

VECTOR 1 MAINFRAME ASSEMBLY AND WIRING INSTRUCTIONS



VECTOR 1 MAINFRAME

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VECTOR 1 PARTS LIST

NO.	DESCRIPTION	SCREWS NO. & SIZE	LOCK WASHER	HEX NUTS
1	CABINET BOTTOM			
1	CABINET TOP	14 #8-32 x 1/4" PHILLIPS HEAD (PAINTED)		
1	CABINET FRONT PANEL			
1	CABINET REAR PANEL			
4	RUBBER FEET	4 #4-40 x 1/2"	4	4
1	ROTRON WHISPER FAN	4 #6-32 x 1"	4	4
1	FAN GUARD			
1	FILTERED LINE CORD RECEPTACLE	2 #4-40 x 1/2"	2	2
1	ACCESSORY POWER RECEPTACLE	2 #6-32 x 1/2"	2	2
1	FUSEHOLDER			
1	FUSE, 5 AMP SHORT BLOW		1	1
1	LINECORD			
1	TRANSFORMER	4 #10-32 x 1/2"	4	4
1	ELECTROLYTIC CAPACITOR 150,000 MFD, 10 VOLT			
1	CLAMP FOR ABOVE	1 #6-32 x 5/8"	1	1
		3 #6-32 x 3/8"	3	3
2	ELECTROLYTIC CAPACITORS 8,000 MFD, 20 VOLT			
2	CLAMPS FOR ABOVE	2 #6-32 x 5/8"	2	2
		4 #6-32 x 3/8"	4	4
1	BRIDGE RECTIFIER	1 #6-32 x 1/2"	1	1
2	REVERSE POWER DIODES 1N1183RA		2[1/4"]	2[1/4"]
2	FENDER WASHERS FOR USE WITH ABOVE			
3	MOTHERBOARD TERMINAL SCREWS	3 #6-32 x 3/8"	3	3
12	MOTHERBOARD STANDOFFS 6-32 x 3/8" HEX	24 #6-32 x 1/4"		
6	100 PIN DUAL 50 EDGE CONNECTORS			
4	GUIDE RAILS	4 #8-32 x 1/2" [FRONT] 4 #6-32 x 1/2" [REAR]		
12	CARD GUIDES,			
24	CARD GUIDE, LOCKING BUTTONS,			
1	SWITCH #554-3121-511 AND LENS CAP RESET			
1	SWITCH #554-1131-511 AND LENS CAP POWER			
2	BULBS FOR ABOVE			
9	TERMINAL LUGS BLUE #10			
1	TERMINAL LUG BLUE # 6			
7	TERMINAL LUGS RED #10			
5	TERMINAL LUGS RED # 6			
	HOOKUP WIRE:			
	#12 BLACK 1'	#16 BLACK 5'	#20 BLUE 1'	
	RED 2'	VIOLET 5'		
	WHITE 2'	WHITE 6'		
		YELLOW 2'		
	SOLDER			
1	ASSEMBLY MANUAL AND 3 RING BINDER			
1	CPU KIT WITH MANUAL			
1	PROM/RAM KIT WITH MANUAL			
1	MOTHERBOARD KIT WITH MANUAL			

MAINFRAME ASSEMBLY INSTRUCTIONS

SEQUENCE OF ASSEMBLY

FIGURE 2 ON THE FOLLOWING PAGE SHOWS THE LOCATION, ORIENTATION, AND ASSEMBLY OF EACH PART IN THE VECTOR 1 MAINFRAME. THE FOLLOWING ASSEMBLY SEQUENCE IS RECOMMENDED:

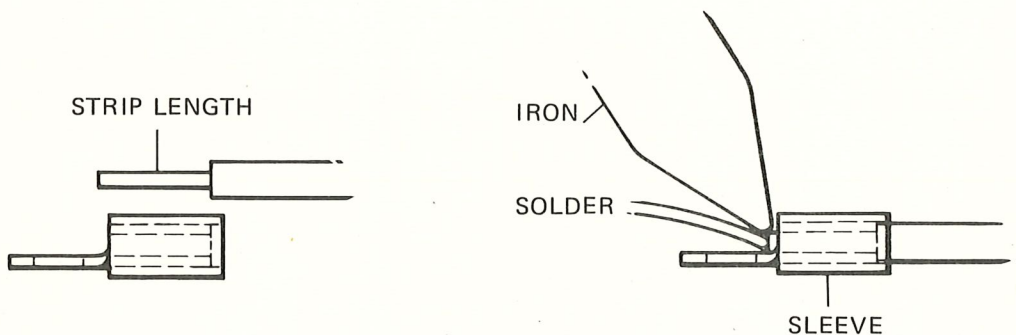
1. ASSEMBLE AND WIRE MOTHERBOARD.
2. ASSEMBLY AND WIRE REAR PANEL (FIGURE 3).
3. ASSEMBLE AND WIRE CABINET BOTTOM (FIGURE 5).
4. ASSEMBLE AND WIRE FRONT PANEL (FIGURE 4).
5. ASSEMBLE CARD GUIDES ON GUIDE RAILS (FIGURE 6).
6. FINAL ASSEMBLY AND WIRING

WIRE PREPARATION AND LUG ATTACHMENT

THREE SIZES OF WIRE WILL BE USED; AWG #12, #16 AND #20. AWG #12 IS THE HEAVIEST. THE FOLLOWING INSTRUCTIONS WILL INDICATE SIZE, COLOR AND LENGTH REQUIRED FOR EACH STEP. CUT THE WIRE TO THE LENGTH CALLED OUT AND STRIP APPROXIMATELY 3/16" FROM EACH END WITH A WIRE STRIPPER. TIN THE WIRE ENDS (PRIOR TO ATTACHMENT TO TERMINAL BUT NOT PRIOR TO ATTACHING LUG AS DESCRIBED BELOW) BY HEATING IT WITH A SOLDERING IRON AND TOUCHING IT WITH SOLDER, USING JUST ENOUGH TO COLOR THE WIRE END. ENOUGH LENGTH OF WIRE HAS BEEN SPECIFIED TO PERMIT SQUARE DRESSING AS DESCRIBED IN THE ACCOMPANYING SKETCHES. CABLING WITH PANDUIT TIES OR NYLON CORD WILL GIVE A VERY NEAT APPEARANCE BUT IS NOT NECESSARY.

FOUR SIZES OF TERMINAL LUGS WILL BE USED; BLUE FOR #12 AWG WIRE WITH EITHER A #6 OR #10 SCREW HOLE AND RED FOR #16 AWG WIRE, ALSO WITH EITHER A #6 OR #10 SCREW HOLE. THE #10 SCREW HOLE IS THE LARGER OF THE TWO. THE TERMINAL LUGS WILL BE SPECIFIED AS "BLUE #10", "RED #6", ETC. AND ARE TO BE SOLDERED TO THE STRIPPED WIRE ENDS AS SHOWN BELOW.

FIGURE 1 - TERMINAL LUG ATTACHMENT



MOTHERBOARD ASSEMBLY AND WIRING

ASSEMBLY: ASSEMBLE THE SIX EDGE CONNECTORS AND THREE BLEEDER RESISTORS TO THE MOTHERBOARD AS DESCRIBED IN THE MOTHERBOARD KIT INSTRUCTION MANUAL. LOCATE THE SIX 100 PIN DUAL 50 EDGE CONNECTORS IN POSITIONS 2, 5, 8, 11, 14 AND 17 AS SHOWN ON PAGE 4 OF THE MANUAL. IF OTHER LOCATIONS ARE USED, IT IS RECOMMENDED THAT A CONNECTOR BE LOCATED NEAR EACH END OF THE MOTHERBOARD TO FACILITATE FINAL ALIGNMENT OF THE MOTHERBOARD WITH THE CARD GUIDES.

WIRING: STRIP, CUT WIRE AND SOLDER BOTH ENDS WITH TERMINAL LUGS INDICATED.

WIRE	LENGTH	TERMINAL LUGS
#12 RED	16"	BLUE #6, BLUE #10
#16 VIOLET	20"	RED #6, RED #10
#16 YELLOW	17"	RED #6, RED #10
#20 BLUE	11"	NONE

[] WIRE #12 RED 16": ATTACH THE BLUE #6 LUG TO THE TERMINAL HOLE ON THE BOTTOM OF THE MOTHERBOARD MARKED +8V BY INSERTING A #6-32 x 3/8" SCREW THROUGH THE BOARD FROM THE TOP OF THE MOTHERBOARD (CONNECTOR SIDE). PLACE LUG, WASHER AND NUT OVER SCREW. DRESS WIRE AS SHOWN ON PAGE 4 OF THE MOTHERBOARD MANUAL. TIGHTEN NUT.

[] WIRE #16 VIOLET 20": ATTACH THE RED #6 LUG TO THE BOTTOM OF THE MOTHERBOARD AT THE TERMINAL HOLE MARKED + 16V IN THE MANNER DESCRIBED IN THE PREVIOUS STEP.

[] WIRE #16 YELLOW 17": ATTACH THE RED #6 LUG TO THE BOTTOM OF THE MOTHERBOARD AT THE TERMINAL HOLE MARKED -16V IN THE MANNER DESCRIBED ABOVE.

[] WIRE #20 BLUE 11": INSERT ONE END OF THE WIRE FROM THE BACK OF THE BOARD INTO TRACE HOLE #75 AS SHOWN ON PAGE 4, MOTHERBOARD MANUAL. SOLDER IN PLACE FROM THE TOP (CONNECTOR SIDE) OF THE BOARD.

REAR PANEL ASSEMBLY AND WIRING

REFER TO FIGURES 2 AND 3.

ASSEMBLY: NOTICE THAT INSIDE OF THE PANEL HAS BRACKETS ALONG ITS SIDE AND BOTTOM FOR ASSEMBLY TO CABINET BOTTOM.

[] FILTERED LINE CORD RECEPTACLE: INSERT THE RECTANGULAR LINE CORD RECEPTACLE FROM THE OUTSIDE OF THE PANEL WITH THE CENTER GROUNDING LUG UP. BOLT IN PLACE USING TWO #4-40 x 1/2" SCREWS, ALSO INSERTED FROM THE BACK. PLACE THE LOCKWASHER AND NUT OVER THE PROTRUDING SCREWS AND TIGHTEN.

[] ACCESSORY POWER RECEPTACLE: INSERT THE CYLINDRICAL ACCESSORY RECEPTACLE FROM THE OUTSIDE OF THE PANEL. LOOKING FROM THE INSIDE AT THE PANEL, THE SILVER TERMINAL SCREW WILL BE CLOSEST TO THE LINE CORD RECEPTACLE. BOLT IN PLACE USING TWO #6-32 x 1/2" SCREWS, ALSO INSERTED FROM THE BACK OF THE PANEL. PLACE THE LOCKWASHER AND NUT OVER THE PROTRUDING SCREWS AND TIGHTEN.

[] FUSE HOLDER: INSERT THE FUSEHOLDER FROM THE OUTSIDE OF THE PANEL WITH THE RUBBER WASHER BETWEEN THE PLASTIC SHOULDER AND THE PANEL TO PREVENT CRACKING THE PLASTIC. ROTATE THE FUSE HOLDER AS NECESSARY TO INSURE THAT THE TERMINAL LUG WHICH IS ON THE SIDE OF THE HOLDER IS UP. PLACE THE WASHER AND NUT OVER THE PROTRUDING FUSE HOLDER AND TIGHTEN JUST ENOUGH TO PREVENT THE FUSE HOLDER FROM BEING TWISTED BY HAND. OVERTIGHTENING WILL RESULT IN BREAKAGE.

NOTE: REAR PANEL HOLES ARE PROVIDED FOR CONNECTORS, SWITCHES AND JACKS WHICH MAY BE INSTALLED, AS REQUIRED, AFTER THE MAINFRAME HAS BEEN COMPLETELY ASSEMBLED AND WIRED. THE FAN WILL BE WIRED AND INSTALLED FOLLOWING THE WIRING OF THE LINE CORD RECEPTACLE AND THE FUSE HOLDER.

WIRING: CUT WIRE, STRIP AND SOLDER ONE END WITH TERMINAL LUG INDICATED.

WIRE	LENGTH	TERMINAL LUGS
#16 BLACK	4"	NONE
#16 BLACK	7"	RED #6 ONE END
#16 BLACK	26"	NONE
2#16 WHITE	4"	RED #6 ONE END
#16 WHITE	20"	RED #10 ONE END
#16 WHITE	2"	NONE
#16 WHITE	22"	NONE
#16 VIOLET	20"	NONE

[] FUSEHOLDER: SOLDER THE #16 BLACK 4" WIRE AND THE #16 BLACK 7" WIRE TO THE TERMINAL ON THE BACK END OF THE FUSE HOLDER. SOLDER THE OTHER END OF THE #16 BLACK 4" WIRE TO TERMINAL "L" ON THE LINE CORD RECEPTACLE (THE TERMINAL NEAREST THE FUSE HOLDER). SOLDER THE #16 BLACK 26" WIRE TO THE TERMINAL ON THE SIDE OF THE FUSE HOLDER (THE TERMINAL NEAREST THE BACK PANEL).

[] LINE CORD RECEPTACLE: SOLDER ONE OF THE #16 WHITE 4" WIRES AND THE #16 WHITE 22" WIRE TO THE "N" TERMINAL ON THE RECTANGULAR LINE CORD RECEPTACLE. SOLDER THE OTHER #16 WHITE 4" WIRE AND THE #16 WHITE 20" WIRE TO THE GROUNDING TERMINAL ON THE TOP SIDE OF THE LINE CORD RECEPTACLE.

[] FAN WIRING AND INSTALLATION: SOLDER THE #16 WHITE 2" WIRE TO THE FAN TERMINAL NEAREST THE FAN MOUNTING HOLE. SOLDER THE #16 VIOLET 20" WIRE TO THE OTHER FAN TERMINAL. INSERT THE FOUR #6-32 x 1" SCREWS THROUGH THE FAN GRILL, AND MOUNT IT ON THE OUTSIDE OF THE REAR PANEL OVER THE FAN HOLE. MOUNT THE FAN ON THE INSIDE OF THE REAR PANEL, OVER THE PROTRUDING SCREWS, WITH THE TERMINALS ORIENTED TOWARD THE LOWER CENTER OF THE PANEL AND THE "AIR FLOW" ARROW MOULDED INTO THE TOP OF THE FAN POINTING TOWARD THE REAR PANEL.

[] ACCESSORY POWER RECEPTACLE: SOLDER THE #16 WHITE 2" WIRE FROM THE FAN TO THE SILVER COLORED SOLDER TERMINAL ON THE CIRCULAR ACCESSORY POWER RECEPTACLE (THE TERMINAL NEAREST THE LINE CORD RECEPTACLE. ATTACH THE LUGGED END OF THE #16 WHITE 4" WIRE FROM THE "N" TERMINAL OF THE LINE CORD RECEPTACLE TO THE SILVER COLORED SCREW TERMINAL. ATTACH THE LUGGED END OF THE #16 WHITE 4" WIRE FROM THE GROUNDING TERMINAL ON THE LINE CORD RECEPTACLE TO THE CENTER GROUNDING SCREW TERMINAL ON THE ACCESSORY RECEPTACLE. ATTACH THE LUGGED END OF THE #16 BLACK 7" WIRE FROM THE FUSE HOLDER TO THE BRASS COLORED SCREW TERMINAL ON THE ACCESSORY RECEPTACLE.

CABINET BOTTOM ASSEMBLY AND WIRING

[REFER TO FIGURES 2 AND 5]

[] FOUR RUBBER FEET: ATTACH THE FOUR RUBBER FEET TO THE OUTSIDE BOTTOM OF THE CABINET BY INSERTING THE #4-40 x 1/2" SCREWS THROUGH THE FEET AND THEN THROUGH THE FOUR SMALL MOUNTING HOLES LOCATED IN 2" FROM EACH CORNER OF THE CABINET BOTTOM. THE WASHERS AND NUTS WILL BE ON THE INSIDE.

[] MOTHERBOARD STANDOFFS: LOOSELY ATTACH THE 12 HEXAGONAL STANDOFFS TO THE INSIDE OF THE CABINET BOTTOM BY INSERTING THE #6-32 x 1/4" SCREWS FROM THE OUTSIDE OF THE CABINET BOTTOM THROUGH THE MOUNTING HOLES AS SHOWN IN FIGURES 2 and 4.

POWER SUPPLY ASSEMBLY AND WIRING

CUT WIRE, STRIP AND ATTACH TERMINAL LUGS AS INDICATED BELOW:

WIRE	LENGTH	TERMINAL LUGS
#16 YELLOW	5"	RED #10 ONE END
#16 VIOLET	10"	RED #10 ONE END
#12 WHITE	4"	BLUE #10 ONE END
#12 WHITE	3"	BLUE #10 BOTH ENDS
#12 WHITE	2"	BLUE #10 BOTH ENDS
#12 WHITE	13" 16	BLUE #10 BOTH ENDS
#16 WHITE	4"	RED #10 ONE END
#12 RED	5"	BLUE #10 ONE END
2 #16 BLACK	4"	NONE
2 #12 BLACK	4"	NONE

[] RECTIFIER BRIDGE: BEFORE INSTALLATION, SOLDER THE # 16 YELLOW 5" WIRES TO THE TERMINAL MARKED " - ", THE #16 VIOLET 10" WIRE TO THE TERMINAL MARKED " + ", AND THE TWO #16 BLACK 4" WIRE TO THE TERMINALS MARKED "AC". INSERT A #6-32 x 1/2" SCREW FROM THE TOP [TERMINAL SIDE] OF THE BRIDGE AND FASTEN TO THE BOTTOM OF THE CABINET IN THE POSITION AND ORIENTATION SHOWN IN FIGURES 2 AND 4. PLACE A LOCKWASHER AND NUT OVER THE PROTRUDING SCREW. DO NOT OVERTIGHTEN.

[] TWO REVERSE POWER DIODES 1N 1183RA: BEFORE INSTALLING REVERSE DIODES, PRE-TIN THE TERMINALS ON EACH BY HEATING WITH A SOLDERING IRON AND APPLY JUST ENOUGH SOLDER TO COLOR THE TERMINALS. SOLDER THE #12 BLACK 4" WIRES TO THE TERMINALS. SCRAPE AWAY ABOUT 1/4" OF PAINT ON THE BOTTOM OF THE CHASSIS FROM AROUND EACH OF THE TWO 1/4" DIAMETER HOLES TO INSURE PROPER GROUNDING. APPLY HEAT SINK GREASE OR PLUMBERS GREASE TO BOTH SIDES OF ONE OF THE LARGE FENDER WASHERS AND PLACE IT OVER THE THREADED END OF ONE OF THE DIODES. THE GREASE WILL INSURE ADEQUATE HEAT CONDUCTION. INSERT THE THREADED END THROUGH ONE OF THE 1/4" HOLES IN THE CABINET FROM THE INSIDE. PLACE A LOCKWASHER AND NUT OVER THE PROTRUDING SCREW AND TIGHTEN. REPEAT THE PROCESS WITH THE OTHER DIODE.

[] TWO 8000 MFD ELECTROLYTIC CAPACITORS AND CLAMPS: INSERT A #6-32 x 5/8" SCREW THROUGH EACH OF THE CLAMP OPENINGS AS SHOWN IN FIGURES 2 AND 4. LOOSELY ATTACH THE LOCKWASHERS AND NUTS. ATTACH THE CLAMPS TO THE CHASSIS, IN THE ORIENTATION SHOWN, WITH TWO EACH #6-32 x 3/8" SCREWS INSERTED FROM THE OUTSIDE OF THE CABINET. PLACE THE CLAMP FEET OVER THE PROTRUDING SCREWS AND THEN ATTACH THE LOCKWASHERS AND NUTS. DO NOT TIGHTEN YET.

INSERT ONE OF THE 8000 MFD CAPACITORS IN THE CLAMP NEAREST THE FRONT OF THE CABINET (INDICATED AS CAPACITOR #1). ORIENT THE CAPACITOR SO THE " + " TERMINAL IS TO THE RIGHT OF THE CABINET AS SHOWN IN FIGURE 4. TIGHTEN THE CLAMP SCREW AND THEN THE TWO HOLD DOWN SCREWS. REPEAT THE PROCESS WITH THE OTHER 8000 MFD CAPACITOR IN THE POSITION INDICATED CAPACITOR #2, ORIENTED WITH THE " + " TERMINAL TO THE LEFT (OPPOSITE DIRECTION).

[] ONE 150,000 MFD ELECTROLYTIC CAPACITOR AND CLAMP: INSTALL THE 150,000 MFD CAPACITOR IN THE SAME MANNER AS DESCRIBED ABOVE FOR THE 8000 MFD CAPACITORS. THE " + " TERMINAL IS TO BE ORIENTED TOWARD THE LEFT OF THE CABINET.

[] TRANSFORMER: SCRAPE THE VARNISH FROM THE BOTTOM OF THE TRANSFORMER MOUNTING BRACKETS AND SCRAPE A LITTLE PAINT FROM THE OUTSIDE OF THE CABINET AROUND THE LEFT FRONT MOUNTING HOLE. THIS #10-32 x 1/2" SCREW IS GROUND. BOLT THE TRANSFORMER TO THE CABINET USING FOUR #10-32 x 1/2" SCREWS INSERTED FROM THE CABINET BOTTOM. THE WASHER AND NUT ARE PLACED ON THE INSIDE. BE SURE THAT TERMINAL NUMBERS 5 THROUGH 8 ARE TOWARD THE FRONT OF THE CABINET.

[] WIRES #12 WHITE 4", 3", 2" AND 3": SOLDER THE #12 WHITE 4" WIRE TO TERMINAL #5 OF THE POWER TRANSFORMER AND SCREW THE LUGGED END TO THE " + " TERMINAL OF CAPACITOR #1 TOGETHER WITH ONE LUGGED END OF THE #12 WHITE 2" WIRE.

[] SCREW THE OTHER LUGGED END OF THE #12 WHITE 2" WIRE TO THE NEGATIVE TERMINAL (NOT MARKED " + ") OF CAPACITOR #2 TOGETHER WITH ONE LUGGED END OF THE #12 WHITE 3" WIRE.

[] SCREW THE OTHER LUGGED END OF THE #12 WHITE 3" WIRE TO THE NEGATIVE TERMINAL (NOT MARKED " + ") OF CAPACITOR #3 TOGETHER WITH ONE LUGGED END OF THE #12 WHITE 13" WIRE.

[] LOOSELY ATTACH THE OTHER LUGGED END OF THE #12 WHITE ~~13~~ WIRE TO THE LEFT FRONT TRANSFORMER MOUNTING SCREW DESIGNATED GND.

[] WIRE #16 WHITE 4": SOLDER ONE END TO TERMINAL 5 OF THE POWER TRANSFORMER AND ATTACH THE LUGGED END TO THE POWER TRANSFORMER MOUNTING SCREW DESIGNATED GND.

[] WIRE #12 RED 5": SOLDER ONE END TO TERMINAL #8 OF THE POWER TRANSFORMER AND LOOSELY SCREW THE LUGGED END TO THE " + " TERMINAL OF CAPACITOR #3.

[] BRIDGE RECTIFIER WIRES: SOLDER THE BLACK WIRE NEAREST THE DIODES TO TERMINAL #6 ON THE TRANSFORMER. THE OTHER THREE WIRES WILL BE ATTACHED AS DESCRIBED LATER IN THESE INSTRUCTIONS.

[] POWER DIODES: SOLDER THE BLACK WIRE FROM DIODE #1 TO TERMINAL #7 ON THE TRANSFORMER AND THE BLACK WIRE FROM DIODE #2 TO TERMINAL #9 ON THE TRANSFORMER.

FRONT PANEL ASSEMBLY AND WIRING

FIGURES 2 AND 4 SHOW THE ASSEMBLY AND WIRING OF THE FRONT PANEL.

[] POWER SWITCH #5541131: INSERT FROM THE FRONT OF THE PANEL, MAKING SURE ITS TERMINALS ARE IN THE POSITION SHOWN. IT WILL SNAP INTO POSITION.

[] RESET SWITCH #5543121: INSERT IN THE MANNER DESCRIBED ABOVE.

WIRING:

WIRE	LENGTH	TERMINAL LUGS
#16 WHITE ✓	2"	NONE
#16 WHITE ✓	4"	RED #10 ONE END
#16 BLACK ✓	2"	NONE
#16 BLACK ✓	8"	NONE
#16 VIOLET ✓	4"	NONE

[] WIRE #16 VIOLET 4": SOLDER ONE END TO THE N.O. TERMINAL OF THE POWER SWITCH.

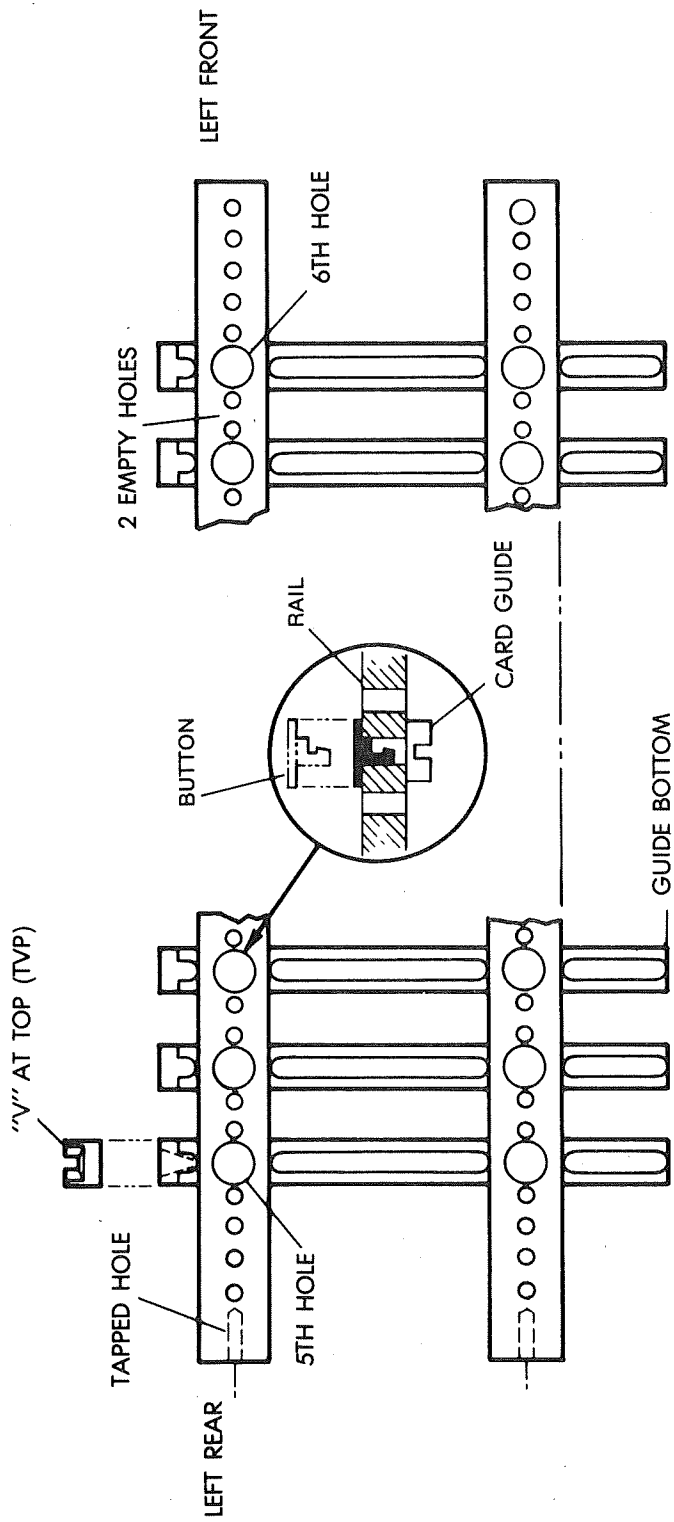
[] WIRE #16 WHITE 2": STRIP 1/8" FROM ONE END AND TIN. INSERT THROUGH THE N.O. TERMINAL OF THE RESET SWITCH AND ON INTO THE LOWER L TERMINAL, PROVIDING A JUMPER BETWEEN THE TWO TERMINALS AS SHOWN. SOLDER TO BOTH TERMINALS. SOLDER THE OTHER END TO THE LOWER L TERMINAL OF THE POWER SWITCH.

[] WIRE #16 WHITE 4": BEND UNLUGGED END AROUND THE LOWER L TERMINAL OF THE RESET SWITCH AND SOLDER IN PLACE.

[] WIRE #16 BLACK 2": SOLDER TO UPPER L TERMINALS OF BOTH SWITCHES.

[] WIRE #16 BLACK 8": SOLDER ONE END TO THE UPPER L TERMINAL OF THE POWER SWITCH BEING CAREFUL THAT IT IS WELL CLEAR OF TERMINAL C.

FIGURE 6 - CARD GUIDE ASSEMBLY



ASSEMBLY OF CARD GUIDES AND RAILS

FIGURE 6 SHOWS THE MECHANICS OF ASSEMBLING THE CARD GUIDES TO THE GUIDE RAILS. WITH REFERENCE TO THE FOLLOWING TABLE, MARK WITH A PENCIL THE HOLES OF THE GUIDE RAILS TO WHICH THE CARD GUIDES ARE TO BE MOUNTED SO AS TO BE PROPERLY ALIGNED WITH THE CONNECTOR LOCATIONS ON THE MOTHERBOARD. THE REAR OF RAIL IS THE END WITH THE TAPPED HOLE COAXIAL WITH THE RAIL.

REAR		CONNECTOR LOCATION NUMBER												FRONT			
18	<u>17</u>	16	15	<u>14</u>	13	12	<u>11</u>	10	9	<u>8</u>	7	6	<u>5</u>	4	3	<u>2</u>	1
57	<u>54</u>	51	48	<u>45</u>	42	39	<u>36</u>	33	30	<u>27</u>	24	21	<u>18</u>	15	12	<u>9</u>	6
GUIDE RAIL HOLE NUMBER																	

THE UNDERLINED LOCATIONS REPRESENT AN EVEN SPACING OF THE SIX CONNECTORS FURNISHED WITH THE KIT.

FINAL ASSEMBLY (REFER TO FIGURE 2)

[] REAR PANEL: ATTACH THE REAR PANEL TO THE CABINET BOTTOM WITH THE FIVE #8-32 x 1/4" PAINTED, PHILLIPS HEAD SCREWS INSERTED THROUGH THE CABINET INTO THE FIVE THREADED BRACKETS.

[] MOTHERBOARD: PLACE THE MOTHERBOARD ON THE STANDOFFS ON THE BOTTOM OF THE CABINET WITH THE TERMINAL SIDE AWAY FROM THE POWER SUPPLY AND THE THREE TERMINAL LEADS RUNNING UNDER THE MOTHERBOARD INTO THE POWER SUPPLY AREA. INSERT AND LOOSELY TIGHTEN THE TWELVE #6-32 x 1/4" MOUNTING SCREWS. ALIGNMENT AND FINAL TIGHTENING FOLLOWS WIRING STEPS BELOW.

[] FRONT PANEL: ATTACH THE TWO LADDERS OF CARD GUIDES, "V" TOP UP AND GROOVES FACING ONE ANOTHER, TO THE FRONT PANEL BY INSERTING #8-32 x 1/2" SCREWS THROUGH THE FIRST HOLE FROM THE FRONT OF EACH OF THE RAILS INTO THE APPROPRIATELY THREADED BRACKETS ON THE BACK SIDE OF THE FRONT PANEL. TIGHTEN THE SCREWS.

INSERT THE FRONT PANEL WITH ITS PROTRUDING CARD GUIDE RAILS INTO THE CABINET FROM THE FRONT, IN A MANNER SIMILAR TO CLOSING A DRAWER, WITH THE LOWER LEFT RAIL PASSING BENEATH THE STIFFENER ALONG THE UPPER LEFT EDGE OF THE CABINET. ATTACH THE GUIDE RAILS TO THE APPROPRIATE HOLES IN THE REAR PANEL BY INSERTING FOUR #6-32 x 1/2" SCREWS THROUGH FROM THE BACK OF THE PANEL INTO THE TAPPED COAXIAL HOLES. TIGHTEN.

FASTEN THE FRONT PANEL TO THE CABINET BOTTOM WITH THE FIVE #8-32 x 1/4" PAINTED PHILLIPS HEAD SCREWS INSERTED THROUGH THE CABINET INTO THE FIVE THREADED BRACKETS.

DRESS THE BLACK WIRE FROM THE SIDE OF THE FUSE HOLDER, THE TWO WHITE WIRES FROM THE FILTERED LINE CORD RECEPTACLE, AND THE VIOLET WIRE FROM THE FAN ALONG THE BOTTOM OF THE LOWER GUIDE RAIL NEAREST THE POWER SUPPLY TOWARD THE FRONT OF THE COMPUTER. TYING THESE WIRES TO THE RAIL WILL IMPROVE THE APPEARANCE OF THE FINISHED JOB.

FINAL WIRING

[] WIRES FROM THE MOTHERBOARD: ATTACH THE VIOLET WIRE TO THE " + " TERMINAL OF CAPACITOR #2 TOGETHER WITH THE VIOLET WIRE FROM THE BRIDGE RECTIFIER. ATTACH THE RED WIRE TO THE " + " TERMINAL OF CAPACITOR #3 TOGETHER WITH THE RED WIRE FROM THE TRANSFORMER. ATTACH THE YELLOW WIRE TO THE NEGATIVE TERMINAL (NOT MARKED " + ") OF CAPACITOR #1 TOGETHER WITH THE YELLOW WIRE FROM THE BRIDGE RECTIFIER. SOLDER THE BLUE WIRE TO TERMINAL C OF THE RESET SWITCH ON THE FRONT PANEL.

[] WIRES FROM THE REAR PANEL: SOLDER THE BLACK WIRE TO TERMINAL C OF THE POWER SWITCH ON THE FRONT PANEL. SOLDER THE VIOLET WIRE TO TERMINAL #3 OF THE TRANSFORMER TOGETHER WITH THE VIOLET WIRE FROM THE FRONT PANEL. ATTACH THE LUGGED WHITE WIRE TO THE TRANSFORMER MOUNTING SCREW MARKED GND TOGETHER WITH THE WHITE GROUNDING WIRES FROM THE FRONT PANEL, THE TRANSFORMER, AND CAPACITOR #3. SOLDER THE UNLUGGED WHITE WIRE TO TERMINAL O OF THE TRANSFORMER.

[] ALIGNMENT OF THE MOTHERBOARD: INSERT ONE PRINTED CIRCUIT BOARD NEAR THE FRONT AND ONE NEAR THE REAR OF THE MOTHERBOARD. LOOSEN MOTHERBOARD MOUNTING SCREWS FROM BOTH THE TOP AND THE BOTTOM AS NECESSARY. THIS WILL PERMIT LOCATING THE EDGEBOARD CONNECTORS IN THE PROPER POSITION TO ACCEPT THE PRINTED CIRCUIT BOARDS. FULLY INSERT THE PC BOARDS AND TIGHTEN THE 24 MOUNTING SCREWS. REMOVE THE PC BOARDS BEFORE POWER SUPPLY CHECK OUT.

NOTE: THIS COMPLETES THE ASSEMBLY AND WIRING OF THE MAINFRAME. IT IS RECOMMENDED THAT THE INSTALLATION OF EACH WIRE BE CHECKED OFF AGAINST FIGURES 3, 4, AND 5.

[] INSERT THE FUSE IN THE FUSE HOLDER AND PROCEED WITH CHECK OUT ACCORDING TO THE FOLLOWING INSTRUCTIONS.

POWER SUPPLY

--- CAUTION ---

THIS POWER SUPPLY USES 110 VAC WHICH IS A POTENTIALLY LETHAL VOLTAGE LEVEL. EXTREME CAUTION MUST BE EXERCISED WHEN WORKING WITH THESE CIRCUITS WHEN POWER IS APPLIED. IT IS SUGGESTED THAT THE USER ALWAYS KEEP ONE HAND IN HIS POCKET WHILE WORKING ON THE POWER SUPPLY WHENEVER 110 VAC IS PRESENT. NEVER MAKE OHMMETER OR CONTINUITY MEASUREMENTS WHILE POWER IS APPLIED.

PRELIMINARY CHECKOUT (WITHOUT POWER)

DURING THESE TESTS DO NOT APPLY 110 VAC.

REVIEW ALL PREVIOUS WIRING INSTRUCTIONS TO INSURE THAT THE POWER SUPPLY IS WIRING CORRECTLY. CHECK ALL CONNECTIONS FOR MECHANICAL INTEGRITY, SUCH AS THE SCREW TERMINALS ON THE ELECTROLYTIC CAPACITORS AND THE MOTHER BOARD. A LOOSE OR UNTERMINATED WIRE CAN CAUSE SERIOUS DAMAGE TO THE COMPUTER AND PRESENT A SAFETY HAZARD TO THE USER.

USING AN OHMMETER, CHECK THE CONTINUITY BETWEEN THE LINE CORD RECEPTACLE GROUND (G) TERMINAL AND THE NEGATIVE TERMINAL OF THE 8,000 MFD CAPACITOR. CONTINUITY (0 OHMS) SHOULD BE INDICATED BETWEEN THESE POINTS. NOW MEASURE FROM THE CAPACITOR TO SOME BARE METAL PORTION OF THE CHASSIS. CONTINUITY SHOULD ALSO BE INDICATED HERE.

WITH THE OHMMETER ON THE X1 SCALE MEASURE ACROSS THE 150,000 MFD CAPACITOR. IF A SHORT IS INDICATED REVERSE THE LEADS OF THE OHMMETER AND REPEAT THE MEASUREMENT. THE CORRECT INDICATION ON THE OHMMETER WILL BE A SLOWLY INCREASING VALUE OF RESISTANCE (IN THE ORDER OF SECONDS) TO A FINAL VALUE OF 100 OHMS $\pm 20\%$. IF A SHORT IS INDICATED BOTH TIMES THEN EITHER THE 150,000 MFD CAPACITOR IS SHORTED OR THERE IS A WIRING ERROR.

REPEAT THE ABOVE TEST ON THE TWO 8,000 MFD CAPACITORS. THE FINAL VALUE OF RESISTANCE FOR THESE TESTS WILL BE 820 OHMS $\pm 20\%$. THEREFORE ADJUST THE SCALE OF THE OHMMETER ACCORDINGLY. ALSO THE RESPONSE TIME WILL BE MUCH SHORTER FOR THESE CAPACITORS.

PRELIMINARY CHECKOUT (WITH POWER)

BEFORE APPLYING POWER TO THE COMPUTER REMOVE ALL PLUG IN CIRCUIT BOARDS, INSURE THAT THE FUSE IS INSTALLED, AND THAT THE POWER SWITCH IS OFF. CONNECT THE AC LINE CORD AND TURN ON THE POWER SWITCH. LISTEN FOR ANY CRACKLING SOUNDS OR VERY LOUD BUZZING IN THE TRANSFORMER. IMMEDIATELY DISCONNECT POWER BY REMOVING THE LINE CORD IF ANY UNUSUAL SOUNDS ARE NOTED OR IF ARCING IS APPARENT.

CORRECT OPERATION OF THE POWER SUPPLY SHOULD BE THE FAN RUNNING, AND BOTH PILOT LIGHTS ON. WITH A VOLTMETER CHECK EACH OF THE POWER SUPPLY VOLTAGES. THEY SHOULD BE:

NOMINAL VOLTAGE	ACCEPTABLE LIMITS
+ 8 VOLTS	+ 7.5 TO + 10.5 VOLTS
+ 16 VOLTS	+ 15 TO + 19 VOLTS
-16 VOLTS	-15 TO -19 VOLTS

ANY VOLTAGE READING OUT OF THE ACCEPTABLE LIMITS INDICATES A FAILURE IN THAT CIRCUIT. THE MOST LIKELY FAILURES AFTER WIRING ERRORS HAVE BEEN ELIMINATED ARE BAD DIODES OR THE POWER TRANSFORMER.

AFTER THE VOLTAGES HAVE BEEN TESTED AT THE POWER SUPPLY, CAREFULLY CHECK FOR THESE VOLTAGES ON THE MOTHERBOARD. THEY SHOULD BE ON THE FOLLOWING PINS:

BUS VOLTAGE	BUS PIN
+ 8 VOLTS	1,51
+ 16 VOLTS	2
-16 VOLTS	52
GROUND	50,100

INCORRECT READINGS HERE COULD DAMAGE CIRCUIT BOARDS WHEN THEY ARE INSTALLED. IF ANY WRONG VOLTAGES ARE FOUND CAREFULLY CHECK WIRING TO THE MOTHERBOARD.

STATEMENT OF WARRANTY

ALL COMPONENTS PURCHASED FROM VECTOR GRAPHIC INC. WILL BE REPLACED FOR A PERIOD OF 90 (NINETY) DAYS FOLLOWING THE DATE OF PURCHASE, IF THE DEFECTS ARE DUE TO WORKMANSHIP OR MATERIAL.

ANY MALFUNCTIONING PRODUCT, PURCHASED AS A KIT, ASSEMBLED WITH CARE IN THE JUDGMENT OF VECTOR GRAPHIC INC., AND NOT SUBJECTED TO ELECTRICAL OR MECHANICAL ABUSE WILL BE RESTORED TO NORMAL OPERATING CONDITION WITH A MINIMAL CHARGE FOR POSTAGE AND HANDLING. THE REPAIRS WILL BE MADE AS PRESCRIBED ABOVE PROVIDING THE PROBLEM COULD NOT HAVE BEEN REMEDIED WITH REASONABLE EFFORT AND SKILL ON THE PART OF THE PURCHASER.

KITS RETURNED TO VECTOR GRAPHIC INC., THAT DO NOT FALL INTO THE ABOVE CATEGORY, WILL BE REPAIRED AND RETURNED FOR A CHARGE NOT TO EXCEED \$20.00. NO REPAIR WORK WILL COMMENCE WITHOUT WRITTEN APPROVAL OF THE OWNER.

PRODUCTS ASSEMBLED BY VECTOR GRAPHIC INC. WILL ALSO BE GUARANTEED FOR 90 (NINETY) DAYS AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP.



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VECTOR 1 MOTHERBOARD USERS MANUAL AND ASSEMBLY INSTRUCTIONS



VECTOR 1 MOTHERBOARD

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KIT CONTENTS LIST

<u>QTY.</u>	<u>DESCRIPTION</u>
1	✓ PRINTED CIRCUIT BOARD
2	✓ 820 OHM 1 WATT RESISTORS (STRIPES OF GRAY, RED, BROWN)
1	✓ 100 OHM 2 WATT RESISTORS (STRIPES OF BROWN, BLACK, BROWN)
1	✓ 7805/340T-5 REGULATOR
1	✓ #6-32X3/8 SCREW, NUT AND LOCKWASHER
41	✓ 330 OHM 1/4 WATT RESISTORS (STRIPES OF ORANGE, ORANGE, BROWN)
41	✓ 470 OHM 1/4 WATT RESISTORS (STRIPES OF YELLOW, VIOLET, BROWN)

THE VECTOR 1 MOTHERBOARD HAS 18 SLOTS, IS BASED ON THE POPULAR S-100 BUS STRUCTURE AND IS DESIGNED TO PROVIDE A NUMBER OF FEATURES NOT PREVIOUSLY AVAILABLE.

IN ACCORDANCE WITH VECTOR GRAPHIC INC.'S COMMITMENT TO HIGH PERFORMANCE STANDARDS AND TOP QUALITY PRODUCTS, OUR MOTHERBOARD KITS ARE NOW SUPPLIED WITH BUS TERMINATORS. WITH THE INCREASED USE OF LOW POWER SCHOTTKY TTL AND ITS REDUCED NOISE IMMUNITY, BUS TERMINATION BECOMES A DESIRABLE FEATURE. NOT TO BE CONFUSED WITH SO CALLED "ACTIVE" TERMINATORS, FULL TIME TERMINATION IS PROVIDED.

FEATURES

MOST POPULAR "ALTAIR/IMSAI" S-100 BUS STRUCTURE

CAN BE USED TO RETROFIT YOUR SECTIONED ALTAIR MOTHERBOARD

POSITIONS FOR 18 .125" X 0.25" 100 PIN EDGE CONNECTORS

ACCEPTS EITHER SOLDER PINS OR WIRE WRAP PINS

MOST POPULAR 0.25" CENTER TO CENTER SPACING BETWEEN PIN ROWS

0.75" CENTER TO CENTER SPACING BETWEEN CONNECTORS

EXTRA HEAVY 0.93" WARP RESISTANT, AEROSPACE QUALITY G-10 EPOXY BOARD

FULL GROUNDPLANE REDUCES NOISE ON BUS LINES

PLATED THROUGH HOLES FOR MORE RELIABLE CONNECTIONS

TRACES ON BACK OF BOARD ONLY

LESS RISK OF SHORTS DURING ASSEMBLY

LESS RISK OF SHORTS FROM CONDUCTIVE ITEM BEING INADVERTENTLY DROPPED DURING OPERATION

MUCH EASIER TO TROUBLE SHOOT

REDUCED CAPACITANCE BETWEEN TRACES

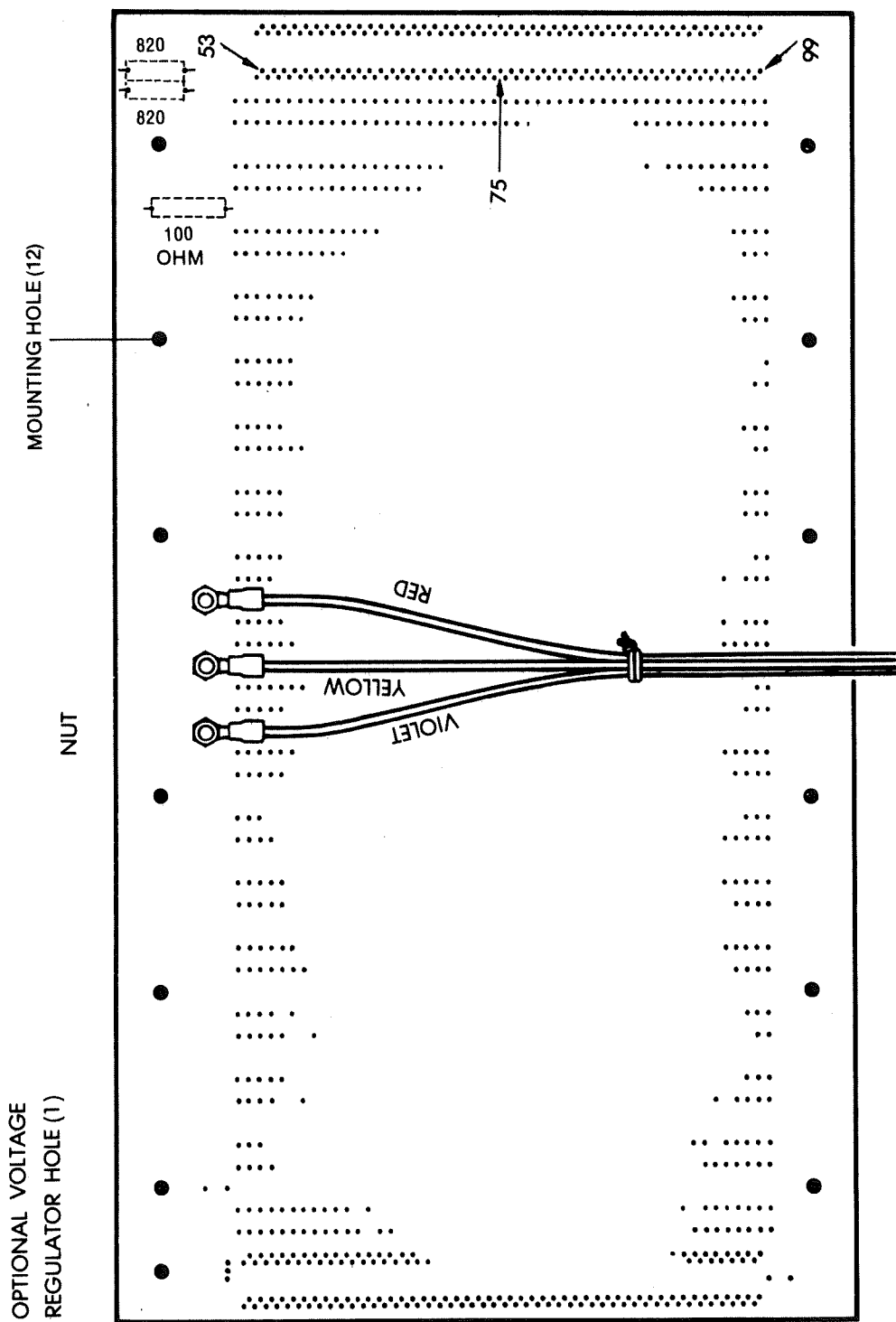
SOLDER MASKED TO REDUCE RISK OF SOLDER BRIDGES DURING ASSEMBLY

BUS TERMINATION

POWER RATING: 20 A FOR +8 VOLT TRACE; 25 A FOR +16V TRACES

BOARD SIZE 15" X 8.5"

5 - MOTHERBOARD BOTTOM



MOTHERBOARD ASSEMBLY SEQUENCE

PRINTED CIRCUIT BOARD

ALTHOUGH THE PRINTED CIRCUIT BOARD HAS BEEN INSPECTED PRIOR TO SHIPMENT, IT IS RECOMMENDED THAT YOU TAKE THE EXTRA PRECAUTION OF CHECKING FOR SHORT CIRCUITS BETWEEN TRACES BEFORE STARTING TO ASSEMBLE THE MOTHERBOARD KIT.

TURN THE BACK SIDE (TRACE SIDE) UP SO THAT YOU CAN SEE THE TRACES AND THEN, USING AN OHMMETER, SUCCESSIVELY PROBE EACH PAIR OF ADJACENT TRACES TO INSURE THAT THERE IS NO SHORT CIRCUIT.

IF A SHORT IS FOUND, EXAMINE THE ENTIRE LENGTH OF THE SPACE BETWEEN THE TWO SHORTED TRACES FOR ANY TINY METALLIC BRIDGES. THIS MAY BE DONE WITH A MAGNIFYING GLASS OR BY HOLDING THE BOARD UP TO A BRIGHT LIGHT.

IF A METALLIC BRIDGE IS FOUND, GENTLY SCRAPE IT AWAY WITH A SHARP KNIFE AND RECHECK THE ADJACENT TRACES WITH THE OHMMETER.

EDGEBOARD CONNECTORS

THE CONNECTOR HOLES ARE DESIGNED FOR .125"X0.25" EDGEBOARD CONNECTORS WITH EITHER SOLDER OR WIRE WRAP PINS.

INSERT THE CONNECTORS FROM THE FRONT SIDE (THE SIDE WITHOUT THE TRACES) IN THEIR PROPER LOCATION AS SHOWN ON THE PARTS LAYOUT DRAWING. IF YOU WILL BE USING LESS THAN THE FULL COMPLEMENT OF 18 EDGEBOARD CONNECTORS, IT IS RECOMMENDED THAT THEY BE SPACED OUT OVER THE BOARD. BE SURE THAT A CONNECTOR IS IN ONE OF THE FIRST TWO ROWS AT EACH END OF THE MOTHERBOARD SO THAT CARDS MAY BE INSERTED AT EACH END TO ACHIEVE ALIGNMENT WITH THE CARD GUIDES DURING FINAL INSTALLATION OF THE MOTHERBOARD IN THE COMPUTER CHASSIS.

INSERT AND SOLDER ONE CONNECTOR AT A TIME TO INSURE THAT EACH IS PROPERLY SEATED.

FIRST SOLDER ONE PIN AT EACH END WHILE PRESSING THE BOARD AGAINST THE CONNECTOR. TURN THE BOARD OVER AND VERIFY THAT EACH END OF THE CONNECTOR IS FIRMLY UP AGAINST THE BOARD.

NEXT SOLDER ONE PIN IN THE MIDDLE OF THE CONNECTOR WITHOUT PRESSING DOWN ON THE BOARD. TURN THE BOARD OVER AND VERIFY THAT THERE IS A UNIFORM GAP BETWEEN THE CONNECTOR AND THE BOARD ALONG THE FULL LENGTH BETWEEN THE CONNECTOR AND PADS. THAT GAP MUST BE MAINTAINED TO AVOID WARPING THE MOTHERBOARD.

FINALLY, SOLDER IN THE REMAINING PINS.

EXAMINE THE JOINT OF EACH CONNECTOR VISUALLY TO INSURE THAT A SHINY, CONCAVE FILLET OF SOLDER UNIFORMLY SURROUNDS EACH PIN AND THAT NO SOLDER BRIDGES HAVE BEEN LEFT BETWEEN THE PINS. THEN, AGAIN, SUCCESSIVELY PROBE EACH PAIR OF ADJACENT TRACES WITH THE OHMMETER TO INSURE THAT THERE ARE NO UNSEEN SHORTS.

IMPORTANT

PERFORMING THESE VISUAL AND ELECTRICAL INSPECTIONS AFTER COMPLETING EACH CONNECTOR AND BEFORE GOING ON TO SOLDER THE NEXT MAY SAVE CONSIDERABLE TIME TRYING TO LOCATE SHORTS OR INTERMITTENT CONNECTIONS.

CLIP EXCESS LEAD LENGTHS WITH DIAGONAL CUTTER.

NOTE

THIS COMPLETES THE ASSEMBLY OF THE EDGEBOARD CONNECTORS TO THE MOTHERBOARD. THE BOARD MAY NOW BE CLEANED.

INSPECTION AND CLEANING

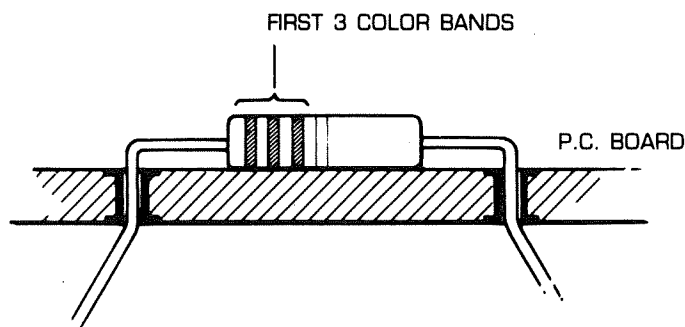
AFTER HAVING SOLDERED ALL CONNECTORS ON THE BOARD, REINSPECT EACH JOINT AREA TO INSURE THAT ALL JOINTS HAVE BEEN SOLDERED AND ARE SHINY AND THAT NO TINY ETCH OR SOLDER BRIDGES HAVE BEEN LEFT BETWEEN TRACES. LETTING A BRIGHT LIGHT SHINE THROUGH THE BOARD MAY HELP YOU LOCATE TINY SOLDER BRIDGES BETWEEN HOLES OR TRACES. CAREFULLY REMOVE ANY SOLDER OR ETCH BRIDGE BY GENTLY SCRAPING IT AWAY WITH A SHARP KNIFE. IF ANY JOINTS HAVE A "MILKY" COLOR OR "SUGARY" TEXTURE, THEY MUST BE REHEATED WITH THE IRON TO ACHIEVE THE SHINY LOOK.

SCRUB BOTH SIDES OF THE BOARD WITH A FINGERNAIL BRUSH USING A TRICHLOROETHANE SOLVENT OR ISOPROPYL ALCOHOL. DO NOT USE ACETONE. THE BACK OF THE BOARD MUST BE SCRUBBED ESPECIALLY HARD TO REMOVE THE FLUX. RINSE WITH SOLVENT AND THEN WASH IN HOT WATER USING A MILD DETERGENT. RINSE IN CLEAN HOT WATER AND LET DRY.

100 OHM AND 820 OHM RESISTORS

ORIENTATION IS OF NO CONCERN WITH RESISTORS. REFER TO PAGE 2 FOR LOCATION, AND BE SURE THAT THE STRIPED COLOR CODE IS AS INDICATED ON THE KIT CONTENTS LIST.

INSERT THE LEADS INTO THE PROPER HOLES. HOLD THE RESISTOR BODY FIRMLY AGAINST THE BOARD, AND THEN SLIGHTLY SPREAD THE LEADS ON THE OPPOSITE SIDE OF THE BOARD TO HOLD IT IN PLACE WHILE SOLDERING. HOLD THE RESISTOR AGAINST THE BOARD WITH YOUR FINGER WHILE SOLDERING TO INSURE THAT IS IS SOLDERED UP AGAINST THE BOARD.



INSPECT FOR PROPER LOCATION AND FOR PROPER SOLDER JOINTS AND THEN CLIP OFF EXCESS LENGTH WITH DIAGONAL CUTTERS.

BUS TERMINATION

THE TERMINATORS PROVIDED ARE 330 OHM PULL-UP (TO +5V) AND 470 OHM PULL-DOWN (TO GND). THUS, THE TERMINATOR WILL CAUSE AN ADDITIONAL LOAD OF 15 MA PER TERMINATED LINE. A TYPICAL BUS DRIVER SUCH AS A 8097 (74367) CAN SINK A MAXIMUM OF 32 MA, THUS LEAVING 17 MA AVAILABLE FOR CIRCUIT BOARDS (MEMORY, I/O, ETC.). IF 74LS367 BUS DRIVERS ARE USED, THEY ARE CAPABLE OF SINKING 24 MA, THUS LEAVING 9 MA AVAILABLE FOR CIRCUIT BOARDS.

A TYPICAL STANDARD TTL GATE PUTS A 1.6 MA LOAD ON THE BUS, WHILE AN LS TTL GATE ONLY REQUIRES 0.4 MA SINK CURRENT. BY COUNTING THE NUMBER OF LOADS ON EACH LINE TO BE TERMINATED, THE USER CAN DETERMINE WHETHER OR NOT THE DRIVE CAPABILITY OF THE BUS DRIVERS WILL BE EXCEEDED.

TABLE 1

LINES TO TERMINATE

24 - 2	38 - DO4	76 - PSYNC	86 - A14
25 - 1	39 - DO5	77 - PWR	87 - A11
29 - A5	40 - DO6	78 - PDBIN	88 - DO2
30 - A4	41 - DI2	79 - A0	89 - DO3
31 - A3	42 - DI3	80 - A1	90 - DO7
32 - A15	43 - DI7	81 - A2	91 - DI4
33 - A12	47 - SMEMR	82 - A6	92 - DI5
34 - A9	49 - CLK	83 - A7	93 - DI6
35 - DO1	54 - EXT CLR	84 - A8	94 - DI1
36 - DO0	68 - MWRITE	85 - A13	95 - DI0
37 - A10			

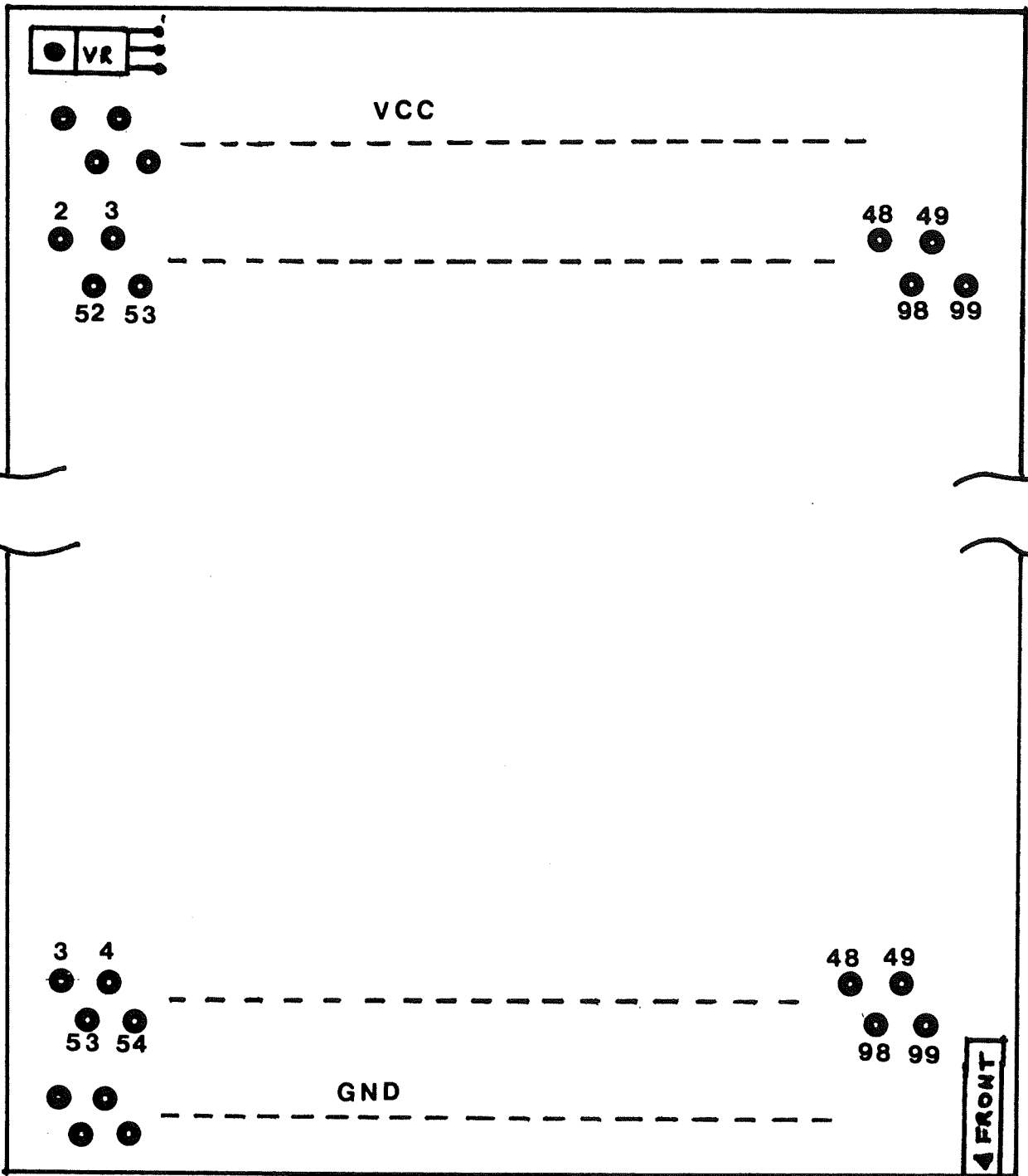
7805 REGULATOR

ASSEMBLE THE 7805 REGULATOR ON THE FRONT OF THE BOARD IN REGULATOR HOLE (1) SHOWN ON PAGE 2 OF THE MOTHERBOARD MANUAL.

1. INSERT THE 6-32X3/8" METAL SCREW FROM THE BACK OF THE PRINTED CIRCUIT BOARD.
2. PLACE THE VOLTAGE REGULATOR OVER THE SCREW WHILE CAREFULLY INSERTING ITS LEADS INTO THEIR PROPER HOLES.
3. PLACE THE LOCKWASHER OVER THE END OF THE SCREW AND FINALLY THE METAL NUT.
4. CAREFULLY TIGHTEN THE SCREW FROM THE BACK WITH A SCREWDRIVER WHILE HOLDING THE REGULATOR TO PREVENT ANY STRAIN ON THE LEADS CAUSED BY TURNING PRESSURE.
5. SOLDER THE LEADS ON THE BACK OF THE BOARD. INSPECT FOR PROPER SOLDER JOINTS AND THEN CLIP OFF EXCESS LEAD LENGTH WITH DIAGONAL CUTTERS.

TERMINATOR RESISTORS

TABLE 1 CONTAINS A LIST OF THE SIGNALS TO BE TERMINATED. ONLY THESE SIGNALS SHOULD BE TERMINATED. EACH END OF THE MOTHERBOARD HAS HOLES AVAILABLE FOR THE MOUNTING OF THE TERMINATOR RESISTORS. THE 330 OHM RESISTORS ARE INSTALLED AT THE END OF THE BOARD NEAREST THE REGULATOR. THE 470 OHM RESISTORS ARE MOUNTED AT THE END OF THE BOARD MARKED "FRONT". CAREFULLY LOCATE THE APPROPRIATE HOLES FOR EACH LINE TO BE TERMINATED AND INSERT THE RESISTORS. SOLDER IN PLACE USING CAUTION TO AVOID SOLDER BRIDGES. CLIP OFF EXCESS LEAD LENGTH.



STATEMENT OF WARRANTY

ALL COMPONENTS SOLD BY VECTOR GRAPHIC INC. ARE WARRANTED FOR NINETY (90) DAYS AGAINST DEFECTS IN WORKMANSHIP OR MATERIALS. DEFECTIVE PARTS WILL BE REPLACED AT NO CHARGE WHEN RETURNED POSTPAID TO VECTOR GRAPHIC WITHIN THE WARRANTY PERIOD.

ANY PRODUCT PURCHASED AS A KIT AND RETURNED POSTPAID WITHIN THE WARRANTY PERIOD, WHICH IN THE JUDGEMENT OF VECTOR GRAPHIC HAS BEEN ASSEMBLED WITH REASONABLE CARE AND NOT SUBJECTED TO MECHANICAL OR ELECTRICAL ABUSE, WILL BE REPAIRED AND RETURNED WITHOUT CHARGE. IF, IN THE JUDGEMENT OF VECTOR GRAPHIC THE KIT WAS NOT ASSEMBLED WITH REASONABLE CARE, THERE WILL BE A \$35.00 REPAIR CHARGE PER BOARD.

ANY PRODUCT PURCHASED AS A FACTORY ASSEMBLED UNIT IS WARRANTED FOR 90 DAYS AGAINST DEFECTS IN WORKMANSHIP OR MATERIALS. ALL FACTORY ASSEMBLED UNITS RETURNED POSTPAID TO VECTOR GRAPHIC WITHIN THE WARRANTY PERIOD WILL BE REPAIRED AND RETURNED WITHOUT CHARGE.

FIGURE 2 - MECHANICAL ASSEMBLY PERSPECTIVE

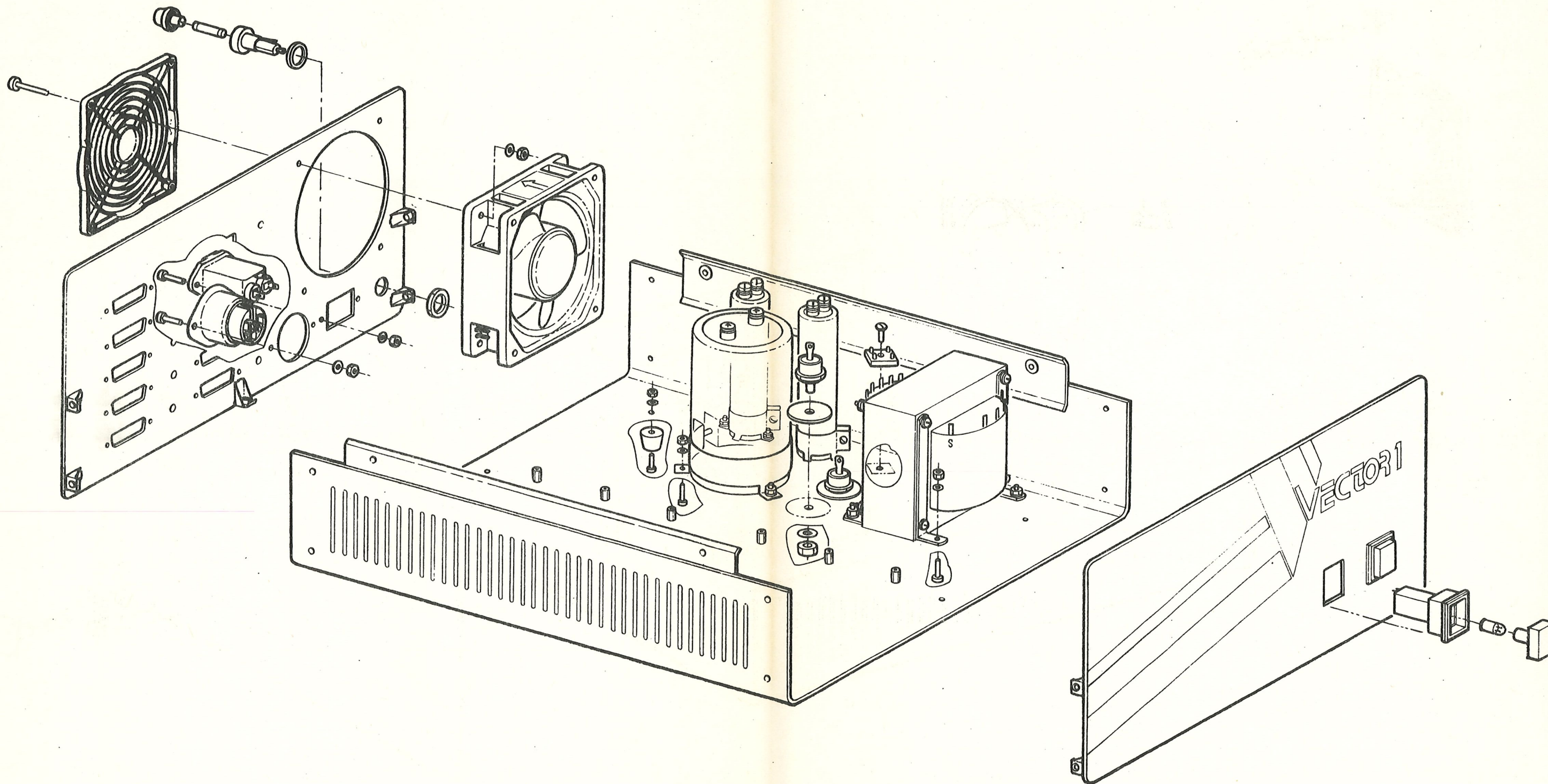


FIGURE 5-POWER SUPPLY WIRING

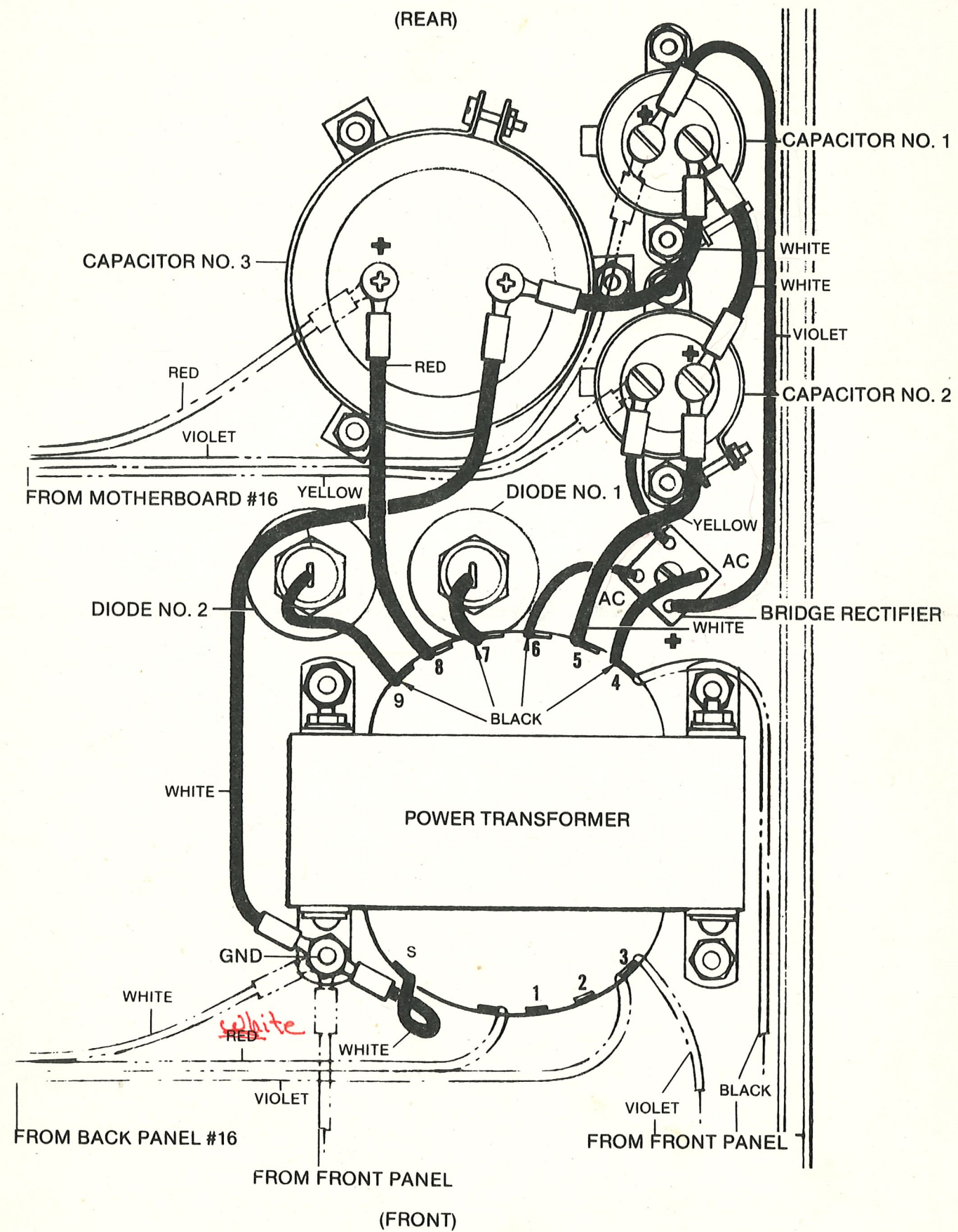


FIGURE 3 - REAR PANEL WIRING

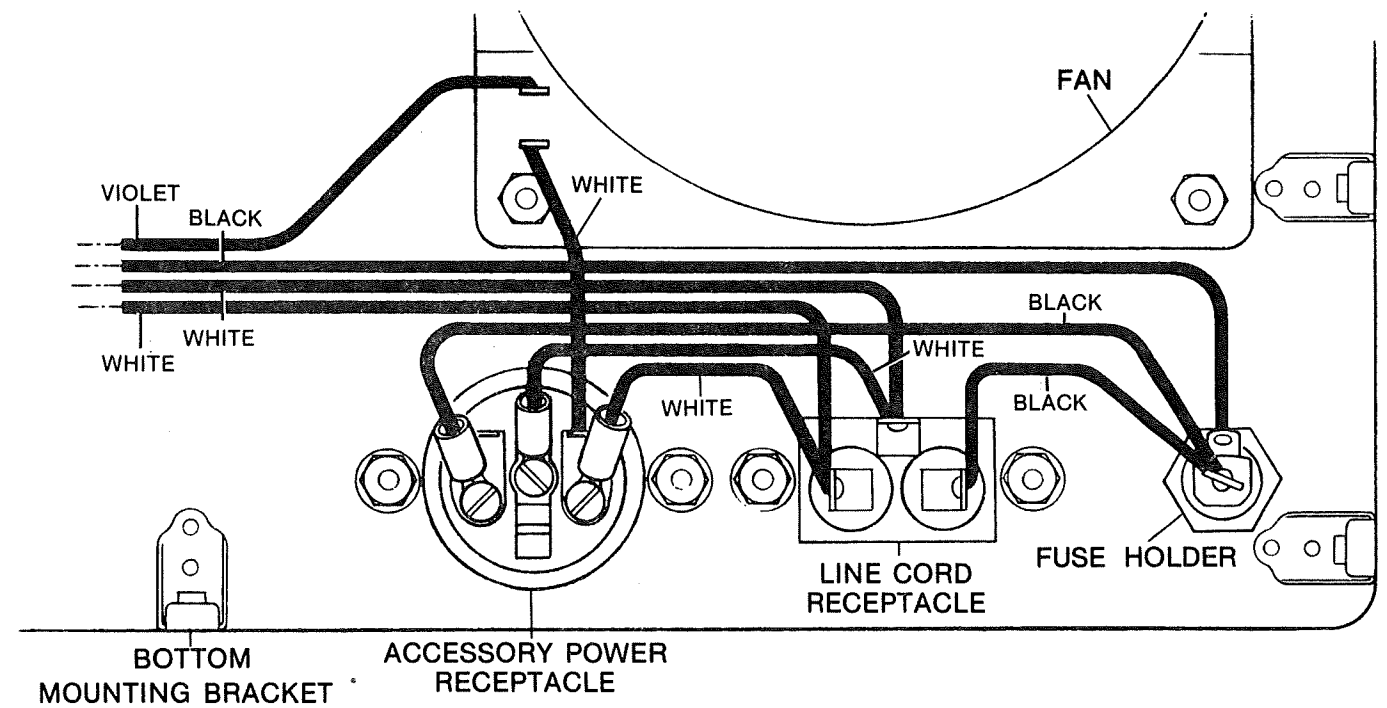
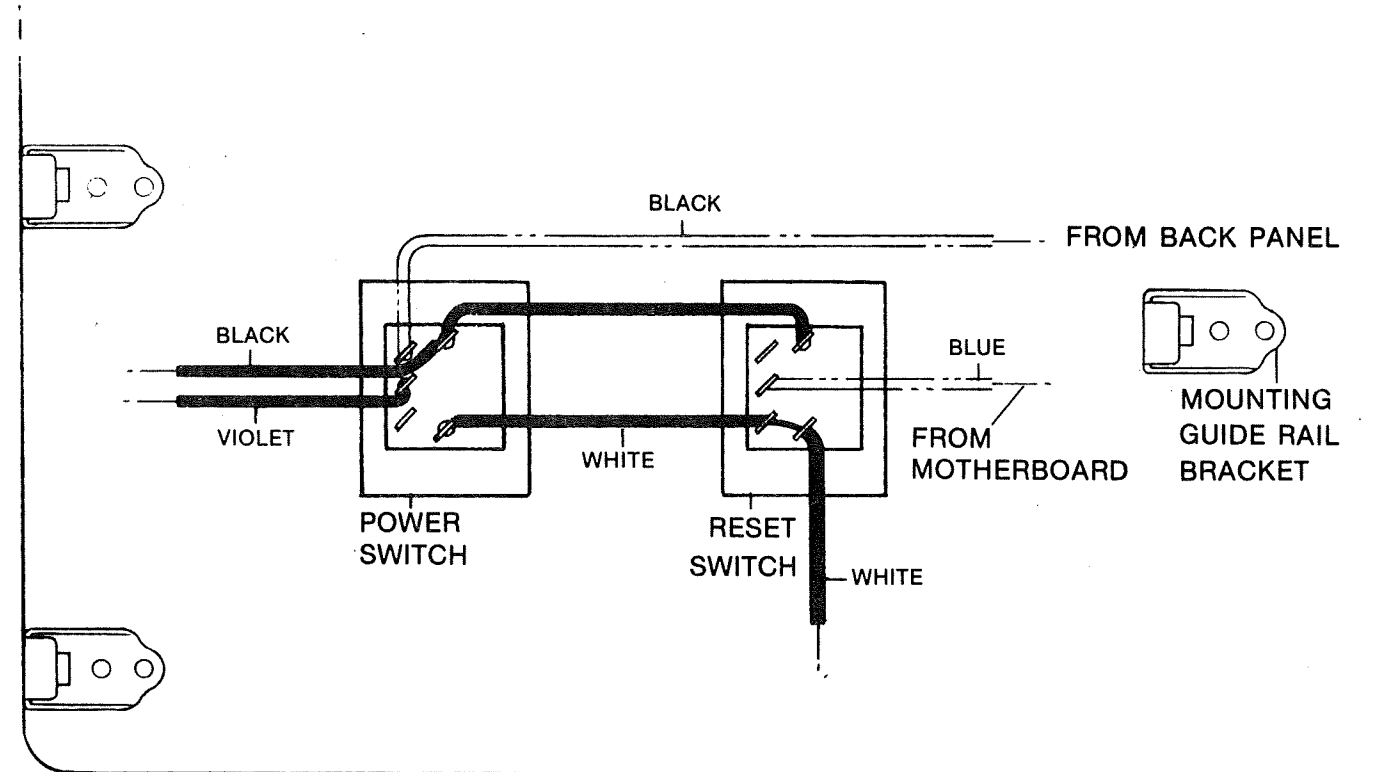
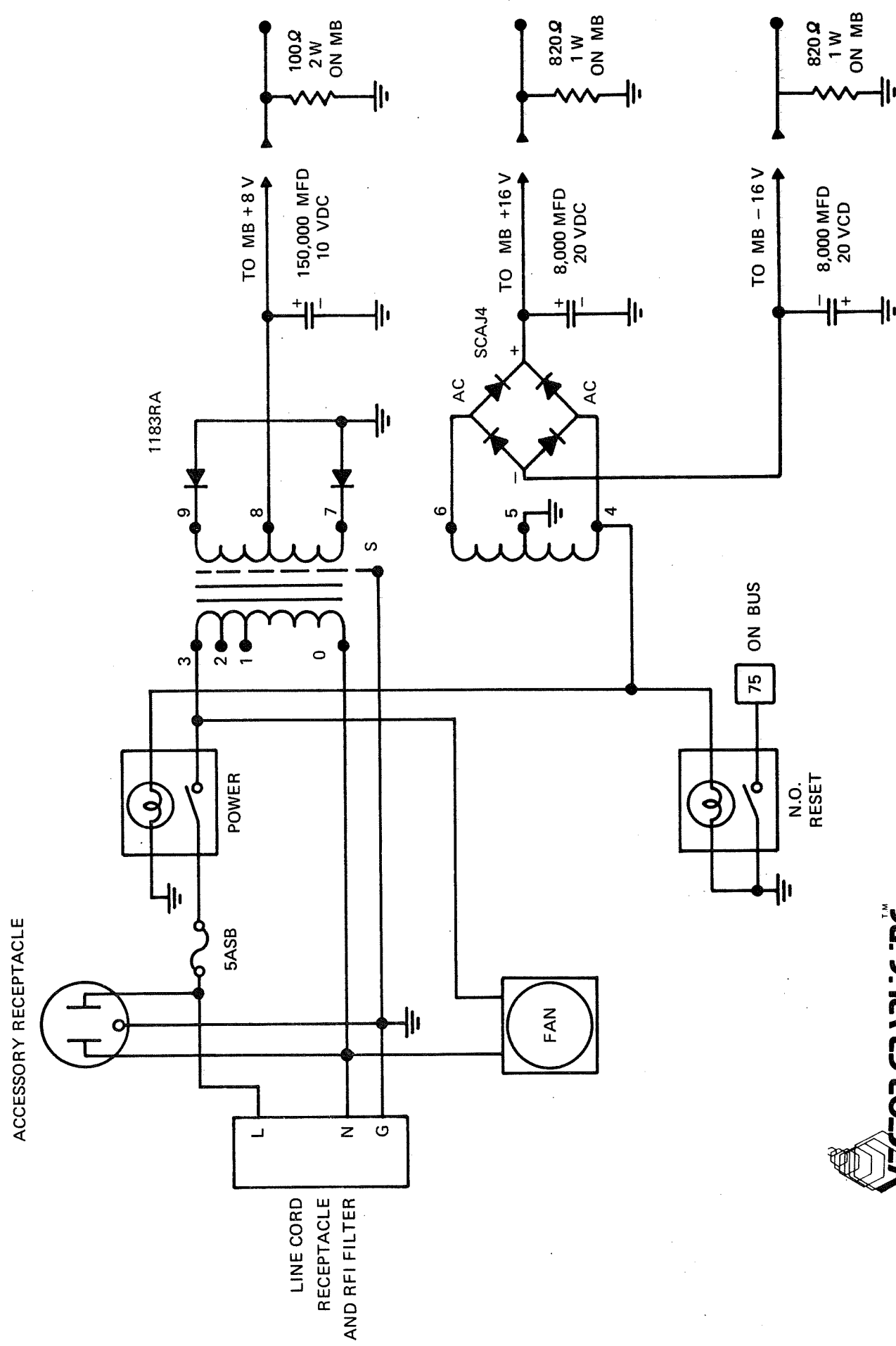


FIGURE 4 - FRONT PANEL WIRING



VECTOR 1 POWER SUPPLY



S-100 BUS

 $\bar{\phi}$ = PHI

1.	+8V	UNREGULATED INPUT TO +5V REGULATORS	26.	PHLDA	HOLD ACKNOWLEDGE, BUFFERED 8080 OUTPUT	54.	$\overline{\text{EXT CLR}}$	CLEAR SIGNAL FOR I/O DEVICES
2.	+16V	UNREGULATED INPUT TO +12V REGULATORS	27.	PWAIT	WAIT ACKNOWLEDGE, BUFFERED 8080 OUTPUT	55.	RTC	REAL TIME CLOCK
3.	XRDY	ANDERED WITH PRDY AND GOES TO 8080 RDY	28.	PINTE	INTERRUPT ENABLE, BUFFERED 8080 OUTPUT	56.	$\overline{\text{STSTB}}$	STROBE SIGNAL (BY 8224 CLOCK CHIP)
4.	VI0	VECTORED INTERRUPT REQUEST 0	29.	A5	BUFFERED ADDRESS LINE 5 (32)	57.	DIGI	ENABLE SIGNAL FOR CPU DI DRIVERS 8
5.	VI1	VECTORED INTERRUPT REQUEST 1	30.	A4	BUFFERED ADDRESS LINE 4 (16)	58.	FRDY	8800B FRONT PANEL READY SIGNAL
6.	VI2	VECTORED INTERRUPT REQUEST 2	31.	A3	BUFFERED ADDRESS LINE 3 (8)	59.		
7.	VI3	VECTORED INTERRUPT REQUEST 3	32.	A15	BUFFERED ADDRESS LINE 15 (32768)	60.		
8.	VI4	VECTORED INTERRUPT REQUEST 4	33.	A12	BUFFERED ADDRESS LINE 12 (4096)	61.		
9.	VI5	VECTORED INTERRUPT REQUEST 5	34.	A9	BUFFERED ADDRESS LINE 1 (2)	62.		
10.	VI6	VECTORED INTERRUPT REQUEST 6	35.	DO1	BUFFERED DATA OUT LINE 1	63.		
11.	VI7	VECTORED INTERRUPT REQUEST 7	36.	DO0	BUFFERED DATA OUT LINE 0	64.		
12.	XRDY2		37.	A10	BUFFERED ADDRESS LINE 10 (1024)	65.		
13.			38.	DO4	BUFFERED DATA OUT LINE 4	66.		
14.			39.	DO5	BUFFERED DATA OUT LINE 5	67.	$\overline{\text{PHANTOM}}$	
15.			40.	DO6	BUFFERED DATA OUT LINE 6	68.	MWRT	WRITE ENABLE SIGNAL FOR MEMORY
16.			41.	DI2	DATA INPUT LINE 2	69.	$\overline{\text{PS}}$	INDICATES IF ADDRESSED MEMORY IS P
17.			42.	DI3	DATA INPUT LINE 3	70.	PROT	INPUT TO MEMORY PROTECT CIRCUITRY
18.	$\overline{\text{STA DSB}}$	STATUS BUFFER DISABLE	43.	DI7	DATA INPUT LINE 7	71.	RUN	INDICATES MACHINE IS IN RUN MODE
19.	$\overline{\text{C/C DSB}}$	COMMAND/CONTROL BUFFER DISABLE	44.	SMI	LATCHED 8080 M1 STATUS	72.	PRDY	ANDERED WITH XRDY AND GOES TO 8080 R
20.	UNPROT	INPUT TO MEMORY PROTECT CIRCUITRY ON MEMORY BOARD	45.	SOUT	LATCHED 8080 OUT STATUS	73.	$\overline{\text{PINT}}$	INPUT TO 8080 INTERRUPT REQUEST
21.	SS	INDICATES MACHINE IS IN SINGE STEP MODE	46.	SINP	LATCHED 8080 INP STATUS	74.	$\overline{\text{PHOLD}}$	INPUT TO 8080 HOLD REQUEST
22.	$\overline{\text{ADD DSB}}$	ADDRESS BUFFER DISABLE	47.	SMEMR	LATCHED 8080 MEMR STATUS	75.	$\overline{\text{PRESET}}$	CLEAR SIGNAL FOR CPU
23.	$\overline{\text{DO DSB}}$	DATA OUT (FROM CPU) BUFFER DISABLE	48.	SHLTA	LATCHED 8080 HLTA STATUS	76.	PSYNC	BUFFERED 8080 SYNC SIGNAL
24.	$\bar{\phi}2$	PHASE TWO CLOCK TTL LEVELS	49.	CLOCK	2 MHZ CLOCK, CRYSTAL CONTROLLED	77.	$\overline{\text{PWR}}$	BUFFERED 8080 WRITE ENABLE SIGNAL
25.	$\bar{\phi}1$	PHASE ONE CLOCK TTL LEVELS	50.	GND	LOGIC AND POWER GROUND RETURN	78.	PDBIN	BUFFERED 8080 BDIN SIGNAL
			51.	+8V	UNREGULATED INPUT TO +5V REGULATORS	79.	A0	BUFFERED ADDRESS LINE 0 (1)
			52.	-16V	UNREGULATED INPUT TO NEGATIVE REGULATORS	80.	A1	BUFFERED ADDRESS LINE 1 (2)
			53.	$\overline{\text{SSW DSB}}$	SENSE SWITCH DISABLE	81.	A2	BUFFERED ADDRESS LINE 2 (4)