing screws a minimum of four turns until base rides freely on the shock mounts (Fig. 23).

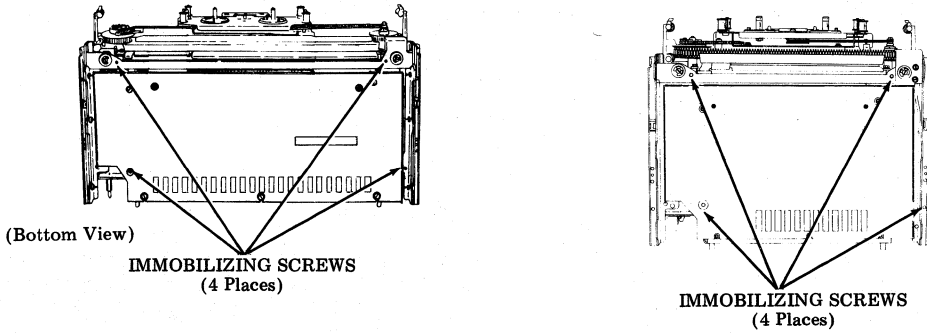


Fig. 23—Immobilizing Screws

6.06 Slide the printer in place. Make sure two latches on either side are fully engaged; also make sure three connectors at the rear of the printer are fully seated (Fig. 24).

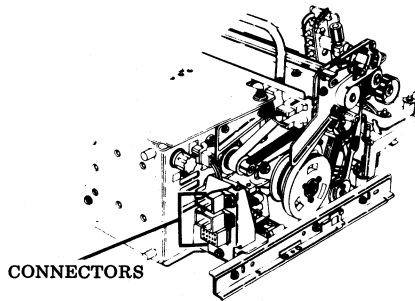


Fig. 24—Connectors on Tractor Feed Printer

FORMS ACCESS PRINTER

- 6.07 Loosen four immobilizing screws far enough so that the base rides freely on the shock mounts (Fig. 25).

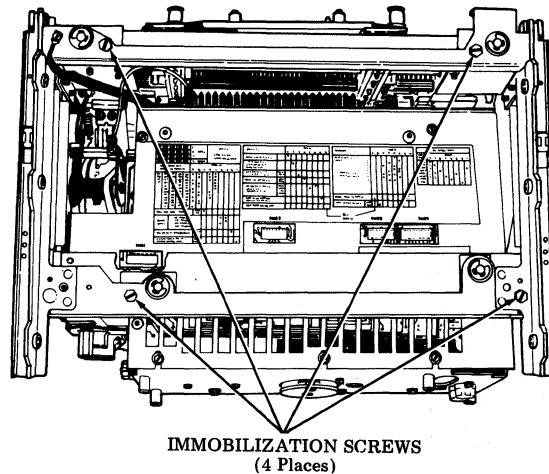


Fig. 25

- 6.08 The 40CAB302 forms access printer cabinet is provided with three security features that customers may desire for their installation: 1. Holes for securing cabinet to the floor, 2. an entry security lock knockout in the left front access door and 3. a secure location for the FORM switch.

- (a) Cabinet floor securing hole data (Fig. 26).

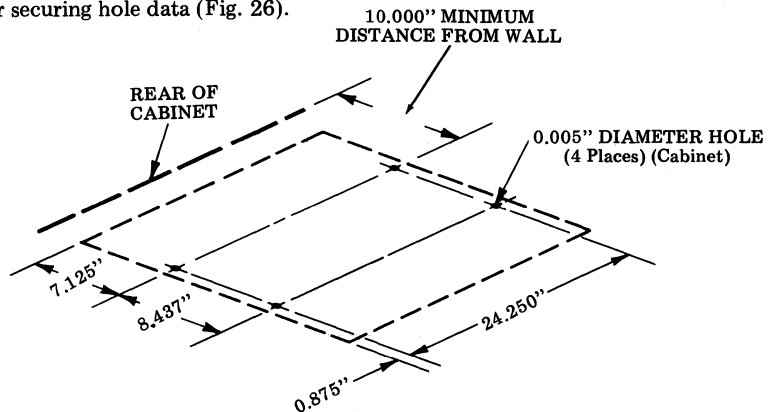


Fig. 26—Securing Hole Data

(b) To acquire entry security, remove the lock mounting hole knockout plug located in the handle well of the left front access door and install lock (Fig. 27).

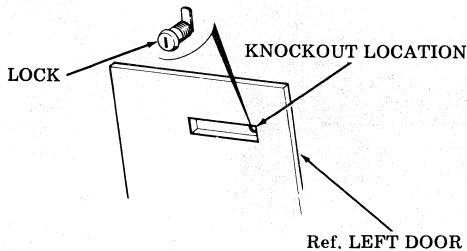
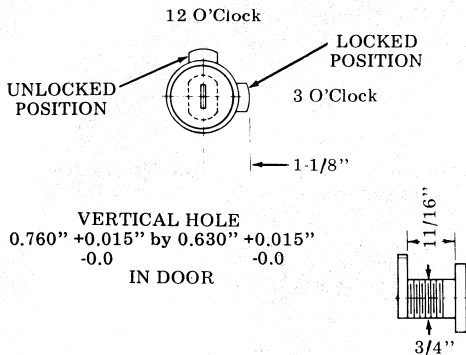


Fig. 27—Lock Knockout Plug Location

Note: Teletype Corporation does not supply the lock. The lock configuration is shown in Fig. 28.



Key Removable in Locked Position Only

Fig. 28—Lock Configuration

(c) The FORM switch securing procedure is as follows: Disassemble cover plate with filler plug from the bottom side of cabinet top cover by removing two screws, lockwashers

and flat washers (Fig. 29). Disconnect the two terminals of the FORM switch and carefully remove FORM switch from top cover forms chute (Fig. 30). Remove the shim and nut that secure the filler plug to the cover plate and reassemble the filler plug in the hole vacated by FORM switch on the top cover form chute. Insert FORM switch in cover plate and reconnect the two terminals. Reassemble the cover plate to the top cover and tighten mounting screws.

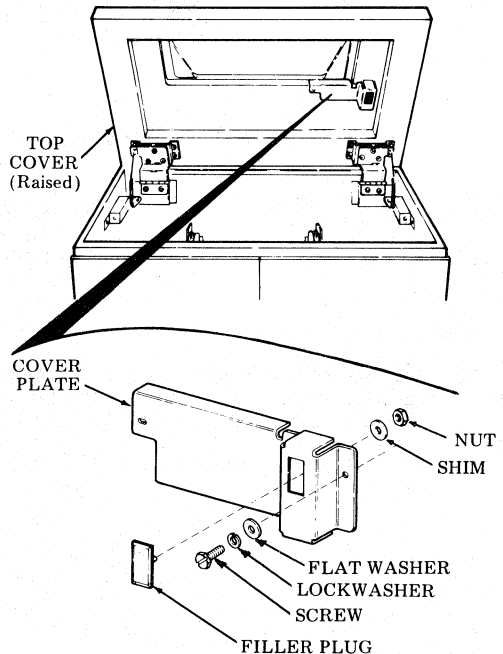


Fig. 29—Cover Plate with Filler Plug

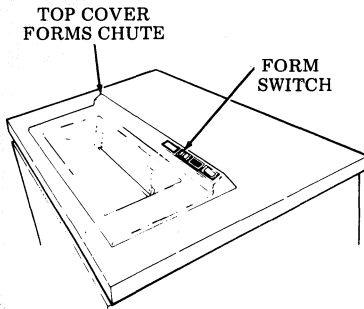


Fig. 30—FORM Switch

6.09 Lower printer into cabinet and onto the rail assemblies. Slide the printer rearward making sure two latches (one on each side) are fully engaged. Connect cabinet connector bracket (left rear) to the printer (Fig. 31).

Note: The late design cabinets have a solid shelf for the printer, and include printer mounting hardware and an instruction sheet.

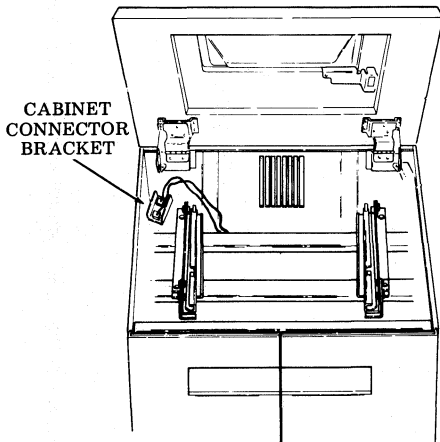
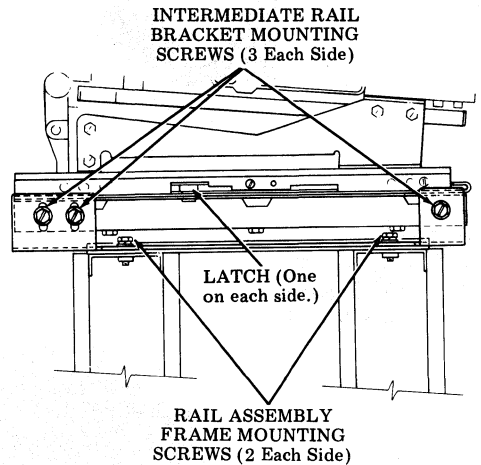


Fig. 31

6.10 Installation of a forms access printer requires the following positioning adjustments of the printer to the cabinet.

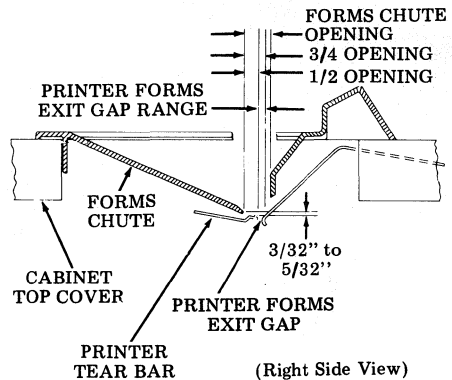
(a) With the printer positioned and latched in its rearmost location on the rail assembly frame, loosen the four rail assembly frame mounting screws friction tight (Fig. 32).



(Right Side View)

Fig. 32

(b) Move the printer rail assembly frame forward or rearward so that the printer forms exit gap is located half to three-fourths of the way back in the forms chute opening (as gauged by eye) (Fig. 33).



(Right Side View)

Fig. 33

(c) Tighten the four mounting screws.

(d) With a scale resting on the printer tear bar top surface and against the front edge of the forms chute opening, the tear bar should be located $\frac{3}{32}$ inch to $\frac{5}{32}$ inch below the form of the cabinet forms chute opening (Fig. 33).

(e) To adjust, loosen the six intermediate rail bracket mounting screws friction tight (Fig. 32). Place the blade of a screwdriver between the frame and the intermediate rail. Pry intermediate rail assembly up at alternate left and right front corners until requirement in 6.09 (d) is met. Tighten the forward most screws.

(f) After making adjustment, tighten remaining screws.

7. INSTALL TYPE CARRIER

TYPE CARRIER PALLET ALIGNMENT

7.01 Prior to installation, align all type carrier pallets as follows, using 402878 gauge:

(a) Position the stem end of all pallets against the rear surface of the carrier (from Position No. 1 to Position No. 2) (Fig. 34).

Position No. 1 

Position No. 2 

Fig. 34

(b) Place type carrier into proper slot on the 402878 gauge (0.125 inch slot for 80-column printer and 0.070 inch slot for 132-column printer). Seat all pallets into bottom of channel (Fig. 35).

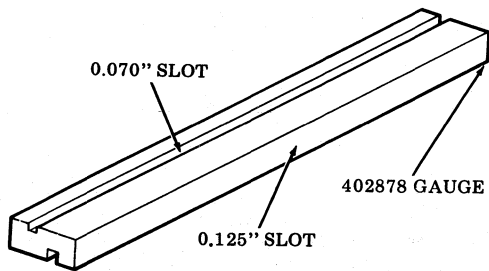


Fig. 35

FRICITION FEED PRINTER

7.02 Install type carrier as follows:

(a) Release the thumb lever on the left ribbon guide bracket allowing the guide to spring to left (Fig. 36).

(b) Loosen the thumbscrew on the right ribbon guide bracket and swing the guide to the right (Fig. 36).

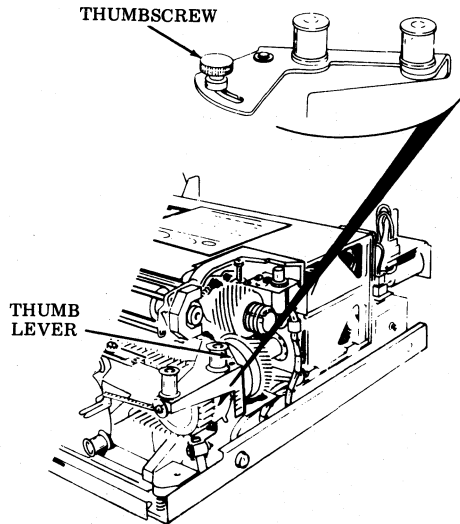


Fig. 36—Thumb Lever and Thumbscrew

(c) On late design units (carrier top guide secured to backup bar with three thumbscrews), remove the carrier top guide (Fig. 38).

(d) Start carrier at left pulley. Lift arm at left pulley.

(e) Position carrier over right pulley (Fig. 39).

(f) On early design units (carrier top guide not secured with three thumbscrews), make sure all pallet stems at the top of the belt are under the top guide.

(g) Rotate carrier one revolution by turning impeller gear clockwise.

- (h) Align all pallets against left pulley flange (Fig. 40).

Warning: Damage to the type carrier or printer will result if any protruding type pallet is left unchecked (Fig. 40).

- (i) On late design units, reinstall carrier top guide. With the three thumbscrews loosened, apply slight pressure to the top guide, down and toward the front of the unit. Hold in this position while tightening thumbscrews. Run approximately one page of internal test or 30 seconds of carrier idle. Repeat the top guide positioning procedure. For correct carrier tracking, it is essential that the top guide be positioned against the backup bar.

TRACTOR FEED PRINTER — 80- AND 132-COLUMN

7.03 Install type carrier as follows:

- (a) Release thumb levers on left and right ribbon guide brackets allowing guides to spring open (Fig. 37).

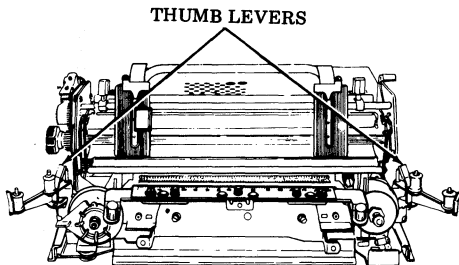


Fig. 37—Ribbon Guides Thumb Levers

- (b) Remove three thumbscrews and lockwashers securing carrier top guide and remove guide (guide not present on 132-column) (Fig. 38).
- (c) Install type carrier starting at left pulley. Lift finger lever on left pulley and position carrier over right pulley (Fig. 39).
- (d) Rotate type carrier one revolution by turning impeller gear by hand clockwise. At the same time align any protruding type pallets against the left pulley flange (Fig. 40).

Warning: Damage to the type carrier or printer will result if any protruding type pallet is left unchecked (Fig. 40).

- (e) Reinstall carrier top guide on 80-column printer per instructions on the top guide. Run approximately one page of internal test or 30 seconds of carrier idle. Repeat the top guide positioning procedure. For correct carrier tracking, it is essential that the top guide be positioned against the backup bar.

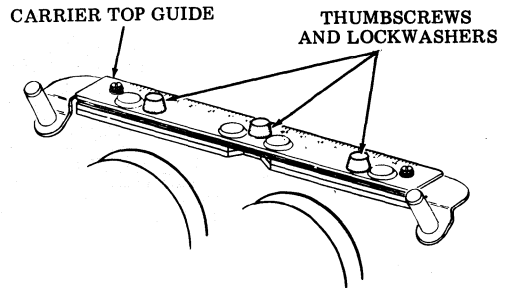


Fig. 38—Top Guide

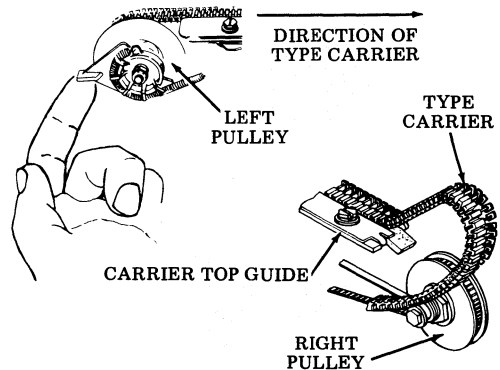


Fig. 39—Type Carrier Installation

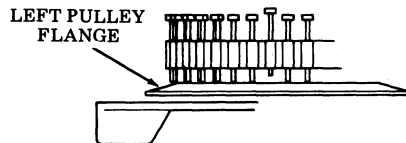


Fig. 40—Type Carrier Alignment

FORMS ACCESS TRACTOR FEED PRINTER —
80-COLUMN

7.04 Install type carrier as follows:

- (a) Depress thumb lever on right ribbon guide bracket allowing the guide to spring open (Fig. 41).
- (b) Remove the tear bar assembly by removing the two securing screws, lockwashers and flat washers (Fig. 42).

Danger: Exercise care in handling tear bar to prevent injury from the tear edge. Careless handling of the tear bar may produce a burr on the tearing edge which may impair feeding of paper forms.

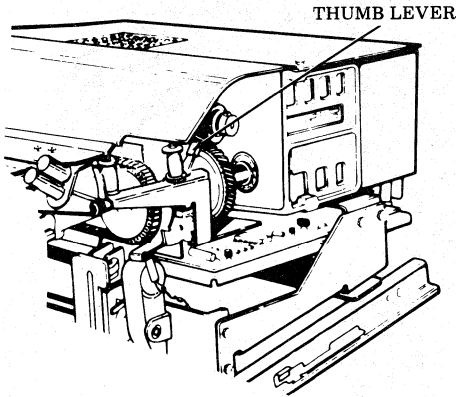


Fig. 41—Thumb Lever

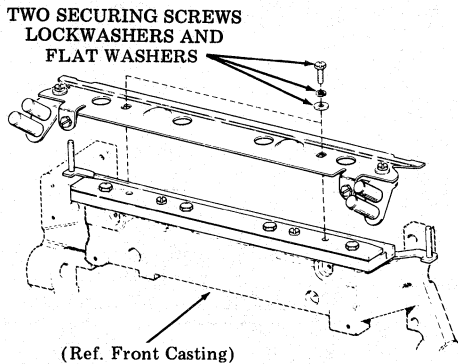


Fig. 42—Tear Bar Assembly

- (c) Install type carrier starting at left pulley. Lift finger lever on left pulley and position carrier over right pulley (Fig. 43).
- (d) Reinstall the tear bar assembly (Fig. 42) and tighten the two securing screws while holding the tear bar assembly toward the rear of the unit.
- (e) Rotate type carrier one revolution by turning impeller gear by hand clockwise. At the same time, align any protruding type pallets against the left pulley flange (Fig. 44).

Caution: Damage to type carrier or printer will result if any protruding type pallet is left unchecked.

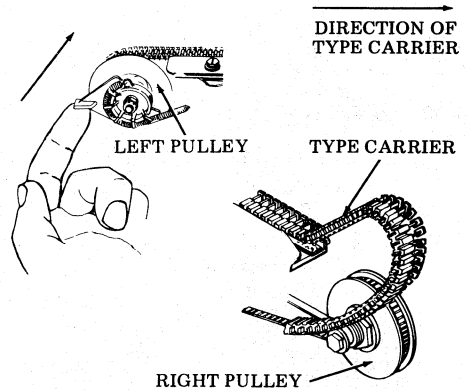


Fig. 43—Type Carrier Installation

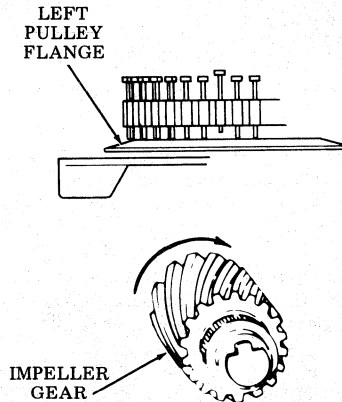


Fig. 44—Type Carrier Alignment

8. INSTALL RIBBON

FRICION, TRACTOR FEED AND FORMS ACCESS PRINTERS

8.01 Rotate spindles by hand to determine which one turns freely. Place full spool on free-turning spindle so that ribbon feeds off bottom of spool.

8.02 Hold empty spool (with ribbon attached) in one hand and thread the ribbon as shown in Fig. 45, 46, 47 and 48.

Note 1: On tractor feed printer the ribbon must pass between the clear plastic strip and the type carrier.

Note 2: Two wire guides are present on 80-column tractor only — make sure ribbon does not become tangled in the guides.

Note 3: On 80-column forms access printer, the ribbon must pass between the plastic shield and the steel tear edge.

Note 4: On 80-column friction feed printer equipped with acoustical noise-reduction parts, ribbon must be located between the mask and type pallets.

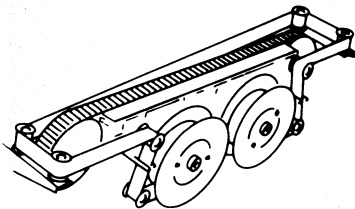


Fig. 45—Friction Feed — 80-Column

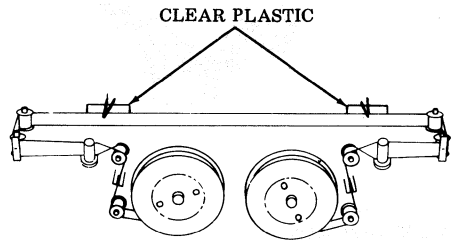


Fig. 46—Tractor Feed — 80-Column

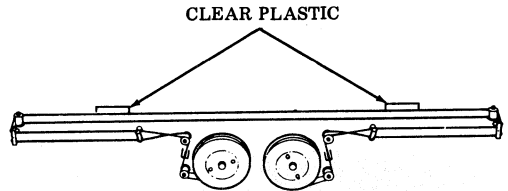


Fig. 47—Tractor Feed — 132-Column

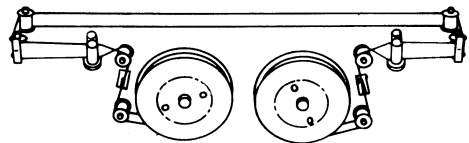


Fig. 48—Forms Access — 80-Column

8.03 Wind sufficient ribbon on empty spool so that second eyelet is wound on spool. Place empty spool on the other spindle with the ribbon feeding into the bottom of the spool.

8.04 Rotate full spool to take up all slack.

8.05 Ribbons are available from Teletype Corporation, 5555 Touhy Avenue, Skokie, Illinois 60077 (Phone 312-982-2000). When ordering, specify part number 402444.

9. INSTALL PAPER

FRICITION FEED PRINTER

9.01 Pull pressure roller release lever up and to the front (Fig. 49).

9.02 Insert spindle in new roll; crease end of paper as shown and install paper roll into printer enclosure (Fig. 50).

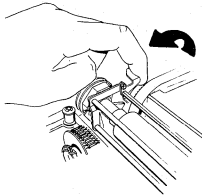


Fig. 49—Pressure Roller Release Lever

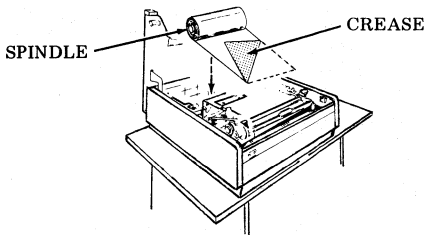


Fig. 50—Paper Forming Prior to Installation

9.03 Back up roll until point of paper drops behind lip of paper access chute (Fig. 51).

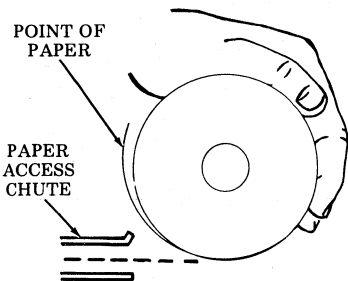


Fig. 51—Feeding Paper in Chute

9.04 Rotate paper roll as shown to feed paper through printer. It will be necessary to push and pull paper roll slightly. Use both hands on paper roll for even pressure on paper (Fig. 52).

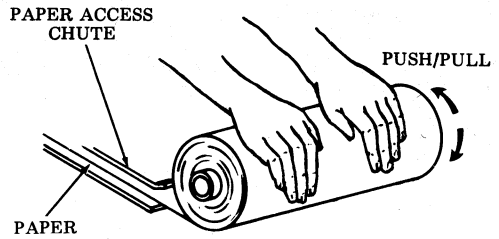


Fig. 52—Rotating Paper Roll

Note: If printer is not equipped with acoustical noise-reduction parts, proceed as follows:

9.05 Rotate paper until leading edge appears under pressure roller shaft. Be sure paper is not between type pallets and ribbon (Fig. 53).

9.06 Pull through approximately 12 inches of paper and align edge of paper with edge of roll. Return pressure roller release lever to engaged position, insert paper through window opening and close cover.

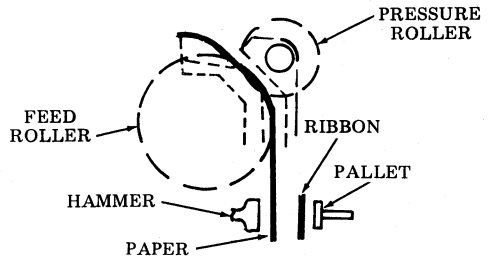


Fig. 53—Friction Feed Printer Without Noise-Reduction Parts

Note: If printer is equipped with acoustical noise-reduction parts, proceed as follows:

9.07 With printer raised and paper access chute opened, feed paper up by hand behind the mask and between the feed roller and pressure roller, making sure point of paper does not enter opening mask (Fig. 54). (The mask is a plastic piece mounted between the ribbon and the feed roller. An opening in the mask allows for the ribbon to contact the paper during printing.)

9.08 Grasp end of paper and pull through (approximately 12 inches). Close the paper access chute and lower the printer. Align edge of paper with edge of roll and return pressure roller release lever to engaged position. Feed the end of the paper through the opening in the cover and close the cover while keeping the paper taut.

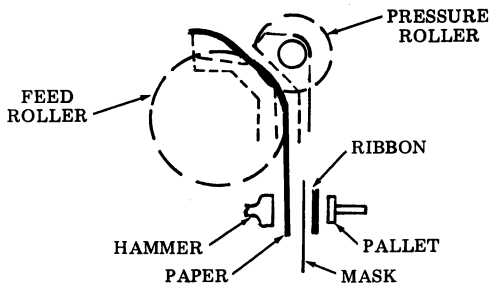


Fig. 54—Friction Feed Printer Equipped With Noise-Reduction Parts

TRACTOR FEED PRINTER — 80- AND 132-COLUMN

9.09 Install paper forms:

- (a) Release paper guides and open tractor covers (Fig. 55).

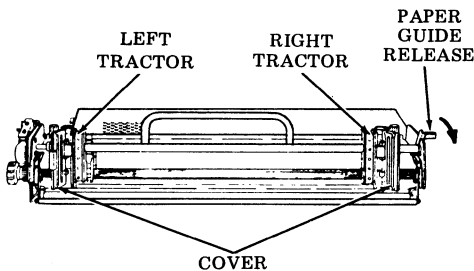


Fig. 55—Guides and Tractors

- (b) Insert sprocket paper in slot under the table in front of the set.

Note: If multiple forms separate, fold one form down and insert paper.

- (c) Feed paper up through printer, guide paper in back of ribbon and between upper paper guides (Fig. 56).
- (d) Pull paper up and align holes on the paper with the pins on the left tractor. Close the left tractor lid.

Note: If printer is equipped with the paper jam alarm refer to 9.10.

- (e) Set the left tractor for the left margin (Fig. 57). Note that the left tractor can be placed in position one through seven.

- (1) Loosen the left tractor release knob and slide the tractor to the desired left margin position using the scale on the printer as reference.

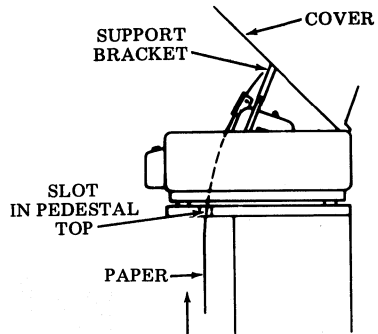


Fig. 56—Paper Routing

- (2) Tighten the left tractor release knob.
- (3) Close the tractor cover.
- (f) Position the right tractor to accept the form width:
 - (1) Loosen the right tractor release knob.
 - (2) Align tractor pins with holes in paper.
 - (3) Close tractor cover.

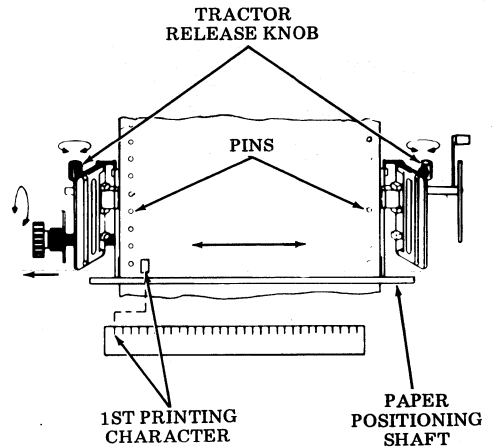


Fig. 57—Left Tractor Positioning

(g) The 80-column tractor feed printer is factory adjusted with a standard original plus five copies. The 132-column tractor feed printer is factory adjusted with a standard original plus three copies. This adjustment may suffice for most installations, including installations requiring single copy. Examine copy for print quality (ink smudge). If necessary, refine the following Paper Positioner adjustment using the paper required in the particular installation.

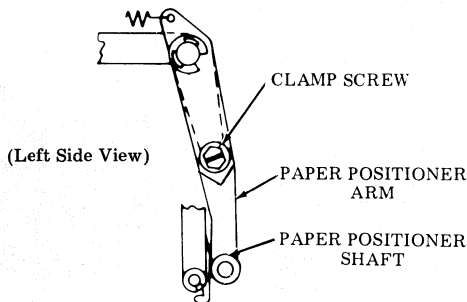
PAPER POSITION (Under Power)
 (80- and 132-Column Tractor Feed)

Requirement (A)

The paper should be positioned as close to ribbon as possible without causing printed copy to become illegible due to ribbon smudging after a one minute printer idle period.

Requirement (B)

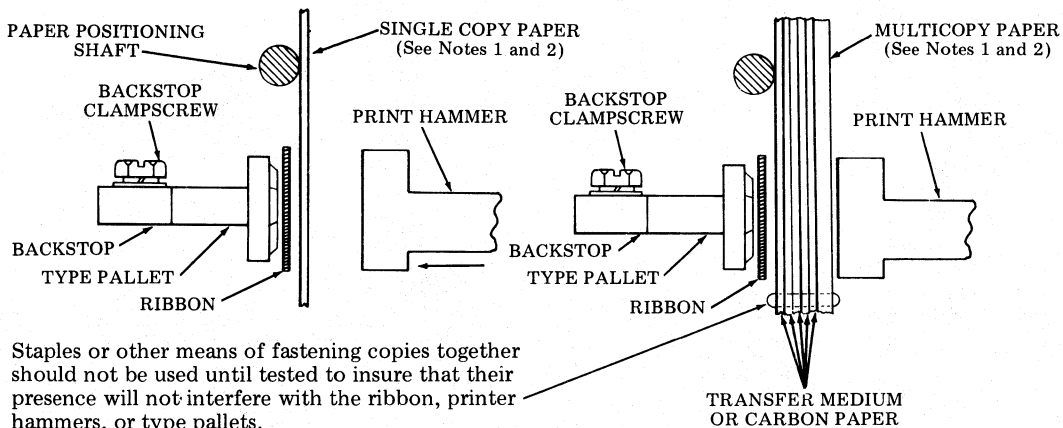
There should be no smudge when printing a text message (not the font identification symbol).



Note 1: These requirements do not apply when printing within two lines of a fold of fanfold paper.

To Adjust

Loosen clamp screws on left and right paper positioner arms and adjust arms to just eliminate marking on either side of paper. Paper should remain as close as possible to ribbon without marking to minimize impact noise and vertical misalignment. Tighten clamp screws.



Staples or other means of fastening copies together should not be used until tested to insure that their presence will not interfere with the ribbon, printer hammers, or type pallets.

Note 2: The factory final adjustment is made with a standard original plus three copies paper on the 132-column printer and with a standard original plus five copies paper on 80-column printer. Upon installation a refinement of this adjustment may be necessary dictated by the actual paper weight and number of copies being used.

9.10 Set or reset paper jam alarm mechanism:

- (a) Rotate the knurled wheel (early design) or "O" ring (late design) toward the rear (pushing on the top of wheel or "O" ring) until it stops.
- (b) Push on blue painted tab of the actuator (early design) or blue plastic actuator (late design) until it detents into reset condition.

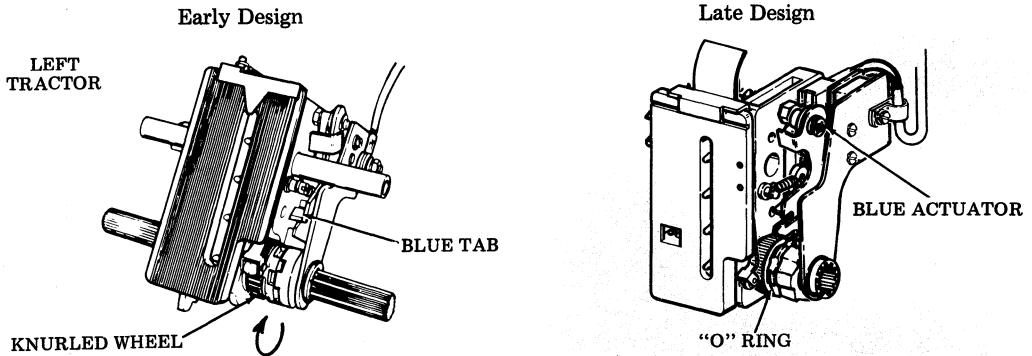


Fig. 58—Paper Jam Alarm Mechanism:

- (c) The (early design) paper jam alarm is adjusted at the factory with single sheets of 20 pound paper. This adjustment may suffice for most installations, including installations requiring multicopy paper. If necessary, refine the PAPER JAM ALARM adjustment using the paper required in the particular installation.
- (d) The (late design) paper jam alarm has no adjustments.

PAPER JAM ALARM (For 80- or 132-column tractor feed printers equipped with paper jam alarm mechanism early design only.)

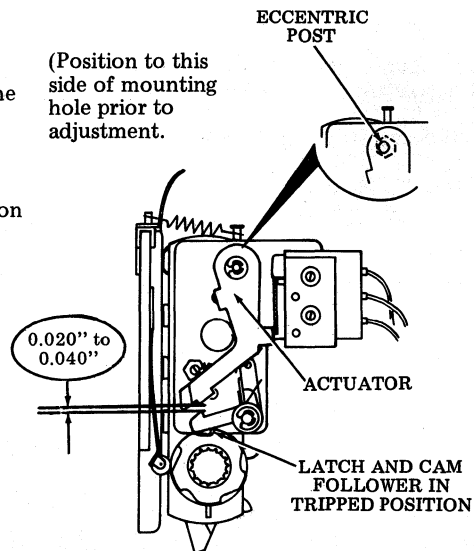
Requirement

There should be

Min 0.020 inch — Max 0.040 inch
between the top of the latch and bottom of the actuator when the cam follower is in the trip position and the actuator is held in.

To Adjust

Loosen the eccentric post mounting nut friction tight. Rotate eccentric to meet requirement. Tighten mounting nut.



FORMS ACCESS PRINTER — 80-COLUMN

9.11 Install paper forms:

- (a) Open left and right tractor lids.
- (b) If multiple forms separate, fold one form down and insert paper.
- (c) Insert paper up through the paper guide chute, behind the ribbon shield and out the slot between the tear bar and top cover before engaging feed holes (Fig. 59).

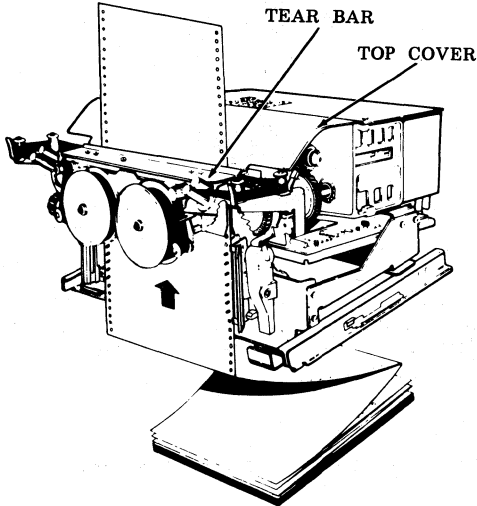


Fig. 59—Paper Routing

- (d) Unlock and set the right tractor for paper width as follows:
 - (1) Lift clamp on the right tractor assembly.
 - (2) Position the right tractor to align tractor pins in paper feed holes.
 - (3) Close right tractor lid and close clamp lever (Fig. 60).

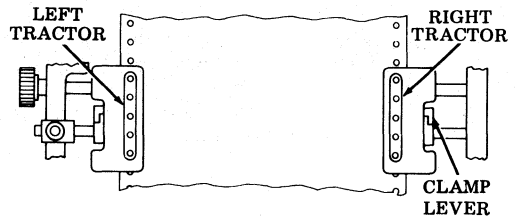


Fig. 60—Right Tractor Positioning

- (e) To align forms to desired first column printing, loosen blue thumbscrew clamp (Fig. 61) and position forms drive assembly to align first position on paper with first printing character position. Tighten thumbscrew clamp.

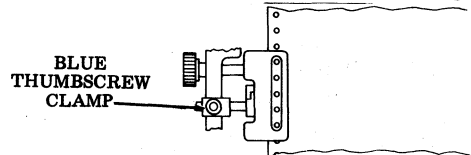


Fig. 61—Thumbscrew Clamp

- (f) Pull out paper advance knob (blue) and turn to position form tearline perforation directly behind the edge of the printer tear bar.

Note: If a new form length has been installed, perform one form feed and repeat 9.11 (f).

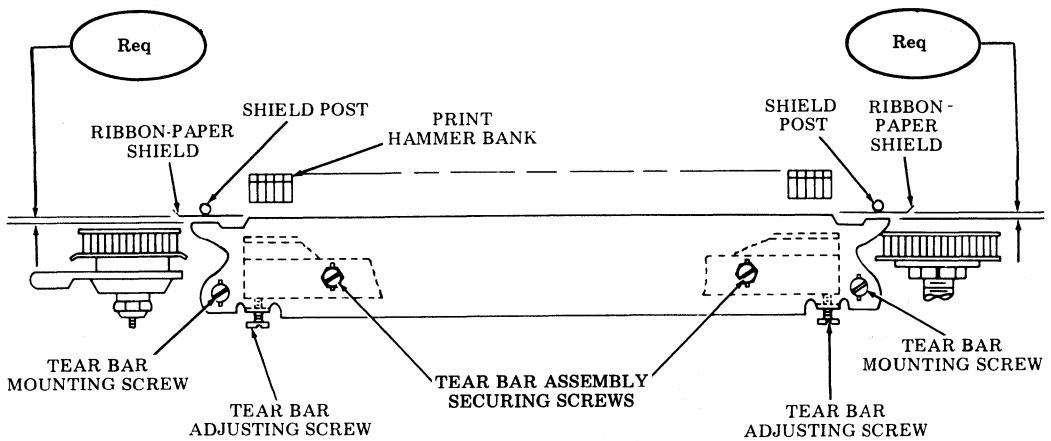
- (g) The forms access printer is factory adjusted to accept 0.005 to 0.010 inch form stock. If other form stock thickness is being used in the particular installation, paper jams may be experienced or print quality may not be satisfactory due to ink smudge. If necessary check and refine the following adjustments:

40P253 Printer

TEAR BAR (Preliminary)

TOP COVER (Preliminary)

TEAR BAR AND TOP COVER (Final)



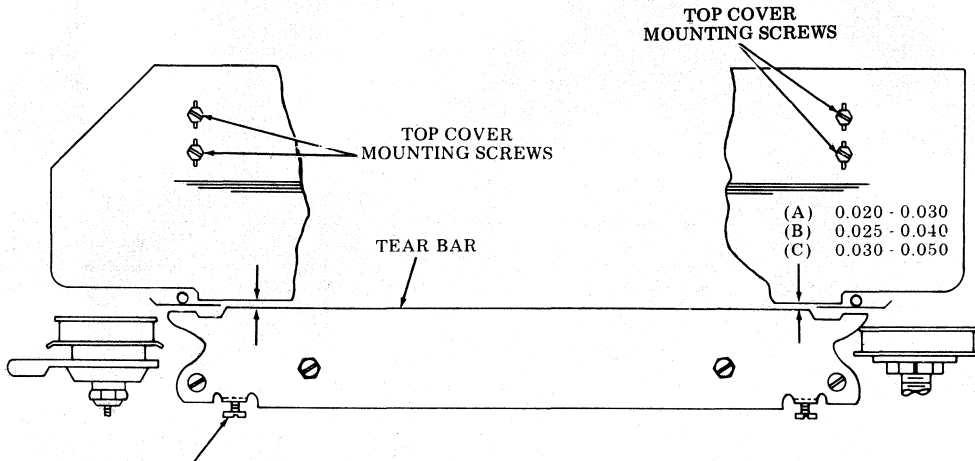
TEAR BAR (Preliminary)
(40P253 Forms Access Printer)

Requirement

There should be a gap of
 Min 0.060 inch – Max 0.080 inch
 between ribbon paper shield and tear bar.

To Adjust

The tear bar mounting screws (2) and tear bar assembly securing screws (2) should be friction tight and the tear bar adjusting screws turned counterclockwise to make the measured gap less than the requirement. Turn tear bar adjusting screws clockwise until the minimum gauge just passes freely. Tighten four mounting screws.



Note: Tear bar adjusting screws should not be disturbed. See **TEAR BAR AND TOP COVER (Final) adjustment.**

TOP COVER (Preliminary)
(40P253 Forms Access Printer)

Requirement

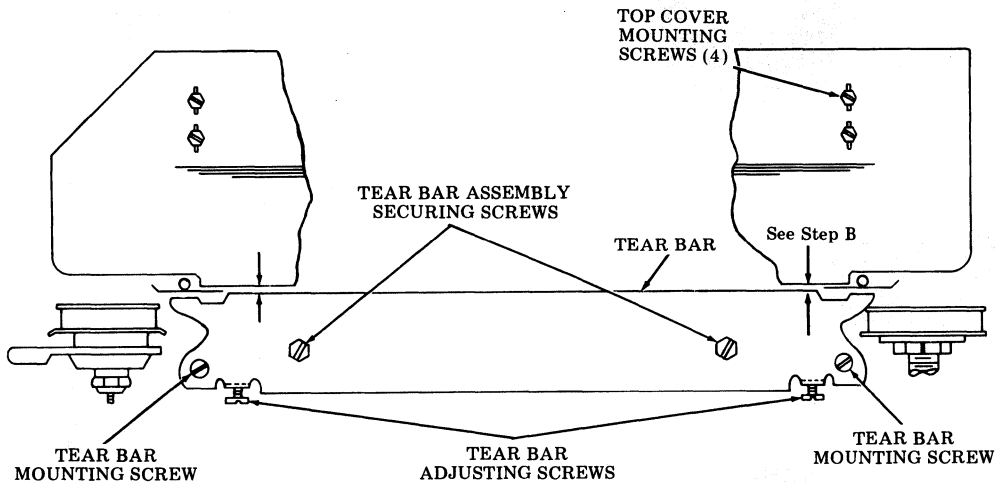
The gap requirement between the top cover and tear bar is determined by the thickness of the forms stock used, as follows:

- (A) If form thickness is 0.005 inch to 0.010 inch, gap should be
Min 0.020 inch — Max 0.030 inch
- (B) If form thickness is 0.010 to 0.018 inch, gap should be
Min 0.025 inch — Max 0.040 inch
- (C) If form thickness is 0.018 inch to 0.025 inch, gap should be
Min 0.030 inch — Max 0.050 inch

To Adjust

With the top cover mounting screws (4) friction tight, position the top cover to meet required gap (per form thickness used) when measured near ends of tear bar. Tighten the top cover mounting screws and recheck gap.

Note: Printer is factory adjusted to meet Requirement (A).



TEAR BAR AND TOP COVER (Final)
 (40P253 Forms Access Printer)

Requirement

The printed character in a line of copy should not become illegible due to ink being deposited on the paper when printer is running idle for one minute.

To Adjust

Step (A) With printer power off, loosen tear bar mounting screws (2) and tear bar assembly securing screws (2). Reduce the gap between tear bar and top cover by turning adjusting screws counterclockwise in increments of 1/6 turn (one flat of hex), but not more than three, while applying finger pressure on tear bar to reduce gap. Tighten the tear bar assembly securing screws (2) after each increment and recheck requirement. When requirement is met, tighten tear bar mounting screws (2).

Step (B) Reposition the top cover to provide applicable top cover to tear bar gap, dependent on thickness of forms stock used. See TOP COVER (Preliminary) requirement. Tighten the top cover mounting screws (4) and recheck gap.

Note: When refinement of these adjustments is required, some increase in audible noise and a lessening of print density may occur.

10. FORM-OUT BELT SELECTION — 80- AND 132-COLUMN TRACTOR FEED PRINTER AND 80-COLUMN FORMS ACCESS PRINTER

10.01 The blue 402572 form-out belt is supplied with the printer. Refer to the following table for selecting a different belt that may be requested by the customer.

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

† For six lines per inch

**For eight lines per inch

(a) If a form-out belt different from the one on the printer is required, change belt as follows:

- (1) Loosen thumbscrew and move rear (idler) wheel forward (Fig. 62).
- (2) Hold form selector lever depressed and slide off old belt.
- (3) Place new belt on wheels with arrow on belt pointed inward.
- (4) Position rear wheel back to remove slack in belt keeping bracket to which wheel is mounted at right angles to the slot.
- (5) Tighten thumbscrew and place form selector pointer at proper scale setting for proper form length.
- (6) Depress the FORM ADVANCE button and position the form at the first printing line.

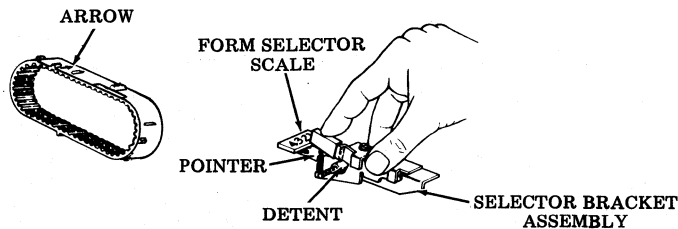
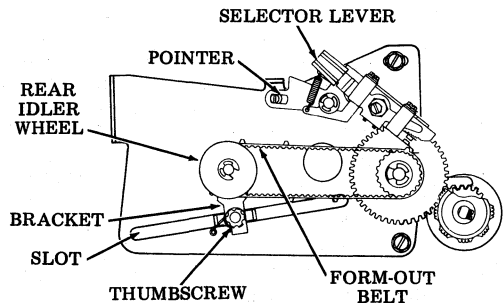
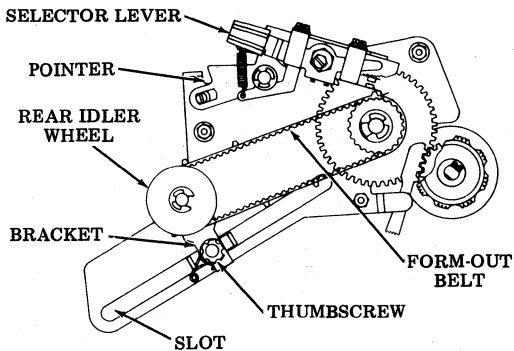


Fig. 62—Form-Out Mechanism

(b) On 80- or 132-column tractor feed printer, pull out paper advance knob (blue) and turn to position form for first line of printing as follows (Fig. 63):

- (1) Position the paper so first line to be printed is just above the paper positioning shaft (Fig. 63).
- (2) Position the top of the alignment clip to any reference mark on the paper (or make a pencil mark on the paper in line with the top of the alignment clip).
- (3) Using the blue paper adjusting knob move the paper down so that the reference mark (or pencil mark) on the paper is in line with the bottom of the alignment clip (Fig. 63).
- (4) Return paper guide to operating condition.

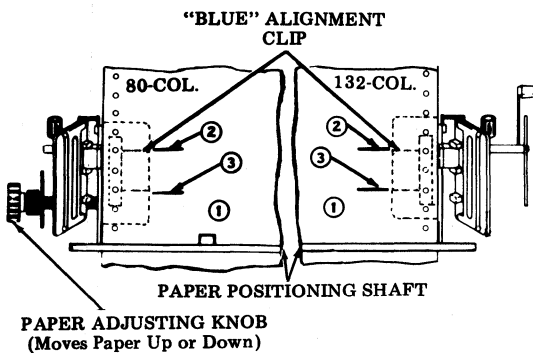


Fig. 63—Paper Positioning for First Printing Line (80- and 132-Column)

(c) On 80-column forms access printer, pull out paper advance knob (blue) and turn to position form for first line of printing as follows (Fig. 64):

- (1) Align the start of form (tear line perforation) directly behind the tear edge of the tear bar (Fig. 64).
- (2) The distance from the tear line to the first printing centerline is 0.250 inch (Fig. 65).
- (3) Printing in other lines is accomplished by inserting New Lines in the format.

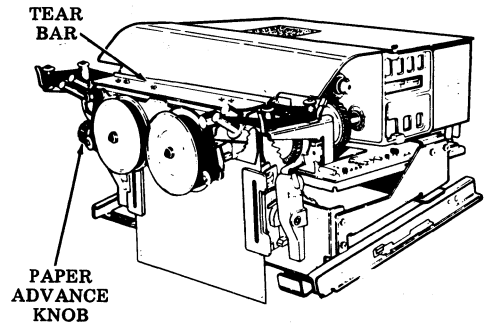


Fig. 64—Paper Positioning for First Printing Line (80-Column)

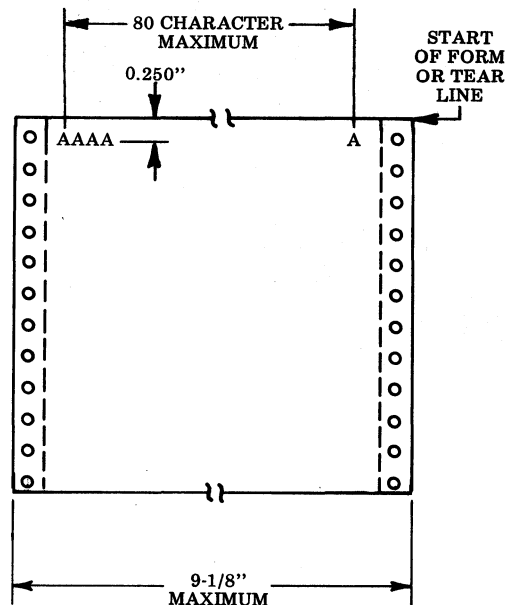


Fig. 65

11. PRINTER TESTING

11.01 When installation of the printer is completed the printer should be tested. Refer to Section 582-210-500, Printer Testing and Troubleshooting; if printer is part of a station, refer to the appropriate station BSP section for testing procedures.

“DATASPEED*” 40 PRINTER

WIRING

	CONTENTS	PAGE
1.	GENERAL	1
2.	WIRING INDEX	1

1. GENERAL

1.01 This section provides the actual and schematic wiring diagrams for the DATA-SPEED 40 printers, (hereafter referred to as 40-Type), 40P101/ZZ and 40P102/ZZ (80-Column Friction Feed), 40P151/ZZ, 40P153/ZZ and 40P154/ZZ (80-Column Tractor Feed), 40P201/ZZ, 40P202/ZZ, 40P203/ZZ and 40P204/ZZ (132-Column Tractor Feed and 40P253/ZZ (80-Column Form Access Tractor Feed).

1.02 This section is reissued to include the actual and schematic wiring diagrams for the 40P204 and to incorporate the cable changes and addition of the 411040 assembly to the 40P101 and 40P102 printers and the 410019 circuit card for the 40P154, 40P253 and 40P201 through 40P204 printers.

1.03 These diagrams show the origin and termination of the various leads as well as the color coding of the leads for each of the components.

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

2. WIRING INDEX

2.01 Following is an index locating the printer wiring information provided in this section.

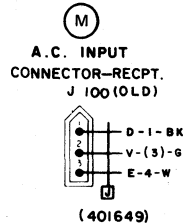
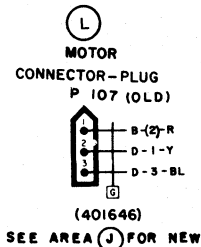
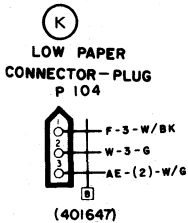
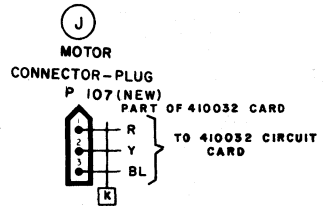
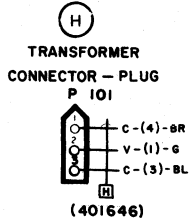
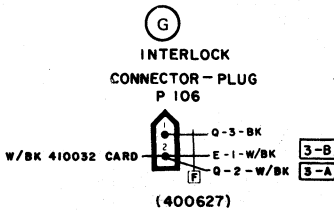
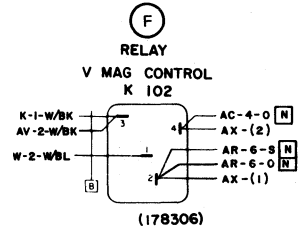
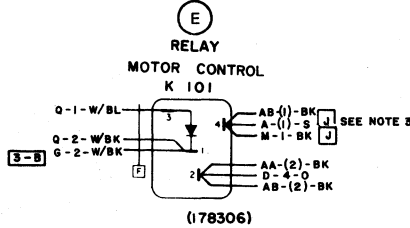
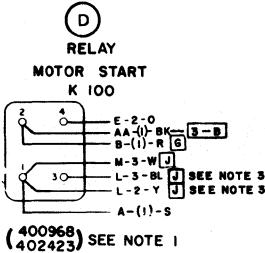
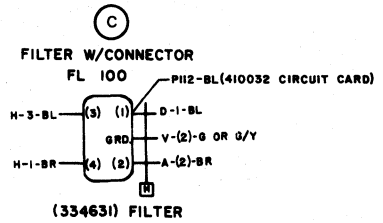
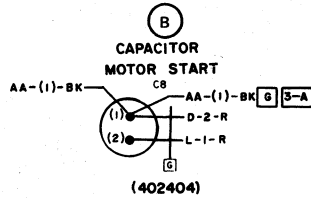
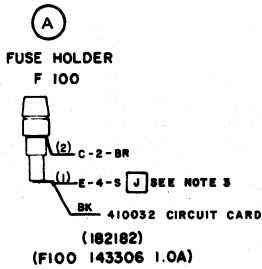
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	40P101	40P102	40P151	40P153	40P154	40P201, 40P202, 40P203, 40P204				40P253
Actual	Pages 2-5	Pages 2-5	Pages 6-13	Pages 6-13	Pages 14-17	Pages 18-21				Pages 22-25
Schematic	Page 26	Page 27	Pages 30-31	Pages 32-33	Pages 34-35	Pages 36-37				Pages 38-39

2.02 If a more comprehensive presentation of wiring information is required, the following Wiring Diagram Packages (WDPs) are available from Teletype Corporation. The WDPs specified include the Circuit Descriptions (CD) and Schematic Diagrams (SD) indicated in each column.

	40P101	40P102	40P151, 40P153	40P154	40P201	40P202, 40P203, 40P204	40P253
Printer WDP	WDPO435	WDPO435	WDPO435	WDPO479	WDPO462	WDPO462	WDPO374
Printer Circuit Description	1295CD	1295CD	1295CD	2009CD	2008CD	2008CD	1658CD
Printer Schematic Diagram	1295SD	1295SD	1295SD	2009SD	2008SD	2008SD	1658SD
Printer Logic Circuit Description	4640CD 4076CD	4076CD	4640CD 4076CD	4071SD	4729CD 4072CD	4072CD	4071CD
Printer Logic Schematic Diagram	4640SD 4076SD	4076SD	4640SD 4076SD	4071SD	4729CD 4072CD	4072SD	4071SD
Power Supply Circuit Description	4681CD 4150CD	4150CD	4681CD 4150CD	4151CD	4151CD	4151CD	4151CD
Power Supply Schematic Diagram	4681SD 4150SD	4150SD	4681SD 4150SD	4151SD	4151SD	4151SD	4151CD
Printer Actual Wiring Diagram	9550WD	9550WD	9546WD	9596WD	9583WD	9583WD	9447WD

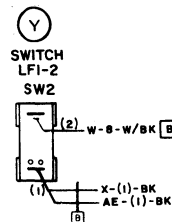
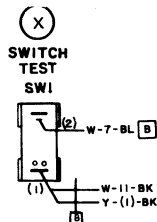
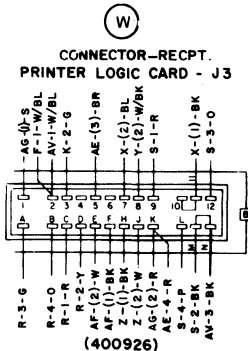
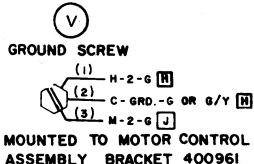
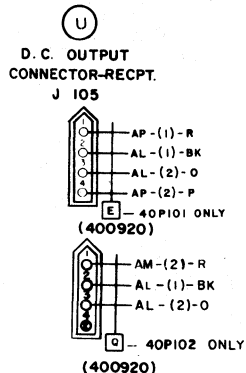
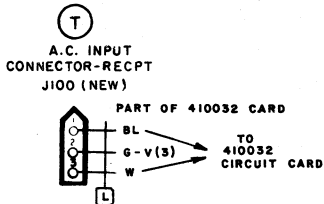
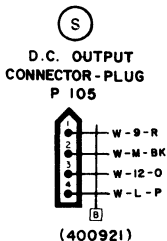
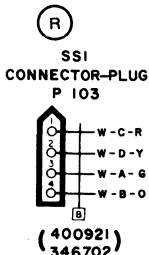
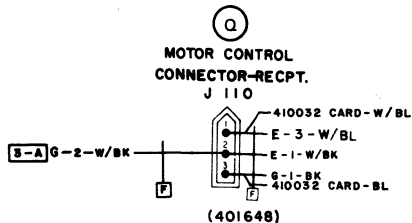
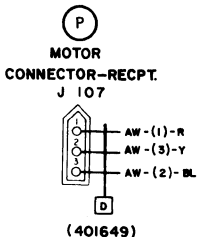
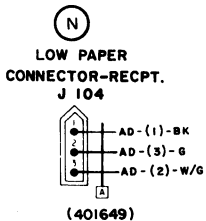
*Registered Trademark of AT&TCo.

40P101 OR 40P102 FRICTION FEED PRINTER ACTUAL WIRING



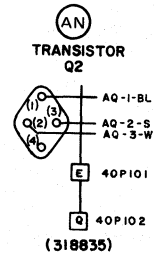
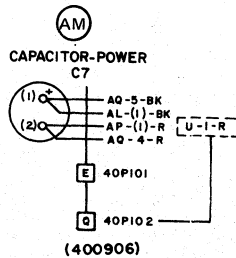
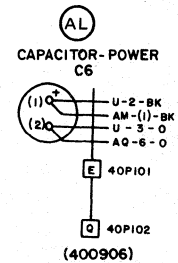
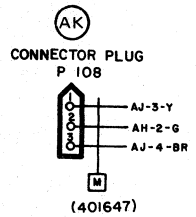
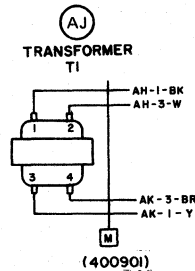
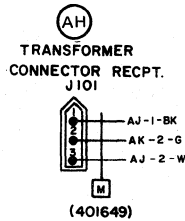
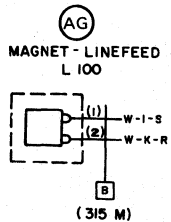
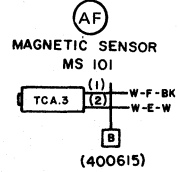
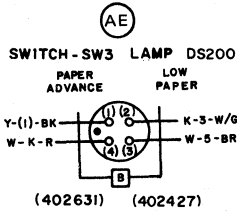
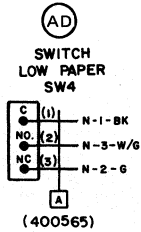
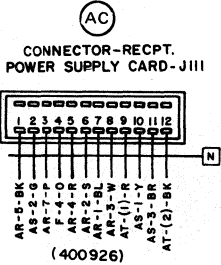
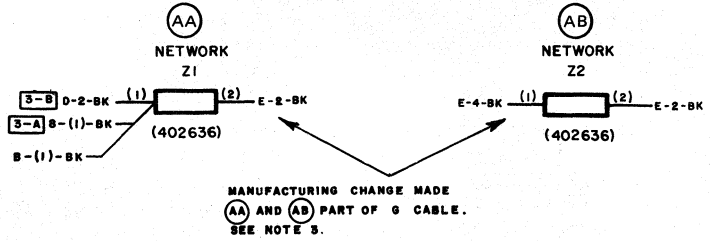
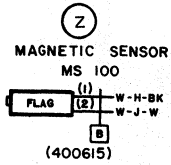
3-A LATE DESIGN - SEE NOTE 3
 3-B EARLY DESIGN - SEE NOTE 3

40P101 OR 40P102 FRICTION FEED PRINTER ACTUAL WIRING (Cont)



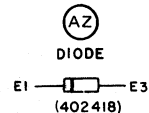
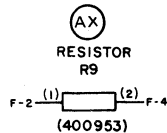
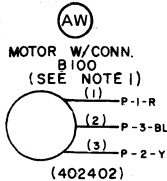
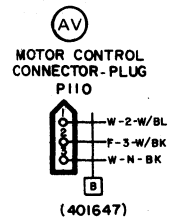
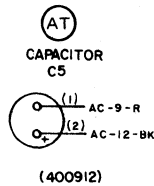
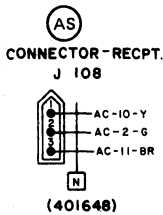
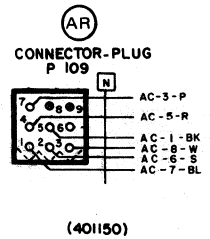
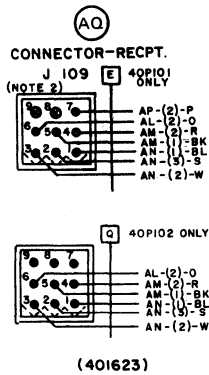
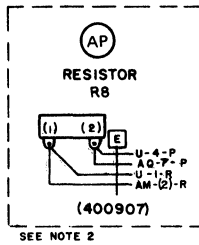
3-A LATE DESIGN - SEE NOTE 3
3-B EARLY DESIGN - SEE NOTE 3

40P101 OR 40P102 FRICTION FEED PRINTER ACTUAL WIRING (Cont)



3-A LATE DESIGN-SEE NOTE 3.
3-B EARLY DESIGN-SEE NOTE 3.

40P101 OR 40P102 FRICTION FEED PRINTER ACTUAL WIRING (Cont)

ASSOCIATED CABLE ASSEMBLIES **(X)**

- A-400579 (LOW PAPER)
- B-400580 (MAIN CABLE)
- E-400916 (COVER)
- F-411042 (CONTROL) (NEW)
- F-400967 (INTERLOCK) (OLD)
- G-400969 (CAP/ SUP)
- H-411041 (FILTER) (NEW)
- H-400970 (FILTER) (OLD)
- J-400971 (POWER)
- K-411083 (MOTOR)
- L-411043 (POWER)
- M-400915 (TRANSFORMER)
- N-400917 (POWER SUPPLY)
- Q-407208 (COVER)

Note 1: The 400270 motor must use 400968 relay, the 402402 motor must use 402423 relay. Motors and relays are marked with part numbers. Wire terminations are the same for both electrical-mechanical relays.

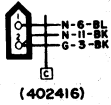
Note 2: Resistor area **(AP)**, Pin 7 area **(AQ)** and pin 4 area **(U)** are omitted in 40P102 printer.

Note 3: The following changes were incorporated in the ac input and motor control assembly: Slate wire at **(E)** terminal 4 made part of cable **(J)**, yellow wire at **(D)** terminal 1 previously part of cable **(G)** made part of cable **(J)**. Blue wire at **(D)** terminal 3 previously part of **(G)** cable made part of **(J)** cable. Heat shrink tubing over brown wires at **(A)** terminal 2. BK wire **(D)** terminal 2 moved to **(B)** terminal 1. **(AA)** and **(AB)** networks now part of **(G)** cable. W/BK wire at **(E)** terminal 1 moved to **(Q)** pin 2.

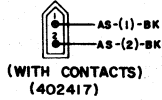
Note 4: All previous design ac input and motor control assemblies have been manufacture discontinued and should be replaced with 411040 solid state ac input and motor control assembly and 402402 motor.

40P151 OR 40P153 TRACTOR FEED PRINTER ACTUAL WIRING (WITHOUT 410082 CIRCUIT CARD INSTALLED IN AC POWER MODULE)

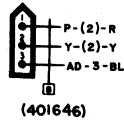
(A)
CONNECTOR-PLUG
END OF FORM
P 116



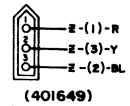
(B)
CONNECTOR-RECPT.
END OF FORM
J 116



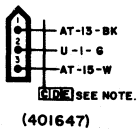
(C)
CONNECTOR-PLUG
MOTOR POWER
P 107



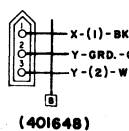
(D)
CONNECTOR-RECPT.
MOTOR POWER
J 107



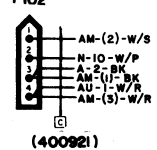
(E)
CONNECTOR-PLUG
AC POWER IN
P 112



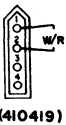
(F)
CONNECTOR-RECPT.
AC POWER IN
J 112



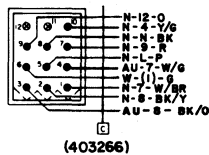
(G)
CONNECTOR-PLUG
PAPER JAM
P 102



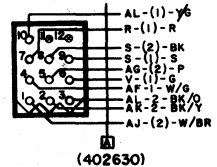
(H)
CONNECTOR-RECPT.
PAPER JAM
J 102



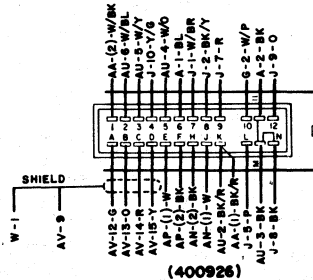
(J)
CONNECTOR-RECPT.
DC OUTPUT
J 105



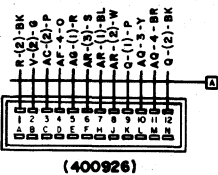
(K)
CONNECTOR-PLUG
DC OUTPUT
P 105



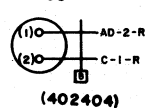
(N)
CONNECTOR-RECPT.
PRINTER LOGIC - J 3



(L)
CONNECTOR-RECPT.
POWER SUPPLY- J 111

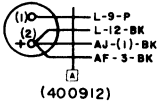


(P)
CAPACITOR- MOTOR START
C 8

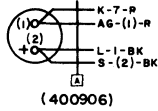


40P151 OR 40P153 TRACTOR FEED PRINTER ACTUAL WIRING (WITHOUT 410082 CIRCUIT CARD INSTALLED IN AC POWER MODULE) (Cont)

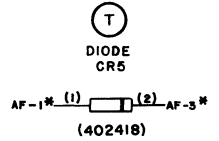
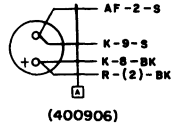
(Q)
CAPACITOR-INPUT
C10I



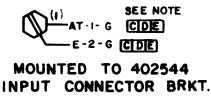
(R)
CAPACITOR-OUTPUT
C6



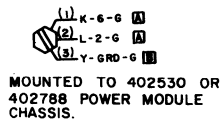
(S)
CAPACITOR-OUTPUT
C7



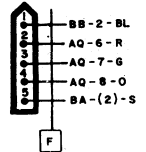
(U)
GROUND SCREW



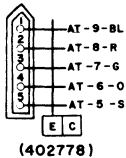
(V)
GROUND SCREW



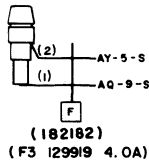
(AY)
CONNECTOR-PLUG
P117



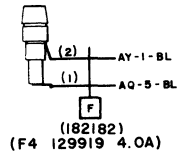
(AZ)
CONNECTOR-RECP.
J117



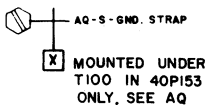
(BA)
FUSE HOLDER W/FUSE
F3



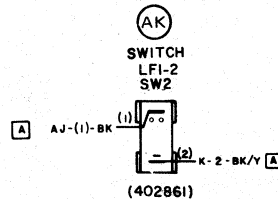
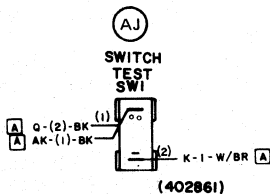
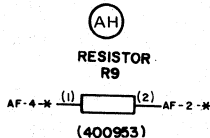
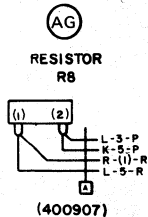
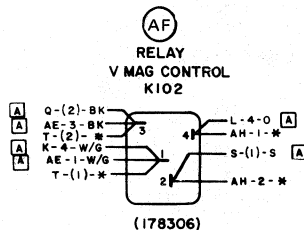
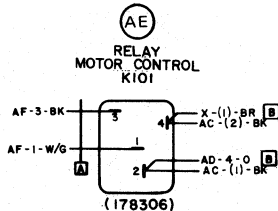
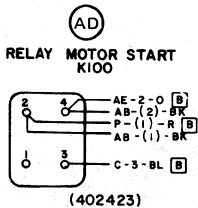
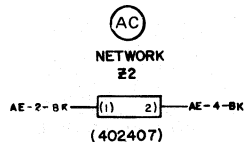
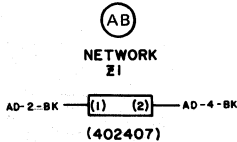
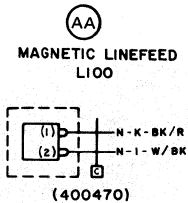
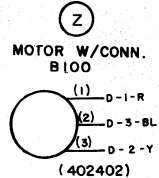
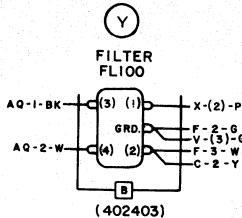
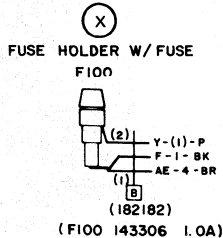
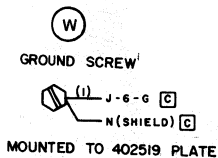
(BB)
FUSE HOLDER W/FUSE
F4



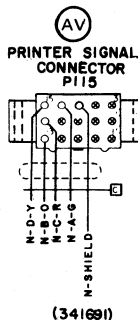
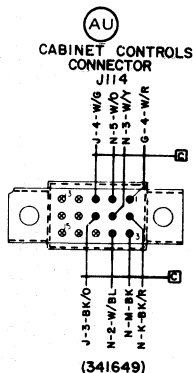
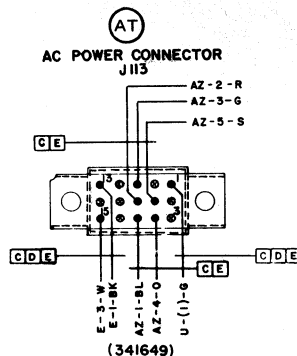
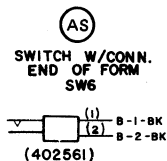
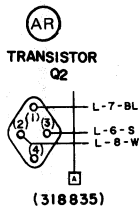
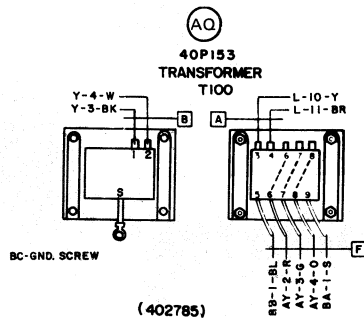
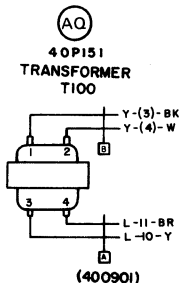
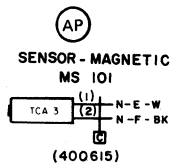
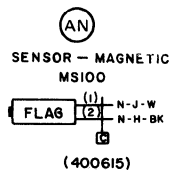
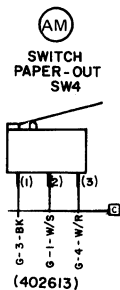
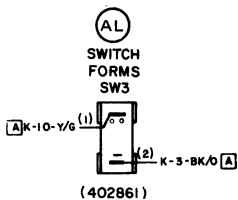
(BC)
GROUND SCREW



40P151 OR 40P153 TRACTOR FEED PRINTER ACTUAL WIRING (WITHOUT 410082 CIRCUIT CARD INSTALLED IN AC POWER MODULE (Cont)



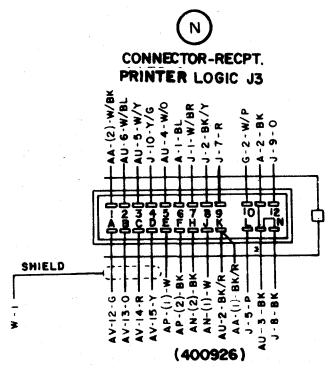
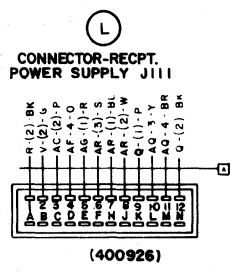
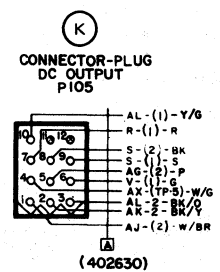
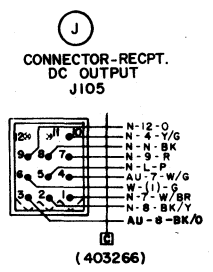
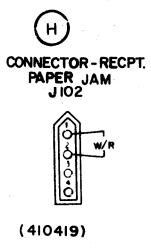
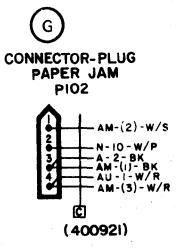
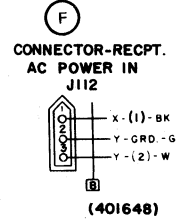
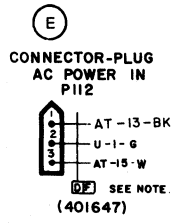
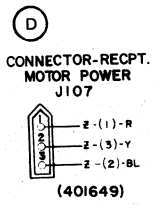
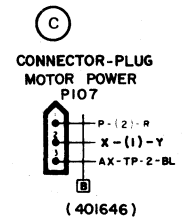
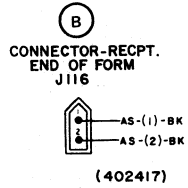
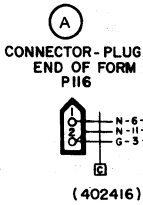
40P151 OR 40P153 TRACTOR FEED PRINTER ACTUAL WIRING (WITHOUT 410082 CIRCUIT CARD INSTALLED IN AC POWER MODULE) (Cont)



- ASSOCIATED CABLE ASSEMBLIES [X]
- A - 402401 LOGIC IN POWER MODULE
 - B - 402405 A.C. IN POWER MODULE
 - C - 402408 (MAIN CABLE)
 - D - 346401 40P151
 - E - 346424 40P153
 - F - 402785 TRANSFORMER ASSY. - 40P153

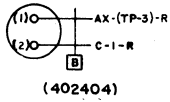
- NOTE:
- [C] EARLY DESIGN - BEFORE SHIELDED CABLE
 - [D] 3 A.C. WIRES NOT PART OF MAIN CABLE (40P151)
 - [E] 3 A.C. WIRES AND 5 CONTROLLER WIRES NOT PART OF MAIN CABLE (40P153)

40P151 OR 40P153 TRACTOR FEED PRINTER ACTUAL WIRING (WITH 410082 CIRCUIT CARD INSTALLED IN AC POWER MODULE)



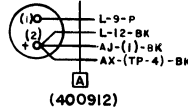
40P151 OR 40P153 TRACTOR FEED PRINTER ACTUAL WIRING (WITH 410082 CIRCUIT CARD INSTALLED IN AC POWER MODULE) (Cont)

(P)
CAPACITOR-MOTOR START
C8



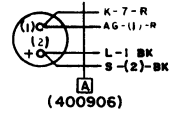
(402404)

(Q)
CAPACITOR-INPUT
C101



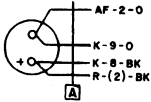
(400912)

(R)
CAPACITOR-OUTPUT
C6

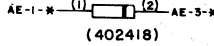


(400906)

(S)
CAPACITOR-OUTPUT
C7

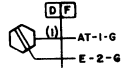


(T)
DIODE
CR5

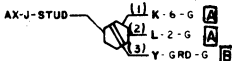


(402418)

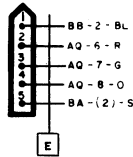
(U)
GROUND SCREW
D F
MOUNTED TO 402544
INPUT-CONNECTOR
BRKT.



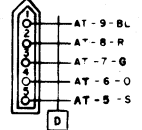
(V)
GROUND SCREW
AX-J-STUD
MOUNTED TO 402530
POWER MODULE CHASSIS.



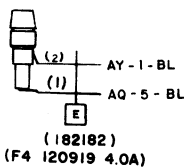
(AY)
CONNECTOR-PLUG
PI17



(AZ)
CONNECTOR-RECPT.
JI17



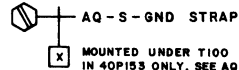
(BB)
FUSE HOLDER W/FUSE
F4



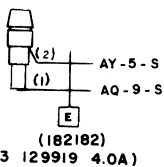
(182182)
(F4 120919 4.0A)

NOTE:
D F D-40P153 ONLY
F-40P151 ONLY

(BC)
GROUND SCREW
AQ-S-GND STRAP
MOUNTED UNDER T100
IN 40P153 ONLY. SEE AQ



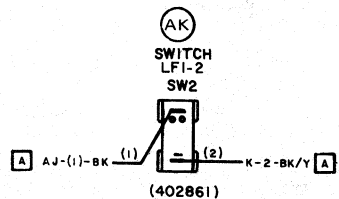
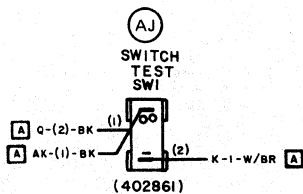
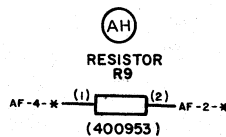
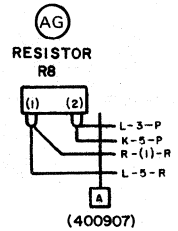
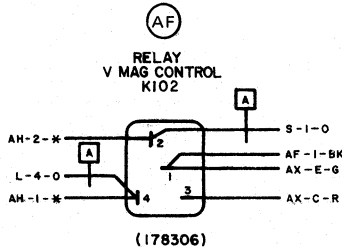
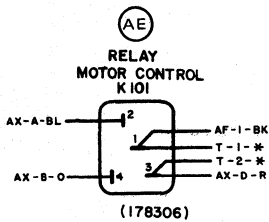
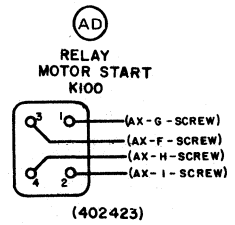
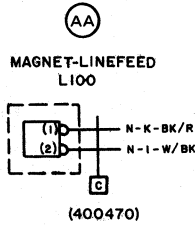
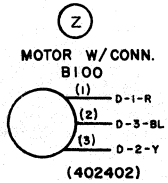
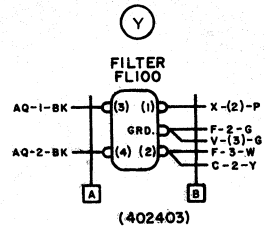
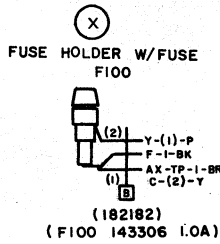
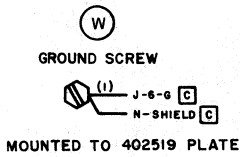
(BA)
FUSE HOLDER W/FUSE
F3



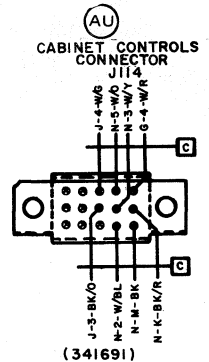
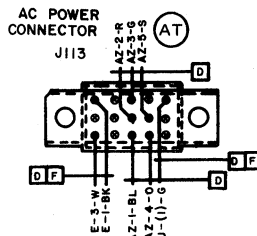
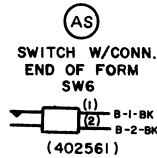
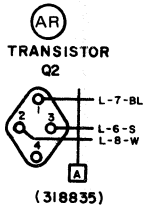
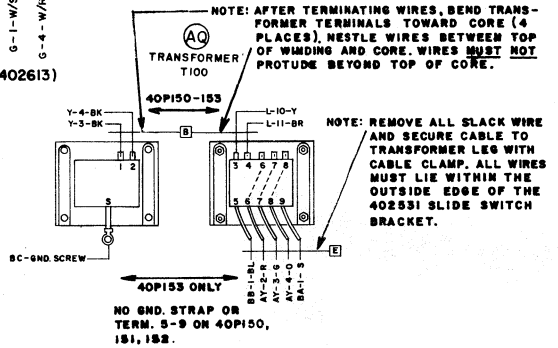
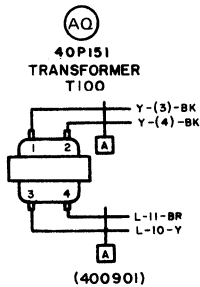
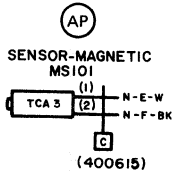
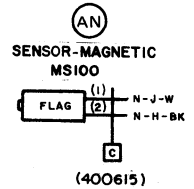
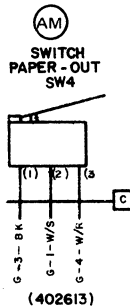
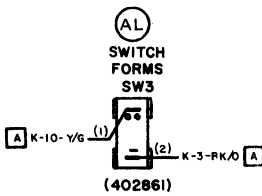
(182182)
(F3 129919 4.0A)

- ASSOCIATED CABLES:
- A. 346435 LOGIC IN POWER MODULE
 - B. 346434 AC IN POWER MODULE
 - C. 402408 TRACTOR PRINTER MAIN CABLE
 - D. 346424 8 WIRE POWER MODULE TO CONTROLLER
 - E. 402785 TRANSFORMER, FUSE, 5 WIRES
 - F. 346401 3 WIRES AC ONLY

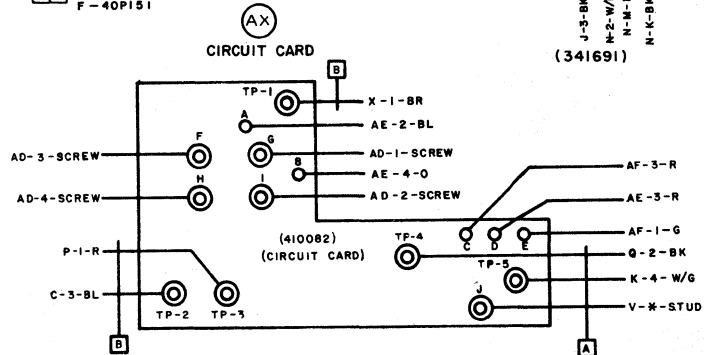
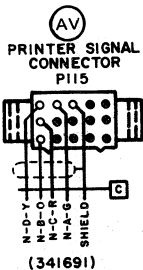
40P151 OR 40P153 TRACTOR FEED PRINTER ACTUAL WIRING (WITH 410082 CIRCUIT CARD INSTALLED IN AC POWER MODULE) (Cont)



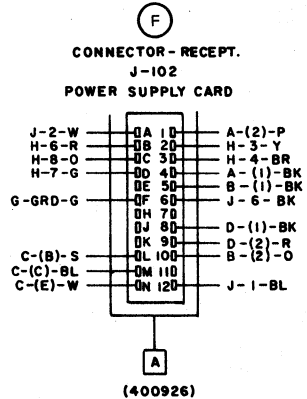
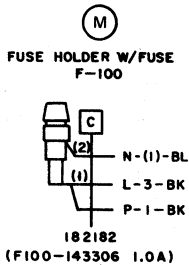
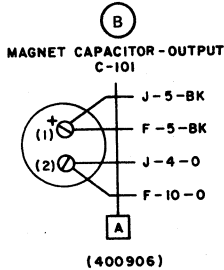
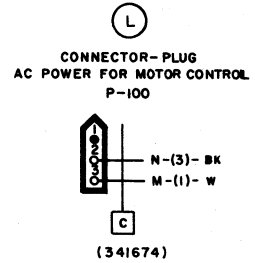
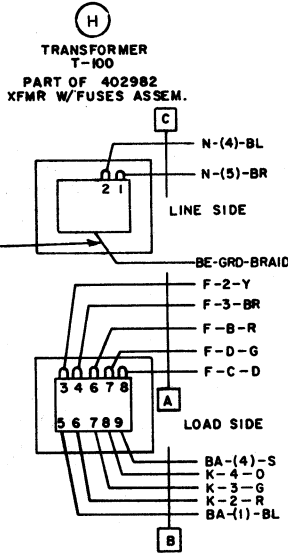
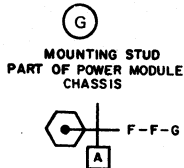
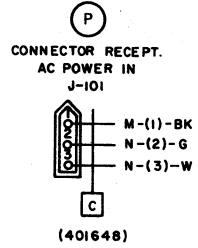
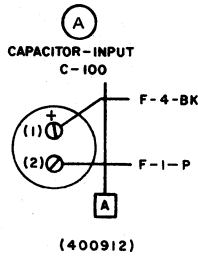
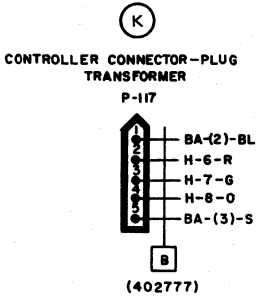
40P151 OR 40P153 TRACTOR FEED PRINTER ACTUAL WIRING (WITH 410082 CIRCUIT CARD INSTALLED IN AC POWER MODULE) (Cont)



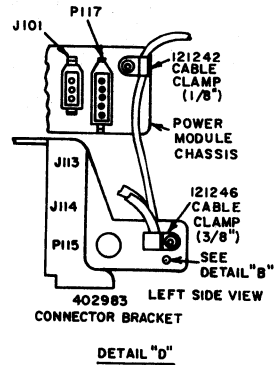
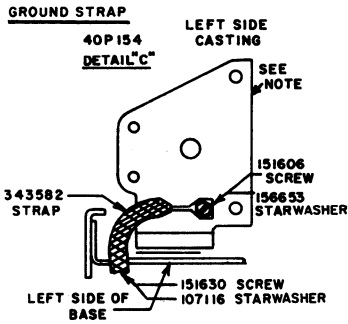
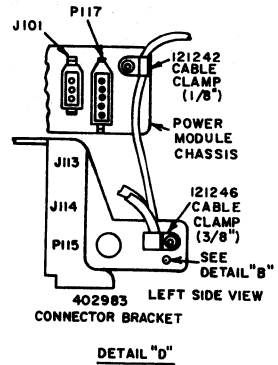
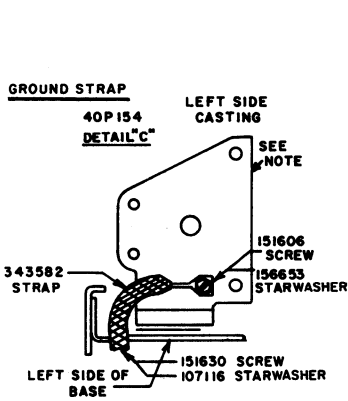
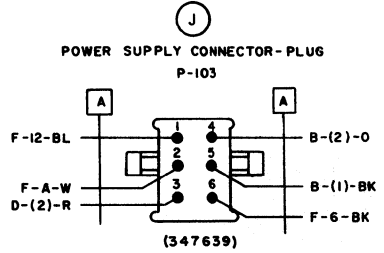
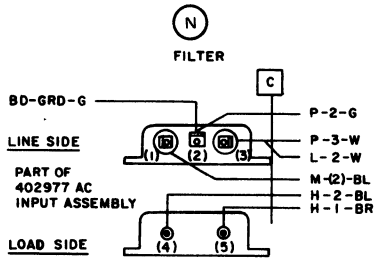
NOTE:
D F D-40P153
F-40P151



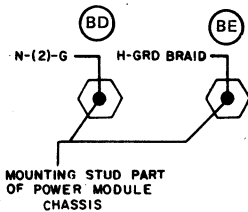
40P154 TRACTOR FEED PRINTER ACTUAL WIRING



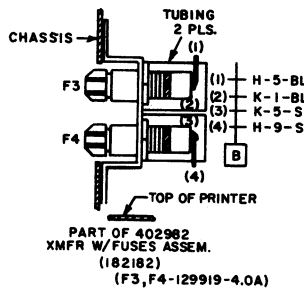
40P154 TRACTOR FEED PRINTER ACTUAL WIRING (Cont)



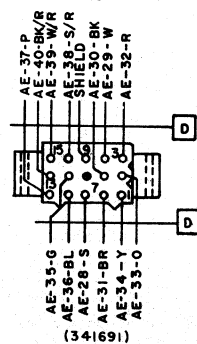
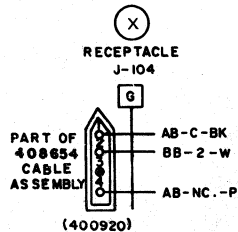
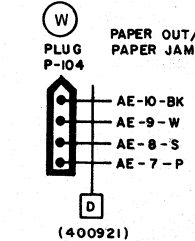
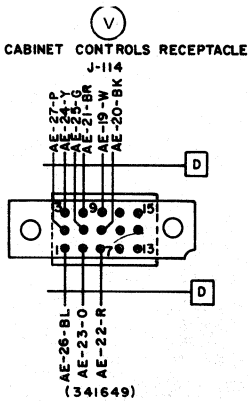
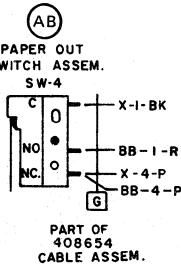
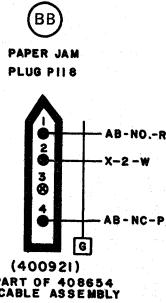
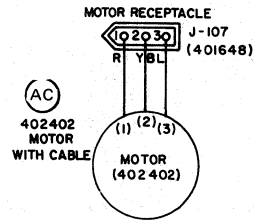
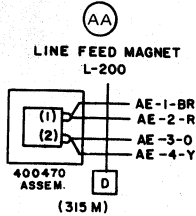
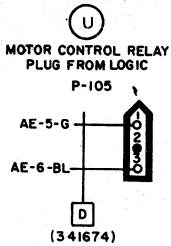
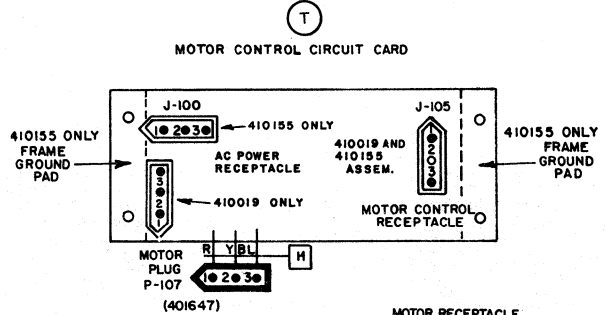
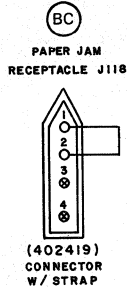
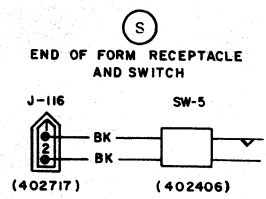
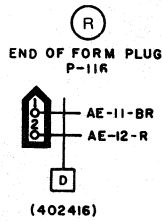
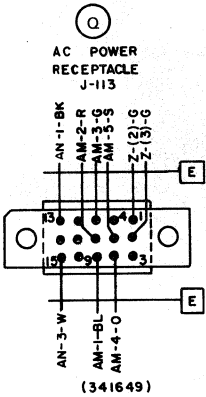
NOTE: STARWASHER MUST BE BETWEEN BACK OF TERMINAL AND MOUNTING SURFACE.



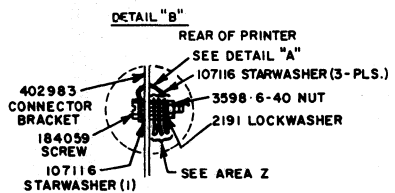
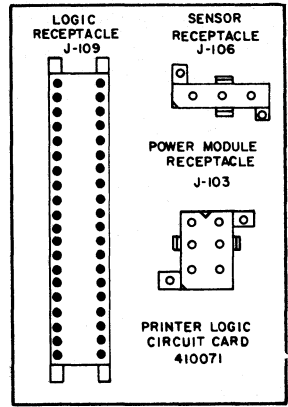
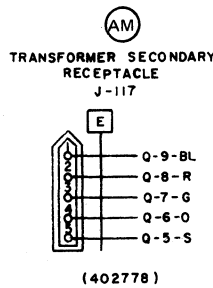
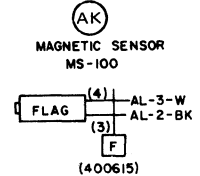
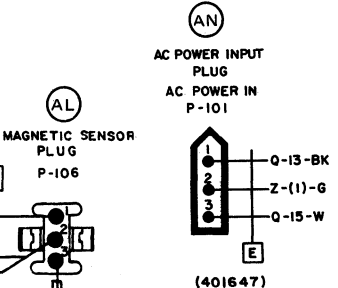
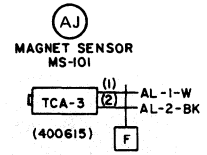
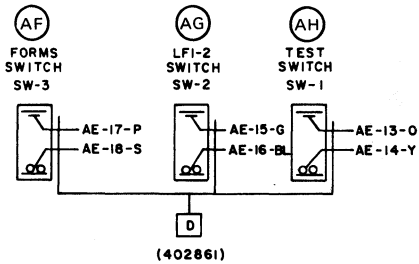
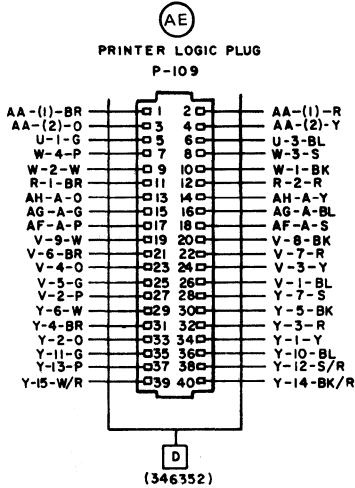
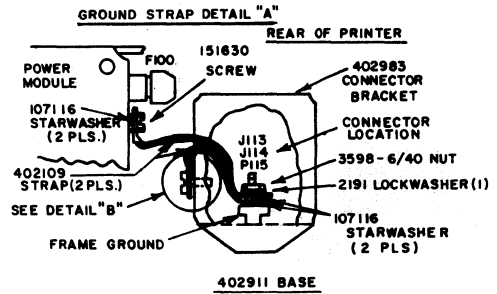
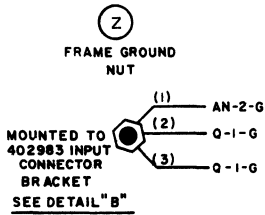
- ASSOCIATED CABLE ASSEMBLIES **(X)**
- A - 402984 (DC CABLE ASSEM.)
 - B - 402982 (XMFR W/FUSES ASSEM.)
 - C - 402977 (AC INPUT ASSEM.)
 - D - 402639 (LOGIC CABLE ASSEM.)
 - E - 402804 (AC INPUT CABLE ASSEM.)
 - F - 408685 (SENSOR CABLE ASSEM.)
 - G - 408654 (P.O. SW W/CABLE)
 - H - 402815 (MOTOR INT. CABLE)



40P154 TRACTOR FEED PRINTER ACTUAL WIRING (Cont)

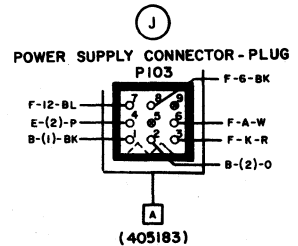
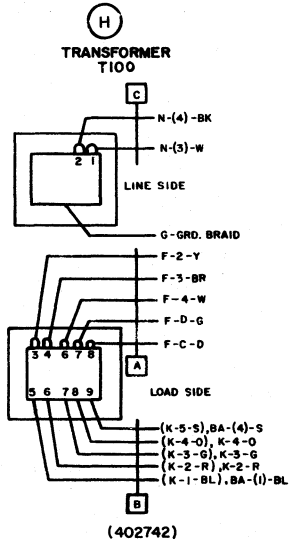
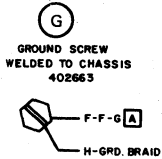
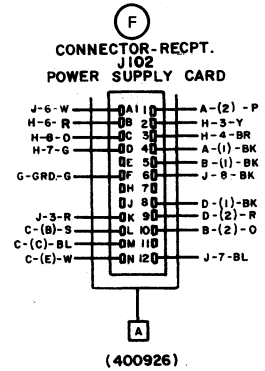
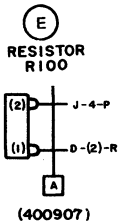
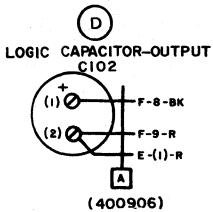
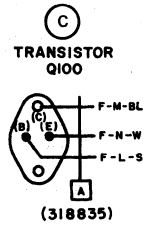
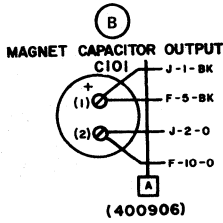
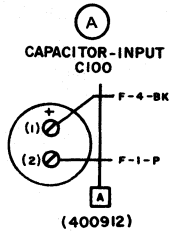


40P154 TRACTOR FEED PRINTER ACTUAL WIRING (Cont)



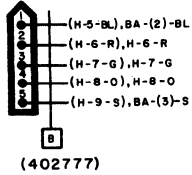
SECTION 582-210-400

40P201, 40P202, 40P203, or 40P204 TRACTOR FEED PRINTER ACTUAL WIRING

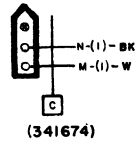


40P201, 40P202, 40P203 OR 40P204 TRACTOR FEED PRINTER ACTUAL WIRING (Cont)

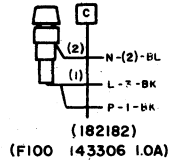
(K)
CONTROLLER CONNECTOR-PLUG
TRANSFORMER
P117



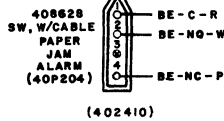
(L)
CONNECTOR-PLUG
AC POWER
FOR MOTOR CONTROL
P100



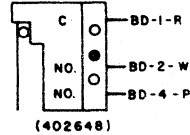
(M)
FUSE HOLDER W/FUSE
F100



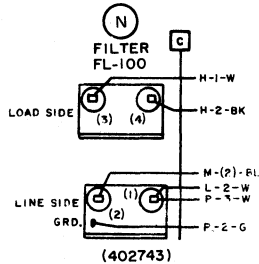
(BD)
PAPER JAM
RECEPTACLE J118



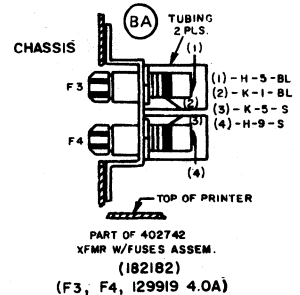
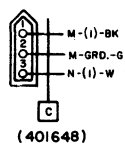
(BE)
PAPER JAM SWITCH
(SW-6)



408628 SW. W/CABLE - PAPER
JAM ALARM (40 P204)



(P)
CONNECTOR-RECT.
J101



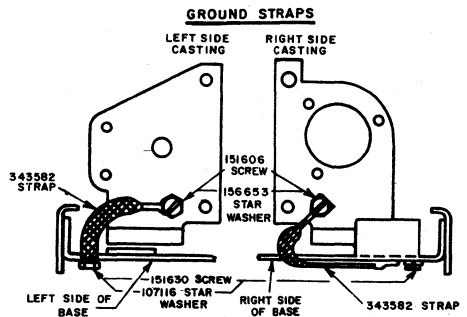
(BC)
PAPER JAM
RECEPTACLE J118



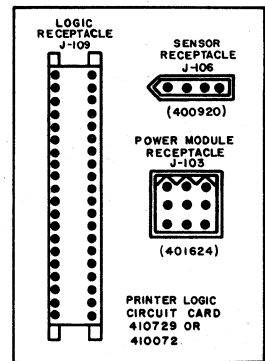
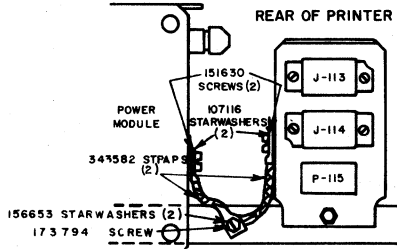
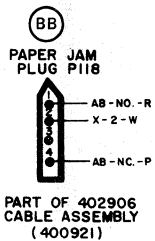
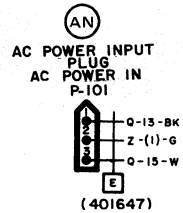
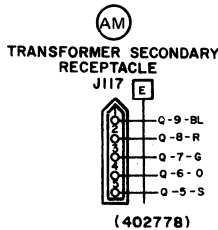
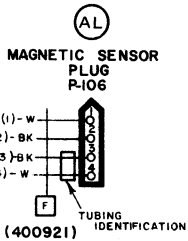
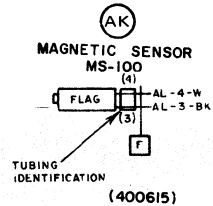
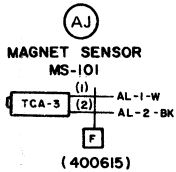
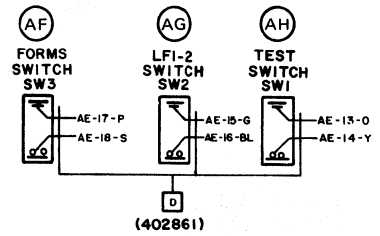
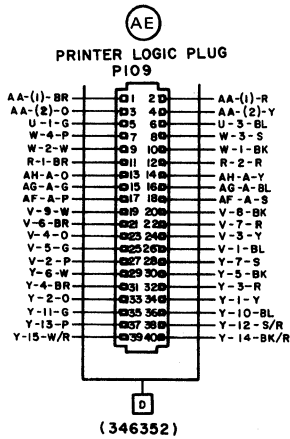
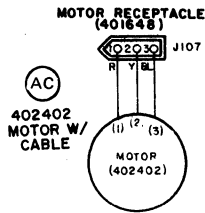
USED WHEN PAPER JAM
ALARM IS NOT PRESENT

ASSOCIATED CABLE ASSEMBLIES **(X)**

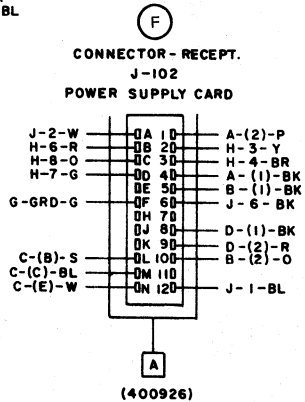
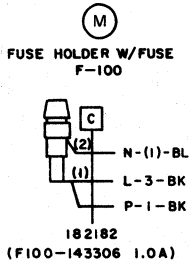
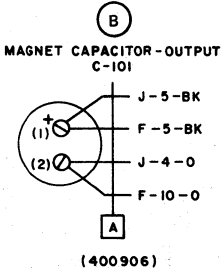
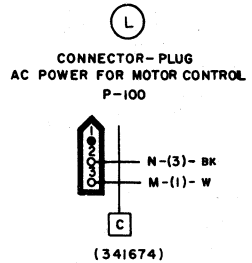
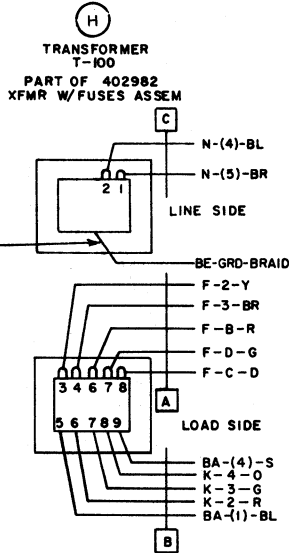
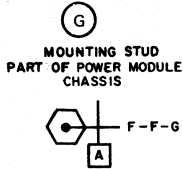
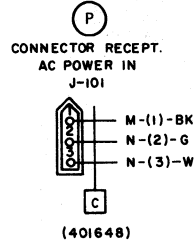
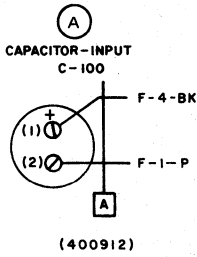
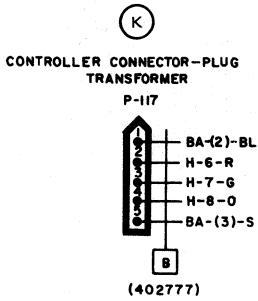
- A - 402741 - (DC CABLE)
- B - 402742 - (XFRM W/FUSES ASSEM.)
- C - 402739 - (AC CABLE)
- D - 402834 - (LOGIC CABLE)
- E - 402804 - (AC INPUT)
- F - 402803 - (SENSOR)
- G - 402861 (OLD STYLE)
- G - 402806 (NEW STYLE)
- H - 402815 - (MOTOR CNT.)



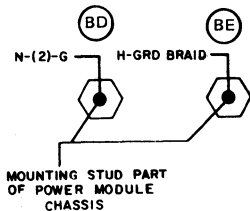
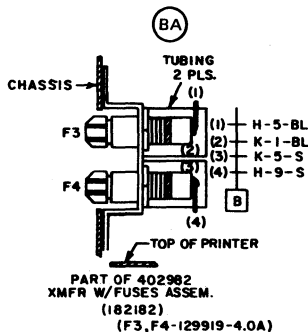
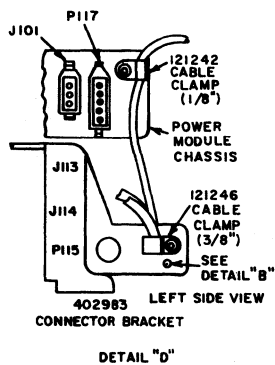
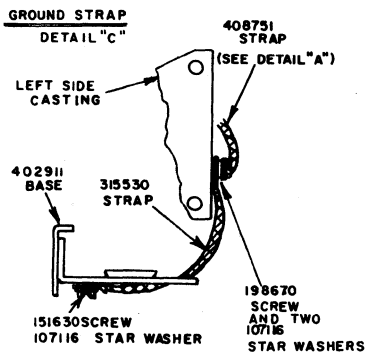
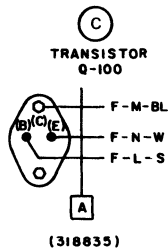
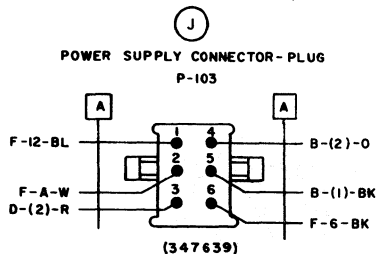
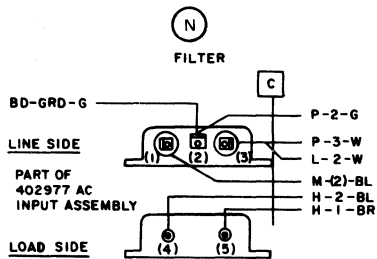
40P201, 40P202, 40P203 OR 40P204 TRACTOR FEED PRINTER ACTUAL WIRING (Cont)



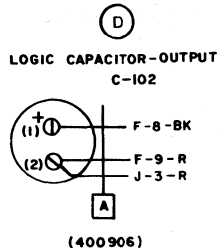
40P253 TRACTOR FEED PRINTER ACTUAL WIRING



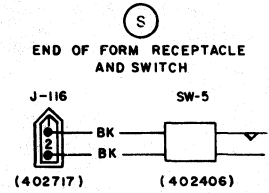
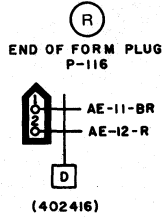
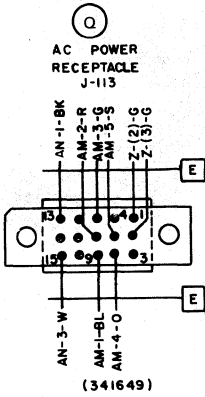
40P253 TRACTOR FEED PRINTER ACTUAL WIRING (Cont)



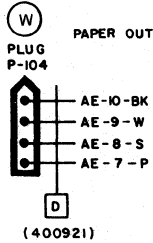
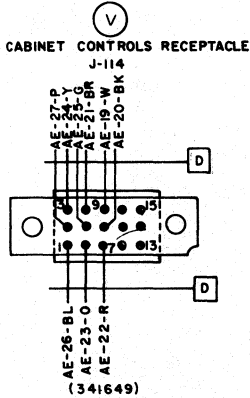
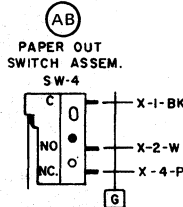
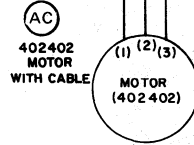
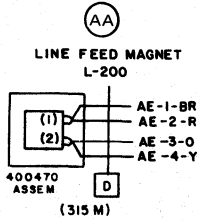
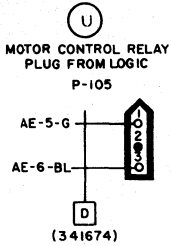
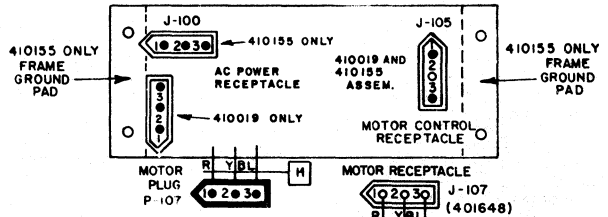
- ASSOCIATED CABLE ASSEMBLIES [X]
- A-402984 (DC CABLE ASSEM.)
 - B-402982 (XFRM W/FUSES ASSEM.)
 - C-402977 (AC INPUT ASSEM.)
 - D-402639 (LOGIC CABLE ASSEM.)
 - E-402804 (AC INPUT CABLE ASSEM.)
 - F-408655 (SENSOR CABLE ASSEM.)
 - G-408757 (P.O. SW W/CABLE)
 - H-402815 (MOTOR CNT. CABLE)



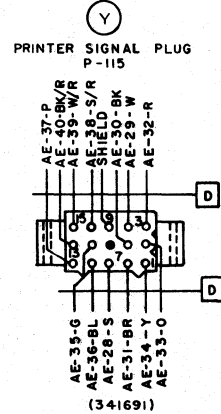
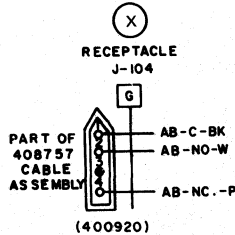
40P253 TRACTOR FEED PRINTER ACTUAL WIRING (Cont)



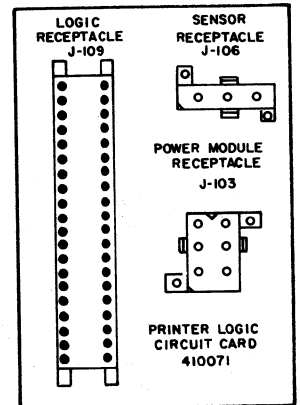
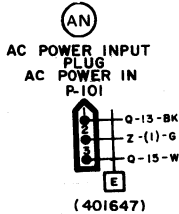
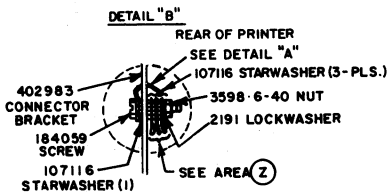
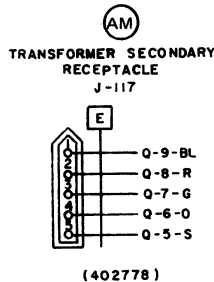
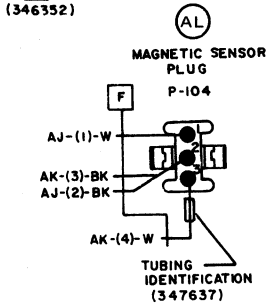
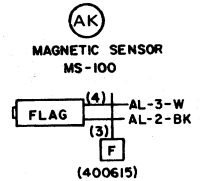
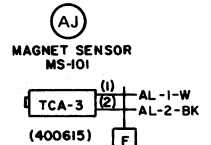
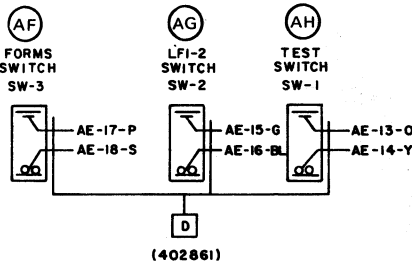
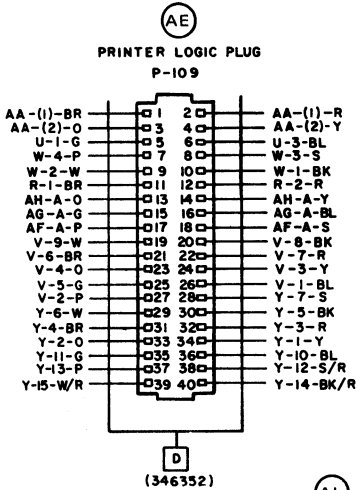
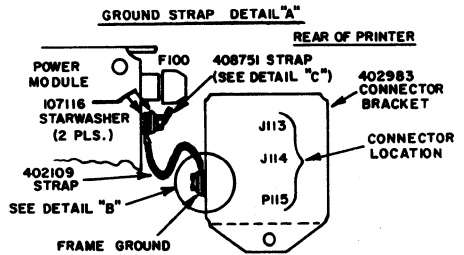
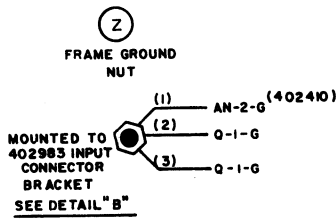
(T)
MOTOR CONTROL CIRCUIT CARD



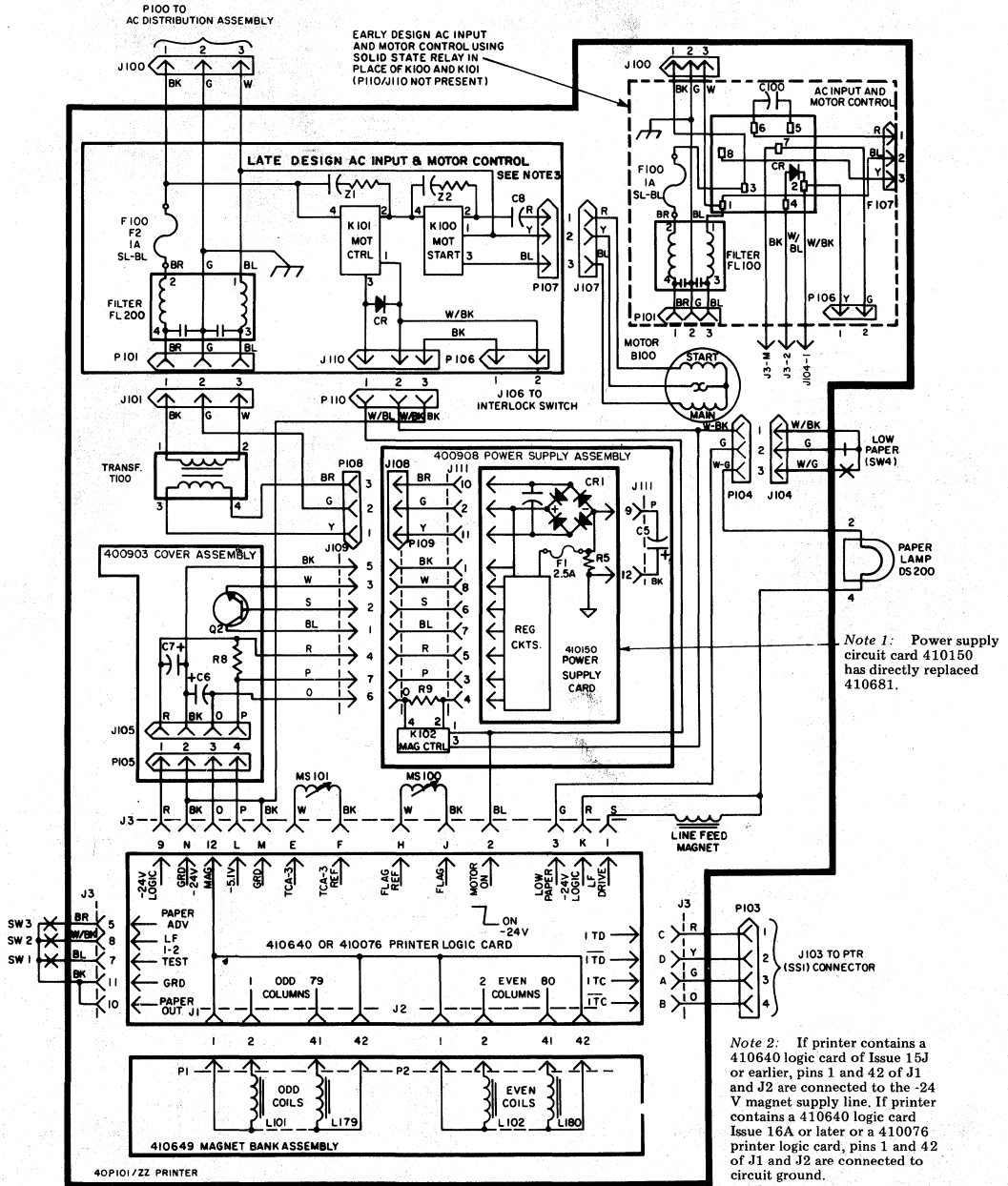
PART OF 408757 CABLE ASSEM.



40P253 TRACTOR FEED PRINTER ACTUAL WIRING (Cont)



40P101 FRICTION FEED PRINTER SCHEMATIC

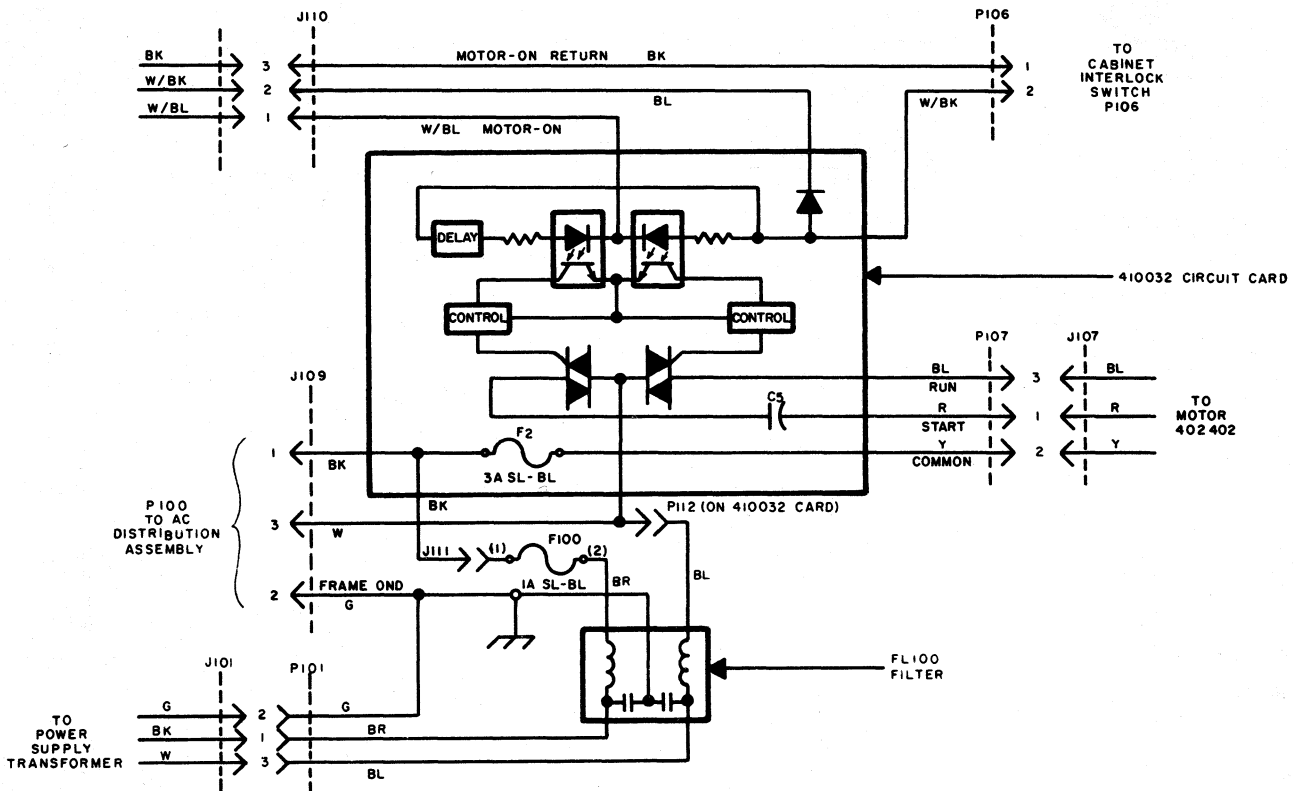


Note 1: Power supply circuit card 410150 has directly replaced 410681.

Note 2: If printer contains a 410640 logic card of Issue 15J or earlier, pins 1 and 42 of J1 and J2 are connected to the -24 V magnet supply line. If printer contains a 410640 logic card Issue 16A or later or a 410076 printer logic card, pins 1 and 42 of J1 and J2 are connected to circuit ground.

Note 3: The 411040 ac input and motor control directly replaces all previous design assemblies (see Page 28 and 29).

411040 AC INPUT AND MOTOR CONTROL ASSEMBLY SCHEMATIC



411040 AC INPUT AND MOTOR CONTROL ASSEMBLY SCHEMATIC (Cont)

Note 1: The 411040 solid state ac input and motor control assembly is to be installed on all 40P101 and 40P102 friction feed printers.

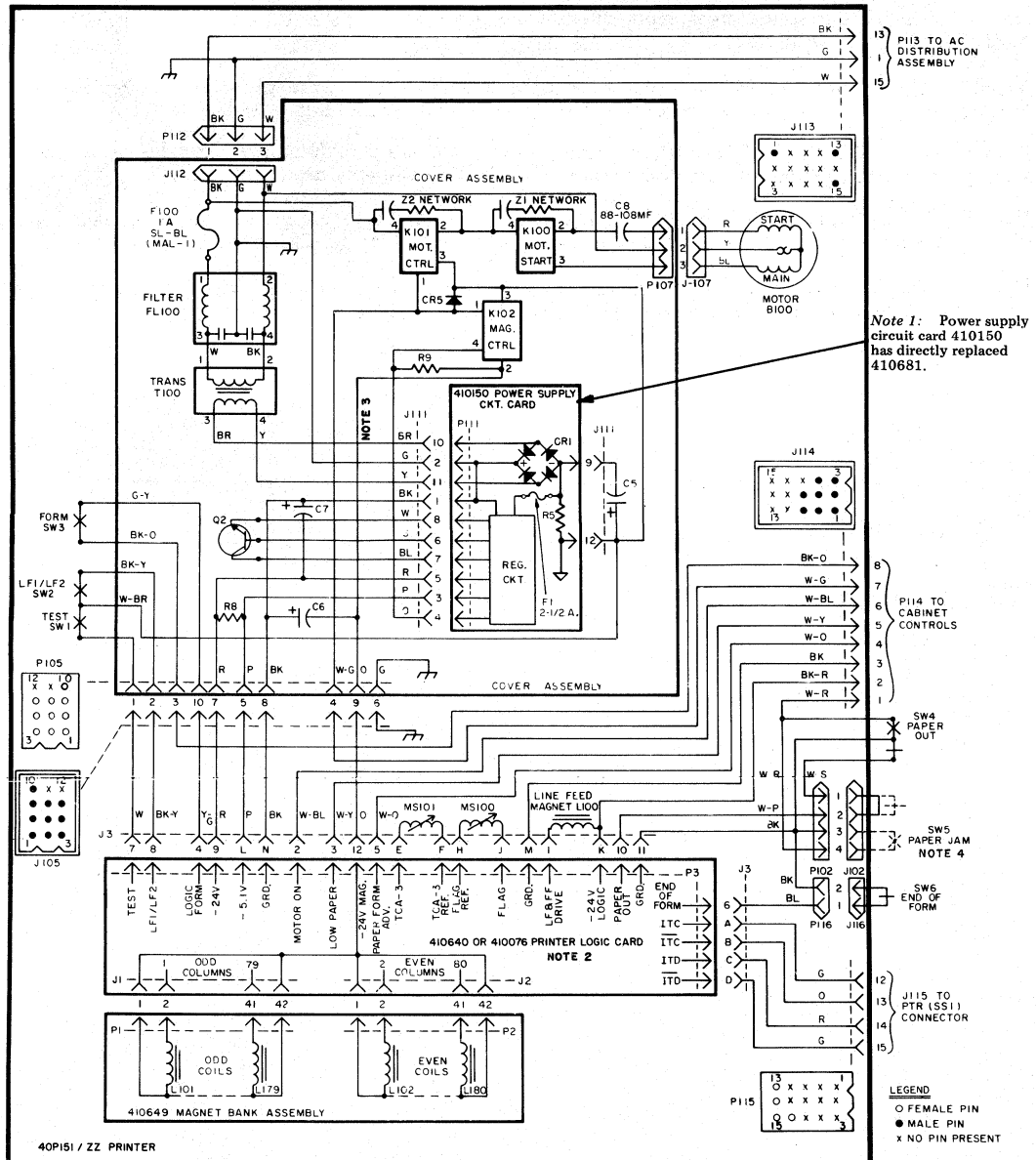
Note 2: The 400905, 400960 and 402632 ac input and motor control assemblies must be replaced with the 411040 assembly. Repairs to any of the early design assemblies should not be attempted.

Note 3: If the 40P101 or 40P102 friction feed printer contains a 400270 motor (early design) it must be replaced with a 402402 motor (late design) before the 411040 assembly can be installed.

Note 4: The 400905, 400960 and 402632 ac input and motor control assemblies have been manufacture discontinued. The 411040 assembly will be provided on all orders for the discontinued assemblies.

Note 5: The circuit description, circuit card assembly drawing and schematic wiring diagram for the 411040 ac input and motor control assembly can be found in WDP0435.

40P151 TRACTOR FEED PRINTER SCHEMATIC (Without Circuit Card 410082)

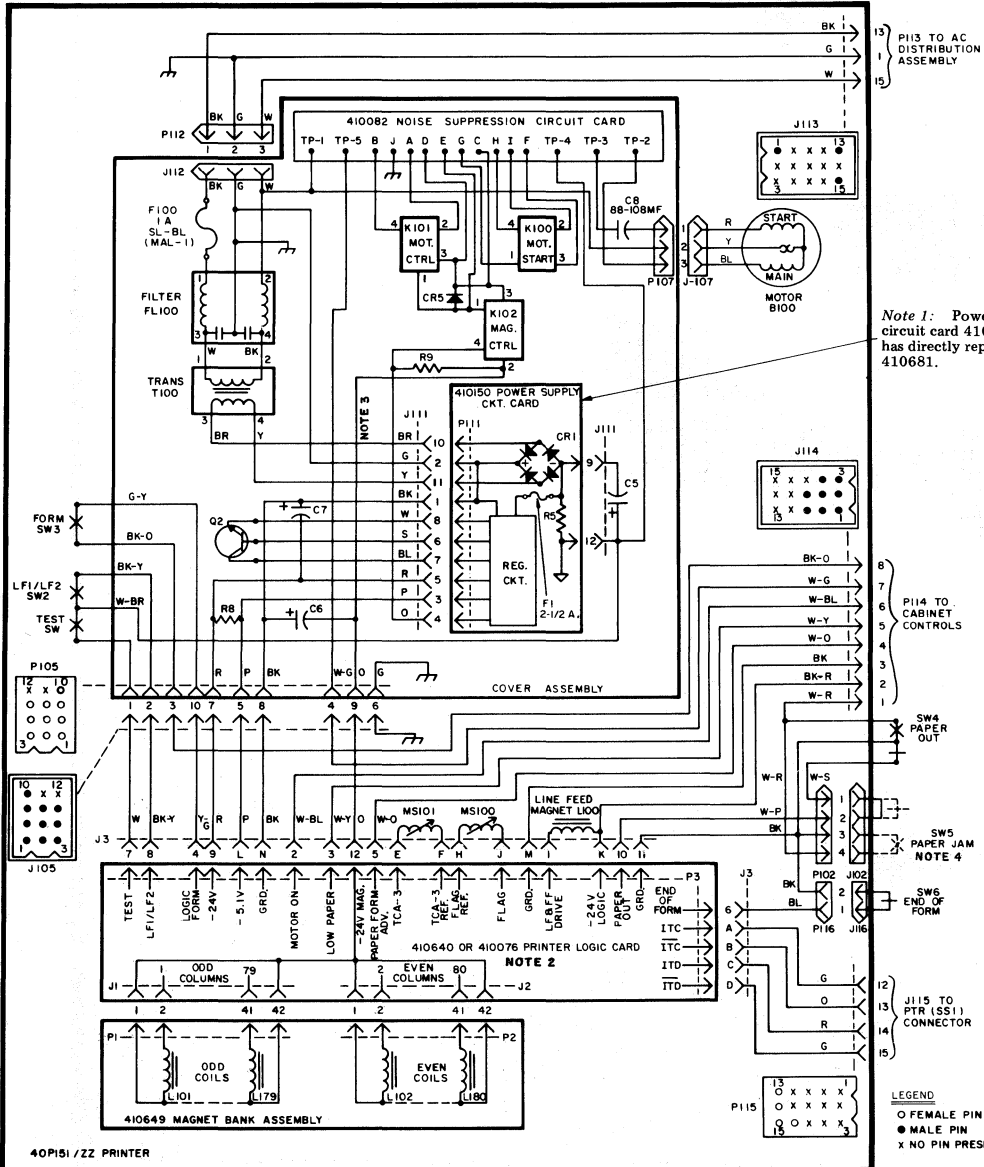


Note 2: If printer contains a 410640 logic card of Issue 15J or earlier, pins 1 and 42 of J1 and J2 are connected to the -24 V magnet supply line. If printer contains a 410640 logic card, Issue 16A or later or a 410076 printer logic card, pins 1 and 42 of J1 and J2 are connected to circuit ground.

Note 3: Slate or orange.

Note 4: Paper jam switch is optional (402920 modification kit in Specification 50901S).

40P151 TRACTOR FEED PRINTER SCHEMATIC (With Circuit Card 410082)

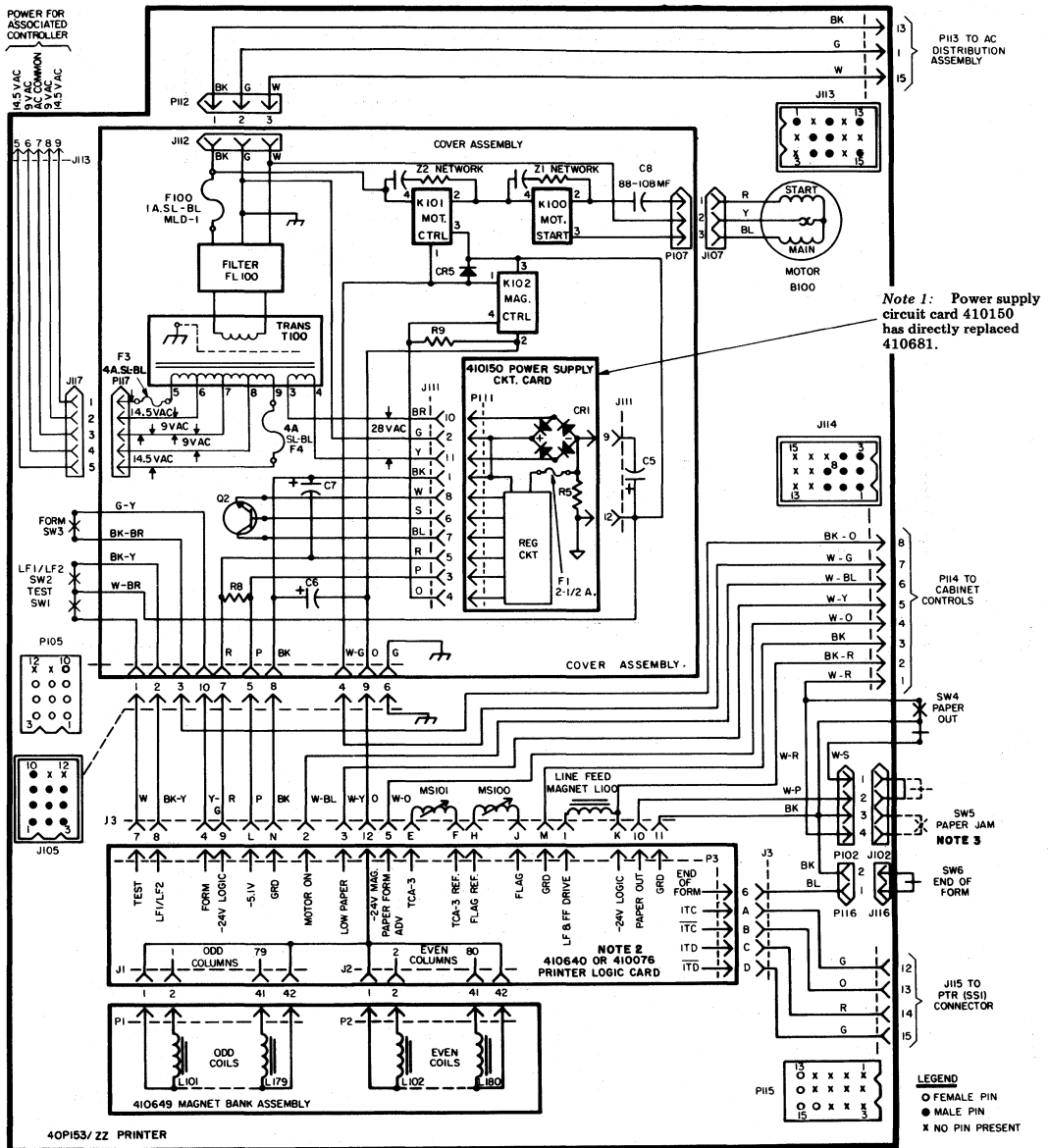


Note 2: If printer contains a 410640 logic card of Issue 15J or earlier, pins 1 and 42 of J1 and J2 are connected to the -24 V magnet supply line. If printer contains a 410640 logic card, Issue 16A or later or a 410076 printer logic card, pins 1 and 42 of J1 and J2 are connected to circuit ground.

Note 3: Slate or orange.

Note 4: Paper jam switch is optional (402920 modification kit in Specification 50901S).

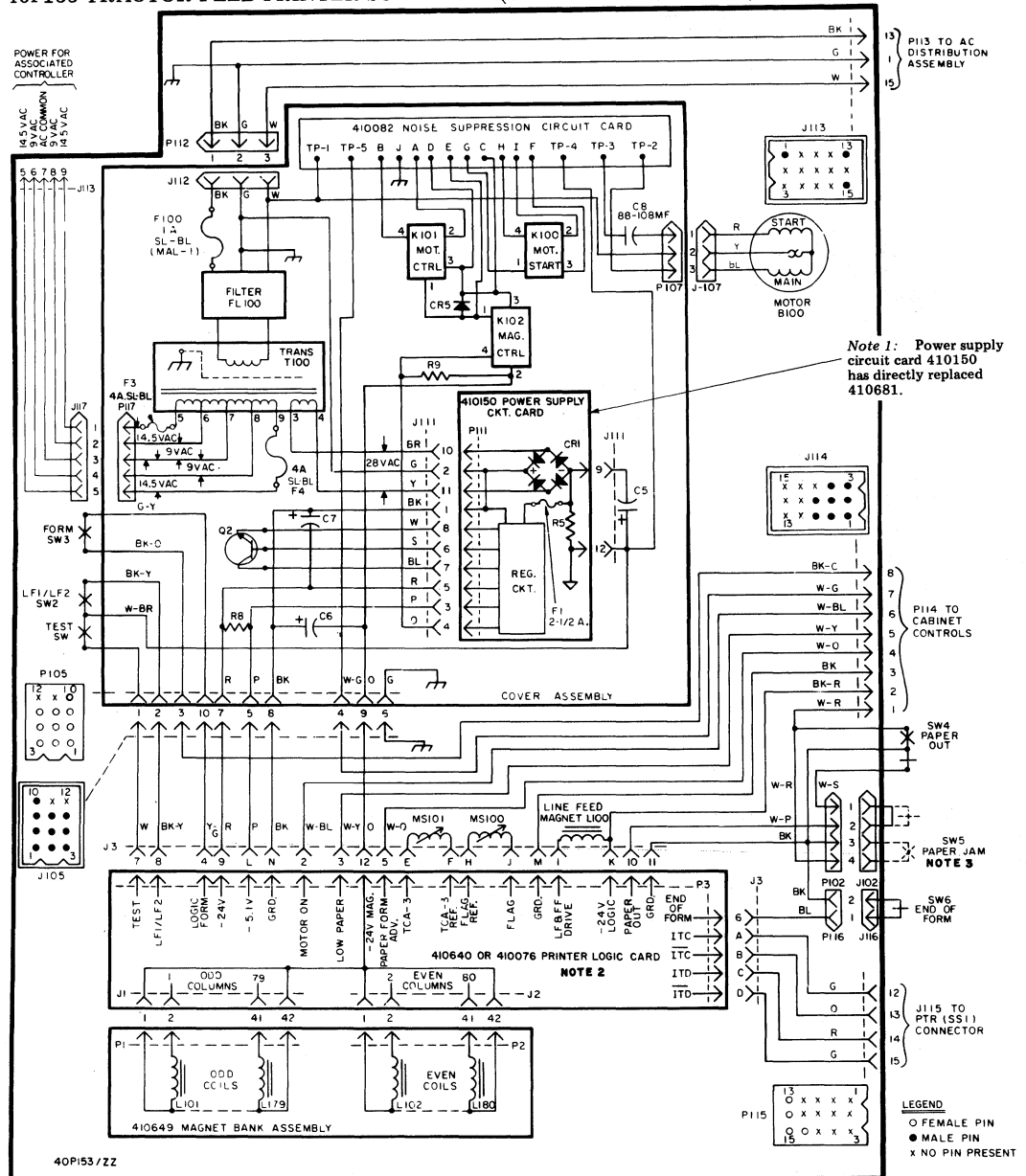
40P153 TRACTOR FEED PRINTER SCHEMATIC (Without Circuit Card 410082)



Note 2: If printer contains a 410640 logic card of Issue 15J or earlier, pins 1 and 42 of J1 and J2 are connected to the -24 V magnet supply line. If the printer contains a 410640 logic card, Issue 16A or later or a 410076 printer logic card, pins 1 and 42 of J1 and J2 are connected to circuit ground.

Note 3: Paper jam switch is optional (402920 modification kit in Specification 50901S).

40P153 TRACTOR FEED PRINTER SCHEMATIC (With Circuit Card 410082)



Note 1: Power supply circuit card 410150 has directly replaced 410681.

Note 2: If printer contains a 410640 logic card of Issue 15J or earlier, pins 1 and 42 of J1 and J2 are connected to the -24 V magnet supply line. If the printer contains a 410640 logic card, Issue 16A or later or a 410076 printer logic card, pins 1 and 42 of J1 and J2 are connected to circuit ground.

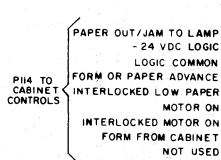
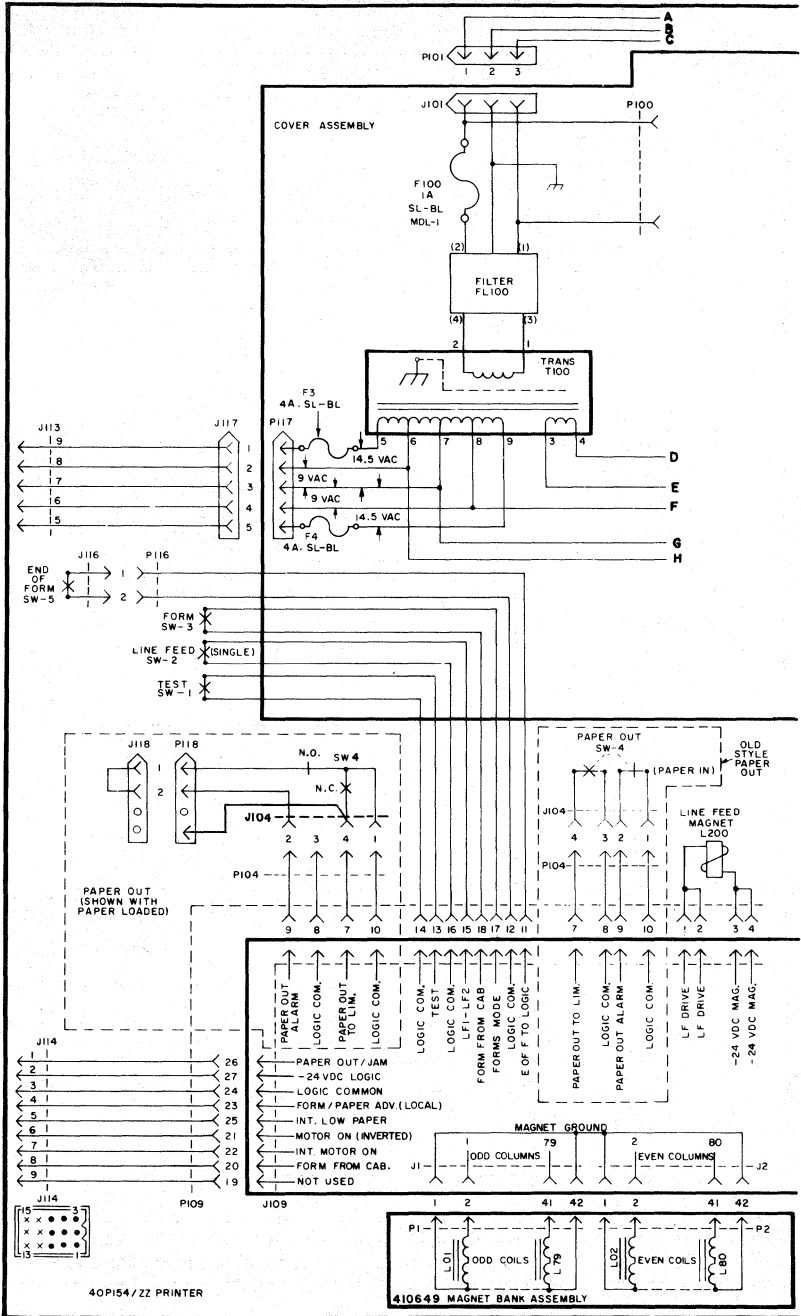
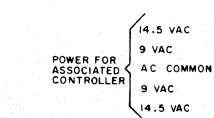
Note 3: Paper jam switch is optional (402920 modification kit in Specification 50901S).

Note 2: If printer contains a 410640 logic card of Issue 15J or earlier, pins 1 and 42 of J1 and J2 are connected to the -24 V magnet supply line. If the printer contains a 410640 logic card, Issue 16A or later or a 410076 printer logic card, pins 1 and 42 of J1 and J2 are connected to circuit ground.

Note 3: Paper jam switch is optional (402920 modification kit in Specification 50901S).

40P154 TRACTOR FEED PRINTER SCHEMATIC

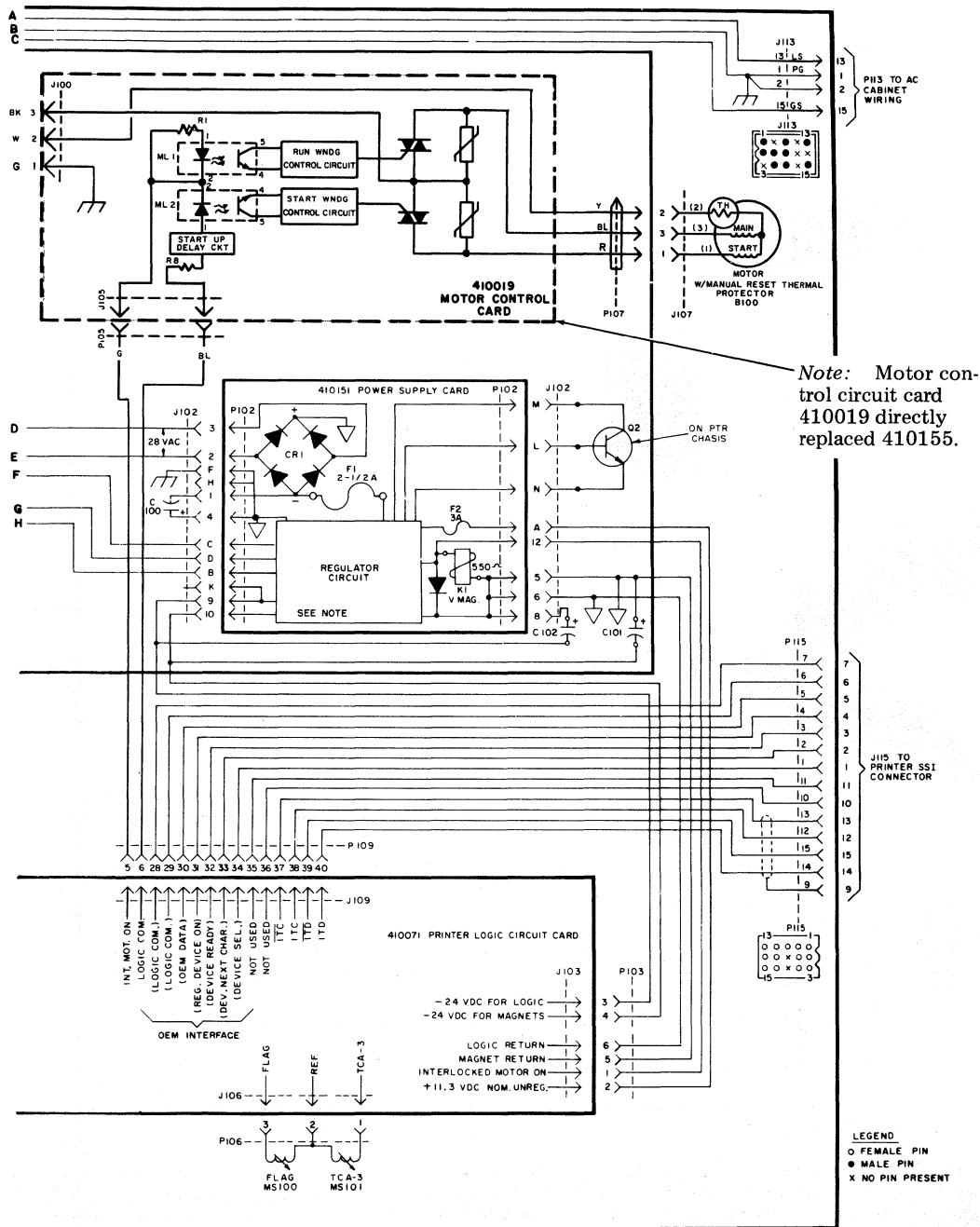
Note: Grounding Option — Inserting Option Screw A on component side of 410151 circuit card connects -24 V dc circuit common to chassis. Inserting Option Screw B on component side of 410151 circuit card connects -24 V dc circuit common to chassis. Inserting Option Screw B on component side of 410151 circuit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



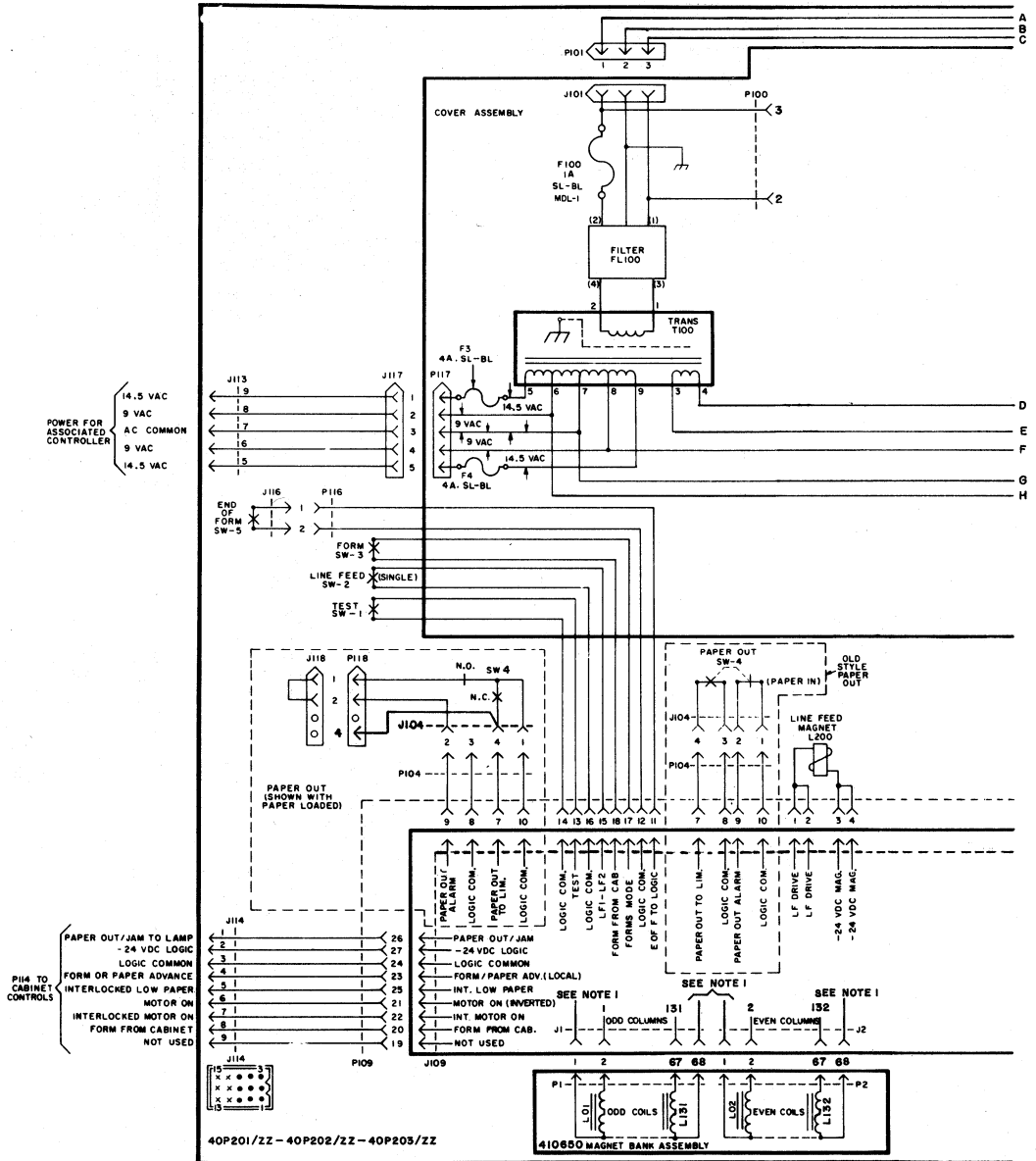
40P154/ZZ PRINTER

410649 MAGNET BANK ASSEMBLY

40P154 TRACTOR FEED PRINTER SCHEMATIC (Cont)

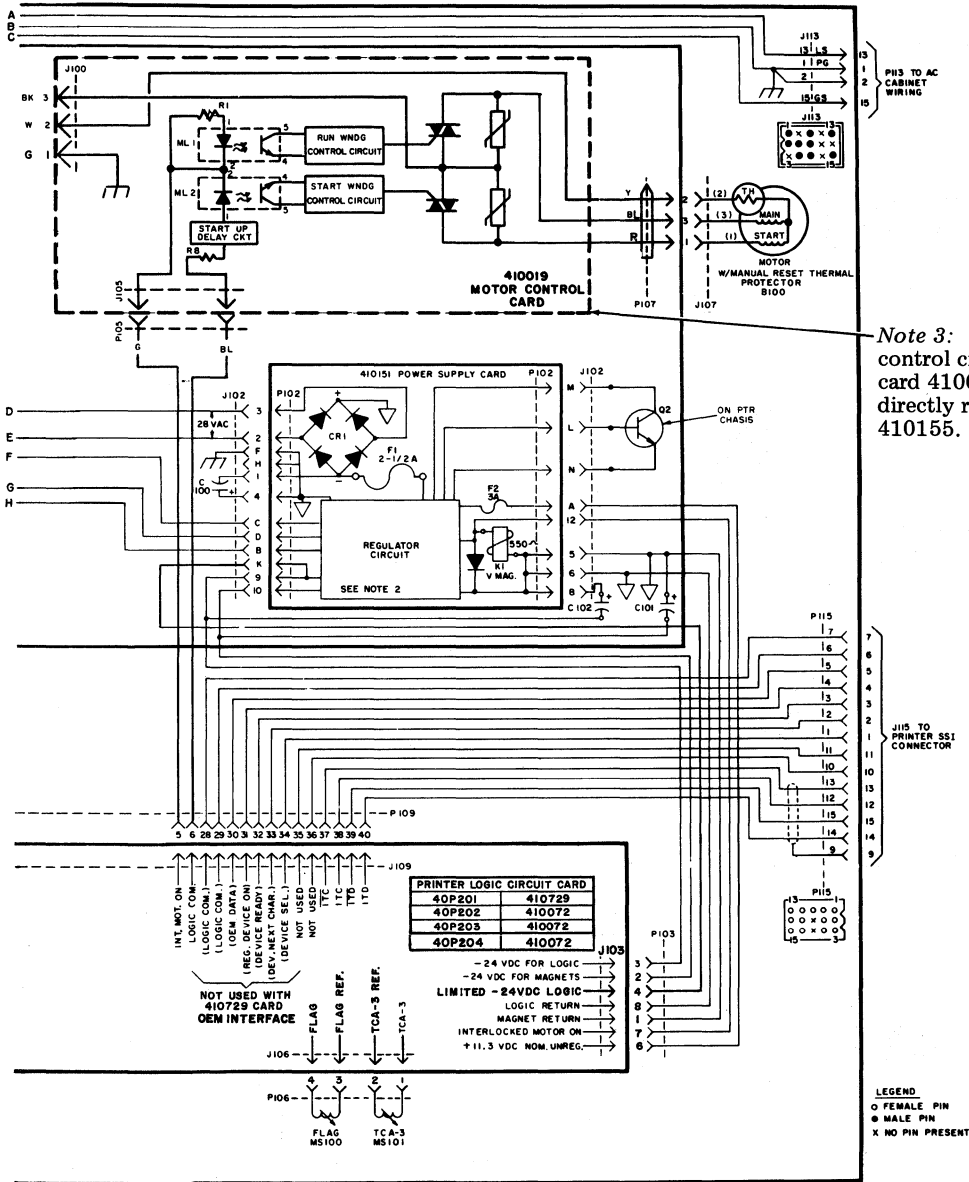


40P201, 40P202, 40P203 AND 40P204 TRACTOR FEED SCHEMATIC



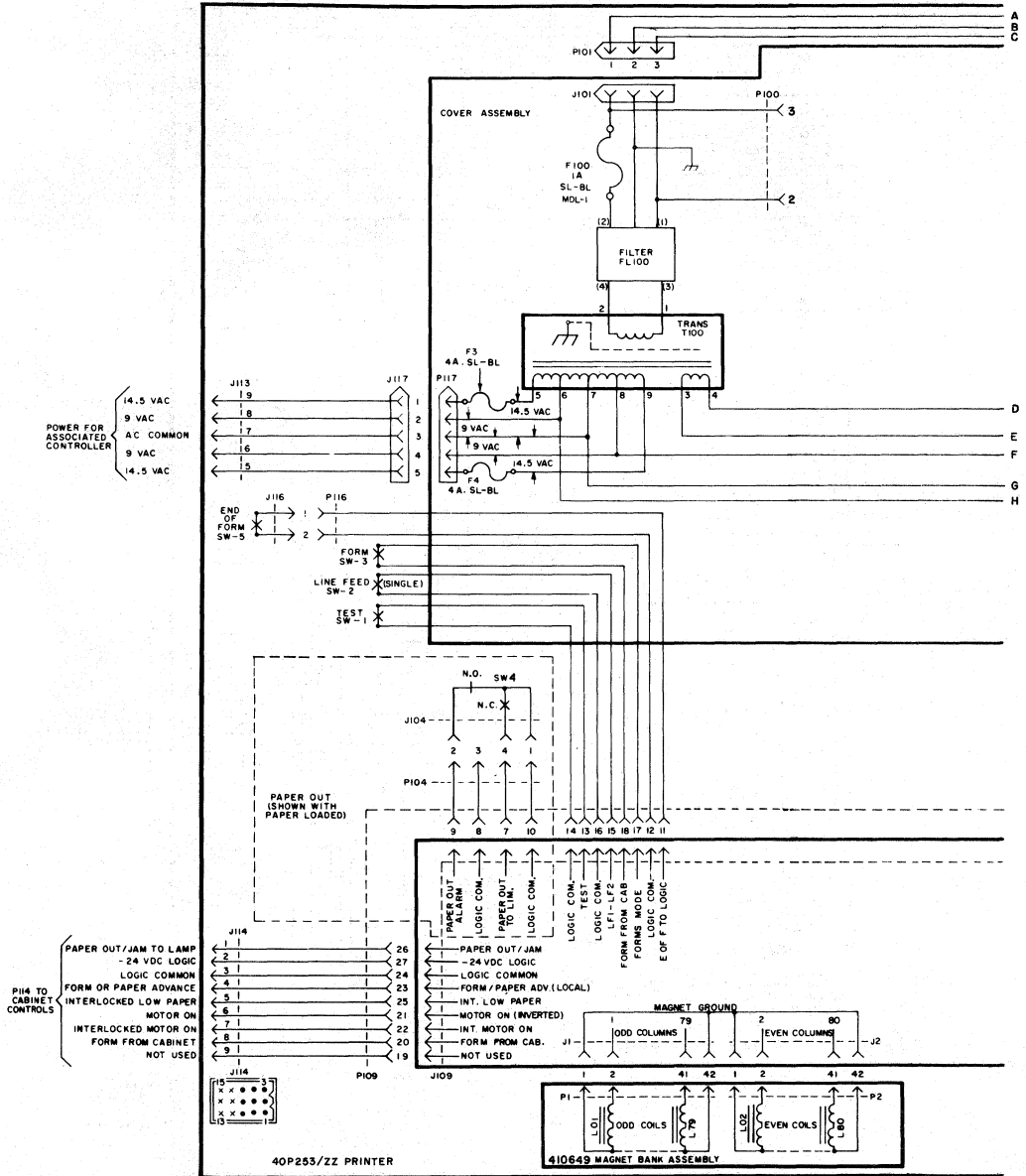
Note 1: If the printer is equipped with a 410729 logic card, pins 1 and 68 of the 410650 magnet bank assemblies will be connected to the -24 V magnet supply voltage. If the printer is equipped with a 410072 logic card, pins 1 and 68 of the 410650 magnet bank assemblies will be connected to magnet ground.

40P201, 40P202, 40P203 AND 40P204 TRACTOR FEED SCHEMATIC (Cont)



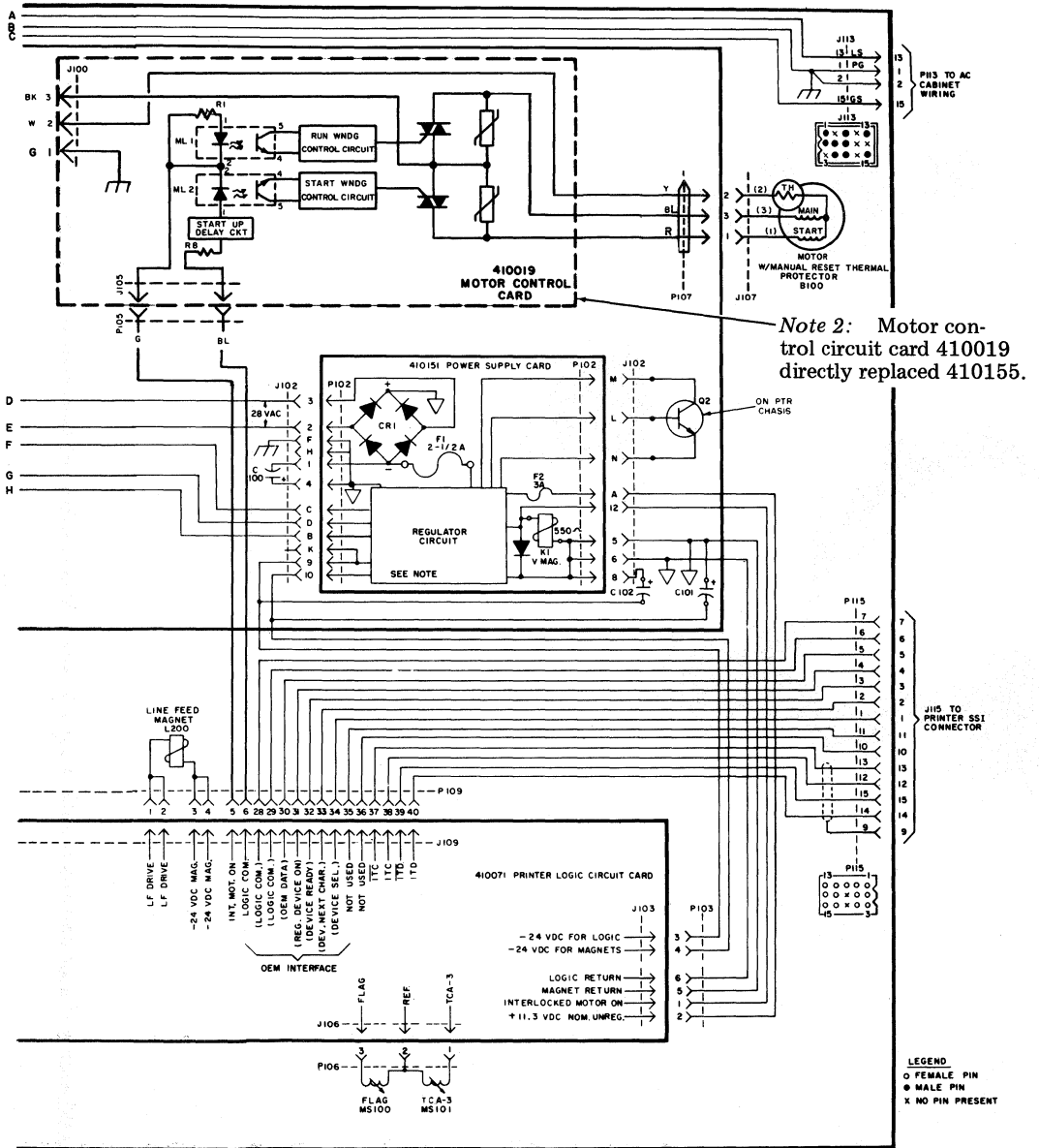
Note 2: Grounding Option — Inserting Option Screw A on component side of 410151 circuit card connects -24 Vdc circuit common to chassis. Inserting Option Screw B on component side of 410151 circuit card connects -24 Vdc circuit common to +11.3 Vdc circuit common. Inserting either screw into non-component side of card leaves connection open.

40P253 FORMS ACCESS TRACTOR FEED PRINTER SCHEMATIC



Note 1: Grounding Option — Inserting Option Screw A on component side of 410151 circuit card connects -24 Vdc circuit common to chassis. Inserting Option Screw B on component side of 410151 circuit card connects -24 Vdc circuit common to +11.3 Vdc circuit common. Inserting Option Screw A or B into noncomponent side of card leaves connection open. Refer to Option 61.

40P253 FORMS ACCESS TRACTOR FEED PRINTER SCHEMATIC (Cont)



“DATASPEED*” 40 PRINTER

TESTING AND TROUBLESHOOTING

	CONTENTS	PAGE
1.	GENERAL	1
2.	TESTING	2
3.	TROUBLESHOOTING	14
1.	GENERAL	

1.01 This section provides the testing and troubleshooting for the DATASPEED 40 printer — friction and tractor feed, 80- and 132-column (Fig. 1). DATASPEED 40 is hereafter referred to as 40-type.

1.02 This section is being reissued to incorporate the 40P203 and 40P204 (132-column printers), ac input and motor control assemblies (late design) for the 40P101 and 40P102 printers, and the 410019 circuit card assembly used on the 40P154, 40P253, 40P201, 40P202, 40P203 and 40P204 printers.

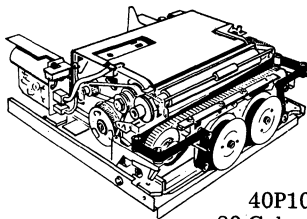
1.03 Printer off-line checkout is covered in Part 2, Table A; troubleshooting is covered in Part 3, Table B (80-column friction feed printer), Table C (80-column tractor feed printer) and Table D (132-column tractor feed printer).

1.04 Before troubleshooting the printer, the general information preceding Table B should be carefully reviewed.

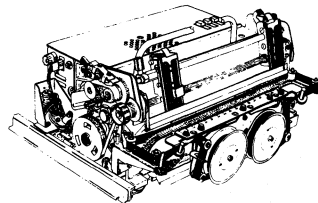
1.05 Associated Printer BSP Sections:

- 582-210-100 Description and Operation
- 582-210-200 Installation
- 582-210-400 Wiring
- 582-210-700 Adjustments and Lubrication
- 582-210-702 Disassembly/Reassembly and Parts
- 582-210-750 Routine Maintenance

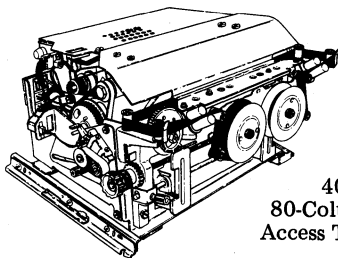
Note: When ordering replaceable components, unless otherwise specified, prefix each part number with the letters “TP” (ie, TP410055).



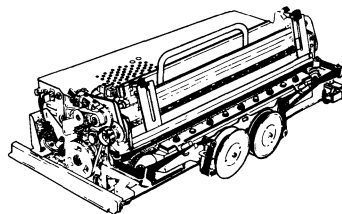
40P101 or 40P102
80-Column Friction Feed



40P151, 40P153 or 40P154
80-Column Tractor Feed



40P253
80-Column Forms
Access Tractor Feed



40P201, 40P202, 40P203 or 40P204
132-Column Tractor Feed

Fig. 1—DATASPEED 40 Printers

*Registered Trademark of AT&TCo.

2. TESTING

- 2.01 Table A checks the printer off-line operation. On-line testing should be performed with the Service Test Center.
- 2.02 Testing should be performed after installation or on trouble calls to make sure the trouble has been corrected and the printer is free of any other troubles.

TABLE A
OFF-LINE CHECKOUT

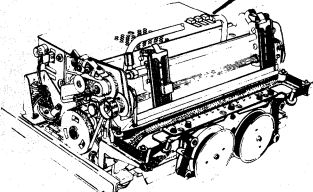
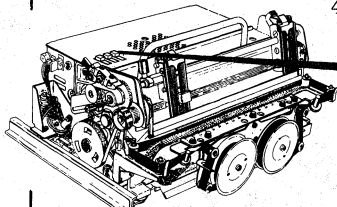
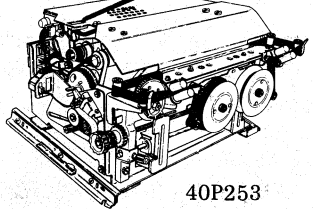
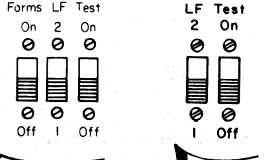
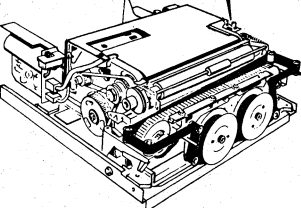
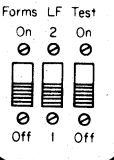
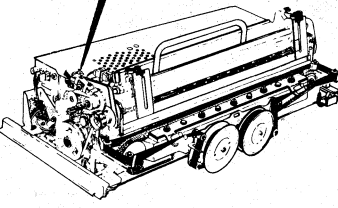
STEP	PROCEDURE	RESULTS
1	<p>Preliminary requirements:</p> <p>(a) Ribbon and paper loaded.</p> <p>(b) Switches set as follows:</p> <p>LF --- 1 Test --- Off Forms --- Off (tractor feed only).</p> <p>(c) Cabinet cover closed.</p> <p>80-Column Tractor Feed</p>  <p>40P151 or 40P153</p>  <p>40P154</p>  <p>40P253</p>	  <p>80-Column Friction Feed</p>   <p>40P201, 40P202, 40P203 or 40P204</p>

TABLE A (Cont)
OFF-LINE CHECKOUT

STEP	PROCEDURE	RESULTS
2	<p>Turn power on.</p> <p>ROP or KDP (Forms Access): Power switch on cabinet form chute.</p> <p>ROP: Power switch on pedestal and at rear of cabinet.</p> <p>KDP: Power switch on pedestal.</p>	<p>POWER ON indicator lights. Printer motor should not turn on. IN SERVICE indicator lights (ROP).</p> <p>IN SERVICE indicator lights. Tractor feed printers (80- and 132-column), cabinet fan turns on. Printer motor should not turn on.</p> <p>Controller fans turn on. Printer motor should not turn on.</p>
3	<p>Forms Access: Open cabinet front access doors and top lid and place the three Interlock switches in maintenance position (up or outward).</p> <p>Friction and Tractor Feed: Open cabinet cover and place Interlock switch in maintenance position (up).</p> <p>Operate Test switch to On for a few lines, then to Off.</p>	<p>Printer motor turns on. Font identification symbol ($\begin{smallmatrix} \text{E}^{\text{A}} \\ \text{A}^{\text{E}} \end{smallmatrix}$, $\begin{smallmatrix} \text{E}^{\text{A}} \\ \text{E}^{\text{B}} \end{smallmatrix}$, etc) prints in all columns on printer equipped with 410640 or 410729 circuit card. On printer equipped with 410071, 410072, or 410076 circuit card, font identification symbol prints within margins specified by Option 17.</p>
4	<p>Operate LF switch to position 2 and again operate Test switch to On for a few lines, then to Off.</p> <p>Operate LF switch to position 1.</p>	<p>The font identification symbol prints with double line spacing.</p> <p>$\begin{smallmatrix} \text{E}^{\text{A}} \\ \text{A}^{\text{E}} \end{smallmatrix}$ $\begin{smallmatrix} \text{E}^{\text{A}} \\ \text{E}^{\text{B}} \end{smallmatrix}$ $\begin{smallmatrix} \text{E}^{\text{A}} \\ \text{A}^{\text{E}} \end{smallmatrix}$ $\begin{smallmatrix} \text{E}^{\text{A}} \\ \text{E}^{\text{B}} \end{smallmatrix}$</p> <p>$\begin{smallmatrix} \text{E}^{\text{A}} \\ \text{A}^{\text{E}} \end{smallmatrix}$ $\begin{smallmatrix} \text{E}^{\text{A}} \\ \text{E}^{\text{B}} \end{smallmatrix}$ $\begin{smallmatrix} \text{E}^{\text{A}} \\ \text{A}^{\text{E}} \end{smallmatrix}$ $\begin{smallmatrix} \text{E}^{\text{A}} \\ \text{E}^{\text{B}} \end{smallmatrix}$</p>

TABLE A (Cont)
OFF-LINE CHECKOUT

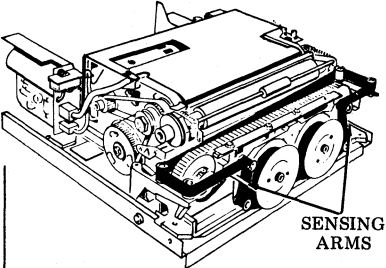
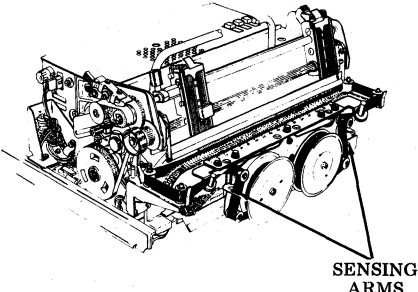
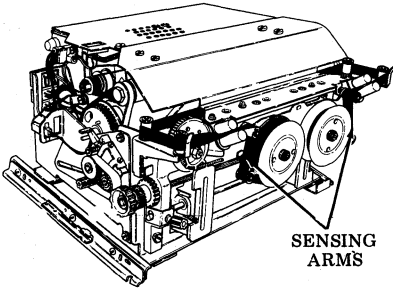
STEP	PROCEDURE	RESULTS
5	<p>Tilt printer (except forms access) into maintenance position.</p> <p>Operate Test switch to On.</p> <p>Alternately operate left and right ribbon reverse sensing arms several times.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Friction Feed</p> </div> <div style="text-align: center;">  <p>Tractor Feed</p> </div> </div> <div style="text-align: center; margin-top: 20px;">  <p>Forms Access</p> </div>	<p>Ribbon feeding and reversing should be smooth and positive. Ribbon should not strain or curl during reversing operation.</p> <p>Printer motor turns off.</p>
6	<p>Friction Feed: Momentarily depress PAPER button (red) on printer cabinet cover.</p> <p>Tractor Feed: Depress PAPER button on printer cabinet cover.</p> <p>Depress FORM ADVANCE button on printer cabinet cover (Option 39b).</p> <p>Operate Forms switch to On (Option 39a).</p>	<p>Paper feeds out as long as button is depressed.</p> <p>Paper feeds out as long as button is depressed.</p> <p>Paper feeds out as long as button is depressed.</p>

TABLE A (Cont)
OFF-LINE CHECKOUT

STEP	PROCEDURE	RESULTS																																																																												
6 (Cont)	<p>Depress FORM ADVANCE button on printer cabinet cover.</p> <p>Forms Access: Momentarily depress FORM switch (on cabinet form chute or on underside of panel). (Forms switch on printer Off — Option 39b.)</p> <p>Operate Forms switch on printer to On (Option 39a).</p> <p>Momentarily depress FORM switch on cabinet.</p>	<p>Paper feeds out until first line of next form is reached, then stops.</p> <p><i>Note:</i> Form-out length will vary depending upon form selector setting and color of belt.</p> <p style="text-align: center;">FORM-OUT BELT SELECTION</p> <table border="1" data-bbox="753 437 1106 654"> <thead> <tr> <th colspan="4">Form Selector Setting</th> <th rowspan="2">Part No.</th> <th rowspan="2">Color of Belt</th> </tr> <tr> <th>4</th> <th>3</th> <th>2</th> <th>1</th> </tr> </thead> <tbody> <tr> <td colspan="6" style="text-align: center;">Length of Form, Inches</td> </tr> <tr> <td>3-1/3†</td> <td>2-1/2</td> <td>5</td> <td>10</td> <td>402571</td> <td>Amber</td> </tr> <tr> <td>3-2/3†</td> <td>2-3/4*</td> <td>5-1/2</td> <td>11</td> <td>402572</td> <td>Dk Blue</td> </tr> <tr> <td>4</td> <td>3</td> <td>6</td> <td>12</td> <td>402573</td> <td>Yellow</td> </tr> <tr> <td>4-1/3†</td> <td>3-1/4*</td> <td>6-1/2</td> <td>13</td> <td>402574</td> <td>Brown</td> </tr> <tr> <td>4-2/3†</td> <td>3-1/2</td> <td>7</td> <td>14</td> <td>402575</td> <td>Red</td> </tr> <tr> <td>5</td> <td>3-3/4*</td> <td>7-1/2</td> <td>15</td> <td>402576</td> <td>Pink</td> </tr> <tr> <td>5-1/3†</td> <td>4</td> <td>8</td> <td>16</td> <td>402577</td> <td>Lt Green</td> </tr> <tr> <td>5-2/3†</td> <td>4-1/4*</td> <td>8-1/2</td> <td>17</td> <td>402578</td> <td>Dk Green</td> </tr> <tr> <td>6</td> <td>4-1/2</td> <td>9</td> <td>18</td> <td>402579</td> <td>Lt Blue</td> </tr> <tr> <td>7-1/3†</td> <td>5-1/2</td> <td>11</td> <td>22</td> <td>402580</td> <td>White</td> </tr> </tbody> </table> <p>*These settings are not used on 6 line per inch printers.</p> <p>†These settings are not used on 8 line per inch printers.</p> <p><i>Note:</i> Dark blue belt is factory furnished.</p> <p>Paper feeds out a line at a time as long as switch is depressed.</p> <p>Paper feeds out until first line of next form is reached, then stops.</p> <p><i>Note:</i> Form-out length will vary depending upon form selector setting and color of belt.</p> <p>See Chart above.</p>	Form Selector Setting				Part No.	Color of Belt	4	3	2	1	Length of Form, Inches						3-1/3†	2-1/2	5	10	402571	Amber	3-2/3†	2-3/4*	5-1/2	11	402572	Dk Blue	4	3	6	12	402573	Yellow	4-1/3†	3-1/4*	6-1/2	13	402574	Brown	4-2/3†	3-1/2	7	14	402575	Red	5	3-3/4*	7-1/2	15	402576	Pink	5-1/3†	4	8	16	402577	Lt Green	5-2/3†	4-1/4*	8-1/2	17	402578	Dk Green	6	4-1/2	9	18	402579	Lt Blue	7-1/3†	5-1/2	11	22	402580	White
Form Selector Setting				Part No.	Color of Belt																																																																									
4	3	2	1																																																																											
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3-1/3†	2-1/2	5	10	402571	Amber																																																																									
3-2/3†	2-3/4*	5-1/2	11	402572	Dk Blue																																																																									
4	3	6	12	402573	Yellow																																																																									
4-1/3†	3-1/4*	6-1/2	13	402574	Brown																																																																									
4-2/3†	3-1/2	7	14	402575	Red																																																																									
5	3-3/4*	7-1/2	15	402576	Pink																																																																									
5-1/3†	4	8	16	402577	Lt Green																																																																									
5-2/3†	4-1/4*	8-1/2	17	402578	Dk Green																																																																									
6	4-1/2	9	18	402579	Lt Blue																																																																									
7-1/3†	5-1/2	11	22	402580	White																																																																									

TABLE A (Cont)

OFF-LINE CHECKOUT


STEP	PROCEDURE	RESULTS
7	<p>ROP: Depress TEST or TRANS START key on opcon.</p>  <p>OR TRANS START</p> <p>Note: If TEST or TRANS START indicator is not present, remove blocking key at left of IN SERVICE key, depress key stem to start test message; depress again to stop test message.</p>	<p>TEST or TRANS START indicator lights. Printer motor turns on. Test message is received by printer as shown. There should be no overembossing on paper, missing, or clipped characters. Print density should be uniform over surface of each character and from one character to another.</p>
<p>TEST MESSAGE IF ROP IS EQUIPPED WITH 40C103/AD OR 40C103/AE CONTROLLER</p>		
<p>Option 19a Enabled</p>		
<pre> ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` </pre>		
<p>Option 19b Enabled</p>		
<pre> # % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` # % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` # % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? </pre>		
<p>Option 19c Enabled</p>		
<pre> ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` </pre>		
<p>Note 1: The test message will print as shown below if Option 19c is enabled and Option 38 (Data Stacking) is enabled in the 40C103/AE RO controller (410582 circuit card).</p>		
<pre> ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` ; = ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` 9 ; = ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\] ^ _ ` O P Q R S T U V W X Y Z [\] ^ _ ` </pre>		
<p>Note 2: Type carrier in sample test is $\begin{smallmatrix} \text{A} \\ \text{---} \\ \text{A} \end{smallmatrix}$ (80-column) or $\begin{smallmatrix} \text{A} \\ \text{---} \\ \text{---} \\ \text{---} \\ \text{A} \end{smallmatrix}$ (132-column).</p>		

TABLE A (Cont)

OFF-LINE CHECKOUT

STEP	PROCEDURE	RESULTS
7 (Cont)	<p>TEST MESSAGE IF ROP IS EQUIPPED WITH 40C303/AA 40C303/AD or 40C303/AC INTERGRATED CONTROLLER</p> <p><i>Note 1:</i> With 40C303/AA or 40C303/AD controller, Option 19c and Options 121a and 131a (on diode matrix circuit card) must be enabled to transmit test message.</p> <p><i>Note 2:</i> With 40C303/AC controller, Option 19a or Option 19c must be enabled to transmit test message.</p> <p><i>Note 3:</i> Type carrier in sample test is $\begin{matrix} \text{A} \\ \text{A} \end{matrix}$ (80-column) or $\begin{matrix} \text{A} \\ \text{A} \\ \text{A} \end{matrix}$ (132-column).</p> <pre>! "\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ [\] ^ _ ` ! "\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ [\] ^ _ ` ! "\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ [\] ^ _ ` ! "\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ [\] ^ _ `</pre> <p>KDP: Keyboard approximately five lines of FOX message or transmit miscellaneous text message to printer — include every character in font followed by GS.</p> <p>Home cursor and depress PRINT LOCAL key.</p> <p>THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890 THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890 THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890 THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890 THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890</p>	<p>Printer receives FOX or text message. There should be no overembossing on paper, missing, or clipped characters. Print density should be uniform over surface of each character and from one character to another.</p> <p>When message ending character GS is received, printer stops printing.</p> <p>With Option 18a selected, no paper feeds out.</p> <p>Friction Feed: With Option 18b or 18c selected, paper feeds out 16 lines.</p> <p>Tractor Feed: With Option 18b or 18c selected,</p> <p>(a) Forms switch ON (Option 39a): Form advances to first line of next form.</p> <p>(b) Forms switch OFF (Option 39b): Form feeds out 16 lines or until form-out contact closes, whichever occurs first.</p> <p>With 410640 or 410729 logic card, motor turns off immediately.</p> <p>With 410071, 410072 or 410076 logic card motor turns off after 20 seconds.</p>

TABLE A (Cont)
OFF-LINE CHECKOUT

STEP	PROCEDURE	RESULTS
8	<p>ROP: Depress the TEST or TRANS START key on the opcon again.</p>	<p>TEST or TRANS START indicator on opcon extinguishes and printer stops printing.</p> <p>With Option 18a selected, no paper feeds out.</p> <p>Friction Feed: With Option 18b or 18c selected, paper feeds out 16 lines.</p> <p>Tractor Feed: With Option 18b or 18c selected:</p> <p>(a) Forms switch ON (Option 39a): Form advances to first line of next form.</p> <p>(b) Forms switch OFF (Option 39b): Form feeds out 16 lines or until form-out contact closes, whichever occurs first.</p> <p>With 410640 or 410729 logic card, motor turns off immediately.</p> <p>With 410071, 410072 or 410076 logic card, motor turns off after 20 seconds.</p>
9	<p>KDP: Transmit miscellaneous text message followed by FF and a message ending character.</p> <p>THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890 THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890 THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890 THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S BACK 1234567890 [FF]</p> <p>Note: The FF character is not printed.</p>	<p>Printer motor turns on; text message is printed:</p> <p>Friction Feed: Printer line feeds at end of text message.</p> <p>Tractor Feed: With Forms switch ON (Option 39a), paper feeds out until first line of next form is reached, then stops.</p> <p>With Forms switch OFF (Option 39b), paper feeds out one line when FF character is received.</p> <p>When message ending character is received, printer stops printing.</p> <p>With Option 18a selected, no paper feeds out.</p> <p>Friction Feed: With Option 18b or 18c selected, paper feeds out 16 lines.</p> <p>Tractor Feed: With Option 18b or 18c selected:</p> <p>(a) Forms switch ON (Option 39a): Form advances to first line of next form.</p> <p>(b) Forms switch OFF (Option 39b): Form feeds out 16 lines or until form-out contact closes, whichever occurs first.</p> <p>With 410640 or 410729 logic card, motor turns off immediately.</p> <p>With 410071, 410072 or 410076 logic card, motor turns off after 20 seconds.</p>

TABLE A (Cont)

OFF-LINE CHECKOUT

STEP	PROCEDURE	RESULTS
11	<p>KDP Tractor Feed: Transmit miscellaneous text (or FOX) message followed by several FF characters and a message ending character.</p>	<p>Printer motor turns on; text message is printed properly. With Forms switch ON (Option 39a), printer forms out until first line of next form is reached, then stops. With Forms switch OFF (Option 39b), paper feeds out one line when FF characters are received.</p> <p>When message ending character is received, printer stops printing.</p> <p>With Option 18a selected, no paper feeds out.</p> <p>With Option 18b or 18c selected:</p> <p>(a) Forms switch ON (Option 39a): Form advances to first line of next form.</p> <p>(b) Forms switch OFF (Option 39b): Form feeds out 16 lines or until form-out contact closes, whichever occurs first.</p> <p>With 410640 or 410729 logic card, motor turns off immediately.</p> <p>With 410071, 410072 or 410076 logic card, motor turns off after 20 seconds.</p>
12	<p>Tractor Feed: Tear off forms at bottom of printer.</p> <p>ROP: Depress the TEST or TRANS START key on the opcon.</p> <p>KDP: Transmit miscellaneous text (enough to completely fill form) followed by several (NEW LINEs and a message ending character. (PRINT LOCAL).</p> <p>KDP and ROP: Allow last form to feed completely out of printer, or on forms access printer, past the paper-out switch.</p> <p><i>Note:</i> On the forms access printer the last form does not feed out of printer.</p> <p>ROP: Depress TEST or TRANS START key on opcon.</p>	<p>Printer motor turns on; printer receives text message correctly.</p> <p>Printer stops printing and motor turns off.</p> <p><i>Note:</i> On 132-column printer or on 80-column tractor feed printer equipped with 410071 or 410076 circuit card, with Option 48a, paper-out indication occurs when form is partly through printer; with Option 48b, paper-out indication does not occur until form is completely out of printer. Forms access printer requires Option 48a.</p> <p>TEST or TRANS START indicator on opcon extinguishes.</p>

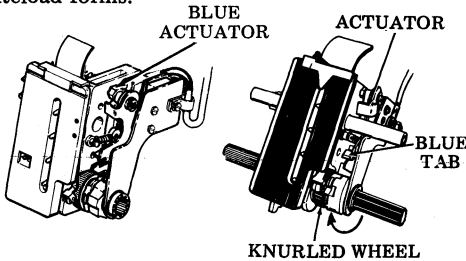
TABLE A (Cont)

OFF-LINE CHECKOUT

STEP	PROCEDURE	RESULTS
12 (Cont)	<p>Friction Feed: ROP: Depress TRANS START or TEST key on opcon.</p> <p>KDP: Transmit miscellaneous text followed by several NEW LINES and a message ending character. (PRINT LOCAL).</p> <p>ROP and KDP: Lift paper roll off cradle while printer is receiving message.</p> <p>ROP: Depress the TEST or TRANS START key on the opcon.</p>	<p>LOW PAPER indicator lights. Printer receives message. Printer motor remains on while message is being received.</p> <p>When TEST or TRANS START key is depressed (ROP) or the message ending character is received (KDP):</p> <p>With Option 18a selected, no paper feeds out.</p> <p>With Option 18b or 18c selected, paper feeds out 16 lines.</p> <p>With the 410640 logic card, motor turns off immediately. With 410076 logic card, motor turns off after 20 seconds.</p>
13	<p>ROP: Depress TEST or TRANS START key on opcon.</p> <p>KDP: Transmit miscellaneous text followed by a message ending character. (PRINT LOCAL).</p> <p>ROP: Depress TEST or TRANS START key on opcon again.</p> <p>Friction Feed: Lower paper roll to cradle.</p> <p>Tractor Feed Printer Without Paper Jam Alarm Mechanism: Reload forms.</p>	<p>Printer motor does not turn on.</p> <p>TEST or TRANS START indicator on opcon extinguishes.</p>

TABLE A (Cont)

OFF-LINE CHECKOUT

STEP	PROCEDURE	RESULTS
14	<p>Tractor Feed Printer With Paper Jam Alarm Mechanism Only:</p> <p>KDP: Depress the LOCAL key on the opcon.</p> <p>KDP and ROP: Remove paper from tractors and close tractor lids. Install a piece of paper in the paper chute and over the paper-out sensing mechanism.</p> <p>ROP: Depress the TRANS START key on the opcon.</p> <p>KDP: Transmit miscellaneous text followed by a message ending character. Depress the PRINT LOCAL key on the opcon.</p> <p>ROP: Depress TEST or TRANS START key on opcon.</p> <p>KDP and ROP: Reset the paper jam alarm. (To reset, rotate knurled wheel toward rear until it stops). Push on blue painted tab of actuator (old style), or the blue plastic actuator (new style) until it detents into reset condition.</p> <p>Reload forms.</p>  <p>New Style Jam Assembly Old Style Jam Assembly</p>	<p>Printer motor turns on. Printer starts to receive message. Motor turns off and PAPER button on cabinet lights.</p> <p>TEST or TRANS START indicator on opcon extinguishes.</p>
15	<p>Forms Access: Release (by momentarily depressing) the three cabinet Interlock switches from maintenance position.</p> <p>Friction and Tractor Feed: Release (by momentarily depressing) the cabinet Interlock switch from maintenance position.</p> <p>ROP: Depress TEST or TRANS START key on opcon.</p> <p>KDP: Transmit miscellaneous text message followed by a message ending character (PRINT LOCAL).</p>	<p>Printer motor should not turn on.</p>

3. TROUBLESHOOTING

3.01 The troubleshooting information consists of step-by-step procedures to determine which subcomponent, part, or adjustment is causing failure.

3.02 To use the troubleshooting information, always start with Analysis Question 1 to isolate the trouble. If replacement of the indicated defective component does not clear the trouble, replace the next higher order of component, if possible.

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

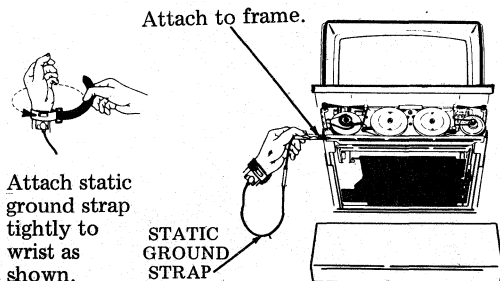
3.04 Where more than one component is specified for replacement, they should be substituted one at a time in the order specified. The original component should be replaced if the trouble is not corrected before making the next indicated substitution.

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

3.06 The following cautions must be observed when troubleshooting the printer.

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

Caution 2: To avoid possible internal damage to MOS circuitry whenever the 410071, 410072, 410076, 410640, or 410729 printer circuit card is removed, the 346392 static ground strap must be worn. The strap is not to be worn over clothing but must contact the skin tightly. The ground strap must be connected to ground (either "earth" ground or frame ground) via its associated clip.



3.07 The following test apparatus is required to troubleshoot the printer. If it is not available, the recommended corrective procedure is replacement of the complete printer for all troubles which are not clearly evident and easily rectified.

80-Column Printer

- *402617 Gauge
- 402779 Line Cord With Switch
- 402780 Interlock Strapping Plug (Friction Feed)
- 402781 AC Line Cord Adapter (Tractor Feed)
- 402782 Interlock Strapping Plug (Tractor Feed)
- *402868 Gauge
- *402878 Gauge
- 408646 Printer Test Assembly
- 408649 Test Cable
- 408650 Test Cable

132-Column Printer

- *402716 Left Gauge
- *402717 Right Gauge
- 402779 Line Cord With Switch
- 402781 AC Line Cord Adapter
- 402782 Interlock Strapping Plug
- *402868 Gauge
- *402878 Gauge
- 408646 Printer Test Assembly
- 408648 Test Cable

*These items used in adjustments of the printer.

3.08 When replacing the 410071, 410076, 410640 (80-column), 410072, or 410729 (132-column) printer circuit card, make sure the following procedures are followed:

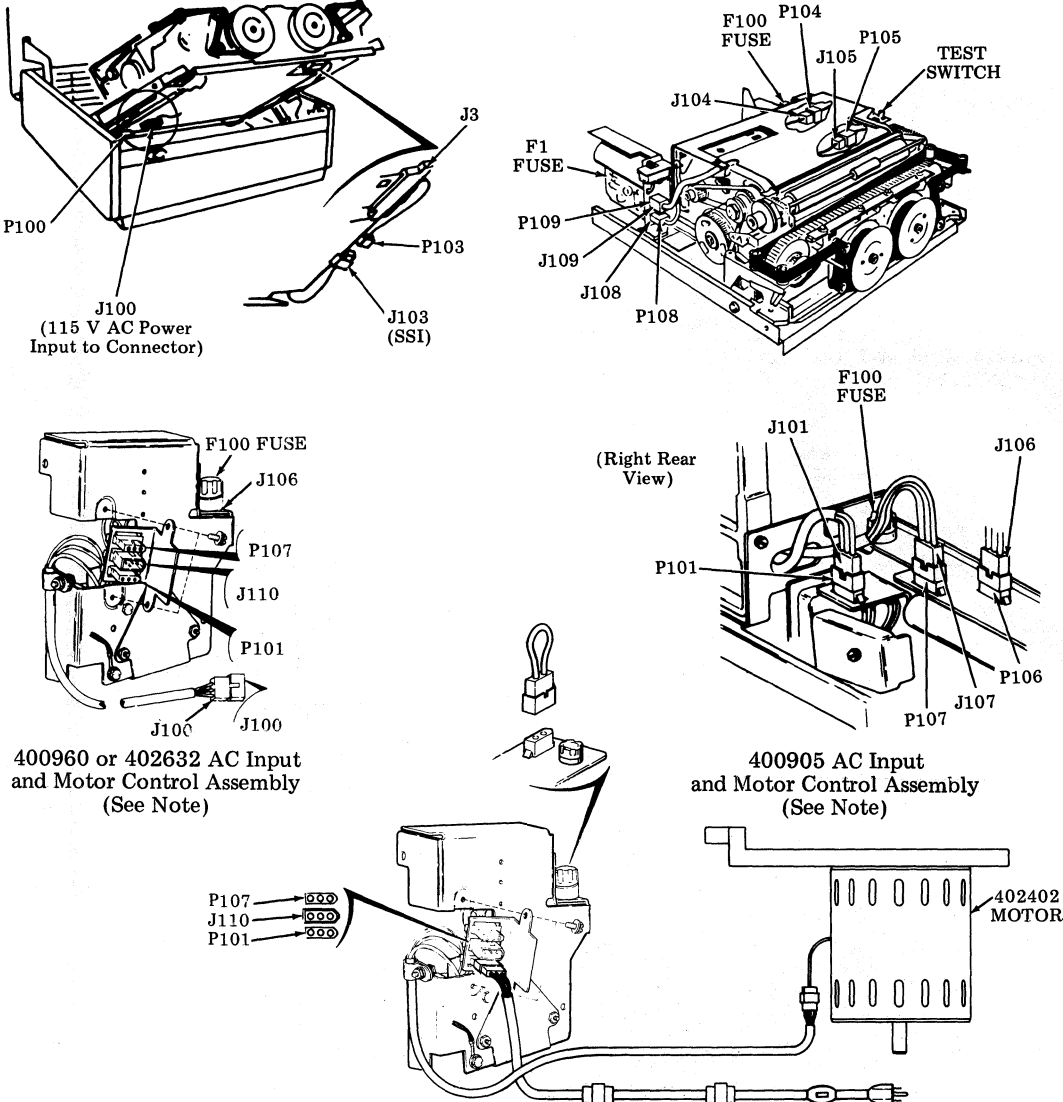
- (a) Duplicate all options on the new card present on the old card.

Note: If replacing an early design 410640 or 410729 card with a late design 410076 or 410072 card, additional options on the late design card must be selected.

- (b) Perform the Power Supply Voltage adjustment before installing the new card.
- (c) Perform the Impeller Shaft Sensor and Flag Sensor adjustments after installing the new card.
- (d) Observe the grounding procedures.

3.09 When the type carrier is replaced, it may be necessary to refine the Impeller Shaft to Carrier Phasing (Final) adjustment.

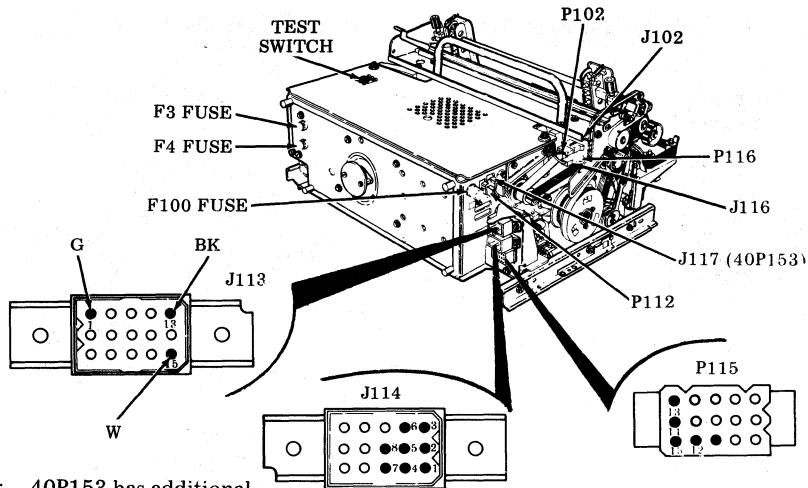
- 3.10 When replacing the 410681, 410150 or 410151 circuit card, perform the Power Supply Voltage adjustment.
- 3.11 Miscellaneous plugs and connectors are shown for the 80- and 132-column printers (Fig. 2, 3, 4, 5, and 6). Complete wiring information is available in Section 582-210-400.



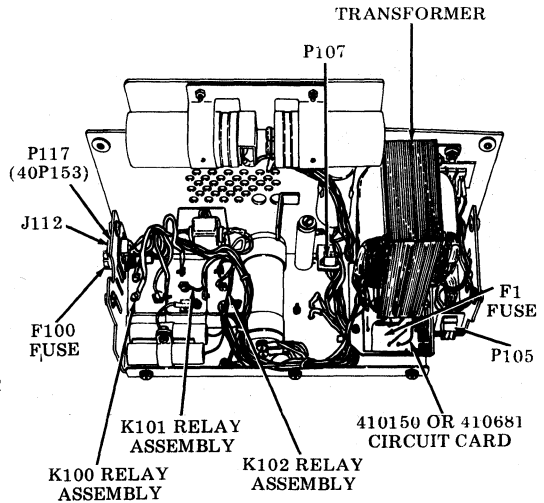
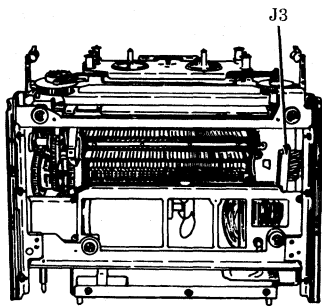
411040 AC Input And Motor Control Assembly With 402402 Motor. (See Note)

Note: All previous design ac input and motor control assemblies must be replaced with the solid state 411040 ac input and motor control assembly that can only be used with the 402402 motor.

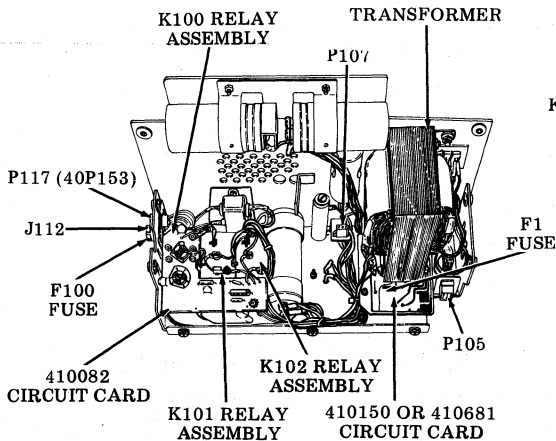
Fig. 2—80-Column Friction Feed



Note: 40P153 has additional wires at terminals 5, 6, 7, 8 and 9 of J113.

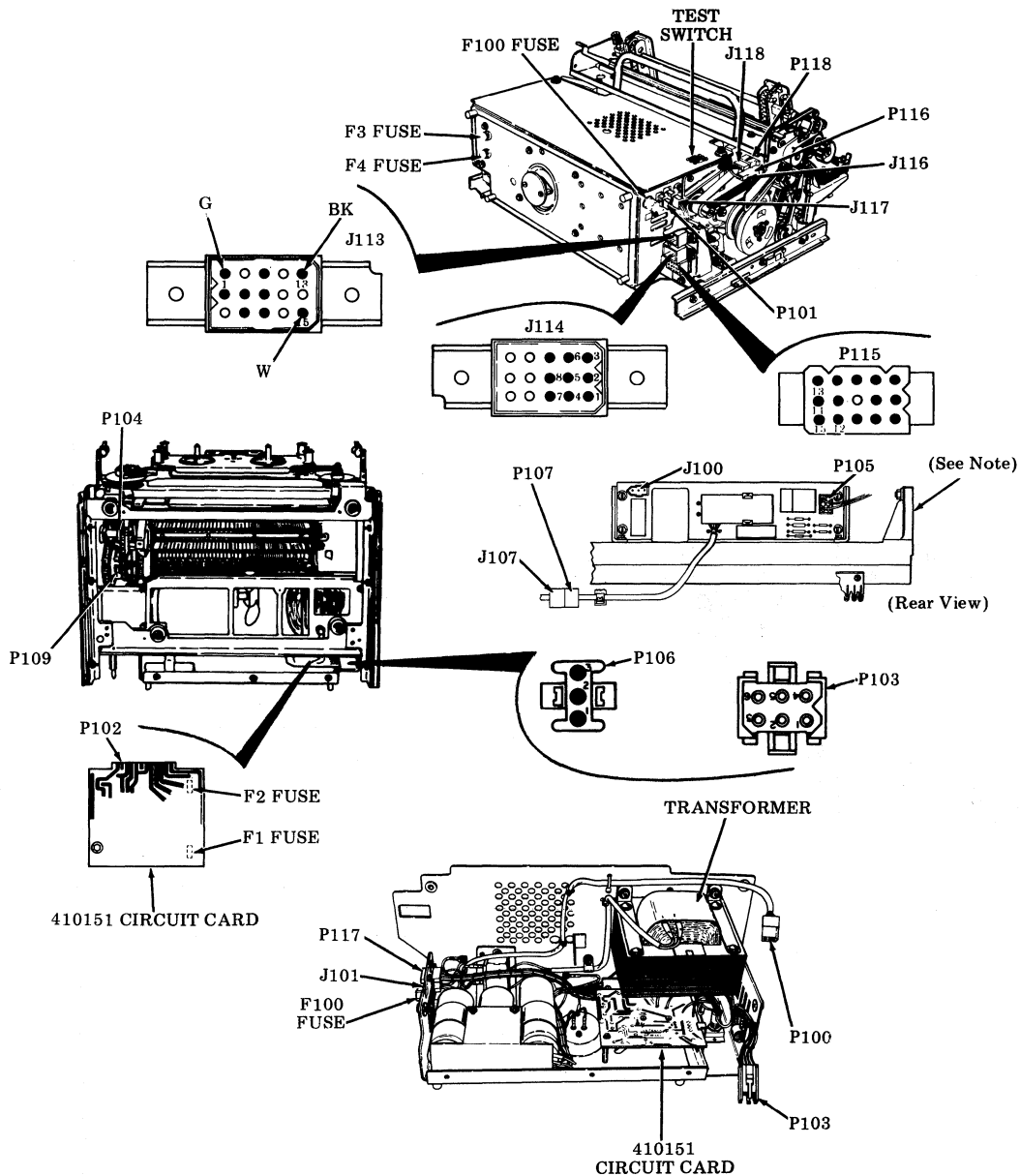


Early Design



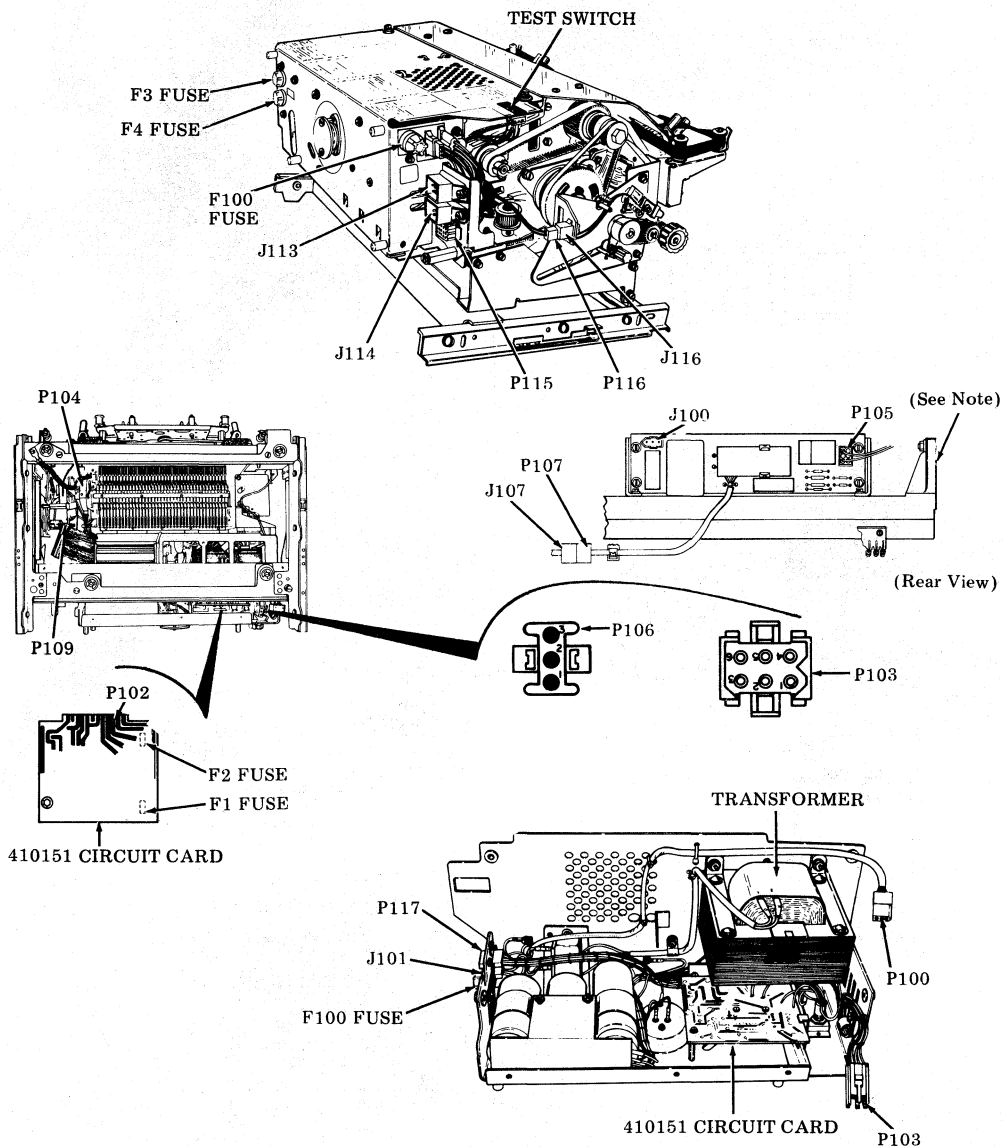
Late Design

Fig. 3 - 80-Column Tractor Feed (40P151 or 40P153)



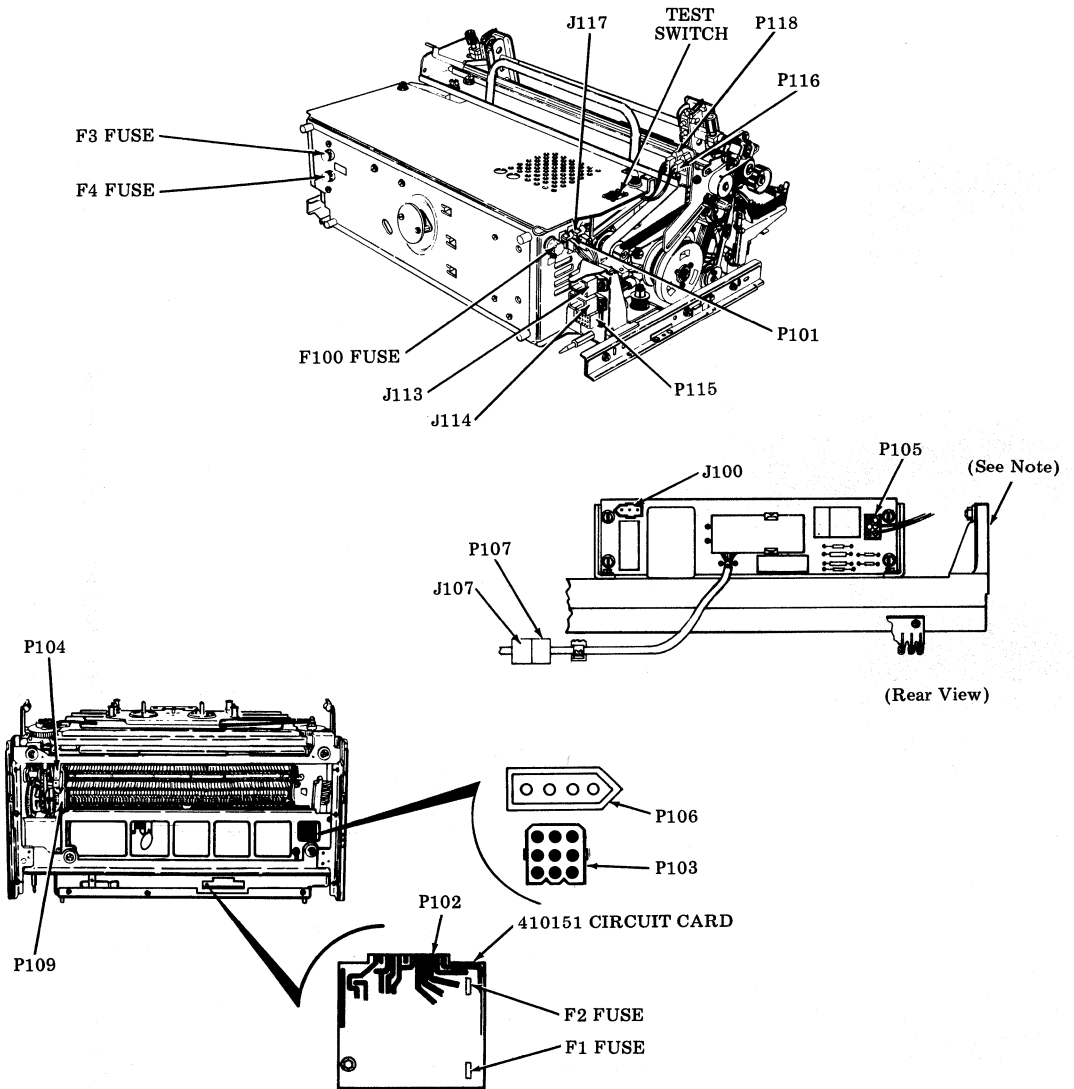
Note: The 410155 circuit card assembly has been replaced by the 410019 circuit card assembly (all connections are the same).

Fig. 4 — 80-Column Tractor Feed (40P154)



Note: The 410155 circuit card assembly has been replaced by the 410019 circuit card assembly (all connections are the same).

Fig. 5 — Forms Access 80-Column Tractor Feed (40P253)



Note: The 410155 circuit card assembly has been replaced by the 410019 circuit card assembly (all connections are the same).

Fig. 6 -- 132-Column Tractor Feed

TABLE B

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

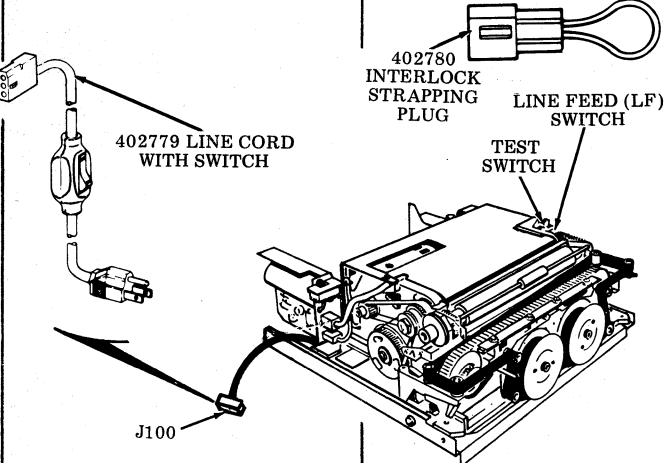
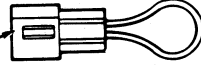
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE												
<p>1. Remove printer from cabinet.</p> <p>Connect 402779 line cord with switch to J100 connector on printer.</p> <p>Connect 402780 interlock strapping plug into P106 connector on printer.</p> <p>Set printer Test switch to Off.</p> <p>Set printer LF switch to position 1.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does printer motor run?</p>	<p>Go to 2.</p>  <p>402779 LINE CORD WITH SWITCH</p> <p>J100</p> <p>402780 INTERLOCK STRAPPING PLUG</p> <p>LINE FEED (LF) SWITCH</p> <p>TEST SWITCH</p>	<p>Go to 3.</p>  <p>402780 INTERLOCK STRAPPING PLUG</p> <p>LINE FEED (LF) SWITCH</p> <p>TEST SWITCH</p>												
<p>2. Operate 402779 line cord with switch to Off.</p> <p>Remove 410076 (or 410640) circuit card from printer.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does printer motor run?</p>	<p>Replace 400960 or 402632 ac input and motor control assembly with 411040 ac input and motor control assembly.</p> <p><i>Note:</i> Several motors and ac input and motor control assemblies have been used in friction feed printers. The motors and ac input and motor control assemblies are <u>not interchangeable</u>. See chart below.</p> <table border="1" data-bbox="446 1037 791 1204"> <thead> <tr> <th></th> <th>AC INPUT AND MOTOR CONTROL ASSEMBLY</th> <th>MOTOR</th> </tr> </thead> <tbody> <tr> <td>Early Design *</td> <td>400905</td> <td>400270</td> </tr> <tr> <td>Intermediate Design *</td> <td>400960</td> <td>400270</td> </tr> <tr> <td>Late Design *</td> <td>402632</td> <td>402402</td> </tr> </tbody> </table> <p>* All previous design ac input and motor control assemblies have been replaced by the solid state 411040 ac input and motor control assembly which can only be used with the 402402 motor.</p>		AC INPUT AND MOTOR CONTROL ASSEMBLY	MOTOR	Early Design *	400905	400270	Intermediate Design *	400960	400270	Late Design *	402632	402402	<p>Replace 410076 (or 410640) circuit card.</p> <p>Before installing new 410076 (or 410640) circuit card, check voltages.</p> <p>Connect 408646 test assembly to J3 connector.</p> <p><i>Caution:</i> Observe caution label on 408649 cable when connecting plug to J3 connector.</p> <p>Connect voltmeter leads between TP1 and TP3 on 408646 test assembly and place 402779 line cord with switch to On. Note meter reading and adjust for $-24 \text{ V dc } \pm 1\%$ at R4 resistor on 410681 circuit card (early design) or R9 resistor on 410150 circuit card (late design).</p>
	AC INPUT AND MOTOR CONTROL ASSEMBLY	MOTOR												
Early Design *	400905	400270												
Intermediate Design *	400960	400270												
Late Design *	402632	402402												

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

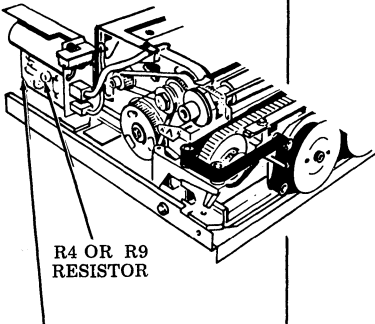
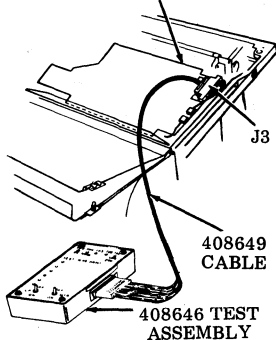
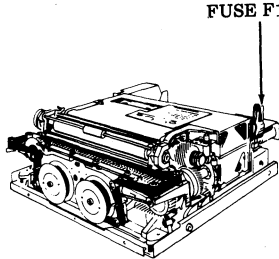
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>2. (Cont)</p>  <p>R4 OR R9 RESISTOR</p> <p>410681 OR 410150 CIRCUIT CARD</p>		<p>410076 CIRCUIT CARD (Replaces early design 410640 circuit card.)</p>  <p>J3</p> <p>408649 CABLE</p> <p>408646 TEST ASSEMBLY</p> <p>After installing new 410076 (or 410640) circuit card, check <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjust- ments; remake if necessary.</p>
<p>3. Operate printer Test switch to On.</p> <p>Does printer motor run?</p>	<p>Go to 23.</p>	<p>Go to 4.</p>
<p>4. Operate 402779 line cord with switch to Off.</p> <p>Are motor gears and associ- ated drive mechanisms free to operate (no mechanical binds)?</p>	<p>Check F100 fuse. If blown, re- place with new F100 fuse (1 A SL-BL, MDL-1) (143306).</p> <p>If fuse blows again, go to 5.</p> <p>Check thermal overload protec- tor on motor; depress reset button on fan end of motor.</p> <p><i>Note:</i> The 400270 motor (early design) has overload protection which resets auto- matically upon cooling.</p> <p>Go to 10.</p>	<p>If mechanical bind is not clearly evident and easily rectified, in- stall new printer.</p>  <p>FUSE F100</p>

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

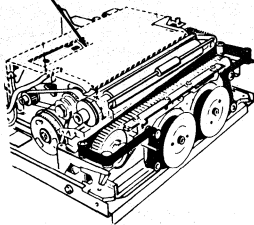
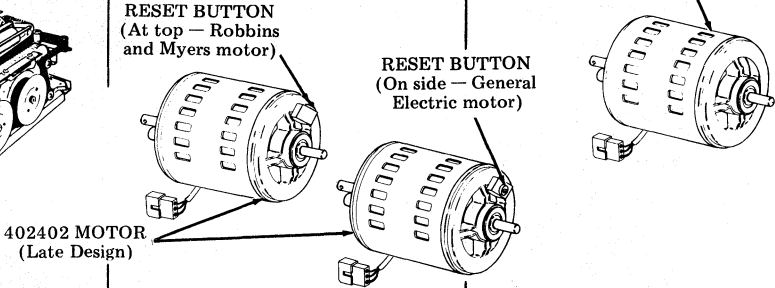
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>4. (Cont)</p> <p>Access to reset button.</p> 	 <p>RESET BUTTON (At top — Robbins and Myers motor)</p> <p>RESET BUTTON (On side — General Electric motor)</p> <p>402402 MOTOR (Late Design)</p> <p>400270 MOTOR (Early Design)</p>	
<p>5. Disconnect J101 connector.</p> <p>Replace F100 fuse.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Operate 402779 line cord with switch to Off.</p> <p>Remove 400960 or 402632 ac input and motor control assembly from printer and replace with 411040 assembly.</p> <p>Reinstall 411040 assembly on printer.</p>	<p>Go to 6.</p>
<p>6. Reconnect J101 connector.</p> <p>Disconnect P108 connector.</p> <p>Replace F100 fuse.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Operate 402779 line cord with switch to Off.</p> <p>Locate and clear short circuit in transformer cabling.</p> <p>Check if transformer is shorted to ground — if so, install new 400901 transformer.</p>	<p>Go to 7.</p>

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

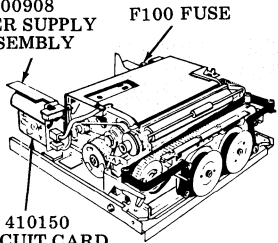
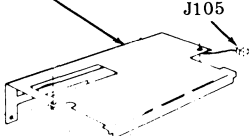
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>7. Reconnect F108 connector.</p> <p>Disconnect J109 connector.</p> <p>Replace F100 fuse.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Operate 402779 line cord with switch to Off.</p> <p>Replace 410150 circuit card.</p> <p>When new 410150 circuit card is installed, check and refine (if necessary) <u>Power Supply Voltage</u> adjustment.</p> <p>If trouble is not corrected, replace 400908 power supply assembly.</p>	<p>Go to 8.</p>  <p>400908 POWER SUPPLY ASSEMBLY</p> <p>F100 FUSE</p> <p>410150 CIRCUIT CARD (Replaces early design 410681 circuit card.)</p>
<p>8. Reconnect J109 connector.</p> <p>Disconnect J105 connector.</p> <p>Replace F100 fuse.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Operate 402779 line cord with switch to Off.</p> <p>Replace 400903 (40P101) or 407209 (40P102) top cover assembly.</p>  <p>J105</p>	<p>Go to 9.</p>
<p>9. Reconnect J105 connector.</p> <p>Replace F100 fuse.</p> <p>Remove 410076 (or 410640) circuit card.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Replace entire printer.</p>	<p>Replace 410076 (or 410640) circuit card.</p> <p>Before installing new 410076 (or 410640) circuit card, check <u>Power Supply Voltage</u> adjustment.</p> <p>After installing new 410076 (or 410640) circuit card, check <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

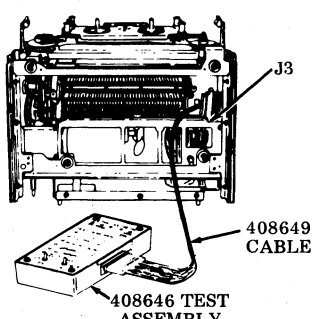
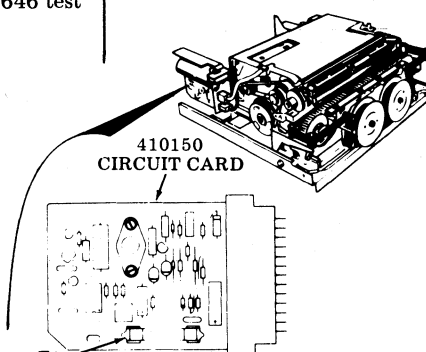
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>10. Remove 410076 (or 410640) circuit card.</p> <p>Connect 408646 test assembly to J3 connector on printer.</p> <p><i>Caution: Observe caution label on 408649 cable when connecting plug to J3 connector.</i></p> <p>Operate 402779 line cord with switch to On.</p> <p>Operate MTR switch on 408646 test assembly to On.</p> <p>Does printer motor run?</p>	<p>Operate 402779 line cord with switch to Off.</p> <p>Replace 410076 (or 410640) circuit card.</p> <p>Before installing new 410076 (or 410640) circuit card, check <u>Power Supply Voltage</u> adjustment.</p> <p>After installing 410076 (or 410640) circuit card, check <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>	<p>Go to 11.</p> 
<p>11. Check for -24 V dc $\pm 1\%$ at TP1 and TP3 on 408646 test assembly.</p> <p>Is -24 V dc present?</p>	<p>Go to 12. (40P101 only) Go to 13. (40P102)</p> 	<p>Check F1 fuse on 410150 circuit card.</p> <p><i>Note: The 410681 circuit card is the early design version of 410150 circuit card. The 410681 circuit card does not have a fuse.</i></p> <p>If fuse is blown, replace with new 321955 fuse (2-1/2 A F-B).</p> <p>If fuse is not blown, replace 410150 circuit card. Check and refine <u>Power Supply Voltage</u> adjustment (if necessary).</p> <p>Go to 13.</p>
<p>12. <u>40P101 Only</u> Measure -5 V dc at TP5 and TP3 on 408646 test assembly.</p> <p>Is -5 V dc present?</p> <p><i>Note: Step 12 does not apply to 40P102.</i></p>	<p>Go to 18.</p>	<p>Replace 410150 (late design) or 410681 (early design) circuit card. Check and refine <u>Power Supply Voltage</u> adjustment (if necessary).</p> <p>Replace 400903 cover assembly.</p> <p>Replace entire printer.</p>

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

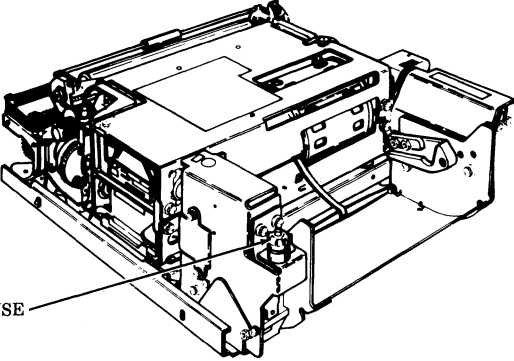
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE												
<p>13. Disconnect J101 connector on 400960, 402632 or 411040 ac input and motor control assembly.</p> <p>Measure 115 V ac \pm10% on P101 connector, terminal 1 to 3.</p> <p>Is 115 V ac present?</p> 	<p>Replace 400960 or 402632 ac input and motor control assembly with 411040 ac input and motor control assembly.</p> <p>Go to 14.</p>	<p>Replace 400960 or 402632 ac input and motor control assembly with 411040 ac input and motor control assembly.</p> <p><i>Note:</i> Several motors and ac input and motor control assemblies have been used in friction feed printers. The motors and ac input and motor control assemblies are <u>not interchangeable</u>. See chart below.</p> <table border="1" data-bbox="826 552 1160 708"> <thead> <tr> <th></th> <th>AC INPUT AND MOTOR CONTROL ASSEMBLY</th> <th>MOTOR</th> </tr> </thead> <tbody> <tr> <td>Early Design *</td> <td>400905</td> <td>400270</td> </tr> <tr> <td>Intermediate * Design</td> <td>400960</td> <td>400270</td> </tr> <tr> <td>Late Design *</td> <td>402632</td> <td>402402</td> </tr> </tbody> </table> <p>* All previous design ac input and motor control assemblies have been replaced by the solid state 411040 ac input and motor control assembly which can only be used with the 402402 motor.</p>		AC INPUT AND MOTOR CONTROL ASSEMBLY	MOTOR	Early Design *	400905	400270	Intermediate * Design	400960	400270	Late Design *	402632	402402
	AC INPUT AND MOTOR CONTROL ASSEMBLY	MOTOR												
Early Design *	400905	400270												
Intermediate * Design	400960	400270												
Late Design *	402632	402402												
<p>14. Disconnect P108 connector on 400908 power supply.</p> <p>Measure 28 V ac \pm3% on P108 connector, terminal 1 to 3.</p> <p>Is 28 V ac present?</p>	<p>Reconnect P108 connector.</p> <p>Go to 15.</p>	<p>Replace 400901 transformer.</p>												

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

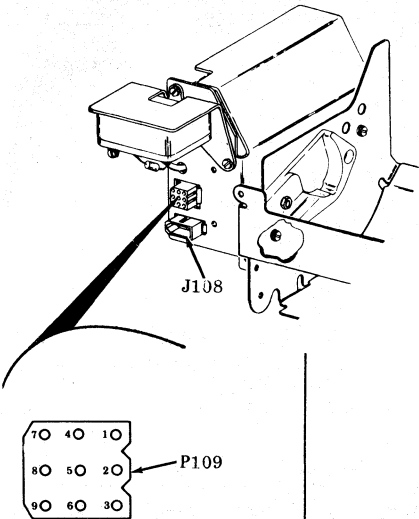
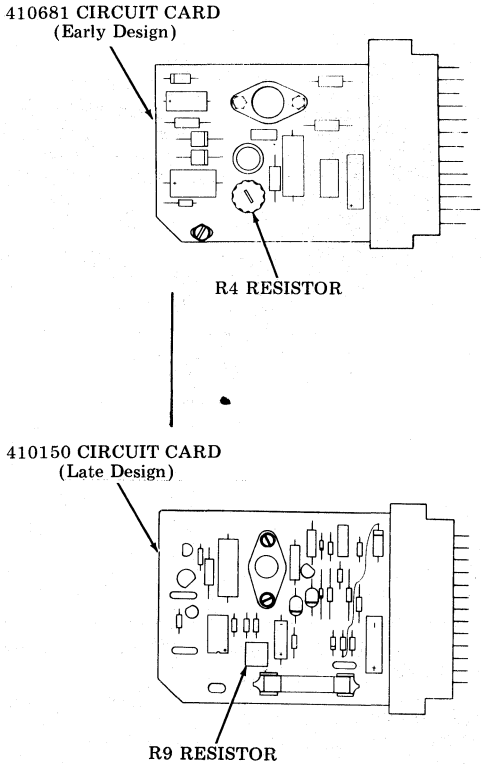
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>15. Disconnect J109 connector on 400908 power supply.</p> <p>Measure -24 V dc±1% (two places) on P109 connector, terminal 5 to 6 and terminal 4 to 5.</p> <p><i>Note:</i> Place (+) probe on terminal 5.</p> <p>Is -24 V dc present?</p>  <p>The diagram shows a perspective view of the printer's power supply assembly. A connector labeled J109 is shown being disconnected from the power supply. Below it, a terminal block labeled P109 is shown with terminals numbered 1 through 9 in a 3x3 grid.</p>	<p>Reconnect J109 connector.</p> <p>Go to 16.</p>	<p>If voltage is present but not -24 V dc±1%, refine adjustment — R4 resistor on 410681 circuit card (early design); R9 resistor on 410150 circuit card (late design).</p> <p>Replace 400908 power supply.</p>  <p>The diagrams show two circuit cards. The top one is labeled '410681 CIRCUIT CARD (Early Design)' and has a resistor labeled 'R4 RESISTOR' highlighted with a circle. The bottom one is labeled '410150 CIRCUIT CARD (Late Design)' and has a resistor labeled 'R9 RESISTOR' highlighted with a circle.</p>

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

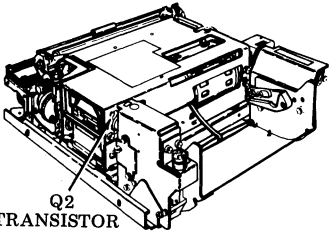
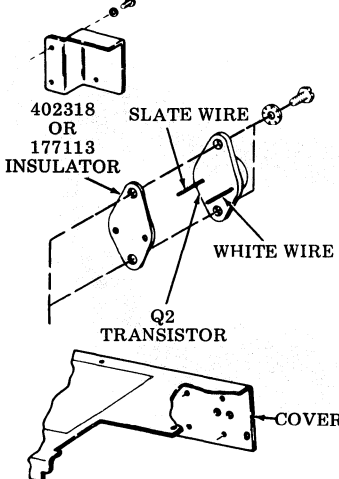
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE															
<p>16. Remove 400903 top cover assembly (40P101) or 407209 top cover assembly (40P102) mounting screws.</p> <p>Disconnect J105 connector on 400903 or 407209 top cover assembly.</p> <p>Measure -24 V dc\pm1% (two places) on J105 connector, terminal 1 to 2 and terminal 2 to 3.</p> <p><i>Note:</i> Place (+) probe on terminal 2.</p> <p>Is -24 V dc present (two places)?</p>	 <p>Q2 TRANSISTOR</p> <p>Check continuity from P105 connector to J3 connector.</p> <table border="0" data-bbox="510 646 749 758"> <tr> <td>P105</td> <td></td> <td>J3</td> </tr> <tr> <td>4</td> <td>←</td> <td>L</td> </tr> <tr> <td>1</td> <td>←</td> <td>9</td> </tr> <tr> <td>2</td> <td>←</td> <td>N</td> </tr> <tr> <td>3</td> <td>←</td> <td>12</td> </tr> </table> <p>If no continuity repair broken cable.</p> <p>Reconnect J105 connector.</p> <p>Go to 17.</p>	P105		J3	4	←	L	1	←	9	2	←	N	3	←	12	<p>Replace Q2 transistor (318835) on 400903 or 407209 top cover assembly.</p> <p>Replace 400903 or 407209 top cover assembly.</p> <p><i>Note:</i> When replacing Q2 transistor, apply thermal joint compound to base of transistor and base of 177113 insulator. The 402318 insulator does not need thermal joint compound.</p>  <p>402318 OR 177113 INSULATOR</p> <p>SLATE WIRE</p> <p>WHITE WIRE</p> <p>Q2 TRANSISTOR</p> <p>COVER</p>
P105		J3															
4	←	L															
1	←	9															
2	←	N															
3	←	12															
<p>17. Disconnect interlock plug from P106 connector.</p> <p>Check for -24 V dc at terminals 1 and 2 on P106 connector.</p> <p>Is -24 V dc present?</p> <p><i>Note:</i> Place (+) probe on terminal 1.</p>	<p>Reconnect interlock plug.</p> <p>Go to 18.</p>	<p>Remove mounting screws and swing connector bracket outward to expose connector.</p> <p>Check continuity from P106 connector to J110 connector.</p> <table border="0" data-bbox="875 1181 1140 1252"> <tr> <td>P106</td> <td></td> <td>J110</td> </tr> <tr> <td>1</td> <td>←</td> <td>3</td> </tr> <tr> <td>2</td> <td>←</td> <td>2</td> </tr> </table> <p>If no continuity repair broken cable.</p>	P106		J110	1	←	3	2	←	2						
P106		J110															
1	←	3															
2	←	2															

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

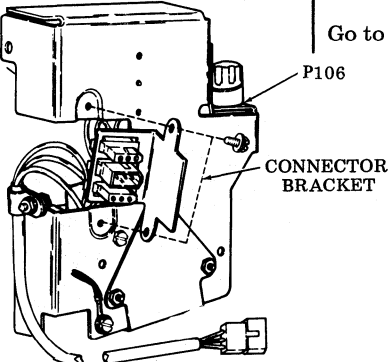
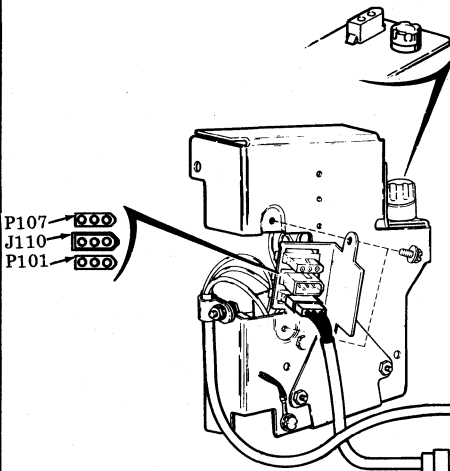
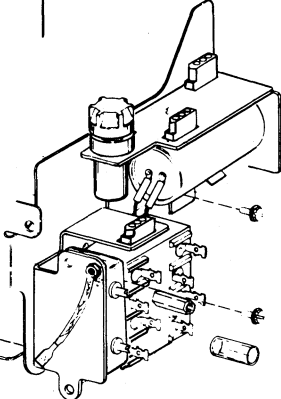
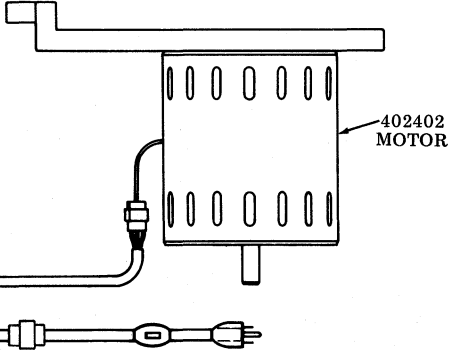
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>18. Operate 402779 line cord with switch on.</p> <p>Place printer Test switch to On.</p> <p>Does TEST lamp on 408646 test assembly light?</p>  <p>400960 or 402632 AC Input and Motor Control Assembly</p>  <p>411040 AC Input and Motor Control Assembly With Motor</p>	<p>If printer has a 402632 ac input and motor control assembly replace with a 411040 assembly.</p> <p>If printer has a 400905 or 400460 ac input and motor control assembly replace with a 411040 assembly and a 402402 motor.</p> <p>Go to 19.</p>	<p>Check wiring back to Test switch.</p> <p>Replace 402861 Test switch.</p>  <p>400905 AC Input and Motor Control Assembly</p>  <p>402402 MOTOR</p>

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

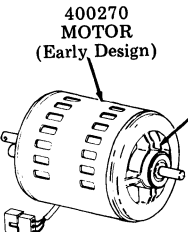
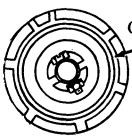
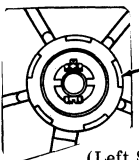
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE												
<p>19 Operate 402779 line cord with switch to Off.</p> <p>Disconnect J107 connector.</p> <p>Measure the following resistances between indicated terminals on J107 connector:</p> <p><u>400270 Motor (Early design)</u> or <u>402402 Motor (Late design)</u> <u>General Electric</u></p> <p>Terminal 1 to 2 - 33 ohms Terminal 1 to 3 - 45 ohms Terminal 2 to 3 - 12 ohms (All readings±10%)</p> <p><u>402402 Motor (Late design)</u> <u>Robbins & Myers</u></p> <p>Terminal 1 to 2 -- 19 ohms Terminal 1 to 3 - 30 ohms Terminal 2 to 3 - 11 ohms (All readings±10%)</p> <p>Are measured resistances correct?</p>	<p>Replace entire printer.</p>  <p>NO RESET BUTTON AT FAR END</p>  <p>(Left Side View)</p>  <p>(Left Side View)</p>	<p>Replace 402402 motor.</p> <p><i>Note:</i> Several motors and ac input and motor control assemblies have been used in friction feed printers. The motors and ac input and motor control assemblies are <u>not interchangeable</u>. See chart below:</p> <table border="1" data-bbox="831 406 1178 566"> <thead> <tr> <th></th> <th>AC INPUT AND MOTOR CONTROL ASSEMBLY</th> <th>MOTOR</th> </tr> </thead> <tbody> <tr> <td>Early Design*</td> <td>400905</td> <td>400270</td> </tr> <tr> <td>Intermediate Design *</td> <td>400960</td> <td>400270</td> </tr> <tr> <td>Late Design*</td> <td>402632</td> <td>402402</td> </tr> </tbody> </table> <p>* All previous design ac input and motor control assemblies have been replaced by the solid state 411040 ac input and motor control assembly which can only be used with the 402402 motor.</p>		AC INPUT AND MOTOR CONTROL ASSEMBLY	MOTOR	Early Design*	400905	400270	Intermediate Design *	400960	400270	Late Design*	402632	402402
	AC INPUT AND MOTOR CONTROL ASSEMBLY	MOTOR												
Early Design*	400905	400270												
Intermediate Design *	400960	400270												
Late Design*	402632	402402												

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

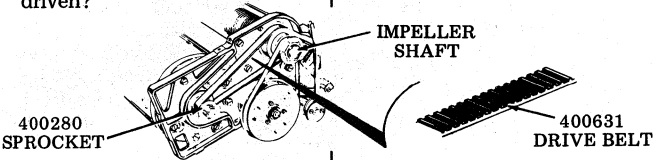
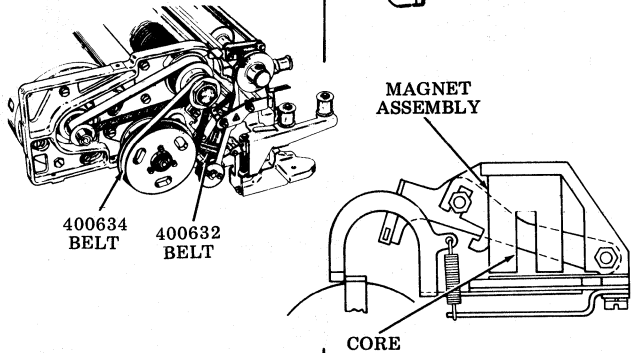
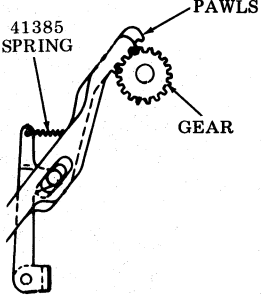
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>20. Is the impeller shaft being driven?</p>  <p>400280 SPROCKET</p> <p>IMPELLER SHAFT</p> <p>400631 DRIVE BELT</p>	<p>Go to 21.</p>	<p>Check the impeller shaft drive belt. Replace if worn or broken (400631).</p> <p>Check the motor shaft sprocket. Replace if worn or broken (400280).</p>
<p>21. Does printer line feed properly with printer Test switch On?</p> <p>Failure symptoms are: No line feed Intermittent line feed Continuous line feed.</p>  <p>400634 BELT</p> <p>400632 BELT</p> <p>MAGNET ASSEMBLY</p> <p>CORE</p>	<p>Go to 25.</p>  <p>41385 SPRING</p> <p>PAWLS</p> <p>GEAR</p>	<p>Check line feed belts. Replace if worn or broken (400634 or 400632).</p> <p>Check line feed pawls for engagement with gear.</p> <p>Check line feed bail spring. Replace if broken or worn.</p> <p>Check loose mounting of line feed magnet assembly on its core. Replace 400470 line feed assembly if magnet coil is loose.</p> <p>Go to 22.</p>

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

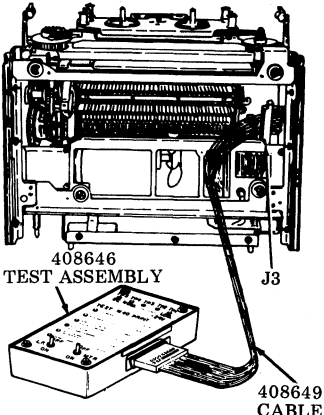
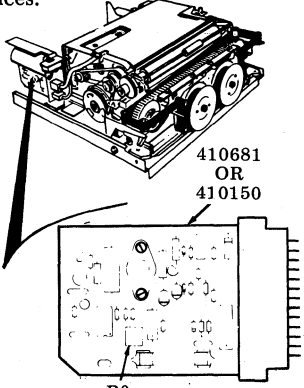
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>22. Remove 410076 (or 410640) circuit card.</p> <p>Connect 408646 test assembly to J3, as shown.</p> <p><i>Caution: Observe caution label on 408649 cable when connecting plug to J3.</i></p> <p>Operate 402779 line cord with switch to On.</p> <p>Operate MTR switch on 408646 test assembly to On.</p> <p>Operate LF switch on 408646 test assembly to On.</p> <p>Does the printer line feed?</p>	 <p>Operate 402779 line cord with switch Off.</p> <p>Replace 410076 (or 410640) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustment; remake if necessary.</p>	<p>Go to 26.</p>
<p>23. Check for -24 V dc $\pm 1\%$ between TP2 and TP3 on 408646 test assembly.</p> <p>Is -24 V dc $\pm 1\%$ present?</p>	<p>Go to 24.</p>	<p>Refine -24 V dc adjustment if voltage reading is outside tolerances.</p>  <p>Replace 410150 circuit card. When circuit card is installed, check <u>Power Supply Voltage</u> adjustment; refine if necessary.</p>

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

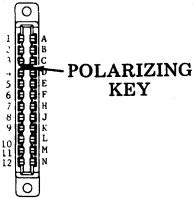
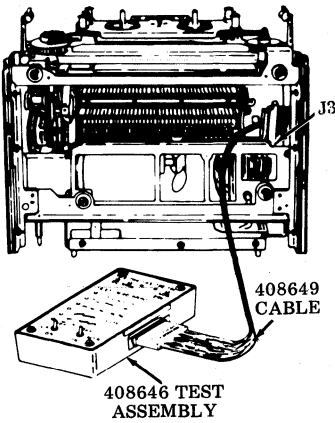
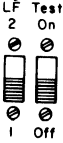
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>24. Operate the 402779 line cord with switch Off.</p> <p>Disconnect P-3 test cable from printer.</p> <p>Measure for 33 ohms resistance at J3 between terminals 1 and K.</p> <p>Is measured resistance correct?</p>	<p>Check the following adjustments:</p> <p><u>Clutch Shoe Release Arm</u> <u>Line Feed Armature Gap</u> <u>Line Feed Bar Eccentric and Drive Belt Tension</u> <u>Clutch Drive Belt Tension</u></p> <p>Replace front casting assembly: 40P101 — 400201 (early design) or 400377 (late design) 40P102 — 402970</p>	<p>Replace 400470 line feed magnet assembly.</p>  <p>J3</p>
<p>25. Place printer LF1 — LF2 switch to position LF2.</p> <p>Does the printer double line space properly?</p>	<p>Go to 27.</p>	<p>Go to 26.</p>
<p>26. Remove 410076 (or 410640) circuit card from printer.</p> <p>Connect 408646 test assembly to J3, as shown.</p> <p><i>Caution: Observe caution label on 408649 cable when connecting plug to J3 connector.</i></p> <p>Operate 402779 line cord with switch On.</p> <p>Does the line feed lamp on 408646 test assembly light?</p>	 <p>Replace 410076 (or 410640) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustment; remake if necessary.</p>	<p>Replace 402861 switch.</p>  <p>1 Off</p>

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

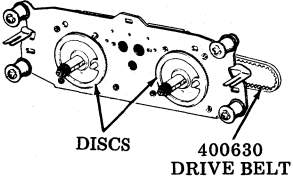
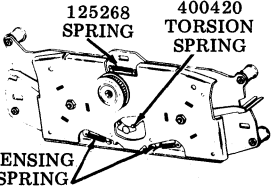
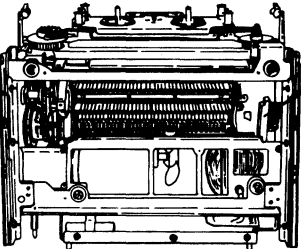
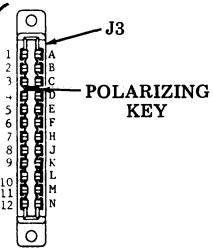
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>27. Is the ribbon feed mechanism operating properly?</p> <p>Ribbon spools rotating. Ribbon reverse working. No ribbon foldover.</p> <p><i>Note:</i> To check ribbon reversing, manually operate the reversing arms with printer operating (printer Test switch On).</p>	<p>Go to 28.</p>	<p>Check ribbon drive belt. Replace if worn or broken.</p>  <p>DISCS 400630 DRIVE BELT</p> <p>Remove ribbon mechanism and check the following springs. Replace if broken.</p>  <p>125268 SPRING 400420 TORSION SPRING 2836 SENSING ARM SPRING</p> <p>Replace ribbon mechanism 402420.</p>
<p>28. Are any characters being printed?</p> 	<p>Go to 29.</p>  <p>J3 POLARIZING KEY</p>	<p>Check the following adjustments:</p> <p>(1) <u>Impeller Shaft Sensor Gap</u> (2) <u>Flag Sensor Gap</u></p> <p>Check impeller sensor for a maximum of 145 ohms at J3 between terminals H and J.</p> <p>Check flag sensor for a maximum of 145 ohms at J3 between terminals E and F.</p> <p>Replace sensor (400615) if open or resistance exceeds maximum requirement.</p> <p>Replace 410076 (or 410640) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustment; remake if necessary.</p>

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING



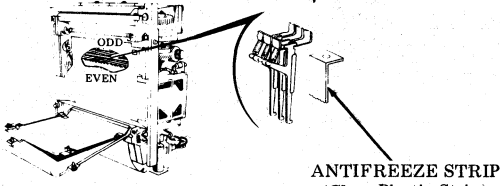
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>29. Is the carrier font symbol the symbol printed?</p> <p>Font symbols:</p> <p> Up-Low</p> <p> Monocase</p> <p>etc.</p>	Go to 30.	<p>If ! (exclamation) or ___ (underline) are printed check the following adjustments:</p> <ol style="list-style-type: none"> (1) <u>Flag Sensor Gap</u> (2) <u>Impeller Shaft Sensor Gap</u> (3) <u>Flag Sensor Final</u> <p>Replace the 410076 (or 410640) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustment; remake if necessary.</p>
30. Are any columns not printing?	Go to 31.	Go to 35.
<p>31. Are any of the following groups of columns missing?</p> <p>1 – 12</p> <p>13 – 24</p> <p>25 – 36</p> <p>37 – 48</p> <p>49 – 60</p> <p>61 – 72</p> <p>73 – 80</p>	<p>Replace 410076 (or 410640) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustment; remake if necessary.</p>	Go to 32.
<p>32. Of the columns that are missing, are they all odd-numbered (example: 1, 3, 19, 71) or are they all even-numbered (example: 2, 8, 42, 68)?</p>	<p>Check the position of the antifreeze strip.</p> <p>Check for oil on antifreeze strip. If present, spray with 337449 Degreaser (Freon TF).</p>  <p>If antifreeze strip is distorted or missing, replace entire printer.</p>	Go to 33.

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
33. Are one or more columns missing?	<p>Check the following adjustments:</p> <p>(1) <u>Impeller Shaft Sensor Gap</u> (2) <u>Flag Sensor Gap</u> (3) <u>Impeller Shaft Sensor (Final)</u></p> <p>Replace 410076 (or 410640) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustment; remake if necessary.</p> <p>Replace entire printer.</p>	Go to 34.
34. Are any characters not printed?	<p>Check type carrier for missing pallets.</p> <p>Replace type carrier.</p> <p>Replace 410076 (or 410640) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustment; remake if necessary.</p>	Place printer in service.
35. Is the font symbol clipped on the left or right?	<p>Check the <u>Impeller Shaft to Carrier Phasing — Final</u> adjustment.</p>	Go to 36.

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

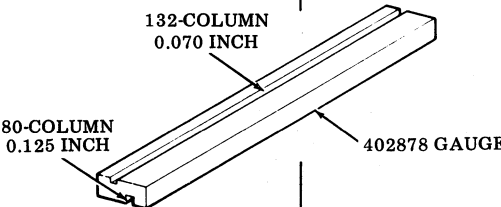
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE																						
<p>36. Are adjacent characters in the type carrier printed in place of the proper character (T instead of S, B instead of A, etc)?</p>	<p>Check the following adjustments:</p> <p>(1) <u>Flag Sensor Gap</u> (2) <u>Impeller Shaft Sensor Gap</u></p> <p>Check that pallets and flags are in proper position.</p> <table border="1"> <thead> <tr> <th>Type Carrier</th> <th>Flag Position</th> </tr> </thead> <tbody> <tr><td>400645AA</td><td>43, 107, 171</td></tr> <tr><td>400629AB</td><td>12, 108</td></tr> <tr><td>400774AC</td><td>44, 108, 172</td></tr> <tr><td>400775AD</td><td>108, 172</td></tr> <tr><td>400776AF</td><td>12, 108</td></tr> <tr><td>400778AH</td><td>44, 108, 172</td></tr> <tr><td>400779AP</td><td>12, 108</td></tr> <tr><td>400784AN</td><td>12, 108</td></tr> <tr><td>400785AQ</td><td>43, 107, 171</td></tr> <tr><td>408346AZ</td><td>12, 60, 108, 156</td></tr> </tbody> </table> <p><i>Note:</i> For flag positions in type carriers not listed above, refer to Section 582-210-702.</p> <p>Replace entire printer.</p>	Type Carrier	Flag Position	400645AA	43, 107, 171	400629AB	12, 108	400774AC	44, 108, 172	400775AD	108, 172	400776AF	12, 108	400778AH	44, 108, 172	400779AP	12, 108	400784AN	12, 108	400785AQ	43, 107, 171	408346AZ	12, 60, 108, 156	<p>Go to 37.</p>
Type Carrier	Flag Position																							
400645AA	43, 107, 171																							
400629AB	12, 108																							
400774AC	44, 108, 172																							
400775AD	108, 172																							
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400779AP	12, 108																							
400784AN	12, 108																							
400785AQ	43, 107, 171																							
408346AZ	12, 60, 108, 156																							
<p>37. Is copy free of horizontal ink smudges caused by the ribbon rubbing against the paper.</p>	<p>Go to 38.</p>	<p>Check the following adjustments:</p> <p>(1) <u>Ribbon Guide</u> (2) <u>Paper Positioner</u></p>																						
<p>38. Is copy free of double print or ghost images?</p> 	<p>Go to 39.</p>	<p>Check the following adjustments:</p> <p>(1) <u>Left Carrier Sprocket</u> (2) <u>Right Carrier Sprocket</u></p> <p>Check that type pallets are seated properly in carrier. Seat pallets with 402878 gauge. Replace type carrier.</p> <p>Replace entire printer.</p>																						

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

ANALYSIS QUESTION	“YES” RESPONSE DIRECTIVE	“NO” RESPONSE DIRECTIVE
39. Is the printed copy clear and easily readable?	Go to 40.	Replace 402444 ribbon. Check the following adjustments: (1) <u>Backup Bar (Final)</u> (2) <u>Left Carrier Sprocket</u> (3) <u>Right Carrier Sprocket</u> (4) <u>Ribbon Guide</u> (5) <u>Paper Positioner</u>
40. Is printed copy free from embossing (especially noticeable on characters such as hyphen or underline)?	Go to 41. 400645AA Friction and Tractor 80-Column – Monocase 400629AB Friction and Tractor 80-Column – Up-Low 400774AC Friction and Tractor 80-Column – Weather 400775AD Friction and Tractor 80-Column – Line Drawing 400776AF Friction and Tractor 80-Column – Fractions in One Eighths – Up-Low 400778AH Friction and Tractor 80-Column – Large Gothic With Fractions 400779AP Friction and Tractor 80-Column – Fractions in One Eighths – Up-Low 400784AN Friction and Tractor 80-Column – EBCDIC 400785AQ Friction and Tractor 80-Column – EBCDIC Monocase 408346AZ Friction and Tractor 80-Column – 48-Character Set	Check the <u>Backup Bar (Final)</u> adjustment and type carrier pallet alignment. Check that type pallets are seated properly in carrier. Seat pallets with 402878 gauge. Replace type carrier.
41. Is the print density uniform throughout the line without gradual variations?	Go to 42.	Check the following adjustments: (1) <u>Left Carrier Sprocket</u> (2) <u>Right Carrier Sprocket</u> (3) <u>Backup Bar</u>
42. Is the print density uniform throughout the line without random variations?	Go to 43.	Check the following adjustment: <u>Paper Positioner</u> Replace entire printer.

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

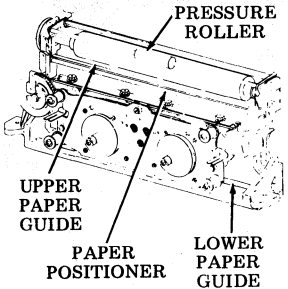
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>43. Are the bottoms of characters printed clearly (not light) at both ends of the line?</p>	Go to 44.	<p>Check the following adjustments:</p> <p>(1) <u>Left Carrier Sprocket</u></p> <p>(2) <u>Right Carrier Sprocket</u></p> <p>Replace printer.</p>
<p>44. Are all individual characters printed clearly when received?</p>	Go to 45.	<p>Check type carrier for missing, broken, distorted, or dirty type pallets.</p> <p>Replace type carrier.</p> <p>Replace printer.</p>
<p>45. Are there erratic line feeds or some characters printing too high?</p>  <p>The diagram shows a cross-section of the paper feed assembly. A horizontal pressure roller is at the top. Below it, a paper guide is visible. At the bottom, there is a paper positioner and another paper guide. Labels with leader lines point to: PRESSURE ROLLER, UPPER PAPER GUIDE, PAPER POSITIONER, and LOWER PAPER GUIDE.</p>	<p><u>Friction Feed</u>: Check for bind in paper roll and throughout paper routing path.</p> <p>Check tension of pressure roller.</p> <p>Check for damaged paper guides and paper positioner.</p> <p>Check for damaged spindle.</p> <p>Check that core of paper roll is not damaged, and is not protruding on either side.</p> <p>Replace front casting assembly: 40P101 – 400201 (early design) or 400377 (late design) 40P102 – 402970</p>	Go to 46.
<p>46. Does the paper feed out when the paper advance pushbutton is operated? (Printer in cabinet and SSI connected.)</p> <p><i>Note:</i> SSI connected (required for paper feed out with the 410640 circuit card) is not required for paper feed out with the 410076 circuit card.</p>	Go to 48.	Go to 47.

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

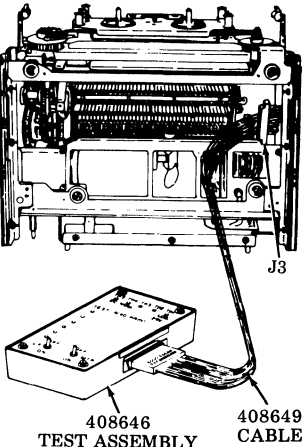
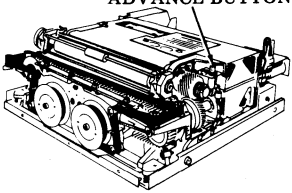
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>47. Operate 402779 line cord with switch to Off.</p> <p>Remove 410076 (or 410640) circuit card from printer.</p> <p>Connect 408646 test assembly as shown.</p> <p><i>Caution: Observe caution label on 408649 cable when connecting plug to J3 connector.</i></p> <p>Operate 402779 line cord with switch On.</p> <p>Depress paper advance push-button on printer.</p> <p>Does the paper advance lamp on the 408646 test assembly light?</p>	 <p>Replace 410076 (or 410640) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustment; remake if necessary.</p>	<p>Replace 402631 switch.</p>
<p>48. Does the low paper indicator light when paper roll is momentarily lifted?</p>	<p>LOW PAPER INDICATOR AND PAPER ADVANCE BUTTON</p>  <p>Place printer in service.</p>	<p>Check the low paper switch adjustment.</p> <p>Go to 49.</p>

TABLE B (Cont)

80-COLUMN FRICTION FEED PRINTER TROUBLESHOOTING

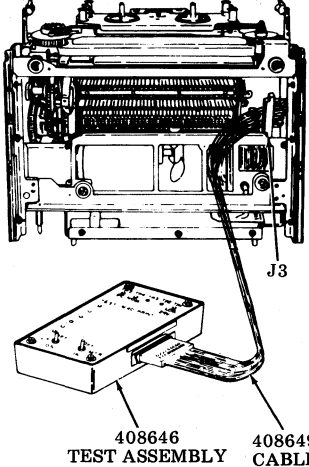
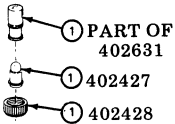

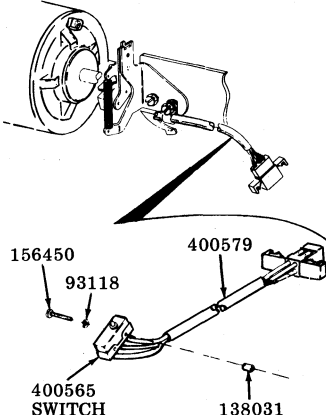
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>49. Operate 402779 line cord with switch Off.</p> <p>Remove 410076 (or 410640) circuit card from printer.</p> <p>Connect 408646 test assembly to J3, as shown.</p> <p><i>Caution: Observe caution label on 408649 cable when connecting plug to J3.</i></p> <p>Operate the 402779 line cord with switch On.</p> <p>With the paper in, does the NO LOW PAPER lamp on the 408646 test assembly light?</p> <p>Lift paper roll. Does the NO LOW PAPER lamp go out and the LOW PAPER indicator on the printer light?</p>	 <p>408646 TEST ASSEMBLY 408649 CABLE</p> <p>J3</p> <p>Replace 410076 (or 410640) circuit card.</p> <p>After the card is installed, check the Impeller Shaft Sensor (Final) and Flag Sensor (Final) adjustment; remake if necessary.</p>	<p>Replace 402427 bulb.</p>   <p>1 402631</p> <p>1 402500 SET OF PARTS</p> <p>Replace 400565 low paper switch.</p> 

TABLE C

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

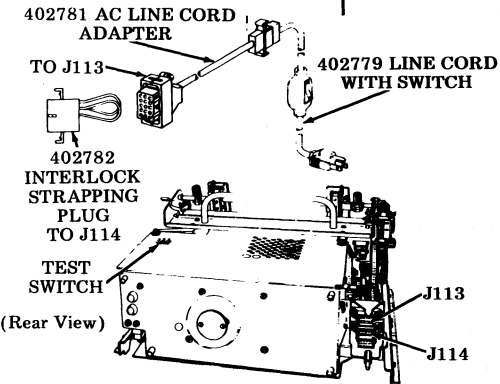
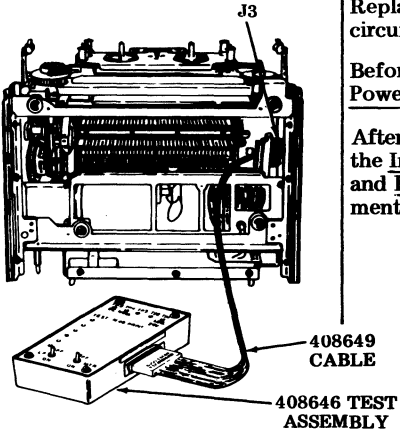
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>1. Is the 80-column tractor feed printer 40P151 or 40P153?</p> <p>Is the 80-column tractor feed printer 40P154 or 40P253?</p>	<p>Go to 2.</p> <p>Go to 20.</p>	
<p>2. Remove printer from cabinet.</p> <p>Connect 402781 ac line cord adapter and 402779 line cord with switch to J113 connector.</p> <p>Plug 402782 interlock strapping plug into J114.</p> <p>Operate printer Test switch to Off.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does printer motor run?</p>	 <p>40P151 or 40P153 Tractor Feed Printer.</p> <p>Go to 3.</p>	<p>Go to 5.</p>
<p>3. Operate 402779 line cord with switch to Off.</p> <p>Remove 410076 (or 410640) circuit card.</p> <p>Connect 408646 test assembly and 408649 cable as shown.</p> <p><i>Caution: Observe caution label on 408649 cable when connecting plug to J3 connector.</i></p> <p>Operate MTR switch on 408646 test assembly to Off.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does printer motor run?</p>	 <p>Go to 4.</p>	<p>Replace 410076 (or 410640) circuit card.</p> <p>Before installing card, check <u>Power Supply Voltage</u> adjustment.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustment; remake if necessary.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

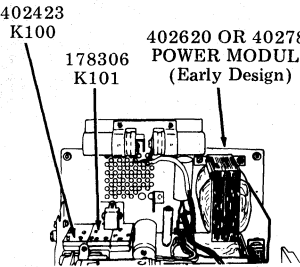
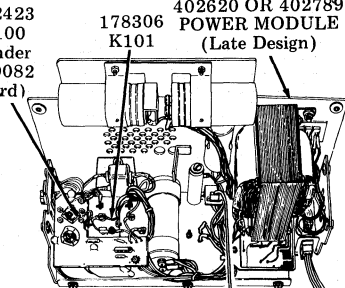
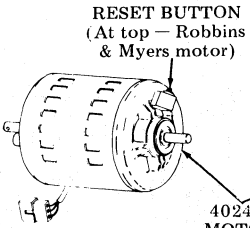
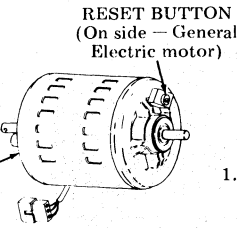
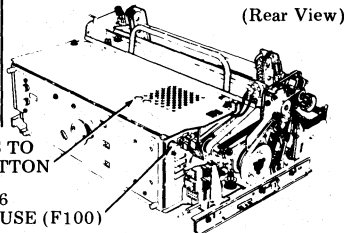
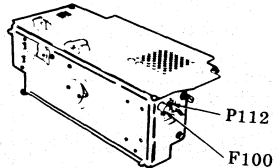
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>4. Separate 402620 or 402789 power module from printer, leaving all cabling connected.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Measure 115 V ac +10% between TP3 on 408646 test assembly and terminal 2 on K101 relay.</p> <p>Is 115 V ac present?</p>	<p>Replace K101 relay (178306).</p> 	<p>Replace 402620 or 402789 power module.</p> 
<p>5. Operate printer Test switch to On.</p> <p>Does printer motor run?</p>	<p>Go to 41.</p>	<p>Go to 6.</p>
<p>6. Operate 402779 line cord with switch to Off.</p> <p>Are the motor gears and associated drive mechanisms free to operate (no mechanical binds)?</p> 	<p>Check F100 fuse. If blown, replace with 143306 fuse (1 A SL-BL MDL-1). If fuse blows again, go to 7.</p> <p>Check thermal overload protector — depress red button on fan end of motor. Go to 11.</p> 	<p>If mechanical bind is not clearly evident and easily rectified, replace printer.</p> 
<p>7. Disconnect P112 connector.</p> <p>Operate 402779 line cord with switch On.</p> <p>Does bench fuse blow?</p>	<p>Problem is test cable or printer cable (P112 to J113). Locate short. Replace F100 fuse (143306).</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Go to 8.</p> 

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

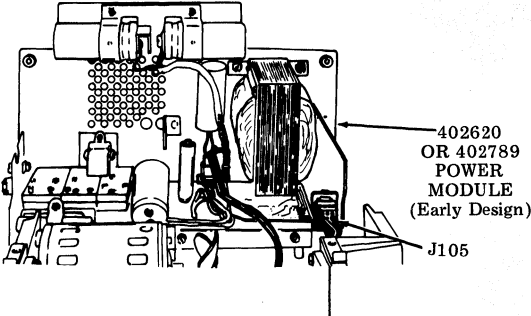
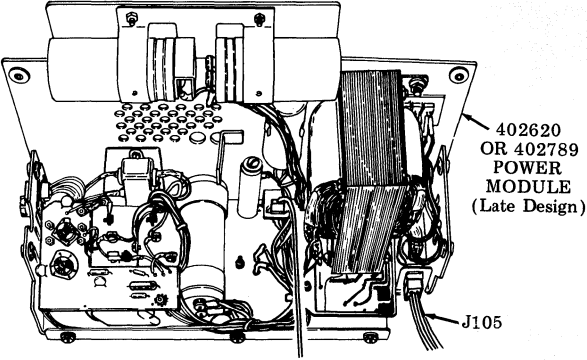
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>8. Reconnect P112 connector. Disconnect J105 connector on 402620 or 402789 power module.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Go to 10.</p> 	<p>Operate 402779 line cord with switch Off.</p> <p>Go to 9.</p> 
<p>9. Reconnect J105 connector. Remove 410076 (or 410640) circuit card.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Replace printer.</p>	<p>Replace 410076 (or 410640) circuit card. Before installing new card, check power supply voltage. After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustment; remake if necessary.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

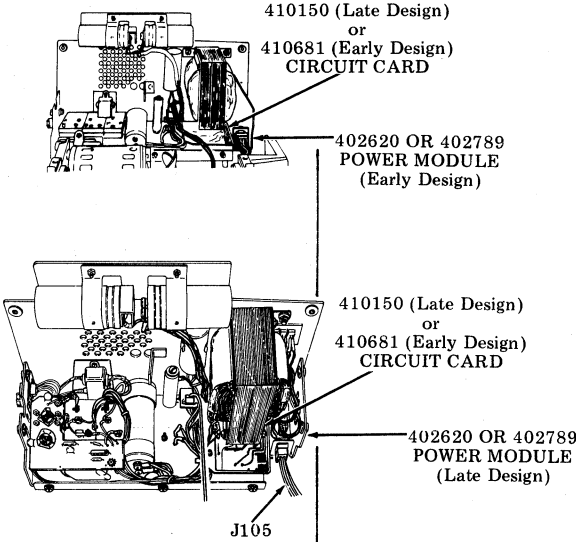
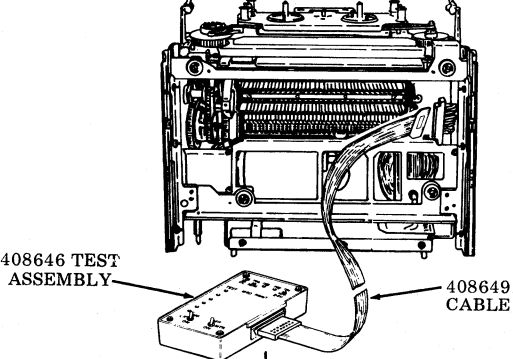
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>10. Reconnect J105 connector. Remove 410150 circuit card.</p> <p>Replace F100 fuse (143306).</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Check for short in 402620 or 402789 power module.</p> <p>Replace 402620 or 402789 power module.</p>	<p>Replace 410150 circuit card.</p> <p>After circuit card is installed, check the <u>Power Supply Voltage</u> adjustment; active if necessary.</p>
<p>11. Remove 410076 (or 410640) circuit card.</p> <p>Connect 408646 test assembly to J3 connector as shown.</p> <p><i>Caution: Observe caution label on 408649 cable when connecting plug to J3 connector</i></p> <p>Operate 402779 line cord with switch to On.</p>		

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

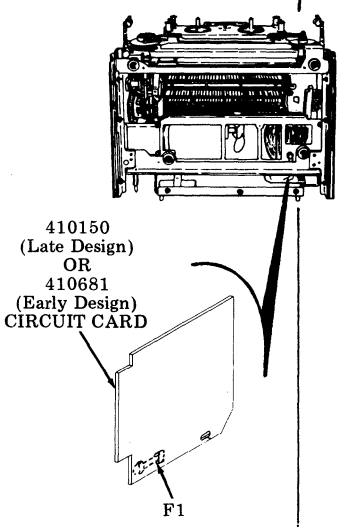
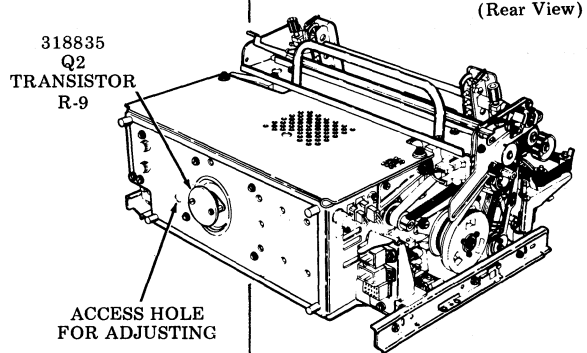
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
11. (Cont) Operate MTR switch on 408646 test assembly to On. Does motor run?	Replace 410076 (or 410640) circuit card. Before installing the new card, check the power supply voltage. After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustment; remake if necessary.	Go to 12.
12. Check for -24 V dc $\pm 1\%$ between TP3 and TP2, TP3 and TP1 on 408646 test assembly. Is -24 V dc present? <div style="text-align: center;">  </div>	Go to 13.	If voltage is present but not -24 V dc $\pm 1\%$, adjust R-9 resistor on 410150 circuit card. Check F1 (long fuse on top right of 410150 circuit card). Replace 321955 fuse if blown. If fuse blows again, replace 410150 circuit card. Check the <u>Power Supply Voltage</u> adjustment; refine if necessary. Replace Q-2 transistor (318835). Replace 402620 or 402789 power module. <div style="text-align: right;">(Rear View)</div> <div style="text-align: center;">  </div>
13. Does TEST lamp on 408646 test assembly light?	Go to 14.	Replace 402861 test switch.
14. Check for -5 V dc between TP3 and TP5 on 408646 test assembly. Is -5 V dc present?	Operate 402779 line cord with switch Off. Go to 15.	Replace 410150 circuit card. Check the <u>Power Supply Voltage</u> adjustment; refine if necessary.

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

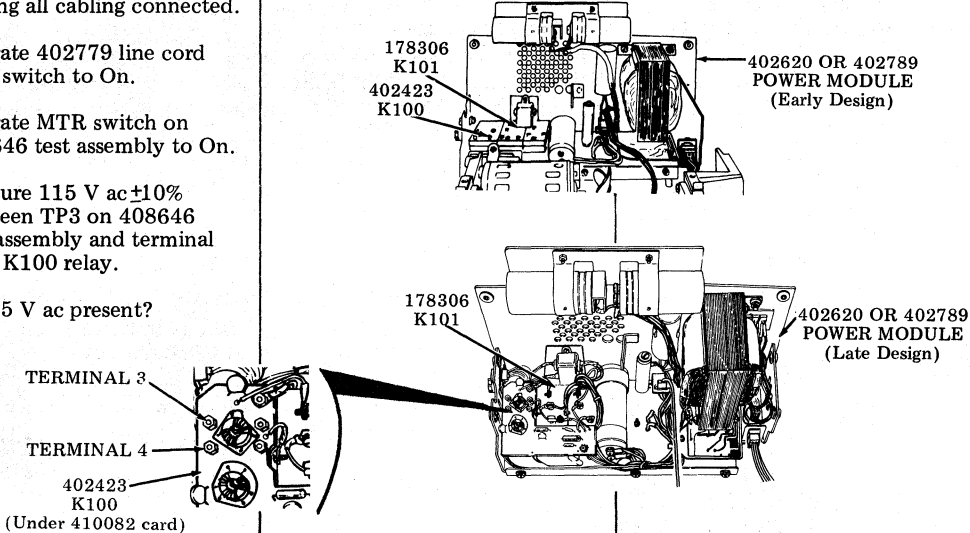
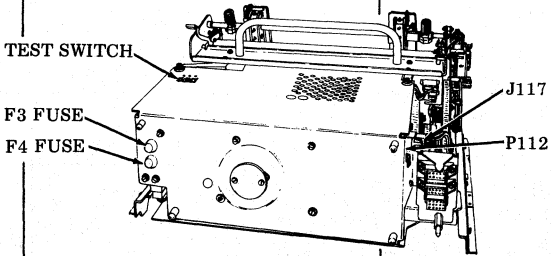
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>15. Separate 402620 or 402789 power module from printer leaving all cabling connected.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Operate MTR switch on 408646 test assembly to On.</p> <p>Measure 115 V ac $\pm 10\%$ between TP3 on 408646 test assembly and terminal 4 on K100 relay.</p> <p>Is 115 V ac present?</p> 	<p>Go to 16.</p>	<p>Replace K101 relay 178306.</p>
<p>16. Measure 115 V ac $\pm 10\%$ between TP3 on 408646 test assembly and terminal 3 on K100 relay.</p> <p>Is 115 V ac present?</p>	<p>40P151 Go to 19. 40P153 – Go to 17.</p>	<p>Replace K100 relay (402423).</p>
<p>17. 40P153 Only Operate 402779 line cord with switch to Off.</p> <p>Disconnect J117 connector from power module.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Measure 14 V ac between terminals 1 and 3 and between terminals 3 and 5 on P117 connector.</p> <p>Is 14 V ac present?</p>	<p>Go to 18.</p> 	<p>Check F3 and F4 fuses. If blown, replace with 129919 fuse, 4.0 A SL-BL.</p> <p>Go to 18.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

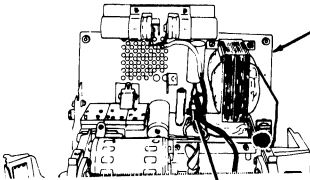
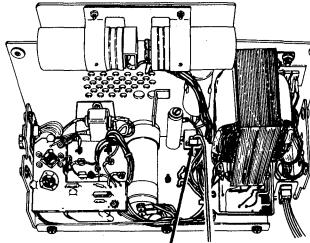
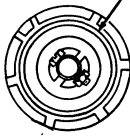
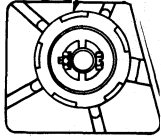
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>18. Measure 9.2 V ac between terminals 2 and 3 and between terminals 3 and 4 on P117 connector.</p> <p>Is 9.2 V ac present?</p>	<p>Reconnect J117. Go to 19.</p>	<p>Replace 402789 power module.</p>
<p>19. Operate 402779 line cord with switch to Off.</p> <p>Disconnect J107 connector on cable running to the motor.</p> <p>Measure the following resistances on J107 connector:</p> <p><u>402402 Motor — General Electric</u> Terminal 1 to 2 — 33 ohms</p> <p>Terminal 1 to 3 — 45 ohms</p> <p>Terminal 2 to 3 — 12 ohms</p> <p>(all readings $\pm 10\%$).</p> <p><u>402402 Motor — Robbins & Myers</u> Terminal 1 to 2 — 19 ohms</p> <p>Terminal 1 to 3 — 30 ohms</p> <p>Terminal 2 to 3 — 11 ohms</p> <p>(all readings $\pm 10\%$)</p> <p>Are resistances correct?</p>	<p></p> <p>J107 CONNECTOR</p> <p></p> <p>J107 CONNECTOR</p> <p>402620 OR 402789 POWER MODULE (Late Design)</p> <p></p> <p>ROUND BEARING ON 402402 MOTOR General Electric</p> <p>(Left Side View)</p> <p></p> <p>QUINTUPLE BEARING ON 402402 MOTOR Robbins & Myers</p> <p>(Left Side View)</p> <p>Replace entire printer.</p>	<p>402620 OR 402789 POWER MODULE (Early Design)</p> <p>402620 OR 402789 POWER MODULE (Late Design)</p> <p>Replace 402402 motor.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

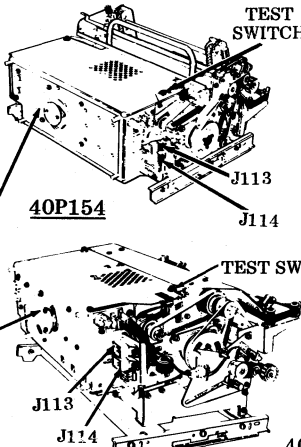
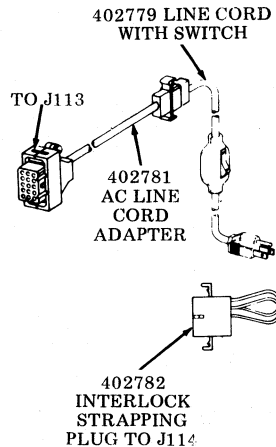
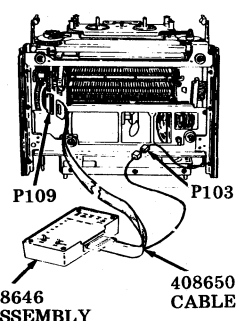
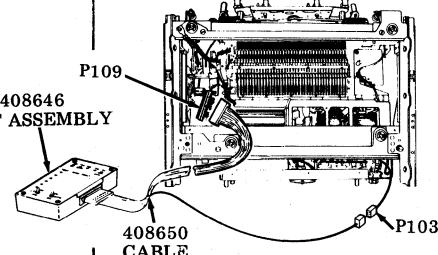
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>20. Remove printer from cabinet.</p> <p>Connect the 402781 ac line cord adapter and 402779 line cord with switch to J113 connector.</p> <p>Plug 402782 interlock plug into J114.</p> <p>Set Test switch to Off.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does printer motor run?</p>	<p>Go to 21.</p>  <p>TEST SWITCH</p> <p>J113</p> <p>J114</p> <p>40P154</p> <p>TEST SWITCH</p> <p>J113</p> <p>J114</p> <p>40P253</p>	<p>Go to 23.</p>  <p>402779 LINE CORD WITH SWITCH</p> <p>TO J113</p> <p>402781 AC LINE CORD ADAPTER</p> <p>402782 INTERLOCK STRAPPING PLUG TO J114</p>
<p>21. Operate 402779 line cord with switch to Off.</p> <p>Remove 410071 circuit card.</p> <p>Connect the 408646 test assembly as shown.</p> <p><i>Caution: Observe caution label on 408650 when connecting plug to P109 connector.</i></p> <p>Operate MTR switch on 408646 test assembly to Off.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does printer motor run?</p>	<p>Go to 22.</p>  <p>P109</p> <p>P103</p> <p>408646 TEST ASSEMBLY</p> <p>408650 CABLE</p> <p>40P154</p>	<p>Replace 410071 circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustment; remake if necessary.</p>  <p>P109</p> <p>408646 TEST ASSEMBLY</p> <p>408650 CABLE</p> <p>P103</p> <p>40P253</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

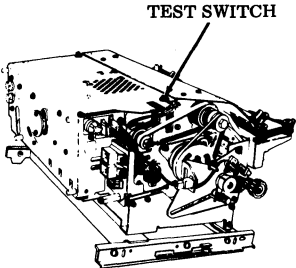
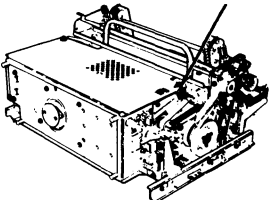
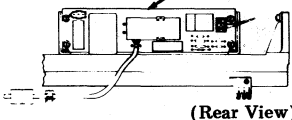
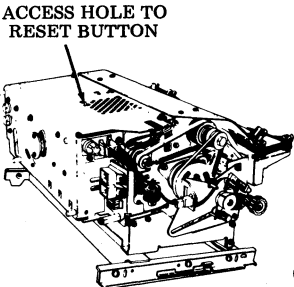
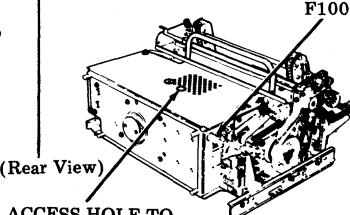
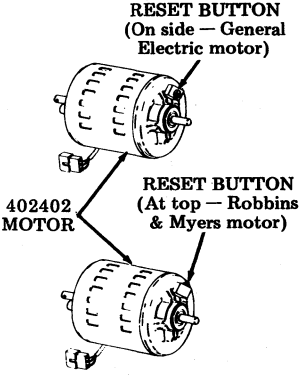
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>22. Does the test lamp on 408646 test assembly light?</p>  <p>TEST SWITCH</p> <p>40P253</p>	<p>Replace 402861 test switch.</p>  <p>TEST SWITCH</p> <p>40P154</p>	<p>Replace 410155 or 410019 circuit card assembly.</p> <p>410155 or 410019</p>  <p>(Rear View)</p> <p>Replace printer.</p>
<p>23. Operate Test switch on printer to On.</p> <p>Does the printer motor run?</p>	<p>Go to 41.</p>	<p>Go to 24.</p>
<p>24. Is the motor gear and associated drive mechanisms free to operate (no mechanical bind)?</p>  <p>ACCESS HOLE TO RESET BUTTON</p> <p>40P253</p>	<p>Check F100 fuse. If blown, replace with 143306 fuse (1 amp SL-BL MDL-1). If fuse blows again, go to 25. Check thermal overload protector — depress RED reset button on fan end of motor.</p> <p>Go to 32.</p>  <p>(Rear View)</p> <p>ACCESS HOLE TO RESET BUTTON</p> <p>40P154</p>	<p>If mechanical bind is not clearly evident and easily rectified, replace entire printer.</p>  <p>RESET BUTTON (On side — General Electric motor)</p> <p>402402 MOTOR</p> <p>RESET BUTTON (At top — Robbins & Myers motor)</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

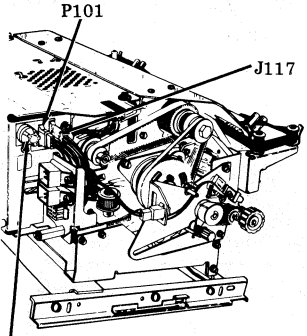
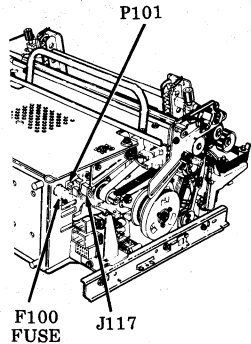
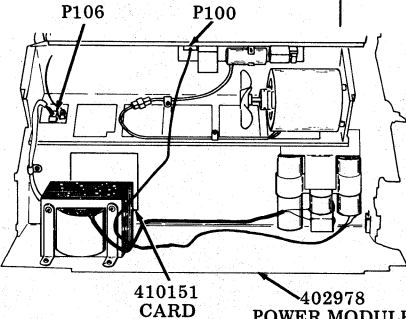
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>25. Disconnect P101.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does bench fuse blow?</p>  <p>F100 FUSE</p> <p><u>40P253</u></p>	<p>Problem is in test cable or printer cable (P101 to J113).</p> <p>Locate short.</p> <p>Replace F100 fuse (143306).</p>  <p>F100 FUSE</p> <p><u>40P154</u></p>	<p>Operate 402779 line cord with switch Off.</p> <p>Go to 26.</p>
<p>26. Reconnect P101. Disconnect P100 on the motor control assembly.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>  <p>P106</p> <p>P100</p> <p>410151 CARD</p> <p>402978 POWER MODULE</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Replace F100 fuse (143306).</p> <p>Go to 31.</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Go to 27.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

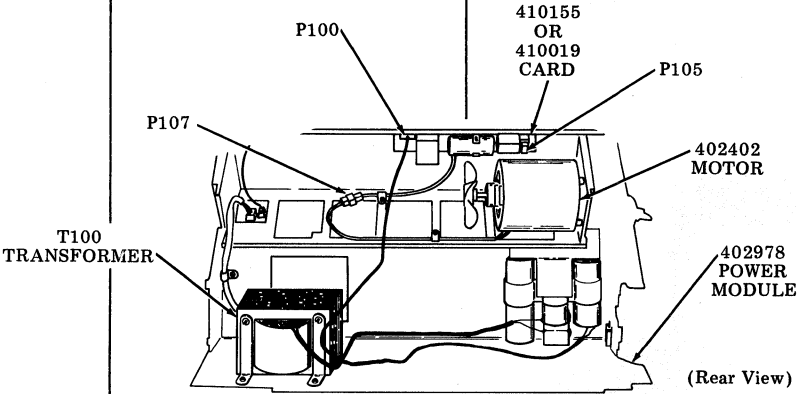
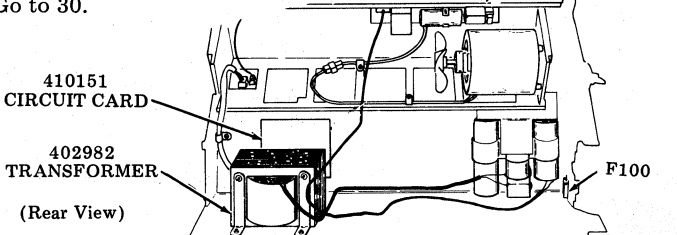
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>27. Reconnect P100. Disconnect P105 on the motor control assembly.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Replace F100 fuse (143307).</p> <p>Go to 28.</p>	<p>Replace 410071 circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustment; remake if necessary.</p>
		
<p>28. Reconnect P105.</p> <p>Disconnect P107 on the motor control assembly. Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Replace 410155 circuit card or 410019 circuit card.</p> <p>Replace F100 fuse (143306).</p> <p>Go to 29.</p>	<p>Replace 402402 motor.</p>
<p>29. Reconnect P107. Remove 410151 circuit card from J102 receptacle. Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Replace F100 fuse (143306).</p> <p>Go to 30.</p>	<p>Replace 410151 circuit card. After the circuit card is installed, check for the <u>Power Supply Voltage</u> adjustment; refine if necessary.</p>
		

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

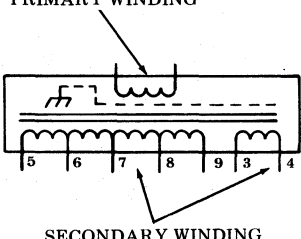
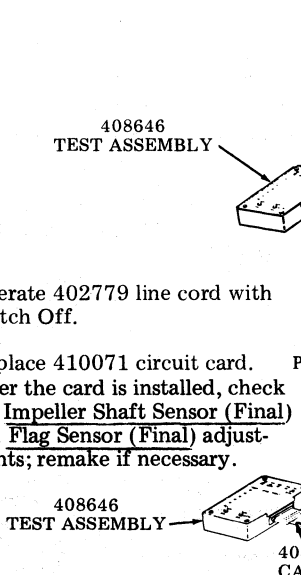
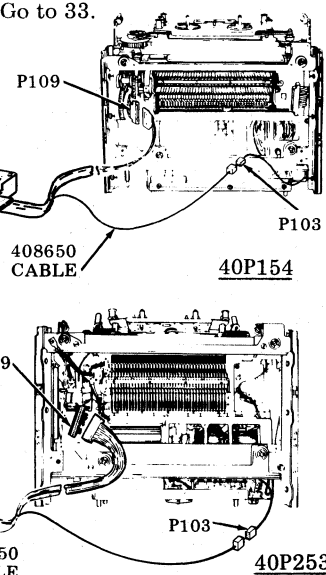
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>30. Reinsert 410151 circuit card. Remove 410071 circuit card.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Reconnect 410071 circuit card.</p> <p>Replace F100 fuse (143306).</p> <p>Go to 31.</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Replace 410071 circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>
<p>31. With an ohmmeter, check for short between primary and secondary windings on T100 transformer. Is transformer shorted?</p>	<p>Replace T100 transformer (402982).</p> <p>PRIMARY WINDING</p>  <p>SECONDARY WINDING</p>	<p>Replace entire printer.</p>
<p>32. Remove 410071 circuit card from printer.</p> <p>Connect the 408646 test assembly as shown.</p> <p><i>Caution: Observe caution label on 408650 cable when connecting plug to P109 connector.</i></p> <p>Operate 402779 line cord with switch to On.</p> <p>Operate MTR switch on 408646 test assembly to On.</p> <p>Does printer motor run?</p>	<p>408646 TEST ASSEMBLY</p>  <p>Operate 402779 line cord with switch Off.</p> <p>Replace 410071 circuit card. After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>	<p>Go to 33.</p>  <p>P109</p> <p>P103</p> <p>408650 CABLE</p> <p>40P154</p> <p>P109</p> <p>P103</p> <p>40P253</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

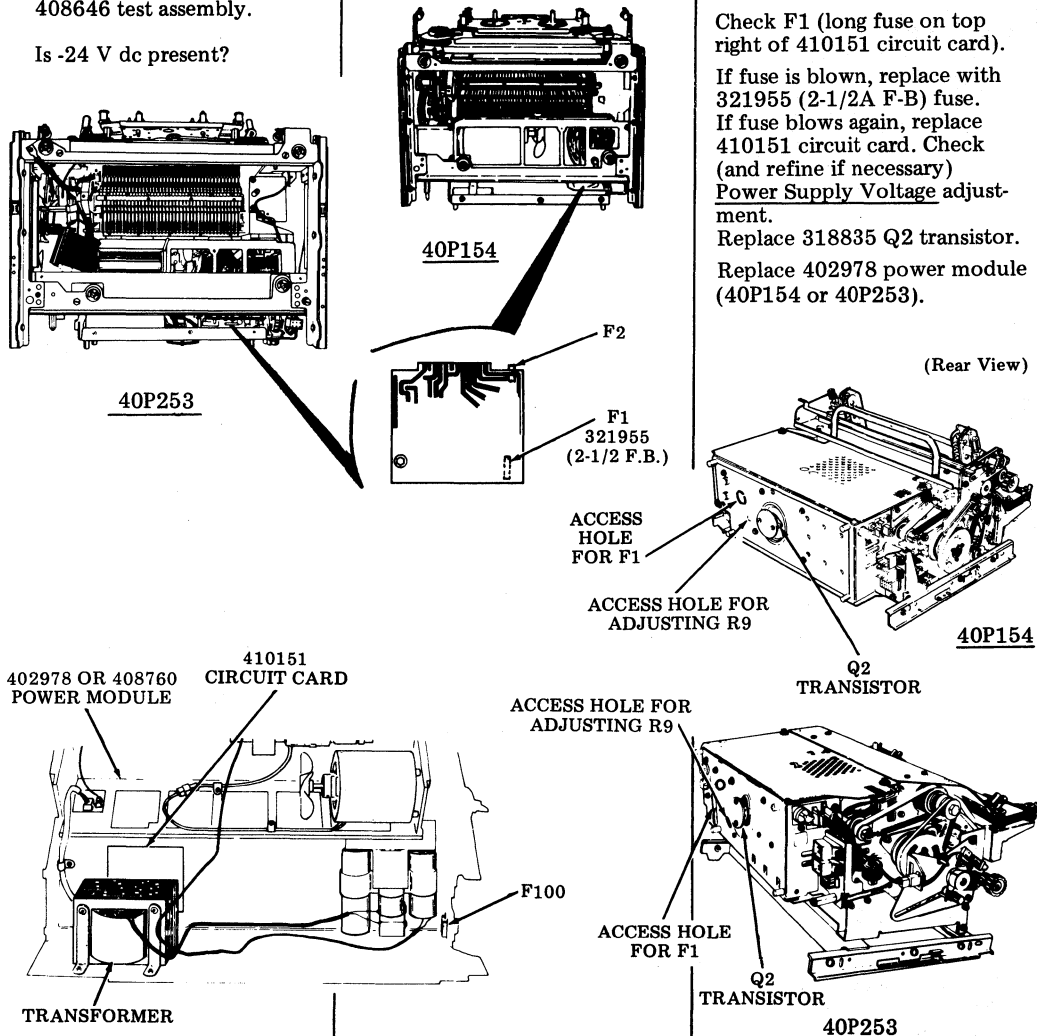
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>33. With a volt-ohmmeter, check -24 V dc $\pm 1\%$ between TP3 and TP2, TP3, and TP1 on 408646 test assembly.</p> <p>Is -24 V dc present?</p>  <p>40P253</p> <p>40P154</p> <p>402978 OR 408760 POWER MODULE</p> <p>410151 CIRCUIT CARD</p> <p>TRANSFORMER</p> <p>F100</p> <p>ACCESS HOLE FOR F1</p> <p>ACCESS HOLE FOR ADJUSTING R9</p> <p>Q2 TRANSISTOR</p> <p>40P154</p> <p>Q2 TRANSISTOR</p> <p>40P253</p>	<p>Go to 34.</p>	<p>If voltage is present but not -24 V dc $\pm 1\%$, adjust R9 resistor on 410151 circuit card.</p> <p>Check F1 (long fuse on top right of 410151 circuit card).</p> <p>If fuse is blown, replace with 321955 (2-1/2A F-B) fuse.</p> <p>If fuse blows again, replace 410151 circuit card. Check (and refine if necessary) <u>Power Supply Voltage</u> adjustment.</p> <p>Replace 318835 Q2 transistor.</p> <p>Replace 402978 power module (40P154 or 40P253).</p>
<p>34. Operate printer Test switch On.</p> <p>Does the Test lamp on 408646 test assembly light?</p>	<p>Go to 35.</p>	<p>Replace 402861 test switch.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

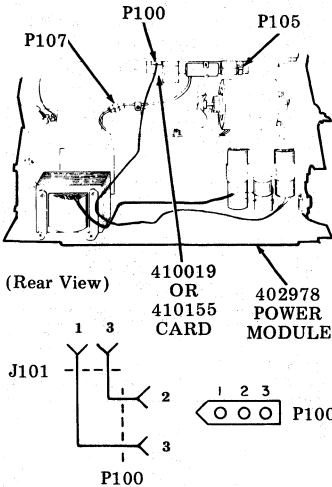
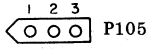
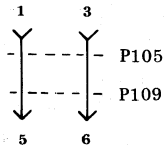
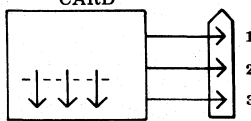
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>35. Operate the 402779 line cord with switch to Off.</p> <p>Disconnect P100 plug from 410155 circuit card assembly.</p> <p>Operate the 402779 line cord with switch to On.</p> <p>Measure 117 V ac between terminals 2 and 3 on P100 connector.</p> <p>Is 117 V ac present?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Go to 36.</p>	 <p>(Rear View) 410019 OR 410155 CARD 402978 POWER MODULE</p> <p>J101 P100</p> <p>Check wiring from J101 terminals 1 and 3 to P100 terminals 3 and 2.</p>
<p>36. Reconnect P100. Disconnect P105 plug.</p> <p>Operate 402779 line cord with switch On. With a volt-ohmmeter, check for -24 V dc between terminals 1 and 3 on P105.</p>  <p>Is -24 V dc present?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Go to 37.</p>	<p>Check wiring from P105 terminals 1 and 3 to P109 terminals 5 and 6.</p> 
<p>37. Reconnect P105. Disconnect P107 on the motor control assembly.</p> <p>Operate 402779 line cord with switch to On.</p> <p>With a volt-ohmmeter, check for 115 V ac between terminals 1 and 2 and between 2 and 3 on P107.</p> <p>Is 115 V ac present?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Go to 38.</p> <p>410019 OR 410155 MOTOR CONTROL CARD</p> 	<p>Replace 410155 or 410019 circuit card assembly.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

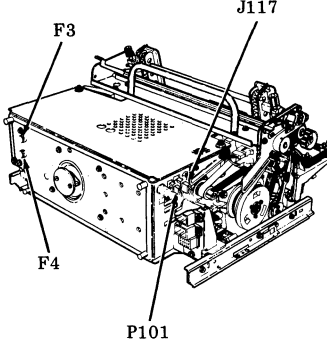
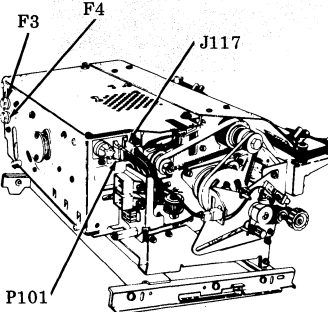
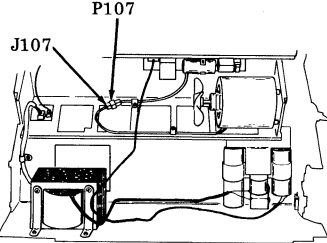
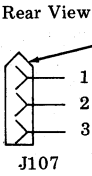
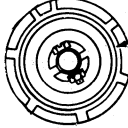
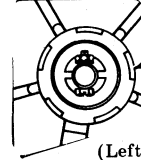
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>38. Reconnect P107. Disconnect J117 connector from power module.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Measure 14 V ac between terminals 1 and 3 and between terminals 3 and 5 on P117 connector.</p> <p>Is 14 V ac present?</p>	<p>Go to 39.</p>  <p style="text-align: center;">40P154</p>	<p>Check F3 and F4 fuses. If blown, replace with 129919 fuse, 4.0A SL-BL.</p> <p>Go to 39.</p>  <p style="text-align: right;">40P253</p>
<p>39. Measure 9.2 V ac between terminals 2 and 3 and between terminals 3 and 4 on P117 connector.</p> <p>Is 9.2 V ac present?</p>	<p>Reconnect J117.</p> <p>Operate 402779 line cord with switch to Off.</p> <p>Go to 40.</p>	<p>Replace 402978 power module.</p>
<p>40. Disconnect P107.</p> <p>With an ohmmeter, measure the following resistances between the indicated terminals on J107 connector:</p> <p><u>402402 Motor — General Electric</u></p> <p>Terminal 1 to 2 — 33 ohms Terminal 1 to 3 — 45 ohms Terminal 2 to 3 — 12 ohms (All readings ±10%)</p> <p><u>402402 Motor — Robbins & Myers</u></p> <p>Terminal 1 to 2 — 19 ohms Terminal 1 to 3 — 30 ohms Terminal 2 to 3 — 11 ohms (All readings ±10%)</p> <p>Are measured resistances correct?</p>	 <p>(Rear View)</p>  <p style="text-align: center;">MOTOR PLUG</p> <p>Replace 402978 power module.</p> <p>Replace entire printer.</p>	 <p>ROUND BEARING ON 402402 MOTOR (Late Design) General Electric</p> <p>(Left Side View)</p>  <p>QUINTUPLE BEARING ON 402402 MOTOR (Late Design) Robbins & Myers</p> <p>(Left Side View)</p> <p>Replace 402402 motor.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

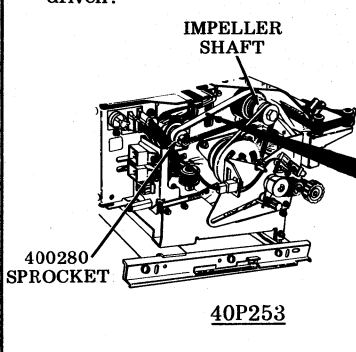
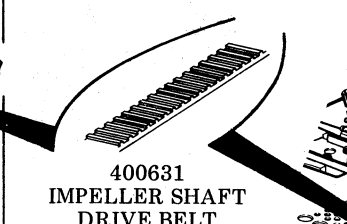
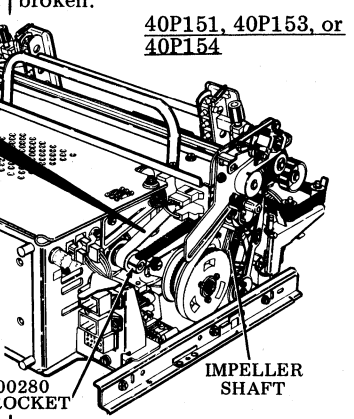
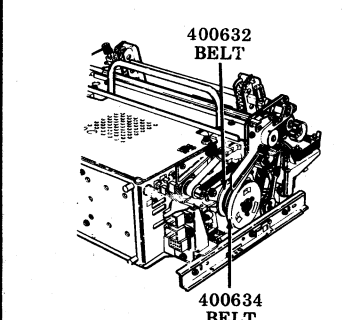
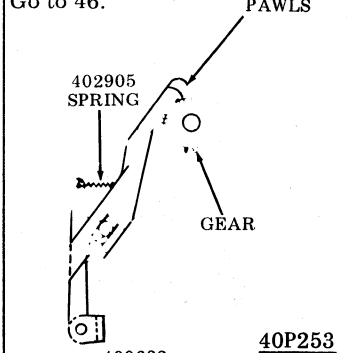
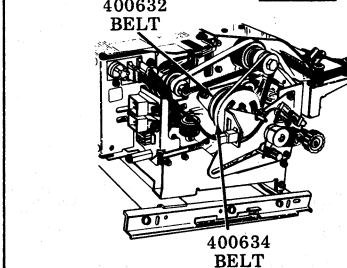
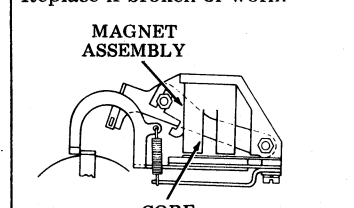
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>41. Is the impeller shaft being driven?</p>  <p>IMPELLER SHAFT</p> <p>400280 SPROCKET</p> <p>40P253</p>	<p>Go to 42.</p>  <p>400631 IMPELLER SHAFT DRIVE BELT</p>	<p>Check the 400631 impeller shaft drive belt. Replace if worn or broken.</p> <p>Check the 400280 motor shaft sprocket. Replace if worn or broken.</p> <p>40P151, 40P153, or 40P154</p>  <p>400280 SPROCKET</p> <p>IMPELLER SHAFT</p>
<p>42. Does printer line feed properly with printer Test switch On?</p>  <p>400632 BELT</p> <p>400634 BELT</p> <p>40P151, 40P153 or 40P154</p> <p>Failure symptoms are: No line feed Intermittent line feed Continuous line feed.</p>	<p>Go to 46.</p>  <p>PAWLS</p> <p>402905 SPRING</p> <p>GEAR</p> <p>400632 BELT</p> <p>40P253</p>  <p>400634 BELT</p>	<p>Check 400634 or 400632 line feed belts. Replace if worn or broken.</p> <p>Check line feed pawls for engagement with gear.</p> <p>Check line feed bail spring. Replace if broken or worn.</p>  <p>MAGNET ASSEMBLY</p> <p>CORE</p> <p>Check loose mounting of line feed magnet assembly on its core. Replace 402621 line feed assembly (on 40P151 through 40P154) or 408745 line feed assembly (on 40P253) if magnet coil is loose.</p> <p>Go to 43.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

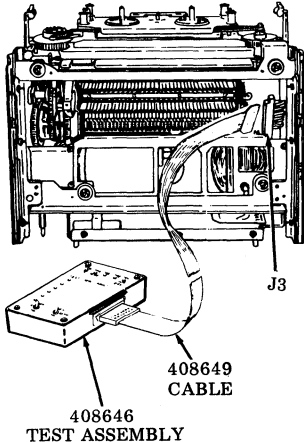
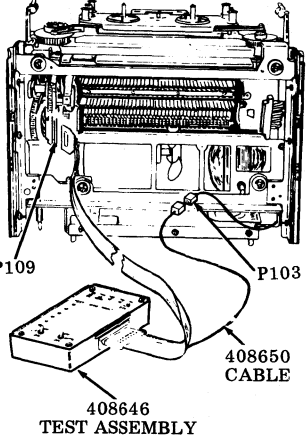
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>43. <u>40P151 or 40P153</u> Remove 410076 (or 410640) circuit card.</p> <p><u>40P154 or 40P253</u> Remove 410071 circuit card.</p> <p>Connect 408646 test assembly as shown:</p> <p><i>Caution: Observe caution label on 408649 or 408650 cable when connecting plug to J3 or P109.</i></p> <p>Operate 402779 line cord with switch to On.</p> <p>Operate MTR switch on 408646 test assembly to On.</p> <p>Operate LF switch on 408646 test assembly to On.</p> <p>Does the printer line feed?</p>	<p><u>40P151 or 40P153</u></p>  <p>408646 TEST ASSEMBLY</p> <p>408649 CABLE</p> <p>J3</p> <p>Operate 402779 line cord with switch Off.</p> <p><u>40P151 or 40P153</u> Replace 410076 (or 410640) circuit card.</p> <p><u>40P154 or 40P253</u> Replace 410071 circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>	<p><u>40P154 or 40P253</u></p>  <p>408646 TEST ASSEMBLY</p> <p>408650 CABLE</p> <p>P109</p> <p>P103</p> <p>Go to 44.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

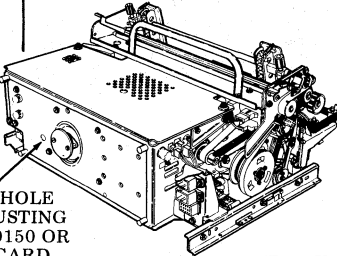
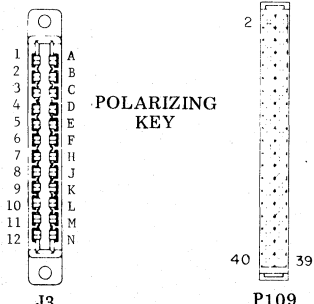
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>44. Check for -24 V dc $\pm 1\%$ between TP2 and TP3 on 408646 test assembly.</p> <p>Is -24 V dc $\pm 1\%$ present?</p>	<p>Go to 45.</p>	<p>Refine -24 V dc adjustment if voltage reading is outside tolerances.</p>  <p>ACCESS HOLE FOR ADJUSTING R9 ON 410150 OR 410151 CARD</p> <p>(Rear View)</p> <p><u>40P151 or 40P153</u> Replace 410150 circuit card.</p> <p><u>40P154 or 40P253</u> Replace 410151 circuit card.</p>
<p>45. Operate the 402779 line cord with switch to Off.</p> <p>Disconnect P3 (40P151 or 40P153) or J109 (40P154 or 40P253) test cable from printer.</p> <p>Measure for 33 ohms resistance at the following points:</p> <p><u>40P151 or 40P153</u>: At J3 between terminals 1 and K.</p> <p><u>40P154 or 40P253</u>: At P109 between terminals 1 and 4.</p> <p>Is measured resistance correct?</p>	<p>Check the following adjustments.</p> <p><u>Clutch Shoe Release Arm</u> <u>Line Feed Armature Gap</u> <u>Line Feed Bar Eccentric and</u> <u>Drive Belt Tension</u> <u>Clutch Drive Belt</u> <u>Tension</u></p> <p><u>40P151, 40P153 or 40P154</u> Replace 402460 paper handling assembly.</p> <p><u>40P253</u> Replace entire printer.</p>	<p>Replace line feed magnet assembly:</p> <p><u>40P151, 40P153 or 40P154</u>: 402621 <u>40P253</u>: 408745</p>  <p>J3</p> <p>P109</p> <p><u>40P151 or 40P153</u></p> <p><u>40P154 or 40P253</u></p>
<p>46. Place printer LF1 - LF2 switch to position LF2.</p> <p>Does the printer double line space properly?</p>	<p>Go to 48.</p>	<p>Go to 47.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

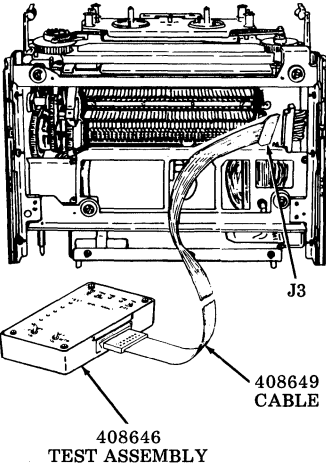
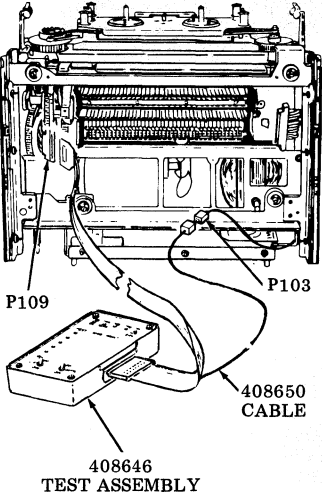
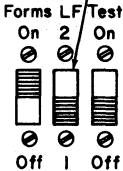
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>47. <u>40P151 or 40P153</u> Remove 410076 (or 410640) circuit card.</p> <p><u>40P154 or 40P253</u> Remove 410071 circuit card.</p> <p>Connect 408646 test assembly as shown.</p> <p><i>Caution: Observe caution label on 408649 or 408650 cable when connecting plug to J3 or P109 connector.</i></p> <p>Operate 402779 line cord with switch On.</p> <p>Does the line feed lamp on 408646 test assembly light?</p>	<p><u>40P151 or 40P153</u></p>  <p>Operate 402779 line cord with switch Off.</p> <p><u>40P151 or 40P153</u> Replace 410076 (or 410640) circuit card.</p> <p><u>40P154 or 40P253</u> Replace 410071 circuit card.</p> <p>After the card is installed, check the Impeller Shaft Sensor (Final) and Flag Sensor (Final) adjustments; remake if necessary.</p>	<p><u>40P154 or 40P253</u></p>  <p>Replace 402861 switch.</p> 

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

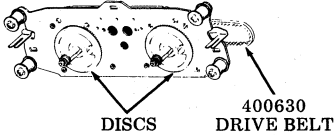
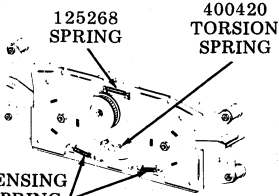
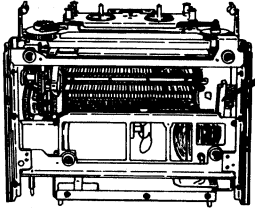
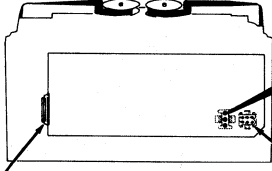
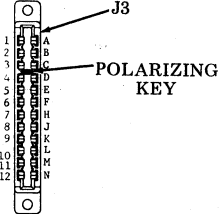
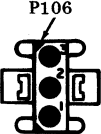
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>48. Is the ribbon feed mechanism operating properly?</p> <p>Ribbon spools rotating. Ribbon reverse working. No ribbon foldover.</p> <p><i>Note:</i> To check ribbon reversing, manually operate the reversing arms with printer operating (printer Test switch On).</p>	<p>Go to 49.</p>	<p>Check ribbon drive belt. Replace if worn or broken.</p>  <p>DISCS 400630 DRIVE BELT</p> <p>Remove ribbon mechanism and check the following springs. Replace if broken.</p>  <p>125268 SPRING 400420 TORSION SPRING</p> <p>2836 SENSING ARM SPRING</p> <p>Replace 402420 ribbon mechanism.</p> <p>Check the <u>Ribbon Tracking</u> adjustment.</p>
<p>49. Are any characters being printed?</p>  <p><u>40P151 or 40P153</u></p>  <p>P109 P103</p> <p><u>40P154 or 40P253</u></p>	<p>Go to 50.</p>  <p>J3</p> <p>POLARIZING KEY</p>  <p>P106</p>	<p>Check the following adjustments:</p> <p>(1) <u>Impeller Shaft Sensor Gap</u> (2) <u>Flag Sensor Gap</u></p> <p>Check impeller sensor for a maximum of 145 ohms:</p> <p><u>40P151 or 40P153:</u> Measure at J3 between terminals H and J.</p> <p><u>40P154 or 40P253:</u> Measure at P106 between terminals 1 and 2.</p> <p>Check flag sensor for a maximum of 145 ohms:</p> <p><u>40P151 or 40P153:</u> Measure at J3 between terminals E and F.</p> <p><u>40P154 or 40P253:</u> Measure at P106 between terminals 2 and 3.</p> <p>Replace sensor (400615) if open or resistance exceeds maximum requirement.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
49. (Cont)		<p><u>40P151 or 40P153</u> Replace 410076 (or 410640) circuit card.</p> <p><u>40P154 or 40P253</u> Replace 410071 circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>
<p>50. Is the carrier font symbol the only symbol printed?</p> <p>Font symbols:</p> <p><u>AE</u> <u>A</u> Up-Low</p> <p><u>AE</u> <u>8</u> Monocase</p> <p>etc.</p>	Go to 51.	<p>If ! (exclamation) or _ (underline) are printed, check the following adjustments:</p> <p><u>Flag Sensor Gap</u> <u>Impeller Shaft Sensor Gap</u> <u>Flag Sensor Final</u></p> <p><u>40P151 or 40P153</u> Replace 410076 (or 410640) circuit card. <u>40P154 or 40P253</u> Replace the 410071 circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>
51. Are any columns not printing?	Go to 52.	Go to 56.
<p>52. Are any of the following groups of columns missing?</p> <p>1--12 13--24 25--36 37--48 49--60 61--72 73--80</p>	<p><u>40P151 or 40P153</u> Replace 410076 (or 410640) circuit card. <u>40P154 or 40P253</u> Replace 410071 circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>	Go to 53.

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

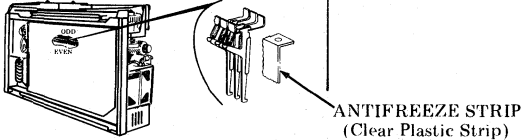
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>53. Of the columns that are missing, are they all odd-numbered (example: 1, 3, 19, 71) or are they all even-numbered (example: 2, 8, 42, 68)?</p>	<p>Check the position of the anti-freeze strip.</p> <p>Check for oil on antifreeze strip. If present, spray with 337449 Degreaser (Freon TF).</p>  <p>If antifreeze strip is distorted or missing, replace entire printer.</p>	<p>Go to 54.</p>
<p>54. Are one or more columns missing?</p>	<p>Check the following adjustments:</p> <p><u>Impeller Shaft Sensor Gap</u> <u>Flag Sensor Gap</u> <u>Impeller Shaft Sensor (Final)</u></p> <p><u>40P151 or 40P153</u> Replace 410076 (or 410640) circuit card. <u>40P154 or 40P253</u> Replace 410071 circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p> <p>Replace entire printer.</p>	<p>Go to 55.</p>
<p>55. Are any characters not printed?</p>	<p>Check type carrier for missing pallets.</p> <p>Replace type carrier.</p> <p><u>40P151 or 40P153</u> Replace 410076 (or 410640) circuit card. <u>40P154 or 40P253</u> Replace 410071 circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>	<p>Place printer in service.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE																						
56. Is the font symbol clipped on the left or right?	Check the <u>Impeller Shaft To Carrier Phasing — Final</u> adjustment.	Go to 57.																						
57. Are adjacent characters in the type carrier printed in place of the proper character (T instead of S, B instead of A, etc)?	<p>Check the following adjustments:</p> <p><u>Flag Sensor Gap</u> <u>Impeller Shaft Sensor Gap</u></p> <p>Check that pallets and flags are in proper position.</p> <table border="1" data-bbox="482 555 826 842"> <thead> <tr> <th><u>Type Carrier</u></th> <th><u>Flag Position</u></th> </tr> </thead> <tbody> <tr><td>400645AA</td><td>43, 107, 171</td></tr> <tr><td>400629AB</td><td>12, 108</td></tr> <tr><td>400774AC</td><td>44, 108, 172</td></tr> <tr><td>400775AD</td><td>108, 172</td></tr> <tr><td>400776AF</td><td>12, 108</td></tr> <tr><td>400778AH</td><td>44, 108, 172</td></tr> <tr><td>400779AP</td><td>12, 108</td></tr> <tr><td>400784AN</td><td>12, 108</td></tr> <tr><td>400785AQ</td><td>43, 107, 171</td></tr> <tr><td>408346AZ</td><td>12, 60, 108, 156</td></tr> </tbody> </table> <p><i>Note:</i> For flag positions in type carriers not listed above, refer to Section 582-210-702.</p> <p>Replace entire printer.</p>	<u>Type Carrier</u>	<u>Flag Position</u>	400645AA	43, 107, 171	400629AB	12, 108	400774AC	44, 108, 172	400775AD	108, 172	400776AF	12, 108	400778AH	44, 108, 172	400779AP	12, 108	400784AN	12, 108	400785AQ	43, 107, 171	408346AZ	12, 60, 108, 156	Go to 58.
<u>Type Carrier</u>	<u>Flag Position</u>																							
400645AA	43, 107, 171																							
400629AB	12, 108																							
400774AC	44, 108, 172																							
400775AD	108, 172																							
400776AF	12, 108																							
400778AH	44, 108, 172																							
400779AP	12, 108																							
400784AN	12, 108																							
400785AQ	43, 107, 171																							
408346AZ	12, 60, 108, 156																							
58. Is copy free of horizontal ink smudges caused by the ribbon rubbing against the paper?	Go to 59.	<p>40P151, 40P153 or 40P154 Replace 402798 ribbon shield if deformed.</p> <p>Check the following adjustments:</p> <p><u>Ribbon Guide (Final)</u> <u>Paper Positioner</u></p> <p>40P253 Replace 411013 ribbon shield if deformed.</p> <p>Check the following adjustments:</p> <p><u>Ribbon Guide</u> <u>Tear Bar and Top Cover (Final)</u></p>																						

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

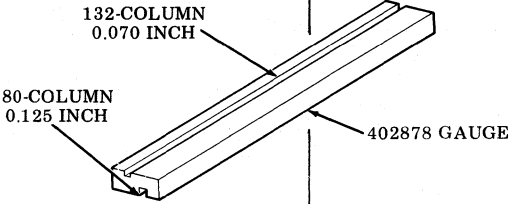
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>59. Is copy free of double print or ghost images?</p>  <p>132-COLUMN 0.070 INCH</p> <p>80-COLUMN 0.125 INCH</p> <p>402878 GAUGE</p>	<p>Go to 60.</p>	<p>Check the following adjustments:</p> <p><u>Left Carrier Sprocket</u> <u>Right Carrier Sprocket</u></p> <p>Check that type pallets are seated properly in carrier. Seat pallets with 402878 gauge. Replace type carrier.</p> <p>Replace entire printer.</p>
<p>60. Is the printed copy clear and easily readable?</p>	<p>Go to 61.</p>	<p>Replace 402444 ribbon.</p> <p>Check the following adjustments:</p> <p><u>Backup Bar (Final)</u> <u>Left Carrier Sprocket</u> <u>Right Carrier Sprocket</u> <u>Ribbon Guide (Final)</u> <u>Paper Positioner (40P151, 40P153, 40P154)</u> <u>Tear Bar and Top Cover (Final) (40P253)</u></p>
<p>61. Is printed copy free from embossing (especially noticeable on characters such as hyphen or underline)?</p>	<p>Go to 62.</p> <p>400645AA 80-Column – Monocase 400629AB 80-Column – Up-Low 400774AC 80-Column – Weather 400775AD 80-Column – Line Drawing 400776AF 80-Column – Fractions in One Eighths – Up-Low 400778AH 80-Column – Large Gothic with Fractions 400781AK 80-Column – Katakana 400784AN 80-Column – EBCDIC 400779AP 80-Column – Fractions in One Eighths – Up-Low 400785AQ 80-Column – EBCDIC Monocase 408177AT 80-Column – ASCII Monocase OCR A 408269AV 80-Column – Monocase 408346AZ 80-Column – 48-Character Set 408390BB 80-Column – ASCII Up-Low OCR B 408392BD 80-Column – ASCII Monocase OCR B</p>	<p>Check the <u>Backup Bar (Final)</u> adjustment and type carrier pallet alignment.</p> <p>Check that type pallets are seated properly in carrier. Seat pallets with 402878 gauge.</p> <p>Replace type carrier.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
62. Is the print density uniform throughout the line without gradual variations?	Go to 63.	Check the following adjustments: <u>Left Carrier Sprocket</u> <u>Right Carrier Sprocket</u> <u>Backup Bar</u>
63. Is the print density uniform throughout the line without random variations?	Go to 64.	Check the following adjustment: <u>40P151, 40P153, or 40P154</u> <u>Paper Positioner</u> <u>40P253</u> <u>Tear Bar and Top Cover</u> <u>(Final)</u> Replace entire printer.
64. Are the bottoms of characters printed clearly (not light) at both ends of the line?	Go to 65.	Check the following adjustments: <u>Left Carrier Sprocket</u> <u>Right Carrier Sprocket</u> Check that ribbon shield is below hammer faces. Replace printer.
65. Are all individual characters printed clearly when received?	Go to 66.	Check type carrier for missing, broken, distorted, or dirty type pallets. Replace type carrier. Replace printer.

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

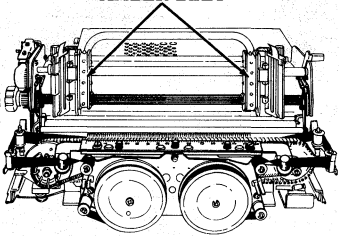
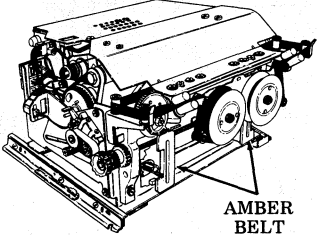
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>66. Are there erratic line feeds or some characters printing too high?</p> <p style="text-align: center;">AMBER BELT</p>  <p style="text-align: center;"><u>40P151, 40P153 or 40P154</u></p>  <p style="text-align: center;"><u>40P253</u></p> <p style="text-align: right;">AMBER BELT</p>	<p>Check for bind in paper throughout routing path. Check that paper is properly feeding through tractor assemblies.</p> <p>Check the following adjustments:</p> <p><u>Tractor Phasing</u> <u>Paper Positioner (40P151, 40P153 or 40P154)</u></p> <p><u>Tear Bar and Top Cover (Final) (40P253)</u></p> <p>Replace 400221 idler.</p> <p><u>40P151, 40P153 or 40P154</u> If amber belt in tractors is worn or broken, replace 402460 paper handling assembly.</p> <p><u>40P253</u> If amber belt in tractors is worn or broken, replace printer.</p>	<p>Go to 67.</p>
<p>67. When a FF character or local form feed is received, does paper advance one form correctly (Forms switch On)?</p>	<p>Go to 70.</p>	<p>Verify proper belt installation.</p> <p>Check that belt is not worn or cracked. Replace belt.</p> <p>Check that the selector lever on the form-out assembly is properly detented.</p> <p>Check the following adjustments:</p> <p><u>Form-Out Contact</u> <u>Lateral</u> <u>Form Selector Lever</u> <u>Guide</u> <u>Form-Out Gear Backlash</u> <u>Form-Out Contact to Belt Spacing</u> <u>Line Feed Bar Eccentric and Drive Belt Tension</u></p> <p>Go to 68.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

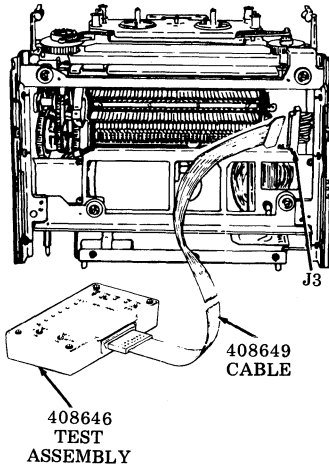
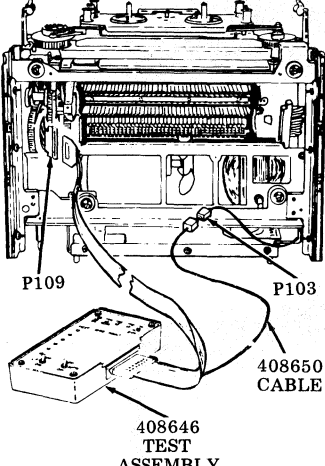
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>68. Operate 402779 line cord with switch to Off.</p> <p><u>40P151 or 40P153</u> Remove 410076 (or 410640) circuit card.</p> <p><u>40P154 or 40P253</u> Remove 410071 circuit card.</p> <p>Connect 408646 test assembly as shown.</p> <p><i>Caution: Observe caution label on 408649 or 408650 cable when connecting plug to J3 or P109 connector.</i></p> <p>Operate 402779 line cord with switch On.</p> <p>Place Forms switch on printer On.</p> <p>Does the FORMS MODE lamp on the 408646 test assembly light?</p>	<p><u>40P151 or 40P153</u></p>  <p>Go to 69.</p>	<p><u>40P154 or 40P253</u></p>  <p>Replace 402861 switch.</p>
<p>69. Operate MTR switch on the 408646 test assembly On.</p> <p>Operate LF switch on the 408646 test assembly On.</p> <p>Does the END OF FORM lamp light when the form-out contact touches the cam lobe on the belt?</p>	<p>Replace 402905 spring.</p> <p><u>40P151 or 40P153</u> Replace 410076 (or 410640) circuit card.</p> <p><u>40P154 or 40P253</u> Replace 410071 circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p> <p>Replace printer.</p> <p>Check Form switch and cabling on cabinet.</p>	<p><u>40P151, 40P153 or 40P154</u> Replace 402570 form-out assembly.</p> <p><u>40P253</u> Replace 408763 form-out assembly.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

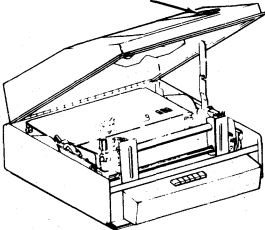
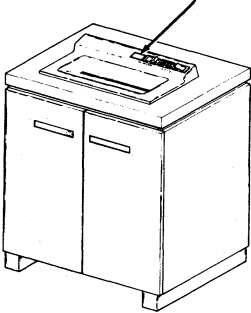
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>70. Is paper-out indication obtained when a paper-out condition exists?</p>	<p>PAPER BUTTON</p>  <p>PAPER-OUT LAMP</p>  <p>FORMS ACCESS PRINTER CABINET</p> <p>Place printer in service.</p>	<p>Check the <u>Paper-Out Switch</u> adjustment.</p> <p>Go to 71.</p>

TABLE C (Cont)

80-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

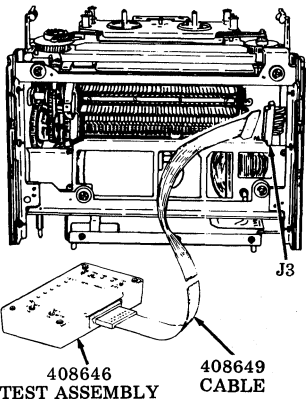
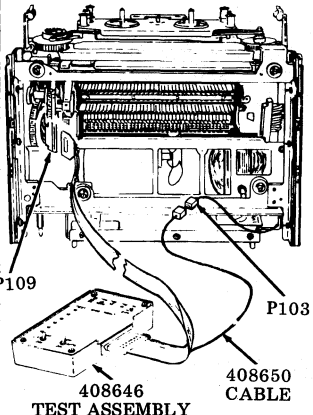
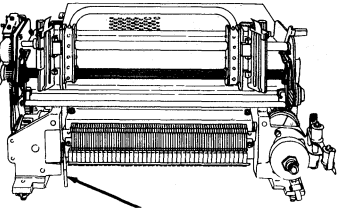
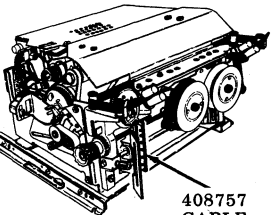
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>71. Operate 402779 line cord with switch Off.</p> <p><u>40P151 or 40P153</u> Remove 410076 (or 410640) circuit card.</p> <p><u>40P154 or 40P253</u> Remove 410071 circuit card.</p> <p>Connect 408646 test assembly as shown.</p> <p><i>Caution: Observe caution label on 408649 or 408650 cable when connecting plug to J3 or P109 connector.</i></p> <p>Operate 402779 line cord with switch On.</p> <p>Does the FORMS SUPPLY lamp on the 408646 test assembly light (paper in)?</p> <p>Remove paper. Does the FORMS SUPPLY lamp go out and the ALARM lamp light (paper out)?</p>	<p><u>40P151 or 40P153</u></p>  <p>Operate 402779 line cord with switch Off.</p> <p><u>40P151 or 40P153</u> Replace 410076 (or 410640) circuit card.</p> <p><u>40P154 or 40P253</u> Replace 410071 circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>	<p><u>40P154 or 40P253</u></p>  <p>Operate 402779 line cord with switch Off.</p> <p><u>40P151, 40P153, or 40P154</u> Replace 402613 switch assembly.</p>  <p><u>40P253</u> Replace 408757 cable assembly (with switch).</p> 

TABLE D

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

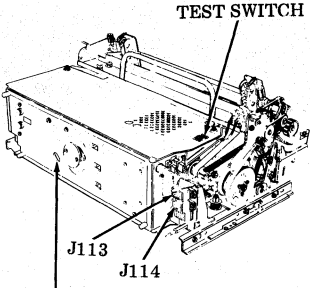
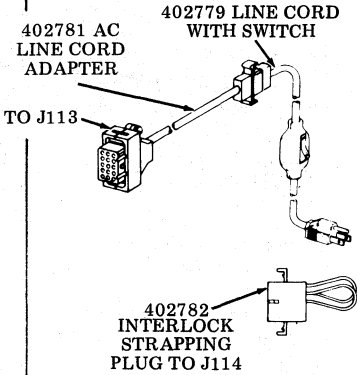
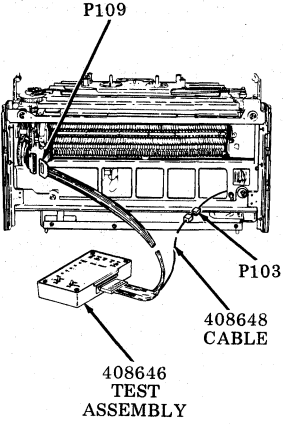
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>1. Remove printer from cabinet.</p> <p>Connect the 402781 ac line cord adapter and 402779 line cord with switch to J113 connector.</p> <p>Plug 402782 interlock plug into J114.</p> <p>Set Test switch to Off.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does printer motor run?</p>	<p>Go to 2.</p>  <p>TEST SWITCH</p> <p>J113</p> <p>J114</p> <p>ACCESS HOLE FOR ADJUSTING R9 ON 410151 CARD</p>	<p>Go to 4.</p>  <p>402779 LINE CORD WITH SWITCH</p> <p>402781 AC LINE CORD ADAPTER</p> <p>TO J113</p> <p>402782 INTERLOCK STRAPPING PLUG TO J114</p>
<p>2. Operate 402779 line cord with switch to Off.</p> <p>Remove 410072 (or 410729) circuit card.</p> <p>Connect the 408646 test assembly as shown.</p> <p><i>Caution: Observe caution label on 408648 cable when connecting plug to P109 connector.</i></p> <p>Operate MTR switch on 408646 test assembly to Off.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does printer motor run?</p>	<p>Go to 3.</p>  <p>P109</p> <p>P103</p> <p>408648 CABLE</p> <p>408646 TEST ASSEMBLY</p>	<p>Replace 410072 (or 410729) circuit card.</p> <p>Before installing circuit card, check the <u>Power Supply Voltage</u> adjustment. With a volt-ohmmeter, check -24 V dc \pm 10% between TP3 and TP2, TP3 and TP1 on 408646 test assembly. If the voltage is outside the required limits, adjust R9 resistor on 410151 circuit card. See illustration in step 1. After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

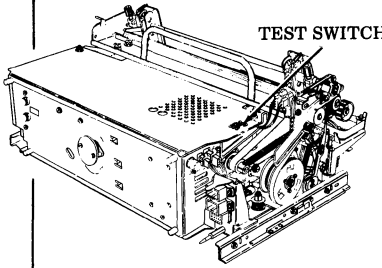
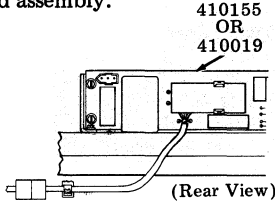
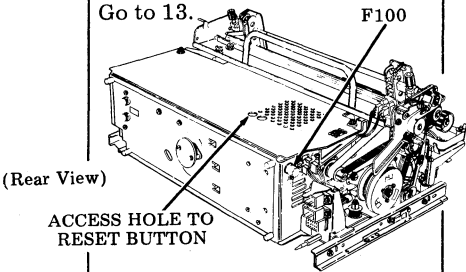
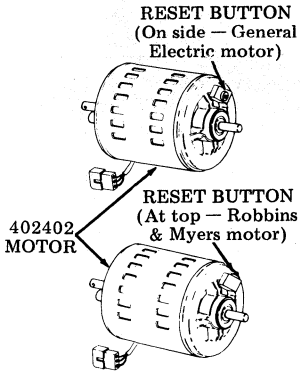
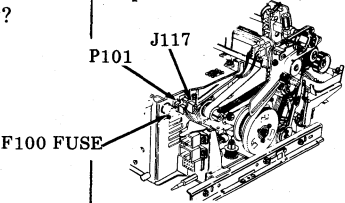
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>3. Does the TEST lamp on 408646 test assembly light?</p>	<p>Replace 402861 Test switch.</p>  <p>TEST SWITCH</p>	<p>Replace 410155 or 410019 circuit card assembly.</p>  <p>410155 OR 410019</p> <p>(Rear View)</p> <p>Replace printer.</p>
<p>4. Operate Test switch on printer to On.</p> <p>Does the printer motor run?</p>	<p>Go to 22.</p>	<p>Go to 5.</p>
<p>5. Is the motor gear and associated drive mechanisms free to operate (no mechanical bind)?</p>	<p>Check F100 fuse. If blown, replace with 143306 fuse (1 amp SL-BL MDL-1). If fuse blows again, go to 6. Check thermal overload protector — depress RED reset button on fan end of motor.</p> <p>Go to 13.</p>  <p>(Rear View)</p> <p>F100</p> <p>ACCESS HOLE TO RESET BUTTON</p>	<p>If mechanical bind is not clearly evident and easily rectified, replace entire printer.</p>  <p>RESET BUTTON (On side — General Electric motor)</p> <p>RESET BUTTON (At top — Robbins & Myers motor)</p> <p>402402 MOTOR</p>
<p>6. Disconnect P101.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does bench fuse blow?</p>	<p>Problem is in test cable or printer cable (P101 to J113). Locate short.</p> <p>Replace F100 fuse (143306).</p>  <p>P101</p> <p>J117</p> <p>F100 FUSE</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Go to 7.</p>

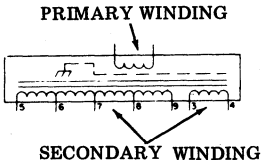
TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>7. Reconnect P101. Disconnect P100 on the motor control assembly.</p> <p>Operate 402779 line cord switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Replace F100 fuse (143306).</p> <p>Go to 12.</p>	<p>Operate 402779 line cord switch Off.</p> <p>Go to 8.</p>
<p>8. Reconnect P100. Disconnect P105 on the motor control assembly.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Replace F100 fuse (143306).</p> <p>Go to 9.</p>	<p>Replace 410072 (or 410729) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>9. Reconnect P105.</p> <p>Disconnect P107. Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Replace 410155 or 410019 circuit card.</p> <p>Replace F100 fuse (143306).</p> <p>Go to 10.</p>	<p>Replace 402402 motor.</p>
<p>10. Reconnect P107. Remove 410151 circuit card from J102 receptacle. Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Replace F100 fuse (143306).</p> <p>Go to 11.</p>	<p>Replace 410151 circuit card. After circuit card is installed, check the <u>Power Supply Voltage</u> adjustment; refine if necessary.</p>
<p>11. Reinsert 410151 circuit card. Remove 410072 (or 410729) circuit card.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Does F100 fuse blow?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Reconnect 410072 (or 410729) circuit card.</p> <p>Replace F100 fuse (143306).</p> <p>Go to 12.</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Replace 410072 (or 402729) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>
<p>12. With an ohmmeter, check for short between primary and secondary windings on T100 transformer. Is transformer shorted?</p>	<p>Replace T100 transformer (402742).</p>  <p>PRIMARY WINDING</p> <p>SECONDARY WINDING</p>	<p>Replace entire printer.</p>

F100

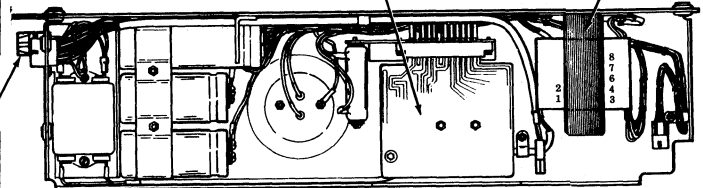
410151
CIRCUIT CARD402742
TRANSFORMER

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

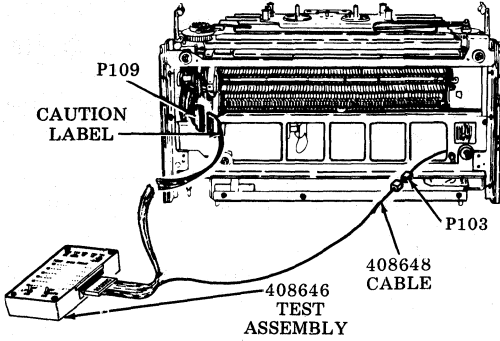
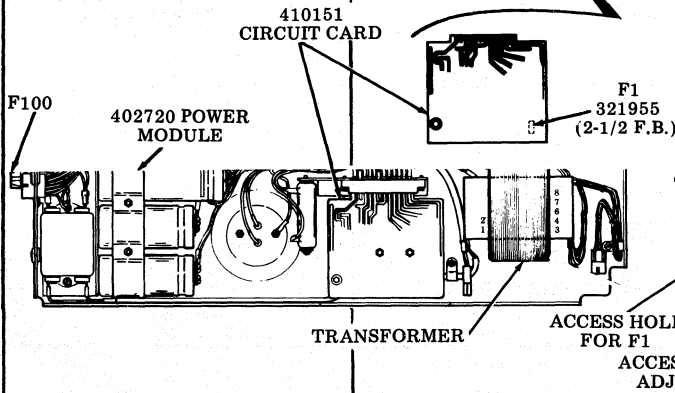
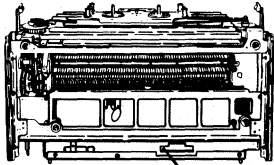
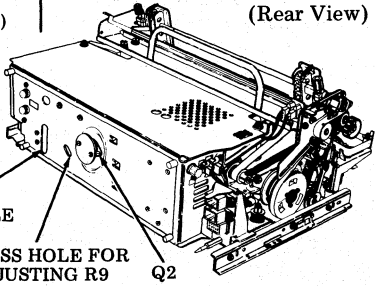
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>13. Remove 410072 (or 410729) circuit card from printer.</p> <p>Connect the 408646 test assembly as shown.</p> <p><i>Caution: Observe caution label on 408648 cable when connecting plug to P109 connector.</i></p> <p>Operate 402779 line cord with switch to On.</p> <p>Operate MTR switch on 408646 test assembly to On.</p> <p>Does printer motor run?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Replace 410072 (or 410729) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>	<p>Go to 14.</p> 
<p>14. With a volt-ohmmeter, check -24 V dc $\pm 1\%$ between TP3 and TP2, TP3 and TP1 on 408646 test assembly.</p> <p>Is -24 V dc present?</p> 	<p>Go to 15.</p> 	<p>If voltage is present but not -24 V dc $\pm 1\%$, adjust R9 resistor on 410151 circuit card.</p> <p>Check F1 (long fuse on top right of 410151 circuit card).</p> <p>If fuse is blown, replace with 321955 (2-1/2 A F-B) fuse. If fuse blows again, replace 410151 circuit card. After circuit card is installed, check the <u>Power Supply Voltage</u> adjustment; refine if necessary. Replace 318835 Q2 transistor. Replace 402720 power module.</p> <p>(Rear View)</p> 

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

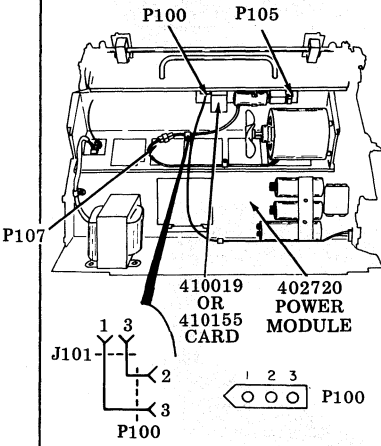
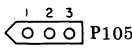
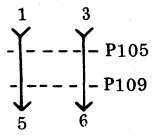
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>15. Operate printer Test switch to On.</p> <p>Does the TEST lamp on 408646 test assembly light?</p>	Go to 16.	Replace 402861 Test switch.
<p>16. Operate the 402779 line cord with switch to Off.</p> <p>Disconnect P100 plug from 410155 or 410019 circuit card assembly.</p> <p>Operate the 402779 line cord with switch to On.</p> <p>Measure 117 V ac between terminals 2 and 3 on P100 connector.</p> <p>Is 117 V ac present?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Go to 17.</p>	 <p>Check wiring from J101 terminals 1 and 3 to P100 terminals 3 and 2.</p>
<p>17. Reconnect P100. Disconnect P105 plug.</p> <p>Operate 402779 line cord with switch to On. With a volt-ohmmeter, check for -24 V dc between terminals 1 and 3 on P105.</p>  <p>Is -24 V dc present?</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Go to 18.</p>	<p>Check wiring from P105 terminals 1 and 3 to P109 terminals 5 and 6.</p> 
<p>18. Reconnect P105. Disconnect P107 on the motor control assembly.</p> <p>Operate 402779 line cord with switch to On.</p>	<p>Operate 402779 line cord with switch Off.</p> <p>Go to 19.</p>	Replace 410155 or 410019 circuit card assembly.

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

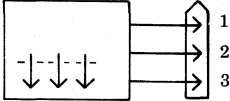
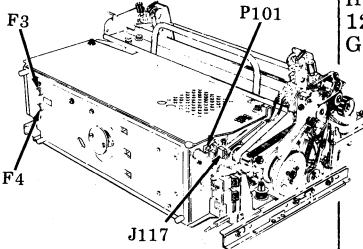
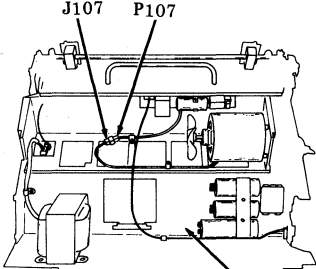
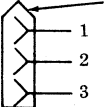
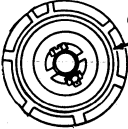
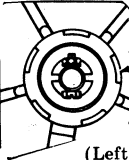
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>18. (Cont)</p> <p>With a volt-ohmmeter, check for 115 V ac between terminals 1 and 2 and between 2 and 3 on P107.</p> <p>Is 115 V ac present?</p>	<p>410019 OR 410155 MOTOR CONTROL CARD P107</p> 	
<p>19. Reconnect P107. Disconnect J117 connector from power module.</p> <p>Operate 402779 line cord with switch to On.</p> <p>Measure 14 V ac between terminals 1 and 3 and between terminals 3 and 5 on P117 connector.</p> <p>Is 14 V ac present?</p>	<p>Go to 20.</p> 	<p>Check F3 and F4 fuses. If blown, replace with 129919 fuse, 4.0A SL-BL. Go to 20.</p>
<p>20. Measure 9.2 V ac between terminals 2 and 3 and between terminals 3 and 4 on P117 connector.</p> <p>Is 9.2 V ac present?</p>	<p>Reconnect J117.</p> <p>Operate 402779 line cord with switch to Off.</p> <p>Go to 21.</p>	<p>Replace 402720 power module.</p>
<p>21. Disconnect P107.</p> <p>With an ohmmeter, measure the following resistances between the indicated terminals on J107 connector:</p> <p><u>402402 Motor – General Electric</u></p> <p>Terminal 1 to 2 – 33 ohms Terminal 1 to 3 – 45 ohms Terminal 2 to 3 – 12 ohms (All readings $\pm 10\%$)</p> <p><u>402402 Motor –Robbins & Myers</u></p> <p>Terminal 1 to 2 – 19 ohms Terminal 1 to 3 – 30 ohms Terminal 2 to 3 – 11 ohms (All readings $\pm 10\%$)</p> <p>Are measured resistances correct?</p>	<p>J107 P107</p>  <p>(Rear View) 402720 POWER MODULE</p>  <p>MOTOR PLUG</p> <p>J107</p> <p>Replace entire printer.</p>	<p>ROUND BEARING ON 402402 MOTOR (Late Design) General Electric</p>  <p>(Left Side View)</p> <p>QUINTUPLE BEARING ON 402402 MOTOR (Late Design) Robbins & Myers</p>  <p>(Left Side View)</p> <p>Replace 402402 motor.</p>

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING


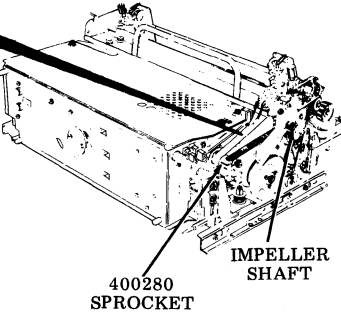
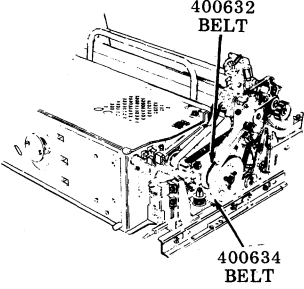
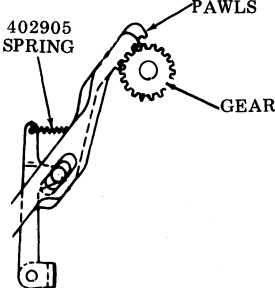
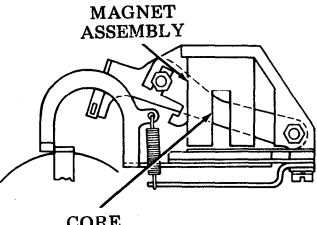
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>22. Is the impeller shaft being driven?</p>  <p>400631 DRIVE BELT</p>	<p>Go to 23.</p>  <p>400280 SPROCKET</p> <p>IMPELLER SHAFT</p>	<p>Check the 400631 impeller shaft drive belt. Replace if worn or broken.</p> <p>Check the 400280 motor shaft sprocket. Replace if worn or broken.</p>
<p>23. Does printer line feed properly with Test switch On?</p> <p>Failure symptoms are: No line feed Intermittent line feed Continuous line feed.</p>  <p>400632 BELT</p> <p>400634 BELT</p>	<p>Go to 27.</p>  <p>402905 SPRING</p> <p>PAWLS</p> <p>GEAR</p>  <p>MAGNET ASSEMBLY</p> <p>CORE</p>	<p>Check 400634 or 400632 line feed belts. Replace if worn or broken.</p> <p>Check line feed pawls for engagement with gear.</p> <p>Check line feed bail spring. Replace if broken or worn.</p> <p>Check loose mounting of line feed magnet assembly on its core. Replace 402621 line feed assembly if magnet coil is loose.</p> <p>Go to 24.</p>

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

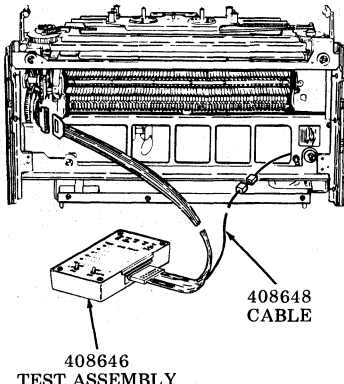
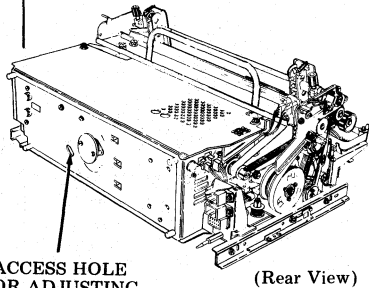
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>24. Remove 410072 (or 410729) circuit card.</p> <p>Connect 408646 test assembly as shown.</p> <p><i>Caution: Observe caution label on 408648 cable when connecting plug to P109.</i></p> <p>Operate 402779 line cord with switch to On.</p> <p>Operate MTR switch on 408646 test assembly to On.</p> <p>Operate LF switch on 408646 test assembly to On.</p> <p>Does the printer line feed?</p>	 <p>408646 TEST ASSEMBLY</p> <p>408648 CABLE</p> <p>Operate 402779 line cord with switch Off.</p> <p>Replace 410072 (or 410729) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>	<p>Go to 25.</p>
<p>25. Check for -24 V dc±1% between TP2 and TP3 on 408646 test assembly.</p> <p>Is -24 V dc±1% present?</p>	<p>Go to 26.</p>  <p>ACCESS HOLE FOR ADJUSTING R9 ON 410151 CARD</p> <p>(Rear View)</p>	<p>Refine -24 V dc adjustment, if voltage reading is outside tolerances.</p> <p>Replace 410151 circuit card.</p> <p>After circuit card is installed, check the <u>Power Supply Voltage</u> adjustment; refine if necessary.</p>

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

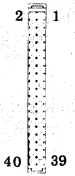
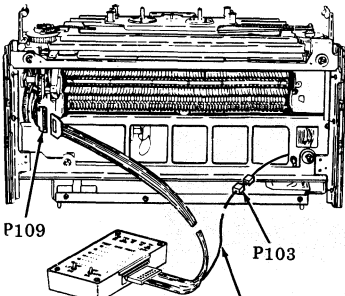
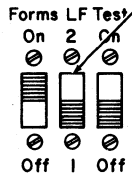
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>26. Operate the 402779 line cord with switch Off.</p> <p>Disconnect J109 test cable from printer.</p> <p>Measure for 33 ohms resistance at P109 between terminals 1 and 4.</p> <p>Is measured resistance correct?</p>	<p>Check the following adjustments:</p> <p><u>Clutch Shoe Release Arm</u> <u>Line feed Armature Gap</u> <u>Line Feed Bar Eccentric and Drive Belt Tension</u> <u>Clutch Drive Belt Tension</u></p> <p>Replace 402660 paper handling assembly.</p>	<p>Replace 402621 line feed magnet assembly.</p>  <p>P109</p>
<p>27. Place printer LF1 — LF2 switch to position LF2.</p> <p>Does the printer double line space properly?</p>	<p>Go to 29.</p>	<p>Go to 28.</p>
<p>28. Remove 410072 (or 410729) circuit card from printer.</p> <p>Connect 408646 test assembly as shown.</p> <p><i>Caution: Observe caution label on 408648 cable when connecting plug to P109 connector.</i></p> <p>Operate 402779 line cord with switch On.</p> <p>Does the LINE FEED lamp on 408646 test assembly light?</p>	<p>Replace 410072 (or 410729) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>	 <p>P109</p> <p>P103</p> <p>408646 TEST ASSEMBLY</p> <p>408648 CABLE</p> <p>Replace 402861 switch.</p>  <p>Forms LF Test</p> <p>On 2 Off</p> <p>Off 1 Off</p>

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

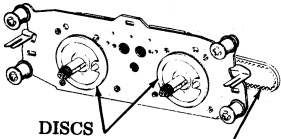
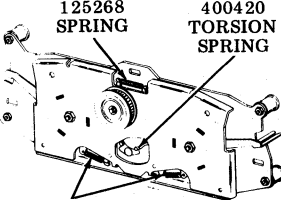
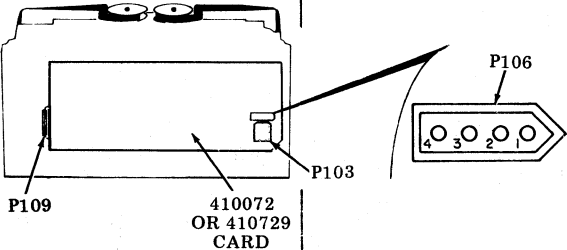
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>29. Is the ribbon feed mechanism operating properly?</p> <p>Ribbon spools rotating. Ribbon reverse working. No ribbon foldover.</p> <p><i>Note:</i> To check ribbon reversing, manually operate the reversing arms with printer operating (printer Test switch On).</p>	<p>Go to 30.</p>	<p>Check ribbon drive belt. Replace if worn or broken.</p>  <p>DISCS 400635 DRIVE BELT</p> <p>Remove ribbon mechanism and check the following springs. Replace if broken.</p>  <p>125268 SPRING 400420 TORSION SPRING 2836 SENSING ARM SPRING</p> <p>Replace 402420 ribbon mechanism.</p> <p>Check the <u>Ribbon Tracking</u> adjustment.</p>
<p>30. Are any characters being printed?</p>  <p>P109 410072 OR 410729 CARD P103 P106</p>	<p>Go to 31.</p>	<p>Check the following adjustments:</p> <p><u>Impeller Shaft Sensor Gap</u> <u>Flag Sensor Gap</u></p> <p>Check impeller sensor for a maximum of 145 ohms. Measure at P106 between terminals 1 and 2.</p> <p>Check flag sensor for a maximum of 145 ohms. Measure at P106 between terminals 3 and 4.</p> <p>Replace 400615 sensor, if open or resistance exceeds maximum requirement.</p>

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
30. (Cont)		<p>Replace 410072 (or 410729) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>
<p>31. Is the carrier font symbol the only symbol printed?</p> <p>Font symbols:</p> <p>⋮A: Up-Low ⋮D:</p> <p>⋮A: Monocase etc. ⋮I:</p>	Go to 32.	<p>If ! (exclamation) or _ (underline) are printed, check the following adjustments:</p> <p><u>Flag Sensor Gap</u> <u>Impeller Shaft Sensor Gap</u> <u>Flag Sensor (Final)</u></p> <p>Replace the 410072 (or 410729) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>
32. Are any columns not printing?	Go to 33.	Go to 37.
<p>33. Are any of the following groups of columns missing?</p> <p>1--12 13--24 25--36 37--48 49--60 61--72 73--84 85--96 97--108 109--120 121--132</p>	<p>Replace 410072 (or 410729) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>	Go to 34.

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

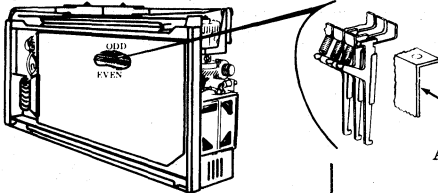
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>34. Of the columns that are missing, are they all odd-numbered (example: 1, 3, 19, 71) or are they all even-numbered (example: 2, 8, 42, 68)?</p>	<p>Check the position of the anti-freeze strip.</p> <p>Check for oil on antifreeze strip. If present, spray with 337449 Degreaser (Freon TF).</p>  <p>If antifreeze strip is distorted or missing, replace entire printer.</p>	<p>Go to 35.</p> <p>ANTIFREEZE STRIP (Clear Plastic Strip)</p>
<p>35. Are one or more columns missing?</p>	<p>Check the following adjustments:</p> <p><u>Impeller Shaft Sensor Gap</u> <u>Flag Sensor Gap</u> <u>Impeller Shaft Sensor (Final)</u></p> <p>Replace 410072 (or 410729) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p> <p>Replace entire printer.</p>	<p>Go to 36.</p>
<p>36. Are any characters not printed?</p>	<p>Check type carrier for missing pallets.</p> <p>Replace type carrier.</p> <p>Replace 410072 (or 410729) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>	<p>Place printer in service.</p>

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

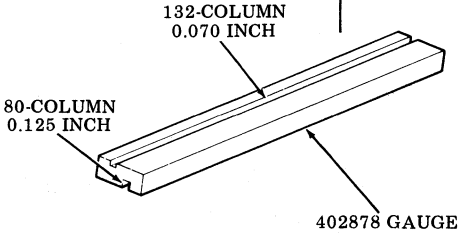
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE												
37. Is the font symbol clipped on the left or right?	Check the <u>Impeller Shaft to Carrier Phasing — Final</u> adjustment.	Go to 38.												
38. Are adjacent characters in the type carrier printed in place of the proper character (T instead of S, B instead of A, etc)?	<p>Check the following adjustments:</p> <p><u>Flag Sensor Gap</u> <u>Impeller Shaft Sensor Gap</u></p> <p>Check that pallets and flags are in proper position.</p> <table border="1" data-bbox="451 539 795 683"> <thead> <tr> <th>Type Carrier</th> <th>Flag Position</th> </tr> </thead> <tbody> <tr> <td>400777AG</td> <td>68, 164, 260</td> </tr> <tr> <td>400780AL</td> <td>4, 68, 132, 164, 228</td> </tr> <tr> <td>400783AM</td> <td>68, 164, 260</td> </tr> <tr> <td>400887AS</td> <td>4, 68, 132, 164, 228</td> </tr> <tr> <td>408271AX</td> <td>20, 68, 116, 164, 212, 260</td> </tr> </tbody> </table> <p><i>Note:</i> For flag positions in type carriers not listed above, refer to Section 582-210-702.</p> <p>Replace entire printer.</p>	Type Carrier	Flag Position	400777AG	68, 164, 260	400780AL	4, 68, 132, 164, 228	400783AM	68, 164, 260	400887AS	4, 68, 132, 164, 228	408271AX	20, 68, 116, 164, 212, 260	Go to 39.
Type Carrier	Flag Position													
400777AG	68, 164, 260													
400780AL	4, 68, 132, 164, 228													
400783AM	68, 164, 260													
400887AS	4, 68, 132, 164, 228													
408271AX	20, 68, 116, 164, 212, 260													
39. Is copy free of horizontal ink smudges caused by the ribbon rubbing against the paper?	Go to 40.	<p>Replace 402686 ribbon shield if deformed.</p> <p>Check the following adjustments:</p> <p><u>Ribbon Guide (Final)</u> <u>Paper Positioner</u></p>												
<p>40. Is copy free of double print or ghost images?</p> 	Go to 41.	<p>Check the following adjustments:</p> <p><u>Left Carrier Sprocket</u> <u>Right Carrier Sprocket</u></p> <p>Check that type pallets are seated properly in carrier. Seat pallets with 402878 gauge. Replace type carrier.</p> <p>Replace entire printer.</p>												

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
41. Is the printed copy clear and easily readable?	Go to 42.	Replace 402444 ribbon. Check the following adjustments: <u>Backup Bar (Final)</u> <u>Left Carrier Sprocket</u> <u>Right Carrier Sprocket</u> <u>Ribbon Guide (Final)</u> <u>Paper Positioner</u>
42. Is printed copy free from embossing (especially noticeable on characters such as hyphen or underline)?	Go to 43. 400777AG Tractor 132-Column – Up-Low (ASCII) 400780AL Tractor 132-Column – Monocase (ASCII) 400783AM Tractor 132-Column – Up-Low (EBCDIC) 400782AR Tractor 132-Column – Up-Low Katakana 400887AS Tractor 132-Column – Monocase (EBCDIC) 408178AU Tractor 132-Column – Monocase (ASCII) OCR A 408270AW Tractor 132-Column – Monocase Block Symbol 408271AX Tractor 132-Column – Monocase 48-Character Set 408272AY Tractor 132-Column – Up-Low (ASCII) 192-Character Set 408389BA Tractor 132-Column – Monocase Katakana 408391BC Tractor 132-Column – Up-Low (ASCII) OCR B 408393BE Tractor 132-Column – Monocase (ASCII) OCR B 408518BF Tractor 132-Column – (EBCDIC) 48-Character Set 408519BG Tractor 132-Column – Monocase (ASCII) 64-Character Set 408520BH Tractor 132-Column – Up-Low (EBCDIC) 96-Character Set 408521BJ Tractor 132-Column – Monocase (ASCII) Large Gothic w/Fractions 408522BK Tractor 132-Column – Monocase (EBCDIC) OCR B 408523BL Tractor 132-Column – Up-Low (EBCDIC) OCR B	Check the <u>Backup Bar (Final)</u> adjustment and type carrier pallet alignment. Check that type pallets are seated properly in carrier. Seat pallets with 402878 gauge. Replace type carrier.
43. Is the print density uniform throughout the line without gradual variations?	Go to 44.	Check the following adjustments: <u>Left Carrier Sprocket</u> <u>Right Carrier Sprocket</u> <u>Backup Bar</u>
44. Is the print density uniform throughout the line without random variations?	Go to 45.	Check the following adjustment: <u>Paper Positioner</u> Replace entire printer.
45. Are the bottoms of characters printed clearly (not light) at both ends of the line?	Go to 46.	Check the following adjustments: <u>Left Carrier Sprocket</u> <u>Right Carrier Sprocket</u> Replace printer.

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

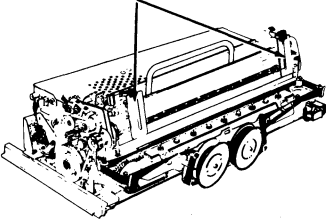
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>46. Are all individual characters printed clearly when received?</p>	<p>Go to 47.</p>	<p>Check type carrier for missing, broken, distorted, or dirty type pallets.</p> <p>Replace type carrier.</p> <p>Replace printer.</p>
<p>47. Are there erratic line feeds or some characters printing too high?</p> <p>AMBER BELT</p> 	<p>Check for bind in paper throughout routing path. Check that paper is properly feeding through tractor assemblies.</p> <p>Check the following adjustments:</p> <p><u>Paper Positioner</u> <u>Tractor Phasing</u></p> <p>Replace 400221 idler.</p> <p>If amber belt in tractors is worn or broken, replace 402660 paper handling assembly.</p>	<p>Go to 48.</p>
<p>48. When a FF character or local form feed is received, does paper advance one form correctly (Forms switch On)?</p>	<p>Go to 51.</p>	<p>Verify proper belt installation.</p> <p>Check that belt is not worn or cracked. Replace belt.</p> <p>Check that the selector lever on the form-out assembly is properly detented.</p> <p>Check the following adjustments:</p> <p><u>Form-Out Contact</u> <u>Lateral</u> <u>Form Selector Lever</u> <u>Guide</u> <u>Form-Out Gear Backlash</u> <u>Form-Out Contact to</u> <u>Belt Spacing</u> <u>Line Feed Bar Eccentric</u> <u>and Drive Belt Tension</u></p> <p>Go to 49.</p>

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

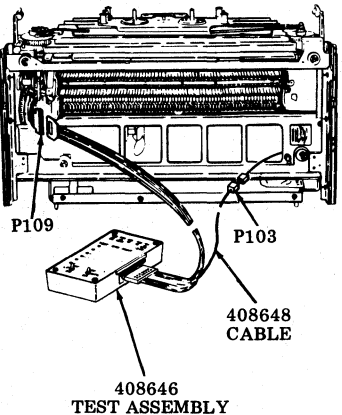
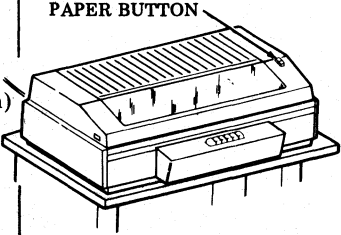
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>49. Operate 402779 line cord with switch to Off.</p> <p>Remove 410072 (or 410729) circuit card.</p> <p>Connect the 408646 test assembly as shown.</p> <p><i>Caution: Observe caution label on 408648 cable when connecting plug to P109.</i></p> <p>Operate 402779 line cord with switch to On.</p> <p>Place Forms switch on printer to On.</p> <p>Does the FORMS MODE lamp on the 408646 test assembly light?</p>	 <p>P109</p> <p>P103</p> <p>408648 CABLE</p> <p>408646 TEST ASSEMBLY</p> <p>Go to 50.</p>	<p>Replace 402861 switch.</p>
<p>50. Operate MTR switch on the 408646 test assembly to On.</p> <p>Operate LF switch on the 408646 test assembly to On.</p> <p>Does the END OF FORM lamp light when the form-out contact touches the cam lobe on the belt?</p>	<p>Replace 402905 spring.</p> <p>Replace 410072 (or 410729) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p> <p>Replace printer.</p> <p>Check Form switch and cabling on cabinet.</p>	<p>Replace 402570 form-out assembly.</p>
<p>51. <u>Printer Without Paper Jam Alarm Mechanism</u></p> <p>Is paper-out indication (illumination of paper button) obtained when a paper-out condition exists?</p> <p><u>Printer With Paper Jam Alarm Mechanism (40P204)</u></p> <p>Go to 53.</p>	 <p>PAPER BUTTON</p> <p>Place printer in service.</p>	<p>Check the <u>Paper-Out Switch</u> adjustment.</p> <p>Go to 52.</p>

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

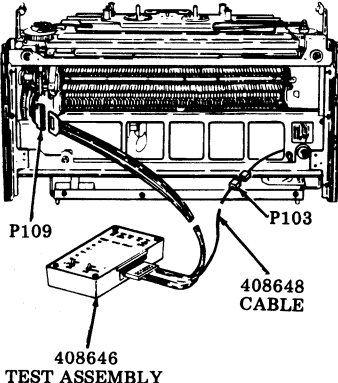
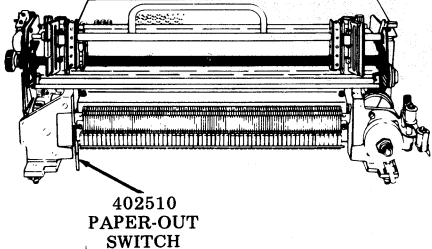
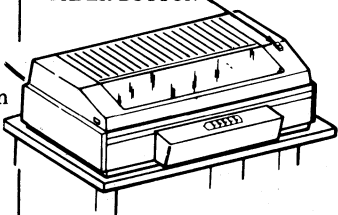
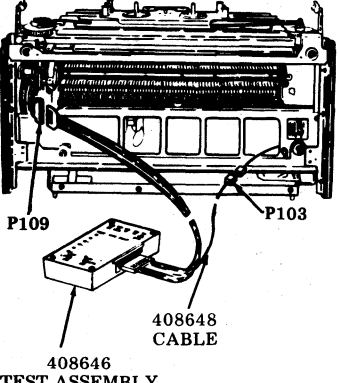
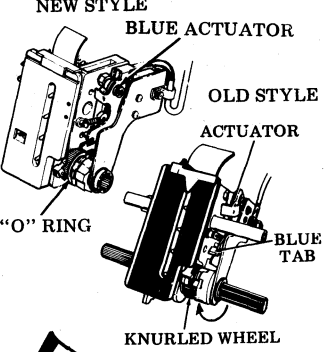
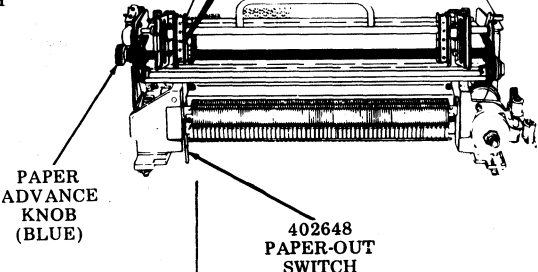
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>52. Operate 402779 line cord with switch Off.</p> <p>Remove 410072 (or 410729) circuit card.</p> <p>Connect 408646 test assembly as shown.</p> <p><i>Caution: Observe caution label on 408648 cable when connecting P109 plug.</i></p> <p>Operate the 402779 line cord with switch to On.</p> <p>Does the FORMS SUPPLY lamp on the 408646 test assembly light (paper in)?</p> <p>Remove paper. Does the FORMS SUPPLY lamp go out and the ALARM lamp light (paper out)?</p>	<p>Replace 410072 (or 410729) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>  	<p>Replace 402510 (early design) or 402648 (late design) paper-out switch.</p>
<p>53. <u>Printer With Paper Jam Alarm Mechanism (40P204)</u></p> <p>Is paper-out/paper jam indication (illumination of paper button) obtained when a paper-out or paper jam condition exists?</p>	<p>PAPER BUTTON</p>  <p>Place printer in service.</p>	<p>Check that actuator on paper jam alarm mechanism (under left tractor lid) is reset.</p> <p>Check the <u>Paper-Out Switch</u> adjustment.</p> <p>Check the <u>Paper Jam Alarm</u> adjustment.</p>

TABLE D (Cont)

132-COLUMN TRACTOR FEED PRINTER TROUBLESHOOTING

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>54. Operate 402779 line cord with switch Off.</p> <p>Remove 410072 (or 410729) circuit card.</p> <p>Connect 408646 test assembly as shown.</p> <p><i>Caution: Observe caution label on 408648 cable when connecting P109 plug.</i></p> <p>Operate the 402779 line cord with switch to On.</p> <p>Check that actuator on paper jam mechanism is reset. (To reset, rotate knurled wheel (old style) or "O" ring (new style) toward rear until it stops.</p> <p>Push on blue painted tab of actuator (old style) or blue plastic actuator (new style) until it detents into reset condition.)</p> <p>Install paper. Does the FORM SUPPLY/NO PAPER JAM lamp on 408646 test assembly light?</p> <p>Remove paper. Does the FORM SUPPLY/NO PAPER JAM lamp go out and the ALARM lamp light?</p>	 <p>Go to 55.</p>	  <p>Replace 402648 paper-out switch.</p>
<p>55. Place a piece of paper in the paper chute and over the paper-out sensing lever. Does the FORM SUPPLY/NO PAPER JAM lamp on 408641 test assembly light?</p> <p>Close left tractor lid and pull out and rotate the paper advance knob (blue) one revolution in direction of paper movement. Does FORM SUPPLY/NO PAPER JAM lamp go out and ALARM lamp light?</p> <p>Manually reset the paper jam mechanism actuator. Does the FORM SUPPLY/NO PAPER JAM lamp on assembly light?</p>	<p>Replace 410072 (or 410729) circuit card.</p> <p>After the card is installed, check the <u>Impeller Shaft Sensor (Final)</u> and <u>Flag Sensor (Final)</u> adjustments; remake if necessary.</p>	<p>Replace 406270 paper jam alarm assembly.</p>

“DATASPEED*” 40 PRINTER

ADJUSTMENTS AND LUBRICATION

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1. GENERAL

1.01 This section provides adjustment and lubrication procedures for the DATA-SPEED 40 printers (Fig. 1, 2, 3, and 4).

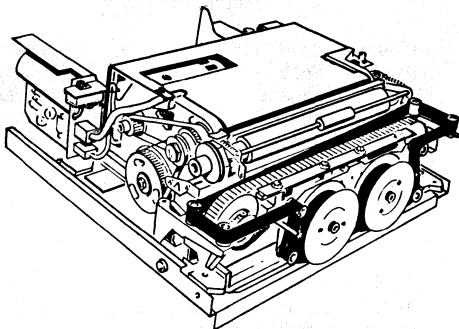


Fig. 1—40P101 and 40P102 80-Column Friction Feed

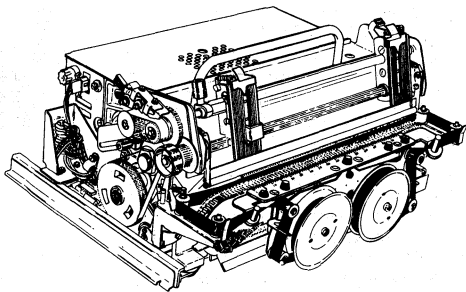


Fig. 2—40P151, 40P153, or 40P154 80-Column Tractor Feed

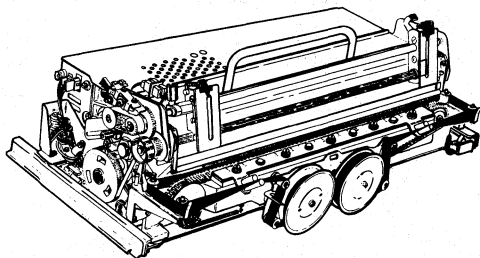


Fig. 3—40P201 or 40P202 132-Column Tractor Feed

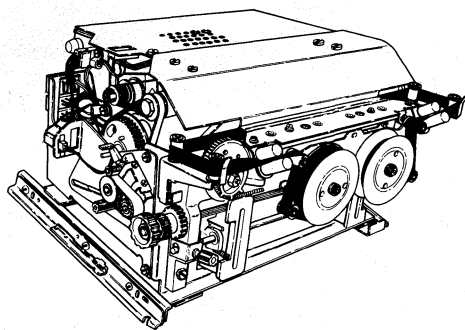


Fig. 4—40P253 80-Column Forms Access Printer

1.02 This section is reissued to add the adjustments for the 40P102 80-column friction feed printer (noise reduced), 40P154 80-column tractor feed printer, and 40P253 80-column forms access printer.

1.03 Unless specified otherwise, adjustments and lubrication apply to all printers (80-column friction and tractor, 132-column tractor, and forms access).

Note: When ordering replaceable components, prefix each part number with the letters "TP" (ie, TP123456), unless specified otherwise.

1.04 Refer to Maintenance Tools, Section 570-005-800 for a complete listing of the various types of hand tools available to make the adjustments. Gauge 402617 (80-column forms access, 80-column friction or tractor), 402716 and 402717 (132-column tractor), and two 408765 gauges (132-column and forms access) are required for certain adjustments. Also, 402868 dynamic backup bar gauge and 402878 type carrier alignment gauge are used in adjusting 80-column friction or tractor, 80-column forms access, and 132-column tractor printers.

1.05 To remove the printer from the cabinet, reverse the procedure in Section 582-210-200 covering installation of the printer.

1.06 Use maintenance pad 124828 to protect bench top or floor coverings from oil, grease, and dirt while adjusting or lubricating the unit.

- 1.07 Some adjustments require access to subassemblies that have to be removed. For removal of these subassemblies, see Section 582-210-702.
- 1.08 The adjustments for the printer are arranged in a sequence that should be followed if a complete readjustment of the printer is undertaken. A complete adjustment procedure should be read before attempting to make the adjustment. After an adjustment has been completed, be sure to tighten any nuts or screws that may have been loosened to facilitate the adjustment, unless otherwise instructed.
- 1.09 The belt tensions given in this section are indicated values and should be checked with proper spring scales. The adjusting illustrations, in addition to indicating adjustment tolerances, show the angle at which the scale should be applied when measuring belt tensions.
- 1.10 Some of the adjustments require the printing of the font identification character. This character is printed when the printer is running and the TEST switch is placed in the ON position. The associated printer cover Interlock switch must be disabled (bypassed) for printer operation.
- 1.11 All tolerances in the adjustments in this section unless otherwise stated, are in inches.
- 1.12 When a requirement specifies a disengaged clutch, the clutch must be fully latched so that the clutch shoes are completely disengaged from the clutch drum. To become fully latched, the trip lever (or stop arm) must engage the clutch shoe lever, and the clutch disc must rotate far enough to permit the latchlever to fall into the notch in the clutch disc.
- 1.13 When rotating the clutch shaft of the printer by hand, the clutch does not fully disengage upon reaching its stop position. In order to relieve the drag on the clutch drum and permit the shaft to rotate freely, apply pressure to the stop lug on the clutch disc with a screwdriver until the latchlever falls into its notch on the clutch disc. The internal expansion clutch is then fully disengaged. This procedure should be followed before placing the printer in its cabinet and switching on the power.
- 1.14 When engaged, the clutch shoe lever is unlatched (tripped), and the clutch shoes are wedged against the clutch drum.
- 1.15 Lubricate the printer just prior to placing in service or before putting it in storage. The printer should be relubricated after it has been in service a few weeks. Thereafter, lubricate the mechanisms every 2,000 hours of running time or one year, whichever occurs first.
- 1.16 The general lubrication requirements consist of using KS-7470 oil at all locations where the use of oil is indicated and Mobile No. 2 grease on all surfaces where grease is indicated. Thoroughly saturate the felt oilers and remove all excess oil by wiping lightly with a clean cloth. The friction surfaces of all moving parts should be thoroughly lubricated.
- 1.17 Symbols 01, 02, 03, etc, refer to 1, 2, 3, etc, drops of oil. The following list of symbols applies to the lubrication instructions:
- O Oil KS-7470.
 - G Apply thin film of Mobile No. 2 (145867) grease.
 - S Saturate felt oilers, washers and wicks with oil.
 - D Keep dry, no lubricant permitted.
- 1.18 Overlubrication which would allow oil to drip or grease to be thrown on other parts should be avoided. Capillary action and vaporization tend to keep a thin film of oil on the mechanisms. This prevents rust and provides sufficient lubrication to many points.
- 1.19 Closed ball bearings do not require lubrication. All open ball bearings should be packed with grease (TKS-103, 195298).

2. ADJUSTMENTS

IMPELLER SHAFT DRIVE BELT TENSION

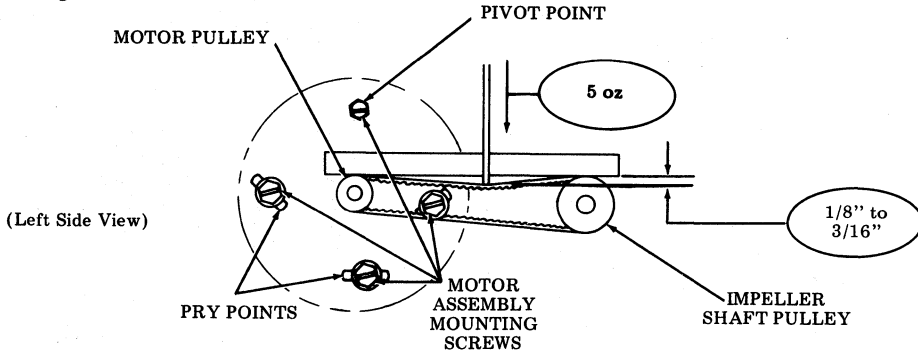
Requirement

With a force of 5 ounces applied perpendicular to drive belt approximately midway along its free length, the belt should deflect

Min 1/8 inch - Max 3/16 inch
from a line tangent to both pulleys.

To Adjust

Loosen four motor assembly mounting screws friction tight. Using a screwdriver, pry the flat washer under one of the mounting screws in the desired direction using appropriate end of slot. Tighten mounting screws.



RIBBON FEED DRIVE BELT TENSION

(80-Column Friction or Tractor Only)

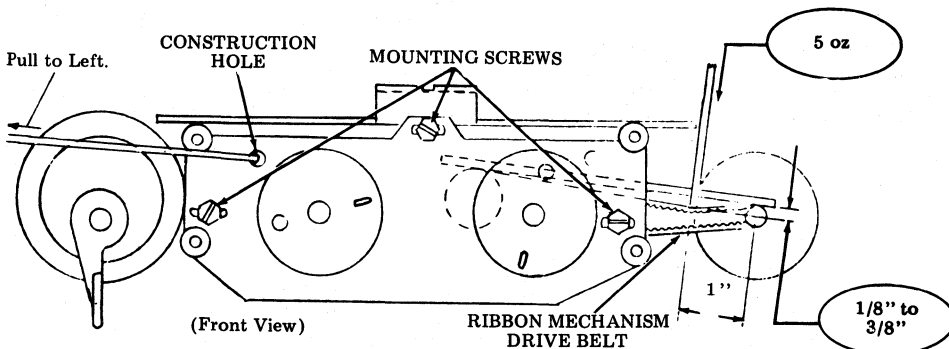
Requirement

With a force of 5 ounces applied perpendicular to the drive belt approximately 1 inch from right pulley, belt should deflect

Min 1/8 inch --- Max 3/8 inch
from a line tangent to both pulleys.

To Adjust

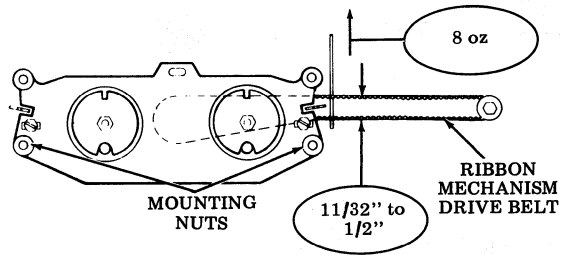
Loosen mounting screws to allow mechanism to move freely to right or left. Pull against construction hole to left. Tighten mounting screws with tension applied.



RIBBON FEED DRIVE BELT TENSION (Cont)
(132-Column Tractor)

Requirement

There should be
Min $11/32$ inch --- Max $1/2$ inch
between outside surfaces of drive belt when
a force of 8 ounces is applied adjacent to
ribbon mechanism frame.



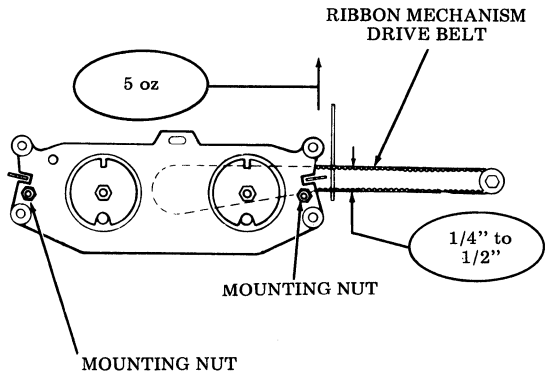
To Adjust

Loosen mounting nuts to allow mechanism to move freely to right or left. Position ribbon mechanism to meet requirement. Tighten mounting nuts.

RIBBON FEED DRIVE BELT TENSION
(Forms Access Printer)

Requirement

There should be
Min $1/4$ inch --- Max $1/2$ inch
between outside surfaces of drive belt when
a force of 5 ounces is applied adjacent to
ribbon mechanism frame.



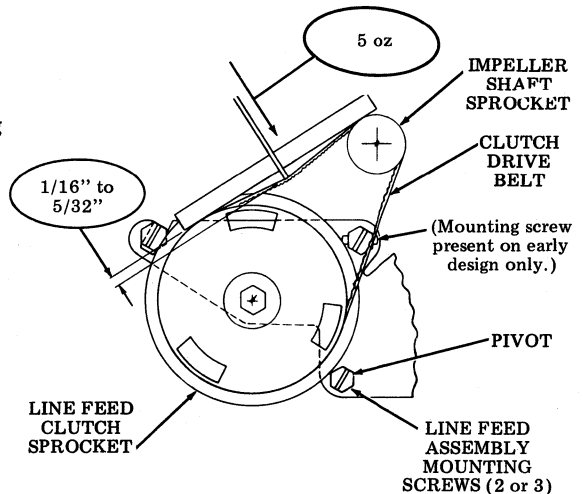
To Adjust

Loosen the two ribbon mounting nuts and position the ribbon mechanism left or right to meet requirement. Tighten mounting nuts.

CLUTCH DRIVE BELT TENSION

Requirement

With a force of 5 ounces applied perpendicular to drive belt approximately midway along its free length, belt should deflect
Min $1/16$ inch --- Max $5/32$ inch
from a line tangent to both pulleys.



To Adjust

Loosen line feed assembly mounting screws to allow assembly to move freely about its pivot. Position line feed assembly to meet requirement. Tighten mounting screws.

FEED BAR BAIL SPRING TENSION
(80-Column Friction or Tractor Feed or
132-Column Tractor Feed)

Requirement (Late Design Tractor)

It will require

Min 42 oz --- Max 68 oz
(402905 spring)

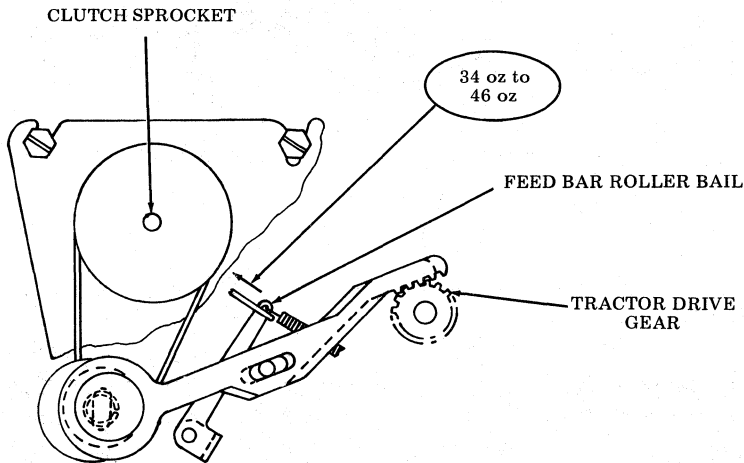
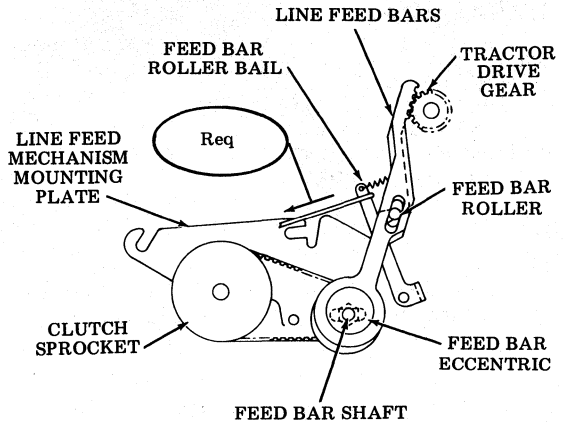
to start the feed bar roller bail moving.

Requirement (Friction Feed and Early Design Tractor)

It will require

Min 32 oz --- Max 44 oz
(41385 spring-friction,
55089 spring-tractor)

to start the feed bar roller bail moving.



FEED BAR BAIL SPRING TENSION
(Forms Access Printer)

Requirement

It will require

Min 34 oz --- Max 46 oz

to start the feed bar roller bail moving.

RIBBON MECHANISM DRAG (Early Design)**Requirement**

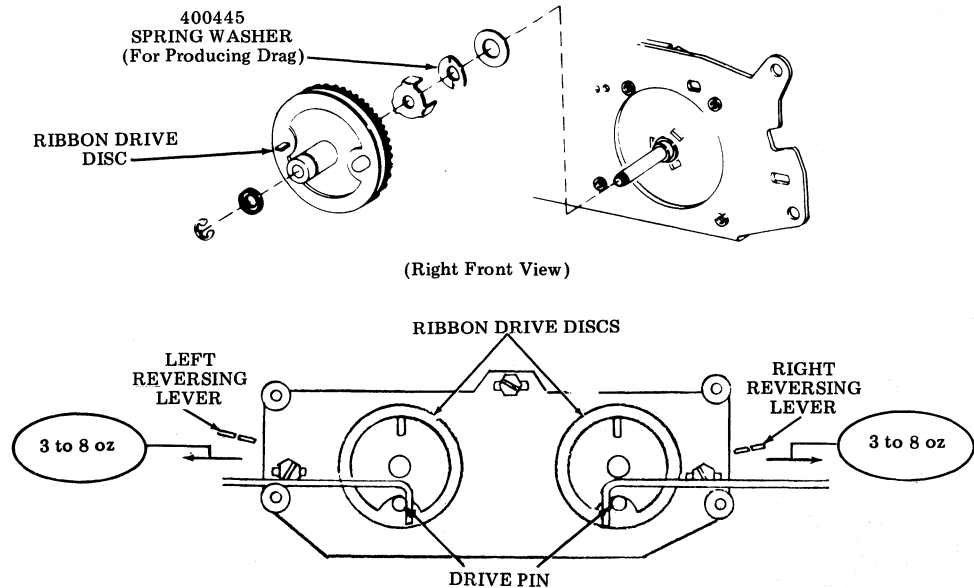
It should take

Min 3 oz --- Max 8 oz

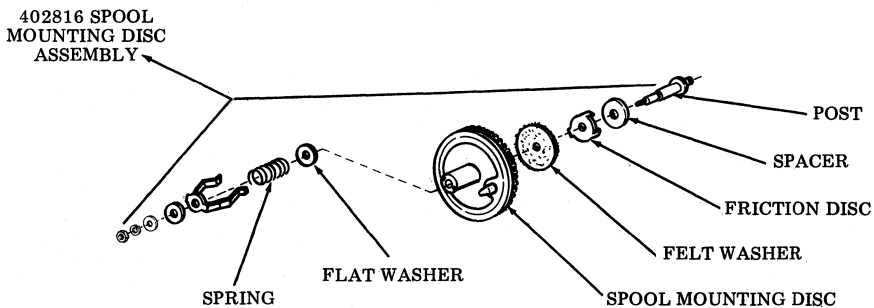
to start the free-wheeling ribbon drive disc moving when pulling tangentially on its drive pin. To check the other ribbon drive disc, reverse ribbon mechanism by pulling up on reversing lever adjacent to the free-wheeling drive disc and manually rotating impeller shaft clockwise as viewed from the right side of printer until reversal occurs. The other ribbon drive disc is now the free-wheeling disc and may be checked.

To Adjust

Remove ribbon drive disc assembly as shown and replace spring washer. Reassemble and recheck requirement.



Note: Late Design — No adjustment required if 402816 spool mounting disc assemblies are present.



CLUTCH BIDREC GAP (Friction Feed Printers) (Early Design)

- Clutch engage.

Requirement

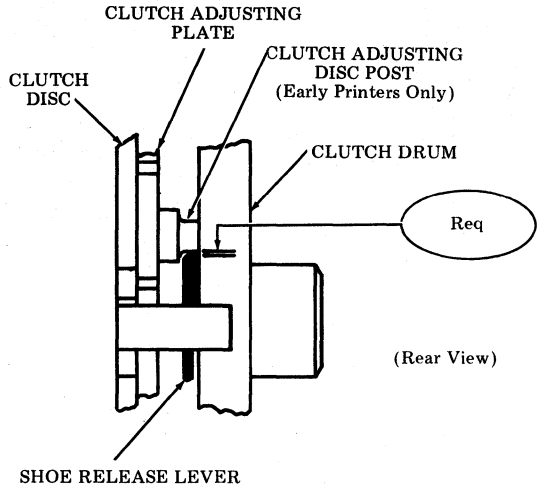
Gap between clutch adjusting disc post and shoe release lever

Min 0.002 inch --- Max 0.018 inch
from machines operated under 100 hours --

Min 0.002 inch --- Max 0.025 inch
for machines operated over 100 hours.

To Adjust

If requirement cannot be met, replace clutch shoes and/or clutch drums.



CLUTCH SHOE RELEASE ARM SPRING

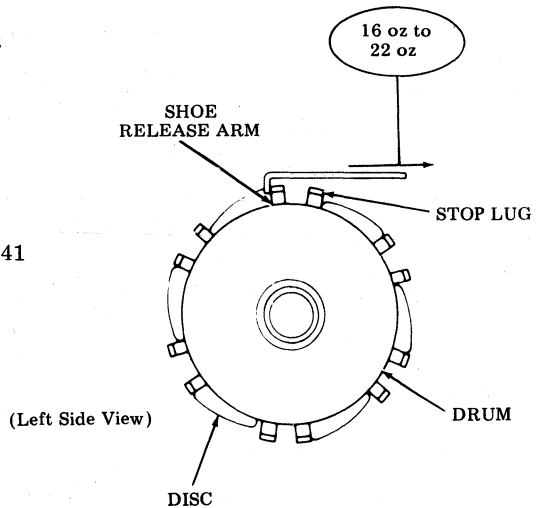
- Engage clutch.
- Hold clutch disc.
- Pull with scale on shoe release arm tangent to the clutch.

Requirement

Min 16 oz --- Max 22 oz
to move the shoe release arm into contact with the stop lug.

To Adjust

Remove clutch assembly and replace 150241 spring.

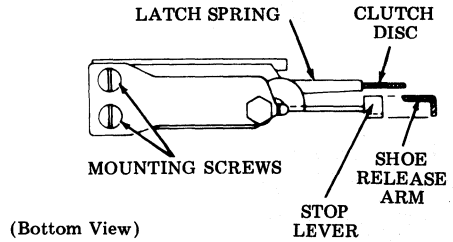


CLUTCH MAGNET AND LATCH SPRING**Requirement**

The clutch disc should be in the center of the latch spring, and the shoe release arm should be central to the end of the stop lever as gauged by eye.

To Adjust

Remove line feed magnet assembly. Loosen mounting screws friction tight. Position stop lever and latch spring. Tighten mounting screws.



Note: Perform CLUTCH STOP LEVER adjustment after reassembling line feed magnet assembly.

CLUTCH SHOE RELEASE ARM**Requirement**

There should be

Min 0.065" --- Max 0.095"

gap between the shoe release arm and the stop lug while the clutch is engaged.

To Measure

Momentarily disengage clutch by pulling against shoe release arm. After reengaging the clutch momentarily apply 16 ounces of tension on shoe release arm in a direction to give a maximum gap. Rotate clutch disc in a direction to close the gap with sufficient force to overcome the disc spring tension until clutch disc is at rest against its positive stop. While holding clutch disc against its stop, measure gap between shoe release arm and stop lug of the clutch disc.

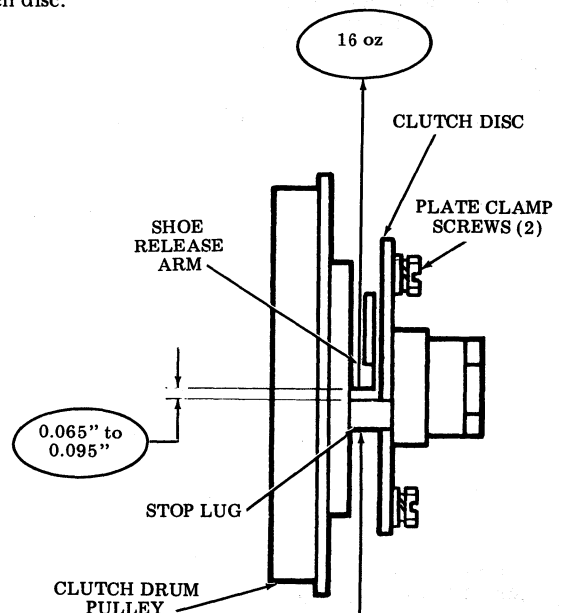
To Adjust

Loosen two plate clamp screws friction tight. Rotate clutch disc until the requirement is met. Tighten clamp plate screws.

Note: This adjustment is to be made before the clutch assembly is assembled to the line feed mechanism mounting plate and before the plastic output pulley is installed.

To Check the Requirement When the Clutch Assembly is Installed in a Unit:

Hold the clutch drum pulley to prevent it from moving. Trip the clutch magnet. While holding the clutch drum pulley from rotating momentarily apply 16 ounces to shoe release arm in a direction to give a maximum gap. Rotate clutch drum pulley in a direction to close the gap with sufficient force to take up all the play. While holding clutch drum pulley in this position measure the gap.



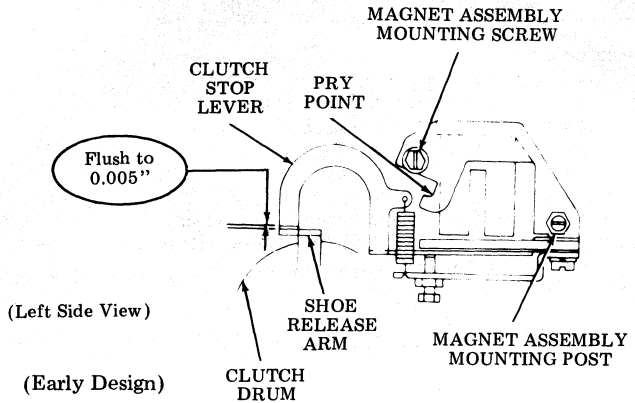
CLUTCH STOP LEVER
(Early and Late Design)

Requirement

The top surface of the clutch stop lever should be
Min flush --- Max 0.005 inch
overflush with the top surface of the shoe release arm.

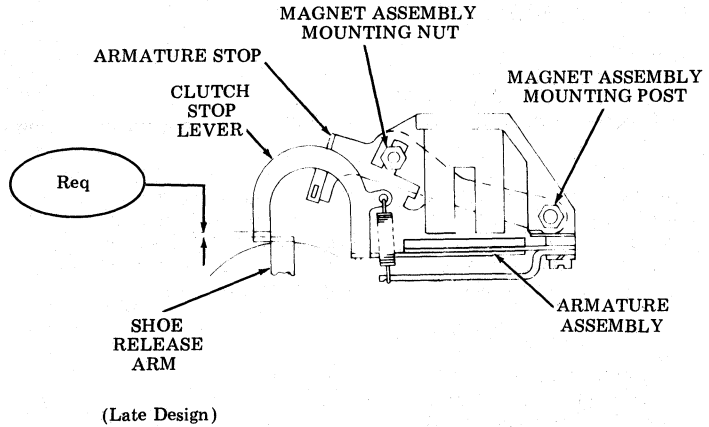
To Adjust (Early Design)

Loosen magnet assembly post and mounting screw friction tight. Position magnet assembly to meet requirement using the pry points. Tighten mounting screw and mounting post.



To Adjust (Late Design)

Loosen magnet assembly mounting nut and armature stop lever mounting screw friction tight. Position armature stop lever so that the clutch stop lever meets the requirement. Tighten armature stop lever mounting screw and nut securely. Check the other 5 clutch positions.



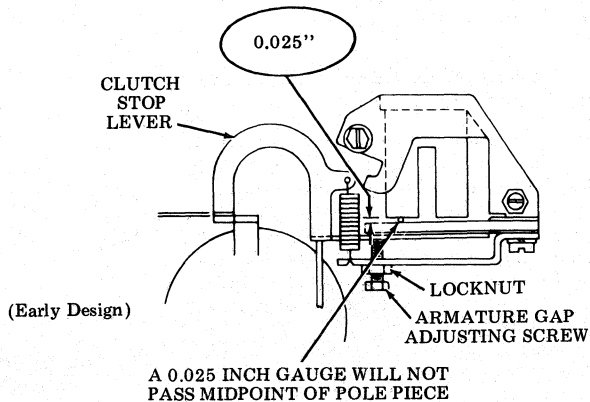
LINE FEED ARMATURE GAP
(Early and Late Design)

Requirement

A 0.025 inch gauge shall enter the armature and magnet core measured in line with the outer surface of the magnet core but will not pass beyond the midpoint of the pole face.

To Adjust (Early Design)

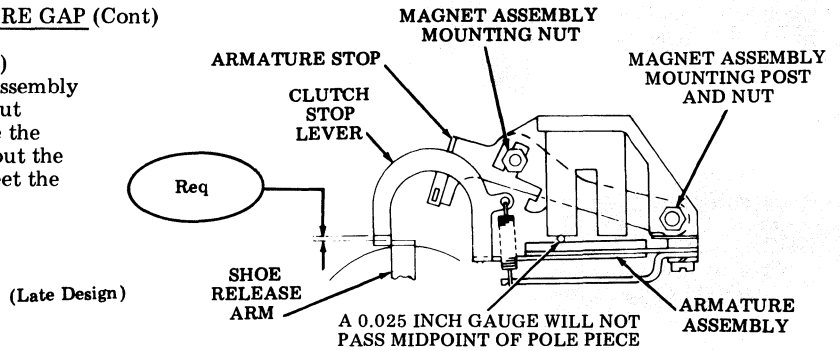
With locknut loosened, make the adjustment using the adjusting screw. Tighten locknut.



LINE FEED ARMATURE GAP (Cont)

To Adjust (Late Design)

Loosen the magnet assembly mounting post and nut friction tight. Rotate the magnet assembly about the mounting post to meet the requirement.



LINE FEED BAR ECCENTRIC AND DRIVE BELT TENSION

(Late Design)

Requirement (A)

Feed bars should be parallel to each other as gauged by eye.

To Check

Manually energize line feed magnet and rotate line feed clutch sprocket. Latch line feed clutch. Requirement (A) is considered met if the center line of feed bar eccentric alignment hole is in line with rear surface of line feed bar (or top surface of line feed bar on forms access printer).

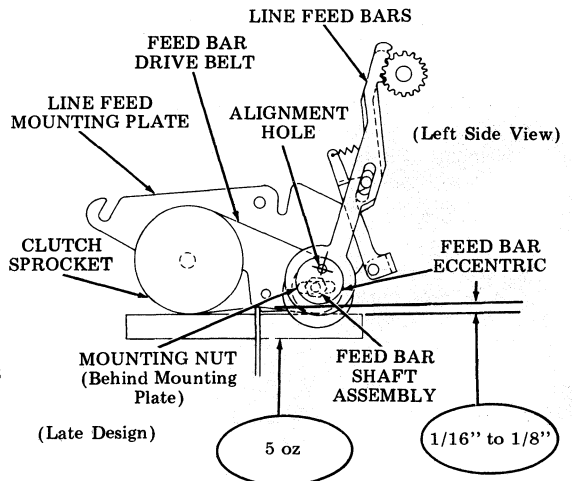
Requirement (B)

With a force of 5 ounces applied perpendicular to drive belt approximately midway along its free length, the belt should deflect

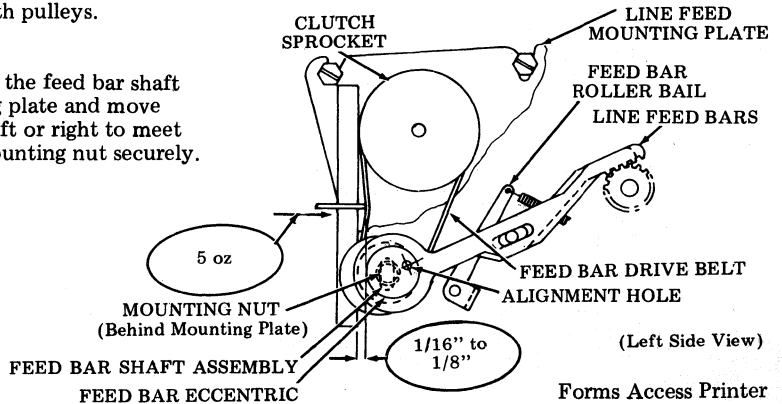
Min 1/16 inch --- Max 1/8 inch from a line tangent to both pulleys.

To Adjust

Loosen the nut mounting the feed bar shaft assembly to the mounting plate and move feed bar shaft assembly left or right to meet requirements. Tighten mounting nut securely.



80-Column Friction or Tractor Feed or 132-Column Tractor Feed Printer



Forms Access Printer

LINE FEED BAR ECCENTRIC AND DRIVE BELT TENSION (Cont)

(Early Design)

Requirement (1)

Feed bar eccentric adjusting screws should be positioned at right angles to line feed bar rear surface as gauged by eye.

To Check (1)

Manually energize line feed magnet and rotate line feed clutch sprocket. Latch line feed clutch.

To Adjust (1)

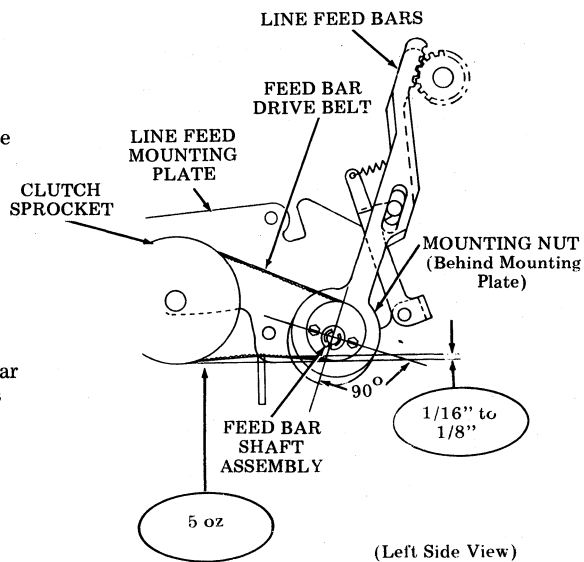
Loosen feed bar eccentric adjusting screws. Rotate eccentrics to meet requirement. Tighten adjusting screws.

Requirement (2)

With a force of 5 ounces applied perpendicular to drive belt approximately midway along its free length, the belt should deflect
Min 1/16 inch --- Max 1/8 inch
from a line tangent to both pulleys.

To Adjust (2)

Remove circuit card. Loosen mounting nut. Position feed bar shaft assembly to meet requirement. Tighten mounting nut.



(Early Design)

LOW PAPER SWITCH

(Friction Feed Printer — Under Power)

Requirement

The switch adjusting plate should be positioned in the center of the adjusting range. This position will give a low paper indication with approximately

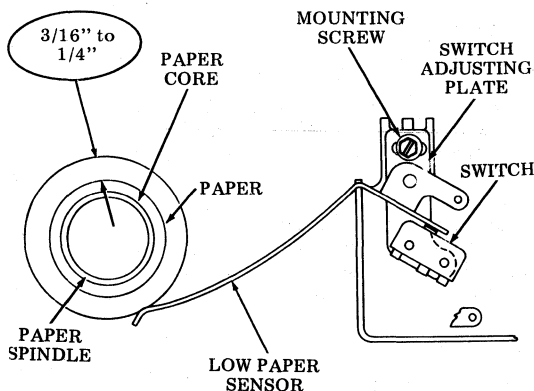
Min 3/16 inch --- Max 1/4 inch
of paper remaining on the roll. Remove cover to provide access to the low paper switch.

To Check

Remove paper spindle. Place a roll of paper which has between 3/16 inch and 1/4 inch of paper remaining on the roll. Plug in ac power cord. The low paper lamp shall light.

To Adjust

Loosen mounting screws that secure the switch adjusting plate, friction tight. Position plate to meet requirement. Tighten mounting screws.



(Left Side View)

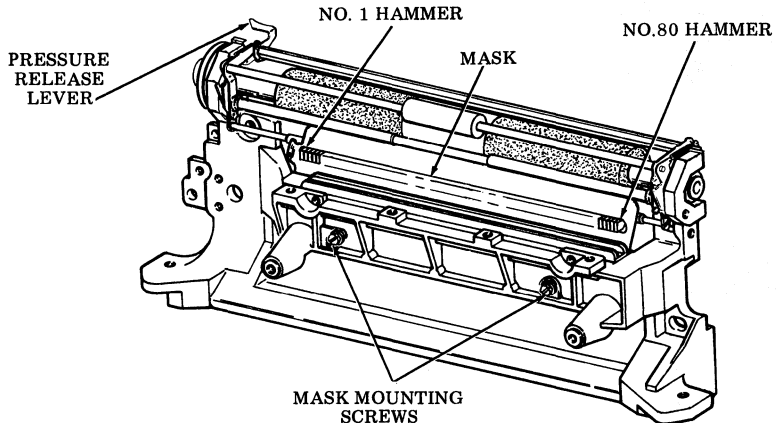
MASK
(40P102 Friction Feed Printer Only)

Requirement

There shall be some clearance between the top and bottom edges of the mask slot and the top and bottom of the No. 1 and No. 80 hammers.

To Adjust

Pull pressure release lever forward. Loosen two mask mounting screws friction tight. Position mask to meet requirement. Tighten screws.



LEFT RIBBON BRACKET
(Friction Feed Only)

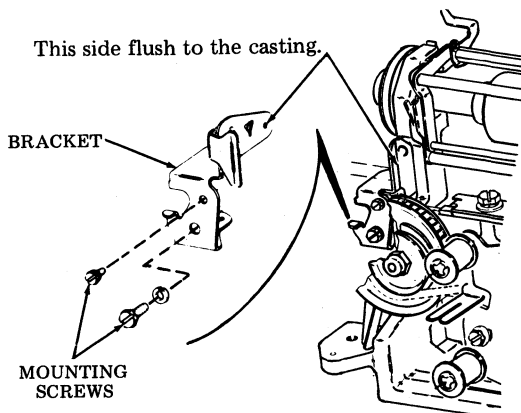
Note: This adjustment does not apply to late design units equipped with "black" bracket.

Requirement

The right surface of the bracket shall be flush to the casting.

To Adjust

Loosen bracket mounting screws. Position bracket to meet requirement. Tighten screws.



PAPER-OUT SWITCH (Early and Late Design)
(80-Column Tractor Feed Printer)

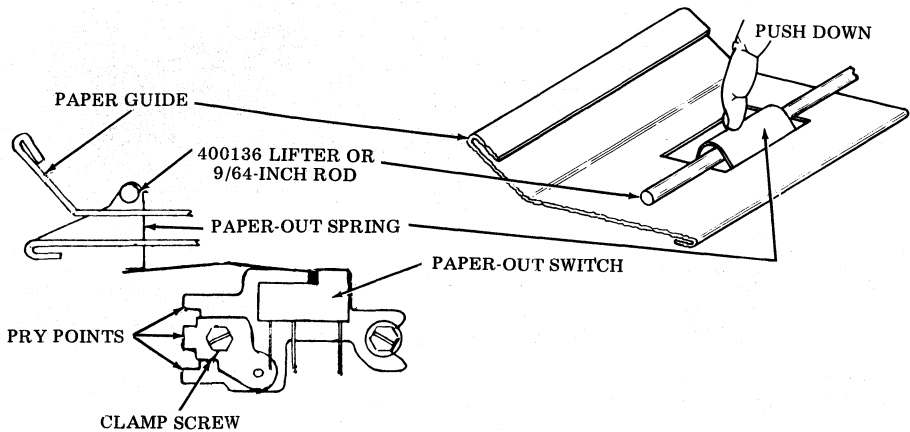
(Early Design)

Requirement

With a 9/64-inch rod or 400136 lifter inserted in loop of paper-out spring, the paper-out switch should operate when loop is pressed toward paper guide and should operate in the other direction when spring is allowed to return. Determine by ear (clicking noise) or by placing the leads of an ohmmeter across pins 10 and 11 of connector J-3. The ohmmeter should give a closed circuit reading before pressing spring down, and open after releasing.

To Adjust

With clamp screw friction tight, position switch to meet requirement, using pry points. Tighten clamp screw.



(Early Design)

PAPER-OUT SWITCH (Early and Late Design) (Cont)
(80-Column Tractor Feed Printer)

(Late Design)

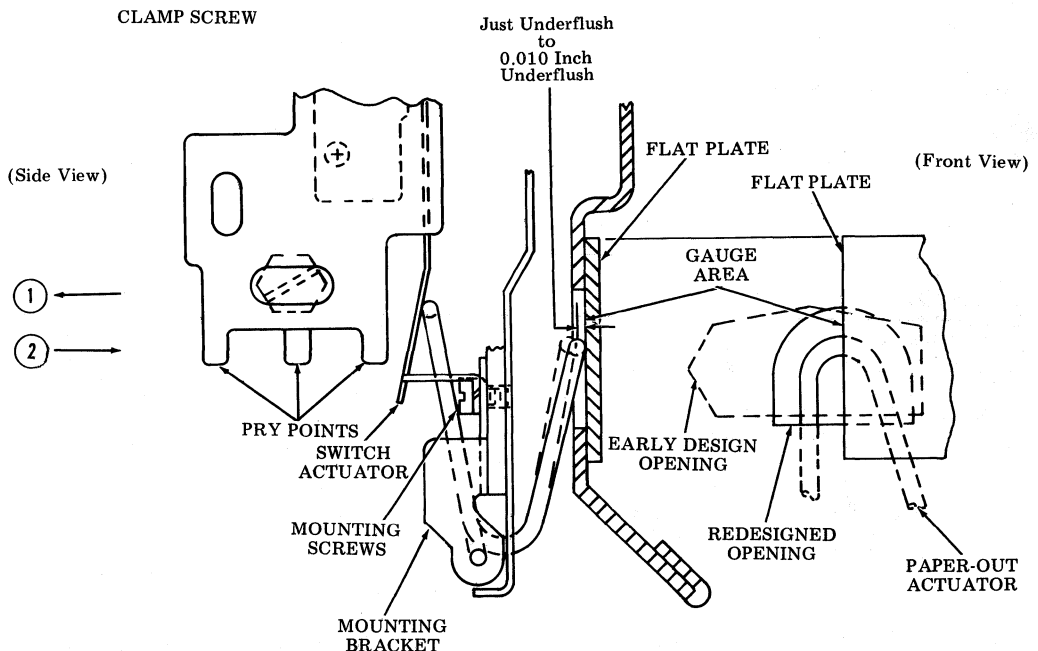
Requirement

With a flat plate positioned over the opening in the paper guide and the paper-out actuator biased against the flat plate, a test lamp should be ON or an ohmmeter should indicate a closed circuit. Passing a 0.010 inch flat gauge between the actuator and the flat plate should cause the lamp to go OFF or an ohmmeter to indicate an open circuit.

Note: When the 0.010 inch flat gauge and the flat plate are removed and the flat plate is again positioned over the paper guide opening, the lamp should be ON or an ohmmeter should indicate a closed circuit.

To Adjust

Place a lamp or ohmmeter across pins 1 and 3 of connector J114 on 40P150 through 40P153 printers or across pins 7 and 10 of connector P109 on 40P154 printer. With the clamp screw friction tight and a flat plate over the paper guide opening, move the switch in the direction indicated by ① ← until the end of adjustment range is reached. Position the 0.010 inch gauge between the actuator and the flat plate and move the switch in the direction indicated by ② → until lamp goes OFF or ohmmeter indicates an open circuit. Tighten clamp screw and recheck requirement.



PAPER-OUT SWITCH (Early and Late Design)
(132-Column Tractor Feed Printer)

(Early Design)

Requirement

The paper-out switch should trip when paper-out switch arm is positioned

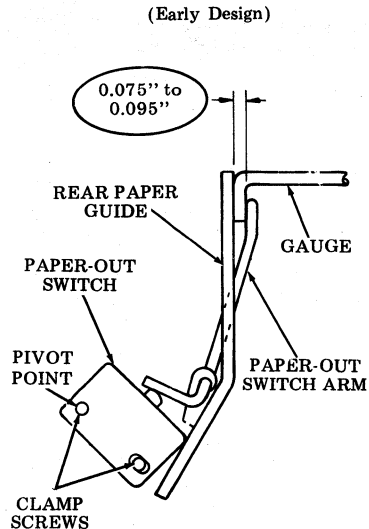
Min 0.075 inch --- Max 0.095 inch from rear paper guide.

To Check

Place a gauge between end of paper-out switch arm and rear paper guide. The switch should trip before arm contacts 0.075-inch gauge and should not trip when lightly held against a 0.095-inch gauge.

To Adjust

Loosen two switch clamp screws friction tight. Position switch about its pivot point to meet requirement. Tighten clamp screws.



(Late Design)

(1) **Requirement**

The paper-out switch should trip when the paper-out switch arm is positioned

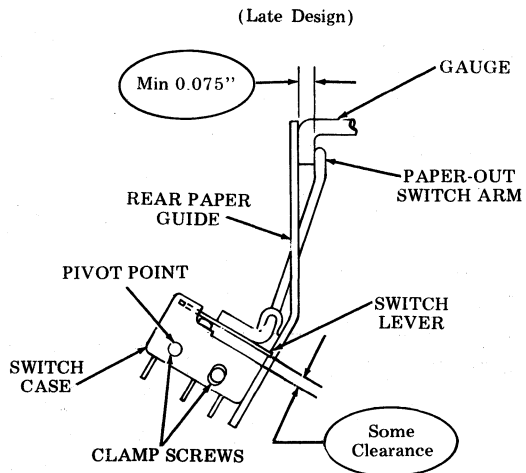
Min 0.075 inch from the rear paper guide.

(2) **Requirement**

With the paper-out switch arm touching the rear paper guide there should be some clearance between the switch case and the switch lever.

To Measure

Place a 0.075 inch gauge between the end of the paper-out switch arm and the rear paper guide. The switch should trip before the arm contacts the gauge. Remove the gauge and position the lever against the rear paper guides while checking for some clearance between the switch case and the switch lever.



To Adjust

Loosen the two switch clamp screws friction tight. Position the switch about its pivot point to meet these requirements. Tighten the clamp screws.

PAPER-OUT SWITCH (Forms Access Printer)**Requirement**

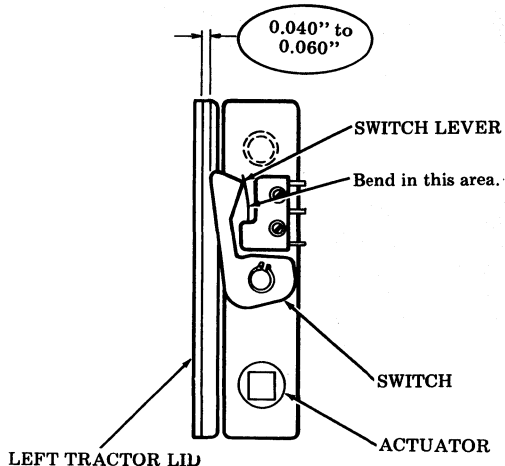
With the left tractor lid closed, under its own spring load, the "NC" contact will make the transition to an "open" condition when the switch-actuator is

Min 0.040 inch --- Max 0.060 inch
from the tractor lid.

Note: The transition point may be determined by the "clicking noise" or by checking the continuity across pins 1 and 4 of connector J104.

To Adjust

Bend switch lever in an area between the lever pivot and actuator contact, to meet requirement.

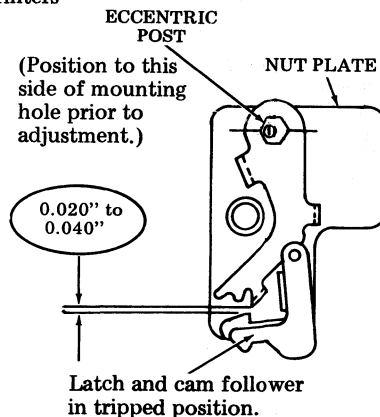
**PAPER JAM ALARM (For 80- or 132-column tractor feed printers equipped with paper jam alarm mechanism)****Requirement**

There should be

Min 0.020 inch---Max 0.040 inch
between the top of the latch and bottom of the actuator when the cam follower is in the trip position.

To Adjust

Loosen the eccentric post mounting nut friction tight. Rotate eccentric to meet requirement. Tighten mounting nut.



PAPER GUIDE POSITIONING (40P101 Friction Feed Printer)
(Early and Interim Design)

Note: This adjustment does not apply to late design 40P101 printer equipped with a 400377 front casting assembly.

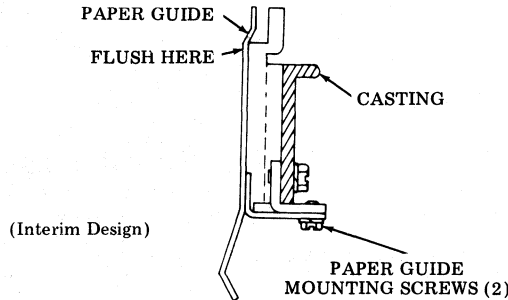
Requirement (Interim Design)

The paper guide should be flush against the upper part of the casting at both right and left sides.

To Adjust

Remove type carrier and ribbon. Loosen the two mounting screws, position guide against the casting, and tighten screws.

Note: (Interim Design and Early Design) This is a manufacturing adjustment and should not be disturbed unless the printer paper guide has been disassembled.

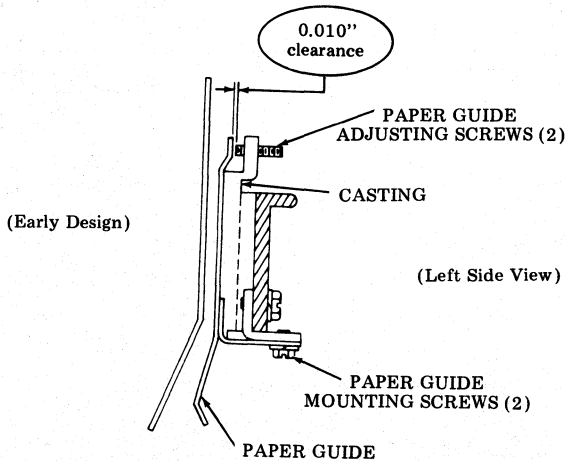


Requirement (Early Design)

There should be
Min some --- Max 0.010 inch
clearance between paper guide and paper guide adjusting screw.

To Adjust

Remove type carrier and ribbon. Position paper guide adjusting screws to meet requirement.



MOTOR FAN SPACING (Early and Late Design)

(Early Design)

For motors without thermal overload switch:

Requirement

There shall be
 1/4 inch \pm 1/32 inch
 between motor bearing housing and fan hub when
 the shaft endplay is taken up to make this gap a
 minimum.

(Late Design)

For motors with thermal overload switch:

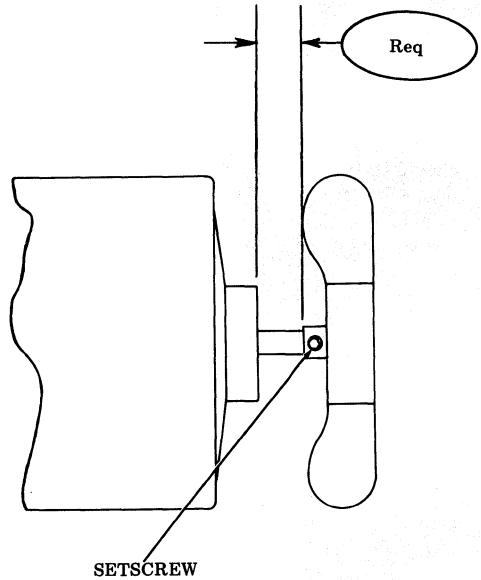
Requirement

There shall be
 15/32 inch \pm 1/32 inch
 between motor bearing housing and fan hub when
 the shaft endplay is taken up to make this gap a
 minimum.

To Adjust

With setscrew loose, push fan in or out to meet
 requirement. Tighten setscrew.

Note: Early design motors (those without a thermal
 overload switch button) have the fan spaced at 7/16
 inch with the use of a 7/16 inch spacer.



IMPELLER SHAFT SENSOR GAP

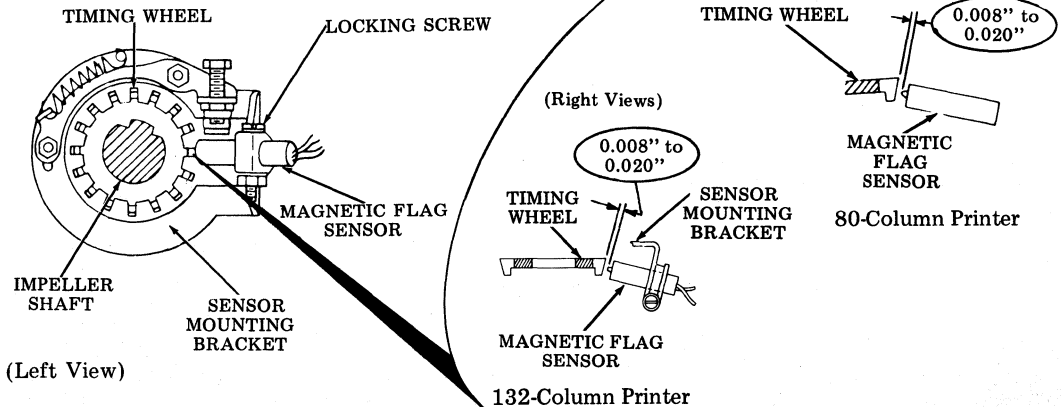
Requirement

Min 0.008 inch -- Max 0.020 inch
 between teeth of timing wheel and sensor pole
 piece.

To Adjust

Loosen locking screw. Adjust gap to meet require-
 ment. Tighten locking screw.

Note: It is preferable to use non-
 magnetic gauges to check requirement.
 Steel gauges are attracted by the sensor
 magnet making it difficult to gauge
 the adjustment.



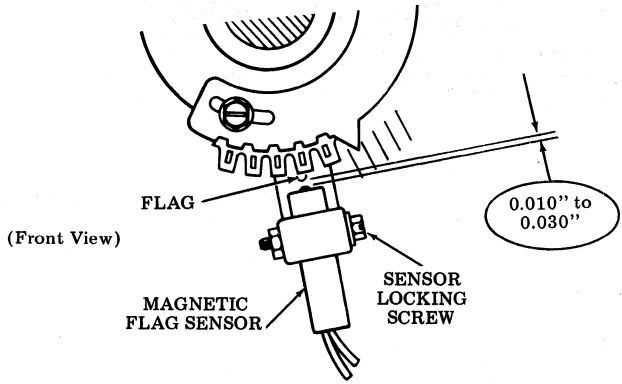
FLAG SENSOR GAP

Requirement

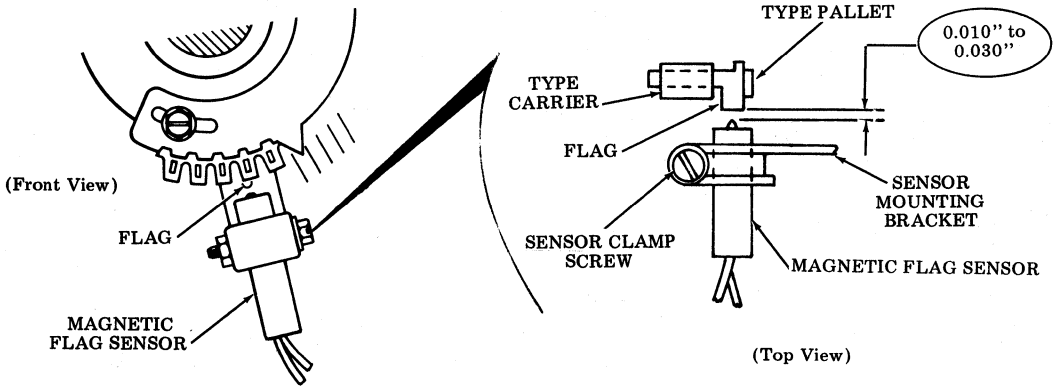
There should be
 Min 0.010 inch
 clearance between the closest flag and
 the magnetic sensor pole piece and
 Max 0.030 inch
 clearance between any flag and the
 magnetic sensor.

To Adjust

Loosen sensor locking screw. Adjust
 gap to meet requirement. Tighten
 locking screw.



80-Column Friction, Tractor, or Forms Access Printer



132-Column Printer

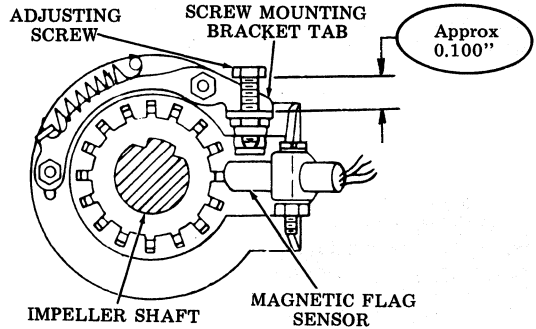
Note: It is preferable to use non-magnetic gauges to check requirement. Steel gauges are attracted by the sensor magnet making it difficult to gauge the adjustment.

IMPELLER SHAFT SENSOR (Preliminary)**Requirement**

There shall be a gap of approximately 0.100 inch between the bottom of the adjusting screw head and the top of the sensor mounting bracket tab.

To Adjust

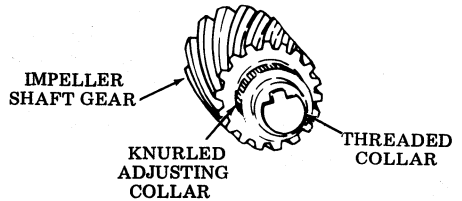
Turn adjusting screw to meet requirement.

**IMPELLER SHAFT TO CARRIER PHASING** (Preliminary)**Requirement**

Right edge of knurled adjusting collar to be flush with step on threaded collar.

To Adjust

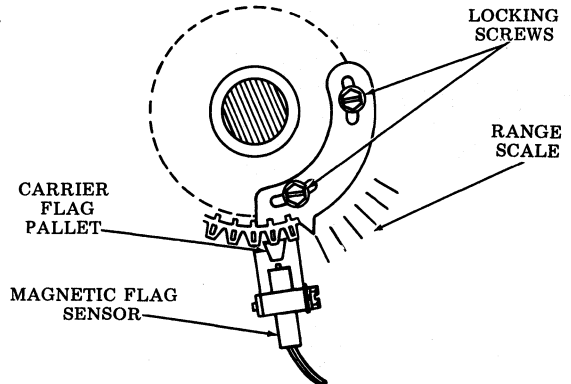
Rotate knurled collar while pushing impeller shaft gear to the left.

**FLAG SENSOR** (Preliminary)**Requirement**

Indicator to be at midpoint of the range scale.

To Adjust

With the two locking screws loosened, adjust magnetic flag sensor to midrange.



Note: The final range adjustments require the printer be operated in the Test mode and be printing a legible font identification symbol in some columns. The IMPELLER SHAFT TO CARRIER PHASING (Preliminary) and FLAG SENSOR (Preliminary) adjustments may have to be readjusted to gain this level of operation as follows:

- Step (1): Operate the test switch to determine if printer will operate. If no printing, or a character other than the font identification symbol occurs, reposition the flag sensor left or right until the font identification symbol or a portion of it is printed.
- Step (2): Refine the IMPELLER SHAFT TO CARRIER PHASING adjustment to obtain a legible font identification symbol.

INSTALLATION OF 408765 ADJUSTING GAUGES FOR BACKUP BAR TO CARRIER TRACK ADJUSTMENT (132-Column or Forms Access Printer)

- ① Remove ribbon.
- ② Remove tear bar assembly (forms access printer only).
Remove type carrier.

BACKUP BAR TO CARRIER TRACK
(132-Column or Forms Access Printer)

Note: This is a manufacturing adjustment and should not be disturbed unless carrier track channel has been replaced or disassembled.

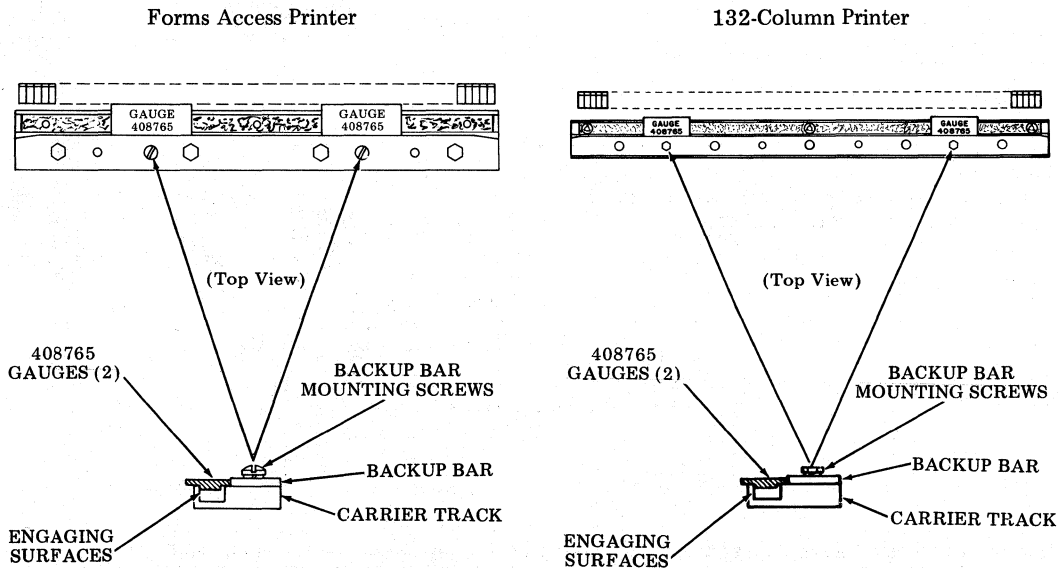
Requirement

The backup bar should just touch engaging surfaces of 408765 gauges two of which are positioned adjacent to backup bar mounting screws.

To Adjust

With the two backup bar mounting screws friction tight, and the two 408765 gauges in place on carrier track channel, apply finger pressure to backup bar to lightly contact gauges with engaging surfaces. Hold in this position and tighten the two backup bar mounting screws.

Note: On 132 column printer, the column indicator must be removed to make the adjustments.

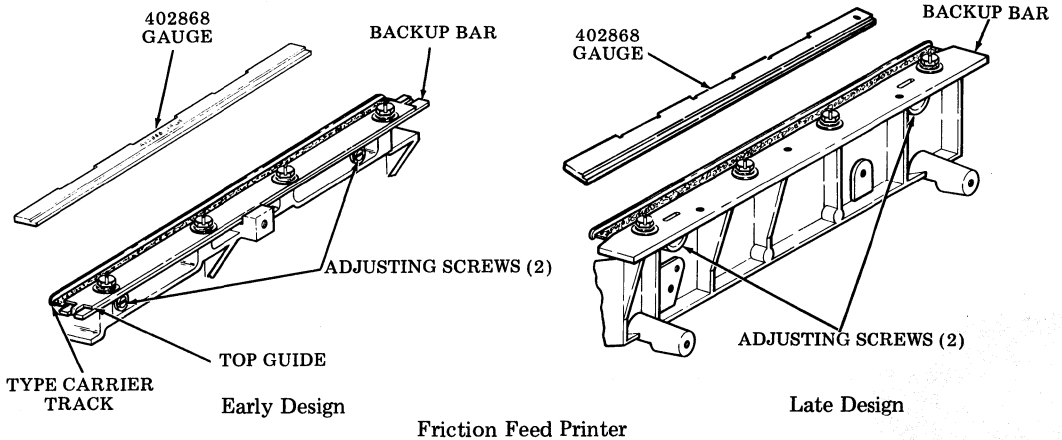


Note: If the BACKUP BAR TO CARRIER TRACK adjustment is made, the BACKUP BAR (Final Under Power), LEFT and RIGHT CARRIER SPROCKETS and RIBBON GUIDES adjustments must also be made.

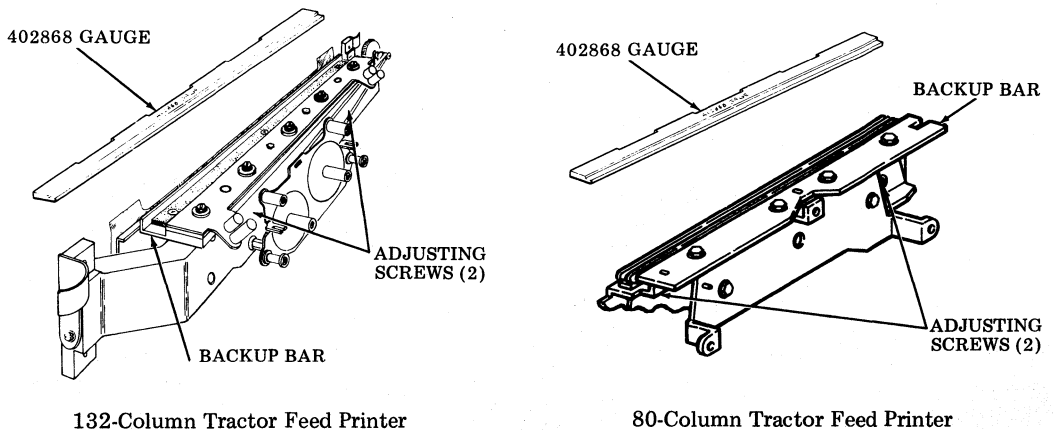
INSTALLATION OF 402868 ADJUSTING GAUGE FOR BACKUP BAR ADJUSTMENT (80-Column Friction or Tractor Feed or 132-Column Tractor Feed)

Note: For optimum print quality and maximum ribbon life the unit should be adjusted after being at room ambient of 65 to 85 degrees Fahrenheit with all power off for at least three hours.

- Remove type carrier.
- Remove old ribbon and install a new ribbon.
- On units equipped with late design print hammer bumper (black and red), insert a single sheet of paper. On units equipped with early design print hammer bumper (black), insert four (4) thicknesses of single-ply paper without carbons.
- Insert 402868 adjusting gauge on type carrier track with front edge against backup bar. On 80-column printer, position gauge so it is centered in relation to no. 1 and no. 80 print hammers. On 132-column printer, position gauge first at the left end, then at the right end of the carrier track.



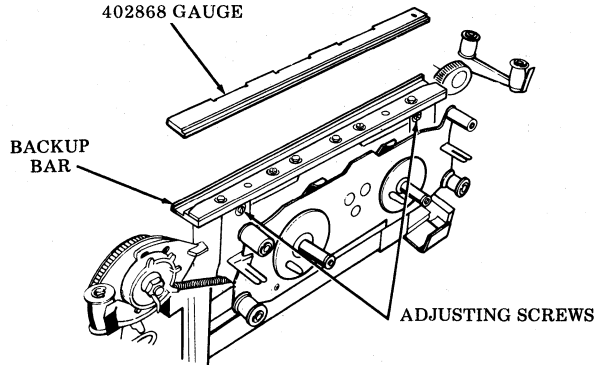
Note: On 80-column tractor feed printer or late design friction feed printer, carrier top guide must be removed to install 402868 gauge.



INSTALLATION OF 402868 ADJUSTING GAUGE FOR BACKUP BAR ADJUSTMENT (Cont)
 (Forms Access Printer)

Note: For optimum print quality and maximum ribbon life the unit should be adjusted after being at room ambient of 65 to 85 degrees Fahrenheit with all power off for at least three hours.

- Remove old ribbon.
- Remove tear bar assembly.
- Remove type carrier.
- Install new ribbon and insert single-ply paper.
- Insert 402868 gauge on type carrier track against backup bar.

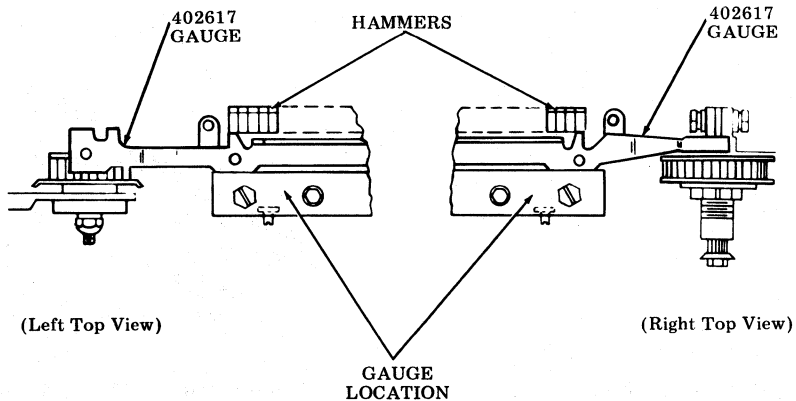


40P253 Forms Access Printer

INSTALLATION OF 402617 ADJUSTING GAUGE (Forms Access Printer)

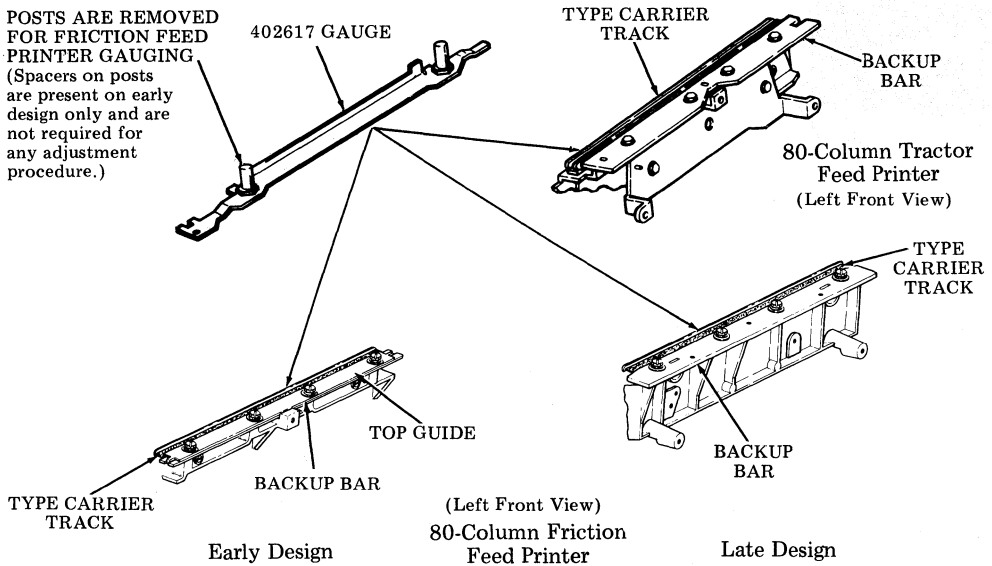
Note: If using early design 402617 gauge (with spacers assembled on the posts) the spacers must be removed.

- With ac power off, remove paper and ribbon.
 - Remove tear bar assembly.
 - Remove type carrier.
- Insert 402617 gauge on type carrier track with front edge against backup bar. Position gauge so protrusions at rear line up with no. 1 and no. 80 print hammers.



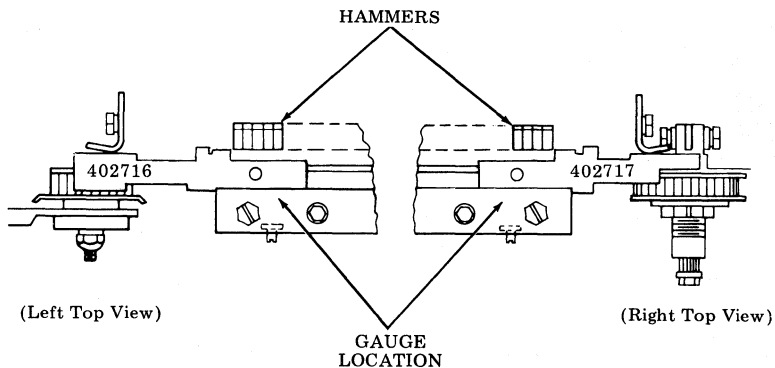
INSTALLATION OF 402617 ADJUSTING GAUGE (Cont) (80-Column Friction or Tractor)

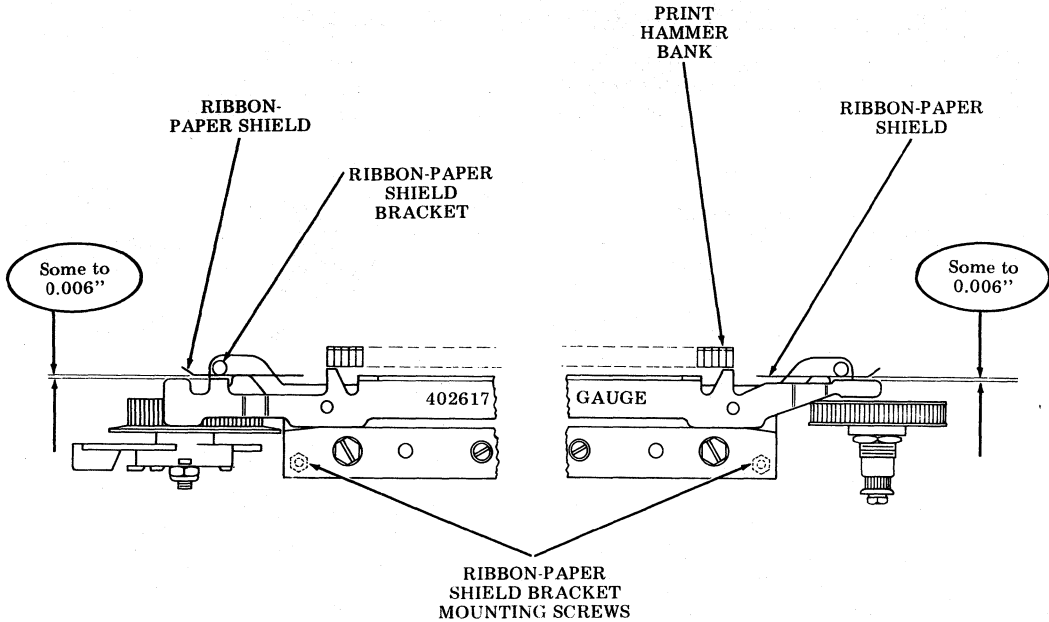
- ① With ac power off, remove paper and ribbon.
- With type carrier removed, insert 402617 gauge on type carrier track with front edge against backup bar. Position gauge so protrusions at rear line up with no. 1 and no. 80 print hammers.



INSTALLATION OF 402716 AND 402717 GAUGES (132-Column Tractor Feed Printer)

- ① With ac power off, remove paper and ribbon.
- ② Remove type carrier per instructions on cover.
- ③ Position 402716 (left) and 402717 (right) gauges on top of track and against backup bar.





RIBBON GUIDE
(40P253 Forms Access Printer)

Requirement

With the 402617 gauge held against the backup bar of the carrier track assembly there should be
Min Some --- Max 0.006 inch
between the gauge points and the ribbon-paper shield.

Install 402617 gauge. See Page 24.

To Adjust

With the ribbon-paper shield bracket mounting screws friction tight, position the shield bracket to meet requirement. Tighten two mounting screws.

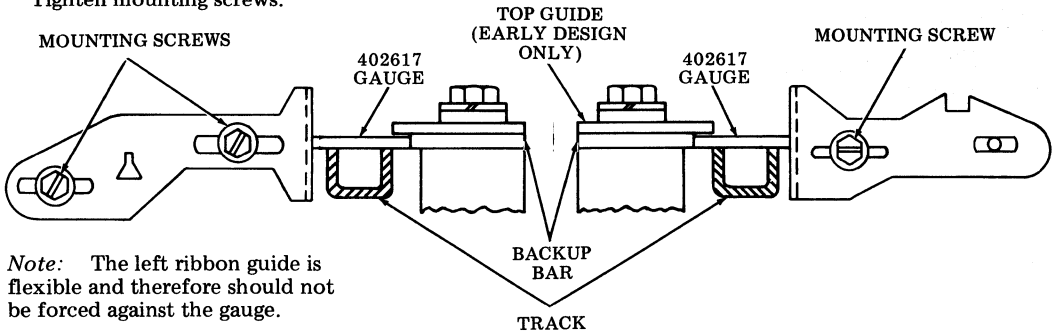
RIBBON GUIDE (Preliminary)
(Friction Feed Printer)

Requirement

The right and left ribbon guides should just touch the adjusting gauge.

To Adjust

Loosen left and right ribbon guide mounting screws friction tight. With gauge held by hand against the backup bar, push right and left ribbon guides by hand into contact with the adjusting gauge. Tighten mounting screws.



Note: The left ribbon guide is flexible and therefore should not be forced against the gauge.

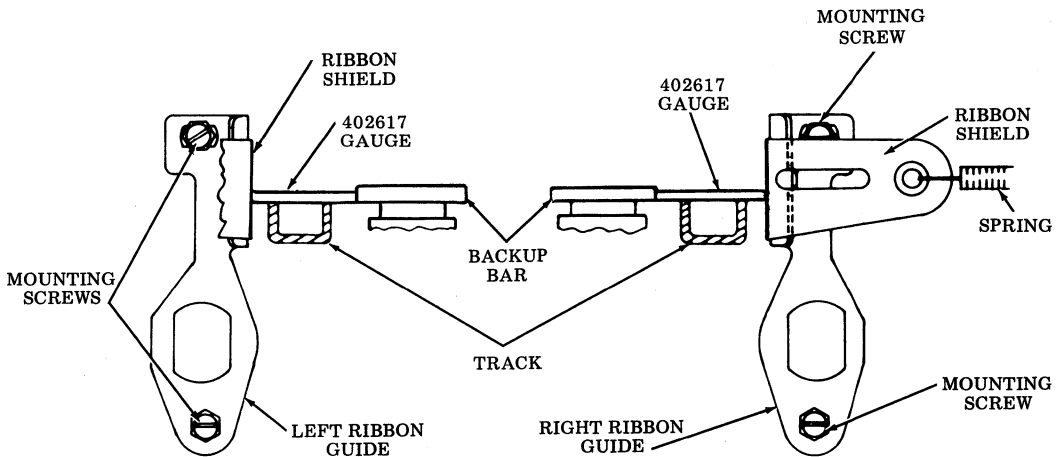
RIBBON GUIDE (Preliminary)
(80-Column Tractor Feed Printer)

Requirement

The right and left ribbon guides should hold the ribbon shield against the adjusting gauge at the point of contact.

To Adjust

With mounting screws friction tight, push right and left ribbon guides and ribbon shield into contact with the adjusting gauge. Tighten mounting screws.



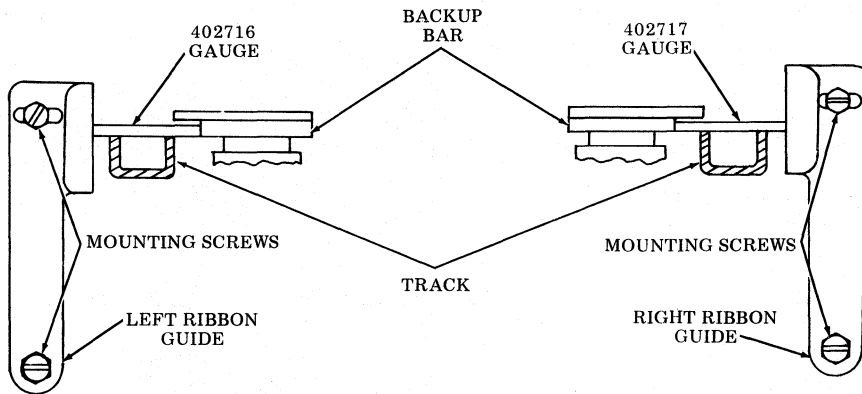
RIBBON GUIDE (Preliminary) (Cont)
(132-Column Tractor Feed Printer)

Requirement

The left and right ribbon guides should just touch the 402716 and 402717 adjusting gauges.

To Adjust

Loosen ribbon guide mounting screws friction tight. Position the 402716 and 402717 gauges against the backup bar and position the ribbon guides against the gauge surface. Tighten the ribbon guide mounting screws.

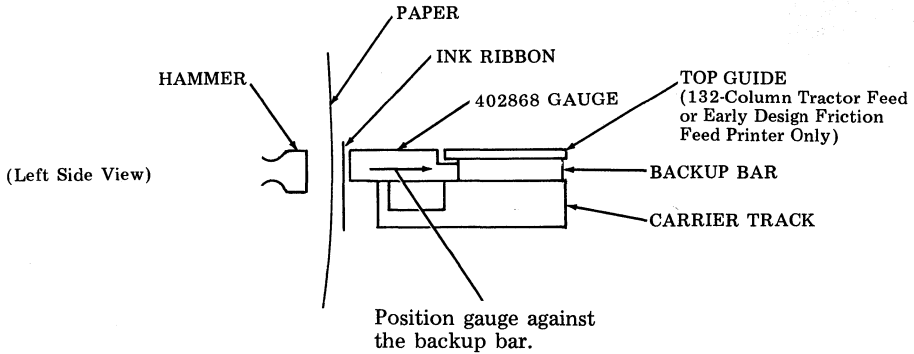


BACKUP BAR (Final—Under Power)

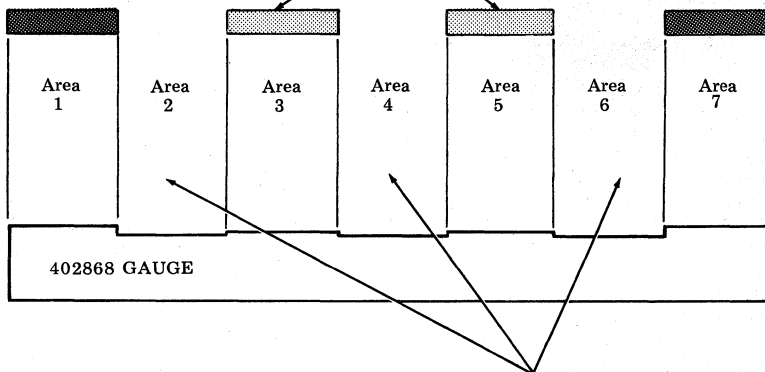
Requirement

The overall printing density shall be uniform and acceptable across the full width of the page. If the whole character is present and legible, some variation in density is allowed, provided the density variation is not consistently repeated.

Note: When the unit is properly adjusted for acceptable density, adequate ribbon life will also be achieved; however, if the printer is adjusted for darker density levels, ribbon life will be proportionately reduced.



Some evidence of printing in Areas 3 and 5.

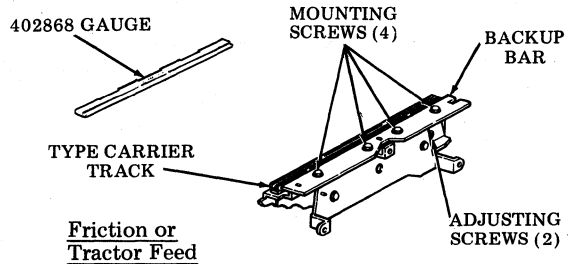


On 80-column or forms access units: No visible printing in Areas 2, 4, and 6.

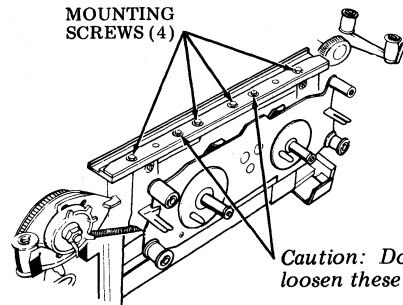
On 132-column units: No visible printing in Areas 2 and 4 with gauge positioned at left end of track or Areas 6 and 4 with gauge positioned at right end of track. Occasional light marks permissible in Areas 6 and 2 when gauge is at left and right ends, respectively.

BACKUP BAR (Final — Under Power) (Cont)To Adjust

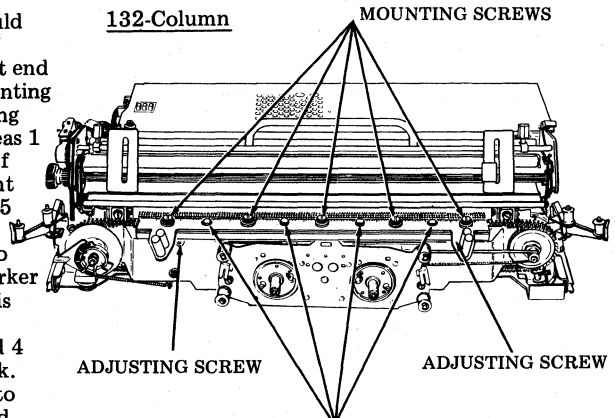
With unit turned on, hold 402868 gauge firmly against backup bar. Place printer test switch in ON position and pass a steel object over flag sensor to initiate hammer firing.



On 80-Column or Forms Access Units: Loosen four (4) mounting screws friction tight and turn two (2) adjusting screws until some printing occurs in only Areas 1 and 7. From this point turn both left and right adjusting screws clockwise until Areas 3 and 5 show evidence of some printing but not necessarily in all columns. This also applies to Areas 1 and 7 where printing will become darker but still may have blank spaces. No printing is permitted in Areas 2, 4 and 6. Tighten four (4) mounting screws.

Forms Access

On 132-Column Units: Printed pattern should be noted with gauge positioned at left end of track and again with gauge positioned at right end of track. Loosen five (5) track assembly mounting screws friction tight and turn two (2) adjusting screws until some printing occurs in only Areas 1 and 7 when gauge is positioned at each end of track. From this point turn both left and right adjusting screws clockwise until Areas 3 and 5 show evidence of some printing, but not necessarily in all columns. This also applies to Areas 1 and 7 where printing will become darker but still may have blank spaces. No printing is permitted in Areas 2 and 4 when gauge is positioned at left end of track or Areas 6 and 4 when gauge is positioned at right end of track. Due to relative length of gauge with respect to 132-column page and tolerances of associated piece parts, it is permissible to observe occasional light marks in Areas 6 and 2 when gauge is at the left and right ends, respectively. Tighten five (5) track assembly screws.



BACKUP BAR (Final -- Under Power) (Cont)**To Check**

Install the type carrier. Insert a single sheet of paper and with a random test, check the copy density for conformance to the requirement.

On units equipped with early design print hammer bumper (black), if printed copy is not satisfactory, repeat the adjustment using three (3) thicknesses of paper and recheck copy for density with the type carrier and a single sheet of paper installed. If further density is required (in isolated cases), the printer may be adjusted using two (2) or one (1) thickness of paper.

Note 1: Each time the BACKUP BAR (final) adjustment is made, the following adjustments must also be made:

LEFT AND RIGHT CARRIER SPROCKETS
RIBBON GUIDES (Final) (See Note 2.)

Note 2: On the forms access printer, the ribbon guide adjustment need not be remade unless the carrier track channel has been replaced or disassembled.

LEFT CARRIER SPROCKET (80-Column Friction, Tractor Feed, or Forms Access Printers)

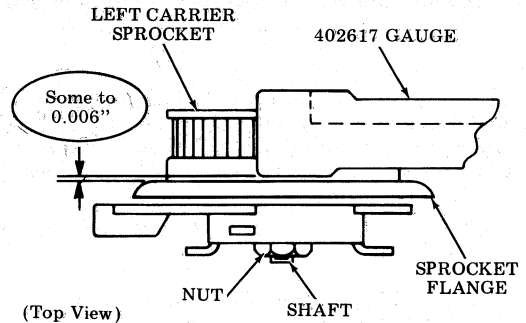
Requirement

Rear surface of sprocket flange should clear adjusting gauge by
 Min some --- Max 0.006 inch.

Install 402617 gauge. See Pages 24 or 25.

To Check

Rotate carrier release lever clockwise until rear rim of sprocket just touches bottom of gauge.
 Take up play in sprocket assembly evenly to rear of printer.



To Adjust (Tractor Feed, 40P102 and Late Design 40P101 Friction Feed, and 40P253 Forms Access)
 Position the sprocket by turning nut at front of sprocket to meet requirement.

To Adjust (Early Design 40P101 Friction Feed only)

Position sprocket by turning nut at front of sprocket to meet requirement while holding shaft with an Allen wrench.

(132-Column Printers)

Requirement

The rear surface of the sprocket flange should clear the adjusting gauge by
 Min some --- Max 0.006 inch
 at its closest point when sprocket is in its normal operating position.

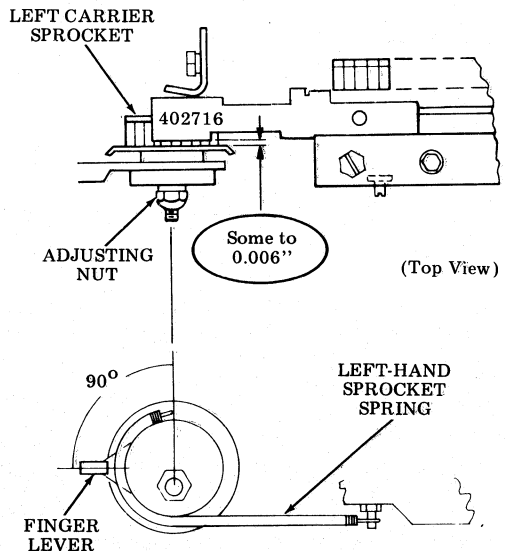
Install 402716 gauge. See Page 25.

To Check

Rotate carrier release lever clockwise until rear rim of sprocket just touches bottom of gauge.
 Take up play in sprocket assembly evenly to rear of printer.

To Adjust

Position 402716 gauge against backup bar. While holding the finger lever of sprocket hub parallel to track assembly and rotating the sprocket, turn adjusting nut clockwise until base of sprocket flange just contacts the gauge at its closest point. Turn adjusting nut back counterclockwise some to 45 degrees. This is equivalent to some to 0.004 inch.



RIGHT CARRIER SPROCKET (80-Column Friction, Tractor Feed, or Forms Access Printers)

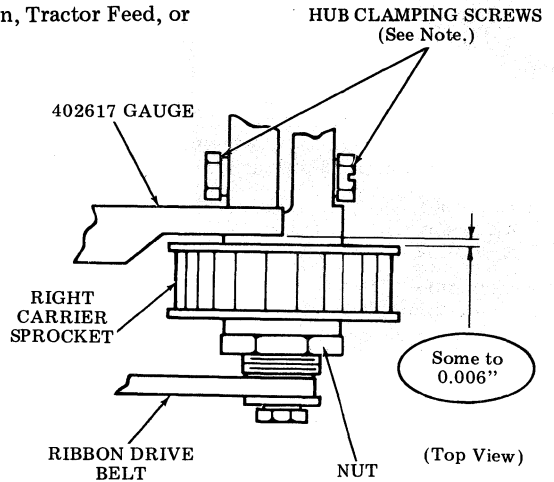
Requirement

Rear surface of sprocket should clear adjusting gauge by
 Min some --- Max 0.006 inch.

To Adjust

Loosen two hub clamping screws (or one screw and one nut if so equipped). Turn nut at front of sprocket to meet requirement. Tighten hub clamping screws (or screw and nut).

Note: Some printers have one hub clamping screw and one hub clamping nut instead of two hub clamping screws.



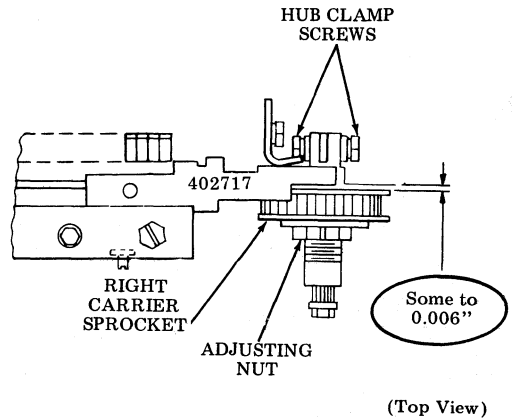
(132-Column Printers)

Requirement

The rear surface of right carrier sprocket flange should clear gauge by
 Min some --- Max 0.006 inch
 at its closest point.

To Adjust

Position 402717 gauge against backup bar. Turn adjusting nut clockwise until rear surface of sprocket flange just contacts the gauge. Turn adjusting nut back counterclockwise some to 45 degrees. This is equivalent to some to 0.004 inch. Tighten hub clamp screws securely.



RIBBON GUIDE (Final)
(Friction Feed Printer)

Requirement (1)

There should be

Min 0.010 inch clearance

between ribbon guides and the face of a flag pallet on carriers having three fonts and the face of a font identification pallet on carriers having two fonts.

To Adjust

Loosen ribbon guide mounting screws friction tight. Position guide to meet requirement. Tighten mounting screws. Repeat the procedure with the other ribbon guide.

Requirement (2)

There should be

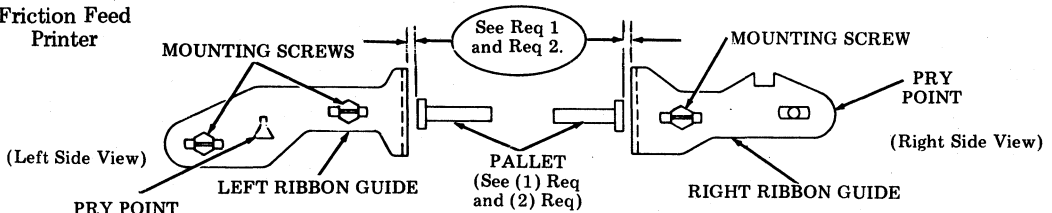
Min 0.006 inch clearance

between the ribbon guides and all pallet faces.

To Adjust

Seat pallets against the rear surface of the front flange of the left sprocket.

Friction Feed Printer



RIBBON GUIDE (Final)

(80-Column Tractor Feed Printer)

Requirement (1)

There should be

Min 0.010 inch clearance

between the ribbon shield where it contacts the ribbon guides and the face of a flag pallet on carriers having three fonts and the face of a font identification pallet on carriers having two fonts.

To Adjust

Loosen ribbon guide mounting screws friction tight. Position guide to meet requirement. Tighten mounting screws. Repeat procedure with other ribbon guide.

Requirement (2)

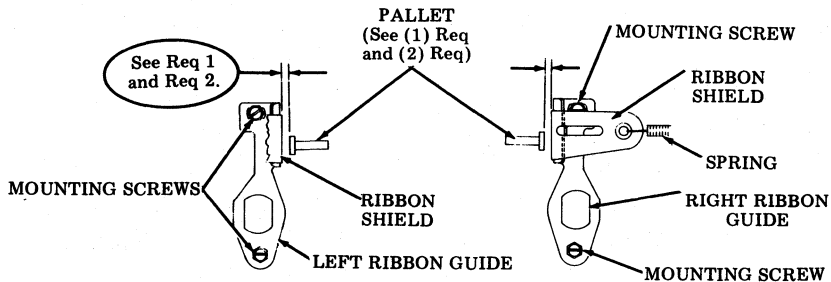
There should be

Min 0.006 inch clearance

between the ribbon shield where it contacts the ribbon guides and all pallet faces.

To Adjust

Seat pallets against rear surface of front flange of left sprocket.



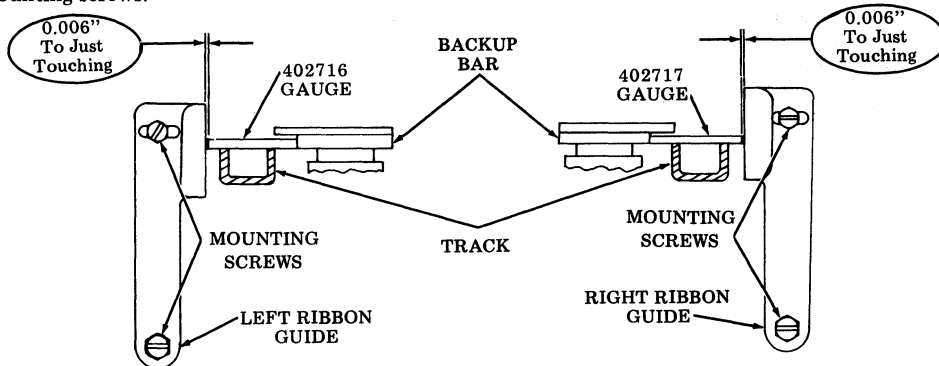
RIBBON GUIDE (Final) (Cont)
(132-Column Tractor Feed Printer)

Requirement (A)

The left and right ribbon guides should be 0.006 inch to just touching the 402716 and 402717 adjusting gauges.

To Adjust

Loosen ribbon guide mounting screws friction tight. Position the 402716 and 402717 gauges against the backup bar and position the ribbon guides against the gauge surface. Tighten the ribbon guide mounting screws.



Note: The following requirement is a final functional check to assure adequate clearance between type pallets and ribbon guides and is made with a type carrier installed. Too much clearance between pallets and ribbon guides may cause ribbon smudge on the paper, making it difficult to make the PAPER POSITIONER adjustment.

Requirement (B)

There shall be a minimum of 0.010 inch clearance between the closest pallet and the ribbon guides.

To Check

Seat all pallets against the rear surface of the front flange of the left sprocket. Position a 0.010 flat gauge against the ribbon guide and rotate the type carrier one complete revolution by turning impeller gear by hand clockwise. Repeat the procedure with the other ribbon guide.

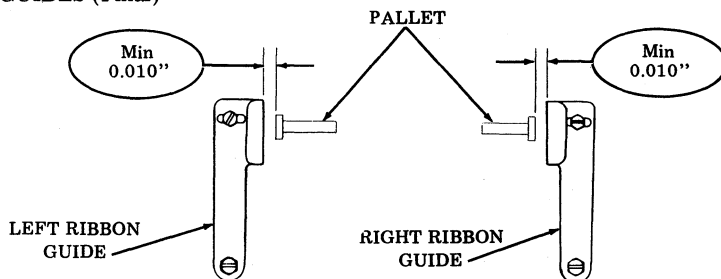
To Adjust

Recheck the following adjustments:

BACKUP BAR (Final)

LEFT AND RIGHT CARRIER SPROCKETS

RIBBON GUIDES (Final)



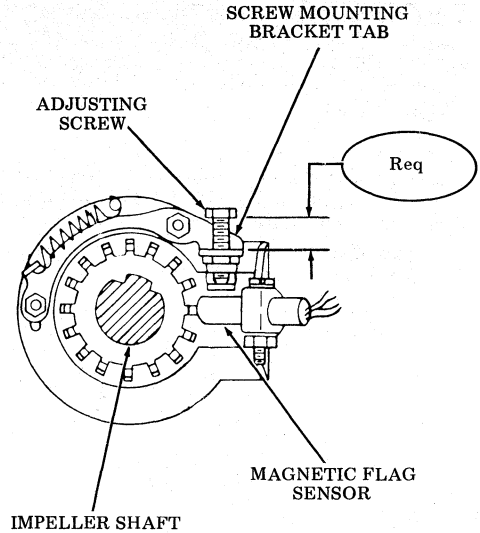
IMPELLER SHAFT SENSOR (Final – Under Power)

Requirement

The impeller sensor is to be positioned 2-3/4 clockwise turns from a point where any further counterclockwise motion of the adjusting screw would cause a column or columns not to print.

To Adjust

- Step (A) With the unit in the Test position and printing the font identification symbol, turn impeller sensor adjusting screw (with a nut driver) COUNTERCLOCKWISE through a range where all columns print (approximately 5 to 10 turns) until a column or columns does not print.
- Step (B) Slowly turn the adjusting screw CLOCKWISE just until all columns print for at least ten lines.
- Step (C) Turn the adjusting screw CLOCKWISE an additional 2-3/4 turns.



Note 1: If while performing Step (A), a printing speed hesitation occurs before an individual column fails to print, reposition the flag sensor slightly to the right to enable printing to continue while completing the adjustment. See FLAG SENSOR ADJUSTMENT (Final).

Note 2: The impeller shaft sensor is adjusted at the factory using equipment and techniques not available in the field. This adjustment should not be disturbed unless the unit has been disassembled, the printer logic card replaced, or there is sufficient reason to believe the sensor is not adjusted properly.

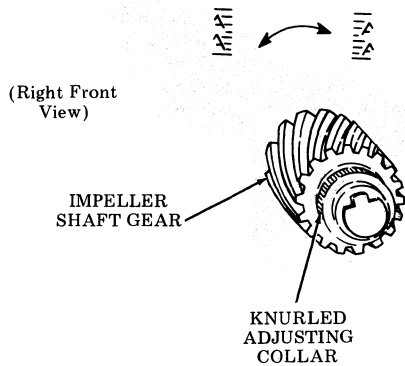
IMPELLER SHAFT TO CARRIER PHASING (Final – Under Power)

Requirement
 Printed characters must be printed fully from left to right.

To Adjust
 Print some font identification characters using test switch. Turn printer off, disconnect ac power. If right portion of character is missing, turn knurled adjusting collar clockwise while holding impeller shaft gear away from collar.

If left portion of character is missing, turn knurled adjusting collar counterclockwise while holding impeller gear away from collar. Turn ac power on and repeat test to make sure requirement is met.

When multicopies are used, phasing should be adjusted to minimize clipping on the last copy with no clipping on the original.



Tractor Feed Printer and Friction Feed Printer

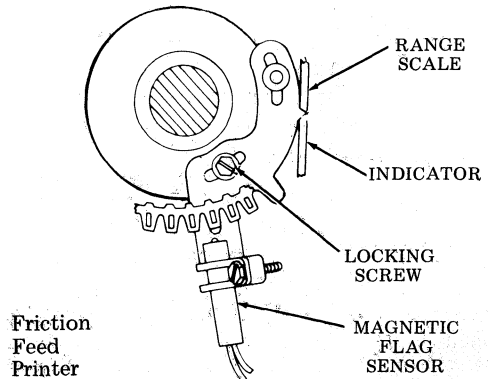
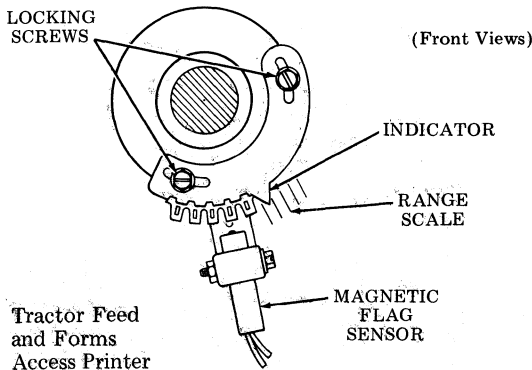
Note: If the IMPELLER SHAFT TO CARRIER PHASING adjustment is readjusted by a substantial amount, the flag sensor position may have to be readjusted. See FLAG SENSOR (Final).

FLAG SENSOR (Final -- Under Power)

Requirement
 Flag sensor must be in approximately the midpoint between failure points of its range.

To Check
 Print some font identification characters using the test switch.

To Adjust
 Loosen locking screw(s) friction tight. While printing font identification symbol, slowly move the flag sensor to the left until a different character or no character is printing. Note reading on the range scale. Slowly move the flag sensor to the right until a different character or no character is printing. Note reading on the range scale. Position the flag sensor midway between the two failure points. Turn the printer off and tighten locking screw(s).



PAPER POSITIONER (Under Power)
 (80-Column Friction, Tractor Feed, or 132-Column Tractor Feed)

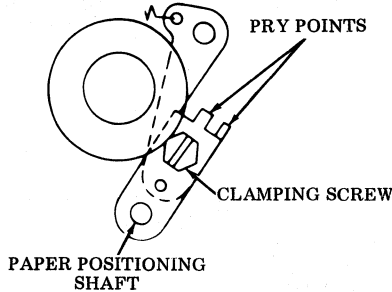
Requirement (A)

The paper should be positioned as close to ribbon as possible without causing printed copy to become illegible due to ribbon smudging after a one minute printer idle period.

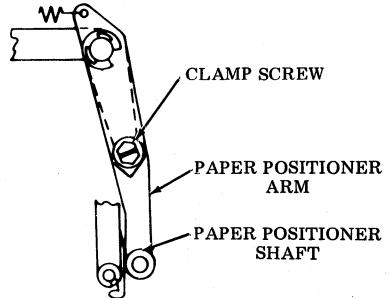
Requirement (B)

There should be no smudge when printing a text message (not the font identification symbol).

Friction Feed Printer



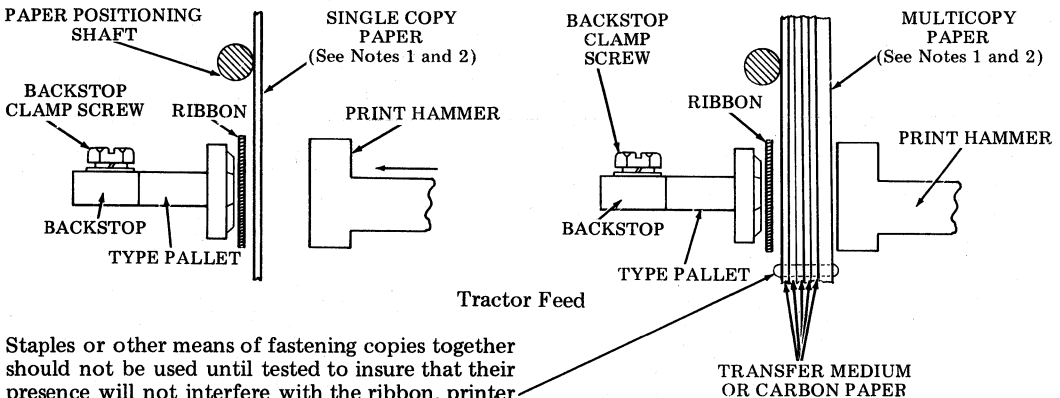
Tractor Feed Printer



Note 1: These requirements do not apply when printing within two lines of a fold of fanfold paper.

To Adjust

Loosen clamp screws on left and right paper positioner arms and adjust arms to just eliminate marking on either side of paper. Paper should remain as close as possible to ribbon without marking to minimize impact noise and vertical misalignment. Tighten clamp screws.



Staples or other means of fastening copies together should not be used until tested to insure that their presence will not interfere with the ribbon, printer hammers, or type pallets.

Note 2: Tractor Feed Printers Only — The factory final adjustment is made with a standard original plus three copies paper on the 132-column printer and with a standard original plus five copies paper on 80-column printer. Upon installation a refinement of this adjustment may be necessary dictated by the actual paper weight and number of copies being used.

PALLET TO RIBBON-PAPER SHIELD CLEARANCE
 (Forms Access Printer)

Requirement

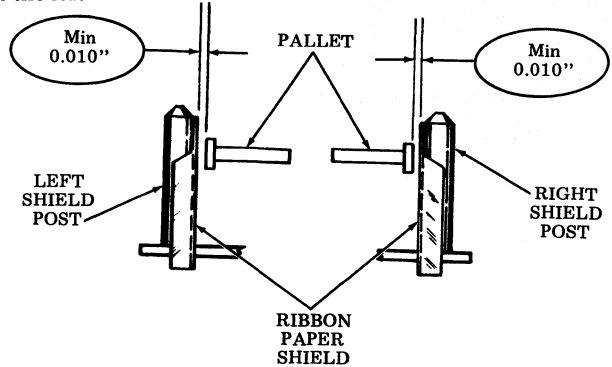
With the type carrier installed and rotated a minimum of two revolutions, there should be a minimum of 0.006 inch clearance between all pallet faces and the ribbon-paper shield when measured at the left and right shield posts.

To Check

Position a 0.006 flat gauge against the ribbon-paper shield at the shield post and rotate the type carrier one complete revolution by turning impeller gear by hand clockwise. Repeat the procedure at the other shield post.

To Adjust

Check that all pallets are seated per **TYPE CARRIER PALLET ALIGNMENT**. Recheck the following adjustments:
RIBBON GUIDE
LEFT CARRIER SPROCKET
RIGHT CARRIER SPROCKET



TEAR BAR (Preliminary)
 (40P253 Forms Access Printer)

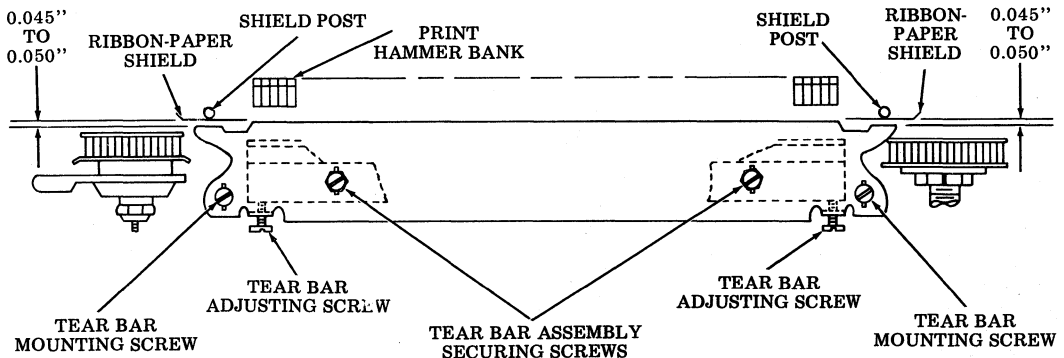
Requirement

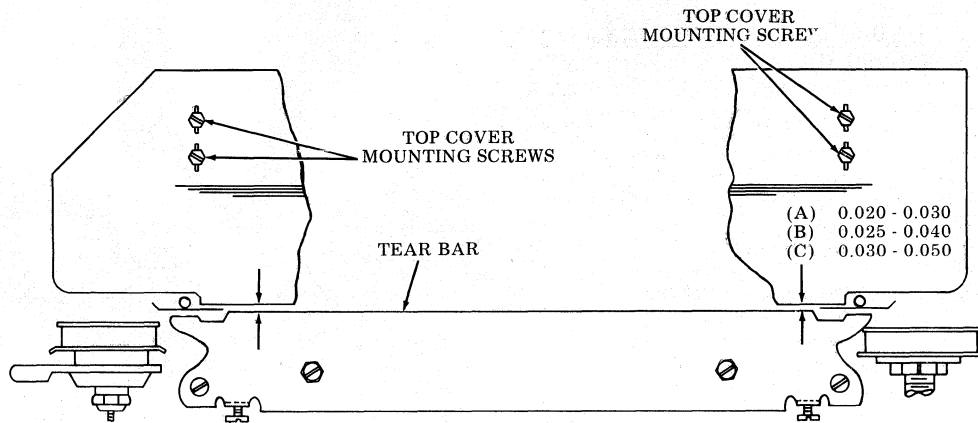
There should be a gap of
 Min 0.045 inch --- Max 0.050 inch
 between ribbon paper shield and tear bar.

To Adjust

The tear bar mounting screws (2) and tear bar assembly securing screws (2) should be friction tight and the tear bar adjusting screws turned counterclockwise to make the measured gap less than the requirement. Turn tear bar adjusting screws clockwise until a 0.045 inch gauge just passes freely. Tighten four mounting screws.

Note: If the printer is utilized in a ribbonless application, the gap between the ribbon paper shield and tear bar should be Min 0.075 inch --- Max 0.080 inch and the adjustment is considered final.





Note: Tear bar adjusting screws should not be disturbed. See **TEAR BAR AND TOP COVER (Final)** adjustment.

TOP COVER (Preliminary)
(Forms Access Printer)

Requirement

The gap requirement between the top cover and tear bar is determined by the thickness of the forms stock used, as follows:

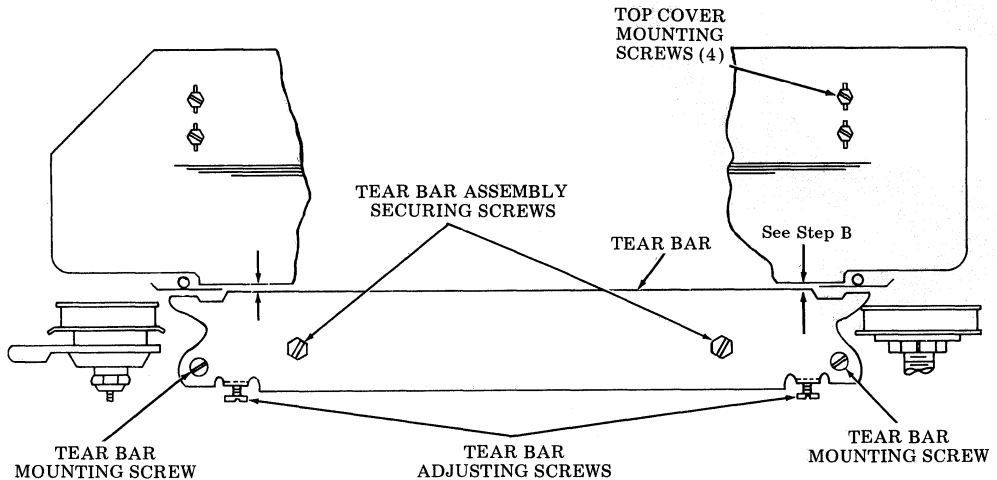
- (A) If form thickness is 0.005 inch to 0.010 inch, gap should be
Min 0.020 inch --- Max 0.030 inch
- (B) If form thickness is 0.010 inch to 0.018 inch, gap should be
Min 0.025 inch --- Max 0.040 inch
- (C) If form thickness is 0.018 inch to 0.025 inch, gap should be
Min 0.030 inch --- Max 0.050 inch

To Adjust

With the top cover mounting screws (4) friction tight, position the top cover to meet required gap (per form thickness used) when measured near ends of tear bar. Tighten the top cover mounting screws and recheck gap.

Note 1: Printer is factory adjusted to meet Requirement (A).

Note 2: If the printer is utilized in a ribbonless application, this adjustment is considered final.



TEAR BAR AND TOP COVER (Final)
(Forms Access)

Requirement

The printed character in a line of copy should not become illegible due to ink being deposited on the paper when printer is running idle for one minute.

To Adjust

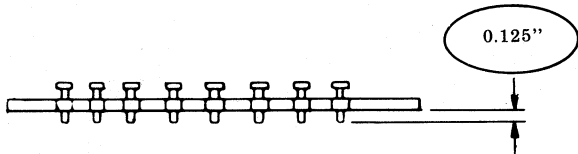
- Step (A)** With printer power off, loosen tear bar mounting screws (2) and tear bar assembly securing screws (2). Reduce the gap between tear bar and top cover by turning adjusting screws counterclockwise in increments of 1/6 turn (one flat of hex), but not more than three, while applying finger pressure on tear bar to reduce gap. Tighten the tear bar assembly securing screws (2) after each increment and recheck requirement. When requirement is met, tighten tear bar mounting screws (2).
- Step (B)** Reposition the top cover to provide applicable top cover to tear bar gap, dependent on thickness of forms stock used. See **TOP COVER (Preliminary)** requirement. Tighten the top cover mounting screws (4) and recheck gap.

Note: When refinement of these adjustments is required, some increase in audible noise and a lessening of print density may occur.

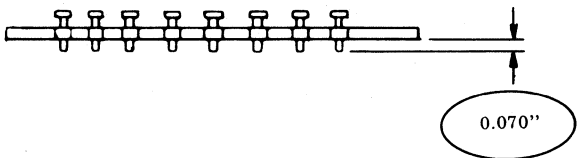
TYPE CARRIER PALLET ALIGNMENT

Requirement

The pallet location in the carrier shall be
0.125 inch -- 80-column printer
0.070 inch -- 132-column printer
from the stem end to the rear surface of the carrier.



80-Column Printer



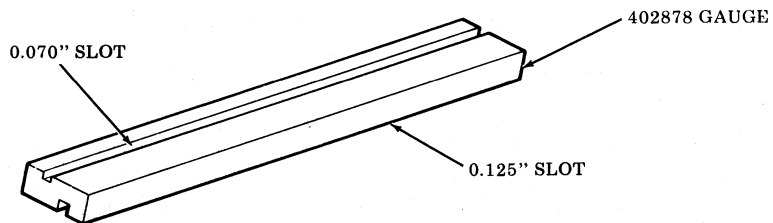
132-Column Printer

To Adjust

Move all pallets from position No. 1 to position No. 2.



Place type carrier into proper slot on the 402878 gauge. Seat all pallets into bottom of channel.



FORM-OUT CONTACT GAP (Preliminary) (Tractor Feed and Forms Access Printers)**Requirement**

With form-out contacts fully open, gap between contacts should be
Min 0.020 inch --- Max 0.030 inch.

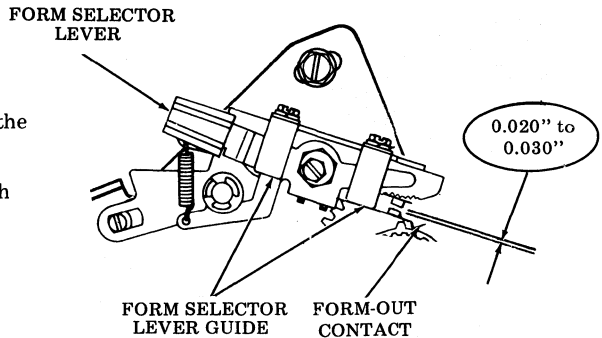
To Check

Depress the form selector lever.

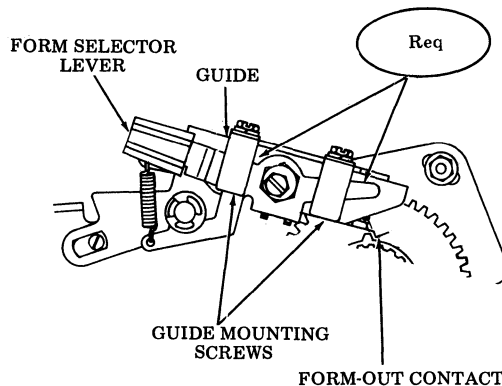
To Adjust

Form contact spring to meet requirement.

Note: This contact is manufactured within the requirement and will remain so unless one or both contact springs have been deformed. If adjustment is required, adjust the spring which shows sign of such deformation.

FORM SELECTOR LEVER GUIDE (Tractor Feed and Forms Access Printers)**Requirement**

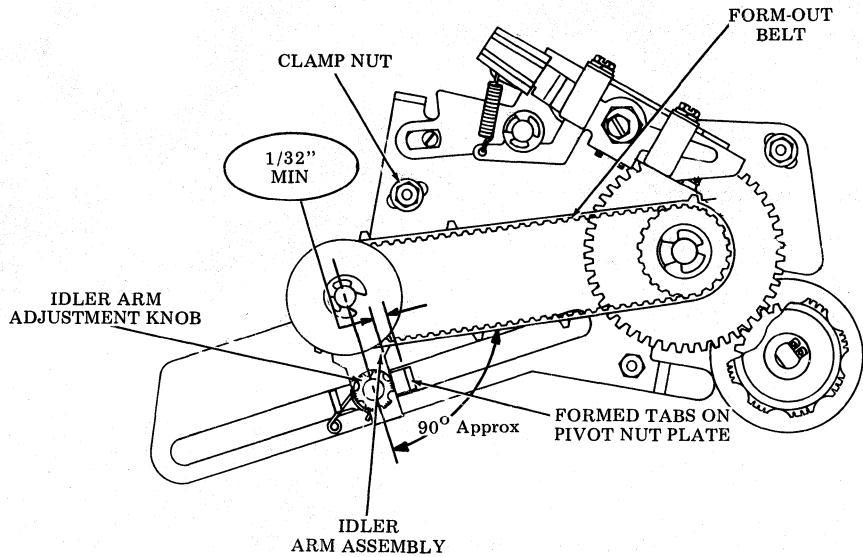
There should be up to 0.005 inch clearance between guide and form selector lever and selector lever must operate freely.

**To Check**

Form selector biased toward contact housing and selector lever operated through its entire range of motion.

To Adjust

Loosen the guide mounting screw friction tight and position guide to meet requirement. Tighten mounting screws.



FORM-OUT BELT IDLER ARM (Tractor Feed and Forms Access Printers)

- Position form-out belt against respective sprocket flanges.

Requirement (A)

The centerline of the idler arm assembly should be positioned approximately 90 degrees to the flat (straight portion between sprockets) of the belt.

Requirement (B)

There should be a minimum of 1/32 inch between the right edge of the idler arm assembly and the formed tab on the pivot nut plate.

To Adjust

Loosen idler arm adjustment knob friction tight. With belt engaged in both sprockets and against the flanges of each sprocket, move the adjusting nut along elongated slot until requirements are met. Tighten knob.

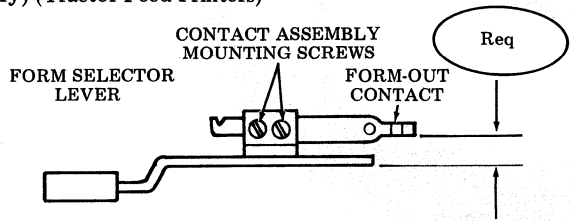
Note: With the 402850 white belt it may not be possible to meet requirement (A) because of length of slot. The requirement will be considered met when the nut has been positioned against the left end of slot.

FORM-OUT CONTACT LATERAL (Preliminary) (Tractor Feed Printers)
(Early Design Only)

Requirement

Form-out contact assembly should be positioned on form selector lever such that the form-out contact tip is

Min 0.215 inch --- Max 0.231 inch
from outside surface of the form selector lever.



To Adjust

Loosen two contact assembly mounting screws and position contact to meet requirement. Tighten mounting screws.

Note 1: This adjustment must be made before form selector lever is assembled to contact housing bracket.

Note 2: Factory Adjusted — Should not normally require adjustment unless contact assembly has been removed.

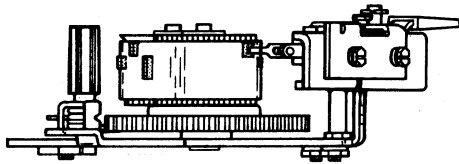
FORM-OUT CONTACT LATERAL (Final) (Tractor Feed and Forms Access Printers)
(Early Design and Late Design)

Requirement (A)

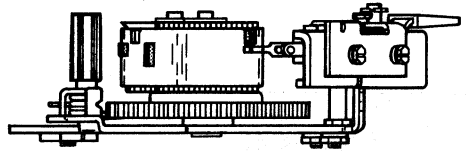
The contact should be centered (as gauged by eye) on the short cam lobes.

Requirement (B)

The form-out contact must not touch the adjacent cam lobes when in positions 3 and 4.



Req A



Req B

To Check (A)

With the form-out belt positioned against the flange of the form-out drive gear and in position No. 4.

To Check (B)

Rotate form-out gear.

To Adjust (Early Design)

Disassemble and refine FORM-OUT CONTACT LATERAL (Preliminary).

To Adjust (Late Design)

Loosen the two contact assembly mounting screws and position contact to meet requirements. Tighten mounting screws.

Late Design
(Screw Accessibility)



FORM-OUT GEAR BACKLASH (Tractor Feed and Forms Access Printers)

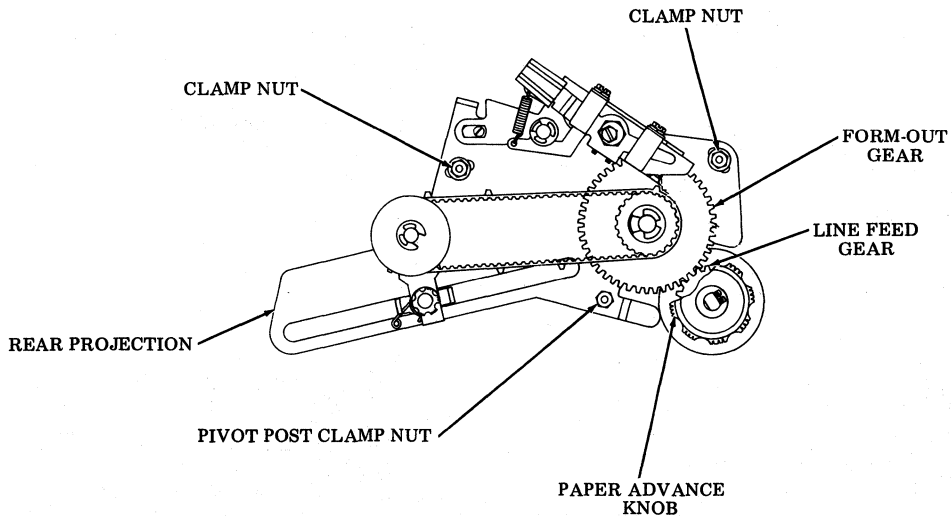
Requirement

There should be a barely perceptible backlash between the form-out gear and line feed gear, checked at three positions of the form-out gear approximately 120 degrees apart. (While holding paper advance knob stationary, rotate form-out gear.)

Note: Disengage feed pawls to check form-out gear 120 degrees apart.

To Adjust

With clamp nuts friction tight (3 places), move form-out mechanism by its rear projection to meet requirement. Tighten clamp nuts.

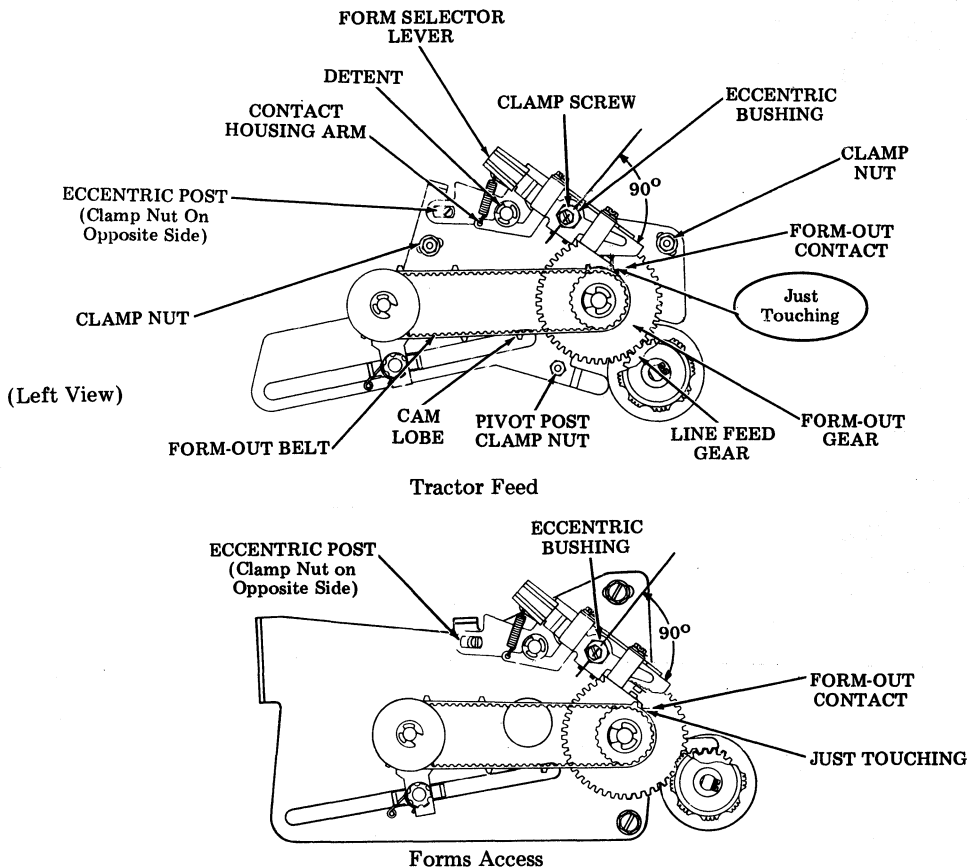


FORM-OUT CONTACT TO BELT SPACING (Preliminary) (Tractor Feed and Forms Access Printers)**Requirement**

The high side of the eccentric bushing shall be positioned approximately 90 degrees to the form-out contact arm as shown.

To Adjust

Loosen the eccentric bushing clamp screw and position the eccentric to meet requirement.

**Requirement**

With the form selector lever seated in the No. 4 position detent groove, the form-out contact shall be just touching the form-out belt.

To Adjust

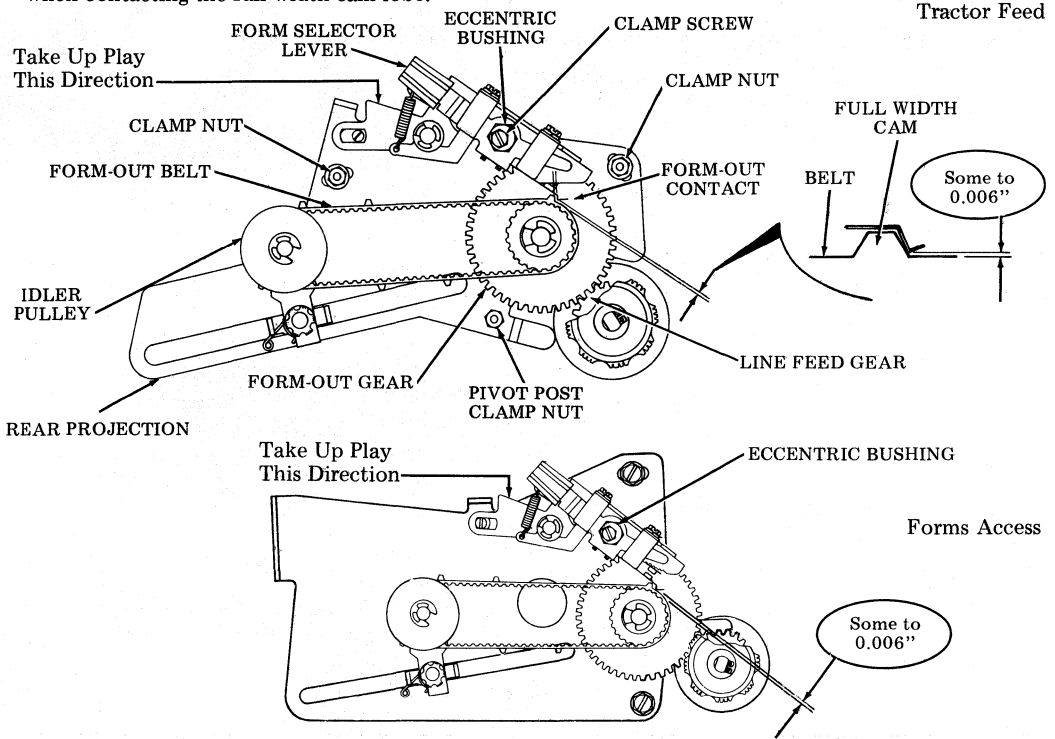
Loosen the eccentric post clamp nut friction tight and position the eccentric post to meet requirement.

Note: Keep eccentric post toward right side of slot.

FORM-OUT CONTACT TO BELT SPACING (Final) (Tractor Feed and Forms Access Printers)

Requirement (A)

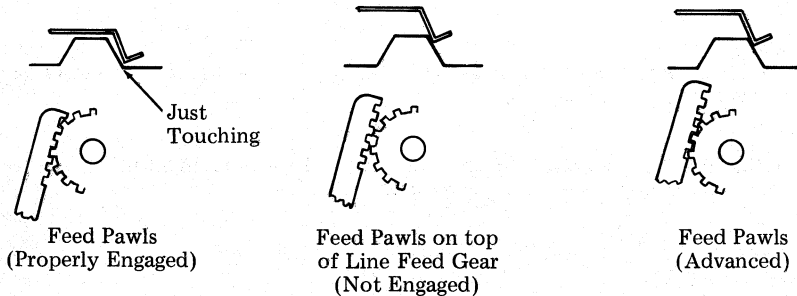
The contact shall have started to rise off the surface of the belt by
 Min some --- Max 0.006 inch
 when contacting the full width cam lobe.



To Check

- Latch the line feed clutch.
- Position form selector lever in the fourth detent position.
- Move line feed pawls out of engagement with line feed gear.
- Rotate paper advance knob until the slope part of the contact just touches the long cam.
- Reengage line feed pawls. (See examples below.)
- Reengage paper advance knob.

Examples



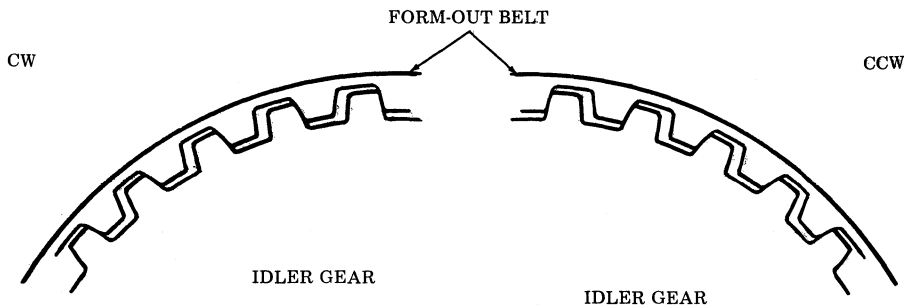
FORM-OUT CONTACT TO BELT SPACING (Final) (Tractor Feed and Forms Access Printers) (Cont)

To Check (Cont)

The some to 0.006 inch clearance adjustment will be considered met when the following conditions are present:

When the form-out belt idler pulley is rotated CCW with a force sufficient to take up the form-out gear and the form-out belt teeth to pulley backlash and then released, the contact tip touches the surface of the belt.

When the form-out belt idler pulley is rotated CW with a force sufficient to take up the form-out gear and the form-out belt teeth to pulley backlash and then released, the contact tip is raised off the surface of the belt by the form-out cam.



To Adjust

With eccentric bushing clamp screw friction tight, rotate eccentric bushing to position form-out contact left or right to meet Requirement (A). Tighten Eccentric bushing clamp screw.

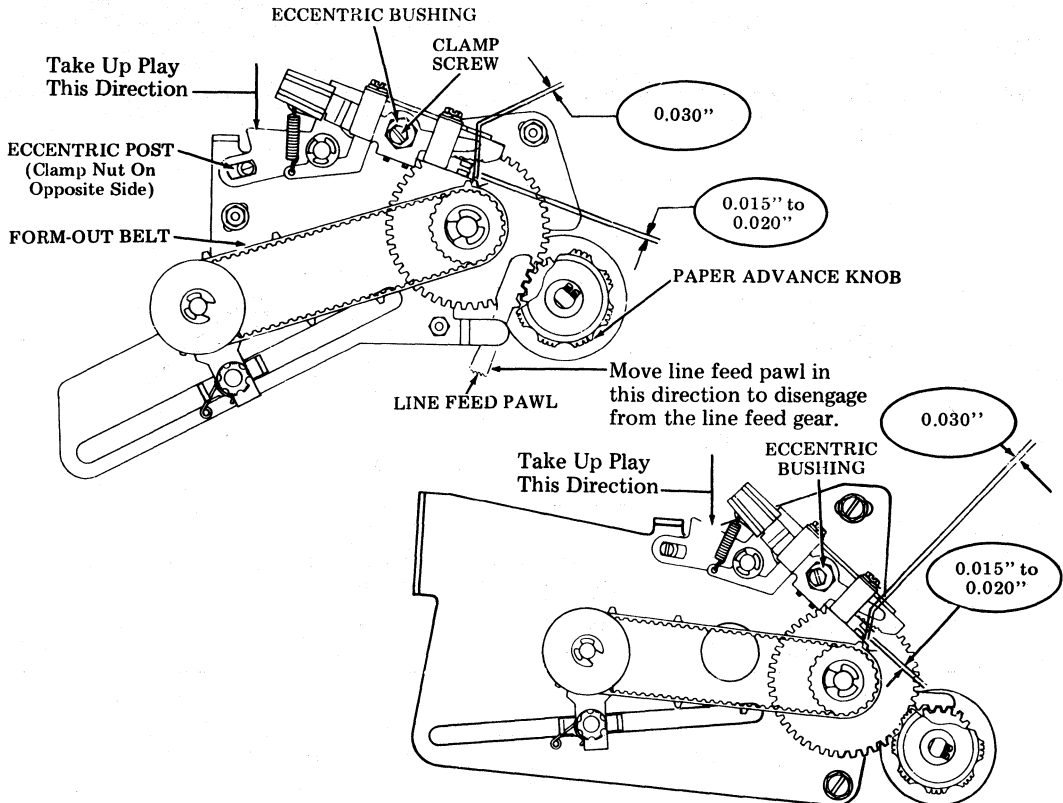
Note: Perform form-out contact phasing Requirement (C). This step must be performed to properly phase the form-out mechanism.

FORM-OUT CONTACT TO BELT SPACING (Final) (Tractor Feed and Forms Access Printers) (Cont)**Requirement (B)**

The contact point gap shall be

Min 0.015 inch --- Max 0.020 inch

with the contact touching the form-out belt surface at a point the equivalent of 1/2 line feed space on the belt to the right of the full cam lobe, approximately 0.030 inch.

**To Check**

Move the line feed pawls out of engagement with the line feed gear and rotate paper advance knob to position form-out belt wide cam lobe approximately 0.030 inch to left of form-out contact "V", as gauged by eye.

To Adjust

Loosen the eccentric post clamp nut friction tight. Using very light pressure take up the play of the contact housing against eccentric post and rotate the eccentric post to move contact up or down to meet Requirement (B). Keep eccentric post toward the right side of slot. Tighten eccentric post clamp nut.

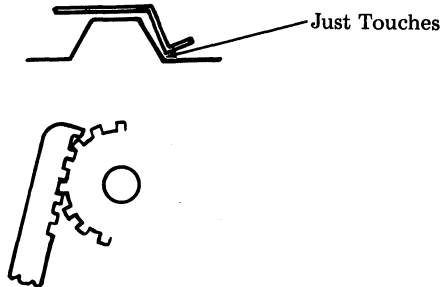
Note 1: Perform form-out contact phasing Requirement (C). This step must be performed to properly phase the form-out mechanism.

Note 2: If at any time the line feed gear is rotated with the line feed pawls disengaged, as when replacing the line feed, form-out or paper handling assemblies, the form-out mechanism must be properly phased (Note 1).

FORM-OUT CONTACT TO BELT SPACING (Final) — Tractor Feed and Forms Access Printers (Cont)**Requirement (C) (Form-Out Contact Phasing)**

“V” part of contacts should be positioned in center of long cam as gauged by eye.

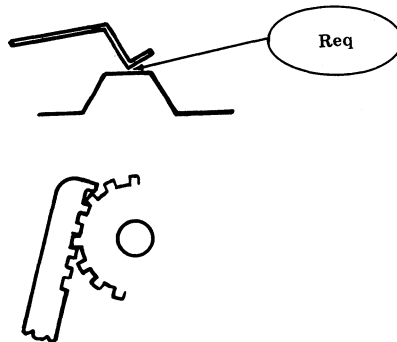
- Latch the line feed clutch.
- Position form selector lever in the fourth detent position.
- Move feed pawls out of engagement with the line feed gear.
- Rotate paper advance knob until the slope part of the contact just touches the long cam.



- Reengage the line feed pawls.
- Reengage paper advance knob.

To Check

- (1) Manually energize line feed magnet.
- (2) Rotate line feed clutch.
- (3) Latch line feed clutch.



To Adjust, Recheck Form-Out Contact to Belt Spacing (Final) Requirements (A) and (B).

TRACTOR PHASING (Tractor Feed and Forms Access Printers)

Requirement

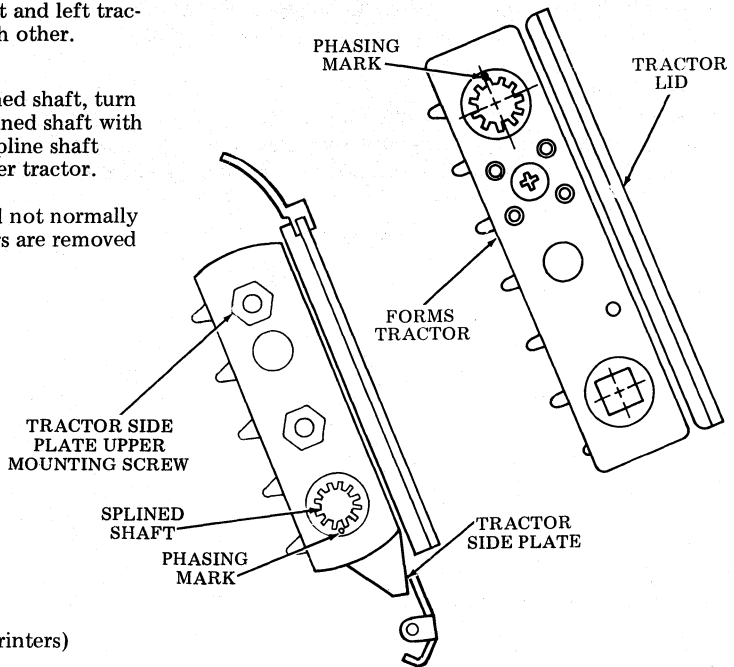
The phasing marks on the right and left tractors should be in line with each other.

To Adjust

Remove left tractor from splined shaft, turn tractor, and reassemble on splined shaft with its phasing mark at the same spline shaft groove as phasing mark of other tractor.

Note: Factory adjusted; should not normally require adjustment unless tractors are removed or replaced.

Forms Access Printer



Tractor Feed Printer

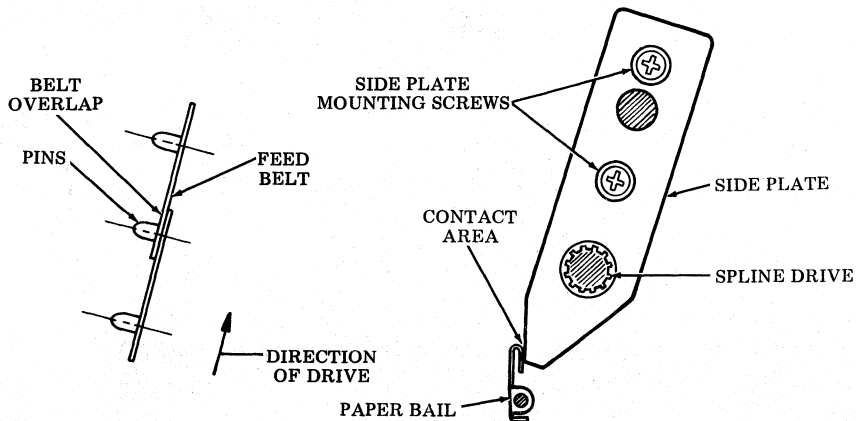
TRACTOR LID (Tractor Feed Printers)

Requirement

The upper paper guide should contact the side plate of both right and left tractors.

To Adjust

Loosen tractor side plate upper mounting screws friction tight. Position left-hand tractor side plate approximately in the center of its adjustment range and tighten its mounting screws. Position right-hand tractor side plate to meet requirement. Tighten right-hand tractor mounting screw.

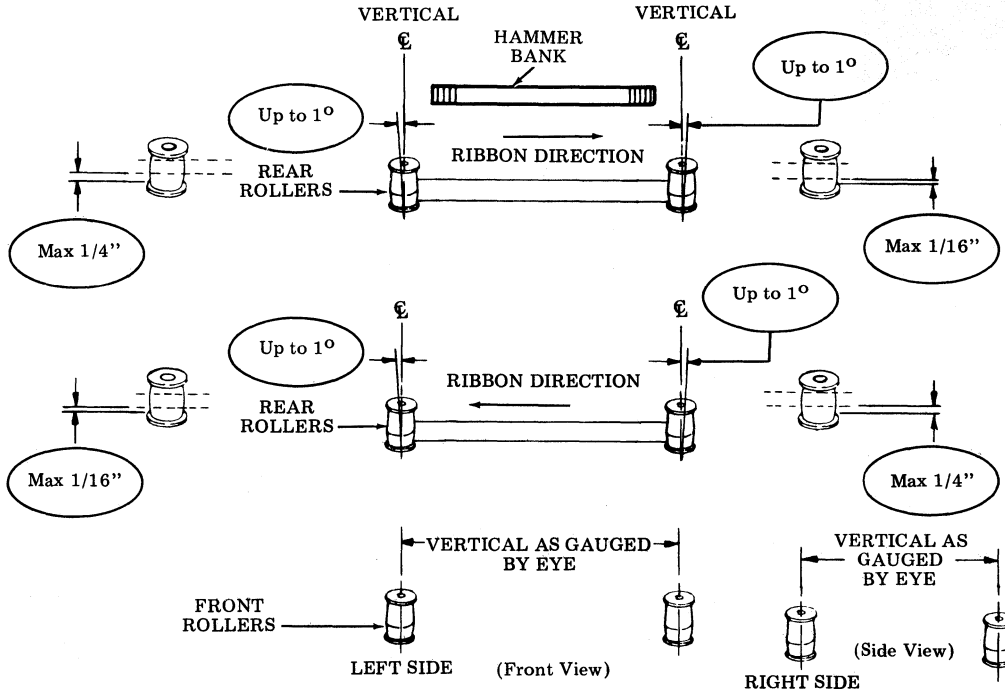


RIBBON TRACKING (For Tractor Feed Printers equipped with new ribbon tracking parts but not equipped with reinker mechanism)

Note: This adjustment does not apply to 40P253 Forms Access Printer.

Requirement

If a new ribbon does not track as described, the roller posts should be checked for squareness. The posts carrying the front roller must be vertical (in reference to the ribbon guide top plate) as gauged by eye. The posts carrying the rear rollers must be vertical in the front to rear direction and the right roller should lean towards the right by a slight amount (less than 1°) and the left roller should lean towards the left by a slight amount (less than 1°).



To Check

Using a new ribbon and with unit running, check position of ribbon on the rear rollers of the right and left ribbon guide arms as follows:

If ribbon is being wound on the right-hand spool, the ribbon should ride against lower flange of the right roller; however, it should not ride either so low as to cause a permanent curl to form in the ribbon or higher than $1/16$ inch above the lower flange. For left roller, the ribbon should ride with no curl to $1/4$ inch above lower flange.

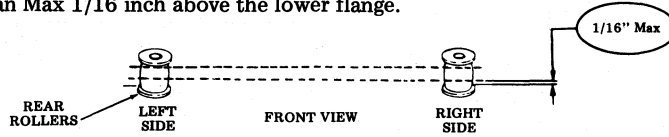
If ribbon is being wound on the left-hand spool, the ribbon should ride against lower flange of the left roller; however, it should not ride either so low as to cause a permanent curl to form in the ribbon or, higher than $1/16$ inch above lower flange. For right roller, the ribbon should ride with no curl to $1/4$ inch above lower flange.

If rollers do not meet requirement or ribbon is not tracking properly, the vertical alignment of the roller posts may be refined. To lower ribbon track, increase the amount the rear rollers lean outwards (the right roller to the right and the left roller to the left). To raise ribbon track, do the opposite. Caution must be used not to overadjust. A $1/4$ -inch spin-tight socket wrench will slip over roller post and can be used for adjusting.

RIBBON TRACKING (For 80- or 132-Column Tractor Feed Printers equipped with reinker mechanism and for 40P253 Forms Access Printer)

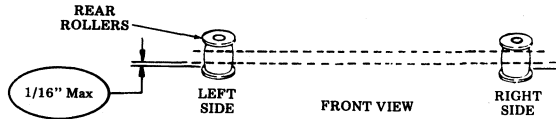
Requirement

With the ribbon tracking in its lowest position on the right hand roller, ribbon moving in either direction, the ribbon should not ride so low as to cause a curl to form on the lower flange of the roller or any higher than Max 1/16 inch above the lower flange.



Requirement

With the ribbon tracking in its lowest position on the left hand roller, ribbon moving in either direction, the ribbon should not ride so low as to cause a curl to form on the lower flange of the roller or any higher than Max 1/16 inch above the lower flange.

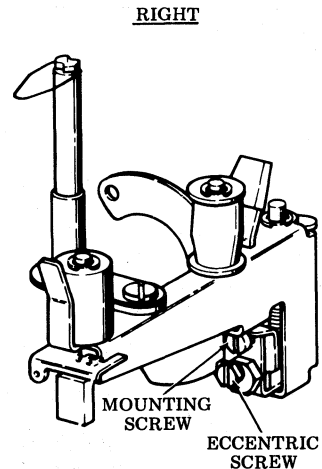
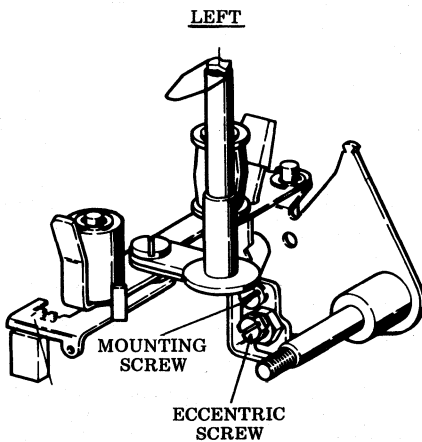


To Check

Using a new ribbon and the unit running, check the position of the ribbon on the rear rollers of the right and left ribbon guide arms as the ribbon moves towards the right and then as it moves towards the left. See that the ribbon is tracking properly in both directions; if not, refine the adjustment. Tighten the right and left adjusting bracket mounting screws and eccentric clamp screws.

To Adjust

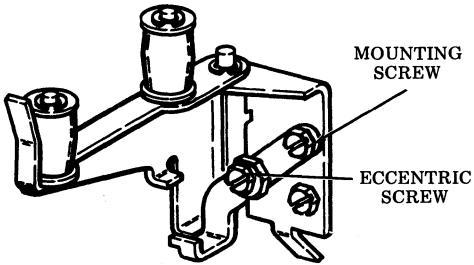
If the new ribbon does not track per this requirement, loosen the right and left adjusting bracket mounting screws and eccentric clamp screws. If the ribbon is tracking high on the right hand roller, rotate the high point on the eccentric toward the left. If it is tracking low, move the high point on the eccentric towards the right. If the ribbon is tracking high on the left hand roller, rotate the high point on the eccentric towards the right. If it is tracking low, move the high point on the eccentric towards the left.



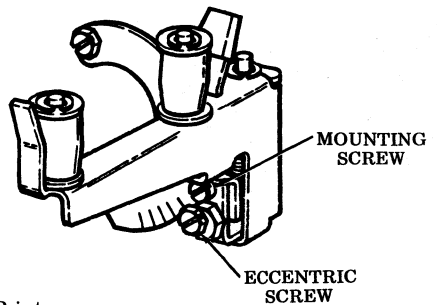
Printer With Reinker Mechanism

RIBBON TRACKING (For 80- or 132-Column Tractor Feed Printers equipped with reinker mechanism and for 40P253 Forms Access Printer) (Cont)

LEFT

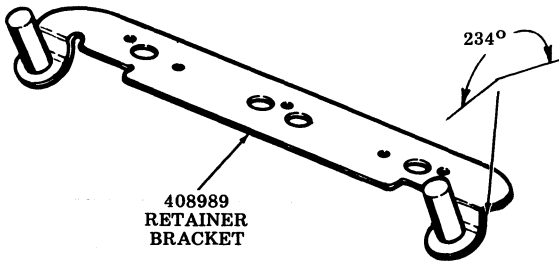


RIGHT

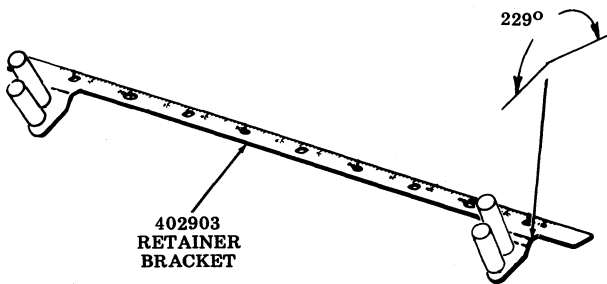
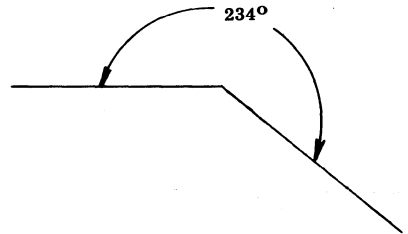


40P253 Forms Access Printer

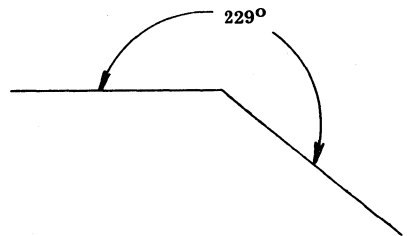
Note: On units equipped with reinker mechanism, if the ribbon cannot be made to track properly, check and see that the posts on the ribbon feed mechanism are square and that the retainer bracket (408989 on 80-column or 402903 on 132-column) has the correct angle for the guide posts. The correct angle between the top surface of the bracket and the top surface of the two ears, used to mount the ribbon guide posts, should be approximately 234 degrees on 80-column printer or 229 degrees on 132-column printer.



80-Column Printer



132-Column Printer



POWER SUPPLY VOLTAGE

Requirement

Voltage reading should be -24 V dc \pm 1%.

Tractor Feed Printers

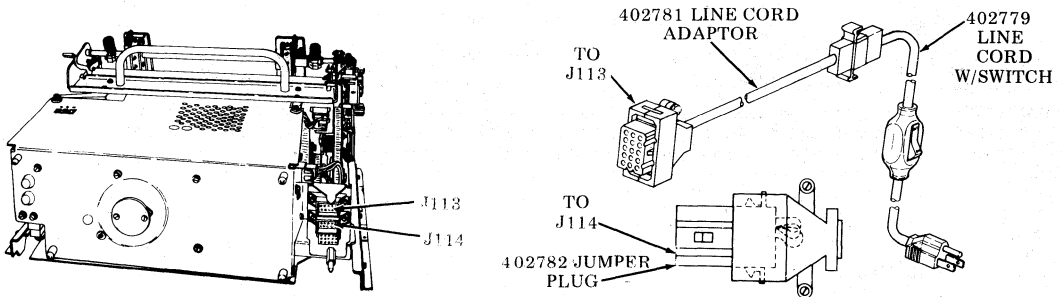
CABLE AND PLUG CONNECTIONS

Remove printer logic circuit card.

Plug the 402779 line cord with switch into the 402781 line cord adaptor. Plug the 402781 adaptor into J113 connector, the top rack and panel connector located on the left rear side of the printer.

With the switch on the 402779 line cord in the OFF position, plug the line cord into a three-prong grounded power source.

Plug the 402782 jumper plug into J114 connector, located immediately below J113 on the left rear side of the printer.



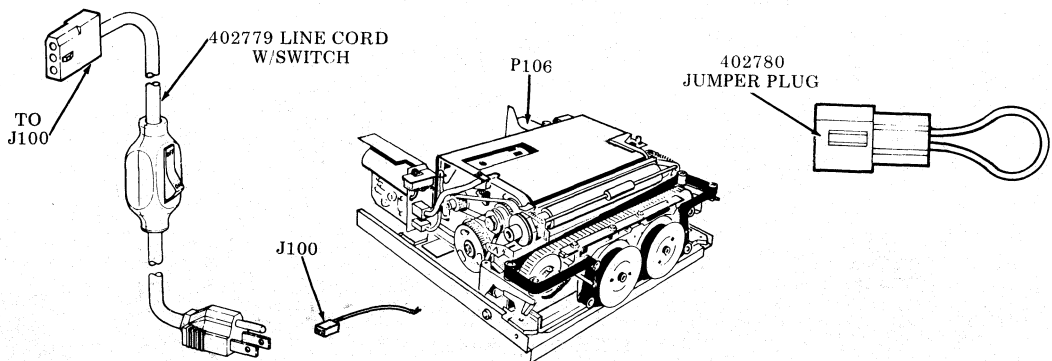
Friction Feed Printers

CABLE AND PLUG CONNECTIONS

Remove printer logic circuit card.

Plug the 402779 line cord with switch into the ac power connector (3-pin connector), J100, located at the left rear side of the printer. Verify that the switch is in the OFF position. Plug the other end of the 402779 line cord with switch into a three-prong grounded power source.

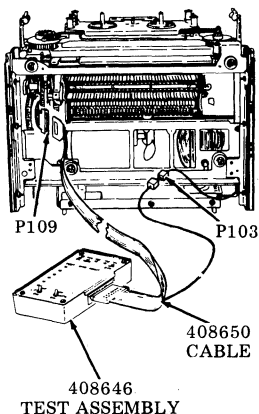
Plug the 402780 jumper plug into P106 located at the right rear top side of the printer.



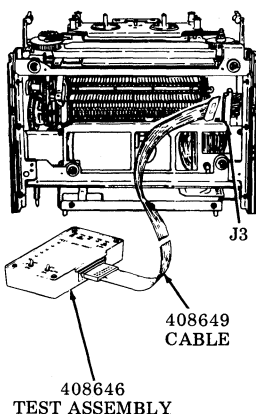
POWER SUPPLY VOLTAGE (Cont)

Connect applicable test cable (shown below) to the 408646 test assembly.

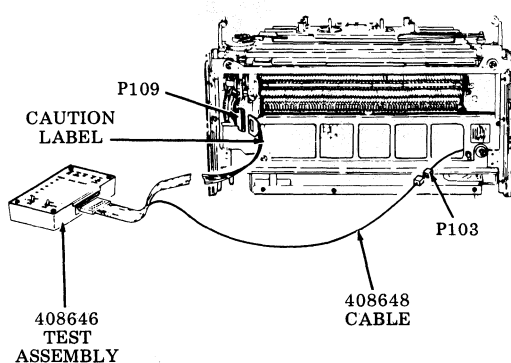
40P154 and 40P253
80-Column Tractor Feed



Friction and 40P151
and 40P153 Tractor
Feed 80-Column



Tractor Feed
132-Column



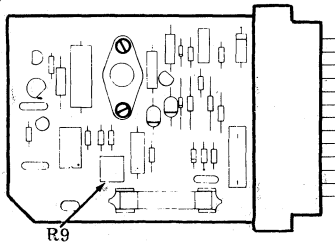
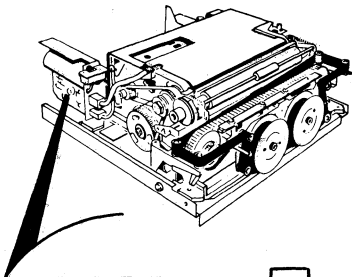
Caution: Observe caution label on 408648, 408649, or 408650 when connecting plug.

To Check

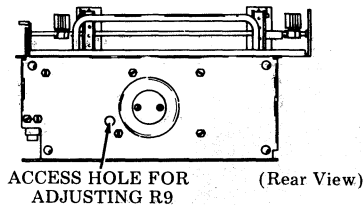
With a volt-ohmmeter, check -24 V dc $\pm 1\%$ between TP1 and TP3 on the 408646 test assembly. Operate 402779 line cord with switch to ON.

To Adjust

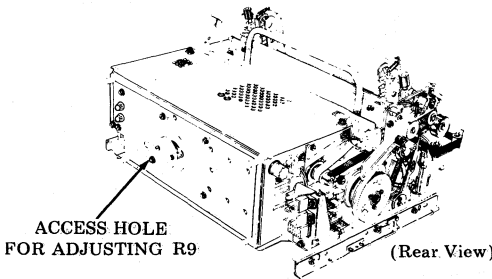
If voltage is outside the required limits, adjust R9 resistor on voltage regulator circuit card.



80-Column Friction Feed



80-Column Tractor Feed

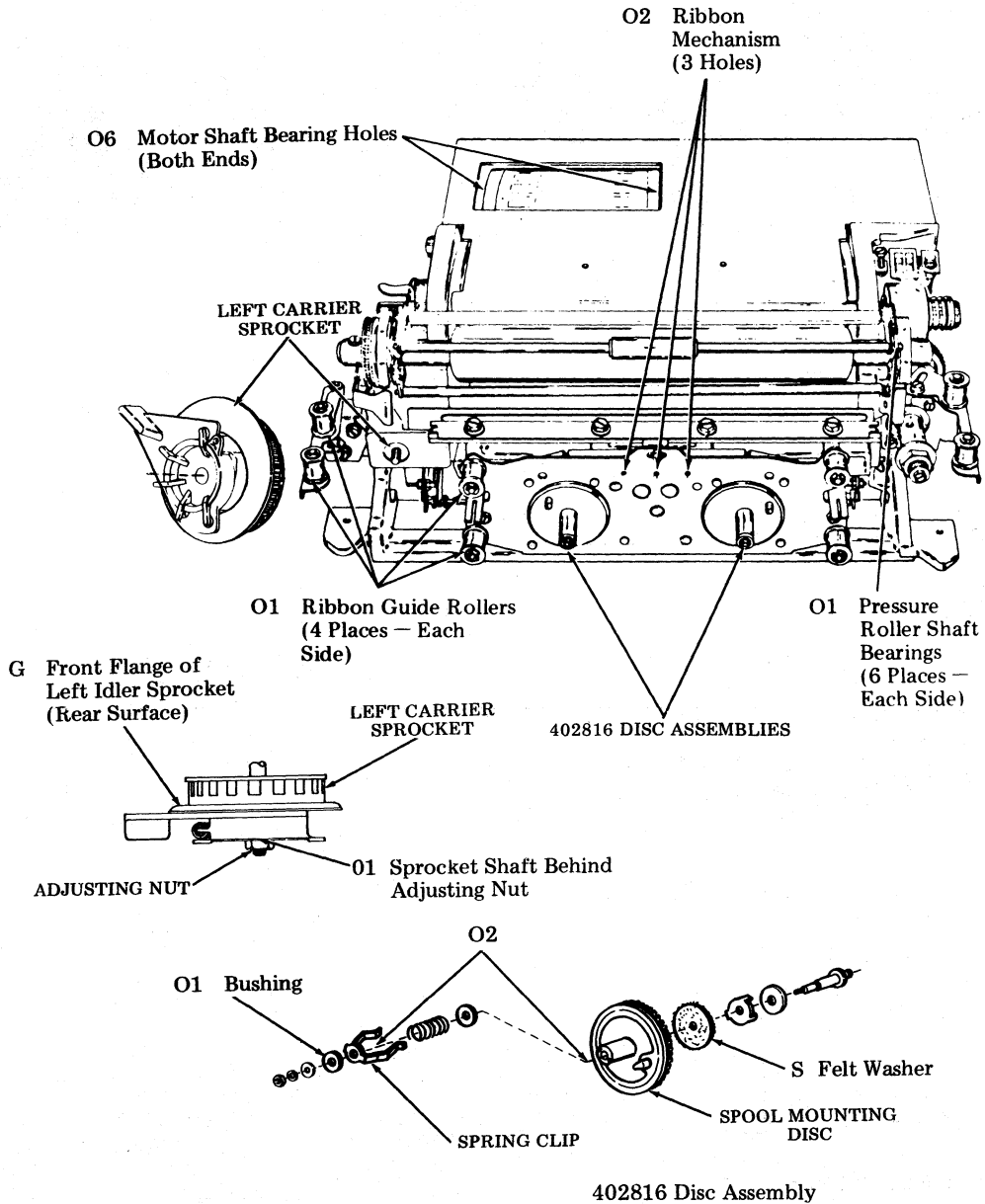


132-Column Tractor Feed

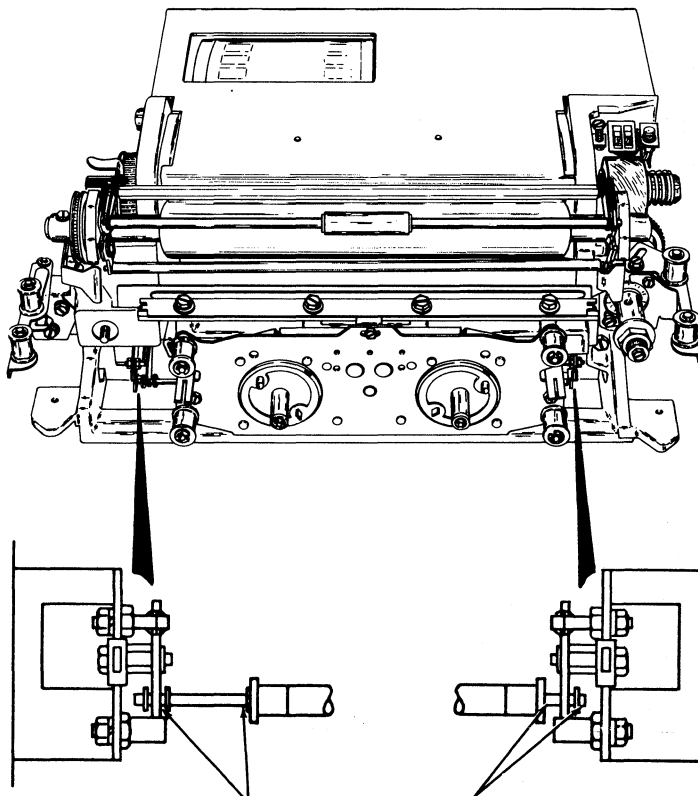
3. LUBRICATION

3.01 Friction Feed Printers

LUBRICATION — FRONT AND TOP

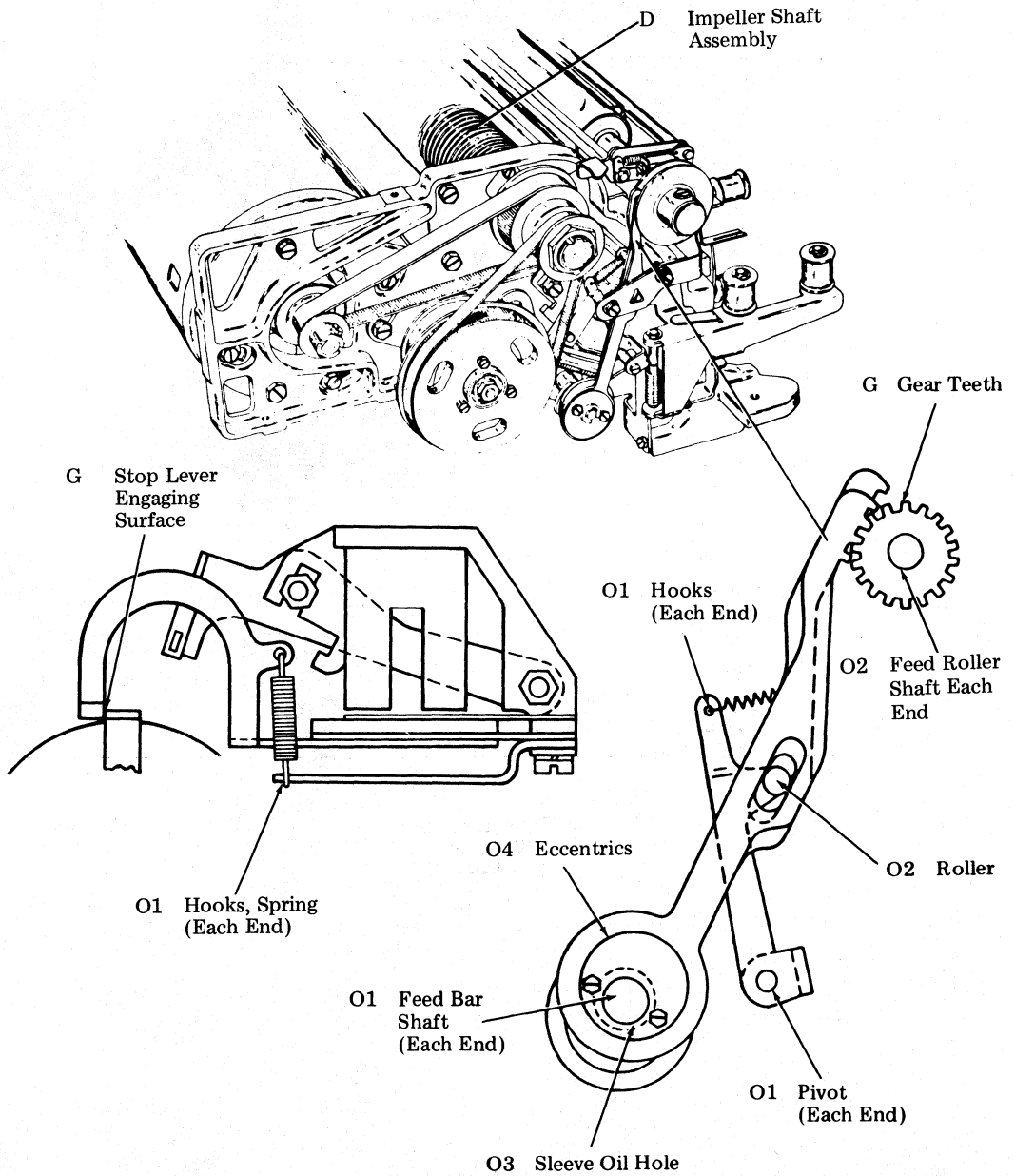


LUBRICATION -- FRONT.

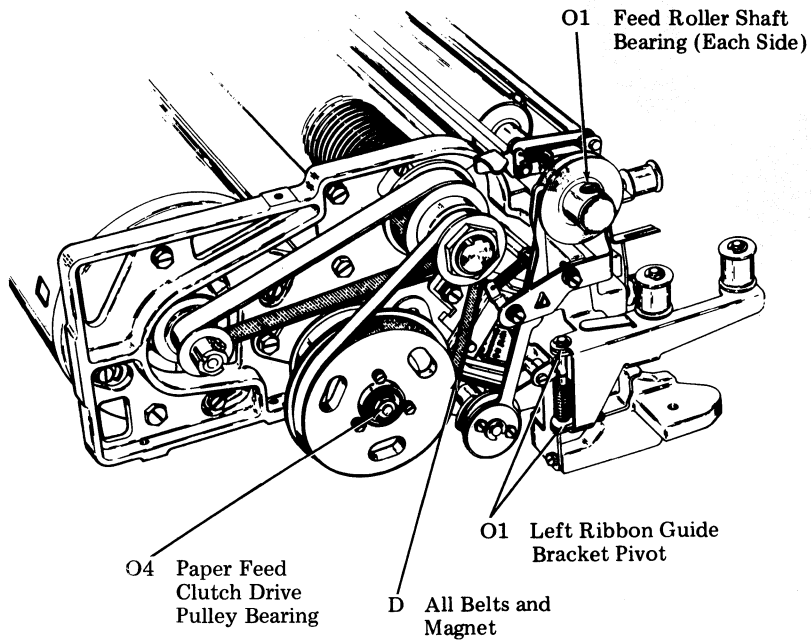


01 Paper Tensioner
Roller Bearings
and Pivots

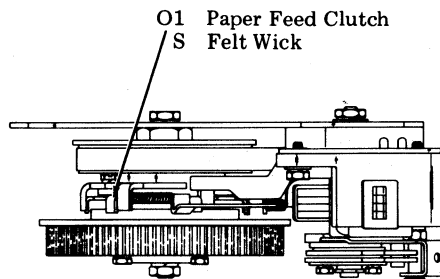
LUBRICATION — LEFT SIDE



LUBRICATION — LEFT SIDE (Cont)



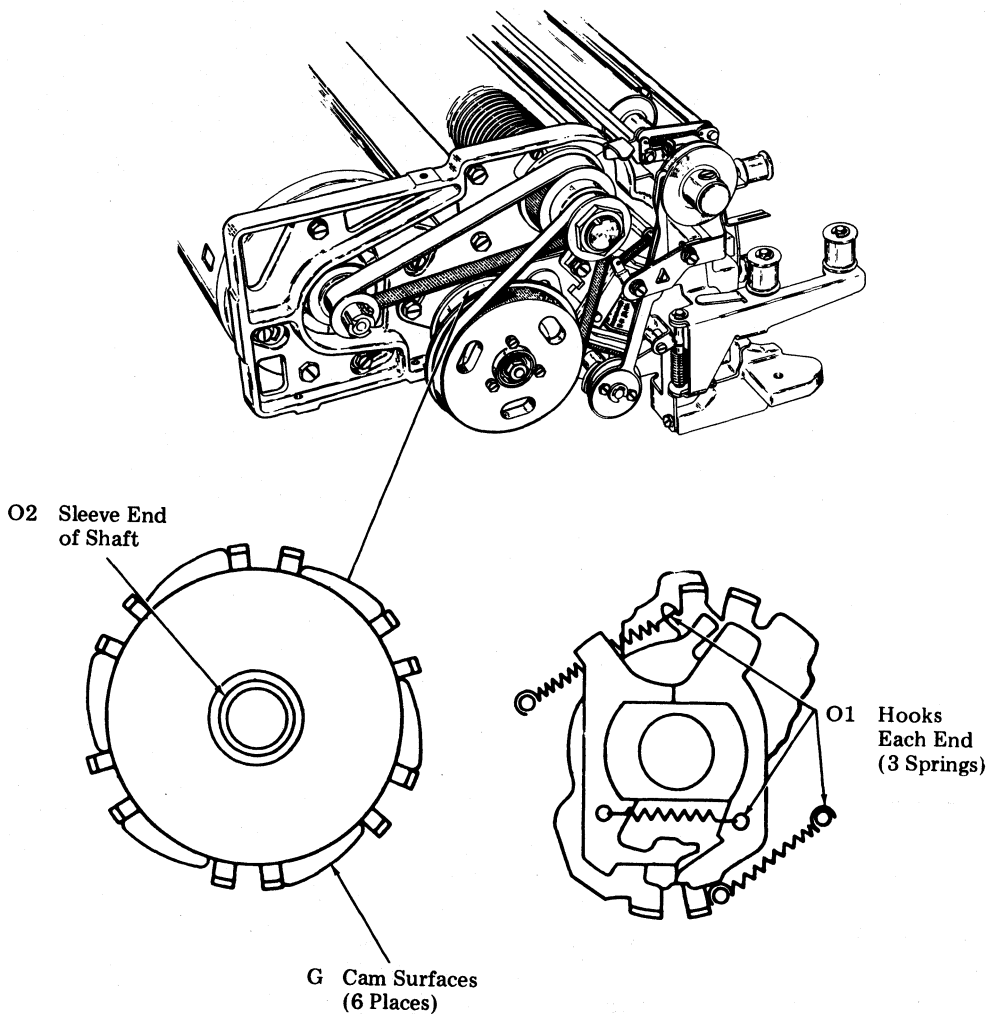
Caution: Do not overlubricate paper feed clutch and pulley bearing. Overlubrication of these parts will cause oil to be thrown on the circuit card.



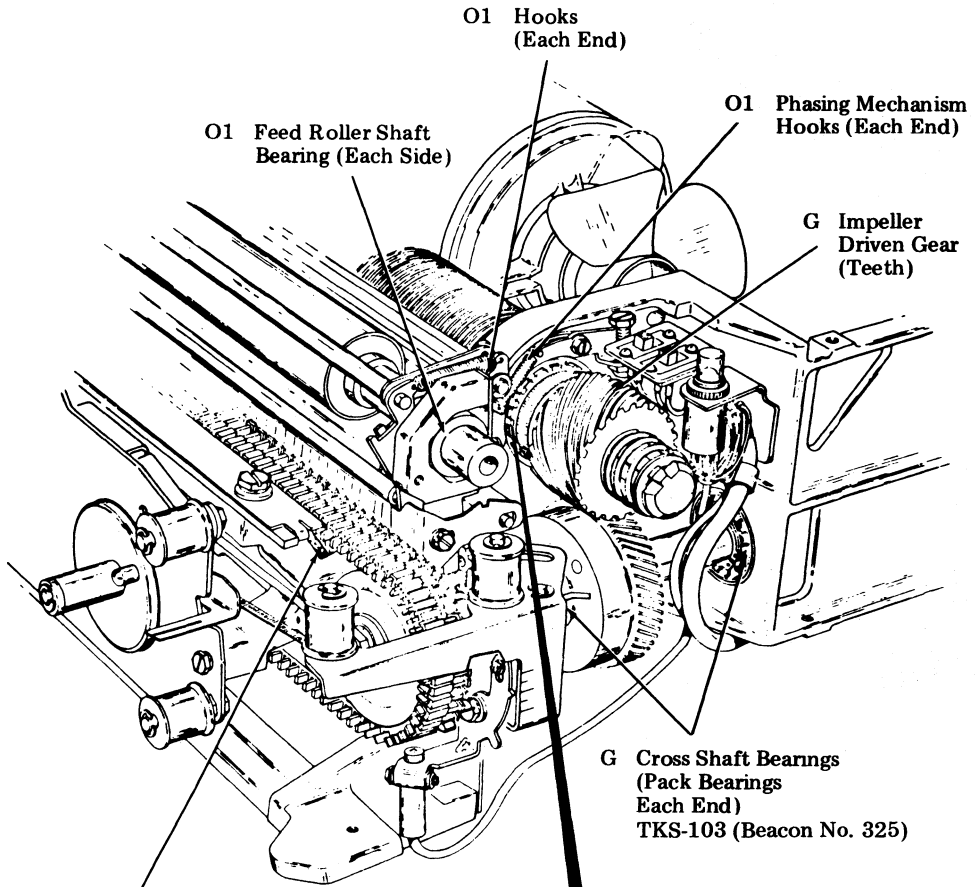
(Top View)

LUBRICATION — LEFT SIDE (Cont)

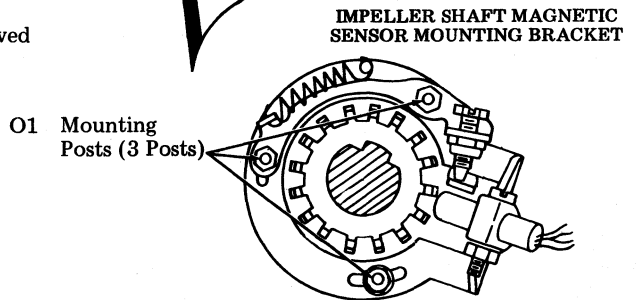
Note: Lubrication for these parts is done at the time of disassembly or extensive overhaul, refer to Section 582-210-702.



LUBRICATION -- RIGHT SIDE



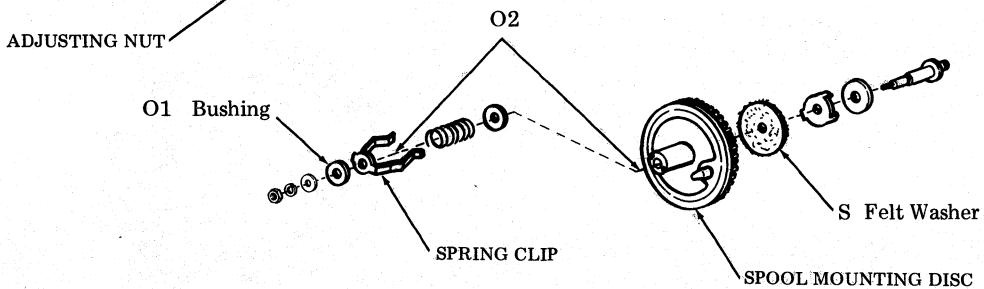
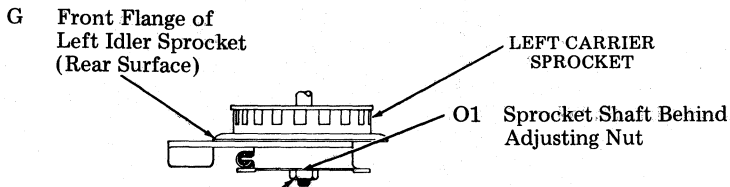
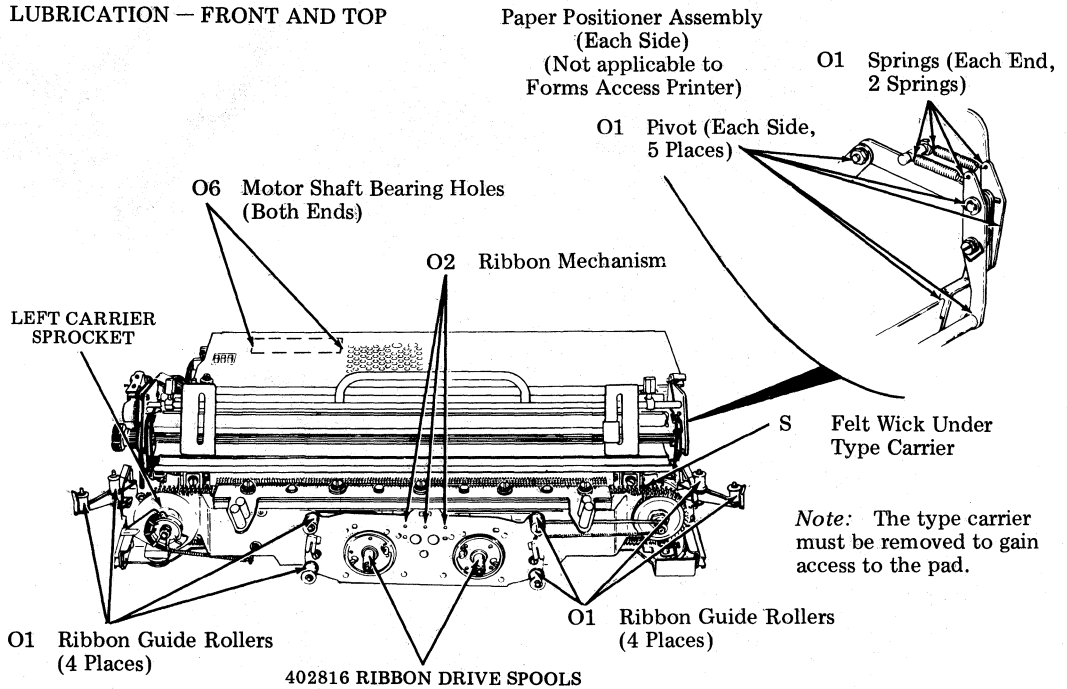
Note: The type carrier must be removed to gain access to the wick.



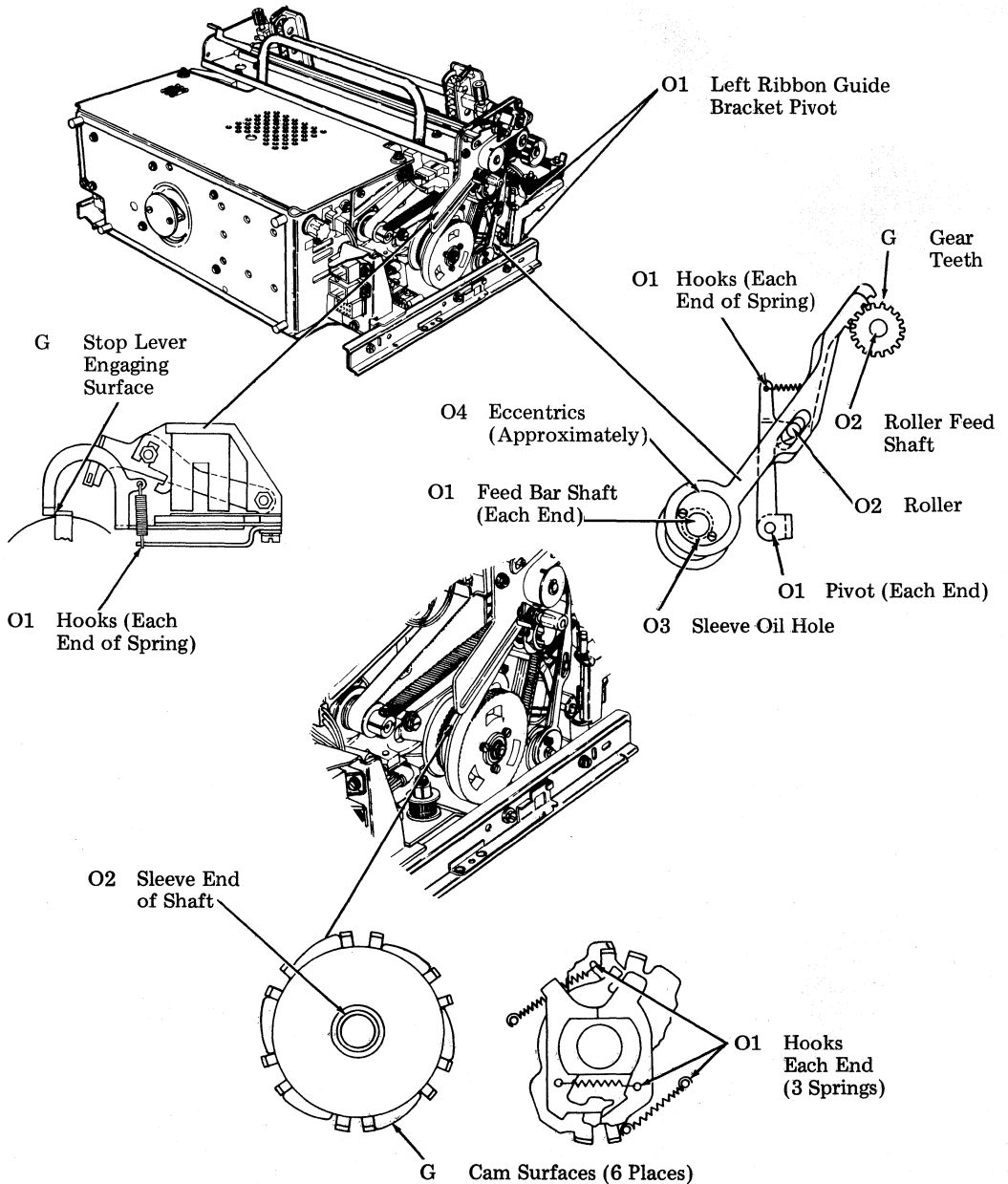
3.02 Tractor Feed Printers (80- or 132-Column or Forms Access)

Note: Lubrication points for 80- or 132-Column or Forms Access Tractor Feed Printer are the same unless otherwise specified.

LUBRICATION — FRONT AND TOP

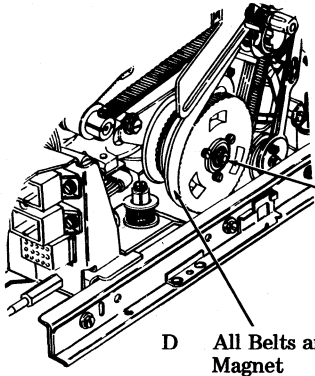


LUBRICATION — LEFT SIDE OF PRINTER



Note: Lubrication for these parts is done at the time of disassembly or extensive overhaul, refer to Section 582-210-702.

LUBRICATION — LEFT SIDE OF PRINTER (Cont)

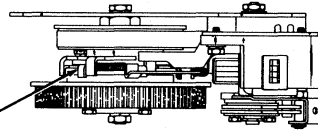


O4 Paper Feed Clutch Drive Pulley Bearing

D All Belts and Magnet

Caution: Do not overlubricate paper feed clutch and pulley bearing. Overlubrication of these parts will cause oil to be thrown on the circuit card.

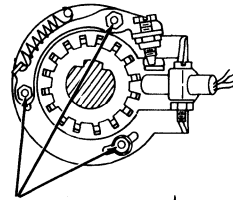
(Top View)



O1 Paper Feed Clutch
S Felt Wick

LUBRICATION — RIGHT SIDE OF PRINTER

Impeller Shaft Magnetic Sensor Mounting Bracket



D Impeller Shaft Assembly

O1 Mounting Posts (3 Posts)

O1 Phasing Mechanism Hooks (Each End)

G Impeller Driven Gear Teeth

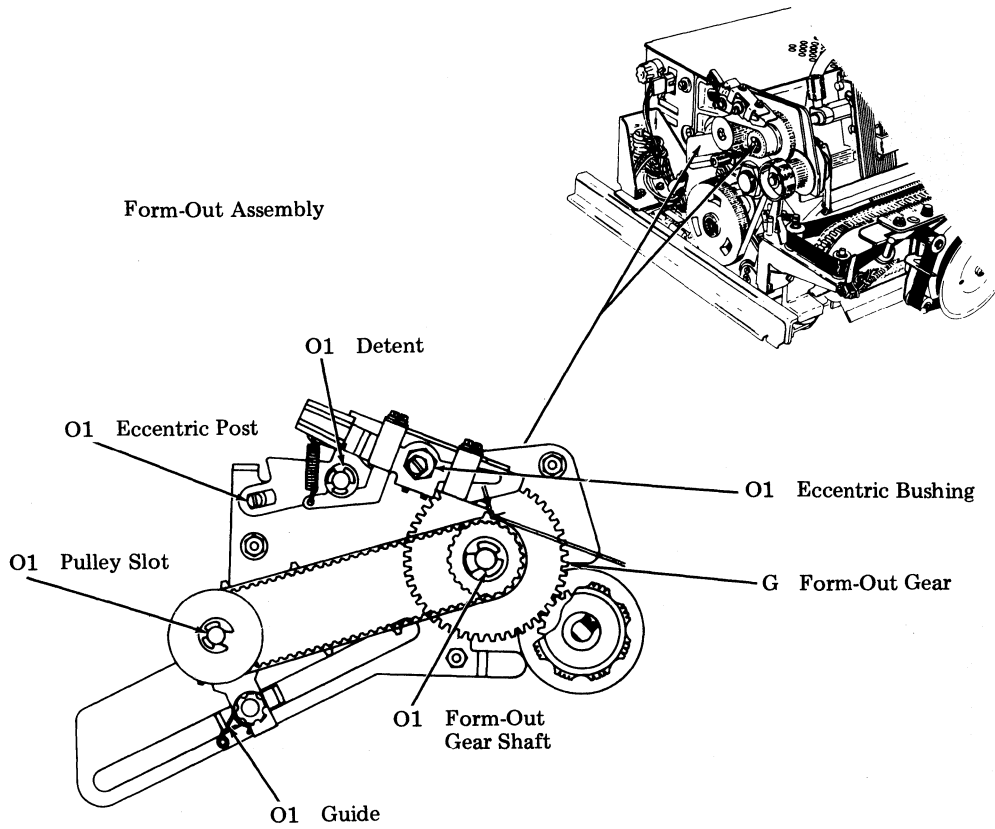
Note: Type carrier must be removed to gain access to the wick.

G Shaft Bearings (Pack Bearings, Each End)
TKS-103
(Beacon No. 325)

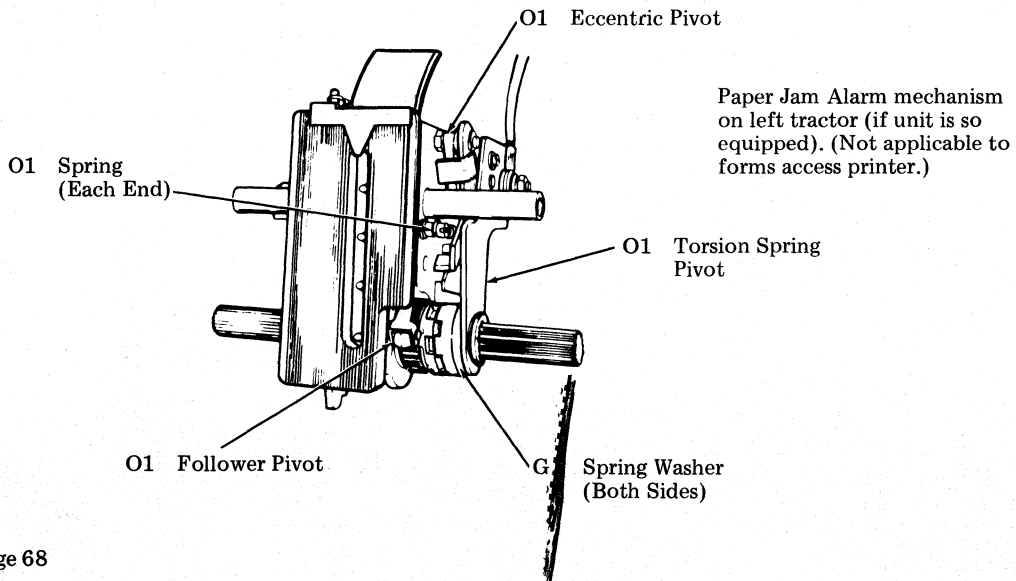
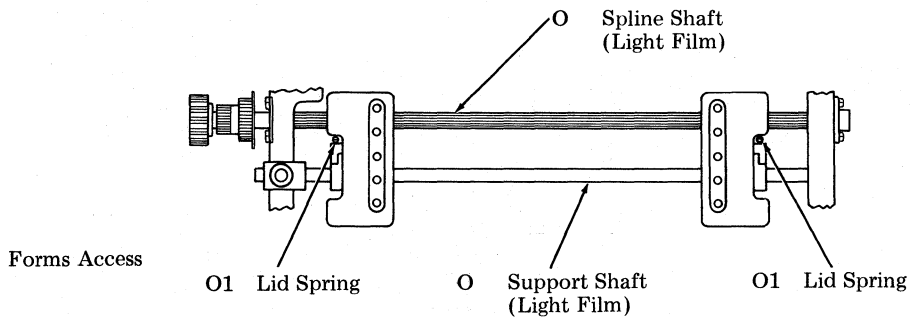
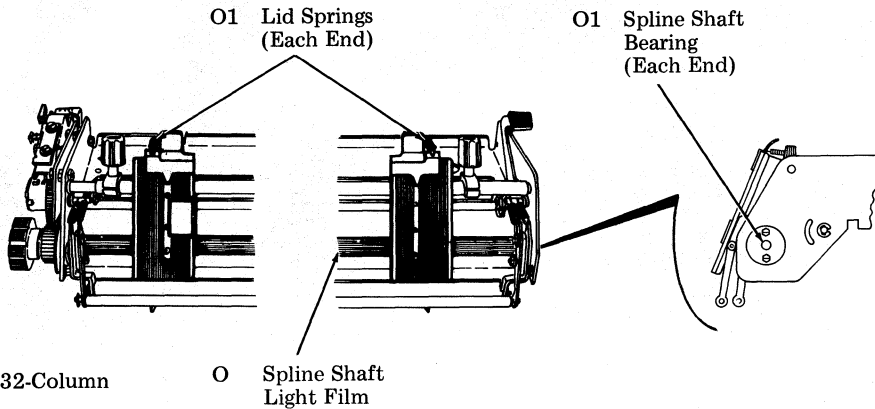
S Carrier Lubricating Pad

O1 Right Ribbon Guide Bracket

LUBRICATION -- FORM-OUT ASSEMBLY

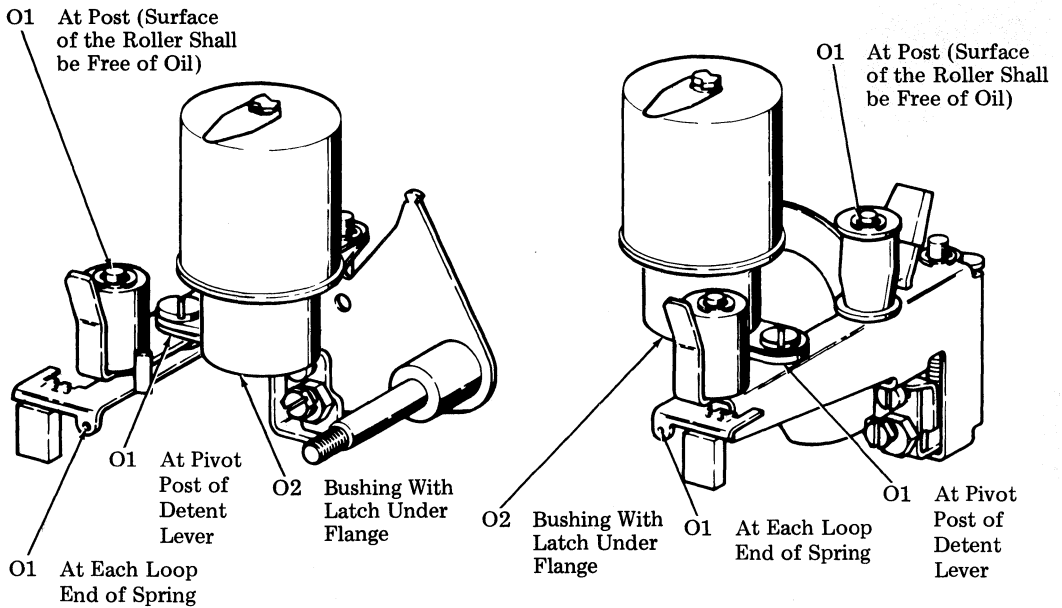


LUBRICATION — TRACTOR MECHANISM



LUBRICATION — LEFT AND RIGHT ARM ASSEMBLIES

Reinker Mechanism on left and right arm assemblies (if unit is so equipped). (Not applicable to forms access printer.)





“DATASPEED*” 40 PRINTER

DISASSEMBLY/REASSEMBLY AND PARTS

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1. GENERAL

1.01 This section provides disassembly/reassembly and parts information for the DATASPEED 40 printer (80-column friction and tractor feed, 132-column tractor feed, and 80-column forms access).

1.02 This section is reissued to incorporate 40P102 80-column friction feed printer (noise reduced), 40P154 80-column tractor feed printer, 40P253 80-column forms access printer, 40P202 132-column tractor feed printer, and updated disassembly/reassembly and parts information.

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

1.03 A convenient order for disassembly of the major subassemblies in the printer is provided in Part 2. Preceding the actual disassembly procedures for each printer are line drawings showing the location of the major subassemblies. Further disassembly to the parts level can be accomplished by referring to the illustrations in Part 3.

Caution: Certain parts of the major subassemblies cannot be reassembled without specialized techniques or equipment. Do NOT attempt to disassemble to levels beyond those specifically illustrated in Parts 2 or 3.

1.04 Refer to Section 570-005-800, "Maintenance Tools," for a complete listing of the various types of hand tools available for maintenance of TELETYPE® equipment.

1.05 Use 124828 maintenance pad to protect bench top or floor coverings from oil, grease, and dirt during disassembly and reassembly of the printer unit.

1.06 After disassembly and reassembly of the various mechanisms, certain adjustments must be remade to insure proper operation. These adjustments are listed in appropriate steps within the text. Refer to Section 582-210-700 if other adjustment requirements were accidentally disturbed during the disassembly procedures.

1.07 Before returning the printer to service, make a visual inspection to see if lubrication is required. See Section 582-210-700 for general lubrication requirements.

1.08 Retaining rings are made of spring steel and have the tendency to release suddenly upon removal. To minimize the loss of these retaining rings, it is suggested that the following procedure be followed:

- (a) Hold the retainer with one hand to prevent it from rotating.
- (b) Place the blade of a screwdriver in one of the slots of the retainer.
- (c) Rotate the blade of the screwdriver in a direction to increase the diameter of the retainer until it pops off gently against your finger.

1.09 Avoid loss of springs during disassembly by holding one end of the spring with your fingers while gently removing the opposite end from its attached point using a spring hook. DO NOT STRETCH OR DISTORT SPRINGS.

1.10 Reference in the procedures to left or right, up or down, and top or bottom, etc, refer to the printer in its normal operating position as viewed facing the ribbon mechanism.

Caution: Do not attempt removal of any sub-assembly or part without first removing the printer from the cabinet. All ac power to the printer must be off during disassembly.

1.11 Remove any paper supply which may be loaded in the printer. To remove the printer from the cabinet, reverse the procedures in Section 582-210-200 covering installation of the printer.

1.12 When removing a subassembly from the printer, do not force or pry any parts to provide the necessary clearance for removal. No force is required to accomplish a removal procedure. Follow the removal procedure and note how each part is removed and the sequence of its removal so that proper reassembly can be accomplished. For reassembly, reverse the removal procedure except where different instructions are given.

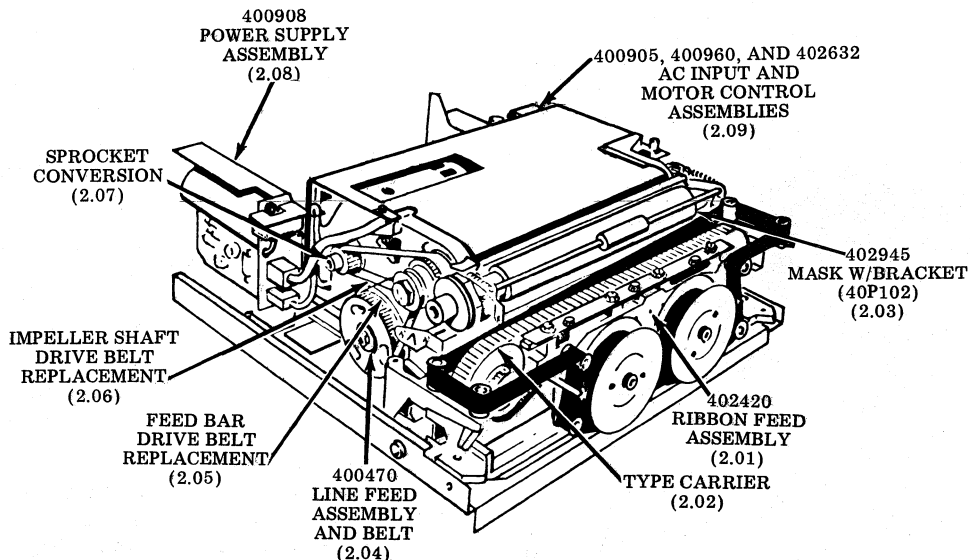
1.13 The following tools are recommended for use during the disassembly and reassembly procedures:

73404	Tommy wrench (2 required)
75503	Spring hook—push
75765	Spring hook—pull
89954	1/4-inch nut driver wrench
89955	5/16-inch nut driver wrench
95368	Screwdriver (2-inch)
100982	Screwdriver (6-inch medium)
108285	Long-nose pliers
108286	Cutting pliers
125752	3/16-inch nut driver wrench
129534	1/4-inch open end wrench
129535	3/4-inch open end wrench
152835	5/16-inch open end wrench
160396	Retaining ring pliers
346392	Static discharge strap
402840	Terminal extractor

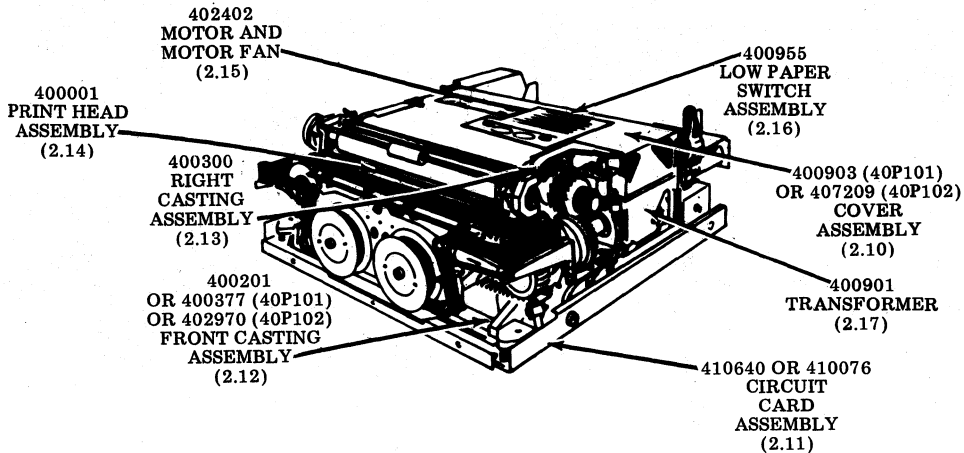
2. DISASSEMBLY AND REASSEMBLY PROCEDURES

A. Friction Feed Printer

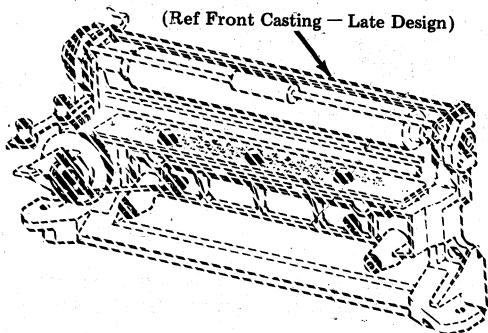
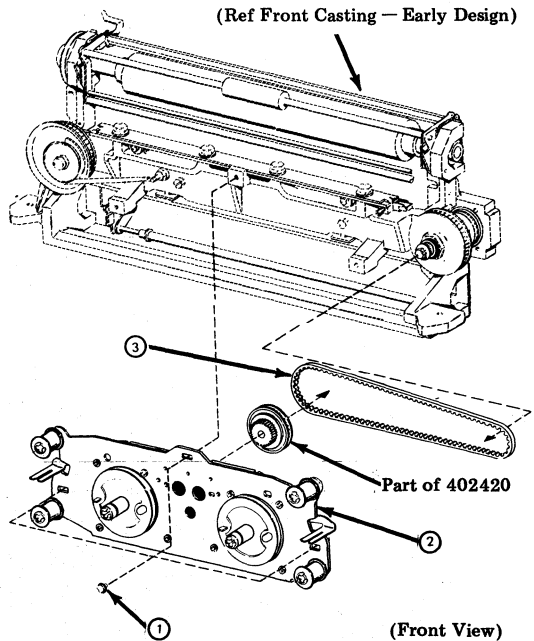
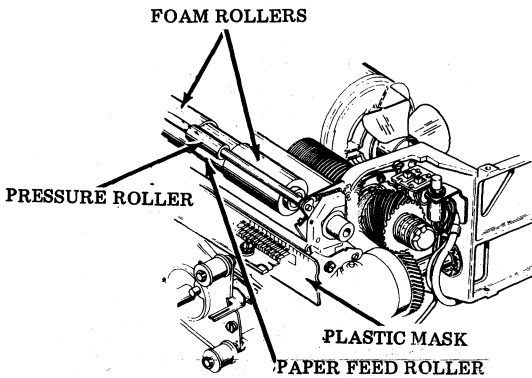
Note: Unless otherwise specified, assemblies are common to 40P101 and 40P102 printers.



Note: To remove a subassembly, go to the procedure referenced in parentheses. Number sequence does not imply a strict adherence to disassembly, as many subassemblies are independent of each other for removal.



Note: Foam rollers on the paper feed roller and plastic mask are peculiar to the 40P102 noise reduced printer or 40P101 printer equipped with acoustical noise reduction parts (407104 modification kit).

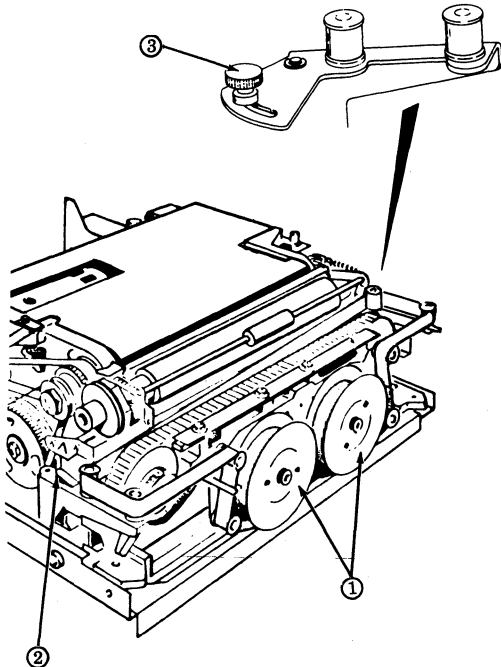


2.01 402420 Ribbon Feed Assembly

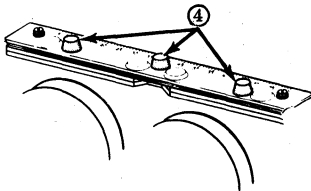
- Remove the ribbon (402444 — not shown).
 - ① Remove three screws w/lockwashers (184056).
Note: Only two screws w/lockwashers (184056) are used with late design front casting.
 - ② Remove ribbon feed assembly (402420).
 - ③ Move to right to remove belt (400630).
- In reassembly, perform the Ribbon Feed Drive Belt Tension adjustment.

2.02 Type Carrier

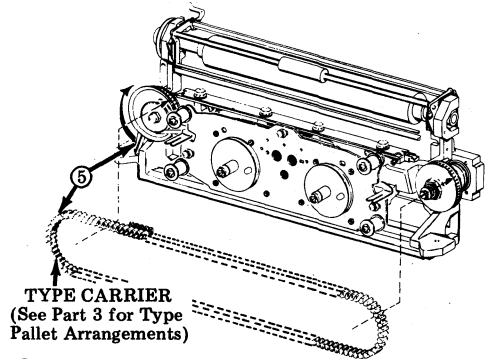
- ① Remove the ribbon (402444).
- ② Release the thumb lever on the left ribbon guide bracket allowing the guide to spring to left.
- ③ Loosen the thumbscrew on the right ribbon guide bracket and swing the guide to the right.



- ④ On late design 40P101 or on noise reduced printer (carrier top guide secured to backup bar with three thumbscrews) remove carrier top guide.



- ⑤ Lift up the arm on the left type carrier sprocket to release the spring bias on the sprocket. While holding the arm up, lift the type carrier from the right sprocket and remove.

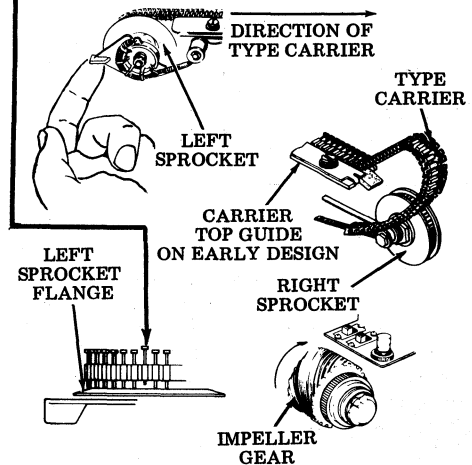


- ⑥ When replacing the type carrier, observe the following:

- Start carrier at left sprocket.
- On early design unit (carrier top guide not secured with thumbscrews) make sure all pallet stems at top of belt are under the top guide.
- Rotate carrier one revolution by turning impeller gear clockwise.
- Align all pallets against left sprocket flange.

Caution: Damage to type carrier or printer will result if any type pallet is left protruding.

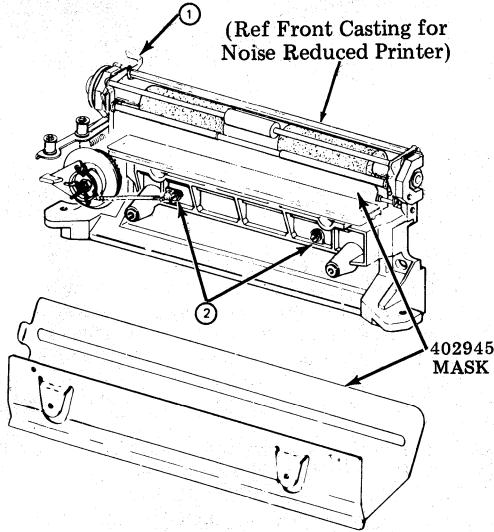
- On late design unit, reinstall carrier top guide. With the three thumbscrews loose, apply slight pressure to the top guide, down and toward the front of unit. Hold in this position while tightening thumbscrews.



2.03 402945 Mask w/Bracket (Noise Reduced Printer)

- Remove ribbon feed assembly (2.01).
- Remove type carrier (2.02).
- Open paper tray (2.11 ①).

- ① Pull pressure release lever forward.
- ② Remove two screws w/lockwashers (184060). Angle bottom right corner of mask downward and toward the right.

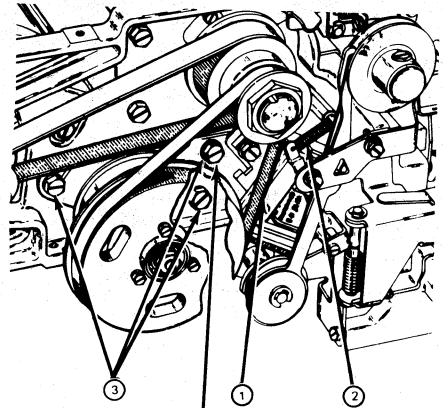


To facilitate installation of 402945 mask w/bracket, stand printer on rear.

In reassembly, perform Ribbon Feed Drive Belt Tension and Mask adjustments.

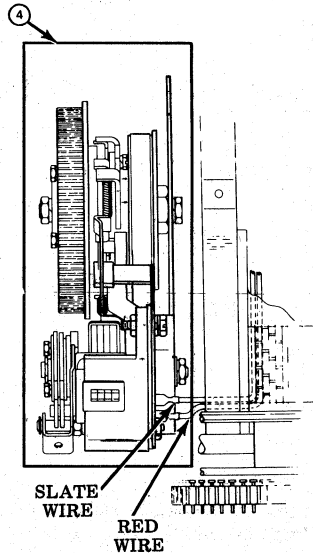
2.04 400470 Line Feed Assembly and Belt

- ① Slide clutch drive belt (400634) off. Replace if worn.
- ② Remove spring (41385).
- ③ On early design, remove three screws (one 153442 and two 173974), three lockwashers (45815), and two flat washers (41663). On late design, remove two screws (one 153442 and one 173974), two lockwashers (45815) and one flat washer (41663).



Not present on late design.

- ④ Carefully separate the line feed assembly, (400470), from the casting. Do not move line feed assembly too far away from the printer. Move assembly just enough to disconnect the two wires attached to the coil, and then remove assembly.



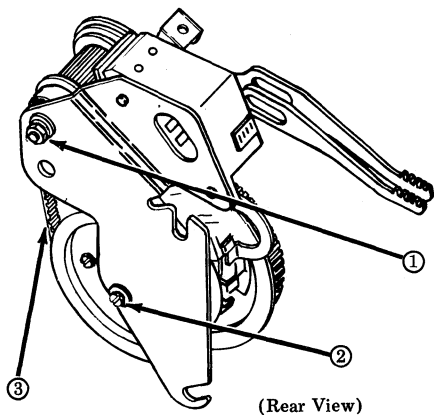
Note: When reassembling, connect red wire to front terminal of magnet; slate wire to rear terminal (as viewed from front of printer). Cut cable strap for ease of reassembly, then retie.

In reassembly, perform the Clutch Drive Belt Tension adjustment.

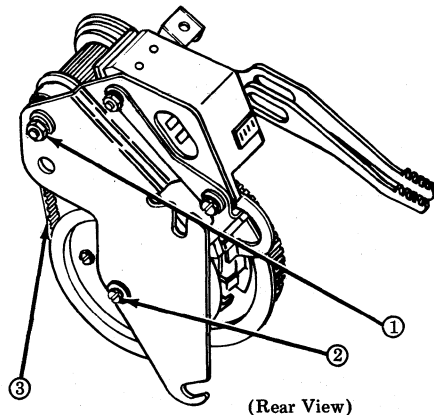
2.05 Feed Bar Drive Belt Replacement

- Perform procedure 2.04 first, then;
- ① Remove nut (112626), lockwasher (45815), and flat washer (3438).
- ② Remove screw (153442) and lockwasher (45815).
- ③ Remove plate and feed bar drive belt (400632). Replace belt.

EARLY DESIGN



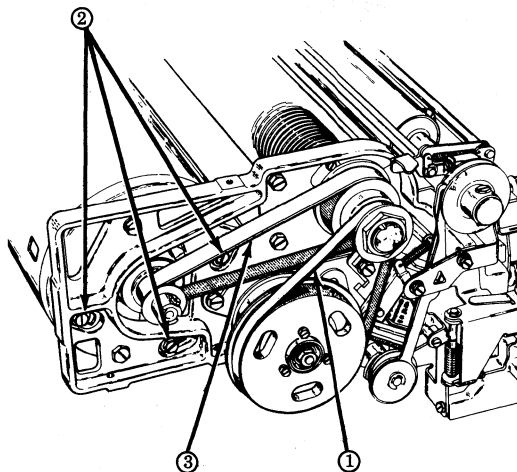
LATE DESIGN



In reassembly, perform the Line Feed Bar Eccentric and Drive Belt Tension adjustment and the Clutch Drive Belt Tension adjustment.

2.06 Impeller Shaft Drive Belt Replacement

- ① Remove clutch drive belt (400634).
- ② Loosen three motor adjusting screws friction tight. Press motor inward and up to release belt tension.
- ③ Remove worn belt and replace with new belt (400631).



In reassembly, perform the Impeller Shaft Drive Belt Tension adjustment. Check the Clutch Drive Belt Tension adjustment.

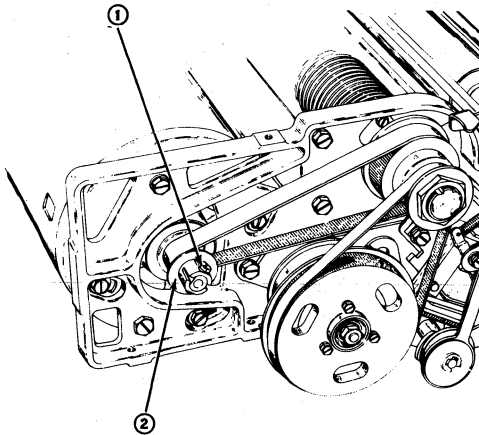
2.07 Sprocket Conversion (60 Hz to 50 Hz, 50 Hz to 60 Hz)

Note 1: Only those printers equipped with 402402 motors and 402632 ac input and motor control assemblies are capable of operation on either a 50 or 60 hertz 117 V ac source of power. Conversion is accomplished by installing the proper sprocket on the motor shaft, 400280 for 60 hertz, 400282 for 50 hertz.

Note 2: Early printers equipped with either the 400905 or 400960 ac input and motor control assembly and the 400270 motor, (60 hertz only) may be updated for 50 or 60 hertz operation with the 402633 modification kit and the 400282 sprocket.

- Perform procedure 2.06 first, then;

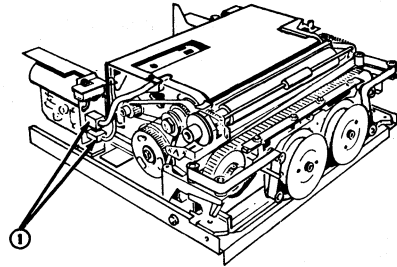
- ① Remove screw (153841), lockwasher (2191), and nut (3598) from sprocket. Remove sprocket.
- ② Replace with sprocket (400282), 50 hertz or (400280), 60 hertz.



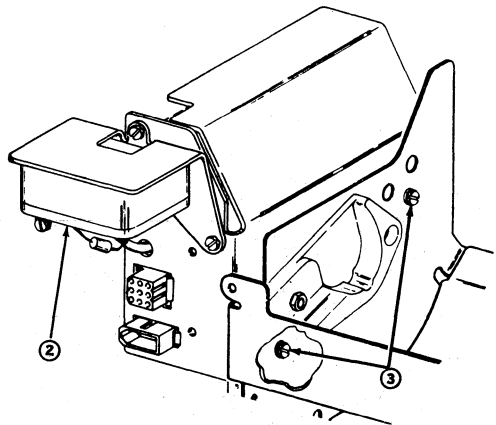
In reassembly, perform the Impeller Shaft Drive Belt Tension adjustment and the Clutch Drive Belt Tension adjustment.

2.08 400908 Power Supply Assembly

- ① Unplug two connectors at the front of power supply.



- ② Remove screws (153484) and lockwashers (107116) from terminals 1 (WHITE-BLUE lead) and 3 (WHITE-BLACK lead) on the relay.
- ③ Remove 2 screws w/lockwashers (184056). Remove power supply assembly (400908) and replace.

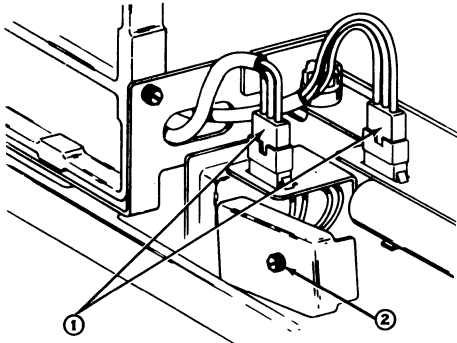


In reassembly, make sure the WHITE-BLACK lead is on the 3 terminal and WHITE-BLUE is on the 1 terminal.

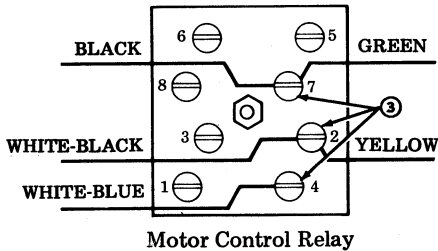
2.09a. 400905 AC Input and Motor Control Assemblies

Note: Present on early printers. Later printers equipped with 400960 or 402632 ac input and motor control assembly as detailed in 2.09b.

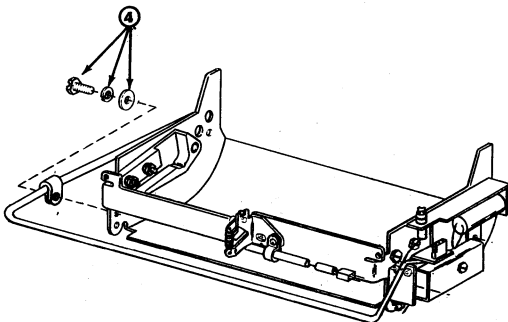
- ① Remove the connectors.
- ② Remove screw w/lockwasher (181241) from relay cover. Remove cover.



- ③ Remove screws (153484) from motor control relay at terminals 4, 2, and 7 to disconnect leads.

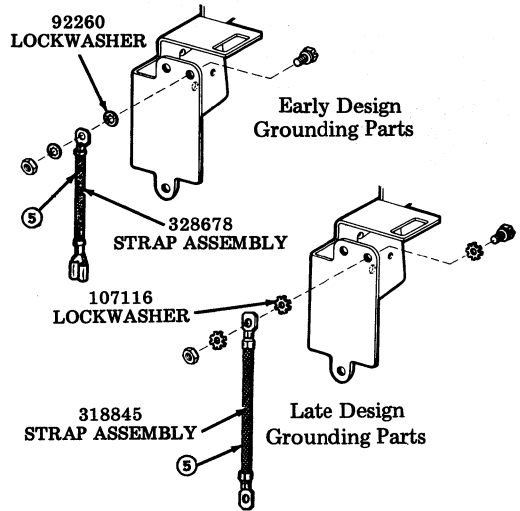


- ④ Remove screw (151631), lockwasher (2191), and flat washer (7002) from cable clamp to loosen cable.

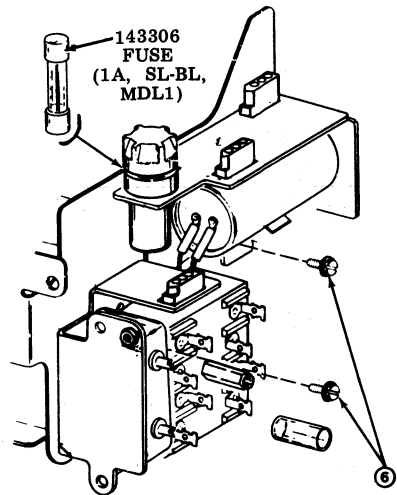


- ⑤ Disconnect frame ground strap (328678 or 318845) at motor control assembly.

Note: Do not disconnect ground strap from printer base.



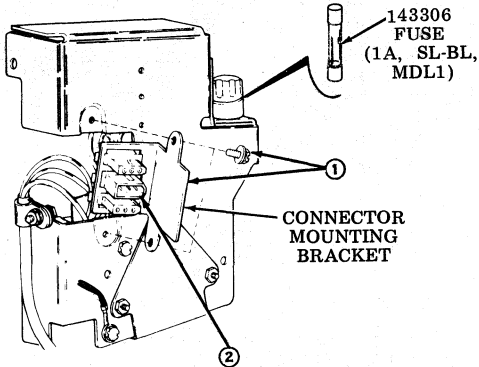
- ⑥ Remove screw w/lockwasher (184055) securing motor control assembly (400905) to paper container. Remove assembly.



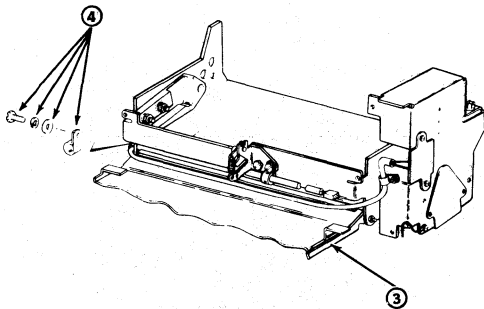
In reassembly, make sure that the correct color leads are connected to the terminals on the relay, and the correct connectors are mounted to their receptacles.

2.09b. 400960 or 402632 AC Input and Motor Control Assemblies

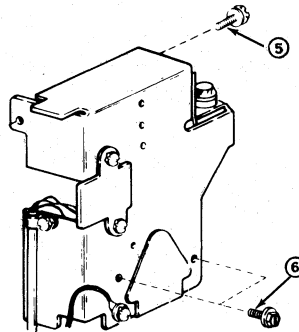
- ① Remove two screws that fasten connector mounting bracket. Position bracket as shown.
- ② Unplug connectors from the three receptacles.



- ③ Stand printer on rear and open cover. See 2.11
- ④ Remove screw, lockwasher and flat washer from cable clamp. Move cable to right of cover. Close cover and restore printer to normal position.

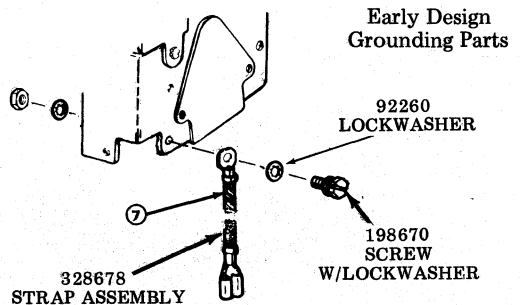
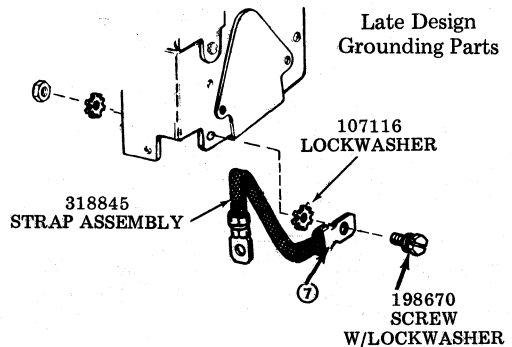


- ⑤ Remove 184056 screw w/lockwasher .
- ⑥ Remove two 184055 screws w/lockwashers. Motor control assembly should drop down for access to the ground strap screw.



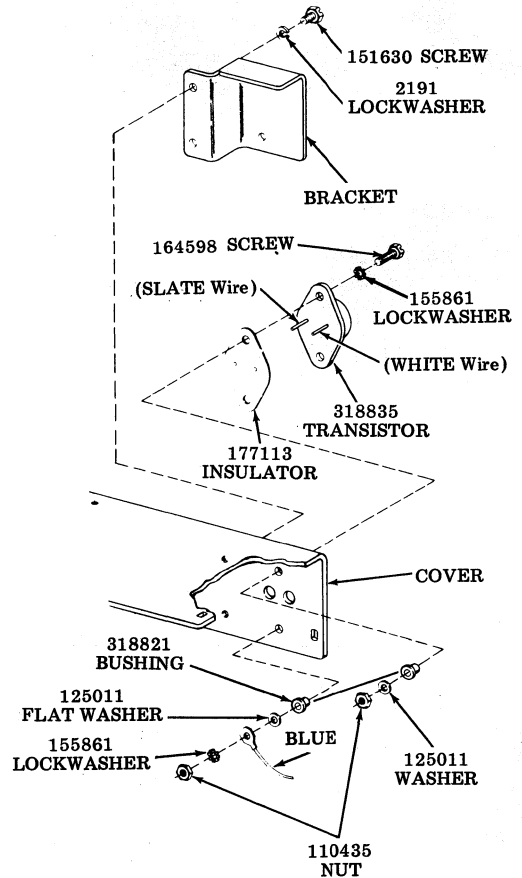
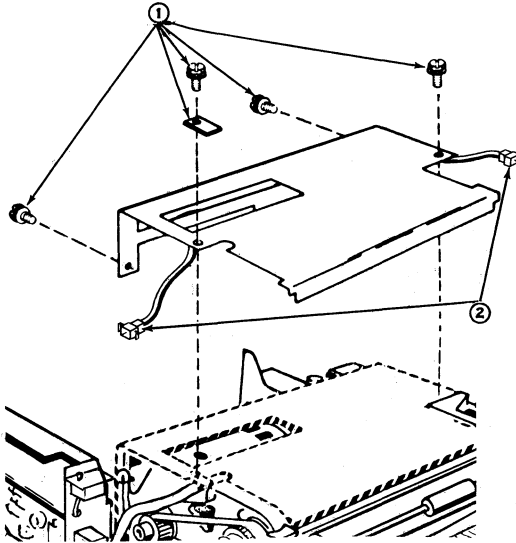
- ⑦ Disconnect (318845 or 328678) frame ground strap at the motor control assembly. Remove the assembly.

Note: Do not disconnect ground strap from printer base.



2.10 400903 Cover Assembly (40P101)
407209 Cover Assembly (40P102)

- ① Remove the four screws w/lockwashers (184057) and the clamp (400586) that secure the cover to the castings.
- ② Lift up cover and unplug connectors from receptacles. Remove cover.



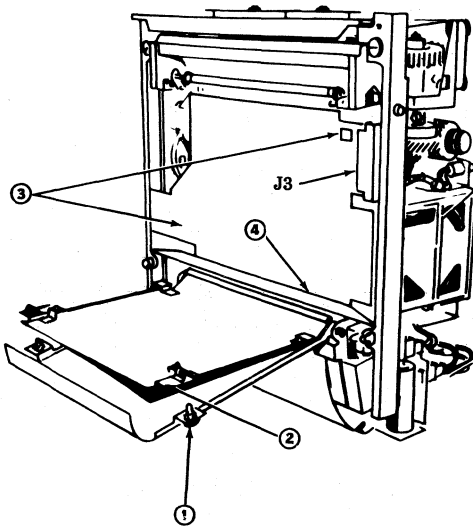
- ③ For replacement of the transistor (318835) located on the back of the cover, use the following illustration, and note location of the parts.

In reassembly, make sure all wires are connected properly and thermal compound is applied to the bases of the insulator and transistor.

2.11 410076 or 410640 Circuit Card Assembly

Note 1: 410076 circuit card assembly can be used in the 40P101 or 40P102 printer. The 410640 circuit card assembly cannot be used in the 40P102 printer.

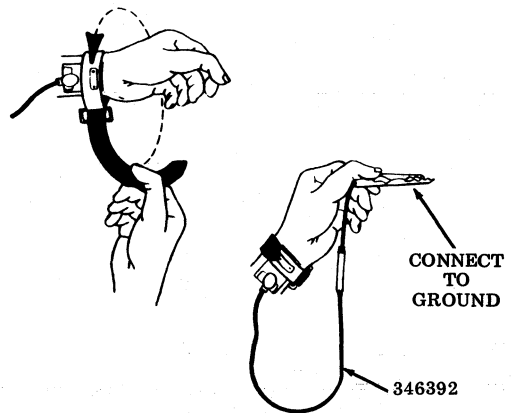
- ① Open the paper tray by grasping knobs and snap tray down while printer is raised.
- ② Remove two screws (184056) that secure the circuit card cover to the bottom of the printer and allow the cover to hang down.
- ③ Using finger hold and a firm grip of the card edge on the opposite side as shown, apply an even pulling force and unplug the circuit card from the two rows of magnet assembly contacts.
- ④ Lift left (bottom) end of card up and out of channel (by passing printer base shipping screws) first, then right side of card up and out. Remove card from J3.



Note 2: 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.

Note 3: When replacing the 410076 or 410640 circuit card with a NEW card, remake the Impeller Shaft Sensor and Flag Sensor adjustments.

Caution: When handling circuit cards with MOS devices such as the 410076 or 410640 circuit card, personnel must wear a static protection grounding strap (346392 or equivalent). The strap must be worn in firm contact with the skin at all times with the ground clip connected to ground as illustrated below. Care should be taken to avoid touching circuit paths or components on the circuit card.

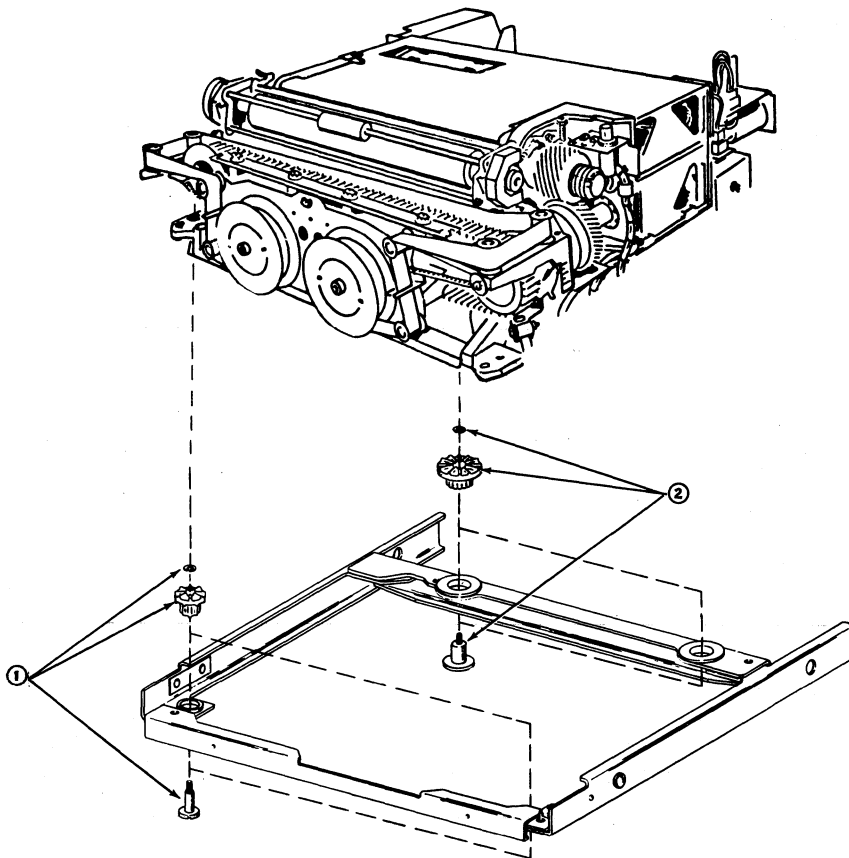


Service personnel are never to be connected directly to ground but rather through a high resistance discharge path of a minimum of one megohm where 115 V ac is present. This resistance is built into the grounding strap (346392).

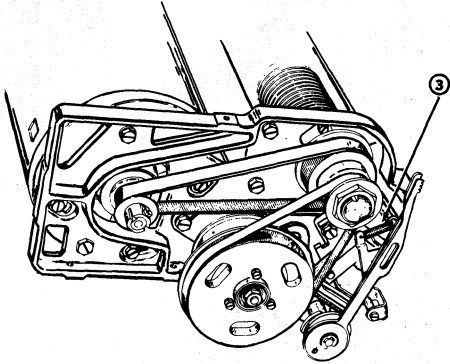
2.12 400201 or 400377 Front Casting Assembly
(40P101)
402970 Front Casting Assembly (40P102)

- Remove type carrier — see 2.03.
- Remove circuit card as a precaution against damage — see 2.11.
- If equipped with early design ac input and motor control assembly, remove relay cover and wires — see 2.09a.

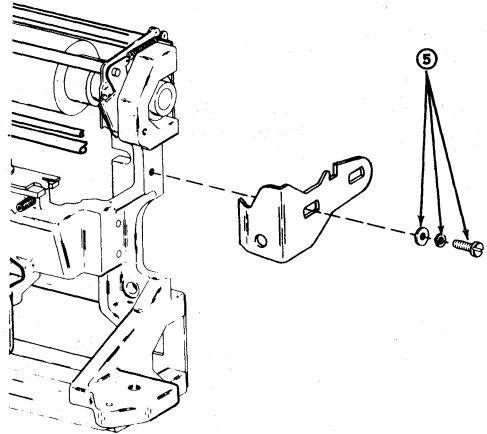
- ① Remove two screws (400405), two bushing isolators (338728), and two lockwashers (3646) from the front of the printer base.
- ② Remove two screws (400406), two bushing isolators (400402), and two lockwashers (2669) from the rear of the printer base. Remove base.



- ③ Unhook spring (41385) from post on line feed assembly to disengage pawls.

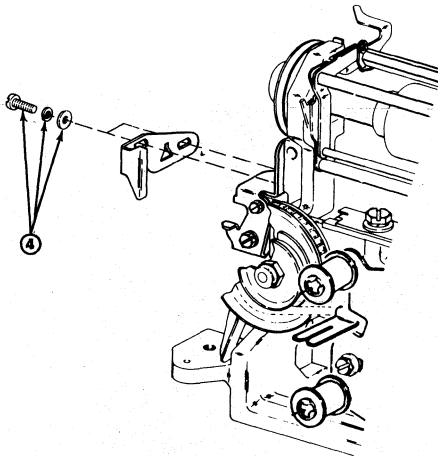


- ⑤ To remove right ribbon guide, remove screw (110434), lockwasher (3640), and flat washer (125011).

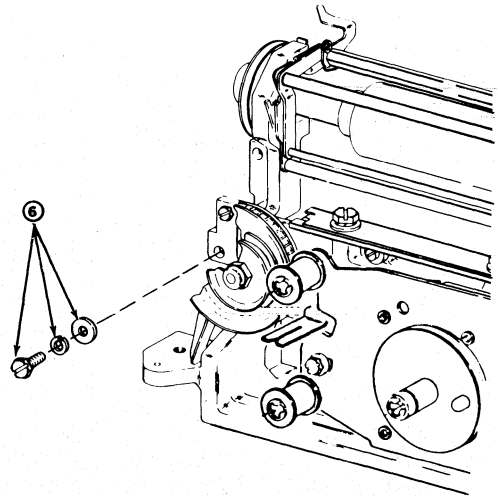


- To gain access to the front mounting screws, it is necessary to remove the left and right ribbon guides.

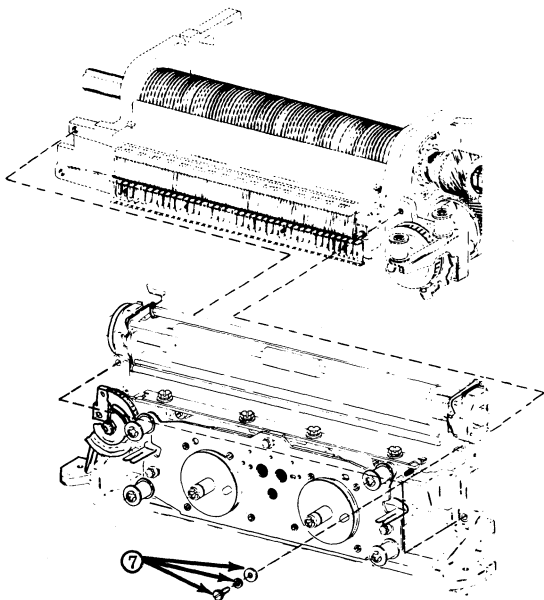
- ④ To remove left ribbon guide, remove two screws (110434), two lockwashers (3640), and two flat washers (125011).



- ⑥ Rotate the finger lever clockwise on the left type carrier (idler) pulley to gain access to the mounting screw (153442), lockwasher (45815), and flat washer (41663). Remove hardware.



- ⑦ Remove the three remaining screws (153442), lockwasher (45815), and flat washer (41663). Move the front casting assembly to the left until clear of the type carrier pulley and remove.

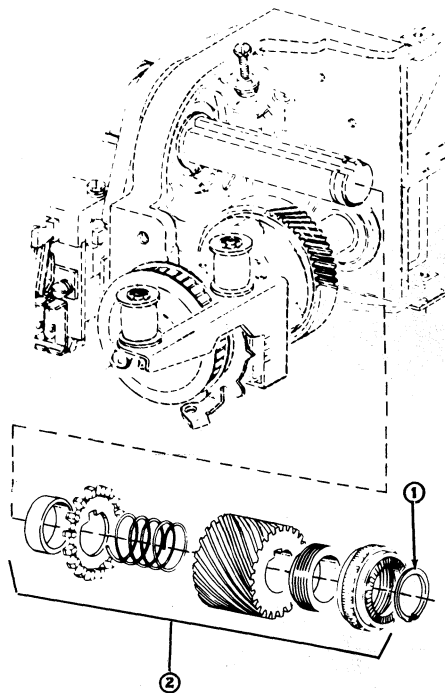


In reassembly, do not forget to follow through with 2.11, 2.09, and 2.03. The front casting adjustments should be checked to see if adjustment is required. Also perform Ribbon Guide adjustment.

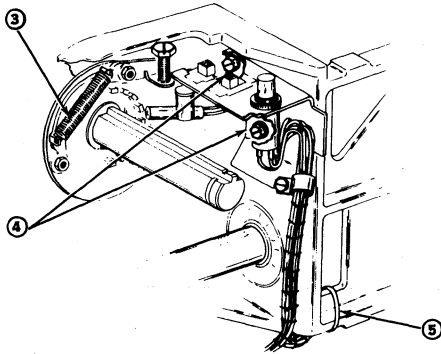
2.13 400300 Right Casting Assembly (40P101)

Note: Right casting for 40P102 is the same except for the ribbon roller posts used.

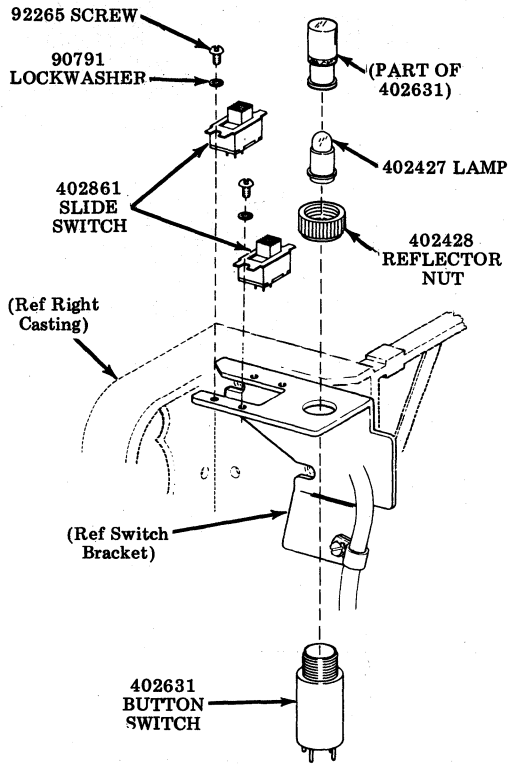
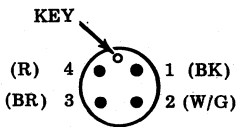
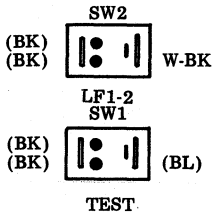
- Remove type carrier — see 2.03.
 - Remove ac input and motor control — see 2.09.
 - Remove circuit card — see 2.11.
 - Remove front casting — see 2.12.
- ① Remove retainer (400075) from shaft.
 - ② Slide off spring, gear, adjusting ring, collar, timing wheel, and bushing from shaft.



- ③ Unhook spring (110438) from post on sensor bracket.
- ④ Remove two screws w/lockwashers (184056), and slide switch bracket out.
- ⑤ Cut cable strap, if present.

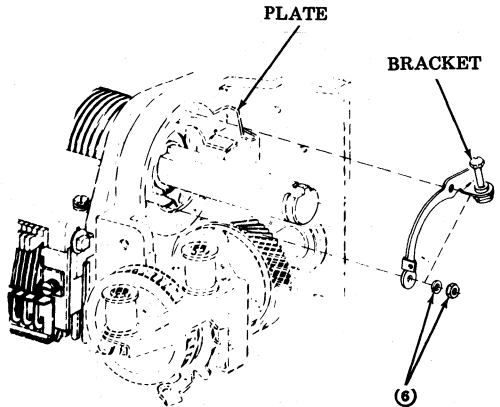


Note: If slide switch (402861) or button switch parts require replacement, use the following illustration for parts replacement.



- To remove sensors proceed as follows:

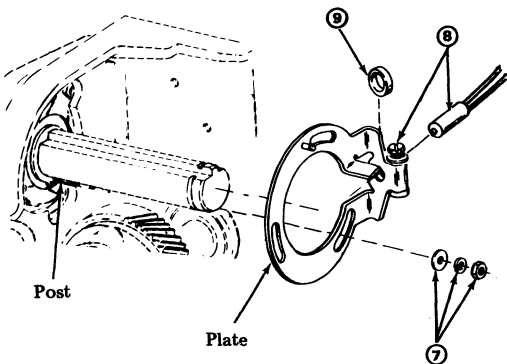
- ⑥ Remove the two nuts (3599) and lockwashers (3640) holding bracket to the plate. Remove bracket.



⑦ Remove the nut (3599), lockwasher (3640), and flat washer (125011) holding the plate to the post. Remove plate.

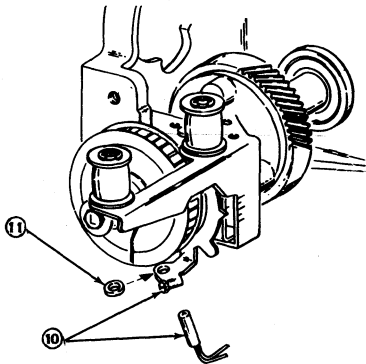
⑧ Loosen the screw holding the sensor. Remove the sensor.

⑨ Be careful not to lose spacer (400931).



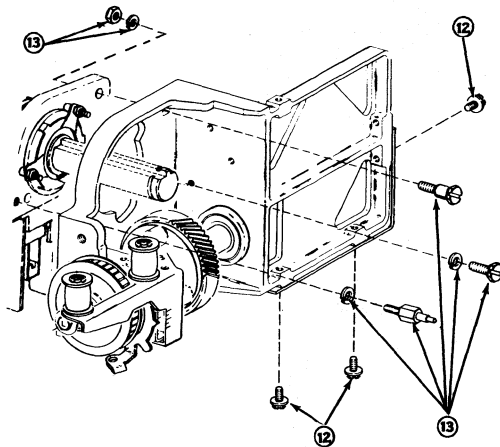
⑩ On the front, loosen the screw holding the sensor. Remove the sensor.

⑪ Be careful not to lose spacer (400931).



⑫ Remove three screws, w/lockwashers (184057) holding bottom pan to the casting.

⑬ Remove shoulder screw (400293), lockwasher (45815), and nut (112626); remove screw (153442), and lockwasher (45815); remove post (400457) and lockwasher (2669); remove right casting assembly (400300).



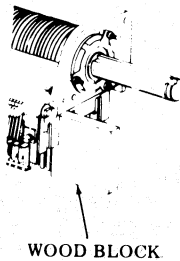
In reassembly, do not forget to follow through with 2.12, 2.11, 2.09 and 2.03. Perform adjustments in 2.12. Check the Impeller Shaft Sensor Gap and Flag Sensor Gap adjustments. On printing test, the Impeller Shaft to Carrier Phasing, the Impeller Shaft Sensor, and Flag Sensor adjustments may have to be checked.

2.14 400001 Print Head Assembly

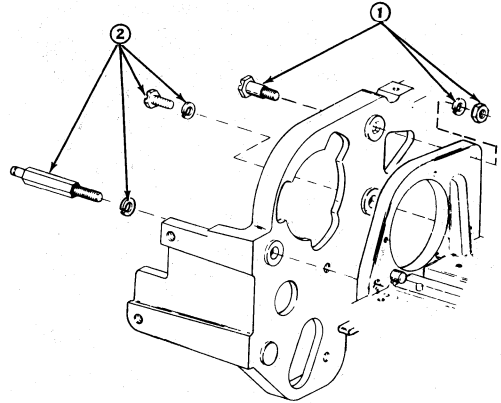
Warning: If a trouble is isolated to the Print Head Assembly, the complete printer should be replaced. Disassembly information shown is for repair shop location reference.

- Remove type carrier — see 2.03.
- Remove impeller shaft drive belt — see 2.06.
- Remove ac input and motor control — see 2.09.
- Remove circuit card — see 2.11.
- Remove front casting — see 2.12.
- Remove right casting — see 2.13.

Note: It is suggested that when right casting is removed, a 3-inch piece of wood be placed under right end of print head to keep it from dropping.



- ① At left casting, remove shoulder screw (400293), lockwasher (45815), and nut (112626).
- ② Also, remove screw (153442), lockwasher (45815), post (400317), and lockwasher (45815). Remove print head assembly (400001).

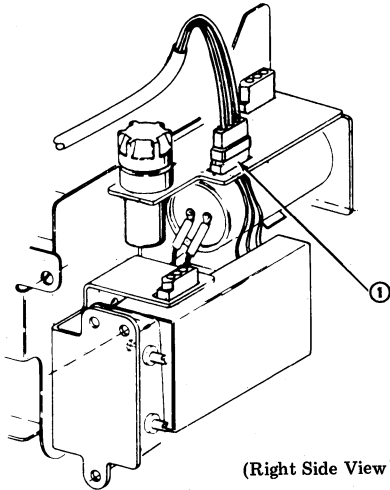


In reassembly, be sure to follow all the procedures and perform all the adjustments in 2.03, 2.06, 2.09, 2.11, 2.12, and 2.13.

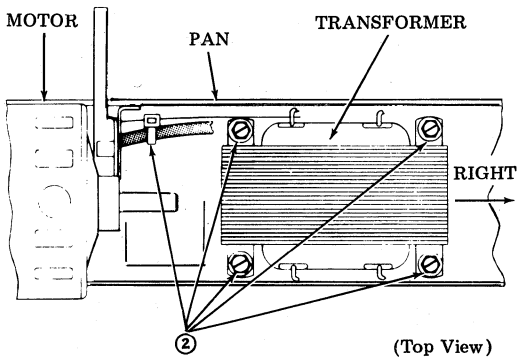
2.15 402402 Motor Assembly

- Remove the cover — see 2.10.

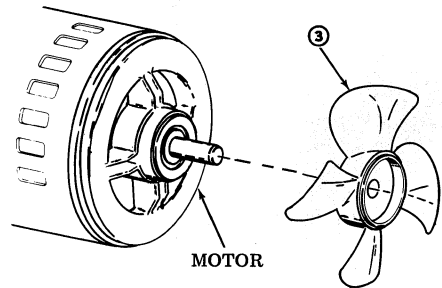
① Remove motor cable connector.



② Remove four screws (173974), lockwashers (45815), and flat washers (3438) holding transformer to the pan. Slide transformer up and out.

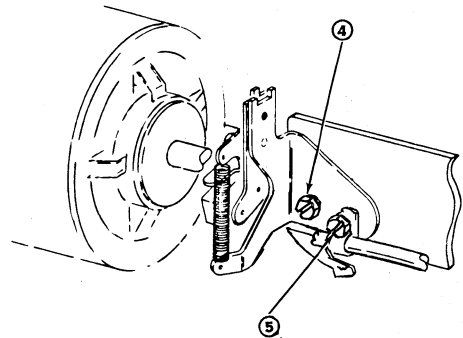


③ Loosen setscrew in hub of fan and pull the fan (408032) off from the end of the motor shaft.



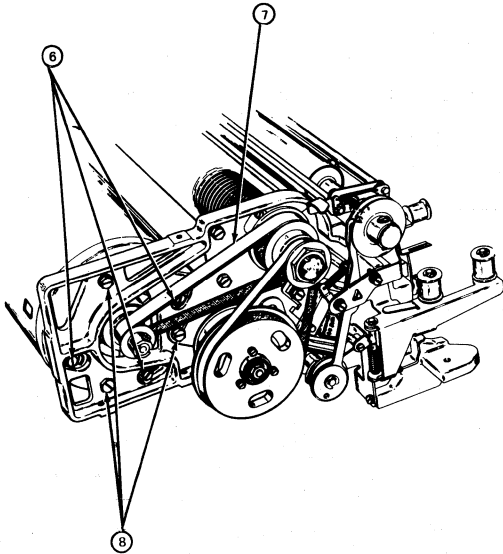
④ Remove the left mounting screw (184056).

⑤ Loosen the right mounting screw and then pivot the switch bracket up approximately 90 degrees.



- ⑥ Loosen three motor adjusting screws friction tight.
- ⑦ Press motor inward and up to release belt tension. Remove belt (400631).
- ⑧ Remove the top mounting screw (99082) and lockwasher (93985). Remove the bottom left mounting screw (151723) and lockwasher (45815). Remove bottom right mounting screw (153442), lockwasher (45815) and flat washer (41663). Remove motor assembly.

Note: On late design, remove the top mounting screw (99082) and lockwasher (93985) and the three motor adjusting screws (99082), lockwashers (93985) and flat washers (44048) to remove motor assembly.



(Left Side View)

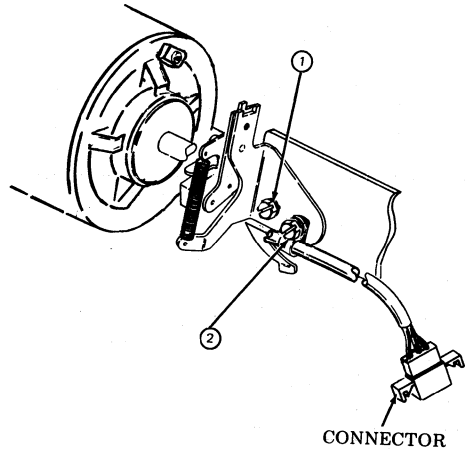
In reassembly, make sure fan blade is properly remounted and does not touch mounting plate of paper-out assembly. Plug cable connectors.

In reassembly, perform Impeller Shaft Belt Tension adjustment. Check Low Paper Switch adjustment.

2.16 400955 Low Paper Switch Assembly

- Remove the cover — see 2.10.

- ① Remove screw (184056) from left side.
- ② From right side remove screw (151631), lockwasher (2191), and flat washer (7002). Unplug connector from associated cable connector. Remove low paper switch assembly (400955).



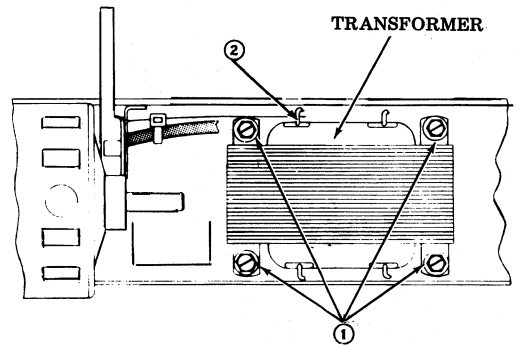
In reassembly, make sure the connectors are plugged together.

2.17 400901 Transformer

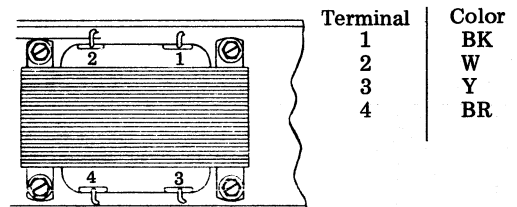
- Remove the cover — see 2.10.
- ① Remove four screws (173794), four lock-washers (45815), and four flat washers (3438) holding transformer to the pan.
 - ② Unsolder four leads to the transformer. Remove transformer (400901).

Caution: Be careful not to cut or pinch any other wires.

Note: In reassembly, reverse the disassembly procedure and resolder the four wires to the transformer terminals. After terminating wires, bend transformer terminals toward the core. Nestle wires between the winding and the core. The wires must not protrude beyond the top of the core.

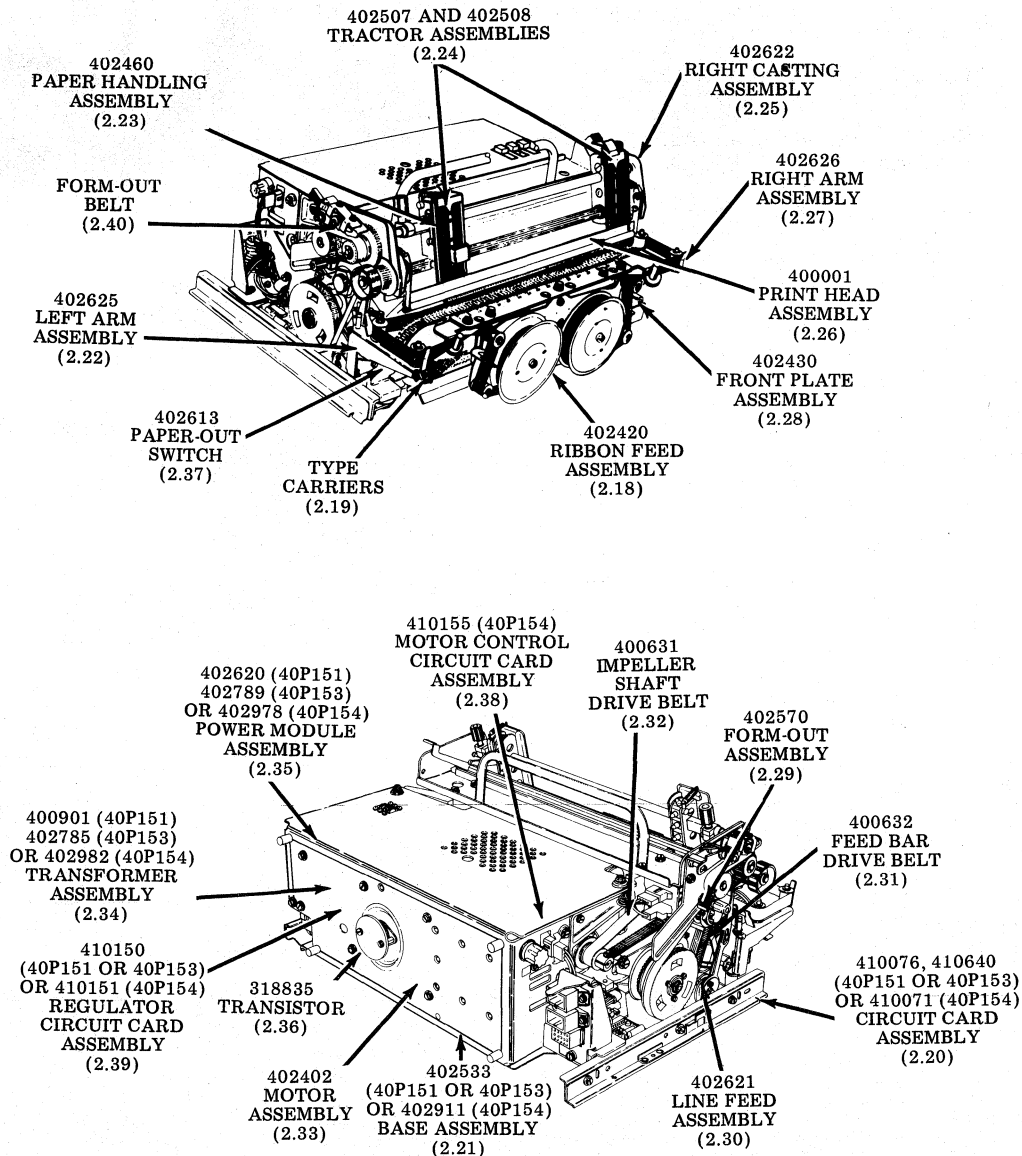


In reassembly, note the numbering of the transformer terminals and follow the coloring wire list. Retie the cable.



B. 80-Column Tractor Feed Printer

Note: Unless otherwise specified, assemblies are common to 40P151, 40P153, and 40P154 80-Column Tractor Feed Printers.

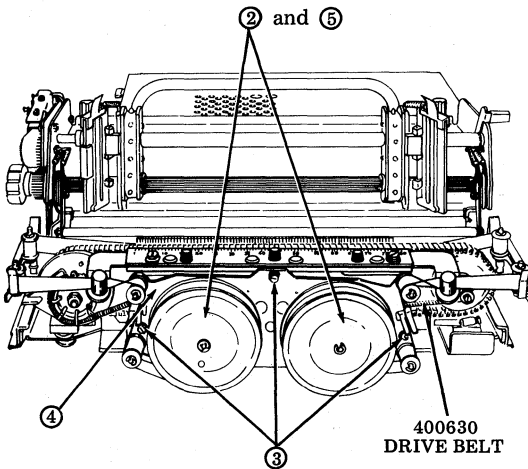


Note: To remove an assembly, go to the procedure referenced in parentheses. Number sequence does not imply a strict adherence to disassembly as many assemblies are independent of each other for removal.

2.18 402420 Ribbon Feed Assembly

- ① Stand printer on rear with ribbon feed mechanism up.
- ② Pull off ribbon spools. Roll up ribbon (402444) and set aside.
- ③ Remove three 184056 screws w/lockwashers.
- ④ Move ribbon feed assembly to right to disengage drive belt (400630). Remove ribbon feed assembly and drive belt.
- ⑤ When installing ribbon, follow ribbon loading instructions printed on cover top.

In reassembly, perform the Ribbon Feed Drive Belt Tension adjustment.



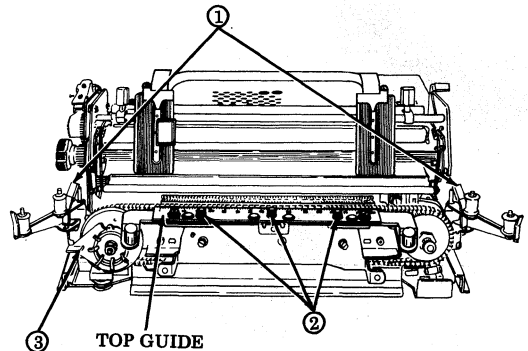
2.19 Type Carriers

- Remove ribbon. See 2.18, ②.
- ① Release thumb levers on left and right ribbon guide brackets allowing guides to spring to sides of printer.
 - ② Remove three thumbscrews and lockwashers, then remove carrier top guide from over type carrier.
 - ③ Flags should be to left and right of backup bar for ease of removal. Lift up arm on left type carrier sprocket to release spring bias on sprocket. While holding arm up, lift type carrier from right sprocket and remove.

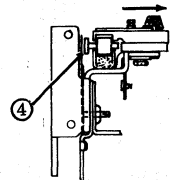
Note: When replacing the type carrier, observe the following:

- Start carrier at left sprocket.
- Rotate carrier one revolution by turning impeller gear clockwise.
- Align all pallets against left sprocket flange.

Caution: Damage to type carrier or printer will result if any type pallet is left protruding.



- ④ When replacing the carrier top guide, make sure it is positioned to front. This insures that type carrier is positioned against backup bar.

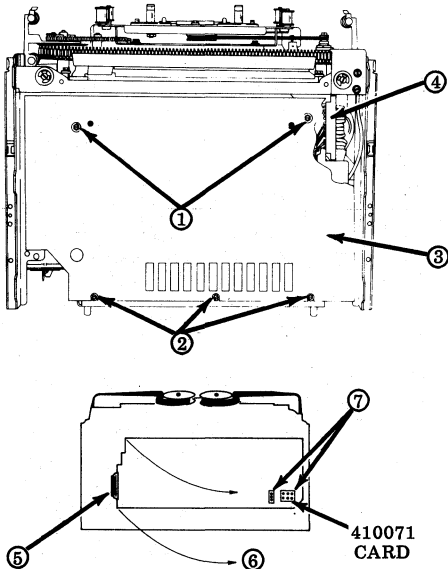


Note: See 3. PARTS for Type Pallet Arrangements.

2.20 410076 or 410640 Circuit Card Assembly (used on 40P151 and 40P153) or 410071 Circuit Card Assembly (used on 40P154).

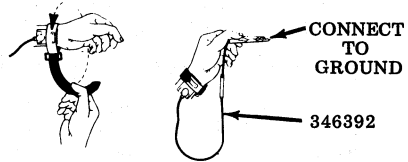
- Stand printer on rear.
- ① Remove two screws.
- ② Loosen three screws.
- ③ Slide plate out.
- ④ On 40P151 or 40P153, remove connector from 410076 or 410640 card, and using pull points, pull card down and out.
- ⑤ On 40P154, unplug flat P109 cable from left-hand side of 410071 card. Slide to left.
- ⑥ Lift left-hand side of 410071 card away from printer to a 90-degree position.
- ⑦ Unplug P106 sensor and P103 power supply cables from the 410071 card.

Note: When replacing the 410071, 410076, or 410640 circuit card with a NEW card, remake the Impeller Shaft Sensor and Flag Sensor adjustments.



Caution: When handling circuit cards with MOS devices such as the 410071, 410076, or 410640 circuit card, personnel must wear a static protection grounding strap (346392 or equivalent). The

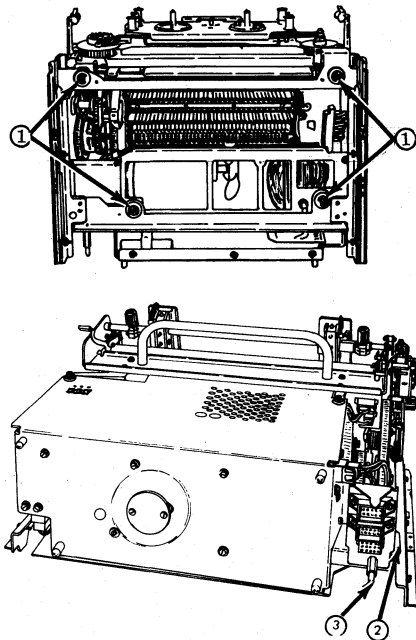
strap must be worn in firm contact with the skin at all times with the ground clip connected to ground as illustrated below. Care should be taken to avoid touching circuit paths or components on the circuit card.



Service personnel are never to be connected directly to ground but rather through a high resistance discharge path of a minimum of one megohm where 115 V ac is present. This resistance is built into the grounding strap (346392).

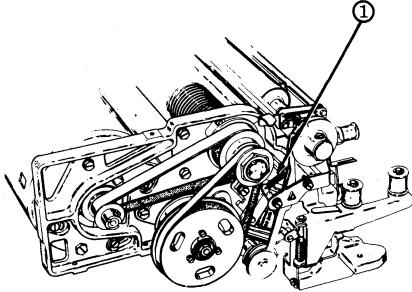
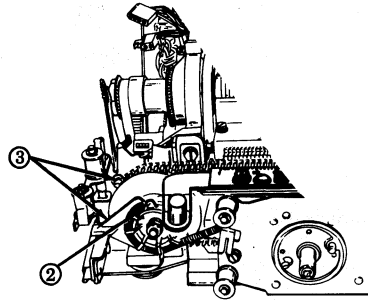
2.21 402533 Base Assembly (used on 40P151 or 40P153) or 402911 Base Assembly (used on 40P154).

- Remove circuit card — see 2.20.
- ① Remove four ring retainers and spacers.
- ② Loosen two connector bracket mounting screws.
- ③ Remove post that secures connector bracket to base.



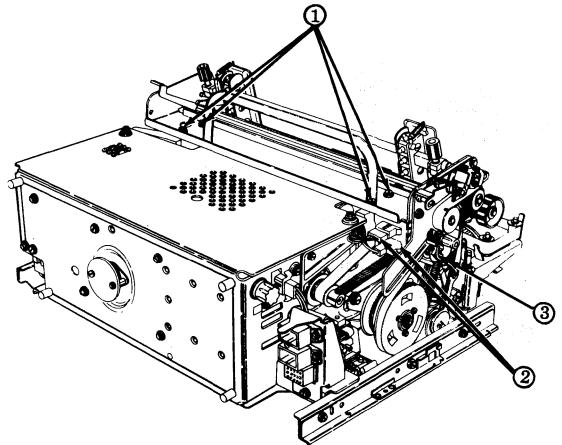
2.22 402625 Left Arm Assembly

- Remove ribbon. See 2.18, ② .
 - Remove type carrier. See 2.19.
- ① Unhook spring (402905) from left arm assembly spring post.
 - ② Unhook idler sprocket spring (400226).
 - ③ Remove two screws.



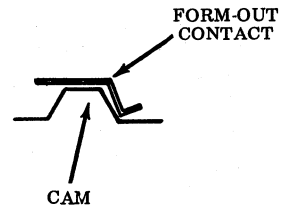
2.23 402460 Paper Handling Assembly

- ① Remove four screws.
- ② Remove two plugs, P102 and P116.
- ③ Move feed bars to rear and lift paper handling assembly (402460) by handle.



In reassembly, reset form-out contact to belt phasing as follows:

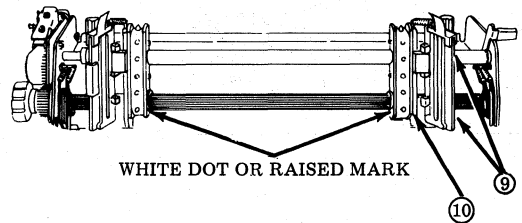
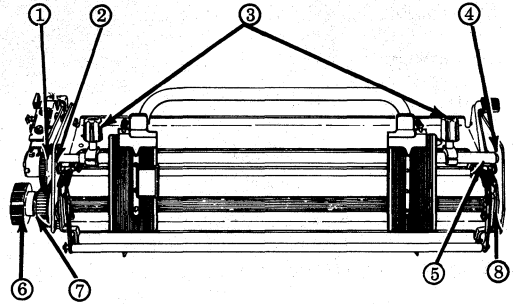
- Move line feed pawls out of engagement with the line feed gear.
- Rotate the paper advance knob until the slope part of the contact just touches the long cam.
- Release the line feed pawls.



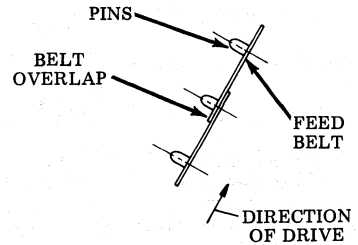
2.24 402507 or 402508 Tractor Assembly

- Remove 402460 paper handling assembly (2.23).
- Remove 402570 form-out assembly (2.29).

- ① Remove ring retainer from left side plate.
- ② Remove ring retainer.
- ③ Remove left and right tractor clamps.
- ④ Slide inner shaft out.
- ⑤ Move tractors forward and slide out outer shaft.
- ⑥ Remove ring retainer that secures left knob. Remove flat washer, spring, and knob.
- ⑦ Remove ring retainer that secures sprocket. Slide washer and sprocket off of shaft.
- ⑧ Remove two screws that secure oilite bearing to right side of frame. Slide shaft out to right.
- ⑨ Loosen two Phillip head screws on tractor assembly that is to be replaced.
- ⑩ Remove torsion spring on tractor assembly.
 - Slide tractor assembly to right to remove.



WHITE DOT OR RAISED MARK

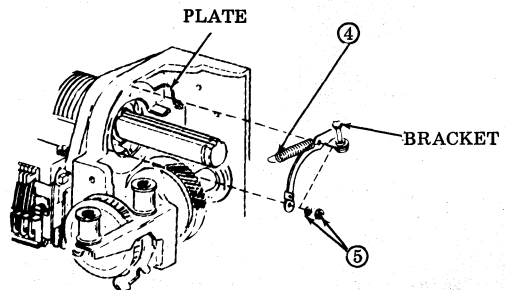
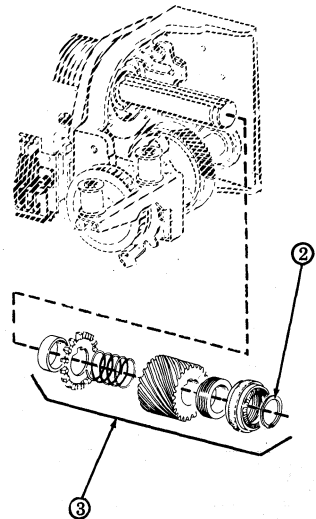
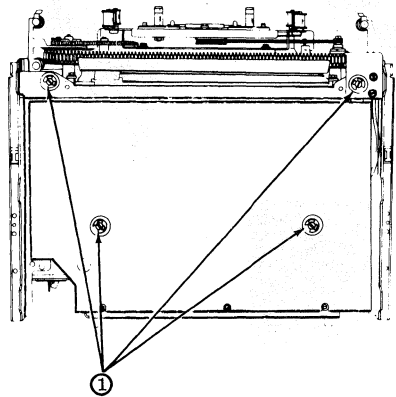


Note 1: To replace a 402877 tractor belt, loosen two Phillip head screws on tractor assembly. The new belt should be installed with the overlap in direction illustrated.

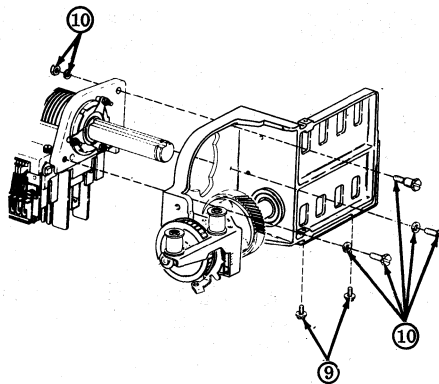
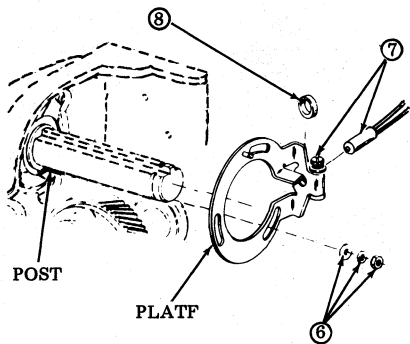
Note 2: During reassembly of tractor assembly to the shaft, perform Tractor Phasing and Tractor Lid adjustments. Perform the adjustments in 2.29 in reassembly of form-out assembly.

2.25 402622 Right Casting Assembly

- Remove type carrier — see 2.19.
 - Remove circuit card — see 2.20.
 - Remove front plate — see 2.28.
 - Remove paper handling — see 2.23.
 - Remove power module — see 2.35.
- ① Stand printer on rear and remove four retaining rings. Remove printer from base. Restore printer to normal position.
 - ② Remove retaining ring from shaft.
 - ③ Slide off adjusting ring, collar, gear, spring, timing wheel, and bushing from shaft.
 - ④ Unhook spring (110438) from post on sensor bracket.
 - ⑤ Remove two nuts (3599) and lockwashers (3640) holding bracket to the plate. Remove bracket.
 - ⑥ Remove nut (3599), lockwasher (3640), and flat washer (125011) holding plate to post. Remove plate.
 - ⑦ Loosen screw holding the sensor. Remove sensor.
 - ⑧ Be careful not to lose spacer (400931).
 - ⑨ Remove two screws w/lockwashers (184057) holding bottom pan to casting.
 - ⑩ Remove shoulder screw (400923), lockwasher (45815), and nut (112626); remove two screws (153442) and lockwasher (45815); remove right casting assembly.



In reassembly, follow through with 2.35, 2.23, 2.28, 2.20, and 2.19. Perform adjustments in 2.23 and 2.28. Check the Impeller Shaft Sensor Gap and Flag Sensor Gap adjustments. On printing test, the Impeller Shaft to Carrier Phasing, the Impeller Shaft Sensor, and Flag Sensor adjustments may have to be checked.



2.26 400001 Print Head Assembly

Warning: If a trouble is isolated to the Print Head Assembly, the complete printer should be replaced. Disassembly information shown is for repair shop location reference.

- Remove type carrier — see 2.19.
- Remove circuit card — see 2.20.
- Remove front plate — see 2.28.
- Remove right casting — see 2.25.

① Remove clutch drive belt.

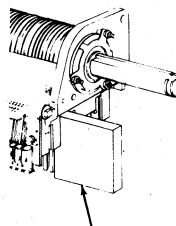
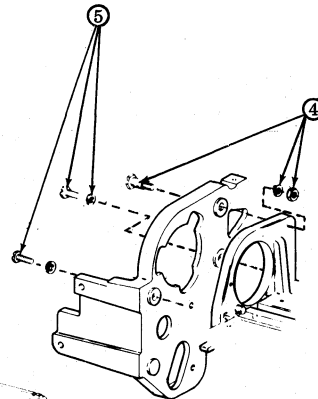
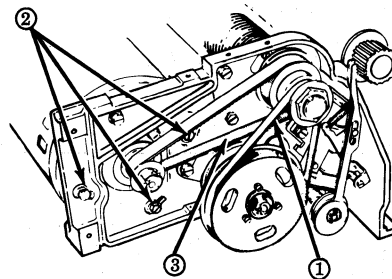
② Loosen three motor adjusting screws friction tight. Press motor inward and up to release belt tension.

③ Remove impeller shaft drive belt.

④ At left casting, remove shoulder screw (400293), lockwasher(45815), and nut (112626).

⑤ Also remove two screws (153442) and lockwashers (45815). Remove print head assembly (400001).

Note: It is suggested that when the right casting is removed, a 3-inch piece of wood be placed under the right end of the print head to keep it from dropping.

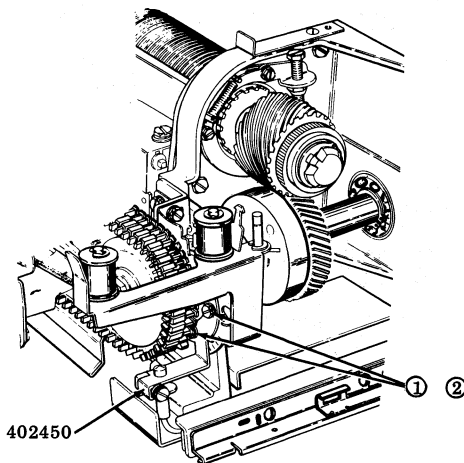


In reassembly, be sure to follow all the procedures and perform all the adjustments in 2.25 and 2.32.

2.27 402626 Right Arm Assembly

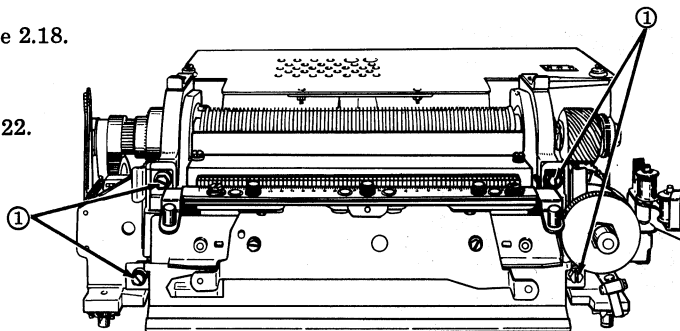
- Remove ribbon — see 2.18, ② .
- Stand printer on rear.
- ① Remove two screws (400499), two lock-washers (2191) and two flat washers (7002). This frees the flag sensor mounting bracket (402450) which should be moved aside.
- ② Remove remaining screw (151631) and lock-washer (2191) fastening right arm assembly to frame.

In reassembly, remake the Flag Sensor Gap and the Flag Sensor Final adjustments.



2.28 402430 Front Plate and 402623 Rear Guide Assemblies

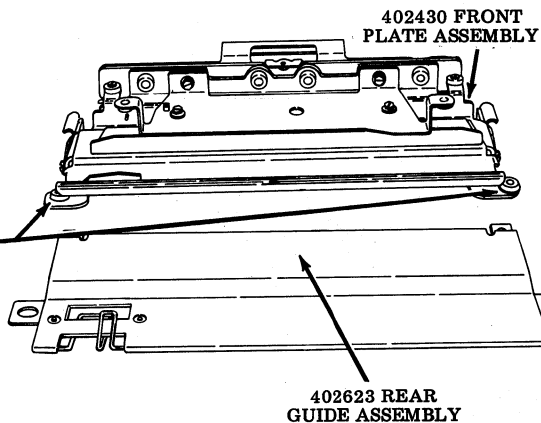
- Remove ribbon feed assembly. See 2.18.
- Remove type carrier. See 2.19.
- Remove left arm assembly. See 2.22.



- Stand printer on rear.

- ① Remove four mounting screws and carefully remove both the front plate assembly (402430) and rear guide assembly (402623).

Caution: Do not lose four spacers which separate the two assemblies.



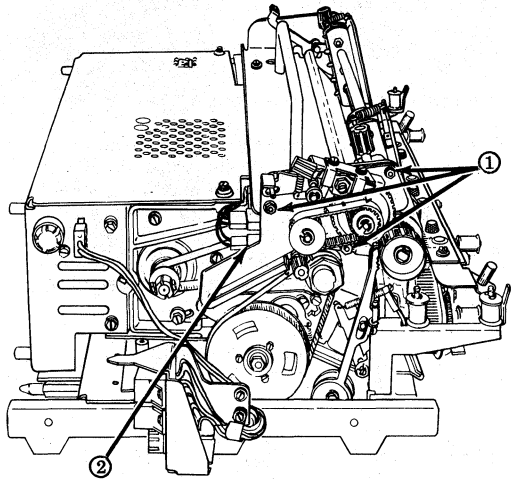
In reassembly, make the Ribbon Mechanism Drive Belt adjustment.

2.29 402570 Form-Out Assembly

- ① Remove three nuts and lockwashers.
- ② Disconnect P116 and remove lower connector J116 from bracket.

In reassembly, remake Gear Backlash adjustment. Reset form-out contact to belt phasing as follows:

- Move line feed pawls out of engagement with the line feed gear.
- Rotate the paper advance knob until the slope part of the contact just touches the long cam.
- Release the line feed pawls.



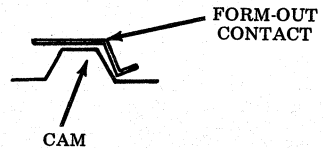
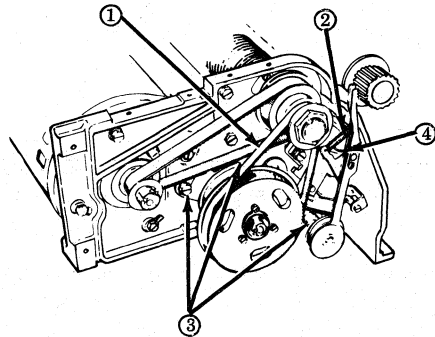
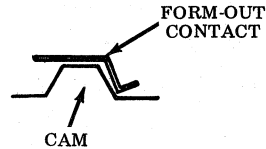
2.30 402621 Line Feed Assembly

- ① Slide belt off.
- ② Disconnect one end of spring (402905).
- ③ On early design, remove three screws (151723), three lockwashers (45815), and two flat washers (3438).
On late design, remove two screws (151723), two lockwashers (45815), and one flat washer (3438).

- ④ Remove WHITE-BLACK and BLACK wires from rear of coil. Reconnect these wires FIRST during reassembly.

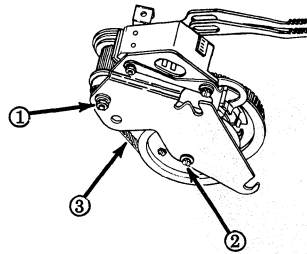
In reassembly, remake Clutch Drive Belt Tension adjustment. Reset form-out contact to belt phasing as follows:

- Move line feed pawls out of engagement with the line feed gear.
- Rotate the paper advance knob until the slope part of the contact just touches the long cam.
- Release the line feed pawls.



2.31 400632 Feed Bar Drive Belt

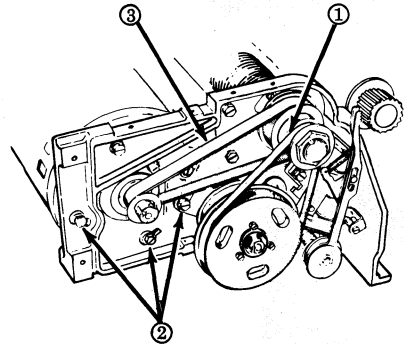
- Remove 402621 line feed assembly (2.30).
- ① Remove 112626 nut, 45815 lockwasher and 3438 flat washer.
- ② Remove 153442 screw and 45815 lockwasher.
- ③ Remove plate and 400632 feed bar drive belt. Replace belt.



In reassembly, perform Line Feed Bar Eccentric and Drive Belt Tension adjustment and the adjustments in 2.30.

2.32 400631 Impeller Shaft Drive Belt

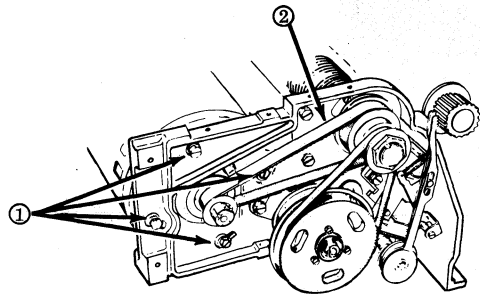
- ① Remove 400634 clutch drive belt.
- ② Loosen three motor adjusting screws friction tight. Press motor inward and up to release belt tension.
- ③ Remove worn 400631 belt and replace with new belt.



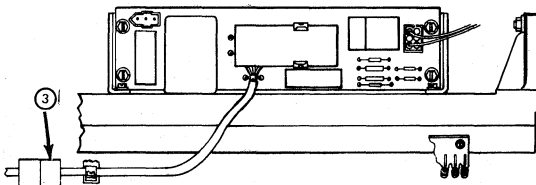
In reassembly, perform Impeller Shaft Drive Belt Tension adjustment. Check Clutch Drive Belt Tension adjustment.

2.33 402402 Motor Assembly

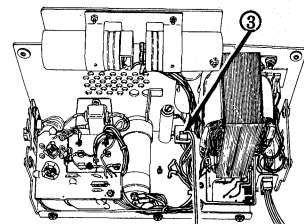
- Remove paper handling assembly (40P151 and 40P153 only). See 2.23.
- Remove power module. See 2.35.
- ① Remove four screws.
- ② Remove impeller shaft drive belt.
- ③ Unplug P107 (located at power module on 40P151 or 40P153 or at motor control circuit card assembly on 40P154).



In reassembly, make Impeller Shaft Drive Belt Tension adjustment.



(MOTOR CONTROL CIRCUIT CARD ASSEMBLY)



(POWER MODULE)

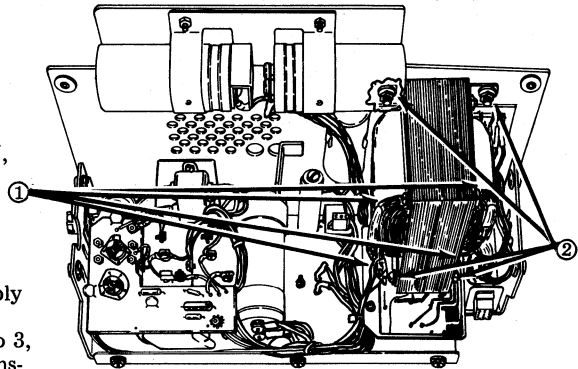
2.34 400901 Transformer (402620 power module assembly), 402785 Transformer Assembly (402789 power module assembly) or 402982 Transformer Assembly (402978 power module assembly).

2.34a. 400901 Transformer

- Remove power module. See 2.35a.

- ① Cut the protective tubing at the transformer terminals and unsolder four wires (W, BK, Y, BR).
- ② Remove four nuts, lockwashers, and flat washers that mount the transformer.

Note: In reassembly, reverse the disassembly procedure and resolder the four wires to the transformer terminals (W to 1, BK to 2, Y to 3, BR to 4). After terminating wires, bend transformer terminals toward core. Nestle wires between the winding and the core. The wires must not protrude beyond the top of the core. Perform the adjustment in 2.23.

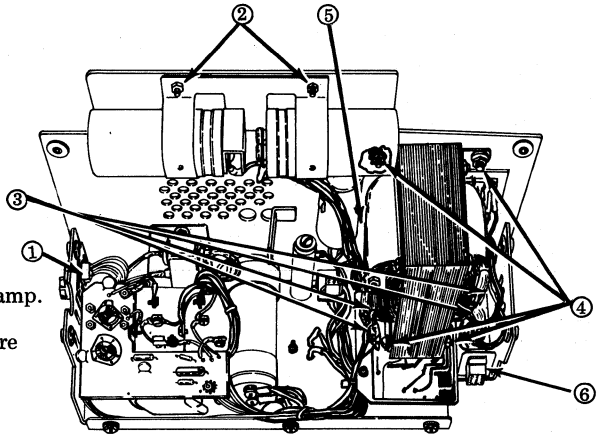


402620 POWER MODULE ASSEMBLY

2.34b. 402785 Transformer Assembly

- Remove power module. See 2.35a.

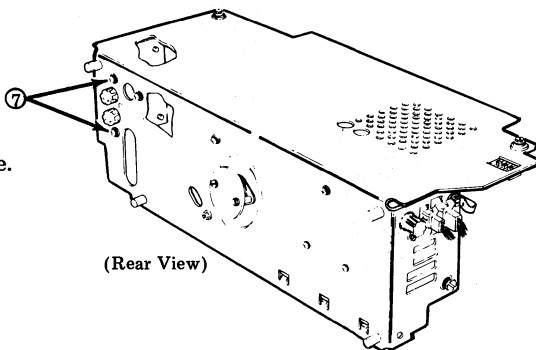
- ① Remove the P117 plug from frame.
- ② Remove the two capacitor mounting bracket screws.
- ③ Cut the protective tubing at the top terminals of the transformer and unsolder four wires (BK, BK, Y, BR).
- ④ Remove four transformer mounting nuts, lockwashers, flat washers and the cable clamp.
- ⑤ Remove the nut and lockwasher that secure the braided ground strap.
- ⑥ Remove the P105 plug from the fuse mounting bracket.



402789 POWER MODULE ASSEMBLY

- ⑦ Remove the two fuse/plug bracket mounting screws.

Note: When installing a new 402785 transformer assembly, transfer the two 129919 fuses from the fuse holders on the old assembly to the fuseholders on the new assembly. The four wires must be resoldered to terminals (BK to 1, BK to 2, Y to 3, BR to 4). After terminating wires, bend transformer terminals toward the core. Nestle wires between the winding and the core. Wires must not protrude beyond top of core. The five transformer wires at the bottom of the transformer should be routed so that all slack is removed between the transformer breakout and the cable clamp and the wires are within the outside edge of the 3-switch nut plate.

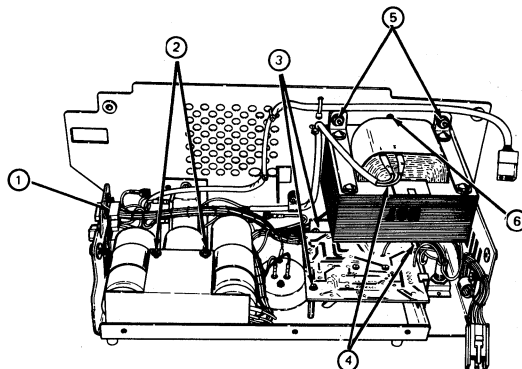


In reassembly, perform the adjustment in 2.23.

2.34c 402982 Transformer Assembly

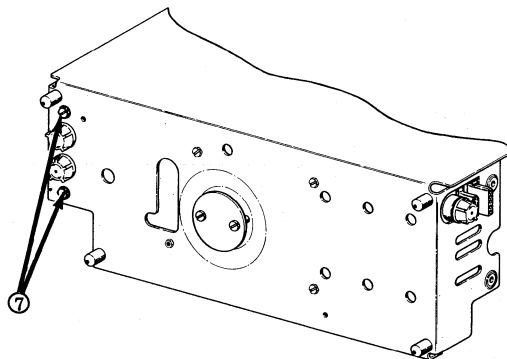
- Remove the power module assembly. See 2.35b.

- ① Remove the P117 plug from frame.
- ② Remove the four capacitor clamp mounting nuts, lockwashers, flat washers, the insulator, two lockwashers and bushings.
- ③ Remove the screw that mounts the 410151 card. Remove the card and two J102 connector mounting screws and lockwashers.
- ④ Cut the protective tubing at the top terminals of the transformer and unsolder seven wires (BR, BL, Y, BR, R, G, O).
- ⑤ Remove four nuts, lockwashers, and flat washers that mount the transformer.
- ⑥ Remove the nut and lockwasher that secure the braided ground strap.
- ⑦ Remove two fuse bracket mounting screws.



402978 POWER MODULE ASSEMBLY

Note: When installing a new 402982 transformer assembly, transfer the two 129919 fuses from the fuse holders on the old assembly to the fuse holders on the new assembly. The seven wires must be resoldered to terminals (BR to 1, BL to 2, Y to 3, BR to 4, R to 6, G to 7, O to 8). After terminating wires, bend transformer terminals toward the core. Nestle wires between the winding and the core. Wires must not protrude beyond top of core.



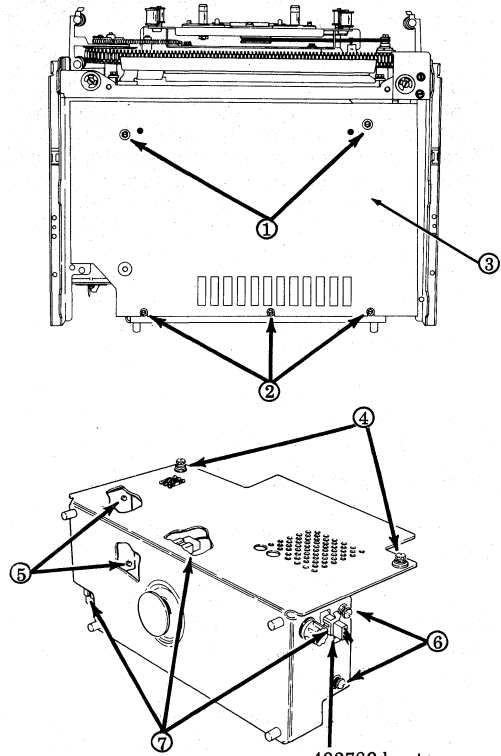
2.35 402620 Power Module Assembly (for 40P151), 402789 Power Module Assembly (for 40P153), or 402978 Power Module Assembly (for 40P154)

2.35a 402620 or 402789 Power Module Assembly (40P151 or 40P153, respectively)

- Remove paper handling assembly. See 2.23.
 - Stand printer on rear.
- ① Remove two screws.
 - ② Loosen three screws.
 - ③ Slide plate out.
 - ④ Remove two top mounting screws.
 - ⑤ Remove two right side mounting screws.
 - ⑥ Remove two left side mounting screws.
 - ⑦ Disconnect three connectors (on 402620 power module) or four connectors (on 402789 power module) and lift assembly off.

Note: Removal of lower screw on left side is facilitated by sliding connector mounting bracket to rear. Remove rear mounting screw (or post) from bracket, loosen two mounting screws that hold bottom of bracket to frame, and slide bracket to rear until cover mounting screw is accessible.

In reassembly, reverse the disassembly procedure and perform adjustment in 2.23.

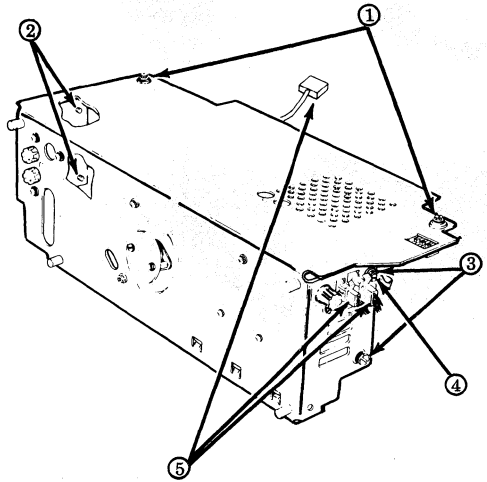


402620 OR 402789
POWER MODULE ASSEMBLY

402789 has two
connectors on left side

2.35b. 402978 Power Module Assembly (for 40P154)

- Remove 410071 circuit card (2.20).
- ① Remove two top mounting screws.
- ② Remove two right side mounting screws.
- ③ Remove two left side mounting screws and cable clamp.
- ④ Remove the screw and lockwasher that secure the braided ground strap on the left side.
- ⑤ Disconnect three connectors and lift assembly off printer.

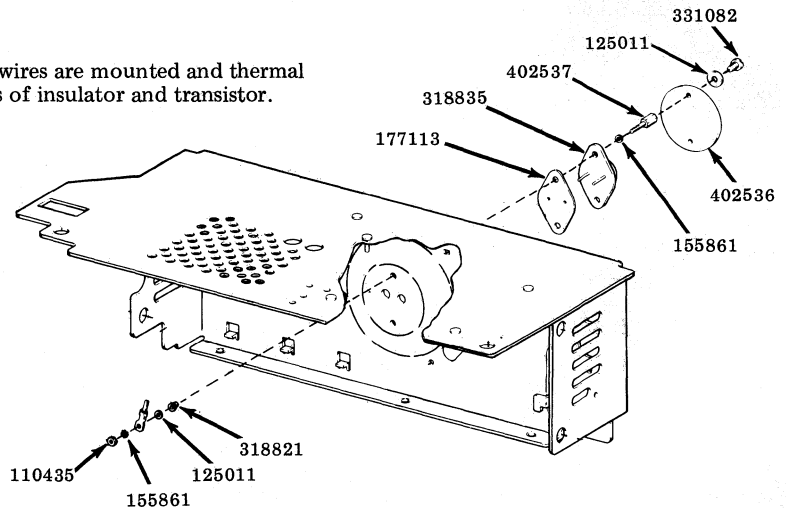


Note: Removal of lower screw on left side is facilitated by sliding connector mounting bracket to rear. Remove rear mounting post from bracket, loosen two mounting screws that hold bottom of bracket to frame, and slide bracket to rear until cover mounting screw is accessible.

2.36 318835 Transistor

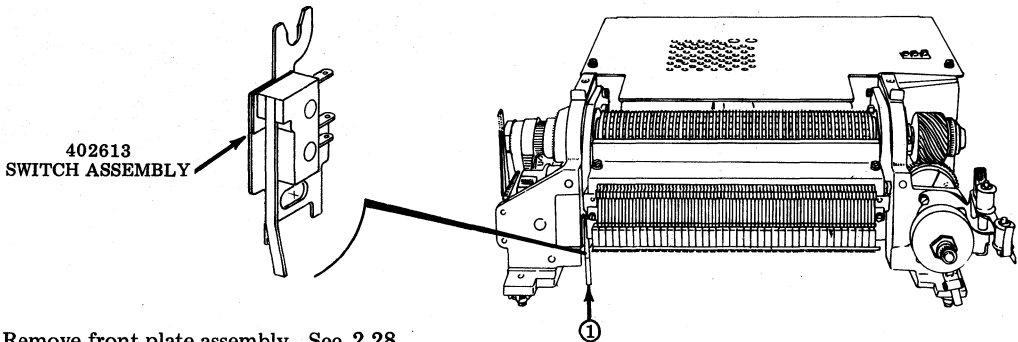
- Remove power module assembly (2.35).
- ① Unsolder white and slate leads to transistor terminals.
- ② Remove transistor mounting hardware as illustrated below.
- ③ Remove transistor.

In reassembly, make sure all wires are mounted and thermal compound is applied to bases of insulator and transistor.



2.37 402613 Paper-Out Switch

Caution: Due to mounting screw being located close to the end armature, care should be exercised when removing and replacing the switch assembly.

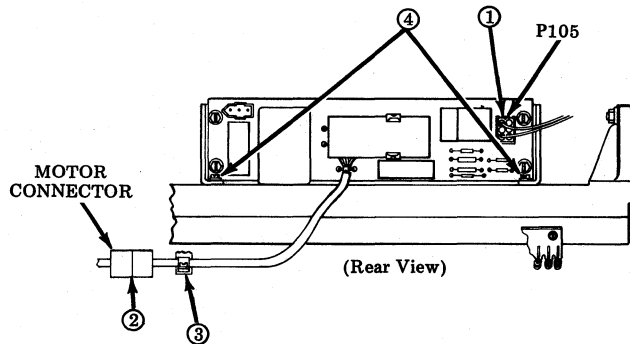


- Remove front plate assembly. See 2.28.
- ① Remove and retain the lower screw and adjusting pry plate.
- Disengage the switch assembly from the pivot by carefully pulling the assembly toward the bottom and removing.

In reassembly, perform the Paper-Out Switch adjustment.

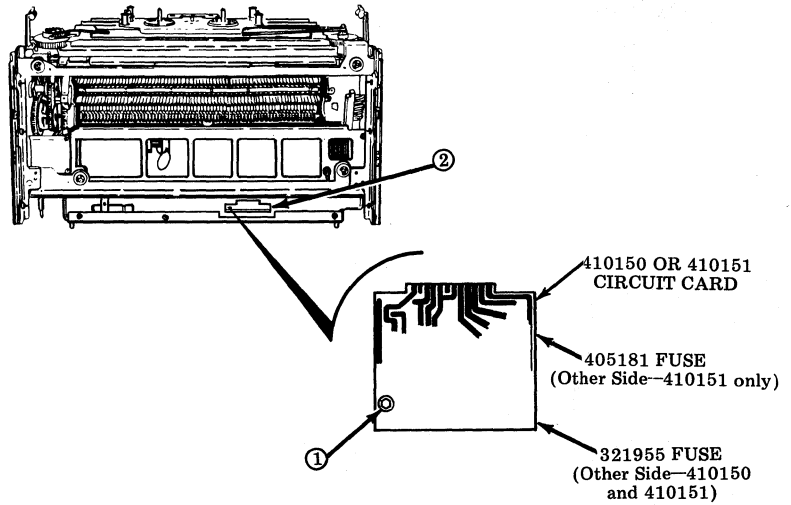
2.38 410155 Motor Control Circuit Card Assembly (40P154)

- Remove 402978 power module assembly (2.35).
- ① Disconnect P105 connector from card assembly.
- ② Disconnect motor connector.
- ③ Remove cable clamp(s).
- ④ Remove two screws that secure motor control circuit card assembly.
- Remove assembly.



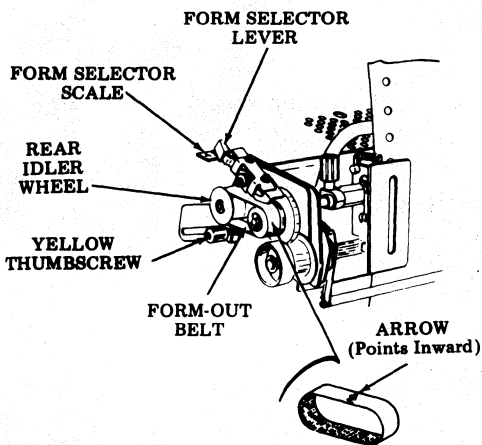
2.39 410150 (40P151 or 40P153) or 410151
(40P154) Regulator Circuit Card Assembly

- Remove power module assembly (2.35).
- ① Remove screw w/lockwasher that secures circuit card.
 - ② Slide circuit card out from J111 receptacle (40P151 or 40P153) or J102 receptacle (40P154).



2.40 Form-Out Belt

Form-Out Belt Selection

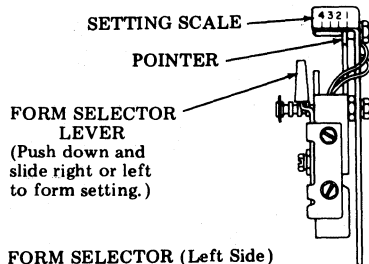


Form Selector Setting				Part No.	Color of Belt
4	3	2	1		
Length of Form, Inches					
+3-1/3	2-1/2	5	10	402571	Amber
+3-2/3	* 2-3/4	5-1/2	11	402572	Dk Blue
4	3	6	12	402573	Yellow
+4-1/3	* 3-1/4	6-1/2	13	402574	Brown
+4-2/3	3-1/2	7	14	402575	Red
5	* 3-3/4	7-1/2	15	402576	Pink
+5-1/3	4	8	16	402577	Lt Green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

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

Removal:

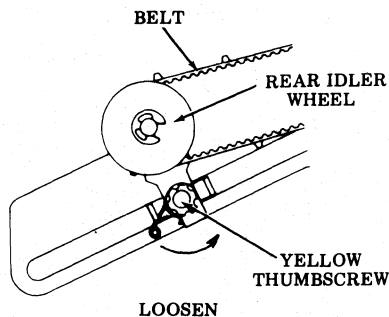
- ① Loosen yellow thumbscrew (counterclockwise) and slide bracket forward to remove tension.
- ② Depress and hold form selector lever so that contact arm clears.
- ③ Move rear idler wheel forward.
- ④ Remove belt by sliding it to left.



(Adjusted Position of Idler Wheel)

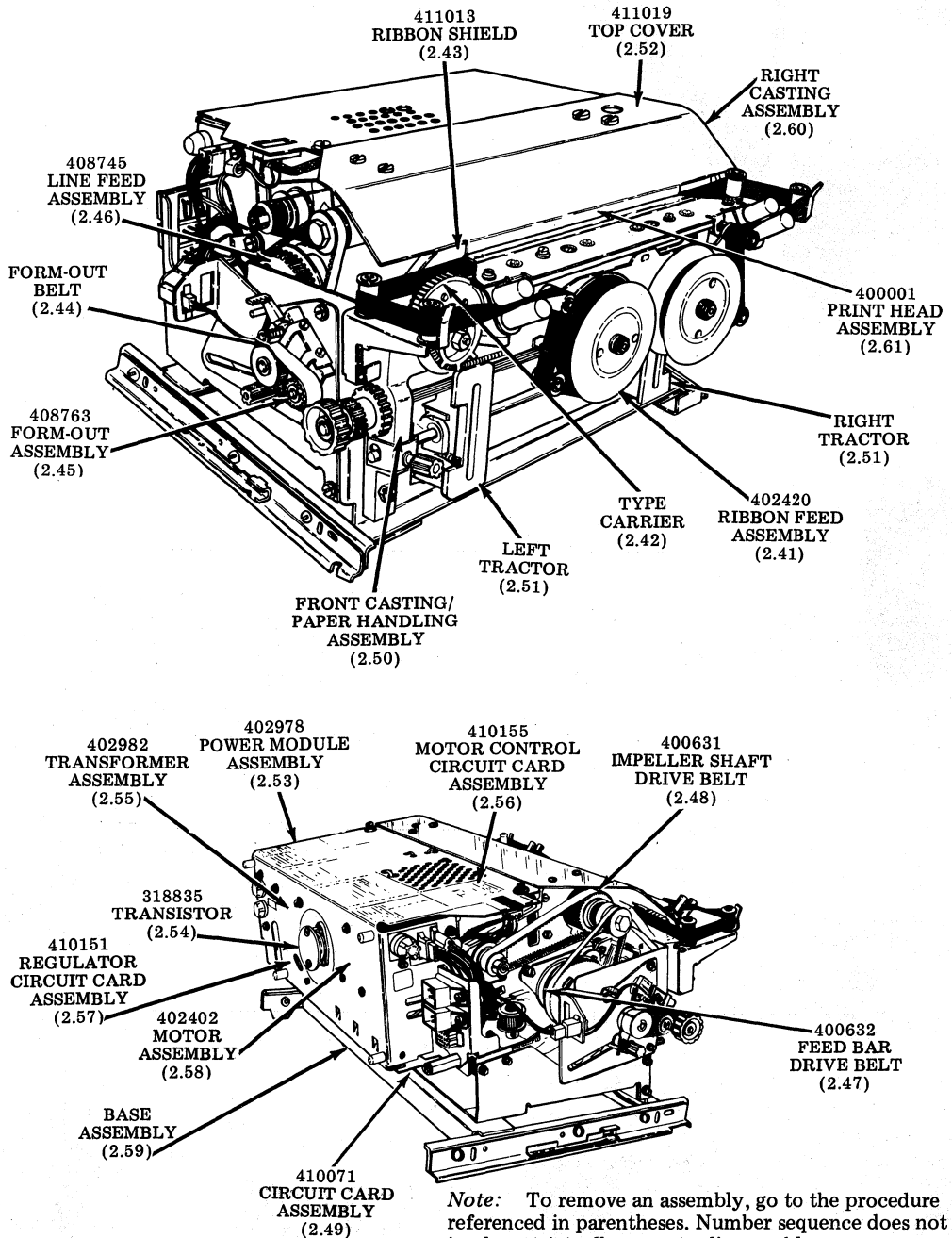
Replacement:

- ① Depress and hold form selector lever while holding rear idler wheel forward.
- ② Position new belt on wheels so that arrow points inward.
- ③ Position rear wheel back and remove slack in belt. Have bracket at right angles to slot as shown.
- ④ Tighten thumbscrew clockwise.
- ⑤ Depress FORM ADVANCE, and check stop positions.



Note: If form stop positions do not correspond to form lengths, belt may be reversed or incorrect belt is used. Check Form-Out Belt Selection

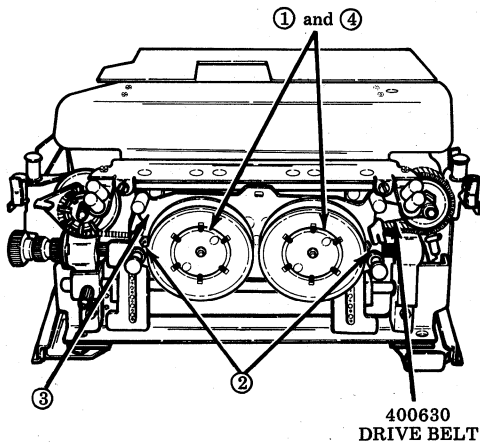
C. 80-Column Forms Access Printer (40P253)



2.41 402420 Ribbon Feed Assembly

- ① Pull off ribbon spools. Roll up ribbon (402444) and set aside.
- ② Remove two nuts, lockwashers and flat washers.
- ③ Move ribbon feed assembly to right to disengage drive belt (400630). Remove ribbon feed assembly and drive belt.
- ④ When installing ribbon, follow ribbon loading instructions printed on cover top.

In reassembly, perform the Ribbon Feed Drive Belt Tension adjustment.



2.42 Type Carrier

- Remove ribbon. See 2.41 ①
- ① Depress thumb lever on right guide bracket allowing guide to spring open.
 - ② Remove two screws (hex head), lockwashers and flat washers and remove the tear bar assembly.

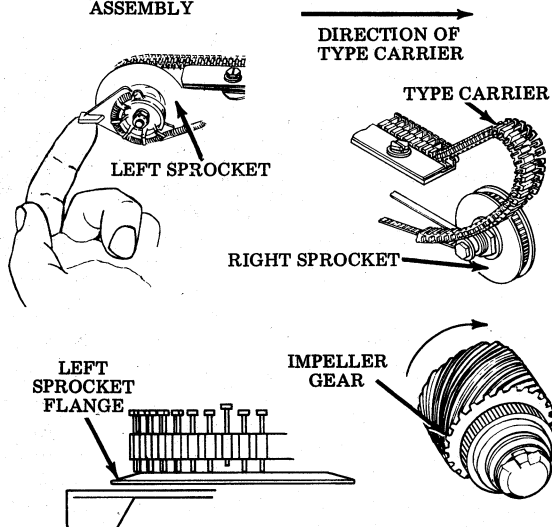
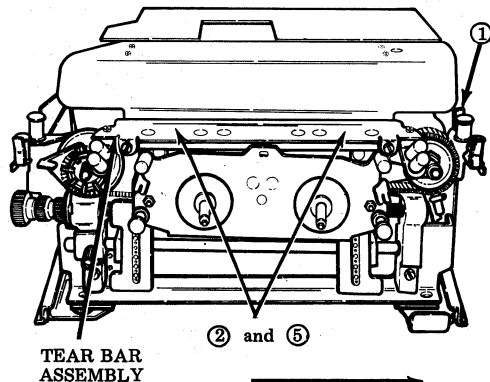
Caution: Exercise care in handling tear bar assembly to prevent injury from the tear edge. Careless handling of the tear bar assembly may produce a burr on the tearing edge which may impair feeding of paper forms.

- ③ Lift up arm on left type carrier sprocket to release spring bias on sprocket. While holding arm up, lift type carrier from right sprocket and remove.

Install type carrier starting at left sprocket. Lift finger lever on left sprocket and position carrier over right sprocket.

- ⑤ Reinstall the tear bar assembly securing screws while holding tear bar assembly toward rear of the unit.
- ⑥ Rotate type carrier one revolution by turning impeller gear by hand clockwise. At the same time, align any protruding type pallets against left sprocket flange.

Caution: Damage to type carrier or printer will result if any type pallet is left protruding.



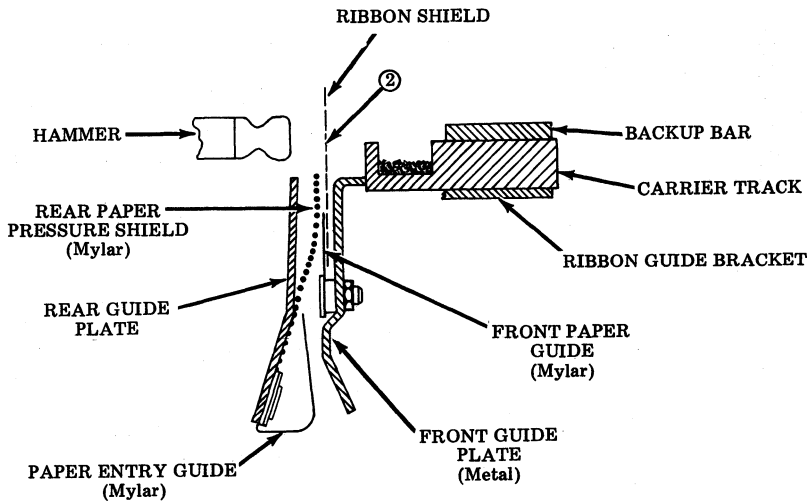
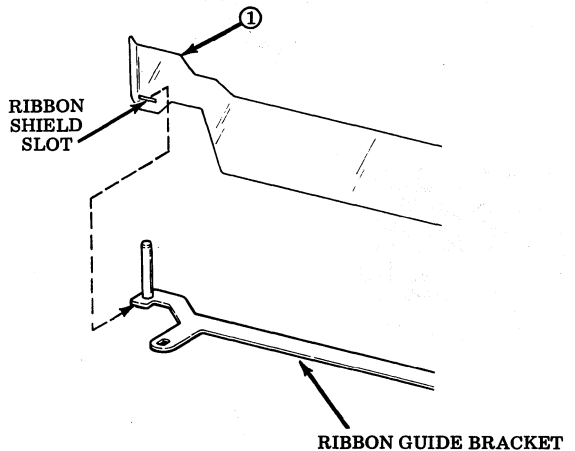
2.43 411013 Ribbon Shield

- Remove ribbon. See 2.41 ① .
- Remove type carrier (2.42).

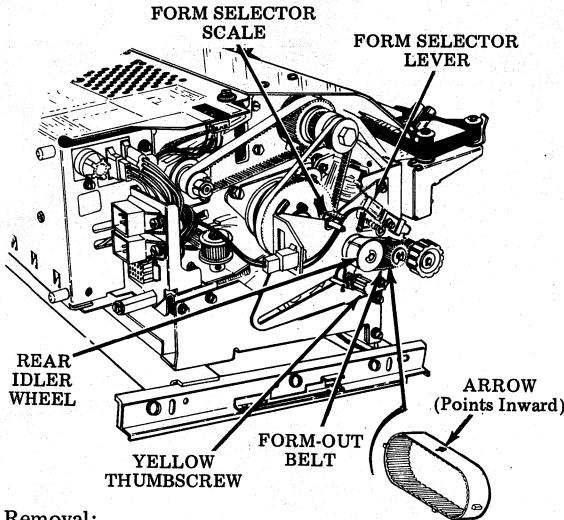
① Grasp ribbon shield at left tab. Bend shield forward and lift in an upward direction to remove.

② To install, insert ribbon shield between the front guide plate (metal) and front paper guide (Mylar) and anchor to the ribbon guide bracket utilizing ribbon shield slots.

Caution: If ribbon shield is installed in wrong position, paper jam will result or the ribbon shield will be disengaged.



2.44 Form-Out Belt



Removal:

- ① Loosen yellow thumbscrew (counterclockwise) and slide bracket forward to remove tension.
- ② Depress and hold form selector lever so that contact arm clears.
- ③ Move rear idler wheel forward.
- ④ Remove belt by sliding it to left.

Replacement:

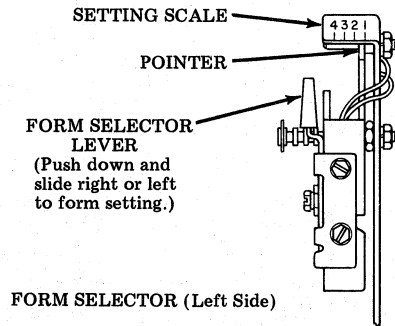
- ① Depress and hold form selector lever while holding rear idler wheel forward.
- ② Position new belt on wheels so that arrow points inward.
- ③ Position rear wheel back and remove slack in belt. Have bracket at right angles to slot as shown.
- ④ Tighten thumbscrew clockwise.
- ⑤ Depress FORM ADVANCE, and check stop positions.

Note: If form stop positions do not correspond to form lengths, belt may be reversed or incorrect belt is used. Check Form-Out Belt Selection

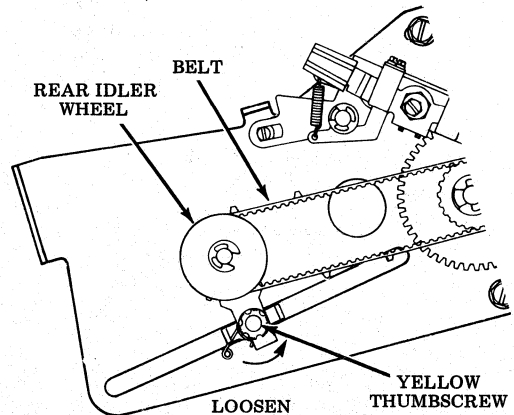
Form-Out Belt Selection

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

- + For six lines per inch
* For eight lines per inch



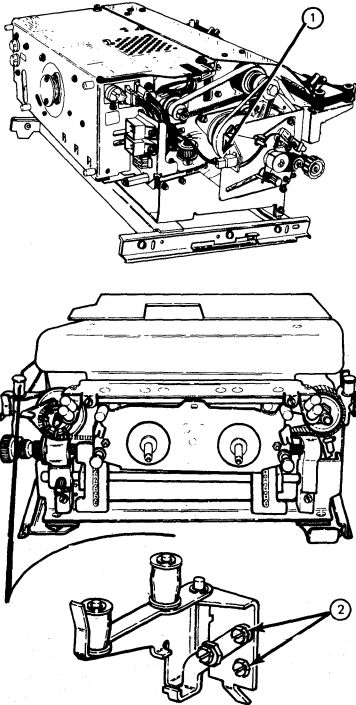
(Adjusted Position of Idler Wheel)



2.45 408763 Form-Out Assembly

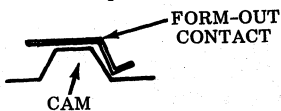
- Remove ribbon. See 2.41 C .

- ① Disconnect P116 plug from J116 receptacle.
- ② Remove two screws w/lockwashers that secure mounting bracket to side casting. Removal of upper screw is facilitated by lifting up arm on left type carrier sprocket.



In reassembly, check Gear Backlash adjustment.
Reset form-out contact to belt phasing as follows:

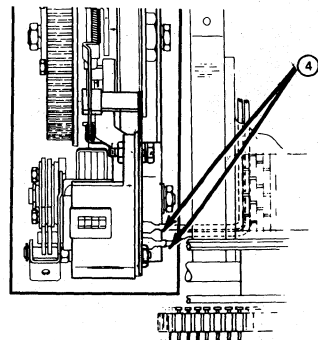
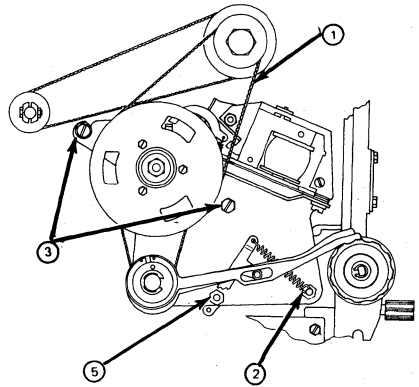
- Move line feed pawls out of engagement with the line feed gear.
- Rotate the paper advance knob until the slope part of the contact just touches the long cam.
- Release the line feed pawls.



2.46 408745 Line Feed Assembly

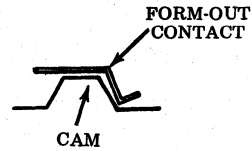
- Remove form-out assembly (2.45).

- ① Slide line feed clutch drive belt off.
- ② Disconnect one end of spring.
- ③ Remove two screws, two lockwashers and one flat washer.
- ④ Remove two leads from backside of coil.
- ⑤ Remove rear screw securing post cable clamp for P104 cable.



⑥ When replacing the line feed assembly, reconnect orange and yellow leads and brown and red leads to coil first.

In reassembly, perform Clutch Drive Belt Tension adjustment. In reassembly of form-out assembly, check Gear Backlash adjustment. Reset form-out contact to belt phasing as follows:

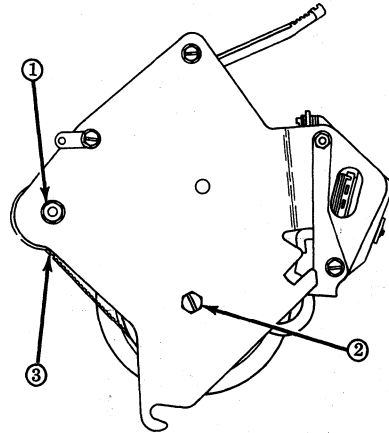


- Move line feed pawls out of engagement with the line feed gear.
- Rotate the paper advance knob until the slope part of the contact just touches the long cam.
- Release the line feed pawls.

2.47 400632 Feed Bar Drive Belt

- Remove 408745 line feed assembly (2.46).

- ① Remove 112626 nut, 2669 lockwasher, and 35826 flat washer.
- ② Remove 153442 screw and 45815 lockwasher.
- ③ Remove plate and 400632 feed bar drive belt. Replace belt.

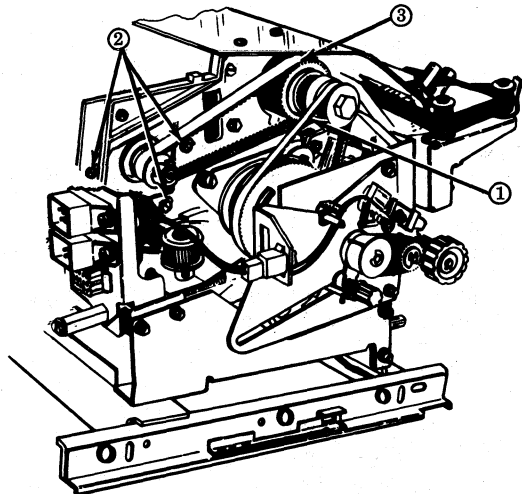


In reassembly, perform Line Feed Bar Eccentric and Drive Belt Tension adjustment and the adjustments in 2.46.

2.48 400631 Impeller Shaft Drive Belt

- ① Remove 400634 clutch drive belt.
- ② Loosen three motor adjusting screws friction tight. Press motor inward and up to release belt tension.
- ③ Remove worn 400631 belt and replace with new belt.

In reassembly, perform Impeller Shaft Drive Belt Tension adjustment. Check Clutch Drive Belt Tension adjustment.

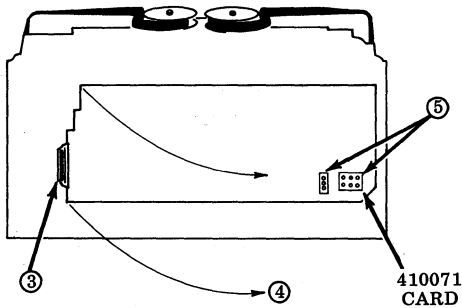
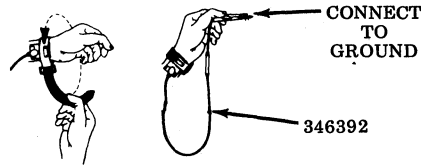


2.49 410071 Circuit Card Assembly

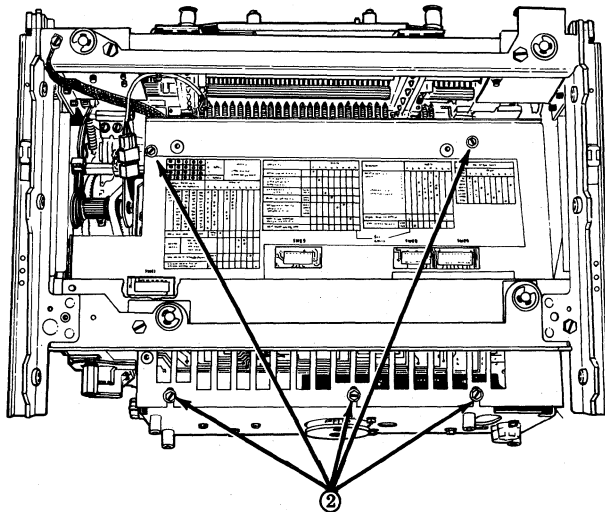
- ① Turn printer upside down.
- ② Remove five screws securing circuit card cover and remove cover.
- ③ Unplug flat P109 cable from left-hand side of 410071 card.
- ④ Lift card away from printer.
- ⑤ Unplug P106 sensor and P103 power supply cables from 410071 card.
- ⑥ Remove card through opening in rear of base frame assembly.

Note: When replacing the 410071 circuit card with a NEW card, remake the Impeller Shaft Sensor and Flag Sensor adjustments.

Caution: When handling circuit cards with MOS devices such as the 410071 circuit card, personnel must wear a static protection grounding strap (346392 or equivalent). The strap must be worn in firm contact with the skin at all times with the ground clip connected to ground as illustrated below. Care should be taken to avoid touching circuit paths or components on the circuit card.

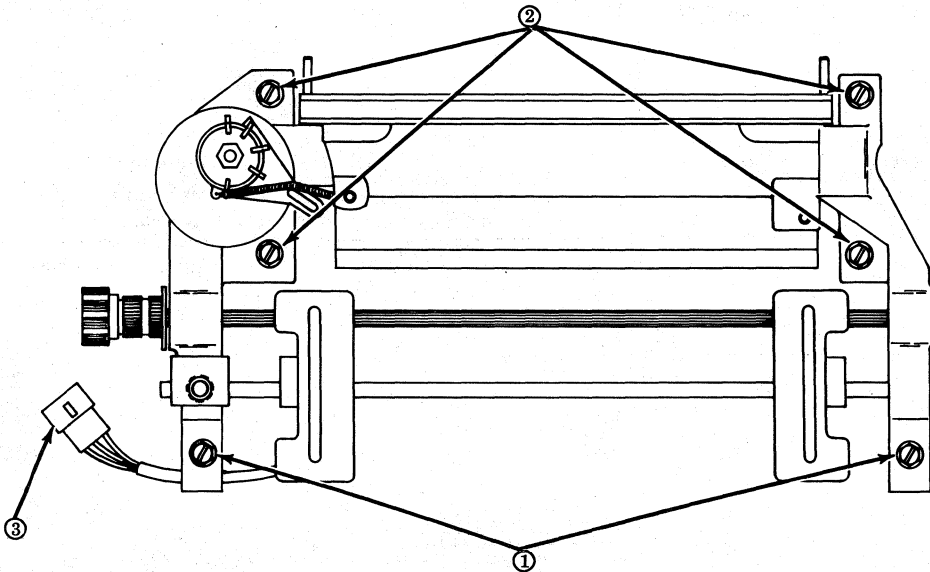


Service personnel are *never* to be connected directly to ground but rather through a high resistance discharge path of a minimum of one megohm where 115 V ac is present. This resistance is built into the grounding strap (346392).



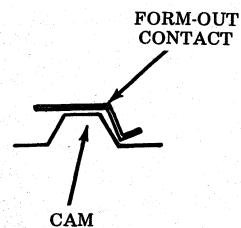
2.50 Front Casting/Paper Handling Assembly

- Remove ribbon feed assembly (2.41).
 - Remove type carrier (2.42).
- ① Remove two screws, lockwashers and flat washers that secure front casting to base frame front plate.
 - ② Remove four screws, lockwashers, and flat washers that mount front casting to side castings.
 - ③ Disconnect J104 receptacle.
 - ④ Move line feed pawls out of engagement with the line feed gear and remove front plate—paper handling assembly.



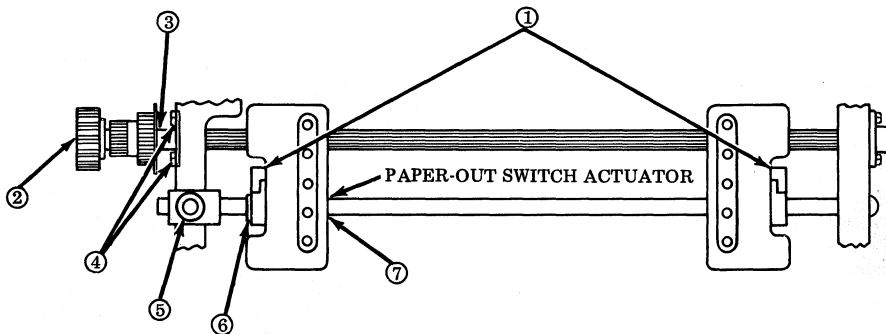
In reassembly, perform the Ribbon Feed Drive Belt Tension adjustment. Reset form-out contact to belt phasing as follows:

- Move line feed pawls out of engagement with the line feed gear.
- Rotate the paper advance knob until the slope part of the contact just touches the long cam.
- Release the line feed pawls.



2.51 Left or Right Tractor Assembly

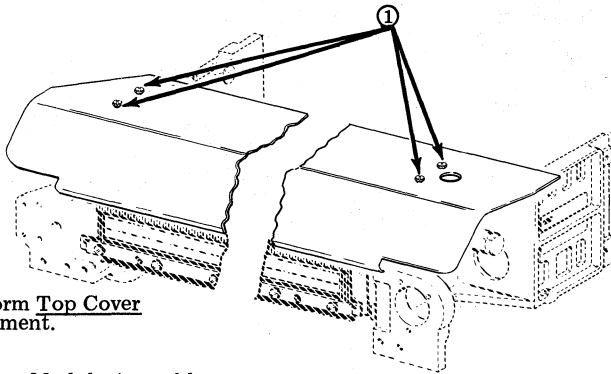
- Remove form-out assembly 2.45.
- ① Release the tractor clamp levers on left and on right tractor assemblies.
 - ② Remove retainer ring that secures left knob. Remove flat washer, spring and knob. Remove spur gear while holding line feed pawls up.
 - ③ Remove retainer ring and spacer.
 - ④ Remove two screws that secure oilite bearing to left side frame. Slide shaft out to left.
 - ⑤ Remove blue thumb knob, lockwasher, flat washer and bracket.
 - ⑥ Remove retainer ring located to left of left tractor.
 - ⑦ With left tractor biased to the left and tractor lid open, remove two retainer rings from left and right sides of paper-out switch actuator. Slide support shaft out to left.



During reassembly of tractor assembly to shaft, perform Tractor Phasing adjustment. If paper-out switch is replaced on the left tractor assembly, also perform the Paper-Out Switch adjustment. In reassembly of the Form-Out assembly, perform the adjustments in 2.45.

2.52 411019 Top Cover

- ① Remove four mounting screws and lift off top cover.

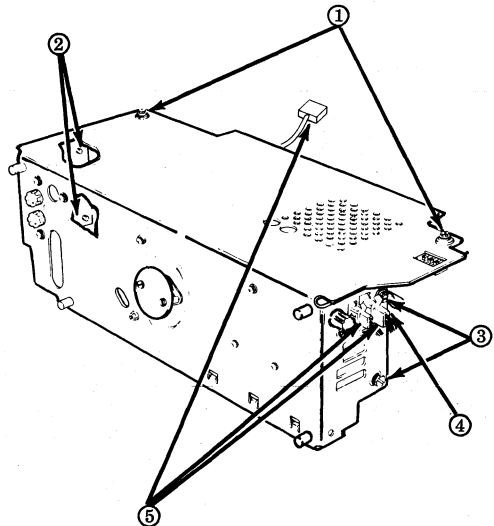


In reassembly, perform Top Cover (Preliminary) adjustment.

2.53 402978 Power Module Assembly

- Remove circuit card (2.49).

- ① Remove two top mounting screws.
- ② Remove two right side mounting screws.
- ③ Remove two left side mounting screws and cable clamp.
- ④ Remove screw and lockwasher that secure braided ground strap on left side.
- ⑤ Disconnect three connectors and lift assembly off printer.

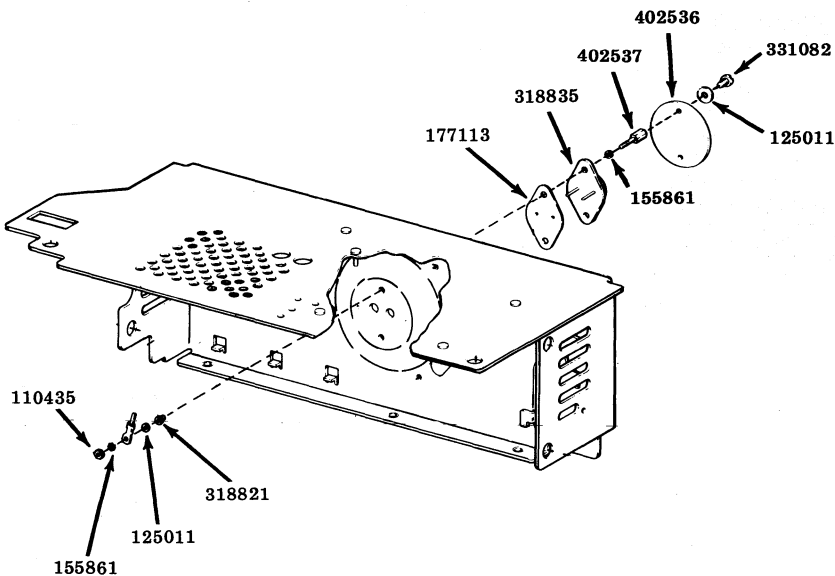


Note: Removal of lower screw on left side is facilitated by sliding connector mounting bracket to rear. Remove rear mounting post from bracket, loosen two mounting screws that hold bottom of bracket to frame, and slide bracket to rear until cover mounting screw is accessible.

2.54 318835 Transistor

- Remove 402978 power module assembly (2.53).
- ① Unsolder white and slate leads to transistor terminals.
 - ② Remove transistor mounting hardware as illustrated below.
 - ③ Remove transistor.

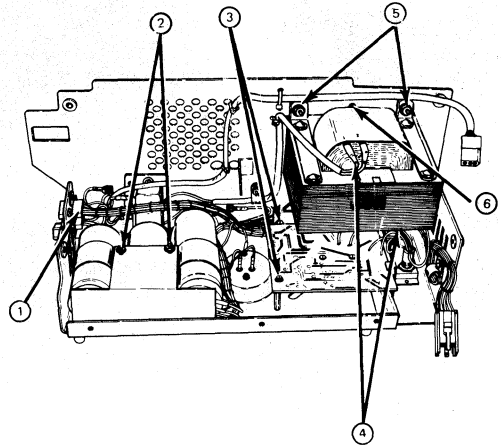
In reassembly, make sure all wires are mounted, and thermal compound is applied to bases of insulator and transistor.



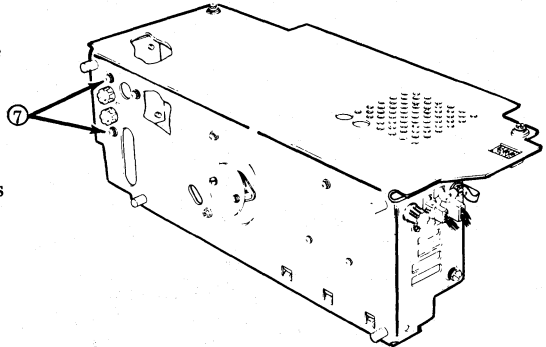
2.55 402982 Transformer Assembly

- Remove power module assembly (2.53).

- ① Remove the P117 plug from frame.
- ② Remove the four capacitor clamp mounting nuts, lockwashers, flat washers, the insulator, two lockwashers and bushings.
- ③ Remove the screw that mounts the 410151 card. Remove the card and two J102 connector mounting screws and lockwashers.
- ④ Cut the protective tubing at the top terminals of the transformer and unsolder seven wires (BR, BL, Y, BR, R, G, O).
- ⑤ Remove four nuts, lockwashers, and flat washers that mount the transformer.
- ⑥ Remove the nut and lockwasher that secure the braided-ground strap.
- ⑦ Remove two fuse bracket mounting screws.



Note: When installing a new 402982 transformer assembly, transfer the two 129919 fuses from the fuse holders on the old assembly to the fuse holders on the new assembly. The seven wires must be resoldered to terminals (BR to 1, BL to 2, Y to 3, BR to 4, R to 6, G to 7, O to 8). After terminating wires, bend transformer terminals toward core. Nestle wires between the winding and the core. Wires must not protrude beyond top of core.



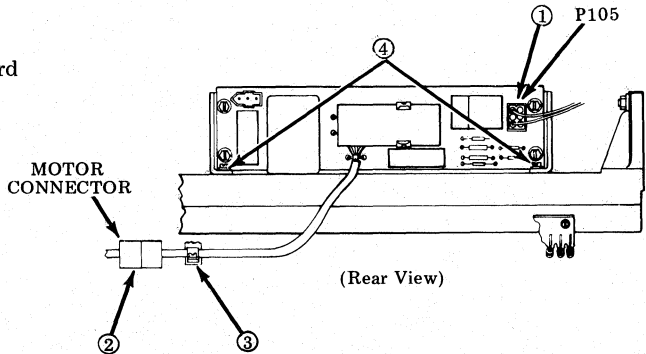
(Rear View)

2.56 410155 Motor Control Circuit Card Assembly

- Remove power module assembly (2.53).

- ① Disconnect P105 connector from card assembly.
- ② Disconnect motor connector.
- ③ Remove cable clamp(s).
- ④ Remove two screws that secure motor control circuit card assembly.

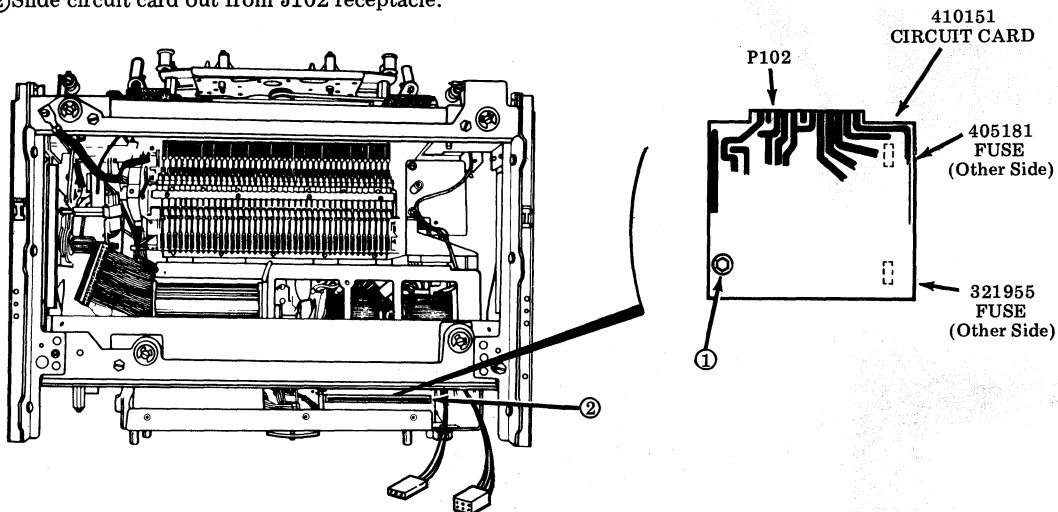
- Remove assembly.



(Rear View)

2.57 410151 Regulator Circuit Card Assembly

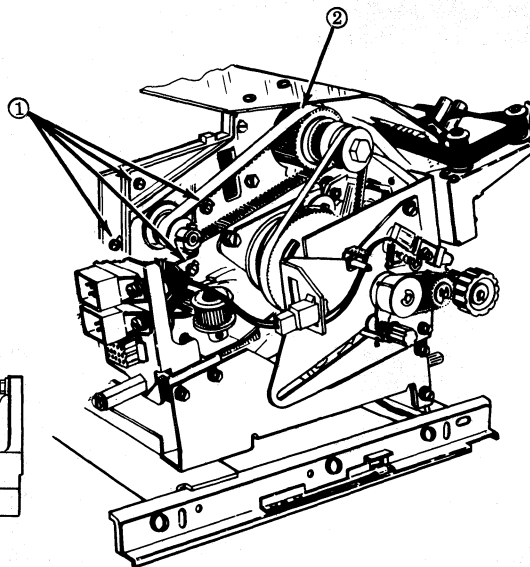
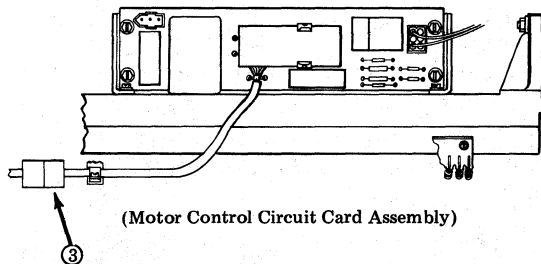
- Remove power module assembly (2.53).
- ① Remove screw w/lockwasher that secures circuit card.
- ② Slide circuit card out from J102 receptacle.



2.58 402402 Motor Assembly

- Remove power module assembly (2.53).
- ① Remove four screws.
- ② Remove impeller shaft drive belt.
- ③ Unplug P107.

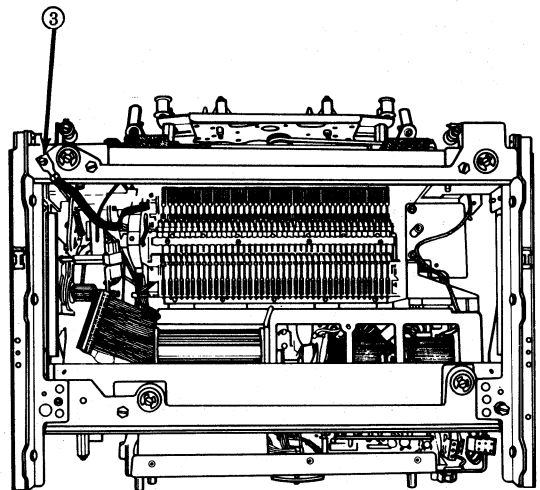
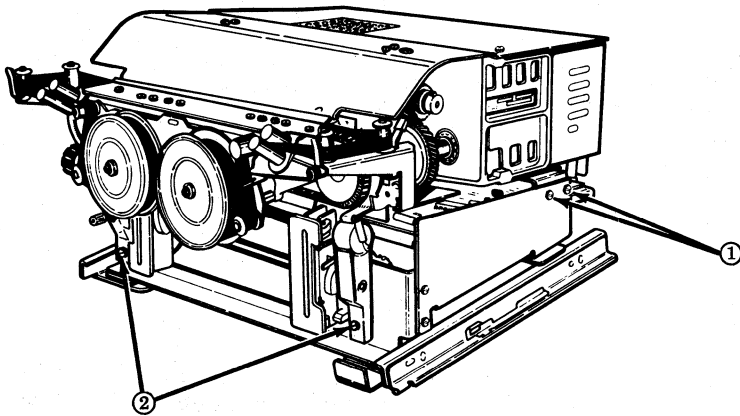
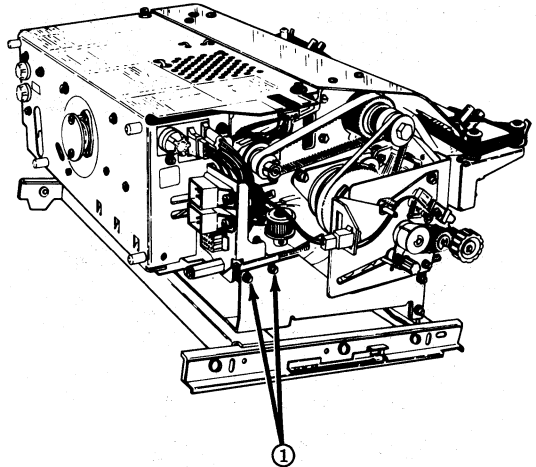
In reassembly, make Impeller Shaft Drive Belt Tension adjustment.



2.59 Base Assembly

• Stand printer on rear.

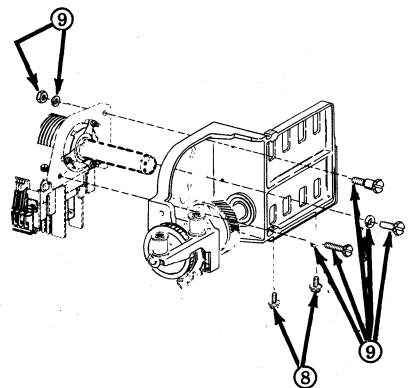
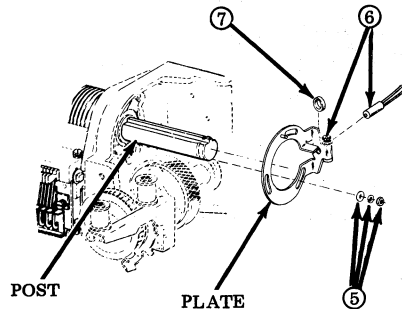
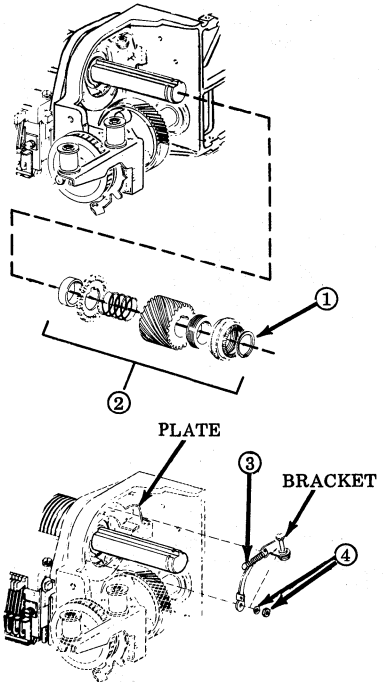
- ① Remove four screws (two each side) securing side brackets to power module adapter strip.
- ② Remove two screws securing front casting/paper handling assembly to base frame front plate.
- ③ Remove screw and lockwasher associated with ground strap.



2.60 Right Casting Assembly

- Remove top cover (2.52).
- Remove type carrier (2.42).
- Remove circuit card (2.49).
- Remove front casting/paper handling (2.50).
- Remove power module (2.53).
- Remove base assembly (2.59).

- ① Remove retaining ring from shaft.
- ② Slide off adjusting ring, collar, gear, spring, timing wheel, and bushing from shaft.
- ③ Unhook spring (110438) from post on sensor bracket.
- ④ Remove two nuts (3599) and lockwashers (3640) holding bracket to the plate. Remove bracket.
- ⑤ Remove nut (3599), lockwasher (3640), and flat washer (125011) holding plate to post. Remove plate.
- ⑥ Loosen screw holding the sensor. Remove sensor.
- ⑦ Be careful not to lose spacer (400931).
- ⑧ Remove two screws w/lockwashers (184057) holding bottom pan to casting.
- ⑨ Remove shoulder screw (400923), lockwasher (2669), and nut (112626); remove two screws (153442) and lockwasher (45815); remove right casting assembly.



In reassembly, follow through with 2.59, 2.53, 2.50, 2.49, 2.42, and 2.52. Perform adjustments in 2.50 and 2.52. Check the Impeller Shaft Sensor Gap and Flag Sensor Gap adjustments. On printing test, the Impeller Shaft to Carrier Phasing, Impeller Shaft Sensor, and Flag Sensor adjustments may have to be checked.

2.61 400001 Print Head Assembly

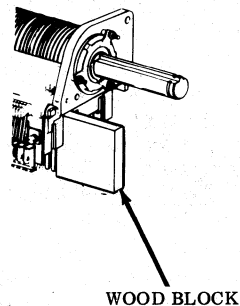
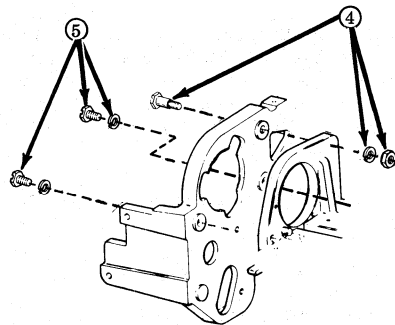
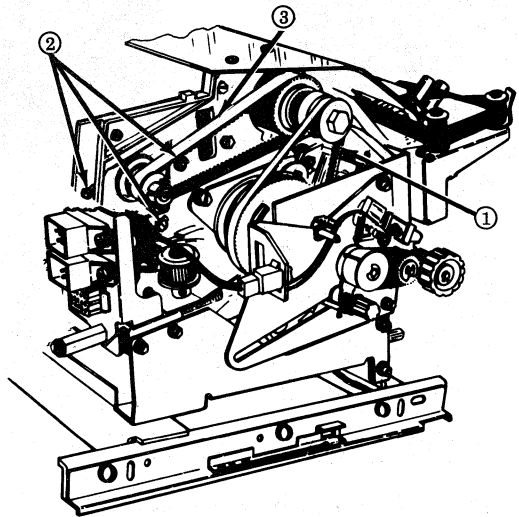
Warning: If a trouble is isolated to the Print Head Assembly, the complete printer should be replaced. Disassembly information shown is for repair shop location reference.

- Remove type carrier (2.42).
- Remove circuit card (2.49).
- Remove front casting/paper handling (2.50).
- Remove right casting (2.60).

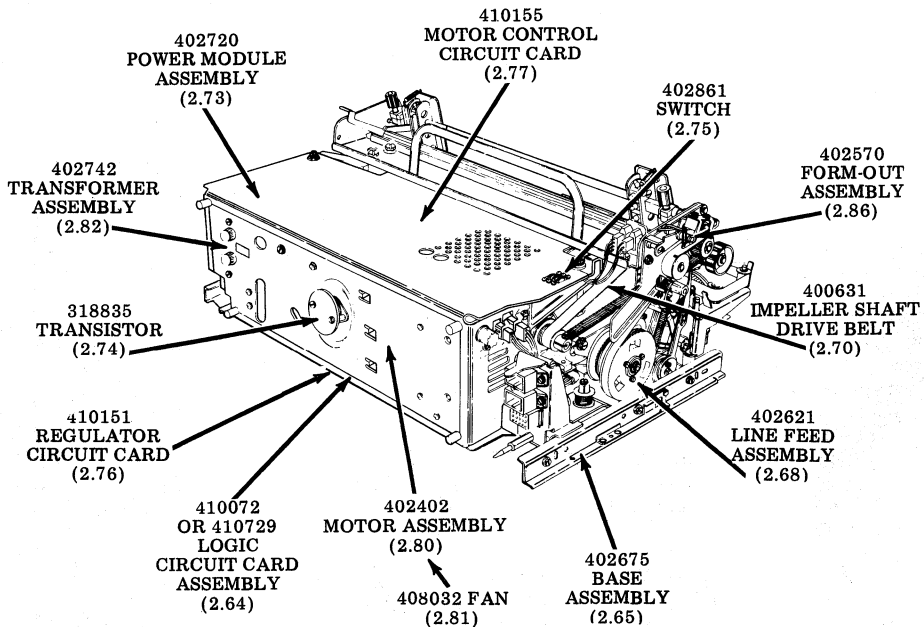
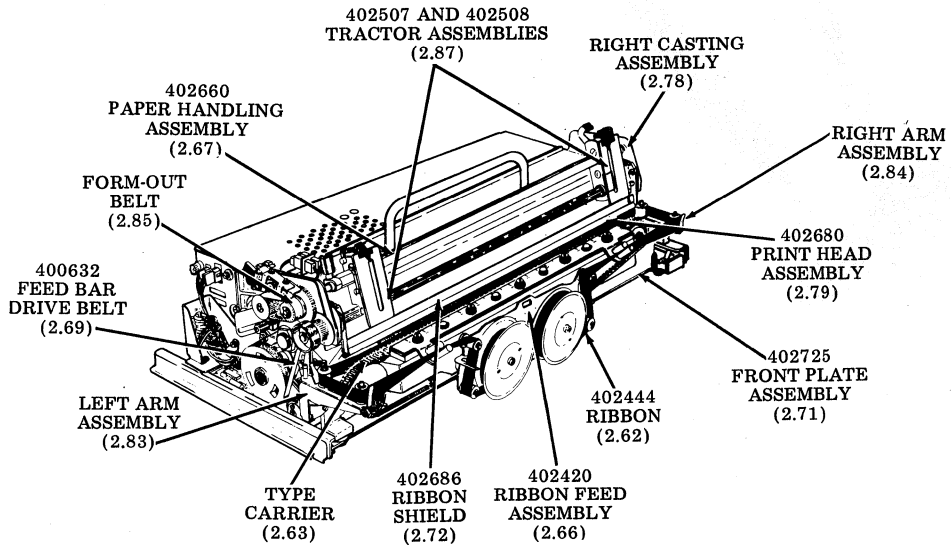
- ① Remove clutch drive belt.
- ② Loosen three motor adjusting screws friction tight. Press motor inward and up to release belt tension.
- ③ Remove impeller shaft drive belt.
- ④ At left casting, remove shoulder screw, lock-washer (2669), and nut (112626).
- ⑤ Also remove two screws (153442) and lock-washers (45815). Remove print head assembly (400001).

Note: It is suggested that when the right casting is removed, a 3-inch piece of wood be placed under the right end of the print head to keep it from dropping.

In reassembly, be sure to follow all the procedures and perform all the adjustments in 2.60 and 2.48.



D. 132-Column Tractor Feed Printer

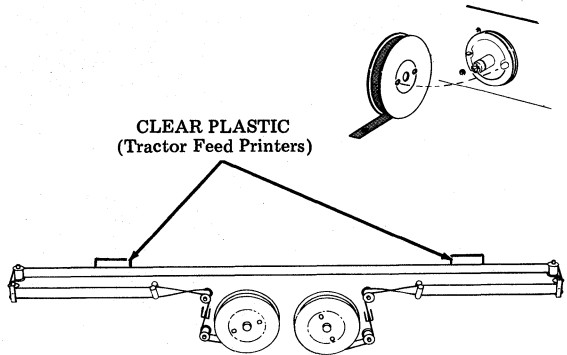


Note: Paragraph numbers are indicated in parentheses for disassembly procedures for major assemblies. Go directly to the procedures for the major assembly to be removed.

2.62 402444 Ribbon

The ribbon spools rest on nylon drive pins. Pull outward to remove. Remove ribbon and spools.

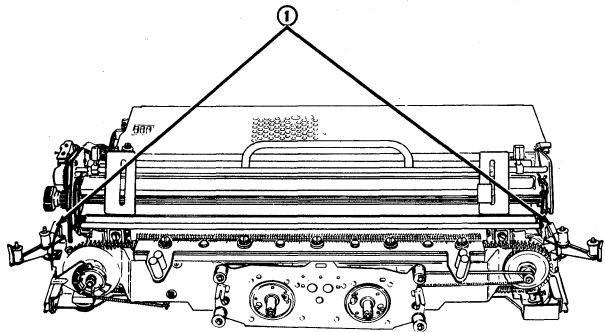
CLEAR PLASTIC
(Tractor Feed Printers)



2.63 Type Carrier

- Remove 402444 ribbon (2.62).

① Release thumb levers on left and right ribbon guide brackets allowing guides to spring to sides of printer.

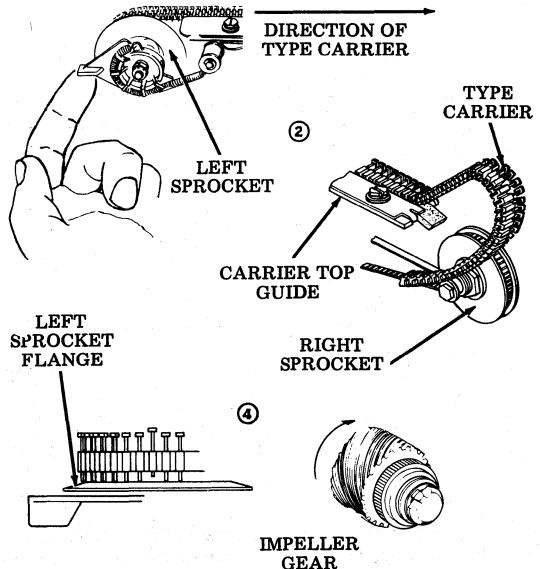


② Lift finger lever on left sprocket and hold. Remove type carrier starting at right sprocket as shown. (Release finger lever.)

③ Install type carrier starting at left sprocket then over right sprocket. Make sure all pallet stems are positioned under top guide on printer.

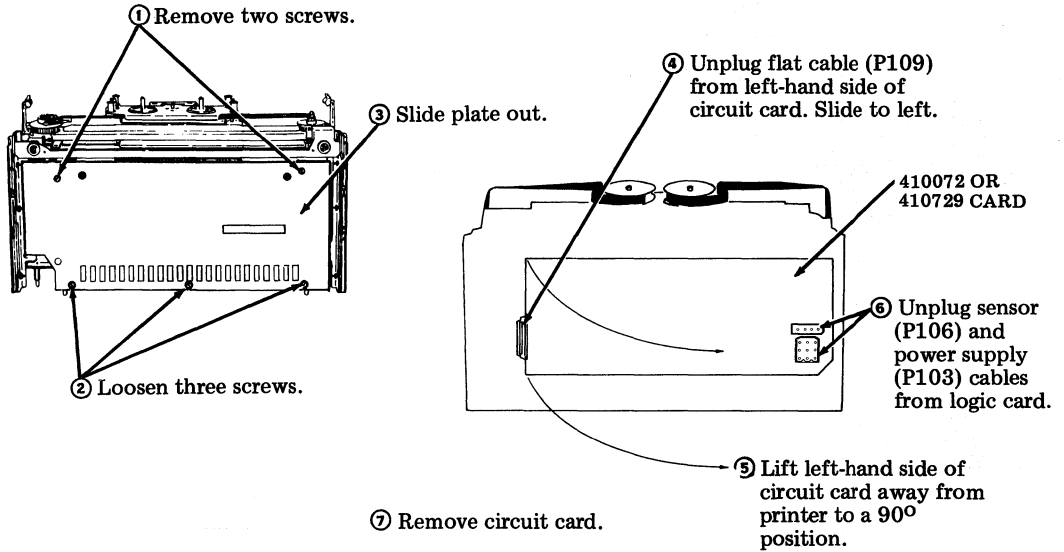
④ Rotate type carrier one revolution by turning impeller gear by hand clockwise. At the same time, align any protruding type pallets against left sprocket flange.

Caution: Damage to type carrier or printer will result if any protruding type pallet is left unchecked.



2.64 410072 or 410729 Logic Circuit Card Assembly

- Place printer on backside.

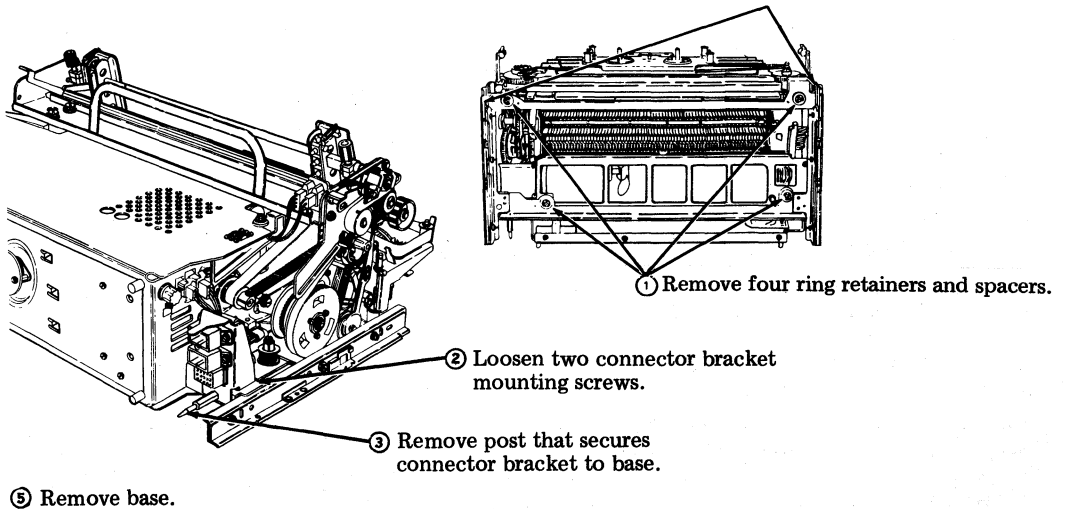


Note: When replacing the 410072 or 410729 circuit card with a NEW CARD, remake the Impeller Shaft Sensor and Flag Sensor adjustments.

2.65 402675 Base Assembly

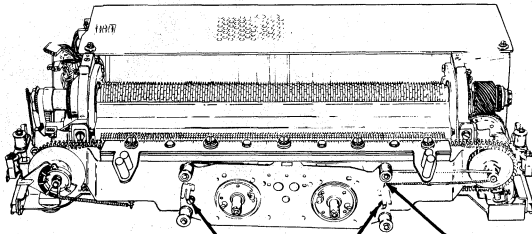
- Remove 410072 or 410729 logic circuit card (2.64).

- ④ Remove round head screws that secure braided ground strap from left and right rails.



2.66 402420 Ribbon Feed Assembly

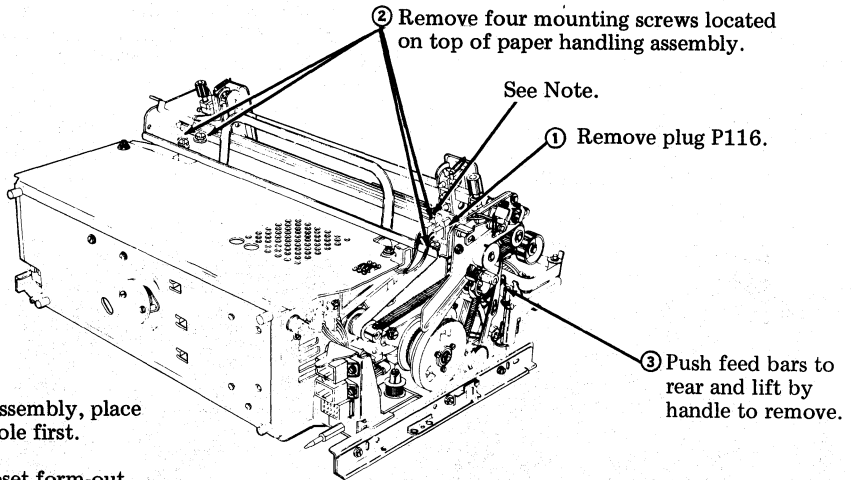
- Remove 402444 ribbon (not shown) (2.62).



- ① Remove two nuts, lockwashers and flat washers.
- ② Move ribbon assembly forward and right to remove 400635 belt.

In reassembly, perform Ribbon Feed Drive Belt Tension adjustment.

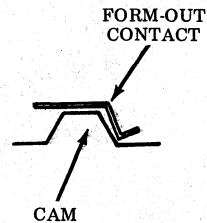
2.67 402660 Paper Handling Assembly



Note: During reassembly, place screw in locating hole first.

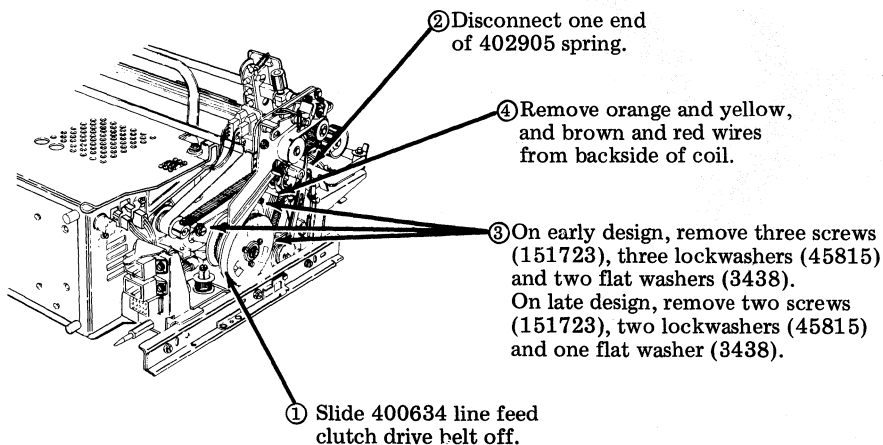
During reassembly, reset form-out contact to belt phasing as follows:

- Move line feed pawls out of engagement with the line feed gear.
- Rotate the paper advance knob until the slope part of the contact just touches the long cam.
- Release the line feed pawls.



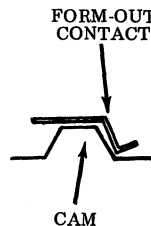
2.68 402621 Line Feed Assembly

- Remove 410072 or 410729 logic circuit card.



During reassembly, reconnect orange and yellow, and brown and red leads first.

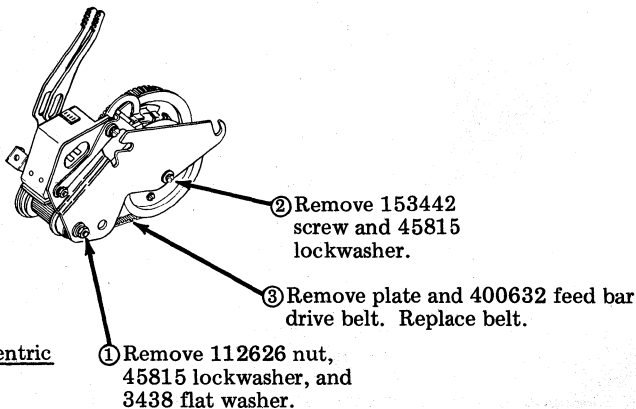
In reassembly, perform Clutch Drive Belt Tension adjustment. Reset form-out contact to belt phasing as follows:



- Move line feed pawls out of engagement with the line feed gear.
- Rotate the paper advance knob until the slope part of the contact just touches the long cam.
- Release the line feed pawls.

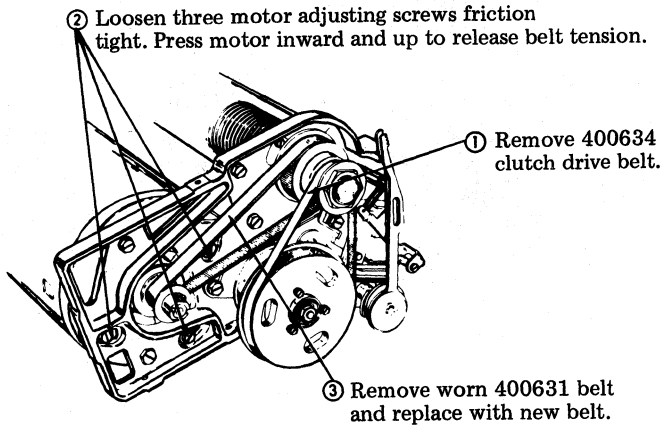
2.69 400632 Feed Bar Drive Belt

- Remove 402621 line feed assembly (2.68).



In reassembly, perform Line Feed Bar Eccentric and Drive Belt Tension adjustment and the adjustments in 2.68.

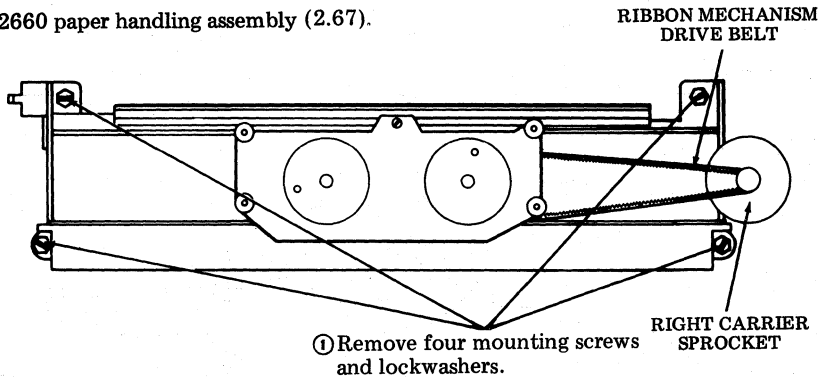
2.70 400631 Impeller Shaft Drive Belt



In reassembly, perform Impeller Shaft Drive Belt Tension adjustment. Check Clutch Drive Belt Tension adjustment.

2.71 402725 Front Plate Assembly

- Remove type carrier (2.63).
- Remove 402420 ribbon feed assembly (2.66).
- Remove left arm assembly (2.83).
- Remove 402660 paper handling assembly (2.67).

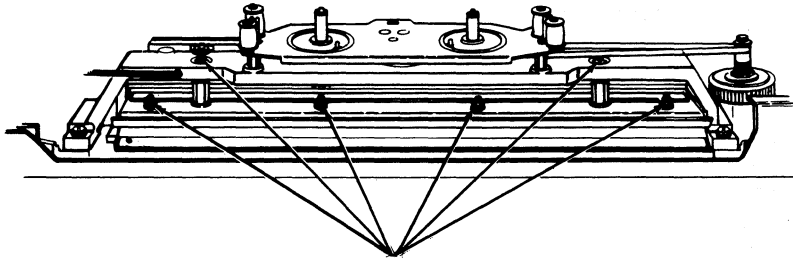


Slide assembly up to clear paper chute.
Remove front casting assembly.

In reassembly, perform Ribbon Mechanism Drive Belt adjustment.

2.72 402686 Ribbon Shield

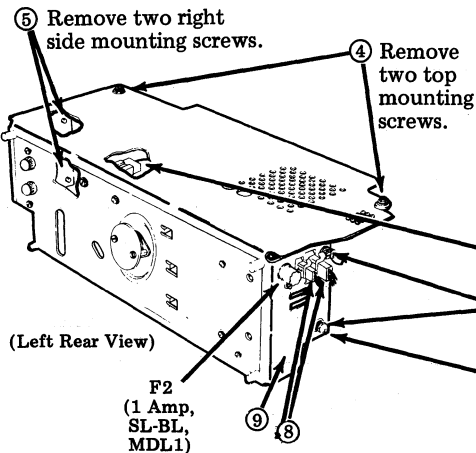
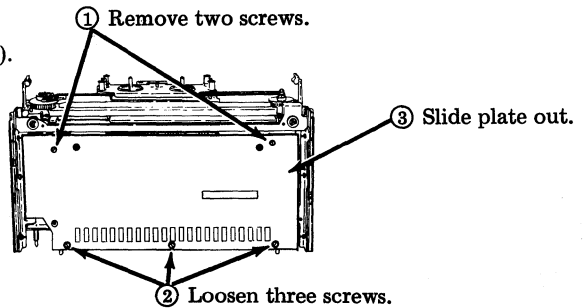
- Remove 402725 front plate assembly (2.71).



Remove six nuts, lockwashers and flat washers.

2.73 402720 Power Module Assembly

- Remove 402660 paper handling assembly (2.67).
- Place printer on backside.



⑧ Disconnect two connectors.

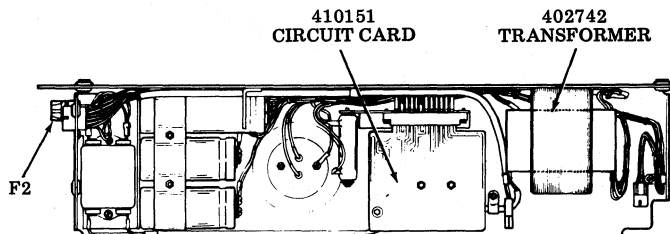
⑨ Remove the screw and lockwasher that secure the braided ground strap.

⑩ Disconnect remaining connector and left module assembly off of printer.

⑦ Remove two left side mounting screws.

⑥ Removal of lower screw is facilitated by sliding connector mounting bracket to rear. Remove rear mounting screw (or post) from bracket, loosen two mounting screws that hold bottom of bracket to frame, and slide bracket to rear until cover mounting screw is accessible.

To reassemble, reverse the disassembly procedure and perform adjustment in 2.67.



2.74 318835 Transistor

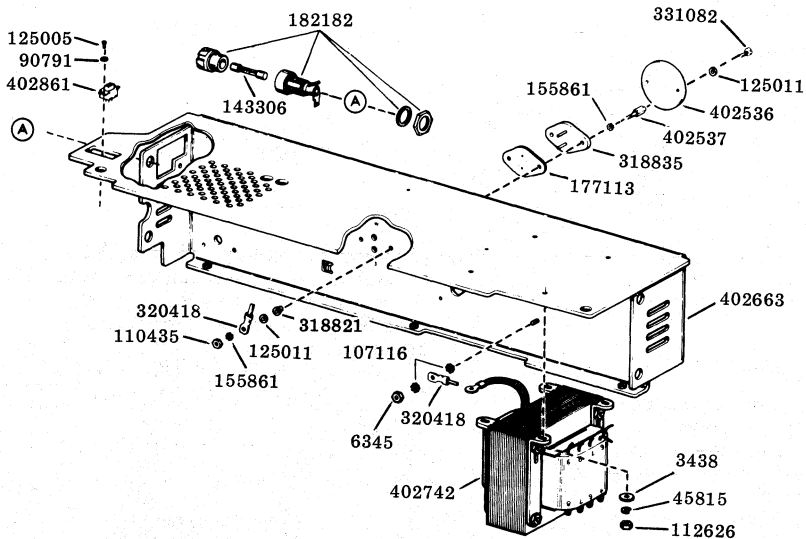
- Remove 402720 power module assembly (2.73).
- ① Unsolder white and slate leads to transistor terminals.
- ② Remove transistor mounting hardware as illustrated below.
- ③ Remove transistor.

In reassembly, make sure all wires are mounted and thermal compound is applied to bases of insulator and transistor.

2.75 402861 Switch

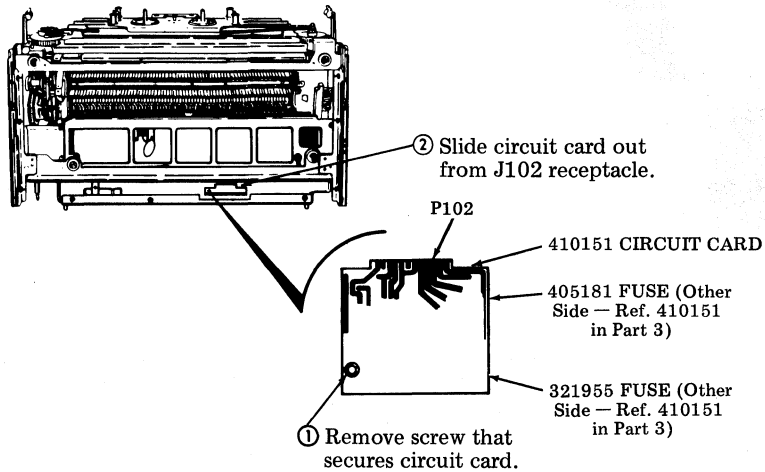
- Remove 402720 power module assembly (2.73).
- ① Unsolder leads to associated switch to be removed.
- ② Remove two screws and lockwashers.
- ③ Remove switch.

In reassembly, make sure wires are mounted.



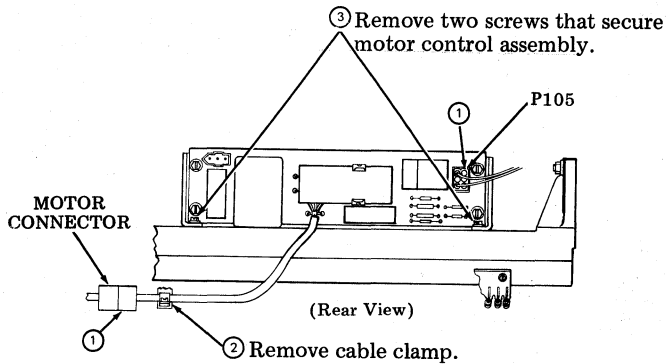
2.76 410151 Regulator Circuit Card Assembly

- Remove 410072 or 410729 logic circuit card (2.64).



2.77 410155 Motor Control Circuit Card Assembly

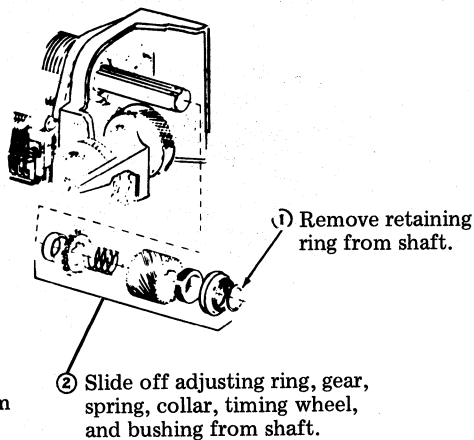
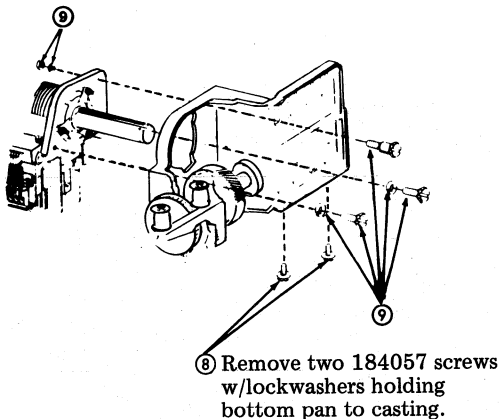
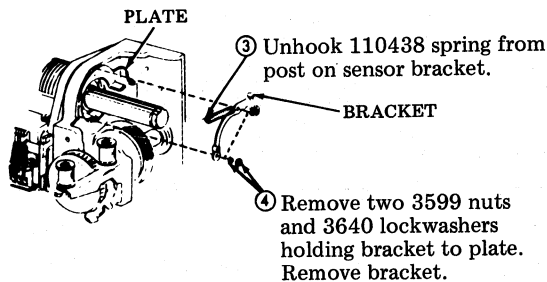
- Remove 402720 power module assembly (2.73).
- ① Disconnect P105 connector and motor connector.



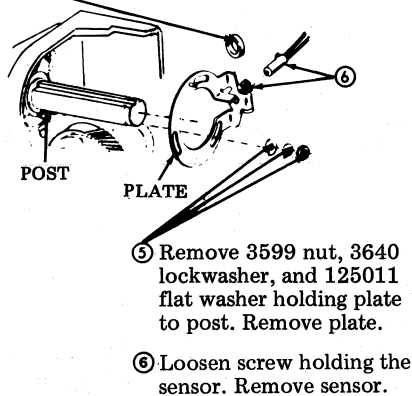
- ④ Remove assembly.

2.78 Right Casting Assembly

- Remove type carrier (2.63).
- Remove 410072 or 410729 logic circuit card (2.64).
- Remove 402675 base (2.65).
- Remove 402660 paper handling assembly (2.67).
- Remove 402725 front plate (2.71).
- Remove 402720 power module assembly (2.73).



⑦ Be careful not to lose 400931 spacer.



In reassembly, follow through with 2.73, 2.71, 2.67, 2.65, 2.64, and 2.63. Perform adjustments in 2.67 and 2.71. Check the Impeller Shaft Sensor Gap and Flag Sensor Gap adjustments. On printing test, the Impeller Shaft to Carrier Phasing, the Impeller Shaft Sensor, and Flag Sensor adjustments may have to be checked.

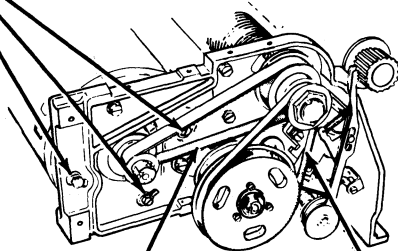
- Remove 402689 shoulder screw, 2669 lockwasher, and 112626 nut; remove two 153442 screws and 45815 lockwasher; remove right casting assembly.

2.79 402680 Print Head Assembly

Warning: If a trouble is isolated to the Print Head Assembly, the complete printer should be replaced. Disassembly information shown is for repair shop location reference.

- Remove type carrier (2.63).
- Remove circuit card (2.64).
- Remove front plate (2.71).
- Remove right casting assembly (2.78).

② Loosen three motor adjusting screws friction tight. Press motor inward and up to release belt tension.

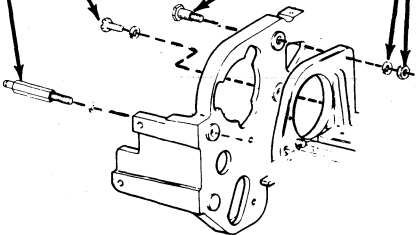


③ Remove impeller shaft drive belt.

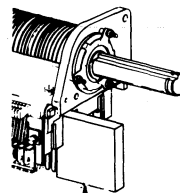
① Remove clutch drive belt.

⑤ Also remove two screws (153442) and lockwashers (45815). Remove print head assembly (400001).

④ At left casting, remove shoulder screw (400923), lockwasher (2669), and nut (112626).



Note: It is suggested that when the right casting is removed, a 3-inch piece of wood be placed under the right end of the print head to keep it from dropping.



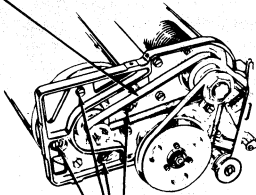
WOOD BLOCK

In reassembly, be sure to follow all the procedures and perform all the adjustments in 2.78 and 2.70.

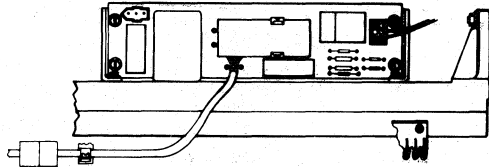
2.80 402402 Motor Assembly

- Remove 402660 paper handling assembly (2.67).
- Remove 402720 power module assembly (2.73).

② Remove impeller shaft drive belt.



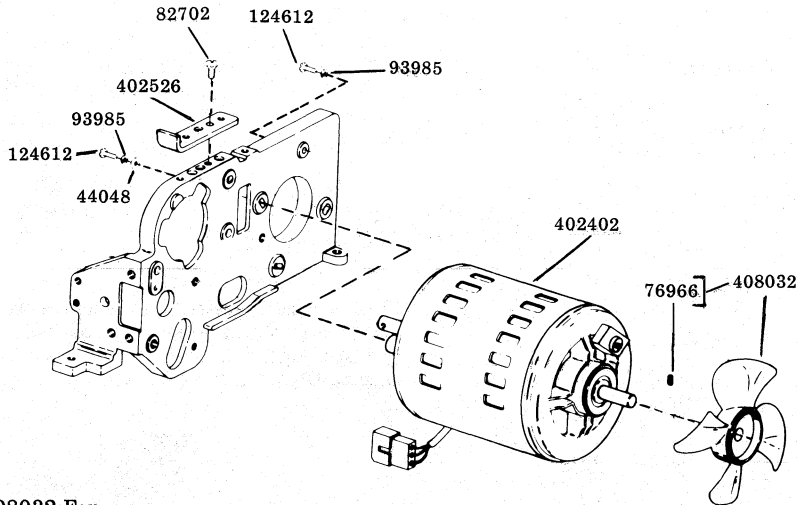
① Remove four screws.



③ Remove P107 connector.

In reassembly, make Impeller Shaft Drive Belt Tension adjustment.

Left Casting Assembly — Parts



2.81 408032 Fan

- Remove 402660 paper handling assembly (2.67).
- Remove 402720 power module assembly (2.73).

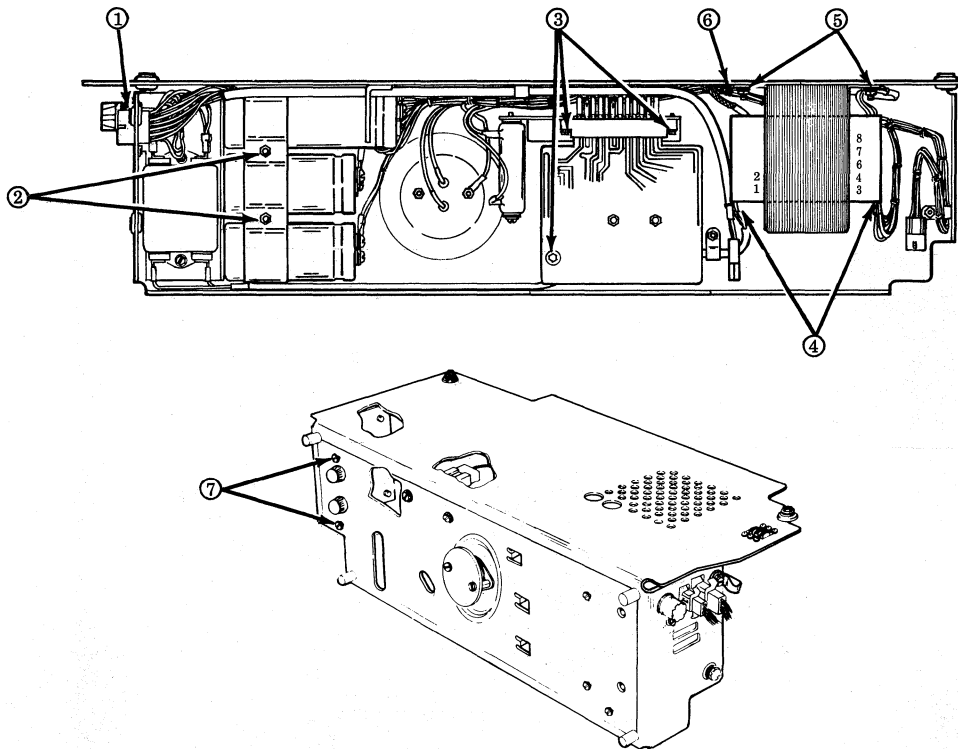
Loosen setscrew; slide fan blade to right.

2.82 402742 Transformer Assembly

- Remove 402720 power module assembly (2.73).
- ① Remove the P117 plug from frame.
 - ② Remove the two capacitor clamp mounting nuts and lockwashers.
 - ③ Remove the screw that mounts the 410151 card. Remove the card and two J102 connector mounting screws and lockwashers.
 - ④ Cut the protective tubing at the top terminals of the transformer and unsolder seven wires (W, BK, Y, BR, R, G, O).
 - ⑤ Remove four nuts, lockwashers and flat washers that mount the transformer.
 - ⑥ Remove the nut and lockwasher that secure the braided ground strap and green ground wire.
 - ⑦ Remove two fuse bracket mounting screws.

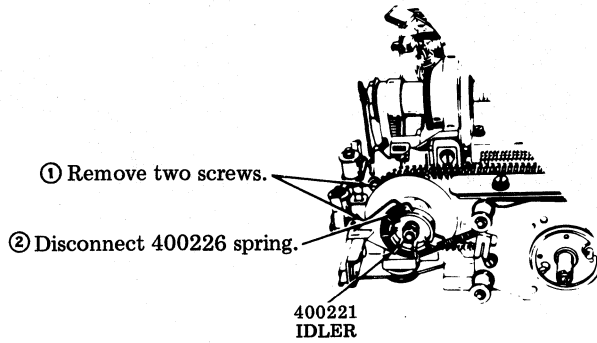
Note: When installing a new 402742 transformer assembly, transfer the two 129919 fuses from the fuse holders on the old assembly to the fuse holders on the new assembly. The seven wires must be resoldered to terminals (W to 1, BK to 2, Y to 3, BR to 4, R to 6, G to 7, O to 8) and the ground straps reconnected. After terminating wires, bend transformer terminals toward core. Nestle wires between the winding and the core. Wires must not protrude beyond top of core.

In reassembly, perform adjustment in 2.67.

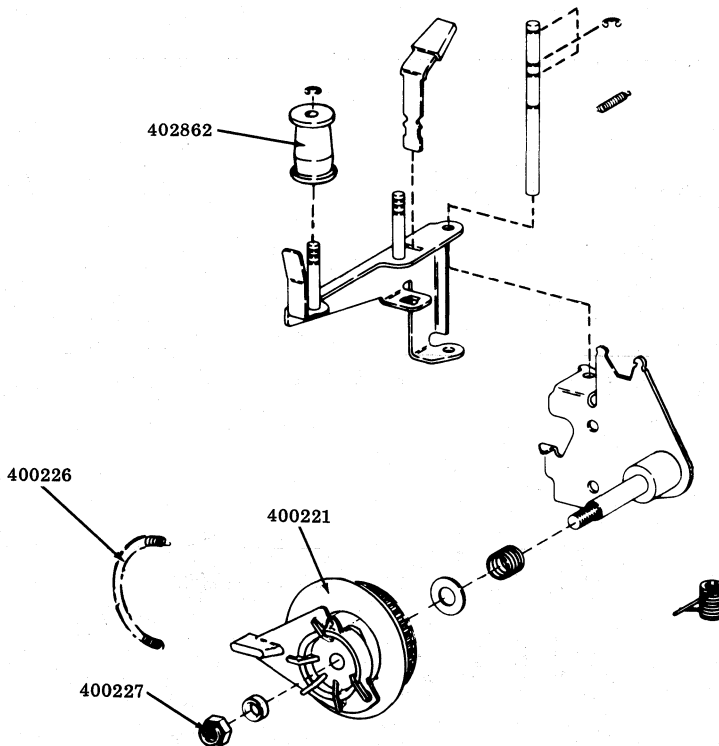


2.83 Left Arm Assembly

- Remove type carrier (2.63).

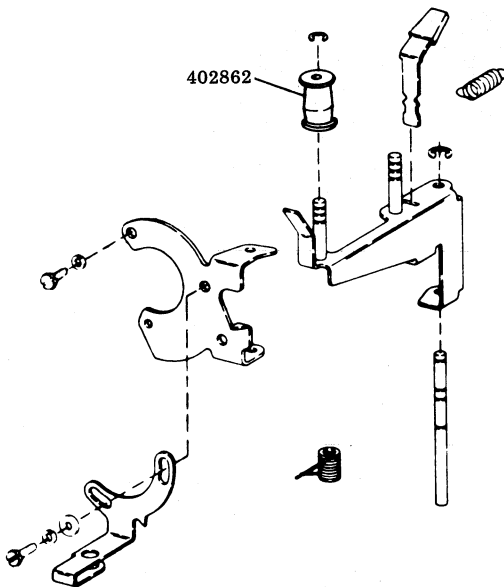
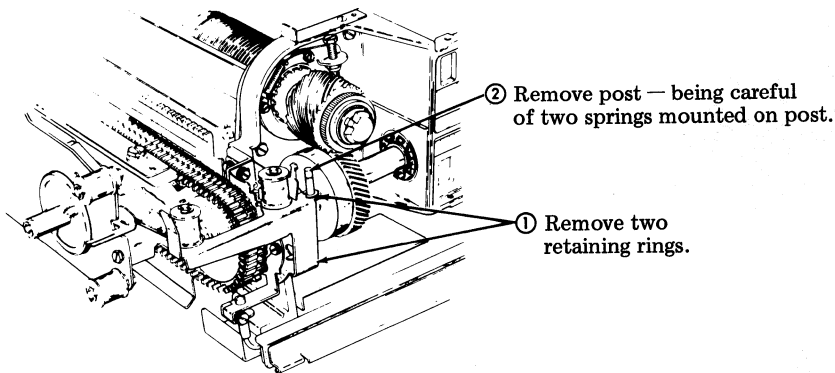


In reassembly, perform Left Carrier Sprocket adjustment, if idler is replaced.



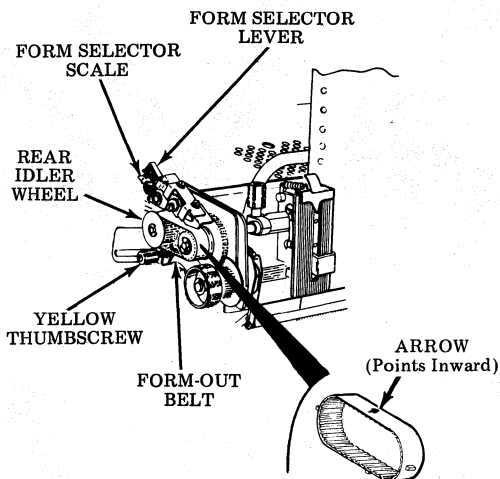
2.84 Right Arm Assembly

- Remove 402444 ribbon (not shown) (2.62).



2.85 Form-Out Belt

Form-Out Belt Selection



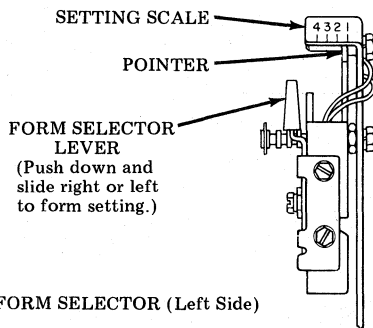
Form Selector Setting				Part No.	Color of Belt
4	3	2	1		
Length of Form, Inches					
+3-1/3	2-1/2	5	10	402571	Amber
+3-2/3	* 2-3/4	5-1/2	11	402572	Dk Blue
4	3	6	12	402573	Yellow
+4-1/3	* 3-1/4	6-1/2	13	402574	Brown
+4-2/3	3-1/2	7	14	402575	Red
5	* 3-3/4	7-1/2	15	402576	Pink
+5-1/3	4	8	16	402577	Lt Green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

+ For six lines per inch

* For eight lines per inch

Removal:

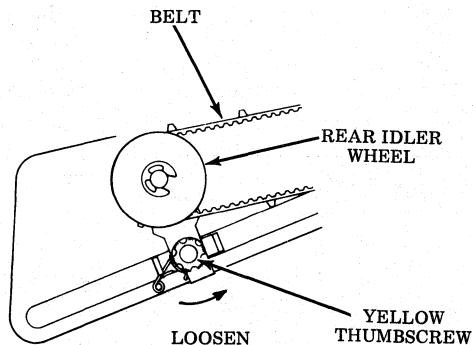
- ① Loosen yellow thumbscrew (counterclockwise) and slide bracket to remove tension.
- ② Depress and hold form selector lever so that contact arm clears.
- ③ Move rear idler wheel forward.
- ④ Remove belt by sliding it to left.



(Adjusted Position of Idler Wheel)

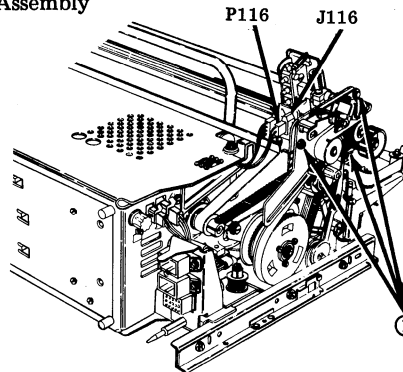
Replacement:

- ① Depress and hold form selector lever while holding rear idler wheel forward.
- ② Position new belt on wheels so that arrow points inward.
- ③ Position rear wheel back and remove slack in belt. Have bracket at right angles to slot as shown.
- ④ Tighten thumbscrew clockwise.
- ⑤ Depress FORM ADVANCE, and check stop positions.



Note: If form stop positions do not correspond to form lengths, belt may be reversed or incorrect belt is used. Check Form-Out Belt Selection.

2.86 402570 Form-Out Assembly

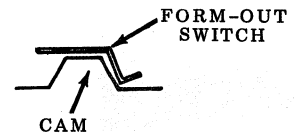


② Disconnect P116 and remove connector J116 from bracket.

① Remove three nuts and lockwashers.

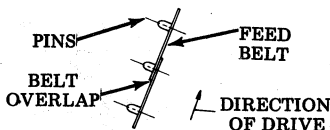
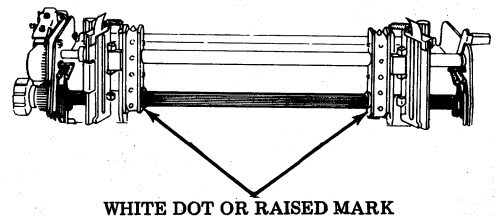
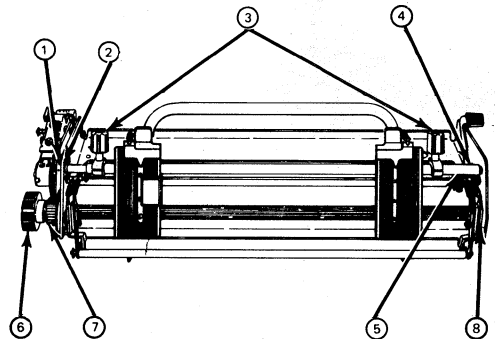
In reassembly, remake Form-Out Gear Backlash adjustment. Reset form-out contact to belt phasing as follows:

- Move line feed pawls out of engagement with the line feed gear.
- Rotate the paper advance knob until the slope part of the contact just touches the long cam.
- Release the line feed pawls.



2.87 402507 or 402508 Tractor Assembly

- Remove 402660 paper handling assembly (2.67).
 - Remove 402570 form-out assembly (2.86).
- ① Remove ring retainer from left side plate.
 - ② Remove ring retainer.
 - ③ Remove left and right tractor clamps.
 - ④ Slide inner shaft out.
 - ⑤ Move tractors forward and slide out outer shaft.
 - ⑥ Remove ring retainer that secures left knob. Remove flat washer, spring, and knob.
 - ⑦ Remove ring retainer that secures sprocket. Slide washer and sprocket off of shaft.
 - ⑧ Remove two screws that secure oilite bearing to right side frame. Slide shaft out to right.
 - ⑨ Slide tractor assembly to right to remove.



Note 1: To replace a 402877 tractor belt, loosen two Phillip head screws on tractor assembly. The new belt should be installed with the overlap in direction illustrated.

Note 2: During reassembly of tractor assembly to the shaft, perform Tractor Phasing and Tractor Lid adjustments. Perform the adjustments in 2.86 in reassembly of form-out assembly.

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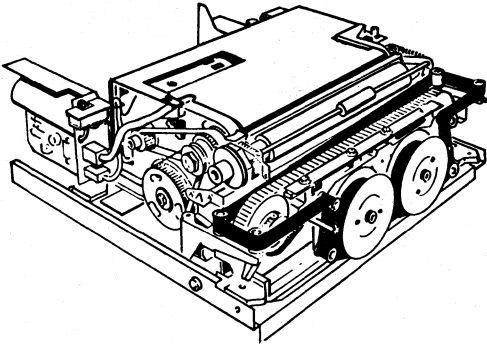
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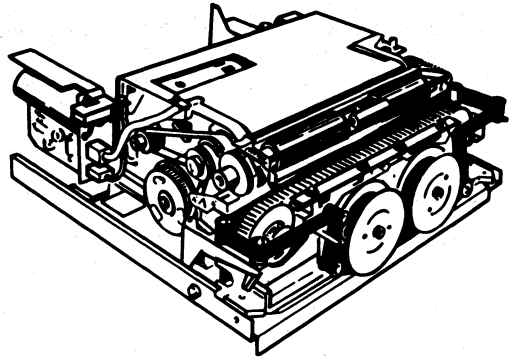
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MODIFICATION KITS

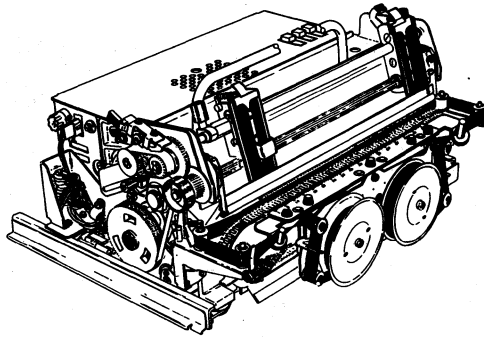
- 402866—Modification Kit to Provide Improved Ribbon Tracking for 80-Column Tractor Feed Printer.
(Specification 50836S)
- 402887—Modification Kit to Provide the 410072 Circuit Card and 402980 Lower Pan.
(Specification 50894S)
- 402920—Modification Kit to Provide 80 and 132 Column Tractor Feed Printers with a Paper Jam Alarm.
(Specification 50901S)
- 402936—Modification Kit to Install Replaceable Ribbon Shield on 80-Column Tractor Feed Printers.
(Specification 50868S)
- 403380—Modification Kit to Provide a Multicopy Roll and Single Copy Fanfold Paper on Friction Feed Printers.
(Specification 50815S)
- 405905—Modification Kit to Provide a New Paper Spindle to Friction Feed Printers.
(Specification 50819S)
- 406337—Modification Kit to Provide Relay Noise Suppression to 80-Column Tractor Feed Printer Power Modules.
(Specification 50940S)
- 406338—Modification Kit to Provide Relay Noise Suppression to 80-Column Tractor Feed Printer Power Modules.
(Specification 50940S)
- 407790—Modification Kit to Provide a Reinking Device on 132-Column Tractor Feed Printer.
(Specification 50905S)
- 408680—Modification Kit to Provide a Late Design Wire Form Actuator on 80-Column Tractor Feed Printers.
(Specification 50882S)
- 408681—Modification Kit to Provide a Redesigned Paper Out Switch.
(Specification 50904S)
- 408990—Modification Kit to Provide a Reinking Device on 80-Column Tractor Feed Printer.
(Specification 50913S)



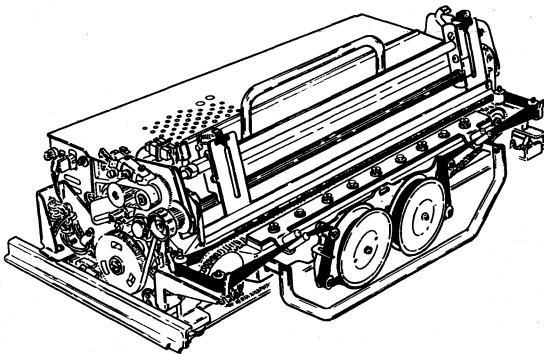
40P101/** Friction Feed Printer (80-Column)



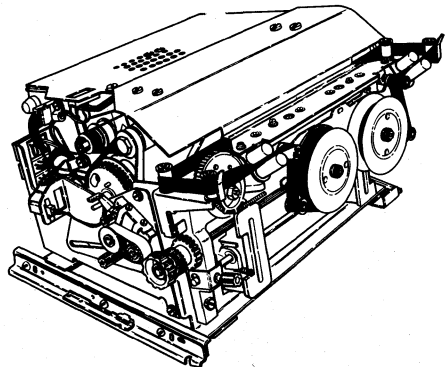
40P102/** Friction Feed Printer
(Noise Reduced - 80 Column)



40P151/** 40P153/** and 40P154/** Tractor Feed Printer (80-Column)



40P201/** and 40P202/** Tractor Feed
Printer (132-Column)



40P253/** Forms Access Tractor
Feed Printer

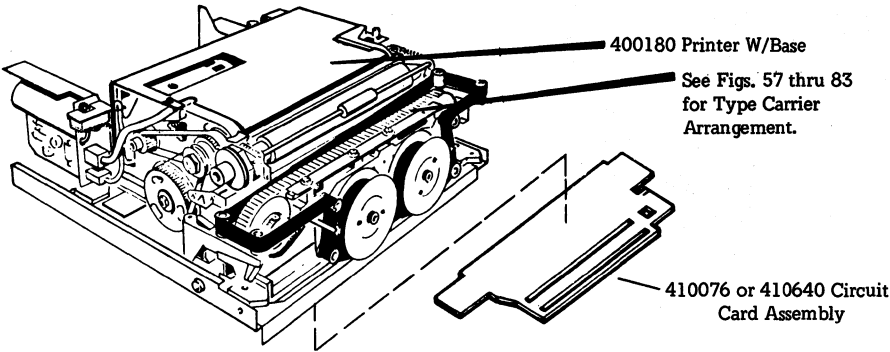


Fig. 1—40P101/** DATASPEED 40 Impact Printer (Friction Feed)

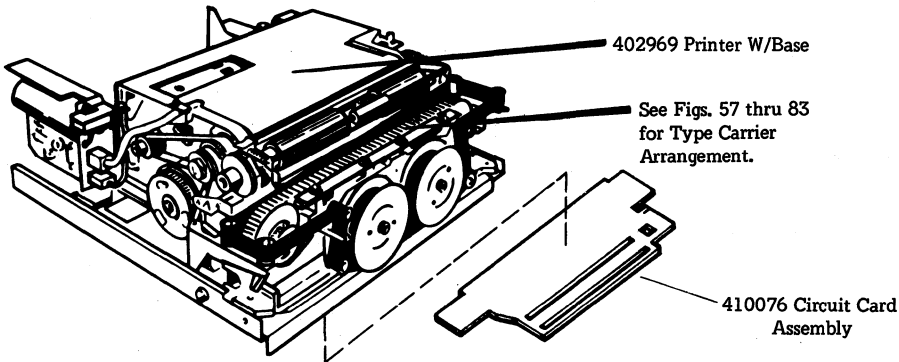


Fig. 2—40P102/** DATASPEED 40 Impact Printer (Noise Reduced - Friction Feed)

NOTE: 410076 or 410640 Card is used in 40P150/**, 40P151/** or 40P153/**. 410071 Card is used in 40P154/**.

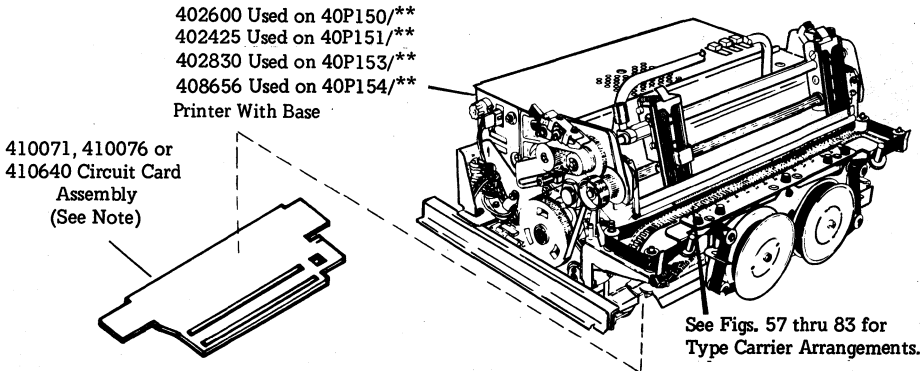


Fig. 3—40P150/**, 40P151/**, 40P153/** and 40P154/** DATASPEED 40 Impact Printer (Tractor Feed - 80-Column)

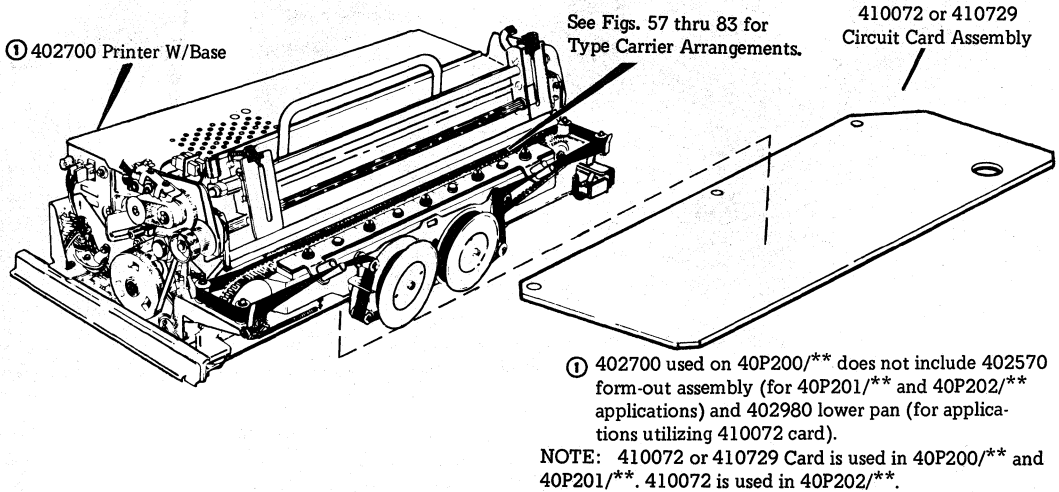


Fig. 4—40P200/**, 40P201/** and 40P202/** DATASPEED 40 Impact Printer (Tractor Feed - 132-Column)

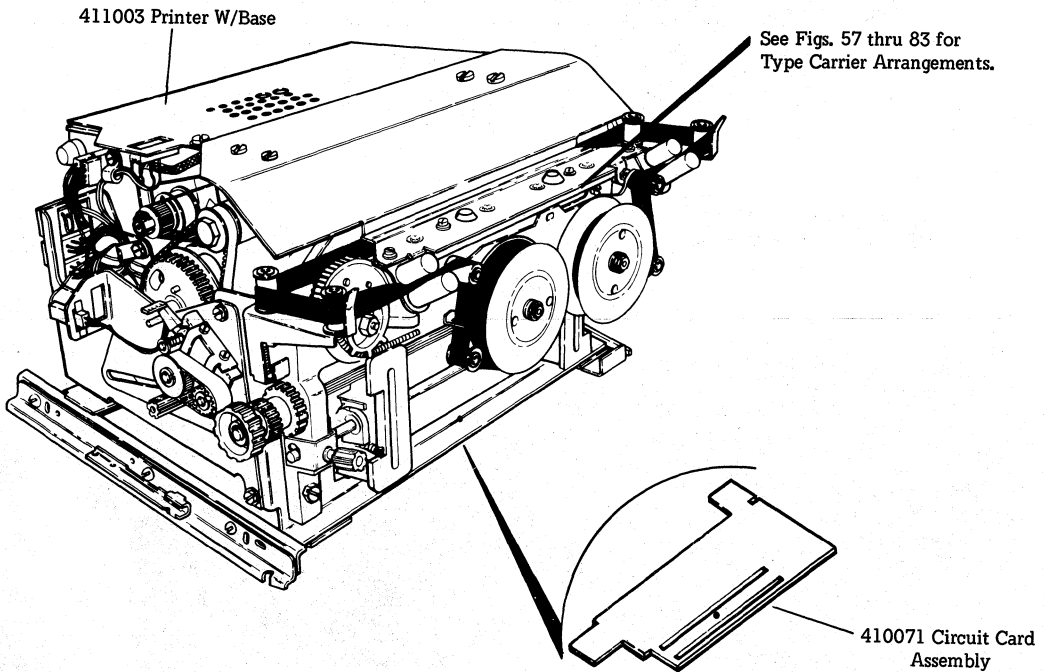


Fig. 5—40P253/** DATASPEED 40 Forms Access Printer (Tractor Feed - 80-Column)

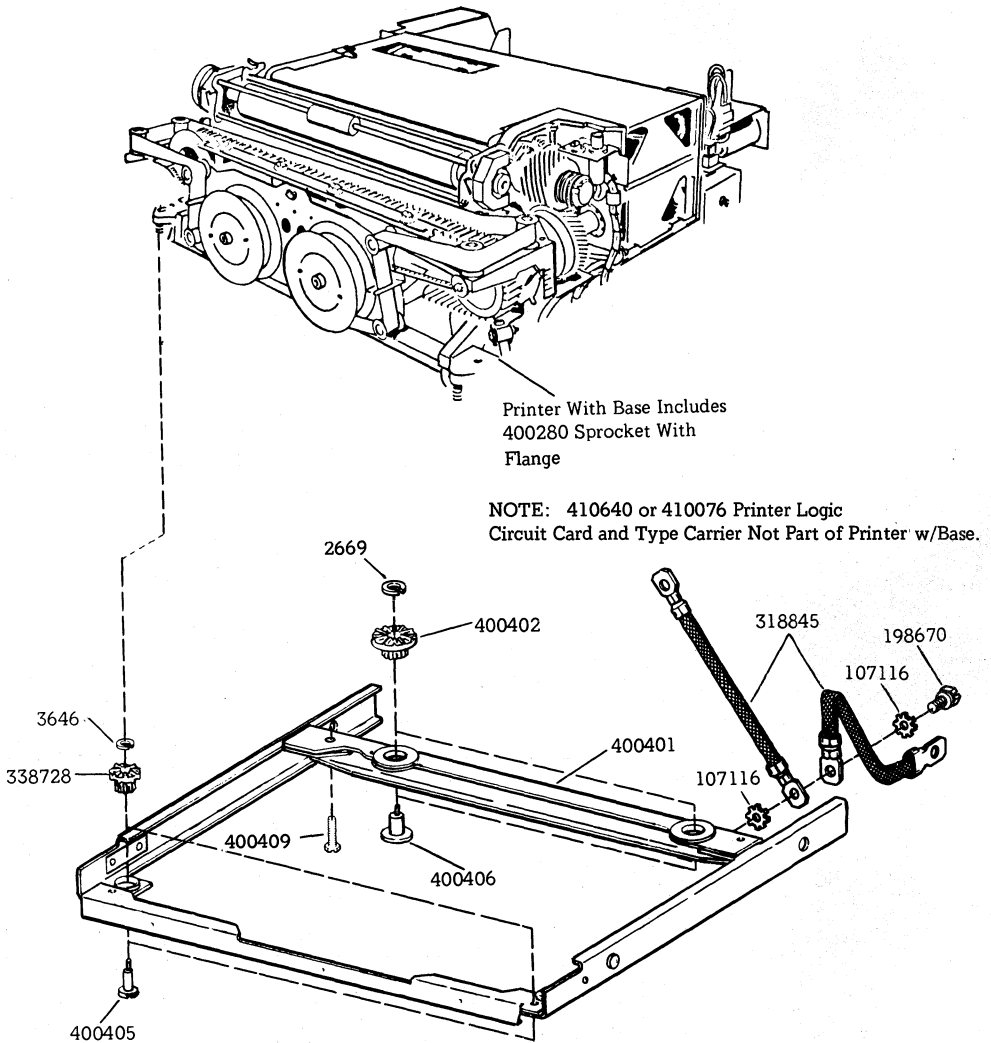


Fig. 6 - Printer Base (Friction Feed - 80-Column)

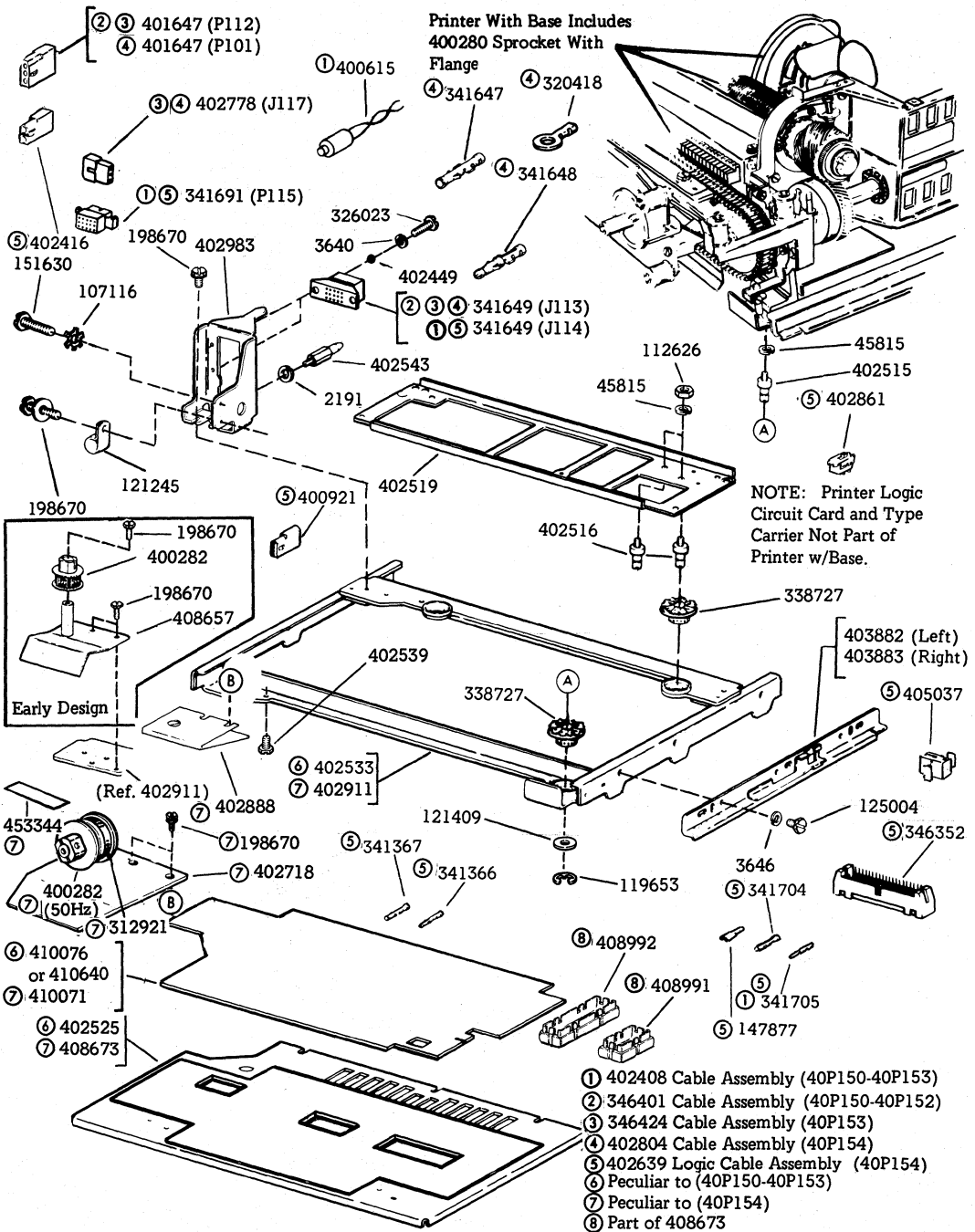


Fig. 7—Printer Base (Tractor Feed - 80-Column)

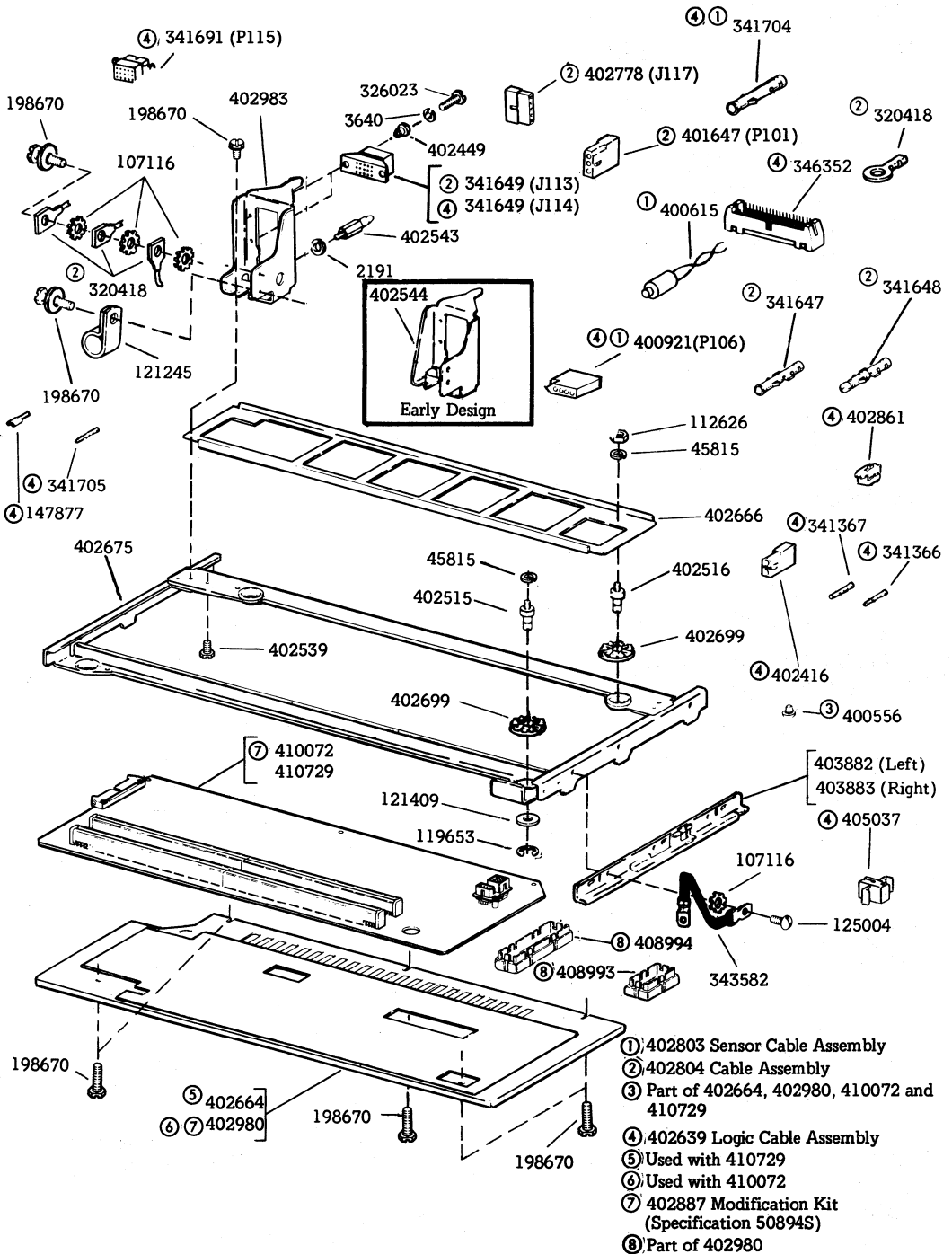


Fig. 8—Printer Base (Tractor Feed - 132-Column)

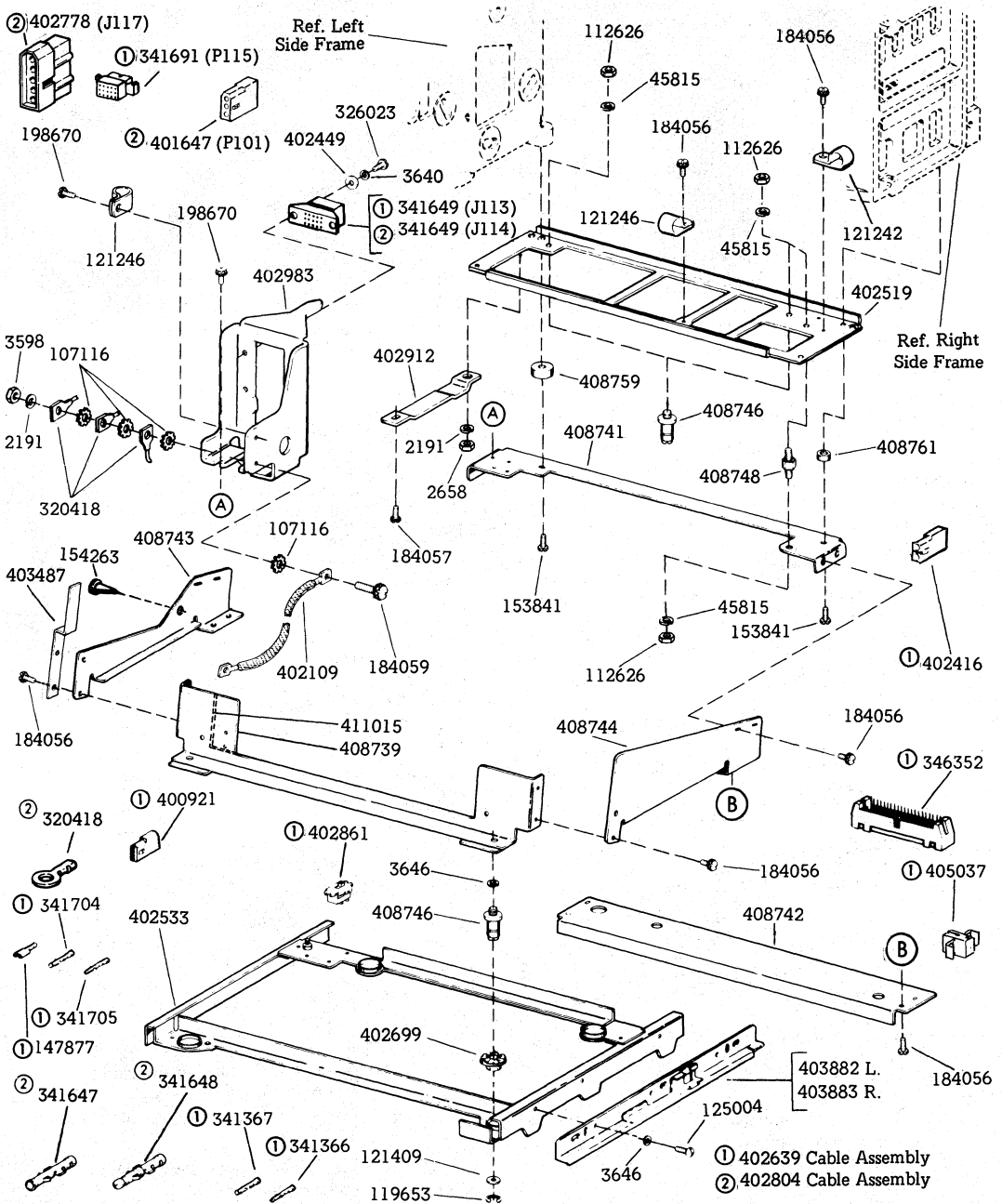
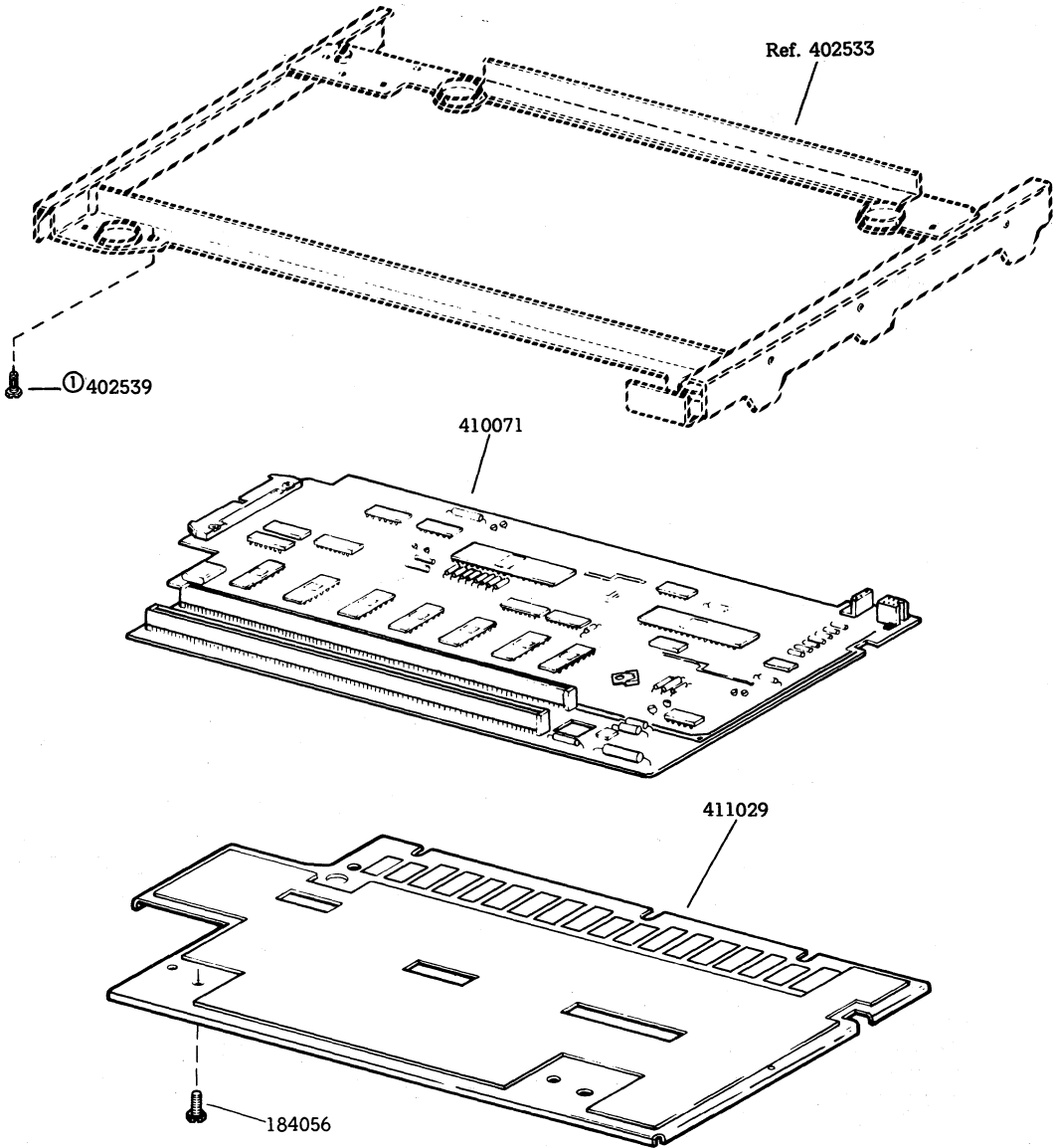
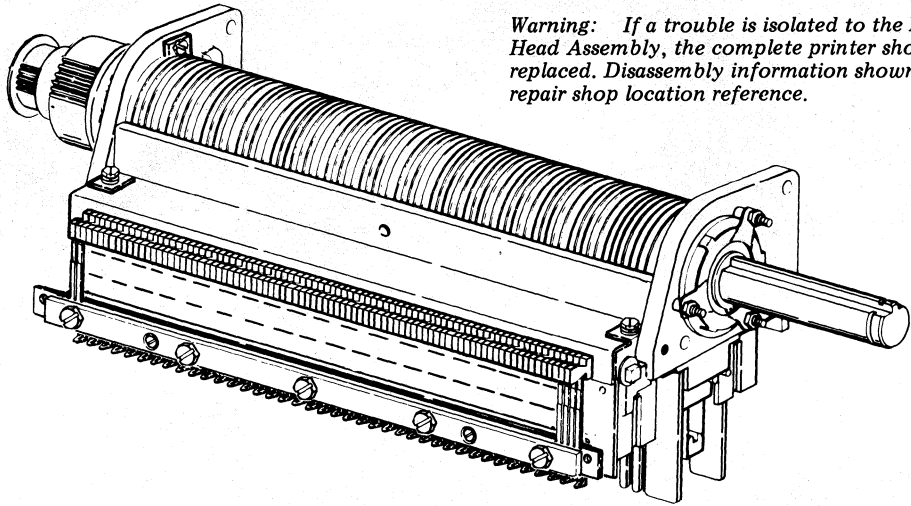


Fig. 9-Printer Base (Forms Access - Tractor Feed)



① 402539 Screw is used for Shipping.

Fig. 9—Printer Base (Forms Access – Tractor Feed) (Cont.)



Warning: If a trouble is isolated to the Print Head Assembly, the complete printer should be replaced. Disassembly information shown is for repair shop location reference.

Fig. 10—400001 Print Head Assembly (Friction and Tractor Feed – 80-Column) (Late Design)

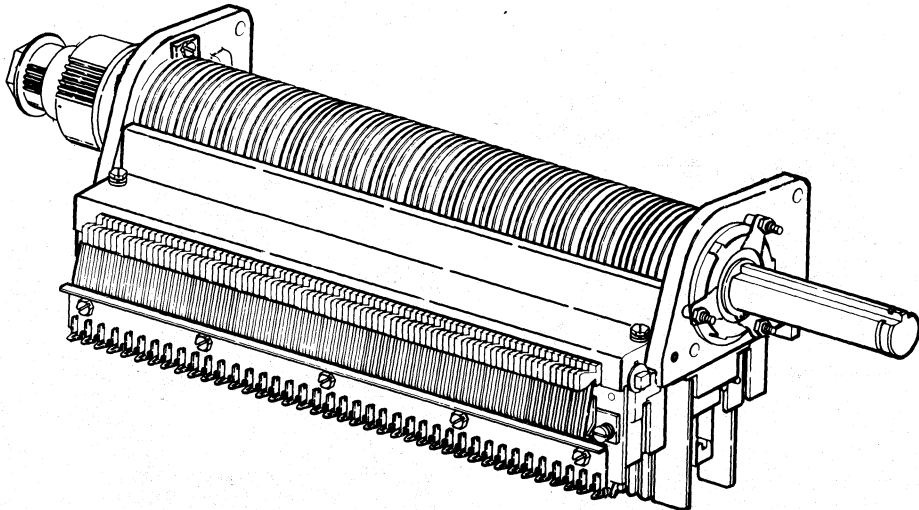
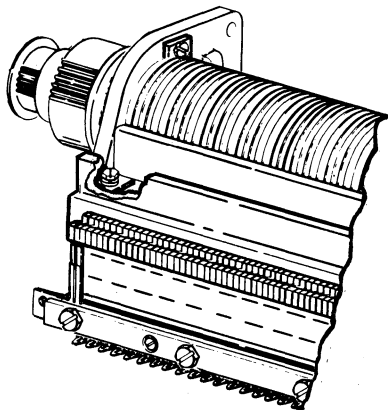


Fig. 11—400001 Print Head Assembly (Friction and Tractor Feed – 80-Column) (Early Design)



Warning: If a trouble is isolated to the Print Head Assembly, the complete printer should be replaced. Disassembly information shown is for repair shop location reference.

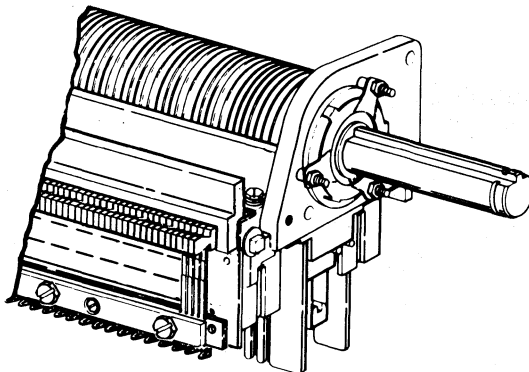


Fig. 12-402680 Print Head Assembly (Tractor Feed - 132-Column) (Late Design)

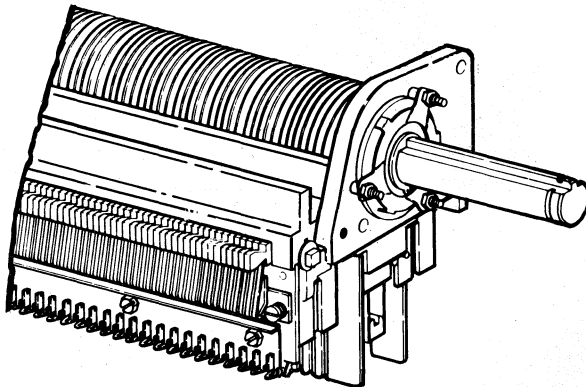
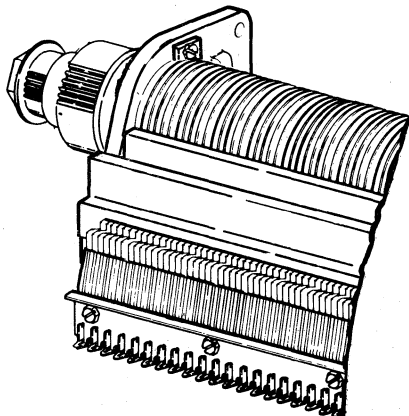


Fig. 13-402680 Print Head Assembly (Tractor Feed - 132-Column) (Early Design)

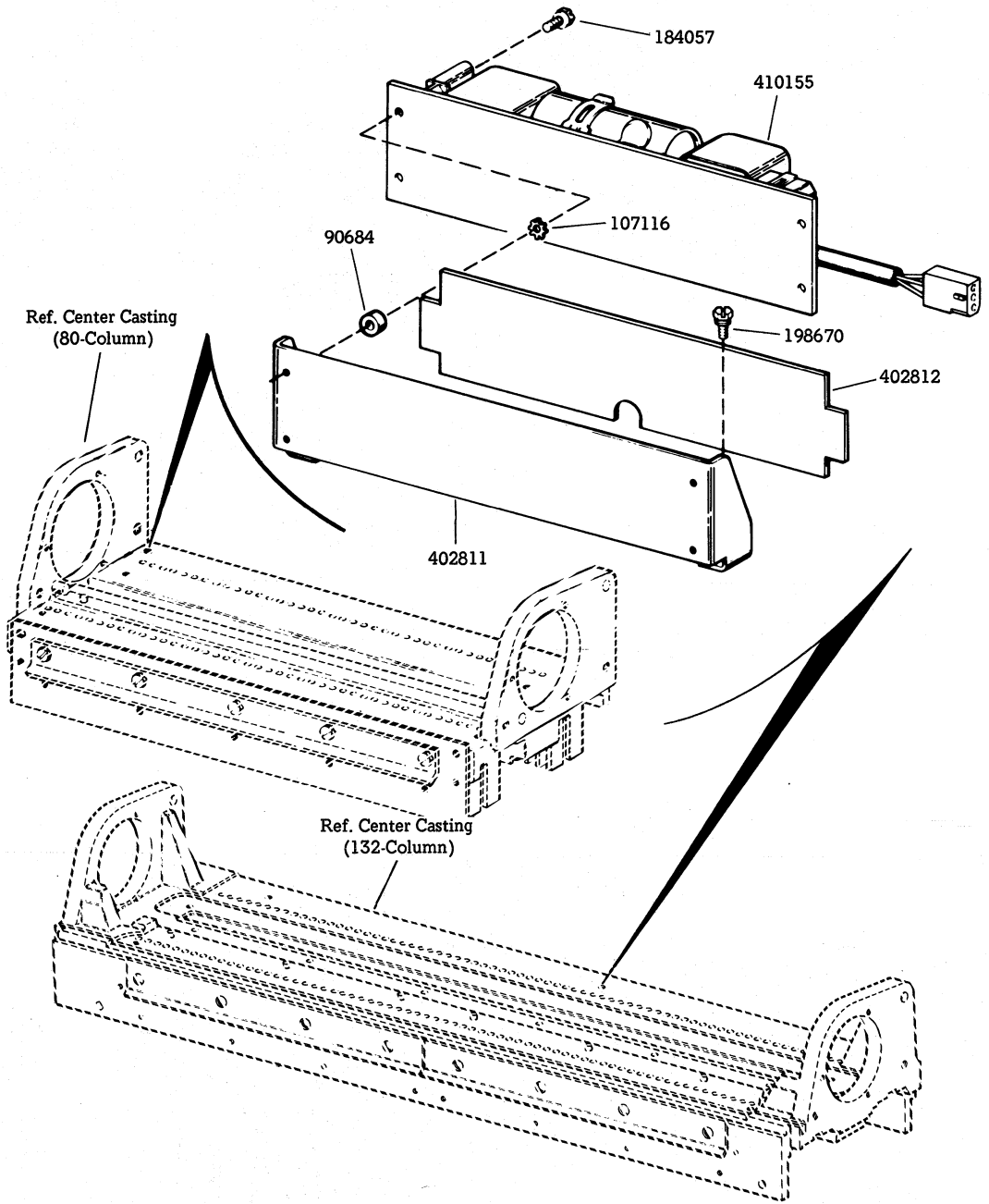


Fig. 14 - Motor Control Assembly

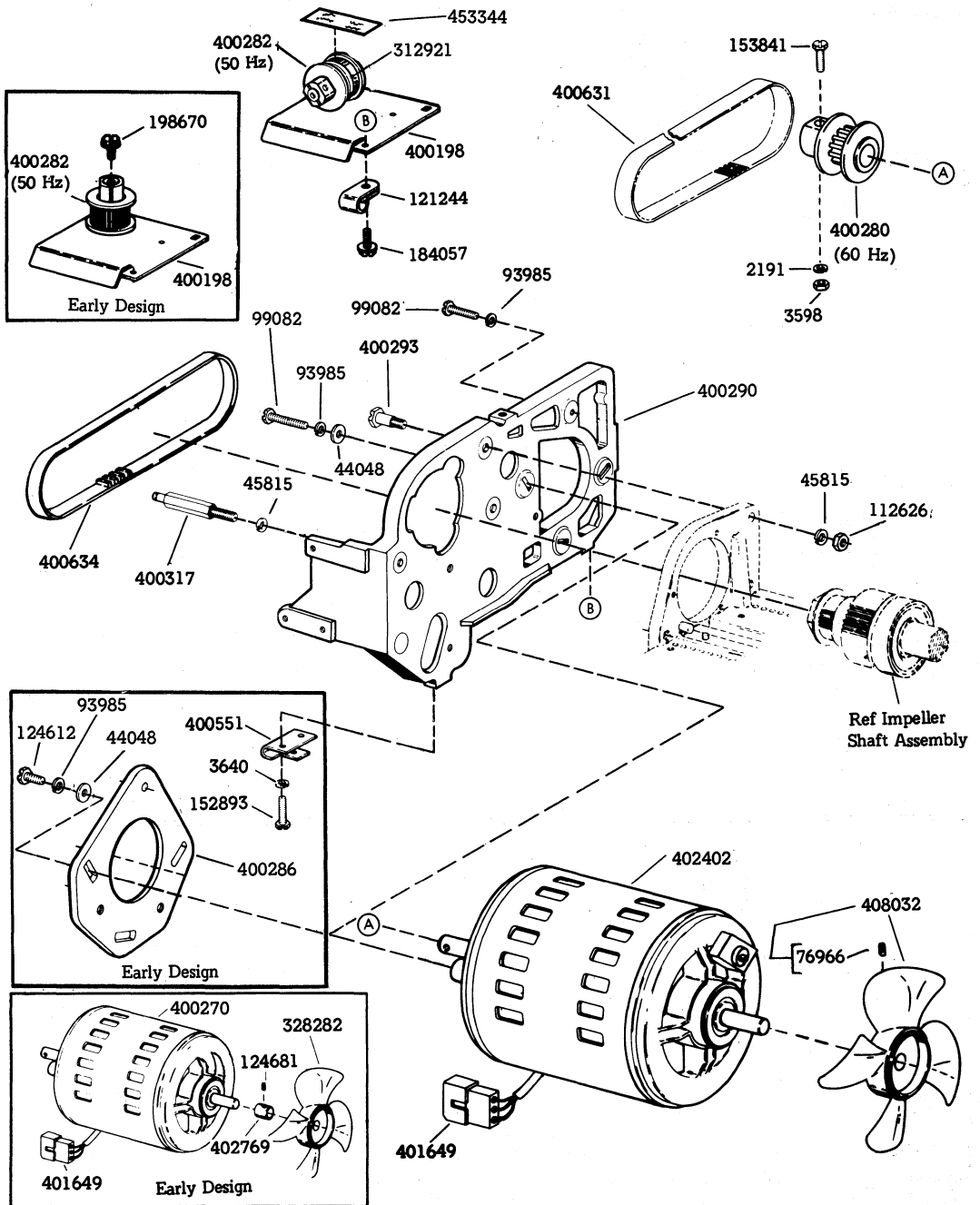


Fig. 15—Left Casting and 402402 Motor (Friction Feed)

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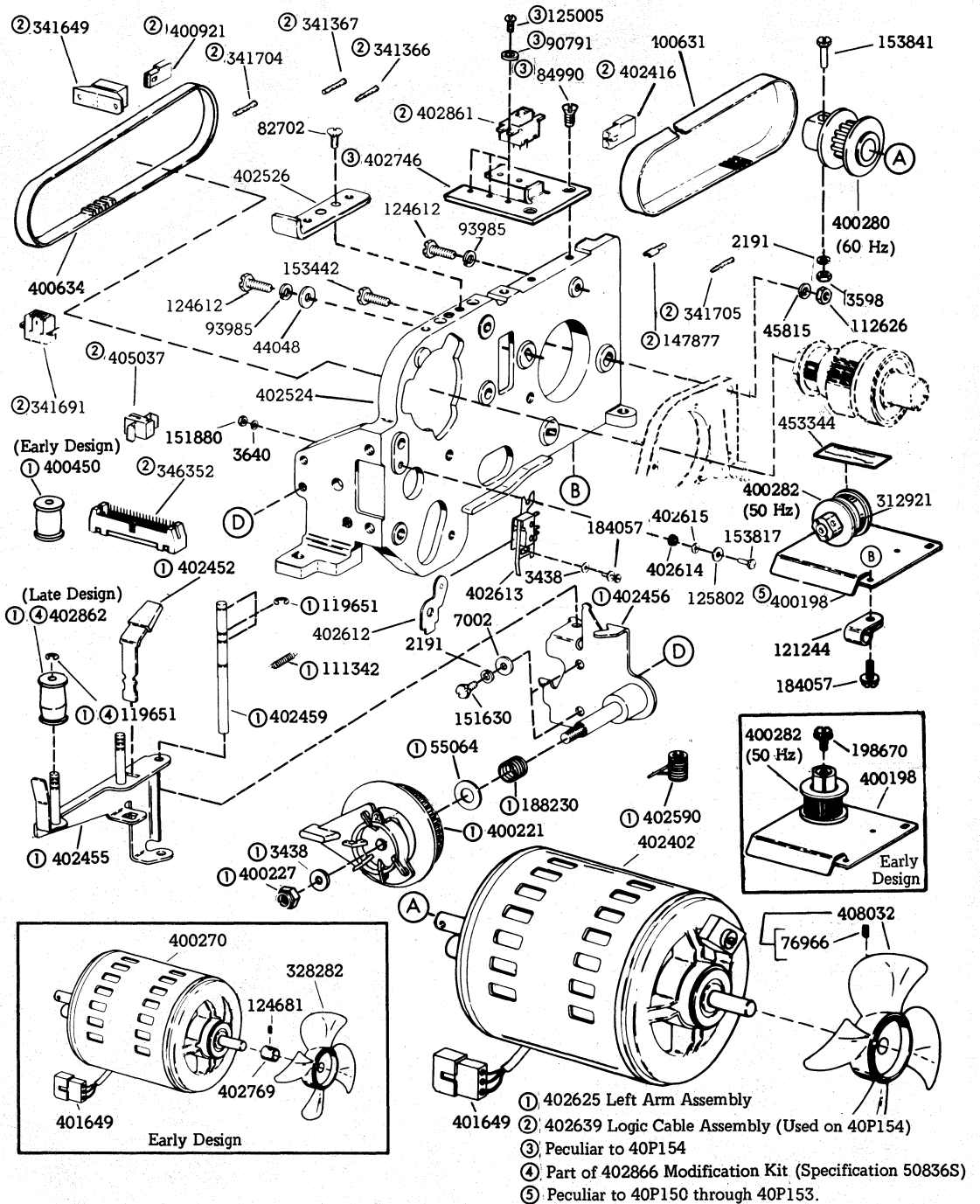


Fig. 16—Left Casting Assembly and 402402 Motor (Tractor Feed – 80-Column)

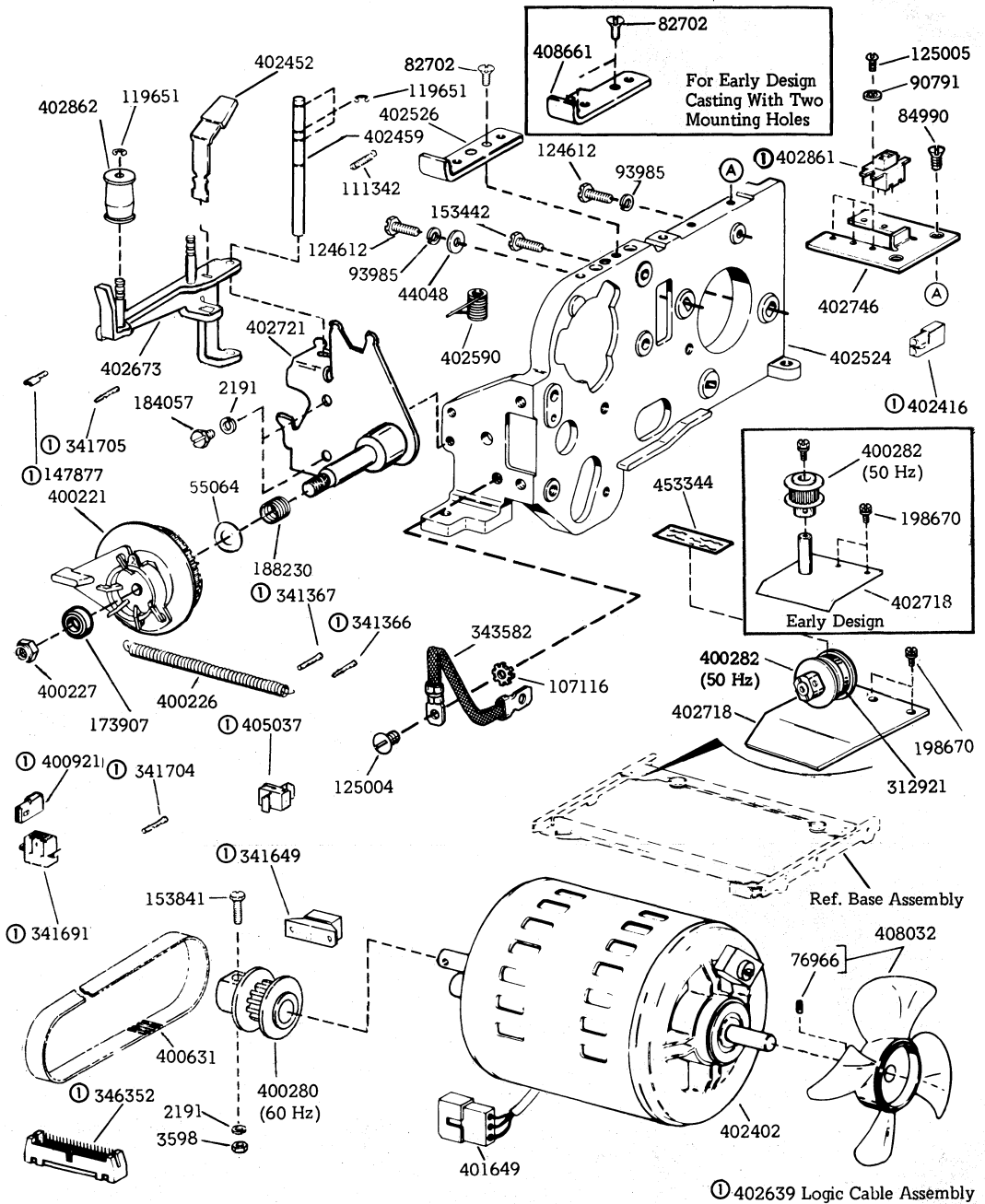


Fig. 17—Left Casting Assembly and 402402 Motor (Tractor Feed - 132-Column)

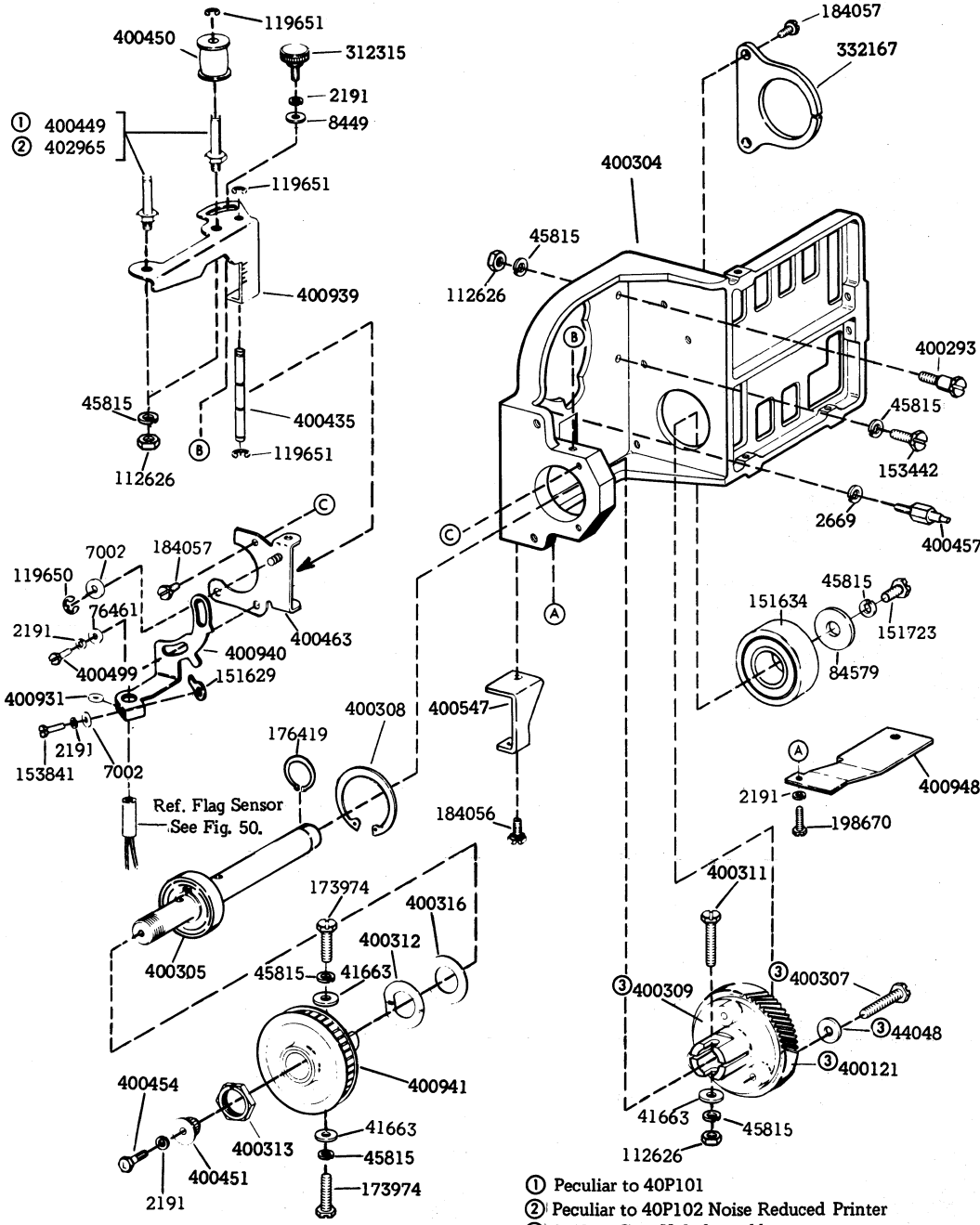
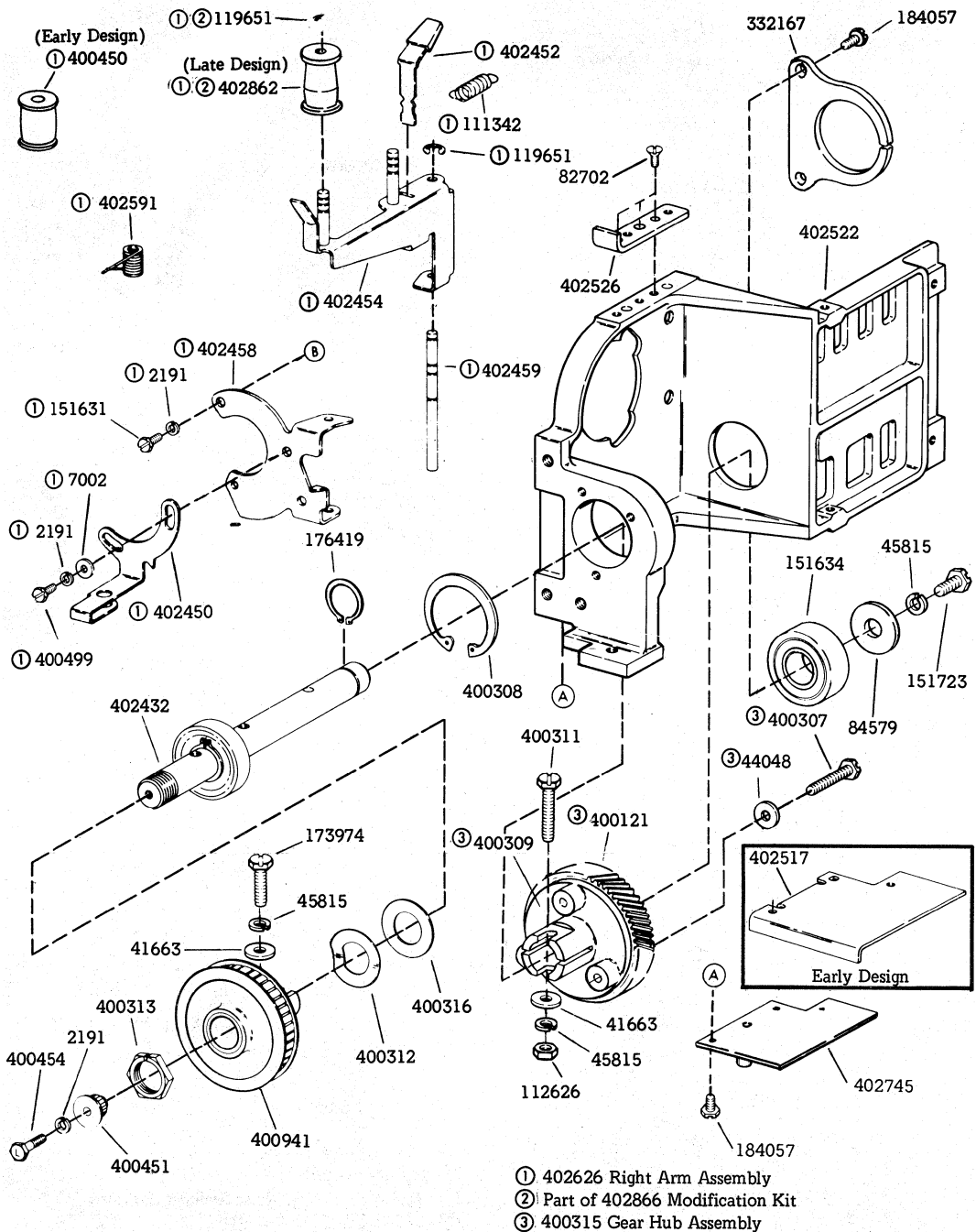


Fig. 19—Right Casting Assembly (Friction Feed)



- ① 402626 Right Arm Assembly
- ② Part of 402866 Modification Kit
- ③ 400315 Gear Hub Assembly

Fig. 20—402622 Right Casting Assembly (Tractor Feed - 80-Column)

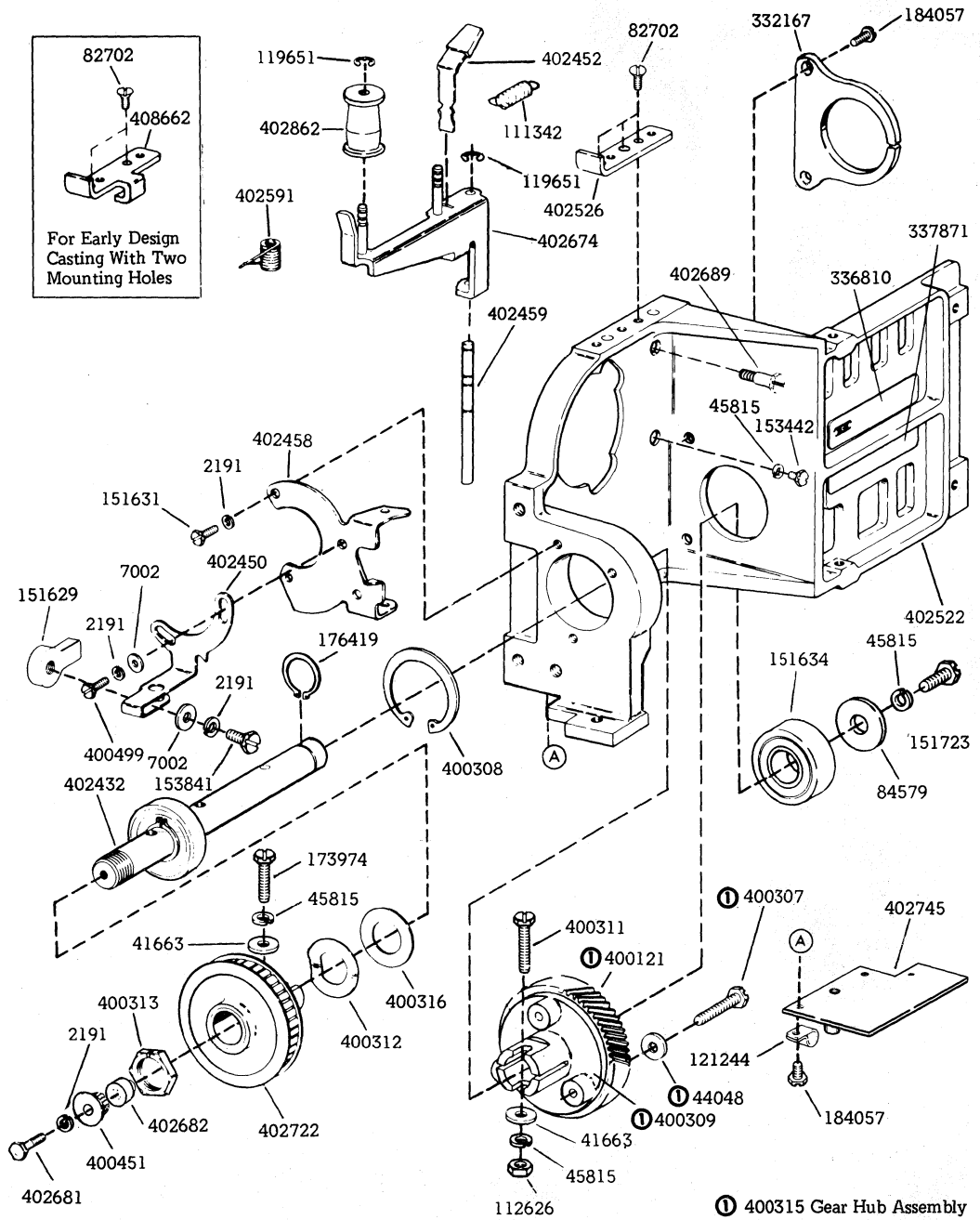


Fig. 21—Right Casting Assembly (Tractor Feed - 132-Column)

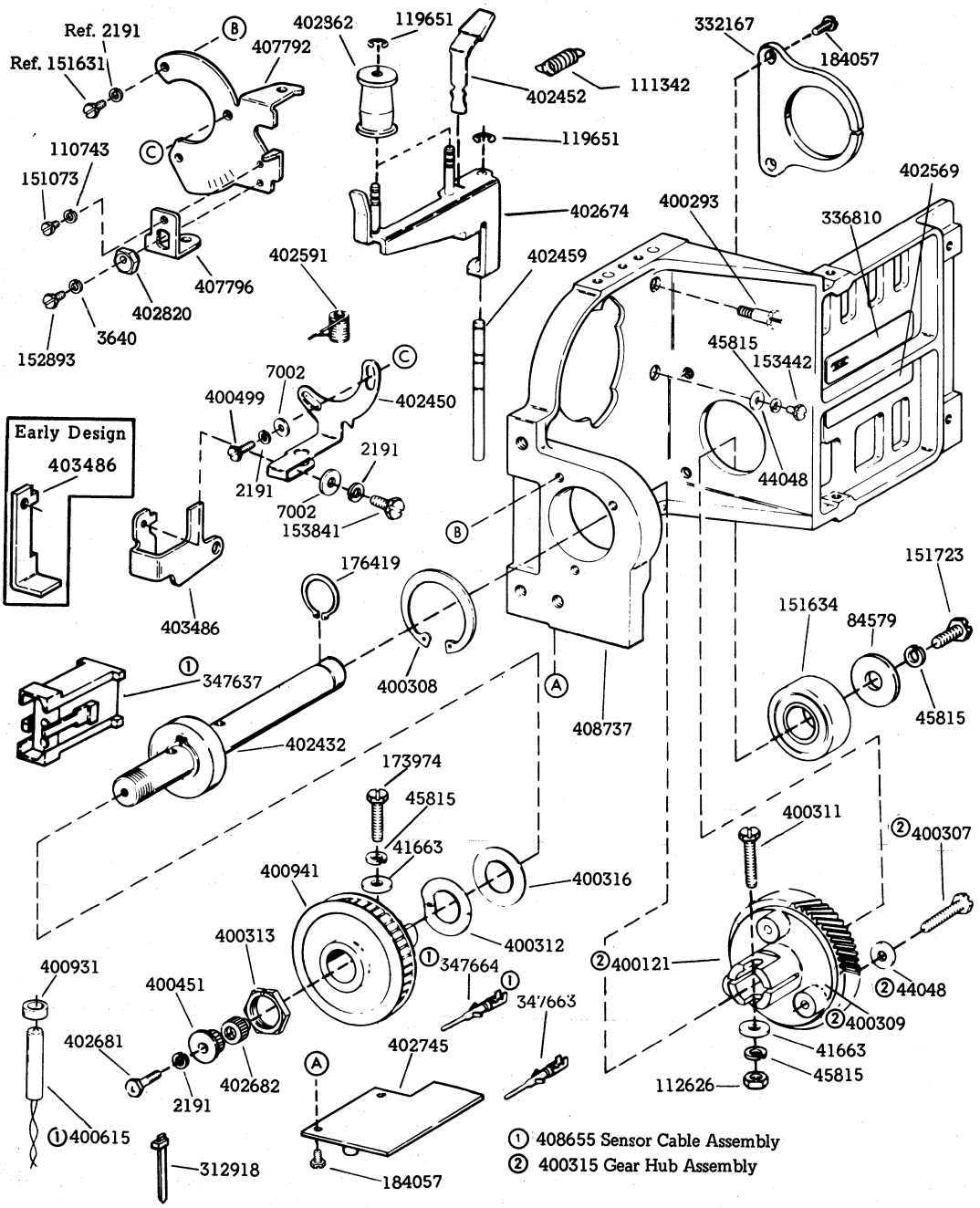
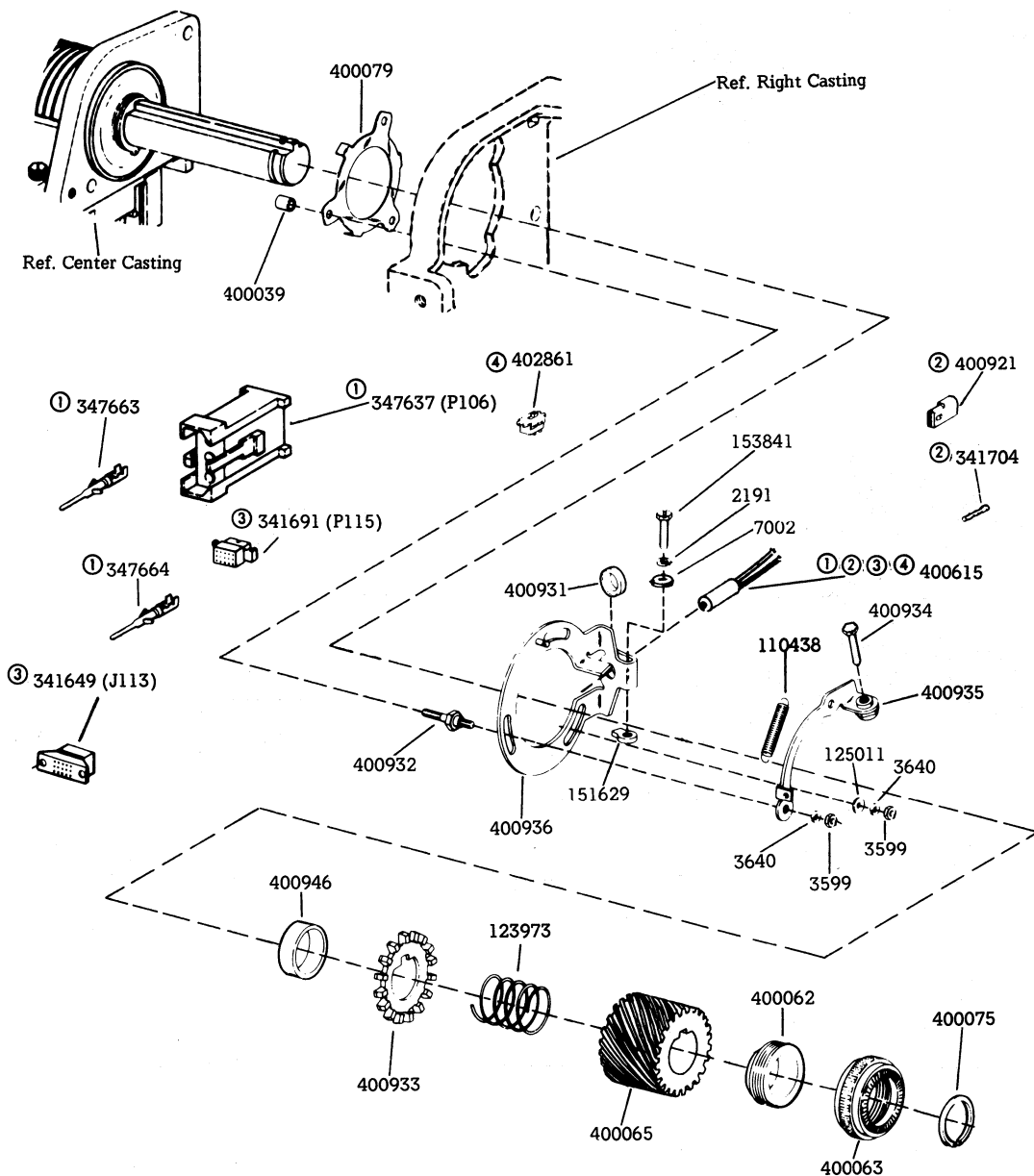


Fig. 22--Right Casting Assembly (Forms Access - Tractor Feed)



- ① 408655 Sensor Cable Assembly (40P154 and 40P253)
- ② 402803 Sensor Cable Assembly (40P201 and 40P203)
- ③ 402408 Cable Assembly (40P150-40P153)
- ④ 400580 Cable Assembly (40P101 and 40P102)

Fig. 23—Impeller Shaft Sensor Bracket and Gear (Friction and Tractor Feed)

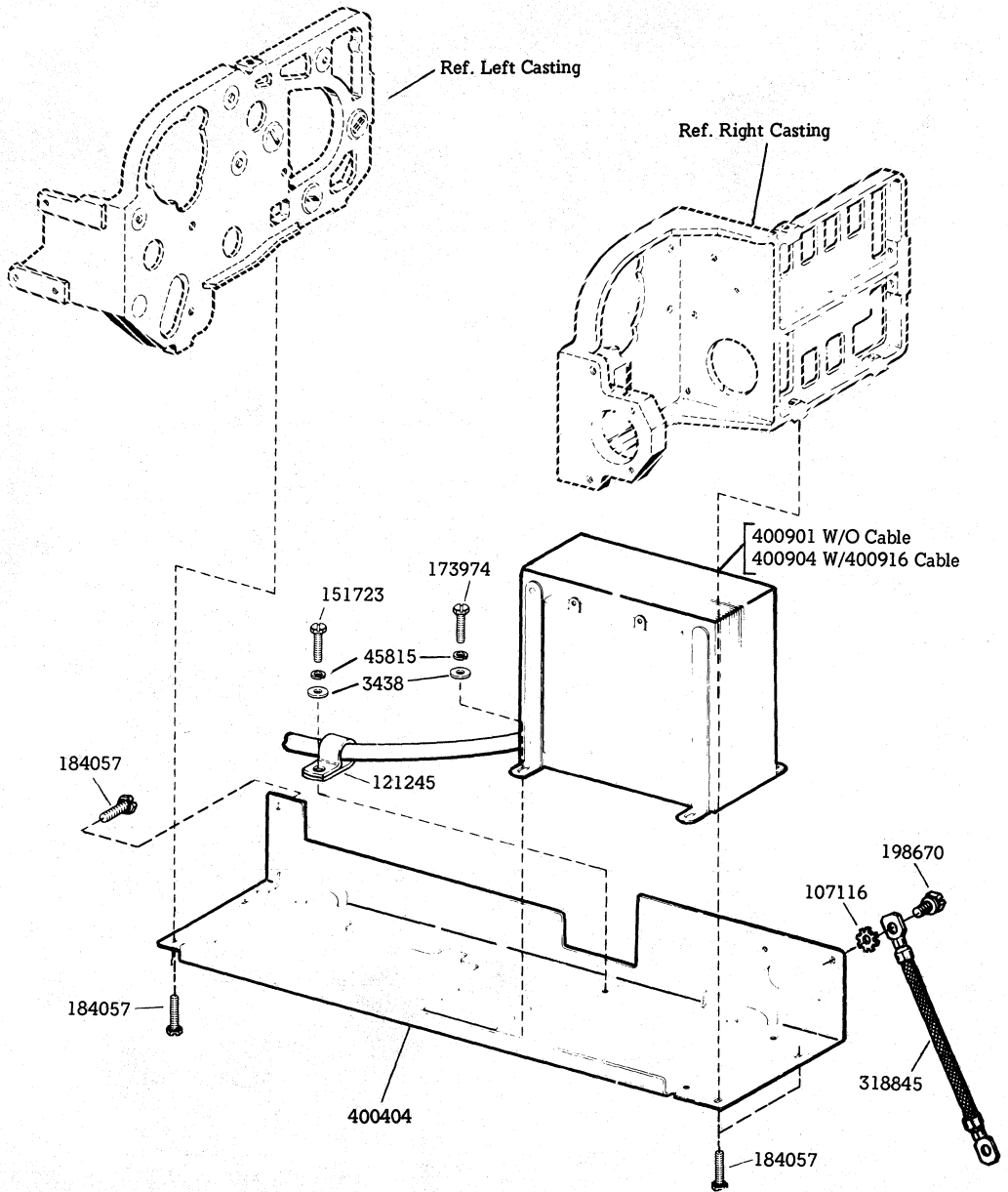


Fig. 24—Bottom Pan and Transformer (Friction Feed Only)

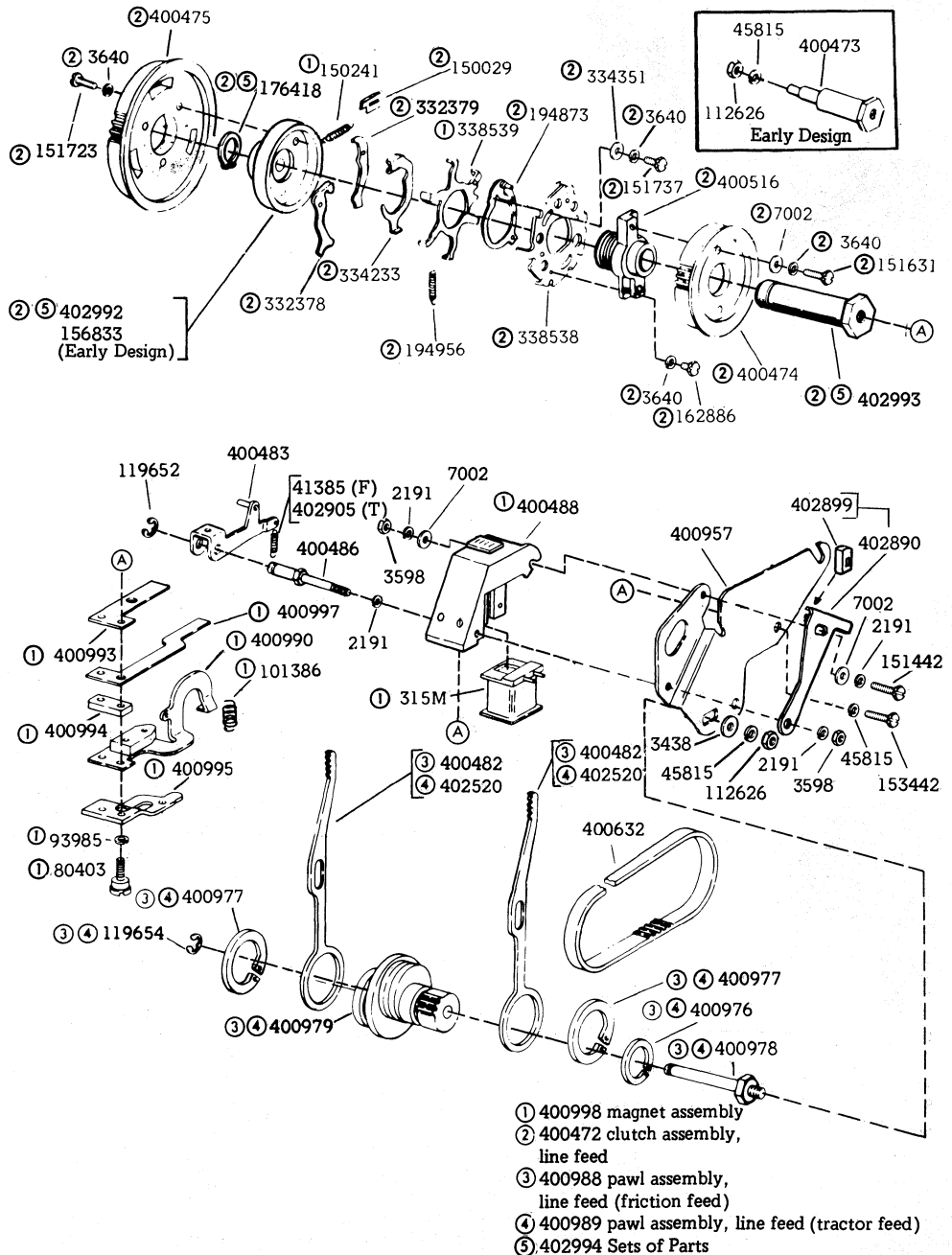


Fig. 25—400470 Line Feed Assembly (Friction Feed) and 402621 Line Feed Assembly (Tractor Feed - 80 and 132-Column)

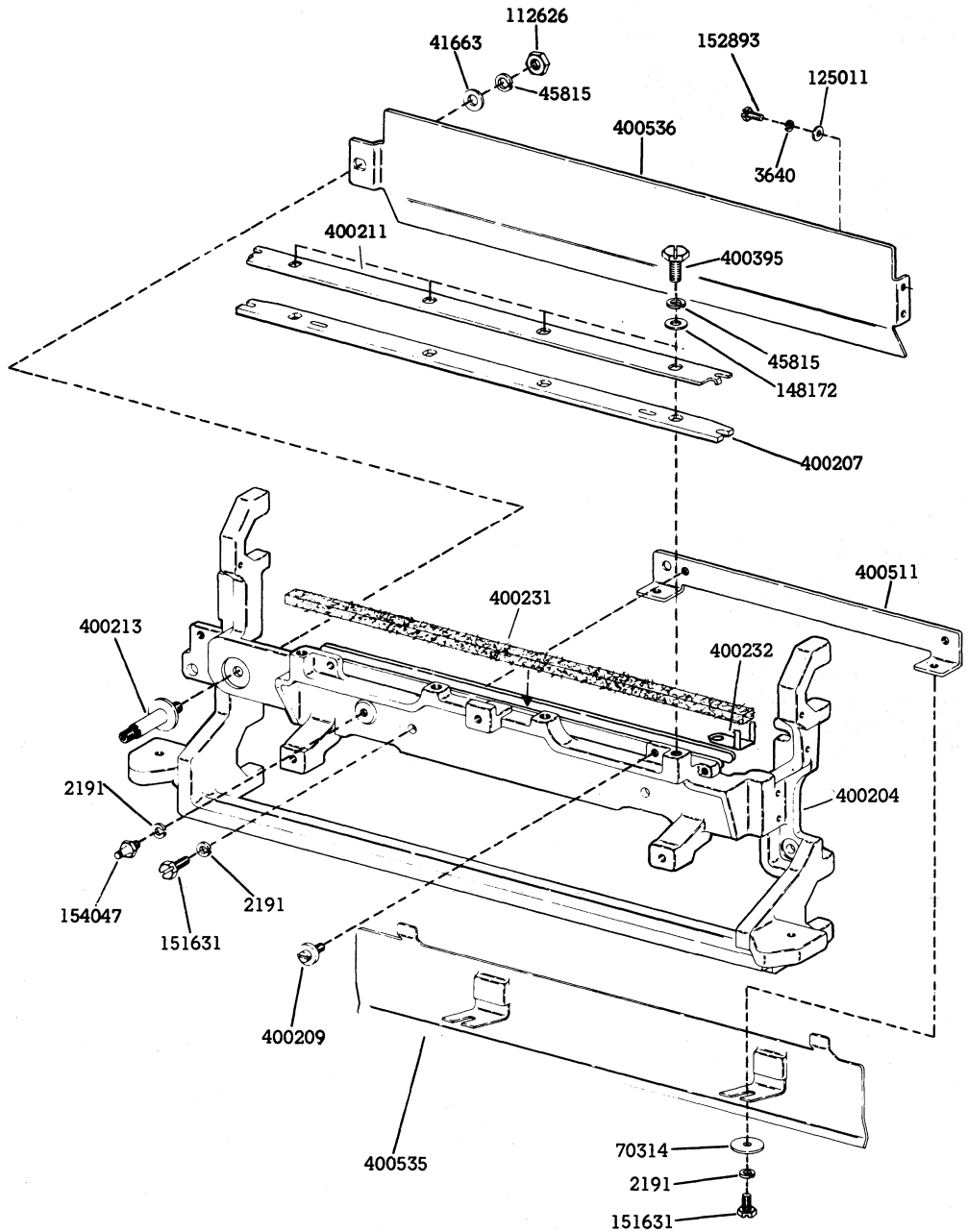


Fig. 27-400201 Front Casting Assembly (Friction Feed - 40P101 Early Design)

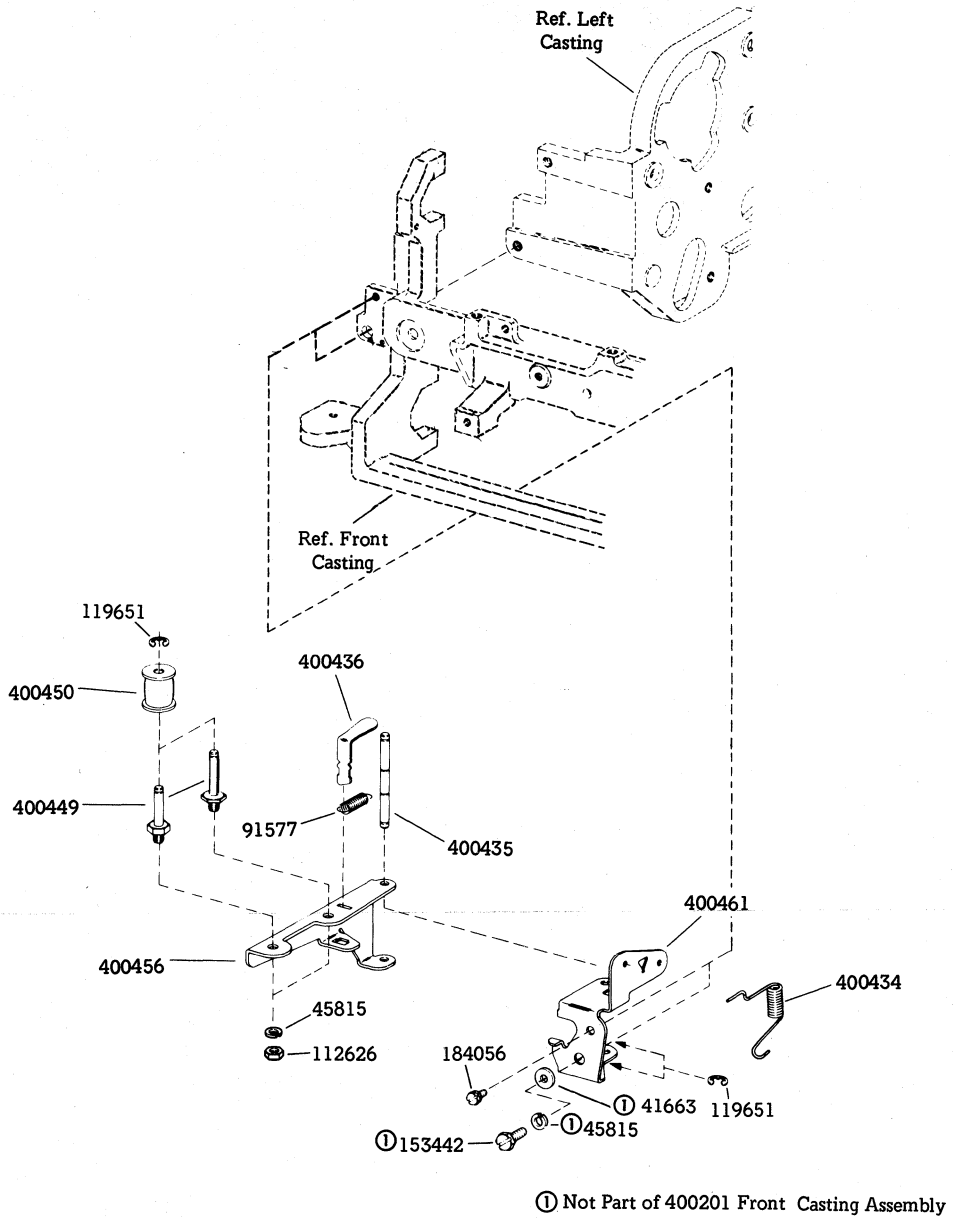


Fig. 27-400201 Front Casting Assembly (Friction Feed 40P101 - Early Design) (Cont.)

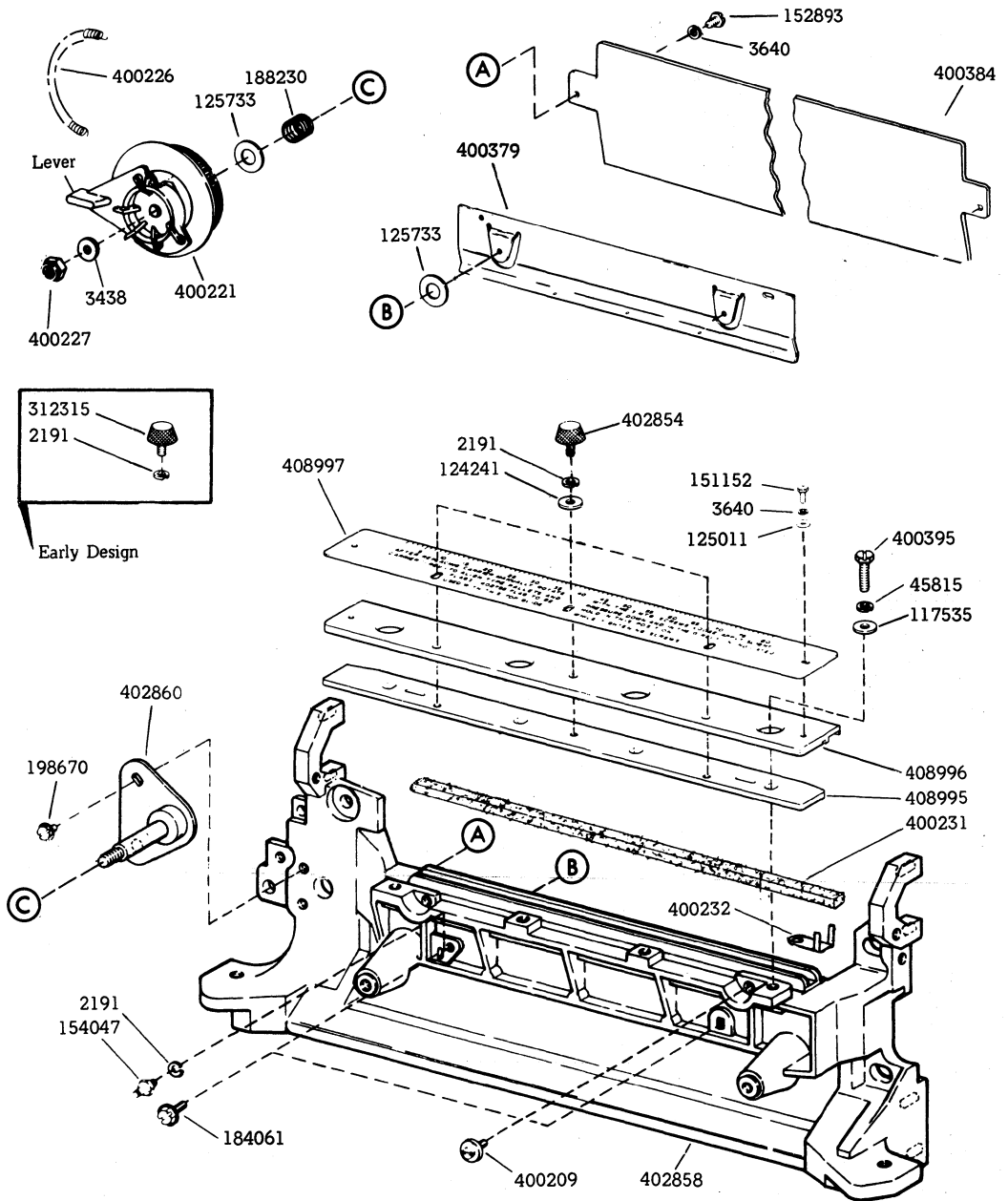


Fig. 28-400377 Front Casting Assembly (Friction Feed 40P101-Late Design)

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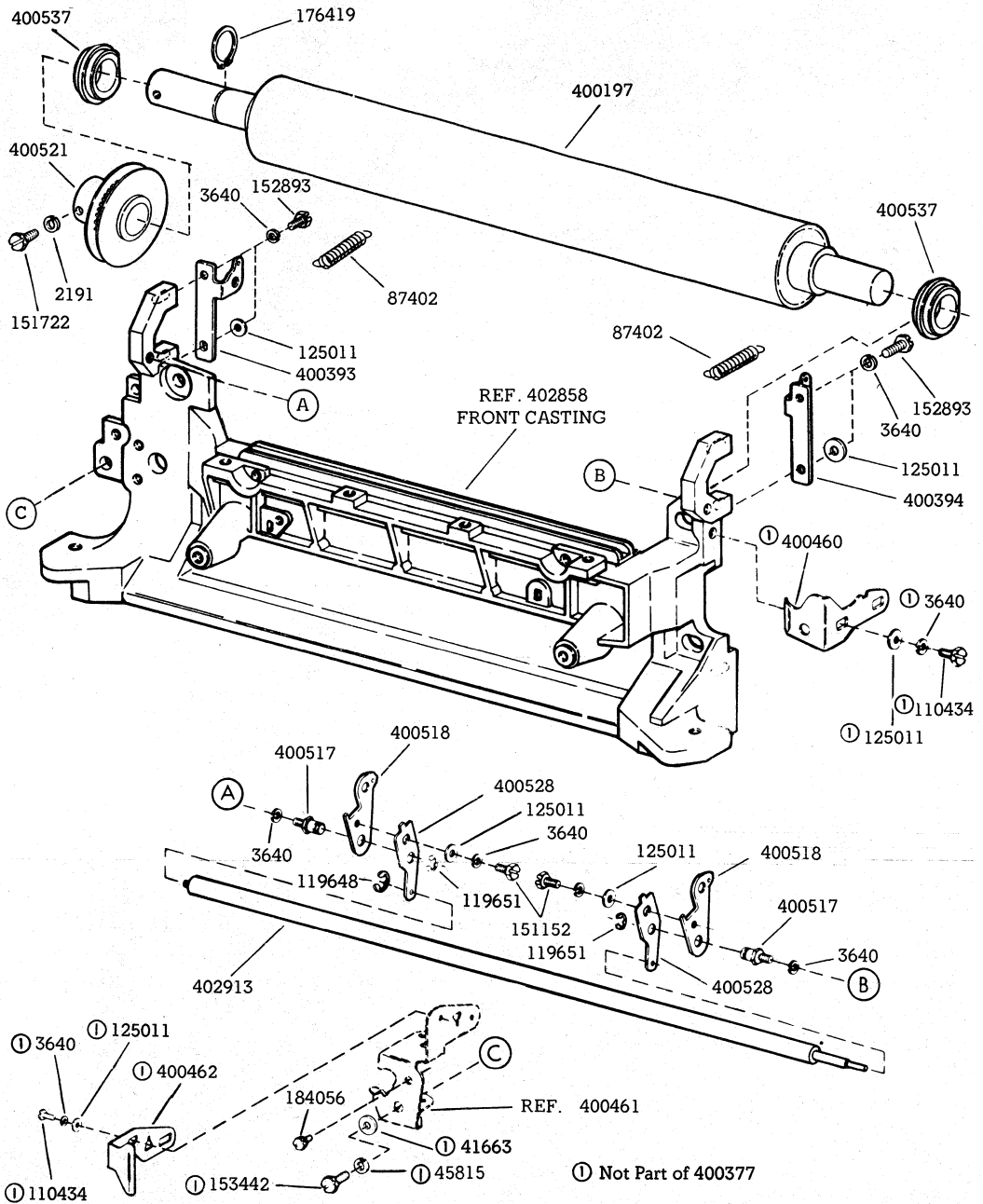


Fig. 28-400377 Front Casting Assembly (Friction Feed 40P101 - Late Design) (Cont.)

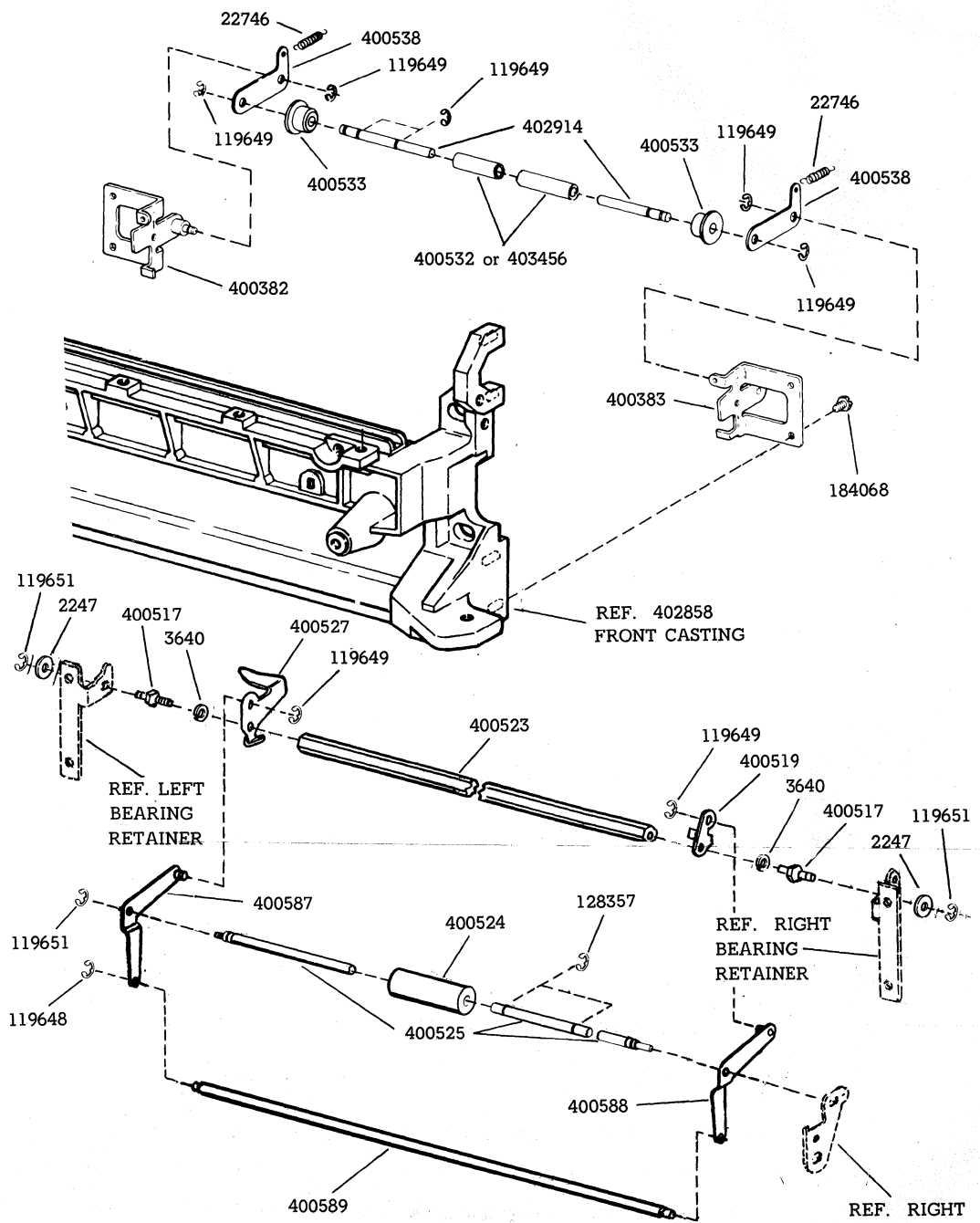


Fig. 28-400377 Front Casting Assembly (Friction Feed 40P101 Late Design) (Cont.)

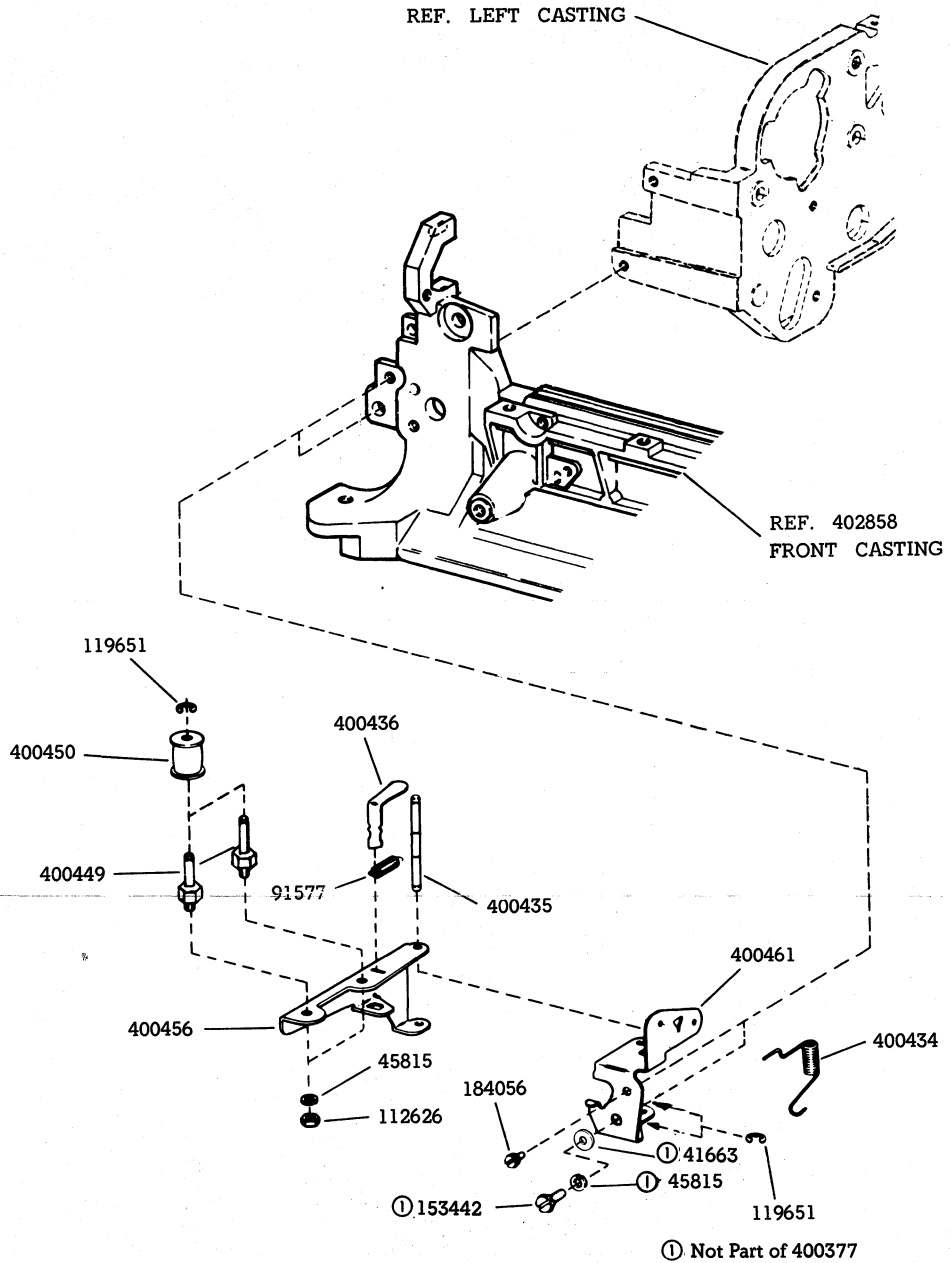


Fig. 28-400377 Front Casting Assembly (Friction Feed 40P101 Late Design) (Cont.)

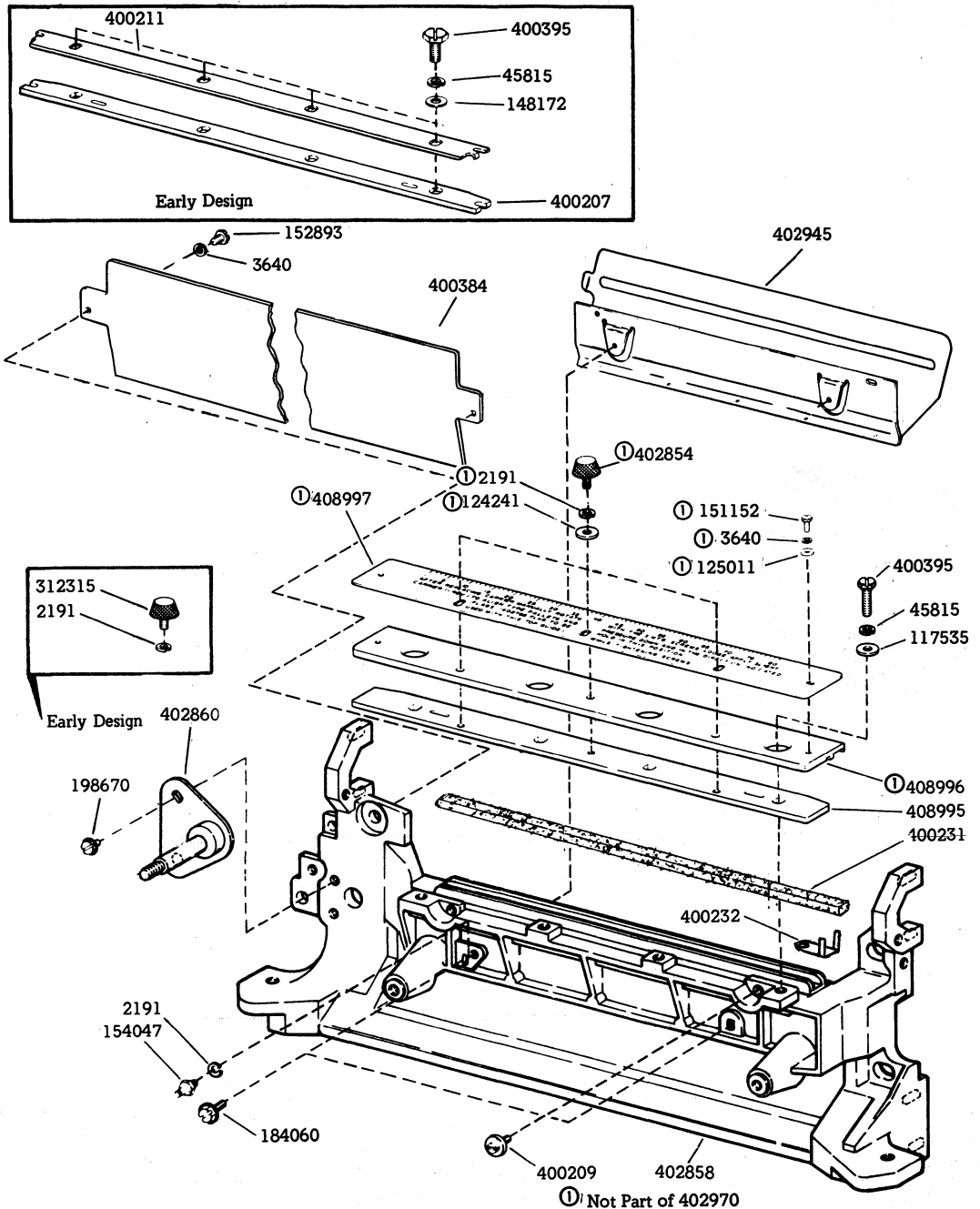
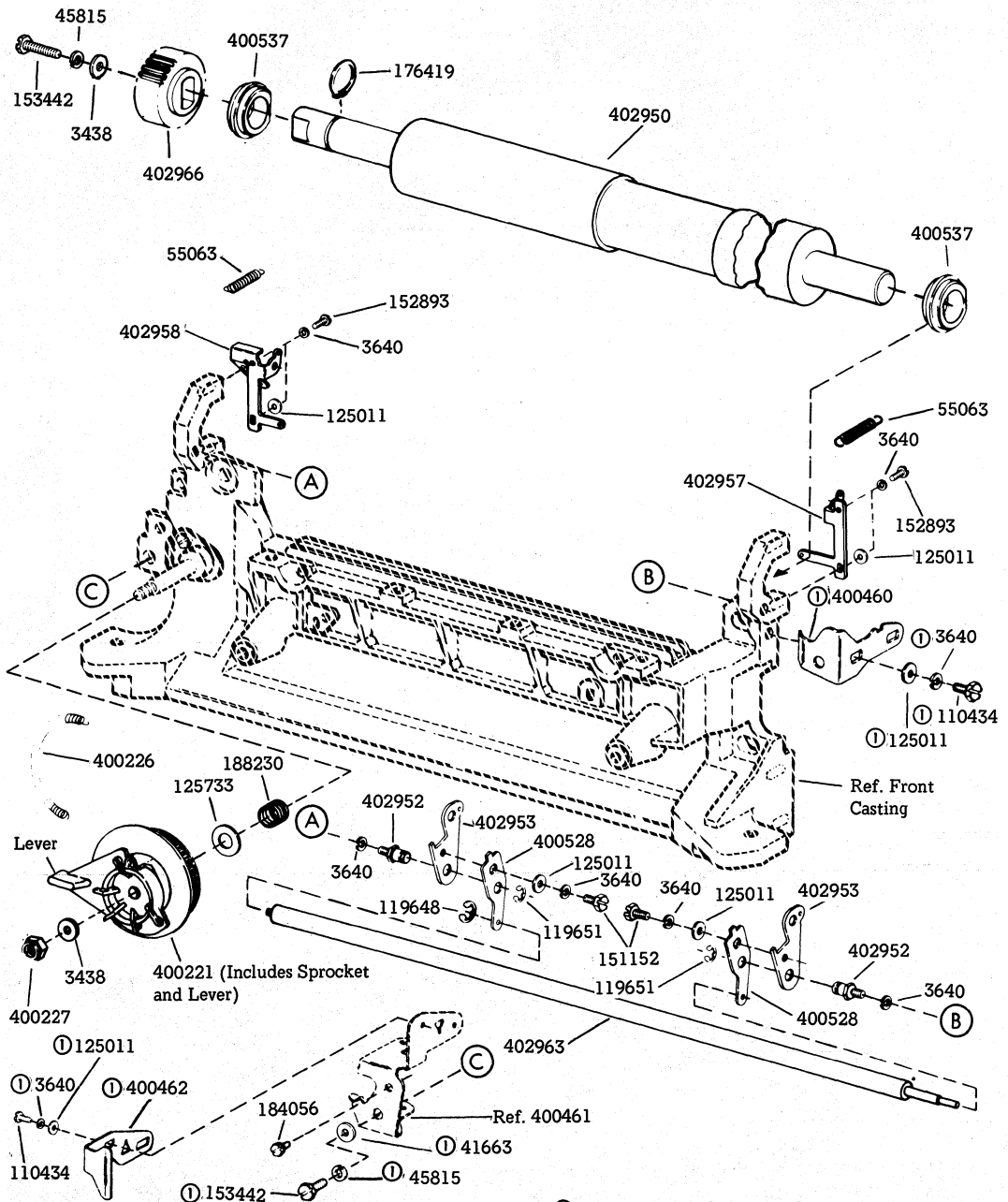


Fig. 29-402970 Front Casting Assembly (Friction Feed 40P102)



Ⓛ Not Part of 402970 Front Casting Assembly.

Fig. 29-402970 Front Casting Assembly (Friction Feed - 40P102) (Cont.)

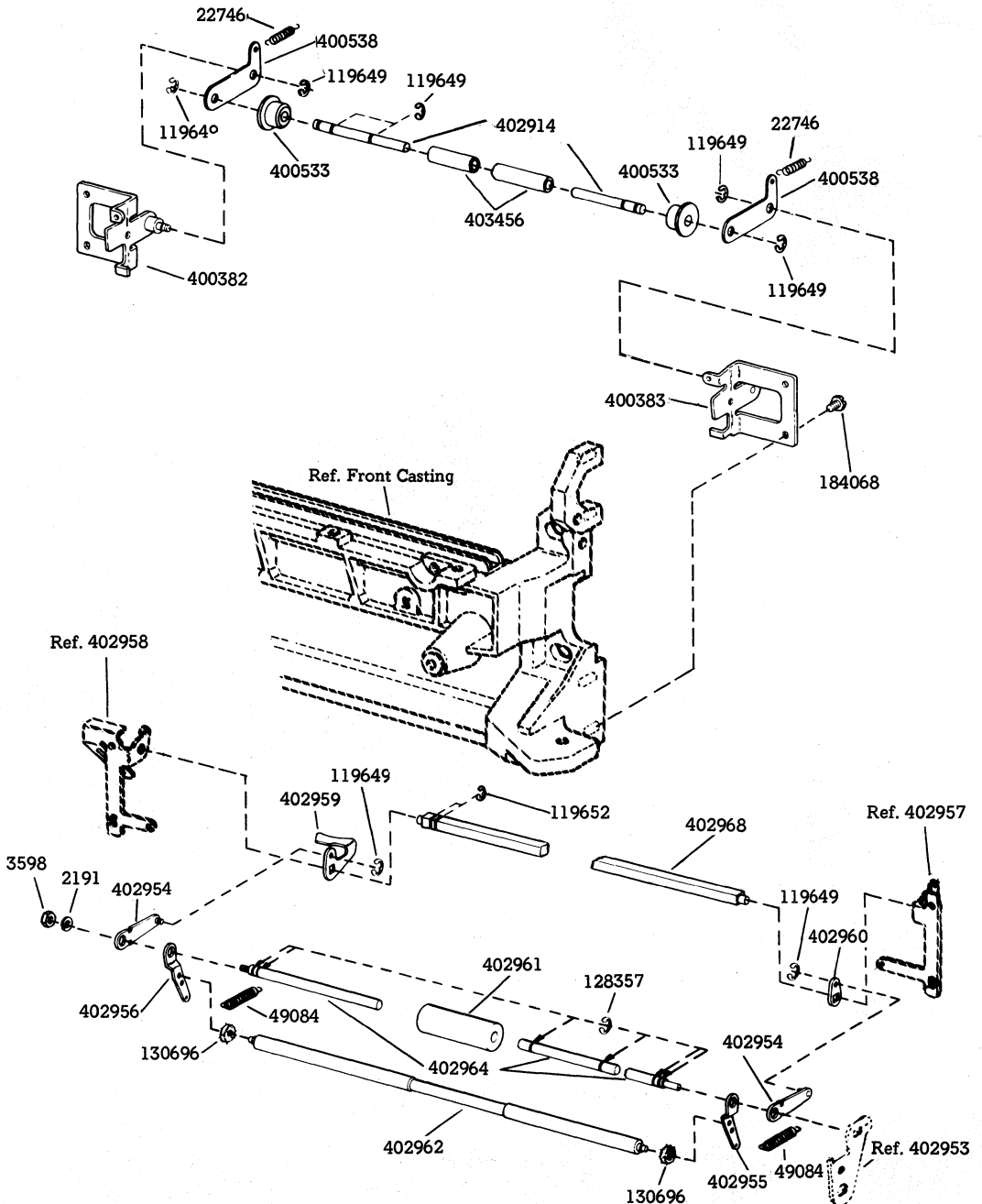


Fig. 29-402970 Front Casting Assembly (Friction Feed - 40P102) (Cont.)

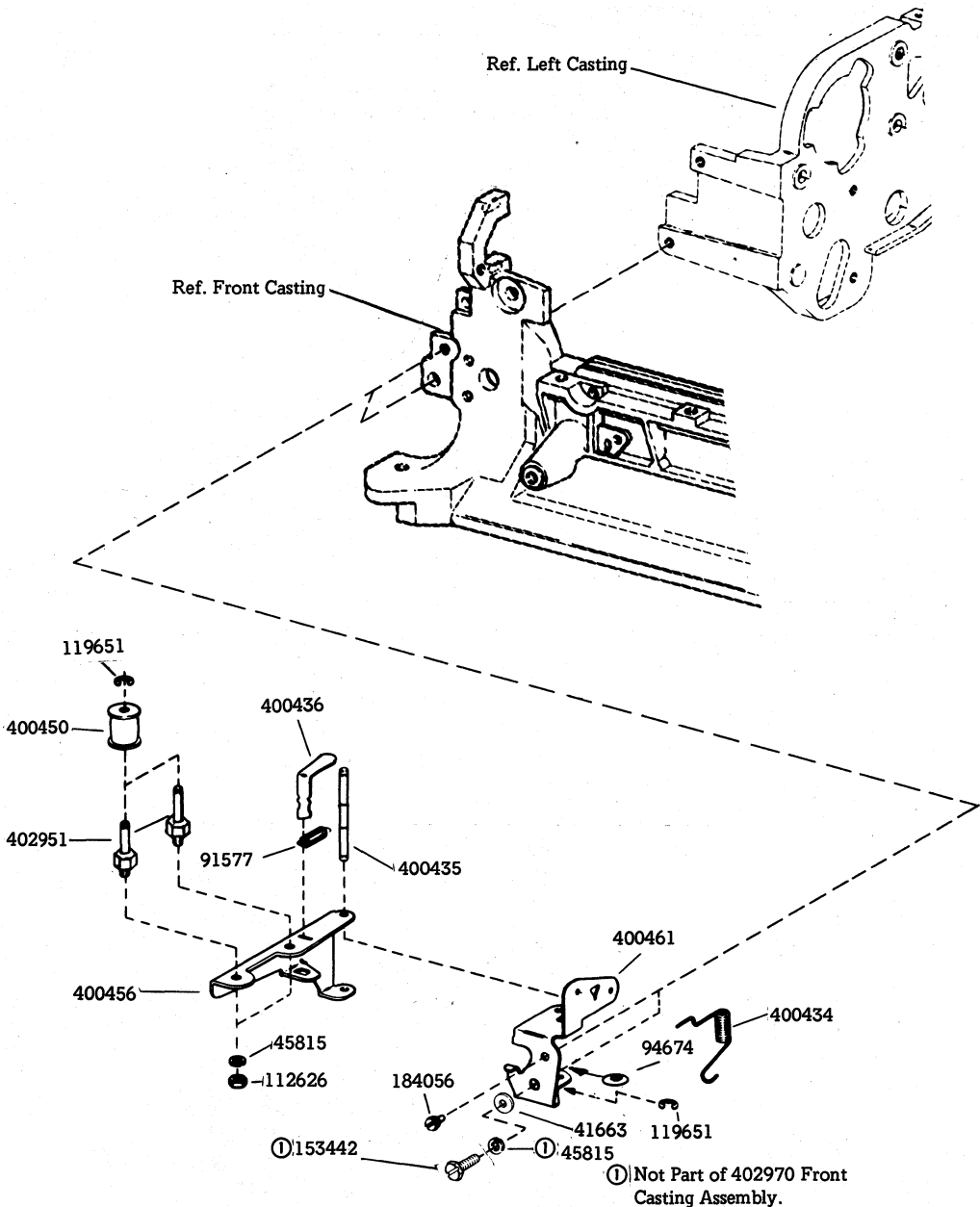


Fig. 29-402970 Front Casting Assembly (Friction Feed - 40P102)

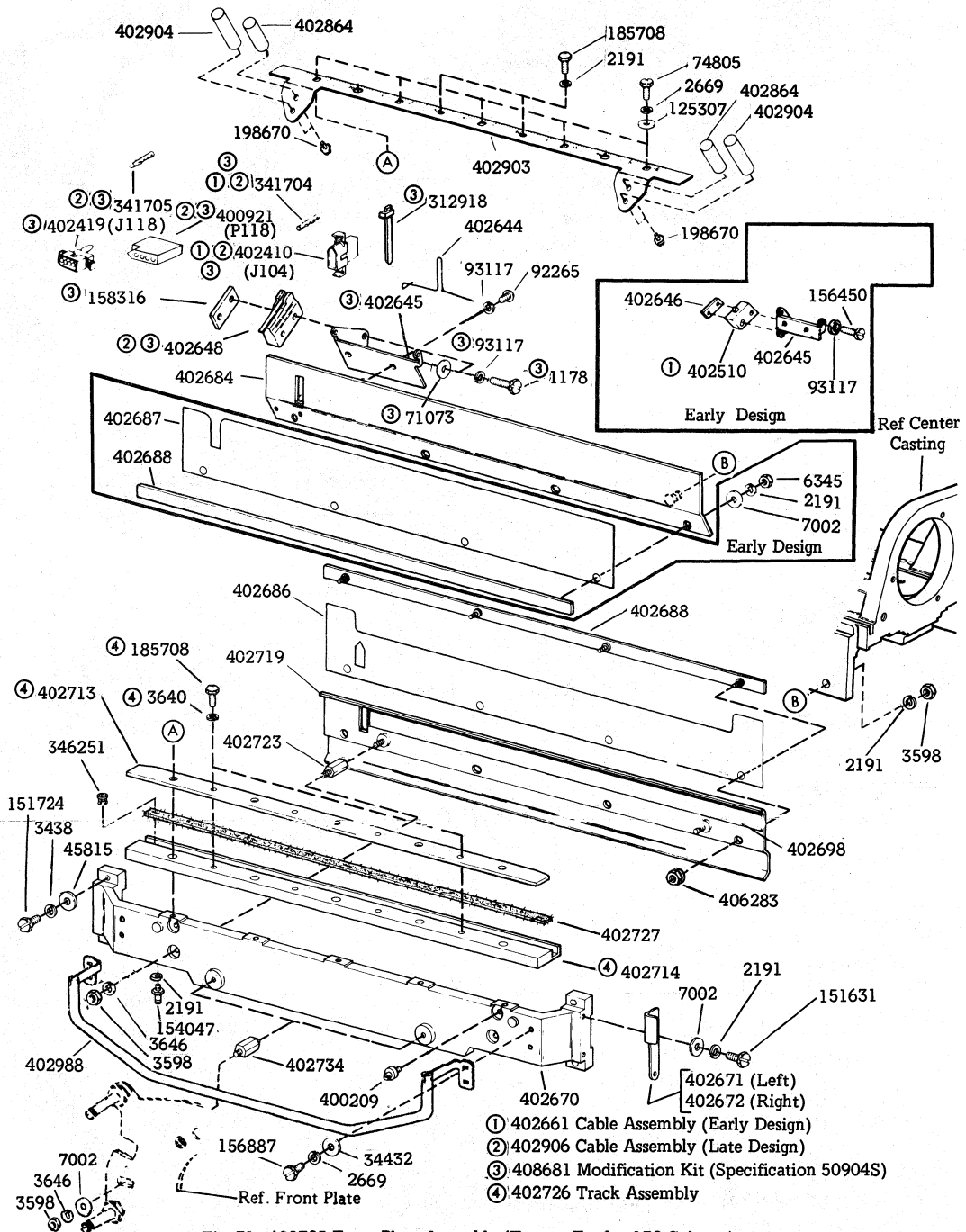


Fig. 31-402725 Front Plate Assembly (Tractor Feed - 132-Column)

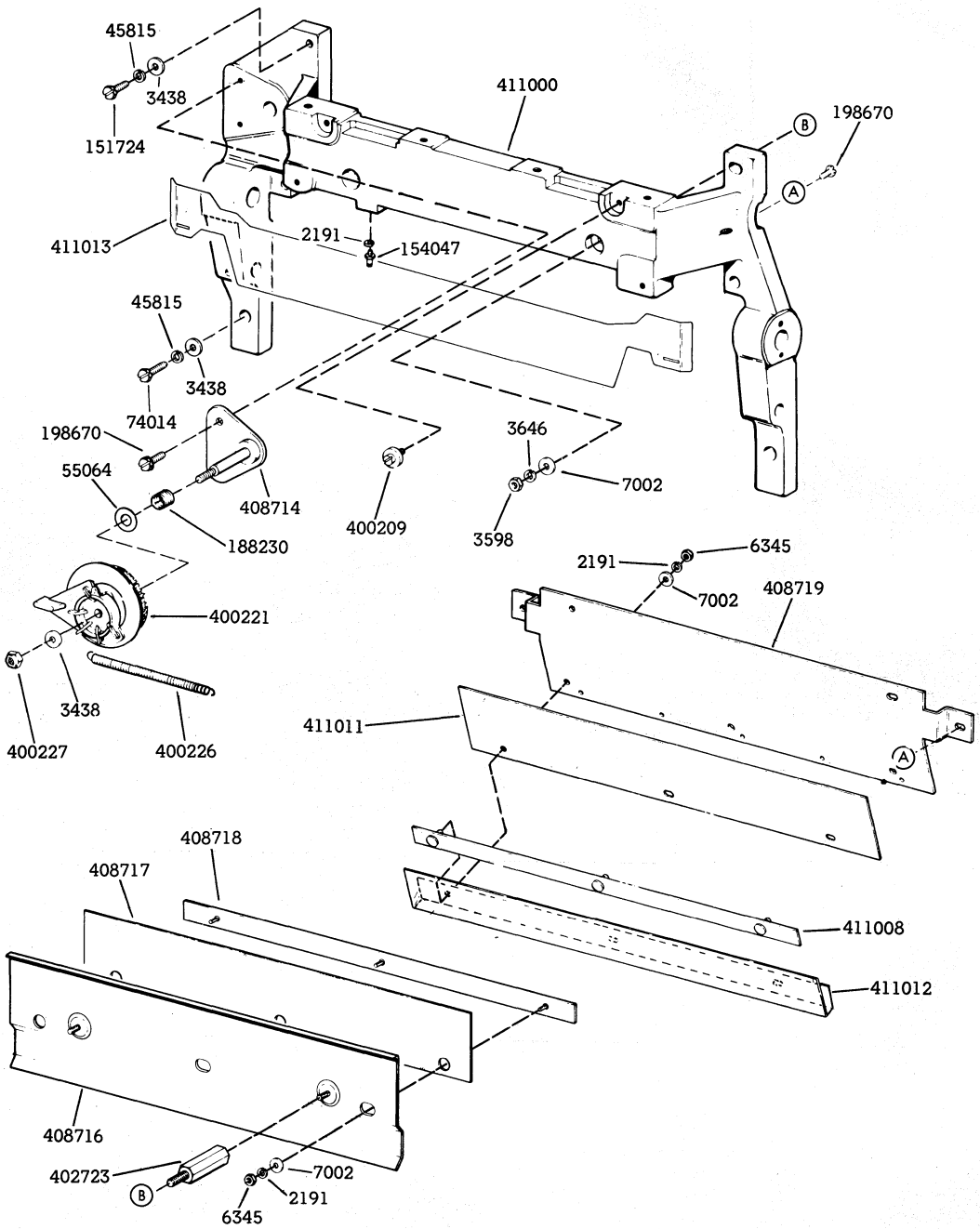
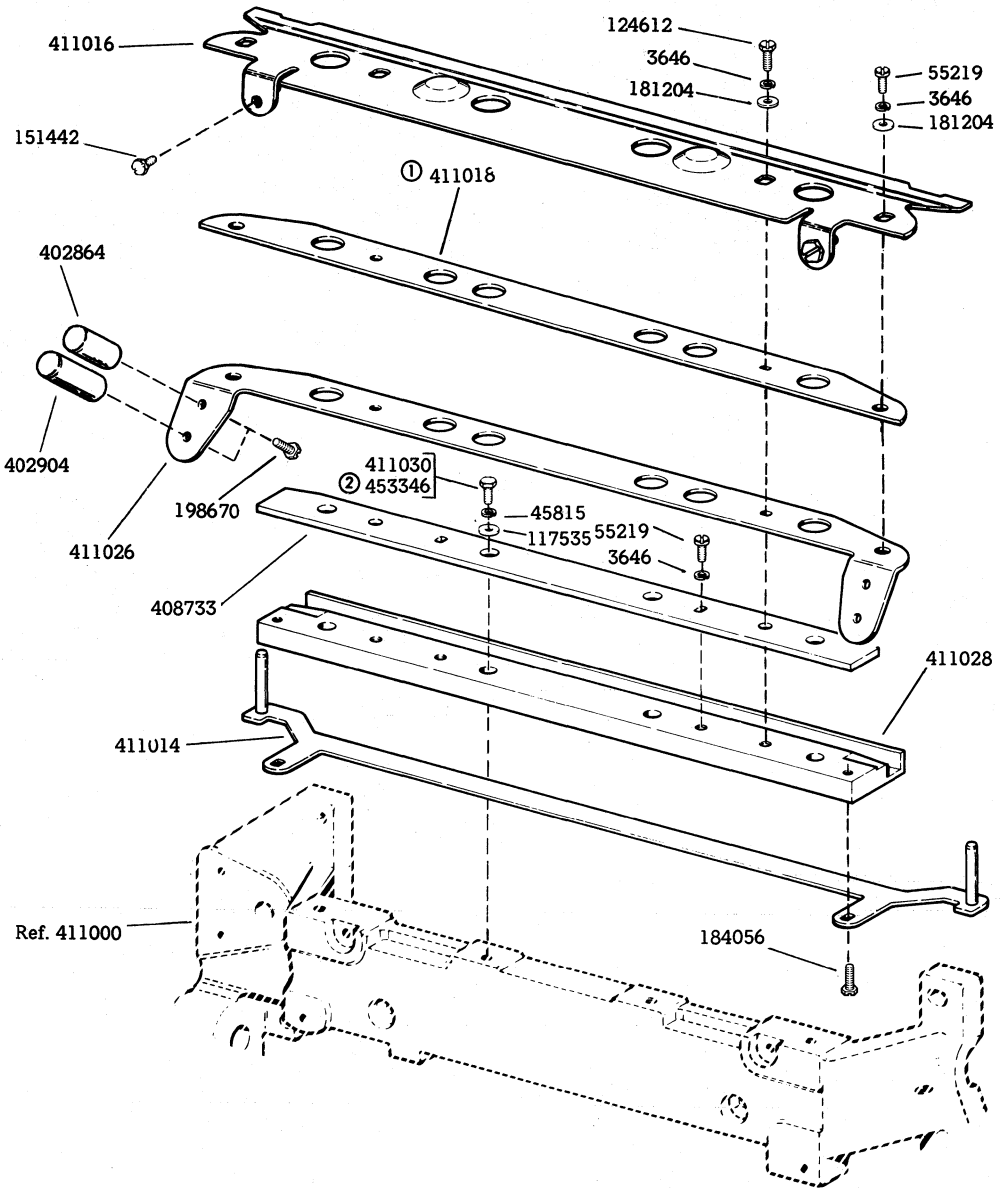


Fig. 32—Front Casting Assembly (Forms Access - Tractor Feed)



① Peculiar to Printer With 8 Lines Per Inch Spacing.

② 453346 peculiar to serial numbers between 82206 and 90187.

Fig. 32—Front Casting Assembly (Forms Access – Tractor Feed) (Cont.)

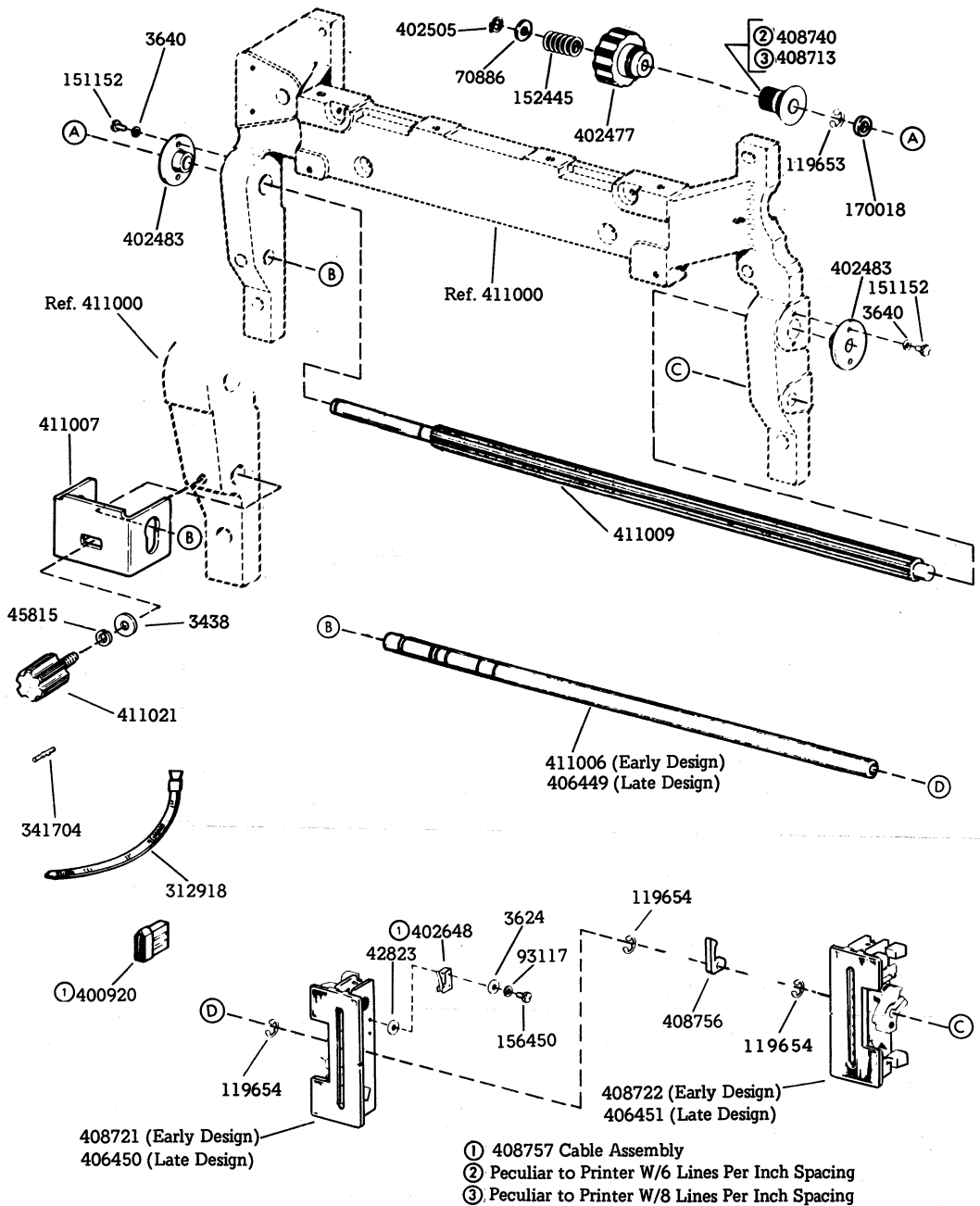
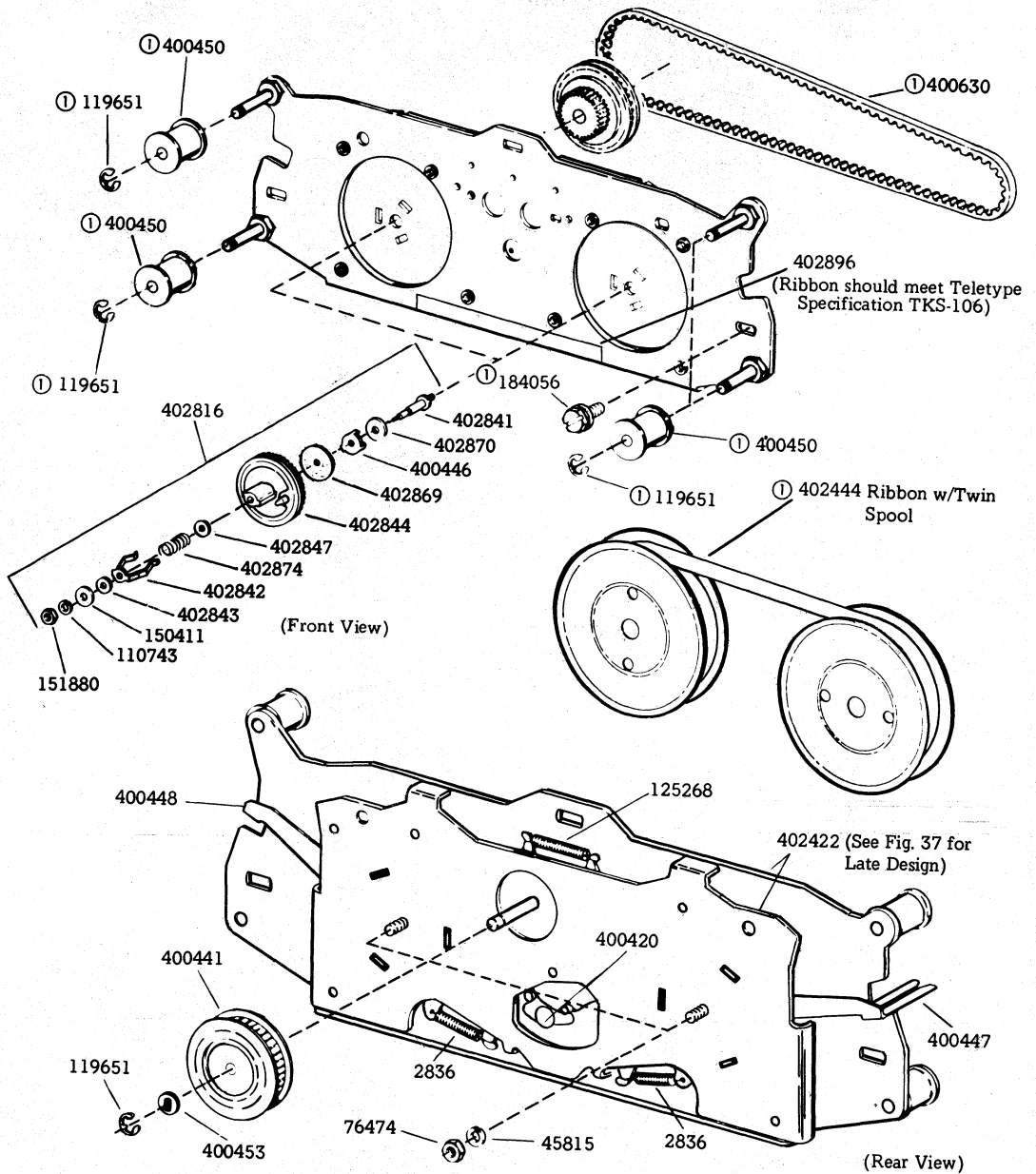


Fig. 33—Paper Handling Assembly (Forms Access - Tractor Feed)



① Not Part of 402420
 Ribbon Feed Assembly.

Fig. 34-402420 Ribbon Feed Assembly (Friction Feed Only)

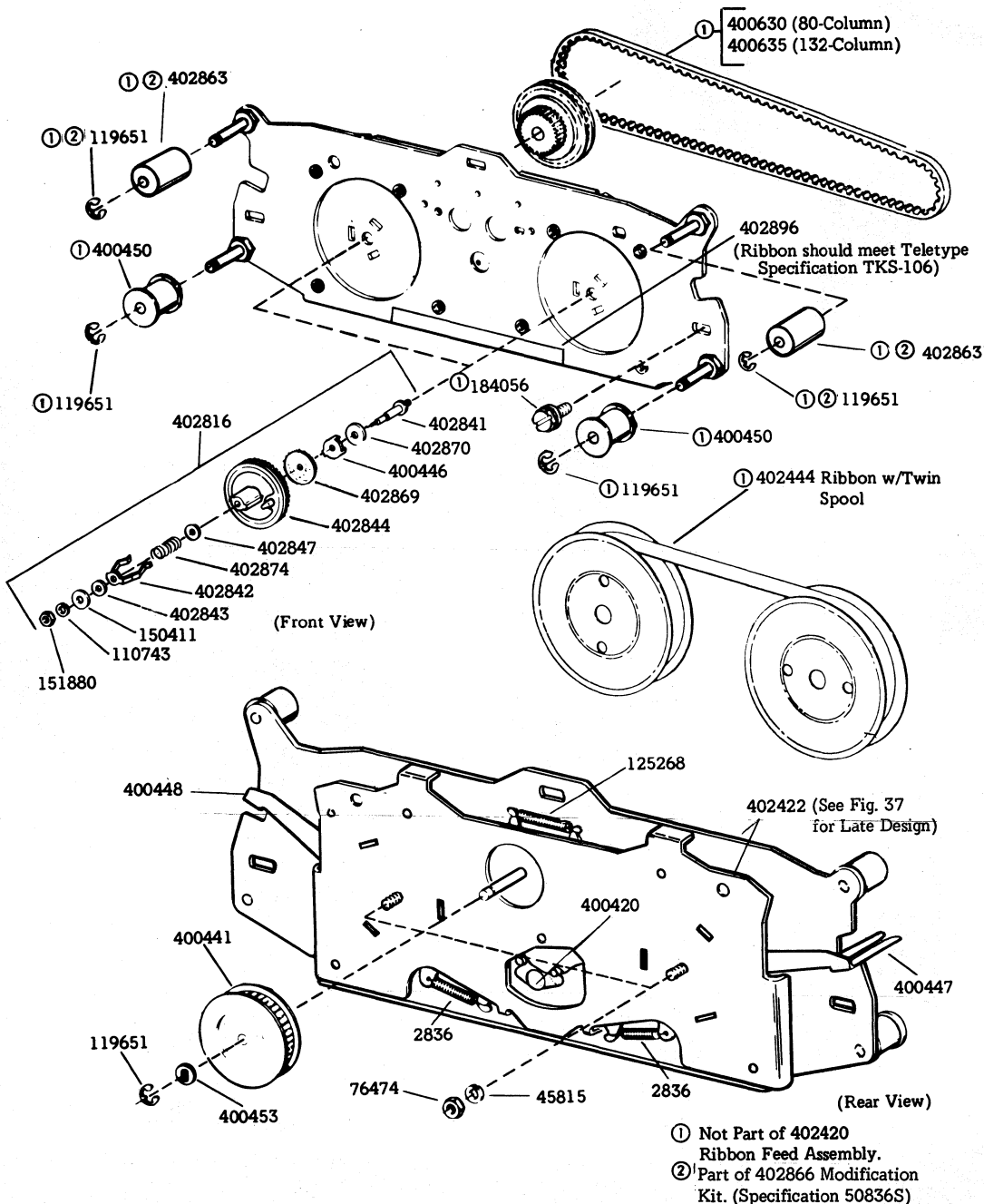


Fig. 35-402420 Ribbon Feed Assembly (Tractor Feed - 80 and 132-Column)

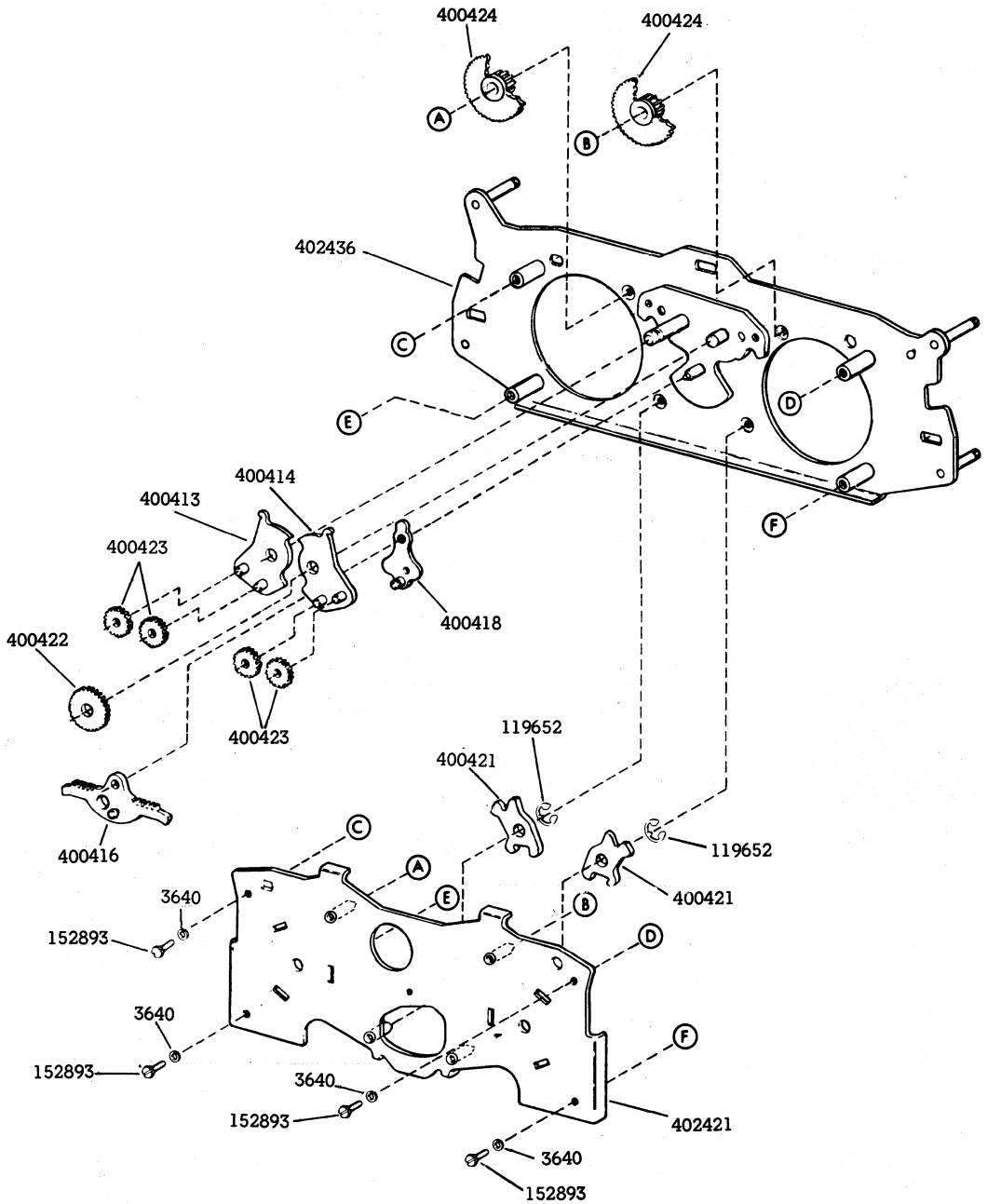


Fig. 37-402422 Ribbon Feed Frame Assembly (Late Design)

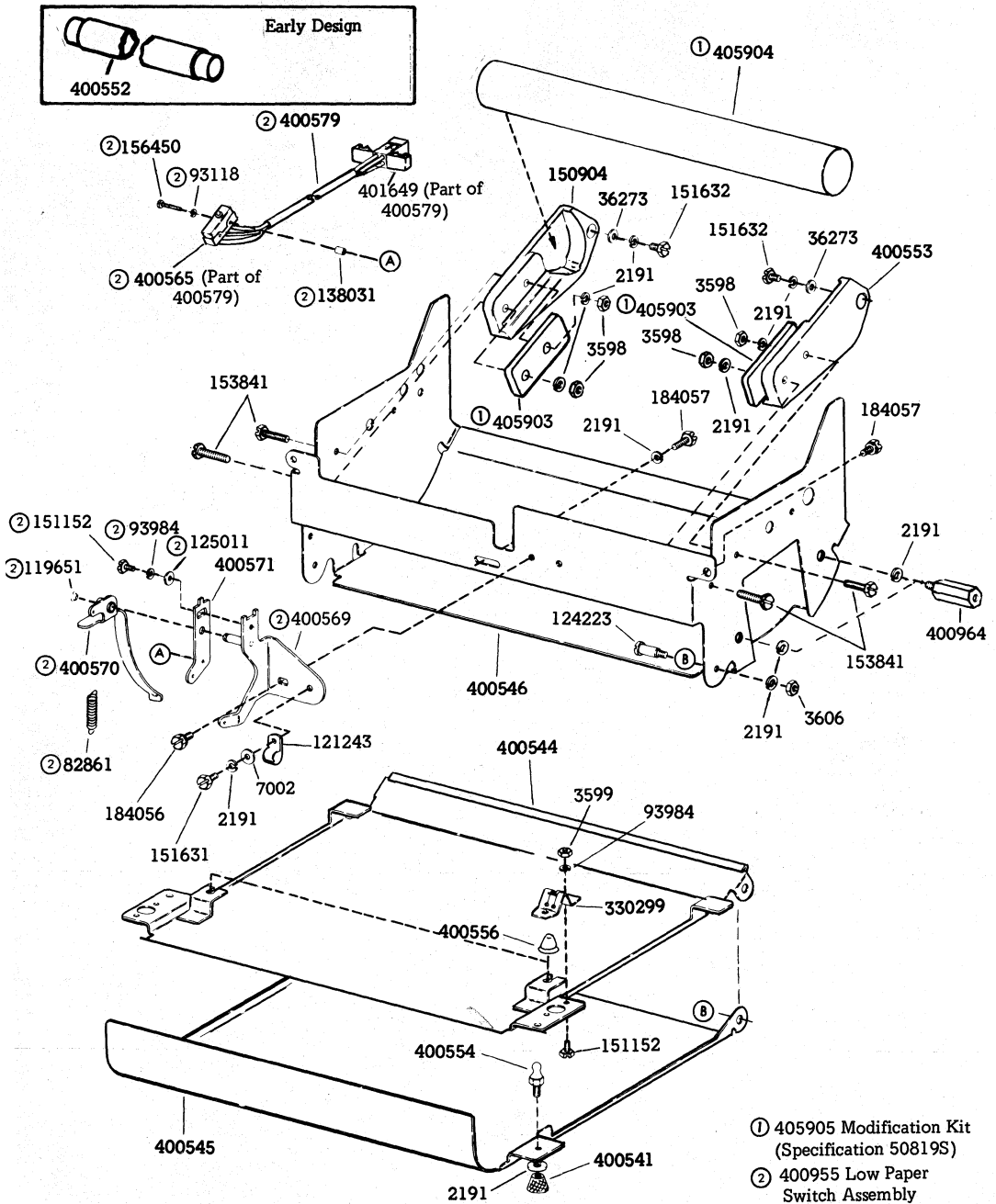


Fig. 38-400540 Paper Container Assembly (Friction Feed)

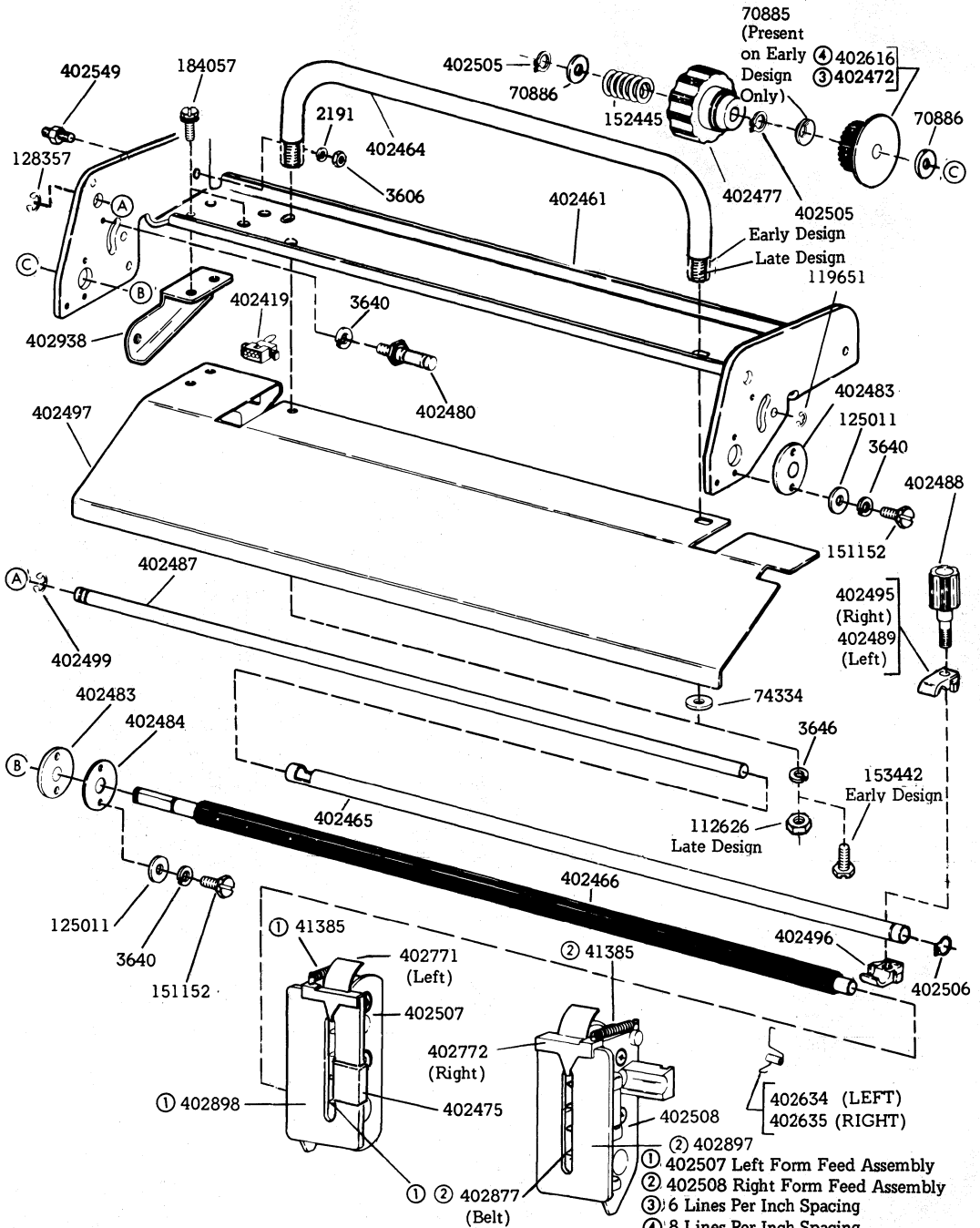


Fig. 39-402460 Paper Handling Assembly (Tractor Feed - 80-Column)

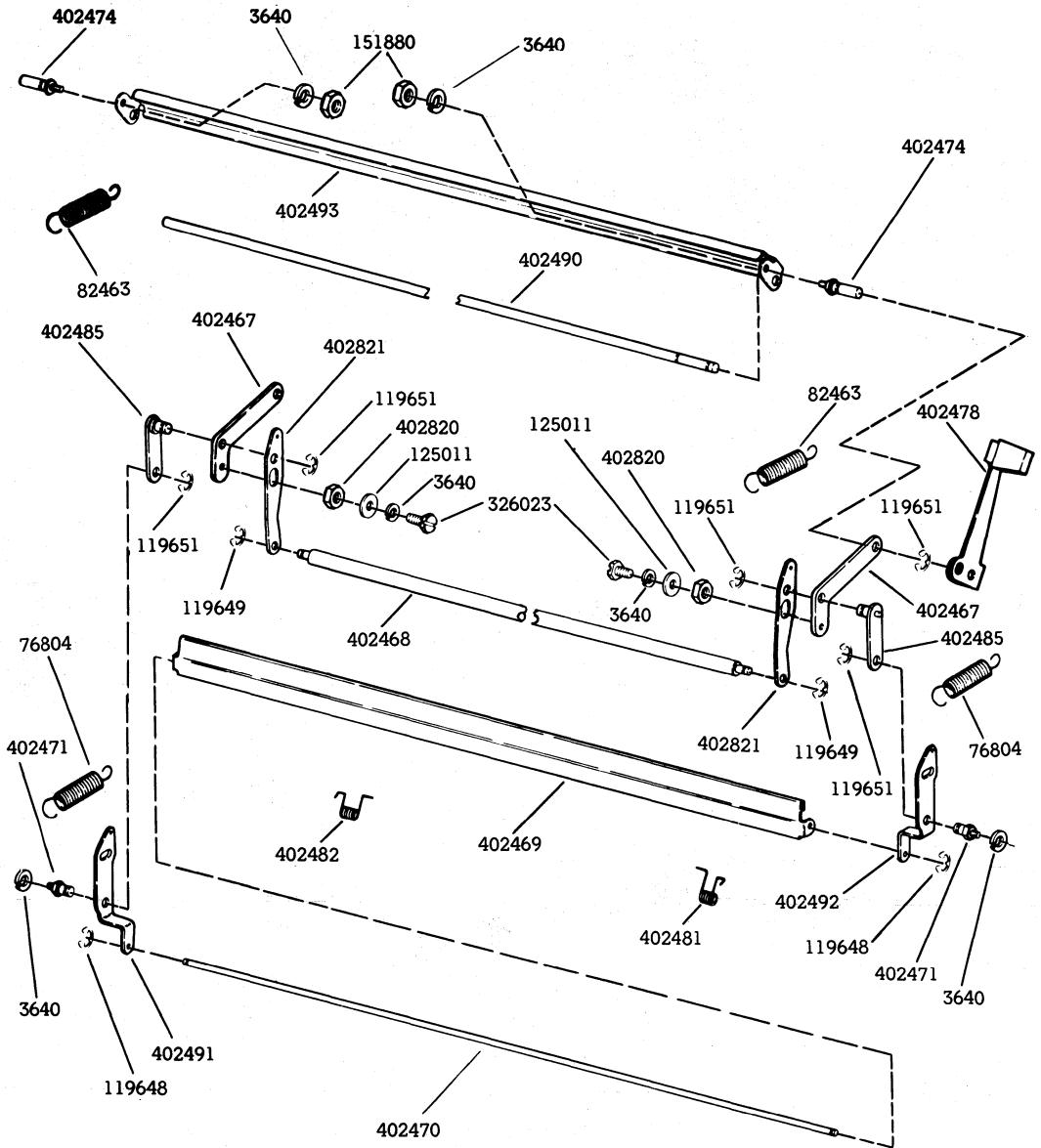


Fig. 39—402460 Paper Handling Assembly (Tractor Feed - 80-Column) (Cont.)

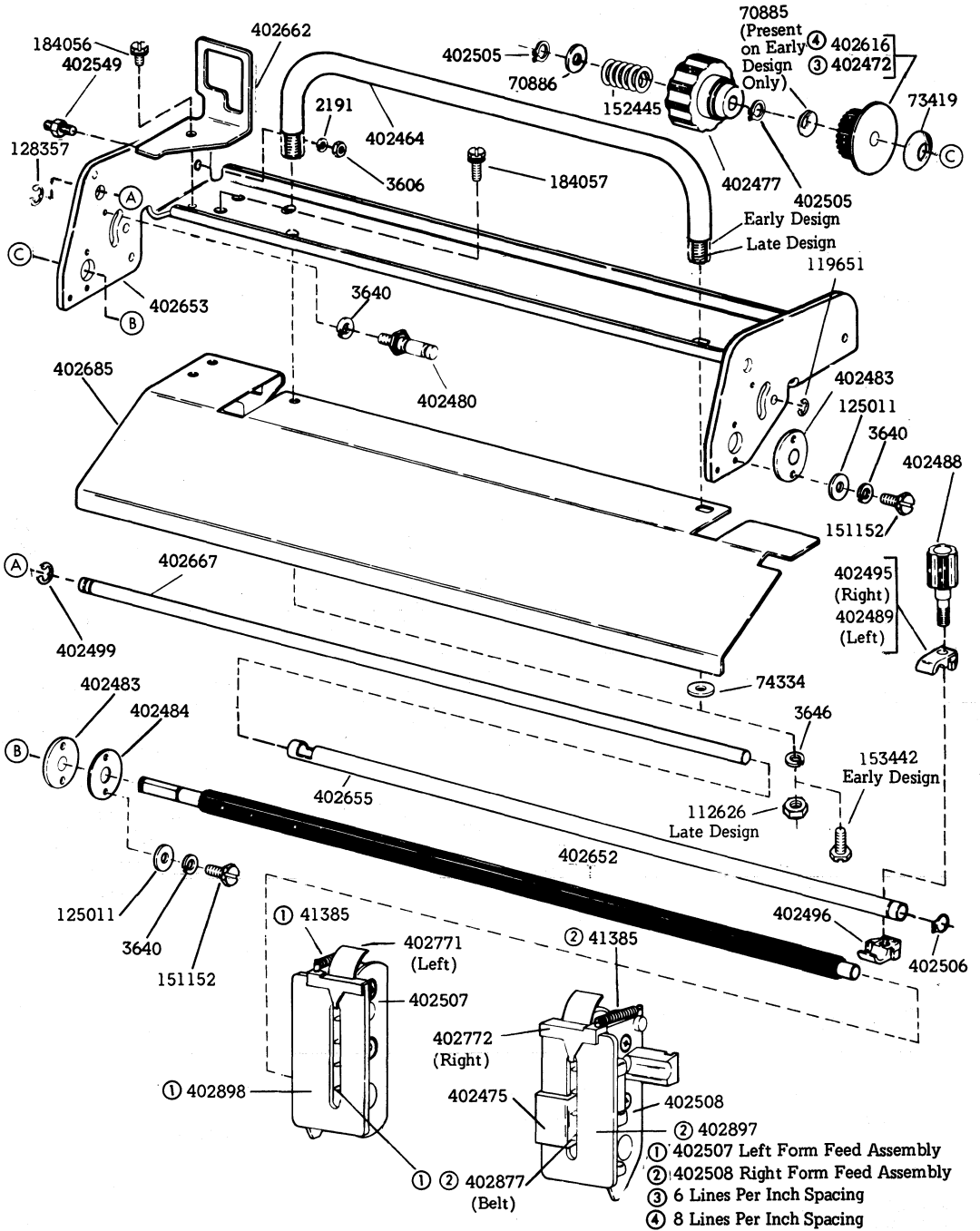


Fig. 40-402660 Paper Handling Assembly (Tractor Feed - 132-Column)

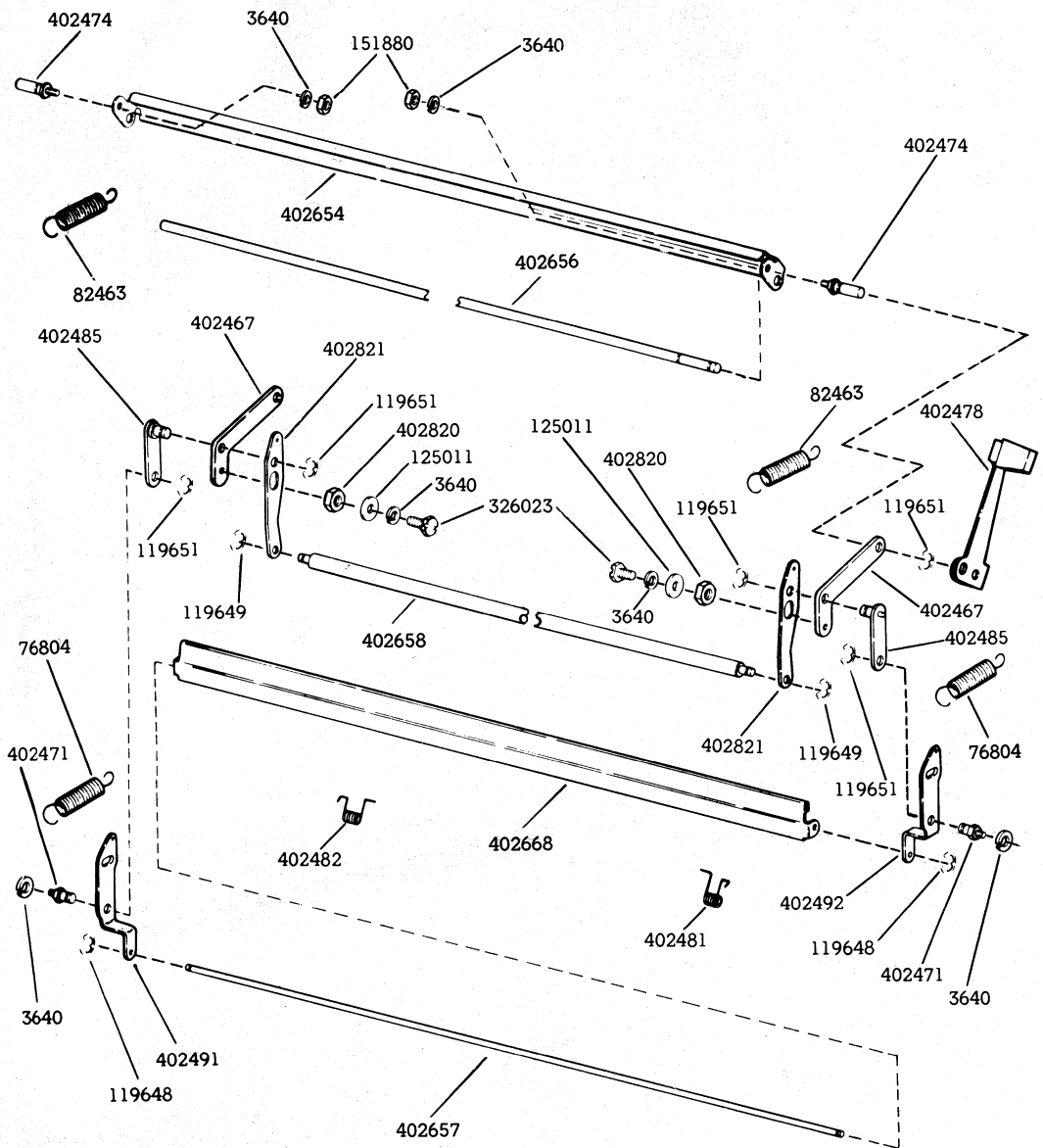


Fig. 40-402660 Paper Handling Assembly (Tractor Feed - 132-Column) (Cont.)

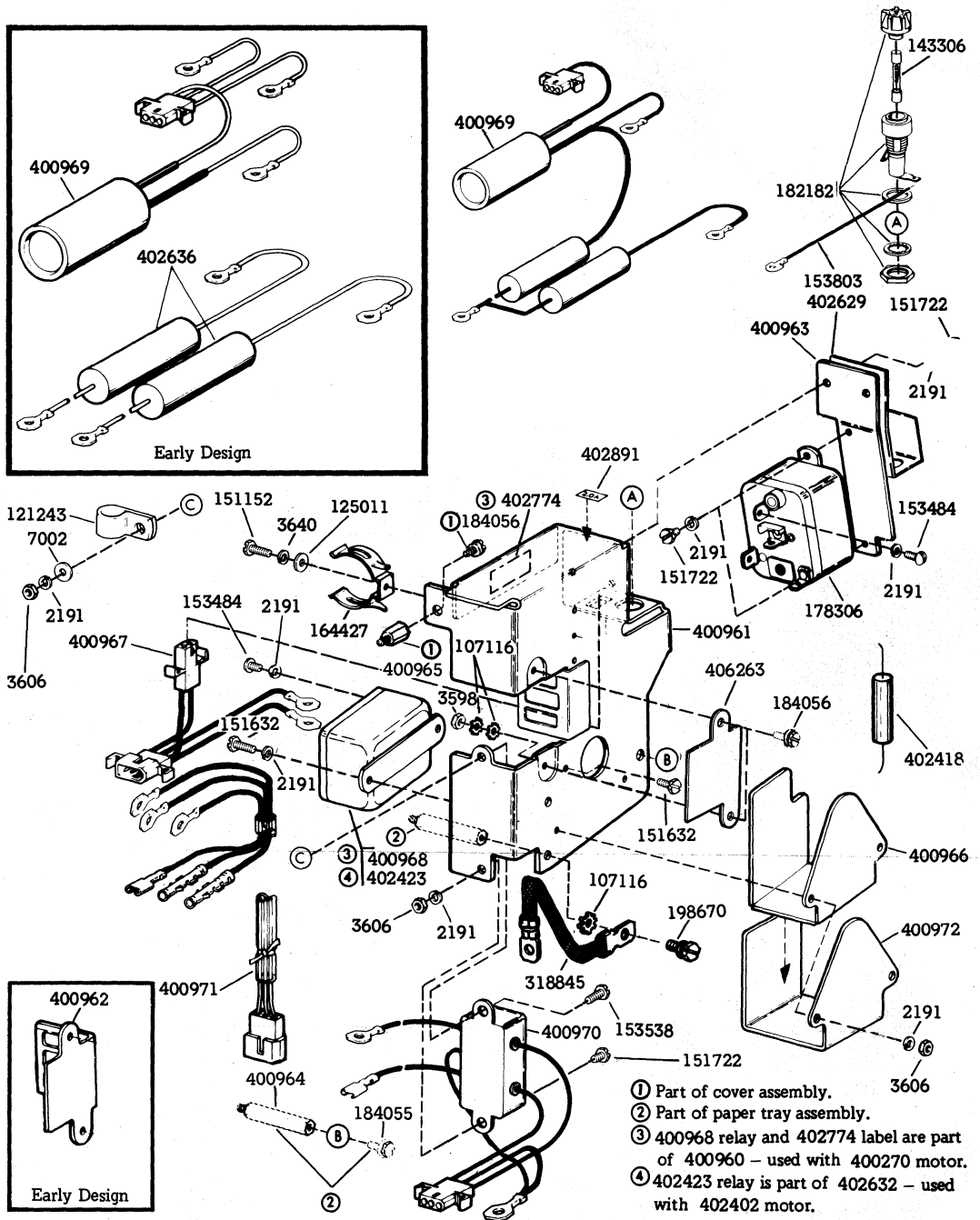


Fig. 41—400960 or 402632 AC Input and Motor Control Assembly (Friction Feed Only)

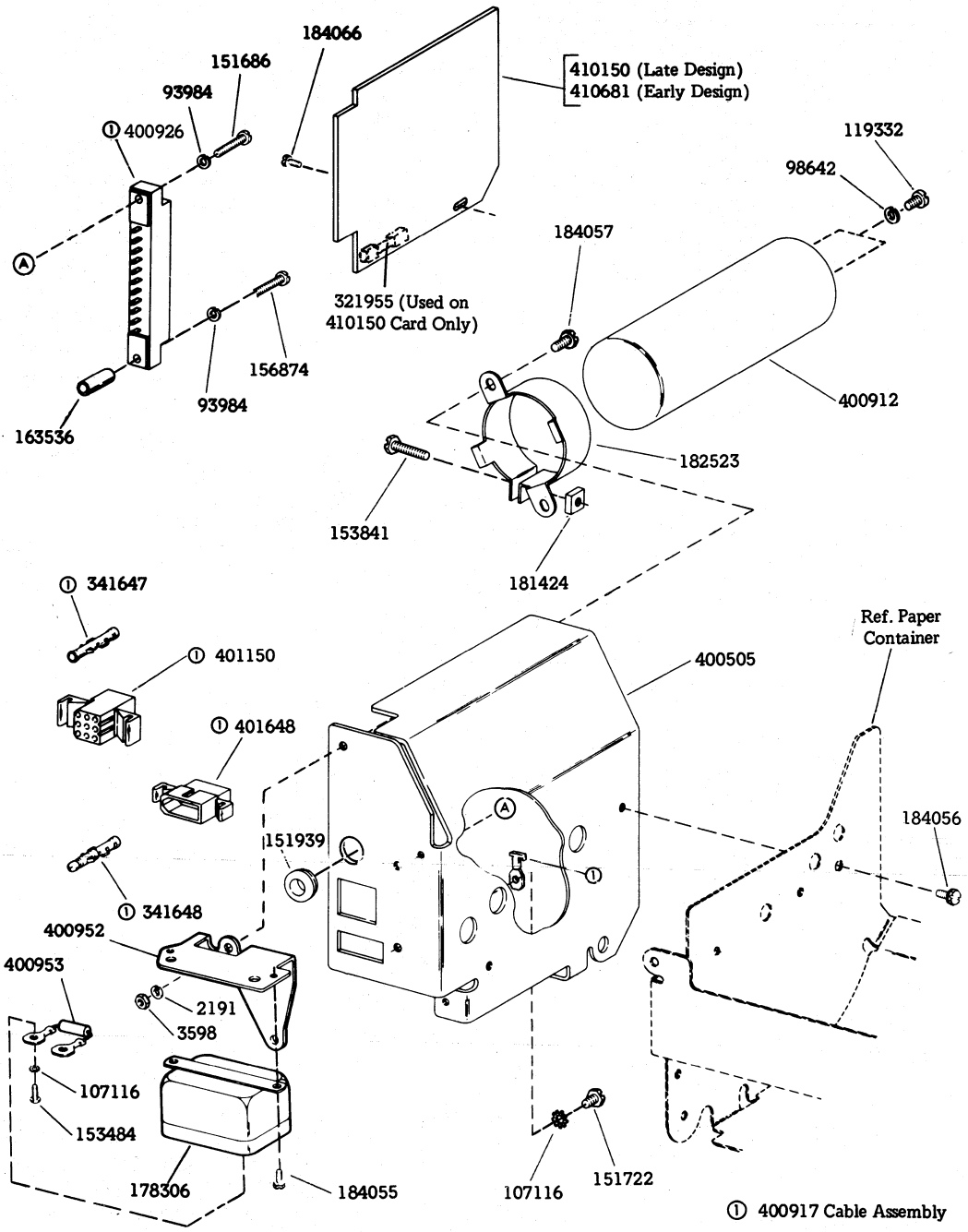


Fig. 42-400908 Power Supply Assembly (Friction Feed)

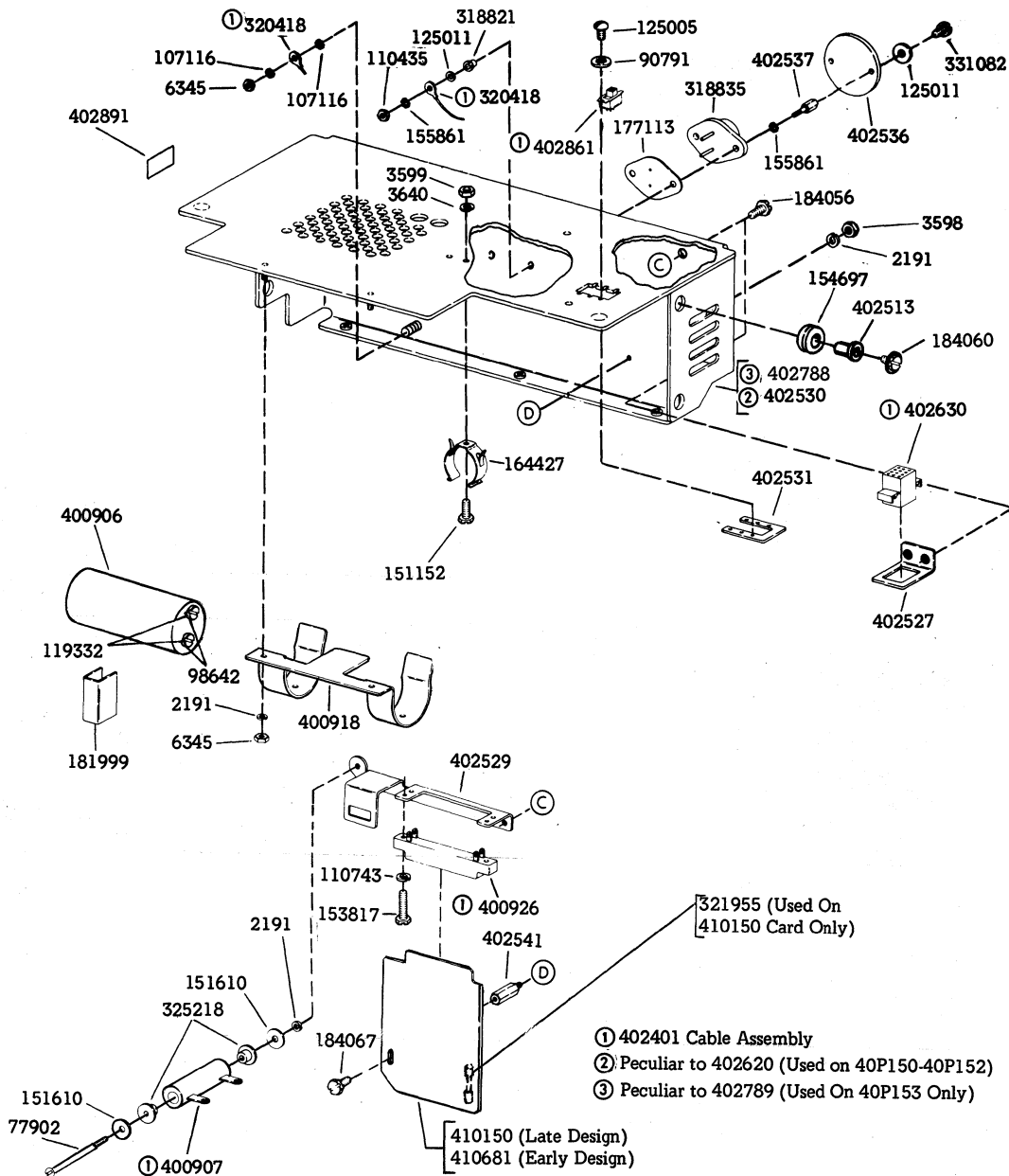


Fig. 43—402620 and 402789 Power Module (Early Design) (Tractor Feed - 80-Column)

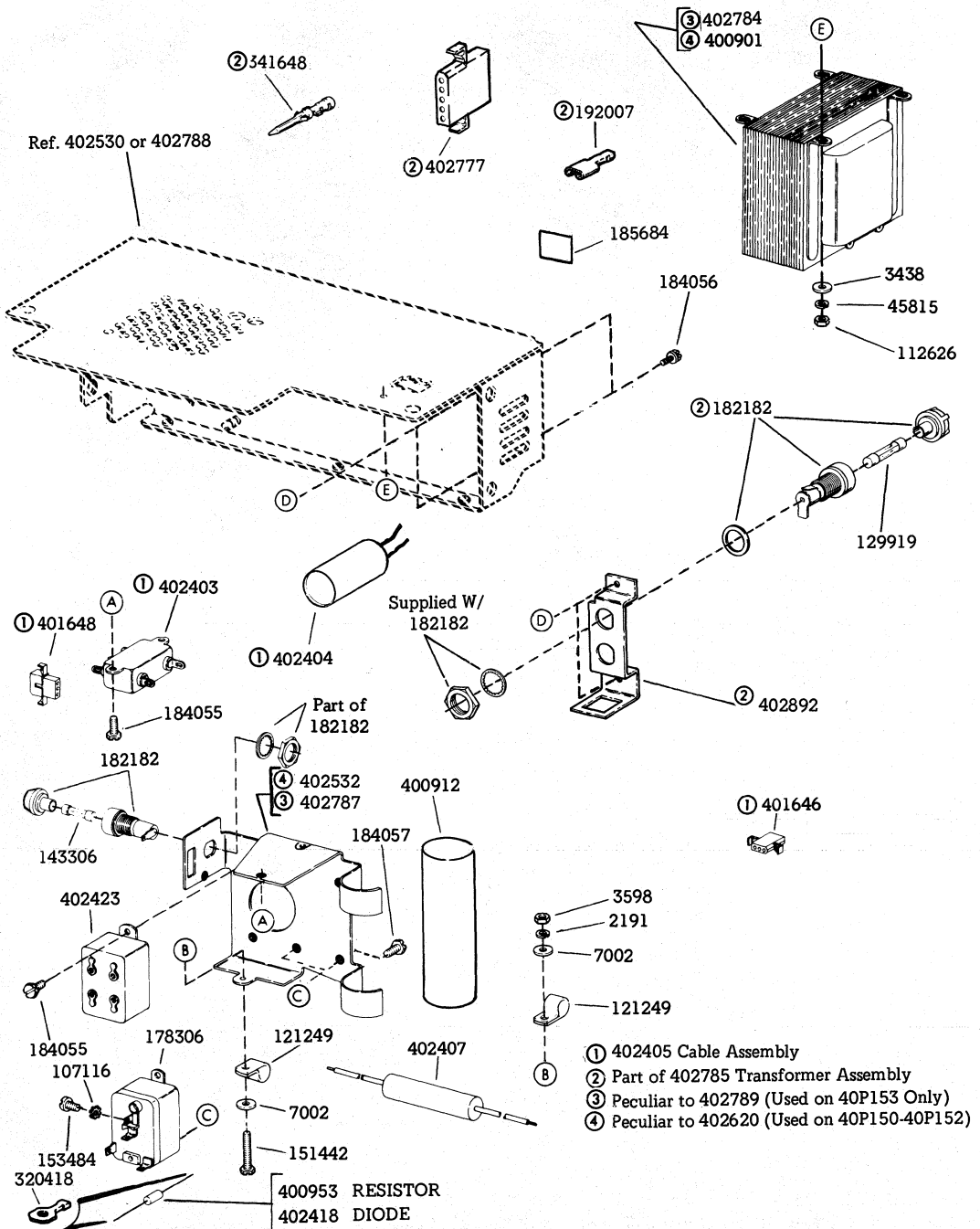
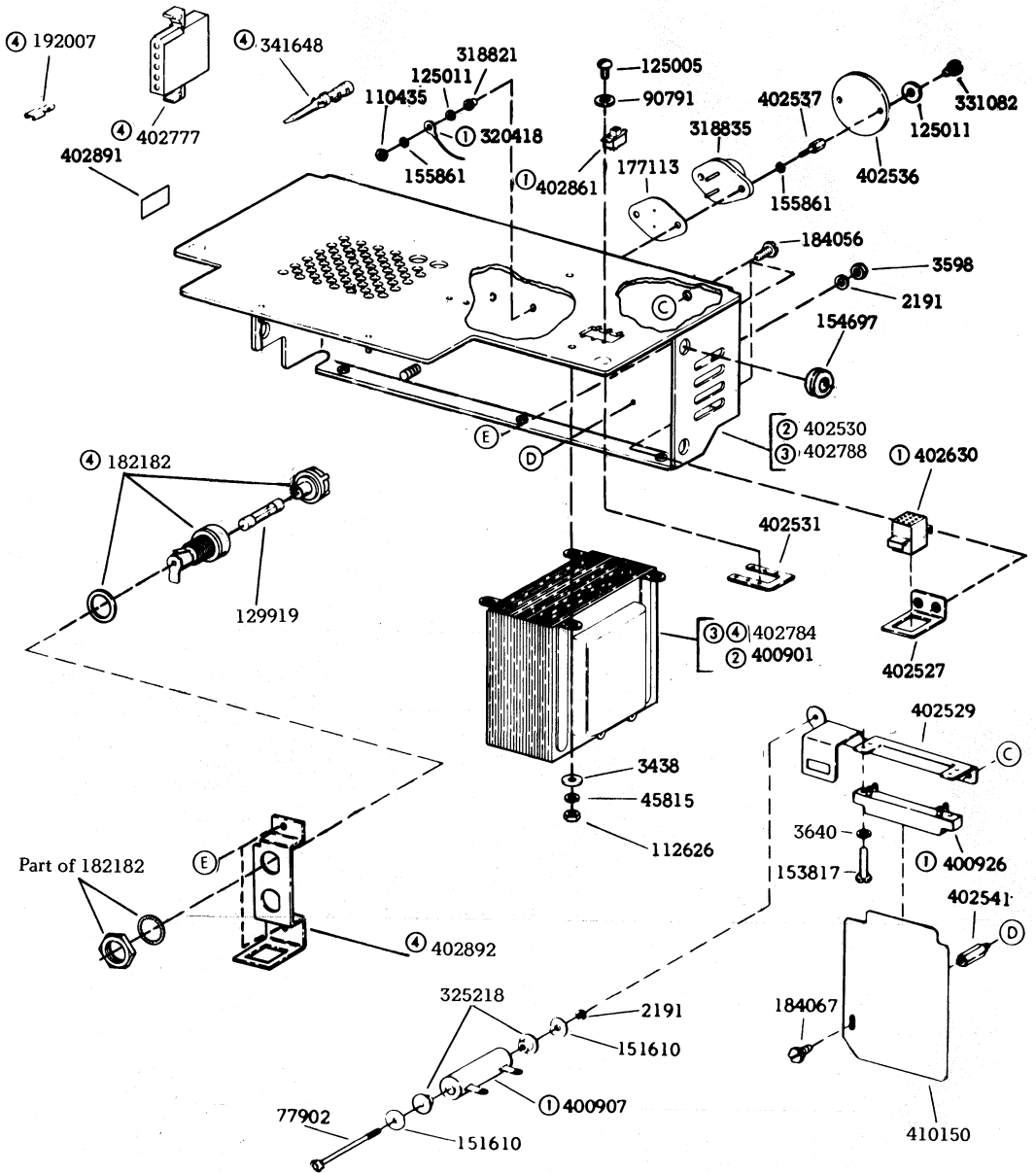


Fig. 43-402620 and 402789 Power Module (Early Design) (Tractor Feed - 80-Column) (Cont.)



- ① 346435 Cable Assembly
- ② Peculiar to 402620 Power Module (Part of 40P150-152)
- ③ Peculiar to 402789 Power Module (Part of 40P153)
- ④ Part of 402785 Transformer Assembly

Fig. 44 402620 and 402789 Power Module Assemblies (Late Design) (Tractor Feed - 80-Column)

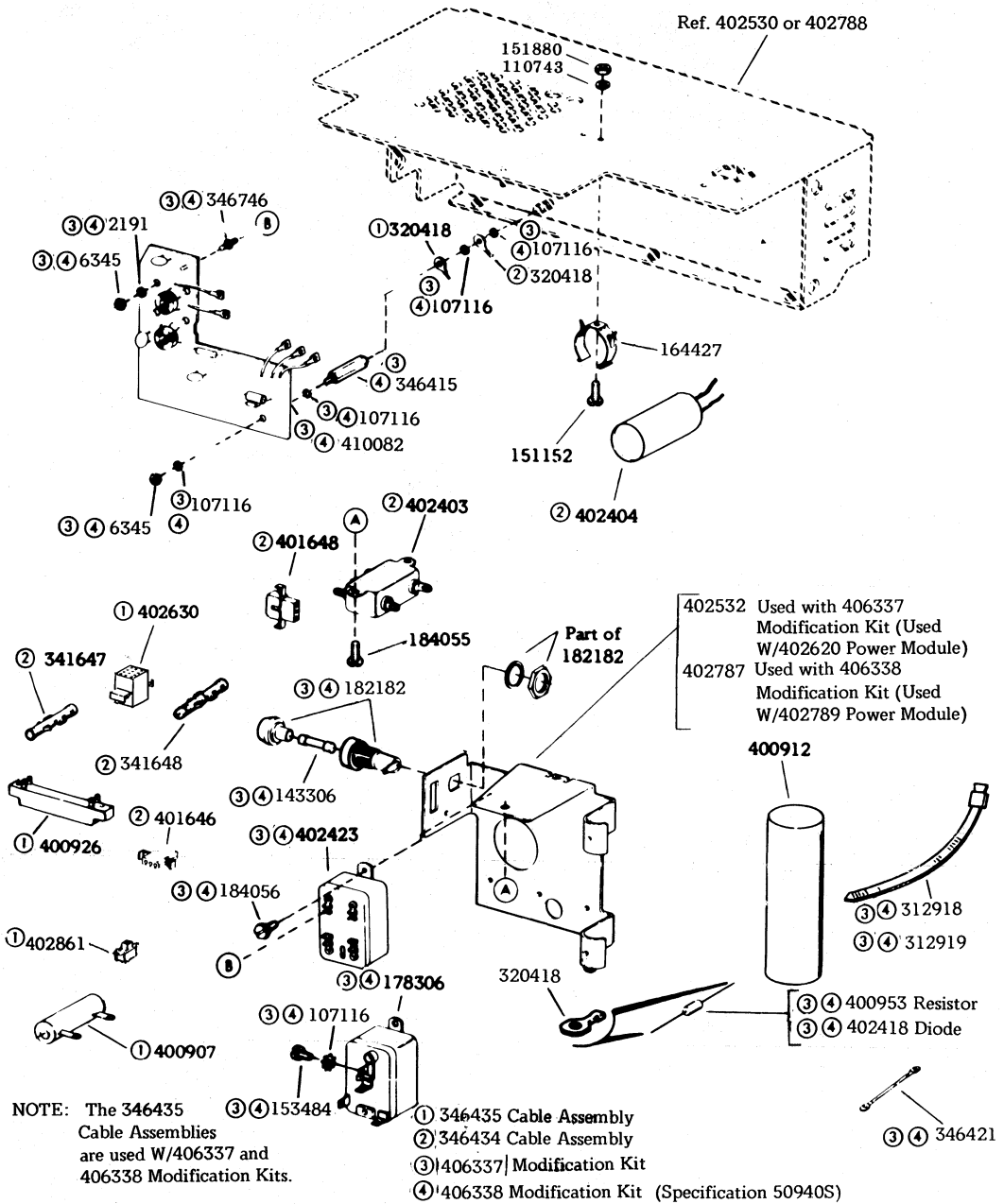


Fig. 44 - 402620 and 402789 Power Module Assemblies (Late Design) (Tractor Feed - 80-Column) (Cont.)

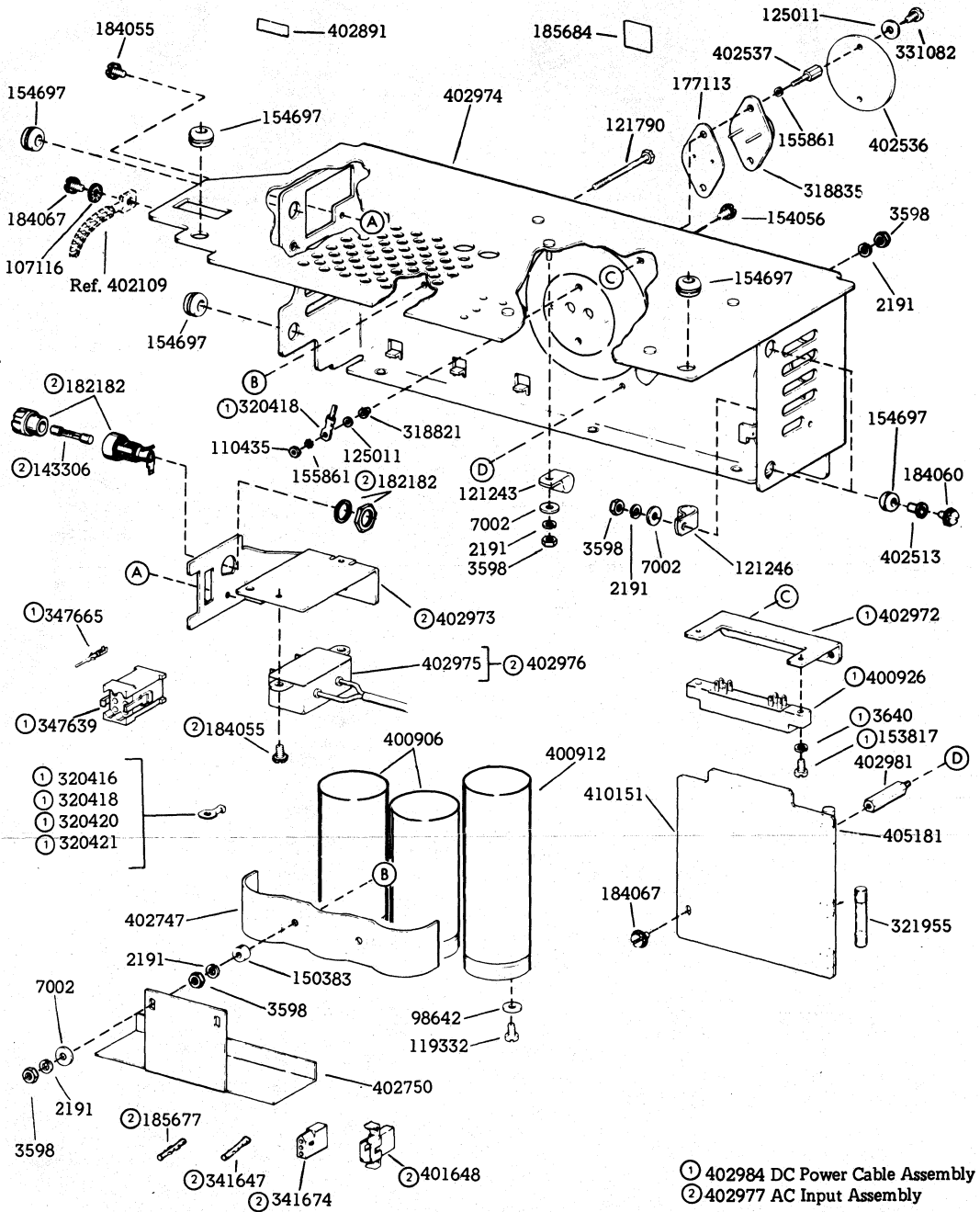


Fig. 46—402978 Power Module (Tractor Feed - 80-Column - 40P154 and Forms Access 40P253)

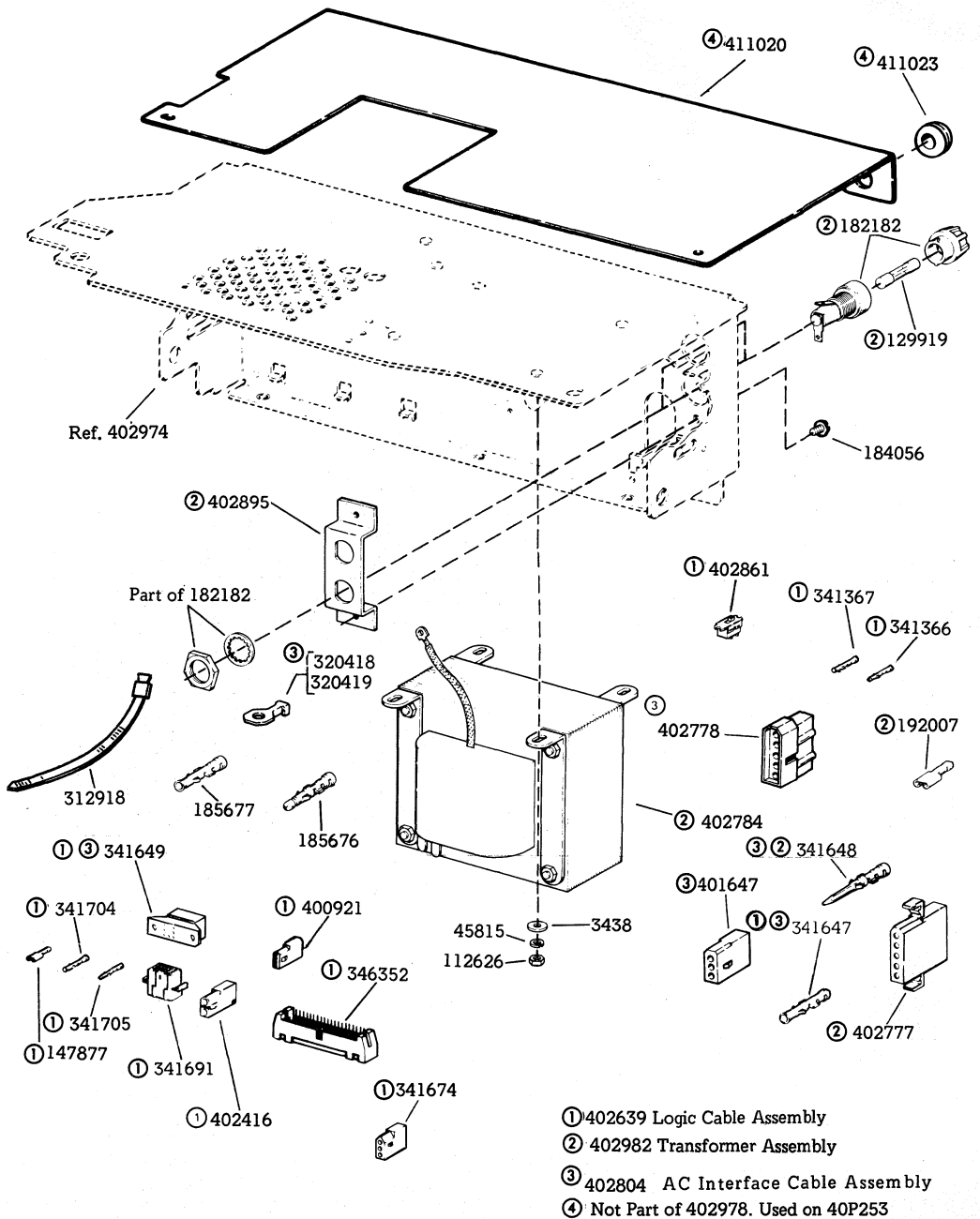


Fig. 46-402978 Power Module (Tractor Feed - 80-Column - 40P154 and Forms Access 40P253) (Cont.)

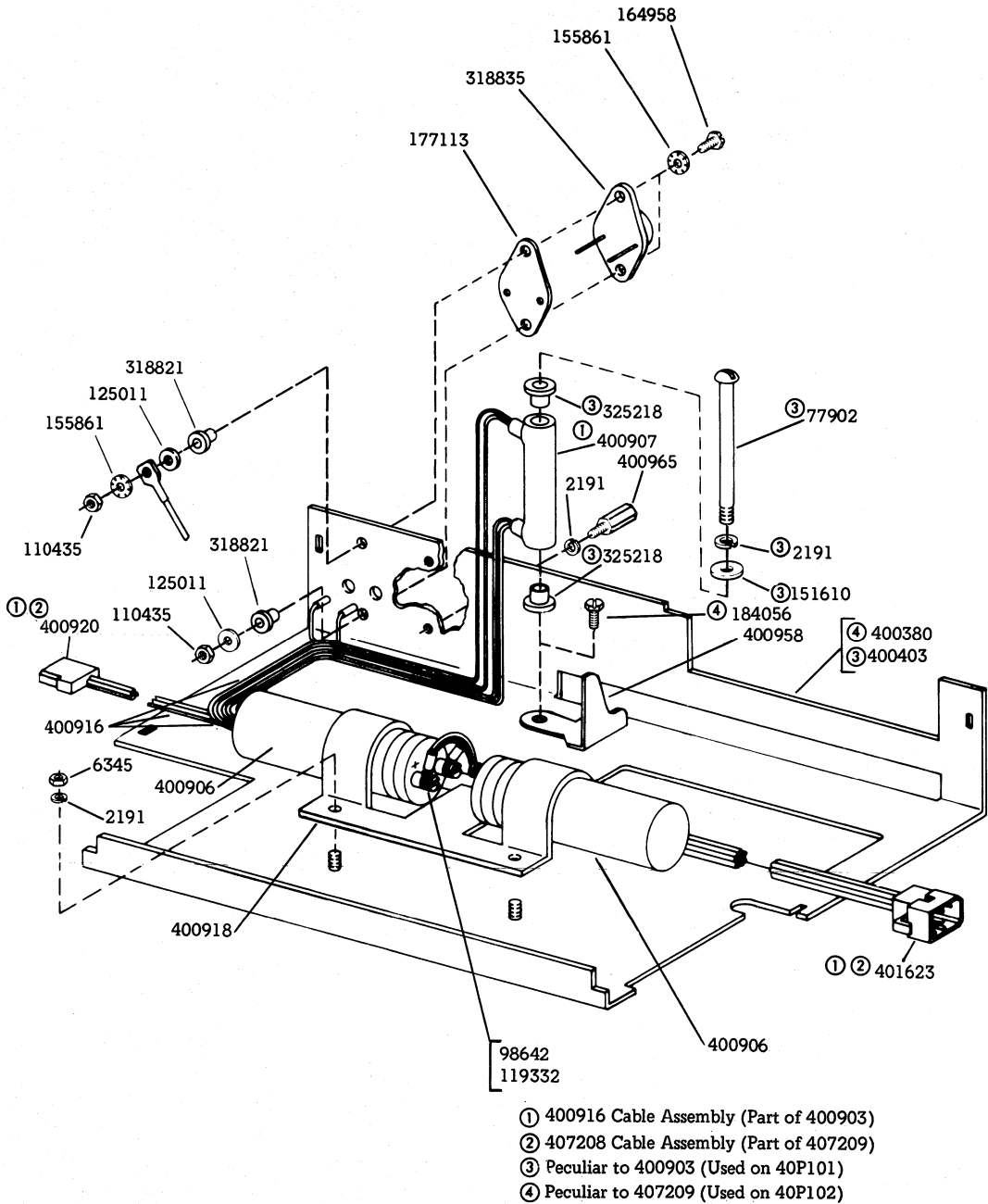


Fig. 47—400903 and 407209 Cover Assembly (Friction Feed Only)

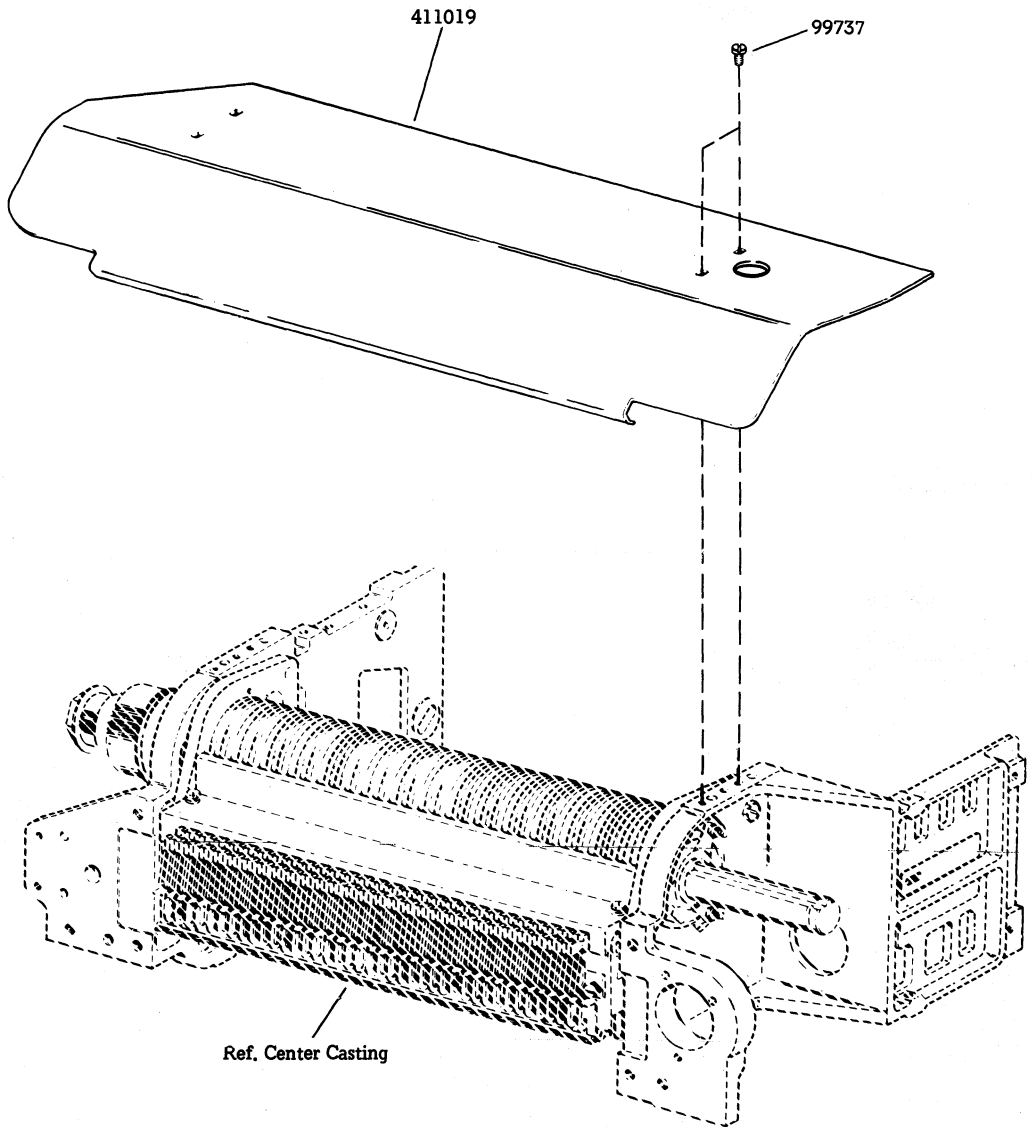


Fig. 48—Top Plate (Forms Access — Tractor Feed)

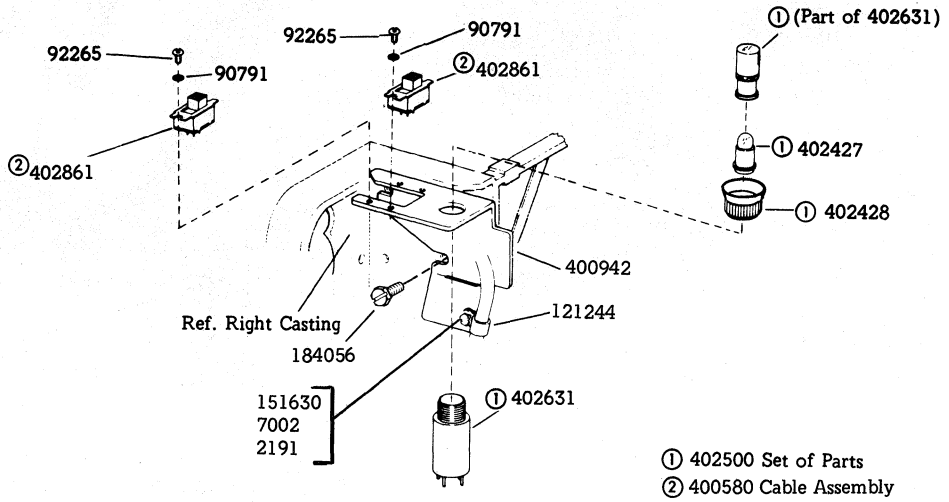


Fig. 49—Switch Assembly (Friction Feed Only)

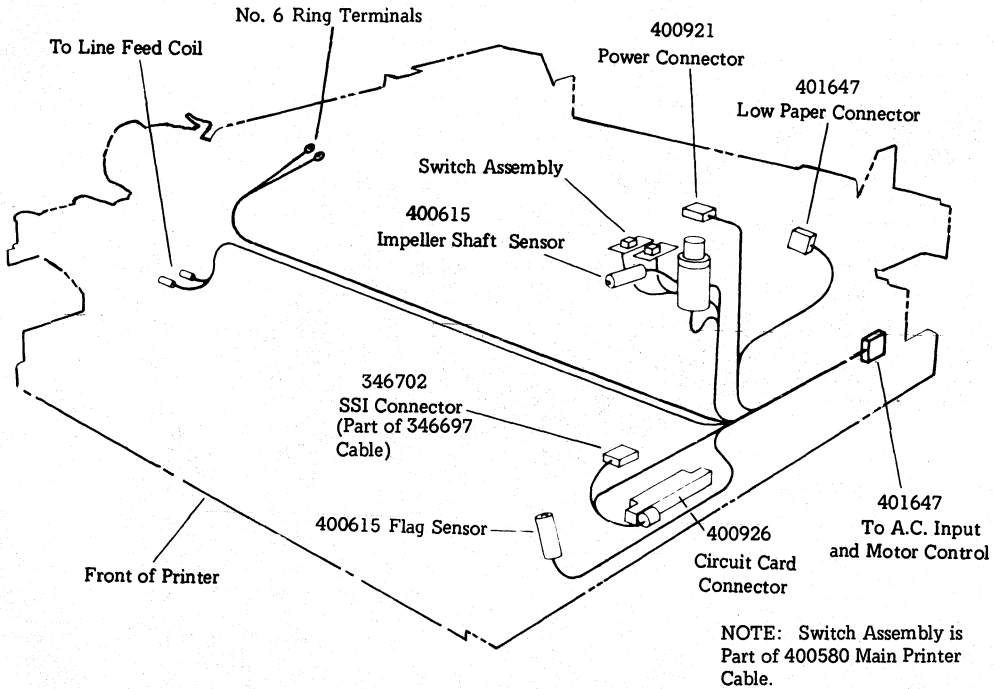
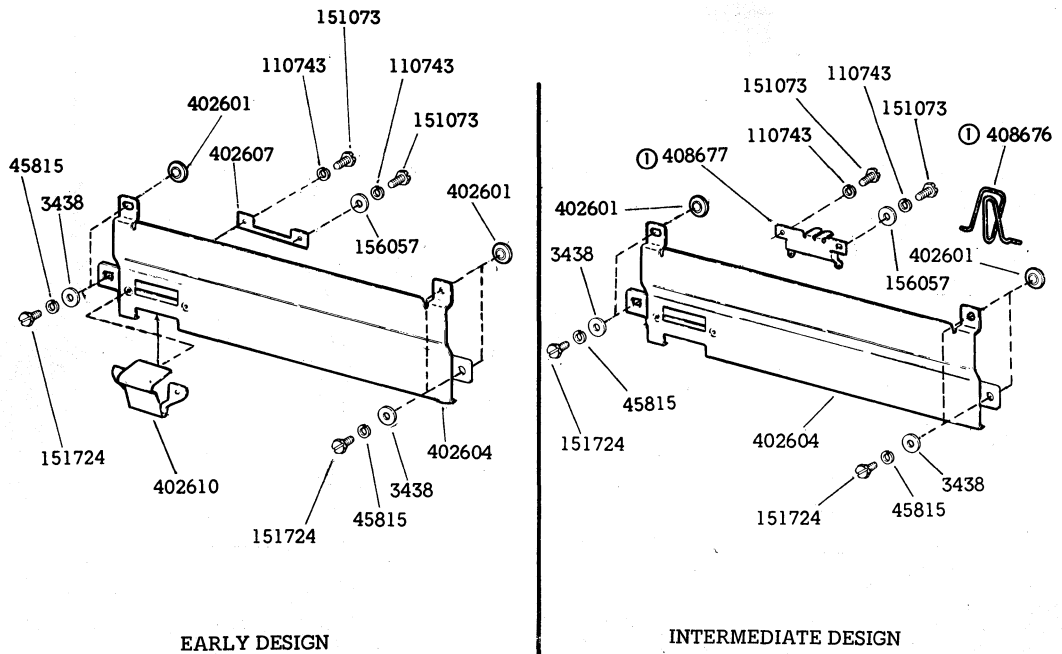
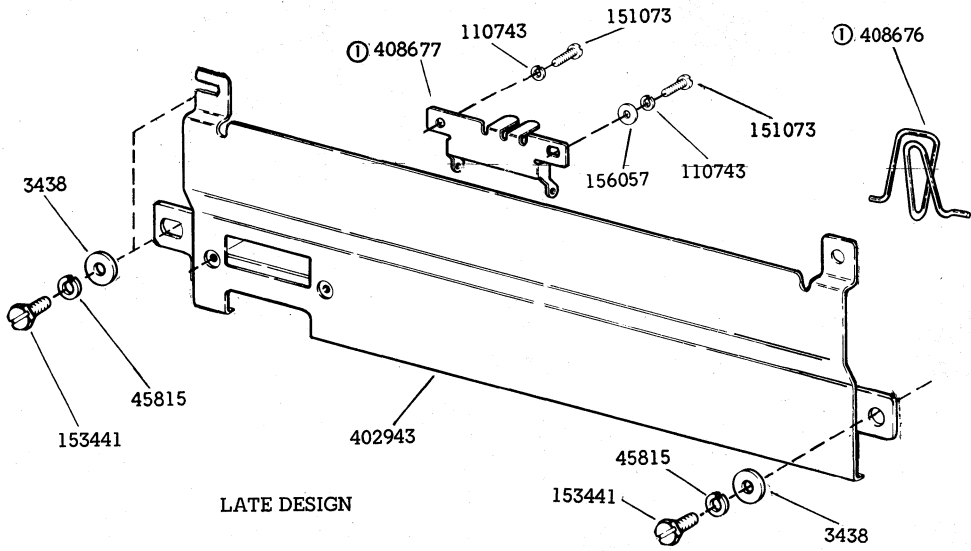


Fig. 50—400580 Main Printer Cable (Friction Feed Only)



EARLY DESIGN

INTERMEDIATE DESIGN



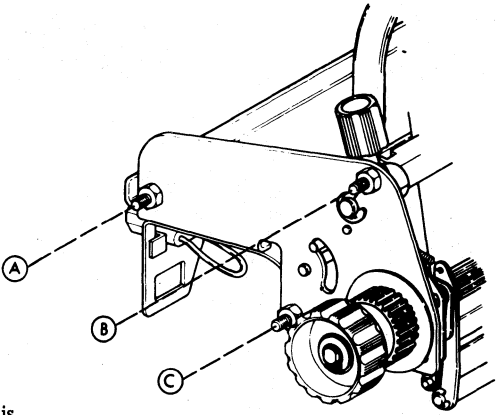
LATE DESIGN

① 408680 Modification Kit (Specification 50882S)

Fig. 51-402623 Rear Guide Assembly (Tractor Feed - 80-Column)

FORM-OUT BELT SELECTION (USOC WES62)

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



- ▼ Six Lines Per Inch
- Eight Lines Per Inch

NOTE: The Dark Blue 402572 Belt is supplied with Tractor Feed Printers.

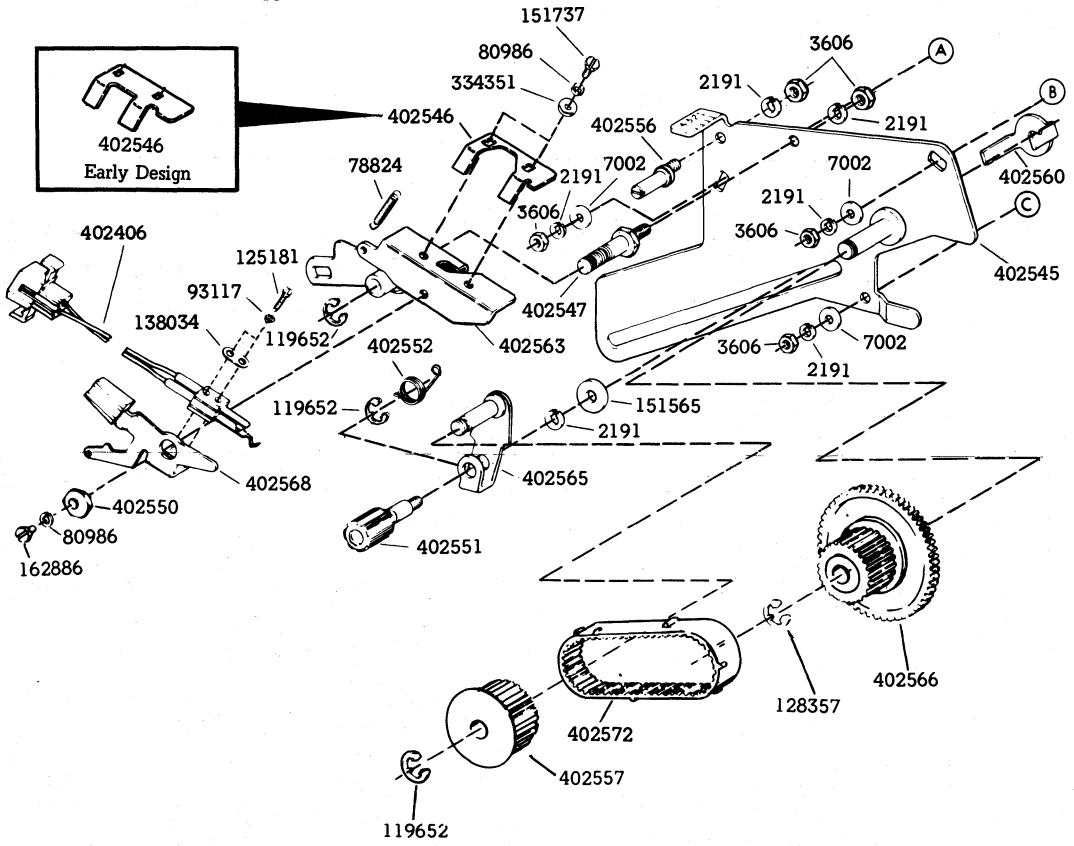
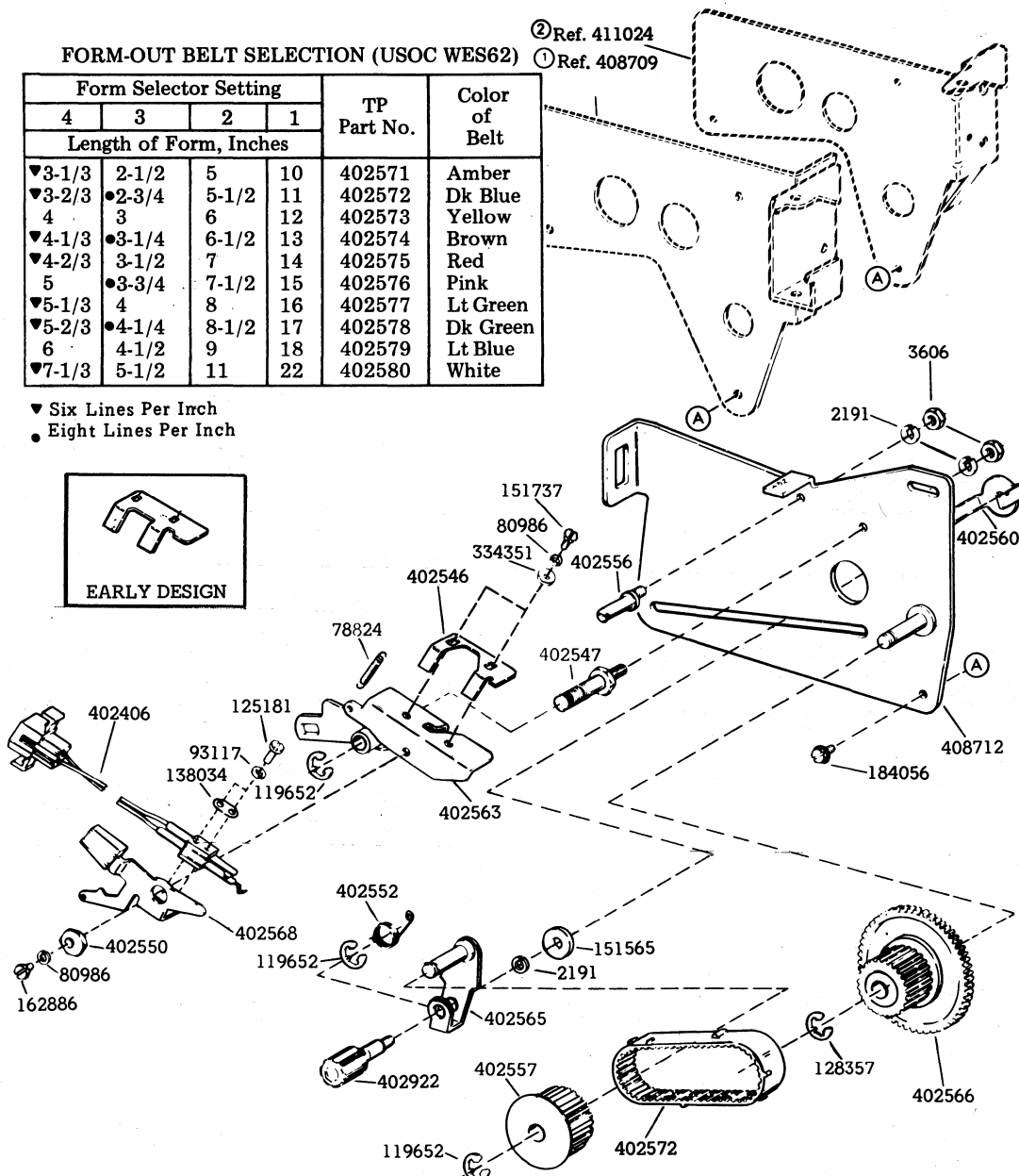
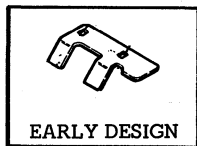


Fig. 52—402570 Form-Out – Assembly (Tractor Feed – 80 and 132-Column)

FORM-OUT BELT SELECTION (USOC WES62)

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

▼ Six Lines Per Inch
 ● Eight Lines Per Inch



- ① Peculiar to 40P250
- ② Peculiar to 40P252 thru 40P255

Fig. 53-408763 Form-Out Assembly (Forms Access - Tractor Feed)

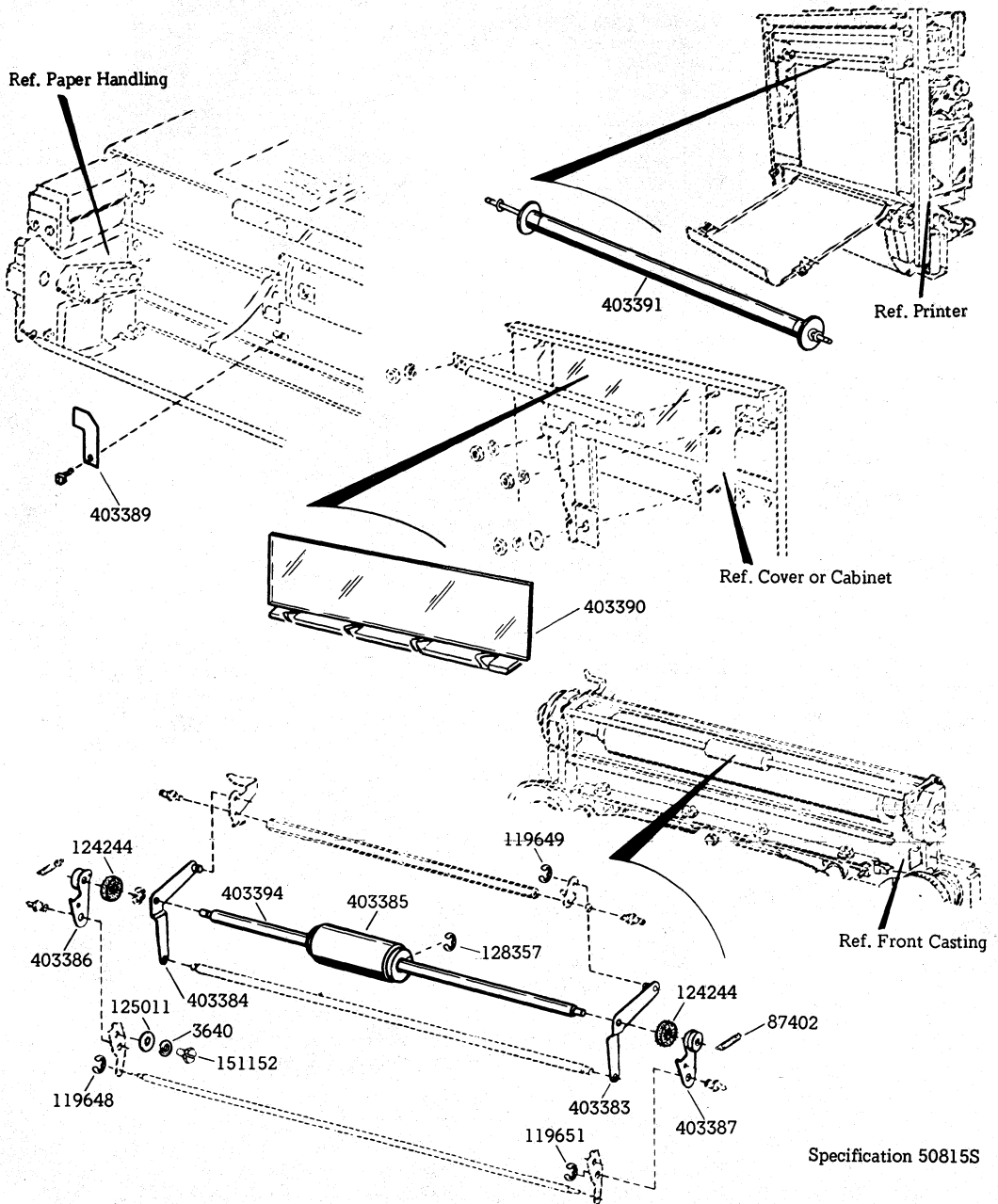


Fig. 54—403380 Modification Kit For Multicopy Roll and Single Copy Fanfold Paper (40P101 Friction Feed Only)

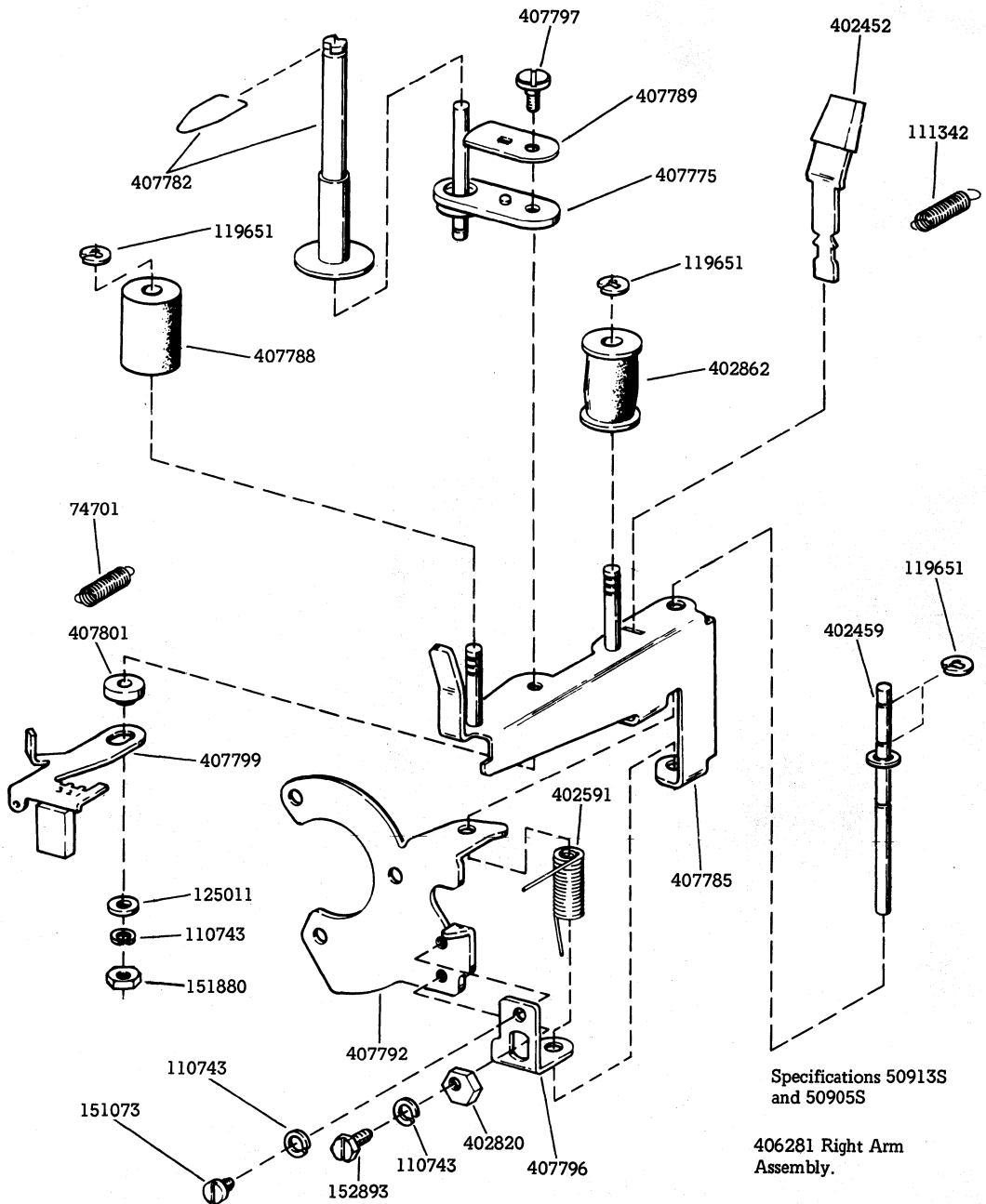


Fig. 55-408990 (80-Column) and 407790 (132-Column) Modification Kits To
Provide A Reinking Device For Tractor Feed Printers

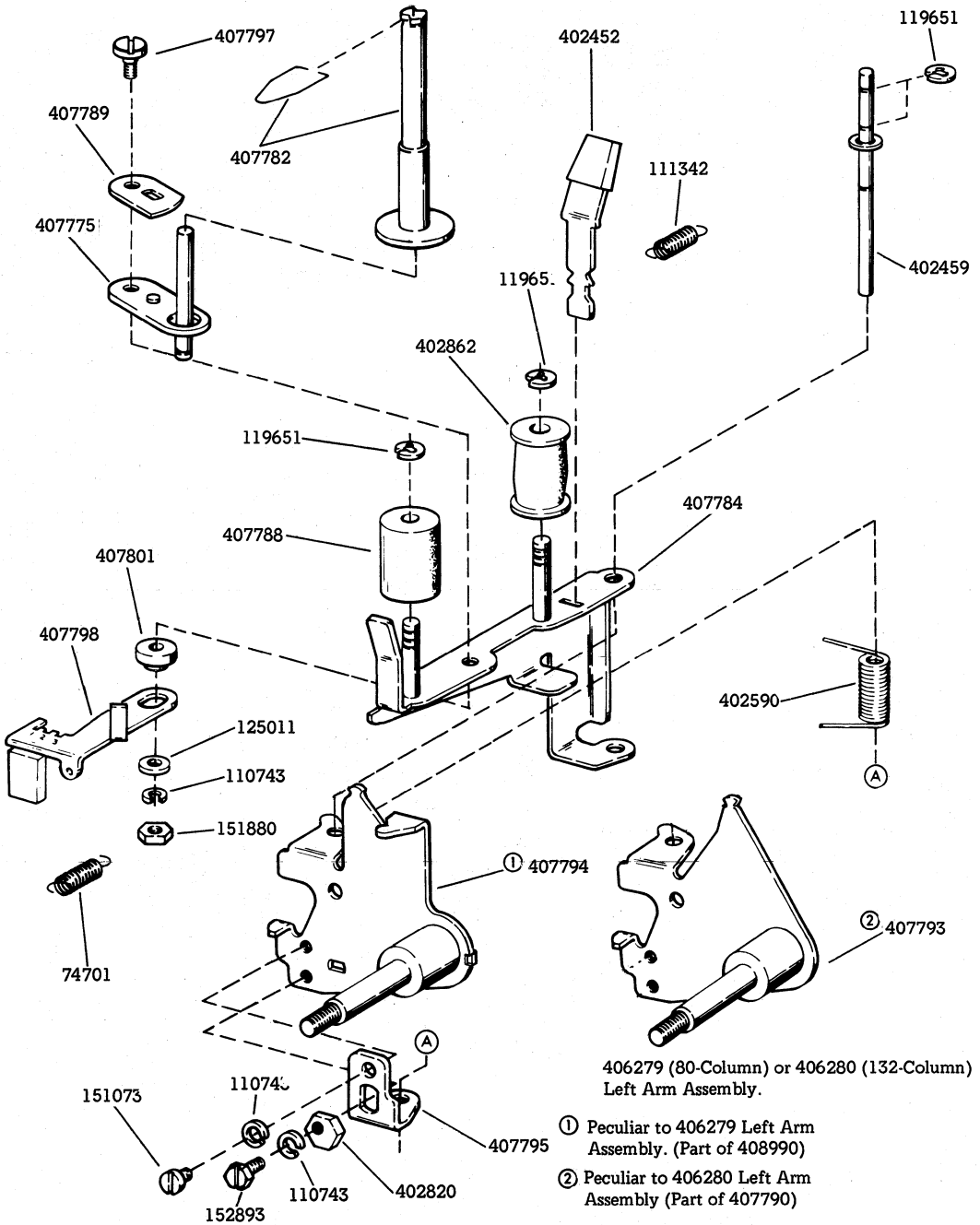


Fig. 55-408990 (80-Column) and 407790 (132-Column) Modification Kits To Provide A Reinking Device For Tractor Feed Printers (Cont.)

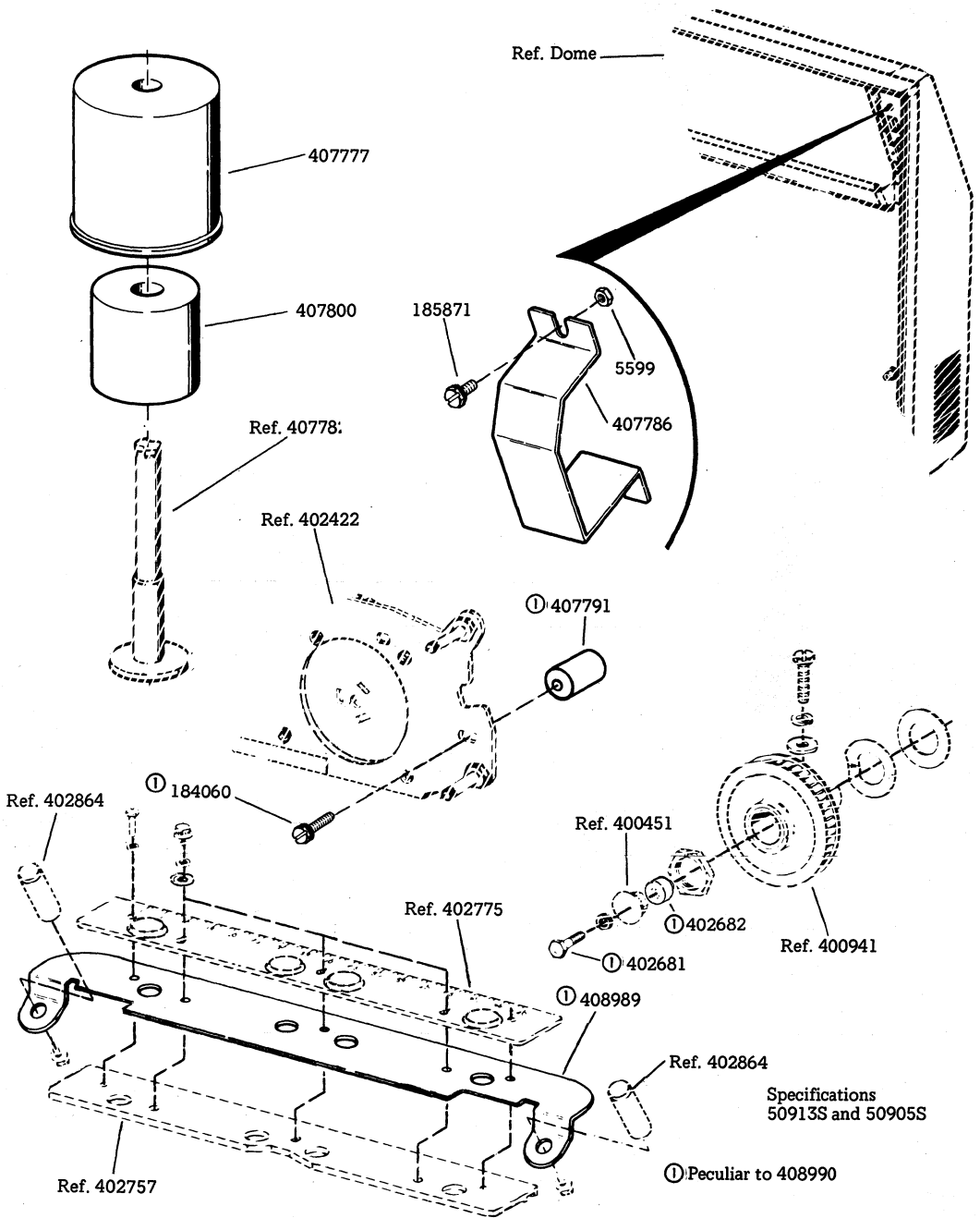


Fig. 55—408990 (80-Column) and 407790 (132-Column) Modification Kits To Provide A Reinking Device For Tractor Feed Printers (Cont.)

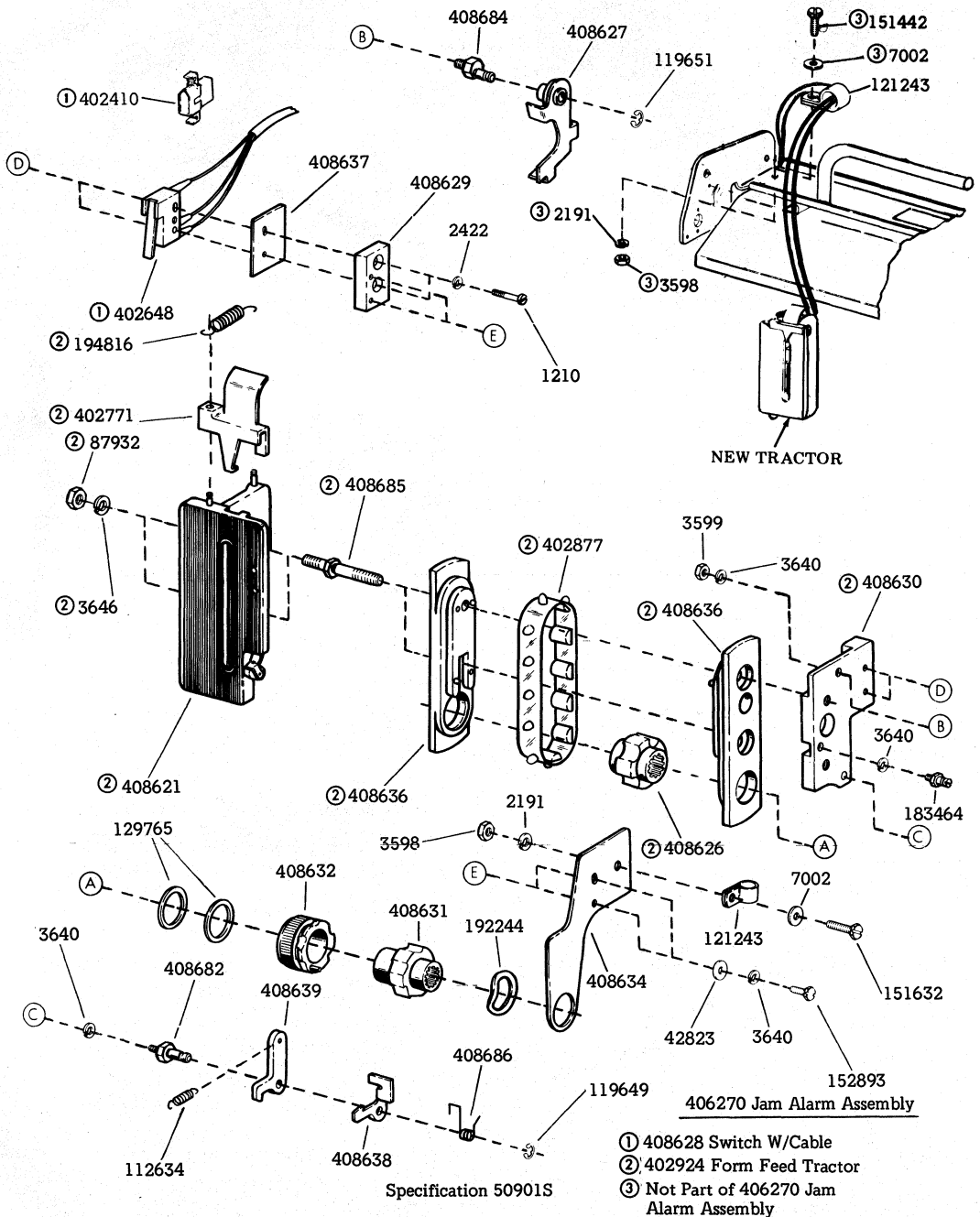
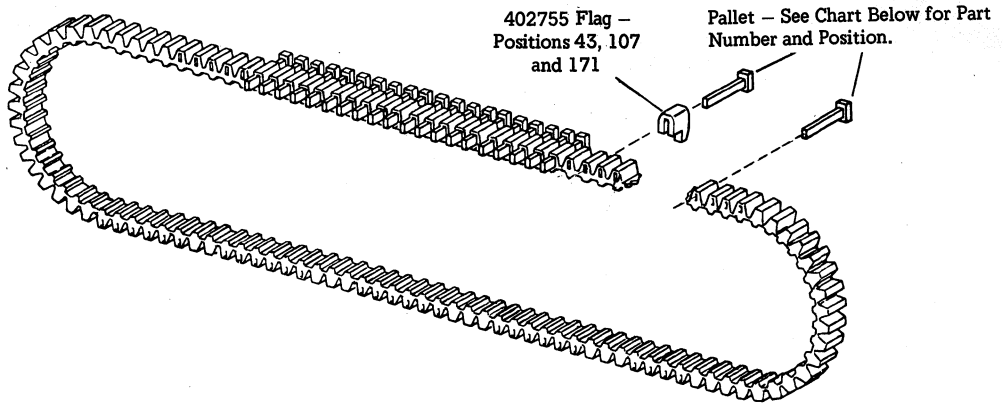
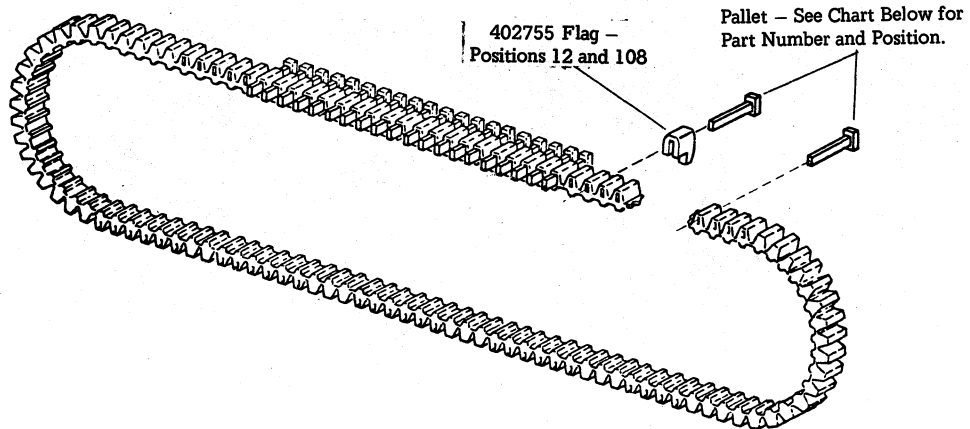


Fig. 56—402920 Modification Kit To Provide Paper Jam Alarm (80 and 132-Column)



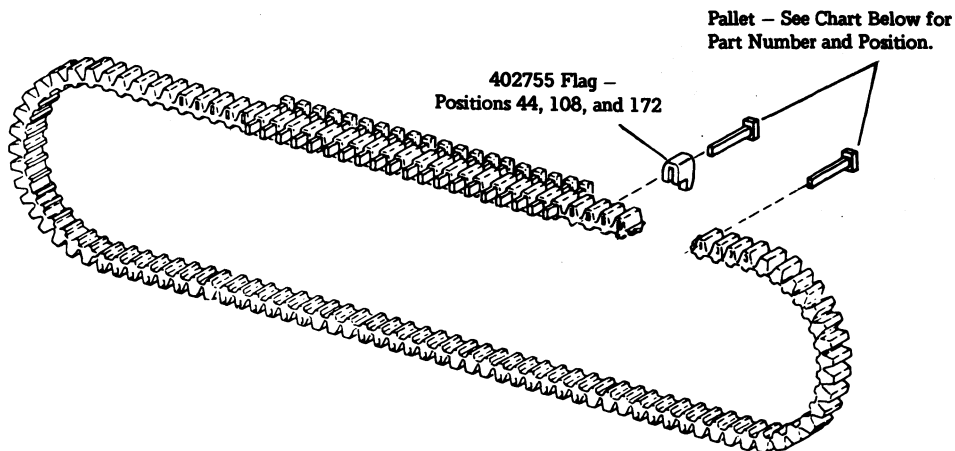
POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.
1,65,129	400650	!	17,81,145	400666	1	33,97,161	400682	A	49,113,177	400698	Q
2,66,130	400651	“	18,82,146	400667	2	34,98,162	400683	B	50,114,178	400699	R
3,67,131	400652	#	19,83,147	400668	3	35,99,163	400684	C	51,115,179	400700	S
4,68,132	400653	\$	20,84,148	400669	4	36,100,164	400685	D	52,116,180	400701	T
5,69,133	400654	%	21,85,149	400670	5	37,101,165	400686	E	53,117,181	400702	U
6,70,134	400655	&	22,86,150	400671	6	38,102,166	400687	F	54,118,182	400703	V
7,71,135	400656	'	23,87,151	400672	7	39,103,167	400688	G	55,119,183	400704	W
8,72,136	400657	(	24,88,152	400673	8	40,104,168	400689	H	56,120,184	400705	X
9,73,137	400658	)	25,89,153	400674	9	41,105,169	400690	I	57,121,185	400706	Y
10,74,138	400659	*	26,90,154	400675	:	42,106,170	400691	J	58,122,186	400707	Z
11,75,139	400660	+	27,91,155	400676	;	43,107,171	400692	K	59,123,187	400708	[
12,76,140	400661	,	28,92,156	400677	<	44,108,172	400693	L	60,124,188	400709	\
13,77,141	400662	-	29,93,157	400678	=	45,109,173	400694	M	61,125,189	400710]
14,78,142	400663	.	30,94,158	400679	>	46,110,174	400695	N	62,126,190	400711	^
15,79,143	400664	/	31,95,159	400680	?	47,111,175	400696	O	63,127,191	400712	—
16,80,144	400665	0	32,96,160	400681	@	48,112,176	400697	P	64,128,192	400745	≡

Fig. 57—400645AA Carrier and Type Pallet Arrangement (Friction and Tractor Feed – 80-Column) (Monocase)



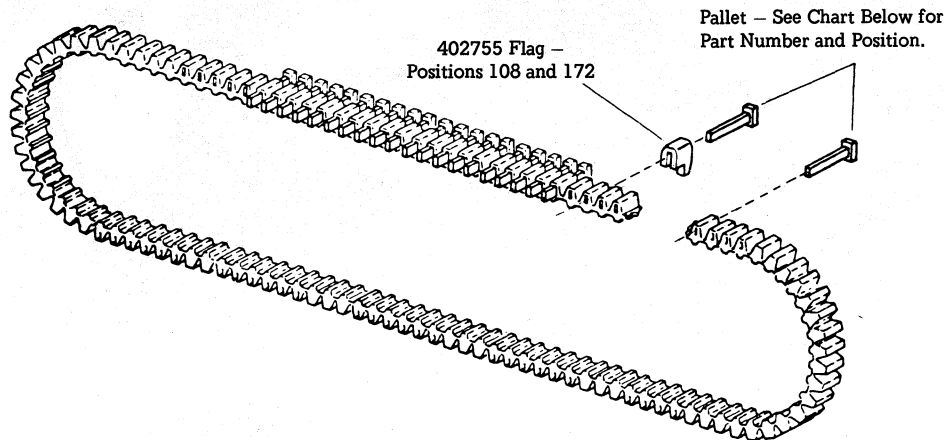
POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	
1,97	400746	=	25,121	400673	8	49,145	400697	P	73,169	400721	h
2,98	400650	!	26,122	400674	9	50,146	400698	Q	74,170	400722	i
3,99	400651	"	27,123	400675	:	51,147	400699	R	75,171	400723	j
4,100	400652	#	28,124	400676	;	52,148	400700	S	76,172	400724	k
5,101	400653	\$	29,125	400677	<	53,149	400701	T	77,173	400725	l
6,102	400654	%	30,126	400678	=	54,150	400702	U	78,174	400726	m
7,103	400655	&	31,127	400679	>	55,151	400703	V	79,175	400727	n
8,104	400656	/	32,128	400680	?	56,152	400704	W	80,176	400728	o
9,105	400657	(	33,129	400681	@	57,153	400705	X	81,177	400865	p
10,106	400658	)	34,130	400682	A	58,154	400706	Y	82,178	400866	q
11,107	400659	*	35,131	400683	B	59,155	400707	Z	83,179	400731	r
12,108	400660	+	36,132	400684	C	60,156	400708	[	84,180	400732	s
13,109	400661	,	37,133	400685	D	61,157	400709	\	85,181	400733	t
14,110	400662	-	38,134	400686	E	62,158	400710	]	86,182	400734	u
15,111	400663	.	39,135	400687	F	63,159	400711	^	87,183	400735	v
16,112	400664	/	40,136	400688	G	64,160	400712	—	88,184	400736	w
17,113	400665	0	41,137	400689	H	65,161	400713	`	89,185	400737	x
18,114	400666	1	42,138	400690	I	66,162	400714	a	90,186	400867	y
19,115	400667	2	43,139	400691	J	67,163	400715	b	91,187	400739	z
20,116	400668	3	44,140	400692	K	68,164	400716	c	92,188	400740	{
21,117	400669	4	45,141	400693	L	69,165	400717	d	93,189	400741	:
22,118	400670	5	46,142	400694	M	70,166	400718	e	94,190	400742	}
23,119	400671	6	47,143	400695	N	71,167	400719	f	95,191	400743	~
24,120	400672	7	48,144	400696	O	72,168	400864	g	96,192	—	—

Fig. 58—400629AB Carrier and Type Pallet Arrangement (Friction and Tractor Feed - 80-Column) (Up/Low)



POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.
1,65,129	400747	≡ ≡ ≡	17,81,145	400665	∅	33,97,161	400773	⊕	49,113,177	400697	P
2,66,130	400762	→	18,82,146	400666	1	34,98,162	400682	A	50,114,178	400698	Q
3,67,131	400651	“	19,83,147	400667	2	35,99,163	400683	B	51,115,179	400699	R
4,68,132	400652	#	20,84,148	400668	3	36,100,164	400684	C	52,116,180	400700	S
5,69,133	400653	\$	21,85,149	400669	4	37,101,165	400685	D	53,117,181	400701	T
6,70,134	400654	%	22,86,150	400670	5	38,102,166	400686	E	54,118,182	400702	U
7,71,135	400767	\	23,87,151	400671	6	39,103,167	400687	F	55,119,183	400703	V
8,72,136	400768	/	24,88,152	400672	7	40,104,168	400688	G	56,120,184	400704	W
9,73,137	400657	(	25,89,153	400673	8	41,105,169	400689	H	57,121,185	400705	X
10,74,138	400658	)	26,90,154	400674	9	42,106,170	400690	I	58,122,186	400706	Y
11,75,139	400659	*	27,91,155	400675	:	43,107,171	400691	J	59,123,187	400707	Z
12,76,140	400660	+	28,92,156	400676	;	44,108,172	400692	K	60,124,188	400771	Ⓚ
13,77,141	400661	,	29,93,157	400677	<	45,109,173	400693	L	61,125,189	400772	Ⓛ
14,78,142	400662	-	30,94,158	400678	=	46,110,174	400694	M	62,126,190	400770	Ⓜ
15,79,143	400663	.	31,95,159	400679	>	47,111,175	400695	N	63,127,191	400711	Ⓝ
16,80,144	400664	/	32,96,160	400680	?	48,112,176	400696	O	64,128,192	400712	—

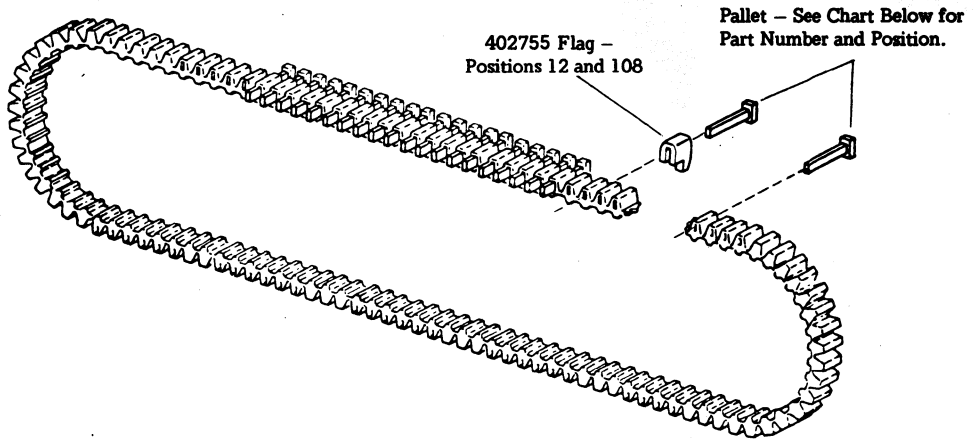
Fig. 59—400774AC Carrier and Type Pallet Arrangement (Friction and Tractor Feed — 80-Column)
(Weather Monocase)



NOTE: Positions 161 through 192 have $\frac{A}{d}$ pallets.

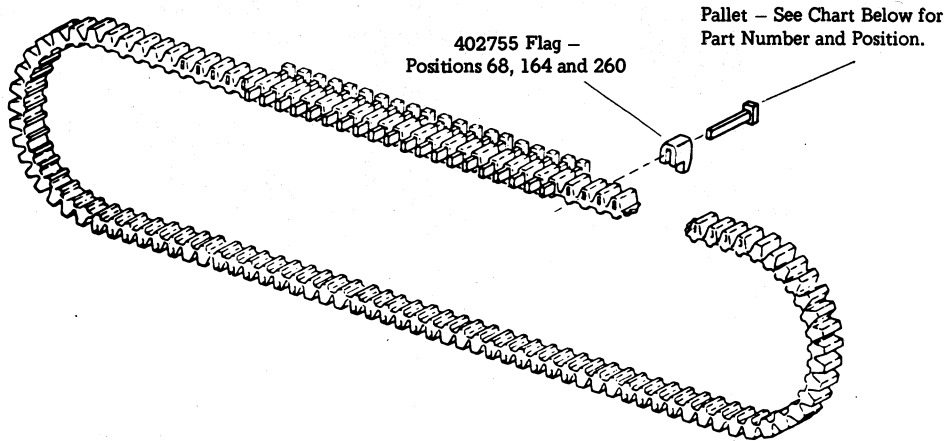
POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.
1,65	400748	≡	25,89	400673	8	49,113	400697	P	137	400797	≡
2,66	400650	!	26,90	400674	9	50,114	400698	Q	138	400798	≡
3,67	400651	“	27,91	400675	:	51,115	400699	R	139	400799	\
4,68	400652	#	28,92	400676	;	52,116	400700	S	140	400800	/
5,69	400653	\$	29,93	400677	<	53,117	400701	T	141	400801	→
6,70	400654	%	30,94	400678	=	54,118	400702	U	142	400802	←
7,71	400655	&	31,95	400679	>	55,119	400703	V	143	400803	↑
8,72	400656	/	32,96	400680	?	56,120	400704	W	144	400804	↓
9,73	400657	(	33,97	400681	@	57,121	400705	X	145	400805	↘
10,74	400658	)	34,98	400682	A	58,122	400706	Y	146	400806	↙
11,75	400659	*	35,99	400683	B	59,123	400707	Z	147	400807	↗
12,76	400660	+	36,100	400684	C	60,124	400708	[	148	400808	↖
13,77	400661	,	37,101	400685	D	61,125	400709	\	149	400809	↗
14,78	400662	-	38,102	400686	E	62,126	400710	]	150	400810	.
15,79	400663	.	39,103	400687	F	63,127	400711	^	151	400811	.
16,80	400664	/	40,104	400688	G	64,128	400712	—	152	400812	.
17,81	400665	∅	41,105	400689	H	129	400789	Γ	153	400813	—
18,82	400666	1	42,106	400690	I	130	400790	⌋	154	400814	⊥
19,83	400667	2	43,107	400691	J	131	400791	┌	155	400815	⊥
20,84	400668	3	44,108	400692	K	132	400792	└	156	400816	+
21,85	400669	4	45,109	400693	L	133	400793	≡	157	400817	!
22,86	400670	5	46,110	400694	M	134	400794	≡	158	400818	!
23,87	400671	6	47,111	400695	N	135	400795	≡	159	400819	!-1
24,88	400672	7	48,112	400696	O	136	400796	≡	160		

Fig. 60-400775AD Carrier and Type Pallet Arrangement (Friction and Tractor Feed - 80-Column)
(Line Drawing Monocase)



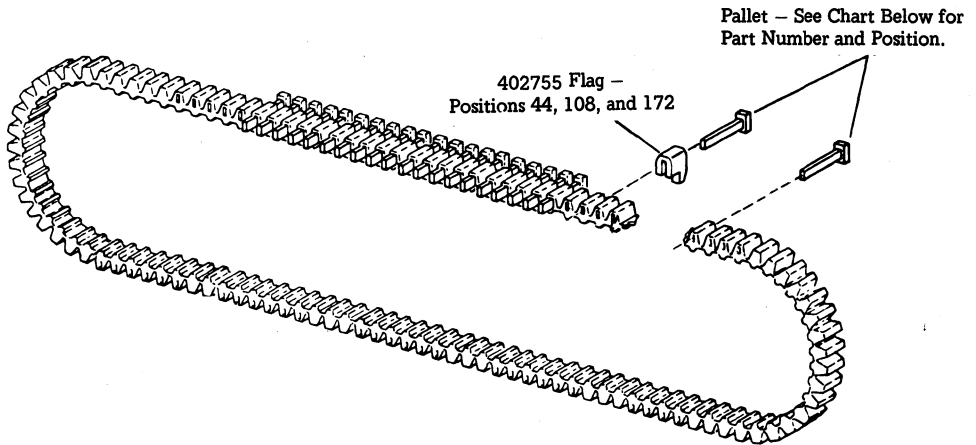
POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.
1,97	400750	≡	25,121	400673	8	49,145	400697	P	73,169	400721	h
2,98	400820	1/8	26,122	400674	9	50,146	400698	Q	74,170	400722	i
3,99	400651	"	27,123	400675	:	51,147	400699	R	75,171	400723	j
4,100	400652	#	28,124	400676	;	52,148	400700	S	76,172	400724	k
5,101	400653	\$	29,125	400677	<	53,149	400701	T	77,173	400725	l
6,102	400654	%	30,126	400678	=	54,150	400702	U	78,174	400726	m
7,103	400655	&	31,127	400679	>	55,151	400703	V	79,175	400727	n
8,104	400656	∕	32,128	400680	?	56,152	400704	W	80,176	400728	o
9,105	400657	(	33,129	400821	1/4	57,153	400705	X	81,177	400865	p
10,106	400658	)	34,130	400682	A	58,154	400706	Y	82,178	400866	q
11,107	400823	1/2	35,131	400683	B	59,155	400707	Z	83,179	400731	r
12,108	400660	+	36,132	400684	C	60,156	400826	7/8	84,180	400732	s
13,109	400661	,	37,133	400685	D	61,157	400709	\	85,181	400733	t
14,110	400662	-	38,134	400686	E	62,158	400825	3/4	86,182	400734	u
15,111	400663	.	39,135	400687	F	63,159	400822	3/8	87,183	400735	v
16,112	400664	/	40,136	400688	G	64,160	400824	5/8	88,184	400736	w
17,113	400665	∅	41,137	400689	H	65,161	400713	∖	89,185	400737	x
18,114	400666	1	42,138	400690	I	66,162	400714	a	90,186	400867	y
19,115	400667	2	43,139	400691	J	67,163	400715	b	91,187	400739	z
20,116	400668	3	44,140	400692	K	68,164	400716	c	92,188	400740	{
21,117	400669	4	45,141	400693	L	69,165	400717	d	93,189	400741	:
22,118	400670	5	46,142	400694	M	70,166	400718	e	94,190	400742	}
23,119	400671	6	47,143	400695	N	71,167	400719	f	95,191	400743	~
24,120	400672	7	48,144	400696	O	72,168	400864	g	96,192	---	---

Fig. 61-400776AF Carrier and Type Pallet Arrangement (Friction and Tractor Feed - 80-Column)
(Fractions in One-Eighths - Up/Low)



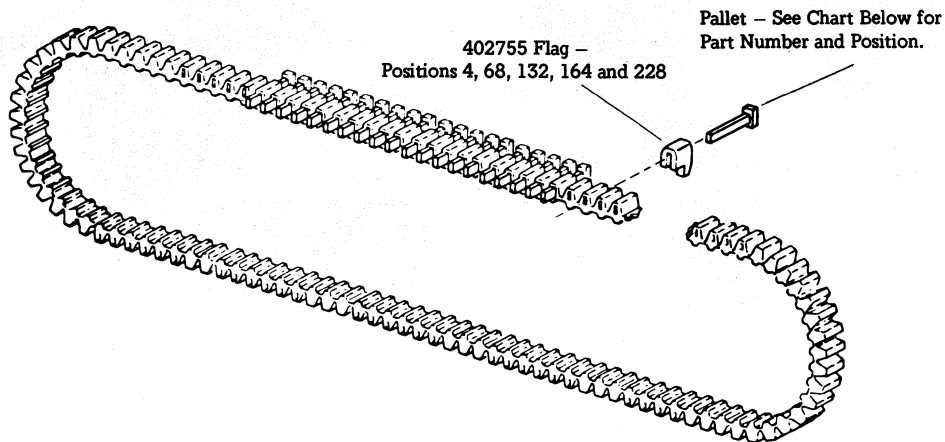
POSITION NUMBER	PART NUMBER	CHAR	POSITION NUMBER	PART NUMBER	CHAR	POSITION NUMBER	PART NUMBER	CHAR
1,97,193	400751	≡	33,129,225	400681	@	65,161,257	400713	\
2,98,194	400650	!	34,130,226	400682	A	66,162,258	400714	a
3,99,195	400651	"	35,131,227	400683	B	67,163,259	400715	b
4,100,196	400652	#	36,132,228	400684	C	68,164,260	400716	c
5,101,197	400653	\$	37,133,229	400685	D	69,165,261	400717	d
6,102,198	400654	%	38,134,230	400686	E	70,166,262	400718	e
7,103,199	400655	&	39,135,231	400687	F	71,167,263	400719	f
8,104,200	400656	/	40,136,232	400688	G	72,168,264	400864	g
9,105,201	400657	(	41,137,233	400689	H	73,169,265	400721	h
10,106,202	400658	)	42,138,234	400690	I	74,170,266	400722	i
11,107,203	400659	*	43,139,235	400691	J	75,171,267	400723	j
12,108,204	400660	+	44,140,236	400692	K	76,172,268	400724	k
13,109,205	400661	,	45,141,237	400693	L	77,173,269	400725	l
14,110,206	400662	-	46,142,238	400694	M	78,174,270	400726	m
15,111,207	400663	.	47,143,239	400695	N	79,175,271	400727	n
16,112,208	400664	/	48,144,240	400696	O	80,176,272	400728	o
17,113,209	400665	Ø	49,145,241	400697	P	81,177,273	400865	p
18,114,210	400666	1	50,146,242	400698	Q	82,178,274	400866	q
19,115,211	400667	2	51,147,243	400699	R	83,179,275	400731	r
20,116,212	400668	3	52,148,244	400700	S	84,180,276	400732	s
21,117,213	400669	4	53,149,245	400701	T	85,181,277	400733	t
22,118,214	400670	5	54,150,246	400702	U	86,182,278	400734	u
23,119,215	400671	6	55,151,247	400703	V	87,183,279	400735	v
24,120,216	400672	7	56,152,248	400704	W	88,184,280	400736	w
25,121,217	400673	8	57,153,249	400705	X	89,185,281	400737	x
26,122,218	400674	9	58,154,250	400706	Y	90,186,282	400867	y
27,123,219	400675	:	59,155,251	400707	Z	91,187,283	400739	z
28,124,220	400676	;	60,156,252	400708	[	92,188,284	400740	{
29,125,221	400677	<	61,157,253	400709	\	93,189,285	400741	}
30,126,222	400678	=	62,158,254	400710	]	94,190,286	400742	}
31,127,223	400679	>	63,159,255	400711	^	95,191,287	400743	~
32,128,224	400680	?	64,160,256	400712	-	96,192,288	—	—

Fig. 62—400777AG Carrier and Type Pallet Arrangement (Tractor Feed - 132-Column) (Up/Low)



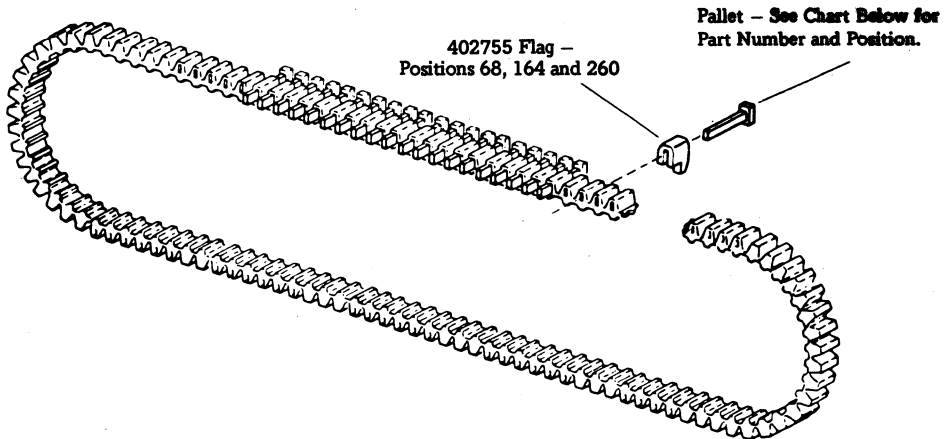
POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.
1,65,129	400752	∞	17,81,145	400857	∅	33,97,161	400851	1/4	49,113,177	196755	P
2,66,130	400850	1/8	18,82,146	400858	1	34,98,162	196740	A	50,114,178	196756	Q
3,67,131	400859	"	19,83,147	196766	2	35,99,163	196741	B	51,115,179	196757	R
4,68,132	400652	#	20,84,148	196767	3	36,100,164	196742	C	52,116,180	196758	S
5,69,133	196778	\$	21,85,149	196768	4	37,101,165	196743	D	53,117,181	196759	T
6,70,134	400654	%	22,86,150	196769	5	38,102,166	196744	E	54,118,182	196760	U
7,71,135	196774	&	23,87,151	196770	6	39,103,167	196745	F	55,119,183	196761	V
8,72,136	400656	'	24,88,152	196771	7	40,104,168	196746	G	56,120,184	196762	W
9,73,137	400657	(	25,89,153	196772	8	41,105,169	196747	H	57,121,185	196763	X
10,74,138	400658	)	26,90,154	196773	9	42,106,170	196748	I	58,122,186	196764	Y
11,75,139	400853	1/2	27,91,155	400675	:	43,107,171	196749	J	59,123,187	196765	Z
12,76,140	400660	+	28,92,156	400676	;	44,108,172	196750	K	60,124,188	400856	7/8
13,77,141	400661	,	29,93,157	400677	<	45,109,173	196751	L	61,125,189	400709	\
14,78,142	400662	-	30,94,158	400678	=	46,110,174	196752	M	62,126,190	400855	3/4
15,79,143	400663	.	31,95,159	400679	>	47,111,175	196753	N	63,127,191	400852	3/8
16,80,144	400861	/	32,96,160	400680	?	48,112,176	196754	O	64,128,192	400854	5/8

Fig. 63-400778AH Carrier and Type Pallet Arrangement (Friction and Tractor Feed - 80-Column)
(Large Gothic W/Fractions)



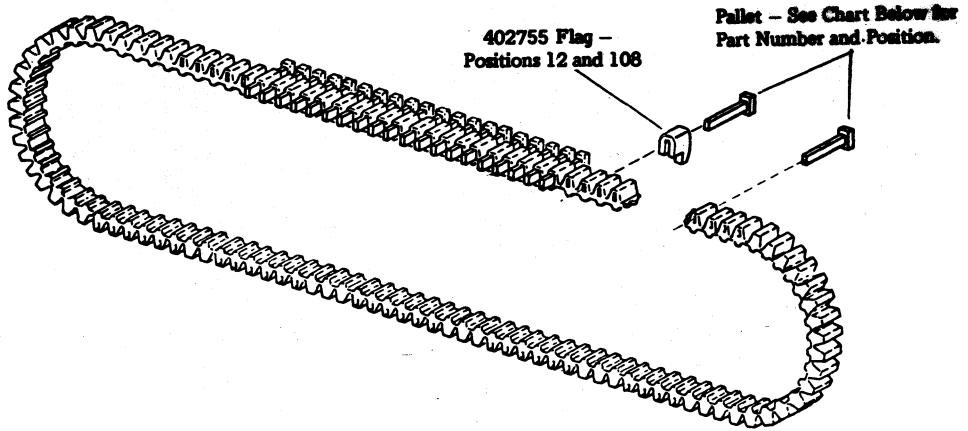
POSITION NUMBER	PART NUMBER	CHAR	POSITION NUMBER	PART NUMBER	CHAR
1,65,129,193,257	400755	⊕	33,97,161,225	400681	@
2,66,130,194,258	400650	!	34,98,162,226	400682	A
3,67,131,195,259	400651	"	35,99,163,227	400683	B
4,68,132,196,260	400652	#	36,100,164,228	400684	C
5,69,133,197,261	400653	\$	37,101,165,229	400685	D
6,70,134,198,262	400654	%	38,102,166,230	400686	E
7,71,135,199,263	400655	&	39,103,167,231	400687	F
8,72,136,200,264	400656	/	40,104,168,232	400688	G
9,73,137,201,265	400657	(	41,105,169,233	400689	H
10,74,138,202,266	400658	)	42,106,170,234	400690	I
11,75,139,203,267	400659	*	43,107,171,235	400691	J
12,76,140,204,268	400660	+	44,108,172,236	400692	K
13,77,141,205,269	400661	,	45,109,173,237	400693	L
14,78,142,206,270	400662	-	46,110,174,238	400694	M
15,79,143,207,271	400663	.	47,111,175,239	400695	N
16,80,144,208,272	400664	/	48,112,176,240	400696	O
17,81,145,209,273	400665	∅	49,113,177,241	400697	P
18,82,146,210,274	400666	1	50,114,178,242	400698	Q
19,83,147,211,275	400667	2	51,115,179,243	400699	R
20,84,148,212,276	400668	3	52,116,180,244	400700	S
21,85,149,213,277	400669	4	53,117,181,245	400701	T
22,86,150,214,278	400670	5	54,118,182,246	400702	U
23,87,151,215,279	400671	6	55,119,183,247	400703	V
24,88,152,216,280	400672	7	56,120,184,248	400704	W
25,89,153,217,281	400673	8	57,121,185,249	400705	X
26,90,154,218,282	400674	9	58,122,186,250	400706	Y
27,91,155,219,283	400675	:	59,123,187,251	400707	Z
28,92,156,220,284	400676	;	60,124,188,252	400708	[
29,93,157,221,285	400677	<	61,125,189,253	400709	\
30,94,158,222,286	400678	=	62,126,190,254	400710]
31,95,159,223,287	400679	>	63,127,191,255	400711	^
32,96,160,224,288	400680	?	64,128,192,256	400712	_

Fig. 64-400780AL Carrier and Type Pallet Arrangement (Tractor Feed - 132-Column) (Monocase)



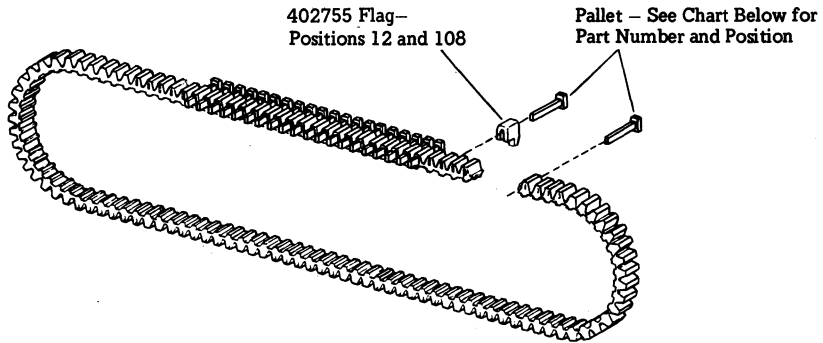
POSITION NUMBER	PART NUMBER	CHAR	POSITION NUMBER	PART NUMBER	CHAR	POSITION NUMBER	PART NUMBER	CHAR
1,97,193	400756	≡≡≡	33,129,225	400681	@	65,161,257	400713	\
2,98,194	400650	!	34,130,226	400682	A	66,162,258	400714	a
3,99,195	400651	!"	35,131,227	400683	B	67,163,259	400715	b
4,100,196	400652	#	36,132,228	400684	C	68,164,260	400716	c
5,101,197	400653	\$	37,133,229	400685	D	69,165,261	400717	d
6,102,198	400654	%	38,134,230	400686	E	70,166,262	400718	e
7,103,199	400655	&	39,135,231	400687	F	71,167,263	400719	f
8,104,200	400656	/	40,136,232	400688	G	72,168,264	400864	g
9,105,201	400657	(	41,137,233	400689	H	73,169,265	400721	h
10,106,202	400658	)	42,138,234	400690	I	74,170,266	400722	i
11,107,203	400659	*	43,139,235	400691	J	75,171,267	400723	j
12,108,204	400660	+	44,140,236	400692	K	76,172,268	400724	k
13,109,205	400661	,	45,141,237	400693	L	77,173,269	400725	l
14,110,206	400662	-	46,142,238	400694	M	78,174,270	400726	m
15,111,207	400663	.	47,143,239	400695	N	79,175,271	400727	n
16,112,208	400664	/	48,144,240	400696	O	80,176,272	400728	o
17,113,209	400665	ø	49,145,241	400 97	P	81,177,273	400865	p
18,114,210	400666	1	50,146,242	400698	Q	82,178,274	400866	q
19,115,211	400667	2	51,147,243	400699	R	83,179,275	400731	r
20,116,212	400668	3	52,148,244	400700	S	84,180,276	400732	s
21,117,213	400669	4	53,149,245	400701	T	85,181,277	400733	t
22,118,214	400670	5	54,150,246	400702	U	86,182,278	400734	u
23,119,215	400671	6	55,151,247	400703	V	87,183,279	400735	v
24,120,216	400672	7	56,152,248	400704	W	88,184,280	400736	w
25,121,217	400673	8	57,153,249	400705	X	89,185,281	400737	x
26,122,218	400674	9	58,154,250	400706	Y	90,186,282	400867	y
27,123,219	400675	:	59,155,251	400707	Z	91,187,283	400739	z
28,124,220	400676	;	60,156,252	400833	—	92,188,284	400740	{
29,125,221	400677	<	61,157,253	400709	\	93,189,285	400741	|
30,126,222	400678	=	62,158,254	400834	|	94,190,286	400742	}
31,127,223	400679	>	63,159,255	400835	†	95,191,287	400743	~
32,128,224	400680	?	64,160,256	400712	-	96,192,288	—	—

Fig. 65—400783 AM Carrier and Type Pallet Arrangement (Friction and Tractor Feed – 80-Column)
(EBCDIC Up/Low)



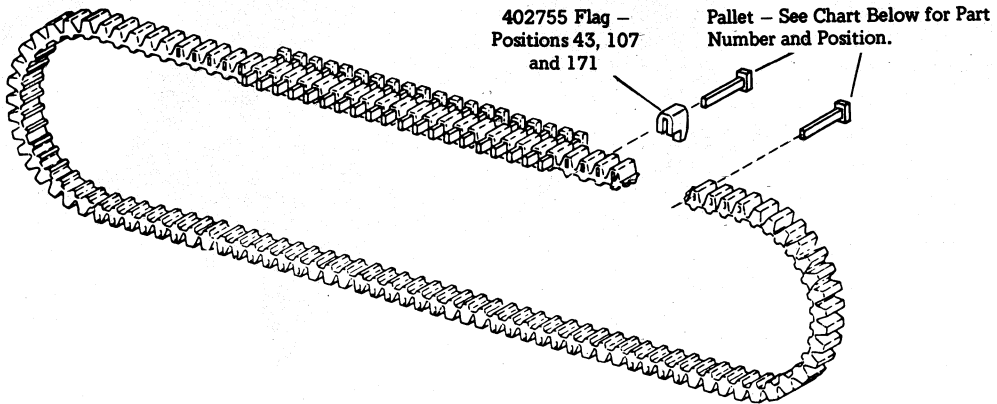
POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.
1,97	400757	≡≡≡	25,121	400673	8	49,145	400697	P	73,169	400721	h
2,98	400650	!	26,122	400674	9	50,146	400698	Q	74,170	400722	i
3,99	400651	"	27,123	400675	:	51,147	400699	R	75,171	400723	j
4,100	400652	#	28,124	400676	;	52,148	400700	S	76,172	400724	k
5,101	400653	\$	29,125	400677	<	53,149	400701	T	77,173	400725	l
6,102	400654	%	30,126	400678	=	54,150	400702	U	78,174	400726	m
7,103	400655	&	31,127	400679	>	55,151	400703	V	79,175	400727	n
8,104	400656	/	32,128	400680	?	56,152	400704	W	80,176	400728	o
9,105	400657	(	33,129	400681	@	57,153	400705	X	81,177	400865	p
10,106	400658	)	34,130	400682	A	58,154	400706	Y	82,178	400866	q
11,107	400659	*	35,131	400683	B	59,155	400707	Z	83,179	400731	r
12,108	400660	+	36,132	400684	C	60,156	400833	⌋	84,180	400732	s
13,109	400661	,	37,133	400685	D	61,157	400709	⌈	85,181	400733	t
14,110	400662	-	38,134	400686	E	62,158	400834	|	86,182	400734	u
15,111	400663	.	39,135	400687	F	63,159	400835	≠	87,183	400735	v
16,112	400664	/	40,136	400688	G	64,160	400712	—	88,184	400736	w
17,113	400665	∅	41,137	400689	H	65,161	400713	∖	89,185	400737	x
18,114	400666	1	42,138	400690	I	66,162	400714	a	90,186	400867	y
19,115	400667	2	43,139	400691	J	67,163	400715	b	91,187	400739	z
20,116	400668	3	44,140	400692	K	68,164	400716	c	92,188	400740	{
21,117	400669	4	45,141	400693	L	69,165	400717	d	93,189	400741	}
22,118	400670	5	46,142	400694	M	70,166	400718	e	94,190	400742	~
23,119	400671	6	47,143	400695	N	71,167	400719	f	95,191	400743	~
24,120	400672	7	48,144	400696	O	72,168	400864	g	96,192	—	—

Fig. 66-400784AN Carrier and Type Pallet Arrangement (Friction and Tractor Feed - 80-Column) (EBCDIC - Up/Low)



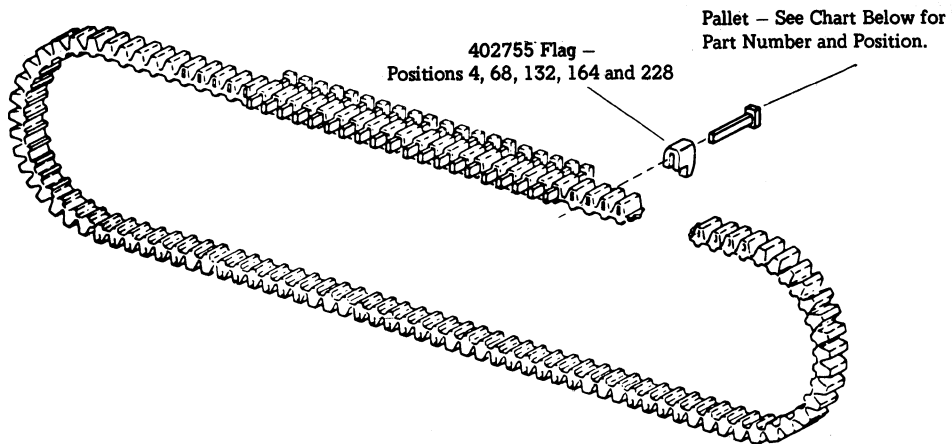
POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.
1, 97	400758	∞	25, 121	400673	8	49, 145	400697	P	73, 169	400721	h
2, 98	400650	!	26, 122	400674	9	50, 146	400698	Q	74, 170	400722	i
3, 99	400651	"	27, 123	400675	:	51, 147	400699	R	75, 171	400723	j
4, 100	400652	#	28, 124	400676	;	52, 148	400700	S	76, 172	400724	k
5, 101	400653	\$	29, 125	400677	<	53, 149	400701	T	77, 173	400725	l
6, 102	400654	%	30, 126	400678	=	54, 150	400702	U	78, 174	400726	m
7, 103	400655	&	31, 127	400679	>	55, 151	400703	V	79, 175	400727	n
8, 104	400656	^	32, 128	400680	?	56, 152	400704	W	80, 176	400728	o
9, 105	400657	(	33, 129	400804	↓	57, 153	400705	X	81, 177	400865	p
10, 106	400658	)	34, 130	400682	A	58, 154	400706	Y	82, 178	400866	q
11, 107	400659	*	35, 131	400683	B	59, 155	400707	Z	83, 179	400731	r
12, 108	400660	+	36, 132	400684	C	60, 156	400820	$\frac{1}{b}$	84, 180	400732	s
13, 109	400661	,	37, 133	400685	D	61, 157	400821	$\frac{1}{c}$	85, 181	400733	t
14, 110	400662	-	38, 134	400686	E	62, 158	400822	$\frac{1}{d}$	86, 182	400734	u
15, 111	400663	.	39, 135	400687	F	63, 159	400711	^	87, 183	400735	v
16, 112	400664	/	40, 136	400688	G	64, 160	400813	—	88, 184	400736	w
17, 113	400665	∅	41, 137	400689	H	65, 161	400713	`	89, 185	400737	x
18, 114	400666	1	42, 138	400690	I	66, 162	400714	a	90, 186	400867	y
19, 115	400667	2	43, 139	400691	J	67, 163	400715	b	91, 187	400739	z
20, 116	400668	3	44, 140	400692	K	68, 164	400716	c	92, 188	400823	$\frac{1}{z}$
21, 117	400669	4	45, 141	400693	L	69, 165	400717	d	93, 189	400824	$\frac{2}{z}$
22, 118	400670	5	46, 142	400694	M	70, 166	400718	e	94, 190	400825	$\frac{3}{z}$
23, 119	400671	6	47, 143	400695	N	71, 167	400719	f	95, 191	400826	$\frac{4}{z}$
24, 120	400672	7	48, 144	400696	O	72, 168	400864	g	96, 192	—	—

Fig. 67—400779AP Carrier and Type Pallet Arrangement (Friction and Tractor Feed – 80-Column)
(Fractions in one Eighths – Up/Low)



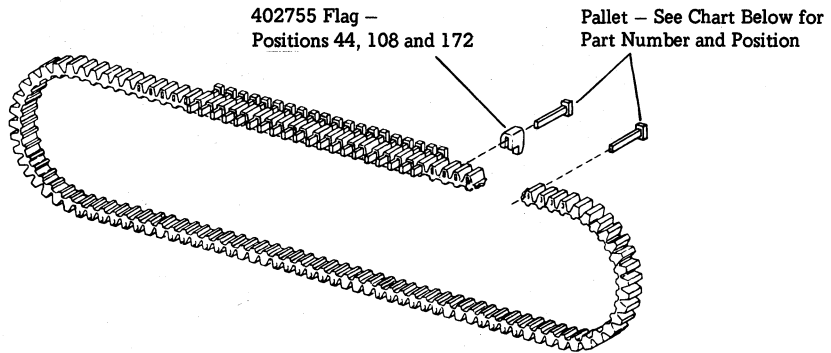
POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.
1,65,129	400650	!	17,81,145	400666	1	33,97,161	400682	A	49,113,177	400698	Q
2,66,130	400651	"	18,82,146	400667	2	34,98,162	400683	B	50,114,178	400699	R
3,67,131	400652	#	19,83,147	400668	3	35,99,163	400684	C	51,115,179	400700	S
4,68,132	400653	\$	20,84,148	400669	4	36,100,164	400685	D	52,116,180	400701	T
5,69,133	400654	%	21,85,149	400670	5	37,101,165	400686	E	53,117,181	400702	U
6,70,134	400655	&	22,86,150	400671	6	38,102,166	400687	F	54,118,182	400703	V
7,71,135	400656	'	23,87,151	400672	7	39,103,167	400688	G	55,119,183	400704	W
8,72,136	400657	(	24,88,152	400673	8	40,104,168	400689	H	56,120,184	400705	X
9,73,137	400658	)	25,89,153	400674	9	41,105,169	400690	I	57,121,185	400706	Y
10,74,138	400659	*	26,90,154	400675	:	42,106,170	400691	J	58,122,186	400707	Z
11,75,139	400660	+	27,91,155	400676	;	43,107,171	400692	K	59,123,187	400833	⌋
12,76,140	400661	,	28,92,156	400677	<	44,108,172	400693	L	60,124,188	400709	\
13,77,141	400662	-	29,93,157	400678	=	45,109,173	400694	M	61,125,189	400834	|
14,78,142	400663	.	30,94,158	400679	>	46,110,174	400695	N	62,126,190	400835	¢
15,79,143	400664	/	31,95,159	400680	?	47,111,175	400696	O	63,127,191	400712	—
16,80,144	400665	∅	32,96,160	400681	@	48,112,176	400697	P	64,128,192	400759	⌋

Fig. 68—400785AQ Carrier and Type Pallet Arrangement (Friction and Tractor Feed – 80-Column)
(EBCDIC Monocase)



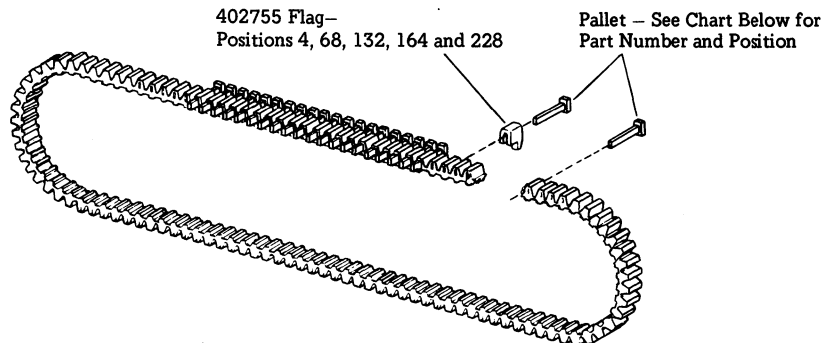
POSITION NUMBER	PART NUMBER	CHAR	POSITION NUMBER	PART NUMBER	CHAR
1,65,129,193,257	400888	Ⓔ	33,97,161,225	400681	@
2,66,130,194,258	400650	!	34,98,162,226	400682	A
3,67,131,195,259	400651	"	35,99,163,227	400683	B
4,68,132,196,260	400652	*	36,100,164,228	400684	C
5,69,133,197,261	400653	\$	37,101,165,229	400685	D
6,70,134,198,262	400654	%	38,102,166,230	400686	E
7,71,135,199,263	400655	&	39,103,167,231	400687	F
8,72,136,200,264	400656	/	40,104,168,232	400688	G
9,73,137,201,265	400657	(	41,105,169,233	400689	H
10,74,138,202,266	400658	)	42,106,170,234	400690	I
11,75,139,203,267	400659	*	43,107,171,235	400691	J
12,76,140,204,268	400660	+	44,108,172,236	400692	K
13,77,141,205,269	400661	,	45,109,173,237	400693	L
14,78,142,206,270	400662	-	46,110,174,238	400694	M
15,79,143,207,271	400663	.	47,111,175,239	400695	N
16,80,144,208,272	400664	/	48,112,176,240	400696	O
17,81,145,209,273	400665	∅	49,113,177,241	400697	P
18,82,146,210,274	400666	1	50,114,178,242	400698	Q
19,83,147,211,275	400667	2	51,115,179,243	400699	R
20,84,148,212,276	400668	3	52,116,180,244	400700	S
21,85,149,213,277	400669	4	53,117,181,245	400701	T
22,86,150,214,278	400670	5	54,118,182,246	400702	U
23,87,151,215,279	400671	6	55,119,183,247	400703	V
24,88,152,216,280	400672	7	56,120,184,248	400704	W
25,89,153,217,281	400673	8	57,121,185,249	400705	X
26,90,154,218,282	400674	9	58,122,186,250	400706	Y
27,91,155,219,283	400675	:	59,123,187,251	400707	Z
28,92,156,220,284	400676	;	60,124,188,252	400833	⌋
29,93,157,221,285	400677	<	61,125,189,253	400709	\
30,94,158,222,286	400678	=	62,126,190,254	400834	|
31,95,159,223,287	400679	>	63,127,191,255	400835	†
32,96,160,224,288	400680	?	64,128,192,256	400712	-

Fig. 69—400887AS Carrier and Type Pallet Arrangement (Tractor Feed - 132-Column) (EBCDIC Monocase)



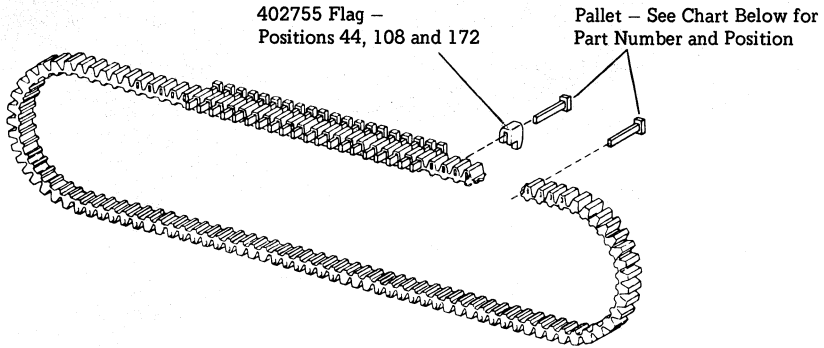
POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.
1, 33, 60 to 65, 97, 124 to 129, 161, 188 to 192	400889	至	14, 78, 142	408150	-	30, 94, 158	408122	=	47, 111, 175	408095	N
			15, 79, 143	408118	.	31, 95, 159	408138	H	48, 112, 176	408096	∅
			16, 80, 144	408124	/	32, 96, 160	408130	?	49, 113, 177	408097	P
			17, 81, 145	408117	□	34, 98, 162	408082	A	50, 114, 178	408098	∅
2, 66, 130	408139	|	18, 82, 146	408108	↓	35, 99, 163	408083	B	51, 115, 179	408099	R
3, 67, 131	408126	∩	19, 83, 147	408109	∩	36, 100, 164	408084	C	52, 116, 180	408100	S
4, 68, 132	408137	∪	20, 84, 148	408110	∩	37, 101, 165	408085	D	53, 117, 181	408101	T
5, 69, 133	408133	≡	21, 85, 149	408111	∪	38, 102, 166	408086	E	54, 118, 182	408102	U
6, 70, 134	408129	∠	22, 86, 150	408112	∪	39, 103, 167	408087	F	55, 119, 183	408103	V
7, 71, 135	408131	∩	23, 87, 151	408113	∪	40, 104, 168	408088	G	56, 120, 184	408104	W
8, 72, 136	408132	∩	24, 88, 152	408114	∪	41, 105, 169	408089	H	57, 121, 185	408105	X
9, 73, 137	408128	{	25, 89, 153	408115	∪	42, 106, 170	408090	I	58, 122, 186	408106	Y
10, 74, 138	408127	}	26, 90, 154	408116	∪	43, 107, 171	408091	J	59, 123, 187	408107	Z
11, 75, 139	408125	*	27, 91, 155	408120	:	44, 108, 172	408092	K			
12, 76, 140	408123	+	28, 92, 156	408121	∩	45, 109, 173	408093	L			
13, 77, 141	408119	∩	29, 93, 157	408136	∩	46, 110, 174	408094	M			

Fig. 70-408177AT Carrier and Type Pallet Arrangement (Friction and Tractor Feed - 80-Column)
(ASCII Monocase)



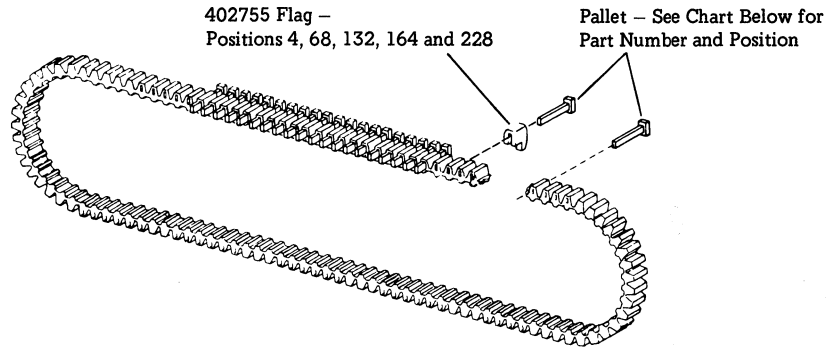
POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.
1, 33, 60 to 65, 97, 124 to 129, 161, 188 to 193, 225, 252 to 257	400890	⌈	19, 83, 147, 211, 275	408109	2	41, 105, 169, 233	408089	H
			20, 84, 148, 212, 276	408110	3	42, 106, 170, 234	408090	I
			21, 85, 149, 213, 277	408111	4	43, 107, 171, 235	408091	J
			22, 86, 150, 214, 278	408112	5	44, 108, 172, 236	408092	K
2, 66, 130, 194, 258	408139	|	23, 87, 151, 215, 279	408113	6	45, 109, 173, 237	408093	L
3, 67, 131, 195, 259	408126	"	24, 88, 152, 216, 280	408114	7	46, 110, 174, 238	408094	M
4, 68, 132, 196, 260	408137	∪	25, 89, 153, 217, 281	408115	8	47, 111, 175, 239	408095	N
5, 69, 133, 197, 261	408133	≡	26, 90, 154, 218, 282	408116	9	48, 112, 176, 240	408096	0
6, 70, 134, 198, 262	408129	∴	27, 91, 155, 219, 283	408120	:	49, 113, 177, 241	408097	P
7, 71, 135, 199, 263	408131	&	28, 92, 156, 220, 284	408121	;	50, 114, 178, 242	408098	Q
8, 72, 136, 200, 264	408132	'	29, 93, 157, 221, 285	408136	∩	51, 115, 179, 243	408099	R
9, 73, 137, 201, 265	408128	{	30, 94, 158, 222, 286	408122	=	52, 116, 180, 244	408100	S
10, 74, 138, 202, 266	408127	}	31, 95, 159, 223, 287	408138	∏	53, 117, 181, 245	408101	T
11, 75, 139, 203, 267	408125	*	32, 96, 160, 224, 288	408130	?	54, 118, 182, 246	408102	U
12, 76, 140, 204, 268	408123	+	34, 98, 162, 226	408082	A	55, 119, 183, 247	408103	V
13, 77, 141, 205, 269	408119	∓	35, 99, 163, 227	408083	B	56, 120, 184, 248	408104	W
14, 78, 142, 206, 270	408150	-	36, 100, 164, 228	408084	C	57, 121, 185, 249	408105	X
15, 79, 143, 207, 271	408118	.	37, 101, 165, 229	408085	D	58, 122, 186, 250	408106	Y
16, 80, 144, 208, 272	408124	/	38, 102, 166, 230	408086	E	59, 123, 187, 251	408107	Z
17, 81, 145, 209, 273	408117	□	39, 103, 167, 231	408087	F			
18, 82, 146, 210, 274	408108	⊥	40, 104, 168, 232	408088	G			

Fig. 71-408178AU Carrier and Type Pallet Arrangement (Tractor Feed - 132-Column) (ASCII Monocase)



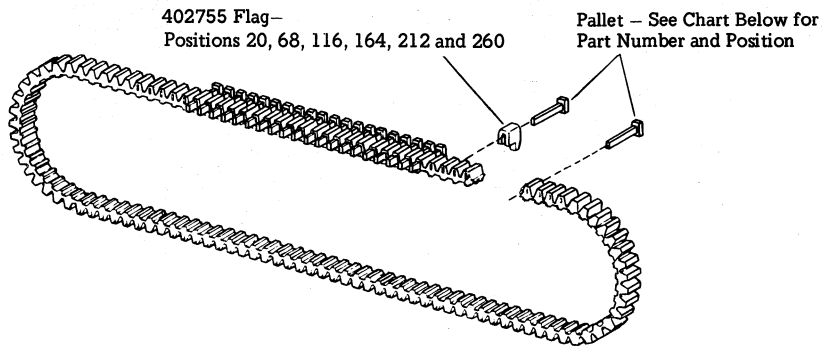
POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.
1, 65, 129	400891	∅	17, 81, 145	408214	0	33, 97, 161	408226	⊖	49, 113, 177	408194	P
2, 66, 130	408241	!	18, 82, 146	408205	1	34, 98, 162	408179	A	50, 114, 178	408195	Q
3, 67, 131	408225	''	19, 83, 147	408206	2	35, 99, 163	408180	B	51, 115, 179	408196	R
4, 68, 132	408233	#	20, 84, 148	408207	3	36, 100, 164	408181	C	52, 116, 180	408197	S
5, 69, 133	408228	\$	21, 85, 149	408208	4	37, 101, 165	408182	D	53, 117, 181	408198	T
6, 70, 134	408234	%	22, 86, 150	408209	5	38, 102, 166	408183	E	54, 118, 182	408199	U
7, 71, 135	408236	ε	23, 87, 151	408210	6	39, 103, 167	408184	F	55, 119, 183	408200	V
8, 72, 136	408216	'	24, 88, 152	408211	7	40, 104, 168	408185	G	56, 120, 184	408201	W
9, 73, 137	408217	(	25, 89, 153	408212	8	41, 105, 169	408186	H	57, 121, 185	408202	X
10, 74, 138	408218	)	26, 90, 154	408213	9	42, 106, 170	408187	I	58, 122, 186	408203	Y
11, 75, 139	408221	*	27, 91, 155	408239	:	43, 107, 171	408188	J	59, 123, 187	408204	Z
12, 76, 140	408220	+	28, 92, 156	408240	;	44, 108, 172	408189	K	60, 124, 188	408231	~
13, 77, 141	408219	,	29, 93, 157	408230	<	45, 109, 173	408190	L	61, 125, 189	408238	|
14, 78, 142	408232	-	30, 94, 158	408223	=	46, 110, 174	408191	M	62, 126, 190	408237	□
15, 79, 143	408215	.	31, 95, 159	408229	>	47, 111, 175	408192	N	63, 127, 191	408242	^
16, 80, 144	408222	/	32, 96, 160	408224	?	48, 112, 176	408193	□	64, 128, 192	408235	-

Fig. 72—408269AV Carrier and Type Pallet Arrangement (Friction and Tractor Feed – 80-Column)
(Monocase)



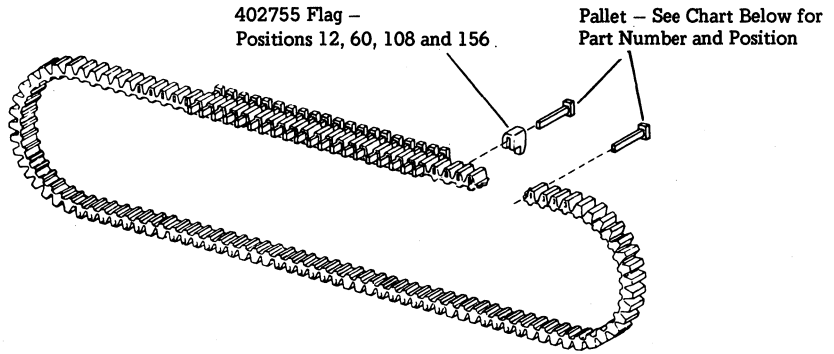
POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.
1, 65, 129, 193, 257	400892	☉	23, 87, 151, 215, 279	408210	6	45, 109, 173, 237	408190	L
2, 66, 130, 194, 258	408241	!	24, 88, 152, 216, 280	408211	7	46, 110, 174, 238	408191	M
3, 67, 131, 195, 259	408225	"	25, 89, 153, 217, 281	408212	8	47, 111, 175, 239	408192	N
4, 68, 132, 196, 260	408233	#	26, 90, 154, 218, 282	408213	9	48, 112, 176, 240	408193	□
5, 69, 133, 197, 261	408228	\$	27, 91, 155, 219, 283	408239	:	49, 113, 177, 241	408194	P
6, 70, 134, 198, 262	408234	%	28, 92, 156, 220, 284	408240	;	50, 114, 178, 242	408195	Q
7, 71, 135, 199, 263	408236	€	29, 93, 157, 221, 285	408230	<	51, 115, 179, 243	408196	R
8, 72, 136, 200, 264	408216	'	30, 94, 158, 222, 286	408223	=	52, 116, 180, 244	408197	S
9, 73, 137, 201, 265	408217	(	31, 95, 159, 223, 287	408229	>	53, 117, 181, 245	408198	T
10, 74, 138, 202, 266	408218	)	32, 96, 160, 224, 288	408224	?	54, 118, 182, 246	408199	U
11, 75, 139, 203, 267	408221	*	33, 97, 161, 225	408226	@	55, 119, 183, 247	408200	V
12, 76, 140, 204, 268	408220	+	34, 98, 162, 226	408179	A	56, 120, 184, 248	408201	W
13, 77, 141, 205, 269	408219	,	35, 99, 163, 227	408180	B	57, 121, 185, 249	408202	X
14, 78, 142, 206, 270	408232	-	36, 100, 164, 228	408181	C	58, 122, 186, 250	408203	Y
15, 79, 143, 207, 271	408215	.	37, 101, 165, 229	408182	D	59, 123, 187, 251	408204	Z
16, 80, 144, 208, 272	408222	/	38, 102, 166, 230	408183	E	60, 124, 188, 252	408231	~
17, 81, 145, 209, 273	408214	0	39, 103, 167, 231	408184	F	61, 125, 189, 253	408238	|
18, 82, 146, 210, 274	408205	1	40, 104, 168, 232	408185	G	62, 126, 190, 254	408237	▣
19, 83, 147, 211, 275	408206	2	41, 105, 169, 233	408186	H	63, 127, 191, 255	408242	^
20, 84, 148, 212, 276	408207	3	42, 106, 170, 234	408187	I	64, 128, 192, 256	408235	-
21, 85, 149, 213, 277	408208	4	43, 107, 171, 235	408188	J			
22, 86, 150, 214, 278	408209	5	44, 108, 172, 236	408189	K			

Fig. 73—408270AW Carrier and Type Pallet Arrangement (Tractor Feed – 132-Column) (Monocase)



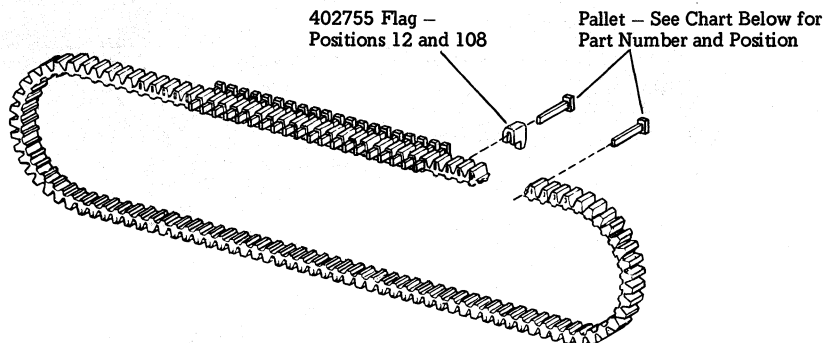
POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.
1, 49, 97, 145, 193, 241	400893	⊗	25, 73, 121, 169, 217, 265	408186	H
2, 50, 98, 146, 194, 242	408205	1	26, 74, 122, 170, 218, 266	408187	I
3, 51, 99, 147, 195, 243	408206	2	27, 75, 123, 171, 219, 267	408188	J
4, 52, 100, 148, 196, 244	408207	3	28, 76, 124, 172, 220, 268	408189	K
5, 53, 101, 149, 197, 245	408208	4	29, 77, 125, 173, 221, 269	408190	L
6, 54, 102, 150, 198, 246	408209	5	30, 78, 126, 174, 222, 270	408191	M
7, 55, 103, 151, 199, 247	408210	6	31, 79, 127, 175, 223, 271	408192	N
8, 56, 104, 152, 200, 248	408211	7	32, 80, 128, 176, 224, 272	408193	0
9, 57, 105, 153, 201, 249	408212	8	33, 81, 129, 177, 225, 273	408194	P
10, 58, 106, 154, 202, 250	408213	9	34, 82, 130, 178, 226, 274	408195	Q
11, 59, 107, 155, 203, 251	408214	0	35, 83, 131, 179, 227, 275	408196	R
12, 60, 108, 156, 204, 252	408228	\$	36, 84, 132, 180, 228, 276	408197	S
13, 61, 109, 157, 205, 253	408219	,	37, 85, 133, 181, 229, 277	408198	T
14, 62, 110, 158, 206, 254	408232	—	38, 86, 134, 182, 230, 278	408199	U
15, 63, 111, 159, 207, 255	408215	.	39, 87, 135, 183, 231, 279	408200	V
16, 64, 112, 160, 208, 256	408222	/	40, 88, 136, 184, 232, 280	408201	W
17, 65, 113, 161, 209, 257	408226	∂	41, 89, 137, 185, 233, 281	408202	X
18, 66, 114, 162, 210, 258	408179	A	42, 90, 138, 186, 234, 282	408203	Y
19, 67, 115, 163, 211, 259	408180	B	43, 91, 139, 187, 235, 283	408204	Z
20, 68, 116, 164, 212, 260	408181	C	44, 92, 140, 188, 236, 284	408221	*
21, 69, 117, 165, 213, 261	408182	D	45, 93, 141, 189, 237, 285	408233	#
22, 70, 118, 166, 214, 262	408183	E	46, 94, 142, 190, 238, 286	408234	%
23, 71, 119, 167, 215, 263	408184	F	47, 95, 143, 191, 239, 287	408236	€
24, 72, 120, 168, 216, 264	408185	G	48, 96, 144, 192, 240, 288	408237	∏

Fig. 74—408271 AX Carrier and Type Pallet Arrangement (Tractor Feed — 132-Column)
(Spec. Alpha/Num.-Monocase)



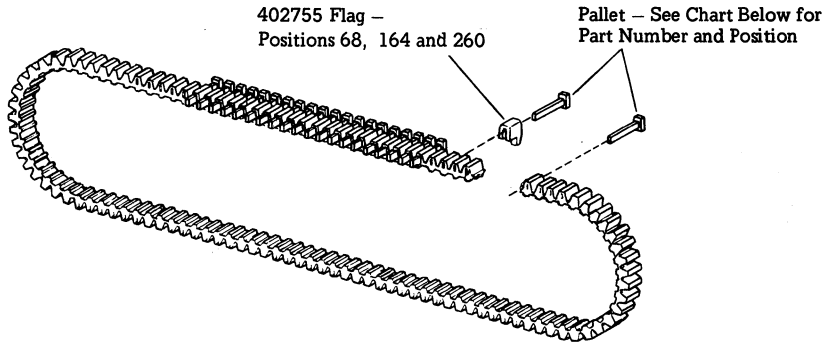
POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.
1, 49, 97, 145	400895	⊖	17, 65, 113, 161	408226	⊗	33, 81, 129, 177	408194	P
2, 50, 98, 146	408205	1	18, 66, 114, 162	408179	A	34, 82, 130, 178	408195	Q
3, 51, 99, 147	408206	2	19, 67, 115, 163	408180	B	35, 83, 131, 179	408196	R
4, 52, 100, 148	408207	3	20, 68, 116, 164	408181	C	36, 84, 132, 180	408197	S
5, 53, 101, 149	408208	4	21, 69, 117, 165	408182	D	37, 85, 133, 181	408198	T
6, 54, 102, 150	408209	5	22, 70, 118, 166	408183	E	38, 86, 134, 182	408199	U
7, 55, 103, 151	408210	6	23, 71, 119, 167	408184	F	39, 87, 135, 183	408200	V
8, 56, 104, 152	408211	7	24, 72, 120, 168	408185	G	40, 88, 136, 184	408201	W
9, 57, 105, 153	408212	8	25, 73, 121, 169	408186	H	41, 89, 137, 185	408202	X
10, 58, 106, 154	408213	9	26, 74, 122, 170	408187	I	42, 90, 138, 186	408203	Y
11, 59, 107, 155	408214	0	27, 75, 123, 171	408188	J	43, 91, 139, 187	408204	Z
12, 60, 108, 156	408228	\$	28, 76, 124, 172	408189	K	44, 92, 140, 188	408221	*
13, 61, 109, 157	408219	,	29, 77, 125, 173	408190	L	45, 93, 141, 189	408233	#
14, 62, 110, 158	408232	-	30, 78, 126, 174	408191	M	46, 94, 142, 190	408234	%
15, 63, 111, 159	408215	.	31, 79, 127, 175	408192	N	47, 95, 143, 191	408236	ε
16, 64, 112, 160	408222	/	32, 80, 128, 176	408193	0	48, 96, 144, 192	408237	□

Fig. 75-408346AZ Carrier and Type Pallet Arrangement (Friction and Tractor Feed - 80-Column)



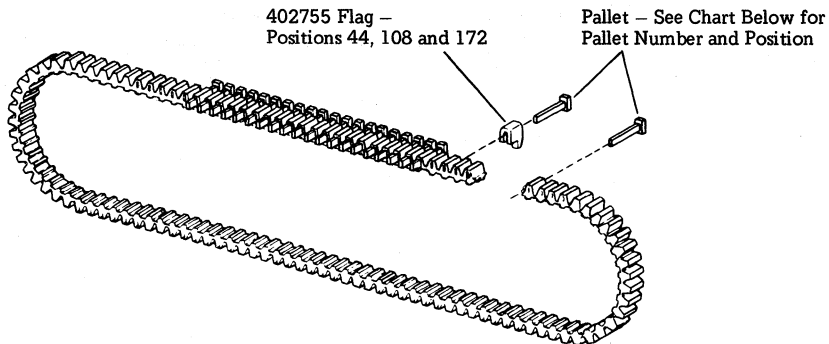
POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.
1, 65, 97, 161	400838	—	24, 120	408400	7	48, 144	408418	O	73, 169	408437	h
2, 98	408469	!	25, 121	408401	8	49, 145	408419	P	74, 170	408438	i
3, 99	408465	!"	26, 122	408402	9	50, 146	408420	Q	75, 171	408439	j
4, 100	408477	#	27, 123	408463	:	51, 147	408421	R	76, 172	408440	k
5, 101	408483	\$	28, 124	408464	;	52, 148	408422	S	77, 173	408441	l
6, 102	408476	%	29, 125	408472	<	53, 149	408423	T	78, 174	408442	m
7, 103	408478	&	30, 126	408459	=	54, 150	408424	U	79, 175	408443	n
8, 104	408466	'	31, 127	408473	>	55, 151	408425	V	80, 176	408444	o
9, 105	408470	(	32, 128	408468	?	56, 152	408426	W	81, 177	408445	p
10, 106	408471	)	33, 129	408479	@	57, 153	408427	X	82, 178	408446	q
11, 107	408456	*	34, 130	408404	A	58, 154	408428	Y	83, 179	408447	r
12, 108	408457	+	35, 131	408405	B	59, 155	408429	Z	84, 180	408448	s
13, 109	408462	,	36, 132	408406	C	60, 156	408474	[	85, 181	408449	t
14, 110	408458	-	37, 133	408407	D	61, 157	408485	\	86, 182	408450	u
15, 111	408461	.	38, 134	408408	E	62, 158	408475	]	87, 183	408451	v
16, 112	408460	/	39, 135	408409	F	63, 159	408480	^	88, 184	408452	w
17, 113	408403	0	40, 136	408410	G	64, 160	408467	_	89, 185	408453	x
18, 114	408394	1	41, 137	408411	H	66, 162	408430	a	90, 186	408454	y
19, 115	408395	2	42, 138	408412	I	67, 163	408431	b	91, 187	408455	z
20, 116	408396	3	43, 139	408413	J	68, 164	408432	c	92, 188	408508	{
21, 117	408397	4	44, 140	408414	K	69, 165	408433	d	93, 189	408484	|
22, 118	408398	5	45, 141	408415	L	70, 166	408434	e	94, 190	408509	}
23, 119	408399	6	46, 142	408416	M	71, 167	408435	f	95, 191	408506	~
			47, 143	408417	N	72, 168	408436	g	96, 192	408487	■

Fig. 76—408390BB Carrier and Type Pallet Arrangement (Friction and Tractor Feed — 80-Column)
(ASCII Up/Low)



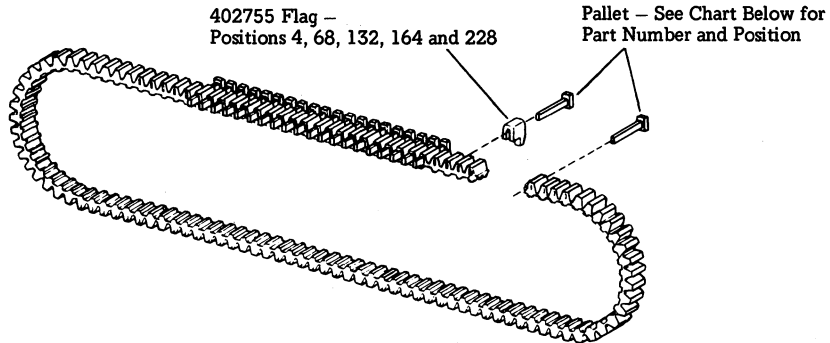
POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.
1, 65, 97	400839	E	24, 120, 216	408400	7	48, 144, 240	408418	O	73, 169, 265	408437	h
161, 193, 257			25, 121, 217	408401	8	49, 145, 241	408419	P	74, 170, 266	408438	i
2, 98, 194	408469	!	26, 122, 218	408402	9	50, 146, 242	408420	Q	75, 171, 267	408439	j
3, 99, 195	408465	"	27, 123, 219	408463	:	51, 147, 243	408421	R	76, 172, 268	408440	k
4, 100, 196	408477	#	28, 124, 220	408464	;	52, 148, 244	408422	S	77, 173, 269	408441	l
5, 101, 197	408483	\$	29, 125, 221	408472	<	53, 149, 245	408423	T	78, 174, 270	408442	m
6, 102, 198	408476	%	30, 126, 222	408459	=	54, 150, 246	408424	U	79, 175, 271	408443	n
7, 103, 199	408478	&	31, 127, 223	408473	>	55, 151, 247	408425	V	80, 176, 272	408444	o
8, 104, 200	408466	'	32, 128, 224	408468	?	56, 152, 248	408426	W	81, 177, 273	408445	p
9, 105, 201	408470	(	33, 129, 225	408479	@	57, 153, 249	408427	X	82, 178, 274	408446	q
10, 106, 202	408471	)	34, 130, 226	408404	A	58, 154, 250	408428	Y	83, 179, 275	408447	r
11, 107, 203	408456	*	35, 131, 227	408405	B	59, 155, 251	408429	Z	84, 180, 276	408448	s
12, 108, 204	408457	+	36, 132, 228	408406	C	60, 156, 252	408474	[	85, 181, 277	408449	t
13, 109, 205	408462	,	37, 133, 229	408407	D	61, 157, 253	408485	\	86, 182, 278	408450	u
14, 110, 206	408458	-	38, 134, 230	408408	E	62, 158, 254	408475	]	87, 183, 279	408451	v
15, 111, 207	408461	.	39, 135, 231	408409	F	63, 159, 255	408480	^	88, 184, 280	408452	w
16, 112, 208	408460	/	40, 136, 232	408410	G	64, 160, 256	408467	_	89, 185, 281	408453	x
17, 113, 209	408403	0	41, 137, 233	408411	H	66, 162, 258	408430	a	90, 186, 282	408454	y
18, 114, 210	408394	1	42, 138, 234	408412	I	67, 163, 259	408431	b	91, 187, 283	408455	z
19, 115, 211	408395	2	43, 139, 235	408413	J	68, 164, 260	408432	c	92, 188, 284	408508	{
20, 116, 212	408396	3	44, 140, 236	408414	K	69, 165, 261	408433	d	93, 189, 285	408484	|
21, 117, 213	408397	4	45, 141, 237	408415	L	70, 166, 262	408434	e	94, 190, 286	408509	}
22, 118, 214	408398	5	46, 142, 238	408416	M	71, 167, 263	408435	f	95, 191, 287	408506	~
23, 119, 215	408399	6	47, 143, 239	408417	N	72, 168, 264	408436	g	96, 192, 288	408487	■

Fig. 77-408391BC Carrier and Type Pallet Arrangement (Tractor Feed - 132-Column) (ASCII Up/Low)



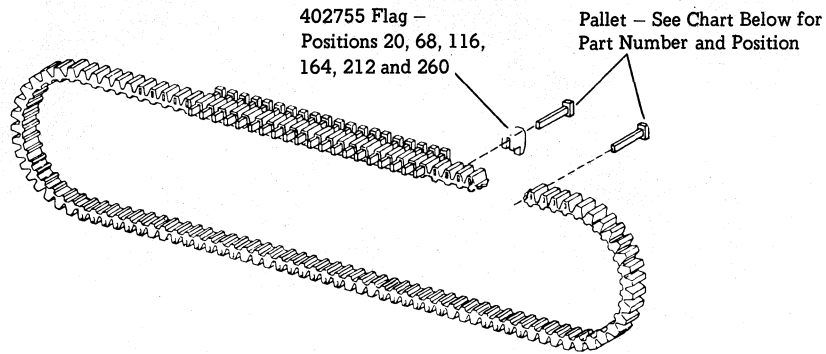
POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.
1, 65, 129	408440	~	17, 81, 145	408403	0	33, 97, 161	408479	@	49, 113, 177	408419	P
2, 66, 130	408469	!	18, 82, 146	408394	1	34, 98, 162	408404	A	50, 114, 178	408420	Q
3, 67, 131	408465	"	19, 83, 147	408395	2	35, 99, 163	408405	B	51, 115, 179	408421	R
4, 68, 132	407477	#	20, 84, 148	408396	3	36, 100, 164	408406	C	52, 116, 180	408422	S
5, 69, 133	408483	\$	21, 85, 149	408397	4	37, 101, 165	408407	D	53, 117, 181	408423	T
6, 70, 134	408476	%	22, 86, 150	408398	5	38, 102, 166	408408	E	54, 118, 182	408424	U
7, 71, 135	408478	&	23, 87, 151	408399	6	39, 103, 167	408409	F	55, 119, 183	408425	V
8, 72, 136	408466	'	24, 88, 152	408400	7	40, 104, 168	408410	G	56, 120, 184	408426	W
9, 73, 137	408470	<	25, 89, 153	408401	8	41, 105, 169	408411	H	57, 121, 185	408427	X
10, 74, 138	408471	)	26, 90, 154	408402	9	42, 106, 170	408412	I	58, 122, 186	408428	Y
11, 75, 139	408456	*	27, 91, 155	408463	:	43, 107, 171	408413	J	59, 123, 187	408429	Z
12, 76, 140	408457	+	28, 92, 156	408464	;	44, 108, 172	408414	K	60, 124, 188	408474	[
13, 77, 141	408462	,	29, 93, 157	408472	<	45, 109, 173	408415	L	61, 125, 189	408485	\
14, 78, 142	408458	-	30, 94, 158	408459	=	46, 110, 174	408416	M	62, 126, 190	408475]
15, 79, 143	408461	.	31, 95, 159	408473	>	47, 111, 175	408417	N	63, 127, 191	408480	^
16, 80, 144	408460	/	32, 96, 160	408468	?	48, 112, 176	408418	O	64, 128, 192	408467	-

Fig. 78—408392BD Carrier and Type Pallet Arrangement (Friction and Tractor Feed – 80-Column) (ASCII Monocase)



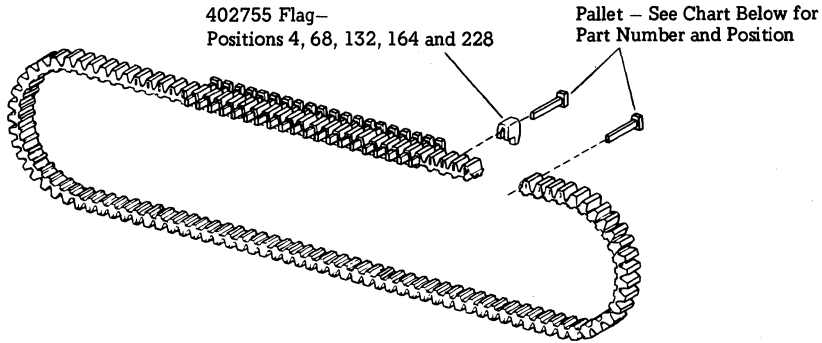
POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.
1, 65, 129, 193, 257	400841	~	23, 87, 151, 215, 279	408399	6	45, 109, 173, 237	408415	L
2, 66, 130, 194, 258	408469	!	24, 88, 152, 216, 280	408400	7	46, 110, 174, 238	408416	M
3, 67, 131, 195, 259	408465	"	25, 89, 153, 217, 281	408401	8	47, 111, 175, 239	408417	N
4, 68, 132, 196, 260	408477	#	26, 90, 154, 218, 282	408402	9	48, 112, 176, 240	408418	O
5, 69, 133, 197, 261	408483	\$	27, 91, 155, 219, 283	408463	:	49, 113, 177, 241	408419	P
6, 70, 134, 198, 262	408476	%	28, 92, 156, 220, 284	408464	;	50, 114, 178, 242	408420	Q
7, 71, 135, 199, 263	408478	&	29, 93, 157, 221, 285	408472	<	51, 115, 179, 243	408421	R
8, 72, 136, 200, 264	408466	'	30, 94, 158, 222, 286	408459	=	52, 116, 180, 244	408422	S
9, 73, 137, 201, 265	408470	(	31, 95, 159, 223, 287	408473	>	53, 117, 181, 245	408423	T
10, 74, 138, 202, 266	408471	)	32, 96, 160, 224, 288	408468	?	54, 118, 182, 246	408424	U
11, 75, 139, 203, 267	408456	*	33, 97, 161, 225	408479	@	55, 119, 183, 247	408425	V
12, 76, 140, 204, 268	408457	+	34, 98, 162, 226	408404	A	56, 120, 184, 248	408426	W
13, 77, 141, 205, 269	408462	,	35, 99, 163, 227	408405	B	57, 121, 185, 249	408427	X
14, 78, 142, 206, 270	408458	-	36, 100, 164, 228	408406	C	58, 122, 186, 250	408428	Y
15, 79, 143, 207, 271	408461	.	37, 101, 165, 229	408407	D	59, 123, 187, 251	408429	Z
16, 80, 144, 208, 272	408460	/	38, 102, 166, 230	408408	E	60, 124, 188, 252	408474	[
17, 81, 145, 209, 273	408403	0	39, 103, 167, 231	408409	F	61, 125, 189, 253	408485	\
18, 82, 146, 210, 274	408394	1	40, 104, 168, 232	408410	G	62, 126, 190, 254	408475]
19, 83, 147, 211, 275	408395	2	41, 105, 169, 233	408411	H	63, 127, 191, 255	408480	^
20, 84, 148, 212, 276	408396	3	42, 106, 170, 234	408412	I	64, 128, 192, 256	408467	_
21, 85, 149, 213, 277	408397	4	43, 107, 171, 235	408413	J			
22, 86, 150, 214, 278	408398	5	44, 108, 172, 236	408414	K			

Fig. 79-408393BE Carrier and Type Pallet Arrangement (Tractor Feed - 132-Column) (ASCII Monocase)



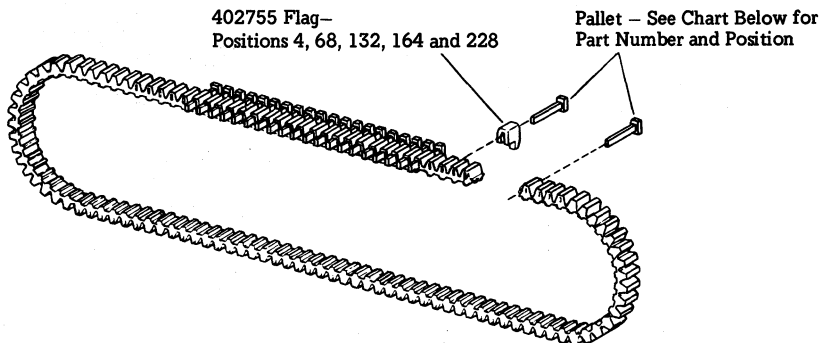
POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.
1, 49, 97, 145, 193, 241	400842	Q	25, 73, 121, 169, 217, 265	400692	K
2, 50, 98, 146, 194, 242	400655	&	26, 74, 122, 170, 218, 266	400693	L
3, 51, 99, 147, 195, 243	400662	-	27, 75, 123, 171, 219, 267	400694	M
4, 52, 100, 148, 196, 244	400664	/	28, 76, 124, 172, 220, 268	400695	N
5, 53, 101, 149, 197, 245	400665	Ø	29, 77, 125, 173, 221, 269	400696	O
6, 54, 102, 150, 198, 246	400666	1	30, 78, 126, 174, 222, 270	400697	P
7, 55, 103, 151, 199, 247	400667	2	31, 79, 127, 175, 223, 271	400698	Q
8, 56, 104, 152, 200, 248	400668	3	32, 80, 128, 176, 224, 272	400699	R
9, 57, 105, 153, 201, 249	400669	4	33, 81, 129, 177, 225, 273	400700	S
10, 58, 106, 154, 202, 250	400670	5	34, 82, 130, 178, 226, 274	400701	T
11, 59, 107, 155, 203, 251	400671	6	35, 83, 131, 179, 227, 275	400702	U
12, 60, 108, 156, 204, 252	400672	7	36, 84, 132, 180, 228, 276	400703	V
13, 61, 109, 157, 205, 253	400673	8	37, 85, 133, 181, 229, 277	400704	W
14, 62, 110, 158, 206, 254	400674	9	38, 86, 134, 182, 230, 278	400705	X
15, 63, 111, 159, 207, 255	400682	A	39, 87, 135, 183, 231, 279	400706	Y
16, 64, 112, 160, 208, 256	400683	B	40, 88, 136, 184, 232, 280	400707	Z
17, 65, 113, 161, 209, 257	400684	C	41, 89, 137, 185, 233, 281	400663	.
18, 66, 114, 162, 210, 258	400685	D	42, 90, 138, 186, 234, 282	400660	+
19, 67, 115, 163, 211, 259	400686	E	43, 91, 139, 187, 235, 283	400659	*
20, 68, 116, 164, 212, 260	400687	F	44, 92, 140, 188, 236, 284	400661	,
21, 69, 117, 165, 213, 261	400688	G	45, 93, 141, 189, 237, 285	400656	'
22, 70, 118, 166, 214, 252	400689	H	46, 94, 142, 190, 238, 286	400653	\$
23, 71, 119, 167, 215, 263	400690	I	47, 95, 143, 191, 239, 287	400652	#
24, 72, 120, 168, 216, 264	400691	J	48, 96, 144, 192, 240, 288	400681	@

Fig. 80—408518BF Carrier and Type Pallet Arrangement (Tractor Feed – 132-Column)



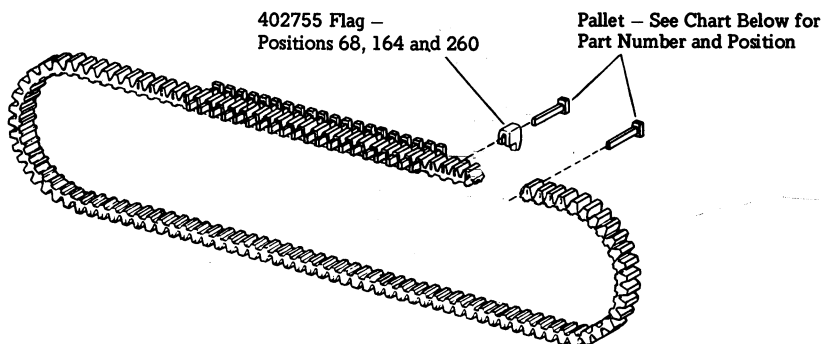
POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.	POSITION NUMBER	PART NO.	C H A R.
1, 65, 129, 193, 257	400845	Ⓐ	23, 87, 151, 215, 279	196770	6	45, 109, 173, 237	196751	L
2, 66, 130, 194, 258	400850	Ⓑ	24, 88, 152, 216, 280	196771	7	46, 110, 174, 238	196752	M
3, 67, 131, 195, 259	400859	Ⓒ	25, 89, 153, 217, 281	196772	8	47, 111, 175, 239	196753	N
4, 68, 132, 196, 260	400652	#	26, 90, 154, 218, 282	196773	9	48, 112, 176, 240	196754	O
5, 69, 133, 197, 261	196778	\$	27, 91, 155, 219, 283	400675	:	49, 113, 177, 241	196755	P
6, 70, 134, 198, 262	400654	%	28, 92, 156, 220, 284	400676	;	50, 114, 178, 242	196756	Q
7, 71, 135, 199, 263	196774	&	29, 93, 157, 221, 285	400677	<	51, 115, 179, 243	196757	R
8, 72, 136, 200, 264	400656	^	30, 94, 158, 222, 286	400678	=	52, 116, 180, 244	196758	S
9, 73, 137, 201, 265	400657	(	31, 95, 159, 223, 287	400679	>	53, 117, 181, 245	196759	T
10, 74, 138, 202, 266	400658	)	32, 96, 160, 224, 288	400680	?	54, 118, 182, 246	196760	U
11, 75, 139, 203, 267	400853	Ⓔ	33, 97, 161, 225	400851	Ⓐ	55, 119, 183, 247	196761	V
12, 76, 140, 204, 268	400660	+	34, 98, 162, 226	196740	A	56, 120, 184, 248	196762	W
13, 77, 141, 205, 269	400661	,	35, 99, 163, 227	196741	B	57, 121, 185, 249	196763	X
14, 78, 142, 206, 270	400662	-	36, 100, 164, 228	196742	C	58, 122, 186, 250	196764	Y
15, 79, 143, 207, 271	400663	.	37, 101, 165, 229	196743	D	59, 123, 187, 251	196765	Z
16, 80, 144, 208, 272	400861	/	38, 102, 166, 230	196744	E	60, 124, 188, 252	400856	Ⓔ
17, 81, 145, 209, 273	400857	∅	39, 103, 167, 231	196745	F	61, 125, 189, 253	400709	∖
18, 82, 146, 210, 274	400858	1	40, 104, 168, 232	196746	G	62, 126, 190, 254	400855	Ⓔ
19, 83, 147, 211, 275	196766	2	41, 105, 169, 233	196747	H	63, 127, 191, 255	400852	Ⓔ
20, 84, 148, 212, 276	196767	3	42, 106, 170, 234	196748	I	64, 128, 192, 256	400854	Ⓔ
21, 85, 149, 213, 277	196768	4	43, 107, 171, 235	196749	J			
22, 86, 150, 214, 278	196769	5	44, 108, 172, 236	196750	K			

Fig. 81 - 408521BJ Carrier and Type Pallet Arrangement (Tractor Feed - 132-Column) (Large Gothic w/Fractions)



POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.
1, 65, 129, 193, 257	400846	~	23, 87, 151, 215, 279	408399	6	45, 109, 173, 237	408415	L
2, 66, 130, 194, 258	408469	!	24, 88, 152, 216, 280	408400	7	46, 110, 174, 238	408416	M
3, 67, 131, 195, 259	408465	"	25, 89, 153, 217, 281	408401	8	47, 111, 175, 239	408417	N
4, 68, 132, 196, 260	408477	#	26, 90, 154, 218, 282	408402	9	48, 112, 176, 240	408418	O
5, 69, 133, 197, 261	408483	\$	27, 91, 155, 219, 283	408463	:	49, 113, 177, 241	408419	P
6, 70, 134, 198, 262	408476	%	28, 92, 156, 220, 284	408464	;	50, 114, 178, 242	408420	Q
7, 71, 135, 199, 263	408478	&	29, 93, 157, 221, 285	408472	<	51, 115, 179, 243	408421	R
8, 72, 136, 200, 264	408503	'	30, 94, 158, 222, 286	408459	=	52, 116, 180, 244	408422	S
9, 73, 137, 201, 265	408470	(	31, 95, 159, 223, 287	408473	>	53, 117, 181, 245	408423	T
10, 74, 138, 202, 266	408471	)	32, 96, 160, 224, 288	408468	?	54, 118, 182, 246	408424	U
11, 75, 139, 203, 267	408456	*	33, 97, 161, 225	408479	@	55, 119, 183, 247	408425	V
12, 76, 140, 204, 268	408457	+	34, 98, 162, 226	408404	A	56, 120, 184, 248	408426	W
13, 77, 141, 205, 269	408462	-	35, 99, 163, 227	408405	B	57, 121, 185, 249	408427	X
14, 78, 142, 206, 270	408458	^	36, 100, 164, 228	408406	C	58, 122, 186, 250	408428	Y
15, 79, 143, 207, 271	408461	.	37, 101, 165, 229	408407	D	59, 123, 187, 251	408429	Z
16, 80, 144, 208, 272	408460	/	38, 102, 166, 230	408408	E	60, 124, 188, 252	400833	~
17, 81, 145, 209, 273	408403	0	39, 103, 167, 231	408409	F	61, 125, 189, 253	408485	\
18, 82, 146, 210, 274	408394	1	40, 104, 168, 232	408410	G	62, 126, 190, 254	408484	|
19, 83, 147, 211, 275	408395	2	41, 105, 169, 233	408411	H	63, 127, 191, 255	400835	¢
20, 84, 148, 212, 276	408396	3	42, 106, 170, 234	408412	I	64, 128, 192, 256	408511	—
21, 85, 149, 213, 277	408397	4	43, 107, 171, 235	408413	J			
22, 86, 150, 214, 278	408398	5	44, 108, 172, 236	408414	K			

Fig. 82—408522BK Carrier and Type Pallet Arrangement (Tractor Feed - 132-Column) (EBCDIC Monocase)



POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.	POSITION NUMBER	PART NO.	CHAR.
1, 97, 193	400847	~	25, 121, 217	408401	8	49, 145, 241	408419	P	73, 169, 265	408437	h
2, 98, 194	408469	!	26, 122, 218	408402	9	50, 146, 242	408420	Q	74, 170, 266	408438	i
3, 99, 195	408465	"	27, 123, 219	408463	:	51, 147, 243	408421	R	75, 171, 267	408439	j
4, 100, 196	408477	#	28, 124, 220	408464	;	52, 148, 244	408422	S	76, 172, 268	408440	k
5, 101, 197	408483	\$	29, 125, 221	408472	<	53, 149, 245	408423	T	77, 173, 269	408441	l
6, 102, 198	408476	%	30, 126, 222	408459	=	54, 150, 246	408424	U	78, 174, 270	408442	m
7, 103, 199	408478	&	31, 127, 223	408473	>	55, 151, 247	408425	V	79, 175, 271	408443	n
8, 104, 200	408503	'	32, 128, 224	408468	?	56, 152, 248	408426	W	80, 176, 272	408444	o
9, 105, 201	408470	(	33, 129, 225	408479	@	57, 153, 249	408427	X	81, 177, 273	408445	p
10, 106, 202	408471	)	34, 130, 226	408404	A	58, 154, 250	408428	Y	82, 178, 274	408446	q
11, 107, 203	408456	*	35, 131, 227	408405	B	59, 155, 251	408429	Z	83, 179, 275	408447	r
12, 108, 204	408457	+	36, 132, 228	408406	C	60, 156, 252	400833	^	84, 180, 276	408448	s
13, 109, 205	408462	,	37, 133, 229	408407	D	61, 157, 253	408485	\	85, 181, 277	408449	t
14, 110, 206	408458	-	38, 134, 230	408408	E	62, 158, 254	408484	|	86, 182, 278	408450	u
15, 111, 207	408461	.	39, 135, 231	408409	F	63, 159, 255	400835	¢	87, 183, 279	408451	v
16, 112, 208	408460	/	40, 136, 232	408410	G	64, 160, 256	408511	—	88, 184, 280	408452	w
17, 113, 209	408403	0	41, 137, 233	408411	H	65, 161, 257	408504	`	89, 185, 281	408453	x
18, 114, 210	408394	1	42, 138, 234	408412	I	66, 162, 258	408430	a	90, 186, 282	408454	y
19, 115, 211	408395	2	43, 139, 235	408413	J	67, 163, 259	408431	b	91, 187, 283	408455	z
20, 116, 212	408396	3	44, 140, 236	408414	K	68, 164, 260	408432	c	92, 188, 284	408508	{
21, 117, 213	408397	4	45, 141, 237	408415	L	69, 165, 261	408433	d	93, 189, 285	400741	|
22, 118, 214	408398	5	46, 142, 238	408416	M	70, 166, 262	408434	e	94, 190, 286	408509	}
23, 119, 215	408399	6	47, 143, 239	408417	N	71, 167, 263	408435	f	95, 191, 287	408506	~
24, 120, 216	408400	7	48, 144, 240	408418	O	72, 168, 264	408436	g	96, 192, 288	—	—

Fig. 83—408523BL Carrier and Type Pallet Arrangement (Tractor Feed – 132-Column) (EBCDIC Up/Low)

SECTION 582-210-702

Numerical Index

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
315M	Coil, Magnet 97	42823	Washer, Flat 115,144	93118	Lockwasher 120
1178	Screw, 2-56 x 7/16 Fil 112	44048	Washer, Flat 87,88,89, 90,91,92,93,94	93984	Lockwasher 101,120,126
1210	Screw, 2-56 x 5/8 Fil 144	45815	Lockwasher 80,81,82,87, 88,90 to 94,96 to 100, 102,103,104,106,107, 108,110 to 118,128, 129,131,133,137	93985	Lockwasher 87,88,89,90, 97,98
2191	Lockwasher 80,81,82,87 to 95,97 to 100,103,104, 107,109,111,112,113,120, 121,123,125 to 132,134, 136,138,139,144	49084	Spring 109	94674	Washer, Cup 110
2247	Washer, Flat 101,105	55063	Spring 108	98642	Lockwasher 126,127,132,134
2422	Lockwasher 144	55064	Washer, Flat 88,89,100,113	99737	Screw, 6-40 x 13/64 Fil 111,135
2658	Nut, 6-32 Hex 82	55219	Screw, 8-32 x 3/8 Fil 114	101386	Spring 97,98
2669	Lockwasher 79,91,98, 112	70314	Washer, Flat 99	107116	Lockwasher 79,80,81,82, 86,89,90,96,125,126,127, 128,130,131,132
2836	Spring 116,117,118	70885	Washer, Spring 121,123	110434	Screw, 4-40 x 3/16 Fil 100, 104,108
3438	Washer, Flat 88,96,97, 100,103,108,112,113, 115,128,129,131,133, 137	70886	Washer, Flat 115,121,123	110435	Nut, 4-40 Hex 127,129,131, 132,134
3598	Nut 6-40 Hex 82,87,88, 89,90,97,98,109,112, 113,118,120,125,126, 127,128,129,132,144	71073	Washer, Flat 112	110438	Spring 95
3599	Nut 4-40 Hex 95,101, 111,120,127,144	73419	Washer, Flat 123	110743	Lockwasher 94,116,117, 118,127,137,141,142
3606	Nut, 6-40 Hex 120,121, 123,125,138,139	74014	Screw, 10-32 x 3/4 Hex 113	111342	Spring 88,89,92,93,94,141, 142
3624	Washer, Flat 115	74334	Washer, Flat 121,123	112626	Nut, 10-32 Hex 8081,82,87, 88,90,91,92,93,94,97,98, 99,102,106,110,121,123, 128,129,131,133
3640	Lockwasher 80,81,82,87, 88,94,95,97 to 101,103, 104,105,107,108,111, 115,119,121 to 125,127, 129,131,132,140,144	74701	Spring 141,142	112634	Spring 144
3646	Lockwasher 79,80,82,98, 112,113,114,118,121, 123,144	74805	Screw, 10-32 x 3/4 Hex 112	114215	Post, Spring 101
5599	Nut, 8-32 Hex 143	76461	Washer, Flat 91	117535	Washer, Flat 103,107,111, 114
6345	Nut, 6-32 Hex 112,113, 127,130,131,134	76474	Nut, 10-32 Hex 116,117, 118	119332	Screw, 10-32 x 1/4 Rd -126, 127,132,134
7002	Washer, Flat 88,91 to 95, 97,98,111,112,113,118, 120,125,128,131,132, 136,138,144	76804	Spring 122,124	119648	Ring, Retaining 100,101, 104,105,108,122,124,131, 140
8330	Washer, Flat 111	76966	Setscrew, 10-32 86,87, 88,89,90	119649	Ring, Retaining 101,105, 109,122,124,131,140,144
8449	Spacer .094" Thk 91,111	77902	Screw, 6-40 x 2-3/8 Rd 127,129,131,134	119650	Ring, Retaining 91
22746	Spring 101,105,109	78596	Washer, Friction 100	119651	Ring, Retaining 88 to 94, 100,101,102,104,105,106, 108,110,116,117,118,120 to 124,140,141,142,144
34432	Washer, Flat 112	78824	Spring 138,139	119652	Ring, Retaining 97,98,109, 119,138,139
35826	Washer, Flat 98	80403	Screw, Shoulder 97,98	119653	Ring, Retaining 80,81,82, 115
36273	Washer, Flat 120	80986	Lockwasher 138,139	119654	Ring, Retaining 97,98,115
41385	Spring 97,121,123	82463	Spring 122,124	121242	Clamp, 1/8 ID Cable 82,98
41663	Washer Flat 91,92,93, 94,99,100,102,104, 106,108,110	82702	Screw, 6-40 x 9/32 Flat 88,89,92,93	121243	Clamp, 3/16 ID Cable 120, 125,131,132,144
		82861	Spring 120	121244	Clamp, 1/4 ID Cable 87,88, 93,131,136
		84579	Washer, Flat 91,92,93,94	121245	Clamp, 5/16 ID Cable 80,81,96
		84990	Screw, 6-40 x 1/4 Flat 88,89,90		
		87402	Spring 100,104,140		
		87932	Screw, 8-32 Hex 144		
		88891	Spring 111		
		90684	Spacer 86		
		90790	Washer, Flat 111		
		90791	Lockwasher 88,89,90,127, 129,136		
		91577	Spring 102,106,110		
		92265	Screw, 2-56 x 1/8 Rd 112, 136		
		93117	Lockwasher 112,115,138 139		

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
121246	Clamp, 3/8 ID Cable 82,132	151565	Bushing, Shoulder 138,139	156874	Screw, 4-40 x 15/16 Fil 126
121249	Clamp, 5/8 ID Cable 128	151610	Washer, Flat 127,129,131, 134	156887	Screw, 10-32 x 9/16 Hex 112
121409	Washer, Insulating 80,81, 82	151629	Nut, 6-40 Lug 91,93,95	158316	Plate, Nut 112
121790	Screw, 6-40 x 1-7/8 Hex 132	151630	Screw, 6-40 x 1/4 Hex 80, 88,111,131,136	162886	Screw, 4-40 x 7/32 Hex 97, 98,138,139
123973	Spring 95	151631	Screw, 6-40 x 5/16 Hex 92, 93,94,97,98,99,112,120	163536	Spacer, .562" Thk 126
124223	Screw, 6-40 Shoulder 120	151632	Screw, 6-40 x 3/8 Hex 120, 125,144	164427	Clip, Capacitor 125,127,130
124241	Spacer 103,107	151634	Bearing, Ball 91,92,93,94	164958	Screw, 4-40 x 1/2 Hex 134
124244	Washer, Felt 140	151686	Screw, 4-40 x 3/8 Fil 126	170018	Bushing 115
124612	Screw, 8-32 x 1/2 Hex 87, 88,89,90,114	151694	Screw, 6-40 x 11/32 Fil 111	173907	Spacer 89
124681	Setscrew, 6-40 87,88	151722	Screw, 6-40 x 3/16 Hex 100, 104,125,126	173974	Screw, 10-32 x 5/16 Hex 91, 92,93,94,96
125004	Screw, 8-32 x 1/4 Rd 80, 81,82,89	151723	Screw, 10-32 x 3/8 Hex 90 to 94,96,97,98	173979	Head, Hammer 101
125005	Screw, 2-56 x 3/16 Rd 80, 81,88,89,90,127,129	151724	Screw, 10-32 x 5/8 Hex 112, 113,137	176418	Ring, Retaining 97,98
125011	Washer, Flat 95,99,100, 101,103,104,107,108,111, 120 to 125,127,129,131, 132,134,140,141,142	151737	Screw, 4-40 x 11/64 Hex 97, 98,138,139	176419	Ring, Retaining 91 to 94,100, 104,108
125181	Screw, 2-56 x 3/8 Fil 138, 139	151880	Nut, 4-40 Hex 88,116,117, 118,122,124,141,142	177113	Insulator 127,129,131,132, 134
125268	Spring 116,117,118	151939	Grommet, Rubber 126	178306	Relay, Power 114,125,126, 128,130
125307	Washer, Flat 112	152445	Spring, Compression 115, 121,123	181204	Washer, Flat 114
125733	Washer, Flat 103,108	152893	Screw, 4-40 x 1/4 Hex 87, 94,99,100,101,103,104,107, 108,111,119,141,142,144	181424	Nut, 6-40 Sq 126
125802	Washer, Flat 88	153441	Screw, 10-32 x 7/16 Hex 111,137	181999	Insulator 127
128357	Ring Retaining 101,105, 109,121,123,138,139,140	153442	Screw, 10-32 x 1/2 Hex 88, 89,91,93,94,97,98,100,102, 104,106,108,110,121,123	182182	Holder, Fuse 125,128 to 133
129765	Shim, .020" Thk 144	153484	Screw, 6-32 Spl 125,126, 128,130	182523	Clamp, 1-3/8" ID Mounting 126
129919	Fuse, SL-BL 4 Amp 128, 129,131,133	153538	Screw, 6-40 x 7/16 Hex 125	182612	Screw, 6-40 x 1-1/2 Hex 131
130696	Washer, Felt 109	153803	Jumper, 5" Slate 125	183464	Post, Spring 144
138031	Bushing, Insulating 120	153817	Screw, 4-40 x 3/8 Hex 88,98, 127,129,131,132	184055	Screw w/Lockwasher, 6-40 x 3/16 Hex 125,126,128,130,132
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	170,171	408677	Bracket 137	410150	Card, Circuit 126,127,129
408474	Pallet, Type 164,165,	408680	Modification Kit 75,137	410151	Card, Circuit 131,132
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“DATASPEED*” 40 PRINTER

ROUTINE MAINTENANCE

CONTENTS	PAGE	1. GENERAL
1. GENERAL	1	1.01 This section contains the routine maintenance to be performed on the DATASPEED 40 printer. DATASPEED 40 hereafter referred to as 40 type.
2. PRINTER REMOVAL FROM CABINET	1	
FRICTION FEED (Adjacent)	1	1.02 This section is being reissued to incorporate 40P253 forms access 80-column tractor feed printer and 40P102 80-column friction feed printer (noise reduced).
FRICTION FEED (Under Monitor)	2	
TRACTOR FEED (Procedures Apply to Adjacent Printer as Part of a KDP or ROP, 80 and 132 Column)	3	1.03 All references to left or right and front or rear consider the printer in its normal operating position with the ribbon facing the attendant.
FORMS ACCESS TRACTOR FEED	3	1.04 Unless otherwise specified, the instructions apply to the friction and tractor feed printers, 80 and 132 columns.
ALL PRINTERS	4	1.05 Routine maintenance on the printer is to be performed at customer's convenience every 2000 hours of running time or one year, whichever comes first. Routine intervals should be even shorter in dirty or corrosive environments.
3. TYPE CARRIER REMOVAL AND CLEANING	4	
REMOVAL	4	
A. Friction Feed	4	1.06 Turn set ac power off prior to any maintenance on the printer.
B. Tractor Feed	5	
C. Forms Access Tractor Feed	5	1.07 Follow locally prescribed safety practices when maintaining the printer (including wearing safety glasses).
CLEANING	6	
4. CLEANING	6	1.08 Printer adjustments referenced in this section are covered in Section 582-210-700.
5. CHECKS	12	<i>Note:</i> When ordering replaceable components, unless otherwise specified, prefix each part number with the letters “TP” (ie, TP410055).
6. LUBRICATION	16	
7. PRINTER REASSEMBLY INTO CABINET	16	2. PRINTER REMOVAL FROM CABINET
8. CABINET CHECKS	16	FRICTION FEED (Adjacent)
9. TESTING	16	<i>Note 1:</i> The following procedures apply to printer as part of a KDP or for an ROP.

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Note 2: Only the printer in a KDP arrangement is shown.

Note 3: Make sure ac power is off before removing the printer.

2.01 To remove friction feed printer (adjacent) from cabinet:

- (a) Open cover.
- (b) Disconnect the interlock cable connector (Fig. 1).
- (c) Remove paper roll.
- (d) Release printer and raise to the tilt position by depressing left and right release levers (Fig. 1) and lifting printer.

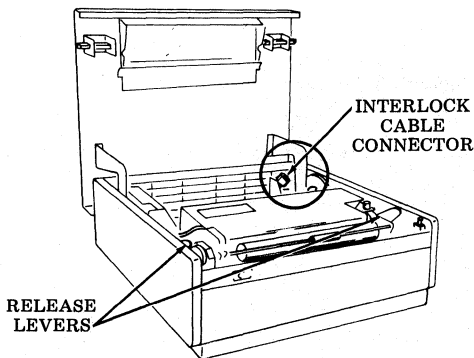


Fig. 1

- (e) Disconnect ac power connector (Fig. 2).
- (f) Disconnect SSI cable connector from printer cable connector (Fig. 2).

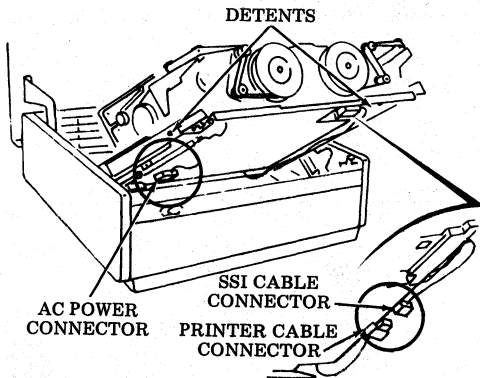


Fig. 2

- (g) Grasp printer securely from underside; depress detents (Fig. 2) and slide printer out.

FRICITION FEED (Under Monitor)

Note: Make sure power to station is off.

2.02 To remove friction feed printer (under monitor) from cabinet:

- (a) Open lid; lift slide release latches (Fig. 3) and slide printer forward.
- (b) Release paper latch and remove paper (keep spindle with printer).
- (c) Disconnect cabinet interlock (Fig. 3).
- (d) Depress release levers (Fig. 3) and raise printer.

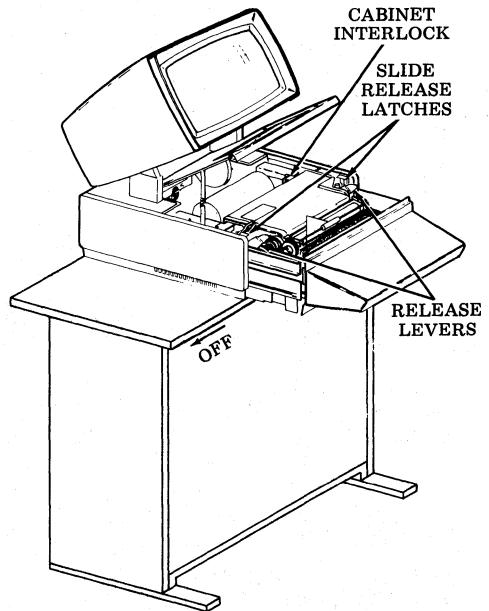


Fig. 3

- (e) Disconnect ac power connector (Fig. 4).
- (f) Disconnect SSI cable connector (Fig. 4).
- (g) Grasp printer securely from underside; depress detents (Fig. 4) and slide printer out.

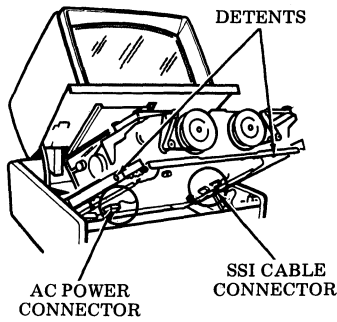


Fig. 4

TRACTOR FEED (Procedures Apply to Adjacent Printer as Part of a KDP or ROP, 80 and 132 Column)

2.03 To remove tractor feed printer from cabinet:

- (a) Open cover.
- (b) Remove paper.
- (c) Release printer to tilt position by depressing left and right latchlevers to rear (Fig. 5).

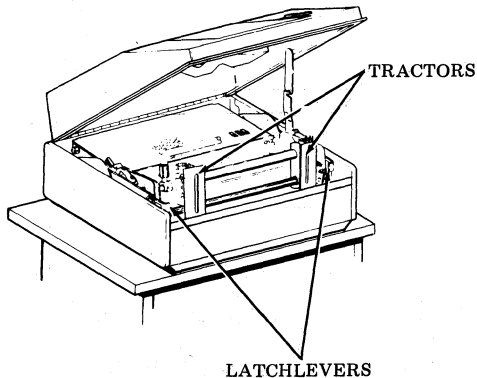


Fig. 5

- (d) Insert screwdriver in right track and pry detent up (Fig. 6).

- (e) Pull printer forward by grasping handle at top (Fig. 6), and sliding off mounting tracks.

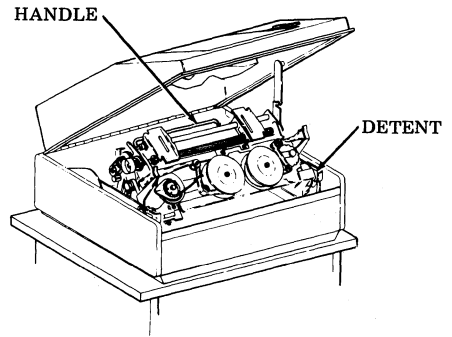


Fig. 6

FORMS ACCESS TRACTOR FEED

2.04 To remove the forms access tractor feed printer from cabinet:

- (a) Open the left front cabinet door (Fig. 7).
- (b) Push the top cover release latch (Fig. 7) and lift top cover to its full open position.
- (c) Remove forms from printer by opening left and right tractor lids (Fig. 7).

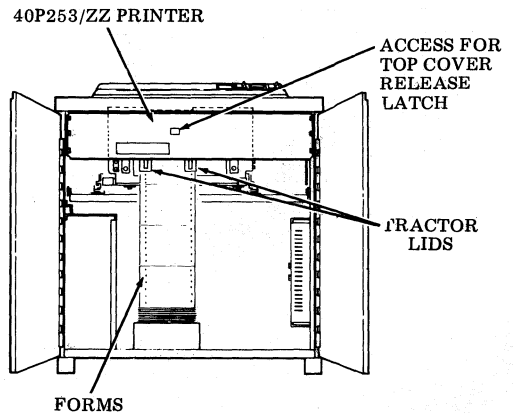


Fig. 7

- (d) Disconnect cabinet connector bracket (with P113, P114 and J115) from left rear of printer.
- (e) Lift printer release latches (Fig. 8) and slide printer forward (approximately 1/2-inch).

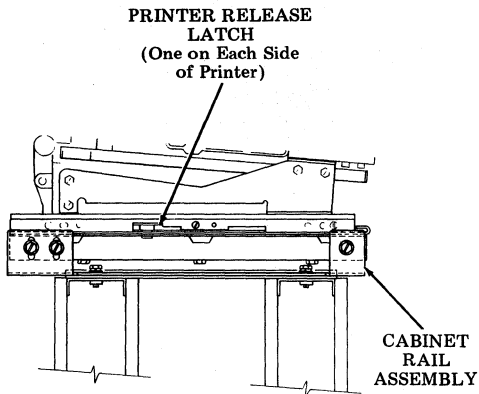


Fig. 8

- (f) Lift printer up and out of cabinet (Fig. 9).

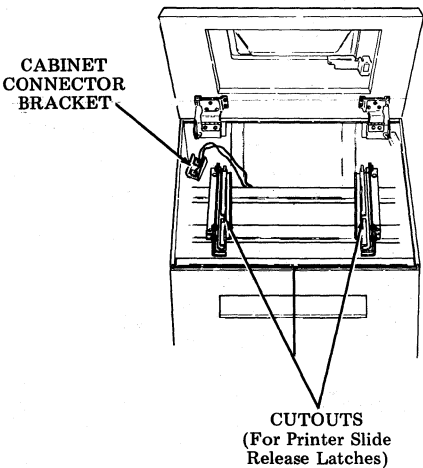


Fig. 9

ALL PRINTERS

- 2.05 Place printer on 124828 protective pad or equivalent (Fig. 10).
- 2.06 Remove ribbon.

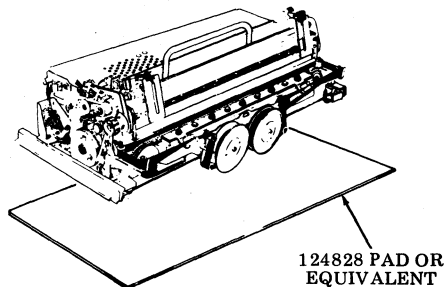


Fig. 10

3. TYPE CARRIER REMOVAL AND CLEANING

REMOVAL

A. Friction Feed

- 3.01 To remove type carrier from friction feed printer:
 - (a) Release thumb lever on left ribbon guide bracket (Fig. 11) allowing bracket to swing to the left.
 - (b) Loosen thumbscrew on right ribbon guide bracket (Fig. 11); swing bracket to the right.

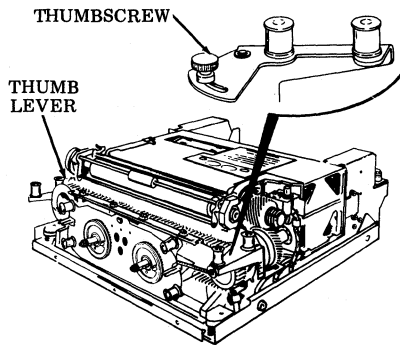


Fig. 11

(c) On late design units (carrier top guide secured to backup bar with three thumb-screws), remove the carrier top guide (Fig. 14).

(d) Lift finger lever on left pulley and hold. Remove type carrier starting at right pulley as shown (Fig. 12). Release finger lever.

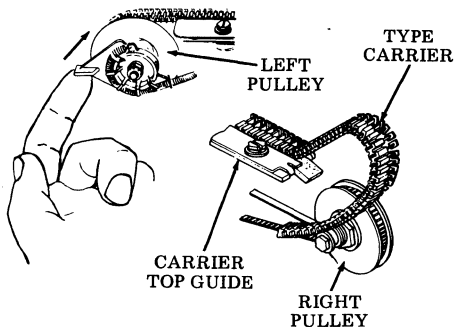


Fig. 12

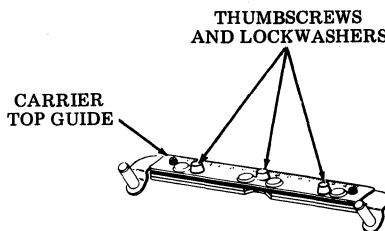


Fig. 14

(c) Lift finger lever on left pulley and hold. Remove type carrier starting at right pulley as shown (Fig. 15). Release finger lever.

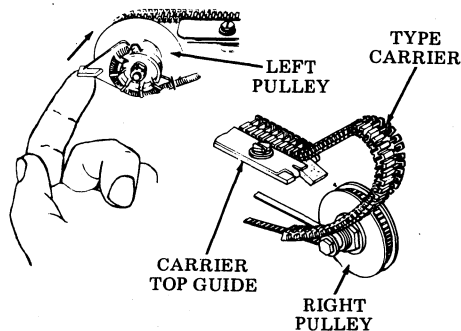


Fig. 15

B. Tractor Feed

3.02 To remove type carrier from tractor feed printer:

(a) Release thumb levers on left and right ribbon guide brackets allowing brackets to spring to sides of printer (Fig. 13).

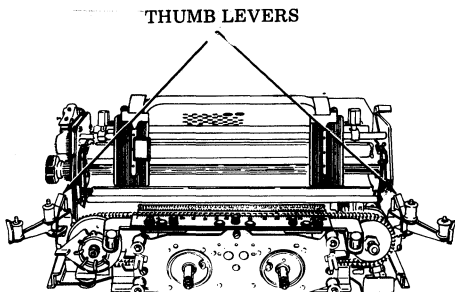


Fig. 13

(b) On 80-column tractor feed printer, remove three thumbscrews and lockwashers securing carrier top guide; remove guide (Fig. 14).

C. Forms Access Tractor Feed

3.03 To remove type carrier from forms access tractor feed printer:

(a) Depress thumb lever on right ribbon guide bracket allowing bracket to spring open (Fig. 16).

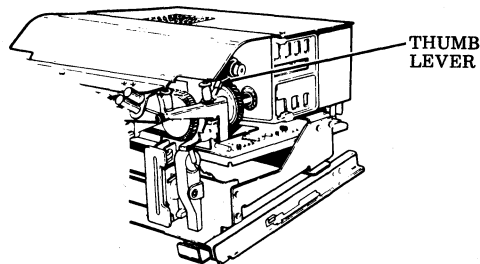


Fig. 16

(b) Remove the tear bar assembly by removing the two securing screws (hex. head), lock-washers and flat washers (Fig. 17).

Danger: Exercise care in handling tear bar to prevent injury from the tear edge. Careless handling of the tear bar may produce a burr on the tearing edge which may impair feeding of paper forms.

TWO HEX HEAD SECURING SCREWS, LOCKWASHERS AND FLAT WASHERS

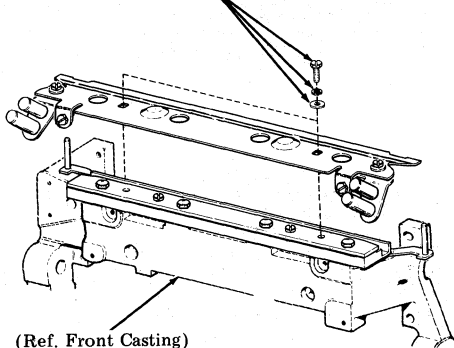


Fig. 17

(c) Lift finger lever on left pulley and hold. Remove type carrier starting at right pulley as shown (Fig. 18). Release finger lever.

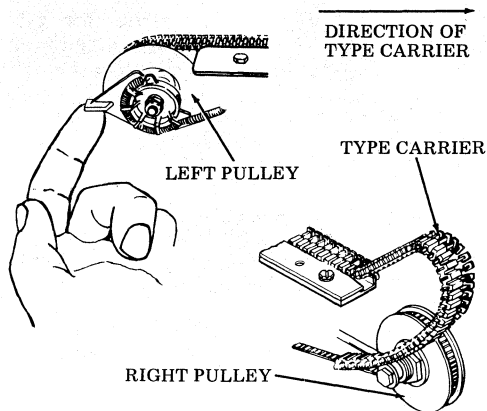


Fig. 18

CLEANING

3.04 Clean type carrier with brush and mineral spirits. Care should be taken that the customer's furniture is not damaged. Inspect type carrier. Replace any pallets that are worn, missing, or mutilated. Set type carrier aside.

4. CLEANING

4.01 Check that the printed instructions on the printer cover are legible. Clean with cloth. See Fig. 19, 20, 21 and 22.

Ribbon Loading

1. Ribbon is to wind and unwind at bottom of spool.
2. Put new spool on free-wheeling spindle.
3. Using routing shown, pass ribbon between paper and type carrier.
4. Attach ribbon to empty spool and wind until eyelet is on spool.
5. Put spool on spindle and wind up slack on free-wheeling spool.

Paper Loading

1. Release pressure roller and load with paper unrolling as shown.
2. Fold paper approximately 45 degrees in either direction.
3. Rotate paper until leading edge appears under pressure roller shaft. Be sure paper is not between type pallets and ribbon.
4. Pull through approximately 12 inches of paper and align edge of paper roll.
5. Engage pressure roller with paper, insert paper through window opening and close cover.

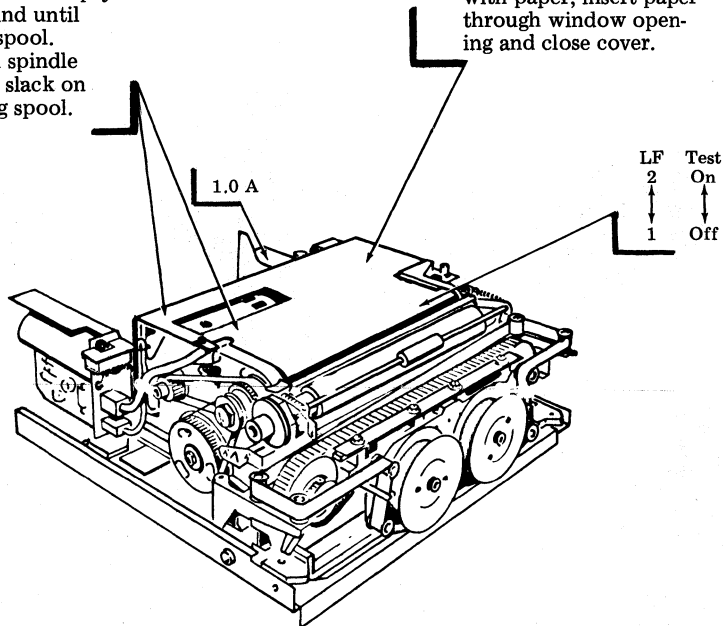


Fig. 19—80-Column Friction Feed Printer

Form Selection

Form Selector Setting				Color of Belt
4	3	2	1	
Length of Form				
3-1/3	2-1/2	5	10	Amber
3-2/3		5-1/2	11	Blue
4	3	6	12	Yellow
4-1/3		6-1/2	13	Brown
4-2/3	3-1/2	7	14	Red
5		7-1/2	15	Pink
5-1/3	4	8	16	Lt Green
5-2/3		8-1/2	17	Green
6	4-1/2	9	18	Lt Blue
7-1/3	5-1/2	11	22	White

Ribbon Loading

1. Ribbon is to wind and unwind at bottom of spool.
2. Put new spool on free-wheeling spindle.
3. Using routing shown, pass ribbon between paper and type carrier.
4. Attach ribbon to empty spool and wind until eyelet is on spool.
5. Put spool on spindle and wind up slack on free-wheeling spool.

Type Carrier Changing

1. Remove ribbon and swing ribbon guides out by pressing thumb levers.
2. Lift finger lever and remove carrier starting at right pulley.
3. Install new carrier starting at left pulley, follow above instruction in reverse.
4. Rotate carrier by hand in direction shown, aligning any protruding type pallets, to prevent snagging.
5. Option switch selection should agree with font arrangement of type carrier.

Paper Loading

1. Release paper guides and open tractors.
2. Fold one form down. If multiple forms, separate.
3. Sight down paper path and thread paper, keeping to the left.
4. Close tractors and paper guides.
5. Set right tractor for paper width.
6. Set left tractor for left margin.
7. Pull knob and turn to align form.

Form Selector
Depress when changing belts.

Idler Assembly

Loosen and move thumbscrew until idler assembly is approximately at right angles to slot.

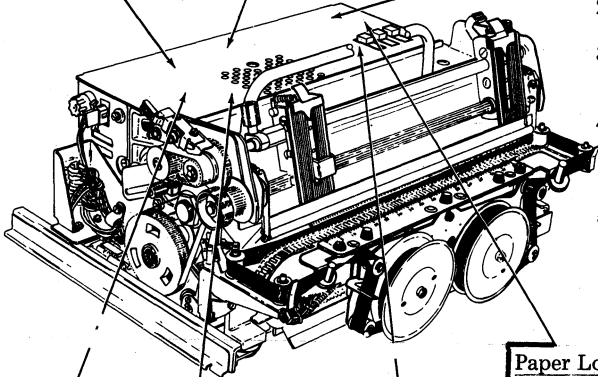
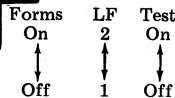
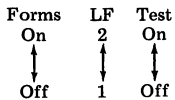


Fig. 20—80-Column Tractor Feed Printer

Form Selection

Form Selector Setting				Color of Belt
4	3	2	1	
Length of Form				
†3-1/3	2-1/2	5	10	Amber
†3-2/3	*2-3/4	5-1/2	11	Dk. Blue
4	3	6	12	Yellow
†4-1/3	*3-1/4	6-1/2	13	Brown
†4-2/3	3-1/2	7	14	Red
5	*3-3/4	7-1/2	15	Pink
†5-1/3	4	8	16	Lt. Green
†5-2/3	*4-1/4	8-1/2	17	Dk. Green
6	4-1/2	9	18	Lt. Blue
†7-1/3	5-1/2	11	22	White

†For six lines per inch.
*For eight lines per inch.



Ribbon Loading

Hold the ribbon spools approximately 18 inches apart and pull the ribbon taut. Using a downward sawing motion, starting on right side, slide the ribbon between the plastic shield and the steel tear edge. With the ribbon properly in position below the tear edge, pass the ribbon around on the rollers and between the posts. The top edge of ribbon on the rollers should be in front at the posts. Wind sufficient ribbon on empty spool so that second eyelet is wound on spool. Install spools as shown and take up ribbon slack on free-wheeling spool.

Type Carrier Changing

1. Remove ribbon and swing right ribbon guide out by pressing thumb lever.
2. Remove tear bar assembly and two securing screws.
3. Lift finger lever and remove carrier, starting at right pulley.
4. Install new carrier on the pulley, then follow above instructions in reverse. Push forward on tear bar while tightening securing screws.
5. Rotate carrier by hand in direction shown. Align any protruding type pallets to prevent snags.
6. Option switch selection should agree with font arrangement of type carrier.
7. Carrier changing may require type centering. Follow type centering instructions.

Type Centering

1. Disconnect ac power after printing with test switch.
2. Push in on gear and hold while turning collar clockwise for character clipped on right side and counterclockwise for character clipped on left side.

Paper Loading

1. Open tractor lid.
2. Fold a form down if multiple forms become separated.
3. Thread paper up into guide before engaging feed holes.
4. Unlock and set right tractor for paper width. Lock tractor.
5. Close tractor lids.
6. Unlock and set left margin. Lock margin.
7. Pull knob and rotate to position form tear line with printer tear bar.

Note: When a new form length has been installed, execute one form feed and repeat Step 7.

Form Selector

Depress when changing belts.

Idler Assembly

Loosen and move thumbscrew until idler assembly is approximately at right angles to slot.

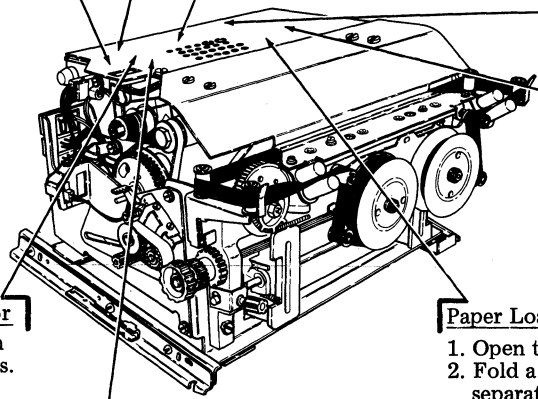


Fig. 21--Forms Access 80-Column Tractor Feed Printer

Form Selection

Form Selector Setting				Color of Belt
4	3	2	1	
Length of Form				
3-1/3	2-1/2	5	10	Amber
3-2/3		5-1/2	11	Blue
4	3	6	12	Yellow
4-1/3		6-1/2	13	Brown
4-2/3	3-1/2	7	14	Red
5		7-1/2	15	Pink
5-1/3	4	8	16	Lt Green
5-2/3		8-1/2	17	Green
6	4-1/2	9	18	Lt Blue
7-1/3	5-1/2	11	22	White

Ribbon Loading

1. Ribbon is to wind and unwind at bottom of spool.
2. Put new spool on free-wheeling spindle.
3. Using routing shown, pass ribbon between paper and type carrier.
4. Attach ribbon to empty spool and wind until eyelet is on spool.
5. Put spool on spindle and wind up slack on free-wheeling spool.

Paper Loading

1. Release paper guides and open tractors.
2. Fold one form down, if multiple forms, separate.
3. Sight down paper path and thread paper, keeping to the left.
4. Close tractors and paper guides.
5. Set right tractor for paper width.
6. Set left tractor for left margin.
7. Pull knob and turn to align form.

Forms On
↓
Off

LF 2
↑
1

Test On
↓
Off

Type Centering

1. Disconnect ac power after printing with test switch.
2. Hold gear from rotating and turn collar clockwise for character clipped on right side and counter-clockwise for character clipped on left side.

Type Carrier Changing

1. Remove ribbon and swing ribbon guides out by pressing thumb levers.
2. Lift finger lever and remove carrier starting at right pulley.
3. Install new carrier starting at left pulley, follow above instruction in reverse.
4. Rotate carrier by hand in direction shown, aligning any protruding type pallets, to prevent snagging.
5. Option switch selection should agree with font arrangement of type carrier.

Form Selector

Depress when changing belts.

Idler Assembly

Loosen and move thumbscrew until idler assembly is approximately at right angles to slot.

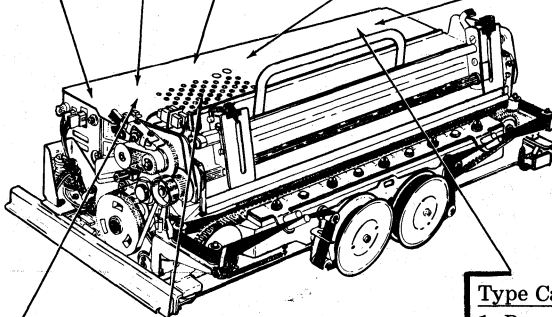


Fig. 22-132-Column Tractor Feed Printer

4.02 Brush and/or vacuum dust and paper lint that has accumulated on sides, front, and top of printer and inside paper chute (Fig. 23). Make sure customer's furnishings are not damaged. Customer's area must be kept clean.

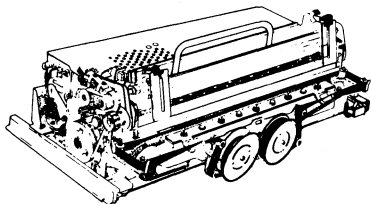


Fig. 23

4.03 Place a piece of cleaning paper between line feed armature and pole piece (Fig. 24). Manually hold armature against pole piece and pull paper out. Perform operation twice. Discard paper.

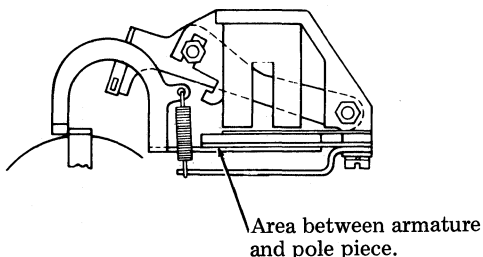


Fig. 24

4.04 Spray form-out contacts with 337449 cleaner (Fig. 25).

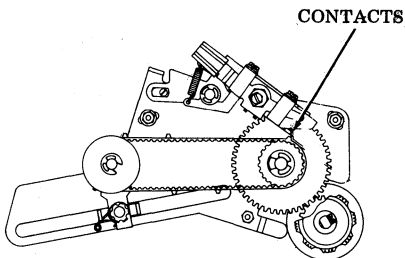
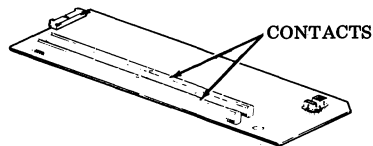
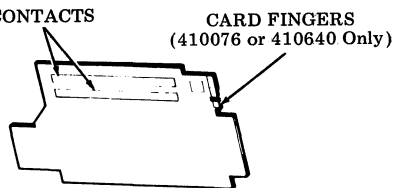


Fig. 25

4.05 Remove printer logic circuit card. Vacuum component side of circuit card. Remove paper dust and debris that has accumulated. Spray contacts and card fingers with 337449 cleaner (Fig. 26).



PRINTER LOGIC CIRCUIT CARD
(Used on 132-Column Tractor Feed Units)



PRINTER LOGIC CIRCUIT CARD
(Used on Friction and Tractor Feed Units)

Fig. 26

4.06 Brush and/or wipe any foreign material away from the armatures and bottom of paper guide. Spray the upper and lower antifreeze strips across the entire bank and circuit card fingers with 337449 cleaner (Fig. 27).

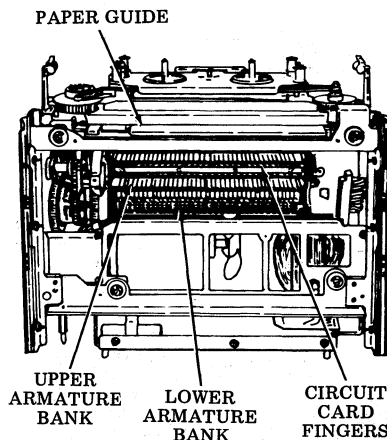


Fig. 27

5. CHECKS

5.01 Check fiber gear on crossshaft for worn or chipped teeth. Check for red oxide around bearings. (See Fig. 28.) At the bearings, check that inner race does not turn on shaft. If it does, replace shaft. Check for play in shaft by lifting up and down. Check for worn, dented, or pitted teeth on right pulley (Fig. 28). If any of these conditions exist, replace printer.

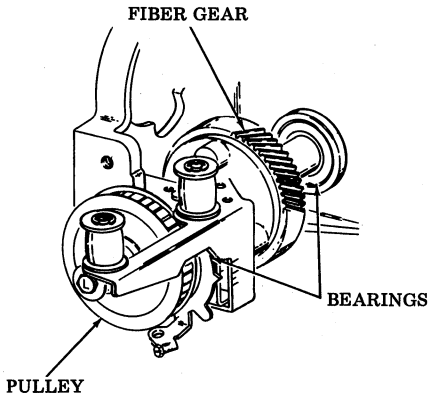


Fig. 28

5.02 Check for worn, chipped or cracked ribbon rollers; replace if necessary.

Note: Tractor feed printers should be equipped with new style rollers. Check that new style rollers have been properly installed, with the groove and bulge downward (Fig. 29).

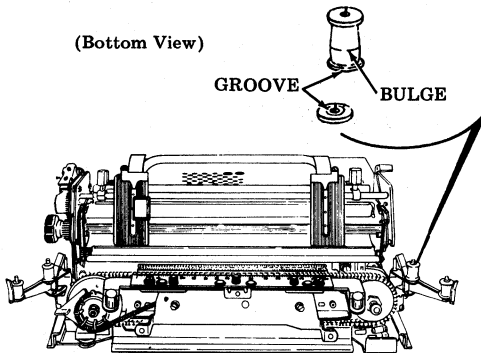


Fig. 29

Check ribbon for curling. If any curling occurs on ribbon, perform RIBBON TRACKING adjustment after printer is reinstalled in cabinet.

5.03 Check ribbon feed drive belt for missing teeth. Check for damage or worn areas on ribbon discs (Fig. 30). Replace if necessary. If belt is replaced, perform RIBBON FEED DRIVE BELT TENSION adjustment.

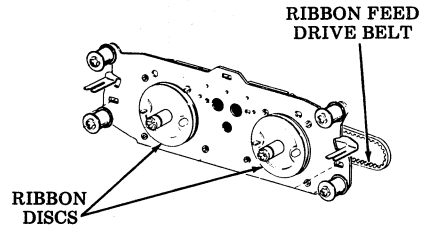


Fig. 30

5.04 Check for wear, detents, or pitting on left sprocket flange (Fig. 31). Replace if necessary. If left sprocket is replaced, perform LEFT CARRIER SPROCKET adjustment.

5.05 Check for wear and pitting on type carrier track. Make sure type carrier lubricating pad is in place and is not damaged. (See Fig. 31.) Replace if necessary. If front plate is replaced, perform BACKUP BAR adjustment.

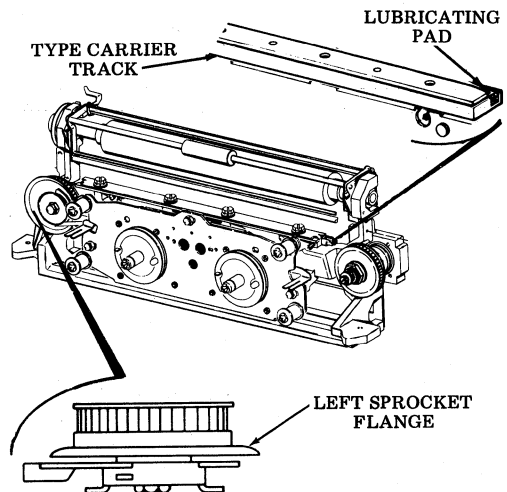


Fig. 31

5.06 Rotate impeller shaft and check that shaft rotates freely, with no binds in the two supporting bearings. Check both ends of shaft for any red oxide deposits near bearing area. (See Fig. 32.) If red oxide deposits are present, replace printer.

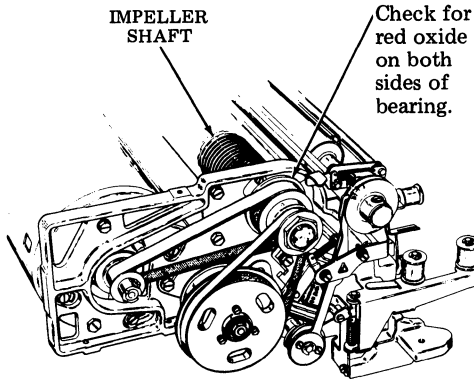


Fig. 32

5.07 Check impeller shaft drive belt for missing teeth (Fig. 33). Replace if necessary. If belt is replaced, perform the IMPELLER SHAFT DRIVE BELT TENSION adjustment.

5.08 Check feed bar drive belt for missing teeth (Fig. 33). Replace if necessary. If belt is replaced, perform FEED BAR DRIVE BELT TENSION adjustment.

5.09 Check clutch drive belt for missing teeth (Fig. 33). Replace if necessary. If belt is replaced, perform CLUTCH DRIVE BELT TENSION adjustment.

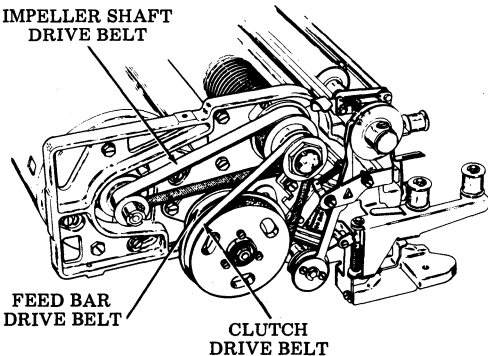


Fig. 33

5.10 Check for excessive wear on gear, feed bars and roller (Fig. 34). Replace gear and/or line feed mechanism. If line feed mechanism is replaced, perform CLUTCH DRIVE BELT TENSION adjustment.

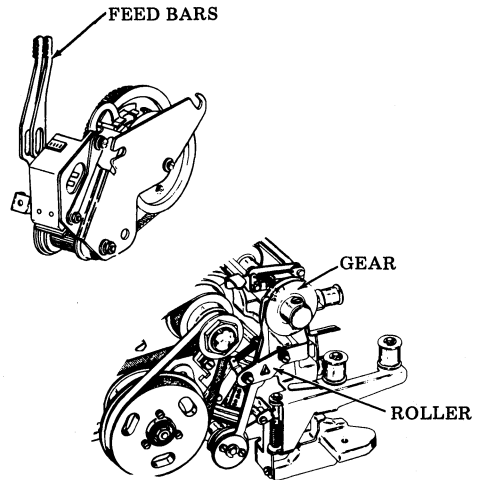


Fig. 34

5.11 Check that line feed coil is securely mounted on its core. Check for discoloration due to overheating on line feed coil casing. (See Fig. 35). If either of these conditions exist, replace line feed mechanism and perform CLUTCH DRIVE BELT TENSION adjustment.

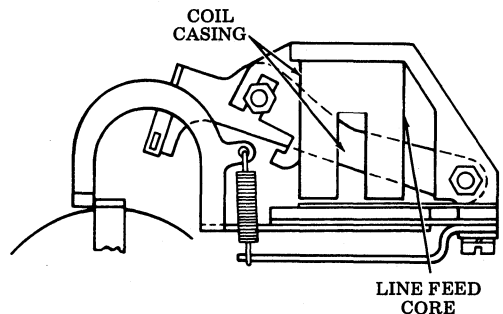


Fig. 35

5.12 Check for free rotation of motor shaft. Check for cracks on motor fan. (See Fig. 36.) Replace if necessary. If motor fan is replaced, perform MOTOR FAN SPACING adjustment.

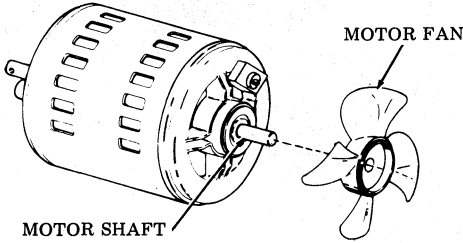


Fig. 36

5.13 Check for wear, bends, cracks or deformities in left and right ribbon guides (Fig. 37). Replace if necessary. If ribbon guides are replaced, perform RIBBON GUIDE (Final) adjustment.

5.14 Friction Feed Only:

(a) Check for excessive wear or deformities on paper and pressure rollers (Fig. 37). Replace if necessary.

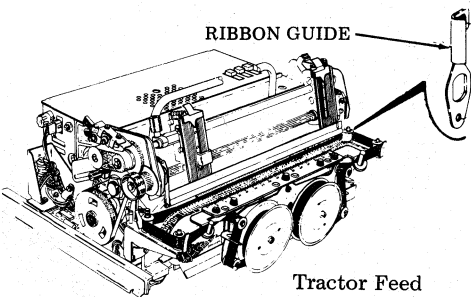
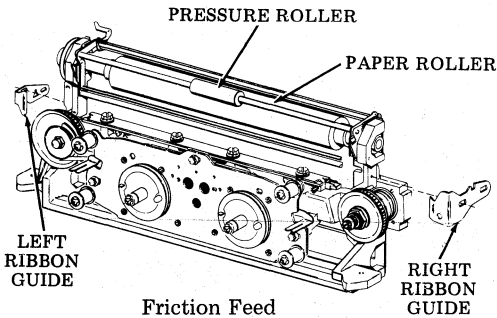


Fig. 37

(b) Check that the low paper sensor is not deformed (Fig. 38). If deformed, replace the low paper switch assembly and perform LOW PAPER SWITCH adjustment.

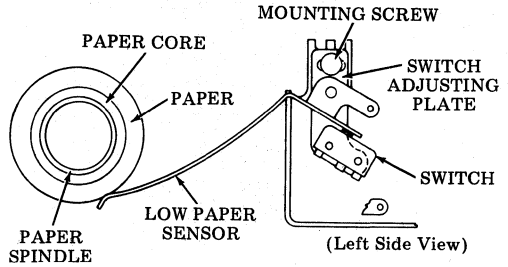


Fig. 38

(c) On 40P102 printer, check mask for tears at each end of slot (Fig. 39). Replace 402945 mask if necessary. If mask is replaced, perform MASK adjustment.

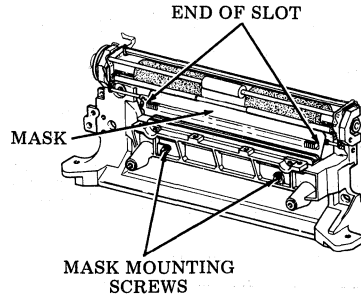


Fig. 39

5.15 Tractor Feed Only:

(a) Check for missing teeth or cams on form-out belt (Fig. 40). Replace if necessary. If form-out belt is replaced, perform FORM-OUT CONTACT TO BELT SPACING (Final) adjustment.

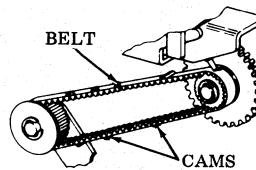


Fig. 40

(b) Check for missing, distorted, or torn mylar strip tabs on front casting assembly (Fig. 41). On 80-column printer, replace any mylar strip that has a rough surface with 402936 modification kit.

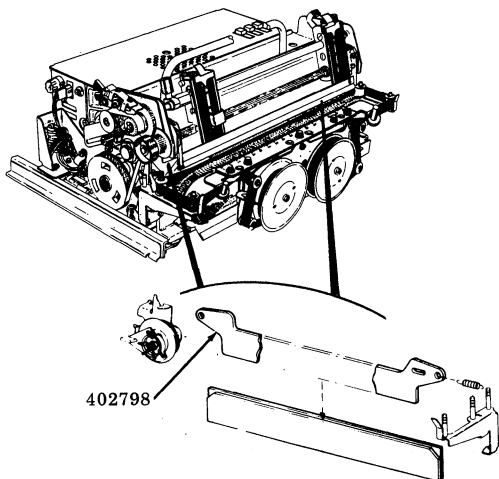


Fig. 41

(c) Check for bends, cracks, or deformities in tractors. Check for free operation of the tractors. Check that no pins are missing on tractors. Check amber drive belts for tears, distortion, or mutilation (Fig. 42). Replace if necessary. When replacing tractors make sure that the white dots or raised marks are in line with each other horizontally across the shaft.

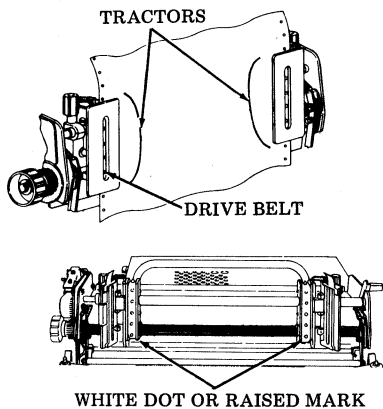


Fig. 42

(d) On 80-column printer, check that paper-out spring is not bent or deformed (Fig. 43). If bent or deformed, replace with 408680 modification kit.

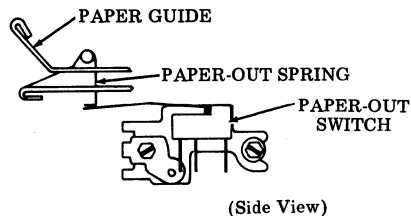
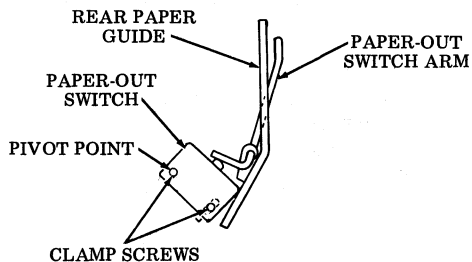
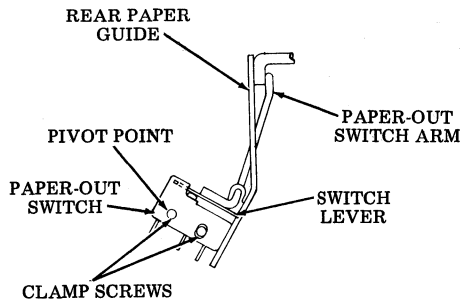


Fig. 43

(e) On 132-column printer, check that paper-out switch arm is not bent and that paper-out switch operates properly (Fig. 44). If defective, replace; then perform PAPER-OUT SWITCH adjustment.



Early Design



Late Design

Fig. 44

6. LUBRICATION

6.01 Lubricate printer per Section 582-210-700.

7. PRINTER REASSEMBLY INTO CABINET

7.01 Remount printer in cabinet; reconnect ac, SSI and interlock cables.

7.02 Replace the type carrier. Before replacing type carrier, seat all pallets using 402878 gauge (Fig. 45). Gauge is marked for 80 column and 132 column. Be sure to use the proper side of gauge to match the printer being maintained. Reinstall type carrier starting at left pulley. Once carrier is in place, rotate impeller shaft by hand one complete revolution of the carrier to seat all pallets.

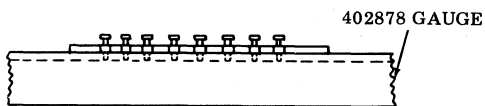


Fig. 45

7.03 Reinstall the ribbon. Install paper.

8. CABINET CHECKS

8.01 Test operation of interlock switch; pull up on switch plunger and apply power, then lower plunger. Motor should stop. On the forms access printer cabinet, test all three interlock switches (one for each front access door and one for top lid).

8.02 Check for air circulation and make sure motor and fans are working properly.

9. TESTING

9.01 Test the printer for proper operation. The test should include a check on the following:

- Operation of PAPER button on the printer cabinet
- Operation of FORMS ADVANCE button (tractor feed)
- Proper printer test message operation with Test switch On
- Simulation of low paper and paper out (friction feed) or form out (tractor feed)
- Line feed; single or double.

Refer to the station BSP for detailed checkout procedures. Extensive checkout should not be necessary during routine maintenance. However, the printer must be checked out sufficiently to make sure a working unit is being returned to service. For this purpose, a brief off-line checkout should suffice.

9.02 During the printer tests, the print quality must be examined. Printed copy should have no smudges; characters should not be clipped on either side; no characters should be missing; characters should be clear.

9.03 Return the unit to service following locally prescribed practice.

“DATASPEED*” 40 OPERATOR CONSOLES

KD AND ROP

WIRING

CONTENTS	PAGE	
1. GENERAL	1	0404WDP — DATASPEED 40, 40K001 ROP Opcon
2. WIRING DIAGRAMS.....	2	0492WDP — DATASPEED 40, 40K003 ROP Opcon
POWER DISTRIBUTION	2	0496WDP — DATASPEED 40, 40K004 ROP Opcon
SSI INTERCONNECTION	3	0403WDP — DATASPEED 40, 40K101 KD Opcon
ALARM	4	0449WDP — Synchronous DATASPEED 40, 40K104 KD Opcon
SENSING AMPLIFIER KEYSWITCH ASSIGNMENT	5	0477WDP — Synchronous DATASPEED 40, 40K105 KD Data Entry Opcon
40K001 RECEIVE-ONLY OPCON...	9	0511WDP — Synchronous DATASPEED 40, 40K203 KD External Numeric Entry Opcon
40K004 RECEIVE-ONLY OPCON...	10	
40K003 RECEIVE-ONLY OPCON...	11	
CABLE ASSEMBLIES	12	

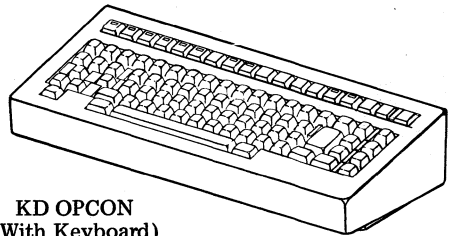
1. GENERAL

1.01 This section provides wiring diagram information for the two basic types of DATASPEED 40 Operator Consoles. (Opcon), KD and RO, shown in Fig. 1.

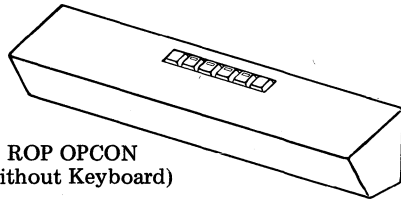
1.02 This section is reissued to incorporate DATASPEED 40 40K003 and 40K004 ROP opcons, 40K203 KD opcon, and the latest engineering changes available at this time.

Note: When ordering replaceable components, unless otherwise specified, prefix each part number with the letters “TP” (ie, TP410075).

1.03 Detailed actual and schematic wiring diagrams and circuit descriptions for the DATASPEED 40 Operator Consoles are provided in the following Wiring Diagram Packages (WDP).



KD OPCON
(With Keyboard)



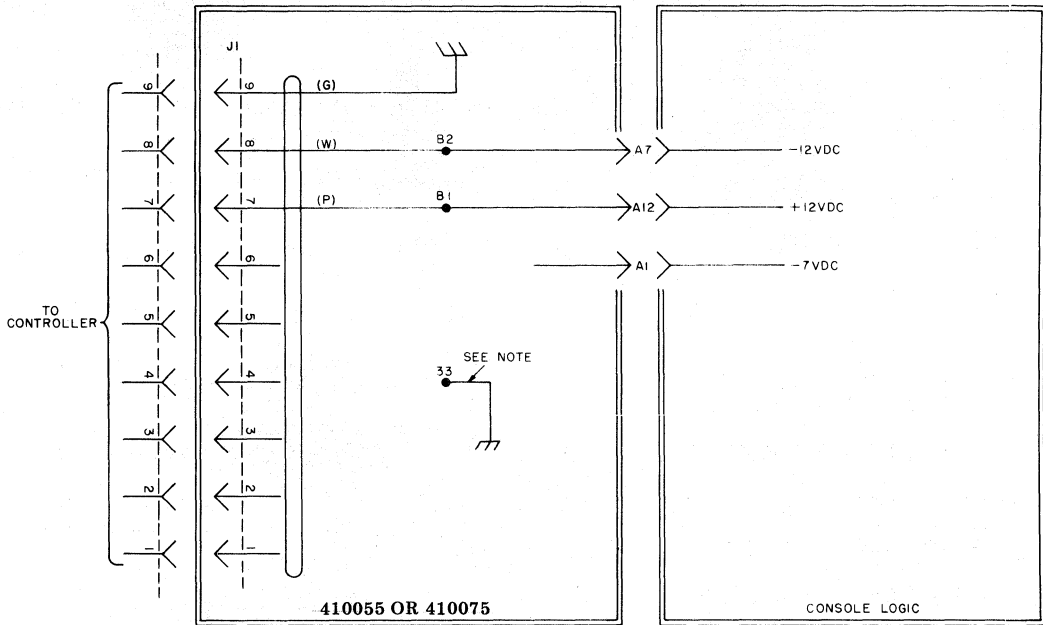
ROP OPCON
(Without Keyboard)

Fig. 1--Operator Consoles

*Registered Trademark of AT&TCo.

2. WIRING DIAGRAMS (Fig. 2 through 14)

POWER DISTRIBUTION



Note: Ground strap is present only on the 410075 circuit card, Issue 1B or later.

Fig. 2--Early Design 40K101 and 40K104 Opcons

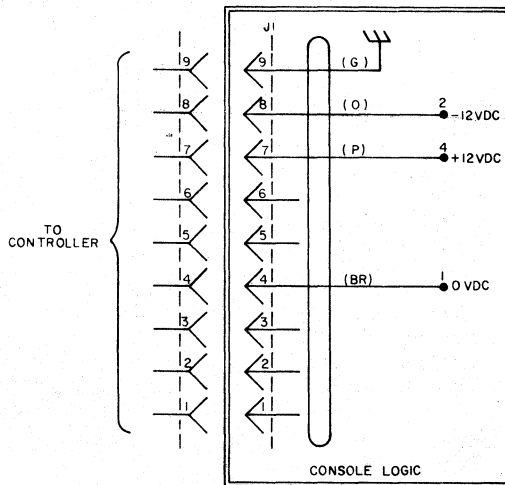


Fig. 3--Late Design 40K101, 40K104, 40K203 and 40K105 Opcons

SSI INTERCONNECTION

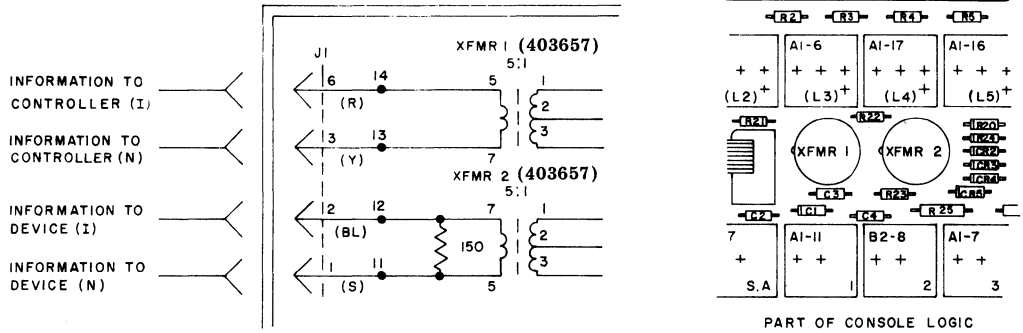


Fig. 4.- Late Design 40K101, 40K104, 40K203 and 40K105 Opcons

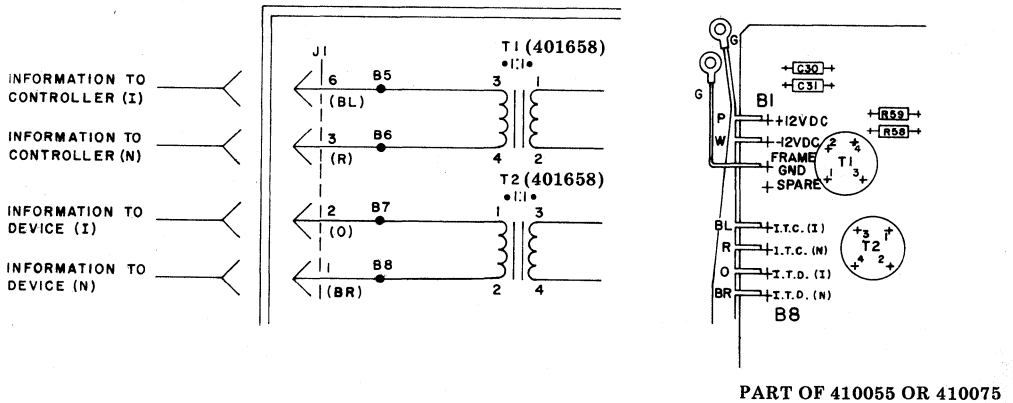


Fig. 5- Early Design 40K101 and 40K104 Opcons

ALARM

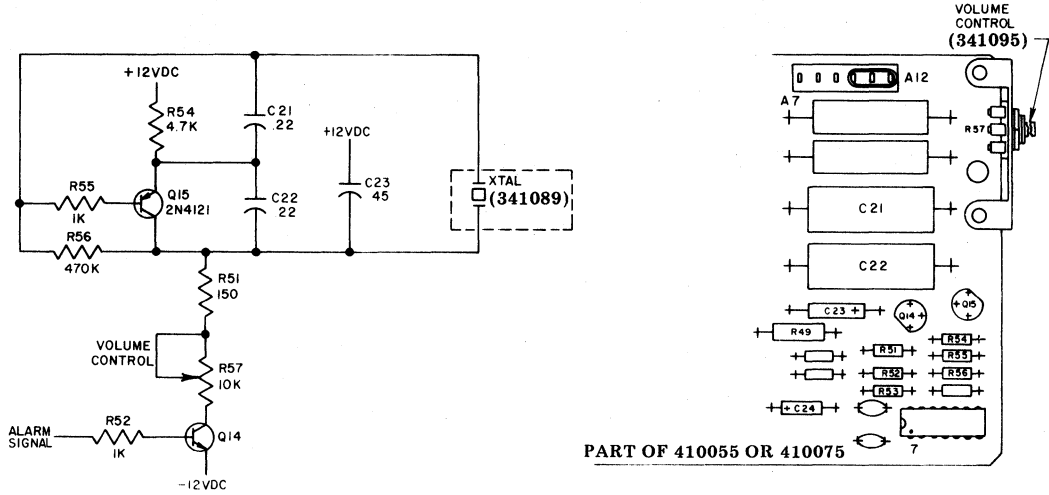


Fig. 6—Early Design 40K101 and 40K104 Opcons

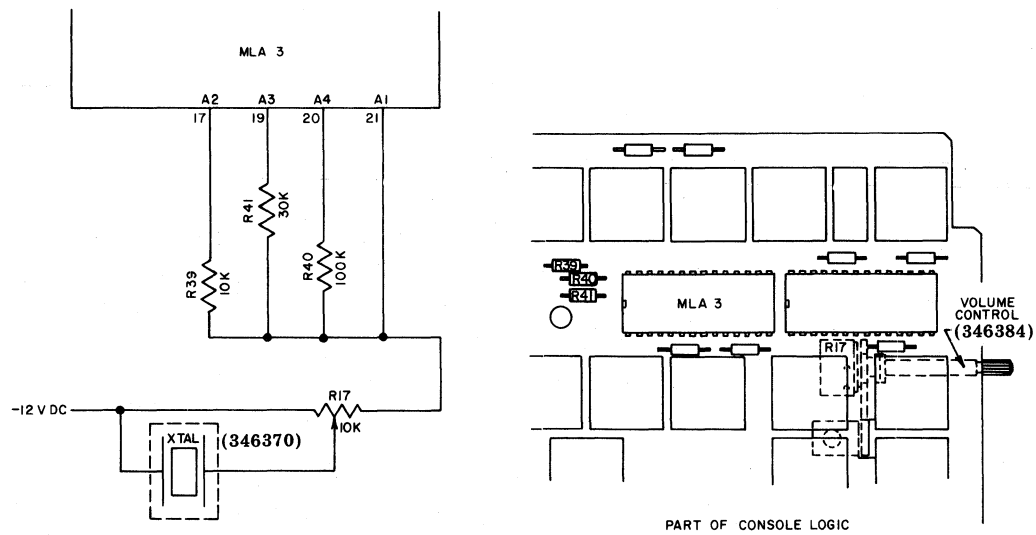
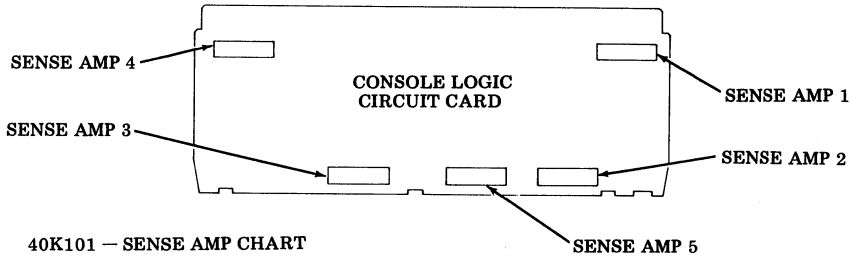


Fig. 7—Late Design 40K101, 40K104, 40K203 and 40K105 Opcons

SENSING AMPLIFIER KEYSWITCH ASSIGNMENT



40K101 — SENSE AMP CHART

SENSE AMP PIN NO.	SENSE AMP 1	SENSE AMP 2	SENSE AMP 3	SENSE AMP 4	SENSE AMP 5
	KEYTOP CHARACTER				
11	{	X2(OPTION)	E	1	6
10	\	I	B	→	H
9	'	U	F	↑	T
8	=	L	2	←	5
7	P	7	V	(NOT USED)	N
6	+	/	W	S/R	G
5	-	K	Q	LOCAL	R
3	0 (ZERO)	'	D	CURSOR RETURN	4
2	9	.	C	HOME	3
28	L9	8	Z	SEND	Y
27	(NOT USED)	;	A	PRINT LOCAL	M
26	L10	0	S	PRINT ON LINE	J
24	FORM ENTER	'	X	L6	SPACE
23	TAB SET	RETURN	SHIFT (LEFT)	RECEIVE	CONTROL (LEFT)
20	TAB CLEAR	LINE INSERT	CAPS LOCK	SCROLL DOWN	SHIFT RIGHT
19	HIGH LIGHT	LINE DELETE	CURSOR TAB	SCROLL UP	NEW LINE
17	L12	CHAR.INSERT	SEG. ADV.	INTERRUPT	TAB
16	L11	CHAR.DELETE	↓	FORM SEND	CONTRL.RIGHT
15	CLEAR	CHAR.DEL.(REP)	→(REPEAT)	SCROLL UP(REP)	.(REPEAT)
14	CHAR.INS(REP)	X2(REPEAT)	←(REPEAT)	SCROLL DN(REP)	SPACE(REPEAT)
13	-(REPEAT)	NEWLINE(REP)	↓(REPEAT)	↓(REPEAT)	X1(OPTION)

40K104 — SENSE AMP CHART

SENSE AMP PIN NO.	SENSE AMP 1	SENSE AMP 2	SENSE AMP 3	SENSE AMP 4	SENSE AMP 5
	KEYTOP CHARACTER				
11	{	X2(OPTION)	E	1	6
10	\	I	B	→	H
9	'	U	F	↑	T
8	=	L	2	←	5
7	P	7	V	(NOT USED)	N
6	+	/	W	PA2	G
5	-	K	Q	PA1	R
3	0 (ZERO)	'	D	CURSOR RETURN	4
2	9	.	C	HOME	3
28	PF5	8	Z	S/R	Y
27	(NOT USED)	;	A	PF4	M
26	PF6	0	S	PF3	J
24	PF10	'	X	PF2	SPACE
23	PF11	ERASE INPUT	SHIFT (LEFT)	LOCAL	CONTROL (LEFT)
20	PF12	LINE INSERT	CAPS LOCK	SCROLL DOWN	SHIFT RIGHT
19	PF9	LINE DELETE	CURSOR TAB	SCROLL UP	NEW LINE
17	PF8	CHAR.INSERT	BACK TAB	PRINT LOCAL	TAB
16	PF7	CHAR.DELETE	↓	PF1	CONTRL.RIGHT
15	CLEAR	CHAR.DEL.(REP)	→(REPEAT)	SCROLL UP(REP)	(REPEAT)
14	CHAR.INS(REP)	X2(REPEAT)	←(REPEAT)	SCROLL DN(REP)	SPACE(REPEAT)
13	-(REPEAT)	NEWLINE(REP)	↓(REPEAT)	↓(REPEAT)	X1(OPTION)

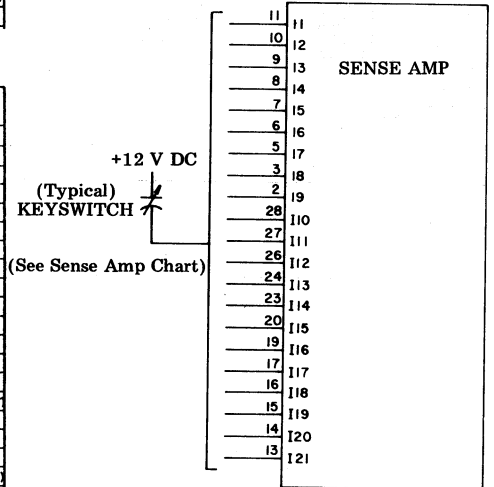
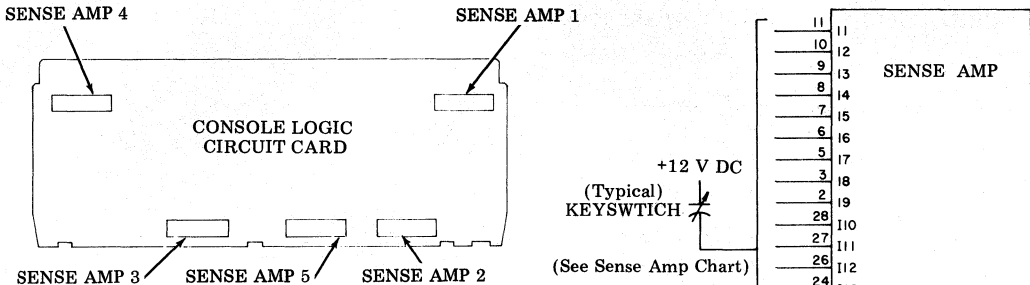


Fig. 8—Early Design 40K101 and 40K104 Opcons



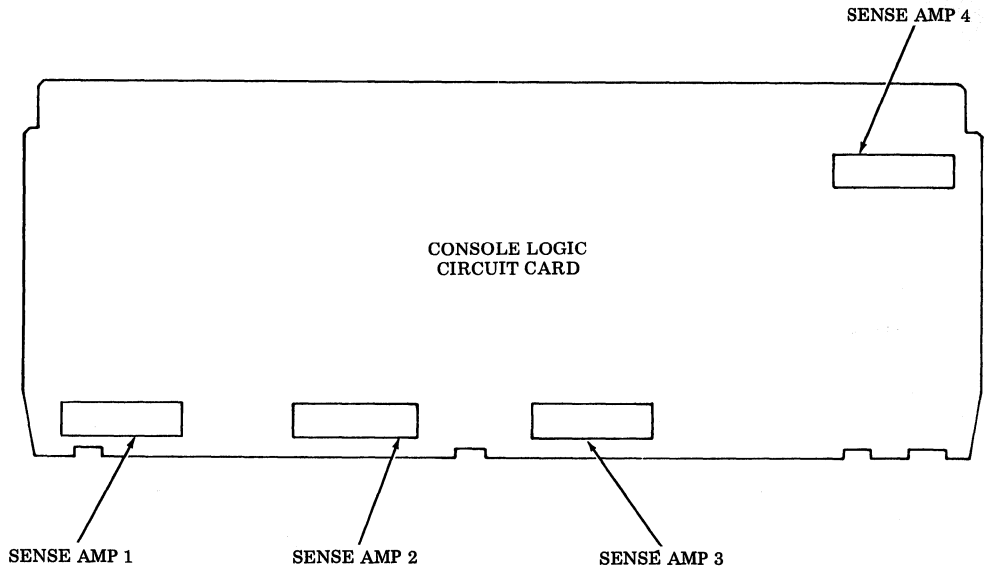
40K101 -- SENSE AMP CHART

SENSE AMP PIN NO	SENSE AMP 1	SENSE AMP 2	SENSE AMP 3	SENSE AMP 4	SENSE AMP 5
	KEYTOP CHARACTER				
11	{	XTRA	E	1	Y
10	\	B	B	→	H
9	↖	I	F	↓	6
8	P (TEST)	L	2	—	T
7	P	U	V	3	N
6	TAB	/	W	S/R	6
5	+	K	Q	LOCAL	5
3	-	.	D	CURSOR RETURN	R
2	O (ZERO)	.	C	HOME	4
28	(L9)	O	Z	SEND	7
27	=	;	A	PRINT LOCAL	M
26	(L10)	9	S	PRINT ON LINE	J
24	FORM ENTER	↗	X	(L6)	SPACE
23	TAB SET	RETURN	SHIFT (LEFT)	RECEIVE	CONTROL (LEFT)
20	TAB CLEAR	LINE INSERT	CAPS LOCK	SCROL DOWN	SHIFT (RIGHT)
19	HIGH LIGHT	LINE DELETE	CURSR. TAB	SCROL UP	NEW LINE
17	(L12)	CHAR. INSAT	SEGMT. ADV.	INTERRUPT	" (TEST)
16	(L11)	CHAR. DLETE	|	FORM SEND	CONTROL (RIGHT)
15	CLEAR	CHAR. DLETE - RPT	→ REPEAT	SCROL UP - RPT	> . - REPEAT
14	CHAR. INSRT-RPT	OPTION - RPT	← REPEAT	SCROL DOWN - RPT	SPACE - RPT
13	— -RPT	NEW LINE - RPT	↑ REPEAT	↓ REPEAT	RETURN (TEST)

40K104 -- SENSE AMP CHART

SENSE AMP PIN NO	SENSE AMP 1	SENSE AMP 2	SENSE AMP 3	SENSE AMP 4	SENSE AMP 5
	KEYTOP CHARACTER				
11	{	XTRA (V _{SS})	E	1	Y
10	\	B	B	→	H
9	↖	I	F	↓	6
8	P (TEST)	L	2	—	T
7	P	U	V	3	N
6	TAB	/	W	PA2	G
5	+	K	Q	PA1	5
3	-	.	D	TAB	R
2	O (ZERO)	.	C	HOME	4
28	PF5	O	Z	S/R	7
27	=	;	A	PF4	M
26	PF6	9	S	PF3	J
24	PF10	↗	X	PF2	SPACE
23	PF11	ERASE INPUT	SHIFT (LEFT)	LOCAL	CONTROL (LEFT)
20	PF12	LINE INSERT	CAPS LOCK	(NOT ASSIGNED)	SHIFT (RIGHT)
19	PF9	LINE DELETE	CURSR. TAB	(NOT ASSIGNED)	NEW LINE
17	PF8	CHAR. INSAT	BACK TAB	PRINT LOCAL	" (TEST)
16	PF7	CHAR. DLETE	|	PF1	CONTROL (RIGHT)
15	CLEAR	CHAR. DLETE - RPT	→ REPEAT	SCROL UP - RPT	> . - REPEAT
14	CHAR. INSRT-RPT	OPTION-RPT (V _{SS})	← REPEAT	SCROL DOWN - RPT	SPACE - RPT
13	— -RPT	NEW LINE-RPT (V _{SS})	↑ REPEAT	↓ REPEAT	E.INPUT (TEST)

Fig. 9—Late Design 40K101 and 40K104 Opcons



40K105 - SENSE AMP CHART

SENSE AMP PIN NO	SENSE AMP 1 (MLB1)	SENSE AMP 2 (MLB2)	SENSE AMP 3 (MLB4)	SENSE AMP 4 (MLA6)
	KEYTOP CHARACTER			
11	Z	SPACE	NEW LINE - RPT	↑
10	X	N	NEW LINE	CHAR. DELETE
9	D	J	PF5	LINE DELETE
8	S	/	,	LINE INSR(TEST)
7	HOME	U	L	LINE INSERT
6	TAB	H	O	↑ - RPT
5	ERASE INPUT	B	K	PA2
3	PA3	F	M	↑
2	CLEAR	R	I	CHAR. INSERT
28	@	<	PF1	CONSOL TEST
27	%	C	P	PRINT LOCAL(L5)
26	Q	T	SKIP	PF3
24	*	FIELD MARK	.	BACK TAB
23	W	G	SKIP - RPT	PA1
20	A	V	ENTER	L/TST
19	E	Y	PF2	R/TST
17	CURSR TAB	DUP	PF4	→ - RPT
16	CURSR TAB-RPT	—	←	→
15	NUM LOCK(LB)	RESET	← - RPT	← - RPT
14	NUMERIC	RESET (TEST)	REPT.	←
13	RESET	SPACE - RPT	ALPHA	↑ - RPT

+12 V DC
(Typical)
KEYSWITCH
(See Sense Amp Chart)

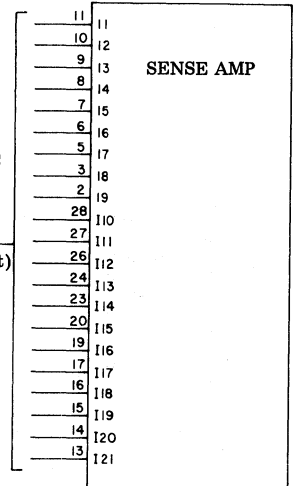
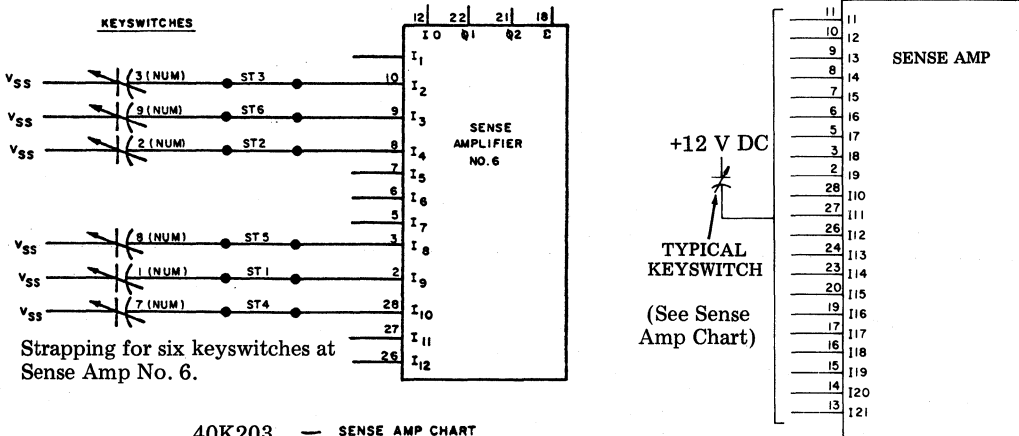
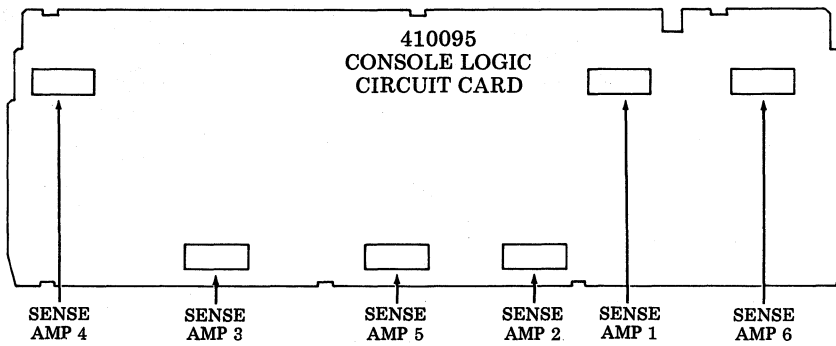


Fig. 10-40K105 Opcon



Strapping for six keyswitches at Sense Amp No. 6.

+12 V DC
TYPICAL
KEYSWITCH
(See Sense Amp Chart)

40K203 — SENSE AMP CHART

SENSE AMP PIN NO	SENSE AMP 1 (MLA4)	SENSE AMP 2 (MLB4)	SENSE AMP 3 (MLB2)	SENSE AMP 4 (MLA1)	SENSE AMP 5 (MLB3)	SENSE AMP 6 (MLA5)
KEYTOP CHARACTER						
11	{	BACK TAB	E	I	Y	6 (PAD 7)
10	\	B	B	J	M	3 (PAD 11)
9	/	I	F	M	6	9 (PAD 3)
8	^	L	2	←	T	2 (PAD 10)
7	P	U	V	3	N	5 (PAD 6)
6	9	/	W	(L3)	G	0(ZERO) (PAD 14)
5	+	K	Q	(L2)	5	4 (PAD 5)
3	-	.	D	X	R	8 (PAD 2)
2	O (ZERO)	.	C	S	4	1 (PAD 4)
28	(L9)	O	Z	(L0)	7	7 (PAD 1)
27	=	;	A	(L8)	→	E. INPUT (TST)
26	(L10)	P (TEST)	HOME	(L7)	↑	CURSOR TAB (PAD 7)
24	(L14)	TAB	CURSOR RET	(L6)	SPACE	← (PAD 4)
23	(L15)	ERASE INPUT	SHIFT (LEFT)	(L1)	CONTROL (LEFT)	⌋ (PAD 8)
20	(PF12)	LINE INSERT	CAPS LOCK	NOT ASSIGNED	SHIFT (RIGHT)	* (PAD 12)
19	(L13)	LINE DELETE	CURSR TAB	NOT ASSIGNED	NEW LINE	. (PAD 15)
17	(L12)	CHAR INSERT	BACK TAB	(L4)	" (TEST)	ENTER S/R (PAD 18)
16	(L11)	CHAR DELETE	↓	(L5)	ENTER (S/R)	/ (PAD 16)
15	CLEAR	CHAR DELETE RPT	→ REPEAT	SCROL UP RPT	. REPEAT	- (PAD 13)
14	CHAR. INSR RPT	RPT	← REPEAT	SCROL DOWN RPT	SPACE RPT	Vss
13	—	RPT NEW LINE RPT (Vss)	↑ REPEAT	↓ REPEAT	VSS	Vss

Fig. 11—40K203 Opcon

40K001 RECEIVE-ONLY OPCON

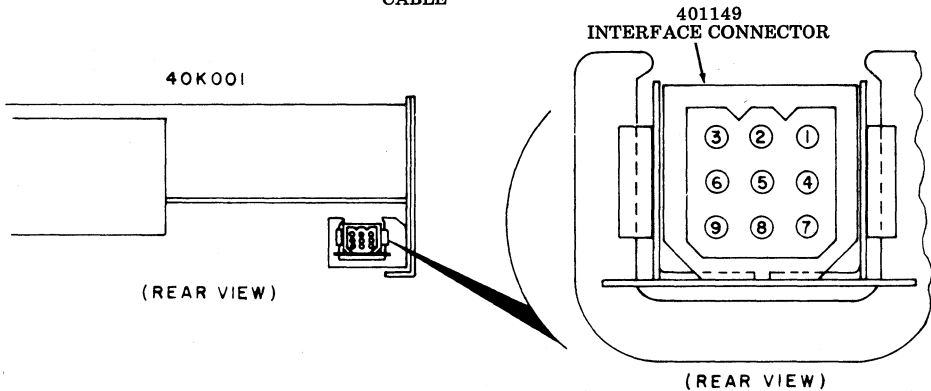
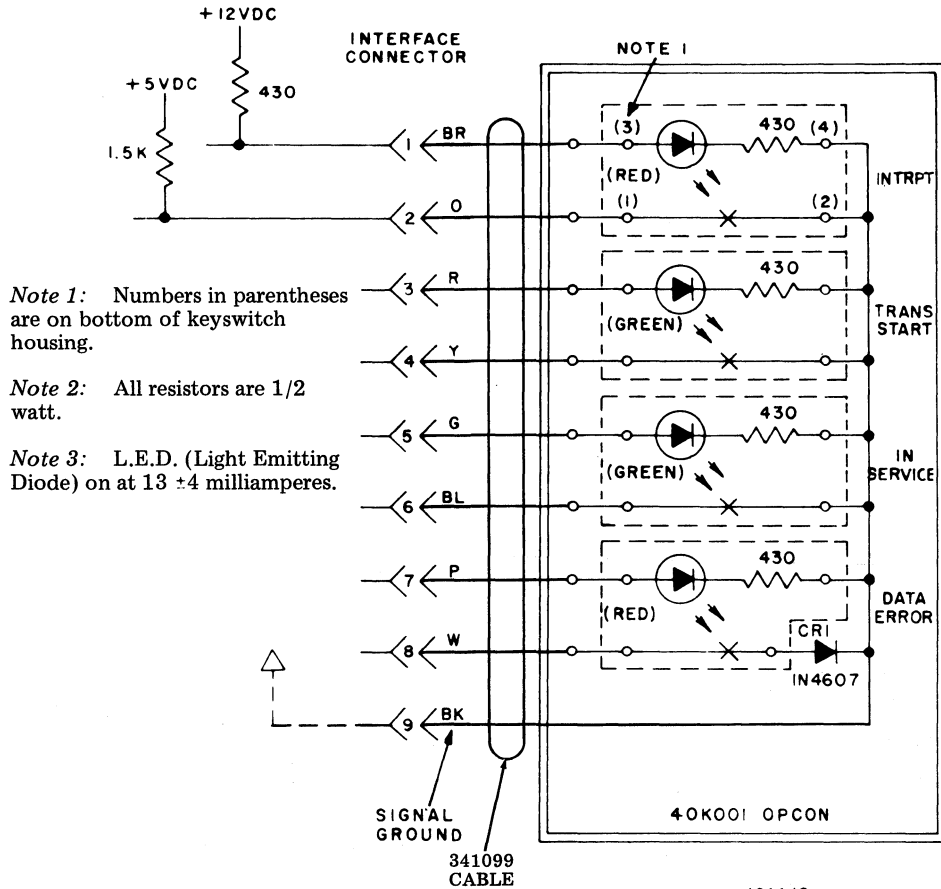
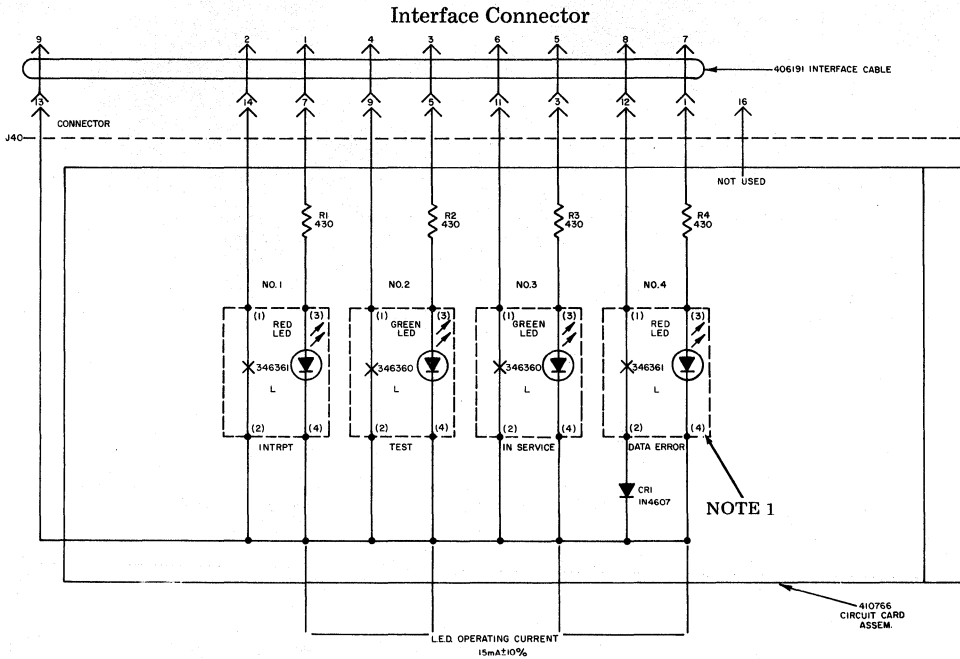


Fig. 12

40K004 RECEIVE-ONLY OPCON



Note 1: Numbers in parentheses on bottom of keyswitch housing.

Note 2: All resistors 1/2 watt unless otherwise specified.

Note 3: L.E.D. (Light Emitting Diode)

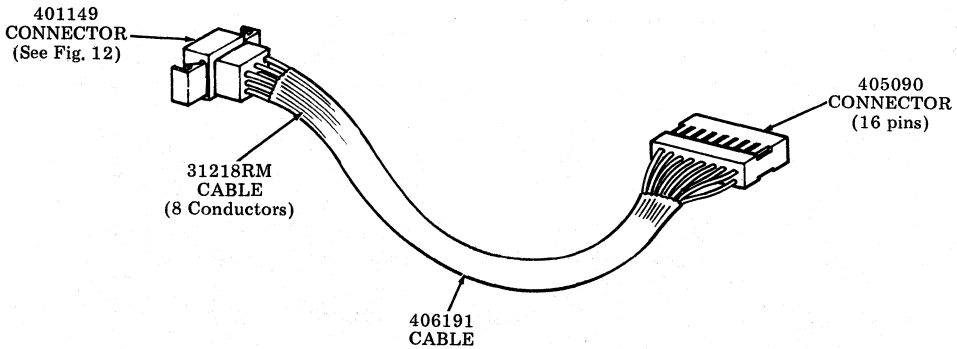
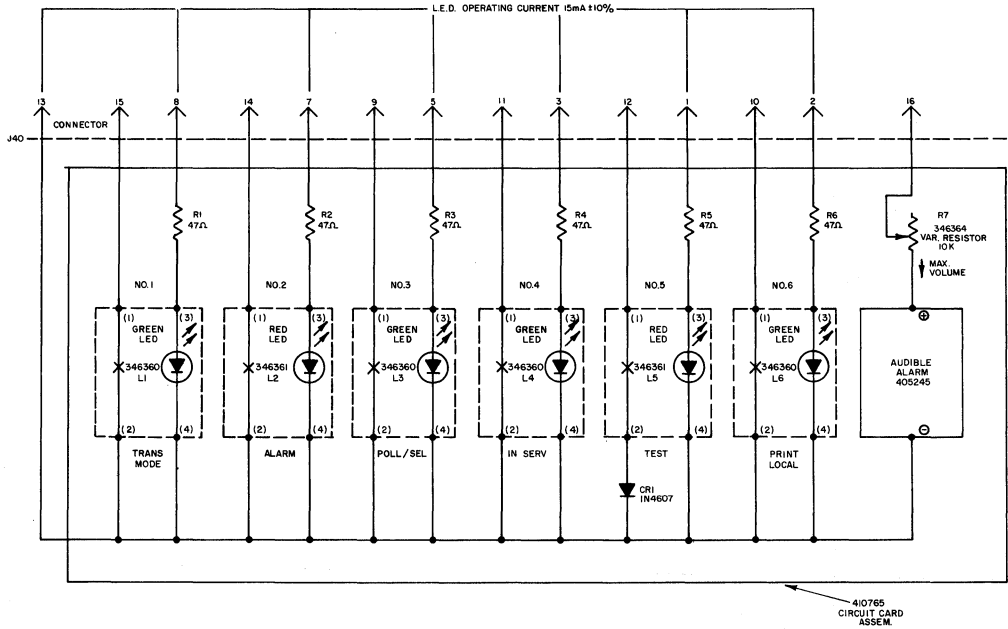


Fig. 13

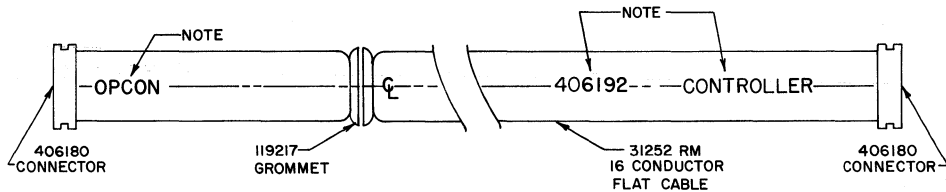
40K03 RECEIVE-ONLY OPCON



Note 1: Numbers in parentheses on bottom of keyswitch housing.

Note 2: All resistors 1/2 watt unless otherwise specified.

Note 3: L.E.D. (Light Emitting Diode).



Note: Rubber stamp block letters.

Fig. 14

CABLE ASSEMBLIES

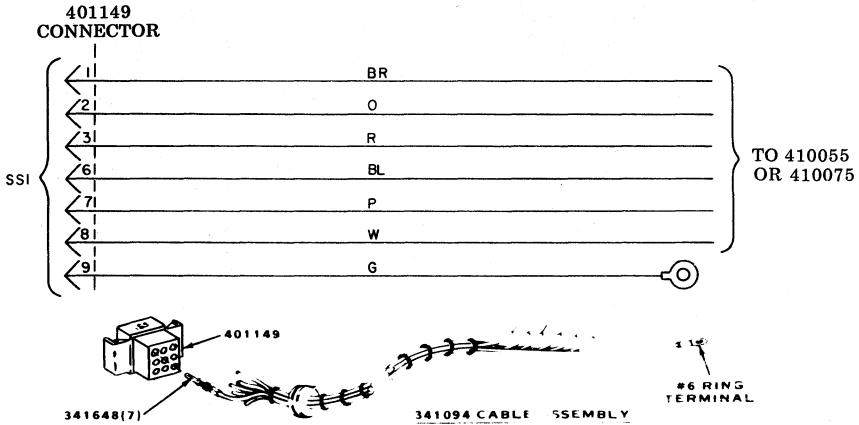


Fig. 15--341094 Cable Assembly for Early Design 40K101 and 40K104 Opcons

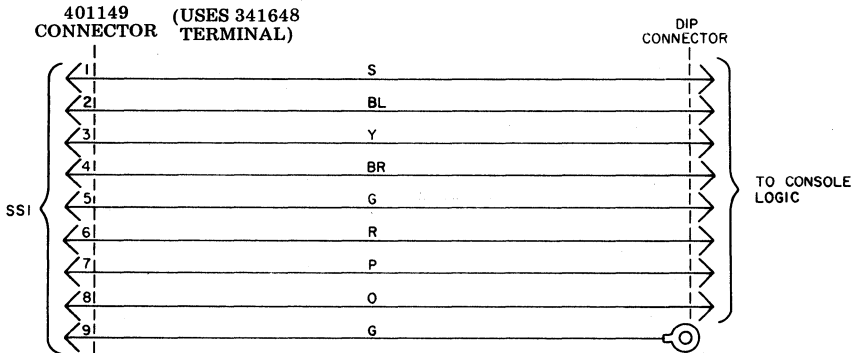


Fig. 16--346387 Cable Assembly for Late Design 40K101, 40K104/203 and 40K105 Opcons

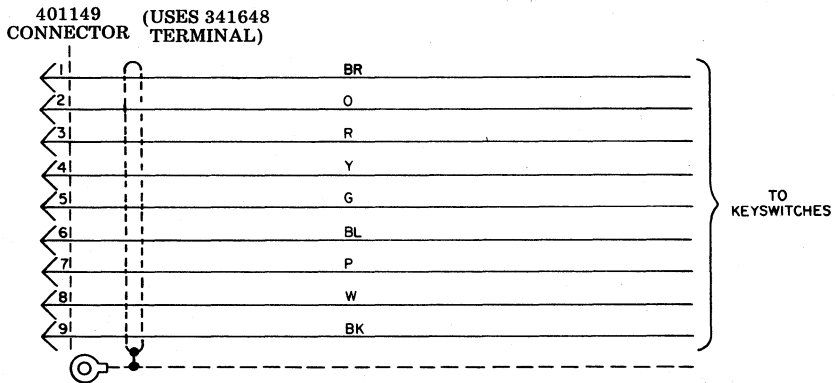


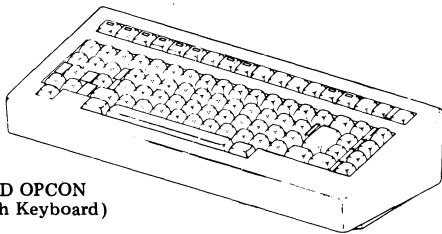
Fig. 17--341099 Cable Assembly for the 40K001 Opcon

“DATASPEED*” 40 OPERATOR CONSOLES KD AND RO
TESTING AND TROUBLESHOOTING

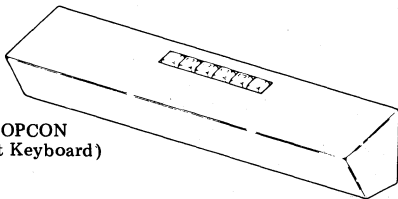
CONTENTS	PAGE
1. GENERAL	1
2. TESTING	2
3. TROUBLESHOOTING	21

1. GENERAL

1.01 This section contains procedures to test and troubleshoot the two basic types of DATASPEED 40 Operator Consoles (opcon), KD and RO, shown in Fig. 1.



KD OPCON
(With Keyboard)



RO OPCON
(Without Keyboard)

Fig. 1 — Operator Consoles

1.02 This section is reissued to incorporate 40K203, 40K003, 40K004, and the latest engineering changes available at this time. Teletype Change Notice (TCN) information, where applicable, is also included. Because this is a general revision, marginal arrows have been omitted.

Note: The 40K203 External Numeric Cluster opcon is basically the same as a numeric cluster located to the right of the keyboard data array. The 40K104 and 40K203 opcons hereafter are referred to as the 40K104, 203 opcon.

*Registered Trademark of AT&TCo.

1.03 The testing and troubleshooting procedures in this section apply to Asynchronous DATASPEED 40 Opcons with full edit features and Synchronous DATASPEED 40 Opcons.

1.04 The extent of the testing and troubleshooting procedures are limited to that which is required for correction of troubles or replacement of parts in field locations.

1.05 Repackage the opcon into its original packaging details it was received in or into the replacement opcon packaging details.

1.06 New packaging material and a packaging specification can be ordered from Teletype Corporation or Western Electric Service Center in the event the original packaging materials are not available.

Packaging Specification:

- PS-28001 — For KD opcon
- PS-28002 — For RO opcon

Note: When ordering replaceable components, unless otherwise specified, prefix each part number with the letters “TP” (ie, TP410075).

1.07 Refer to Section 582-211-100 for information providing description and operation of DATASPEED 40 opcons, 582-211-400 for wiring, and 582-211-700 for adjustment, disassembly, reassembly, and parts information.

1.08 Reference manuals associated with the DATASPEED 40 opcons are:

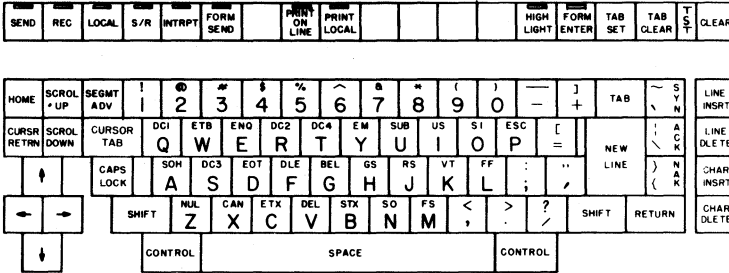
- 999-300-121 How to Operate Asynchronous DATASPEED 40 Keyboard-Display
- 999-301-121 How to Operate DATASPEED 40 Printer
- 999-300-123 How to Operate Synchronous DATASPEED 40 Keyboard-Display

2. TESTING

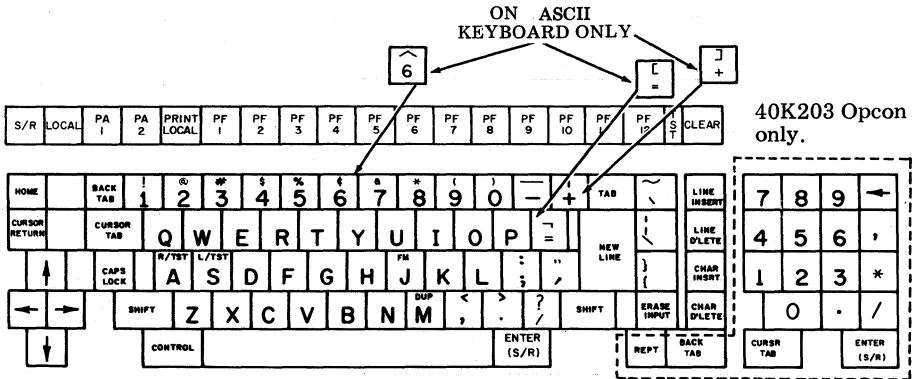
2.01 Operational checkout procedures are presented in Tables A through D. Each table is identified as to the opcon being tested. Use the tables to assure complete operation of the opcon after maintenance or to isolate a poorly defined trouble area.

2.02 Perform the checkout in the order presented as applicable to the KD or RO opcon being tested. The required response for each test step is shown. If the opcon under test fails to respond correctly to a test step, go to 3. TROUBLESHOOTING.

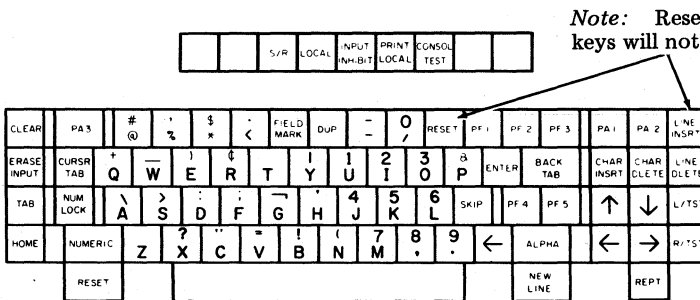
2.03 The keypad identification of opcons provided in this section can be found in Fig. 2.



Asynchronous DATASPEED 40, 40K101 Opcon (Complete Complement)



ENTER (S/R) Keypad at the right side of the space bar is the CONTROL Keypad in 40K104 opcon. Synchronous DATASPEED 40, 40K104 (ASCII and EBCDIC) and 40K203/GAB opcons.



Synchronous DATASPEED 40, 40K105 Opcon (Data Entry)

Fig. 2—KD Opcon Keypad Arrangements

TABLE A (Cont)

OPERATIONAL CHECKS FOR THE 40K101 OPERATOR CONSOLE




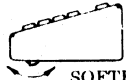

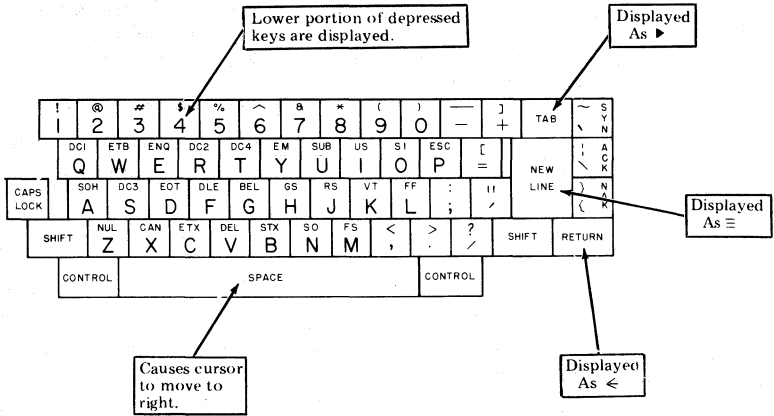

TEST STEP	PROCEDURE	RESPONSE
2 (Cont)	<p>c. On late design 40K101 opcon (interface/bell card not present), the alarm may be sounded for testing purposes by depressing the  key fully.</p> <p>d. Depress the  and  keys simultaneously with additional force and then release.</p>	<p>The alarm sounds (loud-control turned toward front; soft-control turned toward rear) as long as RETURN key is fully depressed.</p>  <p> indicator lamp extinguishes and returns opcon to normal operating mode.</p>
3	<p>Depress each key on the keyboard portion of the opcon four or five times.</p>	
4	<p>Disengage the  key by depressing it again momentarily. Again depress each key on the keyboard portion of the opcon four or five times.</p>	<p>The alpha characters described in Step 3 are displayed in lower case (ie, abcdef, etc).</p>

TABLE A (Cont)

OPERATIONAL CHECKS FOR THE 40K101 OPERATOR CONSOLE


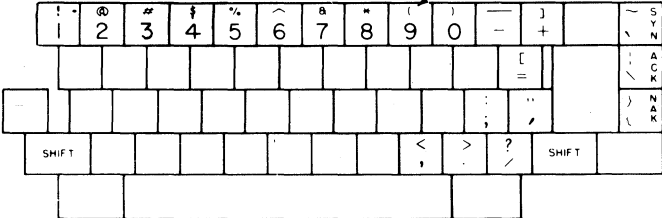


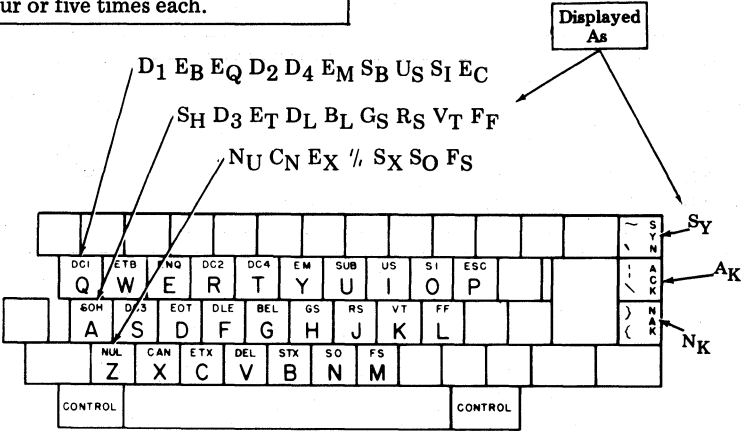
TEST STEP	PROCEDURE	RESPONSE
5	Depress the left  key together with each nonalpha key (ie, !@*\$, etc) on the keyboard portion of the opcon.	Upper portion of the depressed keys are displayed. 
6	Depress the right  key together with one of the keys depressed in Step 5.	The character on the upper portion of the depressed key is displayed.
7	Depress the left  key together with the keys containing control characters four or five times each.	Displayed As 

TABLE A (Cont)

OPERATIONAL CHECKS FOR THE 40K101 OPERATOR CONSOLE






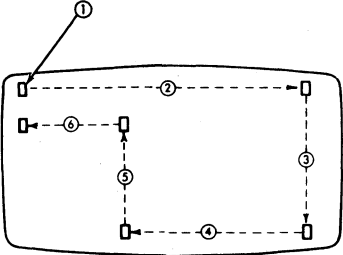



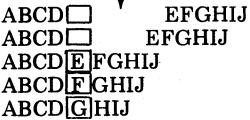
TEST STEP	PROCEDURE	RESPONSE
8	Depress the right  key together with one of the keys depressed in Step 7.	The corresponding control character is displayed.
9	Depress the  ,  and  keys with additional force than is normally required.	----- ----- The space key repeatedly moves the cursor to the right.
10	Depress the  key. Then in sequence depress momentarily with more force than normally required, each cursor movement key shown.	
11	Home the cursor and type the alpha characters A through J on the display. Place the cursor over character E and depress the  key momentarily; then depress it fully — releasing it after the characters stop moving.	
12	Depress the  key momentarily; then depress it fully.	

TABLE A (Cont)

OPERATIONAL CHECKS FOR THE 40K101 OPERATOR CONSOLE











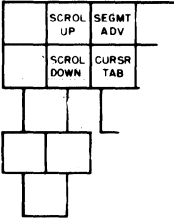

















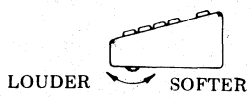
TEST STEP	PROCEDURE	RESPONSE
13	Depress the  key once.	The cursor moves to the beginning of the line and the line of data moves down one line.
14	Depress the  key once; then depress the  key.	The line of data moves up and then the display is cleared of all characters.
15	Depress the  ,  and  keys in sequence as shown.	 lamp lights when key is depressed (LOCAL lamp extinguishes).  lamp lights when key is depressed (SEND lamp extinguishes).  lamp lights when key is depressed (REC lamp extinguishes).
<div style="text-align: center;">  </div> <div style="margin-top: 20px;">  </div> <p data-bbox="438 995 1047 1091"><i>Note:</i> The following test steps provide test procedures for the expanded memory, full edit, conversation mode, and printer key groups. As a reminder, any blocking keytops should be removed.</p>		
16	Depress the  key twice — three times if three segments are present.	The segment marker in the top left-hand corner of the display changes from (-) to (=) to (=) — back to (-) on sets with three segments.
17	Depress the  key once; then depress it fully.	The display moves up one line. It then continues to move up until the last segment marker appears at the top of the display.

TABLE A (Cont)


OPERATIONAL CHECKS FOR THE 40K101 OPERATOR CONSOLE

TEST STEP	PROCEDURE	RESPONSE
18	Depress the  key once; then depress it fully.	The display moves down one line. It then continues to move down until the first segment marker appears at the top of the display.
19	Place the cursor away from home position and depress the  key. Depress the  key twice.	A column of tab marks are written. The cursor moves to the tab mark on the next line.
20	Home the cursor and depress the  key.	The cursor returns to the home position, and all tab marks are cleared from the display.
21	Depress the  ,  ,  ,  , and  control keys — each twice.	Indicator lamp lights when key is depressed; extinguishes when key is depressed again.
22	Depress the  ,  and  control keys in sequence as shown.	 lamp lights when key is depressed (REC lamp lights).  lamp lights when key is depressed (REC lamp extinguishes, SEND lamp lights, and S/R lamp remains on).  lamp lights when key is depressed (SEND, S/R, and PRINT LOCAL lamps extinguish).
23	Type a character in the 80th (last) position of the display (on full edit sets only).	<p>The alarm sounds (loud-control turned toward front; soft-control turned toward rear).</p> 

(Test Ended)

TABLE B

OPERATIONAL CHECKS FOR THE 40K104, 203 OPERATOR CONSOLE

Note: The  indicator lights immediately when power to the set is turned on.












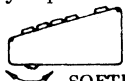


TEST STEP	PROCEDURE	RESPONSE			
1	On early design 40K104 opcon only: Depress the  and  keys simultaneously with additional force and then release.	 indicator lamp lights (brightly) momentarily indicating power supply to opcon.			
2	Depress the  and  keys simultaneously with additional force and then release. a. Place opcon into the caps mode by depressing and latching the CAPS LOCK key. b. Depress the following keys while observing lights for proper indication. <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 20px;"> <div style="border: 1px solid black; padding: 5px; width: 15%;">Depress Key (or keys).</div> <div style="border: 1px solid black; padding: 5px; width: 15%;">Indicator Key</div> <div style="border: 1px solid black; padding: 5px; width: 15%;">Indicator Condition</div> </div> <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 33%; border-right: 1px dashed black; padding: 5px;"> A CONTROL & A C CONTROL & C F CONTROL & ; \ </td> <td style="width: 33%; border-right: 1px dashed black; padding: 5px;"> S/R S/R LOCAL LOCAL PRINT LOCAL PRINT LOCAL LOCAL LOCAL </td> <td style="width: 33%; padding: 5px;"> ON OFF ON OFF ON OFF FLASH OFF </td> </tr> </table> c. On late design 40K104 opcon (interface/bell card not present), the alarm may be sounded for testing purposes by depressing the  key fully. d. Depress the  and  keys simultaneously with additional force and then release.	A CONTROL & A C CONTROL & C F CONTROL & ; \	S/R S/R LOCAL LOCAL PRINT LOCAL PRINT LOCAL LOCAL LOCAL	ON OFF ON OFF ON OFF FLASH OFF	 indicator lamp lights (brightly) and remains lighted indicating the loop-back test mode is activated. Note 1: Occasionally the operational lamps may flash on and then off, or the alarm bell may sound when the loop-back test mode is activated. If this occurs, clear the test by depressing the  and  keys beyond their normal stop, and re-enter the test mode. Note 2: Ignore any characters that may appear on your screen during test. <div style="text-align: center; margin-top: 20px;">  LOUDER  SOFTER </div>  indicator lamp extinguishes and returns opcon to normal operating mode.
A CONTROL & A C CONTROL & C F CONTROL & ; \	S/R S/R LOCAL LOCAL PRINT LOCAL PRINT LOCAL LOCAL LOCAL	ON OFF ON OFF ON OFF FLASH OFF			

TABLE B (Cont)

OPERATIONAL CHECKS FOR THE 40K104, 203 OPERATOR CONSOLE

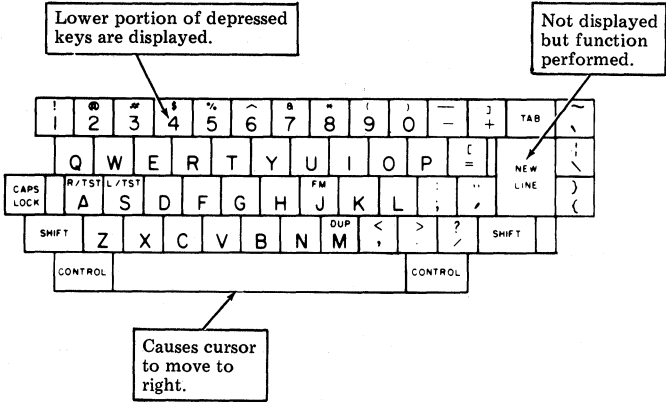


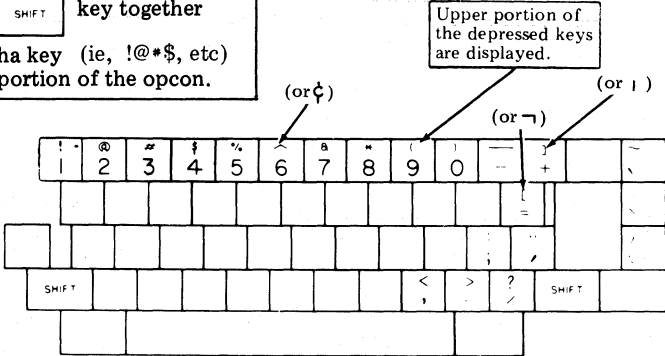
TEST STEP	PROCEDURE	
3	<p>Depress each key on the keyboard portion of the opcon four or five times.</p> 	
4	<p>Disengage the  key by depressing it again momentarily. Again depress each key on the keyboard portion of the opcon four or five times.</p>	<p>The alpha characters described in Step 3 are displayed in lower case (ie, abcdef, etc).</p>
5	<p>Depress the left  key together with each nonalpha key (ie, !@#\$, etc) on the keyboard portion of the opcon.</p>	

TABLE B (Cont)

OPERATIONAL CHECKS FOR THE 40K104, 203 OPERATOR CONSOLE



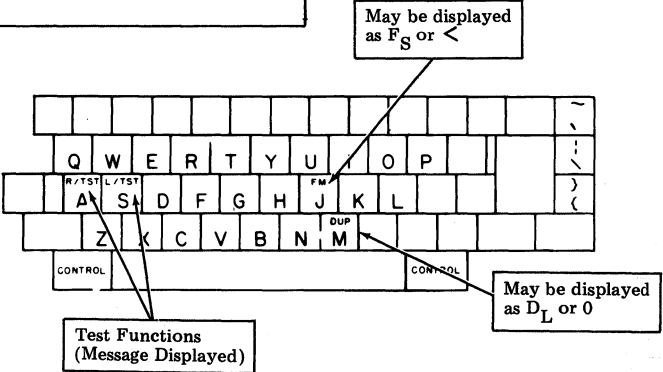




TEST STEP	PROCEDURE	RESPONSE
6	Depress the right  key together with one of the keys depressed in Step 5.	The character on the upper portion of the depressed key is displayed.
7	Depress the left  key together with the keys containing control characters.	<p>May be displayed as F_S or <</p>  <p>May be displayed as D_L or 0</p>
8	Depress the right  key together with one of the keys depressed in Step 7.	The corresponding control character or message is displayed.
9	Depress the  ,  and  keys with additional force than is normally required.	<p>----- The space key repeatedly moves the cursor to the right.</p>

TABLE B (Cont)

OPERATIONAL CHECKS FOR THE 40K104, 203 OPERATOR CONSOLE

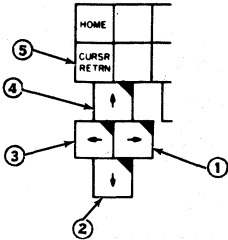
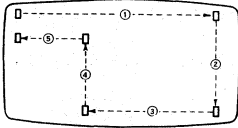
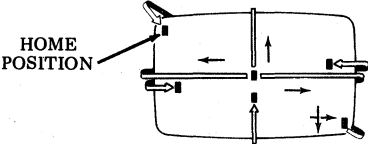
TEST STEP	PROCEDURE	RESPONSE
10	<p>Depress the <input type="button" value="HOME"/> key. Then in sequence depress momentarily, with more force than normally required, each cursor movement key shown.</p> 	 <p><i>Note:</i> Attempts to move the cursor off the display will result as shown below.</p> 
11	<p>Home the cursor and type the alpha characters A through J on the display. Place the cursor over character E and depress the <input type="button" value="CHAR INSRT"/> key momentarily; then depress it fully — releasing it after the characters stop moving.</p>	<pre> <input type="checkbox"/> ABCDEFGHIJ<input type="checkbox"/> ABCDEF<input checked="" type="checkbox"/>FGHIJ ABCDEF<input type="checkbox"/>GHIJ ABCDEF<input type="checkbox"/>GHIJ </pre> <p style="text-align: center;">↓</p>
12	<p>Depress the <input type="button" value="CHAR DELETE"/> key momentarily; then depress it fully.</p>	<pre> ABCD<input type="checkbox"/>EFGHIJ ABCD<input type="checkbox"/>EFGHIJ ABCD<input checked="" type="checkbox"/>EFGHIJ ABCD<input checked="" type="checkbox"/>FGHIJ ABCD<input checked="" type="checkbox"/>GHIJ </pre>
13	<p>Depress the <input type="button" value="LINE INSRT"/> key once.</p>	<p>The cursor remains in position and the line of data moves down one line.</p>
14	<p>Depress the <input type="button" value="LINE DELETE"/> key once; then depress the <input type="button" value="CLEAR"/> key.</p>	<p>The cursor remains in position and the line of data moves up. The display is then cleared of all characters.</p>

TABLE B (Cont)

OPERATIONAL CHECKS FOR THE 40K104, 203 OPERATOR CONSOLE


























TEST STEP	PROCEDURE	RESPONSE
15	Depress the  ,  ,  and  keys in sequence as shown.	When  key is depressed LOCAL lamp extinguishes.  lamp lights when key is depressed When  key is depressed LOCAL lamp extinguishes.  lamp lights when key is depressed
16	Place the cursor away from home position and depress the  key.	The cursor returns to home position (unformatted display). The cursor advances to the next, current, unprotected field in the display (formatted display).
17	Place the cursor away from home position and depress the  key.	The cursor returns to home position (unformatted display). The cursor reverses location to preceding start of an unprotected field on the display (formatted display).
18	Place the cursor away from home position and depress the  key.	Nulls are written from cursor to end of display and cursor returns to home position (unformatted display). The cursor advances to the next, current, unprotected field on the display and replaces remainder of field from cursor location with nulls (formatted display).
19	Type a line of characters on the display and depress the  key.	The line of characters are cleared from the display and the cursor returns to home position (unformatted display).

TABLE B (Cont)

OPERATIONAL CHECKS FOR THE 40K104, 203 OPERATOR CONSOLE

TEST STEP	PROCEDURE	RESPONSE
20	<p>With the LOCAL lamp lit, depress the  key, then depress the  key. Continue to depress the , , , through  keys in the same manner.</p>	<p>The  lamp extinguishes each time a  or  key is depressed and will remain off until the  key is depressed.</p>
21	<p>On early design 40K104 opcon only:</p> <p>With the LOCAL lamp lit, depress the  and  keys together then release them. Type in some characters after the third character position on the first line of the displayed message.</p>	<p>Message is displayed, and the alarm sounds (loud-control turned toward front; soft-control turned toward rear) when attempting to input data on screen.</p> <div style="text-align: center;">  <p>LOUDER SOFTER</p> </div>

(Test Ended)

TABLE C

OPERATIONAL CHECKS FOR THE 40K105 OPERATOR CONSOLE

Note: The  indicator lights immediately when power to the set is turned on.








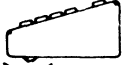


TEST STEP	PROCEDURE	RESPONSE																																																																		
1	<p>Depress the  and  keys simultaneously with additional force and then release.</p> <p>a. Depress the following keys while observing lights for proper indication.</p> <table border="0" data-bbox="245 539 724 1086"> <tr> <td style="text-align: center;">Depress Key (or keys):</td> <td style="text-align: center;">Indicator Key</td> </tr> <tr> <td style="text-align: center;">↓</td> <td style="text-align: center;">↓</td> </tr> <tr> <td style="text-align: center;">A</td> <td style="text-align: center;">S/R</td> </tr> <tr> <td style="text-align: center;">ALPHA & R/TST</td> <td style="text-align: center;">S/R</td> </tr> <tr> <td style="text-align: center;">R/TST</td> <td style="text-align: center;">S/R</td> </tr> <tr> <td style="text-align: center;">ALPHA & A</td> <td style="text-align: center;">S/R</td> </tr> <tr> <td style="text-align: center;">C</td> <td style="text-align: center;">LOCAL</td> </tr> <tr> <td style="text-align: center;">(NOT AVAILABLE)</td> <td style="text-align: center;">LOCAL</td> </tr> <tr> <td style="text-align: center;">→</td> <td style="text-align: center;">LOCAL</td> </tr> <tr> <td style="text-align: center;">ALPHA & C</td> <td style="text-align: center;">LOCAL</td> </tr> <tr> <td style="text-align: center;">M</td> <td style="text-align: center;">INPUT INHIBIT</td> </tr> <tr> <td style="text-align: center;">ERASE INPUT</td> <td style="text-align: center;">INPUT INHIBIT</td> </tr> <tr> <td style="text-align: center;">LINE DELETE</td> <td style="text-align: center;">INPUT INHIBIT</td> </tr> <tr> <td style="text-align: center;">ALPHA & M</td> <td style="text-align: center;">INPUT INHIBIT</td> </tr> <tr> <td style="text-align: center;">F</td> <td style="text-align: center;">PRINT LOCAL</td> </tr> <tr> <td style="text-align: center;">(NOT AVAILABLE)</td> <td style="text-align: center;">PRINT LOCAL</td> </tr> <tr> <td style="text-align: center;">L/TST</td> <td style="text-align: center;">PRINT LOCAL</td> </tr> <tr> <td style="text-align: center;">ALPHA & F</td> <td style="text-align: center;">PRINT LOCAL</td> </tr> <tr> <td style="text-align: center;">I</td> <td style="text-align: center;">NUM LOCK</td> </tr> <tr> <td style="text-align: center;">TAB</td> <td style="text-align: center;">NUM LOCK</td> </tr> <tr> <td style="text-align: center;">NUM LOCK</td> <td style="text-align: center;">NUM LOCK</td> </tr> <tr> <td style="text-align: center;">ALPHA & I</td> <td style="text-align: center;">NUM LOCK</td> </tr> </table> <p>b. Depress the  key.</p> <p>c. Depress the  and the small  keys simultaneously with additional force and then release.</p>	Depress Key (or keys):	Indicator Key	↓	↓	A	S/R	ALPHA & R/TST	S/R	R/TST	S/R	ALPHA & A	S/R	C	LOCAL	(NOT AVAILABLE)	LOCAL	→	LOCAL	ALPHA & C	LOCAL	M	INPUT INHIBIT	ERASE INPUT	INPUT INHIBIT	LINE DELETE	INPUT INHIBIT	ALPHA & M	INPUT INHIBIT	F	PRINT LOCAL	(NOT AVAILABLE)	PRINT LOCAL	L/TST	PRINT LOCAL	ALPHA & F	PRINT LOCAL	I	NUM LOCK	TAB	NUM LOCK	NUM LOCK	NUM LOCK	ALPHA & I	NUM LOCK	<p> indicator extinguishes,  indicator lights (brightly) and remains lighted indicating power to the opcon and activate the local loop-back test mode.</p> <table border="0" data-bbox="858 539 987 1086"> <tr> <td style="text-align: center;">Indicator Condition</td> </tr> <tr> <td style="text-align: center;">↓</td> </tr> <tr> <td style="text-align: center;">ON</td> </tr> <tr> <td style="text-align: center;">OFF</td> </tr> <tr> <td style="text-align: center;">FLASH ON</td> </tr> <tr> <td style="text-align: center;">FLASH OFF</td> </tr> <tr> <td style="text-align: center;">ON</td> </tr> <tr> <td style="text-align: center;">OFF</td> </tr> <tr> <td style="text-align: center;">FLASH ON</td> </tr> <tr> <td style="text-align: center;">FLASH OFF</td> </tr> <tr> <td style="text-align: center;">ON</td> </tr> <tr> <td style="text-align: center;">OFF</td> </tr> <tr> <td style="text-align: center;">FLASH ON</td> </tr> <tr> <td style="text-align: center;">FLASH OFF</td> </tr> <tr> <td style="text-align: center;">ON</td> </tr> <tr> <td style="text-align: center;">OFF</td> </tr> <tr> <td style="text-align: center;">FLASH ON</td> </tr> <tr> <td style="text-align: center;">FLASH OFF</td> </tr> <tr> <td style="text-align: center;">ON</td> </tr> <tr> <td style="text-align: center;">OFF</td> </tr> <tr> <td style="text-align: center;">FLASH ON</td> </tr> <tr> <td style="text-align: center;">FLASH OFF</td> </tr> </table> <p>The alarm sounds (loud-control turned toward front; soft-control turned toward rear) as long as the CONSOL TEST key is held depressed.</p> <div style="text-align: center;">  <p>LOUDER SOFTER</p> </div> <p> indicator extinguishes;  indicator lights returning opcon to normal operating mode.</p>	Indicator Condition	↓	ON	OFF	FLASH ON	FLASH OFF	ON	OFF	FLASH ON	FLASH OFF	ON	OFF	FLASH ON	FLASH OFF	ON	OFF	FLASH ON	FLASH OFF	ON	OFF	FLASH ON	FLASH OFF
Depress Key (or keys):	Indicator Key																																																																			
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TABLE C (Cont)

OPERATIONAL CHECKS FOR THE 40K105 OPERATOR CONSOLE

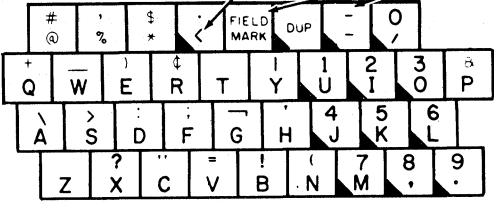

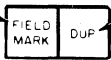
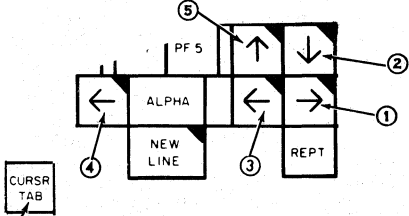
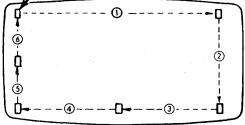
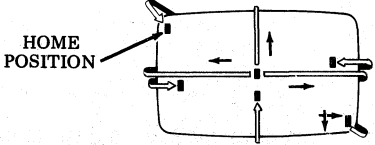
TEST STEP	PROCEDURE	RESPONSE
2	<p>Depress the ALPHA key and hold. At the same time depress the keys shown four or five times.</p>  <p><i>Note:</i> If Option 407.a. is installed in SCC, MCC, or SDS; NUMERIC key must be depressed (or NUM LOCK indicator lit) to enter characters outside the numeric cluster (keys in cluster are marked: ).</p>	<p>Lower portion of depressed keys are displayed.</p> <p>Keyboard portion of opcon.</p>
3	<p>Depress the NUMERIC key and hold. At the same time depress the keys shown in Step 2 four or five times.</p>	<p>Upper portion of depressed keys are displayed.</p>
4	<p>Depress the FIELD MARK and DUP keys four or five times.</p>	<p>Displayed as < (less than)</p>  <p>Displayed as 0 (Zero)</p>
5	<p>Depress the HOME key. Then in sequence depress momentarily, with more force than normally required, each cursor movement key shown.</p>  <p>⑤ On formatted display the cursor will advance to the next, current, unprotected field in the display.</p>	<p>HOME POSITION</p>  <p><i>Note:</i> Attempts to move the cursor off the display will result as shown below.</p>  <p>HOME POSITION</p>

TABLE C (Cont)

OPERATIONAL CHECKS FOR THE 40K105 OPERATOR CONSOLE




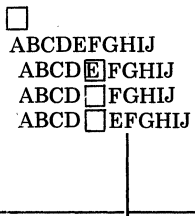






TEST STEP	PROCEDURE	RESPONSE
6	Place the cursor away from home position and depress the  key.	The response is the same as the CURSOR TAB key in Step 5.
7	Place the cursor away from home position and depress the  key once. Now depress the key and hold for a few moments.	The cursor moves to the beginning of next line. The cursor then repeatedly moves to the beginning of next line until the key is released.
8	Home the cursor and type the alpha characters A through J on the display. Place the cursor over character E and depress the  key four or five times.	 <pre> ABCDEF GHIJ ABCD <input type="checkbox"/> EFGHIJ ABCD <input type="checkbox"/> FGH IJ ABCD <input type="checkbox"/> FGHIJ ABCD <input type="checkbox"/> EFGHIJ </pre>
9	Depress the  key four to five times.	<pre> ABCD <input type="checkbox"/> EFGHIJ. ABCD <input type="checkbox"/> EFGHIJ ABCD <input checked="" type="checkbox"/> EFGHIJ ABCD <input checked="" type="checkbox"/> FGH IJ ABCD <input checked="" type="checkbox"/> GHIJ </pre>
10	Depress the  key once.	The cursor remains in position and the line of data moves down one line.
11	Depress the  key once, then depress the  key.	The cursor remains in position and the line of data moves up. The display is then cleared of all characters.
12	Place the cursor away from home position and depress the  key.	<p>Nulls are written from cursor to end of display and cursor returns to home position (unformatted display).</p> <p>The cursor advances to the next, current, unprotected field on the display and replaces remainder of field from cursor location with nulls (formatted display).</p>
13	Type a line of characters on the display and depress  key.	The line of characters are cleared from the display and the cursor returns to home position (unformatted display).

TABLE C (Cont)

OPERATIONAL CHECKS FOR THE 40K105 OPERATOR CONSOLE
























TEST STEP	PROCEDURE	RESPONSE
14	Place the cursor away from home position and depress the  key.	The cursor returns to home position (unformatted display). The cursor reverses location to preceding start of an unprotected field on the display (formatted display).
15	Home the cursor and depress the  key four or five times. Now depress the key fully and hold for a few moments.	The cursor moves one character position to the right each time the key is depressed. The cursor then continually moves to the right until the key is released.
16	Depress the  key and hold. At the same time depress an alpha or numeric key and hold for a few moments.	The alpha or numeric key character will repeat as long as the key is depressed along with the  key.
17	Depress the  key twice.	First depression,  indicator lights. Second depression extinguishes  indicator.
18	With the LOCAL indicator lit, depress the  key, then depress the small  key. Continue to depress the  ,  and  through  keys in the same manner.	The  indicator extinguishes each time a  or  key is depressed and will remain off until the small  key is depressed.

TABLE C (Cont)


OPERATIONAL CHECKS FOR THE 40K105 OPERATOR CONSOLE










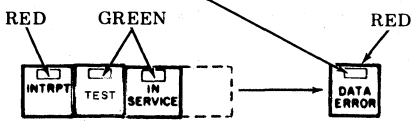
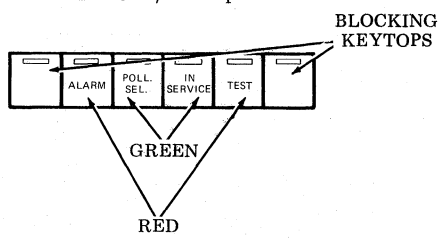
TEST STEP	PROCEDURE	RESPONSE
19	Repeat Step 18, using the larger  key.	Same as Step 18 response when the larger  key is used.
20	With the LOCAL indicator lit, depress the  key, then depress either RESET key.	The  indicator lights, (LOCAL indicator extinguishes) and remains lit until either RESET key is depressed.
21	Depress the ALPHA key and hold. At the same time depress the  key. Then depress either RESET key.	Same as Step 20.
22	Depress the ALPHA key and hold. At the same time depress the  key. Then depress either RESET key.	Same as Step 20.

(Test Ended)

TABLE D

OPERATIONAL CHECKS FOR THE 40K001, 40K004 and 40K003 OPERATOR CONSOLES

Note: The  indicator lights immediately when power to the set is turned on.

TEST STEP	PROCEDURE	RESPONSE
1	Depress the  key, then after a few seconds depress again. Note:  key was  key in early design 40K001 opcon.	The  indicator lights and character set is printed repeatedly. The  indicator then extinguishes and printing stops.
2	Depress the  key twice, then  key twice.	The  indicator lights when key is depressed and extinguishes when key is depressed again. The  indicator extinguishes when key is depressed and lights when key is depressed again. Note: Indicator lights only during operation of RO printer detecting wrong parity. Depress key to extinguish. <div style="text-align: center;">  <p>40K001/004 Opcon</p>  <p>40K003 Opcon</p> </div>
(Test Ended)		

3. TROUBLESHOOTING

3.01 Troubleshooting is based on the use of a series of questions to determine possible causes for the trouble. Depending on the response to the questions, instructions are then given to correct the trouble.

3.02 To isolate a trouble to a specific area, start with the operational checkout procedures given in 2. TESTING or start with the following series of questions given in Tables E and F.

3.03 Before attempting to troubleshoot the opcon, make sure the trouble is not caused from interconnected equipment.

3.04 If a trouble is isolated to the interface/bell card on early design 40K101 and 40K104 opcons, the troubleshooting instructions will recommend that the card be replaced. When the keyswitch logic card (excluding the replaceable keyswitches) is found defective, the entire opcon should be replaced.

TABLE E

TROUBLESHOOTING PROCEDURES FOR 40K101, 40K104, 203
AND 40K105 OPERATOR CONSOLES

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Is the opcon's LOCAL lamp on? (Depress LOCAL key on 40K101 or 40K104, 203 opcon and the RESET key on 40K105 opcon.)	Go to 2.	On 40K101 or 40K104, 203 opcon -- go to 11. On 40K105 opcon -- go to 13.
2. Can characters be entered from the opcon and displayed correctly on the screen?	Go to 3.	On early design 40K101 and 40K104, 203 opcons, replace the interface/bell card. On 40K105 opcon, check interface connector. Replace opcon.
3. Do any keys repeat when depressed normally? (Not fully depressed on repeat keys.)	On 40K105 opcon only, check operation of REPT keyswitch and replace if necessary. On 40K101, 40K104, 203 and 40K105 opcons, check operations of all repeat keys. Replace repeat keyswitch(s). Replace opcon.	Go to 4.

TABLE E (Cont)

TROUBLESHOOTING PROCEDURES FOR 40K101, 40K104, 203
AND 40K105 OPERATOR CONSOLES


ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>4. Do all repeat keys repeat when fully depressed?</p>	<p>Go to 6.</p>	<p>Check for proper orientation of control (top) row of early design blocking keytops.</p> <p style="text-align: center;">Rear →  ← Front</p> <p>Note: New style blocking keytops have finger-like extensions to the interior of the keytop to prevent reversal.</p> <p>Go to 5.</p>
<p>5. Does a character appear on the screen when power is first turned on? (Turn power off then on again several times.)</p>	<p>Check operation of that keyswitch associated with character being displayed (go to 7).</p>	<p>Go to 6.</p>
<p>6. Are any characters displayed when key is not depressed? (ie, key touched, opcon vibrated, or other keys operated.)</p>	<p>Replace opcon.</p>	<p>Go to 7.</p>
<p>7. Do any keys fail to operate mechanically?</p> <ul style="list-style-type: none"> • All keys click when depressed and click again when released. • Repeat or test keys click a second time when fully depressed and click again when released slightly. • CAPS LOCK key locks down when depressed again (if present). • Spacebar must return to its unoperated position fully when depressed and released slowly. 	<p>Check clearance between keyboard cover and keytops (adjust if necessary).</p> <p>Replace defective keyswitch.</p> <p>Check spacebar mechanism and replace any parts if necessary.</p>	<p>Go to 8.</p>

TABLE E (Cont)

TROUBLESHOOTING PROCEDURES FOR 40K101, 40K104, 203
AND 40K105 OPERATOR CONSOLES

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
8. Do any keys fail to generate characters to the screen?	<p>Check for short between keyswitch terminals.</p> <p>Replace keyswitch.</p> <p>Replace opcon if any groups of keys fail to operate or more than one character generated when one key is depressed.</p>	Go to 9.
9. Do any indicators fail to light?	Go to 11.	Go to 10.
<p>10. Does bell sound with loudness controlled by thumbwheel?</p> <ul style="list-style-type: none"> • On 40K101 opcon only, controller used must be for full edit KD set. • Generating a bell code at the opcon will not cause the alarm to sound locally. 	<p>On 40K101 or 40K104, 203 opcon, go to 11.</p> <p>On 40K105 opcon, go to 13.</p>	<p>On early design 40K101 and 40K104 opcons, replace the 410055 or 410075 circuit card. If trouble is not corrected, reinstall original card and replace opcon.</p> <p>On late design 40K101, 40K104, 203 and 40K105 opcons enter loop-back test mode and test alarm circuit.</p> <p>Replace opcon.</p>
<p>11. Does the TST lamp light when RETURN and QUOTES keys (40K101) or ERASE INPUT and QUOTES keys (40K104, 203) are fully depressed simultaneously?</p> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin: 5px;"> T S T </div> <p>(Replace opcon if lamp does not stay lit when keys are released.)</p>	<p>Go to 14 if indicator failed to light (Question 9).</p> <p>Simultaneously depress the RETURN and P keys (40K101) or ERASE INPUT and P keys (40K104, 203) fully, to extinguish lamp if no test is required.</p>	Go to 12.

TABLE E (Cont)

TROUBLESHOOTING PROCEDURES FOR 40K101, 40K104, 203
AND 40K105 OPERATOR CONSOLES

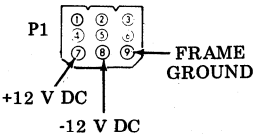
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>12. Is +12 V dc (pin 7) and -12 V dc (pin 8) present with respect to frame ground (pin 9) on interface connector (P1) of logic cabinet?</p> 	<p>On early design 40K101 and 40K104 opcons only:</p> <p>Check interface/bell card cable and connector.</p> <p>Check for +12 V dc (pin A12) and -12 V dc (pin A7) of interface/bell card to console logic card connector.</p> <p>Replace the 410555 or 410075 interface/bell card.</p> <p>Go to 15.</p> <p>On late design 40K101, 40K104, 203 and 40K105 opcons:</p> <p>Check wiring to interface connector.</p> <p>Go to 15.</p>	<p>Proper voltage not being supplied to the opcon. Check cable to opcon.</p> <p>Check power supply.</p>
<p>13. Does the CONSOL TEST lamp light when CONSOL TEST and LINE INSRT keys are fully depressed simultaneously? (Replace opcon if CONSOL TEST lamp does not stay lit when keys are released.)</p>	<p>Go to 14 if indicator failed to light (Question 9).</p> <p>Simultaneously depress the CONSOL TEST and RESET keys fully to extinguish lamp if no test is required.</p>	<p>Go to 12.</p>
<p>14. Does failing key fail to light in loop-back test mode? (Refer to Tables A, B, or C.)</p>	<p>Go to 15.</p>	<p>Check controller.</p>

TABLE E (Cont)

TROUBLESHOOTING PROCEDURES FOR 40K101, 40K104, 203
AND 40K105 OPERATOR CONSOLES


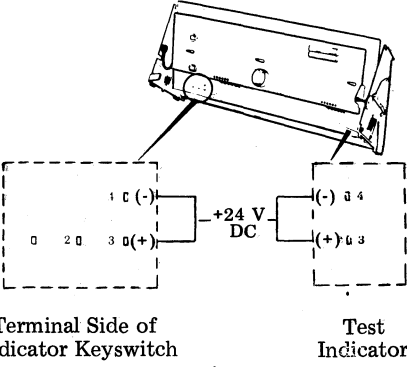

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>15. Is +24 V dc present at pins 3 and 4 of indicator keyswitch or  indicator terminals when lamp should be lit?</p>  <p>Terminal Side of Indicator Keyswitch</p> <p>Test Indicator</p>	<p>Replace indicator keyswitch or  indicator that has defective indicator lamp.</p>	<p>Replace opcon.</p>

TABLE F

TROUBLESHOOTING PROCEDURES FOR 40K001, 004 OPERATOR CONSOLE

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Do any indicators light?	Go to 2.	Check for open in ground lead.
2. Does the IN SERVICE indicator light when power is turned ON? (Cabinet lid closed and no paper alarm.) Depress IN SERVICE key on earlier sets.	Go to 5.	Go to 3.

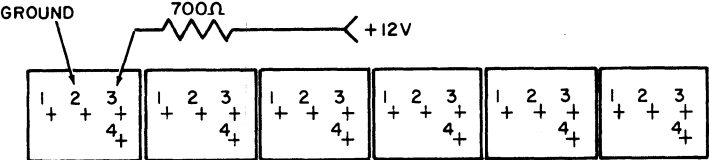
TABLE F (Cont)

TROUBLESHOOTING PROCEDURES FOR 40K001, 004 OPERATOR CONSOLE

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
3. Is approximately +12 V dc present at pins 1, 3, 5, or 7 with respect to frame ground (pin 9) when INTRPT, TEST (or TRANS START), IN SERVICE, or DATA ERROR lamps should be lit?	Check wiring to failing keyswitch indicator. Replace keyswitch.	Go to 4.
4. Is +12 V dc present when associated key-switch is removed? (See ROP Opcon Schematic.)	Replace shorted keyswitch.	Check for short in wiring across keyswitch.
5. Does Test message print when TEST (or TRANS START) key is depressed?	Go to 6.	Check wiring to keyswitch terminals. Replace open keyswitch. Check controller.
6. Does TEST (or TRANS START) lamp light when key is depressed?	Go to 7.	Go to 3.
7. When receiving carrier in data mode (with INTRPT off), does depressing INTRPT key turn on lamp?	Go to 8.	Check wiring to keyswitch. Replace open keyswitch. Check controller.
8. Does DATA ERROR lamp light on receipt of parity error? (Option 25. c. enabled.)	Go to 9.	Go to 3.
9. Does depressing DATA ERROR key extinguish lamp?	Place in service.	Check wiring to keyswitch terminals. Replace open diode on keyswitch. Check controller.

TABLE G

TROUBLESHOOTING PROCEDURES FOR 40K003 OPERATOR CONSOLE

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p><i>Note:</i> Remove 40K003 opcon from the associated terminal cabinet and controller.</p>		
<p>1. Do all indicators light when +12V power supply with a 700 ohm~800 ohm resistor in series is applied to pin 3 of each keyswitch with respect to pin 2 of each keyswitch?</p> 	Go to 2.	Replace any open keyswitch indicator.
<p>2. Does an ohmmeter indicate a short between pin 1 and pin 2 of each keyswitch?</p>	Replace the short keyswitch.	Go to 3.
<p>3. Does an ohmmeter indicate a short from an open between pin 1 and pin 2 of each switch when depressed?</p>	Check controller or interface cable.	Replace the open keyswitch.
<p>4. Does the audible alarm sound when +12V is applied to pin 16 with respect to pin 2 of any keyswitch (ground)?</p>	Go to 5.	Replace the audible alarm (405245).
<p>5. Does the alarm intensity vary when the volume control is turned from one end to the other in Question 4?</p>	Check the controller or interface cable.	Replace the volume control (346384).

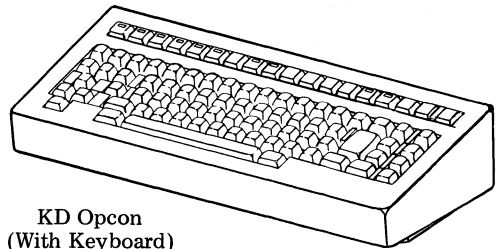
“DATASPEED*” 40 OPERATOR CONSOLES

KD AND RO

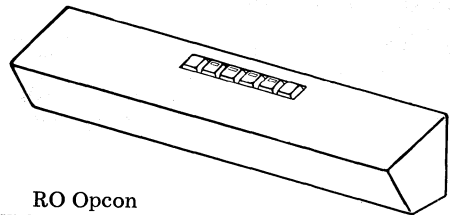
DISASSEMBLY/REASSEMBLY, ADJUSTMENT, AND PARTS

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D. Disassembly/Reassembly	12
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COVER TO KEYTOP ADJUSTMENT	16
4. PARTS	17
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where applicable, is also included. Because this is a general revision, marginal arrows have been omitted.



KD Opcon
(With Keyboard)



RO Opcon
(Without Keyboard)

Fig. 1—Opcons

1. GENERAL
- 1.01 This section provides disassembly/reassembly, adjustment, and parts information for the two basic types of DATASPEED 40 operator consoles (opcon) as shown in Fig. 1. DATASPEED 40 hereafter referred to as 40 type.
- 1.02 This section is reissued to incorporate 40K203, 40K003, 40K004, and the latest engineering changes available at this time. Teletype Change Notice (TCN) information,

- 1.03 The procedures for opcon removal and replacement and keytop conversions are included in this section.
- 1.04 The extent of the disassembly procedures is limited to that which is required for correction of troubles or replacement of parts in field locations.
- 1.05 Disassembly/reassembly procedures are organized according to the pictorial diagrams of major subassemblies and parts shown

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in Fig. 4 and 5. The locations of major subassemblies and parts are identified on the opcons with references to applicable disassembly procedures.

1.06 Refer to Maintenance Tools Section 570-005-800 for a complete listing of the various types of hand tools available for maintenance of TELETYPE® equipment. For a listing of the tools required to perform the disassembly and reassembly of the 40-type opcons, refer to 1.08.

1.07 When ordering replaceable components, unless otherwise specified, prefix each part number with the letters "TP" (ie, TP410057).

TOOLS REQUIRED

1.08 The following tools are recommended for use during the disassembly and reassembly procedures:

75765	Spring hook — pull
89954	1/4-inch nut driver
100982	Screwdriver (6-inch medium)
108285	Long-nose pliers
160396	Retaining ring pliers
346257	Keyswitch extractor
346260	Keytop extractor
346392	Static discharge strap
(TelCo Provided)	Soldering iron (low wattage)
402840	Desolderer
	Terminal extractor tool

2. DISASSEMBLY/REASSEMBLY

2.01 Precautions should be taken to assure that the opcon is disassembled and reassembled under clean conditions. No oil, grease, or other liquids should be allowed on loose parts, subassemblies, keyswitches, or the complete opcon.

2.02 Reference in the procedures to left or right, up or down, and top or bottom, etc, refer to the opcon in its normal operating position.

2.03 When removing a subassembly or part from the opcon, do not force or pry parts to provide the necessary clearance for removal. No forcing is required to accomplish a removal procedure. Follow the removal procedure and note how each part is removed and the sequence of its removal so that proper reassembly can be accomplished. For reassembly, reverse the removal procedure except where different instructions are given.

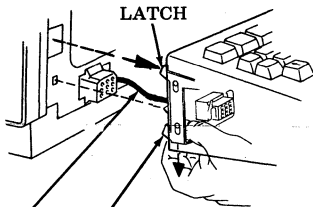
KD OPCON

A. Removal

2.04 To remove KD opcon:

③ Pull opcon forward to disengage from cabinet.

④ Unplug ground strap (ROP opcon only)



① Place thumb on left inward latch tab of opcon and press downward to unlatched position.

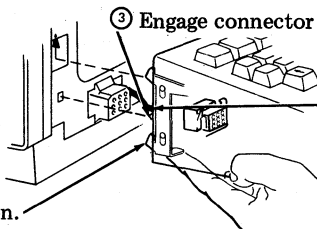
② Hold opcon firmly with left hand, and with right hand place thumb on right inward latch tab and press downward to unlatched position.

B. Replacement

2.05 To replace KD opcon:

① Slide left and right latches down.

④ Slide left and right latches upward into latched position.



③ Engage connector and left and right guides into slots.

② Plug ground strap (ROP opcon only)

Warning: Check that opcon is firmly attached on both sides before releasing hold.

C. Keytop Conversions — 40K101 Opcon Only

2.06 Keytop conversions can easily be performed by substituting certain designated keytops or blocking keytops without removing the opcon from the set.

2.07 The keytop groups that are affected in conversions are shown in Fig. 2. If conversions are made to directly substitute opcons with different arrangements, the necessary parts can be interchanged between units.

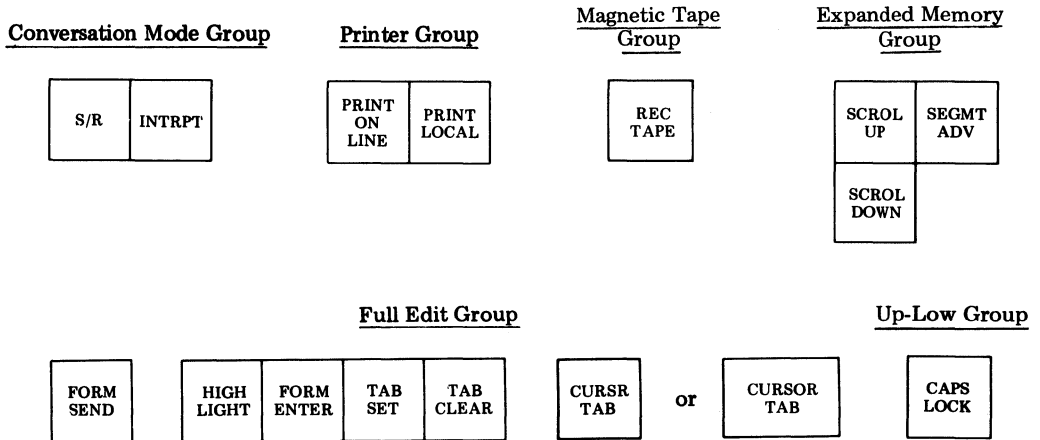
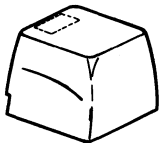


Fig. 2—Keytop Groups

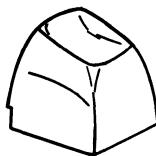
2.08 There are three types of keytops shown in Fig. 3 that are involved in conversions. Refer to Fig. 12 and 13 for part numbers required when keytops must be ordered and stocked to provide these conversions.

1. Control Keytop

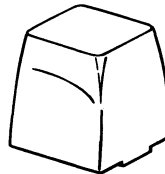


- (a) Indicator (Shown)
- (b) Nonindicator

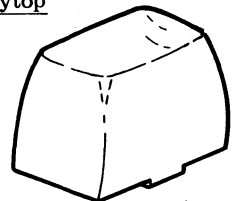
2. Data Keytop



3. Blocking Keytop



(a) Control



(b) Data

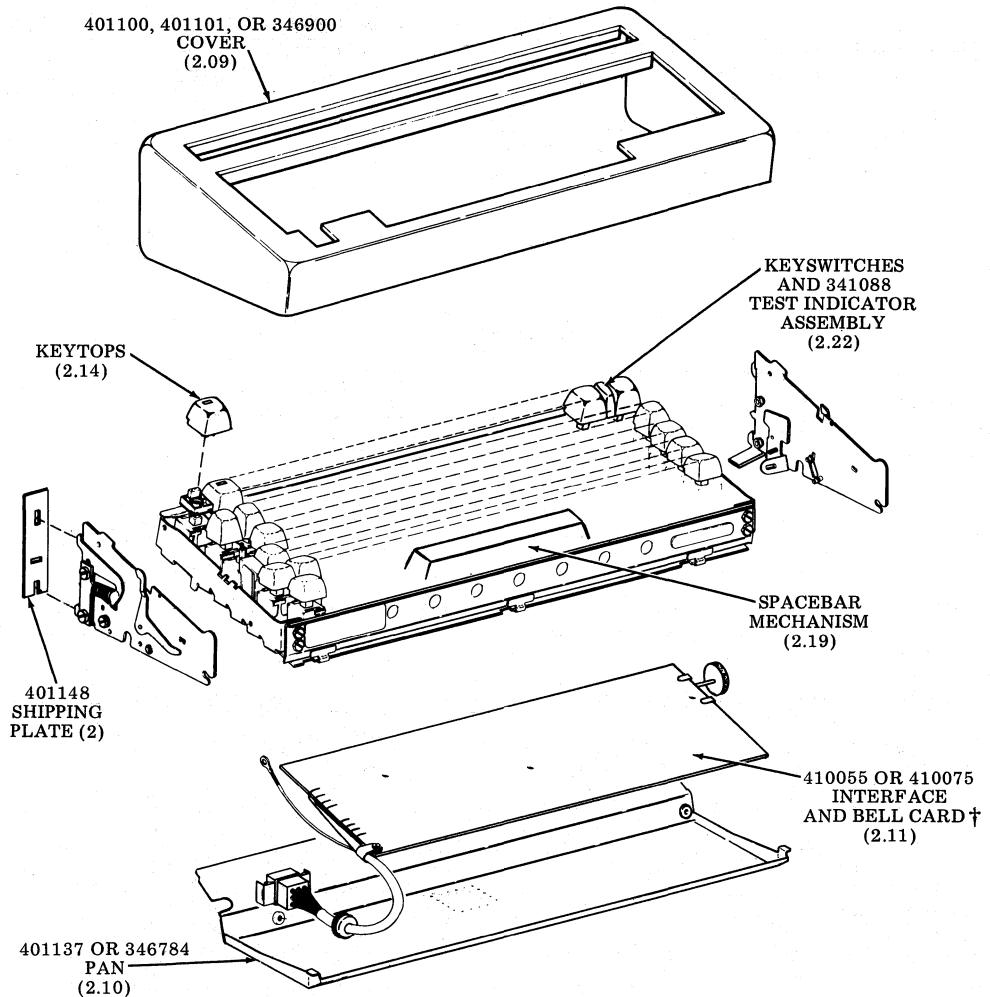
Note: For blocking TAB keys use 341023 blank keytop and insert 346409 spacer under the blank keytop.

Fig. 3—Keytops

D. Major Parts Identification

Note 1: To remove a subassembly or individual part, proceed to the paragraph number referenced in parentheses.

Note 2: The disassembly and reassembly procedures given are for all KD opcons unless otherwise specified.



†The interface and bell card is not present in late design 40K101, 40K104, 203 and 40K105 opcons.

Fig. 4—KD Opcon

E. Disassembly/Reassembly

Warning: To avoid possible internal damage to circuitry, wear a 346392 static discharge strap connected to ground to allow static discharge before handling opcon for disassembly and reassembly. Avoid touching circuit lands or components as much as possible. Soldering irons, test, and insertion equipment must be grounded.



Attach 346392 static discharge strap tightly to wrist as shown.

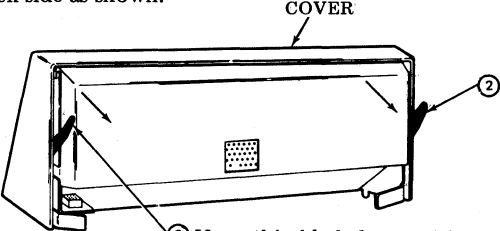


Attach clip end of static discharge strap to frame ground.

401100 or 401101 Cover

2.09 To remove 401100 or 401101 cover:

Stand opcon upright on back side as shown. 401100, 401101, OR 346900



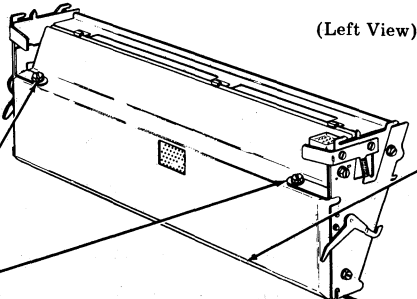
② Use a thin bladed screwdriver or orange stick and pry left and right levers down. Remove cover.

401137 Pan

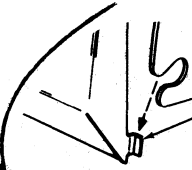
2.10 To remove 401137 pan:

- Remove cover (2.09).

① Stand opcon upright on front side as shown.



② Remove two 184056 screws from left and right side frame tabs.



③ Disengage ears of pan from left and right side frames and remove pan.

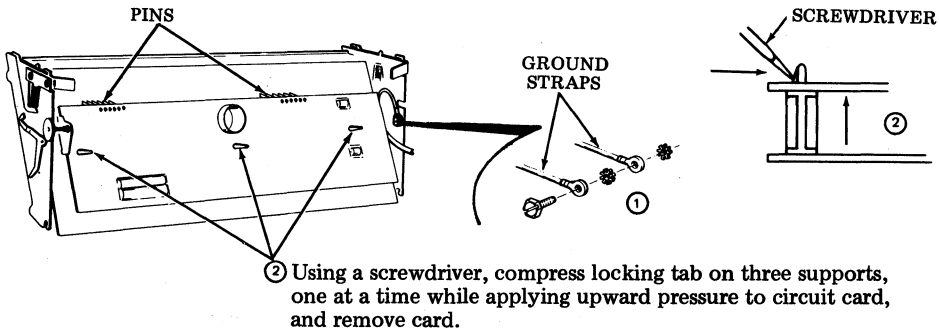
410055 or 410075 Interface and Bell Card

Note: The interface and bell card is not present in late design 40K101, 40K104, 203 and 40K105 opcons.

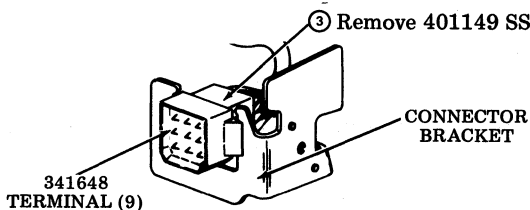
2.11 To remove 410055 or 410075 interface and bell card:

- Remove cover (2.09).
- Remove pan (2.10).

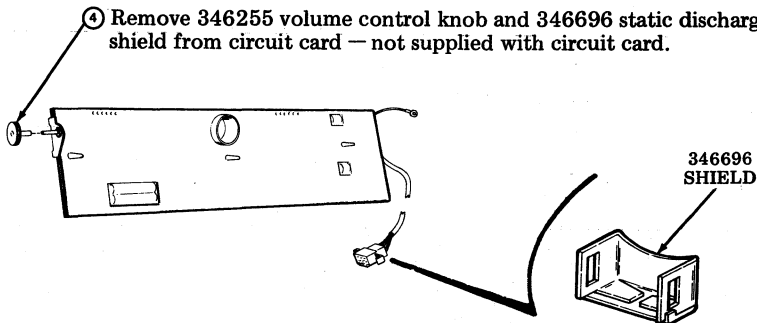
① Remove screw and lockwashers securing ground straps to left side frame.



③ Remove 401149 SSI connector from connector bracket.



④ Remove 346255 volume control knob and 346696 static discharge shield from circuit card — not supplied with circuit card.



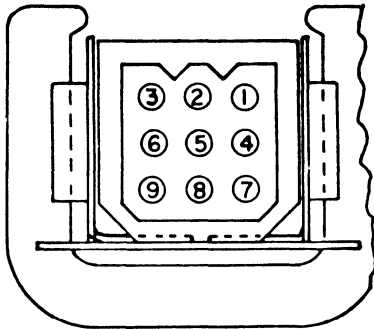
Warning: During reassembly, carefully seat circuit card pins into receptacles before applying pressure.

2.12 To reassemble volume control knob, support housing end of potentiometer before forcing knob over knurled shaft. The knob must be seated flush against surface of side frame.

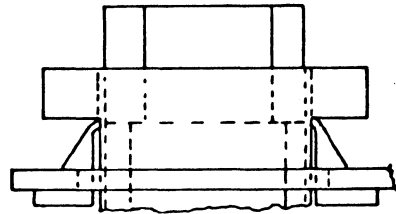
- 2.13 To reassemble SSI connector, install connector with shield into its mounting bracket so that the shield tabs go through the bracket.

Note: Shield ears may be bent during installation.

Interface Connector With Shield
(Installed on Mounting Bracket)



(Rear View)



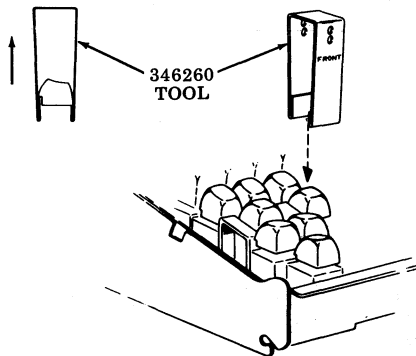
(Bottom View)

Keytops

- 2.14 To remove data keytops:

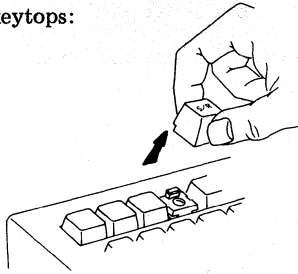
Place 346260 tool over the keytop and pull up to remove. This tool when used to remove the CAPS LOCK keytop will only engage the keytop in the unlatched position.

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



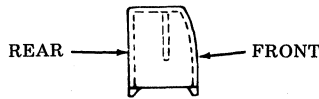
2.15 To remove control keytops and blocking keytops:

- ① Grasp keytop using thumb and index finger.
- ② Exert upward force until keytop releases.



2.16 To reassemble blocking keytop for the CAPS LOCK switch only, operate switch to latched (down) position. For all blocking keytops, position keytop over switch housing and snap down until ridges are retained by notches in switch body.

Caution: Control row blocking keytops are not the same on the front and rear side and must be assembled with the proper orientation. New style blocking keytop has finger-like extensions to the interior of the keytop to prevent reversal.

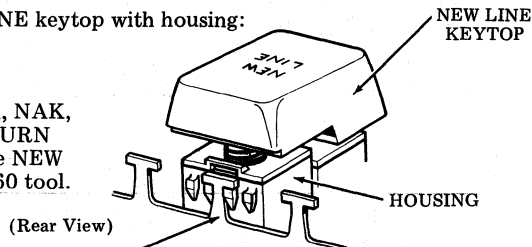


Profile of Control Row Blocking Keytop

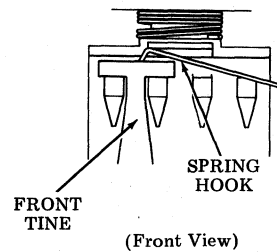
2.17 To remove the NEW LINE keytop with housing:

- Remove cover (2.09).

- ① Remove TAB, SYN, ACK, NAK, Quotes, SHIFT, and RETURN keytops that surround the NEW LINE keytop using 346260 tool.



- ② Disengage rear tine from housing with a small screwdriver while pulling NEW LINE keytop up and toward the front.



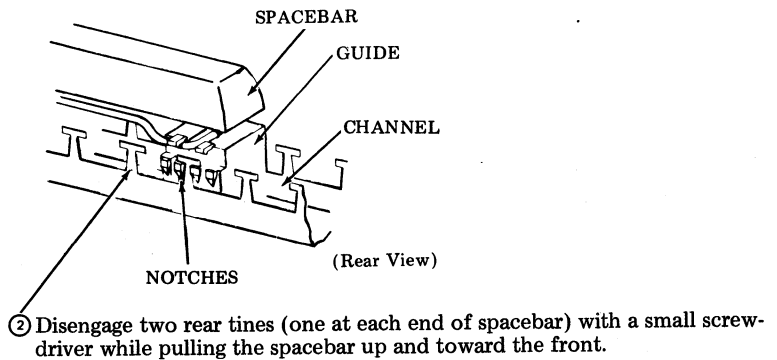
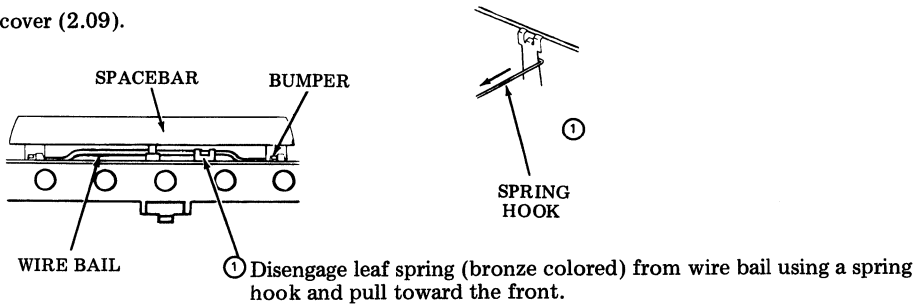
- ③ Continue applying upward pressure to the NEW LINE keytop and disengage the front tine from housing using a spring hook. Remove keytop with housing from channel.

2.18 To reassemble insert housing with keytop, observe position of locating lug on housing and press into channel. Housing must snap fully into front and rear channel tines.

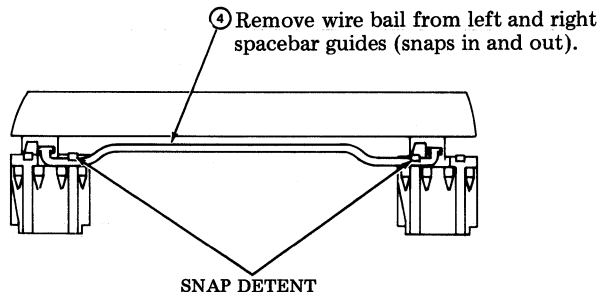
Spacebar Mechanism

2.19 To remove spacebar mechanism:

- Remove cover (2.09).



- ③ Continue applying upward pressure to spacebar and disengage two front tines.



- 2.20 To reassemble spacebar mechanism, make sure the four tines engage the notches in spacebar housing and leaf spring is engaged to wire bail.
- 2.21 Check mechanical operation of spacebar so that it returns to its unoperated position freely when depressed and released slowly.

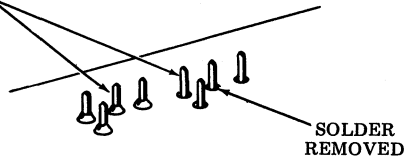
Keyswitches and 341088 Test Indicator Assembly

Note: Refer to Fig. 8 for keyswitch identification.

2.22 To remove keyswitches and 341088 test indicator assembly:

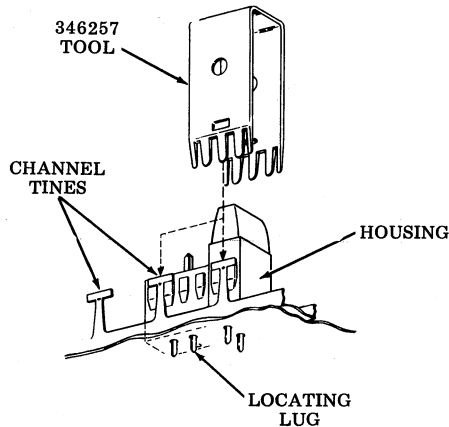
- Remove cover (2.09).
- Remove pan (2.10).
- Remove interface and bell card if present (2.11).
- Remove keytop if keyswitch is being removed (2.14), or unsnap test indicator cap.

- ① Remove solder from around terminal pins of keyswitch or test indicator to be removed.



Warning: Use a grounded, low wattage soldering iron (avoid prolonged contact with pins) along with a desoldering tool to prevent damage to keyswitch card circuits and components.

- ② Place 346257 tool over keyswitch or test indicator and press downward. When tool bottoms and embossed projections snap into notches on housing, squeeze and pull back on tool to lift keyswitch or test indicator out.



Note: The tines of the tool must pass between keyswitch or test indicator housing and inside of channel tines.

2.23 To reassemble, insert new keyswitch or test indicator, observe position of locating lug (on keyswitch only), and press into channel. Housing must snap fully into front and rear channel tines. Hold keyswitch or test indicator in place and resolder.

RO OPCON

A. Removal and Replacement

2.24 Removal and replacement of the RO opcon can be accomplished by following procedures for KD opcon (2.04 and 2.05).

Note: For 40K003/40K004 opcon removal, remove the opcon connector with a flat cable from the 410675 circuit card assembly in procedure 2.04. For 40K003/40K004 opcon replacement, reverse the procedure in the above.

B. Keytop Conversions

2.25 Keytop conversions can easily be performed by substituting certain designated keytops or blocking keytops without removing the opcon from the set.

2.26 The keytops that are affected in conversions are TRANS START or TEST and DATA ERROR. If conversions are made to directly substitute opcons with different arrangements, the necessary parts can be interchanged between units.

2.27 There are two types of keytops involved in conversions: control and blocking (see Fig. 3). Refer to Fig. 16 for part numbers required when keytops must be ordered and stocked to provide these conversions.

C. Major Parts Identification

Note: To remove a subassembly or individual part, proceed to the paragraph number referenced in parentheses.

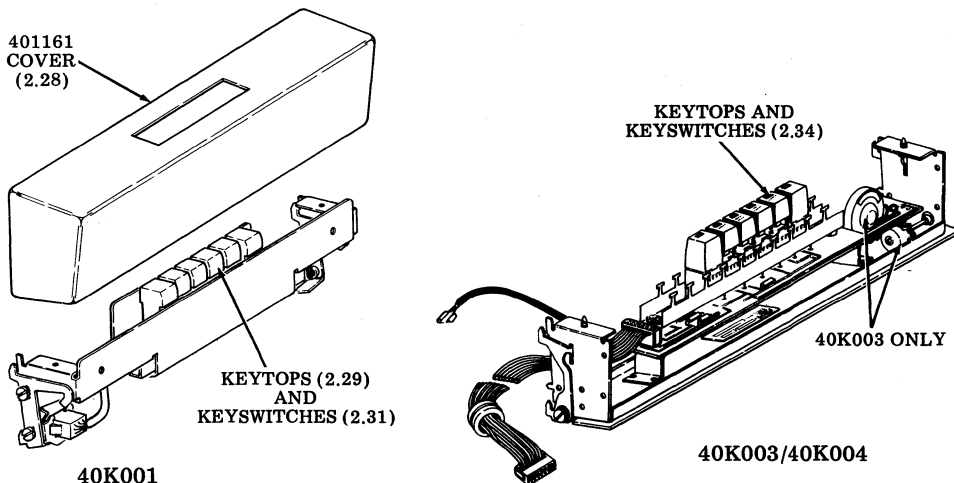
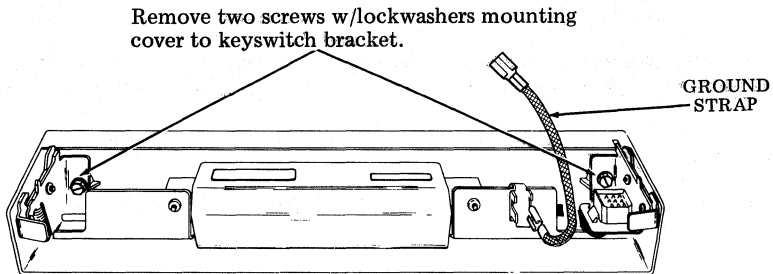


Fig. 5—RO Opcon

D. Disassembly/Reassembly

401161 Cover

2.28 To remove 401161 cover:



40K001 Opcon

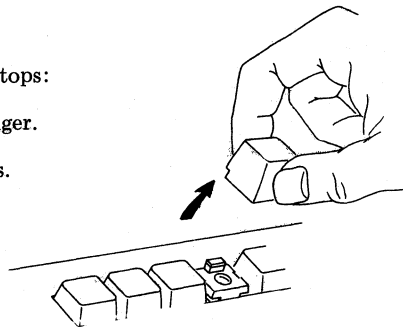
Note: Two cover mounting screws in the 40K004 and 40K003 opcons are located in the area as shown in the 40K001 opcon.

Keytops

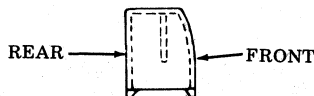
2.29 To remove control and blocking keytops:

Grasp keytop using thumb and index finger.

② Exert upward force until keytop releases.



Caution: Blocking keytops are not the same on the front and rear side and must be assembled with the proper orientation. New style blocking keytop has finger-like extensions to the interior of the keytop to prevent reversal.



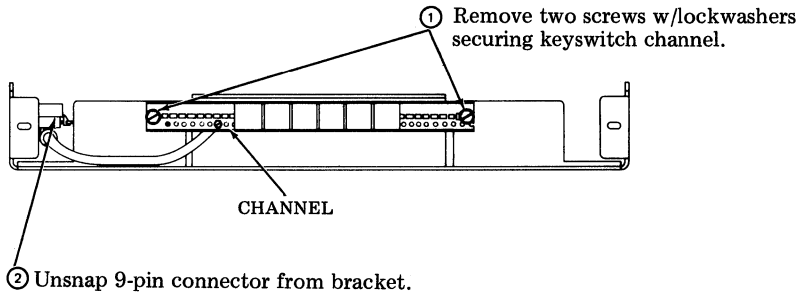
Profile of Blocking Keytop

2.30 To reassemble blocking keytops, position blocking keytop over switch housing until ridges are retained by notches in switch body.

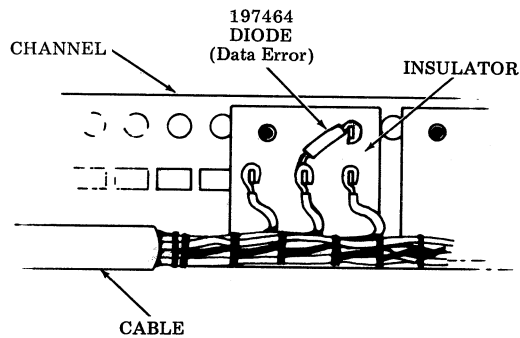
Keystrokes

2.31 To remove keystrokes in 40K001 opcon:

- Remove cover (2.28).
- Remove keytops (2.29).



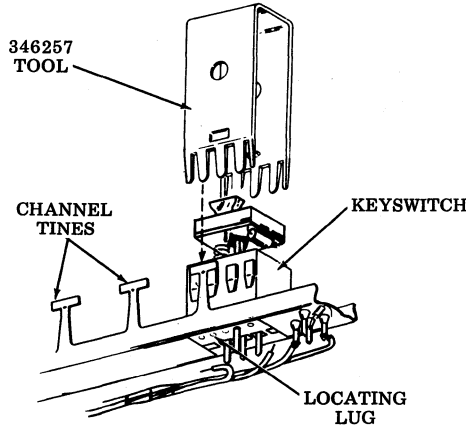
- ③ Remove solder from terminal pins securing cable leads and jumpers, and remove insulator.



Warning: Use a low wattage (avoid prolonged contact with pins) soldering iron along with a desoldering tool to prevent damage to cable leads.

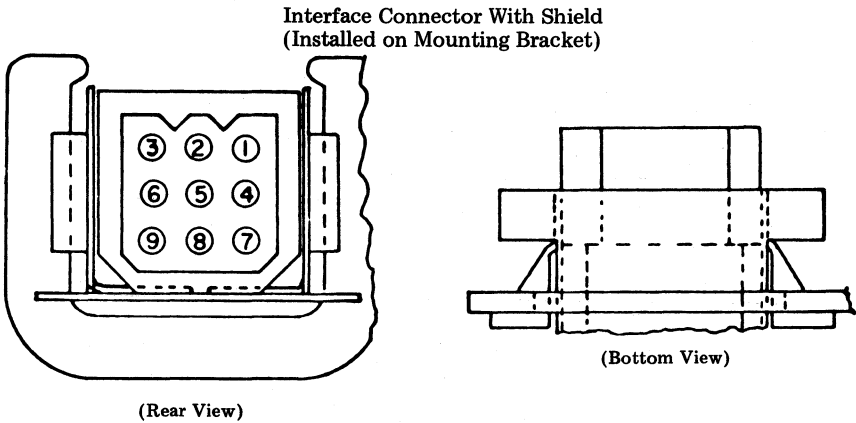
- ④ Place 346257 tool over keyswitch and press downward. When tool bottoms and embossed projections snap into notches on keyswitch, squeeze and pull back on tool to lift keyswitch out.

Note: The tines of the tool must pass between the keyswitch housing and the inside of channel tines.



- 2.32 To reassemble the keyswitches in 40K001 opcon, insert new keyswitch, observe position of locating lug, and press keyswitch into channel. Switch must snap fully into front and rear channel tines. Before resoldering, replace insulator, hold keyswitch in place and resolder.
- 2.33 To reassemble 9-pin connector in 40K001 or 40K004 opcon, install connector with shield into its mounting bracket so that shield tabs go through the bracket.

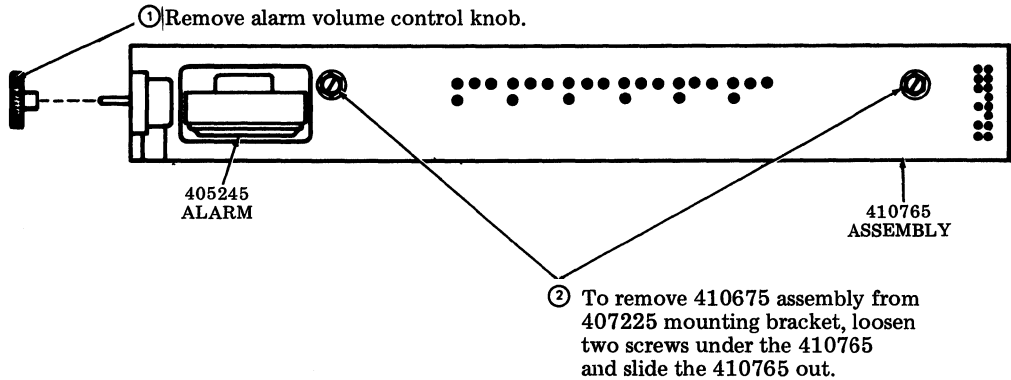
Note: Shield ears may be bent during installation.



2.34 To remove keyswitches in 40K003 and 40K004 opcons:

- Remove Cover (2.28)
- Remove keytops (2.29)

Note: Alarm and alarm volume control not present on 40K004 opcon.



③ Remove solder from the keyswitch terminals on the 410765 circuit card assembly.

④ Follow the instruction ④ in 2.31.

2.35 To reassemble the keyswitches in 40K003/40K004 opcon, observe position of locating lug, and press keyswitch into channel and 410765 circuit card holes. Switch must snap fully into front and rear channel times. Before resoldering, hold keyswitch in place and resolder.

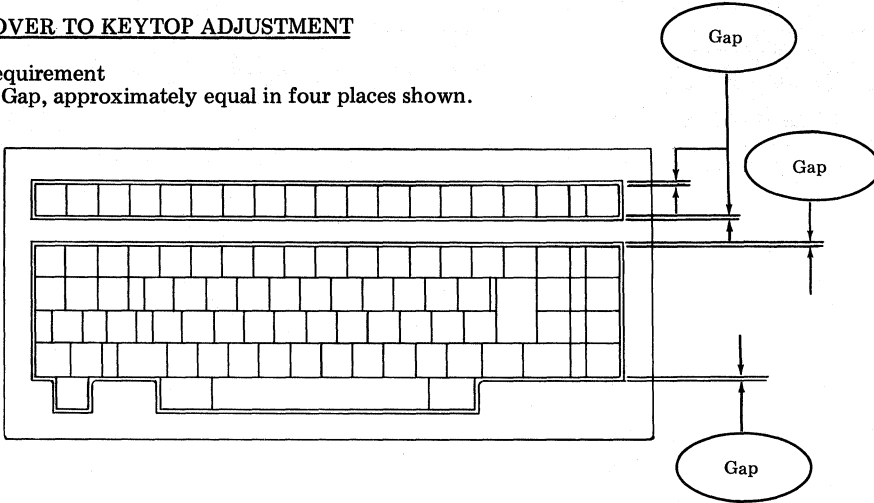
3. ADJUSTMENT

3.01 The clearance between the cover and keytop is the only adjustment provided on the KD. Normally, readjustment is not necessary unless the cover is replaced or if there is an interference between a keytop and the cover.

COVER TO KEYTOP ADJUSTMENT

Requirement

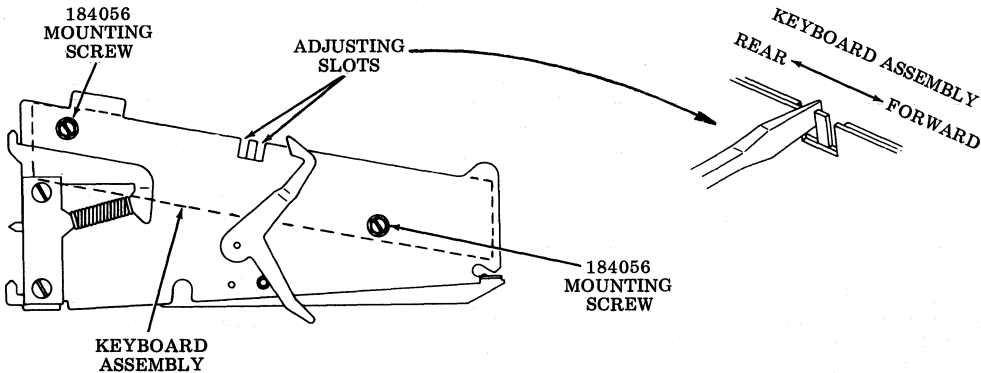
Gap, approximately equal in four places shown.



To Adjust

- Remove cover (2.09).

Loosen two 184056 mounting screws friction tight on both sides of opcon.



Insert screwdriver blade into adjusting slot and move keyboard assembly forward or to the rear to gain gap clearance.

Tighten screws, replace cover and check gaps.

Note: If gaps required are not approximately equal after reassembly, remove cover and repeat adjustment procedures.

4. PARTS

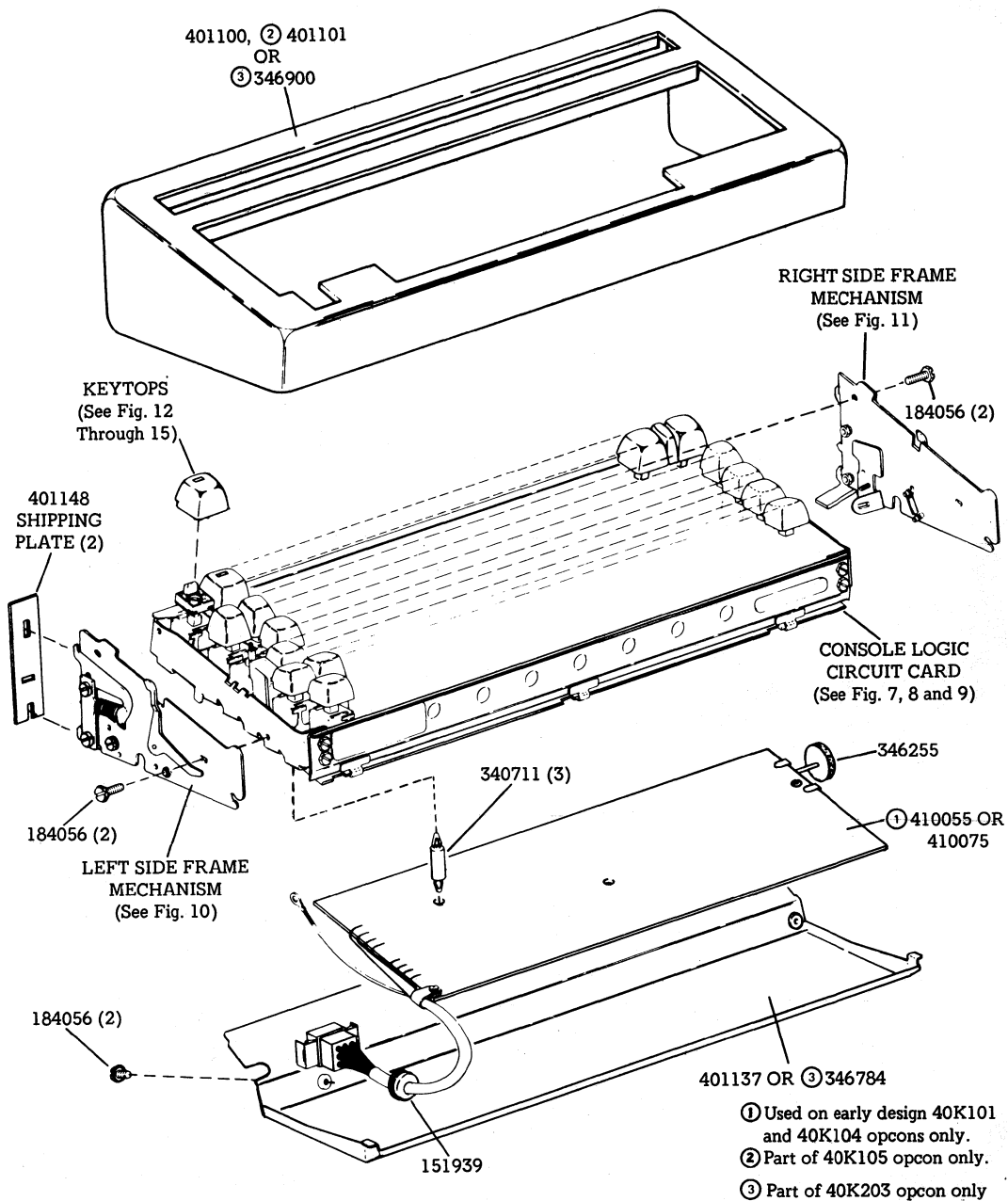


Fig. 6—KD Opcon (40K101, 40K104,203 and 40K105) Major Components

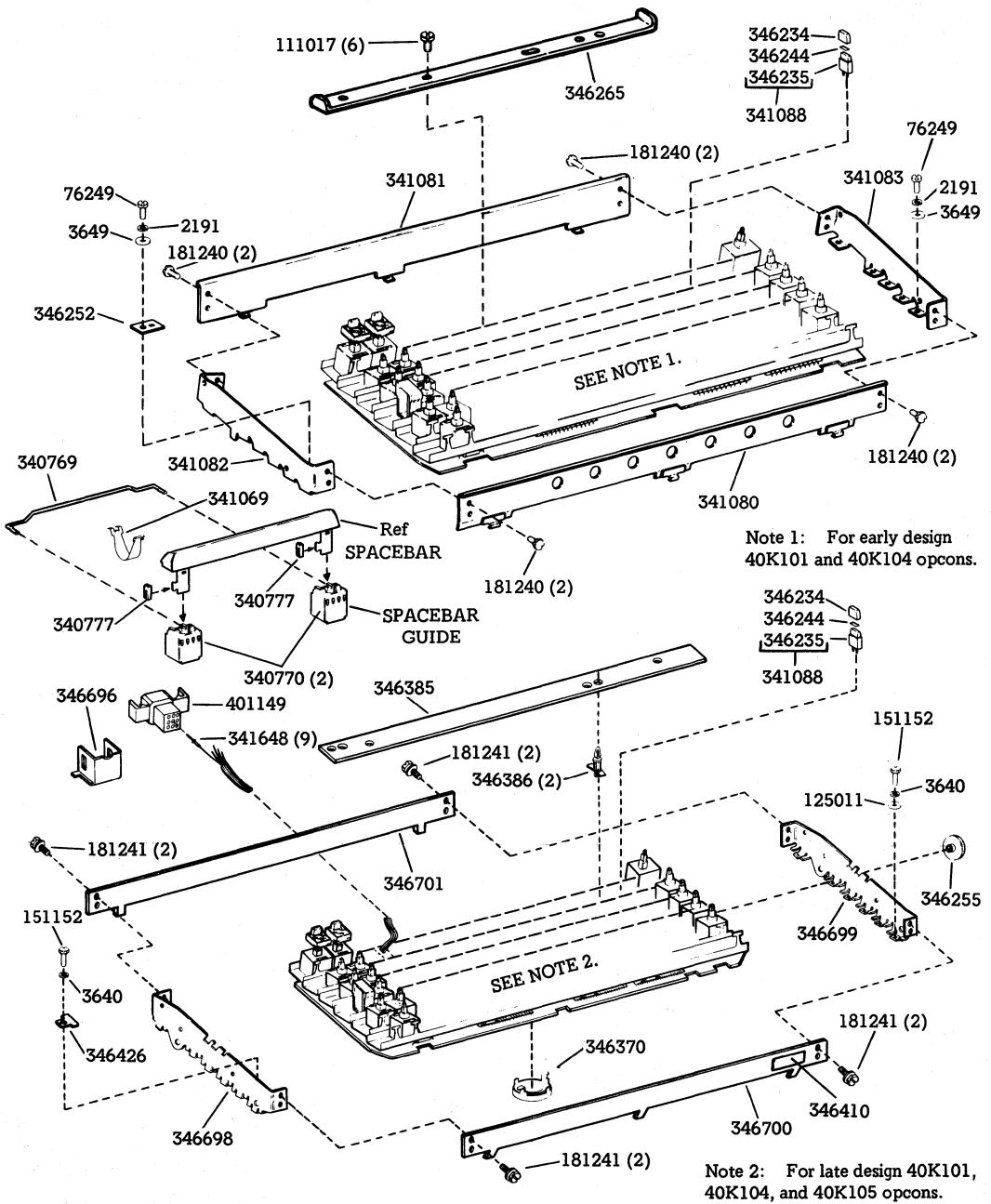


Fig. 7—Console Logic Circuit Card

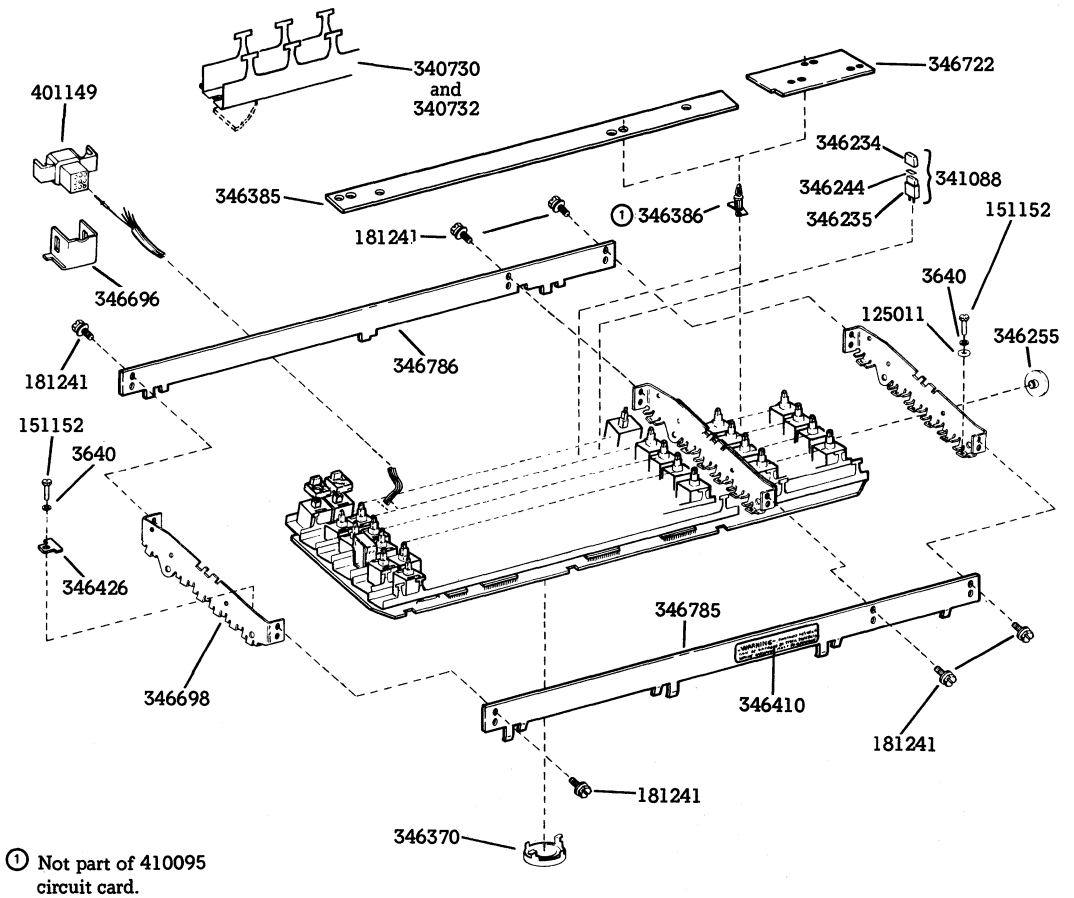
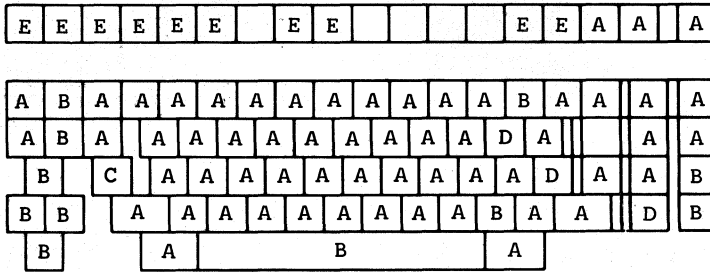
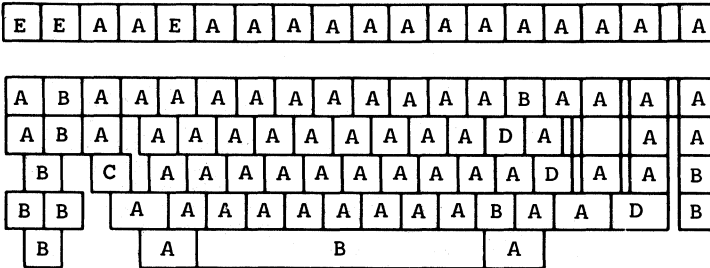


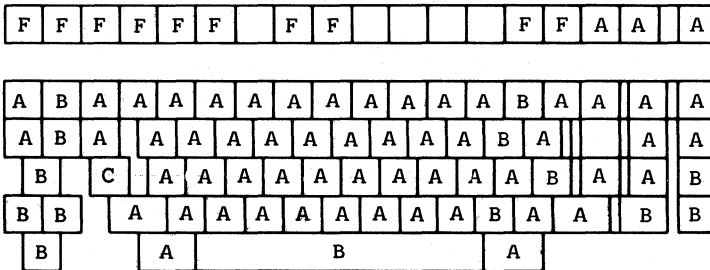
Fig. 8—410095 Console Logic Circuit Card Components for 40K203 Wide Opcon



Early Design 40K101 Opcon



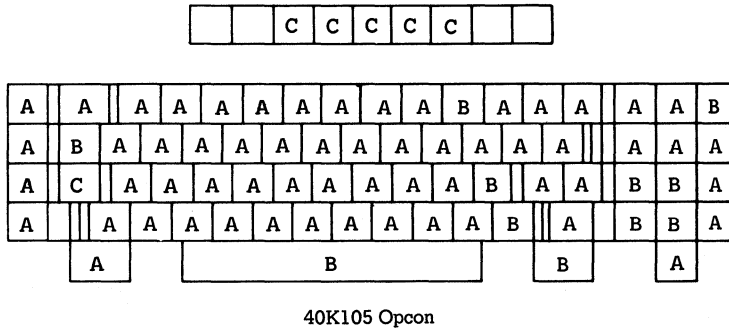
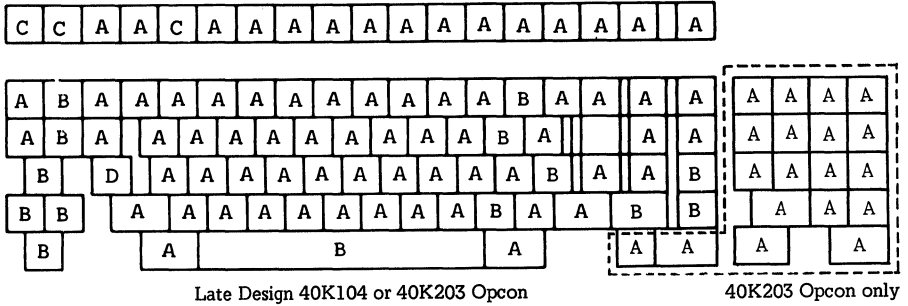
Early Design 40K104 Opcon



Late Design 40K101 Opcon

POS	KEYSWITCH NO.	TYPES	PUSH ROD COLOR
A	340720	Basic	White
B	340721	Repeat	Green
C	340722	Latching	Black
D	341097	Combination	Yellow
E	346211	Indicator W/Resistor	Orange
F	346359	Indicator	Orange

Fig. 9--Keyswitch Identification



POS	KEYSWITCH NO.	TYPES	PUSH ROD COLOR
A	340720	Basic	White
B	340721	Repeat	Green
C	346359	Indicator	Orange
D	340722	Latching	Black

Fig. 10—Keyswitch Identification

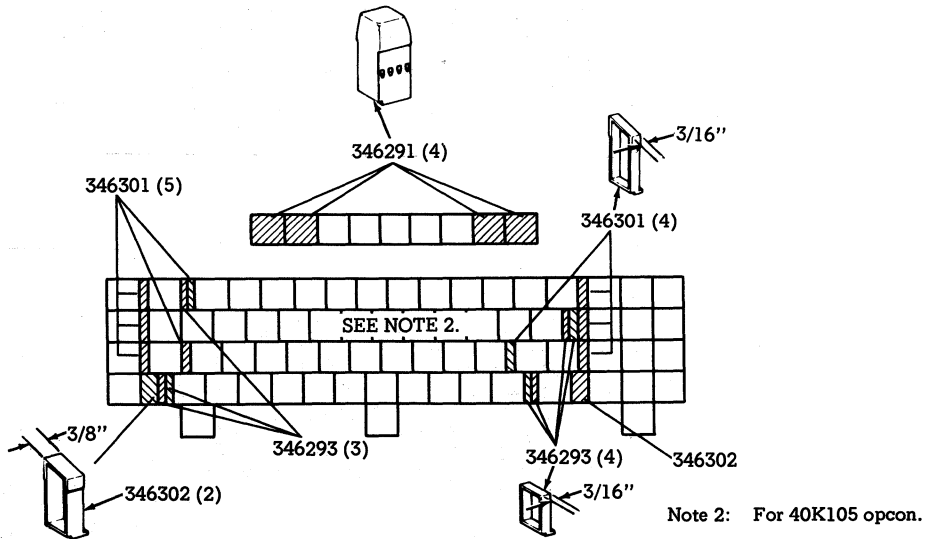
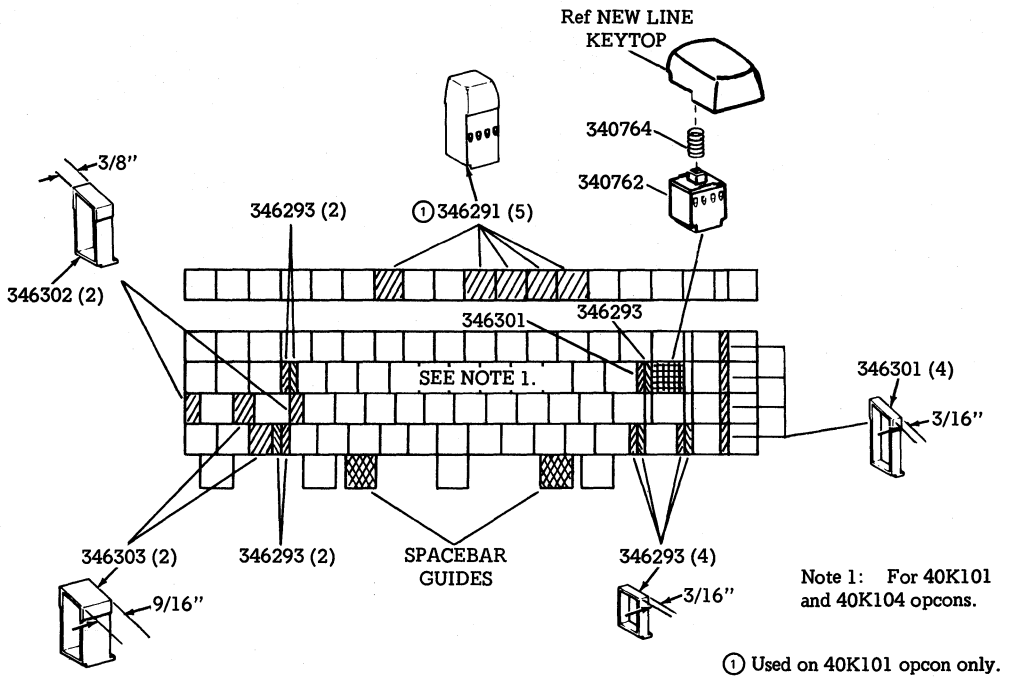


Fig. 11 - Keyswitch Channel Spacers

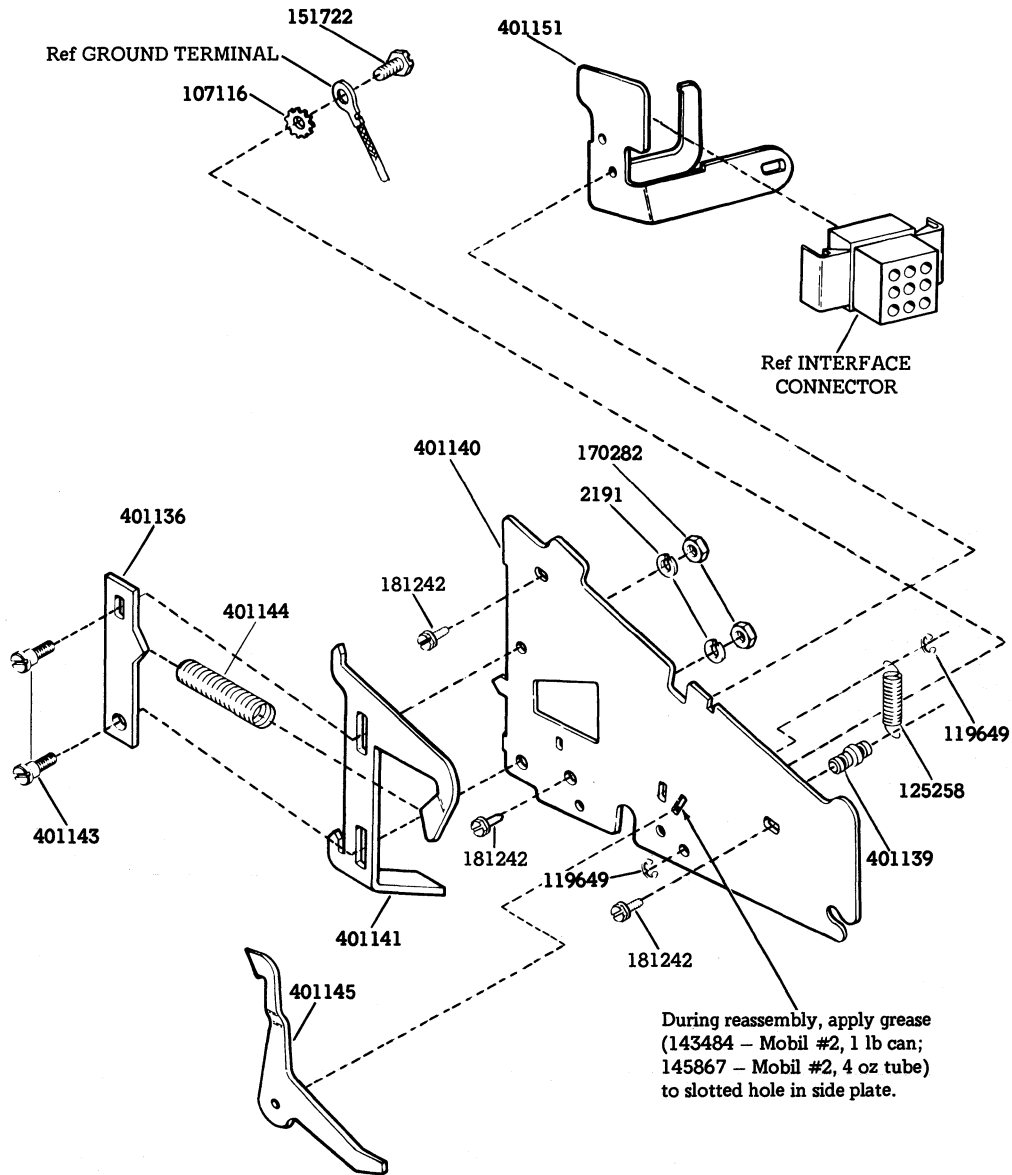


Fig. 12-Left Side Frame Mechanism

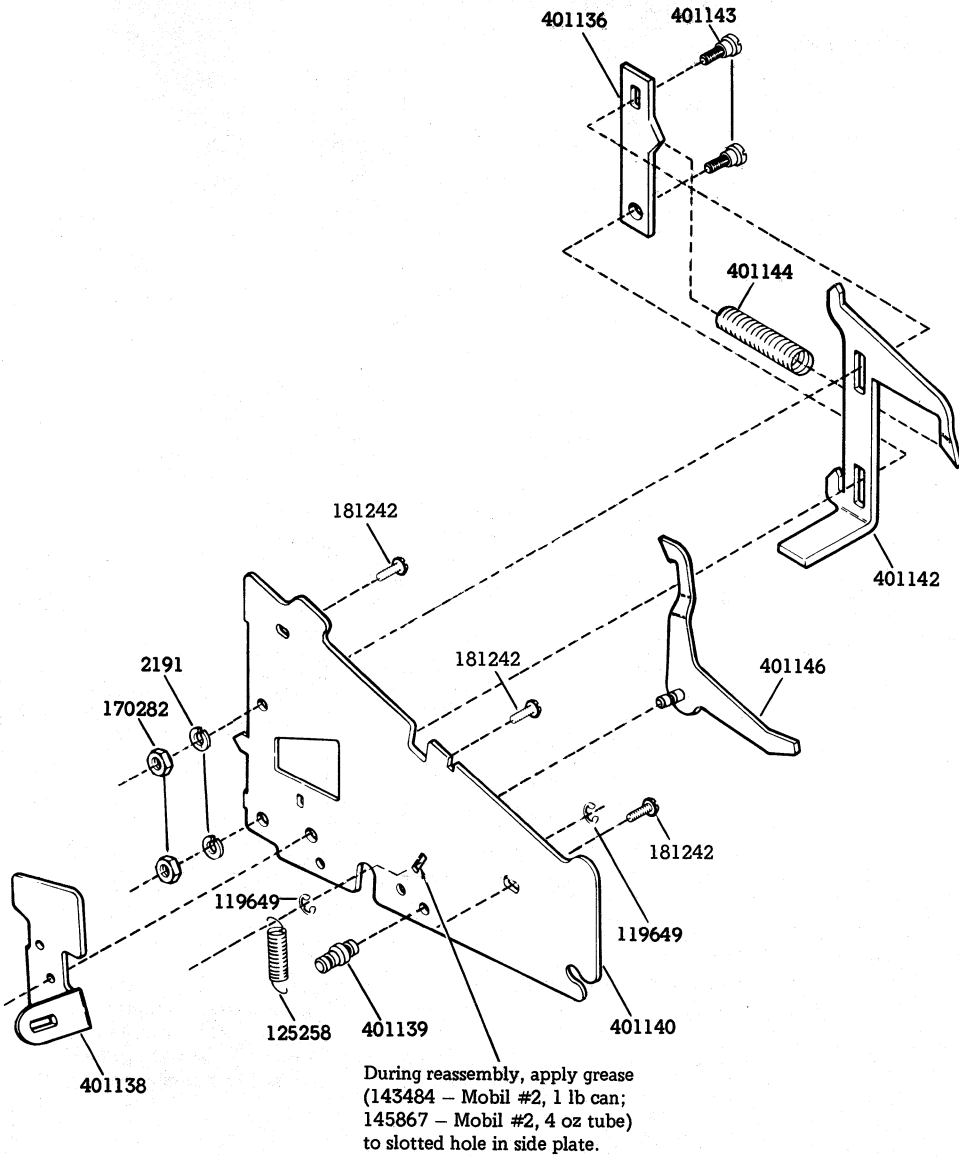
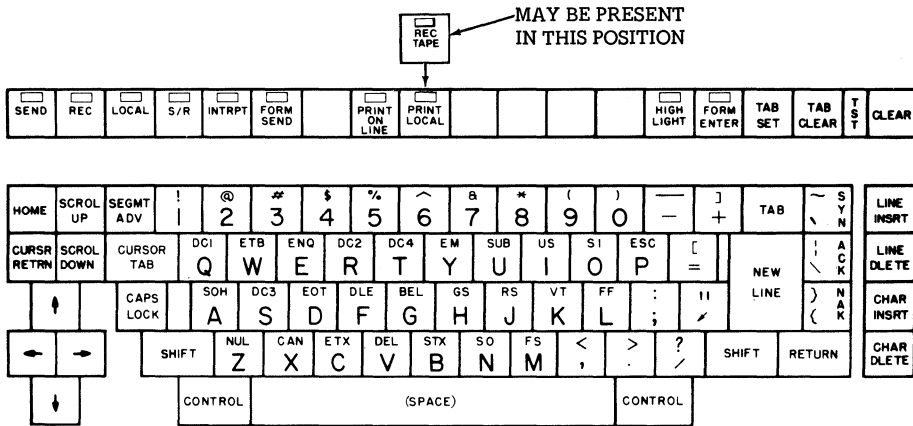


Fig. 13-Right Side Frame Mechanism

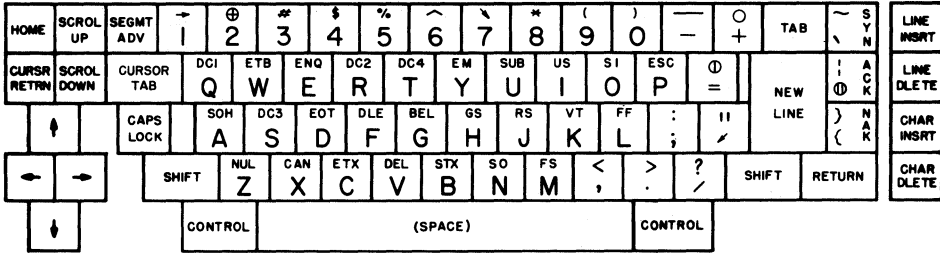


PART NO.	KEYTOP DESCR	PART NO.	KEYTOP DESCR	PART NO.	KEYTOP DESCR
340701	BLOCKING (CONTROL)	340850	↑	340888	TAB
340714	BLOCKING (DATA)	340852	SOH A	340889] +
‡ 340767	NEW LINE	340853	DC3 S	340890	[=
340778	(SPACE)	340854	EOT D	340891	RETURN
340818	HOME	340856	BEL G	340892	} NAK {
340819	SCROL UP	340857	GS H	340893	| ACK \
340821	! 1	340858	RS J	340894	CAPS LOCK
340822	@ 2	340859	VT K	340895	SEGMT ADV
340823	# 3	340860	FF L	340896	~ SYN `
340824	\$ 4	340861	:	340897	DLE F
340825	% 5	340862	" /	340898	CURSOR TAB (WIDE)
340826	^ 6	340863	LINE DELETE	346100	SEND
340827	& 7	340865	←	346101	REC
340828	* 8	340866	→	346102	LOCAL
340829	(9	340867	SHIFT	346103	S/R
340830	) 0	340868	NUL Z	346104	PRINT ON LINE
340831	- -	340869	CAN X	346105	PRINT LOCAL
340835	CURSR RETRN	340870	ETX C	346106	INTRPT
340836	SCROL DOWN	340871	DEL V	346107	HIGH LIGHT
§ 340837	CURSR TAB	340872	STX B	346108	FORM ENTER
340838	DC1 Q	340873	SO N	346110	TAB SET
340839	ETB W	340874	FS M	346111	TAB CLEAR
340840	ENQ E	340875	< ,	346114	CLEAR
340841	DC2 R	340876	> .	346121	FORM SEND
340842	DC4 T	340877	? /	346122	REC TAPE
340843	EM Y	340879	↓	346259	BLOCKING (WIDE CURSOR TAB)
340845	US I	340880	CONTROL		
340846	SI O	340881	CHAR INSRT		
340847	ESC P	340882	CHAR DELETE		
340849	LINE INSRT	340887	SUB U		

‡ The 340764 compression spring between the 340767 keytop and the keyswitch housing must be ordered separately.

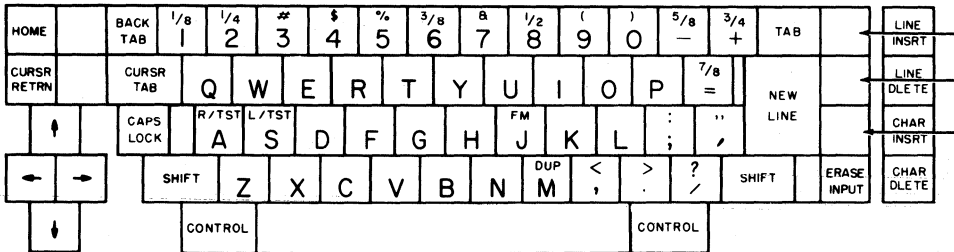
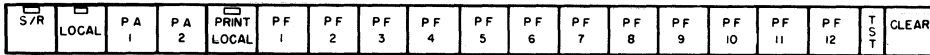
§ Early design

Fig. 14-40K101 Keypop Identification



PART NO.	KEYTOP DESCR	PART NO.	KEYTOP DESCR
340914	→ 1	340918	⊕ =
340915	⊕ 2	340919	/ " "
340916	/ 7	340920	⊕ |
340917	⊕ +		ACK

Fig. 15-403596 Modification Kit to Provide 40K101 Opcon With Weather Symbol Keytops

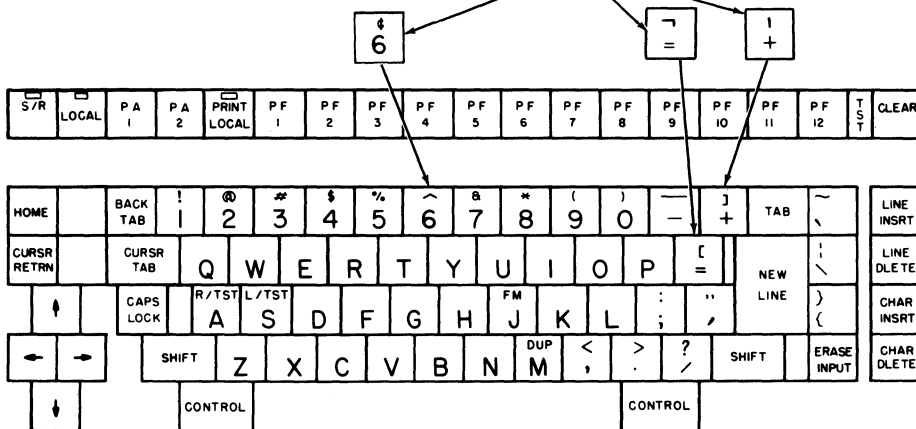


PART NO.	KEYTOP DESCR	PART NO.	KEYTOP DESCR
340900	1/8 1	340904	5/8 -
340901	1/4 2	340905	3/4 +
340902	3/8 6	340906	7/8 =
340903	1/2 8	340714(3)	Blocking Keytop

340714 (3)

Fig. 16-408868 Modification Kit to Provide 40K104 Opcon With Fraction Symbol Keytops

ON EBCDIC KEYBOARD ONLY

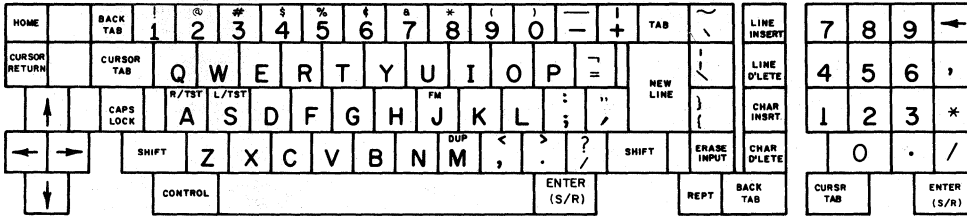


PART NO.	KEYTOP DESCR	PART NO.	KEYTOP DESCR	PART NO.	KEYTOP DESCR
340701	BLOCKING (CONTROL)	340881	CHAR INSRT	341010	L
340714	BLOCKING (DATA)	340882	CHAR DLETE	341011) (
¶ 340767	NEW LINE	340888	TAB	341012	Z
340778	(SPACE)	340889	] +	341013	X
340818	HOME	340890	[=	341014	C
340821	! 1	340894	CAPS LOCK	341015	V
340822	@ 2	340898	CURSOR TAB	341016	B
340823	# 3	340907	BACK TAB	341017	N
340824	\$ 4	340908	ERASE INPUT	341027	6
340825	% 5	340910	R/TST A	341028	+
340826	^ 6	340911	L/TST S	341029	=
340827	& 7	340912	FM J	346102	LOCAL
340828	* 8	340913	DUP M	346103	S/R
340829	(9	340992	~ \	346105	PRINT LOCAL
340830	) 0	340993	Q	346114	CLEAR
340831	- -	340994	W	346143	PA1
340835	CURSR RETRN	340995	E	346144	PA2
340849	LINE INSRT	340996	R	346145	PF1
340850	↑	340997	T	346146	PF2
340861	⋮ ;	340998	Y	346147	PF3
340862	⋮ ;	340999	U	346148	PF4
340863	LINE DLETE	341000	I	346149	PF5
340865	←	341001	O	346150	PF6
340866	→	341002	P	346151	PF7
340867	SHIFT	341004	| \	346152	PF8
340875	<	341005	D	346153	PF9
340876	>	341006	F	346154	PF10
340877	?	341007	G	346155	PF11
340879	↓	341008	H	346156	PF12
340880	CONTROL	341009	K		

¶ The 340764 compression spring between the 340767 keytop and the keyswitch housing must be ordered separately.

Fig. 17-40K104 Keytop Identification

S/R	LOCAL	PA 1	PA 2	PRINT LOCAL	PF 1	PF 2	PF 3	PF 4	PF 5	PF 6	PF 7	PF 8	PF 9	PF 10	PF 11	PF 12	T S T	CLEAR
-----	-------	------	------	-------------	------	------	------	------	------	------	------	------	------	-------	-------	-------	-------	-------

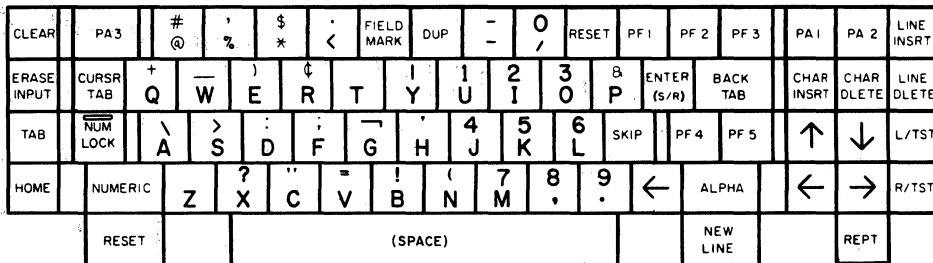
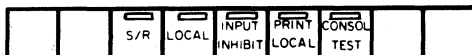


KEYTOP LAYOUT (EBCDIC)

PART NO.	KEYTOP DESCR	PART NO.	KEYTOP DESCR	PART NO.	KEYTOP DESCR
340701	BLOCKING (CONTROL)	340881	CHAR INSRT	341010	L
340714	BLOCKING (DATA)	340882	CHAR DELETE	341011) (
¶ 340767	NEW LINE	340888	TAB	341012	Z
340778	(SPACE)	340889	] *	341013	X
340818	HOME	340890	[:	341014	C
340821	' 1	340894	CAPS LOCK	341015	V
340822	@ 2	340898	CURSOR TAB	341016	B
340823	# 3	340907	BACK TAB	341017	N
340824	\$ 4	340908	ERASE INPUT	341027	† 6
340825	% 5	340910	R/TST A	341028	! +
340826	^ 6	340911	L/TST S	341029	~ =
340827	& 7	340912	FM J	346102	LOCAL
340828	* 8	340913	DUP M	346103	S/R
340829	(9	340992	~	346105	PRINT LOCAL
340830	) 0	340993	Q	346114	CLEAR
340831	- -	340994	W	346143	PA1
340835	CURSR RETRNR	340995	E	346144	PA2
340849	LINE INSRT	340996	R	346145	PF1
340850	↑	340997	T	346146	PF2
340861	: :	340998	Y	346147	PF3
340862	" ' :	340999	U	346148	PF4
340863	LINE DLETE	341000	I	346149	PF5
340865	←	341001	O	346150	PF6
340866	→	341002	P	346151	PF7
340867	SHIFT	341004	! \	346152	PF8
340875	< .	341005	D	346153	PF9
340876	> .	341006	F	346154	PF10
340877	? /	341007	G	346155	PF11
340879	↓	341008	H	346156	PF12
340880	CONTROL	341009	K		
The part numbers above this line are the same as 40K104.					
346560	Keytop 1	346566	Keytop 7	346574	
346561	Keytop 2	346567	Keytop 8	346583	
346562	Keytop 3	346568	Keytop 9	346584	CURSR TAB
346563	Keytop 4	346570	Keytop CURSR LEFT	346586	ENTER S/R
346564	Keytop 5	346572	*	346588	BACK TAB
346565	Keytop 6	346573	/	347122	KEYTOP 0
				340988	KEYTOP REPEAT

¶ The 340764 compression spring between the 340767 keytop and the keyswitch housing must be ordered separately.

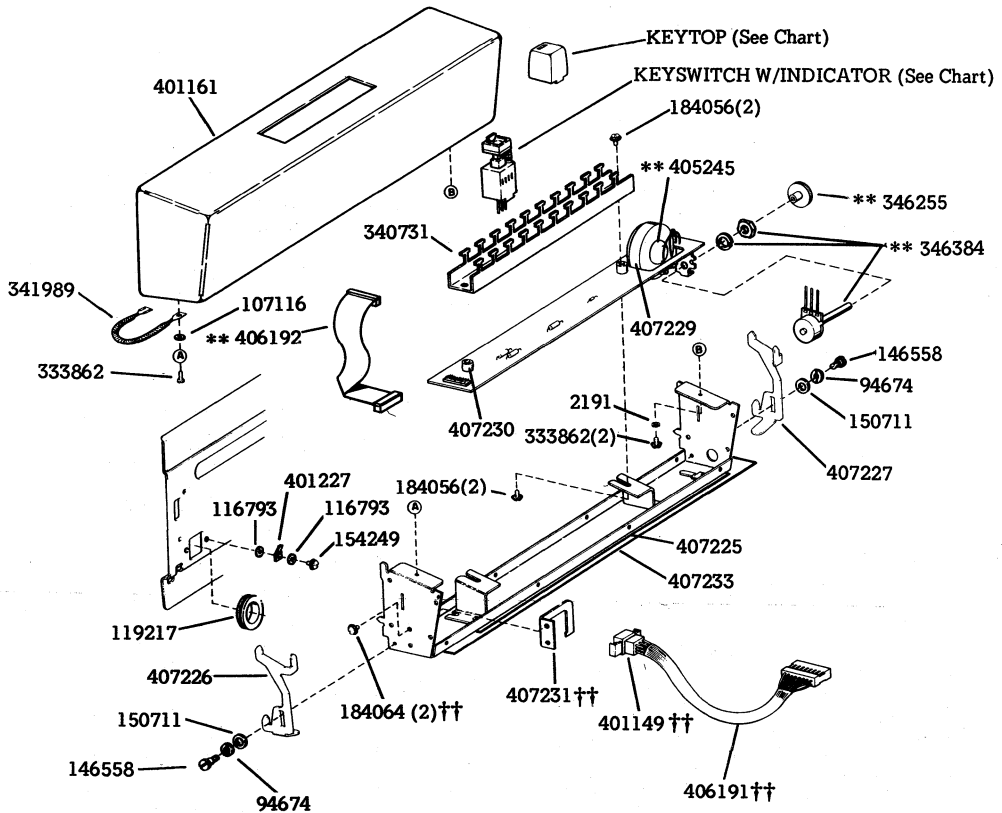
Fig. 18—40K203/GAB Keytop Identification



PART NO.	KEYTOP DESCR	PART NO.	KEYTOP DESCR	PART NO.	KEYTOP DESCR
340778	(SPACE)	346461	PF2	346487	PF5
340837	CURSR TAB	346462	PA1	346488	L/TST
340849	LINE INSRT	346463	PA2	346489	NUMERIC
340850	↑	346464	ERASE INPUT	346490	? X
340863	LINE DELETE	346465	+ Q	346491	" C
340865	←	346466	- W	346492	= V
340866	→	346467	) E	346493	! B
340988	REPT	346468	+ R	346494	(N
340997	T	346469	| Y	346495	7 M
341012	Z	346470	1 U	346496	8 ,
346102	LOCAL	346471	2 I	346497	9 .
346103	S/R	346472	3 O	346498	ALPHA
346105	PRINT LOCAL	346473	& P	346499	R/TST
346189	INPUT INHIBIT	346475	BACK TAB	346500	PF3
346190	CONSOL TEST	346476	\ A	346501	RESET
346451	CLEAR	346477	> S	346502	%
346452	PA3	346478	: D	346506	-
346453	# @	346479	; F	346507	CHAR INSRT
346454	\$ *	346480	↵ G	346508	CHAR DELETE
346455	' <	346481	¶ H	346509	TAB
346456	FIELD MARK	346482	4 J	346510	↓
346457	DUP	346483	5 K	346511	NEW LINE
346458	0 /	346484	6 L	346512	HOME
346459	RESET	346485	SKIP	346518	ENTER (S/R)
346460	PF1	346486	PF4	346800	NUM LOCK

Fig. 19-40K105 Keypop Identification

KEYTOP NO.	KEYTOP DESCRIPTION	KEYSWITCH NO.	INDICATOR HOLDER COLOR
346106	INTRPT	346361	Light Gray
346125	TEST	346360	White
346113	IN SERVICE	346360	White
346119	DATA ERROR	346361	Light Gray
346163	ALARM	346361	Light Gray
346180	POL/SEL	346360	White
407232	BLOCKING		
346291	DUMMY		



** 40K003 only

†† 40K004 only

Fig. 20—RO Opcon (40K003 and 40K004) Components

NUMERICAL INDEX

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
2191	Lockwasher 18,23,24	340769	Bail, Wire 18	340910	
3599	Nut, 4-40 Hex 31	340770	Guide 18	thru	
3640	Lockwasher 18,19,31	340777	Bumper 18	340913	Keypot 27,28
3649	Washer, Flat 18	340778	Keypot 25,27,28,29	340914	
6800	Screw, 6-40 Shoulder 31	340818	Keypot 25,27,28	thru	
76249	Screw, 6-40 x 1/8 Fil 18	340819	Keypot 25	340920	Keypot 26
94674	Washer, Cup 30	340821	thru	340988	Keypot 28,29
107116	Lockwasher 23,30,31	thru		340992	
111017	Screw, 6-40 x 5/16 Fil 18	340831	Keypot 25,27,28	thru	
116793	Lockwasher 30	340835	Keypot 25,27,28	340996	Keypot 27,28
119217	Grommet, Rubber 30	340836	Keypot 25	340997	Keypot 27,28,29
119649	Ring, Retaining 23,24	340837	Keypot 25,29	340998	
121244	Clamp, 1/4 ID Cable 31	340838	thru	thru	
125011	Washer, Flat 18,19,31	thru		341002	Keypot 27,28
125258	Spring 23,24	340843	Keypot 25	341004	
143484	Grease, 1 Lb. 23,24	340845	thru	thru	
145867	Grease, 4 oz. Tube 23,24	340847	Keypot 25	341011	Keypot 27,28
146558	Screw, 6-40 Shoulder 30	340849	Keypot 25,27,28,29	341012	Keypot 27,28,29
150711	Washer, Flat 30	340850	Keypot 25,27,28,29	341013	
151152	Screw, 4-40 x 3/16 Hex 18,19	340852	thru	thru	
151722	Screw, 6-40 x 3/16 Hex 23	thru		341017	Keypot 27,28
151939	Grommet, Rubber 17	340854	Keypot 25	341027	
153817	Screw, 4-40 x 3/8 Hex 31	340856	thru	thru	
154249	Screw, #8B Self-Tapping 30	thru		341029	Keypot 27,28
170282	Nut, 6-40 Hex 23,24	340860	Keypot 25	341069	Spring, Leaf 18
181240	Screw w/Lockwasher, 6-40 x 3/16 Hex 18	340861	thru	341080	Frame, Front 18
181241	Screw w/Lockwasher, 6-40 x 1/4 Hex 18,19	340862	Keypot 25,27,28	341081	Frame, Rear 18
181242	Screw w/Lockwasher, 6-40 x 5/16 Hex 23,24	340863	Keypot 25,27,28,29	341082	Frame, Left 18
184056	Screw w/Lockwasher, 6-40 x 1/4 Hex 17,30,31	340865	Keypot 25,27,28,29	341083	Frame, Right 18
184064	Screw w/Lockwasher, 6-40 x 1 Hex 30	340866	Keypot 25,27,28,29	341088	Indicator Assembly, Test 18,19
197464	Diode 31	340867	Keypot 25,27,28	341097	Keypot 25,27,28,29
198670	Screw w/Lockwasher, 6-40 x 5/16 Hex 31	340875	Keypot 25,27,28	341099	Cable Assembly 31
333862	Screw, Special 30	thru		341648	Terminal, Receptacle Type 18,31
340701	Keypot 25,27,28,31	340877	Keypot 25,27,28	341989	Strap 30,31
340711	Support 17	340879	thru	346100	Keypot 25
340714	Keypot 25,26,27,28	340882	Keypot 25,27,28	346101	Keypot 25
340720	Keypot 25,27,28,31	340887	Keypot 25,27	346102	Keypot 25,27,28,29
340721	Keypot 25,26,27,28	340888	thru	346103	Keypot 25,27,28,29
340722	Keypot 25,27,28,29	thru		346105	Keypot 25,27,28,29
340730	Keypot 25,27,28,29	340890	Keypot 25,27,28	346106	Keypot 25,30,31
340731	Keypot 25,27,28,29	340891	thru	346107	thru
340732	Keypot 25,27,28,29	thru		346108	Keypot 25
340762	Keypot 25,27,28,29	340893	Keypot 25	346110	Keypot 25
340764	Keypot 25,27,28,29	340894	Keypot 25,27,28	346111	Keypot 25
340767	Keypot 25,27,28	340898	Keypot 25,27,28	346113	Keypot 30,31
		340900	thru	346114	Keypot 25,27,28
		thru		346115	Keypot 31
		340906	Keypot 26	346119	Keypot 30,31
		340907	thru	346121	Keypot 25
		thru		346122	Keypot 25
		340908	Keypot 27,28		

NUMERICAL INDEX (Cont)

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
346125	Keytop 30,31	346475		401138	Bracket 24
346143		thru		401139	Post, Spring 23,24
thru		346502	Keytop 29	401140	Plate 23,24
346156	Keytop 27,28	346506		401141	Latch, Left Plate 23,31
346163	Keytop 30	thru		401142	Latch, Right Plate 24,31
346180	Keytop 30	346512	Keytop 29	401143	Screw, 6-40 x 11/32
346189		346518	Keytop 29		Shoulder 23,24
thru		346560		401144	Spring 23,24,31
346190	Keytop 29	thru		401145	Latch, Left Cover 23
346211	Keyswitch Assembly 20	346568	Keytop 28	401146	Latch, Right Cover 24
346212	Keyswitch Assembly 31	346570	Keytop 28	401148	Plate 17
346213	Keyswitch Assembly 31	346572		401149	Connector, 9Pt Plug 18,
346234	Cap 18,19	thru			19,30,31
346235	Housing 18,19	346574	Keytop 28	401151	Bracket 23
346241	Insulator 31	346583		401161	Cover 30,31
346244	Label 18,19	thru		401162	Bracket 31
346252	Plate 18	346584	Keytop 28	401227	Tab, Terminal 30
346255	Knob 17,18,19,30	346586	Keytop 28	403596	Modification Kit 86
346259	Keytop 25	346588	Keytop 28	405245	Alarm 30
346265	Plate, Cover 18	346696	Shield 18,19,31	406191	Cable Assembly 30
346291	Spacer 22,30,31	346698	Frame, Left 18,19	406192	Cable Assembly 30
346293	Spacer 22	346699	Frame, Right 18	407225	Bracket 30
346301	Spacer 22	346700	Rail, Front 18	407226	Plate, Left Latch 30
346302	Spacer 22	346701	Rail, Rear 18	407227	Plate, Right Latch 30
346303	Spacer 22	346722	Cover 19	407229	Bracket 30
346359	Keyswitch 20,21	346784	Pan 17	407230	Post 30
346360	Keyswitch 30	346785	Rail, Front 19	407231	Bracket 30
346361	Keyswitch 30	346786	Rail, Rear 19	407232	Keytop 30
346370	Crystal Assembly 18,19	346800	Keytop 29	407233	Cover 30
346384	Resistor 30	346900	Cover 17	407288	Clamp 30
346385	Cover 18,19	347122	Keytop 28	408868	Modification Kit 26
346386	Support 18,19	401100	Cover 17	410055	Card, Circuit 17
346410	Label 18,19	401101	Cover 17	410075	Card, Circuit 17
346426	Plate, Locating 18,19	401136	Plate, Spring 23,24	410095	Card, Circuit 19
346451		401137	Pan 17		
thru					
346473	Keytop 29				



“DATASPEED*” 40 CABINETS

WIRING

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1. GENERAL

1.01 This section provides actual and schematic wiring diagrams for DATASPEED 40 Cabinets, hereafter referred to as 40-type.

1.02 This section is reissued to include wiring for late design forms access printer cabinet. This is a general revision, therefore, marginal arrows have been omitted.

1.03 Testing of the cabinets consists primarily of making certain voltage and continuity checks using a volt-ohm-milliammeter (VOM) switched to appropriate range.

1.04 Whenever a check fails, refer to schematic diagrams to troubleshoot for point-to-point wiring information and refer to Section 582-212-700 for Disassembly/Reassembly and Parts information.

1.05 Schematics shown are for all cabinets in general. Detailed actual and schematic wiring diagrams and circuit descriptions for specific sets are referenced in 3. WIRING INDEX.

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1.06 Due to the large number of parts to be identified in composite drawings in this section, all part descriptions have not been shown. Refer to Section 582-212-700 for complete parts list with descriptions.

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

2. TESTING

A. Power Cord (All Cabinets)

2.01 Check continuity between power cord plug grounding pin and cabinet or chassis ground connection (Fig. 1). The resistance reading should be essentially zero ohms with VOM RX1 range.

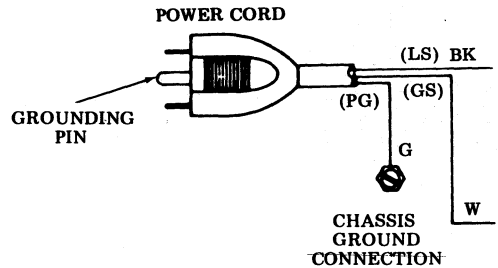


Fig. 1

B. Interlock Switch

•Friction Feed Printer Cabinet

2.02 The interlock switch has a three-position activator (Fig. 2). Check for continuity at interlock connector terminals 1 to 2 when the activator is lifted to its 1 position (maintenance)

and held down (audible click) in its 3 position. No continuity should be observed in its 2 position (Fig. 6).

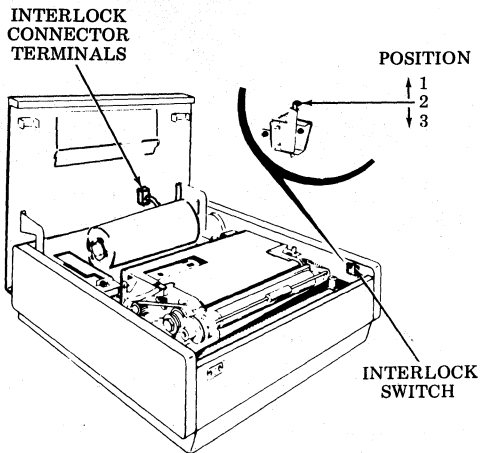


Fig. 2

• Tractor Feed Printer Cabinet

2.03 The interlock switch has a three-position activator (Fig. 3). Check for continuity at connector terminals 6 to 7 when the activator is lifted to its 1 position (maintenance) and held down (audible click) in its 3 position. No continuity should be observed in its 2 position (Fig. 7).

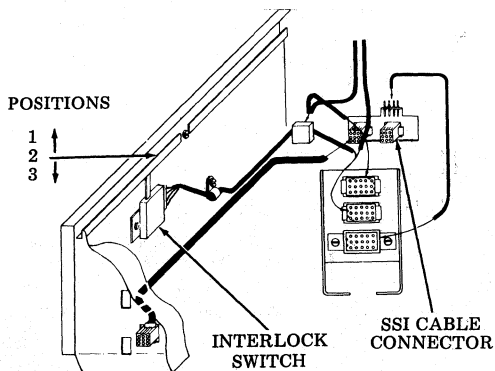


Fig. 3

• Forms Access Printer Cabinet (Early Design)

2.04 There are three interlock switches on this cabinet. Each switch has a three-position activator (Fig. 4). Check for continuity at connector terminals 6 to 7 when the activators are lifted to their 1 position (maintenance) and held down (audible click) in their 3 position. No continuity should be observed in their 2 position (Fig. 8). If cable continuity fails, check individual interlocks.

(Late Design)

2.05 There is one interlock switch on this cabinet. The interlock switch has a three-position activator (Fig. 5). Check for continuity at connector terminals 6 to 7 when the activator is lifted to its 1 position (maintenance) and held down (audible click) in its 3 position. No continuity should be observed in its 2 position (Fig. 8).

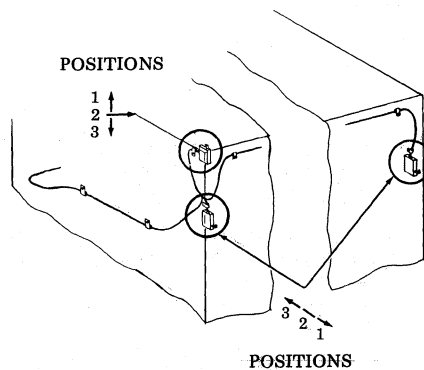


Fig. 4

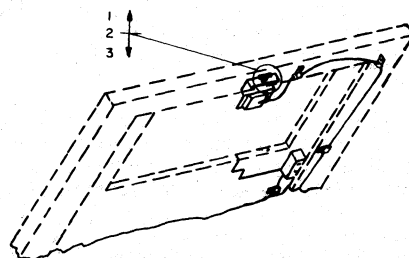


Fig. 5

C. SSI Cable Assembly

• Friction Feed Printer Cabinet

2.06 Check for continuity of the SSI cable at connector terminals 1 to 2 and 3 to 6 at the rear of the printer cabinet (Fig. 9).

• Tractor Feed and Forms Access Printer Cabinet

2.07 Check for continuity of the SSI cable connector terminals 1 to 2 and 3 to 6 at the rear of the printer cabinet (Fig. 10).

D. Switches and Lamps

• Tractor Feed Printer Cabinet

2.08 Check for continuity of the paper advance switch at connector terminals 3 to 4 when switch is depressed (Fig. 7).

2.09 Check for continuity of lamp in the paper switch at connector terminals 1 to 2 (Fig. 7).

• Forms Access Printer Cabinet

2.10 Check for continuity of the paper advance switch at connector terminals 3 to 4 when switch is depressed (Fig. 8).

2.11 Check for continuity of lamp in the paper switch at connector terminals 1 to 2 (Fig. 8).

2.12 Check for continuity of power on switch and lamp at connector terminals 4 and 6 when switch is depressed (Fig. 11).

E. AC Distribution Assembly

2.13 Check for 115 Vac ± 10 percent at all receptacles of the AC Distribution Assembly. (Figs. 12 through 17).

F. Simplified EIA-Like Interface

2.14 Check for continuity of connector terminals at P119 and P121 (Fig. 19, Page 10) and connector terminals at P115 and P116 (Fig. 20).

3. WIRING INDEX

WDP NUMBER	DESCRIPTION	WD	SD	CD
0436	Model 40 Tractor Feed RO Printer Set With Integrated Controller — 80 and 132 Cabinet	9436	1306	-
0441	Model 40 Friction Feed Printer Sets (SSI)	9441	1301	1301
0443	Model 40 Tractor Feed Printer Sets 80 and 132 Column (SSI and Simplified EIA-Like Interface)	9442	1303	1303
0481	Model 40 Friction Feed Printer Set (40P102) in 40CAB371/ZZ Cabinet (SSI and Integrated Controller)	9611	1312	1312
0487	Model 40 Friction Feed Printer Set (SSI)	9611	1301	1301
0516	Model 40 Tractor Feed ROP With Integrated Controller — 80 and 132 Column (Dual EIA)	9449	1318	-
0532	Model 40 Forms Access Printer Cabinet (SSI, Simplified EIA-Like and Integrated Controller)	9644	1322	-
-	Model 40 Friction Feed Printer Cabinetry 40CAB201/AA, AC, ZZ and 40CAB251/AA	9600	-	-
-	Model 40 Table Top Logic and Keyboard Display Cabinetry 40CAB251/AB, AC, AE, ZZ, 40CAB251/AB and 40CAB201/AB	9601	-	-
-	Model 40 Pedestal AC Power Distribution	9602	-	-
0508	346744 Modification Kit to Provide Simplified EIA-Like Interface Capabilities in a Model 40CAB371 Friction Feed Printer Cabinet	9629	4087	4087

WD = Wiring Diagram
SD = Schematic Diagram
CD = Circuit Description

4. SCHEMATIC WIRING DIAGRAMS

4.01 Following are the schematics related to 2. TESTING.

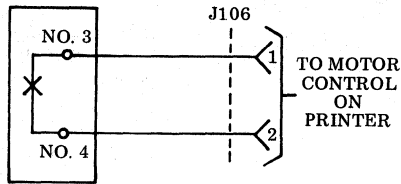


Fig. 6—Friction Feed Cabinet Interlock Cable Assembly

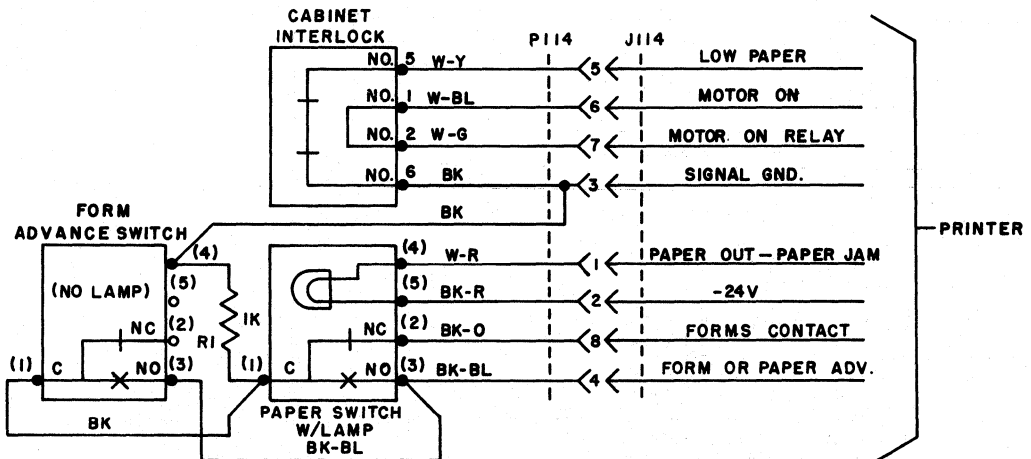
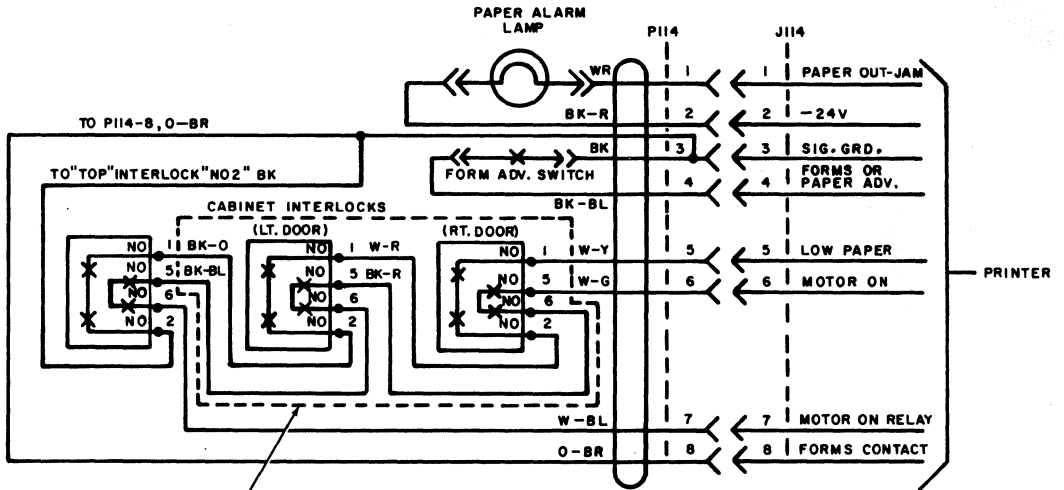


Fig. 7—Tractor Feed Cabinet Interlock, Form Advance and Paper Switches



Used only on cabinets with rail printer shelf and 406424 cable assembly (early design). On cabinets with solid printer shelf and 453358 cable assembly, single interlock terminals 1 and 5 are connected directly to P114 pins number 5 and 6 respectively (late design).

Fig. 8—Forms Access Printer Cabinet, Interlock, Form Advance and Paper Lamp

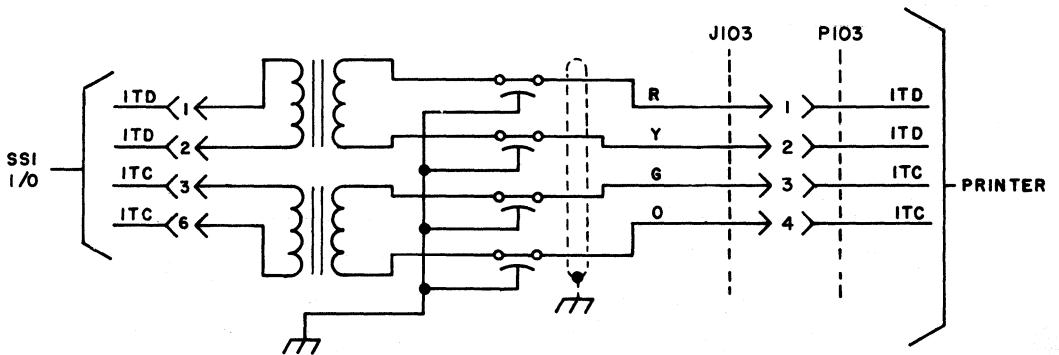


Fig. 9—Friction Feed Printer Cabinet SSI Cable Assembly

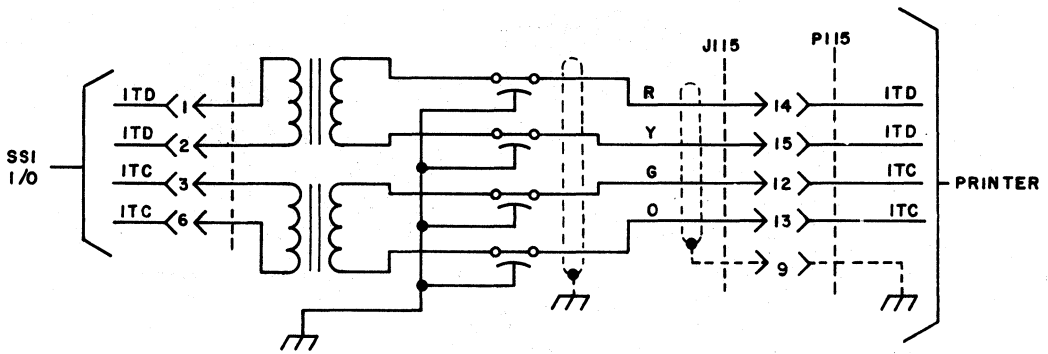


Fig. 10—Tractor Feed and Forms Access Printer Cabinet

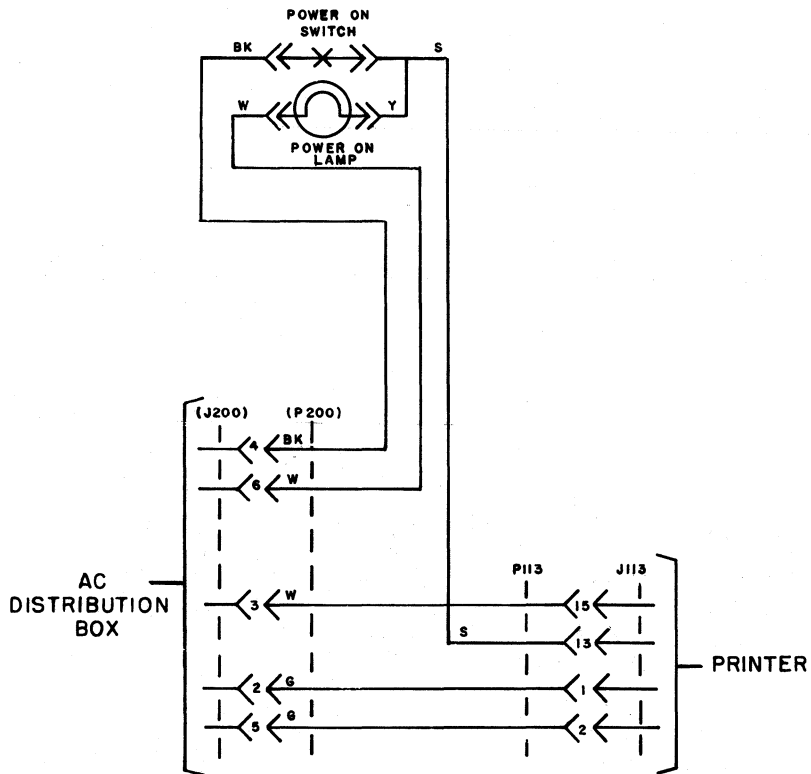


Fig. 11—Forms Access Printer Cabinet Power Switch and Lamp

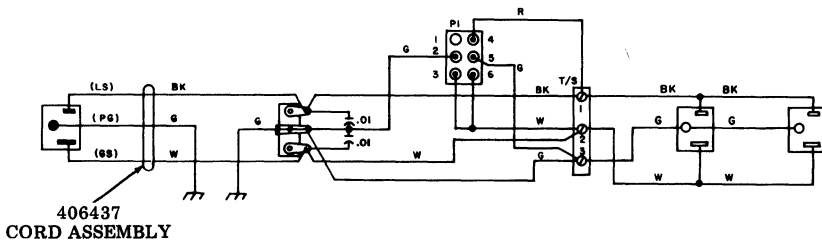


Fig. 12—406361 Forms Access Printer Cabinet AC Distribution Assembly (Early Design)

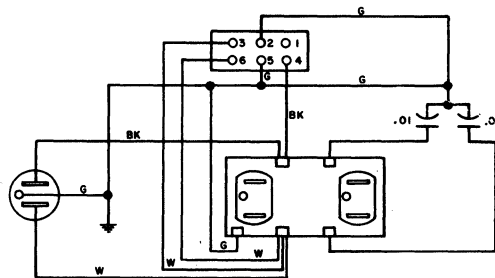


Fig. 13—453360 Forms Access Printer Cabinet AC Distribution Assembly (Late Design)

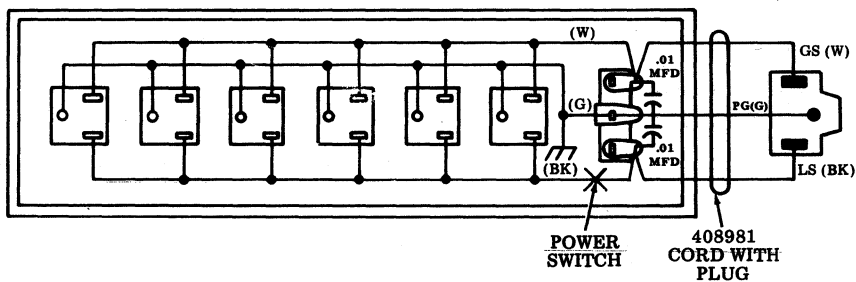


Fig. 14—407285 AC Distribution Panel Assembly (Late Design)

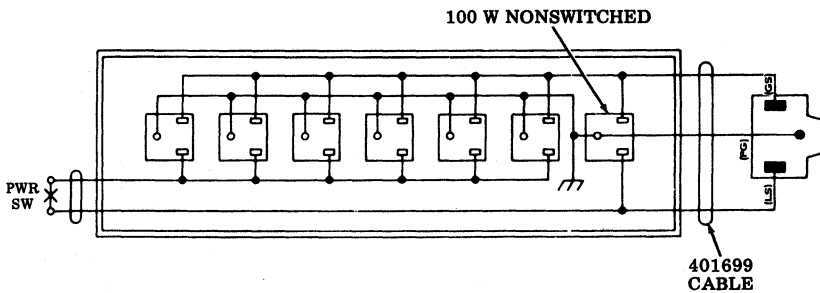


Fig. 15—401665 AC Distribution Panel Assembly (Early Design)

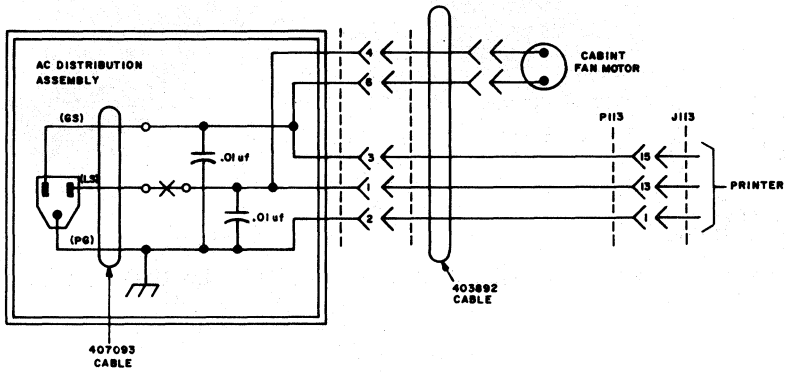
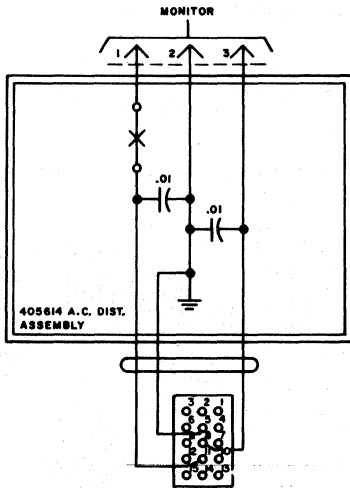


Fig. 16—Tractor Feed Cabinet, AC Distribution Assembly



Note: 405611 cable (not part of 40BSE101) is needed for ac power check.

Fig. 17—40BSE101 Circular Monitor Base, AC Distribution Assembly

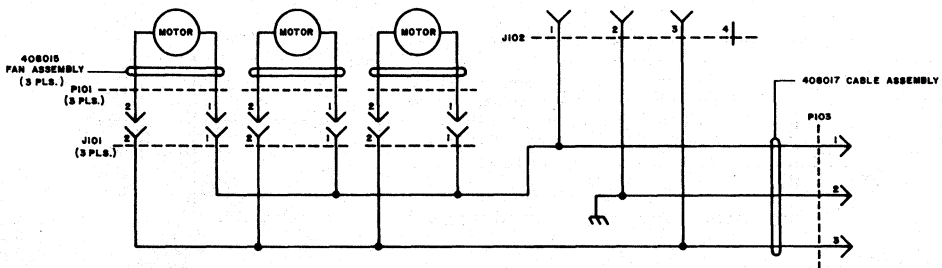


Fig. 18—408050 Ventilation Assembly

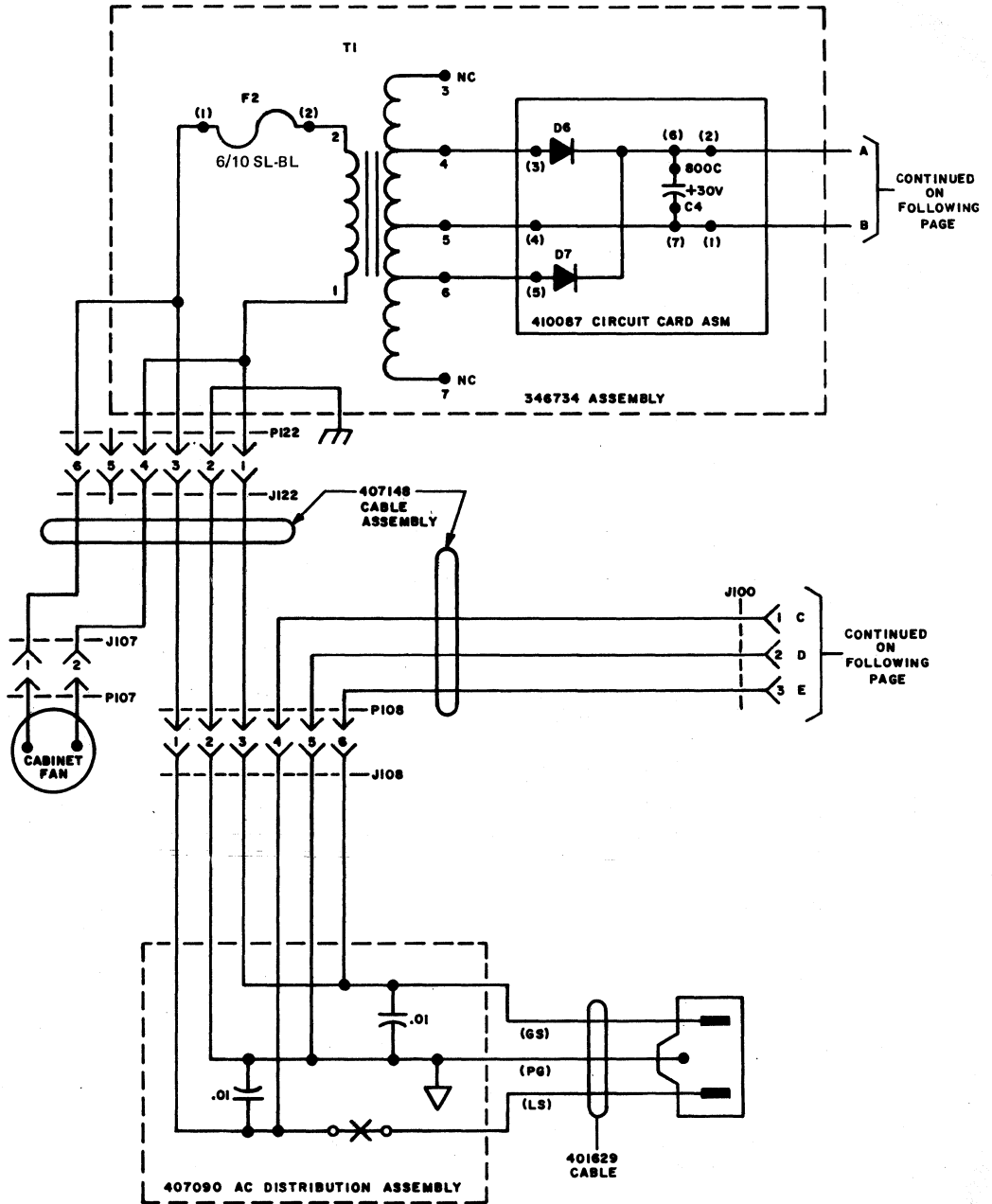


Fig. 19—40CAB371/AC Friction Feed Cabinet With Simplified EIA-Like Interface

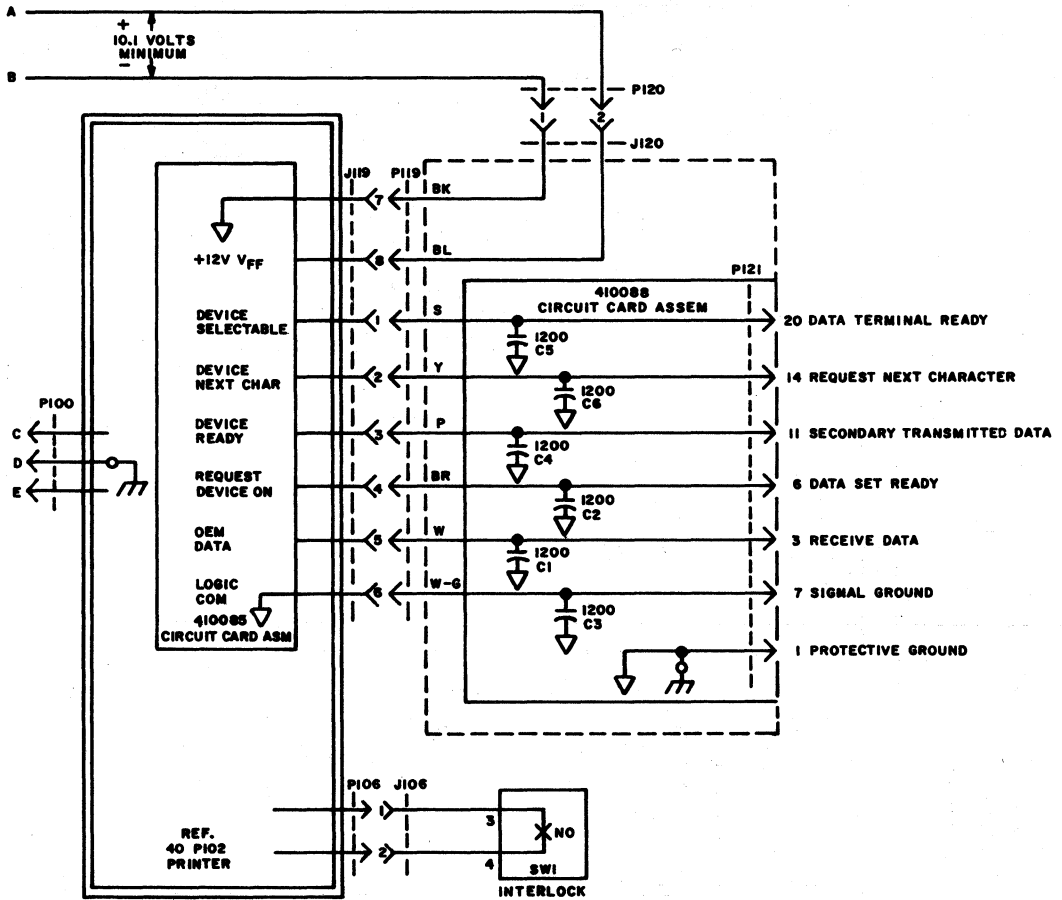


Fig. 19—40CAB371/AC Friction Feed Cabinet With Simplified EIA-Like Interface (Contd)

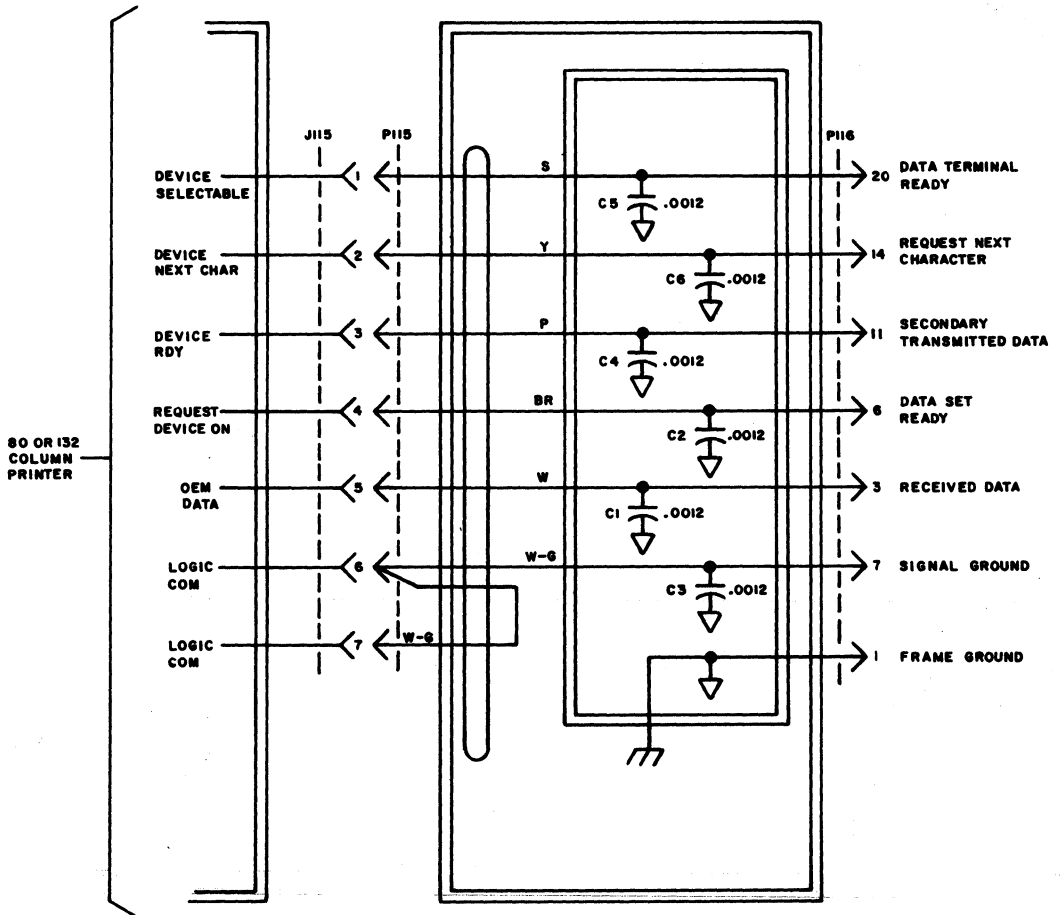


Fig. 20—Model 40 Tractor Feed Cabinet Simplified EIA-Like Interface (80- and 132-Column Printer and Forms Access Cabinet)

5. CABLE ROUTING

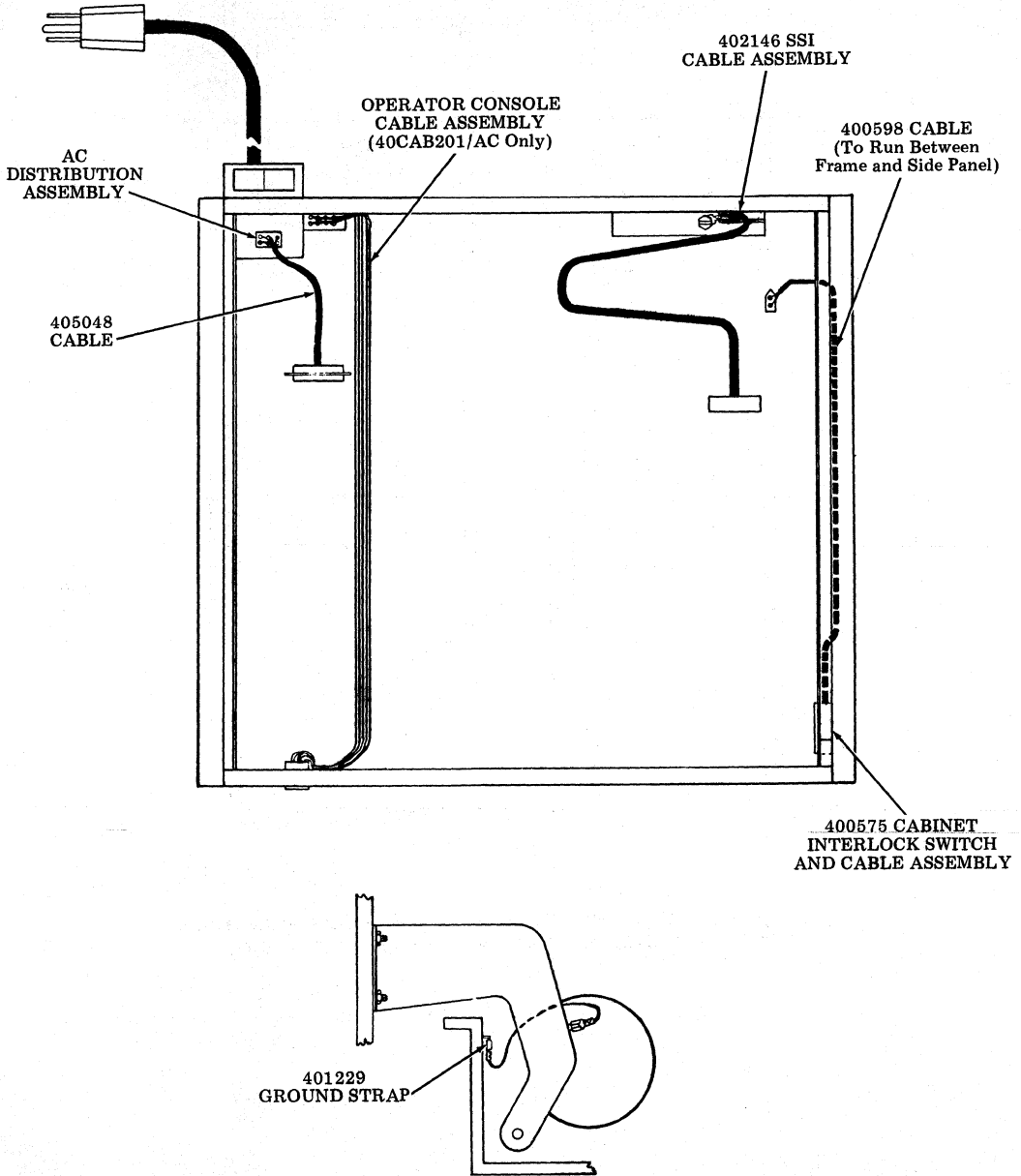


Fig. 21—40CAB201/AA, AC, ZZ Friction Feed Printer Cabinet

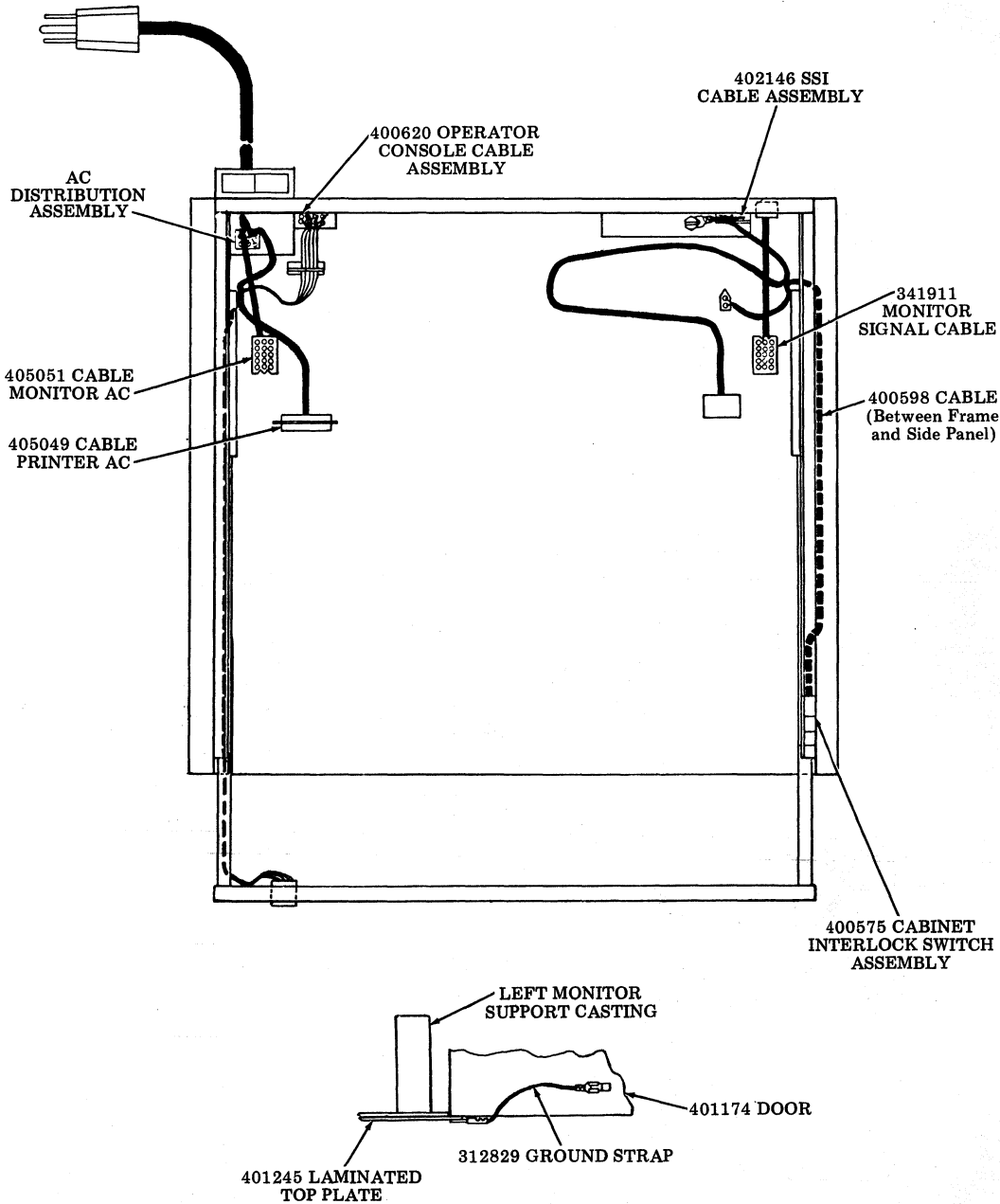


Fig. 22—40CAB251/AA Friction Feed Printer Cabinet Under Monitor

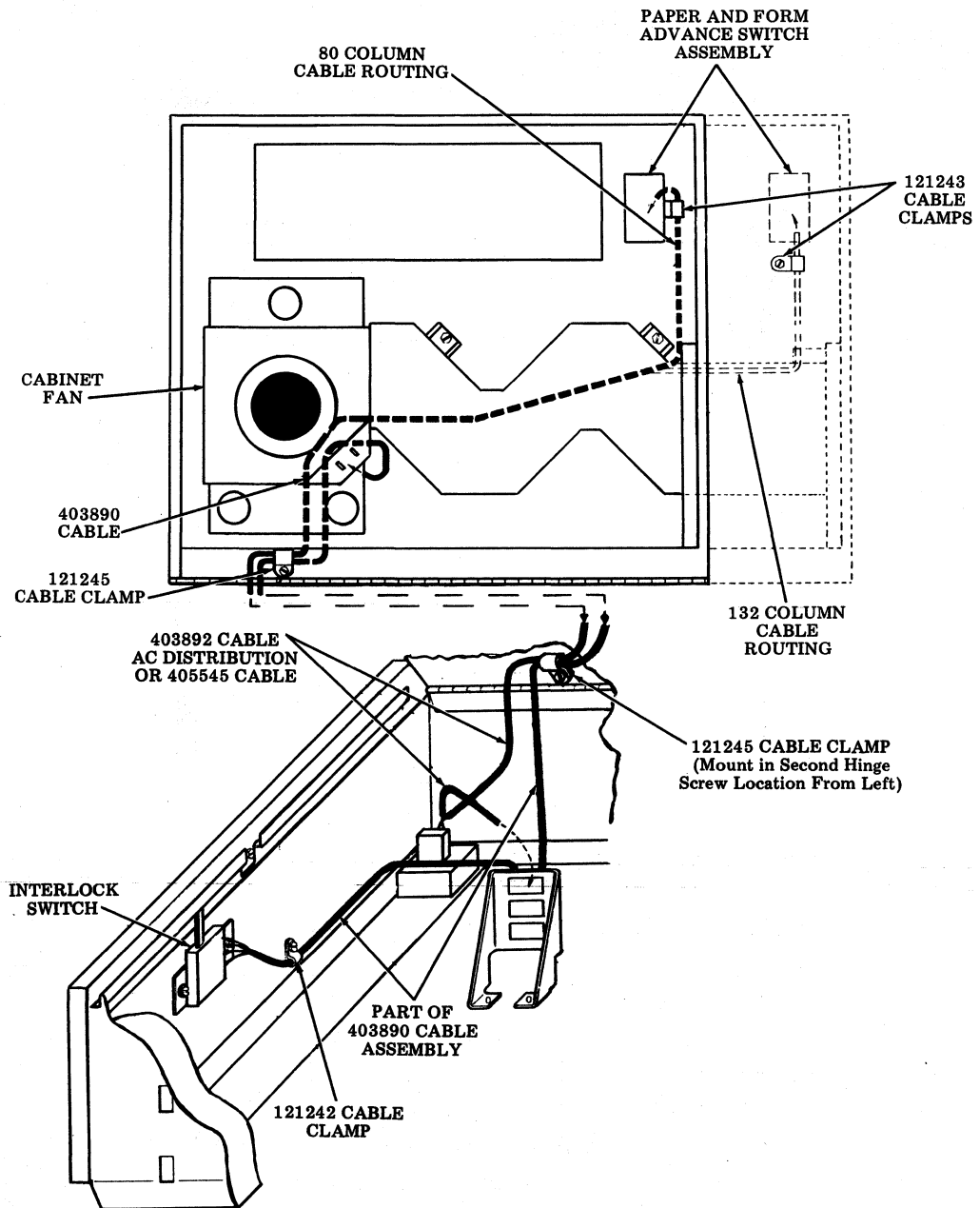


Fig. 23—40CAB351 and 40CAB353 Tractor Feed Cabinet Basic Cabling

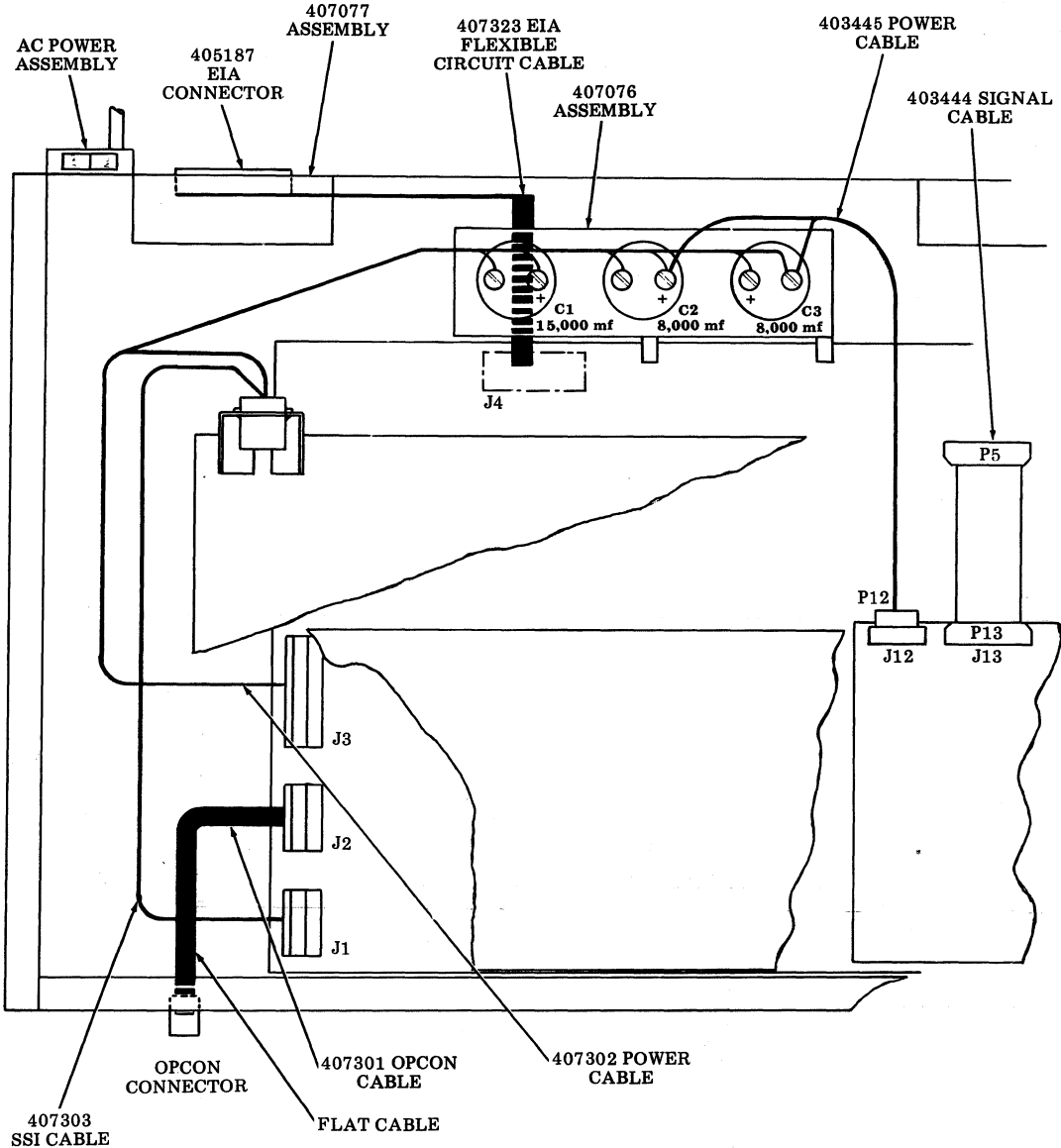


Fig. 24—40CAB351 or 40CAB353 Tractor Feed Cabinet With Provision for Integrated Controller (Used With 40C303AA/001 Controller)

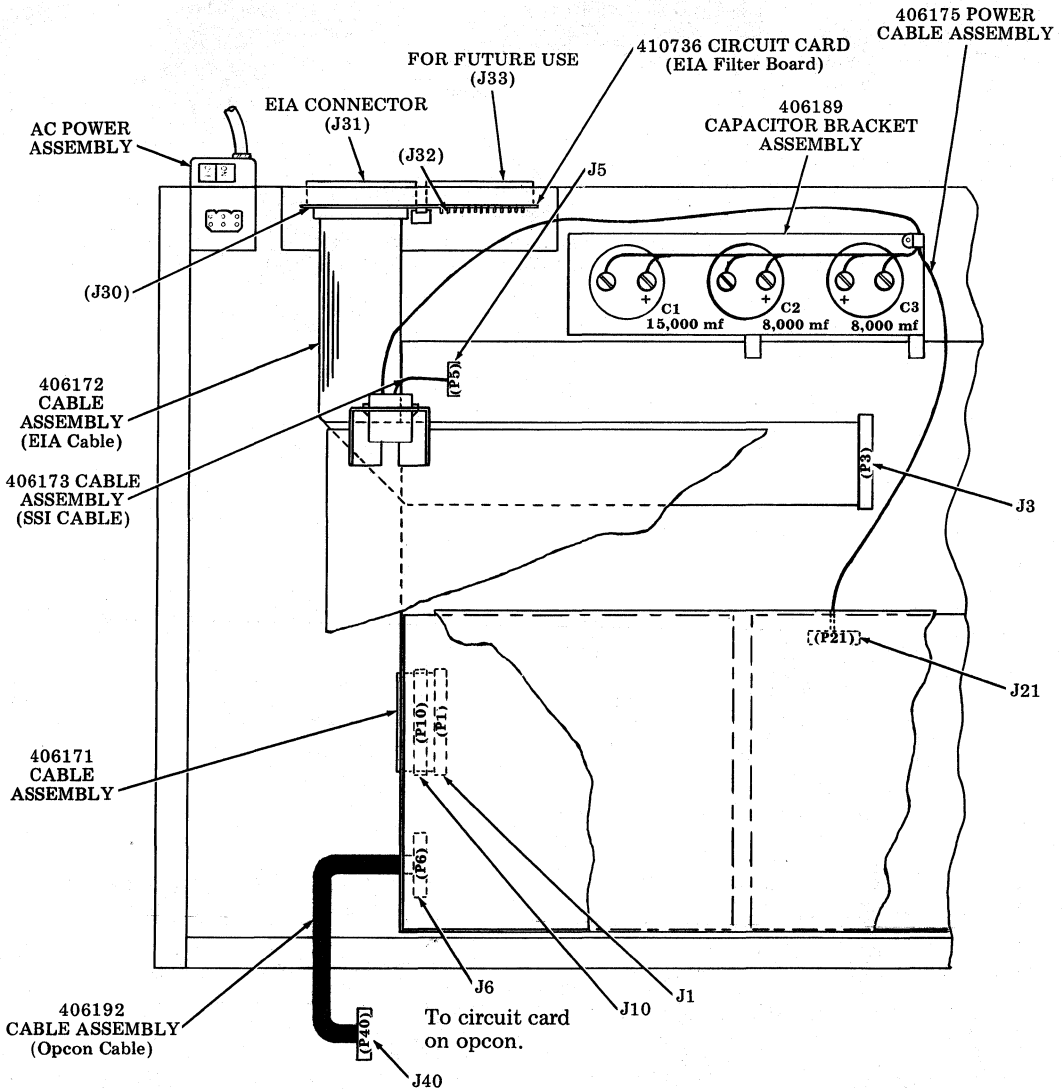


Fig. 25—40CAB351 or 40CAB353 Tractor Feed Cabinet With Provision for Integrated Controller and Dual EIA Interface (Use With 40C303/AC or 40C303/AD Controller)

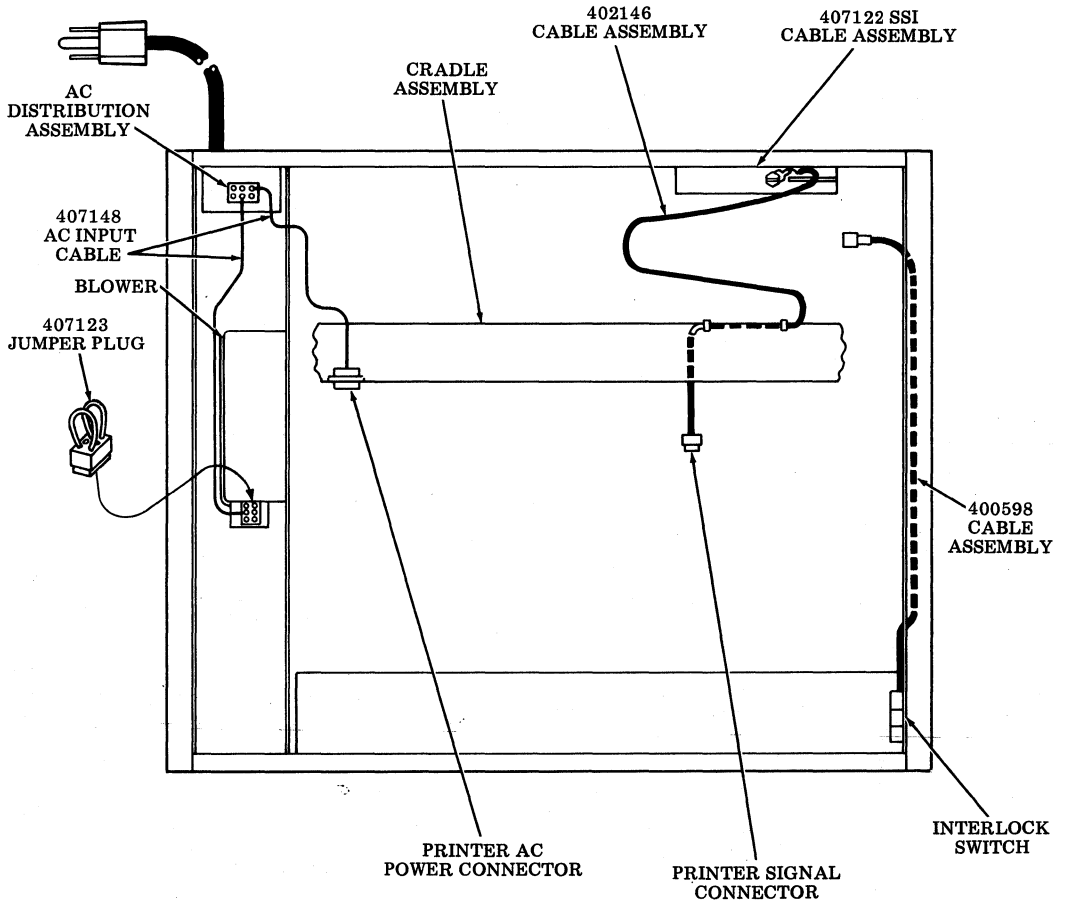


Fig. 26—40CAB371/AA Friction Feed Printer Cabinet

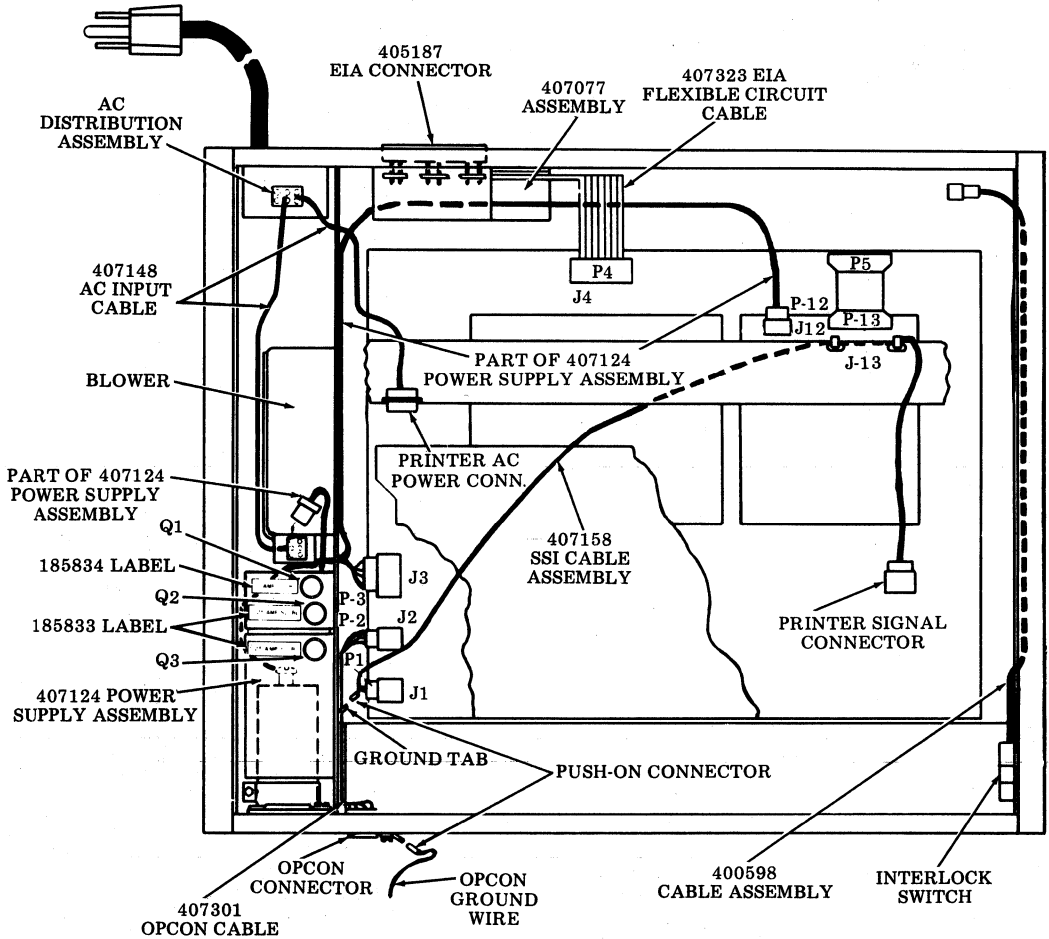


Fig. 27—40CAB371/AB Friction Feed Printer Cabinet With Provision for Integrated Controller (Use With 40C303AA/001 Controller)

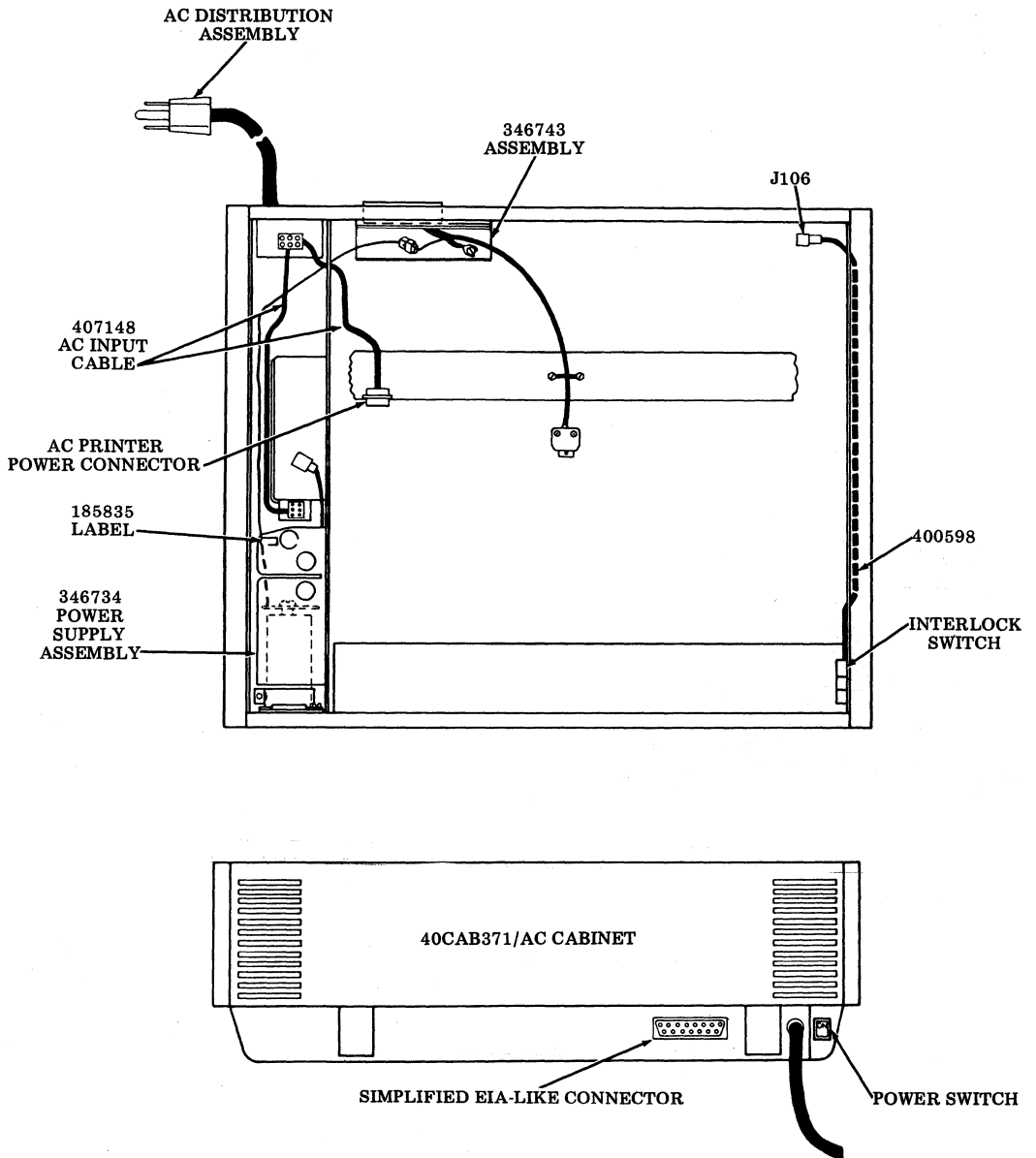


Fig. 28—40CAB371/AC Friction Feed Cabinet With Simplified EIA-Like Interface

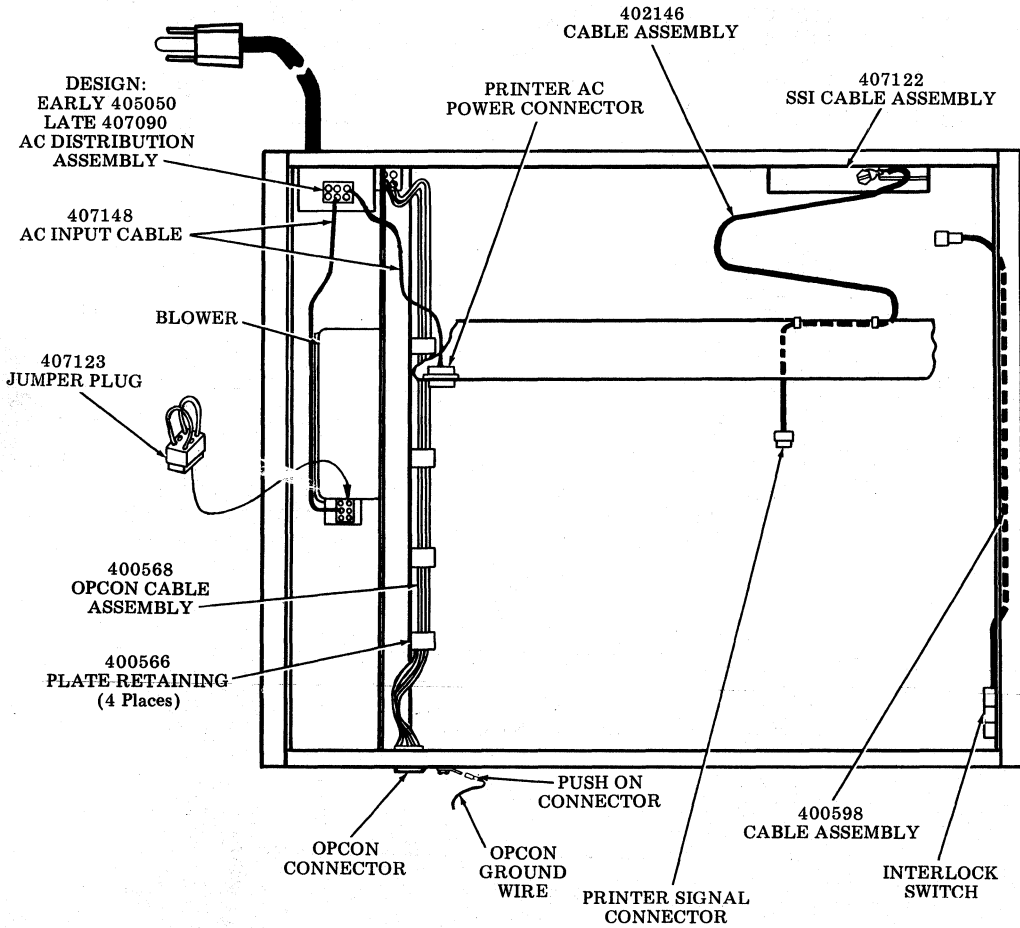


Fig. 29—40CAB371/ZZ Friction Feed Printer Cabinet With 407102 Modification Kit

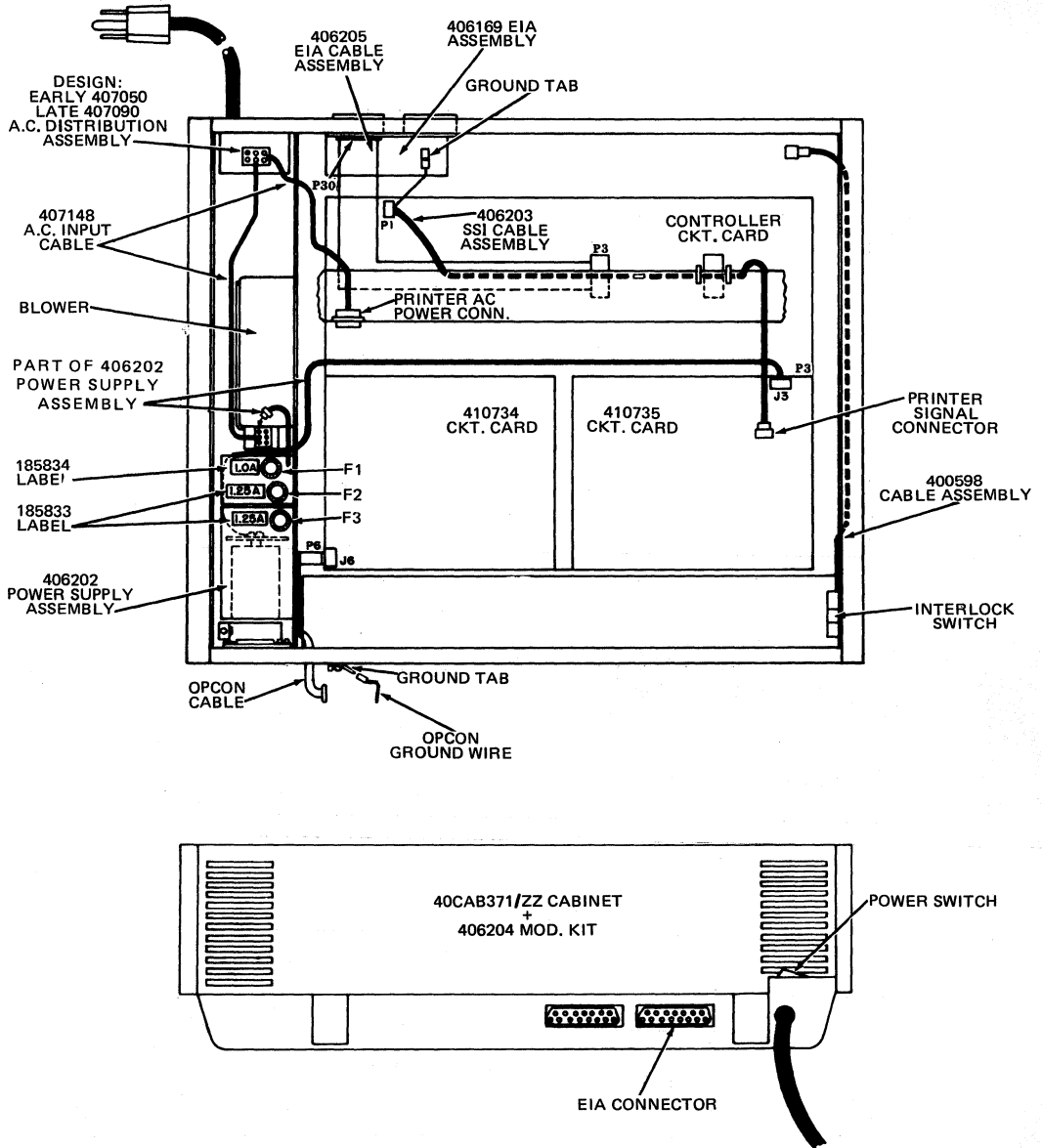


Fig. 30—40CAB371/ZZ Friction Feed Printer Cabinet With 406204 Modification Kit (Use With 40C303/AC or AD Controller)

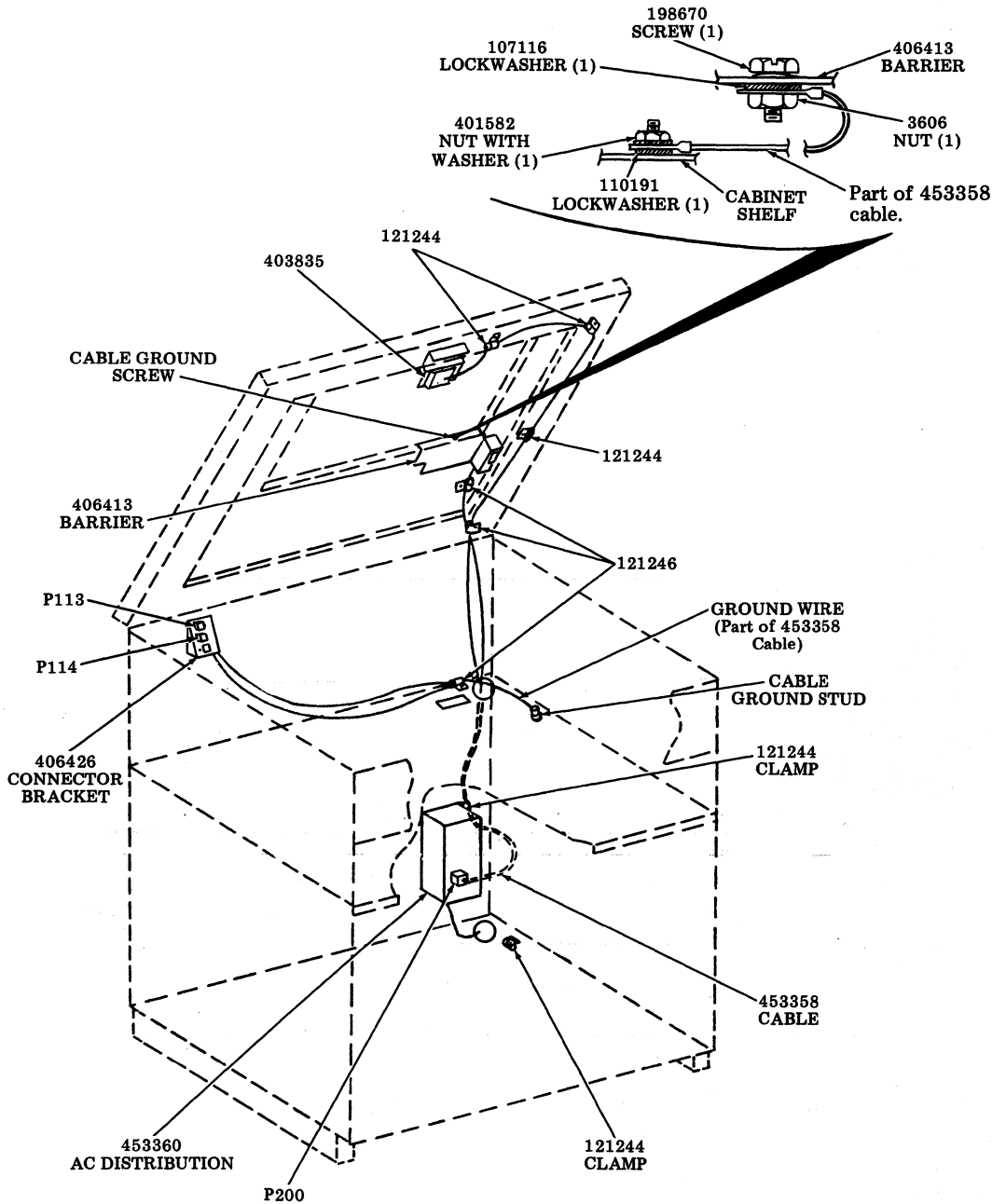
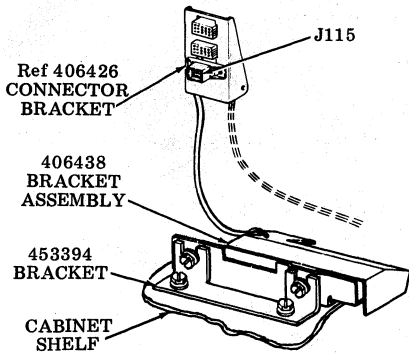
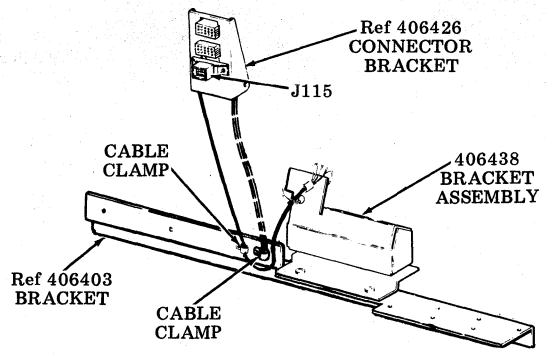


Fig. 32—40CAB302 Forms Access Printer Cabinet Basic Wiring (Late Design)

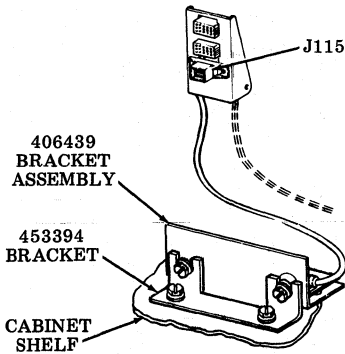


Late Design Cabinet

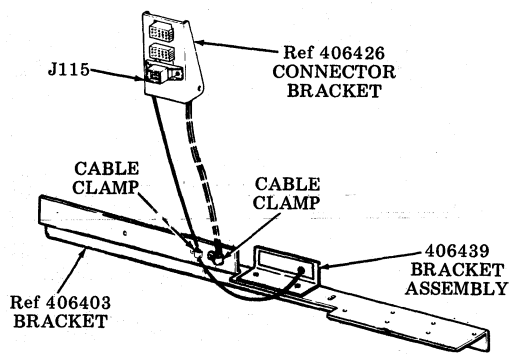


Early Design Cabinet

Fig. 33—40CAB302 Forms Access Printer Cabinet With SSI Interface



Late Design Cabinet



Early Design Cabinet

Fig. 34—40CAB302 Forms Access Cabinet With Simplified EIA-Like Interface

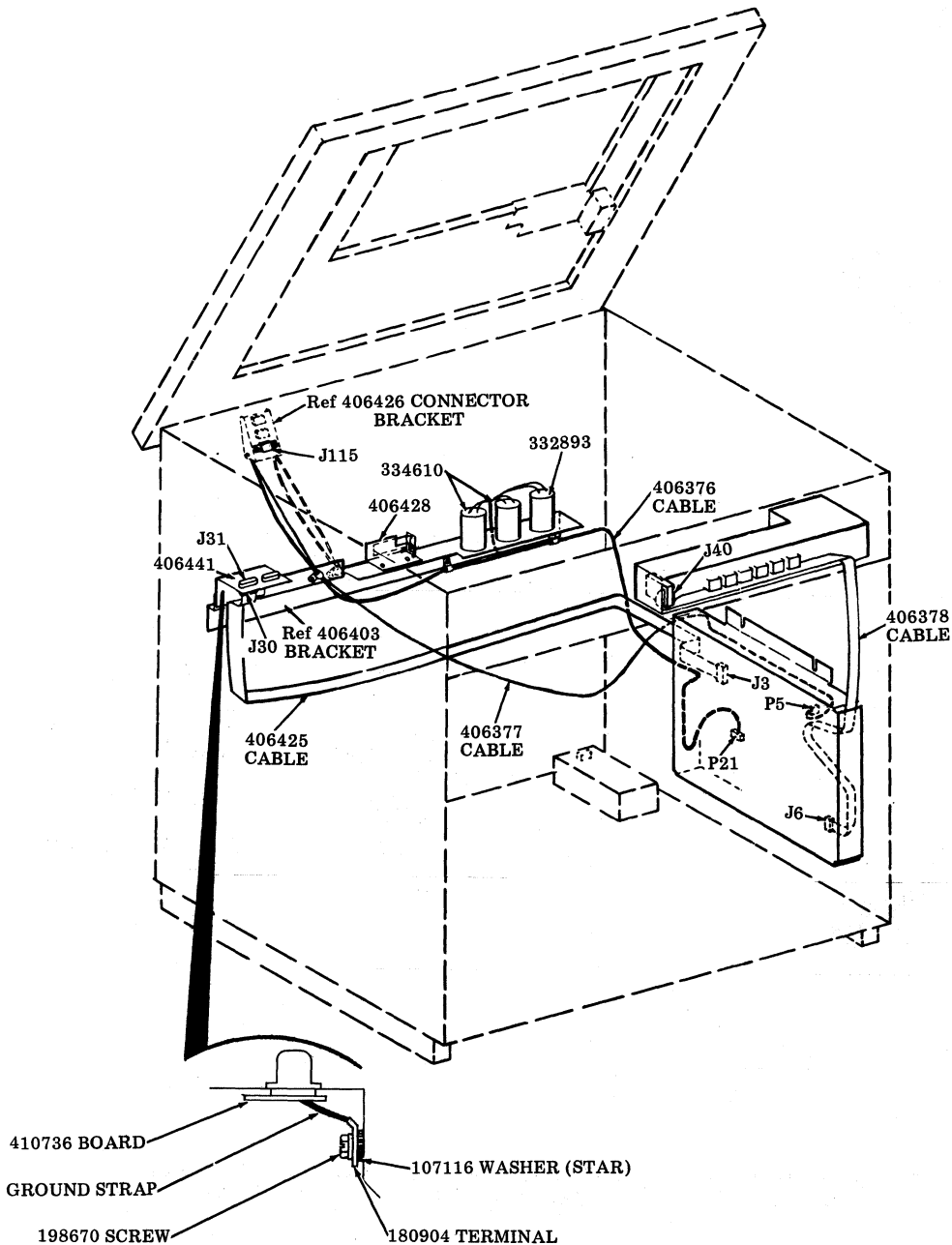


Fig. 35—40CAB302 Forms Access Printer Cabinet With Provisions for Integrated Controller (Used With 40C303/AC or 40C303/AD Controller — Early Design)

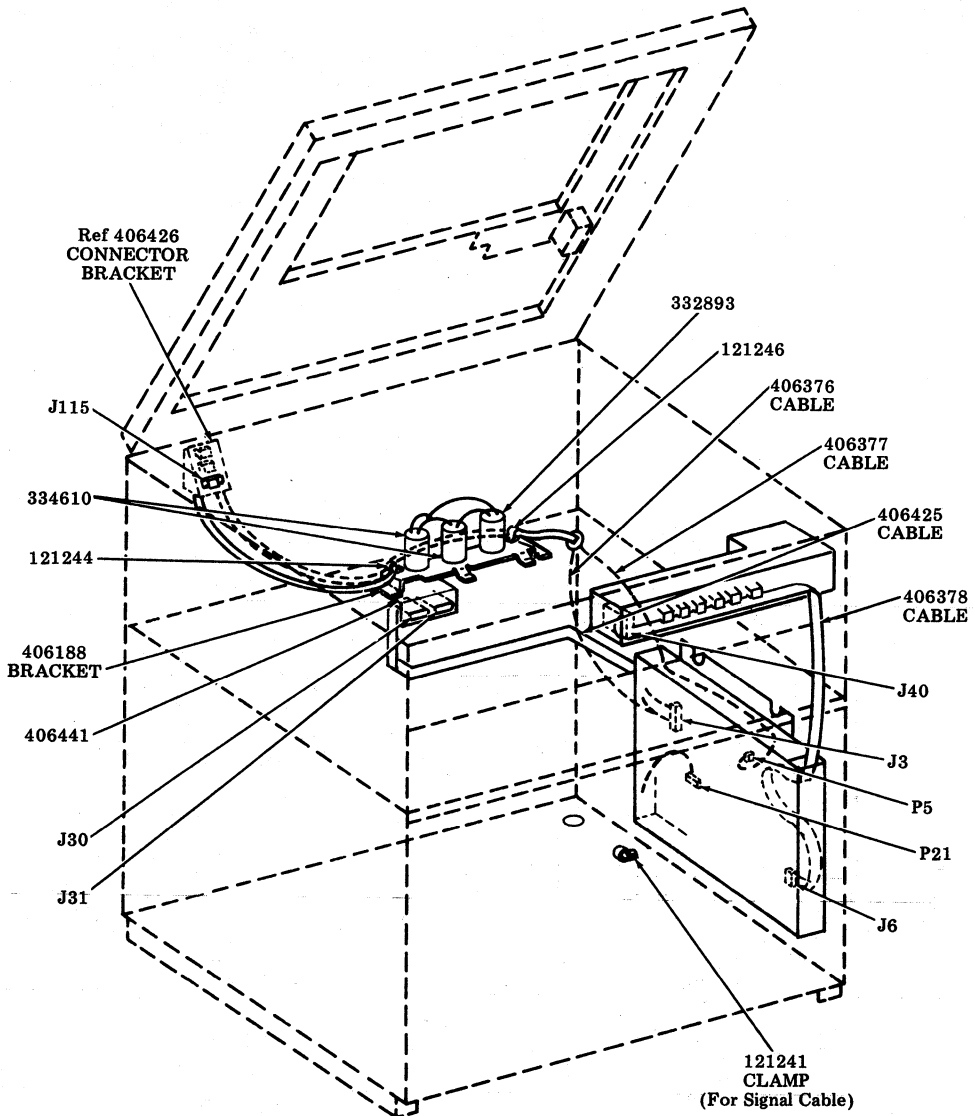


Fig. 36—40CAB302 Forms Access Printer Cabinet With Provisions for Integrated Controller (Used With 40C303/AC or 40C303/AD Controller — Late Design)

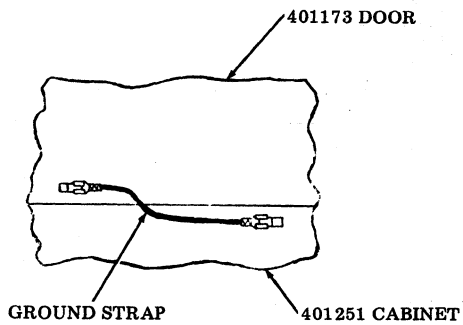
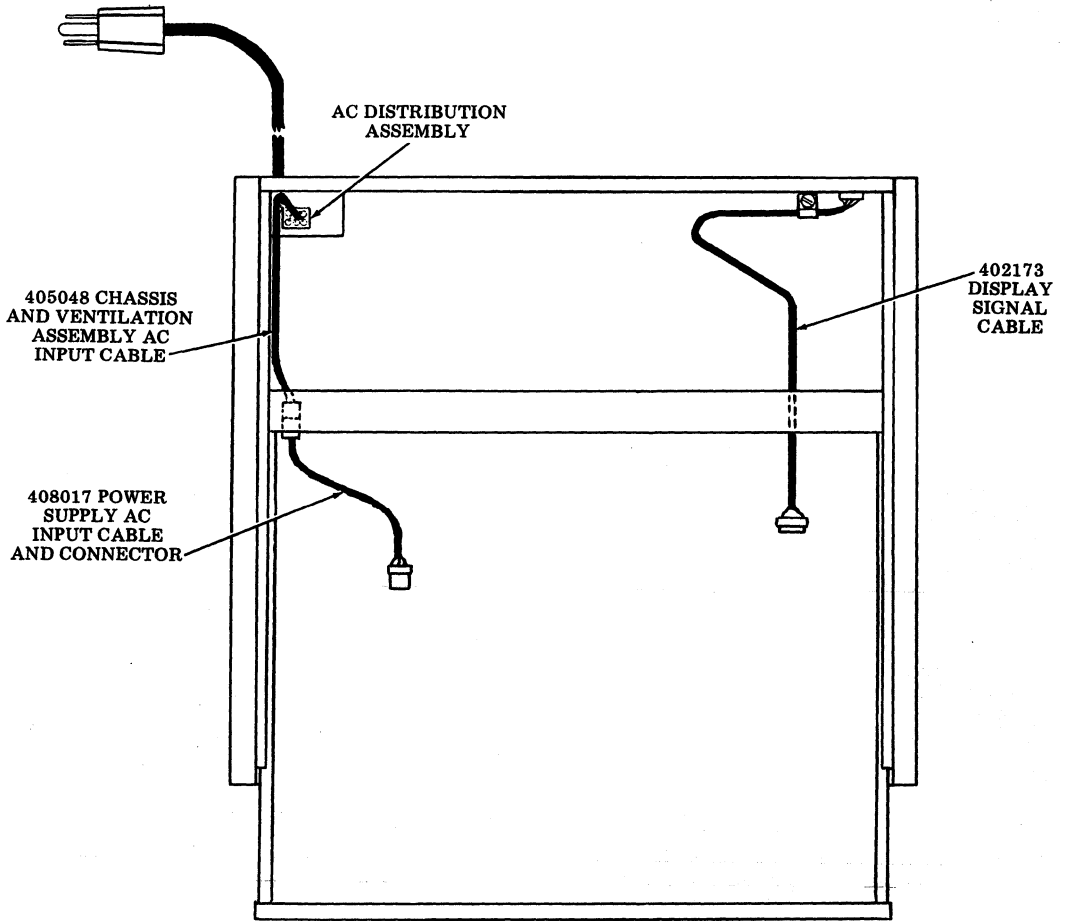


Fig. 37-40CAB201/AB Logic Cabinet

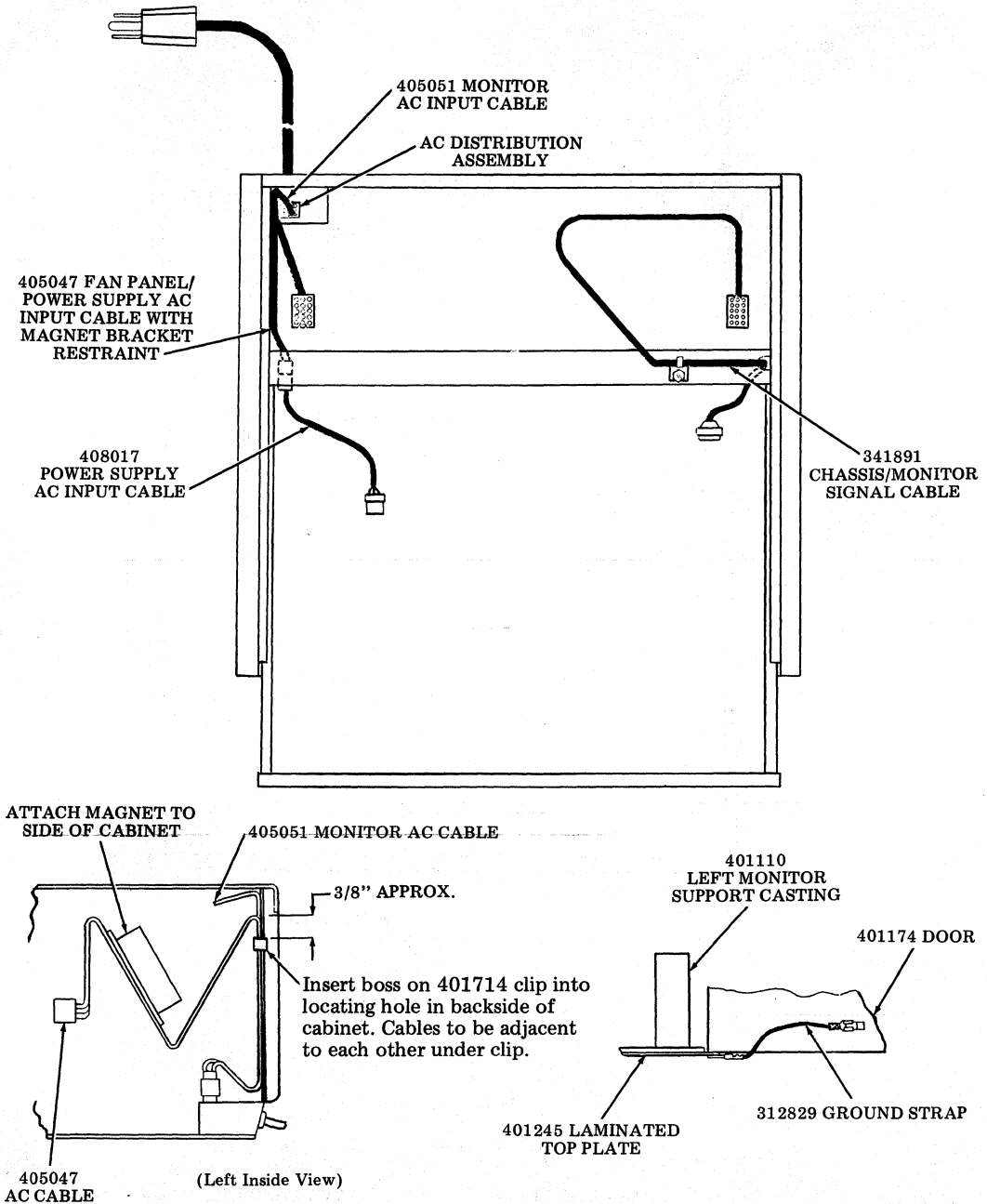


Fig. 38—40CAB251/AB Keyboard Display Cabinet

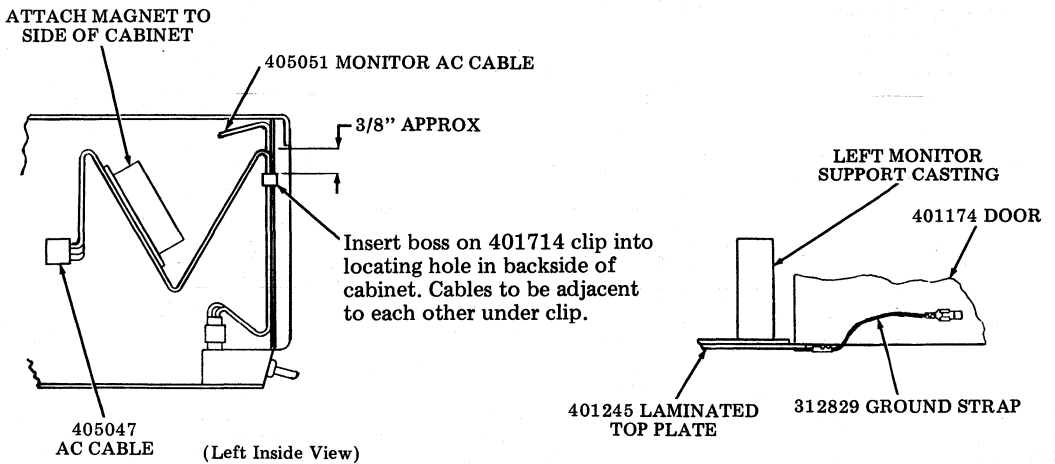
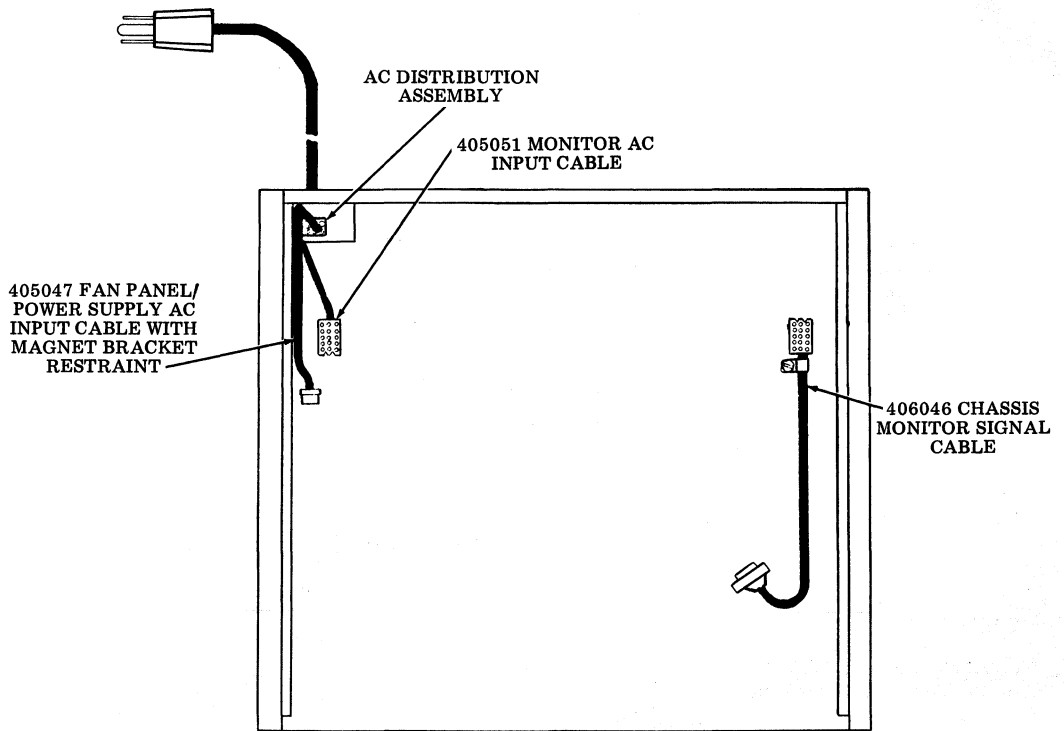


Fig. 39—40CAB251/AE Keyboard Display Cabinet

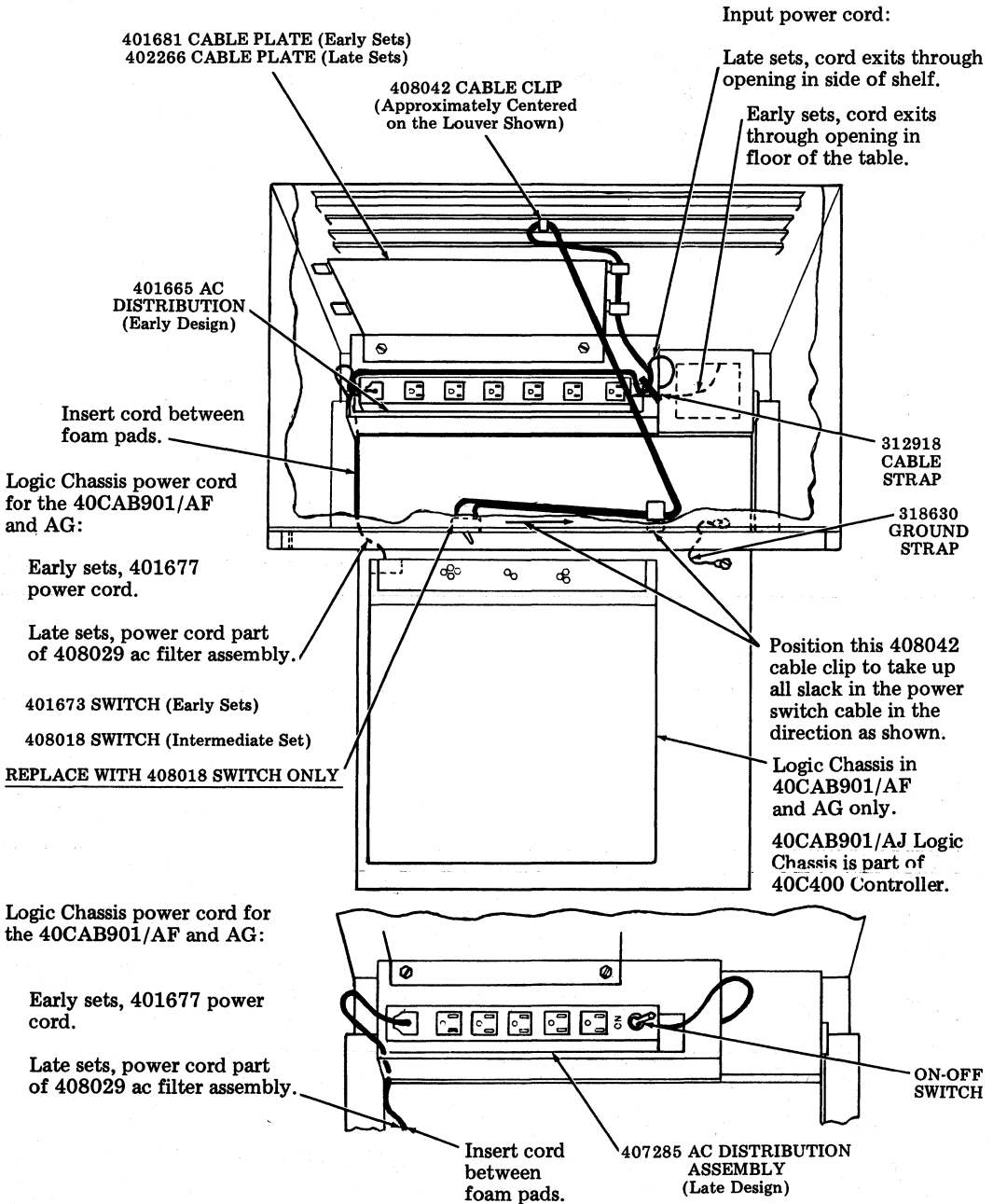


Fig. 40—40CAB901/AF, AG and AJ

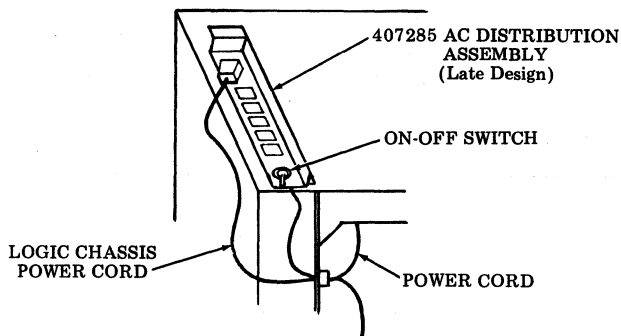
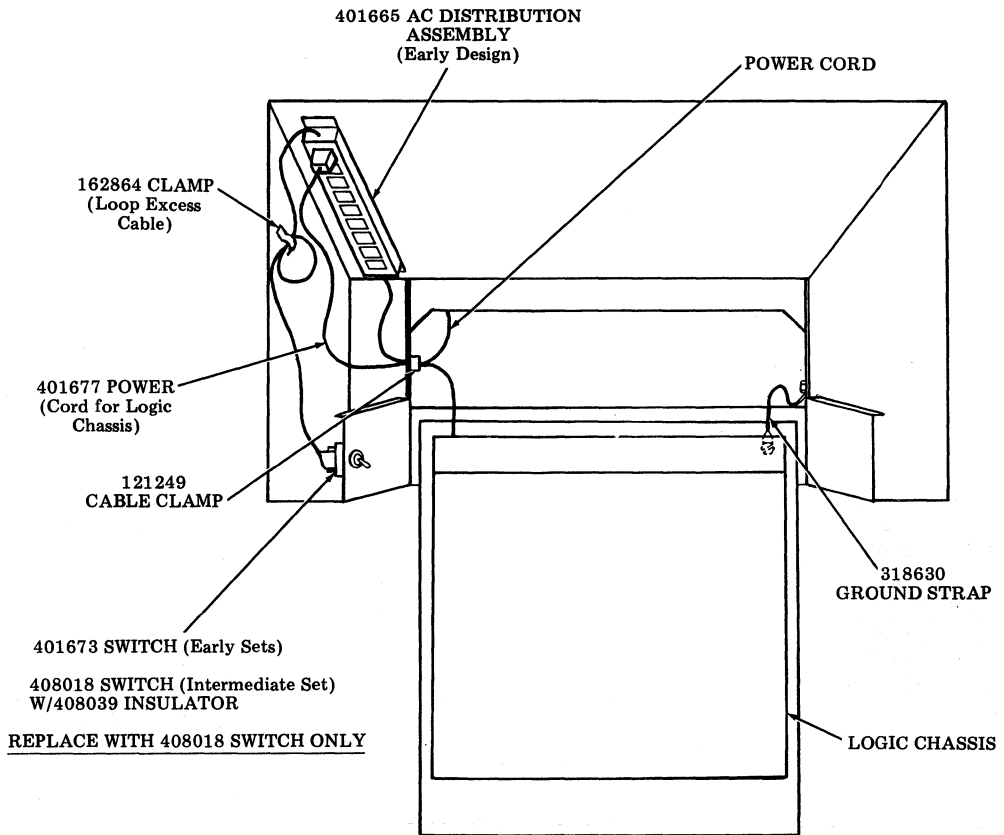


Fig. 41-40CAB902/AB

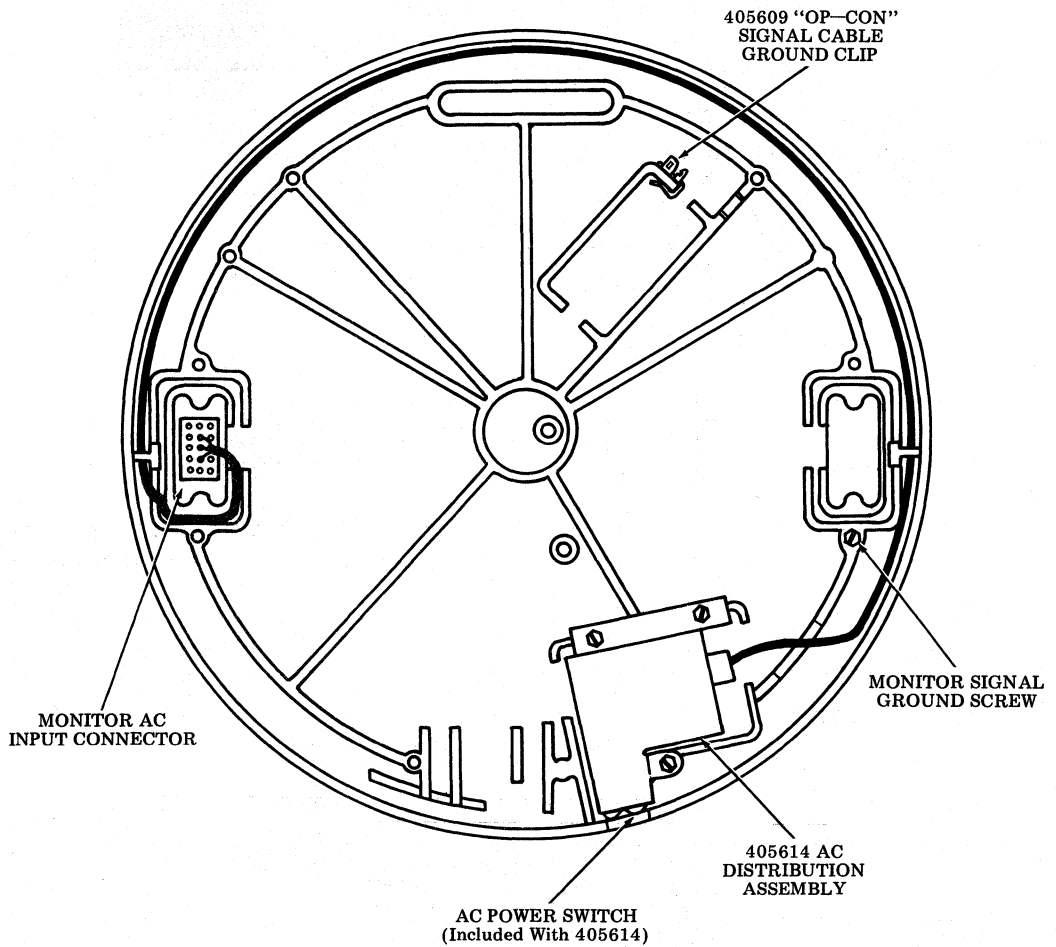
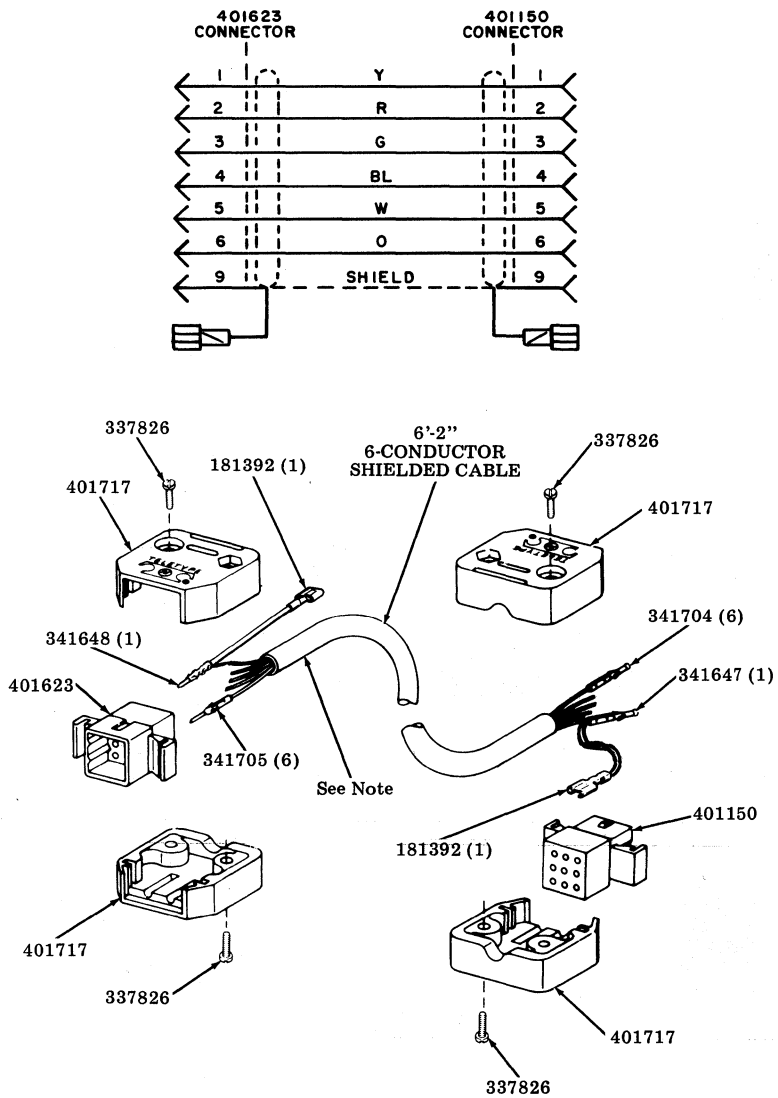


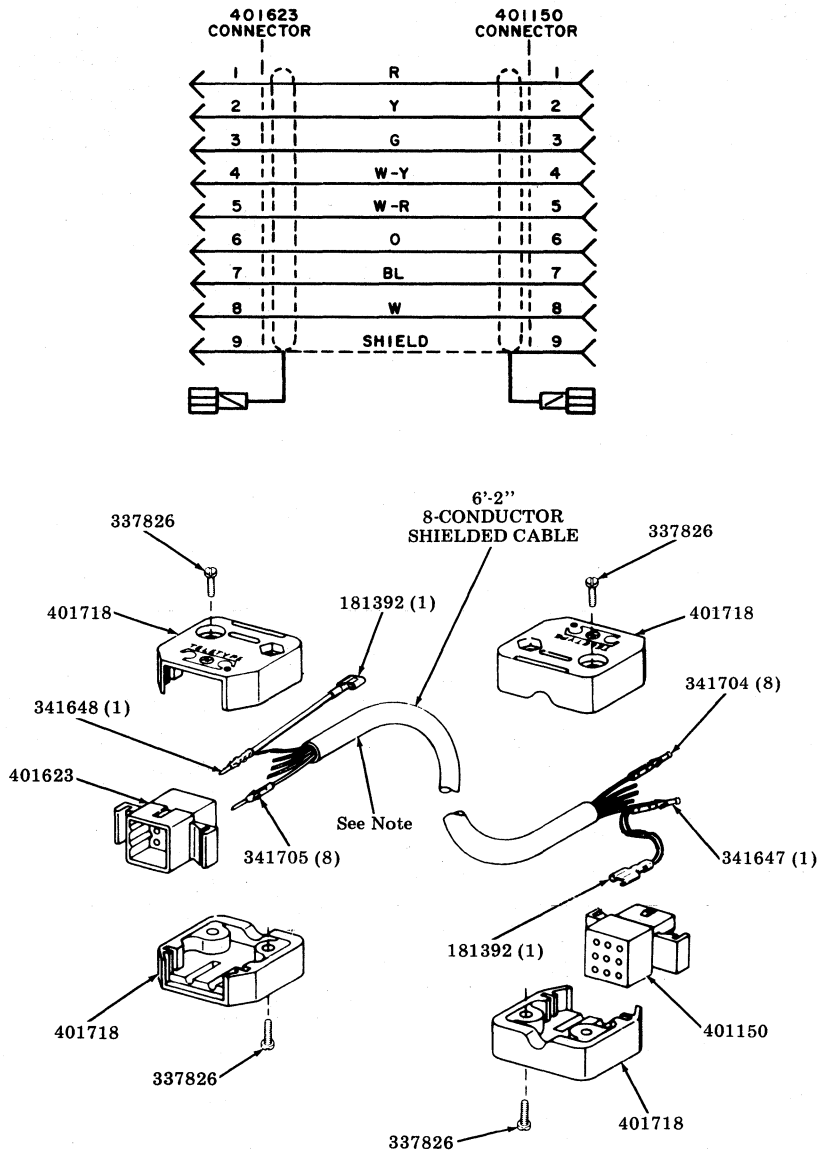
Fig. 42-40BSE101 Circular Monitor Base

6. ACTUAL WIRING



Note: Cable marker at each end identifies number of cable.

Fig. 43-401640 Printer Extension Cable Assembly (ROP Terminal)



Note: Cable marker at each end identifies number of cable.

Fig. 44-401641 Opcon Extension Cable Assembly

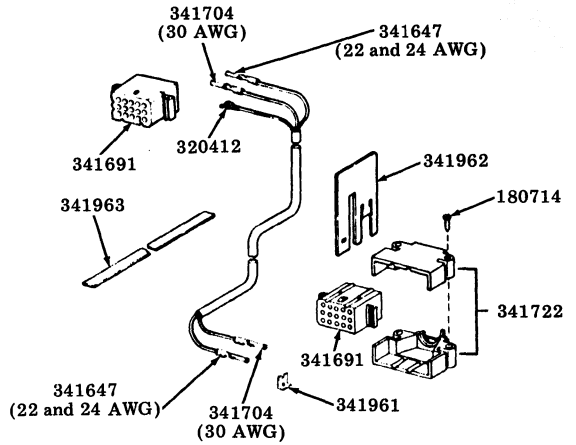
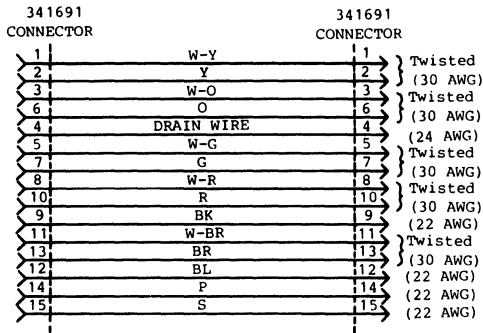


Fig. 45—341891 Monitor Cable — Logic Cabinet (Right Side)

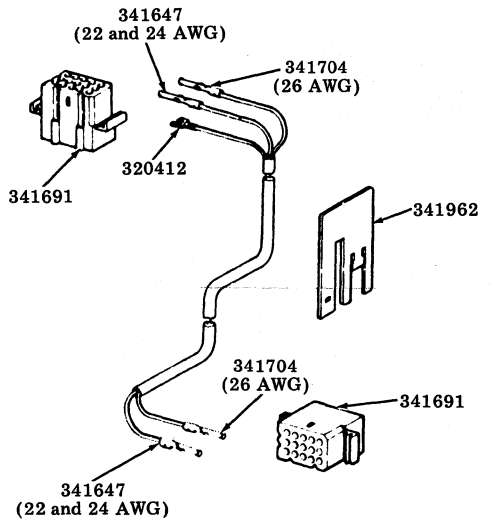
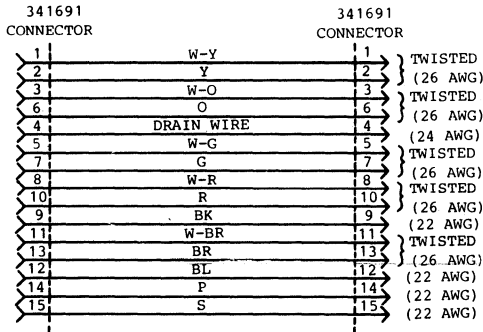


Fig. 46—341911 Monitor Cable — Printer Cabinet (Right Side)

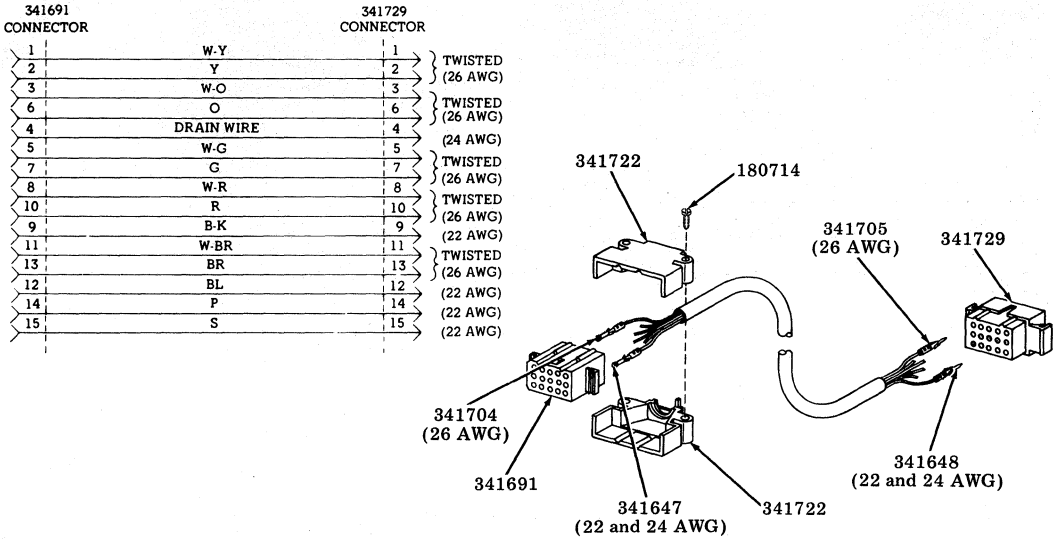
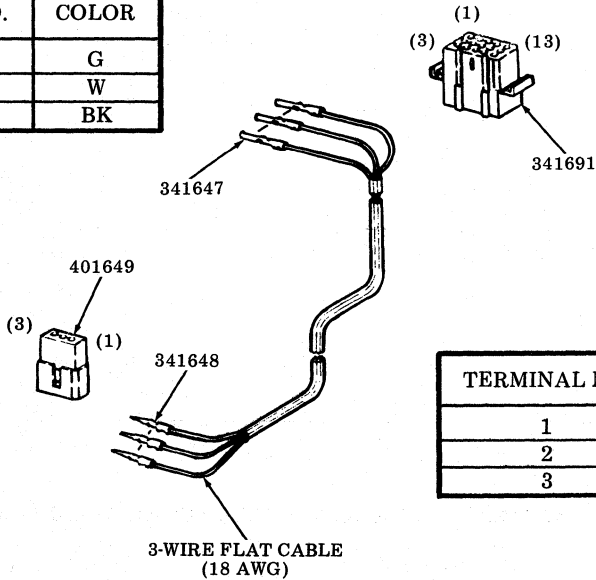


Fig. 47—402173 Monitor Cable (Logic Cabinet Adjacent)

TERMINAL NO.	COLOR
5	G
8	W
11	BK



TERMINAL NO.	COLOR
1	BK
2	G
3	W

Fig. 48—401633 Monitor Cable Assembly (Left Side)

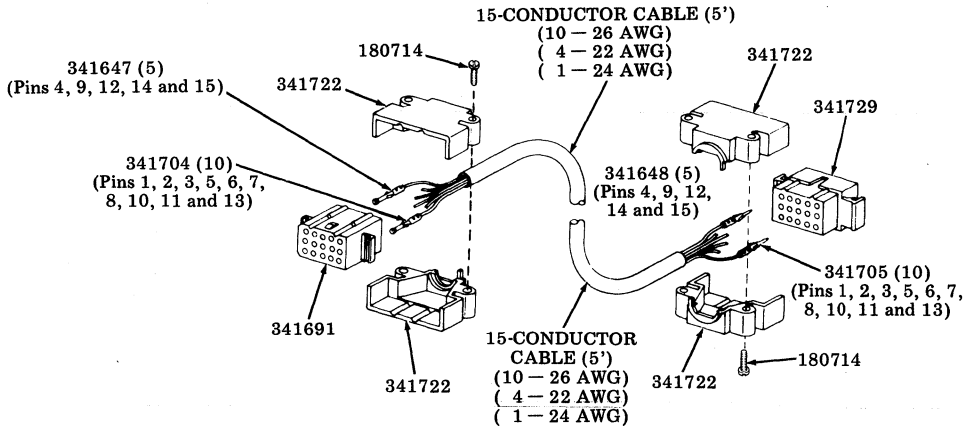
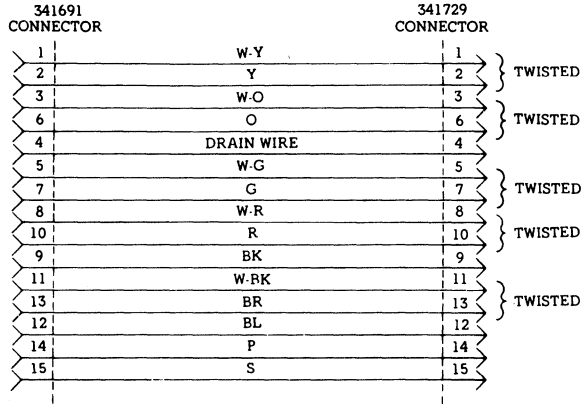


Fig. 49—341893 Monitor Extension Cable Assembly

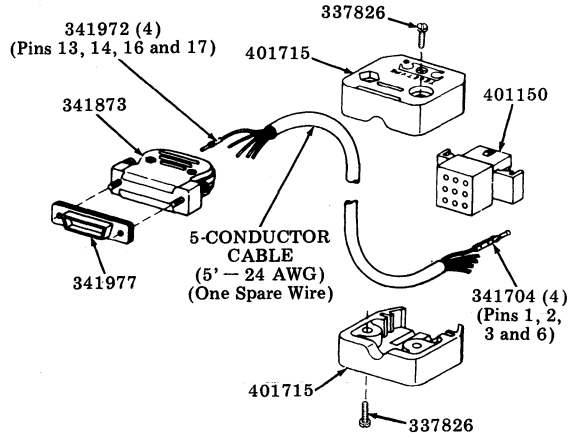
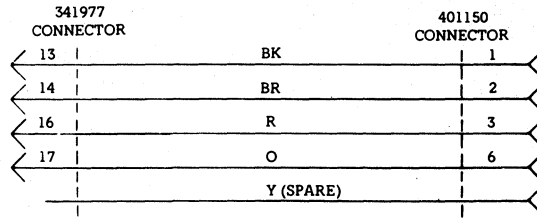
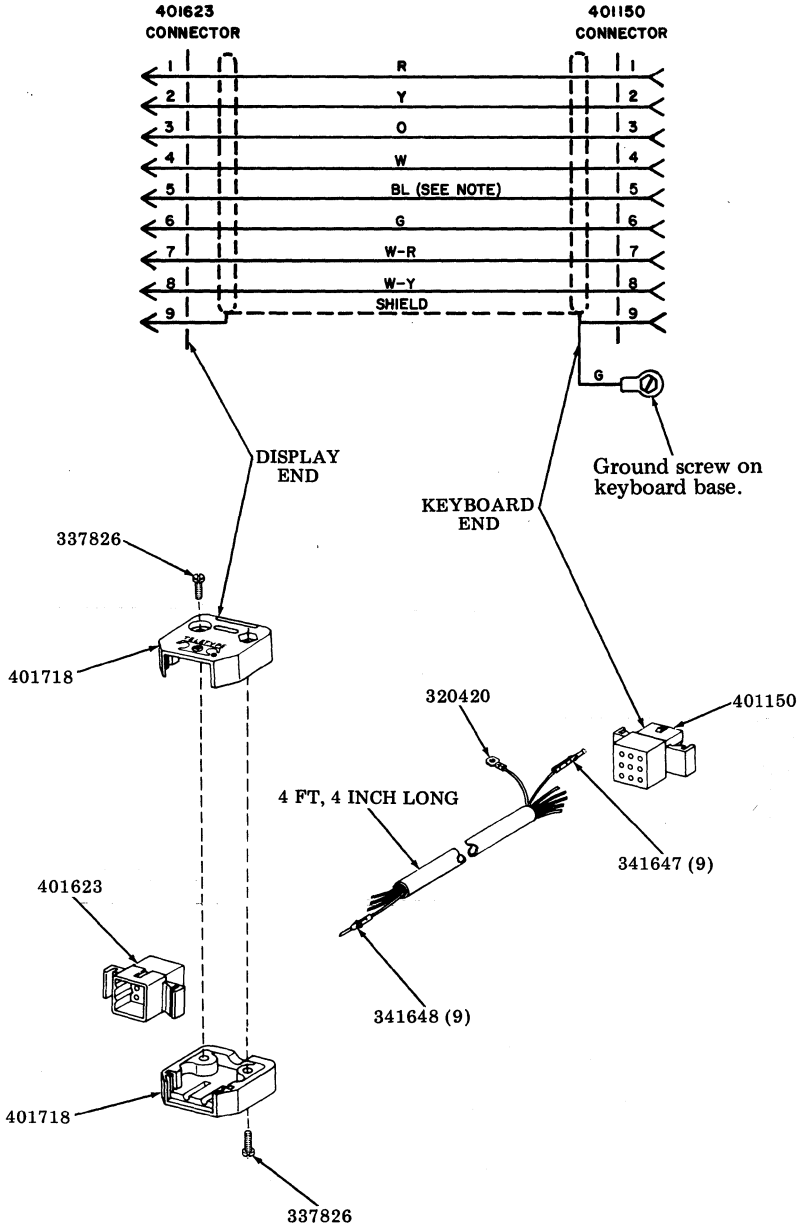


Fig. 50—341895 Printer Extension Cable Assembly (KDP Terminal)



Note: Late design cables may not have unused blue lead.

Fig. 51-346333 Keyboard Base Cable Assembly (40BSE201 and 40BSE202)

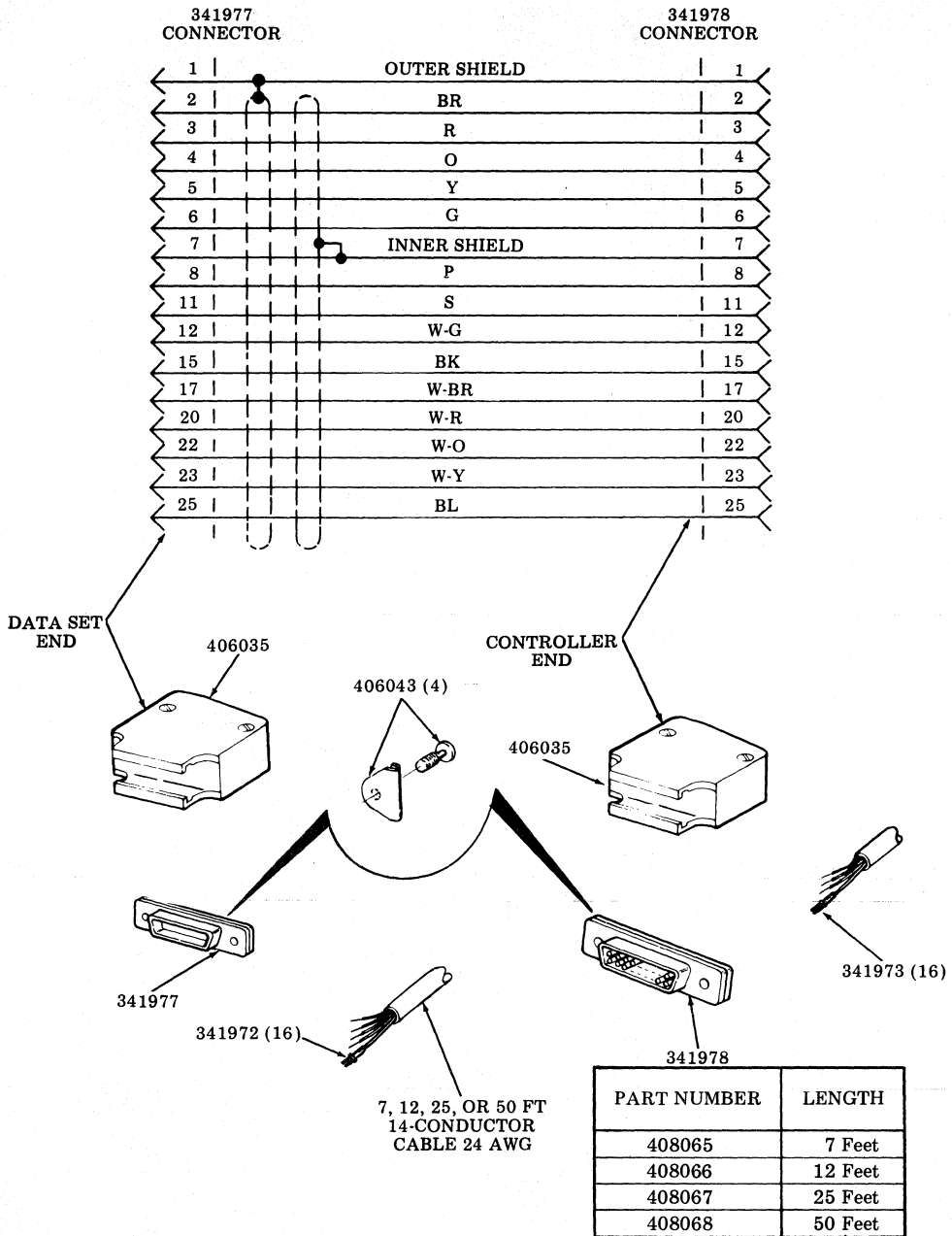


Fig. 52—Data Set Extension Cable Assemblies

“DATASPEED*” 40 CABINETS AND FACILITIES

DISASSEMBLY/REASSEMBLY, PARTS AND ADJUSTMENTS

CONTENTS	PAGE	CONTENTS	PAGE
1. GENERAL	1	Dome — noise reducing	
2. UNIT IDENTIFICATION	2	friction feed	142
3. CONVERSIONS	4	Top cover vertical — forms	
4. DISASSEMBLY/REASSEMBLY	7	access cabinet	143
FRICITION FEED		Top cover horizontal —	
PRINTER CABINETS	7	forms access cabinet	144
LOGIC CABINETS	8	Top cover left and right counter	
TRACTOR FEED		balance spring — forms access	
PRINTER CABINETS	10	cabinet	145
FRICITION FEED		Left and right front access	
PRINTER CABINETS —		door position — forms access	
NOISE REDUCING	13	cabinet	145
CABINET SUBASSEMBLIES		Left front access door	
(Table Top)	15	magnet latching — forms	
CABINET (Pedestal Type)	17	access cabinet	146
CABINET (Pedestal Type)		Top cover latch and latch	
SUBASSEMBLIES	20	strike plate — forms access	
FORM ACCESS PRINTER		cabinet	147
CABINET	22	Top cover, left and right front	
5. PARTS IDENTIFICATION	29	door interlock switch — forms	
6. ADJUSTMENTS	135	access cabinet	148
AC distribution assembly	135	Printer vertical positioning —	
Cradle torsion spring —		forms access cabinet	149
friction feed	137	Printer forward positioning —	
Cradle torsion spring —		forms access cabinet	150
tractor feed (80-column)	138	7. NUMERICAL INDEX	151
Cradle torsion spring —		1. GENERAL	
tractor feed (132-column)	140	1.01 This section provides the disassembly/	
Paper exit gap — noise reducing		reassembly, parts and adjustments for	
friction feed	141	DATASPEED 40 cabinets (hereafter referred to	
		as 40 type) and facilities shown in PART 2. UNIT	
		IDENTIFICATION.	
		1.02 This section is reissued to incorporate the	
		latest engineering changes available at this	
		time. Teletype Change Notice (TCN) information,	
		where applicable, is also included. Because this is	
		a general revision, marginal arrows have been	
		omitted.	

*Registered Trademark of AT&TCo.

1.03 This section includes the procedures for removing and replacing the principle components of the 40-type cabinets and facilities. If further removal of parts is required, refer to the appropriate illustrated parts figure which shows detailed arrangements of parts.

1.04 References to left, right, front and rear, etc, refer to the cabinet or assembly as viewed in its normal operating position facing forward.

1.05 Refer to Maintenance Tools Section 570-005-800 for a complete listing of the various types of hand tools available for maintenance of Teletype Corporation equipment.

1.06 Some mechanical adjustment procedures in this section require removing an assembly, part or component with no further disassembly required. Read all adjustment notes thoroughly before performing the necessary procedure.

1.07 Unless specifically stated, make screws or nuts friction tight to make an adjustment. Tighten them securely once the adjustment has been made.

1.08 Clean the cabinet after servicing. When cleaning the cabinet use a mild detergent, rinse with damp cloth and buff dry.

1.09 Scuffed or scratched painted surfaces may be touched up with air-dry brush lacquer 344963 (KB) black spattered texture brushing lacquer.

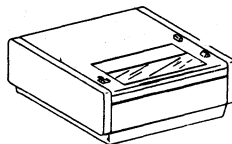
1.10 When ordering replaceable components, unless otherwise specified, prefix each part number with the letters "TP" (ie, TP344963).

2. UNIT IDENTIFICATION

2.01 All the units covered in this section are listed and shown in 2.02 through 2.10.

2.02 Friction Feed Printer Cabinets

- † Standard Serial Interface
- ‡ Electronic Industries Association
- § Original Equipment Manufacturer

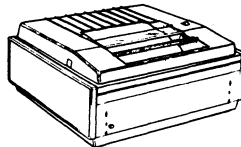


•40CAB201/ZZ PLUS
407042 MODIFICATION
KIT PRINTER
ADJACENT (SSI†)

•40CAB201/ZZ PLUS
407043 MODIFICATION
KIT RO PRINTER (SSI†)

•40CAB251/AA
PRINTER UNDER
MONITOR (SSI†)

(Noise Reduced)



•40CAB371/ZZ PLUS
407100 MODIFI-
CATION KIT
RO PRINTER (SSI†)

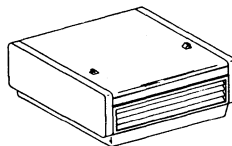
•40CAB371/ZZ PLUS
346744 MODIFICATION KIT
TO PROVIDE (OEM §)
INTERFACE

•40CAB371/ZZ PLUS
407102 MODIFICATION KIT
TO PROVIDE INTERFACE
FOR 40C103 CONTROLLER

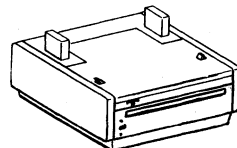
•40CAB371/ZZ PLUS
407101 MODIFI-
CATION KIT WITH
PROVISION FOR
OPCON (EIA‡)

•40CAB371/ZZ PLUS
406204 MODIFICATION KIT
TO PROVIDE INTERFACE
FOR 40C303/AD
INTEGRATED CONTROLLER
(EIA‡)

2.03 Logic Cabinets



•40CAB201/AB
LOGIC ADJACENT

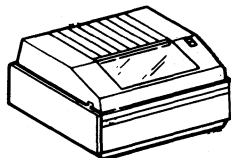


•40CAB251/ZZ PLUS
405563 MODIFICATION KIT
LOGIC UNDER MONITOR

•40CAB251/ZZ PLUS
405562 MODIFI-
CATION KIT
MONITOR AND
OPCON MOUNTING

•40CAB251/ZZ PLUS
406047 MODIFI-
CATION KIT LOGIC
UNDER MONITOR
(EIA‡)

2.04 80-Column Tractor Feed Printer Cabinets



•40CAB351/YZ PLUS
407026 MODIFICATION
KIT RO PRINTER (SSI†)
(80-Column)

•40CAB351/YZ PLUS
407025 MODIFICATION KIT
PRINTER W/PROVISION
FOR OPCON (SSI†)
(80-Column)

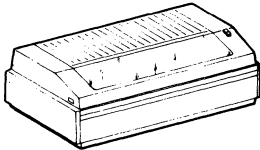
•40CAB351/YZ PLUS 346732
MODIFICATION KIT TO PROVIDE
(OEM ‡) INTERFACE

•40CAB351/YZ PLUS 407024 MODIFICATION
KIT ROP PRINTER W/PROVISION FOR OPCON
(EIA ‡) (80-Column)

•40CAB351/YZ PLUS 406190 MODIFICATION
KIT TO PROVIDE INTERFACE FOR 40C303/AA
INTEGRATED CONTROLLER
(DUAL EIA ‡)

•40CAB351/YZ PLUS 406207
MODIFICATION KIT TO PROVIDE
INTERFACE FOR 40C303/AC OR
40C303/AD INTEGRATED
CONTROLLER (Dual EIA ‡)

2.05 132-Column Tractor Feed Printer Cabinets



•40CAB353/YZ PLUS
405671 MODIFICATION KIT
(SSI †) (132-Column)

•40CAB353/YZ PLUS 407024
MODIFICATION KIT RO PRINTER
W/PROVISION FOR OPCON
(EIA ‡) (132-Column)

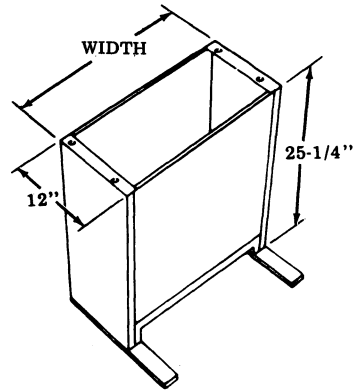
•40CAB353/YZ PLUS 406190
MODIFICATION KIT RO PRINTER
W/PROVISION FOR OPCON
(Dual EIA ‡) (132-Column)

•40CAB353/YZ PLUS 406207
MODIFICATION KIT TO PROVIDE
INTERFACE FOR 40C303/AC OR
40C303/AD INTEGRATED
CONTROLLER (Dual EIA ‡)

•40CAB353/YZ PLUS 346731
MODIFICATION KIT TO PROVIDE
(OEM ‡) INTERFACE

- † Standard Serial Interface
- ‡ Electronic Industries Association
- § Original Equipment Manufacturer

2.06 Cabinets (Pedestal-Type)



PEDESTAL WITHOUT TABLE TOP		
CODE	TYPE	WIDTH
40CAB901/AF	RO Printer Terminal — Contains Logic Module	24"
40CAB901/AG	KDP Terminal — Contains Logic Module	24"
40CAB901/AH	KD Terminal — Empty	24"
40CAB901/AJ	AC Facilities and Cable Bracket	24"
40CAB902/AA	RO Tractor Terminal — Empty	20"
40CAB902/AB	RO Tractor Terminal — Contains Logic Module	20"
40CAB904/AA	Empty	27-1/2"

2.07 Table Tops for Pedestal-Type Cabinets

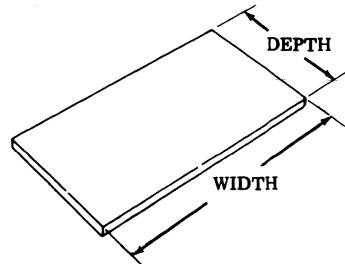


TABLE TOPS FOR PEDESTALS — FRICTION FEED		
PART NO.	WIDTH	DEPTH
401531	24"	17-3/8"
401532	29"	17-3/8"
401533	34"	17-3/8"
Ⓞ411035	29"	17-3/8"

Ⓞ Used only on 40CAB904.

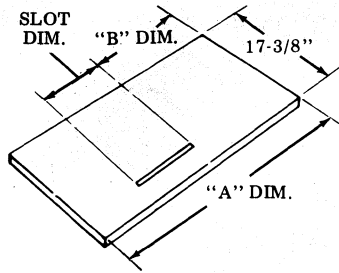
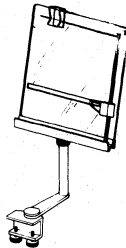
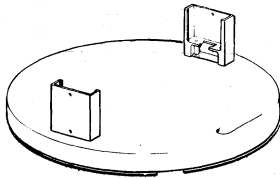


TABLE TOPS FOR PEDESTALS — TRACTOR FEED			
PART NO.	"A" DIM.	"B" DIM.	SLOT DIM.
401911①	20"	4-1/2"	11"
401912	31-1/2"	16"	11"
401913	27-1/4"	5"	17"
401914	24-1/2"	7"	11"
401915	39"	17"	17"

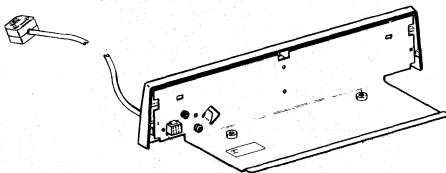
2.08 401200 Copyholder



2.09 40BSE101 Monitor Base

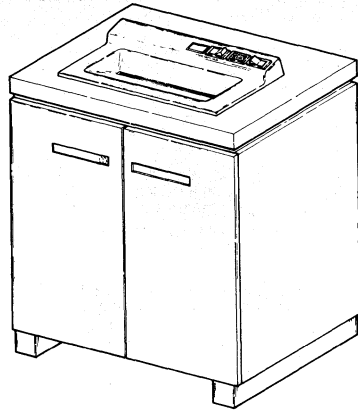


2.10 40BSE201 Opcon Base (KD) and 40BSE202 Wide Opcon Base



①Used only on 40CAB902.

2.11 Forms Access Printer Cabinet



40CAB302/ZZ Plus 406372 Modification Kit — EIA Interface With Provision for Mounting Integrated Controller and Opcon 40CAB302/ZZ Plus 406370 Modification Kit — SSI Interface to Cabinet

3. CONVERSIONS

3.01 Conversions for 40-type cabinets (table top) can be performed by utilizing the coding plan.

3.02 The code plan is based upon using a common cabinet core, along with modification kit to make up a specific cabinet, (ie, the 40CAB201/ZZ cabinet core + 407042 = 40CAB201/AA adjacent printer cabinet).

3.03 The table specification references when used with 5. PARTS IDENTIFICATION of this section should be sufficient in assembling or disassembling the various cabinet combinations.

3.04 When cabinets are converted to make up a particular cabinet or disassembled to its common cabinet core, an identification plate provided with the cabinet should be marked with the cabinet code and date of conversion.

3.05 The table lists the various cabinet combinations presently utilized. Description and type of cabinet information is also listed to help in determining the kind of cabinet that might be desired (refer to PART 2. UNIT IDENTIFICATION).

CABINET CODE (Table Top)	CODE	MOD KIT	DESCRIPTION	TYPE	SPECIFICATION REFERENCE
40CAB201/AA = 40CAB201/AB = 40CAB201/AC =	40CAB201/ZZ NO CHANGE 40CAB201/ZZ	407042 407043	Printer Adjacent Logic Adjacent RO Printer	Friction — KDP (SSI) Friction (SSI)	50828S
40CAB251/AA = 40CAB251/AB = 40CAB251/AC =	NO CHANGE 40CAB251/ZZ 40CAB251/ZZ	405563 405562	Printer U/Monitor Logic U/Monitor Monitor/Opcon Support	Friction (SSI) KD Used with 40C400 Series Controllers	50830S
40CAB251/AE =	40CAB251/ZZ	406047	Logic U/Monitor	KD (EIA) (Used with 40C304 Controller)	
40CAB351/AA = 40CAB351/AB =	40CAB351/YZ 40CAB351/YZ	407026 407025	RO Printer RO Printer w/ Provision for Opcon	80-Column Tractor (SSI) 80-Column Tractor (SSI)	50829S
40CAB351/AC =	40CAB351/YZ	407024	RO Printer w/ Provision for Opcon	80-Column Tractor (EIA) (Used with 40C303/AA Integrated Controller)	
40CAB351/AD	40CAB351/YZ	346732	RO Printer	80-Column Tractor (OEM) Printer Input Interface	50878S
40CAB351/AE =	40CAB351/YZ	406190	Houses 40C303/AC or 40C303/AD Integrated Controller and has Provision for Dual EIA Type Printer Interface	80-Column Tractor	50915S
—————	40CAB351/YZ	406207	Houses 40C303/AC or 40C303/AD Integrated Controller and has Provision for Dual EIA Type Printer Interface.	80-Column Tractor	51001S
40CAB353/AA = 40CAB353/AB =	40CAB353/YZ 40CAB353/YZ	405671 407024	RO Printer RO Printer w/ Provision for Opcon	132-Column Tractor (SSI) 132-Column Tractor (EIA) (Used with 40C303 Integrated Controller)	50829S
40CAB353/AC	40CAB353/YZ	346731	RO Printer	132-Column Tractor (OEM) Printer Input Interface	
40CAB353/AD =	40CAB353/YZ	406190	Houses 40C303/AC or AD Integrated Controller and has Provision for Dual EIA Type Printer Interface	132-Column Tractor	50915S
—————	40CAB353/YZ	406207	Houses 40C303/AC or 40C303/AD Integrated Controller and has Provision for Dual EIA Type Printer Interface	132-Column Tractor	51001S

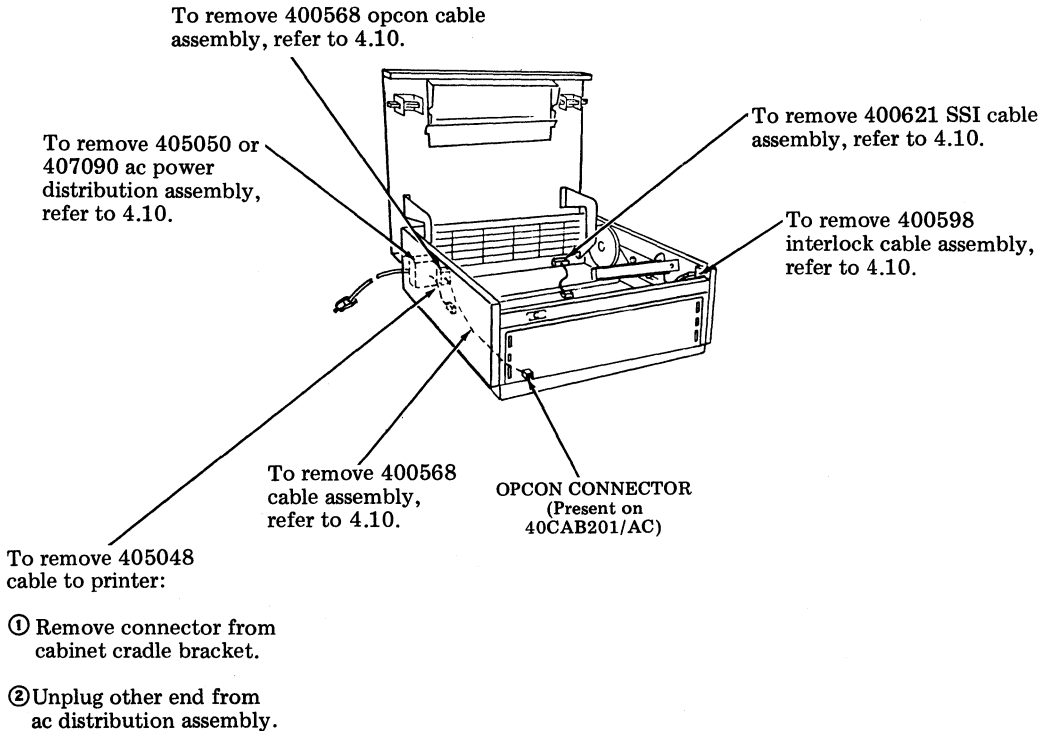
SECTION 582-212-700

CABINET CODE (Table Top)	ZZ CODE	MOD KIT	DESCRIPTION	TYPE	SPECIFICATION REFERENCE
40CAB371/AA =	40CAB371/ZZ	407100	RO Printer (Noise Reducing)	Friction (SSI)	50854S
40CAB371/AB =	40CAB371/ZZ	407101	RO Printer w/ Provision for Opcon (Noise Reducing)	Friction (EIA) (Used with 40C303/AA Integrated Controller)	
_____	40CAB371/ZZ	407102	RO Printer (Noise Reducing)	Friction (SSI) (40C103 Controller)	
40CAB371/AC	40CAB371/ZZ	346744	RO Printer (Noise Reducing)	Friction (OEM)	50881S
_____	40CAB371/ZZ	406204	Houses 40C303/AD Integrated Controller and has Provision for Dual EIA Type Printer Interface	Friction	50989S
40CAB302/AA =	40CAB302/ZZ	406372	RO Printer w/ Provision for Opcon	Forms Access (EIA) (Used with 40C303 Integrated Controller)	50953S
40CAB302/AB	40CAB302/ZZ	406370	RO Printer	Forms Access (SSI)	50951S
40CAB302/AC	40CAB302/ZZ	406371	RO Printer	Forms Access (OEM)	50952S

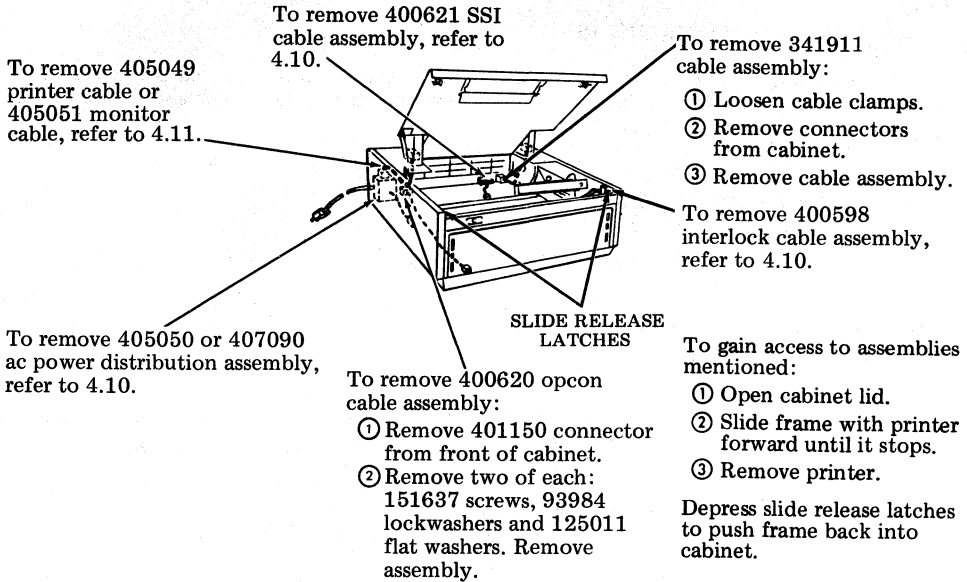
4. DISASSEMBLY/REASSEMBLY

FRICTION FEED PRINTER CABINETS

- 4.01 40CAB201/AA Printer Adjacent Cabinet (Includes internal interlock and printer cables):
 40CAB201/AC RO Printer Cabinet (Includes internal interlock, printer and opcon cables):

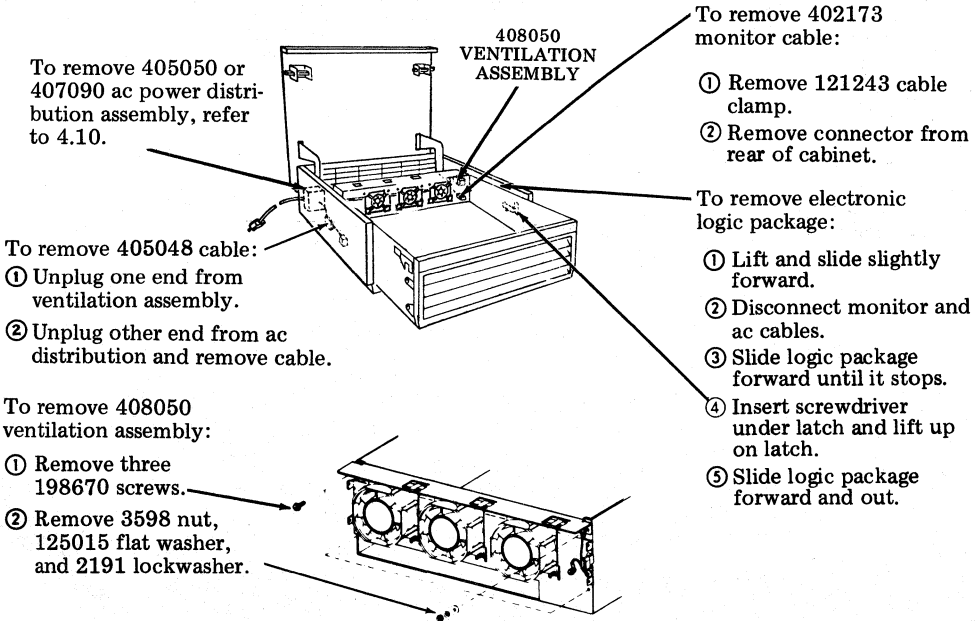


4.02 40CAB251/AA Printer Under Monitor Cabinet:



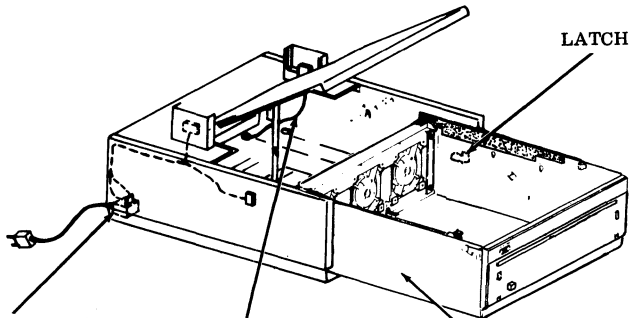
LOGIC CABINETS

4.03 40CAB201/AB Logic Adjacent Cabinet:



4.04 40CAB251/AB Logic Under Monitor Cabinet:
 40CAB251/AC Monitor/Opcon Support:
 40CAB251/AE Logic Under Monitor:

To remove 405051 monitor cable and 405047 fan cable (not used on 40CAB251/AC), refer to 4.11.



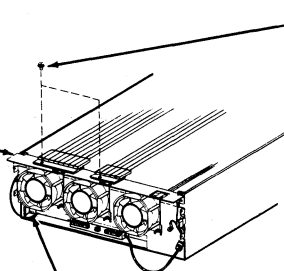
To remove 405050 or 407090 ac power distribution assembly, refer to 4.10.

To remove 341891 (used on 40CAB251/AB) or 406046 (used on 40CAB251/AE) monitor cables, refer to 4.11.

40CAB251/AB only — to remove electronic logic package and fan assembly:

- ① Lift and slide forward until logic package stops.
- ② Disconnect fan and monitor cables on rear of logic package.
- ③ Loosen 341819 shoulder screw from top of fan assembly frame.
- ④ Insert screwdriver under latch and slide logic package slightly forward.
- ⑤ Remove logic package.

To remove 408050 assembly, refer to 4.03.



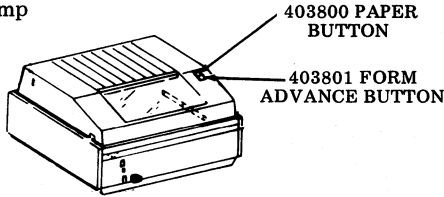
341891
MONITOR CABLE

TRACTOR FEED PRINTER CABINETS

4.05 40CAB351/AA and 40CAB353/AA Printer Adjacent Cabinets:
40CAB351/AB, 40CAB351/AC, and 40CAB353/AB RO Printer Cabinets:

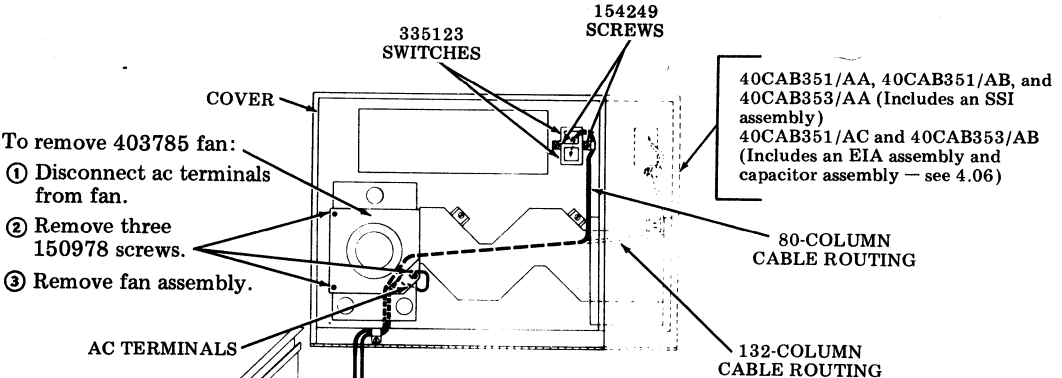
To replace 333588 lamp in 335123 switch:

- ① Remove 403800 button.
- ② Replace lamp.

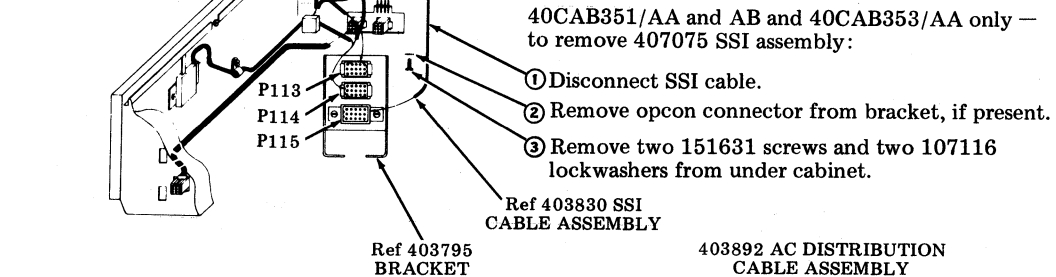


To remove 335123 switches:

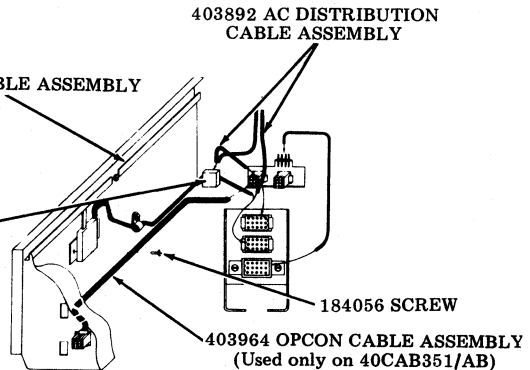
- ① Remove switch button.
- ② Remove nut from top of switch.
- ③ Unsolder leads.
- ④ Remove switch.



40CAB351/AA, 40CAB351/AB, and 40CAB353/AA (Includes an SSI assembly)
40CAB351/AC and 40CAB353/AB (Includes an EIA assembly and capacitor assembly — see 4.06)



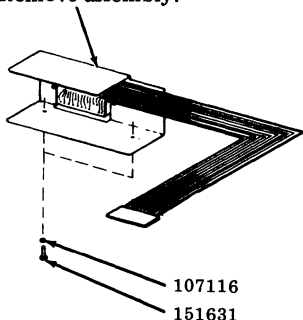
All 40CAB351 and 353 cabinets to remove 405050 or 407090 ac power distribution assembly, refer to 4.10.



4.06 40CAB351/AC and 40CAB353/AB RO Printer Cabinets:

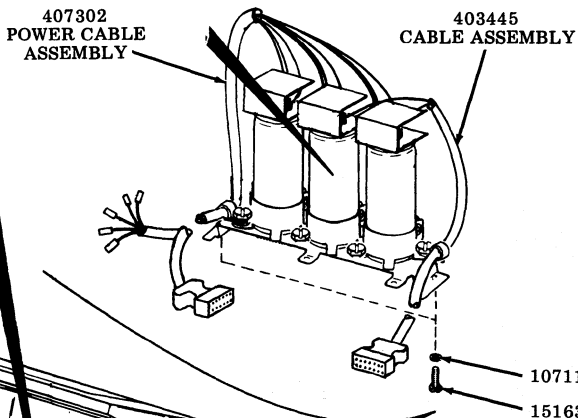
To remove 407077 EIA signal input assembly:

- ① Disconnect EIA plug from circuit card assembly.
- ② Remove two 151631 screws and two 107116 lockwashers from bottom of cabinet.
- ③ Remove assembly.



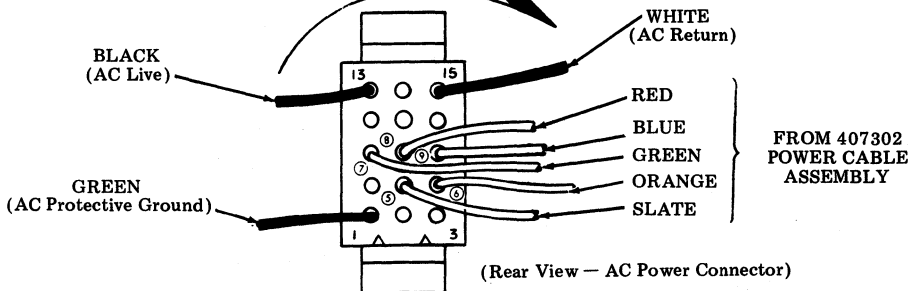
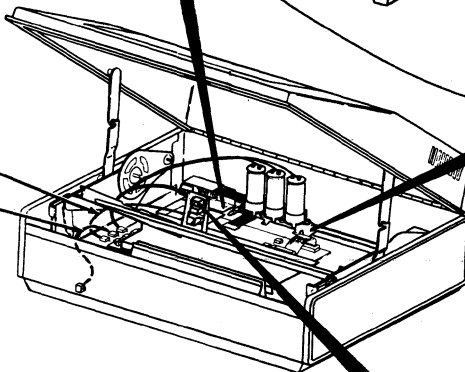
To remove 407076 capacitor assembly:

- ① Remove terminals of 407302 power cable from 341691 ac power connector. See wiring below.
- ② Disconnect 403445 and 407302 cables from circuit card assemblies.
- ③ Remove two 151631 screws and two 107116 lockwashers from bottom of cabinet.
- ④ Remove assembly.



407303 SSI CABLE ASSEMBLY

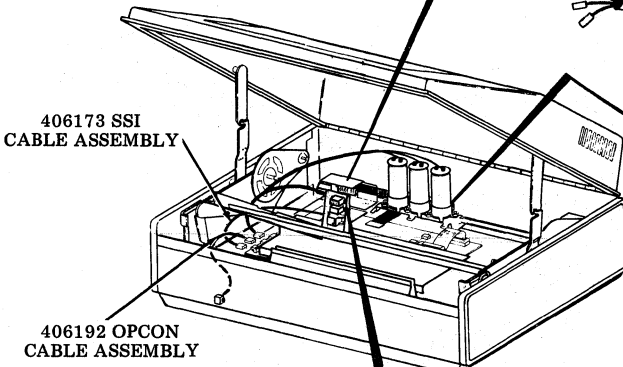
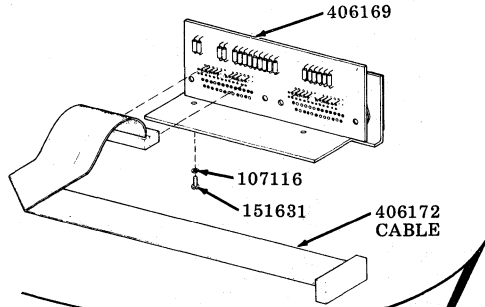
407301 OPCON CABLE ASSEMBLY



4.07 40CAB351/AE and 40CAB353/AD Printer Cabinets

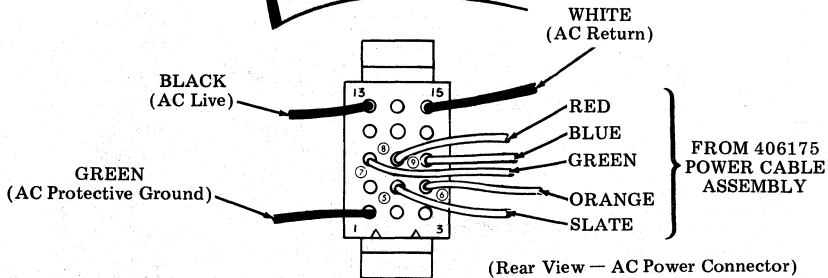
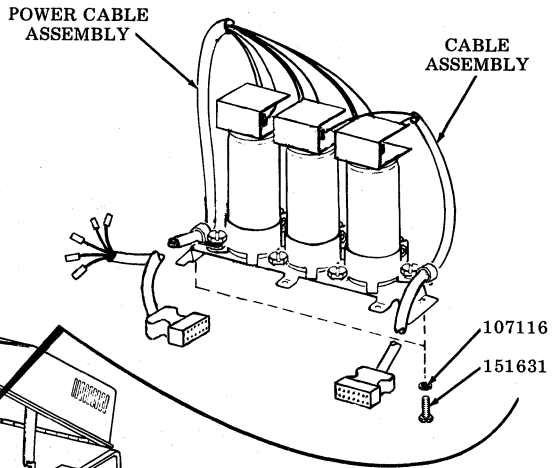
To remove 406169 EIA assembly:

- ① Disconnect EIA plug from circuit card assembly.
- ② Remove two 151631 screws and two 107116 lockwashers from bottom of cabinet.
- ③ Remove assembly.



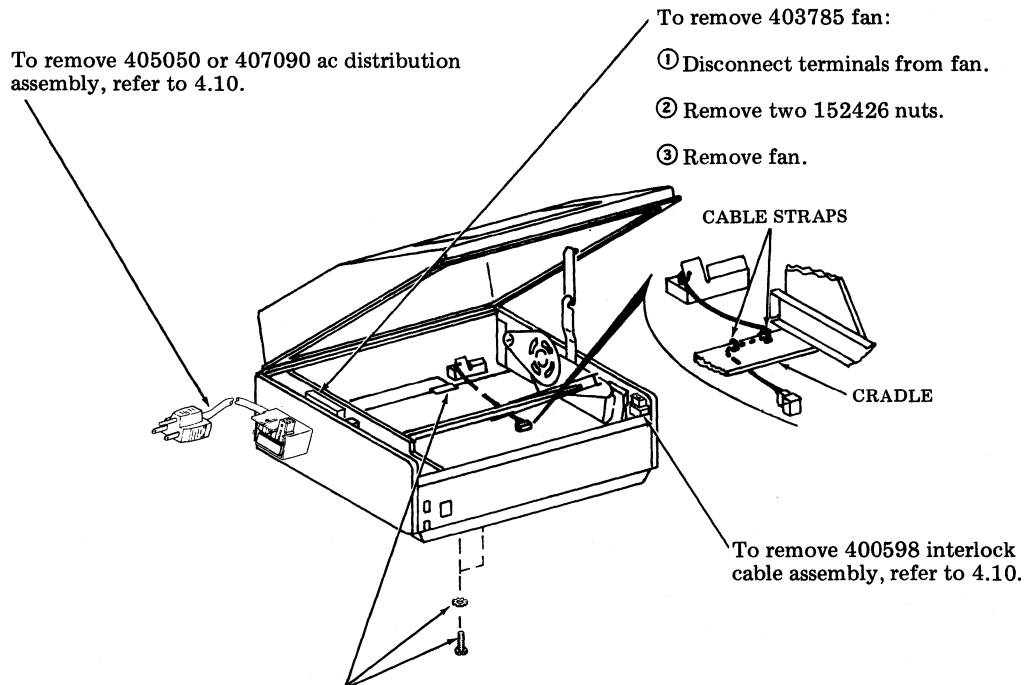
To remove 406189 capacitor assembly:

- ① Remove terminals of 406175 power cable from 341691 ac power connector. See wiring below.
- ② Disconnect cables from circuit card assemblies.
- ③ Remove two 151631 screws and two 107116 lockwashers from bottom of cabinet.
- ④ Remove assembly.



FRICTION FEED PRINTER CABINETS — NOISE REDUCING

4.08 40CAB371/AA Printer Adjacent Cabinet:
40CAB371/AB RO Printer Cabinet:



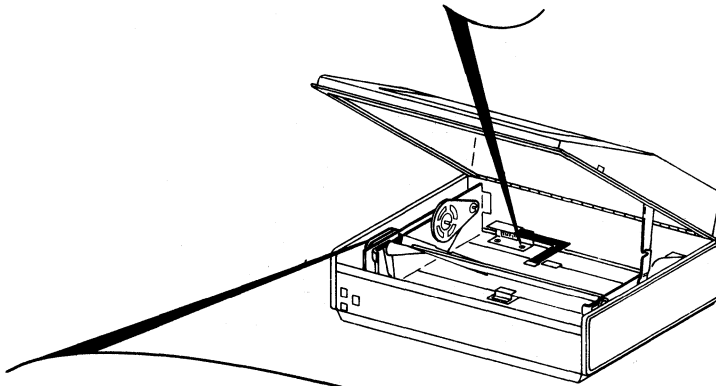
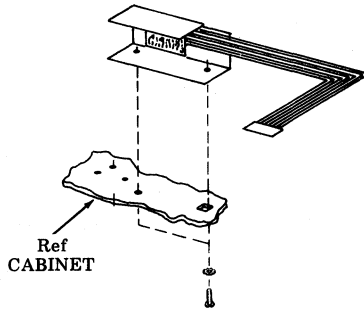
40CAB371/AA only ---
to remove 407122 SSI cable w/bracket:

- ① Remove two 151631 screws and two 107116 starwashers from bottom of cabinet.
- ② Cut cable straps holding cable to the cradle.
- ③ Remove 407122 SSI cable w/bracket.

4.09 40CAB371/AB RO Printer Cabinet:

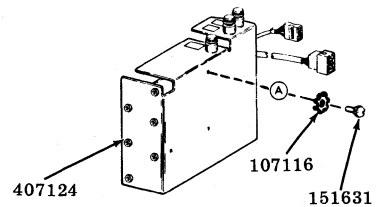
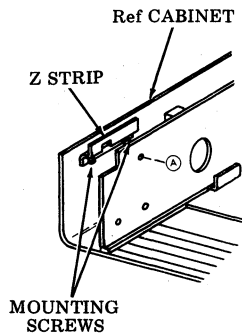
To remove 407077 EIA signal input assembly:

- ① Disconnect EIA plug from circuit card assembly.
- ② Remove two 151631 screws and two 107116 lockwashers from bottom of cabinet.
- ③ Remove assembly.



To remove 407124 power supply:

- ① Disconnect two connectors from circuit cards.
- ② In order to gain clearance to remove the 407124 power supply, two mounting screws on the Z strip are to be loosened and Z strip pivoted upwards.
- ③ Remove three 151631 screws and three 107116 lockwasher.
- ④ Remove power supply.

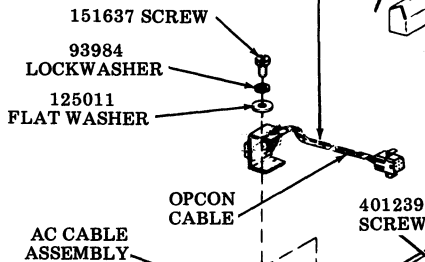


CABINET SUBASSEMBLIES (Table Top)

4.10 AC Distribution and Cable Assemblies:

To remove 400568 or 400620 opcon cable assembly (includes 400577 bracket and opcon cable):

- ① Remove 401150 connector from front of cabinet.
- ② Remove six 400566 cable restraints.
- ③ Remove two of each: 151637 screws, 93984 lockwashers, and 125011 flat washers.
- ④ Remove assembly.

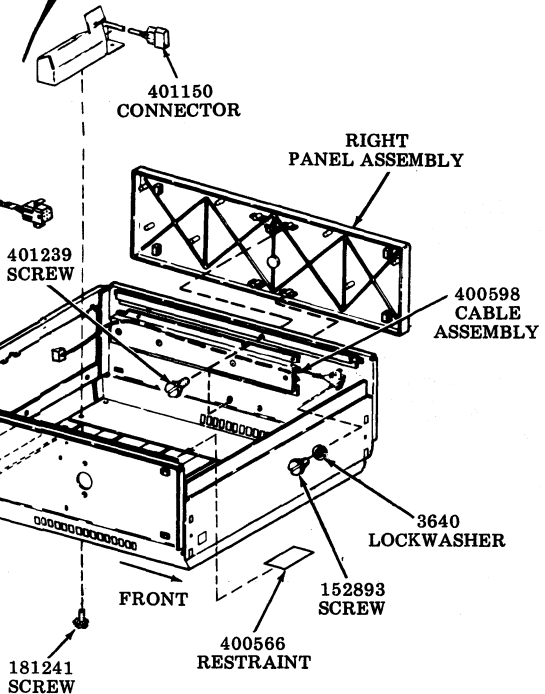


To remove 405050 ac or 407090 distribution assembly:

- ① Disconnect any cable from ac distribution assembly.
- ② For 405050, remove two 408887 screws from bottom of cabinet. For 407090, remove two 2658 nuts from bottom of cabinet.
- ③ Remove assembly.

To remove 400621 SSI cable assembly:

- ① Remove three 181241 screws.
- ② Remove 400621 assembly.



To remove 400598 interlock cable assembly:

- ① Remove two 401239 screws.
- ② Grasp center of side panel and gently pull outward to withdraw locating pin. While holding, pull toward front of the cabinet to remove.
- ③ Remove two 152893 screws and two 3640 lockwashers.
- ④ Remove assembly.

4.11 Fan and Monitor Power Cables, Monitor Signal Cables:

To remove 405047 ac fan cable or 405049 printer cable:

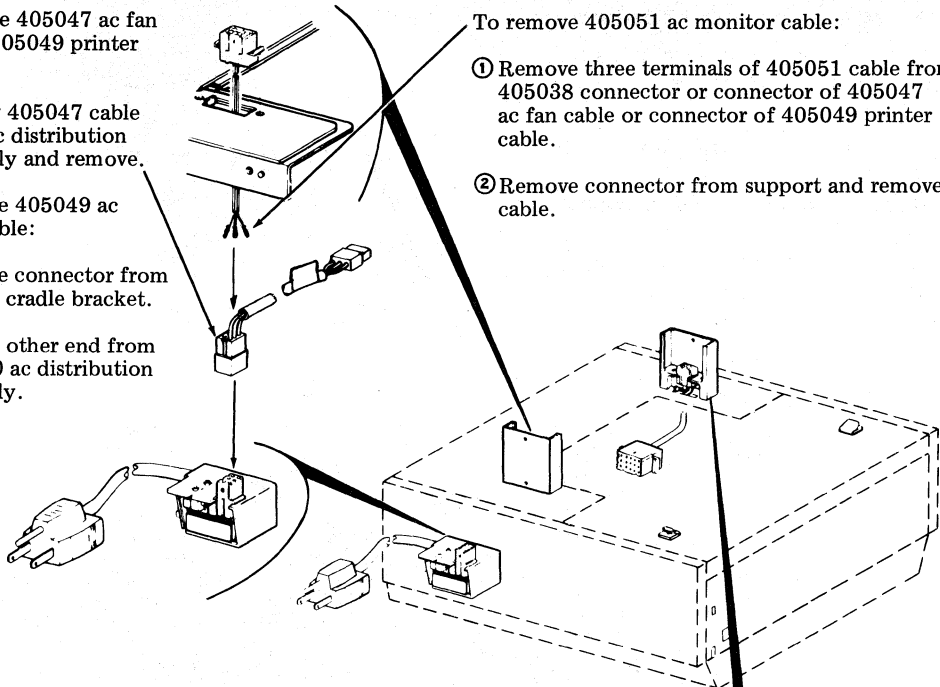
- ① Unplug 405047 cable from ac distribution assembly and remove.

To remove 405049 ac printer cable:

- ① Remove connector from cabinet cradle bracket.
- ② Unplug other end from 405040 ac distribution assembly.

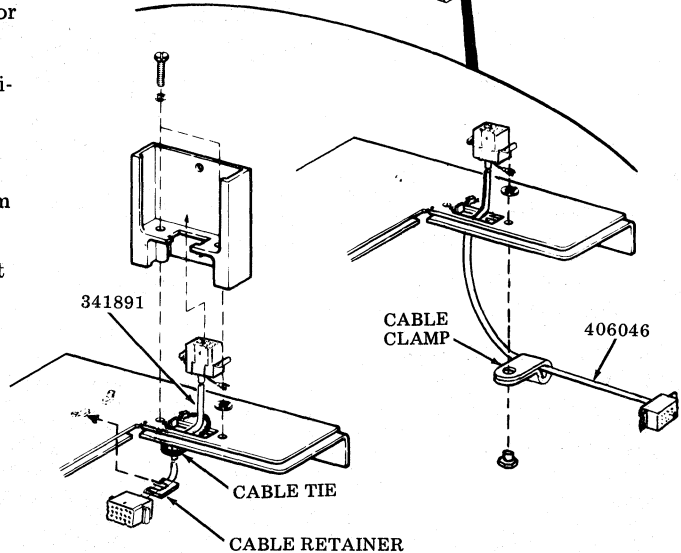
To remove 405051 ac monitor cable:

- ① Remove three terminals of 405051 cable from 405038 connector or connector of 405047 ac fan cable or connector of 405049 printer cable.
- ② Remove connector from support and remove cable.



To remove 341891 or 406046 monitor cables:

- ① Loosen hardware and remove terminal ground of the monitor cable.
- ② 341891 cable:
 - Cut cable tie.
 - Remove cable retainer plate from tabs on lower surface of cabinet top member.
 - Remove connector from support and remove cable.
- ③ 406046 cable:
 - Remove nut and cable clamp holding cable to lower surface of cabinet member.
 - Remove connector from support and remove cable.

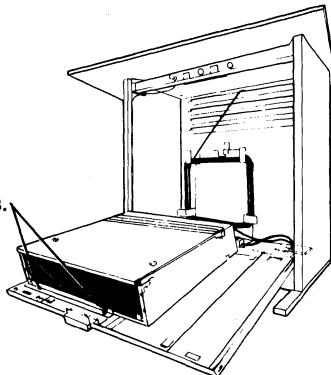


CABINET (Pedestal Type)

4.12 40CAB901/XX Cabinet (Pedestal Type):

To remove ventilation assembly and electronics package assembly:

Remove two 401225 screws with washers.

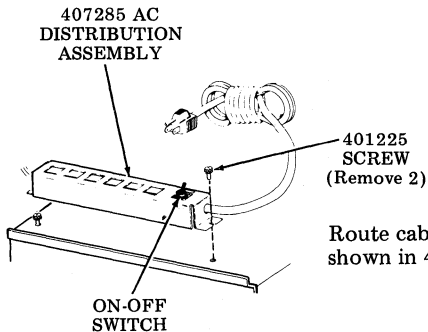


To remove 407285 ac distribution assembly (late design):

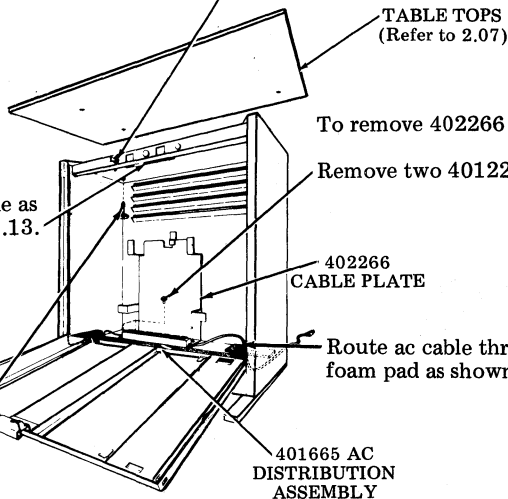
Note: New ac distribution assembly is equipped with 6 switched receptacles, and an ON-OFF switch mounted on the panel.

To remove 401665 ac distribution assembly (early design):

Remove two 401225 screws and 408052 ac switch assembly with hardware.



Route cable as shown in 4.13.



To remove 402266 cable plate:

Remove two 401225 screws.

To remove table tops:

Remove four 2449 lockwashers and 162730 screws.

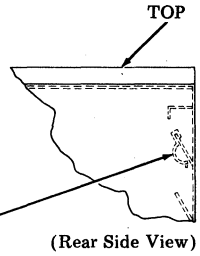
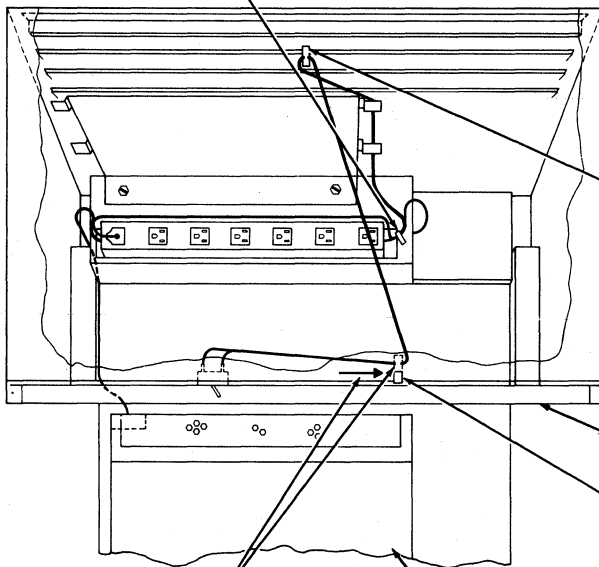
CABINET (Pedestal-Type)

4.13 40CAB901/XX Cable Routing

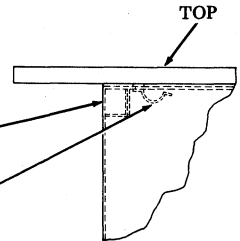
- ① Disassemble switch mounting bracket. Do not remove switch.
- ② Install cable clip to top of pedestal.
- ③ Install cable clip on louver at rear of pedestal.
- ④ Reassemble switch mounting bracket.
- ⑤ Route cable as shown.
- ⑥ Dress cable, taking up slack as shown, and install the cable strap.

CUT AWAY TOP VIEW OF THE PEDESTAL

312918 cable strap strapping the power switch cable to the ac strip power cord.



408042 cable clip approximately centered on the louver shown.



Position this 408042 cable clip to take up all slack in the power switch cable in this direction as shown.

ELECTRONICS MODULE

4.14 40CAB902/XX

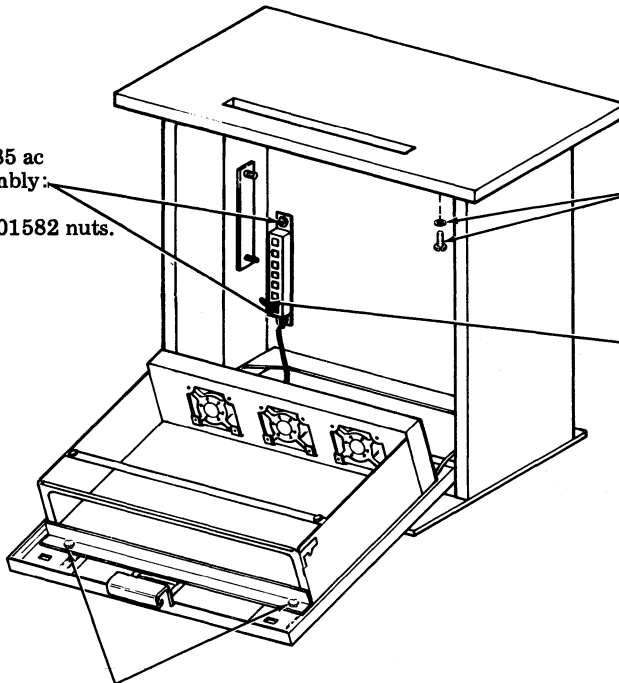
(Late Design)
To remove 407285 ac
distribution assembly:

- ① Remove two 401582 nuts.

To remove table tops:

Remove four 2449
lockwashers and four
162730 screws.

ON-OFF
SWITCH

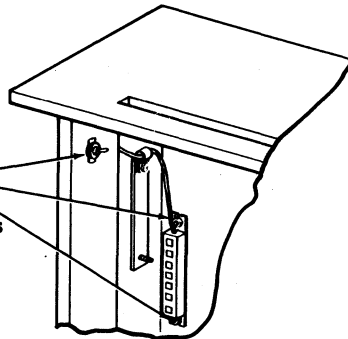


To remove ventilation assembly
and electronics package assembly:

Remove two 401225 screws.

(Early Design)
To remove 401665 ac
distribution assembly:

- ① Remove two 401582 nuts
and 408052 ac switch
assembly w/hardware.
- ② Remove hardware and
cable clamp.



CABINET (Pedestal Type) SUBASSEMBLIES

4.15 40CAB901/XX and 40CAB902/XX

④ If cover is present, remove front two captive screws and two rear screws. Retain cover and screws.

③ Remove two screws, retain.

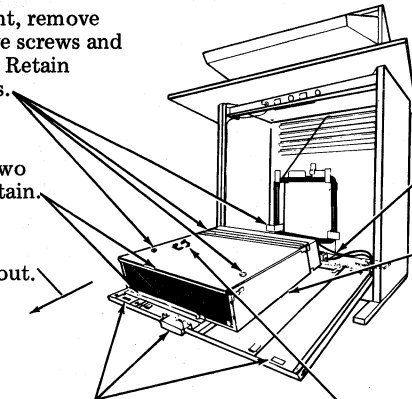
⑥ Slide package out.

① Slide tabs inward and open panel CAREFULLY (attached electronics package weighs approximately 30 pounds) by pressing handle up.

② Disconnect cables at the rear of electronics package.

⑤ If data set present, remove the two screws holding the bracket to cabinet door. Loosen two screws on the inside of electronics package. Lift bracket up and remove, retain all parts.

⑦ Disconnect cable from fan to power supply.



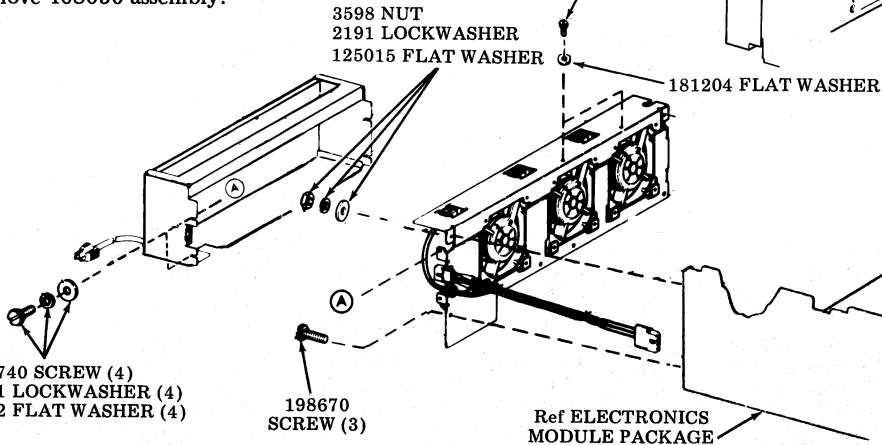
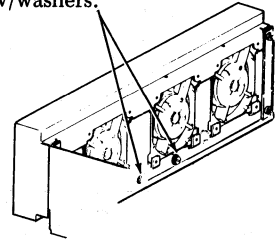
4.16 Ventilation Assembly Removal — 40CAB901/XX

① Remove four 156740 screws, four 2191 lockwashers and four 7002 flat washers. Remove 408030 fan guard assembly.

② Remove 3598 nut, 2191 lockwasher, 125015 flat washer and three 198670 screws.

③ Loosen two 341819 shoulder screws and remove 408050 assembly.

Note: On ROP electronics package, remove two 198670 screws w/washers.



156740 SCREW (4)
2191 LOCKWASHER (4)
7002 FLAT WASHER (4)

198670 SCREW (3)

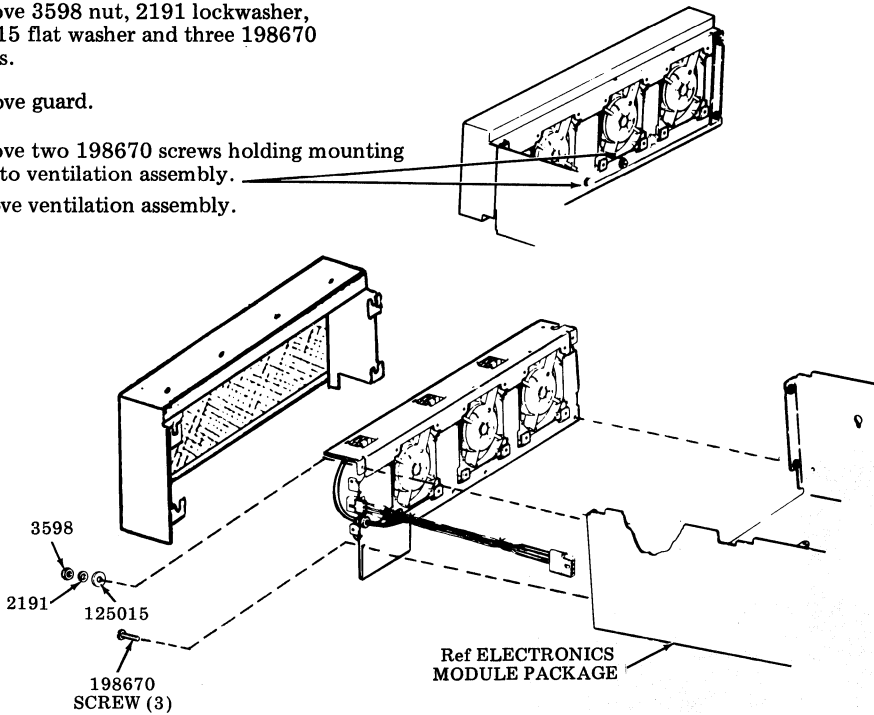
Ref ELECTRONICS MODULE PACKAGE

4.17 Ventilation Assembly Removal — 40CAB902/AB

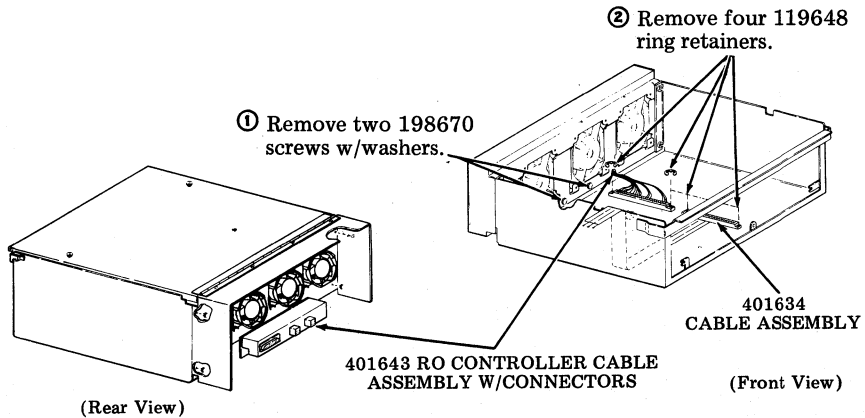
Remove 3598 nut, 2191 lockwasher, 125015 flat washer and three 198670 screws.

② Remove guard.

Remove two 198670 screws holding mounting plate to ventilation assembly.
Remove ventilation assembly.



4.18 ROP Controller Interface and Power Supply Cable:



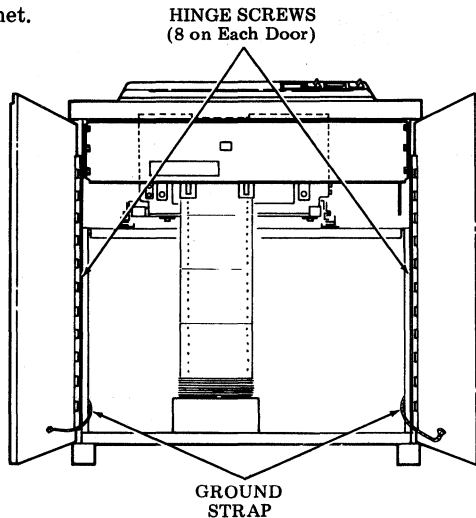
ROP ELECTRONICS LOGIC PACKAGE

FORMS ACCESS PRINTER CABINET

4.19 40CAB302/ZZ Forms Access Cabinet.

To remove access doors:

Remove respective hinge mounting screws and their respective ground straps from the cabinet.

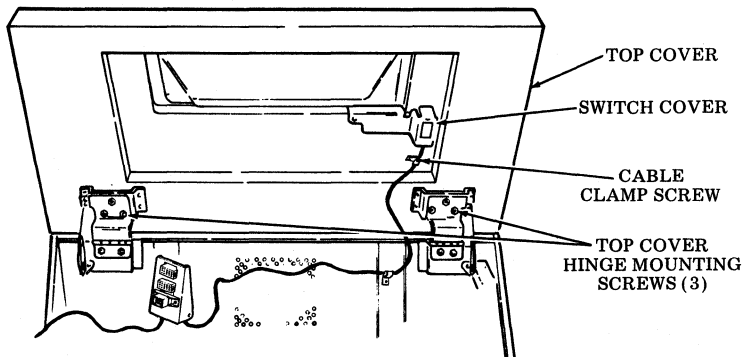


Note: Refer to 5. PARTS IDENTIFICATION for hardware numbers.

4.20 40CAB302/ZZ Forms Access Cabinet

To remove top cover from cabinet:

- ① Remove two screws holding the switch cover.
- ② Remove cable clamp screw.
- ③ Disconnect cable assembly terminals from respective component terminals on forms chute.
- ④ Remove six top cover hinge mounting screws.



Note: Refer to 5. PARTS IDENTIFICATION for hardware numbers.

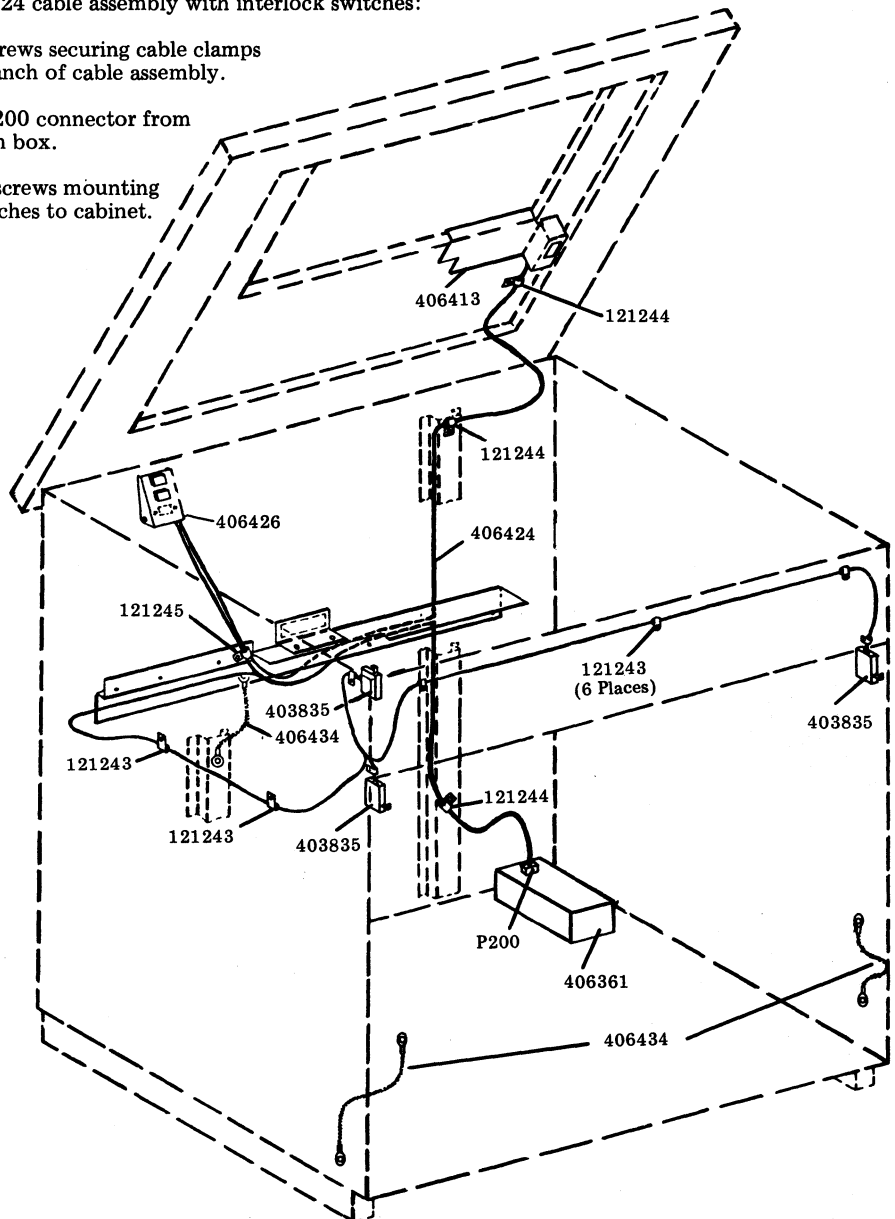
4.21 40CAB302/ZZ Forms Access Cabinet

To remove 406424 cable assembly with interlock switches:

Remove all screws securing cable clamps from each branch of cable assembly.

Disconnect P200 connector from ac distribution box.

Remove two screws mounting interlock switches to cabinet.



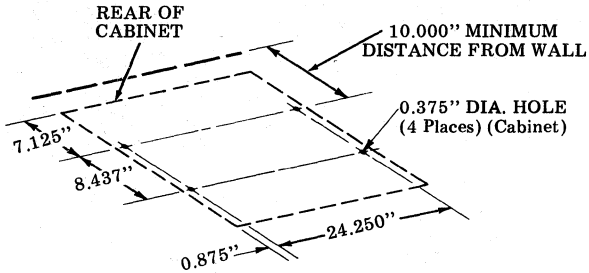
Note 1: To reinstall the 406424 cable assembly, reverse the above procedure.

Note 2: Refer to 5. PARTS IDENTIFICATION for hardware numbers.

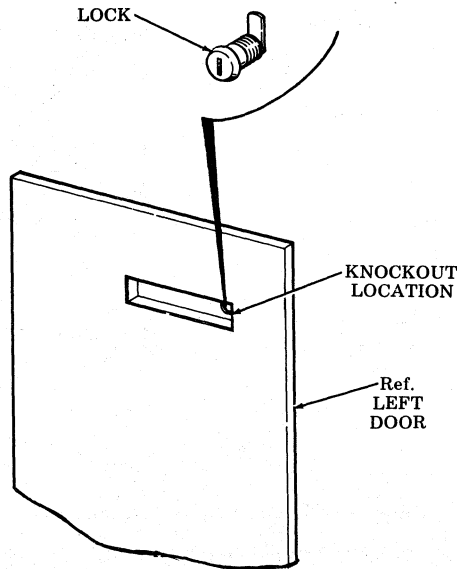
4.22 40CAB302/ZZ Forms Access Cabinet

- The 40CAB302/ZZ cabinets are provided with three security features that customers may desire for their installation: 1. Holes for securing cabinet to the floor, 2. an entry security lock knockout in the left front access door and 3. a secure location for the electrical forms switch.

Cabinet floor securing hole data.

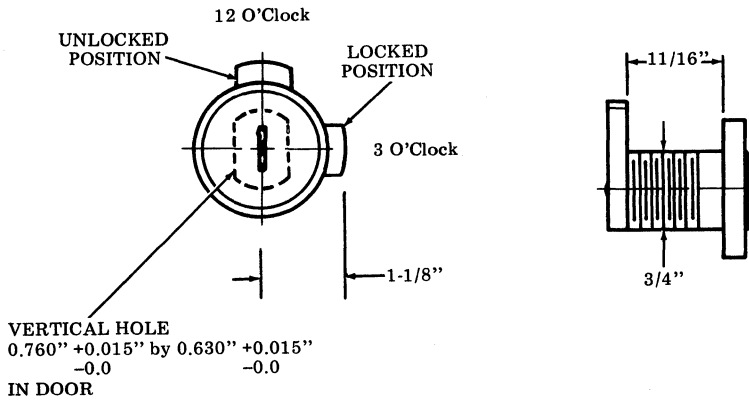


- ② To acquire entry security, remove the lock mounting hole knockout plug located in the handle well of the left front access door and install lock. Teletype Corporation does not supply the lock. Lock configuration is on the following page.

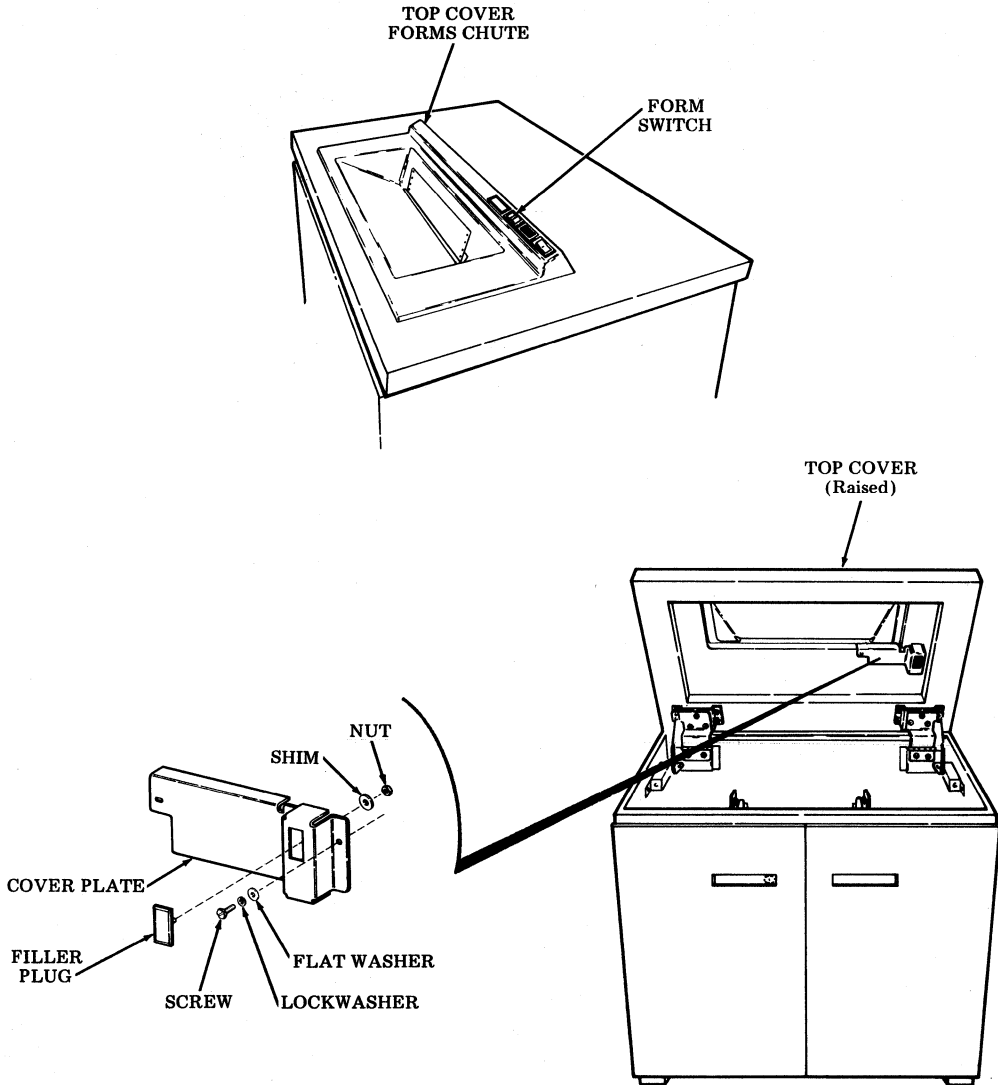


Lock Configuration

Key Removable in Locked Position Only



- ③ The FORM switch securing procedure is as follows: Disassemble cover plate with filler plug from the bottom side of cabinet top cover by removing two screws, lockwashers and flat washers. Disconnect the two terminals of the FORM switch and carefully remove FORM switch from the top cover forms chute. Remove the shim and nut that secure the filler plug to the cover plate and reassemble the filler plug in the hole vacated by FORM switch on the top cover forms chute. Insert FORM switch in cover plate and reconnect the two terminals. Reassemble the cover plate to the top cover and tighten mounting screws.



4.23 The 40CAB302/ZZ forms access cabinet with 406374 modification kit will provide paper-out contact closure below print line in the forms access printer cabinet.

4.24 This cabinet is arranged for use with the 40P253 forms access printer.

4.25 This printer differs from the rest of the 40-type printers principally in that it pushes rather than pulls the forms through the machine.

4.26 This pushing action means that the last form cannot clear the printing line and some information could be lost. For example, if the printer is printing six-inch forms, normal operation occurs until the last form clears the form out switch (this would occur after about 1-1/2 to 2 inches of copy has been printed).

• Option 48 on 410071 Printer Logic Circuit Card

(a) If the option switch had been selected to immediately drop all further data receiving (SWE9-9 Closed), the operator must now replenish the paper supply and in some fashion, retrieve the information printed on the last (wasted) form so that it may be printed on the new stock.

(b) Similarly, if the option switch had been selected so that the paper-out is gated with end of form (SWE9-9 Open), all the information would be sent, but the form would not move past the print line as the tractors end about 3-1/2 inches from the print line. Again, data retrieved of the last form's data would be required.

4.27 This modification kit is intended to operate the form out switch about 11 inches from the print line so that with the option switch set as in (b) of the preceeding paragraph, data being sent will be correctly printed on a form and no partial information will be printed on the last form.

4.28 This modification kit will operate as intended with forms up to and including 11 inches long. Forms longer than 11 inches will again be subjected to the condition explained. Forms shorter than 11 inches may result in more than one form being "wasted" at the end of a box. (Example: Using five-inch forms will result in the loss of the last two forms.)

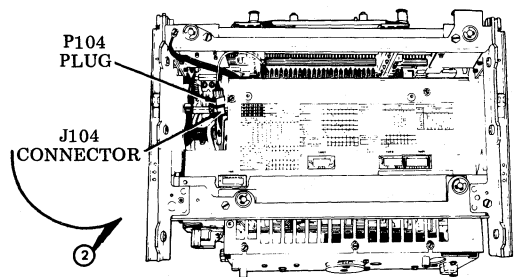
4.29 The 406374 modification kit consists of the following parts:

Qty	Part No.	Description
2	3606	Nut
2	198670	Screw W/Washer
1	406447	Paper-Out Assembly

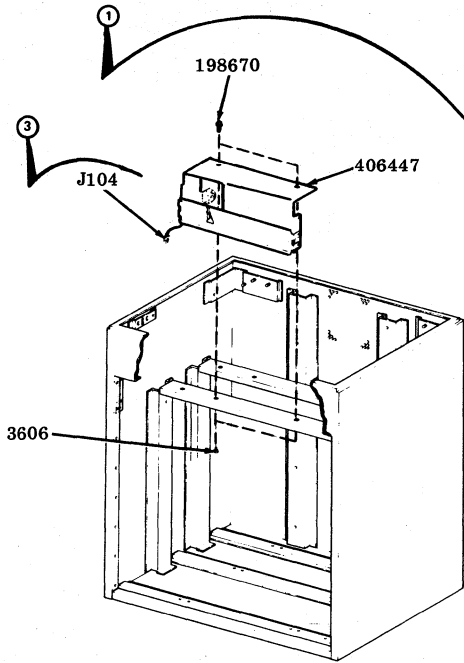
Assembly

4.30 Assembly of the 406374 modification kit requires the following steps:

- ① Take the 406447 paper-out switch assembly and mount to the front printer support bar using two 198670 screws with washers and two 3606 nuts in the holes provided. The bracket should be on top of the bar and the assembly should extend downward.
- ② Disconnect the cable leading from the paper-out switch which is mounted on the left-hand tractor from the printer cable.
- ③ Connect the cable from the new paper-out switch assembly to the printer cable.



Note: Check the Switch Adjustment.



• Reassemble by reversing assembly procedures.

Switch Adjustment

Requirement

With the lever passing from the rear guide into the front paper guide to a flush condition, the “NC” contact must be open. With the lever one stock thickness beyond flush with the front paper guide, the “NC” contact must be closed.

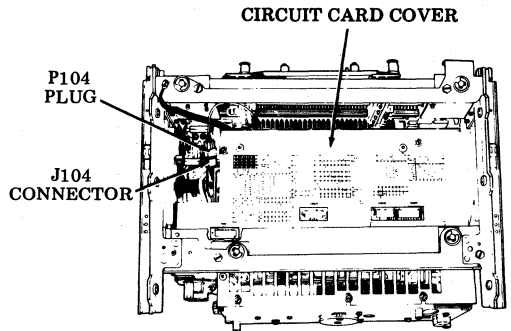
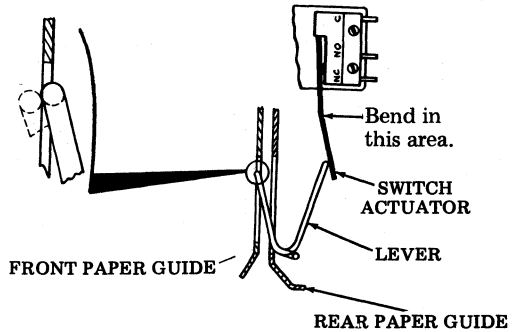
Note: Operation may be determined either by the “clicking noise” or by checking continuity across pins 1 and 4 of J104 cable connector.

To Adjust

Bend switch actuator in area shown.

Special Requirements

A stack of paper or supply box should not exceed 12-1/2 inches in height as this will cause difficulty in threading the paper through the modification kit.



Note: Refer to 5. PARTS IDENTIFICATION for hardware.

5. PARTS IDENTIFICATION

5.01 The following list contains the figure and page numbers of all the part illustrations.

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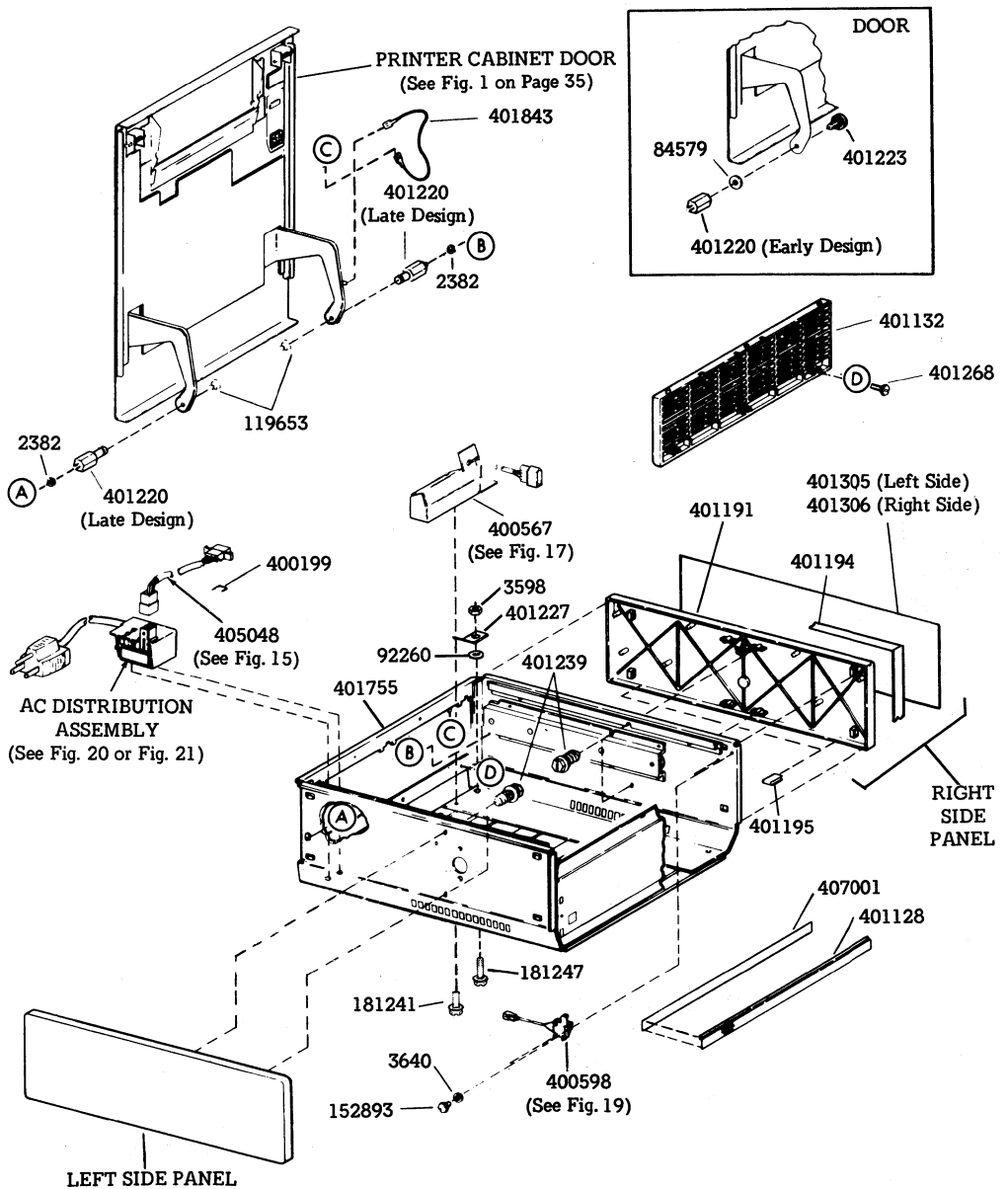


Fig 1-40CAB201/ZZ Printer Cabinet Core for Adjacent or RO Friction Feed Printer

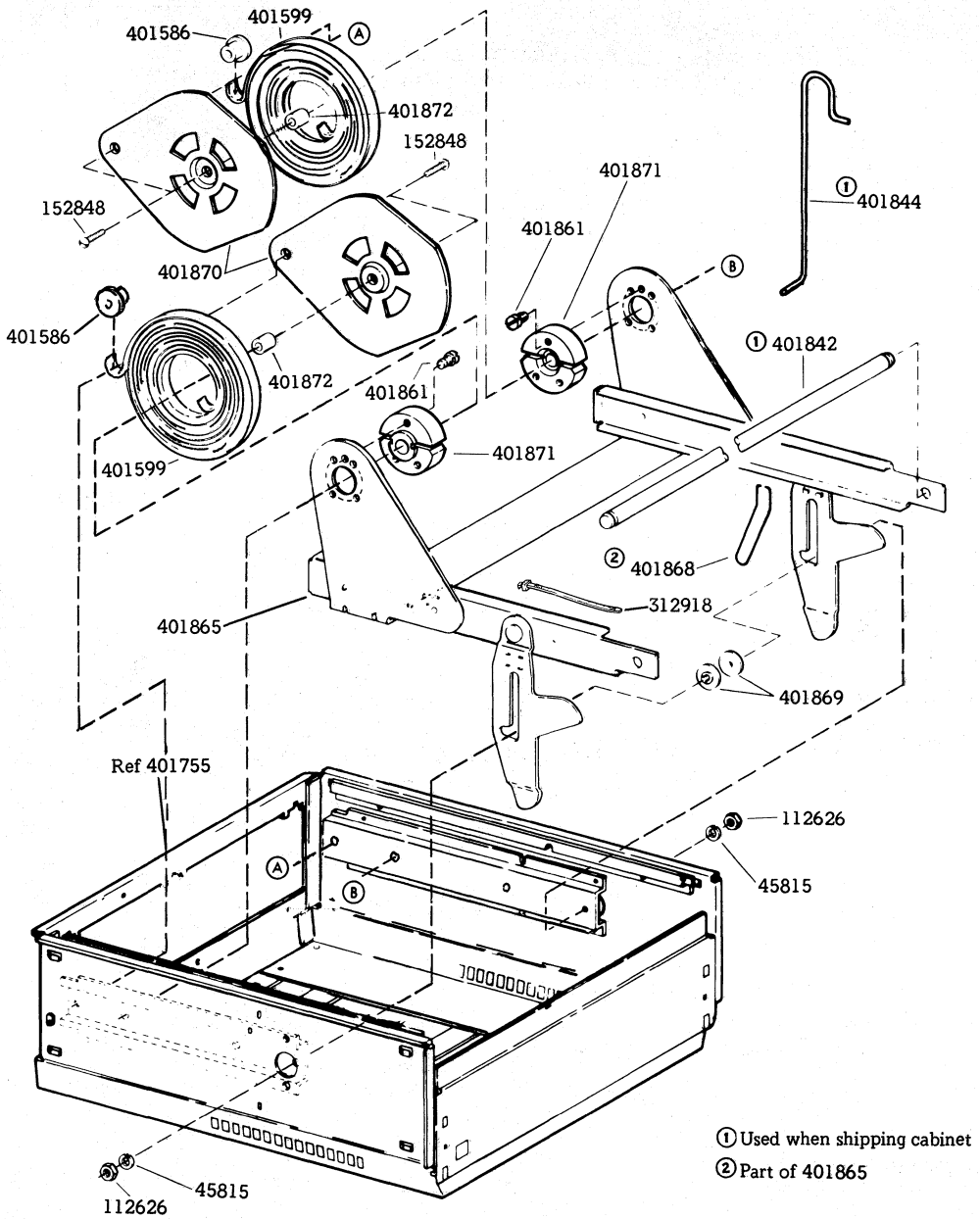


Fig. 1—40CAB201/ZZ Printer Cabinet Core for Adjacent or RO Friction Feed Printer (Cont)

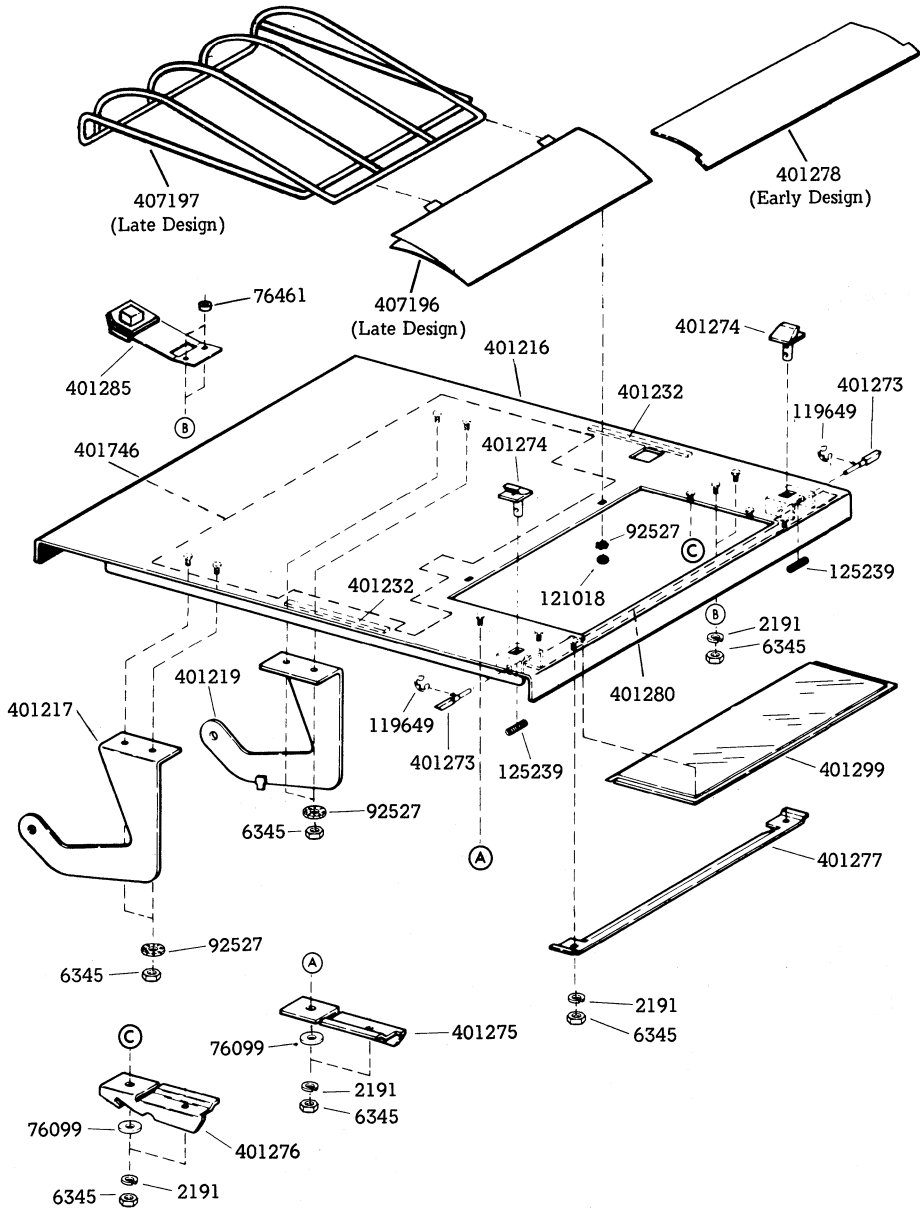


Fig. 1—40CAB201/ZZ Printer Cabinet Core for Adjacent or RO Friction Feed Printer (Cont)

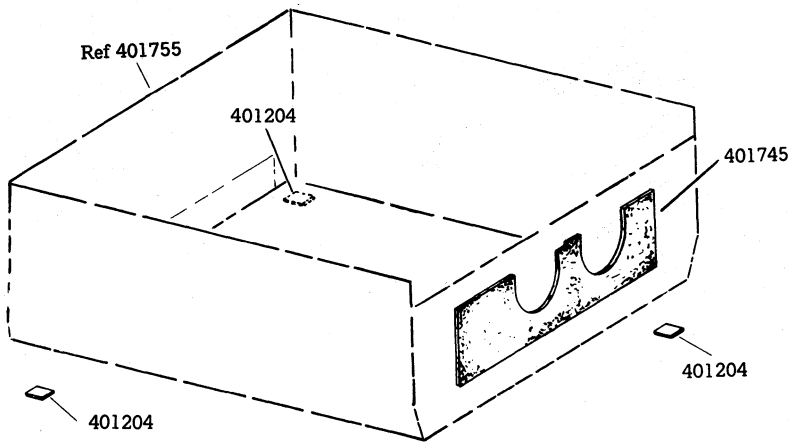


Fig. 1—40CAB201/ZZ Printer Cabinet Core for Adjacent or RO Friction Feed Printer (Cont)

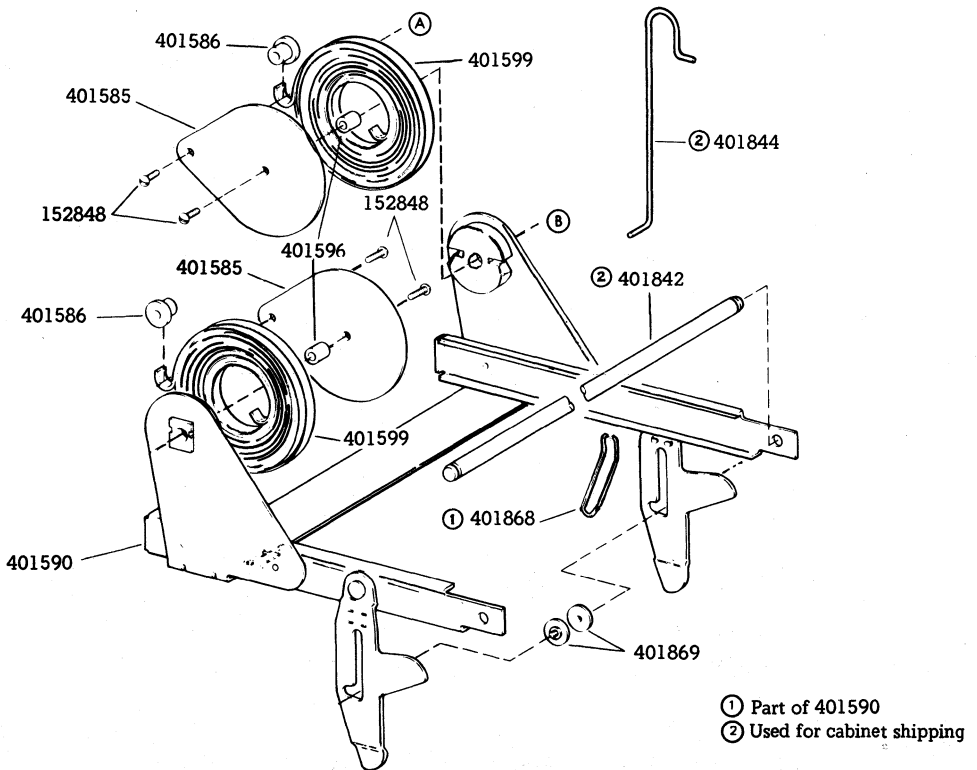


Fig. 2—Early Design Printer Mounting Cradle for Adjacent or RO Friction Feed Printer

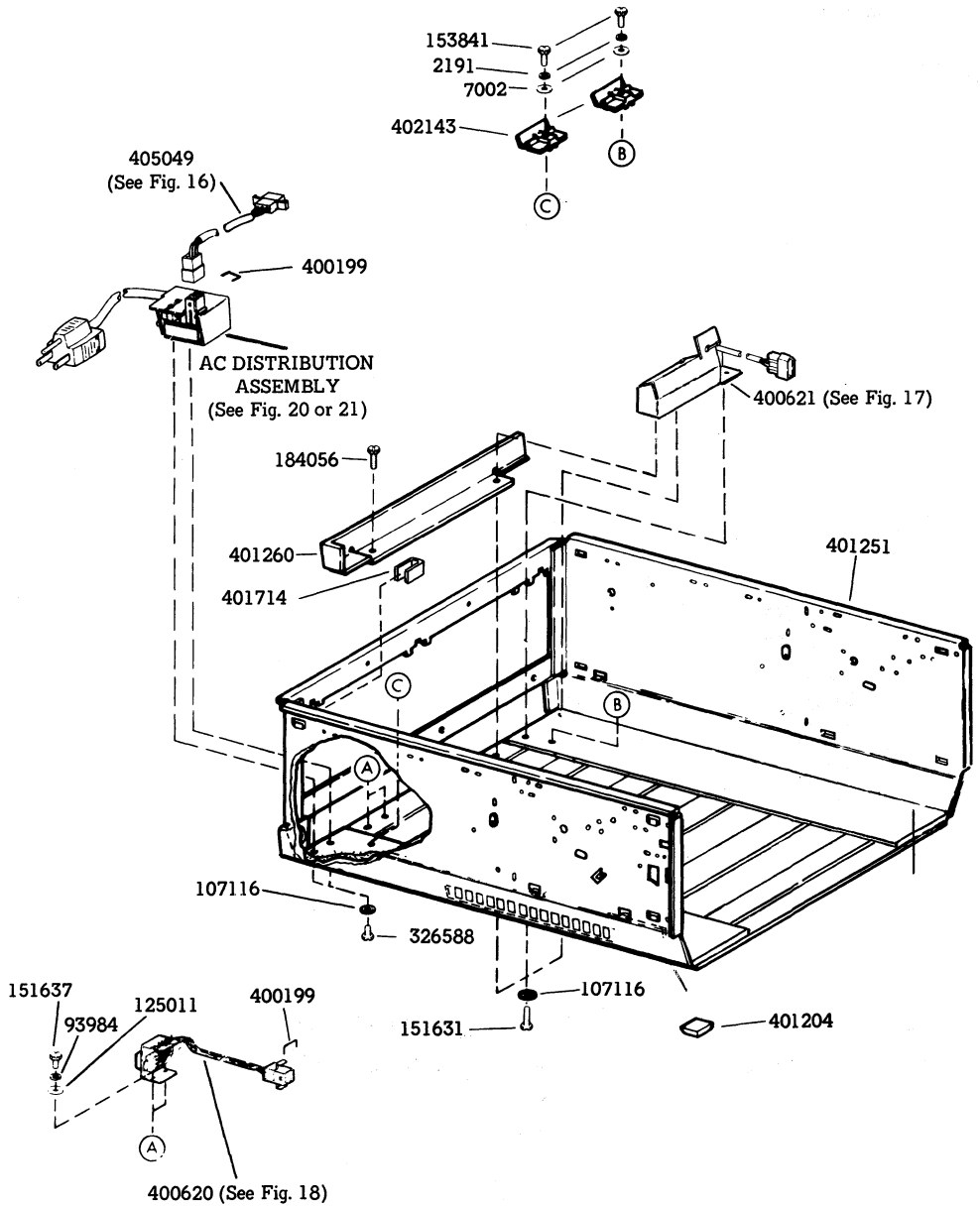


Fig. 3-40CAB251/AA Printer Under Monitor Cabinet

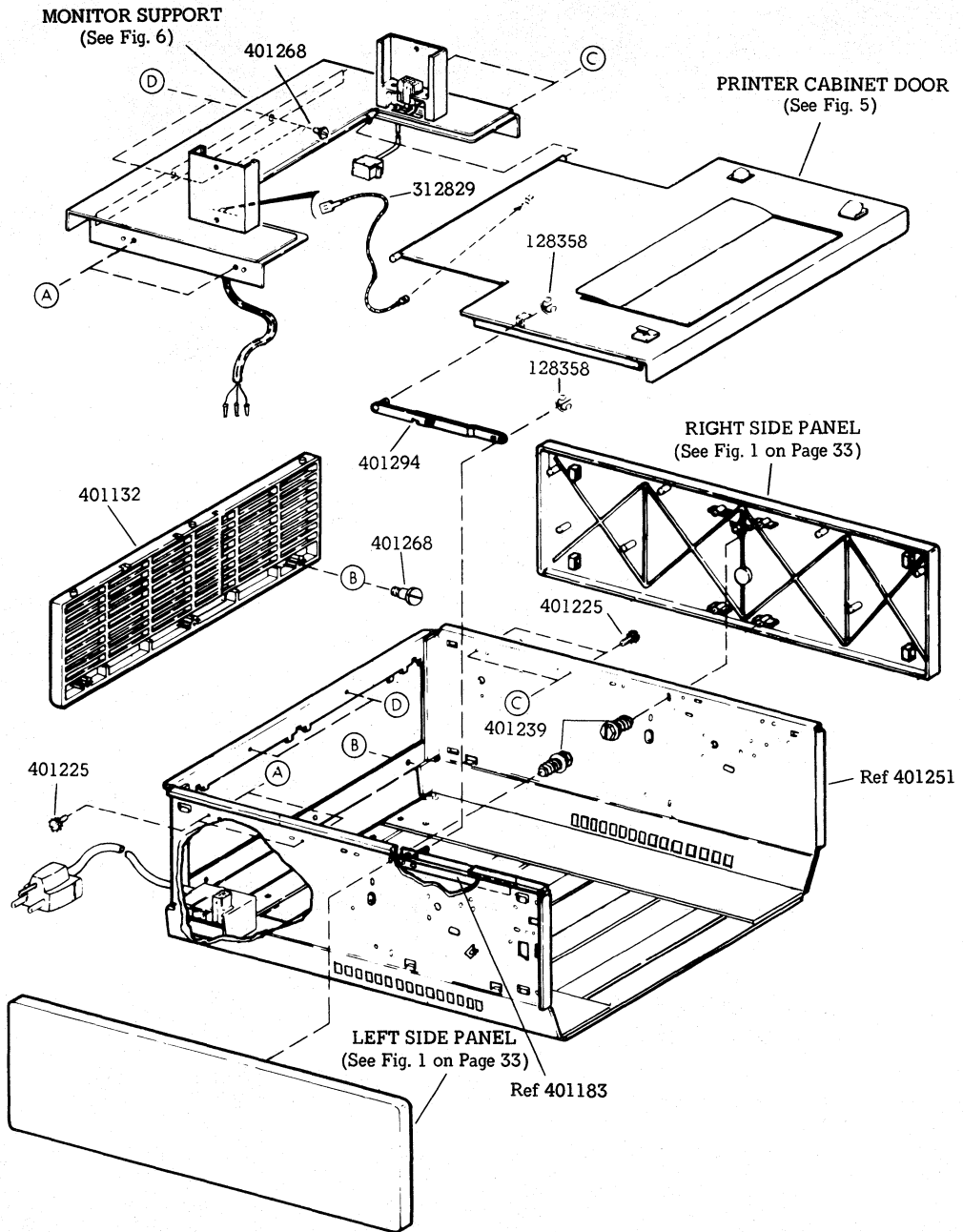


Fig. 3 - 40CAB251/AA Printer Under Monitor Cabinet (Cont)

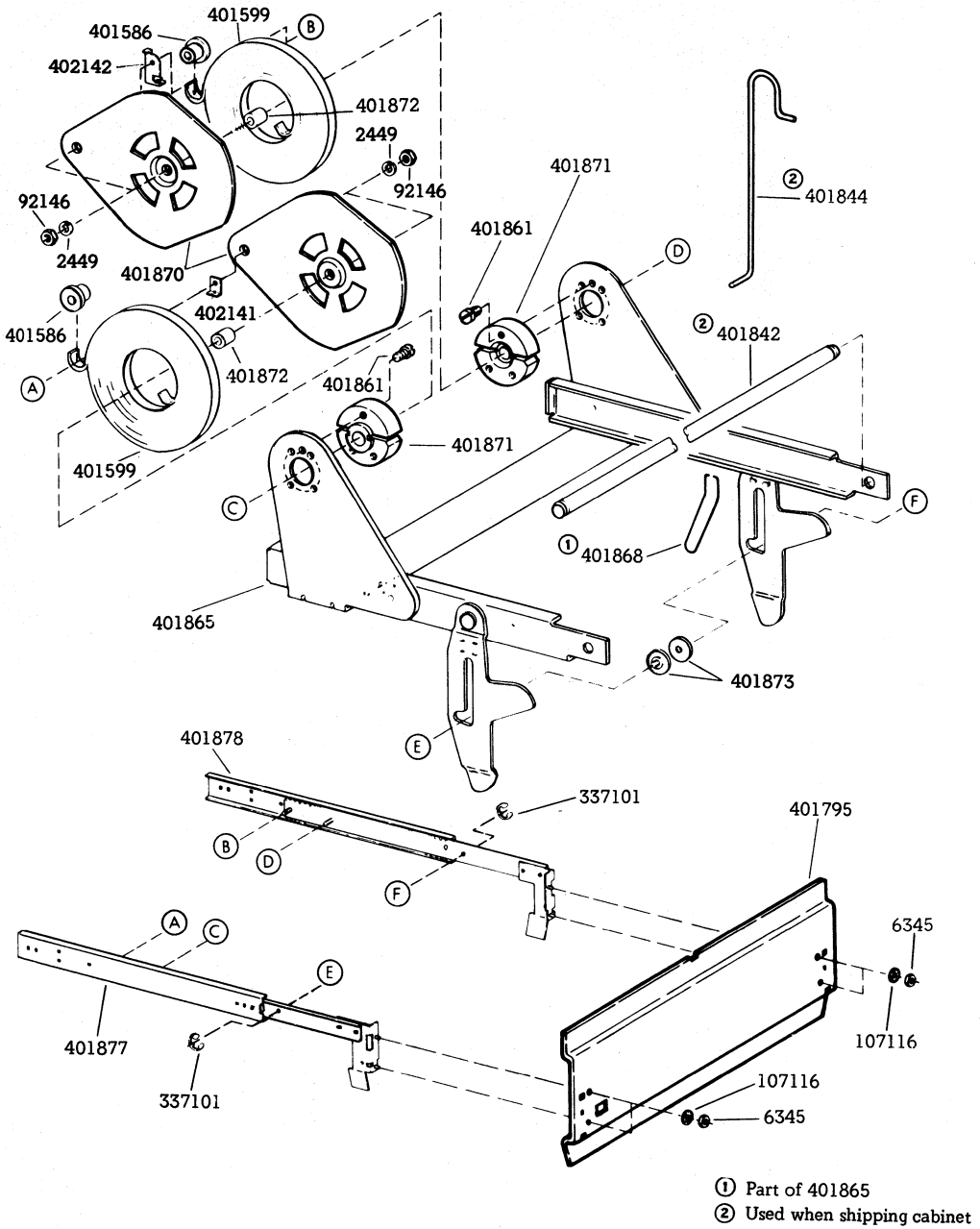


Fig. 4-40CAB251/AA Printer Under Monitor Cabinet Mounting Cradle

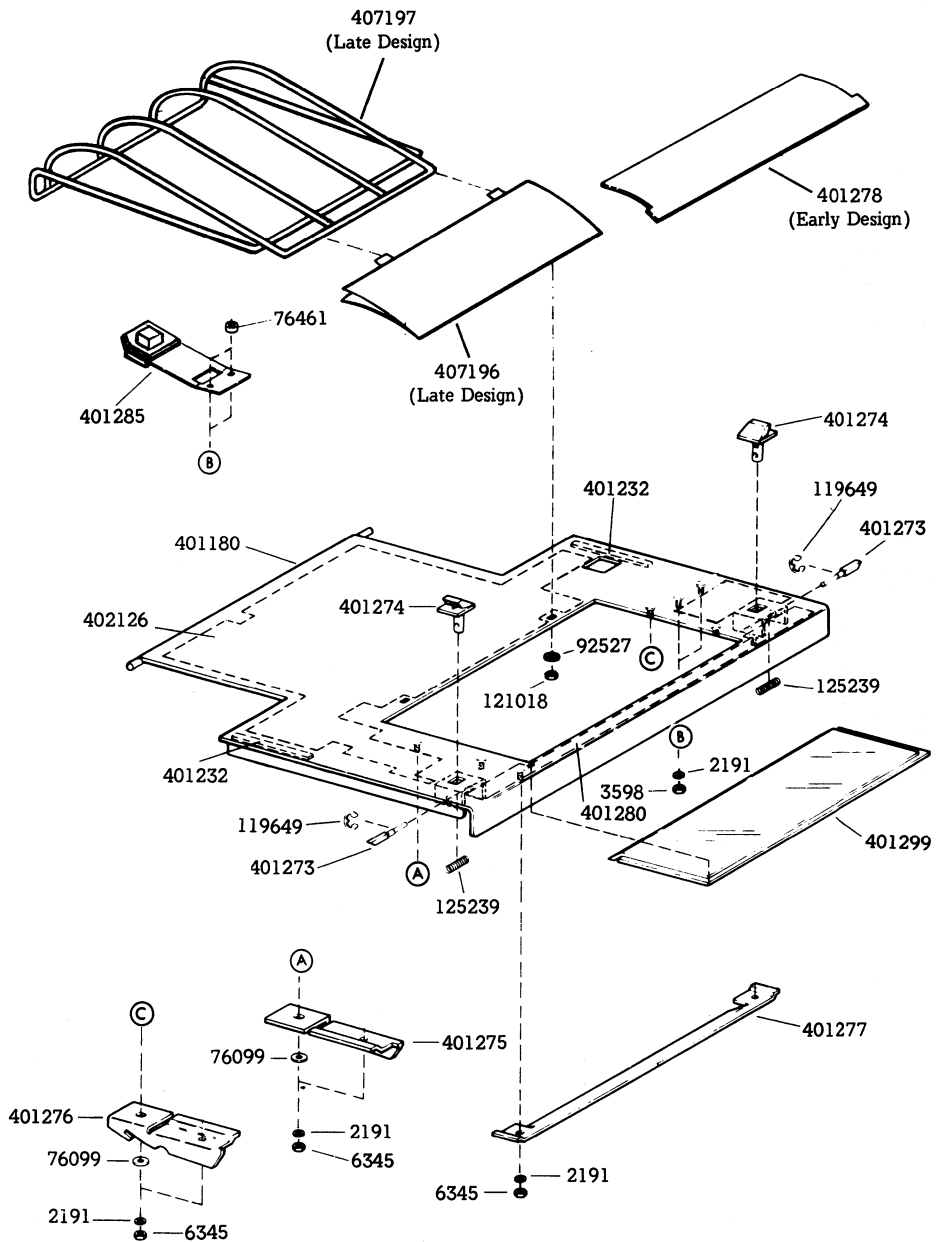


Fig. 5—40CAB251/AA Printer Under Monitor Cabinet Door

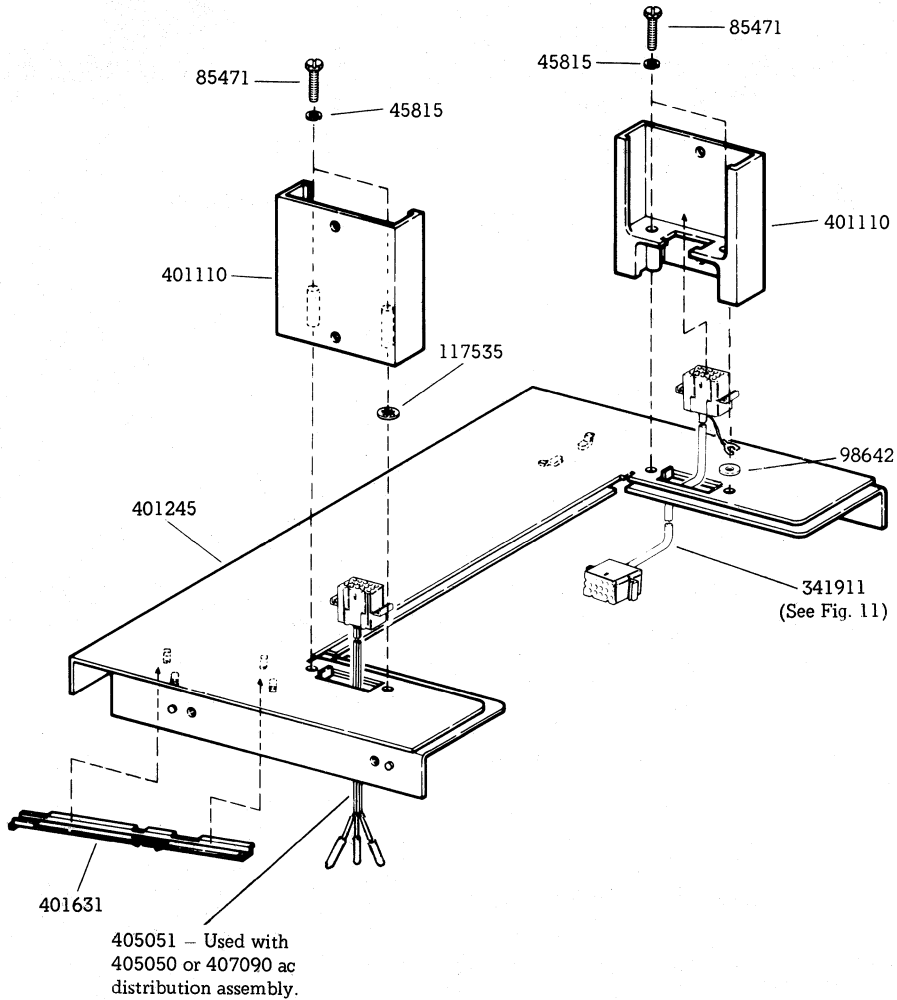


Fig. 6-40CAB251/AA Printer Under Monitor Cabinet Monitor Support

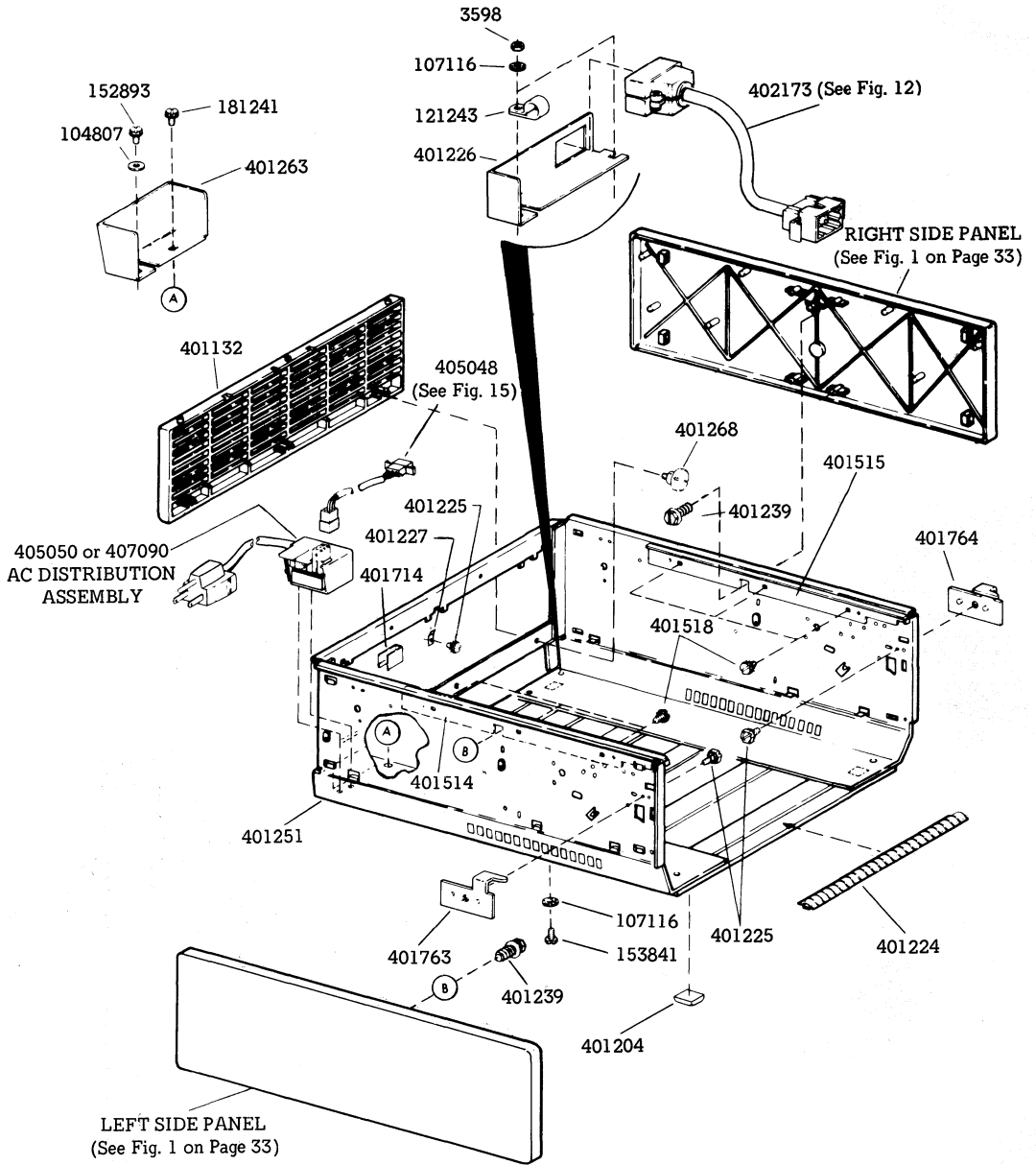


Fig. 7 - 40CAB201/AB Logic Adjacent Cabinet

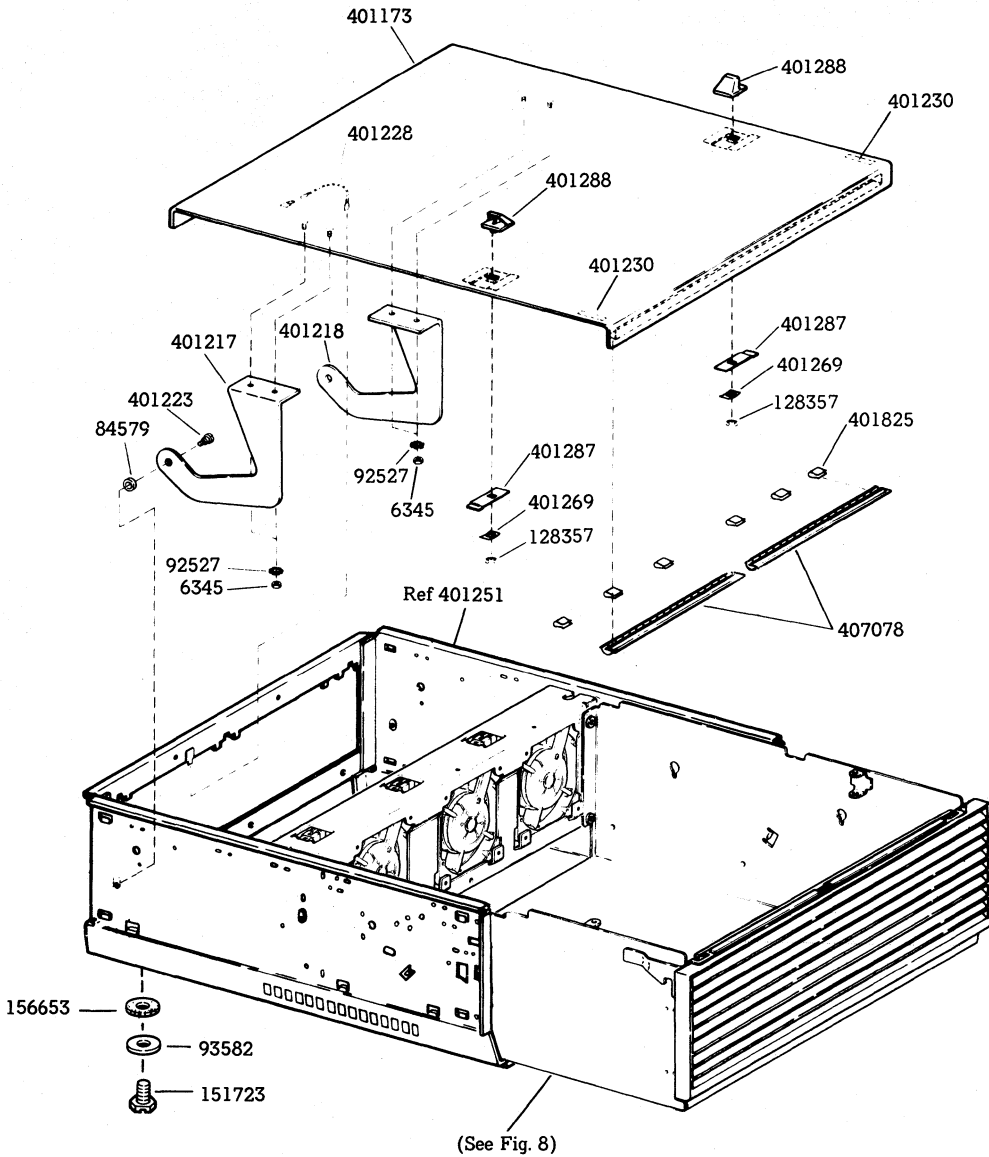


Fig. 7-40CAB201/AB Logic Adjacent Cabinet (Cont)

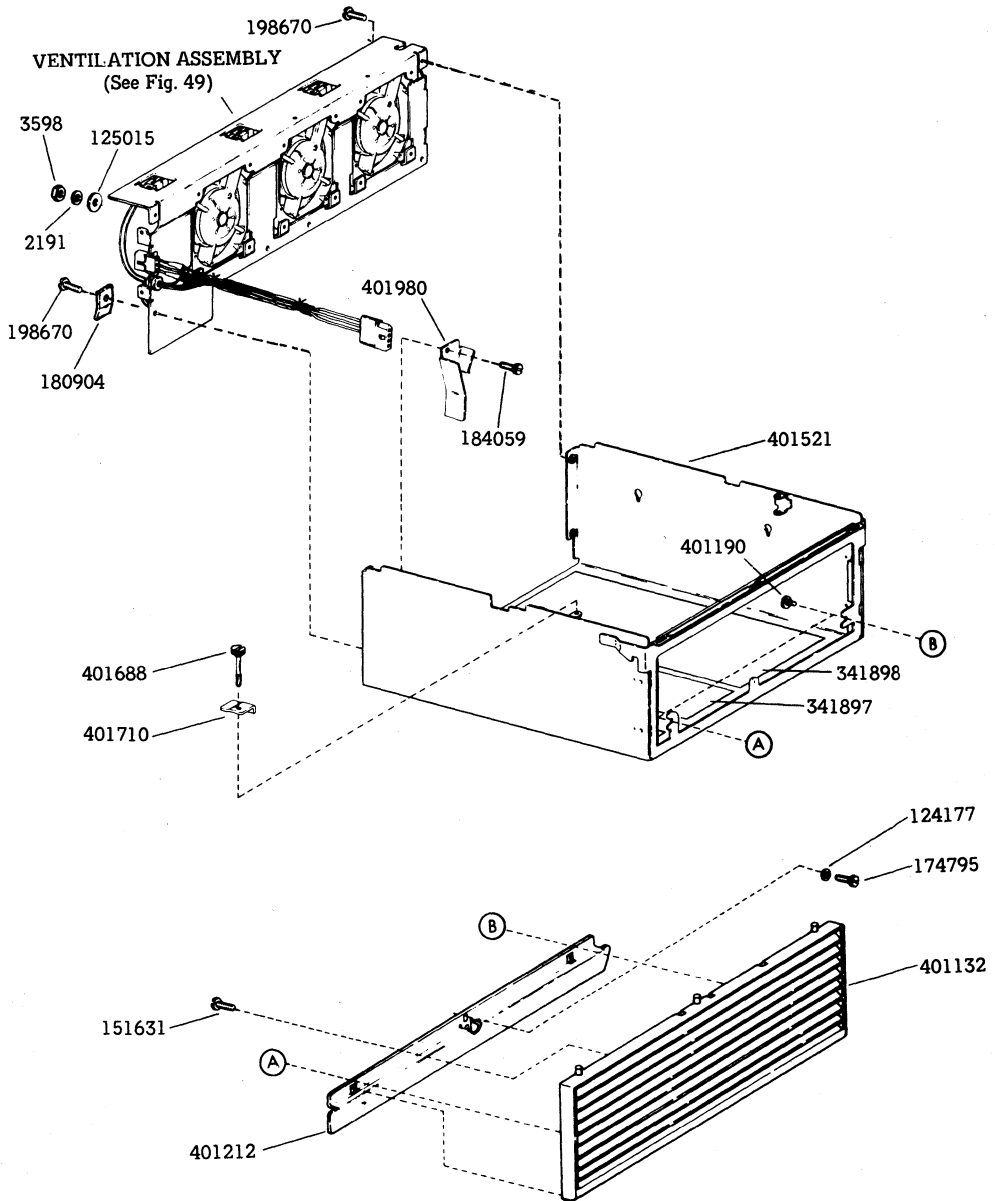


Fig. 8—40CAB201/AB Logic Adjacent Cabinet Module, Louver, and Fan Mounting

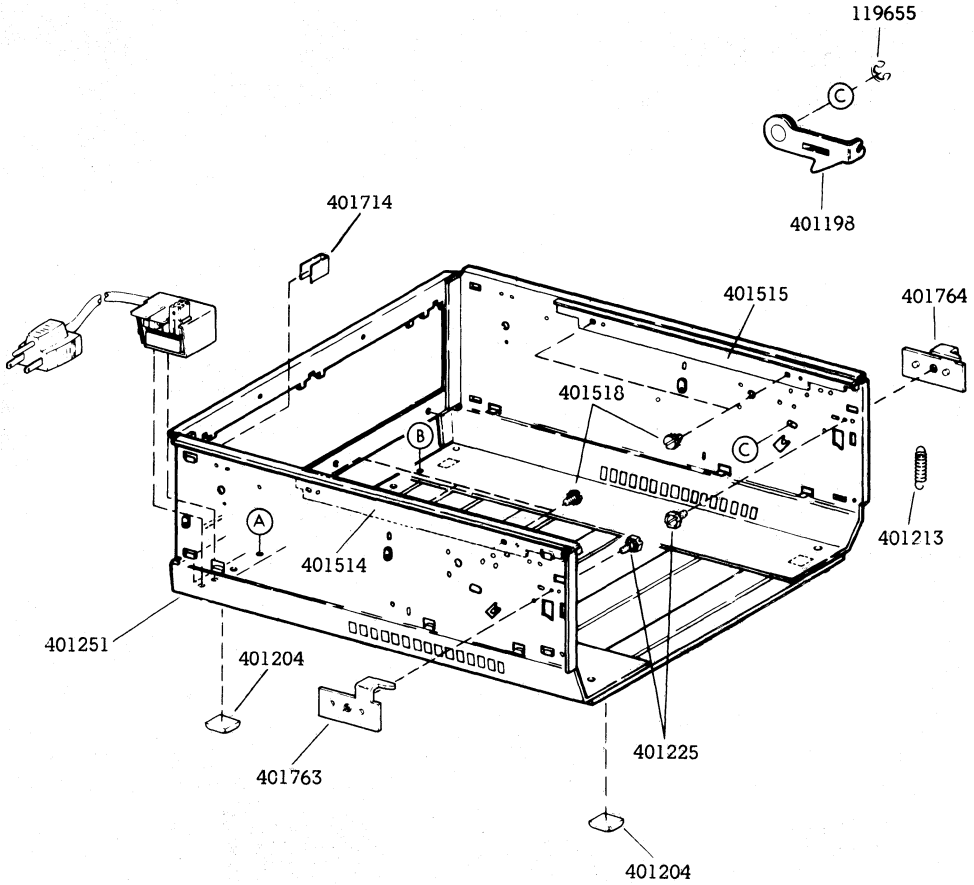


Fig. 9-40CAB251/ZZ Monitor Support Cabinet Core for Logic Under Monitor or Monitor/Opcon Support

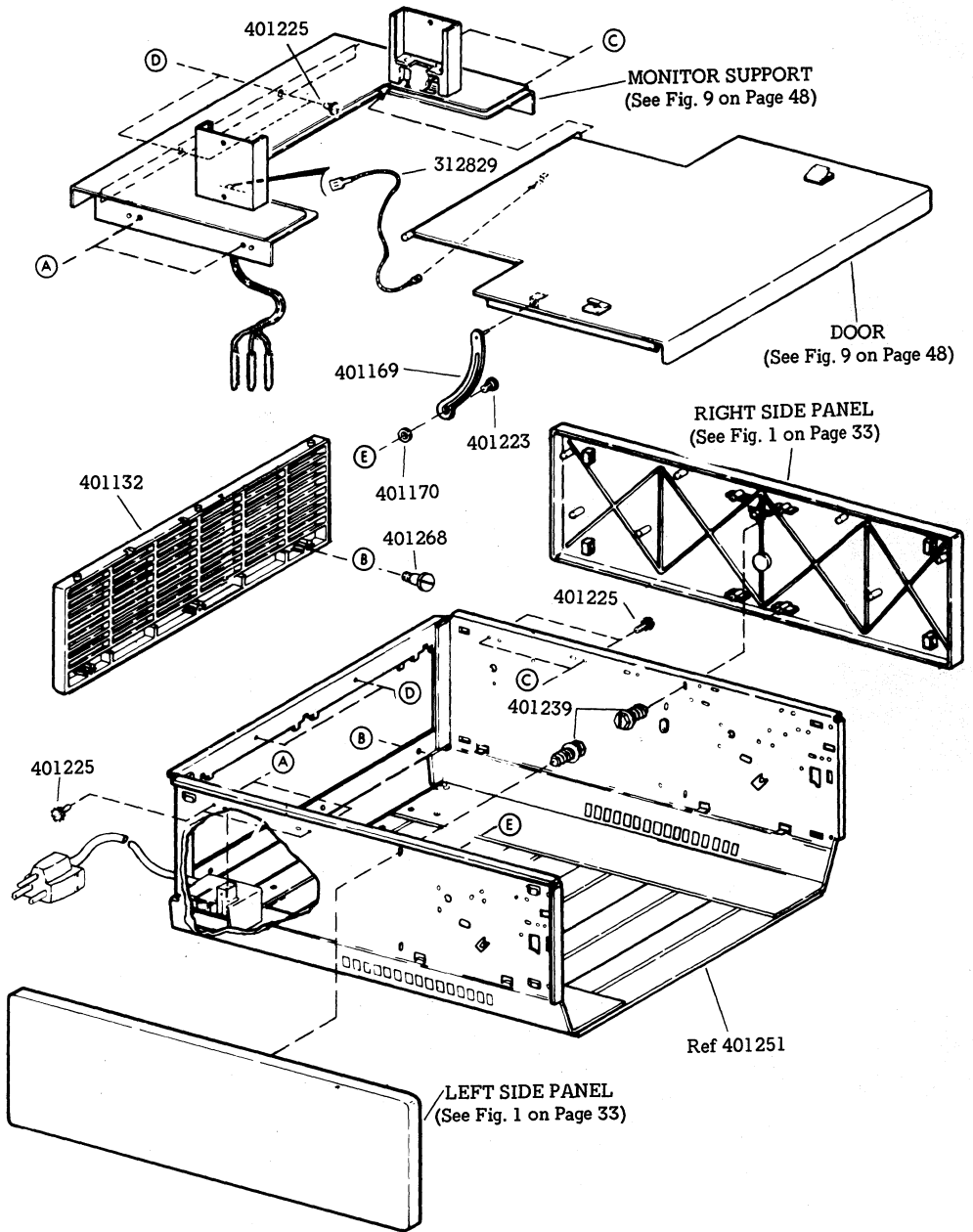


Fig. 9-40CAB251/ZZ Monitor Support Cabinet Core for Logic Under Monitor or Monitor/Opcon Support (Cont)

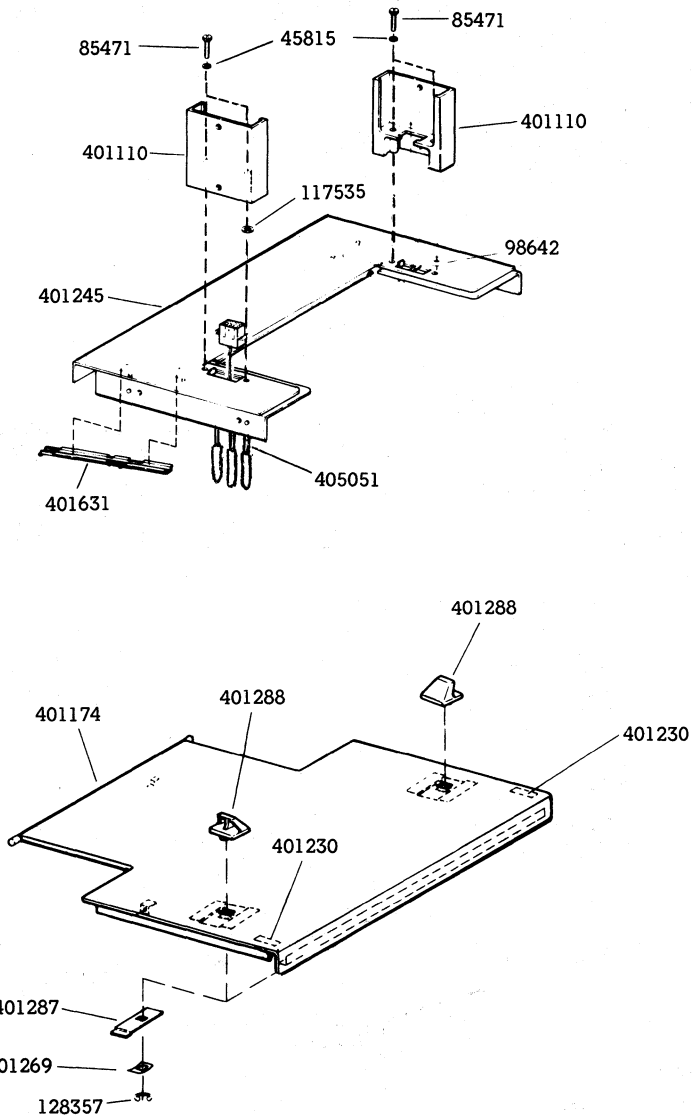


Fig. 9—40CAB251/ZZ Monitor Support Cabinet Core for Logic Under Monitor or Monitor/Opcon Support (Cont)

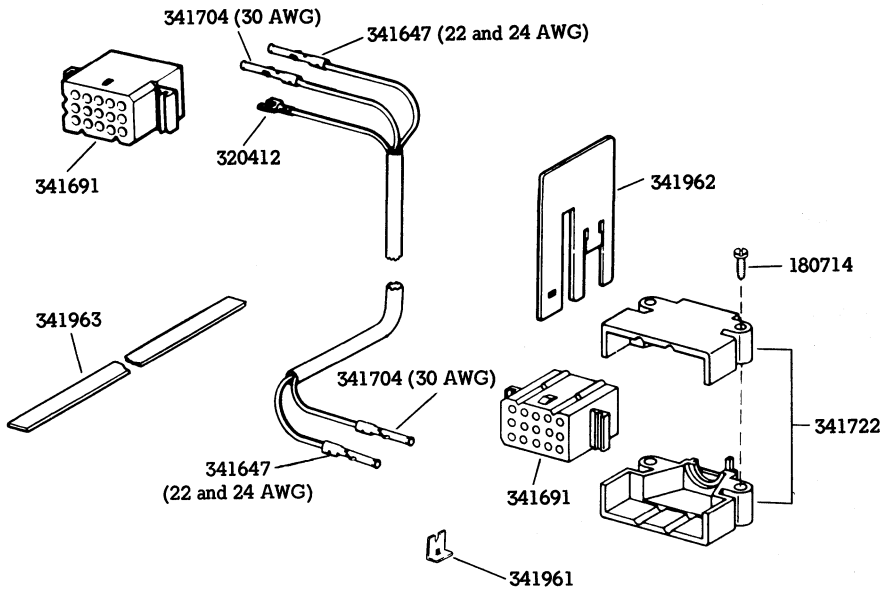


Fig. 10—341891 Monitor Cable – Logic Cabinet (Right Side)

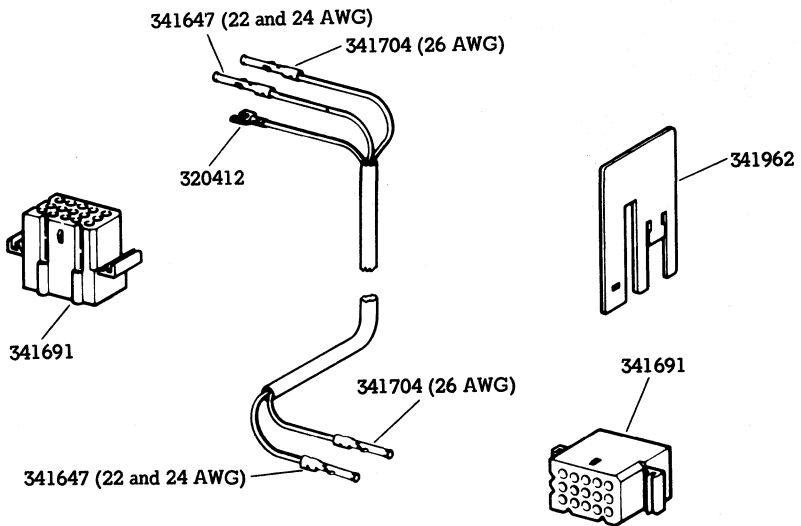


Fig. 11—341911 Monitor Cable – Printer Cabinet (Right Side)

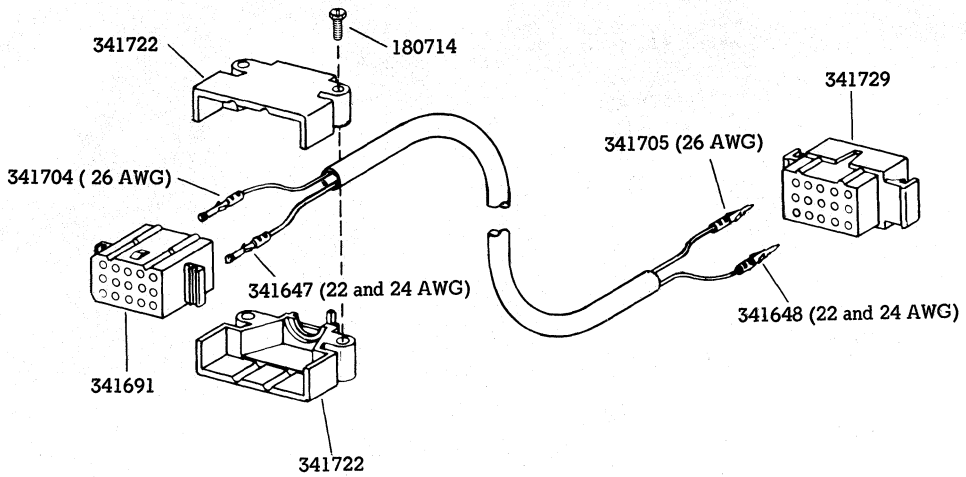


Fig. 12-402173 Monitor Cable (Logic Cabinet Adjacent)

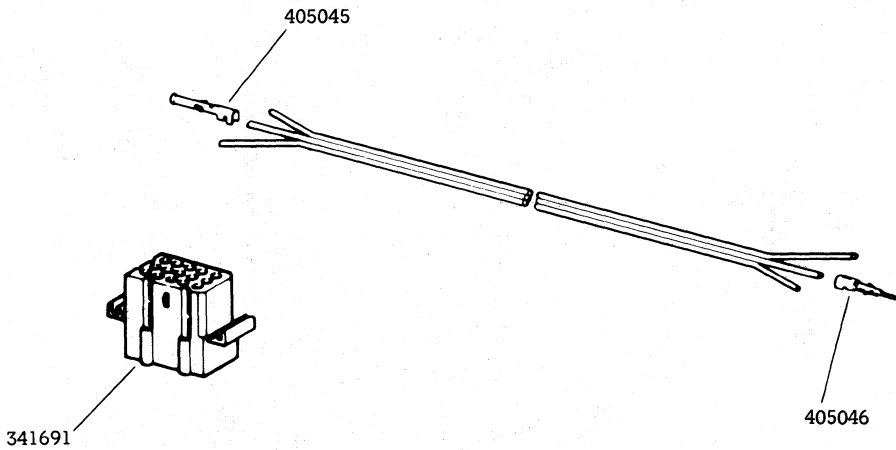


Fig. 13-405051 Monitor Cable - Logic Under Monitor, Printer Under Monitor, or Monitor Support Cabinet (Left Side)

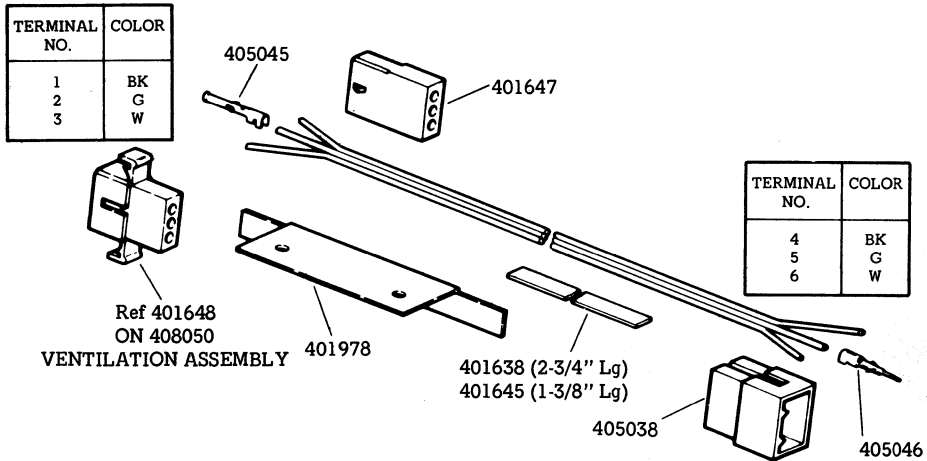


Fig. 14—405047 AC Input Cable Assembly – Logic Under Monitor or Adjacent Logic Cabinet

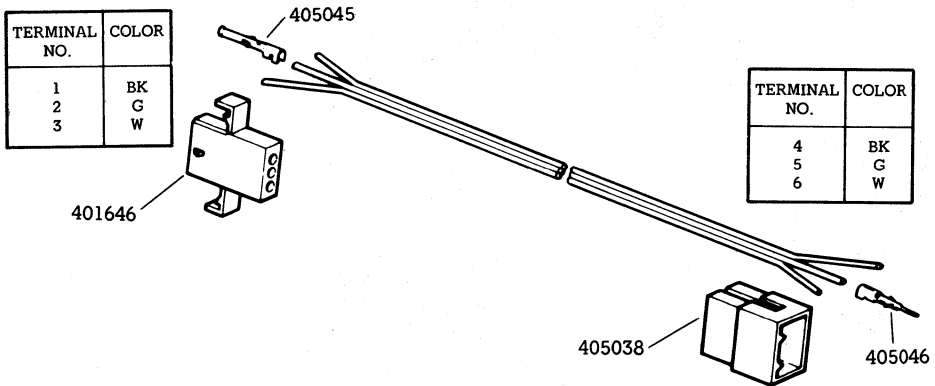


Fig. 15—405048 AC input Cable Assembly – Adjacent or RO Friction Feed Printer Cabinet and Logic Adjacent

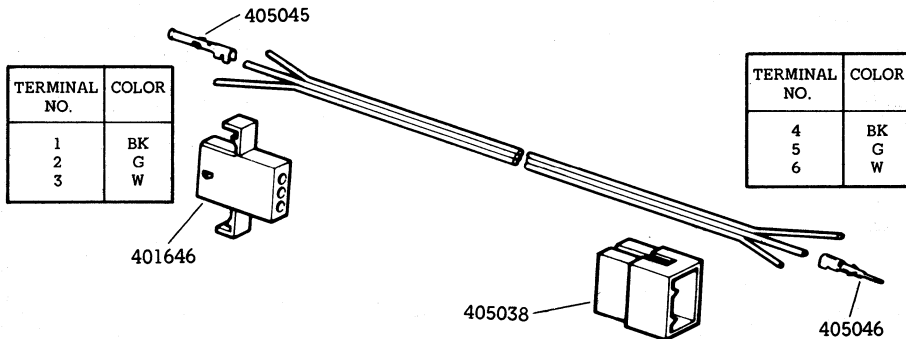


Fig. 16—405049 AC Input Cable Assembly – Printer Under Monitor Cabinet

① The 346318 cover (new) cannot be used with the early design 400567 or 400621 assemblies (which contains a 400576 bracket w/filters).

Filter Wiring Information	
Filter	Color
1	R
2	Y
3	G
4	O

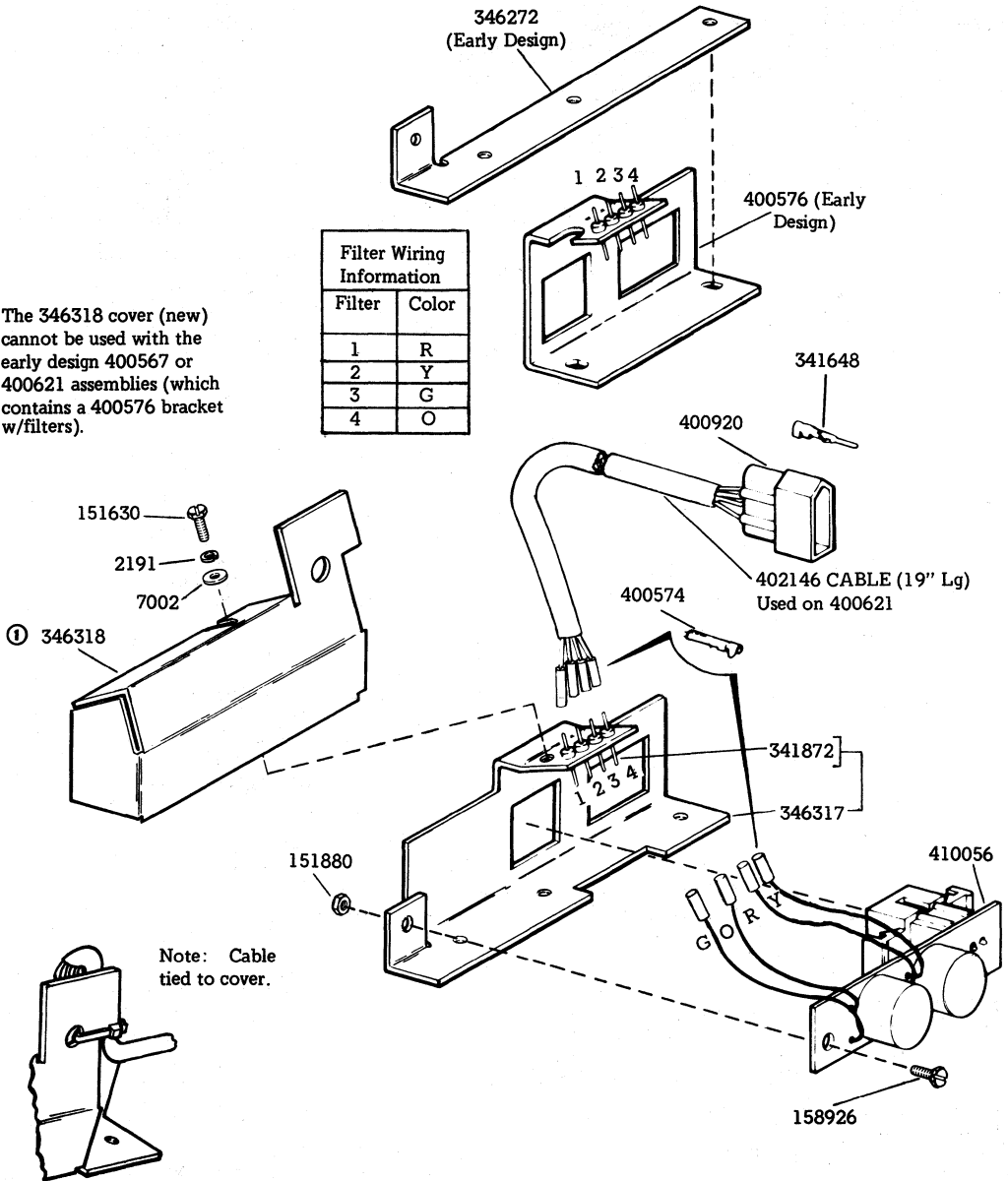
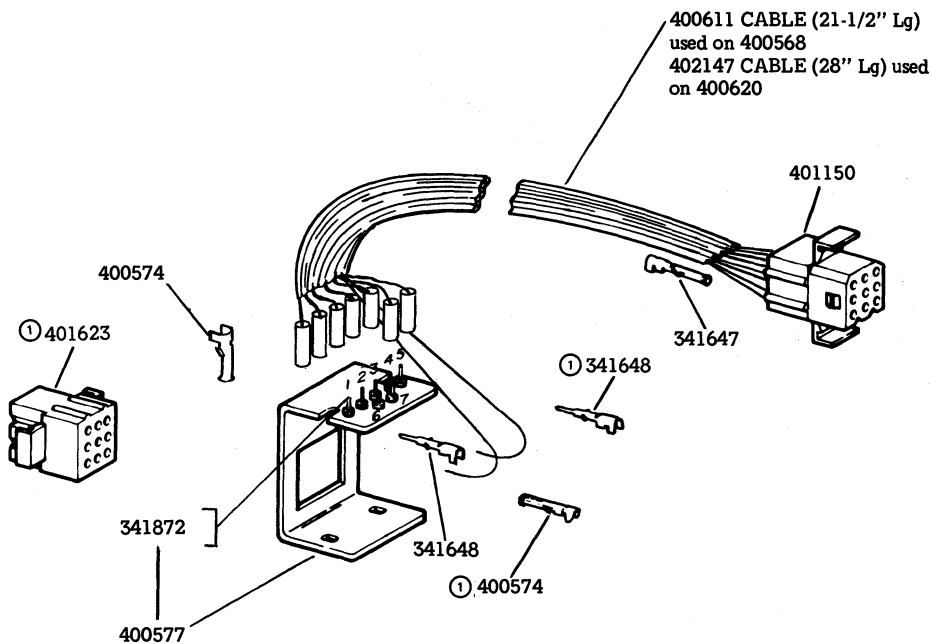


Fig. 17—400621 SSI Cable Assembly for Friction Feed Printer Under Monitor Cabinet

RUNNING LIST		
400607 CABLE ASSEMBLY		
FROM CONNECTOR	TO	COLOR
1	1-L	R
2	2-L	Y
3	3-L	G
4	4-L	W-Y
6	5-L	O
7	6-L	BL
8	7-L	W

FILTER WIRING INFORMATION	
FILTER	COLOR
1	R
2	Y
3	G
4	S
5	P
5	O
6	BL
7	W
9	BK



① 400607 Cable Assembly

Fig. 18—400568 Cable Assembly (Opcon) for RO Friction Feed Printer Cabinet
400620 Cable Assembly (Opcon) for Printer Under Monitor Cabinet

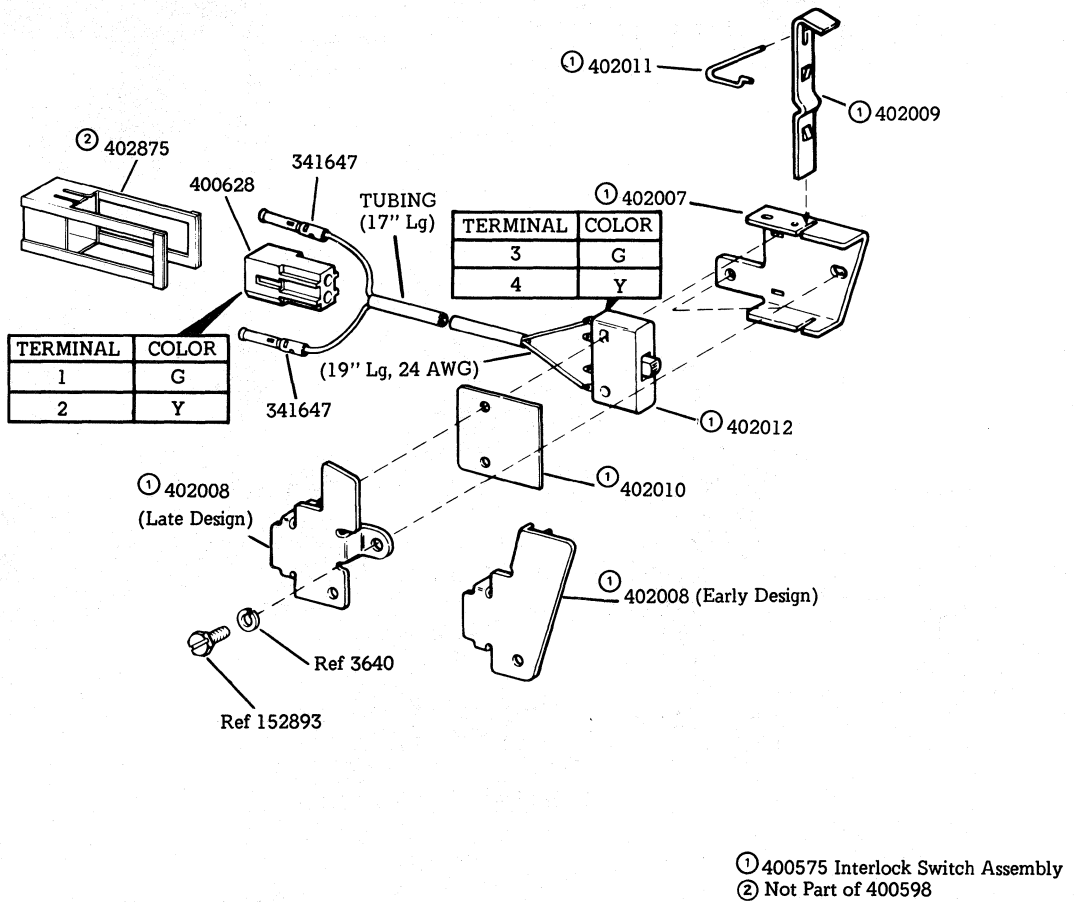


Fig. 19-400598 Interlock Cable Assembly for Friction Feed Printer Cabinet

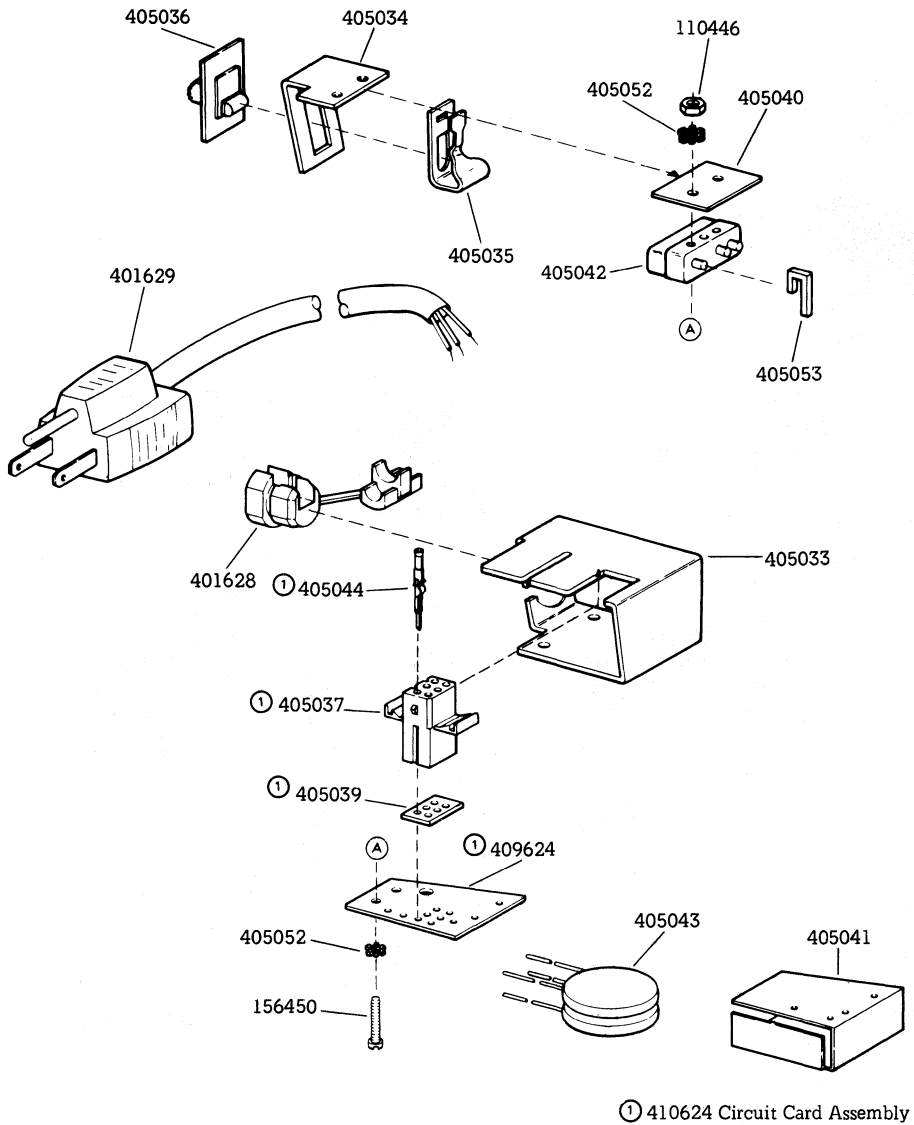


Fig. 20-405050 AC Distribution Assembly (Early Design)

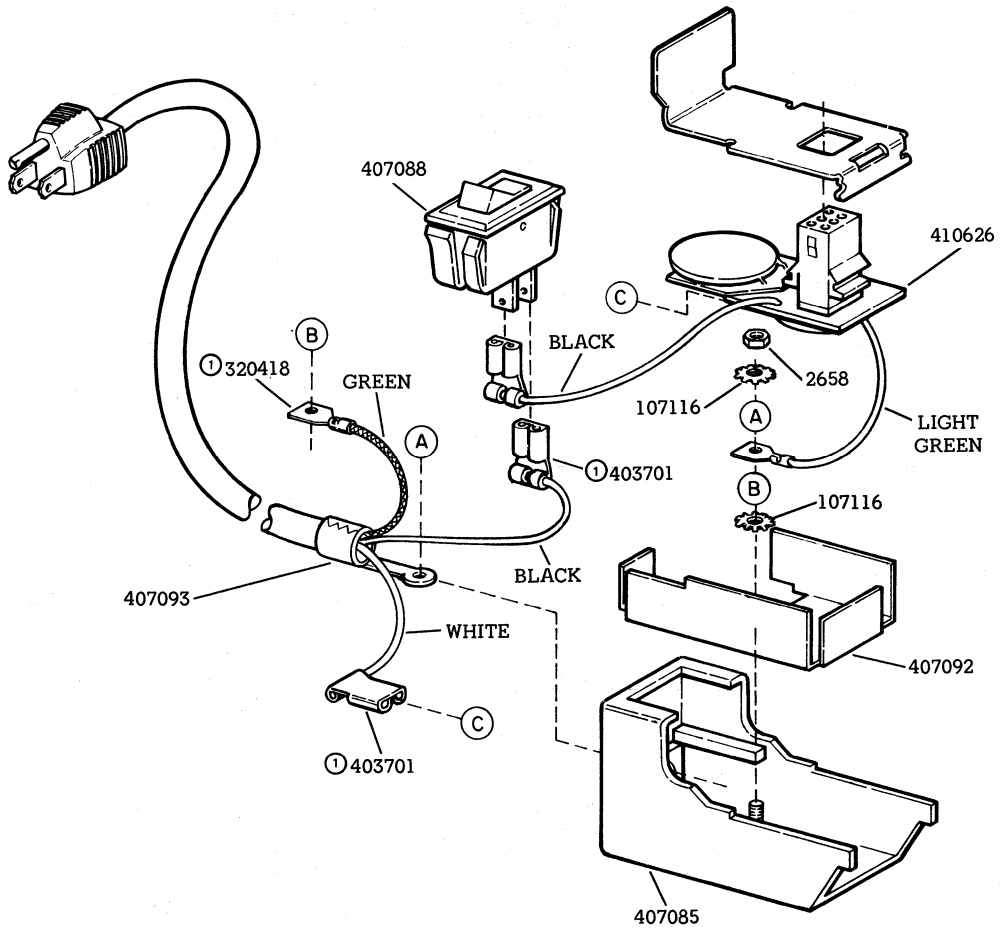


Fig. 21-407090 AC Switch Assembly (Late Design)

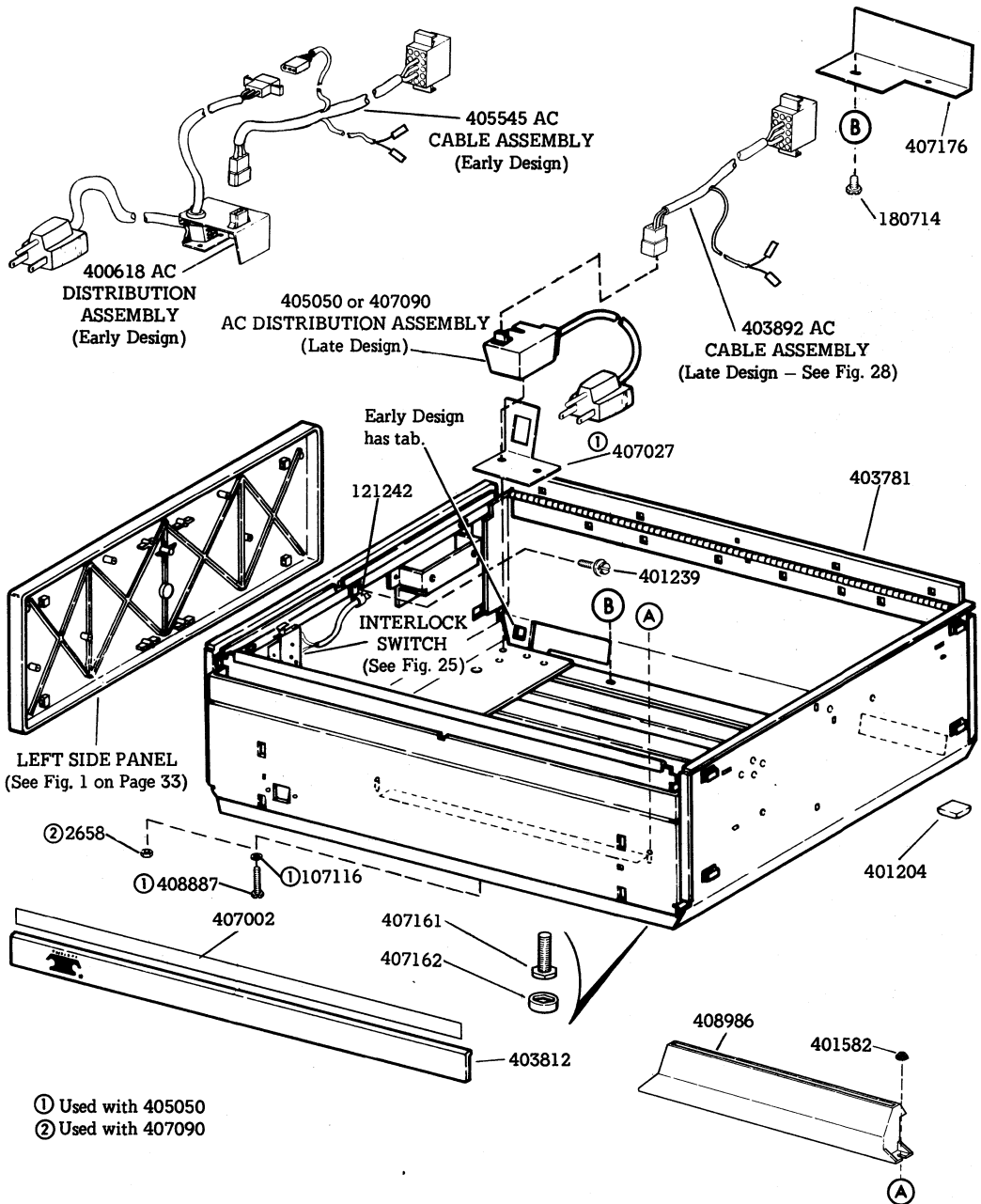


Fig. 22-40CAB351/YZ Printer Cabinet Core for Adjacent or RO Tractor Feed Printer - 80-Column

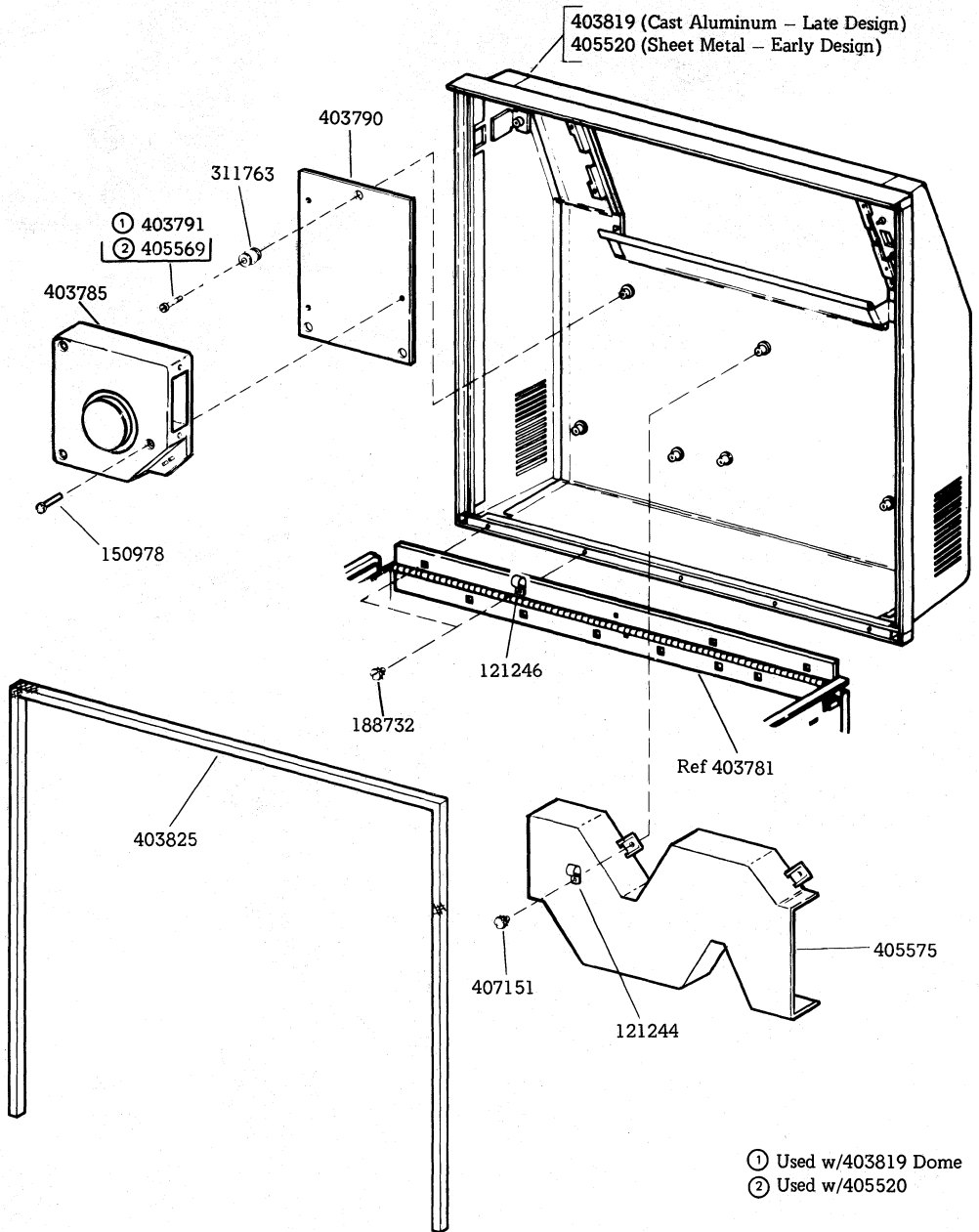
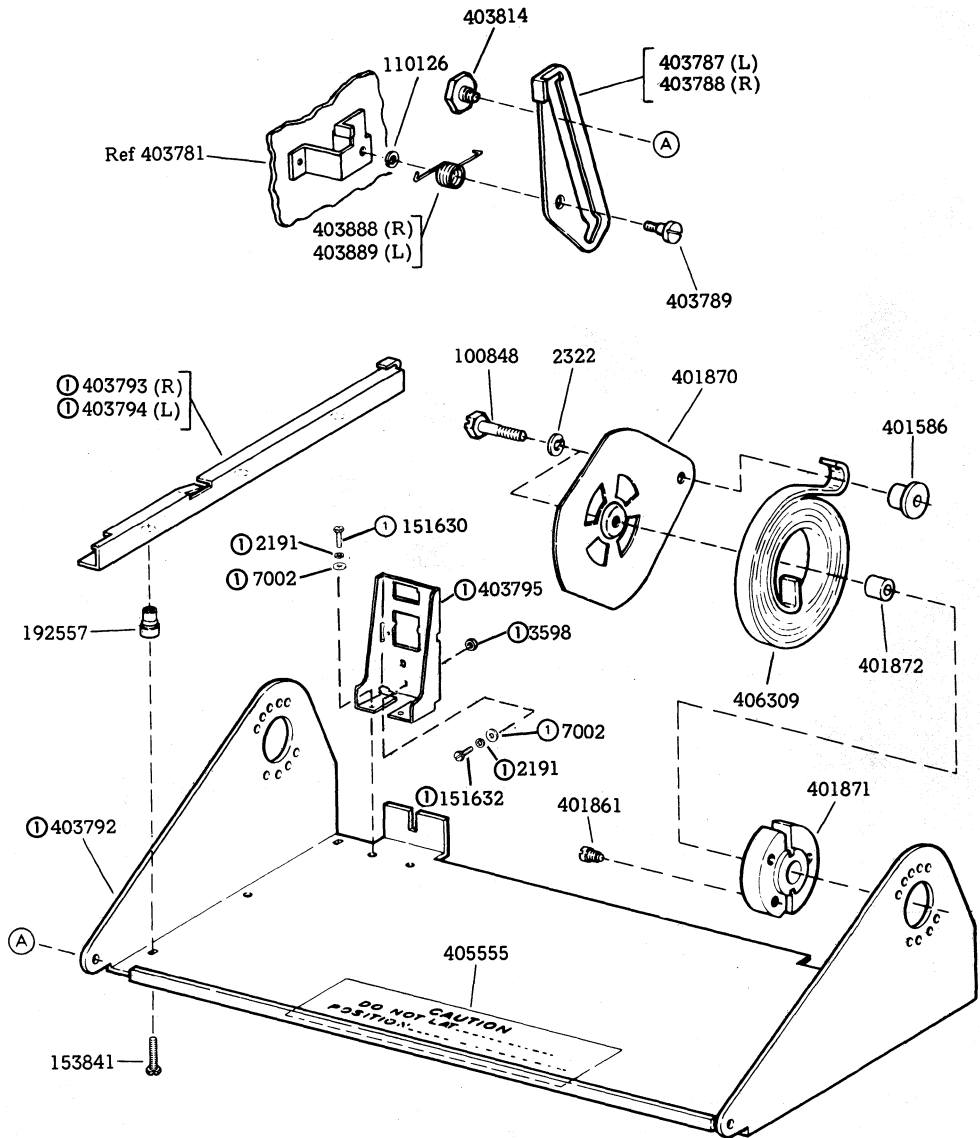
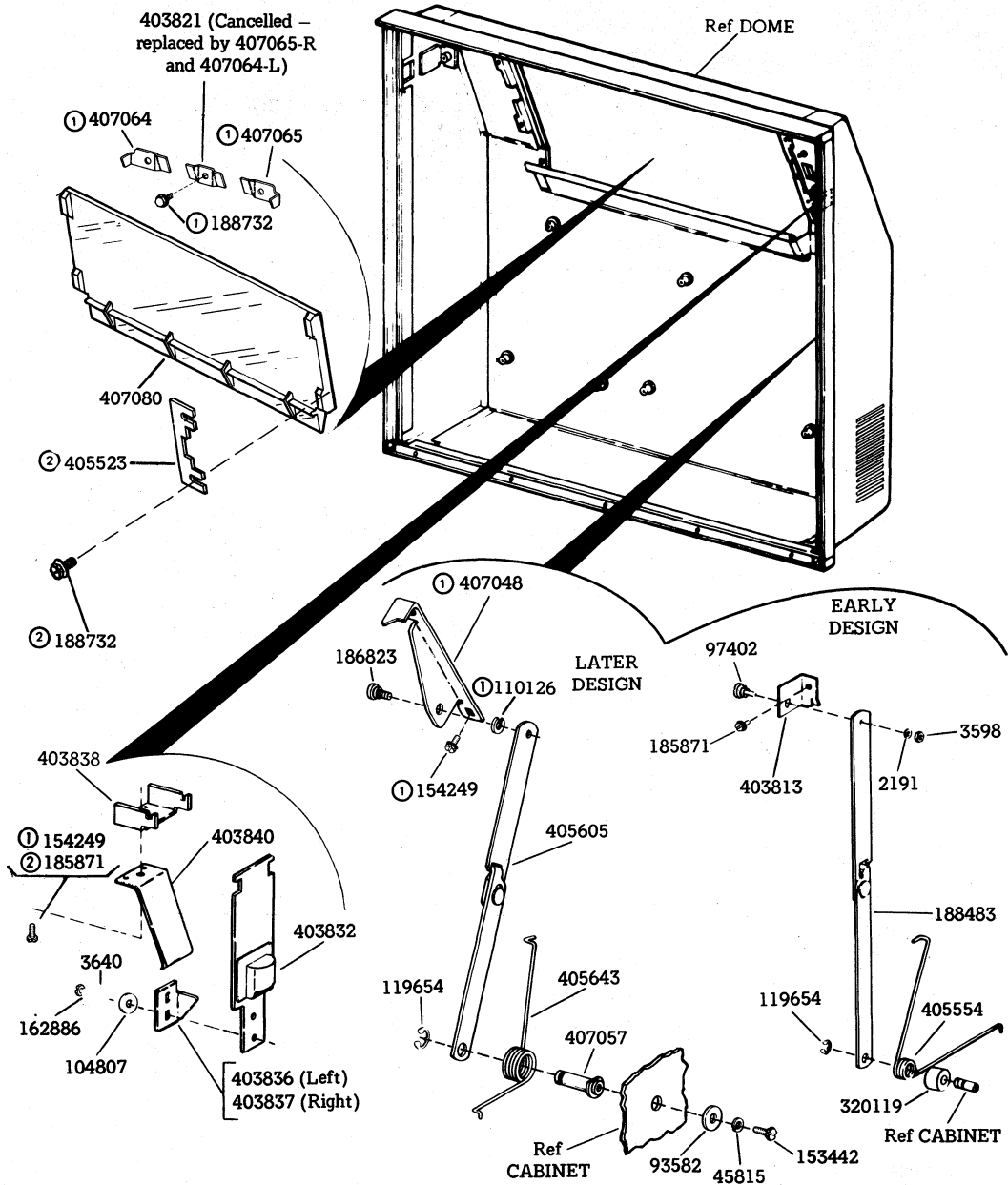


Fig. 22-40CAB351/YZ Printer Cabinet Core for Adjacent or RO Tractor Feed Printer - 80-Column (Cont)



① Early design. For late design parts, see Fig. 27.

Fig. 22-40CAB351/YZ Printer Cabinet Core for Adjacent or RO Tractor Feed Printer - 80-Column (Cont)



- ① Used w/403819 Dome – Aluminum Cast
- ② Used w/405520 Dome – Sheet Metal

Fig. 22—40CAB351/YZ Printer Cabinet Core for Adjacent or RO Tractor Feed Printer – 80-Column (Cont)

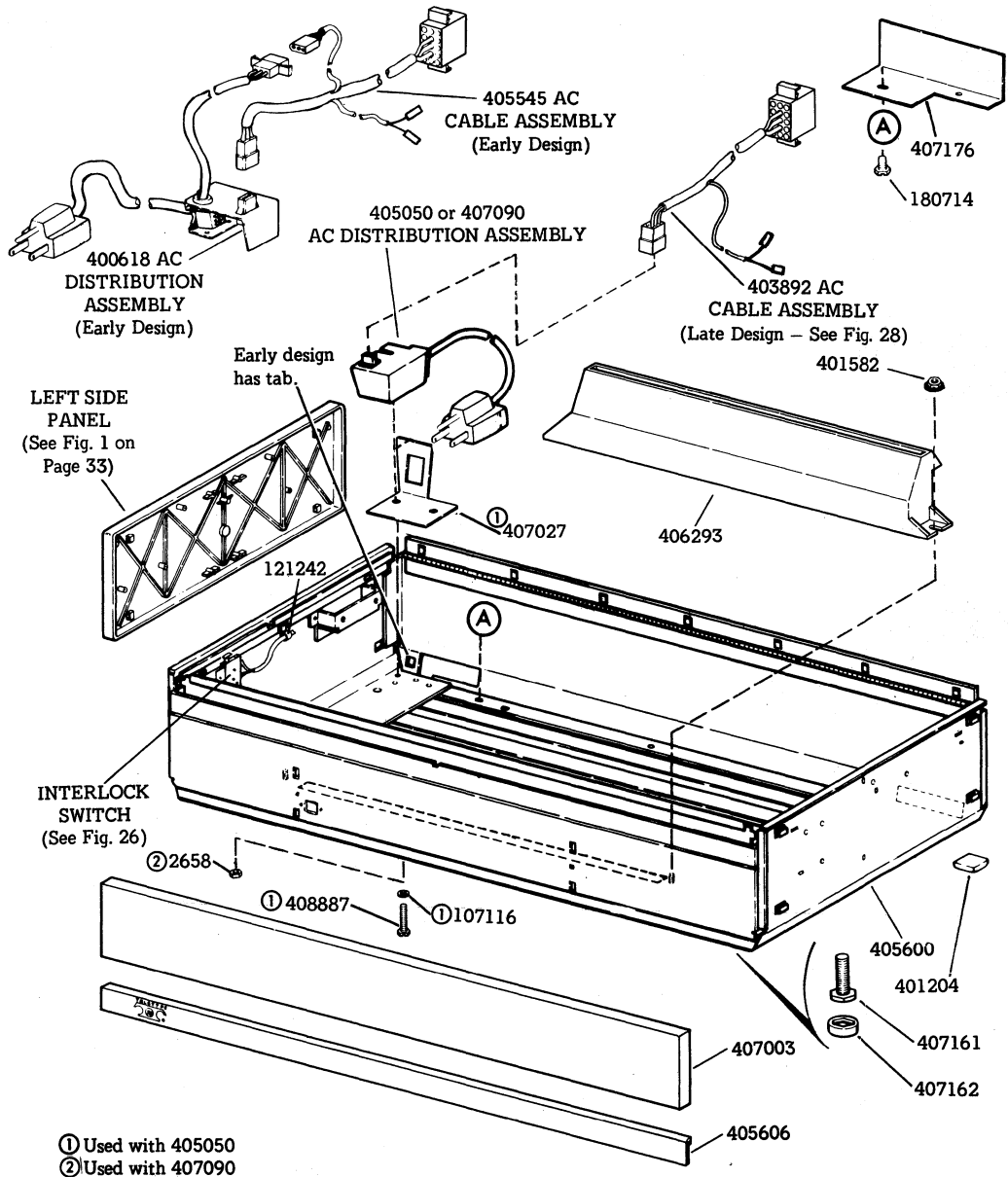
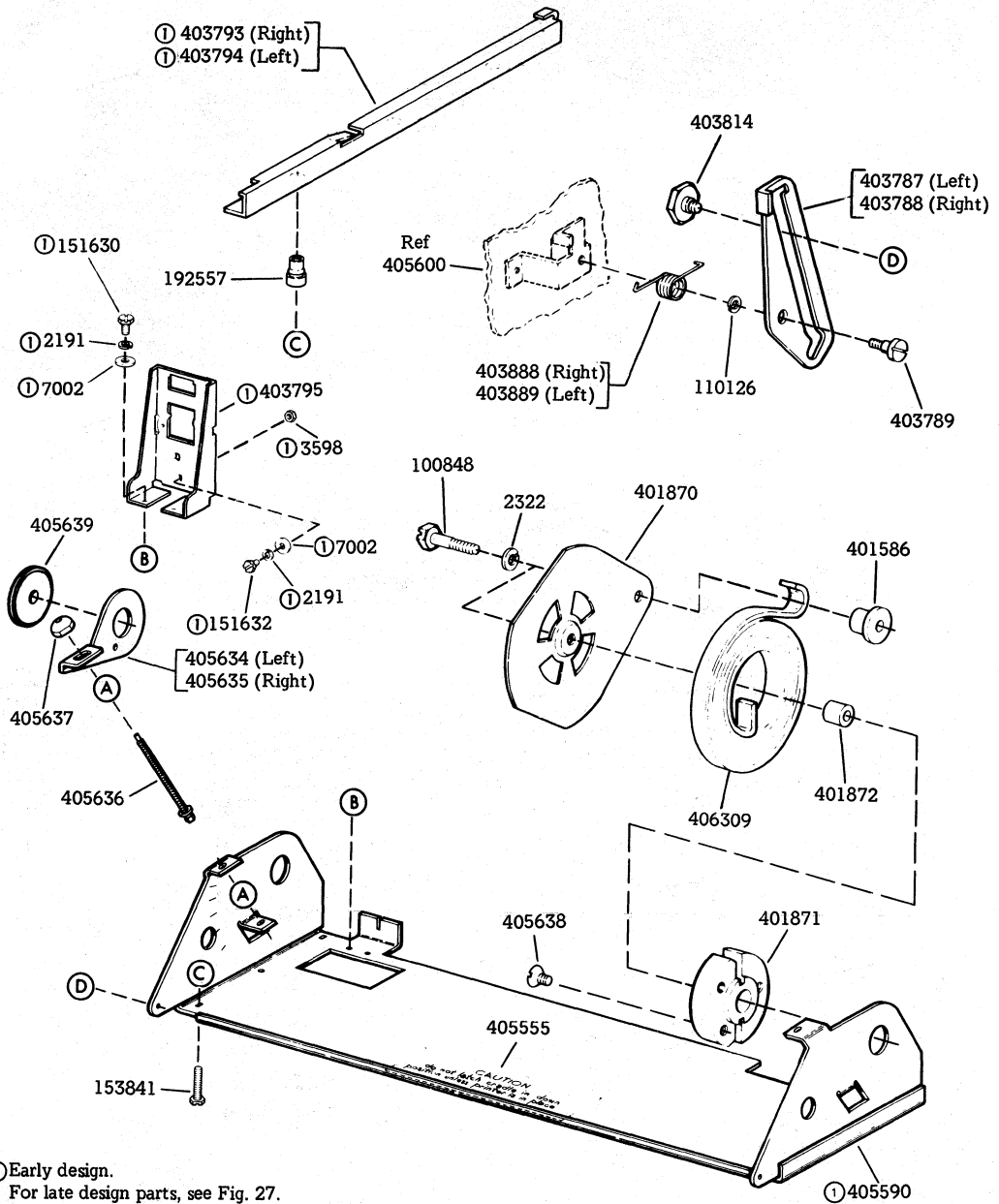


Fig. 23-40CAB353/YZ Printer Cabinet Core for Adjacent or RO Tractor Feed Printer - 132-Column



① Early design.
For late design parts, see Fig. 27.

Fig. 23—40CAB353/YZ Printer Cabinet Core for Adjacent or RO Tractor Feed Printer - 132-Column (Cont)

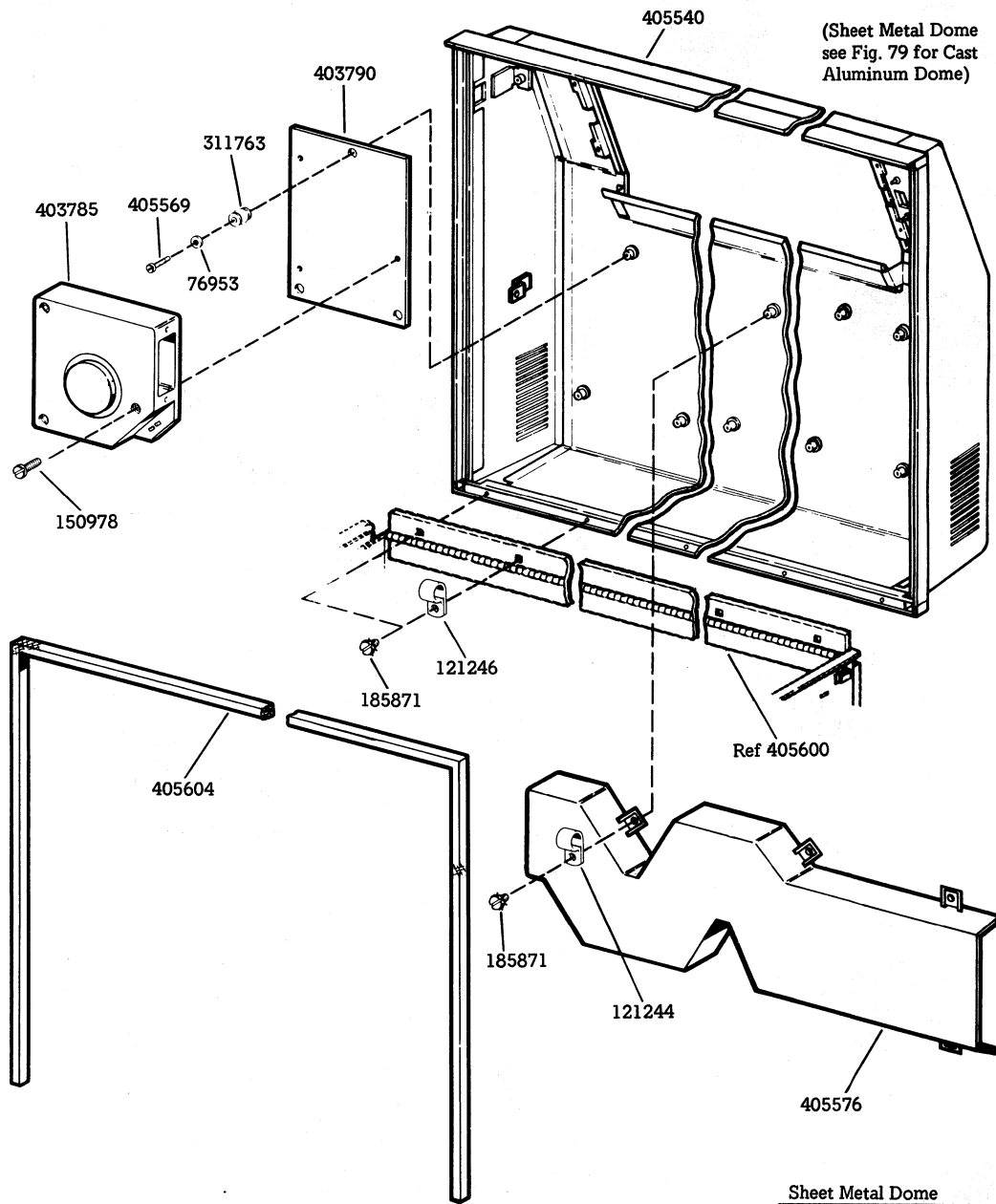


Fig. 23-40CAB353/YZ Printer Cabinet Core for Adjacent or RO Tractor Feed Printer - 132-Column (Cont)

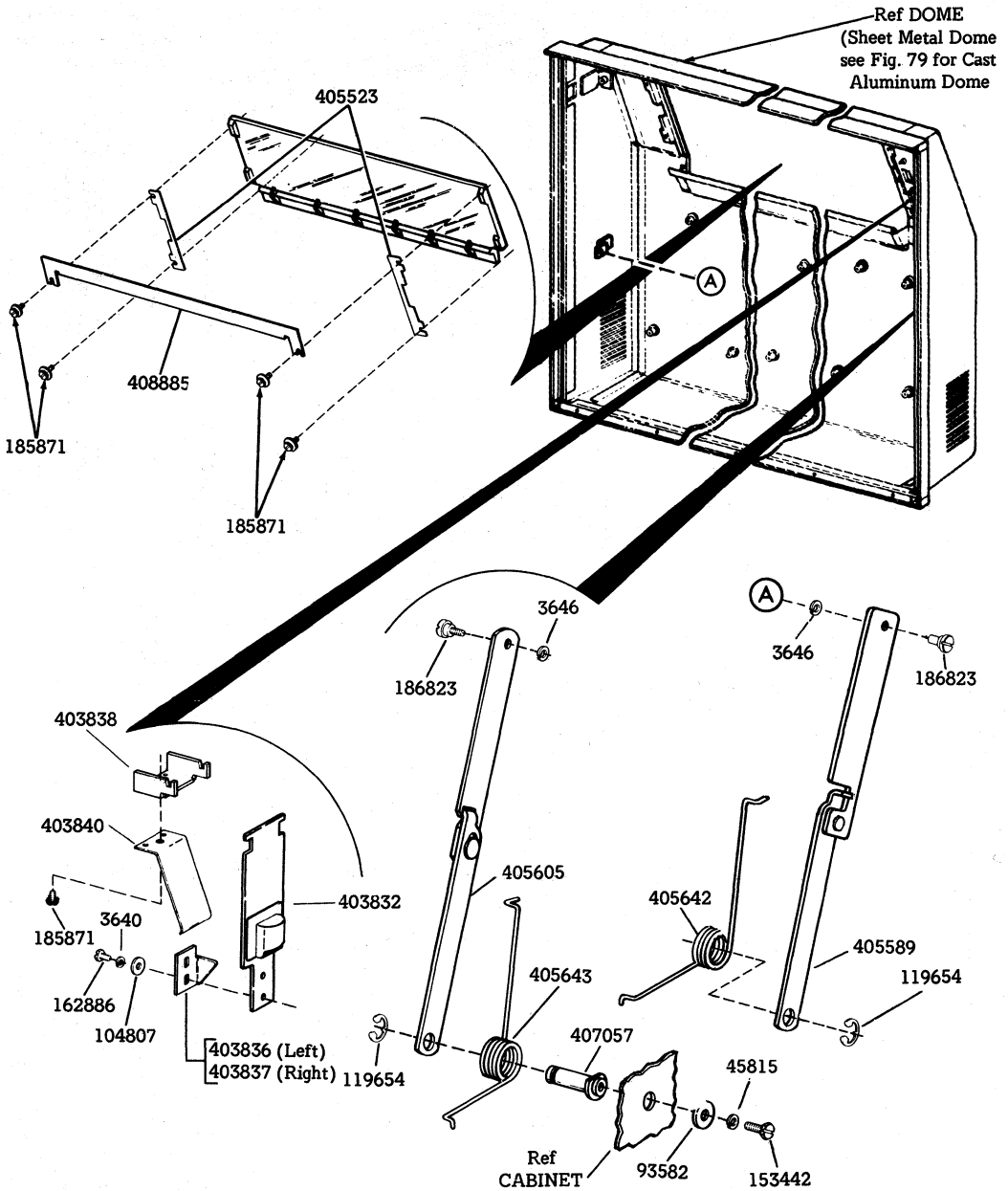


Fig. 23-40CAB353/YZ Printer Cabinet Core for Adjacent or RO Tractor Feed Printer - 132-Column (Cont)

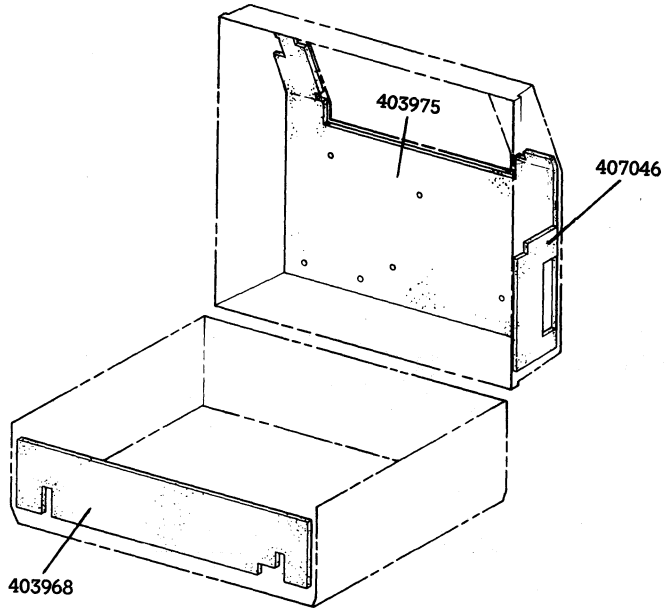


Fig. 24—Pads Used on 40CAB351/YZ Printer Cabinet Core for Adjacent or RO Tractor Feed Printer – 80-Column

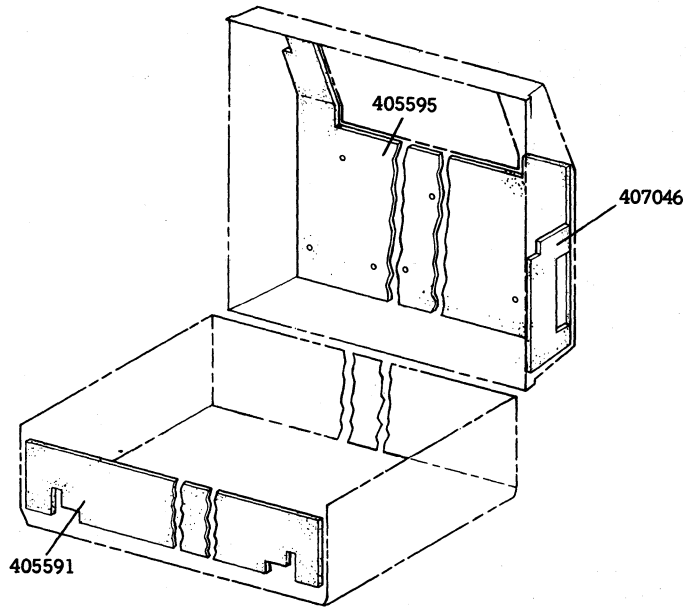
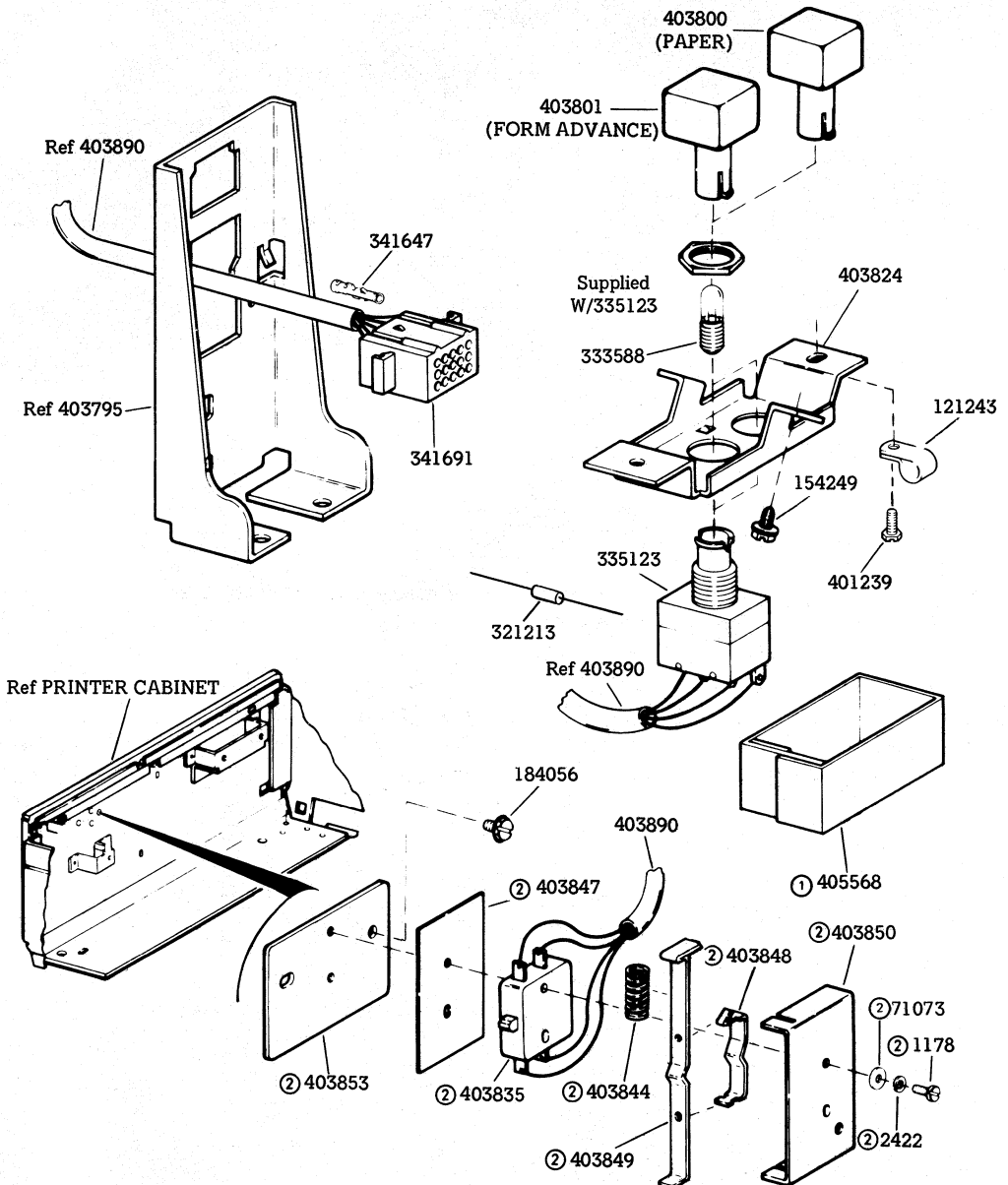


Fig. 25—Pads Used on 40CAB353/YZ Printer Cabinet Core for Adjacent or RO Tractor Feed Printer – 132-Column



- ① Required w/405520 Dome – Sheet Metal
- ② Part of 406442 Interlock Switch Assembly

Fig. 26 – Interlock and Paper Alarm for 80- and 132-Column Tractor Feed Printer Cabinets

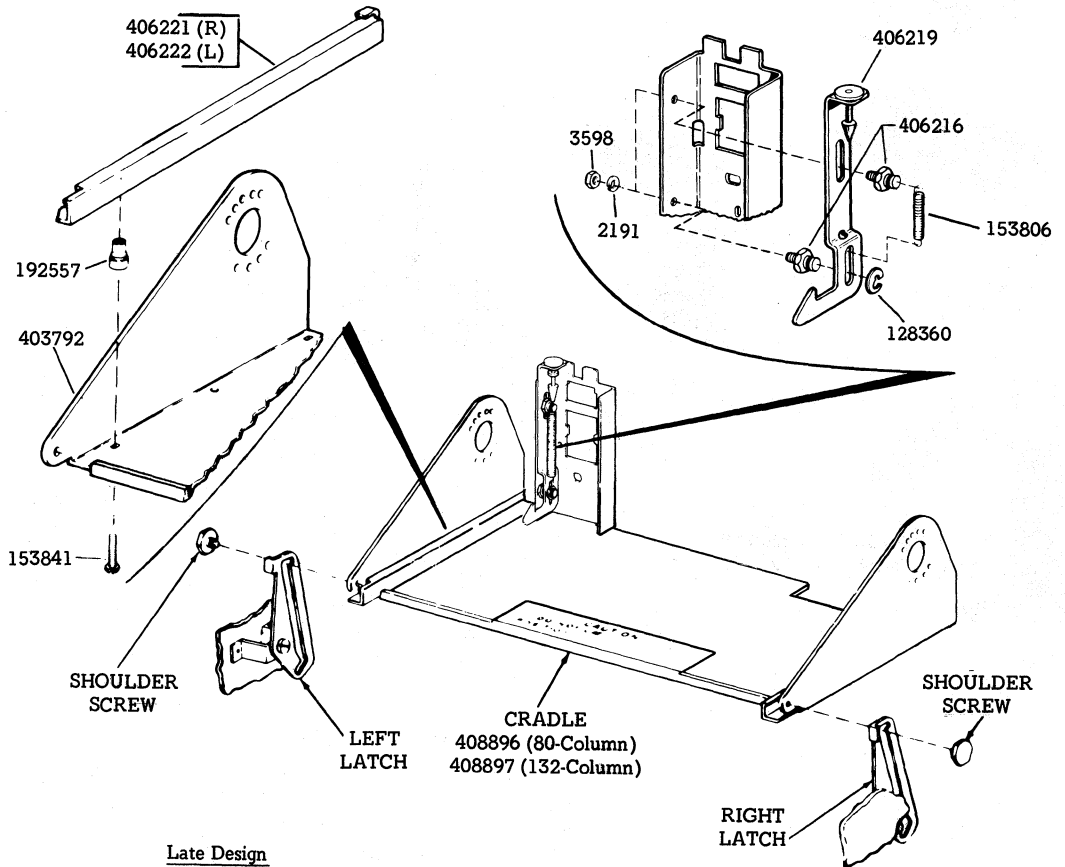


Fig. 27—Cradle and Latch Mechanism for Adjacent or RO Tractor Feed Printer

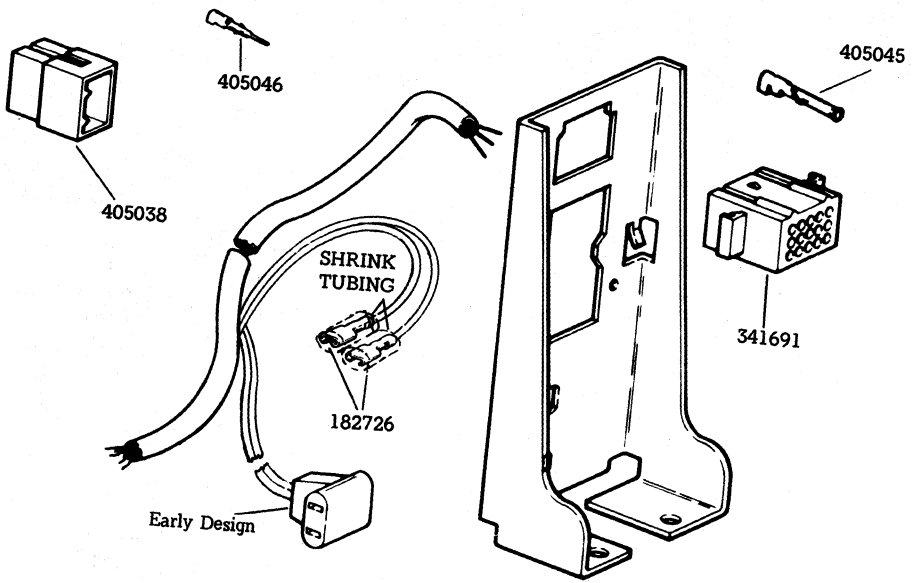


Fig. 28-403892 AC Cable Assembly - Tractor Feed Printer Cabinet

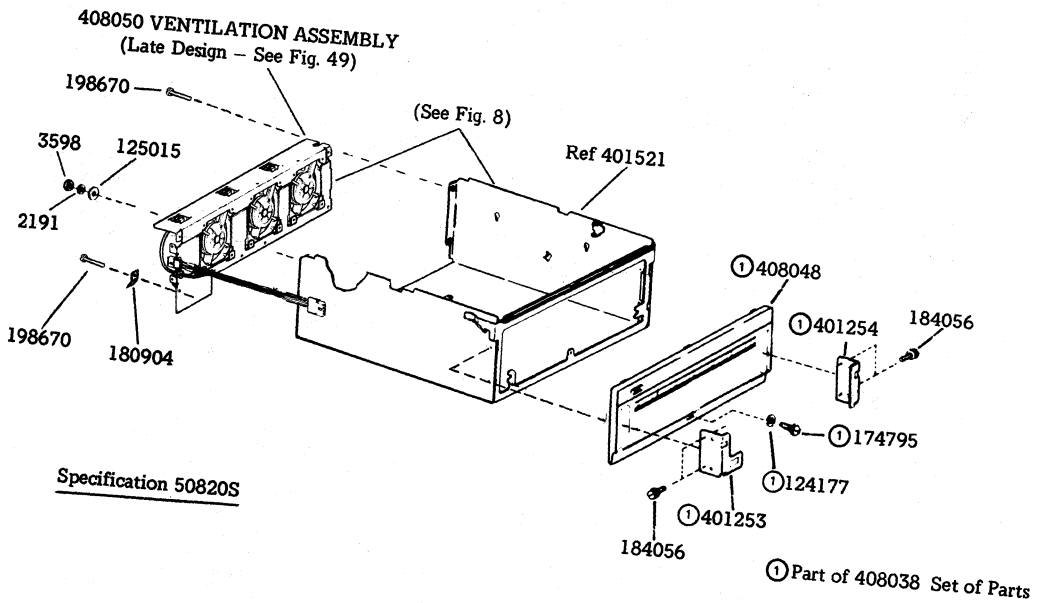
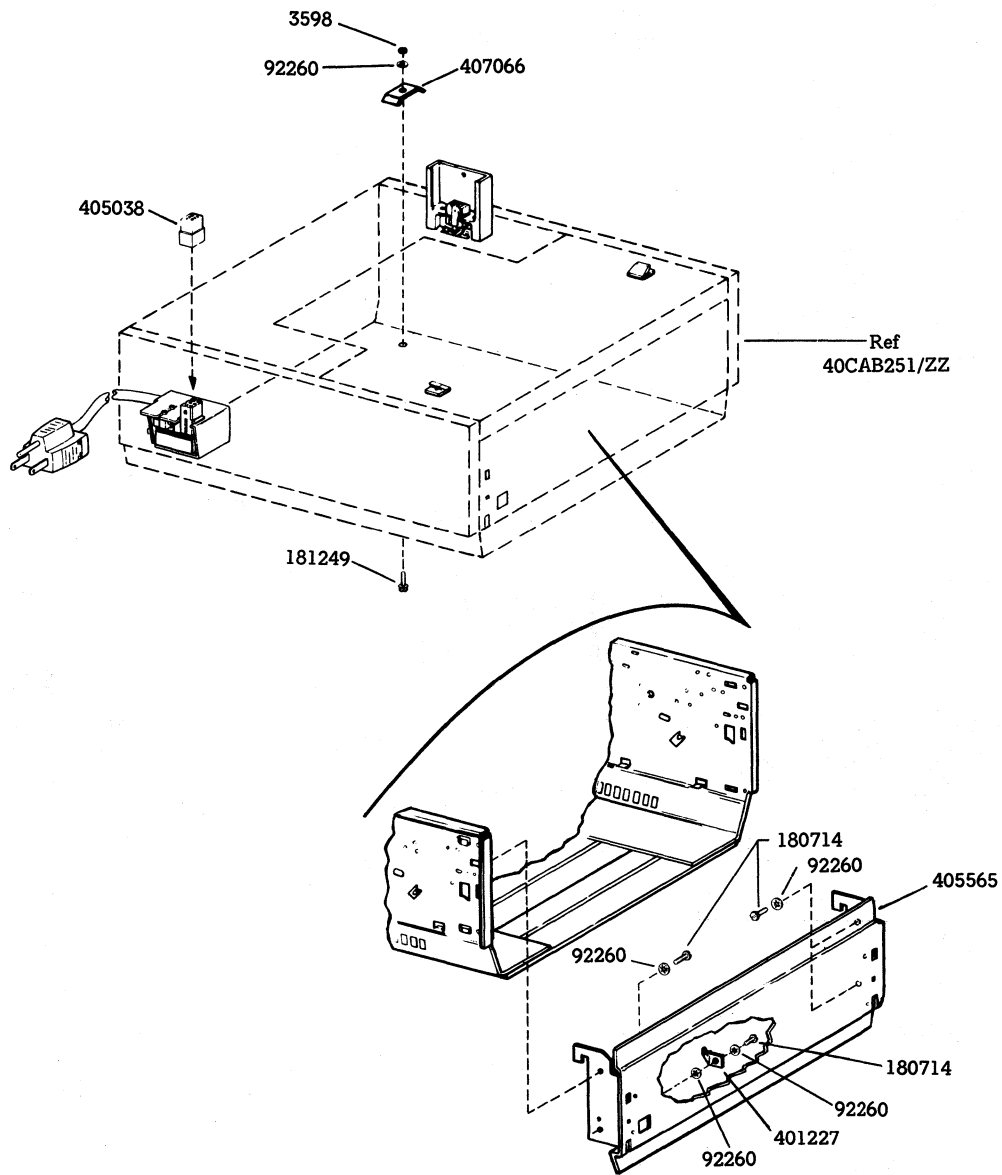


Fig. 29-408051 Modification Kit to Provide Logic Under Monitor Cabinet With Late Design Ventilation Assembly

Specification 50820S



Specification 50830S

Fig. 30-405562 Modification Kit for Monitor/Opcon Support Cabinet

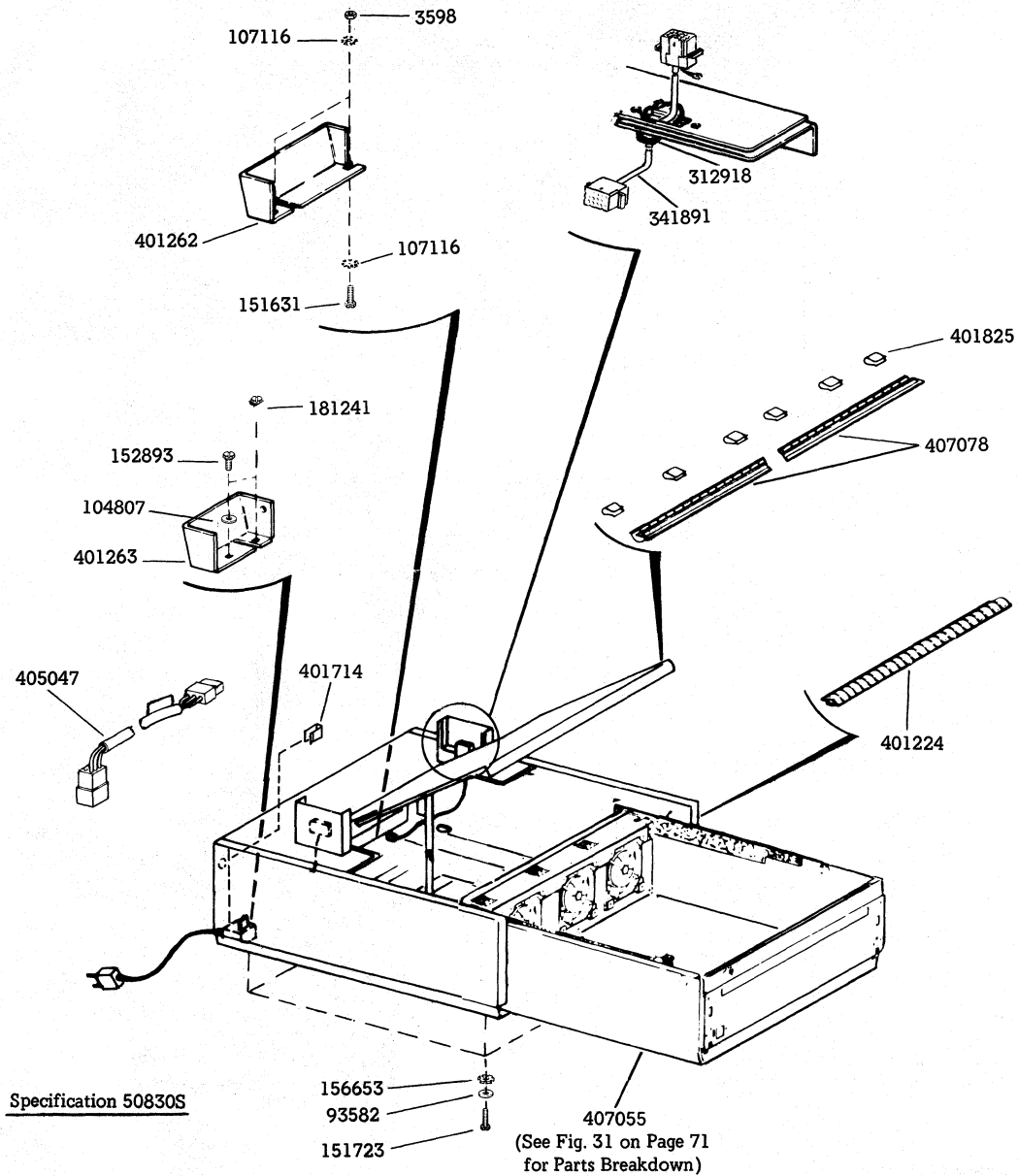


Fig. 31-405563 Modification Kit Used on 40CAB251/ZZ Cabinet to Form a 40CAB251/AB Cabinet

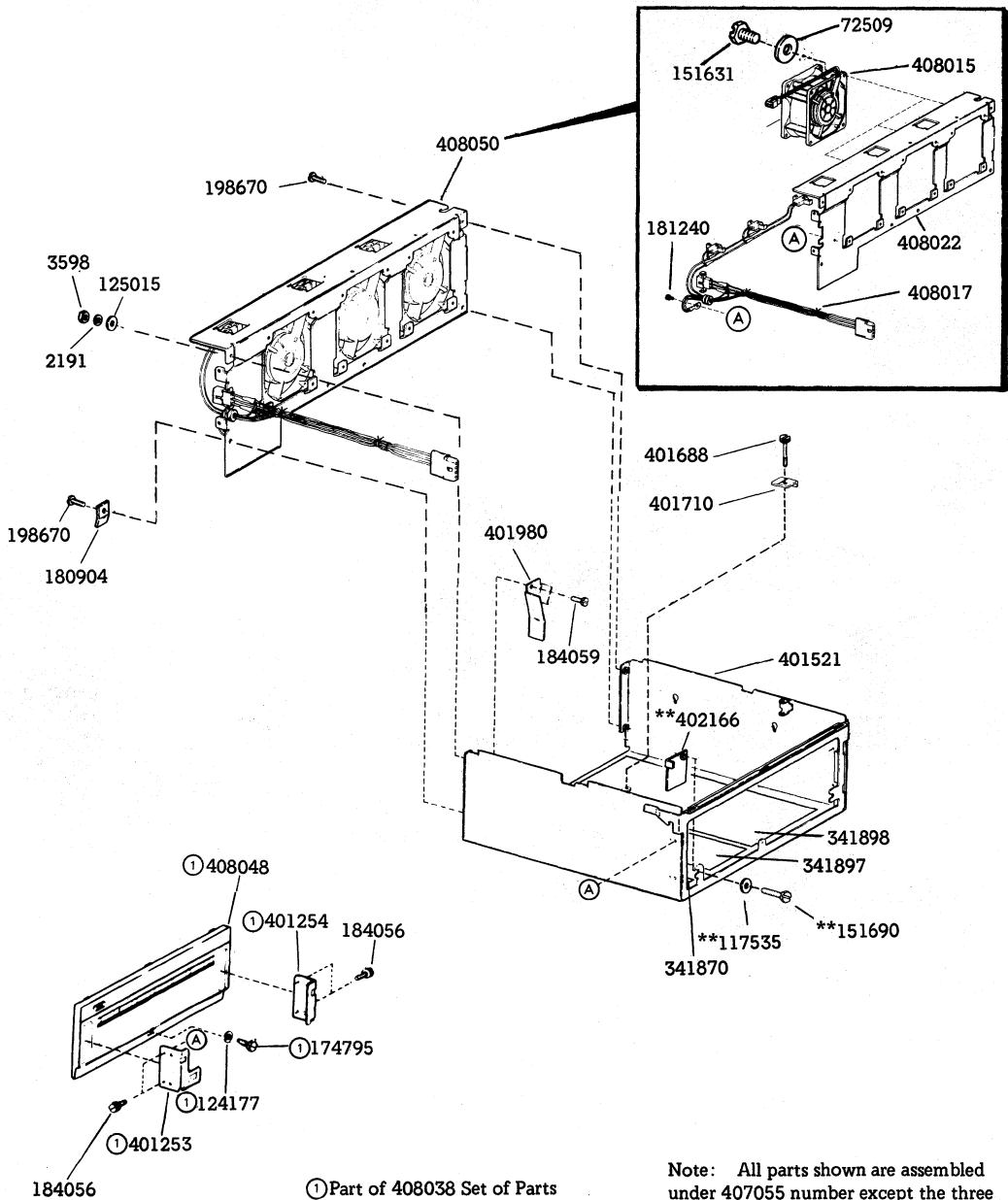
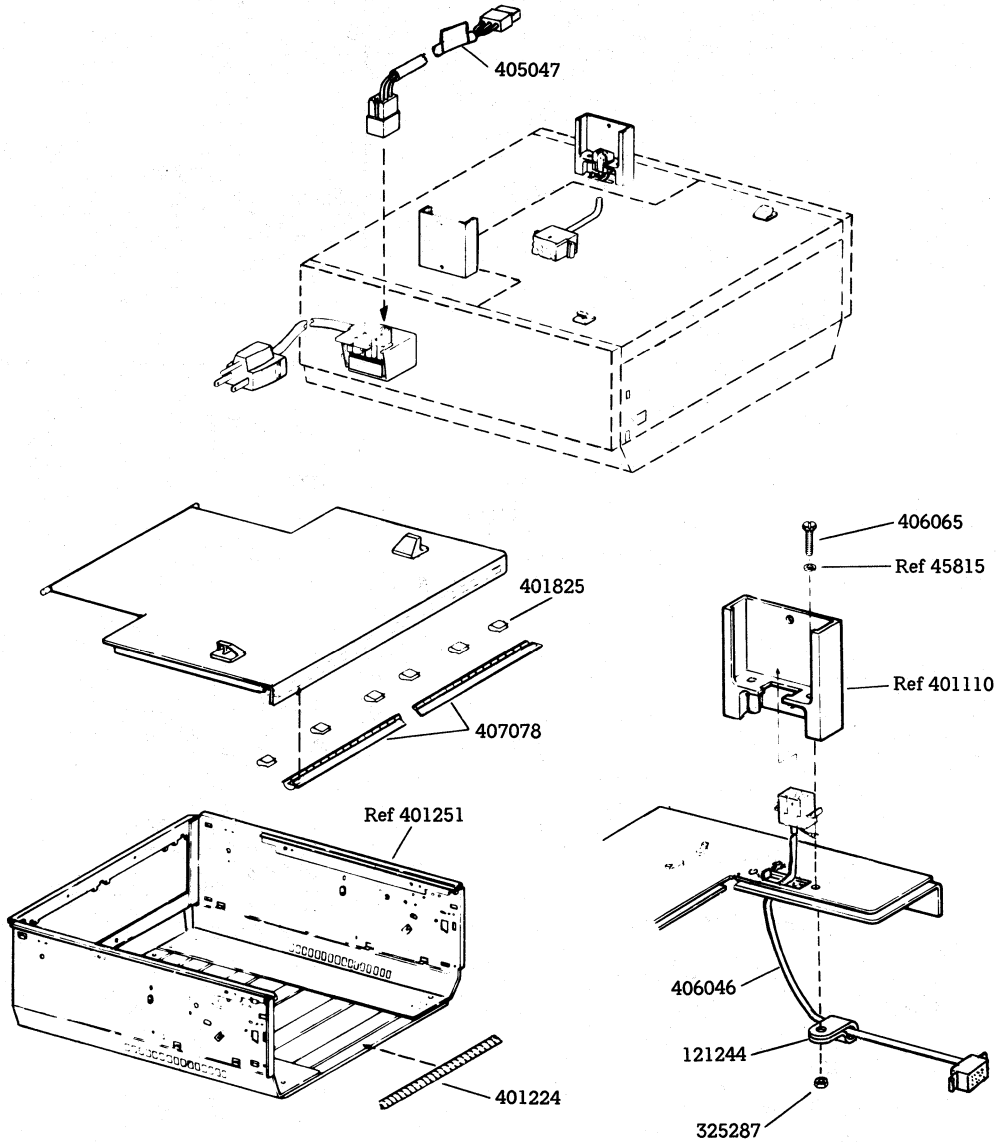
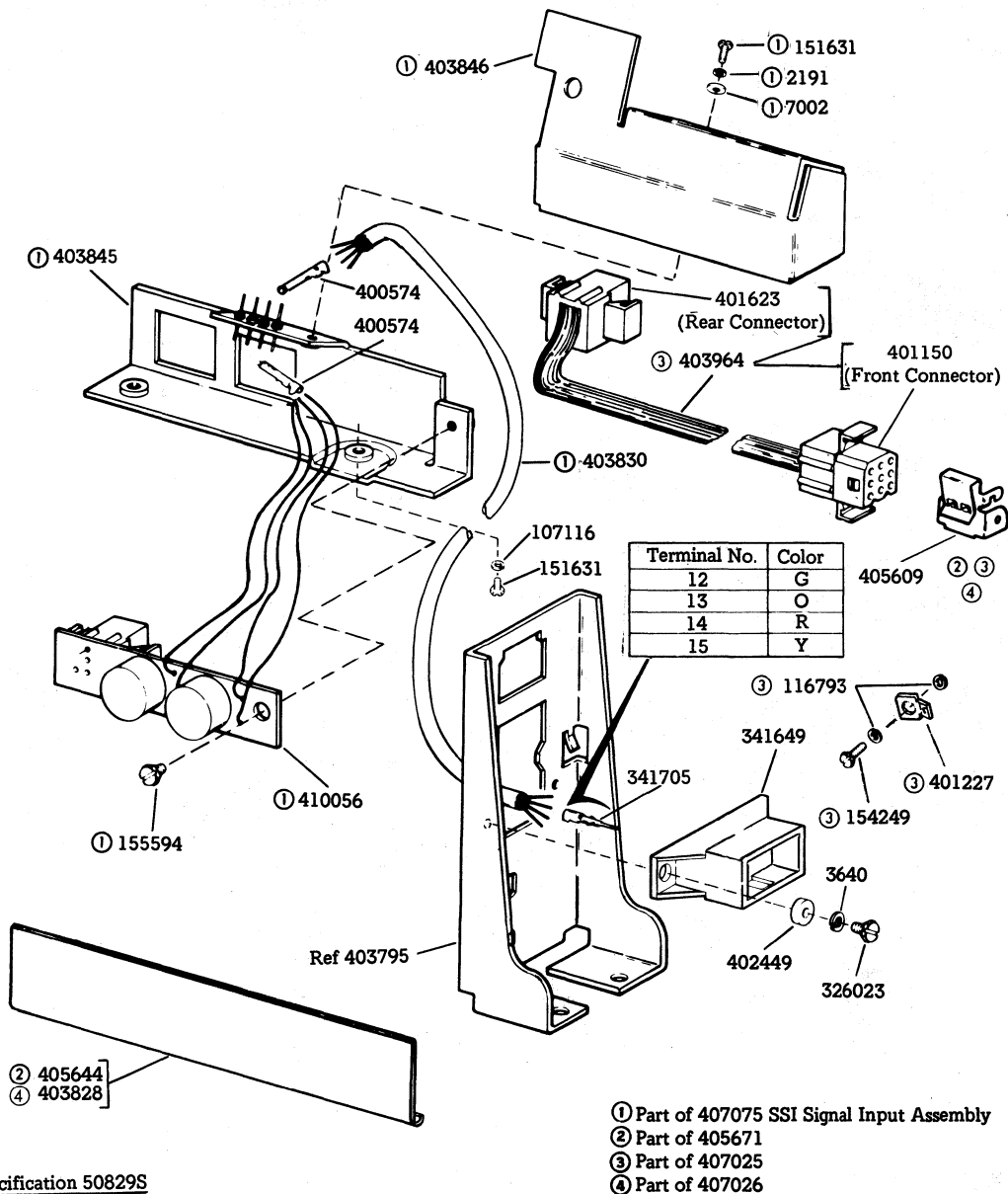


Fig. 31—405563 Modification Kit Used on 40CAB251/ZZ Cabinet to Form a 40CAB251/AB Cabinet (Cont)



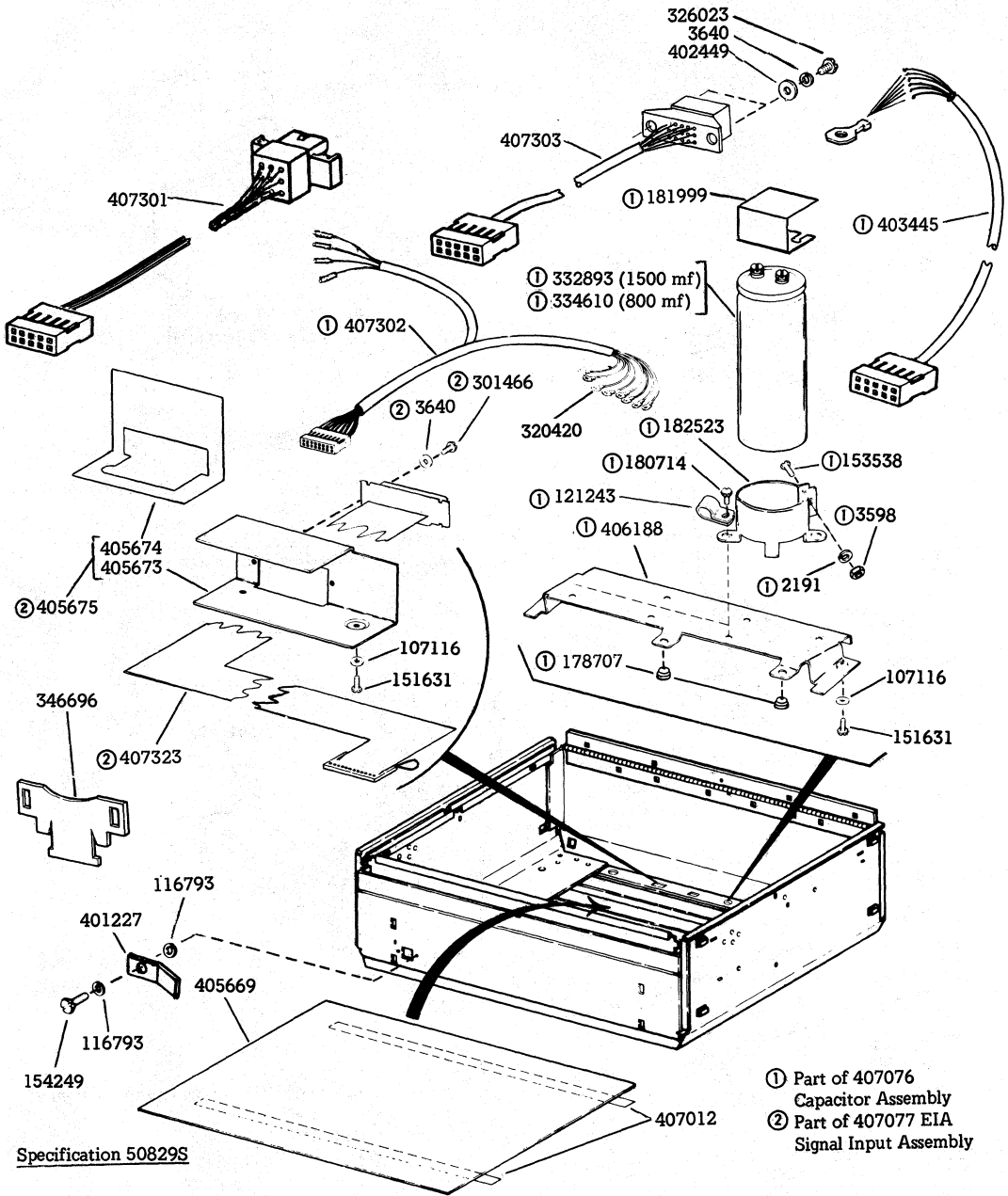
Specification 50830S

Fig. 32—406047 Modification Kit Used on 40CAB251/ZZ Cabinet to Form a 40CAB251/AE Cabinet



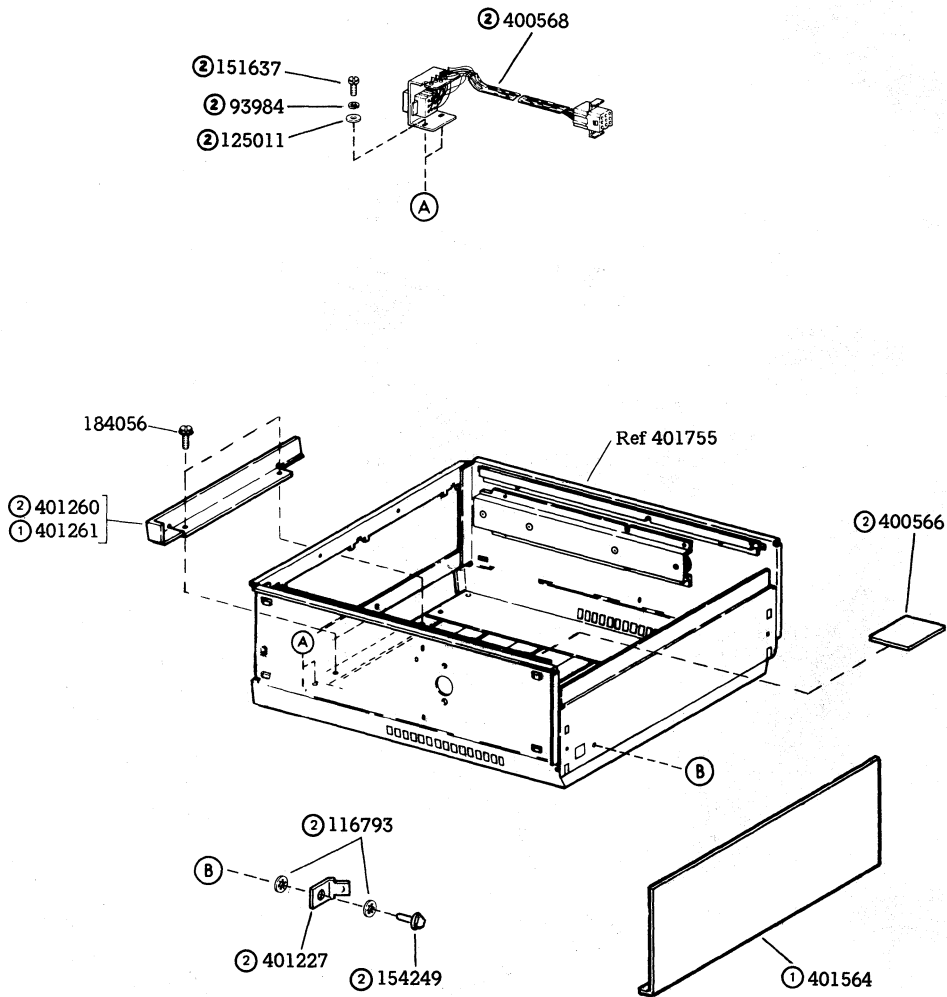
Specification 50829S

Fig. 33-405671 (40CAB353/ZZ - 132-Column), 407025 (40CAB351/ZZ - 80-Column) and 407026 (40CAB351/ZZ - 80-Column) Modification Kits



Specification 50829S

Fig. 34—407024 EIA Integrated Controller Modification Kit for 40CAB351/ZZ (80-Column) and 40CAB353/ZZ (132-Column) Cabinets



Specification 50828S

- ① Part of 407042
- ② Part of 407043

Fig. 35—407042 Modification Kit for Adjacent Friction Feed Printer Cabinet and
407043 Modification Kit for RO Friction Feed Printer Cabinet

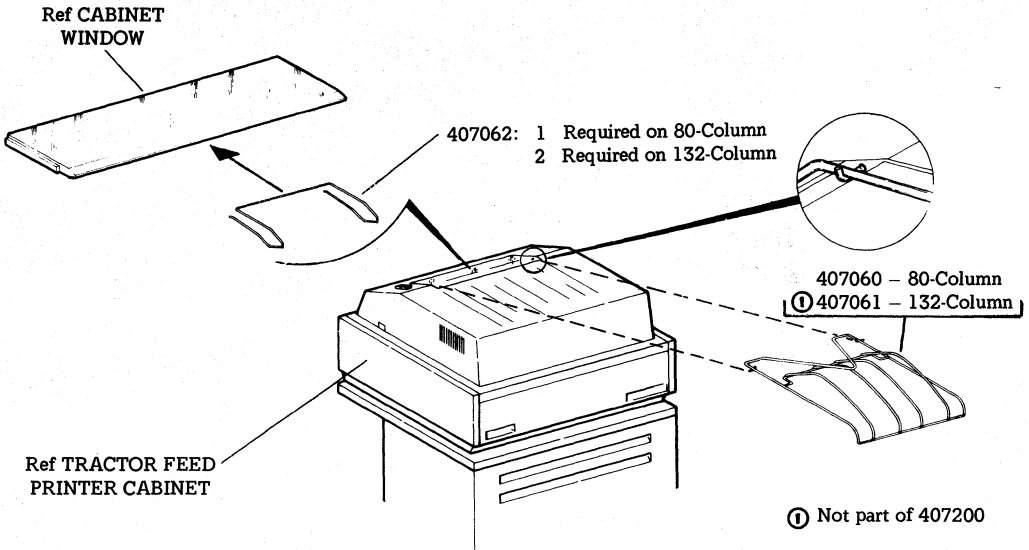
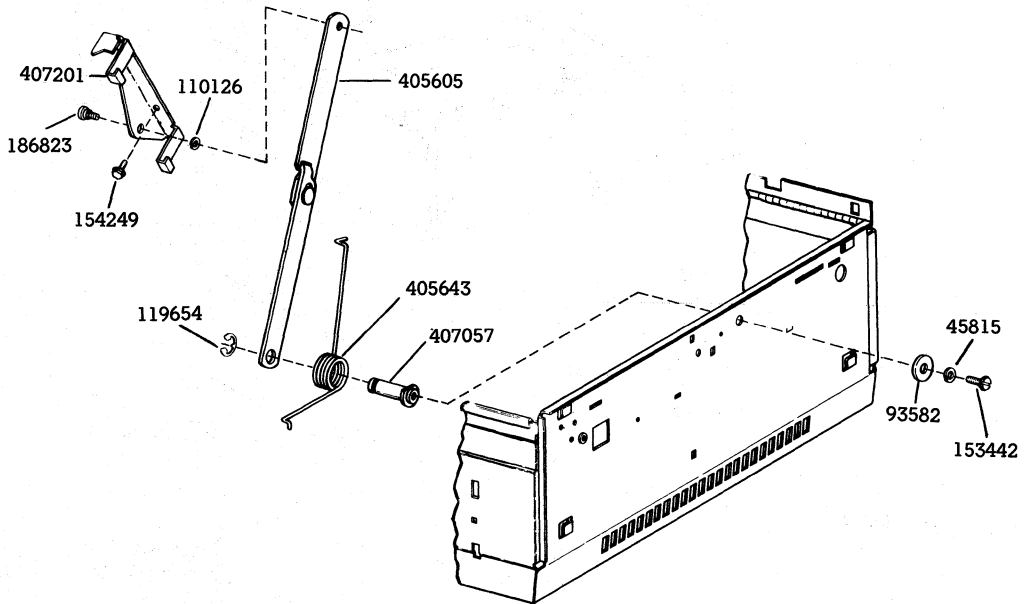


Fig. 36 - 407200 Modification Kit to Facilitate Handling Single-Ply Fanfold Paper



Specification 50871S

Fig. 37 - 407202 Dome Counterbalance Modification Kit for 80-Column Tractor Feed Cabinets

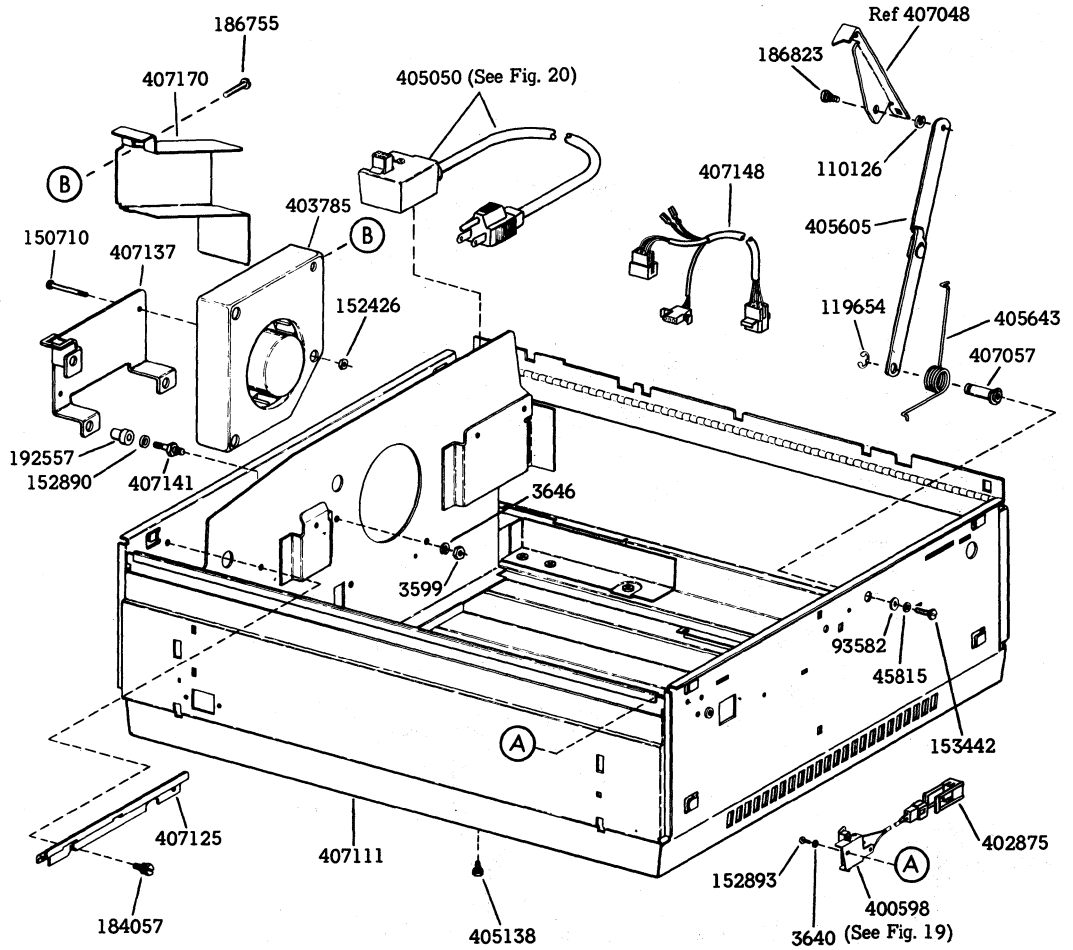


Fig. 38—40CAB371/ZZ Printer Cabinet Core for Noise Reduced Friction Feed Cabinet

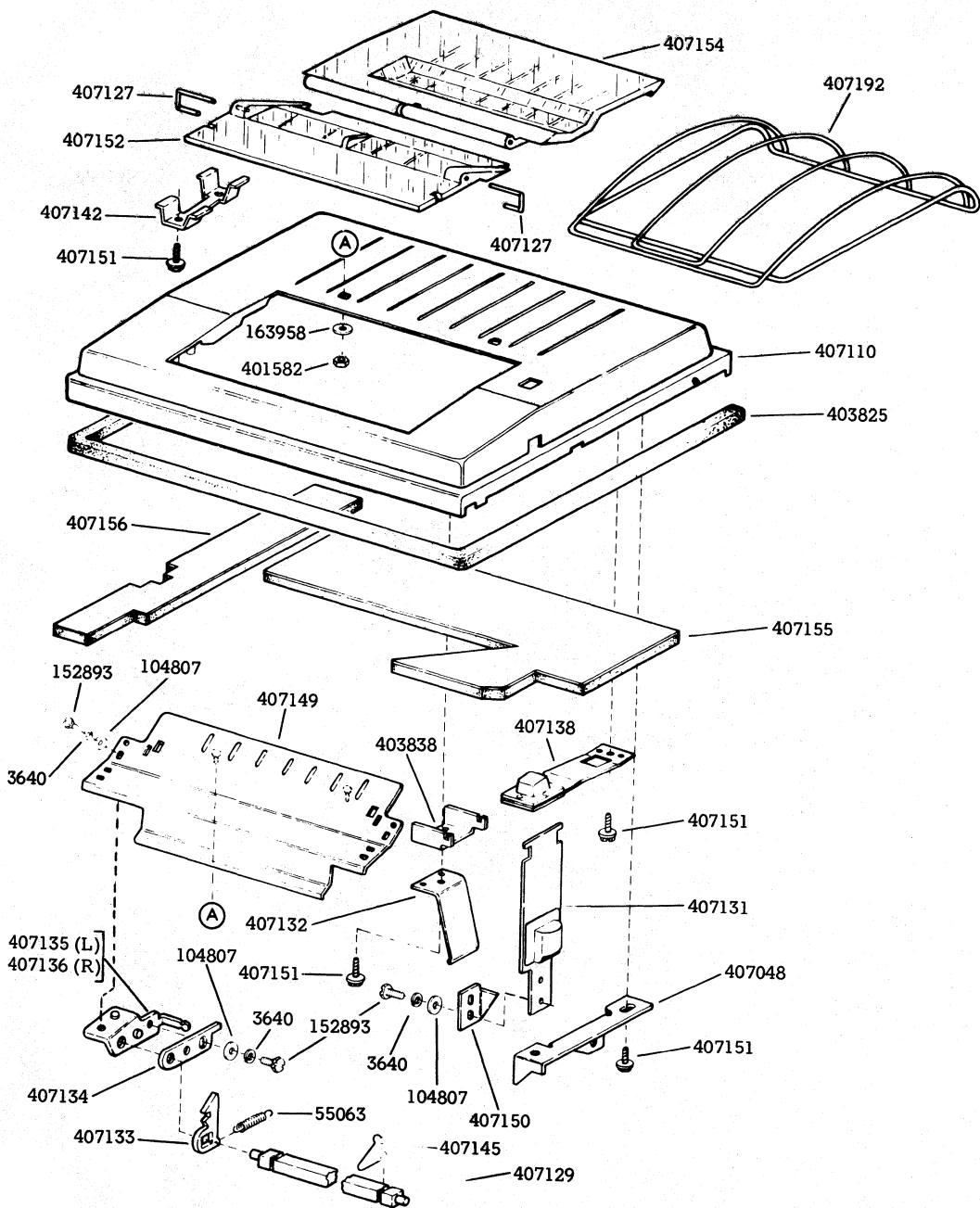


Fig. 38-40CAB371/ZZ Printer Cabinet Core for Noise Reduced Friction Feed Cabinet (Cont)

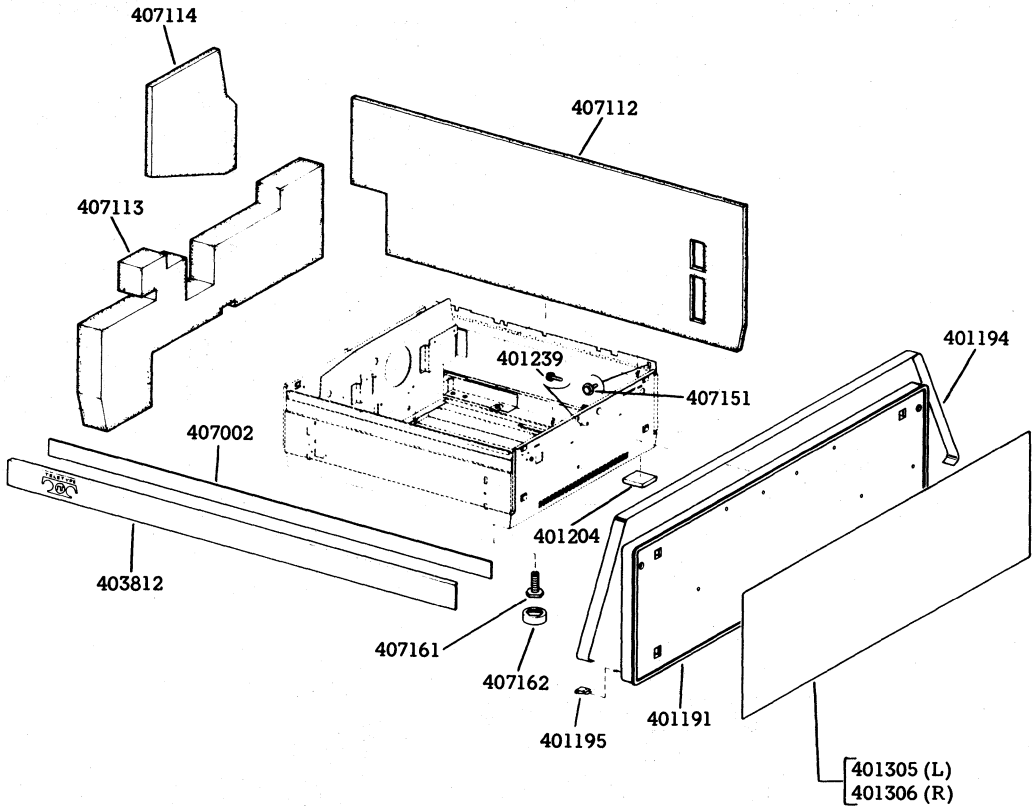


Fig. 38—40CAB371/ZZ Printer Cabinet Core for Noise Reduced Friction Feed Cabinet (Cont)

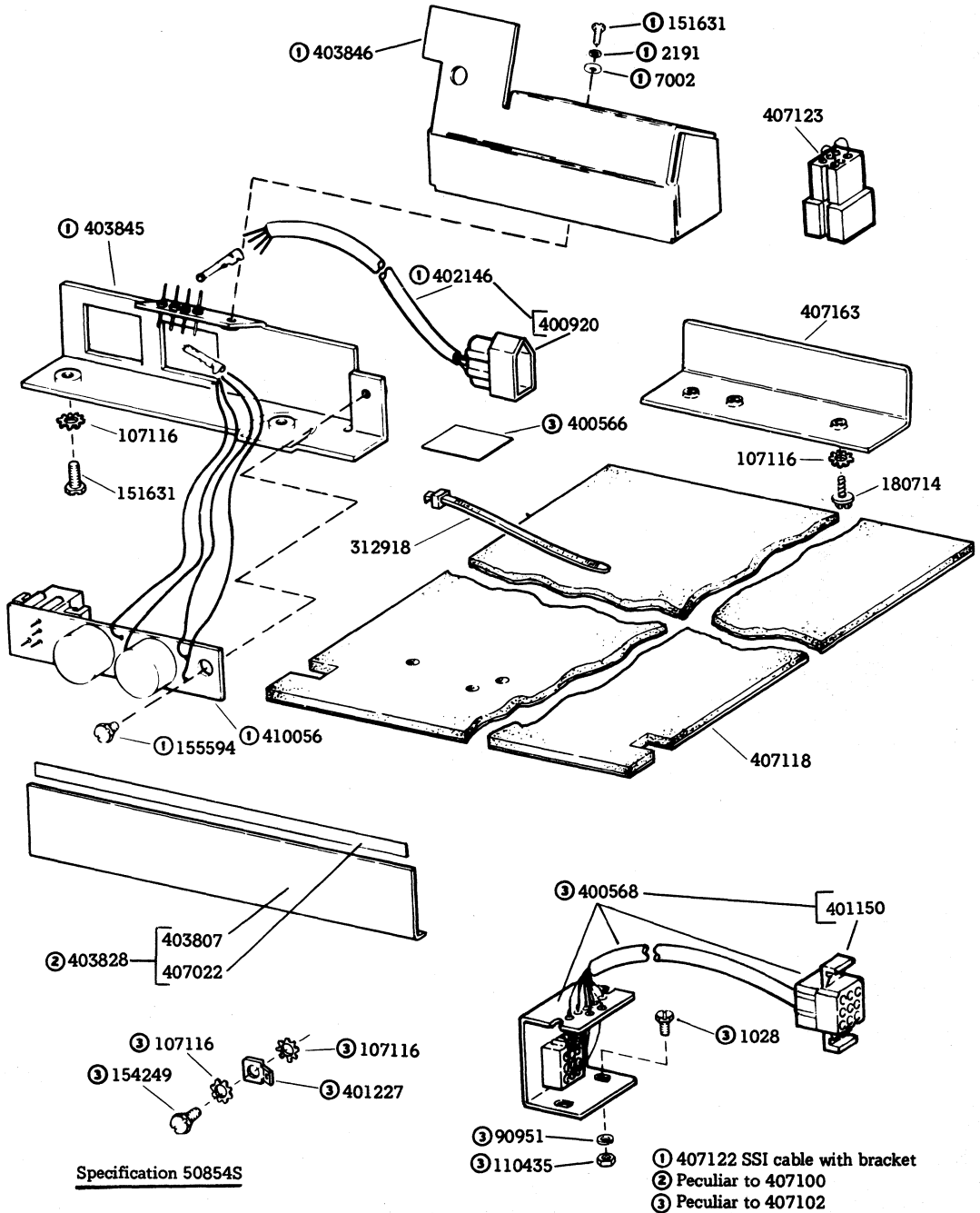


Fig. 39-407100 and 407102 Modification Kits for 40CAB371/ZZ Cabinets

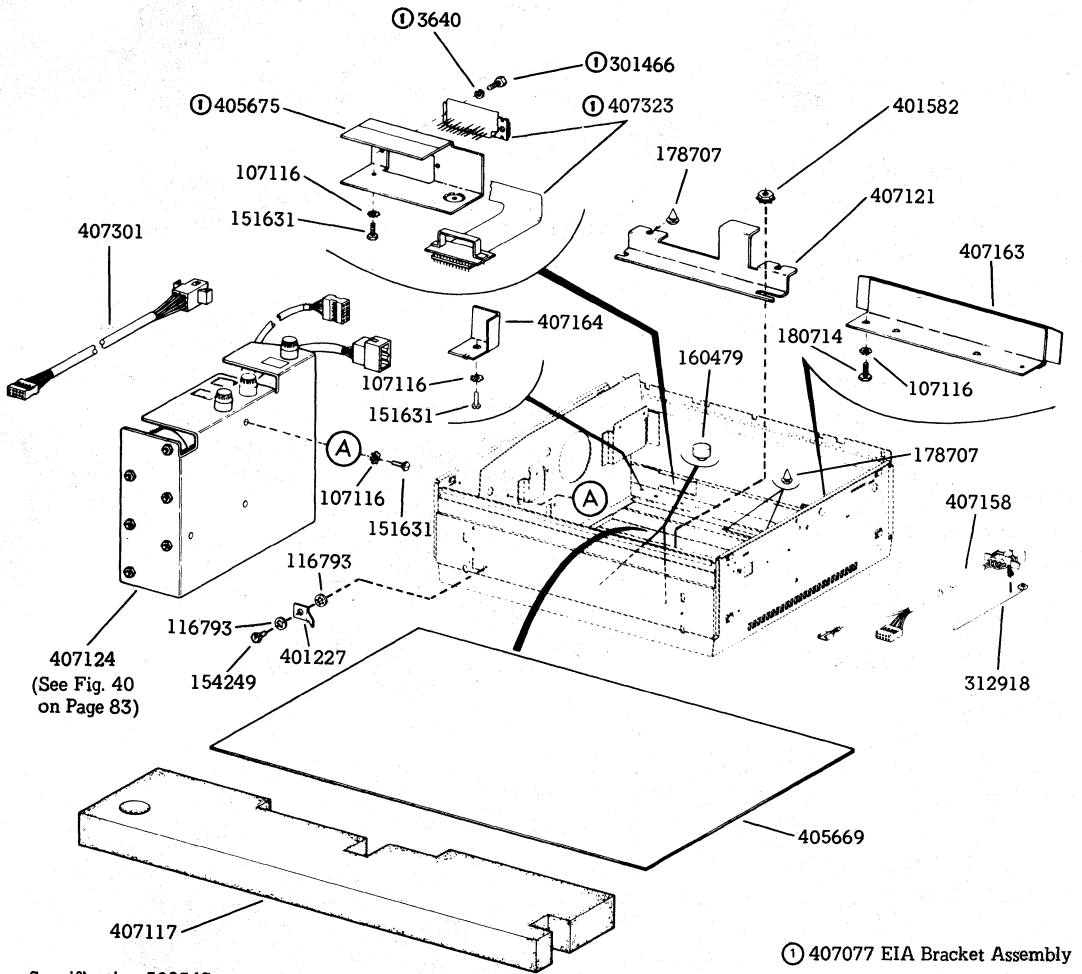
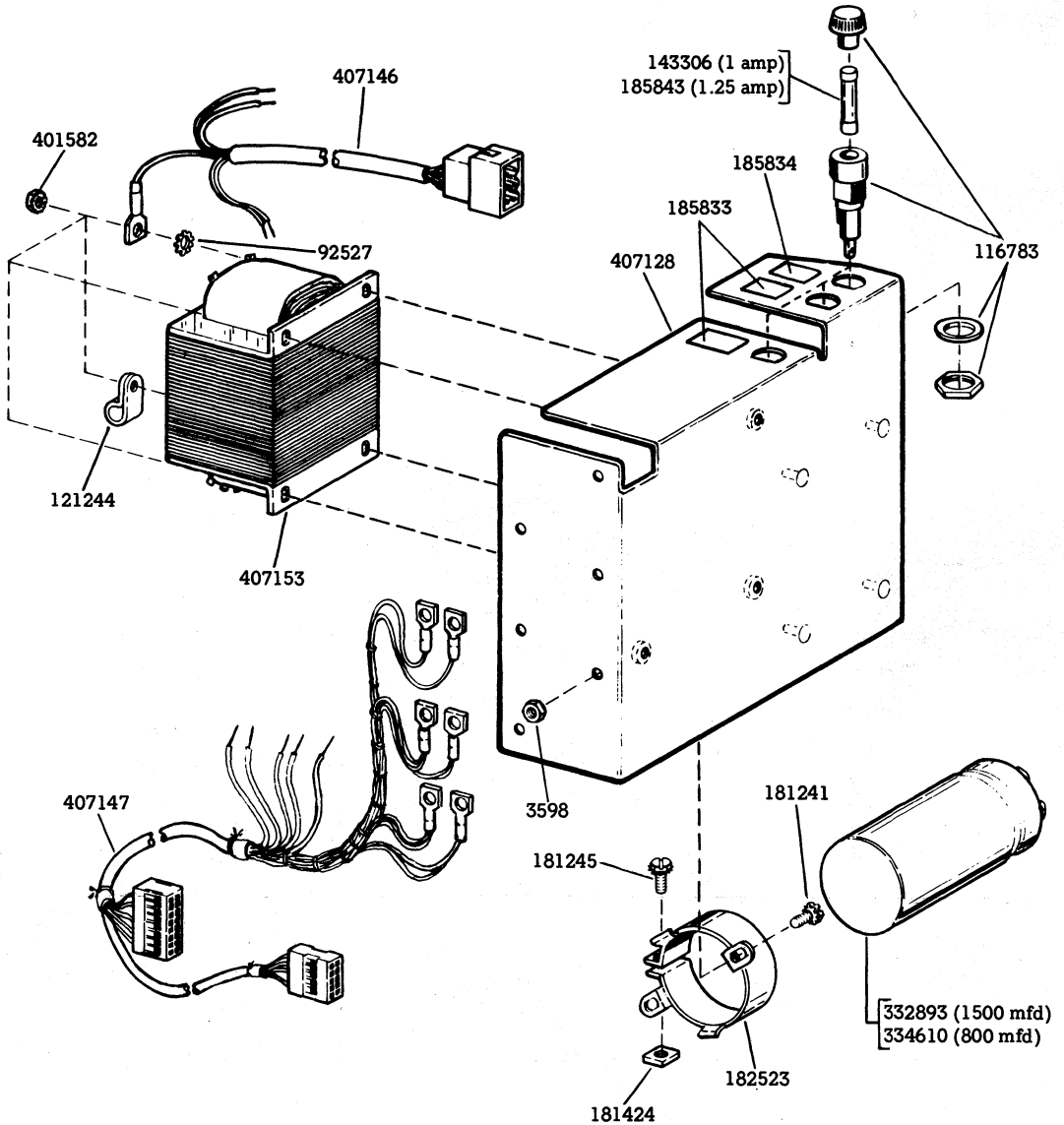


Fig. 40—407101 Modification Kit for 40CAB371/ZZ Cabinet



Specification 50854S

Note: All parts shown are assembled as 407124 power supply.

Fig. 40-407101 Modification Kit for 40CAB371/ZZ Cabinet (Cont)

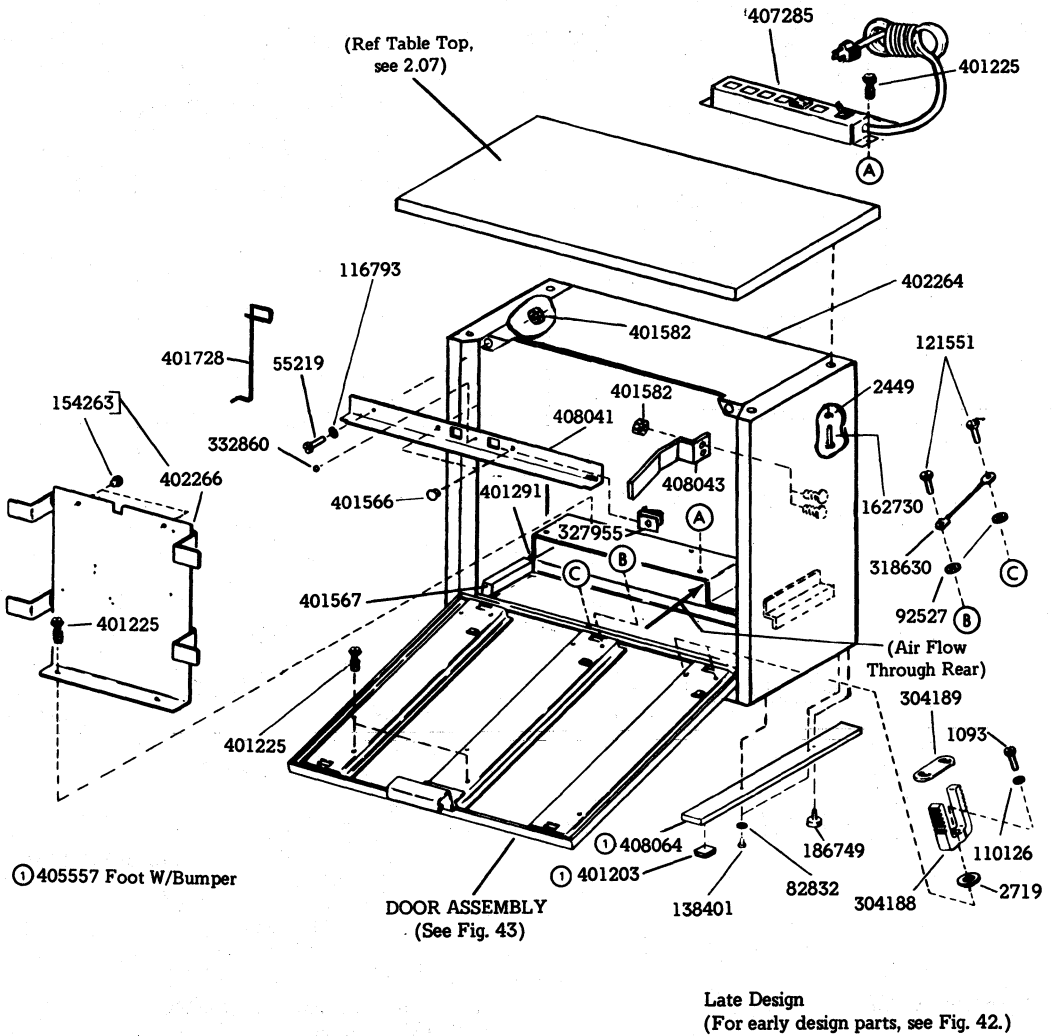
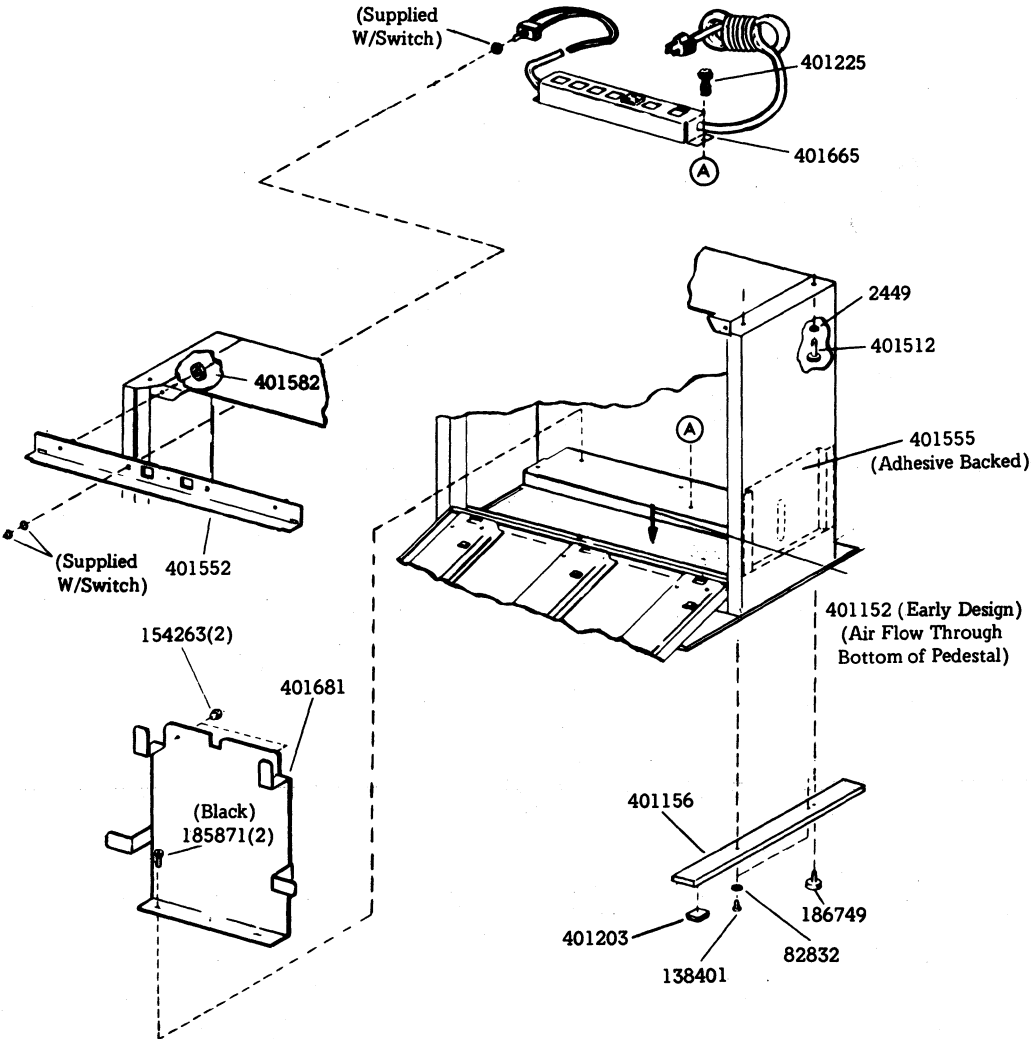


Fig. 41-40CAB901 Series Cabinet (Late Design)



Early Design
(For late design parts, see Fig. 41.)

Fig. 42-40CAB901 Series Cabinet (Early Design)

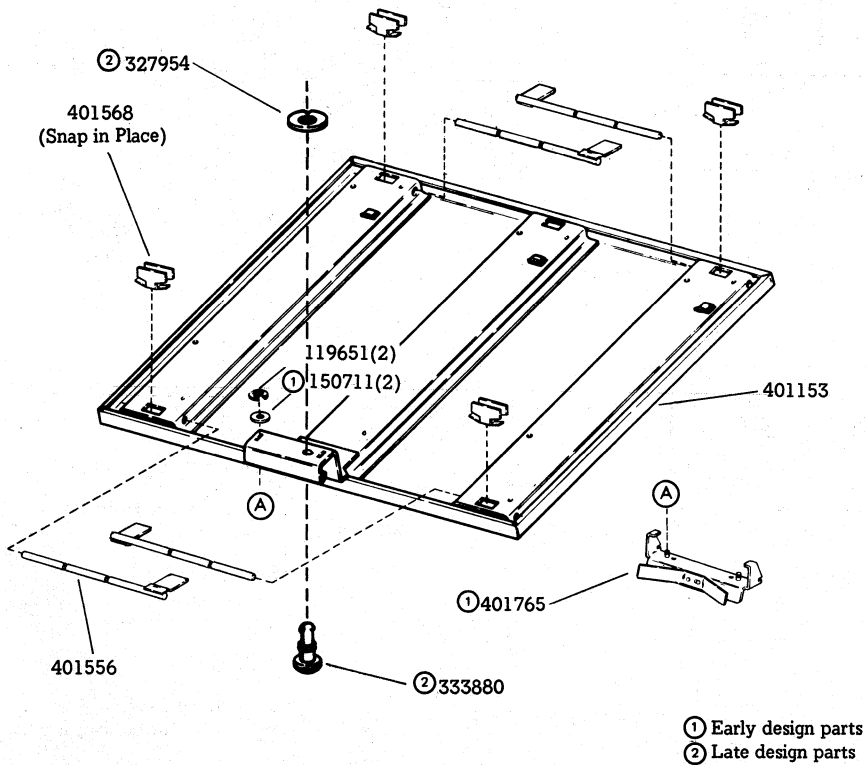
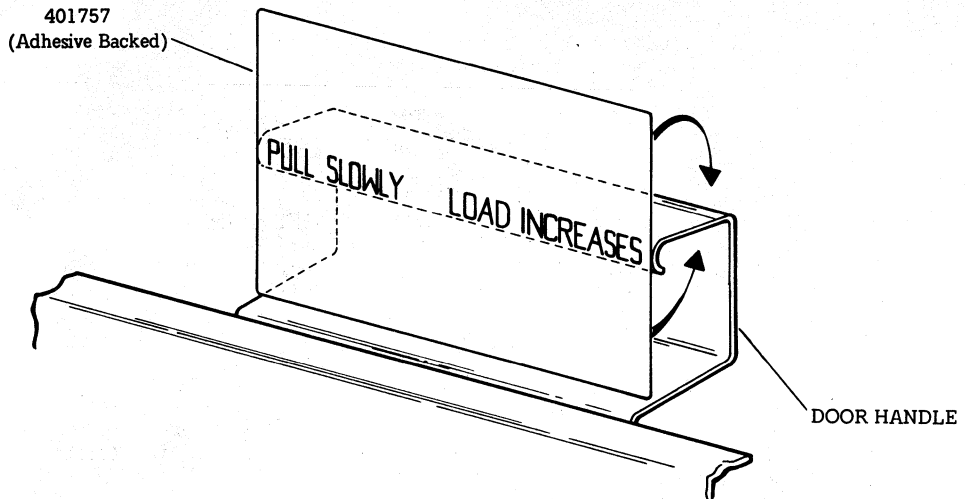


Fig. 43—Pedestal Door Components

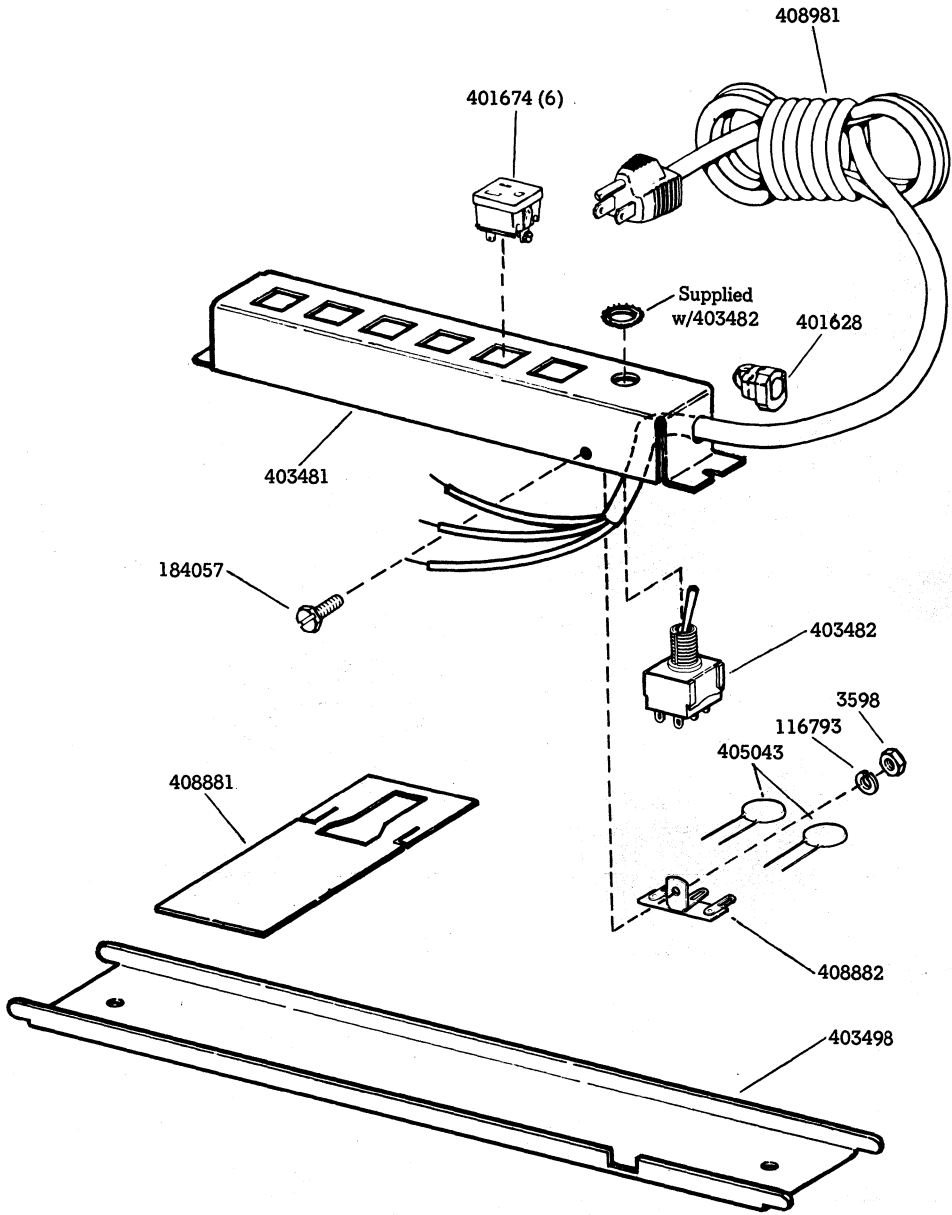
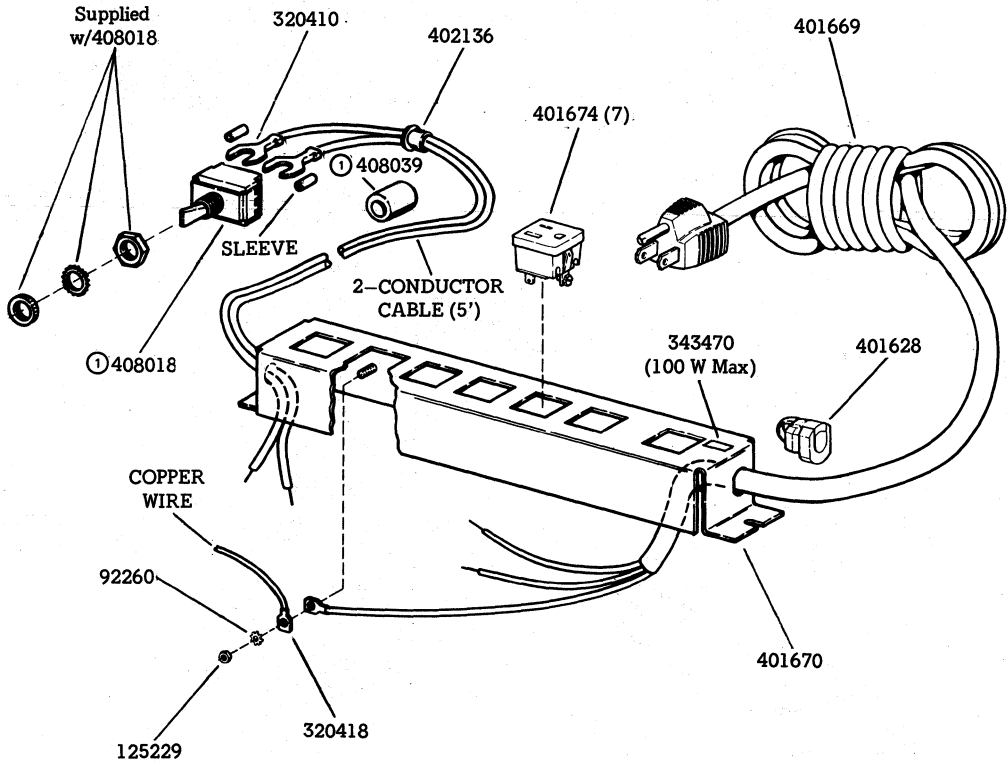


Fig. 44-407285 AC Distribution Assembly (Late Design)



① 408052 Switch Assembly

Fig. 45-401665 AC Distribution Panel Assembly (Early Design)

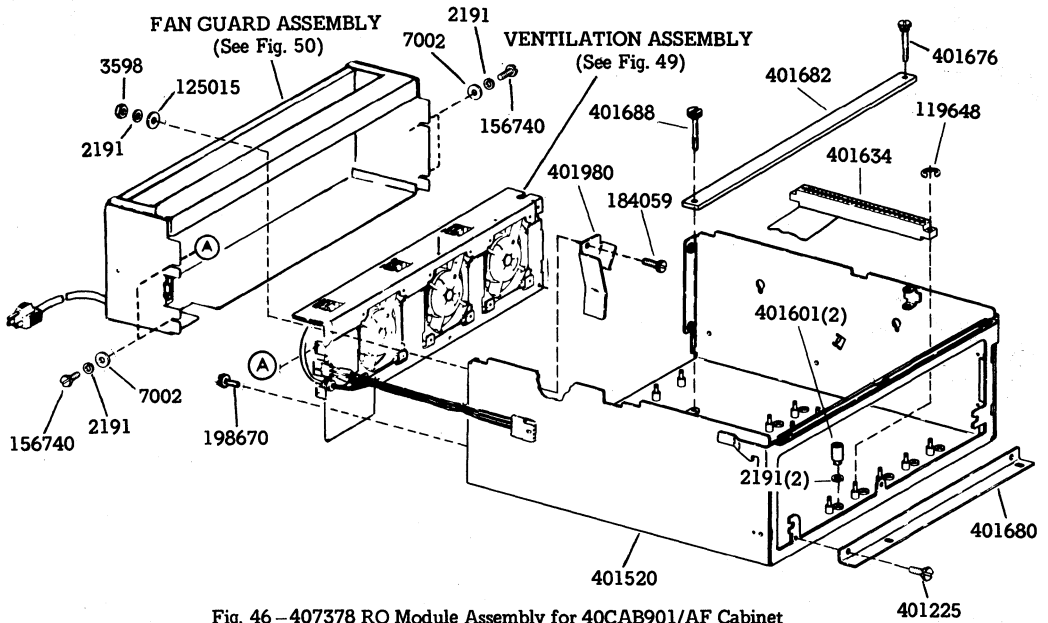


Fig. 46 - 407378 RO Module Assembly for 40CAB901/AF Cabinet
(Air-Flow Through Rear)

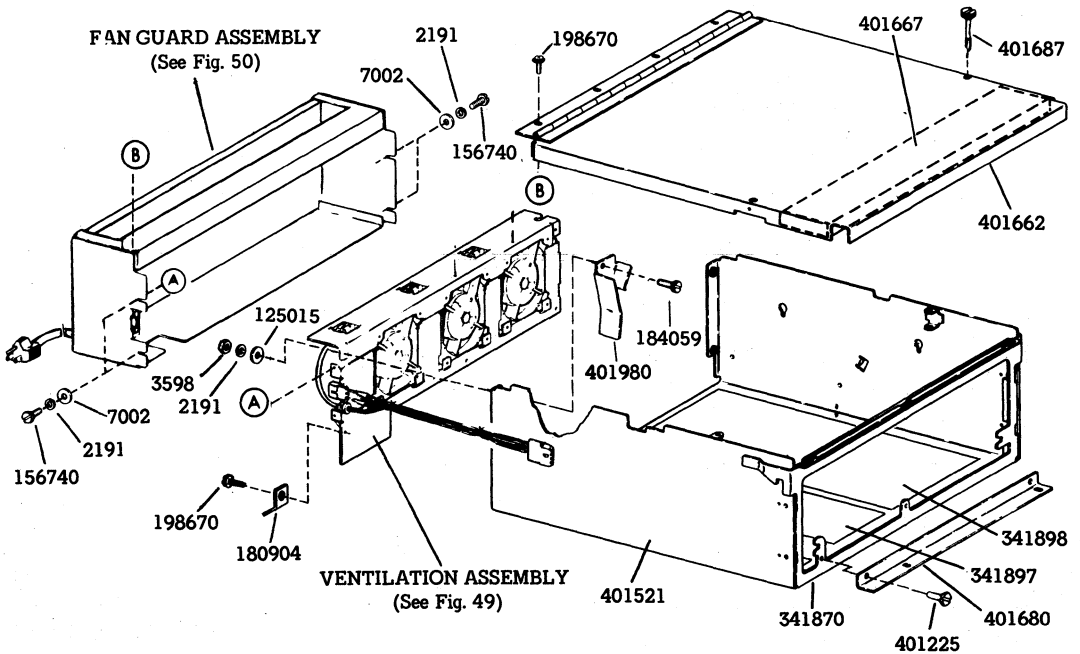
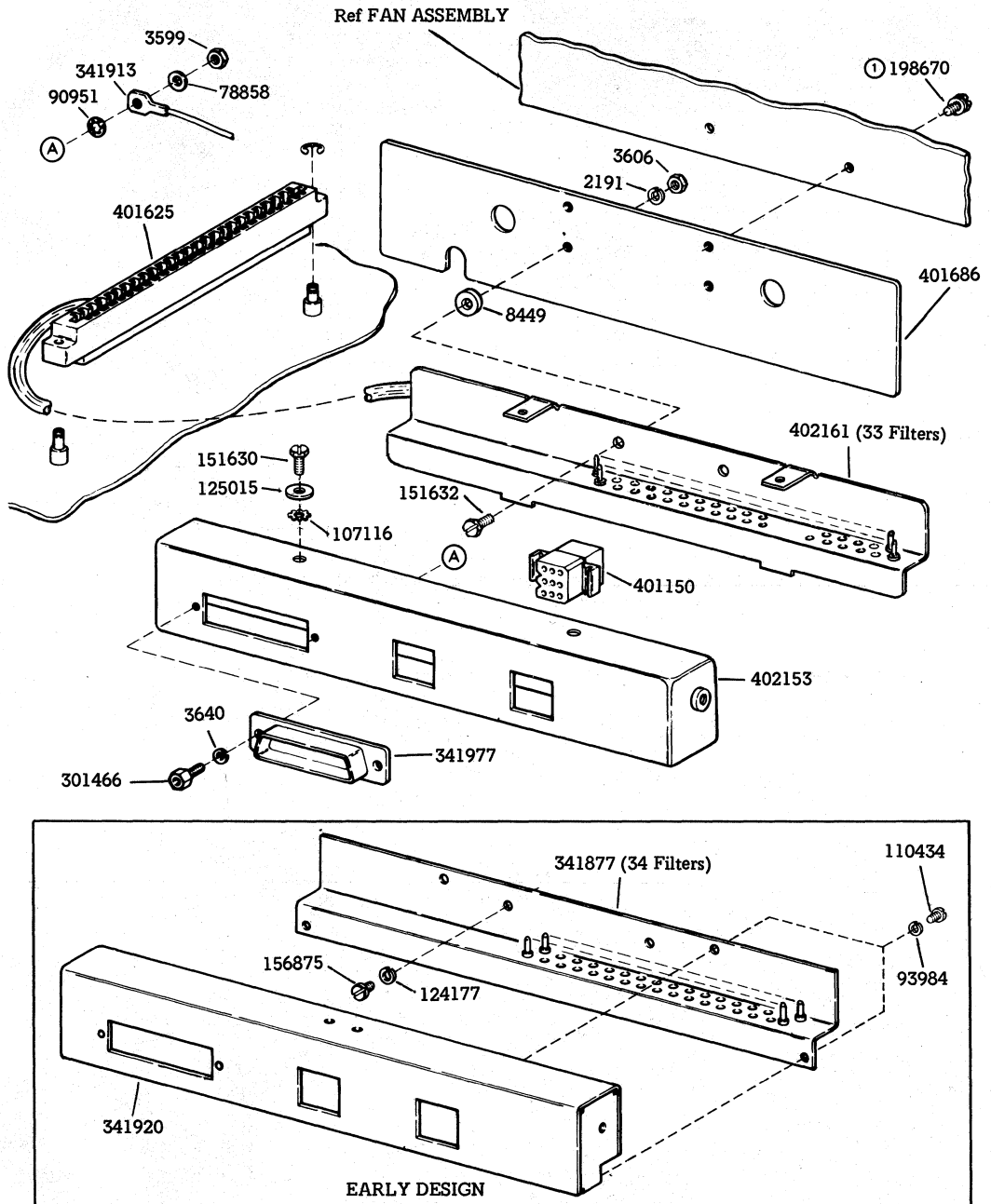


Fig. 47 - KDP Module Assembly for 40CAB901/AG Cabinet
(Air-flow Through Rear)



① Not Part of 401643

Fig. 48-401643 RO Controller Cable Assembly

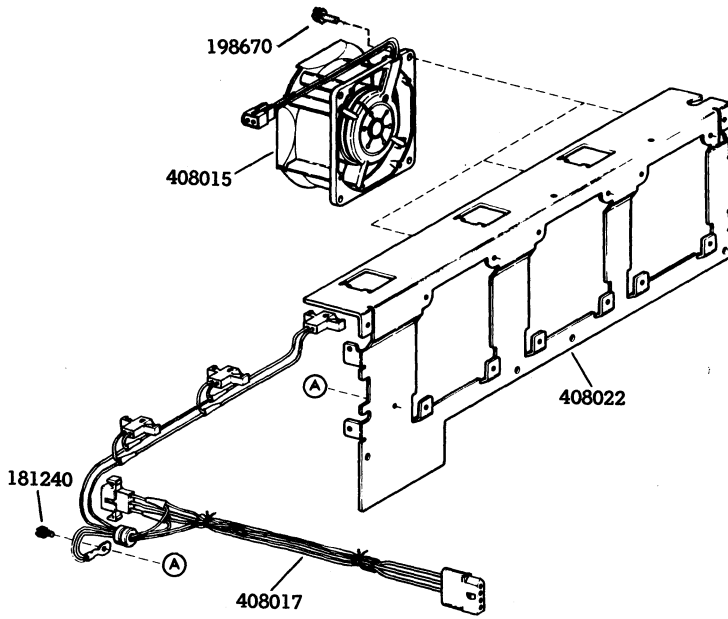


Fig. 49-408050 Ventilation Assembly

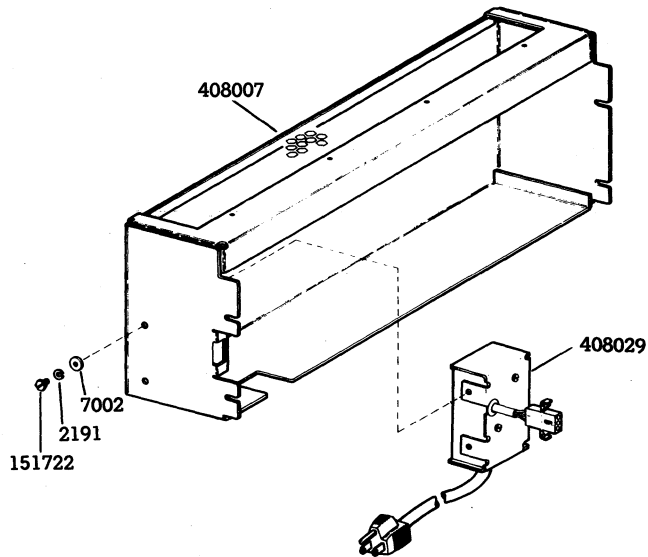


Fig. 50-408030 Fan Guard Assembly

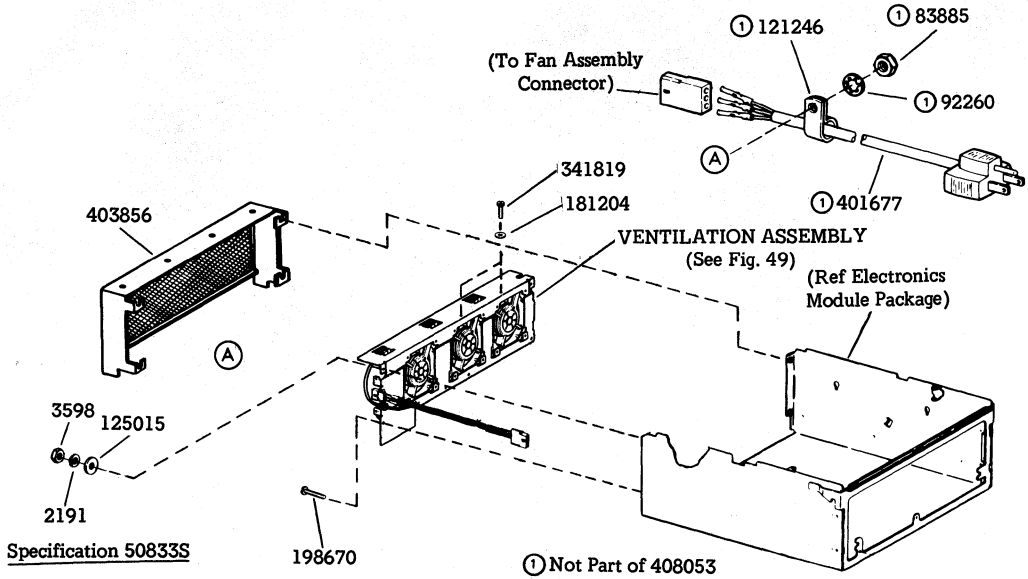


Fig. 51—408053 Modification Kit to Provide Ventilation Assembly to 40CAB901/AF, AG (Air-flow Through Bottom) and 40CAB902/AB Cabinets

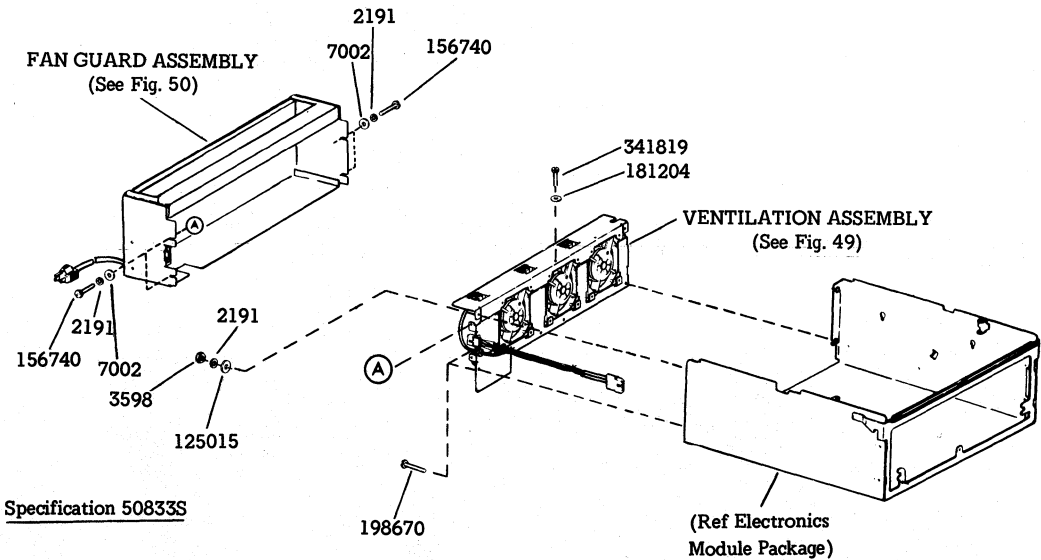


Fig. 52—408054 Modification Kit to Provide Ventilation Assembly to 40CAB901/AF and AG (Air-Flow Through Rear)

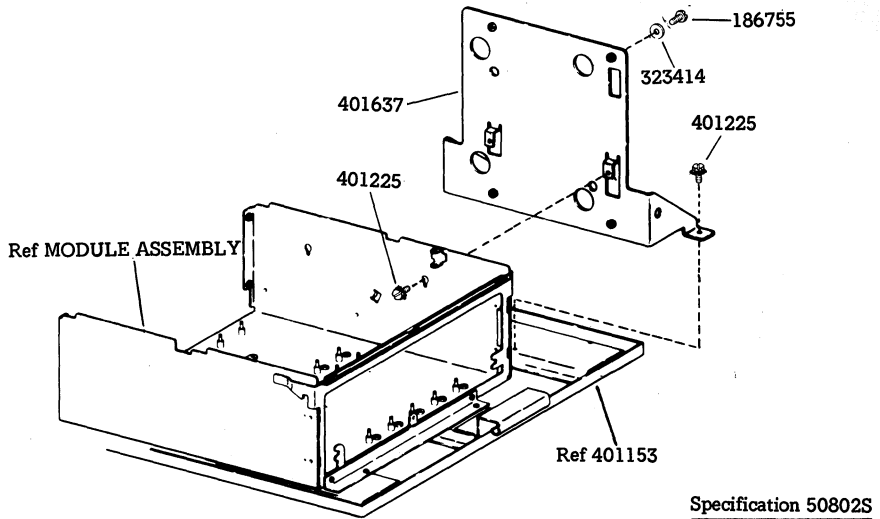
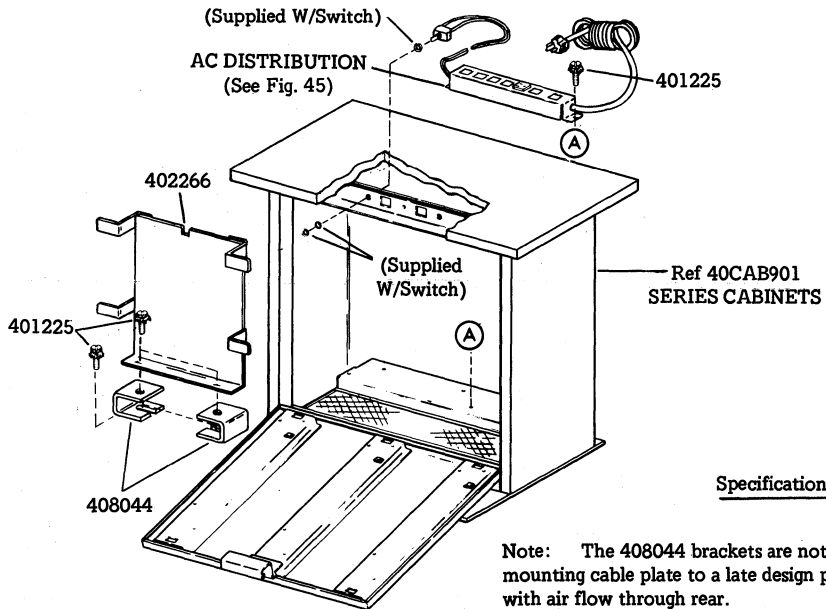
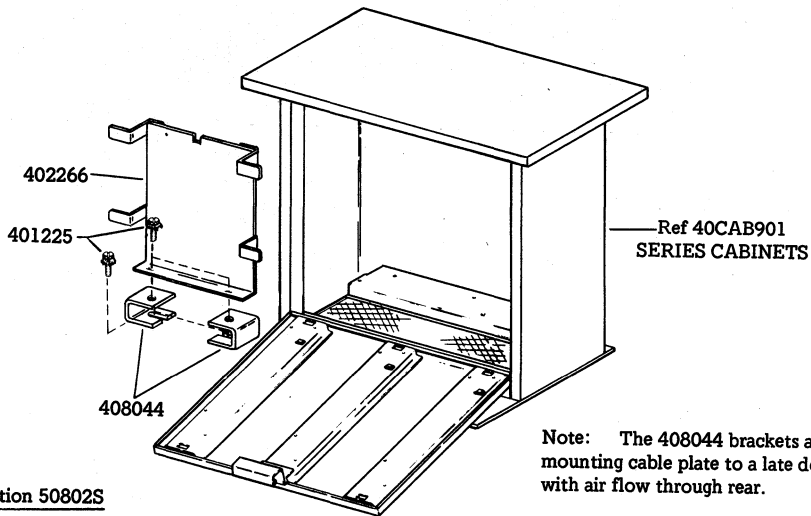


Fig. 53—401725 Modification Kit to Provide a Pedestal Type DATASPEED 40 Cabinet With Data Set 202D or 202R Mounting Facilities (40CAB901/XX)



Note: The 408044 brackets are not used when mounting cable plate to a late design pedestal with air flow through rear.

Fig. 54—408045 Modification Kit to Provide a Pedestal With AC Power Distribution, Terminal Block, Transformer Mounting Facility and Cable Storage



Specification 50802S

Fig. 55—408047 Modification Kit to Provide Cable Storage Facilities

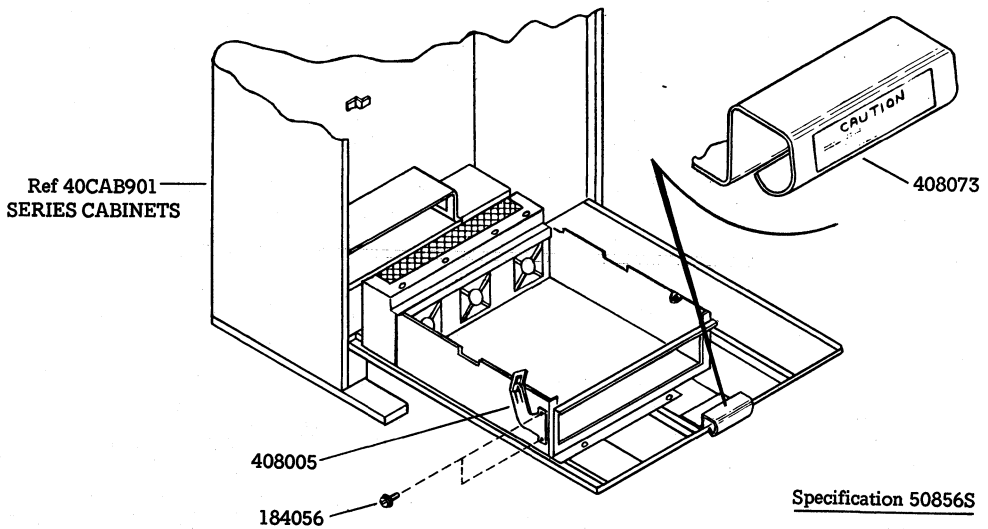


Fig. 56—408049 Modification Kit to Provide Warning Latch and Label

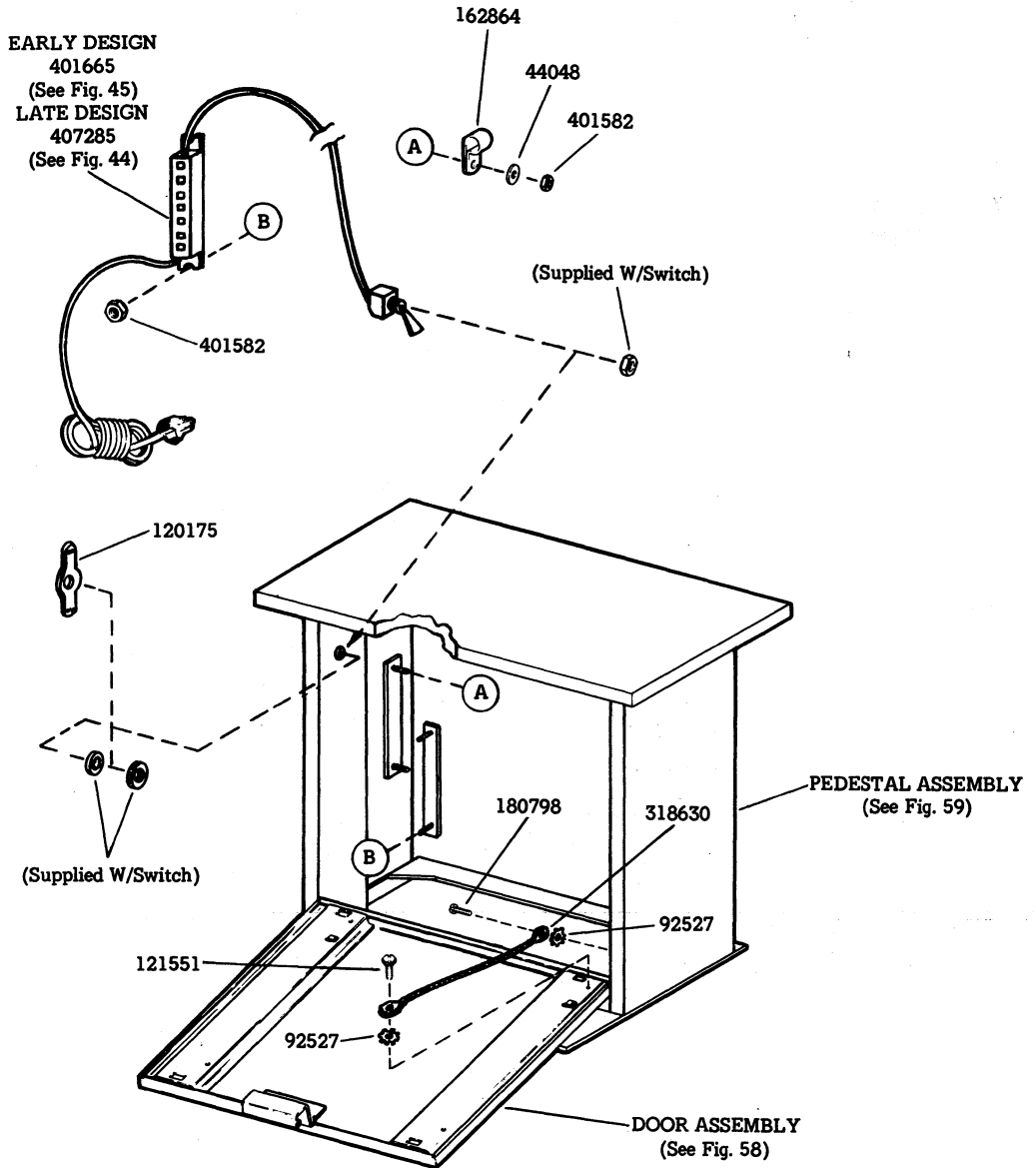


Fig. 57-40CAB902/XX Cabinet (Pedestal Type)

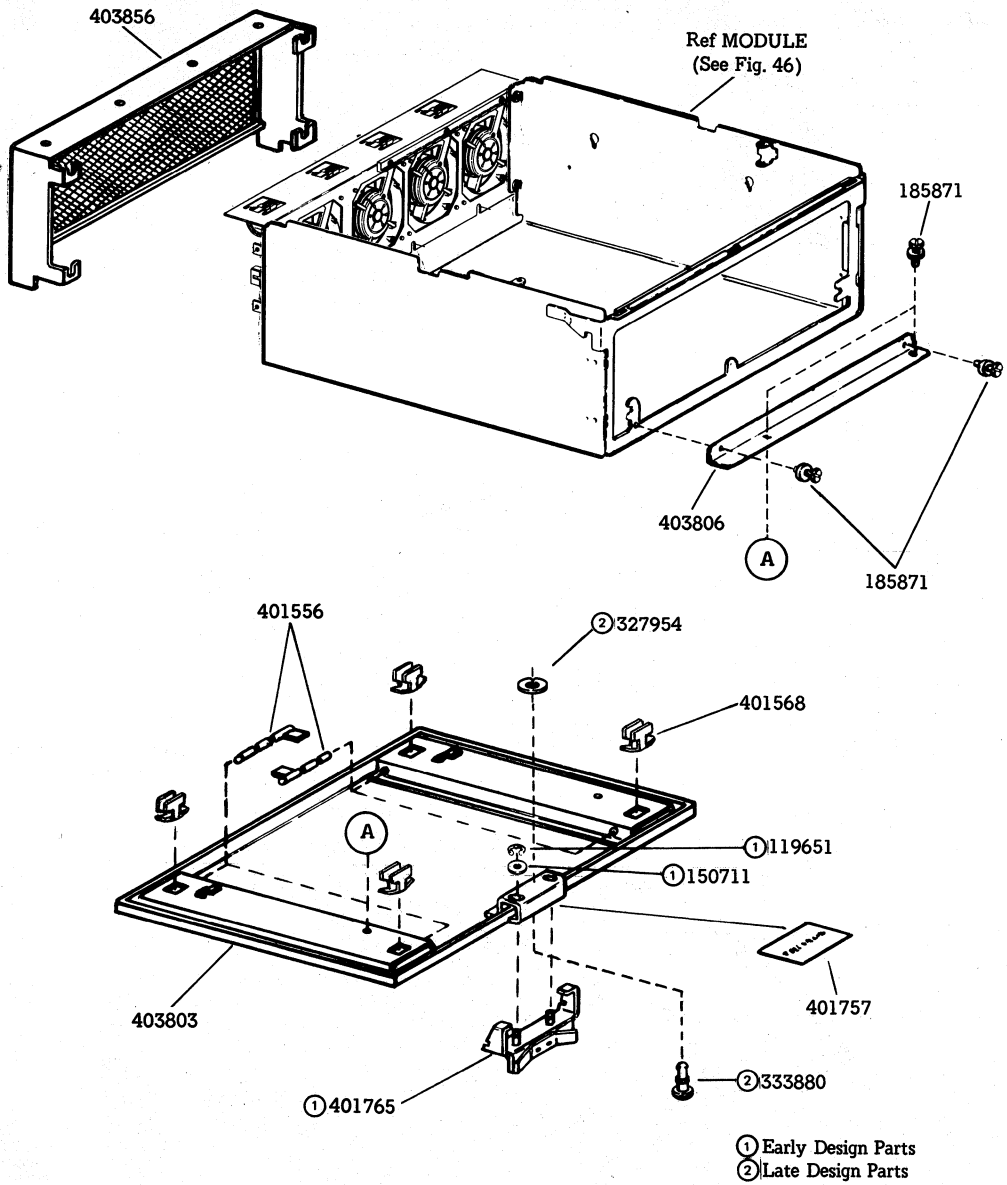
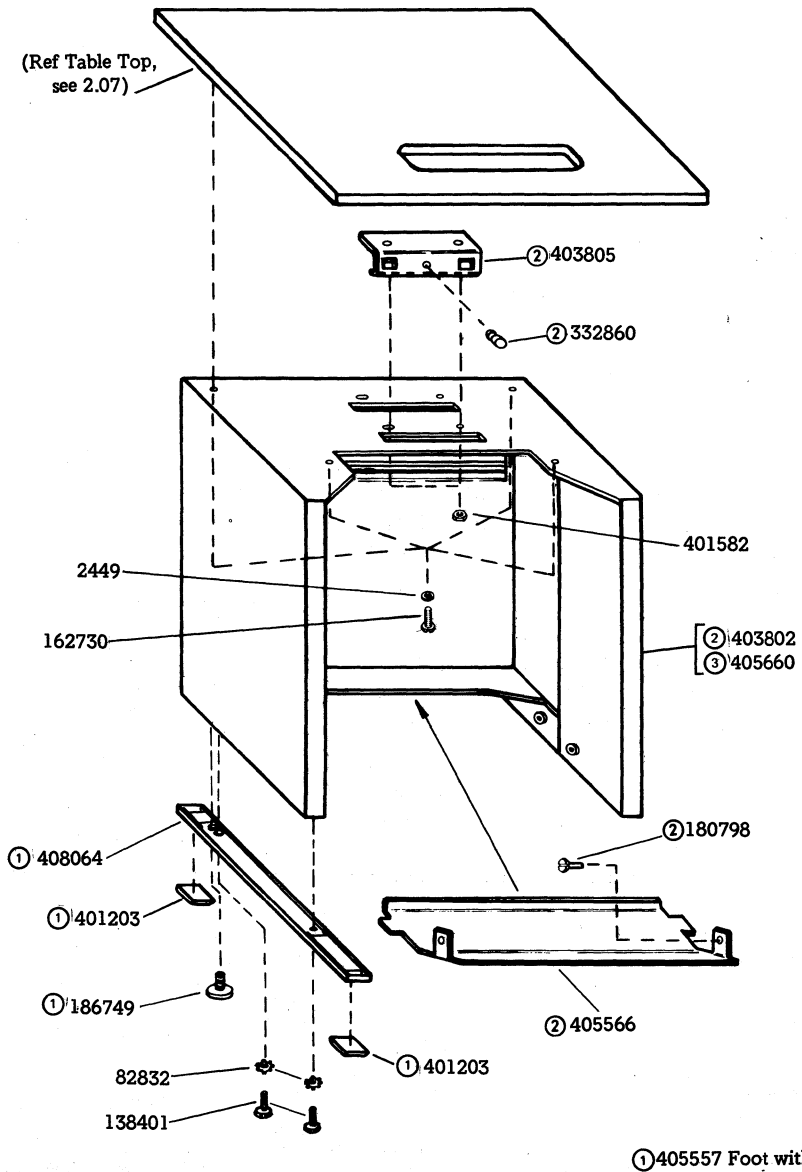


Fig. 58—Pedestal Door and Module



- ② Peculiar to 40CAB902
- ③ Peculiar to 40CAB904

Fig. 59—40CAB902 and 40CAB904 Pedestals

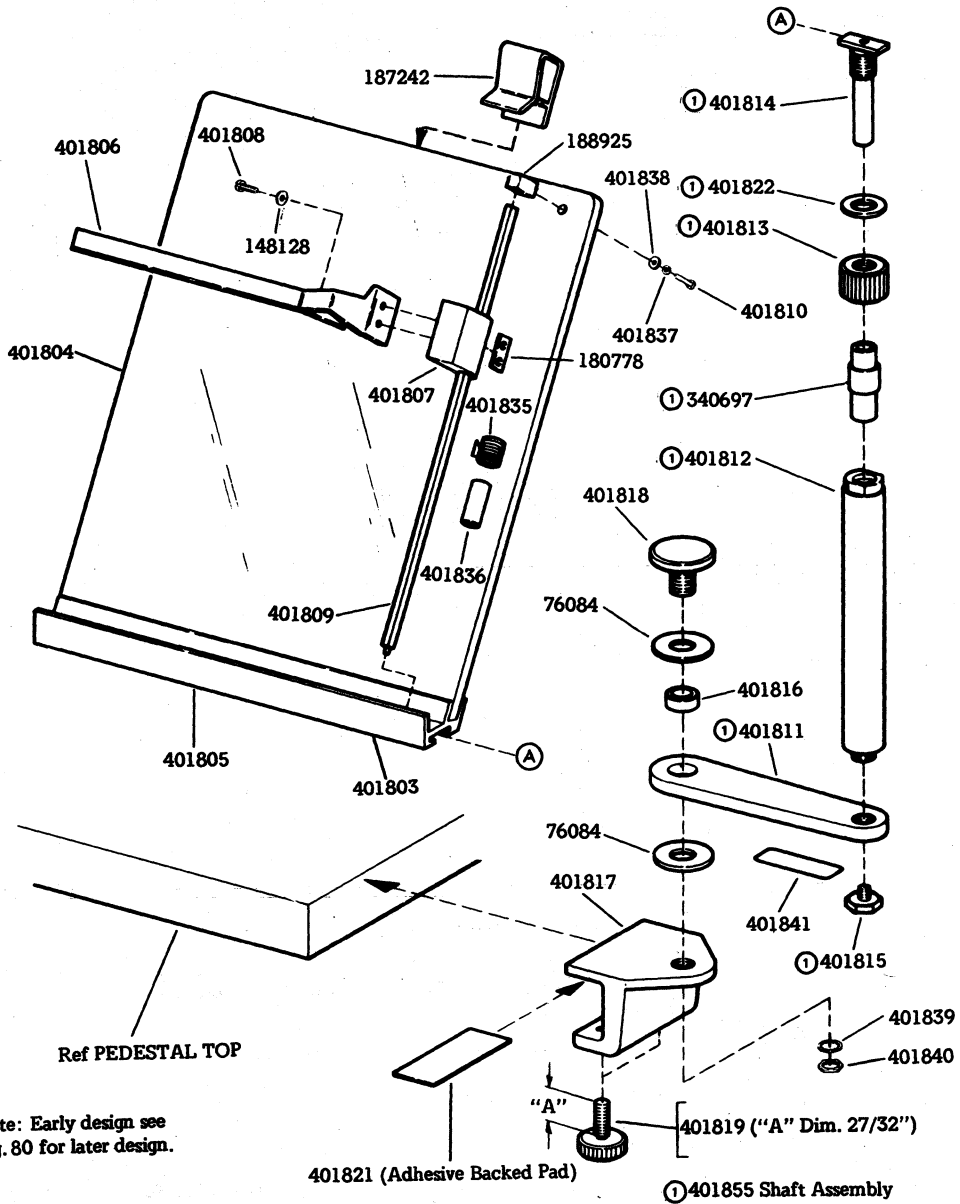


Fig. 60-401200 DATASPEED 40 Copyholder (Early Design)

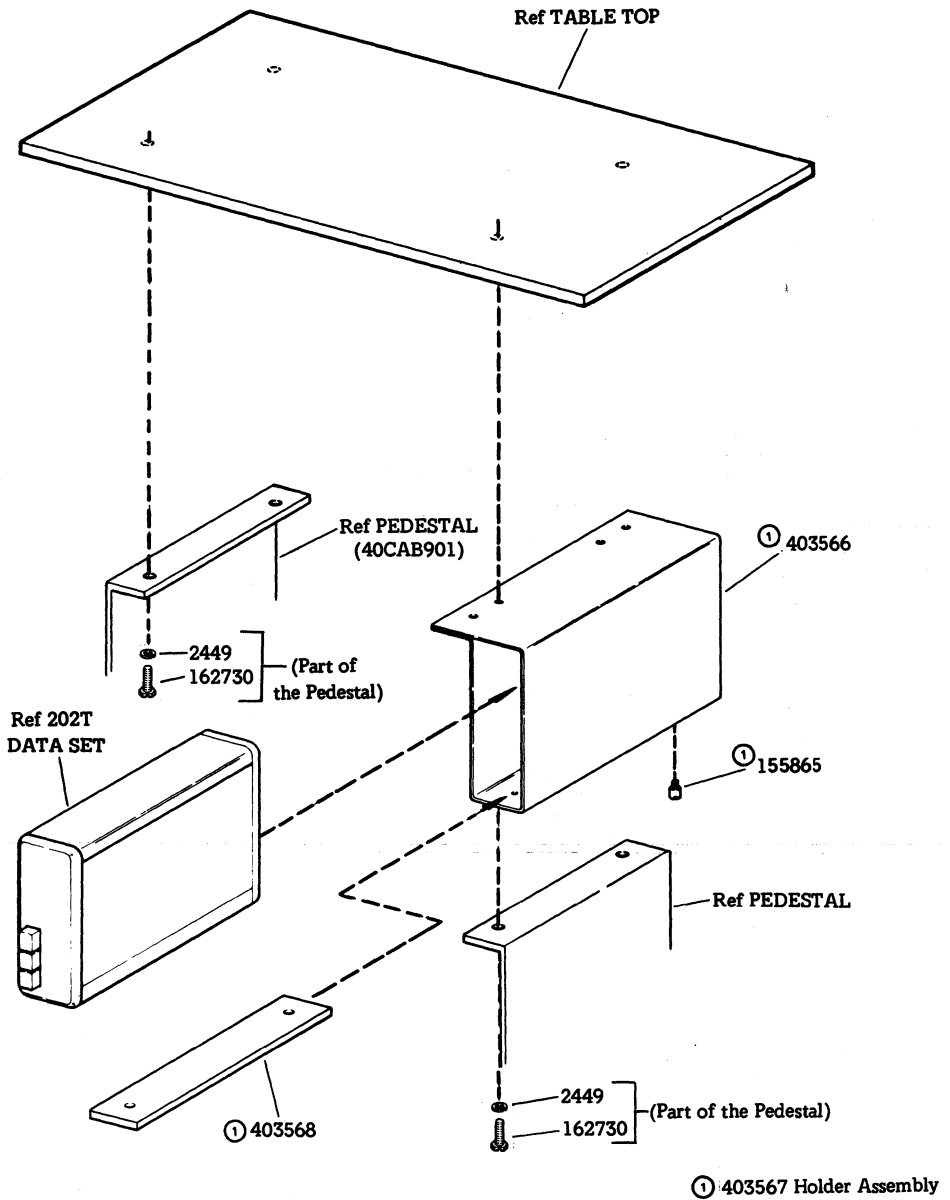


Fig. 61—403567 Holder Assembly for Mounting a Data Set 202S or 202T to a Pedestal Type DATASPEED 40 Cabinet

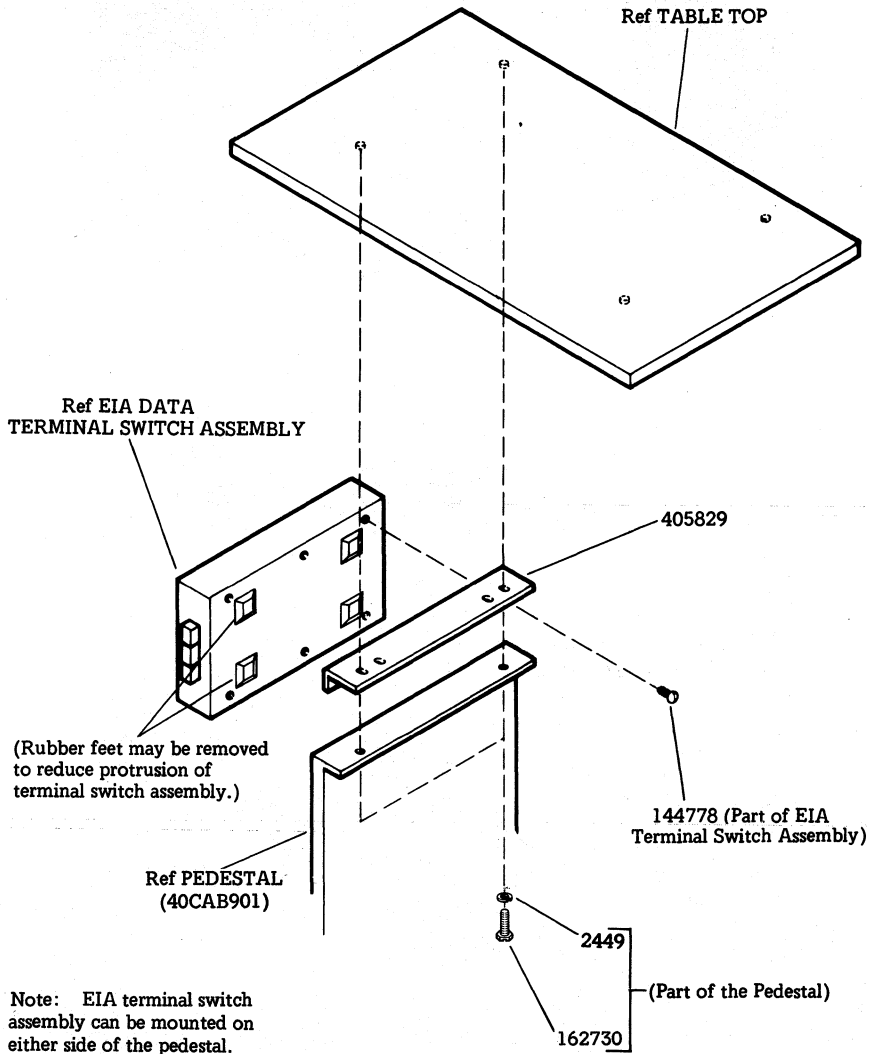


Fig. 62—Mounting for the 345630 EIA Terminal Switch Assembly

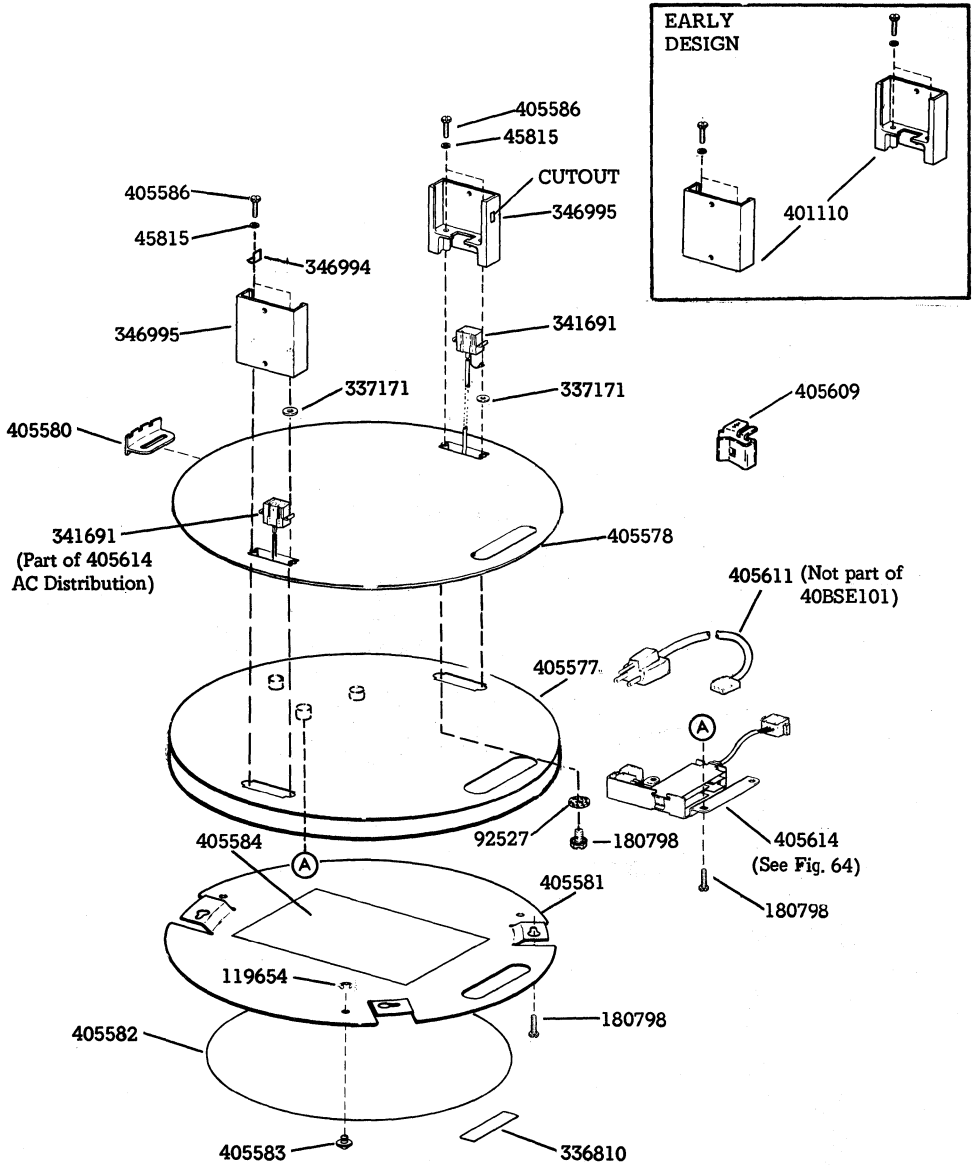


Fig. 63-40BSE101 Monitor Base

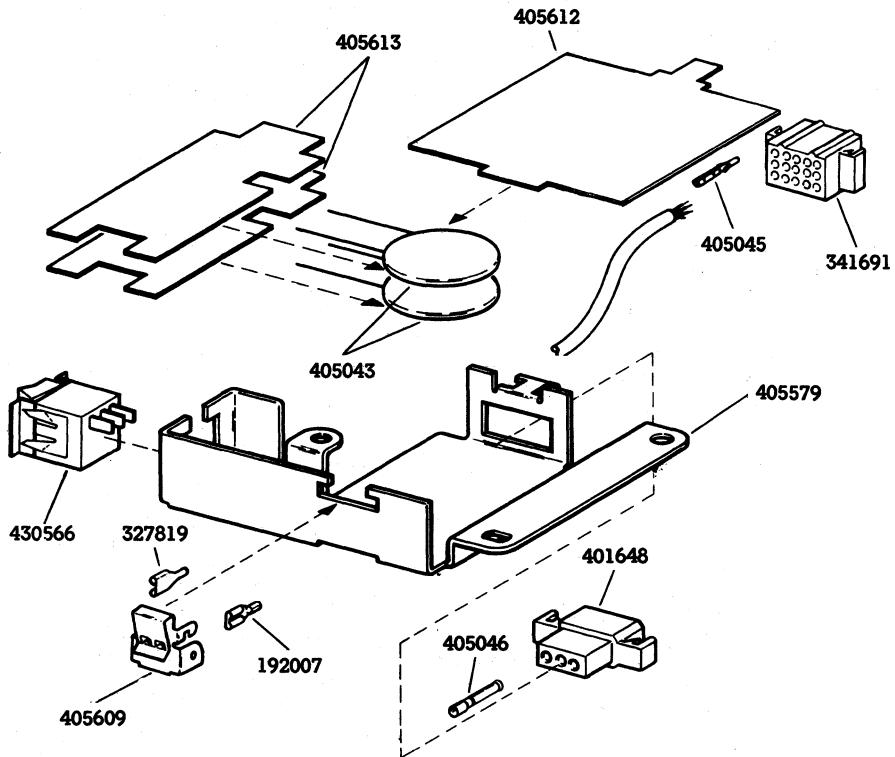


Fig. 64-405614 AC Distribution Assembly

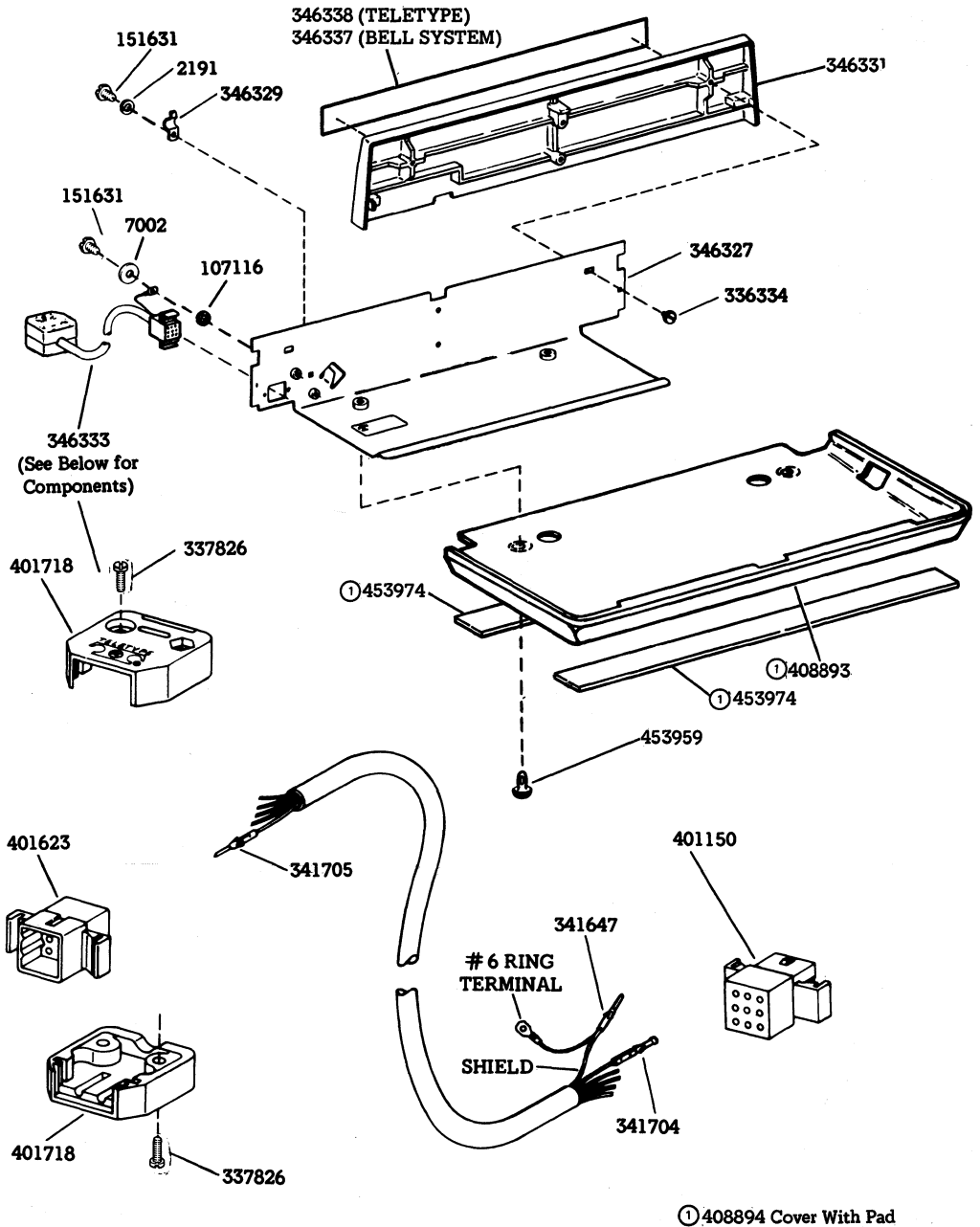


Fig. 65-40BSE201 Operator Console (KD) Base

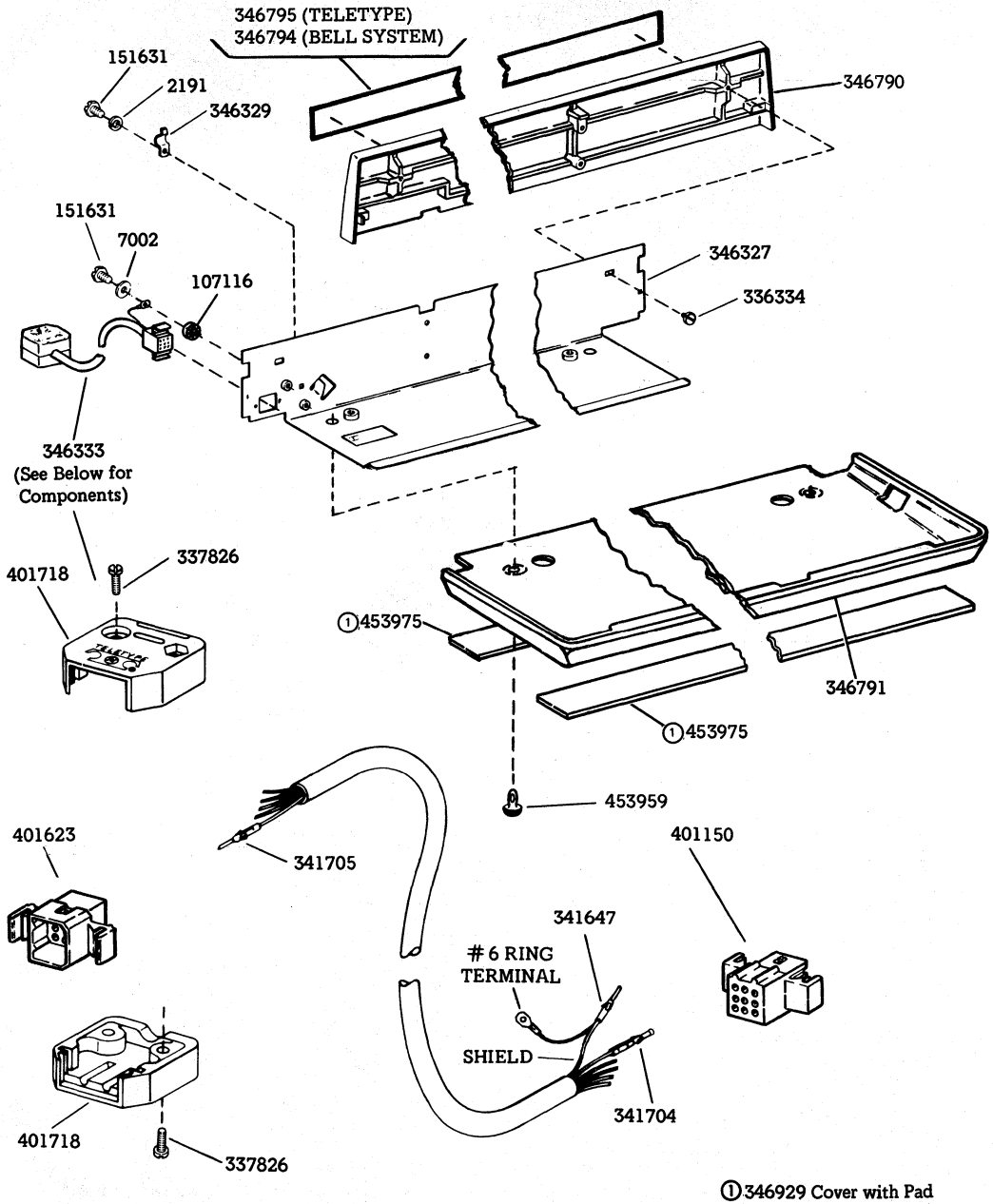


Fig. 66-40BSE202 Operator Console (KD) Wide Base

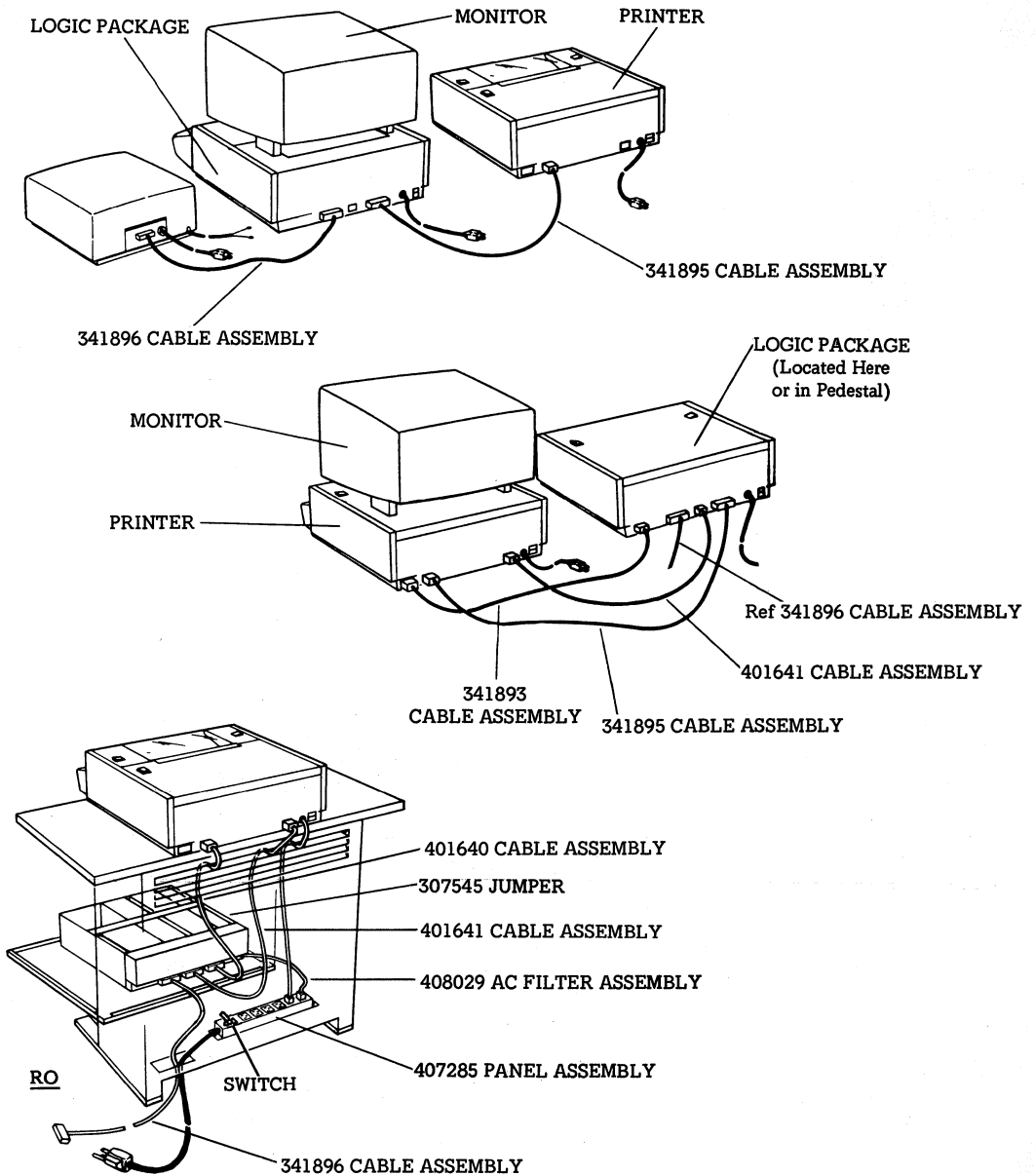


Fig. 67 - Interconnecting Cables for KDP and RO Sets

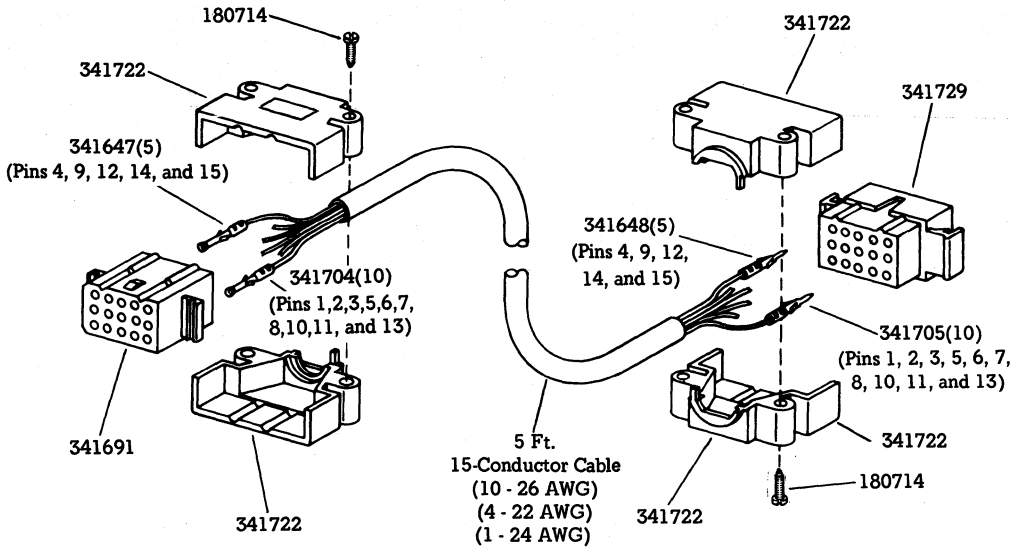


Fig. 68—341893 Monitor Extension Cable Assembly

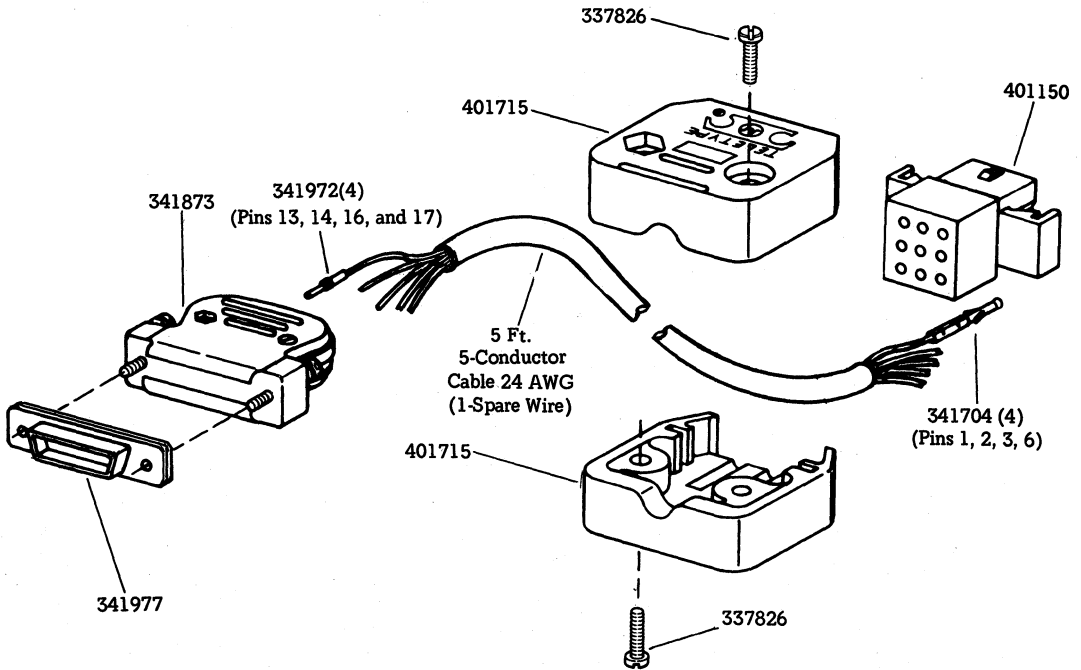


Fig. 69—341895 Printer Extension Cable Assembly

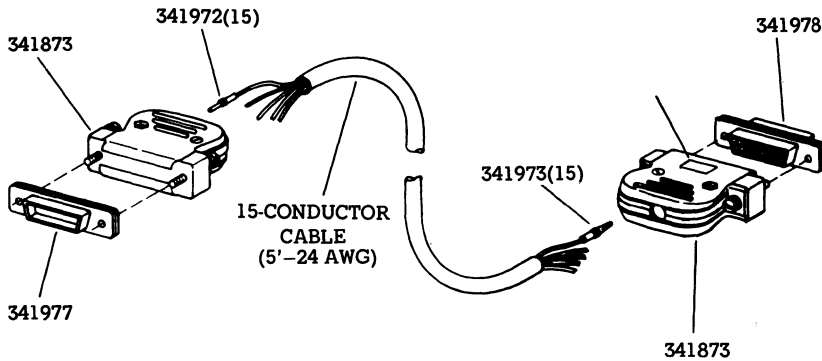
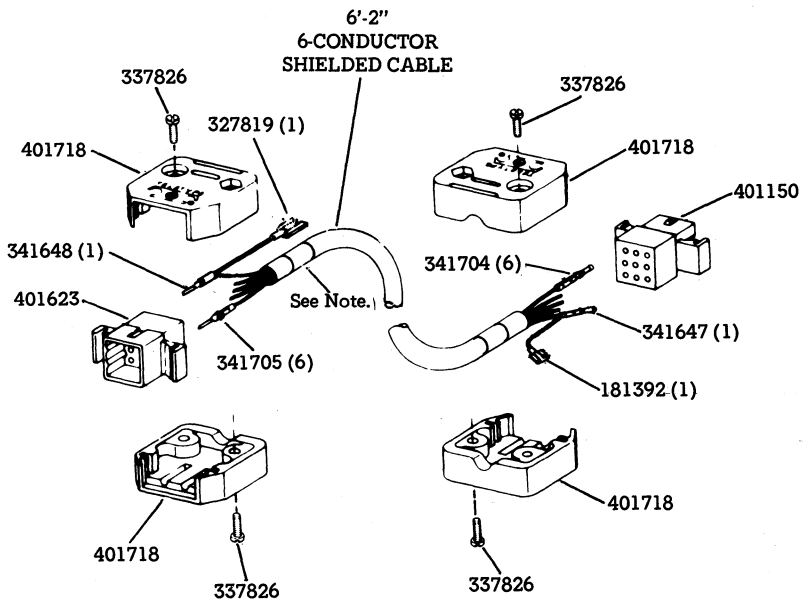
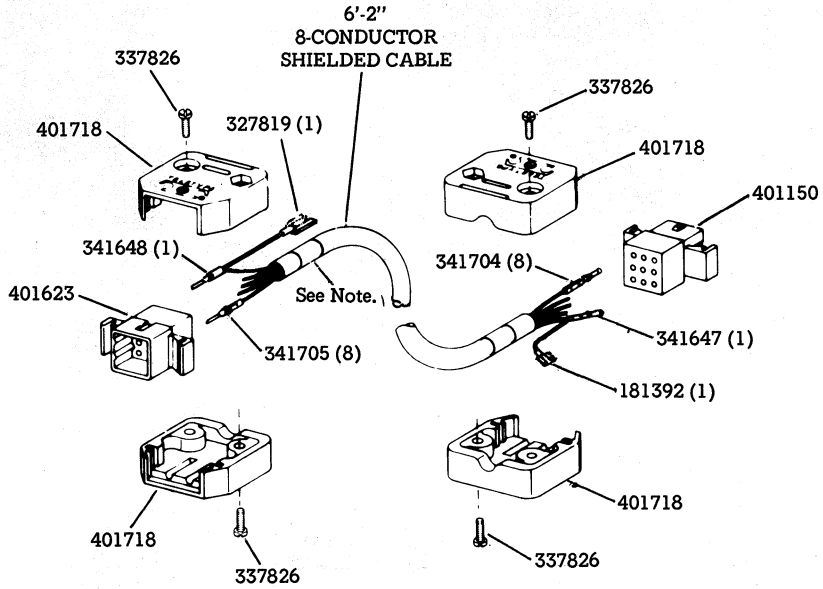


Fig. 70—341896 Data Set Cable Assembly



Note: Cable marker at each end identifies part number of cable.

Fig. 71—401640 Printer Extension Cable Assembly



Note: Cable marker at each end identifies part number of cable.

Fig. 72-401641 Opcon Extension Cable Assembly

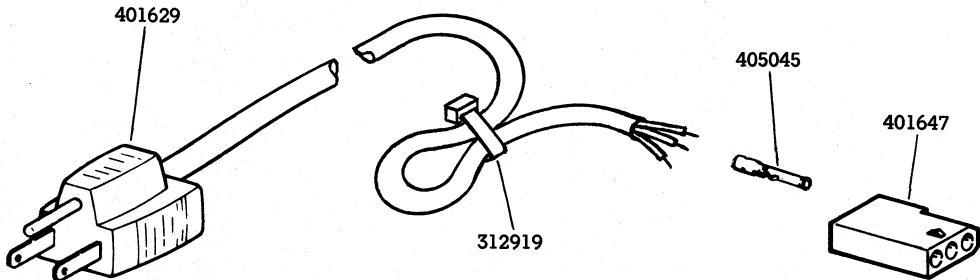


Fig. 73-405611 AC Cord Assembly

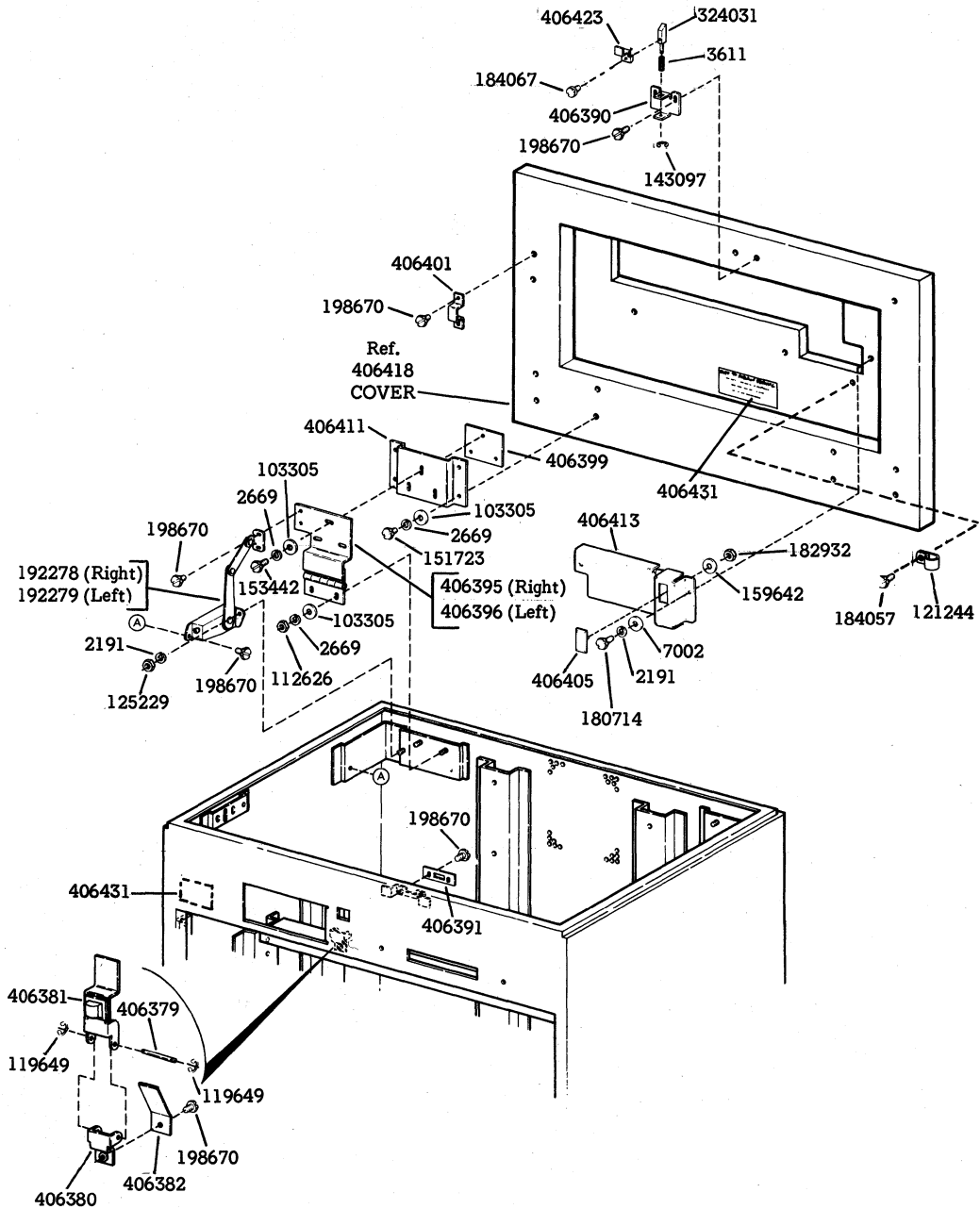


Fig. 74-40CAB302/ZZ Printer Cabinet Core for Forms Access Printer Cabinet (Cont)

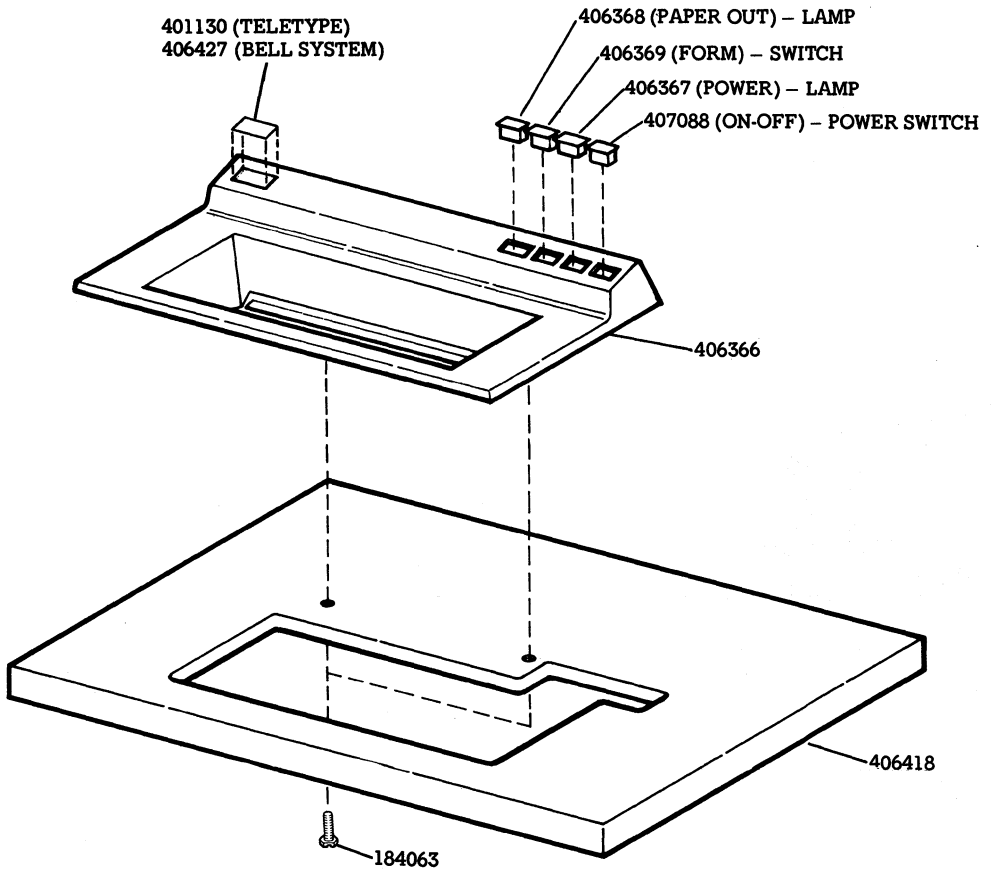


Fig. 74-40CAB302/ZZ Printer Cabinet Core for Forms Access Printer Cabinet (Cont)

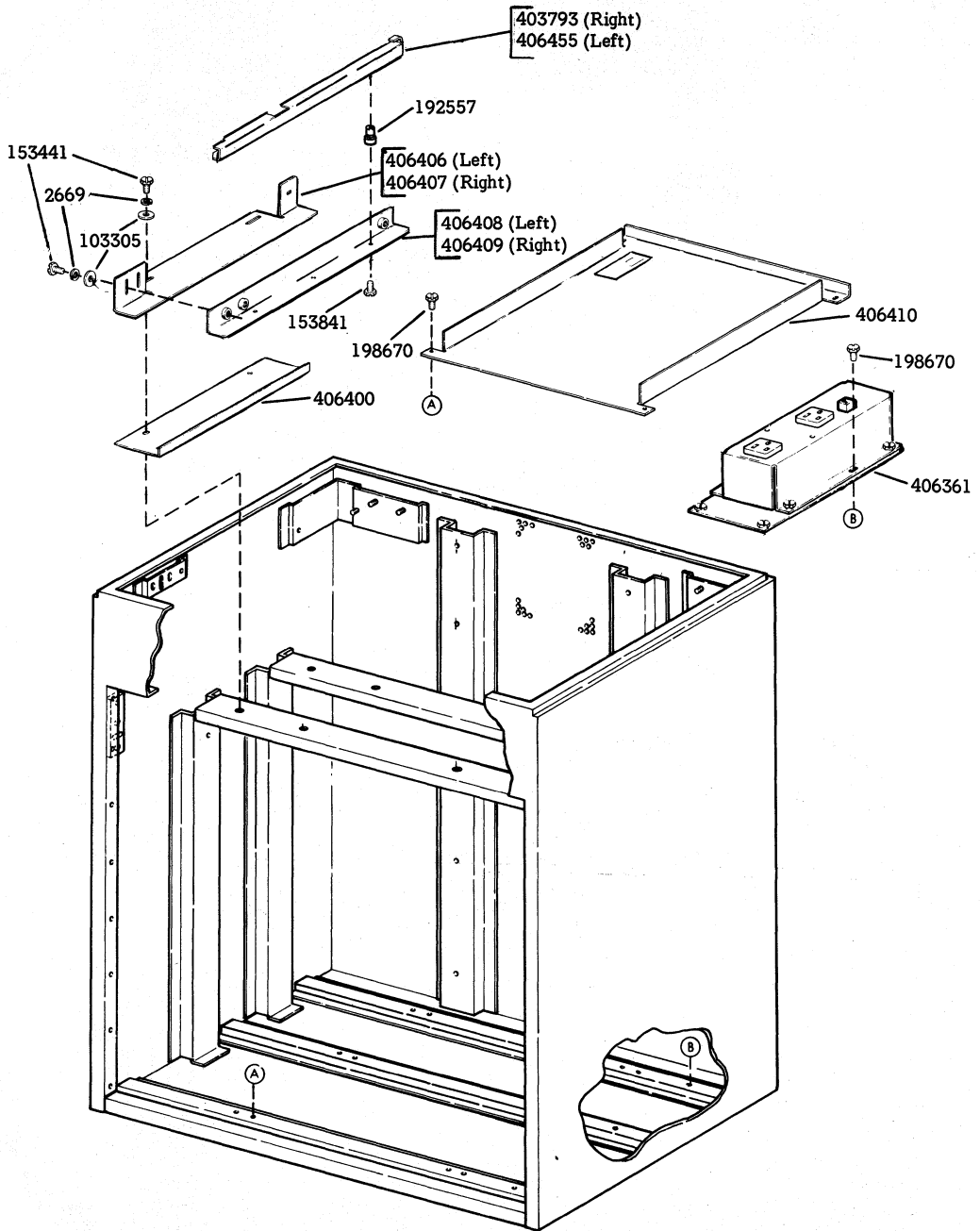
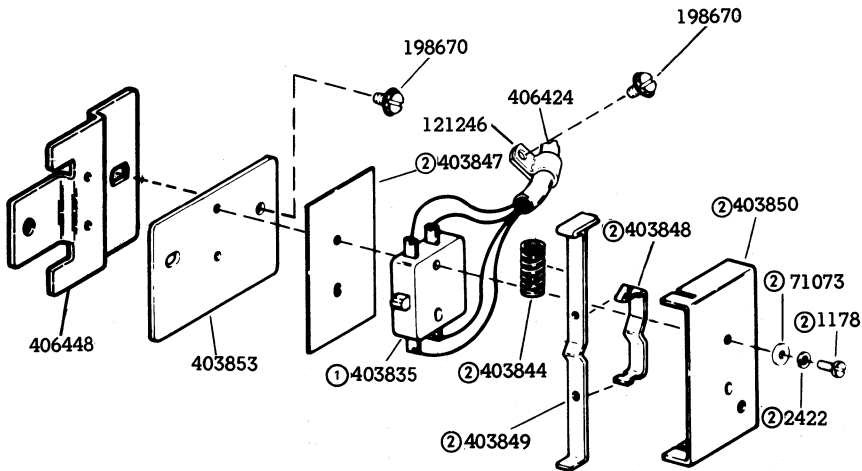
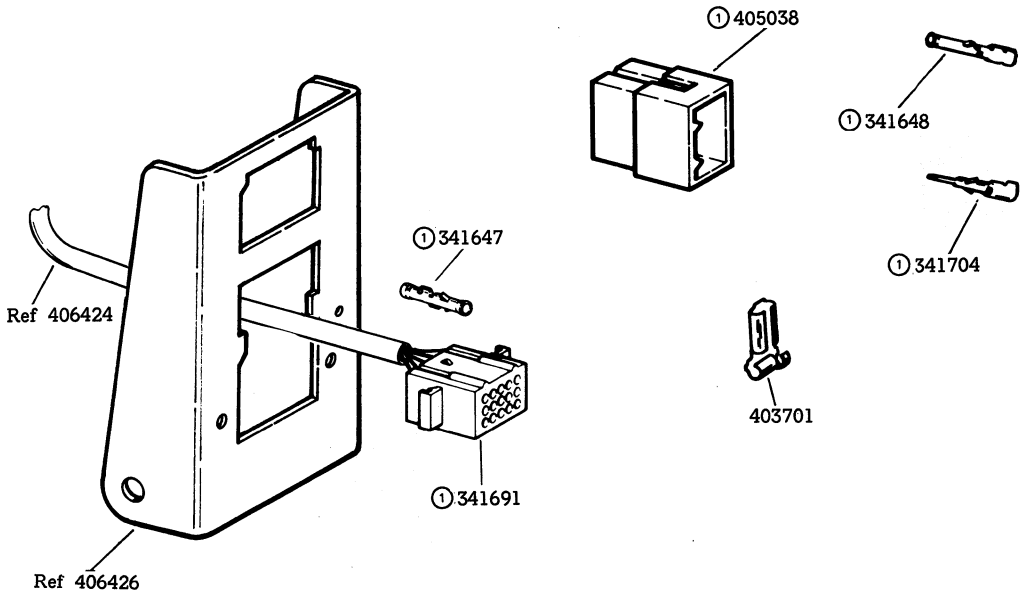
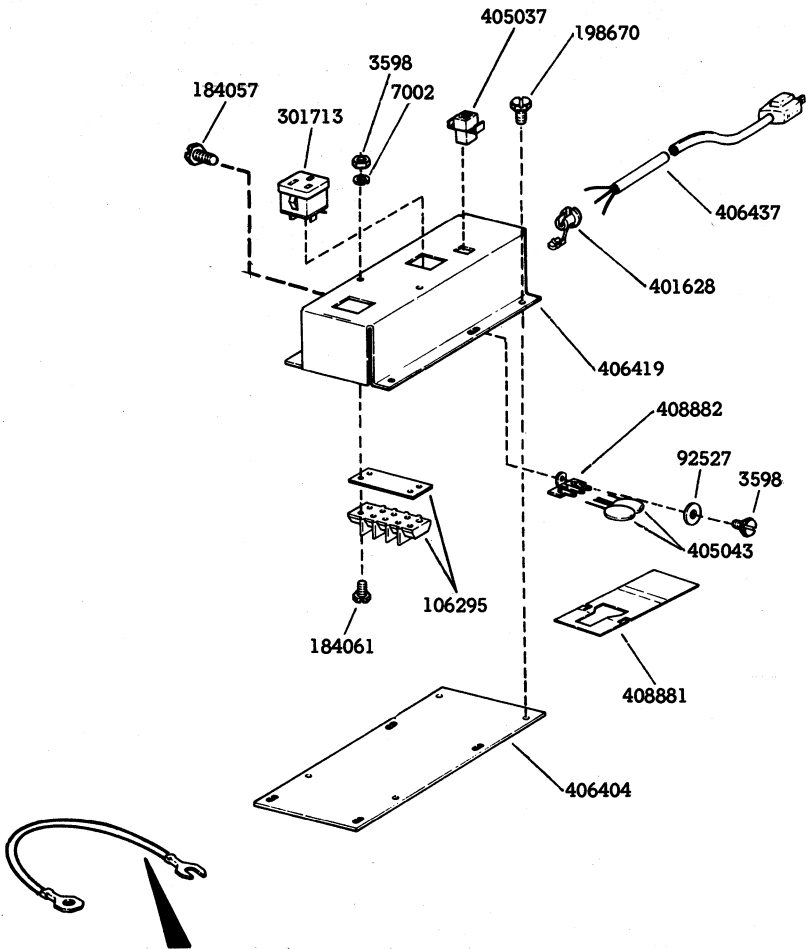


Fig. 74-40CAB302/ZZ Printer Cabinet Core for Forms Access Printer Cabinet (Cont)



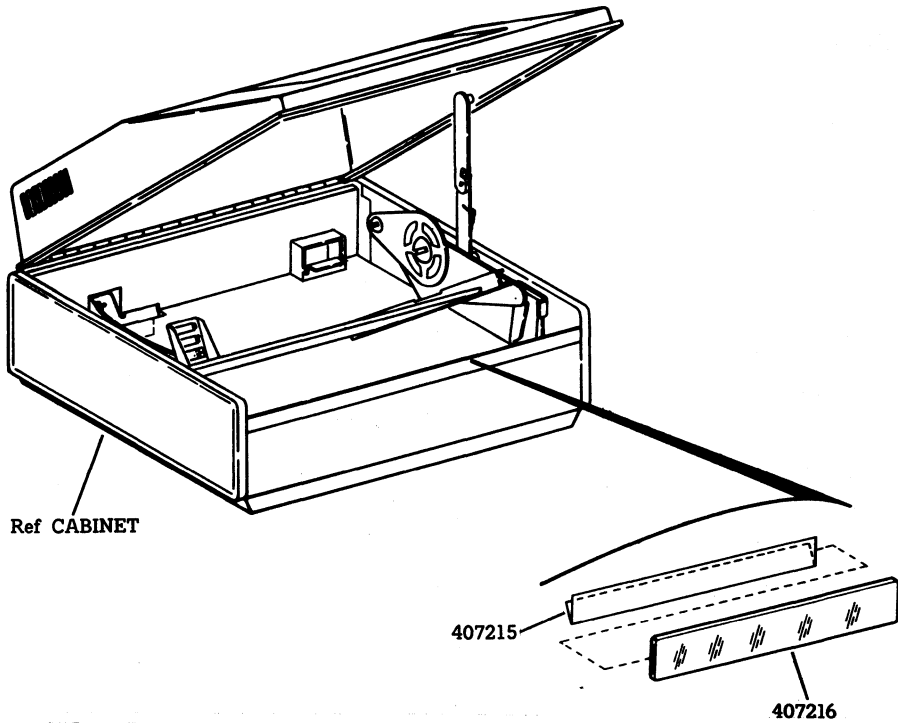
- ① Part of 406424 Cable
- ② 406442 Interlock Switch Assembly

Fig. 75-406432 Cable Assembly



STRAP NO.	COLOR	LENGTH	TERMINAL
188990	W	5"	2
188993	G	4"	2
188989	BK	5 1/2"	2
312574	BK	6"	1
318630	Braided	6"	2
325911	G	6-1/2"	1
326755	G	3-1/2"	1
406360	G	3-1/2"	2
406362	W	7"	3
406363	G	3"	1
406364	BK	5"	2
406365	W	5"	1

Fig. 76-406361 AC Distribution Assembly



Note: The following 40-type units could make use of the 407216 holder and 407215 label:

- 40CAB201/AA, AC
- 40CAB251/AA, AB, AC
- 40CAB351/AA, AB, AC, AD, AE
- 40CAB353/AA, AB, AC, AD
- 40CAB371/AA, AB

Fig. 77—Label and Label Holder for 40-Type Terminals

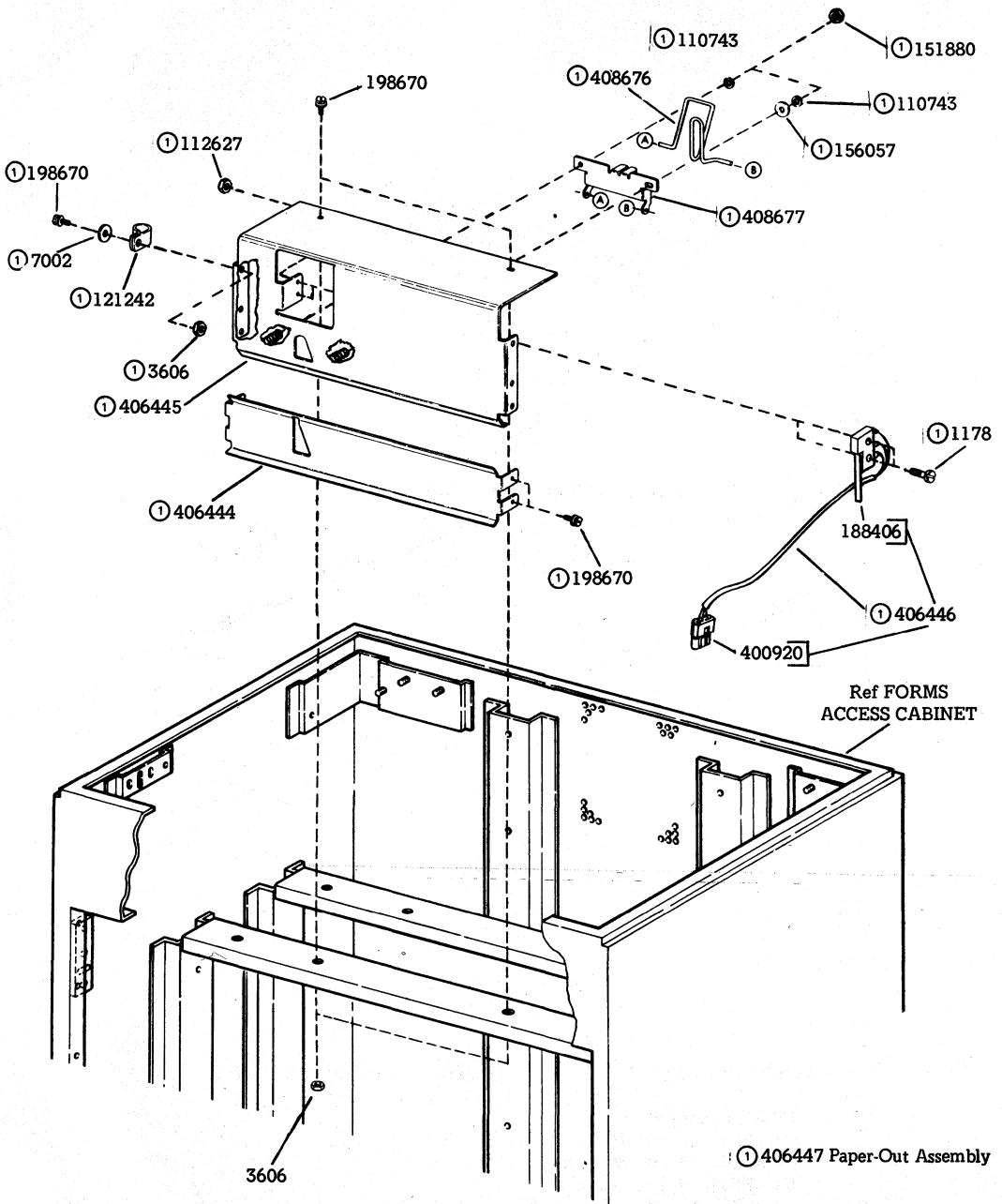
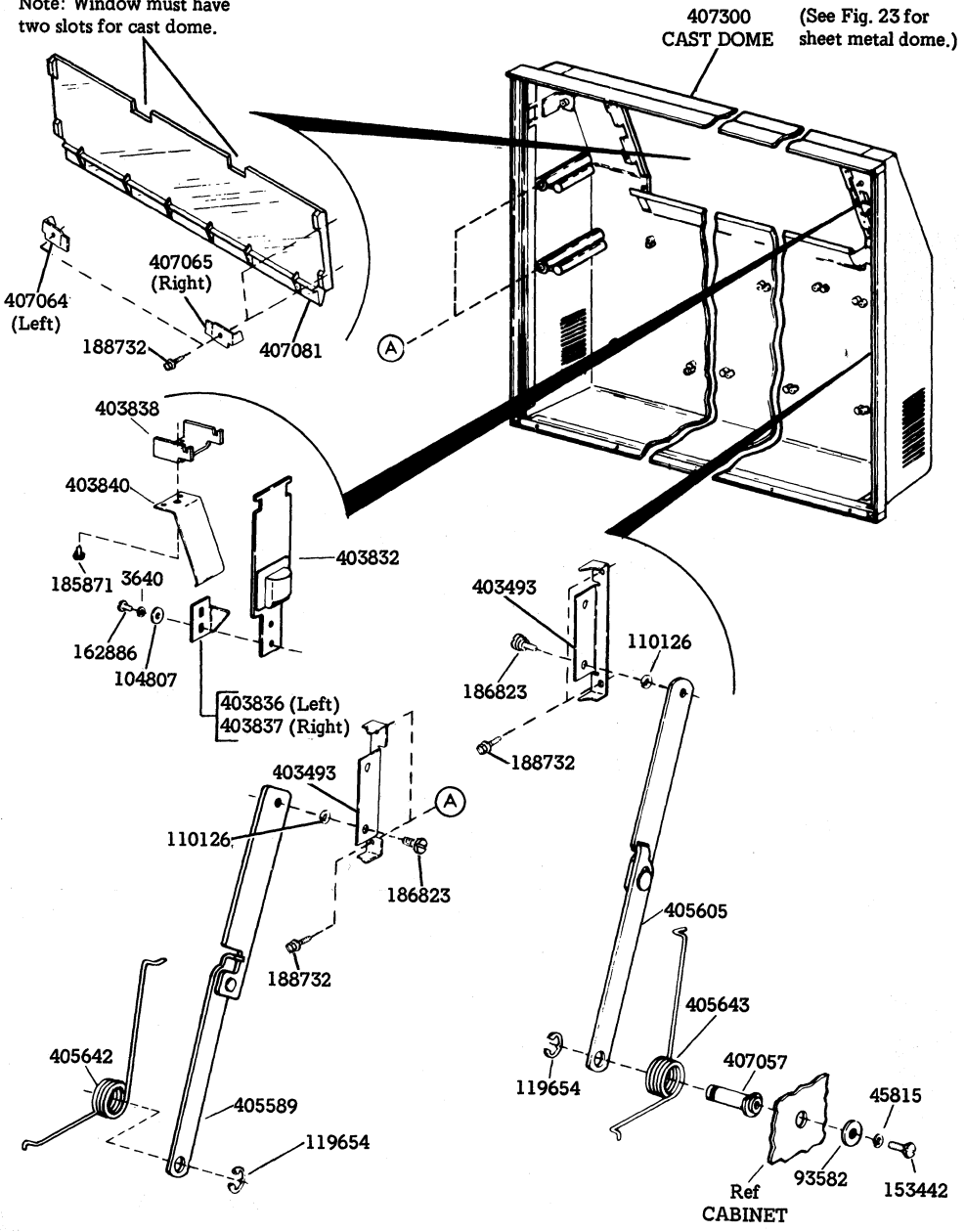


Fig. 78—406374 Modification Kit to Provide Paper-Out Contact Closure 11 Inches Below Print Line in the Forms Access Printer Cabinet

Note: Window must have two slots for cast dome.



Dome - Cast Aluminum

Fig. 79-40CAB353/YZ Printer Cabinet Core for Adjacent or RO Tractor Feed Printer - 132 Column

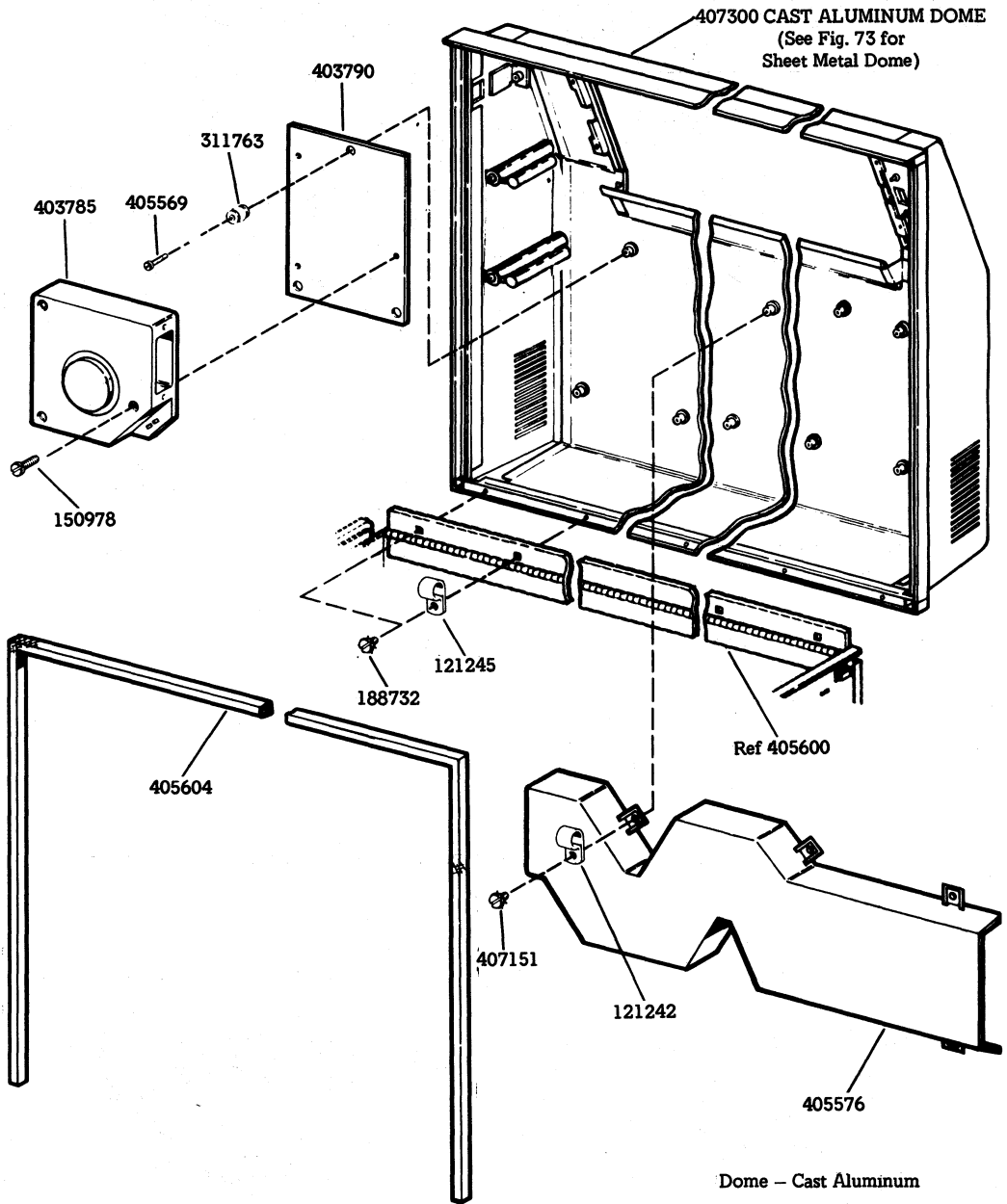
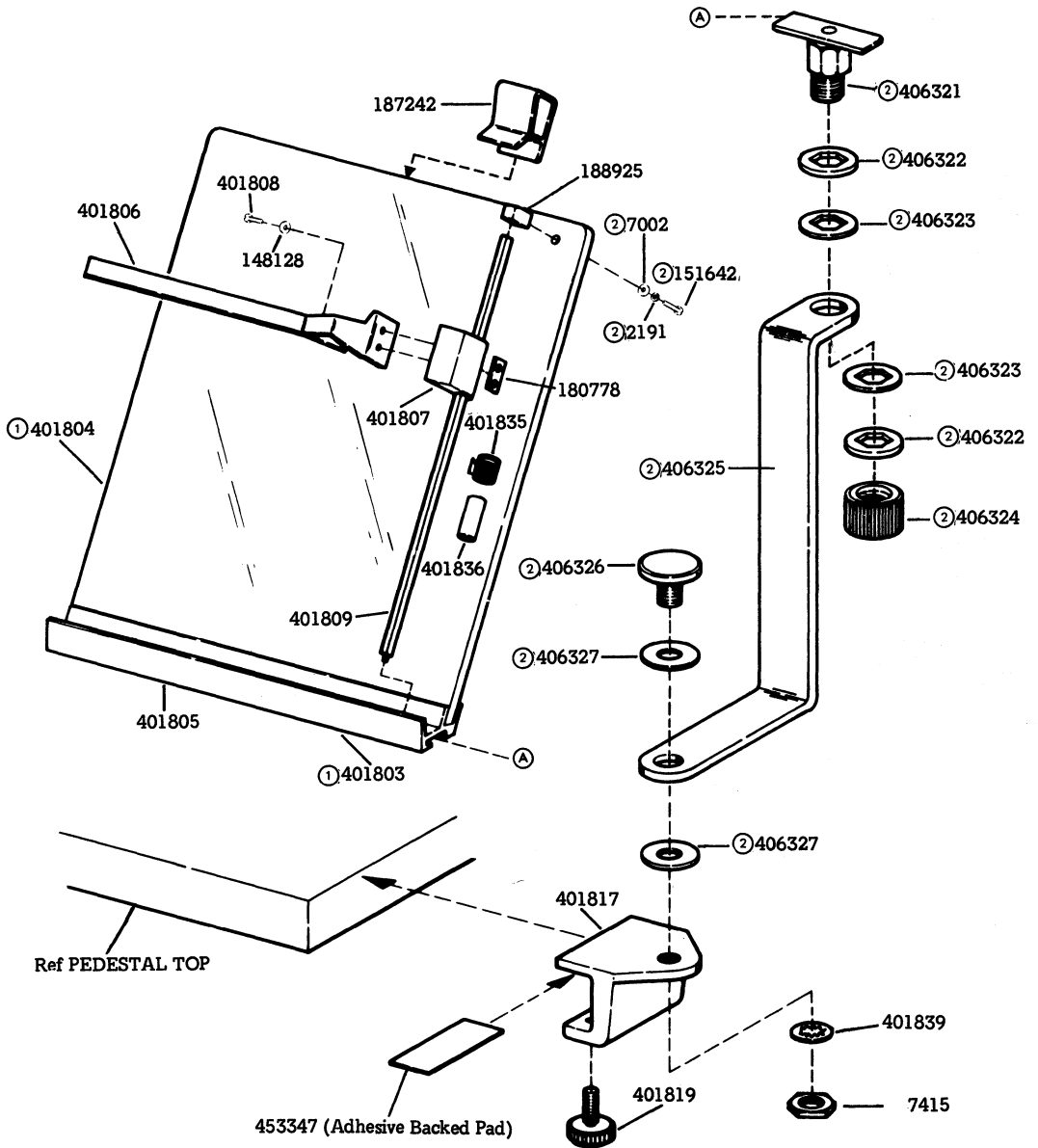


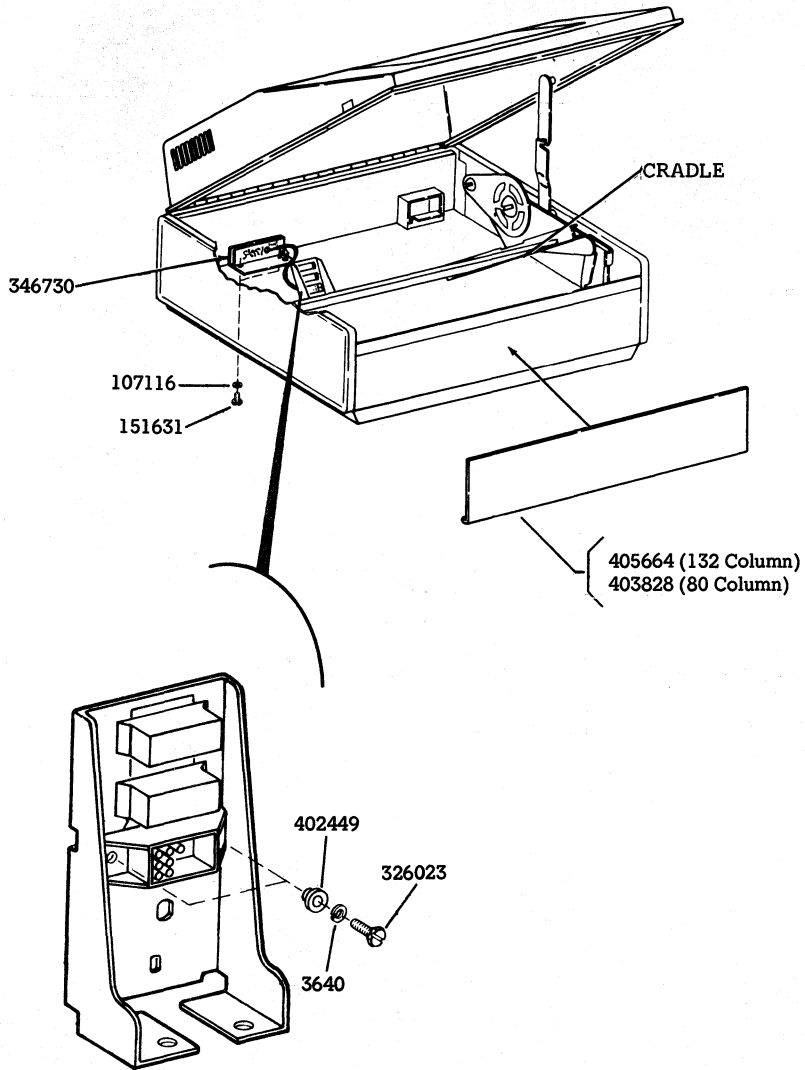
Fig. 79-40CAB353/YZ Printer Cabinet Core for Adjacent or RO Tractor Feed Printer - 132-Column (Cont)



Note: Late design see Fig. 60 for early design.

1 401805 backboard assembly.
2 Parts used on later design copynolder.

Fig. 80—401200 DATASPEED 40 Copyholder (Late Design)



Specification 50878S

Fig. 81 - 346731 (132) and 346731 (80) Modification Kits to Provide OEM Interface for DATASPEED 40 Tractor Feed Cabinet

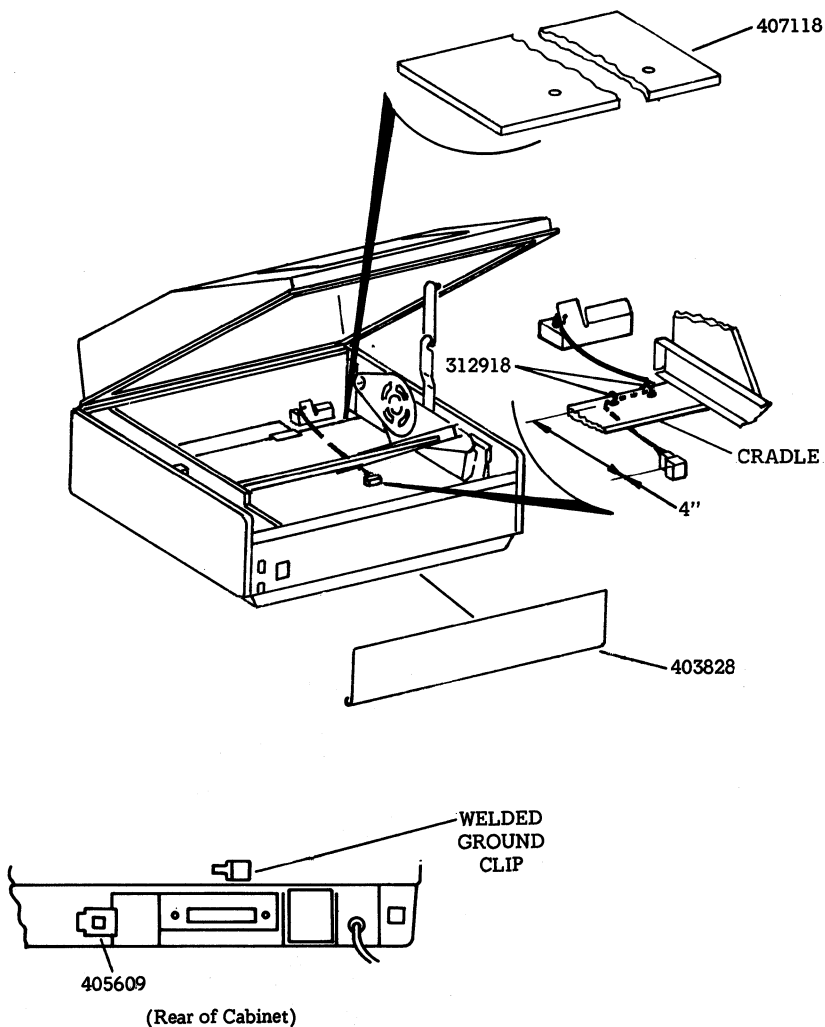
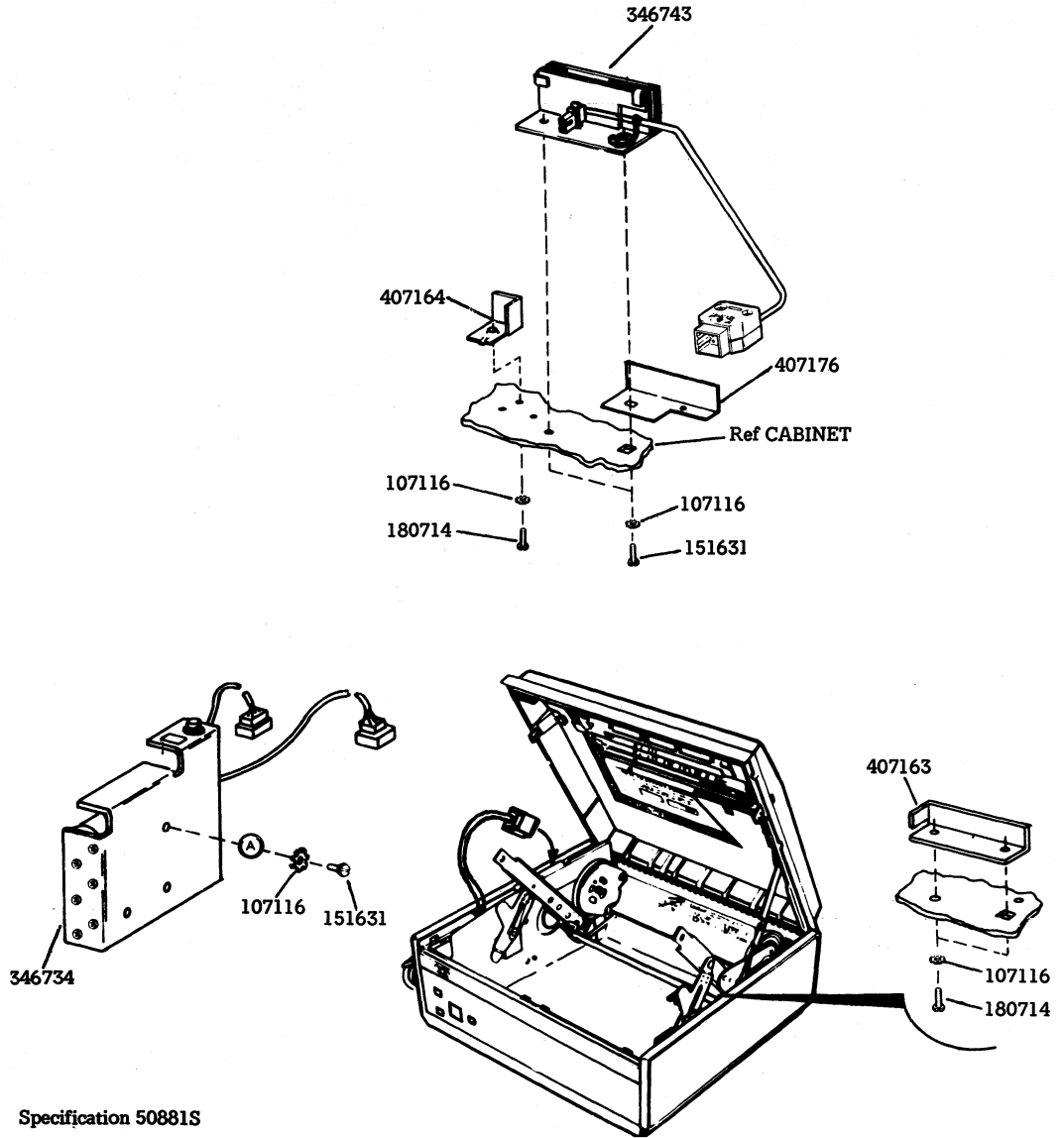
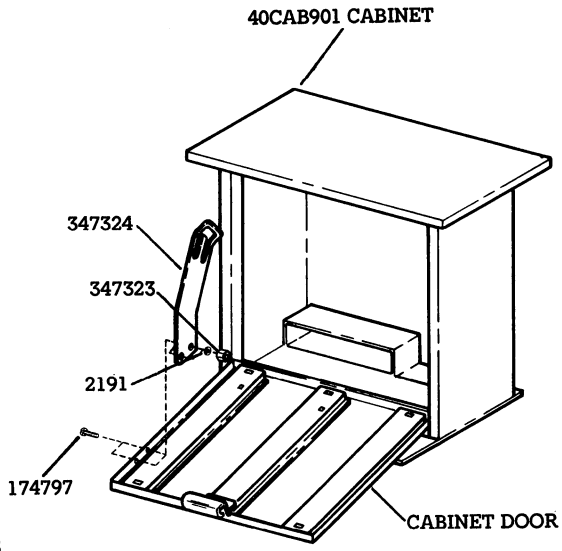


Fig. 82-346744 Modification Kit to Provide OEM Interface for Model 40CAB371/ZZ Friction Feed Cabinet



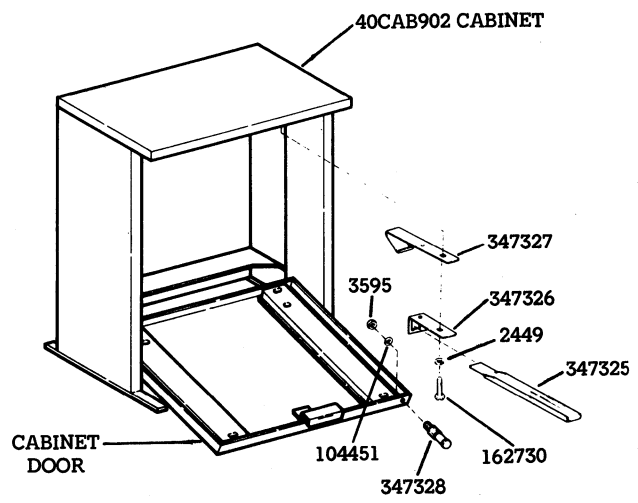
Specification 50881S

Fig. 82-346744 Modification Kit to Provide OEM Interface for Model 40CAB371/ZZ Friction Feed Cabinet (Cont)



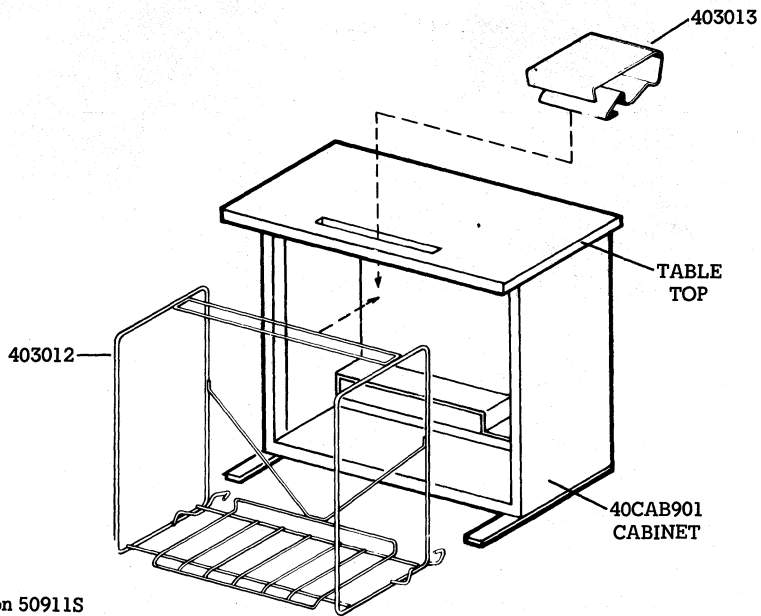
Specification 50967S

Fig. 83-347281 Modification Kit to Provide a Door Latch on 40CAB901 Cabinet



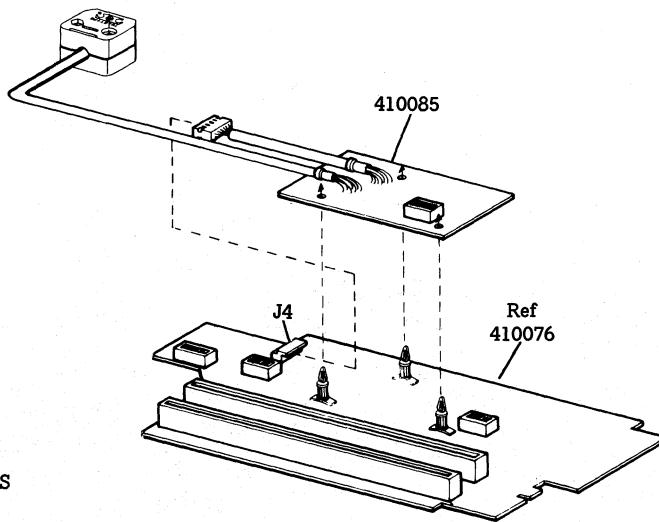
Specification 50968S

Fig. 84-347282 Modification Kit to Provide a Door Latch on 40CAB902 Cabinet



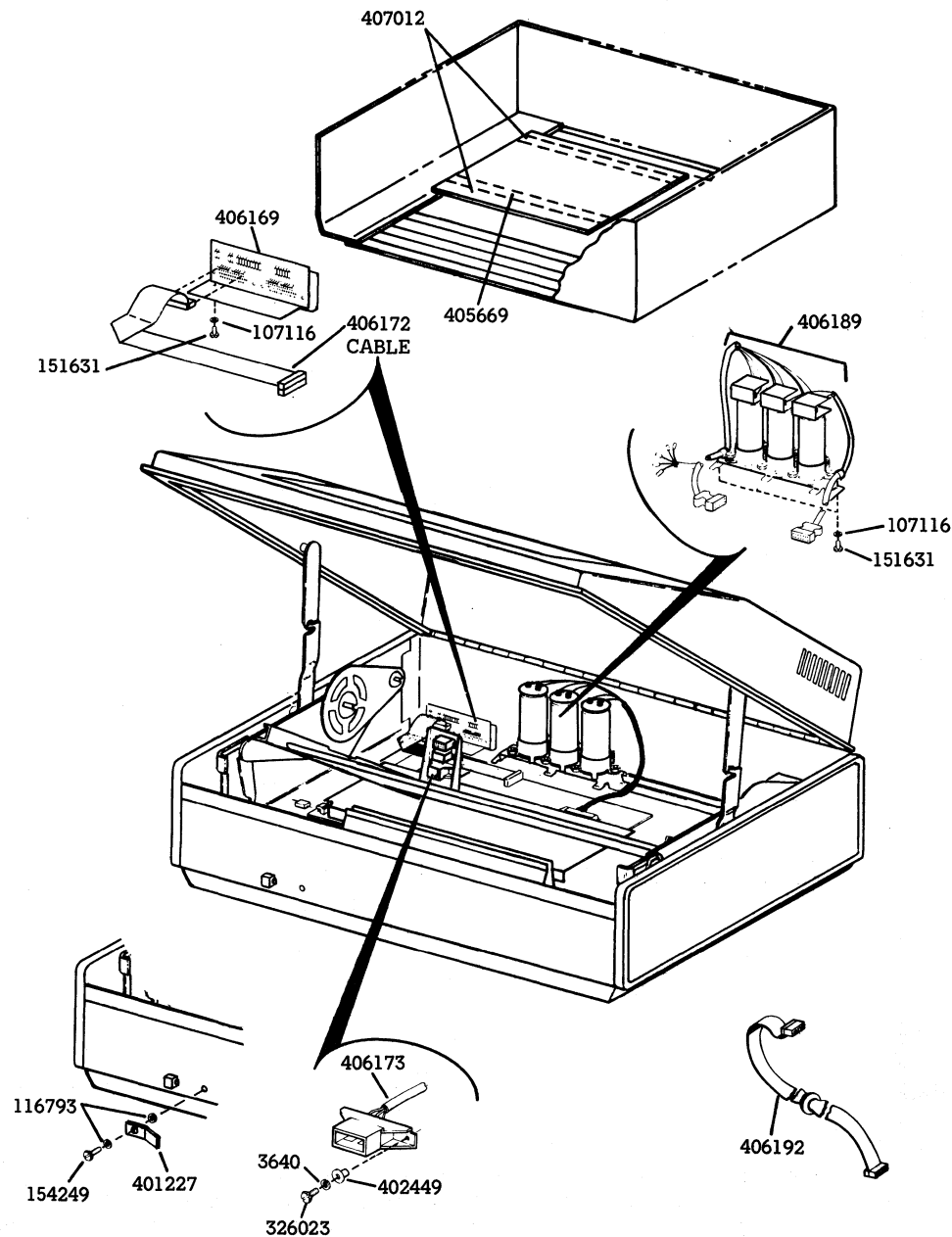
Specification 50911S

Fig. 85-403011 Modification Kit to Provide Paper Form Guide



Specification 50906S

Fig. 86-346745 Modification Kit to Provide Instructions for Optioning and Installing the 410085 OEM Card Into a Model 40P102 Friction Feed Printer



Specification 50915S

Fig. 87—406190 Modification Kit to Provide Dual EIA Interface for Printer

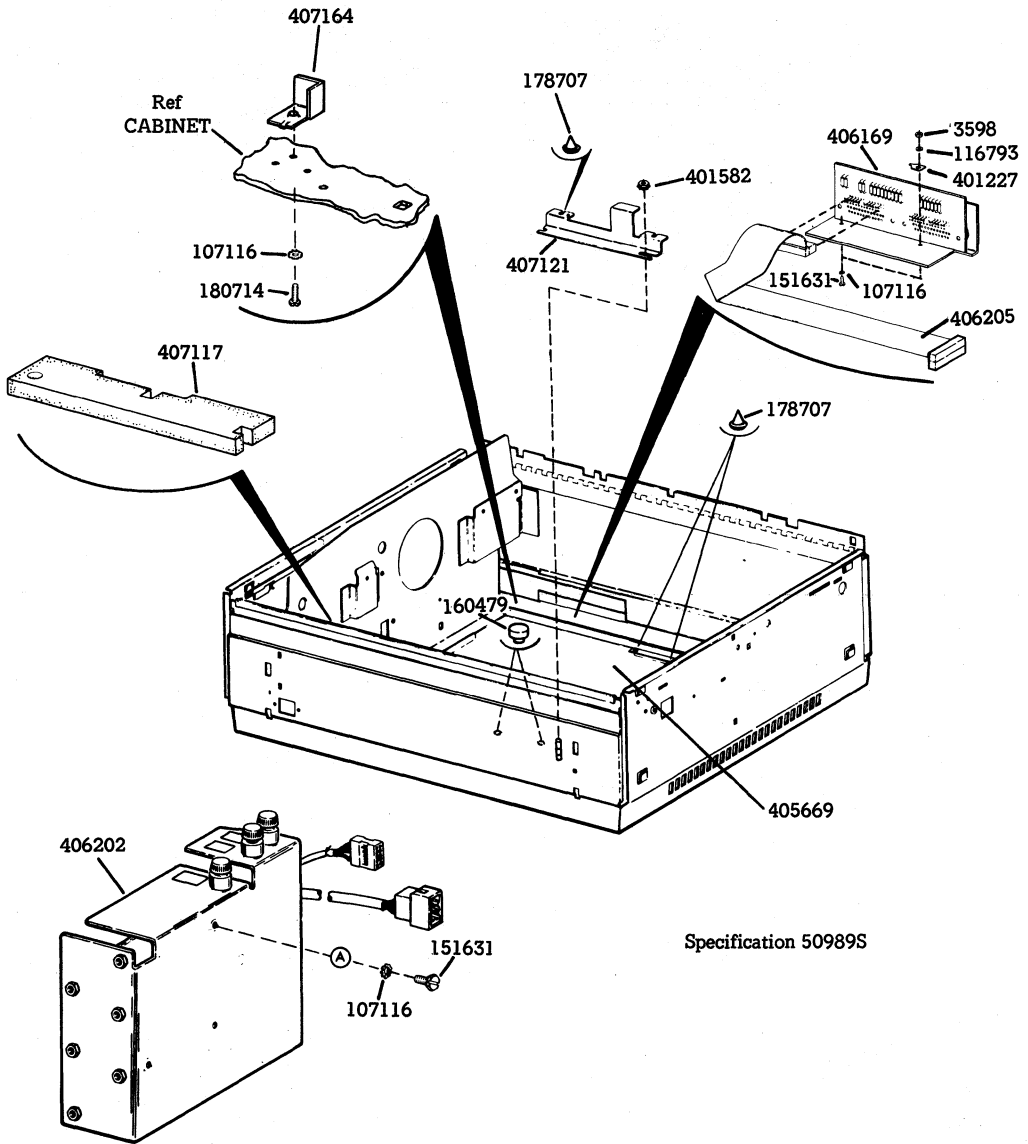


Fig. 88-406204 Modification Kit for a 40CAB371/ZZ Friction Feed Cabinet to Allow Addition of 40C303/AD Integrated Asynchronous Controller

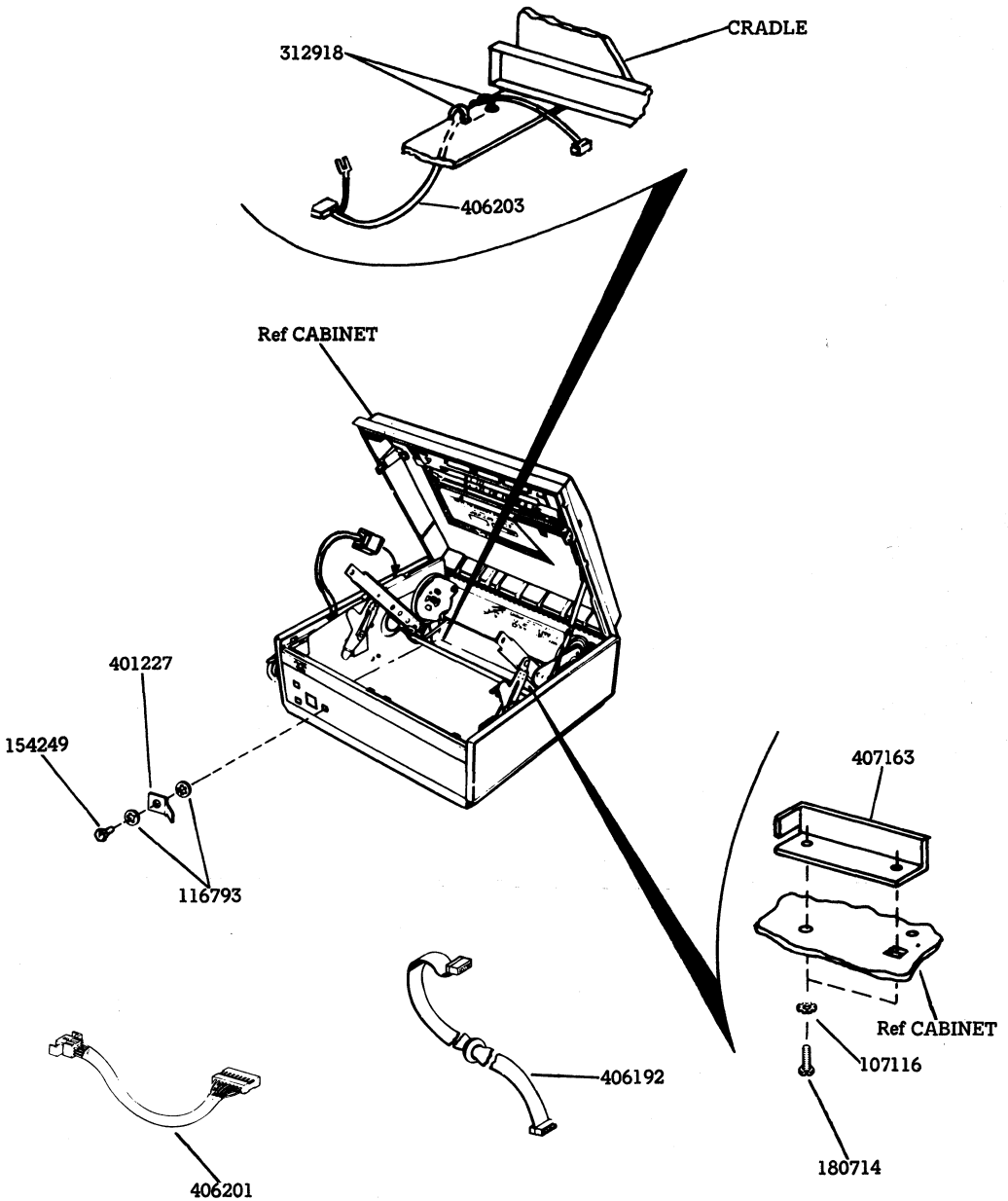
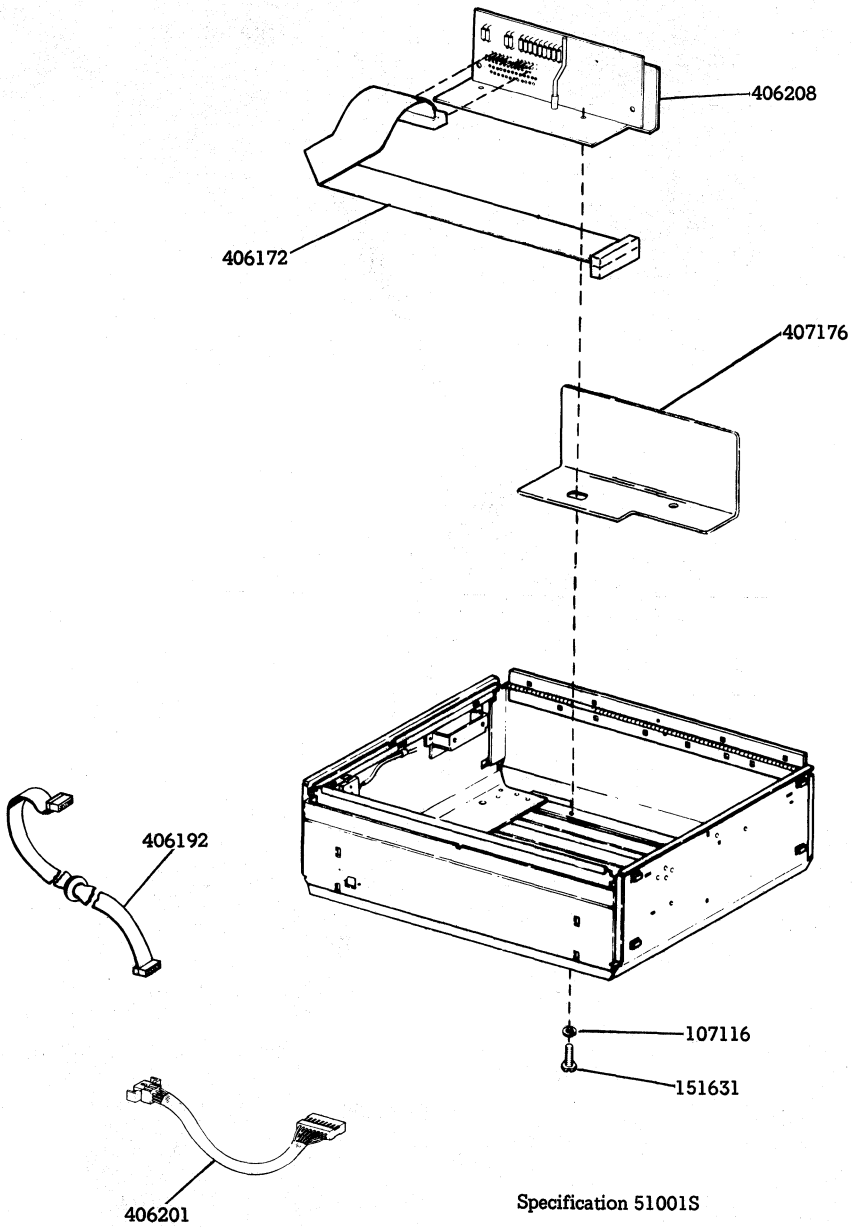


Fig. 88—406204 Modification Kit for a 40CAB371/ZZ Friction Feed Cabinet to Allow Addition of 40C303/AD Integrated Asynchronous Controller (Cont)



Specification 51001S

Fig. 89—406207 Modification Kit to Allow Replacement of 40C303/AA With a 40C303/AC or 40C303/AD Integrated Controller Used in Tractor Feed Printer Arrangements

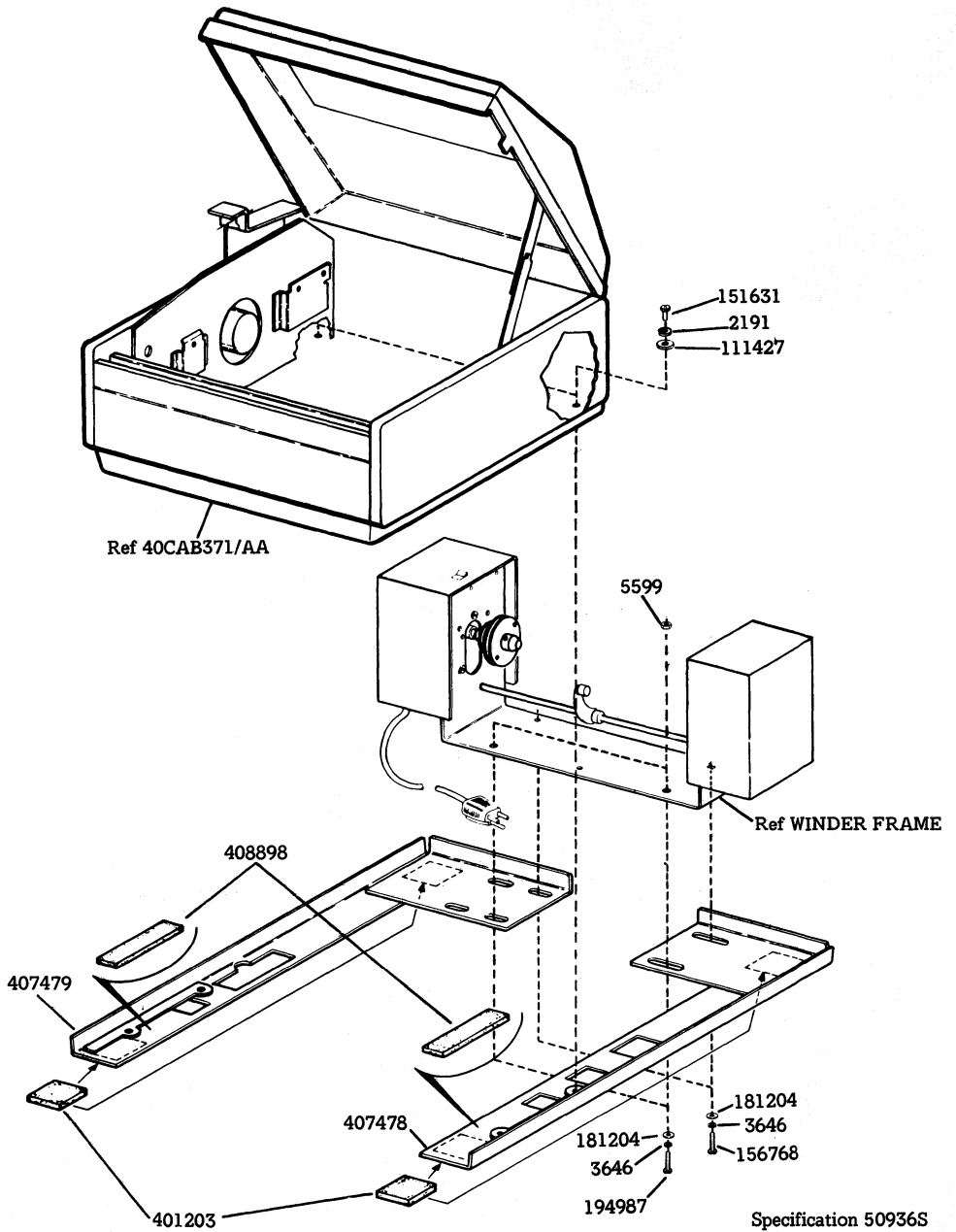
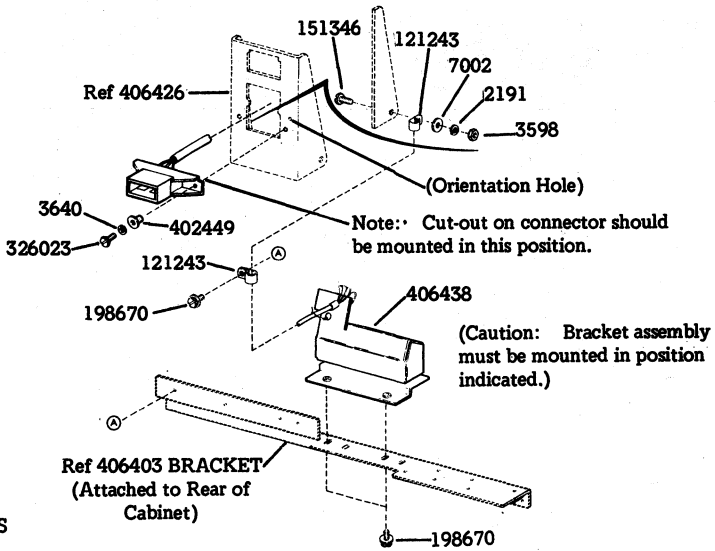
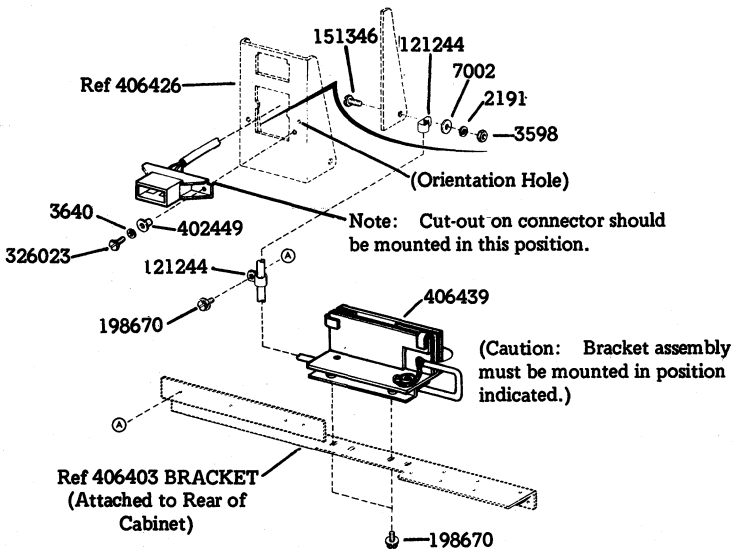


Fig. 90-406261 Modification Kit to Provide Mounting for Model 40 Paper Winder



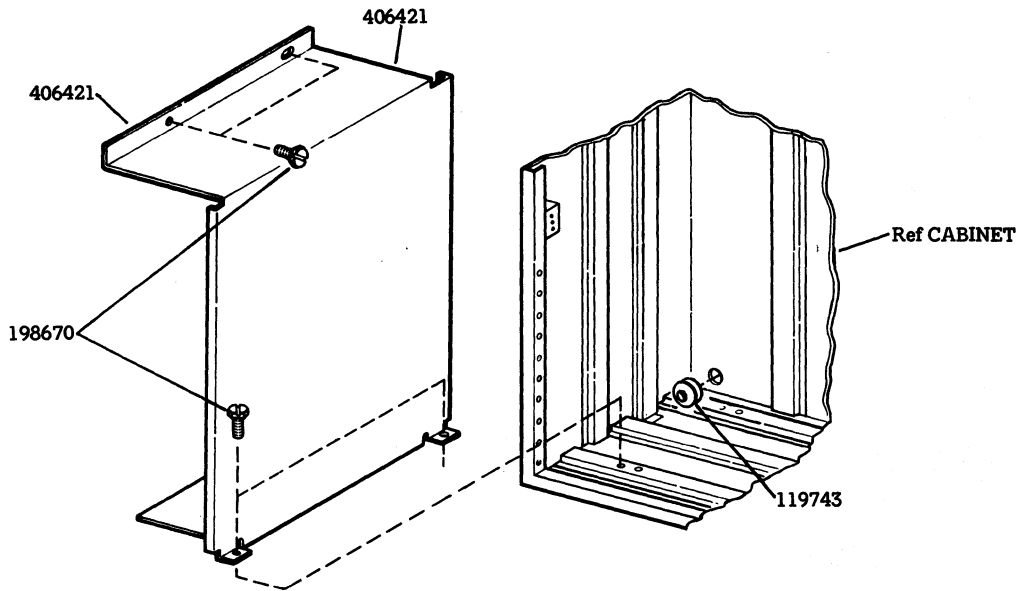
Specification 50951S

Fig. 91—406370 Modification Kit to Convert 40CAB302/ZZ to a 40CAB302/AB Cabinet to Provide SSI Interface (Forms Access Printer Cabinet)



Specification 50952S

Fig. 92—406371 Modification Kit to Convert 40CAB302/ZZ to a 40CAB302/AC Cabinet to Provide OEM Interface (Forms Access Printer Cabinet)



Specification 50954S

Fig. 93-406373 Modification Kit to Provide Data Set Mounting Facilities
(Forms Access Printer Cabinet)

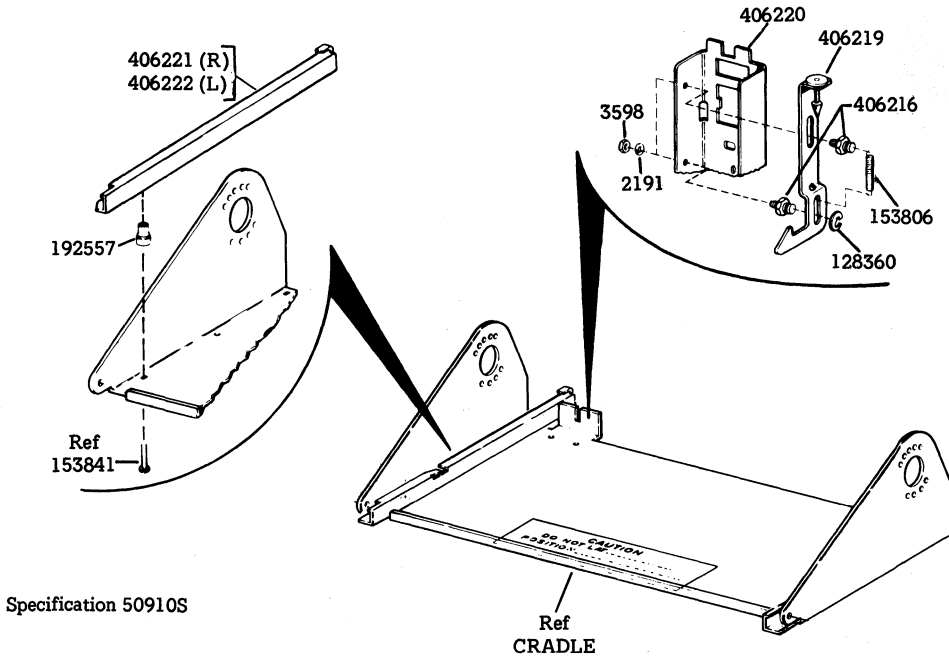
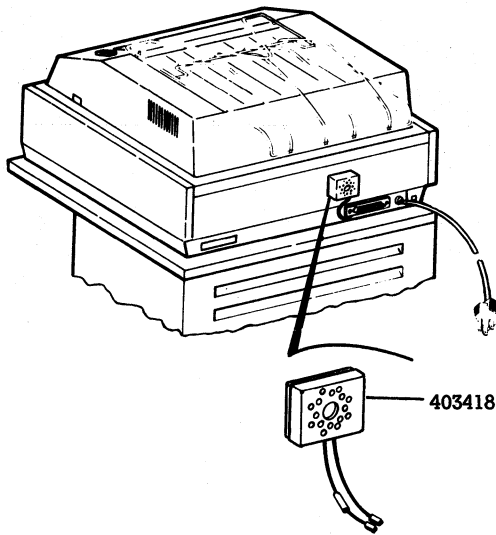
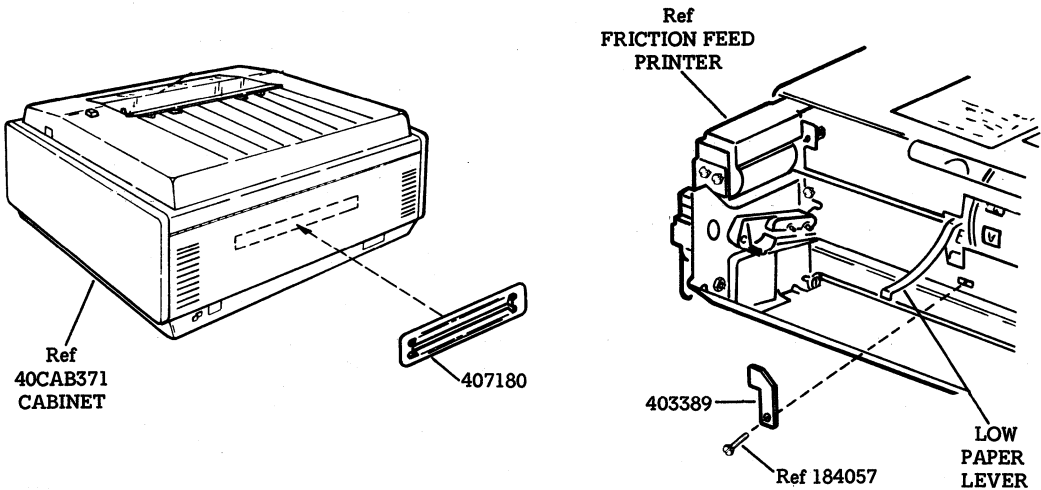


Fig. 95—406223 Modification Kit to Equip a Tractor Feed Cabinet With a Latch Mechanism



Specification 50903S

Fig. 96-403418 Modification Kit to Provide an Audible Alarm With Integrated Controller



Specification 50922S

Fig. 97-407105 Modification Kit to Provide Parts for Single-Ply Fanfold Friction Feed Paper Handling

6. ADJUSTMENTS

6.01 A complete adjustment procedure should be read before attempting to make the adjustment. After an adjustment has been completed, be sure to tighten any nuts or screws that may have been loosened to facilitate the adjustment, unless otherwise instructed.

6.02 Some adjustments require access to areas where parts have to be removed. For removal of these parts, refer to 4. DISASSEMBLY/ REASSEMBLY.

6.03 All tolerances in the adjustments in this section, unless otherwise stated, are in inches.

6.04 The instruction "friction tight" means to tighten by hand only. Tools should not be used for friction tight adjustments.

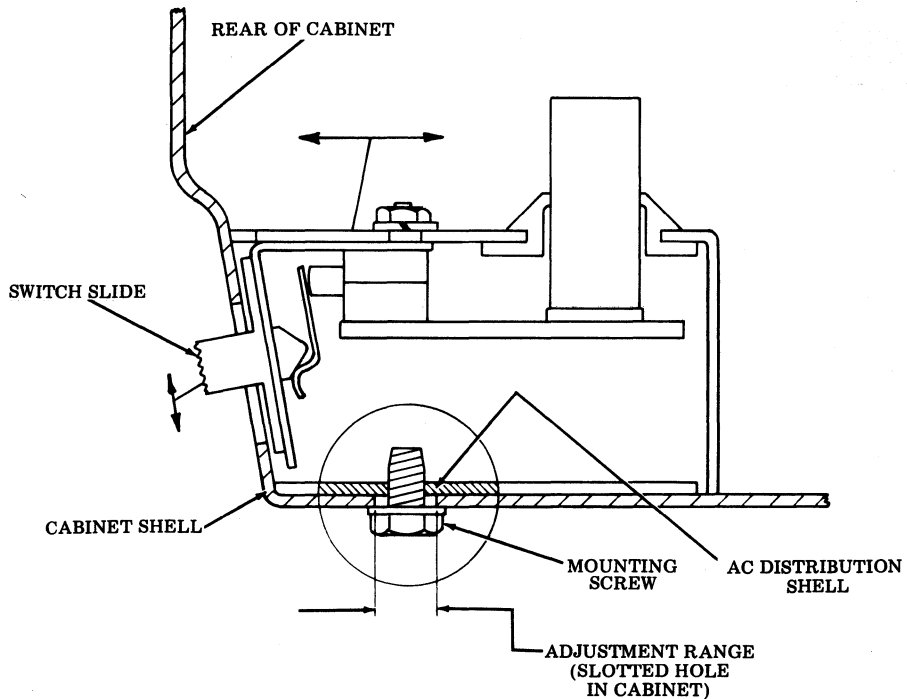
AC DISTRIBUTION ASSEMBLY (Early Design)

Requirement

Assembly should be flush to back wall of cabinet, consistent with free movement of the switch slide.

To Adjust

Loosen screw on bottom of cabinet. Meet requirement. Tighten screw.



CRADLE TORSION SPRING — FRICTION FEED

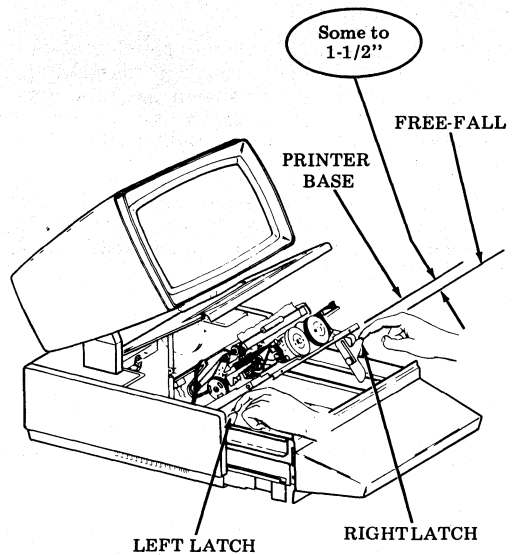
Note: This is a factory adjustment, adjusted to the optimal force. If it becomes necessary to readjust, then proceed as follows.

- Printer is installed in the cradle assembly of the cabinet and it is latched up (service position).

Requirement

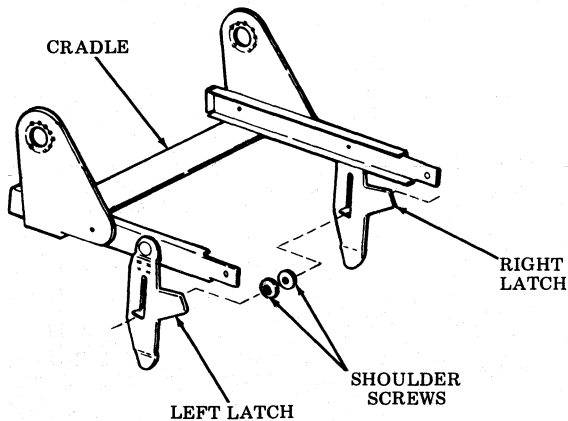
When left and right latches are released, printer should free-fall

Min Some---Max 1-1/2 inch when measured at the front of the printer base.



To Adjust

Remove printer from cradle assembly. Carefully remove shoulder screws (old design) or shoulder bushing and flat head screw that secure left and right latches to the printer cabinet.



CRADLE TORSION SPRING — FRICTION FEED (Cont)**To Adjust (Cont)**

With cradle assembly channels positioned past vertical, check outside hook portion of spring relative to hook stops. Any adjustments that are made to increase or decrease spring force should be made with the intent of keeping both springs equal in force. In essence, clearance between the hooks of left and right torsion springs and stop bushings should be approximately equal. Therefore, to increase the force, torsion spring whose hook is farther away from stop bushing should be adjusted to decrease clearance. To decrease the force, torsion spring whose hook is closer to the stop bushing should be adjusted to increase clearance. Loosen pilot screw in the hub to be adjusted until pilot is out of the locating hole in the cradle upright. Rotate torsion spring to increase or decrease force.

Note: There are five holes in each cradle upright to accept pilot portion of pilot screw.

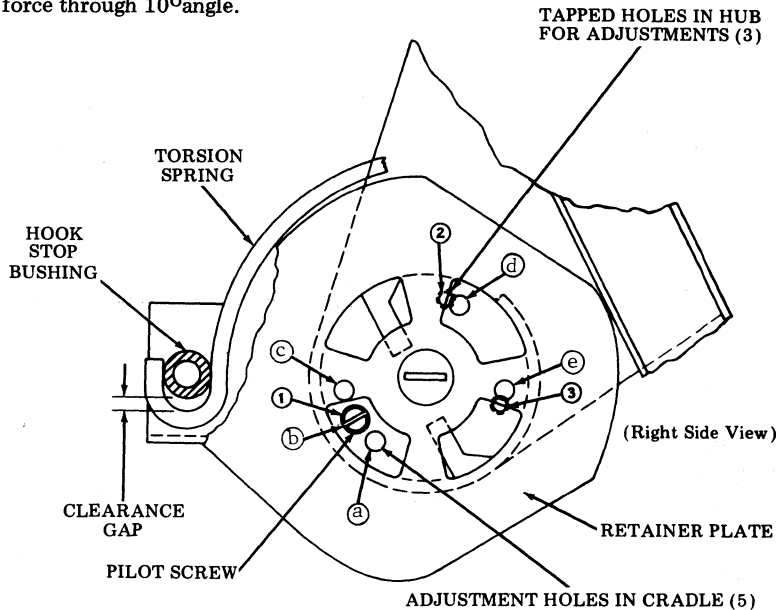
It may be necessary to reposition the pilot screw on hub if an angular adjustment of only 10 degrees is required from nominal. Reassemble with care.

LEGEND:

①, ②, and ③ are positions for pilot screw on hub.

ⓐ, ⓑ, ⓒ, ⓓ, and ⓔ are positions on cradle.

- | | | |
|---|---|-----------------------------------|
| ① | ⓑ | Nominal position. |
| ① | ⓐ | Decrease force through 20° angle. |
| ① | ⓒ | Increase force through 20° angle. |
| ② | ⓓ | Increase force through 10° angle. |
| ② | ⓔ | -- |



CRADLE TORSION SPRING — TRACTOR FEED (80-COLUMN)

Note: This is a factory adjustment, adjusted to the optimal force. If it becomes necessary to readjust, then proceed as follows.

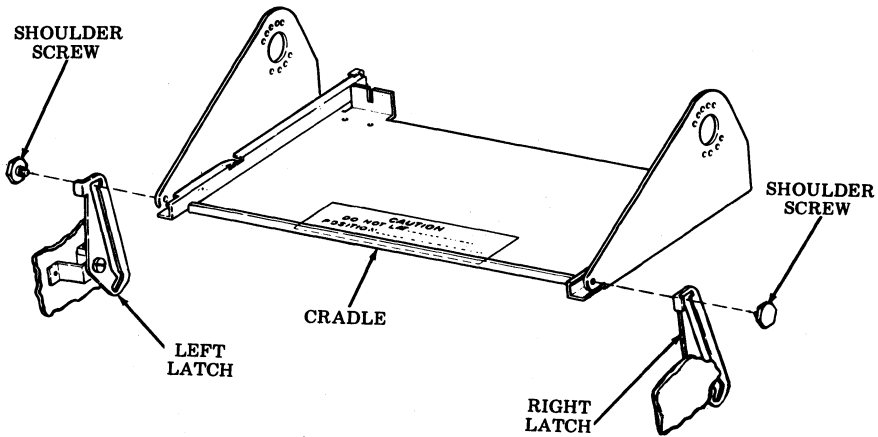
- Printer in the cabinet.
- Left and right cradle latches released (pressed inward).

Requirement

Printer should be lifted up some to halfway to the upper latched position. Latches must remain in released position.

To Adjust

Use printer to check adjustment. Remove printer from cradle assembly. If cradle assembly fails to remain in up position, raise it up until it latches. Carefully remove shoulder screws that secure left and right latches to the printer cradle.



CRADLE TORSION SPRING — TRACTOR FEED (80-COLUMN) (Cont)To Adjust (Cont)

With cradle assembly channels positioned past vertical, check outside hook portion of spring relative to hook stops. Any adjustments that are made to increase or decrease spring force should be made with the intent of keeping both springs equal in force. In essence, clearance between hooks of left and right torsion springs and stop bushings should be approximately equal. Therefore, to increase the force, torsion spring whose hook is farther away from stop bushing should be adjusted to decrease clearance. To decrease the force, torsion spring whose hook is closer to the stop bushing should be adjusted to increase clearance. Loosen pilot screw in the hub to be adjusted until pilot is out of the locating hole in the cradle upright. Rotate torsion spring to increase or decrease force.

Note: There are nine holes in each cradle upright to accept pilot portion of pilot screw.

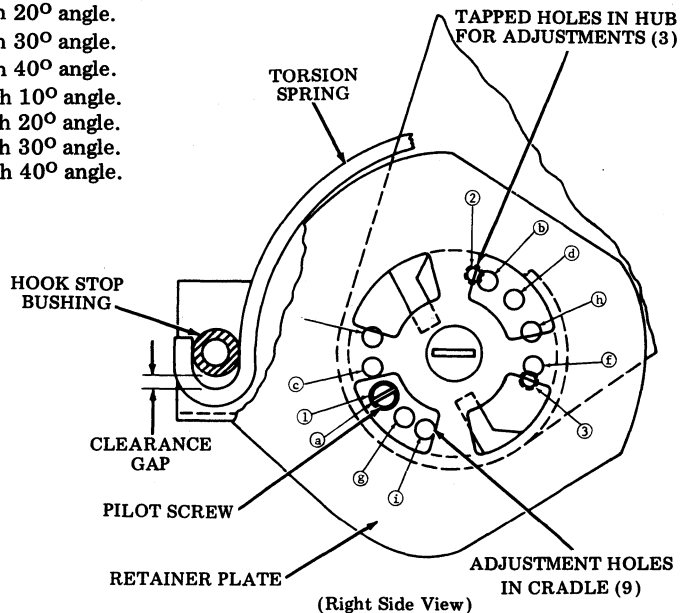
It may be necessary to reposition the pilot screw on hub if an angular adjustment of only 10 degrees or 30 degrees is required from nominal. Reassemble with care.

LEGEND:

①, ②, and ③ are positions for pilot screw on the hub.

a, b, c, d, e, f, g, h, and i are positions on the cradle.

- | | | |
|---|---|-----------------------------------|
| ① | a | Nominal position. |
| ② | b | Increase force through 10° angle. |
| ① | c | Increase force through 20° angle. |
| ② | d | Increase force through 30° angle. |
| ① | e | Increase force through 40° angle. |
| | f | Decrease force through 10° angle. |
| ① | g | Decrease force through 20° angle. |
| ③ | h | Decrease force through 30° angle. |
| ① | i | Decrease force through 40° angle. |



CRADLE TORSION SPRING – TRACTOR FEED (132-COLUMN)

- Printer in the cabinet.
- Left and right cradle latches released (pressed inward).

(1) Requirement

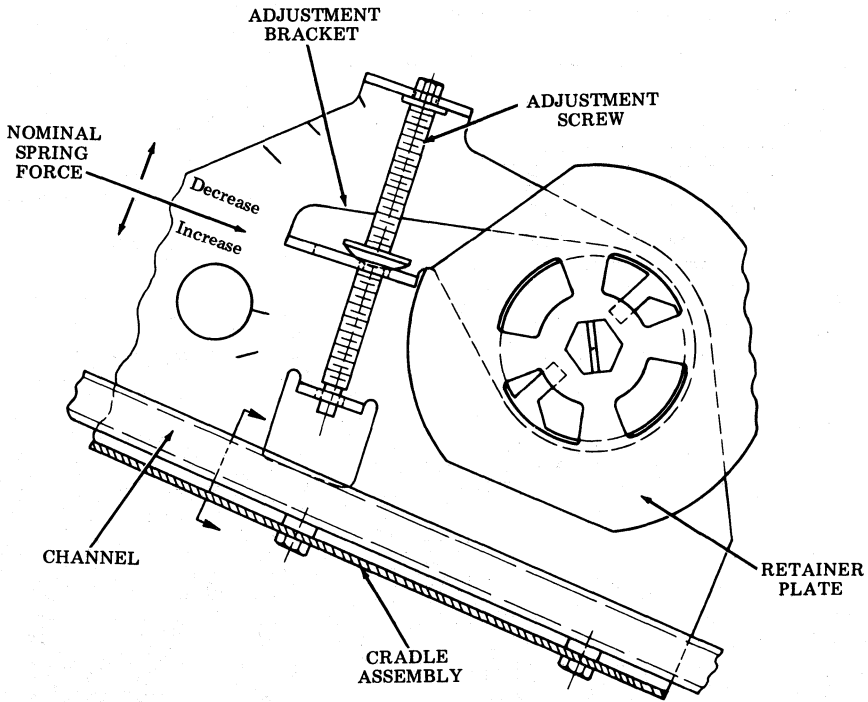
The printer and cradle should move out of the latched position and move up into an intermediate position.

(2) Requirement

With the printer in the service position, depressing the left and right latchlever should allow the printer and cradle to move out of the latched position and move down into an intermediate position.

To Adjust

Turn the adjustment screw (one on each side of the cradle) counterclockwise to increase the torsion spring force and clockwise to decrease the torsion spring force. Any adjustments to increase or decrease the spring force should be made with the intent of keeping both springs in equal tension.



PAPER EXIT GAP — NOISE REDUCING FRICTION FEED

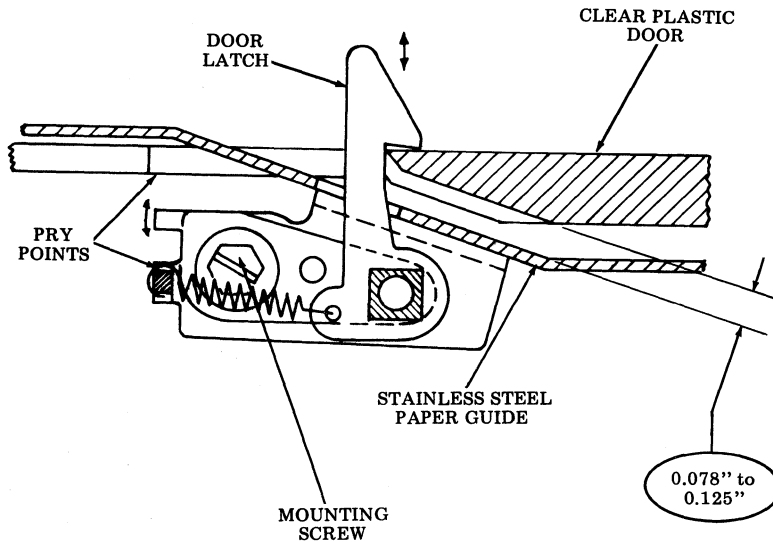
- Paper exit door closed and latched.
- Cabinet dome in the open position.

Requirement

Paper exit gap between clear plastic door and stainless steel paper guide should be
Min 0.078 inch--Max 0.125 inch
through the entire width and length of the path through which the paper travels.

To Adjust

Loosen the two mounting screws friction tight. Use pry points to raise or lower the door latches to meet requirement. Tighten the two mounting screws.



DOMES ADJUSTMENT – NOISE REDUCING FRICTION FEED

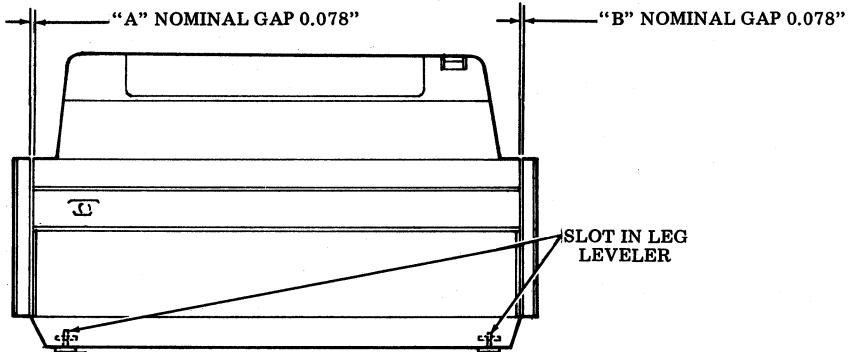
- Dome closed and latched

Requirement

Gap "A" must be equal to Gap "B" within 0.062 inch. Dome may be flush, overflush (0.030 inch) or underflush (0.030 inch) with respect to trim band. (Both Sides)

To Adjust

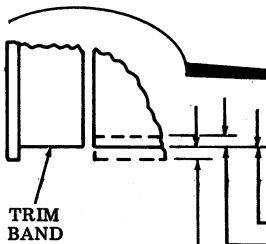
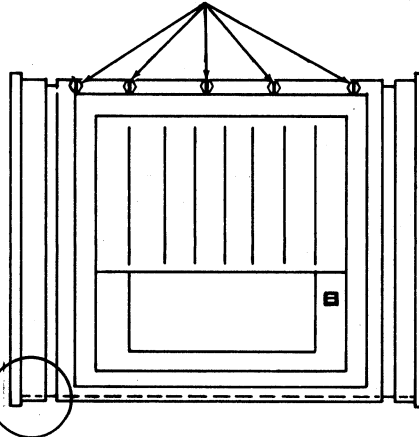
Loosen five dome mounting screws friction tight. Position dome to meet requirement. Tighten mounting screws.



Note: Adjustable feet must be fully retracted into cabinet before attempting dome adjustment.

ADJUSTABLE FEET (2)

MOUNTING SCREWS



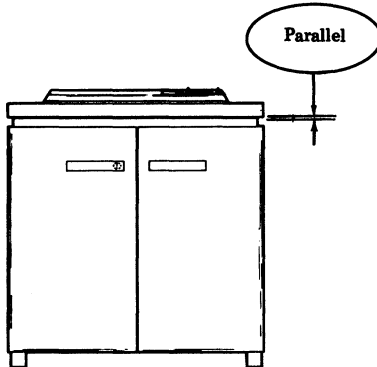
FLUSH
DOME MAY BE UP TO 0.030" UNDER FLUSH
DOME MAY BE UP TO 0.030" OVER FLUSH

TOP COVER VERTICAL ADJUSTMENT — FORMS ACCESS CABINET**Requirement**

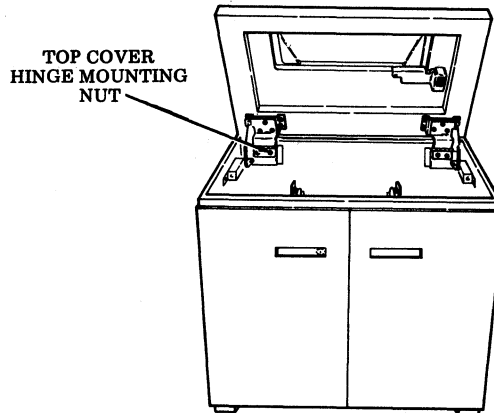
With the cabinet top cover in the closed position the cover should rest on the front gasket and be parallel to the cabinet, as gauged by eye.

To Adjust

With the four cabinet top cover hinge mounting nuts friction tight, lift or lower the rear edge of the cover until the requirement is met. Tighten the mounting nuts.



(Front View)



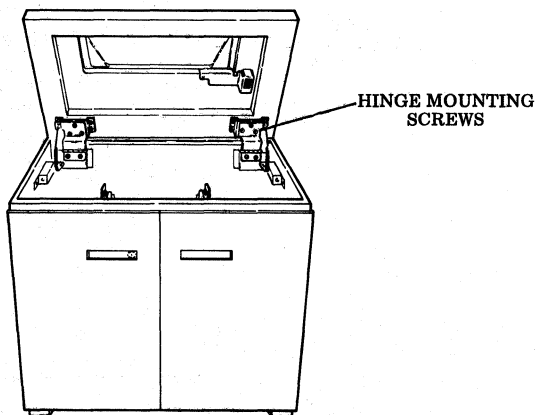
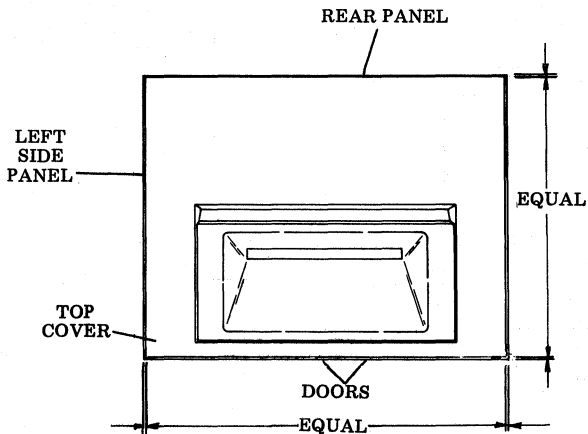
TOP COVER HORIZONTAL ADJUSTMENT – FORMS ACCESS CABINET

Requirement

With the cabinet top cover in the closed position, the cabinet doors should extend beyond the top cover equally front to rear and equally left to right as gauged by eye (approximately)

To Adjust

With the six top cover hinge mounting screws friction tight, position the top cover left to right and front to rear to meet the requirement. Tighten the six mounting screws.

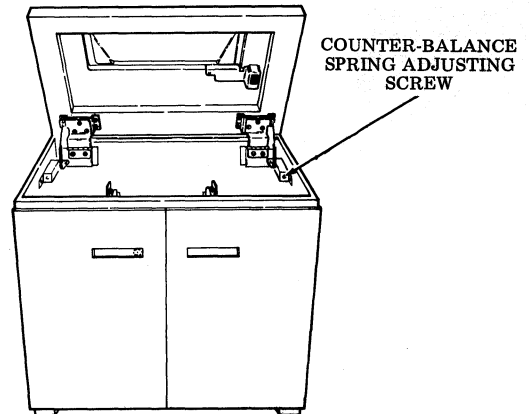


TOP COVER LEFT AND RIGHT COUNTER BALANCE SPRING ADJUSTMENT – FORMS ACCESS CABINET**Requirement**

With top cover almost closed (within 3 to 4 inches), the top will not move by gravity when released.

To Adjust

Turn each counter-balance spring adjusting screw approximately an equal number of turns until requirement is met. Do not back off screws more than four full turns from a complete clamp position.

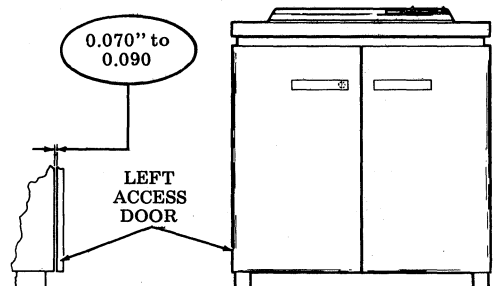
**LEFT AND RIGHT FRONT ACCESS DOOR POSITION ADJUSTMENT – FORMS ACCESS CABINET****Requirement**

The gap between cabinet side panel and respective door should be

Min 0.070 inch—Max 0.090 inch
when measured near top and bottom of door hinge ends.

To Adjust

With the door hinge mounting screws friction tight, position the door forward or rearward to meet requirement.
Tighten the hinge mounting screws.



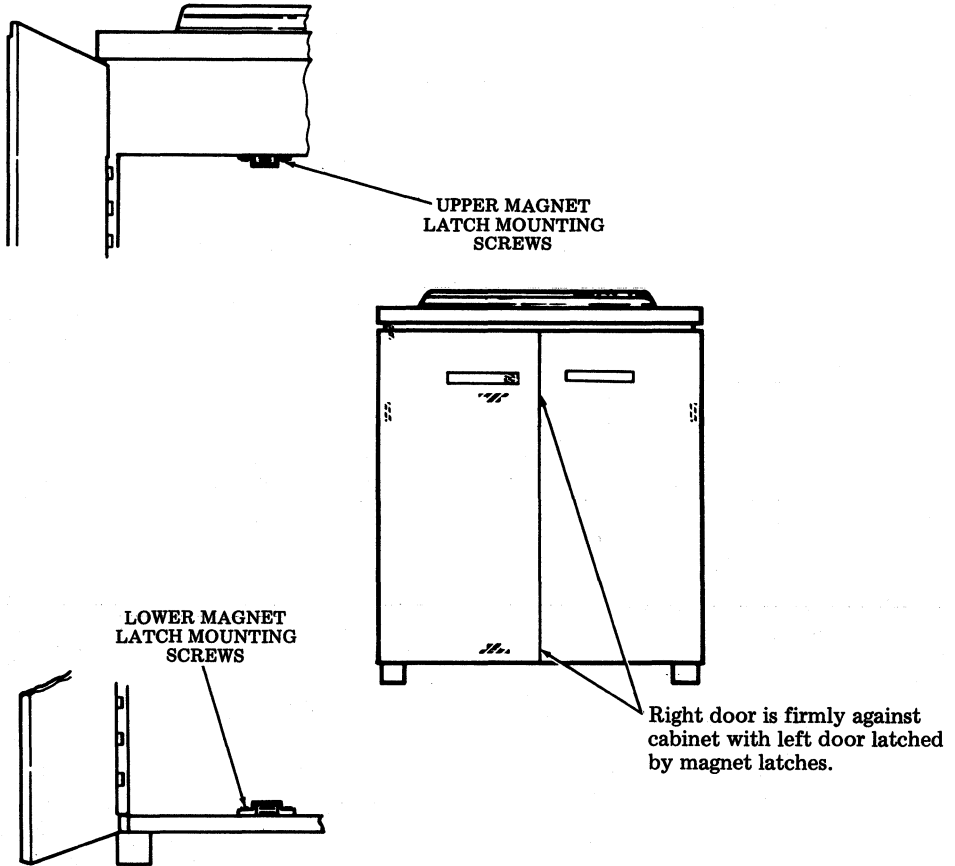
LEFT FRONT ACCESS DOOR MAGNET LATCHING ADJUSTMENT — FORMS ACCESS CABINET

Requirement

With the left door overlapping the right door and both doors in the closed position, the upper and lower magnets should be in contact with their respective strike plates while holding the right door flange firmly against the cabinet engaging surface.

To Adjust

With top and bottom magnet mounting screws (four) friction tight, close the left door overlapping the right door flange, with gentle pressure applied to left door, secure the magnets. Magnets may be secured through the top of the cabinet.



TOP COVER LATCH AND LATCH STRIKE PLATE ADJUSTMENT — FORMS ACCESS CABINET**(1) Requirement**

As the top cover latch is slowly brought into contact with the latch strike plate, contact should be approximately

Min 1/4 inch---Max 1/2 inch
of the sloped surface of the latch as gauged by eye.

To Adjust

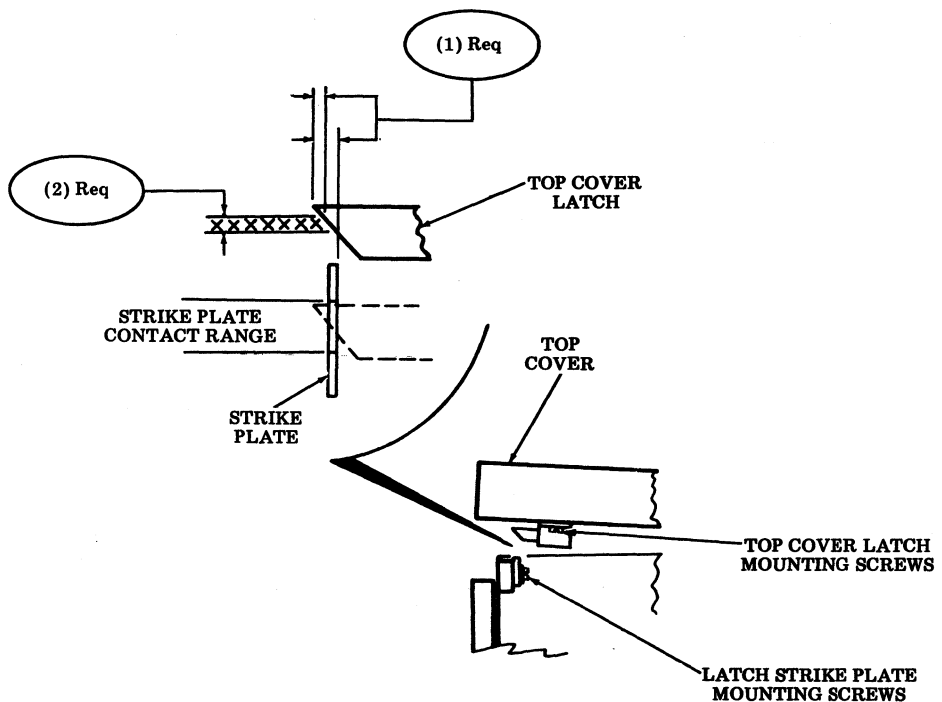
With the latch mounting bracket screws friction tight, position mounting bracket forward or rearward to meet the requirement. Tighten the mounting screws.

(2) Requirement

With the top cover gently lowered onto the cabinet gasketing, the latch should engage the strike plate with an audible sound of latching.

To Adjust

With latch strike plate mounting screws friction tight, position the strike plate up or down to meet requirement. Tighten mounting screws.



TOP COVER, LEFT AND RIGHT FRONT DOOR INTERLOCK SWITCH ADJUSTMENTS — FORMS ACCESS CABINET

Top Cover Interlock Switch

(1) Requirement

With the top cover in its latched position, the interlock switch should be in the “closed” mode and should move into its “open” mode when the top cover is raised above the latched position.

Left Front Door Interlock Switch

(2) Requirement

With the left door in the latched position, the interlock switch should be in the “closed” mode and should move into its “open” mode when the left door is opened.

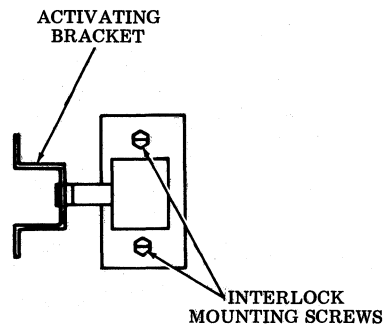
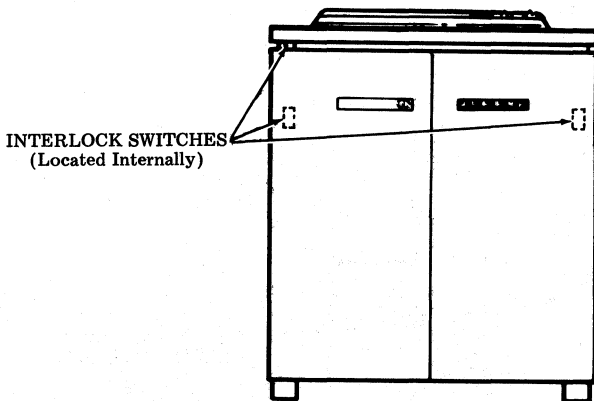
Right Front Door Interlock Switch

(3) Requirement

With the right door in the latched position, the interlock should be in the “closed” mode. When the right door is open and held overlapping the closed left door, the interlock switch should be in the “open” mode.

To Adjust

With the switch assembly mounting screws friction tight, locate the assembly closer to or farther away from the activating bracket to meet the requirement. Tighten the two mounting screws.



PRINTER VERTICAL POSITIONING ADJUSTMENT — FORMS ACCESS CABINET**Requirement**

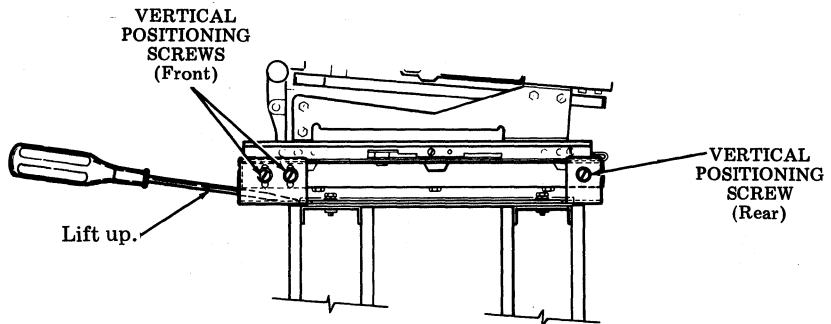
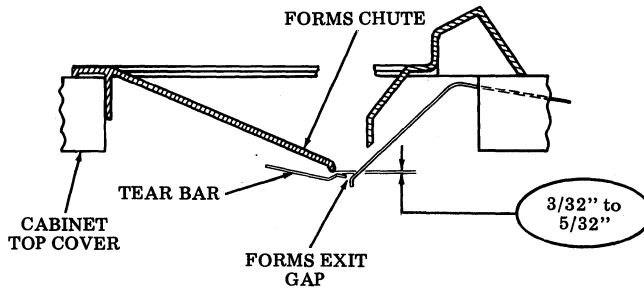
With a scale resting on the printer tear bar top surface and against the front edge of forms chute opening, the tear bar top surface should be located

Min $3/32$ inch--Max $5/32$ inch

below the form of the cabinet form chute.

To Adjust

Loosen the six intermediate rail bracket mounting screws friction tight, place the blade of a screwdriver between frame and intermediate rail, pry intermediate rail assembly up at alternate left and right front corners until adjustment is made, tightening the forward most screws. After making adjustment tighten remaining screws.



PRINTER FORWARD POSITIONING ADJUSTMENT — FORMS ACCESS CABINET

Note: The printer should be positioned and latched in its rear most location on the rail assembly frame for this adjustment.

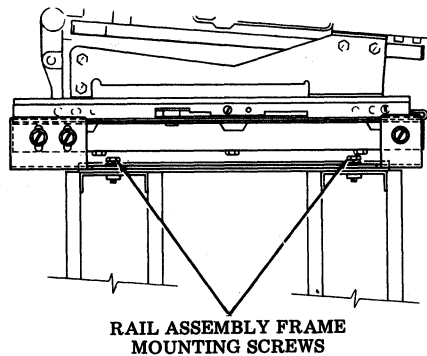
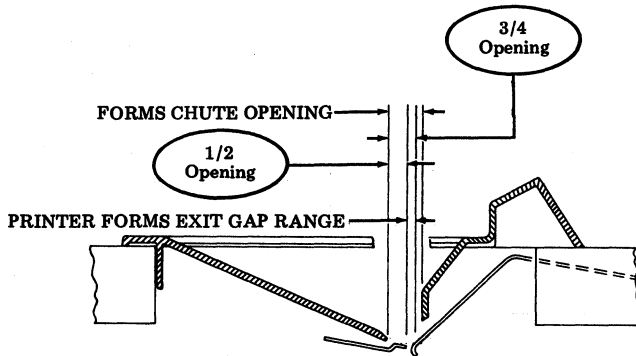
Requirement

The printer forms exit gap should be located

Min 1/2—Max 3/4
of the way back in the forms chute opening as gauged by eye.

To Adjust

With the four rail assembly frame mounting screws friction tight, move printer rail assembly frame forward or rearward to meet adjustment. Tighten the four mounting screws.



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403791	Screw, 8-18 Shoulder 58	405038	Connector, 6PT Plug 51,68,69,113	405605	Arm, Stop 60,64,76,77,117
403792	Cradle 59,67			405606	Plate, Front 61
403793	Channel, Right 59,62,112	405039	Spacer 55	405609	Clip, Grounding 73,101,102,121
403794	Channel, left 59,62	405040	Insulator, Switch 55		
403795	Bracket 59,62,66,73	405041	Insulator 55	405611	Cord Assembly 101,108
403800	Button 66	405042	Switch 55	405612	Shield 102
403801	Button 66	405043	Capacitor 55,87,102,114	405613	Shield 102
403802	Table 97	405044	Terminal, Receptacle Type 55	405614	Distribution Assembly 101,102
403803	Door 96	405045	Terminal, Receptacle Type 50,51,68,102,108	405634	Bracket, Left 62
403805	Bracket, Latch 97			405635	Bracket, Right 62
403806	Bracket 96	405046	Terminal, Plug Type 50,51,68,102	405636	Screw, 1/4-20 Spl 62
403807	Plate, Trim 81			405637	Nut, 1/4-20 Spl 62
403812	Plate, Front 57,80	405047	Cable Assembly 51,70,72	405638	Screw, 1/4-32 x 13/32 Flat 62
403813	Bracket 60	405048	Cable Assembly 51,33,43		
403814	Screw, 8-32 Shoulder 59,62	405049	Cable Assembly 51,37	405639	Spacer 62
		405050	Distribution Assembly, AC 42,43,55,57,61,77	405642	Spring, Torsion 64,117
403819	Dome 58,60			405643	Spring, Torsion 60,64,76,77,117
403821	Clamp 60	405051	Cable Assembly 42,48,50		
403824	Bracket 66	405052	Lockwasher 55	405644	Plate w/Adhesive 73,120
403825	Shield 58,78	405053	Strap 55	405660	Table 97
403828	Plate w/Adhesive 73,81,120,121	405138	Screw, 6-32 Self-Tapping 77	405669	Shield 74,82,125,126
403830	Cable Assembly 73	405520	Dome 58,60,66	405671	Modification Kit 73
403832	Plate 60,64,117	405523	Clamp, Window 60,64	405673	Bracket 74
403835	Switch 66,113	405540	Dome 63	405674	Label 74

SECTION 582-212-700

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
405675	Bracket 74,82	406377	Cable Assembly 132	406447	Paper-Out Assembly 116
405829	Bracket 100	406379	Shaft 110	406448	Bracket 113
406046	Cable Assembly 72	406380	Release, Latch 110	406455	Channel, Left 112
406047	Modification Kit 72	406381	Latch w/Button 110	407001	Adhesive, 5/8 x 14-5/16 33,39
406065	Screw, 10-32 x 1-1/4 Hex 72	406382	Spring, Latch 110	407002	Adhesive, 5/8 x 18-15/32 57,80
406169	EIA Assembly 125,126	406384	Plate, Latch 109	407003	Adhesive, 26 x 5/8 61
406172	Cable Assembly 125,128	406387	Plate, Nut 109	407012	Adhesive 74,125
406173	Cable Assembly 125	406388	Plate, Nut 109	407022	Adhesive, 3 x 13-1/2 81
406188	Bracket 74	406389	Cover 109	407024	Modification Kit 74
406189	Capacitor Assembly 125	406390	Bracket, Latch 110	407025	Modification Kit 30,73
406190	Modification Kit 125	406391	Plate, Striker 110	407026	Modification Kit 30,73
406192	Cable Assembly 125,127, 128	406395	Hinge, Right 110	407027	Bracket, Switch 57,61
406201	Cable Assembly 127,128	406396	Hinge, Left 110	407042	Modification Kit 75
406202	Supply Assembly, Power 126	406398	Clamp 132	407043	Modification Kit 30,75
406203	Cable Assembly 127	406399	Plate, Nut 110	407046	Foam, Dome 65
406204	Modification Kit 126,127	406400	Plate 112	407048	Bracket, Stop Arm 60,77,78
406205	Cable Assembly 126	406401	Plate, Switch 110	407055	Chassis w/Fan Assembly 70,71
406207	Modification Kit 128	406402	Plate, Cover 109	407057	Post 60,64,76,77,117
406208	Connector Assembly 128	406403	Bracket 109,130	407060	Guide, Narrow Paper 76
406216	Post 67,133	406404	Plate 114	407061	Guide, Wide Paper 76
406219	Latch Assembly 67,133	406405	Button, Plug 110	407062	Clip, Window 76
406220	Bracket 133	406406	Support, Left 112	407064	Clamp, Left 60,117
406221	Channel, Right 67,133	406407	Support, Right 112	407065	Clamp, Right 60,117
406222	Channel, Left 67,133	406408	Support, Left Printer 112	407066	Clamp, Cable 69
406223	Modification Kit 133	406409	Support, Right Printer 112	407075	Input Assembly, Signal 73
406261	Modification Kit 129	406410	Tray 112	407076	Capacitor Assembly 74
406293	Guide, Paper 61	406411	Bracket 110	407077	Input Assembly, Signal 74,82
406309	Spring, Torsion 59,62	406413	Barrier 110	407078	Strip, Ground 44,70,72
406321	Shaft w/Plate 119	406415	Door, Left 109	407080	Window 60
406322	Washer 119	406416	Door, Right 109	407081	Window 117
406323	Washer, Friction 119	406417	Leg, Cabinet 109	407085	Housing 56
406324	Nut, 1/2-32 Spl 119	406418	Top, Cabinet 110,111	407088	Switch, Rocker 56,111
406325	Bracket 119	406419	Housing 114	407090	Switch Assembly 42,43, 56,57,61
406326	Screw, 1/2-32 Spl 119	406420	Cover, Controller 132	407092	Insulator 56
406327	Disc, Friction 119	406421	Cover, Dataset 131	407093	Cord Assembly 56
406360	Strap, 3-1/2" Green 114	406422	Bracket 110	407100	Modification Kit 81
406361	Panel Assembly 112,114	406423	Cable Assembly 113	407101	Modification Kit 82,83
406362	Strap, 7" White 114	406425	Cable Assembly 132	407102	Modification Kit 81
406363	Strap, 3" Green 114	406426	Bracket 113,130	407105	Modification Kit 134
406364	Strap, 5" Red 114	406427	Plate 111	407110	Dome 78
406365	Strap, 5" White 114	406428	Bracket 132	407111	Cabinet 77,79
406366	Chute, Form 111	406431	Label 110	407112	Foam, Front 80
406367	Light, Indicating 111	406432	Cable Assembly 113	407113	Foam, Right 80
406368	Light, Indicating 111	406434	Strap, 7" Braided 109	407114	Divider, Foam 80
406369	Switch, Rocket 111	406437	Cord Assembly 114	407117	Foam, Bottom Front 82,126
406370	Modification Kit 130	406438	Bracket Assembly 130		
406371	Modification Kit 130	406439	Bracket Assembly, 130		
406372	Modification Kit 132	406441	Connector Assembly 132		
406373	Modification Kit 131	406442	Interlock Assembly 66,113		
406374	Modification Kit 116	406444	Guide, Front Paper 116		
406376	Cable Assembly 132	406445	Guide, Rear Paper 116		
		406446	Cable Assembly 116		

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
407118	Foam, Bottom Large 81,121	407163	Filler w/Cover 81,82, 122,127	408045	Modification Kit 93
407121	Bracket 82,126	407164	Filler w/Cover 82,122,126	408047	Modification Kit 94
407122	Cable w/Bracket 81	407170	Duct, Fan 77	408048	Panel, Front 68,71
407123	Plug, Jumper 81	407176	Cover 57,61,122,128	408049	Modification Kit 94
407124	Power Supply 82,83	407180	Plate 134	408050	Ventilation Assembly 51, 68,71,91
407125	Bracket, Left Seal 77	407192	Guide, Paper 78	408051	Modification Kit 68
407127	Pin, Hinge 78	407196	Guide 35,41	408052	Switch Assembly 88
407128	Bracket 83	407197	Guide, Paper 35,41	408053	Modification Kit 92
407129	Shaft 78	407200	Modification Kit 76	408054	Modification Kit 92
407131	Plate w/Button 78	407201	Bracket 76	408064	Foot w/Nut 84,97
407132	Spring, Latch 78	407202	Modification Kit 76	408073	Label 94
407133	Latch, Window 78	407215	Label 115	408676	Lever 116
407134	Lever 78	407216	Holder, Label 115	408677	Bracket 116
407135	Bracket, Left Latch 78	407285	Panel Assembly 84,87, 95,105	408881	Insulator 87,114
407136	Bracket, Right Latch 78			408882	Strip, Terminal 87,114
407137	Bracket 77	407300	Dome 117,118	408885	Clamp, Window 64
407138	Spring w/Button 78	407301	Cable Assembly 74,82	408887	Screw, 6-32 Spl 57,61
407141	Post 77	407302	Cable Assembly 74	408893	Cover 103
407142	Clamp, Window 78	407303	Cable Assembly 74	408894	Cover w/Pad 103
407145	Spring 78	407323	Cable Assembly 74,82	408896	Cradle w/Bracket 67
407146	Cable Assembly 83	407378	Module Assembly 89	408897	Cradle w/Bracket 67
407147	Cable Assembly 83	407478	Bracket, Right 129	408898	Adhesive 129
407148	Cable Assembly 77	407479	Bracket, Left 129	408981	Cord Assembly 87
407149	Guide 78	408005	Latch 94	408986	Guide, Paper 57
407150	Latch 78	408007	Guard, Fan 91	409624	Card, Circuit 55
407151	Screw w/Washer 58, 78,80,118	408015	Fan Assembly 71,91	410056	Card, Circuit 52,73,81
407152	Window 78	408017	Cable Assembly 71,91	410076	Card, Circuit 124
407153	Transformer 83	408018	Switch, Toggle 88	410085	Card, Circuit 124
407154	Door 78	408022	Bracket 71,91	410624	Card Assembly, Circuit 55
407155	Foam 78	408029	Filter Assembly 91,105	410626	Card, Circuit 56
407156	Foam 78	408030	Guard Assembly, Fan 91	430566	Switch, Rocker 102
407158	Cable Assembly 82	408038	Plate, Front 68,71	453347	Adhesive Bracket Pad 119
407159	Bushing, Shoulder 79	408039	Insulator, Switch 88	453959	Fastener 103,104
407161	Lever, Leg 57,61,80	408041	Bracket 84	453974	Pad 103
407162	Cap 57,61,80	408043	Holder 84	453975	Pad 104
		408044	Bracket 93,94		

“DATASPEED*” 40 DISPLAY MONITOR

WIRING

CONTENTS	PAGE
1. GENERAL	1
2. ACTUAL WIRING DIAGRAM	2
3. SCHEMATIC WIRING DIAGRAM ..	3

1. GENERAL

1.01 This section provides actual and schematic wiring diagram information for the DATASPEED 40 display monitor.

1.02 ♦This section is reissued to include changes to the interface/amplifier assembly, a new Q4 transistor, a new power distribution assembly and grounding information between the set power

supply and display monitor. Revision arrows are used to emphasize the more significant changes. ♦

1.03 Detailed actual and schematic wiring diagrams and circuit descriptions for the DATASPEED 40 display monitor are provided in Wiring Diagram Package WDP0400.

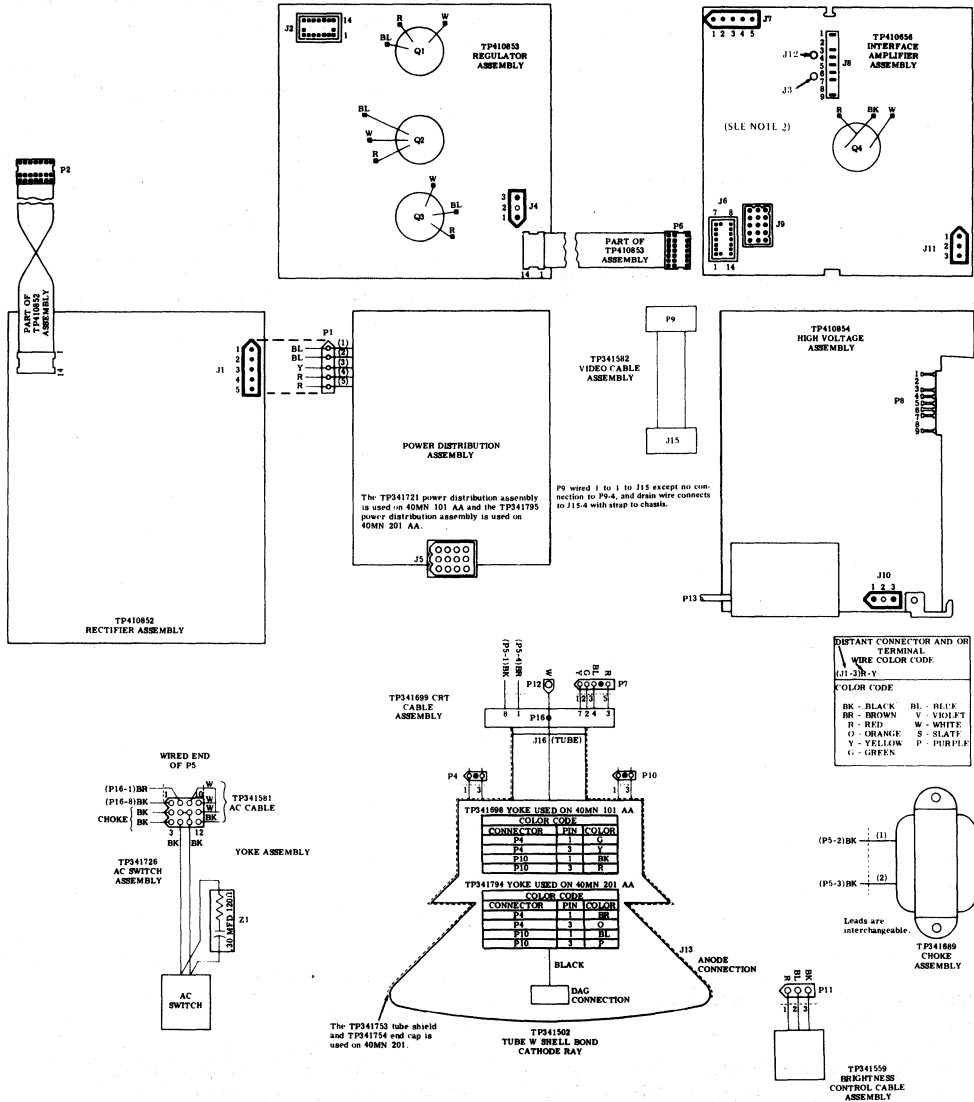
Note: Frame grounding of circuit common is provided physically in the set power supply for display monitors with serial no. 10,000 up and in lower serial numbered monitors which have 403594 modification kit installed. Display monitors and 40PSU101 power supplies with serial numbers below 10,000 were 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 (reference TCNs 2097 and 2220).

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2. ACTUAL WIRING DIAGRAM

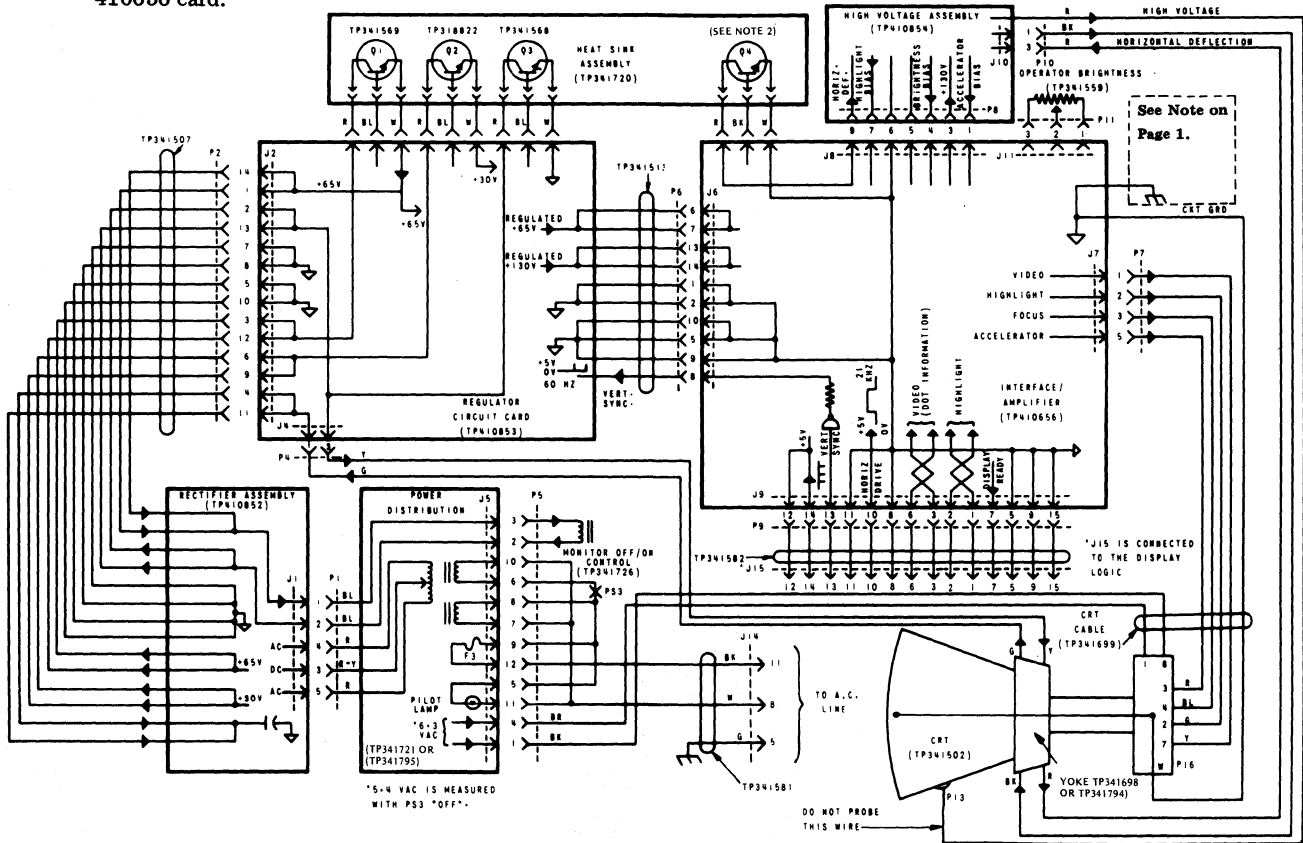
Note 1: Transistors Q1, Q2, Q3, and Q4 are mounted on the heat sink.

Note 2: Issue 4P of the 410656 circuit card, hole J3 was added to accommodate connection to heat sink via added 181243 screw.



Note 1: Frame grounding of circuit common is provided physically in the set power supply for display monitors with serial No. 10,000 up, and in lower serial numbered monitors which have a 403594 modification kit installed. Display monitor 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 (reference 582-213-100).

Note 2: Transistor Q4 part number 406306 can only be used with 410656 Issue 5A or later, incorporating R39 part number 406292 horizontal video centering control. Transistor Q4 part number 341570 can be used with any issue 410656 card.



◆“DATASPEED*” 40 DISPLAY MONITOR (40MN101 and 40MN201)

TESTING AND TROUBLESHOOTING◆

CONTENTS	PAGE
1. GENERAL	1
2. TESTING	2
3. TROUBLESHOOTING.....	5

1. GENERAL

1.01 This section provides testing and troubleshooting information for the DATASPEED 40 display monitor.

1.02 ◆ This section is reissued to include a fuse design change in the power distribution assembly and new cable routing in the monitor.◆ Marginal arrows are used to indicate changes and additions.

1.03 The DATASPEED 40 display monitor shall be tested on a full edit DATASPEED 40 KD Set or equivalent.

1.04 The operational checks given in Part 2 are to be performed in the order specified.

1.05 If the unit under test fails an operational check in Part 2, perform the adjustment in Section 582-213-700 or go to Troubleshooting, Part 3, as indicated in the column headed Analysis.

1.06 To use the troubleshooting information in Part 3, always start with Step 1 and follow the indicated procedure to isolate and correct the trouble.

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

1.08 Refer to Section 582-213-701 for disassembly and reassembly procedures for the DATASPEED 40 display monitor.

Warning: Turn OFF all ac power and signal sources when installing the display monitor on the KD set or when removing it. Similarly, turn OFF all power and signal sources when removing or replacing components.

Danger: Wear approved safety glasses when the housing of the display monitor is removed, as the display tube is fragile in the neck area and is subject to implosion if broken. Be careful not to strike the glass of the tube with tools or components when working in its vicinity. See Section 010-110-002.

Note: The level of troubleshooting and parts replacement provided in this section is the recommended limit as a field practice. More extensive troubleshooting or disassembly should be restricted to repair locations (Reference Wiring Diagram Package WDP0400).

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2. TESTING

TABLE A
OPERATIONAL CHECKS

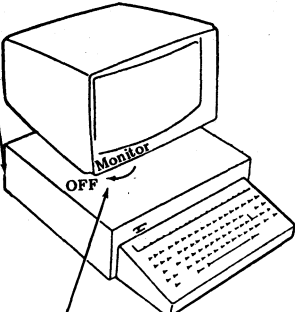
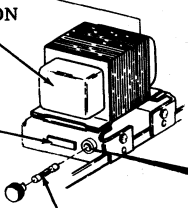
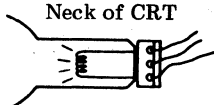
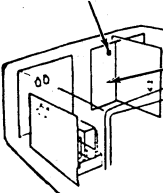
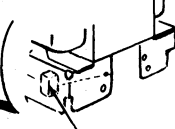
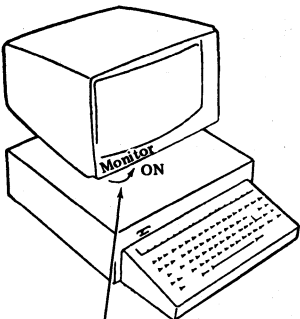
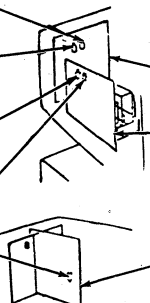
STEP NO.	PROCEDURE	CORRECT RESPONSE	ANALYSIS
1	<p>Apply ac power to KD. Turn ac switch on.</p>  <p>Monitor ac power switch off.</p>	<p>POWER DISTRIBUTION ASSEMBLY</p> <p>a. Red pilot lamp lighted.</p>  <p>341686 FUSE (1.5 AMP SL-BL) (Late Design)</p> <p>Neck of CRT</p>  <p>b. Filaments lighted. c. Red drive lamp lighted.</p>  <p>TP410656</p>	<p>Insure P5 in front of power distribution assembly is connected.</p>  <p>341578 FUSE (1.4 AMP SL-BL) (Early Design)</p> <p>CRT</p> <p>Go to Part 3, Troubleshooting.</p> <p>Go to Part 3, Troubleshooting.</p>
2	 <p>Monitor ac power switch on.</p>	<p>c. Overvoltage lamp extinguished.</p> <p>b. Normal lamp lighted.</p> <p>Unreg 65 V lamp lighted.</p> <p>a. Unreg 130 V lamp lighted.</p> <p>d. High voltage lamp lighted.</p>  <p>TP410853 TP410852 TP410854</p> <p>Note: If all lamps remain extinguished.</p>	<p>Go to Part 3, Troubleshooting.</p> <p>Go to Part 3, Troubleshooting.</p> <p>Go to Part 3, Troubleshooting.</p> <p>Check red pilot lamp (Step 1).</p>

TABLE A
OPERATIONAL CHECKS (Continued)

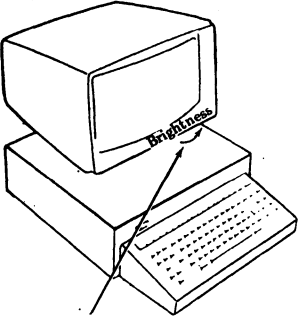
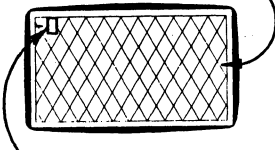
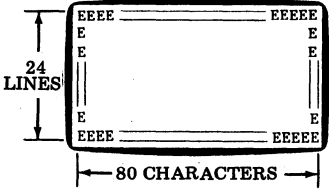
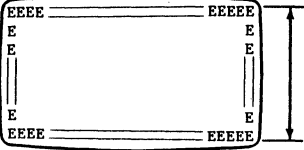
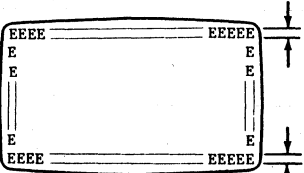
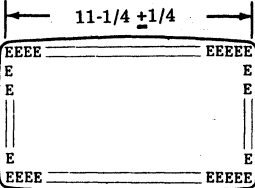
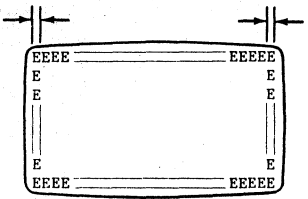

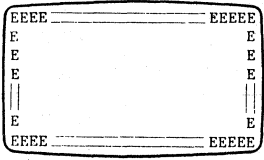
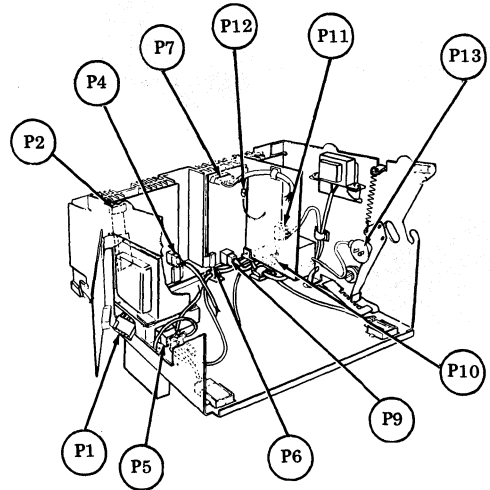
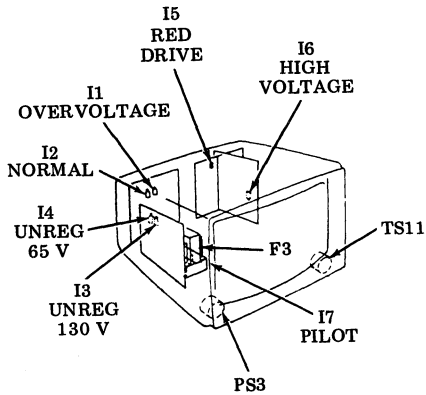
STEP NO.	PROCEDURE	CORRECT RESPONSE	ANALYSIS
3	 <p>OPERATOR BRIGHTNESS TO MAXIMUM INTENSITY</p>	<p>a. Raster clearly visible (not brilliant).</p>  <p>b. Cursor and segment marker present.</p> <p>(See Note in Step 4.)</p>	<p>Master Brightness Adjustment</p> <p>Go to Part 3, Troubleshooting.</p>
4	<p>Generate the following test pattern on the screen.</p>  <p><i>Note: Allow a 3-minute warm-up before checking or refining master brightness, vertical size, or horizontal size adjustments.</i></p>	<p>a. Characters well defined.</p> <p>b. Vertical size $5-1/4 \pm 1/8$ inch. (See Note)</p>  <p>c. Equal character height.</p>  <p>d. Horizontal size. (See Note)</p> 	<p>Focus Adjustment</p> <p>Vertical Size Adjustment</p> <p>Vertical Linearity Adjustment</p> <p>Horizontal Size Adjustment</p>

TABLE A
OPERATIONAL CHECKS (Continued)

STEP NO.	PROCEDURE	CORRECT RESPONSE	ANALYSIS
4 (cont)		<p>e. Equal character width.</p>  <p>f. Lines across display appear parallel to horizontal plane.</p>  <p>g. Test pattern centered.</p> 	<p>Horizontal Linearity Adjustment</p> <p>Yoke Orientation</p> <p>Display Centering</p>
5	Generate one line of highlighted U characters.	U's shall alternate full to half intensity at approximately one second interval as gauged by eye.	Go to Part 3, Troubleshooting.

3. TROUBLESHOOTING



Warning: Display monitor units with serial no. below 10,000 require TP403594 modification kit for compatibility with 40PSU101 power supply units with serial no. 10,000 or higher.

TABLE B
TROUBLESHOOTING PROCEDURES

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. With power ON is the red DRIVE lamp I5 ON? (Typical failure is a dark screen — no display.)	Go to 2.	Check that connector P9 is plugged into TP410656 circuit card. Replace TP410656 circuit card. Check continuity of TP341582 video cable assembly: P9, terminals 8, 9, 10, 12, 14, and 15 to J15, terminals 8, 9, 10, 12, 14, and 15 respectively.

♦TABLE B♦

TROUBLESHOOTING PROCEDURES (Continued)

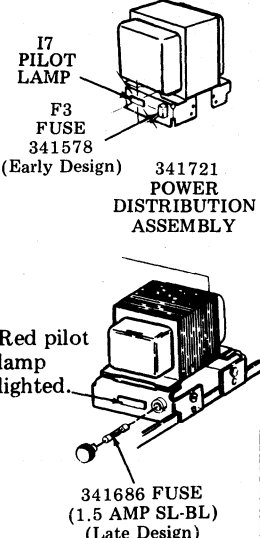
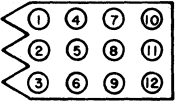
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>2. Is the PILOT lamp I7 ON?</p>  <p>I7 PILOT LAMP</p> <p>F3 FUSE 341578 (Early Design)</p> <p>341721 POWER DISTRIBUTION ASSEMBLY</p> <p>Red pilot lamp lighted.</p> <p>341686 FUSE (1.5 AMP SL-BL) (Late Design)</p>	<p>Go to 4.</p>	<p>Check fuse F3 for continuity. Replace if open circuit.</p> <p>If fuse F3 is good, check for 115 V ac on connector P5, terminals 10 to 12.</p>  <p>WIRE SIDE OF P5 CONNECTOR</p> <p>If no 115 V ac, check continuity or replace TP341581 ac cable assembly.</p> <p>If 115 V ac is present, replace TP341721 power distribution assembly.</p> <p>Go to 3.</p>
<p>3. Does fuse F3 continue to fail when replaced?</p>	<p>Replace TP410852 circuit card assembly.</p> <p>Replace TP410853 circuit card assembly.</p> <p>Replace transistor Q1 (TP341569) on heat sink.</p> <p>Replace transistor Q2 (TP318822) on heat sink.</p> <p>Replace TP410656 circuit card assembly.</p> <p>Replace transistor Q4 on heat sink.</p>	<p>Go to 4.</p>

TABLE B
TROUBLESHOOTING PROCEDURES (Continued)

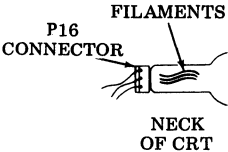
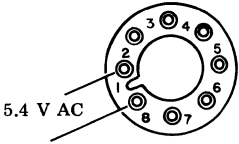
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>4. Are the CRT filaments glowing? (Failure is no display — dark screen.)</p>  <p>The diagram shows a cylindrical P16 connector with several wires extending from one end. Labels include 'FILAMENTS' pointing to the wires, 'P16 CONNECTOR' pointing to the cylinder, and 'NECK OF CRT' pointing to the base of the cylinder.</p>	<p>Go to 5.</p>	<p>With display monitor control switch PS3 OFF (CW) and connector P16 disconnected from CRT neck, check for 5.4 V ac $\pm 10\%$ at P16, terminals 1 to 8.</p>  <p>The diagram shows a circular connector with eight terminals numbered 1 through 8. A label '5.4 V AC' has two lines pointing to terminals 1 and 8. The label 'P16' is centered below the diagram.</p> <p>If 5.4 V ac is present, replace CRT.</p> <p>If no 5.4 V ac, check as follows:</p> <ol style="list-style-type: none"> Turn all power OFF. Disconnect P5. Check continuity of P5, terminal 1 to P16, terminal 8. Check continuity of P5, terminal 4 to P16, terminal 1. <p>If no continuity, replace TP341699 cable assembly.</p> <p>If continuity checks good, replace TP341721 power distribution assembly.</p>

TABLE B
TROUBLESHOOTING PROCEDURES (Continued)

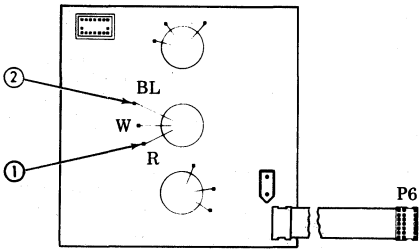
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>5. Are 65 V and 130 V unregulated lamps (I4 and I3) ON?</p>	<p>Go to 6.</p>	<p>Remove the TP410852 circuit card from the display monitor and check for 135 V ac $\pm 10\%$ on connector P1, terminals 4 to 5.</p> <p>If 135 V ac is present, replace TP410852 circuit card (with a new card).</p> <p>If no 135 V ac, replace TP341721 power distribution assembly.</p>
<p>6. Is the NORMAL lamp I2 ON?</p>  <p style="text-align: center;">TP410853 CIRCUIT CARD ASSEMBLY</p>	<p>Go to 7.</p>	<p>Check for 190 V dc $\pm 10\%$ from test point ① on TP410853 circuit card (red lead) to frame ground (chassis).</p> <p>If no 190 V dc, check that connector P2 is plugged into the TP410853 circuit card.</p> <p>If P2 is connected, replace TP410852 circuit card.</p> <p>If 190 V dc is present, check for 130 V dc $\pm 10\%$ from test point ② on TP410853 circuit card (blue lead) to frame ground (chassis).</p> <p>If no 130 V dc, replace TP410853 circuit card.</p> <p>If 130 V dc is present, replace transistor Q2 (TP318822) on heat sink.</p>

TABLE B
TROUBLESHOOTING PROCEDURES (Continued)

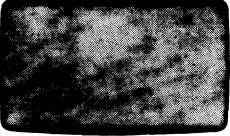
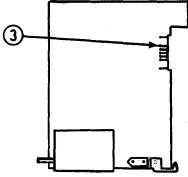
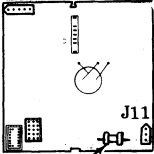
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>7. Is OVER VOLTAGE lamp I1 OFF? (Typical trouble symptom — display expanded horizontally.)</p> 	<p>Go to 8.</p>	<p>Replace TP410853 circuit card assembly in the display monitor.</p> <p>Replace transistor Q2 (TP318822) on heat sink.</p>
<p>8. Is HIGH VOLTAGE lamp I6 ON? (Typical failure is a dark screen — no display.)</p>	<p>Go to 9.</p>  <p>TP410854 CIRCUIT CARD ASSEMBLY</p>  <p>FUSE (See green and orange marking at opposite ends.)</p> <p>TP410656 CIRCUIT CARD ASSEMBLY</p>	<p>Check for 130 V dc $\pm 10\%$ from test point ③ on TP410854 circuit card (terminal 3 of card edge connector P8) to frame ground (chassis).</p> <p>If 130 V dc is present, first replace transistor Q4 (TP341570), then replace TP410854 circuit card. If I6 is still OFF, replace TP410656 circuit card.</p> <p>If no 130 V dc, check continuity of the fuse on TP410656 circuit card (bottom of card to the left of connector P11). If the fuse is open, replace it with an 18-gauge wire strap.</p> <p><i>Note:</i> Later design cards will have a wire strap or circuit land.</p>

TABLE B

TROUBLESHOOTING PROCEDURES (Continued)

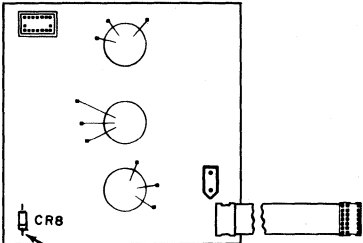

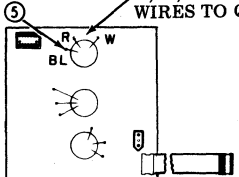
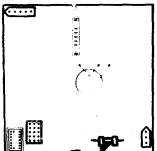
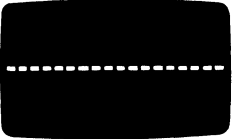

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>8. (Cont)</p>  <p>④ Test point is the lowest component lead at lower left corner of card.</p> <p>TP410853 CIRCUIT CARD ASSEMBLY</p>		<p>Check that connector P6 is plugged into TP410656 circuit card.</p> <p>Check for 130 V dc $\pm 10\%$ at test point ④ on TP410853 circuit card to frame ground (chassis).</p> <p>If no 130 V dc, replace TP410853 circuit card.</p> <p>If 130 V dc is present, replace TP410853 circuit card and then TP410656 circuit card, if I6 is still OFF.</p>
<p>9. Is there still a display problem?</p>	<p>Go to 10.</p>	<p>Display monitor is OK.</p>
<p>10. Is there a bright horizontal line on the display monitor?</p> 	<p>Decrease brightness (rotate TS11 clockwise) until line is not bright. If the horizontal line now appears dashed, go to 11.</p> <p>Check three wires from heat sink transistor Q1 to TP410853 circuit card.</p> <p>Check for 65 V dc $\pm 10\%$ at test point ⑤ on TP410853 circuit card to frame ground (chassis).</p> <p>If 65 V dc is present, replace heat sink transistor Q1 (TP341569).</p> <p>Check for presence of fuse on TP410656 circuit card (bottom of card to the left of connector P11). If fuse is present, replace it with an 18-gauge wire strap.</p>	<p>Go to 11.</p>  <p>TP410853 CIRCUIT CARD ASSEMBLY</p>  <p>FUSE (See green and orange marking at opposite ends.)</p> <p>TP410656 CIRCUIT CARD ASSEMBLY</p>

TABLE B
TROUBLESHOOTING PROCEDURES (Continued)

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
10. (Cont)	If strap is present or no fuse, replace TP410853 circuit card.	
11. Is there a dashed horizontal line on the display monitor? 	Check that connector P4 is plugged into TP410853 circuit card. Replace heat sink transistor Q3 (TP341568). Replace TP410853 circuit card.	Go to 12.
12. Is there a raster (rectangular lighted background area visible when brightness is turned up — TS11 full CCW) but no cursor, segment marker, or characters?	Replace TP410656 circuit card. Check continuity of video cable (TP341582) dot information leads: P9, terminal 3 to J15, terminal 3 and P9, terminal 6 to J15, terminal 6.	Go to 13.
13. Is display rolling?	Replace TP410853 circuit card. Replace TP410656 circuit card. Replace TP410852 circuit card. Check continuity of video cable (TP341582) vertical sync leads: P9, terminal 11 to J15, terminal 11 and P9, terminal 13 to J15, terminal 13.	Go to 14.

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
14. Can brightness be controlled by turning the operator brightness control TS11?	Go to 15.	<p>Check that connector P11 is plugged into the TP410656 circuit card.</p> <p>Check continuity of TP341559 brightness control w/cable assembly: P11, terminals 1 to 3 and P11, terminals 1 to 2 where resistance reading should vary as TS11 is rotated.</p> <p>Replace TP410656 circuit card.</p>
<p>15. Is the display reduced to approximately 3/4 inch in height?</p> 	Replace TP410853 circuit card.	Go to 16.
16. Is there a dim vertical line on the display monitor?	<p>Check that connector P10 is plugged into the TP410854 circuit card.</p> <p>Replace TP410854 circuit card.</p>	Go to 17.
17. Can characters be highlighted?	Display monitor is OK.	<p>Replace TP410656 circuit card.</p> <p>Check continuity of video cable (TP341582) highlight leads: P9, terminal 1 to J15, terminal 1 and P9, terminal 2 to J15, terminal 2.</p>

◆ *Note:* The 40MN101 display monitor (60 Hz) will exhibit significant distortion of the display or waviness if power source frequency deviates from 60 Hz by more than 0.1 percent for extended periods. This condition can be eliminated by use of the 40MN201 display monitor (50/60 Hz). ◆

◆“DATASPEED*” 40 DISPLAY MONITOR (40MN101 and 40MN201)

ADJUSTMENTS AND LUBRICATION ◆

CONTENTS	PAGE
1. GENERAL	1
2. ELECTRICAL ADJUSTMENTS....	2
Horizontal Centering.....	3
Master Brightness	4
Focus	5
Vertical Size	5
Vertical Linearity	6
Horizontal Size	6
Horizontal Linearity	7
Yoke Orientation	7
Display Centering	8
3. MECHANICAL ADJUSTMENTS ...	8
Tube Tilt Mechanism.....	8

1. GENERAL

1.01 This section provides the adjustment procedures for the DATASPEED 40 display monitor (40MN101 and 40MN201) (Fig. 1).

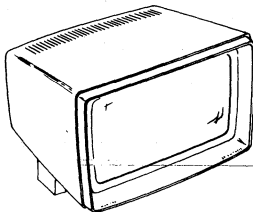


Fig. 1—DATASPEED 40 Display Monitor

1.02 ◆ This section is being reissued to include a 40MN201 monitor code, revision to the focus adjustment and a new horizontal centering adjustment on the interface/amplifier assembly. Revision arrows are used to emphasize the more significant changes. ◆

1.03 The electrical adjustments are to be made with the monitor housing removed and the heat sink lowered. Refer to Section 582-213-701 to perform these operations.

Danger: Wear safety glasses when the monitor housing is removed, and observe all safety precautions to avoid accidental electrical shock or breakage of the cathode ray tube.

1.04 To make the electrical adjustments, the monitor should be operated as part of a full edit DATASPEED 40 KD Set, or equivalent (Fig. 2).

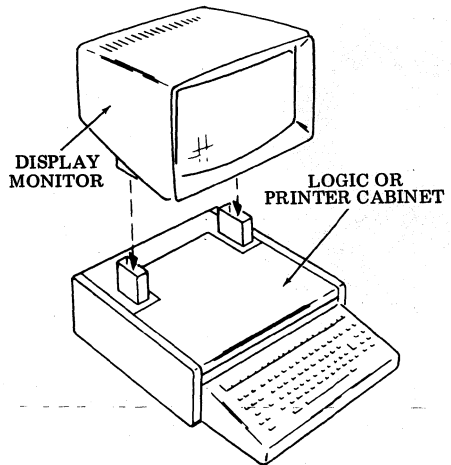


Fig. 2—Typical Display Monitor Arrangement

1.05 Most of the electrical adjustments require a test pattern (Fig. 3) on the display tube face consisting of the character “E” (or equivalent) in all positions around the perimeter of the display.

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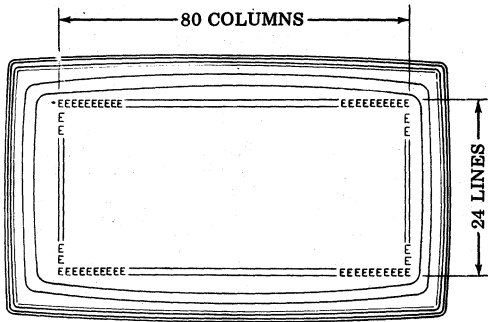
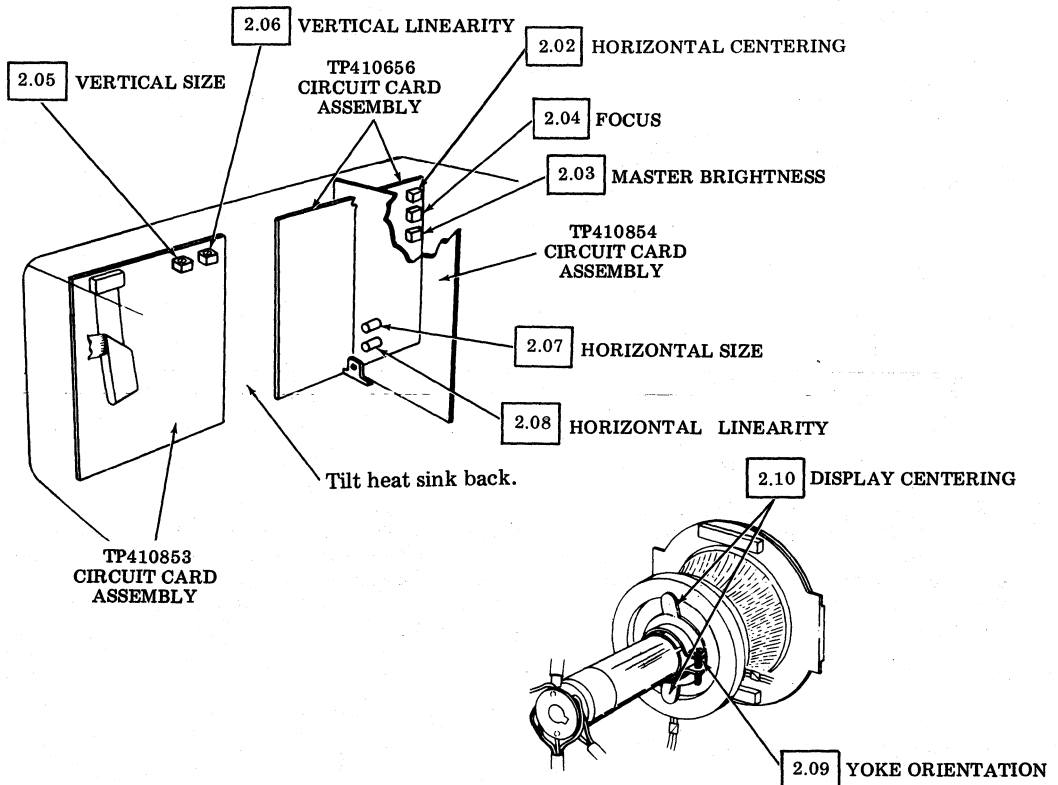


Fig. 3—Display Test Pattern

1.06 No lubrication is required in the display monitor.

2. ELECTRICAL ADJUSTMENTS

2.01 The number alongside each adjustment (Fig. 4) indicates the paragraph covering the respective adjustment.



◆ Fig. 4—Electrical Adjustments ◆

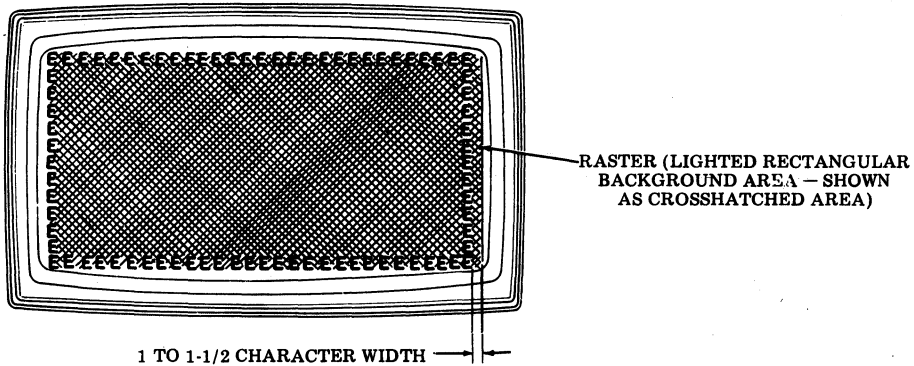
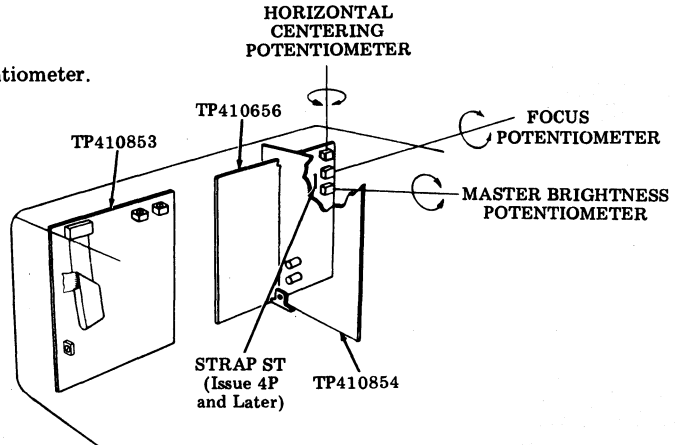
2.02 ♦ Horizontal Centering ♦

Requirement (TP410656 Issue 5A and later)

The space between the 80th character and the right edge of the raster shall be 1 to 1-1/2 character width (gauged by eye) after a three minute warmup.

To Adjust

Rotate horizontal centering potentiometer.

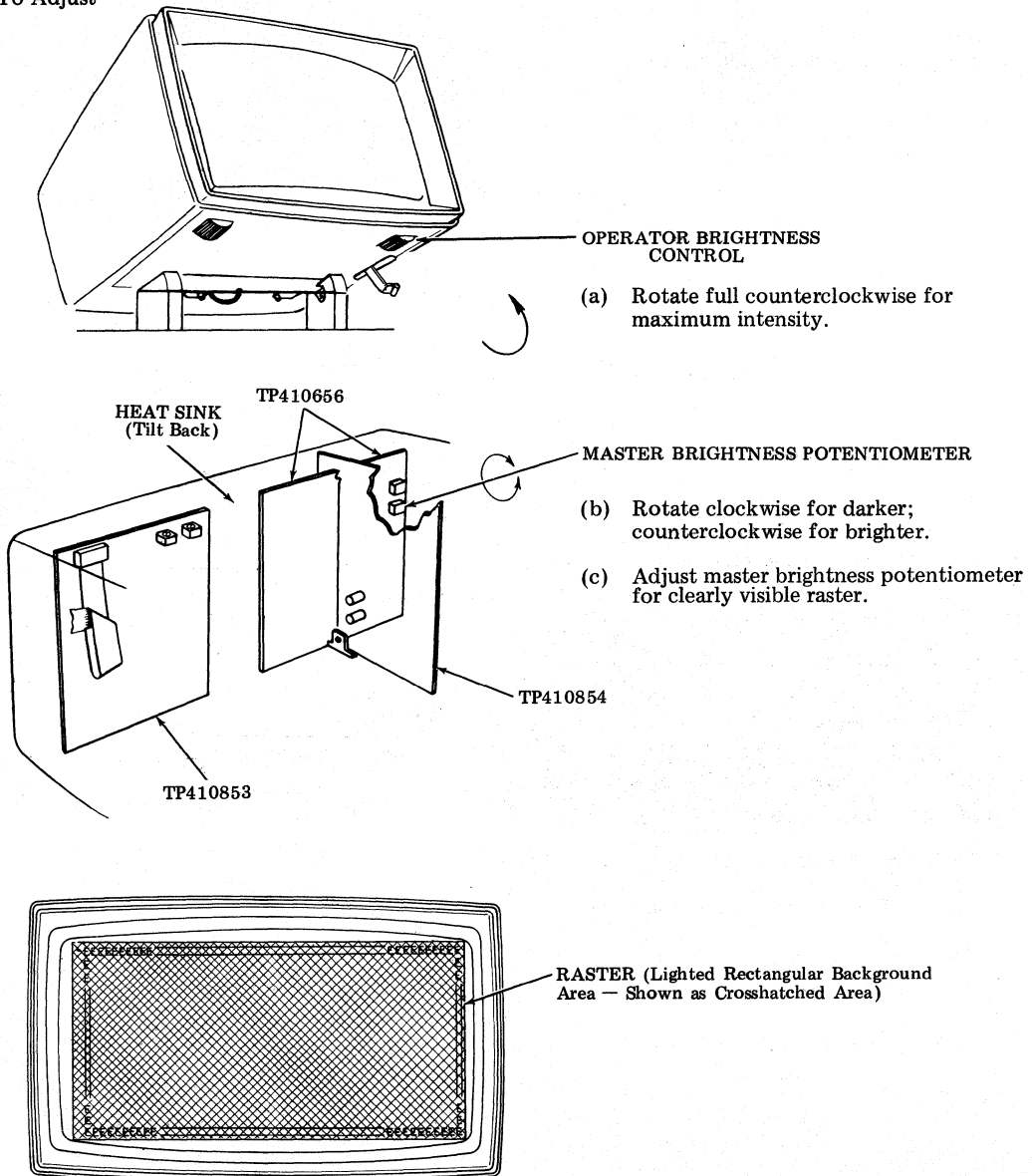


2.03 Master Brightness

Requirement

After a 3-minute warm-up, the raster (lighted rectangular background) shall be clearly visible (not brilliant) with operator brightness control turned full counterclockwise to maximum intensity.

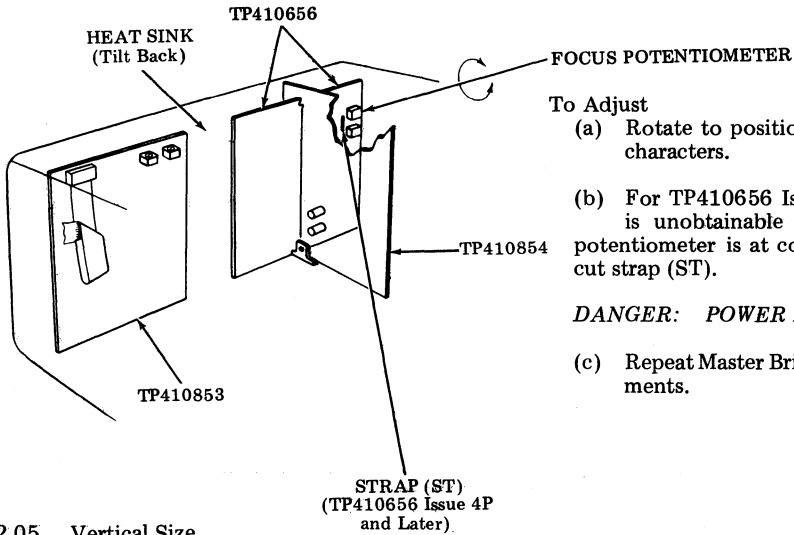
To Adjust



2.04 Focus

Requirement

The display characters shall be well defined.



To Adjust

- (a) Rotate to position giving sharpest display characters.
- (b) For TP410656 Issue 4P and later, if focus is unobtainable and sharpest setting of potentiometer is at counterclockwise extreme, cut strap (ST).

DANGER: POWER DOWN FIRST.

- (c) Repeat Master Brightness and Focus adjustments.

2.05 Vertical Size

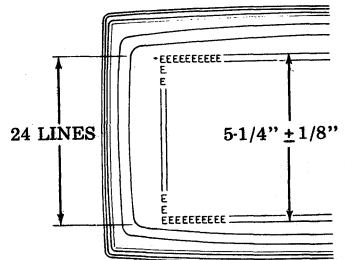
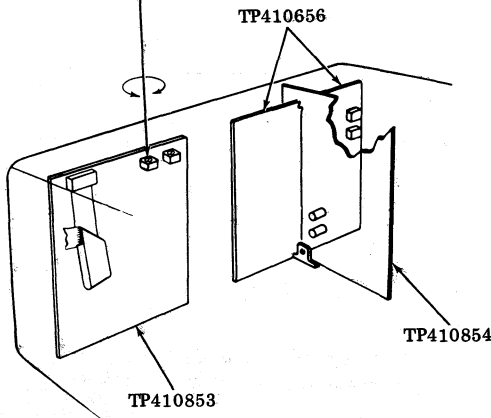
Requirement

After a 3-minute warm-up, the height of the 24 lines shall be 5-1/4 inches $\pm 1/8$ inch.

To Adjust

Rotate clockwise to decrease; counterclockwise to increase.

VERTICAL SIZE POTENTIOMETER



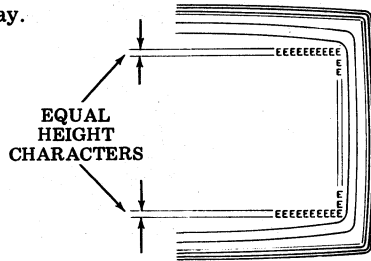
2.06 Vertical Linearity

Requirement

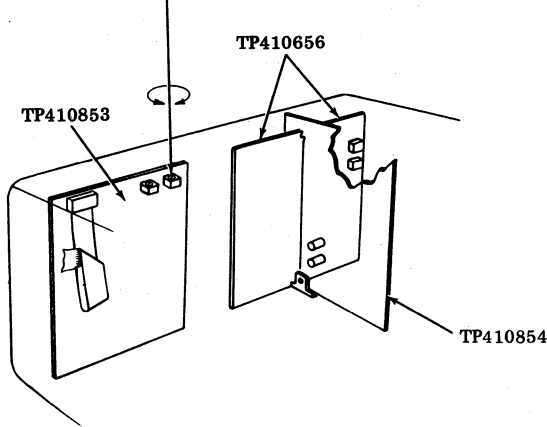
Character height shall be uniform throughout the display.

To Adjust

Rotate clockwise to decrease top row;
counterclockwise to decrease bottom.



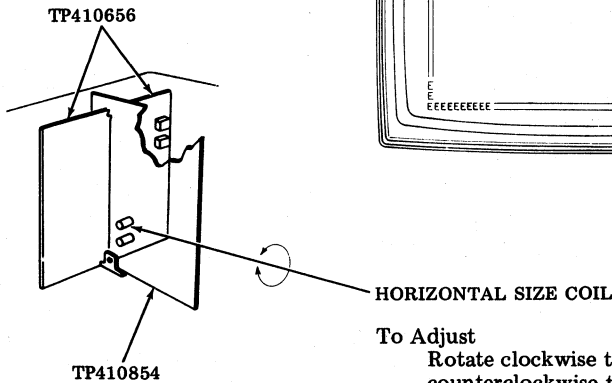
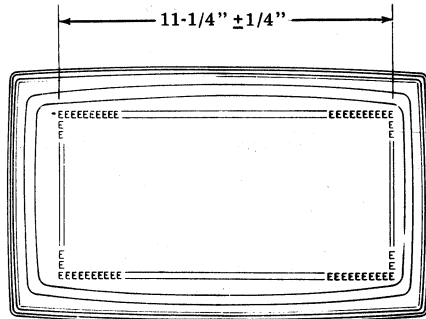
VERTICAL LINEARITY POTENTIOMETER



2.07 Horizontal Size

Requirement

After a 3-minute warm-up, the width of 80 characters shall be 11-1/4 inches $\pm 1/4$ inch.



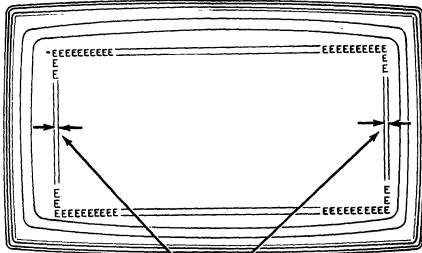
To Adjust

Rotate clockwise to decrease width;
counterclockwise to increase width.

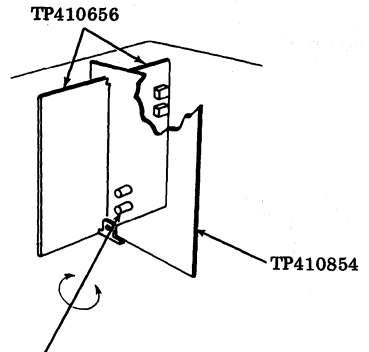
2.08 Horizontal Linearity

Requirement

Character width shall be uniform throughout the display as gauged by eye.



EQUAL WIDTH CHARACTERS
(Gauged by Eye)



HORIZONTAL LINEARITY COIL

To Adjust

- (a) Rotate for uniform width characters.
- (b) Check and refine (if necessary) 2.07 Horizontal Size adjustment.

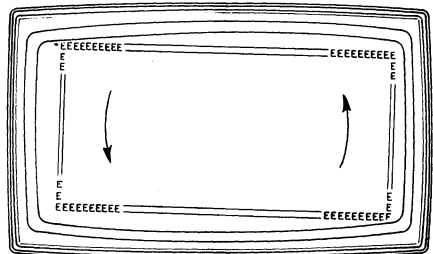
2.09 Yoke Orientation

Requirement

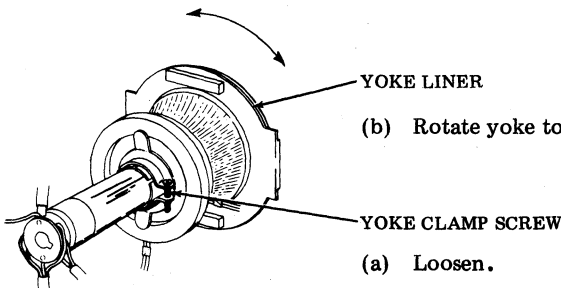
The rectangular display area shall be aligned (rotationally) to the cathode ray tube face.

Warning: High voltages are present at the yoke. Handle only by the yoke liner. The neck of the CRT is fragile. Be careful not to strike the glass with screwdrivers, etc. Do not overtighten the yoke clamp screw.

To Adjust



Rotate yoke to align display.



YOKE LINER

YOKE CLAMP SCREW

- (b) Rotate yoke to align display with CRT face.

- (a) Loosen.
- (c) Do not overtighten.

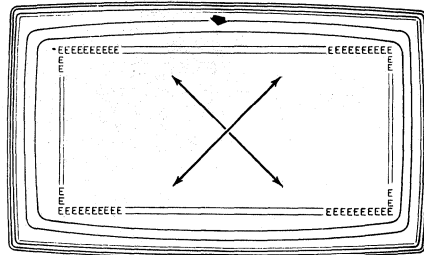
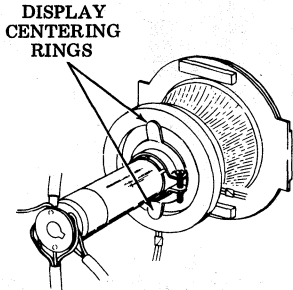
2.10 Display Centering

Requirement

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

To Adjust

Rotate two centering rings by tabs.



Display movement as centering rings are rotated.

3. MECHANICAL ADJUSTMENTS

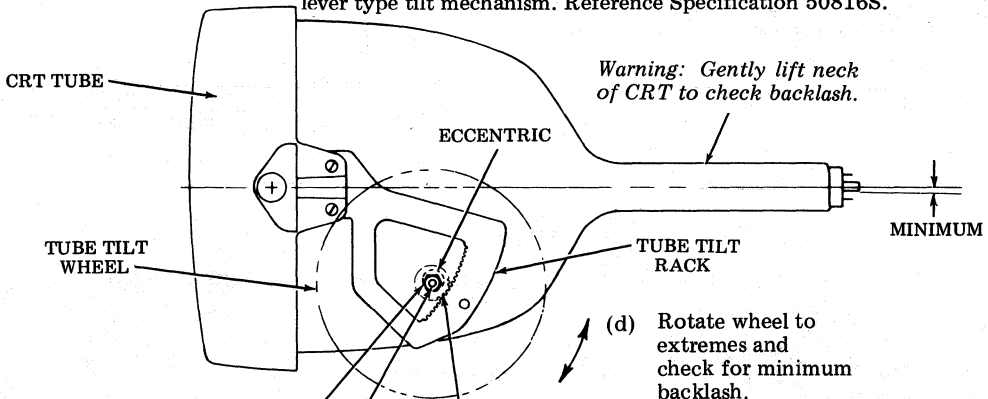
3.01 Tube Tilt Mechanism

Requirement (Early Design — Wheel Type)

Backlash shall be minimum between the tube tilt gear and rack without binding throughout tilt range.

To Adjust

Note: The early design wheel type tube tilt mechanism is replaced in current design by a lever type tube tilt mechanism which does not require adjustment. If any of the wheel type tube tilt components require replacement, install TP402286 Modification Kit to provide improved lever type tilt mechanism. Reference Specification 50816S.



(a) Loosen eccentric locking nut.

(b) Use 0.062 Allen wrench.

(c) Adjust for minimum backlash.

(d) Rotate wheel to extremes and check for minimum backlash.

(e) Tighten locknut.

“DATASPEED*” 40 DISPLAY MONITOR

DISASSEMBLY AND REASSEMBLY AND PARTS

CONTENTS	PAGE	CONTENTS	PAGE
1. GENERAL	1	2.15 TP341502 Cathode Ray Tube (CRT)	17
2. DISASSEMBLY AND REASSEMBLY PROCEDURES	4	2.16 Heatsink Assembly	18
2.01 TP401125 Housing	4	2.17 TP341582 Video Cable Assembly and Right Support Bracket	19
2.02 Heatsink to Lowered Position	5	2.18 TP341581 AC Cable Assembly and Left Support Bracket	20
2.03 TP410852 Rectifier Circuit Card Assembly	5	3. PARTS	21
2.04 TP410853 Regulator Circuit Card Assembly	6	NUMERICAL INDEX	28
2.05 TP410854 High Voltage Circuit Card Assembly	7	1. GENERAL	
2.06 TP410656 Interface/Amplifier Circuit Card Assembly	8	1.01 ♦This section provides disassembly and reassembly and parts information for the DATASPEED 40 display monitors (40MN101 and 40MN201).♦	
2.07 ♦TP341721 and TP341795 Power Distribution Assemblies.	9♦	1.02 This practice is reissued to add parts identification information and to include design changes. ♦Revision arrows are used to emphasize the more significant changes.♦	
2.08 TP341559 Brightness Control W/Cable Assembly	10	1.03 Fig. 1 and 2 are provided to identify major subassemblies and parts of the display monitor. References to Part 2 are given to aid in disassembly and reassembly procedures.	
2.09 TP341726 Monitor OFF/ON Control Assembly	11	1.04 When removing a subassembly or part from the display monitor, follow the removal procedure and note the sequence of removal to enable proper reassembly. For reassembly, reverse the removal procedure except where different instructions are given.	
2.10 Heatsink Transistors	12	<i>Note:</i> The parts identification provided in Part 3 is for reference only. Disassembly to this level is not recommended as a field practice, rather, it should be restricted to repair locations.	
2.11 TP341699 CRT Cable Assembly	13		
2.12 ♦TP341698 and TP341794 Deflection Yoke Assemblies	14♦		
2.13 TP341689 Choke Assembly	15		
2.14 Tube Tilt Mechanism	16		

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1.05 Refer to Maintenance Tools Section 570-005-800 for a complete listing of the various types of hand tools available for maintenance of TELETYPE® equipment. The following is a listing of the tools required to perform the disassembly and reassembly of the DATASPEED 40 display monitor.

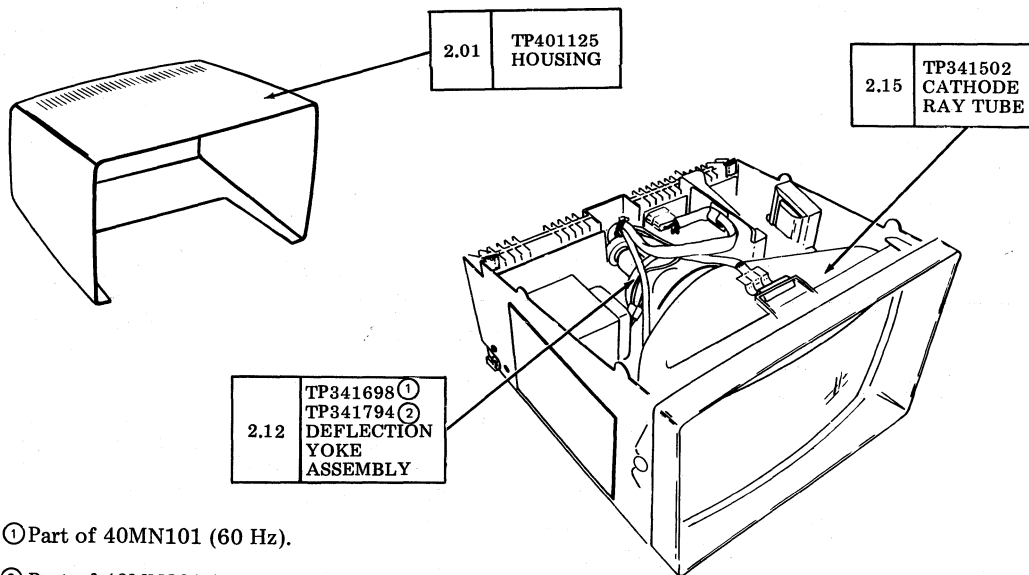
Part Number	Description
TP75765	Spring Hook — pull
TP89954	Nut Driver — 1/4 inch
TP100982	Screwdriver — 6 inch medium
TP108285	Long-Nose Pliers
TP108286	Cutting Pliers
TP129534	Open End Wrench — 1/4 inch
TP182697	Terminal Extractor

1.06 After disassembly and reassembly of a subassembly or component are performed, the associated adjustments shall be checked, and relubrication (if applicable) shall be performed. Adjustments and lubrication for the DATASPEED 40 display monitor are covered in Section 582-213-700.

1.07 For all disassembly or reassembly procedures or when disconnecting or reconnecting any of the electrical components of the display monitor, all power and video signals to the monitor shall be turned off to avoid safety hazards and prevent electrical component damage. A recommended safety practice is to unplug all ac input power cords.

Caution: Wear approved safety glasses when the housing of the monitor is removed, as the display tube is fragile in the neck area and is subject to implosion if broken. Be careful not to strike the glass of the tube with tools or components when working in its vicinity. See Section 010-110-002.

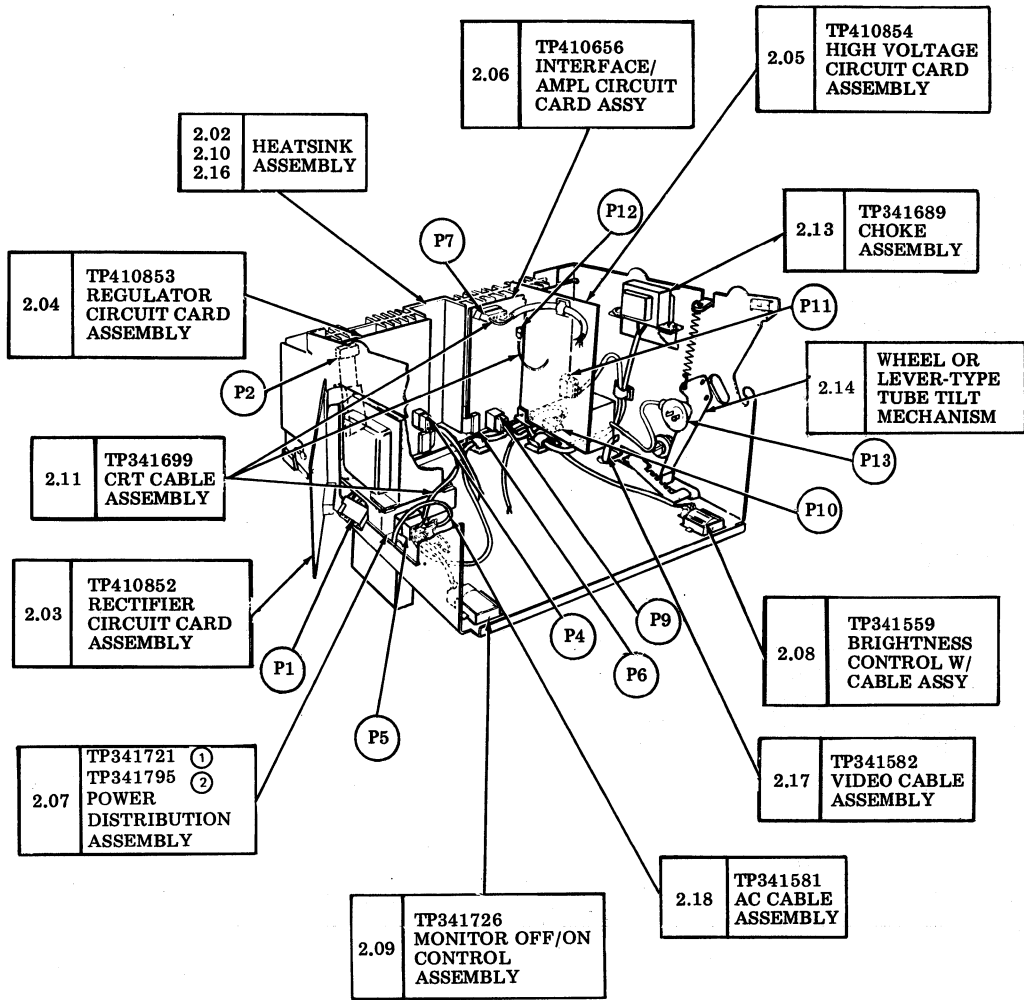
1.08 ♦The parts information (Part 3) for the display monitor is given in pictorial views (Figs. 3 through 12).♦ The part numbers of replaceable components are listed in the index at the end of Part 3. The index lists the pages where each part is found for identification or disassembly/reassembly.



- ① Part of 40MN101 (60 Hz).
- ② Part of 40MN201 (50/60 Hz).

Note: To remove a subassembly or individual part, follow the procedure referenced in the enclosed rectangle.

♦Fig. 1—DATASPEED 40 Display Monitor With Housing Removed♦



- ① Part of 40MN101 (60 Hz).
- ② Part of 40MN201 (50/60 Hz).

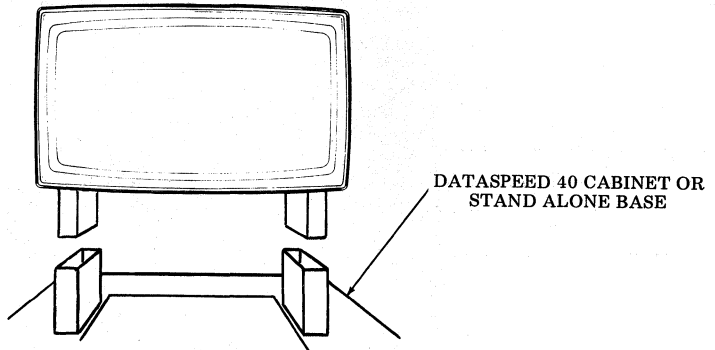
Note: To remove a subassembly or individual part, follow the procedure referenced in the enclosed rectangle.

◆Fig. 2—DATASPEED 40 Display Monitor Component Identification◆

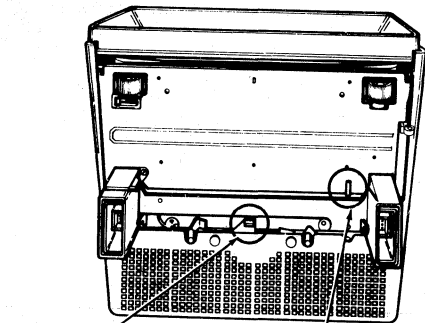
2. DISASSEMBLY AND REASSEMBLY PROCEDURES ♦

The disassembly and reassembly procedures are based upon the following initial conditions unless otherwise specified:

- a The display monitor shall be placed on a suitable holding fixture.
- b Remove the TP401125 housing (2.01).
- c Lower the heatsink (2.02).

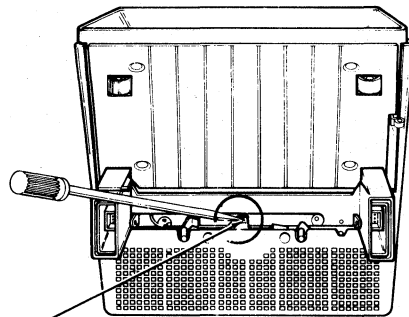


2.01 TP401125 Housing



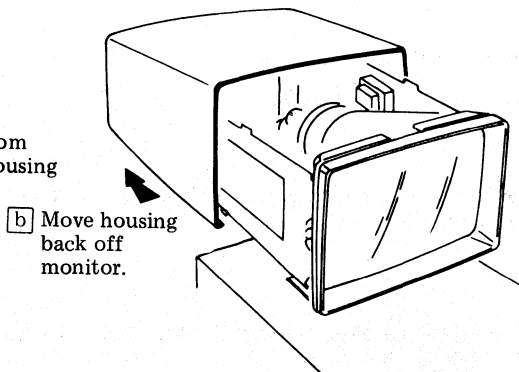
- a Release latch by hand. (Early Design)

- c TILT RELEASE — Prevents monitor from tilting back when housing is removed.

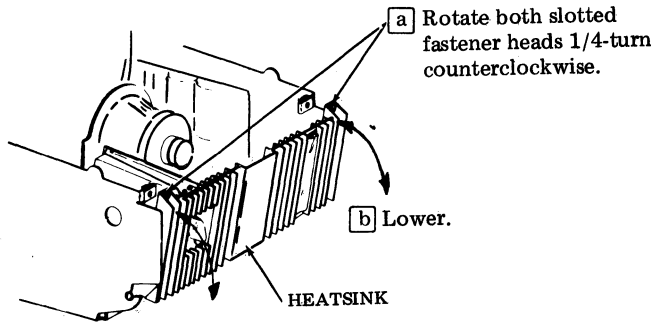


- a Release latch with screwdriver. (Late Design)

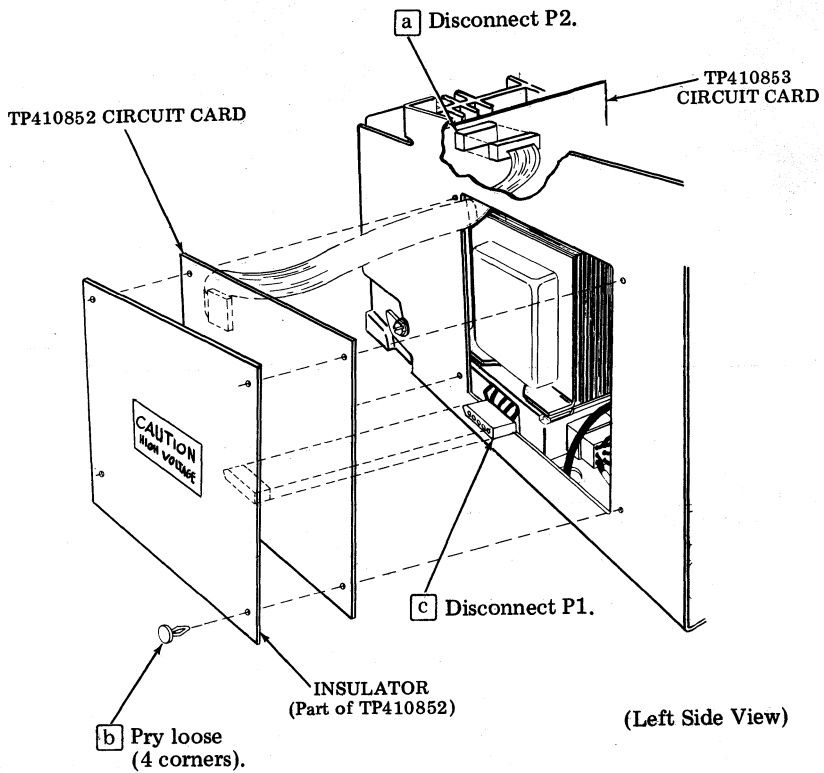
WEAR SAFETY GLASSES



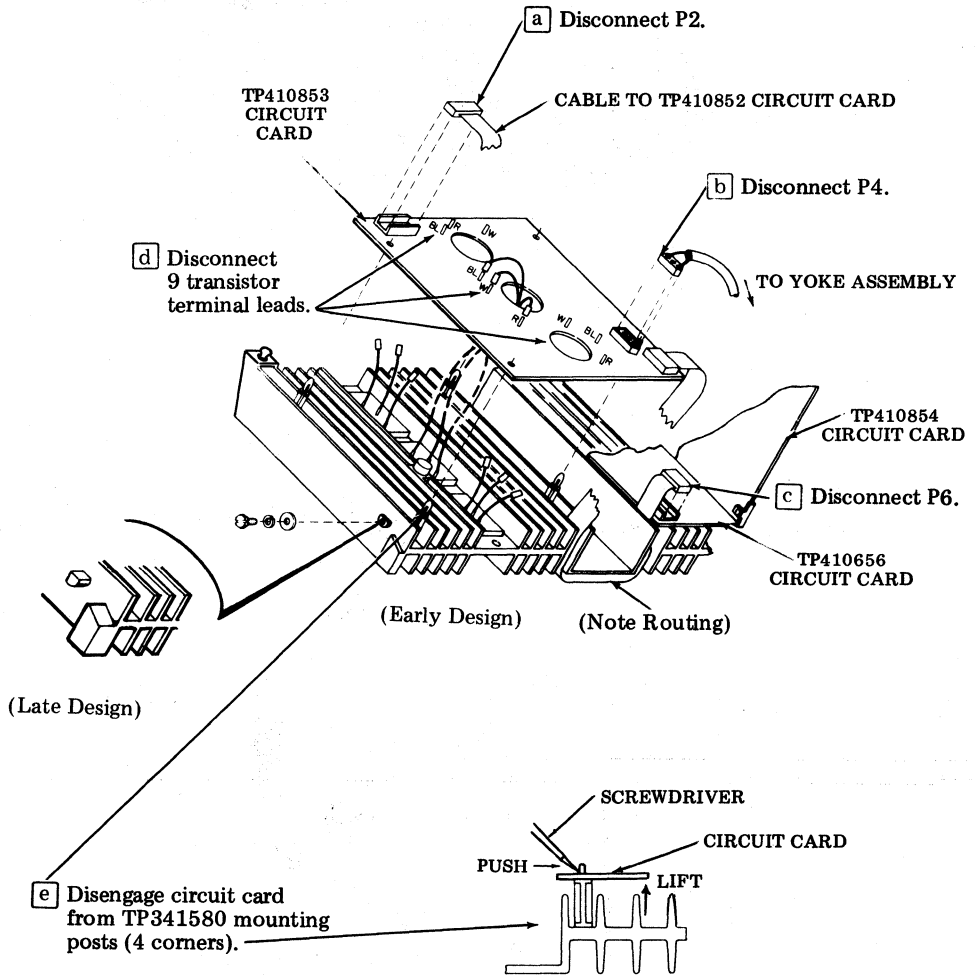
2.02 Heatsink to Lowered Position



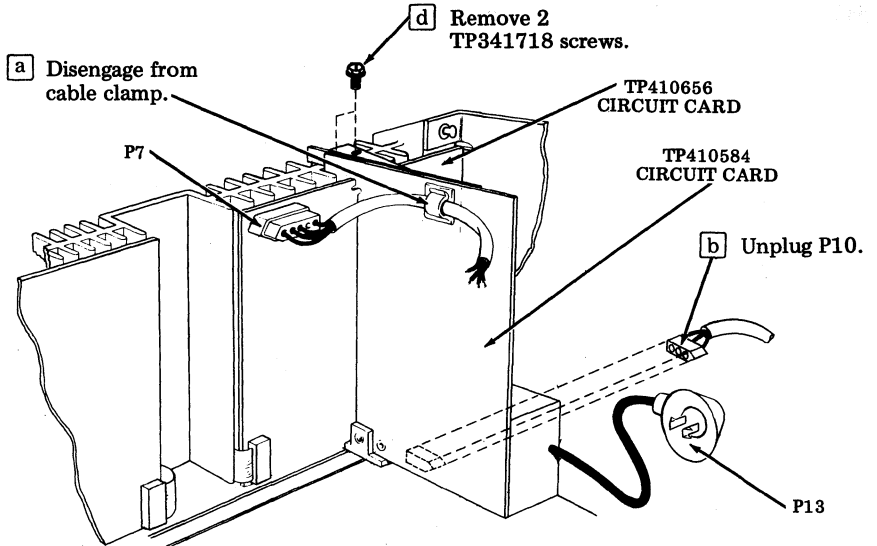
2.03 TP410852 Rectifier Circuit Card Assembly



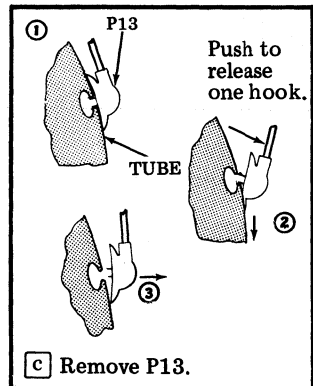
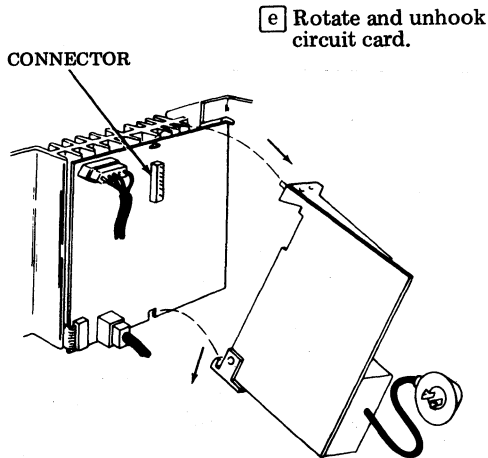
2.04 TP410853 Regulator Circuit Card Assembly



2.05 TP410854 High Voltage Circuit Card Assembly

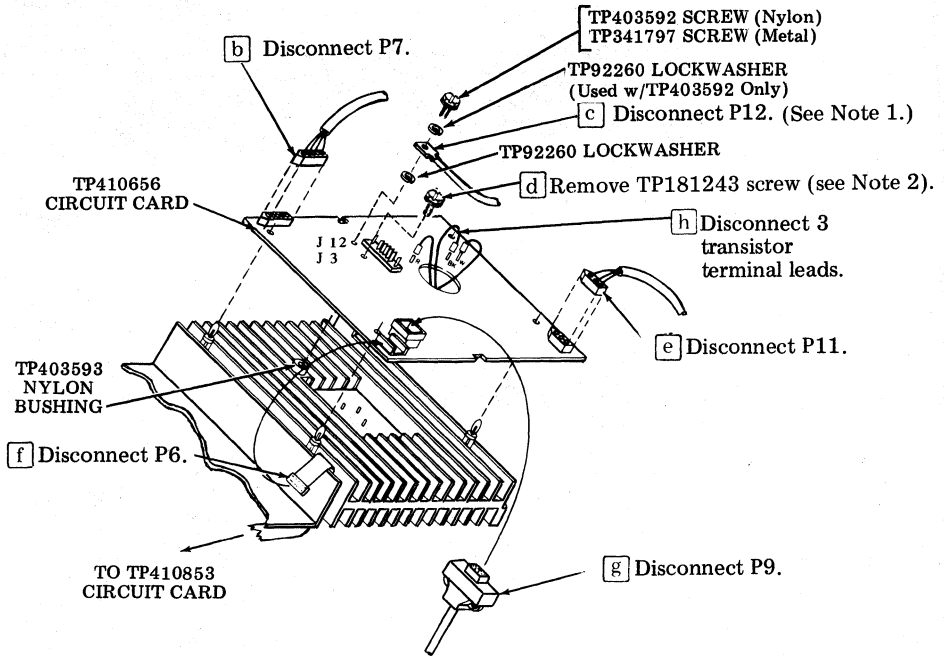


Note: P13 lead should point toward neck of tube when reassembled.

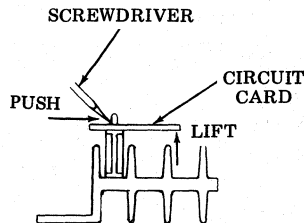


2.06 ♦TP410656 Interface/Amplifier Circuit Card Assembly♦

a Remove TP410854 high voltage circuit card assembly (2.05).



j Disengage circuit card from TP341580 mounting posts (4 corners).

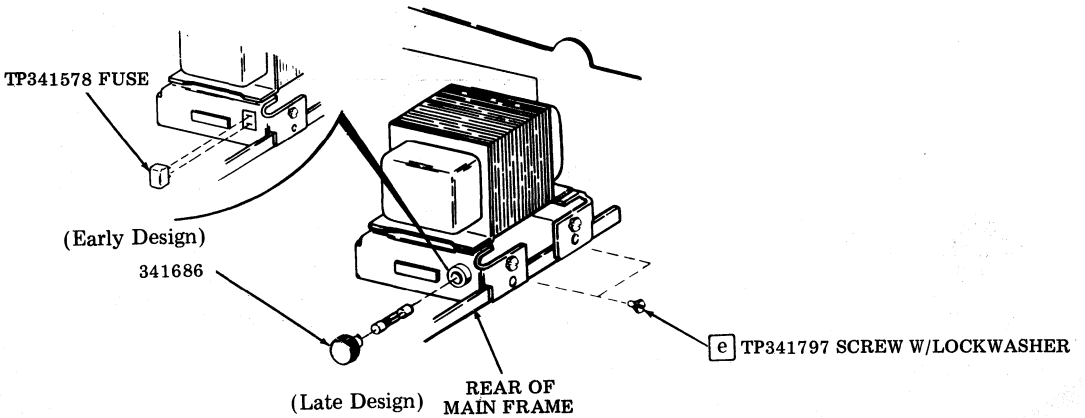
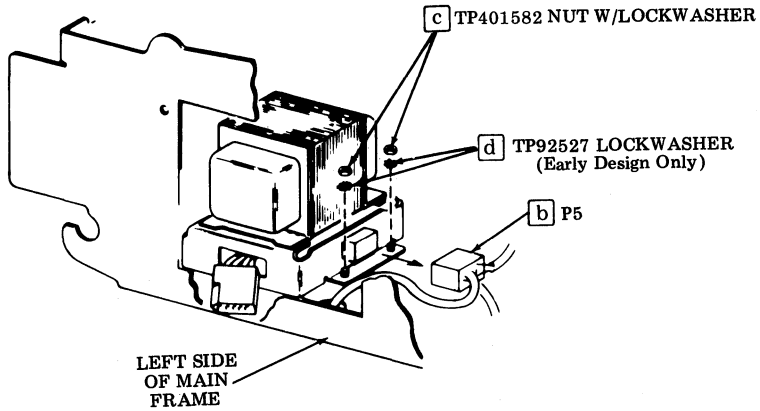


Note 1: Several methods have been used to fasten P12 to the TP410656 circuit card. Issue 4G and higher of TP410656 requires use of TP341797 screw (metal) which does not enter the heatsink but isolates frame and circuit ground. Display monitors with serial numbers below 10,000 were originally shipped with a metal screw frame grounding P12 and TP410656 circuit ground; and the TP403594 modification kit enables conversion of these units for compatibility with power supply units serial numbers 10,000 and above. (Ref TCN 2097 and TCN 2220)

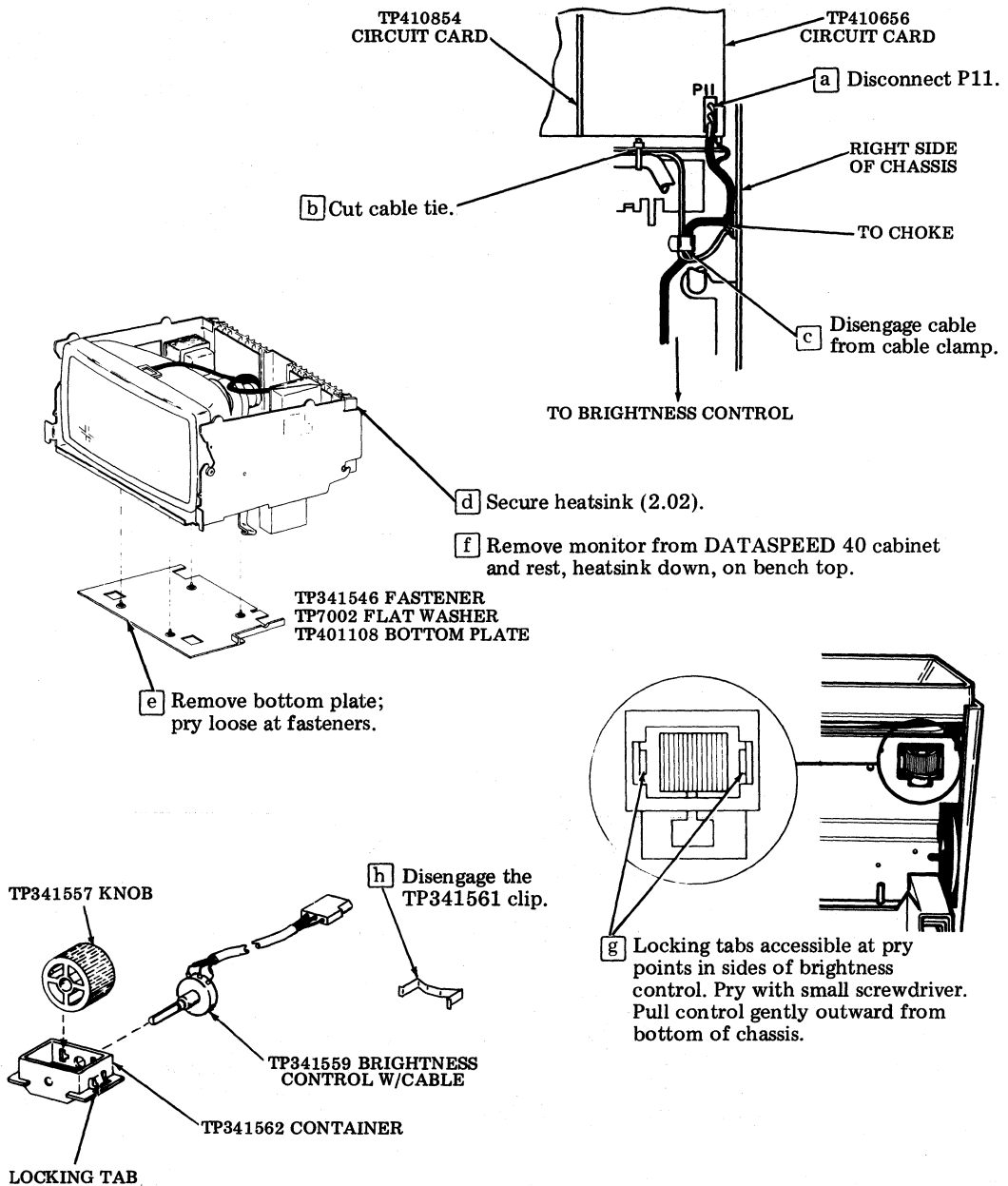
Note 2: Hole J3 was added to accommodate connection to heatsink via added TP181243 screw, at Issue 4P of the TP410656 circuit card.

2.07 ♦TP341721 Power Distribution Assembly (used on 40MN101 60 Hz)
 TP341795 Power Distribution Assembly (used on 40MN201 50/60 Hz)♦

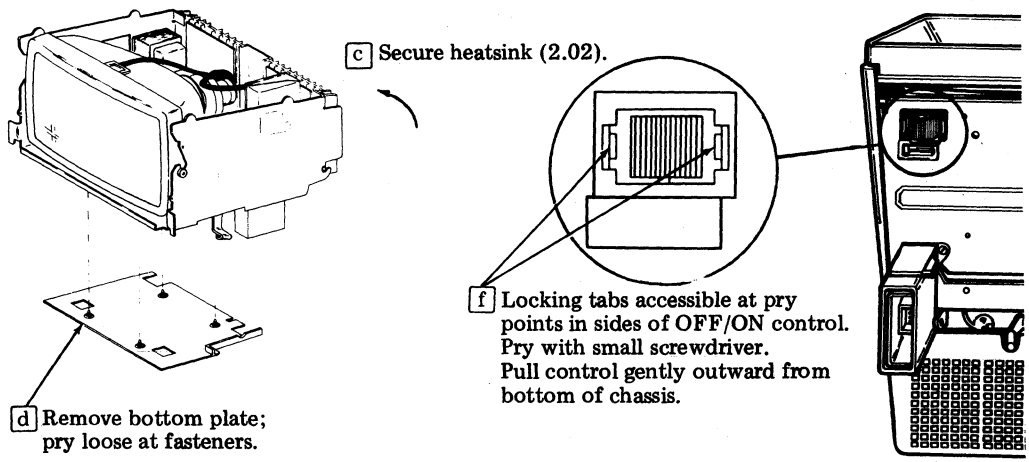
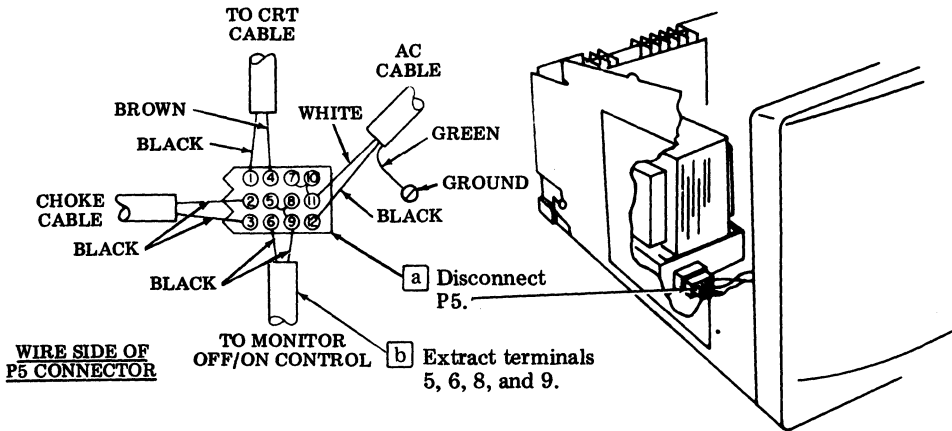
- a] Remove TP410852 rectifier circuit card assembly (2.03).



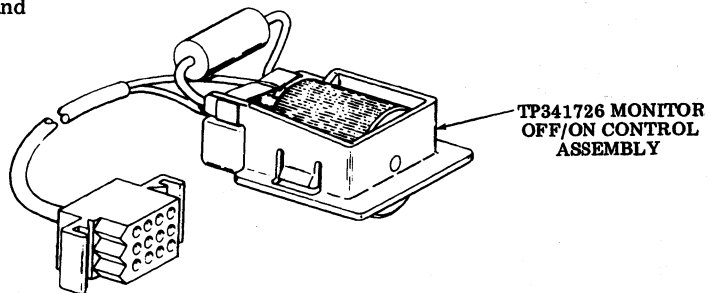
2.08 TP341559 Brightness Control W/Cable Assembly



2.09 TP341726 Monitor OFF/ON Control Assembly

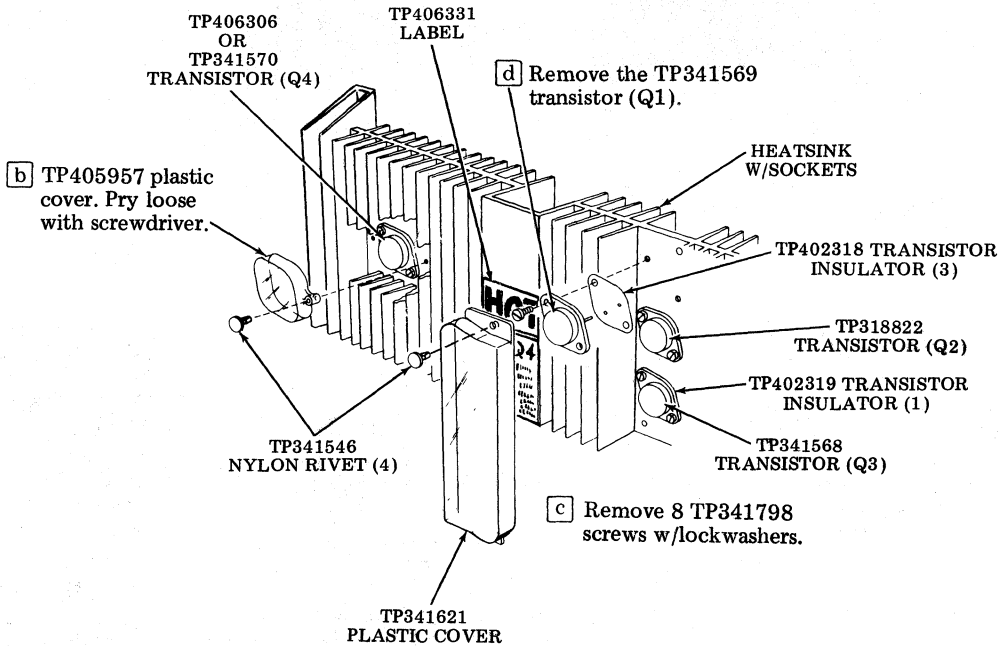


e Remove monitor from DATASPEED 40 cabinet and rest, heatsink down, on bench top.



2.10 ♦Heatsink Transistors ♦

a Secure heatsink in upright position.

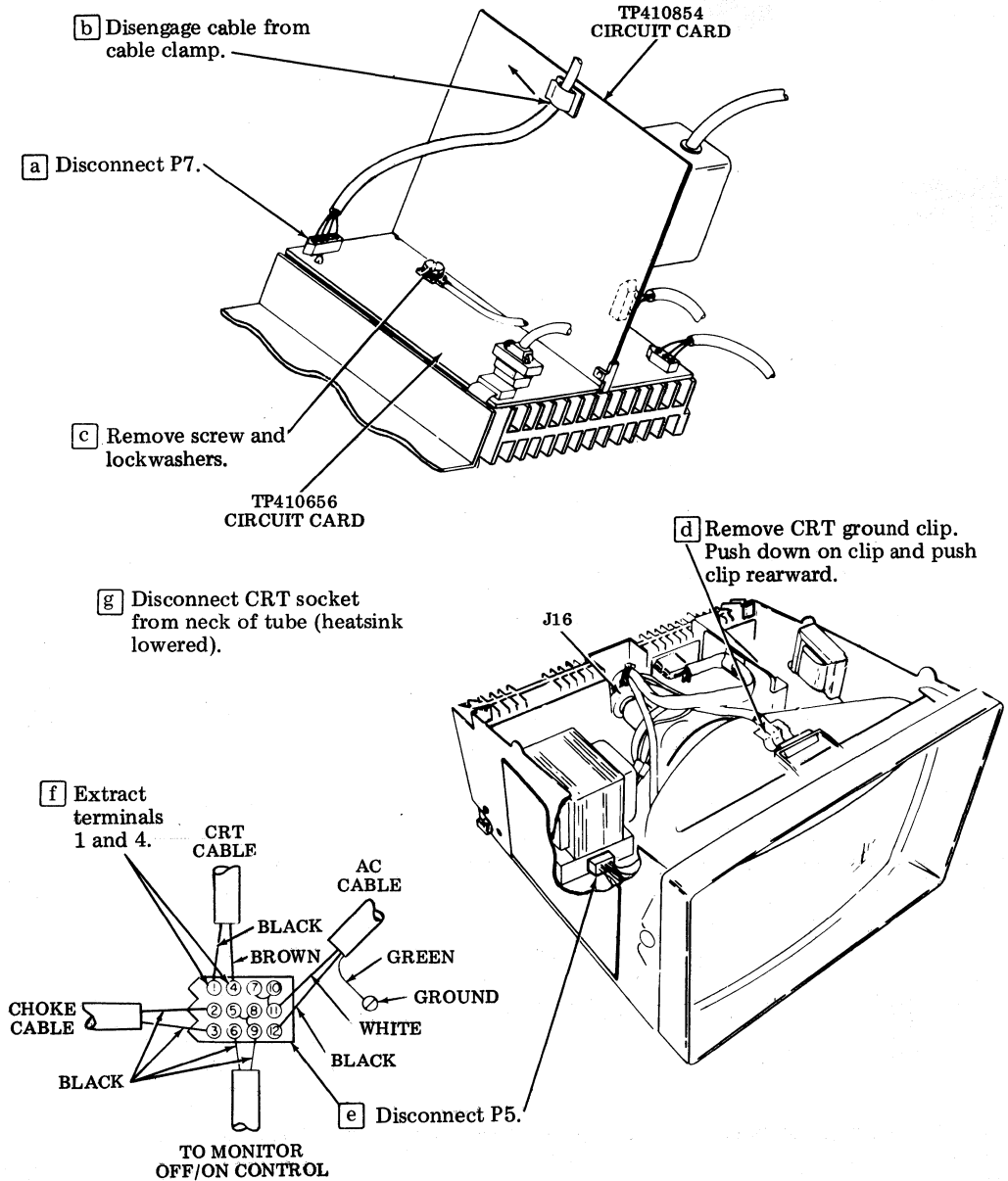


Note 1: The TP402319 mica insulator requires a coating of thermal joint compound applied to rear side of transistor and on heatsink surface.

Note 2: The TP402318 fiberglass reinforced silicone rubber insulator does not require thermal joint compound.

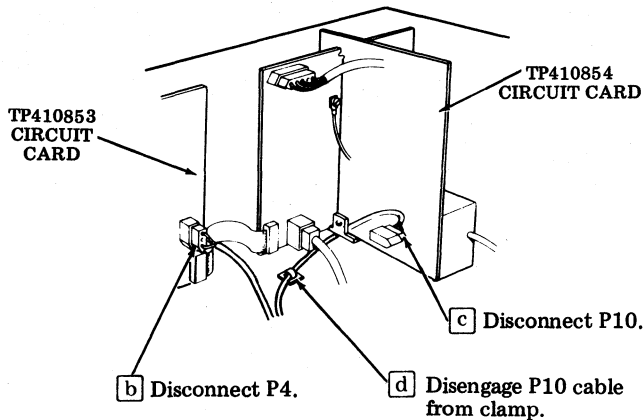
Note 3: Transistor Q4 part number TP406306 can only be used with TP410656 Issue 5A or later, incorporating R39 part number TP406292 horizontal centering control. Transistor Q4 part number TP341570 can be used with any issue TP410656 circuit card.

2.11 TP341699 CRT Cable Assembly

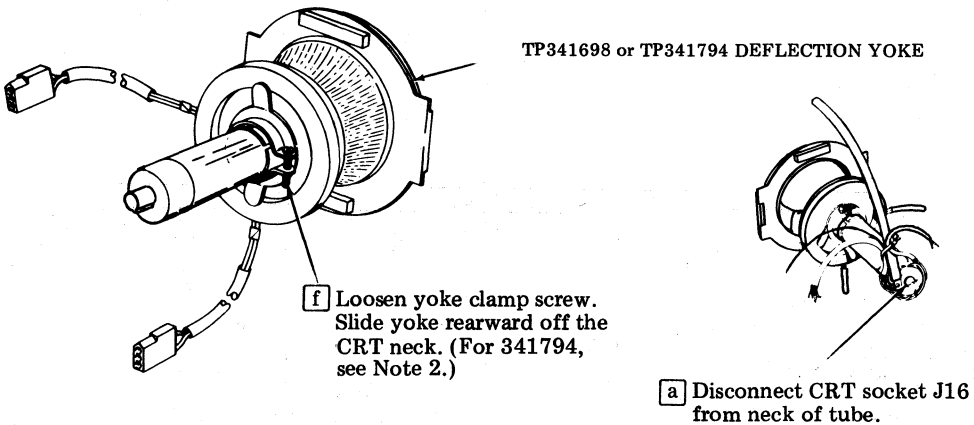


WIRE SIDE OF CONNECTOR P5

2.12 ♦TP341698 Deflection Yoke Assembly (part of 40MN101 60 Hz)
TP341794 Deflection Yoke Assembly (part of 40MN201 50/60 Hz)♦



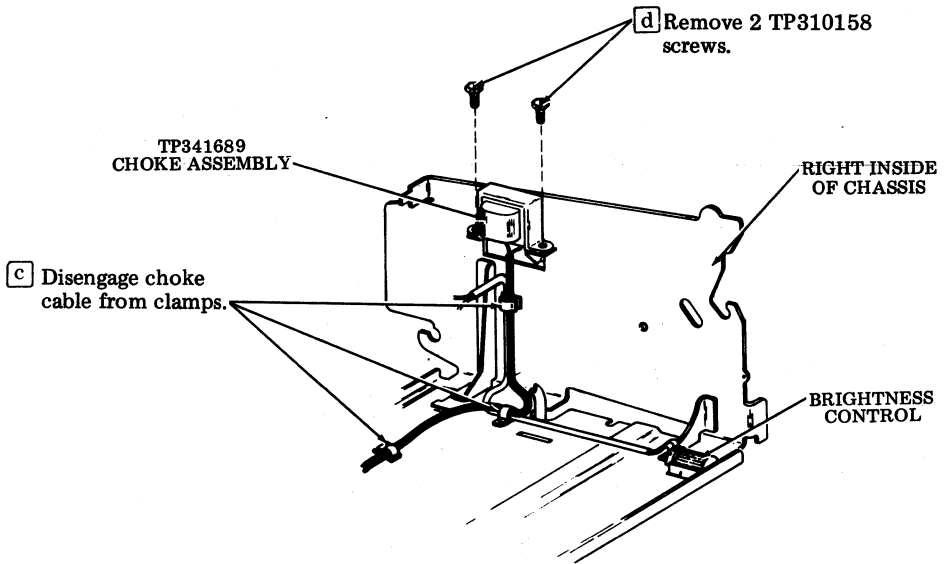
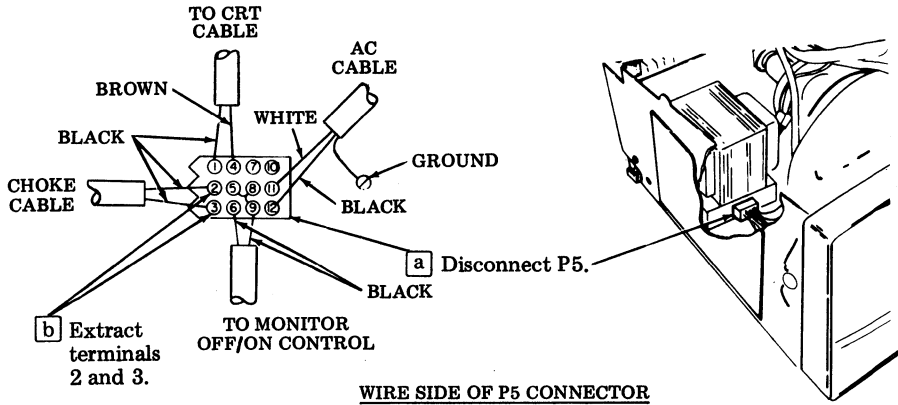
e Raise neck of CRT to highest angle by rotating tube tilt control.



Note 1: In reassembly, make certain that proper connectors are remated. Do not overtighten yoke clamp screw.

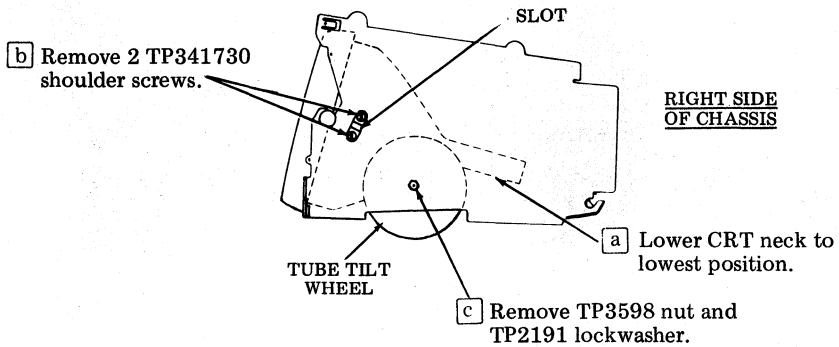
Note 2: To gain access to TP341794 yoke's clamp screw, slide TP341754 end cap off rear of tube. To slide TP341794 yoke off tube, the TP341753 shield must also be removed. Reference on page 26.

2.13 TP341689 Choke Assembly



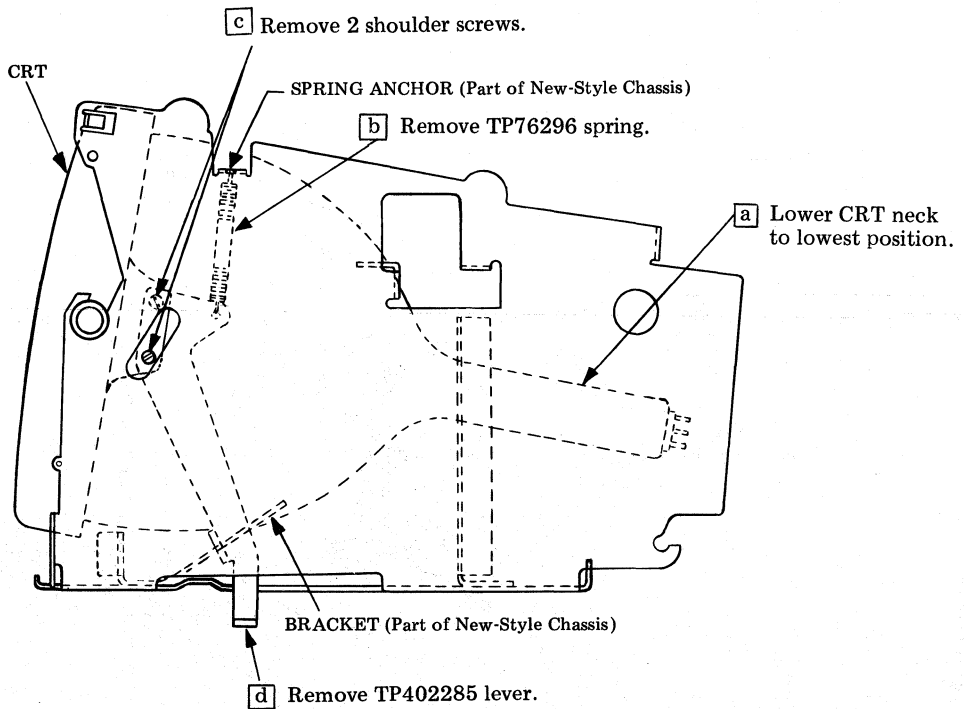
2.14 Tube Tilt Mechanism

Wheel-Type



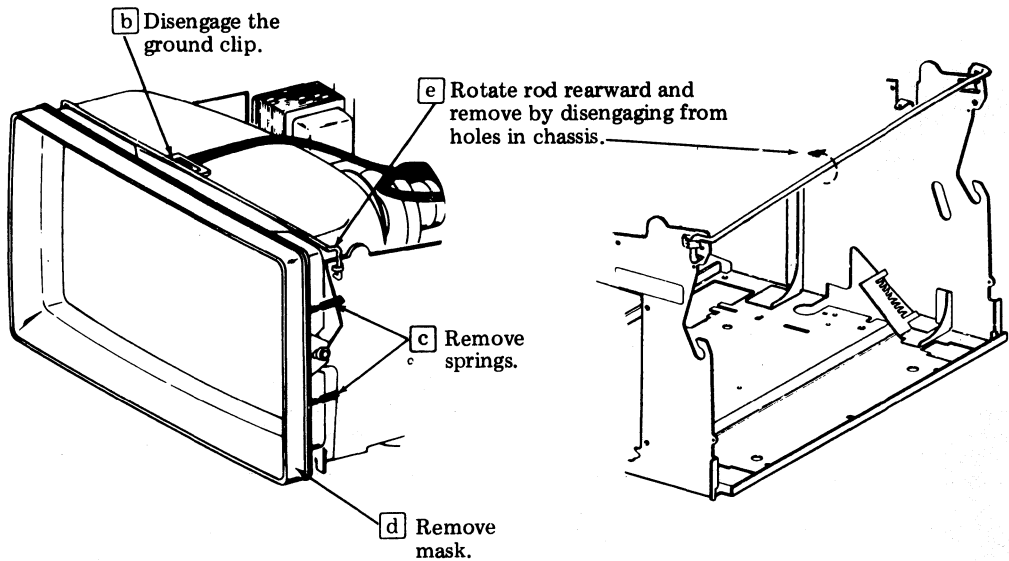
Note: If it becomes necessary to replace any of the wheel-type tube tilt mechanism components, install TP402286 modification kit which converts to lever-type.

Lever-Type

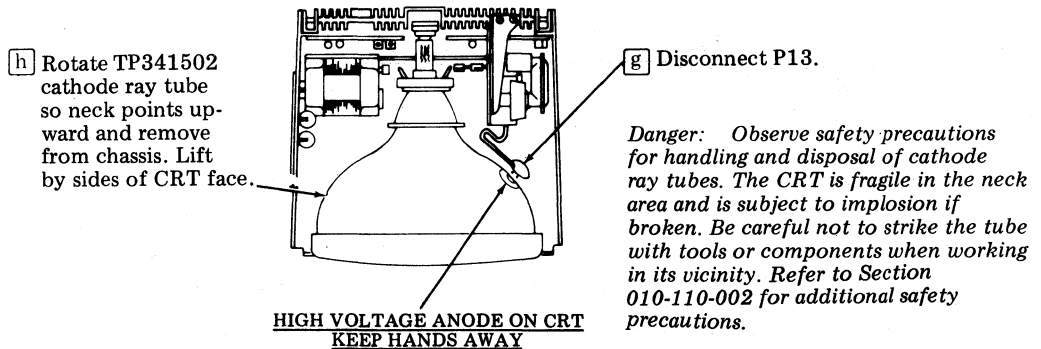


2.15 ♦TP341502 Cathode Ray Tube (CRT)♦

- a Remove TP341698 deflection yoke assembly (2.12).



- f Remove the tube tilt mechanism (2.14).

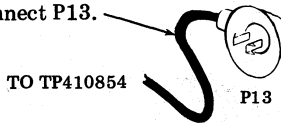


Note: Use mask as a base to cradle the CRT (face down) on flat surface.

2.16 Heatsink Assembly

a Disconnect P2, P4, P7, P9, P10, and P11.

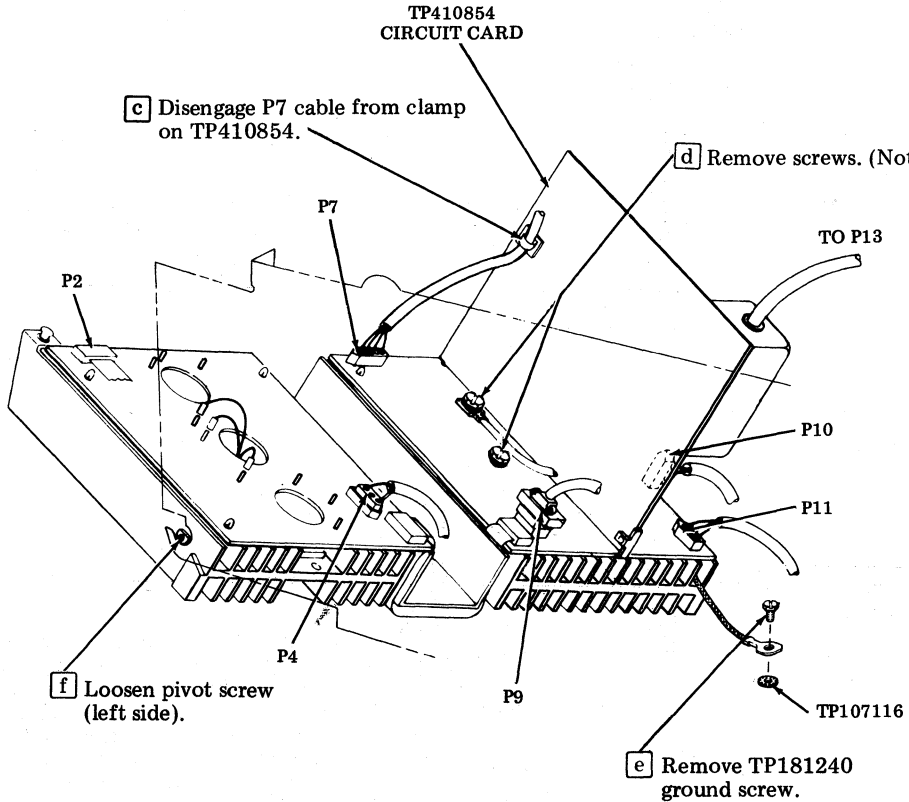
b Disconnect P13.



c Disengage P7 cable from clamp on TP410854.

TP410854
CIRCUIT CARD

d Remove screws. (Note)



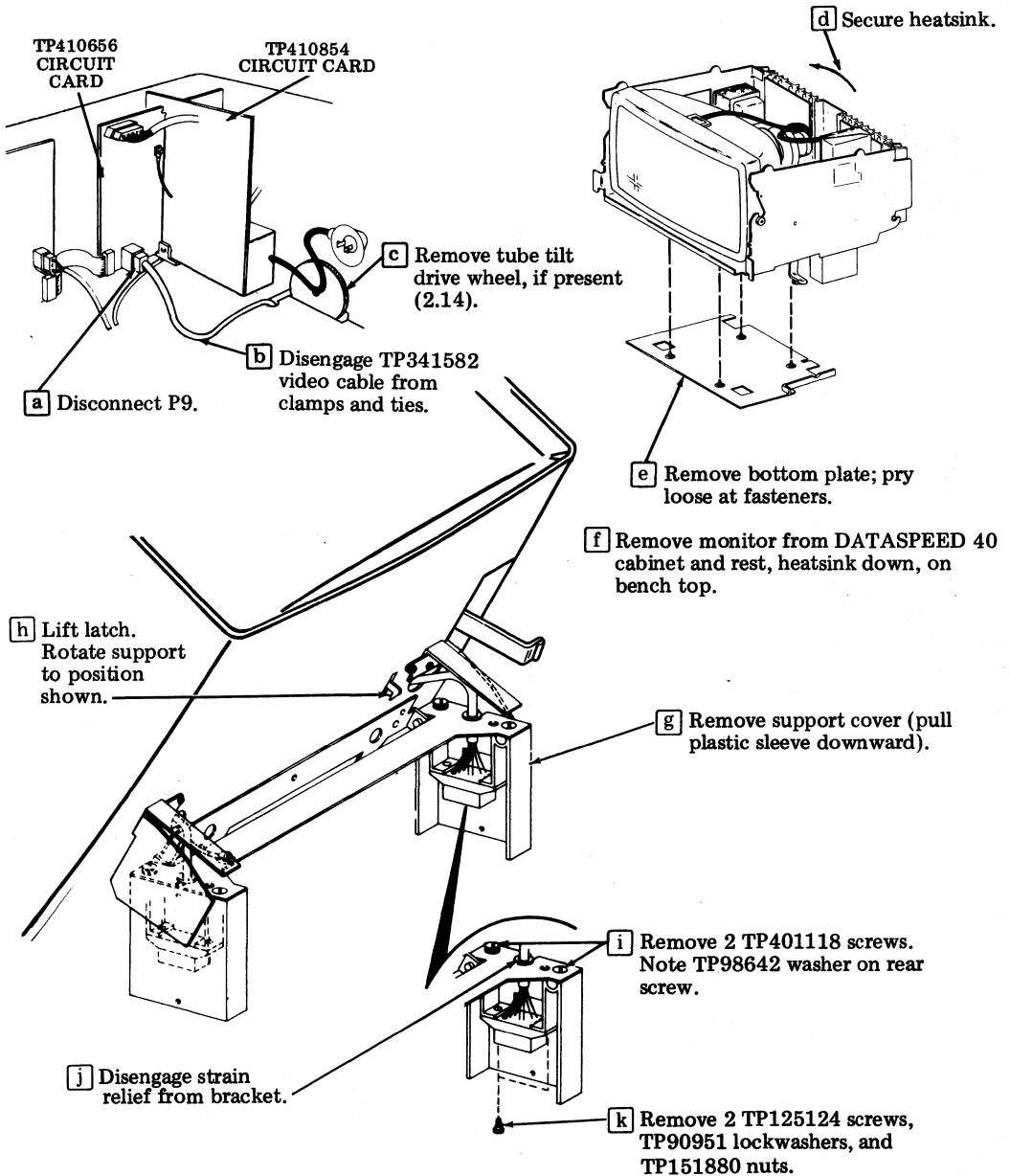
f Loosen pivot screw (left side).

e Remove TP181240 ground screw.

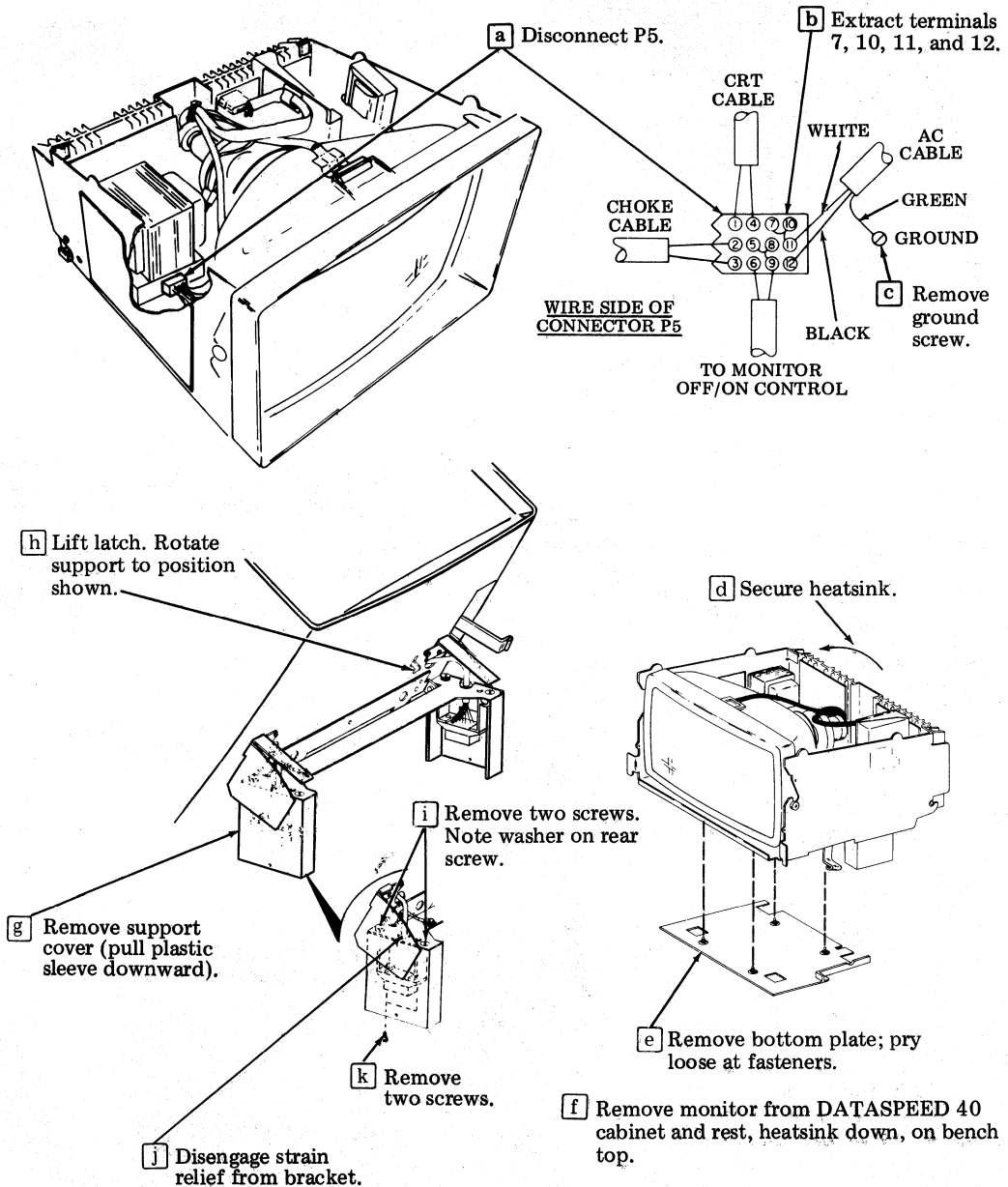
g Pull heatsink upward and rearward to disengage pivot points.

Note: A hole labeled J3 and TP181243 screw are added to Issue 4P and higher on the TP410656 circuit card. The TP181243 screw fastens through J3 into mating hole in heatsink.

2.17 ♦ TP341582 Video Cable Assembly and Right Support Bracket ♦

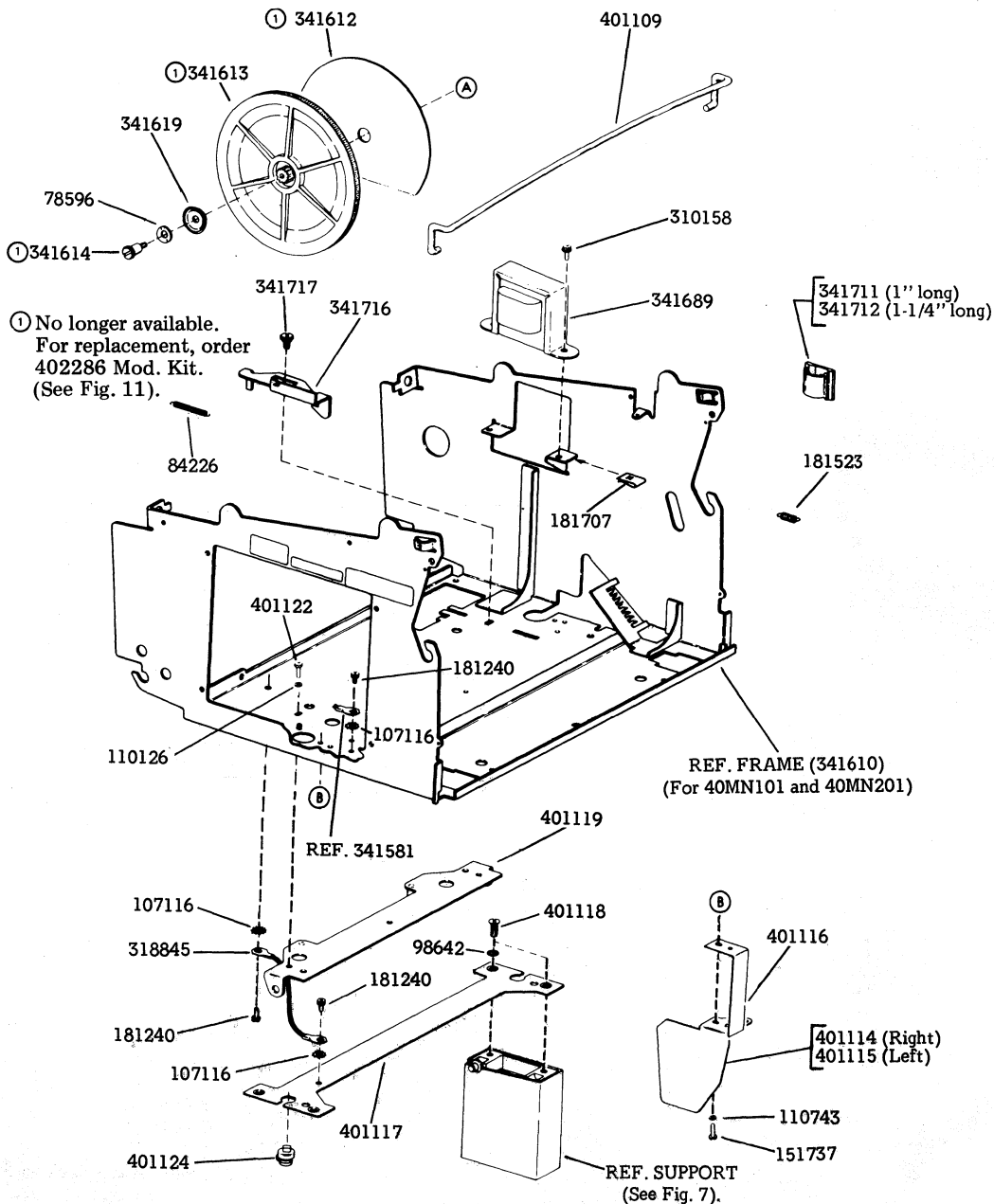


2.18 TP341581 AC Cable Assembly and Left Support Bracket



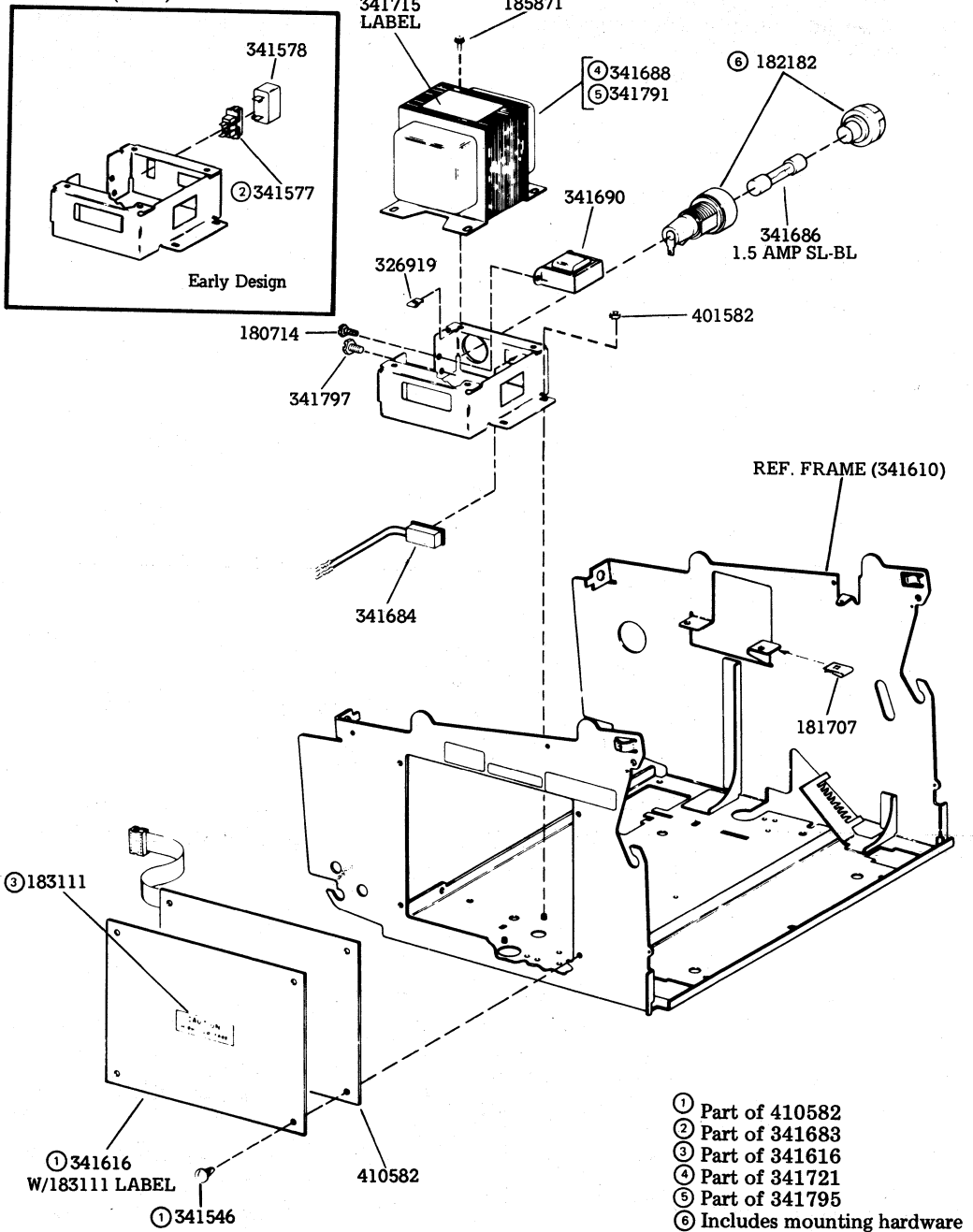
3. PARTS

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



◆ Fig. 3—Frame Assembly ◆

3. PARTS (Cont)



◆ Fig. 4—341721, 341795 Power Distribution and 410582 Circuit Card Assemblies ◆

3. PARTS (Cont)

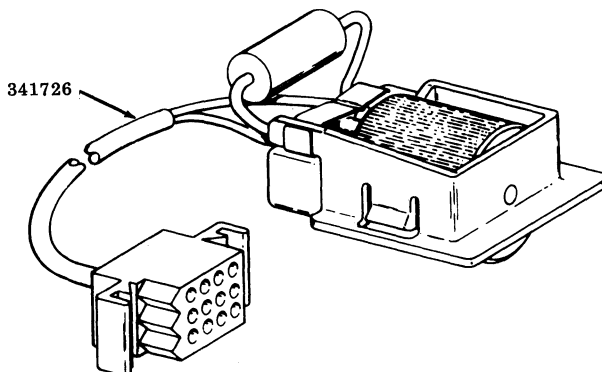
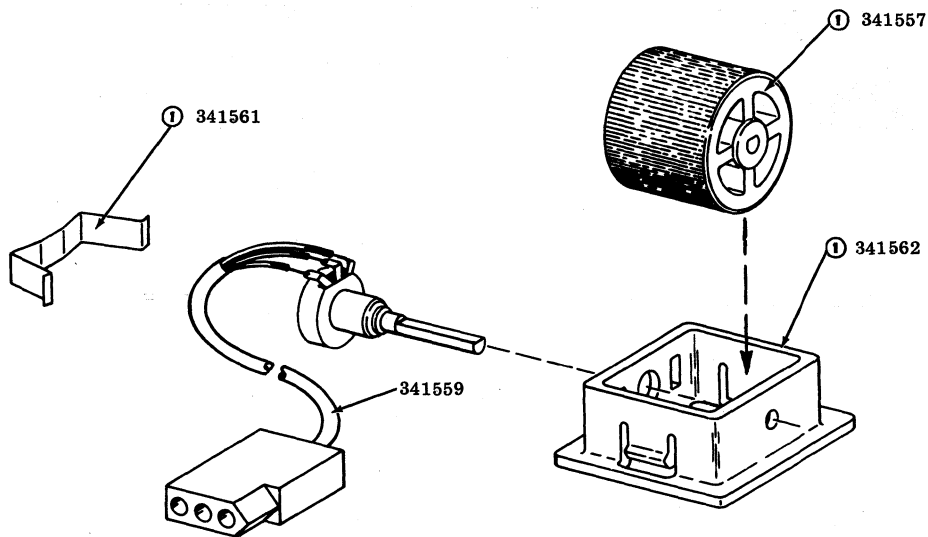


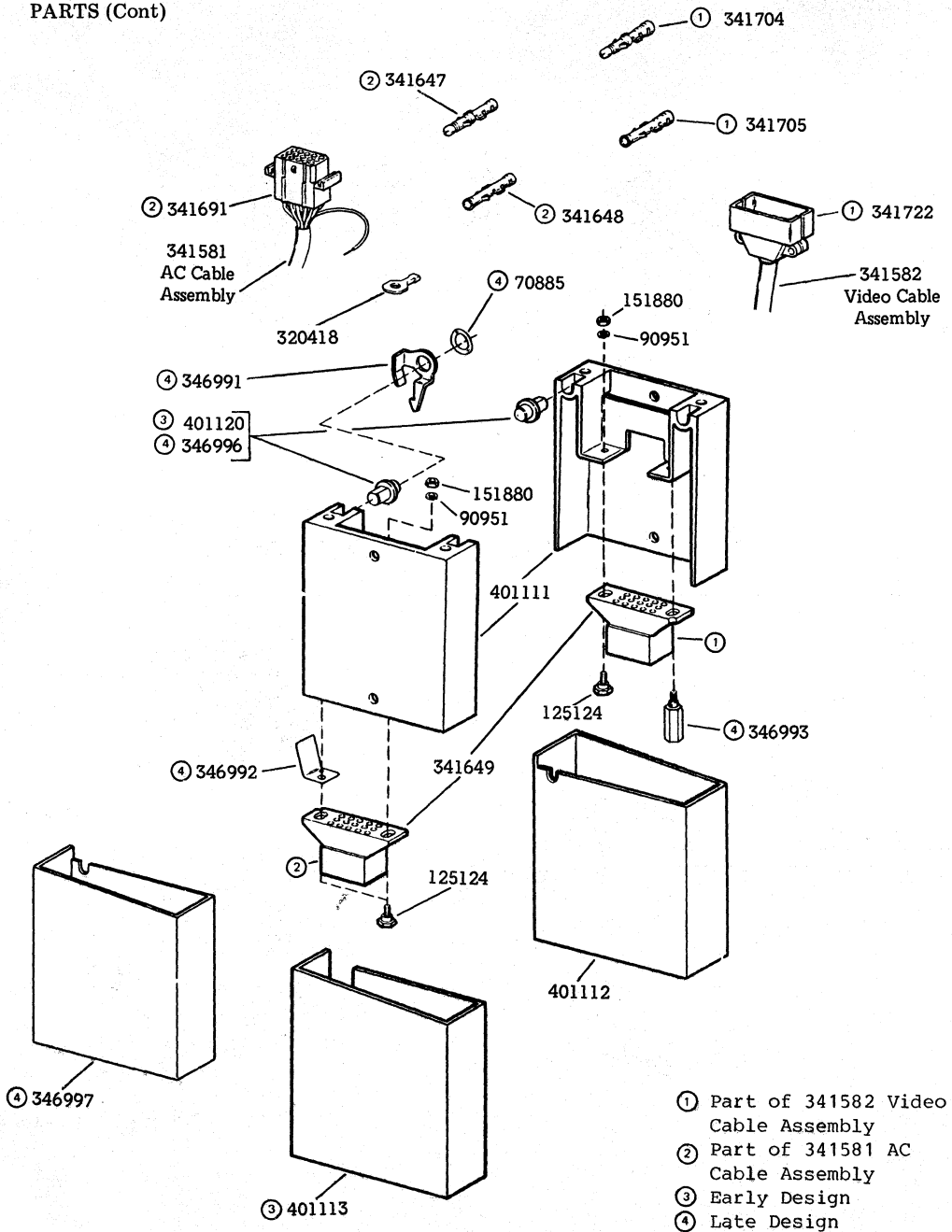
Fig. 5—341726 Monitor Control Switch (On-Off) Assembly



① Not part of 341559

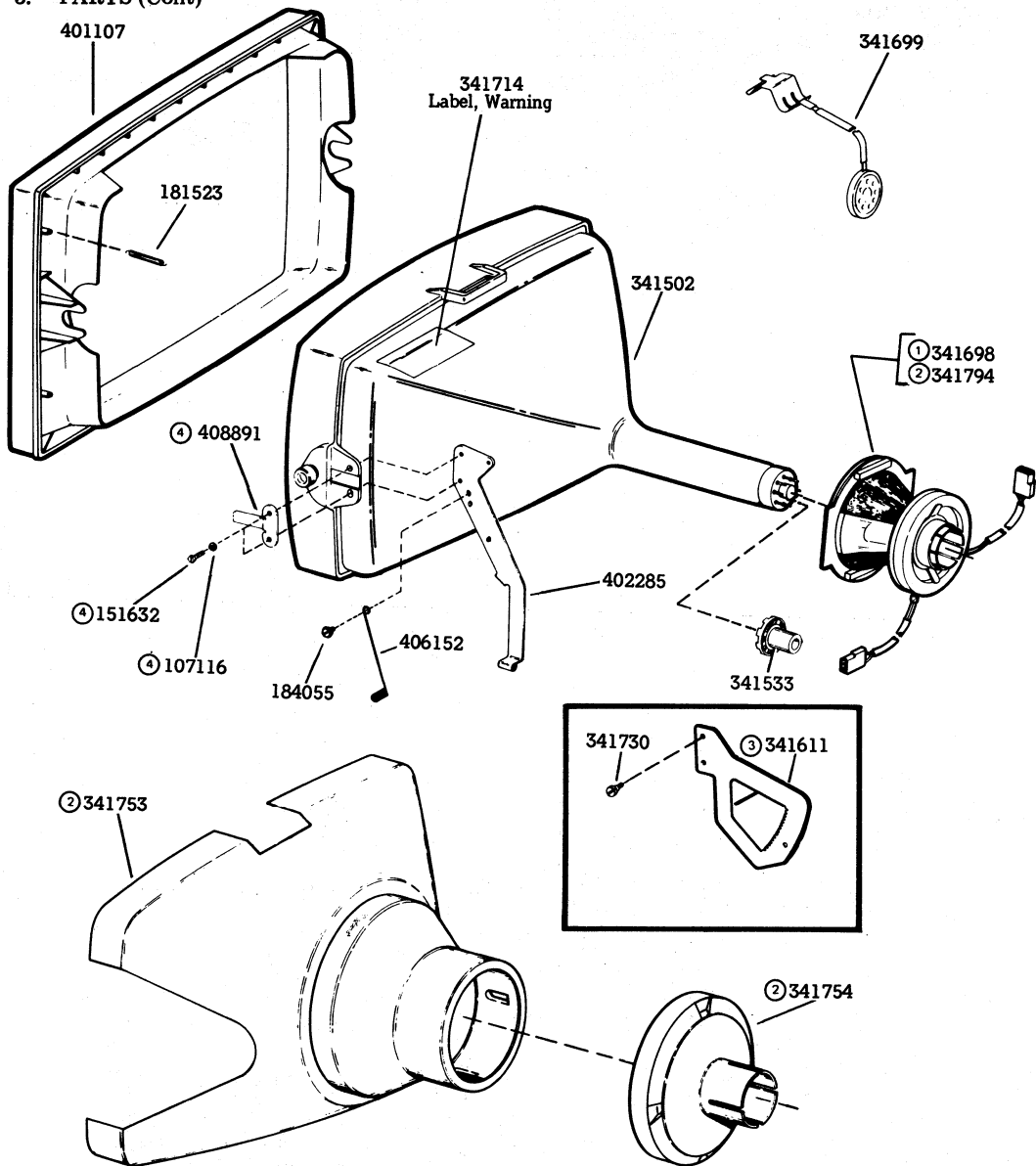
Fig. 6—341559 Brightness Control Switch Assembly

3. PARTS (Cont)



◆ Fig. 7—Left and Right Supports ◆

3. PARTS (Cont)



- ① Part of 40MN101 (60 Hz)
- ② Part of 40MN201 (50/60 Hz)
- ③ No longer available. For replacement, order 402286 Mod Kit.
- ④ Part of Modification 408892 to Repair 40-Type Display Monitor CRT With Broken Tilt Lever Mounting Tab. Ref 50909S.

◆ Fig. 9—CRT, Mask, Yoke, and CRT Cable Assembly ◆

3. PARTS (Cont)

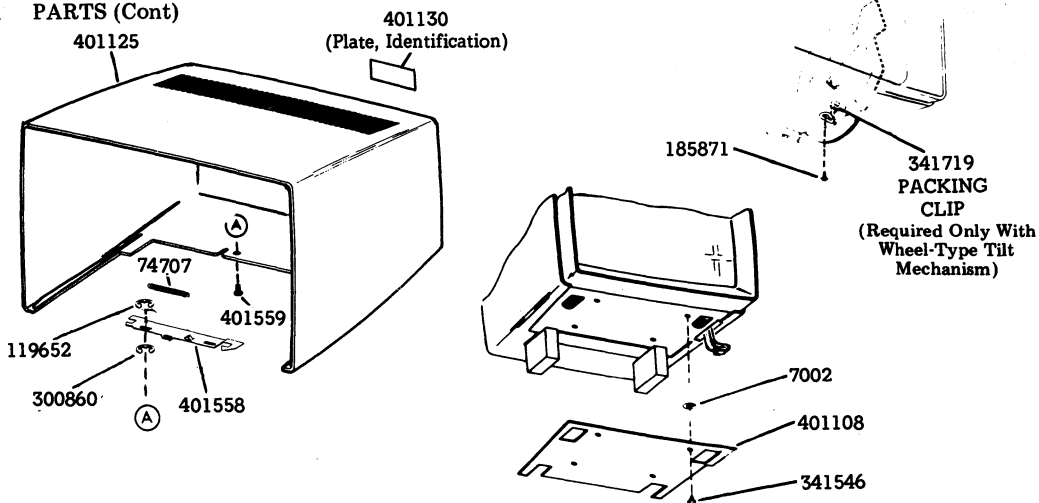
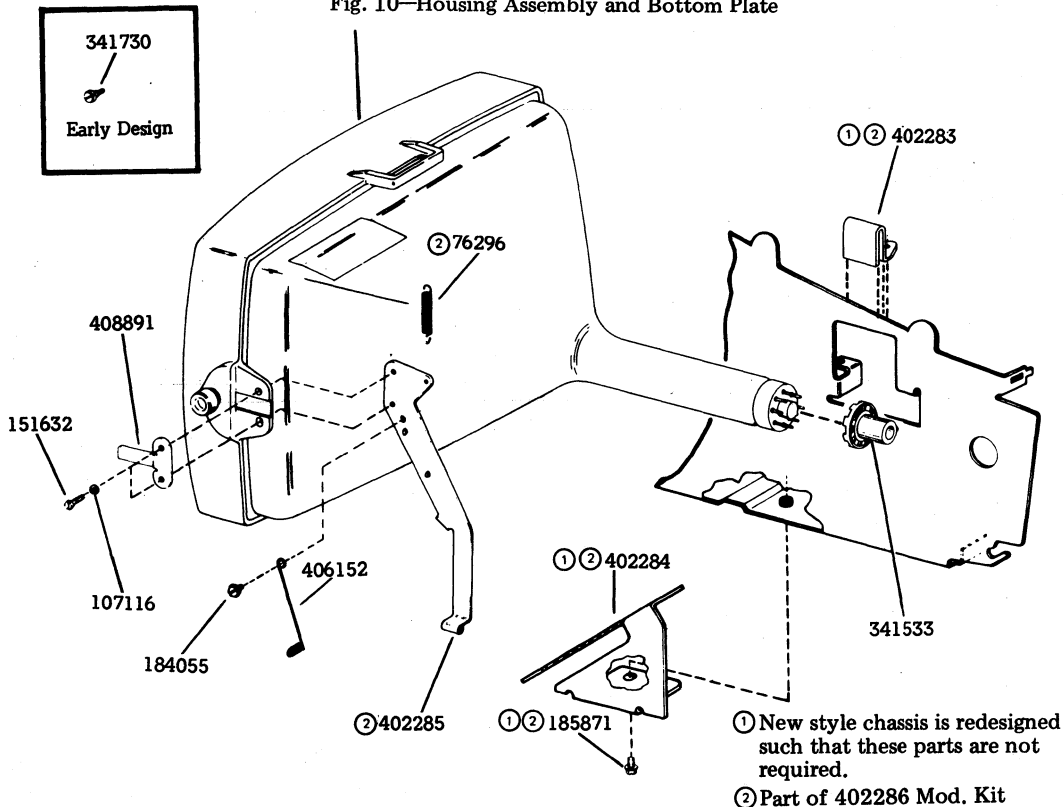
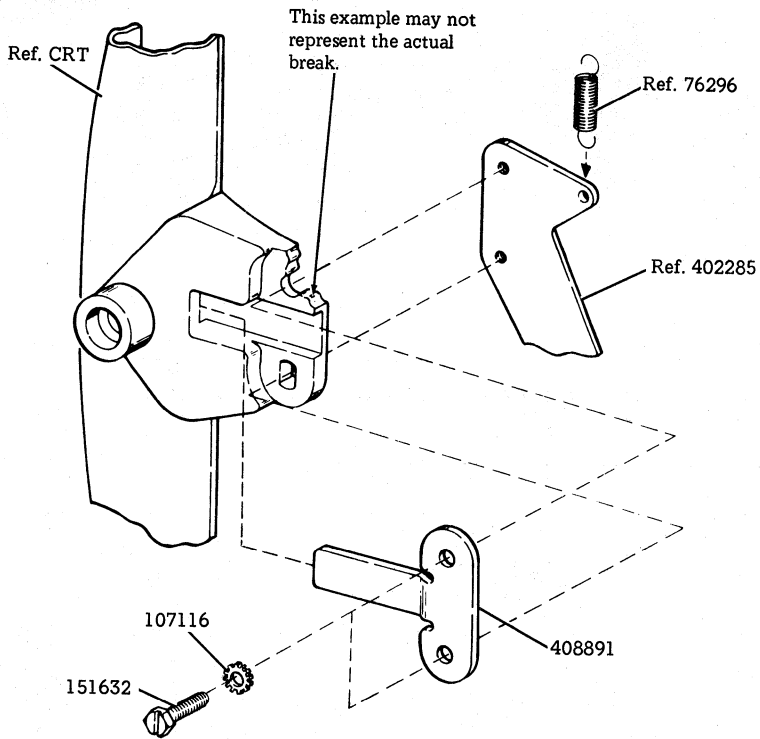


Fig. 10—Housing Assembly and Bottom Plate



◆ Fig. 11—402286 Modification Kit to Replace Wheel-Type Tube Tilt Mechanism With Lever-Type ◆

3. PARTS (Cont)



◆Fig. 12—408892 Modification Kit to Repair 40-Type Display Monitor CRT With Broken Tilt Lever Mounting Tab ◆

3. PARTS (Cont)

3.01 The following index is a list of the component parts of the monitor. The page number references give location in both Part 2, Disassembly and Reassembly Procedures and Part 3, Parts. Maintenance Tools used for the monitor are also included in the parts index.

Note: When ordering replaceable components, unless otherwise specified, prefix each part number with the letters "TP" (ie, TP341580).

◆ NUMERICAL INDEX ◆					
Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
2191	Lockwasher 16	183111	Label 22	341611	Rack, Tube Tilt 26
3598	Nut, 6-40 Hex 16	184055	Screw w/Lockwasher, 6-40 x 3/16 Hex 26, 27	341612	Washer, Felt 21
6987	Washer, Flat 25			341613	Wheel w/Gear 21
7002	Washer, Flat 10, 27	185871	Screw w/Lockwasher, 8/32 x 3/8 Hex 22, 27	341614	Shaft 21
70885	Washer, Spring 24			341616	Insulator 22
74707	Spring 27	198670	Screw w/Lockwasher, 6-40 x 5/16 Hex 25	341619	Washer, Retainer 21
75765	Hook, Spring 2			341621	Cover, Plastic 12, 25
76296	Spring 16, 27, 28	300860	Ring, Retaining 27	341630	Socket, Assembly 25
78596	Washer, Friction 21	310158	Screw, 6-32 x 7/32 Hex 15, 21	341647	Terminal 24
84226	Spring 21			341648	Terminal 24
89954	Nut Driver 2	318822	Transistor 12, 25	341649	Connector, 15 Pt Plug 24
90951	Lockwasher 19, 24	318845	Jumper 21, 25		
92260	Lockwasher 8, 25	320418	Terminal, Ring Type 24	341651	Stud 25
92527	Lockwasher 9			341655	Knob, Core Adjusting 25
98642	Washer 19, 21	326919	Nut, Speed 22	341682	Label 25
100982	Screwdriver 6 inch medium 2	327954	Retainer, Split Ring 25	341683	Socket Assembly, Fuse 22
107116	Lockwasher 18, 21, 25, 26, 27, 28	327955	Nut, Speed 25	341684	Lamp Assembly, Neon 22
108285	Pliers, Long Nose 2	336810	Plate, Identification 21		
108286	Pliers, Cutting 2	341502	Tube 2, 17, 26	341686	Fuse, 1.5A SL-BL 9, 22
110126	Lockwasher 21	341515	Heatsink 25	341688	Transformer 22
110743	Lockwasher 21	341526	Socket Assembly 25	341689	Choke 3, 15, 21
119652	Ring, Retainer 27	341527	Socket Assembly 25	341690	Choke 22
125124	Screw, 4-40 Shoulder 19, 24	341533	29mm Base (CRT) 26, 27	341691	Connector 24
129534	Wrench, Open End 1/4 inch 2	341546	Fastener, Drive 10, 12, 22, 25, 27	341698	Yoke Assembly 2, 14, 17, 26
151632	Screw, 6-40 x 3/8 Hex 26, 27, 28	341557	Wheel 10, 23	341699	Cable Assembly 3, 13, 26
151737	Screw, 4-40 x 11/64 Hex 21	341559	Cable Assembly 3, 10, 23	341704	Terminal 24
151880	Nut, 4-40 Hex 19, 24	341561	Retainer, Spring 10, 23	341705	Terminal 24
180714	Screw, #6 Self-Tapping 22	341562	Container 23	341711	Cable, Clamp 21
181240	Screw w/Lockwasher, 6-40 x 3/16 Hex 18, 21, 25	341568	Transistor 12, 25	341712	Cable, Clamp 21
181243	Screw w/Lockwasher, 6-40 x 3/8 Hex 8, 18	341569	Transistor 12, 25	341714	Label, Warning 26
181523	Spring 21, 26	341570	Transistor 12, 25	341715	Label 22
181707	Nut, Speed 21, 22	341577	Socket, Fuse 22	341716	Latch 21
182182	Holder, Fuse 22	341578	Fuse 22	341717	Screw, 8-32 Shoulder 21
182697	Terminal Eradicator 2	341579	Fastener 25		
		341580	Support, Circuit Board 6, 8, 25	341718	Screw w/Lockwasher, 6-40 x 5/16 Hex 7, 25
		341581	Cable Assembly 3, 20, 21, 24	341719	Clip, Packing 27
		341582	Cable Assembly 3, 10, 19, 24	341721	Distribution Assembly, Power 3, 9, 22
		341610	Frame 21, 22	341722	Connector 24
				341725	Cover, Transistor 12

SECTION 582-213-701

3. PARTS (Cont)

NUMERICAL INDEX (Cont)

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
341726	Switch Assembly 3, 11,23	401107	Mask 26	402285	Lever 16,26,27,28
341730	Screw, 6-40 Shoulder 16,26,27	401108	Plate, Bottom 10,27	402286	Modification Kit 16,21,26,27
341753	Shield, Tube 14,26	401109	Rod 21	402318	Insulator 12,25
341754	Cap, End 14,26	401111	Support 24	402319	Insulator 12,25
341791	Transformer 22	401112	Cover, Right Support 24	403592	Screw, Nylon 8,25
341794	Yoke Assembly 2, 14,26	401113	Cover, Left Support 24	403593	Bushing, Nylon 8,25
341795	Distribution Assembly 3,9,22	401114	Shield, Right 21	403594	Modification Kit 25
341797	Screw w/Lockwasher, 6-32 x 5/16 Hex 8,9, 22,25	401115	Shield, Left 21	405957	Cover 25
341798	Screw w/Lockwasher, 6-32 x 9/16 Hex 12, 25	401116	Shield, Front 21	406152	Latch, Spring 26,27
341799	Nut 9,22,25	401117	Bracket, Tie 21	406292	Resistor, variable 12
341999	Shield 25	401118	Screw, 10-32 x 7/32 Flat 19,21	406306	Transistor 12,25
346991	Latch 24	401119	Bracket 21	406331	Label 12,25
346992	Latch 24	401120	Post 24	408891	Bracket 26,27,28
346993	Post, Shoulder 24	401122	Screw, 8/32 x 7/32 Hex 21	408892	Modification Kit 26,28
346996	Post 24	401124	Bushing 21	410582	Card, Circuit 22
346997	Cover, Left Support 24	401125	Housing Assembly 2,4,27	410656	Card, Circuit 3,6,7,8 10,12,13,18,19,25
400574	Terminal, Plug Type 25	401130	Plate, Identification 27	410852	Card, Circuit 3,5,6, 9,22
		401558	Bracket, Latch 27	410853	Card, Circuit 3,5,6, 8,14,25
		401559	Post 27	410854	Card, Circuit 3,6,7, 8,10,13,14,18,19,25
		402283	Clip, Spring 27		
		402284	Bracket 27		

“DATASPEED*” 40 POWER SUPPLY UNITS

WIRING DIAGRAMS

CONTENTS	PAGE
1. GENERAL	1
2. WIRING DIAGRAMS	2
A. 40PSU102 Power Supply	2
B. 40PSU101 Power Supply	4

1. GENERAL

1.01 This section provides wiring diagrams for the 40PSU101 DATASPEED 40 Power Supply (Fig. 1) and the 40PSU102 DATASPEED 40 Power Supply (Fig. 2).

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

Note: When ordering replaceable parts, prefix each part number with the letters “TP” (ie, TP123456), unless specified otherwise.

1.03 The wiring diagrams include all wiring for the power supplies and also limited functional schematics to aid in troubleshooting.

1.04 For part numbers of components mentioned in the wiring diagrams, refer to Section 582-214-700.

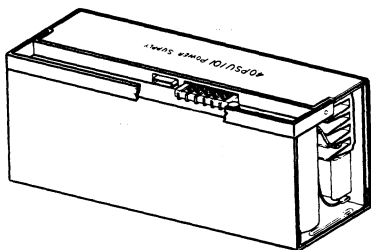


Fig. 1—40PSU101 Power Supply

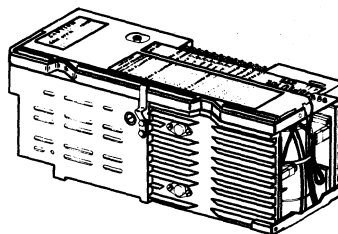
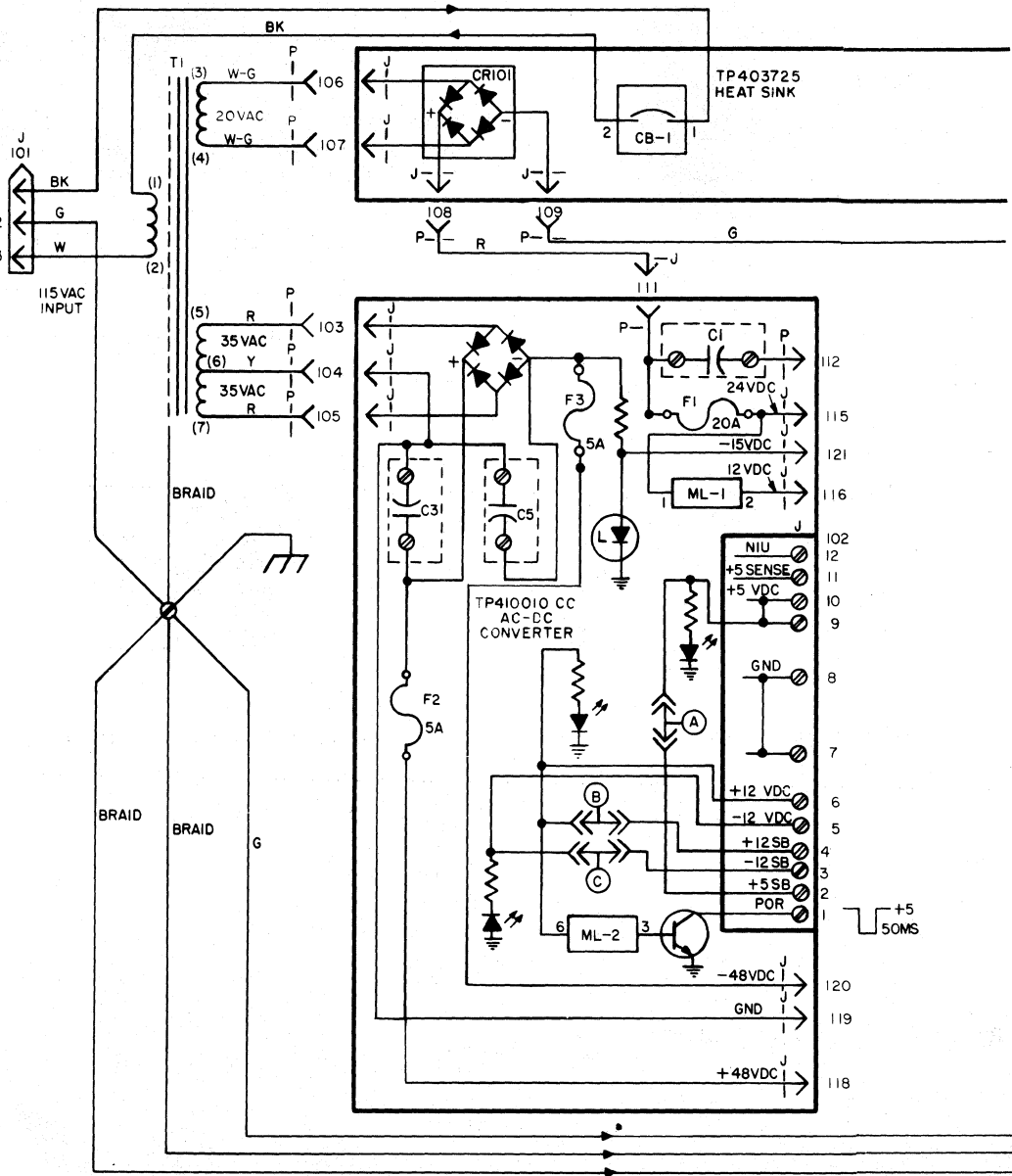


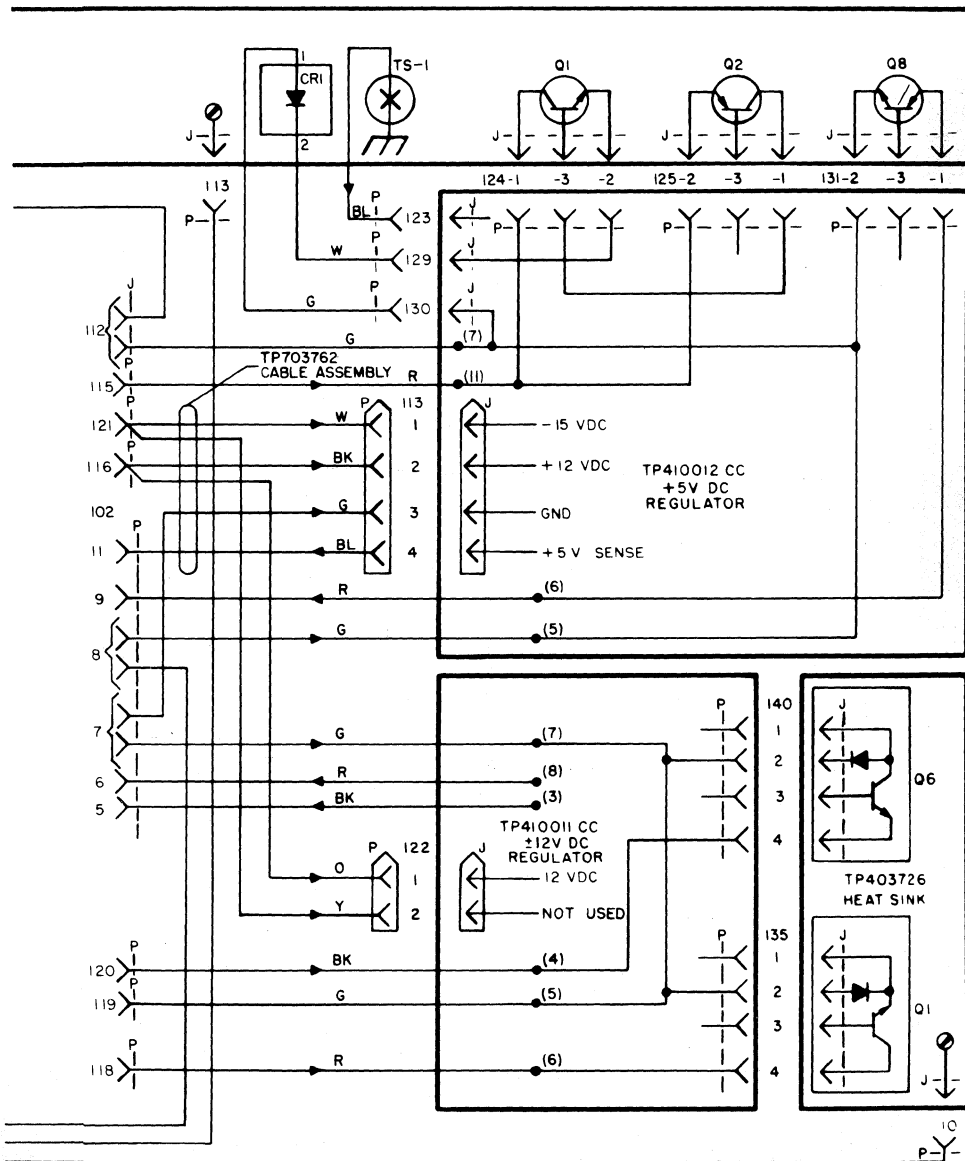
Fig. 2—40PSU102 Power Supply

*Registered Trademark of AT&TCo.

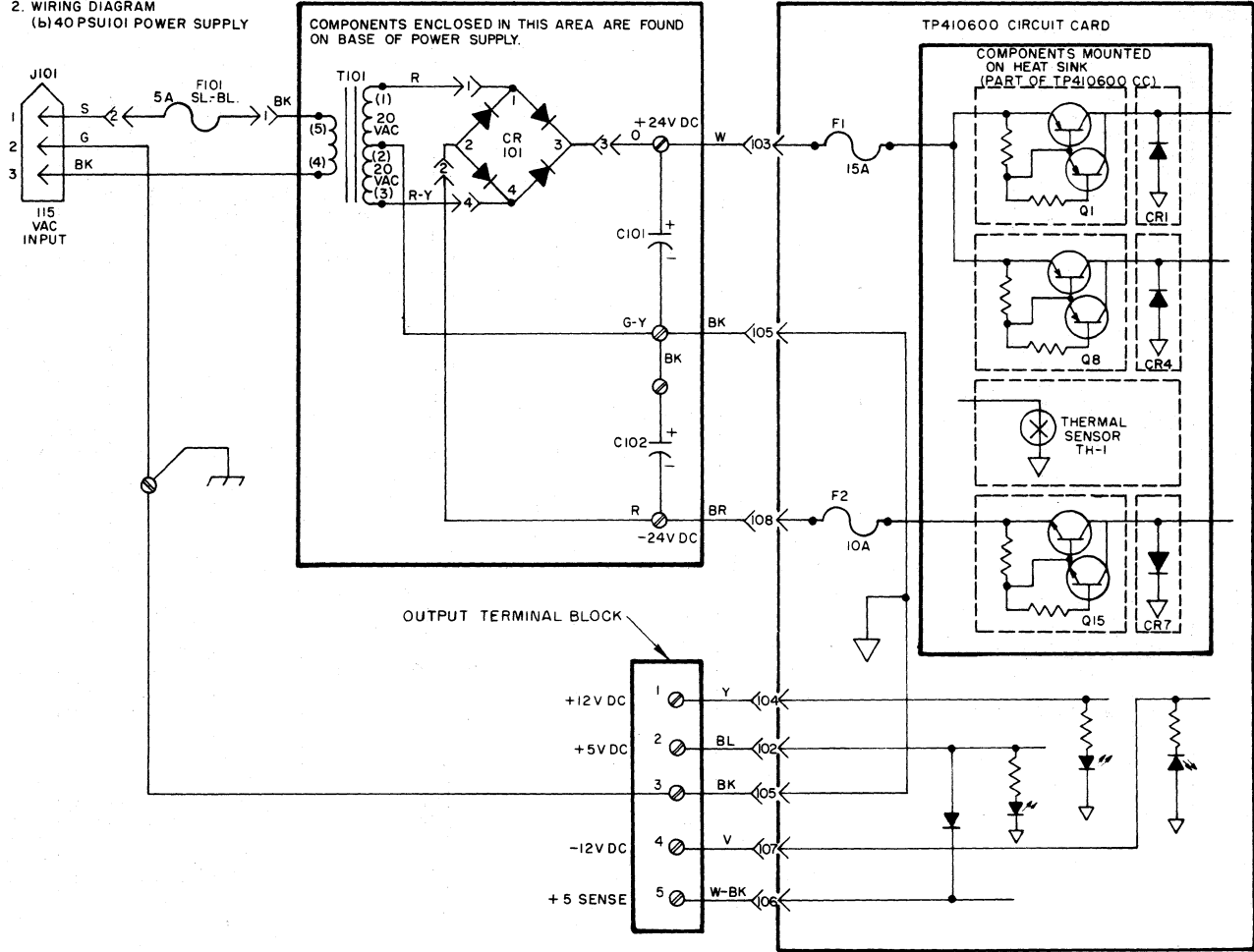
2. WIRING DIAGRAMS

A. 40PSU102 Power Supply (Continued on the following page)





2. WIRING DIAGRAM
(b) 40PSU101 POWER SUPPLY



"DATASPEED*" 40 POWER SUPPLY UNITS
TESTING AND TROUBLESHOOTING

CONTENTS	PAGE
1. GENERAL	1
2. FUNCTIONAL TESTING (40PSU101)	2
EQUIPMENT PREPARATION	2
TESTING PROCEDURE	2
3. TROUBLESHOOTING (40PSU101)	4
EQUIPMENT PREPARATION AND LAYOUTS	4
4. FUNCTIONAL TESTING (40PSU102)	8
EQUIPMENT PREPARATION	8
TESTING PROCEDURE	8
5. TROUBLESHOOTING (40PSU102)	10
EQUIPMENT PREPARATION AND LAYOUTS	10

Note: When ordering replaceable components, unless otherwise specified, prefix each part number with the letters "TP" (ie, TP129920).

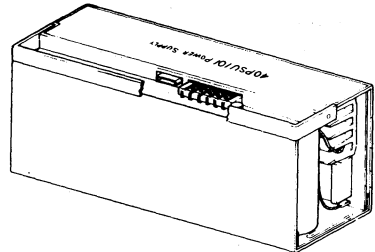


Fig. 1—40PSU101 Power Supply

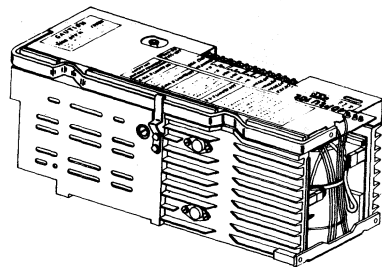


Fig. 2—40PSU102 Power Supply

1. GENERAL

- 1.01 This section provides testing and troubleshooting information for the major components of the DATASPEED 40PSU101 (Fig. 1) and the DATASPEED 40PSU102 (Fig. 2) power supply units.
- 1.02 This section was reissued to include the 40PSU102 power supply as well as the 40PSU101 power supply. Wiring diagrams are given in Section 582-214-400.

- 1.03 Functional testing of the power supplies is accomplished with an oscilloscope or multimeter via an operational set or station (for the 40PSU101) or a 40C400 controller (for the 40PSU102).
- 1.04 If at any time the power supply fails a particular test, refer to the appropriate Troubleshooting Guide to correct the operational failure.

*Registered Trademark of AT&TCo.

- 1.05 Perform each test procedure from start to finish — do not omit individual steps.
- 1.06 When using the Troubleshooting Guide always begin with Analysis Question 1 and proceed in the numerical order indicated.
- 1.07 Perform all corrective steps for each trouble encountered before proceeding to the next question. After the trouble has been corrected, test the unit again.

2. FUNCTIONAL TESTING (40PSU101)

EQUIPMENT PREPARATION

- 2.01 Install the power supply in a working set or station (Fig. 3 through 6).

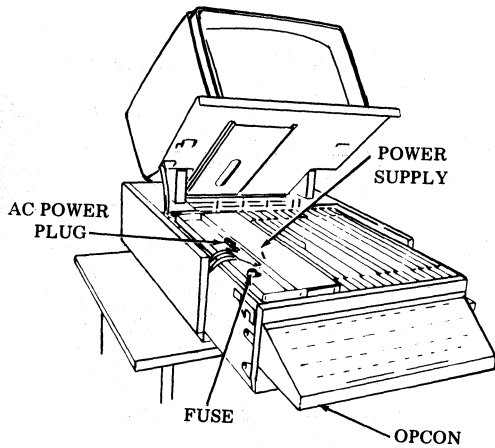


Fig. 3—KD or KDP Power Supply Placement

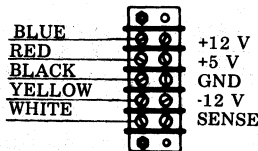


Fig. 4—Terminal Block Wiring

Note: Make sure the 129920 main power fuse is installed.

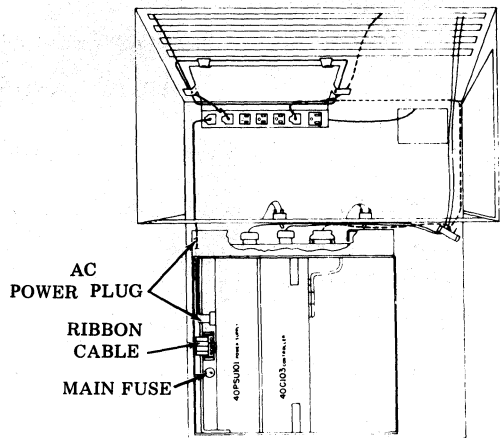


Fig. 5—Receive-Only Power Supply Placement

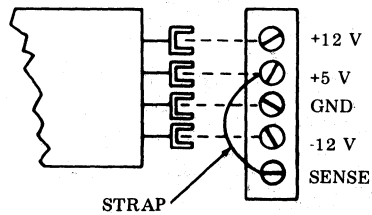


Fig. 6—Terminal Block Wiring

Note: Make sure the 129920 main power fuse is installed and that the strap from the “+5 V” terminal to the “sense” terminal is present on the power supply terminal block.

TESTING PROCEDURE

- 2.02 The following are voltage limits for Functional Testing of Test No. 1 through No. 4.

TERMINAL	VOLTAGE LIMITS
+12 V	+11.64 to +12.36 V DC
+5 V	+4.9 to 5.1 V DC
GND	
-12 V	-11.64 to -12.36 V DC
SENSE	+4.9 to +5.1 V DC

(a) For dc voltage measurements (Chart 1), the orientation of the 0.22 microfarad electrolytic capacitor (Fig. 8 and 9) dc at 35 V dc must be observed.

(b) For Tests No. 2 through No. 4, (Chart 1) voltage measurements are made with a multimeter set to the appropriate range. Attach common lead of meter to ground terminal of terminal block.

CHART 1

TEST NO.	PROCEDURE	RESPONSE
1.	Turn on the ac power to the power supply.	LED indicators for the +5 V, +12 V, and -12 V dc voltages should be lit (Fig. 7).
2.	Measure the +12 V dc voltage on the +12 V terminal of the terminal block.	Correct voltage must be present.
3.	Measure the +5 V dc voltage on the +5 V terminal of the terminal block.	Correct voltage must be present.
4.	Measure the -12 V dc voltage on the -12 V terminal of the terminal block.	Correct voltage must be present.

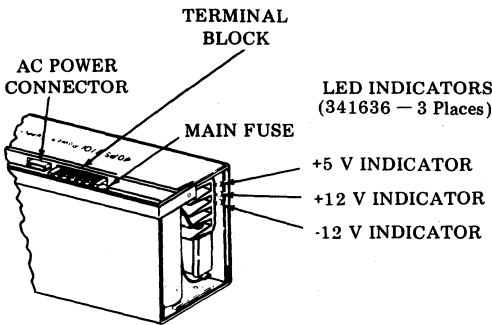


Fig. 7—Power Supply Voltage Indicators

Note: Be sure the capacitor is orientated for proper polarity.

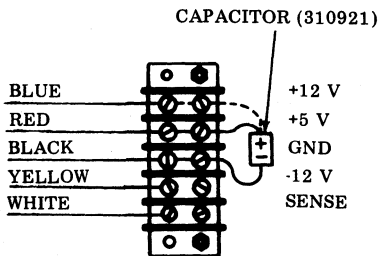


Fig. 8—+12 Volt and +5 Volt Measurements

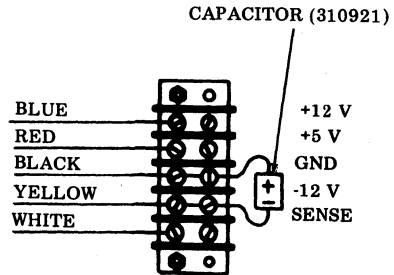


Fig. 9—-12 Volt Measurement

(c) The following are the requirements for tests to be performed next (Chart 1).

TERMINAL	MAXIMUM RIPPLE AS MEASURED ON AN OSCILLOSCOPE
+12 V	0.3 V PEAK-TO-PEAK
+5 V	0.3 V PEAK-TO-PEAK
GND	
-12 V SENSE	0.3 V PEAK-TO-PEAK

(d) Using an oscilloscope measure the ripple (Chart 1) on each of the dc voltages. Ground the oscilloscope to ground terminal of the terminal block.

CHART 1 (Cont)

TEST NO.	PROCEDURE	RESPONSE
5.	Measure ripple present on +12 V terminal of terminal block.	Ripple less than 0.3 V peak-to-peak.
6.	Measure ripple present on +5 V terminal of terminal block.	Ripple less than 0.3 V peak-to-peak.
7.	Measure ripple present on -12 V terminal of terminal block.	Ripple less than 0.3 V peak-to-peak.

3. TROUBLESHOOTING (40PSU101)

3.01 This section deals with methods used for correction of operational problems encountered in testing the 40PSU101 power supply.

(a) To use the Troubleshooting Guide always start with Question 1 and follow indicated procedure to the directive which specifies proceeding to a new step or replacement of a component. Where more than one component is specified for replacement, they should be replaced in the order specified. The original component shall be replaced if the trouble is not corrected before making the next indicated replacement.

(b) Once a component has been replaced, the unit shall again be tested to insure its proper operation.

EQUIPMENT PREPARATION AND LAYOUTS

3.02 Arrange the power supply, with the cover removed (Fig. 10), next to set or station as shown. Leave power turned off and circuit card fully mounted for now.

(a) Connect a ground strap from the power supply base to the power supply hold-down clamp of the cabinet. The ground strap should be at least 14 AWG insulated stranded copper wire having an alligator clip at each end.

(b) Attach the ac power cable and ribbon cable from the set or station to the power supply in question.

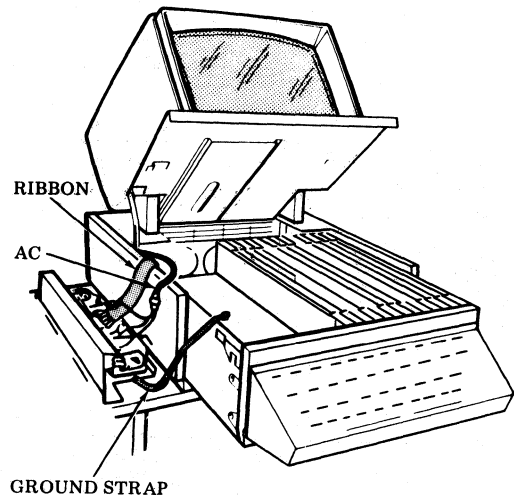


Fig. 10—Equipment Layout

(c) Make sure the exposed circuit lands of the 410600 circuit card do not short to anything.

(d) For component identification and removal instructions, refer to Section 582-214-700, Disassembly/Reassembly and Parts.

(e) Functional schematic diagrams are given in Section 582-214-400, Wiring.

CHART 2
TROUBLESHOOTING GUIDE

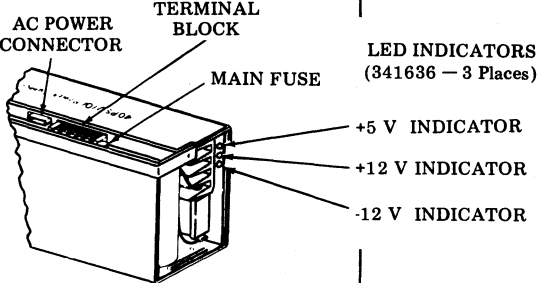
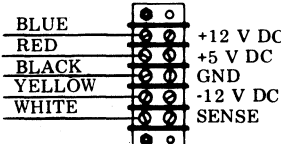
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>1. With the set plugged in and power ON, are all LED indicators ON?</p> 	Go to 2.	Go to 4.
<p>2. Are all voltages correct at the output terminal block?</p>  <p style="text-align: center;">Output Terminal Block</p>	Put power supply in service.	Check for +24 V dc at + V in terminal and -24 V dc at -V in terminal of 410600 circuit card. Measure both voltages with respect to circuit ground at terminal 3 of the output terminal block. Go to 3.
<p>3. Are the ± 24 V dc inputs to 410600 circuit card correct?</p>	Check for +5 V dc at output terminal block and adjust R45 potentiometer on 410600 circuit card, if necessary. If +5 V dc cannot be adjusted replace 410600 circuit card.	Check and/or replace rectifier bridge (401002). Check and/or replace capacitors C101 (401004) and/or C102 (401009).
<p>4. Are the ventilation fans in the electronics module moving air?</p>	Go to 5.	Check ac power input, power switch(es), cabinet wiring and connectors, etc.
<p>5. Is main fuse on the power supply blown?</p>	Replace fuse and go to 6. (129920 Fuse, 5 Amp SLO-BLO).	Go to 7.

CHART 2 (Cont)
TROUBLESHOOTING GUIDE

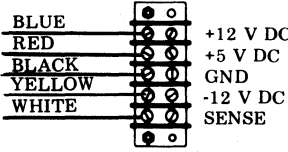
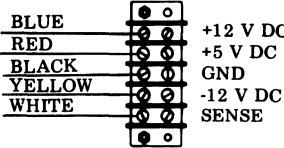
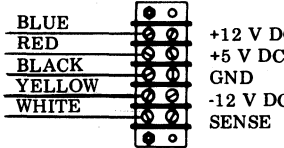
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>6. Did main fuse blow again?</p>	<p>Disconnect cable(s) from output terminal block (to controller and, if present, to display logic). Replace fuse and check output voltages.</p> <p>If no output voltages and fuse blows again, check for short circuit condition in power supply.</p> <p>If output voltages are present (power supply OK), check for short elsewhere in set.</p>	<p>Go to 7.</p>
<p>7. Is the +5 Volt LED off?</p>	<p>Go to 8.</p>	<p>Go to 9.</p>
<p>8. Is +5 V dc present at the output?</p>  <p>Output Terminal Block</p>	<p>Replace 410600 circuit card.</p>	<p>Check continuity of fuses F1 and F2 on 410600 circuit card.</p> <p>Check for +24 V dc at +V in terminal and -24 V dc at -V in terminal of 410600 circuit card. Measure with respect to circuit ground (terminal 3 of the output terminal block).</p> <p>Check for broken wire on 410600 circuit card.</p> <p>Go to 11.</p>
<p>9. Is the +12 Volt LED off?</p>	<p>Go to 10.</p>	<p>Go to 12.</p>

CHART 2 (Cont)

TROUBLESHOOTING GUIDE

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>10. Is +12 V dc present at the output?</p>  <p>Output Terminal Block</p>	<p>Replace 410600 circuit card.</p>	<p>Check continuity of fuses F1 and F2 on 410600 circuit card.</p> <p>Check for +24 V dc at +V in terminal and -24 V dc at -V in terminal to 410600 circuit card.</p> <p>Check for broken wire on 410600 circuit card.</p> <p>Go to 11.</p>
<p>11. Are fuses F1 and F2 good, and are ± 24 V dc inputs presented to 410600 circuit card?</p>	<p>Replace 410600 circuit card.</p>	<p>Check and/or replace rectifier bridge (401002).</p> <p>Check and/or replace transformer (401007).</p>
<p>12. Is the -12 Volt LED off?</p>	<p>Go to 13.</p>	<p>Go to 1.</p>
<p>13. Is -12 V dc present at the output?</p>  <p>Output Terminal Block</p>	<p>Replace 410600 circuit card.</p>	<p>Check continuity of fuses F1 and F2 on 410600 circuit card.</p> <p>Check for +24 V dc at +V in terminal and -24 V dc at -V in terminal of 410600 circuit card.</p> <p>Check for broken wires on 410600 circuit card.</p> <p>Go to 14.</p>
<p>14. Are fuses F1 and F2 good, and are ± 24 V dc inputs presented to 410600 circuit card?</p>	<p>Replace 410600 circuit card.</p>	<p>Check and/or replace rectifier bridge (401002).</p>

4. FUNCTIONAL TESTING (40PSU102)

EQUIPMENT PREPARATION

4.01 Install the power supply in a working 40C400 controller (Fig. 11 and 12). (Refer to Section 582-200-700 for removal and installation of 40PSU102.)

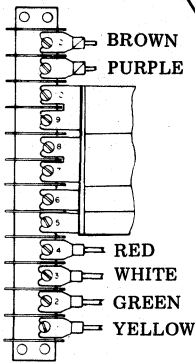


Fig. 11—Terminal Block Wiring

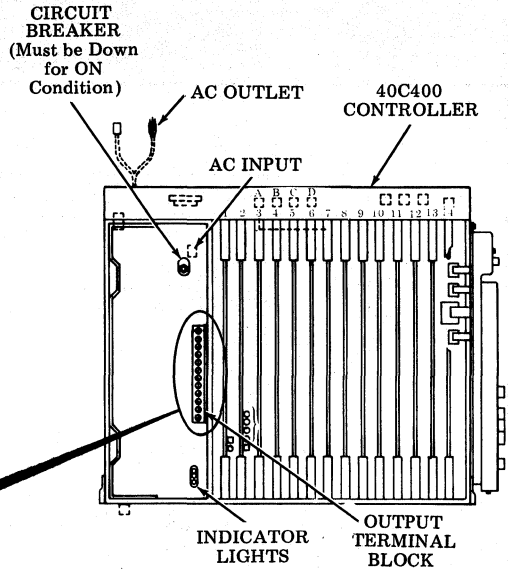


Fig. 12—Power Supply Installed in 40C400 Controller

TESTING PROCEDURE

4.02 The following are voltage limits for functional testing of Tests No. 1 through No. 4 (Chart 3).

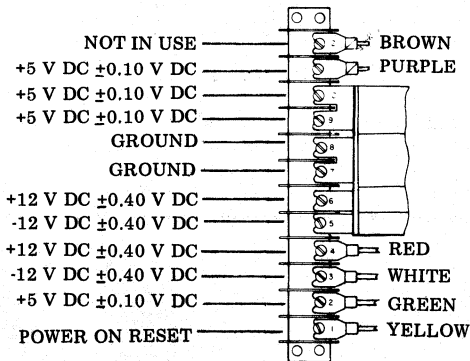


Fig. 13—Voltage Limits

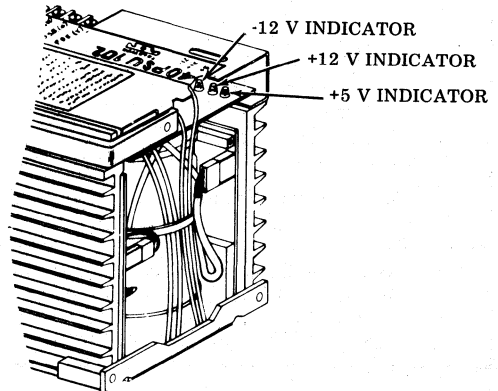


Fig. 14—40PSU102 Voltage Indicators

4.03 For Tests No. 2 through No. 4, (Chart 3) voltage measurements are made with a multimeter set to the appropriate range. Attach common lead of meter to ground terminal of terminal block.

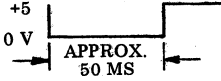
CHART 3

TEST NO.	PROCEDURE	RESPONSE
1.	Turn on the ac power to the power supply.	LED indicators for the +5 V, +12 V, and -12 V dc voltages should be lit (Fig. 13 and 14).
2.	Measure the +12 V dc voltage on the +12 V and +12 V SL-BL terminals of the terminal block.	Correct voltage must be present (+11.58 V dc to +12.42 V dc).
3.	Measure the +5 V dc voltage on the +5 V and +5 V SL-BL terminals of the terminal block.	Correct voltage must be present (+4.9 V dc to +5.1 V dc).
4.	Measure the -12 V dc voltage on the -12 V and -12 V SL-BL terminals of the terminal block.	Correct voltage must be present (-11.58 V dc to -12.42 V dc).

- 4.04 Ground an oscilloscope to the ground terminal of the terminal block and use to measure the ripple on the dc voltages as follows:

TERMINAL	MAXIMUM RIPPLE AS MEASURED ON AN OSCILLOSCOPE
+12 V	0.24 V PEAK-TO-PEAK
+5 V	0.25 V PEAK-TO-PEAK
-12 V	0.24 V PEAK-TO-PEAK

Note: Use a RX1 scope lead and externally trigger on terminal 1 of output terminal block.

5.	Measure ripple present on +12 V terminal of terminal block.	Ripple less than 0.24 V peak-to-peak.
6.	Measure ripple present on +5 V terminal of terminal block.	Ripple less than 0.25 V peak-to-peak.
7.	Measure ripple present on -12 V terminal of terminal block.	Ripple less than 0.24 V peak-to-peak.
8.	With the scope lead on terminal 1 of the terminal block, turn power supply off, then on. (Refer to Note.)	Observe a negative pulse approximately 50 ms long. 

5. TROUBLESHOOTING (40PSU102)

5.01 This section deals with methods used for correction of operational problems encountered in testing the 40PSU102 power supply.

(a) To use the Troubleshooting Guide always start with Analysis Question 1 and follow indicated procedure to the directive which specifies proceeding to a new step or replacement of a component. Where more than one component is specified for replacement, they should be replaced in the order specified. The original component shall be replaced if the trouble is not corrected before making the next indicated replacement.

(b) Once a component has been replaced, the unit shall again be tested to insure its proper operation.

EQUIPMENT PREPARATION AND LAYOUTS

5.02 Arrange the power supply, with the cover removed (Fig. 15), as shown. Leave power turned off. See Section 582-214-700 for removal of cover and location and removal of mentioned components.

- (a) Unfold both sides of power supply as shown in Fig. 15.
- (b) Attach an ac power cable to the power supply in question.
- (c) Connect a lead between terminals 10 and 11 of output terminal block.
- (d) Tighten all screws on output terminal block.
- (e) Refer to functional schematic in Section 582-214-400, Wiring for additional aid in troubleshooting.

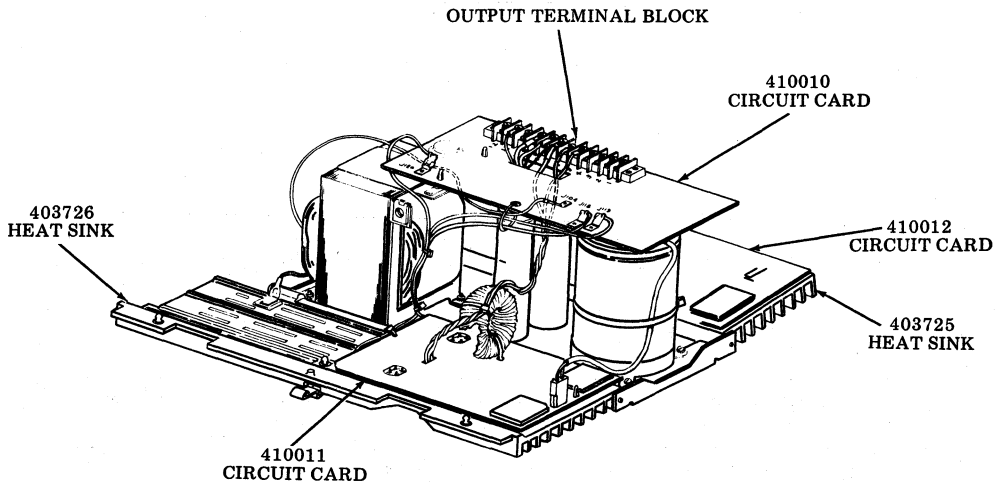


Fig. 15—Layout of 40PSU102 Power Supply for Testing

CHART 4
TROUBLESHOOTING GUIDE

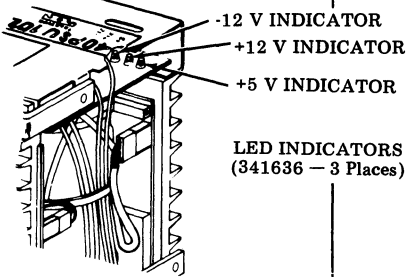
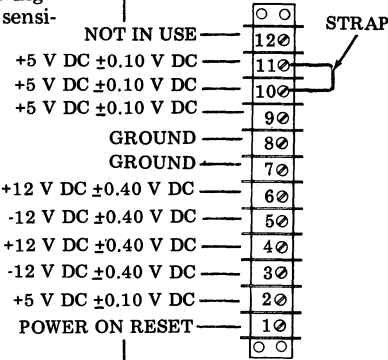
ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE								
<p>1. With the set plugged in and power ON, are all LED indicators ON?</p> 	<p>Go to 2.</p>	<p>Go to 5.</p>								
<p>2. Are all voltages correct at the output terminal block? Check voltage using voltmeter having 20,000 ohms/volt sensitivity.</p>	<p>Go to 3.</p> 	<p>Go to 6.</p>								
<p>3. Are all ripple requirements met?</p> <table border="1" data-bbox="157 1161 733 1300"> <thead> <tr> <th>TERMINAL</th> <th>MAXIMUM RIPPLE AS MEASURED ON AN OSCILLOSCOPE</th> </tr> </thead> <tbody> <tr> <td>+12 V</td> <td>0.24 V PEAK-TO-PEAK</td> </tr> <tr> <td>+5 V</td> <td>0.25 V PEAK-TO-PEAK</td> </tr> <tr> <td>-12 V</td> <td>0.24 V PEAK-TO-PEAK</td> </tr> </tbody> </table>	TERMINAL	MAXIMUM RIPPLE AS MEASURED ON AN OSCILLOSCOPE	+12 V	0.24 V PEAK-TO-PEAK	+5 V	0.25 V PEAK-TO-PEAK	-12 V	0.24 V PEAK-TO-PEAK	<p>Go to 4.</p>	<p>Go to 24.</p>
TERMINAL	MAXIMUM RIPPLE AS MEASURED ON AN OSCILLOSCOPE									
+12 V	0.24 V PEAK-TO-PEAK									
+5 V	0.25 V PEAK-TO-PEAK									
-12 V	0.24 V PEAK-TO-PEAK									
<p>4. Did POR circuit fail when tested in 40C400 controller? <i>Note:</i> POR circuit can only be tested with power supply installed in controller.</p>	<p>Replace 410010 circuit card.</p>	<p>Put power supply in service.</p>								

CHART 4 (Cont)
TROUBLESHOOTING GUIDE

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
5. Are all voltages correct at output terminal block? (See Question 2 for procedures.)	Replace 410010 circuit card.	Go to 6.
6. Are all three (3) voltages (+12, -12 and +5) missing?	Go to 7.	Go to 16.
7. Is +12 V dc present at terminal 116 on 410010 circuit card?	Check all wiring from 410010 circuit card to 410011 and 410012 circuit card.	Go to 8.
8. Is +24 V dc present at terminal 115 of 410010 circuit card?	Replace 410010 circuit card.	Go to 9.
9. Is +24 V dc present at terminal 111 of 410010 circuit card?	Replace 403707 fuse (F1) on 410010 circuit card. Go to 13.	Go to 10.
10. Is 22 V ac present between terminals 106 and 107 (W-G wires) of CR101 full-wave bridge rectifier located on 403725 heat sink?	Replace 401002 bridge rectifier on 403725 heat sink.	Go to 11.
11. Is 115 V ac present between terminals 1 and 3 of ac input connector?	Go to 12.	Problem is not in power supply.
12. Is 115 V ac present between terminal 3 of ac input connector and both terminals of circuit breaker?	Replace power supply.	Replace 403700 circuit breaker (CB-1).
13. Did new F1 fuse blow?	Go to 14.	Retest power supply.
14. Is -15 V dc present at terminal 121 of 410010 circuit card?	Replace on 403725 heat sink — 403712 transistor (Q1), 403713 transistor (Q2), 403716 SCR (Q8) and 410012 circuit card. Check 403750 diode assembly for short and replace if defective. Replace 403707 fuse.	Go to 15.
15. Is 41 V ac present between terminals 104 and 105 on 410010 circuit card?	Replace 410010 circuit card.	Replace power supply.

CHART 4 (Cont)
TROUBLESHOOTING GUIDE

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
16. Is +5 V dc missing or incorrect at output terminal block?	Replace on 403725 heat sink — 403712 transistor (Q1), 403713 transistor (Q2) and 410012 circuit card.	Go to 17.
17. Is +12 V dc missing or incorrect at output terminal block?	Go to 18.	Go to 22.
18. Is +48 V dc present at terminal 118 of 410010 circuit card?	Replace on 403726 heat sink — 403725 transistor (Q1) and 410011 circuit card.	Go to 19.
19. Is +48 V dc present at one side of the 403707 fuse (F2)?	Replace 403707 fuse (F2).	Go to 21.
20. Did new 403707 fuse (F2) blow?	Replace on 403726 heat sink — 403727 transistor (Q1) and 410011 circuit card. Replace 403707 fuse (F2).	Test power supply.
21. Is 40 V ac present between terminals 103 and 104 of 410010 circuit card?	Replace 410010 circuit card.	Replace power supply.
22. Is -48 V dc present at terminal 120 of 410010 circuit card?	Replace on 403726 heat sink — 403730 transistor (Q6) and 410011 circuit card.	Replace 403707 fuse (F3) on 410010 circuit card. Go to 23.
23. Did new 403703 (F3) fuse blow?	Replace on 403726 heat sink — 403730 transistor (Q6) and 410011 circuit card. Replace 403707 fuse (F3).	Test power supply.
24. Is there excessive ripple on the +5 V dc circuit?	Go to 25.	Go to 26.
25. Is there excessive ripple at terminal 115 (+24 V dc) of the 410010 circuit card?	Replace power supply.	Replace 410012 circuit card.
26. Is there excessive ripple on the +12 V dc circuit?	Go to 27.	Go to 28.
27. Is there excessive ripple at terminal 118 (+48 V dc) of the 410010 circuit card?	Replace power supply.	Replace 410011 circuit card.
28. Is there excessive ripple at terminal 120 (-48 V dc) of the 410010 circuit card?	Replace power supply.	Replace 410011 circuit card.

“DATASPEED*” 40 POWER SUPPLY UNITS

DISASSEMBLY/REASSEMBLY AND PARTS

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1. GENERAL

1.01 This section provides disassembly and reassembly information for recommended replacement components of the 40PSU101 DATASPEED 40 Power Supply (Fig. 1) and the 40PSU102 DATASPEED 40 Power Supply (Fig. 2).

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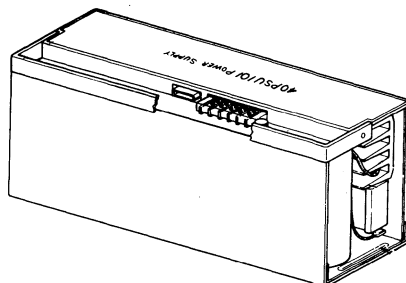


Fig. 1—40PSU101 Power Supply

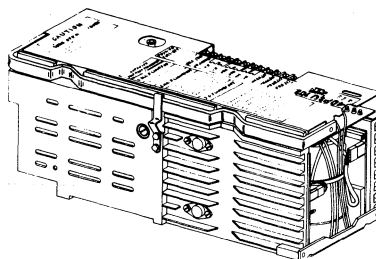


Fig. 2—40PSU102 Power Supply

1.02 This section was reissued to add installation instructions to the notes in Fig. 16 and 17.

1.03 For information about power supply removal from its station, refer to the appropriate station disassembly/reassembly section.

1.04 When removing a subassembly or component from the power supply, do not force or pry parts to provide clearance for removal.

1.05 To reassemble any component to the power supply, reverse the disassembly procedure. Special reassembly instructions, if needed, are given after the associated component disassembly instructions.

1.06 When ordering replacement parts, prefix each part number with the letters "TP" (ie, TP123456), unless specified otherwise.

1.07 The following tools and supplies will be needed for the disassembly and reassembly of the power supply.

Tools

89954	1/4-Inch Nut Driver Wrench
89955	5/16-Inch Nut Driver Wrench
100982	Screwdriver (6-Inch Medium)
108285	Long-Nose Pliers
108286	Cutting Pliers
125765	3/8-Inch Open-End Wrench
129534	1/4-Inch Open-End Wrench
152835	5/16-Inch Open-End Wrench
310921	0.22 Microfarad Electrolytic Capacitor @ 35 V dc
401608	Wire With Terminals Alligator Clip Lead (Obtain Locally)

Supplies

402640	Heat Conducting Paste
Sealer	General Electric GLYPTOL — Type 1201, Red (Obtain Locally)

1.08 Early and late design 40PSU101 power supplies can be identified in the following manners:

- The early design power supply cover is secured with screws installed to bottom of power supply frame as shown in Fig. 4.
- The late design power supply cover is secured with screws and nuts installed to sides of power supply frame as shown in Fig. 6.

1.09 Early design 40PSU101 power supplies may have late design 410600 circuit cards installed in them. Early and late design 410600 circuit cards can be identified by referring to Fig. 13, 14, and 15.

2. DISASSEMBLY/REASSEMBLY PROCEDURES FOR 40PSU101 POWER SUPPLY

A. Preliminary

2.01 Remove the two screws holding the 401020 terminal block insulator in place and remove the insulator (Fig. 3).

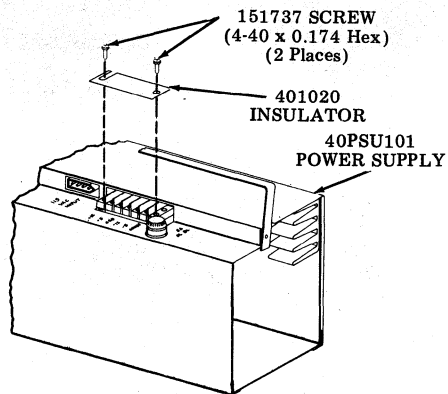


Fig. 3

B. Cover

2.02 To remove the cover (Early Design):

- Turn the unit on its side and remove the four screws which secure the power supply cover to the power supply frame (Fig. 4).

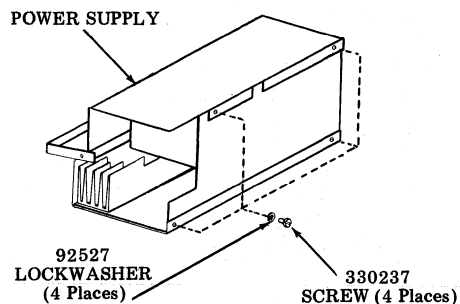


Fig. 4

- Again turn the power supply unit upright. Gently spread the side panels of the cover halfway up off of the power supply frame.
- Unsnap the ac power receptacle (3-pin connector) from its mount on the cover.
- Slide the cover completely off of the power supply and place the cover aside. Remove the 403591 insulator facing the noncomponent side of the 410600 regulator circuit card (Fig. 5).

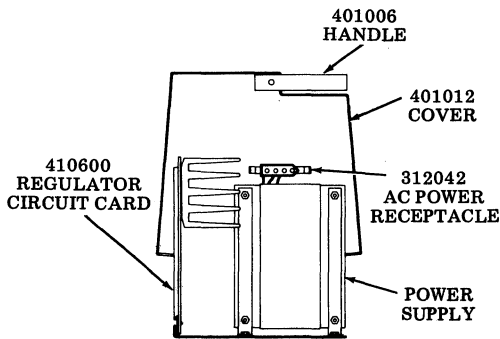


Fig. 5

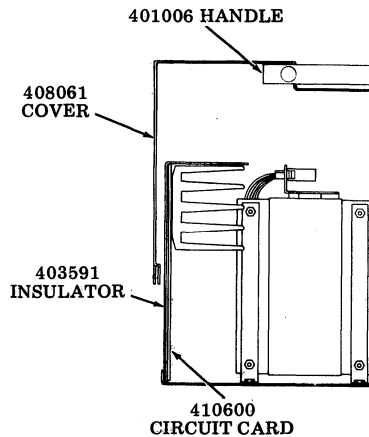


Fig. 7

2.03 To remove the cover (late design):

- (a) Remove three 198670 screws from right side of power supply (Fig. 6).
- (b) Remove two 3598 nuts and two 2191 lockwashers from left side of power supply.

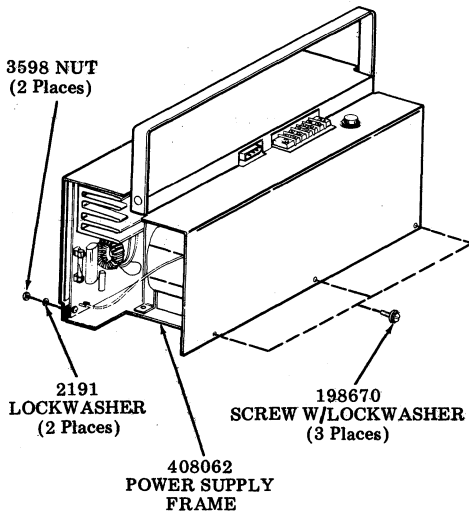


Fig. 6

- (c) Lift and remove the cover from the power supply. Remove the 403591 insulator facing the noncomponent side of the 410600 regulator circuit card (Fig. 7).

C. Regulator Circuit Card

Early Design, Old Style — See Fig. 13.
 Early Design, New Style — See Fig. 14.
 Late Design, See Fig. 15.

2.04 To remove the regulator circuit card:

- (a) While holding the 410600 regulator circuit card firmly, remove the two screws which mount the regulator circuit card to the power supply frame.

Early Design, Old Style — See Fig. 8.
 Early Design, New Style — See Fig. 9.
 Late Design — See Fig. 10.

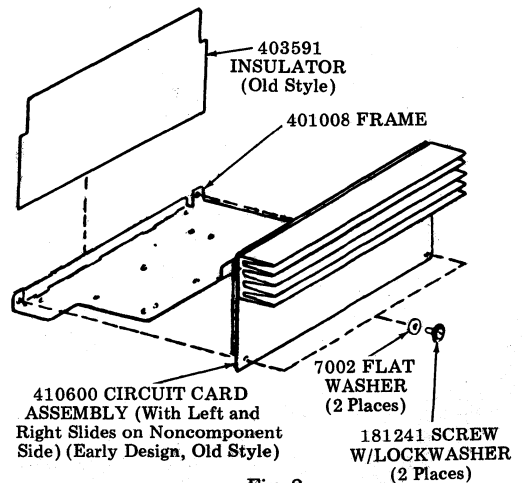


Fig. 8

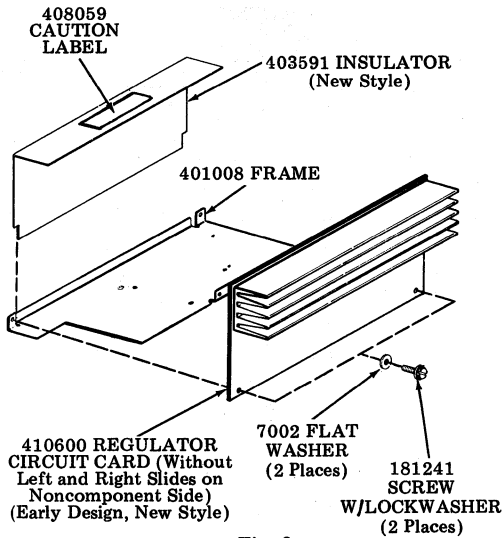


Fig. 9

Note: 410600 circuit card assembly (early design, new style) (without left and right slides) can be used in early or late design 40PSU101; however, a 403591 insulator (new style) must also be used.

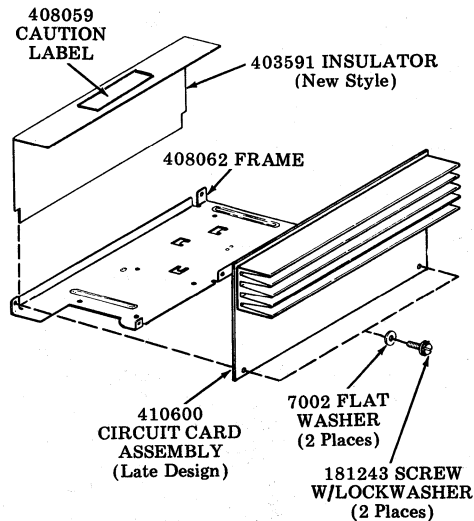


Fig. 10

Note: 410600 circuit card (late design) can be used in early or late design 40PSU101 power supply; however, 403591 insulator (new style) must also be used.

(b) Gently rotate the 410600 regulator circuit card upward and outward from the power supply. Leave all wires attached (Fig. 11).

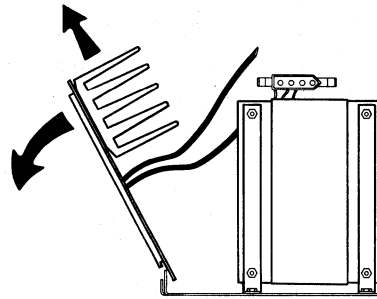


Fig. 11

2.05 When replacing regulator circuit card:

(a) When mounting the 410600 circuit card (early design, old and new style) to the 401008 frame (early design) or 410600 circuit card (early design, new style only) to the 408062 frame (late design), make certain that the two wires 401610 and 410611 (Fig. 12) are not pinched by the baffle. Also make sure that the blue wire is routed under the baffle and the white wire is routed over the transformer.

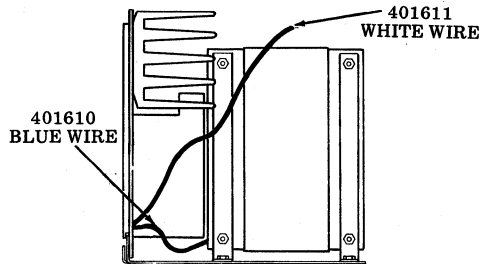
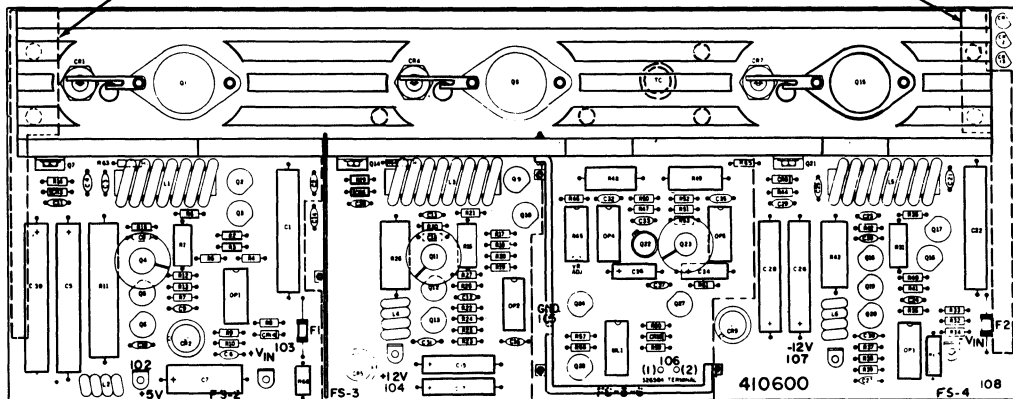


Fig. 12

(b) When mounting the 410600 circuit card (late design) to the 401008 frame (early design) or 408062 frame (late design) make certain that the 401611 white wire is routed over the transformer as shown in Fig. 12 and that the 408076 yellow wire is dressed close to the heat sink as shown in Fig. 17.

401603 RIGHT SLIDE
(Shown Dashed) INSTALLED
ON NONCOMPONENT SIDE

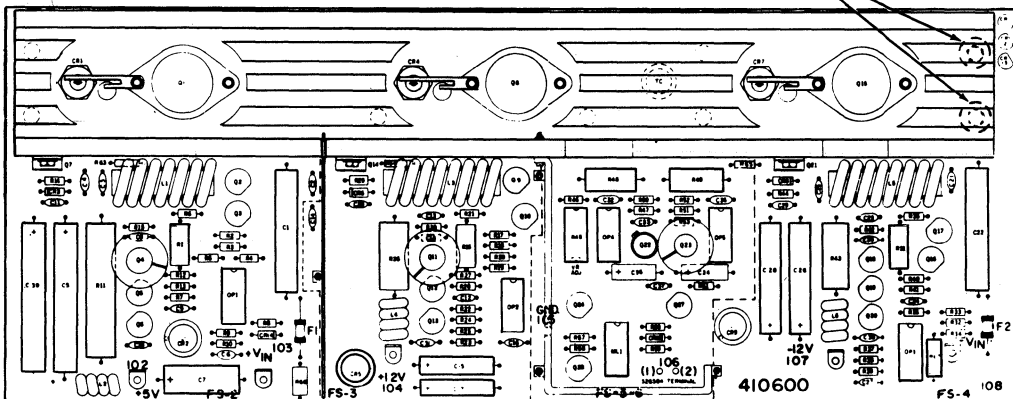
401604 LEFT SLIDE
(Shown Dashed) INSTALLED
ON NONCOMPONENT SIDE



(Component Side)

Fig. 13—410600 Regulator Circuit Card Assembly (Early Design, Old Style)

The 401603 (right) and 401604 (left) slides are removed and (2) 75750 insulating washers (shown dashed) are added on noncomponent side. Each insulating washer is assembled between the etched board and the washer on the screw.



(Component Side)

Note: 410600 circuit card assembly (new style) (without left and right slides) can be used in early or late design 40PSU101; however, a 403591 insulator (new style) must also be used.

Fig. 14—410600 Regulator Circuit Card Assembly (Early Design, New Style)

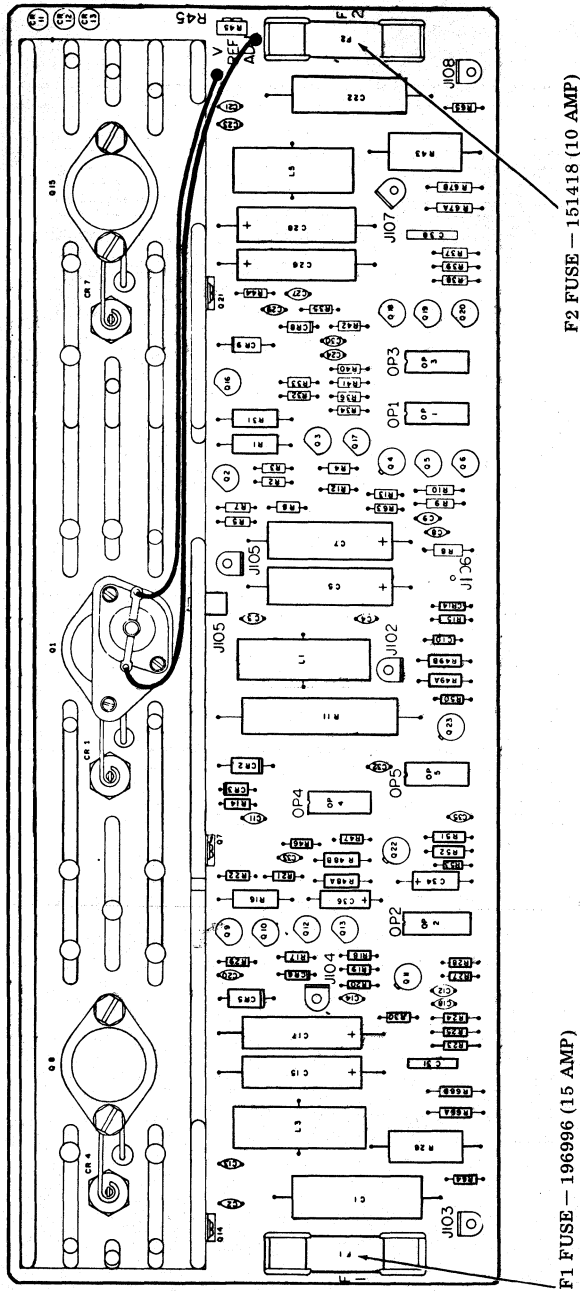
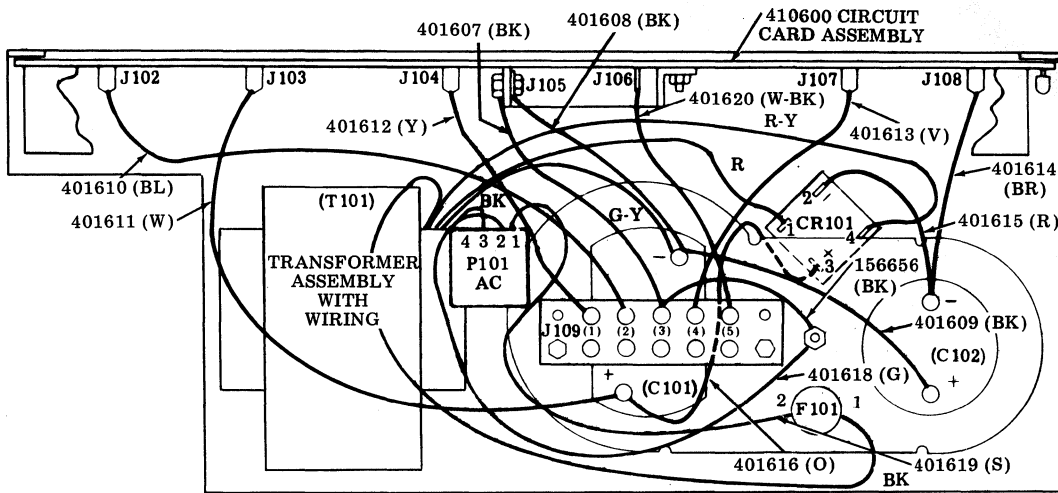
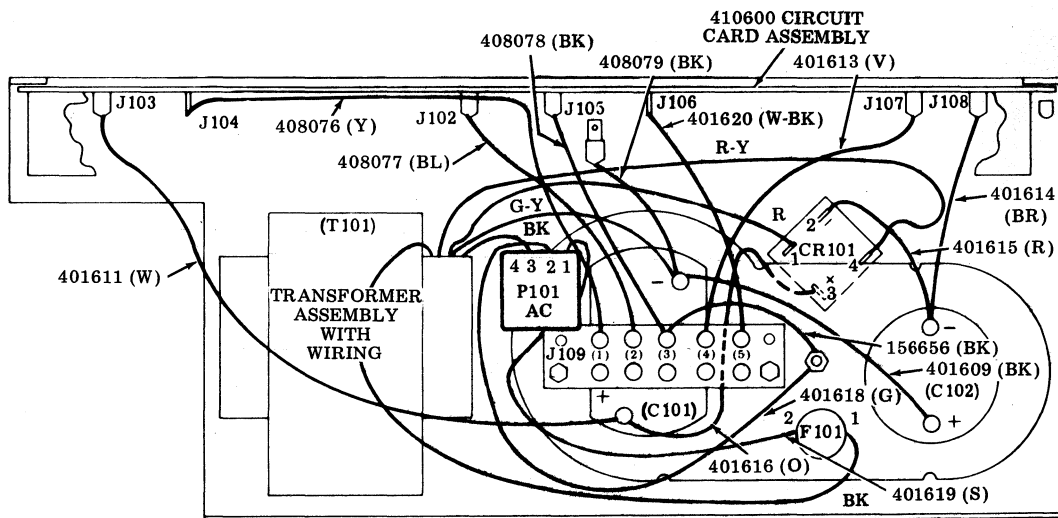


Fig. 15—410600 Circuit Card Assembly (Late Design) Customer Identification Issue 6A or Later



Note: The white wire on J103 must be dressed away from the card and across the T101 transformer top to minimize ripple voltage. To install the early design 410600 card to the late design frame, two wires (J104—J109 (1) and J102—J109 (2)) must be interchanged for proper length alignments.

Fig. 16—Wiring of 410600 Circuit Card (Early Design, Old or New Style) to 401008 (Early Design) or 408062 (Late Design) Frames



Note: The white wire on J103 must be dressed away from the card and across the T101 transformer top. The wire on J104 must be dressed close to ground (heat sink) to minimize ripple voltage. To install the late design 410600 card to the early design frame, two wires (J104—J109 (1) and J102—J109 (2)) must be interchanged for proper length alignments.

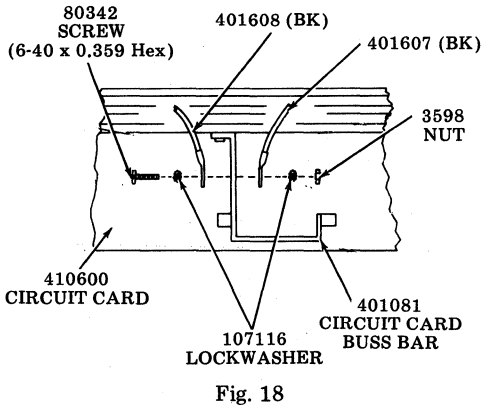
Fig. 17—Wiring of 410600 Circuit Card (Late Design) to 401008 (Early Design) or 408062 (Late Design) Frames

D. Wiring

2.06 Remove the wires from the 410600 circuit card (early design — Fig. 16, late design — Fig. 17).

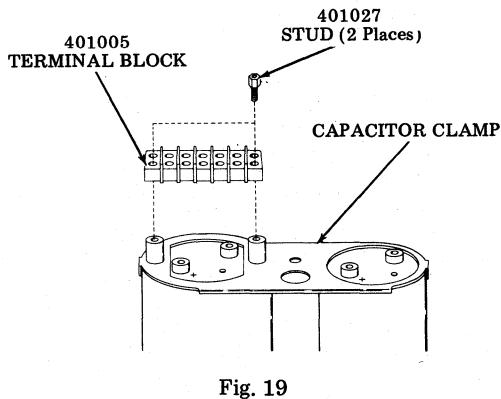
Note: Be careful not to damage any components on the circuit card when removing the wires.

2.07 When removing wires from the 410600 circuit card (early design), the two black wires attached to the circuit card buss bar can be removed by taking out the nut and bolt which holds both wires to the buss bar (Fig. 18).



E. Terminal Block

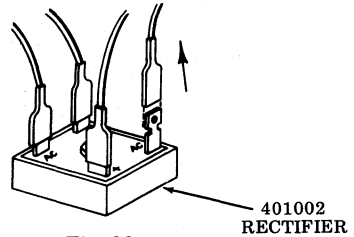
2.08 Remove the two studs which hold the terminal block to the capacitor clamp (Fig. 19).



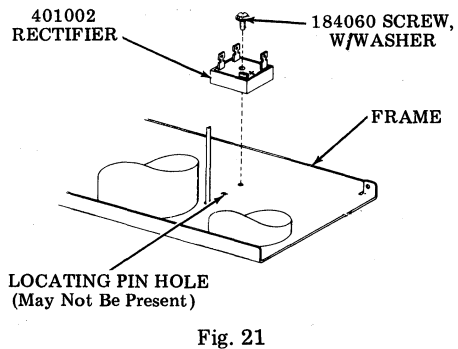
F. Bridge Rectifier

2.09 To remove the bridge rectifier:

(a) Remove the four wires attached to the terminals on the bridge rectifier (Fig. 20).

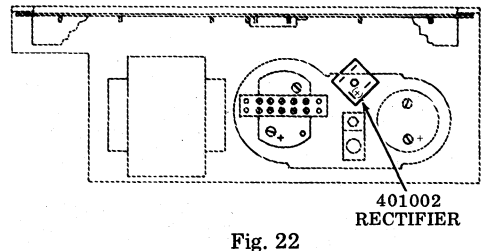


(b) Remove the screw in the center of the bridge rectifier and remove the rectifier (Fig. 21).



2.10 When replacing bridge rectifier:

Note: If rectifier does not have a locating pin, position per Fig. 22.



- (a) Place the regulator circuit card, component side up, directly behind the power supply frame (Fig. 23).

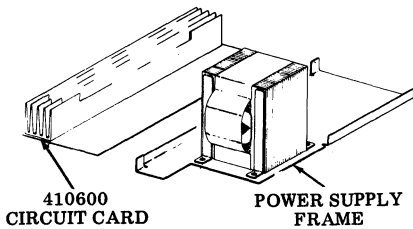


Fig. 23

- (b) Wire the circuit card while it is laying flat according to the diagrams in Fig. 16 (early design) and Fig. 17 (late design).

- (c) If wiring 410600 circuit card (early design), assemble the 401607 and 401608 black wires to the circuit card buss bar as shown in Fig. 24.

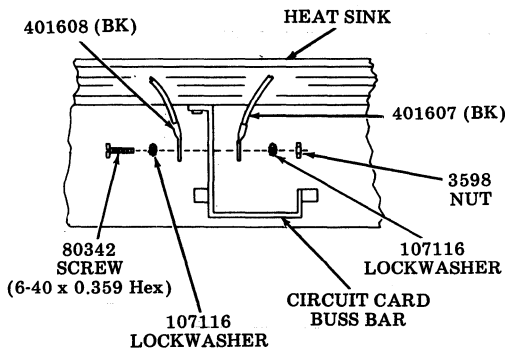


Fig. 24

- (d) Wire the transformer, ac power receptacle and bridge rectifier as shown in Fig. 25.

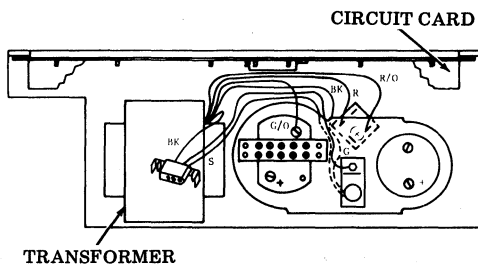


Fig. 25

- 2.11 Refer to Fig. 16 and 17 for complete power supply wiring.

- 2.12 All wiring should be completed with the circuit card resting flat (component side up) and directly behind the power supply frame.

G. AC Connector

- 2.13 The 312042 ac connector is attached to the transformer wiring as shown in Fig. 26. It is removed by cutting the black wire in the center of the heat shrink area.

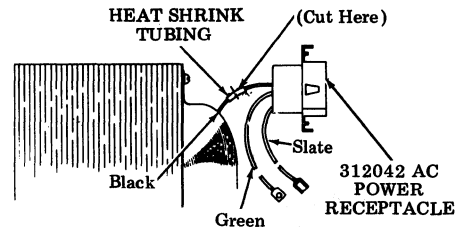


Fig. 26

H. Fuse Assembly, Capacitor Clamp and Capacitor

- 2.14 For removal in early design power supplies, do the following:

- (a) Remove the two hex nuts which hold the fuse assembly and capacitor clamp together (Fig. 27). Remove the slate and black wires from beneath the fuse assembly and lift off the fuse assembly.

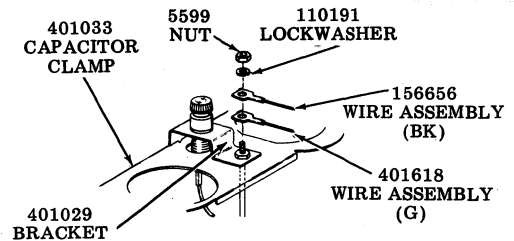


Fig. 27

- (b) Remove the red, black, brown, orange, green/yellow and white wires from the capacitor terminals.

- (c) Lift off the capacitor clamp and remove the two capacitors (Fig. 28).

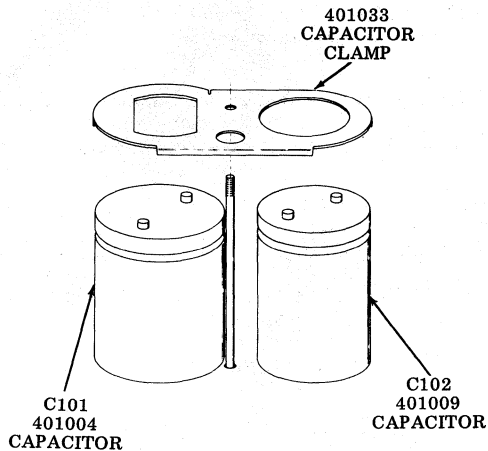


Fig. 28

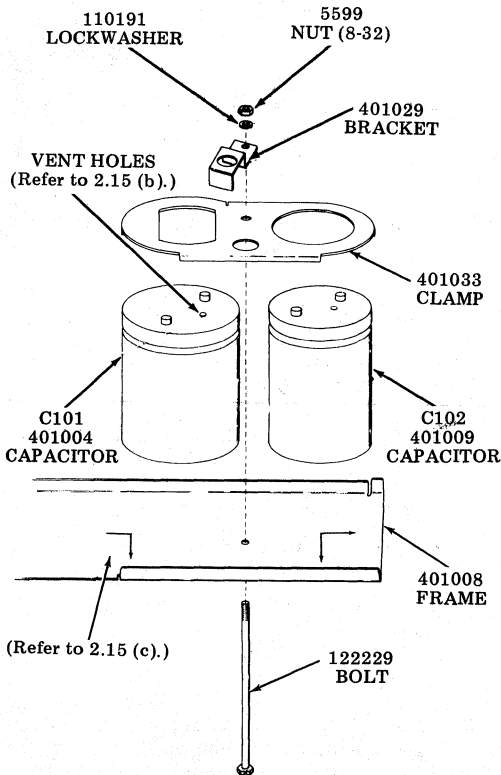


Fig. 29—Parts Peculiar to Early Design Power Supply

2.15 When replacing capacitors, clamp and fuse assembly (Fig. 29):

- (a) Right side mounting holes on 401008 frame to be used when power transformer is equipped with end bell.
- (b) Capacitor vent holes must not be covered by clamp.
- (c) Prior to tightening the 5599 nut, bias the capacitors to the outermost ends of the capacitor clamp and forward to the formed-up edge of the power supply frame.

2.16 For removal of capacitor clamp and capacitors in late design power supplies, do the following:

- (a) Remove the capacitor clamp by removing the three 5599 nuts and three 110191 lockwashers as shown in Fig. 30.
- (b) Remove the red, black, brown, orange, green/yellow and white wires from the capacitor terminals.
- (c) Lift off the capacitor clamp and remove the two capacitors.

2.17 When replacing capacitors and capacitor clamp:

- (a) Capacitor vent holes must not be covered by capacitor clamp.
- (b) Prior to tightening the 5599 nuts, bias the capacitors to the outermost ends of the capacitor clamp and forward to the formed-up edge of the power supply frame as shown in Fig. 29.

3. DISASSEMBLY/REASSEMBLY PROCEDURES FOR 40PSU102 POWER SUPPLY

A. Cover

3.01 To remove cover assembly (Fig. 31):

- (a) Depress circuit breaker.
- (b) Release 403761 handle by slightly pulling the 403721 latch and lifting handle.
- (c) Loosen three 341651 1/4-turn studs on 403726 left side heat sink.

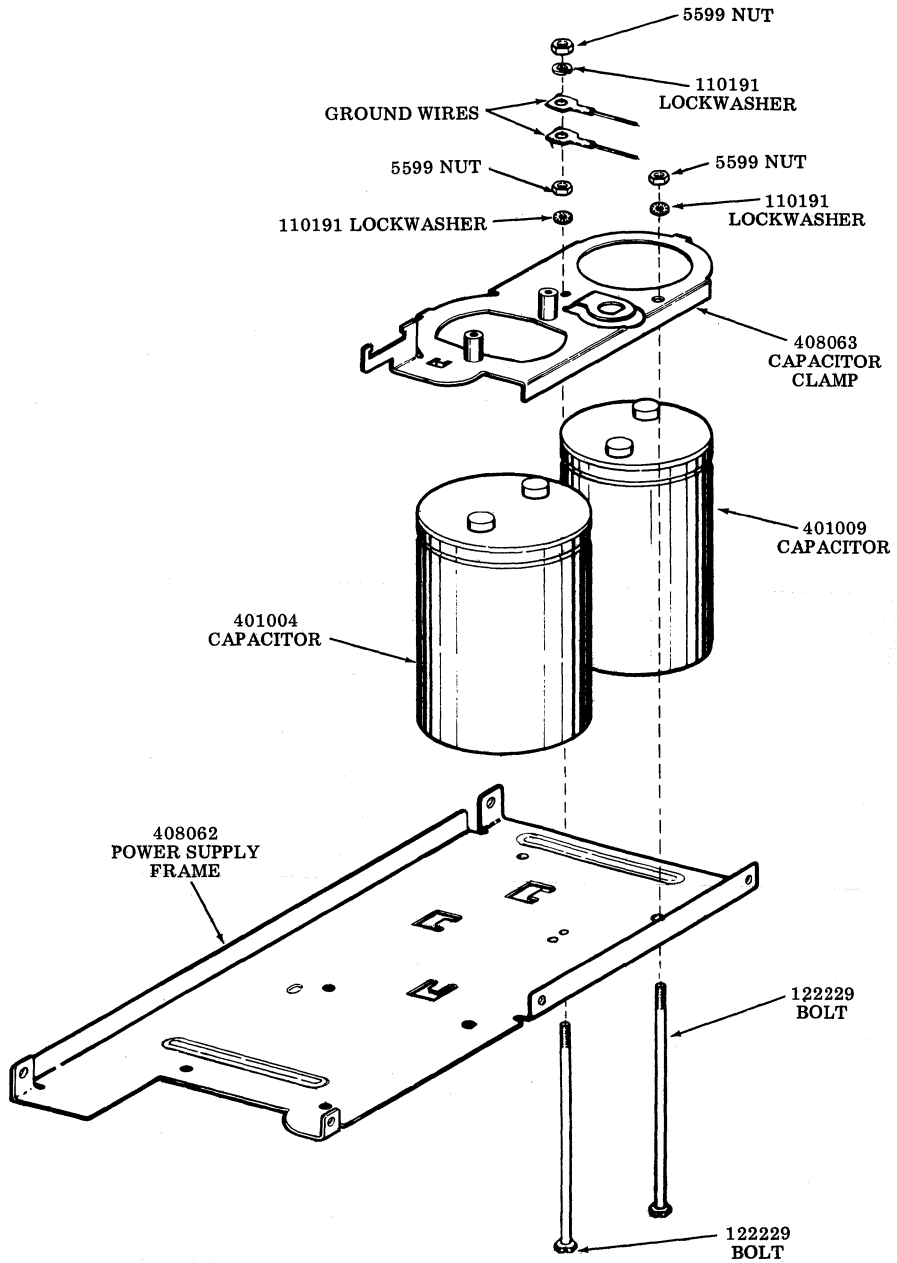


Fig. 30—Parts Peculiar to Late Design 40PSU101

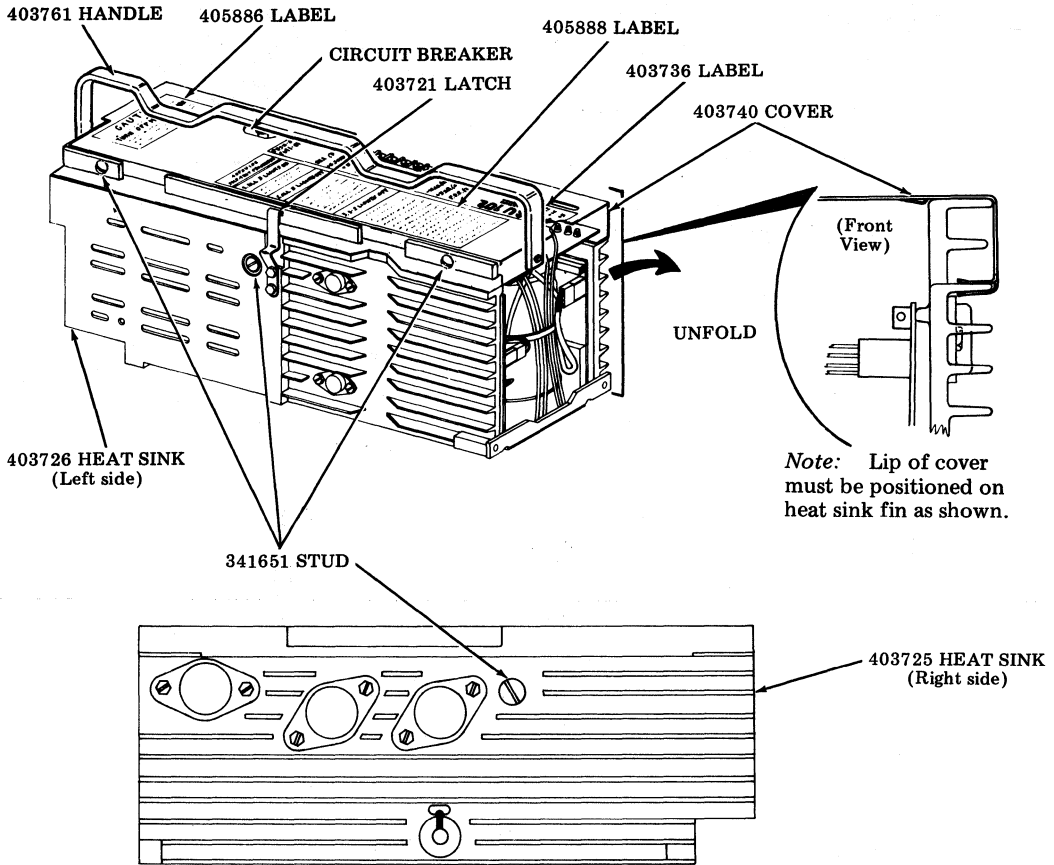


Fig. 31

- (d) Loosen 341651 1/4-turn stud on 403725 right side heat sink.
 - (e) Unfold left and right side heat sinks.
 - (f) Remove 403740 cover by sliding cover off of heat sink.
- 3.02 When replacing cover:
- (a) Depress circuit breaker.
 - (b) Make sure lip of cover is positioned on fin of heat sink as shown in Fig. 31.
- B. AC/DC Circuit Card
- 3.03 To remove 410010 ac/dc circuit card (Fig. 32):
- (a) Cut RM43679 tie.
 - (b) Disconnect all leads to 410010 circuit card.
 - (c) Remove all push-on leads from output terminal block.
 - (d) Remove screws and star washers which are part of 403705 capacitor and remove green and red leads.

- (e) Using long-nose pliers, compress 340711 supports and lift 410010 circuit card from power supply.
- (f) Remove two 403706 capacitors from 410010 circuit card (not furnished with replacement card).

3.04 When replacing ac/dc circuit card:

- (a) Assemble 403706 capacitors to circuit card with capacitor vents directly under holes in circuit card.
- (b) Make sure all leads to 410010 circuit card are twisted as shown in Fig. 32.

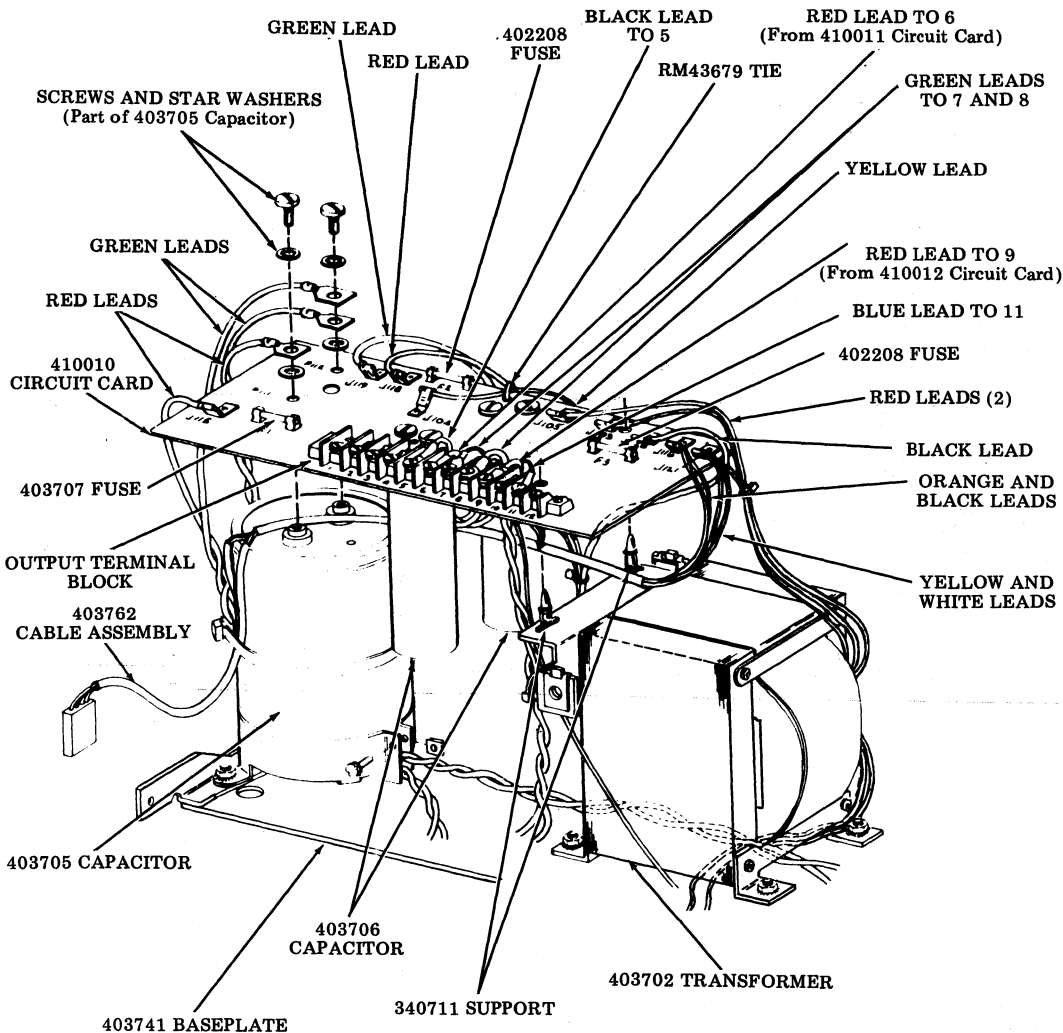


Fig. 32

C. Bridge Rectifier

3.05 To remove 401002 bridge rectifier (Fig. 33):

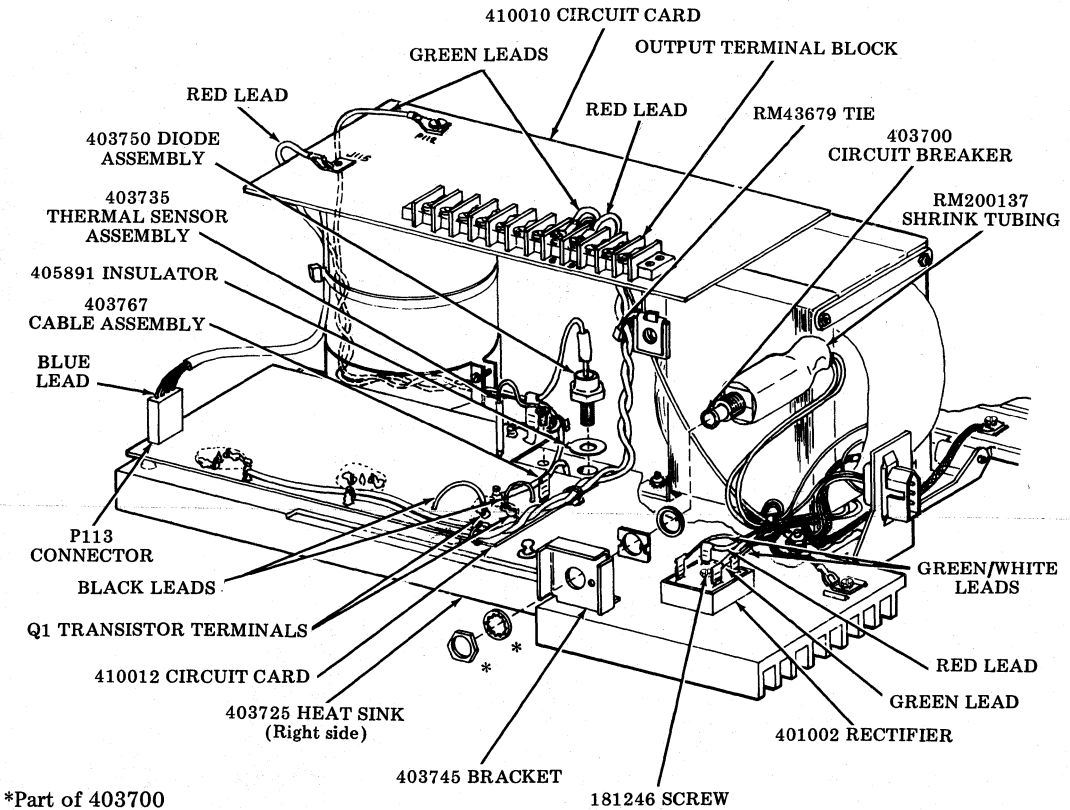
- (a) Disconnect leads from rectifier.
- (b) Remove 181246 screw and remove rectifier from 403725 right side heat sink.

3.06 When replacing 401002 bridge rectifier to 403725 right side heat sink, apply 402640 heat conducting paste between rectifier and heat sink.

D. Circuit Breaker

3.07 To remove 403700 circuit breaker (Fig. 33):

- (a) Cut and remove RM200137 shrink tubing.
- (b) Disconnect leads from circuit breaker.
- (c) Remove circuit breaker from 403745 bracket.



*Part of 403700 circuit breaker.

Fig. 33

3.08 When replacing 403700 circuit breaker, apply electrical insulating tape in place of shrink tubing.

E. Diode Assembly

3.09 To remove 403750 diode assembly (Fig. 33 and 35):

- (a) Remove 334874 nut, 82832 star washer, 403767 cable assembly and 405891 insulator from 403725 right side heat sink.
- (b) Disconnect 403750 diode assembly lead from 410012 circuit card.
- (c) Remove 403750 diode assembly and 405891 insulator from heat sink.

3.10 When replacing 403750 diode assembly to 403725 right side heat sink, apply 402640 heat conducting paste between two 405891 insulators and heat sink (see Fig. 33 and 35):

F. 5 V Regulator Circuit Card

3.11 To remove 410012 circuit card (Fig. 33 and 35).

- (a) Disconnect the following from 410012 circuit card:

Black leads from Q1 transistor terminals,
Green lead of 403750 diode assembly,
Blue lead of 403735 thermal sensor assembly,
White lead of 403767 cable assembly.

- (b) Disconnect green and red leads from P112, J115 and terminals 8 and 9 of output terminal block of 410010 circuit card.
- (c) Cut RM43679 tie.
- (d) Remove three transistors and insulators from 403725 right side heat sink.
- (e) Remove 410012 circuit card.

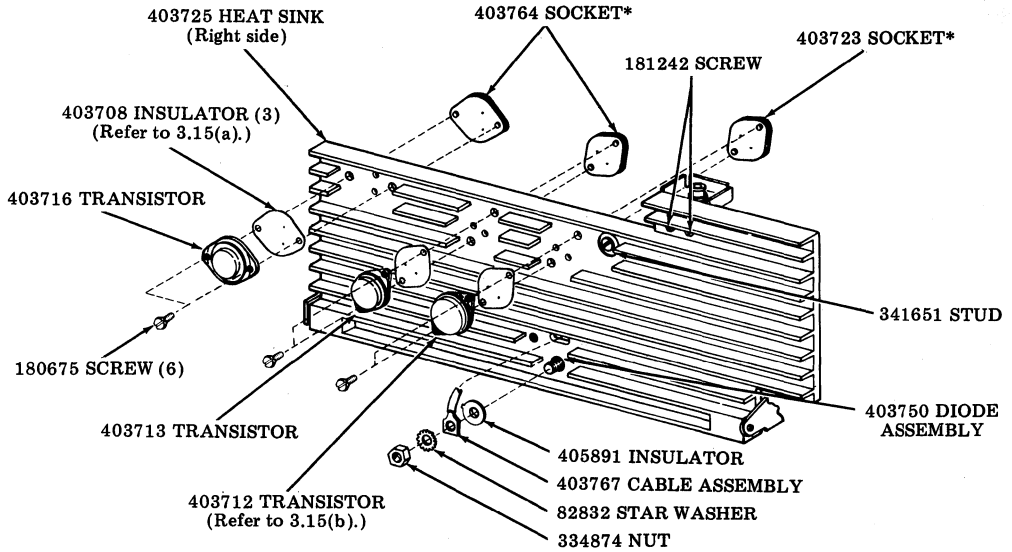
3.12 When replacing 410012 circuit card:

- (a) Replace 403708 insulators when reassembling transistors to 403725 right side heat sink.
- (b) Apply 402640 heat conducting paste between 403708 insulator (under 403712 transistor only) and 403725 right side heat sink.
- (c) Apply approximately 6 lbs-per-inch torque when installing transistor mounting screws. Overtightening will damage transistor sockets.
- (d) Make sure leads from 410012 circuit card to 410010 circuit cards are twisted as shown in Fig. 33.
- (e) Position P113 connector, so that blue lead in connector is toward top of power supply when heat sink is in upright position.

G. ± 12 V Regulator Circuit Card

3.13 To remove 410011 circuit card (Fig. 34 and 36):

- (a) Cut RM43679 tie.
- (b) Disconnect black, red and green leads from J120, J118, and J119 of the 410010 circuit card.
- (c) Disconnect black, red and green leads from output terminal block; terminals 5, 6 and 7 of the 410010 circuit card.
- (d) Disconnect P122 connector from 410011 circuit card.
- (e) Remove two transistors from 403726 left side heat sink.
- (f) Using long-nose pliers, compress 403737 support and gently lift circuit card from power supply.



*Part of 410012 circuit card.

Fig. 35

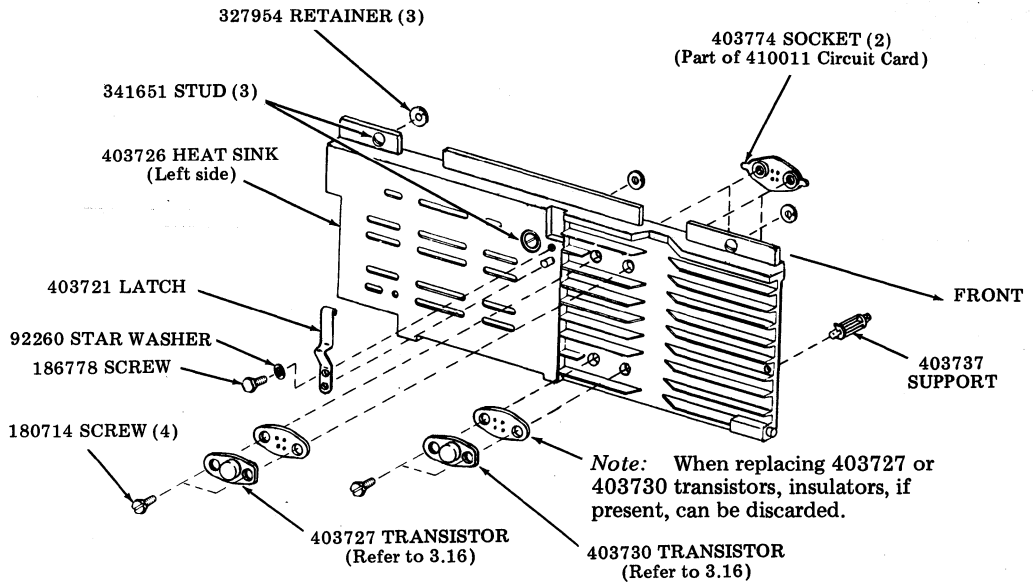


Fig. 36

4. NUMERICAL PARTS INDEX FOR
40PSU101 POWER SUPPLY

4.01 Following is a list of recommended spare parts for the 40PSU101 power supply.

<u>Part No.</u>	<u>Description</u>
129920	Fuse, 5 Amp SLO-BLO
151418	Fuse, 10 Amp
196996	Fuse, 15 Amp
312042	Plug, Connector
338685	Fuse, Holder
401002	Bridge Rectifier
401004	Capacitor
401005	Terminal Block
401009	Capacitor, Electrolytic
401083	Fuse, 15 Amp
401084	Fuse, 10 Amp
410600	Regulator Circuit Card Assembly

5. NUMERICAL PARTS INDEX FOR
40PSU102 POWER SUPPLY

5.01 Following is a list of recommended spare parts for the 40PSU102 power supply.

<u>Part No.</u>	<u>Description</u>
401002	Bridge Rectifier
402208	Fuse
403700	Breaker
403707	Fuse
403708	Insulator
403712	Transistor
403713	Transistor
403716	Transistor
403727	Transistor W/Diode
403730	Transistor W/Diode
403750	Diode Assembly
405891	Insulator
410010	Card, Circuit
410011	Card, Circuit
410012	Card, Circuit

“DATASPEED*” 4500 KEYBOARDS

DESCRIPTION AND OPERATION

CONTENTS	PAGE
1. GENERAL	1
2. DESCRIPTION	1
A. General	1
B. Options	2
3. TECHNICAL DATA	3
4. OPERATION	4

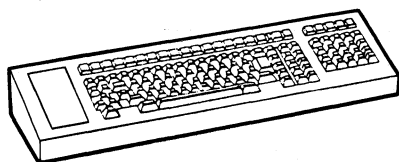
Note: When ordering replaceable parts, prefix each part number with the letters “TP” (ie, TP123456), unless otherwise specified.

2. DESCRIPTION

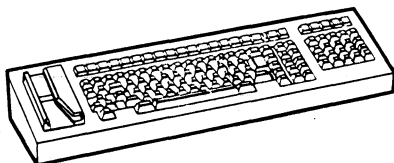
A. General

1. GENERAL

1.01 This section provides description and operation for the DATASPEED 4500 series keyboards as in Fig. 1.



45K301/GAA/03 Keyboard
Without Magnetic Stripe Reader



45K301/GAA/02 Keyboard
With Magnetic Stripe Reader

Fig. 1—DATASPEED 4500 Keyboards

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

2.01 The keyboard provides attendant input and system status. Teletype Standard Serial Interface (SSI) signalling is used in all device/controller transmission. The keyboard is comprised of modular keyswitches mounted on a logic circuit card enclosed in a metal framework and a removable plastic cover. The key position layout used for a 45K301-type keyboard is shown in Fig. 2. This arrangement has five rows of alphanumeric and control keyswitches (some with indicators) and an external cluster of keyswitches. There are seven repeat keys (underline, dash, period, right arrow, space, cursor up, cursor down, cursor left and right). The repeat action is accomplished by depressing the keyswitch with additional force. A slight delay of approximately 100 milliseconds is provided to avoid false entries during the repeat mode.

2.02 The keyswitches also provide an audible click and touch similar to that of a standard typewriter. The keyboard is designed to accommodate slow or fast typing speeds with “N” key rollover.

2.03 “N” key rollover is the ability to select a new key without releasing the previously selected key. Only one key may be depressed if it is repeatable and it will generate a single character output.

2.04 The mode of operation is signalled by the LED indicators in the top row. No latching keyswitches are used on the 45K301-type keyboard.

*Registered Trademark of AT&TCo.

2.05 An alarm is provided to alert the operator of improper entries or that the test mode has been entered. A volume control for the alarm is located under the right side of the keyboard.

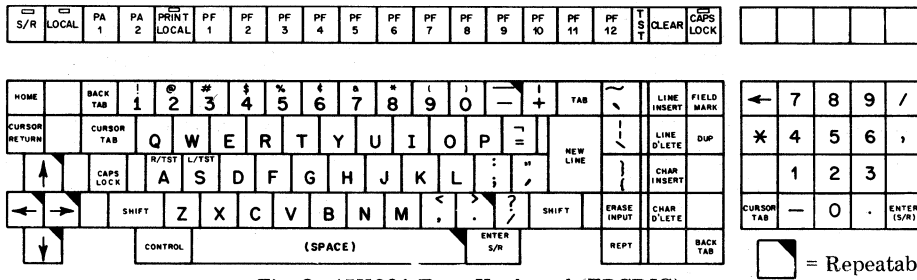


Fig. 2—45K301-Type Keyboard (EBCDIC)

2.06 Self-testing capabilities are designed into the keyboard. The self-test routines are described in Section 582-311-500.

B. Options

2.07 A Magnetic Stripe Reader (MSR) is provided in 45K301/GAA/02 for secured entry to the keyboard. The MSR consists of a read head assembly, amplifier circuit card and a card in place switch. The reader is located to the left of the main key arrangement, see Fig. 3. A filler panel is inserted in 45K301/GAA/03 when the reader is not used.

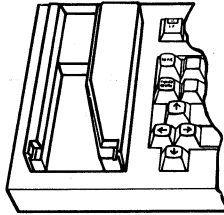


Fig. 3—Keyboard With Magnetic Stripe Reader (Left Side)

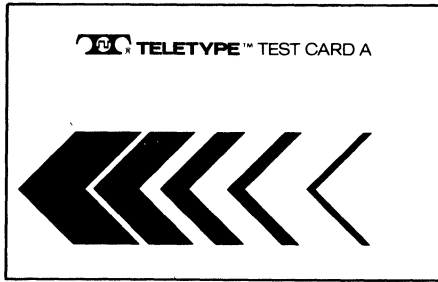
2.08 The forty character maximum magnetic stripe cards used in the MSR are obtainable on a local basis from commercial card suppliers. They are not supplied by Teletype Corporation or the operating telephone companies. The following list of companies is provided as a convenience (not to be interpreted as a complete list or as a recommendation; since no attempt has been made to verify the quality of their product).

- DATA CARD CORPORATION — South Gate, California
- FREEMAN PLASTICS — Brooklyn, New York
- KIRK PLASTIC COMPANY — Los Angeles, California
- MALCO PLASTICS, INC. — Garrison, Maryland
- SILLCOCKS-MILLER COMPANY — Berkeley Heights, New Jersey

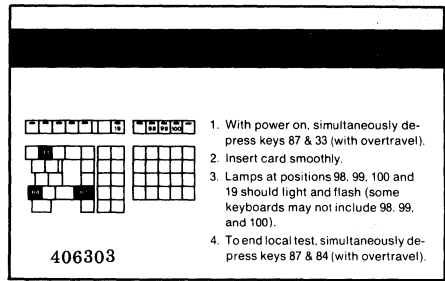
Cards for use in the magnetic stripe reader must conform to the following specifications:

Size — Spec. ANSI X4.15 — 1971.

Stripe Location and Encoding Scheme — ANSI X4.16 — 1976.



(Front)



(Rear)

Fig. 4—Magnetic Stripe Reader Test Card

2.09 Blocking or ASCII characted keytops may be ordered to cover or replace unwanted keys or indicators. Covering keyswitches or adding ASCII keytops does not change the keyboard code. All blocked functions (though inaccessible) remain active in the keyboard logic. Translation of ASCII/EBCDIC characters is an option feature of the controller.

2.10 An external cluster of twenty keys, plus five indicators is placed on the main key arrangement. This cluster contains a numeric pad and a few function keys, as shown in Fig. 2. Blocking keytops cover the cluster area keys, if they are not desired.

2.11 A keyed locking device (347300 modification kit) may be added to the left side of the keyboard. When locked, transmitting of data is prohibited. The keyboard still indicates Information To Device (ITD) by lighting indicators.

3. TECHNICAL DATA

Physical Characteristics

Height	3-1/2 inches
Width	7-1/4 inches
Length	24-1/2 inches
Weight without MSR	10 pounds
Weight with MSR	11 pounds

Environmental Operating Conditions

Ambient Temperature	4.5 to 43°C
Ambient Humidity	5% to 95%
	(no condensation)

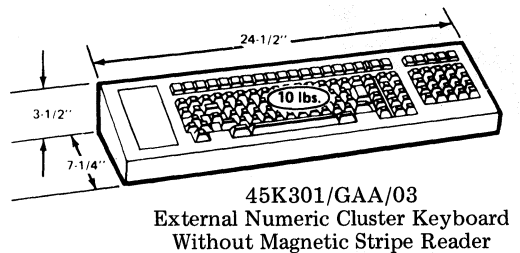
Environmental Storage Conditions

Ambient Temperature	-40 to +65°C
Ambient Humidity	5% to 95%
	(no condensation)

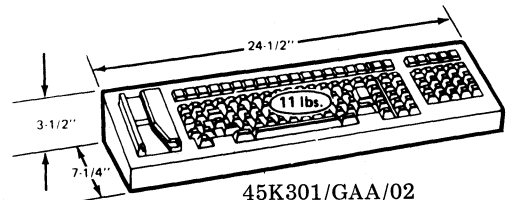
Power Requirements @ 25°C

- +12V ± 10% at 0.680 Amp. Max. (0.570 Amp. Max. at nominal voltage)
- 12V ± 10% at 0.360 Amp. Max. (0.280 Amp. Max. at nominal voltage)
- +5V ± 10% at 0.150 Amp. Max. (0.130 Amp. Max. at nominal voltage)

Note: When the +12V remote supply voltage is grounded (0V) the +5V supply shall shut-off in less than 20 milliseconds.



45K301/GAA/03
External Numeric Cluster Keyboard
Without Magnetic Stripe Reader



45K301/GAA/02
External Numeric Cluster Keyboard
With Magnetic Stripe Reader

Fig. 5—Physical Characteristics

4. OPERATION

4.01 In operation, the keyswitch positions, shown in Fig. 6 are sensed by continuous logic scans. The keyswitch status is then translated and sent to the controller. All received system status information is translated for use by an indicator or the alarm.

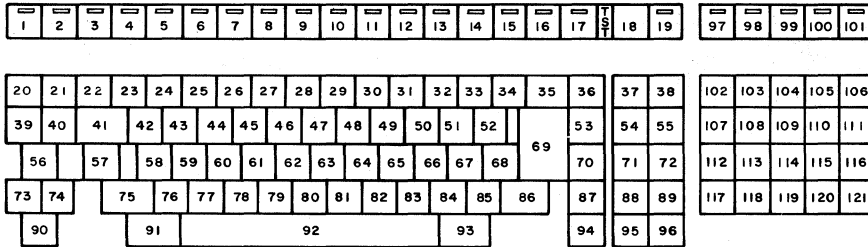


Fig. 6—Keyswitch Position Numbering

4.02 Internal information transfer keyswitch to keyboard output is shown in Fig. 7.

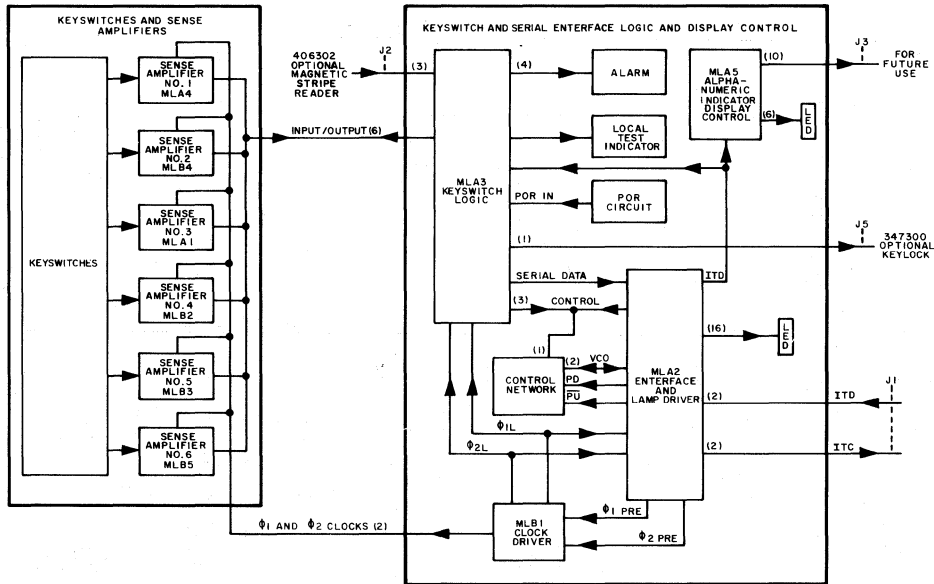


Fig. 7—Keyboard Logic Diagram

4.03 Each keyswitch depression and release is sensed by a sense amplifier (SA), as shown in Fig. 8. Twenty-one (21) keyswitches are connected to each amplifier. Each SA has one output lead, connected to the keyswitch logic.

Sense Amp Pin No.	Sense Amp 1 (MLA4)	Sense Amp 2 (MLB4)	Sense Amp 3 (MLA1)	Sense Amp 4 (MLB2)	Sense Amp 5 (MLB3)	Sense Amp 6 (MLB5)
11	38	94	24	90 OT	84	98
10	37	96	23	61	66	99
9	53	88	22	45	49	100
8	112	52	57	27	65	116
7	36	67	41	74	46	106
6	35	51	4	75	28	111
5	34	50	3	74 OT	79	121
3	33	31	20	73 OT	80	120
2	32	85	56	91	92	117
28	10	68	1	56 OT	29	113
27	103	69	9	58	47	118
26	11	84 OT	8	76	63	108
24	15	55	7	59	62	104
23	16	86	2	77	81	109
20	17	70	39	43	82	114
19	14	71	40	44	48	119
17	13	72	5	26	30	105
16	12	89	6	60	64	110
15	18	87	21	78	83	115
14	102	95	25	90	93	97
13	33 OT	54	42	73	92 OT	107

Note: OT = Over-Travel Key

Fig. 8—Sense Amplifier to Keyswitch Connections

4.04 In Fig. 8, the sense amplifier inputs are referred to as sense amp pin numbers. The output of a sense amp is always pin 25. These outputs are scanned by the keyswitch logic every 4.5 milliseconds.

4.05 The keyswitch logic converts the information to separate binary codes. These codes are serially sent to lamp driver and interface for transmission. The binary and hexadecimal codes for each keyswitch position are shown in Fig. 9.

4.06 The keyboard sends the codes as pairs. A depression code will be followed by an appropriate release code, unless there is a power interruption. The keyboard send rate maximum is 875 characters-per-second. The keyboard logic introduces a 3.5 μ sec. phase delay, controller to device, at the connector.

4.07 In controller to keyboard operation, the controller requests status by sending an Information To Device (ITD) control word, see Fig. 10. With bit 1 marking and bit 5 spacing, the keyboard will send an Information To Controller (ITC) status reply. If bit 1 and 5 are both marking, the keyboard and the magnetic stripe reader (MSR) will both reply. The MSR status word will precede the keyboard status word by 4 to 10 milliseconds.

4.08 The data word, either ITC or ITD, start bit is a "0" and the steer bit is a "1", followed by sixteen data bits. The data bits are used for ITD indicator information codes, or for ITC character information from a key.

POSITION NO.	KEY NO.	KEY DOWN CODE										HEX.	KEY UP CODE										HEX.														
		B	B	B	B	B	B	B	B	B	B		8	7	6	5	4	3	2	1	0	B		B	B	B	B	B	B	B	B	B	8	7	6	5	4
1	1	0	1	0	1	1	1	0	0	0	0	B8	1	0	0	1	1	0	0	0	0	0	38														
2	2	1	1	1	0	1	0	0	0	0	0	00	0	0	0	1	0	0	0	0	0	0	50														
3	3	0	1	0	1	0	1	1	0	0	0	A6	0	0	1	0	1	0	1	0	0	26															
4	4	0	1	0	1	0	0	0	0	0	0	A0	1	0	0	1	0	0	0	0	0	20															
5	5	0	1	0	1	0	0	0	0	1	0	E2	1	0	1	0	0	0	0	1	0	62															
6	6	0	1	1	0	1	0	0	0	0	0	E8	1	0	1	0	1	0	0	0	0	68															
7	7	0	1	1	0	0	1	0	1	0	0	CA	0	0	1	0	0	1	0	1	0	4A															
8	8	1	1	1	0	0	0	1	0	0	0	C4	0	0	1	0	0	0	1	0	1	44															
9	9	0	1	0	1	1	0	1	0	1	0	BE	0	0	0	1	1	0	1	0	1	3E															
10	10	1	1	0	1	1	0	1	1	0	0	86	0	0	0	1	1	0	1	0	1	36															
11	11	1	1	1	0	0	0	0	1	0	0	C2	0	0	1	0	0	0	1	0	0	42															
12	12	1	1	1	0	0	0	1	0	0	0	E6	0	0	1	0	0	0	1	0	0	66															
13	13	1	1	1	1	0	0	0	0	0	0	E0	0	0	1	0	0	0	0	0	0	60															
14	14	1	1	1	0	1	1	0	1	0	0	5A	0	0	1	0	1	0	1	0	0	5A															
15	15	1	1	1	0	0	1	0	0	0	0	CE	0	0	1	0	0	1	0	0	0	4E															
16	16	1	1	1	0	0	1	0	1	0	0	04	0	0	1	0	1	0	1	0	0	4E															
17	17	0	1	1	0	1	0	1	0	0	0	D4	1	0	1	0	1	0	0	0	0	54															
18	18	1	1	1	0	1	0	1	0	0	0	0C	0	0	1	0	1	0	1	0	0	6C															
19	19	0	1	0	1	0	1	0	0	0	0	AC	1	0	0	1	0	1	0	0	0	2C															
20	20	0	1	0	1	0	1	0	0	0	0	EC	0	0	1	0	1	0	1	0	0	6E															
21	21	0	1	0	0	0	0	1	0	0	0	8E	1	0	0	0	0	1	0	0	0	0E															
22	22	0	1	0	0	0	0	1	0	0	0	88	1	0	0	0	0	1	0	0	0	0E															
23	23	0	1	0	0	0	0	1	0	0	0	80	1	0	0	0	0	1	0	0	0	0E															
24	24	0	1	0	0	0	0	0	1	0	0	82	1	0	0	0	0	0	1	0	0	02															
25	25	0	1	0	0	0	0	1	0	0	0	F4	0	0	1	0	1	0	0	0	0	74															
26	26	1	1	1	0	0	0	0	1	0	0	E3	0	0	1	0	0	0	1	0	0	63															
27	27	0	1	0	0	1	0	1	0	0	0	96	0	0	1	0	1	0	1	0	0	15															
28	28	0	1	0	1	0	0	0	0	1	0	A2	0	0	0	1	0	0	0	1	0	22															
29	29	0	1	1	0	1	0	1	0	0	0	84	0	0	0	1	1	0	1	0	0	3A															
30	30	0	1	1	0	0	1	0	0	0	0	EA	1	0	1	0	0	0	0	0	0	64															
31	31	1	1	0	1	0	0	1	0	0	0	AB	0	0	0	1	0	0	1	0	0	2B															
32	32	1	1	0	1	0	0	0	0	0	0	80	0	0	0	1	0	0	0	0	0	30															
33	33	0	1	0	1	0	1	0	0	0	0	AA	1	0	1	0	1	0	0	0	0	2A															
34	34	1	1	0	1	0	0	0	0	0	0	FB	0	0	1	1	0	0	0	0	0	7B															
35	35	1	1	0	0	1	0	0	0	0	0	9E	0	0	0	0	1	1	0	0	0	1E															
36	36	1	1	0	0	1	0	0	0	0	0	98	0	0	0	0	1	0	0	0	0	18															
37	37	1	1	0	0	0	0	1	0	0	0	86	0	0	0	0	0	0	1	0	0	06															
38	38	1	1	0	0	0	0	0	1	0	0	80	0	0	0	0	0	0	0	0	0	00															
39	39	0	1	0	0	1	0	0	0	0	0	D8	0	0	1	0	0	0	0	0	0	56															
40	40	1	1	0	1	0	1	0	0	0	0	9A	0	0	1	0	1	0	0	0	0	1A															
41	41	0	1	0	0	1	0	0	0	0	0	DA	1	0	0	0	1	0	0	0	0	7A															
42	42	0	1	1	0	0	1	0	1	0	0	FA	1	0	1	1	0	1	0	0	0	7A															
43	43	0	1	0	0	1	0	1	0	0	0	07	0	0	1	0	0	1	0	0	0	57															
44	44	0	1	0	1	0	1	0	1	0	0	DD	1	0	1	0	1	0	1	0	0	5D															
45	45	0	1	0	0	0	1	0	1	0	0	8F	0	0	0	0	0	1	0	0	0	0F															
46	46	0	1	0	0	0	1	0	0	0	0	9C	0	0	0	0	1	0	0	0	0	1C															
47	47	0	1	0	0	0	0	0	0	0	0	90	1	0	1	0	0	0	0	0	0	40															
48	48	0	1	0	1	0	1	0	0	0	0	5E	0	0	0	0	0	0	0	0	0	5E															
49	49	0	1	0	0	0	0	0	0	0	0	C0	1	0	0	0	0	0	0	0	0	10															
50	50	0	1	0	0	0	0	1	0	0	0	95	1	0	0	0	0	0	1	0	0	25															
51	51	0	1	0	0	1	0	1	0	0	0	A5	0	0	0	1	0	1	0	1	0	1F															
52	52	0	1	0	0	0	0	1	0	0	0	93	0	0	0	0	0	0	1	0	0	13															
53	53	1	1	0	0	1	0	0	0	0	0	8C	0	0	0	0	0	1	0	0	0	0C															
54	54	0	1	1	0	1	0	0	0	0	0	F9	0	0	1	0	1	0	0	0	0	79															
55	55	0	1	0	0	0	0	0	0	0	0	C9	1	0	1	0	0	0	0	0	0	49															
56	56	0	1	0	1	0	0	0	1	0	0	B2	1	0	1	0	0	0	0	0	0	32															
57	57	0	1	0	1	0	0	0	0	0	0	89	0	0	0	1	0	0	0	0	0	39															
58	58	1	1	0	0	1	0	0	0	0	0	94	0	0	0	0	1	0	0	0	0	14															
59	59	1	1	0	0	1	0	0	0	0	0	BF	0	0	0	1	1	0	1	0	0	3F															
60	60	1	1	0	0	1	0	0	0	0	0	CB	0	0	1	0	0	0	0	0	0	4B															
61	61	0	1	0	0	0	0	0	0	0	0	E9	0	0	1	0	0	0	0	0	0	69															
62	62	0	1	0	0	0	0	0	0	0	0	89	0	0	0	0	0	0	0	0	0	09															
63	63	0	1	0	0	0	0	0	0	0	0	CC	1	0	1	0	0	0	0	0	0	4C															

POSITION NO.	KEY NO.	KEY DOWN CODE										HEX.	KEY UP CODE										HEX.														
		B	B	B	B	B	B	B	B	B	B		8	7	6	5	4	3	2	1	0	B		B	B	B	B	B	B	B	B	B	8	7	6	5	4
63	64	0	1	1	0	0	0	1	0	0	0	C6	1	0	1	0	0	0	1	0	0	46															
64	65	1	1	1	0	1	0	1	0	0	0	EA	0	0	1	1	0	1	0	1	0	6A															
65	66	1	1	0	0	1	0	1	0	0	0	96	1	0	0	0	1	0	1	0	0	16															
66	67	1	1	0	0	0	0	1	0	0	0	8A	0	0	0	0	0	1	0	0	0	0A															
67	68	0	1	0	0	1	0	0	1	0	0	99	1	0	0	0	0	1	0	0	0	19															
68	69	0	1	0	1	0	1	0	1	0	0	87	1	0	0	0	1	0	1	0	1	37															
69	70	0	1	0	1	1	0	1	0	1	0	8D	1	0	0	0	1	1	0	1	0	3D															
70	71	1	1	1	0	1	0	1	0	1	0	D5	0	0	1	0	1	0	0	1	0	55															
71	72	0	1	0	1	0	1	0	1	0	0	0B	0	0	0	1	0	1	0	1	0	5B															
72	73	0	1	1	0	0	0	0	0	1	0	E1	1	0	1	0	0	0	0	0	1	61															
73	74	1	1	1	0	1	0	1	0	1	0	FB	0	0	1	0	1	0	1	0	1	7B															
730T	75	1	1	0	1	0	1	0	1	0	0	AD	0	0	0	0	1	0	1	0	0	2D															
74	76	1	1	0	0	1	0	1	0	1	0	9B	0	0	0	0	1	0	1	0	1	1B															
740T	77	1	1	0	1	0	0	1	0	1	0	A7	0	0	0	0	1	0	0	0	0	27															
75	78	0	1	0	0	0	0	0	0	0	0	A1	0	0	0	0	0	0	0	0	0	21															
77	80	0	1	1	0	1	0	0	0	1	0	C5	1	0	1	0	0	0	0	0	1	45															
78	81	1	1	0	1	0	1	0	1	0	0																										

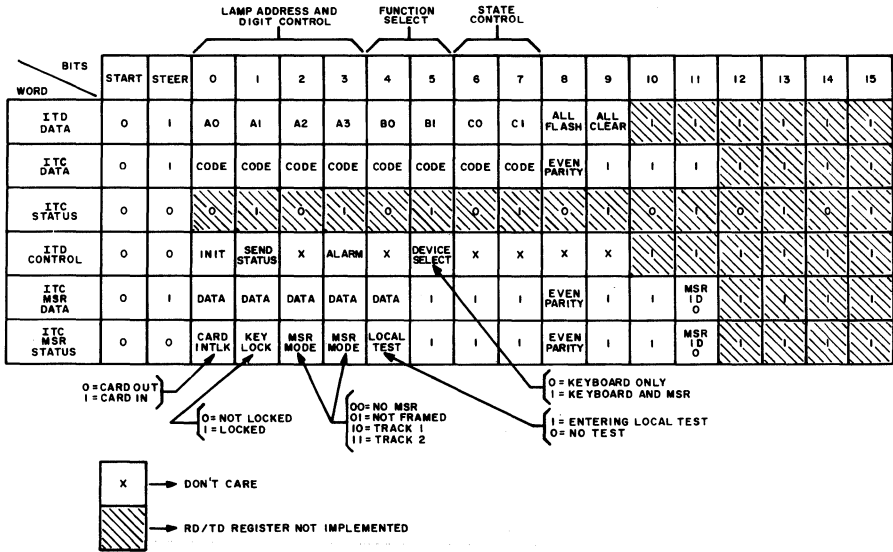


Fig. 10—Status Word SSI Bits

- 4.12 The keyboard alarm will sound a tone of 750 milliseconds, on receipt of any ITD control word with bit 5 high. The controller will continue to send the control word until the alarm condition is corrected.
- 4.13 The keyboard goes into a power on reset (POR) cycle of 110 milliseconds, when power is turned on. During this cycle, no clock is applied to ITC, but it is possible to receive noise on ITC in the first 20 milliseconds. ITD and power must both be stable to achieve phase lock. Phase lock is timed from application of ITD. The ITD signal coming up before phase lock can cause random indicators to flash.
- 4.14 The magnetic stripe reader (MSR) begins operation as the inserted card moves against the sense switch. The read head senses each flux reversal magnetically prerecorded on the card stripe. In the signal generated to the transmitting distributor, logic bit 0 is least significant bit and bit 4 is parity. The signal is checked for parity, start of record and uses a longitudinal redundancy check. Status words are generated when the card is first sensed, when it is withdrawn and for a status request.

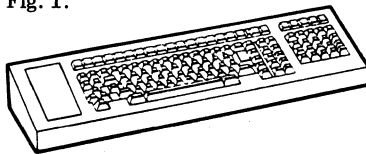
“DATASPEED*” 4500 KEYBOARDS

WIRING DIAGRAMS

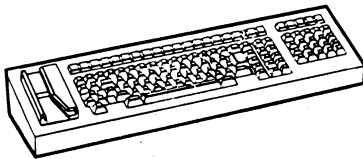
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1. GENERAL

1.01 This section provides wiring diagrams for the DATASPEED 4500 series keyboards, as in Fig. 1.



45K301GAA/03 Keyboard
Without Magnetic Stripe Reader



45K301GAA/02 Keyboard
With Magnetic Stripe Reader

Fig. 1—DATASPEED 4500 Keyboards

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

Note: When ordering replaceable parts, prefix each part number with the letters “TP” (ie, TP123456), unless specified otherwise.

1.03 The wiring diagrams and limited functional schematics are to aid in troubleshooting.

1.04 For part numbers of components mentioned in the wiring diagrams, refer to Section 582-311-700.

2. WIRING DIAGRAMS

2.01 A flat cable is attached to the circuit card at connector J1 (left rear of the keyboard, see Fig. 2). Of the nine pins used in this connector, four are power leads, four are Standard Serial Interface (SSI) and one is frame ground.

2.02 Sense amplifier location and pin number to keyswitch position is shown in Fig. 3.

<u>Power</u>	<u>J1</u>	<u>14-Pin Plug</u>
+12 V (VSS)	7	4
0 V (VGG1)	4	1
-12 V (V24)	8	2
+ 5 V	5	3
Frame Ground	9	Not Connected

SSI

Information to Device	1	11
Information to Device	2	12
Information to Controller	3	13
Information to Controller	6	14

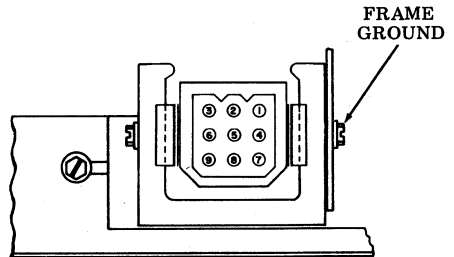
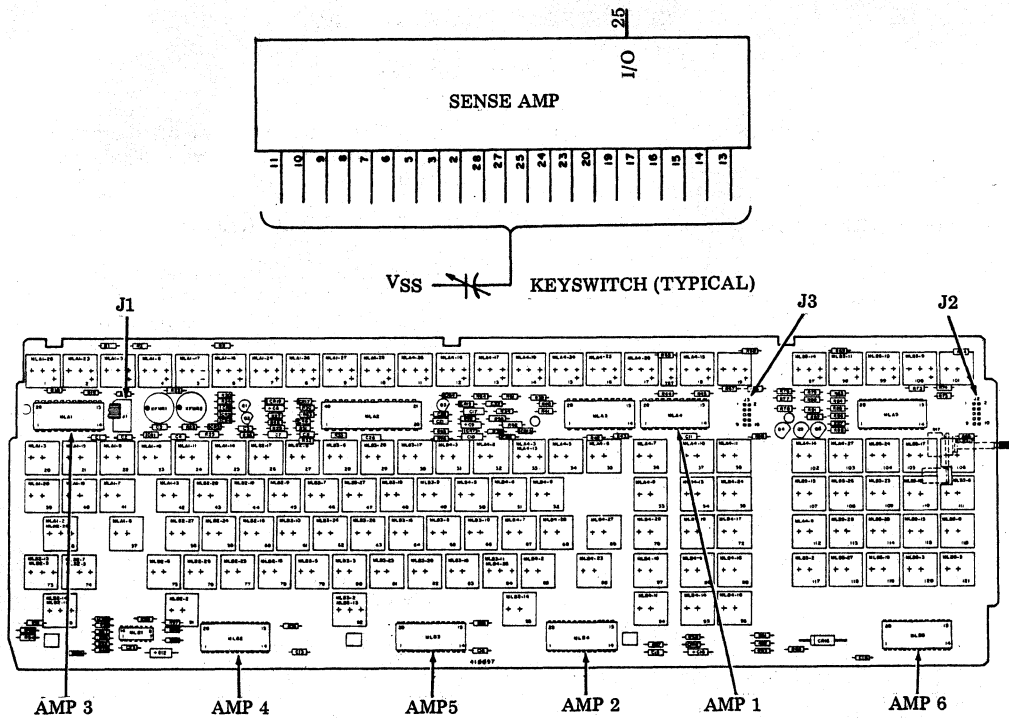


Fig. 2—Rear View of J1 Connector

*Registered Trademark of AT&TCo.



Sense Amp Chart

SENSE AMP PIN NO.	SENSE AMP 1 (MLA4)	SENSE AMP 2 (MLB4)	SENSE AMP 3 (MLA1)	SENSE AMP 4 (MLB2)	SENSE AMP 5 (MLB3)	SENSE AMP 6 (MLB5)
	KEY POSITION NUMBER					
11	38	94	24	90 OT	84	98
10	37	96	23	61	66	99
9	53	88	22	45	49	100
8	112	52	57	27	65	116
7	36	67	41	74	46	106
6	35	31	4	75	28	111
5	34	50	3	74 OT	79	121
3	33	31	20	73 OT	80	120
2	32	85	56	91	92	117
28	10	68	1	56 OT	29	113
27	103	69	9	58	47	118
26	11	84 OT	8	76	63	108
24	15	55	7	59	62	104
23	16	86	2	77	81	109
20	17	70	39	43	82	114
19	14	71	40	44	48	119
17	13	72	5	26	30	105
16	12	89	6	60	64	110
15	18	87	21	78	83	115
14	102	95	25	90	93	97
13	33 OT	54	42	73	92 OT	107

OT — Over-Travel

Fig. 3—Keyswitches and Sense Amplifiers

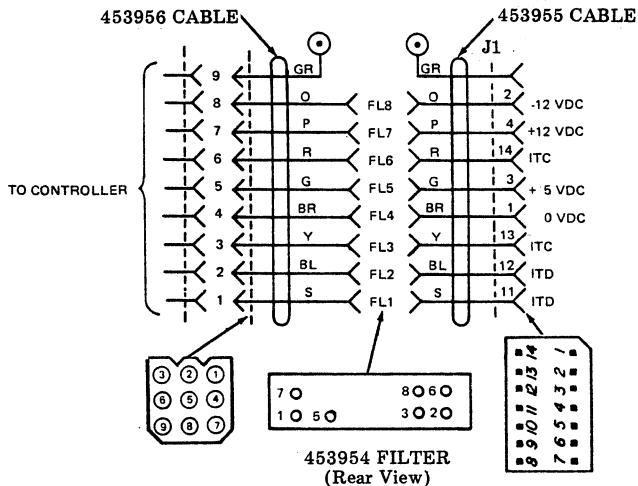


Fig. 4—SSI Connector to 14-Pin Connector

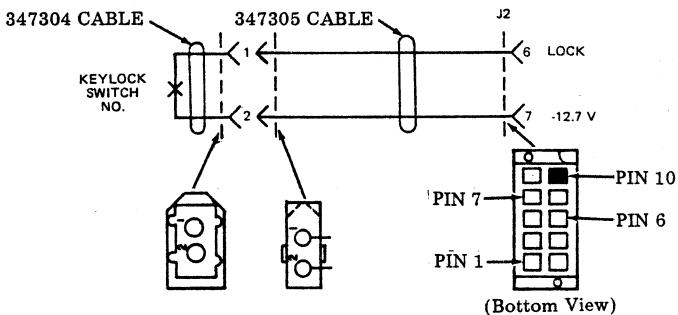


Fig. 5—Cabling for 347300 Keylock

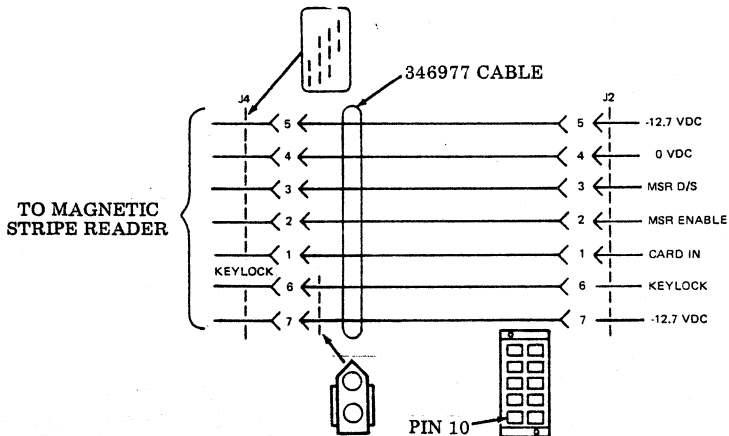


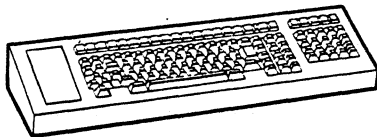
Fig. 6—Cable for Optional Magnetic Stripe Reader

“DATASPEED*” 4500 KEYBOARDS
TESTING AND TROUBLESHOOTING

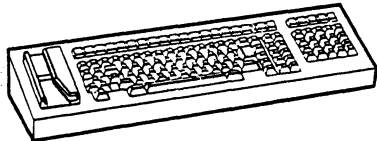
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3. TROUBLESHOOTING	10

1. GENERAL

1.01 This section provides testing and troubleshooting for the DATASPEED 4500 series keyboard as in Fig. 1.



45K301GAA/03 Keyboard
Without Magnetic Stripe Reader



45K301GAA/02 Keyboard
With Magnetic Stripe Reader

Fig. 1—DATASPEED 4500 Keyboards

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

Note: When ordering replaceable parts, prefix each part number with the letters “TP” (ie, TP123456), unless otherwise specified.

1.03 The extent of the testing and troubleshooting procedures are limited to that which is required for correction of troubles or replacement of parts in field locations.

1.04 Refer to Section 582-311-100 for information providing description and operation of DATASPEED 4500 series keyboards, Section 582-311-400 for wiring, and Section 582-311-700 for adjustments, disassembly/reassembly and parts information.

1.05 The reference manual associated with the DATASPEED 4500 series keyboard is: 999-300-140 How to Operate Synchronous DATASPEED 4540 Keyboard Display.

2. TESTING

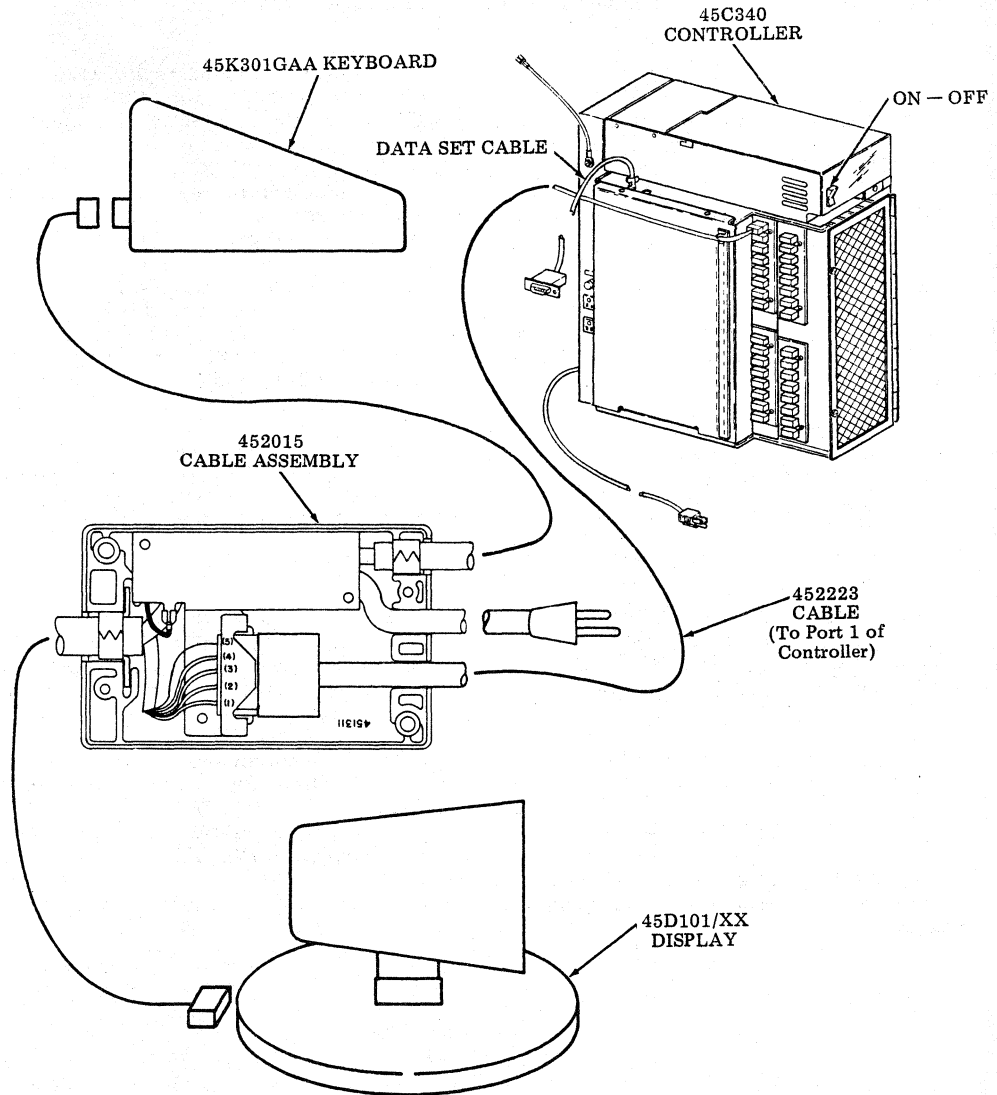
2.01 Operational checkout procedures are presented in Tables A through D. Use all applicable tables to assure complete operation after maintenance or to isolate a poorly defined trouble area.

2.02 Perform the checkout in the order presented. The required response for each test step is shown. If the unit under test fails to respond correctly to a test step, go to 3. TROUBLESHOOTING.

2.03 The keypad identification can be found in Fig. 4.

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2.04 Typical setup for testing a 45K301GAA keyboard is shown below.



Note: Neither a 45CAB501 cabinet or a 45B301 base is required.

Fig. 2

2.05 Tables A and B should be performed for any KD device having trouble. Table C is only used for keyboards equipped with a magnetic stripe reader (MSR). See Section 582-300-500 for KD/CONTROLLER LOCAL TEST.

Caution: When the SCC is on-line, and a KD is attempting to perform the loopback portion (Step 6) of the test, the SCC will ignore the line (from computer) for 500 ms. During this time, poll or select sequences may be missed. If two or more KDs are attempting to perform the loopback portion of the test simultaneously, the SCC will ignore the line for 500 ms for each KD attempting the test. This may cause the SCC to miss several poll or select sequences and therefore fail to respond to the computer, thus causing the computer to stop polling the SCC. For this reason, it is suggested that an interval of at least ten seconds be provided between performing the loopback portion of the test at each KD being tested.

2.06 Power up in the following sequence:

SCC (45C340 Controller, Fig. 2),
 Display Base AC Power Switch,
 Monitor AC Power Switch, then adjust to full brightness.

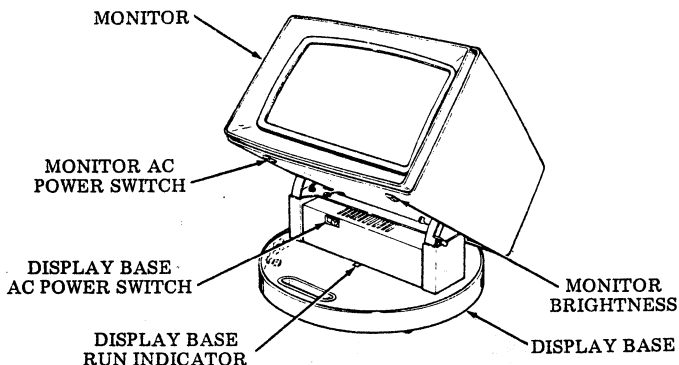


Fig. 3—Display Base and Monitor

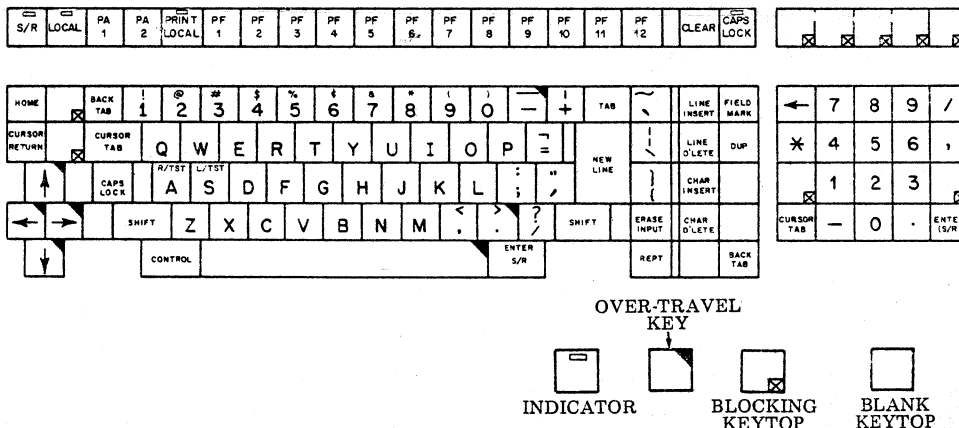


Fig. 4—Keytop Layout for 45K301/GAA

TABLE A

OPERATIONAL CHECKS FOR THE 45K301 KEYBOARD




























TEST STEP	PROCEDURE	RESPONSE
1	 indicator is on.	If not, depress it.
2	Depress the  and  keys simultaneously and then release.	 indicator lamp lights (brightly) and remains lighted indicating the loopback test mode is activated. Alarm sounds, until keys are released.
3	Depress the following keys while observing lights for proper indication. (a) Depress  briefly, (in cluster). Depress  release. (b) Depress  fully. Depress  fully and release. (c) Depress  briefly. Depress  and release. (d) Depress  briefly. Depress 	 flashes.  on steady and then off.  flashes.  on steady and then off.  flashes.  on steady and then off.  flashes.  on steady and then off. <i>Note:</i> Ignore any characters that may appear on your screen during test.
4	Depress  and  keys simultaneously and then release.	 indicator lamp extinguishes. Alarm may sound. <i>Note:</i> No status word on exit of test mode.
5	Depress  if not on. Depress  key. Depress each key (shown on next page).	 on.  on. CAPS characters displayed on monitor.

TABLE A (Contd)

OPERATIONAL CHECKS FOR THE 45K301 KEYBOARD


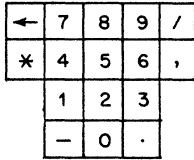



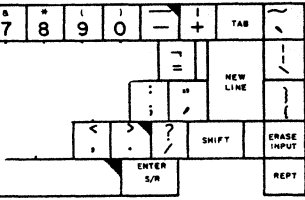













TEST STEP	PROCEDURE	RESPONSE
5 (Contd)	<p>Lower portion of depressed keys are displayed.</p> 	
6	<p>Disengage  key by depressing it again momentarily. Again depress each alpha key.</p>	<p>Alpha characters described in Step 5 are displayed in lower case (ie, abcdef, etc).</p>
7	<p>Depress the right  key together with each nonalpha key (ie, !@*\$,etc) on the keyboard portion of the opcon.</p> <p> Key repeats, when depressed with additional force.</p>	<p>Upper portion of depressed keys are displayed.</p> 
8	<p>Depress the left  key together with one of the keys depressed in Step 7.</p>	<p>Character on the upper portion of depressed key is displayed.</p>
9	<p>With the LOCAL lamp lit, depress the  key, then depress the  key. Continue to depress the , , , through  keys and  key together with  key in the same manner.</p>	<p>The  lamp extinguishes each time a  or  key is depressed and will remain off until the  key is depressed.</p>

TABLE A (Contd)

OPERATIONAL CHECKS FOR THE 45K301 KEYBOARD

























TEST STEP	PROCEDURE	RESPONSE
10	<p>With LOCAL lamp lit, depress SPACE bar, with force.</p> <p>Depress  .</p> <p>Depress  .</p> <p>Depress  .</p>	<p>Repeat cursor movement to right.</p> <p>FM is displayed.</p> <p>DU is displayed. Cursor moves home.</p> <p>Local Indicator goes out.</p>
11	<p>Depress , , and  .</p>	<p>LOCAL lights. Repeated Qs displayed.</p>
12	<p>Depress ,</p> <p>,</p> <p>,</p> <p>If there is a printer in system and if available.</p> <p>If there is no printer or is unavailable.</p>	<p> off.</p> <p> on.</p> <p> and  on,  off.</p> <p>Then  and  off,  on.</p> <p> flashes until  depressed</p>
13	<p>Turn keylock to off (if present).</p> <p>Depress  and  simultaneously.</p> <p><i>Warning: Do not depress any key while turning the keylock on or off.</i></p> <p>Turn keylock on, and depress LOCAL.</p>	<p> off.</p> <p> lamp does not light.</p> <p> lights.</p>

TABLE B

OPERATIONAL CHECKS FOR KEYBOARD TO MONITOR





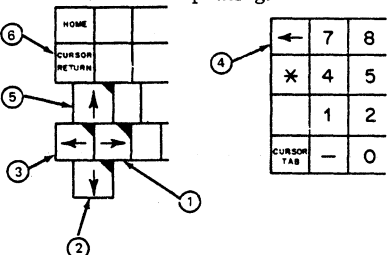
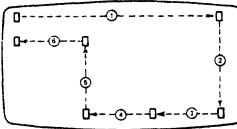
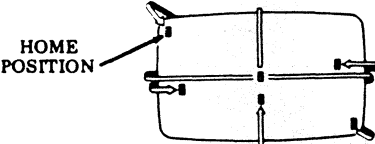

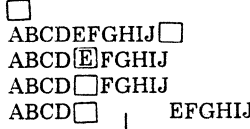

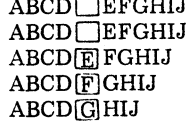









TEST STEP	PROCEDURE	RESPONSE
1	Depress left  key together with keys   containing control characters.	Test Functions (Local Test message displayed)
2	<p>Depress  key. Then in sequence depress momentarily, with more force than normally required, each cursor movement key shown. The left arrow in the cluster must be depressed 4 or 5 times as it is not repeating.</p> 	 <p><i>Note:</i> Attempts to move cursor off display will result as shown below.</p> 
3	Home cursor and type alpha characters A through J. Place cursor over the character E and depress  key momentarily; then depress it fully, releasing it after characters stop moving.	
4	Depress  key momentarily; then depress it fully.	
5	Depress  key once.	Cursor remains in position and the line of data moves down one line.
6	Depress  key once; then depress  key.	Cursor remains in position and the line of data moves up. Display is then cleared of all characters.

TABLE B (Contd)

OPERATIONAL CHECKS FOR KEYBOARD TO MONITOR

TEST STEP	PROCEDURE	RESPONSE
7	Move cursor away from home position and depress the  key.	Cursor returns to home position (unformatted display). Cursor advances to the next, current, unprotected field in the display (formatted display).
8	Move cursor away from home position and depress  key.	Cursor returns to home position (unformatted display). Cursor reverses location to preceding start of an unprotected field on the display (formatted display).
9	Move cursor away from home position and depress  key.	Nulls are written (Displayed as Spaces) from cursor to end of display and cursor returns to home position (unformatted display). Cursor advance to next, current, unprotected field on the display and replaces remainder of field from cursor location with nulls (formatted display).
10	Home cursor and type alpha characters A through J. Depress  once, and then several more times.	ABCDEFGHIJ when New Line depressed, cursor moves to beginning of next line. Additional depressings cause cursor to move the next line.
11	Type a line of characters and depress  and depress  key.	Cursor returns to home position. Line of characters are cleared from display (unformatted display).

(Test Ended)

PF 8	PF 9	PF 10	PF 11	PF 12	CLEAR	CAPS LOCK
------	------	-------	-------	-------	-------	-----------

0	-	+	TAB	~	LINE INSERT	FIELD MARK
)	P	=	NEW LINE	|	LINE D'LETE	DUP
L	:	"		}	CHAR INSERT	
>	?	/	SHIFT	ERASE INPUT	CHAR D'LETE	
ENTER S/R				REPT		BACK TAB

TABLE C

OPERATIONAL CHECK FOR MAGNETIC STRIPE READER (MSR)

TEST STEP	PROCEDURE	RESPONSE
	<i>Note:</i> These steps apply only to keyboards equipped with a magnetic stripe reader (MSR).	<i>Note:</i> MSR affects on-line operation, not off-line operation. Use in on-line operation is system dependant.
1	Depress ERASE INPUT and UNDERLINE keys together with additional force.	TST indicator lights and remains on.
2	Insert 406303 test card into reader smoothly.	CAPS LOCK indicator flashes repeatedly.
3	Remove test card.	CAPS LOCK indicator stops flashing.
4	End test by depressing ERASE INPUT and PERIOD keys together with additional force.	LOCAL indicator lights. TST indicator goes out.

3. TROUBLESHOOTING

- 3.01 Troubleshooting is based on the use of a series of questions to determine possible causes for the trouble. Depending on the response to the questions, instructions are then given to correct the trouble.
- 3.02 To isolate a trouble to a specific area, start with the operational checkout procedures given in TESTING, Table A, Page 4, or start with the following series of questions given in Table D.
- 3.03 Before attempting to troubleshoot the unit, make sure the trouble is not caused by interconnected equipment.
- 3.04 If a trouble is isolated to the logic card, the troubleshooting instructions will recommend that the unit be replaced.
- 3.05 Repair of the keyboard is not to be attempted without proper shop facilities. Repackage the keyboard to be repaired in the box of the replacement unit. Tag the unit, listing the found trouble.

TABLE D

TROUBLESHOOTING PROCEDURES FOR KEYBOARDS


ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Is LOCAL lamp on? (Depress LOCAL key.)	Go to 2.	Go to 11.
2. Can characters be entered from keyboard and displayed correctly on the screen?	Go to 3.	Check terminals 1, 2, 3 and 6 at J1 interface connector. Replace keyboard.
3. Do  and space bar keys repeat when lightly depressed? (Not fully depressed on repeat keys.)	Check operation of REPT keyswitch. Replace keyboard, if necessary. Check operation of all repeat keys. Replace repeat keyswitch(s). Replace keyboard.	Go to 4.
4. Do all repeatable character keys repeat when fully depressed?	Go to 5.	Go to 7.
5. Does a character appear on the screen when power is first turned on? (Turn power off then on again several times.)	Check operation of that keyswitch associated with character being displayed (go to 7).	Go to 6.

TABLE D (Contd)

TROUBLESHOOTING PROCEDURES FOR KEYBOARDS

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
6. Are any characters displayed when key is not depressed? (ie, key touched, opcon vibrated, or other keys operated.)	Replace keyboard.	Go to 7.
7. Do any keys fail to operate mechanically? <ul style="list-style-type: none"> • All keys click when depressed and click again when released. • Repeat or test keys click a second time when fully depressed and click again when released slightly. • Spacebar must return to its unoperated position fully when depressed and released slowly. 	Check clearance between keyboard cover and keytops (adjust if necessary). Replace defective keyswitch or entire keyboard. Check spacebar mechanism and replace any parts necessary, or entire keyboard.	Go to 8.
8. Do any keys fail to generate characters to the screen?	Check for short between keyswitch terminals. Replace keyswitch, or keyboard. Replace keyboard, if any groups of keys fail to operate or more than one character is generated when one key is depressed.	Go to 9.
9. Do any indicators fail to light?	Go to 11.	Go to 10.
10. Does alarm sound (loudness controlled by thumbwheel) when test mode is entered?	Go to 11.	Go to 12.
11. Does the TST lamp light when test mode is entered?	Go to 14 if indicator failed to light. Simultaneously depress the RETURN and PERIOD keys fully, to extinguish lamp if no further testing is required.	Go to 12.

TABLE D (Contd)

TROUBLESHOOTING PROCEDURES FOR KEYBOARDS

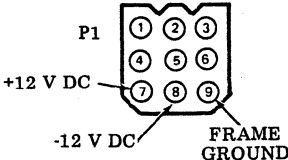


ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
<p>12. Is +12 V dc (pin 7) and -12 V dc (pin 8) present with respect to frame ground (pin 9) on connector.</p>  <p>(a) Check connector pins of J1.</p> <p>(b) Check ground wires are properly placed.</p>	<p>Go to 15.</p> <p>Go to 12 (b).</p> <p>Try Question 2, if yes, go to 14. If no, go to 15.</p>	<p>Proper voltage not being supplied to the opcon:</p> <p>Check 45BSE301 and its cable (Section 582-300-400).</p> <p>Check power supply voltages.</p> <p>Go to 12 (a).</p> <p>Replace 453956 cable.</p> <p>Repair grounds.</p>
<p>13. Does keyboard operate in TEST mode (loopback test)?</p>	<p>Keyboard ok, go to 16.</p>	<p>Go to 14.</p>
<p>14. Do indicators light in loopback test mode?</p>	<p>Go to 16.</p>	<p>Check indicator keyswitch, as in Question 7.</p> <p>Check "NO" responses of Question 12.</p>
<p>15. Is +24 V dc present at pins 3 and 4 of indicator keyswitch or  indicator terminals when lamp should be lit?</p>	<p>Replace 341088 indicator assembly keyswitch or  indicator that has defective 346235 indicator lamp.</p>	<p>Replace keyboard.</p>
<p>16. If keyboard has security keylock modification kit, does keyboard become inoperative when lock is in off position?</p>	<p>Keyboard ok.</p>	<p>Replace security keylock modification kit.</p>

TABLE E

TROUBLESHOOTING PROCEDURES FOR MAGNET STRIPE READER (MSR)

ANALYSIS QUESTION	"YES" RESPONSE DIRECTIVE	"NO" RESPONSE DIRECTIVE
1. Does TST indicator light.	Go to 2	Go to Table D, question 11.
2. Does CAPS LOCK indicator flash with card in place.	Go to 3	Replace 406302 magnetic stripe reader assembly. Replace keyboard.
3. CAPS LOCK stops flashing with card removed.	Reader ok.	Replace keyboard.

“DATASPEED*” 4500 SERIES KEYBOARDS
DISASSEMBLY/REASSEMBLY, ADJUSTMENT, AND PARTS

CONTENTS	PAGE
1. GENERAL	1
TOOLS REQUIRED	1
2. DISASSEMBLY/REASSEMBLY....	2
3. ADJUSTMENT	17
COVER TO KEYPAD	
ADJUSTMENT	17
4. PARTS	18
NUMERICAL INDEX	27

1. GENERAL

1.01 This section provides disassembly/reassembly, adjustment, and parts information for the DATASPEED 4500 series keyboards as in Fig. 1.

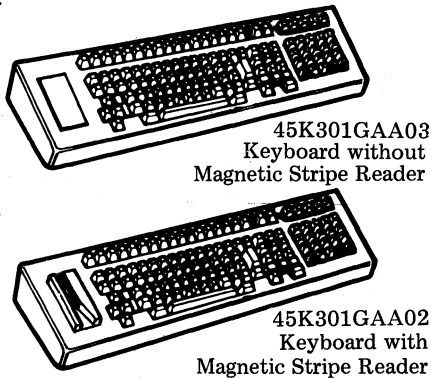


Fig. 1--DATASPEED 4500 Keyboards

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

Note: When ordering replaceable parts, or tools prefix each part number with the letters “TP” (ie, TP123456), unless specified otherwise.

1.03 The procedures for keyboard removal and replacement are included in this section.

1.04 The extent of the disassembly procedures is limited to that which is required for correction of troubles or replacement of parts in field locations.

1.05 Refer to Maintenance Tools Section 570-005-800 for a complete listing of the various types of hand tools available for maintenance of Teletype ® equipment.

TOOLS REQUIRED

1.06 The following tools are recommended for use during the disassembly and reassembly procedures:

- | | |
|--------|------------------------------|
| 75765 | Spring hook -- pull |
| 89954 | 1/4-inch nut driver |
| 100982 | Screwdriver (6-inch medium) |
| 108285 | Long-nose pliers |
| 143484 | Grease (1 lb. can) or |
| 145867 | Grease (4 oz. tube) |
| 346257 | Keyswitch extractor |
| 346260 | Keypad extractor |
| 346392 | Static discharge strap |
| 346960 | Extractor |
| | Soldering iron (low wattage) |
| | Desolderer |
| 402840 | Terminal extractor tool |
| 406303 | Test card (MSR) |

*Registered Trademark of AT&TCo.

2. DISASSEMBLY/REASSEMBLY

Warning: To avoid possible internal damage to circuitry, wear a 346392 static discharge strap connected to ground to allow static discharge before disassembly and reassembly. Avoid touching circuit lands or components as much as possible. Soldering irons, test, and insertion equipment must be grounded.



Attach 346392 static discharge strap tightly to wrist as shown.



Attach clip end of static discharge strap to frame ground.

2.01 Precautions should be taken to assure that disassembly/reassembly is done under clean conditions. No oil, grease, or other liquids should be allowed on loose parts, subassemblies, keyswitches, or the complete keyboard.

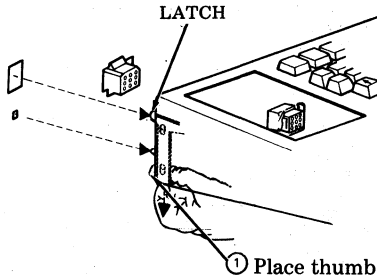
2.02 Reference in the procedures to left or right, up or down, and top or bottom, etc, refer to the units normal operating position.

2.03 When removing any subassembly or part, do not force or pry parts, unless specified, to provide the necessary clearance for removal. No forcing is required to accomplish a removal procedure. Follow the removal procedure and note how each part is removed and the sequence of its removal so that proper reassembly can be accomplished. For reassembly, reverse the removal procedure except where different instructions are given.

2.04 To remove keyboard:

③ Pull keyboard forward to disengage from cabinet.

Note: Use same procedures to remove and replace keyboard from table or free standing base.



② With right hand place thumb on right inward latch tab and press downward to unlatched position.

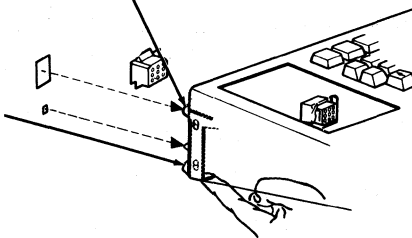
① Place thumb on left inward latch tab and press downward to unlatched position.

2.05 To replace keyboard:

① Slide left and right latches down.

② Engage connector and left and right guides into slots.

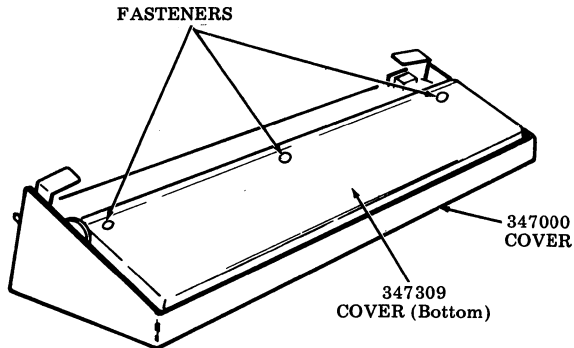
③ Slide left and right latches upward into latched position.



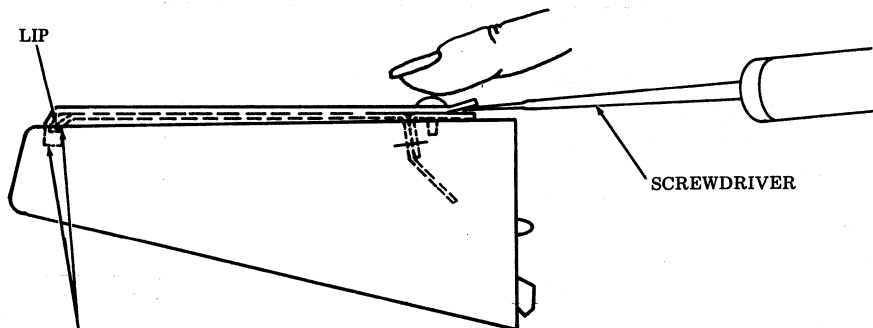
Warning: Check that unit is firmly attached on both sides before releasing hold.

2.06 To remove 347000 cover:

- ① Place keyboard upside-down on a smooth surface. (Avoid scratching or marking the keytops).

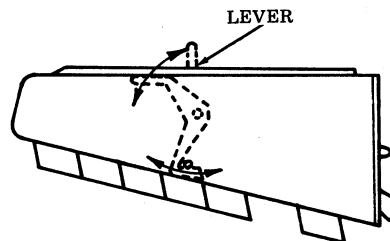


- ② Remove the three fasteners, one at a time, by inserting a screwdriver to lift each fastener. Hold the fastener down while prying up from under the bottom cover.



- ③ Swing 347309 bottom cover up and away from retaining lip to release pan.

- ④ Use a thin bladed screwdriver or orange stick and pry up left and right levers. Lift keyboard out of 347000 cover.

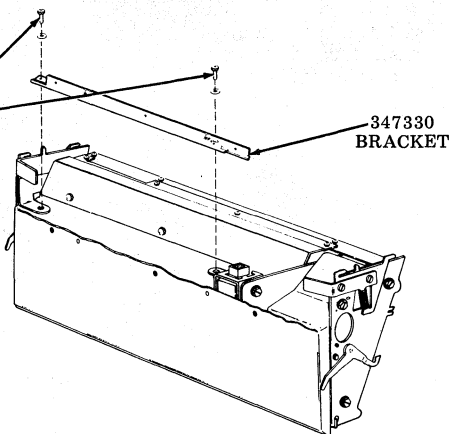


For reassembly go to 2.34.

2.07 To remove 346958 pan:

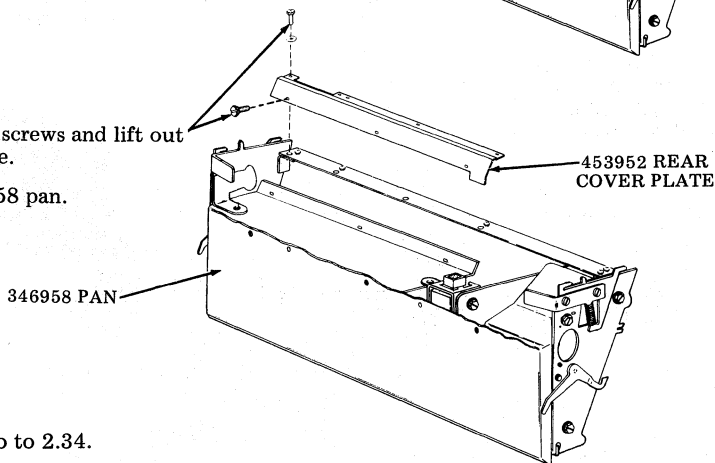
- Remove cover (2.06).

- ① Remove two screws from left and right side frame tabs, and lift off 347330 bracket.



- ② Remove seven screws and lift out rear cover plate.

- ③ Remove 346958 pan.



For reassembly go to 2.34.

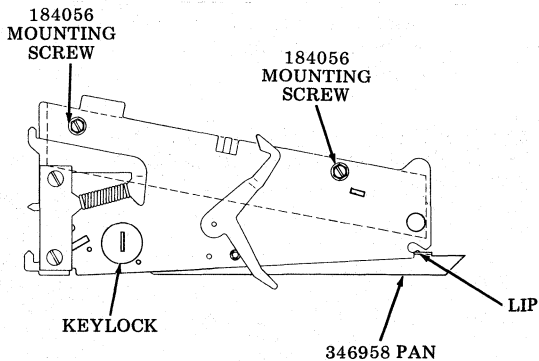
2.08 To remove left side frame:

- Remove cover (2.06).
- Remove pan (2.07).

- ① Remove two mounting screws from left side frame.
- ② Side frame can then be eased off the pan lip.

Note: If keylock is present, go to keylock cable removal (2.15).

For reassembly go to 2.27.



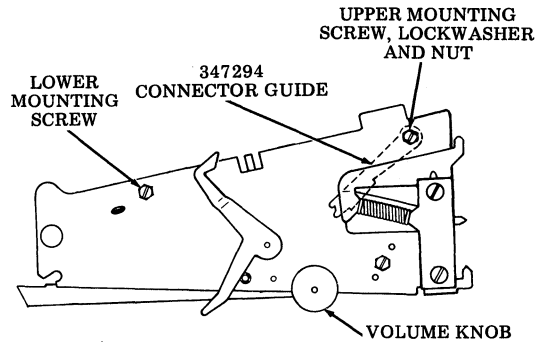
2.09 To remove right side frame:

- Remove cover (2.06).

Warning: Be careful when removing the upper mounting screw. The lockwasher and nut may drop onto the circuit card.

- ① Remove upper screw, lockwasher and nut.
- ② Remove connector guide.
- ③ Remove lower mounting screw.
- ④ Removal of the knob may be required before side frame will detach.

For reassembly go to 2.32.

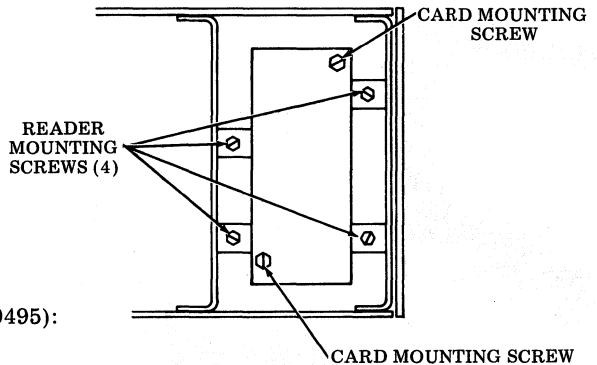


2.10 To remove magnetic stripe reader:

- Remove cover (2.06).
- Remove pan (2.07).

- ① Remove four reader mounting screws.
- ② Lift reader out of frame.

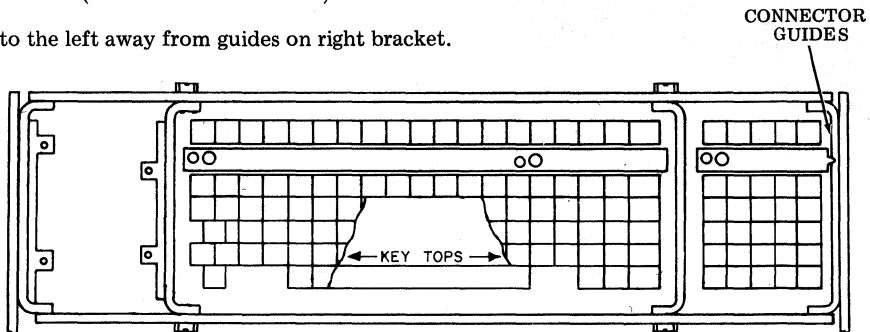
For reassembly go to 2.29.



2.11 To remove circuit card (410097 or 410495):

- Remove cover (2.06).
- Remove pan (2.07).

- ① Remove six screws (four front and two rear).
- ② Move card to the left away from guides on right bracket.

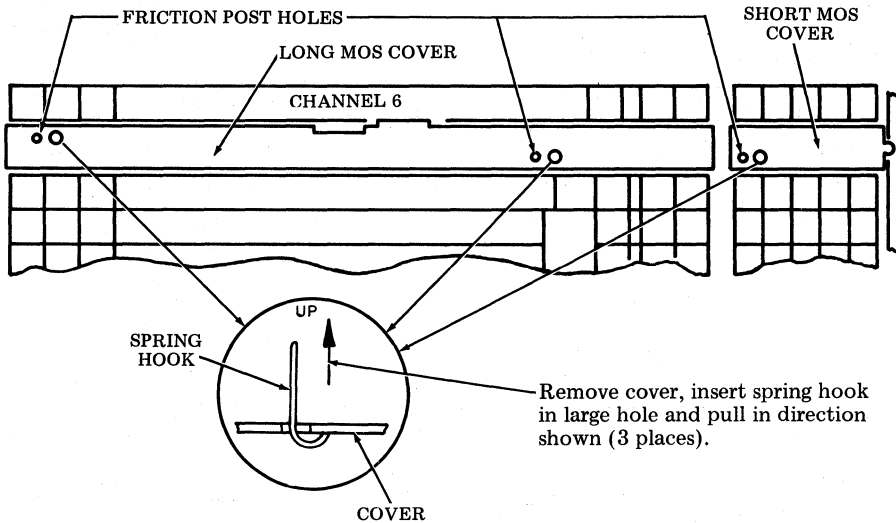


Top View

For reassembly go to 2.28.

2.12 To remove MOS (Metal Oxide Semiconductor) covers:

- Remove cover (2.06).

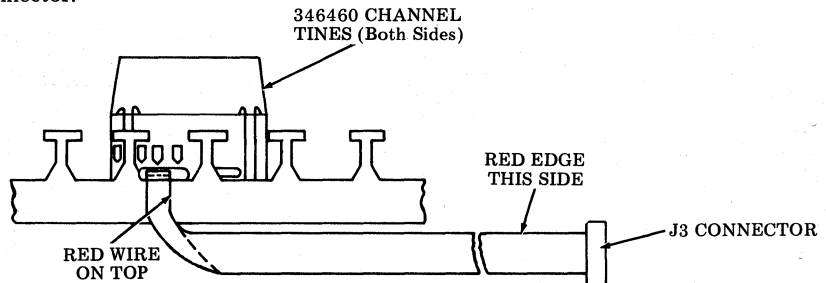


For reassembly go to 2.31.

2.13 To remove 346760 three digit display:

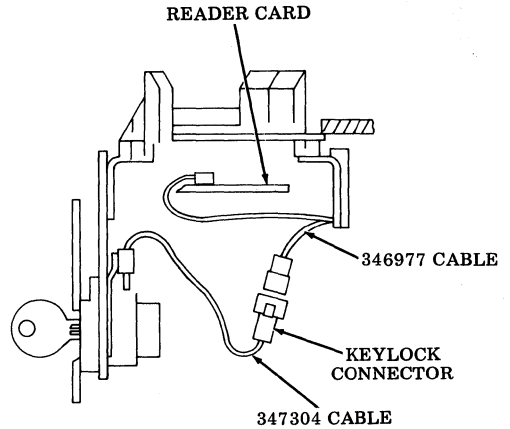
Note: Refer to 2.22 keyswitch removal.

- Remove cover (2.06).
- ① Remove solder from terminal pins.
 - ② Use 346257 tool to extract digit display, or disengage tines with a thin bladed screwdriver while lifting the display.
 - ③ Carefully guide cable out of channel tines.
 - ④ Disconnect J3 connector.

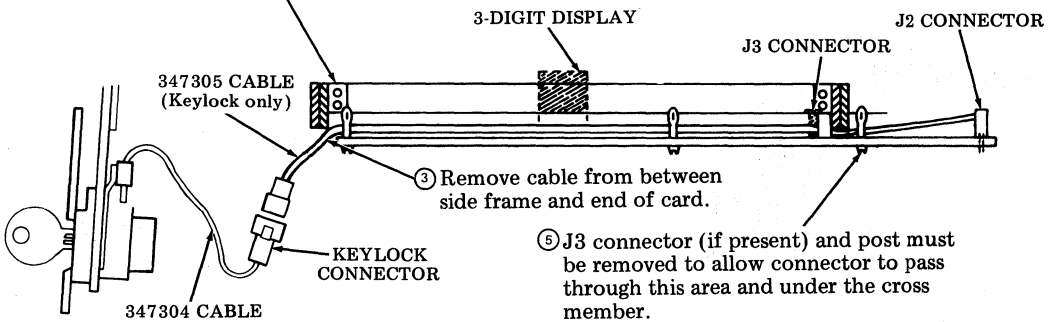


2.14 To remove reader and/or keylock cable:

- Remove cover (2.06).



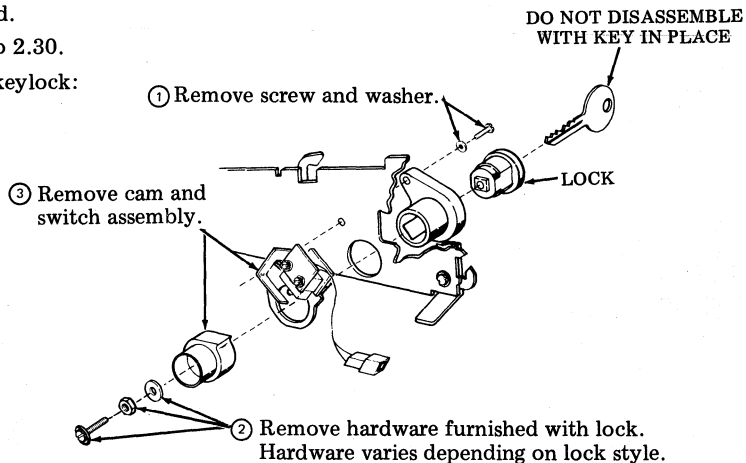
- ① Disconnect keylock connector.
- ② Remove the five mounting screws of 346698 bracket. Move bracket to the left to provide clearance for removal of the connector.



- ③ Remove cable from between side frame and end of card.
- ④ Release J2 connector from circuit card.
- ⑤ J3 connector (if present) and post must be removed to allow connector to pass through this area and under the cross member.

For reassembly go to 2.30.

2.15 To remove keylock:

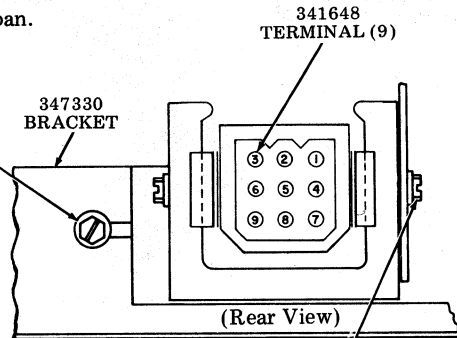


For reassembly go to 2.26.

2.16 To remove SSI cables:

- Remove cover (2.06).
- If magnetic stripe reader is present, remove 346958 pan.

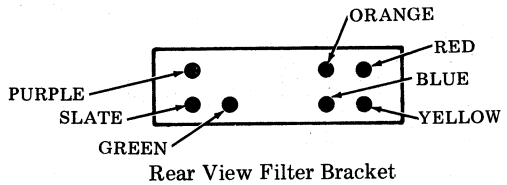
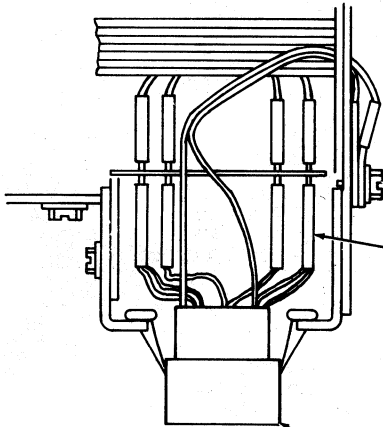
① Remove 198670 screw from right side of 347330 bracket. Swing bracket downward.



② Remove 181242 mounting screw.

③ Remove 320418 ground terminals.

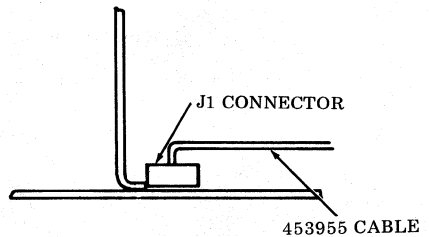
④ Remove seven 400574 terminals.



⑤ Remove 401149 plug of 453956 cable from bracket. To remove terminals use a 402840 extractor tool.

⑥ Remove MOS cover, insert spring hook in large hole and pull up.

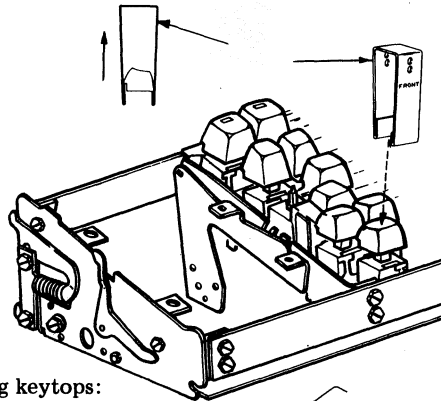
⑦ Remove J1 connector using a 346960 connector extractor.



⑧ Remove seven 400574 terminals from front of 453954 filter bracket.

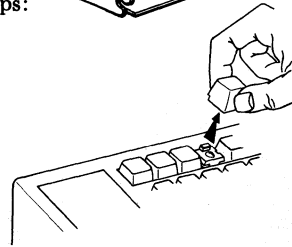
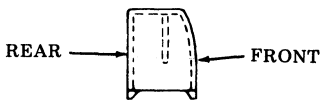
For reassembly go to 2.33.

2.17 To remove data keytops:



2.18 To remove control keytops and blocking keytops:

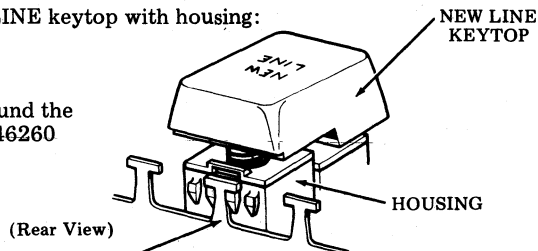
- ① Grasp keytop using thumb and index finger.
- ② Exert upward force until keytop releases.



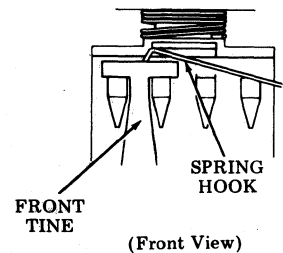
Caution: Control row blocking keytops are not the same on the front and rear side and must be assembled with the proper orientation. New style blocking keytop has finger-like extensions to the interior of the keytop to prevent reversal.

2.19 To remove the NEW LINE keytop with housing:

- Remove cover (2.06).
- ① Remove keytops that surround the NEW LINE keytop using 346260 tool.



- ② Disengage rear tine from housing with a small screwdriver while pulling NEW LINE keytop up and toward the front.



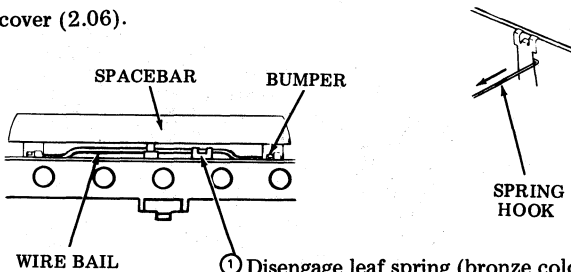
- ③ Continue applying upward pressure to the NEW LINE keytop and disengage the front tine from housing using a spring hook. Remove keytop with housing from channel.

2.20 To reassemble insert housing with keytop, observe position of locating lug on housing and press into channel. Housing must snap fully into front and rear channel tines.

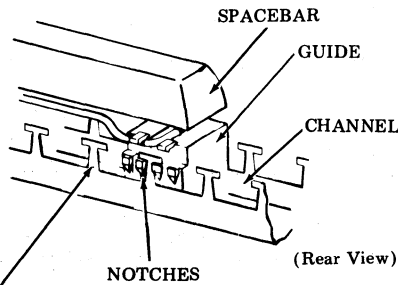
Spacebar Mechanism

2.21 To remove spacebar mechanism:

- Remove cover (2.06).

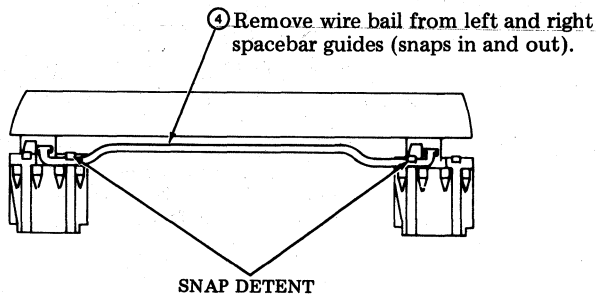


① Disengage leaf spring (bronze colored) from wire bail using a spring hook and pull toward the front.



② Disengage two rear tines (one at each end of spacebar) with a small screwdriver while pulling the spacebar up and toward the front.

③ Continue applying upward pressure to spacebar and disengage two front tines.



2.22 To reassemble spacebar mechanism, make sure the four tines engage the notches in spacebar housing and leaf spring is engaged to wire bail.

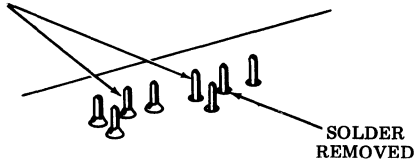
2.23 Check mechanical operation of spacebar so that it returns to its unoperated position freely when depressed and released slowly.

Keyswitches and 341088 Test Indicator Assembly

2.24 To remove keyswitches and 341088 test indicator assembly:

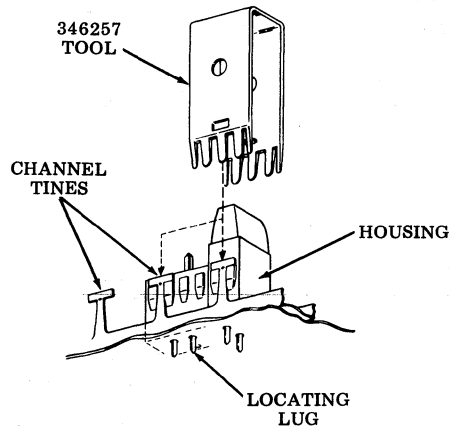
- Remove cover (2.06).
- Remove pan (2.07).
- Remove keytop if keyswitch is being removed (2.17), or unsnap test indicator cap.

- ① Remove solder from around terminal pins of keyswitch or test indicator to be removed.



Warning: Use a grounded, low wattage soldering iron (avoid prolonged contact with pins) along with a desoldering tool to prevent damage to keyswitch card circuits and components.

- ② Place 346257 tool over keyswitch or test indicator and press downward. When tool bottoms and embossed projections snap into notches on housing, squeeze and pull back on tool to lift keyswitch or test indicator out.

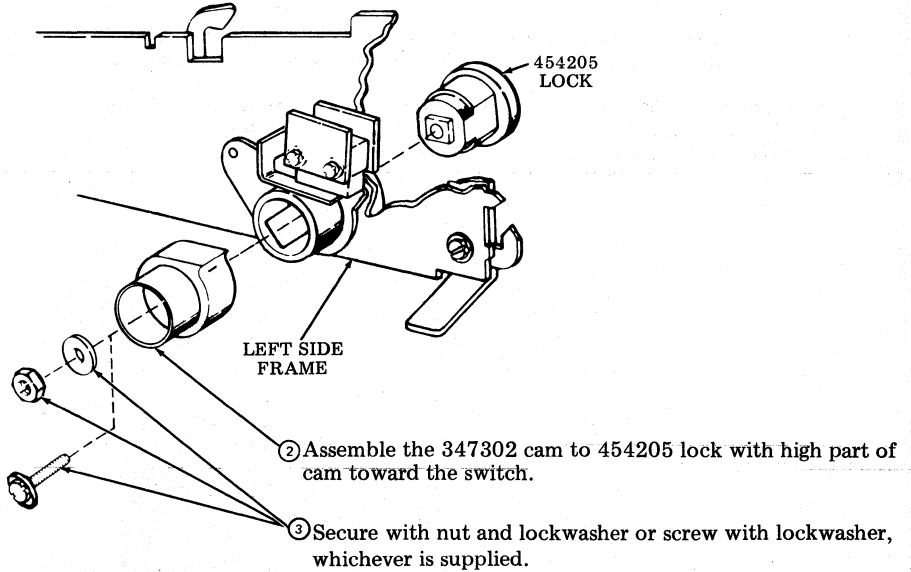
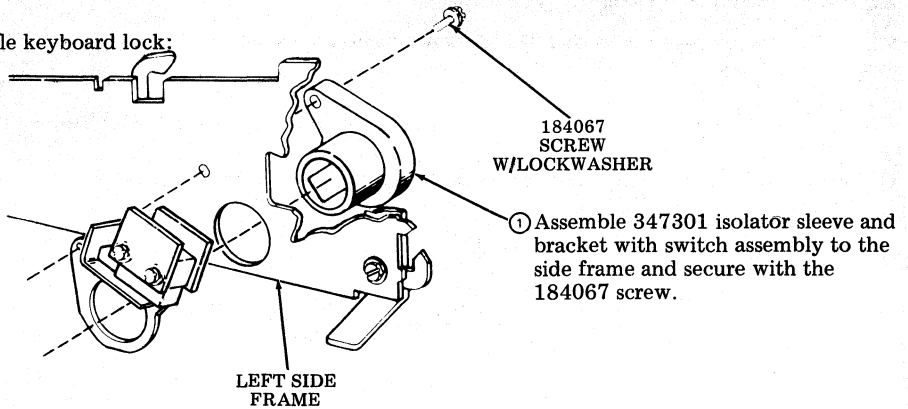


Note: The tines of the tool must pass between keyswitch or test indicator housing and inside of channel tines.

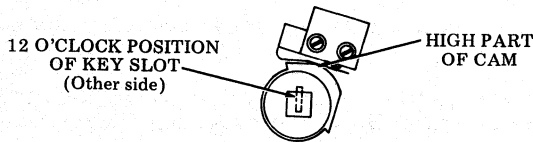
2.25 To reassemble, insert new keyswitch or test indicator, observe position of locating lug (on keyswitch only), and press into channel. Housing must snap fully into front and rear channel tines. Hold keyswitch or test indicator in place and resolder.

REASSEMBLY

2.26 Assemble keyboard lock:



④ The lock should be assembled in the sleeve so that in the "off" position the key is inserted with notched, or bitted side up.



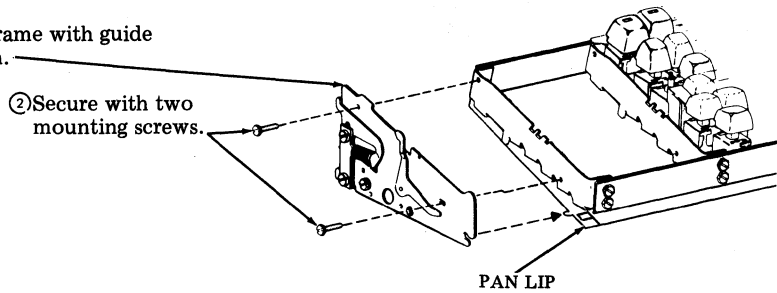
Cam Position With
Respect to Key Slot

⑤ Tighten switch assembly mounting screws.

2.27 Replacement of left side frame:

① Position side frame with guide over lip on pan.

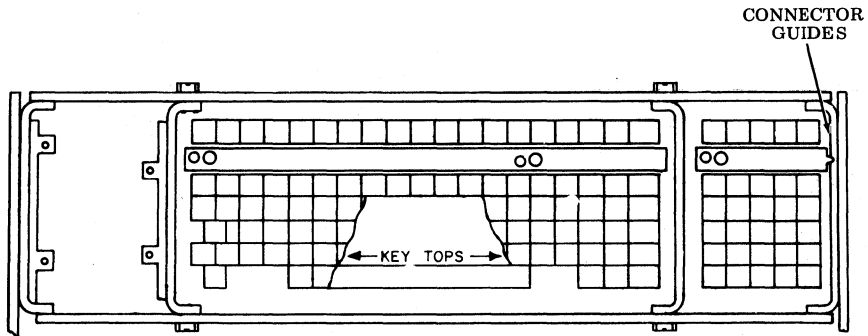
② Secure with two mounting screws.



2.28 Circuit card replacement (410097 or 410495):

① Position circuit card into frame and against the guides on the right side bracket.

② Replace six mounting screws (four front and two rear).

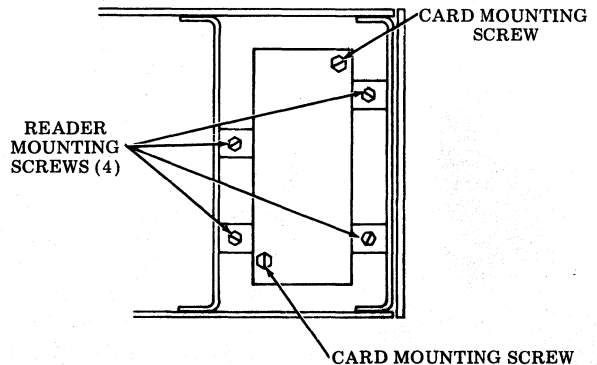


Top View

2.29 Magnetic stripe reader replacement:

① Position reader and secure with four mounting screws.

② Attach connector to card, position card and secure with two mounting screws to base of reader.



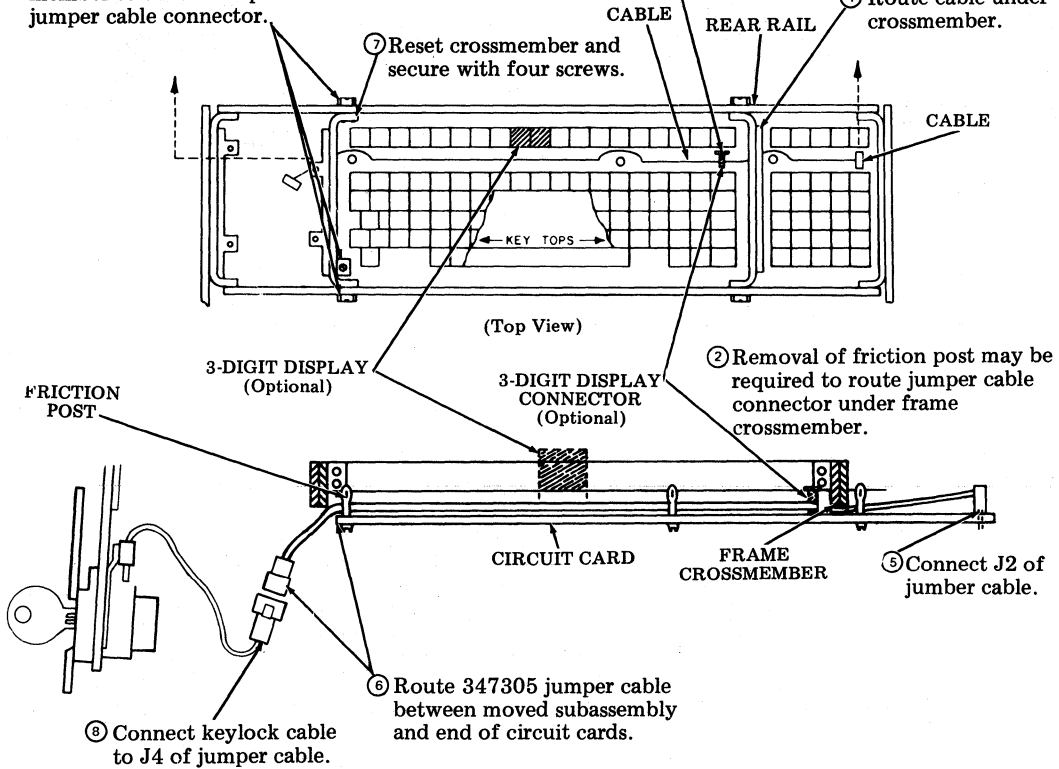
2.30 Installing 347305 jumper cable:

① Remove five mounting screws, two front, one at crossmember and two rear, move crossmember to the left to provide clearance for jumper cable connector.

③ Route jumper cable behind 3-digit display connector, when present.

④ Route cable under crossmember.

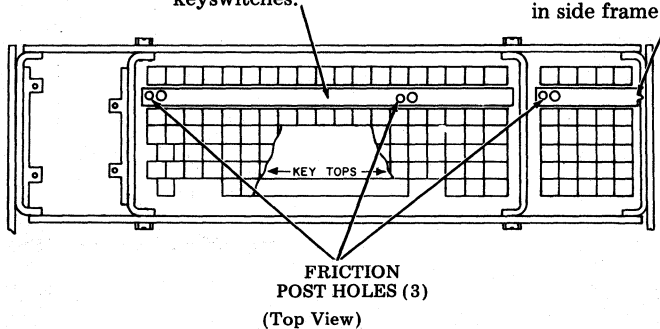
⑦ Reset crossmember and secure with four screws.



2.31 Installing MOS covers:

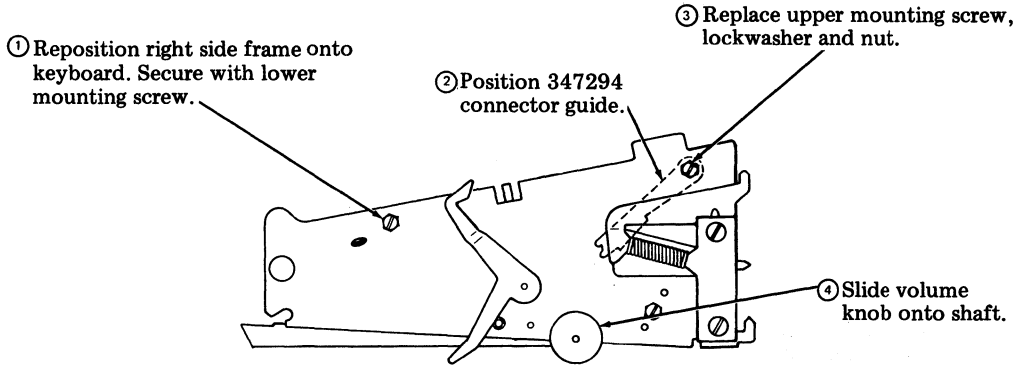
① Install large MOS cover so that projection bears against upper row of keyswitches.

② Install short MOS cover so that tab engages hole in side frame.

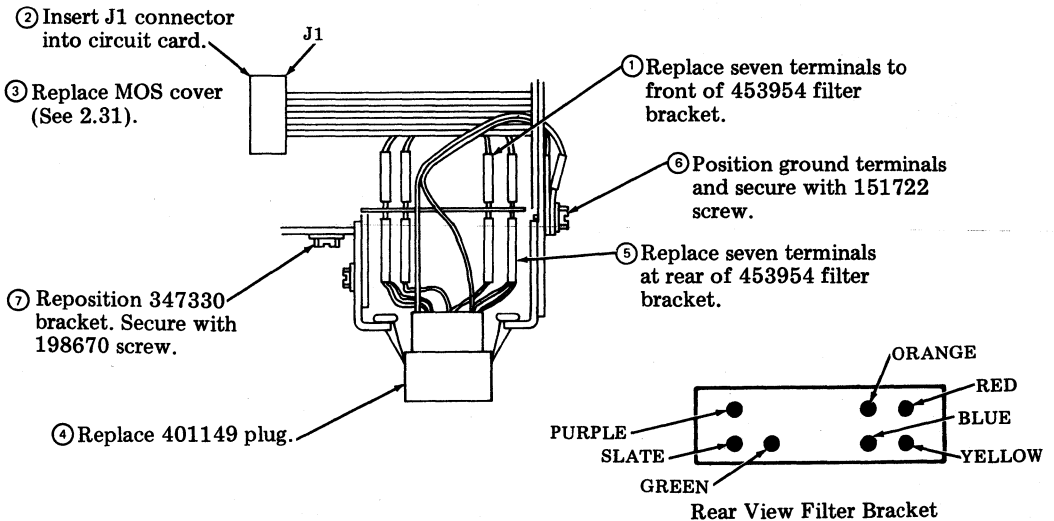


2.32 Replacement of right side frame:

Warning: Be careful when replacing the upper mounting screw. The lockwasher and nut may drop onto the circuit card.

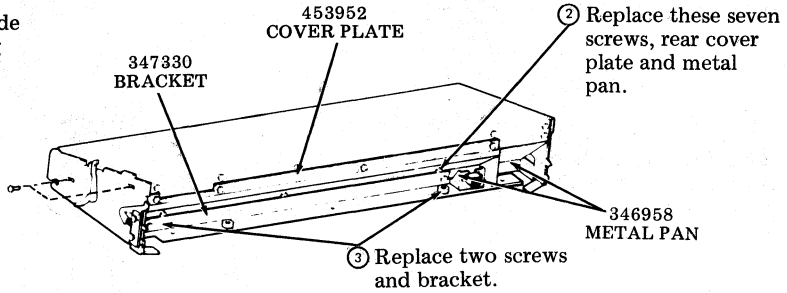


2.33 Replacement of SSI cable:



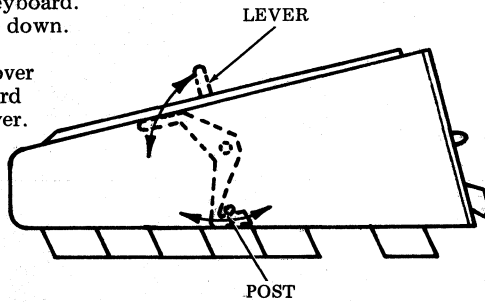
2.34 Replacement of covers:

- ① Check position of side frame and mounting screws.

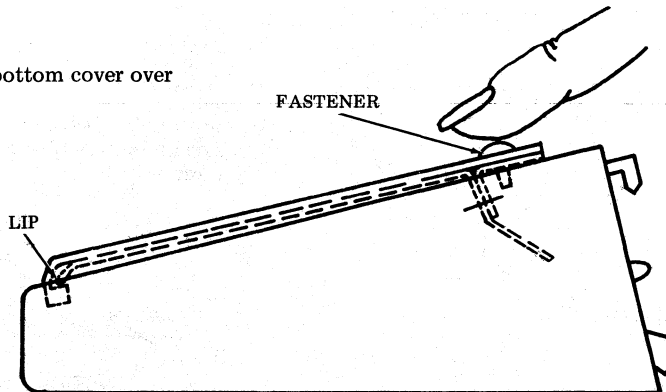


- ④ Position cover onto keyboard. Place keyboard upside down.

- ⑤ Swing left and right cover latching lever downward to engage posts on cover.



- ⑥ Reposition bottom cover over front lip.



- ⑦ Reinsert three 453959 fasteners by pressing into position.

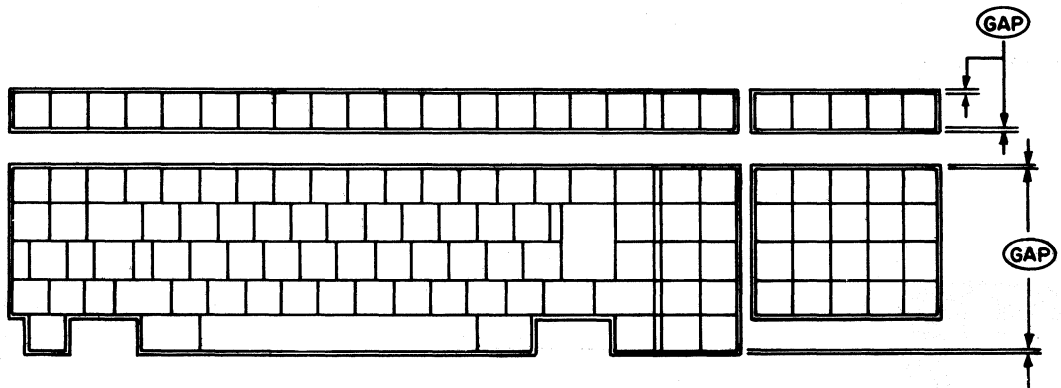
3. ADJUSTMENT

3.01 The clearance between the cover and keytop is the only adjustment provided on the KD. Normally, readjustment is not necessary unless the cover is replaced or if there is an interference between a keytop and the cover.

COVER TO KEYTOP ADJUSTMENT

Requirement

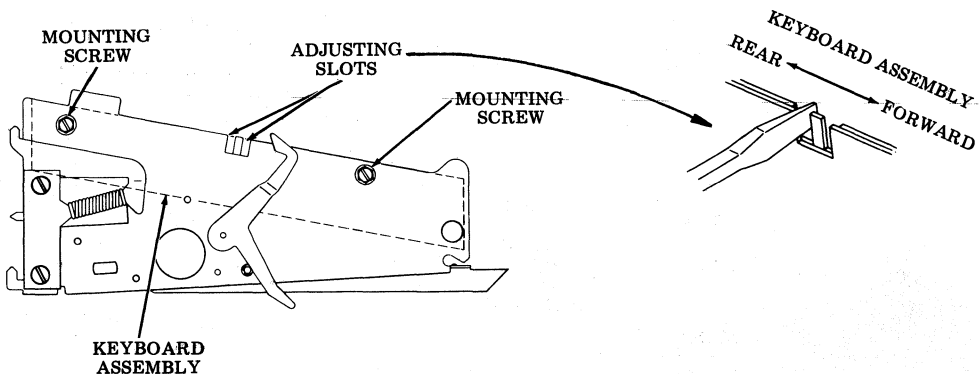
Gap, approximately equal in four places shown.



To Adjust

- Remove cover (2.09).

Loosen two 184056 mounting screws friction tight on both sides of opcon.



Insert screwdriver blade into adjusting slot and move keyboard assembly forward or to the rear to gain gap clearance.

Tighten screws, replace cover and check gaps.

Note: If gaps required are not approximately equal after reassembly, remove cover and repeat adjustment procedures.

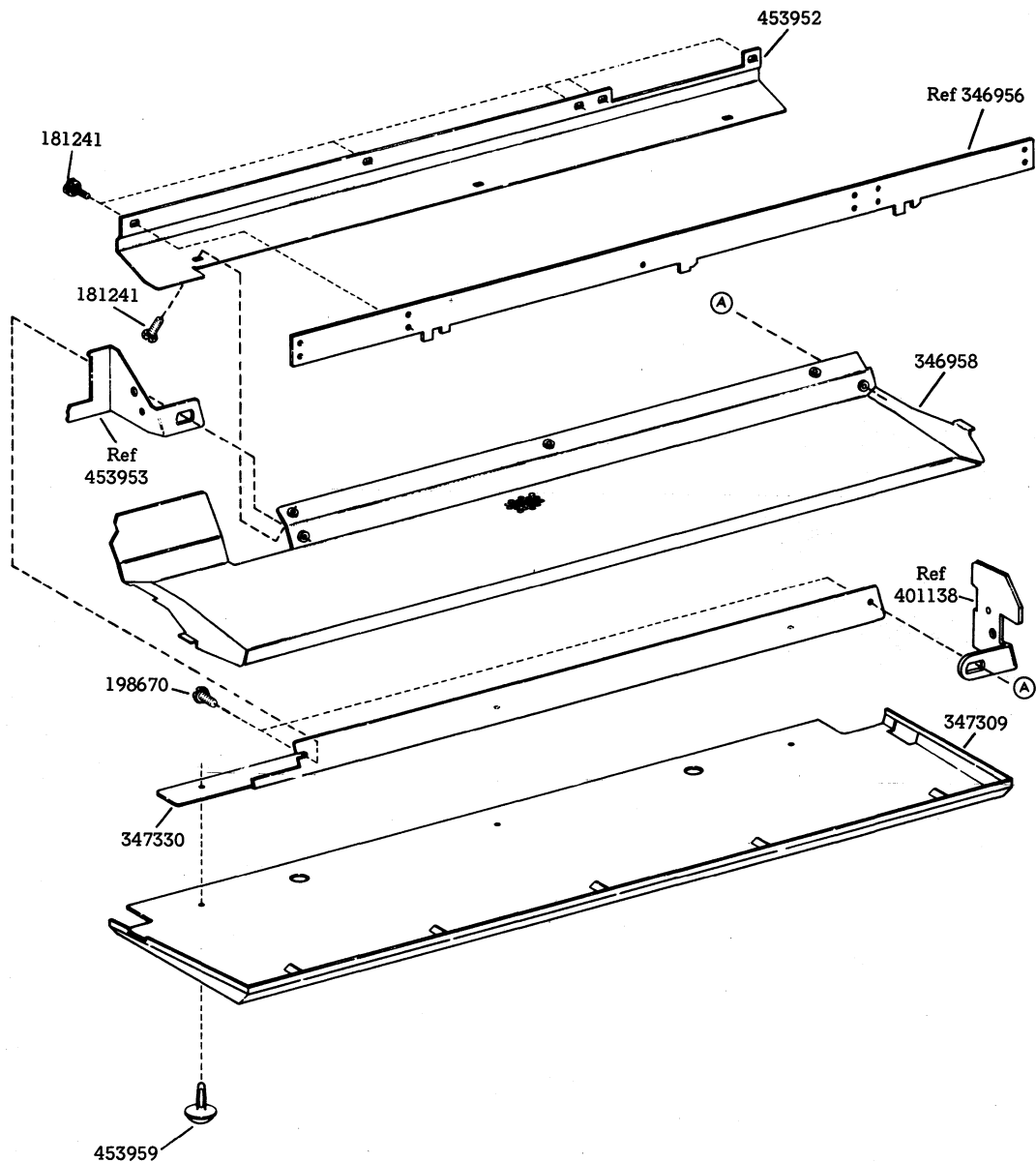


Fig. 3-Pans and Covers

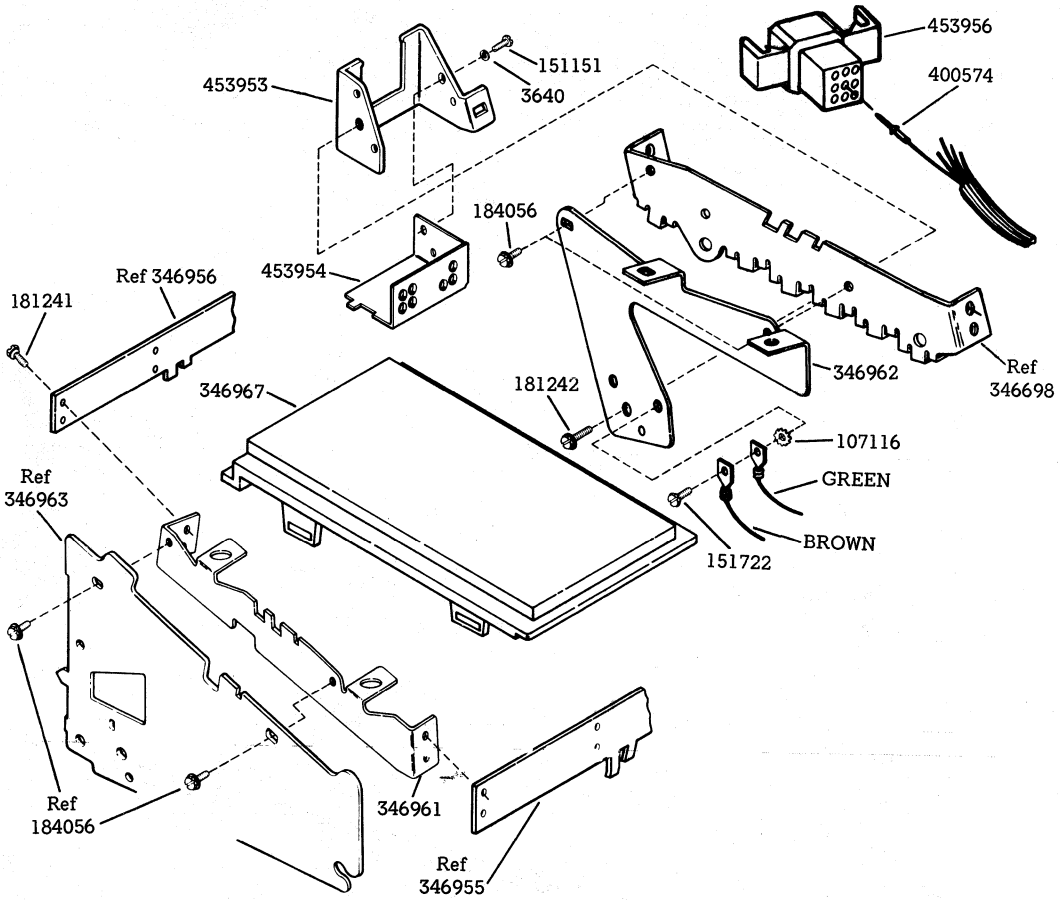


Fig. 4—Left Side Components

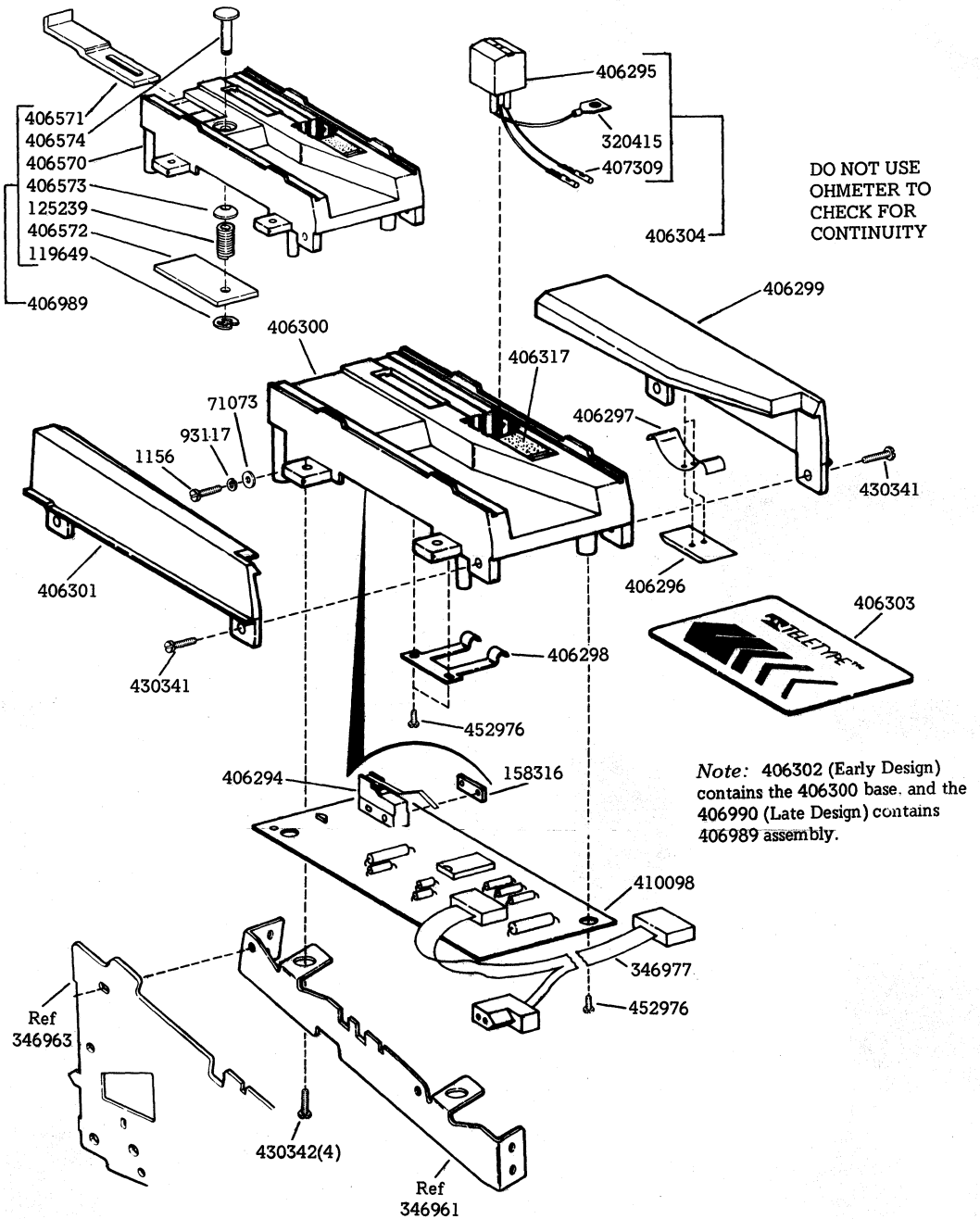
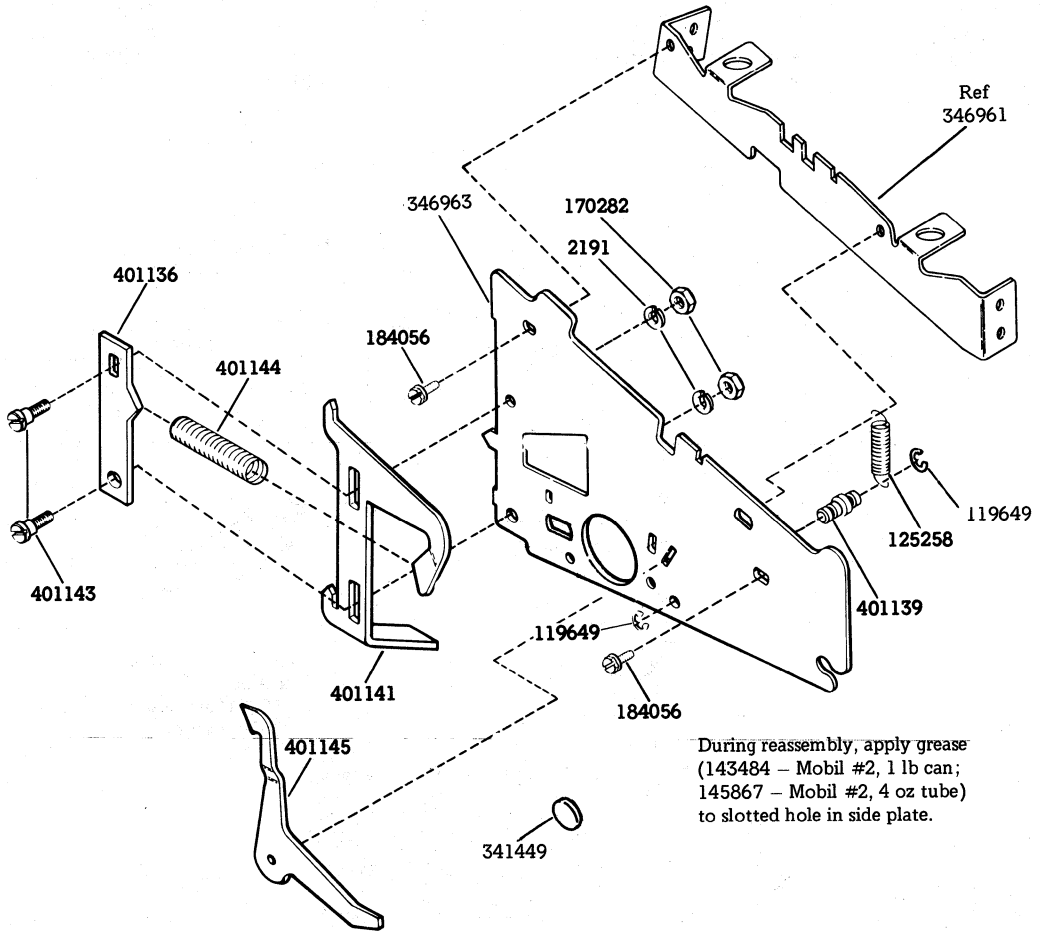
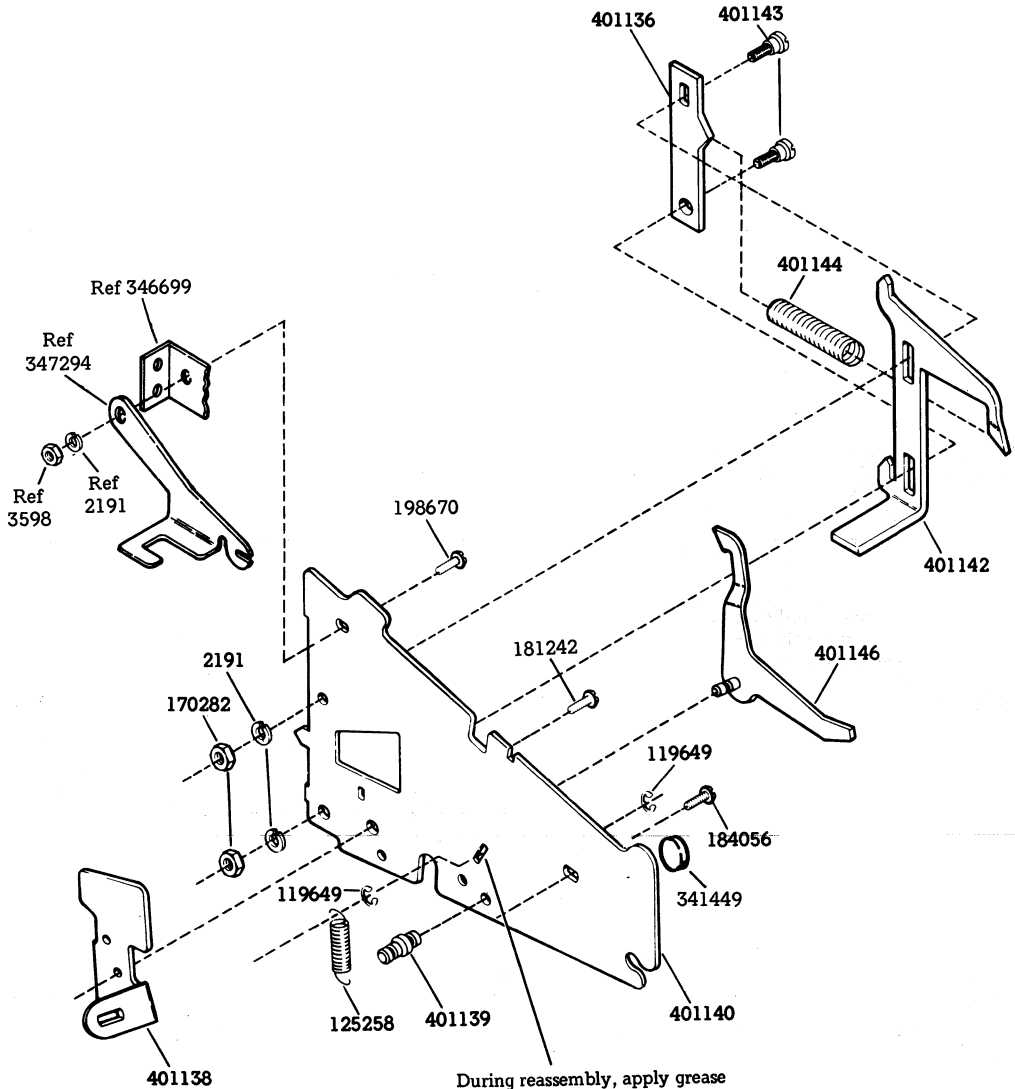


Fig. 5-406302 and 406990 Magnetic Stripe Reader Assemblies



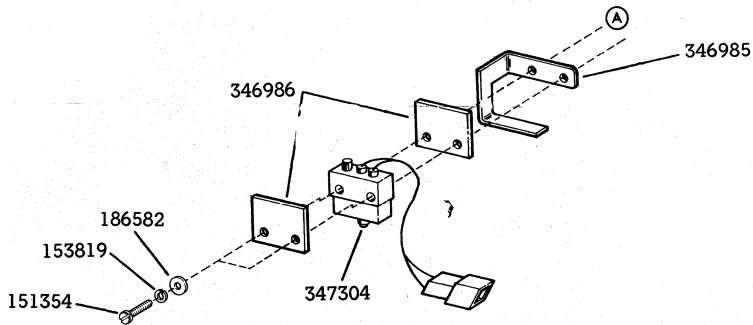
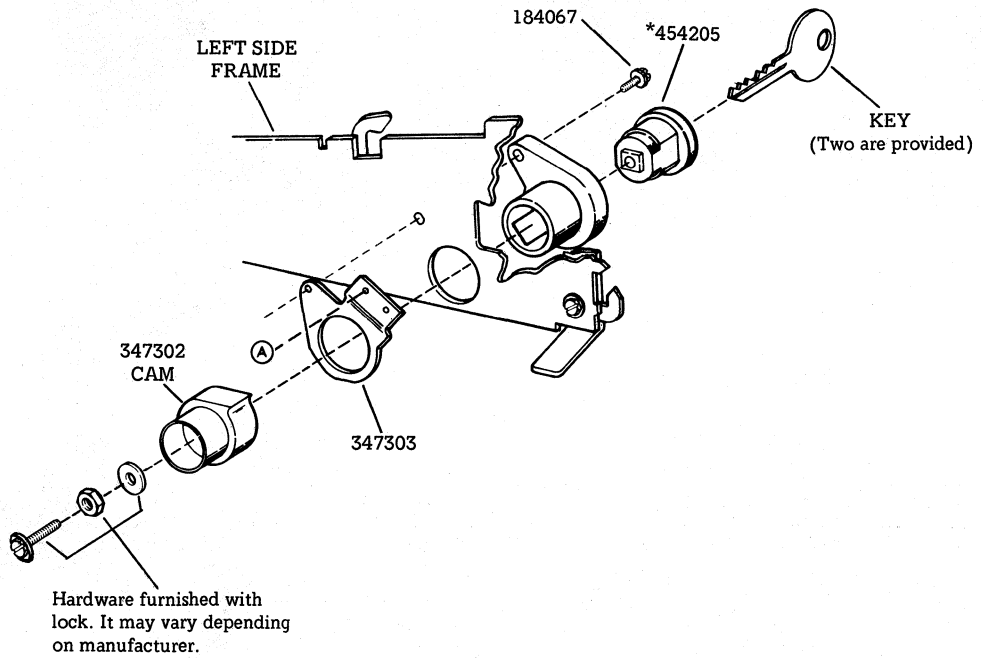
During reassembly, apply grease
 (143484 - Mobil #2, 1 lb can;
 145867 - Mobil #2, 4 oz tube)
 to slotted hole in side plate.

Fig. 6 - Left Side Frame Mechanism



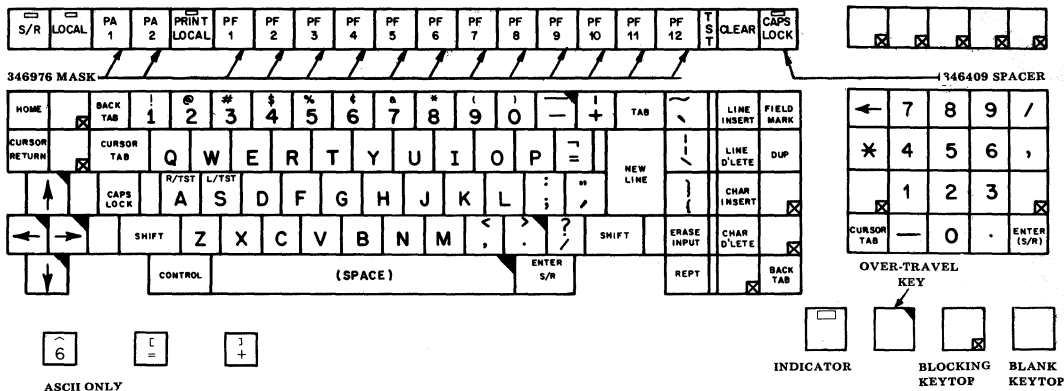
During reassembly, apply grease
 (143484 - Mobil #2, 1 lb can;
 145867 - Mobil #2, 4 oz tube)
 to slotted hole in side plate.

Fig. 7-Right Side Frame Mechanism



*Early kits may have 346983 lock instead of 454205 lock.

Fig. 8-347300 Keyed Locking Device Modification Kit

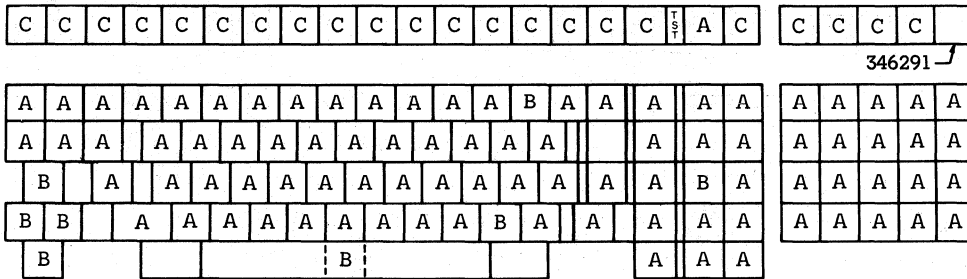


45K301/GAA KEYTOP LAYOUT (EBCDIC)

PART NO.	KEYTOP DESCRIPTION	PART NO.	KEYTOP DESCRIPTION	PART NO.	KEYTOP DESCRIPTION
340701	BLOCKING (CONTROL)	340908	ERASE INPUT	346145	PF1
340714	BLOCKING (DATA)	340910	R/TST A	346146	PF2
*340767	NEW LINE	340911	L/TST S	346147	PF3
340778	(SPACE)	340988	REPT	346148	PF4
340818	HOME	340992	~	346149	PF5
340821	! 1	340993	Q	346150	PF6
340822	@ 2	340994	W	346151	PF7
340823	# 3	340995	E	346152	PF8
340824	\$ 4	340996	R	346153	PF9
340825	% 5	340997	T	346154	PF10
340826†	^ 6	340998	Y	346155	PF11
340827	& 7	340999	U	346156	PF12
340828	* 8	341000	I	346456	FIELD MARK
340829	(9	341001	O	346558	M
340830	) 0	341002	P	346559	J
340831	-	341004	| \	346560	1
340835	CURS RETRN	341005	D	346561	2
340849	LINE INSRT	341006	F	346562	3
340850	↑	341007	G	346563	4
340861	;	341008	H	346564	5
340862	”	341009	K	346565	6
340863	LINE DLETE	341010	L	346566	7
340865	←	341011	}	346567	8
340866	→	341012	Z	346568	9
340867	SHIFT	341013	X	346569	0 (ZERO)
340875	<	341014	C	346570	CURS LEFT
340876	>	341015	V	346574	.
340877	?	341016	B	346582	-
340879	↓	341017	N	346583	,
340880	CONTROL	341027	4 6	346586	ENTER S/R
340881	CHAR INSRT	341028	| +	346862	CAPS LOCK
340882	CHAR DLETE	341029	⌋ =	347032	1
340888	TAB	346102	LOCAL	347033	*
340889†	] +	346103	S/R	347034	CURS TAB
340890†	[=	346105	PRINT LOCAL	347035	ENTER S/R
340894	CAPS LOCK	346114	CLEAR	347036	DUP
340898	CURS TAB	346143	PA1	347037	BACK TAB
340907	BACK TAB	346144	PA2		

*The 340764 compression spring between the 340767 keytop and the keyswitch housing must be ordered separately.
 †ASCII only.

Fig. 9—Keytop Identification



POS	KEYSWITCH NO.	TYPES	PUSH ROD COLOR
A	340720	Basic	White
B	340721	Repeat	Green
C	346359	Indicator	Orange
TST	346235	Lamp	None

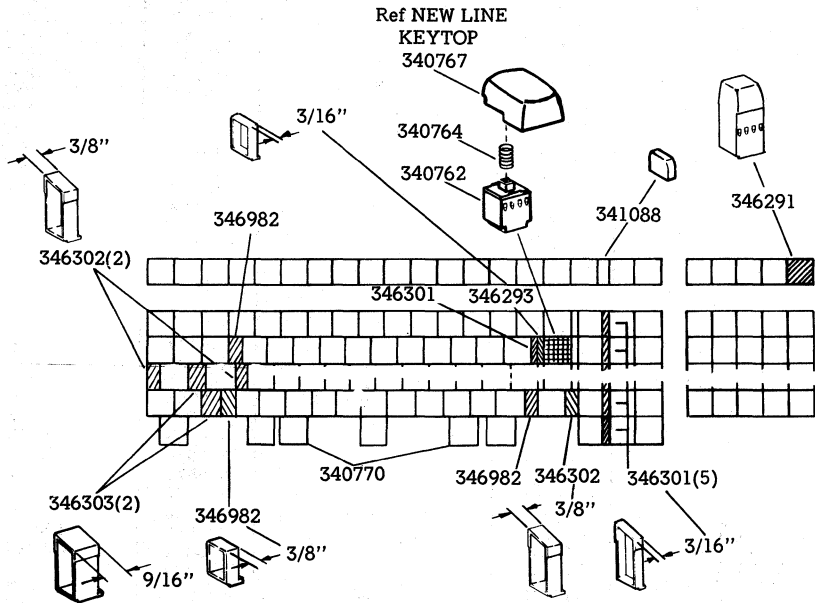


Fig. 11-410097 Circuit Card Keyswitch Channel Spacers

NUMERICAL INDEX

Note: When ordering parts prefix each number with the letters "TP" unless specified otherwise.

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
1156	Screw 2-56 x 9/16 Fil 21	340849	Keytop 25	346302	Spacer 26
2191	Lockwasher 18, 22, 23	340850	Keytop 25	346303	Spacer 26
3598	Nut, 6-40 Hex 18, 23	340861	Keytop 25	346359	Keyswitch 26
3640	Lockwasher 18, 20	340862	Keytop 25	346370	Crystal Assembly 18
71073	Washer, Flat 21	340863	Keytop 25	346386	Support 18
93117	Lockwasher 21	340865	Keytop 25	346409	Spacer 25
107116	Lockwasher 20	340866	Keytop 25	346410	Label, Warning 18
119649	Ring, Retaining 22, 23	340867	Keytop 25	346456	Keytop 25
125011	Washer, Flat 18	340875	Keytop 25	346558	
125258	Spring 22, 23	340876	Keytop 25		thru
151151	Cam sleeve 20	340877	Keytop 25	346570	Keytop 25
151152	Screw, 4-40 x 3/16 Hex 18	340879		346574	Keytop 25
151354	Screw, 2-56 x 15/32 Fil 24		thru	346582	Keytop 25
		340882	Keytop 25	346583	Keytop 25
151722	Screw, 6-40 x 3/16 Hex 20	340888	Keytop 25	346586	Keytop 25
153819	Lockwasher 24	340889	Keytop 25	346698	Frame 18, 20
158316	Plate, Nut 21	340890	Keytop 25	346699	Frame 18, 23
170282	Nut, 6-40 Hex 22, 23	340894	Keytop 25	346708	Plate, Identification 18
181241	Screw w/Lockwasher, 6-40 x 1/4 Hex 18, 19, 20	340898	Keytop 25	346862	Keytop 25
		340907	Keytop 25	346955	Rail, Front 18, 20
181242	Screw w/Lockwasher, 6-40 x 5/16 Hex 20	340908	Keytop 25	346956	Rail, Rear 18, 19, 20
		340910	Keytop 25	346957	Frame 18
184056	Screw w/Lockwasher, 6-40 x 1/4 Hex 20, 22, 23	340911	Keytop 25	346958	Pan 19
		340988	Keytop 25	346961	Bracket, Left 20, 21, 22
184067	Screw w/Lockwasher, 4-40 x 5/16 Hex 24	340992		346962	Bracket, Right 20
			thru	346963	Plate 20, 21, 22
186582	Washer, Flat 24	341002	Keytop 25	346964	Cover 18
198670	Screw w/Lockwasher, 6-40 x 5/16 Hex 19, 23	341004		346965	Cover 18
			thru	346967	Panel, Left 20
320415	Terminal, Ring Type 21	341017	Keytop 25	346972	Plug 18
336810	Plate, Identification 18	341027	Keytop 25	346975	Shield 18
340701	Keytop 25	341028	Keytop 25	346976	Mask 25
340714	Keytop 25, 26	341029	Keytop 25	346977	Cable assembly 21
340720	Keyswitch 26	341069	Spring Leaf 18	346982	Spacer 26
340721	Keyswitch 26	341088	Indicator Assembly, Test 18, 26	346985	Actuator 24
340730	Channel 18			346986	Insulator 24
340733	Channel 18	341449	Bumper, Rubber 22, 23	347000	Cover 18
340734	Channel 18	346102	Keytop 25	347032	Keytop 25
340735	Channel 18	346103	Keytop 25	347033	Keytop 25
340762	Housing 26	346105	Keytop 25	347034	Keytop 25
340764	Spring, Compression 26	346114	Keytop 25	347035	Keytop 25
340767	Keytop 25, 26	346143		347036	Keytop 25
340769	Bail, Wire 18		thru	347037	Keytop 25
340770	Guide 18, 26	346156	Keytop 25	347294	Guide 18, 23
340777	Bumper 18	346234	Cap 18	347302	Cam 24
340778	Keytop 25	346235	Housing 18, 26	347303	Bracket 24
340818	Keytop 25	346244	Label 18	347304	Switch assembly 24
340821		346255	Knob 18	347309	Cover 19
	thru	346291	Spacer 26	347330	Bracket 19
340831	Keytop 25	346293	Spacer 26	400574	Terminal 20
340835	Keytop 25	346301	Spacer 26	401136	Plate, Spring 22, 23
				401138	Bracket 19, 23

SECTION 582-311-700

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page number
401139	Post, Spring 22, 23	406296	Pad 21	430341	Screw, Self-Tapping 21
401140	Plate 23	406297	Spring 21		
401141	Latch, Left Plate 22	406298	Spring 21	430342	Screw, Self-Tapping 21
401142	Latch, Right Plate 23	406299	Cover, Right 21		
401143	Screw, 6-40 x 11/32 Shoulder 22, 23	406300	Base 21	452976	Screw, Self-Tapping 21
401144	Spring 22, 23	406301	Cover, Left 21		
401145	Latch, Left Cover 22	406303	Card, Test 21	453952	Plate, Rear Cover 19
401146	Latch, Right Cover 23	406304	Head Assembly, Magnetic 21	453953	Bracket 19, 20
406294	Switch, Actuating 21	406317	Pad 21	453954	Bracket, Filter 20
406295	Head w/Cable, Magnetic 21	407309	Terminal 21	453956	Cable Assembly 18
		410098	Card, Circuit 21	453959	Fastener 19
				454205	Lock 24

“DATASPEED*” 4500 CABINET

WIRING

	CONTENTS	PAGE
1.	GENERAL	1
2.	TESTING	1
	A. Power Cord	1
	B. Interlock Switch	2
	C. SSI Cable Assembly	2
	D. Switches and Lamps	2
3.	SCHEMATIC WIRING DIAGRAMS	3
4.	CABLE ROUTING	4
5.	ACTUAL WIRING	6

1.04 Whenever a check fails, refer to schematic diagrams to troubleshoot for point-to-point wiring information and refer to Section 582-312-700 for Disassembly, Reassembly and Parts information.

Note: When ordering replaceable components, unless otherwise specified, prefix each part number with the letters “TP” (ie, TP41055).

2. TESTING

A. Power Cord

2.01 Check continuity between power cord plug grounding pin and cabinet or chassis ground connection (Fig. 1). The resistance reading should be essentially zero ohms with VOM RX1 range.

1. GENERAL

1.01 This section provides actual and schematic wiring diagrams for DATASPEED 4500 cabinets, hereafter referred to as 4500 type.

1.02 This section is reissued to include actual wiring information. This is a general revision, therefore, marginal arrows have been omitted.

1.03 Testing of the cabinets consists primarily of making certain voltage and continuity checks using a volt-ohm-milliammeter (VOM) switched to appropriate range.

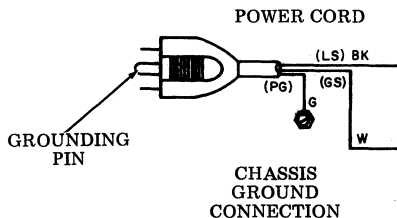


Fig. 1

*Registered Trademark of AT&TCo.

B. Interlock Switch

2.02 The interlock switch has a three-position activator (Fig. 2). Check for continuity at P114 connector terminals 6 to 7 and 3 to 5 when the activator is lifted to its No. 1 position (maintenance) and held down (audible click) in its No. 3 position. (Fig 3).

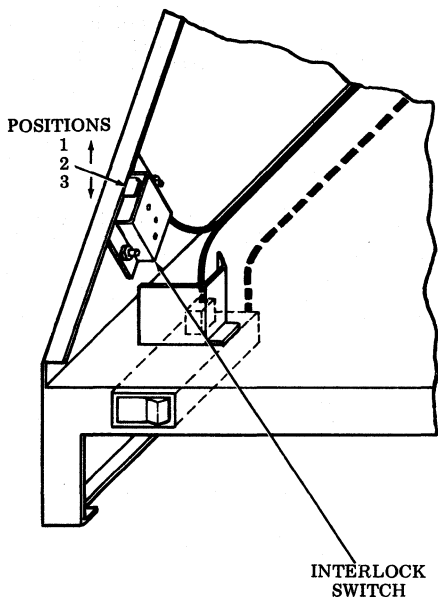


Fig. 2

C. SSI Cable Assembly

2.03 The printer signal connector (SSI) is mounted on a bracket inside the cabinet (Fig. 3). Check for continuity of the SSI cable at J115 connector terminals 12 to 13 and 14 to 15.

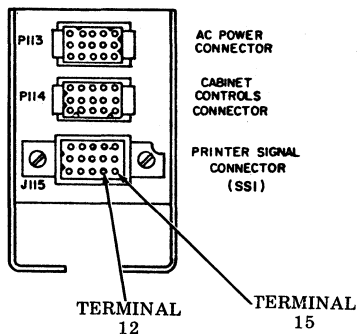


Fig. 3

D. Switches and Lamp

2.04 Check for continuity of paper advance switch at P114 connector terminals 3 to 4 when switch is depressed (Fig. 3).

2.05 Check for continuity of lamp in the paper switch at P114 connector terminals 1 to 2 (Fig. 3).

3. SCHEMATIC WIRING DIAGRAM

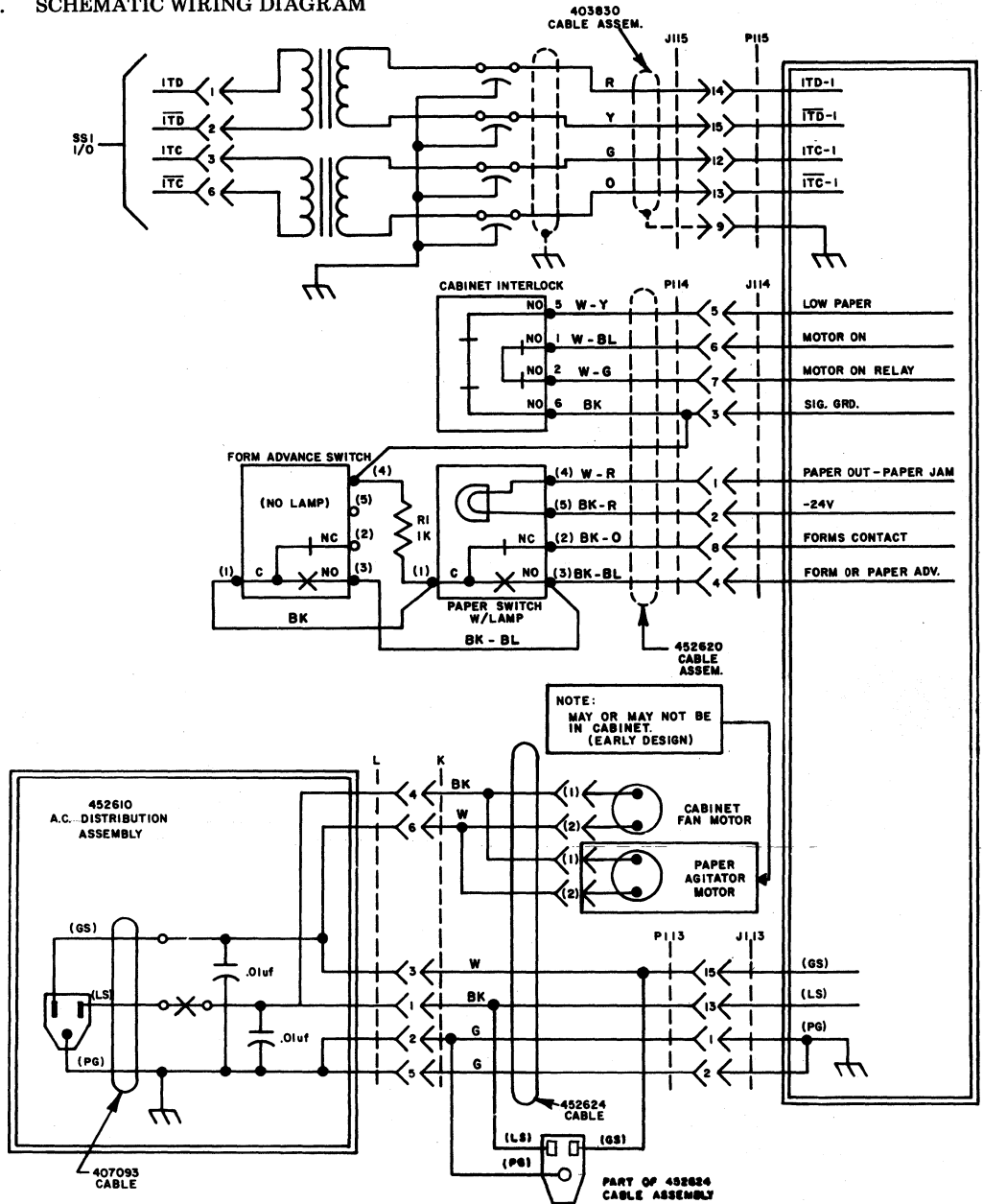


Fig. 4-4500 Type Tractor Feed Cabinet

4. CABLE ROUTING

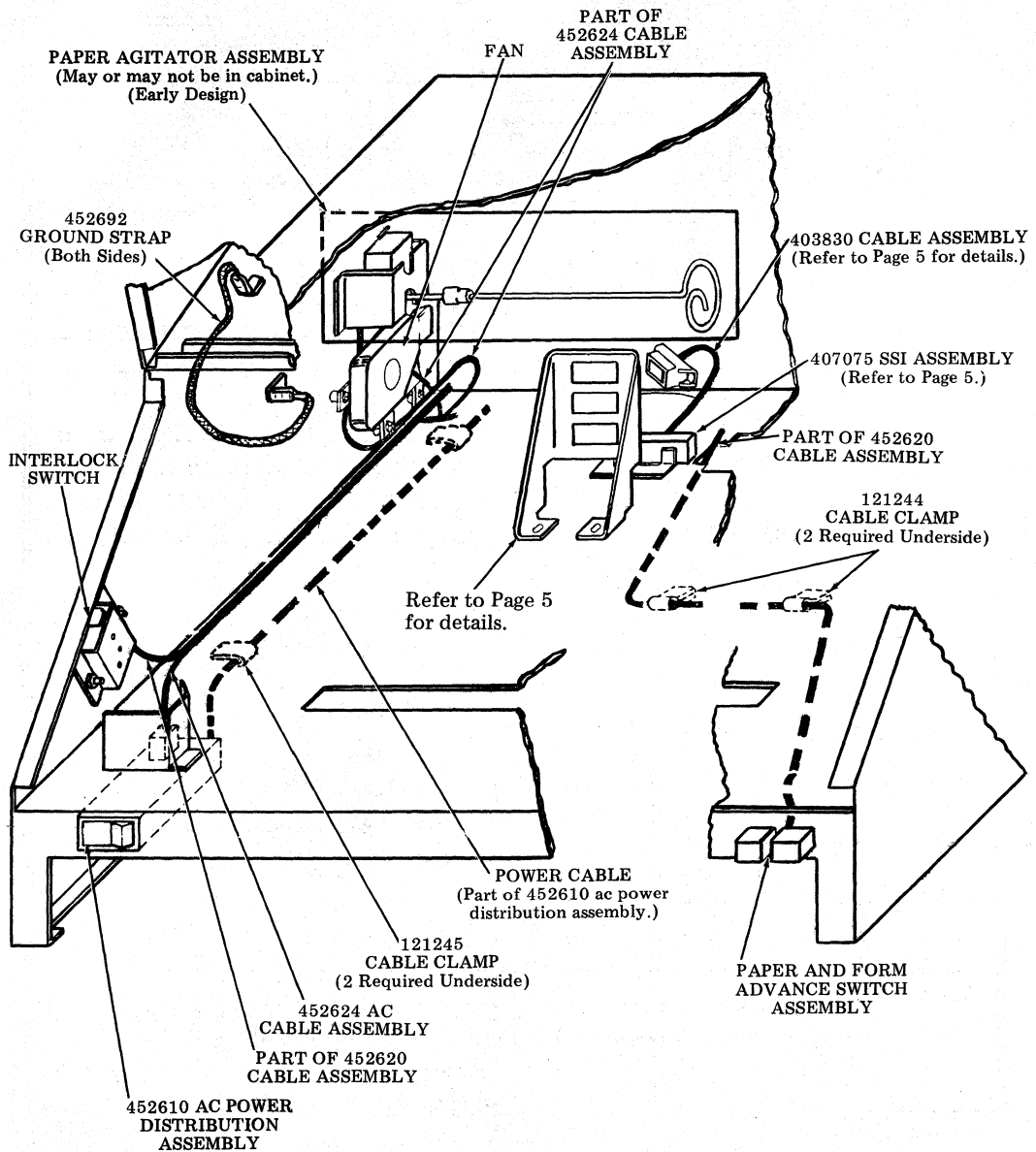
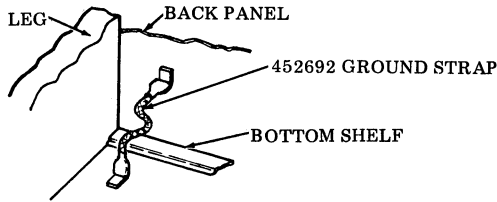
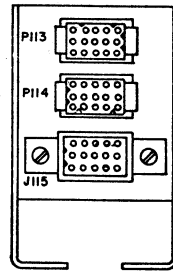


Fig. 5—4500 Type Tractor Feed Cabinet

4. CABLE ROUTING (Cont)



(Lower Left Rear
Corner of Cabinet)



AC POWER
CONNECTOR

CABINET
CONTROLS
CONNECTOR

PRINTER
SIGNAL
CONNECTOR

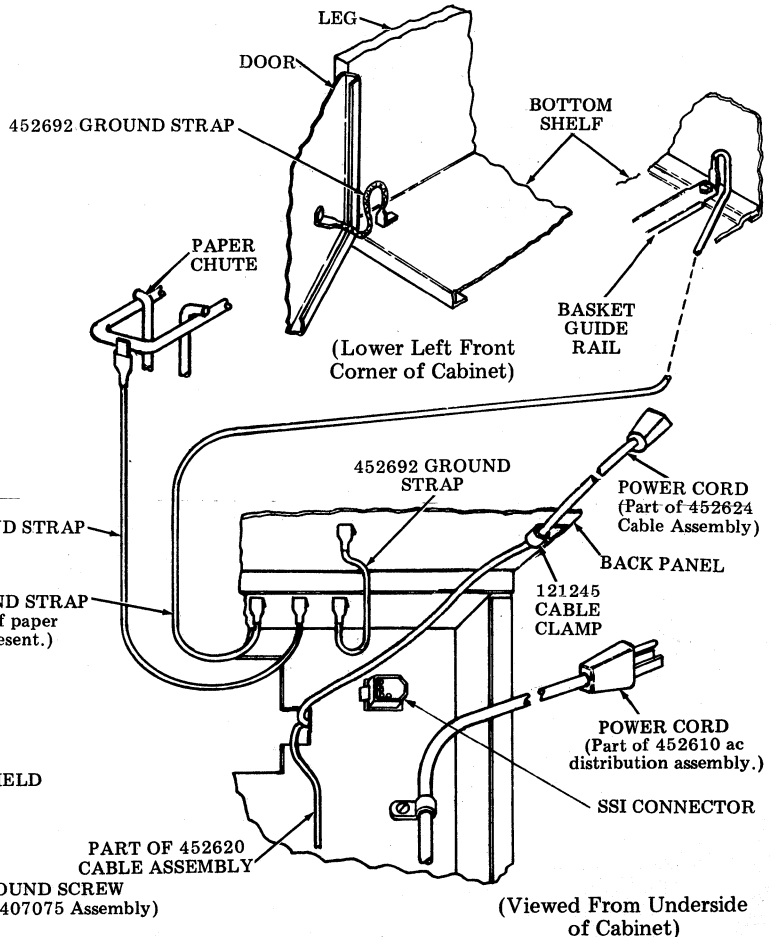


Fig. 6-4500 Type Tractor Feed Cabinet

5. ACTUAL WIRING

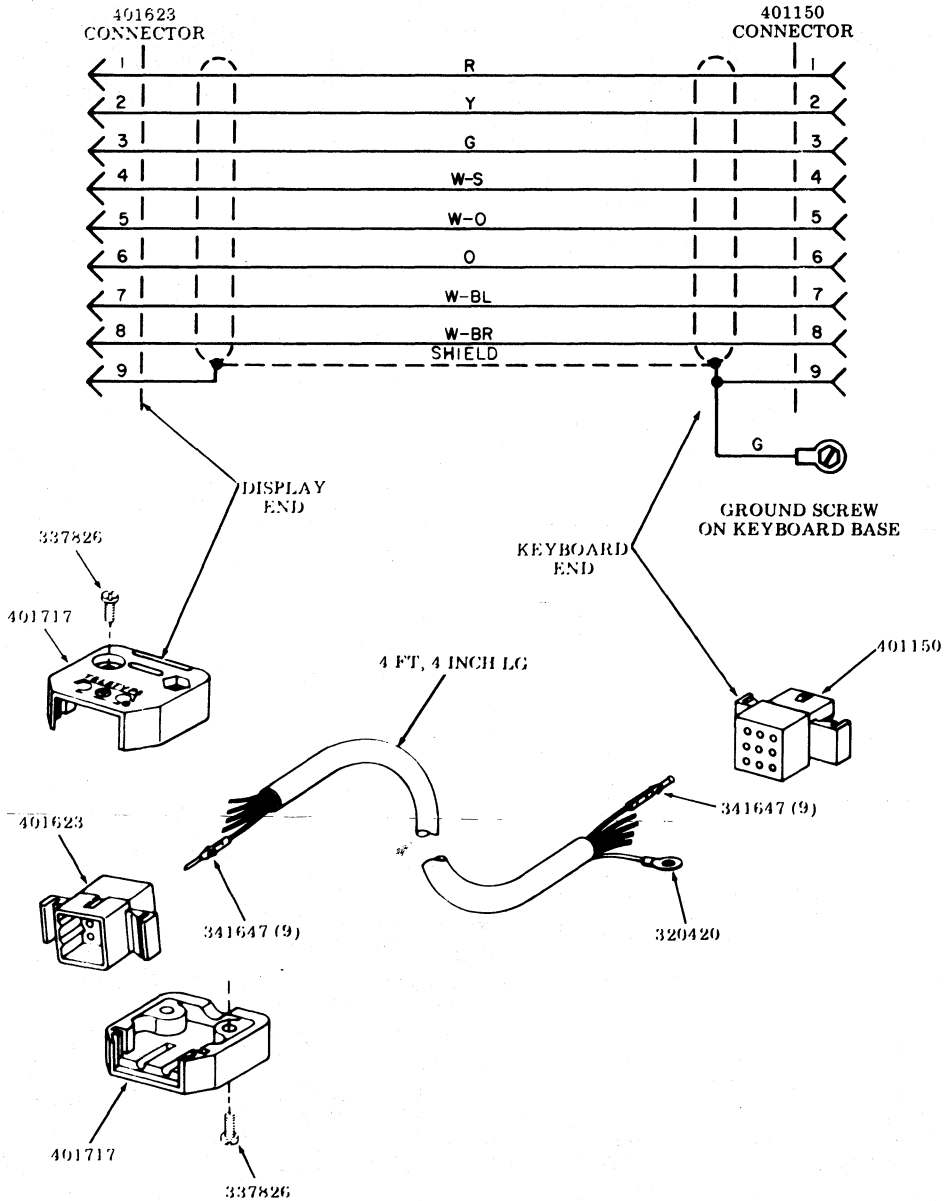


Fig. 7-347306 Keyboard Base Cable Assembly (45BSE301)

5. ACTUAL WIRING (Cont)

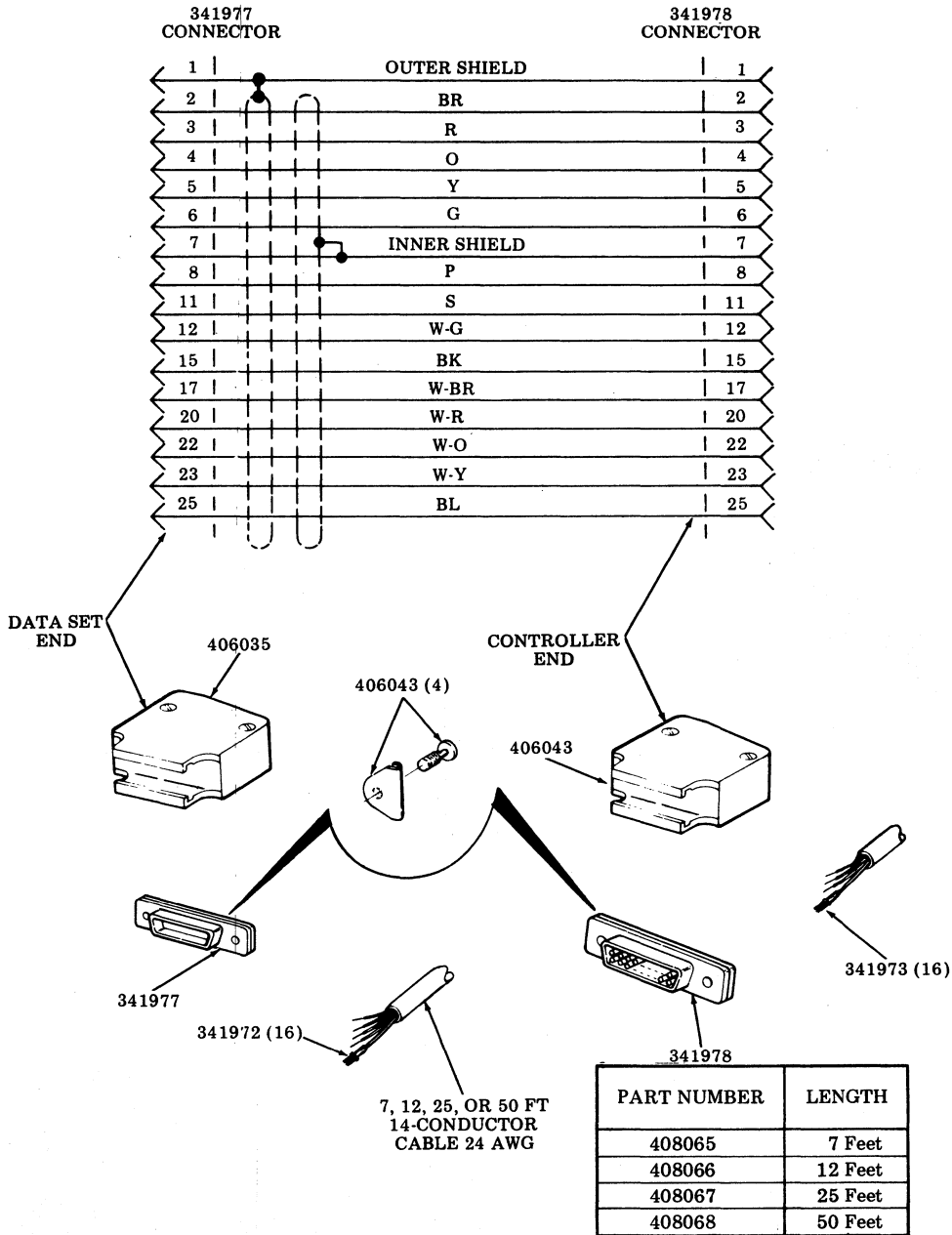


Fig. 8—Data Set Extension Cable Assemblies

“DATASPEED*” 4500 CABINETS, TABLES, AND FACILITIES
DISASSEMBLY/REASSEMBLY, PARTS, AND ADJUSTMENTS

CONTENTS	PAGE
1. GENERAL	1
2. UNIT IDENTIFICATION	1
3. DISASSEMBLY/REASSEMBLY . . .	3
TABLES	3
CABINETS	5
4. PARTS IDENTIFICATION.	6
5. ADJUSTMENTS/LUBRICATION. . .	23
6. NUMERICAL INDEX	25

1. GENERAL

1.01 This section provides the disassembly/reassembly, parts, adjustments/lubrication for DATASPEED* 4500 cabinets, tables (here after referred to as 4500-type) and facilities shown in 2. UNIT IDENTIFICATION.

1.02 This section is reissued to incorporate the latest engineering changes available at this time. Because this is a general revision, marginal arrows have been omitted.

1.03 This section includes the procedures for removing and replacing the principle components of the 4500-type cabinets, tables and facilities. If further removal of parts is required, refer to the appropriate illustrated parts figure which shows detailed arrangements of parts.

1.04 References to left, right, front and rear, etc, refer to the cabinet or assembly as viewed in its normal operating position facing forward.

1.05 Refer to Maintenance Tools Section 570-005-800 for a complete listing of the various types of hand tools available for maintenance of Teletype Corporation equipment.

*Registered Trademark of AT&TCo.

1.06 Some mechanical adjustment procedures in this section require removing an assembly, part or component with no further disassembly required. Read all adjustment notes thoroughly before performing the necessary procedure.

1.07 Unless specifically stated, make screws or nuts friction tight to make an adjustment. Tighten them securely once the adjustment has been made.

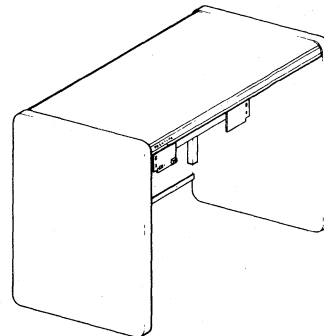
1.08 Clean the cabinet after servicing. When cleaning the cabinet use a mild detergent, rinse with damp cloth and buff dry.

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

2. UNIT IDENTIFICATION

2.01 All the units covered in this section are listed and shown in 2.02 through 2.03.

2.02 Tables

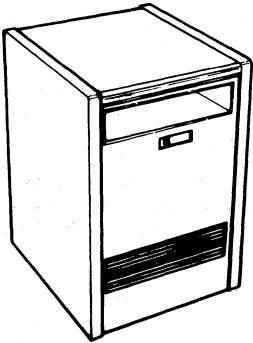


• 45CAB501/AAA – Provisions to mount upon and monitor base (free standing) will not facilitate 45CAB401 controller cabinet. Table is 36 inches wide, 22 inches deep, and 30 inches high. Table weight approximately 100 pounds.

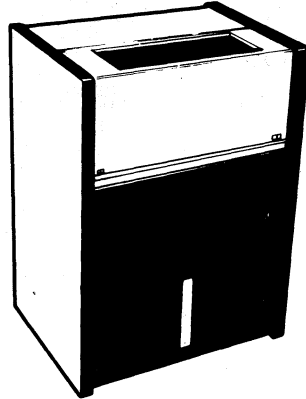
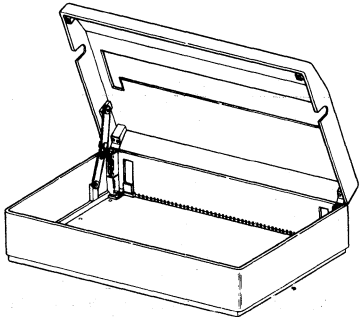
- 45CAB502/AAA — Provisions to mount upon and monitor base (free standing), will facilitate 45CAB401 controller cabinet. Table is 45 inches wide, 22 inches deep, and 30 inches high. Table weight approximately 110 pounds.
- 45CAB503/AAA — Houses 45C340 type controller mounted in a 45CAB401 cabinet. Table is 20 inches wide, 22 inches deep, and 30 inches high. Table weight is approximately 80 pounds.

- 454120 Cabinet Assembly — Houses table top character printer. Cabinet is seven inches high, with printer it is 10 inches high. Cabinet is 24-3/4 inches wide, 16 inches deep. Cabinet weight is approximately 12 pounds, with printer 42 pounds.

2.03 Cabinets

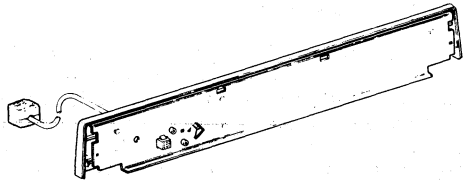


- 40CAB401/AAA — Houses 45C340 type controller. Cabinet is 17 inches wide, 19 inches deep, and 28 inches high. Cabinet weight is approximately 50 pounds.



- 45CAB701/AAA and 45CAB702/AAA — Houses line printer. Cabinet is 30 inches wide, 22 inches deep, and 42 inches high. Cabinet weight approximately 160 pounds.

2.04 Keyboard Base



- 45BSE301 — Base for 45K301 keyboard, 24-1/2 inches wide, 3/4 inch deep, and 3-3/4 inches high. Weight is approximately 2 pounds.

3. DISASSEMBLY/REASSEMBLY

TABLES

3.01 Tables (45CAB500 Series)

Note: Refer to the following steps and illustrations for suggested assembly procedure, for disassembly, reverse procedure.

- Instructions for assembly 4540 tables, 40CAB501/AAA (36 inches), 45CAB502/AAA (45 inches), and 45CAB503/AAA (20 inches wide.).

451431 — 42-1/4"
 451432 — 33-1/4"
 451433 — 17-1/4"

Note: There will be six holes located here on 451431 and 451432 tops; none on 451433 top.

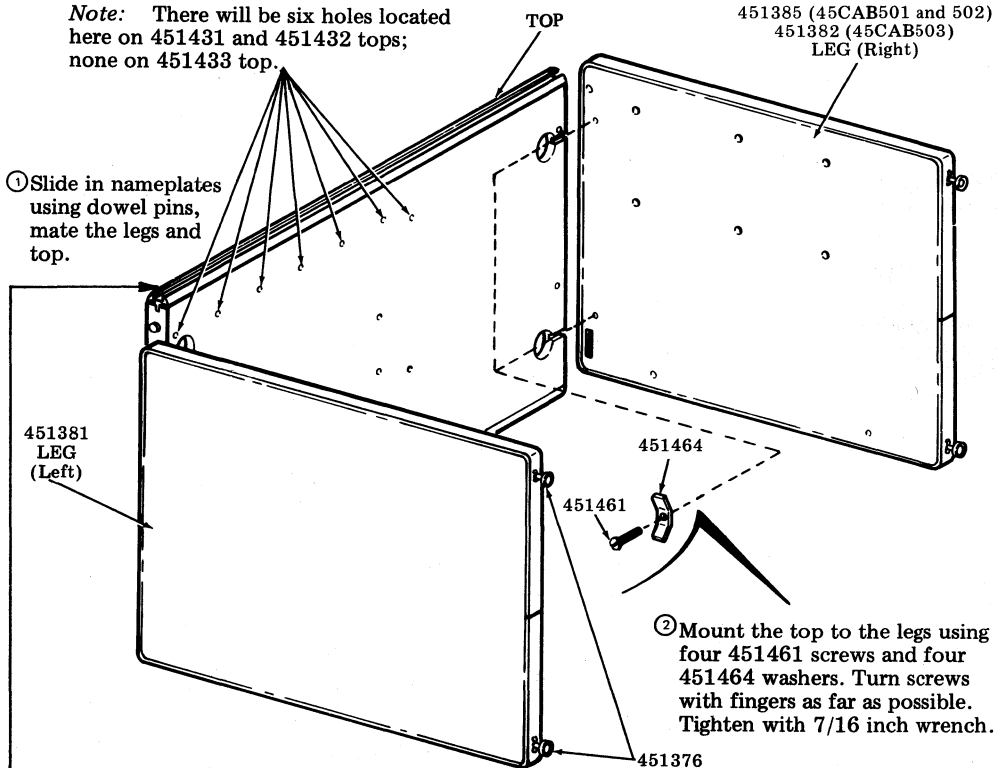
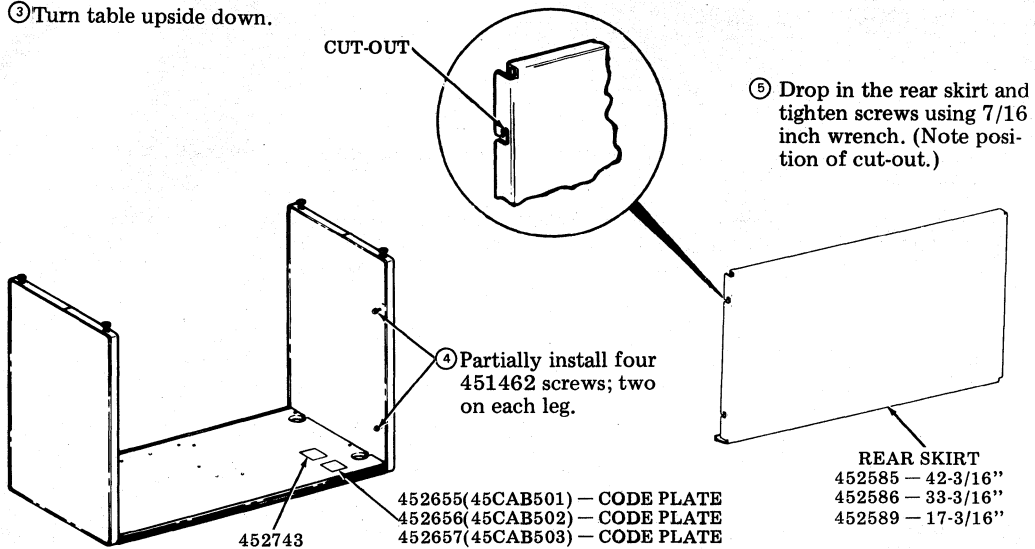


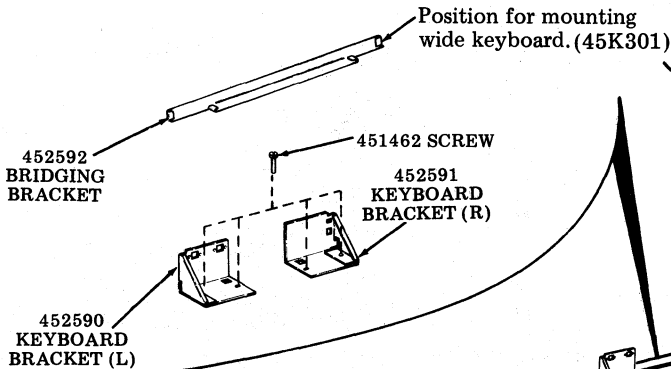
TABLE CODE	NAME PLATE FRONT AND REAR
45CAB501	451151
45CAB502	451150
45CAB503	451152

③ Turn table upside down.



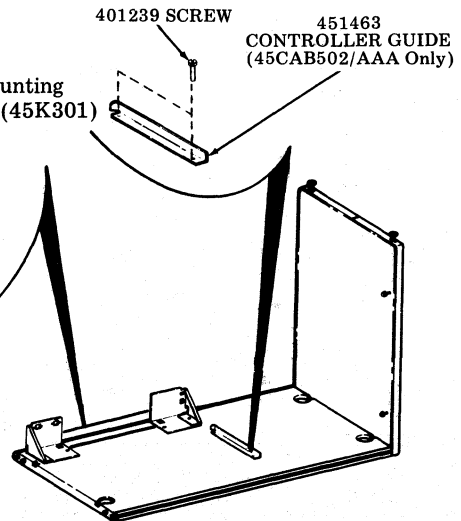
• 45CAB501/AAA and 45CAB502/AAA Tables (Only)

⑥ Mount keyboard brackets to bridging bracket. Note which keyboard is being used, mount to table.



Note: Left leg and skirt not shown for clarity of assembly.

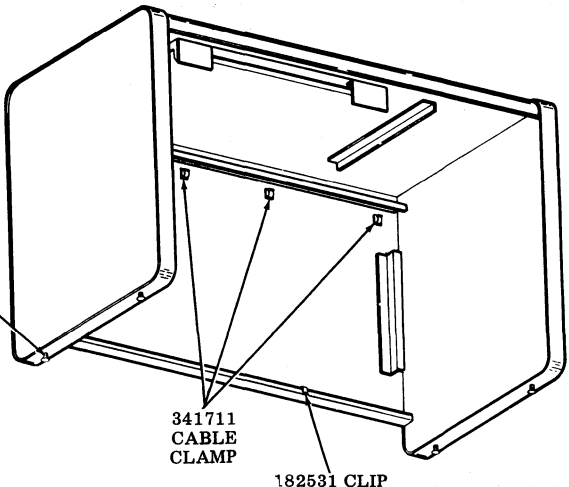
⑦ Mount controller guide.



⑧ Turn table upright and set in location to be used. If necessary, stabilize table by turning leg levelers not reaching the floor. Size of wrench required is 9/16 inch.

⑨ Mount three 341711 cable clamps and a 182531 clip in approximately the positions shown.

Note: If necessary, stabilize table by turning leg leverers not reaching the floor. Size of wrench required is 9/16 inch.

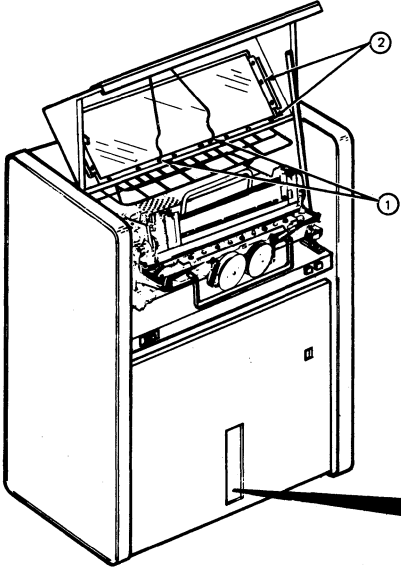


CABINETS

3.03 45CAB701 Auxiliary Line Printer Cabinet.

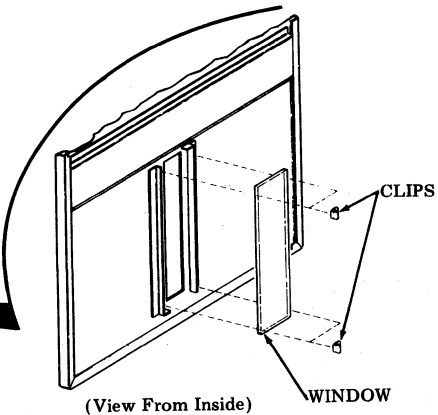
• To remove cover window

- ① Remove two nuts to remove paper deflector.
- ② Remove thirteen nuts and two clamps. Remove window.



• To remove lower door window.

- ① Pry off four clips, remove window.



4. PARTS IDENTIFICATION

4.01 The following list contains the figure and page number of all the part illustrations.

FIGURE	CONTENT	PAGE
1	45CAB701/AAA and 45CAB702/AAA 132-Column Tractor Feed Printer Cabinets	17-12
2	452610 AC Switch Assembly	13
3	407075 SSI Bracket Assembly	14
4	452620 Cable Assembly	15
5	452624 Cable Assembly	15
6	Foam Pad Location for 45CAB701/AAA and 45CAB702/AAA Cabinets	16
7	45CAB401/AAA Controller Cabinet	17
8	45BSE301 Stand Alone Keyboard Base	18
9	346730 OEM Filter Assembly	19
10	454120 Cabinet for Table Top Character Printer	20-21
11	Nameplates	22

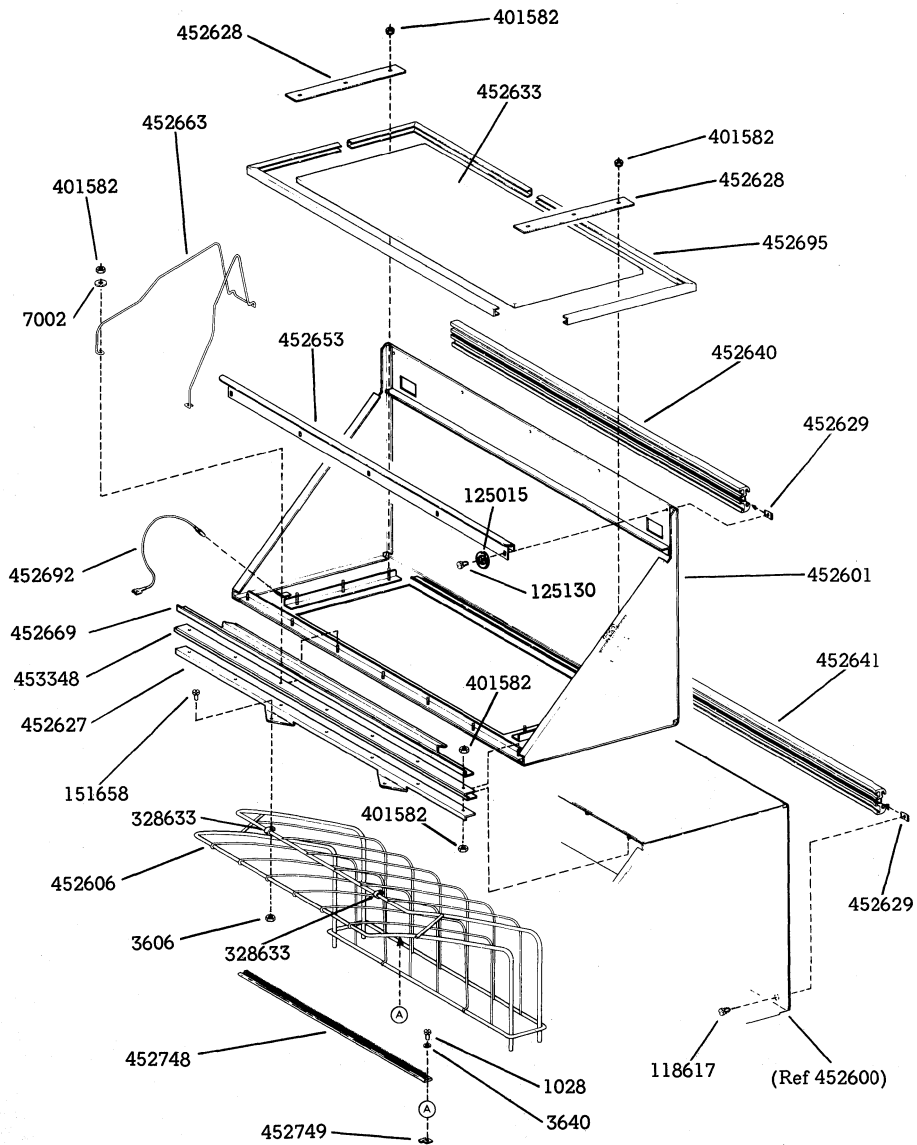


Fig. 1—45CAB701/AAA and 45CAB702/AAA 132-Column Tractor Feed Printer Cabinets

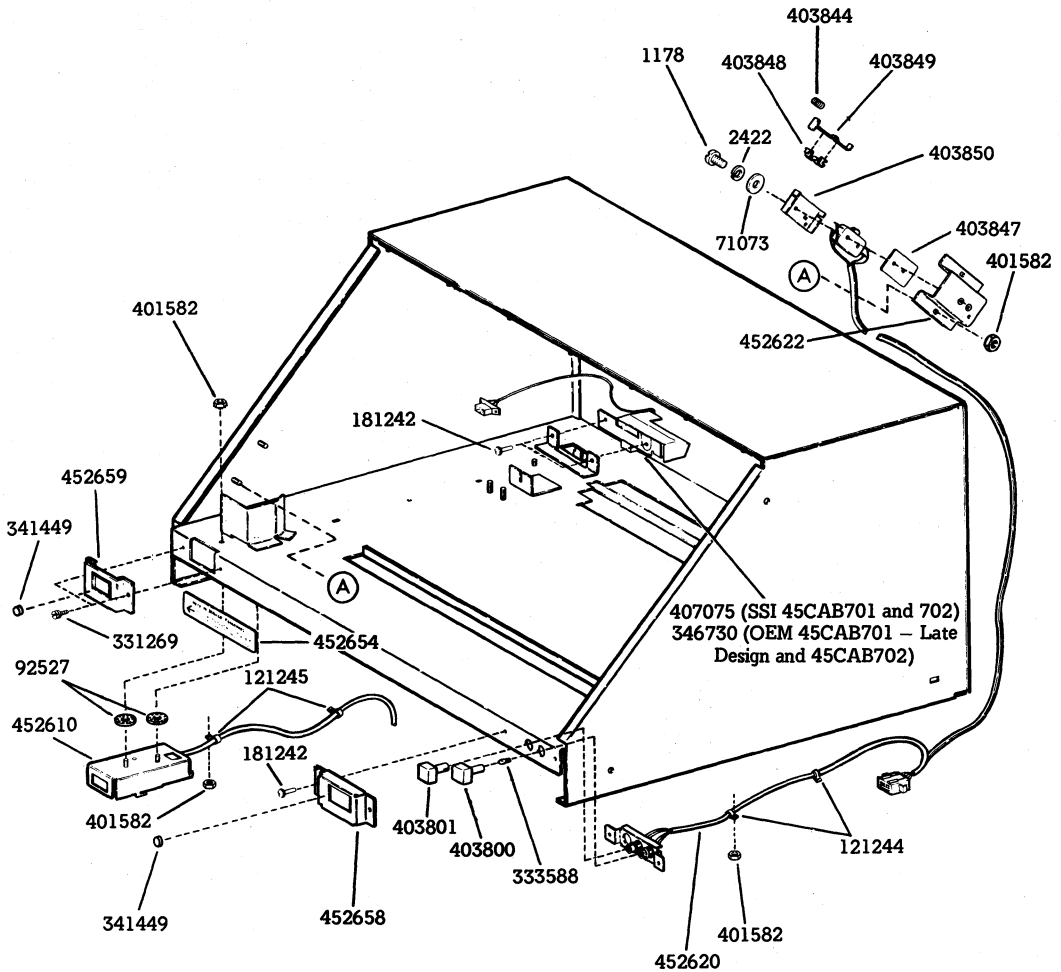


Fig. 1-45CAB701/AAA and 45CAB702/AAA 132-Column Tractor Feed Printer Cabinets (Contd)

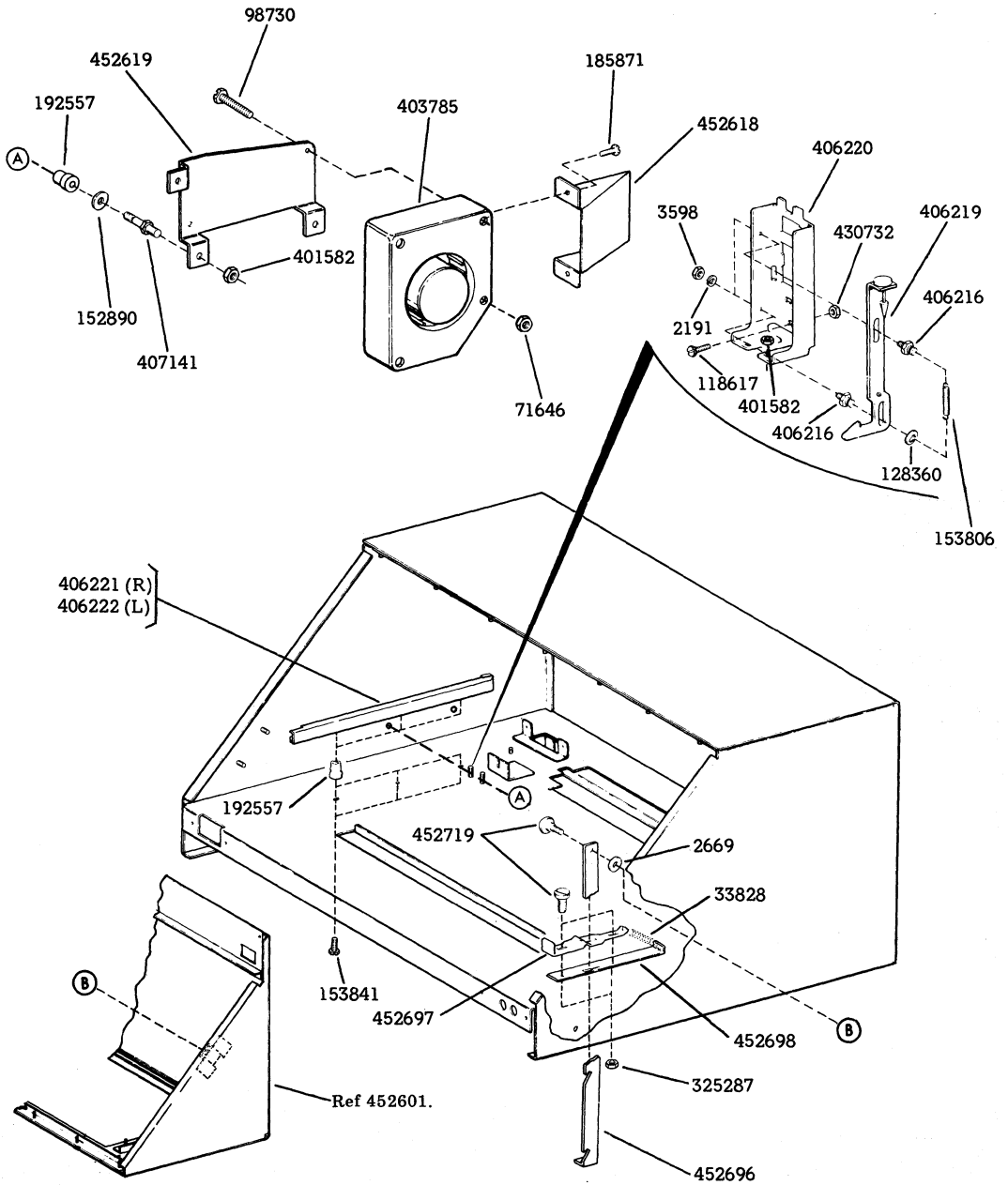


Fig. 1-45CAB701/AAA and 45CAB702/AAA 132-Column Tractor Feed Printer Cabinets (Contd)

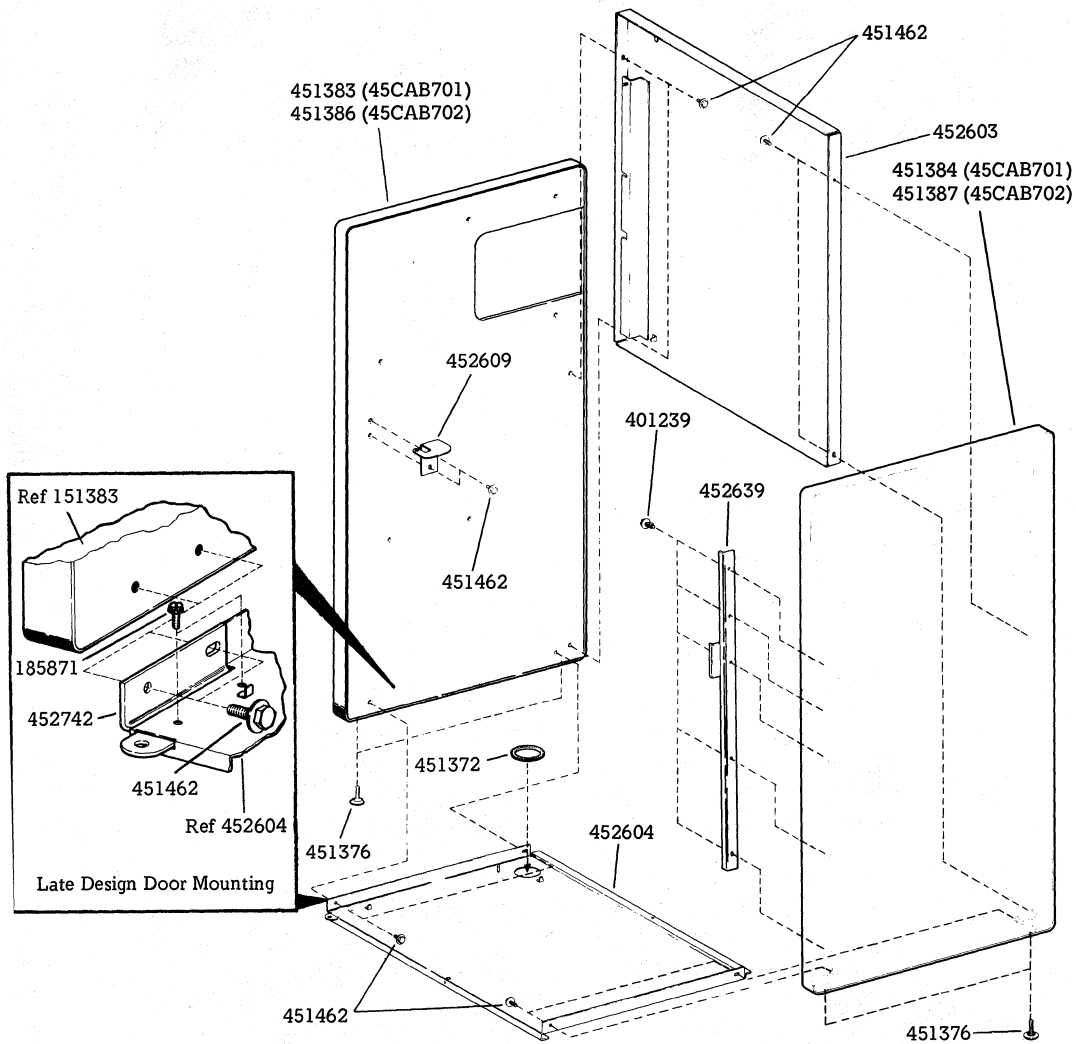


Fig. 1—45CAB701/AAA and 45CAB702/AAA 132-Column Tractor Feed Printer Cabinets (Contd)

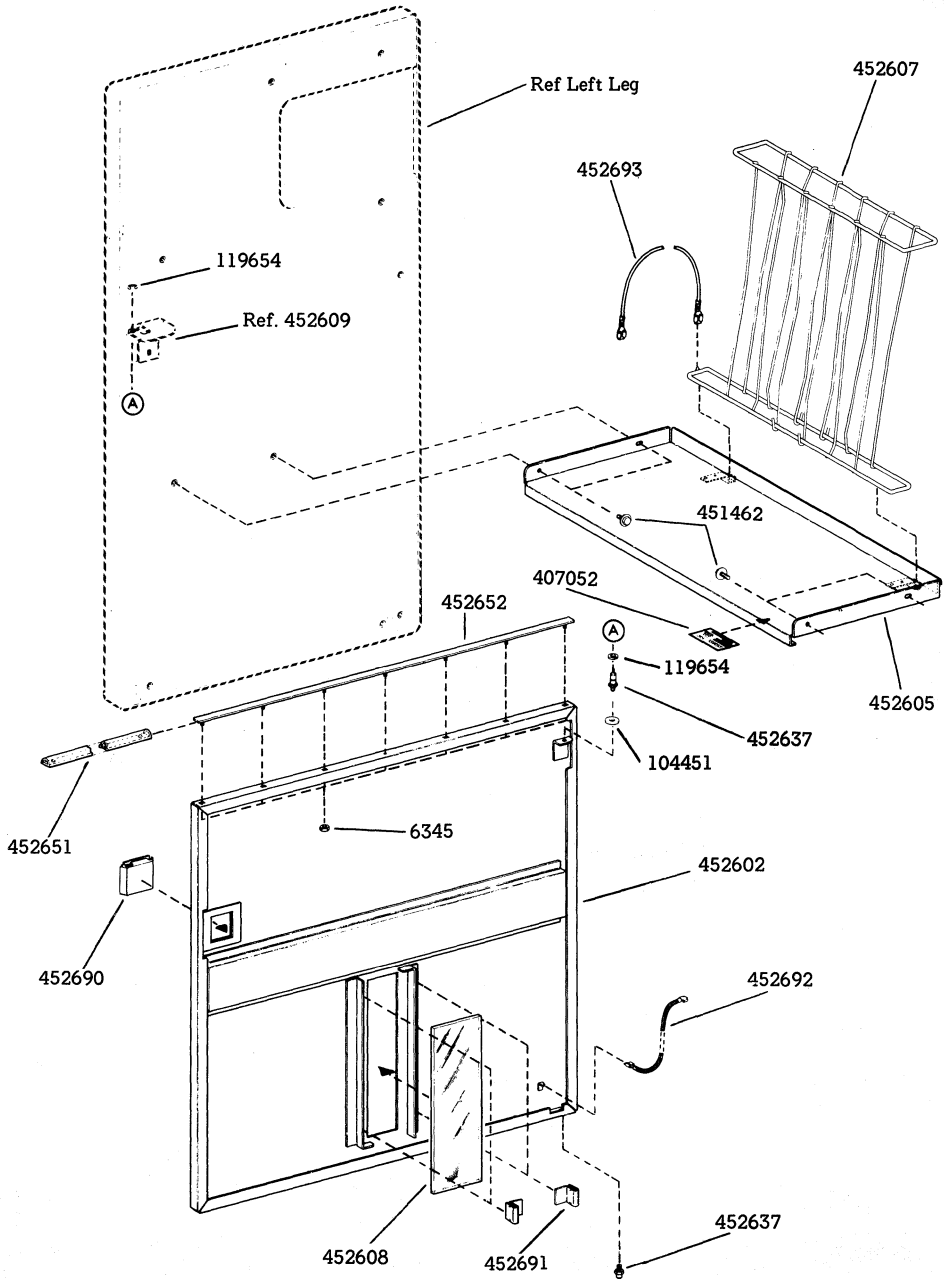


Fig. 1-45CAB701/AAA and 45CAB702/AAA 132-Column Tractor Feed Printer Cabinets (Contd)

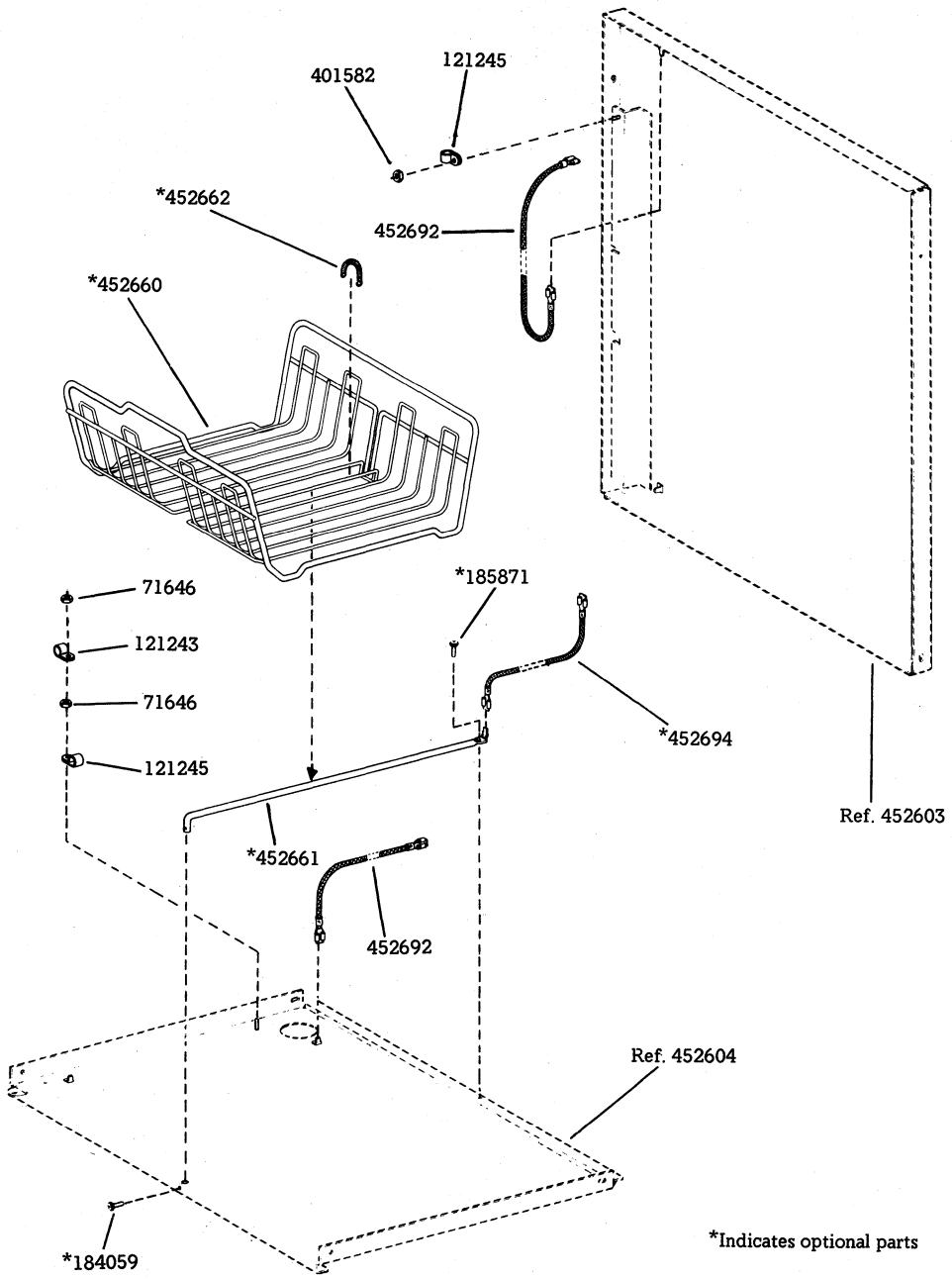
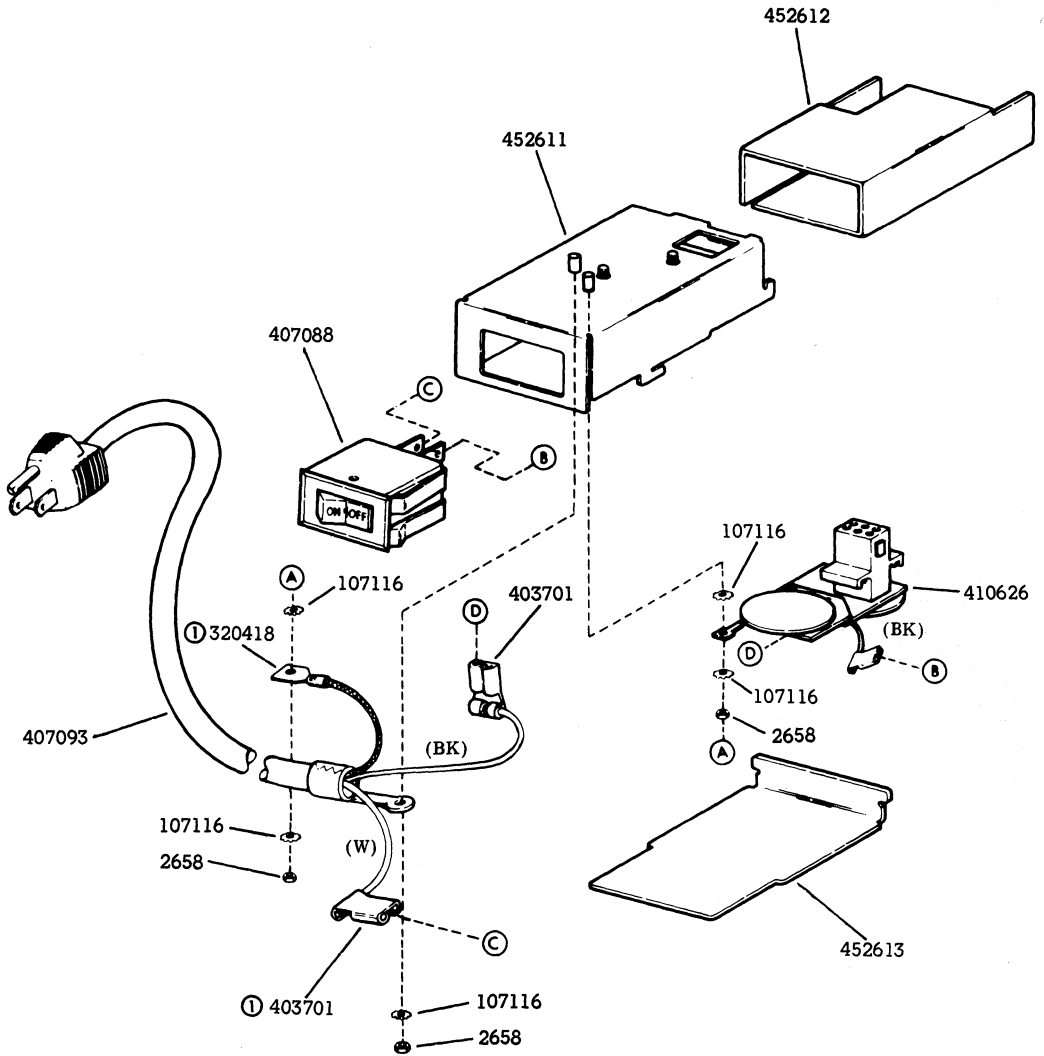


Fig. 1—45CAB701/AAA and 45CAB702/AAA 132-Column Tractor Feed Printer Cabinets (Contd)



① Part of 407093 Cord Assembly.

Fig. 2-452610 AC Switch Assembly

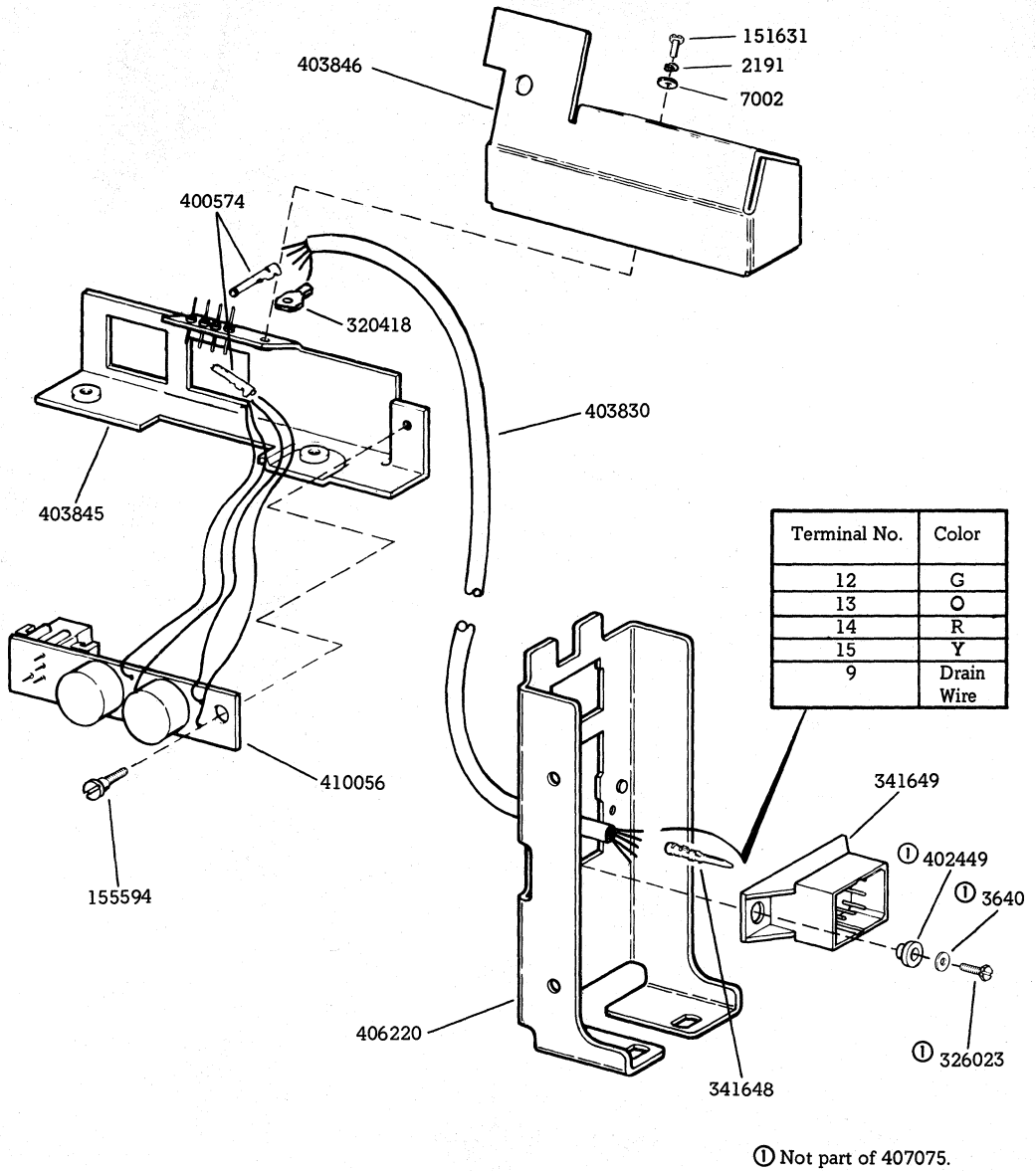
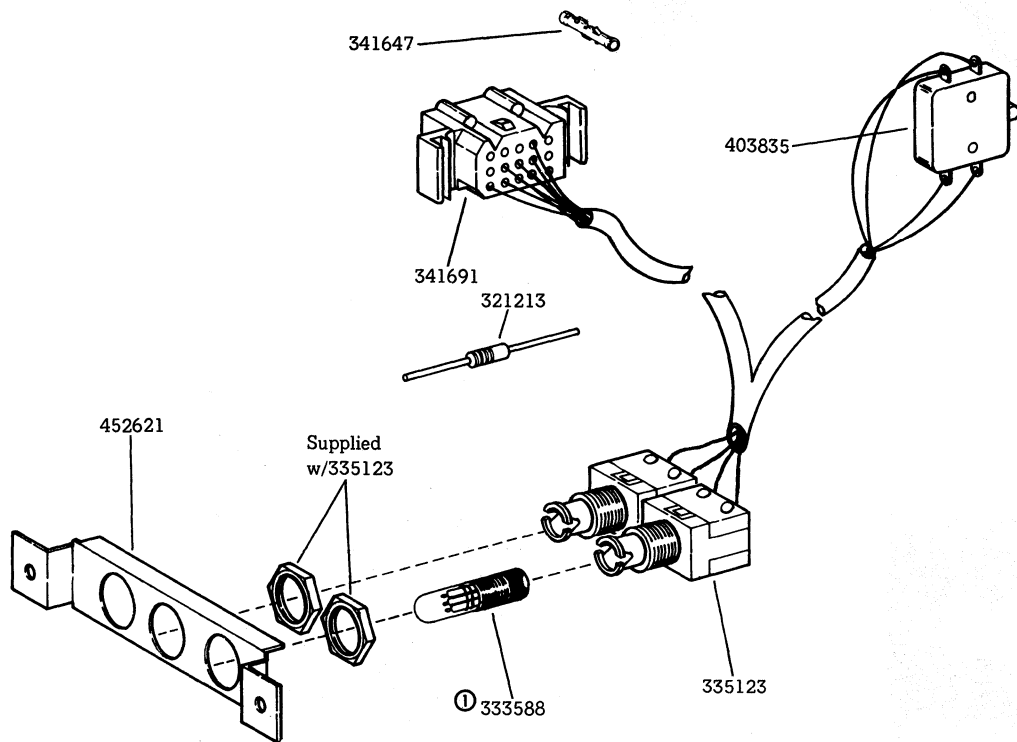


Fig. 3-407075 SSI Bracket Assembly



① Not Part of 452620 Cable Assembly.

Fig. 4-452620 Cable Assembly

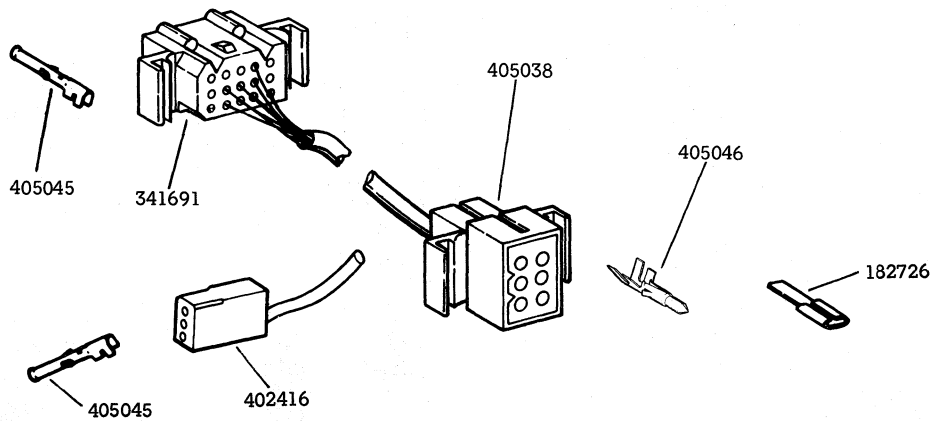


Fig. 5-452624 Cable Assembly

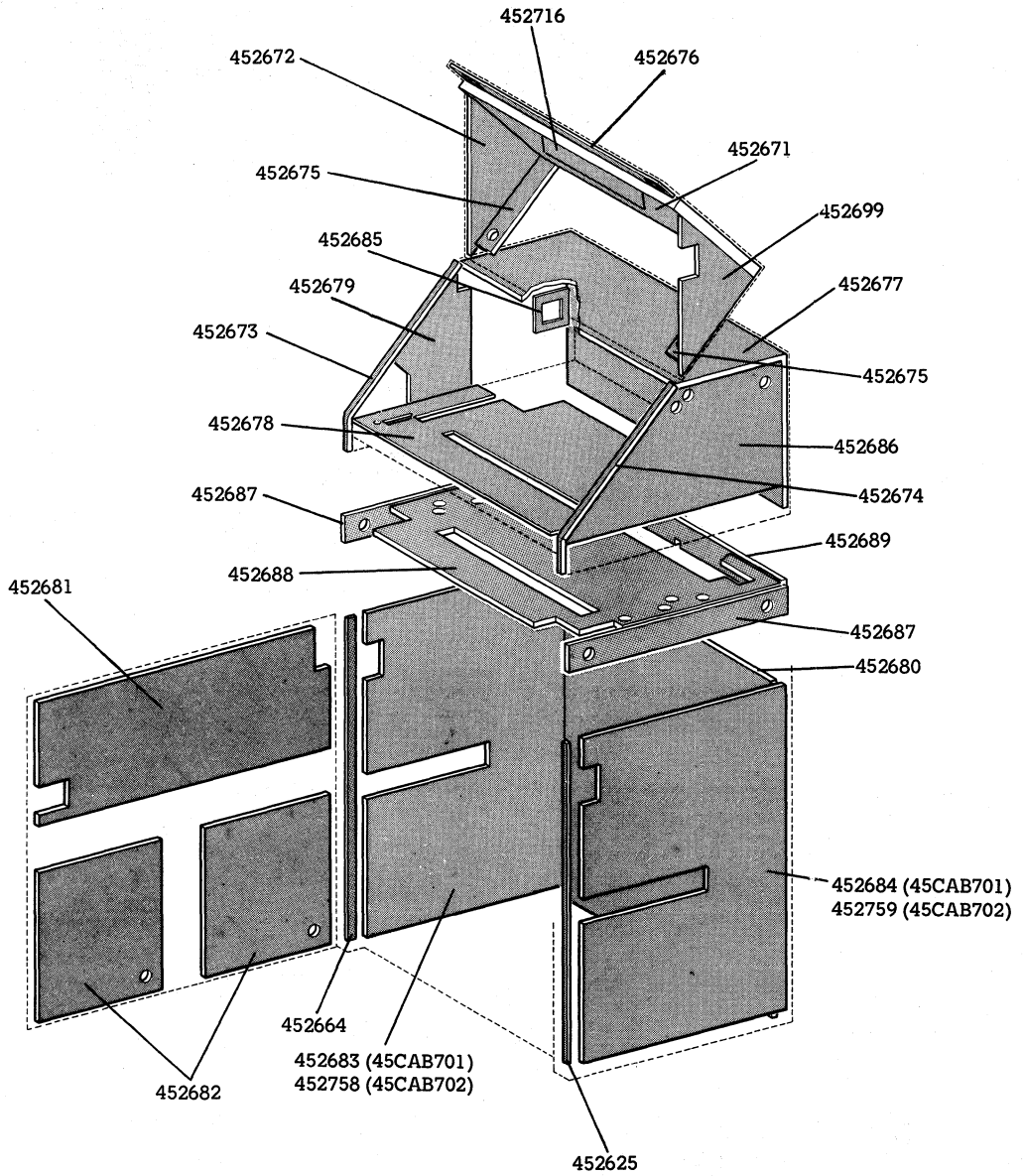


Fig. 6—Foam Pad Location for 45CAB701/AAA and 45CAB702/AAA Cabinets

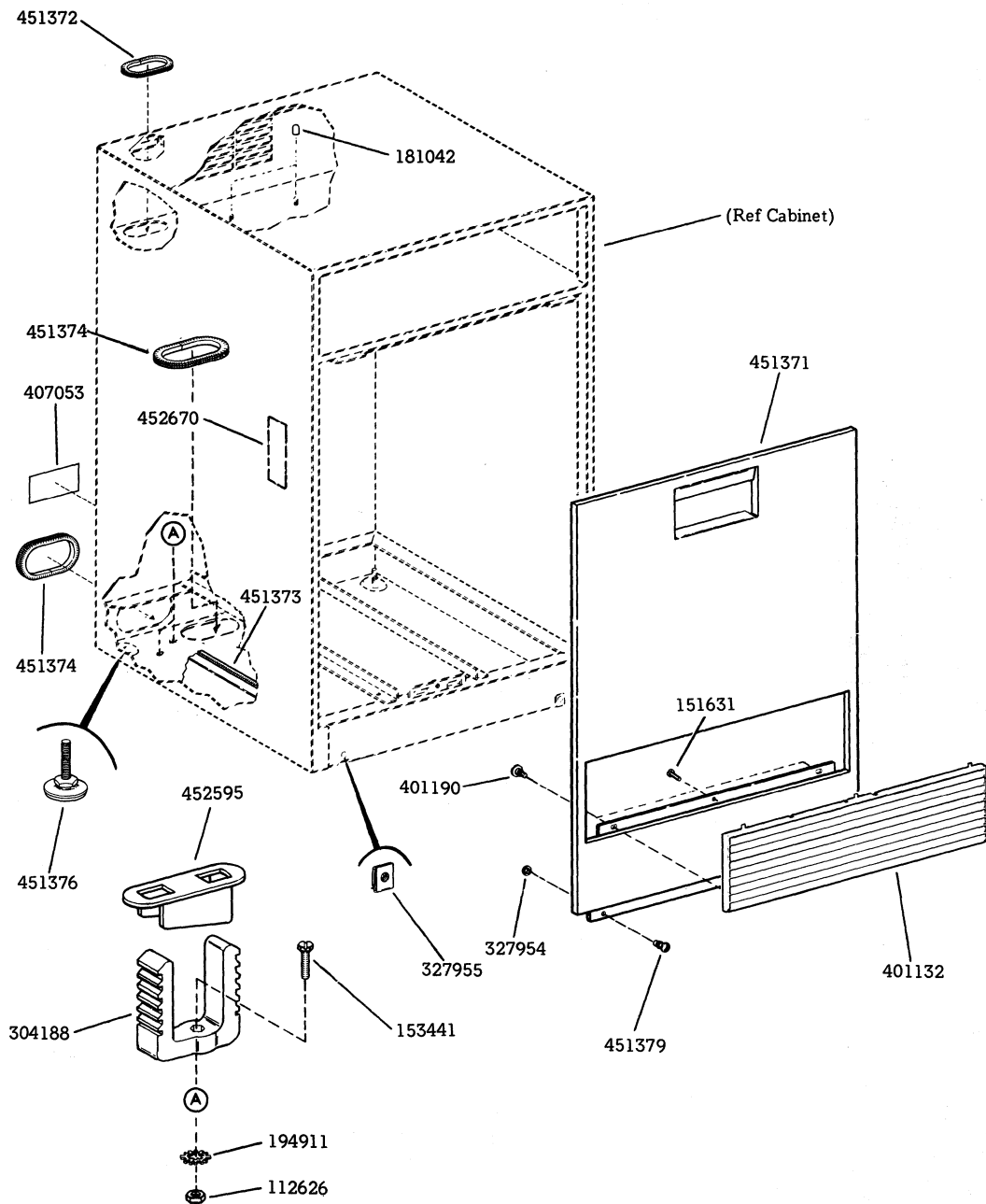


Fig. 7-45CAB401/AAA Controller Cabinet

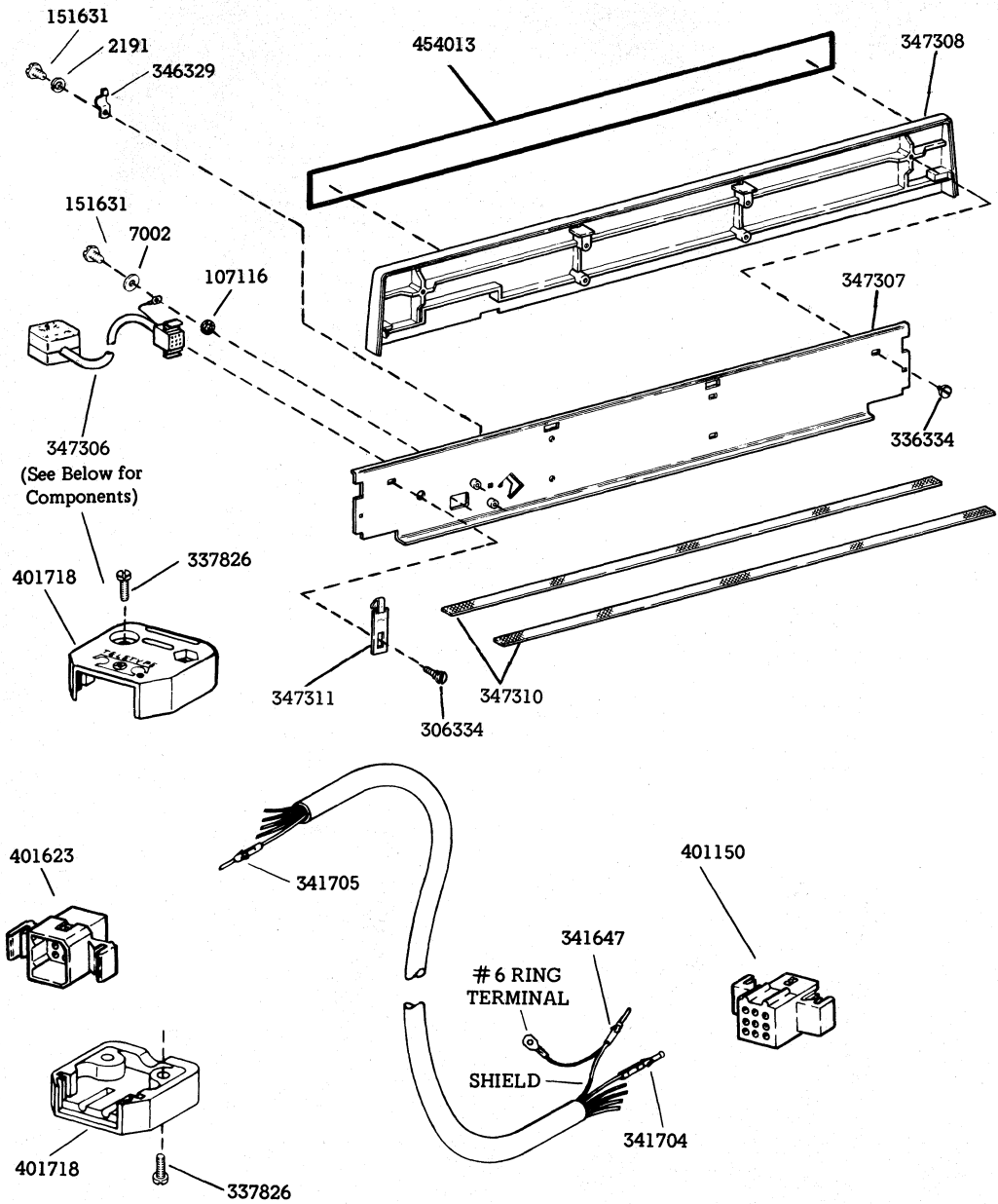


Fig. 6-45BSE301 Standalone Keyboard Base

NOTE: Mounts in the same position as 407075 SSI bracket assembly. Some early design 45CAB701 cabinets did not have the large cut-out to accommodate the 346730 OEM filter assembly.

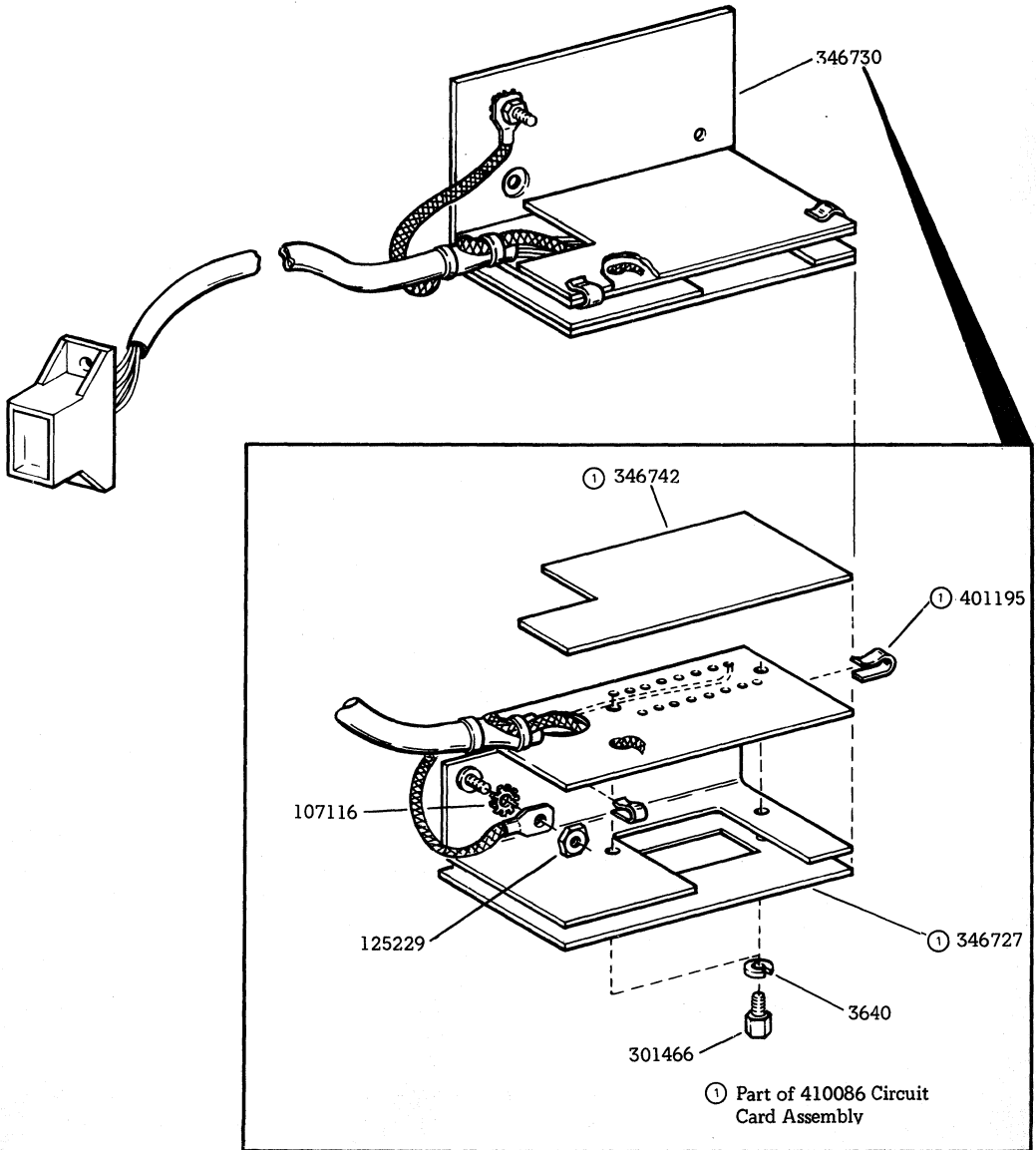
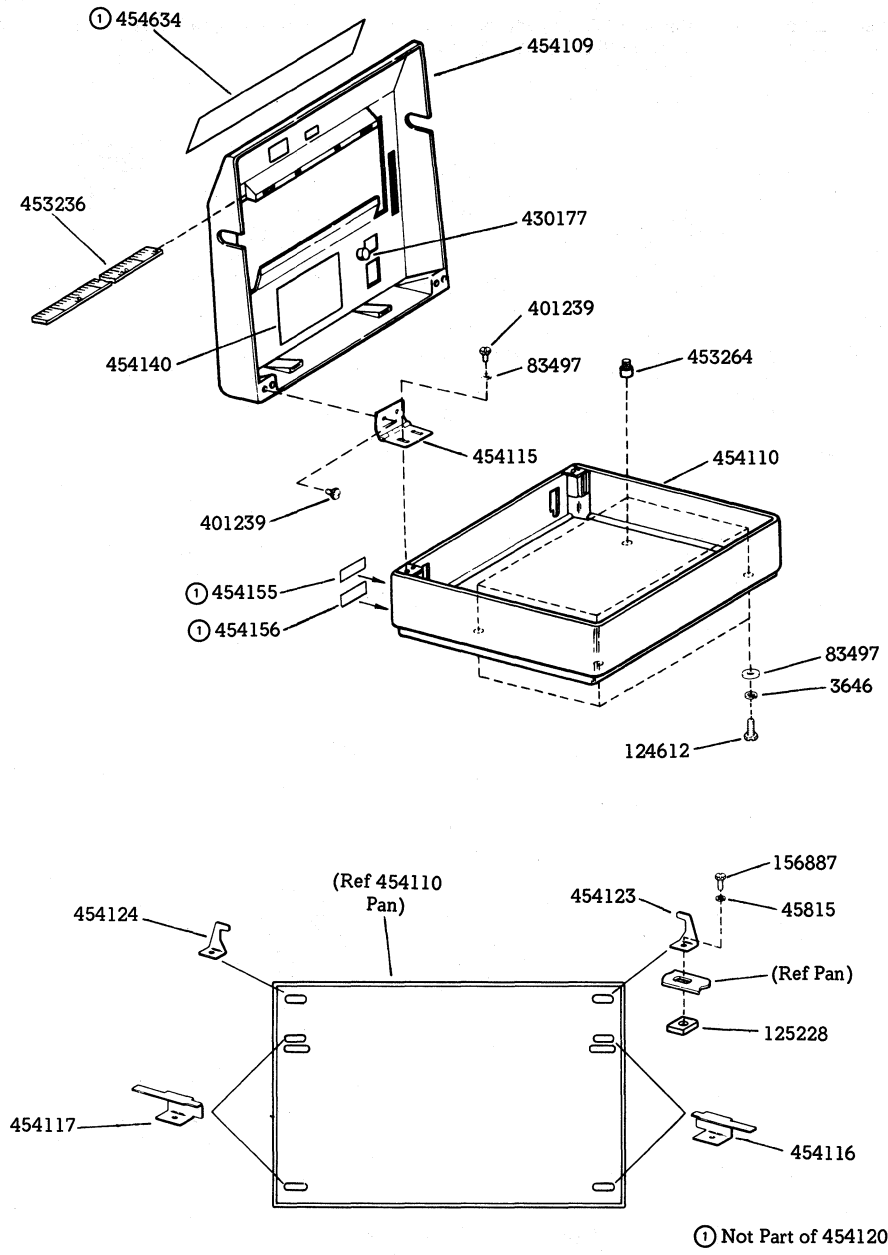
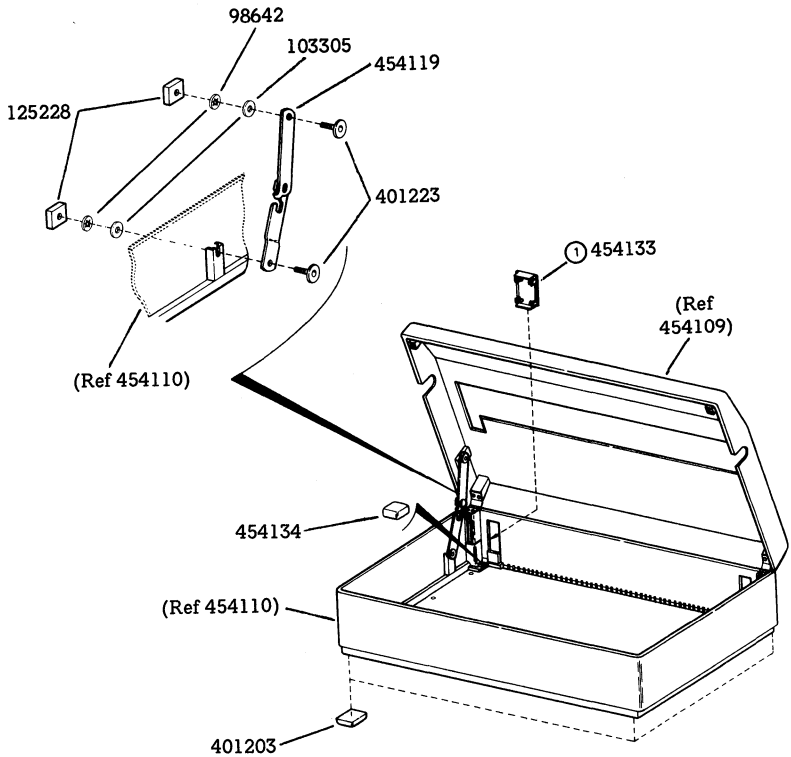


Fig. 9-346730 OEM Filter Assembly



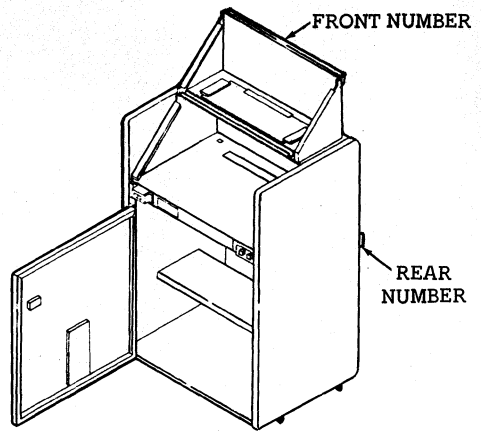
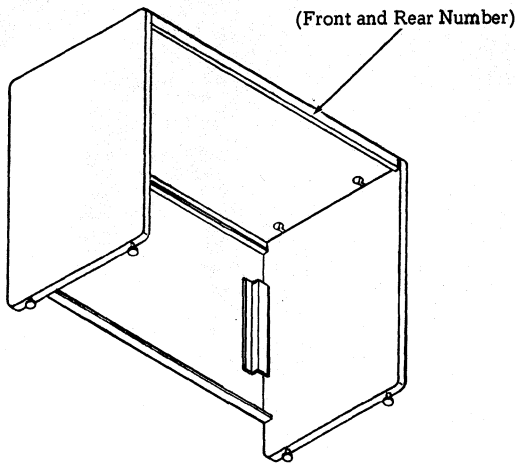
① Not Part of 454120.

Fig. 10-454120 Cabinet for Table Top Character Printer



① Not Part of 454120.

Fig. 10-454120 Cabinet for Table Top Character Printer (Contd)



45CAB500 SERIES TABLES

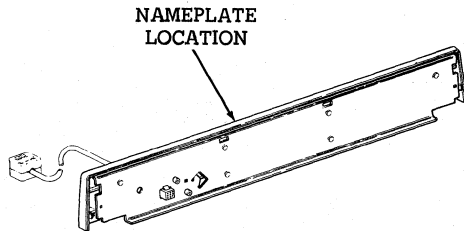
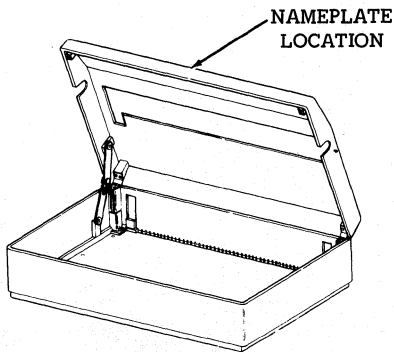
TABLE CODE	FRONT AND REAR NO.
45CAB501/AAA	451151
45CAB502/AAA	451150
45CAB503/AAA	451152

FRONT VIEW 40CAB701/AAA AND 45CAB702/AAA CABINETS

CABINET CODE	FRONT NO.	REAR NO.
45CAB701/AAA 45CAB702/AAA	451154	451153

454120 CABINET ASSEMBLY

NAMEPLATE NO. 454634



45BSE STANDALONE KEYBOARD BASE

BASE CODE	NAMEPLATE NO.
45BSE301	454013

Fig. 11-Nameplates

5. ADJUSTMENT/LUBRICATION

COVER SUPPORT LATCH SPRING TENSION ADJUSTMENT

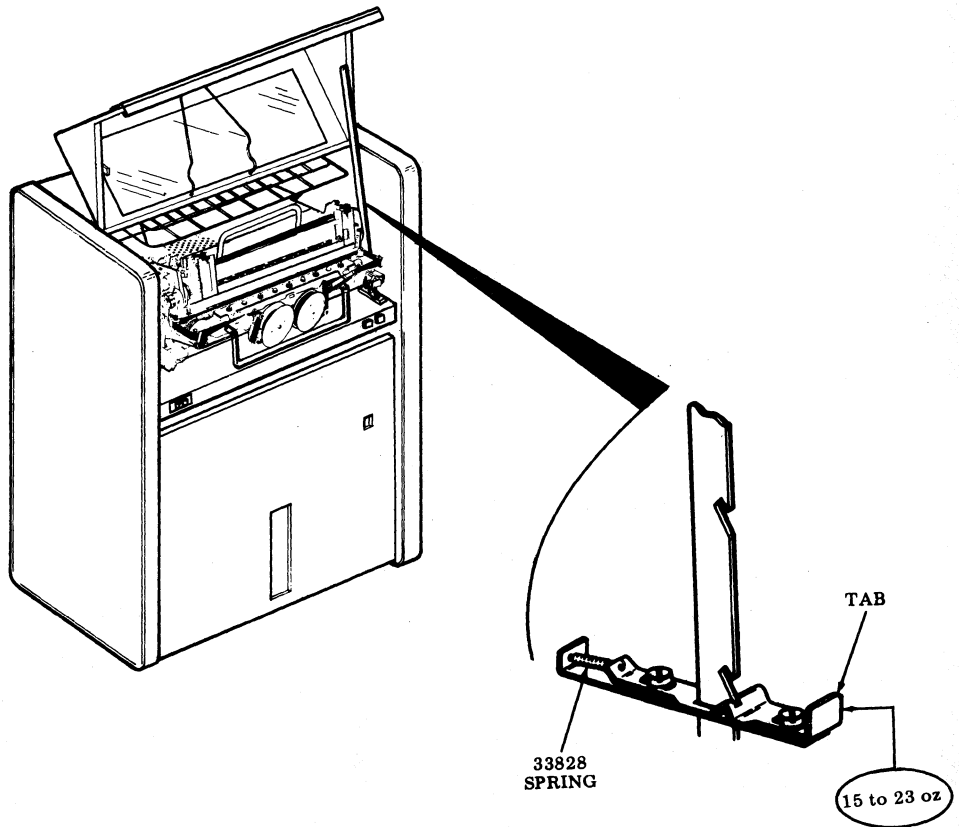
Requirement

Cover fully opened it should take

15 to 23 ounces

to start the latch moving forward when pulling from front of tab.

If requirement is not met, replace spring.



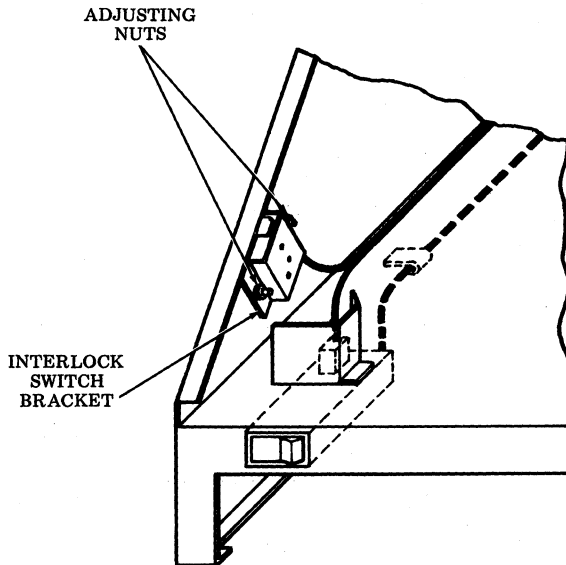
INTERLOCK SWITCH ADJUSTMENT

Requirement

With the Cabinet closed and the ac power switch on, the interlock switch should be activated to turn power on to the printer.

To Adjust

Loosen two nuts that hold the interlock switch bracket to the cabinet. Slide bracket forward to its farthest position. Tighten nuts.



6. NUMERICAL INDEX

Note: When ordering parts prefix each number with the letters "TP" unless specified otherwise.

Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
1028	Screw, 4-40 x 1/4 Fil 7	152890	Washer, Flat 9	341691	Connector, 15 Pt Receptacle 15
1178	Screw, 2-56 x 7/16 Fil 8	153441	Screw, 10-32 x 7/16 Hex 17	341704	Terminal, Receptacle Type 18
2191	Lockwasher 9,14,18	153806	Spring 9	341705	Terminal, Plug Type 18
2422	Lockwasher 8	153841	Screw, 6-40 x 9/16 Hex 9	346329	Clamp 18
2658	Nut, 6-32 Hex 13	155594	Screw, 4-40 Shoulder 14	346727	Plate 19
2669	Lockwasher 9	156887	Screw, 10-32 x 9/16 Hex 20	346730	Filter Assembly 6,8,19
3598	Nut, 6-40 Hex 9	181042	Tip, Rubber 17	346742	Cover, Insulating 19
3606	Nut, 6-40 Hex 7	181242	Screw w/Lockwasher 6-40 x 5/16 Hex 8	347306	Cable Assembly 18
3640	Lockwasher 7,14,19	182726	Terminal, Receptacle Type 15	347307	Plate 18
3646	Lockwasher 20	184059	Screw w/Lockwasher 6-40 x 1/2 Hex 12	347308	Cover 18
6345	Nut, 6-32 Hex 11	185871	Screw w/Lockwasher 8-32 x 3/8 Hex 9,10,12	347310	Pad 18
7002	Washer, Flat 7,14,18	192557	Grommet, Rubber 9	347311	Stop 18
33828	Spring 9	194911	Lockwasher 17	347311	Stop 18
45815	Lockwasher 20	301466	Screw, 4-40 Spl 19	400574	Terminal, Plug Type 14
71073	Washer, Flat 8	304188	Clamp 17	401132	Louver 17
71646	Nut, 6-32 Hex 9,12	306334	Screw, 6-40 Shoulder 18	401150	Connector, 9 Pt Receptacle 18
83497	Washer, Flat 20	320418	Terminal, Ring Type 13,14	401190	Screw, 6-40 Shoulder 17
92527	Lockwasher 8	321213	Resistor 15	401195	Clip 19
98642	Lockwasher 21	325287	Nut w/Lockwasher 10-32 Hex 9	401203	Bumper 21
98730	Screw, 6-32 x 1-1/4 Rd 9	326023	Screw, 4-40 x 9/32 Hex 14	401223	Screw, 10-32 Shoulder 21
103305	Washer, Flat 21	327954	Retainer, Split Ring 17	401239	Screw, 8-18 Spl 10,20
104451	Lockwasher 11	327955	Nut, Speed 17	401582	Nut, w/Lockwasher, 8-32 Hex 7,8,9,12
107116	Lockwasher 13,18,19	328633	Clamp, Cable 7	401623	Cable Assembly 18
112626	Nut, 10-32 Hex 17	331269	Screw, 6-32 Self-Tapping 8	401718	Relief, Strain 18
118617	Screw, 6-32 Self-Tapping 7,9	333588	Lamp, 28V Miniature 8,15	402416	Connector, 2 Pt Plug 15
119654	Ring, Retaining 11	335123	Switch, Pushbutton 15	402449	Bushing 14
121243	Clamp, 3/16 ID Cable 12	336334	Collar 18	403701	Terminal, Push-On 13
121244	Clamp, 1/4 ID Cable 8	337826	Screw, 1/2" Pan Hd 18	403785	Blower 9
121245	Clamp, 5/16 ID Cable 8,12	341449	Bumper, Rubber 8	403800	Button 8
124612	Screw, 8-32 x 3/8 Hex 20	341647	Terminal, Receptacle Type 15,18	403801	Button 8
125015	Washer, Flat 7	341648	Terminal, Receptacle Type 14	403830	Cable Assembly 14
125130	Screw, 6-32 x 1/2 Fil 7	341649	Connector, 15Pt Plug 14	403835	Switch 15
125228	Nut, 10-32 Square 20, 21			403844	Spring, Compression 8
125229	Nut, 6-32 Hex 19			403845	Bracket 14
128360	Ring, Retaining 9			403846	Cover 14
151383	Tool, Keylever Remover 10			403847	Spacer 8
151631	Screw, 6-40 x 5/16 Hex 14,17,18			403848	Spring, Actuator 8
151658	Screw, 6-40 x 5/16 Fil 7			403849	Lever, Actuating 8
				403850	Bracket 8
				405038	Connector, 6 Pt Plug 15

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Part Number	Description and Page Number	Part Number	Description and Page Number	Part Number	Description and Page Number
405045	Terminal, Receptacle Type 15	452605	Shelf, Paper 11	452681	Pad, Top Door 16
405046	Terminal, Plug Type 15	452606	Guide, Paper 7	452682	Pad, Lower Door 16
406216	Post 9	452607	Chute, Paper 11	452683	Pad, Left 16
406219	Latch 9	452608	Window 11	452684	Pad, Right 16
406220	Bracket, Connector 9,14	452609	Bracket, Hinge 10,11	452685	Pad, Gasket 16
406221	Channel, Right 9	452610	Switch Assembly 6,8,13	452686	Pad, Right 16
406222	Channel, Left 9	452611	Housing w/Studs 13	452687	Pad, Side 16
407052	Plate 11	452612	Insulator 13	452688	Pad, Bottom 16
407053	Plate 17	452613	Plate, Top 13	452689	Pad, Rear 16
407075	Input Assembly Signal 6, 8,14,19	452618	Duct, Blower 9	452690	Latch, Slide 11
407088	Switch 13	452619	Bracket 9	452691	Clip 11
407093	Cord Assembly 13	452620	Cable Assembly 6,8,15	452692	Strap, Braided Ground 7, 11,12
407141	Post 9	452621	Bracket, Switch 15	452693	Strap, 26" Lg Ground 11
410056	Card, Circuit 14	452622	Bracket 8	452694	Strap, 48" Lg Ground 12
410086	Card, Circuit 19	452624	Cable Assembly 6,15	452695	Gasket, Window 7
410626	Card, Circuit 13	452625	Seal, Door 16	452696	Arm, Support 9
430177	Button Actuator 20	452627	Clamp, Hinge 7	452697	Latch 9
430732	Switch 9	452628	Clamp, Window 7	452698	Bracket, Latch 9
451150	Trim, 42-3/16" Lg	452629	Nut, Speed 7	452699	Pad, Right Side Cover 16
	Decorative 22	452633	Window, Top 7	452716	Pad 16
451151	Trim, 33-3/16" Lg	452637	Pin, Lower Hinge 11	452719	Screw, 10-32 Shoulder 9
	Decorative 22	452639	Bracket, Latch 10	452742	Bracket, Hinge 10
451152	Trim, 17-3/16" Lg	452640	Trim, 27-13/64" Cabinet 7	452748	Clamp 7
	Decorative 22	452641	Trim, 27-13/64" Cabinet 7	452749	Clamp 7
451153	Trim, 27-13/32" Lg	452651	Gasket, Seal 11	452758	Pad, Left 16
	Decorative 22	452652	Strip w/Screws 11	452759	Pad, Right 16
451154	Trim, 27-5/32 Lg	452653	Strip, Seal 7	453236	Scale 20
	Decorative 22	452654	Label, Warning 8	453264	Mount, Vibration 20
451371	Panel, Front 17	452658	Bezel, Switch 8	453348	Hinge 7
451372	Grommet 10,17	452659	Bezel 8	454013	Nameplate 18,22
451373	Grommet 17	452660	Basket, Paper Storing 12	454109	Cover 20,21
451374	Grommet 17	452661	Rail 12	454110	Base 20,21
451376	Leg 10,17	452662	Spring 12	454115	Hinge 20
451379	Fastener 17	452663	Deflector Paper 7	454116	Bracket, Right 20
451383	Leg, Left 10	452664	Seal, Left Door 16	454117	Bracket, Left 20
451384	Leg, Right 10	452669	Clamp 7	454119	Arm, Stop 21
451386	Leg, Left 10	452670	Label, Warning 17	454120	Cabinet 6,20,21
451387	Leg, Right 10	452671	Pad, Front Cover 16	454123	Clamp, Right 20
451462	Screw, 1/4-20 Spl 10,11	452672	Pad, Side Cover 16	454124	Clamp, Left 20
452595	Keeper, Cable 17	452673	Pad, Left Seal 16	454133	Cover 21
462600	Cabinet 7	452674	Pad, Right Seal 16	454134	Bumper 21
452601	Cover 7,9	452675	Pad, Top Cover 16	454140	Label 20
452602	Door 11	452676	Pad, Lid Seal 16	454155	Label 20
452603	Panel, Back 10,12	452677	Pad, Cabinet 16	454156	Label 20
452604	Shelf Bottom 10,12	452678	Pad, Shelf 16	454634	Label 20,22
		452679	Pad, Left Cabinet 16		
		452680	Pad, Rear Base 16		

