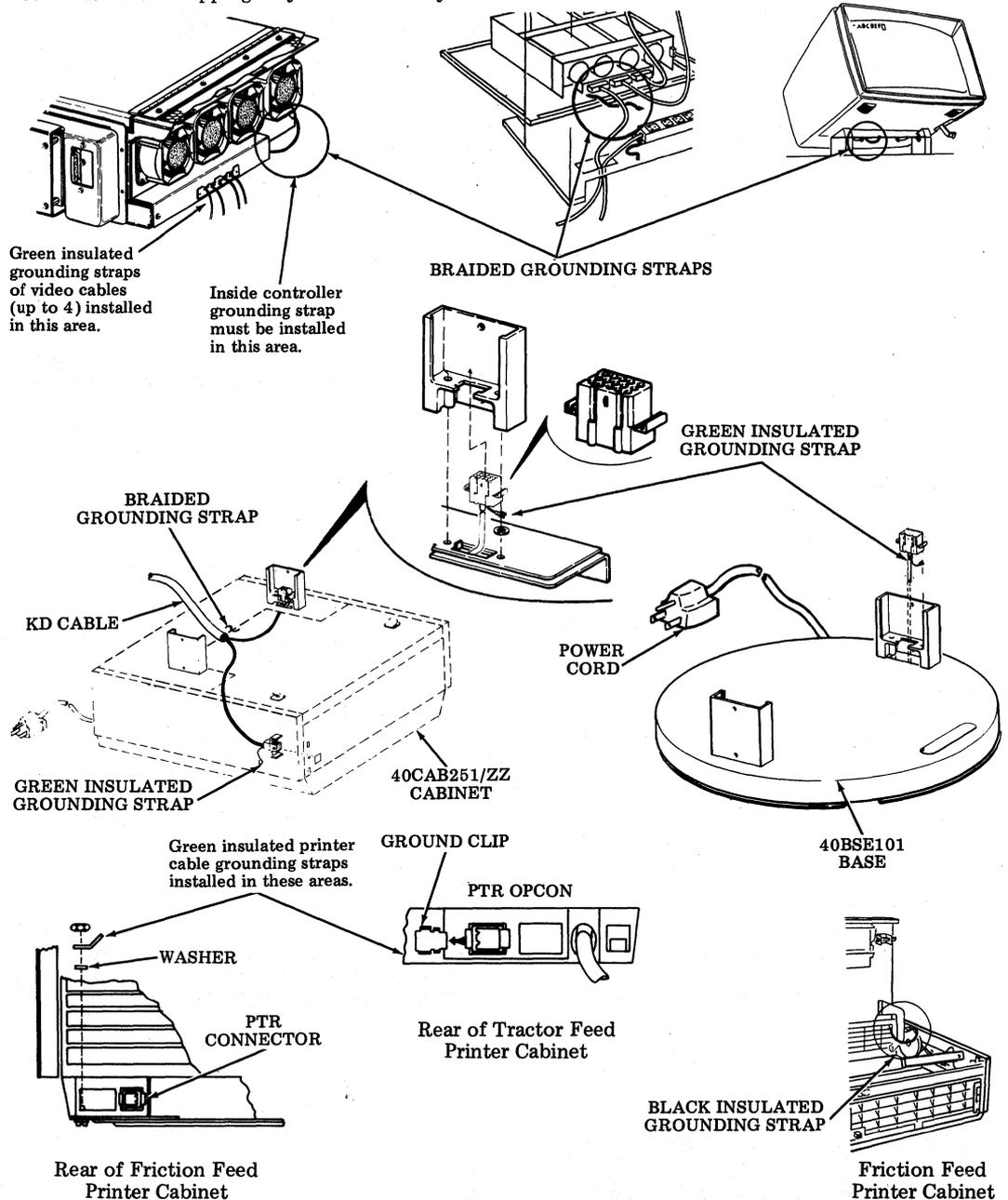SYNCHRONOUS "DATASPEED*" 40/4

MAXI-CLUSTER AND MINI-CLUSTER STATION ARRANGEMENTS

DISASSEMBLY/REASSEMBLY AND PARTS

1. GENERAL

1.01   This section contains all necessary information on the removal and replacement of various components of DATASPEED 40/4 Stations. This section also includes locations of test switches and indicators used in trouble analysis and testing of the station.

1.02   This section is reissued to add coverage for removal and replacement of components in station cluster controllers (SCCs), device cluster controllers (DCCs) and mini-cluster controllers (MCCs). This issue also adds coverage for the 40K203/GAB opcon. This section is a general revision, therefore marginal arrows have been omitted.

1.03   Information on the 40KDA101 keyboard display amplifier is given in Section 582-200-212.

1.04   Abbreviations used in this section are defined in Section 582-200-101.

1.05   To disassemble or reassemble parts (or units) of this section, the following tools (or equivalents) are required:

   Screwdriver, 1/8" blade
   Screwdriver, 1/4" blade
   Socket wrench, 1/4"
   Socket wrench, 5/16"
   Open-end wrench, 1/4"
   Static ground strap, 346392 (required only if circuit cards are handled)
   Terminal extractor, 402840

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

1.06   Grounding Strap Locations

Note: Remove strapping only when necessary.

Green insulated
grounding straps
of video cables
(up to 4) installed
in this area.

Inside controller
grounding strap
must be installed
in this area.

BRAIDED GROUNDING STRAPS

GREEN INSULATED
GROUNDING STRAP

BRAIDED
GROUNDING STRAP

KD CABLE

POWER
CORD

GREEN INSULATED
GROUNDING STRAP

40CAB251/ZZ
CABINET

40BSE101
BASE

Green insulated printer
cable grounding straps
installed in these areas.

GROUND CLIP

PTR OPCON

WASHER

PTR
CONNECTOR

Rear of Tractor Feed
Printer Cabinet

BLACK INSULATED
GROUNDING STRAP

Rear of Friction Feed
Printer Cabinet

Friction Feed
Printer Cabinet

2. DISASSEMBLY/REASSEMBLY

Caution: Remove all power from the set before performing any component replacement or conversions. This does not apply to cover removal for access to test switches, or to power on adjustments of the monitor.

MONITOR

2.01   To remove the monitor: See ①.
To remove only the monitor housing, see ②.

① Removal of entire monitor unit from set:
Grasp monitor by sides near supports and simply lift up. Electrical cable connectors are part of support assembly.

② Removal of monitor housing:
Tilt monitor back and disengage latch.
Slide housing back partially.
Position monitor to its normal position making sure it locks in that position.
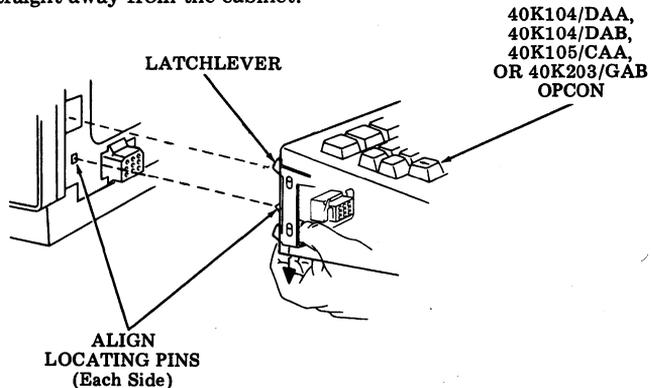Remove housing completely.

WEAR SAFETY GLASSES

TILT RELEASE
(When Housing is Removed)

LATCH RELEASE
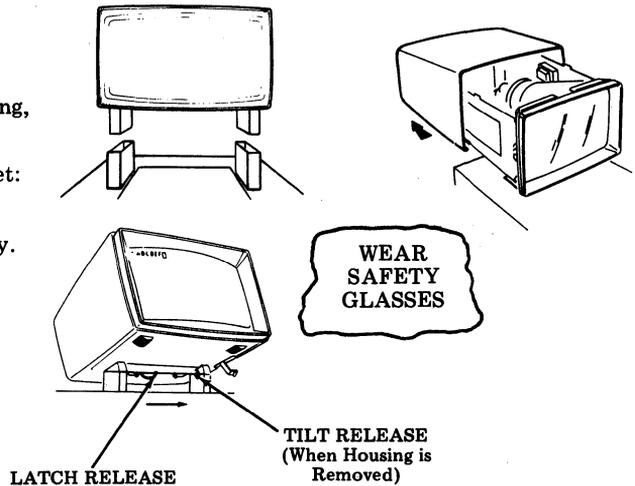
2.02   To replace the monitor, reverse the removal procedures of 2.01. For further disassembly of the monitor, refer to Section 582-213-701.
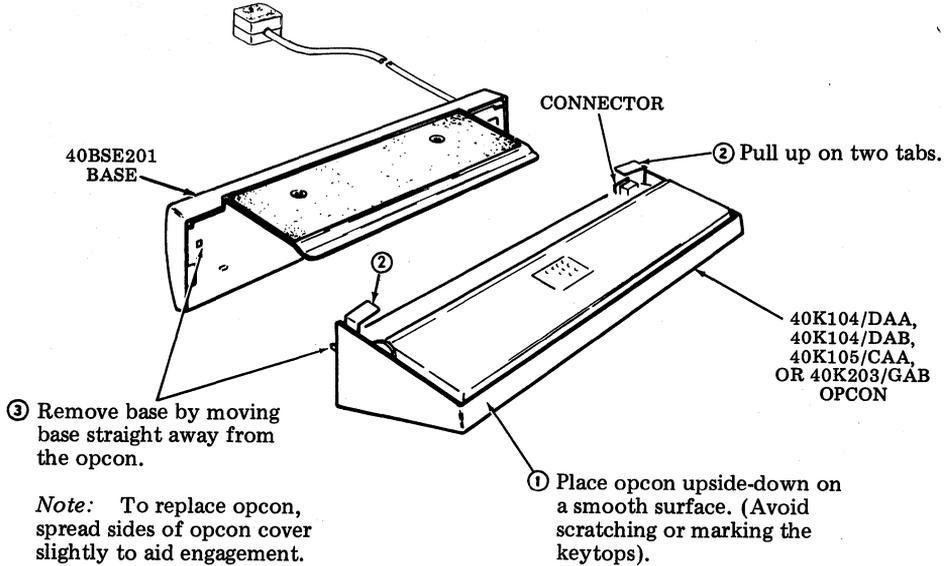
OPCON

2.03   To remove the opcon use the appropriate steps given below or on following page:

Attached KD

① Place thumb on inward tab of opcon (both sides).

② Press downward into unlatched position (each side).

③ Remove opcon by pulling straight away from the cabinet.

40K104/DAA,
40K104/DAB,
40K105/CAA,
OR 40K203/GAB
OPCON

LATCHLEVER

ALIGN
LOCATING PINS
(Each Side)

Free-Standing KD

CONNECTOR

40BSE201
BASE

② Pull up on two tabs.

②

③ Remove base by moving
base straight away from
the opcon.

Note: To replace opcon,
spread sides of opcon cover
slightly to aid engagement.

40K104/DAA,
40K104/DAB,
40K105/CAA,
OR 40K203/GAB
OPCON

① Place opcon upside-down on
a smooth surface. (Avoid
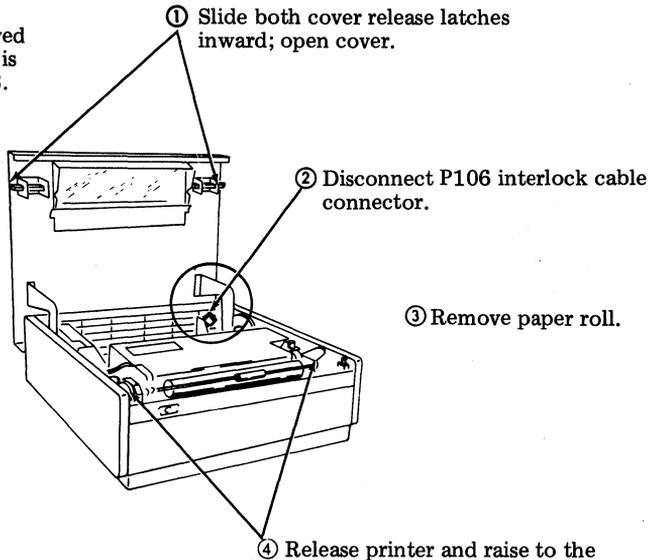scratching or marking the
keytops).

2.04   To replace the opcon, reverse the removal procedures of 2.03. When replacing opcon, make sure
locating pins are fully engaged before pushing latchlevers into locked position. For further dis-
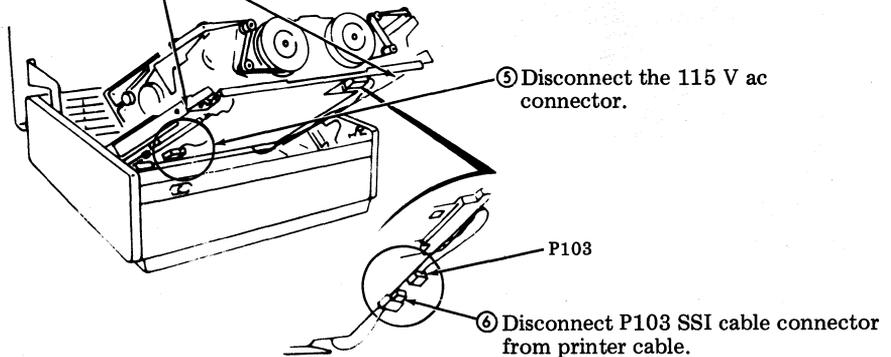assembly of opcon, refer to Section 582-213-701.

PRINTERS

A.   Friction Feed Printer

2.05   To remove the entire printer assembly:

Note: The circuit card can be removed
after Step 4 of disassembly. If printer is
not being removed omit Steps 2 and 3.

① Slide both cover release latches
inward; open cover.

② Disconnect P106 interlock cable
connector.

③ Remove paper roll.

④ Release printer and raise to the
tilt position by depressing the
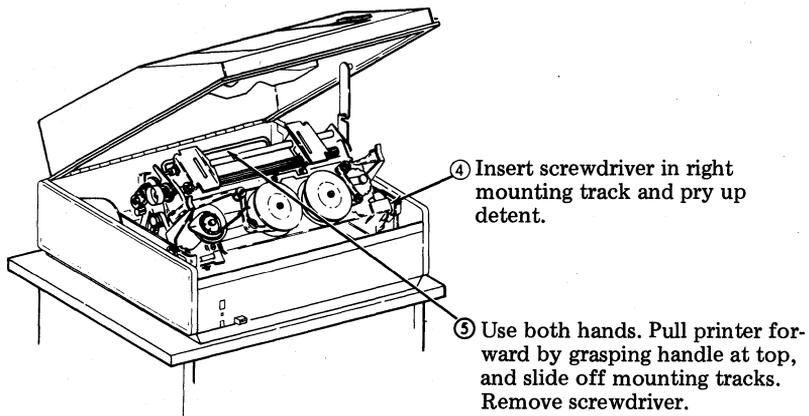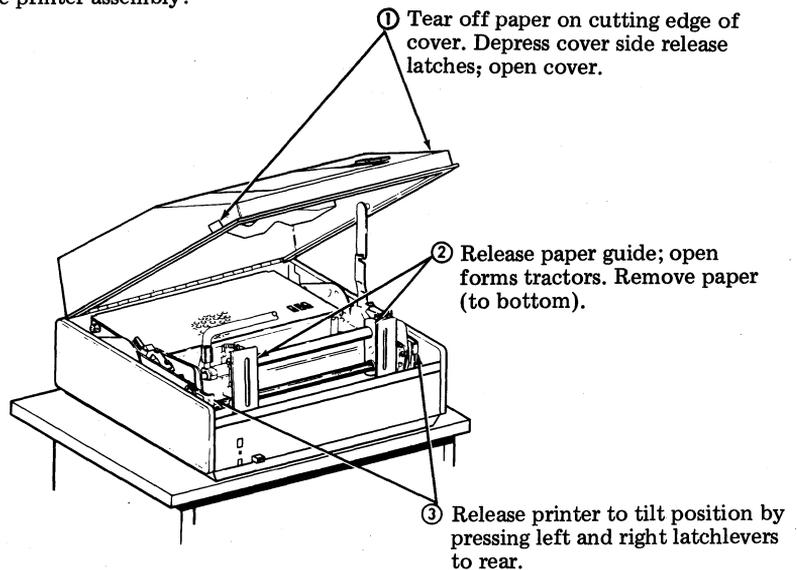left and right release levers and
lifting printer.

⑦ Use both hands. Release (push
in) the printer slide detents and
pull the printer out by grasping
it by the frame (front bottom)
then also by the rear (middle).

⑤ Disconnect the 115 V ac
connector.

P103

⑥ Disconnect P103 SSI cable connector
from printer cable.

2.06   To replace the printer, reverse the removal procedures of 2.05. For further disassembly of printer
and printer cabinet, refer to Section 582-210-702.

B.   Tractor Feed Printer (80 or 132 Column)

2.07   To remove the entire printer assembly:

① Tear off paper on cutting edge of cover. Depress cover side release latches; open cover.

② Release paper guide; open forms tractors. Remove paper (to bottom).

③ Release printer to tilt position by pressing left and right latchlevers to rear.

④ Insert screwdriver in right mounting track and pry up detent.

⑤ Use both hands. Pull printer forward by grasping handle at top, and slide off mounting tracks. Remove screwdriver.

2.08   To replace the printer, reverse the removal procedures of 2.07. For further disassembly, refer to Section 582-210-702 for printers and Section 582-212-700 for cabinets.

PEDESTALS AND CABINETS

2.09   Refer to Section 582-212-700 or FIMP 579-505-350 for assembly or disassembly of a pedestal or cabinet.

CIRCUIT CARDS

Note: The required circuit cards and their options and locations are given in Section 582-200-201.

2.10   To remove the controller circuit card:

Lift up on extractor handles
and lift straight up.

Caution: Wear 346392 static discharge strap when removing circuit cards. See Section 582-200-201, 1.04 Warnings 1, 2 and 3.

CIRCUIT CARD PART NUMBER

EXTRACTOR HANDLE

CIRCUIT CARD
POSITION LABEL

CIRCUIT CARD

CIRCUIT CARD
BRACKET
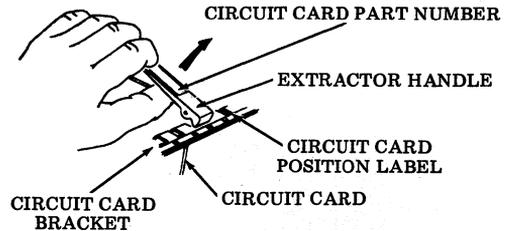
2.11   To replace the controller circuit card:

① Check that card is proper for location (see Note above).

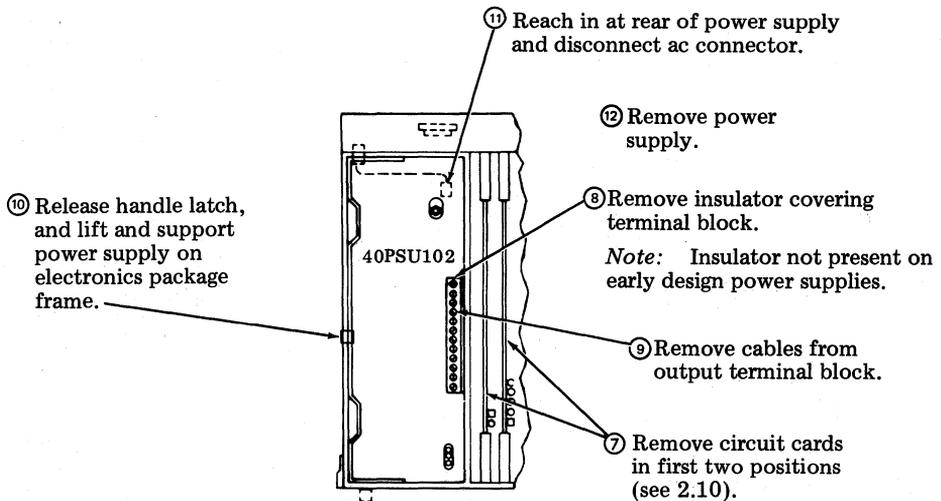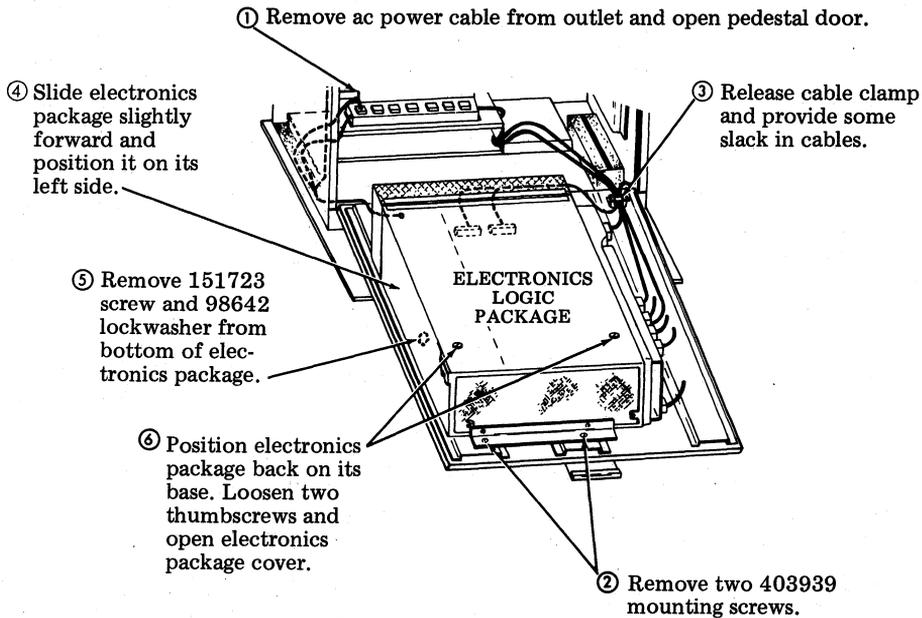② Check that pins on card are straight (not bent) by sighting down the two rows of pins.

Warning: Attempting to insert a card with bent pins into the 410200 or 410201 back panel may result in damaging the back panel or the card.

③ Check that the option switches are set to the correct setting (refer to the Controller Arrangement Form on the underside of the controller cover — should be present before installation). Refer to the above Note.

④ Place card in slot, then depress until card is fully seated.

40PSU102 POWER SUPPLY
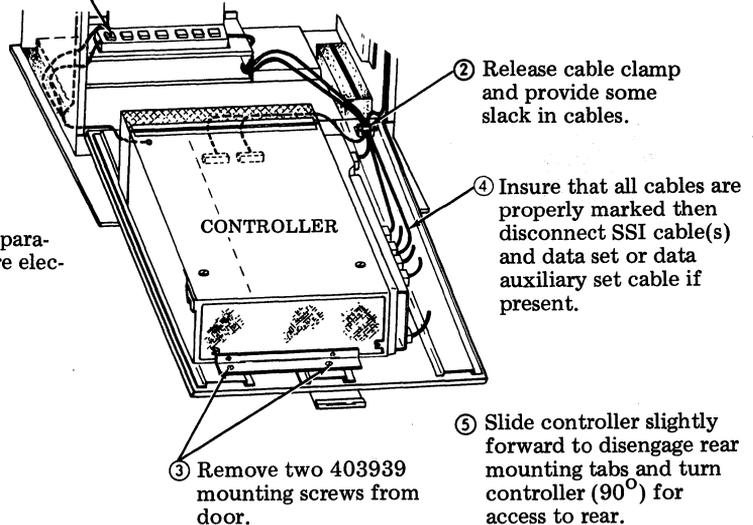
2.12   To remove the power supply:

① Remove ac power cable from outlet and open pedestal door.

④ Slide electronics package slightly forward and position it on its left side.

③ Release cable clamp and provide some slack in cables.

ELECTRONICS LOGIC PACKAGE

⑤ Remove 151723 screw and 98642 lockwasher from bottom of electronics package.

⑥ Position electronics package back on its base. Loosen two thumbscrews and open electronics package cover.

② Remove two 403939 mounting screws.

⑪ Reach in at rear of power supply and disconnect ac connector.

⑫ Remove power supply.

⑧ Remove insulator covering terminal block.

Note: Insulator not present on early design power supplies.

⑩ Release handle latch, and lift and support power supply on electronics package frame.

40PSU102

⑨ Remove cables from output terminal block.

⑦ Remove circuit cards in first two positions (see 2.10).

2.13   To replace the power supply, reverse the removal procedures of 2.12.

CONTROLLER

2.14   To remove the controller (see Note 1):

① Turn off pedestal power switch, open pedestal door, and unplug controller ac power cord from ac outlet.

② Release cable clamp and provide some slack in cables.

④ Insure that all cables are properly marked then disconnect SSI cable(s) and data set or data auxiliary set cable if present.

Note 1: "Controller" in this paragraph is used to mean the entire electronics package.

CONTROLLER

⑤ Slide controller slightly forward to disengage rear mounting tabs and turn controller (90°) for access to rear.

③ Remove two 403939 mounting screws from door.

192009 GROUND LUG

Note 2: During reassembly, strain reliefs of video connectors to A and C must be facing up and reliefs to B and D must be facing down. Connectors of green wires must be connected to a terminal on the ground lugs. (See Section 582-200-201 to select which controller connector(s) to use.)
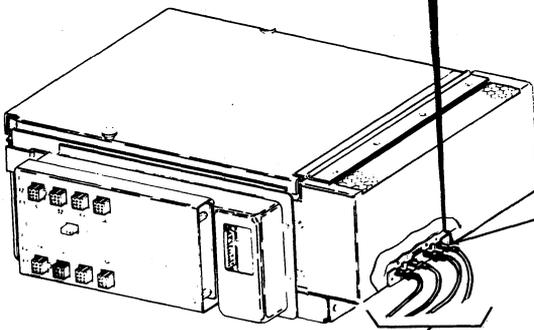
⑥ DCC, MCC: Remove connectors of green wires from ground lugs. Remove two 198670 screws. Remove 405210 plate and D I/O cable(s).

⑦ Remove controller from pedestal.

Note 3:   A green wire is part of each D I/O cable.

2.15   To replace the controller, reverse the removal procedures of 2.14. See Note 1.

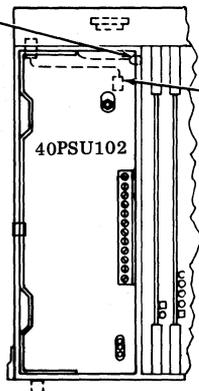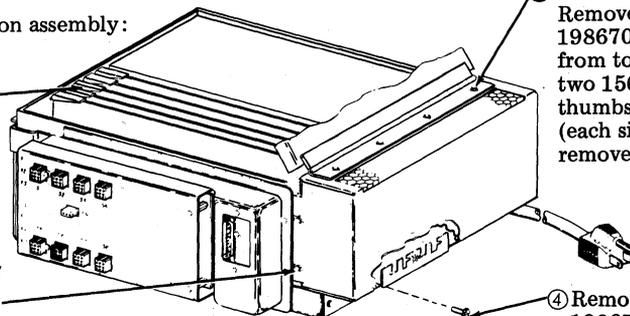A.   Ventilation Assembly

2.16   To remove the ventilation assembly:

① Disconnect ac cord.
Remove four
198670 screws
from top. Loosen
two 156740 cover
thumbscrews
(each side), then
remove cover.

② Remove circuit cards
from electronics package
(see 2.10).

③ Loosen four 156720
screws. Remove 408007
shroud from controller.

④ Remove six
198670 screws.

⑤ Disconnect ground strap from
back panel (circuit card).

40PSU102

⑥ Disconnect ac power
connector from power
supply.

⑦ Remove ventilation
assembly from
controller.

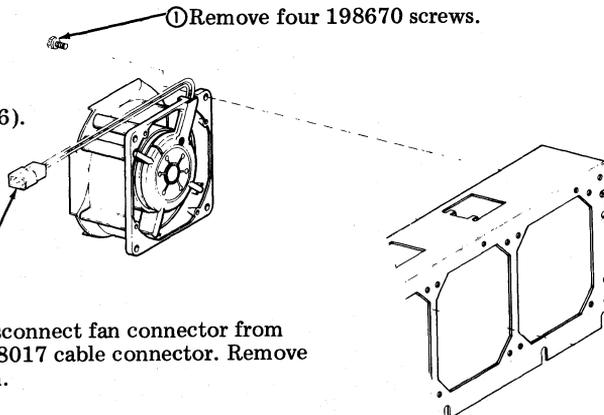2.17   To replace the ventilation assembly, reverse the removal procedures of 2.16.

408015 Fan

① Remove four 198670 screws.

2.18   To remove a fan:

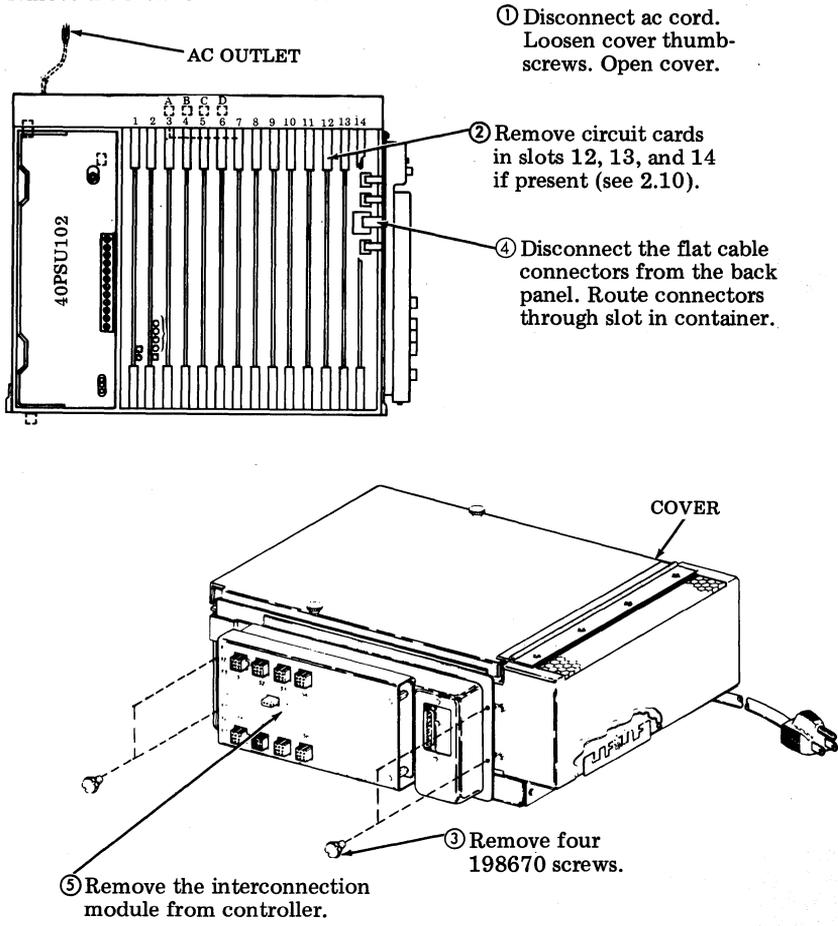• Remove ventilation assembly (2.16).

② Disconnect fan connector from
408017 cable connector. Remove
fan.

2.19   To install a fan, reverse the removal procedures of 2.18.

B. Interconnection Module

2.20 To remove the interconnection module:

① Disconnect ac cord.
Loosen cover thumb-
screws. Open cover.

AC OUTLET

② Remove circuit cards
in slots 12, 13, and 14
if present (see 2.10).

④ Disconnect the flat cable
connectors from the back
panel. Route connectors
through slot in container.

40PSU102

COVER

③ Remove four
198670 screws.

⑤ Remove the interconnection
module from controller.

APPLICATION	INTERCONNECTION MODULE
SCC	405150
DCC	405151
MCC	405152

2.21 To replace the interconnection module, reverse the removal procedures of 2.20.

C.   Back Panel

2.22   To remove the back panel:

- Remove all circuit cards (2.10).
- Remove ventilation assembly (2.16).
- Remove power supply (2.12).
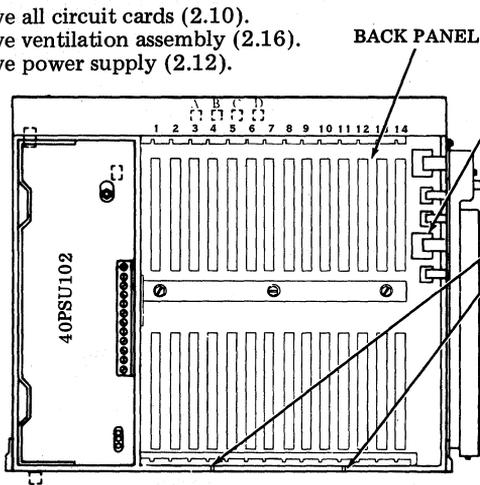
① Disconnect the flat cable connectors from the back panel.

BACK PANEL

② Slide back panel rearward so that the two locating pins on the front panel are clear of the front of the container.

③ Lift back panel out of controller container. Leave the insulator on the container floor in place.

2.23   To replace the back panel, reverse the removal procedures of 2.22.

D.   Cables

DCC, MCC — Opcon/Monitor (Controller-KD) Cables:

405301	6 ft	405304	50 ft
405302	12 ft	405139	75 ft
405303	25 ft	405140	100 ft

2.24   To remove opcon/monitor cable from attached KD:

① Remove monitor. Use flat blade of screwdriver against 341691 monitor connector front ear and use screwdriver shank against right support guide to hold ear in. With your other hand push down on front of connector to drop ear below mounting slot. Hold rear ear in and push down on connector.

② Remove two 180798 screws and 45815 lockwashers from right support guide.

③ Raise lid. Push connector down through hole in cover. Notice that the connector keying notches face the rear of the unit and that a 98642 lockwasher is positioned under the 320420 connector ground terminal on the front panel.
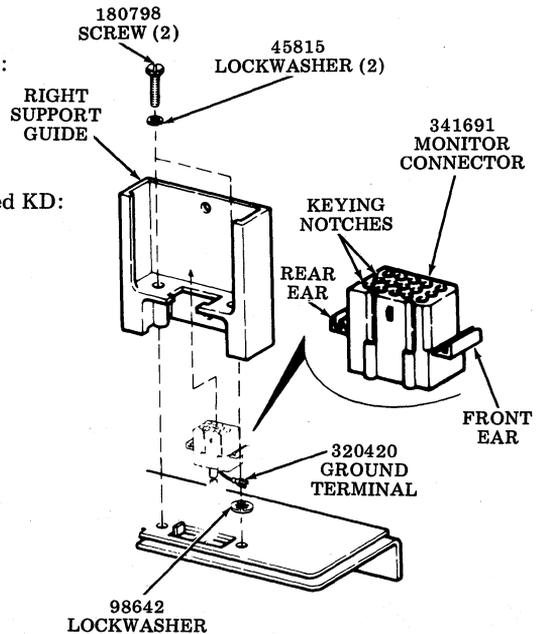
Proceed to Step 4 on following page.

④ Remove opcon. Use flat blade of screwdriver against upper ear of 401623 opcon connector. With your other hand rock connector toward inside of cabinet. Push up on lower ear of connector and remove connector from front panel toward inside of cabinet.

⑤ Disconnect 181392 ground terminal of the cable from cabinet ground lug.

⑥ Remove 3598 nut, 92260 lockwasher, 407066 clamp and 181249 screw.

⑦ Remove cable from cabinet through opening at rear.

92260 LOCK-WASHER

3598 NUT

407066 CLAMP

181249 SCREW

UPPER EAR

KEYING NOTCHES

401623 OPCON CONNECTOR

LOWER EAR

181392 GROUND TERMINAL

2.25   To install opcon/monitor cable to attached KD, either reverse the removal procedures of 2.24 or use Section 582-200-201. Observe an orange identification tag is on the KD end of the cable. A 312918 nylon strap (not supplied) is required.

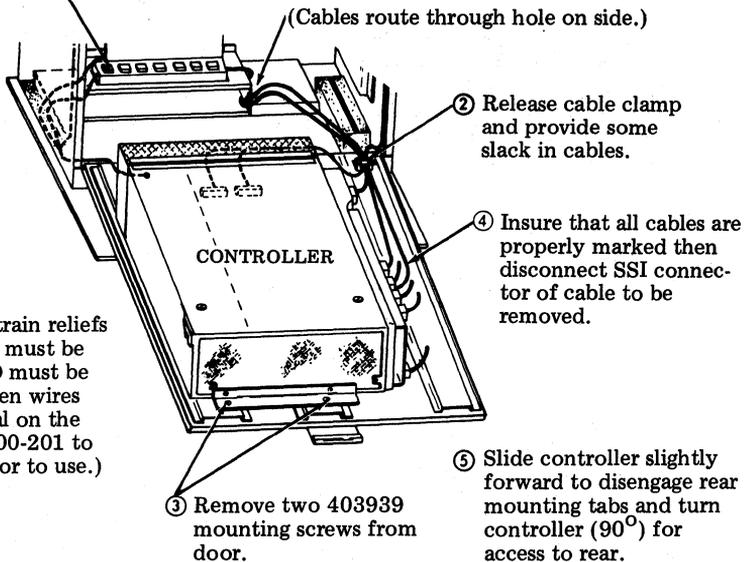2.26   To remove opcon/monitor cable from free-standing KD:

① Remove monitor base bottom plate (see Section 582-200-201).

② Perform Steps 1, 2, and 3 of 2.24.

③ Remove opcon from opcon base assembly (see Section 582-200-201).

④ Remove cable including ground terminal from opcon base assembly (see 2.24, Steps 4 and 5).

2.27   To install opcon/monitor cable to free-standing KD, either reverse the removal procedures of 2.26 or use Section 582-200-201. Observe an orange identification tag is on the KD end of cable.
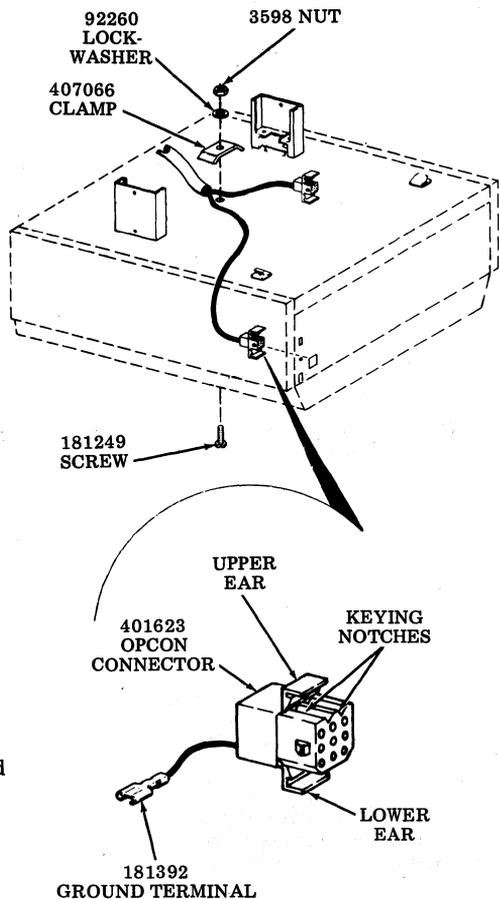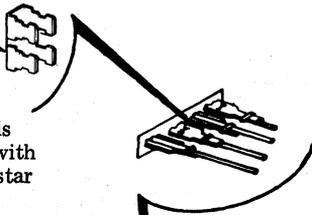
2.28   To remove opcon/monitor cable from controller:

① Turn off pedestal power switch, open pedestal door, and unplug controller ac power cord from ac outlet.

(Cables route through hole on side.)

② Release cable clamp and provide some slack in cables.

CONTROLLER

④ Insure that all cables are properly marked then disconnect SSI connector of cable to be removed.
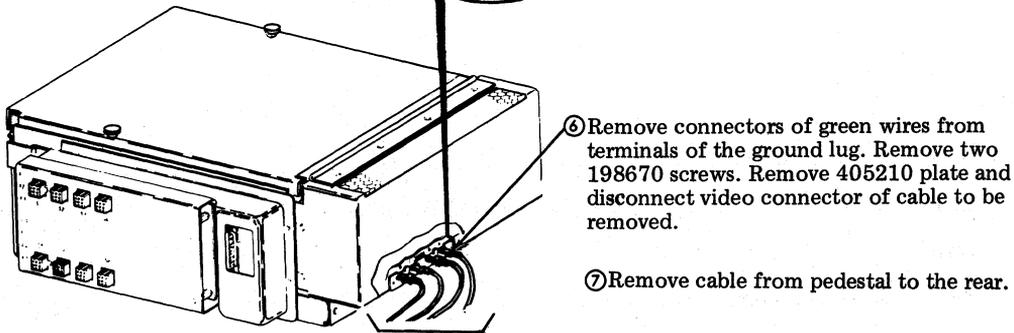
Note 2:   During reassembly, strain reliefs of video connectors to A and C must be facing up and reliefs to B and D must be facing down. Connectors of green wires must be connected to a terminal on the ground lug. (See Section 582-200-201 to select which controller connector to use.)

⑤ Slide controller slightly forward to disengage rear mounting tabs and turn controller (90°) for access to rear.

③ Remove two 403939 mounting screws from door.

192009 GROUND LUG

Note 1:   The 192009 ground lug is assembled to 405210 plate clamp with two 1164 screws and two 405052 star washers.

⑥ Remove connectors of green wires from terminals of the ground lug. Remove two 198670 screws. Remove 405210 plate and disconnect video connector of cable to be removed.

⑦ Remove cable from pedestal to the rear.

Note 3:   A green ground wire is part of each cable.

2.29   To install opcon/monitor cable to controller, reverse the removal procedures of 2.28.

SCC, MCC — Data Set Cables:

341896	5 ft	408067	25 ft
408065	7 ft	408068	50 ft
408066	12 ft		

2.30   To remove data set cable:

① Turn off pedestal power switch, open pedestal door, release cable clamp. See 2.28 for part locations.

② Disconnect cable connector from controller. Remove cable from pedestal to the rear.

③ Disconnect cable connector from data set.

2.31   To install data set cable, reverse removal procedures of 2.30.

DCC, MCC — Controller/Printer Cables:

405306	6 ft	405309	50 ft
405307	12 ft	405237	(10 ft stub to MCC or DCC)
405308	25 ft	405239	(10 ft stub to printer)

2.32   To remove controller/printer cable:

① Turn off pedestal power switch, open pedestal door, release cable clamp. See 2.28 for part locations.

② Disconnect cable connector from controller.

③ Disconnect cable connector from printer. Disconnect ground terminal of cable from rear of printer (see 1.06 for part location).

2.33   To install controller/printer cable, reverse the removal procedures of 2.32.

3.   PARTS

3.01   For parts information on interconnect cables of the DATASPEED 40/4, refer to Section 582-200-401.

3.02   Parts information for individual components (printer, monitor, etc) are not illustrated in this section. Refer to appropriate BSP section.

3.03   Field replaceable components of controllers are listed in the index which follows the parts illustrations, see 3.04.
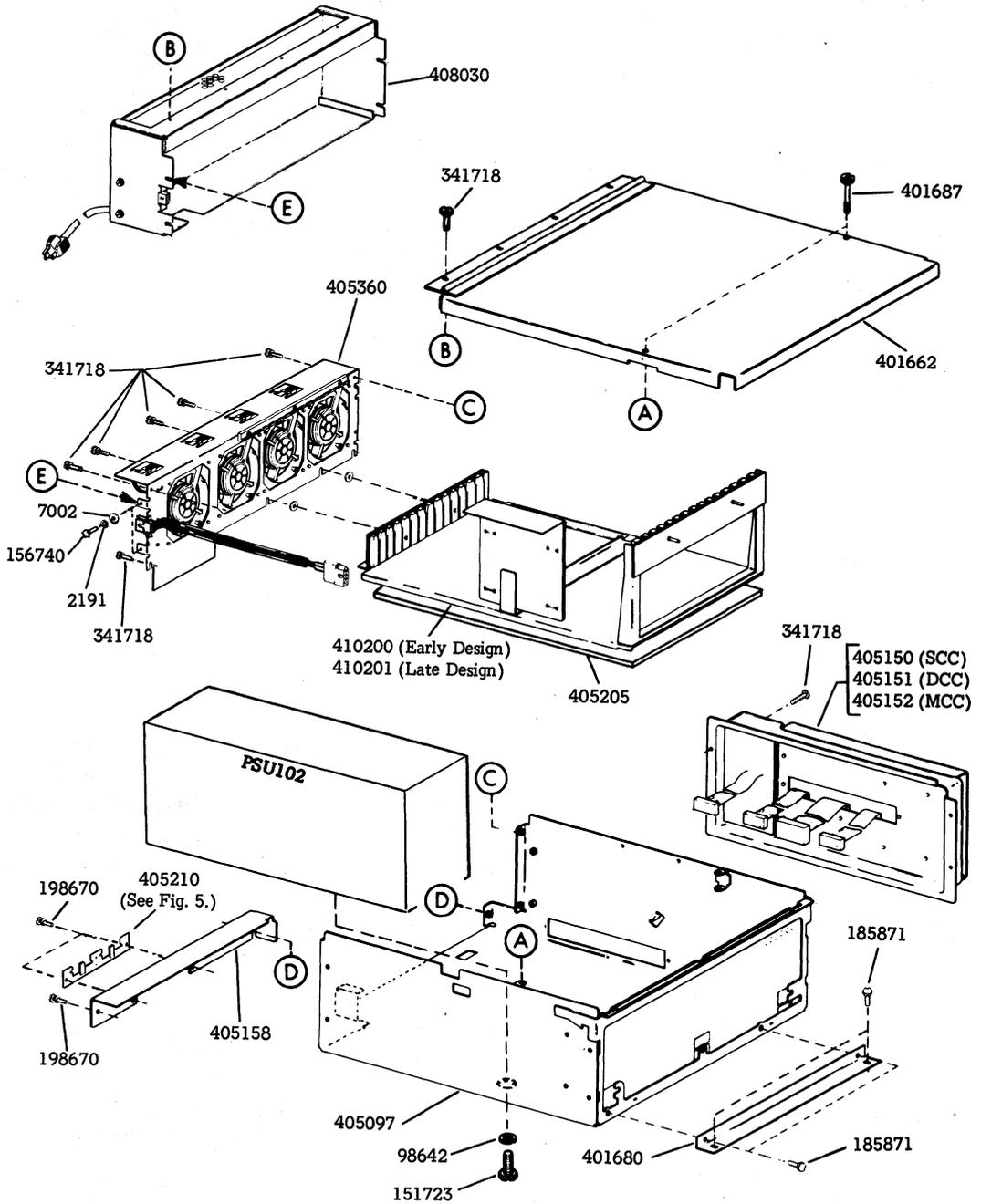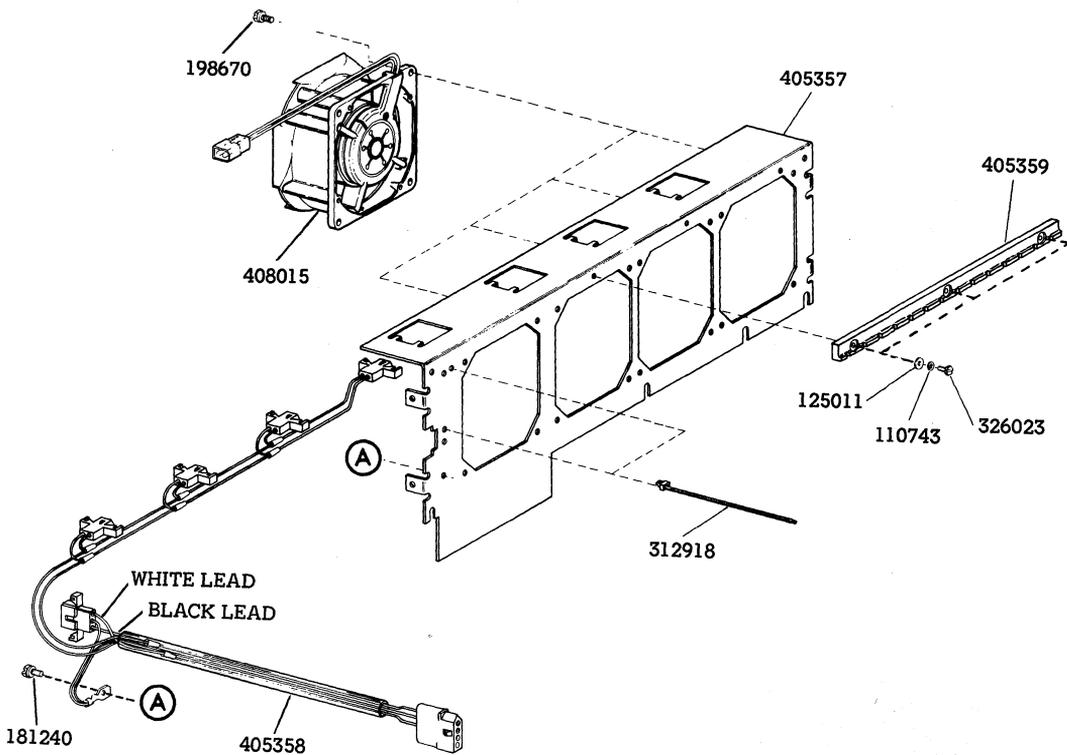
Fig. 1—Overview of Controller Components

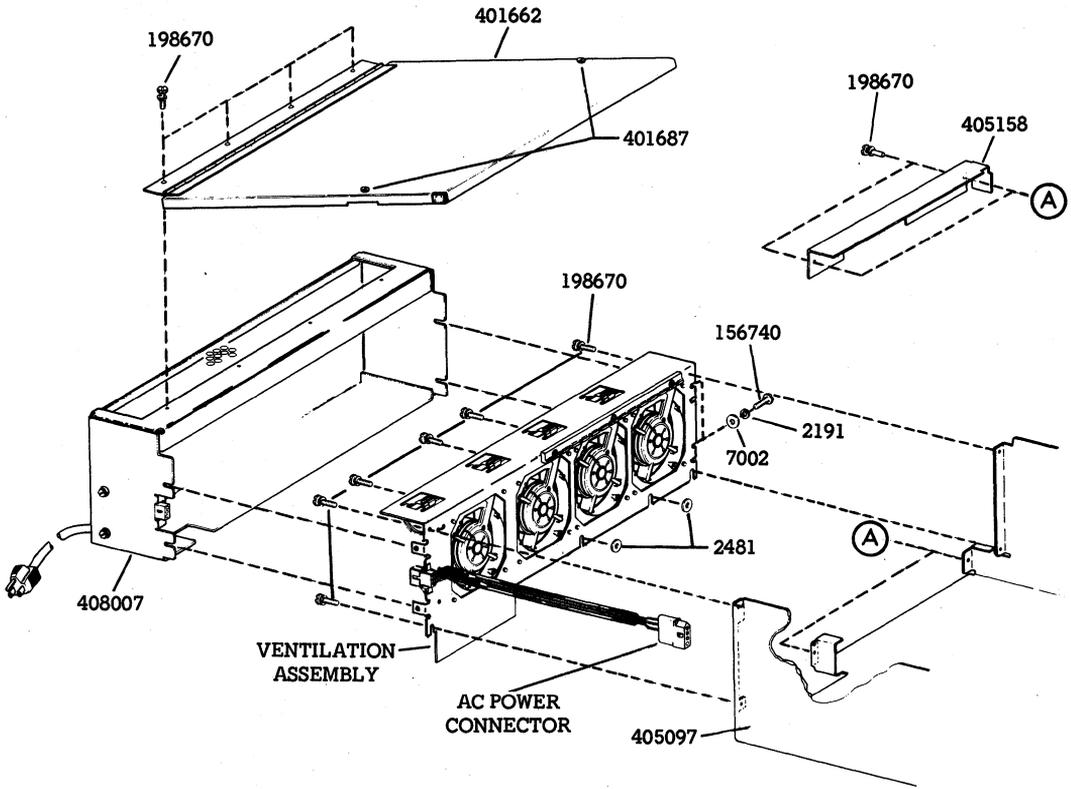Fig. 2 — 405360 Ventilation Assembly Components

401662

198670

401687

198670

405158

Ⓐ

198670

156740

2191

7002

2481

Ⓐ

408007

VENTILATION ASSEMBLY

AC POWER CONNECTOR

405097

Fig. 3—Mounting Hardware for Fan Guard, Ventilation Assembly, and Cover

406313
(SCC only
late design)

405210
(DCC, MCC,
early design SCC)

181240

405052

LOGIC MODULE
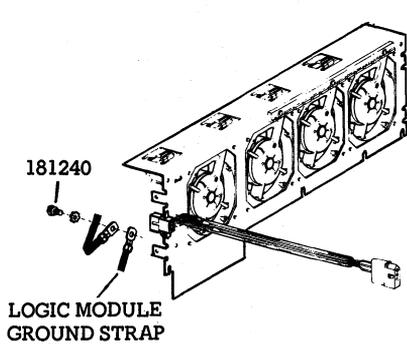GROUND STRAP

192009   1164

Fig. 4—Ventilation Assembly Detail
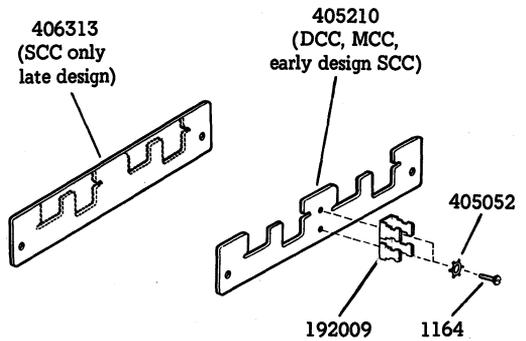
Fig. 5 — Clamp Plate Components (At Rear of Controller)

405179
AND
90951

336810

405331

337871

405179
AND
90951

405192
OR
405171
(See
Note)

405177 (MCC)
405178 (SCC
or DCC)

405197

90951

76167

405174

A

B

C

G

D

E

F

90951

405197

90951

76167

405174

Note: 405192 is illustrated. 405171 has no panel connector (DCC only).

405181
(4) ON 410481
(7) ON 410480

A

B

D

E

C

F

90951

405180

405180

121018

90951

76167

90951

76167

90951

90951

405180

121018

405180

90951

410480 (SCC or DCC)
410481 (MCC)

405163 OR
405164

76167

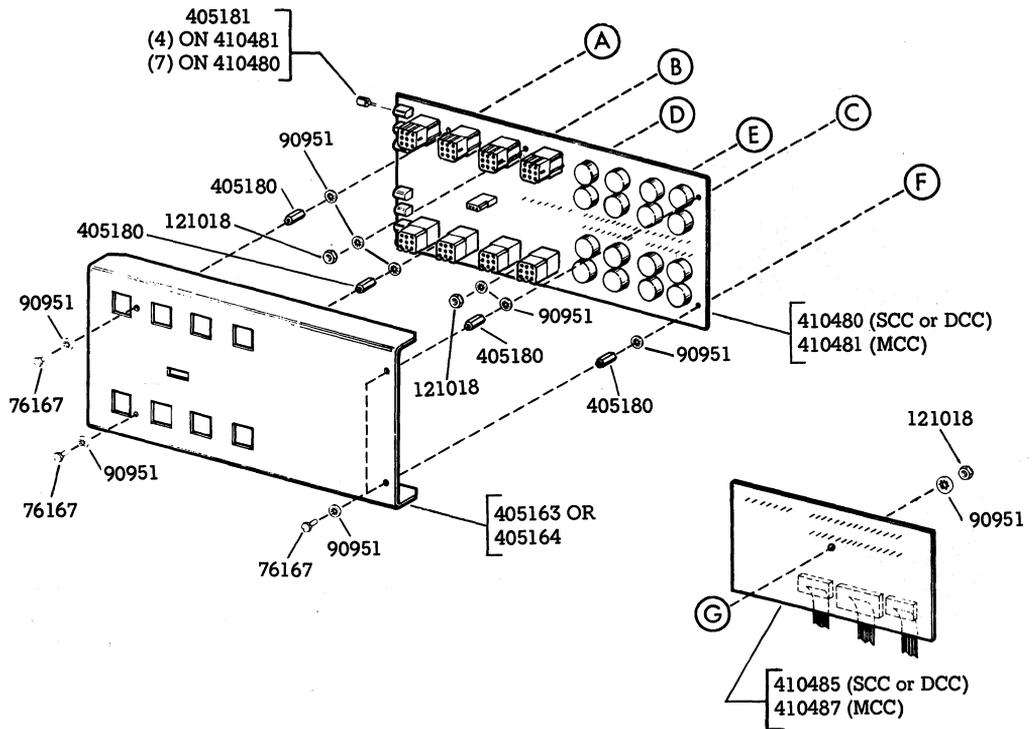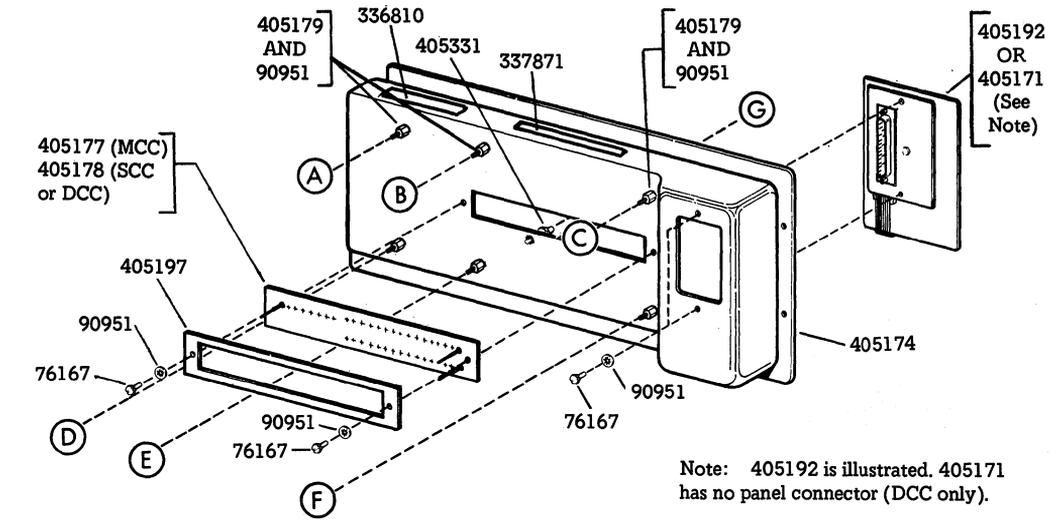90951

121018

90951

G

410485 (SCC or DCC)
410487 (MCC)

Fig. 6—405150, 405151, and 405152 Interconnection Modules

INDEX OF REPLACEABLE PARTS

3.04   The index below contains field replaceable parts. The index shows the section or page number of this section on which access is provided.

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

APPLICATION	PART NO.	DESCRIPTION	SECTION OR PAGE NO.
Monitor	40MN101/AA 341578	Monitor Fuse, 1.4 Amp	3 582-200-751
Opcon	40K104/DAA 40K104/DAB 40K105/CAA 40K203/GAB	Opcon (ASCII, Typewriter Style) Opcon (EBCDIC, Typewriter Style) Opcon (EBCDIC, Internal Numeric Style) Opcon (EBCDIC, External Numeric Cluster Style)	3, 4 3, 4 3, 4 3, 4
Free-Standing KD	40BSE101 40BSE201 40BSE202 346333	Base (Monitor) Base (Opcon, narrow) Base (Opcon, wide) Opcon Base Cable	582-200-201 582-200-201 582-200-201 582-200-201
Printer	40P101/ZZ, 40P102/ZZ 40P151/ZZ, 40P154/ZZ 40P201/ZZ, 40P202/ZZ 143306	Printer, Friction Feed Printer, Tractor Feed — 80 Column Printer, Tractor Feed — 132 Column Fuse, 1 Amp SL-BL MDL-1	5 6 6 582-200-751
Controller	40C401/type 40C402/type 40C403/type 40PSU102 405150 405151 405152 405181 405360 408015 410200 (Early Design) 410201 (Late Design) Various Numbers Various Codes and Numbers	Controller (SCC) Controller (DCC) Controller (MCC) Power Supply Interconnect Module (SCC) Interconnect Module (DCC) Interconnect Module (MCC) Fuse, 3 Amp Ventilation Assembly Fan Back Panel Back Panel Circuit Cards Cabinets and Pedestals	9 9 9 8 11, 16, 19 11, 16, 19 11, 16, 19 582-200-751 10, 16 17 12 12 7 (Locations Given in 582-200-201) 582-212-700
Cable	405301-405304, 405139, 405140 341896, 408065-408068 405306-405309, 405237, 405239 405311, 405312, 405237, 405238	Opcon/Monitor Cable Data Set Cable Controller/Printer Cable Controller/Controller Cable	12 15 15 582-200-201