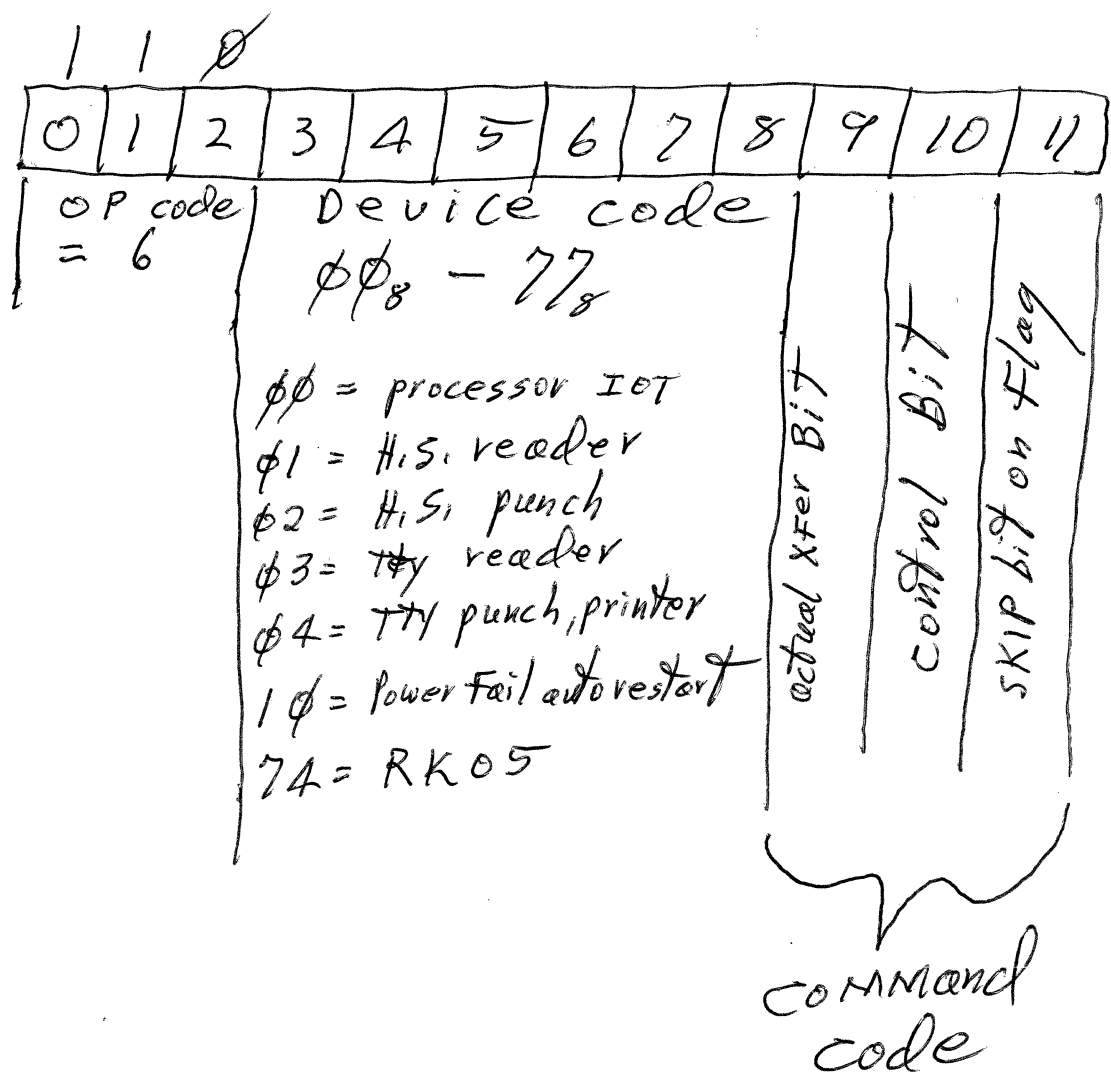
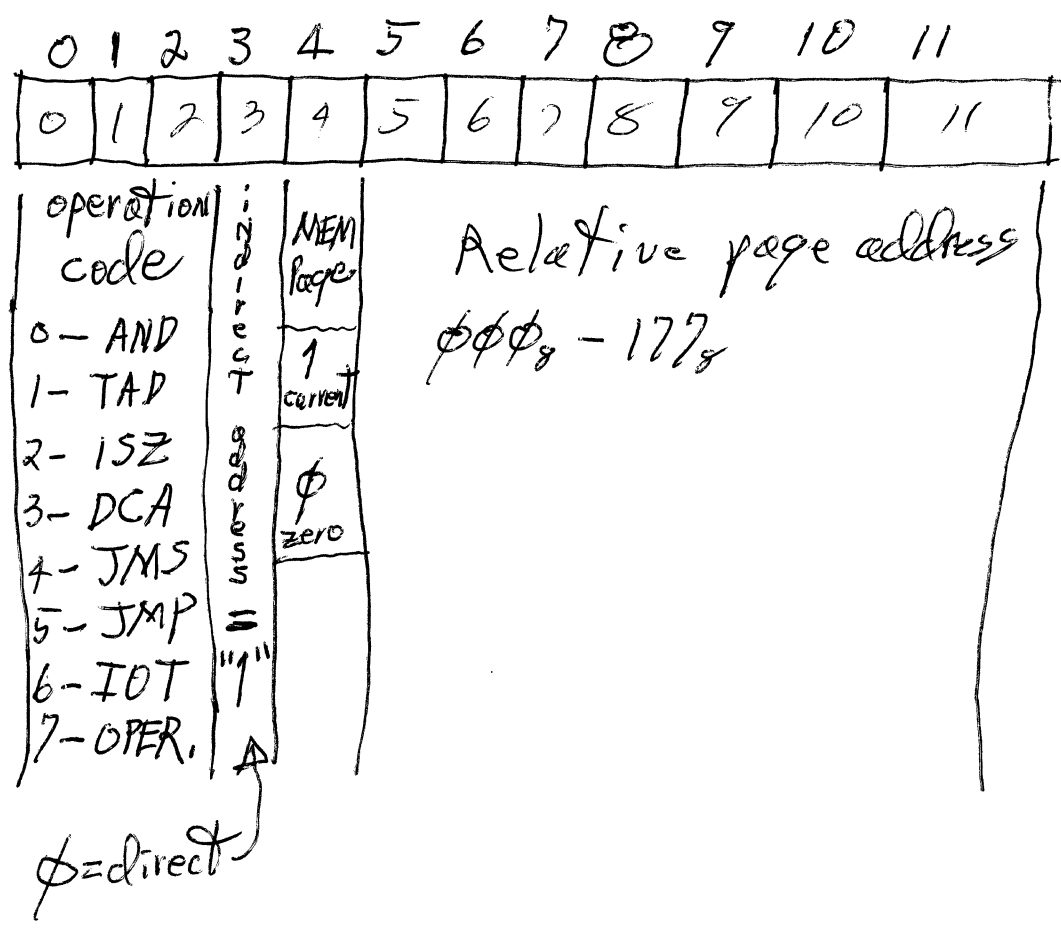


**PDP-8/E computer
engineering drawings**

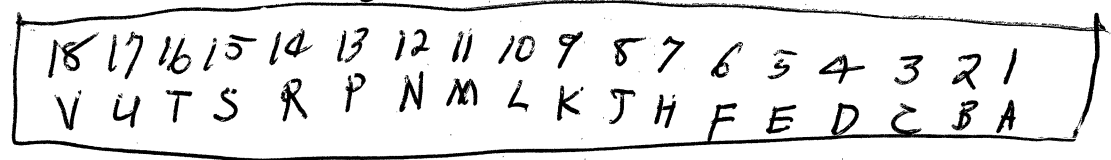
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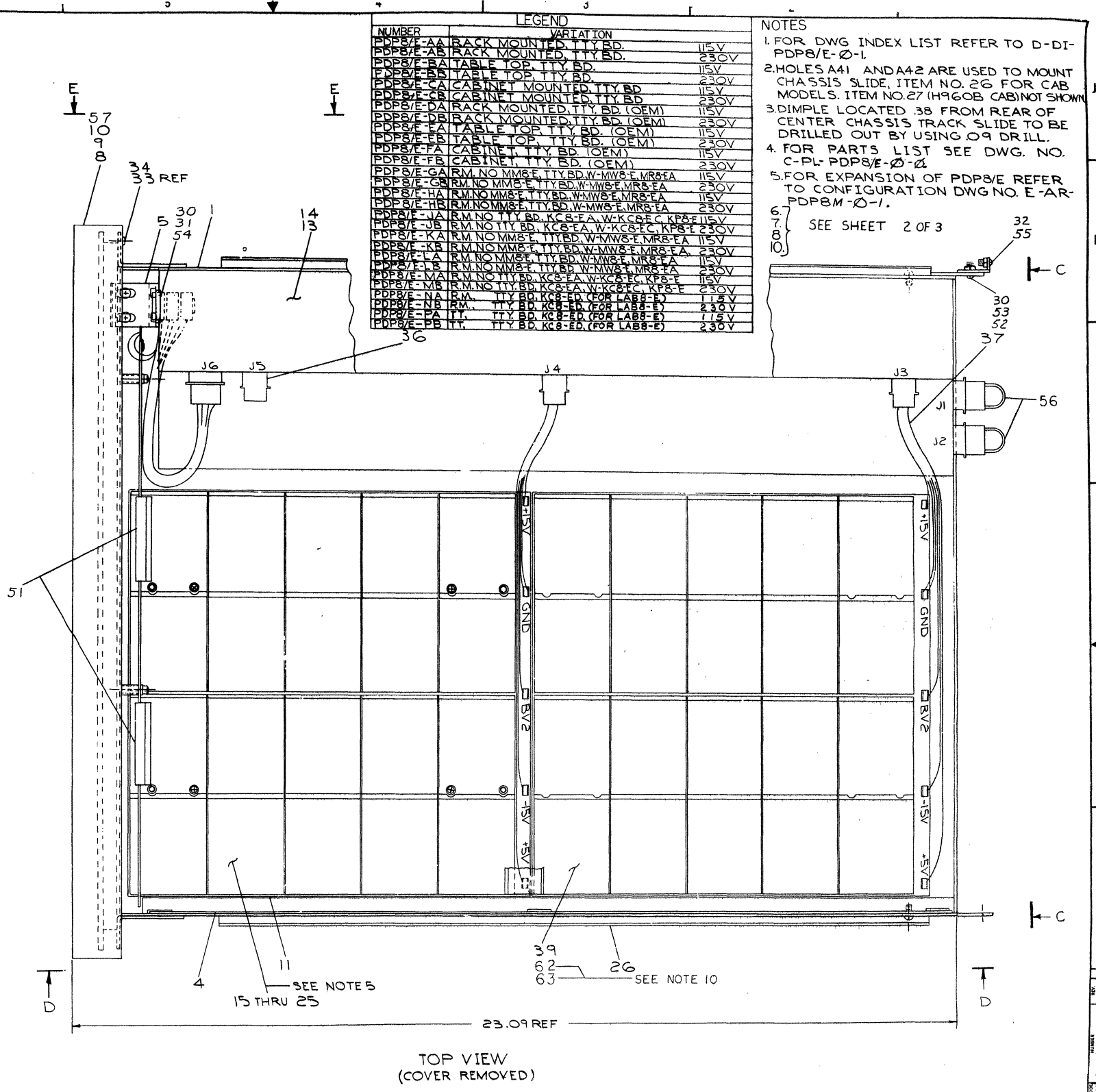
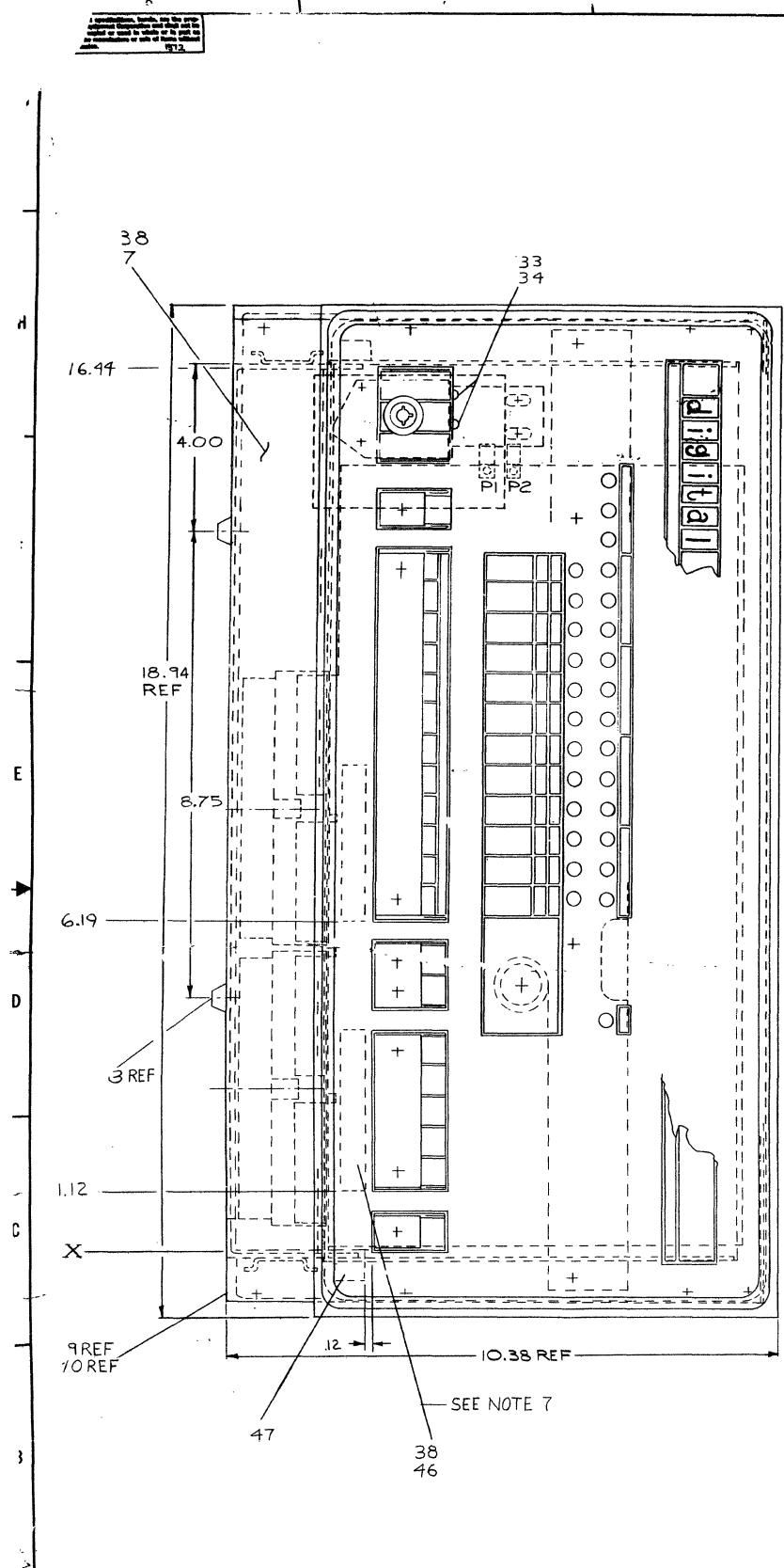


Omnibus Pins



PRINT SET					DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.		
PDP8/E-Ø											
X					E-UA-PDP8/E-0-0	F	3	PDP8/E ASSEMBLY			
X					C-PL-PDP8/E-0-0	F	2	PDP8/E ASSEMBLY			
X					D-DI-PDP8/E-0-1	L	2	PDP8/E DRAWING INDEX			
X					E-AR-PDP8/E-0-1	#	1	OPTION ARRANGEMENT			
X					A-SP-PDP8/E-0-4	D	2	RECOMMENDED OMNIBUS MODULE ASSIGN			
X					D-TD-PDP8/E-0-5	B	2	TIMING DIAGRAM			
X					E-FD-PDP8/E-0-6	A	1	FLOW DIAGRAM			
X					D-IC-PDP8/E-0-10	A	1	POWER WIRING			
X					A-SP-PDP8/E-0-11		5	OPTION POWER REQUIREMENTS			
X					A-ML-KC8-E	#	2	CONSOLE (PDP8/E)	KC8-E		
X					E-CS-5409057-0-1	#	1	CONTROL BOARD	KC8-E		
X					E-IA-5409057-0-0	#	1	CONTROL BOARD FRONT PANEL	KC8-E		
X					B-DD-MM8-E	#	3	MEMORY MM8-E	MM8-E		
X					E-CS-G227-0-1	#	2	XY DRIVER	MM8-E		
X					E-CS-G619-0-1	#	2	STACK BOARD	MM8-E		
X					E-CS-G104-0-1	#	2	SENCE/INHIBIT	MM8-E		
X					E-BD-MM8-E-1	#	1	BLOCK DIAGRAM	MM8-E		
X					A-ML-KK8-E	#	2	CENTRAL PROCESS KK8-E	KK8-E		
X					E-CS-M8300-0-1	#	5	MAJOR REGISTER	KK8-E		
X					E-CS-M8310-0-1	#	4	MAJOR REGISTER CONTROL	KK8-E		
X					E-CS-M8320-0-1	#	2	BUS LOADS	KK8-E		
X					E-CS-M8330-0-1	#	2	TIMING GENERATOR	KK8-E		
X					B-CS-M849-0-1	#	1	RFI SHIELD	KK8-E		
X					A-ML-KL8-E	#	2	ASYNC. DATA CONTROL	KL8-E		
X					E-CS-M8650-0-1	#	3	ASYNC. DATA CONTROL	KL8-E		
X					D-IA-7008360-0-0	#	1	CABLE ASSEMBLY	KL8-E		
X					E-CS-M8650-YA-1	#	2	ASYNC. DATA CONTROL	KL8-E		
X					D-IA-BC01V-25-0	#	1	CABLE ASSEMBLY	KL8-E		
TITLE					PDP8/E		SHEET 2 OF 3		SIZE CODE A ML	NUMBER PDP8/E-Ø	REV. AD

PRINT SET					DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.		
X					A-SP-KL8-E-1	#	16	ENGINEERING SPECIFICATION	KL8-E		
X					A-SL-PDP8/E-0-3	C	1	SOFTWARE LIST (PDP8/E)			
X					A-PL-SP8-EA-0	#	1	RECOMMENDED 1ST LEVEL SPARES			
X					A-PL-SP8-EB-0	#	5	RECOMMENDED 2ND LEVEL SPARES			
X					A-AL-LT33-0-12	#	1	TELETYPE ASR-33 ACCESSORY LIST	LT33		
X					D-MD-7605994-0-0	#	2	FLIP CHIP PANEL DATA (CUSTOMER)			
X					E-UA-H724-0-0	#	3	POWER SUPPLY			
X					A-PL-H724-0-0	#	6	POWER SUPPLY			
X					D-CS-H724-0-1	#	1	CIRCUIT SCHEMATIC (115V)			
X					D-CS-H724-A-1	#	1	CIRCUIT SCHEMATIC (230V)			
X					D-DI-H724-0-2	#	1	DRAWING INDEX			
X					E-IA-5409262-0-0	#	1	CONTROL BOARD A2			
X					E-IA-5409264-0-0	#	1	CONTROL BOARD A1			
TITLE					PDP8/E		SHEET 3 OF 3		SIZE CODE A ML	NUMBER PDP8/E-0	REV. AD



NUMBER	VARIATION	
PDP8/E-AA	RACK MOUNTED TTY BD.	115V
PDP8/E-AB	RACK MOUNTED TTY BD.	230V
PDP8/E-BA	TABLE TOP TTY BD.	115V
PDP8/E-BB	TABLE TOP TTY BD.	230V
PDP8/E-CA	CABINET MOUNTED TTY BD.	115V
PDP8/E-DA	RACK MOUNTED TTY BD (OEM)	115V
PDP8/E-EA	TABLE TOP TTY BD. (OEM)	230V
PDP8/E-FA	TABLE TOP TTY BD. (OEM)	115V
PDP8/E-GA	R.M. NO MMSE TTY BD. W/MWSE MR8-FA	230V
PDP8/E-HA	R.M. NO MMSE TTY BD. W/MWSE MR8-FA	115V
PDP8/E-IA	R.M. NO MMSE TTY BD. W/MWSE MR8-FA	230V
PDP8/E-JA	R.M. NO MMSE TTY BD. W/MWSE MR8-FA	115V
PDP8/E-KA	R.M. NO MMSE TTY BD. W/MWSE MR8-FA	230V
PDP8/E-LA	R.M. NO MMSE TTY BD. W/MWSE MR8-FA	115V
PDP8/E-MA	R.M. NO MMSE TTY BD. W/MWSE MR8-FA	230V
PDP8/E-NA	R.M. NO MMSE TTY BD. W/MWSE MR8-FA	115V
PDP8/E-OA	R.M. NO MMSE TTY BD. W/MWSE MR8-FA	230V
PDP8/E-PA	TTY BD. KC8-ED (FOR LABS-E)	115V
PDP8/E-QA	TTY BD. KC8-ED (FOR LABS-E)	230V
PDP8/E-RA	TTY BD. KC8-ED (FOR LABS-E)	230V

NOTES

- FOR DWG INDEX LIST REFER TO D-DI-PDP8/E-0-1
- HOLES A41 AND A42 ARE USED TO MOUNT CHASSIS SLIDE, ITEM NO. 26 FOR CAB MODELS. ITEM NO. 27 (H960B CAB) NOT SHOWN
- DIMPLE LOCATED 38 FROM REAR OF CENTER CHASSIS TRACK SLIDE TO BE DRILLED OUT BY USING .09 DRILL.
- FOR PARTS LIST SEE DWG. NO. C-PL-PDP8/E-0-2
- FOR EXPANSION OF PDP8/E REFER TO CONFIGURATION DWG NO. E-AR-PDP8M-0-1.
- SEE SHEET 2 OF 3

TOP VIEW
(COVER REMOVED)

REV.	DESCRIPTION	DATE
1	REVISED	11/27/72
2	REVISED	12/12/72
3	REVISED	1/16/73
4	REVISED	2/13/73
5	REVISED	3/13/73
6	REVISED	4/10/73
7	REVISED	5/8/73
8	REVISED	6/5/73
9	REVISED	7/3/73
10	REVISED	8/1/73
11	REVISED	8/29/73
12	REVISED	9/26/73
13	REVISED	10/24/73
14	REVISED	11/21/73
15	REVISED	12/19/73
16	REVISED	1/16/74
17	REVISED	2/13/74
18	REVISED	3/13/74
19	REVISED	4/10/74
20	REVISED	5/8/74
21	REVISED	6/5/74
22	REVISED	7/3/74
23	REVISED	8/1/74
24	REVISED	8/29/74
25	REVISED	9/26/74
26	REVISED	10/24/74
27	REVISED	11/21/74
28	REVISED	12/19/74
29	REVISED	1/16/75
30	REVISED	2/13/75
31	REVISED	3/13/75
32	REVISED	4/10/75
33	REVISED	5/8/75
34	REVISED	6/5/75
35	REVISED	7/3/75
36	REVISED	8/1/75
37	REVISED	8/29/75
38	REVISED	9/26/75
39	REVISED	10/24/75
40	REVISED	11/21/75
41	REVISED	12/19/75
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100	REVISED	7/3/80

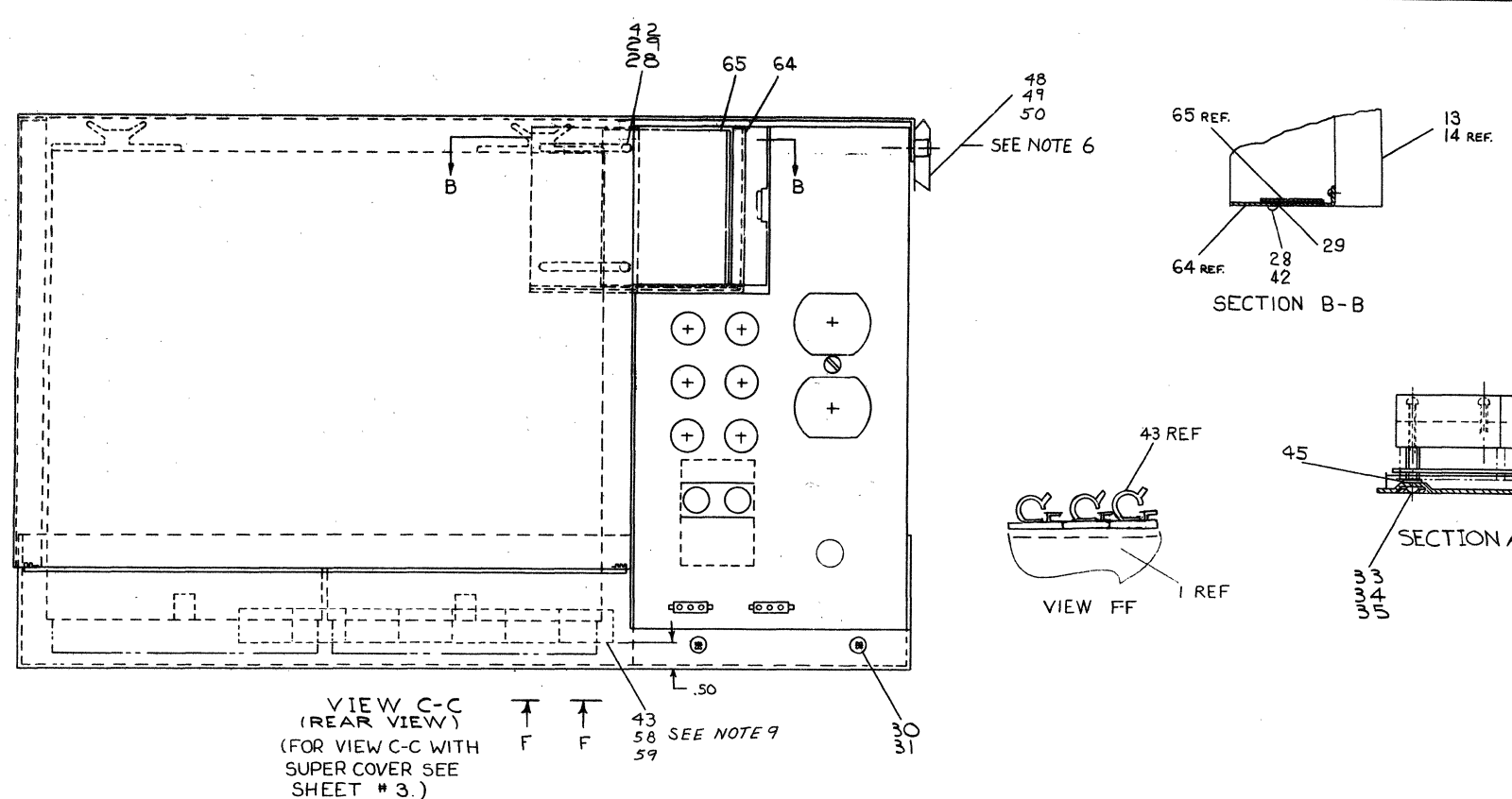
TOLERANCES

DECIMALS
XXX = ±.005
XX = ±.02
X = ±1

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
PDP8/E		UNIT ASSY (PDP8/E)		

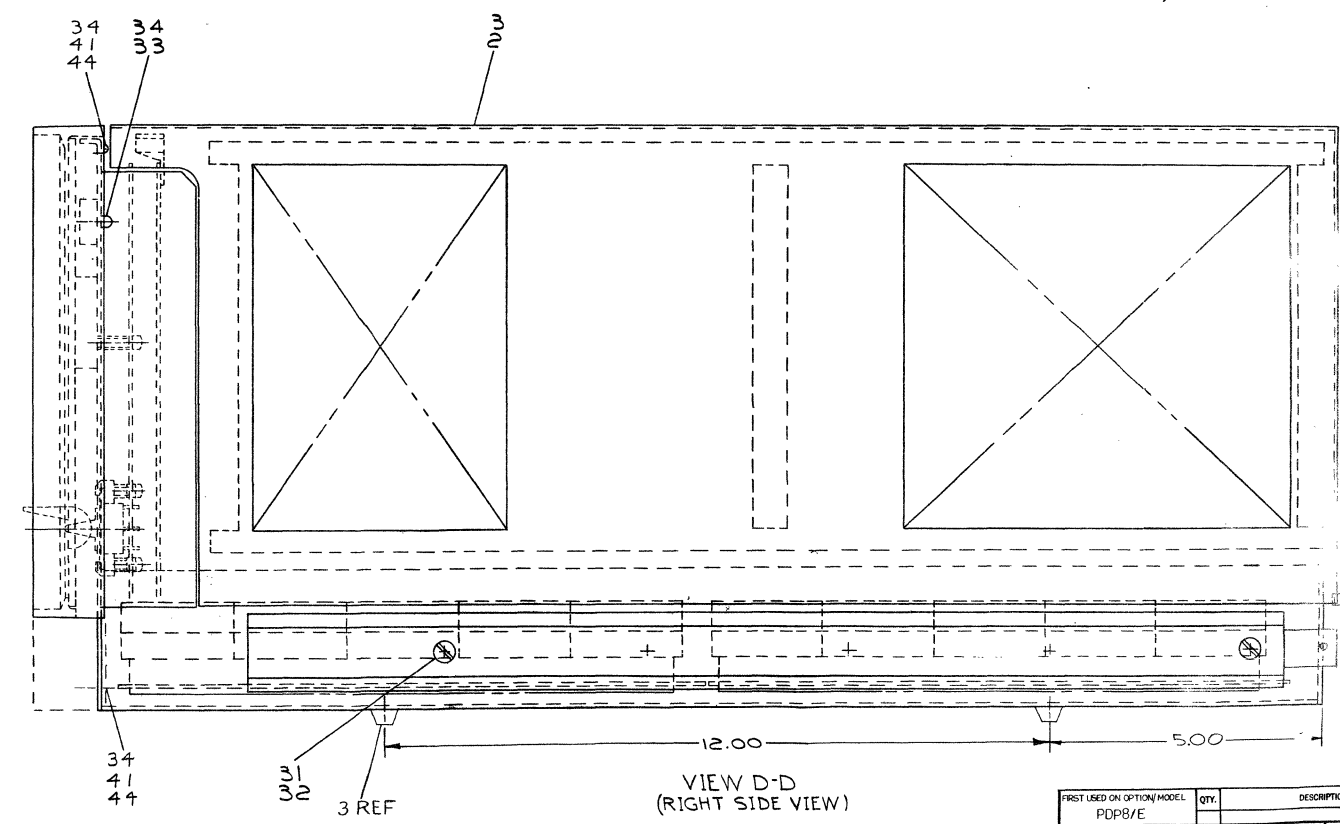
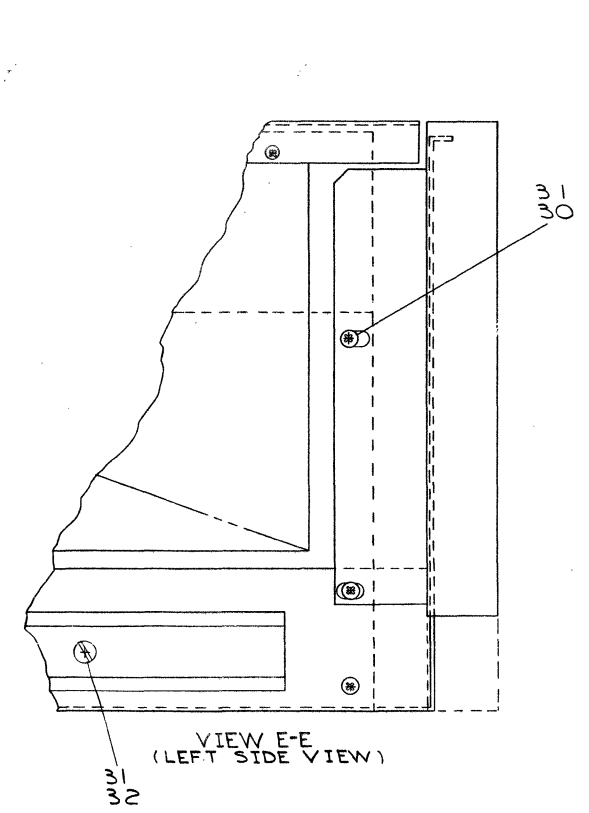
UNLESS OTHERWISE SPECIFIED:
DIMENSIONS IN INCHES
TOLERANCES:
FRACTIONS DECIMALS ANGLES
XXX = ±.005 XX = ±.02 X = ±1
FINISH: SURFACE QUALITY READY TO BE BLENDED AND BREAK SHARP CORNERS

DATE: 11/27/72
DRAWN: [Signature]
CHECKED: [Signature]
DATE: 12/12/72
TITLE: UNIT ASSY (PDP8/E)
SCALE: NONE
SHEET: 1 OF 3
DIST: G



MAIN WIRING & HARNESSES			
PART NO.	COLOR	HARNESS TO SYSTEM	REMARKS
7006114	W	PT-11	H/24 P/S-13
7006112	P/EL	PT-11	C-1, B, BE
7006113	BLU	PT-12	C-1, B, BE
7006113	W	PT-12	H/24 P/S-14
	ORN	PT-7	OMNIBUS+15V
	BLK	PT-8	OMNIBUS GND
	BLK	PT-9	OMNIBUS GND
	GRY	PT-10	OMNIBUS RV2
	GRY	PT-10	OMNIBUS+15V
7006113	RED	PT-12	OMNIBUS+15V
	W	PT-12	H/24 P/S-13
	ORN	PT-7	OMNIBUS+15V
	BLK	PT-8	OMNIBUS GND
	BLK	PT-9	OMNIBUS GND
	GRY	PT-10	OMNIBUS RV2
	GRY	PT-10	OMNIBUS+15V
7006113	RED	PT-12	OMNIBUS+15V

- NOTES (CONT.)
- USE ITEMS 48, 49, 50 ONLY WITH E-IA-7408233-0-0, REV. B.
 - USE ITEMS 46, ONLY WITH E-IA-7408233-0-0 BLANK REV. OR REV. A.
 - ITEMS 52, 53 FOR SHIPPING PURPOSES ONLY. REMOVE AT INSTALLATION.
 - USE ITEMS 58, 59 IN SYSTEMS WITH 8 OR MORE ROUND CABLES (4 CABLES PER WRAP)
 - ITEM 62 OR 63 TO BE INSTALLED IN TABLE TOP SYSTEMS WITH VC8-E, ADB-EA, OR ADB-ES OPTIONS. FOR INSTALLATION DETAIL REFER TO DWG. D-UA-H9450-0. OPTIONALLY ITEM 62 OR 63 MAY BE INSTALLED IN THE H945 FOR BOTH TABLE TOP AND RACK MOUNTABLE SYSTEMS.
 - SEE SHEET 3 OF 3



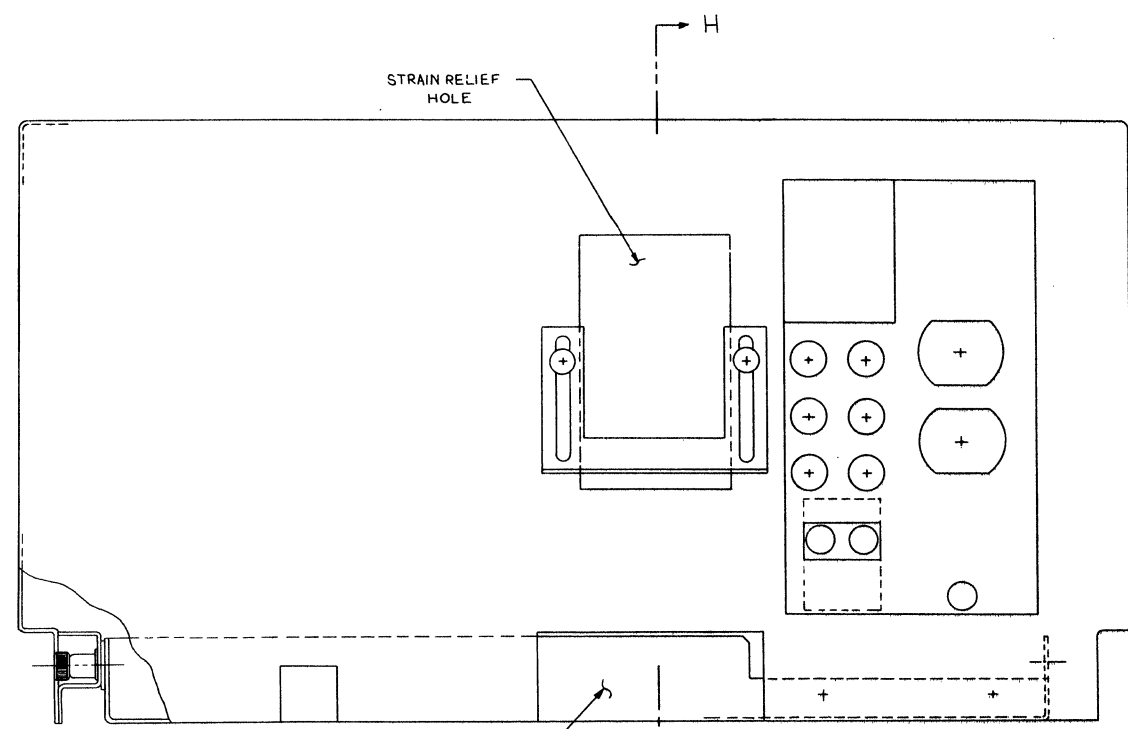
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP8/E				
UNLESS OTHERWISE SPECIFIED				
TOLERANCES				
DIMENSION IN INCHES				
FINISH				
SCALE				
SHEET				

digital EQUIPMENT CORPORATION

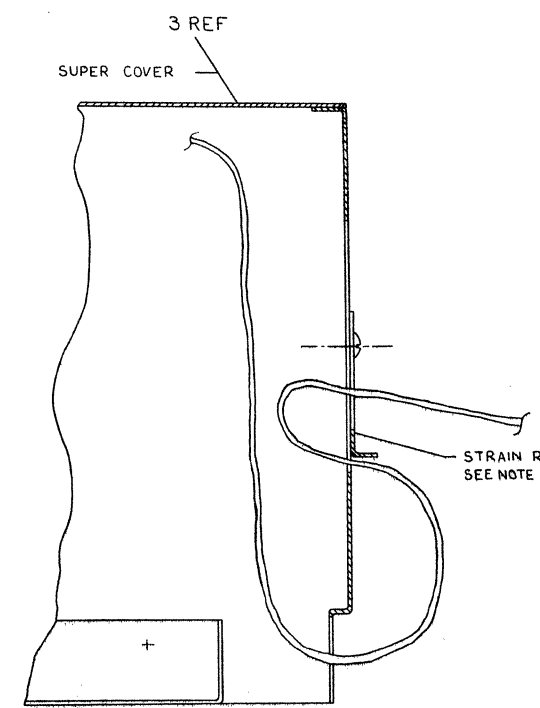
UNIT ASSY.
(PDP8/E)

SCALE NONE
SHEET 2 OF 3

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CORP. 2



VIEW C-C
(REAR VIEW WITH SUPER COVER)



SECTION H-H

- NOTES (CONT.)
11. CABLES SHOULD COME DOWN AND OUT THE BACK OF THE COMPUTER, THRU THE CABLE HOLE (SEE VIEW CC SHT #3) THEN LOOP UP AND BACK IN, UNDER THE STRAIN RELIEF, THEN OUT AGAIN THRU THE TOP OF THE STRAIN RELIEF HOLE
 12. WHEN REMOVING THE SUPER COVER (ITEM #3) FIRST REMOVE THE STRAIN RELIEF WHEN REPLACING THE SUPER COVER REFER TO NOTE # 11.

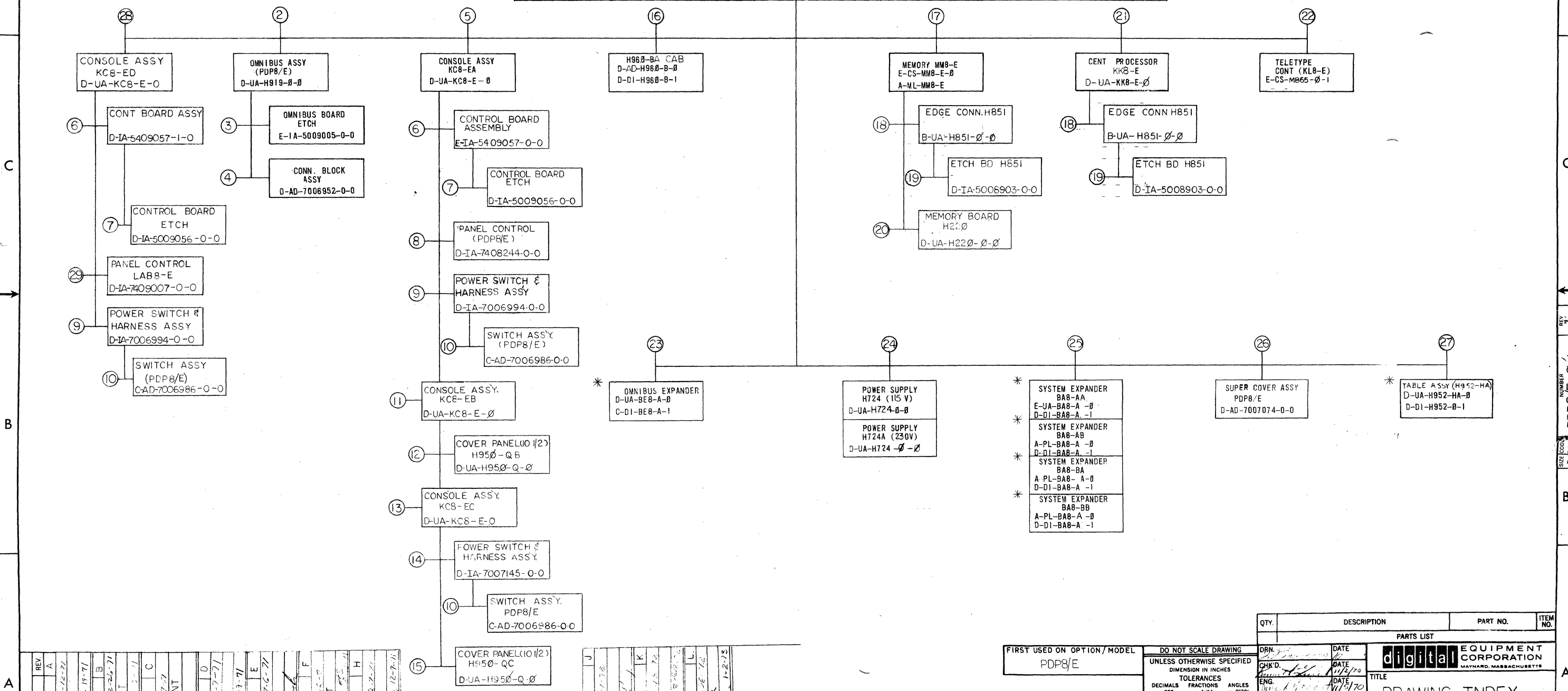
REV.	CHANGE NO.	EXTENSION	FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
			PDP 8/E				
			UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES		DRN. J. FERGUSON DATE 8-12-70		
			TOLERANCES		CHKD. V. DAMBRAUSKAS DATE 9-29-70		
			DECIMALS ANGLES		ENG. I. PROVIDENT DATE 10-30-70		
			MAX. .006 .07 30		PROV. ENG. R. YOGEL SANG DATE 10-30-70		
			REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY Y		PROD. L. SAYLOR DATE 1-2-70		
			MATERIAL		NEXT HIGHER ASSY.	SIZE/CODE	NUMBER
						EUA	PDP 8/E-0-0
			FINISH		SCALE NONE		
					SHEET 3 OF 3		

PDP 8/E-0-0

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NOTES:
 1.* (ASTERISK) INDICATES OPTIONAL EQUIPMENT.
 2. FOR TEST EQUIPMENT REFER TO DRAWING E-AR-9305293-0-0

PDP8/E-AA ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-A3 ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-BA ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-BB ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-CA ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-CB ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-NA ASSEMBLY E-UA-PDP8/E-0-0
PDP8/E-DA ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-DB ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-EA ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-EB ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-FA ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-FB ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-NB ASSEMBLY E-UA-PDP8/E-0-0
PDP8/E-GA ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-GB ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-HA ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-HB ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-JA ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-JB ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-PA ASSEMBLY E-UA-PDP8/E-0-0
PDP8/E-KA ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-KB ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-LA ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-LB ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-MA ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-MB ASSEMBLY E-UA-PDP8/E-0-0	PDP8/E-PB ASSEMBLY E-UA-PDP8/E-0-0



REV.	CHANGE NO.	DATE	BY	CHK'D.	DATE
1	RE-00012	2-12-71	LAWRENCE		
2	BE-00014	2-19-71			
3	BE-00014	2-26-71			
4	PROVIDENT	3-3-71			
5	BE-00020	3-3-71			
6	PROVIDENT	3-3-71			
7	BE-00025	6-7-71	LAWRENCE		
8	H724-00012	6-7-71			
9	DI-MACK	7-6-71			
10	BE-00026	12-9-71			
11	MARSENAULT				
12	BE-00052				
13	R. VOGELSANG				
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					

REV.	CHANGE NO.	DATE	BY	CHK'D.	DATE
1	BE-00050	2-1-72	ARSENAULT		
2	BE-00057				
3	GARDNER				
4	BE-00053	1-2-72			
5	P. GARDNER				

FIRST USED ON OPTION / MODEL PDP8/E	DO NOT SCALE DRAWING 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 +	FINISH +

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			
DRAWING INDEX LIST (PDP8/E)			
NEXT HIGHER ASSY A ML PDP8/E-0		SIZE CODE DDI PDP8/E-0-1	NUMBER L
SCALE		SHEET 1 OF 1	

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MECHANICAL					MECHANICAL					MECHANICAL					ELECTRICAL																						
FIND NO.	DESCRIPTION	PART NO.	PROD	CUST	F/C	FIND NO.	DESCRIPTION	PART NO.	PROD	CUST	F/C	FIND NO.	DESCRIPTION	PART NO.	PROD	CUST	F/C	FIND NO.	DESCRIPTION	PART NO.	PROD	CUST	F/C														
D 1	PDP8E-ASSY PDP8E-ASSY (PL) CHASSIS (PDP8-E) COVER (PDP8-E) FILTER, SIDE BRACKET SUPPORT COVER STRIP SLIDE, CHASSIS 22" TRAVEL PACKAGE INSTRUCTION PDP8/E BASIC ASSY CONF. PAD, FOAM BUMPER, FRONT PANEL BUMPER, FRONT PANEL SPACER, LATCH SHIPPING BRACKET CABLE, INTERCONNECTING STRAIN RELIEF BRACKET STRAIN RELIEF RECOMMENDED 1ST LEVEL SPARES RECOMMENDED 2ND LEVEL SPARES TELETYPE ASR-33 ACCESSORY LIST PANEL DATA CUST (REF) LT33 TTY MAIN TOOL KIT LT33-B TTY RECOM SPARE PARTS	E-UA-PDP8E-0-0 C-PL-PDP8E-0-0 E-1A-7408233-0-0 E-1A-7408235-0-0 C-1A-7408250-0-0 C-MD-7408249-0-0 C-MD-7407449-0-0 D-1A-7408861-0-0 A-PI-3700028-0-0 E-AR-PDP8/E-0-2 A-SC-1210302-0-0 A-MD-7408611-1-0 A-MD-7408612-2-0 B-MD-7408629-0-0 C-MD-7408867-0-0 D-1A-7008288-3F-0 C-1A-7410739-0-0 C-1A-7410738-0-0 A-PL-SP8-EA-0 A-PL-SP8-EB-0 A-AL-LT33-0-12 D-MD-7605994-0-0 A-PL-LT33-ST-0 A-PL-LT33-SB-0				9.	POWER SWITCH & HARNESS ASSY	D-1A-7006994-0-0				20.	MEMORY BOARD H220 MEMORY BOARD H220 (PL) COVER PLATE PLANAR STACK BD ETCH BD	D-UA-H220-0-0 A-PL-H220-0-0 C-MD-5509025-0-0 E-CS-6619-0-1 5009037-0-0				1	PDP8E ASSY	A-ML-PDP8E-0																	
						10.	SWITCH ASSEMBLY SWITCH ASSEMBLY (PL)	C-AD-7006996-0-0 A-PL-7006996-0-0				21.	CENT PROCESSOR KK8-E CENT PROCESSOR KK8-E (PL) MAJOR REGISTERS 0 & 1 ETCH BOARD BUS LOADS LOADS M832 ETCH BOARD TIMING GENERATOR ETCH BOARD MAJOR REG. CONT. ETCH BOARD	D-UA-KK8-E-0 A-PL-KK8-E-0 E-CS-M832-0-0 5009250-0-0 E-CS-M832-0-0 5009104-0-0 E-CS-M832-0-1 5009105-0-0 E-CS-M831-0-0 5009278-0-0			2.	BASIC ASSY CONFIG SOFTWARE LIST RECOMMENDED CMNI MOD ASSIGN TIMING DIAGRAM FLOW DIAGRAM CUSTOMER VARIATIONS BASIC MFG TEST PROC FIELD INSTALL & ACCEPT PROC POWER WIRING	E-AR-PDP8E-0-2 A-3L-PDP8E-0-3 A-SP-PDP8E-0-4 D-TO-PDP8E-0-4 E-FD-PDP8E-0-5 A-CV-PDP8E-0-6 A-SF-PDP8E-0-7 A-SP-PDP8E-0-8 D-IC-PDP8E-0-10			3.	OMNIBUS ASSY (PDP8-E) OMNIBUS BOARD. ETCH ASSY & DRILLING HOLE LAYOUT PRINTED CIRCUIT LAYOUT	E-IA-H919-0-0 A-PL-H919-0-0 A-PI-3700039-0-0 E-IA-5009056-0-0 AH-5009056-5 PC-5009056			7.	CONTROL BOARD (ETCH) ASSY & DRILLING HOLE LAYOUT PRINTED CIRCUIT LAYOUT	E-IA-5009056-0-0 AH-5009056-5 PC-5009056			17.	MEMORY MM8-E ASSY	A-ML-MM8-E			
C 2.	OMNIBUS ASSY (PDP8-E) OMNIBUS ASSY (PL) USES FOR SPECIAL COMPRESSOR-CARTON	D-UA-H919-0-0 A-PL-H919-0-0 A-PI-3700039-0-0				11.	CONSOLE ASSY KC8-EB CONSOLE ASSY KC8-EB (PL) JUMPER	D-UA-KC8-E-0 A-PL-KC8-E-0 B-1A-7007146-0-0				22.	TELETYPE CONT. (KL8-E) ETCH BOARD KL8-E	E-CS-M865-0-1 5008891-0-0				21.	CENTRAL PROCESSOR KK8-E	A-ML-KK8-E																	
						13.	CONSOLE ASSY (KC8-EC) CONSOLE ASSY (PL)	D-UA-KC8-E-0 A-PL-KC8-E-0				23.	OMNIBUS EXPANDER OMNIBUS EXPANDER (PL) DRAWING INDEX LIST	D-UA-BE8-A-0 A-PL-BE8-A-0 C-D1-BE8-A-1				22.	TELETYPE CONT (KL8-E)	A-ML-KL8-E																	
						14.	POWER SWITCH & HARNESS ASSY	D-1A-7007145-0-0				24.	POWER SUPPLY H724 POWER SUPPLY H724 (PL) DRAWING INDEX	D-UA-H724-0-0 A-PL-H724-0-0 D-D1-H724-0-2				23.	OMNIBUS EXPANDER	A-ML-BE8-A																	
						15.	COVER PANEL (10-1/2) COVER PANEL (10-1/2) (PL) 10-1/2 SNAP-ON BEZEL INLAY	D-UA-H950-Q-0 A-PL-H950-Q-0 E-SC-1209225-0-0 C-MD-7408855-0-0				25.	SYSTEM EXPANDER B8B SYSTEM EXPANDER B8B (PL) DRAWING INDEX LIST	E-UA-B8B-A-0 A-PL-B8B-A-0 D-D1-B8B-A-1				24.	H724 POWER SUPPLY	A-ML-H724-0																	
						16.	H960-BA CAB H960-SA CAB (PL) DRAWING INDEX LIST	D-UA-H960-B-0 A-PL-H960-B-0 D-D1-H960-B-1				26.	SUPER COVER ASSY SUPER COVER ASSY COVER SUPER SCREEN BEZEL BEZEL (5-1/4) FILTER BEZEL RETAINER FILTER LATCH MOLDING RELIEF STRAIN	D-AD-7007074-0-0 A-PL-7007074-0-0 E-1A-7408343-0-0 D-1A-7407863-0-0 D-SC-1209226-0-0 B-MD-7407866-0-0 C-MD-7407869-0-0 C-SC-1209224-C-0 D-MD-7408419-0-0			25.	SYSTEM EXPANDER B8B-AA	A-ML-B8B-0			24.															
						17.	MEMORY MM8-E MEMORY MM8-E (PL) XY DRIVER ETCH BOARD SENSE INHIBIT G104 ETCH BOARD	D-UA-MM8-E-0 A-PL-MM8-E-0 E-CS-G227-0-1 5008832-0-0 E-CS-G104-0-1 5008847-0-0				27.	TABLE ASSY H952-HA TABLE ASSY H952-HA DRAWING INDEX LIST	E-UA-H952-H-0 A-PL-H952-H-0 D-D1-H952-0-1				26.	CONTROL BOARD (ETCH) ASSY & DRILLING HOLE LAYOUT PRINTED CIRCUIT LAYOUT	D-1A-5009056-0-0 AH-5009056-5 PC-5009056																	
						18.	EDGE CONNECTOR H851 EDGE CONNECTOR H851 (PL) RECEP 36 PIN NETWORK	B-UA-H851-0-0 A-PL-H851-0-0 B-MD-5509071-0-0				28.	CONSOLE ASSY (KC8-ED) CONSOLE ASSY (PL) BEZEL	D-UA-KC8-E-0 A-PL-KC8-E-0 E-SC-1210065-0-0				27.																			
						19.	ETCH BOARD ASSY/DRILLING HOLE LAYOUT PC ETCH PATTEN	D-1A-5008903-0-0 C-AH-5008903-0-5 PC-5008903				29.	PANEL CONTROL (LAB8-E) PANEL CONTROL (LAB8-E) PANEL CONTROL (LAB8-E) PANEL CONTROL (LAB8-E) PANEL CONTROL (LAB8-E)	D-1A-7409007-0-0 C-SS-7409007-0-1 C-SS-7409007-0-2 C-SS-7409007-0-3 C-SS-7409007-0-4				28.																			

CONTROL BOARD (ETCH)
ASSY & DRILLING HOLE LAYOUT
PRINTED CIRCUIT LAYOUT

FIRST USED ON OPTION/MODEL
PDP8/E

DRN. G. FLANDERS	DATE 7-20-70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS TITLE DRAWING INDEX LIST SIZE CODE: A-ML-PDP8/E-0 NUMBER: DDI 1008/E-0-1 SCALE: 1" = 1"	CHK'D. K. GLICK	DATE 11-4-70
ENG. J. PROWSEN	DATE 11-5-70			
PROJ. ENG. R. VICKI/SAIN	DATE 11-5-70			
PROD. S. AYLOR	DATE 11-5-70			
NEXT HIGHER ASSY				

REV. 1

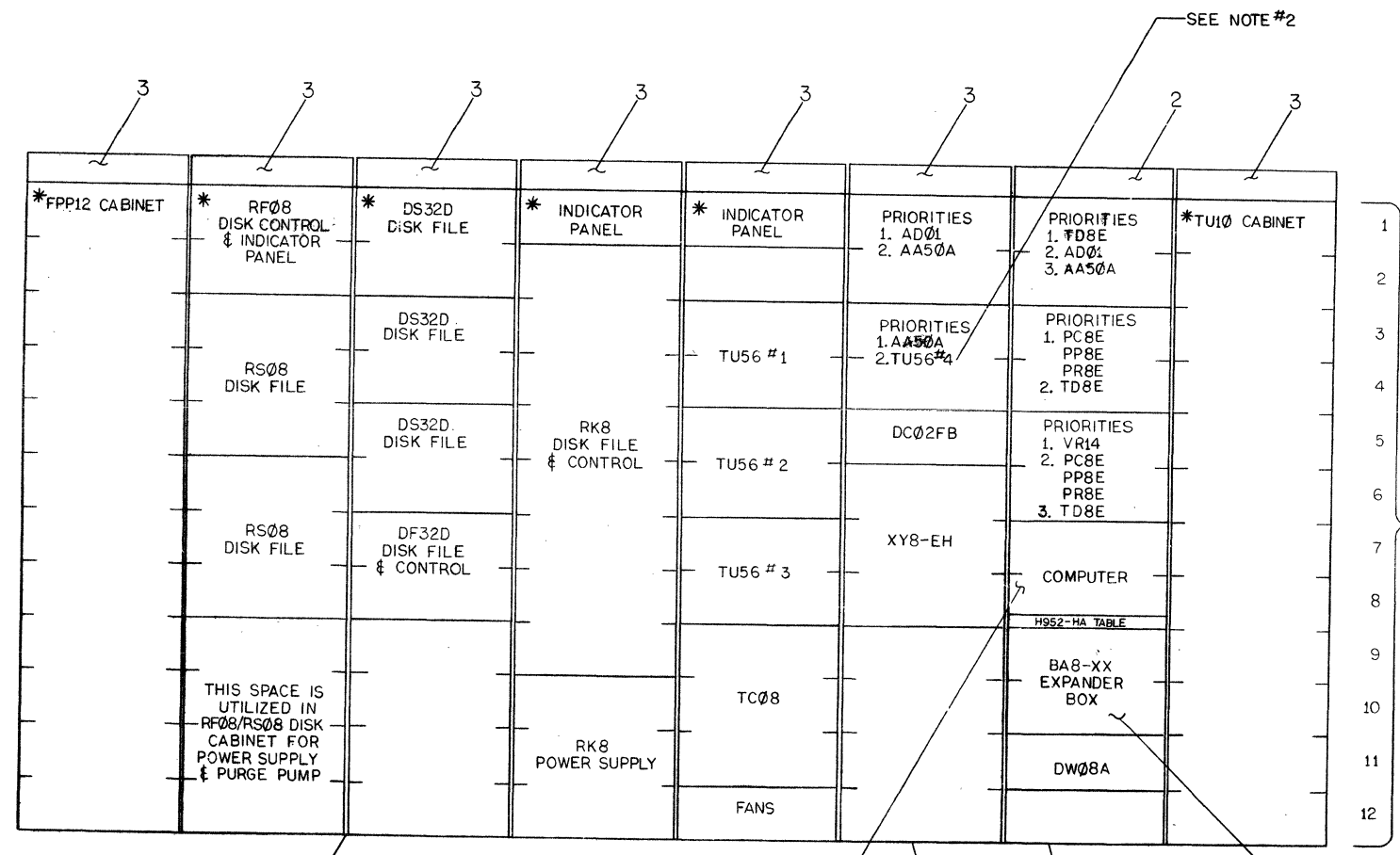
REV. 1

COMPUTER & EXPANDER PLUG-IN OPTIONS					
OPTION	CABLE ASSY.		OPTION	CABLE ASSY.	
	QTY.	ASSY. NO.		QTY.	ASSY. NO.
ADB-EA	1	7008533	KL8-EA	1	BC8IV OR BC85C
AMB-EA	1	7008533	KL8-F	1	7008560
BEB-A	2	M955	KL8-FA THRU FJ	1	BC8IV OR BC85C
CMB-E	1	7007252	KL8-M	1	BC8IV OR BC85C
DMB-F	1	7008738	KMB-E	0	/ / /
CRB-E	1	7007252	KPB-E	1	7007128
CRB-F	1	7008738	LCB-E	1	7008417
DBB-EA	1	BC8BR	LEB-XX	1	7008964
DBB-EB	2	BC8BR (540) 9209	NCB-E	0	/ / /
DKB-EA	1	7007128	MIB-E	0	/ / /
DKB-EF	1	BC8BR	NMB-E	0	/ / /
DPB-EA	1	BC8IV OR BC85C	MPB-E	0	/ / /
DPB-EB	1	BC8IW	MRB-E	0	/ / /
DRB-EA	1	BC8BL	PCB-E	2	BC8BK
DRB-EB	1	BC8BR	PPB-E	1	BC8BK
KAB-E	3	BC8BJ	PRB-E	1	BC8BK
KDB-E	2	BC8BJ	TAB-E	1	BC8BR OR 7008624
KEB-E	0	/ / /	TDB-E	1	7008447
KGB-E	0	/ / /	TMB-E	2	BC8BL
KL8-E	1	7008360	VCB-E	1	7008499

LEGEND			
ITEM #1	ITEM #2	ITEM #3	ITEM #4
PDP 8/E	7407936-06	7407936-08	BC08H-3F
PDP 8/F	7407936-20	7407936-09	BC08H-4F
PDP 8/M	7407936-12	7407936-16	BC08H-4F

- NOTES:**
- IF AN EXPANDER BOX (BA8-XX) IS USED ITEM #4 (BUS EXTENDER CABLE) MUST RUN FROM THE LAST SLOT IN THE COMPUTER (ITEM #1) OMNIBUS TO THE LAST SLOT IN THE BA8-XX OMNIBUS.
 - A MAX OF THREE DEC TAPES (TU56) IS ALLOWED PER CABINET. AN ADDITIONAL CABINET IS REQUIRED FOR A FOURTH DRIVE.
 - SECURE ITEM #1 WITH ITEM #6 (SHIPPING BRACKET) BEFORE SHIPMENT.
 - ITEM #5 (FILLER STRIP SET) IS USED TO JOIN TWO CABINETS, FRONT & REAR.
 - NEXT HIGHER ASSEMBLY:
A - ML - PDPBE-0
B - DD - PDPBF-0
B - DD - PDPBM-0
 - H960 & 961 CABINETS ARE DIVIDED INTO TWELVE 5.25" SECTIONS. WHERE EVER COVER PANELS ARE REQUIRED THEY SHOULD BE PLACED AS FOLLOWS:

SECTION	COVER PANEL
1	H950-P, 5.25"
2	H950-P, 5.25"
3 & 4	H950-Q, 10.5"
5 & 6	H950-Q, 10.5"
7 & 8	H950-Q, 10.5"
9 & 10	H950-Q, 10.5"
11 & 12	H950-Q, 10.5"
 - H960 - BC=115V SYSTEM
H960 - BC=230V SYSTEM
 - H961 - AA=115V SYSTEM
H961 - AB=230V SYSTEM



* INDICATES A DEDICATED SUBSYSTEM CABINET

A/R	DESCRIPTION	SEE NOTE #	QTY.
	OPTION CABINET	SEE NOTE #8	8
1	BASIC CABINET	SEE NOTE #7	7
1	SHIPPING BRACKET	7408867	6
A/R	FILLER STRIP SET	H962-GA	5
2	BUS EXTENDER CABLE	SEE LEGEND	4
A/R	BLANK LOGO	SEE LEGEND	3
1	PANEL LOGO	SEE LEGEND	2
1	COMPUTER	SEE LEGEND	1

REVISIONS

NO.	DATE	DESCRIPTION
1	12-1-71	ISSUED FOR CONSTRUCTION
2	1-15-72	REVISED TO ADD OPTION #4
3	3-10-72	REVISED TO ADD OPTION #5
4	5-1-72	REVISED TO ADD OPTION #6
5	7-15-72	REVISED TO ADD OPTION #7
6	9-1-72	REVISED TO ADD OPTION #8
7	11-1-72	REVISED TO ADD OPTION #9
8	1-1-73	REVISED TO ADD OPTION #10

APPROVALS:
 DESIGNED BY: R. GARDNER
 CHECKED BY: R. GARDNER
 DRAWN BY: J. L. HENNING
 TITLE: OPTION ARRANGEMENT
 PART NO.: PDP8M-0-01
 REV. 8

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**DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS**

ENGINEERING SPECIFICATION

DATE 11/24/70

TITLE RECOMMENDED OMNIBUS MODULE ASSIGNMENTS

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	REORDERED ASSIGNMENTS	KK8E-00001	<i>all</i>	1/15/71	<i>all</i>	1/15/71
B	REORDERED ASSIGNMENTS	8E-00037	TEICHER	7-30-71	SUT	8-3-71
C		8E-00054	R. VOGELSANG	1-6-72	<i>[Signature]</i>	1-11-72
D	ADDED NOTE TO M8330	8E-00062	GARDNER	7-14-72	<i>[Signature]</i>	7-17-72

ENGINEERING SPECIFICATION

CONTINUATION SHEET

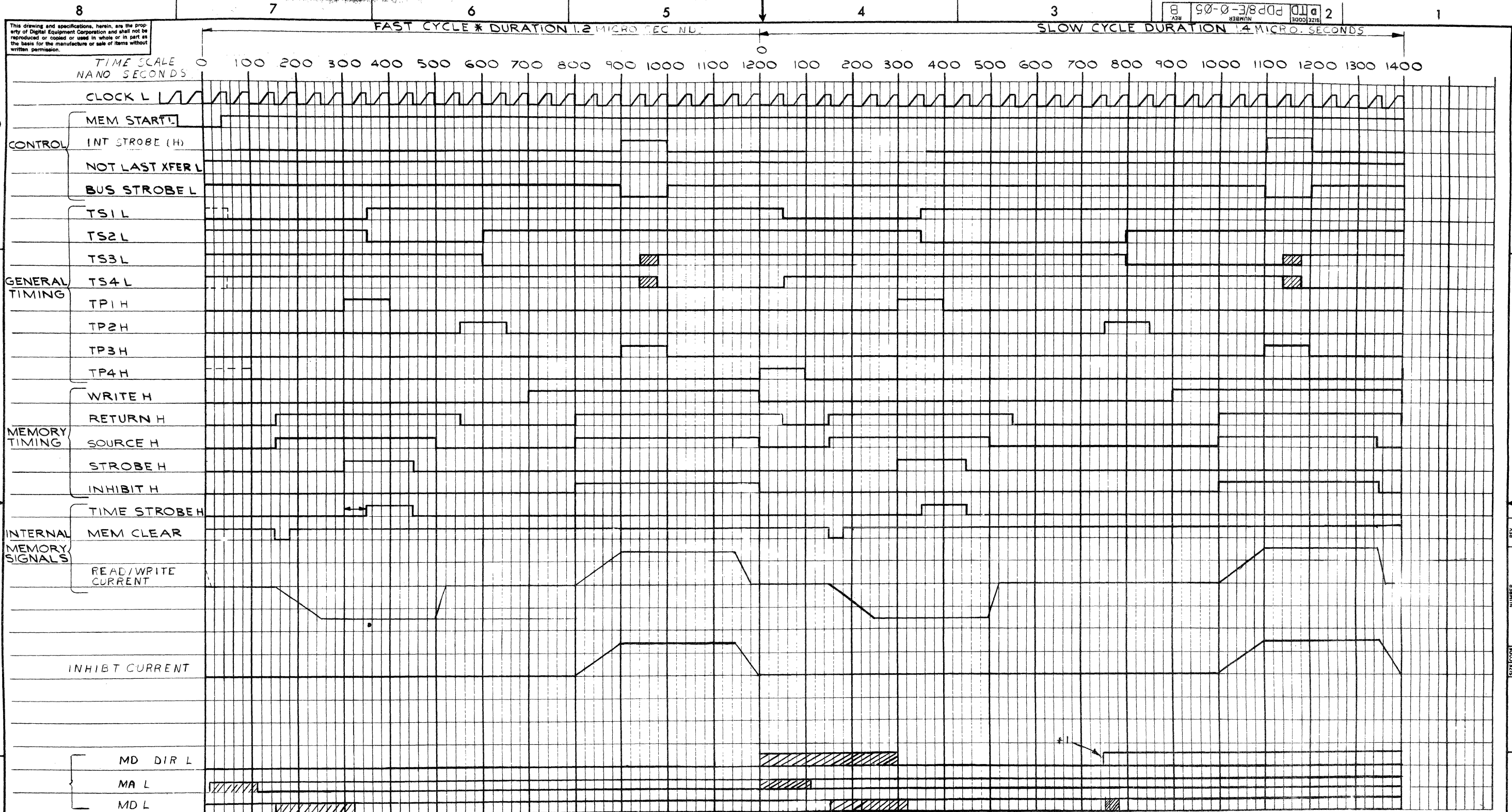
TITLE RECOMMENDED OMNIBUS MODULE ASSIGNMENTS

The following ordering of modules on the OMNIBUS will result in best case timing and permit widest margins:

MODULE	
KC8-EA	Control Panel <i>page 2</i>
M8330	Timing Board (ALWAYS AFTER CONTROL PANEL) - 14
M8340	EAE
M8341	EAE
M8310	C.P. Major Register Control <i>9, 10, 11</i>
M8300	C.P. Major Registers <i>6, 8</i>
M837	Extended Memory & Time Share Control
	.
	.
	Other Non-Memory Options
	.
	.
M8350	External I/O Bus Interface
M849	R.F.I. Shield
G104	Memory Sense/Inhibit (0) <i>5</i>
H220	Memory Stack (0) <i>4K</i>
G227	Memory X/Y Drivers (0) <i>page 3</i>
	.
	.
<i>8K</i>	<i>4K</i>
G111	Memory Sense/Inhibit (n)
G626	Memory Stack (n) <i>4K</i>
G233	Memory X/Y Drivers (n)
	.
	.
	Other Memories
	.
	.
G105	Memory Sense/Inhibit (Parity)
H220	Memory Stack (Parity)
G227	Memory X/Y Drivers (Parity)
M8320	Bus Loads (Always in last slot) - 13
	<i>M8650 - Asynchronous Data control - 15</i>
	<i>Teletype board</i>

ENG	APPD	SIZE	CODE	NUMBER	REV
Dave Chertkow	Dave Chertkow	A	SP	PDP8/E-0-4	D

SIZE	CODE	NUMBER	REV
A	SP	PDP8/E-0-4	D



*THIS PLOT SHOWS AN INITIAL FAST CYCLE
 THE DOTTED LINES INDICATE A REGULAR CYCLE
 *1: MD DIR GOES LOW ONLY IF F+ [D-AUTO INDEX]

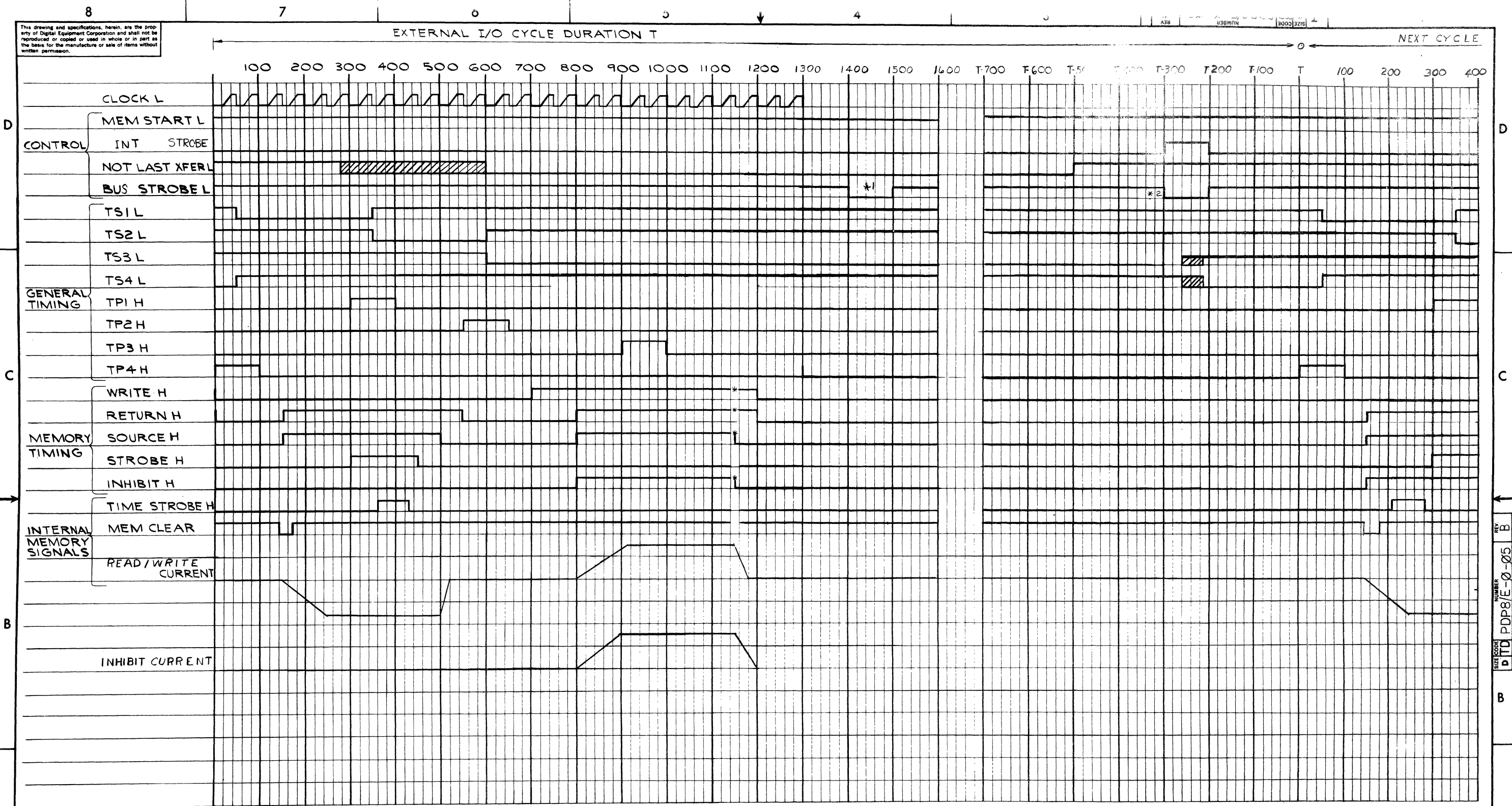
CIRCUIT DELAYS ARE NEGLECTED IN
 THIS TIMING DIAGRAM

REV.	CHANGE NO.	DATE
A	BE-00019	11-10-71
B	BE-00049	11-10-71

NARHI
 L. KLOTZ
 R.E.

FIRST USED ON OPT/MOD PDP8/E	QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'	DRN. <i>P. Ferguson</i> CHK'D. <i>[Signature]</i> ENG. <i>[Signature]</i> PROJ. ENG. <i>[Signature]</i> PROD. <i>[Signature]</i>	DATE 1/29-71 1/14/71 1/14/71 1/12/71 1/13/71	PARTS LIST digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
MATERIAL +-----+	NEXT HIGHER ASSY A-ML-PDP8/E-φ		TITLE TIMING (PDP8/E)	
FINISH +-----+	SCALE NONE	SHEET 1 OF 2	SIZE CODE DITD	NUMBER PDP8/E-φ-05
		REV. B		

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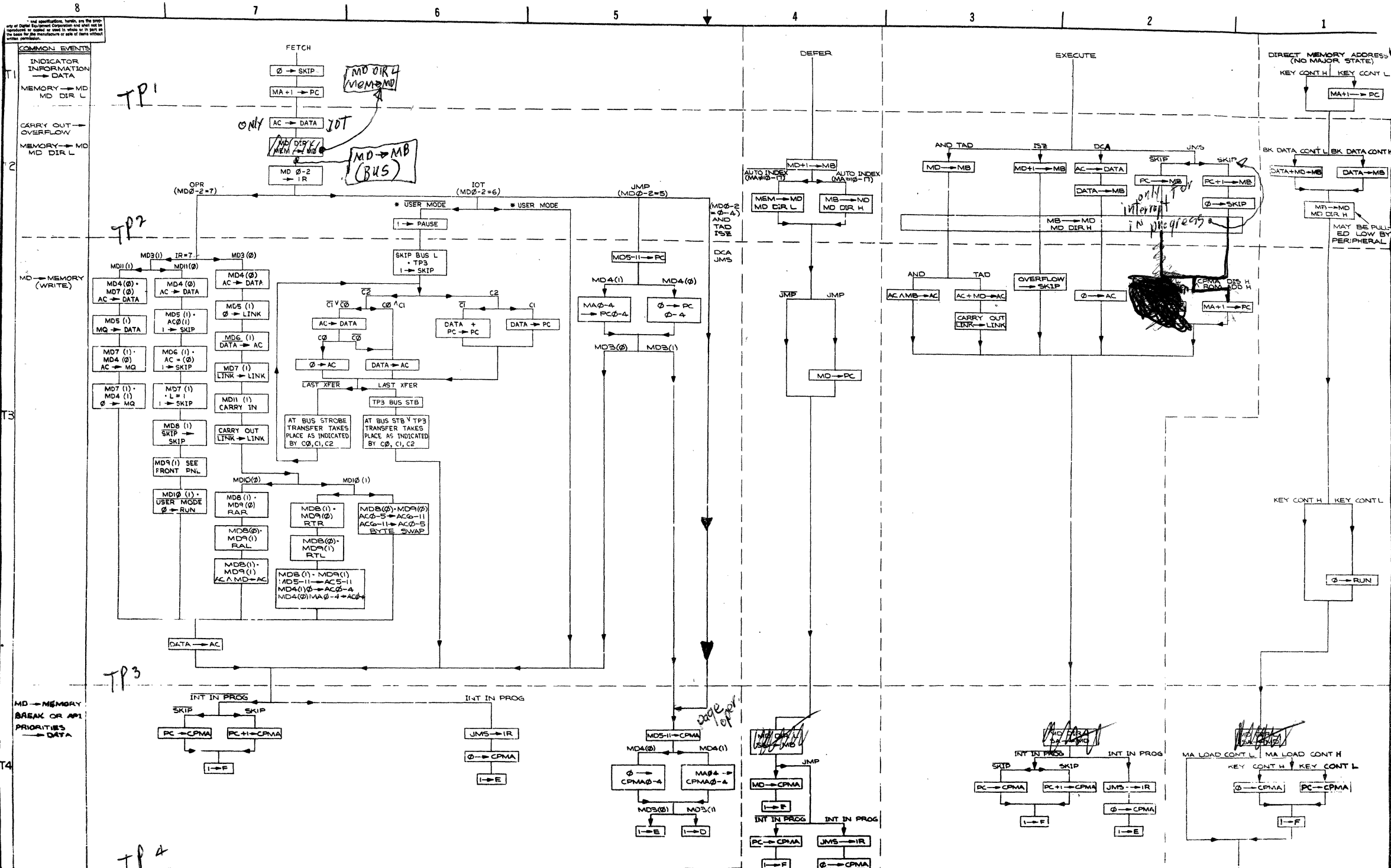
NOTE: * MEMORY SIGNALS TIME OUT, AS IN A FAST CYCLE
 * 1 GENERATED BY PERIPHERAL TO STROBE DATA
 * 2 GENERATED BY PERIPHERAL TO TERMINATE EXT. I/O CYCLE AND RESUME NORMAL OPERATION.

REV.	
CHANGE NO.	
CHK	

FIRST USED ON OPT/MOD PDP8/E	QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED				
DIMENSION IN INCHES		PARTS LIST		
TOLERANCES		digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
DECIMALS ± .005	FRACTIONS ± 1/64	ANGLES ± 0°30'	TITLE	
FINAL SURFACE QUALITY		REMOVE BURRS AND BREAK SHARP CORNERS		
MATERIAL		NEXT HIGHER ASSY		
FINISH		SCALE NONE		
SHEET 2 OF 2		DIST.		
A-ML-PDP8/E-Ø		SIZE CODE DTD PDP8/E-Ø-Ø5		
REV. B		REV. B		

REV. B
 NUMBER PDP8/E-Ø-Ø5
 SIZE CODE DTD

Time state

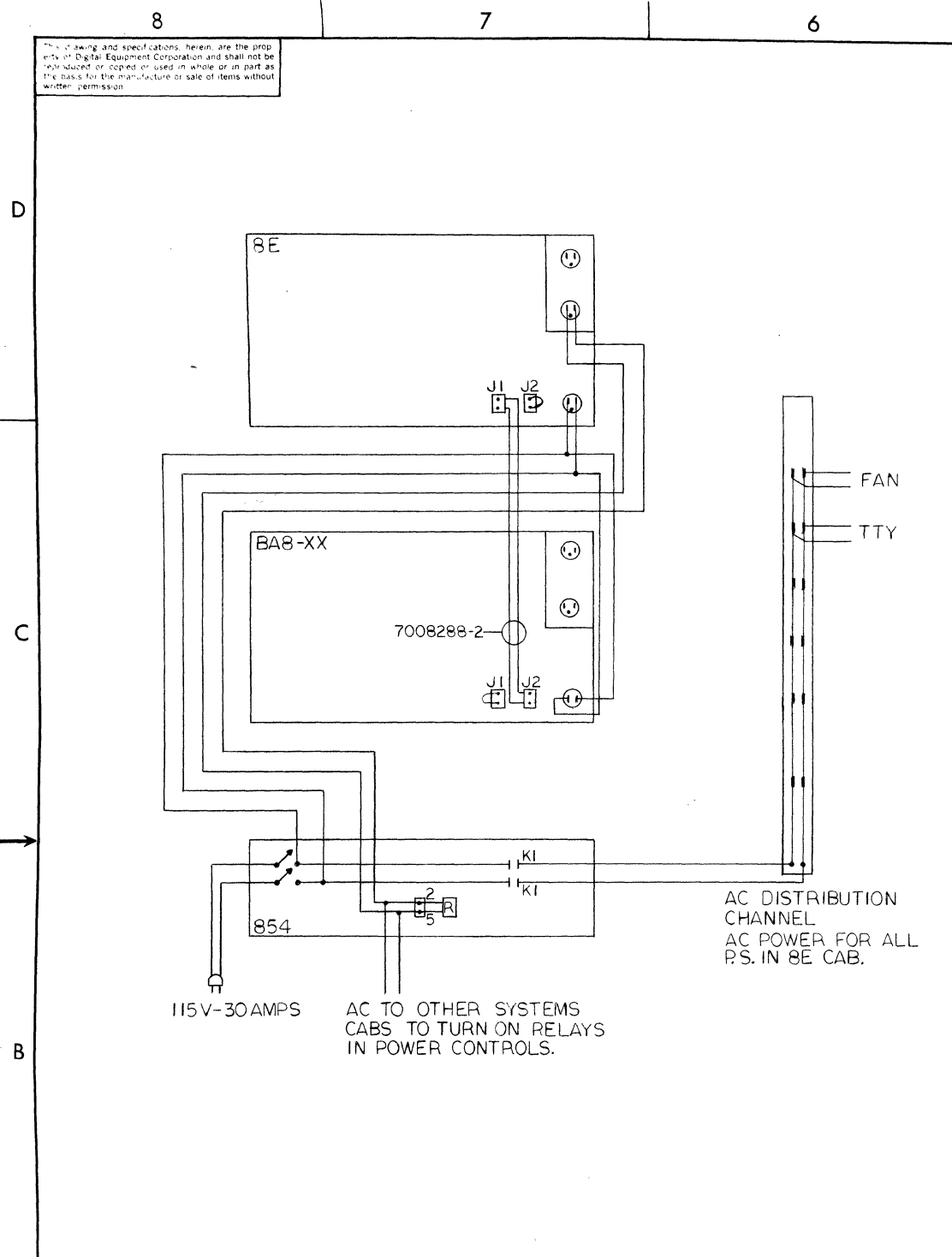


NOTES:
 * USER MODE IS USED BY THE TIME SHARING OPTION ONLY; TO INHIBIT HALT, OPR, LAR, & PAUSE

REV	DESCRIPTION	DATE	BY
1	POPBE		
2	POPBE		
3	POPBE		
4	POPBE		

TITLE: PROCESSOR FLOW CHART
 FILE NO: 8FD POPBE-0-08 A
 SCALE: 1:1
 SHEET: 1 OF 1

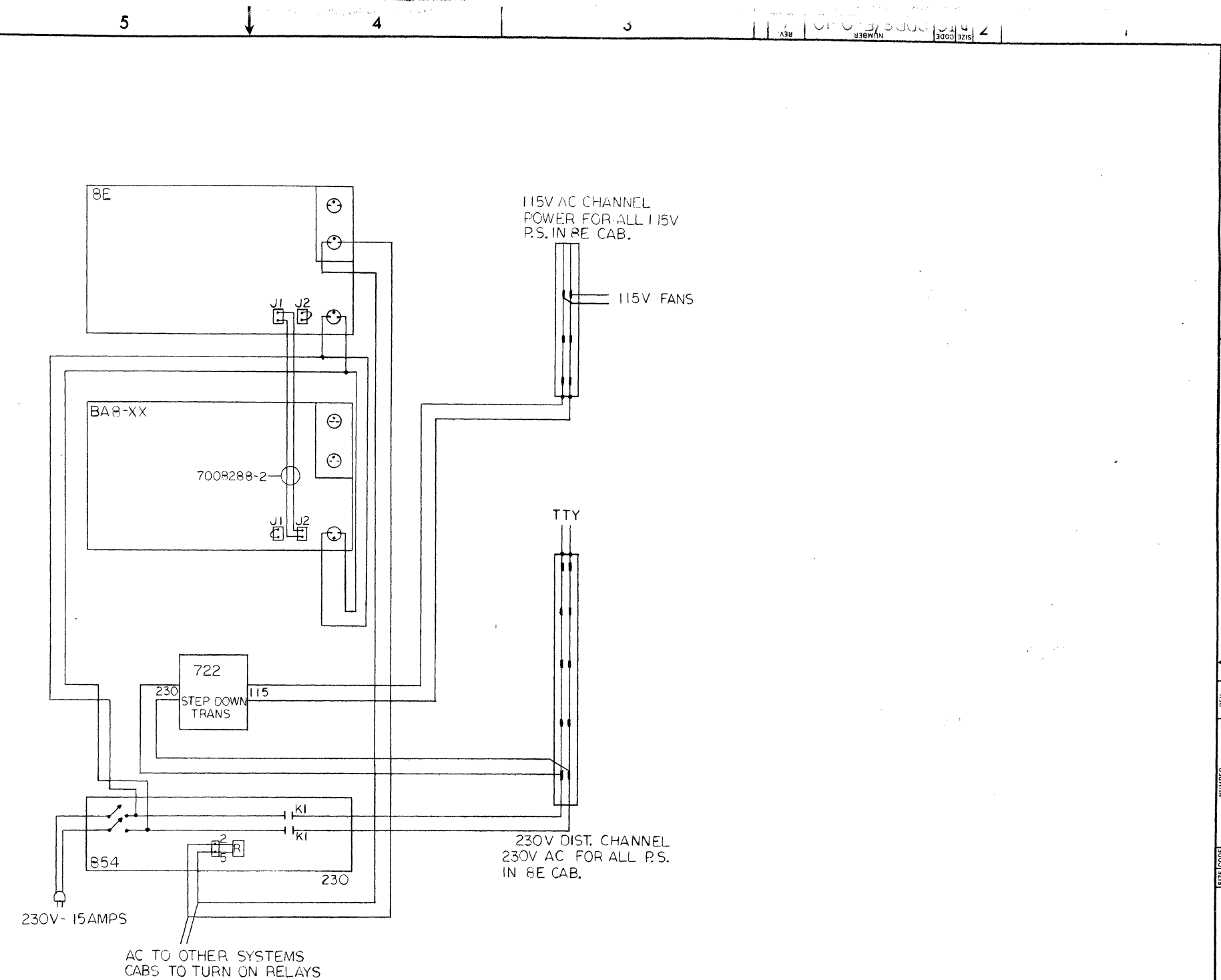
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8E SYSTEM POWER WIRING FOR 115 VOLTS

REVISIONS	CHANGE NO.	REV.
8E-00053	A	
M. ARSENAULT		

DEC FORM NO. DRD 100-A



8E SYSTEM POWER WIRING FOR 230 VOLTS

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP8/E		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. <i>Mark Gagan</i>	DATE <i>12 Jul 71</i>	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	CHKD. <i>John S. Gagan</i>	DATE <i>7/20/71</i>		
ANGLES	ENG. <i>W. Gagan</i>	DATE <i>7/20/71</i>	TITLE POWER WIRING DIAGRAM	
±0° 30'	PROJ. ENG. <i>W. Gagan</i>	DATE <i>7/20/71</i>		
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY	PROD. <i>R. J. Gagan</i>	DATE <i>8/2/71</i>	SIZE CODE NUMBER REV. D I C PDP8/E-0-10 A	
MATERIAL	NEXT HIGHER ASSY.	SCALE NONE	SHEET 1 OF 1	

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DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 1/20/72

TITLE OPTION POWER REQUIREMENTS

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE OPTION POWER REQUIREMENTS

Option & Module Number	Steady State Current +5V	Operating Current +5V	Steady State -15V	Operating Current -15V	+15V	Other
<u>KK8-E</u>						
M8300	1.5A	1.65A	NA	NA		
M8310	.57A	.6A	NA	NA		
M8330	1.2A	1.2A	NA	NA		
M8320	.46A	.97A	.97A	.16A	.525A	
<u>MM8-E</u>						
G104	1.02A	2.2A	.24A	3.3A		Only 4K of Mem in an Ext Mem system will be at operating current. The remainder will be at steady state.
G227						
H220						
<u>MC8-E</u>						
M837	.985A		NA	NA		
<u>KC8-E</u>						
5409668	.55A	.55A	.067A	.24A		
<u>KL8-E</u>						
M8650	.800A	.800A	.013A	.013A	.065A	
<u>KE8-E</u>						
M8340	.835A		NA	NA		
M8341	.750A		NA	NA		
<u>KP8-E</u>						
M848	.280A	.280A		.040A		28V AC CT @ 20 ma.

ENG Mel Arsenault	APPD <i>M. Arsenault</i>	SIZE A	CODE SP	NUMBER PDP8E-0-11	REV
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SIZE A	CODE SP	NUMBER PDP8E-0-11	REV
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ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE OPTION POWER REQUIREMENTS

Option & Module Number	Steady State Current +5V	Operating Current +5V	Steady State -15V	Operating Current -15V	+15V	Other
MI8-E M847	.71A	.71A	.27A	.27A		
PC8-E M840	.745A	.840A		.045A		
LE8-XX M841	.350A	.350A	NA	NA		
XY8-E M842	.42A	.42A	.020A	.025A	.010A	
KA8-E M8350	1.4A	1.4A	NA	NA		
KD8-E M8360	1.2A	1.2A	NA	NA		
TD8-E M868	.920A	1.25A	.076A			
DK8-EA M882	.335A	.335A	NA	NA		

SIZE **A** CODE SP NUMBER PDP8E-0-11 REV

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE OPTION POWER REQUIREMENTS

Option & Module Number	Steady State Current +5V	Operating Current +5V	Steady State -15V	Operating Current -15V	+15V	Other
DK8-ED M512	.60A					
DK8-ED M860	.84A					
DK8-EP M860 M518	.810A .615A	.810A .615A	.013A .052A	.013A .052A		
DR8-E M863	.830A	2.25A	NA	NA		
VC8-E M869	.310A	.310A	NA	NA		
VC8-E M885	.520A	.520A	.09A	.093A		
AD8-EA A841 A231	.175A .790A	.205A .800A	NA NA	NA NA		

SIZE **A** CODE SP NUMBER PDP8E-0-11 REV

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE

Option & Module Number	Steady State Current +5V	Operating Current +5V	Steady State -15V	Operating Current -15V	+15V	Other
AH8-EA A232	.031A	.033A	NA	NA		
DP8-EA M839 M866	1.8A		.105A		.050A	
KG8-E M884	.800A	.931A	NA	NA		

SIZE
A

CODE
SP

NUMBER
PDP8E-0-11

REV

C15- if NOT 330PF MD MAY NOT INCREMENT PROPERLY

10-16060 P. 1

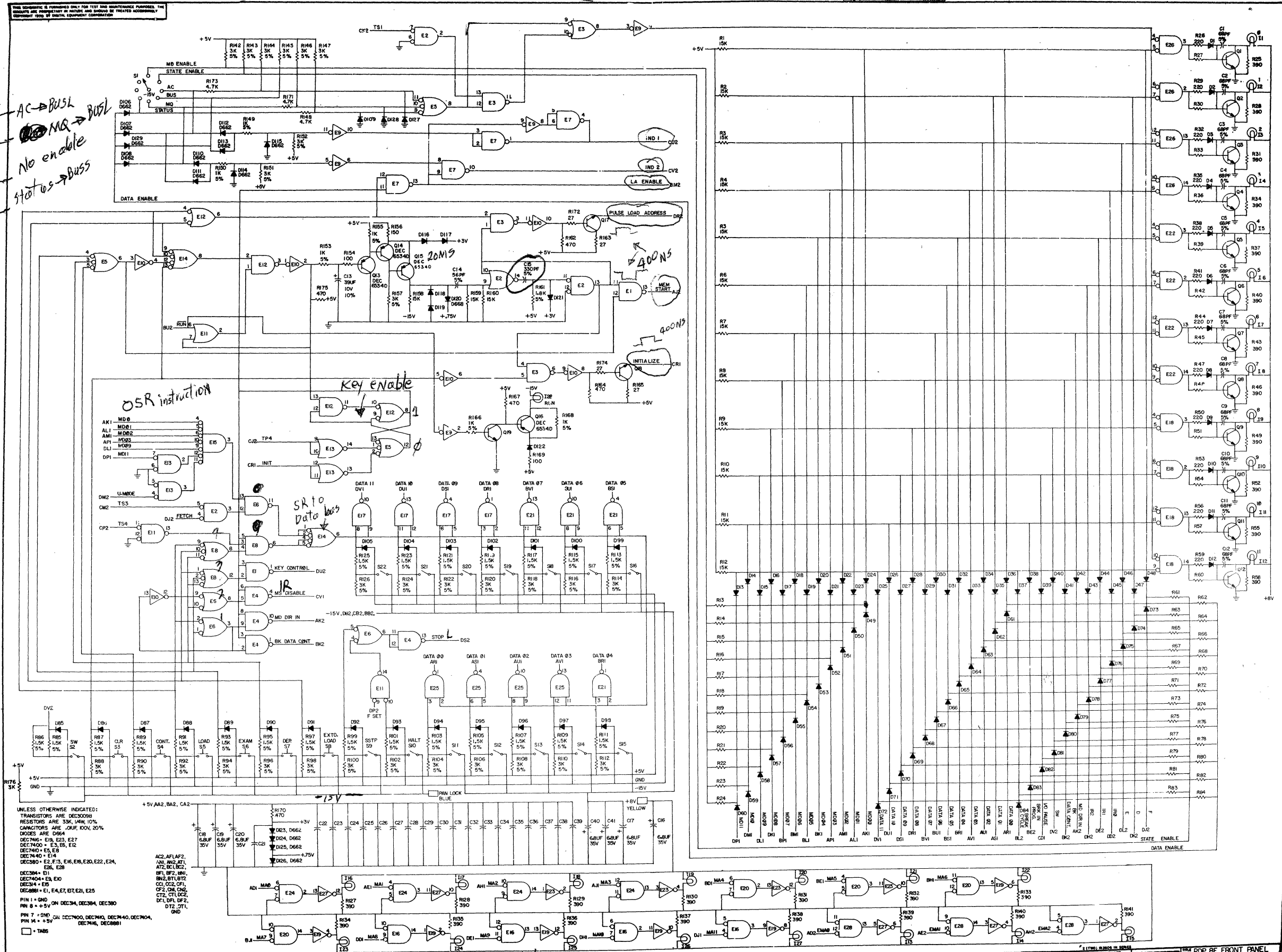
F48 (M9330)
PINS - 2

- AC
 - MR
 - Bus
 - Status
 - state
 - MD

INP 1
 L
 H
 L
 H
 H
 H
 H

INP 2
 L
 H
 H
 H
 H

AC → BUS
 MR → BUS
 No enable
 status → BUS



lower row of lights

Upper Row of Lights
oM nibus

KCB-EA

THE TOP BE FRONT PANEL
CONTROL BOARD 5409037
EQUIPMENT CORPORATION

CUSTOMER PRINT SET INDEX

SEQUENCE

MM8-1 PRINT SET
 E-BD-MM8-E-1
 E-CS-G227-Ø-1
 E-CS-G619-Ø-1
 E-CS-G1Ø4-Ø-1
 D-UA-MM8-E-Ø
 A-PL-MM8-E-Ø
 D-UA-H220-Ø-Ø
 A-AL-MM8-E-3
 A-SP-7665139-0-0

SEQUENCE

MM8-2 PRINT SET
 E-BD-MM8-EJ-5
 E-CS-G233-Ø-1
 E-CS-G111-Ø-1
 E-CS-H212-Ø-1
 D-UA-MM8-EJ-Ø
 A-AL-MM8-E-3
 D-CS-G646-0-1
 A-SP-MM8-EJ-1

BLOCK DIAGRAM
 4K XY DRIVER
 STACK BOARD
 SENSE INHIBIT (4K)
 MEMORY ASSY (4K)
 MEMORY ASSY (PL)
 STACK 4K 12 BIT
 ACCESSORY LIST
 MM8-E ACCEPTANCE PROCEDURE

BLOCK DIAGRAM
 8K XY DRIVER
 8K SENSE INHIBIT
 8K STACK SCHEMATIC
 MEMORY (8K)
 ACCESSORY LIST
 12 BIT STACK BOARD
 MM8-EJ & MM8-EH ACCEPTANCE
 PROCEDURE (F.S.)

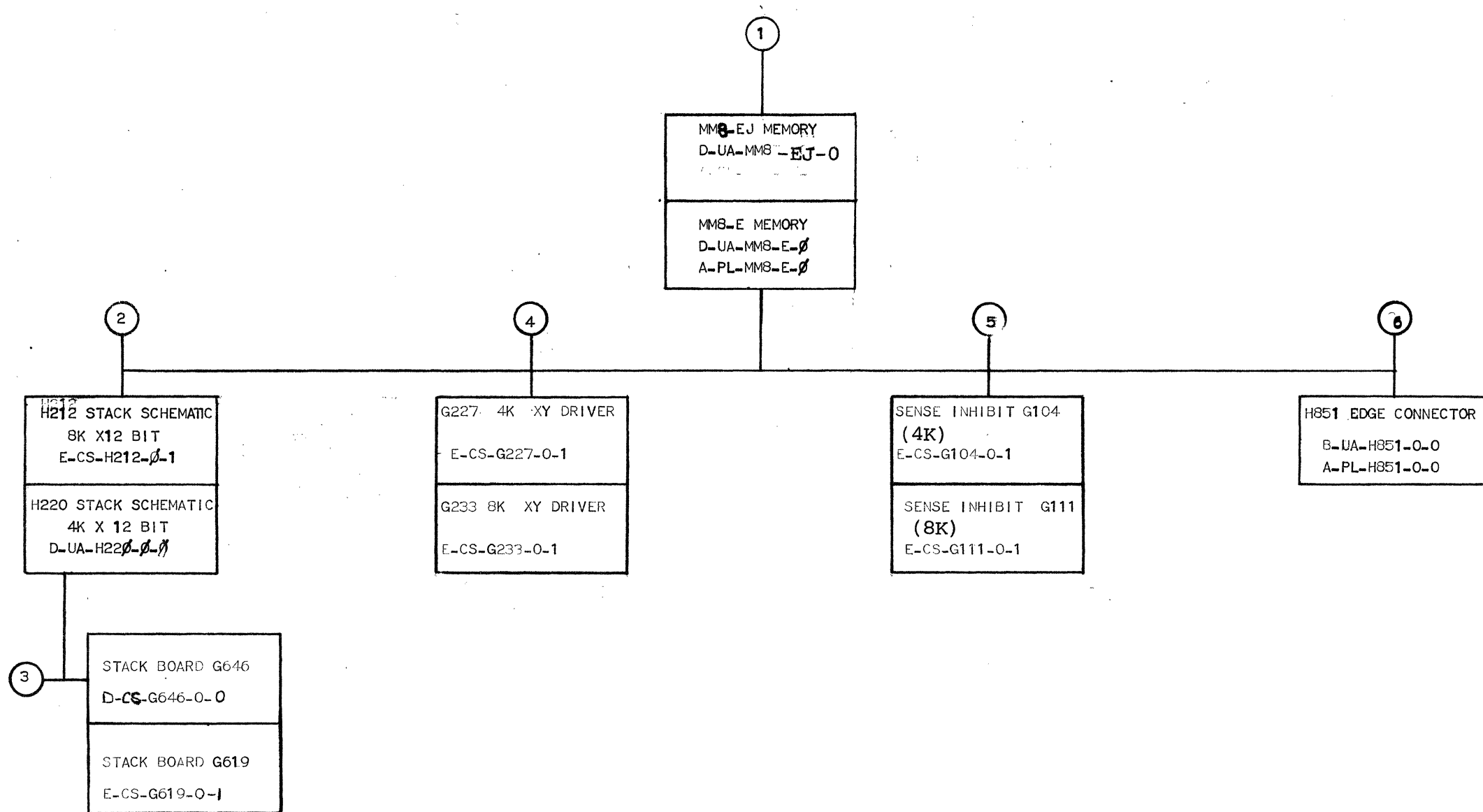
MFG SET

MANUFACTURING PROC. A-SP-MM8-E-2
 MM8-EJ & MM8-EH MANUFACTURING
 PROCEDURE (ON LINE) A-SP-MM8-EJ-2
 MM8-EJ & MM8-EH TEST
 PROCEDURE (OFF LINE) A-SP-MM8-EJ-3
 PURCHASE SPEC. A-PS-3010654-0-0
 PURCHASE SPEC. A-PS-8009834-0-0
 ENGINEERING SPEC. A-SP-MM8-EJ-4

THIS IS PRINT SET

VAR	TITLE	PRINT SET	
		MM8-1	MM8-2
MM8-E	4K 12 BIT MEMORY	X	
MM8-EJ	8K 12 BIT MEMORY		X

REVISIONS	CHG. NO.	REV	TITLE		
	MM8EJ-1	A	MEMORY		
	MM8E-5	B	DRAWING DIRECTORY		
	MM8E-6	C			
DATE					
WJC					
ZG					
EL					
USED ON OPTION/MODEL	DRN.	DATE	NUMBER MM8-E		
	F. CARBERRY	2-17-72			
	CHK'D.	DATE			
	J. KALAGHER	6-6-72			
	PROJ ENG.	DATE	SIZE	CODE	REV
	W. COATES	6-21-72	B	DD	C
	PROD.	DATE	DIST		
	W. COATES	6-21-72			
	FIELD SERV.	DATE			
	W. COATES	6-21-72			
SHEET 1 OF 3					



TITLE	SHEET	SIZE	CODE	NUMBER	REV
MEMORY	2 OF 3	B	DD	MMS-E	C

+ For write
- For read

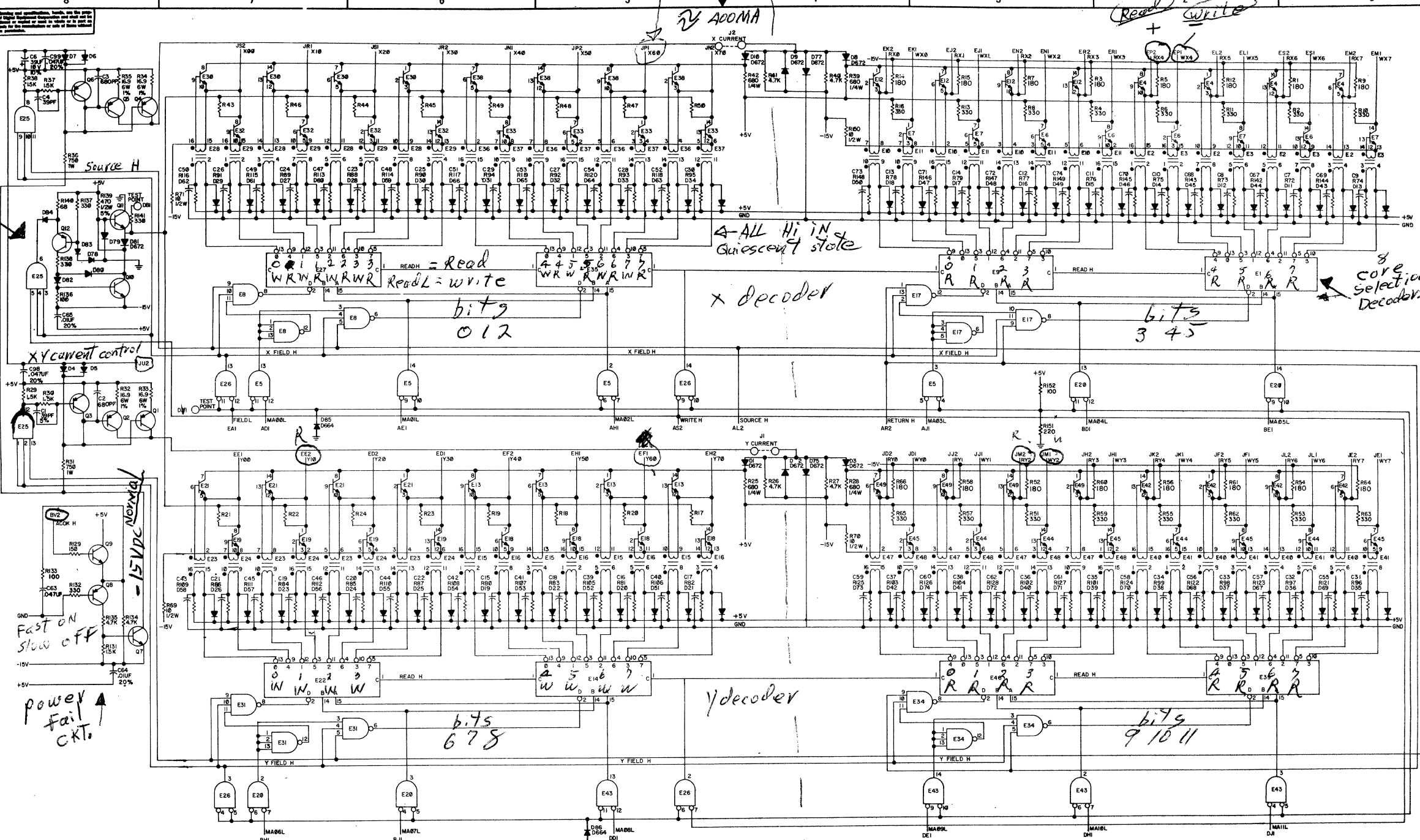
Read + Write

X current source

Bias Driver controls diodes on stack plane

slow turn on and fast shut off for write + Read current

Y current source



XY current control

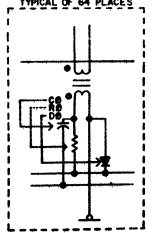
power fail ckt.

Fast on slow off -15VDC Normal

decode 6412
Read Source = 3P1 X60
Return = FP2 X4

Source side

Return side

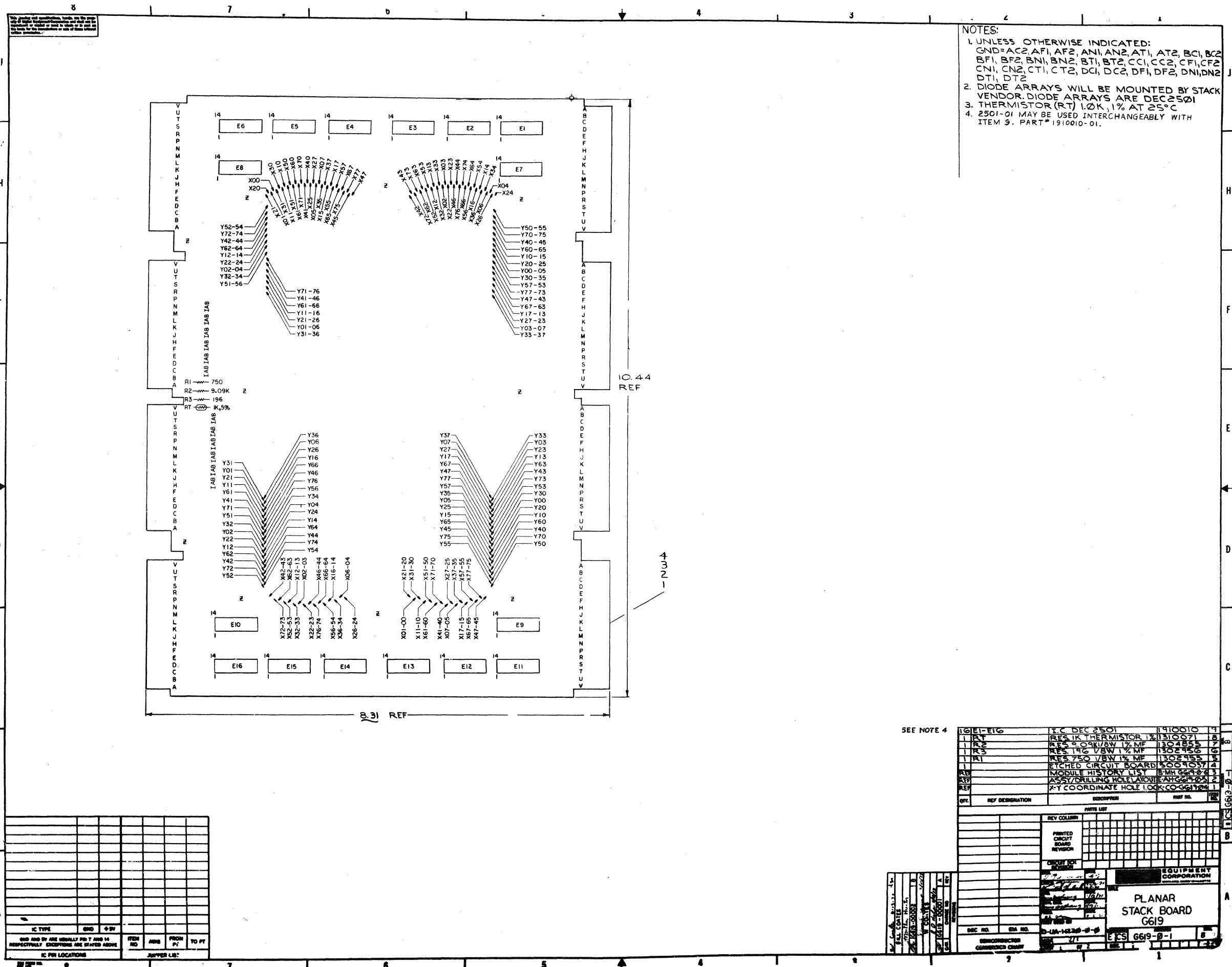


address decoding, selection switches, X current source, Y current source, and stack discharge switch - power on/off protection ckt.

QTY.	DESCRIPTION	PART NO.	ITEM NO.
1
1
1
1

EQUIPMENT CORPORATION
X Y DRIVER AND CURRENT SOURCE
G227-1

AK G227



- NOTES:
1. UNLESS OTHERWISE INDICATED:
 GND=AC2,AF1,AF2,AN1,AN2,AT1,AT2,BC1,BC2
 BF1,BF2,BN1,BN2,BT1,BT2,CC1,CC2,CF1,CF2
 CN1,CN2,CT1,CT2,DC1,DC2,DF1,DF2,DN1,DN2
 DT1,DT2
 2. DIODE ARRAYS WILL BE MOUNTED BY STACK
 VENDOR. DIODE ARRAYS ARE DEC2501
 3. THERMISTOR (RT) 1.0K, 1% AT 25°C
 4. 2501-01 MAY BE USED INTERCHANGEABLY WITH
 ITEM 9. PART# 1910010-01.

SEE NOTE 4

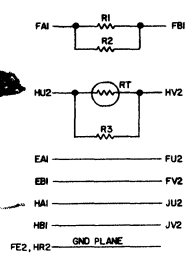
REV	DESCRIPTION	DATE	BY
1	IC E1-E16	1910010	14
1	RES 1K THERMISTOR 1%	1310071	8
1	RES 9.09K/8W 1% MF	1304855	7
1	RES 196 V8W 1% MF	1302456	6
1	RES 750 V8W 1% MF	1302455	5
1	ETCHED CIRCUIT BOARD 50010374		
1	MODULE HISTORY LIST BMM 664843		
1	ASSY/DRILLING HOLE LAYOUT ATG 661205 2		
1	X-Y COORDINATE HOLE LOCK CO 661205 1		

REV	DESCRIPTION	DATE	BY
1	PRINTED CIRCUIT BOARD REVISION		
1	EQUIPMENT CORPORATION		
PLANAR STACK BOARD G619			
SEC NO.	EM NO.	D-1A-14229-01-0	
ECS 6619-0-1			

IC TYPE	GND	BY	ITEM NO.	ANG	FROM PT.	TO PT.
IC PIN LOCATIONS						
JUMPER LIST:						

PLANAR STACK BOARD

Thermistor for
X+Y current sources

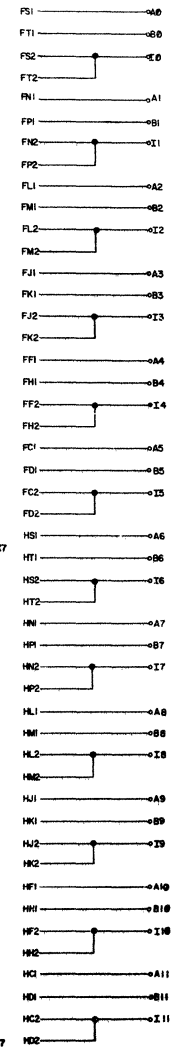
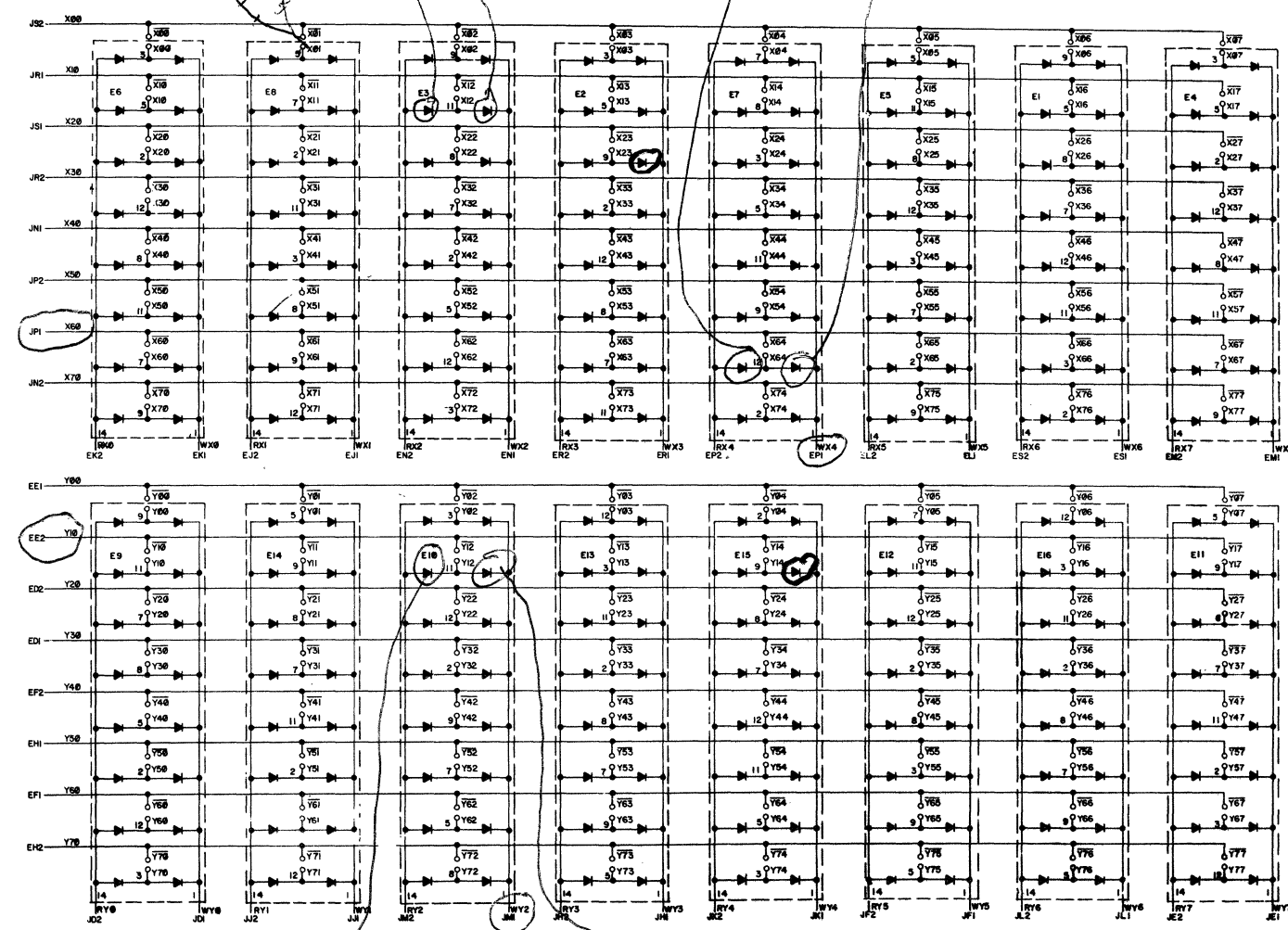


To pin 5
current control

768
cores

read
write diode
X Line

Read diode of
write diode of
6412



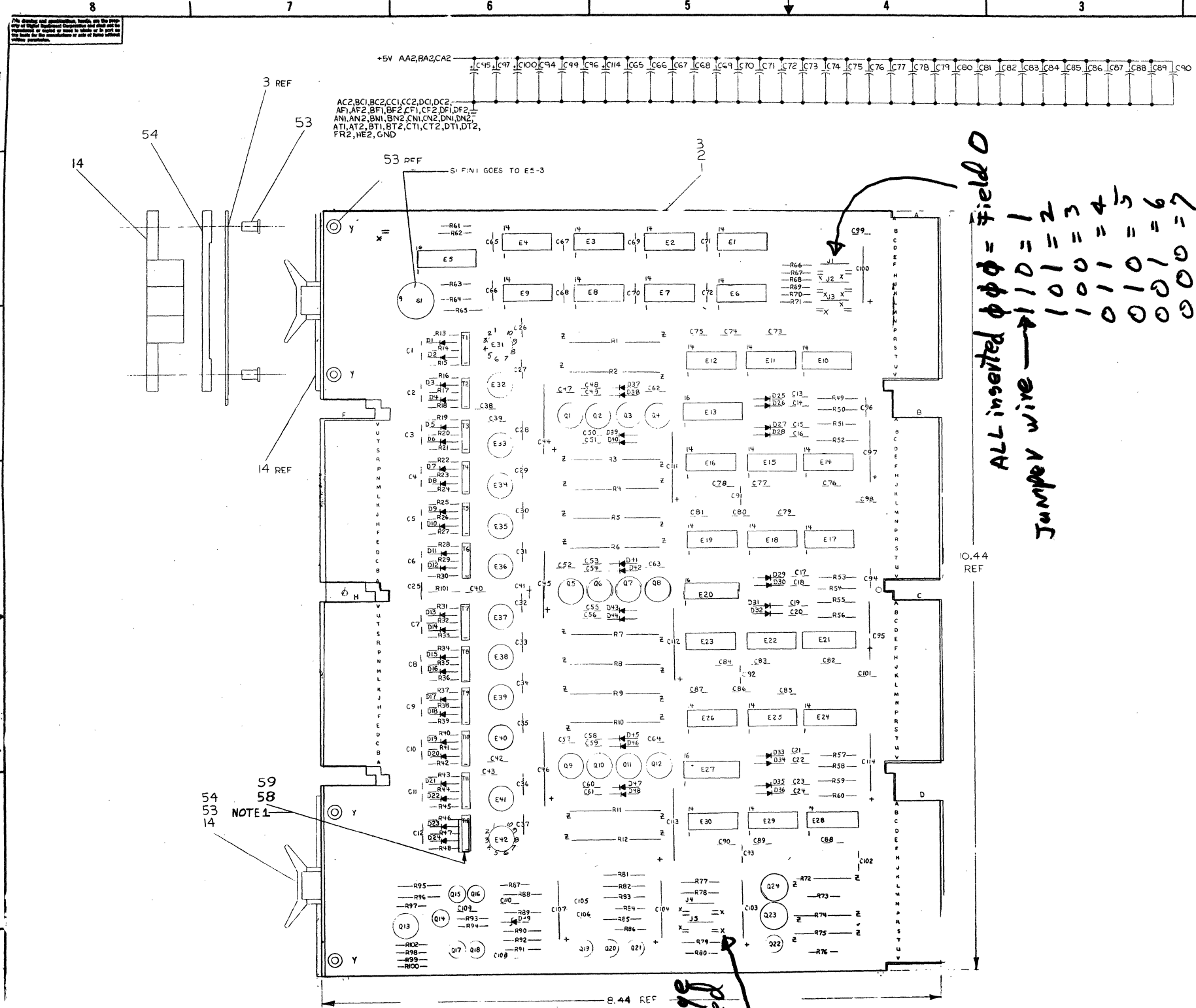
Read diode
for 6412

write diode
for 6412

12 mats of 4096 cores per mat

QTY	DESCRIPTION	PART NO.	UNIT
1	PLANAR STACK BOARD	669-O-1	B
1	EQUIPMENT CORPORATION		
1	PLANAR STACK BOARD		

6619



NOTES:

1. CUT CATERPILLAR GROMMET (DEC 9007622) 7/8" LONG, ON ONE SIDE CUT TOOTH OUT 3/8" FROM ONE END. ON EACH END SPRAY WITH SCOTCH-GRIP ADHESIVE NO. 77 (DEC 9008907) FOLLOW DIRECTIONS FOR NON-PERMANENT BONDS ON BACK OF CAN. PLACE THE GROMMET OVER I2'S TRANSFORMERS WITH CUTOUT TOOTH OVER CAPACITOR C40.
2. R65 IS DETERMINED BY THE VOLTAGE AT PIN HA1 WITH RESPECT TO +5V.

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	REV
1	R102	RES. 10, 1/4W, 10%	1300170	62
1	R81	SPLIT LUGS	9006735	61
2	R90, R101	RES. 2.7K 1/8W 1% 100 MFP	1304868	60
2	R91	RES. 100, 1/8W, 5% CC	1300229	16
2	R92, R74, R75	RES. 50, 1/4W, 5% CC	1300229	16
2	R93	RES. 4.7K, 1/4W, 5% CC	1300447	21
2	R94, R99	RES. 10K, 1/4W, 5% CC	1300365	20
2	R95, R92, R95	RES. 1.96K, 1/8W, 1% 100 MFP	1304855	28
2	R96, R86	RES. 680, 1/4W, 5% CC	1300271	18
2	R97, R76, R97	RES. 4.7K, 1/4W, 5% CC	1300447	21
2	R98, R87	RES. 1K, 1/4W, 5% CC	1300365	20
1	R99	RES. 220, 1/4W, 5% CC	1300271	18
1	R100	RES. 100, 1/4W, 5% CC	1300229	16
3	R72, R74, R75	RES. 50, 1/4W, 5% CC	1300229	16
2	SI	ROTARY SWITCH	1200043-0	15
2	SI	HANDLE FLIP CHIP - GREEN	9008337-01	14
1	D49	DIODE 1/4W, 1N34A	104941-7	13
36	D1-D24, D37-D48	DIODE D672	105275	12
12	D25-D36	DIODE D664	100114	11
32	C25-C43, C47, C52, C57, C62-C64, C91-C93, C98, C101, C102, C103	CAP. .047MFD 50V 20% DISC	1009678	10
33	C65-C90, C94, C96, C104	CAP. .01MFD 100V 20% DISC	1001610	9
6	C44-C46, C11-C13	CAP. 47MFD 20V 20% S. TANT	1000079	8
7	C50, C97, C100, C103, C104, C107, C114	CAP. 6.8MFD 35V 20% S. TANT	1000067	7
12	C48-C51, C53-C56, C58-C61	CAP. 1500PF 200V 10% DISC	1000054	6
12	C18-C24	CAP. 1000PF 100V 5% MICA	1000042	5
12	C1-C12	CAP. 33PF 100V 5% D. MICA	1000043	5
REF	REF	ETCHED CIRCUIT BOARD	8-MIL-504-B-G-2	13
REF	REF	MODULE ECO HISTORY	B-MIL-504-B-G-2	13
REF	REF	X-Y COORDINATE HOLE LOCATION	X-CO-004-B-4	1

IC PIN LOCATIONS	JUMPER LIST
DEC 380	55 22 J5-A J5-B
DEC 384	55 22 J1-A J1-B
IC TYPE	55 22 J1-A J1-B
IC NO.	55 22 J1-A J1-B
REV.	
MANUFACTURER	
DATE	
BY	
CHECKED	
APPROVED	

REV	REV COLUMN	REVISION	DATE	BY	CHKD	APPD	REVISION	DATE	BY	CHKD	APPD
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											

PRINTED CIRCUIT BOARD REVISION

CIRCUIT SCH. J

DATE: 12/11

REVISION: 1

EQUIPMENT CORPORATION

SENSE INHIBIT

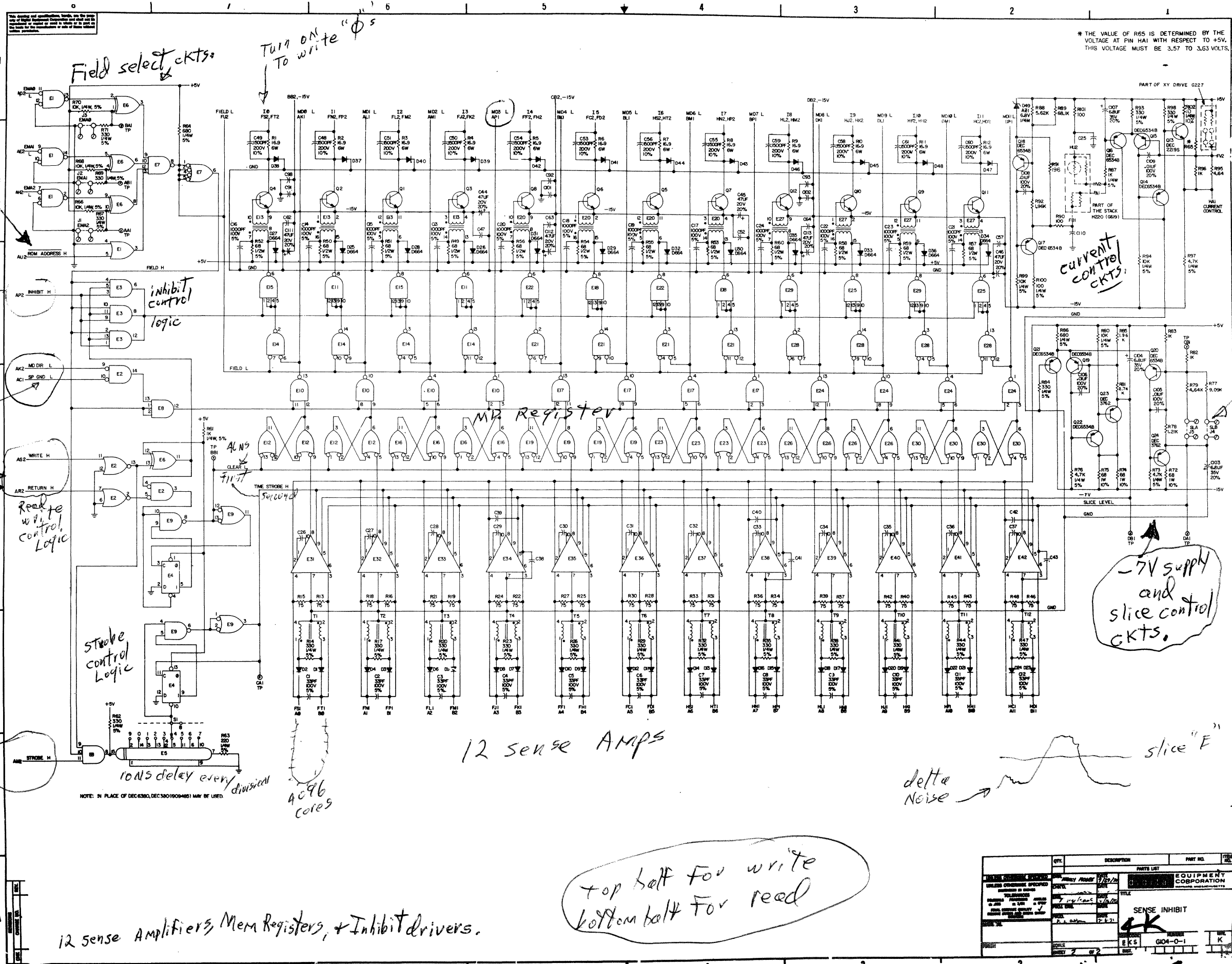
AK

ECS 6104-B-1

6104

8K stack ignores bit 012

(8K stack: Leave right Jumper in all the time)



* THE VALUE OF R65 IS DETERMINED BY THE VOLTAGE AT PIN HAI WITH RESPECT TO +5V. THIS VOLTAGE MUST BE 3.57 TO 3.63 VOLTS.

For Read only Memory only

From Timer GEN.

special grid line always grounded

Read write control Logic

Strobe control Logic

10ns delay every division

4096 cores

Turn on write ϕ 's To write ϕ 's

12 sense AMPS

MR REGISTER

CURRENT CONTROL CKTS.

-7V supply and slice control CKTS.

Factory set $v = 4.5V_{cc}$ ITD

delta noise



slice 'E'

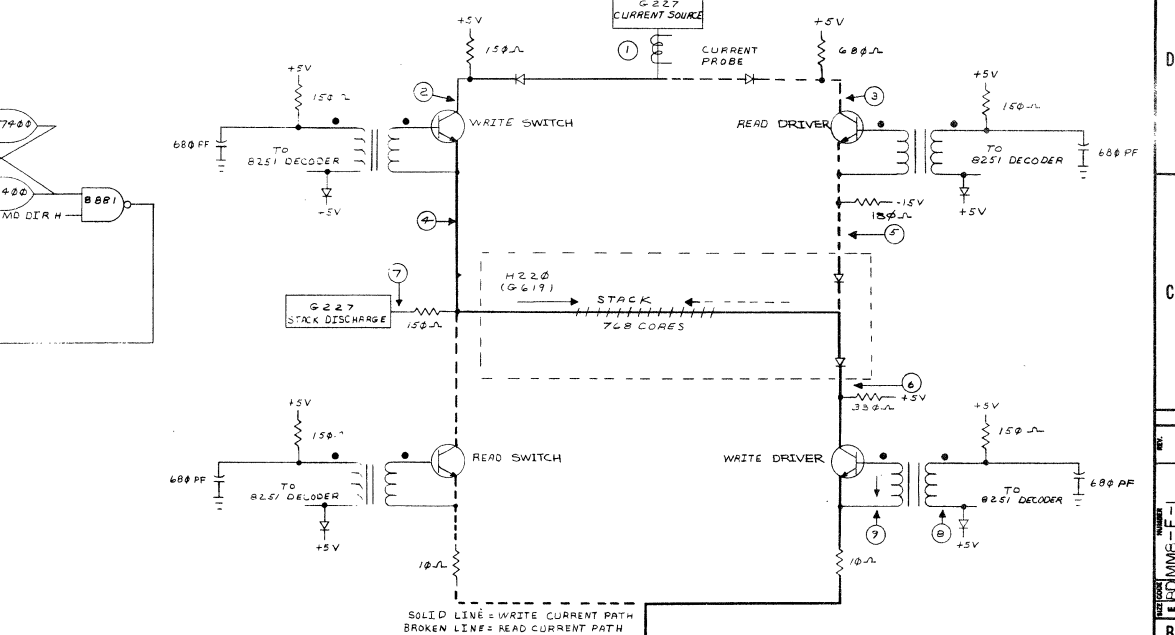
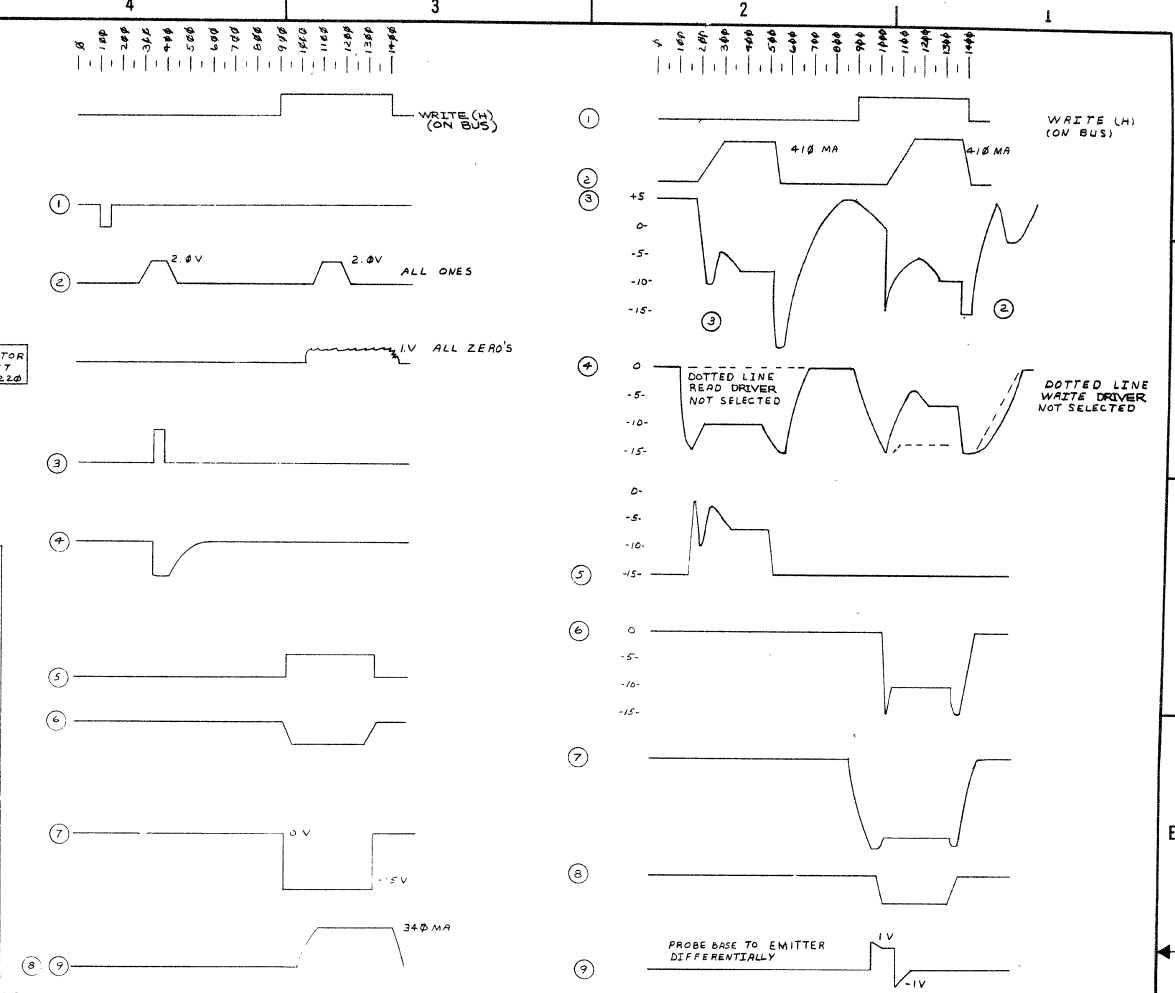
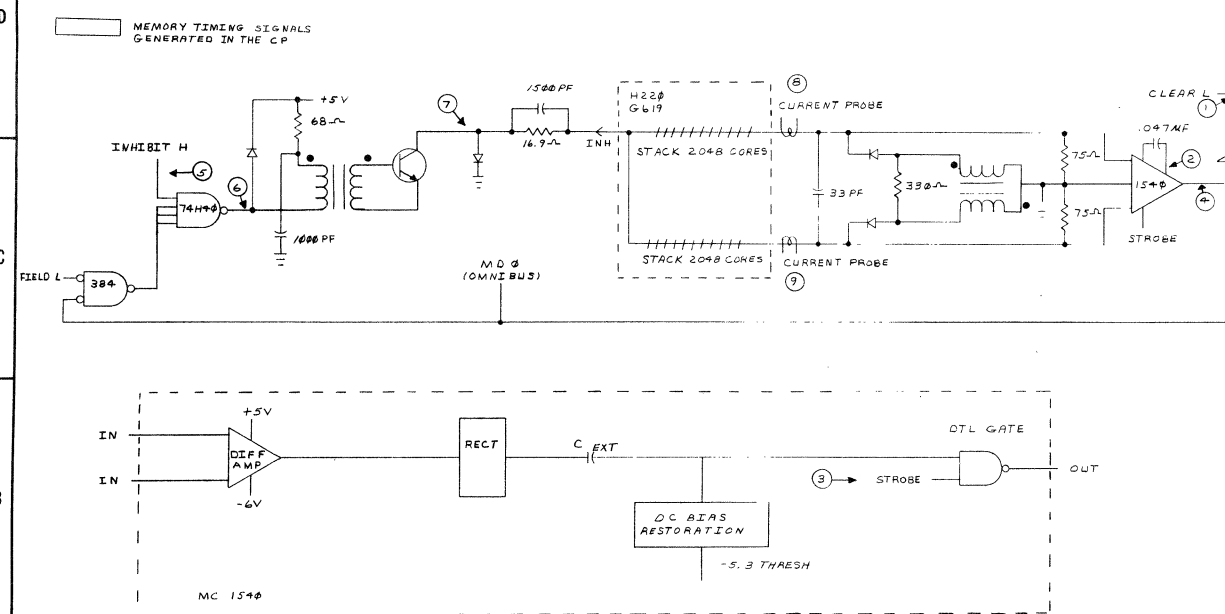
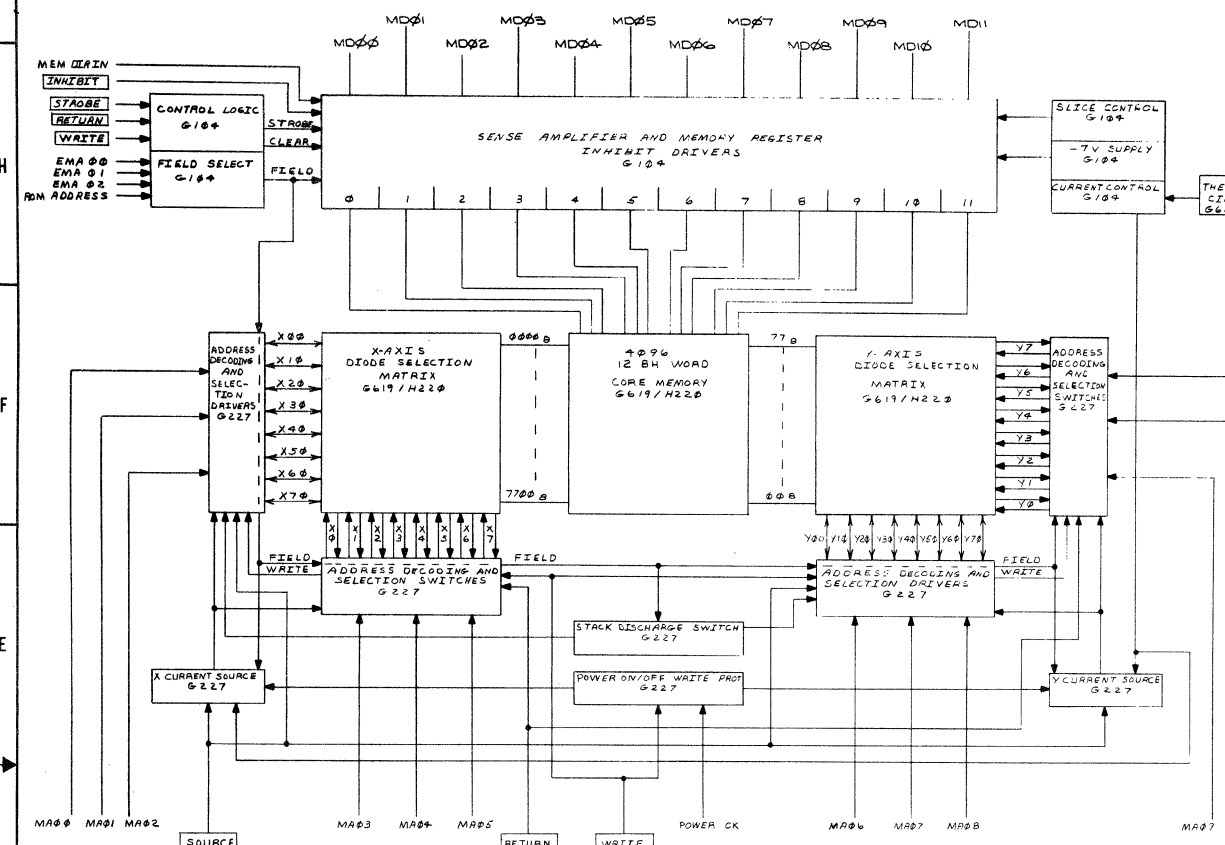
12 sense Amplifiers, Mem Registers, + Inhibit drivers.

top half for write bottom half for read

QTY.	DESCRIPTION	PART NO.
1	7400 NAND	7400
1	7410 DEC	7410
1	7420 INV	7420
1	7430 OR	7430
1	7440 AND	7440
1	7450 XOR	7450
1	7460 MUX	7460
1	7470 MUX	7470
1	7480 MUX	7480
1	7490 MUX	7490
1	7401 NAND	7401
1	7402 NAND	7402
1	7403 NAND	7403
1	7404 NAND	7404
1	7405 NAND	7405
1	7406 NAND	7406
1	7407 NAND	7407
1	7408 NAND	7408
1	7409 NAND	7409
1	7411 NAND	7411
1	7412 NAND	7412
1	7413 NAND	7413
1	7414 NAND	7414
1	7415 NAND	7415
1	7416 NAND	7416
1	7417 NAND	7417
1	7418 NAND	7418
1	7419 NAND	7419
1	7421 NAND	7421
1	7422 NAND	7422
1	7423 NAND	7423
1	7424 NAND	7424
1	7425 NAND	7425
1	7426 NAND	7426
1	7427 NAND	7427
1	7428 NAND	7428
1	7429 NAND	7429
1	7431 NAND	7431
1	7432 NAND	7432
1	7433 NAND	7433
1	7434 NAND	7434
1	7435 NAND	7435
1	7436 NAND	7436
1	7437 NAND	7437
1	7438 NAND	7438
1	7439 NAND	7439
1	7441 NAND	7441
1	7442 NAND	7442
1	7443 NAND	7443
1	7444 NAND	7444
1	7445 NAND	7445
1	7446 NAND	7446
1	7447 NAND	7447
1	7448 NAND	7448
1	7449 NAND	7449
1	7451 NAND	7451
1	7452 NAND	7452
1	7453 NAND	7453
1	7454 NAND	7454
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1	7475 NAND	7475
1	7476 NAND	7476
1	7477 NAND	7477
1	7478 NAND	7478
1	7479 NAND	7479
1	7481 NAND	7481
1	7482 NAND	7482
1	7483 NAND	7483
1	7484 NAND	7484
1	7485 NAND	7485
1	7486 NAND	7486
1	7487 NAND	7487
1	7488 NAND	7488
1	7489 NAND	7489
1	7491 NAND	7491
1	7492 NAND	7492
1	7493 NAND	7493
1	7494 NAND	7494
1	7495 NAND	7495
1	7496 NAND	7496
1	7497 NAND	7497
1	7498 NAND	7498
1	7499 NAND	7499
1	7500 NAND	7500

G104

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REV.	DATE	BY	CHKD.
1	10/27/67

FIRST USED ON OPT/MDG	QTY.	DESCRIPTION	PART NO.	ITEM NO.
MMB-E				
UNLESS OTHERWISE SPECIFIED				
DIMENSIONS IN INCHES				
TOLERANCES				
DECIMAL FRACTIONS ANGLES				
PROL ENG. DATE				
PROL. DATE				
MATERIAL				
FINISH				

PARTS LIST
 DIGITAL EQUIPMENT CORPORATION
 BLOCK DIAGRAM
 TIMING
 MMB-E
 NUMBER
 E 180 MMS-E-1
 SCALE NONE
 SHEET 1 OF 1

MASTER DRAWING LIST

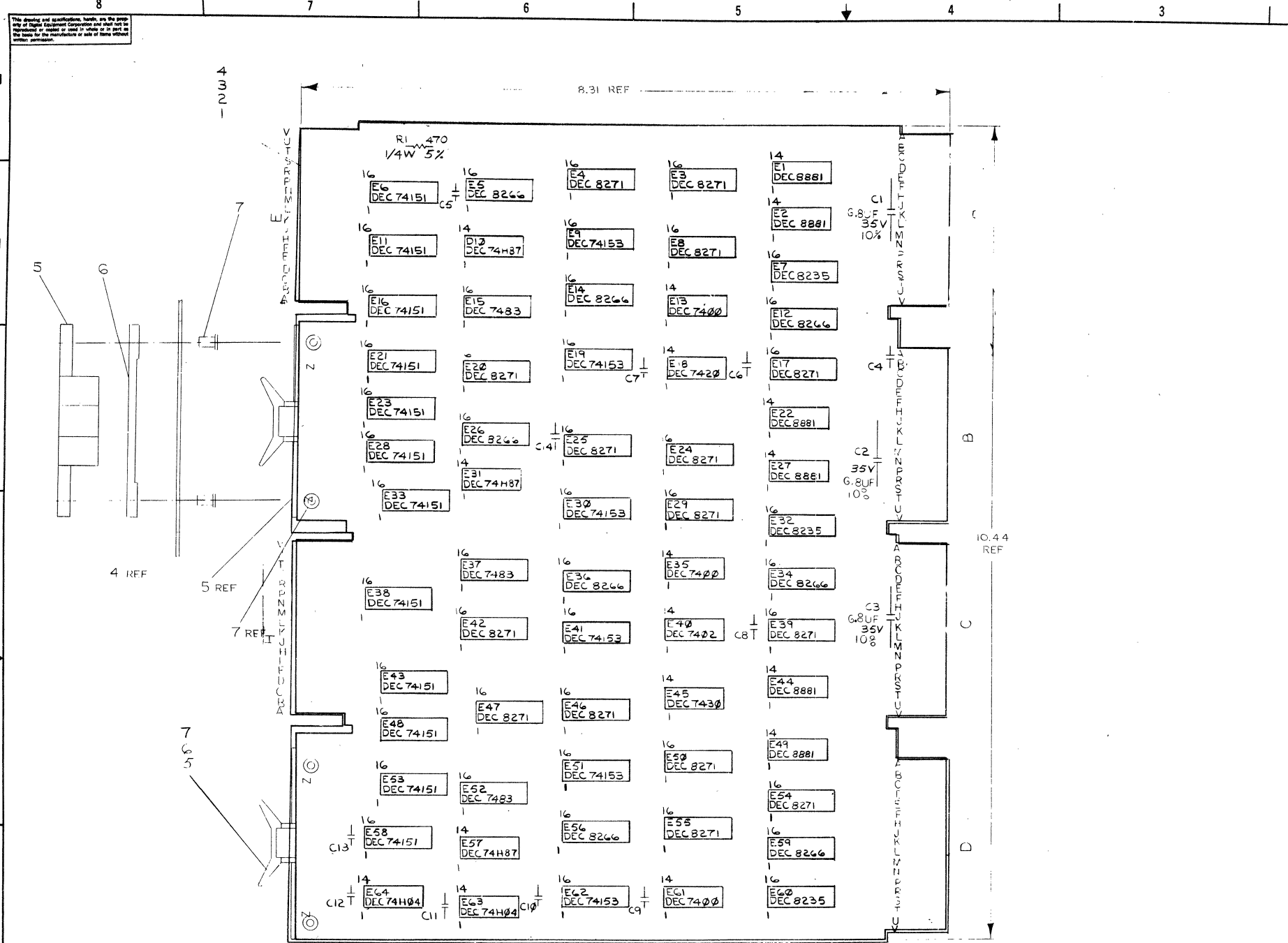
MAINTENANCE MANUALS		UNIT VARIATIONS																		
NO.	TITLE	KK8-E																		
KK8-E	CENT. PROC.	X																		

USED ON OPTIONS							
PDP8/E							
PDP8/M							
PDP8/F							

REVISIONS				APP'D.		DATE		TITLE			
REV.	DATE	CHG. NO.	APP'D.	DRN.	DATE	digital CORPORATION <small>MAYNARD, MASSACHUSETTS</small>	CENTRAL PROCESSOR (KK8-E)				
A	1/71	KK8E-1	D.C.	K. GULICK	12/28/70						
B	3/71	KK8E-2	R.V.	K. GULICK	12/29/70						
C	4/71	KK8E-3	L.K.	L. KLOTZ	12/12/71						
D	5/71	M833-6	L.N.	PROJ. ENG.	12/12/71						
E	7/71	MISC-86	A.Y.	VOGELSANG	12/12/71						
F	1/72	8E-55	J.C.	PROD.	1/13/71						
H	10/73	KK8E-4	J.K.	FIRST USED ON							
J	12/74	KK8E-5		A-ML-PDP8 E-Ø							
				SCALE #							SIZE	CODE	NUMBER		REV.
				SHEET 1 OF 2		A	ML	KK8-E		J	
						DIST.					

PRINT SET		DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.
KK8-E						
X		E-CS-M830Ø-Ø-1	#	5	MAJOR REGISTERS	
X		E-CS-M831Ø-Ø-1	#	4	MAJOR REIGSTER CONTROL	
X		E-CS-M832Ø-Ø-1	#	2	BUS LOADS	
X		E-CS-M833Ø-Ø-1	#	2	TIMING GENERATOR	
X		B-CS-M849-Ø-1	#	1	RFI SHIELD	
X		D-UA-KK8-E-Ø	C	1	CENTRAL PROCESSOR	
X		A-SP-KK8-E-1	B	3	ENGINEERING SPECIFICATIONS	

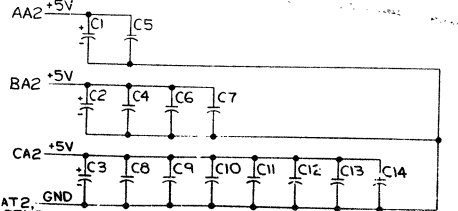
TITLE				CENTRAL PROCESSOR KK8-E	SHEET 2 OF 2	SIZE CODE	A ML	NUMBER	KK8-E	REV.	J
-------	--	--	--	-------------------------	--------------	-----------	------	--------	-------	------	---



NOTES:

IC TYPE	QTY	GRID	VALUE
DEC 8235	8	16	
DEC 7483	12	5	
DEC 8271	8	16	
DEC 8266	8	16	
DEC 74153	8	16	
DEC 74151	8	16	

AC2, AF1, AF2, AN1, AN2, AT1, AT2, GND
 BC1, BC2, BF1, BF2, BN1, BN2, BT1, BT2,
 CC1, CC2, CF1, CF2, CN1, CN2, CT1, CT2,
 DC1, DC2, DF1, DF2, DN1 & DT2

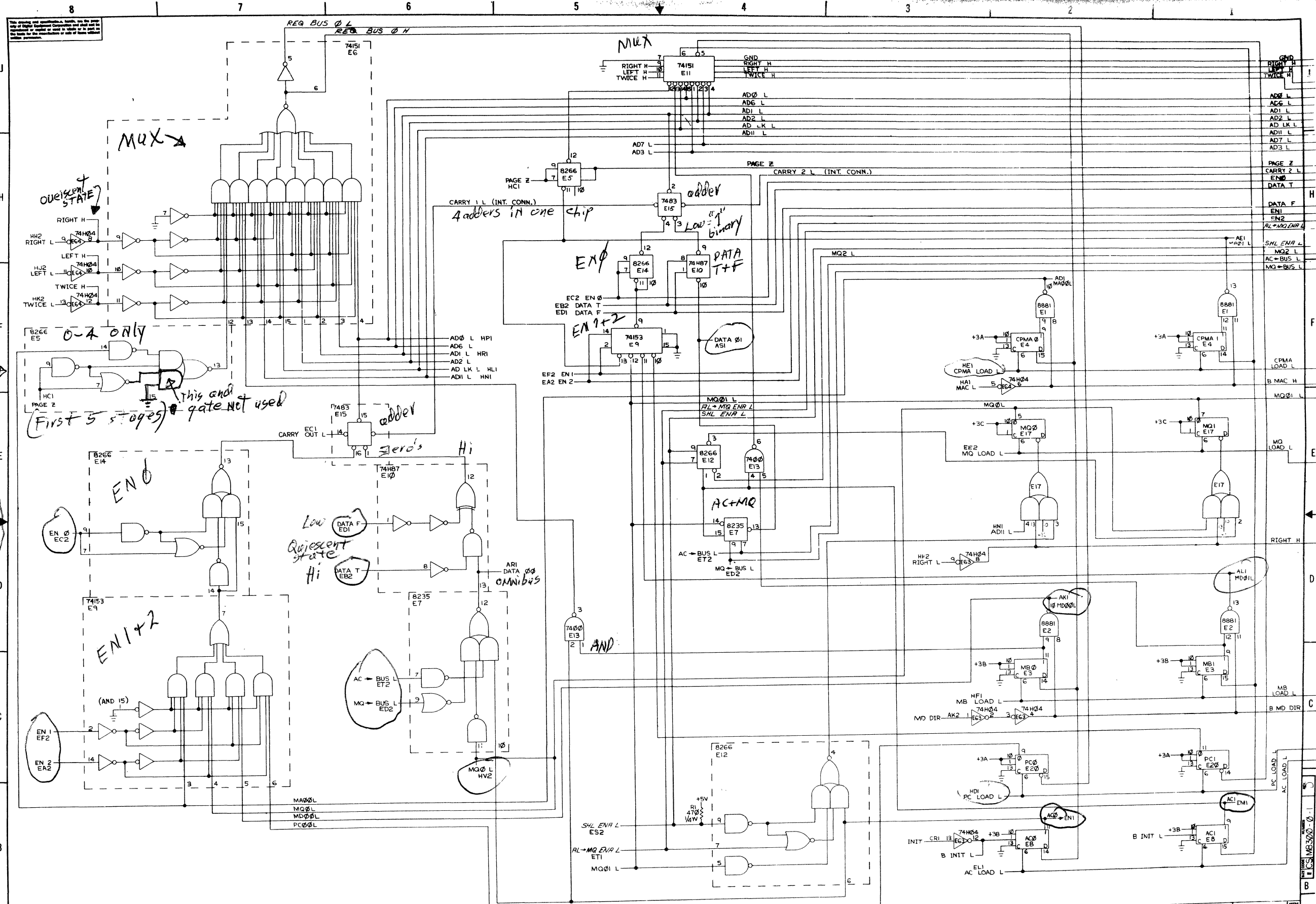


QTY	REF DESIGNATION	DESCRIPTION	PART NO.	FILE
6	E1, E19, E30, E41, E51, E62	IC DEC 74153	1909437	23
12	E28, E33, E38, E43, E48, E53, E58	I.C. DEC 74151	1909936	22
3	E7, E32, E50	I.C. DEC 8235	1909935	21
8	E5, E12, E14, E26, E34, E36, E56, E59	I.C. DEC 8266	1909934	20
3	E10, E37, E52	I.C. DEC 7483	1909932	19
3	E63, E64	I.C. DEC 74104	1909931	18
3	E10, E31, E57	I.C. DEC 74187	1909927	17
6	E12, E22, E27, E44, E49	I.C. DEC 8881	1909705	16
15	E34, E5, E17, E20, E24, E25, E24E31E44, E46, E54, E50, E54, E55	I.C. DEC 8271	1909615	15
1	E40	I.C. DEC 7402	1909004	14
1	E45	I.C. DEC 7430	1905578	13
1	E18	I.C. DEC 7420	1905577	12
3	E13, E35, E61	I.C. DEC 7400	1905575	11
1	R1	RESISTOR 470 1/4W 5%	300316	10
11	C4 - C14	CAP. 0.8UF 35V 20% DISC	000610	9
3	C1, C2, C3	CAP. 0.8UF 35V 20% STANT	000007	8
4		EYELETS GS4-11 STIMPSON	3006750	7
		SPACER (CABLE CLAMP)	202704	6
		HANDLE FLIP CHIP MAGENTA	40083706	5
		ETCHED CIRCUIT BOARD	8009250	4
		MODULE HISTORY LIST	SMH-M8300-0-1	3
		ASSY DRILLING HOLE LAYOUT	DAH-M8300-0-1	2
		XY COORDINATE HOLES	CCO-M8300-0-1	1

REV	DESCRIPTION	DATE	BY
1	PRINTED CIRCUIT BOARD REVISION		
2	CIRCUIT BOARD REVISION		

DEC NO	EIA NO	D-JA-KK8-E-0
SEMICONDUCTOR CONVERSION CHART		
1	of 5	

MM-8300



dependent on MD bit 4

Req. Bus Not part of omnibus and is on M8300

0-4 ONLY (First 5 stages) gate not used

END

EN1+2

Low Quiescent state

adder

adder

AC+MQ

EXP

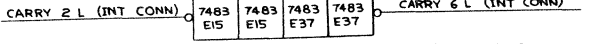
4 adders in one chip

DATA T+F

EN1+2

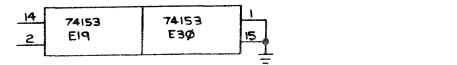
AND

CARRY IN TO A 7483 ADDER IS PIN 13
CARRY OUT OF A 7483 ADDER IS PIN 14. THUS



NOTES: DENOTES CONN. BETWEEN E37 PIN 14 & E15 PIN 13 WHILE CARRY 6 L IS INTERNAL TO E37 AND CARRY 2 L IS INTERNAL TO E15

FOR SIMPLICITY OF DRAWING THE FOLLOWING PROCEDURES HAVE BEEN USED TO ELIMINATE LINES:

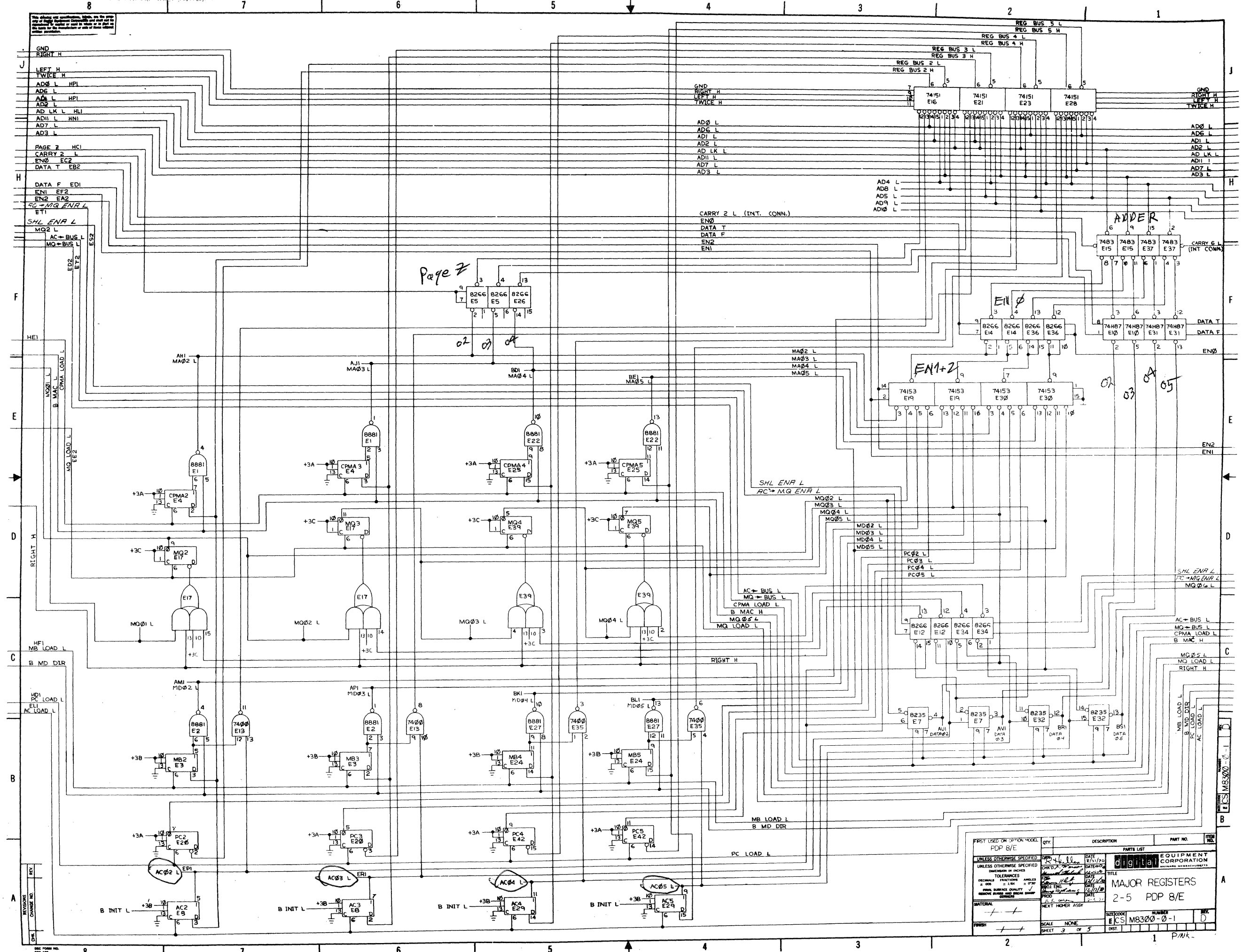


THIS DENOTES A CONNECTION BETWEEN E19 PIN 14 AND E30 PIN 14, E19 PIN 2 AND E30 PIN 2 (ALSO PINS 1 AND 15 ON EACH I.C.). THIS ALSO IS TRUE FOR OTHER CASES SUCH AS 8266, 74153, AND 74151.

REV.	CHG.	DATE	BY	DESCRIPTION	PARTS LIST	PART NO.	ITEM NO.
					POP 8/E		
FIRST USED ON OPTION MODEL			DATE	TITLE	EQUIPMENT CORPORATION		
UNLESS OTHERWISE SPECIFIED			DRAWN BY	CHECKED BY	DIGITAL CORPORATION		
DIMENSIONS IN INCHES			DATE	TITLE	MAJOR REGISTERS		
TOLERANCES			UNLESS OTHERWISE SPECIFIED				
FRACTIONS			.001				
DECIMALS			.0005				
ANGLES			1/16				
HOLE DIA.			.0015				
HOLE POSITION			.005				
SURFACE QUALITY			AS SHOWN				
REMOVE BURRS AND SHARP CORNERS			DATE				
MATERIAL			NEXT HIGHER ASSY				
FINISH			A-MIL-KKB-C				
SCALE			NONE				
SHEET			2 OF 5				

M8300 getting for 1

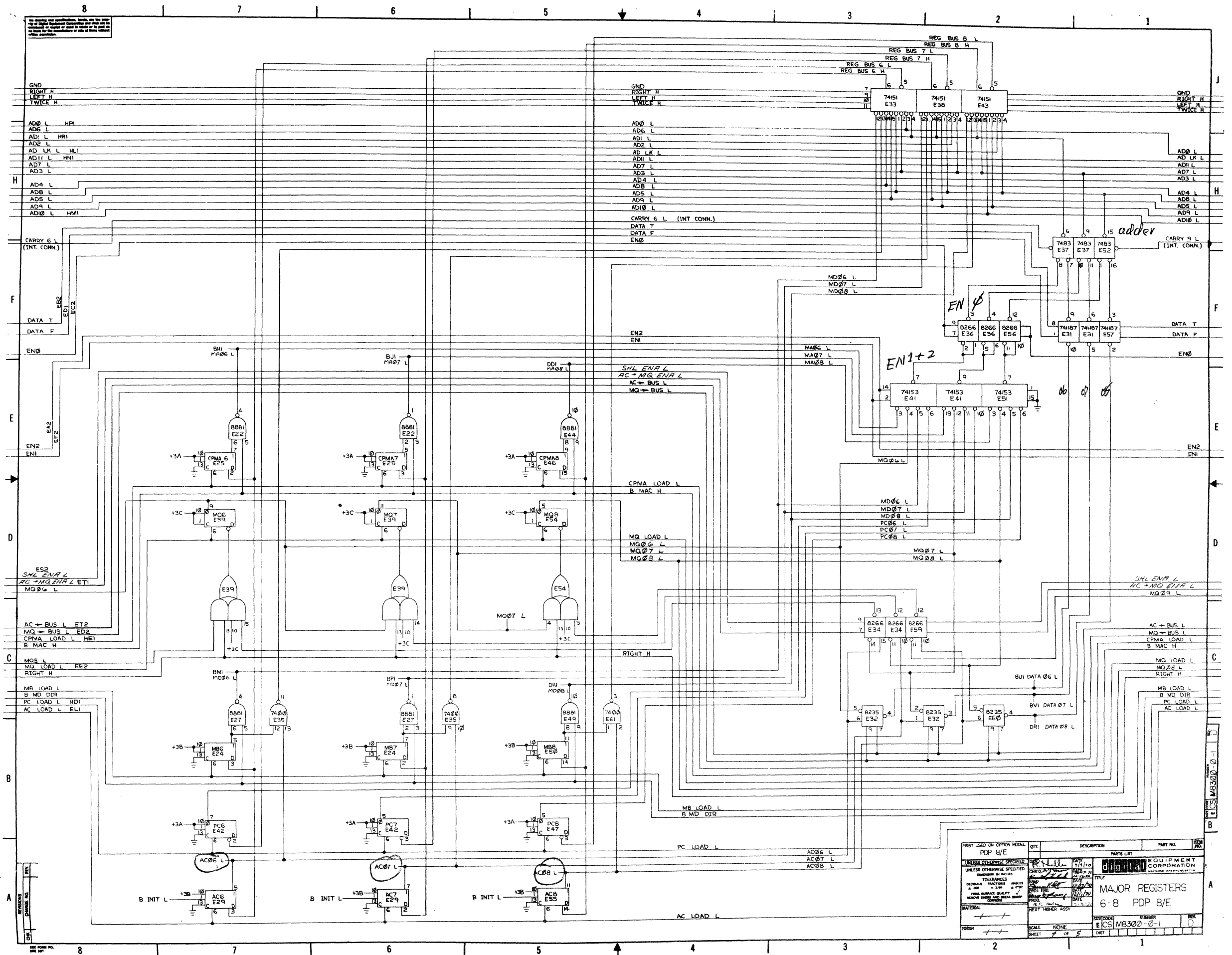
CS M8300-0-1



gating FOR:
2,3,4,5

FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO.	TRM
POP 8/E				
UNLESS OTHERWISE SPECIFIED				
DIMENSIONS IN INCHES				
TOLERANCES				
DECIMALS FRACTIONS ANGLES				
± .010 ± .005 ± .002				
FINISH SURFACE QUALITY				
REMOVE BURRS AND BREAK SHARP EDGES				
MATERIAL				
FINISH				
SCALE NONE				
SHEET 3 OF 5				
DATE 12/10/70				
DRAWN BY [Signature]				
CHECKED BY [Signature]				
APPROVED BY [Signature]				
DATE 12/10/70				
NEXT NUMBER ASSY				
DRAWING NUMBER				
ECS M8300-0-1				
REV. D				
MAJOR REGISTERS				
2-5 PDP 8/E				
PART NO.				
ECS M8300-0-1				
REV. D				

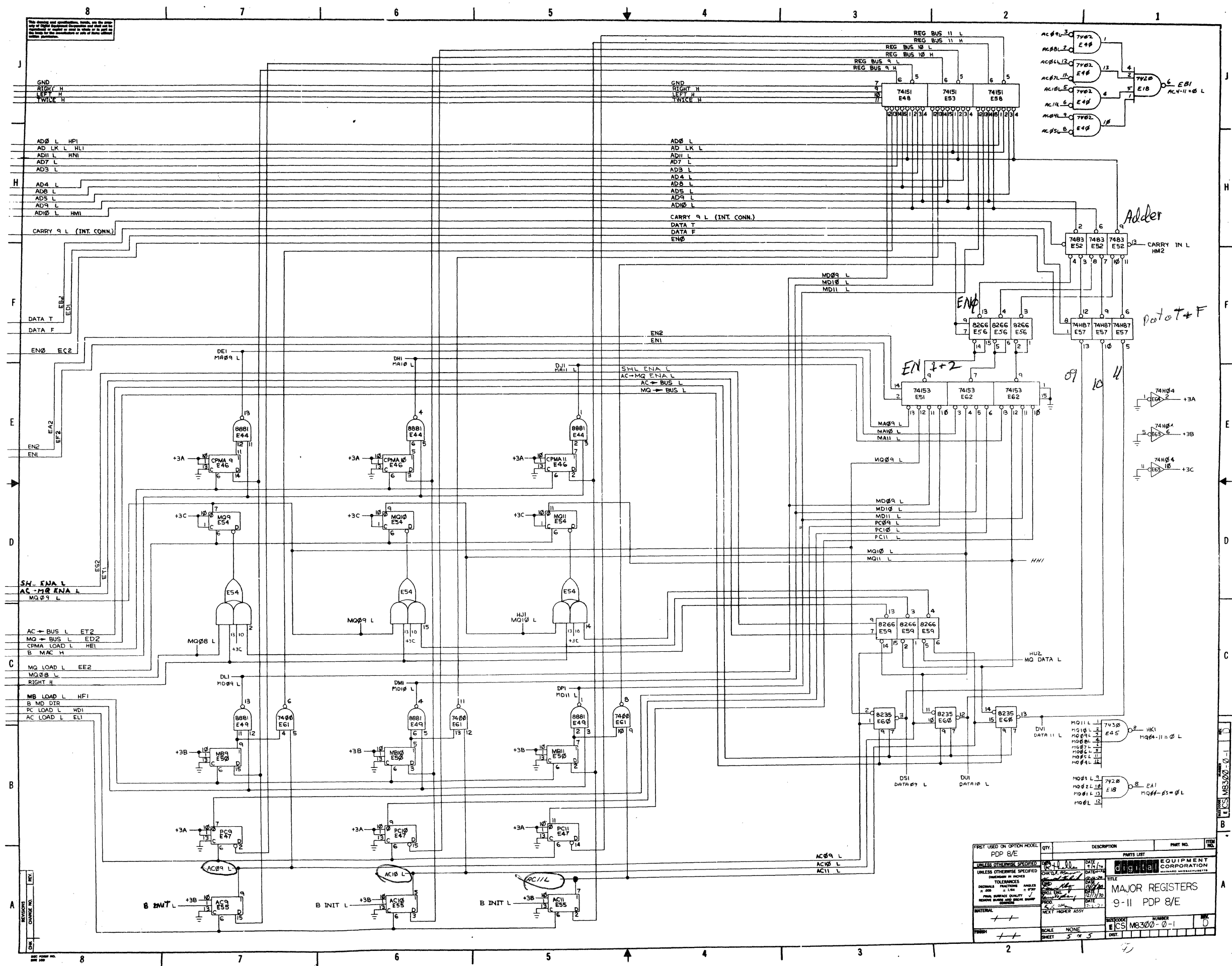
getting for 6/7/8



FIRST USED ON OPTION MODEL POP 8/E	QTY.	DESCRIPTION	PART NO.	REV. NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES FRACTIONS DECIMALS ANGLES DIMENSIONS HOLE DIA. HOLE DIA. HOLE DIA.				
digital EQUIPMENT CORPORATION				
TITLE				
MAJOR REGISTERS				
6-8 PDP 8/E				
MATERIAL		NEXT HIGHER ASSY	NUMBER ECS M8300-0-1	REV. D
FINISH		SCALE NONE	SIZE (IN)	SHEET 4 OF 5

REVISION HISTORY

Testing For 9, 10, 11



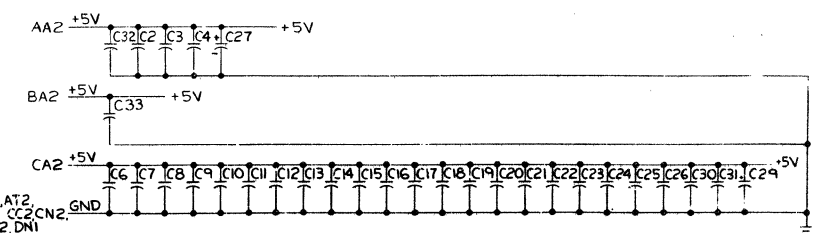
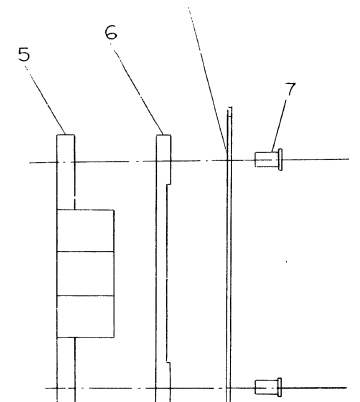
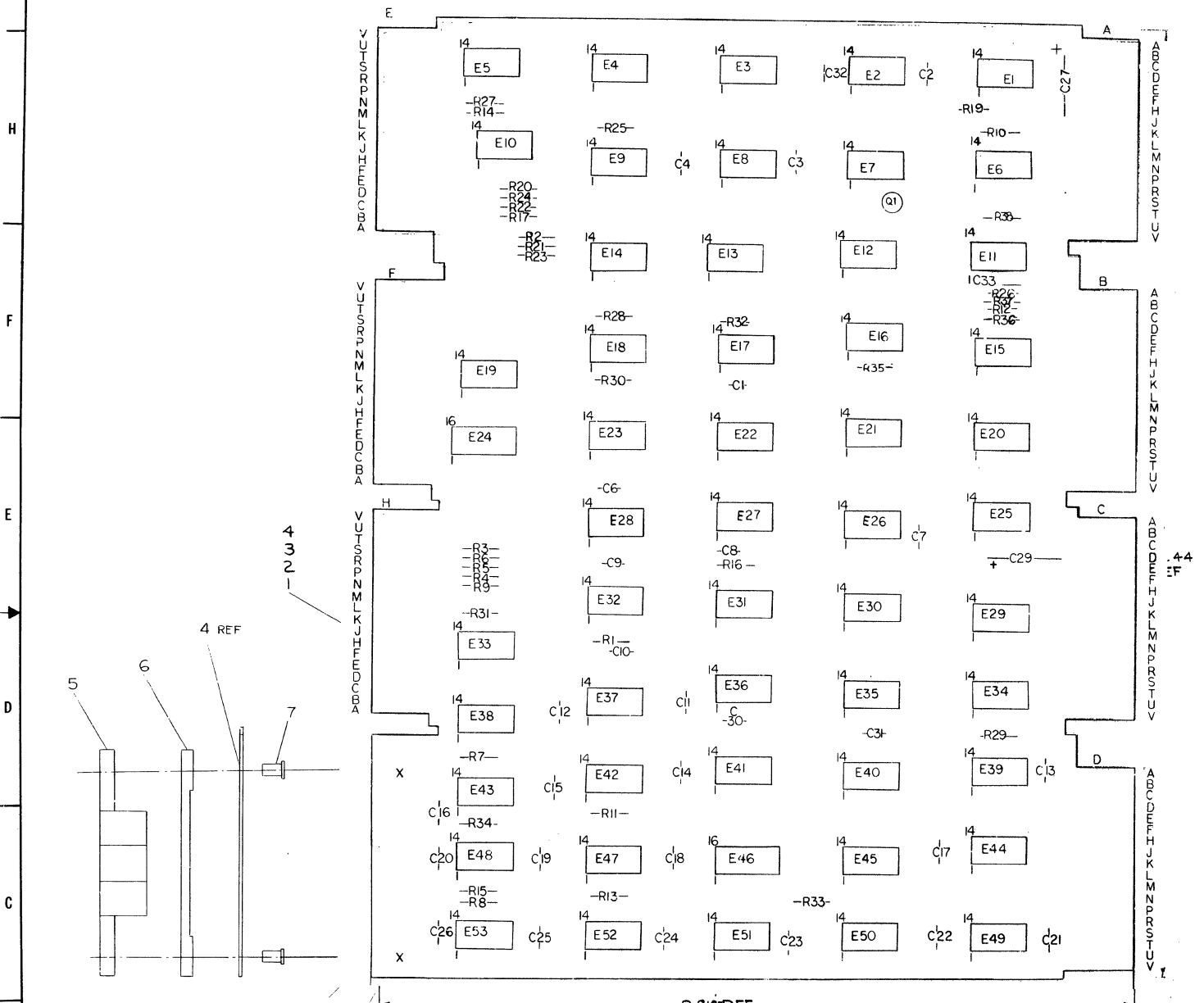
QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	74151	E48	1
1	74151	E53	2
1	74151	E58	3
1	7483	E52	4
1	8266	E56	5
1	8266	E59	6
1	74153	E51	7
1	74153	E52	8
1	74153	E53	9
1	7400	E41	10
1	7400	E42	11
1	7400	E43	12
1	7404	E49	13
1	7404	E49	14
1	7404	E49	15

MAJOR REGISTERS
9-11 PDP 8/E

SCALE NONE
SHEET 5 OF 5

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NOTES:



AC2, AF1, AF2, AN2, AT2
BC1, BC2, BF2, CC2, CN2, GND
CT2, DC1, DC2, DF2, DN1

IC TYPE	QTY	REV	LOC
DEC 74151	8	16	
DEC 8251	8	16	
DEC 384	1	8	
GND AND BY ARE USUALLY PIN 7 AND 14			
RESPECTFULLY EXCEPTIONS ARE STATED ABOVE			
ITEM NO.	QTY	FROM PT.	TO PT.
IC PIN LOCATIONS			
JUMPER LIST			

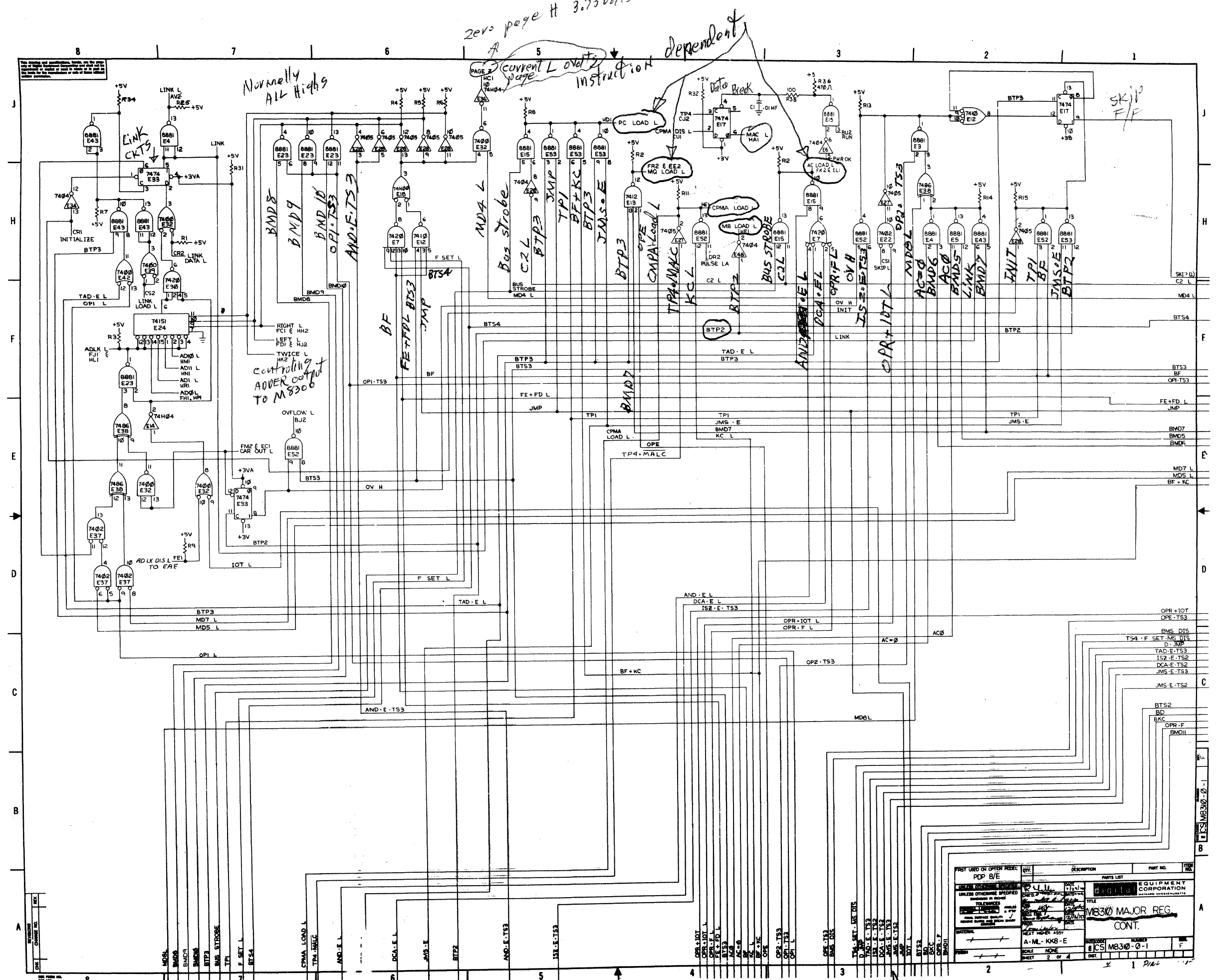
QTY	REF DESIGNATION	DESCRIPTION	PART NO.	REV
1	R37	RES. 3K, 1/4W, 5%	1300432	30
1	R38	RES. 100, 1/4W, 10%	1300231	23
1	Q1	TRANSISTOR DEC 3009B	150100	23
2	E40, E45	I.C. DEC 74H74	1909667	27
3	E18, E21, E35	I.C. DEC 74H00	1909056	26
2	E14, E36	I.C. DEC 74H04	1909931	25
1	R35	RES. 100, 1/4W, 5%	1300229	24
1	E38	I.C. DEC 7486	1910011	23
3	E9, E11, E13	I.C. DEC 7412	1909855	23
1	E24	I.C. DEC 74151	1909936	21
4	E5, E10, E27, E28, E44, E49, E52, E53, E15	I.C. DEC 888	1909705	19
7	E6, E16, E20, E22, E34, E47, E48	I.C. DEC 7404	1909900	18
1	E46	I.C. DEC 8251	1909594	17
1	E29	I.C. DEC 384	1909486	16
6	E19, E22, E25, E37, E41, E51	I.C. DEC 7402	1909004	13
2	E7, E30	I.C. DEC 7420	1905577	14
2	E12, E31	I.C. DEC 7410	1905576	13
3	E32, E33, E42	I.C. DEC 7400	1905575	12
3	E17, E33, E50	I.C. DEC 7474	1905547	11
34	R1, R17, R19, R34, R36	RES. 470, 1/4W, 5%	1300316	10
29	C1, C4, C6, C26, C30-33	CAP. 0.1UF, 100V, 20% DISC	1000610	9
2	C27, C29	CAP. 6.8UF, 35V, 20% S.TANT	1000067	8
2		EYELETS G54-11 STIMPSON	1000670	7
1		SPACER (CABLE CLAMP)	1202704	6
1		HANDLE, FLIP CHIP - MAGENTA	1908937-06	5
1		ETCHED CIRCUIT BOARD	5004278	4
REF		MODULE ECO HISTORY	8-MH-M8310-0-6	3
REF		ASSY/DRILLING HOLE LAYOUT	D-MH-M8310-0-5	2
REF		X-Y COORDINATE HOLE LOC.	X-CO-M8310-0-4	1

DEC 3002B	PNB646	REV COLUMN	PARTS LIST
PRINTED CIRCUIT BOARD	REVISION		
EQUIPMENT CORPORATION			
MAJOR REG. CONT. (M8310)			
DEC NO.	EIA NO.	D-UM-KK0-E-0	
REVISION	DATE	2/1	
CONTRACT NO.	REV.	1	

zero page # 3.75 volts
current load instruction dependent

Normally All Highs

SKIP F/F



Heart of SE

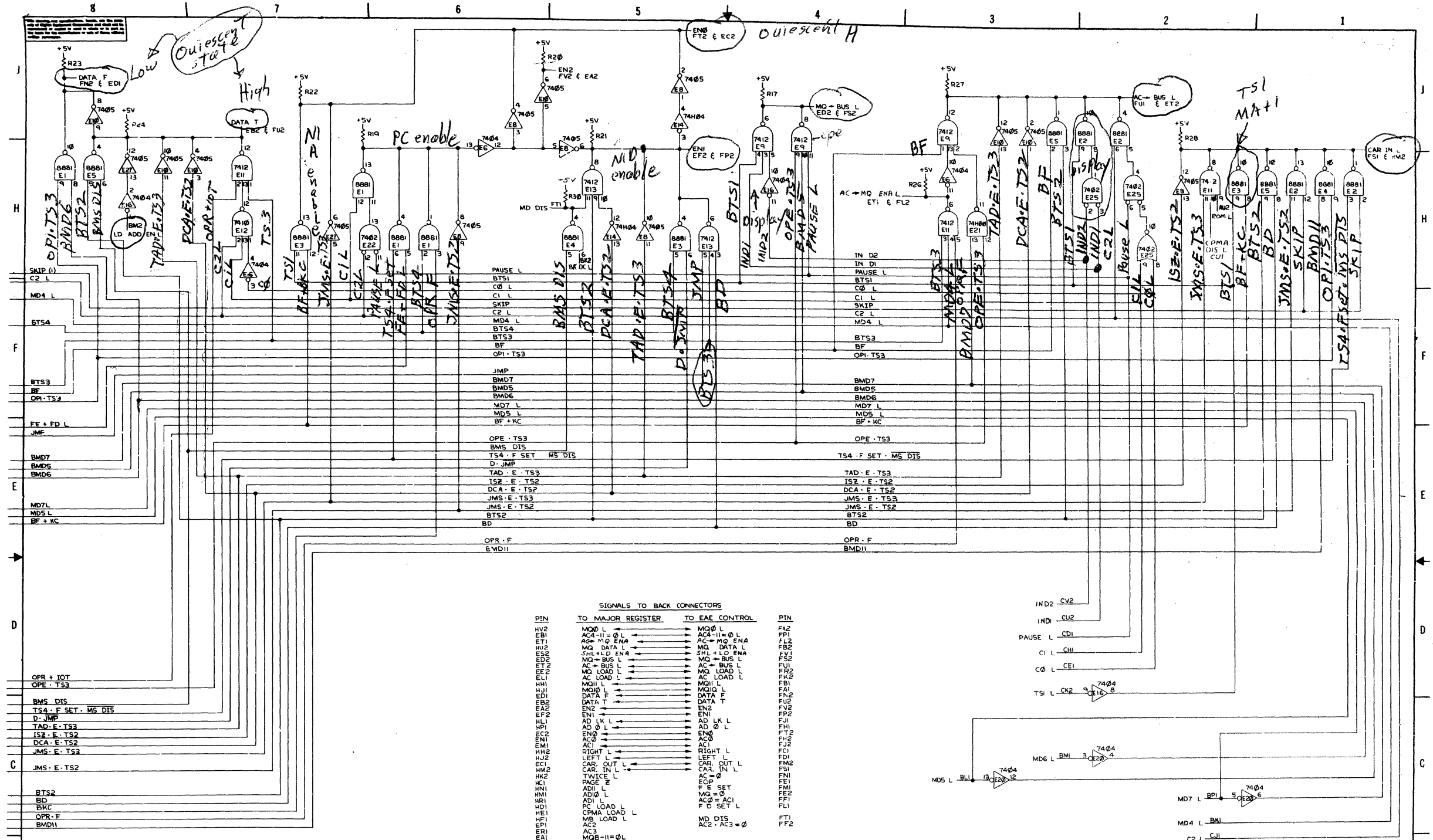
ALL Loads

FIRST USED ON OTHER MODEL		DESCRIPTION		QTY	PART NO.	REV.
POP	B/E					
UNLESS OTHERWISE SPECIFIED						
RESISTORS IN OHMS						
CAPACITORS IN MICROFARADS						
DIMENSIONS IN INCHES						
MATERIALS						
TEST INSTRUCTIONS						
DATE						
DRAWN BY						
CHECKED BY						
APPROVED BY						
SHEET 2 OF 4						

MB30 MAJOR REG. CONT.

CS MB30-0-1

SHEET 2 OF 4



SIGNALS TO BACK CONNECTORS

PIN	TO MAJOR REGISTER	TO EAE CONTROL	PIN
HV2	MOQ L	MOQ L	FA2
EB1	AC4-II=0L	AC4-II=0L	FP1
ET1	AC-MQ ENA	AC-MQ ENA	FL2
HU2	MQ DATA L	MQ DATA L	FB2
ES3	SHL+LO ENA	SHL+LO ENA	FV1
ED2	MO-BUS L	MO-BUS L	FS2
ET2	AC-BUS L	AC-BUS L	FU1
EE2	MO LOAD L	MO LOAD L	FR2
EL1	AC LOAD L	AC LOAD L	FB1
HH1	MQI L	MQI L	FA1
HU1	MQO L	MQO L	FA2
ED1	DATA F	DATA F	FV2
EB2	DATA T	DATA T	FV1
EA2	EN2	EN2	FP2
EF2	EN1	EN1	FU2
HL	AD LK L	AD LK L	FU1
HP1	AD 0 L	AD 0 L	FT2
EH2	EN2	EN2	FM2
EM1	AC	AC	FJ2
EH1	RIGHT L	RIGHT L	FC1
HJ2	LEFT L	LEFT L	FD1
EC1	CAR. OUT L	CAR. OUT L	FE1
HM2	CAR. IN L	CAR. IN L	FM1
HK2	AC=0	AC=0	FF2
HL	PAGE L	PAGE L	FF1
HN1	ADI L	F E SET	FF1
HM1	AD0 L	MG=0	FF1
HI1	AD1 L	AC=ACI	FF1
HE1	PC LOAD L	F D SET L	FF1
EP1	MB LOAD L	MD DIS	FT1
EA1	AC2	AC2 . AC3 = 0	FF2
EC1	AC3		
EA1	MQB-II=0L		
HK1	MQ0-7=0L		
HA1	MAC L		

RIGHT L	LEFT L	TWICE L	PAGE Z	DATA TO REGISTER	USE
L	L	L	L	MA=0-4 MQ=5-11	PAGE ADDRESSING
L	L	H	X	MBX ^ ACX	AND
L	H	L	X	ADDER (X-2)	RTR
L	H	H	X	ADDER (X-1)	RAR
H	L	L	X	ADDER (X+2)	RTL
H	L	H	X	ADDER (X+1)	RAL
H	H	L	X	ADDER (X-1)	BYTE SWAP
H	H	H	X	ADDER X	NO SHIFT
L	L	L	H	0+MA0=4 MD+MA5=11	PG 0 ADDRESSING

EN2	EN1	EN2	INPUT TO ADDER	DATA T	DATA F	INPUT TO ADDER
L	L	L	PC	L	L	DATA BUS NOT
L	L	H	MD	L	H	DATA BUS
L	H	L	MQ	H	L	ARITHMETIC ZERO
L	H	H	MA	H	H	ARITHMETIC ONE
H	X	X	(ARITHMETIC ZERO)			

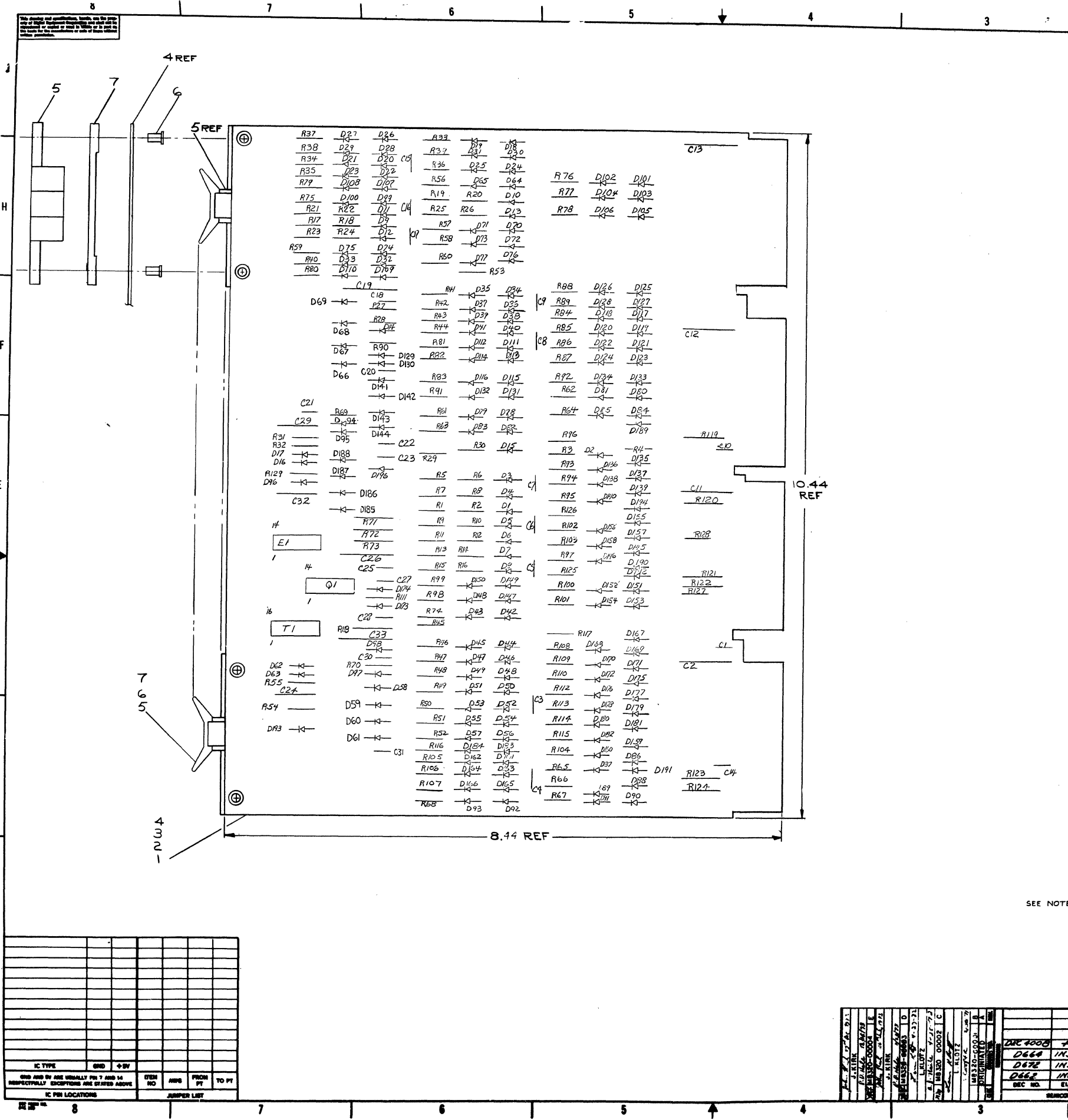
BIT X OF THE REGISTER SELECTED HERE IS ADDED TO BIT X OF THE DATA BUS AS SELECTED HERE AND THE SUM (ADDER X) IS FED TO A MULTIPLEXER TO BE DECODED AS ABOVE. THE OUTPUT OF THIS MULTIPLEXER IS LOADED INTO WHICH EVER REGISTER IS CLOCKED.

SHL ENA L	AC-MQ ENA L	DATA + MQ
L	L	MQX +1 0-10 MQ DATA + MQII
L	H	MQX +1 0-10 MQ DATA + MQII
H	L	AC (IN COMPLEMENT TO REDEFINE)
H	H	1 (0 → MQ)

heart of 8e
 ALL or most
 enables

OPI
 OP2
 OPE

FIRST USED ON OPTION MODEL PDP 8/E	QTY.	DESCRIPTION	PART NO.
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES ANGLES FINISHES SURFACE QUALITY MATERIAL	DATE 1/11/70 DRAWN 1/11/70 CHECKED 1/11/70 BY 1/11/70	DIGITAL EQUIPMENT CORPORATION TITLE M330 MAJOR REG CONT	
FINISH	SCALE NONE	SUBPROCESSOR	NUMBER
	SHEET 3 OF 4	ICS M330-10-1	



- NOTES:**
1. UNLESS OTHERWISE SPECIFIED:
CAPACITORS = .047UF 16V 15-20%
RESISTORS = 1500 1/4W 5%
DIODES = D664
2. CONNECT ALL PINS C, F, N, T (EXCEPT AC1) TOGETHER TO GROUND.
3. ITEM NO. B (D664) MAY BE REPLACED WITH D600 P.N. 1105366 (REV C ONLY).

IC PIN LOCATIONS

IC TYPE	AND	BY
BY	NO	DATE
FROM	PI	TO
BY	NO	DATE

12 R51-R68	RES 1K 1/4 W 5%	1300365	23
41 C24, C29, C32	GRIPLET	1210E49-0	20
7 C25, C33	CAP 330PF 100V 5%	1000083	21
23 C1, C3, C10, C14, C16, C18, C20, C23, C25, C27, C28, C30, C31	CAP 6.8UF 35V 20%	1000067	20
17 E1	IC DEC 7400	785375	18
6 R19-R23	RES 1K 1/4 W 5%	1500218	14
4 R71-R73, R78	RES 1.2K 1/4 W 10%	1302187	15
4 R53, R59, R78	RES 1500 1/4 W 5%	1300387	14
4 R51, R52, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68	RES 470 1/4 W 10%	1300317	12
20 R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68	RES 150 1/4 W 5%	1300250	11
2 D17, D19	DIODE D672	1105275	10
16 D58-D61, D66-D68	DIODE D662	1100113	9
7 D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D40, D41, D42, D43, D44, D45, D46, D47, D48, D49, D50, D51, D52, D53, D54, D55, D56, D57, D58, D59, D60, D61, D62, D63, D64, D65, D66, D67, D68	DIODE D664	1100114	8
4	SPACER (CABLE CLAMP)	1202704	7
4	EYELET GS4-11 STIMPSON	9006750	6
4	HANDLE FLIP CHIP-MAGENTA	900637-06	5
1	ETCHED CIRCUIT BOARD	9006750	4
1	MODULE HISTORY LIST	8-MH-M8320-1	3
1	ASSY/DRILLING HOLE LAYOUT	D-AM-M8320-1	2
1	X-Y COORDINATE HOLE LOC.	K-CO-M8320-1	1

ETCH BOARD REV D

PARTS LIST

D664	1N3606
D672	1N3657
D662	1N665

SEMICONDUCTOR CONVERSION CHART

DEC. NO.	DATA NO.	DEC. NO.	DATA NO.
71	271		

EQUIPMENT CORPORATION

BUS LOADS

D-UA-KK8-E-B

ECSM8320-0-1

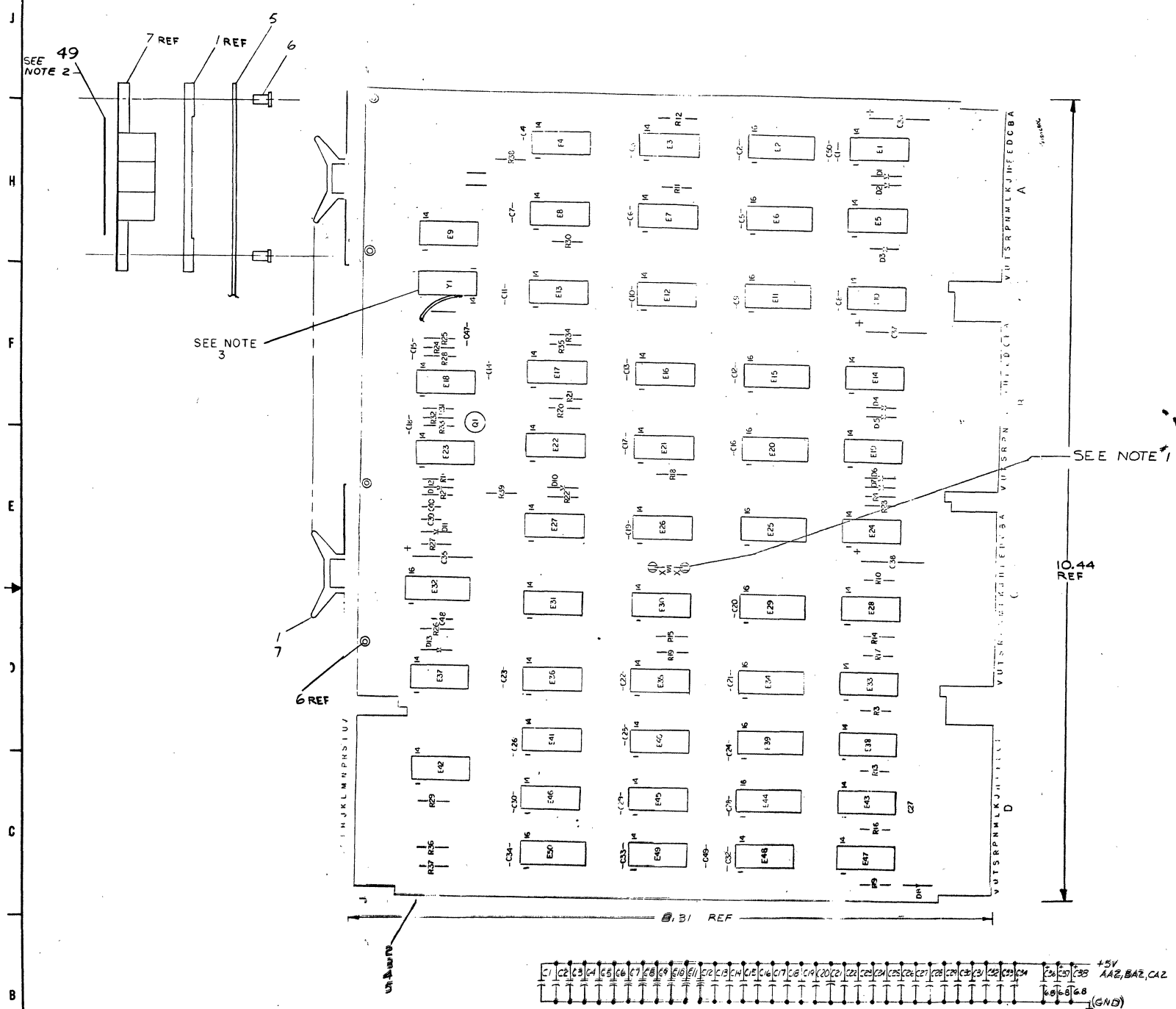
DATE 1-7-71

BY [Signature]

M 8320

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- NOTES:
1. WI (JUMPER) TO BE INSERTED BY CUSTOMER ONLY.
 2. THE STICKER READS AS FOLLOWS:
M8330 ETCH D MAY BE REPLACED WITH ETCH C IF MACHINE USES ONLY CORE MEMORY SEMICONDUCTOR MEMORIES MRB-F REQUIRE ETCH D OR LATER.
 3. INSERT OSC. UPSIDE-DOWN, SO THAT PIN 1 IS CLOSEST TO THE FINGERS. PIN 1 IS IDENTIFIED BY A SOLDER BLOB ON SIDE OF OSC. CAN.



*inserted: slow cycle only
omitted: Fast/slow*

SNB= ACC, AF1, AN1, AN2, AT1, BC1, BC2,
BF1, BN2, BT1, BT2, CC1, CC2, CF1,
EF2, CH1, ET1, DE1, DF1, DN1, DT1, DT2.

IC TYPE	QND	SY	WI	SEE NOTE 1
DEC 74194	2			
DEC 2251	2			
DEC 531A	1			
DEC 2360	1			
DEC 533A	1			

GND AND SY ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.

IC PIN LOCATIONS

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	QTY
1	Y1	OSC 20MHR.	8103740-05	53
4	E9, E21, E30, E40	I.C. DEC 74574	1910544	51
1	E18	I.C. DEC 74H04	1909931	50
2	A38, A39	RES 1K 1/4W 5%	1800363	49
2		SP. IT. IUG	9006715	47
1	E27	I.C. DEC 5584	1910394	45
1	E13	I.C. DEC 5380	1910392	44
1	E4	I.C. DEC 5314	1910391	43
1	E50	I.C. DEC 8251B	1909594	42
1	E17	I.C. DEC 8881	1909705	41
1	E8	I.C. DEC 74H11	1909267	40
2	E36, 41	I.C. DEC 74501	1909113	39
12	E26, 11, 15, 20, 25, 29, 34, 38, 44	I.C. DEC 74194	1910423	38
1	E32	I.C. DEC 74123	1910436	37
4	E26, 31, 45, 49	I.C. DEC 74H74	1909667	36
2	E13, 27, 101, 104, 105, 25, 33, 36, 43	I.C. DEC 74H40	1909586	35
2	E12, E46	I.C. DEC 7430	1905578	34
1	E46	I.C. DEC 7420	1905577	33
2	E37, E35	I.C. DEC 7417	1909920	32
1	E48	I.C. DEC 7410	1905576	31
1	E48	I.C. DEC 7404	1909686	30
1	E22	I.C. DEC 7402	1909004	29
2	E23, E47	I.C. DEC 7400	1906876	28
1	D1	TRANSISTOR DEL B279B	1809100	26
1	R27	RES 47K 1/4W 5%	1802177	24
1	R26	RES 10K 1/4W 5%	1800479	23
1	R1	RES 3.9K 1/4W 5%	1800484	22
15	R21, 115B, R22, 25, R30, R32, R34, R36, R37	RES 470 1/4W 10%	1800317	21
13	R33, R35, R36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49	RES 50 1/4W 10%	1800252	20
2	R31, R33	RES 27 1/4W 10%	1801480	19
12	D1-D8, D10-D18	DIODE 2668	1801114	18
1	C38	CAP 39PF, 10V 10% STANT	1000076	16
3	C36-C38	CAP 6.8UF, 35V 10% S. TANT	1006306	15
2	C39-C40	CAP .047UF, 16V, 20% -53K	1009678	14
37	C1-C8, C9, C2, C41, C68	CAP .01UF, 100V, 20% DSC	1001613	11
1	C48	CAP 1000PF, 100V, 5% MICA	1000042	10
1				9
1				8
1				7
1				6
1				5
1				4
1				3
1				2
1				1

PRINT USING ON OPT. MODEL M8B-F

ETCH BOARD REV E

DATE

TITLE

EQUIPMENT CORPORATION

NUMBER

REV

DEC NO EIA NO DEC NO EIA NO

REVISIONS

DATE

BY

CHKD

APPROVED

DATE

BY

CHKD

APPROVED

DATE

BY

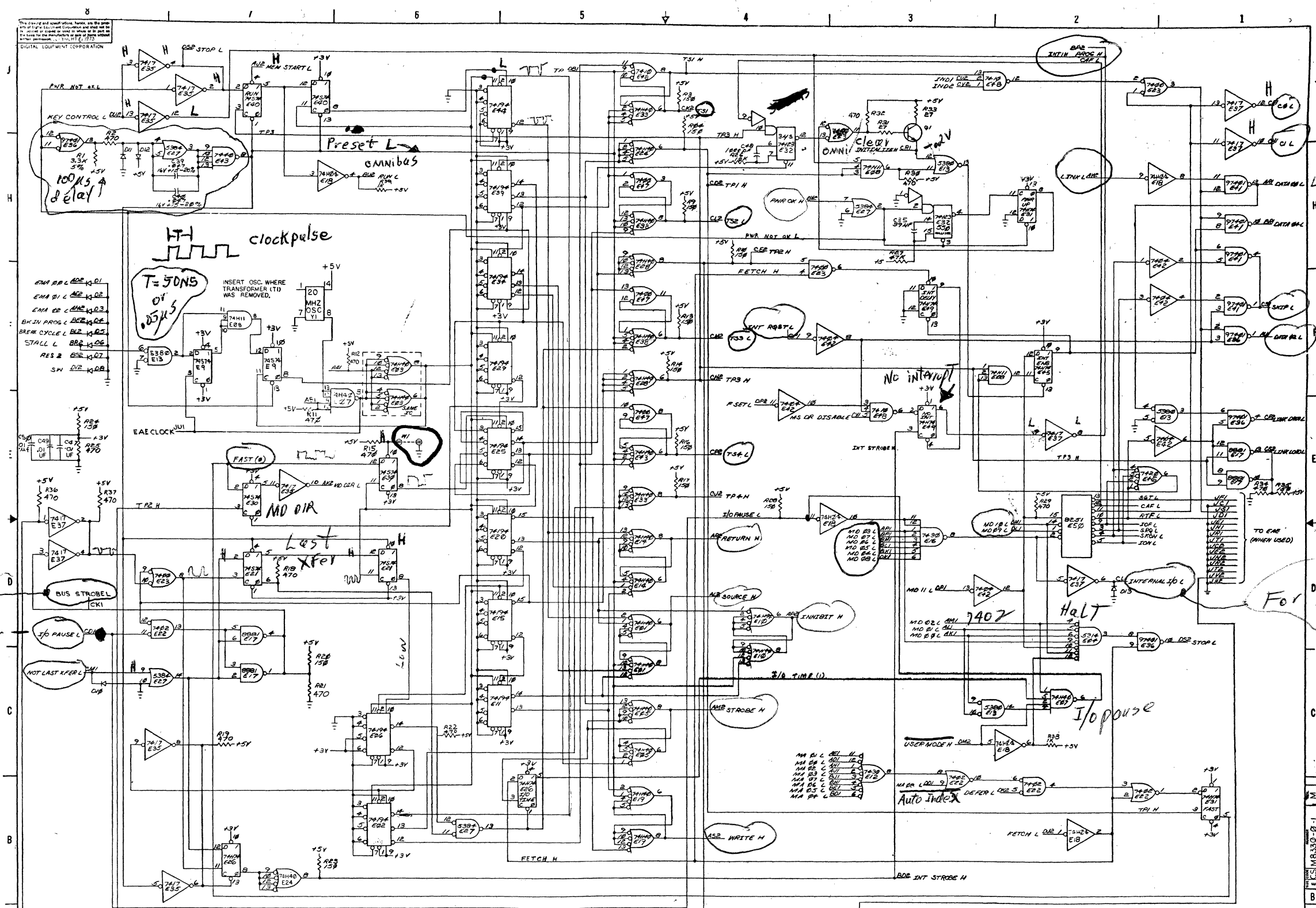
CHKD

APPROVED

M 8330

Provides synchronizing signals for memory + processor operations.
 8 processor timing signals, 5 memory timing signals.

W1 can be jumpered for easier troubleshooting



For External device with Post/c Bus.

REV.	DESCRIPTION	DATE	BY	CHKD.
1	ISSUED FOR WORK			
2	REVISED			
3	REVISED			
4	REVISED			
5	REVISED			
6	REVISED			
7	REVISED			
8	REVISED			
9	REVISED			
10	REVISED			

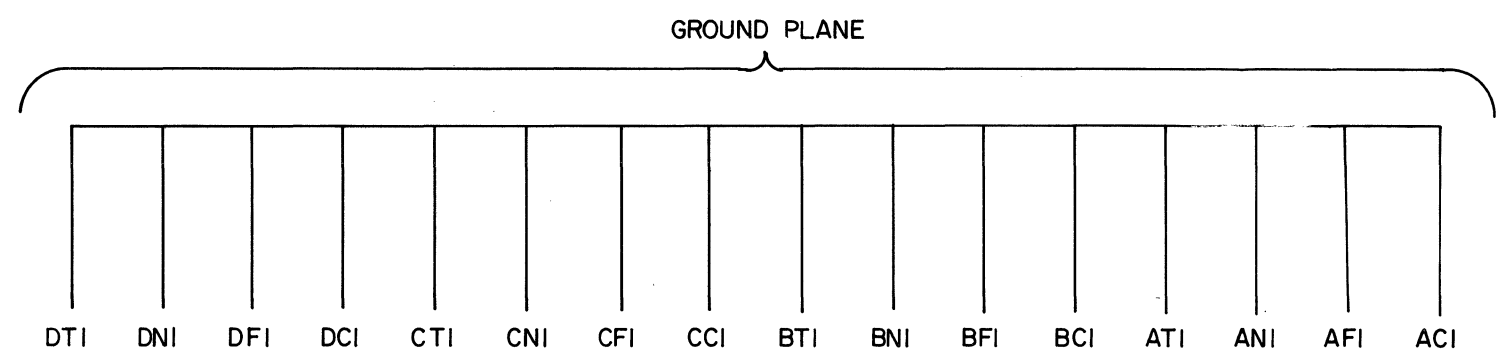
First board on BUSS

M8330



REV. C	NUMBER M849-0-1	CS	B
		CODE	SIZE

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REVISIONS	CHK	CHG NO.	REV.		DRN. <i>NANCY MOORE</i>	DATE <i>8/18/70</i>	TRANSISTOR & DIODE CONVERSION CHART				digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE RFI SHIELD M849			
					CHK'D <i>R. Sullivan</i>	DATE <i>8/24/70</i>	DEC	EIA	DEC	EIA		SIZE B	CODE CS	NUMBER M849-0-1	REV. C
					ENG. <i>A. F. ...</i>	DATE <i>10/1/70</i>						PRINTED CIRCUIT REV. D			
					PROD. <i>R. K. ...</i>	DATE <i>7 6 71</i>									



10-17 224,434,435 3 PINK

MASTER DRAWING LIST

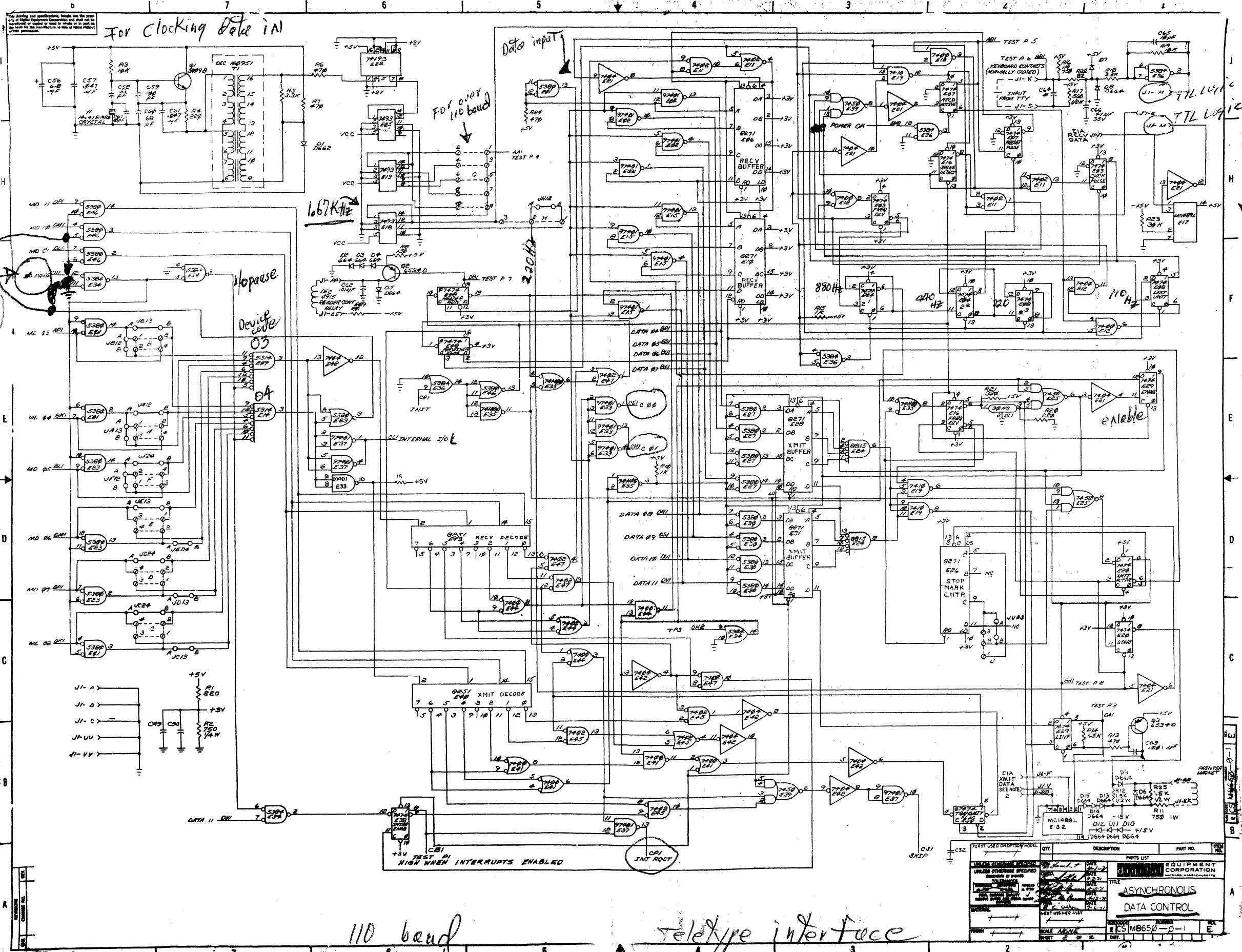
MAINTENANCE MANUALS		UNIT VARIATIONS											
		KL8-E	KL8-EA	KL8-EB	KL8-EC	KL8-ED	KL8-EE	KL8-EF	KL8-EG				
NO.	TITLE												
KL8-E	ASYNC DATA CONTROL	X	X	X	X	X	X	X	X				

USED ON OPTIONS											
PDP8/E											
PDP8/M											

REVISIONS		CHG. NO.	APP'D.	DRN.	DATE	TITLE
		REV.	DATE			
A	4/71	M865-3	JM	K. GULICK	12-3-70	digital EQUIPMENT CORPORATION <small>MAYNARD, MASSACHUSETTS</small> ASYNC DATA CONTROL
B	8/71	KL8E-3	<i>Outs</i>	K. GULICK	12-3-70	
C	12/71	KL8E-4	<i>J. W.</i>	ENG. MCNAMARA	1-13-71	
D	1/72	RE-55	<i>FOR J.C.</i>	PROJ. ENG. VOGELSANG	1-13-71	
E	1/72	KL8E-5	<i>14C</i>	PROD. L. SAYLOR	1-13-71	
F	2/74	KL8E-7	R.R.	FIRST USED ON	PDP8/E	
				SCALE	A ML	NUMBER KL8-E
				SHEET 1 OF 2	DIST.	REV F

PRINT SET				REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.
KL8E		DWG. NO.					
X		E-CS-M8650-0-1	#	2	ASYNC. DATA CONTROL		
X		E-CS-M8650-YA-1	#	2	ASYNC. DATA CONTROL		
X		D-IA-7008360-0-0		1	CABLE ASSY		
X		D-IA-BC01V-25-0		1	CABLE ASSY		
X		A-SP-KL8-E-1		16	ENGINEERING SPECIFICATIONS		
X		A-PL-KL8-E-0		1	ASYNC. DATA CONTROL		
		A-SP-KL8-E-2		10	TEST PROCEDURE		
		A-SP-KL8-E-3	A	5	ACCEPTANCE		
-		LIBKIT-8E-KL8-E-02	REF.	1	KIT LIST		
X		A-AL-KL8-E-4		1	ACCESSORY LIST		

TITLE	ASYNC. DATA CONTROL	SHEET 2 OF 2	SIZE CODE	A ML	NUMBER	KL8-E	REV	F
-------	---------------------	--------------	-----------	------	--------	-------	-----	---



For clocking data in

Data input

For 110 baud

1.667 kHz

2.20 kHz

880 Hz

440 Hz

220 Hz

110 Hz

has to be here for this board to work

51-H is shorted to 51-E for teletype

getting right clock pulses.

110 baud

teletype interface

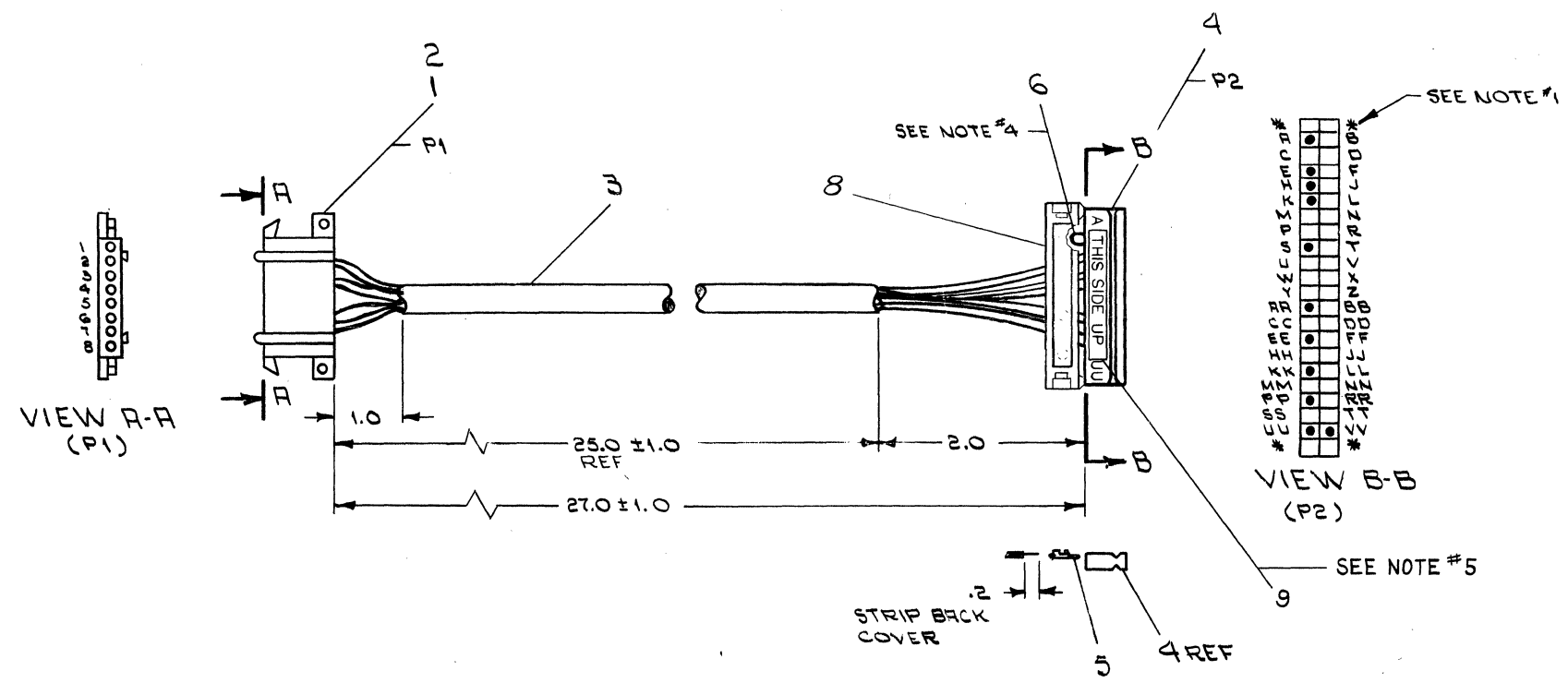
QTY	DESCRIPTION	PART NO.	ITEM NO.
1	7400 NAND GATE	7400	
1	7401 INVERTER	7401	
1	7402 NOR GATE	7402	
1	7404 INVERTER	7404	
1	7408 OCTAL INVERTER	7408	
1	7410 NAND GATE	7410	
1	7411 NAND GATE	7411	
1	7412 NAND GATE	7412	
1	7413 NAND GATE	7413	
1	7414 MONOSTABLE MULTIVIBRATOR	7414	
1	7415 NAND GATE	7415	
1	7416 NAND GATE	7416	
1	7417 NAND GATE	7417	
1	7418 NAND GATE	7418	
1	7419 NAND GATE	7419	
1	7420 NAND GATE	7420	
1	7421 NAND GATE	7421	
1	7422 NAND GATE	7422	
1	7423 NAND GATE	7423	
1	7424 NAND GATE	7424	
1	7425 NAND GATE	7425	
1	7426 NAND GATE	7426	
1	7427 NAND GATE	7427	
1	7428 NAND GATE	7428	
1	7429 NAND GATE	7429	
1	7430 NAND GATE	7430	
1	7431 NAND GATE	7431	
1	7432 NAND GATE	7432	
1	7433 NAND GATE	7433	
1	7434 NAND GATE	7434	
1	7435 NAND GATE	7435	
1	7436 NAND GATE	7436	
1	7437 NAND GATE	7437	
1	7438 NAND GATE	7438	
1	7439 NAND GATE	7439	
1	7440 NAND GATE	7440	
1	7441 NAND GATE	7441	
1	7442 NAND GATE	7442	
1	7443 NAND GATE	7443	
1	7444 NAND GATE	7444	
1	7445 NAND GATE	7445	
1	7446 NAND GATE	7446	
1	7447 NAND GATE	7447	
1	7448 NAND GATE	7448	
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1	7464 NAND GATE	7464	
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1	7467 NAND GATE	7467	
1	7468 NAND GATE	7468	
1	7469 NAND GATE	7469	
1	7470 NAND GATE	7470	
1	7471 NAND GATE	7471	
1	7472 NAND GATE	7472	
1	7473 NAND GATE	7473	
1	7474 NAND GATE	7474	
1	7475 NAND GATE	7475	
1	7476 NAND GATE	7476	
1	7477 NAND GATE	7477	
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1	7479 NAND GATE	7479	
1	7480 NAND GATE	7480	
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1	7489 NAND GATE	7489	
1	7490 NAND GATE	7490	
1	7491 NAND GATE	7491	
1	7492 NAND GATE	7492	
1	7493 NAND GATE	7493	
1	7494 NAND GATE	7494	
1	7495 NAND GATE	7495	
1	7496 NAND GATE	7496	
1	7497 NAND GATE	7497	
1	7498 NAND GATE	7498	
1	7499 NAND GATE	7499	
1	7500 NAND GATE	7500	

M 8650

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WIRE TABLE							
ITEM NO.	DESCRIPTION	PAIR NO.	FROM		TO		
			CONNECTION	WITH	CONNECTION	WITH	
3	22	BLK	1	P1-2	2	P2-KK	5
3		RED	1	P1-3	2	P2-S	
3,7		SHIELD	1	SEE NOTE #2	-	P2-A(NOTE#3)	
3		BLK	2	P1-4	2	P2-EE	
3		WHT	2	P1-5	2	P2-AA	
3,7		SHIELD	2	SEE NOTE #2	-	P2-UU(NOTE#3)	
3		BLK	3	P1-6	2	P2-PP	
3		GRN	3	P1-7	2	P2-K	
3,7		SHIELD	3	SEE NOTE #2	-	P2-VV(NOTE#3)	
6	22	BLK	-	P2-E	5	P2-H	5

- NOTES:
- * ASTERISKS INDICATE CAVITIES NOT USED OR DESIGNATED BY LETTERS.
 - DRAIN WIRES TO BE CUT BACK TO OUTER INSULATION ON P1 END OF CABLE ONLY. SHIELDS TO BE CUT BACK TO OUTER INSULATION ON BOTH ENDS OF CABLES.
 - DRAIN WIRES ON P2 END OF CABLE TO BE EACH ENCLOSED WITH ITEM #7 (TUBING) FROM END OF CABLE JACKET TO POINT WHERE THEY ENTER P2 CONNECTOR.
 - ITEM #6 (WIRE) TO BE APPROXIMATELY ONE(1) INCH LONG.
 - PLACE ITEM #9 ("THIS SIDE UP" STICKER) ON LETTERED SIDE OF ITEM #4 (BERG HOUSING) AS SHOWN:



QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	LABEL, THIS SIDE UP	3611567	9
1	STRAIN RELIEF	1211166	8
	AIR TUB. #18 TEF. THINWALL NAT	9107278-11	7
	AIR WIRE #22 AWG STRD TEF BLK	9107350-00	6
11	SOCKET, CRIMP # 47216	1210089-07	5
1	HOUSING, BERG # 65013-015	1210918-15	4
	AIR CABLE BELDEN #877-3PR SHLD	9107723-0	3
6	CONTACT MATE-LOCK (FEMALE)	1209379-03	2
1	CONN. MATE-N-LOCK (FEMALE)	1209340-00	1

REV	DATE	BY	CHK'D
1	10/29/73	REGAN	
2	3/2/74	REGAN	
3	10/03/74	REGAN	
4	10/19/74	REGAN	

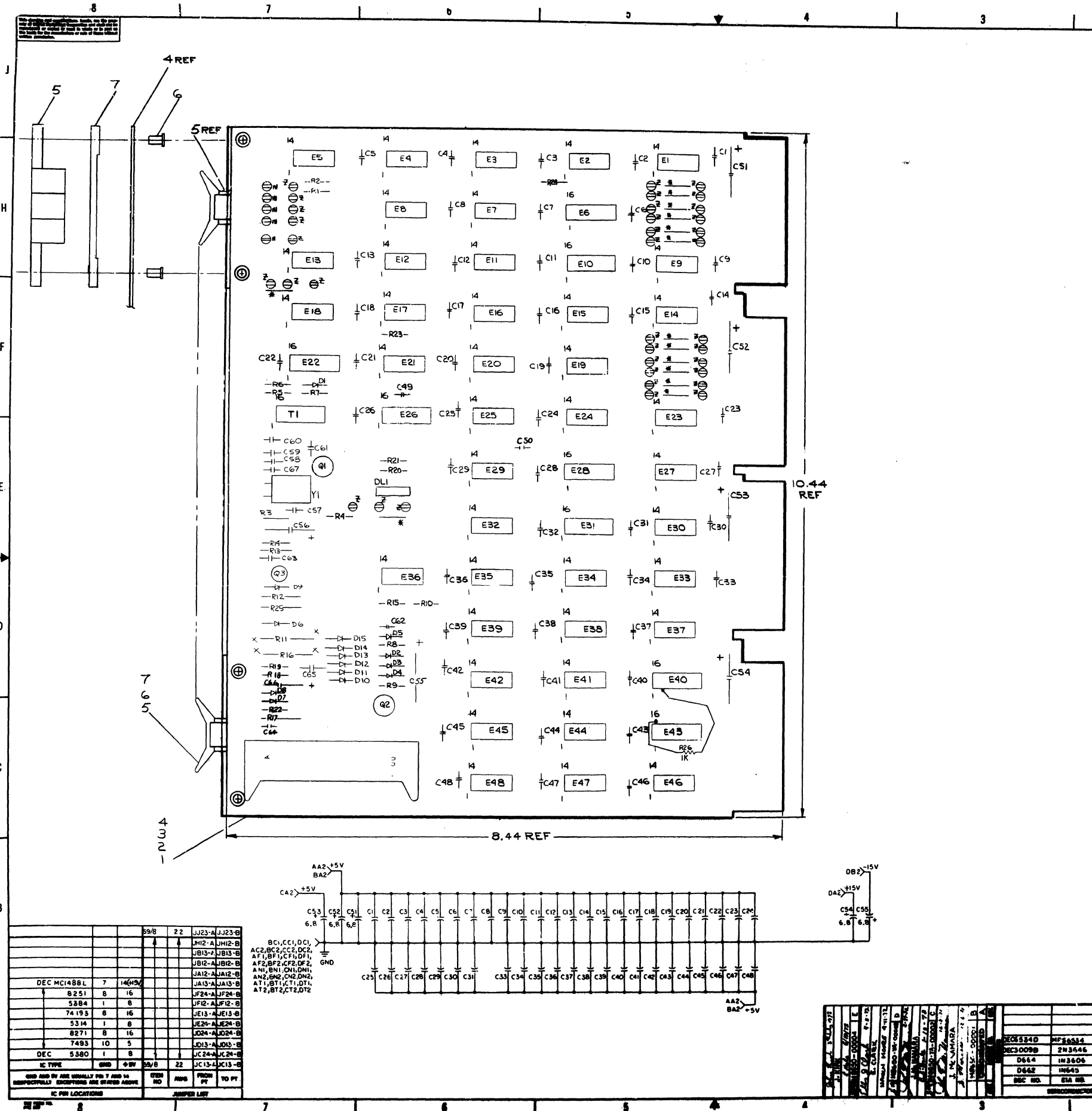
FIRST USED ON OPTION/MODEL
PDP-8E

DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES	TOLERANCES	ANGLES
± 0.005	± 0.010	± 0.030	
FINAL SURFACE QUALITY	REMOVE BURRS AND BREAK SHARP CORNERS		
MATERIAL	SEE PARTS LIST		
FINISH			

DRN. DATE 10/29/73	CHK'D. DATE 10/29/73	ENG. DATE 10/29/73	PROJ. ENG. DATE 10/29/73	PROD. DATE 10/29/73
TITLE				
CABLE ASSEMBLY (KL8E)				
NEXT HIGHER ASSY				
A ML KLS-E-0				
SCALE NONE	SHEET 1 OF 1	DIST.		

SIZE CODE
DIA 7008360-0-0

REV
E



NOTES:

- $\frac{A}{B}$ = SPLIT LUGS
 $\frac{A}{B}$ = MACHINE INSERTED JUMPER
 $\frac{A}{B}$ = 40 PIN HEADER CONNECTION
 DATA II DVI = OMNIBUS CONNECTION
 2. PIN F IS EIA TRANSMITTED DATA:
 +6V OR MORE = SPACE = 0
 -6V OR LESS = MARK = 1
 PIN V IS EIA REQUEST TO SEND, +6V OR MORE = ON (PERMANENTLY).
 PIN DD IS EIA DATA TERMINAL READY, +6V OR MORE = ON (PERMANENTLY).
- THIS DRAWING FOLLOWS DEC STANDARD 056 LOGIC SYMBOLOLOGY.
 FLIP-FLOPS ARE NAMED FOR THE CONDITION THEY REPRESENT IN THE '1' STATE.
 THE FOLLOWING FIGURES APPLY:

CLEAR 7474 PRESET

IF 'D' SHOWN THUS '1' STATE = Q STATE.

IF 'D' SHOWN THUS '1' STATE = Q-bar STATE.

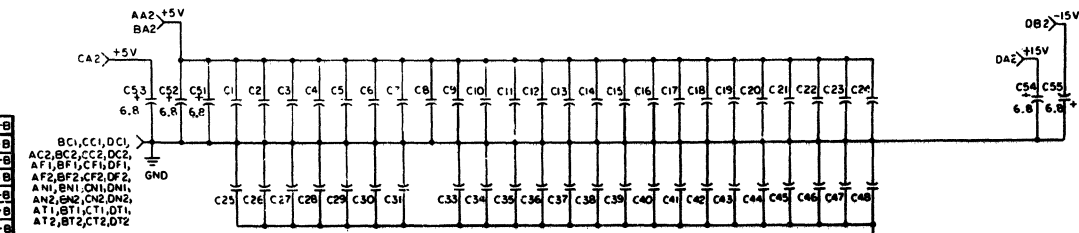
IF '1' SHOWN THUS THIS LEAD IS HIGH WHEN FLIP-FLOP IS IN '1' STATE.

IF '1' SHOWN THUS THIS LEAD IS LOW WHEN FLIP-FLOP IS IN '1' STATE.
- WAVEFORM AT TEST POINT #6 FOR RECEPTION OF 'A' (ASCII 301)

START 1 0 0 0 0 1 1 STOP STOP
- UNLESS OTHERWISE NOTED:
 RESISTORS = 1K 1/4W 5%
 CAPACITORS = .01uf 100V 20%
 DIODES = D664

QTY	REF	DESCRIPTION	MANUFACTURER	PART NO.
2	R12, R25	RES. 1.5K 1/2 W 5%	1300394	60
1	R22	RES. 22 1/4W 5%	1301477	58
5	E1, E2, E3, E4	I.C. DEC 5380	1910392	97
4	E2, E15, E33, E37	I.C. DEC 97401	1909973	86
9	E3, E4, E7, E8, E16, E20, E29, E38, E48	I.C. DEC 7474	1905547	55
3	E5, E13, E18	I.C. DEC 7493	1909054	54
5	E6, E10, E26, E28, E31	I.C. DEC 8271	1909613	53
2	E9, E14	I.C. DEC 5314	1910391	82
3	E11, E45, E47	I.C. DEC 7402	1909004	51
3	E16, E41, E44	I.C. DEC 7400	1905575	50
1	E17	I.C. MC1488 EIA RECEIVER	1910323	49
1	E19	I.C. DEC 7410	1905576	48
2	E21, E42	I.C. DEC 7404	1909686	47
1	E22	I.C. DEC 74193	1910018	46
1	E24	I.C. DEC 8815	1909713	45
2	E25, E39	I.C. DEC 7450	1905580	44
1	E32	I.C. MC1488 EIA DRIVER	1910322	43
2	E34, E36	I.C. DEC 5384	1910394	42
2	E40, E43	I.C. DEC 8251	1909594	41
1	E35	I.C. DEC 7400	1909056	40
32	C1-C50, C62, C64	CAP. .01uf 100V 20% DISC	1001610	39
2	C51-C56	CAP. 6.8uf 35V 20% TANT	1000087	38
2	C57, C61	CAP. .047uf DISC	1009678	37
1	C58	CAP. 33PF MICA	1000009	36
1	C59	CAP. 100PF MICA	1000016	35
1	C60	CAP. 68PF MICA	1000014	34
1	C63	CAP. .001uf 250V DISC	1000005	33
2	C65, C67	CAP. 10uf 100V 5% MICA	1000000	32
1	C68	CAP. 47uf 35V TANT	1003968	31
1	D1	DIODE D662	1100118	30
4	D2-D5	DIODE D664	1100114	29
3	R1, R4, R20	RES. 220 1/4W 5%	1300291	28
2	R3, R19	RES. 10K 1/4W 5%	1301401	27
2	R5, R18	RES. 3.3K 1/4W 5%	1300439	25
4	R6, R7, R13, R24	RES. 470 1/4W 5%	1300316	24
1	R8	RES. 150 1/4W 5%	1300250	23
3	R10, R15, R26	RES. 1K 1/4W 5%	1300365	22
2	R11, R16	RES. 750 1W 5%	1302383	21
1	R14	RES. 1.5K 1/4W 5%	1300391	20
1	R21	RES. 330 1/4W 5%	1300293	19
1	R23	RES. 30K 1/4W 5%	1302394	18
1	R9	RES. 150 1/4W 5%	1301322	17
1	R17	RES. 560 1/4W 5%	1300328	16
1	Q1	TRANSISTOR DEC 9008B	1503100	15
2	Q2, Q3	TRANSISTOR DEC 6534D	1503409	14
1	TI	XFMR 8010	1609651	13
1	DL1	DELAY LINE 30 NANO SEC	1605528	12
1	Y1	CRYSTAL 14.3181 Mhz	1809880-08	11
40	J1	LUGS SPLIT	9006733	10
1	J2	CONNECTOR 40 PIN	1209941	9
1/2	J3	WIRE STRAWS SOLID BUS	3107560-01	8
4	J4	BRIDGE CABLE CLAMP	1109940	7
3	J5	BRIDGE CABLE STIMPERSON	9006740	6
1	J6	SAMPLE FLIP CHIP-MAGENTA	9006736	5
1	J7	ETCHED CIRCUIT BOARD	6002546	4
1	J8	MODULE HISTORY LIST	8001866	3
1	J9	DRILLING WOLE LATOET	8001867	2
1	J10	XY COORDINATE TABLE LOC.	8001868	1

IC TYPE	QTY	REF	DESCRIPTION
DEC MC1488L	7	14(45)	JAI2-A, JAI2-B, JAI3-A, JAI3-B, JAI2-A, JAI2-B, JAI3-A, JAI3-B, JAI2-A, JAI2-B, JAI3-A, JAI3-B, JAI2-A, JAI2-B, JAI3-A, JAI3-B
DEC 5380	1	8	JC24-A, JC24-B
DEC 5380	1	8	JC24-A, JC24-B
DEC 5380	1	8	JC24-A, JC24-B



ETCH BOARD REV D

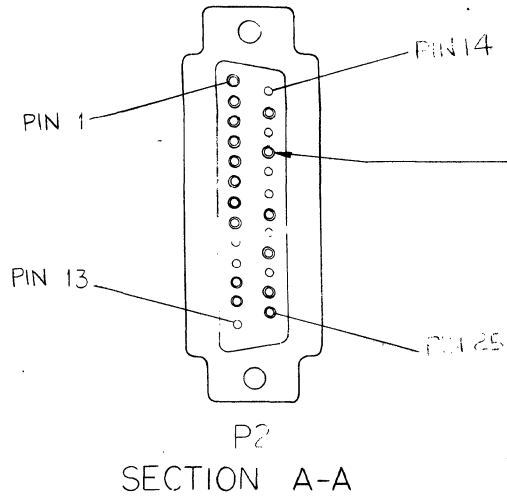
EQUIPMENT CORPORATION

ASYNCHRONOUS DATA CONTROL

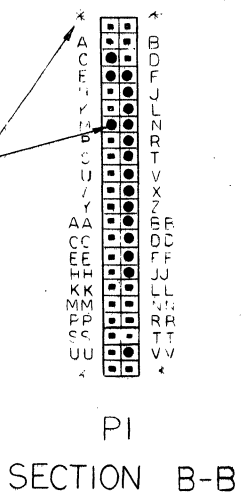
A-M-L-K-L-B-E

M8650-7A-1

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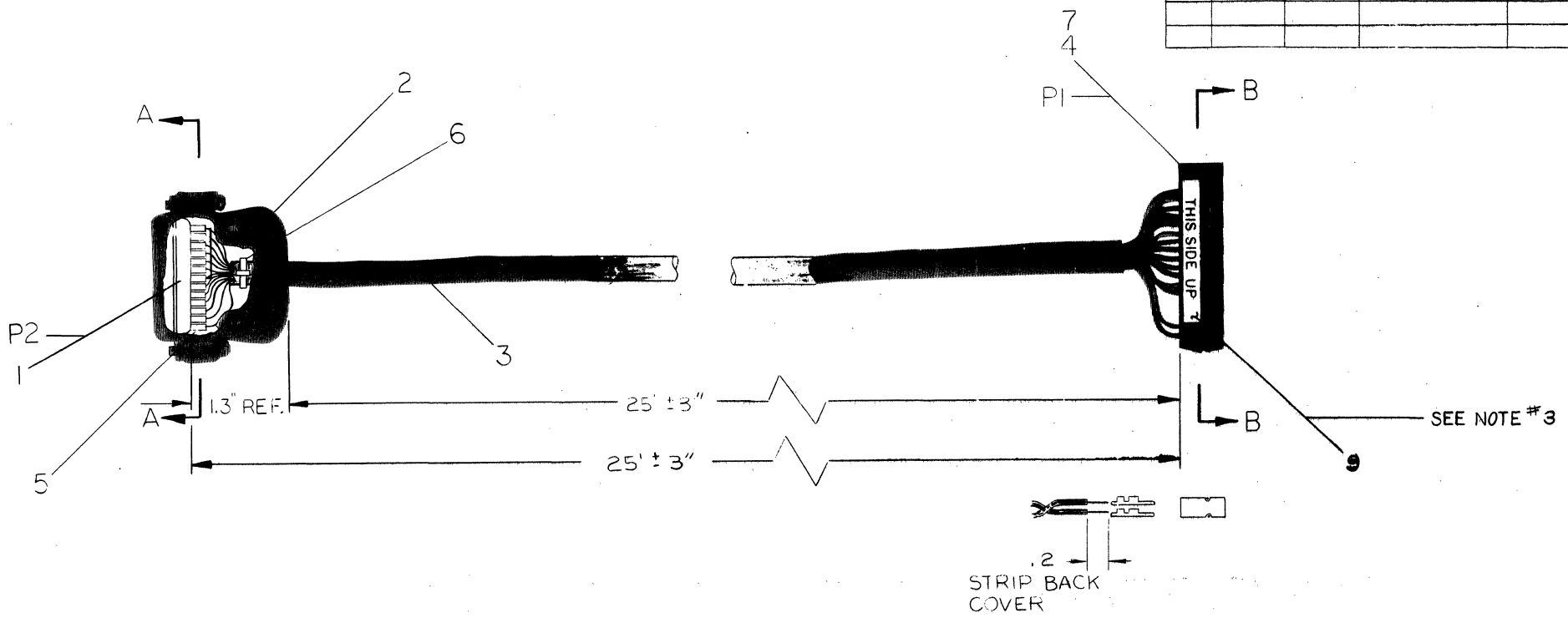


SEE NOTE 2



ITEM NO.	AWG	COLOR	CONNECTION FROM	CONNECTION WITH	CONNECTION TO	CONNECTION WITH
3	22	BLK	PI-VV	CRIMP	P2-7	SOLD.
		GRN/WHT	PI-C		P2-25	
		GRN/BLK	PI-JJ		P2-12	
		ORN/BLK	PI-FF		P2-11	
		RED	PI-DD		P2-20	
		GRN	PI-BB		P2-8	
		BLU/WHT	PI-Z		P2-6	
		ORN	PI-X		P2-22	
		BLU	PI-V		P2-4	
		WHT	PI-T		P2-5	
		BLU/BLK	PI-R		P2-17	
		BLK/WHT	PI-N		P2-15	
		RED/WHT	PI-L		P2-24	
		WHT/BLK	PI-J		P2-3	
3		RED/BLK	PI-F		P2-2	SOLD.
8		BLK	PI-E	CRIMP	PI-M	CRIMP
8	22	BLK	P2-1	SOLD.	P2-7	SOLD.

- NOTES:
- EACH SOLDERED CONN. ON P2 SHALL BE INSULATED WITH A 1/4" PIECE OF HY-SHRINK TUBING (ITEM #5).
 - INDICATES PINS USED ON P1 (BERG CONN)
⊙ INDICATES PINS USED ON P2 (CINCH PLUG)
* DENOTES CAVITIES NOT USED OR DESIGNATED BY LETTER ON P1 (BERG CONN)
 - PLACE ITEM #9 ("THIS SIDE UP" STICKER) ON LETTERED SIDE OF ITEM #4 (BERG HOUSING) AS SHOWN.



REV.	CHANGE NO.	DATE	BY	CHKD.
A	BC01V-00001		J. MCNAMARA	
B	BC01V-00002	10-29-73	B. REGAN	
C	BC01V-00003	3-12-74	R. REGAN	
		3-21-74	R. REGAN	

FIRST USED ON OPTION / MODEL
PDP8/E

DO NOT SCALE DRAWING
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
SEE PARTS LIST
FINISH

DRN.	DATE	CHKD.	DATE	ENG.	DATE	PROJ. ENG.	DATE	PROD.	DATE
comcy	3-5-71		3-15-71			Case	3-15-71		3/18/71

TITLE
CABLE ASS'Y
(BC01V)

PARTS LIST

QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	LABEL, THIS SIDE UP	3611567	9
A/R	WIRE *22 AWG STRD TEF BLK	9107350-0-0	8
17	SOCKET CRIMP *47216	1210089-07	7
1	TIE WRAP, PANDUIT *SST-1B	9007031	6
16	TUBING, HEAT SHRINK 1/8	9107255	5
1	HOUSING *20383 BERG	1210090-0	4
A/R	CABLE, BELDON 15 CONN.	9107672	3
1	HOOD, PLUG, CINCH *DB51226-1	1205885	2
1	PLUG, CINCH *DB-25P	1205886	1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

SIZE CODE: D U A
NUMBER: BC01V-25-0
REV: C

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**DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS**

ENGINEERING SPECIFICATION

DATE 3/15/71

TITLE KL8/E Asynchronous Data Control (M8650)

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

Abstract

The KL8/E is a single line asynchronous data control for the PDP8-E. A variety of speeds are offered and split lugs are provided such that any desired device codes may be wired in. Factory wiring provides the standard console teleprinter device codes 03 and 04. Both 20 milliamper and EIA/CCITT levels are offered at 110 baud. In the higher speed ranges, only EIA/CCITT interface is offered. The EIA/CCITT interface applies to data leads only; no modem control is provided. This specification includes a complete discussion of the current driver capabilities, the selection of device codes, the selection of speeds, and the configurations available under each option designation.

ENG John E. McNamara	APPD <i>[Signature]</i>	SIZE A	CODE SP	NUMBER KL8-E-1	REV
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DEC FORM NO. DRA 107

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE KL8/E Asynchronous Data Control

I. General Description

The KL8/E provides complete facilities for interfacing an asynchronous device such as a teleprinter or display to the PDP8/E. Split lugs are provided such that a KL8/E may be assigned any two device codes desired. In this manner a quantity of KL8/E units may be used on a single PDP8/E to provide a multiple teleprinter capability. The instruction set is similar to that used on previous Family-of-8 console teleprinter controls and asynchronous data controls. Several different clock speed and interface options are offered.

II. Physical

The KL8/E is a single quad board which plugs directly into the Omnibus. The same etched board (M8650) is used for all KL8/E options listed below, with a crystal change or cable change determining the option designation applicable.

III. Options

The KL8/E is available in the following options:

Designation	Receive Speed	Transmit Speed	Interface Type	(Board Type)
KL8/E	110 Baud	110 Baud	20 milliamper	M8650
KL8/EA	110 Baud	110 Baud	EIA Data Leads	M8650
KL8/EB	150 Baud	150 Baud	EIA Data Leads	M8650 YA
KL8/EC	300 Baud	300 Baud	EIA Data Leads	M8650 YA
KL8/ED	600 Baud	600 Baud	EIA Data Leads	M8650 YA
KL8/EE	1200 Baud	1200 Baud	EIA Data Leads	M8650 YA
KL8/EF	150 Baud	1200 Baud	EIA Data Leads	M8650 YA
KL8/EG	150 Baud	2400 Baud	EIA Data Leads	M8650 YA

The M8650 and M8650 YA boards use an identical etched board, but differ in their parts lists. The M8650 uses a DEC Part # 18-09880-01 14.418 MHz crystal, while the M8650 YA uses a DEC Part # 18-09880-02 19.661 MHz crystal. The 14.418 MHz crystal is used to obtain the 110 baud frequency, while the 19.661 MHz crystal is used to obtain the 150, 300, 600, 1200, and 2400 baud frequencies. This means that if one desires to change speeds in the field, a crystal change is involved to change to or from the 110 baud speed, plus re-labelling the board handle. To change amongst the speeds that are multiples of 150 baud, only jumper changes are involved.

SIZE A	CODE SP	NUMBER KL8-E-1	REV
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DEC FORM NO 16-1022
DRA 108

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE KL8/E Asynchronous Data Control

Both the M8650 and M8650 YA boards contain the appropriate circuitry for both 20 milliamper and EIA operation. A noise suppression network in the 20 milliamper circuitry protects against high frequency noise, but in so doing limits the operating speed of the 20 milliamper interface to 110 baud. The 20 milliamper circuitry is automatically connected when the 7008360 interface cable assembly supplied with the KL8/E option is connected to the board. This cable terminates in a Mate-N-Lock connector compatible with PDP8/E teleprinters, PDP-11 teleprinters, and Mate-N-Lock equipped PDP-15 teleprinters. In like manner, the EIA interface circuitry is automatically connected when the BC01V cable assembly (or BC05C) supplied with the KL8/EA, EB, EC, ED, EE, EF, and EG options is connected. (See Section X)

The EIA interface circuitry meets all present requirements of EIA Specification RS232-C and CCITT Recommendation V24, but interfaces the DATA LEADS ONLY. No modem control is supplied - Data Terminal Ready and Request To Send are held asserted. Use of these options on modems arranged for automatic origination or automatic answering of dial telephone calls is not recommended. The EIA interfaces provided are intended for use with private(non-switched) wire modems operated on a full duplex basis or with a Null Modem (M308 or H312) and a terminal with an EIA interface.

IV. Specifications - Environment

Temperature: 0 degrees to 55 degrees C (Operating)
Humidity: 10% to 90% non-condensing (Operating)

During storage, temperature extremes of -15 degrees C and +65 degrees C can be tolerated.

V. Specifications - Communications Variables

- A. Type or Transmission: Asynchronous
Type of Reception: Asynchronous
- B. Number of Start Elements Per Character: One
- C. Number of Data Elements Per Character: Eight
- D. Number of Stop Elements Per Character: One or Two (Jumper selectable on board. Unless otherwise specified, the KL8/E and KL8/EA options will be supplied jumpered for two stop elements and all other options will be supplied jumpered for one stop element.)

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- E. Receiver Sample Rate: 16 times the baud rate
- F. Capabilities of the 20 milliamper driver:

For current calculation purposes, the driver circuit may be envisioned as one lead returned through 750 ohms to -15 volts and the other lead as going to a point connected to -15 through 1 K and to +5 through a 6534D PNP transistor, the state of which is controlled by the KL8/E transmitter circuitry. If one assumes a maximum voltage drop across the transistor when saturated as 1 volt and a minimum potential difference between -15 and +5 of 19.75 volts, the output circuit may be envisioned as an 18.75 volt source in series with a 750 ohm resistor, or at worst a 788 ohm resistor. This arrangement would deliver 24 milliamperes in the short circuit case and would tolerate 150 additional ohms for resistance of the teleprinter magnet circuit and the wiring to the teleprinter magnet. The following wire resistances may be of assistance: (Annealed copper wire, 20 degrees C)

26 AWG :	40.81 ohms/1000 feet
24 AWG :	25.67 ohms/1000 feet
22 AWG :	16.14 ohms/1000 feet
19 AWG :	8.05 ohms/1000 feet

In calculating permissible loop length, remember that the above figures are for one conductor only. You must measure the distance from the KL8/E to the teleprinter AND BACK to obtain a footage distance for use in the above calculation. In addition, certain environmental influences such as radio interference, transformers, possibility of physical damage, etc. may cause the maximum operating distance to be less than that indicated by simple resistive calculations. Extreme caution should be used in any installation over 1500 feet.

G. Capabilities of the 20 milliamper receiver:

For current calculation purposes, the receiver circuit may be envisioned as one lead returned through 560 ohms to -15 volts and the other lead returned to both +5 through 750 ohms and to a -.7 volt diode drop through 82 ohms. The resultant current will be 21 milliamperes for a zero ohm resistance loop to the keyboard contacts and 18 milliamperes in the case of a 150 ohm loop such as that mentioned in Section V-F above. Intermediate values can be determined from straight line interpolation between these points. It is not recommended that contact currents less than 18 milliamperes be used.

The 20 milliamper current receiving circuitry contains

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an integrator circuit that may be modelled as a capacitor in series with 402 ohms. The standard value for this capacitor is .47 mfd. This arrangement assists in providing noise reduction by integrating high frequency noise such that its amplitude is insufficient to operate the Schmidt Trigger circuit that follows the integrator. Unfortunately, the integration reduces the rate-of-rise of signals, introducing an additional 2% distortion to the received signal at 110 baud. The high sampling rate of the receiver (16 times the baud rate) makes this additional distortion inconsequential except in the case of very extreme distortion already being present in the received signals. At speeds greater than 110 baud, EIA interface circuitry is used, bypassing both the 20 milliamperere integrator circuit and the 20 milliamperere Schmidt Trigger circuit.

Should it be desired to operate in current loop mode at speeds greater than 110 baud, the .47 mfd capacitor should be reduced in size by the same proportion as the speed is increased; i.e. if you double the speed, halve the value of the capacitor. This product is not specified to operate in current loop mode at speeds greater than 110 baud and the suggestions given above should not be construed as a commitment on the part of Digital Equipment Corporation to make this product operate in current loop mode at any speed other than 110 baud.

H. Capabilities of the Reader Run Control:

For current calculation purposes, this circuitry may be modelled as one lead being connected to -15 through 180 ohms and the other lead connected to +5 through a 6534D PNP transistor and a 150 ohm resistor. Due to the presence of diode clamps, transistor voltage drop, etc., this second lead may be envisioned as being connected to a + 7/10ths volt source or floating, depending upon the state of the 6534D transistor. The circuit formed by the above elements may be considered as a 14 volt source in series with 180 ohms.

The reader run leads operate a Wheelock #30002 reed relay mounted on a DEC 4915 teleprinter reader control card mounted within the call control area of the Teletype.* This relay has a coil resistance of 920 ohms and is specified to operate by the time the voltage across its coil reaches 9.6 volts. There is a + 10% tolerance on coil resistance, so a worst case current of 12 milliamperes is required to achieve 9.6 volts across 828 ohms. The 12 milliamperes would cause a 2.3 volt drop across the 180 ohm resistor if that resistor were at the 189 ohm extreme of its + 5% specification. This means that no more than $14.0 - 11.9 = 2.1$ volts can

* "Teletype" is a registered trademark of Teletype Corporation, Skokie, Ill. USA

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be dropped by the passage of 12 milliamperes through the wiring to the reader run. That sets a resistance limit of 175 ohms for the reader run control wiring from the KL8/E to the Teletype (and back). (See Section X)

I. EIA Signals Provided

Circuitry on the M8650 and M8650 YA modules conditions the transmitted data and received data to the specifications of Electronic Industries Association (EIA) Specification RS 232 C and Committee Consultatif International Telephonique et Telegraphique (CCITT) Recommendation V24.

The signals and their assigned pins on the 40 pin header found on the M8650 are as follows:

Protective Ground	UU	
Send Data	F	
Receive Data	J	
Request To Send	V	(Held Asserted)
Signal Ground	VV	
Data Terminal Ready	DD	(Held Asserted)

Assertion of the Request To Send lead is required with such modems as the Bell System 103F to maintain them in Full Duplex transmission mode on a private (non-switched) line.

Assertion of the Data Terminal Ready lead is required with such modems as the Bell System 103A to maintain an established dial-up connection.

Note that, since the Request To Send lead is held true, the M8650 and M8650 YA are suitable ONLY FOR FULL DUPLEX OPERATION (An additional reason is that there is no interlocking logic in the M8650 and M8650 YA to make the transmitter and receiver dependent upon each other in the fashion that Half Duplex would require).

Note further that, since Data Terminal Ready is held true, the M8650 and M8650 YA are suitable for dial telephone connection use (such as with the Bell System 103A) ONLY UNDER MANUAL CONTROL. In other words, these modules should not be used in dial telephone connections arranged for the automatic origination of calls or arranged for the automatic answering of calls. The reason for this is that Data Terminal Ready must be negated for a dial-up connection to be dropped when the call is over and the M8650 and M8650 YA are incapable of doing this. In addition, they do not monitor the leads necessary to tell them when to take such action.

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In summary, the KL8/E, EA, EB, EC, ED, EE, EF, and EG do not have modem control. Thus, their use with modems is limited to full duplex private line and manual use on the dial-up telephone network.

J. Capabilities of the EIA interface

Total cable length from the KL8/EA(EB, EC,etc) to the associated modem or terminal must not exceed 50 feet under any circumstances.

K. Use With EIA Interface Terminals

The BC01V and BC05C cable assemblies end in male 25 pin connectors in accordance with the EIA specification requirements for data terminal equipment. Likewise, most terminals that have EIA interfaces also employ male 25 pin connectors, as they too are data terminal equipment in the language of the EIA specification.

The EIA specification, in specifying male connectors for data terminal equipment, envisions that each piece of data terminal equipment will be connected to a piece of data communications equipment. The typical connection which the specification envisions is data terminal equipment - modem-communications facility - modem - data terminal equipment. Thus, to stay within the specification when connecting a piece of data terminal equipment to another piece of data terminal equipment, one must introduce the modem-communications facility-modem link. In cases where the two terminals are more than 50 feet apart this would be done with real modems and a real communications facility. Where distances less than fifty feet are involved, Digital Equipment Corporation has devices called Null Modems which contain a female 25 pin connector, a length of cable that transposes the transmitted an received data leads such as a communications facility would, and a second female connector at the opposite end. Use of the Null Modem (H312 or H308) permits the same cables and other hardware to be used for both local and remote terminal applications.

Should a null modem not be available in a VT06 installation, the male/male cord supplied with the VT06 could be removed and the BC01V plugged directly into the female receptacle on the VT06 provided that the following lead swaps are made in the BC01V by swapping pins in the forty pin connector: Swap F & J; Move V to BB.

The above pin changes are not recommended as a general thing, as they result in non-standard cables.

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VI. Programming

The KL8/E uses an augmented version of the instruction set used on Family-of-8 console teleprinters and teleprinter controls such as the PT08.

The instruction set is as follows:

6XX0 Clear Keyboard Flag (KCF)

Clears the keyboard flag without setting the reader run flip-flop. The AC is not cleared by this instruction.

6XX1 Skip on Keyboard Flag (KSF)

Increments the contents of the Program Counter if the keyboard flag is set, so that the next sequential instruction is skipped.

6XX2 Clear Keyboard Flag (KCC)

Clears the keyboard flag and AC and sets the reader run flip-flop. This action allows the hardware to begin assembling the next input character in the TTI register. If the reader is activated and there is tape in the reader, a serial character is read from the tape and is assembled in the TTI register. The keyboard can also load characters into the TTI register provided that the reader is deactivated. In either case, the keyboard flag is set when the character is assembled in the TTI register.

6XX4 Read Keyboard Buffer Static (KRS)

ORs the contents of the TTI register with AC4 through 11, and leaves the result in AC4-11. This is termed a static command because neither the AC nor the keyboard flag is cleared.

6XX5 Set/Clear Interrupt Enable (KIE)

Sets or clears the interrupt enable flip-flop as determined by AC11. If AC11 is asserted, an interrupt request will be generated when the KL8/E keyboard or teleprinter flag is set. If AC11 is negated interrupt requests cannot be generated.

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6XX6 Read Keyboard Buffer Dynamic (KRB)

Performs the combined operations of the KCC and KRS instructions. Clears the AC and keyboard flag and transfers the contents of the TTI register to AC4 through AC11. This instruction also sets the reader run flip-flop to begin assembly of another character in the TTI register. When this operation is complete, the keyboard flag is set to indicate that another character is available.

The computer clears all flags which are on the clear flags bus (including both the keyboard flag and the reader run enable) when the console CLEAR pushbutton is depressed or when a Clear All Flags instruction is given. This means that the user program must set the reader enable by means of a KCC or KRB instruction before the first input data can be received from the reader. After the first character is assembled, the KRB instructions used to read that character and the succeeding characters will operate the reader appropriately.

6YY0 Set Teleprinter Flag (TFL)

Sets the teleprinter flag to ready the logic for another character.

6YY1 Skip on Teleprinter Flag (TSF)

If the teleprinter flag is set, increments the contents of the program counter by one so that the next sequential instruction will be skipped.

6YY2 Clear Teleprinter Flag (TCF)

Clears the teleprinter flag. This instruction can be microprogrammed with TPC.

6YY4 Load Teleprinter and Print (TPC)

Transfers AC bits 4-11 to the TTO register and starts shifting the character out to the printer/punch units. This instruction does not clear the teleprinter flag. This instruction can be microprogrammed with TCF to produce TLS.

6YY5 Skip on Printer or Keyboard Flag (TSK)

Skips the next instruction if the keyboard flag or printer flag is set and the interrupt enable flip-

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flop is set.

6YY6 Load Teleprinter Sequence (TLS)

This instruction combines TCF and TPC. The teleprinter flag is cleared and the contents of AC bits 4-11 are transferred to the TTO register where the hardware shifts the character out to the printer/punch unit. Then the shifting operation has finished outputting the character and is ready for another character, the teleprinter flag is set. The whole operation, from the time at which the TLS has cleared the flag and the TTO starts character transfer, until the time the hardware finishes with the character and again sets the flag, requires 100 milliseconds at 110 baud.

Since a Clear All Flags instruction or operation of the CLEAR button on the console will cause the teleprinter output flag to be cleared, it is necessary that each program set the flag by means of a TFL instruction before commencing a teleprinter output sequence for the first time.

In all of the above instructions the device code has been represented as XX for keyboard instructions and YY for teleprinter instructions. In the case of the console teleprinter, these would be device codes 03 and 04 respectively. For further information on device codes, consult Section VII of this specification.

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VII. Device Code Selection

All input/output devices on a PDP8/E (or other Family-of-8 machine) have device codes. These device codes determine which unique input/output device responds to a given instruction. In a typical I/O instruction, such as 6031, the "6" indicates that this is an I/O instruction; the "03" indicates that the device having device code 03 is the device that is to respond to the instruction; and the "1" determines exactly what type of input/output operation is to take place at device 03.

It is vitally necessary that no two input/output devices on the same PDP8/E system have the same device code. If, for example, two devices use code 03, the instruction 6031 would cause a skip on teleprinter receiver flag if either flag was set. Instruction 6036 would probably OR together the contents of both receiver input registers, even if one contained only a partially assembled character - so long as one of them had the receiver flag set. In summary, a multiple teleprinter system (or any multi-input/output device system) must have unique device codes for each device so that the program can address each device individually.

Since there are a limited number of possible device codes in a PDP8/E, no assignment of device codes for large multi-teleprinter systems can be made. It is suggested, however, that the following device codes be used first:

- 03/04 Console teleprinter receive/transmit
- 30/31 Second KL8/E teleprinter receive/transmit
- 32/33
- 34/35
- 36/37

For PTO8 compatibility 40/41,42/43,44/45,46/47 may be used, as long as no DP8-E Synchronous Modem Control is used.

To obtain additional device codes, determine which device codes you do not have yet on your system. Then write down the desired device code as two binary numbers, labelling the most significant bit "MD3", the next "MD4", the next "MD5", the next "MD6", the next "MD7", and the last "MD8". For example, for device code 03:

Octal:	0	0	0	3		
Binary:	0	0	0	0	1	1
Label:	MD3	MD4	MD5	MD6	MD7	MD8
Split Lug Group:	B	A	F	E	D	C

The "Split Lug Groups" are explained on the next page.

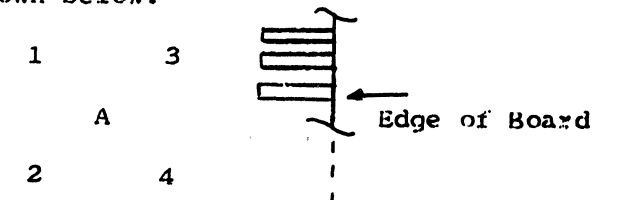
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In the lower right hand corner of the M8650/M8650YA board are split lugs which determine the device code to which the receiver will respond and the device code to which the transmitter will respond. The split lugs are arranged in groups of four. Each group has an alphabetic designation (A-F), and each split lug within a group has a numeric designation (1-4). A typical layout is shown below:



The correct strapping for each possible RECEIVER device code is given below:

	Group A	Group B	Group C	Group D	Group E	Group F
00	1-3	1-2	1-2	1-2	2-4	2-1
01	1-3	1-2	4-2	1-2	2-4	2-1
02	1-3	1-2	1-2	4-2	2-4	2-1
03	1-3	1-2	4-2	4-2	2-4	2-1
04	1-3	1-2	1-2	1-2	3-4	2-1
05	1-3	1-2	4-2	1-2	3-4	2-1
06	1-3	1-2	1-2	4-2	3-4	2-1
07	1-3	1-2	4-2	4-2	3-4	2-1
10	1-3	1-2	1-2	1-2	2-4	3-1
11	1-3	1-2	4-2	1-2	2-4	3-1
12	1-3	1-2	1-2	4-2	2-4	3-1
13	1-3	1-2	4-2	4-2	2-4	3-1
14	1-3	1-2	1-2	1-2	3-4	3-1
15	1-3	1-2	4-2	1-2	3-4	3-1
16	1-3	1-2	1-2	4-2	3-4	3-1
17	1-3	1-2	4-2	4-2	3-4	3-1
20	4-3	1-2	1-2	1-2	2-4	2-1
21	4-3	1-2	4-2	1-2	2-4	2-1
22	4-3	1-2	1-2	4-2	2-4	2-1
23	4-3	1-2	4-2	4-2	2-4	2-1
24	4-3	1-2	1-2	1-2	3-4	2-1
25	4-3	1-2	4-2	1-2	3-4	2-1
26	4-3	1-2	1-2	4-2	3-4	2-1
27	4-3	1-2	4-2	4-2	3-4	2-1

IMPORTANT NOTICE: Device codes 03 for receiver and 04 for transmitter are factory wired by means of machine inserted jumpers located in the split lug groups A,B,C,D,E,&F. CUT THESE JUMPERS BEFORE ADDING THE JUMPERS LISTED ABOVE.

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Continuation of receiver device code strapping table:

	Group A	Group B	Group C	Group D	Group E	Group F
30	4-3	1-2	1-2	1-2	2-4	3-1
31	4-3	1-2	4-2	1-2	2-4	3-1
32	4-3	1-2	1-2	4-2	2-4	3-1
33	4-3	1-2	4-2	4-2	2-4	3-1
34	4-3	1-2	1-2	1-2	3-4	3-1
35	4-3	1-2	4-2	1-2	3-4	3-1
36	4-3	1-2	1-2	4-2	3-4	3-1
37	4-3	1-2	4-2	4-2	3-4	3-1
40	1-3	4-2	1-2	1-2	2-4	2-1
41	1-3	4-2	4-2	1-2	2-4	2-1
42	1-3	4-2	1-2	4-2	2-4	2-1
43	1-3	4-2	4-2	4-2	2-4	2-1
44	1-3	4-2	1-2	1-2	3-4	2-1
45	1-3	4-2	4-2	1-2	3-4	2-1
46	1-3	4-2	1-2	4-2	3-4	2-1
47	1-3	4-2	4-2	4-2	3-4	2-1
50	1-3	4-2	1-2	1-2	2-4	3-1
51	1-3	4-2	4-2	1-2	2-4	3-1
52	1-3	4-2	1-2	4-2	2-4	3-1
53	1-3	4-2	4-2	4-2	2-4	3-1
54	1-3	4-2	1-2	1-2	3-4	3-1
55	1-3	4-2	4-2	1-2	3-4	3-1
56	1-3	4-2	1-2	4-2	3-4	3-1
57	1-3	4-2	4-2	4-2	3-4	3-1
60	4-3	4-2	1-2	1-2	2-4	2-1
61	4-3	4-2	4-2	1-2	2-4	2-1
62	4-3	4-2	1-2	4-2	2-4	2-1
63	4-3	4-2	4-2	4-2	2-4	2-1
64	4-3	4-2	1-2	1-2	3-4	2-1
65	4-3	4-2	4-2	1-2	3-4	2-1
66	4-3	4-2	1-2	4-2	3-4	2-1
67	4-3	4-2	4-2	4-2	3-4	2-1
70	4-3	4-2	1-2	1-2	2-4	3-1
71	4-3	4-2	4-2	1-2	2-4	3-1
72	4-3	4-2	1-2	4-2	2-4	3-1
73	4-3	4-2	4-2	4-2	2-4	3-1
74	4-3	4-2	1-2	1-2	3-4	3-1
75	4-3	4-2	4-2	1-2	3-4	3-1
76	4-3	4-2	1-2	4-2	3-4	3-1
77	4-3	4-2	4-2	4-2	3-4	3-1

IMPORTANT NOTICE: Device codes 03 and 04 for receiver and transmitter respectively are factory wired by means of machine inserted jumpers located in the split lug groups A,B,C,D,E,&F. CUT THESE JUMPERS BEFORE ADDING THE JUMPERS LISTED ABOVE.

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The correct strapping for each possible TRANSMITTER device code is given below:

	Group A	Group B	Group C	Group D	Group E	Group F
00	1-2	1-3	1-3	1-3	2-1	2-4
01	1-2	1-3	4-3	1-3	2-1	2-4
02	1-2	1-3	1-3	4-3	2-1	2-4
03	1-2	1-3	4-3	4-3	2-1	2-4
04	1-2	1-3	1-3	1-3	3-1	2-4
05	1-2	1-3	4-3	1-3	3-1	2-4
06	1-2	1-3	1-3	4-3	3-1	2-4
07	1-2	1-3	4-3	4-3	3-1	2-4
10	1-2	1-3	1-3	1-3	2-1	3-4
11	1-2	1-3	4-3	1-3	2-1	3-4
12	1-2	1-3	1-3	4-3	2-1	3-4
13	1-2	1-3	4-3	4-3	2-1	3-4
14	1-2	1-3	1-3	1-3	3-1	3-4
15	1-2	1-3	4-3	1-3	3-1	3-4
16	1-2	1-3	1-3	4-3	3-1	3-4
17	1-2	1-3	4-3	4-3	3-1	3-4
20	4-2	1-3	1-3	1-3	2-1	2-4
21	4-2	1-3	4-3	1-3	2-1	2-4
22	4-2	1-3	1-3	4-3	2-1	2-4
23	4-2	1-3	4-3	4-3	2-1	2-4
24	4-2	1-3	1-3	1-3	3-1	2-4
25	4-2	1-3	4-3	1-3	3-1	2-4
26	4-2	1-3	1-3	4-3	3-1	2-4
27	4-2	1-3	4-3	4-3	3-1	2-4
30	4-2	1-3	1-3	1-3	2-1	3-4
31	4-2	1-3	4-3	1-3	2-1	3-4
32	4-2	1-3	1-3	4-3	2-1	3-4
33	4-2	1-3	4-3	4-3	2-1	3-4
34	4-2	1-3	1-3	1-3	3-1	3-4
35	4-2	1-3	4-3	1-3	3-1	3-4
36	4-2	1-3	1-3	4-3	3-1	3-4
37	4-2	1-3	4-3	4-3	3-1	3-4
40	1-2	4-3	1-3	1-3	2-1	2-4
41	1-2	4-3	4-3	1-3	2-1	2-4
42	1-2	4-3	1-3	4-3	2-1	2-4
43	1-2	4-3	4-3	4-3	2-1	2-4
44	1-2	4-3	1-3	1-3	3-1	2-4
45	1-2	4-3	4-3	1-3	3-1	2-4
46	1-2	4-3	1-3	4-3	3-1	2-4
47	1-2	4-3	4-3	4-3	3-1	2-4

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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE KL8/E Asynchronous Data Control

Continuation of transmitter device code strapping table:

	Group A	Group B	Group C	Group D	Group E	Group F
50	1-2	4-3	1-3	1-3	2-1	3-4
51	1-2	4-3	4-3	1-3	2-1	3-4
52	1-2	4-3	1-3	4-3	2-1	3-4
53	1-2	4-3	4-3	4-3	2-1	3-4
54	1-2	4-3	1-3	1-3	3-1	3-4
55	1-2	4-3	4-3	1-3	3-1	3-4
56	1-2	4-3	1-3	4-3	3-1	3-4
57	1-2	4-3	4-3	4-3	3-1	3-4
60	4-2	4-3	1-3	1-3	2-1	2-4
61	4-2	4-3	4-3	1-3	2-1	2-4
62	4-2	4-3	1-3	4-3	2-1	2-4
63	4-2	4-3	4-3	4-3	2-1	2-4
64	4-2	4-3	1-3	1-3	3-1	2-4
65	4-2	4-3	4-3	1-3	3-1	2-4
66	4-2	4-3	1-3	4-3	3-1	2-4
67	4-2	4-3	4-3	4-3	3-1	2-4
70	4-2	4-3	1-3	1-3	2-1	3-4
71	4-2	4-3	4-3	1-3	2-1	3-4
72	4-2	4-3	1-3	4-3	2-1	3-4
73	4-2	4-3	4-3	4-3	2-1	3-4
74	4-2	4-3	1-3	1-3	3-1	3-4
75	4-2	4-3	4-3	1-3	3-1	3-4
76	4-2	4-3	1-3	4-3	3-1	3-4
77	4-2	4-3	4-3	4-3	3-1	3-4

It will be noted that in many cases two straps are inserted in the same split lug. This is acceptable, but three in the same lug would not be, nor would a diagonal run such as from lug 1 to 4 or from lug 2 to 3. If such runs exist, the strapping has been done incorrectly.

VIII. Speed Selection

A group of split lugs labelled "G" determine the operating speed of each KL8/E, EA, EB etc. option. Another split lug group labelled "H" determines whether the transmitter and receiver sections operate at the same speed. The correct strappings of groups G & H are listed below for each option:

SIZE	CODE	NUMBER	REV
A	SP	KL8-E-1	

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE KL8/E Asynchronous Data Control

Option	Group G	Group H	Notes
KL8/E	7-8	1-2	M8650 board
KL8/EA	7-8	1-2	M8650 board
KL8/EB	7-8	1-2	M8650 YA board
KL8/EC	5-6	1-2	M8650 YA board
KL8/ED	3-4	1-2	M8650 YA board
KL8/EE	1-2	1-2	M8650 YA board
KL8/EF	7-8	2-3	M8650 YA board
KL8/EG	7-8	H2 to G5	M8650 YA board

IMPORTANT NOTICE: There are no factory machine inserted jumpers in Group G. There must be one and only one of the straps shown in the above table in place in section G for the board to work; said jumper was hand soldered between the split lugs at the time the board left Digital's production facility. Remove that jumper before adding any other Group G jumpers. Group H has a factory machine inserted jumper between H1 and H2. Cut this jumper before adding any other Group H jumper.

IX. Stop Code Selection

Mechanical teleprinters, such as those that operate at 110 baud, require stop bits after each character transmitted so that their mechanisms can coast to a predetermined starting position before handling the next character. The same restriction applies to their receivers. To prevent the KL8/E from sending characters during this stopping interval, a stop bit counter is inserted in the KL8/E transmitter circuitry. This counter permits the KL8/E to request another character from the program as soon as it has sent the last information bit of the preceding character but prohibits it from sending that new character until an appropriate stop bit interval has been counted out following the transmission of the final information bit of the preceding character. This counter is controlled by a split lug group labelled "J".

Group J	Stop Code	Devices Using This Stop Code
1-2	1 bit	Electronic receiver devices operating at 150 baud and above.
2-3	2 bits	Mechanical receiver devices operating at 110 baud.

The KL8/E and KL8/EA contain a machine inserted jumper

SIZE	CODE	NUMBER	REV
A	SP	KL8-E-1	



TITLE KL8/E Asynchronous Data Control

that provides 2 stop bits (J2-J3), as 110 baud devices use 2 stop bits. To the best of the author's knowledge, all devices operating at speeds above 110 baud use electronic receiver systems (even though all other parts of the device may be mechanical), so the KL8/EB, EC, etc are provided with hand inserted jumpers from J1 to J2, thus providing only 1 stop bit.

X. Special Notes

In the upper right corner of schematic E-CS-M8650-0-1, one will find points labelled E, H, and M. These, as indicated in the notes on the cover sheet, are designations of pins on the forty pin header at which point cables connect to the M8650 printed circuit board. Pin E is the input to the M8650 TTL logic circuitry in the receiver section. Pin H is the output of a filter and Schmidt Trigger circuit which convert 20 milliamperes signals from the teleprinter keyboard to TTL logic signals. Pin M is the output of an inverter and EIA/CCITT level converter that convert EIA/CCITT received signals to TTL logic signals. The cable that is used for serving 20 milliamperes devices (7008360) consists of a Mate-N-Lock connector at one end and a 40 pin housing at the other. The 40 pin housing contains a jumper from pin E to pin H, so that when that cable is plugged into the 40 pin header, a connection will be established from the 20 milliamperes receiving circuitry to the receiving circuitry of the M8650. The cables that can be used with EIA/CCITT interface devices (BC01V and BC05C) consist of a 25-pin male connector at one end and a 40 pin housing at the other. In this housing there is a jumper from pin E to pin M, so that when this cable is plugged into the forty pin header, a connection will be established from the EIA/CCITT receiving circuitry to the receiving circuitry of the M8650 board.

It should be noted that the 175 ohm limitation cited for Reader Run control is actually unimportant, as the keyboard and printer requirements of 150 ohm limitation on line resistance are the ruling limitations.

	SIZE A	CODE SP	NUMBER KL8-E-1	REV
--	------------------	-------------------	--------------------------	------------

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			LEGEND		QUANTITY/VARIATION														
SOFTWARE LIST			D	DOCUMENT	PDP8/E-GA TO ME	PDP8/E-DA TO FB	PDP8/E-AA TO CB	PDP8/E-NA TO PB					KIT CHECK	BY	DATE	INSTALLATION CHECK	BY	DATE	
			DN	DOCUMENT CHANGE NOTICE															PA	PAPER TAPE ASCII	PB	PAPER TAPE BINARY	PM	PAPER TAPE READ-IN-MODE
MADE BY FERGUSON		CHECKED GULICK	SECTION																
DATE 11-30-70		DATE 1-2-70																	
ENG CHERTKOW		PROD SAYLOR	ISSUED SECT.																
DATE 12-7-70		DATE 12-8-70																	
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION			PDP8/E-GA TO ME	PDP8/E-DA TO FB	PDP8/E-AA TO CB	PDP8/E-NA TO PB											
1	A-ML-PDP8/E-0	PDP8/E PRINT SET			X	X	X	X											
2	DEC-8E-HP1B-D	PDP8/E MAINT. MANUAL VOL. I			X	X	X	X											
3	12-1031	LOG BOOK			X	X	X	X											
4	DEC-8E-HR2A-D	PDP8/E MAINT. MANUAL VOL. II			X	X	X	X											
5	DEC-8E-HR3A-D	PDP8/E MAINT. MANUAL VOL. III			X	X	X	X											
6		CUSTOMER SERVICE LETTER			X	X	X	X											
7	DEC-7-1034	FORM, SOFTWARE ORDER			X	X	X	X											
8	DEC-7-1009	CUSTOMER FOLLOW-UP REPORT			X	X	X	X											
9	DEC-7-1044	SOFTWARE PERFORMANCE REPORT			X	X	X	X											
10		CUSTOMER ENVELOPE			X	X	X	X											
11	DEC-3-1416	ECO STATUS SHEET			X	X	X	X											
12	DEC-3-1226	SUPPLEMENTARY ACCESSORY LIST			X	X	X	X											
13		INSTALLATION REPORT SHEET			X	X	X	X											
14	DEC-12-1015A	CUSTOMER ACCEPTANCE SHEET			X	X	X	X											
15	DEC-16-1000	KEY SHEET			X	X	X	X											
16	LIBKIT-8E-BASE	BASIC SOFTWARE KIT				X	X	X											
17	LIBKIT-8E-XBAS	EXTENDED SOFTWARE KIT					X	X											
18	LIBKIT-8E-LAB-0-2	LAB8E SOFTWARE KIT (AD8E, VC8E, DK8E NECESSARY)						X											
19	A-ML-LAB8-E	LAB8E PRINT SET			*	*	*	X											
* DRAWINGS SHOULD BE SUPPLIED WITH LAB8E OPTIONS NOT SOLD ON LAB8E SYST.																			
TITLE SOFTWARE LIST (PDP8/E)			ASSY. NO. A-ML-PDP8/E-0	SIZE CODE A SL	NUMBER PDP8/E-0-3				REV. C	ECO NO 8E-00059									
			SHEET 1 OF 1	DIST.															

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

MADE BY J. FERGUSON	CHECKED K. GULICK	SECTION
DATE 11-30-70	DATE 11-30-70	1
ENG <i>D. Clithorne</i>	PROD <i>Lenny Sawyer</i>	ISSUED SECT.
DATE 12-1-70	DATE 12/7/70	1

QUANTITY / VARIATION

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY	VARIATION
1	M8300	MAJOR REGISTERS MODULE	1	
2	M8310	REGISTERS CONTROL MODULE	1	
3	M333	TIMING MODULE	1	
4	G104	SENSE/INHIBIT MODULE	1	
5	G227	X/Y DRIVE MODULE	1	
6	1205941	SLIDE SWITCH	2	
7	1205375	SLIDE SWITCH	2	
8	125849-13	HANDLE, TERRA COTTA	2	
9	125849-12	HANDLE, AMBER	2	
10	1209219	INDICATOR BULB	6	
11	7006994	KEY SWITCH ASSEMBLY	1	
12	5409264	POWER SUPPLY CONTROL MODULE A1	1	
13	5409262	POWER SUPPLY CONTROL MODULE A2	1	

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
PDP8/E RECOMMENDED 1ST LEVEL SPARES		A	PL	SP8-EA-0	A	SP8EA-00001
	SHEET 1 OF 1	DIST.				

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

MADE BY J. FERGUSON	CHECKED K. GULICK	SECTION
DATE 11-30-70	DATE 11-30-70	1
ENG <i>J. Cheshow</i>	PROD <i>Ray Taylor</i>	ISSUED SECT.
DATE 12-1-70	DATE 12/7/70	1

QUANTITY / VARIATION

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	SP8-EB												
89	9008388-0	FUSE 1.5A 250V AGC 1 1/2	5												
90	9008389-0	FUSE .125A 250V AGC 1/8	5												
91	9008390-0	FUSE 10A 250V ABC 10	5												
92	9107722	SCR HEX SET 1/2-20 X 1/2 LG NYLON	2												

TITLE PDP8/E RECOMMENDED 2ND LEVEL SPARES	ASSY NO.	SIZE CODE A PL	NUMBER SP8-EB-Ø	REV.	ECO NO.
SHEET 5 OF 5		DIST.			

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 J. CUDMORE	CHECKED PFYFFER	SECTION
DATE 7/21/69	DATE 7/25/69	1
ENG <i>Mason</i>	PROD <i>Mason</i>	ISSUED SECT.
DATE 7/28/69	DATE 7/28/69	1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION					KIT CHECK	INSTALLATION CHECK	
			LT33-B, -D, -E, -F, -H, TYPES	LT33-AA, -AB, -CA, -CB, -CC, -CD, -CE					BY	DATE
1	36-5360	ROLLS, ROLLED OILED PAPER TAPE	1							
2	36-5365	ROLL, TWX PAPER	1							
3	BULLETIN 273B	TTY MANUAL VOL #1 (VENDOR)	1							
4	BULLETIN 310B	TTY MANUAL VOL #2 (VENDOR)	1							
5	BULLETIN 1184B	TTY MANUAL PARTS (VENDOR)	1							
6	18-9137	ROLL TTY RIBBON	1							

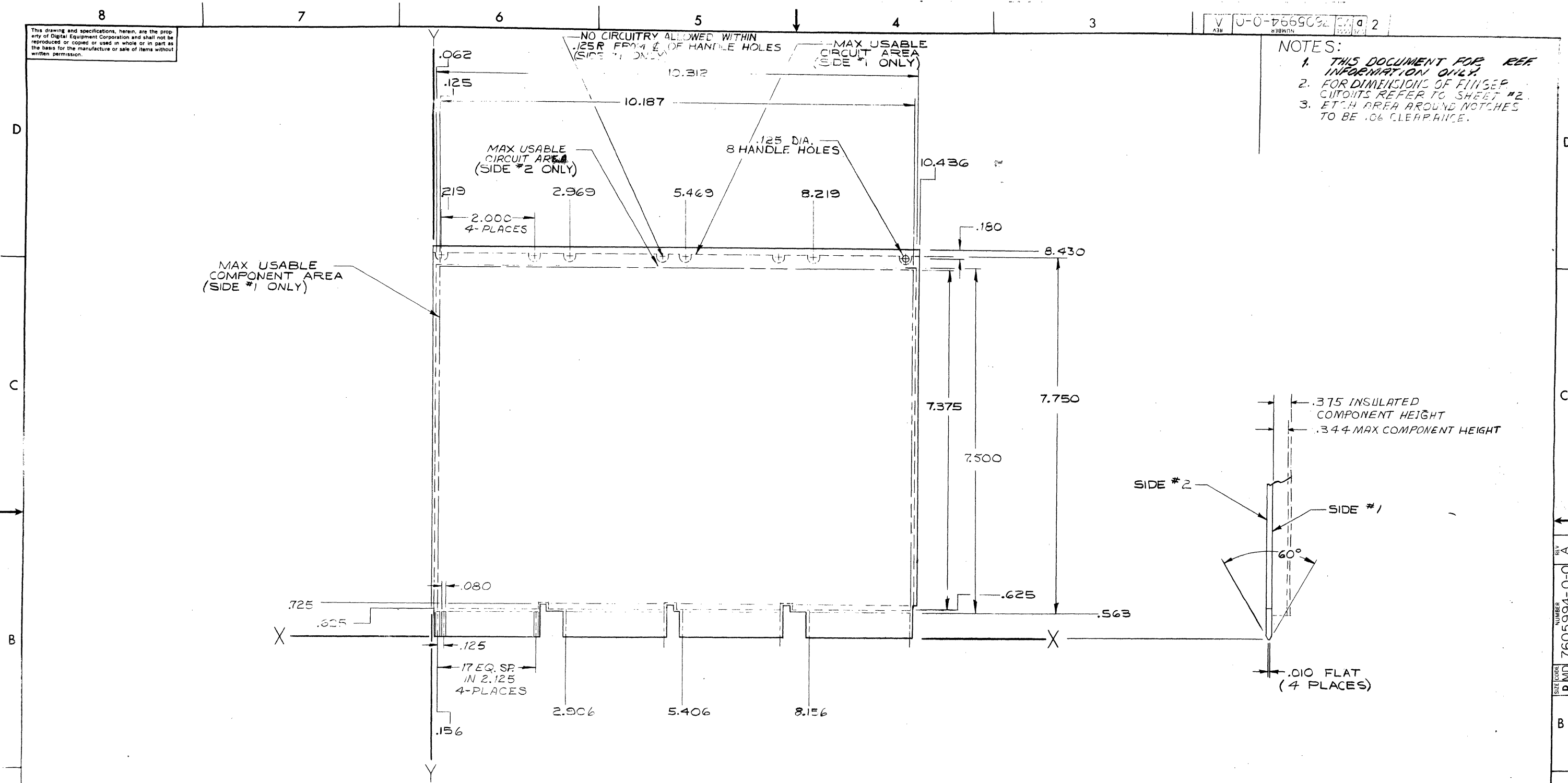
TITLE TELETYPE WRITERS LT33 SERIES	ASSY. NO.	SIZE CODE A AL	NUMBER LT33-0-12	REV. C	ECO NO LT 33-00009
	SHEET 1 OF 1	DIST.			



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V U-0-0-7665092 2

- NOTES:
1. THIS DOCUMENT FOR REF INFORMATION ONLY.
 2. FOR DIMENSIONS OF FINISH CUTOUTS REFER TO SHEET #2.
 3. ETCH AREA AROUND NOTCHES TO BE .06 CLEARANCE.



REV	CHG	NO	DATE	BY
1		1	4-13-71	W. J. CHERTOW
2		2	5-5-71	W. J. CHERTOW

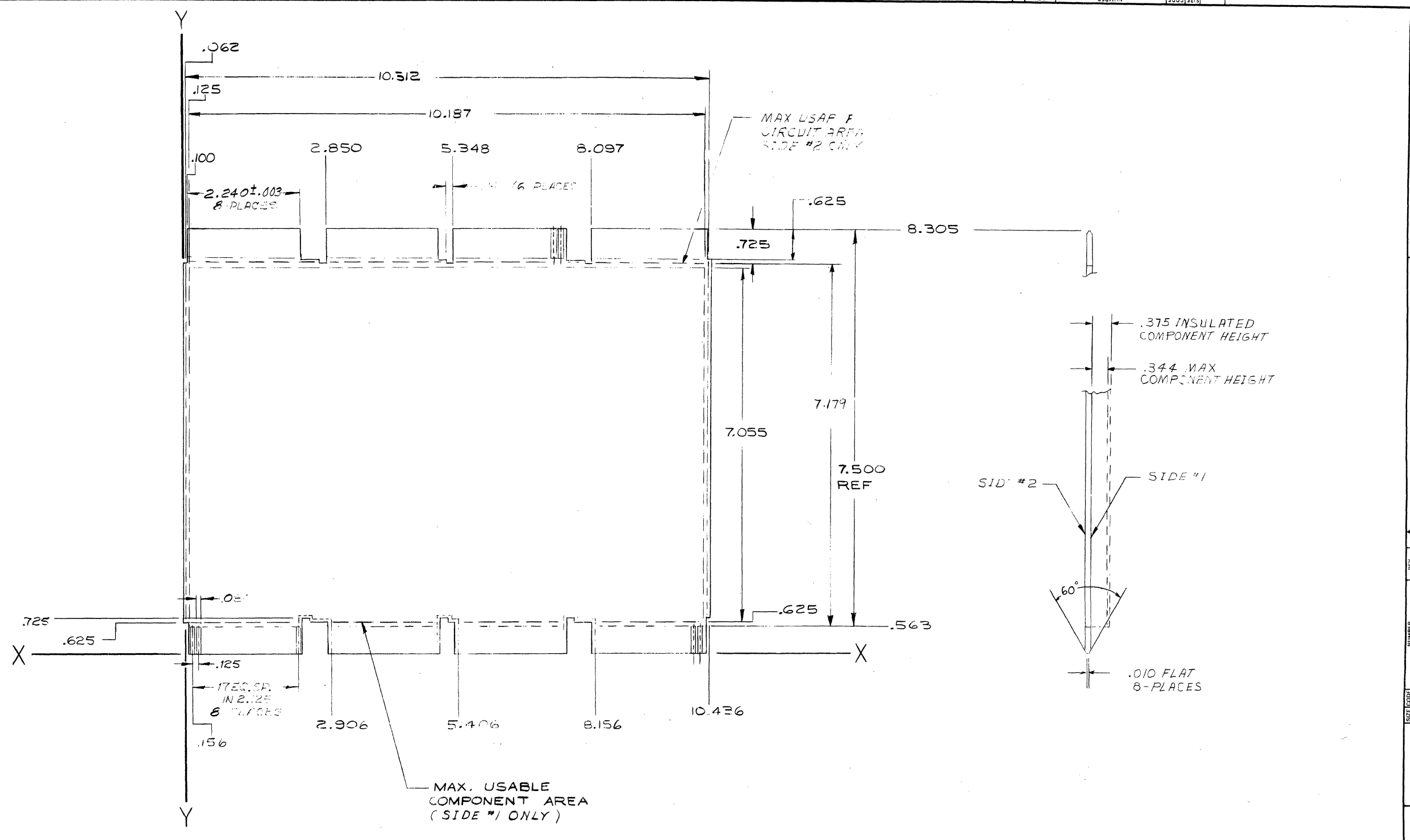
TOLERANCE DECIMALS
 .XXX = ± .005
 .XX = ± .02
 .X = ± .1

FIRST USED ON OPT./MOD.	QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED	DRN	DATE	PARTS LIST	
UNLESS OTHERWISE SPECIFIED	CHKD	DATE	TITLE	
TOLERANCES	ENG	DATE	digital EQUIPMENT CORPORATION	
DECIMALS FRACTIONS ANGLES	PROJ ENG	DATE	PANEL DATA CUSTOMER (REF)	
± .001 ± .002 ± .005 ± .010 ± .015 ± .030	PROD	DATE	SIZE CODE NUMBER REV	
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	NEXT HIGHER ASSY.		DMD 7605994-0-0 A	
MATERIAL	SCALE	1/1	SHEET 1 OF 2	
FINISH	SHEET			

REV A
 NUMBER 7605994-0-0
 DIST DMD

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7605994-0-0 2



REV	NO.
CHK	NO.

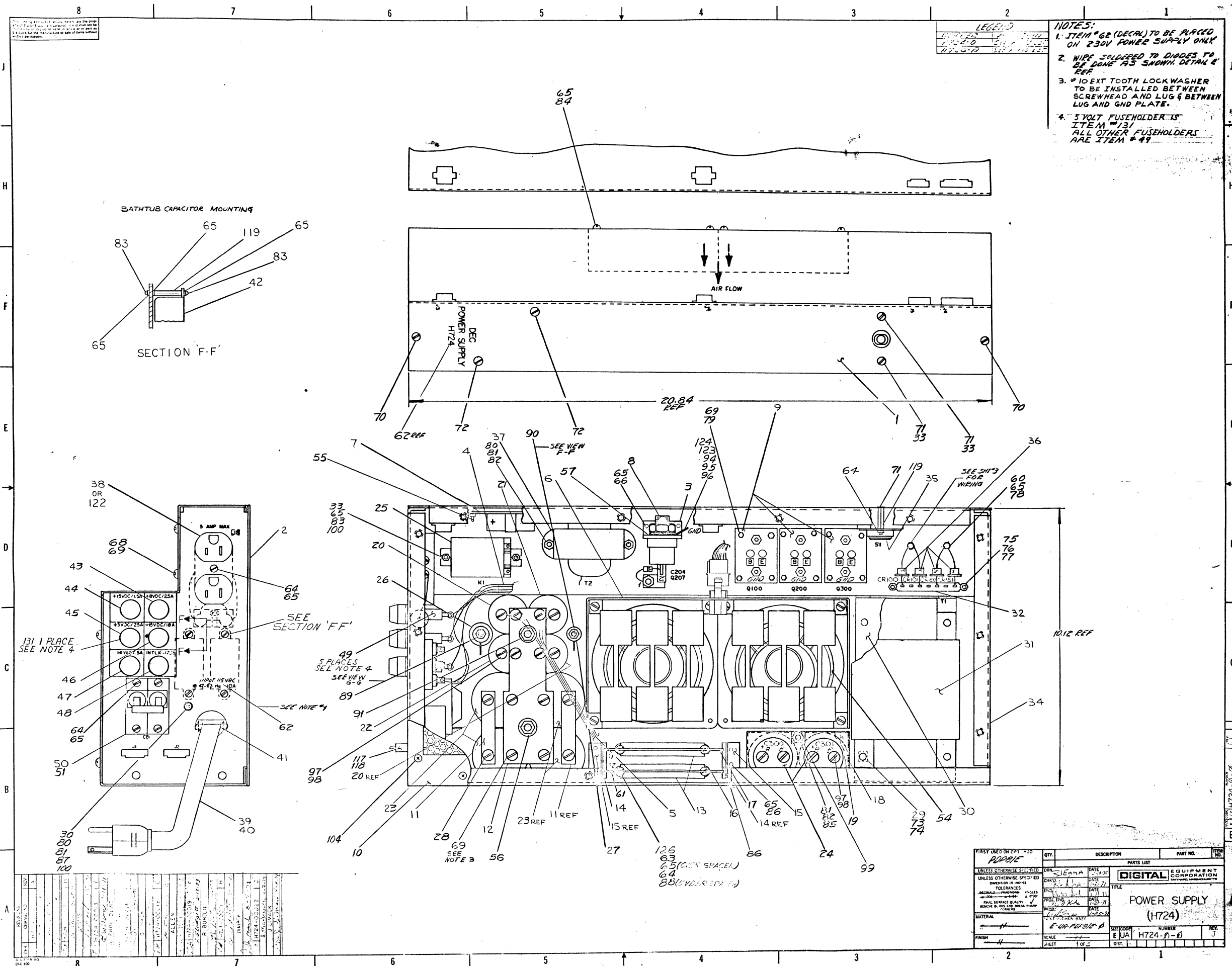
DEC FORM NO 100

FIRST USED ON OPTION/MODEL
+-----+-----+

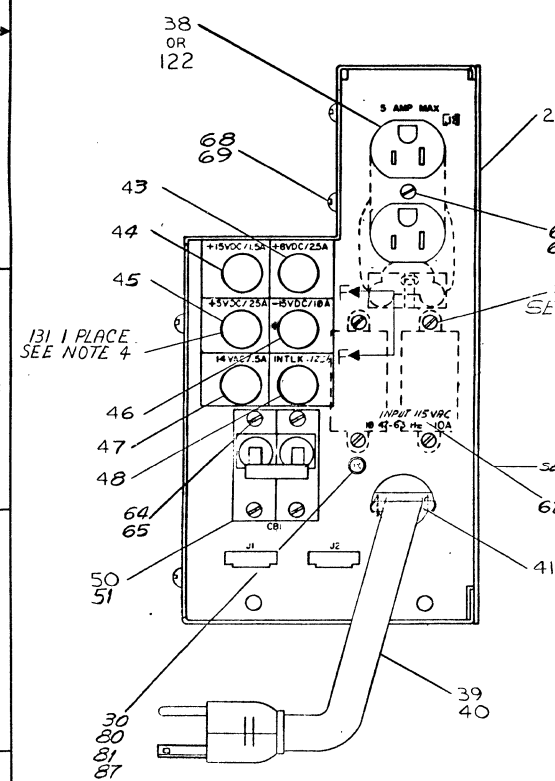
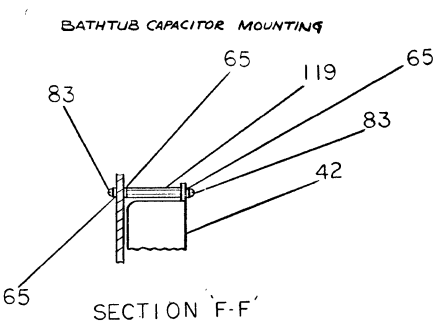
DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
FRACTIONS ANGLES
± .005 ± 1/64 ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
DRN. <i>J. Quillen</i> DATE 4-13-71		digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D. <i>J. Quillen</i> DATE 5-5-71			
ENG. <i>J. Quillen</i> DATE 5-5-71		TITLE PANEL DATA CIRCUIT (REF)	
PROJ. ENG. DATE			
PROD. DATE		NEXT HIGHER ASSY	
SCALE		SIZE CODE D 760	
SHEET OF		NUMBER 760-0-0	
		REV. A	

REV. A
NUMBER 7605994-0-0
SIZE CODE D MD



- LEGEND**
- | | | |
|----------|---|----------|
| 11/17/53 | 1 | 11/22 |
| 1/2/54 | 2 | 1/13/54 |
| 11/2/57 | 3 | 11/13/57 |
- NOTES:**
- ITEM #62 (DECAL) TO BE PLACED ON 230V POWER SUPPLY ONLY
 - WIRE SOLDERED TO DIODES TO BE DONE AS SHOWN DETAIL & REF
 - #10 EXT TOOTH LOCK WASHER TO BE INSTALLED BETWEEN SCREWHEAD AND LUG & BETWEEN LUG AND GND PLATE.
 - 5 VOLT FUSEHOLDER IS ITEM #131 ALL OTHER FUSEHOLDERS ARE ITEM #49



REV	DESCRIPTION	DATE	BY	CHKD
1	ISSUED FOR PRODUCTION	11/22/53	EMMA	EMMA
2	REVISION	1/13/54	EMMA	EMMA
3	REVISION	11/13/57	EMMA	EMMA

QTY.	DESCRIPTION	PARTS LIST	PART NO.	ITEM NO.
1	POWER SUPPLY (H724)			

DIGITAL EQUIPMENT CORPORATION

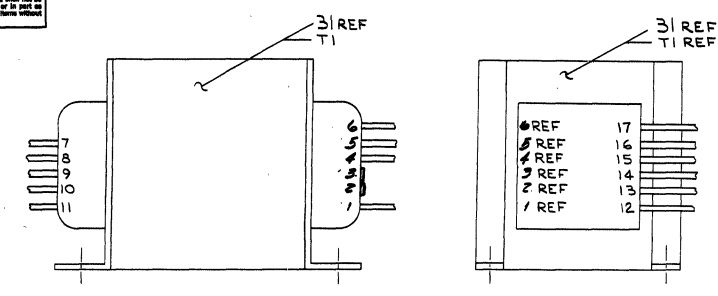
POWER SUPPLY (H724)

SCALE: 1 OF 2

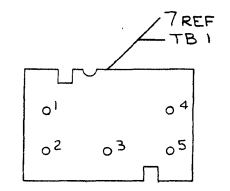
SHEET: 1 OF 2

DIST: 1

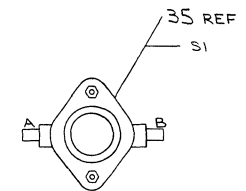
The drawing and manufacturing, handle, use the type of Dielectric Material specified and shall not be substituted for the material of any other kind or type. The manufacturer shall be responsible for the material of any other kind or type. 372



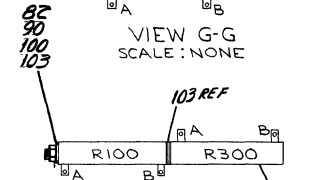
DETAIL A
REVOLVED 90° COUNTER
CLOCKWISE
SCALE: NONE



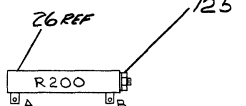
VIEW CC
SCALE: NONE



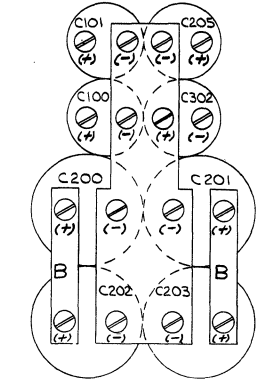
VIEW E-E
SCALE: NONE



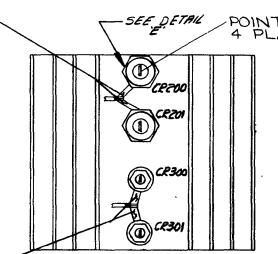
VIEW F-F
SCALE: NONE



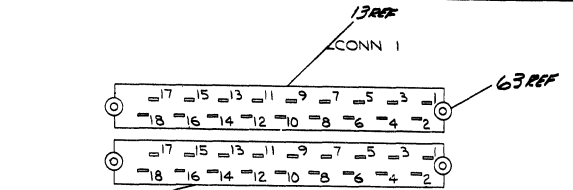
VIEW G-G
SCALE: NONE



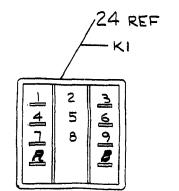
DETAIL B
SCALE: NONE



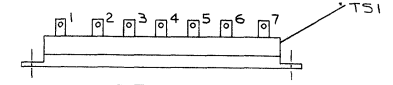
VIEW H-H
SCALE: NONE



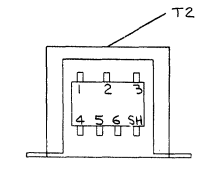
DETAIL C
REVOLVED 180° COUNTER
CLOCKWISE
SCALE: NONE



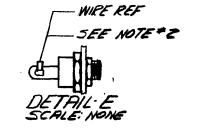
VIEW A-A
SCALE: NONE



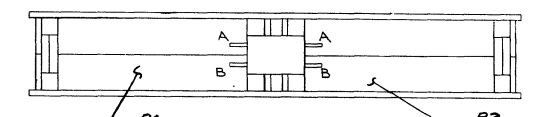
DETAIL D
SCALE: NONE



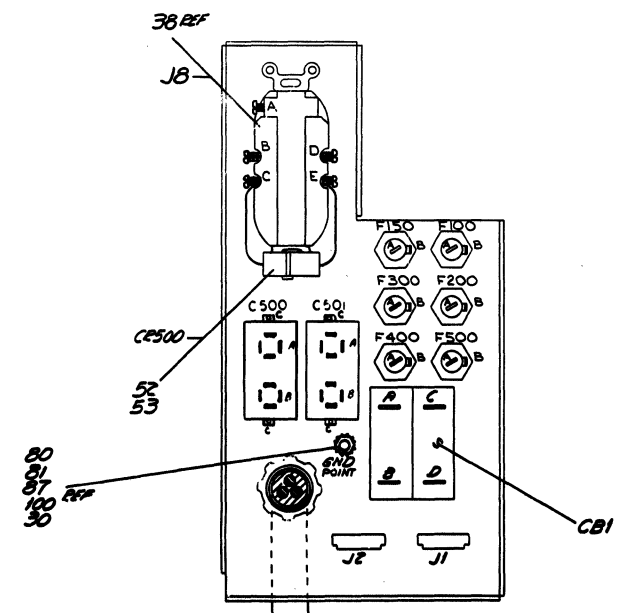
VIEW B-B
SCALE: NONE



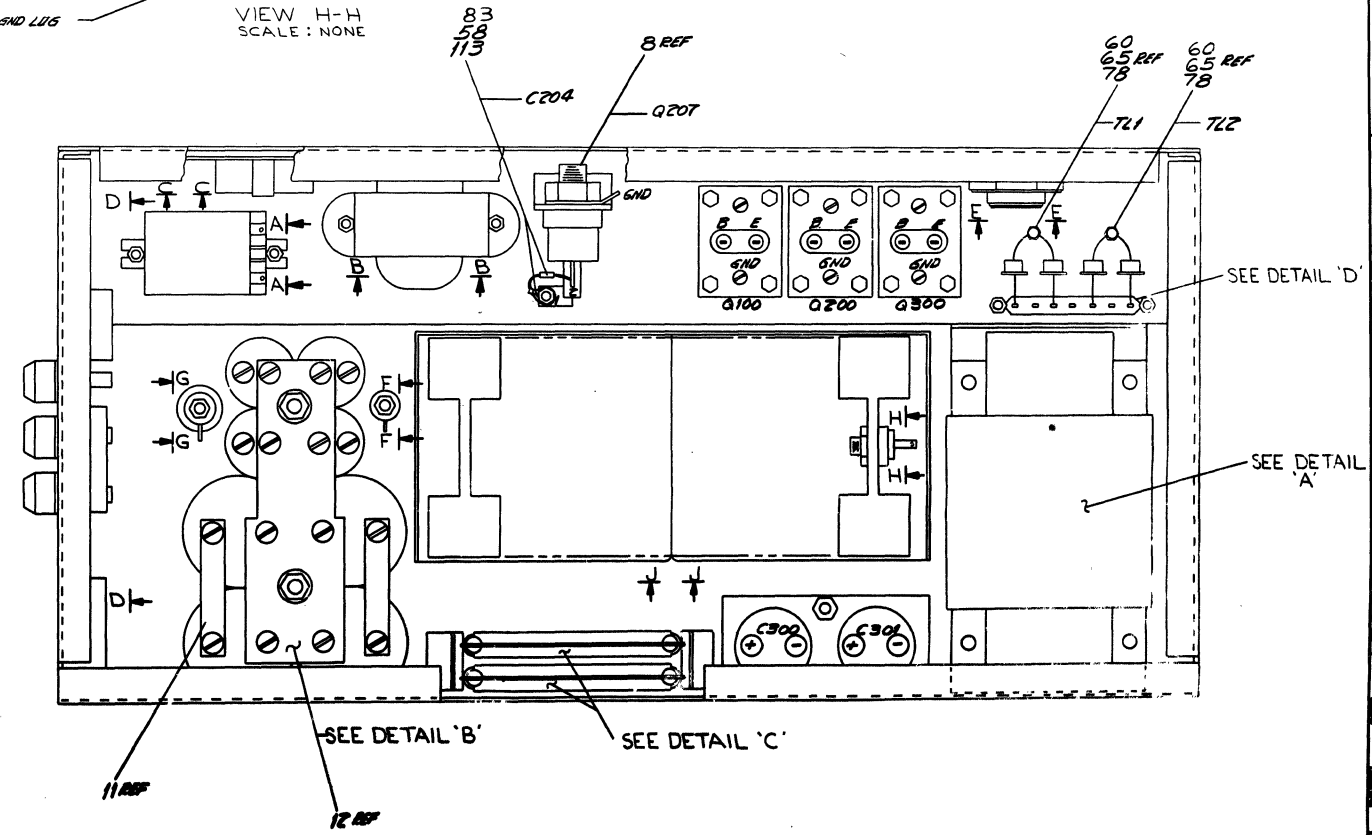
DETAIL E
SCALE: NONE



VIEW J-J
SCALE: NONE



VIEW D-D
SCALE: NONE



PARTS LIST		EQUIPMENT CORPORATION	
QTY.	DESCRIPTION	REV.	PART NO.
1	POWER SUPPLY		H724
1	POWER SUPPLY		(H724)
1	POWER SUPPLY		H724-B-B

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST					QUANTITY/VARIATION											
MADE BY BOB EMMA		CHECKED <i>Paul Jones</i>		SECTION	H724-0	H724-A										
DATE 12-22-70		DATE 1-20-71		1												
ENG <i>E M White</i>		PROD		ISSUED SECT.												
DATE 1-20-71		DATE <i>Paul Jones 1/25/71</i>		1												
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION														
1	E-IA-5309257-0-0	CHASSIS			1	1										
2	D-IA-5309252-0-0	PANEL REAR			1	1										
3	B-MD-5309199-0-0	BRKT MTG. SCR. PRV			1	1										
4	E-IA-7007191-0-0	HARNESS, MAIN CHASSIS			1	1										
5	D-IA-7007192-0-0	HARNESS, CONNECTORS			1	1										
6	D-AD-7007197-0-0	HEAT SINK HOUSING ASSY			1	1										
7	C-AD-5409248-0-0	TURRET BD. ASSY			1	1										
8	1110183	SCR. PRU. 100 IDC 55A			1	1										
9	C-AD-7007205-0-0	CASTING HEAT SINK ASSY			1	1										
10	D-IA-5309187-0-0	COVER, POWER SUPPLY			1	1										
11	B-MD-5309202-0-0	BAR, BUS			2	2										
12	B-MD-5309251-0-0	PLATE, BUS			1	1										
13	B-MD-5509626-0-0	18 PIN CONNECTOR BLOCK			2	2										
14	B-MD-5309196-0-0	CARD GUIDE			2	2										
15	B-MD05309197-0-0	BRKT, MTG CARD GUIDE			2	2										
16	E-IA-5409262-0-0	MODULE BD (A2)			1	1										
17	E-IA-5409264-0-0	MODULE BD (A1)			1	1										
18	B-MD-5309200-0-0	CAP. PLATE, TOP			1	1										
19	B-MD05309201-0-0	CAP. PLATE, BOTTOM			1	1										
20	1010185	CAP. 10800 MFD @ 20VDC			2	2										
21	1010197	CAP 18000 MFD @ 10 VDC			1	1										
22	1010186	CAP. 6000 MFD @ 40 VDC			1	1										
TITLE POWER SUPPLY (H724)				ASSY NO. E-UA-H724-0-0		SIZE CODE A PL		NUMBER H724-0-0				REV. J		ECO NO. H724-00022		
				SHEET 1 OF 7		DIST. G										

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST					QUANTITY/VARIATION											
MADE BY BOB EMMA		CHECKED <i>Paul Jones</i>		SECTION	H724-0	H724-A										
DATE 12-22-70		DATE 1-20-71		1												
ENG <i>E M White</i>		PROD		ISSUED SECT.												
DATE 1-20-71		DATE <i>Paul Jones 1/25/71</i>		1												
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION														
23	1010184	CAP 30000 MFD @ 25 VDC			4	4										
24	1010187	CAP 14000 MFD @ 40 VDC			2	2										
25	1210198	RELAY 24V			1	1										
26	1302888	RES. 100Ω 25W 5%			1	1										
27	1310188	RES. 300Ω 10W 5%			2	2										
28	9008203	SCR. PAN HD PHL #10-32 X 1/2 LG SST			12	12										
29	9006590	NUT, 1/4-20 TINNERMAN			4	4										
30	9008072	WASHER, EXT TOOTH #8			1	1										
31	1610178	TRANSFORMER, #6012296			1	1										
32	9008392	TERM STRIP 7 POS. JONES #2007			1	1										
33	9006560	NUT, KEPS #6-32 SST			10	10										
34	D-MD-5309260-0-0	PANEL, FRONT			1	1										
35	1210199	SWITCH, THERMOSTAT			1	1										
36	1110182	DIODE IN4721			4	4										
37	1610177	TRANSFORMER #6012297			1	1										
38	1205351	RECPT. DUPLEX 3 WIRE			1	1										
39	1700006-15	POWER CORD (115V)			1	1										
40	1700016-15	POWER CORD (230V)			1	1										
41	9008280	CONN. EFCOR 3/8 DIA			1	1										
42	1010183	CAP. .1 MFD @ 1000 VDC			2	2										
43	9008387	FUSE 2.5A 250V AGC 2 1/2 BUSSMAN			1	1										
44	9008388	FUSE 1.5A 250V AGC 1 1/2 BUSSMAN			1	1										
TITLE POWER SUPPLY (H724)				ASSY NO. E-UA-H724-0-0		SIZE CODE A PL		NUMBER H724-0-0				REV. J		ECO NO.		
				SHEET 2 OF 7		DIST.										

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST					QUANTITY / VARIATION												
MADE BY BOB EMMA		CHECKED <i>John Quinn</i>		SECTION	H724-0	H724-A											
DATE 12-22-70		DATE 1-20-71		1													
ENG <i>E N Kite</i>		PROD <i>Paul Fazio</i>		ISSUED SECT.													
DATE 1-20-71		DATE <i>Paul Fazio 1/25/71</i>		1													
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION															
45	9008386	FUSE 25A 125V ABC25 BUSSMAN			1	1											
46	9008390	FUSE 10A 250V ABC10 BUSSMAN			1	1											
47	9007208	FUSE .5A 250V AGC 1/2 BUSSMAN			1	1											
48	9008527	FUSE .125A 125V 3AG SLO BLO			1	1											
49	9007242	FUSE HOLDER			5	5											
50	1210191-0	CIRCUIT BREAKER 10A (115V)			1	-											
51	12-10364	CIRCUIT BREAKER 5A (230V)			-	1											
52	1110181	TYRECTOR 6RS20SP5B5			1	-											
53	1102915	TYRECTOR 6RS20SP9B9			-	1											
54	1210263	GUARD-INLET MUFFIN			2	2											
55	9008395	NUT, TOGGLE TINNEMAN			2	2											
56	9008426	BUSHING INS. FLANGED			2	2											
57	9008418	WASHER SCR. 1/2 I.D.			2	2											
58	1001776	CAP. IMF D 35VDC			1	1											
59	9006969	SPACER 1/2 AFX 1 LG			1	1											
60	9006966	LUG. TURRET #6-32			2	2											
61	A-DC-5309375-0-0	DECAL MODULE BDS			A/R	A/R											
62	A-DC-5309376-0-0	DECAL 230V			-	A/R											
63	B-MD-5309198-0-0	SPACER, CONNECTOR BLOCK			2	2											
64	9006021-1	SCR, HD. PAN, PHL #6-32 X 5/16 LG			7	7											
65	9006633	WASHER INT TOOTH #6			18	18											
66	9008407-1	SCR. THD CUTTING HD. PAN. PHL #6-32X3/8			4	4											
TITLE POWER SUPPLY				ASSY NO. E-UA-H724-0-0	SIZE CODE A PL	NUMBER H724-0-0				REV. J	ECO NO.						
SHEET 3 OF 7				DIST. <input type="checkbox"/>													

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST					QUANTITY / VARIATION												
MADE BY BOB EMMA		CHECKED JOHN QUINN		SECTION	H724-0	H724-A											
DATE 12-22-70		DATE 1-20-71		1													
ENG E N KITE		PROD PAUL FAZIO		ISSUED SECT.													
DATE 1-20-71		DATE 1-25-71		1													
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION															
67	9008400	NUT SPEED #6-32 TINNEMAN			4	4											
68	9006072-1	SCR, HD, PAN, PHL #10-32 X 7/16 LG			8	8											
69	9006635	WASHER, INT TOOTH #10			24	24											
70	9006022-2	SCR, HD FLAT, PHL #6-32 X 5/16 LG			8	8											
71	9006029-2	SCR HD FLAT, PHL #6-32 X 1/4 LG			2	2											
72	9008409-2	SCR, HD FLAT, #8-18 X 1/2 LG			2	2											
73	9006058-3	SCR, HD TRUSS, PHL # 1/4-20 X 3/4 LG			4	4											
74	9006637	WASHER INT TOOTH #1/4			4	4											
75	9006010-1	SCR, HD PAN, PHL #4-40 X 5/16 LG			2	2											
76	9006557	NUT, KEPS #4-40			2	2											
77	9006632	WASHER INT. TOOTH #4			2	2											
78	9007842-1	SCR, HD PAN, PHL #6-32 X 3/16 LG			2	2											
79	9008915-1	SCR, HD PAN, PHL #10-32 X 11/16 LG			12	12											
80	9006039-1	SCR, HD PAN, PHL #8-32 X 1/2 LG			2	2											
81	9006634	WASHER, INT TOOTH #8			13	13											
82	9006563	NUT, KEPS #8-32			4	4											
83	9006022-1	SCR, HD, PAN, PHL #6-32 X 3/8 LG			12	12											
84	9006026-1	SCR, HD, PAN, PHL #6-32 X 3/4 LG			16	16											
85	9008412-5	SCR, HD, ROUND, SLOT #8-32 X 4 5/8 LG			2	2											
86	9008408-1	SCR, HD PAN SELG CUTTING & FORM 6-32X1/2 LG			4	4											
87	9006561	NUT, HEX #8-32			1	1											
88	9007649	WASHER (EXT TOOTH) #6			2	2											
TITLE POWER SUPPLY (H724)				ASSY NO. E-UA-H724-0-0	SIZE CODE A PL	NUMBER H724-0-0				REV. J	ECO NO.						
SHEET 4 OF 7				DIST. <input type="checkbox"/>													

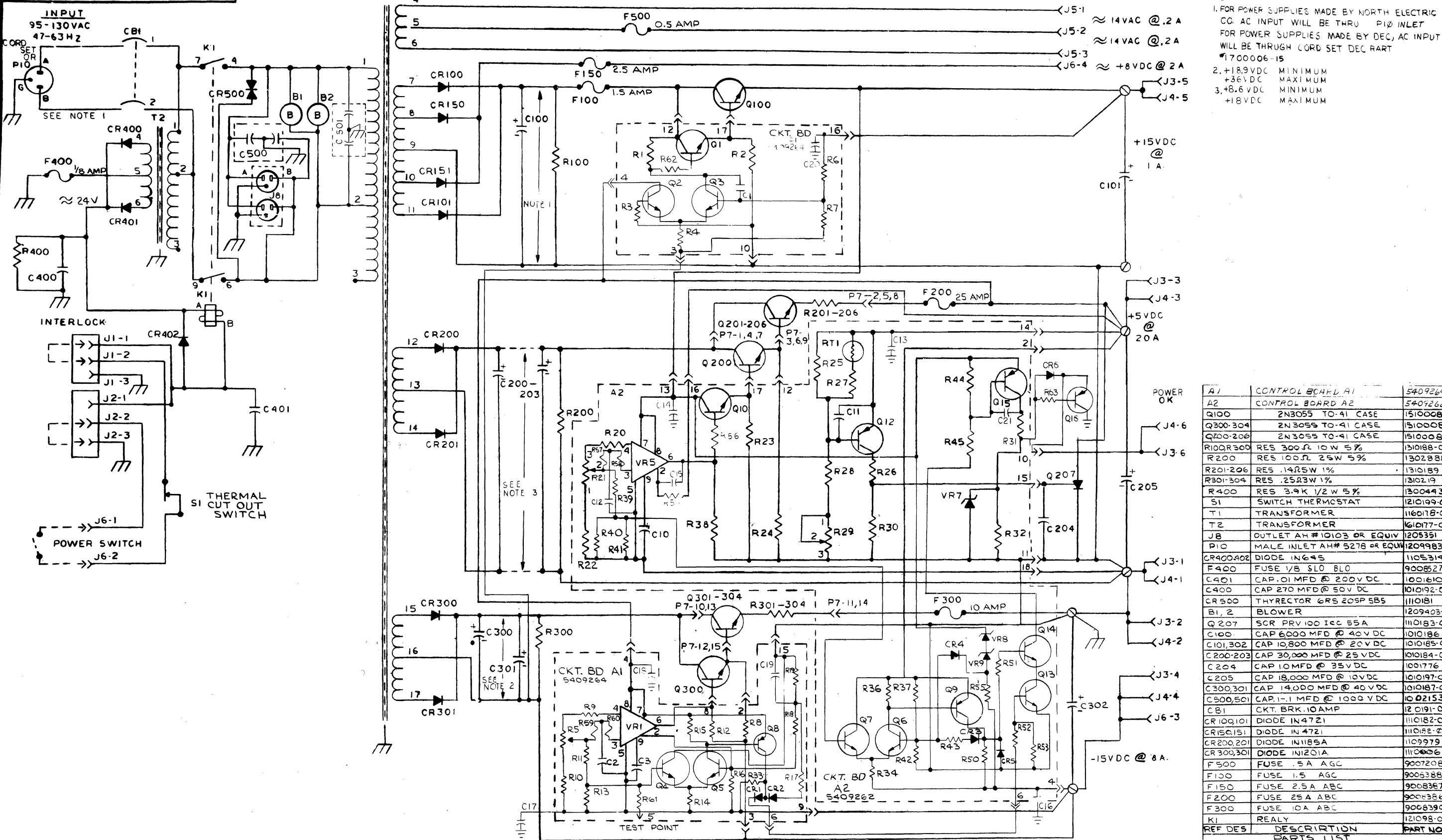
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS				QUANTITY / VARIATION													
PARTS LIST				H724-0	H724-A												
MADE BY	BOB EMMA	CHECKED	JOHN QUINN															SECTION
DATE	12-22-70	DATE	1-20-71	1													
ENG	E N KITE	PROD	PAUL FAZIO	ISSUED SECT.													
DATE	1-20-71	DATE	1-25-71	1													
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION															
131	12-11348	FUSE HOLDER			1	1											
132	A-PI-3700030-0-0	PACKAGING INSTRUCTION			1	1											
TITLE POWER SUPPLY (H724)				ASSY NO. E-UA-H724-0-0	SIZE A	CODE PL	NUMBER H724-0-0				REV. J	ECO NO.					
SHEET				7 OF 7	DIST.												

DEC FORM DEC 16-(325)-1031-N870
DRA 110

THIS SCHEMATIC IS FURNISHED ONLY FOR TEST AND MAINTENANCE PURPOSES. THE CIRCUITS ARE PROPRIETARY IN NATURE AND SHOULD BE TREATED ACCORDINGLY. COPYRIGHT 1970 BY DIGITAL EQUIPMENT CORPORATION

NOTES:

- FOR POWER SUPPLIES MADE BY NORTH ELECTRIC CO. AC INPUT WILL BE THRU P10 INLET FOR POWER SUPPLIES MADE BY DEC, AC INPUT WILL BE THROUGH CORD SET DEC PART #1700006-15
- +18.9VDC MINIMUM
+36VDC MAXIMUM
- +8.6VDC MINIMUM
+18VDC MAXIMUM



REF DES	DESCRIPTION	PART NO
A1	CONTROL BOARD A1	5409264
A2	CONTROL BOARD A2	5409262
Q100	2N3055 TO-41 CASE	1510008
Q300-304	2N3055 TO-41 CASE	1510008
Q200-206	2N3055 TO-41 CASE	1510008
R100R300	RES 300Ω 10W 5%	1310188-0
R200	RES 100Ω 25W 5%	1302888
R201-206	RES .1475W 1%	1310189
R301-304	RES .2523W 1%	1310219
R400	RES 3.9K 1/2W 5%	1300443
S1	SWITCH THERMOSTAT	1210199-0
T1	TRANSFORMER	1160178-0
T2	TRANSFORMER	1610177-0
J8	OUTLET AH #10103 OR EQUIV	1205351
P10	MALE INLET AH# 5278 OR EQUIV	1209983
CR400A02	DIODE 1N645	1105314
F400	FUSE 1/8 SLO BLO	9008527
C401	CAP .01 MFD @ 200V DC	1001610
C400	CAP 270 MFD @ 50V DC	1010192-0
CR500	THYRECTOR 6RS 205P 5B5	1110181
B1, 2	BLOWER	12094031
Q207	SCR PRV 100 IEC 55A	1110183-0
C100	CAP 6000 MFD @ 40V DC	1010186
C101,302	CAP 10,800 MFD @ 20V DC	1010185-0
C200-203	CAP 30,000 MFD @ 25V DC	1010184-0
C204	CAP 10MFD @ 35V DC	1001776
C205	CAP 18,000 MFD @ 10V DC	1010197-0
C300,301	CAP 14,000 MFD @ 40V DC	1010187-0
C500,501	CAP 1.1 MFD @ 1000 V DC	1002153
C81	CKT. BRK. 10AMP	120191-0
CR100,101	DIODE 1N4721	1110182-0
CR150,151	DIODE 1N4721	1110182-0
CR200,201	DIODE 1N1185A	1109979
CR300,301	DIODE 1N1201A	1110006
F500	FUSE .5A AGC	9007208
F100	FUSE 1.5 AGC	9005388
F150	FUSE 2.5A ABC	9008367
F200	FUSE 25A ABC	9008386
F300	FUSE 10A ABC	9008390
K1	RELAY	121098-0

REV	DATE	BY	CHKD	APP'D
1	7/21/70	...	...	...
2	11/23/70	...	...	...
3	1/2/71	...	...	...
4	1/2/71	...	...	...

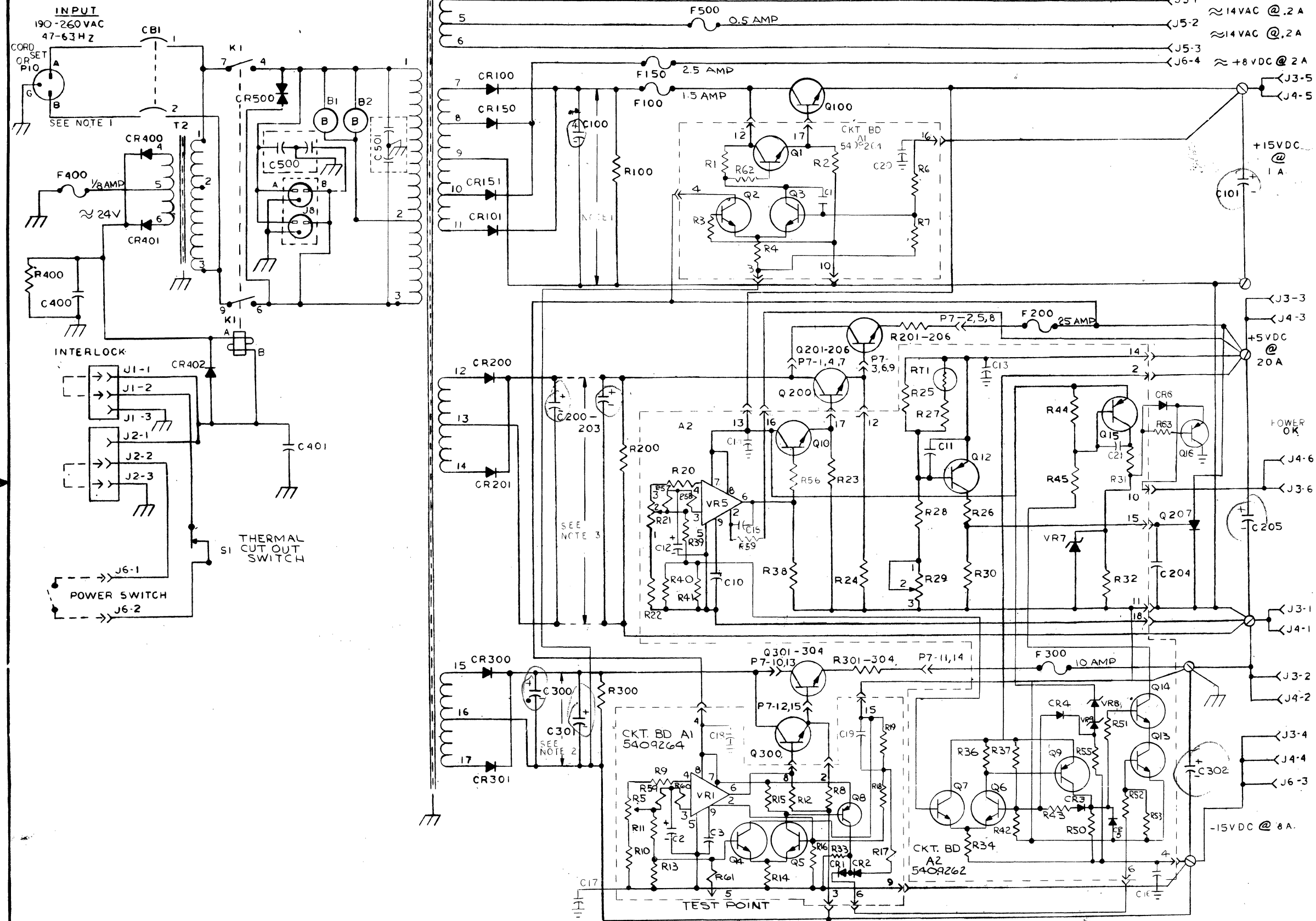
TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA
2N3055	2N3055	2N3055	2N3055
...

DIGITAL EQUIPMENT CORPORATION H724 SCHEMATIC
 SIZE CODE: D CS H724-0-1
 PRINTED CIRCUIT REV: F

THIS SCHEMATIC IS FURNISHED ONLY FOR TEST AND MAINTENANCE PURPOSES. THE CIRCUITS ARE PROPRIETARY IN NATURE AND SHOULD BE TREATED ACCORDINGLY. COPYRIGHT 1970 BY DIGITAL EQUIPMENT CORPORATION

NOTES:
 1. FOR POWER SUPPLIES MADE BY NORTH ELECTRIC CO. AC INPUT WILL BE THROUGH P10 INLET. FOR POWER SUPPLIES MADE BY DEC AC INPUT WILL BE THROUGH CORD SET DEC PART # 1700005-15
 2. +18.9VDC MINIMUM +36VDC MAXIMUM
 3. +8.6VDC MINIMUM +18VDC MAXIMUM

C101
205
302



A1	CONTROL BOARD A1	5409264
A2	CONTROL BOARD A2	5409262
Q300-304	2N3055 TO-18 CASE	1510008
R100, R300	RES 300 Ω 10W 5%	1310188
R200	RES 100 Ω 25W 5%	1302888
R201-206	RES 14R5W 1%	1310189
R301-304	RES .25Ω 3W 1%	1310219
R400	RES 3.9 K 1/2W 5%	1300443
S1	SWITCH THERMOSTAT	12101990
T1	TRANSFORMER	1601780
T2	TRANSFORMER	16101770
J8	OUTLET AH #5662-DOR EQUIV	9008854
P10	MALE INLET AH # 5678 OR EQUIV	9008854
CR400-402	DIODE 1N445	1105314
F400	FUSE 1/8 SLO BLO	9008527
C401	CAP .01MFD @ 200 VDC	1001610
C400	CAP 270 MFD @ 50 VDC	1010192
CR500	THYRECTOR GRS 20SP9B9	1102915
B1, 2	BLOWER	12094031
Q207	SCR PRV 100 Idc 55A	11101830
C100	CAP 6000 MFD @ 40 VDC	10101860
C101, 302	CAP 10,800 MFD @ 20 VDC	10101850
C200-203	CAP 30,000 MFD @ 25 VDC	10101840
C204	CAP 4.0 MFD @ 35 VDC	1001776
C205	CAP 18,000 MFD @ 10 VDC	10101970
C300, 301	CAP 14,000 MFD @ 40 VDC	10101870
C500, 501	CAP .1-1 MFD @ 1000 VDC	1002153
CBI	CKT. BRK. 5 AMP	1210364
CR100, 101	DIODE 1N4721	1110182
CR150, 151	DIODE 1N1185A	1109979
CR200, 201	DIODE 1N1201A	1110006
CR300, 301	DIODE 1N1201A	1110006
F500	FUSE .5A AGC	9007208
F100	FUSE 1.5 AGC	9008388
F150	FUSE 2.5A ABC	9008387
F200	FUSE 25A ABC	9008386
F300	FUSE 10A ABC	9008390
K1	RELAY	1210198-0
REF DES	DESCRIPTION	PART NO
	PARTS LIST	

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

digital H724A SCHEMATIC

EQUIPMENT CORPORATION

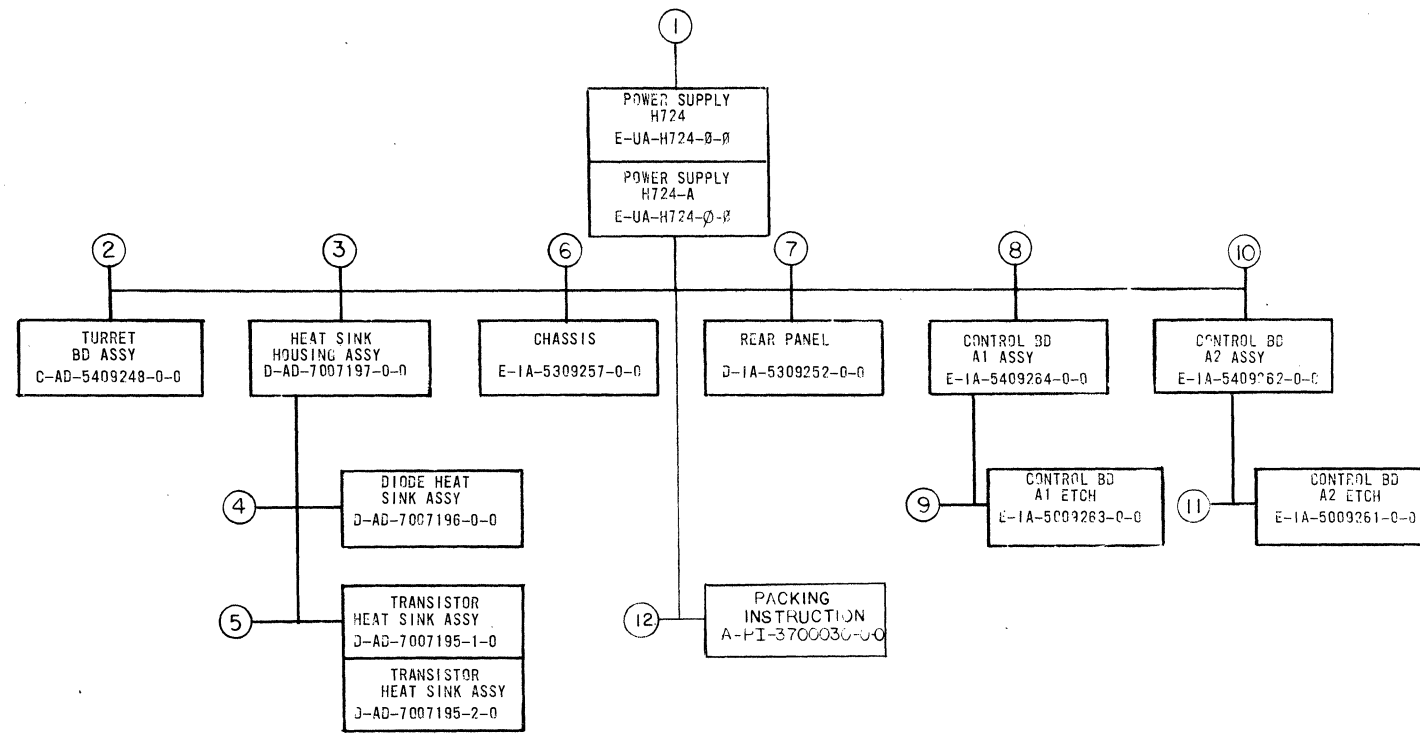
DATE 12/10/70

NUMBER H724-A-1

PRINTED CIRCUIT REV

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2-0-7724 H724 2

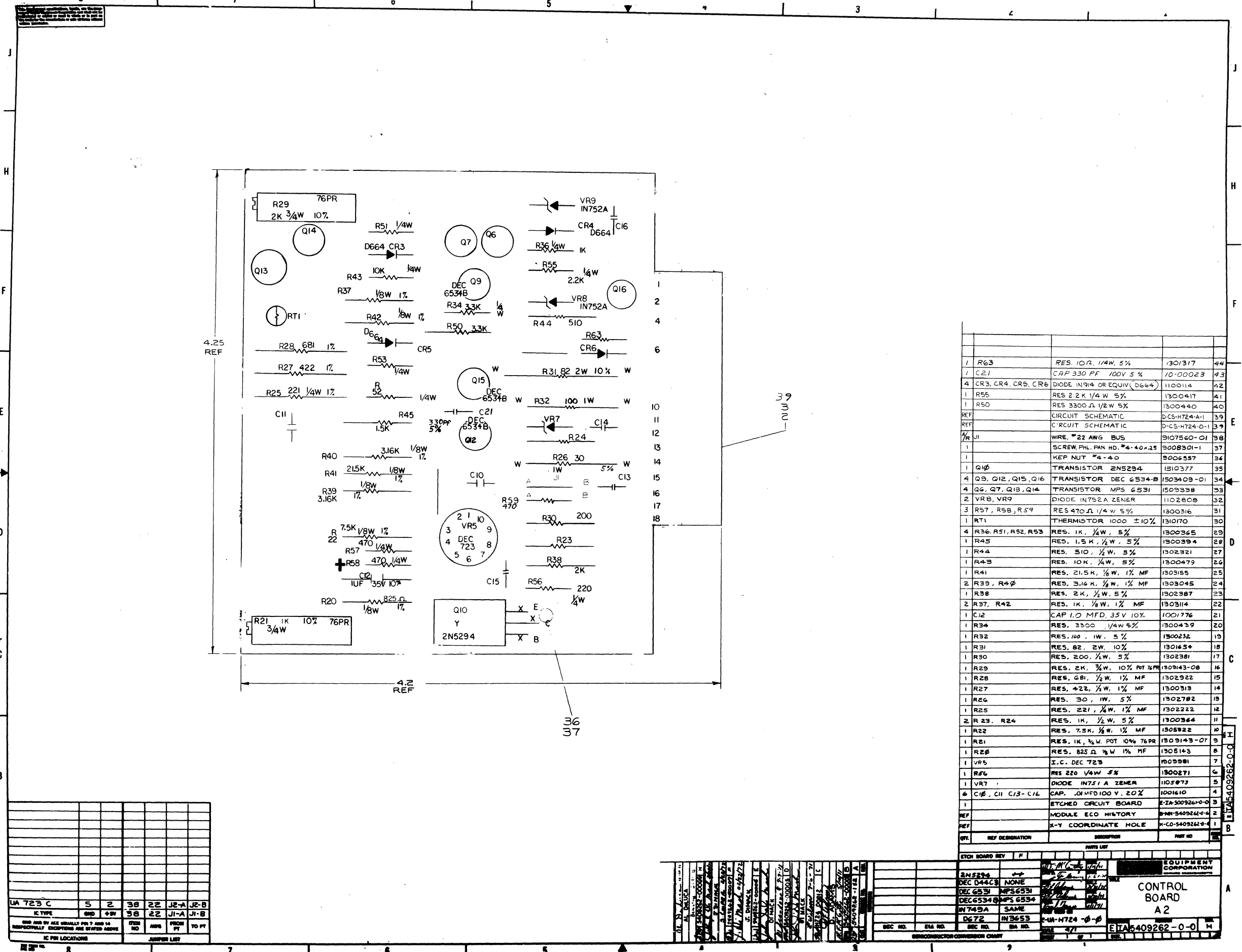


MECHANICAL		DEPT USAGE			
FIND NO.	DESCRIPTION	PART NO.	PROD	CUST	F/C
1	POWER SUPPLY ASSY (H724) POWER SUPPLY ASSY (PL) POWER SUPPLY (H724A) POWER SUPPLY (H724A) (PL) PLATE, CAP TOP PLATE, CAP 3TH BRKT, MTG. CARD GUIDE GUIDE, CARD JAR, BUS BRKT, MTG SCR PRV. SPACER, CONN DECAL MODULE BDS DECAL 230V CASTING HEAT SINK ASSY CASTING HEAT SINK ASSY (PL) PANEL, FRONT COVER, POWER SUPPLY HARNESS, CONN. HARNESS, MAIN CHASSIS PLATE, BUS 18 PIN CONN BLOCK INTERPLANT SHIPPING (H724)	E-UA-H724-0-0 A-PL-H724-0-0 E-UA-H724-A-0-0 E-UA-H724-A-0-0 B-MD-5309200-0-0 B-MD-5309201-0-0 J-MD-5309197-0-0 B-MD-5309196-0-0 B-MD-5309202-0-0 B-MD-5309199-0-0 B-MD-5309199-0-0 A-DC-5309375-0-0 A-DC-5309376-0-0 C-AD-7007205-0-0 A-PL-7007205-0-0 D-MD-5309260-0-0 D-IA-5309187-0-0 D-IA-7007192-0-0 E-IA-7007191-0-0 B-MD-5309251-0-0 B-MD-5309260-0-0 A-PI-3700030-0-0			
2.	TURRET BD ASSY TURRET BD ASSY (PL) BOARD TURRET	C-AD-5409248-0-0 A-PL-5409248-0-0 C-MD-5309301-0-0			
3.	HEAT SINK HOUSING ASSY HEAT SINK HOUSING ASSY (PL) HOUSING HEAT SINK STANDOFF FAN SUPPORT HOUSING CABLE	D-AD-7007197-0-0 A-PL-7007197-0-0 C-MD-5309256-0-0 B-MD-5309265-0-0 D-IA-7009266-0-0			
4	DIODE H.S. ASSY DIODE HEAT SINK (PL) DIODE H.S.	D-AD-7007196-0-0 A-PL-7007196-0-0 D-PS-1210212-0-1			
5	TRANS H.S. ASSY TRANS H.S. ASSY (PL) TRANS H.S.	D-AD-7007195-0-0 A-PL-7007195-0-0 D-PS-1210211-0-1			
6	CHASSIS SILK SCREEN (WHT) BRKT, TRANSFORMER	E-IA-5309257-0-0 B-SS-5309257-0-1 C-MD-5309296-0-0			
7	REAR PANEL SILK SCREEN (WHT)	D-IA-5309252-0-0 B-SS-5309252-0-1			
8.	CONTROL BD A1 ASSY DRILLING TAPE (A1) MODULE HISTORY (A1)	E-IA-5409264-0-0 K-CD-5409264-0-4 B-MH-5409264-0-8			
9	CONTROL BD A1 FAB	E-IA-5009263-0-0			
10.	CONTROL BD A2 ASSY DRILLING TAPE (A1) MODULE HISTORY (A1)	E-IA-5409262-0-0 K-CD-5409262-0-4 B-MH-5409262-0-8			
11.	CONTROL BD A2 FAB	E-IA-5009261-0-0			
12.	PACKING INSTRUCTION SHIPPING CARTON 3 PROFILE PART FLAME TRAY	A-PI-3700030-0-0 A-PS-9905067-0-0 A-PS-9905068-0-0 A-PS-9905069-0-0			

ELECTRICAL		DEPT USAGE			
FIND NO.	DESCRIPTION	PART NO.	PROD	CUST	F/C
1.	POWER SUPPLY POWER SUPPLY CIRCUIT SCHEMATIC CIRCUIT SCHEMATIC	A-ML-H724-0-0 A-ML-H724-A-0-0 D-CS-H724-0-1 D-CS-H724-A-1			
8	CIRCUIT SCHEMATIC	D-CS-5409264-0-1			
9	P.C. LAYOUT	PC-8009263-0-1			
10	CIRCUIT SCHEMATIC	D-CS-5409262-0-1			
11	P.C. LAYOUT	PC-5009261-0-1			

REV	CHG	NO	DATE	BY
A	H724-00012			
B				
C				
D				
E				
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Y				
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FIRST USED ON OPTION/MODEL H724	DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS DRAWING INDEX LIST (H724)
CHKD.	DATE	TITLE	
ENG.	DATE	SCALE	
PROJ. ENG.	DATE	REV	
PROD.	DATE	REV	
NEXT HIGHER ASSY A-ML-...	SCALE	REV	SIZE CODE: DDI NUMBER: H724-0-2 REV: D
SHEET	OF 1	DIST.	



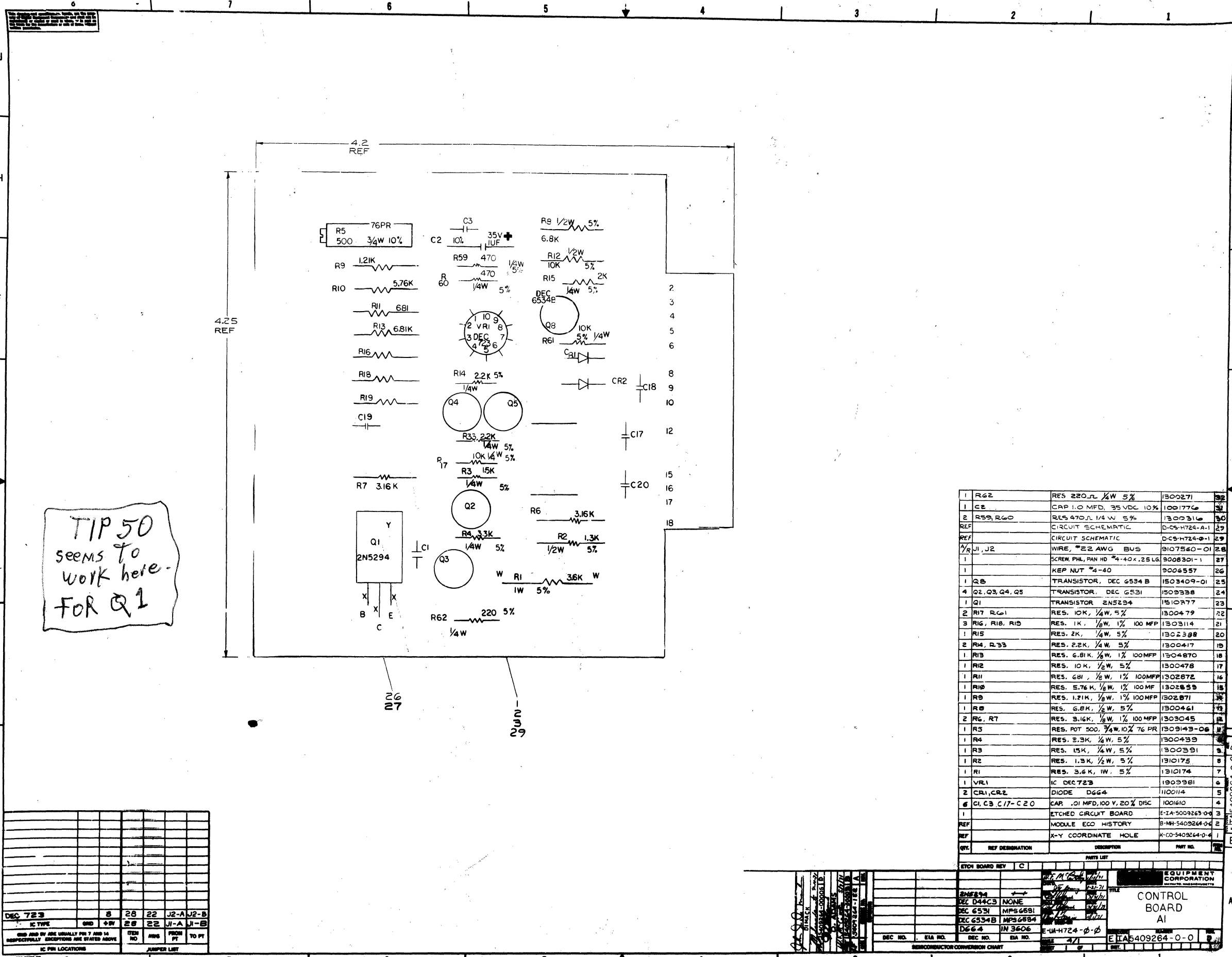
REF	DESIGNATION	DESCRIPTION	QTY	PART NO.
1	R63	RES 10R, 1/4W, 5%	44	1301317
1	C21	CAP 330 PF 100V 5%	43	10-00023
4	CR3, CR4, CR5, CR6	DIODE IN714 OR EQUIV (D664)	42	1100114
1	R55	RES 2.2K 1/4W 5%	41	1300417
1	R50	RES 3300 Ω 1/2W 5%	40	1300440
REF		CIRCUIT SCHEMATIC		D-CS-H724-A-1
REF		CIRCUIT SCHEMATIC		D-CS-H724-O-1
WIRE	J1	WIRE #22 AWG BUS	38	9107560-O1
1		SCREW PHL PAN HD #4-40x25	37	9008301-1
1		KEP NUT #4-40	36	9006557
1	Q10	TRANSISTOR 2N5294	35	1510377
4	Q9, Q12, Q15, Q16	TRANSISTOR DEC 6534-B	34	1503409-O1
4	Q6, Q7, Q13, Q14	TRANSISTOR MPS 6531	33	1509398
2	VR8, VR9	DIODE INT52A ZENER	32	1102608
3	R57, R58, R59	RES 470 Ω 1/4W 5%	31	1300316
1	RT1	THERMISTOR 1000 ±10%	30	1310170
4	R36, R51, R52, R53	RES 1K, 1/4W, 5%	29	1300365
1	R45	RES 1.5K, 1/2W, 5%	28	1300394
1	R44	RES 510, 1/2W, 5%	27	1302321
1	R43	RES 10K, 1/4W, 5%	26	1300479
1	R41	RES 21.5K, 1/4W, 1% MF	25	1303155
2	R33, R40	RES 3.16K, 1/8W, 1% MF	24	1303045
1	R38	RES 2K, 1/2W, 5%	23	1302387
2	R37, R42	RES 1K, 1/8W, 1% MF	22	1303114
1	C12	CAP 1.0 MFD 35V 10%	21	1001776
1	R34	RES 3300, 1/4W 5%	20	1300439
1	R32	RES 100, 1W, 5%	19	1300232
1	R31	RES 82, 2W, 10%	18	1301654
1	R30	RES 200, 1/4W, 5%	17	1302381
1	R29	RES 2K, 3/4W, 10% POT 76PR	16	1303143-08
1	R28	RES 681, 1/2W, 1% MF	15	1302922
1	R27	RES 422, 1/4W, 1% MF	14	1300313
1	R26	RES 30, 1W, 5%	13	1302782
1	R25	RES 221, 1/4W, 1% MF	12	1302222
2	R23, R24	RES 1K, 1/2W, 5%	11	1300364
1	R22	RES 7.5K, 1/8W, 1% MF	10	1305922
1	R21	RES 1K, 3/4W POT 10% 76PR	9	1303143-07
1	R20	RES 825 Ω 1/8W 1% MF	8	1305143
1	VR5	I.C. DEC 723	7	1305981
1	R16	RES 220 1/4W 5%	6	1300271
1	VR7	DIODE INT51 A ZENER	5	1105073
6	C10, C11, C13-C16	CAP .01MFD 100V 20%	4	1001610
1		ETCHED CIRCUIT BOARD	3	E-7A-5009262-0-0
REF		MODULE ECO HISTORY	2	94W-5409262-0-4
REF		X-Y COORDINATE HOLE	1	X-CO-5409262-0-4

IC PIN LOCATIONS	JUMPER LIST
UA 723 C	5 2 38 22 J2-A J2-B
IC TYPE	50D +5V 38 22 J1-A J1-B
QTY	
NO	
FROM	
TO	

ETCH BOARD REV	F	DATE LIST	EQUIPMENT CORPORATION
2N5294			
DEC 044C3	NONE		
DEC 6531	MPS 6531		
DEC 6534B	MPS 6534		
INT 429A	SAME		
DG72	INT 3653	E-7A-5409262-0-4	
SEC NO.	ETA NO.	BA NO.	471
E-7A-5409262-0-0			

CONTROL BOARD
A2

CONDUCTOR CONVERSION CHART



TIP 50
seems to
work here -
FOR Q1

QTY.	REF DESIGNATION	DESCRIPTION	PART NO.
1	R62	RES 220 Ω 1/4W 5%	1300271
1	C2	CAP 1.0 MFD. 35 VDC 10%	1001776
2	R59, R60	RES 470 Ω 1/4W 5%	1300316
REF		CIRCUIT SCHEMATIC	D-5409264-A-1
REF		CIRCUIT SCHEMATIC	D-5409264-0-1
1/2	J1, J2	WIRE, #22 AWG BUS	9107560-01
1		SCREW PHL, PAN HD #4-40 x .25 LG	9008301-1
1		KEP NUT #4-40	9006557
1	Q2	TRANSISTOR, DEC 6534 B	1503409-01
4	Q2, Q3, Q4, Q5	TRANSISTOR, DEC 6531	1503338
1	Q1	TRANSISTOR 2N5294	1510977
2	R17, R61	RES. 10K, 1/4W, 5%	1300479
3	R16, R18, R19	RES. 1K, 1/8W, 1% 100 MFP	1303114
1	R15	RES. 2K, 1/4W, 5%	1302398
2	R14, R33	RES. 2.2K, 1/4W, 5%	1300417
1	R13	RES. 6.8K, 1/8W, 1% 100MFP	1304870
1	R12	RES. 10K, 1/2W, 5%	1300478
1	R11	RES. 681, 1/8W, 1% 100MFP	1302872
1	R10	RES. 5.76K, 1/8W, 1% 100 MF	1302839
1	R9	RES. 1.21K, 1/8W, 1% 100MFP	1302871
1	R8	RES. 6.8K, 1/2W, 5%	1300461
2	R6, R7	RES. 3.16K, 1/8W, 1% 100 MFP	1303045
1	R5	RES. POT 500, 3/4W, 10% 76 PR	1309149-06
1	R4	RES. 3.3K, 1/4W, 5%	1300439
1	R3	RES. 15K, 1/4W, 5%	1300391
1	R2	RES. 1.3K, 1/2W, 5%	1310175
1	R1	RES. 3.6K, 1W, 5%	1310174
1	VR1	IC DEC 723	1909981
2	CR1, CR2	DIODE D664	1100114
6	C1, C3, C17-C20	CAP .01 MFD, 100 V, 20% DISC	1001610
1		ETCHED CIRCUIT BOARD	E-5409264-0-0
REF		MODULE ECO HISTORY	B-MH-5409264-0-0
REF		X-Y COORDINATE HOLE	K-5409264-0-0

IC PIN LOCATIONS	JUMPER LIST
DEC 723	8 28 22 J2-A J2-B
IC TYPE	8 28 22 J1-A J1-B
AND ADD BY ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.	ITEM NO. MFG. FROM PT. TO PT.

EQUIPMENT CORPORATION
CONTROL BOARD AI
 EIA 5409264-0-0
 DEC NO. EIA NO. DEC NO. EIA NO.
 E-MH-5409264-0-0
 IN 3606
 271