"DATASPEED*" 40 POWER SUPPLY UNITS

DISASSEMBLY/REASSEMBLY AND PARTS

CONTENTS PAGE

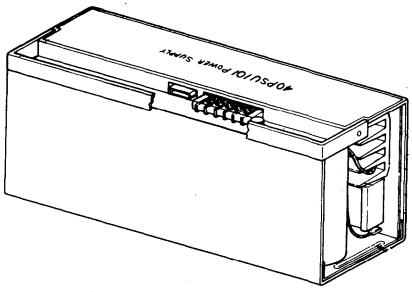

Fig. 1—40PSU101 Power Supply

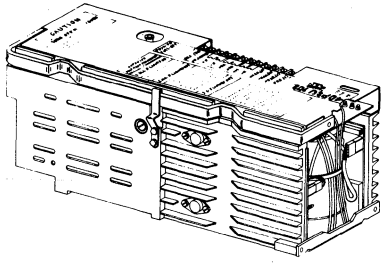

Fig. 2—40PSU102 Power Supply

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).

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.

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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:

(a) The early design power supply cover is secured with screws installed to bottom of power supply frame as shown in Fig. 4.

(b) 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).

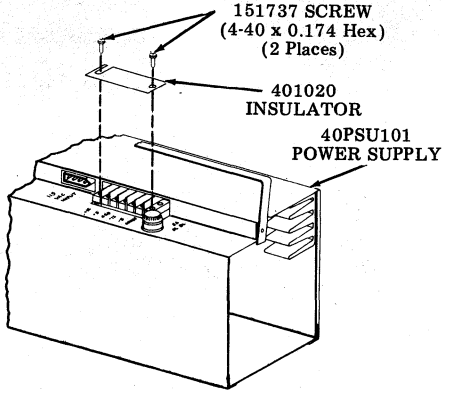


Fig. 3

B. Cover

2.02 To remove the cover (Early Design):

(a) Turn the unit on its side and remove the four screws which secure the power supply cover to the power supply frame (Fig. 4).

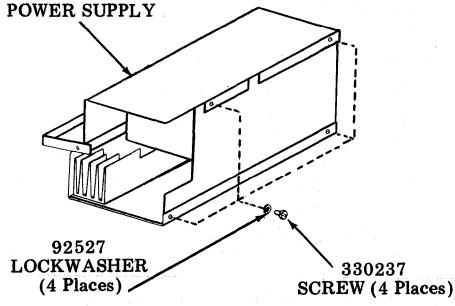


Fig. 4

(b) Again turn the power supply unit upright. Gently spread the side panels of the cover halfway up off of the power supply frame.

(c) Unsnap the ac power receptacle (3-pin connector) from its mount on the cover.

(d) 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).

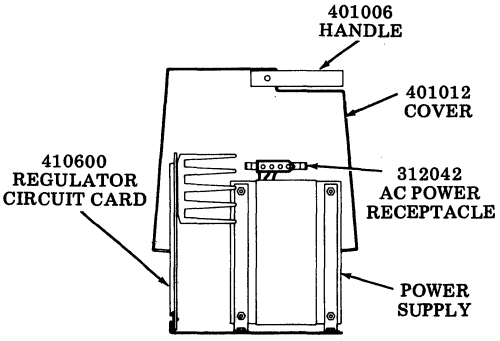


Fig. 5

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.

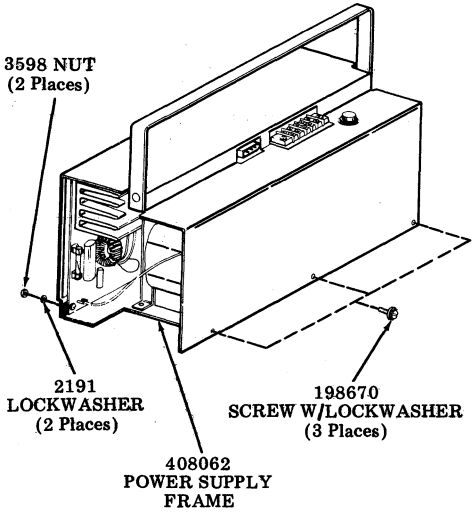


Fig. 6

(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).

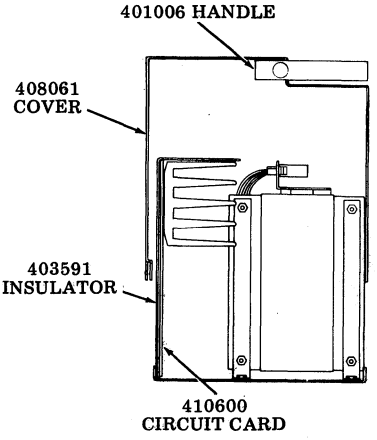


Fig. 7

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.

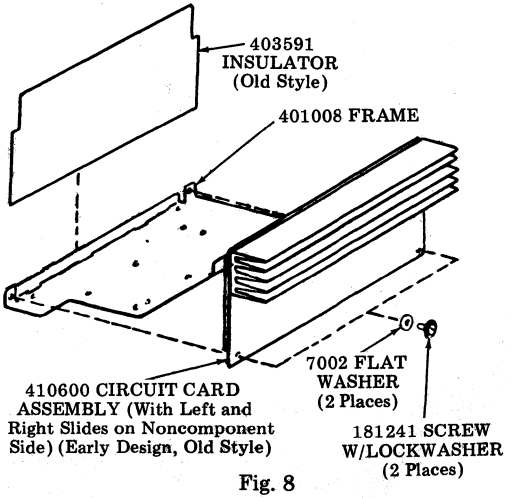


Fig. 8

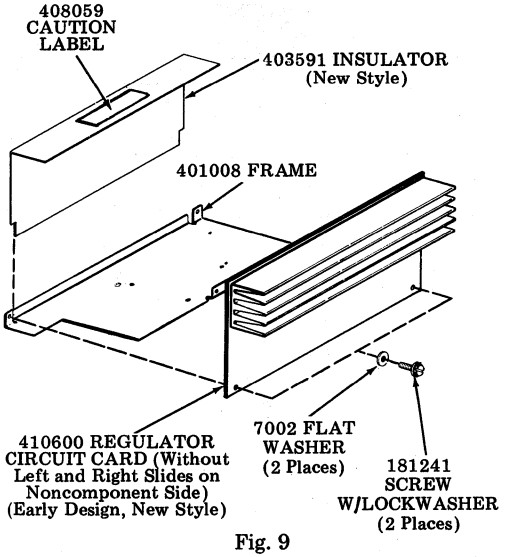


Fig. 9

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.

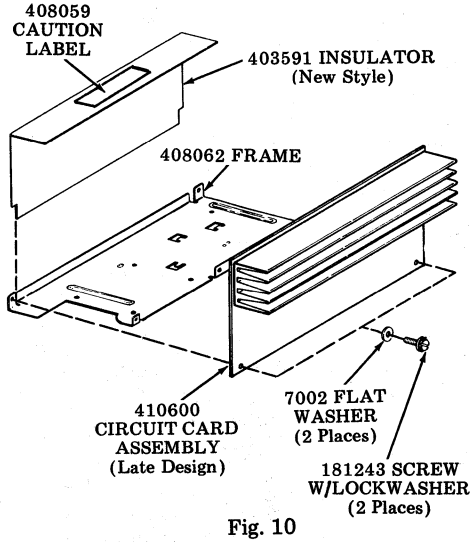


Fig. 10

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).

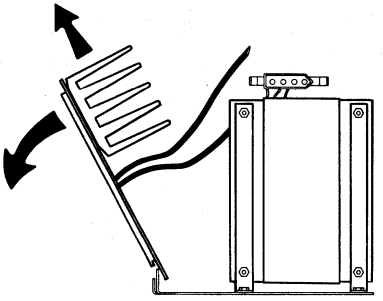


Fig. 11

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.

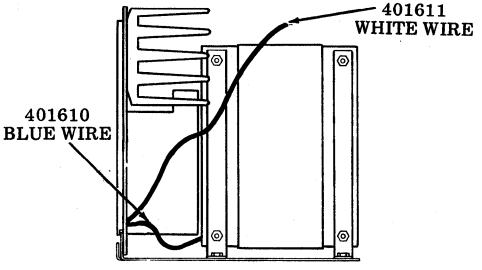
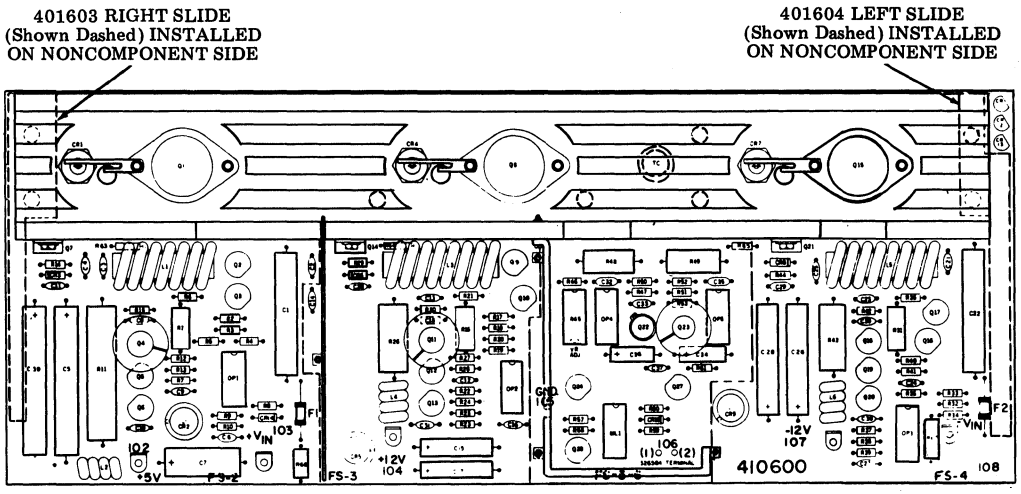


Fig. 12

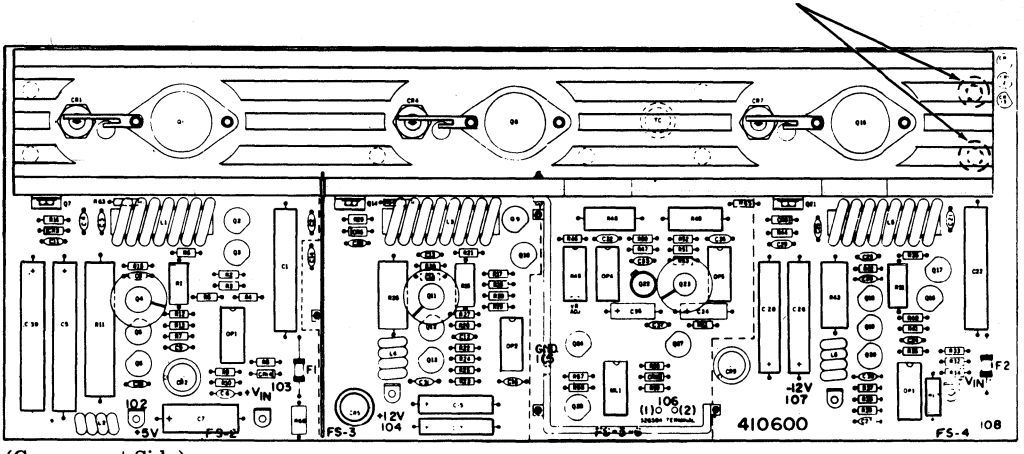
(b) When mounting the 410600 circuit card (late design) to the 401008 frame (early design) or 408062 frame (late design) make certain that the 401611 white wire is routed over the transformer as shown in Fig. 12 and that the 408076 yellow wire is dressed close to the heat sink as shown in Fig. 17.



(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)

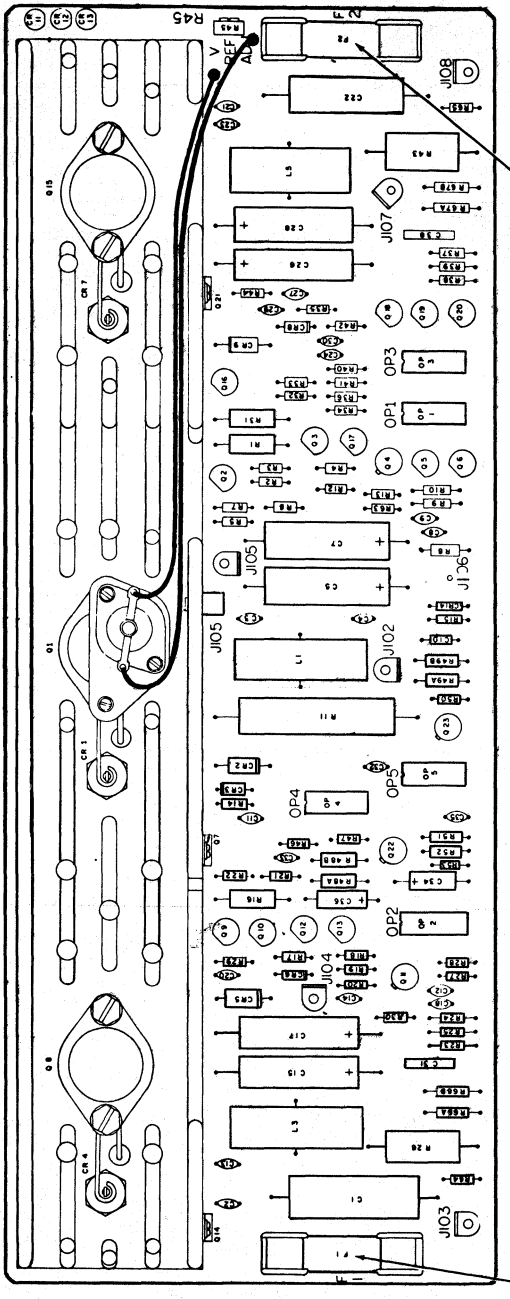
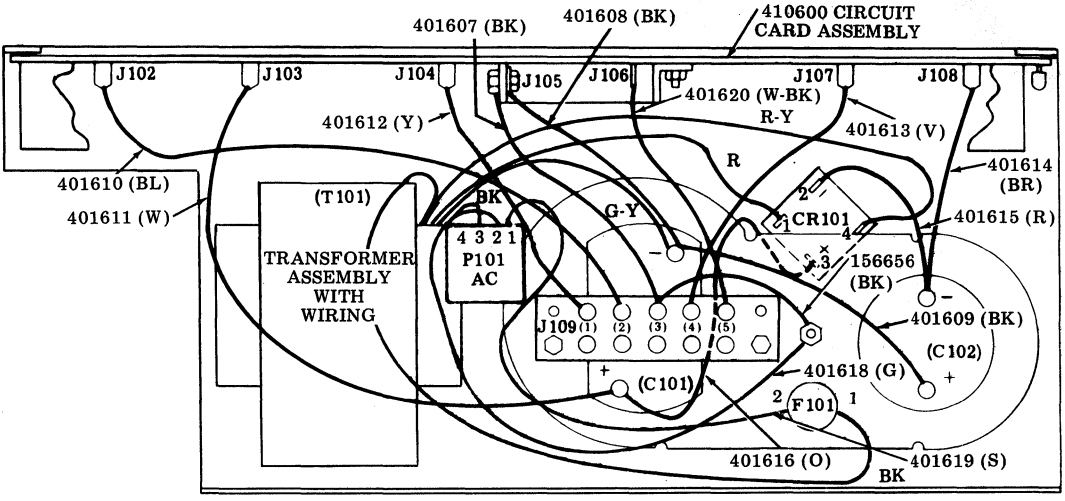
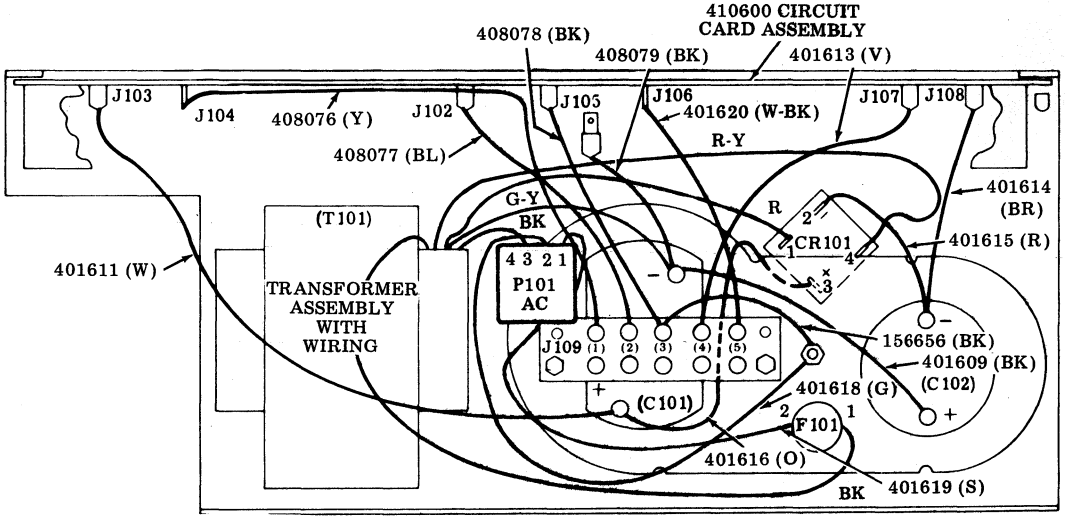


Fig. 15—410600 Circuit Card Assembly (Late Design) Customer Identification Issue 6A or Later



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).

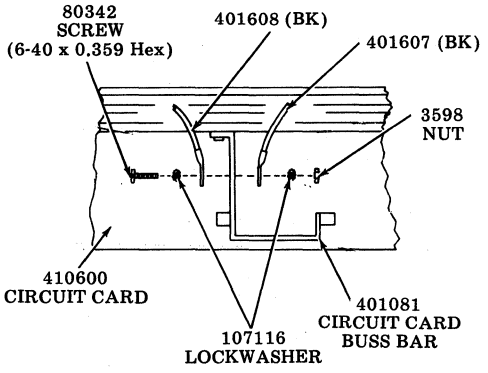


Fig. 18

E. Terminal Block

2.08 Remove the two studs which hold the terminal block to the capacitor clamp (Fig. 19).

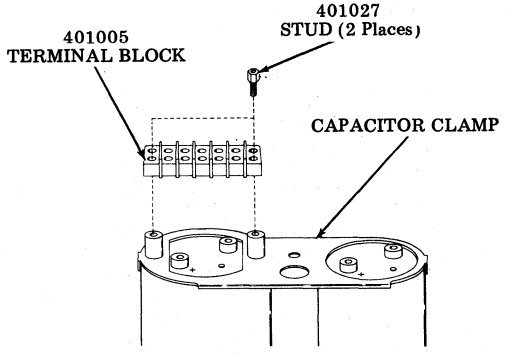


Fig. 19

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).

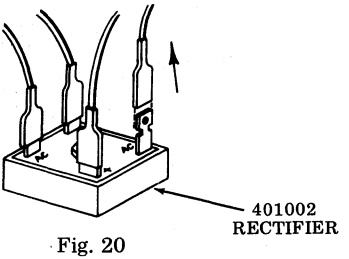


Fig. 20

(b) Remove the screw in the center of the bridge rectifier and remove the rectifier (Fig. 21).

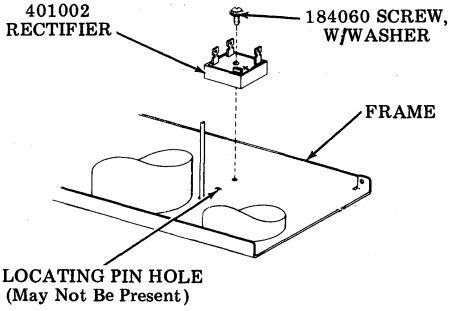


Fig. 21

2.10 When replacing bridge rectifer:

Note: If rectifier does not have a locating pin, position per Fig. 22.

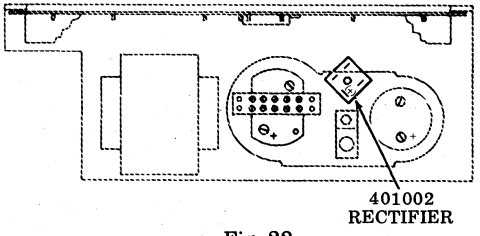


Fig. 22

(a) Place the regulator circuit card, component side up, directly behind the power supply frame (Fig. 23).

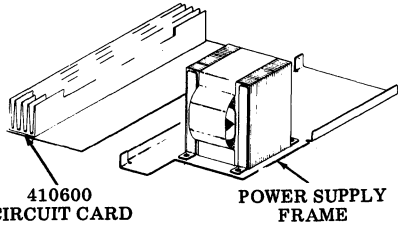


Fig. 23

(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.

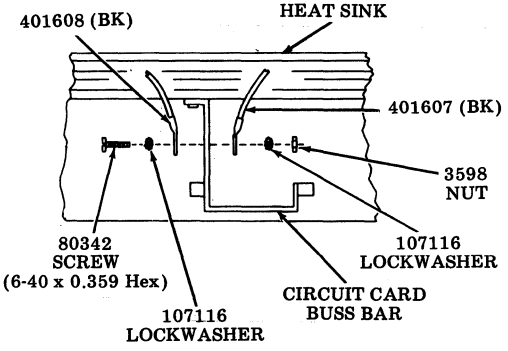


Fig. 24

(d) Wire the transformer, ac power receptacle and bridge rectifier as shown in Fig. 25.

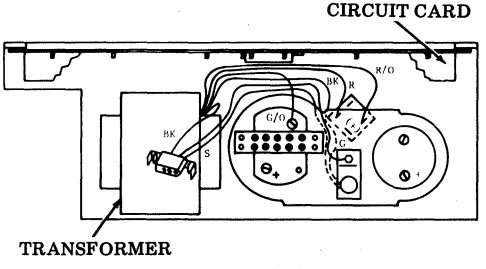


Fig. 25

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.

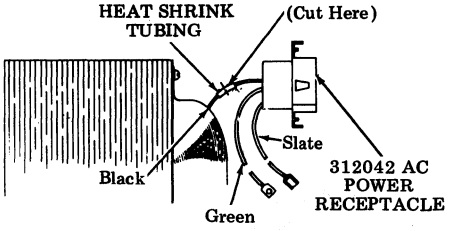


Fig. 26

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.

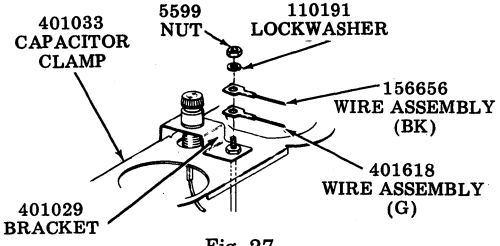


Fig. 27

(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).

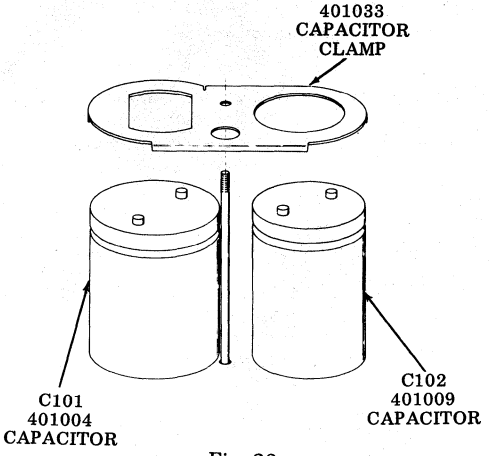


Fig. 28

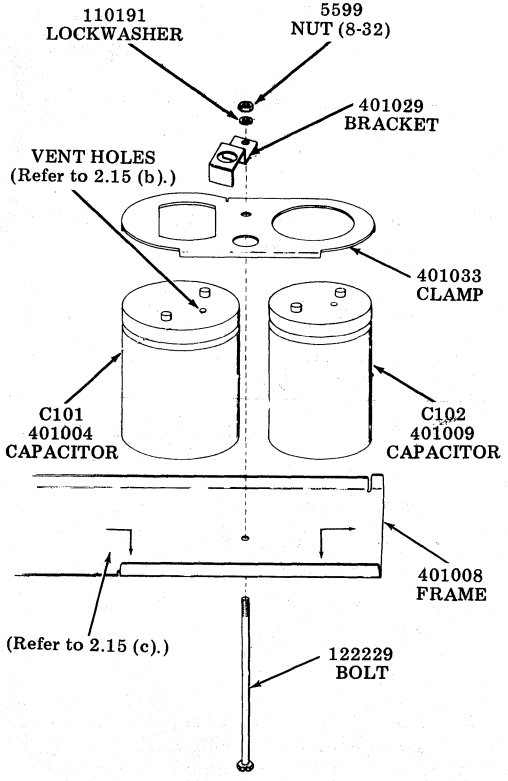


Fig. 29—Parts Peculiar to Early Design Power Supply

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.

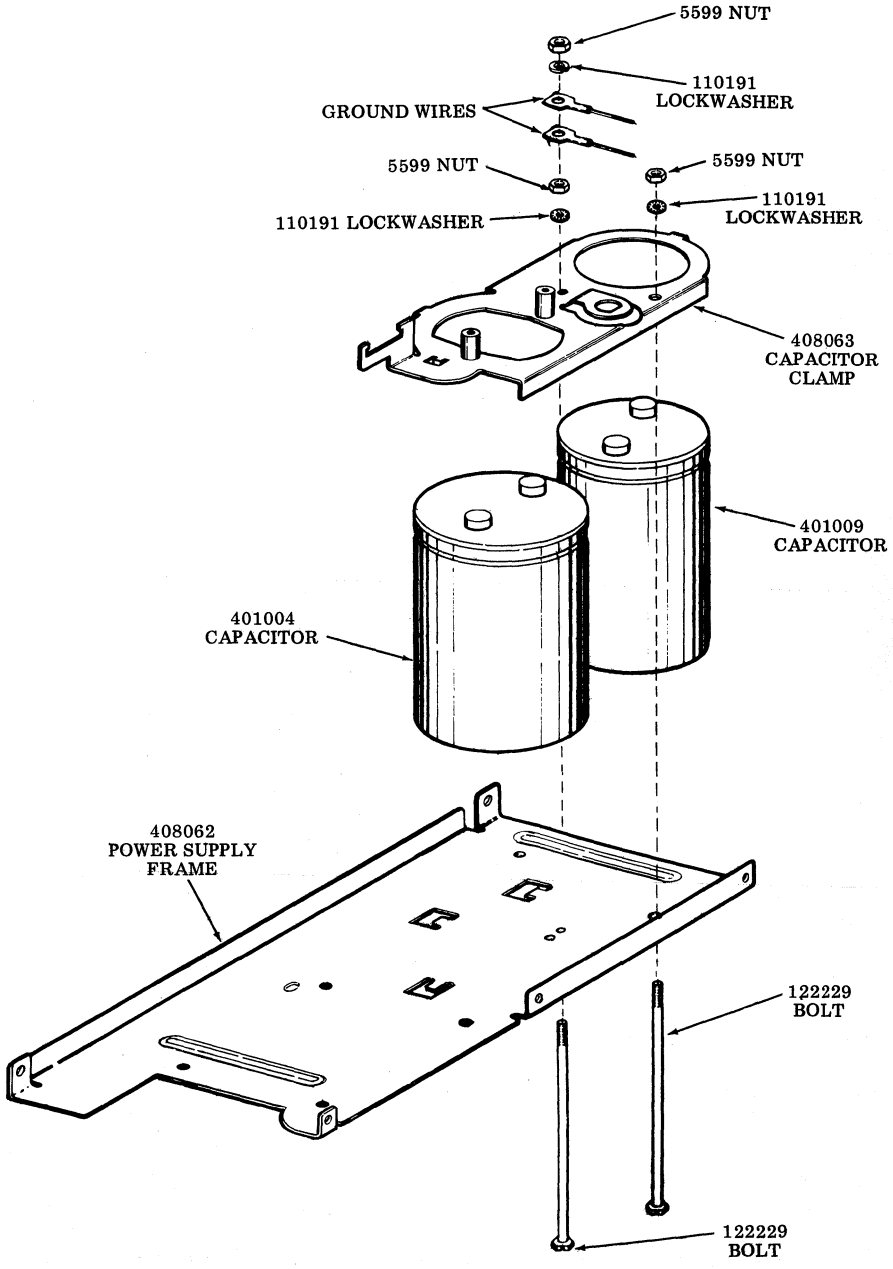


Fig. 30—Parts Peculiar to Late Design 40PSU101

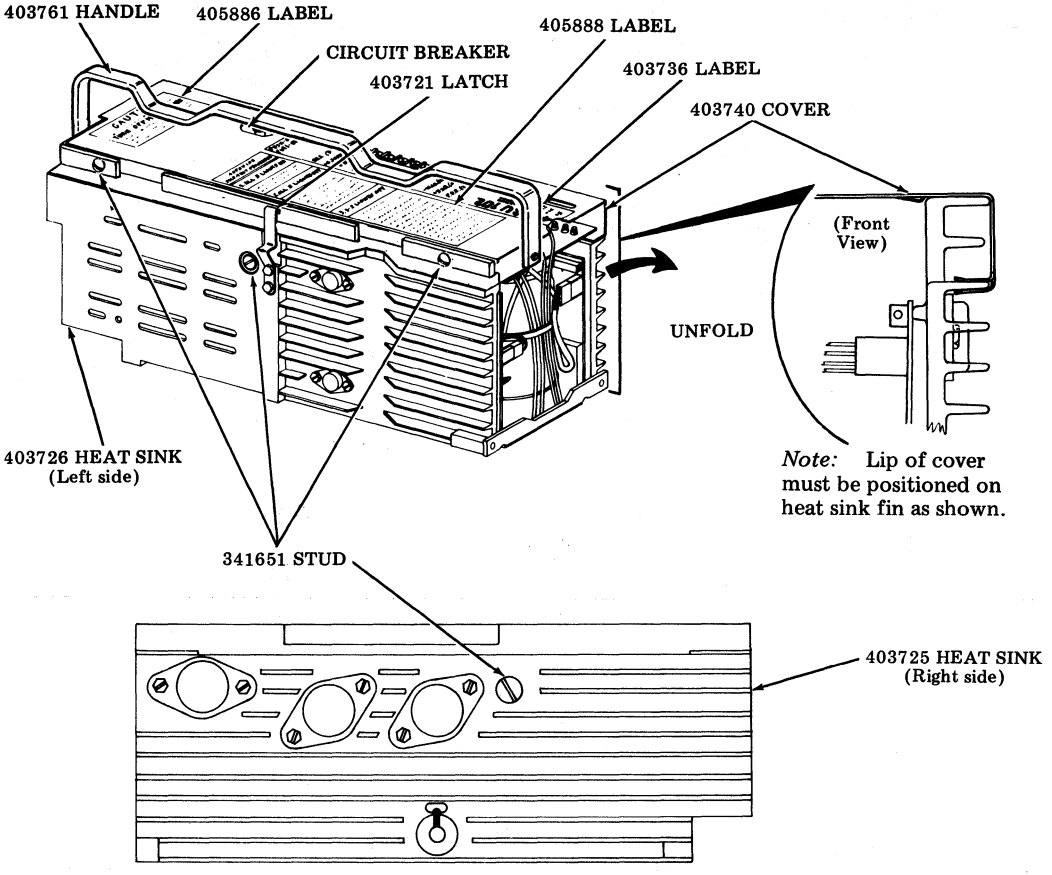


Fig. 31

(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.

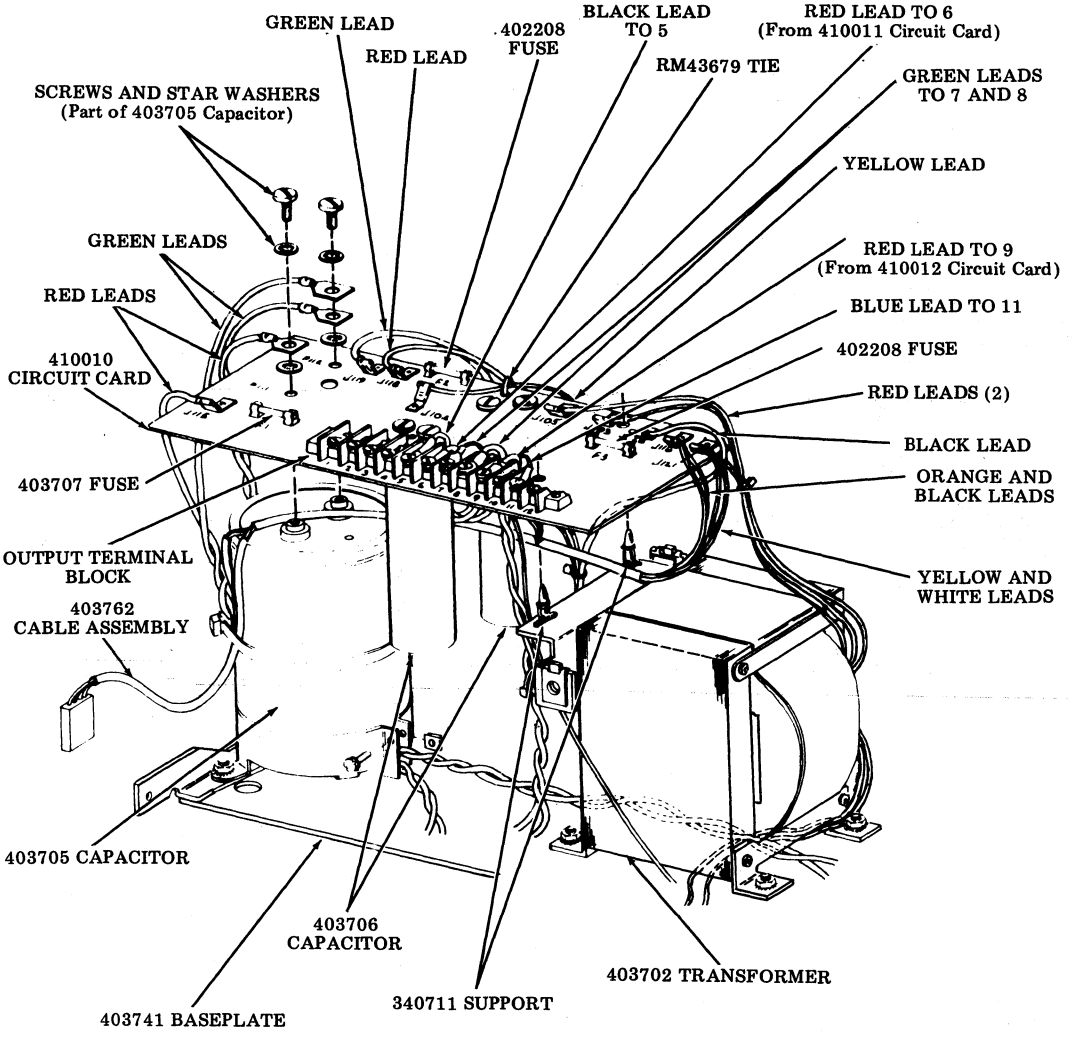


Fig. 32

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.

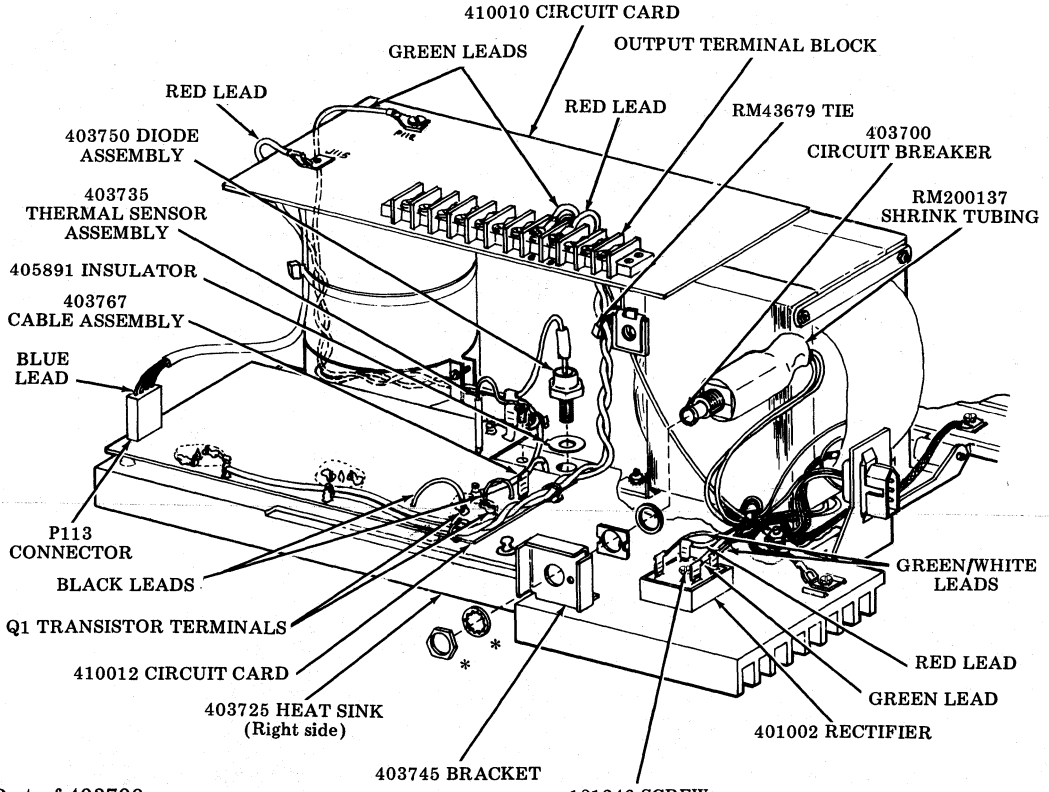
D. Circuit Breaker

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.

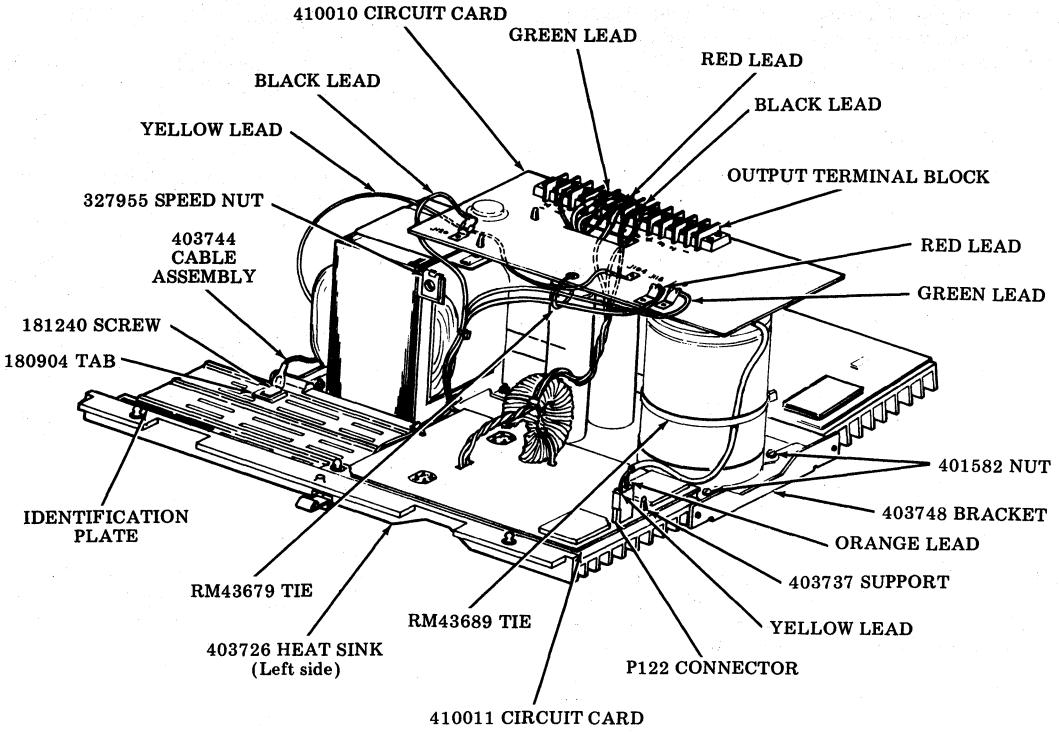


Fig. 34

3.14 When replacing 410011 circuit card:

(a) Position 403730 and 403727 transistors on 403726 left side heat sink so that flat edge of transistors faces front of power supply.

(b) Apply approximately 6 lbs-per-inch torque when installing transistor mounting screws. Overtightening will damage transistor sockets.

(c) Make sure leads from 410011 circuit card to 410010 circuit card are twisted as shown in Fig. 34.

(d) Position P122 connector, so that yellow lead is toward top of power supply when heat sink is in upright position.

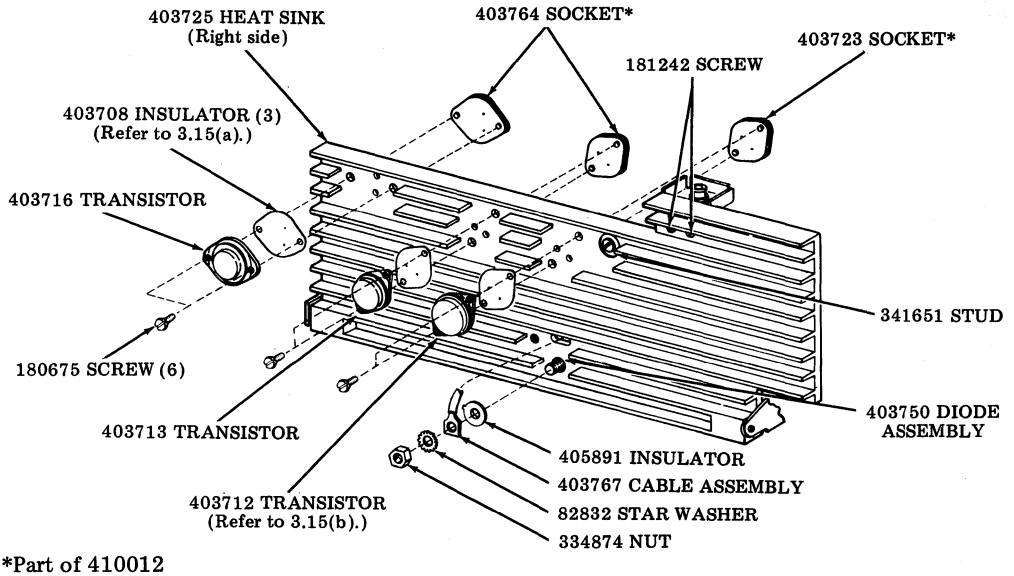
H. Transistors (Fig. 35 and 36)

3.15 When replacing 403716, 403713 and/or 403712 transistors to heat sink:

(a) Replace 403708 insulators.

(b) When assembling 403712 transistor to heat sink, apply heat conducting paste between new insulator and heat sink.

3.16 When replacing 403727 and/or 403730 transistors to heat sink, position flat edge of transistor facing the front of the power supply.



*Part of 410012 circuit card.

Fig. 35

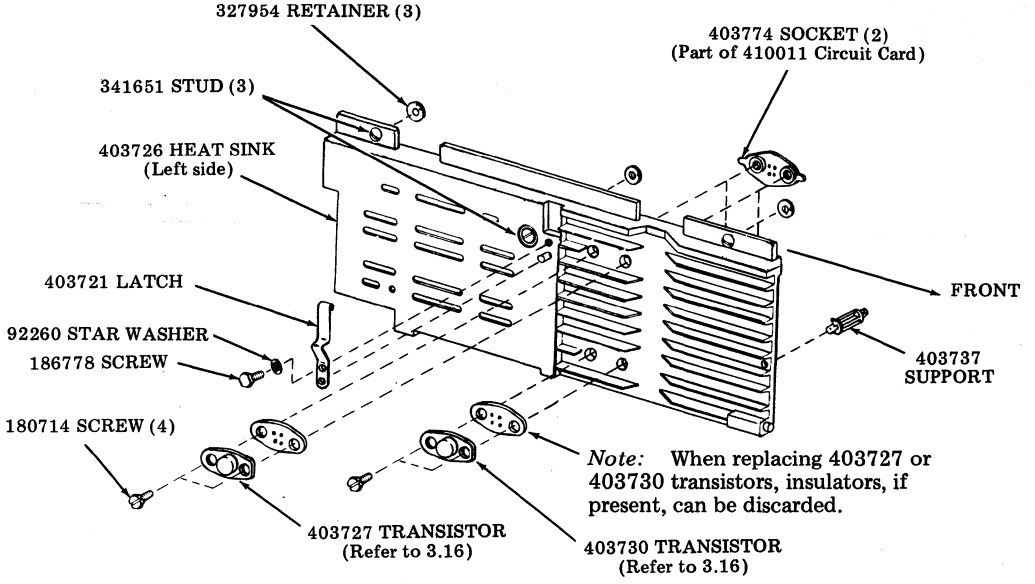


Fig. 36

4. NUMERICAL PARTS INDEX FOR 40PSU101 POWER SUPPLY

4.01 Following is a list of recommended spare parts for the 40PSU101 power supply.

Part No.	Description
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.

Part No.	Description
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