

AA11-D
D/A subsystem
engineering drawings

1st Printing August 1971

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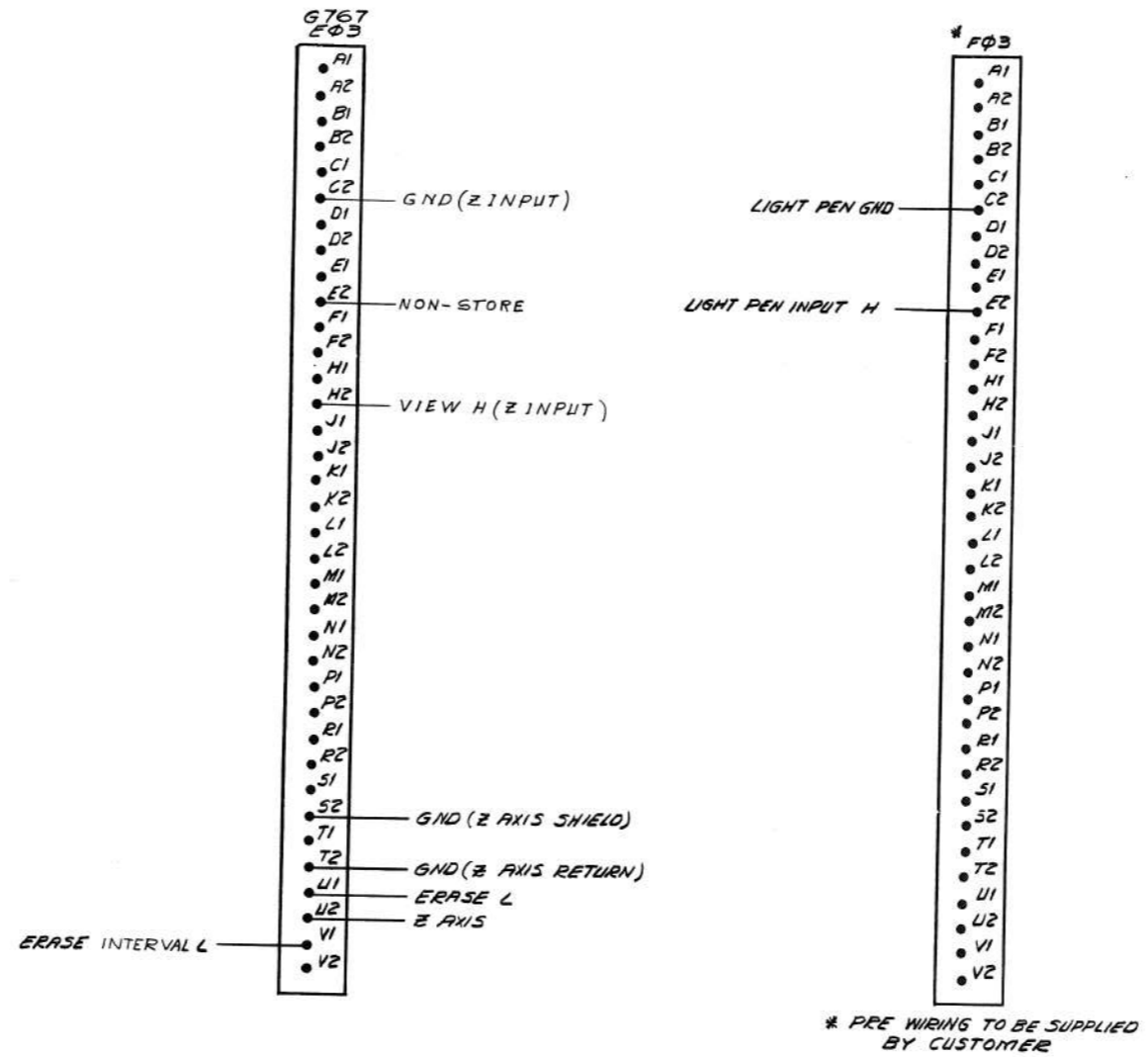
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DIGITAL	COMPUTER LAB
UNIBUS	

ENGINEERING DRAWINGS

Drawing Number	Title
D-IC-AA11-D-02	Option Cables
D-BS-AA11-D-03	D-A Converters
D-BS-AA11-D-04	Interface
D-IC-AA11-D-05	AA11-D Bus & Power Connections
D-CS-M799-0-01	Scope Control (2 sheets)
D-MU-AA11-0-MU	Module Utilization
D-UA-AA11-D-0	Digital to Analog Control Assy.
D-CS-A614-0-1	12 Bit DAC with Buffer Register
D-UA-H704-C-0	H704-C Power Supply
K-WL-AA11-D-WL	Wire List

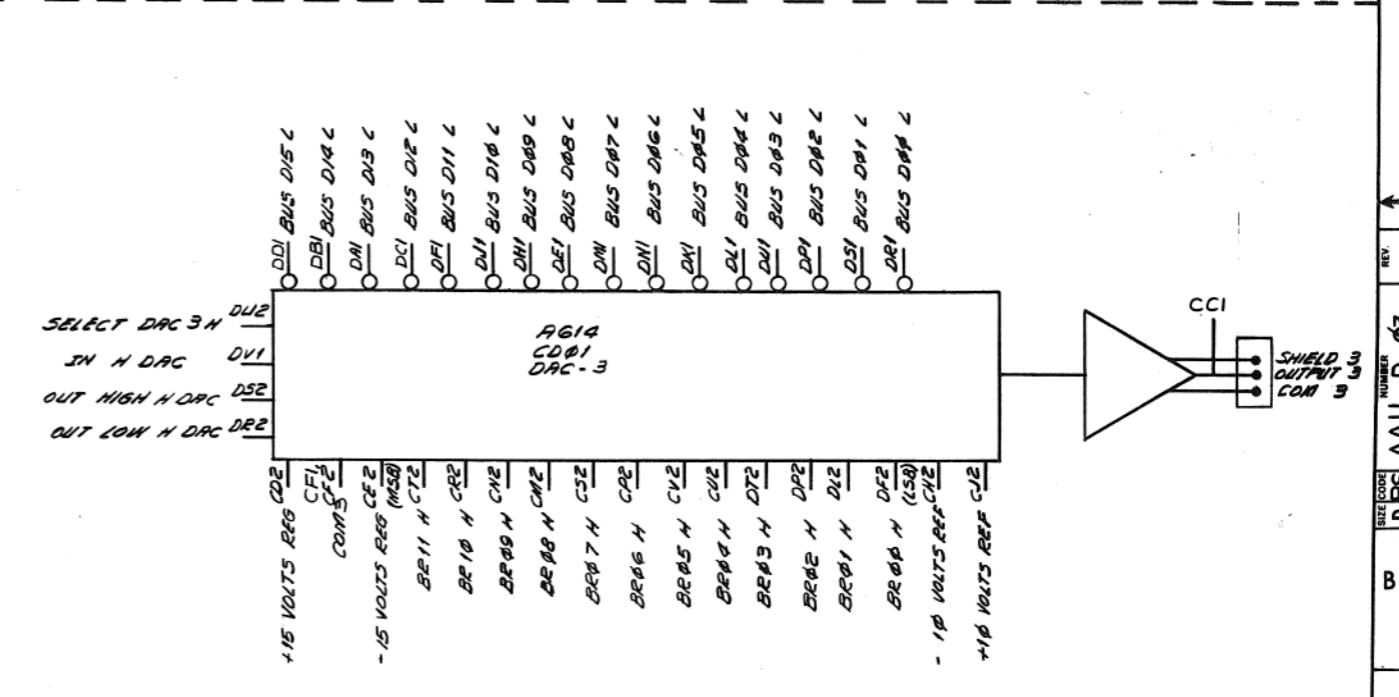
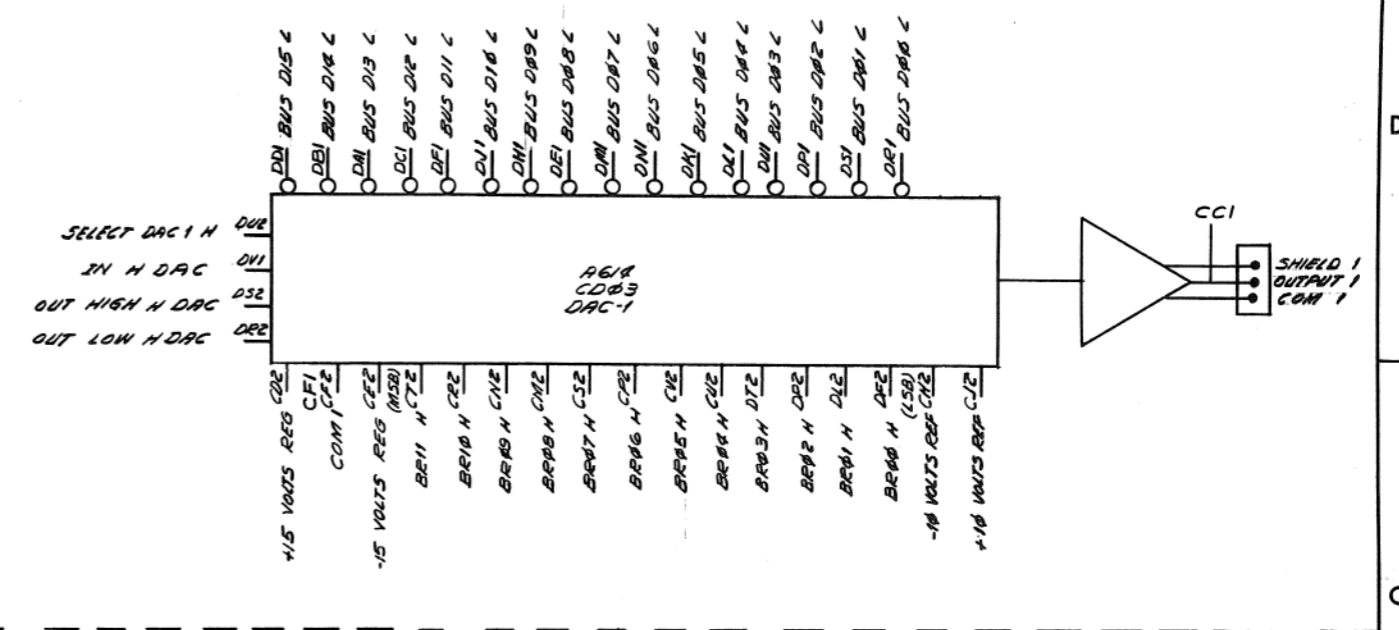
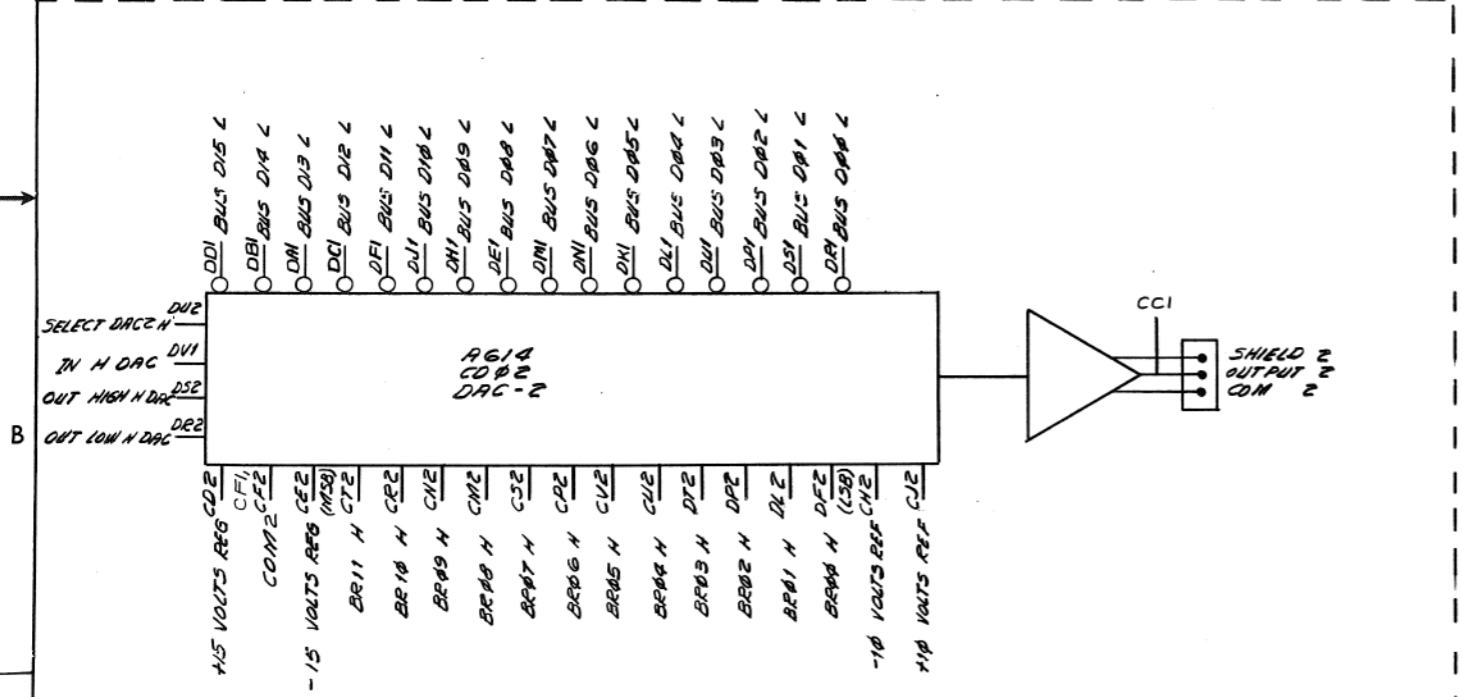
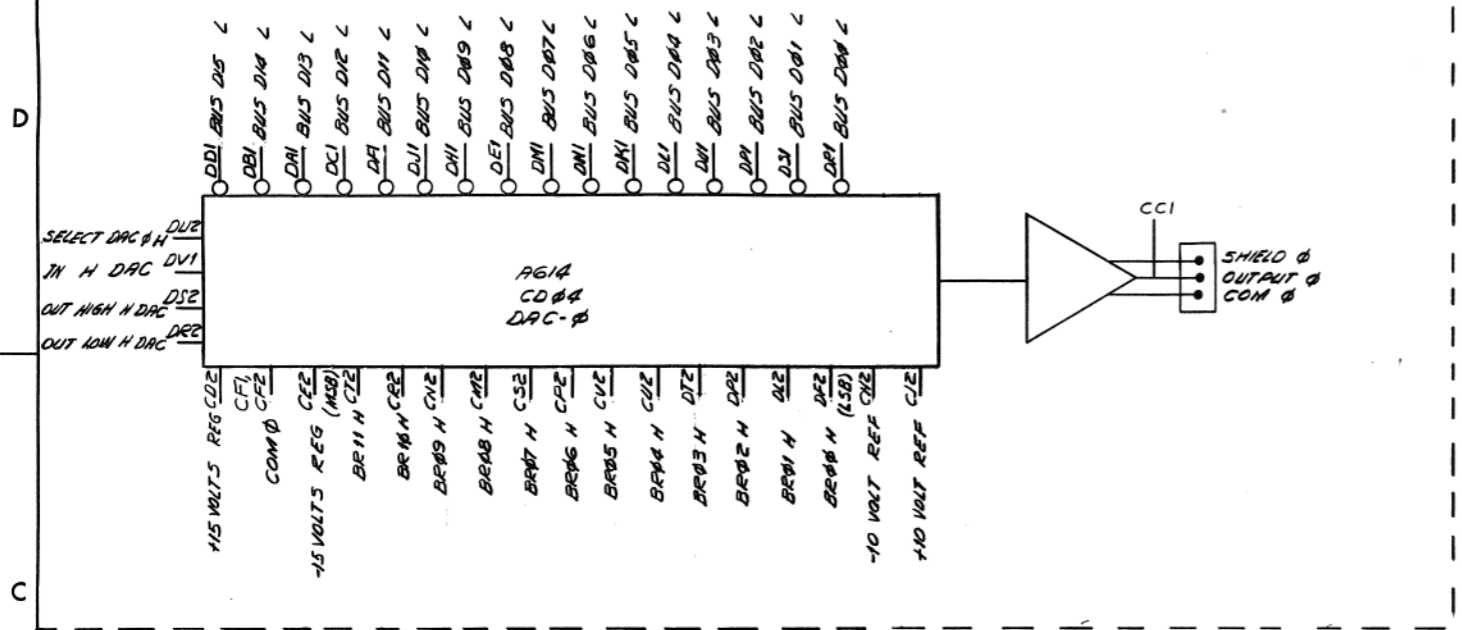
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REV.	CHANGE NO.	DATE	BY
A	AAI1-D-0004	4-14-71	GAGNE
B	AAI1-D-0005	1-20-71	GAGNE
C	AAI1-D-0006	1-20-71	GAGNE

FIRST USED ON OPTION MOD.	QTY.	DESCRIPTION	PART NO.	ITEM NO.
AAI1-D				
PARTS LIST				
TITLE: OPTION CABLES				
NEXT HIGHER ASSY: A-ML-AAI1-D				
SCALE: 1/1				
SHEET: 1 OF 1				
SIZE CODE: D I C		NUMBER: A A I I - D - 0 2		REV. B

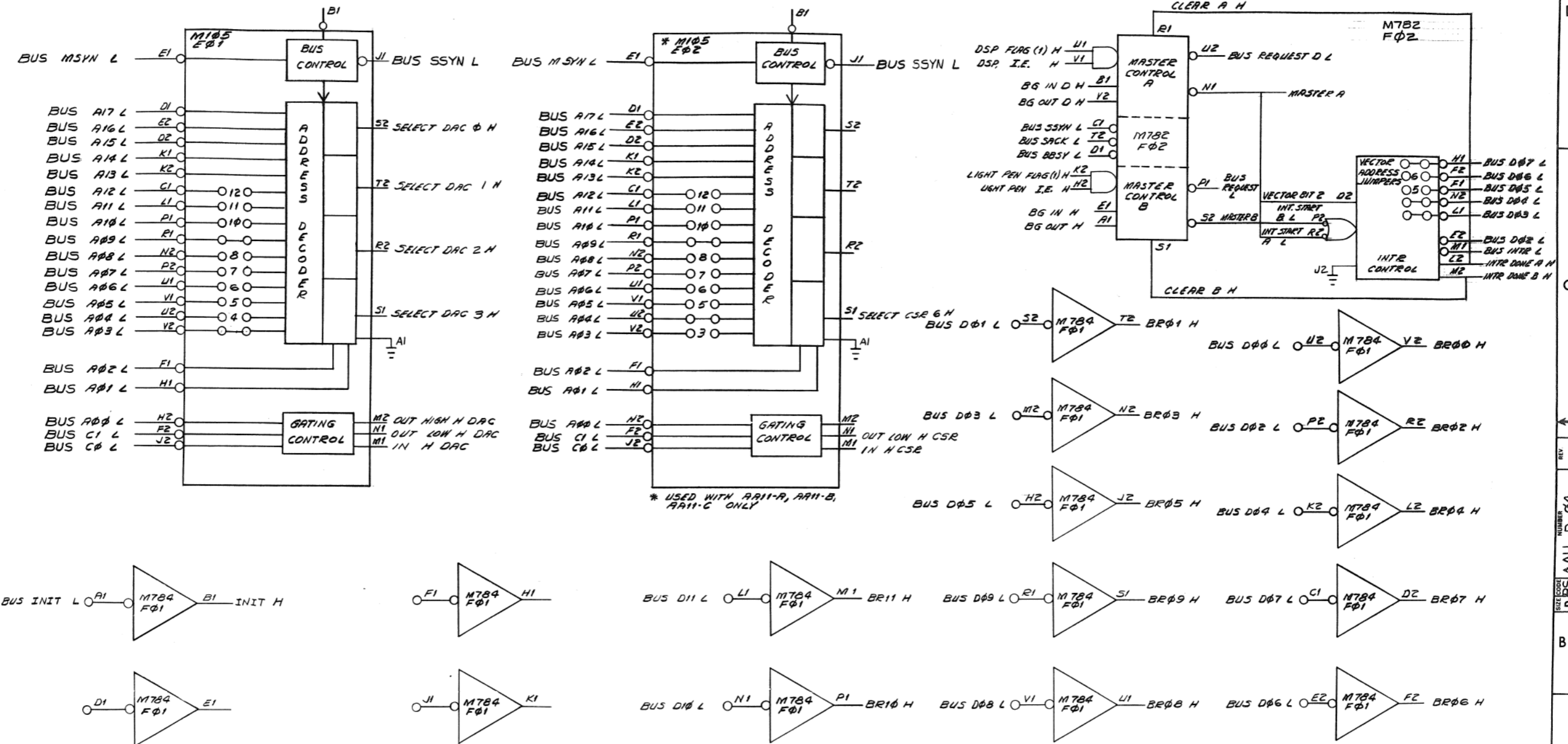
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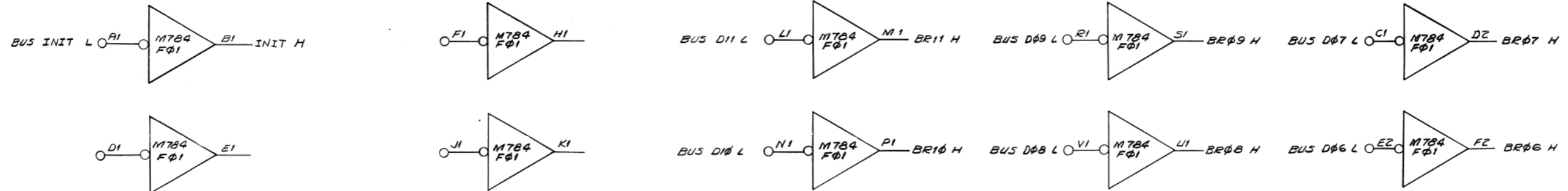
REV	CHANGE NO.

FIRST USED ON OPTION/ MOD.	QTY.	DESCRIPTION	PART NO.	ITEM NO.
A11-D				
UNLESS OTHERWISE SPECIFIED				
DRN.	DATE	PARTS LIST		
CHK'D.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
ENG.	DATE	TITLE		
PROJ. ENG.	DATE	D-A CONVERTERS		
PROD.	DATE	SIZE CODE NUMBER REV.		
MATERIAL	NEXT HIGHER ASSY	D BS A11-D-03		
FINISH	SCALE	SHEET 1 OF 1		

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* USED WITH AA11-A, AA11-B, AA11-C ONLY

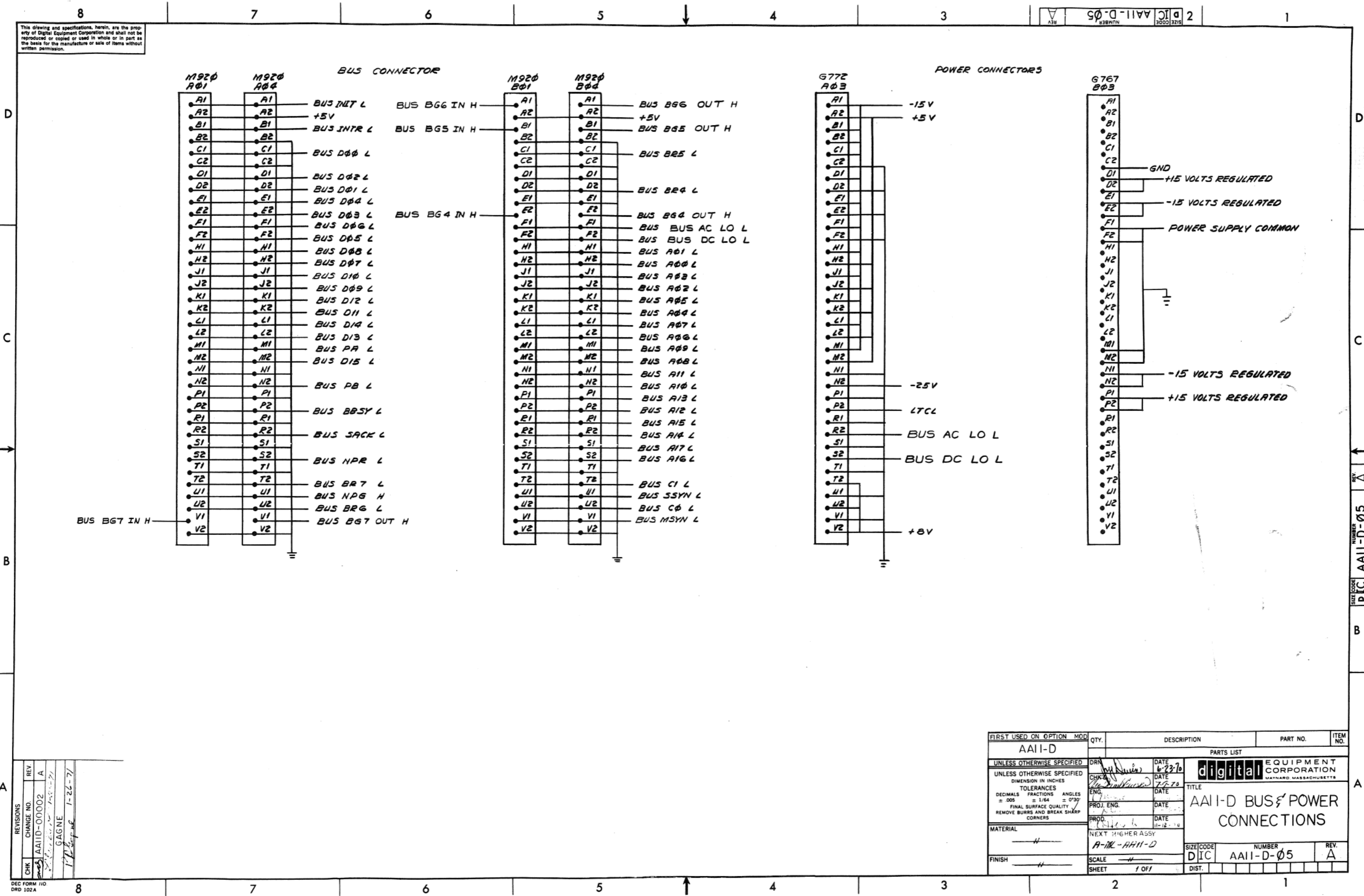


FIRST USED ON OPTION	MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
AA11-D					
PARTS LIST					
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS					
TITLE: INTERFACE					
NEXT HIGHER ASSY: AA11-D					
SCALE: 1 OF 1					
SHEET: 1 OF 1					
SIZE CODE: DBS A11-D-04					
REV.:					

REV.	CHANGE NO.

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AA11-D-05



REV	CHANGE NO.	DATE	BY
A	AA11-D-00002	1-22-71	GAGNE
			1-22-71

FIRST USED ON OPTION MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
AA11-D				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED		DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
UNLESS OTHERWISE SPECIFIED		DATE	TITLE	
DIMENSION IN INCHES		6-23-70	AA11-D BUS & POWER CONNECTIONS	
TOLERANCES		DATE	SIZE CODE	
DECIMALS FRACTIONS ANGLES		7-9-70	NUMBER	
± .005 ± 1/64 ± 0°30'		DATE	AA11-D-05	
FINAL SURFACE QUALITY		DATE	REV.	
REMOVE BURRS AND BREAK SHARP CORNERS		11-12-70	A	
MATERIAL		DATE	SCALE	
NEXT HIGHER ASSY			1 OF 1	
A-11L-AA11-D			DIST.	
FINISH				

REV. A
NUMBER AA11-D-05
SIZE CODE D1C

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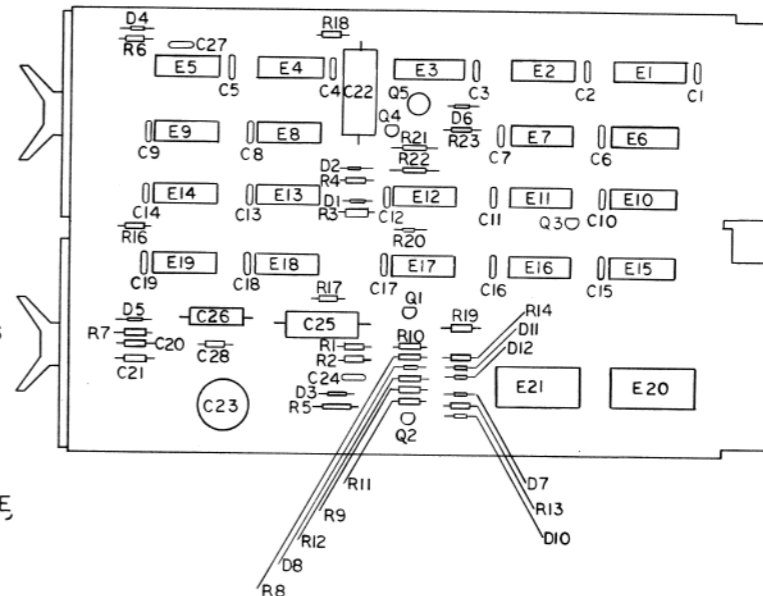
PARTS REFERENCE

ITEM NO	DRAWING REFERENCE	DESCRIPTION	PART NUMBER	QUANTITY
1	C1 THRU C19, C24, C27	.01 MF 100V 20% DISC	1001610	21
2	C20, C21	1 MF 35V 10% S. TANT	1001776	2
3	C22	.22 MF 100V 10% MYLAR	1000037	1
4	C23	.1 MF 100V 20% DISC	1000030	1
5	C25	.15 MF 100V 10% MYLAR	1002629	1
6	C26	.047 MF 100V 10% MYLAR	1000051	1
7	D1 THRU D8	D504 DIODE	1100114	8
8	D10, D11, D12	D670 DIODE	1102162	3
9	E1, E10, E13, E15	DEC 7474 IC	1905547	4
10	E2, E14	DEC 8881 IC	1909705	2
11	E3, E4, E5, E8, E9, E12, E16, E17, E18, E19	DEC 7400 IC	1905575	10
12	E6	DEC 7420 IC	1905577	1
13	E7, E11	DEC 7410 IC	1905576	2
14	E20, E21	IC SOCKET	1209838	2
15	R1, R6	330 1/4 W 5% RES	1300295	2
16	R2, R12	750 1/4 W 5% RES	1301401	2
17	R3, R5, R7	470 1/4 W 5% RES	1300316	3
18	R4	220 1/4 W 5% RES	1300271	1
19	R8, R9, R10, R11, R14, R17, R18, R19, R23	3K 1/4 W 5% RES	1300432	10
20	R13	680 1/4 W 5% RES	1301424	1
21	R16	820 1/4 W 5% RES	1301775	1
22	R20, R22	1K 1/4 W 5% RES	1300365	2
23	Q1, Q2	DEC 6534 C TRANSISTOR	1503409-02	2
24	Q3, Q4	DEC 2 TRANSISTOR	1505650	2
25	Q5	DEC 3638 B TRANSISTOR	1502979	1
26	TPI-TP3, C28 OPTION	SPLIT LUGS	9006735	5

NOTES:

- PIN NOTATION THROUGHOUT IS ORDERED UPON MODULE PLACEMENT IN THE K111 PROCESSOR. MODULE REFERENCE ALONE IS OBTAINED BY DELETING THE NUMBER (SLOT LOCATION) AFTER THE FIRST LETTER, AND CONVERTING THE FIRST LETTER ACCORDING TO THE PIN NOMENCLATURE CHART AT RIGHT.
- ALL SIGNALS THAT HAVE MODULE PINS ARE SO NOTED; MULTIPLE NOTATIONS OF THE SAME SIGNALS WITHIN A MODULE HAVE THE PIN NOTED ON EACH. AN INPUT SIGNAL IS NOTED ONLY ONCE PER SHEET UNLESS SEPERATE PINS ARE USED; MULTIPLE INPUTS ARE CONNECTED. MODULE OUTPUT SIGNALS ARE BROUGHT TO THE EXTREME RIGHT OF EACH SHEET.
- PROCESSOR SIGNAL SOURCE NOTATION (K10-2, FOR EXAMPLE) IDENTIFIES THE SIGNAL SOURCE (PRINT AND MODULE). THE FIRST NUMBER AFTER THE K INDICATES THE MODULE PRINT SET, WHILE THE SECOND INDICATES THE SHEET WITHIN THE SET. IF ON A PRINT, THE FIRST NUMBER OF THE K PREFIXES COINCIDE FOR A SIGNAL NAME AND THE PRINT (SEE TITLE BLOCK), THE SIGNAL IS GENERATED ON THE MODULE. A DIFFERENCE IN THE FIRST NUMBER OF THE K PREFIXES INDICATES A SIGNAL GENERATED OFF THE MODULE. SIGNALS WITH A "BUS" PREFIX REPRESENT A "WIRED OR" SITUATION, AND MULTIPLE SOURCES FOR THE SIGNAL CAN EXIST.
- DETAILS ON COMPONENTS ARE NOTED IN THE PARTS REFERENCE, PLACEMENT IS NOTED IN THE COMPONENT PLACEMENT DIAGRAM. CAPACITORS WITHOUT NOTED VALUES ARE .01 MFD.
- GND AND +5V ARE USUALLY PIN 7 AND PIN 14, RESPECTIVELY.
- ⊙ INDICATES SPLT LUGS.
- C28 IS AN ENGINEERING OPTION.

COMPONENT PLACEMENT



IC TYPE	GND	+5V
DEC 7481	PIN 10	PIN 4
DEC 7482	PIN 11	PIN 4
DEC 8251	PIN 8	PIN 16
DEC 8271	PIN 8	PIN 16
DEC 380	PIN 1	PIN 8
DEC 384	PIN 1	PIN 8

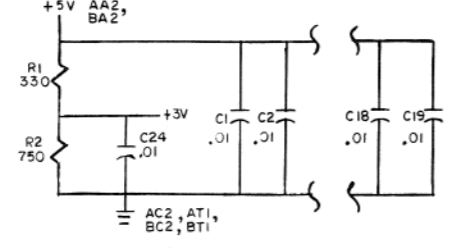
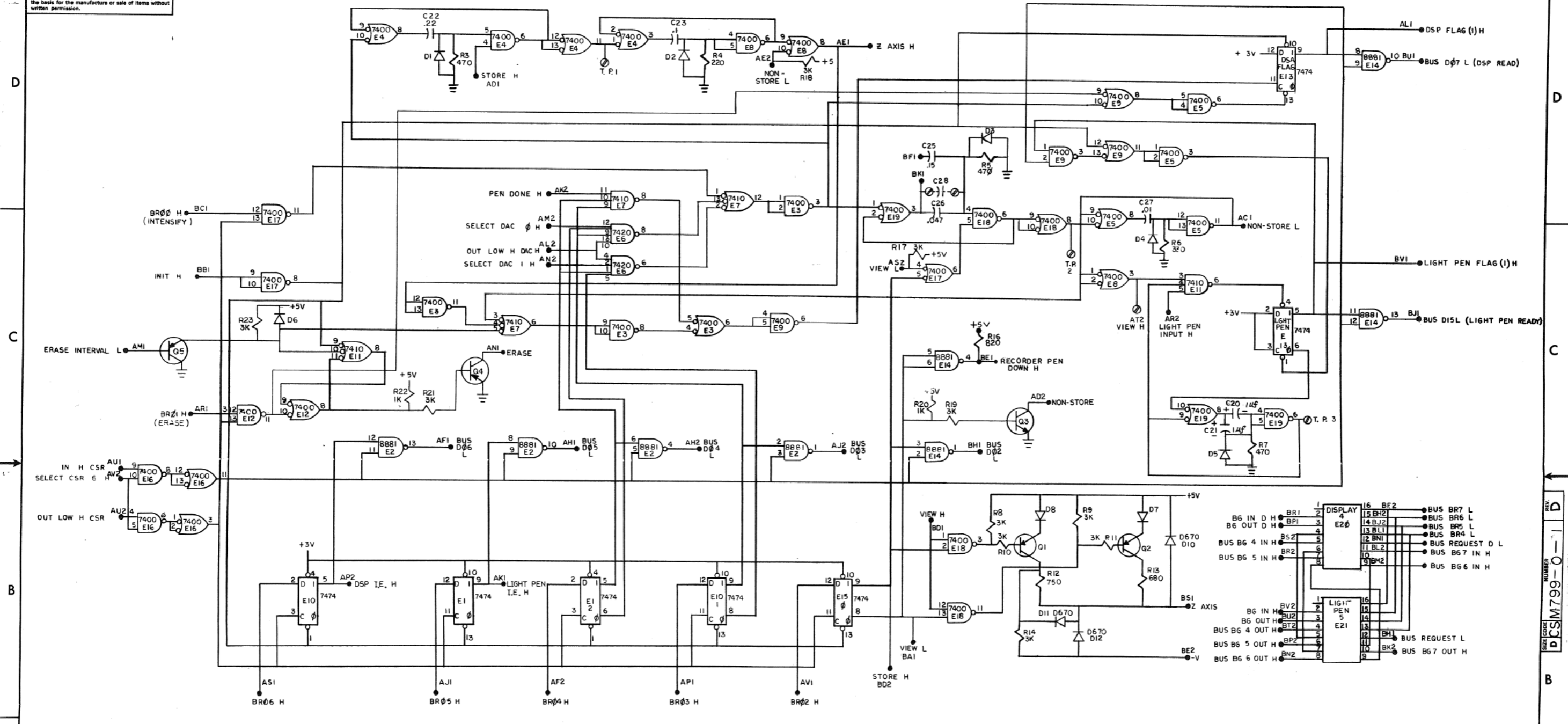
REV	DATE	BY	CHK
D	10/1/70	M. Gagne	M. Gagne
	1-3-71	R. Gagne	R. Gagne

FIRST USED ON OPT/MOD AA11-D	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED: DIMENSION IN INCHES TOLERANCES DECIMALS FRACTIONS ANGLES = .005 ± .005 ± 0°30' FINAL SURFACE QUANTITY REMOVE BURRS AND BREAK SHARP CORNERS	DRN. M. Gagne DATE 10/1/70	DATE 10/1/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
MATERIAL	PROJ. ENG. DATE 1-3-71	DATE 1-3-71	TITLE DISPLAY CONTROL M799	
FINISH	PROD. DATE	DATE	NEXT HIGHER ASSY A-ML-AAH-D	
SCALE NONE			SIZE CODE DCSM799-0-1	NUMBER D
SHEET 1 OF 2			DIST.	

1 Pink

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1-0-662W32



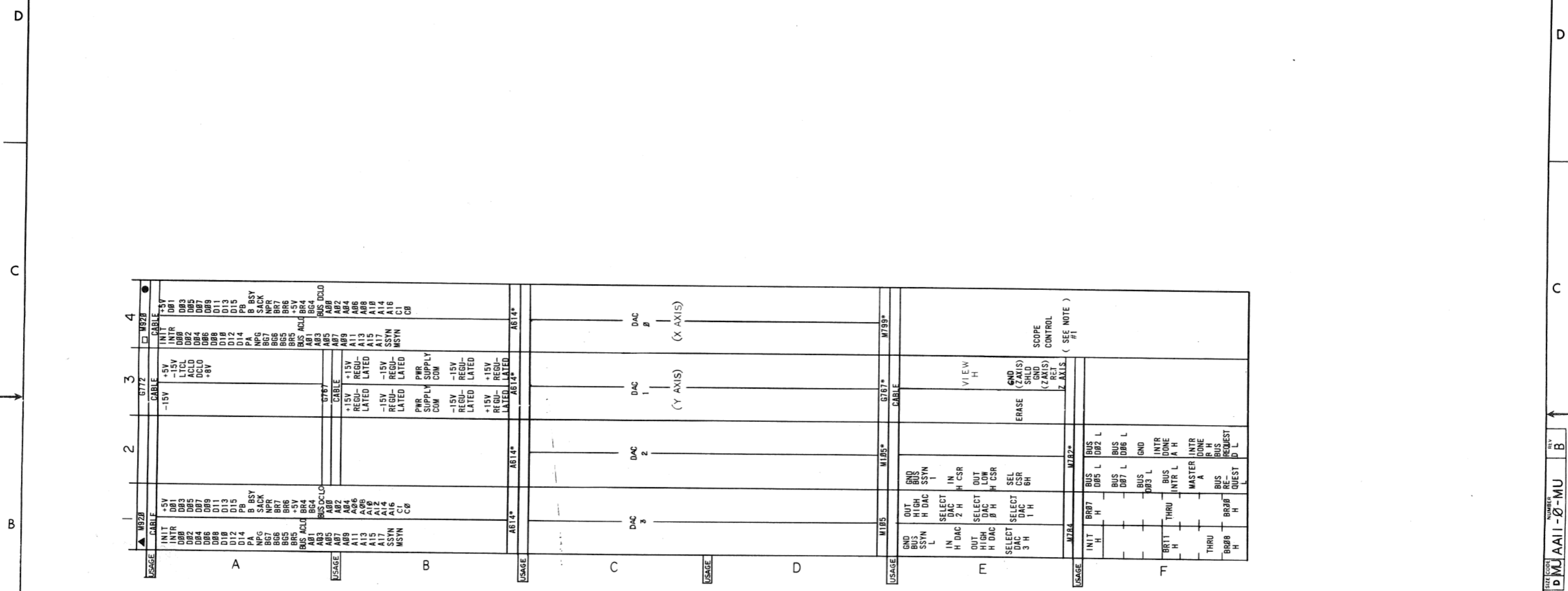
FIRST USED ON OPTION/MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
AA11-D				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED		DRM	DATE 7-7-70	digital CORPORATION MAYNARD, MASSACHUSETTS
UNLESS OTHERWISE SPECIFIED		CHK'D	DATE 1-5-71	
DIMENSION IN INCHES		ENG.	DATE 1-5-71	DISPLAY CONTROL M799
TOLERANCES		PROJ. ENG.	DATE 1-5-71	
DECIMALS FRACTIONS ANGLES = .005 = 1/64 = 0°30' FINIAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS		PROD.	DATE	
MATERIAL		NEXT HIGHER ASSY		
FINISH		A-ML-AA11-D		
SCALE		SIZE CODE NUMBER		
SHEET		D/C/S/M799-0-1		
		DST.		

REV	CHANGE NO.

DEC FORM NO. DRD 102A

REV. D
NUMBER
CSM799-0-1

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-IF END OF BUS REPLACE M920 WITH M930
 -IF LAST UNIT IN BASIC BOX, REPLACE M920 WITH BC11-A CABLE END WHEN EXPANDING TO PERIPHERAL BOX
 -IF FIRST UNIT IN EXPANDER BOX, REPLACE M920 WITH BC11 A CABLE END.
 *-BLOCKS WITH * INDICATE LOCATIONS RESERVED FOR AA11-A OR AA11-B OR AA11-C AND A614 OPTIONS.
 NOTE:
 1. IF M799 NOT USED PLACE A G727 IN SLOT F#4

CHK	REVISIONS	CHANGE NO	REV
	AA11-0-0004	A	
	GAGNE		
	AA11-0-0002	B	
	GAGNE		

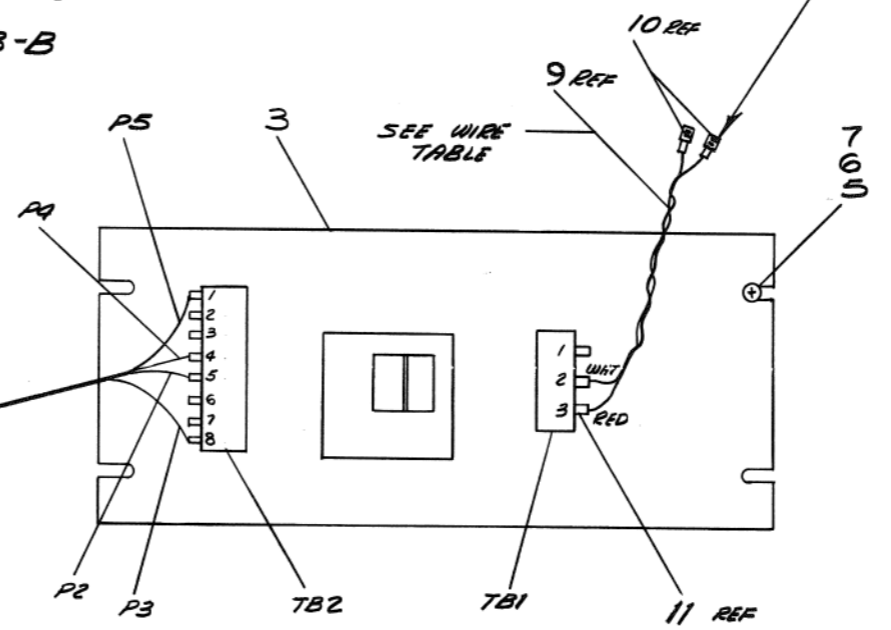
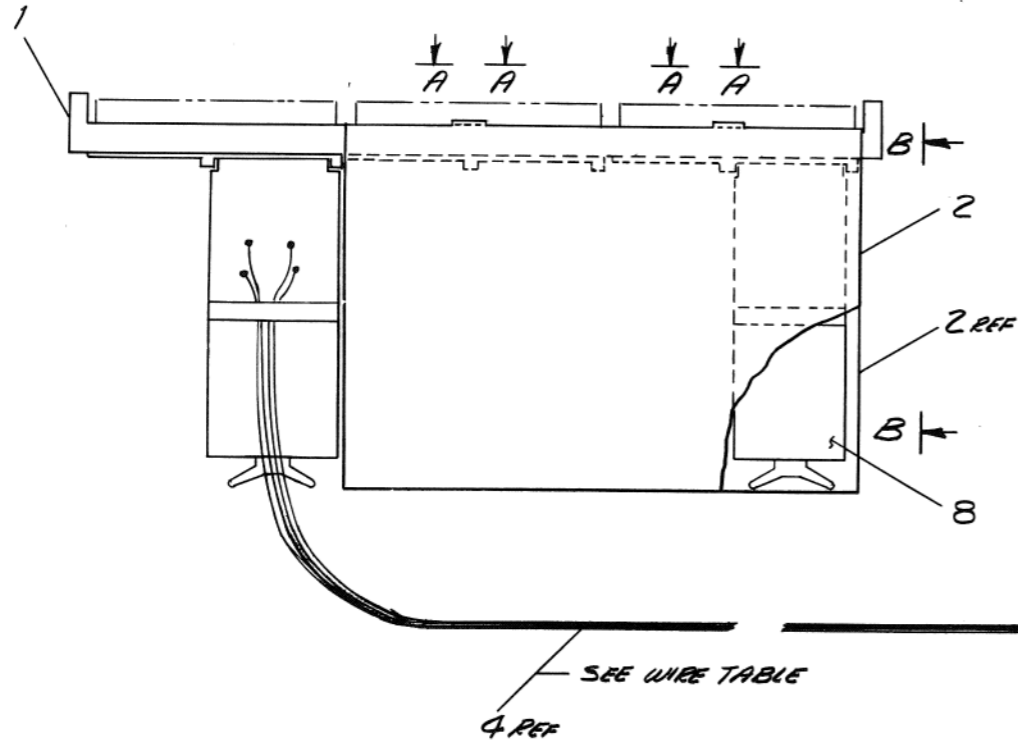
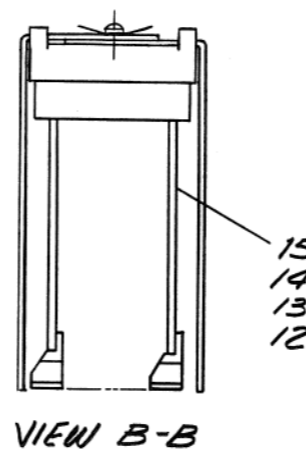
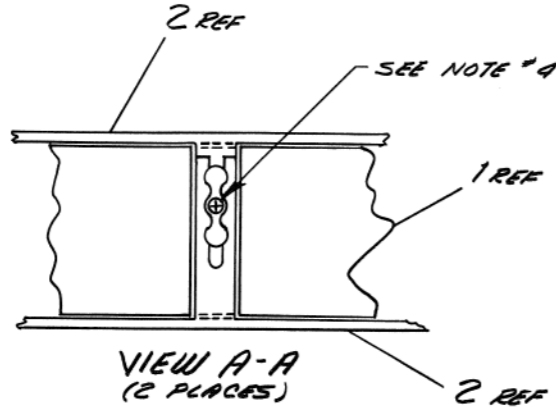
FIRST USED ON OPTION/MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
AA11-D				
UNLESS OTHERWISE SPECIFIED				
DRW		DATE	PARTS LIST	
CHK'D		DATE	digital EQUIPMENT CORPORATION MAYFELD, MASSACHUSETTS	
ENG.		DATE	TITLE	
PROJ. ENG.		DATE	MODULE UTILIZATION	
PROD.		DATE	NEXT HIGHER ASSY	
MATERIAL			A.MU-AA11-DA	
FINISH			SCALE	
			SHEET 1 OF 1	
			SIZE CODE NUMBER REV	
			DMU AA11-0-MU B	
			DIST.	

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LEGEND	
NUMBER	VARIATION
AA11-DA	115V CONTROL ASSY
AA11-DB	230V CONTROL ASSY

ITEM NO	DESCRIPTION	FROM		TO			
		AWG	COLOR	CONNECTION	WITH	CONNECTION	WITH
4	*14		RED	P5 REF	---	TB2-1	---
	TWP		BEN	P4 REF	---	TB2-4	---
9	*14		BLU	P3 REF	---	TB2-3	---
	TWP		BRN	P2 REF	---	TB2-5	---
9	*18		RED	TB1-3	ITRM 11	115V/230V PNL	ITRM 10
	TWP		WHT	TB1-2	ITRM 11	115V/230V PNL	ITRM 10

- NOTES:**
- POWER SUPPLY & LOGIC LOCATION IN CAB TO BE DETERMINED BY SYSTEM REQUIRED.
 - ITEMS *12 THRU *15 ARE OPTIONS TO AA11-D UNITS.
 - FOR LOCATION OF MODULES IN OPTIONS ITEM 12, 13, 14 AND 15 REFER TO D-MU-AA11-D-MU
 - TO INSTALL PROTECTION PLATE ITEM *2 BACK OFF GND SCREW ON BLOCK, SLIDE IN PLATES AND RETIGHTEN SCREW.
 - FOR DRAWING INDEX LIST REFER TO D-DI-AA11-D-1



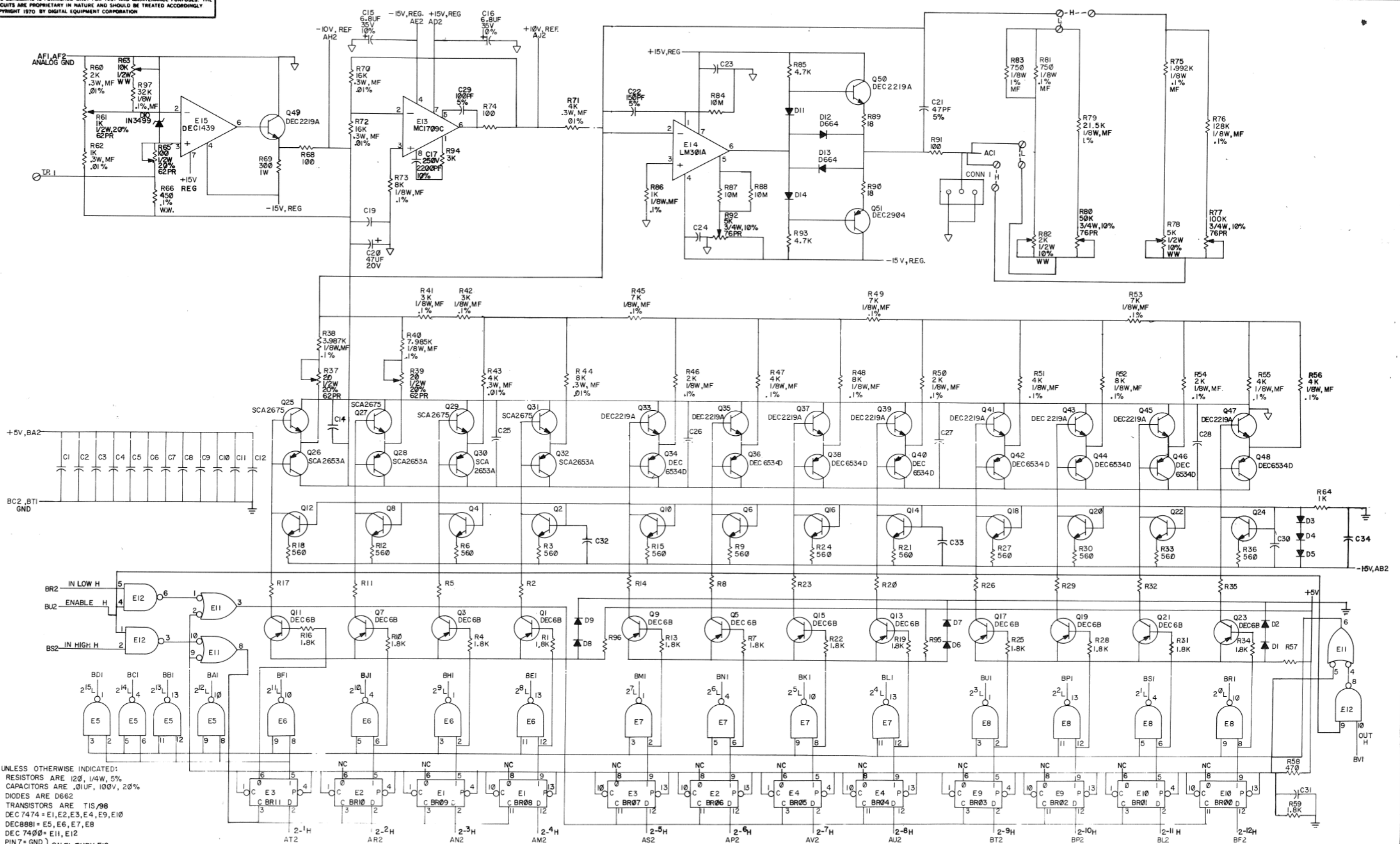
FIRST USED ON OPTION/MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
AA11-D				
UNLESS OTHERWISE SPECIFIED				
DRY	DATE	PARTS LIST		
CHK'D	DATE	digital EQUIPMENT CORPORATION		
ENG.	DATE	TITLE		
PROJ. ENG.	DATE	DIGITAL TO ANALOG CONTROL ASSY (AA11-D)		
PROD.	DATE	SIZE CODE NUMBER - REV.		
MATERIAL		NEXT HIGHER ASSY		
FINISH		SCALE		
		SHEET		

REV	CHANGE NO.

DEC FORM NO 890 102A

REV. NUMBER
DUA AA11-D-0

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UNLESS OTHERWISE INDICATED:
RESISTORS ARE 1/2W, 1/4W, 5%
CAPACITORS ARE .01UF, 100V, 20%
DIODES ARE D662
TRANSISTORS ARE TIS/98
DEC 7474 = E1, E2, E3, E4, E9, E10
DEC 8881 = E5, E6, E7, E8
DEC 7400 = E11, E12
PIN 14 = +5V
PIN 7 = GND } ON E1 THRU E12
--- = CUSTOMER OPTION, DO NOT INSERT
▽ = ANALOG GND
SHIELD IS TIED TO ANALOG GND

⊙ = SPLIT LUG
CONNECTOR ONE (1) IS A 12P9456

REV	DATE	BY	CHKD
1	9-30-70	W. J. W.	W. J. W.
2	10-14-70	W. J. W.	W. J. W.

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA
D662	1N645	DEC 6534D	MPS 6534
IN 3499	IN 3406	SCA 2653A	SAME
IN 3499	SAME	SCA 2675	SAME
IN 2904	SAME	TIS 98	SAME
DEC 2219A	2N2219	DEC 6B	NONE

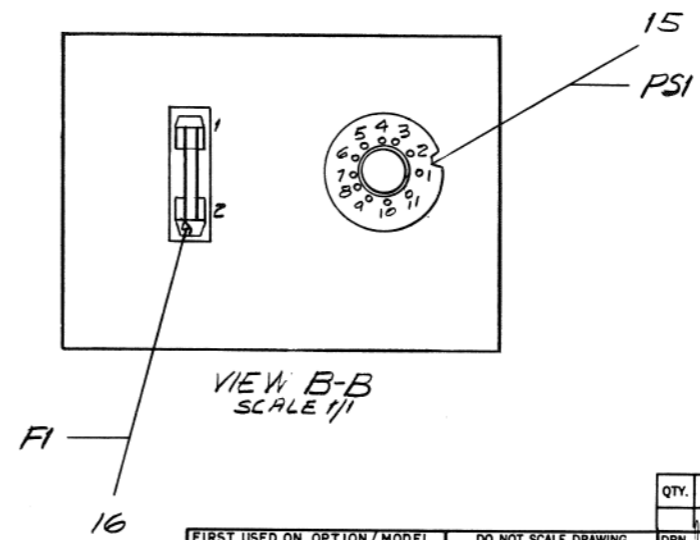
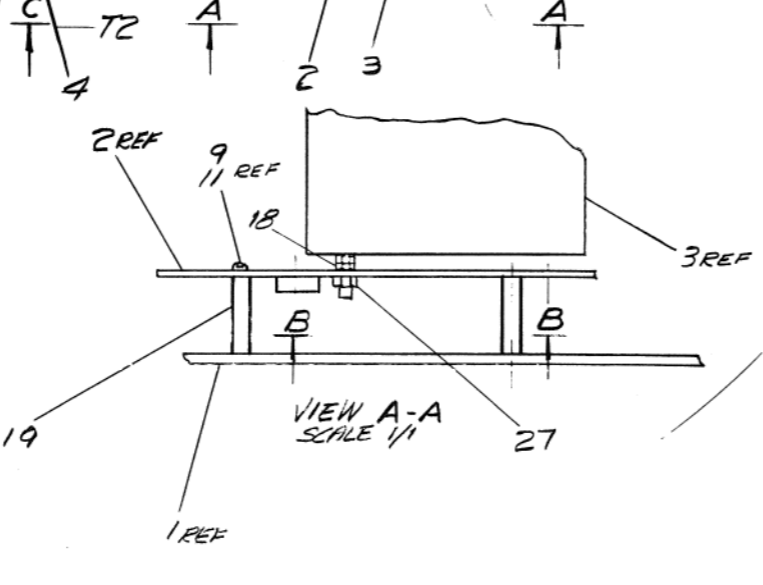
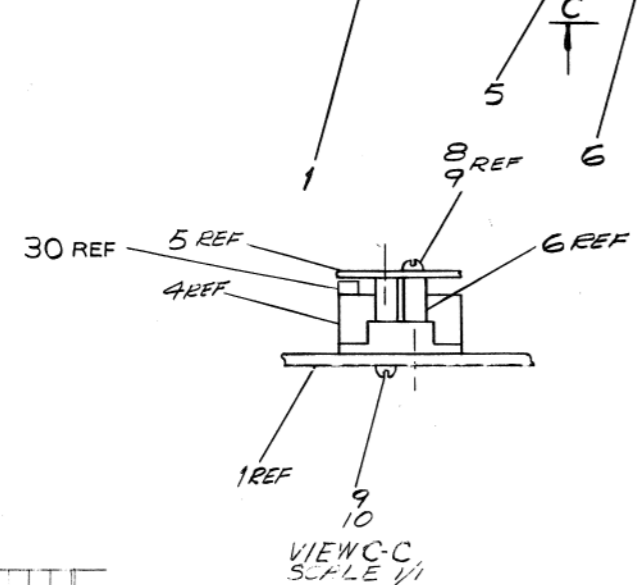
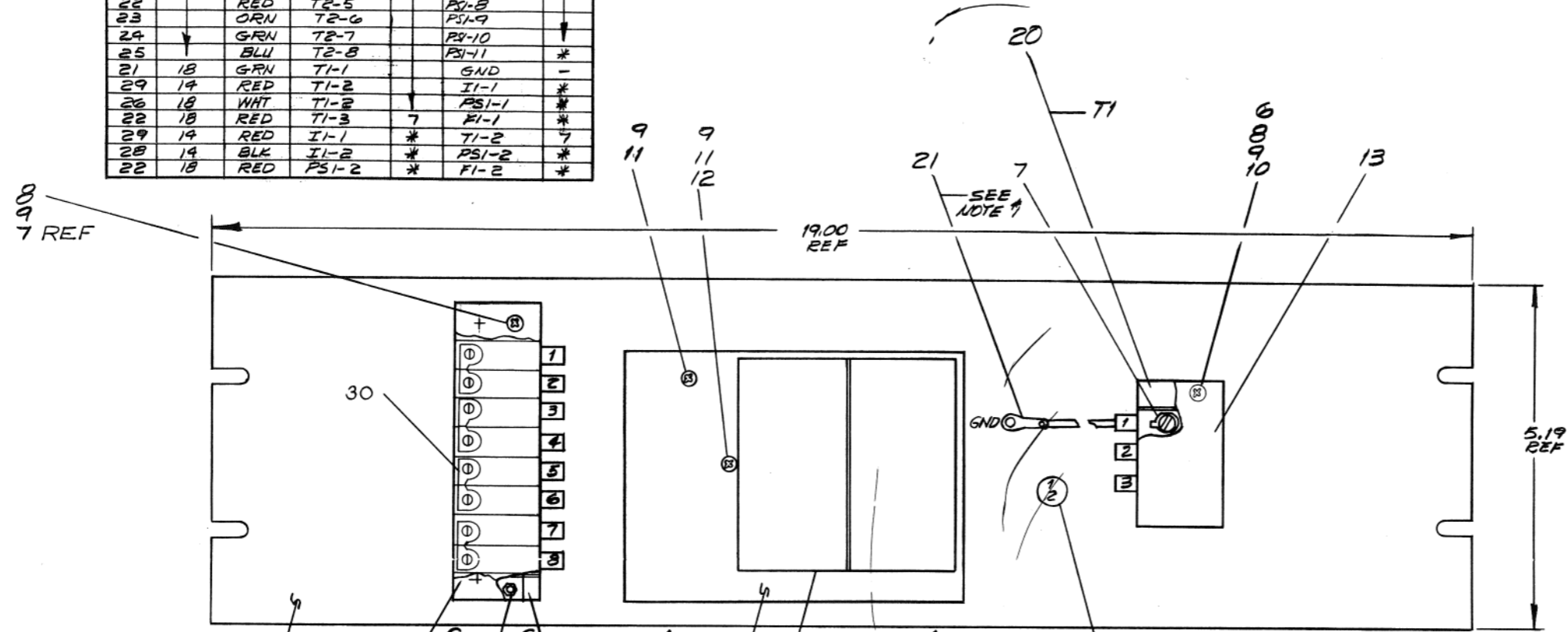
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: 12 BIT BI POLAR DAC CONVERTER A614
SIZE: D CS NUMBER: A614-0-1 REV: C
PRINTED CIRCUIT REV: D

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WIRE TABLE						
ITEM NO	AWG	COLOR	FROM CONNECTION	WITH CONNECTION	TO CONNECTION	WITH CONNECTION
22	18	RED	T2-1	7	PSI-4	*
23		ORN	T2-2		PSI-5	
24		GRN	T2-3		PSI-6	
25		BLU	T2-4		PSI-7	
22		RED	T2-5		PSI-8	
23		ORN	T2-6		PSI-9	
24		GRN	T2-7		PSI-10	
25		BLU	T2-8		PSI-11	*
21	18	GRN	T1-1		GND	-
29	14	RED	T1-2		I1-1	*
26	18	WHT	T1-2		PSI-1	*
22	18	RED	T1-3	7	F1-1	*
29	14	RED	I1-1	*	T1-2	7
28	14	BLK	I1-2	*	PSI-2	*
22	18	RED	PSI-2	*	F1-2	*

NOTES:
 1. ITEM (24) GRN WIRE, TO BE SOLDERED TO ITEM (21) GND LUG, THEN FASTEN ITEM (21) GND LUG BETWEEN ITEM (21) MTS PANEL AND ITEM (20) SPACER.
 2. * INDICATES SOLDERED END OF WIRE.



REV.	CHG. NO.	BY	DATE
A	H704-C-00002	GAGNE	1-17-70
B	H704-C-00003	GAGNE	1-17-70
C	H704-C-00004	GAGNE	1-17-70

DEC FORM NO. DRD 100

FIRST USED ON OPTION / MODEL
 AA11-D

DO NOT SCALE DRAWING
 UNLESS OTHERWISE SPECIFIED
 DIMENSION IN INCHES
 TOLERANCES
 DECIMALS FRACTIONS ANGLES
 ±.005 ±.000 ±.000 ±.000 ±.000 ±.000
 FINAL SURFACE QUALITY /
 REMOVE BURRS AND BREAK SHARP
 CORNERS
 MATERIAL
 FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHKD.	DATE	TITLE	
ENG.	DATE	POWER SUPPLY ASSY (115 VAC)	
PROJ. ENG.	DATE	SIZE CODE NUMBER REV.	
PROD.	DATE	DUA H704-C-0 B	
NEXT HIGHER ASSY			
SCALE	OF	DIST.	
SHEET			

REV. B
 H704-C-0

DRWG NO	REV LTR
K-WL-AA11-D-WL	A

REVISIONS			
REV LTR	ECO NO	DATE	ENG
A	AA11D-00005	6-24-71	MA

DRAWN <i>Kalichman</i>	DATE 11-4-70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE WIRE LIST		
CHECKED <i>K. D. Russ</i>	DATE 11-12-70		FOR TAPE# FILE*		
ENG <i>R. A. Lopez</i>	DATE 11-12-70		ASSY NO —	SIZE K	CODE WL
PROJ ENG <i>R. A. Lopez</i>	DATE 11-12-70		SCALE —	DWG. NO. AA11-D-WL	REV LTR A
PROD <i>A. Heisch</i>	DATE 11-12-70		SHEET / OF /	DIST.	

AA11D.A RUN NAME	HND288,V10 12/3/70 A/P PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	25-JUN-71 LENGTH	14:50 EXCEPTIONS	PAGE 3 RUN NUMBER
BR10	C04R2	1-01	2		AA11D-03						15
BR10	C03R2	1-02	1		AA11D-03						15
BR10	C02R2	1-03	2		AA11D-03						15
BR10	C01R2	1-04	1		AA11D-03						15
BR10	F01P1	1-05	1		AA11D-04				18-6/8		15
BR11	C04T2	1-01	2		AA11D-03						16
BR11	C03T2	1-02	1		AA11D-03						16
BR11	C02T2	1-03	2		AA11D-03						16
BR11	C01T2	1-04	1		AA11D-03						16
BR11	F01M1	1-05	1		AA11D-04				18-2/8		16
BUS AC LO	A03R2	1-01	2		AA11D-05						17
BUS AC LO	B04F1	1-02	1		AA11D-05					CABLE	17
BUS AC LO	B01F1	1-03	1		AA11D-05				8-0/8		17
BUS AC LO	B01F1	1-03	1		AA11D-05						17
BUS A00	B04H2	1-01	2		AA11D-04						18
BUS A00	B01H2	1-02	1		AA11D-04						18
BUS A00	E01H2	1-03	2		AA11D-04						18
BUS A00	E02H2	1-04	1		AA11D-04				16-4/8		18
BUS A01	B04H1	1-01	2		AA11D-04						19
BUS A01	B01H1	1-02	1		AA11D-04						19
BUS A01	E01H1	1-03	2		AA11D-04						19
BUS A01	E02H1	1-04	1		AA11D-04				16-4/8		19
BUS A02	B04J2	1-01	2		AA11D-04						20
BUS A02	B01J2	1-02	1		AA11D-04						20
BUS A02	E01F1	1-03	2		AA11D-04						20
BUS A02	E02F1	1-04	1		AA11D-04				16-4/8		20
BUS A03	B04J1	1-01	2		AA11D-04						21
BUS A03	B01J1	1-02	1		AA11D-04						21
BUS A03	E01V2	1-03	1		AA11D-04						21
BUS A03	E02V2	1-04	2		AA11D-04				18-0/8		21

AA11D.A RUN NAME	HND288,V10 12/3/70 A/P PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	25-JUN-71 LENGTH	14:50 EXCEPTIONS	PAGE 4 RUN NUMBER
BUS A04	B04K2	1-01	2		AA11D-04						22
BUS A04	B01K2	1-02	1		AA11D-04						22
BUS A04	E01U2	1-03	2		AA11D-04						22
BUS A04	E02U2	1-04	1		AA11D-04				17-4/8		22
BUS A05	B04K1	1-01	2		AA11D-04						23
BUS A05	B01K1	1-02	1		AA11D-04						23
BUS A05	E01V1	1-03	2		AA11D-04						23
BUS A05	E02V1	1-04	1		AA11D-04				17-6/8		23
BUS A06	B04L2	1-01	2		AA11D-04						24
BUS A06	B01L2	1-02	1		AA11D-04						24
BUS A06	E02U1	1-03	2		AA11D-04						24
BUS A06	E01U1	1-04	1		AA11D-04				17-4/8		24
BUS A07	B04L1	1-01	2		AA11D-04						25
BUS A07	B01L1	1-02	1		AA11D-04						25
BUS A07	E01P2	1-03	2		AA11D-04						25
BUS A07	E02P2	1-04	1		AA11D-04				17-0/8		25
BUS A08	B04M2	1-01	2		AA11D-04						26
BUS A08	B01M2	1-02	1		AA11D-04						26
BUS A08	E01N2	1-03	2		AA11D-04						26
BUS A08	E02N2	1-04	1		AA11D-04				16-6/8		26
BUS A09	B04M1	1-01	2		AA11D-04						27
BUS A09	B01M1	1-02	1		AA11D-04						27
BUS A09	E01R1	1-03	2		AA11D-04						27
BUS A09	E02R1	1-04	1		AA11D-04				17-0/8		27
BUS A10	B04N2	1-01	2		AA11D-04						28
BUS A10	B01N2	1-02	1		AA11D-04						28
BUS A10	E02P1	1-03	2		AA11D-04						28
BUS A10	E01P1	1-04	1		AA11D-04				16-6/8		28
BUS A11	B04N1	1-01	2		AA11D-04						29
BUS A11	B01N1	1-02	1		AA11D-04						29
BUS A11	E01L1	1-03	2		AA11D-04						29
BUS A11	E02L1	1-04	1		AA11D-04				16-2/8		29

AA110.A RUN NAME	HND288.V10 12/3/70 A/P PIN ORDER	HND288.V10 12/3/70 PIN ORDER	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	25-JUN-71	14:50 LENGTH	PAGE 7 EXCEPTIONS	RUN NUMBER
BUS 00	L	B04U2	1-01	C	AA11D-05		2				CABLE	49
BUS 00	L	B01U2	1-02	C	AA11D-05		1				CABLE	49
BUS 00	L	E01J2	1-03				2					49
BUS 00	L	E02J2	1-04							15-4/8		49
BUS 00	L		1									49
BUS 01	L	B04T2	1-01	C	AA11D-05		2				CABLE	50
BUS 01	L	B01T2	1-02	C	AA11D-05		1				CABLE	50
BUS 01	L	E01F2	1-03				2					50
BUS 01	L	E02F2	1-04							15-2/8		50
BUS 01	L		1									50
BUS 0C LO	L	B01F2	1-01 *			R1	2					51
BUS 0C LO	L	B04F2	1-02 *			R1	1					51
BUS 0C LO	L	A03S2	1-03 *			R1				8-0/8		51
BUS 0C LO	L		1									51
BUS 000	L	A01C1	1-01	C	AA11D-05		2				CABLE	52
BUS 000	L	A04C1	1-02	C	AA11D-05		1				CABLE	52
BUS 000	L	D04R1	1-03		AA11D-03		2					52
BUS 000	L	D03R1	1-04		AA11D-03		1					52
BUS 000	L	D02R1	1-05		AA11D-03		2					52
BUS 000	L	D01R1	1-06		AA11D-03		1					52
BUS 000	L	F01U2	1-07		AA11D-04		1					52
BUS 000	L		1							31-6/8		52
BUS 001	L	A01D2	1-01	C	AA11D-05		2				CABLE	53
BUS 001	L	A04D2	1-02	C	AA11D-05		1				CABLE	53
BUS 001	L	D04S1	1-03		AA11D-03		2					53
BUS 001	L	D03S1	1-04		AA11D-03		1					53
BUS 001	L	D02S1	1-05		AA11D-03		2					53
BUS 001	L	D01S1	1-06		AA11D-03		1					53
BUS 001	L	F01S2	1-07		AA11D-04		1					53
BUS 001	L		1							31-6/8		53
BUS 002	L	A04D1	1-01	C	AA11D-05		2				CABLE	54
BUS 002	L	A01D1	1-02	C	AA11D-05		1				CABLE	54
BUS 002	L	D01P1	1-03		AA11D-03		2					54
BUS 002	L	D02P1	1-04		AA11D-03		1					54
BUS 002	L	D03P1	1-05		AA11D-03		2					54
BUS 002	L	D04P1	1-06		AA11D-03		1					54
BUS 002	L	F04H1	1-07		AA11D-06		2					54
BUS 002	L	F02E2	1-08		AA11D-04		1					54
BUS 002	L	F01P2	1-09		AA11D-04		1					54
BUS 002	L		1							37-0/8		54

AA110.A RUN NAME	HND288.V10 12/3/70 A/P PIN ORDER	HND288.V10 12/3/70 PIN ORDER	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	25-JUN-71	14:50 LENGTH	PAGE 8 EXCEPTIONS	RUN NUMBER
BUS 003	L	A04E2	1-01	C	AA11D-05		2				CABLE	55
BUS 003	L	A01E2	1-02	C	AA11D-05		1				CABLE	55
BUS 003	L	D01U1	1-03		AA11D-03		2					55
BUS 003	L	D02U1	1-04		AA11D-03		1					55
BUS 003	L	D03U1	1-05		AA11D-03		2					55
BUS 003	L	D04U1	1-06		AA11D-03		1					55
BUS 003	L	E04J2	1-07		AA11D-06		2					55
BUS 003	L	F02L1	1-08		AA11D-04		1					55
BUS 003	L	F01M2	1-09		AA11D-04		1					55
BUS 003	L		1							36-6/8		55
BUS 004	L	A04E1	1-01	C	AA11D-05		2				CABLE	56
BUS 004	L	A01E1	1-02	C	AA11D-05		1				CABLE	56
BUS 004	L	D01L1	1-03		AA11D-03		2					56
BUS 004	L	D02L1	1-04		AA11D-03		1					56
BUS 004	L	D03L1	1-05		AA11D-03		2					56
BUS 004	L	D04L1	1-06		AA11D-03		1					56
BUS 004	L	E04H2	1-07		AA11D-06		2					56
BUS 004	L	F02N2	1-08		AA11D-04		1					56
BUS 004	L	F01K2	1-09		AA11D-04		1					56
BUS 004	L		1							36-6/8		56
BUS 005	L	A04F2	1-01	C	AA11D-05		2				CABLE	57
BUS 005	L	A01F2	1-02	C	AA11D-05		1				CABLE	57
BUS 005	L	D01K1	1-03		AA11D-03		2					57
BUS 005	L	D02K1	1-04		AA11D-03		1					57
BUS 005	L	D03K1	1-05		AA11D-03		2					57
BUS 005	L	D04K1	1-06		AA11D-03		1					57
BUS 005	L	E04H1	1-07		AA11D-06		2					57
BUS 005	L	F02F1	1-08		AA11D-04		1					57
BUS 005	L	F01H2	1-09		AA11D-04		1					57
BUS 005	L		1							35-4/8		57
BUS 006	L	A04F1	1-01	C	AA11D-05		2				CABLE	58
BUS 006	L	A01F1	1-02	C	AA11D-05		1				CABLE	58
BUS 006	L	D01N1	1-03		AA11D-03		2					58
BUS 006	L	D02N1	1-04		AA11D-03		1					58
BUS 006	L	D03N1	1-05		AA11D-03		2					58
BUS 006	L	D04N1	1-06		AA11D-03		1					58
BUS 006	L	E04F1	1-07		AA11D-06		2					58
BUS 006	L	F02F2	1-08		AA11D-04		1					58
BUS 006	L	F01E2	1-09		AA11D-04		1					58
BUS 006	L		1							35-4/8		58

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PAGE 13

RUN NUMBER

A/P	PIN NAME	ORDER	PIN	RAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
GND 02	A02C2			1-01							2				86
GND 02	A02T1			1-02							1				86
GND 02	B02C2			1-03							2				86
GND 02	B02T1			1-04							1				86
GND 02	C02C2			1-05							1				86
GND 02	C02T1			1-06							1				86
GND 02	D02C2			1-07							2				86
GND 02	D02T1			1-08							1				86
GND 02	E02A1			1-09							2				86
GND 02	E02C2			1-10							1				86
GND 02	E02T1			1-11							2				86
GND 02	F02C2			1-12							1				86
GND 02	F02J2			1-13							1				86
GND 02	F02T1			1-14							2				86
GND 02				1									46-0/8		86
GND 03	A03C2			1-01							2				87
GND 03	A03T1			1-02							1				87
GND 03	B03C2			1-03							2				87
GND 03	B03T1			1-04							1				87
GND 03	C03C2			1-05							2				87
GND 03	C03T1			1-06							1				87
GND 03	D03C2			1-07							2				87
GND 03	D03T1			1-08							1				87
GND 03	E03C2			1-09							2				87
GND 03	E03S2			1-10							1				87
GND 03	E03T2			1-11							2				87
GND 03	F03T1			1-12							1				87
GND 03	F03C2			1-13							1				87
GND 03	F03T1			1-14							2				87
GND 03				1									45-6/8		87

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PAGE 14

RUN NUMBER

A/P	PIN NAME	ORDER	PIN	RAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
GND 04	A04B2			1-01							1				88
GND 04	A04C2			1-02							2				88
GND 04	A04N1			1-03							1				88
GND 04	A04R1			1-04							2				88
GND 04	A04P1			1-05							1				88
GND 04	A04S1			1-06							2				88
GND 04	A04T1			1-07							1				88
GND 04	A04V2			1-08							2				88
GND 04	B04B2			1-09							1				88
GND 04	B04R2			1-10							2				88
GND 04	B04D1			1-11							1				88
GND 04	B04C2			1-12							2				88
GND 04	B04E1			1-13							1				88
GND 04	B04T1			1-14							2				88
GND 04	B04V2			1-15							1				88
GND 04	C04C2			1-16							2				88
GND 04	C04T1			1-17							1				88
GND 04	D04C2			1-18							2				88
GND 04	D04T1			1-19							1				88
GND 04	E04C2			1-20							2				88
GND 04	E04T1			1-21							1				88
GND 04	F04C2			1-22							2				88
GND 04	F04T1			1							1				88
IN H CSR	E02M1			1-01							1				89
IN H CSR	F04U1			1-02							1				89
IN H CSR				1									3-6/8		89
IN H DAC	D04V1			1-01							2				90
IN H DAC	D03V1			1-02							1				90
IN H DAC	D02V1			1-03							2				90
IN H DAC	D01V1			1-04							1				90
IN H DAC	E01M1			1-05							1				90
IN H DAC				1									12-2/8		90
INIT	F01R1			1-01							1				91
INIT	F04B1			1-02							1				91
INIT				1									3-6/8		91
LIGHT PEN FLAG (1)	F02K2			1-01							1				92
LIGHT PEN FLAG (1)	F04V1			1-02							1				92
LIGHT PEN FLAG (1)				1									3-6/8		92
LIGHT PEN I.E.	E04K1			1-01							1				93
LIGHT PEN I.E.	F02H2			1-02							1				93
LIGHT PEN I.E.				1									5-2/8		93

