

**AD01-D
analog-to-digital
conversion
subsystem
engineering drawings**

1st Printing June 1971

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DIGITAL	COMPUTER LAB
UNIBUS	

AD01-D Subsystem

Drawing Number	Title
A-ML-AD01-DA	10 Bit ADC with Switch Gain (AD01-DA)
D-UA-AD01-0	10 Bit ADC with Switched Gain
A-PL-AD01-D-0	10 Bit ADC with Switched Gain (Parts List)
D-DI-AD01-D-1	Drawing Index List (AD01-D)
D-AD-7006919-0-0	Wired Assembly (AD01-D)
A-PL-7006919-0-0	Wired Assembly (Parts List) (AD01-D)
D-MU-AD01-D-02	Module Utilization (AD01-D)
A-PL-AD01-D-02	Module Utilization (Parts List) (AD01-D)
D-BS-AD01-D-03	Multiplexer
D-BS-AD01-D-04	Interface and CSR
D-BS-AD01-D-05	A/D Converter
D-IC-AD01-D-06	Analog Input Connectors
D-IC-AD01-D-09	Bus Connector
K-WL-AD01-D-0 (Complete)	Wire List (AD01-D)
A-AL-AD01-D-8	Accessory List
A-SP-AD01-D-10	Engineering Specifications
A-SP-AD01-D-12	Acceptance Procedure
A-ML-AH04-0	Sample and Hold Option AH04
A-PL-AH04-0-0	Sample and Hold (Parts List)
C-CS-A405-0-1	Sample and Hold
A-ML-AH05-0	One Bit Extender for AD01
A-PL-AH05-0-0	One Bit Extender for AD01 (Parts List)
D-CS-A862-0-1	11 Bit A/D Converter with Sign
D-CS-A812-0-1	A/D Converter
C-UA-H727-A-0	H727-A Power Supply, 115V
C-UA-H727-B-0	H727-B Power Supply, 230V
D-UA-H716-B-0	H716-B Power Supply, 115V
D-UA-H716-D-0	H716-D Power Supply, 230V

MASTER DRAWING LIST

MAINTENANCE MANUALS		UNIT VARIATIONS													
		AD01-AN	AD01-AP	AD01-DA	AD01-DB	AD01-EA	AD01-FB								
NO.	TITLE	AD01-A	AD01-B	AD01-C	AD01-D	AD01-E	AD01-F	AD01-G	AD01-H	AD01-I	AD01-J	AD01-K	AD01-L	AD01-M	AD01-N
AD01-A	10 BIT ADC WITH 32 CH MUX	X													
AD01-D	10 BIT ADC WITH SWITCH GAIN			X											
AD01-FA	COMPLEX ANALOG									X					
AD01-FB	EXTENDED ANALOG														X

USED ON OPTIONS

PDP-8I															
PDP-11															

APP'D.	CHG. NO.	DATE	REV.	DESCRIPTION
	8/71	MISC-86	1	P.S.
	9/71	AD01D-6	1	P.S.
	9/71	AD01-7	1	AV
	9/71	AD01D-8	1	PS
	11-71	AD01A-10	1	P.S.
	11/71	AD01F-1	1	P.S.
	12/71	AD01F-2	1	P.S.
	12/71	AD01F-3	1	P.S.
	1/72	AD01F-4	1	P.S.
	2-72	AD01F-5	1	P.S.

DRN. RAIMONDI	DATE 11-11-69	digital	EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D. R. RUSSKA	DATE 12-3-69			
ENG. LINDHEIM	DATE 12-4-69	TITLE 10 BIT ADC		
PROJ. ENG. LINDHEIM	DATE 12-5-69			
PROD. W.R. MILLER	DATE 12-8-69			
FIRST USED ON PDP-8I				
SCALE #		SIZE CODE	NUMBER	REV.
SHEET 1 OF 4		A ML	AD01-0	K

DRA 131

Dec 16-(325)-1048-N471

PRINT SET		DWG. NO.	REV. NO. OF SHEETS	REV. LET.	TITLE	OPTION NO.
AD01-A	AD01-B					
X		D-DI-AD01-A-1	1	F	DRAWING INDEX LIST	
		D-UA-AD01-A-0	1	C	10 BIT ADC WITH 32 CH MUX	
X		A-PL-AD01-A-0	2	C	10 BIT ADC WITH 32 CH MUX (PL)	
X		D-BD-7006587-0-0	1	D	WIRED ASSY	
X		A-PL-7006587-0-0	1	D	WIRED ASSY (PL)	
X		D-BS-AD01-AN-01	3	D	A/D CONVERTER	
X		D-BS-AD01-AN-02	1	A	MULTIPLIER	
X		D-BS-AD01-AP-01	3	E	A/D CONVERTER	
X		D-BS-AD01-AP-02	1	A	MULTIPLIER	
X		D-MU-AD01-AN-05	1	D	MODULE UTILIZATION	
X		A-PL-AD01-AN-05	1	D	MODULE UTILIZATION (PL)	
X		D-MU-AD01-AP-05	1	H	MODULE UTILIZATION	
X		A-PL-AD01-AP-05	1	H	MODULE UTILIZATION (PL)	
X		D-IC-AD01-AN-03	1	D	ANALOG INPUT CONNECTORS	
X		D-IC-AD01-AN-04	1	B	I/O CONNECTORS	
X		D-IC-AD01-AP-03	1	B	ANALOG INPUT CONNECTORS	
X		D-IC-AD01-AP-04	1	A	I/O CONNECTORS	
X		A-SP-AD01-A-05	23	D	AD01-AN/AP ENG. SPECIFICATION	
X		A-SP-AD01-A-06	20	A	AD01-AN/AP CALIBRATION PROCEDURE	
X		K-WL-AD01-A-02	1	H	WIRE LIST	
X		A-WL-AD01-A-03	1	D	POWER WIRING LIST	
X		A-WL-AD01-A-04	1	B	OPTION JUMPER LIST	

TITLE 10 BIT ADC

SHEET 2 OF 4 SIZE CODE A ML NUMBER AD01-0 REV. K

DRA 132

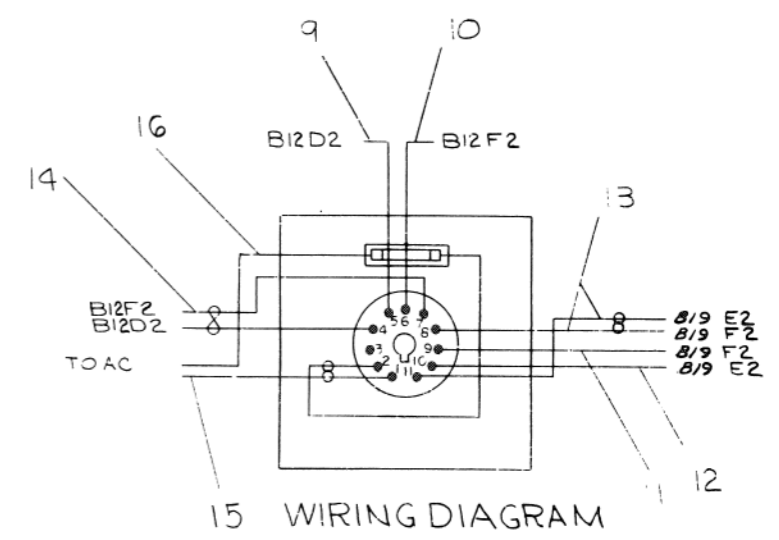
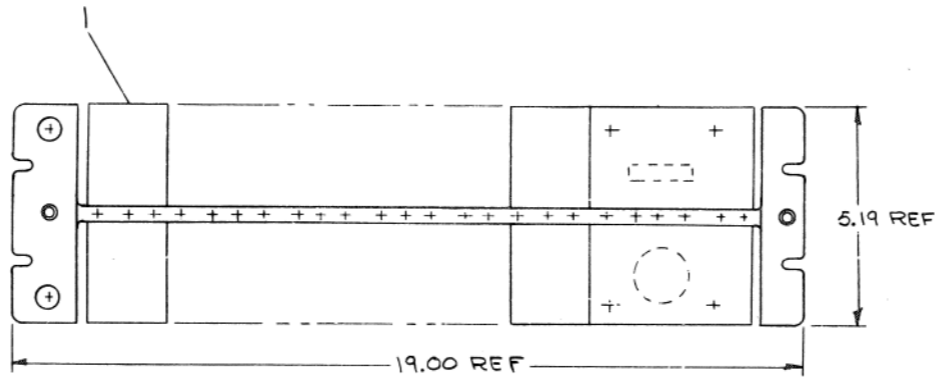
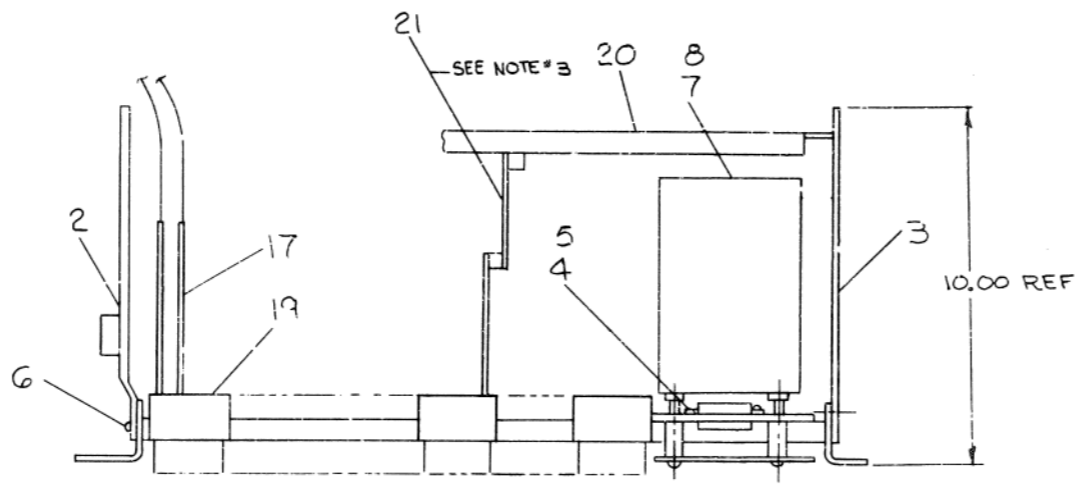
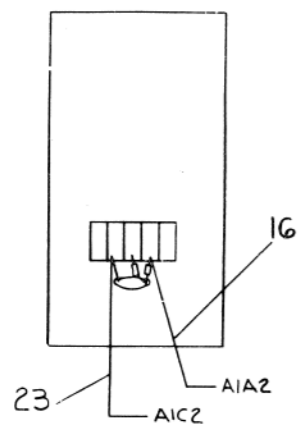
DEC 16-(325)-1048-1-N471

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LEGEND	
NUMBER	VARIATION
AD01-DA	110V INPUT
AD01-DB	220V INPUT

NOTES

- FOR DWG INDEX LIST REFER TO DWG # D-01-AD01-D-1.
- ITEM #18 & #22 NOT SHOWN (#18 USED WITH AD01-DB) (#22 USED WITH AD01-DA)
- IF OPTIONAL MODULES ARE USED ITEM #21 WILL BE REQ'D REFER TO D-MU-AD01-D-02.



15 WIRING DIAGRAM

REV.	CHG	NO.	BY	DATE
A	1	00001	A. J. Severino	10/21/70

REVISIONS
 CHANGE NO. A
 BY A. J. SEVERINO
 DATE 10/21/70

FIRST USED ON OPTION/MODEL
 PDP-11

DO NOT SCALE DRAWING
 UNLESS OTHERWISE SPECIFIED
 DIMENSION IN INCHES
 TOLERANCES
 FINISH SURFACE QUALITY
 REMOVE BURRS AND BREAK SHARP CORNERS
 MATERIAL
 FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		
	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
	TITLE 10 BIT ADC WITH SWITCHED GAIN		
	SCALE	SIZE CODE	NUMBER
		DUA	AD01-D-0
	SHEET	OF	REV.
1	1		A

PART NO. DUA AD01-D-0

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY G. FLANDERS
 DATE 6/9/70
 ENG *Paul J. Swain*
 DATE 8/25/70
 CHECKED D. HEALY
 DATE 6/23/70
 PROD *D. Healy*
 DATE 8-25-70
 SECTION 1
 ISSUED SECT. 1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	SIZE CODE	ASSY NO.	NUMBER	REV.	ECO NO.
1	D-AD-7006919-0-0	WIRED ASSY (ADØ1-D)	A PL	D-UA-ADØ1-D-Ø	ADØ1-D-Ø	A	0000 1
2	C-IA-54Ø9090-0-0	PANEL, LEFT END ASSY					
3	C-MD-5308898-0-0	PANEL, RIGHT END					
4	9006634	LOCK WASHER INT TOOTH #8					
5	9006210	SCR PHL, FIL HD #8-32 X 5/8 SST					
6	9006509	POP RIVET #AD43ABS U.S.M.C.					
7	C-UA-H727-A-Ø	H727-A POWER SUPPLY 110V					
8	C-UA-H727-B-Ø	H727-B POWER SUPPLY 220V					
9	9107350-99	#22 AWG STRD WIRE YEL					
10	9107350-00	#22 AWG STRD WIRE BLK					
11	9107350-11	#22 AWG STRD WIRE BRN					
12	9107350-55	#22 AWG STRD WIRE GRN					
13	9107430-51	22 AWG TWP WIRE GRN/BRN					
14	9107420-40	22 AWG TWP WIRE YEL/BLK					
15	9107430-29	18 AWG TWP WIRE RED/WHT					
16	9107360-22	18 AWG STRD KYNAR WIRE RED					
17	D-UA-BC11A-Ø-Ø	BC11 CABLE (LGTH SPEC BY ENG)					
18	D-UA-H716-D-Ø	H716-D POWER SUPPLY (220V)					
19	A-MU-ADØ1-D-Ø	MODULE UTILIZATION (PL)					
20	D-MAD-1945-19-1	1945 HOLD DOWN BAR (1943)					
21	A-BL-H85Ø-Ø-Ø	MODULE EXTENDER (H850)					
22	D-UA-H716-B-Ø	H716-B POWER SUPPLY (110V)					
TITLE				SIZE CODE	NUMBER	REV.	ECO NO.
1Ø BIT ADC WITH SWITCHED GAIN				A PL	ADØ1-D-Ø	A	0000 1
DEC FORM NO. DRA 110				DIST. 1	OF 2		

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	SIZE CODE	ASSY NO.	NUMBER	REV.	ECO NO.
23	9107360-00	18 AWG STRD KYNAR WIRE BLK					
TITLE				SIZE CODE	NUMBER	REV.	ECO NO.
1Ø BIT ADC WITH SWITCHED GAIN				A PL	ADØ1-D-Ø	A	0000 1
DEC FORM NO. 16-1031 DRA 110				DIST. 2	OF 2		

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

PARTS LIST

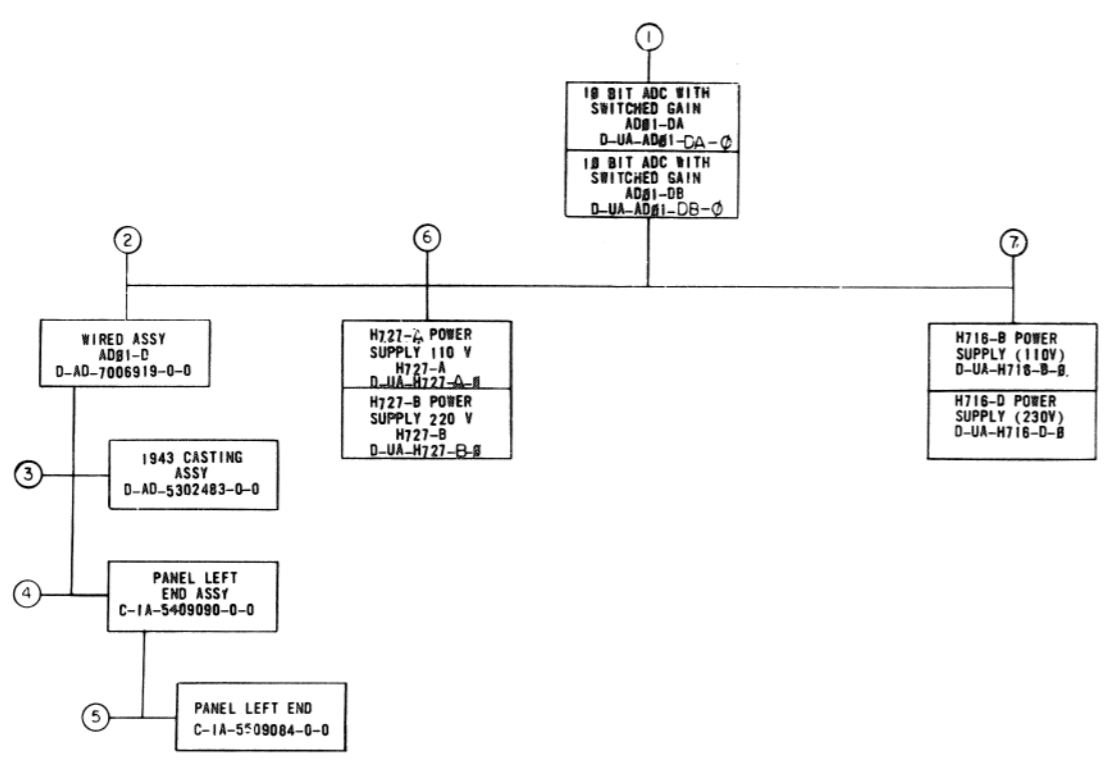
MADE BY G. FLANDERS
 DATE 8/12/70
 ENG *Paul J. Swain*
 DATE 8-25-70
 CHECKED D. HEALY
 DATE 8-25-70
 SECTION 1
 ISSUED SECT. 1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	SIZE CODE	ASSY NO.	NUMBER	REV.	ECO NO.
23	9107360-00	18 AWG STRD KYNAR WIRE BLK					
TITLE				SIZE CODE	NUMBER	REV.	ECO NO.
1Ø BIT ADC WITH SWITCHED GAIN				A PL	ADØ1-D-Ø	A	0000 1
DEC FORM NO. 16-1031 DRA 110				DIST. 2	OF 2		

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D
C
B
A

8 7 6 5 4 3 2 1



MECHANICAL				DEPT USAGE			ELECTRICAL				DEPT USAGE		
FIND NO.	DESCRIPTION	PART NO.	PROD	CUST	F/C	FIND NO.	DESCRIPTION	PART NO.	PROD	CUST	F/C		
1.	18 BIT ADC WITH SWITCHED GAIN (AD01-DA) 18 BIT ADC WITH SWITCHED GAIN (AD01-DA) (PL) 18 BIT ADC WITH SWITCHED GAIN (AD01-DB) 18 BIT ADC WITH SWITCHED GAIN (AD01-DB) (PL) PANEL, RIGHT END BC11A CABLE (LGTH. SPEC BY ENG) MODULE UTILIZATION (PL)	D-UA-AD01-DA-0 A-PL-AD01-DA-0 D-UA-AD01-DB-0 A-PL-AD01-DB-0 C-MD-5308897-0-0 C-MD-5308898-0-0 D-UA-BC11A-B-B A-PL-AD01-D-02				1.	18 BIT ADC 18 BIT ADC WITH SWITCHED GAIN AD01-DA MULTIPLEXER INTERFACE & CSR A/D CONVERTER ANALOG INPUT CONNECTORS WIRE LIST AD01-D MODULE UTILIZATION MODULE UTILIZATION (PL) BUS CONNECTOR ACCESSORY LIST ENG SPECS CALIBRATION PROCEDURE ACCEPTANCE PROCEDURE ACCESSORY LIST SOFTWARE LIST	A-ML-AD01-0 A-ML-AD01-00 D-BS-AD01-D-03 D-BS-AD01-D-04 D-BS-AD01-D-05 D-IC-AD01-D-06 K-WL-AD01-D-07 D-MU-AD01-D-08 A-PL-AD01-D-02 D-IC-AD01-D-09 A-AL-AD01-D-08 A-SPAD01-D-10 A-SPAD01-D-11 A-SPAD01-D-12 A-AL-AC01-D-13 A-3L-AL01-D-14					
2.	WIRED ASSY (AD01-D) WIRED ASSY (AD01-D) (PL) 208 PIN BLOCK TYPE H683 21 POINT DECALS "A" 21 POINT DECALS "B"	D-AD-7006919-0-0 A-PL-7006919-0-0 E-SC-1205348-0-0 B-DC-5308753-0-2 B-DC-5308753-0-4				2.	WIRED ASSY (AD01-D) WIRED ASSY (AD01-D) (PL)	A-AD-7006919-0-0 A-PL-7006919-0-0					
3.	1943 CASTING ASSY 1943 CASTING ASSY (PL)	D-AD-5302483-0-0 A-PL-5302483-0-0				6.	H727-A POWER SUPPLY 110 V CIRCUIT SCHEMATIC H727-B POWER SUPPLY 220 V CIRCUIT SCHEMATIC	CS-H727-A-1 CS-H727-B-1					
4.	PANEL LEFT END ASSY	C-1A-5409090-0-0				7.	H716-B POWER SUPPLY CIRCUIT SCHEMATIC H716-D POWER SUPPLY CIRCUIT SCHEMATIC	C-CS-H716-B-1 C-CS-H716-D-1					
5.	PANEL LEFT END POWER DECAL	C-1A-5509084-0-0 C-1A-5509084-0-1				1.	ANALOG INPUTS CONNECTORS (LAB1)	D-IC-AD01-D-15					
6.	H727-A POWER SUPPLY 110V H727-A POWER SUPPLY 110 V (PL) H727-B POWER SUPPLY 220 V H727-B POWER SUPPLY 220 V (PL)	D-UA-H727-A-B A-PL-H727-A-B D-UA-H727-B-B A-PL-H727-B-B											
7.	H716-B POWER SUPPLY (110V) H716-B POWER SUPPLY (PL) H716-D POWER SUPPLY (230V) H716-D POWER SUPPLY (PL)	D-UA-H716-B-B A-PL-H716-B-B D-UA-H716-D-B A-PL-H716-D-B											

CHK	REV	CHANGE NO.	DATE	BY
	1	AD01D-0001	A	
	2	AD01D-0002	B	
	3	AD01D-0003	C	
	4	AD01D-0004	D	
	5	AD01D-0005	E	
	6	AD01D-0006	F	
	7	AD01D-0007	G	
	8	AD01D-0008	H	
	9	AD01D-0009	I	
	10	AD01D-0010	J	

FIRST USED ON OPTION/MODEL
AD01-D

DRN	DATE	BY
11/1/71	11/1/71	F. STRAIGHT
CHKD	DATE	BY
11/1/71	11/1/71	F. STRAIGHT
ENGR	DATE	BY
11/1/71	11/1/71	F. STRAIGHT
PRD	DATE	BY
11/1/71	11/1/71	F. STRAIGHT

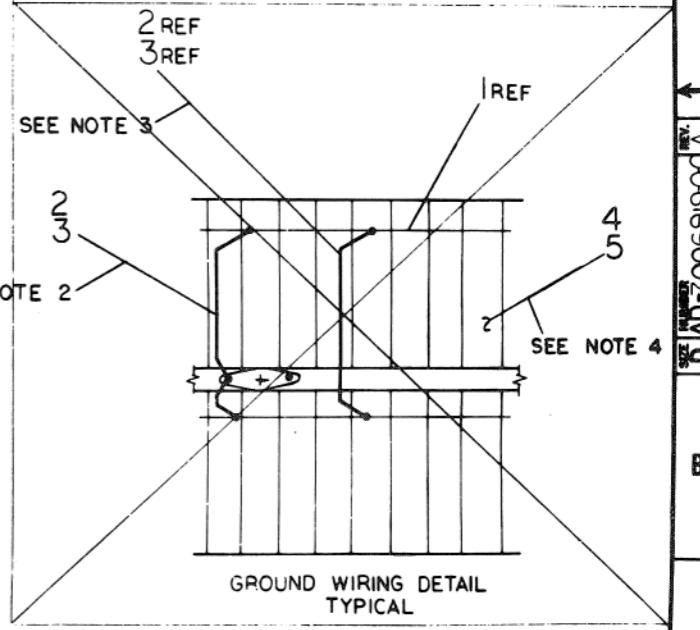
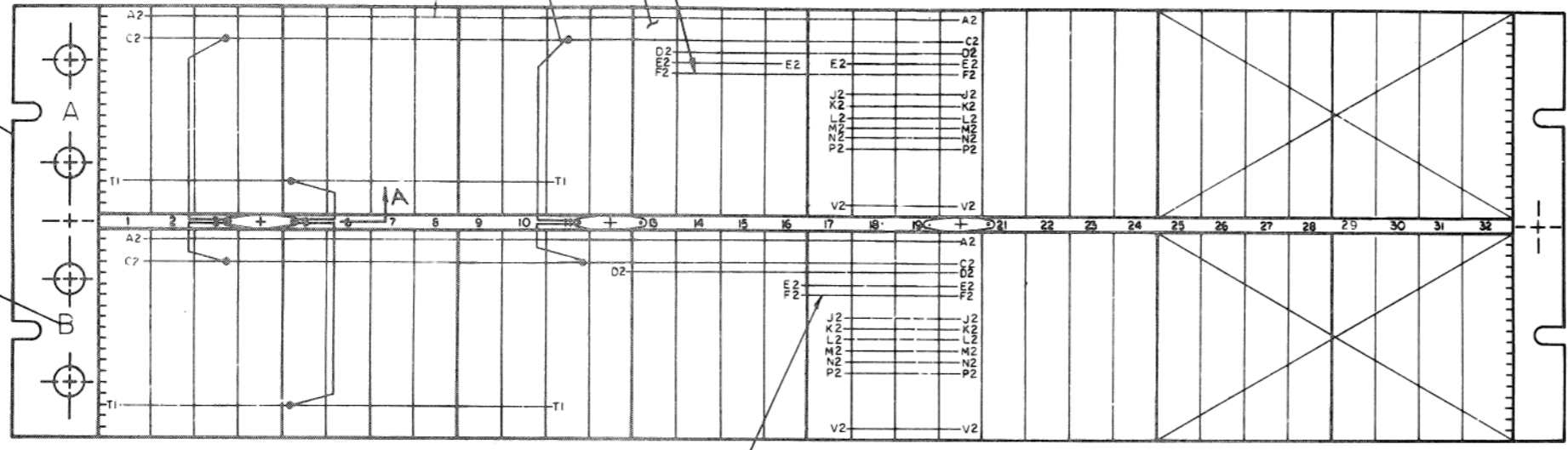
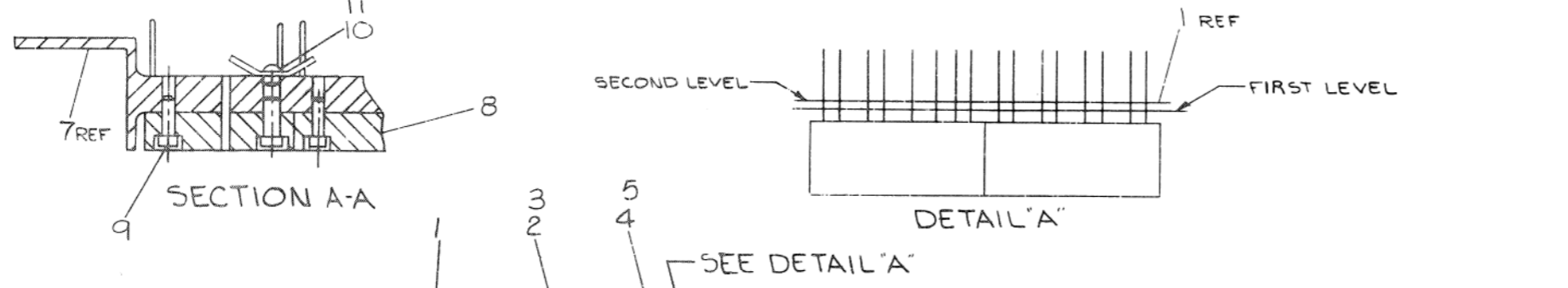
EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DRAWING INDEX LIST (AD01-D)	
SCALE	SHEET 2 OF 2
DIST.	REV. H

ITEM CODE
D
DIAD01-D-1
REV
H

8 7 6 5 4 3 2 1

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- NOTES:**
1. CONNECTIONS ON ITEM NUMBER 1 & 2 TO BE LOCATED ~~AND SOLDERED~~ AT MINIMUM PRACTICAL HEIGHT ABOVE BLOCKS.
 2. ALL CONNECTOR BLOCKS TO BE GROUNDED TO GROUND LUGS AS SHOWN, 2 PLACES.
 3. JUMPER GROUND BUSSING AS SHOWN, 8 PLACES.
 2. USE YELLOW WIRE (ITEM #4) FOR MACHINE WRAPPED AND BLUE WIRE (ITEM #5) FOR HAND WRAPPED WIRING.



WIRE LIST					
ITEM NO	DESCRIPTION	SIGNAL	FROM PIN CONNECTION	TO PIN CONNECTION	REMARKS
13	24 RED	+5V	A06A2	B06A2	WIRE WRAP
13	24 RED	+5V	A06A2	A06A2	
14	24 BLK	GND	A06C2	B06C2	
14	24 BLK	GND	A06C2	A06C2	
16	24 YEL	+15	B12D2	A13D2	
16	24 YEL		B12D2	A24V2	
17	24 GRN	-20V	B19E2	A19E2	
17	24 GRN		B20E2	A20E2	
15	24 ORN	-15V	A24S2	A16E2	
15	24 ORN		A24S2	B12E2	WIRE WRAP
18	22 BRN	GND	B12F2	A24T2	SOLDER
18	22 BRN	GND	B12F2	B12C2	
18	22 BRN	GND	B12F2	B16F2	
18	22 BRN	GND	A13F2	B16F2	SOLDER

OPTION WIRE LIST					
ITEM NO	DESCRIPTION	SIGNAL	FROM PIN CONNECTION	TO PIN CONNECTION	REMARKS
5	30 BLU		B08P2	B08A2	
			A15S2	A15V2	
			A05D1	A05C2	
			A09A1	A08D1	
			A09C1	A08E1	
			A09D1	A08F1	
			A09F1	A08H1	
			A09E2	A08J1	
			A09J1	A08K1	
			A09H2	A08L1	
			A09L1	A08M1	
			A09K2	A08N1	
5	30 BLU		A09N1	A08P1	
5	30 BLU		A22A2	A22C2	

REV.	DATE	BY	CHK
1	2/1/71	SEVERINO	
2	2/1/71	SEVERINO	

REV.	DATE	BY	CHK
1	2/1/71	SEVERINO	
2	2/1/71	SEVERINO	

QTY.	DESCRIPTION	PART NO.	ITEM NO.

DO NOT SCALE DRAWING	DRN.	DATE	DATE

TOLERANCES	ANGLES
DECIMALS FRACTIONS	ANGLES

MATERIAL	FINISH

SCALE	NUMBER	REV.

digital EQUIPMENT CORPORATION

WIRED ASS'Y (AD01-D)

D AD 7006919-0-0

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST				QUANTITY / VARIATION																	
MADE BY G. FLANDERS		CHECKED D. HEALY		SECTION																	
DATE 6/9/70		DATE 6/16/70		1																	
ENG <i>Paul J. Sever</i>		PROD <i>A. Hirsch</i>		ISSUED SECT.																	
DATE <i>8/25/70</i>		DATE 8-25-70		1																	
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION																			
1	1205541	BUS STRIP				A/R															
2	9107560-01	#22 AWG BUS WIRE				A/R															
3	9107265-09	#22 TUBING TEFLON (WHT)				A/R															
4	91057 40-44	#30 AWG SOLID KYNAR WIRE (YEL)				A/R															
5	9105740-66	#30 AWG SOLID KYNAR WIRE (BLU)				A/R															
6	B-DC-5308753-0-2	21 POINT DECALS, A				A/R															
6	B-DC-5308753-0-4	21 POINT DECALS, B				A/R															
7	D-AD-5302483-0-0	1943 CASTING ASSY				1															
8	E-SC-1205348-0-0	288 PIN BLOCK TYPE H8Ø3				6															
9	9006210	SCR PH HD, FIL #8-32 x 5/8				12															
10	9006035-1	SCR PHL HD PAN #8-32 x 1/4 LG				3															
11	9006634	WASHER INT TOOTH LOCK #8				3															
12	9007597	TERM #2116-08-00 SHAKEPROOF				3															
13	9107450-22	#24 AWG STRD TEF INS WIRE (RED)				A/R															
14	9107450-00	#24 AWG STRD TEF INS WIRE (BLK)				A/R															
15	9107450-33	#24 AWG STRD TEF INS WIRE (ORN)				A/R															
16	9107450-44	#24 AWG STRD TEF INS WIRE (YEL)				A/R															
17	9107450-55	#24 AWG STRD TEF INS WIRE (GRN)				A/R															
18	9107420-11	#22 AWG STRD TEF INS WIRE (BRN)				A/R															
TITLE		ASSY NO.		SIZE	CODE	NUMBER				REV.	ECO NO.										
WIRED ASSY ADØ1-D		D-AD-7006919-0-0		A	PL	7006919-0-0				A	ADØ10-00003										
		SHEET 1 OF 1		DIST.																	

DEC FORM NO.
DRA 110

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

MADE BY G. FLANDERS	CHECKED D. HEALY	SECTION
DATE 6/3/70	DATE 6/22/70	1
ENG / <i>Severus</i>	PROD <i>R. D. Walsh</i>	ISSUED SECT.
DATE 7/25/70	DATE 8-25-70	1

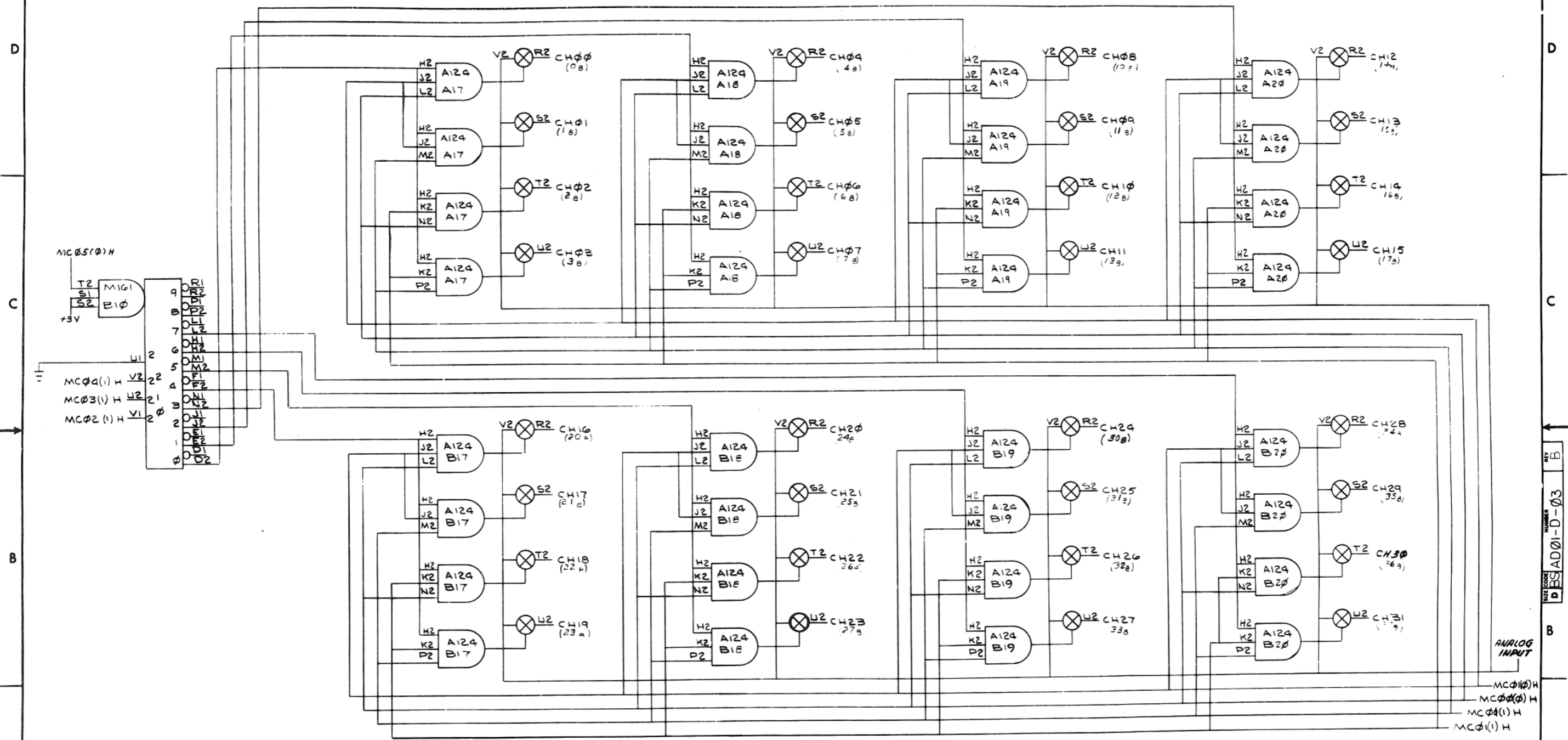
QUANTITY/VARIATION

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	AD01-D	* OPTIONAL	QUANTITY/VARIATION															
	M105	ADDRESS SELECTOR M105	1																	
	M784	UNIBUS RECEIVERS M784	1																	
	M783	UNIBUS DRIVERS M783	2																	
	M206	SIX FLIP FLOPS M206	2																	
	M113	10-2 INPUT NAND GATES M113	1																	
	M111	INVERTER M111	1																	
	G736	REQUEST JUMPER	1																	
	A812	10 BIT ADC A812	1																	
	M302	DUAL DELAY MULTIVIBRATOR M302	3																	
	A220	SELECTABLE GAIN BUFF. AMP. A220	1																	
	A124	FOUR INPUT MULTIPLEX. SW. A124	1	8																
	M908	CONNECTOR MODULE M908	2																	
	M782	INTERUPT CONTROL M782	1																	
	M785	UNIBUS TRANSCIEVERS M785	1																	
	A708	DUAL VOLT. REGULATOR A708	1																	
	M112	NOR GAT M112	1																	
	M617	6-4 INPUT MOR BUFFERS M617	1																	
	M161	TO OCTAL/DECIMAL DECODER M161	1																	
	M501	SCMITT TRIGGER	1																	
*	A405	SAMPLE & HOLD	0	1																
	5408778-0-0	PRIORITY JUMPER USED ON G736	1																	
*	A862	10 BIT & SIGN ADC	0	1																

TITLE MODULE ULILIZATION LIST	ASSY NO. D-MU-AD01-D-02	SIZE A	CODE PL	NUMBER -AD01-D-02	REV. B	ECO NO. AD01D-00004
	SHEET 1 OF 1	DIST.				

DEC FORM NO. DRA 110

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REV	DATE	BY	CHK
1	3-1-71	SEVERINO	
2	2-1-71	SEVERINO	
3	6-3-71	SEVERINO	

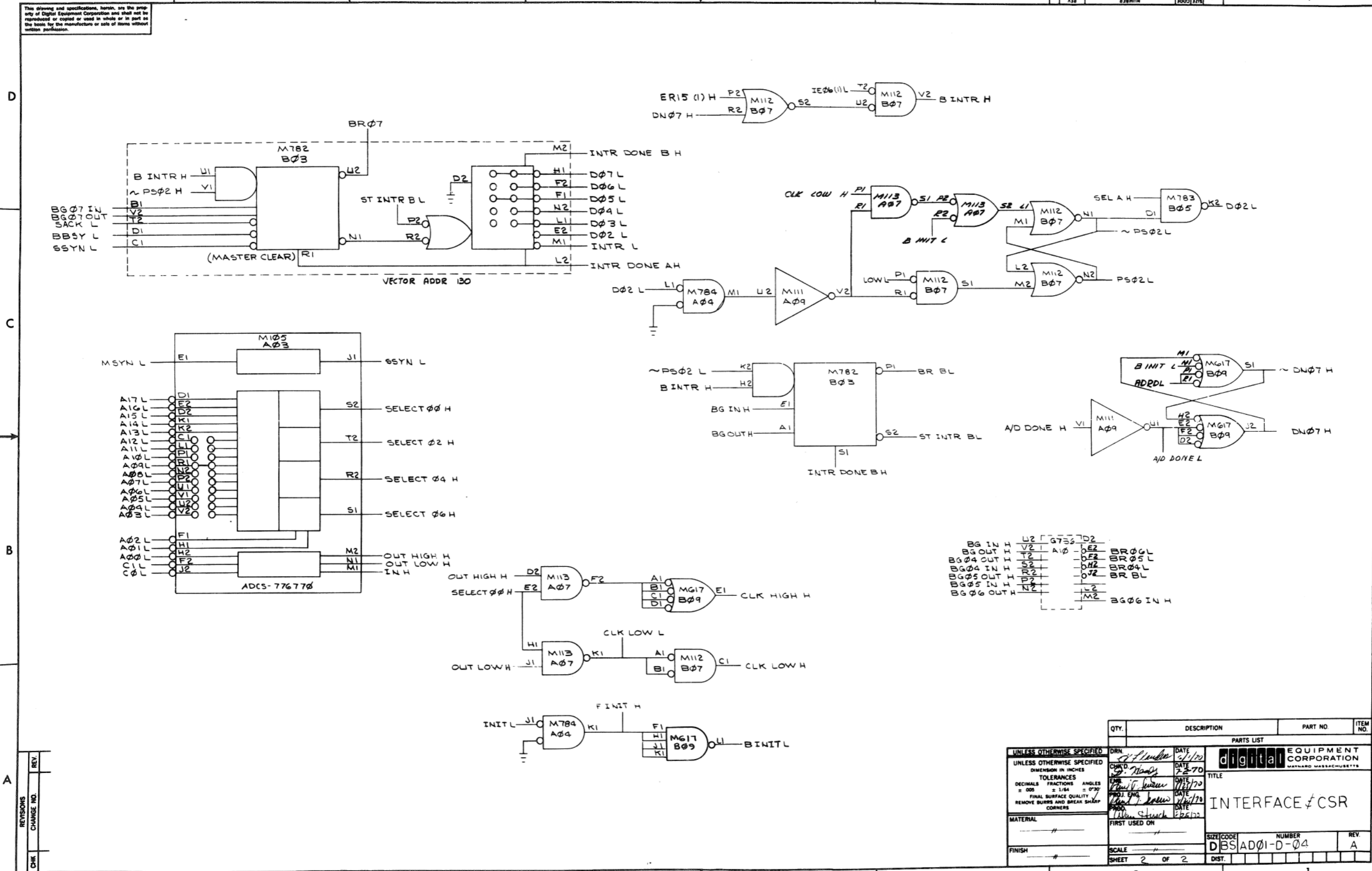
QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		
	UNLESS OTHERWISE SPECIFIED		
	DIMENSION IN INCHES		
	TOLERANCES		
	DECIMALS FRACTIONS ANGLES		
	± .005 ± 1/64 ± 0°30'		
	FINAL SURFACE QUALITY		
	REMOVE BURRS AND BREAK SHARP CORNERS		
	MATERIAL		
	NEXT HIGHER ADDY		
	A-ML-AD01-DA		
	FINISH		
	SCALE		
	SHEET OF		
	DST.		

Digital Equipment Corporation
MAYNARD MASSACHUSETTS

TITLE: **MULTIPLEXER**

SIZE CODE: **D** | NUMBER: **AD01-D-03** | REV: **B**

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BG IN H	L2	G753	D2
BG OUT H	V2	A10	E2
BG04 OUT H	T2		DF2
BG04 IN H	S2		DH2
BG05 OUT H	R2		OH2
BG05 IN H	D2		N2
BG06 OUT H	L2		M2

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
UNLESS OTHERWISE SPECIFIED			
DIMENSION IN INCHES			
TOLERANCES			
DECIMALS FRACTIONS ANGLES			
± .005 ± 1/64 ± 0°30'			
FINAL SURFACE QUALITY			
REMOVE BURRS AND BREAK SHARP CORNERS			
MATERIAL		FIRST USED ON	
FINISH		SCALE	
SHEET 2 OF 2		DIST.	

DRN: *[Signature]* DATE: 2/1/70

CHKD: *[Signature]* DATE: 7-2-70

ENR: *[Signature]* DATE: 11/25/70

PROJ. ENG: *[Signature]* DATE: 1/16/70

PROD. DATE: 1/25/70

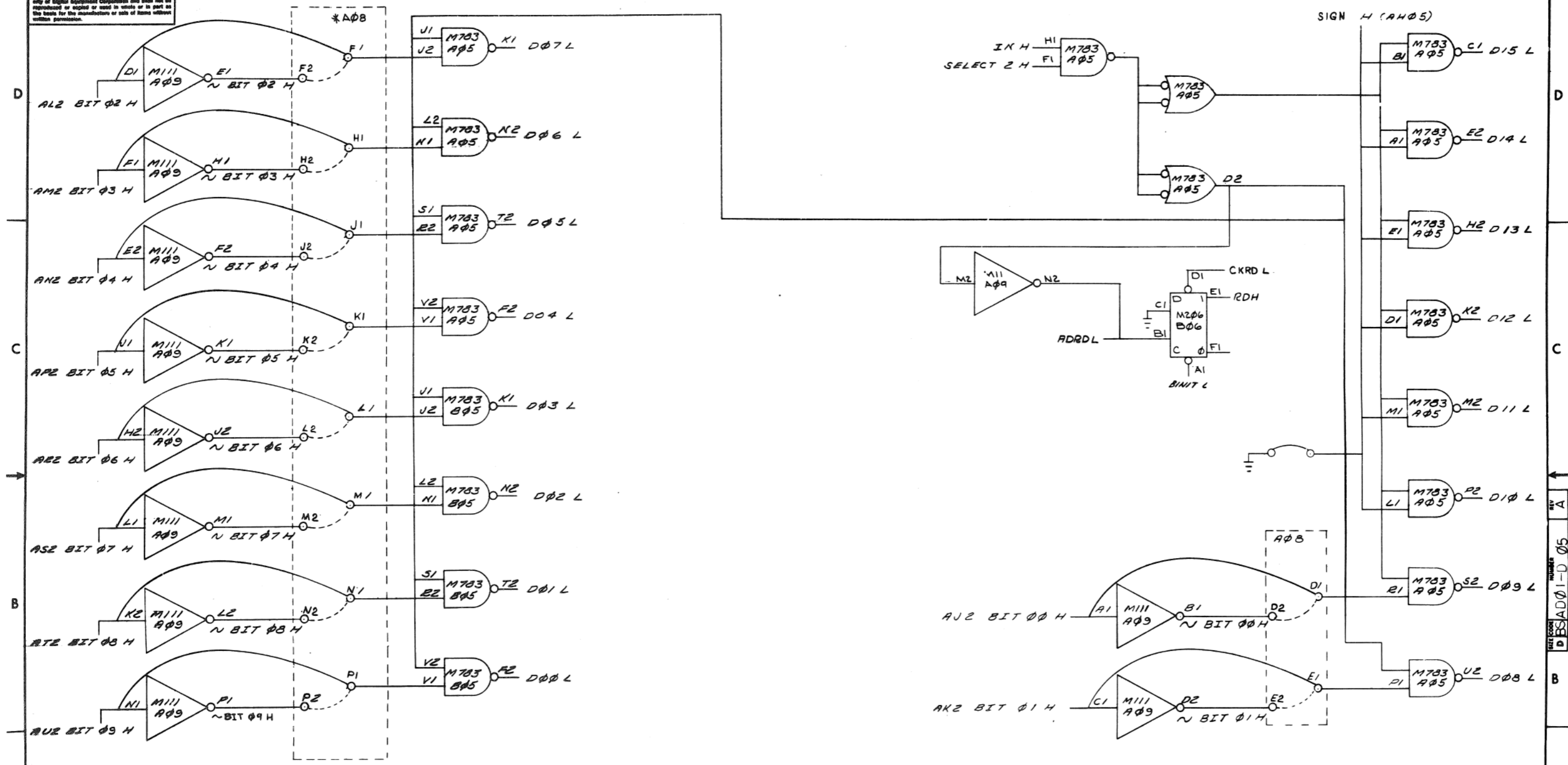
digital EQUIPMENT CORPORATION
MAYFORD MASSACHUSETTS

TITLE: **INTERFACE # CSR**

SIZE CODE: DBSAD01-D-04 NUMBER: A REV: A

REVISIONS	REV.
CHANGE NO.	
CHK	

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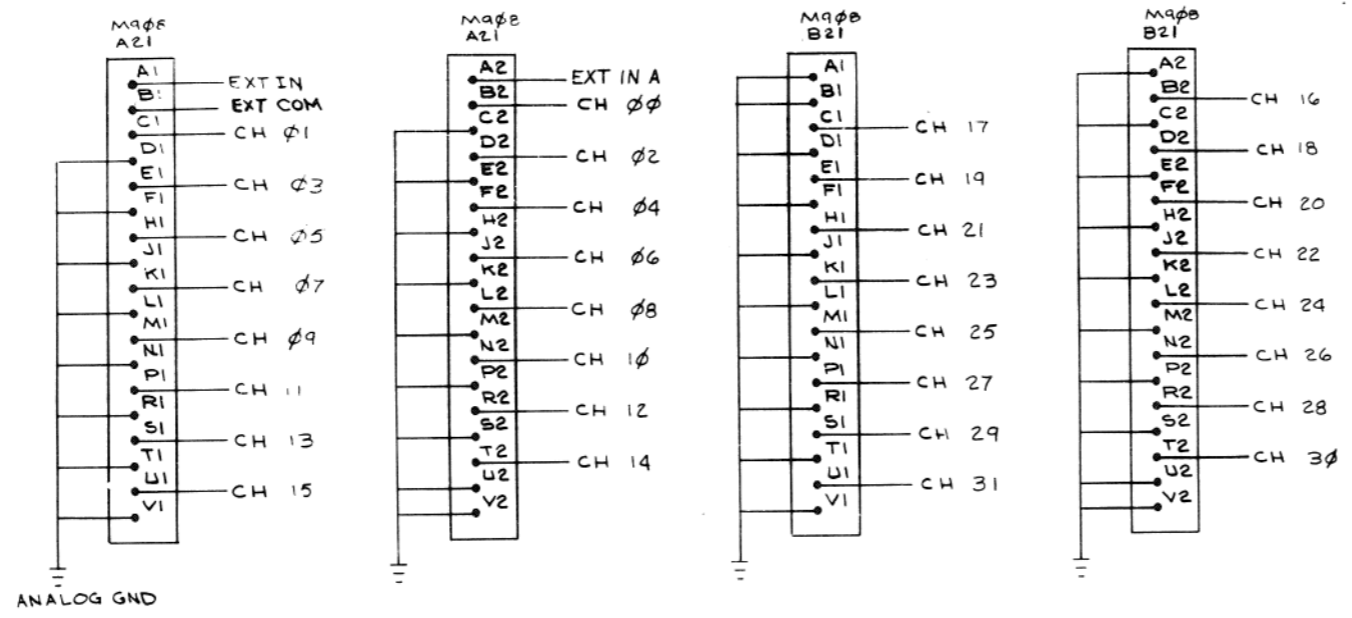
REV.	
CHANGE NO.	
DATE	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
AD01-D				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED:		EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
DIMENSIONS IN INCHES		TITLE A/D CONVERTER		
TOLERANCES		NEXT HIGHER ASSY.		
DECIMALS	FRACTIONS	ANGLES	SIZE CODE D ES AD01-D-05	
± .005	± 1/64	± 0°30'	NUMBER A 7	
FINAL SURFACE QUALITY		SCALE		
REMOVE BURRS AND BREAK SHARP CORNERS		SHEET 2 OF 2		
MATERIAL	FINISH	DIST.		
---	---			

REV. A
D ES AD01-D-05

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NOTES:
1. NOT APPLICABLE TO LAB11. SEE DRAWING D-IC-AD01-D-15.



REV.	CHANGE NO.	DATE	BY
A	00003	1-22-71	R. SEVERINO
B	00006	2-3-71	R. SEVERINO
C	00008	9-24-71	R. SEVERINO
		10-28-71	F. STRAIGHT
		11-1-71	F. STRAIGHT

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	AD01-D		
PARTS LIST			
UNLESS OTHERWISE SPECIFIED		EQUIPMENT CORPORATION	
DIMENSION IN INCHES		MAYNARD MASSACHUSETTS	
TOLERANCES		TITLE	
DECIMALS	FRACTIONS	ANGLES	
± .005	± 1/64	± 0°30'	
FINAL SURFACE QUALITY		ANALOG INPUT CONNECTORS	
REMOVE BURRS AND BREAK SHARP CORNERS		SIZE CODE	
MATERIAL		NUMBER	
FINISH		D-IC-AD01-D-C6	
SCALE		REV	
SHEET 1 OF 1		C	
DIST.			

REV. C
NUMBER
D-IC-AD01-D-06
SHEET CODE

DRWG NO	REV LTR
K-WL-ADØ1-D-Ø7	A

REVISIONS			
REV LTR	ECO NO	DATE	ENG
A	00003	2-1-71	BS

DRAWN <i>A. Landin</i>	DATE 8/19/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE WIRE LIST (ADØ1-D)		
CHECKED <i>K. Ruess</i>	DATE 8/25/70		FOR TAPE* FILE*		
ENG <i>Paul J. Swen</i>	DATE 8/25/70		ASSY NO — 1/ —	SIZE CODE DWG. NO.	REV LTR
PROJ ENG <i>Paul J. Swen</i>	DATE 8/25/70		SCALE — 1/1 —	K WL ADØ1-D-Ø7	A
PROD <i>A. Irish</i>	DATE 8/25/70	SHEET 1 OF 1	DIST.		

AD1-D.A RUN NAME	HNDKRP.V04 A/P PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	28-JAN-71	20149 LENGTH	PAGE 3 EXCEPTIONS	RUN NUMBER
A07	L	A03P2	1-01		D02					1					19
A07	L	B02L1	1-02							2					19
A07	L	R01L1	1-03												19
A07			1										7-6/8		19
A07C1		A07C1	1-01							1					20
A07C1		A11P2	1-02										5-2/8		20
A07C1			1												20
A07F1		A06D1	1-01		D02					1					21
A07F1		A07F1	1-02		D02										21
A07F1			1										3-0/8		21
A07F2		A07F2	1-01		D02					2					22
A07F2		R09A1	1-02		D02					1					22
A07F2		R09B1	1-03		D02					2					22
A07F2		R09C1	1-04		D02					1					22
A07F2		R09D1	1-05		D02										22
A07F2			1										12-2/8		22
A07K2		A07K2	1-01		D03					2					23
A07K2		A11J2	1-02		D03					1					23
A07K2		B11J2	1-03										9-4/8		23
A07K2			1												23
A07N2		A07B1	1-01		D03					2					24
A07N2		A07N2	1-02							1					24
A07N2		B11K2	1-03												24
A07N2			1										9-2/8		24
A07S1		A07P2	1-01							1					25
A07S1		A07S1	1-02										2-6/8		25
A07S1			1												25
A07S2		A07S2	1-01							1					26
A07S2		B07L1	1-02										4-4/8		26
A07S2			1												26
A08	L	A03N2	1-01		D02					1					27
A08	L	B02M2	1-02							2					27
A08	L	R01M2	1-03												27
A08			1										8-0/8		27
A09	L	A03R1	1-01		D02					1					28
A09	L	B02M1	1-02							2					28
A09	L	B01M1	1-03												28
A09			1										7-6/8		28

AD1-D.A RUN NAME	HNDKRP.V04 A/P PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	28-JAN-71	20149 LENGTH	PAGE 4 EXCEPTIONS	RUN NUMBER
A09R2		A07A1	1-01							1					29
A09R2		A09R2	1-02												29
A09R2			1										4-4/8		29
A09V2		A09V2	1-01		D02					2					30
A09V2		A07R1	1-02							1					30
A09V2		B07R1	1-03		D02										30
A09V2			1										8-6/8		30
A10	L	A03P1	1-01		D02					1					31
A10	L	B02N2	1-02							2					31
A10	L	B01N2	1-03												31
A10			1										7-6/8		31
A11	L	A03L1	1-01		D02					1					32
A11	L	B02N1	1-02							2					32
A11	L	B01N1	1-03												32
A11			1										8-2/8		32
A11D1		A11D1	1-01		D03					1					33
A11D1		A11L2	1-02		D03										33
A11D1			1										3-2/8		33
A11D2		A11D2	1-01		D03					1					34
A11D2		A11E2	1-02		D03										34
A11D2			1										2-4/8		34
A11F2		A09P2	1-01		D03					1					35
A11F2		A11F2	1-02												35
A11F2			1										3-6/8		35
A11N1		A11N1	1-01		D03					1					36
A11N1		A11S2	1-02		D03										36
A11N1			1										2-6/8		36
A11R2		A11R2	1-01		D03					1					37
A11R2		A11V2	1-02		D03										37
A11R2			1										2-6/8		37
A12	L	A03C1	1-01		D02					1					38
A12	L	B02P2	1-02							2					38
A12	L	B01P2	1-03												38
A12			1										9-2/8		38

ADP1-D.A RUN NAME	HNDWRP.V04 A/P PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	28-JAN-71	20149 LENGTH	PAGE 11 EXCEPTIONS	RUN NUMBER
B04V2	B04V2		1-01		002					1					101
B04V2	B06M2		1-02		002										101
B04V2			1										3-4/8		101
B07S1	B07M2		1-01		002					1					102
B07S1	B07S1		1-02		002										102
B07S1			1										3-0/8		102
B07S2	B07S2		1-01		002					1					103
B07S2	B07U2		1-02		002										103
B07S2			1										2-4/8		103
B0801	B0801		1-01							1					104
B0801	B08L2		1-02												104
B0801			1										3-2/8		104
B0802	B0802		1-01							1					105
B0802	B08E2		1-02												105
B0802			1										2-4/8		105
B08T2	A07M2		1-01							1					106
B08T2	B08T2		1-02												106
B08T2			1										6-0/8		106
B08V2	B08V2		1-01							1					107
B08V2	B08R2		1-02												107
B08V2			1										2-6/8		107
B09P2	B09P2		1-01							1					108
B09P2	B09R2		1-02												108
B09P2			1										2-4/8		108
B10D2	A17H2		1-01		004					1					109
B10D2	B10D2		1-02		004										109
B10D2			1										6-6/8		109
B10E2	A18H2		1-01		004					1					110
B10E2	B10E2		1-02		004										110
B10E2			1										7-4/8		110
B10F2	B10F2		1-01		004					1					111
B10F2	B17H2		1-02		004										111
B10F2			1										5-6/8		111
B10H2	B10H2		1-01		004					1					112
B10H2	B19H2		1-02		004										112
B10H2			1										6-6/8		112

ADP1-D.A RUN NAME	HNDWRP.V04 A/P PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	28-JAN-71	20149 LENGTH	PAGE 12 EXCEPTIONS	RUN NUMBER
B10J2	A19H2		1-01		004					1					113
B10J2	B10J2		1-02		004										113
B10J2			1										8-0/8		113
B10L2	B10L2		1-01		004					1					114
B10L2	B20H2		1-02		004										114
B10L2			1										7-4/8		114
B10M2	B10M2		1-01		004					1					115
B10M2	B18H2		1-02		004										115
B10M2			1										6-4/8		115
B10N2	A20H2		1-01		004					1					116
B10N2	B10N2		1-02		004										116
B10N2			1										8-6/8		116
B11D1	B11D1		1-01							1					117
B11D1	B11L2		1-02												117
B11D1			1										3-2/8		117
B11D2	B11D2		1-01							1					118
B11D2	B11E2		1-02												118
B11D2			1										2-4/8		118
B11R2	B11R2		1-01							1					119
B11R2	B11V2		1-02												119
B11R2			1										2-6/8		119
B11T2	A09R1		1-01							1					120
B11T2	B11T2		1-02												120
B11T2			1										6-0/8		120
B16R2	A15S2		1-01		003					2					121
B16R2	A16V2		1-02		003					1					121
B16R2	B16R2		1-03		003										121
B16R2			1										7-6/8		121
B16S2	A16U2		1-01		003					1					122
B16S2	B16S2		1-02		003										122
B16S2			1										4-6/8		122
B16T2	A16T2		1-01		003					1					123
B16T2	B16T2		1-02		003										123
B16T2			1										5-0/8		123

AD01-D.A
RUN NAME

HNDARP.V04 6/4/70
A/P PIN ORDER
NAME PIN

28-JAN-71

20149 PAGE 13

LENGTH EXCEPTIONS RUN NUMBER

AD01-D.A RUN NAME	HNDARP.V04 6/4/70 A/P PIN ORDER NAME PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
B16U2	A16R2	1-01		D03					1				124
B16U2	R16U2	1-02		D03									124
B16U2		1									5-4/8		124
B16V2	A16S2	1-01		D03					1				125
B16V2	R16V2	1-02		D03									125
B16V2		1									5-4/8		125
CH00	A17R2	1-01		D04					1	TERM HERE? CABLE			126
CH00	A21B2	1-02	C										126
CH00		1									5-0/8		126
CH01	A17S2	1-01		D04					1	TERM HERE? CABLE			127
CH01	A21C1	1-02	C										127
CH01		1									4-6/8		127
CH02	A17T2	1-01		D04					1	TERM HERE? CABLE			128
CH02	A21D2	1-02	C										128
CH02		1									5-0/8		128
CH03	A17U2	1-01		D04					1	TERM HERE? CABLE			129
CH03	A21E1	1-02	C										129
CH03		1									4-6/8		129
CH04	A18R2	1-01		D04					1	TERM HERE? CABLE			130
CH04	A21F2	1-02	C										130
CH04		1									4-2/8		130
CH05	A18S2	1-01		D04					1	TERM HERE? CABLE			131
CH05	A21H1	1-02	C										131
CH05		1									4-0/8		131
CH06	A18T2	1-01		D04					1	TERM HERE? CABLE			132
CH06	A21J2	1-02	C										132
CH06		1									4-2/8		132
CH07	A18U2	1-01		D04					1	TERM HERE? CABLE			133
CH07	A21K1	1-02	C										133
CH07		1									4-0/8		133
CH08	A19R2	1-01		D04					1	TERM HERE? CABLE			134
CH08	A21L2	1-02	C										134
CH08		1									3-4/8		134
CH09	A19S2	1-01		D04					1	TERM HERE? CABLE			135
CH09	A21M1	1-02	C										135
CH09		1									3-2/8		135

AD01-D.A
RUN NAME

HNDARP.V04 6/4/70
A/P PIN ORDER
NAME PIN

28-JAN-71

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LENGTH EXCEPTIONS RUN NUMBER

AD01-D.A RUN NAME	HNDARP.V04 6/4/70 A/P PIN ORDER NAME PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
CH10	A19T2	1-01		D04					1	TERM HERE? CABLE			136
CH10	A21N2	1-02	C										136
CH10		1									3-4/8		136
CH11	A19U2	1-01		D04					1	TERM HERE? CABLE			137
CH11	A21P1	1-02	C										137
CH11		1									3-2/8		137
CH12	A20R2	1-01		D04					1	TERM HERE? CABLE			138
CH12	A21R2	1-02	C										138
CH12		1									2-6/8		138
CH13	A20S2	1-01		D04					1	TERM HERE? CABLE			139
CH13	A21S1	1-02	C										139
CH13		1									2-4/8		139
CH14	A20T2	1-01		D04					1	TERM HERE? CABLE			140
CH14	A21T2	1-02	C										140
CH14		1									2-6/8		140
CH15	A20U2	1-01		D04					1	TERM HERE? CABLE			141
CH15	A21U1	1-02	C										141
CH15		1									2-4/8		141
CH16	R17R2	1-01		D04					1	TERM HERE? CABLE			142
CH16	R21B2	1-02	C										142
CH16		1									5-0/8		142
CH17	R17S2	1-01		D04					1	TERM HERE? CABLE			143
CH17	R21C1	1-02	C										143
CH17		1									4-6/8		143
CH18	R17T2	1-01		D04					1	TERM HERE? CABLE			144
CH18	R21D2	1-02	C										144
CH18		1									5-0/8		144
CH19	R17U2	1-01		D04					1	TERM HERE? CABLE			145
CH19	R21E1	1-02	C										145
CH19		1									4-6/8		145
CH20	R18R2	1-01		D04					1	TERM HERE? CABLE			146
CH20	R21F2	1-02	C										146
CH20		1									4-2/8		146
CH21	R18S2	1-01		D04					1	TERM HERE? CABLE			147
CH21	R21H1	1-02	C										147
CH21		1									4-0/8		147

ADP1-D.A HNDWRP.V04 6/4/70 28-JAN-71 20149 PAGE 17
 RUN NAME ORDER PIN BAY - Q DRAW RV PG Y X Z REMARKS LENGTH EXCEPTIONS RUN NUMBER

D07	L	A03J2	1-01	D02						1			166
C02	L	R02U2	1-02							2			166
C03	L	R01U2	1-03										166
C04	L		1										166
C01	L	A03F2	1-01	D02						1	9-2/8		167
C01	L	R02T2	1-02							2			167
C01	L	R01T2	1-03										167
C01	L		1										167
DN07	H	R09J2	1-01	D02						1			168
DN07	H	R09M1	1-02	D02						2			168
DN07	H	R07R2	1-03	D02						1			168
DN07	H	R05A1	1-04	D02									168
DN07	H		1								10-6/8		168
DN07	L	R09H2	1-01	D02						1			169
DN07	L	R09S1	1-02	D02									169
DN07	L		1								3-4/8		169
D00	L	A01C1	1-01							1			170
D00	L	A02C1	1-02							2			170
D00	L	A04A1	1-03	D02						1			170
D00	L	R05F2	1-04	D03									170
D00	L		1								12-2/8		170
D01	L	A01D2	1-01							1			171
D01	L	A02D2	1-02							2			171
D01	L	A04D1	1-03							1			171
D01	L	R05H2	1-04	D03						2			171
D01	L	R05T2	1-05	D03									171
D01	L		1								15-0/8		171
D02	L	A01D1	1-01							1			172
D02	L	A02D1	1-02							2			172
D02	L	A04L1	1-03							1			172
D02	L	R03E2	1-04	D03						2			172
D02	L	R05N2	1-05	D03									172
D02	L	R05K2	1-06	D03						1			172
D02	L		1								17-6/8		172

ADP1-D.A HNDWRP.V04 6/4/70 28-JAN-71 20149 PAGE 18
 RUN NAME ORDER PIN BAY - Q DRAW RV PG Y X Z REMARKS LENGTH EXCEPTIONS RUN NUMBER

D03	L	A01E2	1-01 *							2			173
D03	L	A02E2	1-02 *							1			173
D03	L	R03L1	1-03 *							2			173
D03	L	R05K1	1-04 *							1			173
D03	L	R05M2	1-05 *							2			173
D03	L	A04N1	1-06 *										173
D03	L		1								20-0/8		173
D04	L	A01E1	1-01 *							1			174
D04	L	A02E1	1-02 *							2			174
D04	L	A05F2	1-03 *							1			174
D04	L	R03N2	1-04 *							2			174
D04	L	R04C1	1-05 *										174
D04	L		1								16-6/8		174
D05	L	A01F2	1-01							2			175
D05	L	A02F2	1-02							1			175
D05	L	A05T2	1-03							2			175
D05	L	R03F1	1-04										175
D05	L		1								11-6/8		175
D06	L	A01F1	1-01							2			176
D06	L	A02F1	1-02							1			176
D06	L	A05N2	1-03	D03						2			176
D06	L	R03F2	1-04	D03						1			176
D06	L	R04U2	1-05	D03									176
D06	L		1								16-0/8		176
D07	L	A01H2	1-01							2			177
D07	L	A02H2	1-02							1			177
D07	L	A05K1	1-03	D02						2			177
D07	L	R05E2	1-04	D02						1			177
D07	L	R03H1	1-05	D02									177
D07	L		1								15-0/8		177
D08	L	A01H1	1-01							2			178
D08	L	A02H1	1-02							1			178
D08	L	A05U2	1-03	D03						2			178
D08	L	R04S2	1-04	D02									178
D08	L		1								12-4/8		178
D09	L	A01J2	1-01							2			179
D09	L	A02J2	1-02							1			179
D09	L	A05S2	1-03	D03						2			179
D09	L	R04P2	1-04	D02									179
D09	L		1								11-6/8		179

AD01-D.A RUN NAME	HNDWRP.V04 6/4/70 A/P PIN ORDER NAME	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	28-JAN-71	20149 LENGTH	EXCEPTIONS	PAGE 19	RUN NUMBER
D10	L A01J1	1-01							2						180
D10	L A02J1	1-02							1						180
D10	L A05P2	1-03		D03					2						180
D10	L R04M2	1-04		D02								12-0/8			180
D10	L	1													180
D11	L A01K2	1-01							2						181
D11	L A02K2	1-02							1						181
D11	L A05M2	1-03		D03					2						181
D11	L R04K2	1-04		D02								11-6/8			181
D11	L	1													181
D12	L A01K1	1-01							2						182
D12	L A02K1	1-02							1						182
D12	L A05K2	1-03		D03					2						182
D12	L R04H2	1-04		D02								11-6/8			182
D12	L	1													182
D13	L A01L2	1-01							2						183
D13	L A02L2	1-02							1						183
D13	L A05H2	1-03		D03					2						183
D13	L R04E2	1-04		D02								11-6/8			183
D13	L	1													183
D14	L A01L1	1-01 *							2						184
D14	L A02L1	1-02 *			R1				1						184
D14	L A05E2	1-03 *			R1							7-0/8			184
D14	L	1			R1										184
D15	L A05C1	1-01		D02					1						185
D15	L A04F1	1-02		D02					2						185
D15	L A02M2	1-03							1						185
D15	L A01M2	1-04							2						185
D15	L R05C1	1-05										14-0/8			185
D15	L	1													185
EE01 (0)	H A07J2	1-01		D03					1						186
EE01 (0)	H R06U1	1-02		D02								6-4/8			186
EE01 (0)	H	1													186
EE01 (1)	H A07L2	1-01		D03					1						187
EE01 (1)	H R05E1	1-02		D02					2						187
EE01 (1)	H R06S1	1-03		D02								8-6/8			187
EE01 (1)	H	1													187

AD01-D.A RUN NAME	HNDWRP.V04 6/4/70 A/P PIN ORDER NAME	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	28-JAN-71	20149 LENGTH	EXCEPTIONS	PAGE 20	RUN NUMBER
E0C	H B13F1	1-01							1						188
E0C	H R08H2	1-02													188
E0C	H	1										4-6/8			188
ER15 (1)	H A06E1	1-01		D02					1						189
ER15 (1)	H R05B1	1-02		D02					2						189
ER15 (1)	H R07P2	1-03		D02								9-2/8			189
ER15 (1)	H	1													189
EXT COM	A21B1	1-01							1						190
EXT COM	A22C2	1-02										3-0/8			190
EXT COM	A22C2	1													190
EXT IN	H A21A1	1-01							1						191
EXT IN	H A22R2	1-02		C D03											191
EXT IN	H	1													191
EXT IN A	A21A2	1-01							1						192
EXT IN A	R08P2	1-02										4-2/8			192
EXT IN A	R08P2	1													192
F INIT	H A04K1	1-01		D02					1						193
F INIT	H R09H1	1-02		D02					2						193
F INIT	H R09J1	1-03		D02					1						193
F INIT	H R09K1	1-04		D02					2						193
F INIT	H B07J2	1-05		D03								14-0/8			193
F INIT	H	1													193
GND P1	A01B2	1-01							1						194
GND P1	A01C2	1-02							2						194
GND P1	A01N1	1-03							1						194
GND P1	A01P1	1-04							2						194
GND P1	A01R1	1-05							1						194
GND P1	A01S1	1-06							2						194
GND P1	A01T1	1-07							1						194
GND P1	A01V2	1-08							2						194
GND P1	R01B2	1-09							1						194
GND P1	R01C2	1-10							2						194
GND P1	R01D1	1-11							1						194
GND P1	R01E1	1-12							2						194
GND P1	B01T1	1-13							1						194
GND P1	B01V2	1-14							2						194
GND P1	B01V2	1										35-6/8			194

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PAGE 21

LENGTH EXCEPTIONS

RUN

NUMBFR

A/P	PIN	NAME	ORDER	BAY	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN	NUMBFR
GND 12	A02B2		1-01								1				195	
GND 12	A02C2		1-02								2				195	
GND 12	A02N1		1-03								1				195	
GND 12	A02P1		1-04								2				195	
GND 12	A02R1		1-05								1				195	
GND 12	A02S1		1-06								2				195	
GND 12	A02T1		1-07								1				195	
GND 12	A02V2		1-08								2				195	
GND 12	R02B2		1-09								1				195	
GND 12	R02C2		1-10								2				195	
GND 12	R02D1		1-11								1				195	
GND 12	R02E1		1-12								2				195	
GND 12	R02T1		1-13								1				195	
GND 12	R02V2		1-14								1				195	
GND 12			1										35-6/8			
GND 13	A03A1		1-01								2				196	
GND 13	A03C2		1-02								1				196	
GND 13	A03T1		1-03								2				196	
GND 13	B03C2		1-04								1				196	
GND 13	R03D2		1-05								2				196	
GND 13	R03J2		1-06								1				196	
GND 13	R03T1		1-07								1				196	
GND 13			1										19-0/8			
GND 14	A04C2		1-01								1				197	
GND 14	A04T1		1-02								2				197	
GND 14	R04C2		1-03								1				197	
GND 14	R04T1		1-04								1				197	
GND 14			1										11-4/8			
GND 15	A05C2		1-01								1				198	
GND 15	A05T1		1-02								2				198	
GND 15	R05C2		1-03								1				198	
GND 15	R05T1		1-04								1				198	
GND 15			1										11-4/8			
GND 16	A06C2		1-01								1				199	
GND 16	A06T1		1-02								2				199	
GND 16	R06C2		1-03								1				199	
GND 16	R06C1		1-04								2				199	
GND 16	R06T1		1-05								1				199	
GND 16			1										14-0/8			

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LENGTH EXCEPTIONS

RUN

NUMBER

A/P	PIN	NAME	ORDER	BAY	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN	NUMBER
GND 17	A07C2		1-01								1				200	
GND 17	A07T1		1-02								2				200	
GND 17	R07C2		1-03								1				200	
GND 17	R07T1		1-04								1				200	
GND 17			1										11-4/8			
GND 18	A08C2		1-01								1				201	
GND 18	A08T1		1-02								2				201	
GND 18	R08C2		1-03								1				201	
GND 18	R08T1		1-04								1				201	
GND 18			1										11-4/8			
GND 19	A09C2		1-01								1				202	
GND 19	A09T1		1-02								2				202	
GND 19	R09C2		1-03								1				202	
GND 19	R09T1		1-04								1				202	
GND 19			1										11-4/8			
GND 17	A10C2		1-01								2				203	
GND 17	A10T1		1-02								1				203	
GND 17	R10C2		1-03								2				203	
GND 17	R10T1		1-04								1				203	
GND 17	R10U1		1-05								1				203	
GND 17			1										14-0/8			
GND 11	A11C2		1-01								1				204	
GND 11	A11T1		1-02								2				204	
GND 11	R11C2		1-03								1				204	
GND 11	R11T1		1-04								1				204	
GND 11			1										11-4/8			
GND 12	A12C2		1-01								1				205	
GND 12	B12C2		1-02								1				205	
GND 12			1										5-0/8			
GND 13	A13C2		1-01								1				206	
GND 13	B13C2		1-02								1				206	
GND 13			1										5-0/8			
GND 14	A14C2		1-01								1				207	
GND 14	B14C2		1-02								1				207	
GND 14			1										5-0/8			
GND 15	A15C2		1-01								1				208	
GND 15	B15C2		1-02								1				208	
GND 15			1										5-0/8			

ADD1-D.A RUN NAME	HND*RP.V04 6/4/70 A/P PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	28-JAN-71	20149 LENGTH	EXCEPTIONS	PAGE 23 RUN NUMBER
GND 16	A16C2	1-01	1							1			5-0/8		209
GND 16	B16C2	1-02	1												209
GND 17	A17C2	1-01	1							1			5-0/8		210
GND 17	R17C2	1-02	1												210
GND 18	A18C2	1-01	1							1			5-0/8		211
GND 18	R18C2	1-02	1												211
GND 19	A19C2	1-01	1							1			5-0/8		212
GND 19	R19C2	1-02	1												212
GND 20	A20C2	1-01	1							1			5-0/8		213
GND 20	R20C2	1-02	1												213
GND 21	A20F2	1-01	1							1					214
GND 21	A21C2	1-02	1							2					214
GND 21	A21D1	1-03	1							1					214
GND 21	A21E2	1-04	1							2					214
GND 21	A21F1	1-05	1							1					214
GND 21	A21H2	1-06	1							2					214
GND 21	A21J1	1-07	1							1					214
GND 21	A21K2	1-08	1							2					214
GND 21	A21L1	1-09	1							1					214
GND 21	A21M2	1-10	1							2					214
GND 21	A21N1	1-11	1							1					214
GND 21	A21P2	1-12	1							2					214
GND 21	A21R1	1-13	1							1					214
GND 21	A21S2	1-14	1							2					214
GND 21	A21T1	1-15	1							1					214
GND 21	A21U2	1-16	1							2					214
GND 21	A21V2	1-17	1							1					214
GND 21	A21V1	1-18	1							2					214
GND 21	B21A2	1-19	1							1					214
GND 21	B21A1	1-20	1							2					214
GND 21	B21B1	1-21	1							1					214
GND 21	B21C2	1-22	1							2					214
GND 21	B21D1	1-23	1							1					214
GND 21	B21E2	1-24	1							2					214
GND 21	B21F1	1-25	1							1					214
GND 21	B21H2	1-26	1							2					214
GND 21	B21J1	1-27	1							1					214
GND 21	B21K2	1-28	1							2					214
GND 21	B21L1	1-29	1							1					214
GND 21	B21M2	1-30	1							2					214
GND 21	B21N1	1-31	1							1					214
GND 21	B21P2	1-32	1							2					214
GND 21	B21R1	1-33	1							1					214
GND 21	B21S2	1-34	1							2					214
GND 21	B21T1	1-35	1							1					214
GND 21	B21U2	1-36	1							2					214

ADD1-D.A RUN NAME	HND*RP.V04 6/4/70 A/P PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	28-JAN-71	20149 LENGTH	EXCEPTIONS	PAGE 24 RUN NUMBFR
GND 21	R21V2	1-37	1							1					214
GND 21	R21V1	1-38	1										93-4/8		214
GS00 (0)	B06V1	1-01 *	1						R1	2					215
GS00 (0)	R16L2	1-02 *	1						R1	1					215
GS00 (0)	R16N2	1-03 *	1						R1				10-4/8		215
GS00 (1)	B05M1	1-01 *	1						R1	1					216
GS00 (1)	B06V2	1-02 *	1						R1	2					216
GS00 (1)	R16M2	1-03 *	1						R1	1					216
GS22 (1)	B16P2	1-04 *	1						R1				13-4/8		216
GS00 (0)	A06J2	1-01	1							1					217
GS01 (0)	R16J2	1-02	1						D03				8-4/8		217
GS01 (1)	A06H2	1-01	1						D02	2					218
GS01 (1)	B04B1	1-02	1						D02	1					218
GS01 (1)	B16K2	1-03	1						D03				13-6/8		218
IE06 (0)	B06R2	1-01	1						D02	1					219
IE06 (0)	B07T2	1-02	1						D02				3-0/8		219
IE06 (1)	B04P1	1-01	1						D02	1					220
IE06 (1)	B06P2	1-02	1						D02				3-4/8		220
IN	A03M1	1-01	1						D02	2					221
IN	A05H1	1-02	1						D03	1					221
IN	B05F1	1-03	1						D02				8-4/8		221
INIT	A01A1	1-01	1							2					222
INIT	A02A1	1-02	1							1					222
INIT	A04J1	1-03	1						D02				6-4/8		222
INTR	A01B1	1-01	1							2					223
INTR	A02B1	1-02	1							1					223
INTR	B03M1	1-03	1						D02				9-2/8		223

A/P	PIN	NAME	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN
H	R03L2								1				224
H	R03R1										3-0/8		224
H	R03M2								1				225
H	R03S1										3-0/8		225
	A11N2								2				226
	A11M2								1				226
	A11K2								2				226
	A06F2								1				226
	A06K1								2				226
	A06N2								1				226
	A06R1								2				226
	A06U2								1				226
	A07V1								2				226
	B04J1								1				226
	B04S1								2				226
	B06U2								1				226
	B06R1								2				226
	B06N2								1				226
	B06K1								2				226
	B06F2								1				226
	B08J2								2				226
	B08K2								1				226
	B08N2								2				226
	R10S1								1				226
	R10S2								2				226
	R11P2								1				226
	R11N2								2				226
	R16H2								1				226
	A20L2								1		74-4/8		227
H	A20N2								2				227
H	B20L2								1				227
H	R20N2								2				227
H	B06M1								1				227
	A20J2								2				228
	R20J2								1				228
	R06J2								2				228
	A20K2								2				230
	R20K2								1				230
	B06H2								2				230
	B04L1								1				230
	A20J2								2		23-0/8		228
	R20J2								1				229
	R06J2								2				229
	A20K2								2				230
	R20K2								1				230
	B06H2								2				230
	B04L1								1				230
	A06V2								2				231
	R04M1								1				231
	R10V1								2				231
	R04D1								2				232
	A06S1								1				232
	R10U2								2				232
	A06P2								2				233
	R04E1								1				233
	R12V2								2				233
	R10T2								1				234
	A06M1								2				234
	A06L1								1				235
	R04A1								2				235
	A03E1								1				236
	R02V1								2				236
	B01V1								1				236

ADP1-D.A RUN NAME 20149 28-JAN-71 20149 PAGE 26
 HNDARP.V04 6/4/70 BAY ORDER PIN ORDER BAY ORDER

A/P	PIN	NAME	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN
H	A20M2								1				228
H	A20P2								2				228
H	B20P2								1				228
H	B20P2								2				228
H	B06L1								1				228
H	B04R1								2		23-0/8		228
	A20J2								2				229
	R20J2								1				229
	R06J2								2				229
	A20K2								2				230
	R20K2								1				230
	B06H2								2				230
	B04L1								1				230
	A06V2								2				231
	R04M1								1				231
	R10V1								2				231
	R04D1								2				232
	A06S1								1				232
	R10U2								2				232
	A06P2								2				233
	R04E1								1				233
	R12V2								2				233
	R10T2								1				234
	A06M1								2				234
	A06L1								1				235
	R04A1								2				235
	A03E1								1				236
	R02V1								2				236
	B01V1								1				236

AD1-D.A RUN NAME	HNDXRP.V04 6/4/70 A/P PIN NAME	ORDER PIN	BAY - ORDER	0	DRAW	RV	PG	Y	X	Z	REMARKS	28-JAN-71	20149 LENGTH	EXCEPTIONS	PAGE 27 RUN NUMBER
NPG	L	A01U1	1-01							1					237
NPG	L	A02U1	1-02										2-6/8		237
NPG	L	A02U1	1												237
NPR	L	A01S2	1-01							1					238
NPR	L	A02S2	1-02										2-6/8		238
NPR	L	A02S2	1												238
OUT HIGH	H	A03M2	1-01				D02			1					239
OUT HIGH	H	A07D2	1-02				D02								239
OUT HIGH	H	A07D2	1										4-6/8		239
OUT LOW	H	A03N1	1-01				D02			1					240
OUT LOW	H	A07J1	1-02				D02								240
OUT LOW	H	A07J1	1										4-4/8		240
PA	L	A01M1	1-01							1					241
PA	L	A02M1	1-02												241
PA	L	A02M1	1										2-6/8		241
PB	L	A01N2	1-01							1					242
PB	L	A02N2	1-02												242
PB	L	A02N2	1										2-6/8		242
PS02	H	B03K2	1-01				D02			1					243
PS02	H	B05D1	1-02				D02			2					243
PS02	H	B07N1	1-03				D02			1					243
PS02	H	B07L2	1-04				D02						10-0/8		243
PS02	H	B07L2	1												243
PS02	L	R07N2	1-01				D02			1					244
PS02	L	R07M1	1-02				D02			2					244
PS02	L	R03V1	1-03				D02								244
PS02	L	R03V1	1										7-2/8		244
RD	H	A07D1	1-01				D02			1					245
RD	H	R06E1	1-02				D03								245
RD	H	R06E1	1										5-4/8		245
SACK	L	A01R2	1-01							2					246
SACK	L	A02R2	1-02							1					246
SACK	L	R03T2	1-03				D02								246
SACK	L	R03T2	1										8-2/8		246

AD1-D.A RUN NAME	HNDXRP.V04 6/4/70 A/P PIN NAME	ORDER PIN	BAY - ORDER	0	DRAW	RV	PG	Y	X	Z	REMARKS	28-JAN-71	20149 LENGTH	EXCEPTIONS	PAGE 28 RUN NUMBER
SELECT 0	H	A07E2	1-01				D02			1					247
SELECT 0	H	A07H1	1-02				D02			2					247
SELECT 0	H	A03S2	1-03				D02			1					247
SELECT 0	H	R04H1	1-04				D02			2					247
SELECT 0	H	B05H1	1-05				D02						14-2/8		247
SELECT 0	H	B05H1	1												247
SELECT 2	H	A03T2	1-01				D02			1					248
SELECT 2	H	A05F1	1-02				D03								248
SELECT 2	H	A05F1	1										4-0/8		248
SELECT 4	H	A03R2					D02								249
SELECT 6	H	A03S1					D02								250
SIGN	H	A05M1	1-01 *							1					251
SIGN	H	A05L1	1-02 *							2					251
SIGN	H	A05B1	1-03 *							1					251
SIGN	H	A05A1	1-04 *							2					251
SIGN	H	A05D1	1-05 *							1					251
SIGN	H	A05E1	1-06 *							2					251
SIGN	H	B13E2	1-07 *												251
SIGN	H	B13E2	1										21-2/8		251
SP		R01F2	1-01							1					252
SP		R02F2	1-02												252
SP		R02F2	1										2-6/8		252
SSYN	L	A03J1	1-01				D02			2					253
SSYN	L	B03C1	1-02				D02			1					253
SSYN	L	B02U1	1-03							2					253
SSYN	L	R01U1	1-04												253
SSYN	L	R01U1	1										11-4/8		253
ST	L	A07N1	1-01 *							1					254
ST	L	B09K2	1-02 *							2					254
ST	L	B09L2	1-03 *							1					254
ST	L	R09M2	1-04 *							2					254
ST	L	B11H2	1-05 *												254
ST	L	B11H2	1										13-6/8		254
ST INTRB	L	R03P2	1-01				D02			1					255
ST INTRB	L	B03S2	1-02				D02								255
ST INTRB	L	B03S2	1										2-4/8		255

ADP1-D.A
RUN NAME

HNDWRP.V04 6/4/70 28-JAN-71 20149 PAGE 29
A/P PIN ORDER BAY - Q DRAW RV PG Y X Z REMARKS LENGTH EXCEPTIONS RUN
NAME PIN ORDER NUMBER
ST00 (0) H A11H2 1-01 * R1 1 256
ST00 (0) H B09N2 1-02 * R1 2 256
ST00 (0) H B09V2 1-03 * R1 256
ST00 (0) 1 9-0/8 256
TRACK H A07V2 1-01 D03 1 257
TRACK H B15F2 1-02 D03 257
TRACK 1 7-0/8 257
TRACK L A07T2 1-01 D03 1 258
TRACK L A07U2 1-02 D03 2 258
TRACK L B07K2 1-03 D03 258
TRACK 1 6-4/8 258

ERROR LISTING

WIRE WRAP
RUN NAME

HNDWRP.V04 6/4/70
A/P PIN ORDER BAY -
NAME PIN ORDER

28-JAN-71

20149 PAGE 1
LENGTH EXCEPTIONS

RUN
NUMBER

SELECT 4
SELECT 6

H A03R2 D02
H A03S1 D02

1-PIN RUN 249
1-PIN RUN 250

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ACCESSORY LIST

LEGEND

- D DOCUMENT
- DN DOCUMENT CHANGE NOTICE
- PA PAPER TAPE ASCII
- PB PAPER TAPE BINARY
- PM PAPER TAPE READ-IN-MODE

QUANTITY/VARIATION

MADE BY DATE	CHECKED DATE	SECTION
ENG Paul Severino DATE 3/18/71	PROD Alan Hirsch DATE 3/18/71	ISSUED SECT.

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY/VARIATION				KIT CHECK	BY	DATE	INSTALLATION CHECK	BY	DATE
1	DEC11-HADA-D	AD01-D Maintenance Manual	1									
2	C-13531	Schematic Deltron (DEC # 12-3185-2 H727-A) (DEC # 12-3185-4 H727-B)	1									

TITLE Accessory List	ASSY. NO.	SIZE CODE A AL	NUMBER AD01-D-08	REV.	ECO NO.
SHEET 1 OF 1	DIST.				

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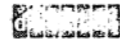
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS						
						DATE 1-21-71
TITLE AD01-D Specifications						
REVISIONS						
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG	APPD	SIZE A	CODE SP	NUMBER AD01-D-10	REV
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ENGINEERING SPECIFICATION				CONTINUATION SHEET
TITLE AD01-D 10 Bit A/D Converter Subsystem - Specifications				
0.0	<u>AD01-D GENERAL DESCRIPTION</u> The AD01-D is an analog input subsystem for use with the PDP-11 computer. It features a 10 bit analog to digital converter with extended dynamic range. This range is achieved by means of an amplifier with gains of 1, 2, 4 and 8 selectable under program control.			
0.1	A single-ended multiplexer is provided for. Channels can be implemented in groups of four up to a maximum of 32. A one word output from the computer to the Gain-MUX control register selects both amplifier gain and multiplexer channel address.			
0.2	The computer interface includes two registers: a control and status register, ADCS and data register, ADDB. Novel features of the interface include the ability to set the converter into the interrupting or non-interrupting mode. In the interrupting mode the AD01-D is capable of interrupting on A/D done or on the error condition of starting a new conversion before the previous conversion is complete. The non-interrupting mode enables the converter to approach its maximum throughput rate under program control.			

		SIZE A	CODE SP	NUMBER AD01-D-10	REV
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ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE AD01-D Specifications

0.3 Conversion results are entered on the data lines of the unibus of the computer at the right most end. When bipolar operation is implemented, the sign bit is extended to the left to fill the remaining bits.

0.4 The AD01-D subsystem is contained in a single 5¼" high rack mounting panel. This includes an analog power supply sufficient for the basic unit and all prewired options. Also required is an externally mounted 5 volt power supply.

1.0 GENERAL SPECIFICATIONS

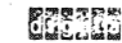
1.1 The AD01-D consists of several functional parts as enumerated in the following paragraphs:

1.1.1 A812 Analog to Digital Converter - (10 Bit Unipolar)
When provided with an input voltage and start pulse the converter module produces ten output bits which correspond to the value of the input voltage. The successive (serial) approximation technique is used. When the ten output bits have been determined the converter module produces a done pulse. The input voltage range of the converter is 0 to +10 volts. The input resistance is 1250 ohms $\pm 0.1\%$.

SIZE	CODE	NUMBER	REV
A	SP	AD01-D-10	

SHEET 3 OF 22

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE AD01-D Specifications

1.1.2 Multiplexer Control

The six bit MUX channel address is received by the ADCS. An M161 octal decoder converts the three most significant of these bits to an enabling level for one of eight A124 multiplexer modules. The eight prewired slots provided for these modules are A17 through A20 and B17 through B20. When expanding the channel capacity modules must be added in the A level before the B level progressing from slot 17 toward slot 20. The last two bits of the channel address are decoded on the enabled A124 module. The sixth bit is included for future expansion to 64 channels.

1.1.3 Power Supplies

Analog power for the circuitry is furnished by an H727 power supply in conjunction with an A708 voltage regulator module. The H727 supplies +15VDC at 400ma and -20VDC at 400ma. The -20VDC power is used only by the A124 multiplexer modules (30ma each). All other A series modules use -15 volts derived from the negative regulator section of the A708. The maximum current drain on this -15 volt regulator is 200ma. The A708, when fully loaded, takes 200ma from the -20 volt output of the H727. The +15 volt output of the H727 provides

SIZE	CODE	NUMBER	REV
A	SP	AD01-D-10	

SHEET 4 OF 22

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Specifications

350ma to the analog modules.

1.1.4 Remote Gain Control Amplifier

The gain control bits are received from the accumulator through the gain and mux register. These bits are decoded and converted to gain switching action by an A124 multiplexer module. The operational amplifier used is an A220. The configuration is non-inverting with gains of 1, 2, 4 and 8. A truth table is given in the programming section of this document. The input impedance of the amplifier is greater than 1000 megohms in parallel with 20pF. Settling time to either a gain change or a 10 volt input change is less than 3 microseconds to within one count of the ADC.

1.2 Options

1.2.1 Multiplexer Modules

The A124 multiplexer switch selects one of four input channels on the basis of two input bits and an enabled input. These logic inputs are TTL compatible, and all represent less than one unit load. The analog switches are enhancement-mode mosfets, and all channels

SIZE A	CODE SP	NUMBER AD01-D-10	REV
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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Specifications

are off when power is removed. The ON resistance is less than 2000 ohms. OFF resistance and capacitance are 200 megohms and 1 picofarad respectively. Normal operation requires that the input voltage be in the range of ± 10 volts. Input voltages up to 20 volts and input currents up to 3ma will cause no damage. Response time (including delay) is less than 1.2 microsecond in both the ON and OFF directions.

1.2.2 Sample and Hold Amplifier - AH04

The A405 Sample and Hold Module Specifications are enumerated here:

Acquisition Time

Within 5mv, 10v step input, max: 5usec

Aperture Time, max: 0.1usec

Gain -1.000 ($\pm 0.02\%$)

Input

Voltage range $\pm 10v$

Impedance 2K ohms $\pm 1\%$

Output

Voltage range, max: $\pm 10v$

Current, mas: 10ma

Impedance, Max: 0.1 ohm

SIZE A	CODE SP	NUMBER AD01-D-10	REV
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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Specifications

Offset (between sample & hold modes): Less than or equal to 15mv

Temperature coefficient of offset, mx: 50uV per °C

Droop (max at 25°C, Note 1): 10mV/msec

Track-Hold Control

Level Control - Pin BF2 (jumper - W1) T²L compatible
1 unit load
Logic 0 or Low - Hold
Logic 1 or High - Track

Pulse Control - Pin BF2 (jumper - W2) - Pin BH2
Track - 1 unit load
Hold - 1 unit load

NOTE 1: Droop doubles for each 10°C increase in temperature.

1.2.3 AH05 Sign Option

Implementation of the AH05 option is accomplished by substituting the A812 module in slots AB12 with the A862 bipolar A-D converter module in slots AB13. Conversion time for this module is 24usec. giving 10 bits + sign in two's complement notation. Total system conversion time is 29usec with AH05.

SIZE A	CODE SP	NUMBER AD01-D-10	REV
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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Specifications

1.3 Mechanical Configuration

The entire AD01-D is contained in an H911 logic rack with six H803 connector blocks. The right hand end (as viewed from the front of the rack) is occupied by the analog power supply. The 5 volt logic supply is also rack mount.

1.4 General Specifications

1.4.1 Power Requirements

1.4.1.1 AD01-DA: 110v, 60Hz

Analog Power Supply: H727A

AC current: less than 1/2 amperes

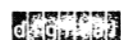
Power Dissipation: less than 25 watts

Digital Logic Supply: H716B

AC current: less than 3 amperes

SIZE A	CODE SP	NUMBER AD01-D-10	REV
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ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE AD01-D Specifications

1.4.1.2 AD01-DB: 230V, 50Hz
 Analog Power Supply: H727B
 AC Current: less than ¼ amperes
 Power Dissipation: less than 25 watts
 Digital Logic Supply: H716D
 AC Current: less than 1.5 amperes
 Power Dissipation: less than 25 watts

1.4.2 Environmental Specification

Temperature Range (operating): 0°C to 55°C
 Temperature Range (storage): -25°C to +85°C
 Temperature Coefficient of Zero: less than 30 microvolts per °C referred to input +100 microvolts per °C referred to output.
 Temperature Coefficient of Gain: less than 0.005% per °C.

1.5 General Performance Specifications

1.5.1 Number of Channels

Any number of channels up to 32 can be accommodated by the AD01-D. Expansion to 64 channels is possible with the addition of another 1943 rack.

SIZE A	CODE SP	NUMBER AD01-D-10	REV
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SHEET 9 OF 22

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE AD01-D Specifications

1.5.2 System Speed

The AD01-D conversion time is 22usec +lusec including response to new channel and gain selection. This time is measured from the initiation of new gain and channel address information or the setting of the A/D start bit in the control & status register. The conversion period is terminated by the done pulse, which sets the done bit. Conversion time with AH05 is 29usec +lusec.

1.5.3 Input Specifications

1.5.3.1 Configuration: Single-Ended

1.5.3.2 Input Impedance

Greater than 1,000 megohms in parallel with less than 20pF.

1.5.3.3 System Accuracy

0.1% of full scale +½LSB

1.5.3.4 Gain

Gains of 1, 2, 4 and 8 are selectable by program control.

1.5.3.5 Gain Accuracy

+0.05%

1.5.3.6 Input Voltage

0 to 10 volts, 5 volts, 2.5 volts, and 1.25 volts.

These ranges are unipolar and positive on the basic

SIZE A	CODE SP	NUMBER AD01-D-10	REV
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SHEET 10 OF 22

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE AD01-D Specifications

AD01-D and are bipolar two's complement on the AD01-D with sign and magnitude option.

1.5.4 Noise

The peak-to-peak noise including both line frequency and random components is less than 0.2 LSP on the 10 volt and 5 volt ranges, less than 0.4 LSB on the 2.5 volt range, and less than 0.8 LSB on the 1.25 volt range. These figures are to 99.7% confidence. When sample and hold is included, increase these figures by 20%.

1.5.5 Zero Offset

Adjustable to zero. Calibrated for first switching point at $\pm \frac{1}{2}$ LSB.

1.5.6 Resolution

One part in 1.024 of full scale (9.8mv).

2.0 SPECIFICATIONS OF VENDOR-SUPPLIED EQUIPMENT

2.1 Regulated DC analog power supply H727A. See DEC Purchase Specification 12-03185-2. Use H727B when 230VAC input is desired. See Purchase Specification 12-03185-4. Regulated DC 5v logic supply H716B. See DEC Purchase Specification 30-9282.

3.0 PROGRAMMING SPECIFICATIONS

3.1 Starting the Converter

In the AD01-D a conversion can be initiated in three different ways:

SIZE	CODE	NUMBER	REV
A	SP	AD01-D-10	

ENGINEERING SPECIFICATION



CONTINUATION SHEET

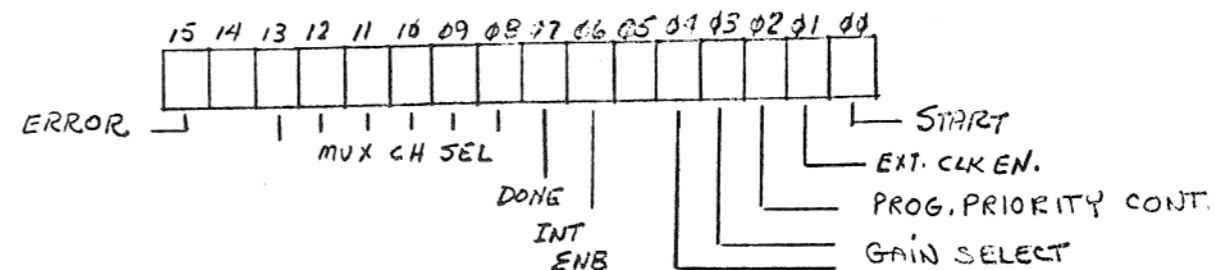
TITLE AD01-D Specifications

- 1) Set A/D start, Bit 00 ADSC.
- 2) Loading MUX channel address. or input gain range.
However, if the External Clock is enabled the programmer must set A/D start to initiate a conversion under program control. This feature makes it possible to change gain and MUX address between External Clock pulses. It is noted here that if the error Bit(15) is set and causes an interrupt, it should not be reset until a new conversion is to be initiated as clocking any data into the upper byte of the ADCS will initiate a conversion.
- 3) External Clock, when enabled.

3.2 Device Registers

All software control of the AD01-D is done via two (2) register. The following presents the bit assignment within each register. All bits are read/write unless stated otherwise.

3.2.1 Control and Status Register (ADCS=776770)



SIZE	CODE	NUMBER	REV
A	SP	AD01-D-10	

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Specifications

Bit	Meaning and Operation
15	<u>ERROR</u> - indicates device has been issued a start command during the time between start conversion and read ADDB. Cleared by INIT. Set by Convert Command. Cleared under program control upon loading new Gain and MUX Channel data.

NOTE: The main purpose of the ERROR bit is to indicate timing problems that could occur if an external clock is starting conversions at certain intervals and conversions are being made underprogram control between the external clock pulses.

13-08	<u>MUX CH</u> - Six bits to select 1 of 64 multiplexer channels. Cleared by INIT, loaded under program control.
-------	---

07	<u>DONE</u> - indicates state of converter. Reset by init. Set by A/D Done. Reset by reading ADDB. Read Only.
----	---

06	<u>INT ENB</u> - Will allow interrupts on A/D Done or Error. Cleared by INIT, set under program control.
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SIZE A	CODE SP	NUMBER AD01-D-10	REV
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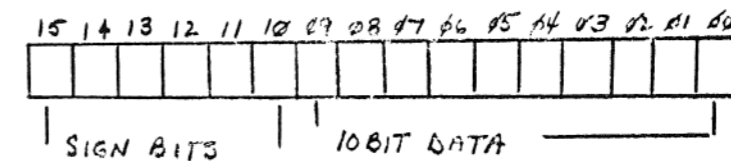
ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Specifications

05	UNUSED
04-03	<u>GAIN SELECT</u> - Gain select for programmable gain amplifier. Loaded under program control. Cleared by INIT.
02	<u>PROG-PRIORITY REQUEST</u> - Will allow selection of bus request line under program control. Bits 02=0 BR7 Bit 02=1 priority determined by bus grant jumper socket on G736 module. Cleared by INIT, set under program control.
01	<u>EXT CLK ENB</u> - Will allow converter to be controlled by external input. Cleared by A/D Done (Write Only).

3.2 Data Buffer (ADDB=776772)



SIZE A	CODE SP	NUMBER AD01-D-10	REV
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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Specifications

BIT	MEANING AND OPERATION
15-10	<u>SIGN</u> - When AH05 Sign Bit option is installed bits will take on sign in two's complement. Read Only.
09-00	<u>DATA</u> - 10 bit data word. Read Only.

3.3 Interrupt

The converter interrupts when INT ENB=1, and DONE=1 or ERROR=1. Both become true. Vector Address=130

3.4 Timing

Figure 3.3 shows the timing operations within the AD01-D

3.5 Control

No operator controls are included in this device. Any trouble shooting or calibration procedures are carried out by the use of the computer console.

SIZE	CODE	NUMBER	REV
A	SP	AD01-D-10	

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Specifications

3.6 External Clock Control

The AD01-D contains two inputs for external control of the conversion process.

3.6.1 Ext In

The EXT IN signal is brought into the converter on the M908 analog input module in slot A21 pins A1 and B1 (B1 is EXT common). Input signal conditioning is provided by the M501 Schmitt Trigger circuit. The upper and lower thresholds are set at 1.7 volts and 1.1 volts. Input signal swing is limited to ± 20 volts.

INPUT STANDARDS

Signal Swing = $\pm 20V$
Loading = 2.7K ohms to +5V or 1.8ma @GND

3.6.2 Ext In A

The EXT IN A signal is brought into the converter on the M908 analog input module in slot A21 pins A2 and B1 (B1 is EXT common). This input is T²L compatible. Triggering is accomplished by a level change from high to low or a pulse to low whose duration is equal to or greater than 50 nanoseconds. The fall time of the input trigger should be less than 400 nanoseconds.

INPUT STANDARDS

Signal Swing = T²L logic levels
Timing = Level - high to low fall time $\leq 400nsec$
Pulse - high to low, duration $> 50nsec$

SIZE	CODE	NUMBER	REV
A	SP	AD01-D-10	

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE AD01-D Specifications

Loading = 2½ unit loads

3.6.3 External Clock Timing Considerations

A timing diagram is given in Figure 3.6 to show the operation of the AD01-D under external clock control. In the external mode time is not allowed for the switch gain amplifier to settle. This is done in this manner so that a conversion is initiated at the time the external signal is applied. Thus it is the responsibility of the user to allow at least 5usec for settling of the input amplifier if necessary. A logic diagram of the external clock input circuitry is provided in Figure 3.6a

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE AD01-D Specifications

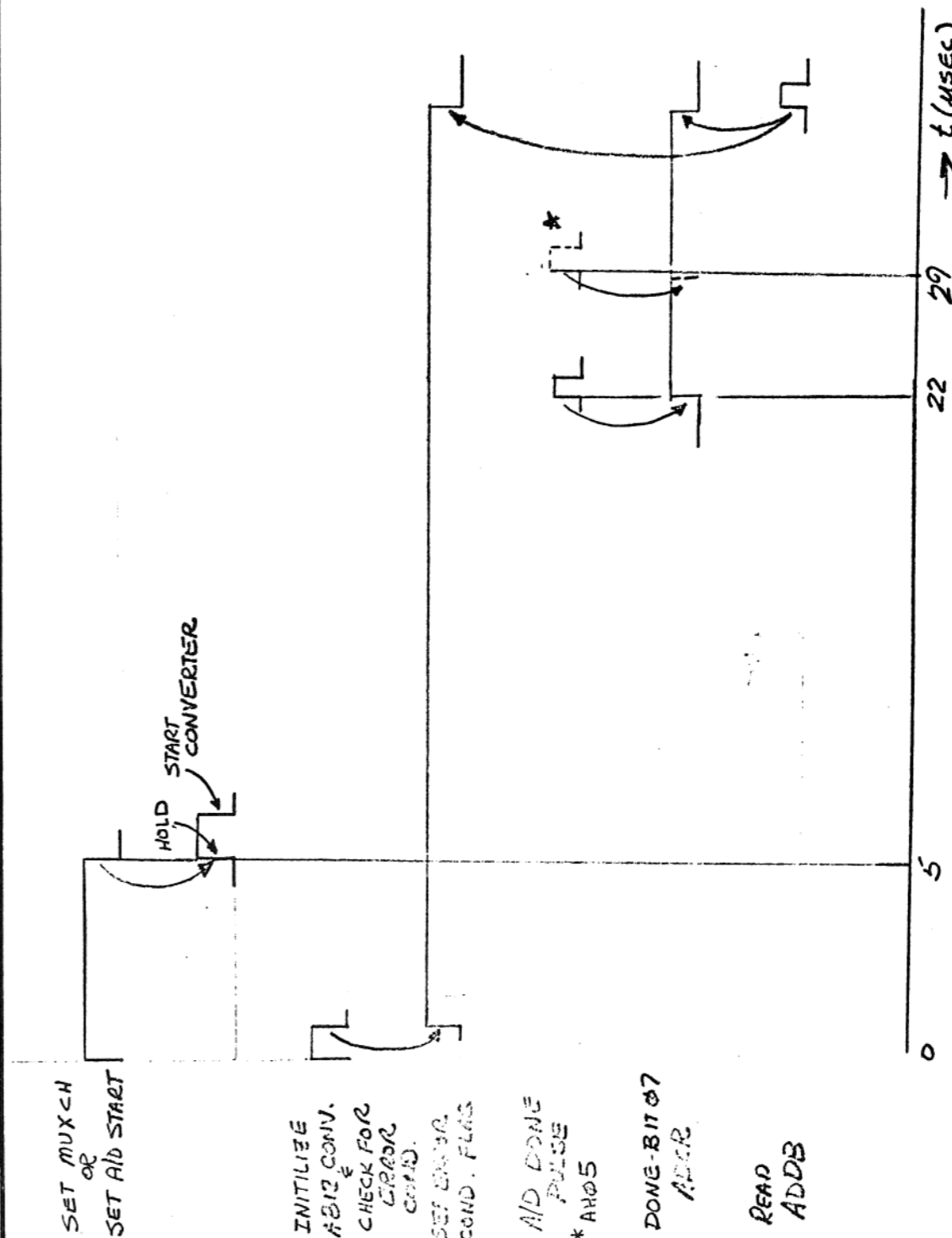


FIG 3.3 AD01-D SYSTEM TIMING

SIZE A	CODE SP	NUMBER AD01-D-10	REV
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SIZE A	CODE SP	NUMBER AD01-D-10	REV
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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Specifications

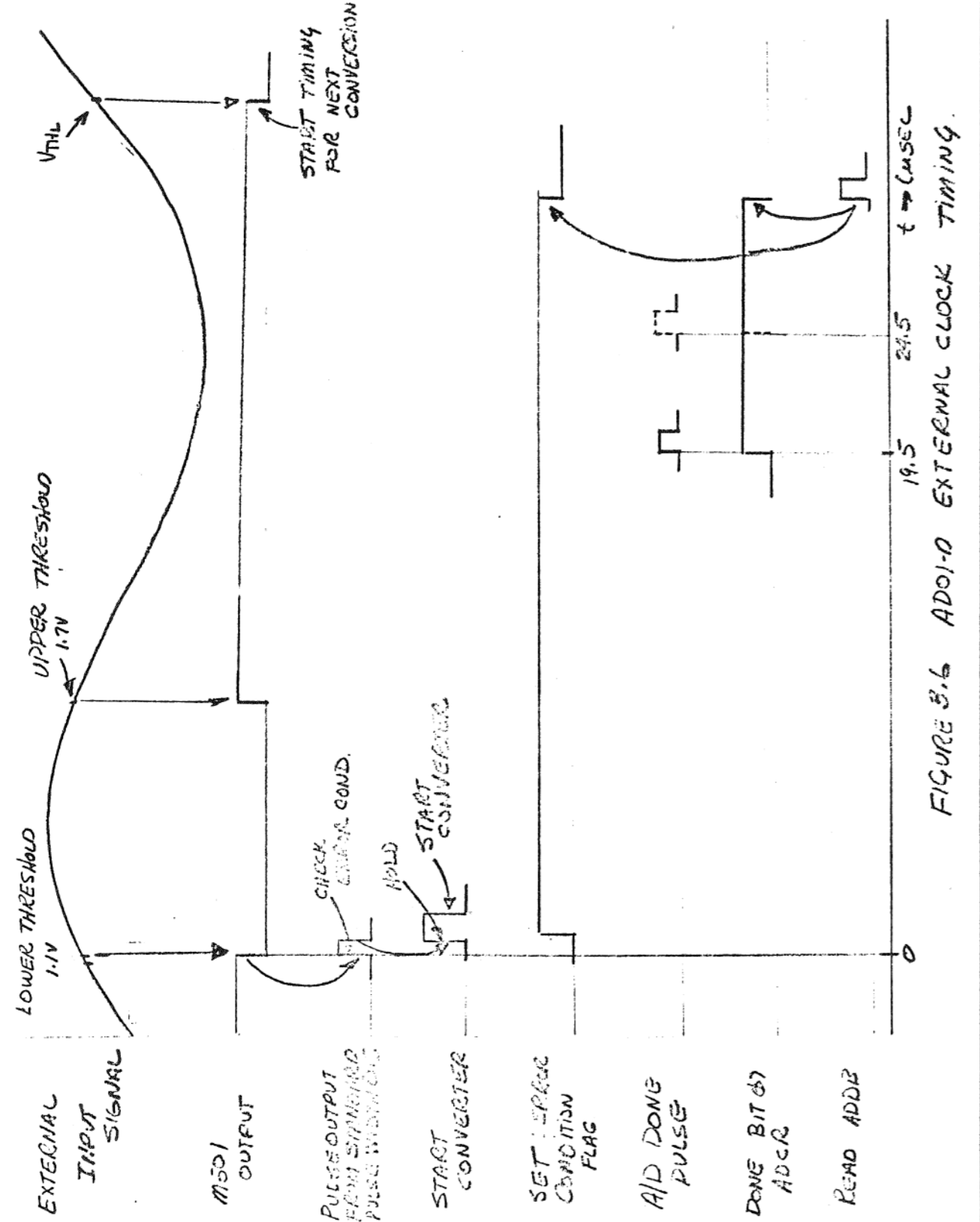


FIGURE 3.6 AD01-D EXTERNAL CLOCK TIMING.

SIZE A	CODE 3P	NUMBER AD01-D-10	REV
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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Specifications

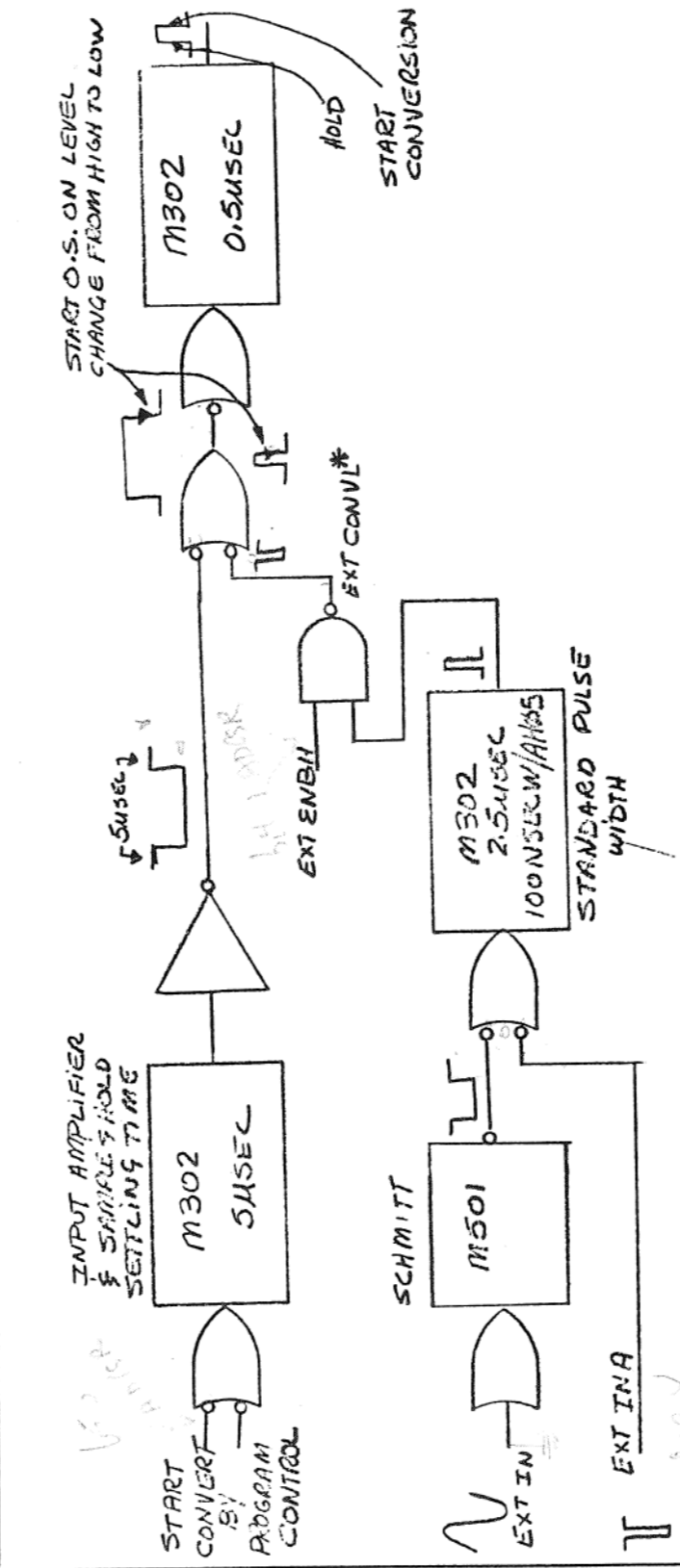


FIGURE 3.6a
EXTERNAL CLOCK INPUT SIGNAL CONDITIONING

* EXT CONV L SIGNAL BYPASSES 5μSEC DELAY FOR INPUT SETTLING

SIZE A	CODE SP	NUMBER AD01-D-10	REV
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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Specifications

BIT 14	BIT 13	GAIN	FULL SCALE VOLTS
ϕ	ϕ	1	10
ϕ	1	2	5
1	ϕ	4	2.5
1	1	8	1.25

FIG 3.1.2 GAIN SELECT
TABLE

SIZE CODE NUMBER REV
A SP AD01-D-10

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Specifications

Analog-Channel Input
Pin Assignment

Channel Number		Input Pin	
Decimal	Octal	Connection	Gnd
00	00	A21B2	A21C2
01	01	A21C1	A21D1
02	02	A21D2	A21E2
03	03	A21E1	A21F1
04	04	A21F2	A21H2
05	05	A21H1	A21J1
06	06	A21J2	A21K2
07	07	A21K1	A21L1
08	10	A21L2	A21M2
09	11	A21M1	A21N1
10	12	A21N2	A21P2
11	13	A21P1	A21R1
12	14	A21R2	A21S2
13	15	A21S1	A21T1
14	16	A21T2	A21U2
15	17	A21U1	A21V1
16	20	B21B2	B21C2
17	21	B21C1	B21D1
18	22	B21D2	B21E2
19	23	B21E1	B21F1
20	24	B21F2	B21H2
21	25	B21H1	B21J1
22	26	B21U2	B21K2
23	27	B21K1	B21L1
24	30	B21L2	B21M2
25	31	B21M1	B21N1
26	32	B21N2	B21P2
27	33	B21P1	B21R1
28	34	B21R2	B21S2
29	35	B21S1	B21T1
30	36	B21T2	B21U2
31	37	B21U1	B21V1

SIZE CODE NUMBER REV
A SP AD01-D-10

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

DATE 1-27-71

TITLE AD01-D Acceptance Procedures

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG Paul Severino	APPD <i>[Signature]</i>	SIZE A	CODE SP	NUMBER AD01-D-12	REV
----------------------	----------------------------	-----------	------------	---------------------	-----

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Acceptance Procedure

1.0 Purpose: The purpose of this acceptance test is to show that the AD01-D works properly within stated specifications. The test should be run in sequence from beginning to end to prove the operation and specification.

1.1 Equipment Required - Voltage Standard (EDC or Equivalent)
Wave or Pulse Generator (Wavetek, Datapulse, or Equivalent)

2.0 Visual Inspection (Power Off)

All modules should be in the proper slots as referenced to the module utilization drawing. The back plane wiring should be examined for any gross wiring discrepancies. The unibus cable (BC-11) should be in slot AB01 with the terminator card (M930) in slot AB02 if the AD01 is the last device on the bus.

2.1 Analog Modules (A Series)

All adjustment pots on A series modules should be sealed with the exception of those which are not used in certain option combinations. This information is available in the calibration procedure.

2.2 Multiplexer

The AD01 has provision for 32 channels of multiplexing. The MUX module is the A124 and contains four (4) channels. A check should be made to determine the number of channels present is the correct number. The proper location for the

SIZE A	CODE SP	NUMBER AD01-D-12	REV
-----------	------------	---------------------	-----

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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Acceptance Procedure

A124 Modules are:

<u>Slot</u> A17	CH00 - CH03	<u>Slot</u> B17	CH16 - CH19
A18	CH04 - CH07	B18	CH20 - CH23
A19	CH08 - CH11	B19	CH24 - CH27
A20	CH12 - CH15	B20	CH28 - CH31

2.0 Insure Flip-Chip module handle extenders and hold down bar in place.

3.0 Logic Testing

The logic testing is accomplished by loading the AD01D diagnostic Maindec-11-D6AB with the binary loader. The G735 test card should be inserted into slots AB21. Set the voltage standard (EDC) for 0.625V.

3.1 Running the diagnostic

3.1.1 Normal (Worst Case) Testing

The starting address is 200 and the program halts 3 times at the start.

- 1st Halt - Load initial channel number (SW0-SW5)
- 2nd Halt - Load number of channels to be tested (SW0 - SW5)
- 3rd Halt - Set SR option (if AH05 is ordered set SR 8-1 at this halt.

The continue switch should be hit after each halt. The program should now run testing all logic, control functions, gain, linearity and analog channels. If the AH05 option is installed the program will ask for the proper input voltage to test the sign. The gain linearity test may fail if external noise is excessive. However, the test should be

SIZE	CODE	NUMBER	REV
A	SP	AD01-D-12	

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Acceptance Procedure

repeated as continued failures indicate non-linearity.

4.0 Channel Noise

This test is used primarily to locate excessively noisy channels. It should be noted here that this test is dependent on many factors, external noise generated at the voltage source, variations in power line voltages and radiated power line noises. Typeouts here do not necessarily indicate failures. When running the was-is test the main thing to watch for is excessively noisy channels. This is indicated by repeated typeouts on the same channel with 3-4 count spreads.

4.1 Running the Was-Is Test

1. Set EDC to "0" on polarity switch.
2. Load and start at SA270; the program will halt 3 times:
 - 1st Halt - Load initial channel in octal (Bits 05-00) and Gain (Bits 07-06)
 - 2nd Halt - Load number of channels (Bits 05-00)
 - 3rd Halt - Set SR option (refer to diagnostic for option settings). For acceptance purposes load SRO at this halt.

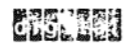
Hit continue after each halt. The test should be run for each gain using the discussion in the previous Section (4.0) as a guide. At the end of each pass (4096 conversions per channel) the teletype bell will ring. Test should run for a minimum of 5 minutes without errors.

4.2 Channel Continuity

With the Was-Is test running at a gain of 1 and the EDC set at 9:9900V. Set SW6=1. A table will print out

SIZE	CODE	NUMBER	REV
A	SP	AD01-D-12	

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE AD01-D Acceptance Procedure

giving the channel number, initial value and new value. of the converted data. With the G735 test card in use each channel will be half of the previous channel value until at the tenth(8) channel, the full voltage will then repeat. For a full scale input as set above the printout for 10(8) channel will look like the following:

<u>Channel</u>	<u>Initial Value</u>	<u>Final Value</u>
CH00	1777	1777
CH01	1000	1000
CH02	0400	0400
CH03	0200	0200
CH04	0100	0100
CH05	0040	0040
CH06	0020	0020
CH07	0000	0000
CH10	1777	1777

If the G735 test card is not available each input should be given a known voltage and the results checked in the display conversion loop SA220.

5.0 Repeatability Test (3 Sigma)

This routine tests repeatability to specifications on the channels desired at gains of 4 and 8. Ten thousand conversions are taken at each gain. The specifications have been interpreted to mean that 35 conversions out of the ten thousand may be outside of 2 states at a gain of 4, and that 35 conversions out of ten thousand may be outside of 3 states at a gain of 8.

SIZE	CODE	NUMBER	REV
A	SP	AD01-D-12	

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE AD01-D Acceptance Procedure

5.1 Running the 3 Sigma Test

The Pass- Fail aspect of this test is based on the specification for repeatability of the converter, and requires that the input to each channel be grounded. This can be accomplished by setting the EDC to ZERO (0) at the polarity switch or by connecting the inputs to analog ground. The SA is 300. At the first halt set the initial channel number to be tested in SW05-SW00. At the second halt set the number of consecutive channels to be tested in SW05-SW00. The test will now run, ringing the bell after each successful pass. Again it should be noted here that this test is dependent on outside factors especially radiated power line noise and variations in power line voltages. This test should be run for a minimum of 5 min, without errors.

6.0 Accuracy

The accuracy specification for the AD01-D is 0.1% of F.S. This specification can be proved by checking switching points and comparing the values obtained against the proper calibration chart. (Unipolar chart for basic unit and Bipolar if AH05 is installed). Each switching point should be within the specified tolerance on each gain.

SIZE	CODE	NUMBER	REV
A	SP	AD01-D-12	

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Acceptance Procedure

6.1 Running the Accuracy Test

This is accomplished by using the display loop section of the diagnostic program. The SA is 220 and the program will immediately run upon starting. Channel and gain can be selected while the program is running. The following are the switch register settings:

Channel (Octal) - SW5-SW0
Gain (Octal) - SW7-SW6

The switching points should be checked at CH00 since the G735 acts as a voltage divider. All the switching points need not be checked for acceptance as production checkout has already been through the calibration sheet. However, six to eight readings on each gain should suffice. It should be noted here that the accuracy of the voltage standard should be considered in making the measurements. For example, if an EDC is used with an accuracy of $\pm 0.01\%$ of F.S. 10V, the EDC reading is good only to ± 1 millivolt. The accuracy test is the final part of the procedure. The G735 card should be removed from slot AB21 and the M908 cards replaced in slot AB22. The hold down bar should now be installed.

7.0 External Sync Test

The wave generator should be connected to the EXT. IN in slot A21. The jumper from Pin A22R2 to A22C2 should be

SIZE	CODE	NUMBER	REV
A	SP	AD01-D-12	

SHEET 7 OF 8

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE AD01-D Acceptance Procedure

removed.

7.1 External Conversion Test

This routine counts external conversions and prints out after every tenth conversion. The SA is 230 and the frequency of the input trigger signal should be set at about 1 cycle (1HZ).

Switch Register Settings

SW5-1. Causes the program not to set external enable thus no printout should occur.

SW6-1. Causes it to run internal conversions during external conversions. The proper error message will occur.

SW7-1. Prevents it from clearing done after each conversion thus an error printout will occur. It should also be noted that if the external trigger frequency is too fast error printouts will occur.

8.0 Documentation and Software

The following items should be complete and included:

1. AD01-D Print Set
2. Maintenance Manual or Engineering Specifications.
3. Key sheets, checkout log, Q.C. status, accessories as stated on accessory check list.
4. AD01-D Maindec-11-D6AB Diagnostic Program and Write-up
5. AD01-D Calibration Procedure
6. AD01-D Calibration Chart
7. ECO Status Sheet

SIZE	CODE	NUMBER	REV
A	SP	AD01-D-12	

SHEET 8 OF 8

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

QUANTITY / VARIATION

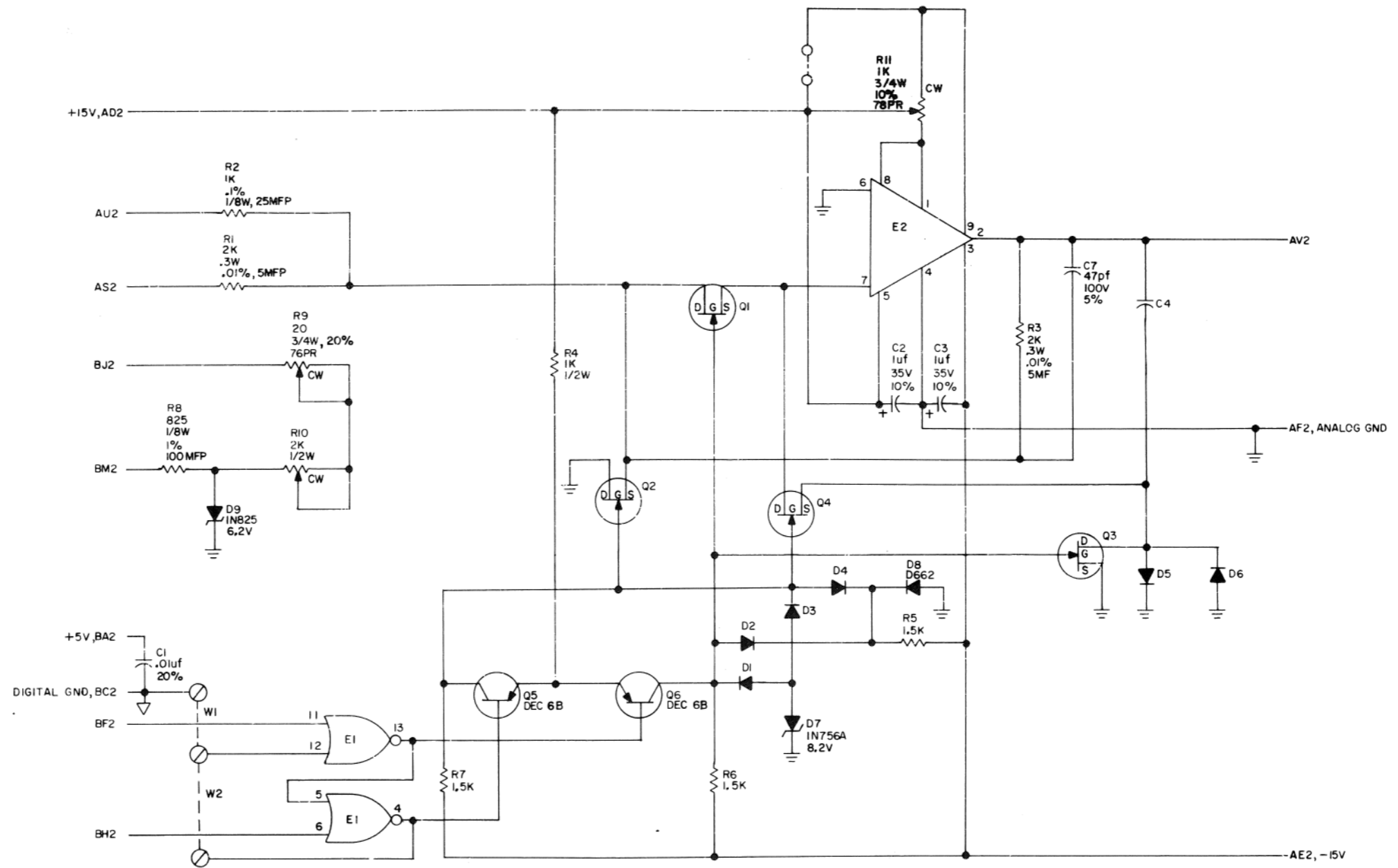
MADE BY P. Severino	CHECKED P. Severino	SECTION
DATE 3/9/71	DATE 3/9/71	
ENG <i>P. Severino</i>	PROD A. Hirsch	ISSUED SECT.
DATE 3-11-71	DATE 3/9/71	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION																
1	A405	Sample & Hold Module	1																

TITLE	ASSY NO.	SIZE CODE	NUMBER	REV	ECO NO
AH04 (Sample and Hold)		A PL	AH04-0-0		
SHEET 1 OF 1		DIST.			

DEC FORM NO.16-1031
DRA 110

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UNLESS OTHERWISE INDICATED:
 TRANSISTORS ARE 2N5245
 CAPACITORS ARE .001UF 100V, 10%
 RESISTORS ARE 1/4W, 5%
 DIODES ARE D664
 E1 IS DEC7402
 PIN 7 = GND ON E1
 PIN 14 = +5V
 ○--○ INDICATES JUMPER
 ○--○ SPLIT LUGS WITH JUMPER
 (CUSTOMER OPTION)
 E2 IS A 1909848-03

DEC 1970
 DRC 108

M5921-A

DRN. Nancy Moore
 DATE 4/21/70
 CHK'D. Rod Roluccio
 DATE 7/27/70
 ENG. M. Sandhu
 DATE 1/11/70
 PROD. DATE

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA
D664	IN3806	IN625	SAME
D662	IN645		
DEC68	NONE		
2N5245	NONE		
IN756A	SAME		

DIGITAL EQUIPMENT CORPORATION
 MAYNARD, MASSACHUSETTS

TITLE SAMPLE AND HOLD
 A405
 SIZE C CODE CS NUMBER A405-0-1 REV. B
 PRINTED CIRCUIT REV. 5

DIST. 324,434,435 3 5 P.N.K.

REV. B
 NUMBER A405-0-1
 SIZE C CS

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

MADE BY R. ROBICHAUD	CHECKED <i>Madolen 2/5/70</i>	SECTION 1
DATE 1/29/70	DATE <i>2/5/70</i>	
ENG <i>M. Lindheuer</i>	PROD <i>W. Miller</i>	ISSUED SECT. 1
DATE <i>2/16/70</i>	DATE <i>2-13-70</i>	

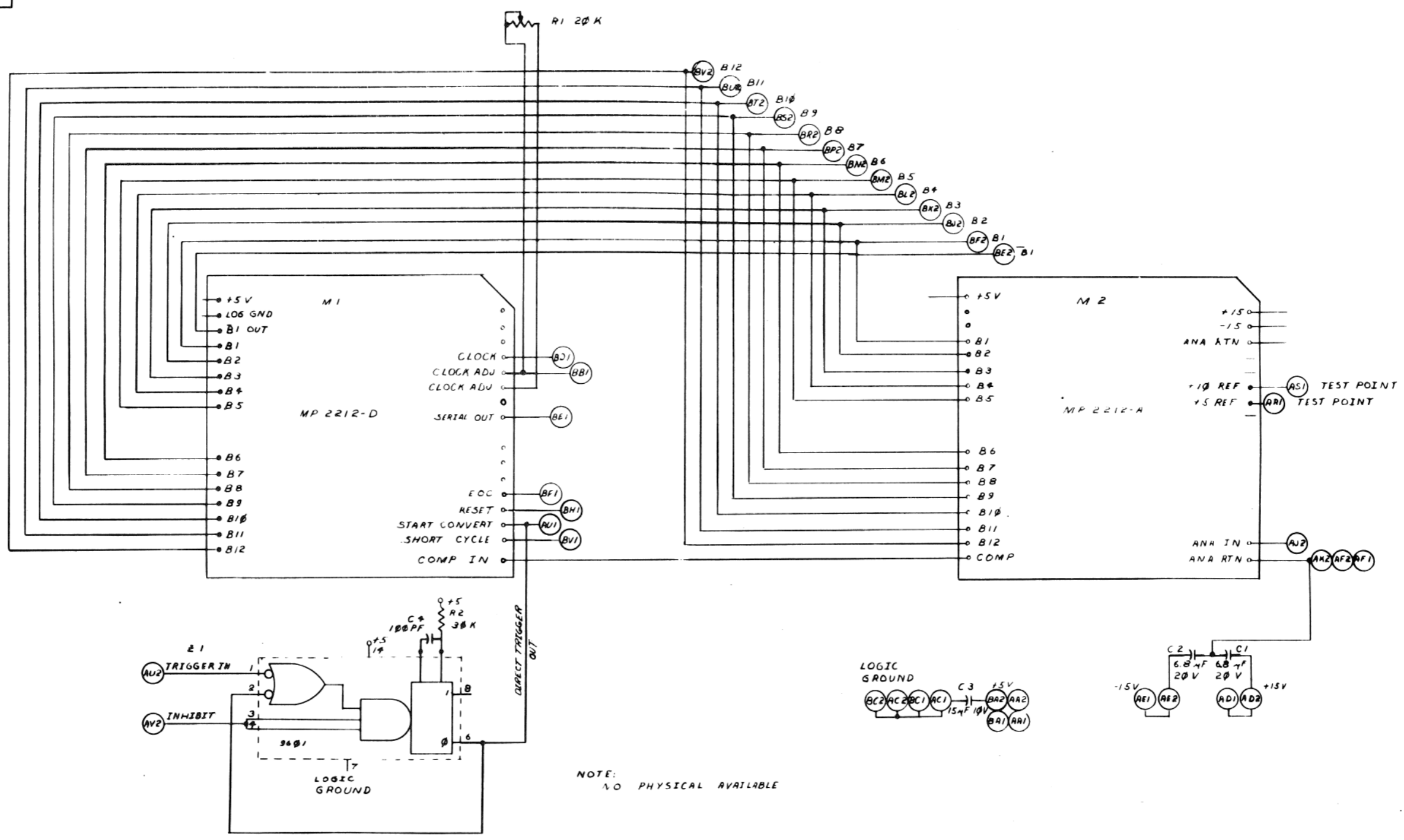
QTY/VAR	
AH05-0	AH05-A

ITEM NO.	DWG NO./PART NO. CL BASIC VAR.	DESCRIPTION	AH05-0	AH05-A	UNIT COST	UNIT QUANTITY	QUANTITY ISSUED
1	M111	INVERTER	1				
2	A315	ABSOLUTE AMP WITH SIGN BIT	1				
3	M121	AND/NOR GATE	2				
1	A862	12 BIT A/D CONVERTER	1	-			
1	A861	12 BIT A/D CONVERTER	-	1			

TITLE ONE BIT EXTENDER FOR Ad01	ASSY NO. //	SIZE	CODE	NUMBER	REV.	ECO NO.
	SHEET 1 OF 1	A	PL	AH05-0-0	C	AD01A 00010
		DIST.	G			



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NOTE:
NO PHYSICAL AVAILABLE

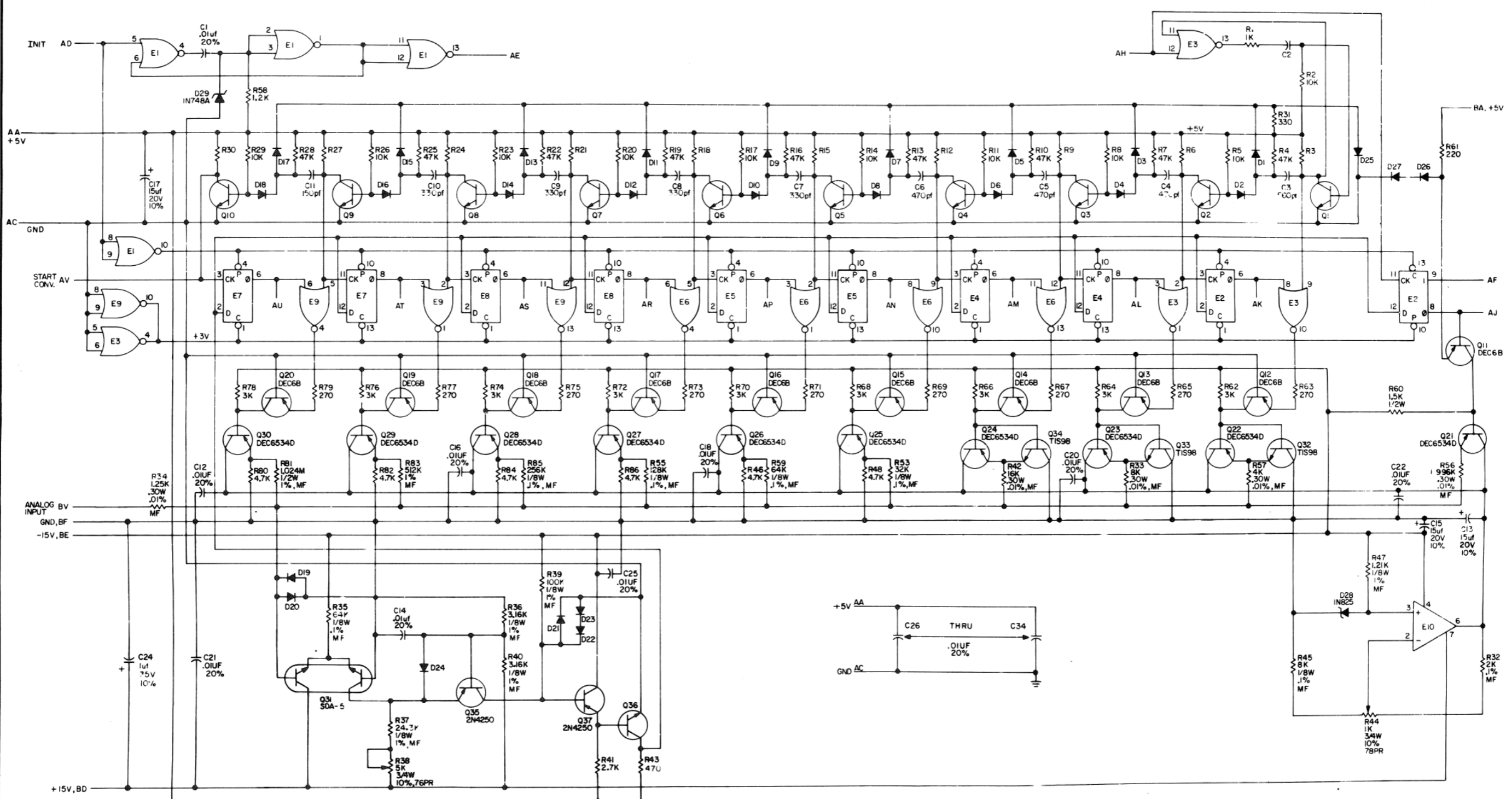
FINISH USED ON OPTION/MODEL
+ +

UNLESS OTHERWISE SPECIFIED
DIMENSIONS IN INCHES
TOLERANCES
DECIMALS FRACTIONS ANGLES
±.005 ±.010 ±.015 ±.020 ±.030 ±.040 ±.050 ±.060 ±.070 ±.080 ±.090 ±.100
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP EDGES

QTY.	DESCRIPTION	PART NO.	REV.
PARTS LIST			
		EQUIPMENT CORPORATION WALTHAM, MASSACHUSETTS	
	TITLE HIGH SPEED A/D CONVERTER (A861 & A862)		
	DCS A862-0-01		
	NEXT HIGHER ASSY		
	SCALE		
	SHEET 1 OF 1		

DCS A862-0-01

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UNLESS OTHERWISE INDICATED:
 RESISTORS ARE 2.2K, 1/4W, 5%
 CAPACITORS ARE 150pf, 100V, 5%
 DIODES ARE D664
 TRANSISTORS ARE DEC3009B
 E2, E4, E5, E7, E8 ARE DEC7474
 E1, E3, E6, E9 ARE DEC7402
 PIN 7 ON EACH IC = GND
 PIN 14 ON EACH IC = +5V
 E10 ARE DEC1439
 --- INDICATES JUMPER (CUSTOMER OPTION)
 ⊗ INDICATES SPLIT LUGS

REV	DATE	BY	CHKD
1	2-25-70	ALLAN RITCEY	
2	2-25-70		
3	12-18-70		
4	DEC 69		

TRANSISTOR & DIODE CONVERSION CHART			
DATE	DEC	EIA	DEC
2-25-70	D664	1N3904	T1E 98
12-18-70	1N825	SAME	SH880
DEC 69	DEC3009B	2N5009B	SDA-5
DEC 69	DEC7402	SN7402	SDA-5
DEC 69	DEC7474	SN7474	SDA-5
DEC 69	DEC1439	SN741439	SDA-5

EQUIPMENT CORPORATION		TITLE	
MAYFORD, MASSACHUSETTS		10 BIT ADC A812	
SIZE D	CODE CS	NUMBER A812-0-1	REV C
PRINTED CIRCUIT REV		D	

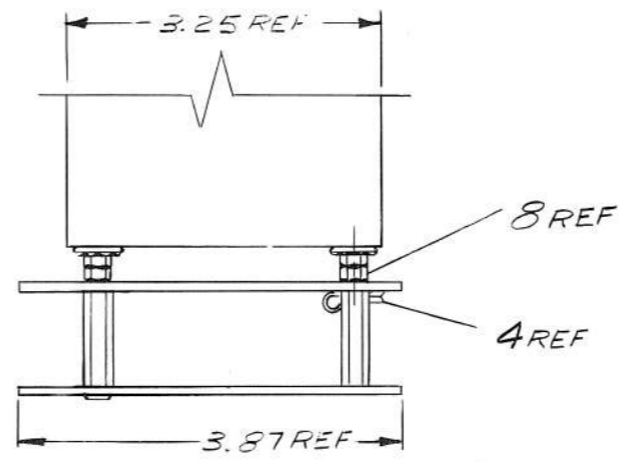
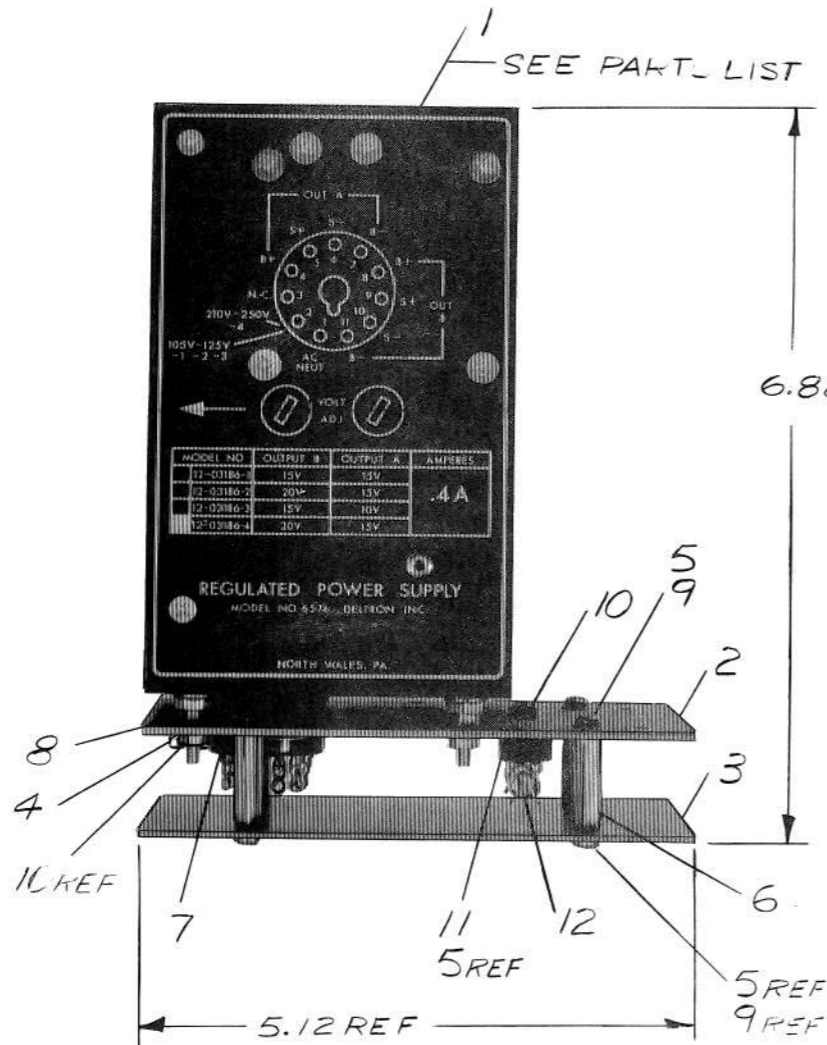
PINK 121

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LEGEND	
PART NO	VARIATION
H727-A	115VAC (ITEM 1)
H127-B	230VAC (ITEM 1)

NOTES:

1. FOR CIRCUIT SCHEMATIC REFER TO DWG D-CS-H727-Ø-1



TOLERANCES
 DECIMALS
 .XXX = ± .005
 .XX = ± .02
 .X = ± .1

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
H127 P/S				
UNLESS OTHERWISE SPECIFIED				
DRN. <i>L. Marini</i> DATE 7/22/70				
CHK'D. <i>F. Russo</i> DATE 8/3/70				
ENG. <i>Paul J. Swann</i> DATE 8/5/70				
PROJ. ENG. <i>Paul J. Swann</i> DATE 8/5/70				
PROD. <i>Alan Thiel</i> DATE 8/6/70				
MATERIAL: ———				
FINISH: ———				
NEXT HIGHER ASSY: ———				
SCALE: NONE				
SHEET 1 OF 1				
PARTS LIST		digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
TITLE: DUAL D.C. POWER SUPPLY				
SIZE CODE	NUMBER	REV.		
C UA	H727-Ø-Ø			

REV. NUMBER
C UA H727-Ø-Ø

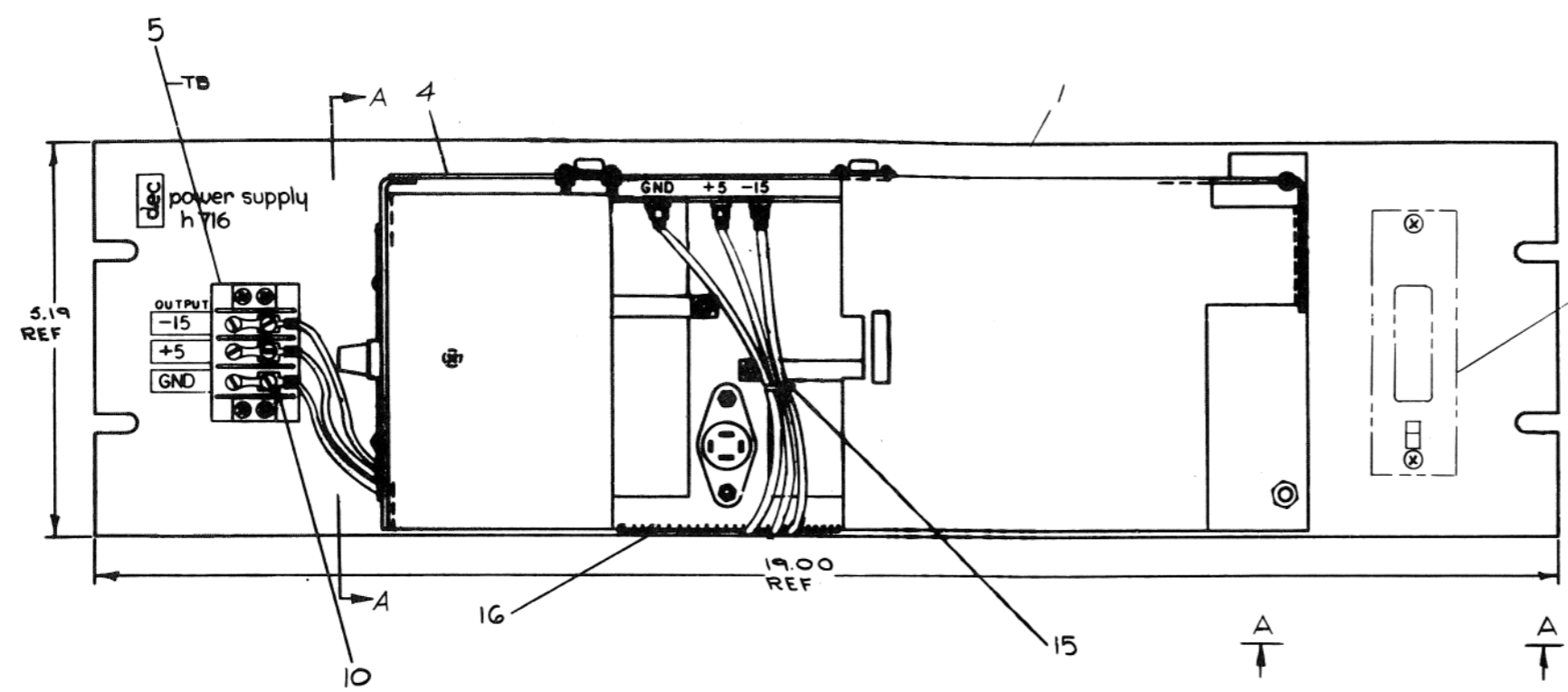
REV.	CHANGE NO.

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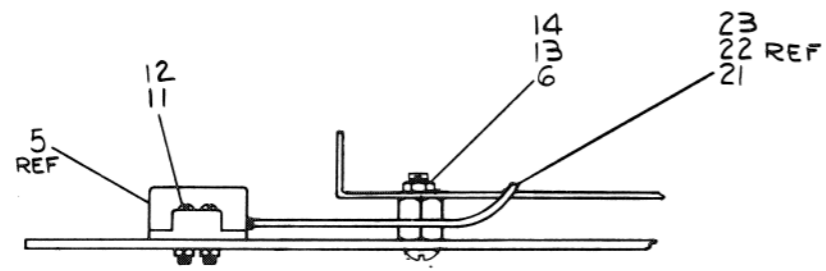
0-0-914HW102

LEGEND	
NUMBER	VARIATION
H716-0	UNLESS PS WITH 110V RECEPTACLE
H716-A	H716 WITH 230V RECEPTACLE
H716-B	H716 WITH 115V RECEPTACLE
H716-C	H716-B WITH OUTPUT RELAY SWITCHED FROM +5V (115V)
H716-D	H716-B WITH 230V RECEPTACLE

NOTES:
1. FOR H716 A OR H716-D (230V) REMOVE EXISTING DECAL AND ADD NEW DECAL (ITEM #25).



SEE VIEW A-A SHEET #2.



FIRST USED ON OPTION/MODEL
AD01

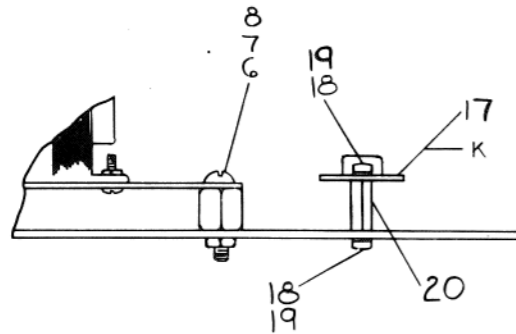
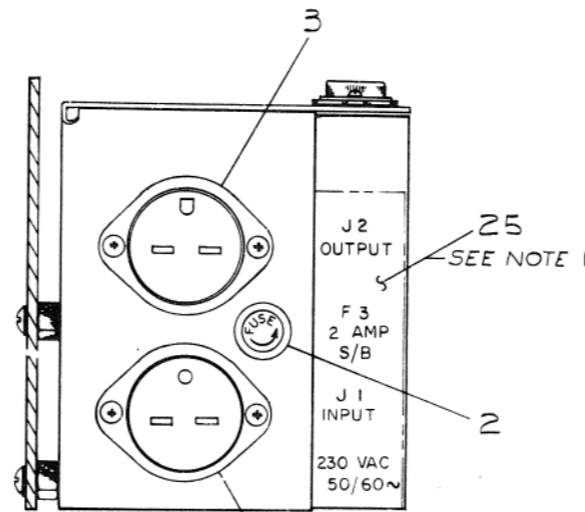
UNLESS OTHERWISE SPECIFIED
ENGINEERED BY BROWN
NO. 100000
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP EDGES

QTY.	DESCRIPTION	PART NO.	REV.
PARTS LIST			
EQUIPMENT CORPORATION MAYFIELD, MASSACHUSETTS			
TITLE POWER SUPPLY H716			
SCALE	NUMBER	REV.	
SHEET OF 2	DJA H716-0-0		
	DIST. 10		

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WIRE TABLE H716-B&D					
ITEM NO.	DESCRIPTION	FROM CONNECTION	WITH	TO CONNECTION	WITH
23	18 BLK	PS-GND	9	TB-GND	10
21	18 RED	PS- +5	9	TB- +5	10
22	18 BLU	PS- -15	9	TB- -15	10

WIRE TABLE H716-C					
ITEM NO.	DESCRIPTION	FROM CONNECTION	WITH	TO CONNECTION	WITH
23	18 BLK	PS-GND	26	TB-GND	10
21	18 RED	PS- +5	26	TB- +5	10
21	18 RED	PS- +5	9	K- +5	SOLDER
22	18 BLU	PS- -15	9	K- -15	SOLDER
22	18 BLU	K- -15	9	TB- -15	10



VIEW A-A
FOR H716-C

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DRN. <i>[Signature]</i> DATE 9/1/71		
DECIMALS	ANGLES	CHK'D. <i>[Signature]</i> DATE 8/26/71		
XXX - 005	±0° 30'	ENG. <i>[Signature]</i> DATE 7/27/71	TITLE POWER SUPPLY H716	
XX - 02		PROJ. ENG. <i>[Signature]</i> DATE 7/27/71		
X - 1		PROD. <i>[Signature]</i> DATE 8/31/71	SIZE CODE NUMBER REV. DUAH716-0-0	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓		NEXT HIGHER ASSY.	SCALE	SHEET 2 OF 2
MATERIAL			DIST.	
FINISH				

PART NO. DUAH716-0-0
 REV. 1