

CHAPTER 8

POWER DISTRIBUTION

8.1 INTRODUCTION

This chapter describes both the ac and dc power distribution system and the patch panel drive system. The dc voltages are generated by the 0.10.0354 Power Supply described in Chapter 7 of this manual.

8.2 PRIMARY (AC) POWER DISTRIBUTION

The 580 Computer Console is designed to operate from either a 115 volt or 230 volt ac source. Preparing the computer for operation from either source voltage is a matter of jumpering terminals on terminal board TB1. As shown in Figure 8.1, jumpering terminals 1 and 3, 2 and 4, and 5 and 6 prepares the computer for 115 volt operation. Jumpering terminals 2 and 3 prepares the computer for 230 volt operation.

The 580 contains two duplex convenience outlets which provide primary power voltage for any peripheral equipment used with the computer. Convenience outlet AC2 is in parallel with the ac input (Figure 8.1) and is hot when the computer is connected to a power source. Convenience outlet AC3 is a switched outlet that provides power only when the computer is turned on. This outlet is protected by fuse F2.

CAUTION

The voltage present at receptacles AC2 and AC3 is the same as the primary power voltage. Do not connect 115 volt accessories to this outlet if the computer is powered from a 230 volt ac source.

The switching circuit consists of an ON switch (S1-1) and an OFF switch (S1-2), a thermal protector switch (S2) and relay K1 (Figure 8.1). When the computer is connected to a source voltage, terminal L1 of relay K1 and pin 7 of the ON switch are connected to 115 volts ac and terminal L3 and one input of the relay coil are connected to ac common. Depressing the ON switch energizes K1 and 115 volts ac common is connected to TB1-1, TB1-3, and TB1-4 respectively. Primary power for the power supply and the DVM is obtained from this terminal on TB1.

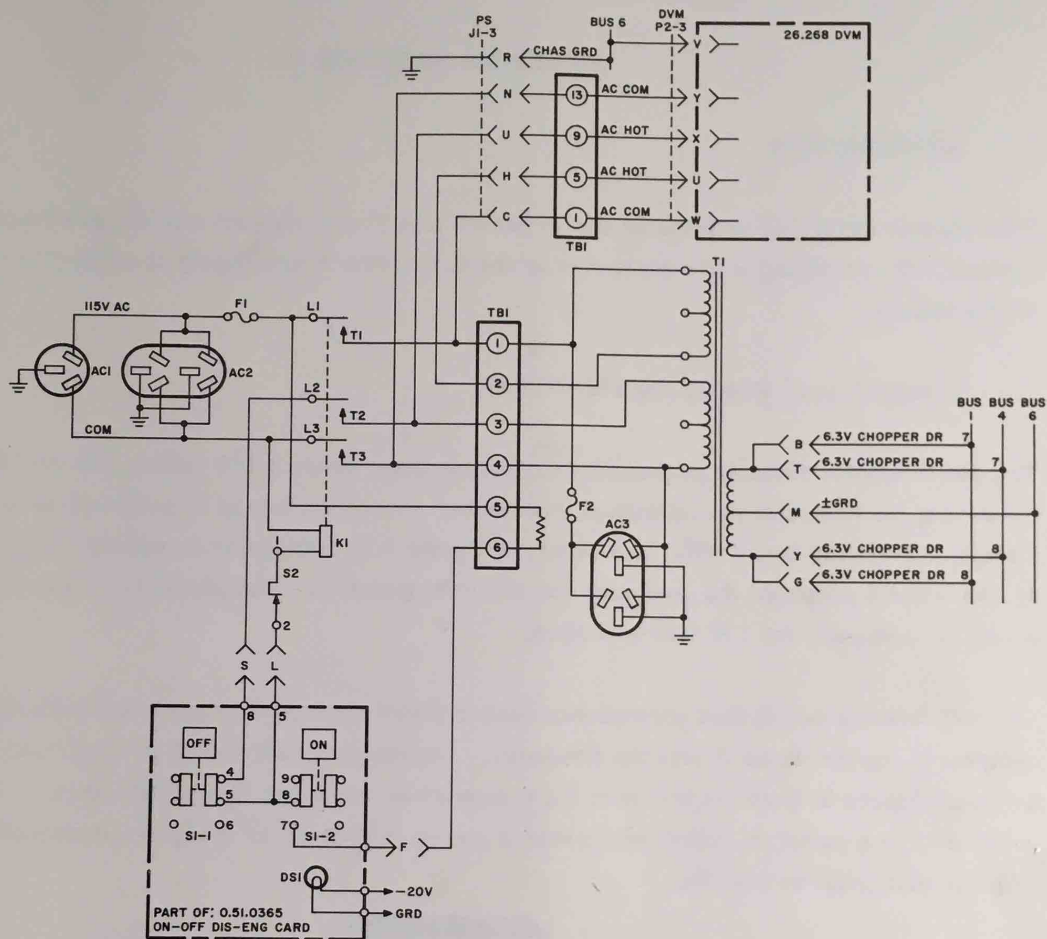


Figure 8.1. Primary Power Distribution

Depressing the OFF switch causes the ON switch to open, the relay is de-energized and primary power is removed from TB1.

Chopper drive voltage for the chopper stabilized amplifiers in the computer, is provided by output windings on transformer T1 located in the 0.10.0354 Power Supply. This voltage is distributed through the computer bus bar system.

8.3 PATCH PANEL DRIVE SYSTEM

The 580 Computer utilizes a patch panel drive system for installation and removal of the pre-patch panel. For the purpose of this description, assume that the pre-patch panel is in the engaged position as shown in Figure 8.2.

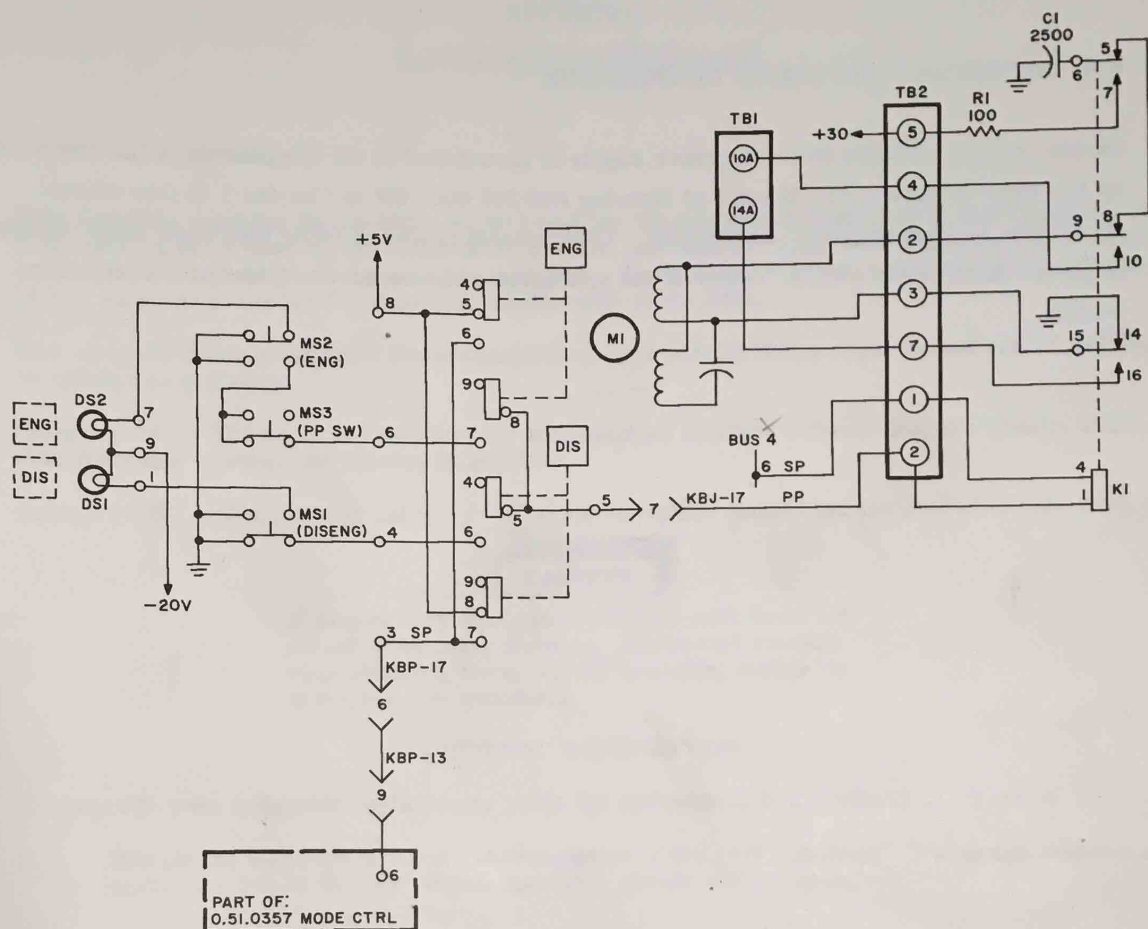


Figure 8.2. Patch Panel Drive System

Depressing the DIS pushbutton causes contacts 5 and 6 and 7 and 8 to close. When contacts 5 and 6 close, pin 1 of relay K1 is grounded. Closing contacts 7 (SP) and 8 (+5 volts) forces the SP mode high, connecting +5 volts through the SP bus to pin 4 of K1, energizing the relay. Energizing K1 connects ac voltage to the motor and the patch panel starts the disengaging cycle. In the engaged state, pins 6 and 7 of K1 are also closed, allowing capacitor C1 to charge to +30 volts. As the end of the disengaging cycle approaches, microswitch MS1 opens removing the ground from the relay card and K1 is de-energized. In the de-energized state the 115 Vac voltage is removed from the motor and capacitor C1 discharges +30 volts through the motor windings to ground. The +30 volts from C1 is used to dampen the motor and significantly reduces any tendency for the patch panel to override.

Depressing the ENG pushbutton causes the drive system to operate in the same manner with the exception that the patch panel is driven to the engaged position.

8.4 SECONDARY (DC) POWER DISTRIBUTION

Direct current voltages from the power supply is distributed to all components of the computer by bus bars (Figure 7.5). Sheet 1 of Drawing D00 093 0062 0W in Chapter 1 of this manual illustrates secondary power distribution. Other sheets of this drawing also show small portions of power distribution wiring. Refer to the appropriate sheets for detailed distribution information.

APPENDIX 1

REPLACEABLE PARTS LISTS

This appendix contains Replaceable Parts Lists for the equipment described in this chapter. In each case, a brief description of the part, the EAI part number and, where applicable, a reference symbol (schematic designation) is included. To enable a particular sheet to be readily located, an index precedes the individual replaceable parts lists.

The category column indicates the availability of each part so that a replacement can be obtained as quickly as possible.

Category "A" - The parts in category "A" are standard electronic items that are usually available from any commercial electronic supplier.

Category "B" - The parts in category "B" are proprietary items that are available only from EAI.

CAUTION

If proprietary items are replaced with items obtained from other sources, EAI cannot assume responsibility for a unit not operating within its published specifications.

ORDERING INFORMATION

To expedite your order for replacement parts the procedures below should be followed:

1. Specify the EAI part number and description of the part required. The model number and serial number of the next higher assembly should also be included.

NOTE

EAI is currently revising the part numbering system. All parts effected by this revision are identified using the new and the old number (the number in parenthesis). All parts should be ordered using the new number. The old number is provided to cross reference parts that may still be identified physically, or in other publications by that number.

2. When ordering complete assemblies (networks, printed circuit cards, etc.), specify the model and serial numbers of the equipment the assembly is to be used with. If possible, include the purchase order number or the EAI project number of the original equipment purchased.
3. When ordering expansion components, note if mounting hardware is required. If hardware is needed, add to the purchase order the statement "INCLUDING MOUNTING HARDWARE".

NOTE THAT EAI RESERVES THE RIGHT TO MAKE PART SUBSTITUTIONS WHEN REQUIRED. EAI GUARANTEES THAT THESE SUBSTITUTIONS ARE ELECTRICALLY AND PHYSICALLY COMPATIBLE WITH THE ORIGINAL COMPONENT.

PARTS LISTS INDEX

<u>Title</u>	<u>Page</u>
0.51.0380 Motor Mounting	8-7
0.12.1658 Dynamic Brake	8-7
0.51.0365 OFF-ON DIS-ENG Card	8-8
0.12.1641 Bus Bar Network Card	8-8
0.93.0062 Wire Cabinet	8-9

ITEM	REF. DESIG.	DESCRIPTION	EAI NO.	*CAT.
1	M1-C1	Motor	00 594.0096-0	B
<u>0.12.1658 DYNAMIC BRAKE</u>				
1	C1	Capacitor	00 516.0410-0	B
2	C2	Capacitor, Fixed, Paper: 0.5 uf $\pm 10\%$, 600V (Aerovox CP53B1EF504K or equal)	00 520.0004-0	A
3	CR1	Diode (ITT G-774 or equal)	00 614.0293-0	A
4	K1	Relay: 18 VDC, 520 ohms Coil, 4 Form C Contacts (Allied Control T-154-4C-520 or equal)	00 618.0171-0	A
5	R1	Resistor, Fixed, Composition: 100 ohms $\pm 5\%$, 1/2W (Allen-Bradley EB or equal)	00 626.0101-0	A
6	R2	Resistor, Fixed, Composition: 22 ohms $\pm 5\%$, 1/2W (Allen-Bradley EB or equal)	00 626.0220-0	A
7	XK1	Socket, Relay: 16 Contacts (Allied Control 30055-4 or equal)	00 650.0133-0	A
NOTE: THE CATEGORY COLUMN IS DESIGNED TO INDICATE AVAILABILITY OF PARTS. A - INDICATES PARTS THAT SHOULD BE PURCHASED LOCALLY. B - INDICATES PARTS THAT SHOULD BE PURCHASED FROM EAI.			UNIT TITLE	
			MOTOR MOUNTING	
			MODEL NO.	
0-0			0.51.0380 Sh. 1 of 1 Sh.	
DATE 10 / 11 / 67				

ITEM	REF. DESIG.	DESCRIPTION	EAI NO.	*CAT.
1	DS1	Lamp, Incandescent: 28V, 4 MA; Clear, T1-3/4 Bulb (Hudson 369 or equal)	00 578.0089-0	A
2	S1	Switch	00 656.0178-2	B
<u>0.12.1641 BUS BAR NETWORK CARD</u>				
1	C1,2,3,4,7	Capacitor, Fixed, Electrolytic: 100 uf $\pm 20\%$, 20V (Sprague 150D107X0020-S2 or equal)	00 517.1107-3 (00 516.0270-0)	A
2	C5,6	Capacitor, Fixed, Electrolytic: 47 uf $\pm 20\%$, 35V (Sprague 150D4760035-S2 or equal)	00 517.1476-4 (00 516.0269-0)	A

NOTE: THE CATEGORY COLUMN IS DESIGNED TO INDICATE AVAILABILITY OF PARTS.
A - INDICATES PARTS THAT SHOULD BE PURCHASED LOCALLY.
B - INDICATES PARTS THAT SHOULD BE PURCHASED FROM EAI.

UNIT TITLE

OFF-ON DISENGAGE-ENGAGE CARD

MODEL NO.

0.51.0365 Sh. 1 of 1 Sh.

ITEM	REF. DESIG.	DESCRIPTION	EAI NO.	*CAT.
1	DS1	Lamp, Incandescent: 28V, 4 MA; Clear, T1-3/4 Bulb (Hudson 369 or equal)	00 578.0089-0	A
2	S1	Switch	00 656.0178-2	B
<u>0.12.1641 BUS BAR NETWORK CARD</u>				
1	C1,2,3,4,7	Capacitor, Fixed, Electrolytic: 100 uf $\pm 20\%$, 20V (Sprague 150D107X0020-S2 or equal)	00 517.1107-3 (00 516.0270-0)	A
2	C5,6	Capacitor, Fixed, Electrolytic: 47 uf $\pm 20\%$, 35V (Sprague 150D4760035-S2 or equal)	00 517.1476-4 (00 516.0269-0)	A

NOTE: THE CATEGORY COLUMN IS DESIGNED TO INDICATE AVAILABILITY OF PARTS.
A - INDICATES PARTS THAT SHOULD BE PURCHASED LOCALLY.
B - INDICATES PARTS THAT SHOULD BE PURCHASED FROM EAI.

UNIT TITLE

OFF-ON DISENGAGE-ENGAGE CARD

MODEL NO.

0.51.0365 Sh. 1 of 1 Sh.

ITEM	REF. DESIG.	DESCRIPTION	EAI NO.	*CAT.
1	A8,A23,A53, B8	Connector, Receptacle: 22 Contacts; Female (Amphenol 143-022-01 or equal)	00 542.0091-0	A
2	AT-3,DVM-P2	Connector Module	00 542.1244-0	B
3	CP-J1,KB-J2, KB-J11,KB- J12,KB-J14, KB-J15,KB- J16	Connector	00 542.1258-0	B
4	PS1-J1	Connector Module	00 542.1243-0	B
5		Connector, Receptacle: 41 Contacts; Female (Amp 3-582151-5 or equal)	00 542.1423-0	A
6		Connector Housing: 16 Cavity (Amp 582140-2 or equal)	00 542.1430-0	A
7		Connector: 22 Contacts (Cinch 251-15-30-160 or equal)	00 542.1560-0	A
8		Switch, Push: SPST; N.O. (Grayhill 39-101 or equal)	00 656.0185-0	A

NOTE: THE CATEGORY COLUMN IS DESIGNED TO INDICATE AVAILABILITY OF PARTS.
 A - INDICATES PARTS THAT SHOULD BE PURCHASED LOCALLY.
 B - INDICATES PARTS THAT SHOULD BE PURCHASED FROM EAI.

UNIT TITLE

WIRED CABINET

MODEL NO.

0.93.0062

Sh.1 of 1 Sh.

APPENDIX 2

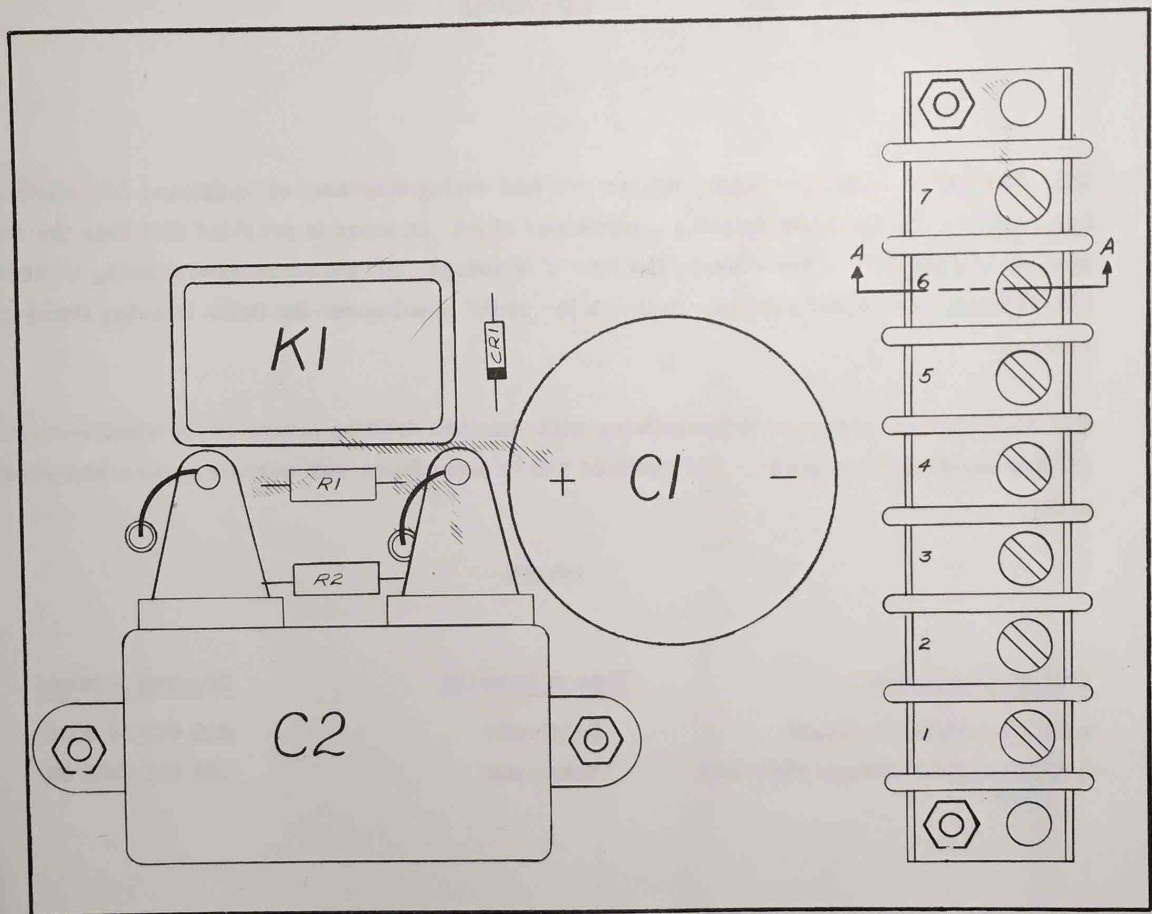
DRAWINGS

This appendix contains necessary schematics and wiring diagrams of equipment described in this manual. To facilitate locating a particular sheet, an index is provided that lists the model number of each unit or component, the type of drawings, and the associated drawing number. The drawings are bound into the manual in the order listed under the index Drawing Number column.

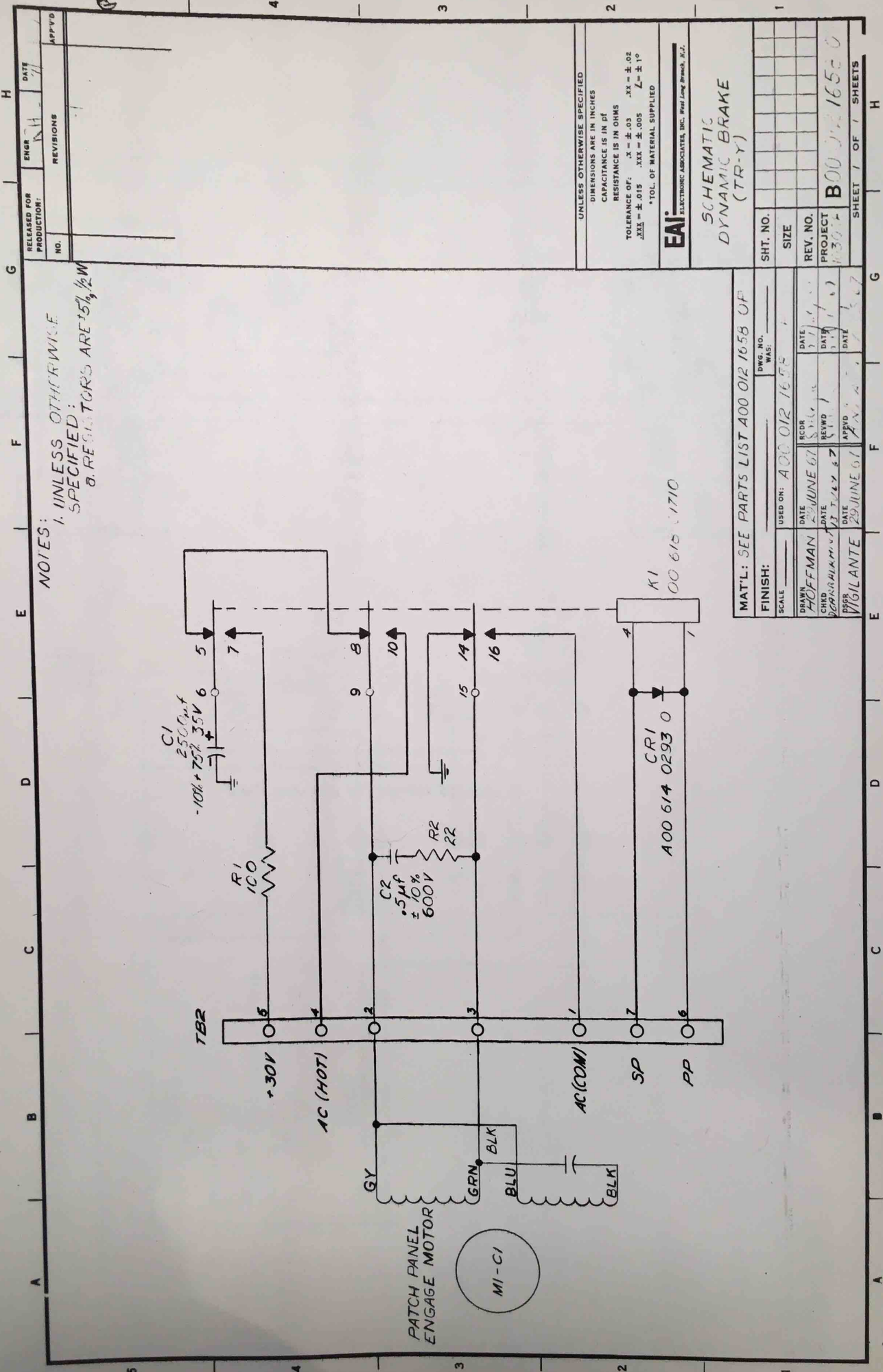
EAI drawings are prepared in accordance with standard drafting practices for electro-mechanical and electronic equipment. All symbols are in accordance with current government standards.

INDEX

<u>Unit or Component</u>	<u>Type of Drawing</u>	<u>Drawing Number</u>
0.12.1658 Dynamic Brake	Schematic	B00 012 1658 0S
0.51.0365 OFF-ON and DIS-ENG Card	Schematic	C00 051 0365 0S



0.12.1658 Dynamic Brake



NOTES:
1. UNLESS OTHERWISE SPECIFIED:
a. RESISTORS ARE 1/4W

RELEASED FOR PRODUCTION	ENGR	DATE
NO.	REVISIONS	APP'D

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITANCE IS IN μF
RESISTANCE IS IN OHMS
TOLERANCE OF: .XX = ±.03 .XX = ±.02
XXX = ±.015 .XXX = ±.005 L = ±1%
*TOL. OF MATERIAL SUPPLIED

EAI
ELECTRONIC ASSOCIATES, INC. 100 Long Beach, N.J.

**SCHEMATIC
DYNAMIC BRAKE
(TR-Y)**

SHT. NO.	SIZE	REV. NO.	PROJECT
			B00 J 1650

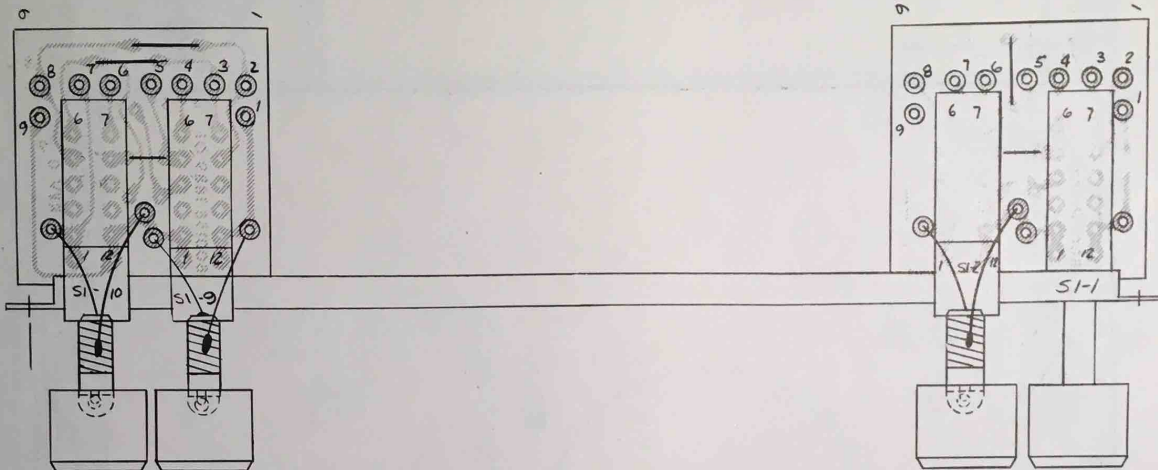
SHEET 1 OF 1 SHEETS

MAT'L: SEE PARTS LIST 400 OIR 1658 UP

FINISH: _____ DWG. NO. _____

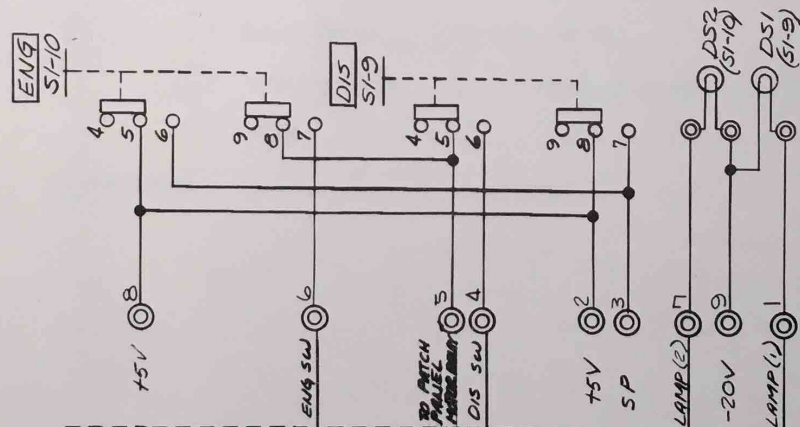
SCALE: _____

DRAWN	DATE	RECORDED	DATE
OFFMAN	JUNE 61		
CHECKED	DATE	DATE	DATE
WILLANTE	JUNE 61		



0.51.0365 Off-On and Dis-Eng Card

RELEASED FOR PRODUCTION	NO.	REVISIONS	APPROV
			DATE



NOTES:

1. 0120

2.518

50

54
in

—

1

A
NEW BLUEPRINT CO. 27

MATERIAL: SEE PARTS LIST A00 0310365 0P	
FINISH:	DWG. NO. WAS:

FINISH:	DWG. NO. WAS:
---------	---------------

UNLESS OTHERWISE SPECIFIED	SCALE	USED ON:	A00 051 036-0P
DIMENSIONS ARE IN INCHES			

CAPACITANCE IS IN pf	DRAWN	DATE	RCDR	DATE
RESISTANCE IS IN OHMS	R. MEL	27 MAR 67	[Signature]	27 APR 67

TOLERANCE OF:		CHRD	DATE	REWD	DATE
.X	$\pm .03$	EM			
.XX	$\pm .02$				
.XXX	$\pm .005$	GLASGOW BLANK	6 APR 67	74112	241167
.XXX	$\pm .018$				
.XXX	$\pm .005$				
.XXX	$\pm .016$				

♦TOL. OF MATERIAL SUPPLIED	DISC'D & SUPPL'D	DATE	DATE
	MCGP & SUPPL'D	DATE	DATE

6 H 1

EAI:

SCHEMATIC

OFF ON - 1115

PLATE 1

[illegible][illegible]

TV, NO.

PROJECT 0330
COC 05103450

SHEET OF SHEETS

—