

CHAPTER 4

READOUT SELECTOR SYSTEM

4.1 INTRODUCTION

The readout selector system provides a simple means of reading out voltages of the analog components and addressing the servo attenuators for setting. (The servo attenuator system is described in Chapter 5 of this handbook.)

The readout selector system consists of the 0.51.0359 Address Select Card, two each 0.51.0360 Units and tens select cards and a 0.11.0213 Select Mother Card. The address select card and the units and tens select cards are mounted on the 0.9.0050 Keyboard with their respective pushbuttons available at the front of the keyboard (Figure 4.1). The select mother card is mounted in the center of the console frame and is accessible from the rear of the computer (Figure 4.2).

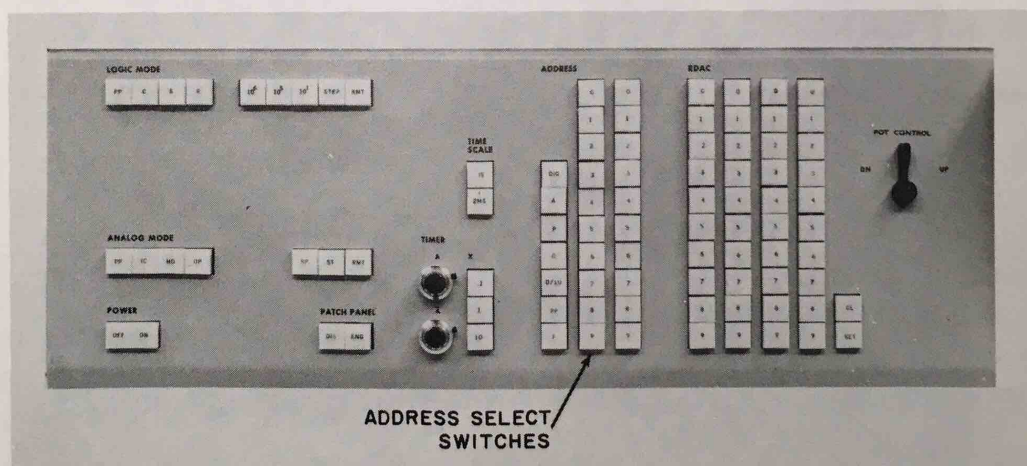


Figure 4.1. Location of Address Select Switches

Table 4.1 identifies and describes the functions of the switches associated with the address select card.

The 0.51.0360 Units and Tens switches are used to select the particular unit that is to be read out. The first column of numbers is the ten position, while the second, or right, column is the unit portion.

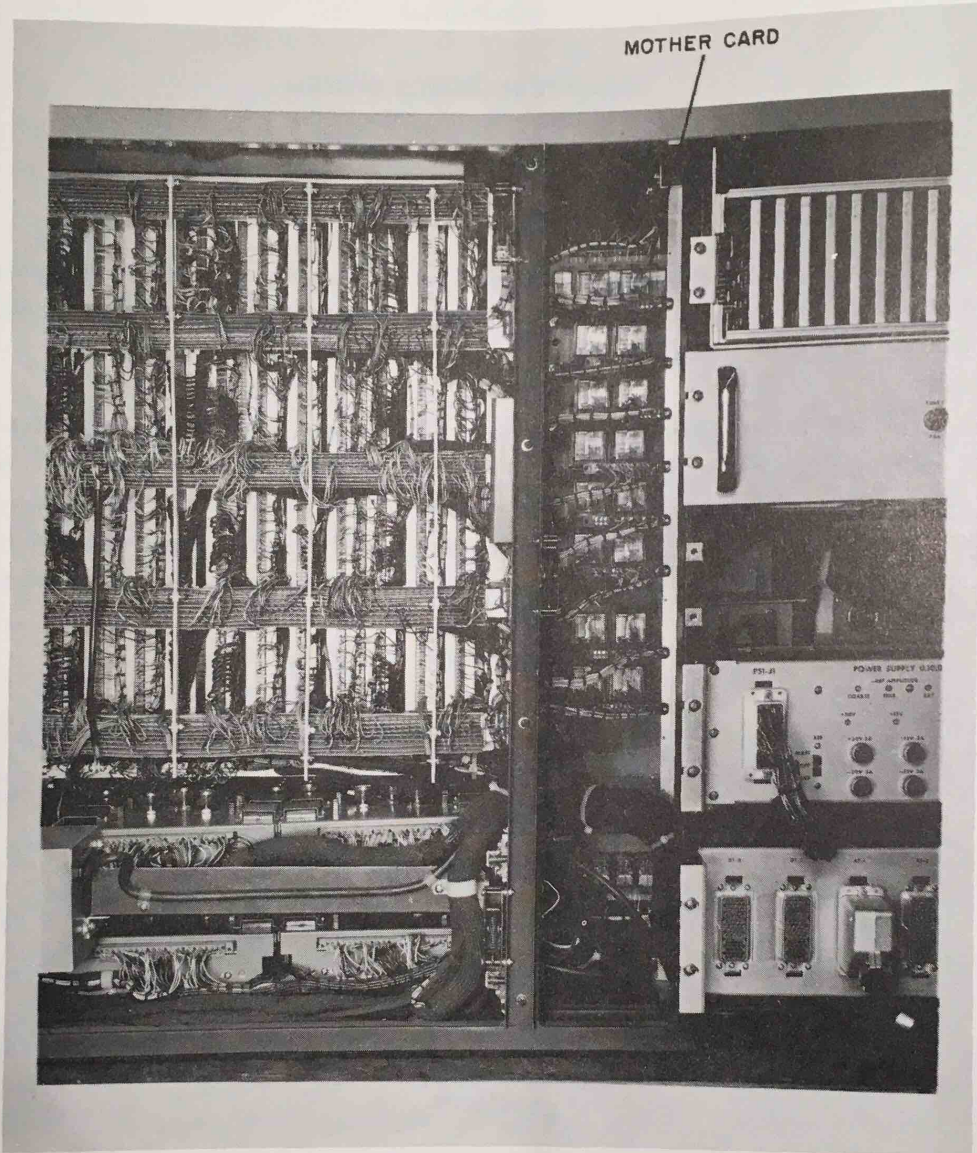


Figure 4.2. Location of Select Mother Card

4.2 CIRCUIT DESCRIPTION

This paragraph contains the descriptions of the individual switching circuits associated with the readout selector system. Each circuit is described in a separate paragraph. Figure 4.3 is a simplified schematic of the overall system.

Table 4.1 Address Select Mode Functions

Pushbutton	Function
DIG I/O	Depressing this pushbutton transfers control of the readout selection system to a digital computer when the 580 is installed in a hybrid configuration.
PP	This pushbutton is used to connect the DVM patch terminal on the 0.12.1607 Control Tray to the DVM input.
F	Depressing this pushbutton allows the amplifiers located in the 0.12.1345 MDFG Amplifier Network to be balanced on the DVM.
D	This pushbutton is used for a derivative readout from the summing junctions of the integrators and track/store units.
D/10	Same as the D (derivative) pushbutton except that in voltage readout is divided by a factor of 10.
P	The P (potentiometer) pushbutton connects the arm of the potentiometer addressed to the VM and DVM.
A	The A (amplifier) pushbutton when depressed switches the output of the selected amplifier or MDFG setup amplifier to the DVM input.

4.2.1 Digital I/O Switch Circuits

The digital I/O (DIG I/O) switch is used in conjunction with an interface chassis when the 580 is connected with a digital computer in a hybrid configuration. As indicated in Figure 4.3, depressing the DIG I/O switch transfers control of the readout selector system from the 580 to a digital computer connected through the interface chassis. This switch should *not* be used unless the 580 and a digital computer are connected in a hybrid configuration.

4.2.2 PP (Patch Panel) Switch Circuit

Depressing the patch panel (PP) pushbutton switches the DVM input to the DVM patch terminal on the 0.12.1607 Control Tray.

A second set of contacts connects -20 volts to the units and tens selector switches, allowing the selection of units for readout purposes. When the PP pushbutton is depressed, readout of stabilizers is an automatic process. To readout amplifiers it is necessary to connect the DVM patch terminal to the A SEL patch terminal located on the control tray.

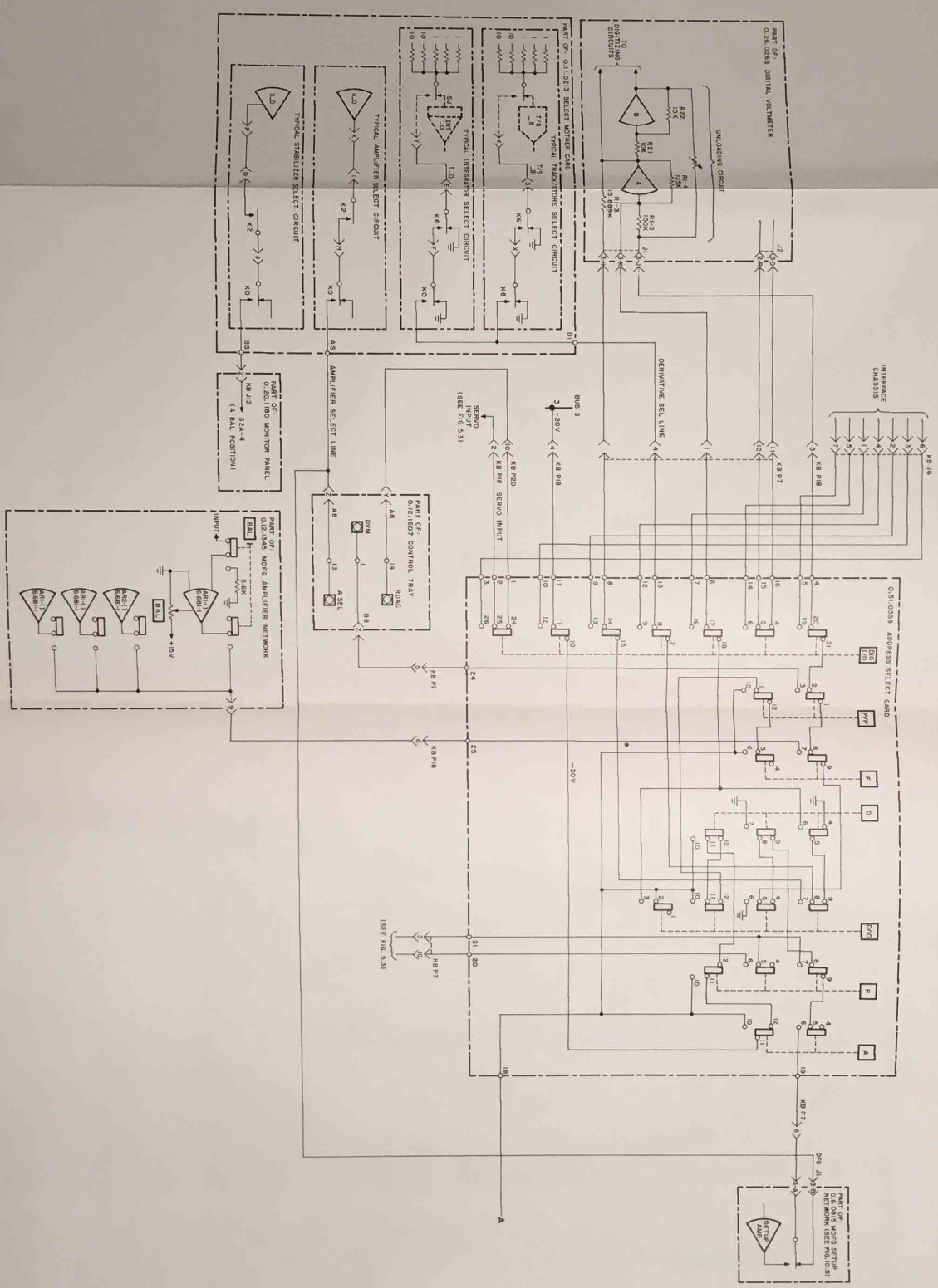


Figure 4.3.
Signal Selector System
Simplified Schematic (Sheet 1 of 2)

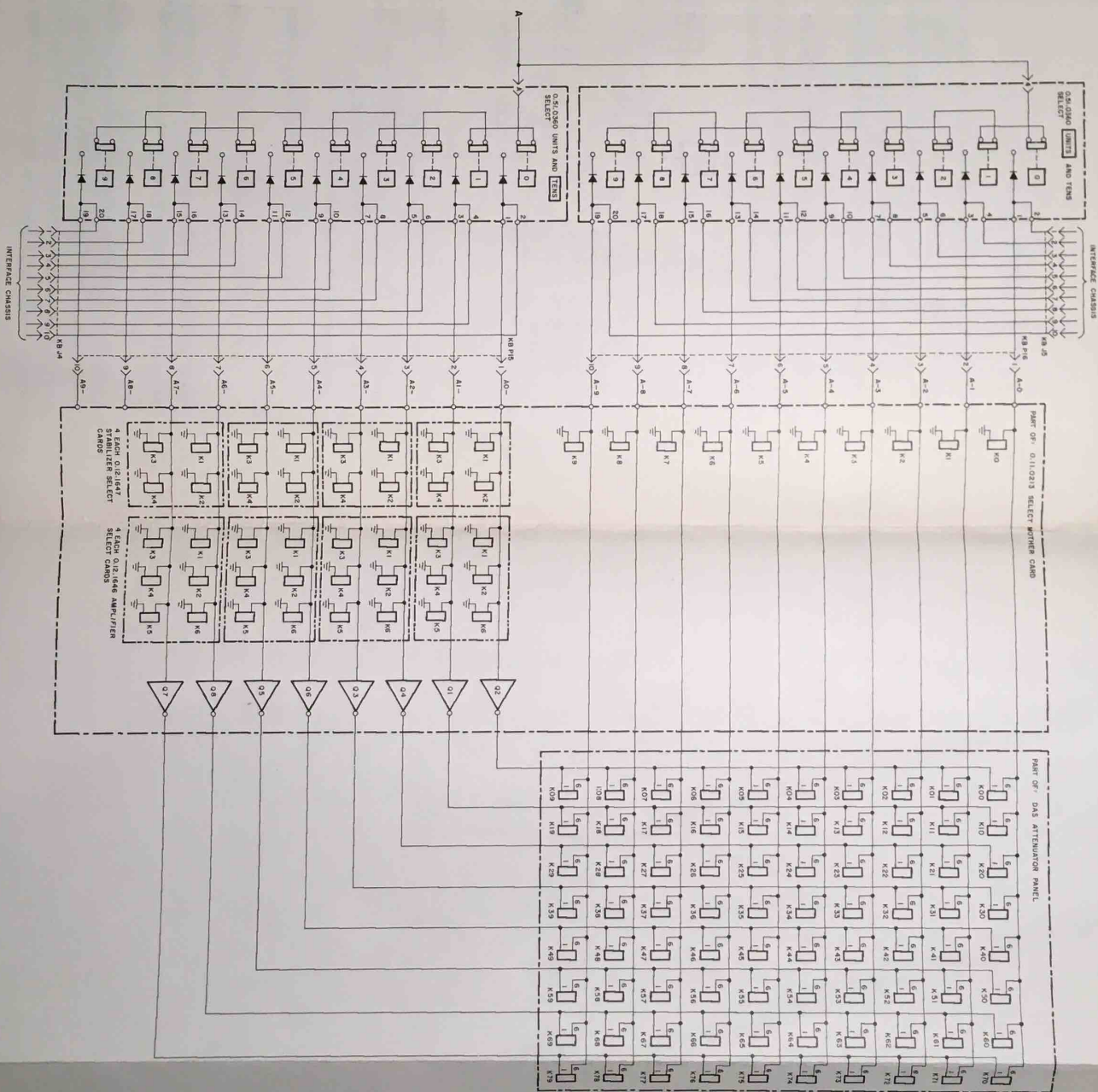


Figure 4.3.
Signal Selector System
Simplified Schematic (Sheet 2 of 2)

4.2.3 F Switch Circuit

The F switch circuit, in conjunction with the balance switches, located on the 0.12.1345 MDFG Amplifier Network, is used for balancing the MDFG amplifiers. When the switch is depressed, the output of the balance switches on the MDFG amplifier networks is switched to the DVM input. To balance an amplifier it is necessary to close the balance switch associated with the desired amplifier connecting the output through the F switch to the DVM output.

A second set of contacts on the F pushbutton connects -20 volts to the units and tens selector switches. Since the stabilizers are read out on the VM, it is possible to select a stabilizer and consequently balance an amplifier while in the F address mode.

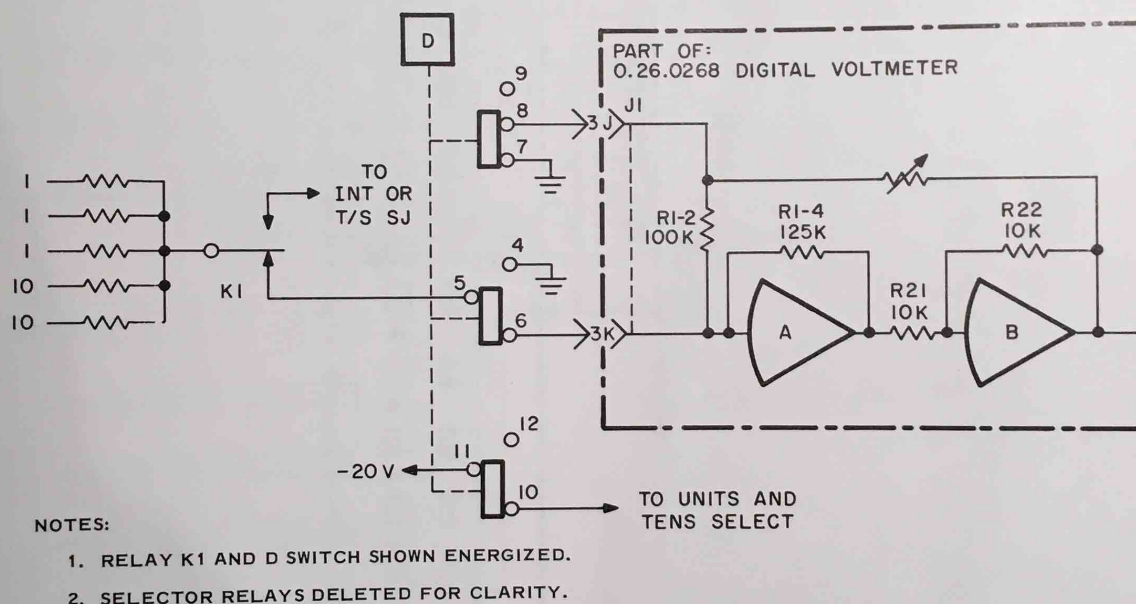


Figure 4.4. Derivative Switch Circuit, Simplified Schematic

4.2.4 D (Derivative) Switch Circuits

The D (derivative) pushbutton is used to read out the sum of the voltages applied through the input resistors associated with the integrator and track/store units (Figure 4.4).

To check the derivative voltage at the input to the integrators and the track/store units, the 580 should be in the ST (static test) mode. In this mode, relay K1 is energized and the sum of the input voltages is applied to pin 5 on the D switch. The D switch, when closed, connects the derivative voltage to the input (pin 3K) of the 0.26.0268 Digital Voltmeter. Closing the D switch

also connects pins 7 and 8 together grounding one end of the DVM 100K input resistor. The third section of the D switch connects -20 volts to the units and tens select switches providing for the addressing of the desired unit.

4.2.5 D/10 (Derivative Divided by 10) Switch Circuits

The D/10 switch circuit is similar in operation to the D switch except that a fourth switch position is used (pins 1, 2, and 3) to connect resistor R1-3 (Figure 4.5) in parallel with the feedback resistor (R1-4) of DVM amplifier A. The additional resistance reduces the gain of amplifier A by a factor of 10.

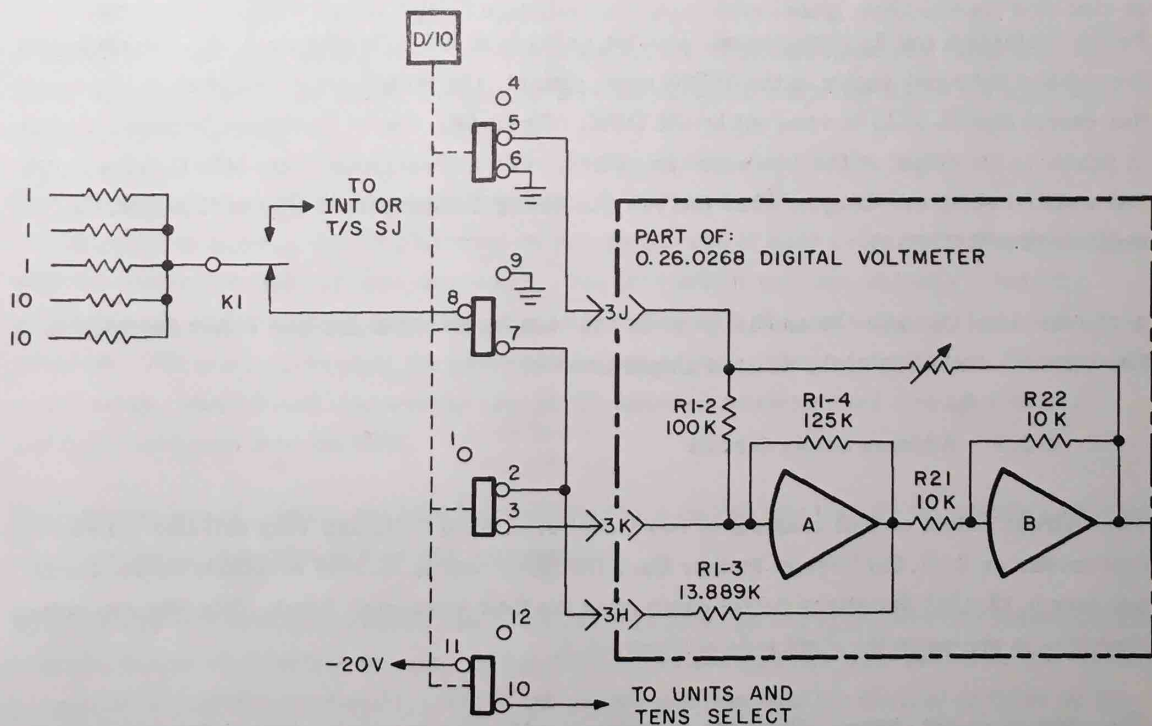


Figure 4.5. D/10 Switch Circuit, Simplified Schematic

4.2.6 P (Potentiometer) Switch Circuit

The P (Potentiometer) switch provides two sets of contacts to connect the arm of a potentiometer to both the DVM and VM inputs. A third set of contacts connects -20 volts to the units and tens select switches used to select a particular potentiometer.

When the P pushbutton is depressed, contacts 7 and 8 (Figure 4.3) connect the arm of the potentiometer to the DVM input. Contacts 5 and 6 also connect the arm of the potentiometer through the VM FUNCTION switch (P SEL position) to the input of the VM. The VM reads the potentiometer when the RANGE switch is in the NULL position only. Contacts 10 and 11 switch -20 volts to the units and tens select unit.

4.2.7 A (Amplifier) Switch

The A (amplifier) switch utilizes one set of contacts to connect the amplifier being read out to the DVM input. A second set of contacts connects -20 volts to the units and tens select switches to permit the addressing of amplifiers.

Switch contacts 5 and 6, when closed, provide an input to the DVM (Figure 4.3). Depending on the state of the relay shown in the MDFG setup circuit, the MDFG setup amplifier or the amplifier select line (A SEL) is read out by the DVM. The A SEL line is connected through a series of relays to the output of the addressed amplifier. For a description of the MDFG setup amplifier readout relay see Chapter 10 of the 580 Computing Components Handbook (Publication Number 00 800.2057-0).

A second set of contacts (10 and 11) provide -20 volts to the units and tens select switches to prevent the addressing of the desired amplifier.

4.2.8 Address Select Circuit

The address select circuit consists of two Model 0.51.0360 Units and Tens Selector printed circuit cards, an 0.11.0213 Select Mother Card including four 0.12.1646 Amplifier Select cards and four 0.12.1647 Stabilizer Select cards, and the DAS Attenuator Panel. The address select circuitry is shown on the right side of Figure 4.3.

The address select system allows the operator to address a particular component for readout. It should be noted that a particular address selects amplifiers, stabilizers and a potentiometer. If a potentiometer is to be read out, the P pushbutton is depressed, or the A pushbutton is depressed if an amplifier is to be read out. Since the stabilizers are read out on the voltmeter, it is necessary to place the VM FUNCTION switch in the A BAL position to readout the addressed stabilizer.

Depressing the PP, F, D, D/10, P or A pushbuttons connects -20 volts to both of the units and tens select cards. To address a particular component, simply depress the pushbutton representing the tens digit in the left column, then depress the pushbutton representing the

units digit in the right-hand column. For example, addressing the component in position 19 is accomplished by depressing pushbutton 1 in the left column and pushbutton 9 in the right-hand column. Since any address must contain two digits a zero is assumed to precede any single digit address, i. e., component 8 is addressed as 08.

Once the proper pushbuttons have been depressed, relays on the select mother card and on the attached amplifier and stabilizer select cards are energized and the addressed unit is selected for readout. As an example, using the select circuits on the rightside of Figure 4.3 and the typical circuits at the lower left of the figure, amplifier 00 is addressed. Depressing unit pushbutton 0 selects relay K0 on the select mother card. Depressing tens pushbutton 0 activates K1 and K2 on the stabilizer select card and relays K1, K2, and K6 on the amplifier select card. The combination of relays K0 and K2 on the amplifier select cards connects amplifier 00 to the A SEL line as shown on the typical amplifier circuit. Depressing pushbutton A connects the A SEL line to the DVM as described in Paragraph 4.2.7. The same address (A00) also connects the stabilizer of the selected amplifier through relay K0 and relay K2 on the stabilizer select card to the VM.

The potentiometer readout relays are connected in a type of grid or matrix circuit. The units select switches select a row by placing a voltage on one end of each relay in the row coinciding with the pushbutton that has been depressed. The tens select switches select a column by grounding one end of each relay in the column coinciding with the pushbutton that has been depressed. The relay at the point the selected row and column cross is energized. The contacts of the relay, when closed, connect the arm of the selected potentiometer through contacts 7 and 8 of pushbutton P to the DVM.

The address select circuits can also be controlled by a digital unit through an interface chassis when the 580 is connected in a hybrid configuration.

With the DIG I/O switch depressed, the -20 volts normally applied to the address select switches is connected to the interface chassis. When the desired address has been selected, the -20 volts is applied through the interface chassis to the proper position, for the desired address on the units and tens select cards. The address select system then operates in the same manner described earlier in this paragraph. The diodes located on the units and tens select cards are used to ensure that the external -20 volts is not fed into the address select system.

4.2.9 The VOLTMETER (VM) Circuit

The VOLTMETER (VM), Figure 4.6, located in the monitor panel area directly beneath the DVM readout display, consists of a Model 0.13.0046 Overload/VM Card, a FUNCTION switch, and a RANGE switch. The overload portion of the circuit consisting of Q1, Q2, LS1 and their associated circuitry, is described with the Overload Indicators, Chapter 6 of this handbook.

The 30, 10, 3, 1, .3, and .1 positions on the RANGE switch are used to scale the input voltage by connecting precision resistors between the voltage input and the VM. The NULL position provides circuitry (Figure 4.6) to accurately set voltages in the absence of a DVM. The procedure for setting voltages using the nulling method is given below.

1. Place the FUNCTION switch in the PP position.
2. Place the RANGE switch in the NULL position.
3. Patch the voltage to be adjusted to the VM patch terminal on the 0.12.1608 Control Tray.
4. Select the desired voltage value using the RDAC pushbuttons.
5. Complete the procedure by adjusting the voltage patched to the VM terminal until the voltmeter indicates a null point (0 volt).

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

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0.12.1646 Select Amplifier Network Card	4-16
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0.20.1180 Monitor Panel	4-18
0.13.0046 Voltmeter Card	4-19
0.51.0359 Address Select Card	4-21
0.51.0360 Units and Tens Select Card	4-22

ITEM	REF. DESIG.	DESCRIPTION	EAI NO.	*CAT.
1	CR1 thru 10	Diode	00 614.0293-0	B
2	K0,1,8,9	Relay: 18 VDC, 520 ohms Coil, 4 Form C Contact (Allied Control T-154-4C-520 or equal)	00 618.0171-0	A
3	K2 thru 7	Relay: 18 VDC, 520 ohms Coil, 6 Form A Contacts (Allied Control T-154-6A-520 or equal)	00 618.0172-0	A
4	Q1 thru 8	Transistor: 2N3638	00 686.0250-0	A
5	R1,3,5,7,9,11,13,15	Resistor, Fixed, Composition: 10K ohms $\pm 5\%$, 1/4W (Allen-Bradley CB or equal)	00 625.0103-0	A
6	R2,4,6,8,10,12,14,16,18,20	Resistor, Fixed, Composition: 270 ohms $\pm 5\%$, 1/4W (Allen-Bradley CB or equal)	00 625.0271-0	A
7		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

SELECT MOTHER CARD

MODEL NO.

0.11.0213

Sh. 1 of 1 Sh.

DATE 10 / 9 / 67

ITEM	REF. DESIG.	DESCRIPTION	EAI NO.	*CAT.
1	CR1,2	Diode (ITT - G187 or equal)	00 614.0043-0	A
2	K1,2,3,4	Relay: 18V, 520 ohms Coil, 6 Form A Contact (Allied Control T-154-6A-520 or equal)	00 618.0172-0	A
3	K5,6	Relay: 18V, 520 ohms Coil, 4 Form C Contact (Allied Control T-154-4C-520 or equal)	00 618.0171-0	A
4	R1,2	Resistor, Fixed, Composition: 330 ohms $\pm 5\%$, 1/4W (Allen-Bradley CB or equal)	00 625.0331-0	A
5	XK1,2,3,4, 5,6	Socket, Relay: 16 Contacts (Allied Control 30055-4 or equal)	00 650.0133-0	A

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UNIT TITLE

SELECT AMPLIFIER
NETWORK CARD

MODEL NO.

0.12.1646

Sh.1 of 1 Sh.

DATE 10 / 9 / 67

ITEM	REF. DESIG.	DESCRIPTION	EAI NO.	*CAT.
1	CR1,2	Diode (ITT-G187 or equal)	00 614.0043-0	A
2	K1,2,3,4	Relay: 18V, 520 ohms Coil, 6 Form A Contact (Allied Control T-154-6A-520 or equal)	00 618.0172-0	A
3	R1,2	Resistor, Fixed, Composition: 330 ohms $\pm 5\%$, 1/4W (Allen-Bradley CB or equal)	00 625.0331-0	A
4	XK1,2,3,4	Socket, Relay: 16 Contacts (Allied Control 30055-4 or equal)	00 650.0133-0	A

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UNIT TITLE

SELECT STABILIZER CARD

MODEL NO.

0.12.1647 Sh. 1 of 1 Sh.

0

DATE 10 / 9 / 67

4-17

M446

ITEM	REF. DESIG.	DESCRIPTION	EAI NO.	*CAT.
1	DVM-P1	Connector Module	00 542.1243-0	B
2	KBP-1,12	Connector, Plug: 12 Contacts; Male (Amp 480088-1 or equal)	00 542.1059-0	A
3	M1	Meter	00 590.0055-1	B
4	R1	Potentiometer	00 642.0701-0	B
5	S1	Switch, Rotary: 3 Pole, 1-12 Positions (Centralab PA2009 or equal)	00 658.0011-0	A
6	S2	Switch	00 658.0197-0	B

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UNIT TITLE

MONITOR PANEL

MODEL NO.

0,20,1180

Sh.1 of 1Sh.

DATE 4 / 25 / 68

4

ITEM	REF. DESIG.	DESCRIPTION	EAI NO.	*CAT.
1	C1	Capacitor	00 516.0387-0	B
2	C2	Capacitor, Fixed, Ceramic: 220 nf $\pm 20\%$, 25V (Mucon 21984-9 or equal)	00 515.0249-0	A
3	CR1,2	Diode	00 614.0007-0	B
4	LS1	Loudspeaker: 2.5 KC (Mallory (Sonalert) SC628 or equal)	00 582.0007-0	A
5	Q1	Transistor: 2N3638	00 686.0250-0	A
6	Q2	Transistor: 2N3638A	00 686.0305-0	A
7	R1	Resistor, Variable, Wirewound: 500 ohms $\pm 5\%$, 1W (Int. Resistance Co. 106-2 or equal)	00 642.0685-0	A
8	R2	Potentiometer	00 642.0719-0	B
9	R3	Resistor, Fixed, Composition: 1K ohms $\pm 5\%$, 1/2W (Allen-Bradley EB or equal)	00 626.0102-0	A
10	R4	Resistor, Fixed, Film: 1K ohms $\pm 1\%$, 1/4W (Intl. Resistance Co. CEB-T0 or equal)	00 634.0707-0	A
11	R5	Resistor, Fixed, Film: 4K ohms $\pm 1\%$, 1/2W (Weston Inst. 9852B or equal)	00 634.0096-0	A
12	R6	Resistor, Fixed, Film: 18K ohms $\pm 1\%$, 1/2W (Weston Inst. 9852B or equal)	00 634.0097-0	A
13	R7	Resistor, Fixed, Film: 58K ohms $\pm 1\%$, 1/2W (Weston Inst. 9852B or equal)	00 634.0098-0	A
14	R8	Resistor, Fixed, Film: 198K ohms $\pm 1\%$, 1/2W (Weston Inst. 9852B or equal)	00 634.0064-0	A
15	R9	Resistor, Fixed, Film: 598K ohms $\pm 1\%$, 1/2W (Weston Inst. 9852B or equal)	00 634.0099-0	A

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UNIT TITLE

VOLTMETER CARD

MODEL NO.

0.13.0046

Sh. 1 of 2 Sh.

1

DATE 10 / 9 / 67

ITEM	REF. DESIG.	DESCRIPTION	EAI NO.	*CAT.
16	R10	Resistor, Fixed, Composition: 10K ohms $\pm 5\%$, 1/4W (Allen-Bradley CB or equal)	00 625.0103-0	A
17	R11	Resistor, Fixed, Composition: 8.2K ohms $\pm 5\%$, 1/4W (Allen-Bradley CB or equal)	00 625.0822-0	A
18	R12	Resistor, Fixed, Composition: 15K ohms $\pm 5\%$, 1/4W (Allen-Bradley CB or equal)	00 625.0153-0	A
19	R13	Resistor, Fixed, Composition: 1.5K ohms $\pm 5\%$, 1/4W (Allen-Bradley CB or equal)	00 625.0152-0	A

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UNIT TITLE

VOLTMETER CARD

MODEL NO.

0.13.0046

Sh.2 of 2 Sh.

DATE 10 / 9 / 67

ITEM	REF. DESIG.	DESCRIPTION	EAI NO.	*CAT.
1	C1	Capacitor, Fixed, Ceramic: 22 nf ±20%, 25V (Sprague 3C9 or equal)	00 511.5223-4 (00 515.0236-0)	A
2	DS1	Lamp, Incandescent: 28V, 40 MA; Clear T-1-3/4 Bulb (Hudson 369 or equal)	00 578.0089-0	A
3	Q1	Transistor: 2N3638A	00 686.0305-0	A
4	R1,2	Resistor, Fixed, Composition: 4.7K ohms ±5%, 1/4W (Allen-Bradley CB or equal)	00 625.0472-0	A
5	R3	Resistor, Fixed, Composition: 10K ohms ±5%, 1/4W (Allen-Bradley CB or equal)	00 625.0103-0	A
6	S1-()	Switch, Pushbutton	00 656.0177-2	B

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UNIT TITLE

ADDRESS SELECT CARD

MODEL NO.

0.51.0359

Sh. 1 of 1 Sh.

ITEM	REF. DESIG.	DESCRIPTION	EAI NO.	*CAT.
1	CR1 thru 10	Diode (ITT-G187 or equal)	00 614.0043-0	A
2	S1	Switch	00 656.0177-0	B

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
 UNITS AND TENS SELECT CARD
 MODEL NO.
 0.51.0360 Sh. 1 of 1 Sh.

DATE 10 / 10 / 67

0

APPENDIX 2

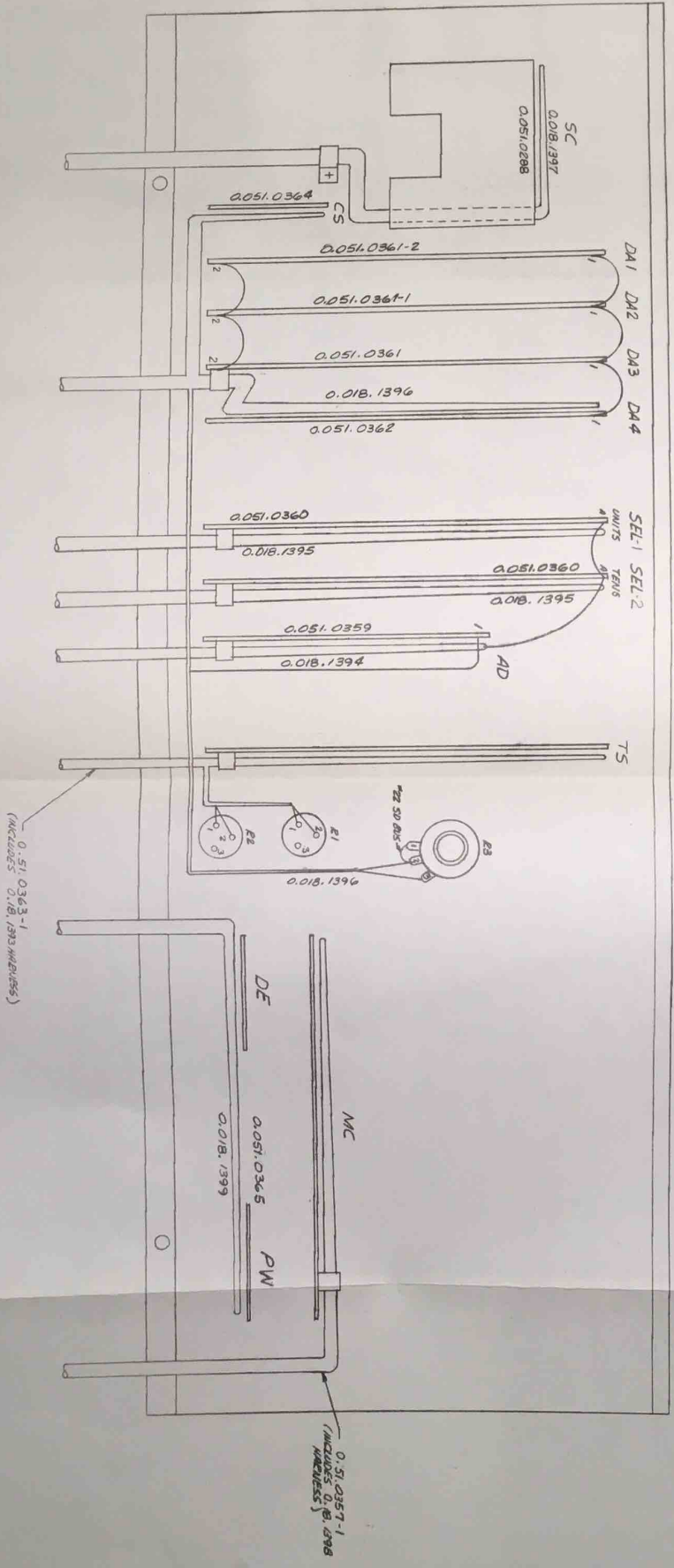
DRAWINGS

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. 9. 0050 Keyboard Panel	Wiring	C00 009 0050 0W (Sheets 1, 5, and 6 only)
0. 11. 0213 Select Mother Card	Schematic	D00 011 0213 0S (Sheets 1 and 2)
0. 20. 1180 Monitor Panel	Schematic Wiring	D00 020 1180 0S D00 020 1180 0W (Sheets 1 and 2)
0. 51. 0359 Address Select	Schematic	C00 051 0359 0S
0. 51. 0360 Units and Tens Select	Schematic	C00 051 0360 0S



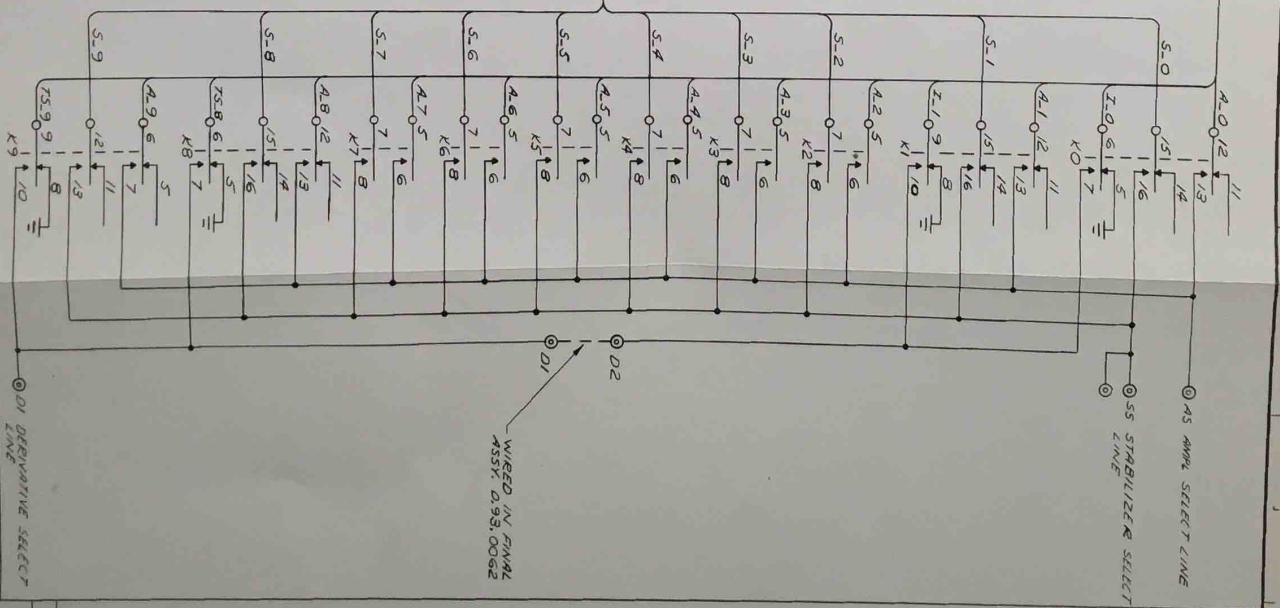
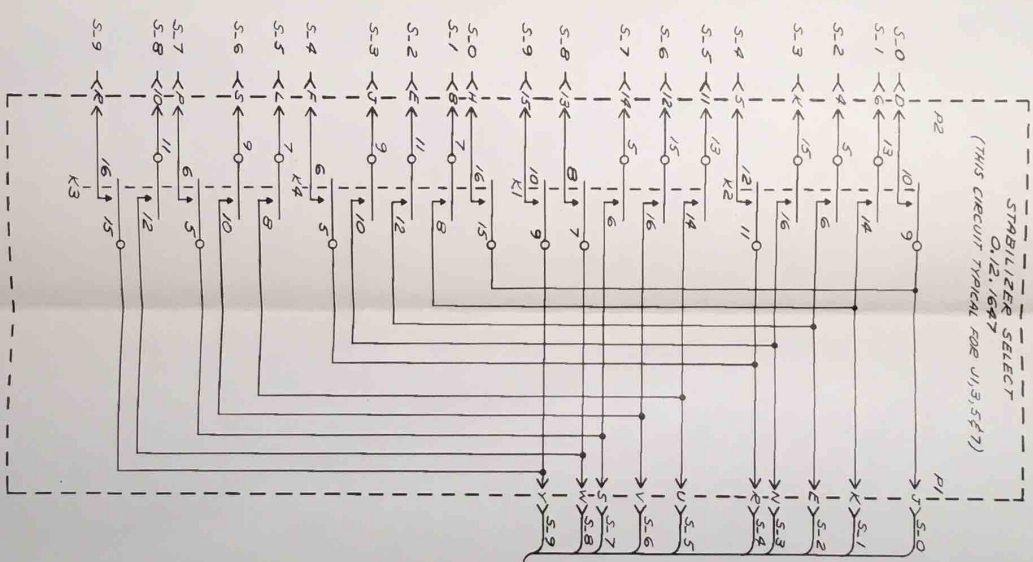
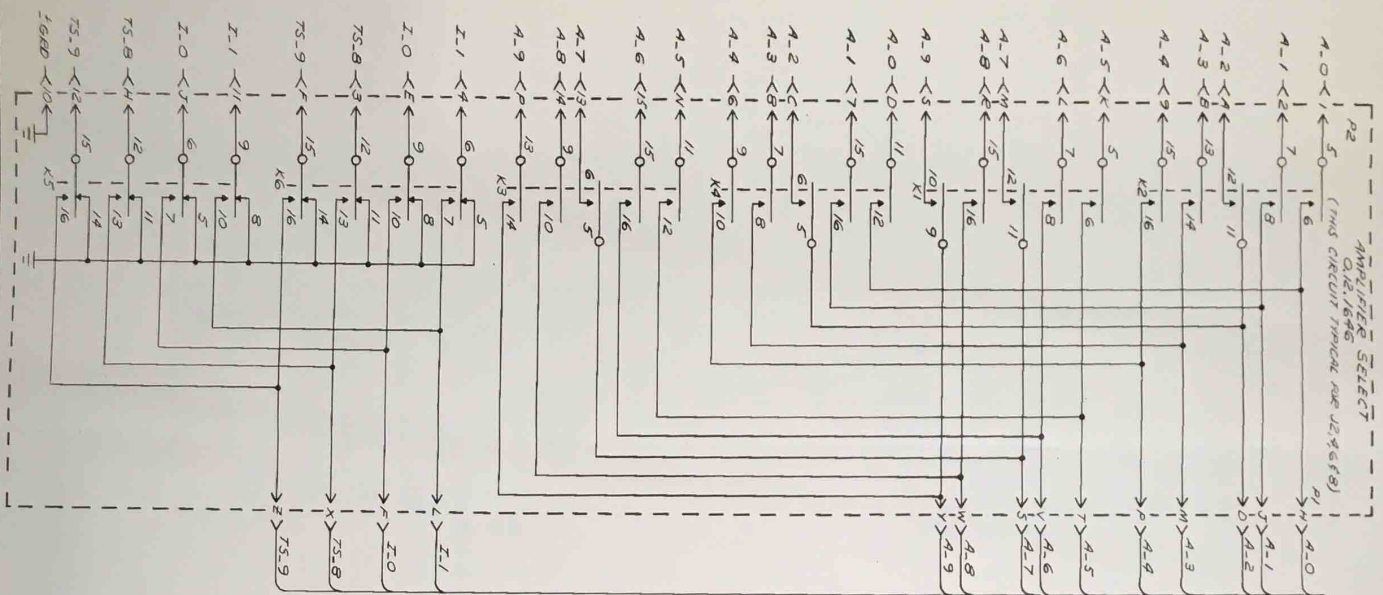
MATERIALS SPECIFICATIONS LIST

ITEM NO.	DESCRIPTION	QTY	UNIT	REMARKS
1	0.01B.1397	1	PCB	
2	0.051.0288	1	PCB	
3	0.051.0364	1	PCB	
4	0.051.0361-2	2	PCB	
5	0.051.0361	1	PCB	
6	0.01B.1396	1	PCB	
7	0.051.0362	1	PCB	
8	0.051.0360	1	PCB	
9	0.01B.1395	2	PCB	
10	0.051.0359	1	PCB	
11	0.01B.1394	1	PCB	
12	0.01B.1390	3	PCB	
13	0.051.0365	1	PCB	
14	0.01B.1399	1	PCB	

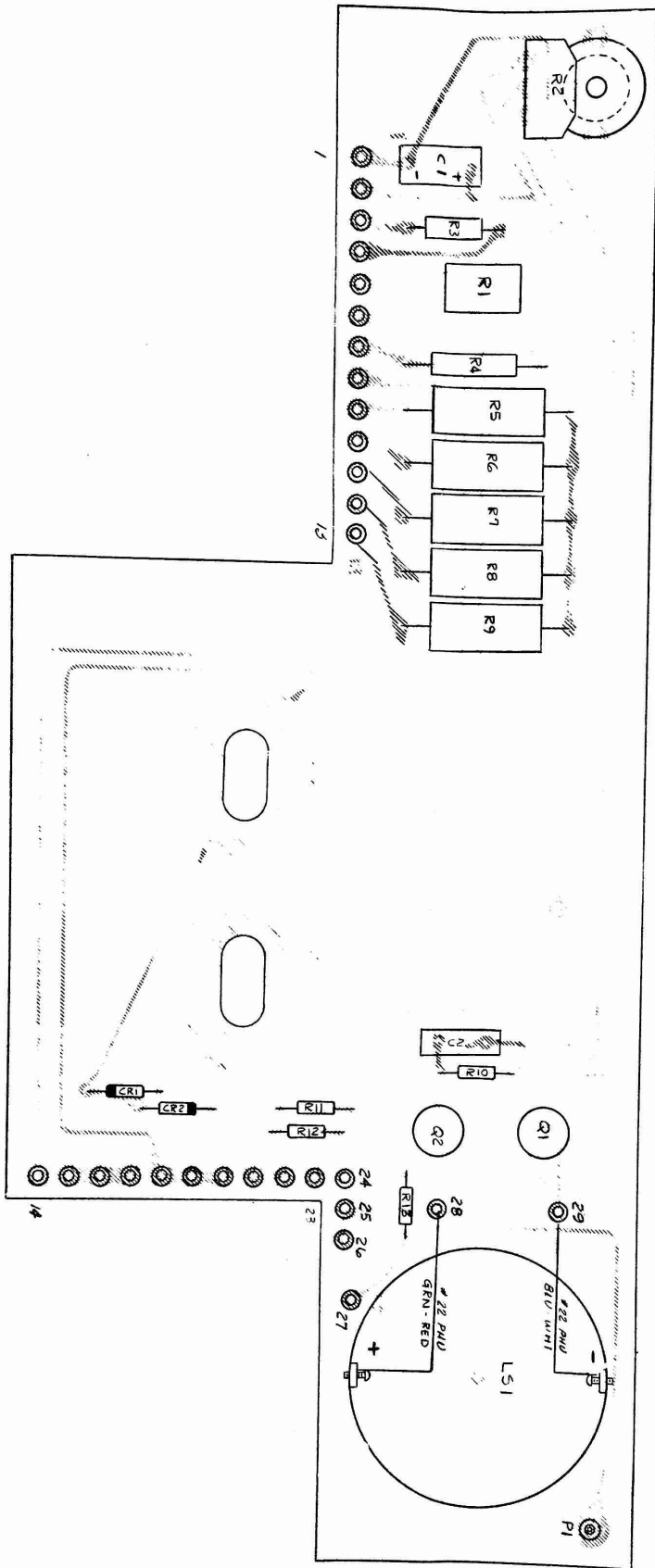
WIRING REVISION PANEL

REV. NO.	DATE	DESCRIPTION
1	23/11/78	INITIAL DESIGN
2	24/11/78	REVISED
3	25/11/78	REVISED
4	26/11/78	REVISED
5	27/11/78	REVISED
6	28/11/78	REVISED
7	29/11/78	REVISED
8	30/11/78	REVISED
9	01/12/78	REVISED
10	02/12/78	REVISED
11	03/12/78	REVISED
12	04/12/78	REVISED
13	05/12/78	REVISED
14	06/12/78	REVISED
15	07/12/78	REVISED
16	08/12/78	REVISED
17	09/12/78	REVISED
18	10/12/78	REVISED
19	11/12/78	REVISED
20	12/12/78	REVISED

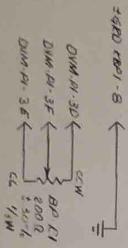
NO.	DESCRIPTION	QTY	UNIT	REMARKS
1	0.01B.1397	1	PCB	
2	0.051.0288	1	PCB	
3	0.051.0364	1	PCB	
4	0.051.0361-2	2	PCB	
5	0.051.0361	1	PCB	
6	0.01B.1396	1	PCB	
7	0.051.0362	1	PCB	
8	0.051.0360	1	PCB	
9	0.01B.1395	2	PCB	
10	0.051.0359	1	PCB	
11	0.01B.1394	1	PCB	
12	0.01B.1390	3	PCB	
13	0.051.0365	1	PCB	
14	0.01B.1399	1	PCB	



MATERIAL		FINISH	
ITEM NO.	QTY	ITEM NO.	QTY
1	1	1	1
2	1	2	1
3	1	3	1
4	1	4	1
5	1	5	1
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99	1	99	1
100	1	100	1

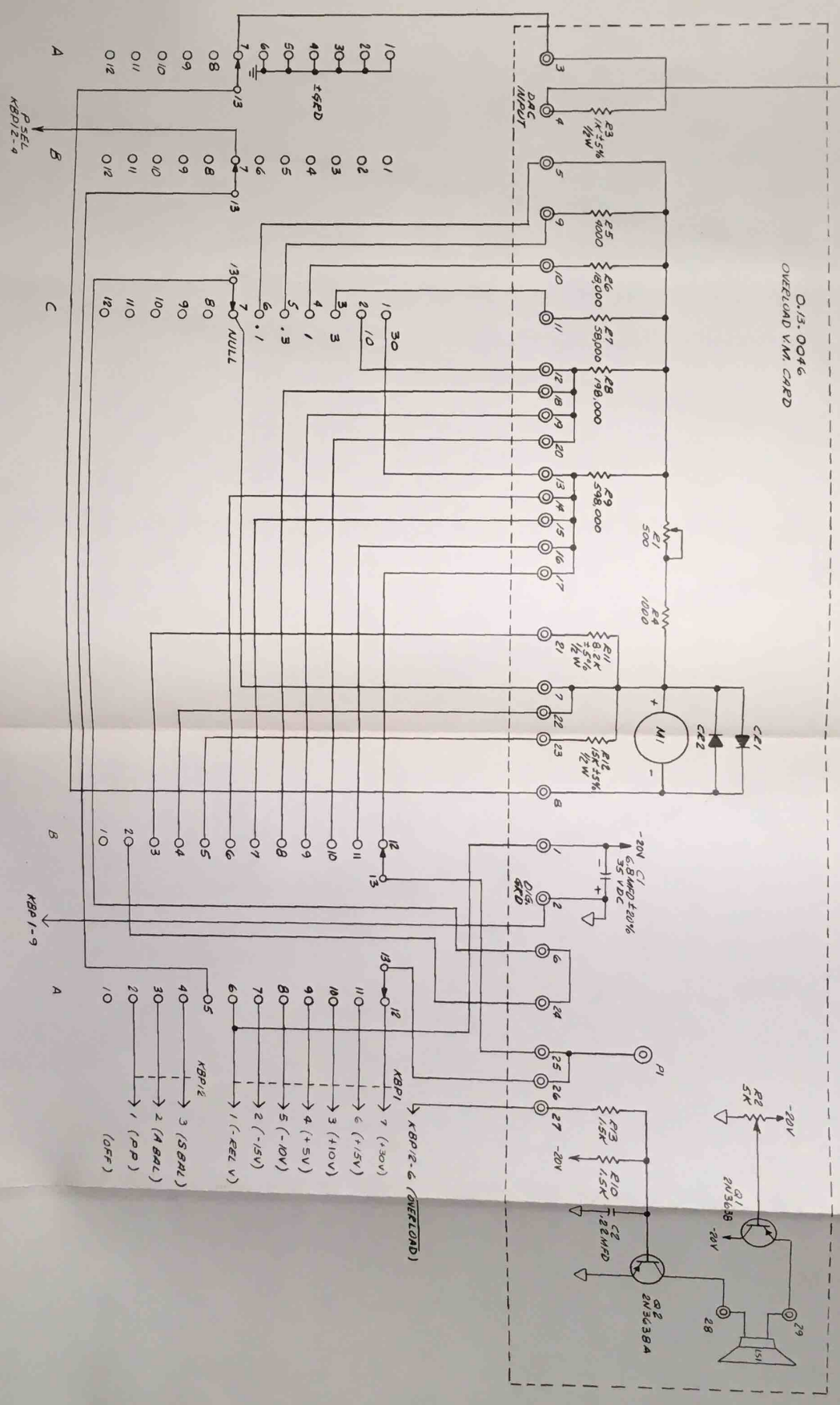


0.13.0046 Voltmeter Card



S1

S2



O-13-0046
OVERLOAD V.M. CARD

- NOTES:
1. UNLESS OTHERWISE SPECIFIED:
 - a. RESISTORS ARE $\pm 5\%$, $1/4W$
 - b. DIODES ARE DO 014 000T C
 - c. SYMBOL INDICATES DETAIL GROUND

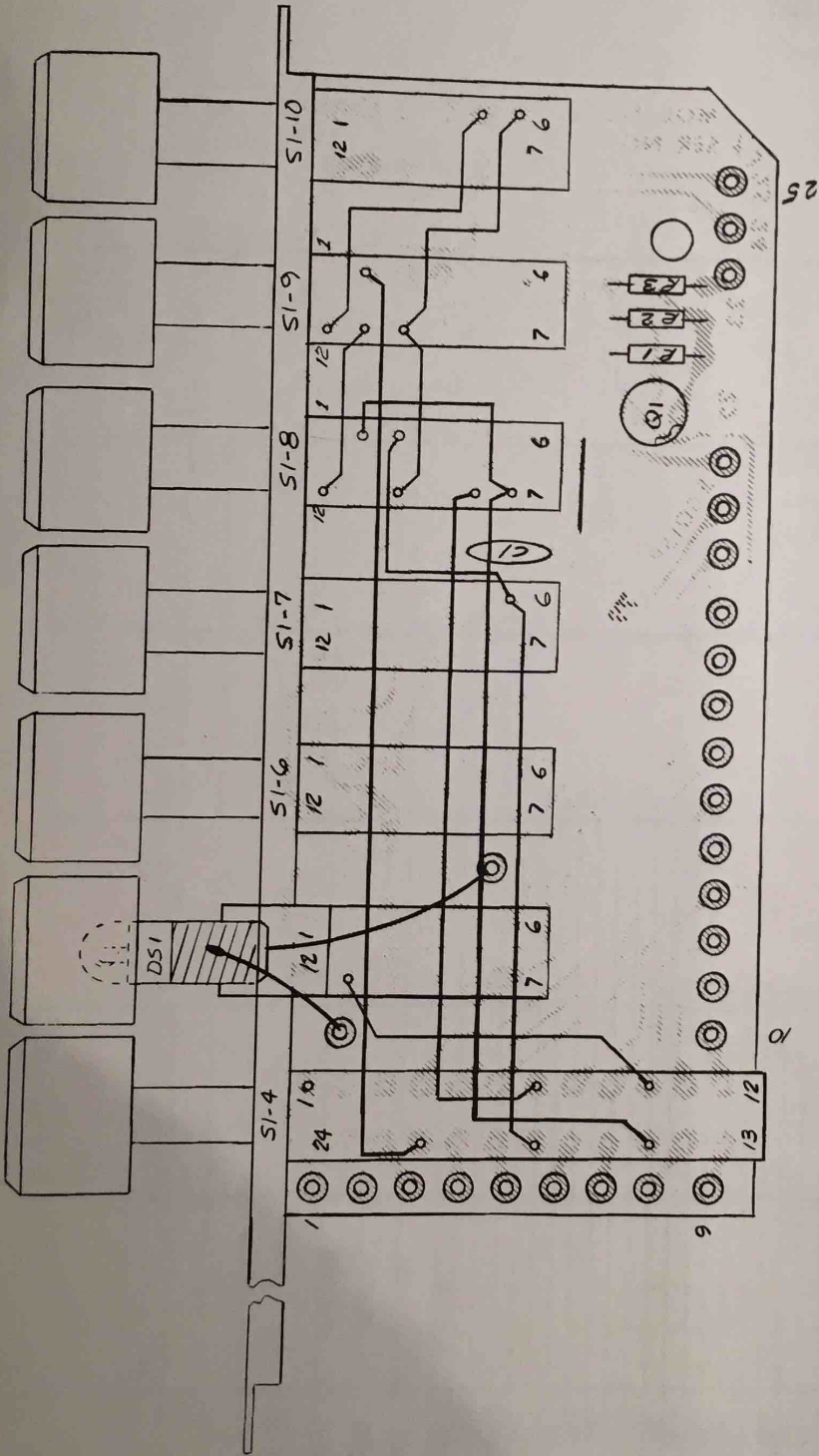
MATERIAL PARTS LIST A00 020 1180 CP

QTY	DESCRIPTION	REF. NO.	REV.
1	RESISTOR 5K	R2	
1	RESISTOR 1.5K	R3	
1	RESISTOR 1.5K	R4	
1	DIODE 2N3638	D1	
1	DIODE 2N5638A	D2	
1	CAPACITOR 5.8MFD $\pm 20\%$	C1	
1	CAPACITOR 28MFD	C2	
1	MOTOR M1	M1	

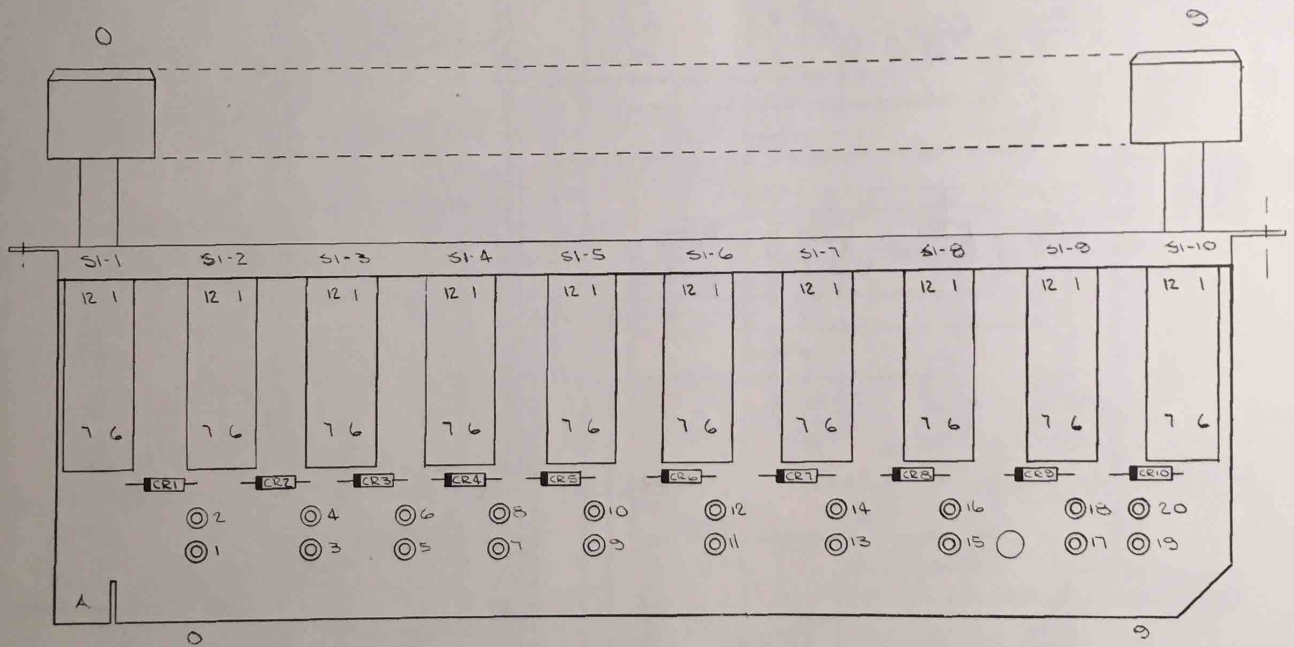
EAI SCHEMATIC MONITOR PANEL (72-V)

DATE: 1950 D00 020 1180 DS

NO.	REVISION	DATE
1		



0.51.0359 Address Select



0.51.0360 Units and Ten's Select

