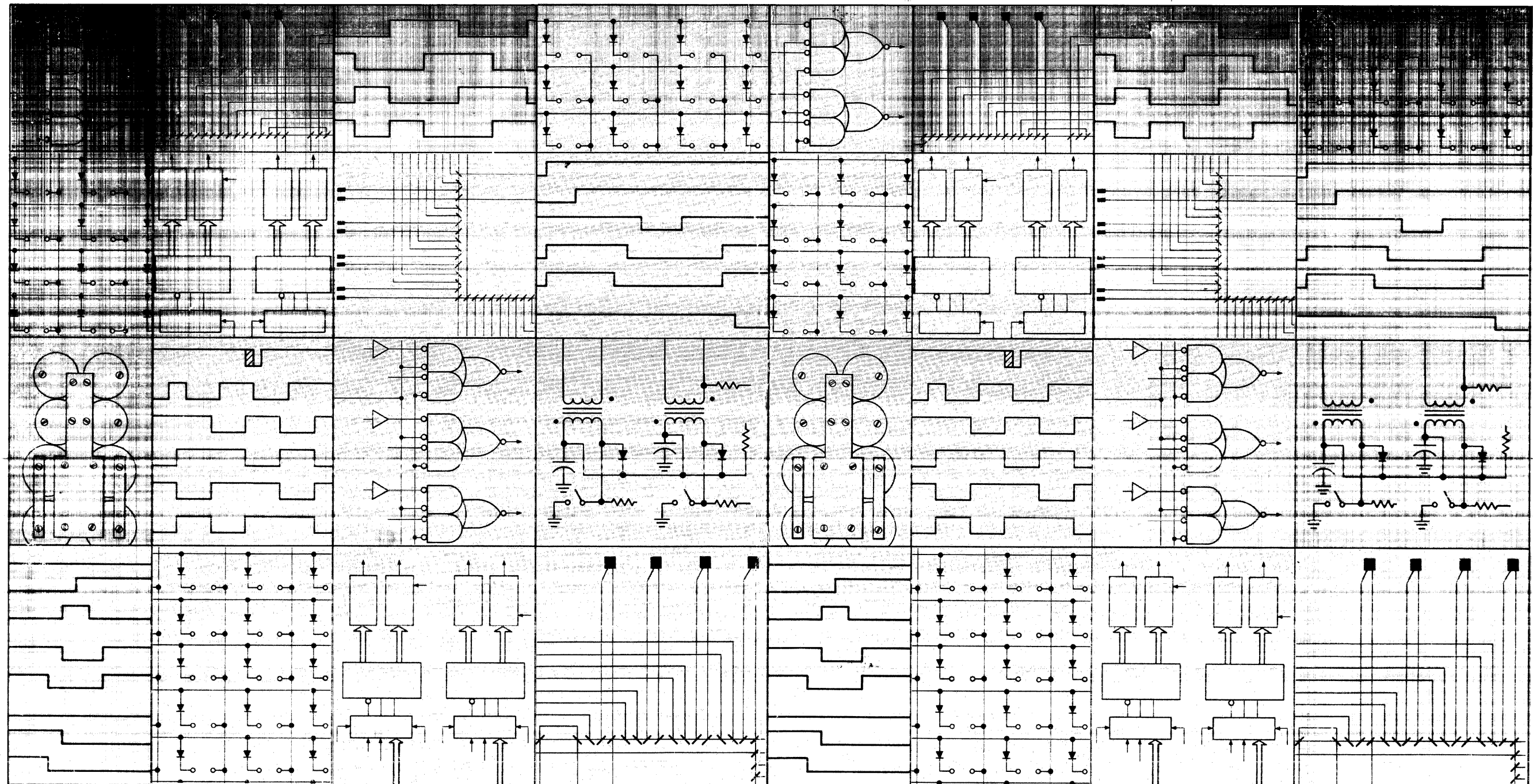


# pdp8/e

pdp8/f & pdp8/m

PDP-8/M computer  
engineering drawings



digital

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

# DRAWING DIRECTORY

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION. COPYRIGHT © , DIGITAL EQUIPMENT CORPORATION"

## CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

SEQUENCE ↙

DRAWING DIRECTORY  
FIELD INSTALLATION PROC.  
SOFTWARE LIST  
ACCESSORY LIST  
PDP8M ASSY  
PDP8M ASSY (PARTS LIST)  
POWER SUPPLY ASSY  
LINE SET/115V  
LINE SET/230V  
POWER SUPPLY ASSY.  
LINE SET/115V  
LINE SET/230V  
REGULATOR BOARD ASSY  
REGULATOR BOARD CIRCUIT  
RECOMMENDED OMNIBUS MODULE  
ASSIGN.  
TIMING DIAGRAM  
FLOW DIAGRAM  
OMNIBUS (H9191)  
OPERATOR'S CONSOLE  
PROGRAMMER'S CONSOLE  
CENTRAL PROCESSOR  
MEMORY EXT. & TIME SHARE CONT.  
ASYNC. DATA CONTROL  
MEMORY, MM8-E  
MEMORY, MR8-F  
REC.1ST LEVEL SPARES (4K)  
REC.1ST LEVEL SPARES (8K&16K)  
REC.2ND LEVEL SPARES  
TELETYPE ASR-33 ACCESSORY LIST  
CUSTOMER PANEL DATA  
SYSTEM POWER WIRING DIAGRAM  
OPTION ARRANGEMENT  
PACKAGING INSTRUCTIONS

↘ SEQUENCE

B-DD-PDP8M-Ø  
A-SP-PDP8M-Ø-2  
A-SL-PDP8M-Ø-4  
A-AL-PDP8M-Ø-6  
D-UA-PDP8M-Ø-Ø  
C-PL-PDP8M-Ø-Ø  
D-AD-7009282-Ø-Ø  
D-UA-BC2ØA-Ø-Ø  
D-UA-BC2ØB-Ø-Ø  
D-AD-7008714-Ø-Ø  
C-UA-BCØ5H-Ø-Ø  
C-UA-BCØ5J-Ø-Ø  
E-IA-5409728-Ø-Ø  
D-CS-5409728-Ø-1  
  
A-SP-PDP8E-Ø-4  
D-TD-PDP8E-Ø-5  
E-FD-PDP8E-Ø-6  
A-ML-H9191-Ø  
B-DD-KC8-M  
B-DD-KC8-ML  
A-ML-KK8-E  
A-ML-KM8-E  
A-ML-KL8-E  
B-DD-MM8-E  
B-DD-MR8-F  
A-PL-SP8-MA-Ø  
A-PL-SP8-MC-Ø  
A-PL-SP8-MB-Ø  
A-AL-LT33-Ø-12  
D-MD-7605994-Ø-Ø  
D-IC-PDP8M-Ø-3  
E-AR-PDP8M-Ø-1  
A-PI-3700055-Ø-Ø

↙ SEQUENCE ↘

MFG SET

PDP8M ASSEMBLY PROCEDURE  
POWER SUPPLY ASSY. PROCEDURE  
MANUFACTURING TEST PROCEDURE  
OPTION POWER REQUIREMENT  
DEC/X8 CHECKOUT & ACCEPT PROC.  
MAN. ENVIRONMENTAL TEST PROC.  
INSPECTION & ACCEPTANCE PROC.

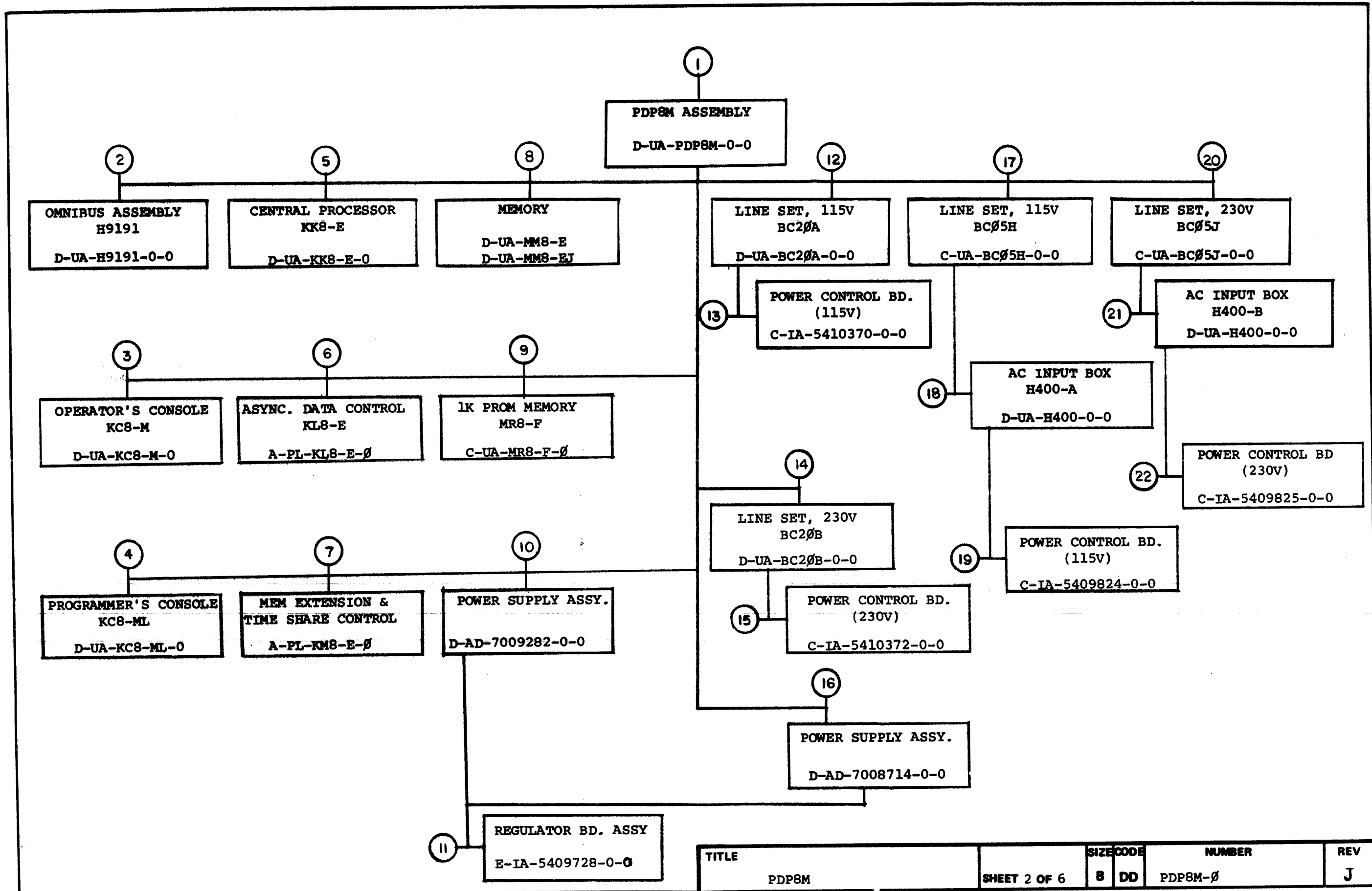
↘ SEQUENCE ↙

A-SP-PDP8M-Ø-7  
A-SP-PDP8M-Ø-8  
A-SP-PDP8E-Ø-8  
A-SP-PDP8E-Ø-11  
A-SP-PDP8E-Ø-13  
A-SP-7665114-Ø-Ø  
A-SP-7665165-Ø-Ø

UNIT VARIATIONS		PRINT SET	
VAR	TITLE	PDP8M-Ø	
PDP8M-DC	OBSOLETE	X	
PDP8M-DD	OBSOLETE	X	
PDP8M-DE	OBSOLETE	X	
PDP8M-DF	OBSOLETE	X	
PDP8M-DH	115V, 4K, KC8-ML, KL8-E	X	
PDP8M-DJ	230V, 4K, KC8-ML, KL8-E	X	
PDP8M-DK	115V, 8K, KC8-ML, KL8-E	X	
PDP8M-DL	230V, 8K, KC8-ML, KL8-E	X	
PDP8M-DS	115V, 16K, KC8-ML, KL8-E	X	
PDP8M-DT	230V, 16K, KC8-ML, KL8-E	X	
PDP8M-EH	115V, 4K, KC8-ML	X	
PDP8M-EJ	230V, 4K, KC8-ML	X	
PDP8M-EK	115V, 8K, KC8-ML	X	
PDP8M-EL	230V, 8K, KC8-ML	X	
PDP8M-ES	115V, 16K, KC8-ML	X	
PDP8M-ET	230V, 16K, KC8-ML	X	
PDP8M-MC	OBSOLETE	X	
PDP8M-MD	OBSOLETE	X	
PDP8M-ME	OBSOLETE	X	
PDP8M-MF	OBSOLETE	X	
PDP8M-MH	115V, 4K, KC8-M	X	
PDP8M-MJ	230V, 4K, KC8-M	X	
PDP8M-MK	115V, 8K, KC8-M	X	
PDP8M-ML	230V, 8K, KC8-M	X	
PDP8M-MM	115V, 1K, KC8-M	X	
PDP8M-MN	230V, 1K, KC8-M	X	
PDP8M-MP	115V, 2K, KC8-M	X	
PDP8M-MR	230V, 2K, KC8-M	X	
PDP8M-MS	115V, 16K, KC8-M	X	
PDP8M-MT	230V, 16K, KC8-M	X	

DEC 16-12881-1068-1A-R972

REVISIONS	REV	J	CHG. NO. PDP8M-19 REVISED & REDRAWN	DATE 11/73	USED ON OPTION/MODEL	DRN.	DATE	TITLE  PDP8M	
					PDP8M	J. KALAGHER	2/12/73		
						CHK'D.	DATE		
						J. CAHILL	3/12/73		
					PROJ ENG.	DATE			
					P. GARDNER	3/12/73			
					PROD.	DATE	SIZE CODE	NUMBER	REV
					P. ALLEN	3/12/73	B DD	PDP8M-Ø	J
					FIELD SERV.	DATE			
					F. PURCELL	3/12/73	DIST		M U
					SHEET 1 OF 6				



TITLE	SIZE	CODE	NUMBER	REV
PDP8M	B	DD	PDP8M-Ø	J

CUSTOMER PRINT SET		ELECTRICAL					CUSTOMER PRINT SET		ELECTRICAL						
PDP8M-Ø	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE	PDP8M-Ø	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X		1	E-AR-PDP8M-Ø-1	B	1	OPTION ARRANGEMENT		C		6	A-ML-KL8-E	#	2	ASYNC. DATA CONTROL	PDP8E
X			A-SP-PDP8M-Ø-2	B	20	FIELD INSTALLATION PROCEDURE									
X			D-IC-PDP8M-Ø-3	C	1	SYSTEM POWER WIRING DIAGRAM									
X			A-SL-PDP8M-Ø-4	C	1	SOFTWARE LIST									
X			A-AL-PDP8M-Ø-6	C	2	ACCESSORY LIST									
	X		A-SP-PDP8M-Ø-7	A	4	PDP8M ASSEMBLY PROCEDURE		C		7	A-ML-KM1-E	#	2	MEM. EXT. & TIME SHARE CONTROL	PDP8E
X			A-SP-PDP8E-Ø-4	#	2	RECOMMENDED OMNIBUS ASSIGN	PDP8E								
X			D-TD-PDP8E-Ø-5	#	2	TIMING DIAGRAM	PDP8E								
X			E-FD-PDP8E-Ø-6	#	1	FLOW DIAGRAM	PDP8E								
	X		A-SP-PDP8E-Ø-8	#	14	MANUFACTURING TEST PROCEDURE	PDP8E								
	X		A-SP-PDP8E-Ø-11	#	5	OPTION POWER REQUIREMENTS	PDP8E	C		8	B-DD-MM8-E	#	3	MEMORY (MM8-E & MM8-EJ)	PDP8E
	X		A-SP-PDP8E-Ø-13	#	15	DEC/X8 CHECKOUT & ACCEPT. PROC	PDP8E								
X			A-PL-SP8-MA-Ø	B	1	REC. 1ST LEVEL SPARES (4K)									
X			A-PL-SP8-MB-Ø	B	4	RECOMMENDED 2ND LEVEL SPARES									
X			A-PL-SP8-MC-Ø	*	1	REC. 1ST LEVEL SPARES (8K&16K)									
X			A-AL-LT33-Ø-12	#	1	ASR 33 ACCESSORY LIST	LT33	C		9	B-DD-MR8-F	#	2	MEMORY, 1K PROM	
			A-PL-LT33-SB-Ø		1	LT33 RECOMMENDED SPARE PARTS	LT33								
			A-PL-LT33-ST-Ø		2	LT33 TOOL KIT	LT33								
X			A-PL-3700055-Ø-Ø	#	4	PACKAGING INSTRUCTIONS									
	X		A-SP-7665114-Ø-Ø	#	12	MAN. ENVIRONMENTAL TEST PROC.		X		11	E-IA-54Ø9728-Ø-Ø	#	1	REGULATOR BOARD ASSEMBLY	11/05
	X		A-SP-7665165-Ø-Ø	#	24	INSPECTION & ACCEPTANCE PROC.		X			D-CS-5409728-Ø-1	#	1	REGULATOR BOARD CIRCUIT	
											B-MH-5409728-Ø-6		3	MODULE ECO HISTORY	
C		3	B-DD-KC8-M	#	3	OPERATOR'S CONSOLE				13	C-IA-541Ø37Ø-Ø-Ø		1	POWER CONTROL BOARD (115V)	BC2ØA
											B-MH-541Ø37Ø-Ø-6		1	MODULE ECO HISTORY	
C		4	B-DD-KC8-ML	#	3	PROGRAMMER'S CONSOLE				15	C-IA-5410372-Ø-Ø		1	POWER CONTROL BOARD (230V)	BC2ØB
											B-MH-5410372-Ø-Ø		1	MODULE ECO HISTORY	
C		5	A-ML-KK8-E	#	2	CENTRAL PROCESSOR	PDP8E			19	C-IA-5409824-Ø-Ø		1	POWER CONTROL BOARD, 115V	H400
											B-MH-5409824-Ø-6		1	MODULE ECO HISTORY	

CUSTOMER PRINT SET CODES  
X = PRINT OF DOCUMENT INCLUDED IN PRINT SET  
C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT  
S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED

TITLE: PDP8M  
SIZE CODE: B DD  
NUMBER: PDP8M-Ø  
REV: J  
SHEET 3 OF 6



CUSTOMER PRINT SET		MECHANICAL					CUSTOMER PRINT SET		MECHANICAL					
PDP8M-0	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	OPTION NO./FILE DATE	PDP8M-0	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X		1	D-UA-PDP8M-0-0	K	6	PDP8M UNIT ASSEMBLY	X		10	D-AD-7009282-0-0	#	1	POWER SUPPLY ASSEMBLY	
X			C-PL-PDP8M-0-0	K	2	PDP8M UNIT ASSEMBLY (PL)			X	A-SP-PDP8M-0-8	*	3	P.S. ASSEMBLY PROCEDURE	
			A-PS-1210302-0-0		1	FOAM PAD	PDP8E			E-IA-7009279-0-0		1	TRANSFORMER ASSEMBLY	
			D-IA-7008537-0-0		1	AC HARNESS (OBSOLETE)				D-IA-7009280-0-0		1	DC HARNESS	
			C-IA-7008674-0-0		1	MICRO SWITCH HARNESS				D-IA-7009452-0-0		1	THERMOSTAT ASSEMBLY	
			D-IA-7008675-0-0		1	DC HARNESS (OBSOLETE)				D-IA-7410746-0-0		1	CHASSIS, POWER SUPPLY	
			D-IA-7009281-0-0		1	AC HARNESS				A-DC-7410790-0-0		1	DECAL	
			C-MD-7407449-0-0		1	COVER STRIP	PDP8E							
			D-MD-7408861-0-0		1	CHASSIS SLIDES, 22 IN. TRAVEL	PDP8E							
			C-IA-7409377-0-0		1	STRAIN RELIEF, EXP. (OBSOLETE)								
			E-IA-7409379-0-0		2	CHASSIS (OBSOLETE)								
			D-IA-7409380-0-0		1	COVER (OBSOLETE)		X	12	D-UA-BC20A-0-0	#	1	LINE SET, 115V	
			C-IA-7409387-0-0		1	STRAIN RELIEF, CABLE (OBSOLETE)				D-IA-5309845-0-0		1	BOX, AC INPUT	BC05H
			D-IA-7409419-0-0		1	BRKT., CABLE TROUGH (OBSOLETE)				C-MD-5310373-0-0		1	COVER, AC INPUT	
			C-IA-7409424-0-0		1	FILTER, SIDE (OBSOLETE)				B-SS-5310373-0-1		1	SILK SCREEN, COVER	
			E-IA-7410740-0-0		3	CHASSIS				A-DC-5310438-0-0		1	DECAL, (115V)	
			D-IA-7410748-0-0		1	REAR COVER								
			C-IA-7410749-0-0		1	STRAIN RELIEF, CABLE								
			C-IA-7410750-0-0		1	BRACKET, KEY SWITCH								
			D-IA-7410751-0-0		1	TOP COVER								
			C-IA-7410752-0-0		1	STRAIN RELIEF, EXPANDER		X	14	D-UA-BC20B-0-0	#	1	LINE SET, 230V	
			B-IA-7410753-0-0		1	SUPPORT BRACKET				D-IA-5309845-0-0		1	BOX, AC INPUT	BC05H
			C-MD-7410754-0-0		1	SUPPORT BRACKET (OBSOLETE)				C-MD-5310373-0-0		1	COVER, AC INPUT	
			C-IA-7410768-0-0		1	SIDE FILTER				B-SS-5310373-0-1		1	SILK SCREEN, COVER	
			A-DC-7410910-0-0		1	DECAL				A-DC-5310439-0-0		1	DECAL (230V)	
X			D-MD-7605994-0-0	#	2	CUSTOMER PANEL DATA								
			D-IA-7606477-0-0		1	PDP8M CHASSIS PROTECTOR								
								X	16	D-AD-7008714-0-0	#	1	POWER SUPPLY ASSY. (OBSOLETE)	
										D-IA-7008534-0-0		1	SECONDARY HARNESS	
										C-IA-7409375-0-0		1	BRACKET, ETCH BD. SUPPORT	
										D-IA-7409376-0-0		2	CHASSIS, POWER SUPPLY	
										A-DC-7409651-0-0		1	POWER SUPPLY DECAL	
C		2	A-ML-H9191-0	#	2	OMNIBUS ASSEMBLY (H9191)								
								X	17	C-UA-BC05H-0-0	#	1	LINE SET, 115V (OBSOLETE)	11/05

CUSTOMER PRINT SET CODES	X = PRINT OF DOCUMENT INCLUDED IN PRINT SET C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED	TITLE	PDP8M	SIZE	CODE	NUMBER	REV
				SHEET 5 OF 6	B DD	PDP8M-0	J

CUSTOMER PRINT SET		MECHANICAL					CUSTOMER PRINT SET		MECHANICAL						
PDP8M-Ø	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE	PDP8M-Ø	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
		18	D-UA-H400-0-0		1	AC INPUT BOX, H400-A	BCØ5H								
			D-IA-5309845-0-0		1	BOX, AC INPUT									
			C-MD-5309849-0-0		1	COVER									
			A-DC-5309899-0-0		1	DECAL, (115V)									
X		20	C-UA-BCØ5J-0-0	#	1	LINE SET, 230V (OBSOLETE)	11/05								
		21	D-UA-H400-0-0		1	AC INPUT BOX, H400-B	BC2ØJ								
			D-IA-5309845-0-0		1	BOX, AC INPUT									
			C-MD-5309849-0-0		1	COVER									
			A-DC-5309900-0-0		1	DECAL (230V)									

CUSTOMER PRINT SET CODES  
 X = PRINT OF DOCUMENT INCLUDED IN PRINT SET  
 C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT  
 S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED

TITLE

PDP8M

SIZE CODE

NUMBER

REV

SHEET 6 OF 6

B DD

PDP8M-Ø

J



**DIGITAL EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS**

**ENGINEERING SPECIFICATION**

DATE 8/18/73

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

**REVISIONS**

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
5	REWRITTEN	PDP8M-00019	P.GARDNER	7/72	<i>[Signature]</i>	12/3/73

ENG Paul Gardner	APPD Paul Gardner	SIZE A	CODE SP	NUMBER PDP8M-0-2	REV B
---------------------	----------------------	-----------	------------	---------------------	----------

DEC FORM NO 102-1070-1071  
DRA 107

1 of 20

**ENGINEERING SPECIFICATION**

CONTINUATION SHEET

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

**1.0 Scope**

1.1 The purpose of this document is to assist the person who has the task of performing the installation of a basic PDP8/F or PDP8/M and has had little or no exposure to Digital Equipment Corporation's computers or computer programming. More advanced and detailed information is available in the following documents:

Small Computer Handbook  
Introduction to Programming  
PDP8/E, PDP8/F and PDP8/M Maintenance Manuals,  
Volumes 1, 2, and 3.

**2.0 Installation Requirements**

2.1 The PDP8/F/M is general purpose computer that has practically unlimited applications. The basic computer can be ordered in many configurations. The PDP8/F/M can be ordered already mounted in a cabinet. To verify correct operation of the computer, a Programmer's Console (KCS-ML/KCS-FL) and an LT33 Teletype and its control (KLS-E) are necessary.

**3.0 Unpacking Instructions**

3.1 Use the following checklist to unpack the PDP8/F or PDP8/M.

**PDP8/F or PDP8/M Without Cabinet**

1. Check shipping tags attached to carton to verify that all boxes belonging to the shipment have arrived.\*
2. Open the top of the carton and remove the polyurethane foam filler.
3. Carefully remove the laminated corrugated cardboard from top, sides, and the console of the computer.
4. Lift the computer, in its polyethylene bag, out of the carton and place it on a table or bench. If the computer is to be re-shipped, save all packing material.

SIZE A	CODE SP	NUMBER PDP8M-0-2	REV B
-----------	------------	---------------------	----------

DEC FORM NO 102-1070-1070  
DRA 108

SHEET 2 OF 20

**ENGINEERING SPECIFICATION**

CONTINUATION SHEET

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

5. Remove the polyethylene bag, untape the power cord, and remove the pair of keys from the rear.
6. Inspect the computer for damage.\*
7. Unpack any other boxes included in the shipment.
8. Check that all equipment, software, manuals, etc., are present as specified on the Key Sheet, Software List, and Accessory List, respectively. (The Software and Accessory Lists are contained within the print set.) If any item is missing, notify the nearest Digital Sales Office.

\*If an entire box is missing or damage is evident, notify the carrier immediately.

**3.2 PDP8/F or PDP8/M with Cabinet**

1. Inspect the container exterior for damage.\*
2. Remove any straps, corrugated cardboard, or plywood.
3. Remove the polyethylene cover and console covering; inspect for damage.\*
4. Remove the shipping pins from rear door.
5. Remove cabinet sides by gripping the edges and lifting straight up.
6. Unbolt the cabinet from the shipping skid.
7. Raise the four leveling feet above the level of the casters so that the weight is on the casters.
8. Use wooden blocks and planks to form a ramp from the skid to the floor; carefully roll the cabinet onto the floor.\*\*
9. Roll the cabinet to the prepared location.

SIZE A	CODE SP	NUMBER PDP8M-0-2	REV B
-----------	------------	---------------------	----------

DEC FORM NO 102-1070-1070  
DRA 108

SHEET 3 OF 20

**ENGINEERING SPECIFICATION**

CONTINUATION SHEET

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

10. Lower all leveling feet to help support the weight.
11. If not already attached, attach the two cabinet legs to the front. (The legs will be found in the package with the software, etc.)
12. Remove the shipping screws from the rear of the chassis slides.
13. Undo the power cord and put the plug end through the bottom of the cabinet.
14. Remove the keys from the rear of the computer.
15. Replace the cabinet sides.
16. Unpack any other boxes included in the shipment.
17. Check that all equipment, software, manuals, etc., are present as specified on the Key Sheet, Software List, and Accessory List, respectively. (The Software and Accessory Lists are contained within the print set.) If any item is missing, notify the nearest Digital Sales Office. If any carton is missing, notify the carrier immediately.

\* If damage is evident, notify the carrier immediately.  
\*\*It is recommended that at least two people perform this task.

**4.0 PDP8/F/M Description**

4.1 The prime units that constitute a basic PDP8/F or PDP8/M are:

Chassis  
OMNIBUS  
Power Supply  
Processor Modules  
Memory and Memory Control Modules  
Console (optional types for PDP8/M)

SIZE A	CODE SP	NUMBER PDP8M-0-2	REV B
-----------	------------	---------------------	----------

DEC FORM NO 102-1070-1070  
DRA 108

SHEET 4 OF 20

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

4.2 Two types of memory, which differ as to the maximum capacity of data storage, are available; they are commonly referred to as 4K (kilo) and 8K memories.\*

4.2.1 MMS-E - which contain 4096 memory locations (addresses); each can store a 12-bit (character) computer word.

4.2.2 MMS-EJ - which contains 8192 memory locations; each can store a 12-bit computer word.

4.2.3 The basic computer's capacity is expandable up to a maximum 32K total with the addition of either 4K or 8K memories.

\*A basic PDP8/F or PDP8/M with an 8K memory would have the G233, H212 (Memory), and G111 modules installed instead of the G227, H220 (Memory), and G104 modules, respectively.

5.0 Environment and Power Requirements

5.1 Recommended operating conditions for a typical computer system provide an ambient temperature of 20° - 22°C (68° - 72°F) with a noncondensing relative humidity of 40 - 50%. Voltage requirements can be from 95 - 130V AC and 47 - 63 Hz., single phase (using approximately 6A), or 185 - 250V AC and 47 - 63 Hz., single phase (using approximately 3A). Check the label at the rear of the computer to determine the correct voltage.

WARNING

For safety reasons, the computer and cabinet must be grounded properly. Be sure that the AC outlet provides a third pin ground.

For complete specifications refer to the PDP8/M, PDP8/F and PDP8/M Maintenance Manual, Volume 1.

SIZE	CODE	NUMBER	REV
A	SP	PDP8M-0-2	B

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

6.0 Power-Up Procedure

NOTE

After unpacking the computer, allow at least thirty (30) minutes for the machine to stabilize to ambient temperature before applying power. (This time should be increased to one hour or longer when the difference between storage or shipping temperature and the operating ambient temperature exceeds 80°F (10°C).)

- 6.1 1. Attach the foam air filter to the right side of the computer, as viewed from the front.
2. Connect the Teletype signal cable to the short cable in the PDP8/F/M.\* The cable connectors are keyed for proper mating.
3. Ensure the PDP8/F/M OFF/POWER/PANEL LOCK Switch and the Teletype LINE/OFF/LOCAL switch are in the OFF position.

CAUTION

Both the Teletype and PDP8/F/M should receive power from the same AC source.

4. Plug the PDP8/F/M and Teletype into the AC outlet. If the computer is mounted in a DEC cabinet, the AC outlets provided inside on the 861 Control labeled SWITCHED should be used for the Teletype.
5. If the PDP8/F/M is mounted in a DEC cabinet, put power control circuit breaker, located at the bottom of the cabinet, to ON and the switch directly above to REMOTE ON.
6. Insert the key into the OFF/POWER/PANEL LOCK on the computer console and turn clockwise 90 degrees to the POWER position. (In the PANEL LOCK position, the function switches on the right side of the console will be disabled.) The fans should now be operating.

SIZE	CODE	NUMBER	REV
A	SP	PDP8M-0-2	B

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

7. Turn the Teletype LINE/OFF/LOCAL switch to LINE. Only the low volume hum of the running motor will be heard.

CAUTION

Always be sure the power is OFF when removing or replacing modules and/or the computer cover.

\*Refer to the installation procedure booklet to unpack and install the LT33 Teletype.

7.0 Operating the PDP8/F or PDP8/M

7.1 The PDP8/F/M accepts, understands and executes instructions, called programs, in computer language. This language is in binary numbers. On a basic computer, programs can be loaded into the computer's memory via two methods:

- a. By hand, using the console switches.
- b. By paper tape, using the mechanical reader of the Teletype.

Due to the time required for loading, the console method is only used for very short programs. Once a program is in memory it will remain indefinitely and can be run again and again, provided it is not disturbed by an operator or another program.

7.2 Diagnostic programs called MAINDECs, which are on paper tape, are designed to exercise sections of the computer's logic and indicate malfunctions. The MAINDECs should be run immediately after installation is completed and at regular intervals thereafter, depending on the environmental and operating conditions at the installation site. Each MAINDEC is supplied with a document giving a description of the test, its starting address, switch settings (if necessary), error indications, etc.

SIZE	CODE	NUMBER	REV
A	SP	PDP8M-0-2	B

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

7.3 To load the computer with a diagnostic the PDP8/F/M requires two short programs in memory:

- a. The READ IN MODE (RIM)
- b. The BINARY LOADER

7.3.1 RIM is a short program (instructions) put into the computer memory by hand to enable the longer program, Binary Loader, which is on paper tape, to be read in. The Binary Loader, in turn, allows all binary tapes, which include the MAINDECs, to be read in.

7.3.2 For a PDP8/F/M with blank memory (no program in memory) the procedure would be:

1. Deposit RIM by hand via the console switches.
2. Using RIM, read in the Binary Loader via the Teletype reader.
3. Using Binary Loader, read in a MAINDEC program via the Teletype reader.

8.0 Octal Notation

8.1 The Switch Register, SR 0-11, is color-coded in groups of three; 0,1,2, being light in color; 3,4,5, darker; 6,7,8, light; and 9,10,11, dark. This was done for reasons other than appearance. The computer uses a binary method of counting; however, when dealing with large numbers, it is easier for people to express these values in the octal method of counting. Here's how it works. Using any group of three like-colored switches and ignoring the numerals directly above the switches, think of the right most switch of the three, when in the UP position, as equal to the value "1". Think of the middle switch of the three, when in the UP position, as equal to the value "2". Think of the left most switch of the three, when in the UP position, as equal to the value of "4".

SIZE	CODE	NUMBER	REV
A	SP	PDP8M-0-2	B

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

When all three switches are in a down position, the total value is 0 (zero). If we always refer to each switch by the value assigned to it, it is possible to have any total value between the three switches of 0-7 (zero to seven). Depending on which switches are up or down, this gives us eight possibilities, hence the term "octal". Putting the four groups of color-coded switches together, we can express a four-digit number.

9.0 The Console

NOTE

The following is not intended to cover the console in its entirety but to give sufficient information to load and run MAINDECS. For a complete description, refer to the Small Computer Handbook and the PDP8/E, PDP8/F and PDP8/M Maintenance Manual, Volume I.

9.1 By manipulating the console switches, data in the form of 12-bit (character) words can be deposited into the computer's memory or read out. These 12-bit words are in octal notation.

9.2 As explained previously, a 4K memory contains 0000 to 4095 locations (addresses) into which 12-bit words can be deposited. Converted to octal, 4095 is equal to 7777; this is what can be obtained with Switch register switches 0-11. Before we can select a memory address, we must first select the memory, or more correctly, the 4K Instructions Field (IF) and the Data Field (DF). To make this selection, switches 6, 7, and 8 are set to the octal value equal to the Instruction Field and 9, 10, and 11 to the Data Field desired (all other switches down) and EXT ADDR LOAD (Extended Address Load) is pressed. To select an address within the field, set the octal value in switches 0-11 and press ADDR LOAD, the MEMORY ADDRESS lights will then display this octal value.

Example: Suppose with a PDP8/M that has 16K of memory (4 fields) it is desired to address 0200 octal of Field 3 (Field 3 in this case would be the

Table with 4 columns: SIZE (A), CODE (SP), NUMBER (PDP8M-0-2), REV (B)

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

highest field because, being in octal, the first 4K would be addressed as 0 (zero)).

- 1. Set all switches (0-11) down, then set switches 7, 8, 10, and 11 up.
2. Set the indicator selector knob to STATUS.
3. Press EXT ADDR LOAD.

This procedure selects Instruction Field 3 and Data Field 3 (in octal). This is displayed in the STATUS lights above IF0, IF1, IF2, DF0, DF1, and DF2; octal 3 will also be displayed by the EMA lights. (The IF, DF, and EMA lights will light only if more than 4K of memory is available.)

- 4. Set all switches (0-11) down, then set switch 4 up (octal 0200).
5. Press ADDR LOAD.

The MEMORY ADDRESS lights will now display 0200 octal.

9.3 If, in the previous example, the PDP8/M only had a 4K memory (1 field), and 0200 octal of it was to be addressed, the procedure would be the same except that in step 1 all switches would remain down, thereby selecting IF0 (octal) and DF0 (octal).

9.4 To deposit data into the memory address, the Switch register (0-11) is set to the octal value desired and the DEP switch is lifted. By positioning the Indicator Selector knob on MD (memory data) this 12-bit word is displayed.

9.5 To examine (read out) a data word from memory, the memory address is selected and EXAM is pressed. The memory word is displayed in the MD lights.

9.6 If sequential memory addresses are to be examined or deposited into, it is not necessary to select each address since the MEMORY ADDRESS is automatically incremented each time the EXAM or DEP switch functions.

Table with 4 columns: SIZE (A), CODE (SP), NUMBER (PDP8M-0-2), REV (B)

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

10.0 RIM

NOTE

From this point on, each of the following steps must be performed in the order presented. Skipping instructions or jumping ahead will result in loss of time and confusion. The square boxes to the left of instructions indicate that the operator must perform an operation. Checking (☐) the box with pencil when each instruction has been performed reduces the chance of overlooking a step.

10.1 Loading

- ☐ 1. With computer power on, press the HALT Switch. Set Switch register switches 0-11 down, press EXT D ADDR LOAD (this selects octal memory 0), and position the selection switch to MD.
☐ 2. Perform the following set of switch manipulations. In each step, there are 12 figures which correspond to the twelve switches labeled the Switch Register (SR) on the front of the computer. The black circle with up-arrow symbol indicates that the corresponding switch should be set to its "up" position. The white circle with down-arrow symbol means that the corresponding switch should be set in its "down" position. After the ADDR LOAD function is performed, the MEMORY ADDRESS lights should be equal to the black and white symbols, black being lit, white unlit. After the DEP function has been performed, the MD lights should equal the black and white symbols. The four digit number to the right is the octal value of the switch settings.

Table with 4 columns: SIZE (A), CODE (SP), NUMBER (PDP8M-0-2), REV (B)

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

- Set SR to: [diagram] then press ADDR LOAD 7756
Set SR to: [diagram] then lift DEP 6032
Set SR to: [diagram] then lift DEP 6031
Set SR to: [diagram] then lift DEP 5357
Set SR to: [diagram] then lift DEP 6036
Set SR to: [diagram] then lift DEP 7106
Set SR to: [diagram] then lift DEP 7006
Set SR to: [diagram] then lift DEP 7510
Set SR to: [diagram] then lift DEP 5357
Set SR to: [diagram] then lift DEP 7006
Set SR to: [diagram] then lift DEP 6031
Set SR to: [diagram] then lift DEP 5367
Set SR to: [diagram] then lift DEP 6034
Set SR to: [diagram] then lift DEP 7420
Set SR to: [diagram] then lift DEP 3776
Set SR to: [diagram] then lift DEP 3376
Set SR to: [diagram] then lift DEP 5356

3. After completing the above steps, the RIM can be checked by again setting the RIM starting address in the SR and examining each of the memory addresses.

Table with 4 columns: SIZE (A), CODE (SP), NUMBER (PDP8M-0-2), REV (B)

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

4. Set SR to  $\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$  (7756 octal) then press ADDR LOAD.
5. Press EXAM once, the octal value 6032 should be displayed in the MD. By pressing EXAM again and again, each subsequent memory address of the RIM loader can be examined for the correct data.

When you are sure the RIM loader is in the computer memory correctly, proceed with the Binary Loader.

11.0 The Binary Loader

11.1 Loading

1. Place the tape labeled Binary Loader, DEC-08-LBAA-PM, in the paper tape reader with the START/STOP/FREE lever set to FREE. Position the tape so that just the single row of data holes\* at the beginning of the tape is over the read head.
2. Ensure that the LINE/OFF/LOCAL switch of the LT33 is set to LINE.
3. On the computer console, ensure that the HALT and SING STEP switches are up.
4. Set SR to:  $\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$  (7756), then press ADDR LOAD. This is the starting address of the RIM loader.
5. Press the CLEAR switch.
6. Press the CONT switch. (The computer should now be in the run state as indicated by the RUN light.)
7. Set the paper tape reader START/STOP/FREE lever to the START position. The tape should now read in and continue to the end. If the tape fails to read in or stops before the end, go back to the loading RIM procedure. If all steps have been followed to the letter and, after several tries, the tape still fails to read in, refer to the warranty section located in the back of this booklet for service.

SIZE A	CODE SP	NUMBER PDP8M-0-2	REV B
-----------	------------	---------------------	----------

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

8. When the tape has read to the end, press HALT and the reader OFF switch.

\*The tape may be placed so that any portion of the single data holes is over the read head, not necessarily the very first hole.

12.0 Loading and Running MAINDECs

12.1 After successfully loading the RIM and Binary Loader, the MAINDECs can be read in and run. The procedure for loading MAINDECs is the same for each, what may differ is the Switch register (SR) settings while the program is running. This information is contained in the document describing each MAINDEC. The following examples explain how to load and run two MAINDECs. Refer to their related documents and keep in mind the following procedures when using other MAINDEC documents. Table 1 lists the MAINDECs in the order they would normally be run.

12.2 Example 1

12.2.1 Memory Power On/Off Test (MAINDEC-8/E-D1GB-PB)

12.2.2 The purpose of this program is to ensure that in the case of a total power failure, the computer would automatically stop all operations without losing any data stored in memory.

12.2.3 Loading

1. Ensure that the computer is not in the run state\* and that the SING STEP switch is up.
2. Place SR 0-11 down, press EXT ADDR LOAD. This selects memory zero.
3. Place SR 0-11 up (octal value 7777). Press ADDR LOAD. This is the Starting Address (SA) of the Binary Loader.

SIZE A	CODE SP	NUMBER PDP8M-0-2	REV B
-----------	------------	---------------------	----------

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

4. Place the program in the Teletype reader with the single row of holes at the beginning of tape over the reader head.
5. Press the CLEAR switch on the console, then the CONT switch.
6. a. Set the reader START/STOP/FREE lever to START. The tape should now read in and stop at the point where a single row of holes begins again at the end of the tape. At this time, the computer RUN light should be off.  
b. If the tape does not read in or stops before the end of data, recheck the RIM, reload the Binary Loader, and try again. If a read-in problem persists, try another MAINDEC to ascertain whether the problem is simply a defective tape. If other MAINDECs also fail to read-in, refer to your warranty for service.
7. After the MAINDEC has read in, place the selector switch on the console to AC, the data lights (but not the Memory Address lights) should be unlit.
8. Place the selector switch to STATUS, the light under the LINK should be lit.

If the AC and LINK are other than the conditions stated in Steps 7 and 8, the computer is indicating that the program did not read in correctly. This could mean the tape is defective (torn, etc.), the RIM or Binary Loader is not in correctly, or that there may be a malfunction with the Teletype reader or the computer itself. Follow the same course of action as in Step 6b.

9. Press the reader OFF switch and remove the tape.

\*If the computer RUN light is lit, press HALT, then put the halt switch up.

SIZE A	CODE SP	NUMBER PDP8M-0-2	REV B
-----------	------------	---------------------	----------

TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE

12.2.4 Running the MAINDEC


10. Load Address 0200 octal, i.e., SR:  $\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$ . Press ADDR LOAD. This is the starting address for the MAINDEC.
11. Press CLEAR and then CONT. The program should run a moment then halt (run light out) at address 0032 octal:  $\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$ . (Memory Address/lights)
12. Set SR to 0201 octal:  $\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$ . This is a new Starting Address (SA). Press ADDR LOAD, press CLEAR, then CONT. The program should now loop (repeating an operation over and over). In this case, the program is adding and checking the sums of two data patterns which are stored throughout memory.
13. While the program is looping, turn power off by placing the OFF/POWER/PANEL LOCK switch in the OFF position or by removing the plug.


NOTE

If the Teletype is plugged in independently (no DEC cabinet) it should be turned off first or else it will be heard to run open when the computer power is removed.

14. Apply power again. Set SR switches 0-11 down. Press EXTD ADDR LOAD.
15. Set Starting Address (SA) again to 0201 octal:  $\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow\uparrow$ .
16. Press ADDR LOAD, CLEAR, and then CONT.

SIZE A	CODE SP	NUMBER PDP8M-0-2	REV B
-----------	------------	---------------------	----------

<b>ENGINEERING SPECIFICATION</b>				<b>CONTINUATION SHEET</b>
TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE				
<p>12.2.5 The program should again loop indicating no loss of data during the power off/on process. If the program halts or does not appear to run as before, a malfunction may exist. If after reloading the program it still fails, refer to the warranty section located at the back of this booklet for service.</p> <p>12.3 Example 2</p> <p>12.3.1 Memory Checkerboard (MAINDEC-8/E-DLAA-PB)</p> <p>12.3.2 This program tests the memory under worst-case conditions for the pick-up of data while writing various patterns and relocating the program, as well as the RIM and Binary Loader from one area of memory to another.</p> <p>12.3.3 Loading*</p> <p>17. The program is again read in using the Binary Loader. Set SR 0-11 down, press EKTD ADDR LOAD.</p> <p>18. Set SA of Binary Loader in SR to 7777 octal: . Press ADDR LOAD.</p> <p>19. Put the paper tape in the reader with the single row of holes at the beginning of tape over the reader head.</p> <p>20. Press CLEAR, then CONT.</p> <p>21. Set the reader START/STOP FREE lever to START. The tape should now read in and halt at the point where the single row of holes again begins.</p> <p>22. Press the reader OFF switch.</p> <p>23. Set the selector switch to AC; the AC should be unlit.</p> <p>24. Set the selector switch to STATUS, the LINK should be lit. Assure that the computer is not in the run state.</p>				
SIZE A	CODE SP	NUMBER PDP8M-0-2	REV B	
DEC FORM NO DEC 10-(201)-1022-N370 DPA 100 SHEET 17 OF 20				

<b>ENGINEERING SPECIFICATION</b>				<b>CONTINUATION SHEET</b>
TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE				
<p>12.3.4 Running the MAINDEC</p> <p>25. Set the SA to 0200 octal: . Press ADDR LOAD.</p> <p>26. Set the SR to 0000 octal: (SR 0-11 all down). Press CLEAR, then CONT.</p> <p>The program now runs and will halt if it detects a malfunction (error). If there are no detected errors, the program continues to run until the operator stops it and will type a "5" on the printer every 5 minutes. In order for the program to test all of the memory without destroying itself and the RIM and Binary Loader, it relocates them to another part of memory some of the time. If it is desired that the relocation not take place, place SR 7 and SR 0 in the up position. To stop the program, put SR 7 and SR 0 in the up position. The program could be stopped with the HALT switch; however, it is possible that the relocation process may be taking place and the program, RIM, or Binary Loader would be incomplete and, therefore, would not run when restarted.</p> <p>27. The remaining MAINDECs may now be run. Refer to the recommended order list and related document for each.</p>				
SIZE A	CODE SP	NUMBER PDP8M-0-2	REV B	
DEC FORM NO DEC 10-(201)-1022-N370 DPA 100 SHEET 18 OF 20				

<b>ENGINEERING SPECIFICATION</b>				<b>CONTINUATION SHEET</b>	
TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE					
TABLE 1 RECOMMENDED MAINDEC ORDER					
Preferred Order	MAINDEC Name	MAINDEC #	Octal Start Address	Recommended Run Time	Indication On TTY
1	Memory On/Off Test	8/E-DLGA	0200	---	---
2	Memory Addr Test	8/E-DLEA	0200	5 min.	EA
3	Checkerboard Test	8/E-DLAA	200	15 min.	5
4	Instruction Test I	8/E-DOAA	0200	3 min.	Bell
5	Instruction Test II	8/E-DOBA	0200	3 min.	Bell
6	Adder Test	8/E-DOCA	0200	35 min.	1 Simad 2 Simrot 3 FTC 4 Random
7	Basic JMP JMS Test	8/E-DOIA	200	3 min.	Bell
8	Random TAD Test	8/E-DOEA	0200	3 min.	T
9	Random AND Test	8/E-DODA	0200	3 min.	A
10	Random ISZ Test	8/E-DOFA	0200	3 min.	FA
11	Random DCA Test	8/E-DOCA	0200	3 min.	Bell
12	Random JMP Test	8/E-DOGA	0200	3 min.	HA
SIZE A	CODE SP	NUMBER PDP8M-0-2	REV B		
DEC FORM NO DEC 10-(201)-1022-N370 DPA 100 SHEET 19 OF 20					

<b>ENGINEERING SPECIFICATION</b>				<b>CONTINUATION SHEET</b>	
TITLE PDP8/F or PDP8/M FIELD INSTALLATION PROCEDURE					
TABLE 1 RECOMMENDED MAINDEC ORDER (Con'd)					
Preferred Order	MAINDEC Name	MAINDEC #	Octal Start Address	Recommended Run Time	Indication On TTY
13	Random JMP JMS	8/E-DOJA	0200	3 min.	JA
14	Teletype Control*	8/E-D2AA	0200	40 min.	
<p>*The Teletype Control test is made up of 11 parts.</p> <p>NOTE: When ordering from Program Library: PB for Binary Tape, e.g., MAINDEC-DOAA-PB D for Document, e.g., MAINDEC-DOAA-D.</p>					
SIZE A	CODE SP	NUMBER PDP8M-0-2	REV B		
DEC FORM NO DEC 10-(201)-1022-N370 DPA 100 SHEET 20 OF 20					

**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS

**SOFTWARE 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 Paul Gardner	CHECKED P. Gardner	SECTION 1
DATE 12/31/71	DATE 1/7/72	
ENG Paul Gardner	PRODR. K. Allen	ISSUED SECT.
DATE 1/7/72	DATE 1/7/72	

		MS	MT			
		MK	ML			
		MEM	F			
MH	MJ	ES	ET			
MC	MD	EK	EL			
EH	EJ	DS	DT			
DH	DJ	DK	DL	MP	MR	
DC	DD	DE	DF	MM	MN	

KIT CHECK	BY	DATE	INSTALLATION CHECK	BY	DATE

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
1	B-DD-PDP8M-0	PDP8M CUSTOMER PRINT SET	1	1	1	1	1	1																										
2	DEC-8E-HR1B-D	MAINTENANCE MANUAL VOLUME I	*	1	*	1	*	1																										
3	DEC-8E-HR2A-D	MIANTENANCE MANUAL VOLUME II	*	*	*	1	*	*																										
4	LIBKIT-8E-BASE	BASIC SOFTWARE KIT	1	1	1	1	1	1																										
5	LIBKIT-8E-XBAS	EXTENDED SOFTWARE KIT	*	*	*	*	*	*																										
6	LIBKIT-8E-KM8E	EXTENDED MEMORY SOFTWARE KIT	-	-	1	1	-	-																										
7	MAINDEC-08-DEMRC-PB	MR8-F PROM DIAGNOSTIC	-	-	-	-	1	1																										
8	MAINDEC-08-DEMRC-D	MR8-F PROM DIAGNOSTIC	-	-	-	-	1	1																										
9	DEC-08-OMRAA-D	MR8-F PROGRAM FORMAT DESCRIPTION	-	-	-	-	1	1																										
10	**	CUSTOMER ENVELOPE	1	1	1	1	1	1																										
11	DEC-16-1000	** KEY SHEET	1	1	1	1	1	1																										
12	DEC-3-1416	** ECO STATUS SHEET	1	1	1	1	1	1																										
13	DEC-3-1226	** SUPPLEMENTARY ACCESSORY LIST	1	1	1	1	1	1																										
14	DEC-12-1015A	** CUSTOMER ACCEPTANCE SHEET	1	1	1	1	1	1																										
15	***	FORMS & CHECKLIST ENVELOPE	1	1	1	1	1	1																										
16	DEC-7-1009	*** CUSTOMER FOLLOW UP REPORT	1	1	1	1	1	1																										
17	DEC-7-1034	*** SOFTWARE ORDER FORM	1	1	1	1	1	1																										
18	DEC-7-1044	*** SOFTWARE PERFORMANCE REPORT	1	1	1	1	1	1																										
		CUSTOMER SERVICE LETTER	1	1	1	1	1	1																										

\* TO BE INCLUDED ONLY WHEN SPECIFIED ON THE CONSTRUCTION REQUISITION

TITLE SOFTWARE LIST (PDP8M)	ASSY. NO. B-DD-PDP8M-0	SIZE CODE A SL	NUMBER PDP8M-0-4	REV. C	ECO NO PDP8M-00019
	SHEET 1 OF 1	DIST.			

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS				LEGEND				QUANTITY/VARIATION											
ACCESSORY LIST				D	DOCUMENT	MS	MT							KIT CHECK	BY	DATE	INSTALLATION CHECK	BY	DATE
MADE BY P. Gardner		CHECKED P. Gardner		DN	DOCUMENT CHANGE NOTICE	MJ	EK	ES	ET										
DATE 2/4/72		DATE 2/4/72		PA	PAPER TAPE ASCII	EH	EJ	DS	DT	MP	MR								
ENG P. Gardner		PRODR. K. Allen		PB	PAPER TAPE BINARY	DH	DJ	DK	DL	MM	MN								
DATE 2/4/72		DATE 2/4/72		PM	PAPER TAPE READ-IN-MODE														
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION				MH	MJ	EK	EE	EH	EJ	DS	DT	MP	MR				
1	B-DD-PDP8M-Ø	PDP8M CUSTOMER PRINT SET				1	1	1	1	1	1								
2	DEC-8E-HR1B-D	MAINTENANCE MANUAL VOLUME I				*	1	*	1	*	1								
3	DEC-8E-HR2A-D	MAINTENANCE MANUAL VOLUME II				*	*	*	1	*	*								
4	LIBKIT-8E-BASE	BASIC SOFTWARE KIT				1	1	1	1	1	1								
5	LIBKIT-8E-XBAS	EXTENDED SOFTWARE KIT				*	*	*	*	*	*								
6	LIBKIT-8E-KM8E	EXTENDED MEMORY SOFTWARE KIT				-	-	1	1	-	-								
7	MAINDEC-08-DHMRC-PB	MR8-F PROM DIAGNOSTIC				-	-	-	-	1	1								
8	MAINDEC-08-DHMRC-D	MR8-F PROM DIAGNOSTIC				-	-	-	-	1	1								
9	DEC-08-OMRAA-D	MR8-F PROGRAM FORMAT DESCRIPTION				-	-	-	-	1	1								
10		CUSTOMER ENVELOPE				1	1	1	1	1	1								
11		FORMS & CHECKLIST ENVELOPE				1	1	1	1	1	1								
12	7408861	CHASSIS SLIDES				1	1	1	1	1	1								
13	7409424	SIDE FILTER				-	-	-	-	-	-								
14	7410768	SIDE FILTER				1	1	1	1	1	1								
* TO BE INCLUDED ONLY WHEN SPECIFIED ON THE CONSTRUCTION REQUISITION																			
TITLE ACCESSORY LIST (PDP8M)				ASSY. NO. B-DD-PDP8M-Ø				SIZE CODE A AL		NUMBER PDP8M-Ø-6				REV. C		ECO NO PDP8M-00019			
				SHEET 1 OF 2				DIST.											

DEC FORM NO. DRA 121

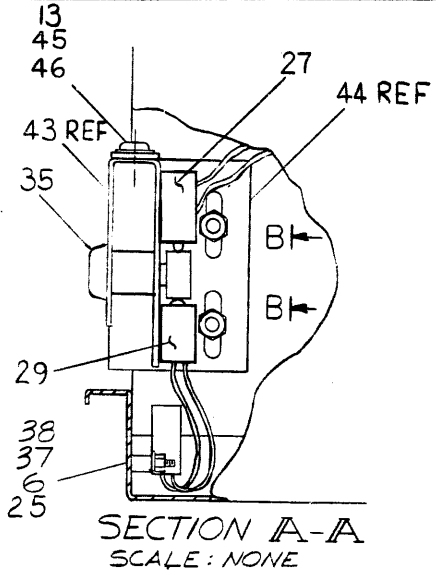
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS				LEGEND				QUANTITY/VARIATION											
ACCESSORY LIST				D	DOCUMENT	MC	MD							KIT CHECK	BY	DATE	INSTALLATION CHECK	BY	DATE
MADE BY P. Gardner		CHECKED P. Gardner		DN	DOCUMENT CHANGE NOTICE	DC	DD	ME	MF										
DATE 4/25/73		DATE 4/25/73		PA	PAPER TAPE ASCII	DE	DF												
ENG P. Gardner		PROD		PB	PAPER TAPE BINARY														
DATE 4/25/73		DATE		PM	PAPER TAPE READ-IN-MODE														
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION				MC	MD	ME	MF										
1	B-DD-PDP8M-Ø	PDP8M CUSTOMER PRINT SET				1	1	1	1										
2	DEC-8E-HR1B-D	MAINTENANCE MANUAL VOL I				*	1	*	1										
3	DEC-8E-HR2A-D	MAINTENANCE MANUAL VOL II				*	*	*	1										
4	LIBKIT-8E-BASE	BASIC SOFTWARE KIT				1	1	1	1										
5	LIBKIT-8E-XBAS	EXTENDED SOFTWARE KIT				*	*	*	*										
6	LIBKIT-8E-KM8E	EXTENDED MEMORY SOFTWARE KIT				*	*	1	1										
7	MAINDEC-08-DHMRC-PB	MR8-F PROM DIAGNOSTIC				-	-	-	-										
8	MAINDEC-08-DHMRC-D	MR8-F PROM DIAGNOSTIC				-	-	-	-										
9	DEC-08-OMRAA-D	MR8-F PROGRAM FORMAT DESCRIPTION				-	-	-	-										
10		CUSTOMER ENVELOPE				1	1	1	1										
11		FORMS & CHECKLIST ENVELOPE				1	1	1	1										
12	7408861	CHASSIS SLIDES				1	1	1	1										
13	7409424	SIDE FILTER				1	1	1	1										
14	7410768	SIDE FILTER				-	-	-	-										
* TO BE INCLUDED ONLY WHEN SPECIFIED ON THE CONSTRUCTION REQUISITION																			
TITLE SOFTWARE KIT (PDP8M)				ASSY. NO. B-DD-PDP8M-Ø				SIZE CODE A AL		NUMBER PDP8M-Ø-6				REV. C		ECO NO			
				SHEET 2 OF 2				DIST.											

DEC FORM NO. DRA 121

This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as a substitute for the manufacture or sale of items without the written consent of Digital Equipment Corporation.

LEGEND #1	
NUMBER	VARIATION
PDP 8M-0	BASIC PDP 8M, 8 1/2 IN SHORT BOX WITH K18-E
PDP 8M-DC	B/M RACK MOUNTABLE, 8M, 115V, 4K WITH KCB-ML-K18-E IN 12 IN BOX
PDP 8M-DD	B/M RACK MOUNTABLE, 8M, 230V, 4K WITH KCB-ML-K18-E IN 12 IN BOX
PDP 8M-DE	PDP 8M-DC WITH BK
PDP 8M-DF	PDP 8M-DD WITH BK
PDP 8M-MC	PDP 8M RACK MOUNTABLE, 115V, 4K WITH KCB-M IN 12 IN BOX
PDP 8M-MD	PDP 8M RACK MOUNTABLE, 230V, 4K WITH KCB-M IN 12 IN BOX
PDP 8M-ME	PDP 8M-MC WITH BK
PDP 8M-MF	PDP 8M-MD WITH BK

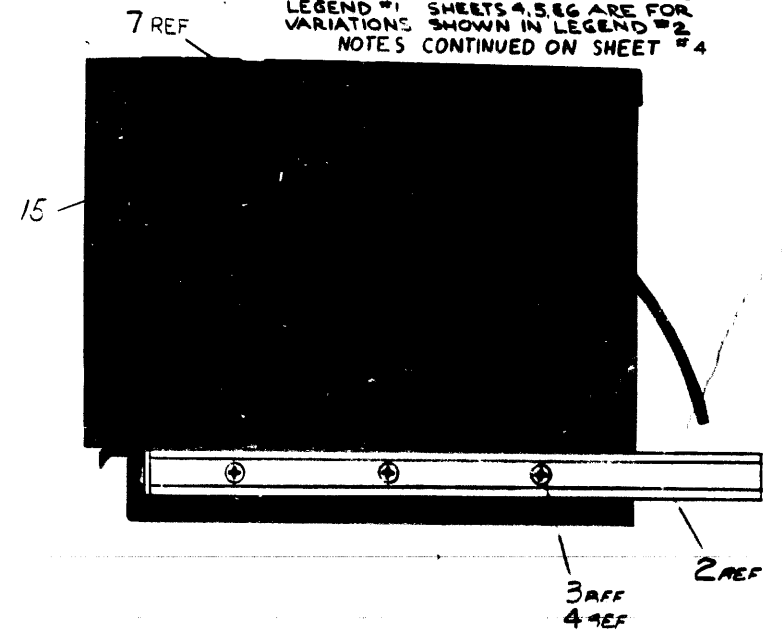
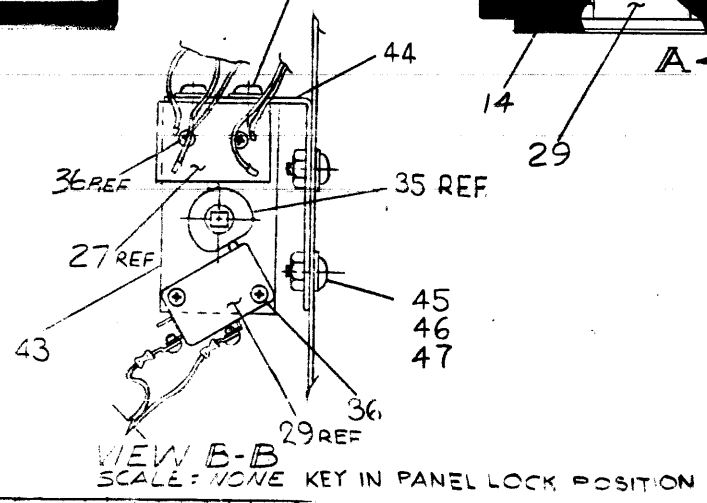
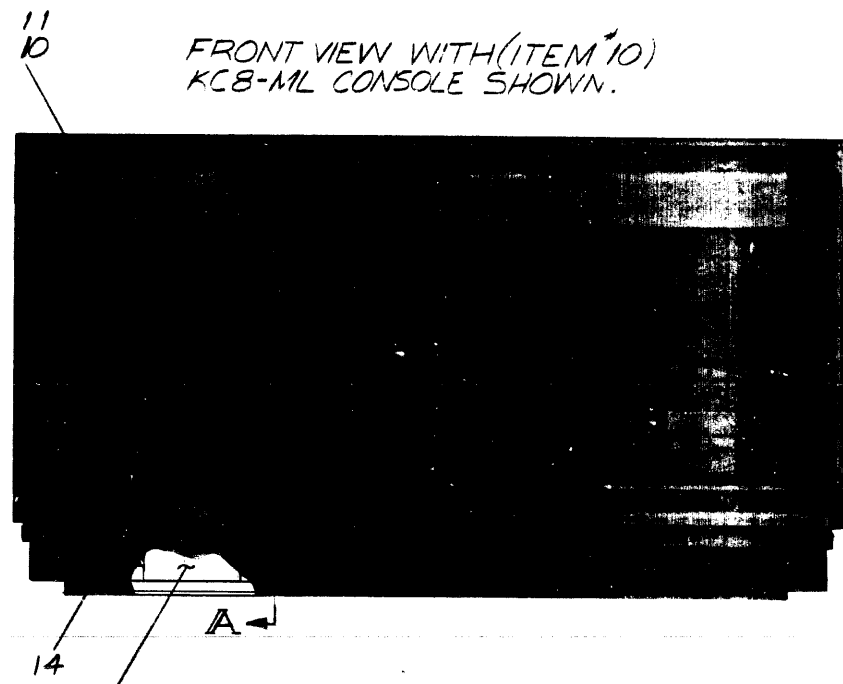
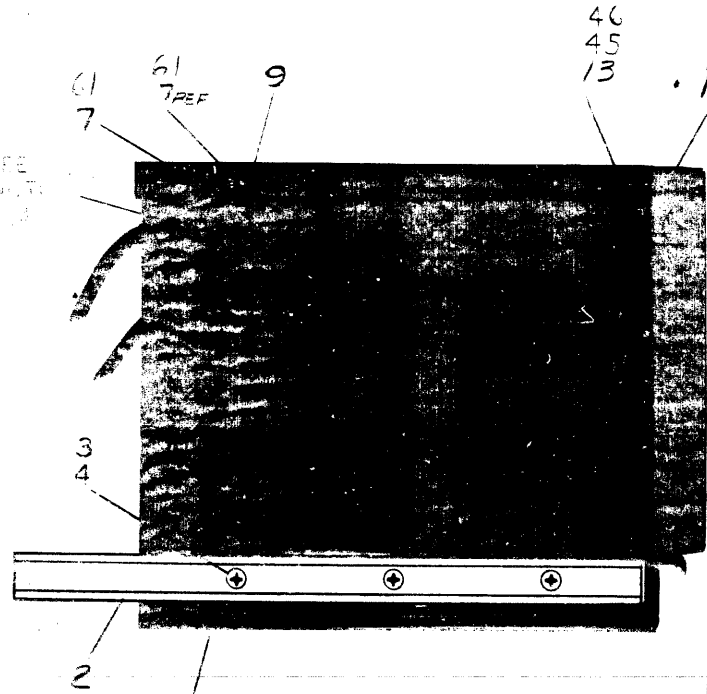
SEE SHEET #4 FOR LEGEND #2 (ADDITIONAL VARIATIONS)



- NOTES:
- CONNECT TO TAB LABELED "BLUE" ON 5409608 (FRONT PNL. CONT. 2D) WHEN USING KCB-ML (ITEM #10) OR TO TAB J2 ON 5409705 WHEN USING KCB-M (OPERATOR'S PNL. 2D)
  - FOR PARTS LIST SEE DWG NO. C-PL-PDP8M-0-0.
  - CONNECT PI OF THE H9191 (ITEM #21) TO J1 OF THE MICRO SWITCH HARNESS (ITEM #29) WHEN USING THE KCB-ML (ITEM #10), OR TO J1 ON THE OPERATOR'S PANEL BOARD (5409705) WHEN USING THE KCB-M (ITEM #11).
  - MOUNTING HARDWARE VARIATION FOR ITEM 16 (FAN) ARE AS FOLLOWS

ITEM #16 (FAN)	MOUNTING HARDWARE
ITEM NO.	DISCRIPTION
ROTRON	41 MOUNTING CLIP
	5 #6-32 x .56 SCREW
1 MC	40 MOUNTING CLIP
	5 #6-32 x .56 SCREW

5 SHEETS 1, 2, 4, 3 ARE FOR VARIATIONS SHOWN IN LEGEND #1. SHEETS 4, 5, 6 ARE FOR VARIATIONS SHOWN IN LEGEND #2. NOTES CONTINUED ON SHEET #4



REV	DATE	BY	CHKD	DESCRIPTION
1	11-11-72	P. GARDNER		REVISED TO ADD KCB-M VARIATION
2	11-11-72	P. GARDNER		REVISED TO ADD KCB-ML VARIATION
3	11-11-72	P. GARDNER		REVISED TO ADD KCB-M VARIATION
4	11-11-72	P. GARDNER		REVISED TO ADD KCB-ML VARIATION
5	11-11-72	P. GARDNER		REVISED TO ADD KCB-M VARIATION
6	11-11-72	P. GARDNER		REVISED TO ADD KCB-ML VARIATION
7	11-11-72	P. GARDNER		REVISED TO ADD KCB-M VARIATION
8	11-11-72	P. GARDNER		REVISED TO ADD KCB-ML VARIATION
9	11-11-72	P. GARDNER		REVISED TO ADD KCB-M VARIATION
10	11-11-72	P. GARDNER		REVISED TO ADD KCB-ML VARIATION
11	11-11-72	P. GARDNER		REVISED TO ADD KCB-M VARIATION
12	11-11-72	P. GARDNER		REVISED TO ADD KCB-ML VARIATION
13	11-11-72	P. GARDNER		REVISED TO ADD KCB-M VARIATION
14	11-11-72	P. GARDNER		REVISED TO ADD KCB-ML VARIATION
15	11-11-72	P. GARDNER		REVISED TO ADD KCB-M VARIATION
16	11-11-72	P. GARDNER		REVISED TO ADD KCB-ML VARIATION
17	11-11-72	P. GARDNER		REVISED TO ADD KCB-M VARIATION
18	11-11-72	P. GARDNER		REVISED TO ADD KCB-ML VARIATION
19	11-11-72	P. GARDNER		REVISED TO ADD KCB-M VARIATION
20	11-11-72	P. GARDNER		REVISED TO ADD KCB-ML VARIATION

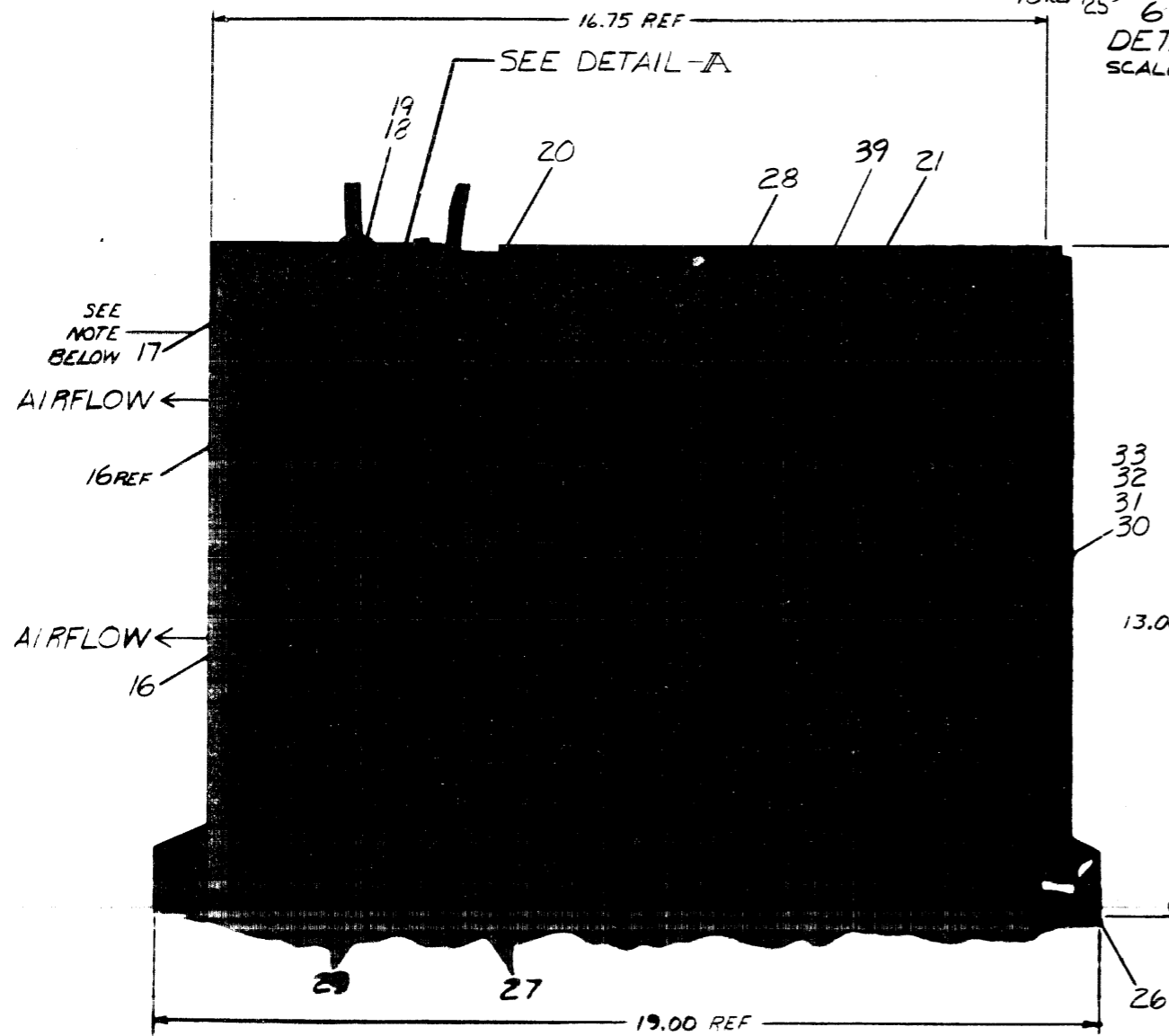
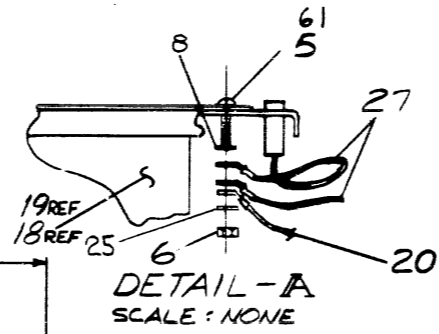
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 8M				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DECIMALS	ANGLES	DATE	DATE
XXX = .005	XX = .01	X = .1	±0°30'	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG.	DATE	DATE	DATE
	PROD.	DATE	DATE	DATE
MATERIAL	NEXT HIGHER ASSY	SIZE CODE	NUMBER	REV
	B-DD-ML-0-0-0	DUA	PDP 8M-0-0	
FINISH	SCALE	SHEET	OF	DIST
		1	OF 6	

UNIT ASSY  
PDP 8M

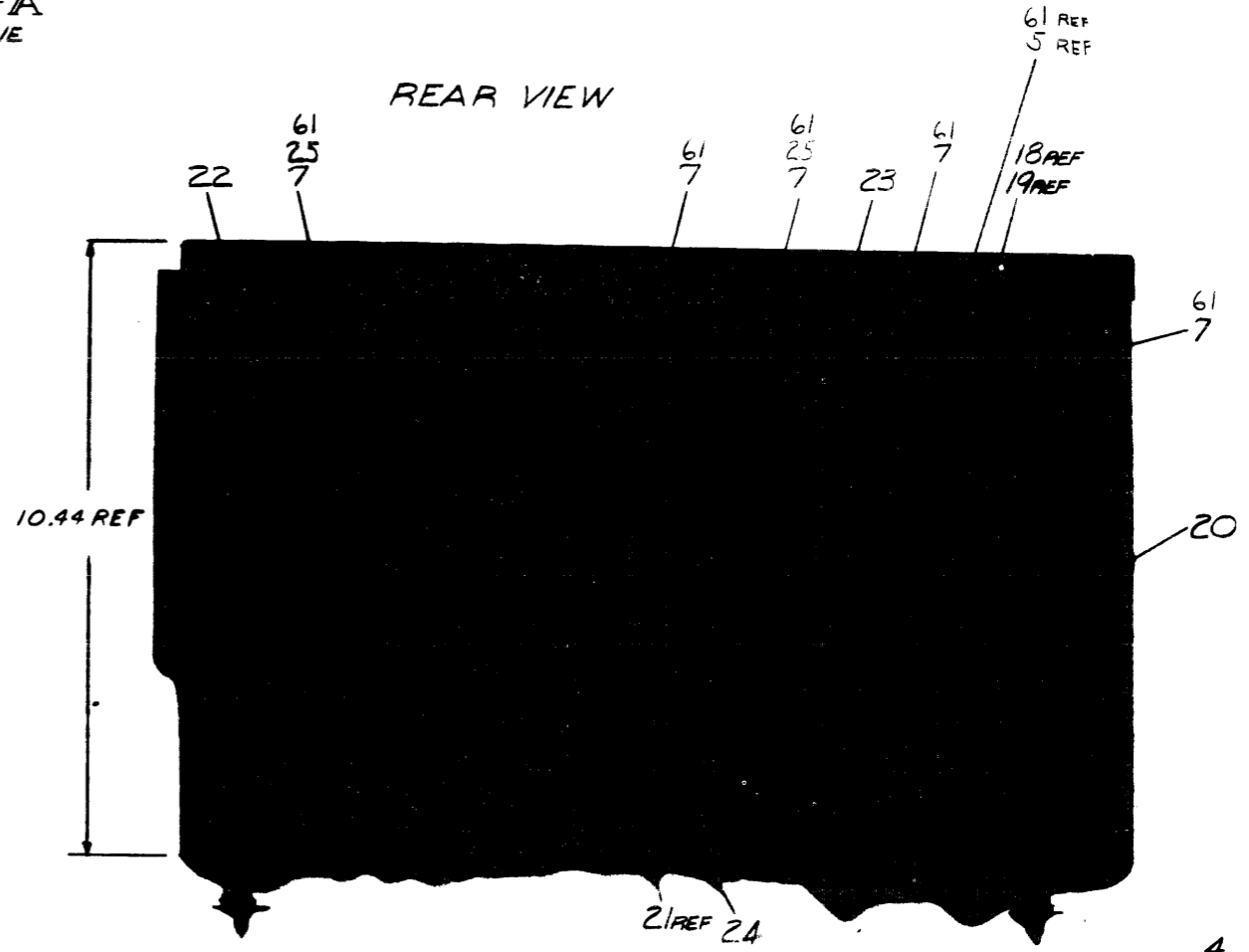
PDP 8M-0-0



The drawing and specifications herein are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as a basis for the manufacture of any of items without written permission.



TOP VIEW WITH COVER (ITEM 9), CABLE TROUGH (ITEM 17) & PORTION OF LOGIC REMOVED.



VIEW A-A (BOTTOM)  
SCALE: NONE

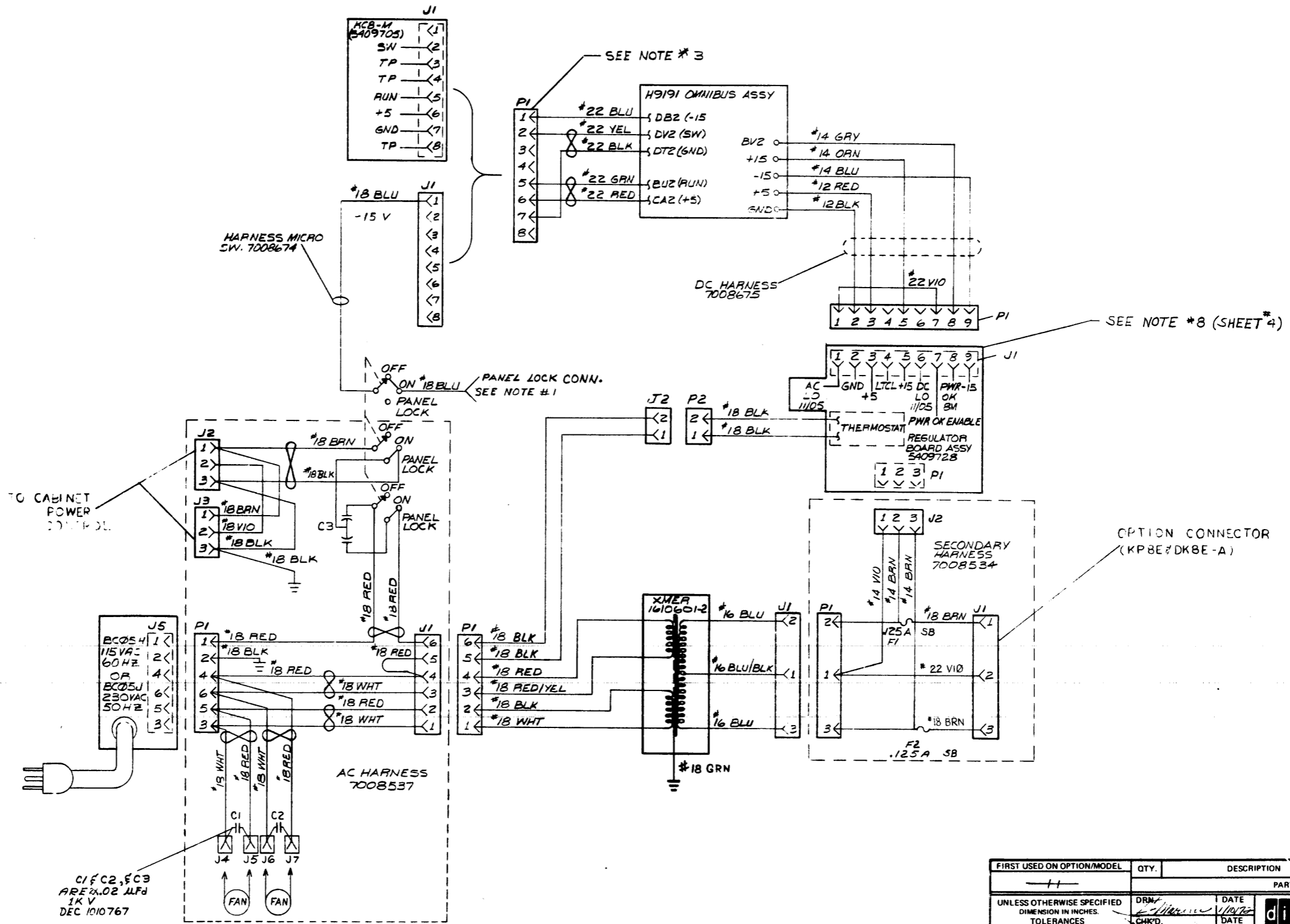
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN 1/10/72	DATE 1-10-72	digital EQUIPMENT CORPORATION MAYNARD MASS. CHUSETTS	
DECIMALS	CHG 1/10/72	DATE 1-10-72		
ANGLES	ENG 1/10/72	DATE 1-10-72	TITLE UNIT ASSY PDP8M	
XXX - .005 XX - .02 X - .1	PRDJ. ENG 1/10/72	DATE 1-10-72		
REMOVE BURS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD. R.F. O'Leary	DATE 1-10-72	SIZE CODE DUA PDP 8M-0-0	
MATERIAL	NEXT HIGHER ASSY.			
FINISH	SCALE	SHEET 2 OF 6	REV. K	

REV.	
CHANGE NO.	
CHK.	

SITE CODE DUA PDP8M-0-0 NUMBER REV K

This drawing and its contents, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission.

D  
C  
B  
A



REV	CHANGE NO	DATE

C1, C2, C3  
 ARE 2.02 MFD  
 1K V  
 DEC 10 1967

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
---	---	PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN CHKD.	DATE DATE	EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS .XXX = .005 .XX = .02 .X = .1	ENG. PROJ. ENG.	DATE DATE	TITLE UNIT ASSY PDP 8M	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD.	DATE	MATERIAL NEXT HIGHER ASSY.	
FINISH ---	SCALE	SHEET 3 OF 6	SIZE CODE DUA	NUMBER PDP8M-0-0

3  
K  
DUA PDP8M-0-0

The drawing and construction shall be the property of Digital Equipment Corporation and shall not be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of Digital Equipment Corporation. © 1973

DUA PDP8M-0-0 2

LEGEND	
NUMBER	VARIATION
PDP8M-DH	115V, 4K, KCB-ML, KLB-E
PDP8M-DJ	230V, 4K, KCB-ML, KLB-E
PDP8M-DK	115V, 8K, KCB-ML, KLB-E
PDP8M-DL	230V, 8K, KCB-ML, KLB-E
PDP8M-DS	115V, 16K, KCB-ML, KLB-E
PDP8M-DT	230V, 16K, KCB-ML, KLB-E
PDP8M-EH	115V, 4K, KCB-ML
PDP8M-EJ	230V, 4K, KCB-ML
PDP8M-EK	115V, 8K, KCB-ML
PDP8M-EL	230V, 8K, KCB-ML
PDP8M-ES	115V, 16K, KCB-ML
PDP8M-ET	230V, 16K, KCB-ML
PDP8M-MH	115V, 4K, KCB-M
PDP8M-MJ	230V, 4K, KCB-M
PDP8M-MK	115V, 8K, KCB-M
PDP8M-ML	230V, 8K, KCB-M
PDP8M-MM	115V, 1K, KCB-M
PDP8M-MN	230V, 1K, KCB-M
PDP8M-MP	115V, 2K, KCB-M
PDP8M-MR	230V, 2K, KCB-M
PDP8M-MS	115V, 16K, KCB-M
PDP8M-MT	230V, 16K, KCB-M

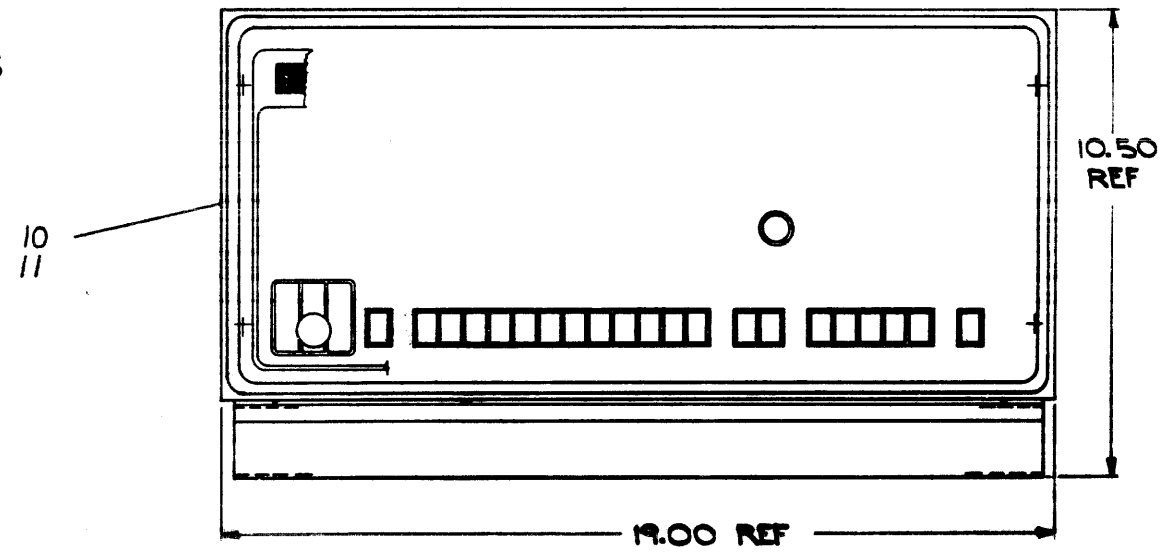
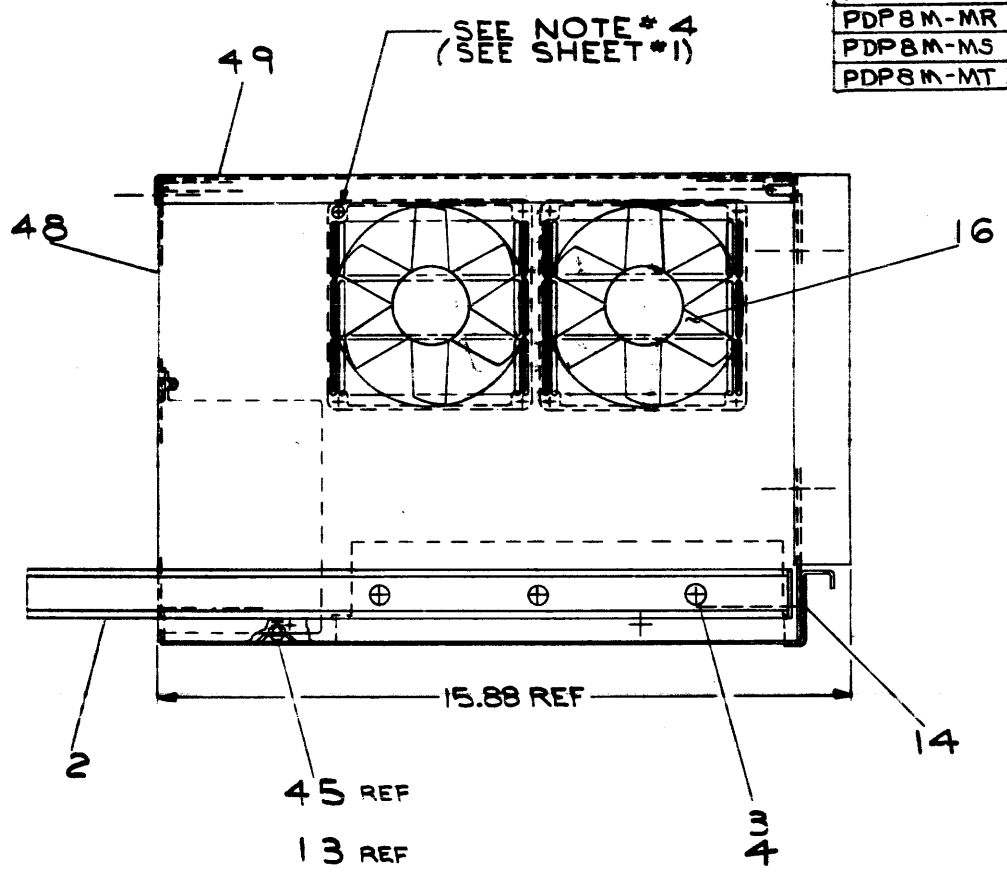
NOTES: (CONT)

6. THE FOLLOWING CHART SHOWS THE CONNECTIONS ON THE BACK OF THE LINE SET (ITEM #57 OR 58)

LINE SET PLUG NO	FROM		
	SOCKET NO	ASSEMBLY	ITEM NO
P1	J1	AC HARNESS	54
P2	J1	THERMOSTAT ASSY	56
P3	J3	POWER SUPPLY TRANSFORMER ASSY	56
P4	J3	AC HARNESS	54

7. FOR PDP8/M ASSEMBLY PROCEDURE SEE DWG A-SP-PDP8/M-0-7. CHANGE TO THIS UNIT ASSEMBLY DRAWING MAY EFFECT THE ASSEMBLY PROCEDURE.  
 8. POWER SUPPLY DC OUTPUTS ARE PROVIDED TO DRIVE LOGIC INTERNAL TO THE BASIC MACHINE ENCLOSURE. DIGITAL WILL NOT BE RESPONSIBLE FOR THE PERFORMANCE OF THIS PRODUCT IF ANY DC POWER IS TAKEN OUTSIDE THE MACHINE.

D  
C  
B  
A  
 REVISIONS  
 CHANGE NO  
 REV

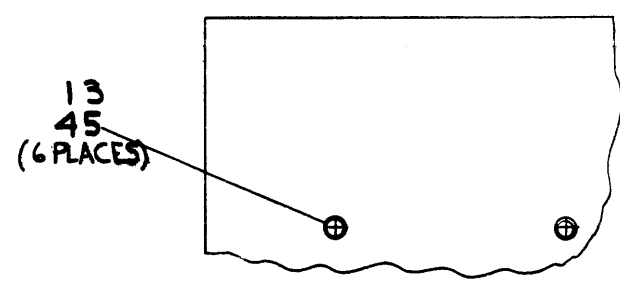
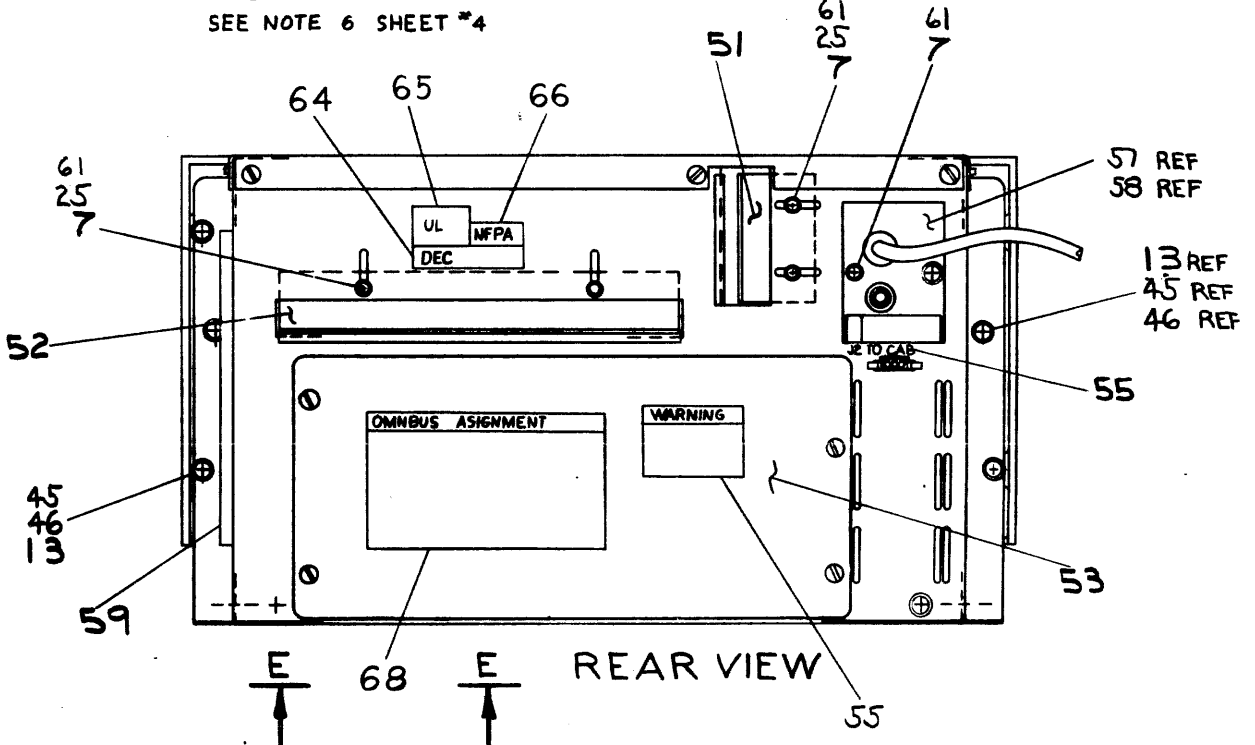
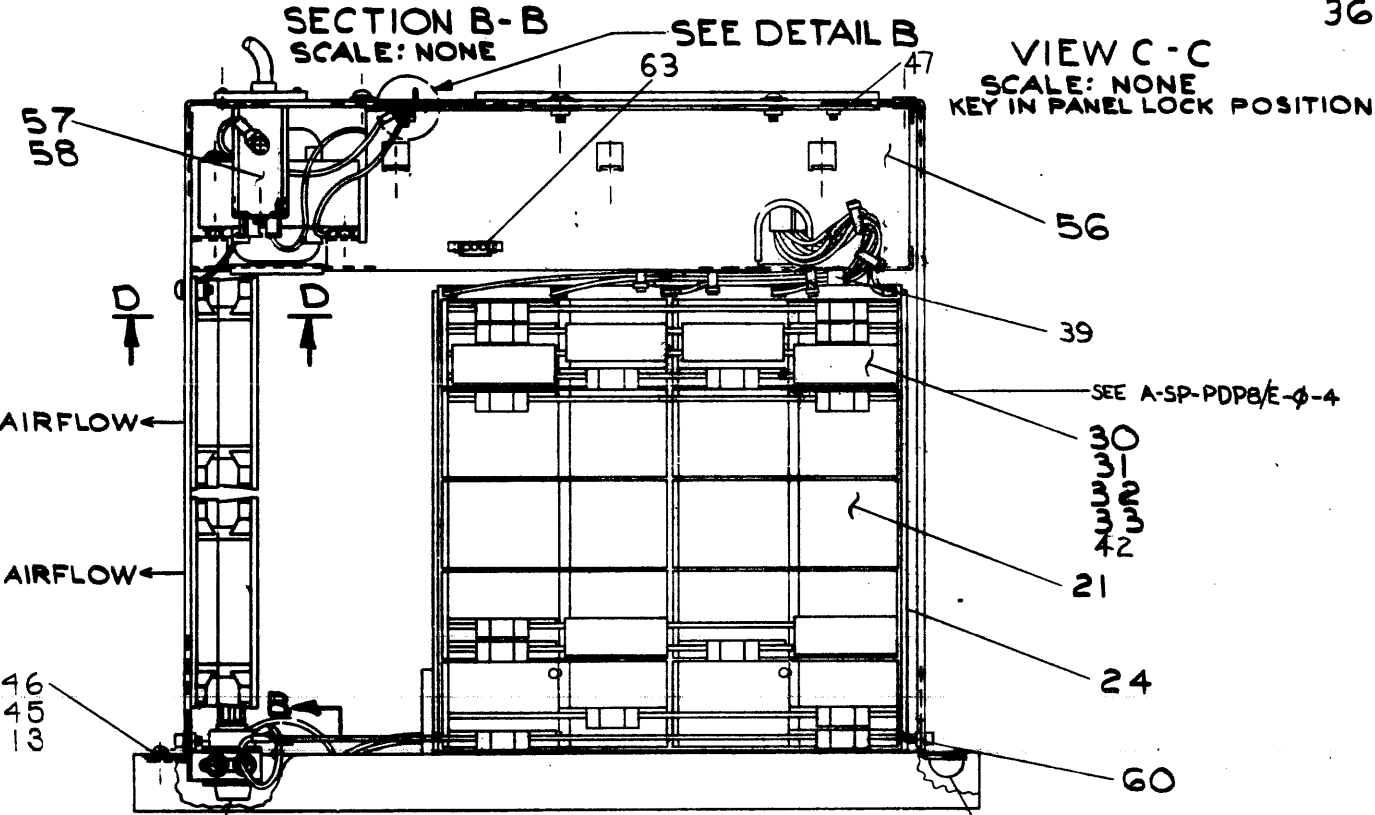
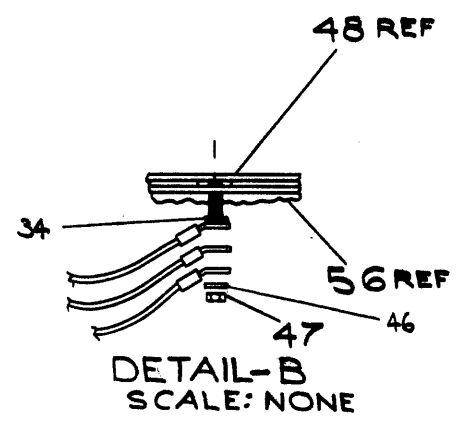
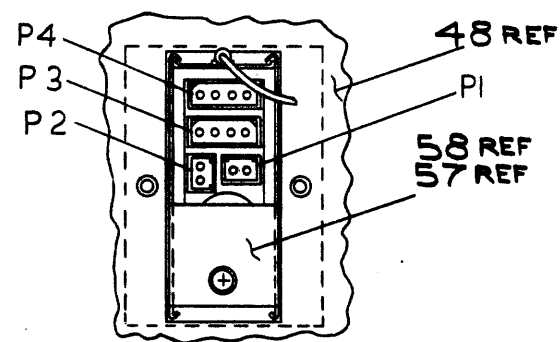
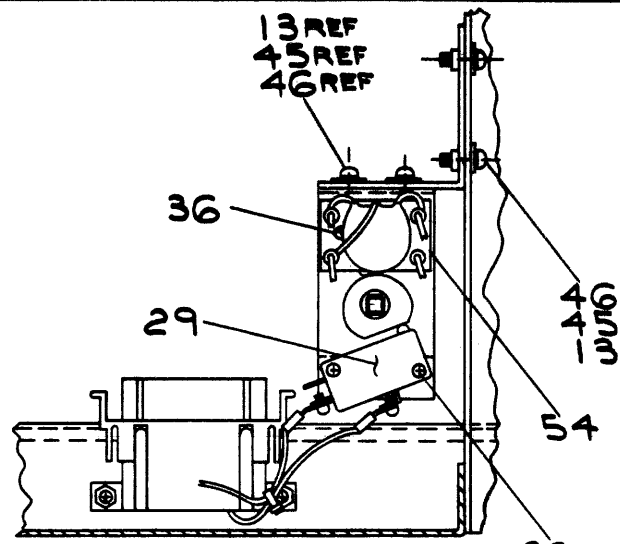
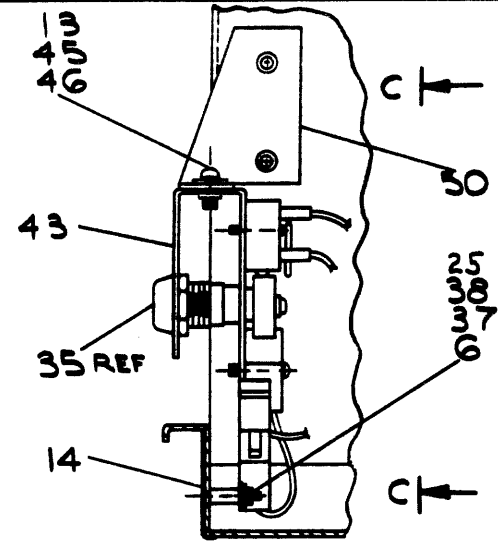


FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO
PDP8M		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN J. FERGUSON DATE 2/28/73	DATE 2/28/73	digital EQUIPMENT CORPORATION 300 MASSACHUSETTS AVE CAMBRIDGE, MASSACHUSETTS 02142	
DECIMALS .XXX - .000 .XX - .02 .X - .1	CHK'D J. CAHILL DATE 2/27/73	DATE 2/28/73	TITLE UNIT ASSY. PDP8M	
ANGLES 16° 30'	ENG. P. GARDNER DATE 2/28/73	DATE 2/28/73	SIZE CODE NUMBER REV B-DD-PDP8M-0 DUA PDP8M-0-0 K	
REMOVE BLURS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	PROJ. ENG. P. GARDNER DATE 2/28/73	DATE 2/28/73	SCALE 1/1 SHEET 4 OF 6	
MATERIAL	PROD. R. K. ALLEN DATE 2/28/73	DATE 2/28/73	DIST.	
FINISH	NEXT HIGHER ASSY.			

DUA PDP8M-0-0  
 K  
 B  
 A

This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission. ©1973

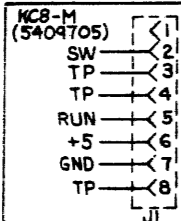
0-0-WBDD-001 2



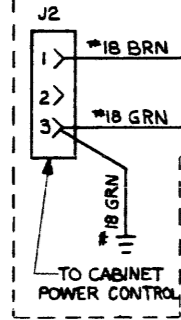
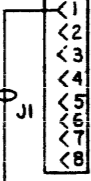
REV.	CHANGE NO.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP8M		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. J.FERGUSON DATE 2/26/73	DATE 2/26/73	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS .XXX - .005	CHK'D. J.CAHILL DATE 2/27/73	DATE 2/27/73	TITLE	
ANGLES ±0° 30'	ENG. P.GARDNER DATE 2/28/73	DATE 2/28/73	UNIT ASSY. PDP8M	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	PROJ. ENG. P.GARDNER DATE 2/28/73	DATE 2/28/73		
	PROD. R.K.ALLEN DATE 2/28/73	DATE 2/28/73		
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.
++	B-DD-PDP8M-0	DUA	PDP8M-0-0	K
FINISH	SCALE	SHEET	DIST.	
++	5 OF 6			

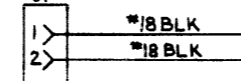
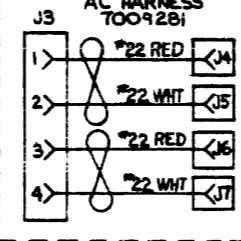
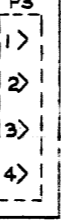
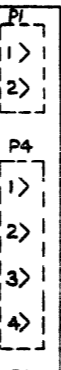
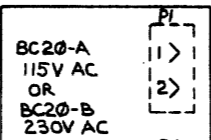
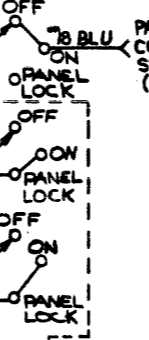
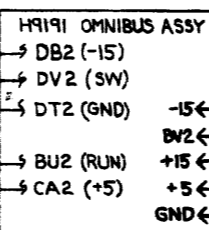
THIS DRAWING AND SPECIFICATIONS HEREIN ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION. COPYRIGHT © 1973 DIGITAL EQUIPMENT CORPORATION.



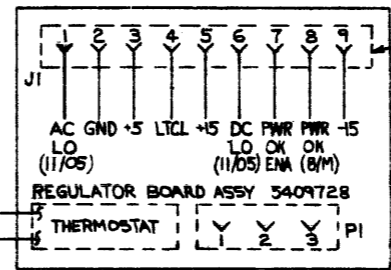
HARNESS MICRO SWITCH 7008674



SEE NOTE \*3 (SHEET \*1)

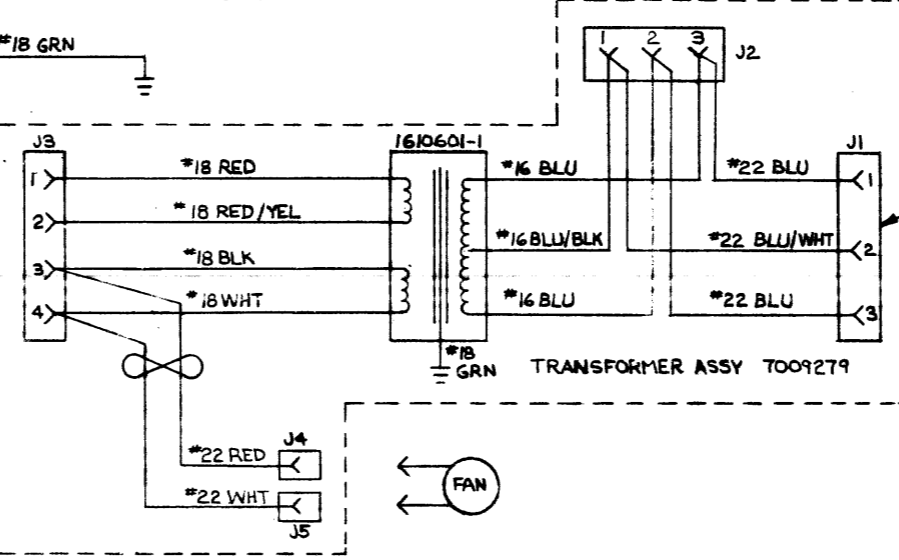


7009452



DC HARNESS 7009280

SEE NOTE \*8 (SHEET 4)



OPTION CONNECTOR (KPB-E & DKB-EA)

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM
PDP8M				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES	DRN. D. SULLMAN	DATE 2/26/73		
TOLERANCES	CHK'D. J. CAHILL	DATE 2/27/73		
DECIMALS .xxx = .005	ENG. P. GARDNER	DATE 2/28/73		
ANGLES ±0° 30'	PROJ. ENG. P. GARDNER	DATE 2/28/73		
.xx = .02	PROD. R. K. ALLEN	DATE 2/28/73		
.x = .1	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY 1		TITLE UNIT ASSY PDP8M	
MATERIAL	NEXT HIGHER ASSY.		SIZE CODE B-DD-PDP8M-0	NUMBER DUA PDP8M-0-0
FINISH	SCALE	SHEET 6 OF 6	DIST.	REV

REV. 1  
DATE 2/28/73  
BY P. GARDNER



This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission.

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	PDP8M-DC																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
44	C-MD-7410754-0-0	BRACKET, SUPPORT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
45	9006037-1	SCR, PHL. HD PAN #8-32 X .38	10	10	10	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
46	9006666	WASHER, FLAT .500 OD X .187 ID X .032 THK	10	10	10	10	8	8	8	8	4	4	4	4	4	4	4	4	4	4	4	
47	9006563	NUT, KEPS #8-32	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
48	B-IA-7410740-0-0	CHASSIS	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1		
49	D-IA-7410751-0-0	SPRING, TOP	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1		
50	B-IA-7410753-0-0	BRACKET, SUPPORT	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1		
51	C-IA-7410749-0-0	STRAIN RELIEF CABLE	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1		
52	C-IA-7410752-0-0	STRAIN RELIEF EXPANDER	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1		
53	D-IA-7410749-0-0	COVER, REAR	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1		
54	D-IA-7009281-0-0	WIRESS, AC	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1		
55	A-DC-7009281-0-0	CHASSIS DECAL	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1		
56	D-AD-7009282-0-0	POWER SUPPLY ASSY	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1		
57	D-UA-BC2# A-0-0	LINE SET, 115V	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1		
58	D-UA-BC2# B-0-0	LINE SET, 230V	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1		
59	C-IA-7410768-0-0	FILTER, SINE	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1		
60	9007002-B	SCR, SOC HD CAPTIVE, BLK:OXIDE #6-32X.38	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2		
61	9006633	WASHER, INT TOOTH LOCK #6	14	14	14	14	14	14	14	8	8	8	8	8	8	8	8	8	8	8		
62	<del>9006703</del>	<del>BRACKET, 387 DIA X .387 ID X .75 HOLE</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>		
63	1209351-0#	SOC HOUSING, MATE-N-LOK	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1		
64	9008141	SERIAL TAG	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
65	A-DC-5309414-0-0	DECAL, UN/ APPROVAL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
66	A-DC-5309413-0-0	DECAL, NFPA TYPE II	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
67	<del>9008141-0-0</del>	<del>DEC, WARNING</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>		
68	DEC-4-1096B	OMNIBUS ASSIGNMENT STICKER	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		

REV.	
CHANGE NO.	
CHK	

FIRST USED ON OPTION MODEL  
**PDP8M**

UNLESS OTHERWISE SPECIFIED  
 DIMENSION IN INCHES  
 TOLERANCES  
 DECIMALS FRACTIONS ANGLES  
 ± .005 ± 1/64 ± 0°30'  
 POOL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL  
+ — +

FINISH  
+ — +

DRN. D.SULLIVAN DATE 3/5/73  
 CHK'D. J.CAHILL DATE 3/6/73  
 ENG. P.GARDNER DATE 3/7/73  
 PROJ. ENG. P.GARDNER DATE 3/7/73  
 PROD. R.K.ALLEN DATE 3/7/73

NEXT HIGHER ASSY  
**B-DD-PDP8M-0**

SCALE + — +  
SHEET 3 OF 2

**digital** EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS

TITLE  
**UNIT ASSY PDP8M**

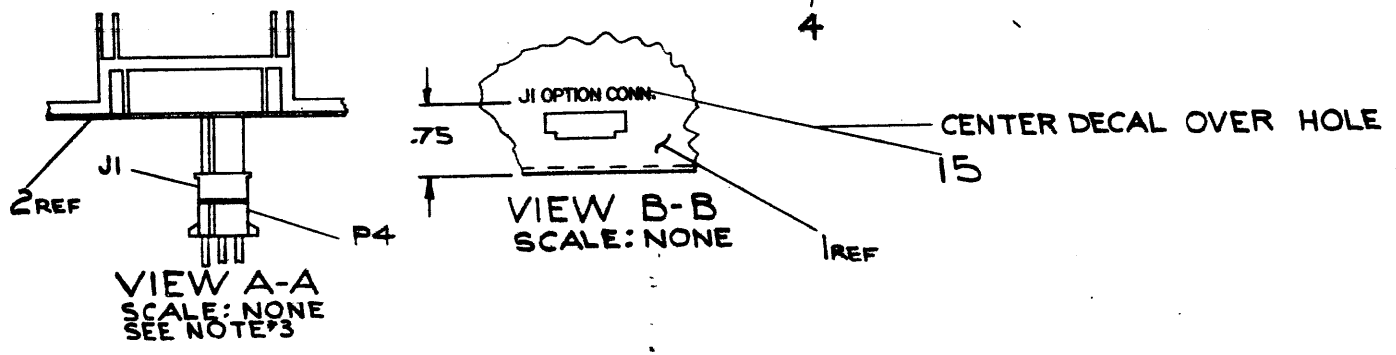
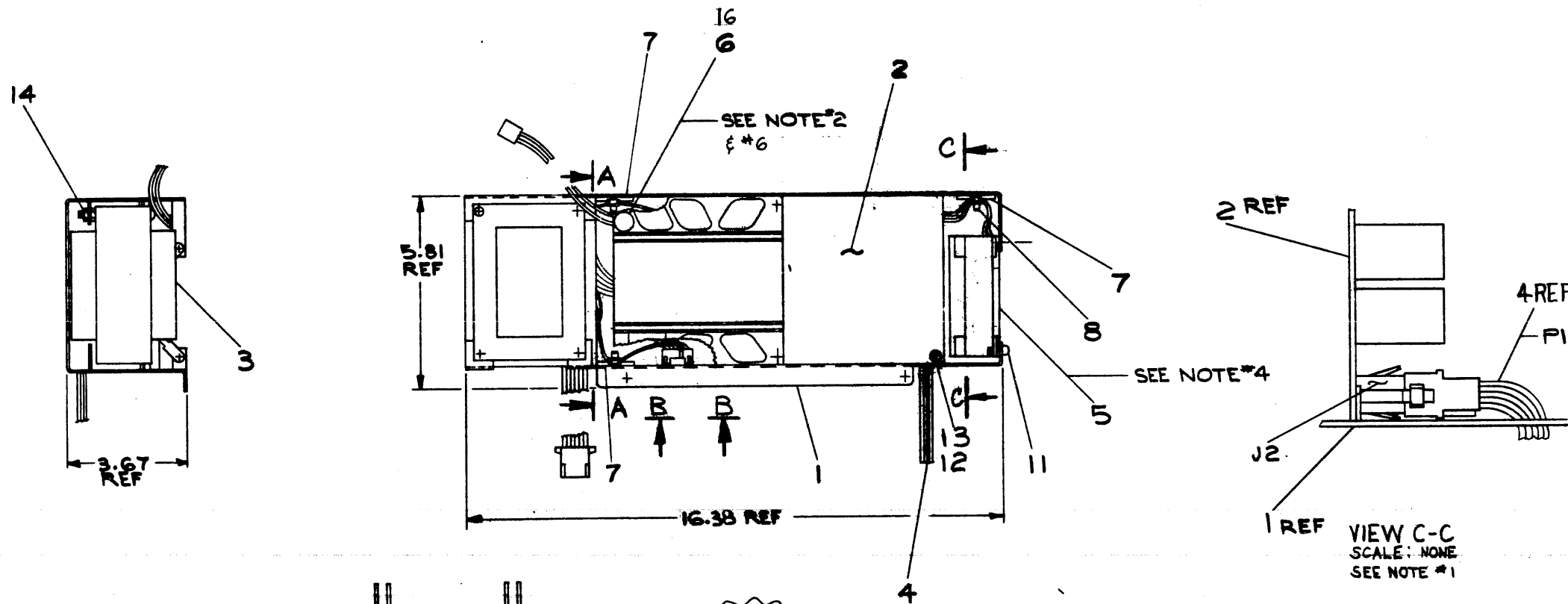
SIZE CODE C/PL NUMBER PDP8M-0-0 REV. K

PART CODE  
**C/PL**  
 NUMBER  
**PDP8M-0-0**  
 REV.  
**K**

This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture of any part or assembly without written permission. COPYRIGHT © 1973  
DIGITAL EQUIPMENT CORPORATION

LEGEND	
7009282-0	DC HARNESS
7009282-1	NO DC HARNESS

- NOTES:**
- CONNECT J2 OF ITEM #2 (REGULATOR BOARD ASSY.) TO P1 OF ITEM #4 (D.C. HARNESS).
  - REPLACE THERMOSTAT ON ITEM #2, (ITEM #76 ON DWG. NO E-IA-5409728-0-0) WITH ITEM #6 (THERMOSTAT).  
~~LEAVE LEADS AT FULL LENGTH AND ADD ITEM #10 (PIN) AND ITEM #11 (CONN.) TO END OF LEADS. RETURN OLD THERMOSTAT WITH 5 INCH LEADS TO STOCKROOM.~~
  - CONNECT J1 OF ITEM #2 (REGULATOR BOARD ASSY.) TO P4 OF ITEM #3 (TRANSFORMER ASSY.)
  - CONNECT J4 AND J5 OF ITEM #3 (TRANSFORMER ASSY.) TO ITEM #5 (FAN).
  - FOR POWER SUPPLY ASSEMBLY PROCEDURE SEE DWG. A-SP-PDP8M-0-8
  - REMOVE THERMOSTAT (ITEM #6) FROM THE BOARD AND LEAVE WITH THE MACHINE WHEN RETURNING THE REGULATOR BD. ASSY. (ITEM #2) FOR REPAIR.



REF.	REF.	PS. ASSY. PROCEDURE	A-SP-PDP8M-0-8	17
A/R	A/R	COMPOUND THERMAL JOINT	9008268	16
1	1	DECAL (PDP8/M)	A-SP-M0790-00	15
7	7	NUT, KEPS # 8-32	9008863	14
6	6	WASHER, INT TOOTH LOCK	9006633	13
6	6	SCR, PHL, HD PAN 6-32X.62	9006025-1	12
3	3	SCR, PHL, HD PAN 6-32X.38	9006037-1	11
		<del>PIN, MATE W/ LOCK (MALE)</del>	<del>9008268-01</del>	<del>10</del>
		<del>CONN, MATE W/ LOCK</del>	<del>9008268-02</del>	<del>9</del>
3	3	CABLE, TIE	9007031	8
3	3	CABLE, TIE MOUNT	9008264	7
1	1	THERMOSTAT ASSY	E-IA-7009452-04	6
1	1	FAN,	1210719	5
0	1	HARNESS, D.C.	E-IA-7009280-00	4
1	1	TRANSFORMER ASSY.	E-IA-7009277-00	3
1	1	REGULATOR BD. ASS'Y	E-IA-5409728-00	2
1	1	CHASSIS, POWER SUPPLY	E-IA-7410746-0-0	1

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
POP8M				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DRN: <i>H. Ferguson</i> DATE: 2-21-73 CHKD: <i>J. Cabral</i> DATE: 3-6-73 ENG: <i>J. Taylor</i> DATE: 3-8-73 PROJ. ENG. DATE: 3-8-73 PROD. DATE: 3-8-73		
DECIMALS	ANGLES	TITLE: <b>POWER SUPPLY ASSY.</b> EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
.XXX = .005	±0° 30'	MATERIAL		
.XX = .02		NEXT HIGHER ASSY.		
.X = .1		FINISH		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		D-UA-POP8M-0-0 SCALE: NONE SHEET 1 OF 1		
		SIZE CODE	NUMBER	REV.
		D AD	7009282-0-0	B
		DIST.		

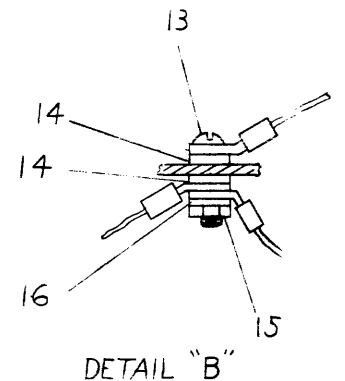
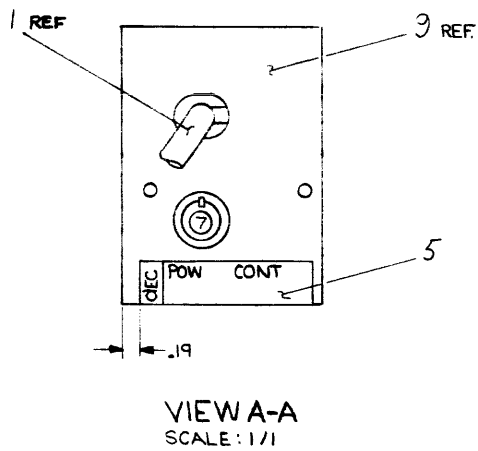
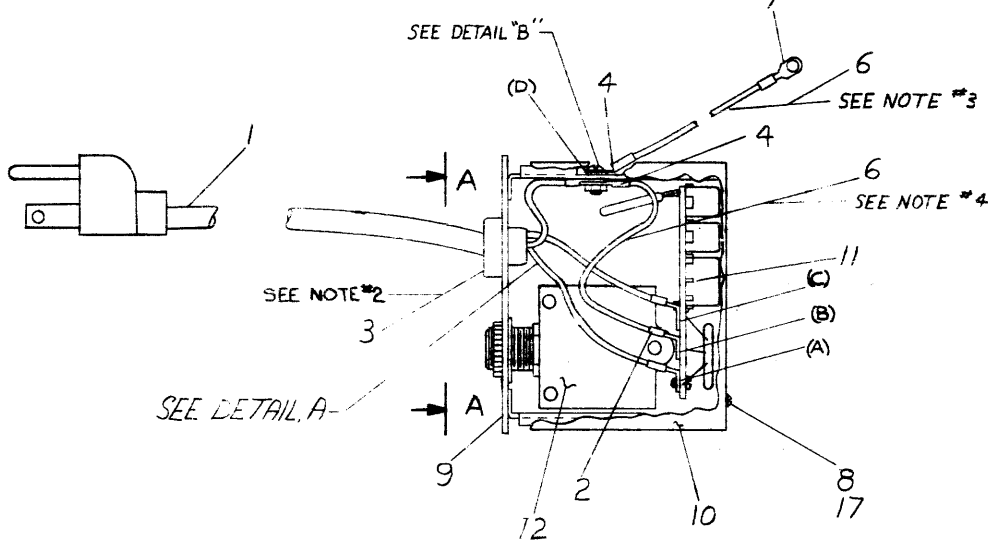
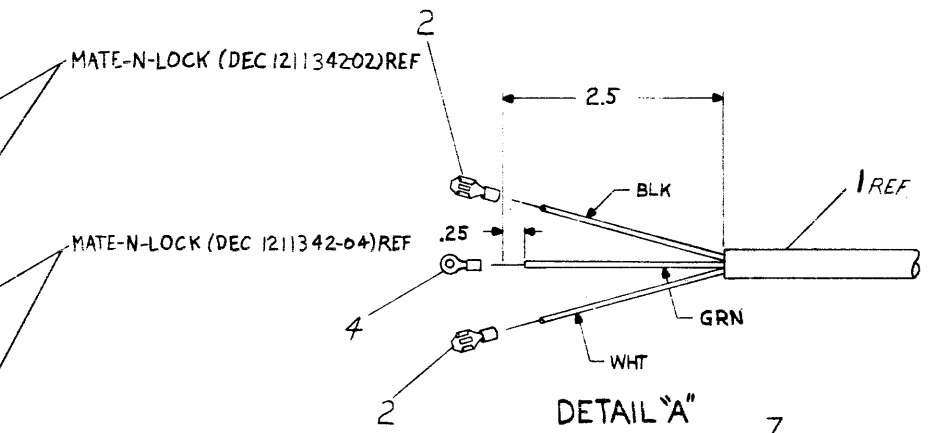
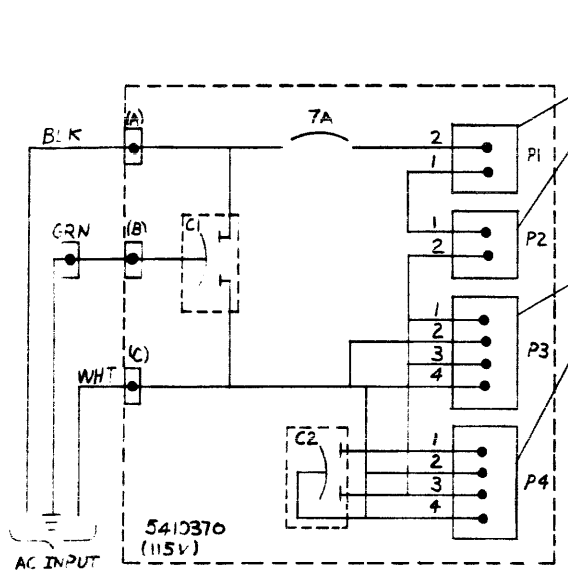
REV.	CHG. NO.	DATE	BY	APP.
A	00018	5-17-72	P. GARDNER	
B	00001	5-18-73	S. McLaughlin	
		11-12-77	P. GARDNER	
		12-3-73		



This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission. COPYRIGHT © 1973  
DIGITAL EQUIPMENT CORPORATION

PART NO.	ITEM #1	VARIATION
BC20A-06	V700015-06	6 FT
BC20A-09	V700015-09	9 FT

- NOTES:**
- CONNECT ITEM #1 (POWER CORD) PER CIRCUIT SCHEMATIC.
  - FOR INSTALLATION USE HEYCO #29 STRAIN RELIEF PLIERS.
  - LENGTH OF THIS WIRE (ITEM #6) IS 9.75" ±.5
  - LENGTH OF THIS WIRE (ITEM #6) IS 3.0" ±.5



QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	WASHER, #6 INTERNAL TOOTH	9006633	7
1	WASHER, FLAT .312x.25x.027	9006655	16
1	KEPNUT #4-40	9006557	15
2	WASHER, #4 INTERNAL TOOTH	9006632	14
1	SCR. PHL. PAN HD #4-40 x .38	9006011-1	13
1	CIRCUIT BREAKER (TAMP)	210330-7	12
1	POWER CONTROL 30 (115 V)	5410370-1-0	11
1	COVER, AC INPUT	C-AD-5310370-1-0	10
1	BOX, AC INPUT	D-45309445-0-0	9
1	SCR. PHL. HD. PAN #6-32 x .25	9006020-1	8
1	SOLDERLESS, CONN #50360	9007990	7
AIR	#18 AWG. STRD GRN	9107360-55	6
1	PWR CONTROL DECAL (115V)	A-DC-5310370-1-0	5
3	SOLDERLESS, CONN	9007929-0	4
1	STRAIN RELIEF SR-6N3-4	9008492-2	3
3	SOLDERLESS CONN	9007917	2
1	POWER CORD (20 V)	SEE LEGEND	1

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP8M				

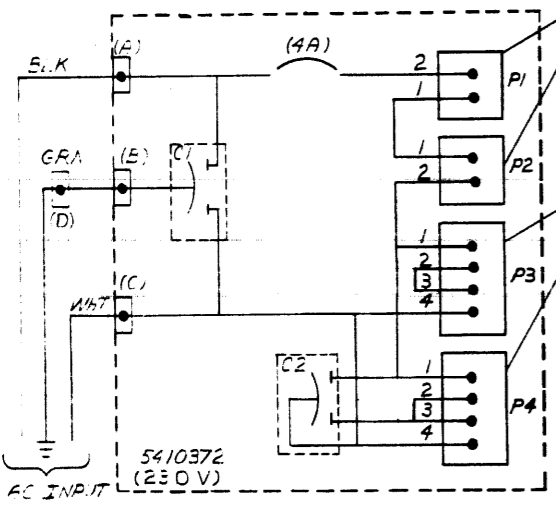
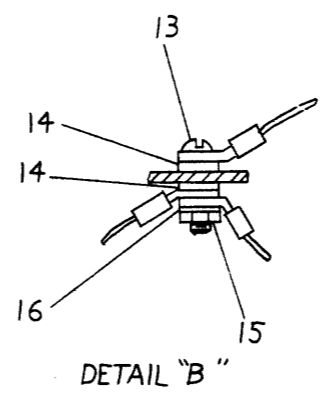
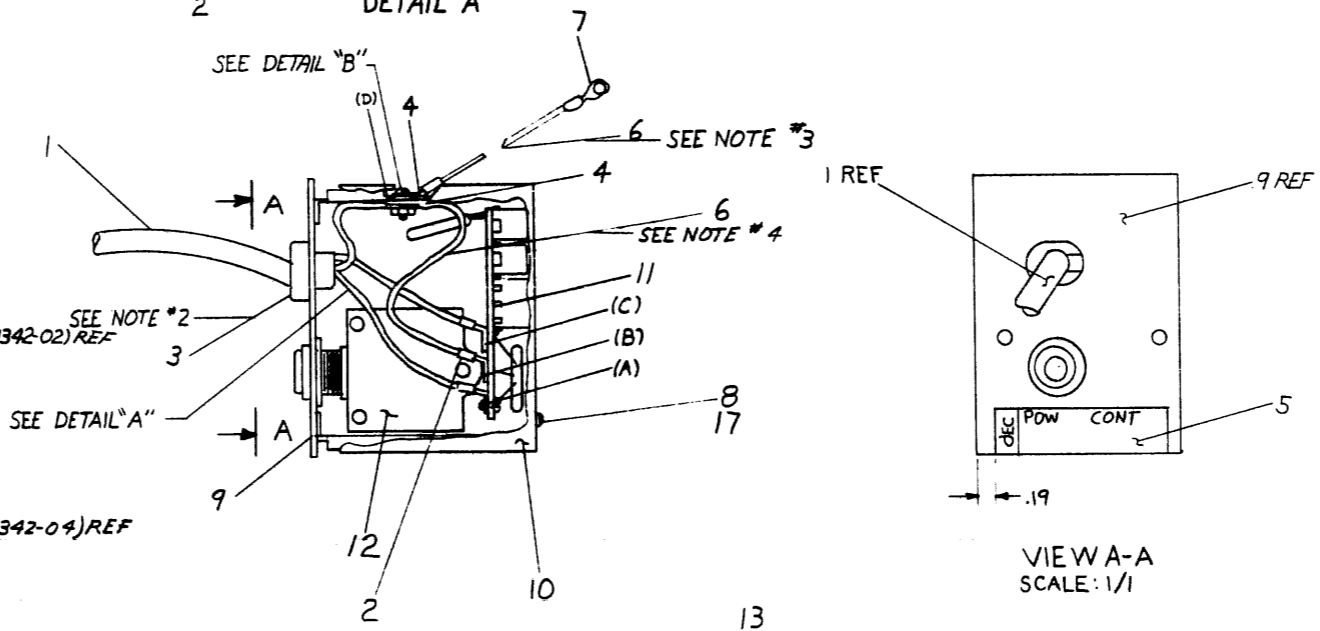
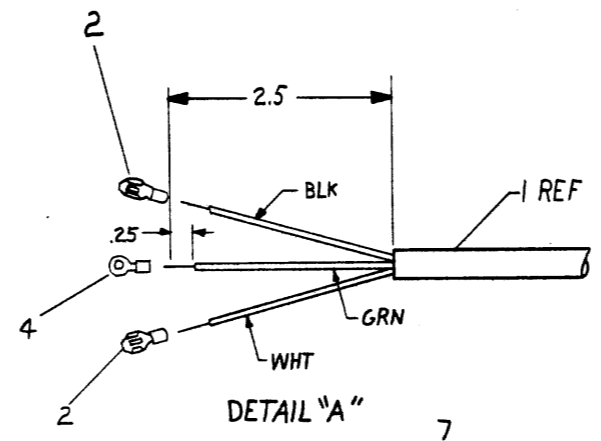
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN	DATE	PARTS LIST	
DECIMALS	D Sullivan	2-21-73		
ANGLES	CHK'D	DATE		
.XXX = .005	ENG	DATE		
.XX = .02	PROJ-ENG	DATE		
X = .1	PROJ-ENG	DATE	TITLE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ	DATE	LINE SET, 3	
MATERIAL			SIZE CODE	NUMBER
FINISH			DUA	BC20A-0-2
			SCALE	REV
			SHEET	C
			OF	
			DIST.	

REV	CHANGE NO	BY	DATE
1	BC20-00001	P. GARDNER	1-1-73
2	BC20-00002	P. GARDNER	1-1-73
3	BC20-00003	P. GARDNER	1-1-73

DRAWING NO. WAS  
D-UA-BC20-0-0

LEGEND		
PART NO.	ITEM #1	VARIATION
BC20B-06	1700016-06	6 FT
BC20B-09	1700016-09	9 FT

- NOTES:**
1. CONNECT ITEM #1 (POWER CORD) PER CIRCUIT SCHEMATIC.
  2. FOR INSTALLATION USE HEYCO #29 STRAIN RELIEF PLIERS.
  3. LENGTH OF THIS WIRE (ITEM #5) IS 9.75" ± .5
  4. LENGTH OF THIS WIRE (ITEM #6) IS 3.0" ± .5



MATE-N-LOCK (DEC 12/13/42-02) REF  
SEE NOTE #2

MATE-N-LOCK (DEC 12/13/42-04) REF  
SEE NOTE #2

1	WASHER, #6 INTERNAL TOOTH	9006633	17
1	WASHER, FLAT, 3/12x1/25x.027	9006655	16
1	KEP NUT #4-40	9006557	15
2	WASHER, #4 INTERNAL TOOTH	9006632	14
1	SCR. PHL. PAN HD #4-40 x .38	9006011-1	13
1	CIRCUIT BREAKER (4AMP)	1210830-4	12
1	POWER CONTROL BD (230V)	C-IA-54103-2-0-0	11
1	COVER, AC INPUT	C-MD-53103-3-0-0	10
1	BOX, AC INPUT	D-IA-5309945-0-0	9
1	SCR. PHL. PAN HD #6-32 x .25	9006020-1	8
1	SOLDERLESS CONN #50360	9007990	7
NR	#18 AWG STRD, GRN	9107360-55	5
1	PWR CONTROL DECAL (230V)	A-DC-5310439-0-0	5
3	SOLDERLESS CONN	9007929-0	4
1	STRAIN RELIEF SR-6N3-4	9008492-2	3
3	SOLDERLESS CONN	9007917	2
1	POWER CORD 120V	SEE LEGEND	1

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	REV.
PDP8M				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES				
TOLERANCES				
DECIMALS	ANGLES	DATE		
.xxx = .005	'0 30'	9-5-73		
.xx = .02		9-18-73		
.x = .1		9-18-73		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY 1				
MATERIAL				
NEXT HIGHER ASSY.				
FINISH				
SCALE				
SHEET 1 OF 1				

PARTS LIST		TITLE	
DRN	DATE	digital EQUIPMENT CORPORATION	
CHK'D	DATE	LINE SET, 230V	
ENG.	DATE	SIZE CODE	NUMBER
PROJ. ENG.	DATE	D UA	F020B-2-7
PROD.	DATE	DIST.	

THESE SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL CORPORATION AND ARE TO BE USED IN WHOLE OR IN PART FOR THE MANUFACTURE OF SALE OR OTHERWISE WITHOUT THE WRITTEN PERMISSION OF DIGITAL CORPORATION.

This drawing and specifications, herein, are the property of Digital Equipment Corporation, and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission.

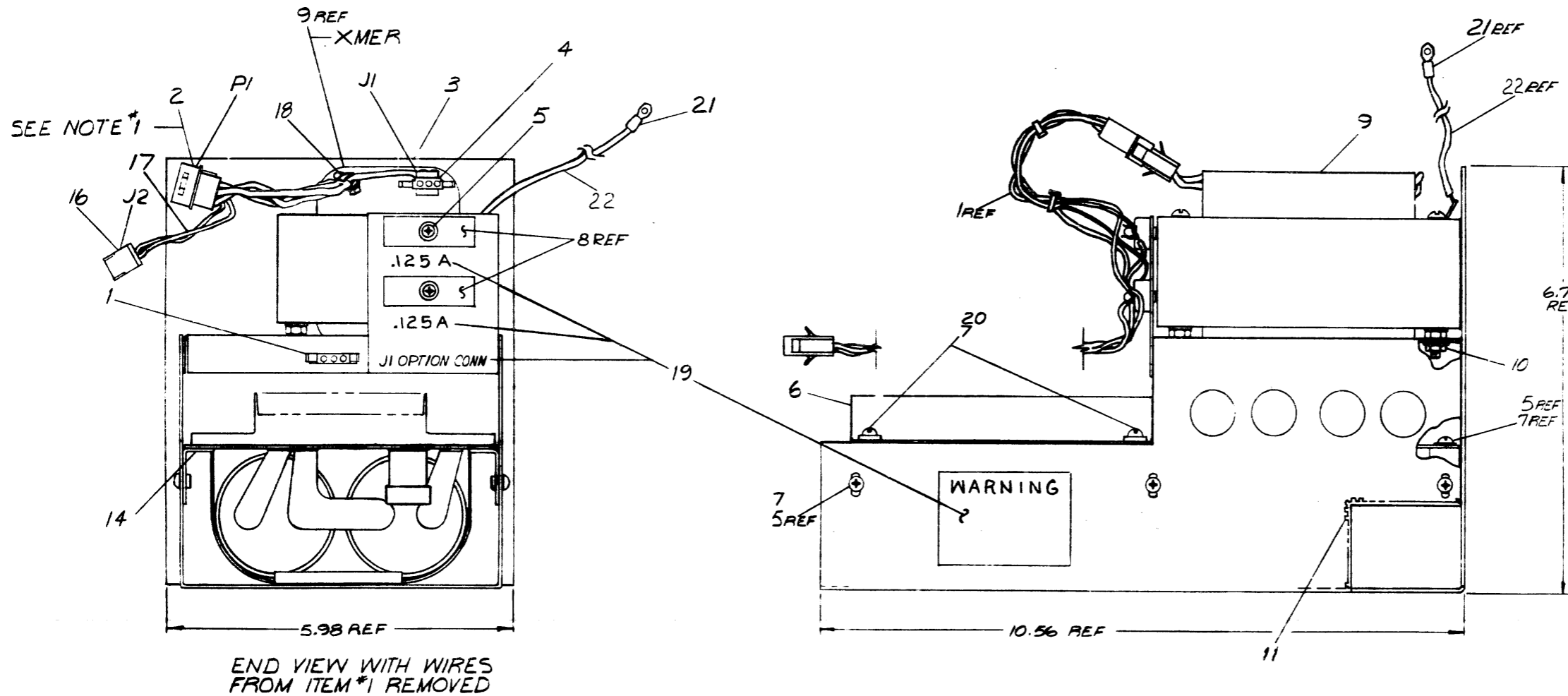
**WIRE TABLE**

ITEM NO.	AVG COLOR	FROM:		TO:		
		CONNECTION	WITH	CONNECTION	WITH	
9	BLU	XMER	-	J1-3	12	
	BLU		-	J1-2	12	
	BLU		-	J1-1	12	
	RED		-	P1-3	13	
	RED		-	P1-4	13	
	WHT		-	P1-1	13	
	BLK	XMER	-	P1-2	13	
17	18	BLK	J2-1	12	P1-5	13
17	18	BLK	J2-2	12	P1-6	13
22	18	GRN	XMER	SOLDER	-	21

LENGTH OF WIRE TO BE 4 IN ± 1/2 IN

**NOTES:**

1. LENGTH OF WIRES TERMINATING TO P5 (ITEM 2) ARE TO BE 8 INCHES ± 1/2 INCH.
2. COMPONENTS J1, J2, & P1, TO BE LABELED WITH COMPONENT IDENTIFIERS, USING BRADY MARKERS.



QTY.	DESCRIPTION	PART NO.	ITEM NO.
22	WIRE 18 AWG GREEN	9107360-55	22
1	TERMINAL SOLDERLESS	9007927	21
4	SCR, PHIL PAN HD #6-32 X .50	9006024-1	20
1	DECAL	A-DC-7409651-0-0	19
1	TIE WRAP PADLIT SST-18	9007031	18
A/R	WIRE 18 AWG BLK	9107360-00	17
1	CONN MATE-N-LOK (FEM)	1210821-02	16
1	STRAIN, RELIEF	9008442	15
6	BRKT, SUPPORT ETC BD	GIA-7409375-00	14
6	CONTACT, MATE-N-LOK (MALE)	1209378-01	13
5	CONTACT, MATE-N-LOK (FEM)	1209379-01	12
A/R	GROMMET	9007621	11
4	NUT, KEP # 8-32	9006563	10
1	XMER (TRANSFORMER)	1610601-02	9
2	FUSE 1/8AMP (3AG) S.B.	9008527	8
12	WASHER, INT TOOTH LOCK #6	9006623	7
1	REGULATOR BD ASSY	EIA-5409125-00	6
10	SCR, PHIL PAN HD #6-32 X .25	9006020-1	5
1	CONN, MATE-N-LOK 3CKT	1209350-03	4
1	CHASSIS, P.S.	D-IA-7409376-00	3
1	CONN, MATE-N-LOK 6 CKT	1209351-06	2
1	HARNESS, SECONDARY	D-IA-7008534-00	1

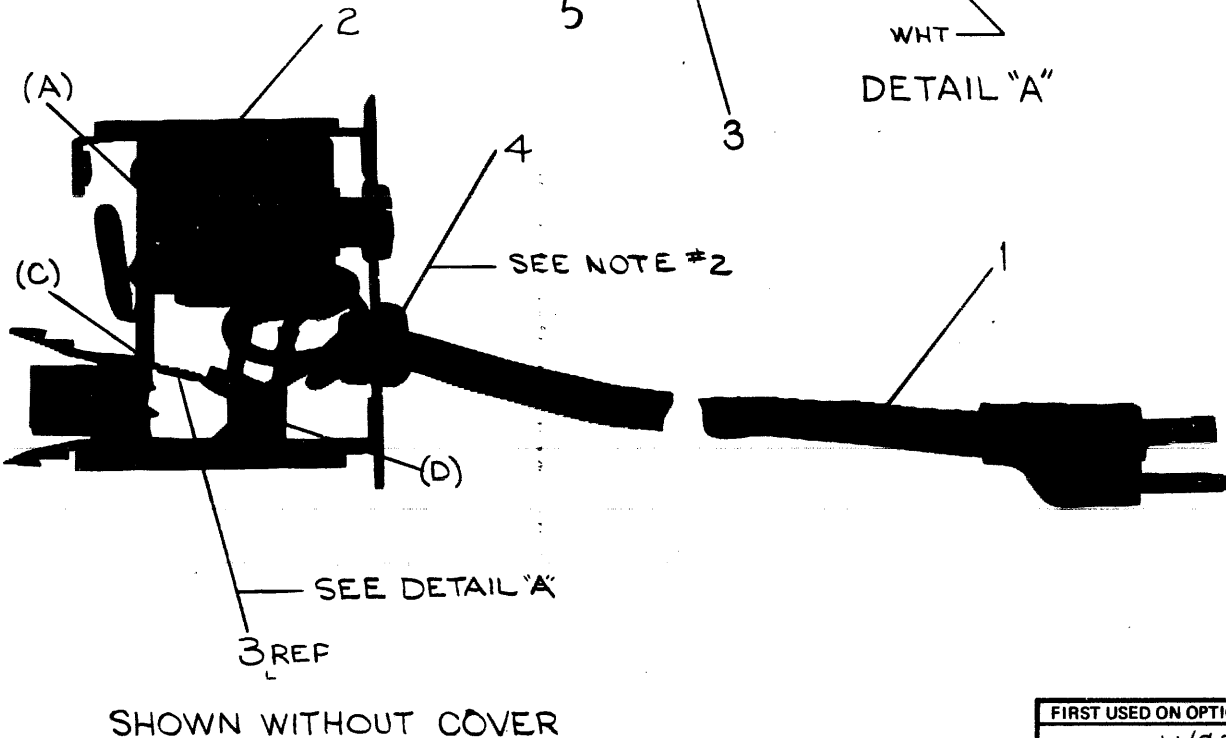
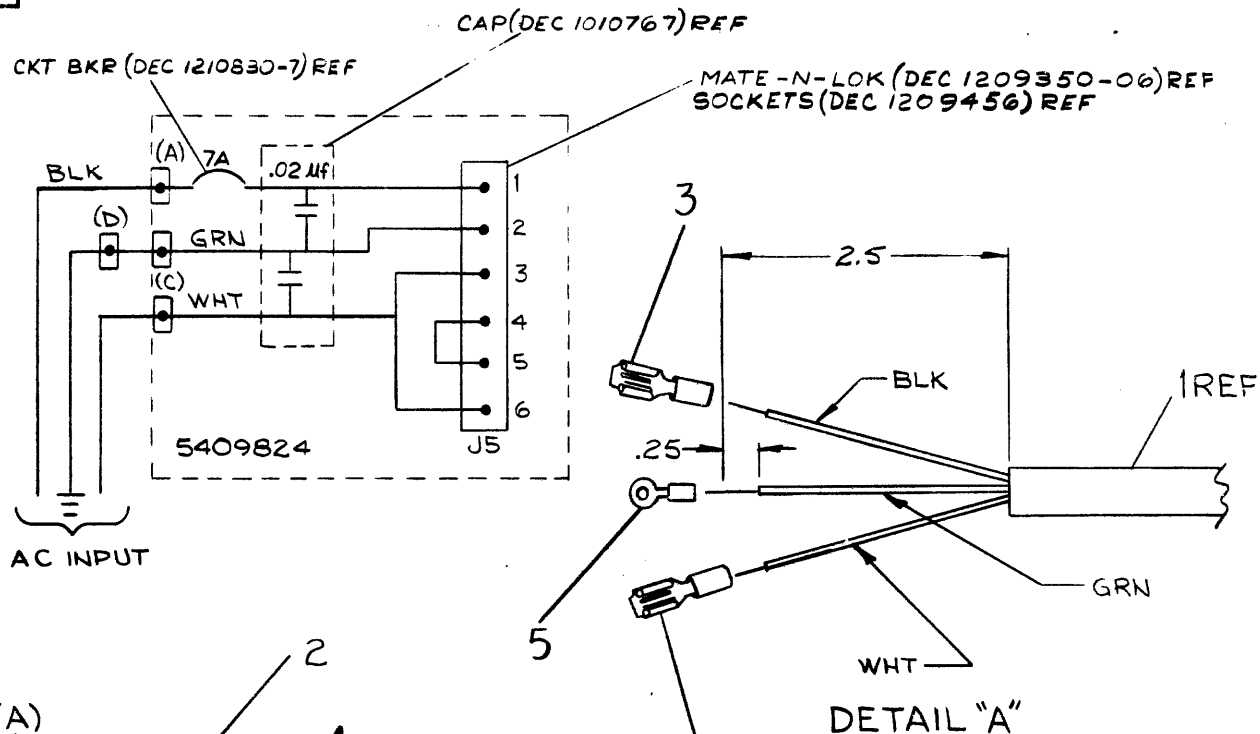
FIRST USED ON OPTION/MODEL <b>PDP 8 M</b>		PARTS LIST	
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		TITLE <b>POWER SUPPLY ASSY</b>	
DECIMALS .XXX = .005 .XX = .02 .X = .1	ANGLES ±0° 30'	DATE 1-7-72	DATE 1-7-72
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE 1-7-72	DATE 1-7-72
MATERIAL 11	NEXT HIGHER ASSY. D-LIA-PDP8M-B-6	SCALE NONE	REV. C
FINISH 11	SHEET 1 OF 1	DIST. <input checked="" type="checkbox"/>	REV. <input checked="" type="checkbox"/>

REV.	CHANGE NO.	DESCRIPTION
A	7008714-00001	INITIAL REV
B	1-16-72	P. GARDNER
C	7-28-72	P. GARDNER
D	10-6-72	P. GARDNER
E	12-2-72	P. GARDNER

This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission. 1972

NOTES:

- CONNECT ITEM #1 (POWER CORD) AND ITEM #2 (AC INPUT BOX, PER CIRCUIT SCHEMATIC).
- FOR INSTALLATION USE HEYCO #29 STRAIN RELIEF PLIERS



SHOWN WITHOUT COVER

QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	SOLDER CONN ARKLESS	9007929-0	5
1	STRAIN RELIEF SR-6N3-4	9008492-2	4
2	SOLDERLESS CONN. ARKLESS	9007919	3
1	AC INPUT BOX H400A	D-UA-H400-0-0	2
1	POWER CORD 120V	170015-6	1

FIRST USED ON OPTION/MODEL		PARTS LIST	
11/05		QTY.	DESCRIPTION
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN <i>T. Guillen</i>	DATE 12-27-71
DECIMALS	ANGLES	CHK'D <i>[Signature]</i>	DATE 1-9-72
.XXX = .005	±0° 30'	ENG. <i>David DeMondelle</i>	DATE 1-4-72
.XX = .02		PROJ. ENG. <i>[Signature]</i>	DATE 1-7-72
.X = .1		PROD. <i>RK Peteran</i>	DATE 1/2/72
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓		NEXT HIGHER ASSY.	
MATERIAL			
FINISH		SCALE	
		SHEET	OF
		SIZE CODE	NUMBER
		C UA	BC05H-0-0
		DIST.	
		REV.	D

**digital** EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS

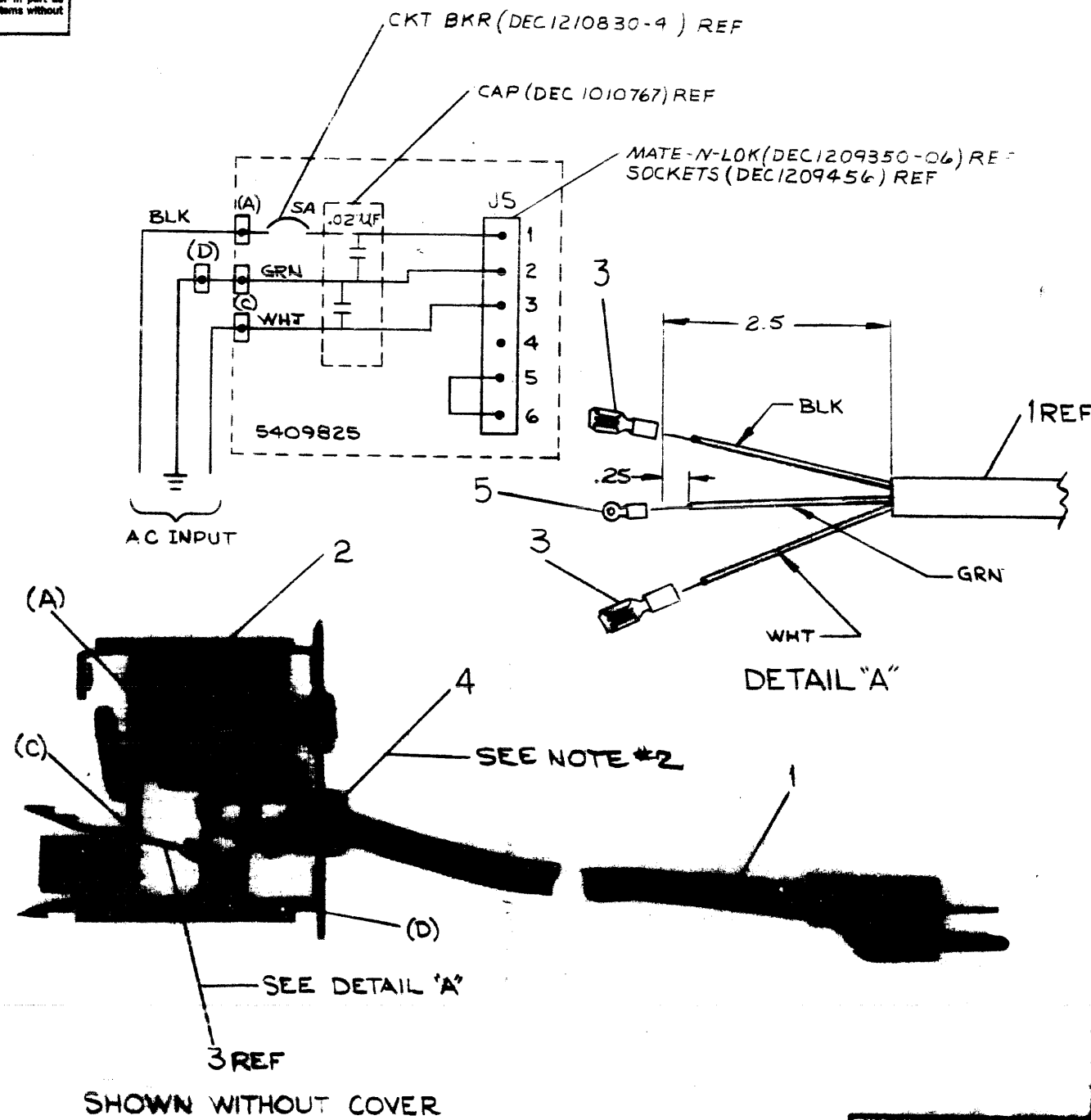
TITLE  
LINE SET  
115V AC 7 AMP

REV.	CHANGE NO.	REV.
A	BC05H-00001	
B	CM-Genius-3-28-72	
C	R. WOLFF	
D	R. BURTON 3-29-72	
E	BC05H-00002	
F	DEMORVILLE	
G	David DeMondelle 5/1/72	
H	H400-00002	
I	R. BURTON 5-25-72	
J	R. BURTON 5-31-72	
K	BC05H-00003	
L	R. BURTON 5-30-72	
M	R. BURTON 11-2-72	

REV. D  
NUMBER BC05H-0-0  
SIZE CODE C UA

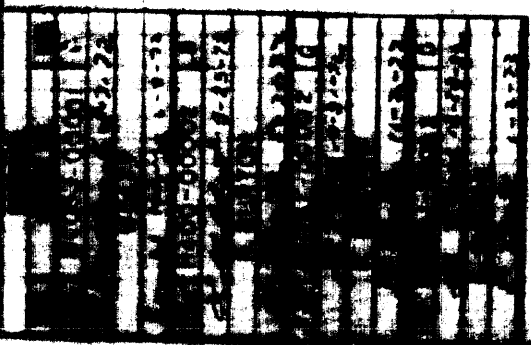
This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission. 1972

NOTES:  
 1. CONNECT ITEM #1 (POWER CORD) AND ITEM #2 (AC INPUT) PER CIRCUIT SCHEMATIC.  
 2. FOR INSTALLATION USE HAYCO #29 STRAIN RELIEF PLIERS.



QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	SOLDER CONN ARKLESS	9007929-0	5
1	GROMMET HEYCO SR6N3-4	9008492-2	4
2	SOLDER CONN ARKLESS	9007919	3
1	AC INPUT BOX H400 B	0UA-H400-0-0	2
1	POWER CORD 240V	1700016-6	1

DATE		PARTS LIST	
11/85		EQUIPMENT CORPORATION MAYFIELD, MASSACHUSETTS	
TITLE		REV.	
LINE SET 230V AC 4 AMP		D	
C UA		BC05J-0-0	



C UA BC05J-0-0

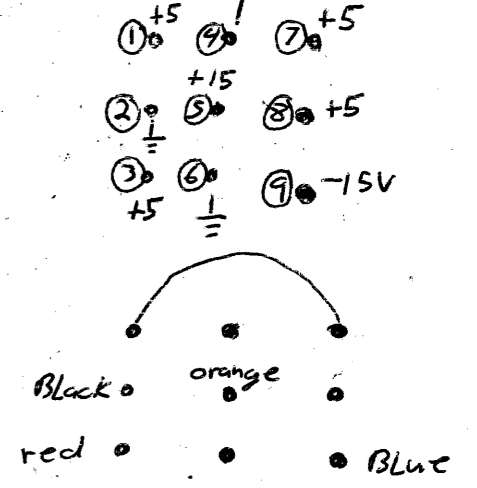
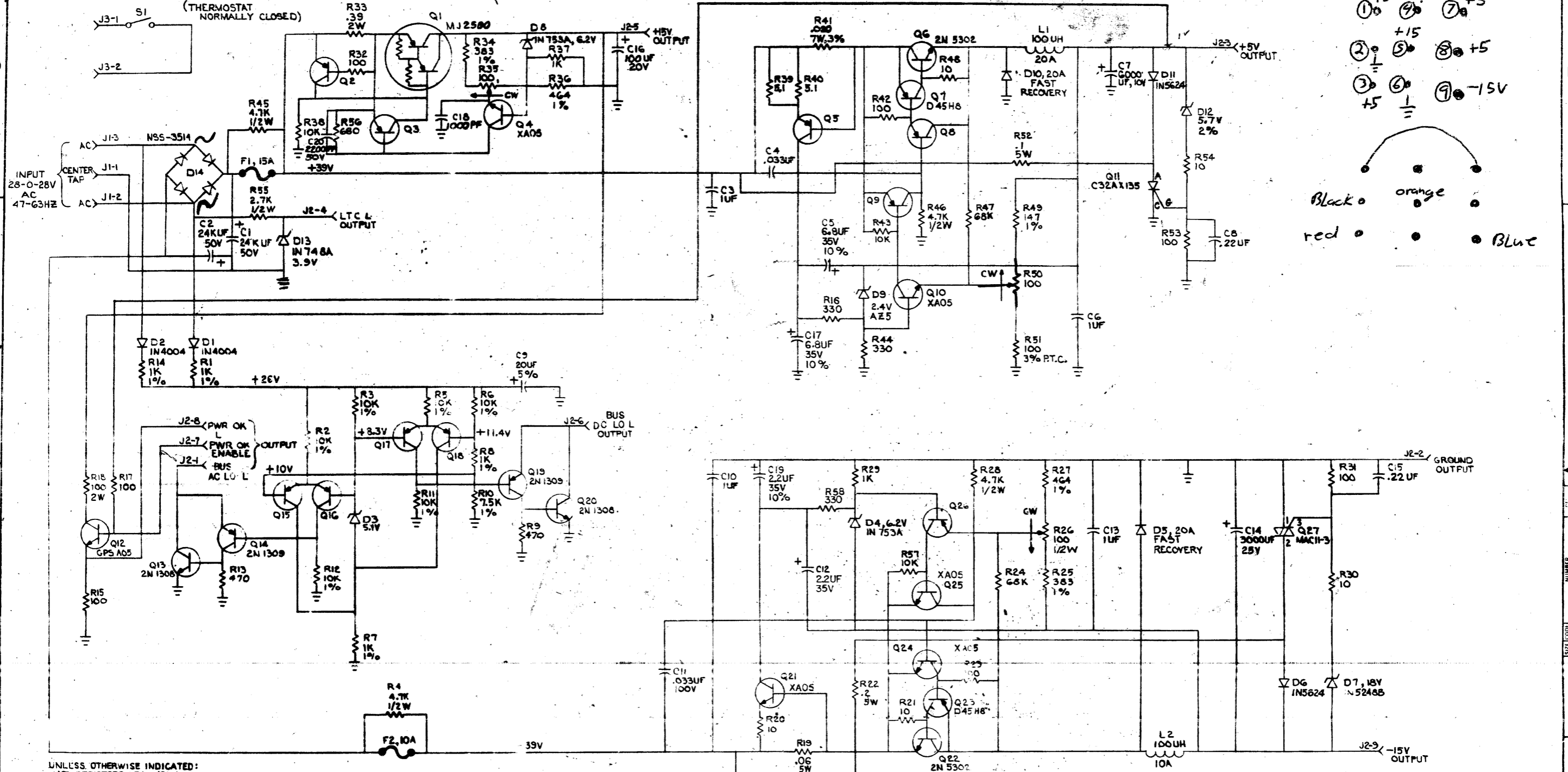
A



In 4764A

CS 5409728-0-1

For design and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part without the permission of the manufacturer or user of items without written permission.



UNLESS OTHERWISE INDICATED:  
 1% RESISTORS ARE 1/8W  
 VOLTAGES ARE TAKEN AT NO LOAD WITH 115 VAC LINE  
 VOLTAGES ARE ± 10% TAKEN BY A ± 10KΩ METER  
 TRANSISTORS = XA55

1	R. WOLF	3-2-74
2	R. WOLF	4-1-74
3	R. WOLF	4-1-74
4	R. WOLF	4-1-74
5	R. WOLF	4-1-74
6	R. WOLF	4-1-74
7	R. WOLF	4-1-74
8	R. WOLF	4-1-74
9	R. WOLF	4-1-74
10	R. WOLF	4-1-74
11	R. WOLF	4-1-74
12	R. WOLF	4-1-74
13	R. WOLF	4-1-74
14	R. WOLF	4-1-74
15	R. WOLF	4-1-74
16	R. WOLF	4-1-74
17	R. WOLF	4-1-74
18	R. WOLF	4-1-74
19	R. WOLF	4-1-74
20	R. WOLF	4-1-74
21	R. WOLF	4-1-74
22	R. WOLF	4-1-74
23	R. WOLF	4-1-74
24	R. WOLF	4-1-74
25	R. WOLF	4-1-74
26	R. WOLF	4-1-74
27	R. WOLF	4-1-74
28	R. WOLF	4-1-74
29	R. WOLF	4-1-74
30	R. WOLF	4-1-74
31	R. WOLF	4-1-74
32	R. WOLF	4-1-74
33	R. WOLF	4-1-74
34	R. WOLF	4-1-74
35	R. WOLF	4-1-74
36	R. WOLF	4-1-74
37	R. WOLF	4-1-74
38	R. WOLF	4-1-74
39	R. WOLF	4-1-74
40	R. WOLF	4-1-74
41	R. WOLF	4-1-74
42	R. WOLF	4-1-74
43	R. WOLF	4-1-74
44	R. WOLF	4-1-74
45	R. WOLF	4-1-74
46	R. WOLF	4-1-74
47	R. WOLF	4-1-74
48	R. WOLF	4-1-74
49	R. WOLF	4-1-74
50	R. WOLF	4-1-74
51	R. WOLF	4-1-74
52	R. WOLF	4-1-74
53	R. WOLF	4-1-74
54	R. WOLF	4-1-74
55	R. WOLF	4-1-74

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
ETCH BOARD REV E				
DRN. <i>R. Wolf</i>		DATE 12-20-74	<div style="text-align: center;"> <p><b>digital</b> EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS</p> </div>	
CHKD. <i>A. Moore</i>		DATE 12-21-74		
ENG. <i>E. Moore</i>		DATE 12-28-74		
PROD. <i>R. Wolf</i>		DATE 12-28-74		
NEXT HIGHER ASSY		DATE 12-28-74		
TITLE		REGULATOR BOARD FOR H740		
SIZE/CODE		NUMBER		REV
DICS		5409728-0-1		P
SHEET		OF		

DEC NO.	EIA NO.	DEC NO.	EIA NO.
SEMICONDUCTOR CONVERSION CHART			

**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS

**ENGINEERING SPECIFICATION**

CONTINUATION SHEET

**ENGINEERING SPECIFICATION**

DATE

TITLE RECOMMENDED OMNIBUS MODULE ASSIGNMENTS

TITLE RECOMMENDED OMNIBUS MODULE ASSIGNMENTS

**REVISIONS**

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

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

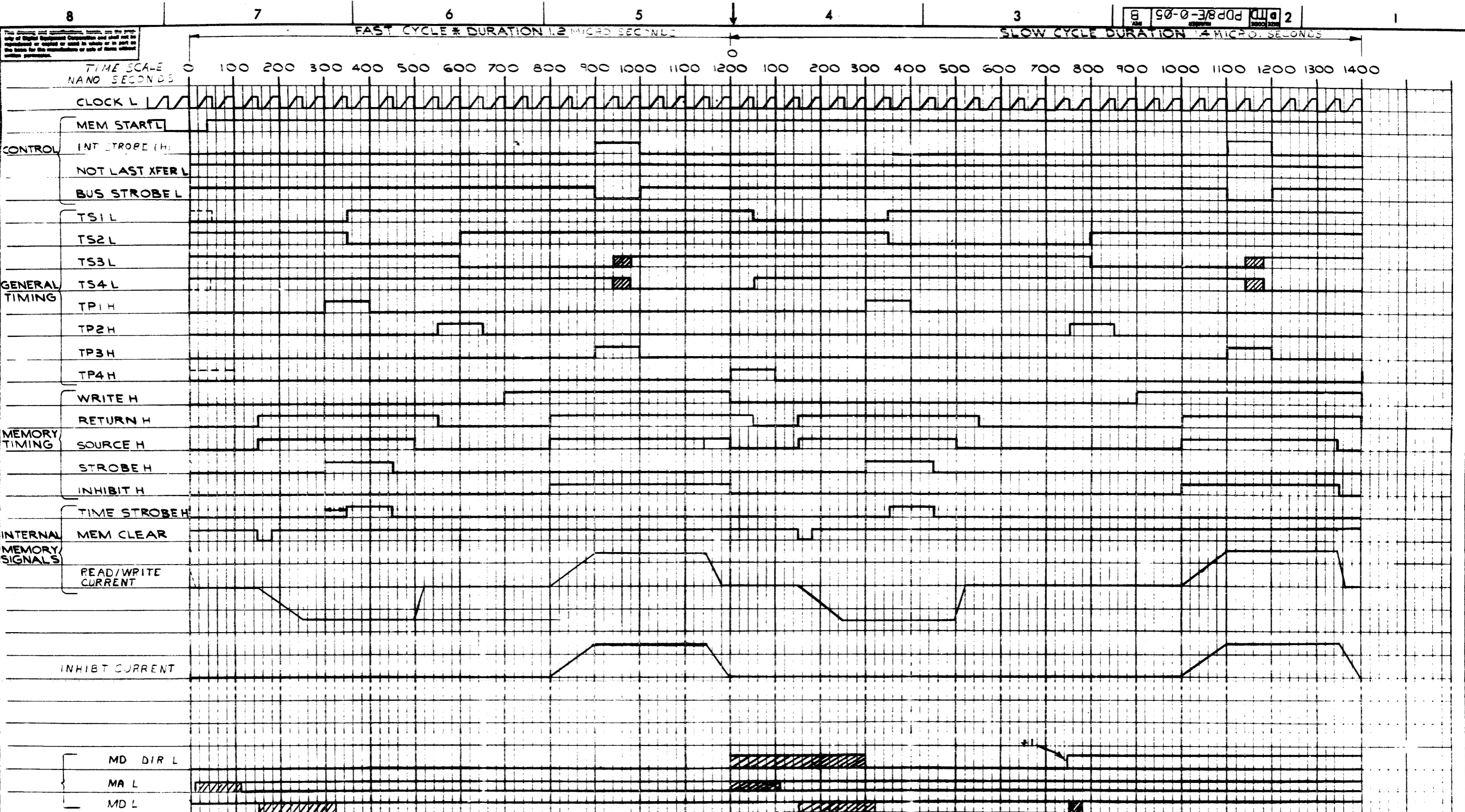
MODULE	
	Control Panel
M8330	Timing Board (ALWAYS AFTER CONTROL PANEL)
M8340	EAE
M8341	EAE
M8310	C.P. Major Register Control
M8300	C.P. Major Registers
M837	Extended Memory & Time Share Control
	.
	.
	Other Non-Memory Options
	.
	.
M8350	External I/O Bus Interface
M849	R.F.I. Shield
G104	Memory Sense/Inhibit (0)
H220	Memory Stack (0)
G227	Memory X/Y Drivers (0)
	.
	.
G104	Memory Sense/Inhibit (n)
H220	Memory Stack (n)
G227	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)

This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission.

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

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





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

CIRCUIT DELAYS ARE NEGLECTED IN  
 THIS TIMING DIAGRAM

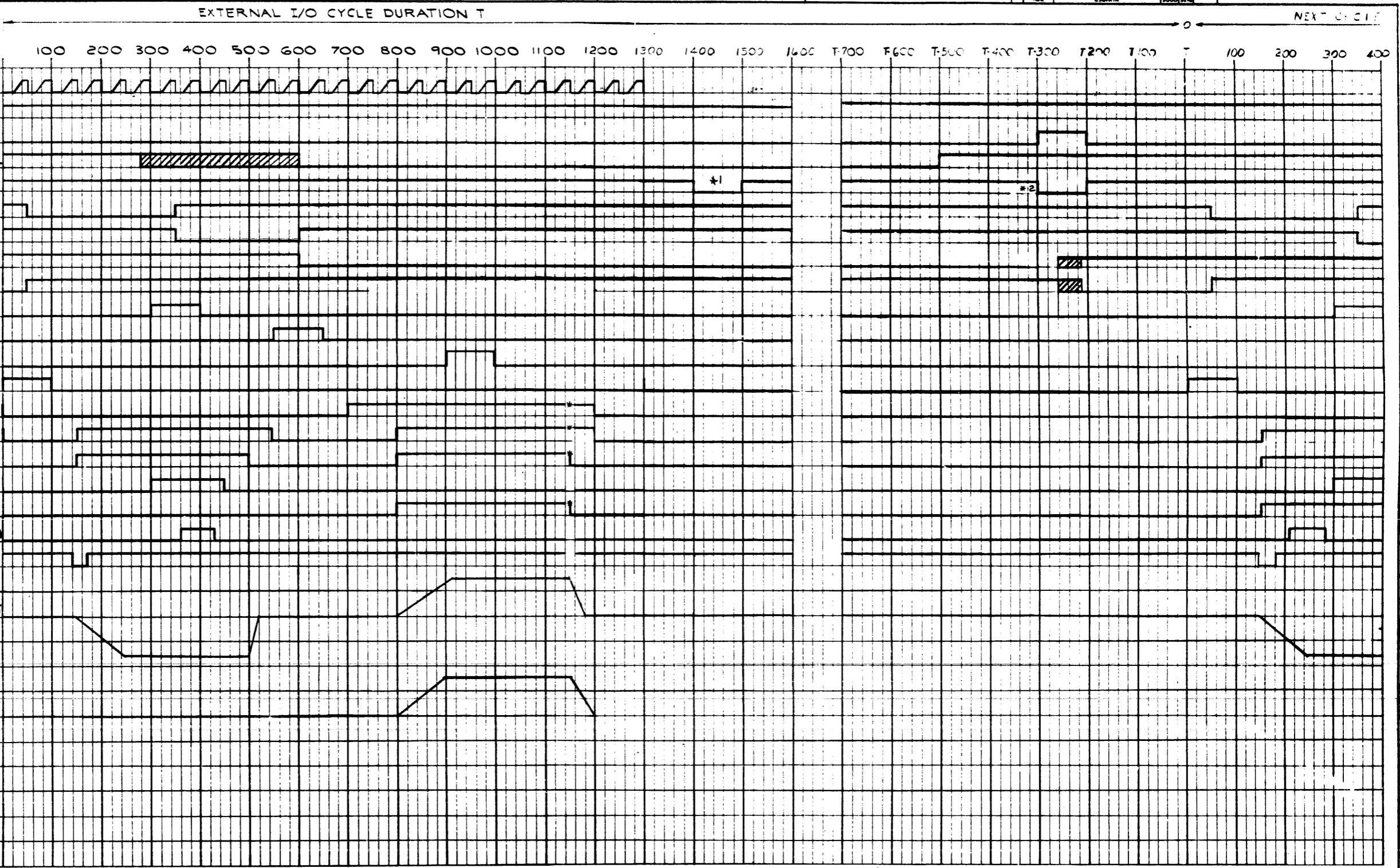
REV.	CHANGE NO.	DATE
A	BE-00019	11-10-71
B	BE-00049	11-10-71

REVISED BY: NARHI  
 CHECKED BY: L. KLOTZ

FIRST USED ON OPT/MOD PDP8/E	QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS FRACTIONS ANGLES ± .005 ± 1/64 ± 0°30'	DATE 1/9/71	DATE 1/12/71	DATE 1/12/71	DATE 1/12/71
MATERIAL	PARTS LIST			
FINISH	EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			
	TITLE TIMING (PDP8/E)			
	NEXT HIGHER ASSY A-ML-PDP8/E-0			
	SCALE NONE			
	SHEET 1 OF 2			

DTD PDP8/E-0-05  
 DTD PDP8/E-0-05

This drawing and specifications herein are the property of Digital Equipment Corporation and shall not be reproduced or copied in whole or in part as the basis for the manufacture or sale of items without written permission.

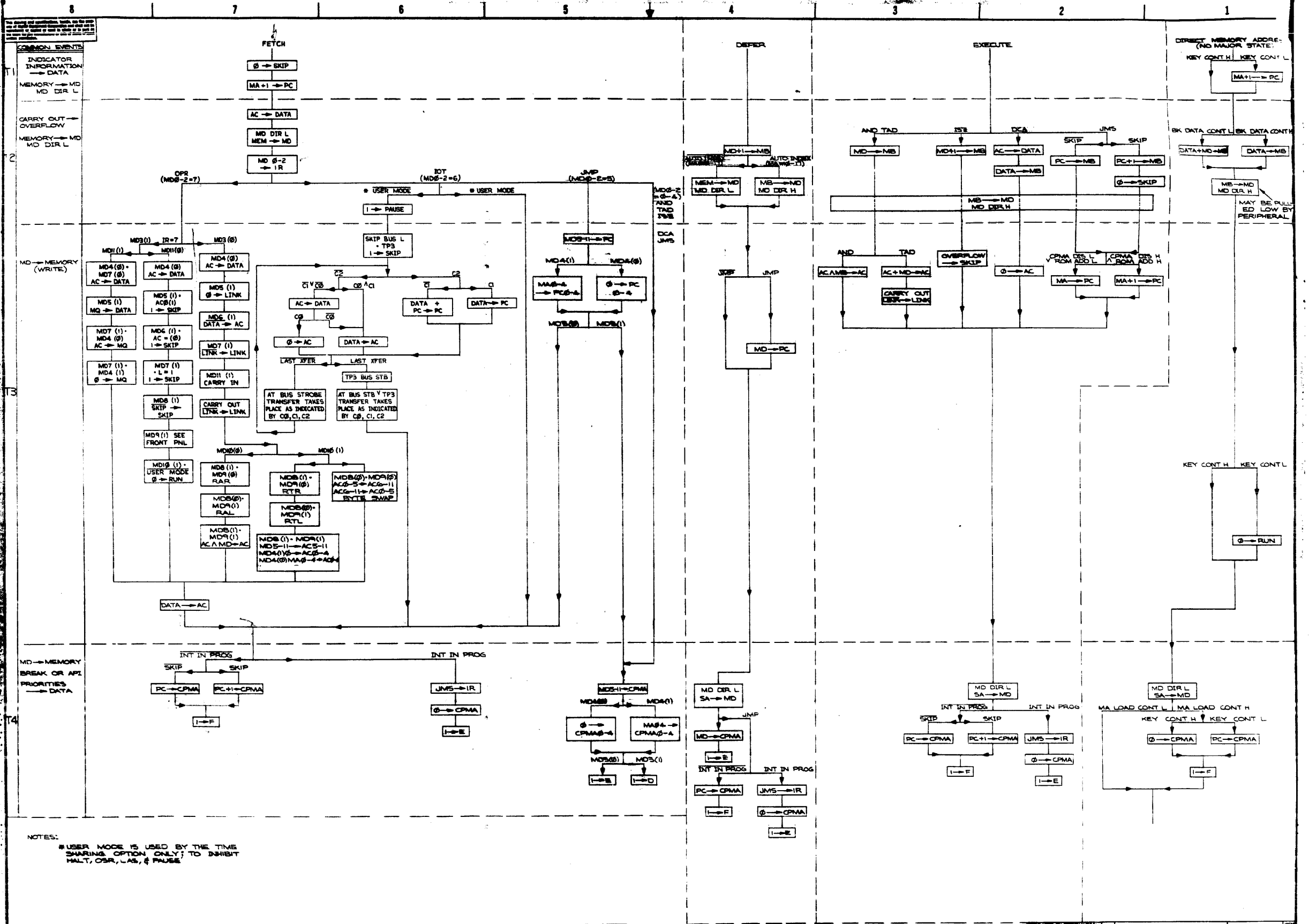


NOTE: \* MEMORY SIGNALS TIME OUT, AS IN A FAST CYCLE

- \* 1 GENERATED BY PERIPHERAL TO STROBE DATA
- \* 2 GENERATED BY PERIPHERAL TO TERMINATE EXT. I/O CYCLE AND RESUME NORMAL OPERATION.

REV.	CHG.	NO.

FIRST USED ON OPT/MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP8/E				
<b>PARTS LIST</b>				
UNLESS OTHERWISE SPECIFIED	DATE	EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
UNLESS OTHERWISE SPECIFIED	DATE	TITLE <b>TIMING</b> (PDP8/E)		
DIMENSIONS IN INCHES	DATE			
TOLERANCES	DATE			
DECIMALS FRACTIONS ANGLES	DATE			
± .005 ± .010 ± .020	DATE	SCALE NONE		
REMOVE BURRS AND BREAK SHARP CORNERS	DATE	DWT DTD PDP8/E-0-05		
MATERIAL	DATE	NEXT HIGHER ASSY		
	DATE	A-ML-PDP8/E-0		
FINISH	DATE	SCALE NONE		
	DATE	SHEET 2 OF 2		



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

REV. 1  
 DATE 11/17/72  
 BY L. R. WILSON  
 CHECKED BY J. L. WILSON  
 APPROVED BY J. L. WILSON

REV.	DATE	DESCRIPTION	PART NO.	ITEM NO.
1	11/17/72	PROCESSOR FLOW CHART		

FIRST USED ON OPTION MODEL PDP8/E	QTY. 1	DESCRIPTION PROCESSOR FLOW CHART	PART NO. 0000	ITEM NO. 0000
--------------------------------------	-----------	-------------------------------------	------------------	------------------

TITLE PROCESSOR FLOW CHART	NUMBER EFD PDP8/E-0-20
-------------------------------	---------------------------

# MASTER DRAWING LIST

MAINTENANCE MANUALS		UNIT VARIATIONS																	
NO.	TITLE	X H9191-Ø																	
H9191	OMNIBUS (H9191)	X																	

USED ON OPTIONS											
PDP 8/F											
PDP 8/M											

REV. DATE	A	6/72	H9191-3	APP'D. P.S.	REVISIONS	
	B	8/73	H9191-3			
	DRN MARINI CHK'D					DATE 11272
	ENG					DATE 1-13-72
PROJ. ENG				DATE 1-13-72	<b>digital</b> EQUIPMENT CORPORATION <small>MAYNARD, MASSACHUSETTS</small>	
PROD.				DATE 1-13-72		
FIRST USED ON				TITLE OMNIBUS (H9191)		
PDP8M				SIZE		CODE
SCALE				A		ML
SHEET 1 OF 2				NUMBER H9191-Ø		
				DIST.	REV B	

DRA 131  
Dec 16 (325)-1048-N471

H9191-Ø	PRINT SET			DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.		
X				D-UA-H9191-Ø-Ø	C	1	OMNIBUS ASSY (H9191)			
X				D-CS-H9191-Ø-1 5009894	A	1	CIRCUIT SCHEMATIC ETCHED CIRCUIT BOARD			
TITLE				OMNIBUS (H9191)			SHEET 2 OF 2	SIZE CODE A ML	NUMBER H9191-Ø	REV. B

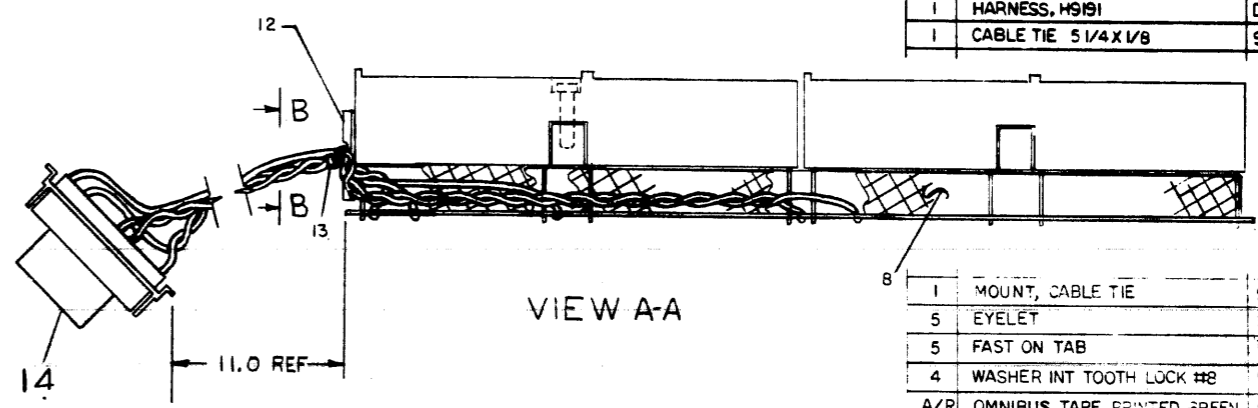
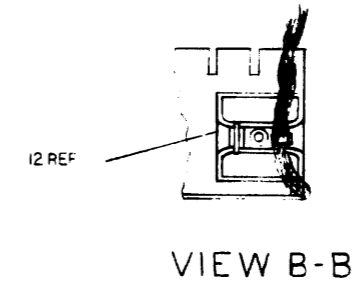
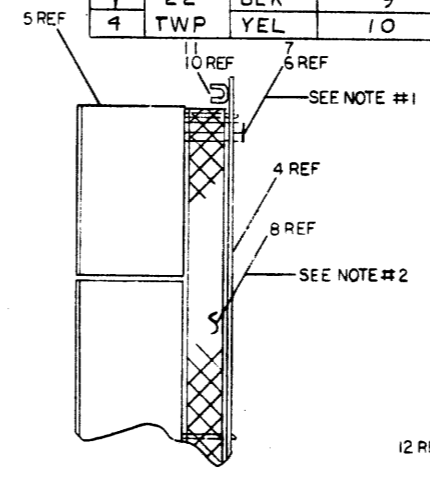
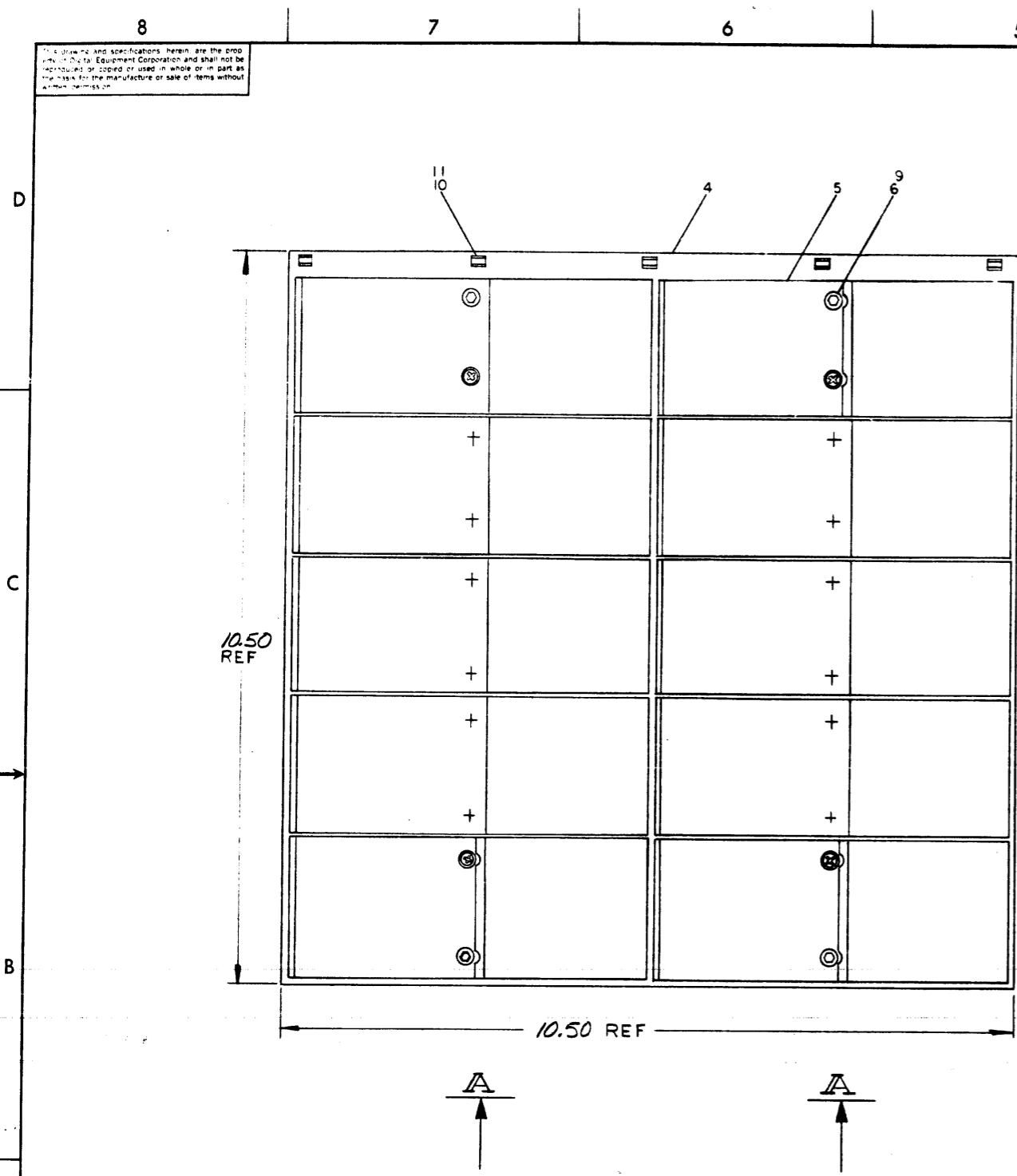
DRA 132  
DEC 16 (325)-1048-1-N471

The drawings and specifications herein are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission.

2-0-1618 H9191 2

WIRE TABLE						
ITEM NO.	DESCRIPTION	AWG	COLOR	FROM HARN. CONNECTION	TO CONNECTION	SIGNAL NAME
4	22	GRN		6	B-U2	RUN
↓	TWP	RED		7	C-A2	+5V
↓	22	BLU		8	D-B2	-15V
↓	22	BLK		9	D-T2	GND
4	TWP	YEL		10	D-V2	SW

- NOTES:
1. APPLY ITEM #6 (SCREW) AND ITEM #7 (SPACER) AFTER WAVE SOLDERING.
  2. ITEM #8 (TAPE) TO BE APPLIED ALL AROUND OUTER SURFACE OF PINS ON ITEM #5 (CONN. BLOCKS) BEFORE ITEM #14 (HARNESS) IS SOLDERED TO THE UNIT.



REF	USES FOR SPECIAL COMPRESS - C - CARTON	A-PI-370039-0-0	15
1	HARNESS, H9191	D-IA-7008622-00	14
1	CABLE TIE 5/4 X 1/8	9007980	13

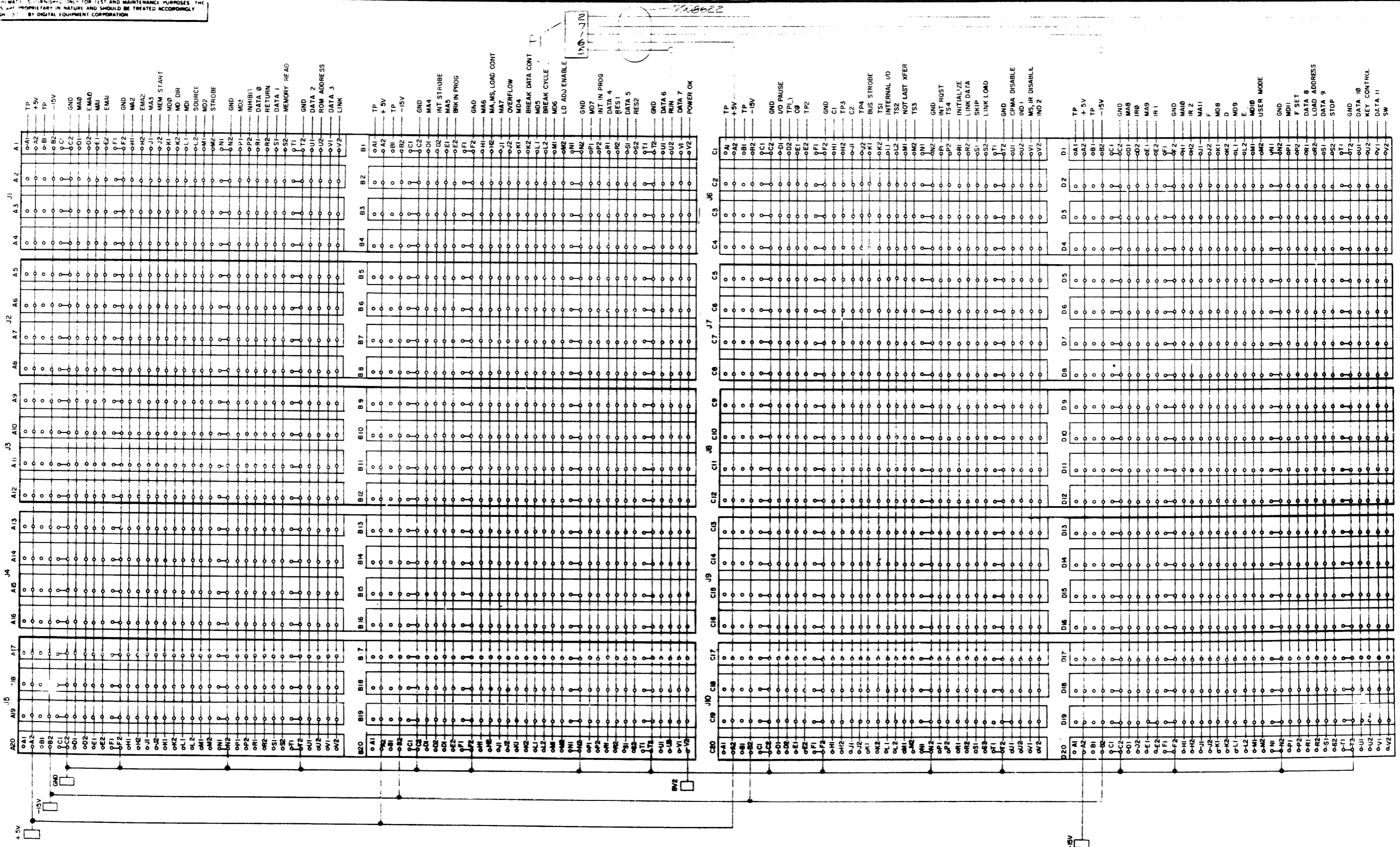
REF	DESCRIPTION	QTY.	PART NO.	ITEM NO.
1	MOUNT, CABLE TIE		9007967	12
5	EYELET		9007837	11
5	FAST ON TAB		9007773	10
4	WASHER INT TOOTH LOCK #8		9006634	9
A/R	OMNIBUS TAPE, PRINTED GREEN		9008355-0	8
4	SPACER .25AFX.75 LG X .5-32 ALUM		9009248-0	7
4	SCREW SOCKET HD CAP #8-32X1LG		9007988-03	6
2	CONN. BLOCK ASSY		DAD-700653200	5
1	ETCHED CIRCUIT BOARD		5009854	4
REF	CIRCUIT SCHEMATIC		D-CS-H9191-D1	3
REF	MODULE ECO HISTORY		BMH-500989406	2
REF	X-Y COORDINATE HOLE		KCO-500989404	1

FIRST USED ON OPTION/MODEL		PDP8/M		PARTS LIST	
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN: <i>[Signature]</i> DATE: 9/23/71	CHK'D: <i>[Signature]</i> DATE: 11/11/71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS		
DECIMALS: .XXX - .005 .XX - .02 .X - .1	ANGLES: ±0° 30'	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	MATERIAL: <i>[Blank]</i>	NEXT HIGHER ASSY: D-UA-PDP8/M-0-0	TITLE: "OMNIBUS" ASSY. (H9191)
FINISH: <i>[Blank]</i>	SCALE: NONE	SHEET: 1 OF 1	DIST.:	SIZE CODE: DUA	NUMBER: H9191-0-0
REV.:	A	C			

REV.	CHG. NO.	DATE	BY	DESCRIPTION
A	0001	12-15-71	P. GARDNER	
B	0002	7-17-72	GARDNER	
C	0003	8-22-73	GARDNER	
D	0004	8-31-73	GARDNER	

THIS MATERIAL IS FURNISHED ONLY FOR TEST AND MAINTENANCE PURPOSES THE RESULTS ARE PROPRIETARY IN NATURE AND SHOULD BE TREATED ACCORDINGLY  
COPYRIGHT © BY DIGITAL EQUIPMENT CORPORATION

REV. 12/70  
CS  
H919-0-1

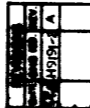


UNLESS OTHERWISE INDICATED:

□ = TABS

PIN C1 IS CONNECTED TO GND ON THE BUS, BUT SERVES AS A LOGIC SIGNAL WITHIN MODULES TO FACILITATE TESTING  
PINS 1 THROUGH 20 ON ALL CONNECTORS ARE COMMONLY BUSSED  
CONNECTORS ARE 1205348 (228 PIN)

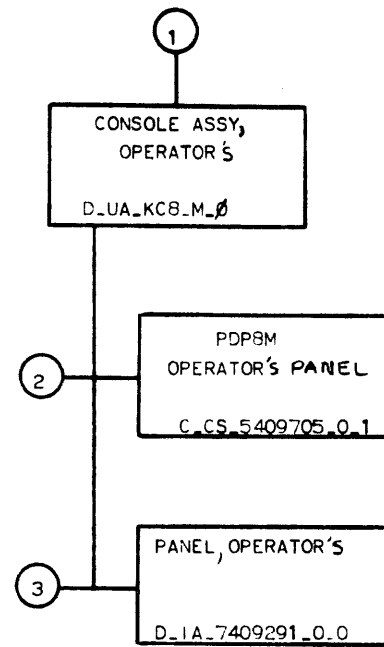
NOTE: P1 CONNECTS TO J1 ON THE OPERATOR'S PANEL BOARD (5409705) OF THE KCB-M, OR TO THE MICRO SWITCH HARNESS (700674) WHEN USED WITH THE KCB-FL, OR KCB-ML CONSOLES.



Q1	Q2	Q3	Q4

EQUIPMENT CORPORATION		TITLE: OMNIBUS ASSEMBLY H919	
REV: 0	CS	NUMBER: H919-0-1	REV: 1
PRINTED CIRCUIT REV.			





TITLE	SHEET 2 OF 3	SIZE CODE	NUMBER	REV
CONSOLE ASSY OPERATOR		B DD	KC8_M	A

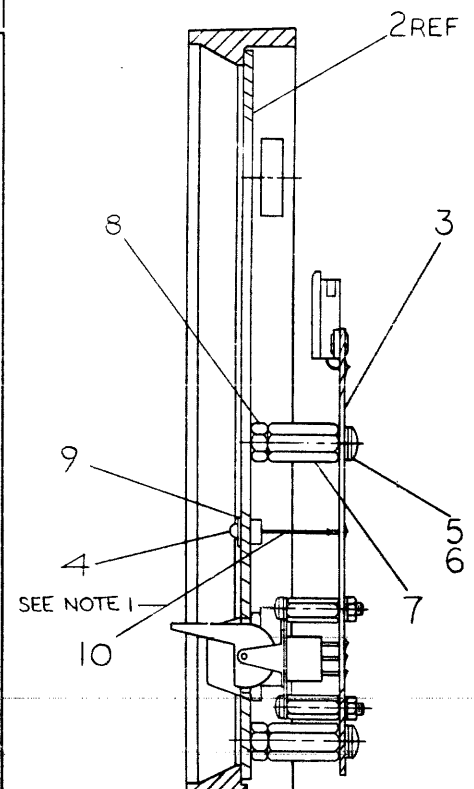
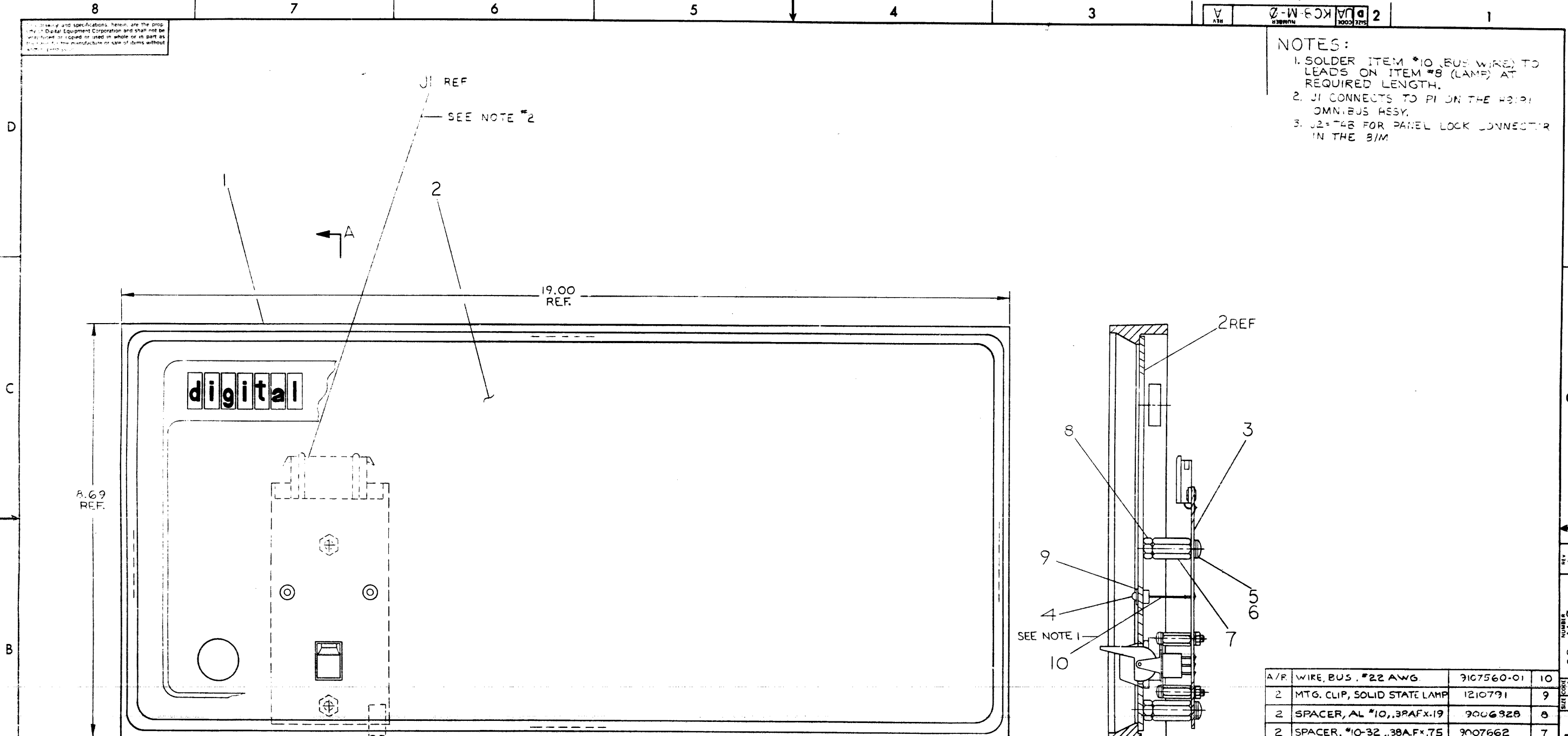


CUSTOMER PRINT SET					ELECTRICAL					CUSTOMER PRINT SET					MECHANICAL								
KCB_M					MFG	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.	KCB_M					MFG	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
						2	C_CS_5409705_0_1	#	1	CIRCUIT SCHEMATIC		X						1	D_UA_KCB_M_0	A	1	CONSOLE ASSY, OPERATOR'S	
																			E_SC_1210065_0_0	#	1	BEZEL	
												X						2	C_CS_5409705_0_1	#	4	PDP8M OPERATOR'S PANEL	
																			D_SC_1205849_0_0	#	1	ROCKER HANDLE (RUSSET/CRN)	
																		3	D_1A_7409291_0_0	#	1	PANEL OPERATOR'S	
																			C_SS_7409291_0_1	#	1	SILK SCREEN (RUSSET/ORN)	
																			C_SS_7409291_0_2	#	1	SILK SCREEN (GRAY)	

TITLE	SIZE	CODE	NUMBER	REV
CONSOLE ASSY, OPERATOR'S	B	DD	KCB_M	A
SHEET 3 OF 3				

Dimensions and specifications herein are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as a substitute for the manufacture or sale of items without written permission.

- NOTES:
1. SOLDER ITEM #10 (BUS WIRE) TO LEADS ON ITEM #8 (LAMP) AT REQUIRED LENGTH.
  2. J1 CONNECTS TO P1 ON THE #301 OMNIBUS ASSY.
  3. J2=TAG FOR PANEL LOCK CONNECTOR IN THE BIM



A/R	WIRE, BUS, #22 AWG	9107560-01	10
2	MTG. CLIP, SOLID STATE LAMP	1210791	9
2	SPACER, AL #10, .38A.Fx.19	9006928	8
2	SPACER, #10-32, .38A.Fx.75	9007662	7
2	WASHER, INT. TOOTH LOCK #10	9216636	6
2	SCREW, PHL PAN HD, #10-32x25	90080	5
2	LAMP, SOLID STATE	1110324	4
1	OPERATORS PANEL, PDP8M	C-OS-5409705-01	3
1	PANEL, OPERATORS	D-IA-740923-02	2
1	BEZEL	E-SC-1210065-00	1

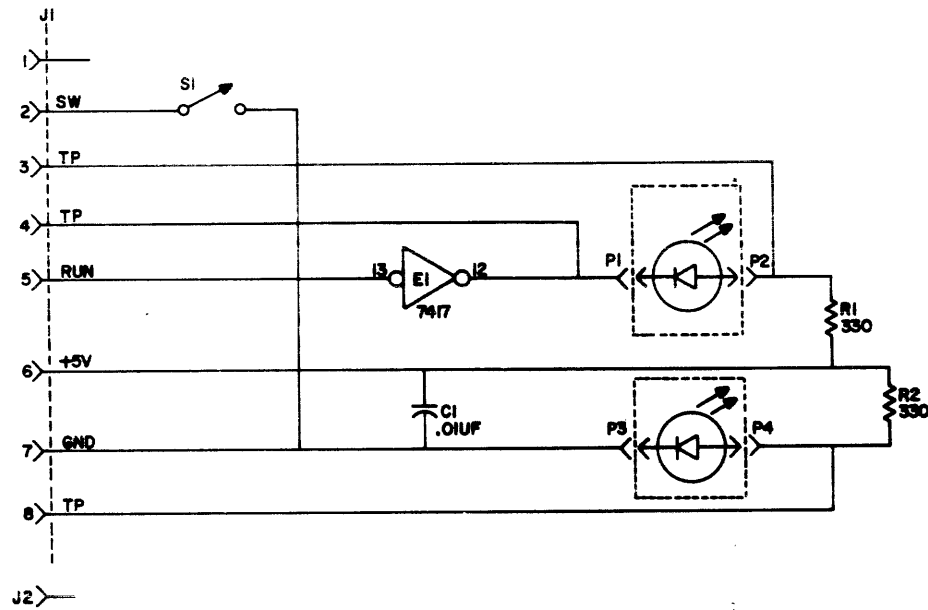
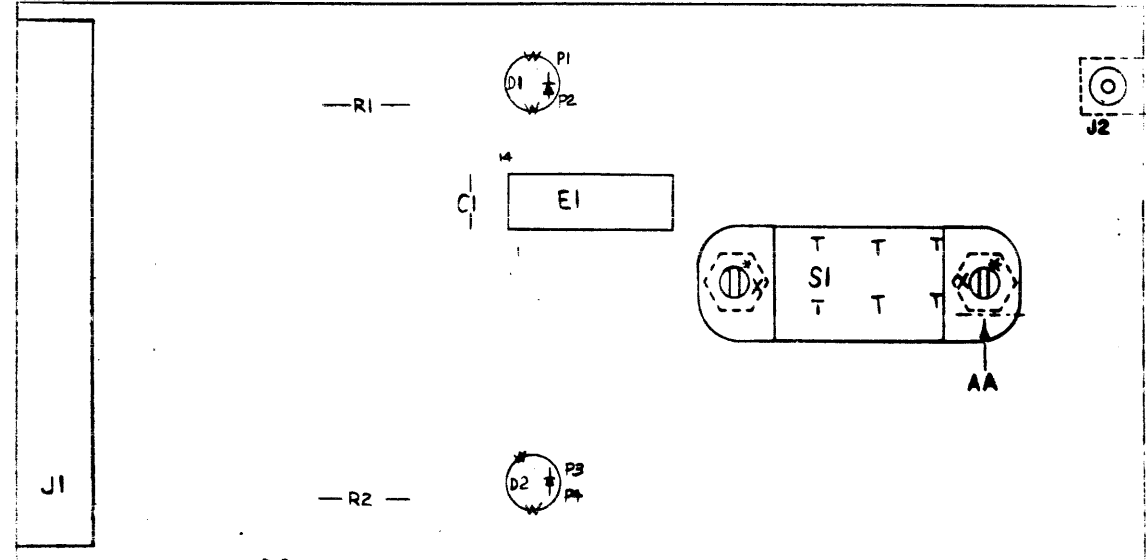
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP8M				

PARTS LIST				
DRN. <i>CBM/Cy</i>	DATE 1-19-72	EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS		
CHKD. <i>[Signature]</i>	DATE 1/27/72			
ENG. <i>[Signature]</i>	DATE 2-4-72			
PROJ. ENG. <i>[Signature]</i>	DATE 2-4-72			
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PRD. <i>[Signature]</i>	DATE 2-4-72	TITLE <b>CONSOLE ASSY,            OPERATORS</b>	
MATERIAL	NEXT HIGHER ASSY.			
FINISH				
B-DD-KC8-M		SIZE CODE	NUMBER	REV
SCALE NONE		D	UA KC8-M-Ø	A
SHEET 1 OF 1		DIST.		

REVISIONS  
 CHANGE NO. REV  
 KCBH-00002 A  
 GARDNER  
 8-28-72

THIS SCHEMATIC IS FURNISHED ONLY FOR TEST AND MAINTENANCE PURPOSES. THE CIRCUITS ARE PROPRIETARY IN NATURE AND SHOULD BE TREATED ACCORDINGLY. COPYRIGHT 1971 BY DIGITAL EQUIPMENT CORPORATION



NOTE:  
 PIN7=GND ON E1  
 PIN4=+5V  
 LED'S TO BE MOUNTED ON KCS-M PANEL  
 J2 = TAB FOR PANEL LOCK CONNECTOR IN THE 8/M  
 J1 CONNECTS TO P1 OF THE H9191 OMNIBUS ASSY.

QTY	REF. DESIGNATION	PART LINE	TITLE	DEC PART NO.	REV
1		EYELET		9007827	17
1	J2	TAB, FASTON		9007212	16
2		KEP NUT #6-32 x 1/8 x 1/8		9008186	15
2		SPACER * AF x 7/16 1/8 HOLE		9006120	14
4	P1 - P4	SOLDERLESS TERMINAL		9007812	13
2		SCREW PHILLIPS HD #6-32 x 3/4 PAN HD		9006026-1	12
1	E1	IC DEC 7417		1909929	11
2	R1, R2	RES 330 5W 10%		1300293	10
8		MATE-N-LOCK PINS		1209456	9
1	J1	MATE-N-LOCK HOUSING		1209340-01	8
1	S1	SWITCH ROCKER		1205843	7
1		ROCKERHANDLE BRUSSET ORANGE		1205849-06	6
1	C1	CAP .01 UF 100V 20% D93C		1001610	5
1		ETCHED CIRCUIT BOARD		5009704	4
1		MOBILE ECO HISTORY		B-MS-5409705-0-6	3
1		ASSY/DRILLING HOLE LAYOUT		D-MS-5409705-0-5	2
1		X-Y COORDINATE HOLE LOCATION		K-CO-5409705-0-4	1

REV	DATE	BY	CHKD
1	11-2-71	W. B. 71	
2	11-2-71		
3	11-2-71		

DEC	EMA	DEC	EMA

EQUIPMENT CORPORATION  
 PDP 8/M OPERATOR'S PANEL  
 SIZE C CODE CS NUMBER 5409705-0-1 REV D  
 PRINTED CIRCUIT REV D

REV D  
 NUMBER 5409705-0-1  
 SIZE CODE C CS

# DRAWING DIRECTORY

## CUSTOMER PRINT SET INDEX

THIS IS PRINT SET 

--	--	--	--	--	--

SEQUENCE

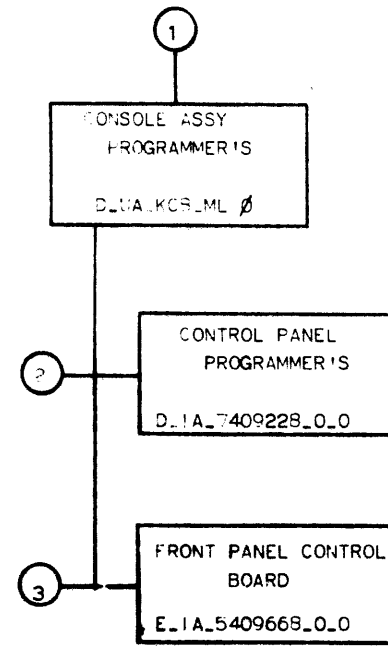
DRAWING DIRECTORY  
CONSOLE ASSY, PROGRAMMER'S  
FRONT PANEL CONTROL BOARD  
FRONT PANEL CONTROL BOARD

R\_DD\_KCB\_ML  
D\_UA\_KCB\_ML  
E\_1A\_5409668\_0\_0  
D\_CS\_5409668\_0\_1

SEQUENCE

VARIATION	TITLE	PRINT SET TYPE				
		KCB_ML				
KCB_ML	CONSOLE ASSY, PROGRAMMER'S (KCB_ML)	X				

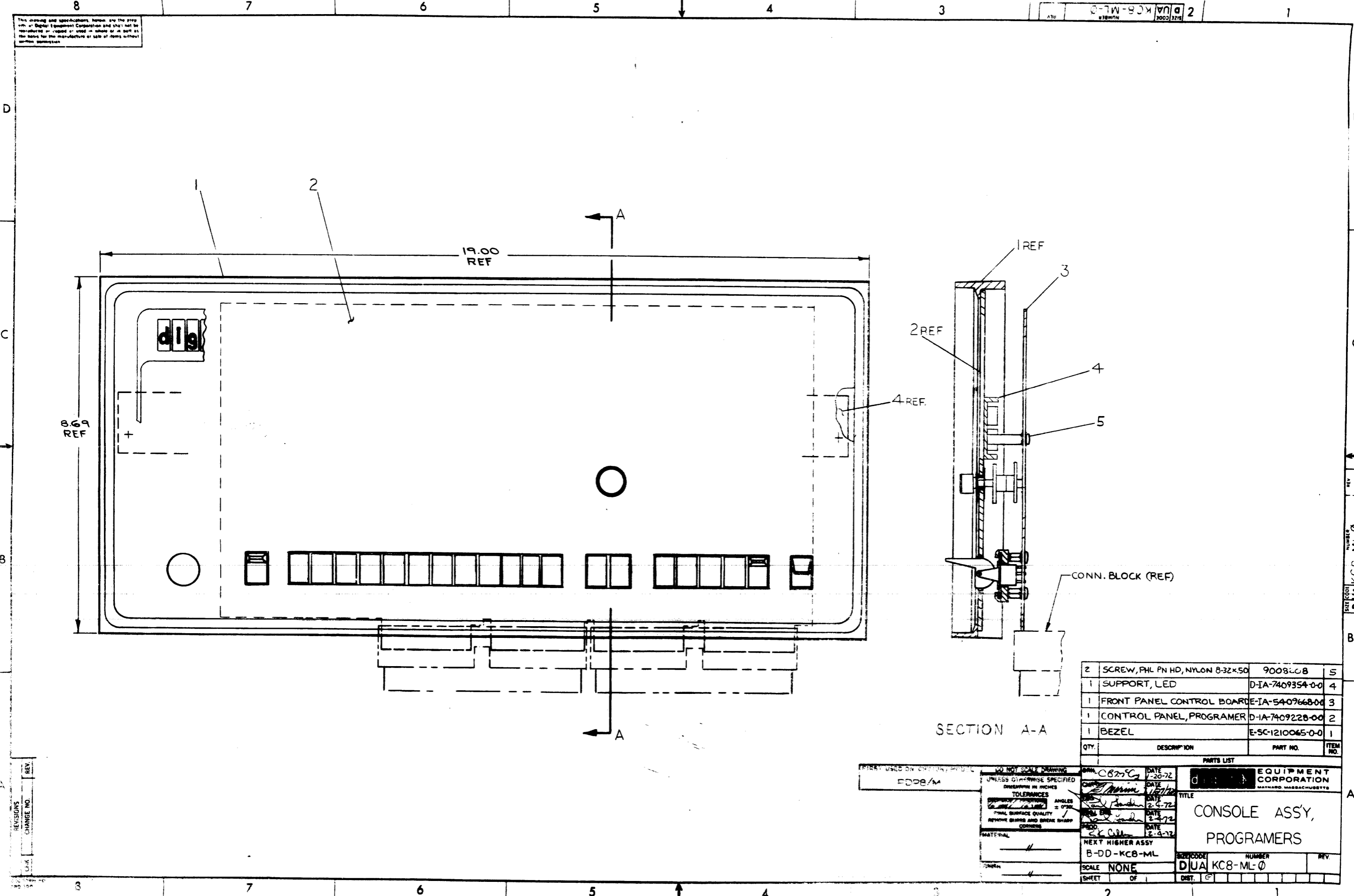
REVISEMENTS	CHG. NO. KC8ML-6	REV A	USED ON OPTION/MODEL	DRN. C.B. MC COY	DATE 12-72	TITLE CONSOLE ASSY, PROGRAMMER'S (KCB_ML)	SIZE CODE	NUMBER	REV
DATE			PDFOM	CHK'D. G. MARINI	DATE 1-72		B DD	KCB_ML	A
				<del>PROF. ENG.</del>	DATE 2-4-72				
				PROD.	DATE 2-4-72				
				FIELD SERV.	DATE 2-4-72				
SHEET 1 OF 3				DIST					



TITLE	SHEET 2 OF 3	SIZE CODE	NUMBER	REV
CONSOLE ASSY PROGRAMMER'S (KCS_ML)		B DD	KCS_ML	A

CUSTOMER PRINT SET					ELECTRICAL					CUSTOMER PRINT SET					MECHANICAL				
KCB_ML			MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.	KCB_ML			MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
				3	D_CS_5409668_0_1	#	1	FRONT PANEL CONTROL BOARD		X				1	E-UA_KCB_ML_0	*	1	CONSOLE ASSY, PROGRAMMER'S	
															.SC_1210065_0_0	#	1	BEZEL	
															D-1A-7409354-0-0	*	1	SUPPORT, LED	
														2	D_1A_7409228_0_0	#	1	CONTROL PANEL, PROGRAMMER'S	
															C_SS_7409228_0_1	#	1	SILK SCREEN (TERRA COTTA)	
															C_SS_7409228_0_2	#	1	SILK SCREEN (RUSSET ORN)	
															C_SS_7409228_0_3	#	1	SILK SCREEN (BLACK)	
										X				3	E_1A_5409668_0_0	#	1	FRONT PANEL CONTROL BOARD	
															D_SC_1205849_0_6	#	1	ROCKER HANDLE (RUSSET ORN)	
															D_SC_1205849_0_13	#	1	ROCKER HANDLE (TERRA COTTA)	
															D_MD_7409354_0_0	#	1	SUPPORT, LED	
															C_MD_7408246_0_0	#	1	SWITCH MTG. BAR	
															C_SC_1201947-0-0	#	1	KNOB, CONT PANEL	
															E_1A_5009667_0_0	#	1	FRONT PANEL CONT. BOARD	

This drawing and specifications, herein and the parts thereof, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission.



SECTION A-A

QTY.	DESCRIPTION	PART NO.	ITEM NO.
2	SCREW, PHL PN HD, NYLON 8-32x50	9008-008	5
1	SUPPORT, LED	D-IA-7409354-0-0	4
1	FRONT PANEL CONTROL BOARD	D-IA-5409668-0-0	3
1	CONTROL PANEL, PROGRAMER	D-IA-7409228-0-0	2
1	BEZEL	E-SC-1210065-0-0	1

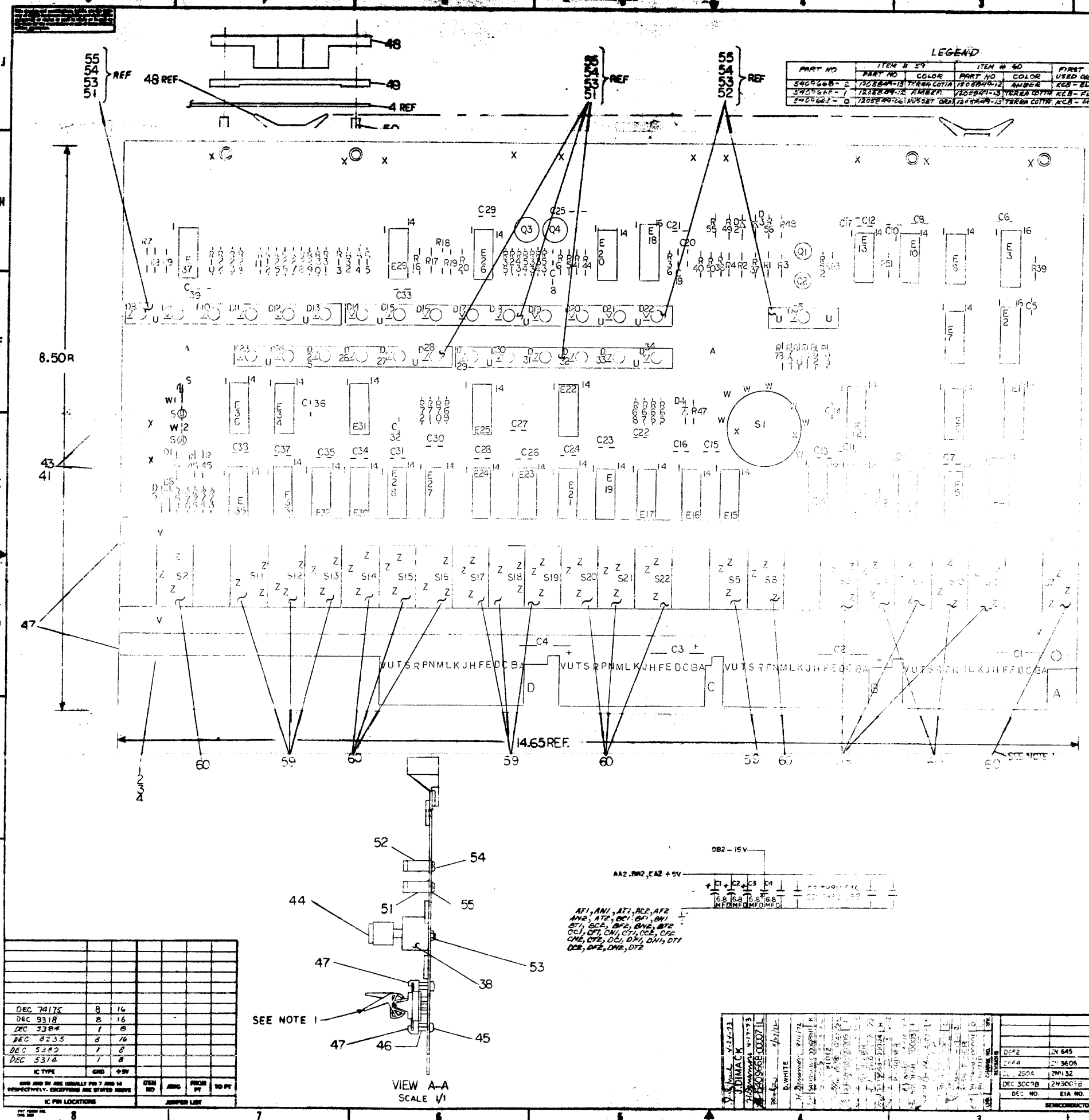
PARTS LIST		EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DATE	1-20-72	TITLE	CONSOLE ASSY, PROGRAMERS
DATE	1/17/72	SCALE	NONE
DATE	2-4-72	SHEET	OF 1
DATE	2-3-72	REV.	
DATE	2-9-72	SIZE/CODE	DUA KC8-ML-Ø
DATE		NUMBER	
DATE		REV.	

FOR USE ON OTHER PARTS  
EOPB/M

NO NOT SCALE DRAWING  
UNLESS OTHERWISE SPECIFIED  
DIMENSIONS IN INCHES  
TOLERANCES  
ANGLES = 0°/30°  
FINISH SURFACE QUALITY  
REMOVE BURRS AND BREAK SHARP CORNERS  
MATERIAL  
NEXT HIGHER ASSY  
B-DD-KC8-ML  
SCALE NONE  
SHEET OF 1

REVISIONS  
CHANGE NO.  
REV.

REV. NUMBER  
B UA KC8-ML-Ø



QTY.	REF DESIGNATION	DESCRIPTION	PART NO.
1	E3	I.C. DEC 9318	9906735
1	E1, E2	I.C. DEC 1415	1310244
12		NYLON WASHER FLAT 1/8" HOLE	9008707
12		SELF TAPPING SCR #4 X 1/4 BLK PH	9008230
2		W/UT HEX #2-40 X 1/4 1/16	9006552
2		TRIPLE L.E.D. HOLDER	SEE NOTE 2
12		LED HOLDER	SEE NOTE 2
1		EMERGENCY RESET-IT (SHIMMY)	9008350
1		SPACER (CABLE CLAMP)	1208700
1		HANDLE, PLIP CHRM-MAGENTA	9008357-C6
2		SWITCH MFG BAR	CMB-M80800-21
4		SPACER 1/4 AF X 1/4 LEX #6 W/LE	9006800
4		SCR PHL NO PH #6-32 T/16 LG	9006003-1
1		KNOB CONTROL PANEL	1210114
2		TAB, FASTON	9007112
4		GRIPLET	1210244-0
2		RELAY	9007000
2	S3 THRU S8	SMITH ROCKER, R5-9-3-7B	1205375
1	S2, S7 THRU S22	SWITCH, SLIDE	1210222
1	S1	SWITCH, ROTARY	1210227
2	E10, E17, E27, E35	I.C. DEC 9701	7809973
1	E13	I.C. DEC 7400	1205575
1	E18	I.C. DEC 74123	1210436
2	E11, E14	I.C. DEC 8235	1210935
1	E9	I.C. DEC 5384	1210394
1	E25	I.C. DEC 5380	1210392
1	E22	I.C. DEC 5314	1210397
1	E4	I.C. DEC 7474	1205547
12	E15, E16, E19, E21, E33, E34	I.C. DEC 74154	1210624
1	E20	I.C. DEC 7440	1205579
3	E26, E28, E37	I.C. DEC 7417	1209923
1	E8	I.C. DEC 7410	1205576
4	E7, E12, E23, E31	I.C. DEC 7404	1207282
1	E5	I.C. DEC 74111	1209267
1	E12, E24	TRANS, DEC 2904	9009442
2	E13, E5	TRANS, DEC 30098	1205176
2	E1 THRU E4	RES, 27, 1/4W, 10%	1207425
2	R3, R40	RES, 10K, 1/4W, 10%	1200421
24	R2, R3, R43, R76, R78, R83	RES, 300, 1/4W, 5%	1200932
11	R4, R7, R5	RES, 1.5K, 1/4W, 5%	1200937
5	R25, R47, R38, R39, R41	RES, 470, 1/4W, 10%	1200979
28	R7 THRU R34	RES, 330, 1/4W, 10%	1202293
2	R5, R6	RES, 47, 1/4W, 10%	1200223
4	R1 THRU R4	DIODE, D402	1200910
28	R8 THRU R35	DIODE, LIGHT EMITTING	SEE NOTE 2
2	D5, D6	DIODE, D402	1100113
1	L20	IND, 200 OH, 100V, 5% IN	1200910
32	S5 THRU S21	CAP, 100UF, 125V, 50% IN	1200910
2	C18, C19	CAP, 470 PF, 50V, 5% TOL	1000078
4	C7 THRU C4	CAP, 0.5 AF, 35V, 20% STMT	1200923
REF		FRONT PNL CONT BOARD	1210940-1
REF		CIRCUIT SCHEMATIC	1210940-2
REF		ETCHED CIRCUIT BOARD	1210940-3
REF		MODULE ECO HISTORY	1210940-4
REF		FRONT PNL C.A. 1210940-5	1210940-5
REF		XY COORDINATE HOLE LOCATION	1210940-6

ETCH BOARD REV F PARTS LIST

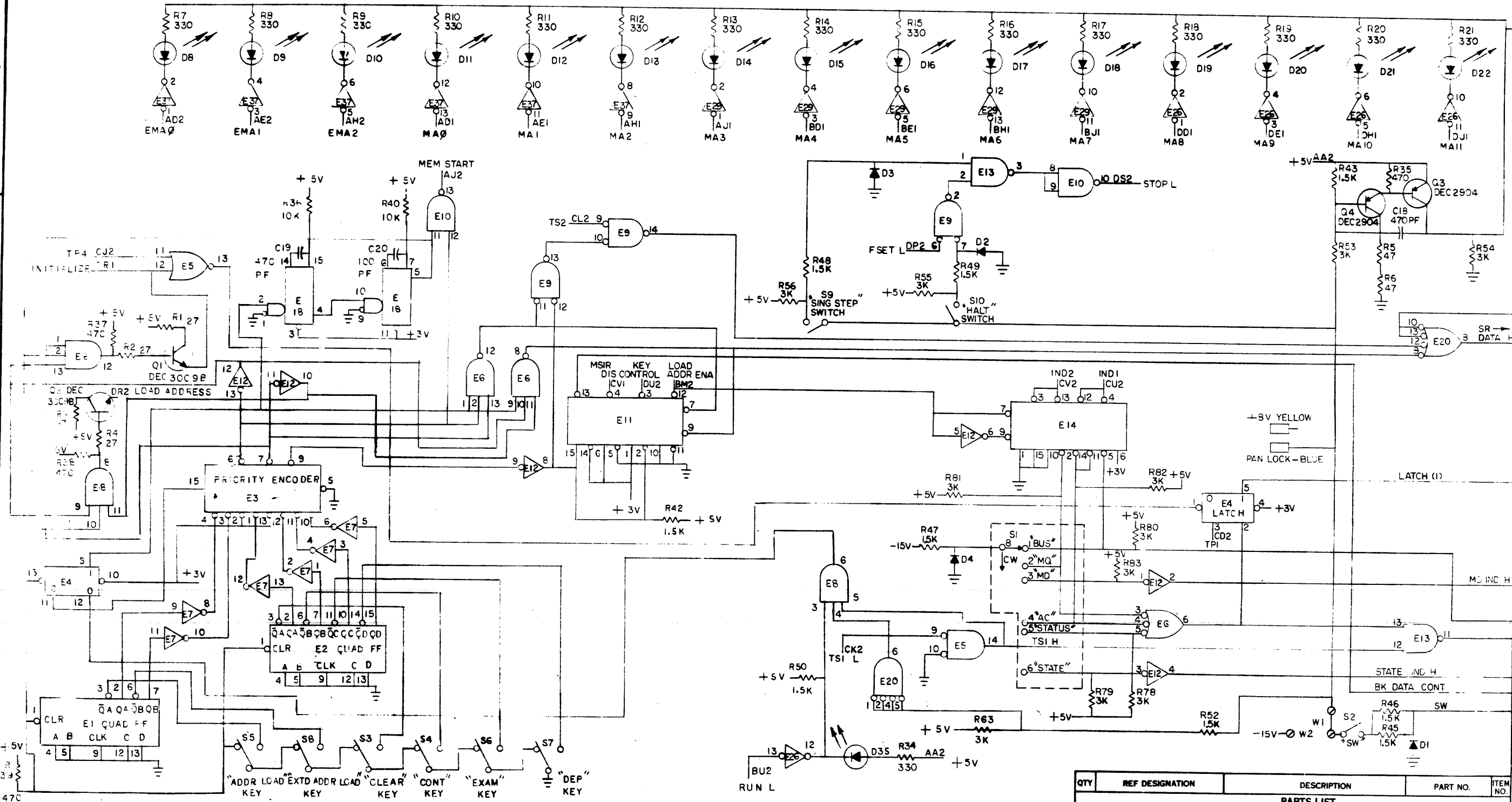
EQUIPMENT CORPORATION

FRONT PNL CONT BOARD

DEC 271

SEMICONDUCTOR CONVERSION CHART

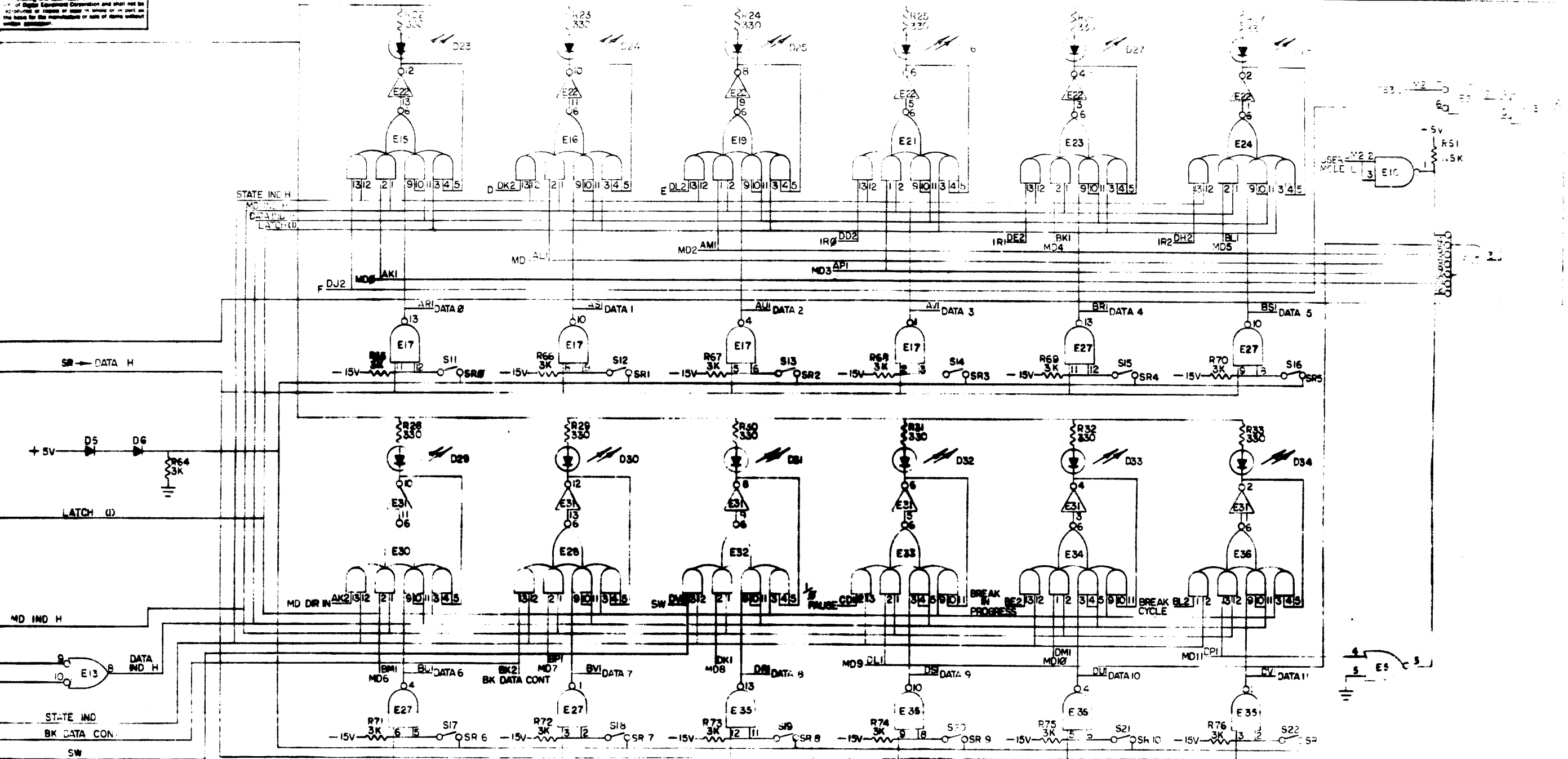




QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
ETCH BOARD REV F				
<b>digital</b> EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS				
FRONT PANEL CONT BOARD				
DRIVE		DATE		TITLE NUMBER REV.
CHK'D		DATE		
ENGR		DATE		
PREP		DATE		
NEXT HIGHER ASSY				
SCALE		SIZE CODE		DCS 5409668-0-1
SHEET 1 OF 2		DST.		

REV	DATE	BY	CHK	DESCRIPTION
1	4-24-73	J. DIMACK		INITIAL DESIGN
2	5-10-73	D. WHITE		REVISED
3	5-10-73	G. E. ESSER		REVISED
4	5-10-73	G. E. ESSER		REVISED
5	5-10-73	G. E. ESSER		REVISED
6	5-10-73	G. E. ESSER		REVISED
7	5-10-73	G. E. ESSER		REVISED
8	5-10-73	G. E. ESSER		REVISED
9	5-10-73	G. E. ESSER		REVISED
10	5-10-73	G. E. ESSER		REVISED

Drawing and specifications herein are the property of Digital Equipment Corporation and shall not be reproduced in whole or in part or in any form without written permission.



UNLESS OTHERWISE INDICATED:  
 CAPACITORS ARE 100 P.F.  
 RESISTORS ARE 1/4 WATT  
 SWITCHES ARE SLIDE TYPE, PART NO. 210526  
 RESISTORS ARE 3K, 14W, 5W  
 IC'S ARE DEC 7400 - E 3  
 7401 - E 8  
 7404 - E 7, E 10, E 13  
 7405 - E 6  
 7410 - E 26, E 29, E 37  
 7411 - E 2  
 7412 - E 5, E 16, E 20, E 15, E 3, E 24, E 4, E 30, E 32, E 33, E 34, E 36  
 7413 - E 1  
 7414 - E 14  
 7415 - E 15  
 7416 - E 17  
 7417 - E 18  
 7418 - E 19  
 7419 - E 21  
 7420 - E 22  
 7421 - E 23  
 7422 - E 24  
 7423 - E 19  
 7424 - E 15, E 2



QTY	REF DESIGNATION	DESCRIPTION	UNIT
PARTS LIST			
ETCH BOARD REV F			
DRAWN BY: [Signature]		DATE: 6-20-71	EQUIPMENT CORPORATION
CHKD BY: [Signature]		DATE: [Signature]	
TITLE		ELECTRONIC CONTROL	
NEXT HIGHER ASSY		DEC CODE	
DEC NO.		EIA NO.	
SEMICONDUCTOR CONVERSION CHART		SCALE	
SHEET 2 OF 2		DIST	

# MASTER DRAWING LIST

**MAINTENANCE MANUALS**

**UNIT VARIATIONS**

NO.	TITLE	X																		
KK8-E	CENT. PROC.	X																		

**USED ON OPTIONS**

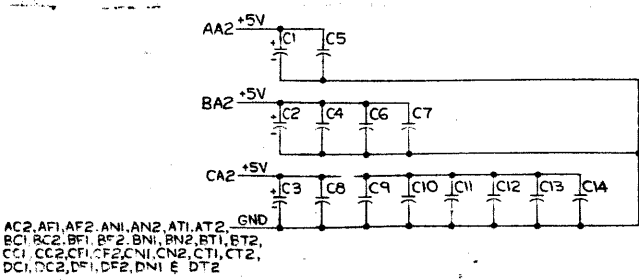
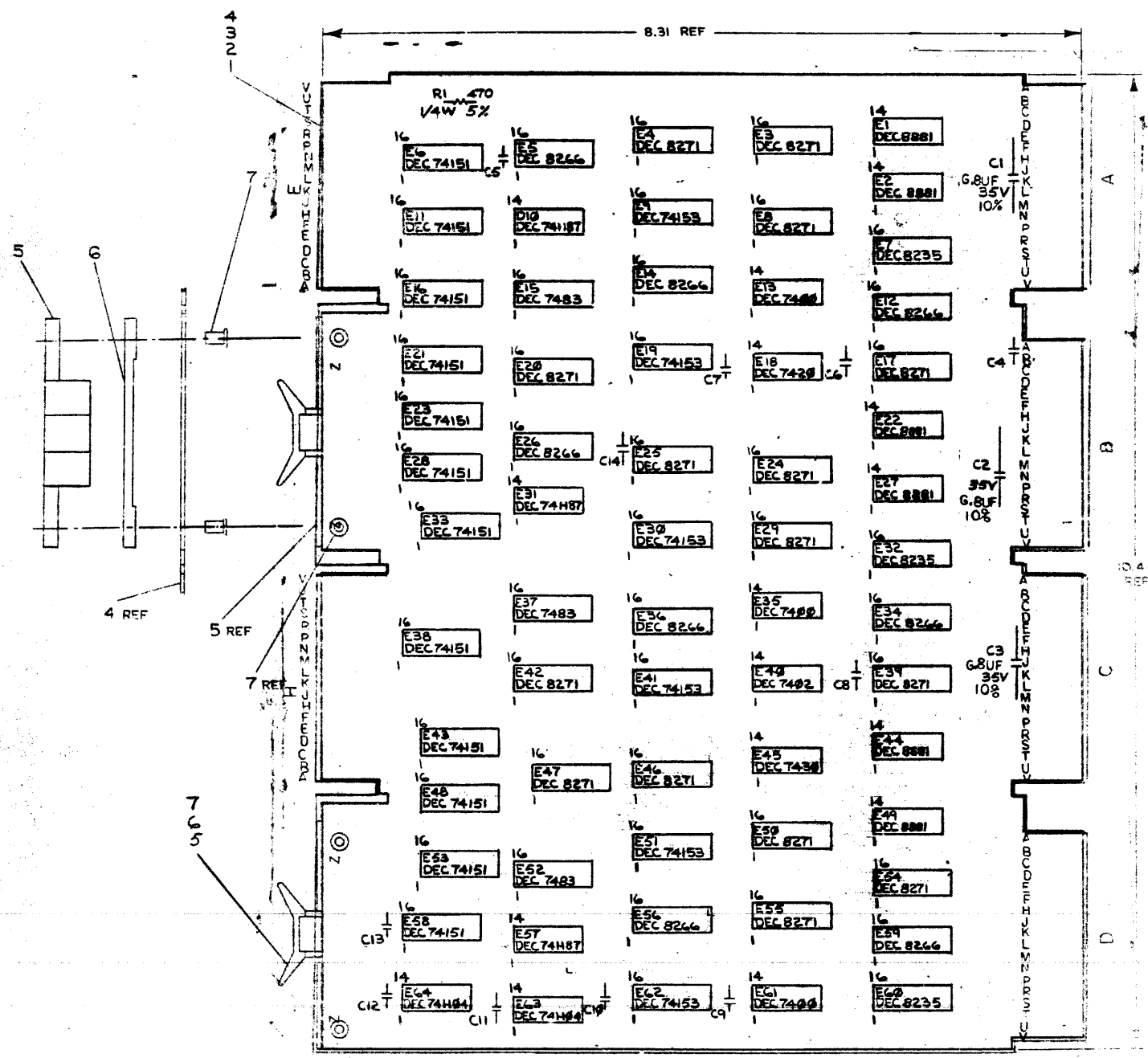
PDP8/E																				
PDP8/M																				
PDP8/F																				

REVISIONS	APP'D.	D.C.	R.V.	L.K.	L.N.	A.V.	J.C.	J.K.	DRN.	DATE 12/28/70	<div style="font-size: 1.5em; margin-bottom: 5px;">digital</div> <b>EQUIPMENT CORPORATION</b> <small>MAYNARD, MASSACHUSETTS</small>											
	CHG. NO.	KKBE-1	KKBE-2	KKBE-3	MB33-6	MISC-86	8E-55	KKBE-4	CHK'D.	DATE 12/29/70												
	DATE	1/71	3/71	4/71	5/71	7/71	1/72	10/73	ENG.	DATE 1/12/71												
	REV.	A	B	C	D	E	F	H	PROJ. ENG.	DATE 1/12/71												
									PROD.	DATE 1/13/71												
									L. SAYLOR			TITLE  CENTRAL PROCESSOR (KK8-E)										
									FIRST USED ON													
									A-ML-PDP8/E-Ø				SIZE	CODE	NUMBER	REV.						
									SCALE	#			A	ML	KK8-E	H						
									SHEET	1 OF 2		DIST.										

DRA 131  
Dec 16-(325)-1048-N471

KK8-E	PRINT SET				DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.		
				E-CS-MB30Ø-Ø-1	Ø	5	MAJOR REGISTERS				
				E-CS-MB31Ø-Ø-1	Ø	4	MAJOR REIGSTER CONTROL				
				E-CS-MB32Ø-Ø-1	Ø	2	BUS LOADS				
				<del>B-DD-KMB-F</del>	Ø	2	TIMING GENERATOR (MB330)				
				B-CS-M849-Ø-1	Ø	1	RPI SHIELD				
				D-UA-KK8-E-Ø	B	1	CENTRAL PROCESSOR				
				A-SP-KK8-E-1	A	3	ENGINEERING SPECIFICATIONS				
<b>TITLE</b> CENTRAL PROCESSOR KK8-E								SHEET 2 OF 2	SIZE A CODE ML	NUMBER KK8-E	REV. H

DRA 132  
DEC 16-(325)-1048-1-N471



AC2, AF1, AF2, AN1, AN2, AT1, AT2, GND  
 BC1, BC2, BF1, BF2, BN1, BN2, RT1, RT2,  
 CC1, CC2, CT1, CF2, CN1, CN2, CT1, CT2,  
 DC1, DC2, DF1, DF2, DN1, DN2

QTY	PRT DESIGNATION	DESCRIPTION	REV
6	E9, E19, E30, E41, E51, E62	I.C. DEC 74153	190937
12	E6, E11, E6, E21, E23, E28, E33, E38, E43, E48, E53, E58	I.C. DEC 74151	190936
3	E7, E32, E30	I.C. DEC 8235	190935
8	E5, E12, E14, E26, E34, E36, E56, E59	I.C. DEC 8266	190934
3	E15, E37, E52	I.C. DEC 7483	190932
2	E63, E64	I.C. DEC 7404	190931
3	E13, E31, E57	I.C. DEC 7404	190930
6	E12, E22, E27, E44, E49	I.C. DEC 8271	190929
15	E3A, E5A, E17, E20, E24, E25, E29, E31, E42, E46, E47, E50, E54, E55	I.C. DEC 8271	190915
1	E40	I.C. DEC 7402	190904
1	E45	I.C. DEC 7430	190873
1	E16	I.C. DEC 7400	190857
3	E13, E33, E61	I.C. DEC 7400	190875
1	AT1	RESISTOR #70 1/4W 5% 200316	190816
1	CA - C14	CAP. OILUF 100V 20% 0.0160	190810
1	CH2, C3	CAP. 6.8UF 35V 20% 0.000000	190806
		SPACER (CABLE CLAMP) 20-7-24	190724
		HANDLE FLIP CHIP MAGNETIC	190731
		ETCHED CIRCUIT BOARD 500316	190716
		MODULE HISTORY LIST	190716
		ASSY/DRILLING HOLE LAYOUT	190716
		XY COORDINATE HOLE LOCATION	190716

REV	DATE	DESCRIPTION

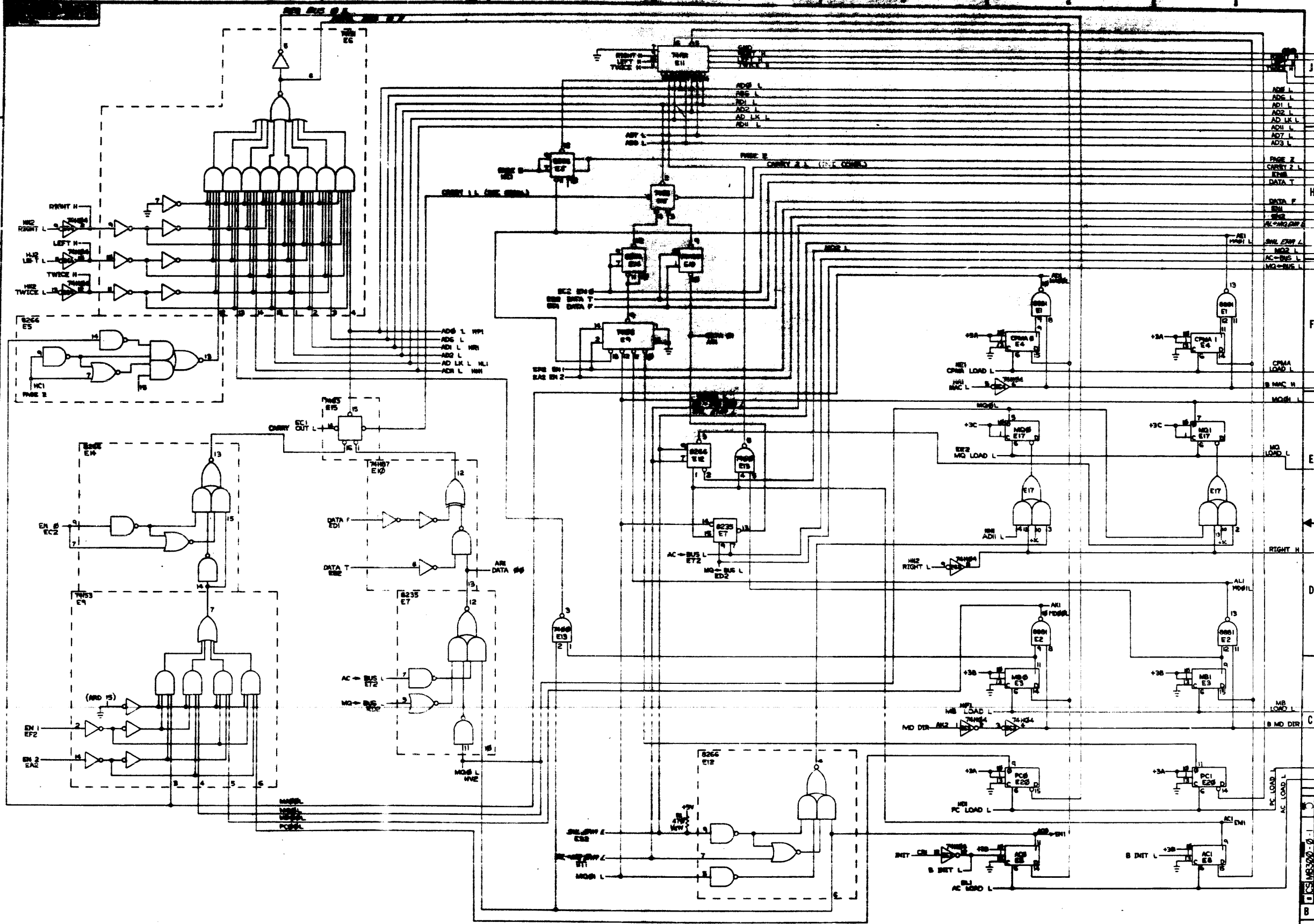
PRINTED CIRCUIT BOARD SYMBOL

EQUIPMENT OPERATING

MAJOR REGISTERS (KK8/E)

DEC NO. BA NO. D-14-4743-C-8

MB320-0



CARRY IN TO A 7488 ADDER IS PIN 18  
 CARRY OUT OF A 7488 ADDER IS PIN 14 THIS

CARRY 2 L INT. CARRY 2 L (INT. CARRY) CARRY 2 L (INT. CARRY) CARRY 2 L (INT. CARRY) CARRY 2 L (INT. CARRY)

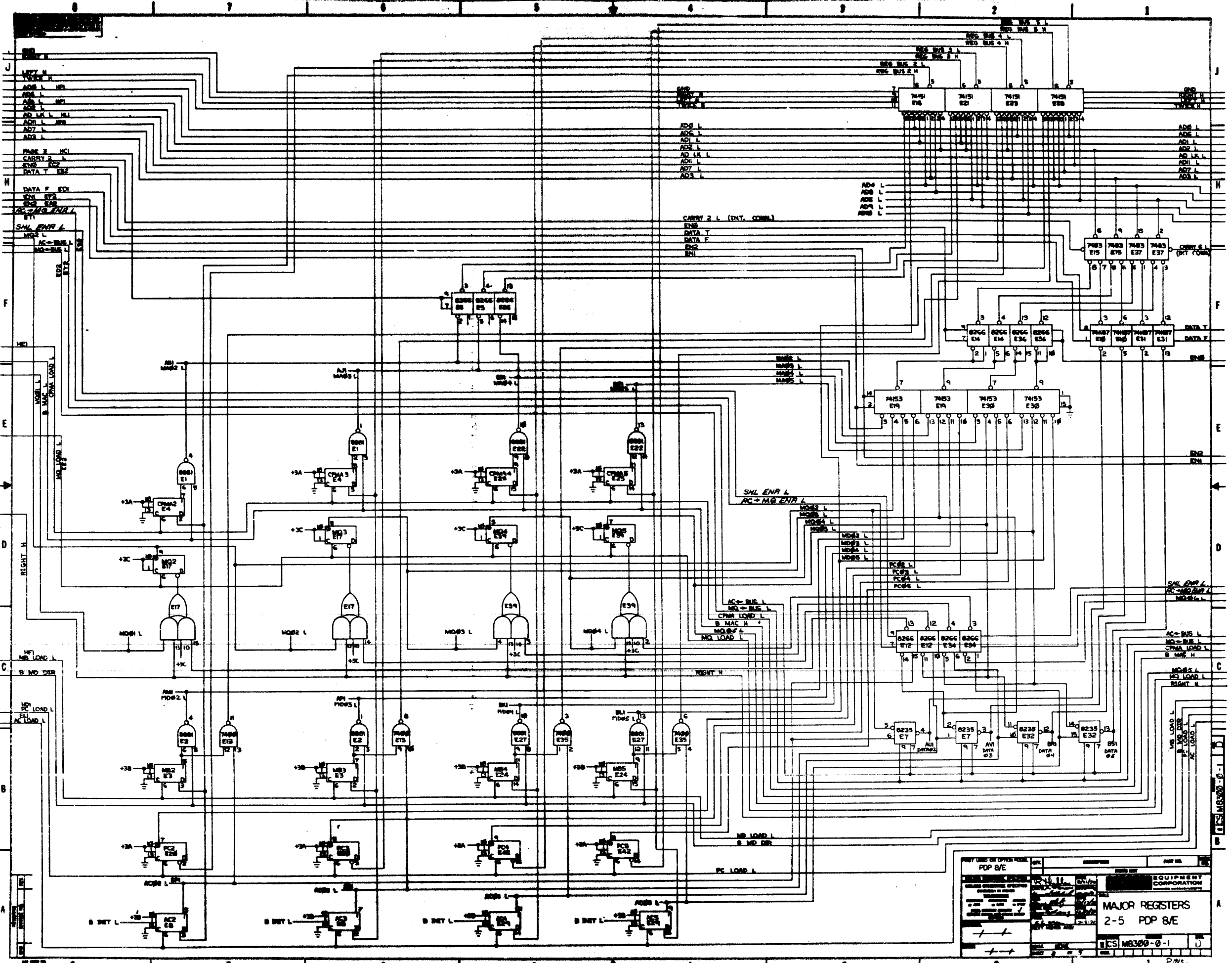
REMOVED SIGNAL BETWEEN E27 PIN 14 & E26 PIN 15  
 WHILE CARRY 2 L IS INTERNAL TO E27  
 AND CARRY 2 L IS INTERNAL TO E26

FOR SIMPLICITY OF DRAWING THE FOLLOWING  
 CONNECTIONS HAVE BEEN USED TO BLINDING LINES:

E27 E26

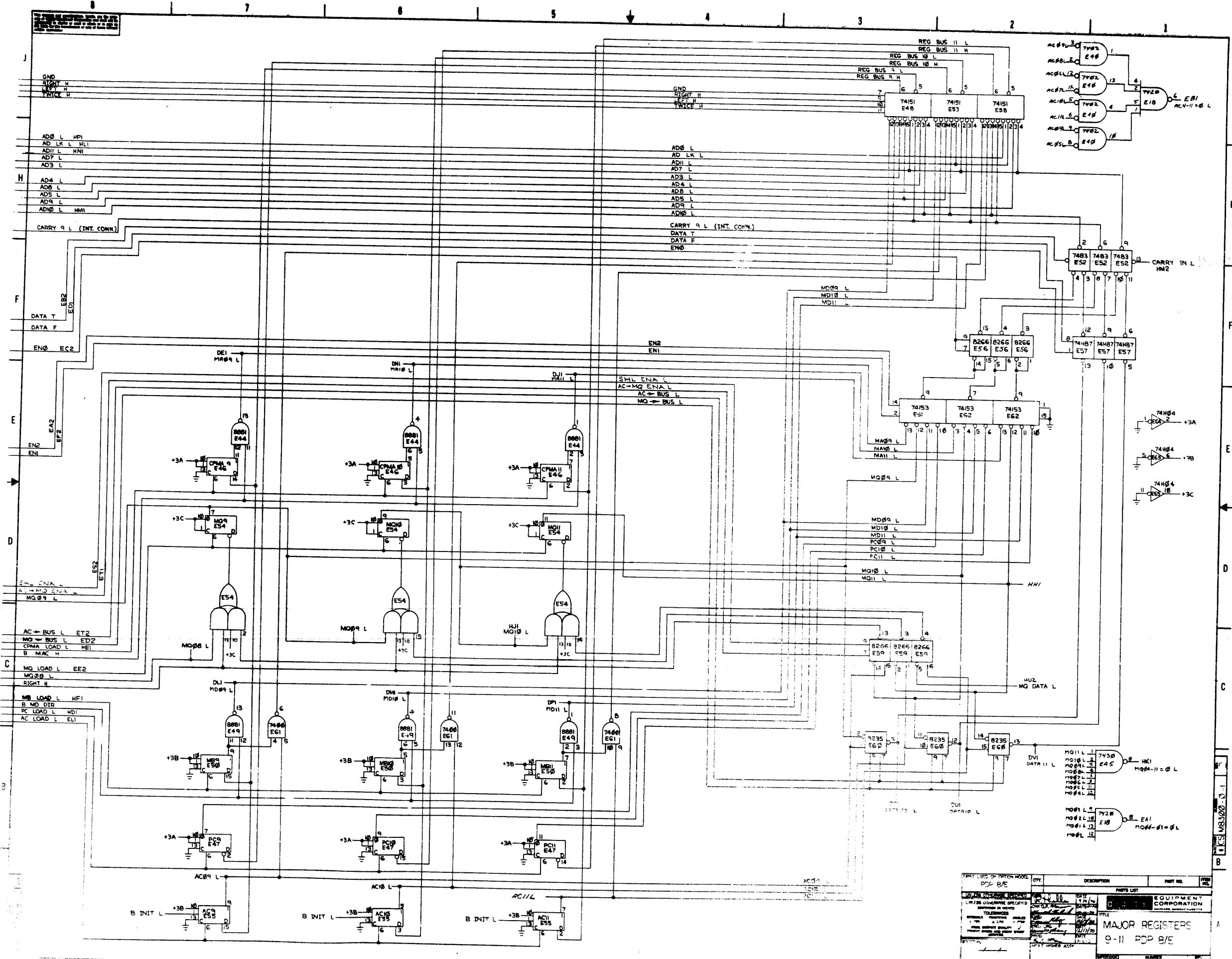
THIS SHOWS A CONNECTION BETWEEN E27 PIN 14 AND  
 E26 PIN 14, E27 PIN 2 AND E26 PIN 2 (ALSO PINS  
 1 AND 15 ON EACH I.C.). THIS ALSO IS TRUE FOR  
 OTHER CASES SUCH AS E24, E25, AND E28.

POP 8/E		EQUIPMENT CORPORATION	
MAJOR REGISTERS		0 E 1 POP 8/E	
I.C.S. M8300-0-1		I.C.S. M8300-0-1	



PART USED OR OTHER MODEL PDP 8/E CHECKED BY: [Signature] DATE: [Date]	DESCRIPTION <b>MAJOR REGISTERS</b> 2-5 PDP 8/E	EQUIPMENT CORPORATION 1000 UNIVERSITY AVENUE BERKELEY, CALIF. 94702
[CS] M8300-0-1		

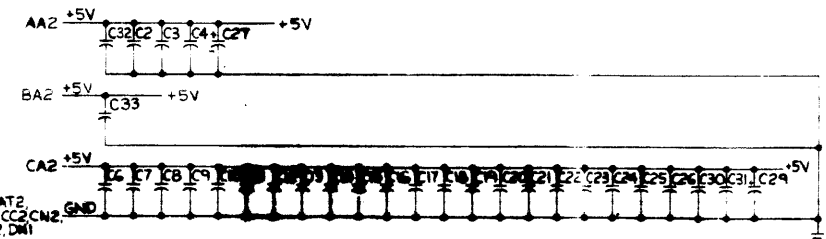
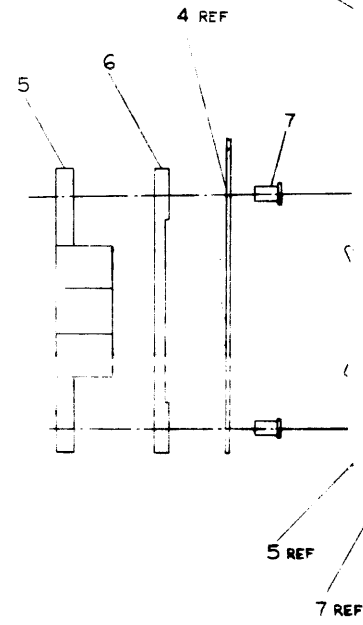
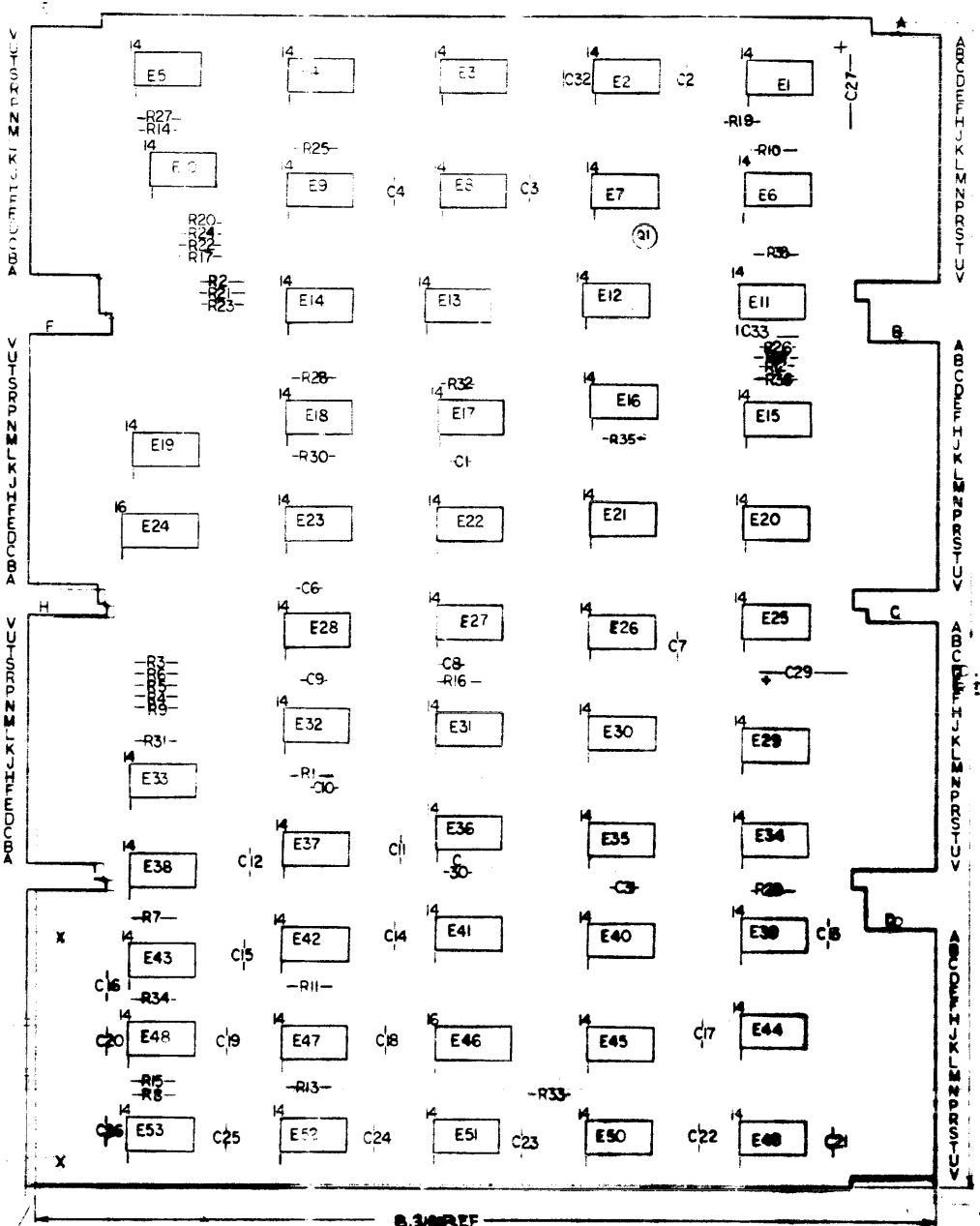




PART	QTY	DESCRIPTION	PART NO.	REV.
74151	3	8-BIT 16-TO-1 MULTIPLEXER	74151	1
74153	3	8-BIT 8-TO-1 MULTIPLEXER	74153	1
74155	3	8-BIT 4-TO-1 MULTIPLEXER	74155	1
7483	3	8-BIT 2-TO-4 DECODER	7483	1
7487	3	8-BIT 4-TO-2 DECODER	7487	1
7432	3	8-BIT 2-TO-1 DEMULTIPLEXER	7432	1
7435	3	8-BIT 4-TO-2 DEMULTIPLEXER	7435	1
7400	3	2-INPUT NAND GATE	7400	1
7404	3	INVERTER	7404	1
AC9	3	RESISTOR	AC9	1
AC10	3	RESISTOR	AC10	1
AC11	3	RESISTOR	AC11	1
AC12	3	RESISTOR	AC12	1
AC13	3	RESISTOR	AC13	1
AC14	3	RESISTOR	AC14	1
AC15	3	RESISTOR	AC15	1
AC16	3	RESISTOR	AC16	1
AC17	3	RESISTOR	AC17	1
AC18	3	RESISTOR	AC18	1
AC19	3	RESISTOR	AC19	1
AC20	3	RESISTOR	AC20	1
AC21	3	RESISTOR	AC21	1
AC22	3	RESISTOR	AC22	1
AC23	3	RESISTOR	AC23	1
AC24	3	RESISTOR	AC24	1
AC25	3	RESISTOR	AC25	1
AC26	3	RESISTOR	AC26	1
AC27	3	RESISTOR	AC27	1
AC28	3	RESISTOR	AC28	1
AC29	3	RESISTOR	AC29	1
AC30	3	RESISTOR	AC30	1
AC31	3	RESISTOR	AC31	1
AC32	3	RESISTOR	AC32	1
AC33	3	RESISTOR	AC33	1
AC34	3	RESISTOR	AC34	1
AC35	3	RESISTOR	AC35	1
AC36	3	RESISTOR	AC36	1
AC37	3	RESISTOR	AC37	1
AC38	3	RESISTOR	AC38	1
AC39	3	RESISTOR	AC39	1
AC40	3	RESISTOR	AC40	1
AC41	3	RESISTOR	AC41	1
AC42	3	RESISTOR	AC42	1
AC43	3	RESISTOR	AC43	1
AC44	3	RESISTOR	AC44	1
AC45	3	RESISTOR	AC45	1
AC46	3	RESISTOR	AC46	1
AC47	3	RESISTOR	AC47	1
AC48	3	RESISTOR	AC48	1
AC49	3	RESISTOR	AC49	1
AC50	3	RESISTOR	AC50	1
AC51	3	RESISTOR	AC51	1
AC52	3	RESISTOR	AC52	1
AC53	3	RESISTOR	AC53	1
AC54	3	RESISTOR	AC54	1
AC55	3	RESISTOR	AC55	1
AC56	3	RESISTOR	AC56	1
AC57	3	RESISTOR	AC57	1
AC58	3	RESISTOR	AC58	1
AC59	3	RESISTOR	AC59	1
AC60	3	RESISTOR	AC60	1
AC61	3	RESISTOR	AC61	1
AC62	3	RESISTOR	AC62	1
AC63	3	RESISTOR	AC63	1
AC64	3	RESISTOR	AC64	1
AC65	3	RESISTOR	AC65	1
AC66	3	RESISTOR	AC66	1
AC67	3	RESISTOR	AC67	1
AC68	3	RESISTOR	AC68	1
AC69	3	RESISTOR	AC69	1
AC70	3	RESISTOR	AC70	1
AC71	3	RESISTOR	AC71	1
AC72	3	RESISTOR	AC72	1
AC73	3	RESISTOR	AC73	1
AC74	3	RESISTOR	AC74	1
AC75	3	RESISTOR	AC75	1
AC76	3	RESISTOR	AC76	1
AC77	3	RESISTOR	AC77	1
AC78	3	RESISTOR	AC78	1
AC79	3	RESISTOR	AC79	1
AC80	3	RESISTOR	AC80	1
AC81	3	RESISTOR	AC81	1
AC82	3	RESISTOR	AC82	1
AC83	3	RESISTOR	AC83	1
AC84	3	RESISTOR	AC84	1
AC85	3	RESISTOR	AC85	1
AC86	3	RESISTOR	AC86	1
AC87	3	RESISTOR	AC87	1
AC88	3	RESISTOR	AC88	1
AC89	3	RESISTOR	AC89	1
AC90	3	RESISTOR	AC90	1
AC91	3	RESISTOR	AC91	1
AC92	3	RESISTOR	AC92	1
AC93	3	RESISTOR	AC93	1
AC94	3	RESISTOR	AC94	1
AC95	3	RESISTOR	AC95	1
AC96	3	RESISTOR	AC96	1
AC97	3	RESISTOR	AC97	1
AC98	3	RESISTOR	AC98	1
AC99	3	RESISTOR	AC99	1
AC100	3	RESISTOR	AC100	1

EQUIPMENT CORPORATION  
 MAJOR REGISTERS  
 9-11 POP 8/E  
 SCALE NONE  
 REV. 1/1/70





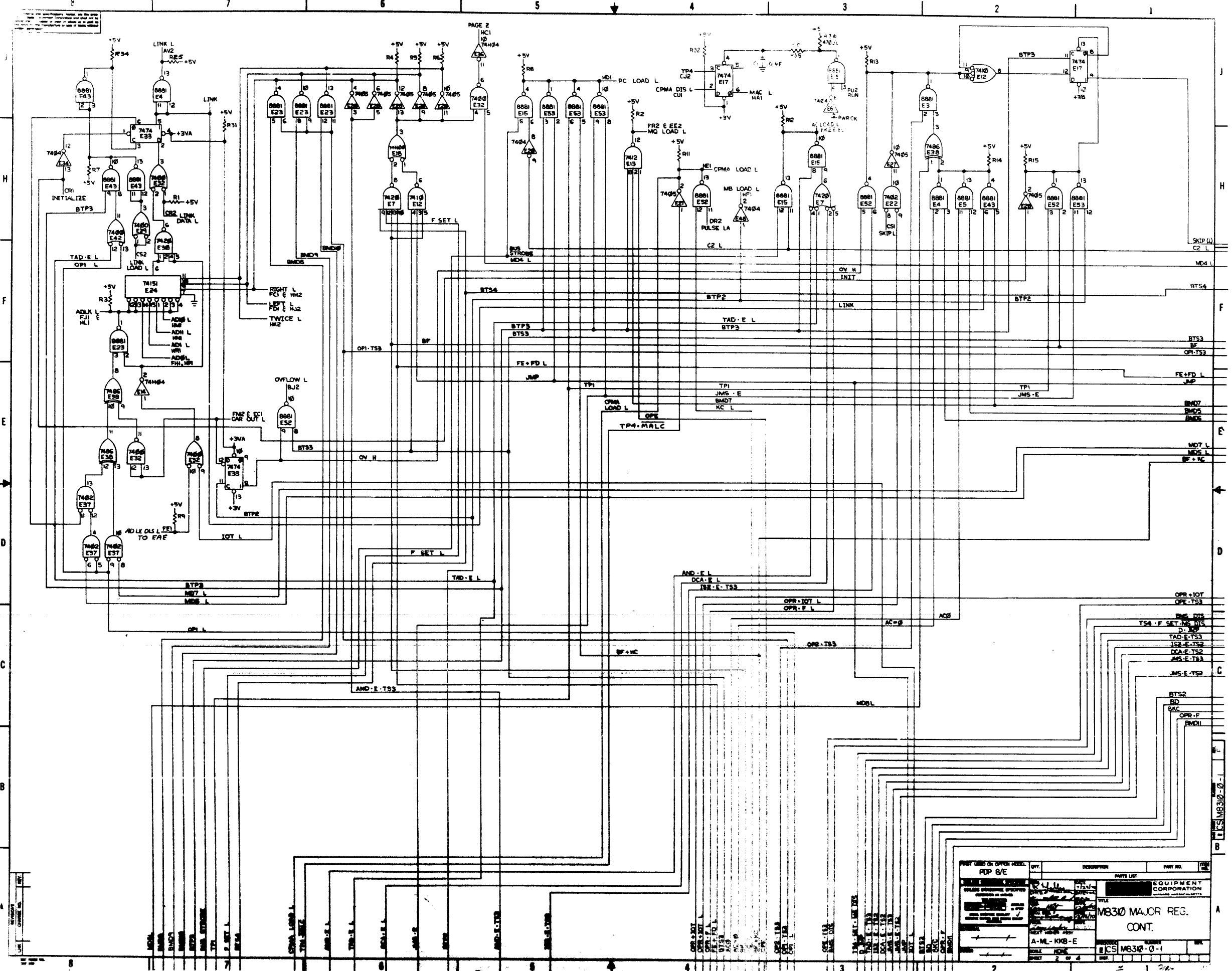
AC2 AF1, AF2, AN2 AT2  
 BC1, BC2, BF2, CC2, CN2, GND  
 CY2, DC1, DC2, DF2, DM1

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	UNIT
1	R37	RES. 3K, 1/4W, 5%	1300432	30
1	R38	RES. 100, 1/4W, 10%	1300231	24
1	Q1	TRANSISTOR DEC3009B	1503100	24
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%	1300227	24
1	E35	I.C. DEC 7486	1910011	23
3	E4, E11, E13	I.C. DEC 7412	1909455	22
1	E24	I.C. DEC 74151	1909436	21
4	E5, E10, E27, E28	I.C. DEC 7405	1909430	20
12	E1, E5, E23, E43, E53, E15	I.C. DEC 8881	1909705	19
7	E6, E16, E20, E26, E34, E47, E48	I.C. DEC 7404	1909680	18
1	E46	I.C. DEC 8251	1909594	17
1	E24	I.C. DEC 384	1909486	16
6	E19, E22, E25, E37, E41, E51	I.C. DEC 7402	1909004	15
2	E7, E30	I.C. DEC 7420	1905577	14
1	E12, E31	I.C. DEC 7410	1905576	13
3	E32, E39, E42	I.C. DEC 7400	1905577	12
1	E17, E33, E50	I.C. DEC 7474	1905544	11
34	R1, R17, R19, R34, R36	RES. 470, 1/4W, 5%	1300316	10
29	C1, C4, C6, C26, C30, C33	CAP. 0.1UF, 100V, 20% DISC	100610	9
2	C27, C29	CAP. 6.8UF, 35V, 20% S.TANT	1000067	8
1	EYELETS 654-11	STIMPSON	19006750	7
1	SPACER (CABLE CLAMP)		1202704	6
1	HANDLE, FLIP CHIP - MAGENTA		19008337 - C6	5
1	ETCHED CIRCUIT BOARD		5009276	4
REF	MODULE ECO HISTORY		6-MH-18312-01	3
REF	ASSY/DRILLING HOLE LAYOUT		6-MH-18312-01	2
REF	X-Y COORDINATE HOLE LOC.		6-MH-18312-01	1

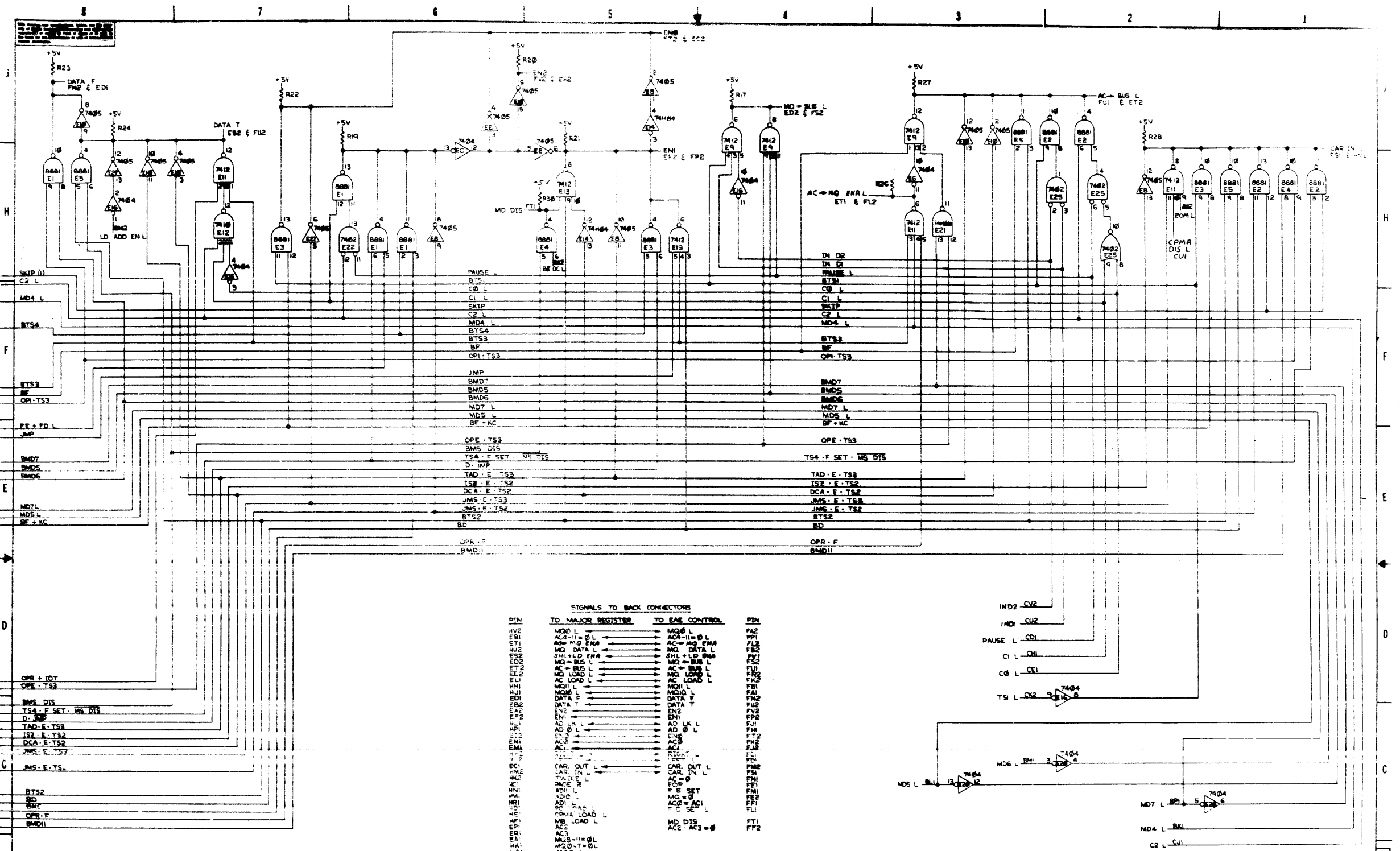
REV	DATE	BY	CHKD	APP'D
DEC 74151	8	16		
DEC 8251	8	16		
DEC 384	1	8		
I.C. TYPE				



REV	DATE	BY	CHKD	APP'D
DEC 3009B	2	16		
2	16			
3	16			
4	16			
5	16			
6	16			
7	16			
8	16			
9	16			
10	16			
11	16			
12	16			
13	16			
14	16			
15	16			
16	16			
17	16			
18	16			
19	16			
20	16			
21	16			
22	16			
23	16			
24	16			
25	16			
26	16			
27	16			
28	16			
29	16			
30	16			
31	16			
32	16			
33	16			
34	16			
35	16			
36	16			
37	16			
38	16			
39	16			
40	16			
41	16			
42	16			
43	16			
44	16			
45	16			
46	16			
47	16			
48	16			
49	16			
50	16			
51	16			
52	16			
53	16			
54	16			
55	16			
56	16			
57	16			
58	16			
59	16			
60	16			
61	16			
62	16			
63	16			
64	16			
65	16			
66	16			
67	16			
68	16			
69	16			
70	16			
71	16			
72	16			
73	16			
74	16			
75	16			
76	16			
77	16			
78	16			
79	16			
80	16			
81	16			
82	16			
83	16			
84	16			
85	16			
86	16			
87	16			
88	16			
89	16			
90	16			
91	16			
92	16			
93	16			
94	16			
95	16			
96	16			
97	16			
98	16			
99	16			
100	16			



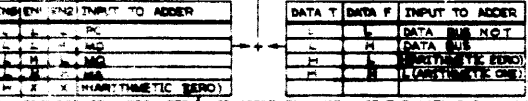
PART USED ON OTHER MODEL	QTY.	DESCRIPTION	PART NO.	REV.
PDP 8/E				
EQUIPMENT CORPORATION				
TITLE: M8310 MAJOR REG. CONT.				
A-ML-KKB-E				
ICS M8310-0-1				



SIGNALS TO BACK CONNECTORS

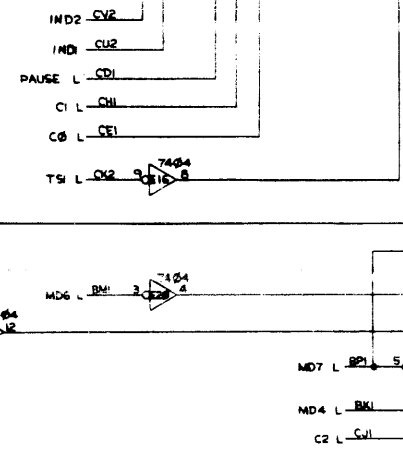
PIN	TO MAJOR REGISTER		TO EAE CONTROL		PIN
	TO MAJOR REGISTER	TO EAE CONTROL	TO MAJOR REGISTER	TO EAE CONTROL	
MSB	MSB L	MSB L	MSB L	MSB L	PA2
ET1	AC=MG ENA L	AC=MG ENA L	AC=MG ENA L	AC=MG ENA L	PF1
MSB	MG DATA L	MG DATA L	MG DATA L	MG DATA L	PF2
EDS	SHI+LD ENA L	SHI+LD ENA L	SHI+LD ENA L	SHI+LD ENA L	PF1
ET2	MG-BUS L	MG-BUS L	MG-BUS L	MG-BUS L	PF2
EAD	AC-BUS L	AC-BUS L	AC-BUS L	AC-BUS L	PF3
ET1	MO LOAD L	MO LOAD L	MO LOAD L	MO LOAD L	PF4
E11	AC LOAD L	AC LOAD L	AC LOAD L	AC LOAD L	PF5
WHI	MOH L	MOH L	MOH L	MOH L	PF6
EDI	DATA F	DATA F	DATA F	DATA F	PF7
EAE	DATA T	DATA T	DATA T	DATA T	PF8
EP2	EN2	EN2	EN2	EN2	PF9
EN1	EN1	EN1	EN1	EN1	PF10
EN2	AD BK L	AD BK L	AD BK L	AD BK L	PF11
EN3	EN3	EN3	EN3	EN3	PF12
EN4	ACC	ACC	ACC	ACC	PF13
EN5	ACC	ACC	ACC	ACC	PF14
EN6	ACC	ACC	ACC	ACC	PF15
EN7	ACC	ACC	ACC	ACC	PF16
EN8	ACC	ACC	ACC	ACC	PF17
EN9	ACC	ACC	ACC	ACC	PF18
EN10	ACC	ACC	ACC	ACC	PF19
EN11	ACC	ACC	ACC	ACC	PF20
EN12	ACC	ACC	ACC	ACC	PF21
EN13	ACC	ACC	ACC	ACC	PF22
EN14	ACC	ACC	ACC	ACC	PF23
EN15	ACC	ACC	ACC	ACC	PF24
EN16	ACC	ACC	ACC	ACC	PF25
EN17	ACC	ACC	ACC	ACC	PF26
EN18	ACC	ACC	ACC	ACC	PF27
EN19	ACC	ACC	ACC	ACC	PF28
EN20	ACC	ACC	ACC	ACC	PF29
EN21	ACC	ACC	ACC	ACC	PF30
EN22	ACC	ACC	ACC	ACC	PF31
EN23	ACC	ACC	ACC	ACC	PF32
EN24	ACC	ACC	ACC	ACC	PF33
EN25	ACC	ACC	ACC	ACC	PF34
EN26	ACC	ACC	ACC	ACC	PF35
EN27	ACC	ACC	ACC	ACC	PF36
EN28	ACC	ACC	ACC	ACC	PF37
EN29	ACC	ACC	ACC	ACC	PF38
EN30	ACC	ACC	ACC	ACC	PF39
EN31	ACC	ACC	ACC	ACC	PF40

DATA	MODE	TYPE	REGISTER	DATA TO REGISTER	USE
L	L	L	L	MA=0=4 MO=5=H	PAGE ADDRESSING
L	L	L	L	MSB A ACX	AND
L	L	L	L	ADDER (X-2)	STR
L	L	L	L	ADDER (X-1)	IBAR
L	L	L	L	ADDER (X-2)	RTL
L	L	L	L	ADDER (X-3)	ISAL
L	L	L	L	ADDER (X-6)	LITTLE SWAP
L	L	L	L	ADDER X	NO SHIFT
L	L	L	L	0=MA=0=4 MD=MA=4	PAGE ADDRESSING

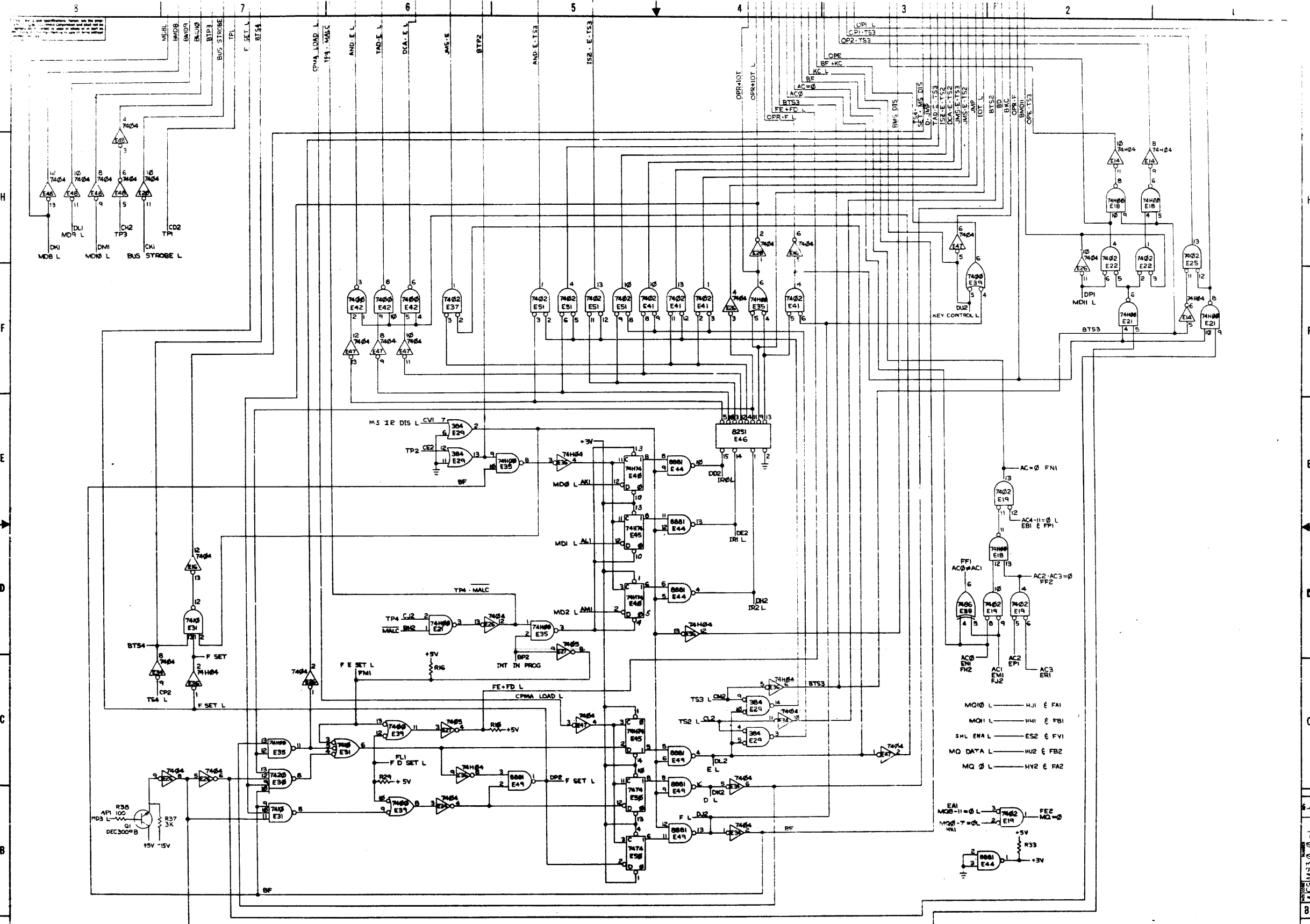


BIT X OF THE REGISTER SELECTED HERE IS ADDED TO BIT X OF THE DATA BUS AS SELECTED HERE AND THE SUM (ADDER) IS FED TO A MULTIPLEXER TO BE DECODED AS ABOVE. THE OUTPUT OF THIS MULTIPLEXER IS LOADED INTO WHICH EVER REGISTER IS Clocked.

DATA	MODE	TYPE	REGISTER	DATA TO REGISTER	USE
L	L	L	L	MA=0=4 MD=MA=4	PAGE ADDRESSING
L	L	L	L	MSB A ACX	AND
L	L	L	L	ADDER (X-2)	STR
L	L	L	L	ADDER (X-1)	IBAR
L	L	L	L	ADDER (X-2)	RTL
L	L	L	L	ADDER (X-3)	ISAL
L	L	L	L	ADDER (X-6)	LITTLE SWAP
L	L	L	L	ADDER X	NO SHIFT
L	L	L	L	0=MA=0=4 MD=MA=4	PAGE ADDRESSING



PART USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO.	ITEM
POP R/E				
EQUIPMENT CORPORATION				
M830 MAJOR REG.				
CONT.				
A-ML-108-E				
DATE				
SHEET 3 OF 4				



AC-0 FNI  
AC4-11=0 L  
EBI & FPI  
FF1 AC0=AC1  
AC2-AC3=0  
FF2  
AC0 EMI  
FHZ  
AC1 EMI  
FJ2  
AC3 ERI  
MQ10 L HJ1 & FA1  
MQ11 L HH1 & FB1  
SHL EHA L ES2 & FV1  
MQ DATA L HU2 & FB2  
MQ 0 L HV2 & FA2  
EAI MQB-11=0 L  
MCQ-7=0 L  
HAI  
+5V  
R33  
E44

REV.	DATE	DESCRIPTION	PARTY NO.	QUANTITY
1				
2				
3				
4				
5				
6				
7				
8				

REV.	DATE	DESCRIPTION	PARTY NO.	QUANTITY
1				
2				
3				
4				
5				
6				
7				
8				

REV.	DATE	DESCRIPTION	PARTY NO.	QUANTITY
1				
2				
3				
4				
5				
6				
7				
8				

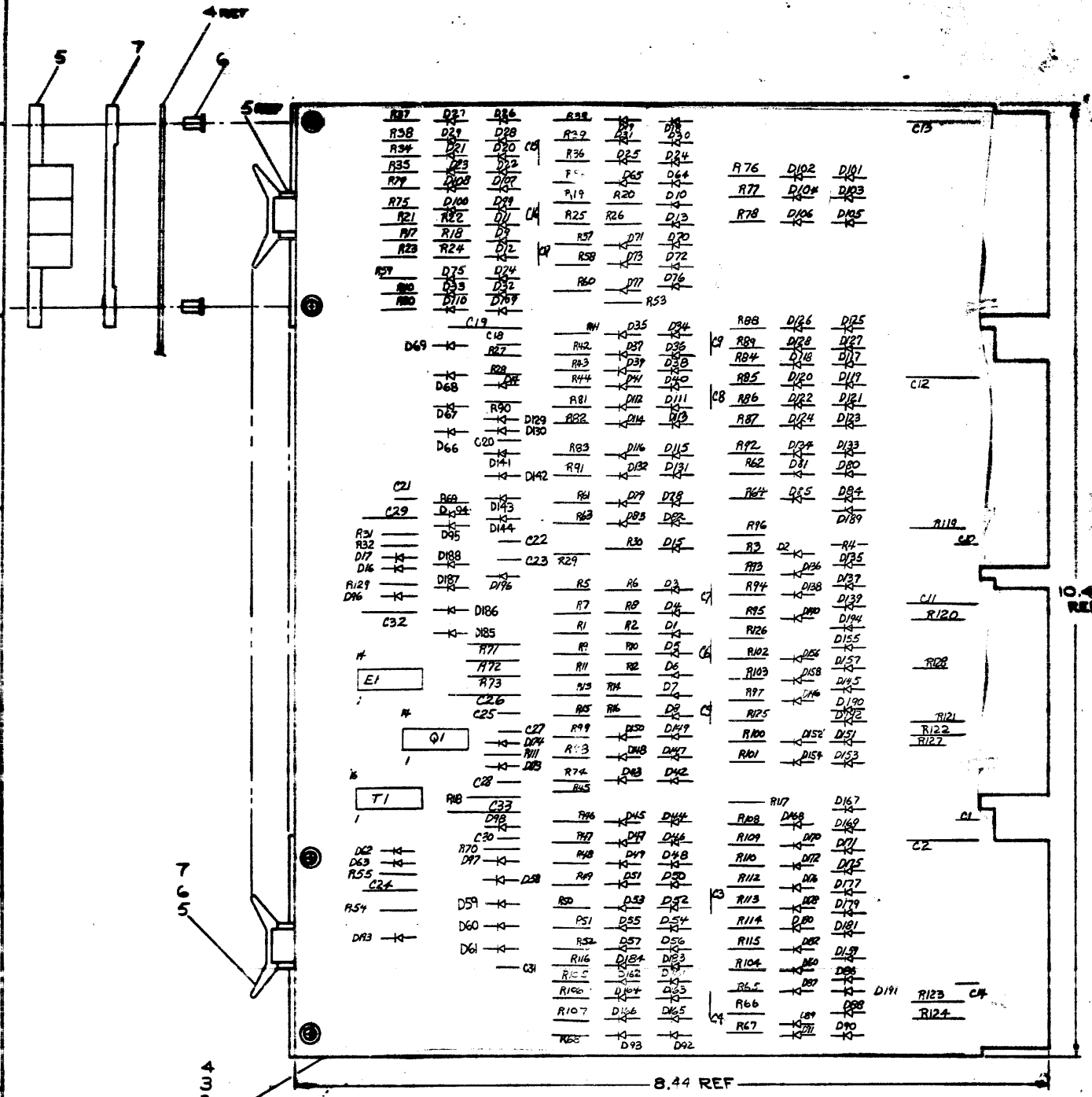
  

REV.	DATE	DESCRIPTION	PARTY NO.	QUANTITY
1				
2				
3				
4				
5				
6				
7				
8				

EQUIPMENT CORPORATION  
 MODEL 830 MAJOR REG  
 CONT.

A-ML-KKB-E  
 BCS 830-2-1  
 SHEET 4 OF 4

- NOTES:**
1. CAPACITORS = 0.001UF 16V 15-20%  
RESISTORS = 1000 OHM 5%  
DIODES = D664
  2. CONNECT ALL PINS C, F, N, T (EXCEPT AC1) TOGETHER TO GROUND.
  3. ITEM NO. 8 (D664) MAY BE REPLACED WITH D600 P.N. 1105366 (REV C ONLY).

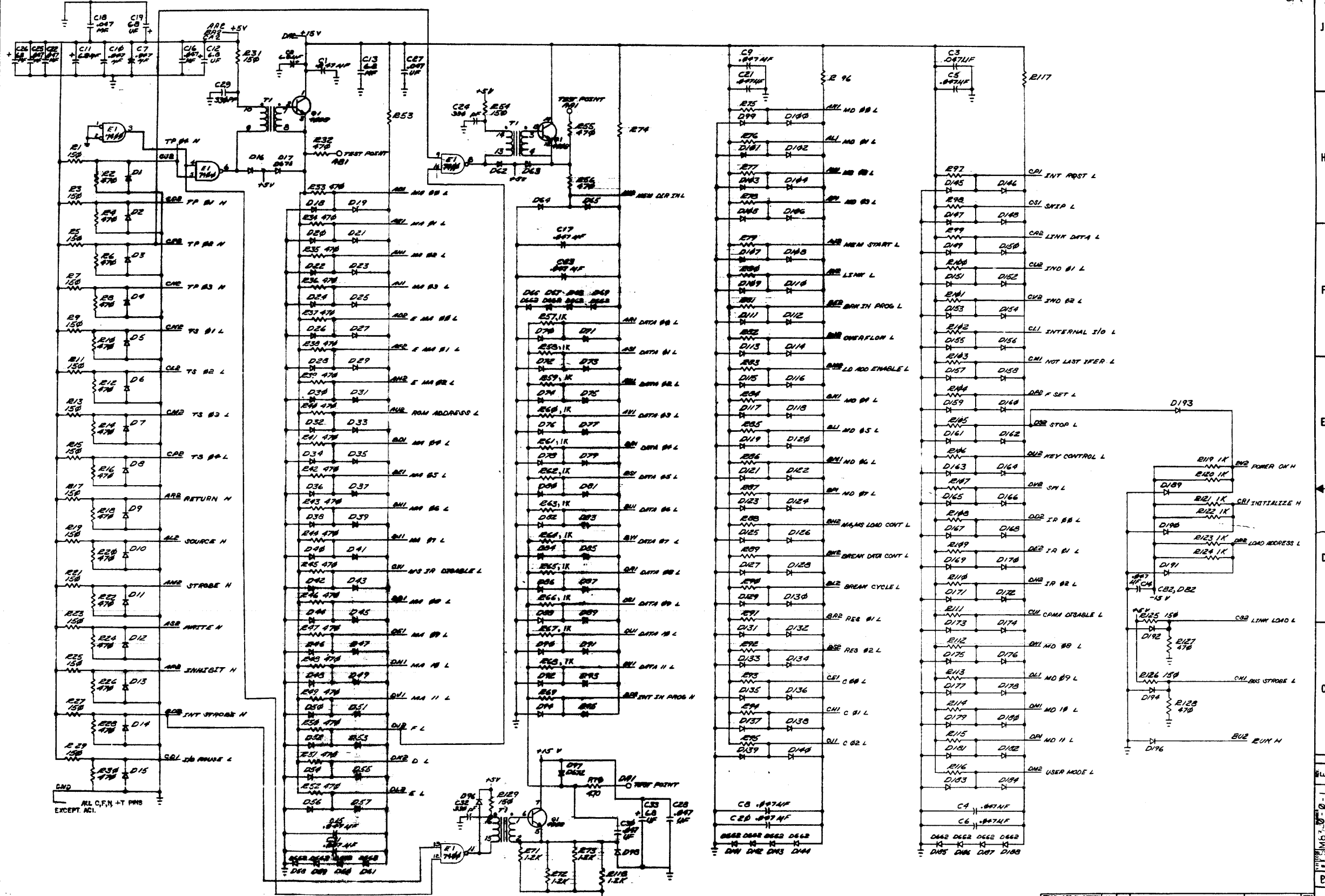


12	R57-R60	RES 1K 1/4 W 5%	1300365	23
13		GRIPLET	120049-0	24
3	C28, C29, C32	CAP 330PF 100V 5%	1000063	27
7	C2, C16, C17, C23, C19, C26, C33	CAP 6.8UF 35V 20%	1000067	28
29	C13-C10, C14-C18, C20-C23, C25, C27, C28, C30, C31	CAP .001UF 16V 15-20%	1009678	19
1	E1	IC DEC 9000	715393	10
1	T1	TRNS 1000V 200A	160051	17
1	Q1	TRNS 100V 200A	150015	16
6	E19-E24	RES 1K 1/4 W 10%	1300187	15
4	E27-E33, E18	RES 1.2K 1/4 W 10%	1300387	14
14	R37, E29, E24-E27	RES 1500 OHM 5%	1300391	13
41	R24, R1, R3, R4, R11, R14, R16, R20, R28, R24, R26, R28, R30, R32-E31, R35, R36, E70, E12, E12B, E1, E2, E7, E1, E11	RES 470 OHM 10%	1300317	12
20	E13, E15, E7, E19, E21, E23, E25, E27, E29, E31, E34, R25, R103, R16	RES 150 OHM 5%	1300250	11
2	D17, D17	DIODE D672	1105275	10
16	D58-D61, D66-D68, D64-D65, D65-D68	DIODE D662	1100113	9
77	D1-D16, D18-D27, D28-D36, D70-D76, D78-D84, D85-D88, D187-D196	DIODE D664	1100114	8
4		PLATE (CABLE CLAMP)	1202104	7
8		START 654-II STIMPSON	9006750	6
4		HANDLE FLIP CHIP-MAGENTA	100037-06	5
1		ETCHED CIRCUIT BOARD	8009486	4
1		MODULE HISTORY LIST	8-MH-8329-03	3
2		DRY/DRILLING HOLE LAYOUT	D-MH-8329-02	2
2		KEY COORDINATE HOLE LOC.	K-CO-8329-01	1

SEE NOTE 3

REV	DATE	DESCRIPTION

EQUIPMENT CORPORATION  
 BUS LOADS  
 D-LA-KKB-E-B  
 E CSM8320-B-1



ALL C,F,N +T PMS EXCEPT AGI.

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO.	TRM NO.
EQUIPMENT CORPORATION				
BUS LOADS				
ECS 11552-2				

# DRAWING DIRECTORY

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION. COPYRIGHT © 1973, DIGITAL EQUIPMENT CORPORATION"

## CUSTOMER PRINT SET INDEX

SEQUENCE

SOURCE

THIS IS PRINT SET

DRAWING DIRECTORY  
PARTS LIST  
TIMING GENERATOR

B-DD-KM8-F  
A-PL-KM8-F-Ø  
E-CS-M8330-0-1

### UNIT VARIATIONS

VAR	TITLE	PRINT SET			
		KM8-F			
KM8-F	TIMING GENERATOR (M8330, Rev "E" or Later)	X			

REV	CHG. NO.	DATE	USED ON OPTION/MODEL	DRN. CHK'D.	DATE	TITLE			
						TIMING GENERATOR			
	KKBE-00001			<i>S. Chaiton</i>	10-10-73				
				<i>S. Chaiton</i>	10-18-73				
				PROJ ENG.	DATE				
				<i>S. Chaiton</i>	13 Nov 73				
				PROD.	DATE	SIZE	CODE	NUMBER	REV
						B	DD	KM8-F	
				FIELD SERV.	DATE				
SHEET 1 OF 2						DIST			

DEC 16-1973:1002-1A-0072

CUSTOMER PRINT SET		ELECTRICAL					CUSTOMER PRINT SET		MECHANICAL						
KMB-E	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE	KMB-F	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X		1	A-PL-KMB-F-Ø	*	1	PARTS LIST				1	A-PL-KMB-F-Ø	*	1	PARTS LIST	
X		2	E-CS-M8330-0-1	#	2	TIMING GENERATOR									
			K-CO-M8330-0-4	#	-	X-Y COORDINATE HOLE LOCATION									
			D-AH-M8330-0-5	#	1	ASSY/DRILLING HOLD LOCATION									
			B-MH-M8330-0-6	#	1	MODULE ECO HISTORY									

CUSTOMER PRINT SET CODES  
X = PRINT OF DOCUMENT INCLUDED IN PRINT SET  
C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT  
S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED

TITLE

SHEET 2 OF 2

SIZE CODE  
B DD

NUMBER

KMB-F

REV



**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS

**PARTS LIST**

QUANTITY / VARIATION

MADE BY <i>Ashtab</i>	CHECKED <i>[Signature]</i>	SECTION
DATE <i>12-22</i>	DATE <i>12-78</i>	
ENG <i>[Signature]</i>	PROD	ISSUED SECT.
DATE	DATE	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION
1	E-CS-M8330-0-1	TIMING GENERATOR, (ETCH REV. "E" OR LATER)

KMB-F

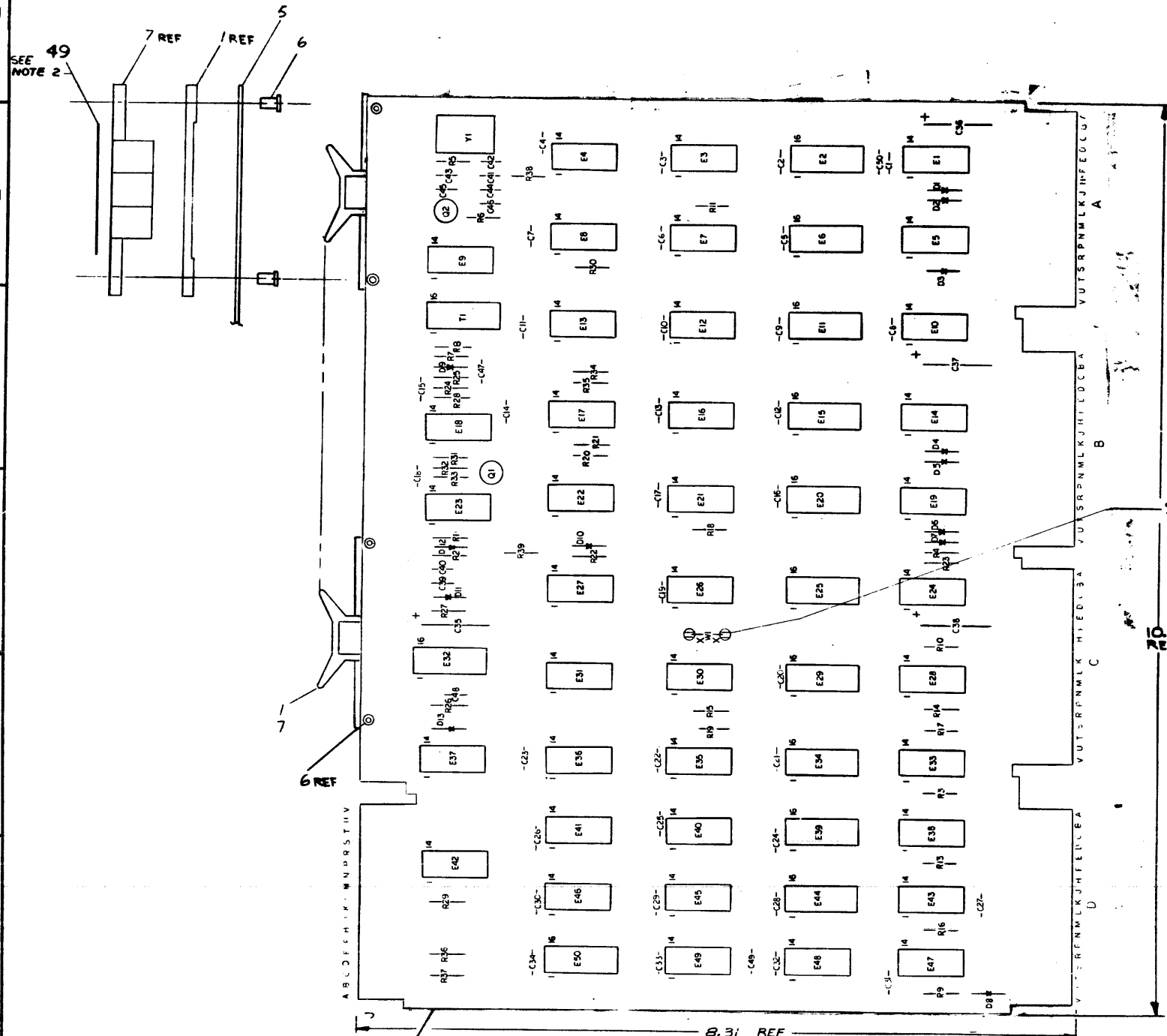
KMB-F									
1									

TITLE TIMING GENERATOR	ASSY NO.	SIZE <b>A</b>	COD <b>PL</b>	NUMBER KMB-F-0	REV.	ECO NO. ORIG. KK8E-4
SHEET 1 OF 1		DIST.				

DEC FORM DPC 16 (325) 1981 N570  
3 PA 110

NOTES:

1. WI (JUMPER) TO BE INSERTED BY CUSTOMER ONLY.
2. THE STICKER READS AS FOLLOWS:  
 \*MB330 ETCH D MAY BE REPLACED WITH ETCH C IF MACHINE USES ONLY CORE MEMORY. SEMICONDUCTOR MEMORIES MRB-F REQUIRE ETCH D OR LATER.



SEE NOTE 1

REF 44

IC TYPE	QTY	REF	WI
DEC 74194	8	16	
DEC 8251	8	16	
DEC 5314	1	8	
DEC 5380	1	8	
DEC 5384	1	8	

SEE NOTE 1



GND = AC2, AF1, AN1, AN2, AT1, BC1, BC2, BF1, BN2, BT1, BT2, CC1, CC2, CF1, CF2, CH1, CT1, DC1, DF1, DN1, DT1, DT2.

QTY	REF DESIGNATION	DESCRIPTION	REF NO.
4	E9, E21, E30, E40	I.C. DEC 74574	1910544
1	E18	I.C. DEC 74H04	1909931
1		MB330 REV. STICKER	3611623
2	R38, R39	RES 1K 1/4W 5%	1800363
2		SPLIT LUG	9006735
1	R6	RES 220 1/4W 5%	1800271
1	E27	I.C. DEC 5584	1910394
1	E13	I.C. DEC 5380	1910392
1	E4	I.C. DEC 5314	1910391
1	E50	I.C. DEC 8251B	1909594
1	E17	I.C. DEC 5881	1909705
1	E8	I.C. DEC 74H11	1909267
2	E36, 41	I.C. DEC 97401	1909973
10	E26, 11, 5, 20, 25, 29, 34, 39, 44	I.C. DEC 74194	1910623
1	E32	I.C. DEC 74123	1910436
5	E9, 26, 31, 45, 49	I.C. DEC 74H74	1909667
12	E13, 5, 7, 10, 18, 24, 29, 33, 38, 43	I.C. DEC 74H40	1905586
2	E2, E46	I.C. DEC 7430	1905578
1	E46	I.C. DEC 7420	1906577
2	E37, E35	I.C. DEC 7417	1909429
1	E48	I.C. DEC 7410	1905576
1	E42	I.C. DEC 7404	1909686
1	E22	I.C. DEC 7402	1909204
2	E23, E47	I.C. DEC 7400	1905676
1	Y1	CRYSTAL 20MK	1909880
1	T1	TRANSFORMER	1909651
2	Q1, Q2	TRANSISTOR DEC 30098	1503400
1	R27	RES 47K 1/4W 5%	1302171
2	R5, R26	RES 10K 1/4W 5%	1300479
1	R1	RES 33K 1/4W 5%	1300487
16	R21, R18, R22, R23, R24, R34, R36, R37	RES 470 1/4W 10%	1300317
13	R34, R20, R24, R25, R26, R28	RES 150 1/4W 10%	1300252
2	R31, R33	RES 27 1/4W 10%	1301180
12	D1-DB, D10-D13	DIODE D664	1100114
1	D9	DIODE D662	1100113
1	C38	CAP 39UF 10V 10% STANT	1000076
3	C36, C38	CAP 6.8UF 35V 10% S.TANT	1006306
1	C42	CAP 10PF 100V 5% D.M	1000006
4	C39, C41, C46	CAP 1047UF 16V 20% +50%	1009678
1	C43	CAP 33PF 100V 5% D.M	1000009
37	C1, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50	CAP 0.1UF 100V 20% DISC	1001610
1	C48	CAP 1000PF 100V 5% MICA	1000042
1	C45	CAP 100PF 100V 5% DM	1000016
1	C44	CAP 68PF 100V 5% DM	1000014
3		HANDLE FLIP-CHIP MAGENTA	9008337-06
6		EYELET 654-11 SIMPSON	9006750
1		ETCHED CIRCUIT BOARD	5009707
REF		MODULE 654-11 SIMPSON	3-14-MB330-2-6
REF		ASSY/DRAWING HOLE LAYOUT	6-14-MB330-2-5
REF		XY COORDINATE HOLE LOCATION	1-10-MB330-6-4
3		SPACER CABLE CLAMP	1002704

FIRST USED ON OPTION MODEL MRB-F

ETCH BOARD REV E

EQUIPMENT CORPORATION

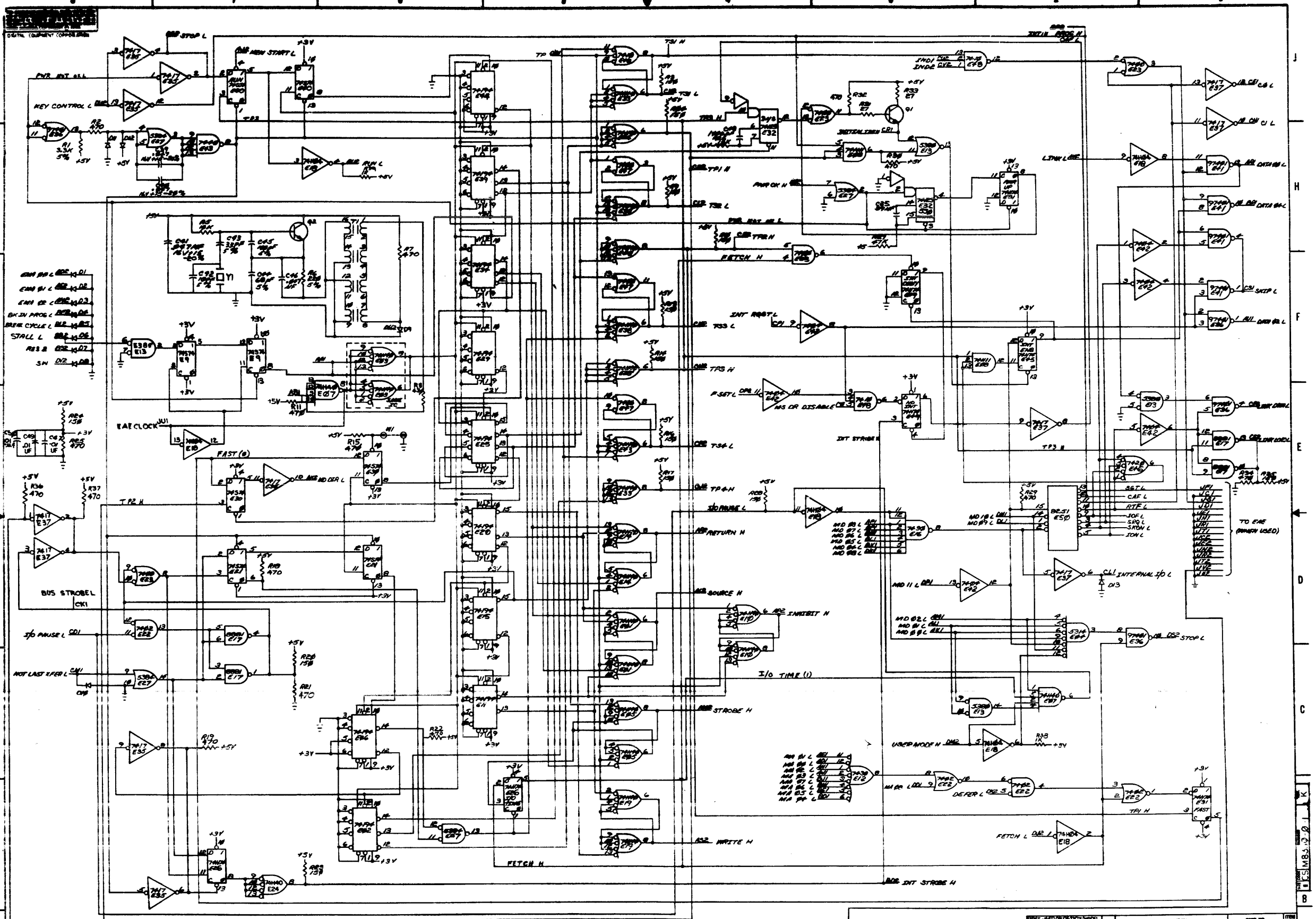
TIMING GENERATOR

DEC 20070 2N3646  
 D664 IN3606  
 D662 IN3606

DEC NO. 614 NO. 615 NO. 616 NO. 617

DATE 10/2/64

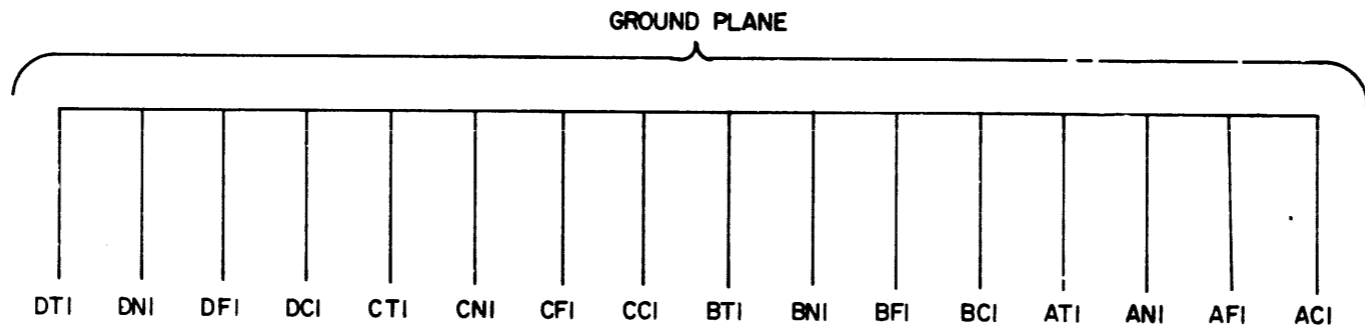
REV 1



ITEM NO.	QTY	DESCRIPTION	PART NO.	ITEM NO.
MR8-F				
EQUIPMENT CORPORATION				
TIMING GENERATOR				
CS MB332-01				

8  
7  
6  
5  
4  
3  
2  
1

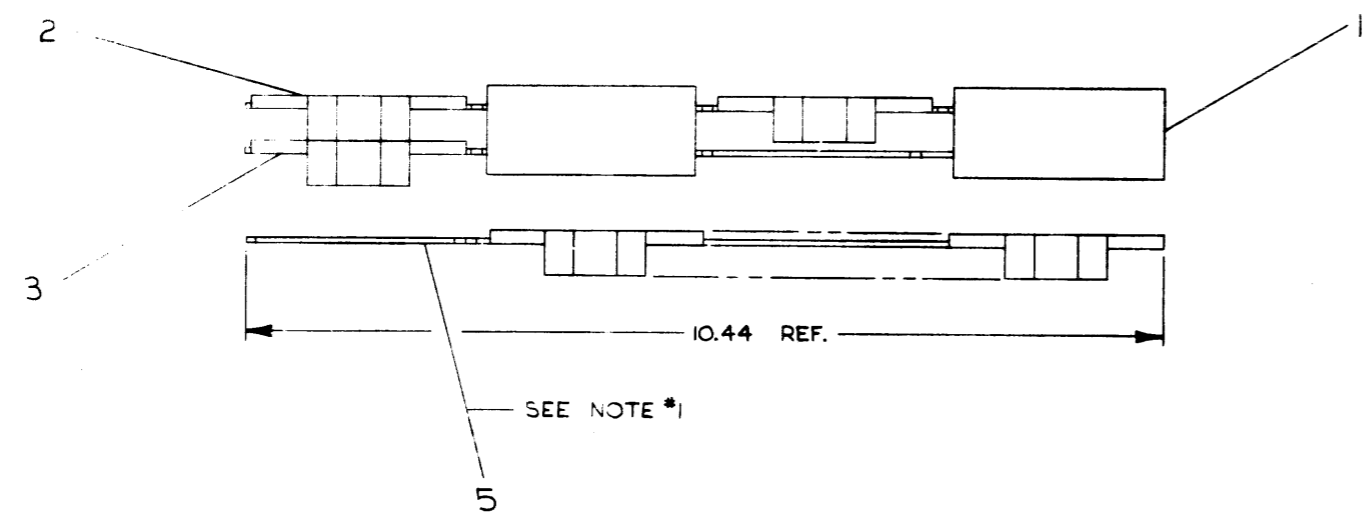
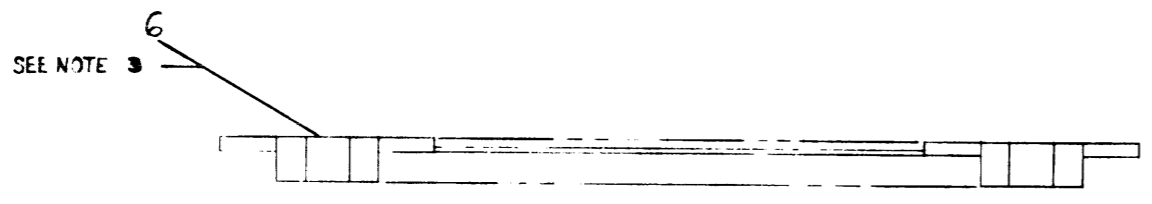
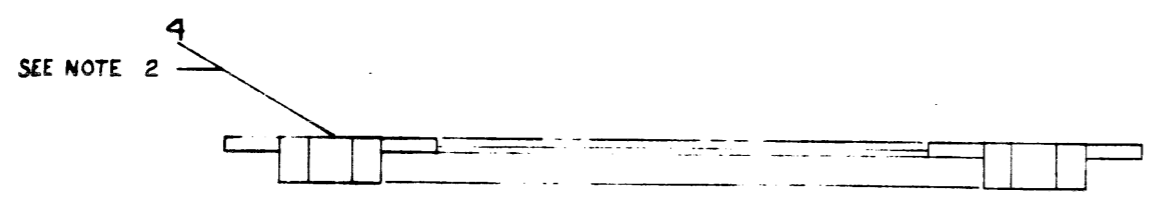
THIS SCHEMATIC IS FURNISHED ONLY FOR TEST AND MAINTENANCE PURPOSES. THE CIRCUITS ARE PROPRIETARY IN NATURE AND SHOULD BE TREATED ACCORDINGLY. COPYRIGHT 1970 BY DIGITAL EQUIPMENT CORPORATION



REVISIONS	CHK CHG NO. REV.	DRN. NANCY MOORE	DATE 8/18/70	TRANSISTOR & DIODE CONVERSION CHART				<b>digital</b> EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE RFI SHIELD M849				
		CHK'D R. Walden	DATE 5/24/70						DEC	EIA	DEC	EIA	SIZE B
		ENG. R. Walden	DATE 10/1/70						PRINTED CIRCUIT REV.	D			
		PROD. R. Walden	DATE 7-6-71										

This drawing and specifications herein are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part in any form for the manufacture of any of these articles without written permission.

- NOTES:**
- ITEM NOS (KMB-FM8330), TIMING GENERATOR) MUST BE PLACED IN THE FIRST SLOT OF THE OMNIBUS AFTER THE CONSOLE BOARD.
  - ITEM NO. 4 (M832) BUS LOADS) MUST BE PLACED IN THE LAST SLOT OF THE LAST OMNIBUS
  - ITEM NO.6 (M849 RFI SHIELD) MUST BE PLACED IN THE SLOT PRECEDING THE FIRST MMSE (4 K MEMORY) OR ANY OTHER MEMORY OPTION
  - REFER ALSO TO THE PRIORITY LISTING A-SP-PDP 8/E-0-4



QTY	DESCRIPTION	PART NO.	REV. NO.
1	RFI SHIELD	B-057-849-0-1	1
1	TIMING GENERATOR	F-004-18-0	1
1	BUS LOADS	FCSA-832-0-1	4
1	MAJOR RESISTOR CONTROL	ECS-833-0-1	1
1	MAJOR REGISTORS	E-004-18-0	1
2	EDGE CONNECTOR	B-09-1857-0-1	1

FIRST USED ON OPTION MODEL PDP 8/E		PARTS LIST	
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES	DATE 12/14/70	digital EQUIPMENT CORPORATION	
TOLERANCES	DATE 12/14/70	TITLE CENTRAL PROCESSOR (KK8-E)	
ANGLES 0°-10°	DATE 1/13/71	SIZE CODE A-ML-KK8-E	
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	DATE 1/13/71	DIST DUA KK8-E-0	
MATERIAL + + +	NEXT HIGHER ASSY A-ML-KK8-E	SCALE 1/1	
FINISH + + +	SHEET 1 OF 1	SHEET 2 OF 1	

**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS

**ENGINEERING SPECIFICATION**

DATE 4/21/71

TITLE KK8-E PDP8/E Central Processor

**REVISIONS**

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	UPDATE PER ECO	KK8L 00004	GARDNER	9-73	<i>J. Kiel</i>	13 Nov 73

ENG	Louis Klotz	APPD	<i>Mass Vogelsang</i>	SIZE	CODE	NUMBER	REV
				A	SP	KK8-E-1	A

DEC FORM NO. DRA 107

SHEET 1 OF 3

This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission.

**ENGINEERING SPECIFICATION**

CONTINUATION SHEET

TITLE KK8-E PDP8/E Central Processor

1.0 Overall Description

KK8-E is a 12-bit central processor for the PDP8/E. The Small Computer Handbook and the PDP8/E Maintenance Manual represent part of this specification and should be referred to.

2.0 General Specification

2.1 Definition of basic system

- A. M8300 - Major Registers
- B. M8310 - Major Register Control
- C. KM8-F - Timing Generator (M8330)
- D. M8320 - Bus Loads
- E. M849 - RFI Shield

2.2 List of Included Options

- A. M8340 - KE8-E Extended Arithmetic Unit
- B. May handle other options not directly connected to the processor - such as programmers console, teletype, etc. Reference Small Computer Handbook.

2.3 Mechanical Packaging

- A. Each board is an 8 1/2 by 10 1/2 quad board, (REF D-MD-7605994-B-2)
- B. The M8300 is connected by the use of two H851's to the M8310.
- C. The M8330 and M8310 each have one slot provided to connect to the KE8-E using H851 connectors.
- D. All modules plug into the Omnibus. (Reference Small Computer Handbook & A-SP-PDP8E-B-4)

2.4 Environmental Specification

- A. Temperature 30° - 122°F (0° - 50°C)
- B. Humidity Maximum 90% Rel. No condensation
- C. Power, total

	+5	+15	-15
	4.42a	.53a	.97a

SIZE	CODE	NUMBER	REV
A	SP	KK8-E-1	A

DEC FORM NO 16-1022 DRA 108

SHEET 2 OF 3

**ENGINEERING SPECIFICATION**

CONTINUATION SHEET

TITLE KK8-E PDP8/E Central Processor

2.5 General Performance Specification

Refer to Small Computer Handbook.

3.0 Specification of Vendor Supplied Equipment

Refer to Purchase Specification for component in question.

4.0 Programming

Refer to Small Computer Handbook.

5.0 Interface Specifications

Refer to Small Computer Handbook.

SIZE	CODE	NUMBER	REV
A	SP	KK8-E-1	A

DEC FORM NO 16-1022 DRA 108

SHEET 3 OF 3

# MASTER DRAWING LIST

MAINTENANCE MANUALS		UNIT VARIATIONS																					
NO.	TITLE	KMR- <del>E</del>																					
KM8-E	MEM EXT & TIME SHARE CONTROL	X																					

USED ON OPTIONS							
PDP8-E							
PDP 8/M							

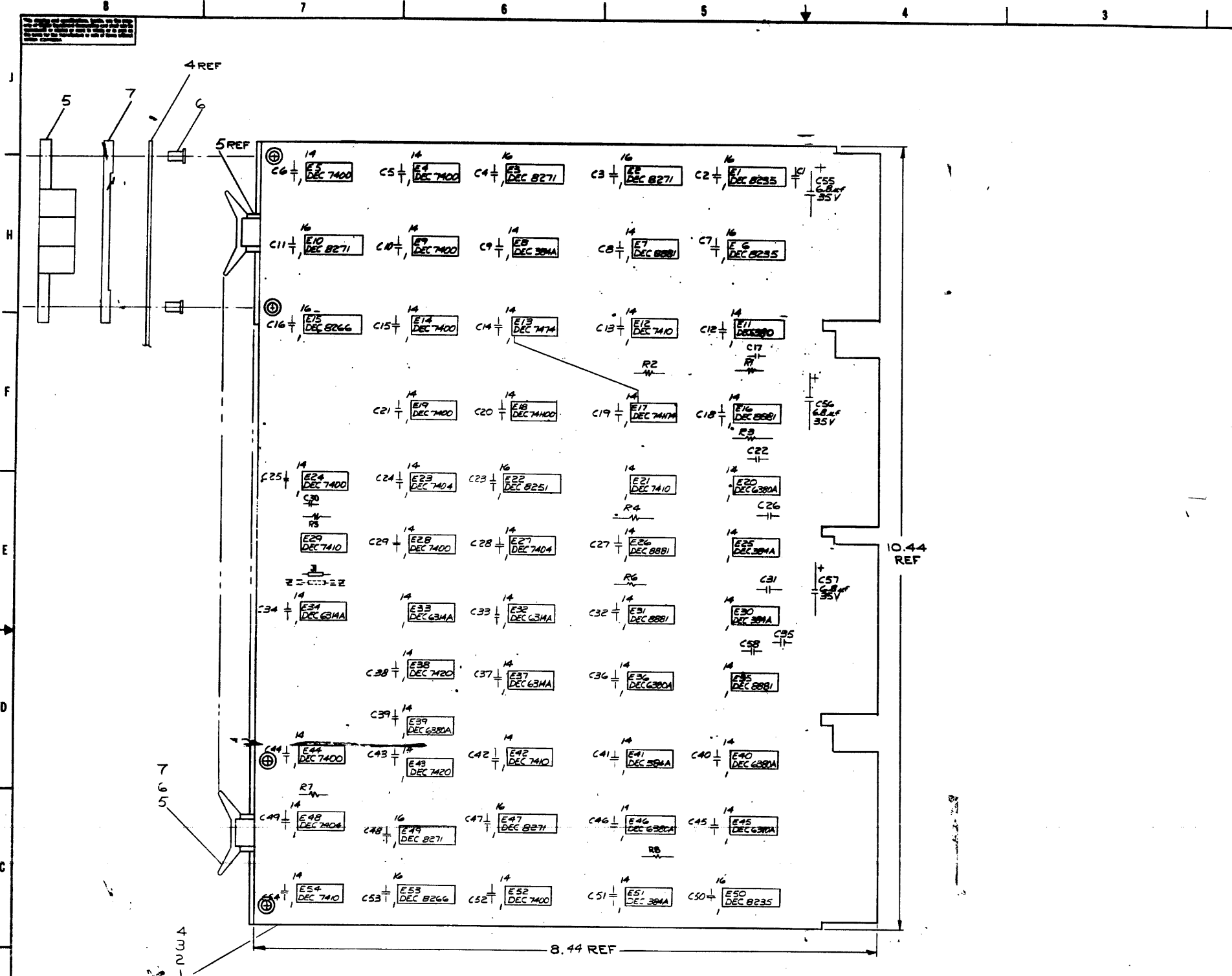
REVISIONS				DRN.	DATE	<b>digital</b> EQUIPMENT CORPORATION <small>MAYNARD, MASSACHUSETTS</small>					
REV.	DATE	CHG. NO.	P.D.	K. GULICK	19/71						
A	3/23/71	00001	M.	CHK'D K. GULICK	19/71	<b>TITLE</b>  MEM EXT & TIME SHARE CONTROL	SIZE CODE NUMBER			REV.	
B	6/71	KM8E-2	M.	ENG. R. MADDEN	3/3/71		A	ML	KM8-E	E	
C	7/71	MISC-86	V.	PROJ. ENG. R. VOGELSANG	3/3/71		DIST.				
D	7/71	KM8E-3		PROD. L. SAYLOR	5/3/71						
E	1/72	BE-55		FIRST USED ON A-ML-PDP8/3- <del>Ø</del>							
				SCALE	NONE						
				SHEET	1 OF 2						

DRA 131  
Dec 16 (325)-1048-N471

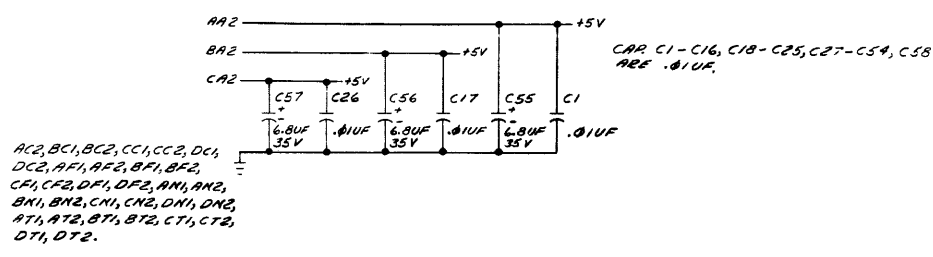
PRINT SET				DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.	
KMR- <del>E</del>				E-CS-M837- <del>Ø</del> -1	<del>#</del>	3	MEM EXT & TIME SHARE CONTROL		
-				A-PL-KM8-E- <del>Ø</del>	REF	1	MEM EXT & TIME SHARE CONTROL (PL)		
-				A-SP-7665140-0-0		3	KM8E ACCEPTANCE PROCEDURE		
-				A-SP-KM8-E-1		4	MEMORY EXTENSION TEST PROCEDURE		
-				A-SP-KM8-E-2		2	MEMORY EXTENSION SPECIFICATIONS		
-				LIBKIT-8E-KM8E	REF		PROGRAM LIBRARY KIT		
<b>TITLE</b>				MEM EXT & TIME SHARE CONTROL	SHEET 2 OF 2			SIZE CODE NUMBER	REV.
								A ML	E
								KM8-E	

DRA 132  
DEC 16 (325)-1048-N471

NOTES:  
UNLESS OTHERWISE NOTED:  
CAPACITORS ARE .01MF 100V 20%,  
RESISTORS ARE 1K 1/4W 5%



DEC 314	1	8
DEC 384	1	8
DEC 6380	1	8
DEC 8251	8	16
DEC 8266	8	16
DEC 8235	8	16
DEC 8271	8	16
IC TYPE	QND	4-3V
ONE END BY ARE USUALLY FOR 7 AND 14	ITEM NO	FROM PT
INTERRUPTIBLY EXCEPTIONS ARE STATED ABOVE	ARRG	TO PT
IC PIN LOCATIONS	ADJUSTER LIST	



QTY	REF DESIGNATION	DESCRIPTION	PART NO.	REV
7	E11, E20, E36, E39, E40, E45, E46	IC DEC 6380	1909971	25
8	R1-R8	RESISTOR 1K 1/4W 5%	1300365	24
55	C1-C54, C58	CAPACITOR .01MF DISC 20%	1001610	23
3	C55, C56, C57	CAPACITOR 6.8UF 35V 10%	1005306	22
9	E24, E29, E14, E19, E24, E29, E44, E52	IC DEC 7400	1905575	21
5	E7, E16, E26, E31, E35	IC DEC 8891	1909705	20
5	E2, E3, E10, E47, E49	IC DEC 8271	1909615	19
3	E1, E6, E30	IC DEC 8235	1909935	18
2	E15, E53	IC DEC 8266	1909934	17
1	E22	IC DEC 8251	1909574	16
1	E17	IC DEC 74174	1909667	15
1	E13	IC DEC 7474	1905547	14
2	E38, E43	IC DEC 7420	1905577	13
5	E12, E21, E24, E42, E54	IC DEC 7410	1905576	12
3	E23, E27, E48	IC DEC 7404	1909686	11
1	E18	IC DEC 74H00	1909056	10
5	E5, E25, E30, E41, E51	IC DEC 384A	1909426	9
4	E32-E34, E37	IC DEC 6314A	1909972	8
4		SPACER (CABLE CLAMP)	1202104	7
6		EYELET GS4-11 STIMPSON	9006750	6
4		HANDLE FLIP CHIP - MENTHA	9008337-06	5
1		ETCHED CIRCUIT BOARD	8007235	4
REF		MODULE HISTORY LIST	B-MH-437-46	3
REF		ASSY/DRILLING HOLE LAYOUT	D-MH-437-45	2
REF		X-Y COORDINATE HOLE LOC.	K-CG-M837-4-1	1

ETCH BOARD REV

PARTS LIST

EQUIPMENT CORPORATION

MEM EXT & TIME SHARE CONTROL

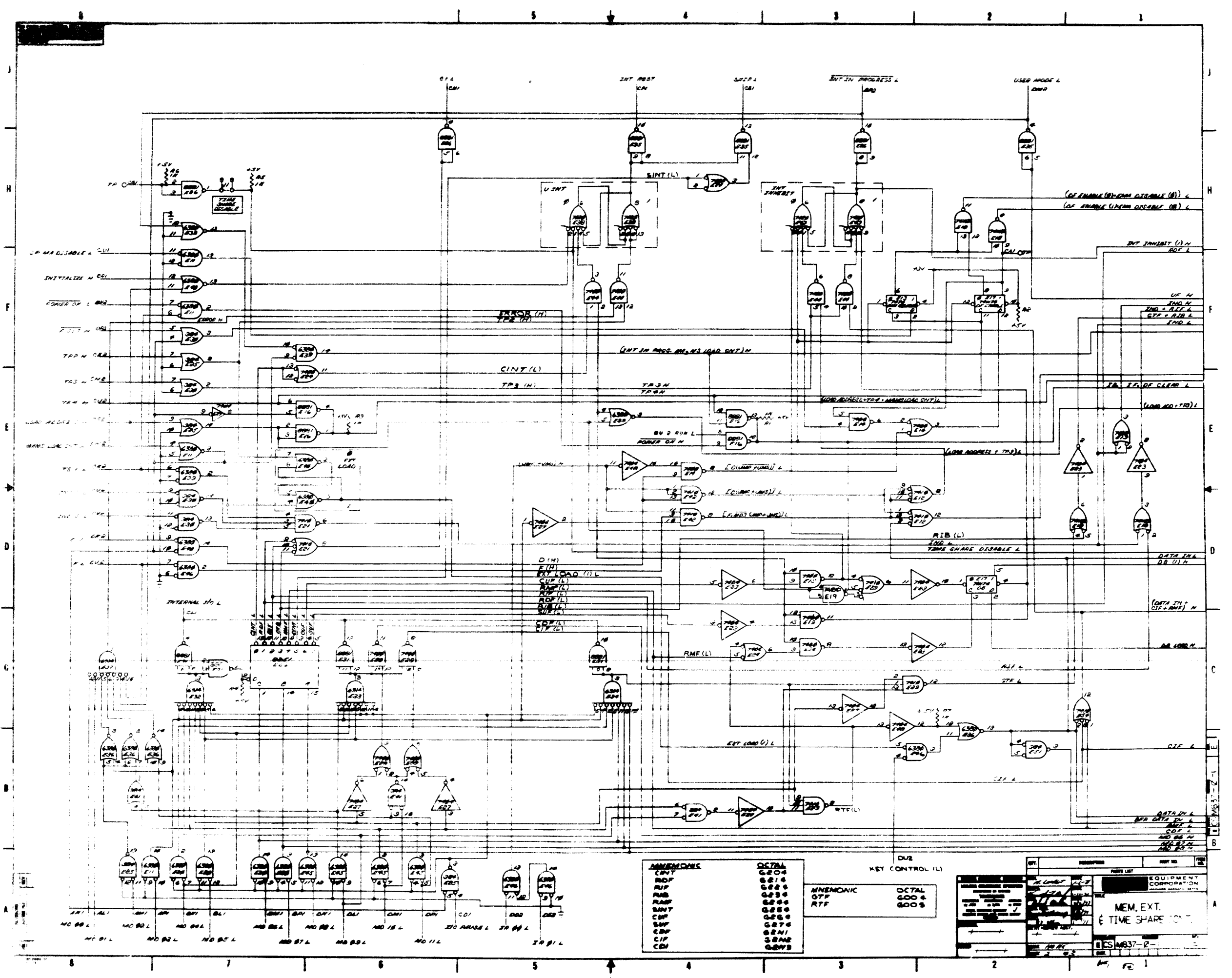
A-ML-KNB-E

DEC NO. EIA NO. DEC NO. EIA NO.

SEMICONDUCTOR CONVERSION CHART

1 of 3





**MNEMONIC**

CIP	0204
RDF	0214
RIP	0224
RAF	0234
SNT	0244
CIP	0254
SIP	0264
CIP	0274
CIP	0284
CIP	0294
CIP	0304

**OCTAL**

0204	0214	0224	0234	0244	0254	0264	0274	0284	0294	0304
0204	0214	0224	0234	0244	0254	0264	0274	0284	0294	0304

**KEY CONTROL (L)**

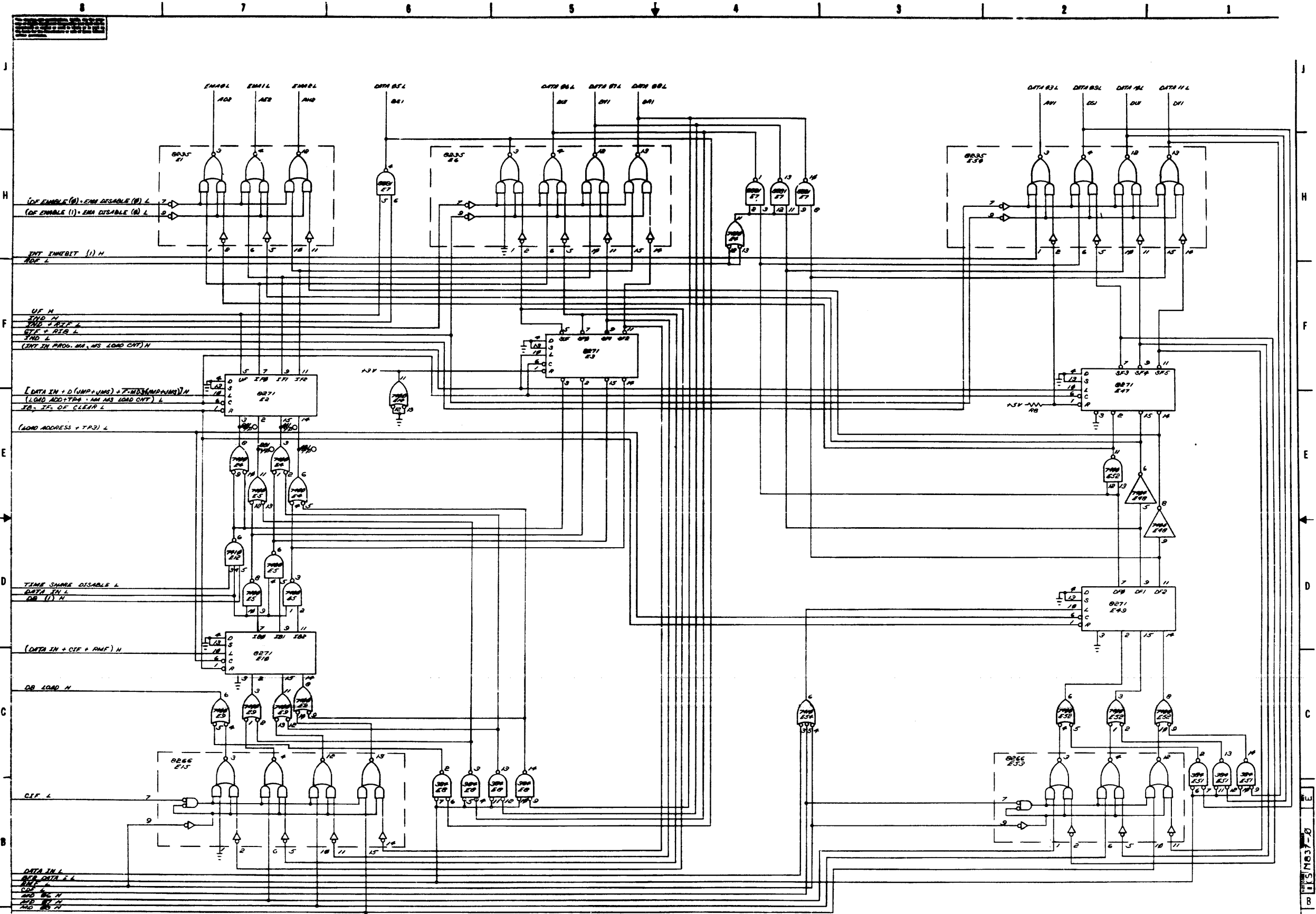
MNEMONIC	OCTAL
GTF	0004
RTF	0008

DATA IN L  
DATA IN H  
DATA IN L  
DATA IN H  
DATA IN L  
DATA IN H  
DATA IN L  
DATA IN H  
DATA IN L  
DATA IN H

**MEM. EXT. & TIME SHARE CONTROL**

**ECS M837-2**

MEM. EXT. & TIME SHARE CONTROL  
ECS M837-2



ECS M837-20

QTY	DESCRIPTION	PARTS LIST	PART NO.
		EQUIPMENT CORPORATION	
TITLE			
MEM. EXT.			
TIME SHARE CONT.			
ECS M837-20			

# 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											

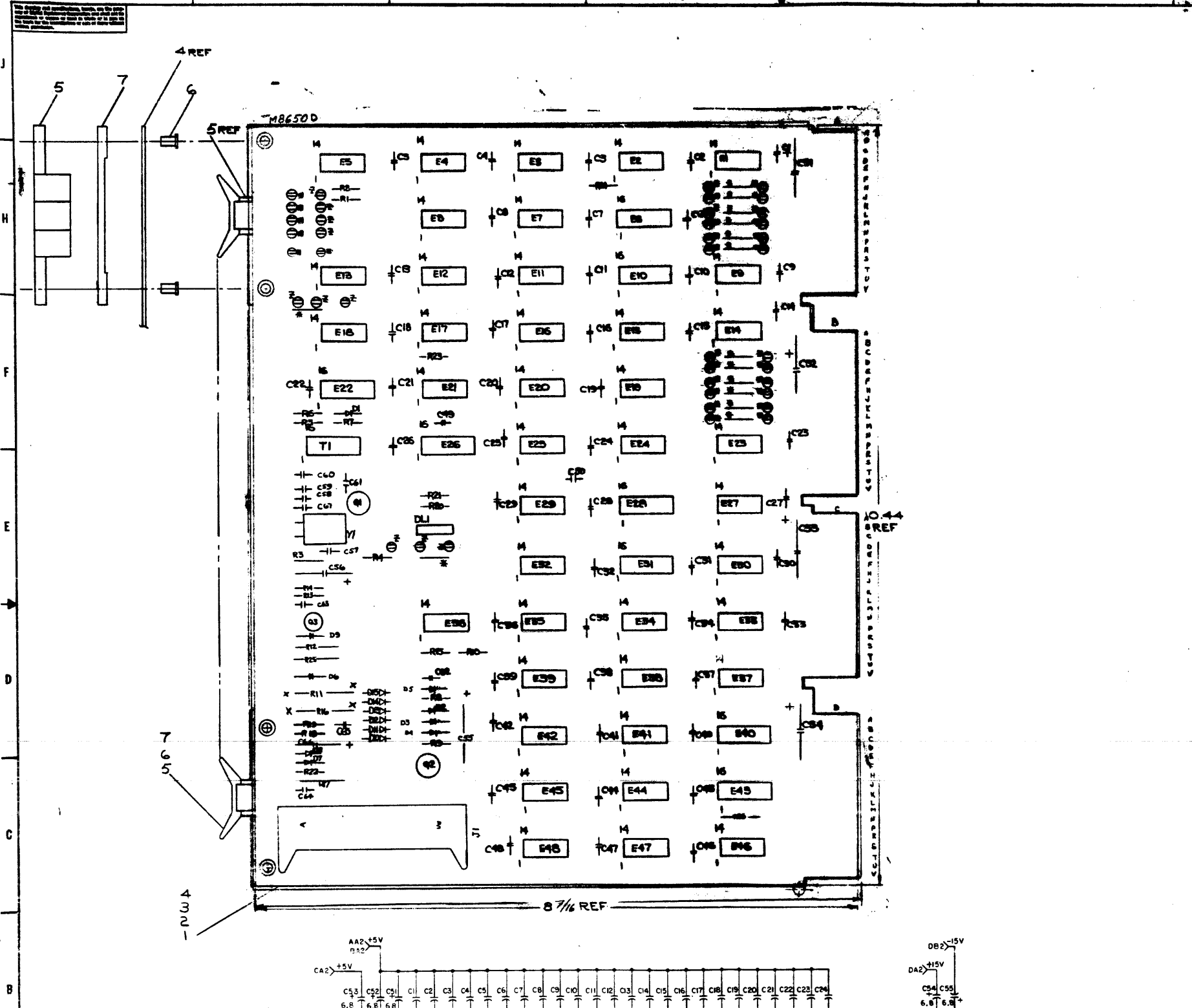
USED ON OPTIONS	
PDP8/E	
PDP8/M	

REV.	DATE	CHG. NO.	APP'D.	REV.	DATE	CHG. NO.	APP'D.	DRN.		DATE	TITLE	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS									
								KL8-E	KL8-EA						KL8-EB	KL8-EC	KL8-ED	KL8-EE	KL8-EF	KL8-EG	NO.
A	4/71	M865-3	JM	A	4/71	M865-3	JM	K. GULICK	12-3-71		ASYNC DATA CONTROL										
B	8/71	KL8E-3		B	8/71	KL8E-3		K. GULICK	12-3-71												
C	12/71	KL8E-4		C	12/71	KL8E-4															
D	1/72	8E-55		D	1/72	8E-55															
E	1/72	KL8E-5		E	1/72	KL8E-5															
F	2/74	KL8E-7		F	2/74	KL8E-7															

DRA 131  
Dec 16-(325)-1048-N471

PRINT SET				REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.
KL8E							
X					2	ASYNC. DATA CONTROL	
X					2	ASYNC. DATA CONTROL	
X					1	CABLE ASSY	
X					1	CABLE ASSY	
X					16	ENGINEERING SPECIFICATIONS	
X					1	ASYNC. DATA CONTROL	
					10	TEST PROCEDURE	
				A	5	ACCEPTANCE	
-				REF	1	KIT LIST	
X					1	ACCESSORY LIST	

DRA 132  
DEC 16 (325)-1048-N471



**NOTES:**

- $\frac{1}{2}$  = SPLIT LUGS  
 $\frac{1}{2}$  = MACHINE INSERTED JUMPER  
 $\frac{1}{2}$  = 40 PIN HEADER CONNECTION
- DATA II  $\frac{1}{2}$  = 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 SYMBOL LOGY.  
 FLIP-FLOPS ARE NAMED FOR THE CONDITION THEY REPRESENT IN THE '1' STATE.  
 THE FOLLOWING FIGURES APPLY:

IF 'D' SHOWN THUS '1' STATE = Q STATE.  
 IF 'D' SHOWN THUS '1' STATE = Q-bar STATE.  
 IF 'I' SHOWN THUS THIS LEAD IS HIGH WHEN FLIP-FLOP IS IN '1' STATE.  
 IF 'I' SHOWN THUS THIS LEAD IS LOW WHEN FLIP-FLOP IS IN '1' STATE.

4. WAVEFORM AT TEST POINT #6 FOR RECEPTION OF 'A' (ASCII 01)

5. UNLESS OTHERWISE NOTED:  
 RESISTORS = 1K 1/4W 5%  
 CAPACITORS = .01uF 100V 20%  
 DIODES = D664

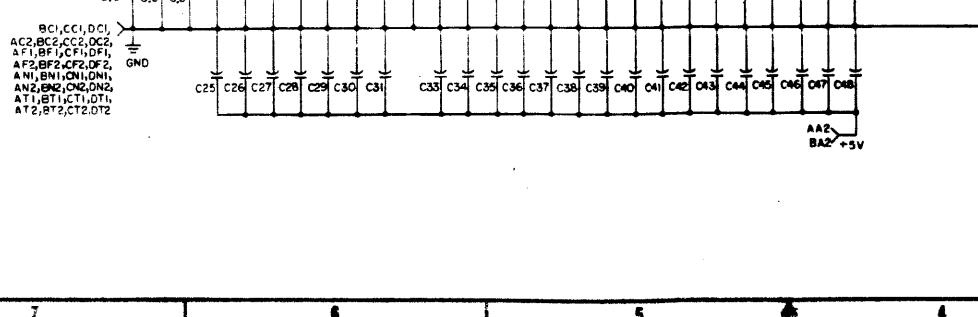
2 R12, R25	RES. 1.5K 1/2W 5%	1300394	59
1 R22	RES. 52 1/4W 5%	1304477	58
5 E12, E23, E27, E30, E44	I.C. DEC 6380	1310392	57
4 E2, E15, E33, E57	I.C. DEC 97401	1909973	56
9 E3, E4, E7, E8, E16, E20, E29, E38, E48	I.C. DEC 7474	1905547	55
3 E5, E13, E18	I.C. DEC 7493	1909054	54
5 E6, E10, E26, E28, E31	I.C. DEC 8271	1909615	53
2 E9, E14	I.C. DEC 5314	1910391	52
8 E11, E45, E47	I.C. DEC 7402	1909704	51
3 E18, E41, E44	I.C. DEC 7400	1905573	50
1 E17	I.C. MC1489, EIA RECEIVER	1910323	49
1 E19	I.C. DEC 7410	1905576	48
1 E21, E42	I.C. DEC 7404	1909666	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 5354	1910394	42
2 E40, E43	I.C. DEC 8251	1909394	41
1 E35	I.C. DEC 74100	1909056	40
52 C1-C50, C62, C64	CAP. .01uF 100V 20% DISC	1001010	39
6 C51-C56	CAP. 6.8uF 35V 20% TANT	1000067	38
2 C57, C61	CAP. .047uF DISC	1009678	37
1 C58	CAP. 33uF MICA	1000009	36
1 C59	CAP. 100uF MICA	1000016	35
1 C60	CAP. 33uF MICA	1000014	34
1 C63	CAP. .001uF 250V DISC	1000043	33
2 C65, C67	CAP. 10uF 100V 5% MICA	1000006	32
1 C66	CAP. .47uF 35V TANT	1005965	31
1 D1	DIODE, D662	1100113	30
14 D2-D15	DIODE, D664	1100114	29
3 R1, R4, R20	RES. 220, 1/4W 5%	1300271	28
1 R2	RES. 750 1/4W 5%	1301401	27
2 R3, R19	RES. 10K 1/4W 5%	1300479	26
2 R5, R18	RES. 3.3K 1/4W 5%	1300435	25
4 R6, R7, R13, R24	RES. 470 1/4W 5%	1300316	24
1 R8	RES. 150 1/4W 5%	1300250	23
2 R10, R15, R26	RES. 1K 1/4W 5%	1300365	22
3 R11, R16	RES. 750 1W 5%	1302385	21
1 R14	RES. 1.5K 1/4W 5%	1300391	20
1 R21	RES. 330 1/4W 5%	1300295	19
1 R23	RES. 30K 1/4W 5%	1302394	18
1 R9	RES. 180 1/4W 5%	1301322	17
1 R17	RES. 560 1/2W 5%	1300358	16
1 Q1	TRANSISTOR, DEC 3009B	1503100	15
2 Q2, Q3	TRANSISTOR, DEC 6534D	1503409	14
1 T1	XFMR 8010	1609651	13
1 Y1	DELAY LINE 30 NANO SEC	1605528	12
40 Y1	CRYSTAL 14.418 MHE	1809880-01	11
1 W1	WIRE SPLITTER	3006735	10
1 W2	CONNECTOR 40 PIN	1209941	9
1 W3	WIRE #22AV6 SOLID BUS	9107560-01	8
1 W4	SPACER (CABLE CLAMP)	1202104	7
1 W5	LETLET GS4-11 STIMPSON	9006750	6
4 W6	HANDLE FLIP CHIP-MAGENTA	2008337-06	5
1 W7	ETCHED CIRCUIT BOARD	5002544	4
1 W8	MODULE HISTORY LIST	B-MH-8650-2-6	3
1 W9	ASSY/DRILLING HOLE LAYOUT	D-MH-8650-2-5	2
1 W10	XY COORDINATE HOLE LOC.	K-CO-8650-2-4	1

DEC MC1488L	7	146156	
5384	1	8	
7493	8	16	
5314	1	8	
8271	8	16	
7493	10	5	
DEC 538C	1	8	

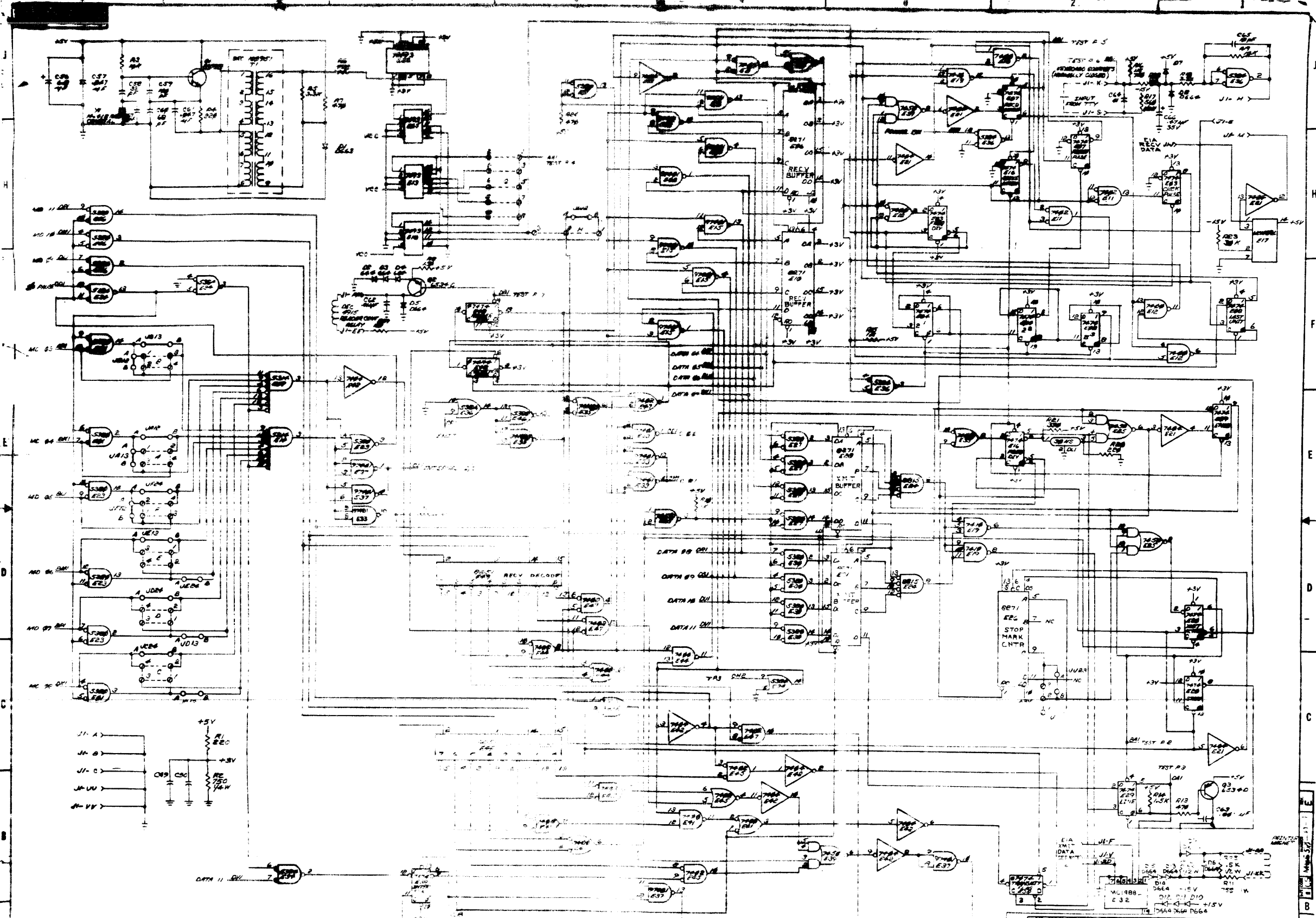
IC TYPE GND +5V B 22 JCI3-A JCI5-B

WIP AND BY ARE USUALLY PIN 7 AND 10 RESPECTIVELY. ENCLOSURES ARE STATED ABOVE.

IC PIN LOCATIONS



ETCH BOARD REV	D	DATE	12/22/71	EQUIPMENT CORPORATION
REV	1	DATE	12/22/71	ASYNCHRONOUS DATA CONTROL
REV	2	DATE	12/22/71	
REV	3	DATE	12/22/71	
REV	4	DATE	12/22/71	
REV	5	DATE	12/22/71	
REV	6	DATE	12/22/71	
REV	7	DATE	12/22/71	
REV	8	DATE	12/22/71	
REV	9	DATE	12/22/71	
REV	10	DATE	12/22/71	
REV	11	DATE	12/22/71	
REV	12	DATE	12/22/71	
REV	13	DATE	12/22/71	
REV	14	DATE	12/22/71	
REV	15	DATE	12/22/71	
REV	16	DATE	12/22/71	
REV	17	DATE	12/22/71	
REV	18	DATE	12/22/71	
REV	19	DATE	12/22/71	
REV	20	DATE	12/22/71	
REV	21	DATE	12/22/71	
REV	22	DATE	12/22/71	
REV	23	DATE	12/22/71	
REV	24	DATE	12/22/71	
REV	25	DATE	12/22/71	
REV	26	DATE	12/22/71	
REV	27	DATE	12/22/71	
REV	28	DATE	12/22/71	
REV	29	DATE	12/22/71	
REV	30	DATE	12/22/71	
REV	31	DATE	12/22/71	
REV	32	DATE	12/22/71	
REV	33	DATE	12/22/71	
REV	34	DATE	12/22/71	
REV	35	DATE	12/22/71	
REV	36	DATE	12/22/71	
REV	37	DATE	12/22/71	
REV	38	DATE	12/22/71	
REV	39	DATE	12/22/71	
REV	40	DATE	12/22/71	



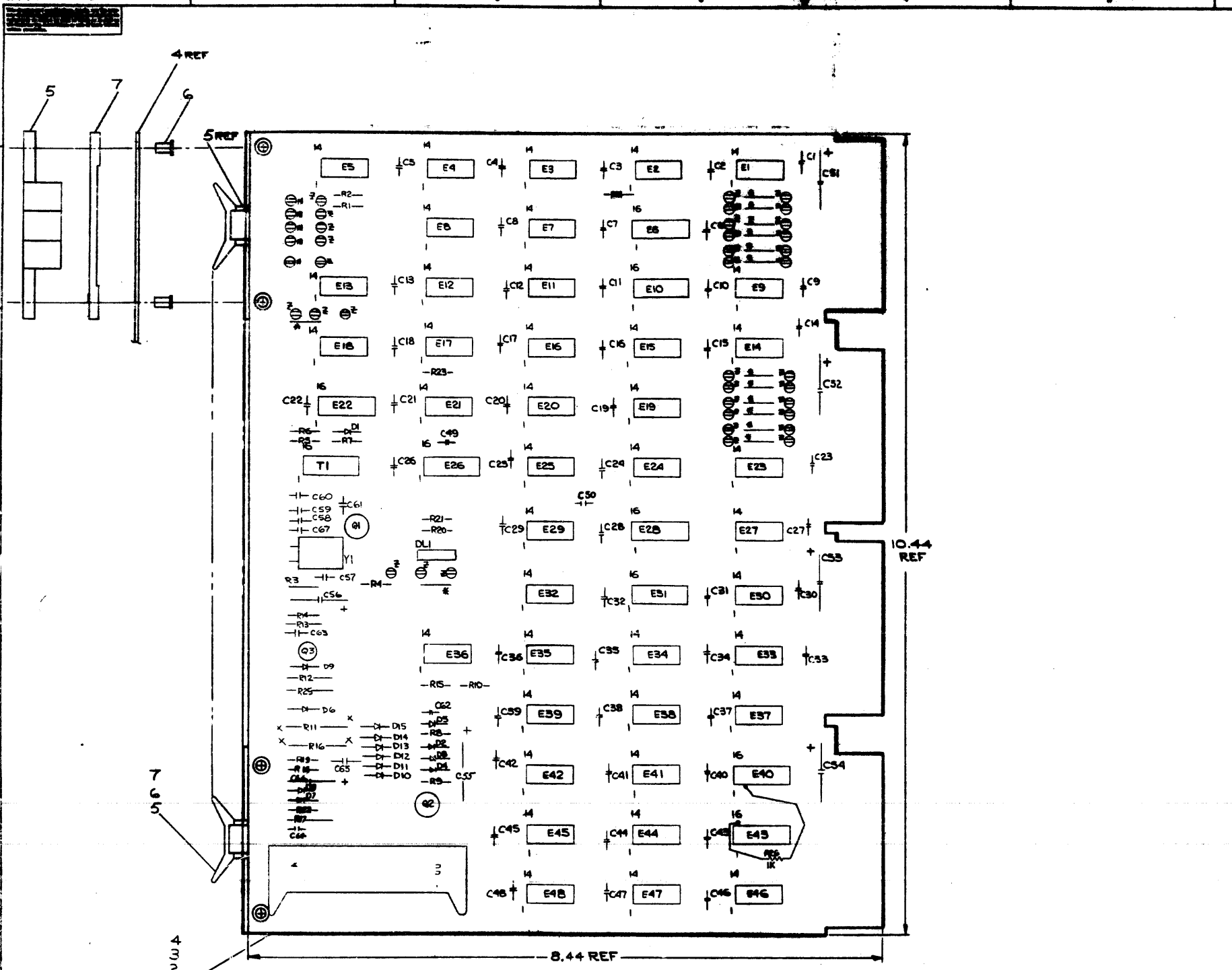
ITEM NO.	QTY	DESCRIPTION	PART NO.	REV.
1	1	7400	7400	
2	1	74100	74100	
3	1	7410	7410	
4	1	7490	7490	
5	1	7493	7493	
6	1	7401	7401	
7	1	7402	7402	
8	1	7403	7403	
9	1	7404	7404	
10	1	7405	7405	
11	1	7406	7406	
12	1	7407	7407	
13	1	7408	7408	
14	1	7409	7409	
15	1	7410	7410	
16	1	7411	7411	
17	1	7412	7412	
18	1	7413	7413	
19	1	7414	7414	
20	1	7415	7415	
21	1	7416	7416	
22	1	7417	7417	
23	1	7418	7418	
24	1	7419	7419	
25	1	7420	7420	
26	1	7421	7421	
27	1	7422	7422	
28	1	7423	7423	
29	1	7424	7424	
30	1	7425	7425	
31	1	7426	7426	
32	1	7427	7427	
33	1	7428	7428	
34	1	7429	7429	
35	1	7430	7430	
36	1	7431	7431	
37	1	7432	7432	
38	1	7433	7433	
39	1	7434	7434	
40	1	7435	7435	
41	1	7436	7436	
42	1	7437	7437	
43	1	7438	7438	
44	1	7439	7439	
45	1	7440	7440	
46	1	7441	7441	
47	1	7442	7442	
48	1	7443	7443	
49	1	7444	7444	
50	1	7445	7445	
51	1	7446	7446	
52	1	7447	7447	
53	1	7448	7448	
54	1	7449	7449	
55	1	7450	7450	
56	1	7451	7451	
57	1	7452	7452	
58	1	7453	7453	
59	1	7454	7454	
60	1	7455	7455	
61	1	7456	7456	
62	1	7457	7457	
63	1	7458	7458	
64	1	7459	7459	
65	1	7460	7460	
66	1	7461	7461	
67	1	7462	7462	
68	1	7463	7463	
69	1	7464	7464	
70	1	7465	7465	
71	1	7466	7466	
72	1	7467	7467	
73	1	7468	7468	
74	1	7469	7469	
75	1	7470	7470	
76	1	7471	7471	
77	1	7472	7472	
78	1	7473	7473	
79	1	7474	7474	
80	1	7475	7475	
81	1	7476	7476	
82	1	7477	7477	
83	1	7478	7478	
84	1	7479	7479	
85	1	7480	7480	
86	1	7481	7481	
87	1	7482	7482	
88	1	7483	7483	
89	1	7484	7484	
90	1	7485	7485	
91	1	7486	7486	
92	1	7487	7487	
93	1	7488	7488	
94	1	7489	7489	
95	1	7490	7490	
96	1	7491	7491	
97	1	7492	7492	
98	1	7493	7493	
99	1	7494	7494	
100	1	7495	7495	
101	1	7496	7496	
102	1	7497	7497	
103	1	7498	7498	
104	1	7499	7499	
105	1	7500	7500	

ASYNCHRONOUS  
DATA CONTROL

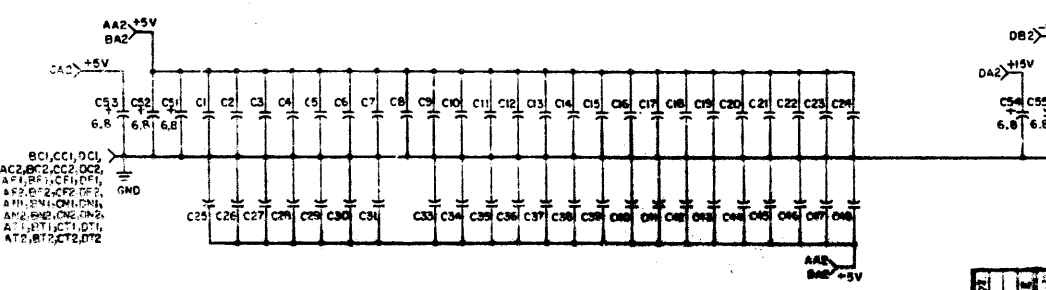
NUMBER  
ECS MB050-2

REVISIONS  
REV. 1  
REV. 2  
REV. 3  
REV. 4  
REV. 5  
REV. 6  
REV. 7  
REV. 8  
REV. 9  
REV. 10

EQUIPMENT CORPORATION  
MILWAUKEE, WISCONSIN



DEC MODEL	REV	DATE	BY	CHK	APP	DESCRIPTION
1146HSA	1	10/15/64				REVISED TO ACCOMMODATE THE 1146HSA BOARD
1146HSA	2	10/15/64				REVISED TO ACCOMMODATE THE 1146HSA BOARD
1146HSA	3	10/15/64				REVISED TO ACCOMMODATE THE 1146HSA BOARD
1146HSA	4	10/15/64				REVISED TO ACCOMMODATE THE 1146HSA BOARD
1146HSA	5	10/15/64				REVISED TO ACCOMMODATE THE 1146HSA BOARD
1146HSA	6	10/15/64				REVISED TO ACCOMMODATE THE 1146HSA BOARD
1146HSA	7	10/15/64				REVISED TO ACCOMMODATE THE 1146HSA BOARD
1146HSA	8	10/15/64				REVISED TO ACCOMMODATE THE 1146HSA BOARD
1146HSA	9	10/15/64				REVISED TO ACCOMMODATE THE 1146HSA BOARD
1146HSA	10	10/15/64				REVISED TO ACCOMMODATE THE 1146HSA BOARD



**NOTES:**

- 1. = SPLIT LUGS
- = MACHINE INSERTED JUMPER
- = 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).

3. THIS DRAWING FOLLOWS DEC STANDARD 056 LOGIC SYMBOL OBY.  
FLIP-FLOPS ARE NAMED FOR THE CONDITION THEY REPRESENT IN THE '1' STATE.  
THE FOLLOWING FIGURES APPLY:

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

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

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

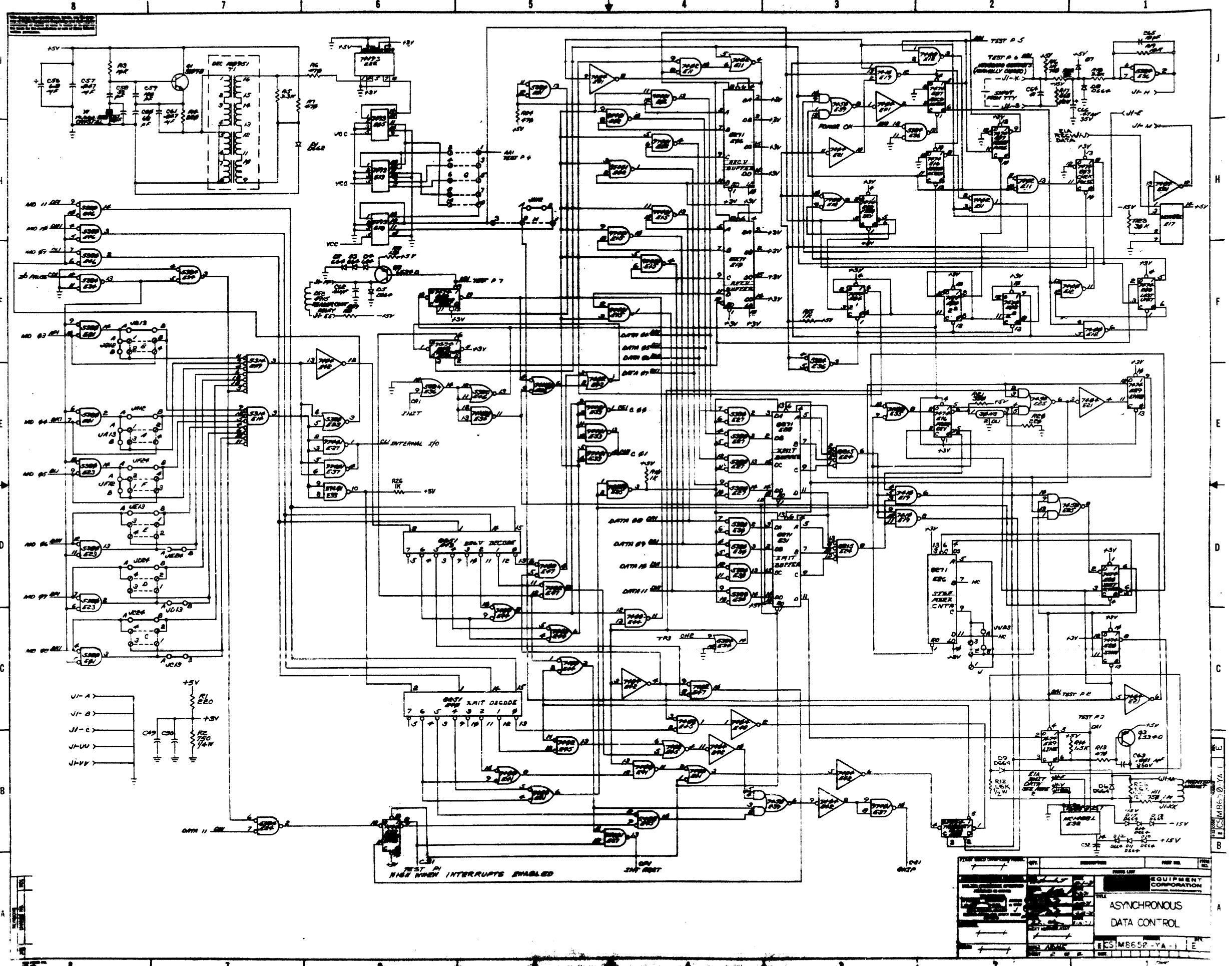
IF 'I' SHOWN THUS THIS LEAD IS LOW WHEN FLIP-FLOP IS IN '1' STATE.

4. WAVEFORM AT TEST POINT #6 FOR RECEPTION OF 'A' (ASC II 30H)

5. UNLESS OTHERWISE NOTED:  
RESISTORS = 1K 1/4W 5%  
CAPACITORS = .01uF 100V 20%  
DIODES = D664

QTY	DESCRIPTION	REVISION	DATE	BY
2	R12, R25	RES. 1.5K 1/2W 5%	1300394	20
1	R22	RES. .82 1/4W 5%	1301477	26
5	E1, E2, E3, E27, E30, E40	I.C. DEC 6380	1910392	27
4	E2, E15, E33, E37	I.C. DEC 97401	1909973	28
9	E3, E4, E7, E8, E16, E20, E23, E48	I.C. DEC 7474	1905547	35
3	E5, E13, E18	I.C. DEC 7493	1909054	34
5	E6, E26, E28, E31	I.C. DEC 8271	1909618	33
2	E9, E14	I.C. DEC 5314	1910391	32
3	E11, E43, E47	I.C. DEC 7402	1909004	31
3	E12, E41, E44	I.C. DEC 7400	1905573	30
1	E17	I.C. MCT489L EIA RECEIVER	1910323	29
1	E19	I.C. DEC 7410	1905376	28
2	E21, E42	I.C. DEC 7404	1909008	27
1	E22	I.C. DEC 74138	1910018	26
1	E24	I.C. DEC 8815	1909713	25
4	E25, E39	I.C. DEC 7450	1905580	24
1	E32	I.C. MCT488L EIA DRIVER	1910322	23
2	E34, E36	I.C. DEC 5884	1910394	22
2	E40, E43	I.C. DEC 8251	1909594	21
1	E35	I.C. DEC 74000	1909056	20
39	C1, C50, C62, C64	CAP. .01uF 100V 20% DISC	1001010	39
1	C51-C56	CAP. .01uF 35V 20% TANT	1000007	38
2	C57, C61	CAP. .047uF DISC	1003988	37
1	C38	MICA 1000009	36	
1	C39	CAP. 100uF MICA	1000012	35
1	C60	CAP. .01uF 100V 5% MICA	1000014	34
1	C63	CAP. .001uF 30V DISC	1000045	33
2	C65, C67	CAP. 10uF 100V 5% MICA	1000000	32
1	C66	CAP. .47uF 35V TANT	1005905	31
1	D1	DIODE D662	1100113	30
14	D2-D15	DIODES D664	1100114	29
3	R1, R4, R20	RES. .220 1/4W 5%	1300271	28
1	R3, R19	RES. 750 1/4W 5%	1301601	27
2	R5, R18	RES. 10K 1/4W 5%	1300479	26
4	R6, R7, R13, R24	RES. 3.3K 1/4W 5%	1300499	25
1	R8	RES. 470 1/4W 5%	1300310	24
3	R10, R15, R26	RES. 1K 1/4W 5%	1300365	23
2	R11, R16	RES. 750 1W 5%	1302385	21
1	R14	RES. 1.5K 1/4W 5%	1300391	20
1	R21	RES. 330 1/4W 5%	1300295	19
1	R23	RES. 30K 1/4W 5%	1302394	18
1	R27	RES. 180 1/4W 5%	1301332	17
1	R17	RES. 500 1/4W 5%	1300358	16
1	Q1	TRANSISTOR DEC 3002B	1503100	15
2	Q2, Q3	TRANSISTOR DEC 6534D	1503409	14
1	T1	XFMR 8010	1609051	13
1	DL1	DELAY LINE 30 NANO SEC	1605528	12
1	Y1	CRYSTAL M661 MHE	1809880-02	11
10		LUGS SPLIT	19006735	10
1		CONNECTOR 40 PIN	1209241	9
1		MICROSTRIP SOLID BUS	107560-01	8
1		WIRE (WIRE WEAVER)	150474	7
1		STGEL 65441 SIMPSON	3006730	6
1		HANDLE FLIP CHIP-MANENTAL	908337-06	5
1		E-CHEM CIRCUIT BOARD	8009544	4
1		MODAL HISTORY LIST	8-11-1964	3
1		ISSY/FORMING HOLE LAYOUT	8-11-1964	2
1		X-Y COORDINATE HOLE LOC	8-11-1964	1

REV	REF	DESCRIPTION	DATE	BY
	D	REVISION		



TEST POINT	DESCRIPTION	REF. DES.	TEST
TEST P. 1	...	...	...
TEST P. 2	...	...	...
TEST P. 3	...	...	...
TEST P. 4	...	...	...
TEST P. 5	...	...	...
TEST P. 6	...	...	...
TEST P. 7	...	...	...
TEST P. 8	...	...	...
TEST P. 9	...	...	...
TEST P. 10	...	...	...
TEST P. 11	...	...	...
TEST P. 12	...	...	...
TEST P. 13	...	...	...
TEST P. 14	...	...	...
TEST P. 15	...	...	...
TEST P. 16	...	...	...
TEST P. 17	...	...	...
TEST P. 18	...	...	...
TEST P. 19	...	...	...
TEST P. 20	...	...	...
TEST P. 21	...	...	...
TEST P. 22	...	...	...
TEST P. 23	...	...	...
TEST P. 24	...	...	...
TEST P. 25	...	...	...
TEST P. 26	...	...	...
TEST P. 27	...	...	...
TEST P. 28	...	...	...
TEST P. 29	...	...	...
TEST P. 30	...	...	...
TEST P. 31	...	...	...
TEST P. 32	...	...	...
TEST P. 33	...	...	...
TEST P. 34	...	...	...
TEST P. 35	...	...	...
TEST P. 36	...	...	...
TEST P. 37	...	...	...
TEST P. 38	...	...	...
TEST P. 39	...	...	...
TEST P. 40	...	...	...
TEST P. 41	...	...	...
TEST P. 42	...	...	...
TEST P. 43	...	...	...
TEST P. 44	...	...	...
TEST P. 45	...	...	...
TEST P. 46	...	...	...
TEST P. 47	...	...	...
TEST P. 48	...	...	...
TEST P. 49	...	...	...
TEST P. 50	...	...	...

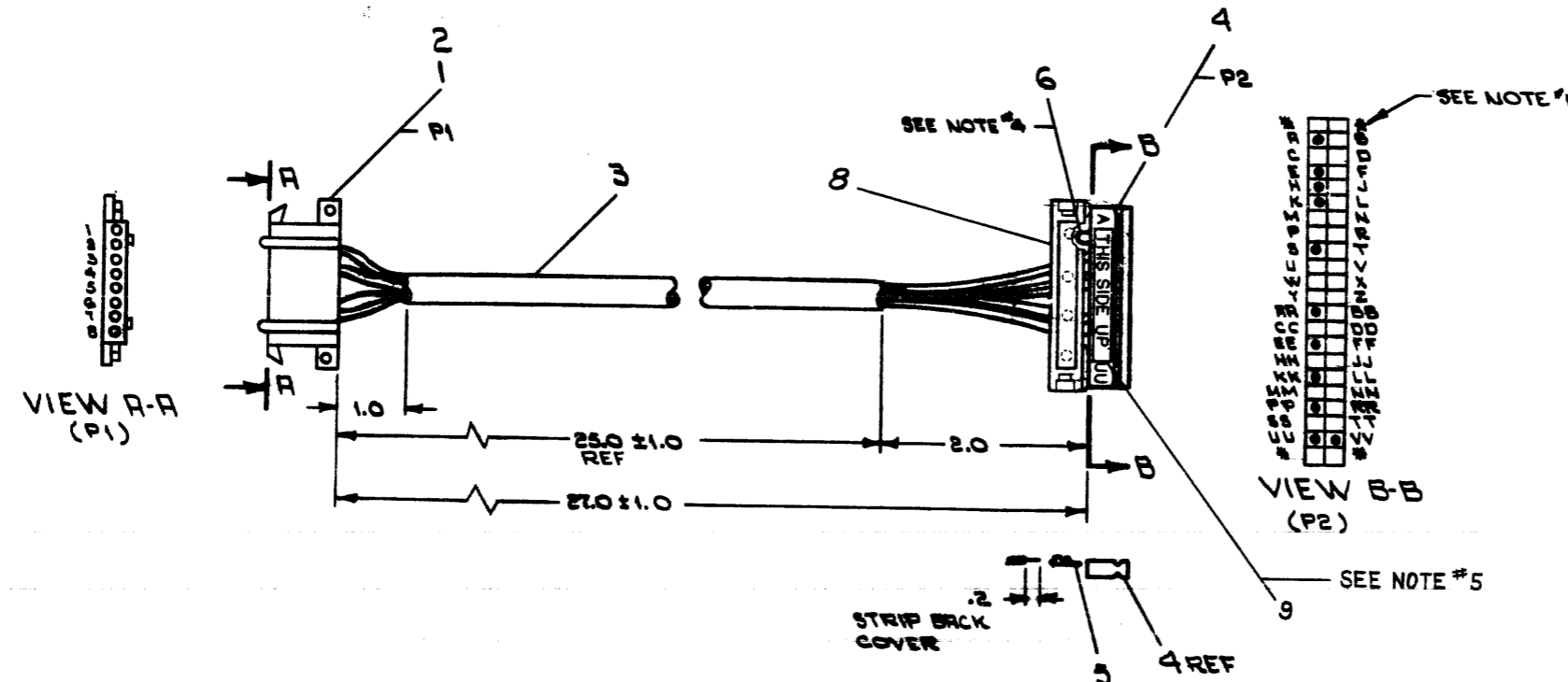
EQUIPMENT CORPORATION  
 ASYNCHRONOUS  
 DATA CONTROL

CSM8657-YA-1

**WIRE TABLE**

FROM DESCRIPTION NO	RING	COLOR	PAIR NO.	FROM		TO	
				CONNECTION WITH	CONNECTION WITH	CONNECTION WITH	CONNECTION WITH
5	22	BLK	1	P1-2	2	P2-KK	5
5		RED		P1-3	2	P2-S	
5.7		SHIELD		SEE NOTE #2	-	P2-R(NOTE #3)	
3		BLK	2	P1-4	2	P2-EE	
3		WHT		P1-5	2	P2-RR	
3.7		SHIELD		SEE NOTE #2	-	P2-U(NOTE #3)	
5		BLK	3	P1-6	2	P2-PP	
5		GRN		P1-7	2	P2-K	
3.7		SHIELD		SEE NOTE #2	-	P2-V(NOTE #3)	
6	22	BLK	-	P2-E	3	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	361567	9
1	STRAIN RELIEF	121166	3
R/R	TUB. #18 STEF. THINWALL WRT	910728-11	7
R/R	WIRE #22 AWG STRD TEF BLK	910730-00	6
11	SOCKET, CRIMP #47216	1210089-07	5
1	HOUSING, BERG #65043-015	1210913-15	4
R/R	CABLE, BELDEN #8TT-3PR SHLD	9107723-0	3
6	CONTACT MATE-LOCK (FEMALE)	1209379	2
1	CONN. MATE-LOCK (FEMALE)	1209340-00	1

digital EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS

TITLE: **CABLE ASSEMBLY (KL8E)**

SCALE: NONE

SHEET: 2 OF 2

DATE: 12/1/74

REV: D

**REVISIONS**

CHK	CHANGE NO.	REV.
	00002	A
	00003	B
	00004	C
	00005	D

FIRST USED ON OPTION/MODEL: PDP-8E

DO NOT SCALE DRAWING UNLESS OTHERWISE SPECIFIED

TOLERANCES: ANGLES ± 0°20'

MATERIAL: SEE PARTS LIST

FINISH: NONE

DIA 7008360-0-0

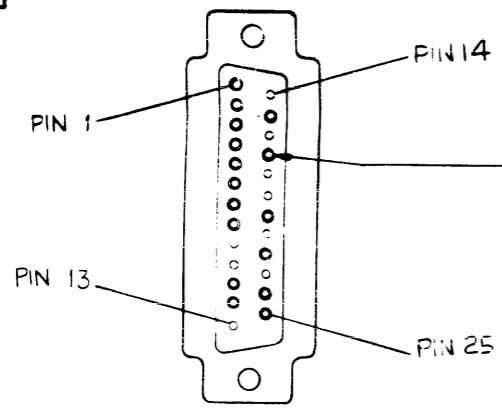


WIRE TABLE						
ITEM NO.	DESCRIPTION	FROM	TO	CONNECTION WITH	CONNECTION WITH	
3	22	BLK	PI-VV	CRIMP	P2-7	SOLD.
		GRN/WHT	PI-C		P2-25	
		GRN/BLK	PI-JJ		P2-12	
		ORN/BLK	PI-FF		P2-11	
		RED	PI-DD		P2-20	
		GRN	PI-BB		P2-8	
		BLU/WHT	PI-Z		P2-6	
		ORN	PI-X		P2-22	
		BLU	PI-V		P2-4	
		WHT	PI-T		P2-5	
		BLU/BLK	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.

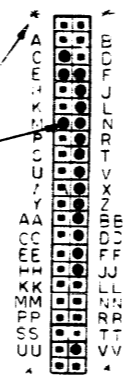
**NOTES:**

- 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)

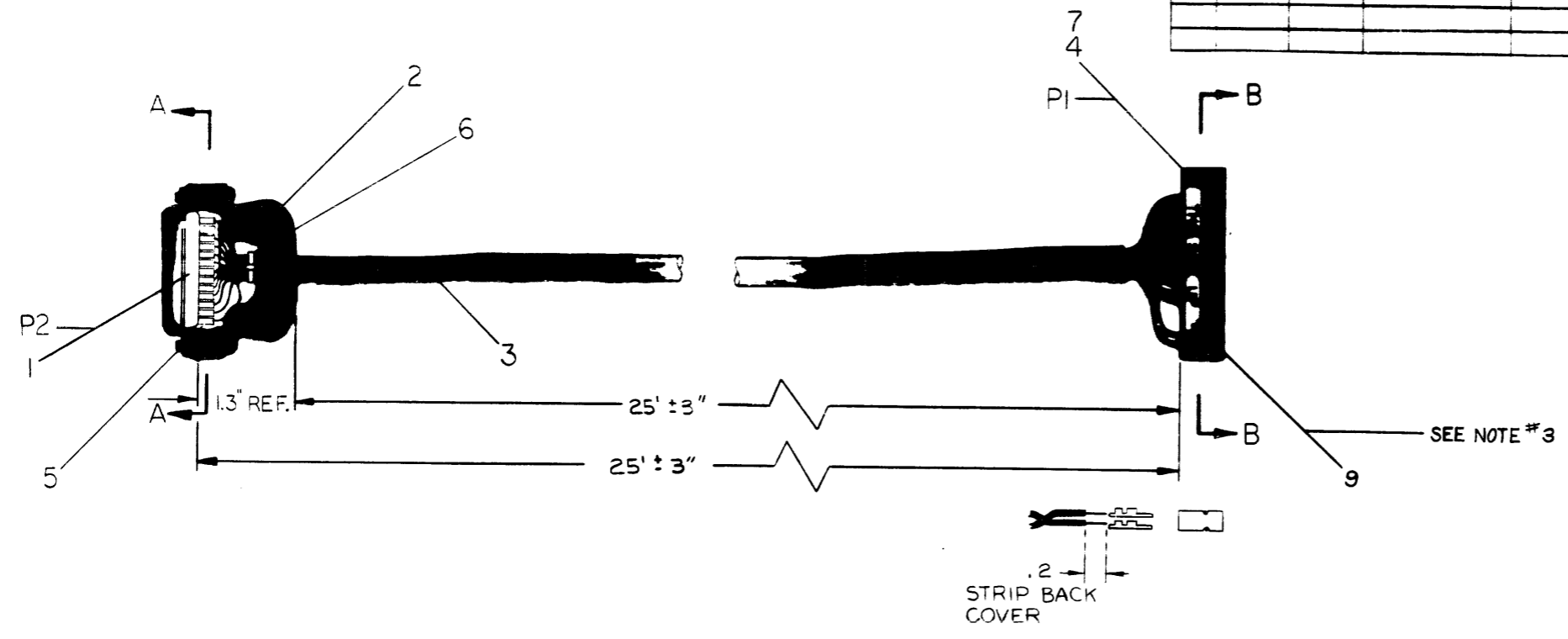
3. PLACE ITEM #9 ("THIS SIDE UP" STICKER) ON LETTERED SIDE OF ITEM #4 (BERG HOUSING) AS SHOWN.



P2  
SECTION A-A



P1  
SECTION B-B



QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	LABEL, THIS SIDE UP	3611567	9
A/R	WIRE #22 AWG STRD TEF BLK	9107350-00	8
17	SOCKET CRIMP #47216	1210089-07	7
1	TIE WRAP, PANDUIT #SST-16	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

REV	CHG	NO.	DATE	BY
A		0001		
B		0002	10-29-73	E. ALLOIN
C		0003	3-21-74	R. REGAN
D		0004	3-21-74	R. REGAN

PART USED ON OPTION/MODEL  
PDP8/E

DO NOT SCALE DRAWING  
UNLESS OTHERWISE SPECIFIED  
DIMENSIONS IN INCHES  
TOLERANCES  
DIMENSIONS FINISHES ANGLES  
± .005 ± .005 ± .005  
FINISH SURFACE QUALITY  
BREAK SHARP AND BREAK SHARP  
CORNERS  
MATERIAL  
SEE PARTS LIST  
FINISH

DATE: 2-5-71  
DATE: 3/15/71  
DATE: 3/15/71  
DATE: 3/15/71

PREPARED BY: [Signature]  
CHECKED BY: [Signature]  
DATE: 3/15/71

NEXT HIGHER ASSY  
A-PL-DP8-EA-0

SCALE NONE

SHEET 1 OF 1

PARTS LIST

EQUIPMENT CORPORATION  
MAYTAG, MASSACHUSETTS

TITLE  
CABLE ASS'Y  
(BC0IV)

REV. C

DUA BC0IV-20-0

**DIGITAL EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS**

**ENGINEERING SPECIFICATION**

DATE 3/15/71

TITLE KLB/E Asynchronous Data Control (M8650)

REVISIONS						
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

Abstract

The KLB/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 KLB-E-1	REV
-------------------------	----------------------------	-----------	------------	-------------------	-----

DEC FORM NO. DRA 107

**ENGINEERING SPECIFICATION**

CONTINUATION SHEET

TITLE KLB/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 KLB/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 KLB/BA, BB, BC, BD, BE, 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 KLB/E and KLB/BA options will be supplied jumpered for two stop elements and all other options will be supplied jumpered for one stop element.)

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

DEC FORM NO 16-1002  
DRA 108

SHEET 3 OF 12

**ENGINEERING SPECIFICATION**

CONTINUATION SHEET

TITLE KLB/E Asynchronous Data Control

I. General Description

The KLB/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 KLB/E may be assigned any two device codes desired. In this manner a quantity of KLB/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 KLB/E is a single quad board which plugs directly into the Omnibus. The same etched board (M8650) is used for all KLB/E options listed below, with a crystal change or cable change determining the option designation applicable.

III. Options

The KLB/E is available in the following options:

Designation	Receive Speed	Transmit Speed	Interface Type	(Board Type)
KLB/E	110 Baud	110 Baud	20 milliamper	M8650
KLB/EA	110 Baud	110 Baud	EIA Data Leads	M8650
KLB/BB	150 Baud	150 Baud	EIA Data Leads	M8650 YA
KLB/BC	300 Baud	300 Baud	EIA Data Leads	M8650 YA
KLB/BD	600 Baud	600 Baud	EIA Data Leads	M8650 YA
KLB/BE	1200 Baud	1200 Baud	EIA Data Leads	M8650 YA
KLB/EF	150 Baud	1200 Baud	EIA Data Leads	M8650 YA
KLB/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 KLB-E-1	REV
-----------	------------	-------------------	-----

DEC FORM NO 16-1022  
DRA 108

SHEET 2 OF 17

**ENGINEERING SPECIFICATION**

CONTINUATION SHEET

TITLE KLB/E Asynchronous Data Control

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 KLB/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 KLB/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

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

DEC FORM NO 16-1002  
DRA 108

SHEET 4 OF 12

TITLE KLB/E Asynchronous Data Control

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 the 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 milliamper integrator circuit and the 20 milliamper 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 9.30 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

SIZE	CODE	NUMBER	REV
A	SP	KLB-E-1	

TITLE KLB/E Asynchronous Data Control

In summary, the KLB/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 KLB/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 and 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.

SIZE	CODE	NUMBER	REV
A	SP	KLB-E-1	

TITLE KLB/E Asynchronous Data Control

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 KLB/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 Comité Consultatif International Téléphonique et Télégraphique (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.

SIZE	CODE	NUMBER	REV
A	SP	KLB-E-1	

TITLE KLB/E Asynchronous Data Control

VI. Programming

The KLB/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 flag 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 KLB/E keyboard or teleprinter flag is set. If AC11 is negated interrupt requests cannot be generated.

SIZE	CODE	NUMBER	REV
A	SP	KLB-E-1	

TITLE KL8/E Asynchronous Data Control

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 (ICF)  
 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-

SIZE	CODE	NUMBER	REV
A	SP	KL8-E-1	

TITLE KL8/E Asynchronous Data Control

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	1	1
Binary:	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.

SIZE	CODE	NUMBER	REV
A	SP	KL8-E-1	

TITLE KL8/E Asynchronous Data Control

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.

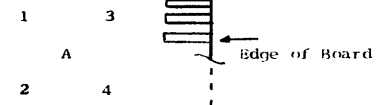
Since a Clear All Flags instruction or operation of the CLEAR button on the console will cause the teleprinter output flag to be cleared, it is necessary that each program set the flag by means of a TFL instruction before commencing a teleprinter output sequence for the first time.

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.

SIZE	CODE	NUMBER	REV
A	SP	KL8-E-1	

TITLE KL8/E Asynchronous Data Control

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.

SIZE	CODE	NUMBER	REV
A	SP	KL8-E-1	

ENGINEERING SPECIFICATION		CONTINUATION SHEET				
TITLE KL8/E Asynchronous Data Control						
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.						
	SIZE A	CODE SP	NUMBER KL8-E-1	REV		

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" determine 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 A	CODE SP	NUMBER KL8-E-1	REV		

ENGINEERING SPECIFICATION		CONTINUATION SHEET				
TITLE KL8/E Asynchronous Data Control						
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
	SIZE A	CODE SP	NUMBER KL8-E-1	REV		

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 A	CODE SP	NUMBER KL8-E-1	REV

TITLE KLR/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 KLR/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 milliampere 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 milliampere 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 milliampere 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 Pin control is actually unimportant, as the keyboard and printer requirements of 150 ohm limitation on line resistance are the ruling limitations.

SIZE	CODE	NUMBER	REV
A	SP	KLR-E-1	

**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS

**PARTS LIST**

QUANTITY / VARIATION

<b>MADE BY</b> KEN GULICK	<b>CHECKED</b> KEN GULICK	<b>SECTION</b>
<b>DATE</b> 4/8/71	<b>DATE</b> 4/8/71	1
<b>ENG</b> <i>J. W. Vasilia</i>	<b>PROD</b> <i>H. P. Vasilia</i>	<b>ISSUED SECT.</b>
<b>DATE</b> 8-18-71	<b>DATE</b> 7/2/71	1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION
1	D-IA-7008360-0-0	CABLE ASSEMBLY (KL8-E)
2	E-CS-M865Ø-Ø-1	ASYNC DATA CONTROL
3	D-IA-BCØ1V-25-Ø	CABLE ASST (BCØ1V)
4	E-CS-M865Ø-YA-Ø	ASYNC DATA CONTROL (YA)

KL8-E	KL8-EA	KL8-EB	KL8-EC	KL8-ED	KL8-EE	KL8-EF	KL8-EG			
1	-	-	-	-	-	-	-			
1	1	-	-	-	-	-	-			
-	1	1	1	1	1	1	1			
-	-	1	1	1	1	1	1			

<b>TITLE</b>	<b>ASSY NO.</b>	<b>SIZE</b>	<b>CODE</b>	<b>NUMBER</b>	<b>REV.</b>	<b>ECO NO.</b>
ASYNC DATA CONT	NONE	A	PL	KL8-E-Ø		
<b>SHEET</b> 1	<b>OF</b> 1	<b>DIST.</b>	<b>G</b>			

# 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. McCluskey  
 DATE 1/28/72  
 ENG *E Clark*  
 DATE *1/28/72*

CHECKED  
 DATE *E Clark 1/28/72*

SECTION

PROD  
 DATE *E Clark 1/28/72*

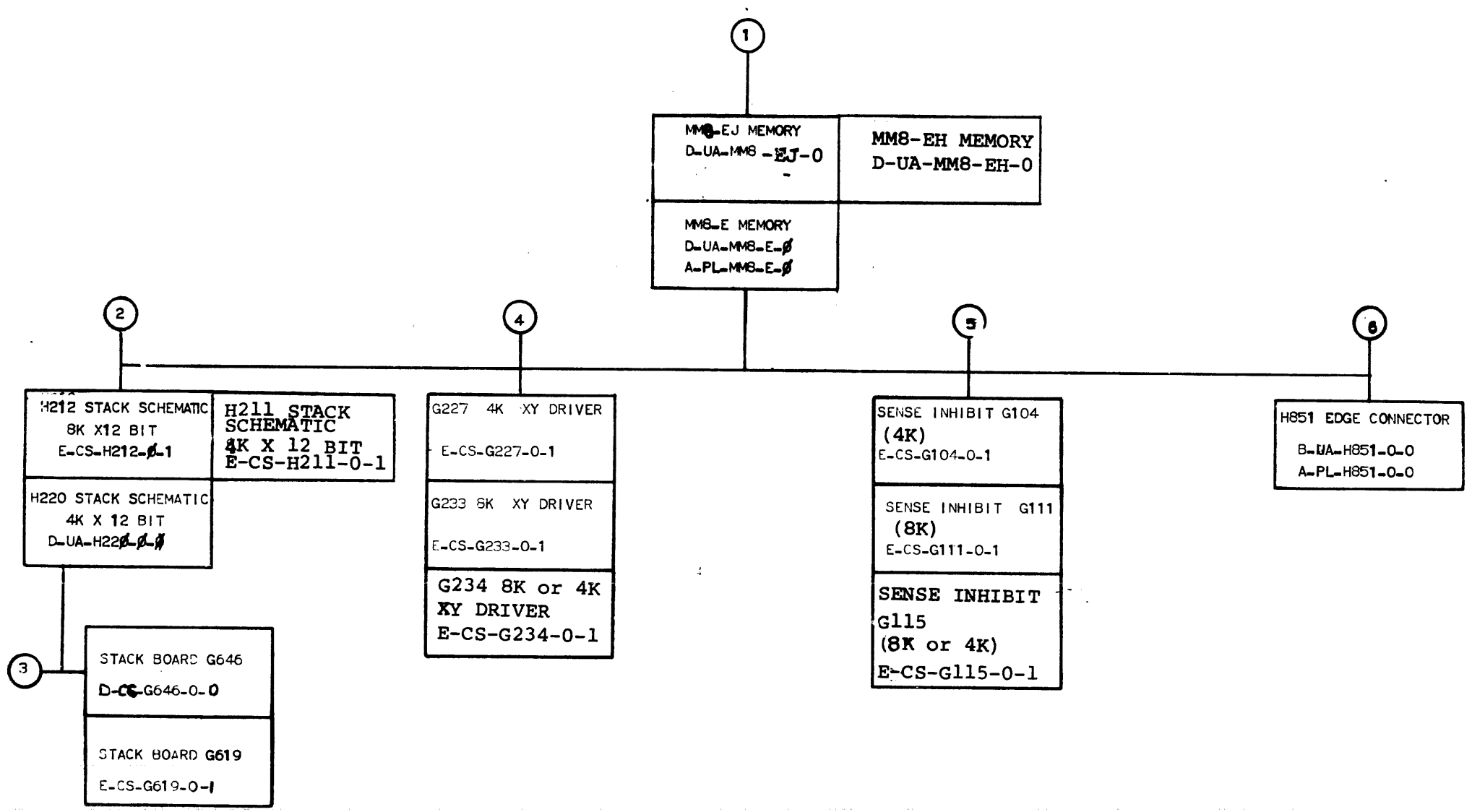
ISSUED SECT.

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	KL8/E	KL8/A	KL8/EB-G	KIT CHECK	INSTALLATION CHECK	
							BY	DATE
1	M8650	KL8/E Control Module	X	X				
2	M8650-YA	KL8/EB-EG Control Module			X			
3	7008360	KL8/E Control Cable	X					
4	BC01-V	KL8/EA-G Control Cable		X	X			
5	Maindec-8/E-D2AC-D	PDP-8E Teletype And KL8 Asynchronous Data Control Test Binary Tape	X	X	X			
6	Maindec-8/E-D2AC-PB	PDP-8E Teletype And KL8 Asynchronous Data Control Test Document	X	X	X			
7	Maindec-00-D2G3-PT	Binary Count Pattern Test Tape	X	X	X			
8	KJ 8/E-0	KL8/E Print Set	X	X	X			
9	KL8/E	KL8/E Maintenance Manual	X	X	X			
Note: When Item 9 Is Temporarily Waived Ship Following								
	A-SP-KL8/E-2	Test Procedure	X	X	X			
	A-SP-KL8-E-3	Acceptance Procedure	X	X	X			

TITLE <i>ASYNC. DATA CONTROL</i>	ASSY. NO.	SIZE CODE <b>A AL</b>	NUMBER KL8-E-4	REV.	ECO NO
	SHEET OF	DIST.			



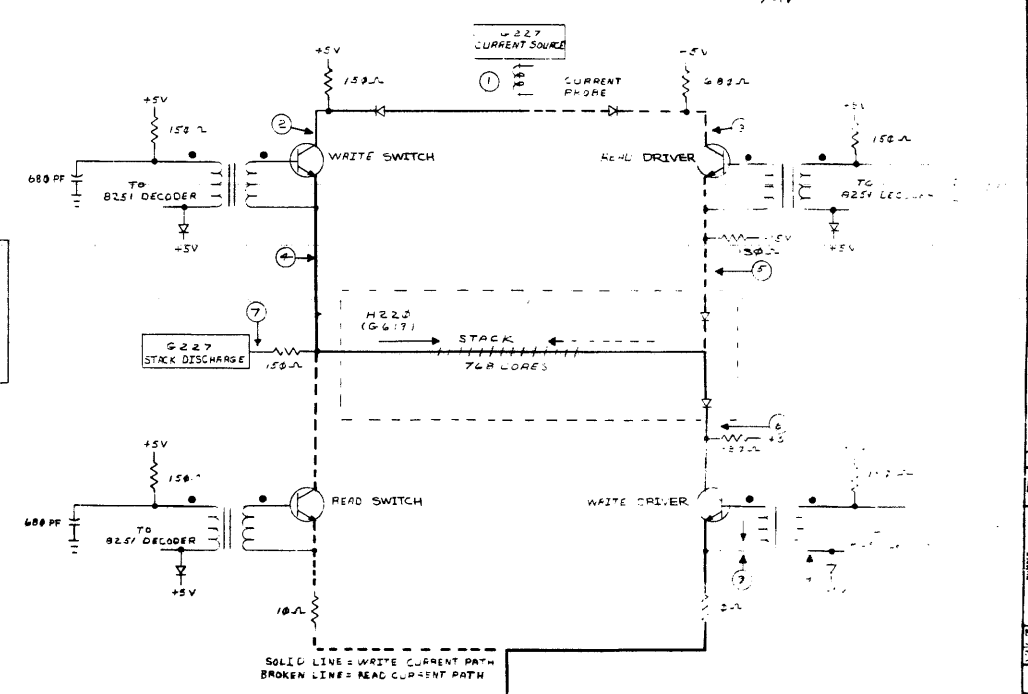
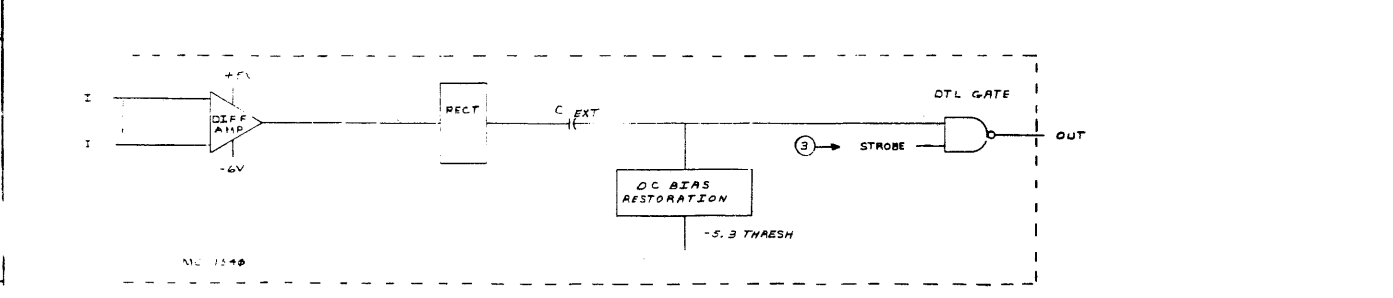
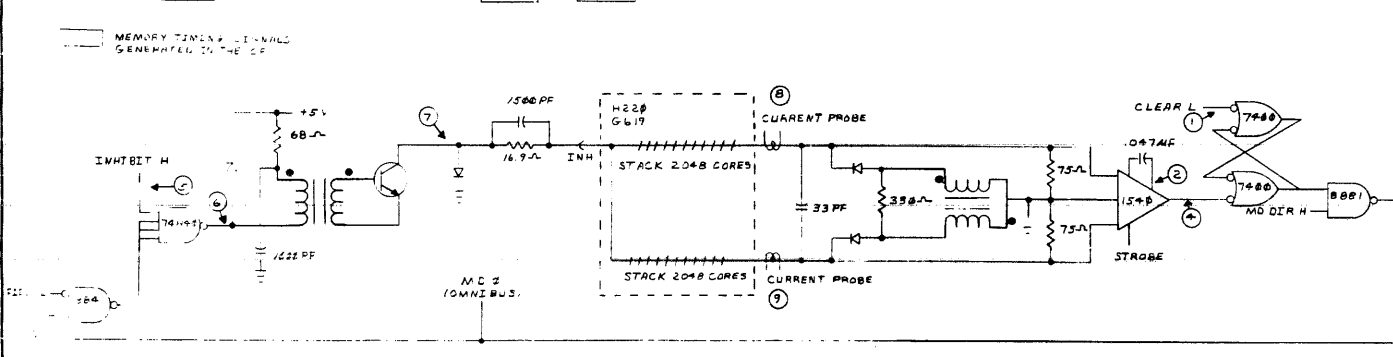
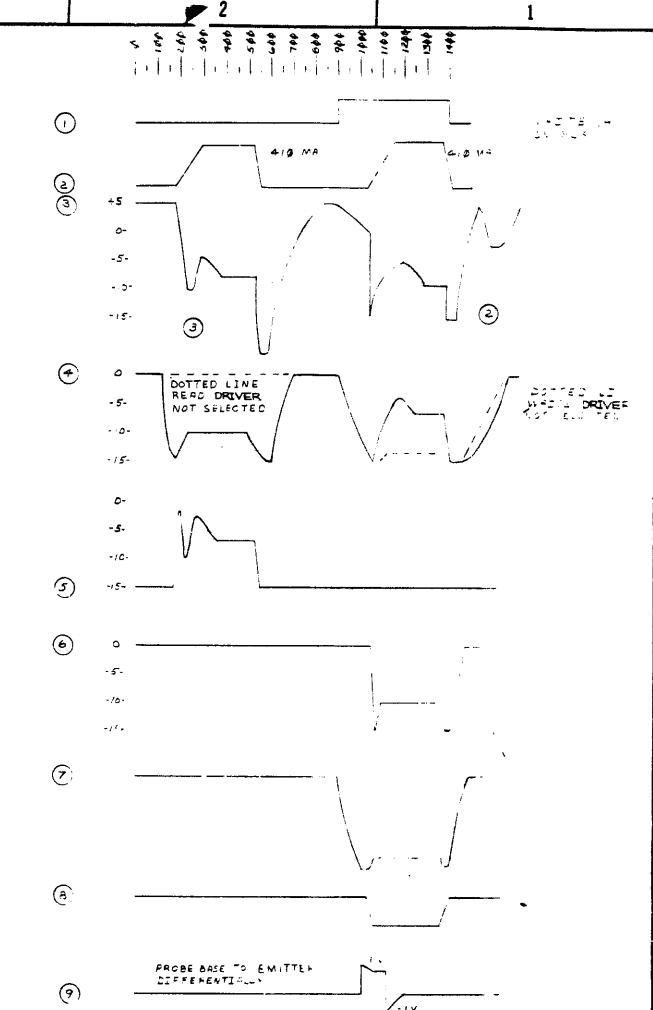
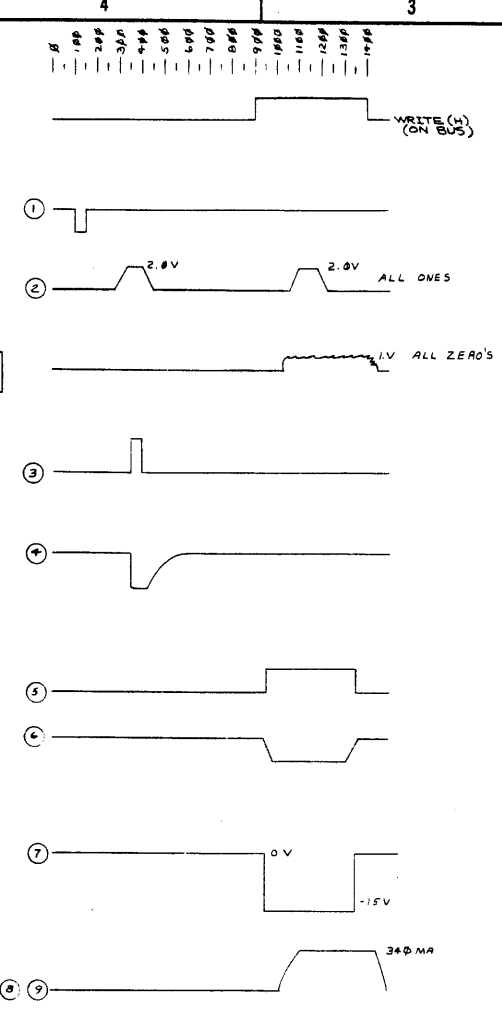
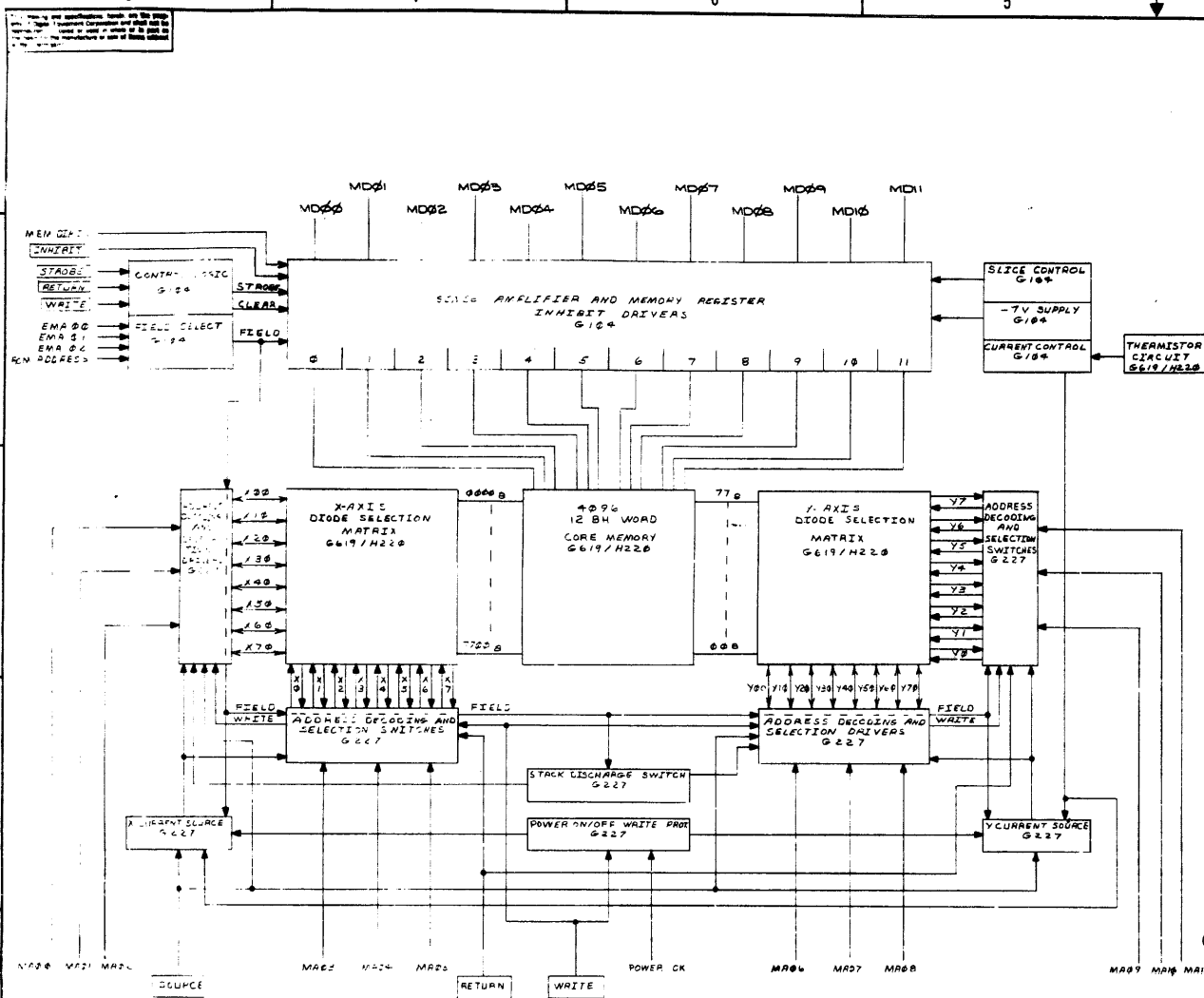




TITLE	SHEET	SIZE	CODE	NUMBER	REV
MEMORY	2 OF 3	B	DD	MM8-E	B

CUSTOMER PRINT SET				ELECTRICAL					CUSTOMER PRINT SET				MECHANICAL						
MM8-1	MM8-2	MM8-3	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.	MM8-1	MM8-2	MM8-3	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X				1	E-BD-MM8-E-1		1	BLOCK DIAGRAM TIMING		X				1	D-UA-MM8-E-0		1	4K 12 BIT MEMORY	
			X		A-SP-MM8-EJ-6	A	21	MM8-EJ&MM8-EH TEST PROCEDURE (OFFLINE)		X					A-PL-MM8-E-0		1	4K 12 BIT MEMORY (PL)	
X	X				E-BD-MM8-EJ-6	A	1	BLOCK DIAGRAM TIMING		X	X				D-UA-MM8-EJ-0	B	1	8K 12 BIT MEMORY	
												X			D-UA-MM8-EH-0		1	4K 12 BIT MEMORY	
										X					A-SP-7665132-0-0	#	4	ACCEPTANCE PROC	
											X		X		A-SP-MM8-E-2			MANUFACTURING PROC.	
											X	X			A-SP-MM8-EJ-1	A	5	MM8-EJ&MM8-EH ACCEPTANCE PROCEDURE	
													X		A-SP-MM8-EJ-2	A	4	MM8-EJ&MM8-EH MANUFACTURING PROC.(F.S.)	
X				2	E-CS-H212-0-1	#	2	STACK SCHEMATIC 8K X 12 BIT		X	X	X			A-AL-MM8-E-3	A	1	ACCESSORY SHIPPING LIST	
	X				E-CS-H211-0-1	#	2	STACK SCHEMATIC 4K X 12 BIT			X	X			A-SP-MM8-EJ-4			ENGINEERING SPECIFICATION	
X				3	E-CS-G619-0-1	#	2	PLANAR STACK SCHEMATIC						2	B-DD-H212-0		2	STACK 8K 12 BIT	
X	X				D-CS-G646-0-1	#	1	12 BIT STACK BOARD							D-UA-H220-0-0	#	2	STACK 4K 12 BIT	
														X	A-PS-3010654-0-0	#		PURCHASE SPEC	
														X	A-PS-3009834-0-0	#		PURCHASE SPEC	
															C-MD-5509025-0-0		1	COVER PLATE	
X				4	E-CS-G227-0-1	#	2	4K XY DRIVER BOARD						6	B-UA-H251-0-0			EDGE CONNECTOR	
X					E-CS-G233-0-1	#	5	8K XY DRIVER BOARD							A-PL-H251-0-0			EDGE CONNECTOR PL	
X	X				E-CS-G234-0-1	#	5	4K or 8K DRIVER BOARD							B-MD-5509071-1-0			RECEP 36 PIN REWORK	
															D-1A-5008903-0-0			ETCH BOARD	
X				5	E-CS-G104-0-1	#	2	SENSE INHIBIT											
					E-CS-G111-0-1	#	3	8K SENSE INHIBIT BOARD											
X	X				E-CS-G115-0-1	#	3	4K or 8K SENSE INHIBIT BOARD											

TITLE	MEMORY	SHEET 3 OF 3	SIZE CODE	NUMBER	REV
			B DD	MM8-E	B

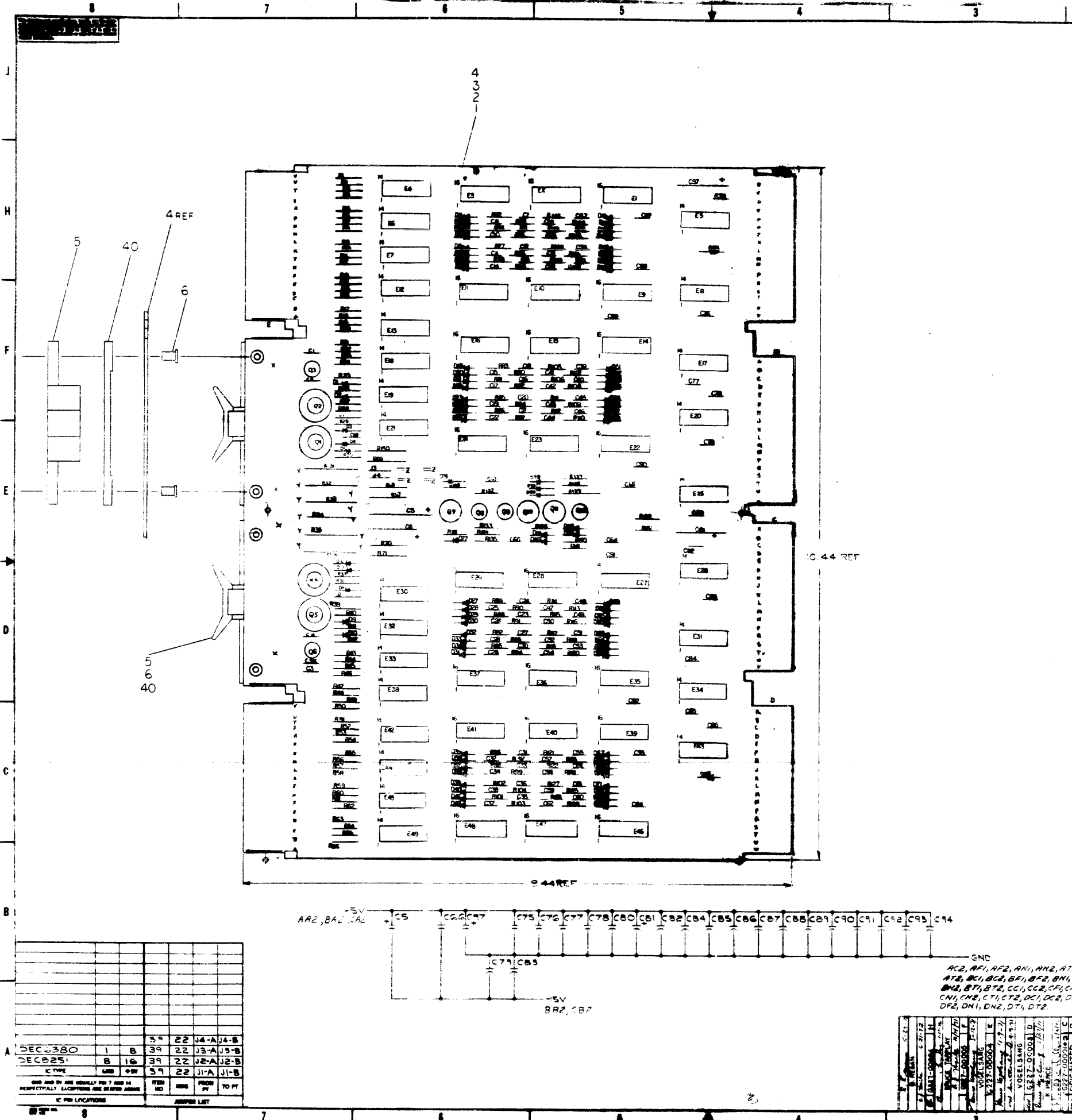


REVISED	QTY.	DESCRIPTION	PART NO.
1		WRITE DRIVER	
2		READ DRIVER	
3		STACK DISCHARGE	
4		DTL GATE	
5		DIFF AMP	
6		DC BIAS RESTORATION	
7		CURRENT PROBE	
8		WRITE SWITCH	
9		READ SWITCH	

PERFORMED BY: [Signature] DATE: [Date]  
 CHECKED BY: [Signature] DATE: [Date]  
 DESIGNED BY: [Signature] DATE: [Date]  
 DRAWN BY: [Signature] DATE: [Date]

UNLESS OTHERWISE SPECIFIED  
 DIMENSIONS IN INCHES  
 TOLERANCES UNLESS OTHERWISE SPECIFIED  
 FRACTIONS TO 0.001 INCHES  
 DECIMALS TO 0.001 INCHES  
 DIMENSIONS TO BE MAINTAINED  
 DIMENSIONS TO BE MAINTAINED  
 DIMENSIONS TO BE MAINTAINED

A-V-MMB-E  
 E-DIV  
 SHEET OF [Number]



QTY	REF DESIGNATION	DESCRIPTION	PART NO
4	R1, R3, R5, R7, R9	RES. 180 1/4W 5%	13006735
16	R2, R4, R6, R8, R10, R12, R14, R15, R52, R54, R56, R58, R60, R61, R64, R65	RES. 180 1/4W 5%	1300322
20	R2, R4, R6, R8, R10, R12, R14, R15, R52, R54, R56, R58, R60, R61, R64, R65	RES. 330 1/4W 5%	1300295
66	C2, C3, C7, C62, C67, C74	CAP. 680PF. 100V. 5% MICA	1000026
4	R140	RES. 68 1/4W. 5%	1210001
1	R139	RES. 470 1/2W. 5%	1300219
4	R25, R28, R39, R42	RES. 680 1/4W. 5%	1300315
2		SPACER W/ABLE CLAMP	202704
VAR		WIRE #22AWG 320 TFF-NS	0733035
8	IC1, IC2, IC3, IC4, IC5, IC6, IC7, IC8, IC9, IC10, IC11, IC12, IC13, IC14, IC15, IC16, IC17, IC18, IC19, IC20, IC21, IC22, IC23, IC24, IC25, IC26, IC27, IC28, IC29, IC30, IC31, IC32, IC33, IC34, IC35, IC36, IC37, IC38, IC39, IC40, IC41, IC42, IC43, IC44, IC45, IC46, IC47, IC48, IC49, IC50, IC51, IC52, IC53, IC54, IC55, IC56, IC57, IC58, IC59, IC60, IC61, IC62, IC63, IC64, IC65, IC66, IC67, IC68, IC69, IC70, IC71, IC72, IC73, IC74, IC75, IC76, IC77, IC78, IC79, IC80, IC81, IC82, IC83, IC84, IC85, IC86, IC87, IC88, IC89, IC90, IC91, IC92, IC93, IC94	IC DEC 8251	1909594
4	IC5, IC20, IC26, IC43	IC DEC 6380	1909971
1	IC25	IC DEC 74H11	1909267
4	IC8, IC17, IC31, IC34	IC DEC 74H10	1909057
16	IC1, IC2, IC3, IC4, IC5, IC6, IC7, IC8, IC9, IC10, IC11, IC12, IC13, IC14, IC15, IC16, IC17, IC18, IC19, IC20, IC21, IC22, IC23, IC24, IC25, IC26, IC27, IC28, IC29, IC30, IC31, IC32, IC33, IC34, IC35, IC36, IC37, IC38, IC39, IC40, IC41, IC42, IC43, IC44, IC45, IC46, IC47, IC48, IC49, IC50, IC51, IC52, IC53, IC54, IC55, IC56, IC57, IC58, IC59, IC60, IC61, IC62, IC63, IC64, IC65, IC66, IC67, IC68, IC69, IC70, IC71, IC72, IC73, IC74, IC75, IC76, IC77, IC78, IC79, IC80, IC81, IC82, IC83, IC84, IC85, IC86, IC87, IC88, IC89, IC90, IC91, IC92, IC93, IC94	PULSE TRANSFORMER	1609651
16	IC1, IC2, IC3, IC4, IC5, IC6, IC7, IC8, IC9, IC10, IC11, IC12, IC13, IC14, IC15, IC16, IC17, IC18, IC19, IC20, IC21, IC22, IC23, IC24, IC25, IC26, IC27, IC28, IC29, IC30, IC31, IC32, IC33, IC34, IC35, IC36, IC37, IC38, IC39, IC40, IC41, IC42, IC43, IC44, IC45, IC46, IC47, IC48, IC49, IC50, IC51, IC52, IC53, IC54, IC55, IC56, IC57, IC58, IC59, IC60, IC61, IC62, IC63, IC64, IC65, IC66, IC67, IC68, IC69, IC70, IC71, IC72, IC73, IC74, IC75, IC76, IC77, IC78, IC79, IC80, IC81, IC82, IC83, IC84, IC85, IC86, IC87, IC88, IC89, IC90, IC91, IC92, IC93, IC94	TRANSISTOR DEC40081510015	1300447
4	IC1, IC2, IC3, IC4, IC5	TRANSISTOR DEC 3762	1509649
2	IC10, IC11	TRANSISTOR DEC 4258	1505321
2	IC10, IC12	TRANSISTOR DEC 6554	1503400
1	IC14	TRANSISTOR DEC 3008	1503100
3	IC7, IC10, IC11	TRANSISTOR DEC 1008	1502155
4	R32-R55	RES. 16. 1/4W. 5% BERYLLIUM	1310032
1	R67	RES. 348K 1/8W. 1% MF	1303156
1	R68	RES. 14.7K 1/8W. 1% MF	1302941
6	R26, 27, 40, 41, 34, 18	RES. 4.7K 1/4W. 5%	1300447
5	R38, R39, R50, R57, R131	RES. 1.5K 1/4W 5%	1300391
2	R31, R36	RES. 750 1/4W. 5%	1302385
2	R140, R139, R138, R137, R136, R135, R134	RES. 530 1/4W. 5%	1300295
1	R151	RES. 220 1/4W. 5%	1300271
81	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, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99	RES. 150 1/4W. 5%	1300250
3	R13, R16, R19, R22	RES. 100 1/4W. 5%	1300229
4	D75, D77, D81	DIODE D672	103275
76	D4, D7, D11, D74	DIODE D664	1100114
1	C5	CAP 20UF. 50V. 10% FILM	1002839
22	C64-C66, C75	CAP 01UF. 50V. 20% DISC	1000160
3	C6, C81, C97	CAP 50UF. 10V. 10% STANT	1000076
3	C65, C98, C99	CAP 0.27UF. 50V. 20% DISC	1000097
2	C1, C4	CAP 39PF. 100V. 5% D.M.	1000010
1		EYELET #64-11 SIMPSON	1000270
1		HANDLE FLIP CHIP GREEN	1003370
1		ETCHED CIRCUIT BOARD	5000832
1		MODULE HISTORY LIST	5000220
1		ASSY DRILLING HOLE LOCATIONS	5000220
1		XY COORDINATE HOLE LOCATIONS	5000220

IC TYPE	QTY	REV	DATE	BY	LOCATIONS
DEC6380	1	B	39	22	J4-A, J4-B
DEC6251	8	16	39	22	J3-A, J3-B, J2-A, J2-B
	5	5	22	J1-A, J1-B	

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

REV	DATE	BY	DESCRIPTION
DEC 3762			
DEC 4258	2N4258		
DEC 6554	MPS4534		
DEC 3008	2N 3646		
DEC 1008	NONE		
DEC D672	N 3653		
DEC D664	N 3606		

THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF THE UNITED STATES GOVERNMENT AND ARE LOANED TO YOU BY THE NATIONAL BUREAU OF STANDARDS. IT IS TO BE USED FOR THE PURPOSES SPECIFIED IN THE ORDER AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING FROM THE NATIONAL BUREAU OF STANDARDS.

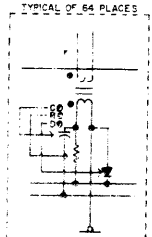
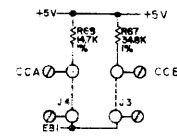
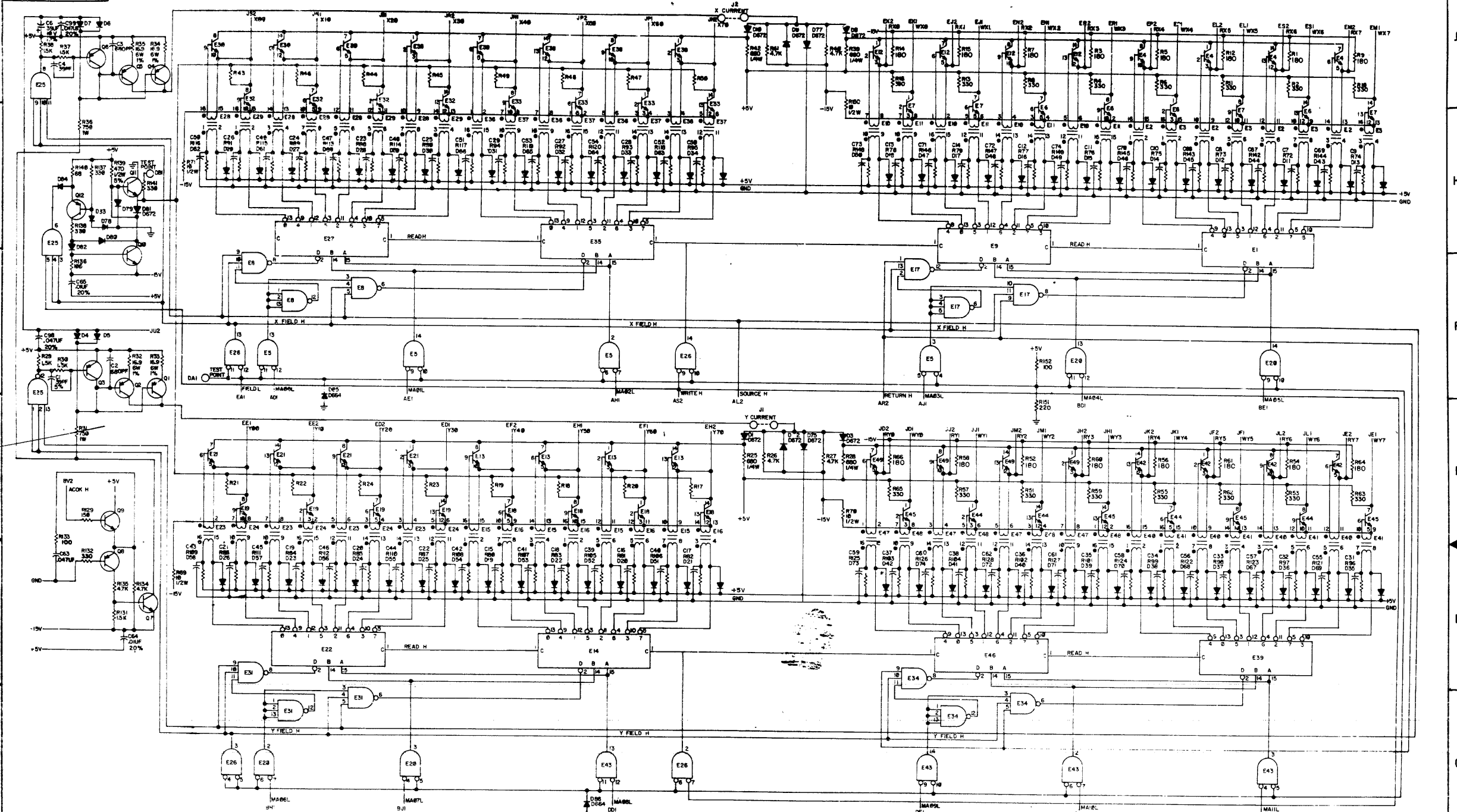
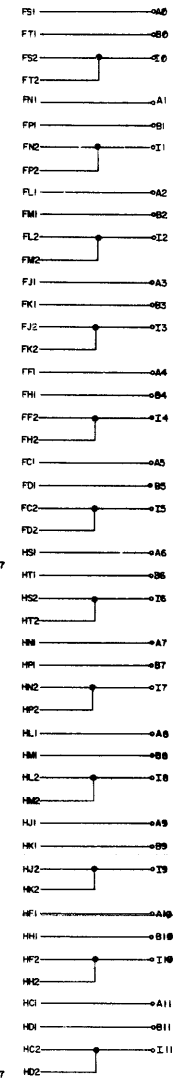
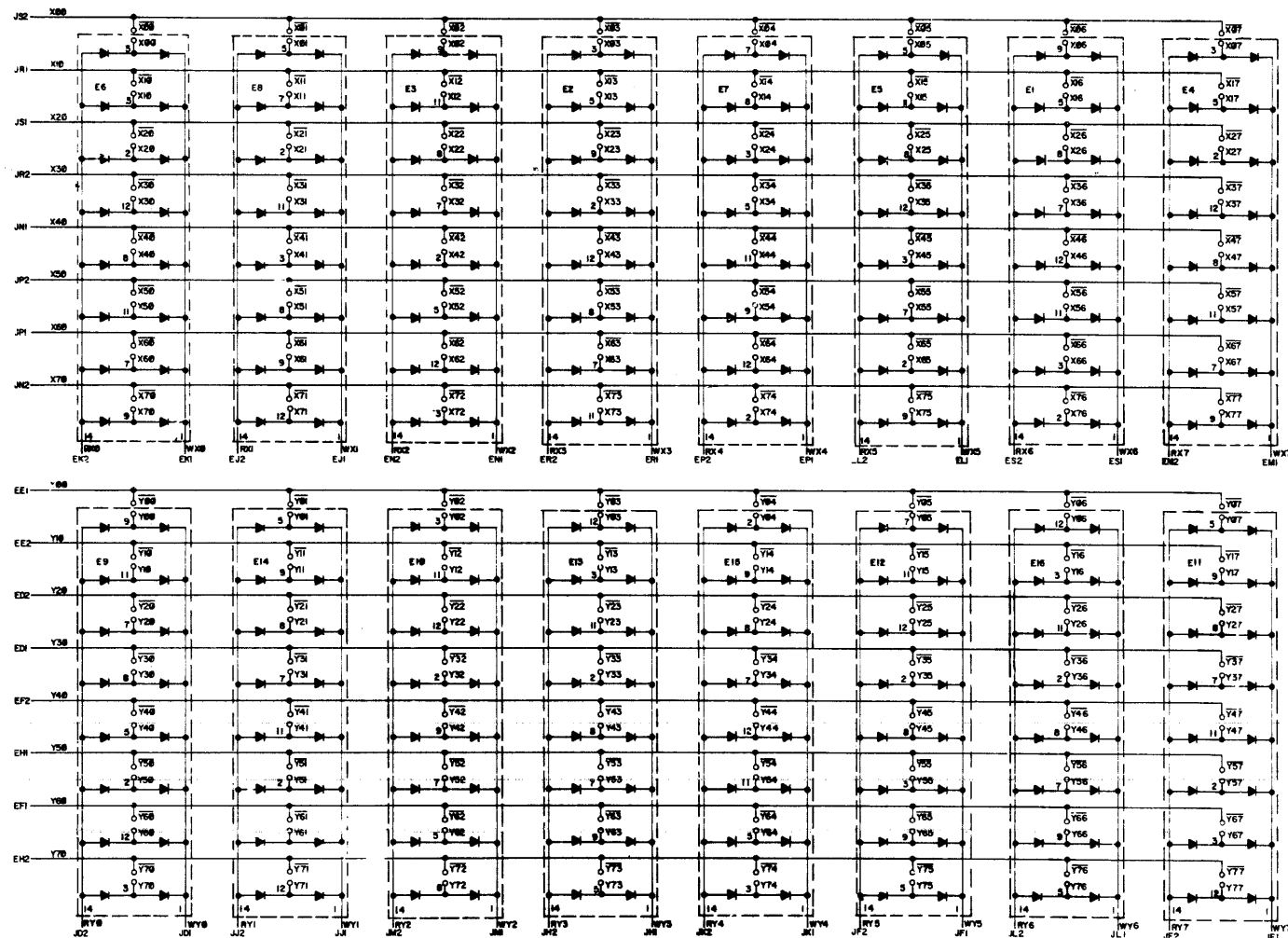
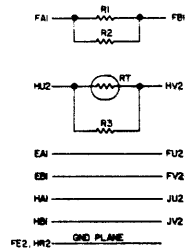


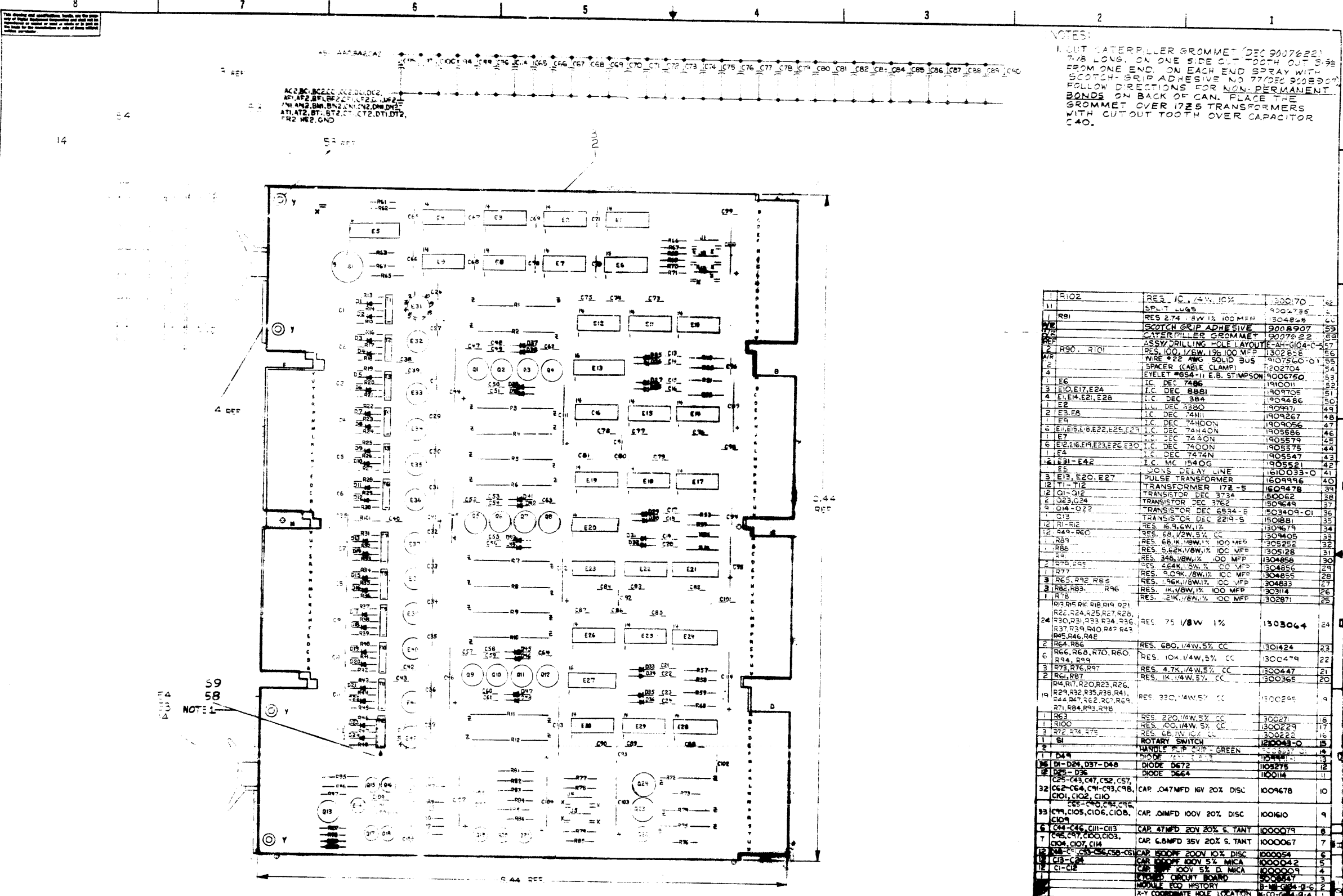
Table with columns for QTY, DESCRIPTION, and PART NO. It contains technical specifications and part numbers for various components.





QTY	DESCRIPTION	PART NO.
UNLESS OTHERWISE SPECIFIED		
DRK	JEANNE FRENCH	DATE 7/13/70
CHK'D	R. VOGELSANG	DATE 7/28/70
TOLERANCES	AS SHOWN	
UNLESS OTHERWISE SPECIFIED	AS SHOWN	
FINISH	AS SHOWN	
PROJ. ENG.	DATE	
SCALE	DATE	
SHEET 2	OF 2	





AC2BC, BC2CC, BC2DC, BC2EC  
 AF1, AF2, BF1, BF2, CF1, CF2, DF1, DF2  
 NI, NI2, BI, BI2, NI2, NI2, NI2  
 AT1, AT2, BT, BT2, CT2, DT1, DT2,  
 FT2, ME2, GND

NOTES:  
 CUT WATERRILLER 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 77022 908907  
 FOLLOW DIRECTIONS FOR NON-PERMANENT  
 BONDS ON BACK OF CAN. PLACE THE  
 GROMMET OVER I725 TRANSFORMERS  
 WITH CUTOUT TOOTH OVER CAPACITOR  
 C40.

REV	NO	DATE	BY	CHKD	DESCRIPTION
1	1				
2	2				
3	3				
4	4				
5	5				
6	6				
7	7				
8	8				

REF	DESCRIPTION	QUANTITY	REV
1102	RES. 10K, 1/4W, 10%	130070	1
11	SPLIT	1300735	1
11	RES. 2.7K, 1/4W, 10% MFR	1304868	1
11	SCOTCH GRIP ADHESIVE	9008907	1
11	WATERRILLER GROMMET	9007622	1
11	ASSY DRILLING HOLE LAYOUT	104-104-0	1
11	RES. 100, 1/2W, 1% 100 MFR	1302858	1
11	WIRE #22 AWG SOLID BUS	107560-01	1
11	SPACER (CABLE CLAMP)	1202704	1
11	EYELET #654-11 E.B. STIMPSON	1006750	1
11	IC, DEC 7486	1910011	1
11	IC, DEC 8881	1909705	1
11	IC, DEC 384	1909486	1
11	IC, DEC 3380	1909917	1
11	IC, DEC 7411	1909267	1
11	IC, DEC 74400N	1909056	1
11	IC, DEC 7440N	1905886	1
11	IC, DEC 7430N	1905579	1
11	IC, DEC 7400N	1905575	1
11	IC, DEC 7474N	1905547	1
11	IC, MC 1540G	1905521	1
11	JOYNS DELAY LINE	1610033-0	1
11	PULSE TRANSFORMER	1609996	1
11	TRANSFORMER I72-5	1609478	1
11	TRANSISTOR DEC 3734	150062	1
11	TRANSISTOR DEC 3762	1504649	1
11	TRANSISTOR DEC 6534-E	1503409-01	1
11	TRANSISTOR DEC 2219-S	1501881	1
11	RES. 10K, 1/4W, 5% CC	1304679	1
11	RES. 68K, 1/8W, 1% 100 MFR	1305252	1
11	RES. 5.6K, 1/8W, 1% 100 MFR	1305128	1
11	RES. 34K, 1/8W, 1% 100 MFR	1304858	1
11	RES. 424K, 1/4W, 5% CC	1304856	1
11	RES. 9.09K, 1/8W, 1% 100 MFR	1304855	1
11	RES. 1.16K, 1/8W, 1% 100 MFR	1304833	1
11	RES. 1K, 1/8W, 1% 100 MFR	1303174	1
11	RES. 21K, 1/8W, 1% 100 MFR	1302871	1
11	RES. 75, 1/8W, 1%	1303064	1
11	RES. 680, 1/4W, 5% CC	1301424	1
11	RES. 10K, 1/4W, 5% CC	1300479	1
11	RES. 4.7K, 1/4W, 5% CC	1300447	1
11	RES. 1K, 1/4W, 5% CC	1300365	1
11	RES. 330, 1/4W, 5% CC	1300295	1
11	RES. 220, 1/4W, 5% CC	130027	1
11	RES. 10K, 1/4W, 5% CC	1300229	1
11	RES. 68, 1/4W, 5% CC	1300225	1
11	ROTARY SWITCH	1210043-0	1
11	DIODE 1N4148 - GREEN	1104881-0	1
11	DIODE D672	1105275	1
11	DIODE D664	1100114	1
11	CAP. .047MFD 16V 20% DISC	1009678	1
11	CAP. .01MFD 100V 20% DISC	100610	1
11	CAP. 47MFD 20V 20% S. TANT	1000079	1
11	CAP. 6.8MFD 35V 20% S. TANT	1000067	1
11	CAP. 1000PF 200V 10% DISC	1000054	1
11	CAP. 1000PF 100V 5% D. MICA	1000002	1
11	CAP. 100V 5% D. MICA	1000009	1
11	PRINTED CIRCUIT BOARD	1000001	1
11	MODULE ECO HISTORY	B-M-G-4-9-6	1
11	X-Y COORDINATE HOLE LOCATION	M-CO-G-4-9-4	1

NOTE 1

REV	NO	DATE	BY	CHKD	DESCRIPTION
1	1				
2	2				
3	3				
4	4				
5	5				
6	6				
7	7				
8	8				

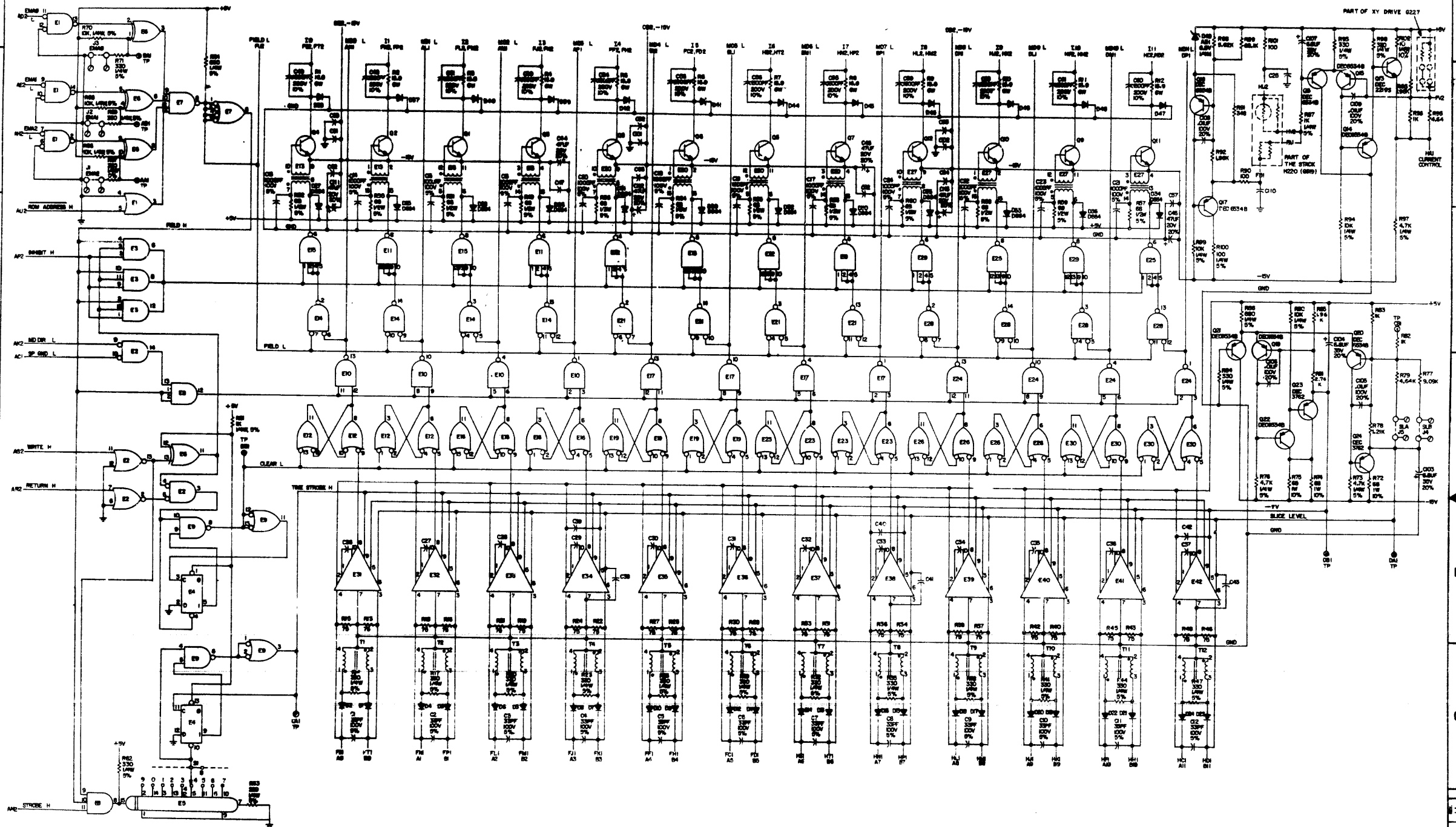
DEC 3734 SAME  
 DEC 3762 SAME  
 DEC 6534-B 6534  
 DEC 2219-S 2N 2219  
 DEC 6534-B 6534  
 DEC 672 IN3653  
 DEC 664 IN3606

EQUIPMENT CORPORATION

SENSE UNIT

ECO HISTORY

X-Y COORDINATE HOLE LOCATION

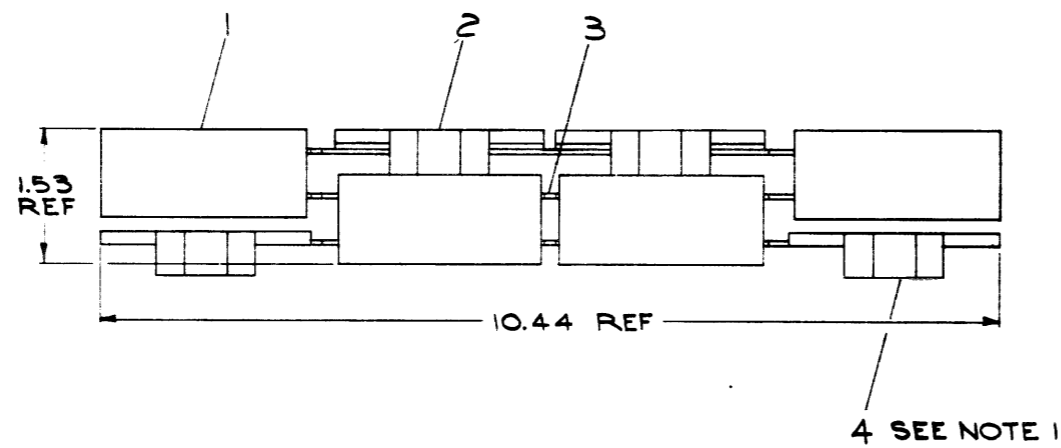


NOTE: IN PLACE OF DEC6380, DEC330(700485) MAY BE USED.

QTY.	DESCRIPTION	PART NO.	ITEM NO.
<p> <b>WELLS-GARDNER PROPOSED</b>            EQUIPMENT CORPORATION            EQUIPMENT CORPORATION            SENSE INHIBIT            MODEL: G04-O-1            SHEET 2 OF 2         </p>			

This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission.

NOTES:  
 1. ITEM NO. 4 (SENSE INHIBIT G104 BOARD) MUST ALWAYS BE FACING THE FRONT OF THE MACHINE.



REVISIONS	REV
CHANGE NO	
CHK	

FIRST USED ON OPTION/MODEL PDP8/E	QTY	DESCRIPTION	PART NO	ITEM NO
PARTS LIST				
UNLESS OTHERWISE SPECIFIED	DRN. <i>E. Larson</i>	DATE <i>2/2/70</i>	digital EQUIPMENT CORPORATION	
UNLESS OTHERWISE SPECIFIED	CHK'D <i>Wm. H. H. H.</i>	DATE <i>10-9-70</i>	TITLE	
DIMENSION IN INCHES	ENG. <i>Wm. Vogelsang</i>	DATE <i>1/12/71</i>	4K 12 BIT MEMORY	
TOLERANCES	PROJ. ENG. <i>Wm. Vogelsang</i>	DATE <i>1/12/71</i>	SIZE CODE NUMBER	
ANGLES = 0°30'	PROD. <i>Wm. H. H. H.</i>	DATE <i>1/13/71</i>	DUA MMB-E-Ø	
FINAL SURFACE QUALITY 7	NEXT HIGHER ASSY.			
REMOVE BURRS AND BREAK SHARP CORNERS	A-ML- MMB/E-Ø			
MATERIAL	SCALE 1/1			
FINISH	SHEET 1 OF 1			

# DIGITAL EQUIPMENT CORPORATION

MAYNARD, MASSACHUSETTS

## PARTS LIST

### QUANTITY / VARIATION

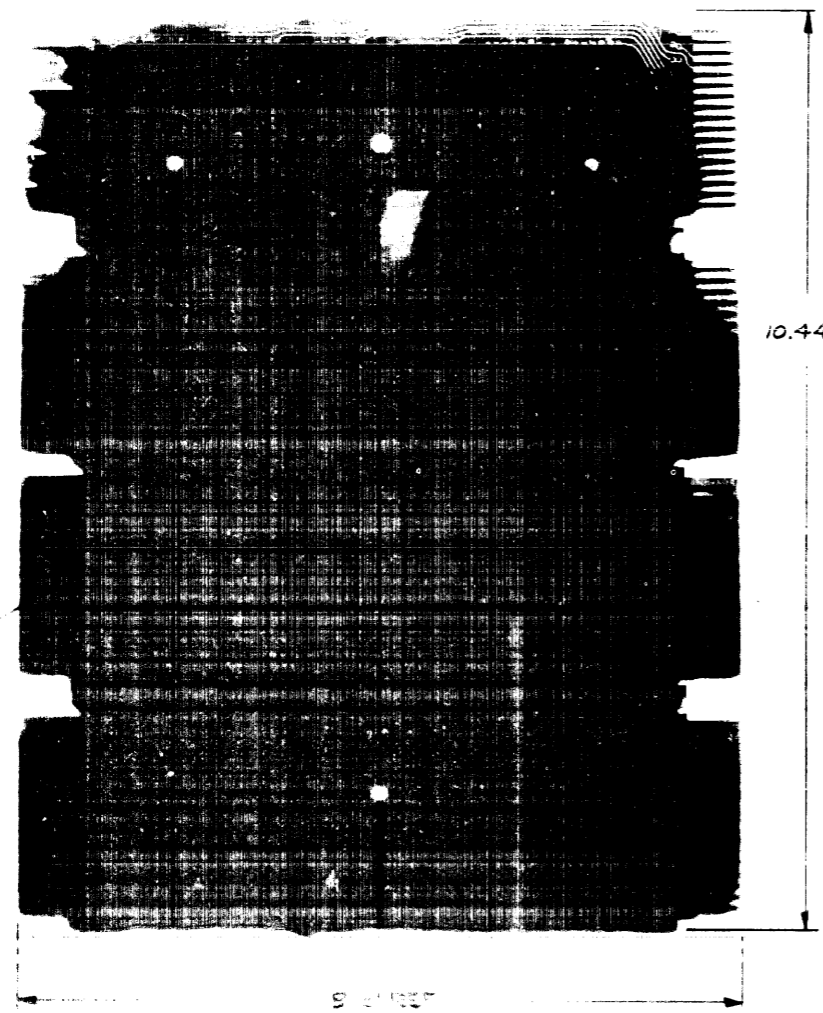
MADE BY JOHN FERRESON	CHECKED KEN GOLICK	SECTION
DATE 12-3-70	DATE 12-1-70	1
ENG <i>Vernon Wright</i>	PROD. <i>1/13/71</i>	ISSUED SECT.
DATE 1/12/71	DATE 1/13/71	1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION
1	B-UA-1351-0-1	351 EDGE CONNECTOR
2	E-CS-G104-0-1	XY DRIVER
3	D-UA-1000-1-1	PLANAR STACK BOARD
4	E-CS-104-0-1	SENSE/INHI IT G104

MM8-E																				
4																				
1																				
1																				
1																				

TITLE 4K 12 BIT MEMORY	ASSY NO. D-UA-MM8-E-0	SIZE A	CODE PL	NUMBER MM8-E-0	REV.	ECO NO.
	SHEET 1 OF 1	DIST.	5			

Copyright © 1970 Digital Equipment Corporation. All rights reserved. This drawing and its contents are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission.



10.44 REF

9.44 REF

2 REF

REF

REV	
CHG	
CHK	

FIRST USED ON OPTION/MODEL  
PDP 3/E

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

DIR: S. Keller  
CHK'D: [Signature]  
ENG: [Signature]  
PROD: [Signature]  
DATE: 7/23/70  
DATE: 7/29/70  
DATE: 7/29/70  
DATE: 7/31/70  
NEXT HIGHER ASSY  
D-JA-MMS-E-2  
SCALE NONE

PARTS LIST		QTY.	DESCRIPTION	PART NO.	ITEM NO.
TITLE					
MEMORY STACK (H220)					
SIZE CODE	NUMBER	REV.			
D	UA H220-3-3				
SHEET	OF	DIST.			
1	1				

REV  
NUMBER  
DUA H220-3-3

**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS

**ACCESSORY LIST**

**LEGEND**

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

**QUANTITY / VARIATION**

MADE BY DATE	W. Kane 3 31 72	CHECKED DATE	SECTION I
ENG DATE	W. Coates 4 1 72	PROD DATE	ISSUED SECT. I

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION						KIT CHECK	BY	DATE	INSTALLATION CHECK	BY	DATE
			MM8-1	MM8-2	MM8-EH									
1	B-DD-MM8-E	MEM. DWG. DIR.	1	1	1									
2	DN-SP-MR1E-D	Maintenance Manual	1	1	1									
3	LIB KIT- KMSE	Library Kit	1	1	1									
4	H212	8K Stack ASSY.		1										
5	H111	4K Sense Inhibit Board		1										
6	G233	8K XY Driver Board		1										
7	H220	4K Stack Board	1											
8	G104	4K Sense Inhibit Board	1											
9	H227	4K XY Driver Board	1											
10	H211	Edge Connector	4	4	4									
11	A-SP-MM8-E-4	Engineering Specification		1	1									
12	H211	4K Stack Assy			1									
13	G115	8K or 4K sense inhibit board		1	1									
14	G234	8K or 4K X-Y driver board		1	1									

TITLE	MM8-1 Accessory Shipping List	ASSY. NO.	SIZE CODE A AL	NUMBER	1000-1-3	REV.	A	CO NO	MM8E-00005
SHEET	1 OF 1	DIST.							

**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS

**ENGINEERING SPECIFICATION** DATE 5/26/71

TITLE **MMSE ACCEPTANCE PROCEDURE**

REVISIONS						
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

<i>R. Decker</i>	APPD <i>Kenneth J. Johnson</i>	SIZE <b>A</b>	CODE <b>SP</b>	NUMBER 7665139-0-0	REV
------------------	--------------------------------	---------------	----------------	--------------------	-----

SHEET 1 of 4

**ENGINEERING SPECIFICATION** CONTINUATION SHEET

TITLE **MMSE ACCEPTANCE PROCEDURE**

- 3.6 Remove the G104 module from the omnibus.
- 3.7 Turn **strobe switch** one position clockwise from the center position that is indicated on the G104 module. Reinsert the G104 module into the omnibus.
- 3.8 Reconnect the G104 and H220 modules using the two (2) edge connectors.
- 3.9 Repeat 3.3
- 3.10 At the completion of 3.6 halt the PDP8-E and turn off the power to the PDP8-E.
- 3.11 Repeat 3.5 and 3.6
- 3.12 Turn **strobe switch** one position counter-clockwise from the center position that is indicated on the G104 module. Reinsert the G104 module into the omnibus.
- 3.13 Repeat 3.8.
- 3.14 Repeat 3.3
- 3.15 At the completion of 3.9 halt the PDP8-E and turn off the power to the PDP8-E.
- 3.16 Repeat 3.5 and 3.6.
- 3.17 Return **strobe switch** to the center position indicated on the G104 module.
- 3.18 Reinsert the G104 module into the omnibus.
- 3.19 Repeat 3.8.
- 3.20 Follow the loading program for MMSE Memory Address Test (MAINDEC-8E-DLEA).
- 3.21 Run the MMSE Memory Address Diagnostic following the instructions in the program write-up. This test must run error free for a minimum of ten (10) minutes.
- 3.22 If the construction requisition specifically states a particular memory field is desired, have production cut the appropriate EMA jumper or jumpers.

4.0 **FAILURE CLASSIFICATION**

- 4.1 Mechanical Failure.
  - 4.1.1 Any G104, H220 and G227 (MMSE) module that does not meet the criterion outlined in 2.1, 2.2, 2.3, 2.4, and 2.5 will be classified as a failure.
  - 4.1.2 The acceptance supervisor has the option of either waiving the failure (using DEC form 12-1026) or returning the defective module or modules to production for repair.

SIZE <b>A</b>	CODE <b>SP</b>	NUMBER 7665139-0-0	REV
---------------	----------------	--------------------	-----

SHEET 3 OF 4

**ENGINEERING SPECIFICATION** CONTINUATION SHEET

TITLE **MMSE ACCEPTANCE PROCEDURE**

- 1.0 **SCOPE**
  - 1.1 This procedure defines the minimum performance standards required of a MMSE-E option which is not accepted as an integral part of a PDP8-E, i.e., add-on options.
- 2.0 **SET UP**
  - 2.1 Remove the four (4) edge connectors from the tops of the G104, H220 and G227 (MMSE-E) modules.
  - 2.2 Inspect the G104, H220 and G227 (MMSE-E) modules for conformance to "Final Inspection Procedure for Flip-Chip Modules" (A-SP-7665039-0-0) and "Module Rework Standard" (A-SP-7603845-0-0).
  - 2.3 Check the G104 and G227 modules for a legible three character numerical date code.
  - 2.4 Check the G104 and G227 modules to insure the circuit and etch revisions are up to current ECO levels. Make sure all EMA jumpers on the G104 module are installed.
  - 2.5 Inspect the G104 to make sure a center strobe position is stamped on the module.
  - 2.6 Insure that **strobe switch** is set to center position indicated on the G104.
  - 2.7 Ascertain that the MMSE option has been checked out in heat and vibrated by Production.
  - 2.8 Make sure the power to the PDP8-E is turned OFF.
  - 2.9 Insert the G104, H220 and G227 (MMSE) modules into the omnibus. Be sure you adhere to the "Recommended Omnibus Assignment List" (A-SP-PDP8-E-0-4).
  - 2.10 Connect the MMSE modules together using the four (4) edge connectors. The G104 should be in front, the H220 in the middle and the G227 third.
- 3.0 **ELECTRICAL TEST**
  - 3.1 Turn on power to the PDP8-E.
  - 3.2 Follow the loading procedure for MMSE Memory Checkerboard (MAINDEC-8E-DLAA).
  - 3.3 Run the MMSE Memory Checkerboard diagnostic following the instructions in the program write-up, this test must run error free for a minimum of 10 minutes.
  - 3.4 At the completion of 3.3 halt the PDP8-E and turn off the power to the PDP8-E.
  - 3.5 Remove the two (2) edge connectors that connect the G104 and H220 together.

SIZE <b>A</b>	CODE <b>SP</b>	NUMBER 7665139-0-0	REV
---------------	----------------	--------------------	-----

SHEET 2 OF 4

**ENGINEERING SPECIFICATION** CONTINUATION SHEET

TITLE **MMSE ACCEPTANCE PROCEDURE**

- 4.2 Electrical Failure.
  - 4.2.1 Any MMSE (G104, H220 and G227 module) which while performing 3.3, 3.6, 3.9 and 3.13 halts, generates error printouts, garble or runs other than continuous and as specified in the diagnostic write-up will be classified defective and returned to production for repair.

SIZE <b>A</b>	CODE <b>SP</b>	NUMBER 7665139-0-0	REV
---------------	----------------	--------------------	-----

SHEET 4 OF 4





CUSTOMER PRINT SET				ELECTRICAL					CUSTOMER PRINT SET				MECHANICAL				
1	2	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE	1	2	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X	X			C-UA-MR8-F-0	*	1	UNIT ASSY (MR8-F)						C-UA-MR8-F-0	*	1	UNIT ASSY (MR8-F)	
X	X			A-SP-MR8-F-1	A	6	MR8-F ENGINEERING SPEC.										
X				A-SP-MR8-F-2	A	3	MR8-F FIELD INSTALLATION AND ACCEPTANCE PROCEDURE										
X	X			A-AL-MR8-F-3	*	1	ACCESSORY LIST										
				A-SP-MR8-FB-4	A	10	MFG CHECK-OUT PROCEDURE MR8-FB										
			S	K-SP-MR8-FE-1	A	168	MR8-FE PROGRAM SPECIFICATION										
				A-SP-MR8-FE-2	*	8	MR8-FE MFG CHECKOUT PROCEDURE										
C	C			B-DD-KM8-F	#	2	TIMING GENERATOR										
X	X			D-CS-M8349-0-1	#	7	PROM 1K										
				K-CO-M8349-0-4		1	X-Y COORDINATE HOLE LOCATION										
				D-AH-M8349-0-5		1	ASSY DRILLING HOLE LOCATION										
				B-MH-M8349-0-6		1	MODULE ECO HISTORY										
X	X			D-CS-H8511-0-1	#	1	EDGE CONN. SHORTING BLOCK										
				K-CO-H8511-0-4		1	X-Y COORDINATE HOLE LOCATION										
				D-AH-H8511-0-5		1	ASSY DRILLING HOLE LOCATION										
				B-MH-H8511-0-6		1	MODULE ECO HISTORY										
X				D-CS-M8349-YE-1	#	4	MEM PROM 1K										
				K-CO-M8349-YE-4		1	X-Y COORDINATE HOLE LOCATION										
				D-AH-M8349-YE-5		1	ASSY DRILLING HOLE LOCATION										
				B-MH-M8349-YE-6		1	MODULE ECO HISTORY										

CUSTOMER PRINT SET CODES  
X = PRINT OF DOCUMENT INCLUDED IN PRINT SET  
C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT  
S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED

TITLE  
MR8-F REPROGRAMMABLE MEMORY

SHEET 2 of 2

SIZE CODE  
B DD  
NUMBER  
MR8-F

REV  
B

ENGINEERING SPECIFICATION

DATE 10/3/73

TITLE MR8-F FIELD INSTALLATION AND ACCEPTANCE PROCEDURE

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	ECO CHANGE	MR8F-00001	ADAMS	1-74	<i>David L. Adams</i>	7/27/74

ENG	Richard Morris	APPD	<i>David L. Adams</i>	10/1/73	SIZE	CODE	NUMBER	REV
					A	SP	MR8-F-2	A

DEC FORM NO. DRA 107

SHEET 1 OF 3

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE MR8-F INSTALLATION AND ACCEPTANCE PROCEDURE

1. Shipping Hardware
  - 1.1 MR8-FB (M8349)
  - 1.2 MR8-F (M8330 circuit schematic Rev. E or later)
2. Shipping Software
  - 2.1 MR8-FB Prom Diagnostic MAINDEC-08-DHMRC\*
  - 2.2 MR8-FB Prom Internal Test MAINDEC-08-DHMRE
3. Equipment required for acceptance
  - 3.1 PDP-8E, 8M, 8F with a programmers console. If 4K of core is present, the system must have an KM8-E (M837) extended memory control. All these options must be customer supplied.
4. Unpacking and Installation
  - 4.1 Unpack and inspect the modules for physical damage.
  - 4.2 Make sure all four top edge connectors on the M8349 are fitted correctly.
  - 4.3 Turn power off in the PDP-8E, 8M, 8F.
  - 4.4 If the MR8-FB is an add-on remove M8330 and insert the new M8330 in the same slot. The MR8-FB requires an M8330 circuit schematic revision E or later.
  - 4.5 Insert the M8349 in the OMNIBUS behind the RFI shield (M849)
  - 4.6 Remove all other options in PDP-8E, 8M, 8F that use the "SW" switch option.

\* Prom Diagnostic (Main DEC-08-DHMRC) is not used in this Acceptance Procedure. This Maindec is used to diagnose the MR8-FB after the MR8-FB has been programmed to the customers specifications

SIZE	CODE	NUMBER	REV
A	SP	MR8-F-2	A

DEC FORM NO. DEC 16-(1981)-1022-N370  
DRA 108

SHEET 2 OF 3

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE MR8-F FIELD INSTALLATION AND ACCEPTANCE PROCEDURE

5. Acceptance
  - 5.1 The MR8-FB is shipped with Prom Internal test Maindec-08-DHMRE programmed in the Prom chips.
  - 5.2 Turn PDP-8E, 8M, 8F power on.
  - 5.3 If the MR8-FB is an add-on and a new M8330 was installed, run all basic 8E diagnostics and EAE diagnostics if applicable.
  - 5.4 Toggle "SW" switch. The Prom Internal Test should be running. Refer to MAINDEC-08-DHMRE writeup if there are any errors. Let MAINDEC-08-DHMRE run 20 minutes. No errors are acceptable.
  - 5.5 If no errors have occurred the MR8-FB is ready to be erased and reprogrammed by the customer.

SIZE	CODE	NUMBER	REV
A	SP	MR8-F-2	A

DEC FORM NO. DEC 16-(1981)-1022-N370  
DRA 108

SHEET 3 OF 3

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 <i>[Signature]</i>	CHECKED <i>[Signature]</i>	SECTION
DATE 10/11/73	DATE 10/11/73	
ENG <i>[Signature]</i>	PROD <i>[Signature]</i>	ISSUED SECT.
DATE 10/11/73	DATE 10/11/73	

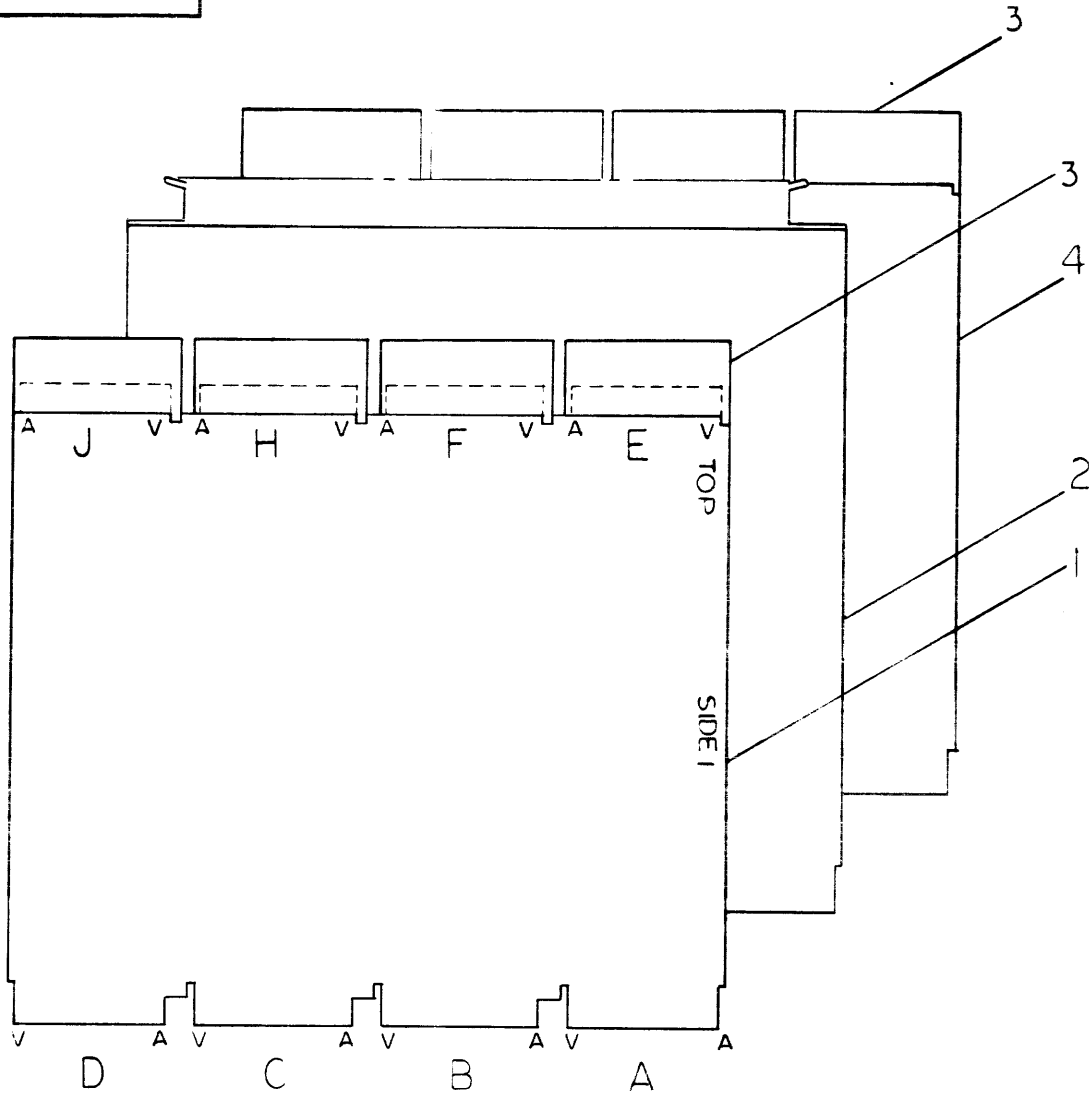
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION					KIT CHECK	BY	DATE	INSTALLATION CHECK	BY	DATE
			MR8-FA	MR8-FB	MR8-FC	MR8-FD	MR8-FE						
1	KM8-F	Timing Generator (M8330 Rev E or later)	-	-	-	-	1						
2	M8349	1K x 12 PROM including 256 x 12 word RAM	-	1	-	-	2						
3	M8349YA	256 x 12 word PROM	1	-	-	-	-						
4	M8349YC	1K x 12 word PROM	-	-	1	-	-						
5	M8349YD	512 x 12 word PROM	-	-	-	1	-						
6	H8511	Edge Connector	4	4	4	4	16						
7	B-DD-MR8-F-0	Print Set	1	1	1	1	1						
8	DEC-08-OMRAA-B-D	Program Format Description	1	1	1	1	-						
9		PROM Jumper Selection Form	1	1	1	1	1						
10	DEC-8E-HR2C-D	PDP8/E Maintenance Manual (Volume 2)	1	1	1	1	-						
11		Contents Tape (Customer Generated)	*	*	*	*	-						
12	MAINDEC-08-DHMRC	MR8-F PROM Diagnostic	1	1	1	1	-						
13	M8349-YE	1K x 12 word PROM (excluding Auto Start)	-	-	-	-	2						
*	Only required if DEC custom programs the PROM.												

TITLE	ASSY. NO.	SIZE CODE	NUMBER	REV.	ECO NO
1K PROM		A AL	MR8-F-3		
SHEET 1 OF 1	DIST.				

THE DRAWING AND SPECIFICATIONS HEREIN ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.  
 © 1973 DIGITAL EQUIPMENT CORPORATION

**NOTE**

1. THE SAME ASSEMBLY IS USED FOR ALL M8349 Y VARIATIONS.



M83-F1	M83-FB	M83-FC	M83-FD	M83-FE			
-	-	-	-	2	MEM BD 1K PROM	D-CS-M8349-VE-1	4
4	4	4	4	16	EDGE CONN. SHORTING BLOCKS	D-CS-H8511-0-1	3
-	-	-	-	1	TIMING GENERATOR	B-DD-KM8-F	2
1		1	1	2	PROM 1K (SEE NOTE 1)	D-CS-M8349-0-1	1

FIRST USED OR OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
MRE-F				

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES		DRN / DATE	PARTS LIST	
TOLEANCES		<i>H. H. H.</i> 3/2/73		
DECIMALS	ANGLES	CHK'D / DATE		
.xxx = .005	+0' 30'	<i>H. H. H.</i> 8/2/73		
.xx = .02		ENG. / DATE		
.x = .1		<i>H. H. H.</i> 10/11/73	TITLE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY Y		PROJ. ENG. / DATE	MRE-F	
		PROD. / DATE	REPROGRAMMABLE	
			MEMORY	
MATERIAL	NEXT HIGHER ASSY.		SIZE	CODE
+ +			C	UA
FINISH	SCALE		NUMBER	REV.
+ +	+ +		MR8-F-0	
	SHEET 1 OF 1		DIST.	

REV	CHG	NO	DATE

REV	CHG	NO	DATE

DIGITAL EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 7/27/73

TITLE MR8-F REPROGRAMMABLE MEMORY

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	ECO CHANGE	MR8F-00001	ADAMS	1-74	David Adams	7/27/73

NOTE: MR8-FA, MR8-FC, MR8-FD PRESENTLY DO NOT EXIST, FOR REFERENCE ONLY.

ENG Dave Adams	APPD <i>David Adams</i>	11/11/73	SIZE A	CODE SP	NUMBER MR8-F-1	REV A
----------------	-------------------------	----------	--------	---------	----------------	-------

DEC 16-1082-1070-N371  
DRA 107

1 of 6

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE MR8-F REPROGRAMMABLE MEMORY

General:

The MR8-F is a memory option to the PDP8/E/F/M series of computers. The board utilizes a maximum of seven (7) ultraviolet erasable, reprogrammable, MOS memory chips with a capacity of 2048 bits (256 x 8 bits) each.

There are four (4) versions of the MR8-F. The MR8-FA is 256 words x 12 bits PROM only memory. The MR8-FB is a 1K word x 12 bits PROM with a maximum of 256 of the 1K words being Read/Write Random Access Memory. The MR8-FC is a 1K word x 12 bits PROM only memory. The MR8-FD is a 512 word x 12 bits PROM only memory.

All versions of the MR8-F have a SW start capability. This allows the program to start in one of two specified locations, using SW on the Operator's or Programmer's Console. It is possible to disable this by removing a jumper, if more than one device uses SW in the system.

Physical:

The MR8-F is a single quad card that plugs into the OMNIBUS. There are address select diodes that can be arranged so other cards may be added to expand the capacity up to a total of 4K words. The maximum of four (4) boards is due to the high +5V current drain per board.

Electrical:

Voltage - The MR8-F uses +5V and -15V. There are tabs on the board where +5V from a battery supply may be applied to the bipolar Read/Write chips. This will allow them to hold their contents during an AC power loss.

Maximum Current Rating:

MR8-FA	+5V @ 1.7A	-15V @ 100 MA
MR8-FB	+5V @ 3.8A	-15V @ 350 MA
MR8-FC	+5V @ 1.9A	-15V @ 300 MA
MR8-FD	+5V @ 1.7A	-15V @ 150 MA

SIZE A	CODE SP	NUMBER MR8-F-1	REV A
--------	---------	----------------	-------

DEC FORM NO DEC 16-(381)-1022-N370  
DRA 108

SHEET 2 OF 6

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE MR8-F REPROGRAMMABLE MEMORY

Cycle Time - 3.4/3.6 uS.

PROM Erasure Method - UV light

PROM Programming Method - By external programmer (MR8-SL)

Capacity - MR8-FA - 256 words of PROM  
MR8-FB - 1K of PROM 256 words R/W memory  
MR8-FC - 1K of PROM  
MR8-FD - 512 words of PROM

Temperature - 0°C to 50°C (Standard Computer Environment)

Detailed Description:

A normal problem with Read Only memories is that code must be specially written to avoid instructions that require a write operation (i.e. JMS, DCA and ISZ) and placing variable locations in R/W memory.

In this PROM that restriction is removed if the total number of alterable locations in a piece of code is 256 or less. This is done by making the PROM a 13 bit memory. On a Read access, if the 13th bit is a "1", the least significant 8 bits stored in the ROM are treated as an address, rather than an operand, and point to a Read/Write location. 256 of these locations are provided within the 1K words of the MR8-FB. These RAM locations can be anywhere within the 1K of PROM.

By checking a program as it is written, it is possible to tag all operands that may be changed in the course of execution and then to modify the program controlling the PROM programmer to set the 13th bit for this address and place the next available RAM address in this location. Thus, whenever this location in PROM is accessed, the actual data will be read from or written into the corresponding RAM location.

SIZE A	CODE SP	NUMBER MR8-F-1	REV A
--------	---------	----------------	-------

DEC FORM NO DEC 16-(381)-1022-N370  
DRA 108

SHEET 3 OF 6

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE MR8-F REPROGRAMMABLE MEMORY

e.g. the sequence

210/	TAD CONST
211/	DCA TEM
212/	ISZ CNTR
213/	TAD TEM
214/	JMS SUBR

becomes

210/	02154
11/	03361
12/	02255
13/	01361
14/	04300

254/	00010	/constant 10
255/	10001	/points to RAM Loc. 1
361/	10002	/points to RAM Loc. 2

300/	10003	/points to RAM Loc. 3 for return address storage
------	-------	--

NOTE: During Single Step operation if an instruction causes the processor to leave the PROM's area, i.e., a TAD or DCA Indirect to a location outside the 1K of PROM, the MD lights will go out during the time the processor is outside the area of PROM. This is due to the PROM select signal (MCL Field) being disabled when the PROM is not selected. This in turn disables all the PROM outputs to the MD lines. When the PROM is reselected, the PROM output is turned back on and the MD lines will show what was in the output register of the PROM AND'd with whatever was put on the MD by the instruction issued.

SW Operation:

There is a provision for using SW to start a program whose starting address is either Loc 0 or 200g of any even 1K in any memory field (jumper selectable) provided that the Instruction Field and Data Field are the same. The relation of the MR8-F and the CPU is similar to that of the Operator's Console and the CPU. Both the PROM and

SIZE A	CODE SP	NUMBER MR8-F-1	REV A
--------	---------	----------------	-------

DEC FORM NO DEC 16-(381)-1022-N370  
DRA 108

SHEET 4 OF 6

TITLE MR8-F REPROGRAMMABLE MEMORY

console must:

- a. Initialize the CPU
- b. Load Starting Address
- c. Load Memory Field
- d. Start the Program

This is all done in the MR8-F when SW is toggled.

ROM Address:

ROM Address line is jumper selectable so that if the MR8-FA,FC,FD are required to overlay core memory, the core will be disabled when accessing the PROM. If the PROM does not overlay core, the jumper (YA1) is removed. The MR8-FB cannot pull ROM Address as this also disables any JMS from incrementing the PC.

Programming:

The PROM chip used is the 1702A, UV erasable device. Seven of these are needed to accomplish the 1K x 12 plus 1K x 1 bit storage. The programming pulses needed are of high (30-48V) amplitude. To isolate these from the TTL logic, all pins of the PROM chips are brought out to top fingers on the one side of the PC board. The TTL levels associated with the normal PROM functions are brought to the corresponding fingers on the two side. In normal operation single width top connectors H8511 join side 1 to side 2. To program the PROM, the top connectors are removed and four connectors of a cable plugged onto the top fingers. This cable makes contact with the 1 side only and is interlocked to prevent application of distructive voltages should the connectors be put on incorrectly. The cable connects the PROM to the Programmer (MR8-SL).

The 1702A when received from the factory or erased contains all zeros. When programming the PROM you insert "1" where they are needed. You cannot put "0" into the PROM using the programmer. The "0" can be put in only by erasing the whole PROM. The 1702A is guaranteed reprogrammable a minimum of 100 times.

SIZE	CODE	NUMBER	REV
A	SP	MR8-F-1	A

TITLE MR8-F REPROGRAMMABLE MEMORY

The Programmer (MR8-SL) and MR8-F Programmer utility program (MAINDEC-08-DHMRD) control the timing and voltages required to reprogram the 1702A. The utility program takes the paper tape in the format specified by the MR8-F PROGRAM FORMAT DESCRIPTION (DEC-08-OMRAA) and reassembles it into chip loading buffers; assigns R/W locations where necessary and assembles the 13th bit data. Then under user's direction, loads the 1702A's.

Stall:

The MR8-F's require the new timing board (KMB-F) be in the CPU as it pulls the Stall line to interrupt the normal sequence of timing.

Stall will be pulled for about 2.2 uS to allow for access time for the 1702A's and data settling time for the MD outputs.

Testing:

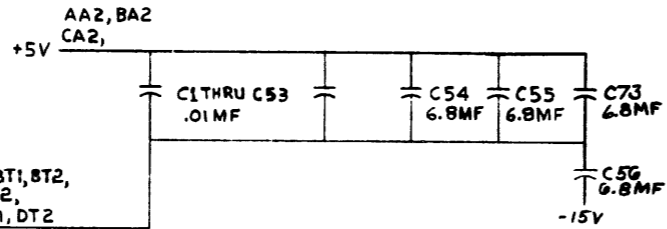
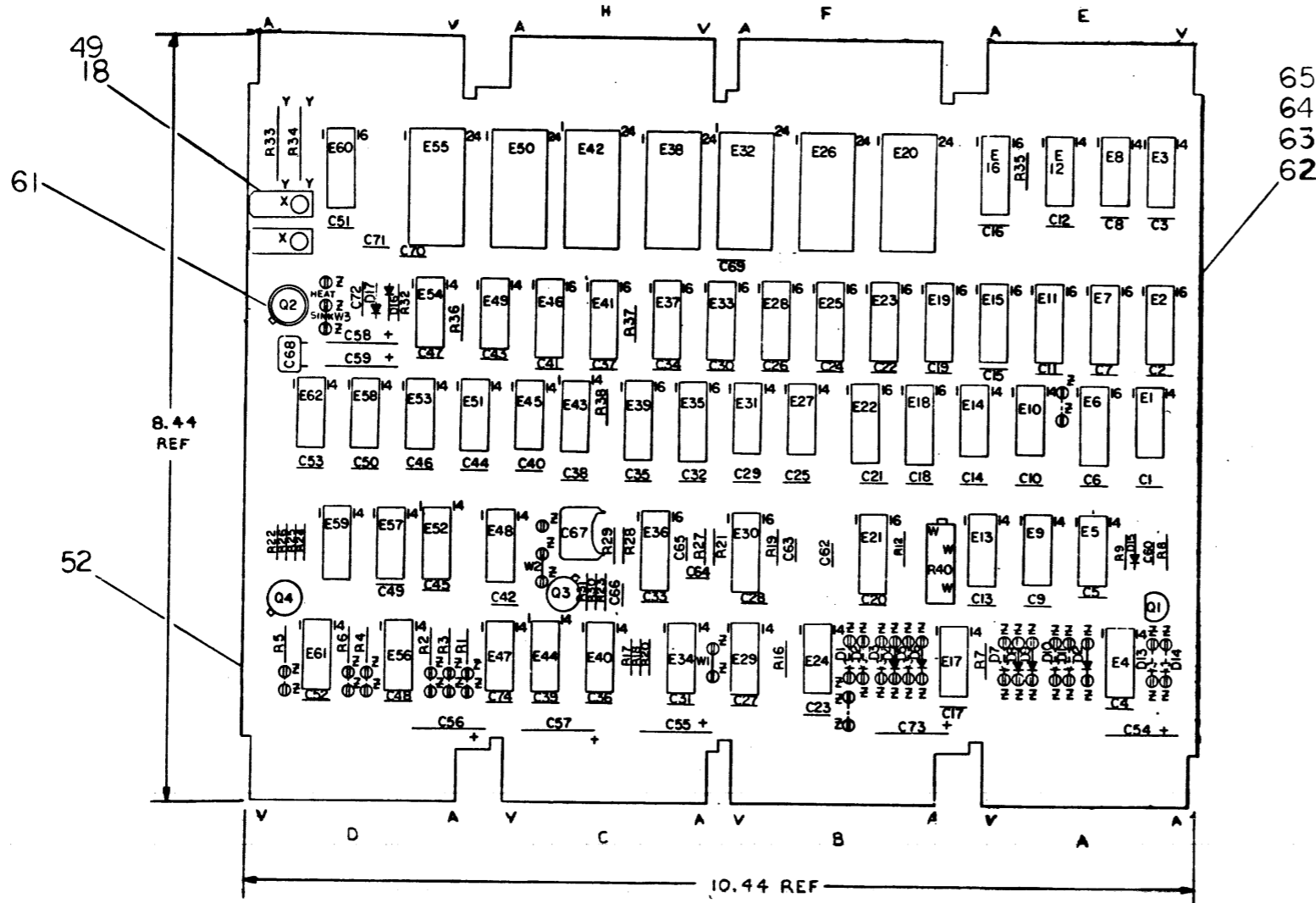
There will be an MR8-F Diagnostic program (MAINDEC-08-DHMRC) to test the PROM after it is programmed. The Diagnostic will require the use of the tape used in programming the PROM, to tell it what is in the PROM and where the R/W locations are (13th bit). Then the PROM will be read and compared against the Program Tape and the R/W locations will be exercised to check that there is no interaction between them and that they, in fact, do read and write correctly. See Checkout Procedure (A-SP-MR8 -F-4 ) for production tests.

SIZE	CODE	NUMBER	REV
A	SP	MR8-F-1	A

... drawing and specifications, herein, on the property of Digital Equipment Corporation and shall not be reproduced or used in whole or in part as the basis for the manufacture or sale of items without written permission. COPYRIGHT © 1973  
DIGITAL EQUIPMENT CORPORATION

**NOTES:**

- JUMPERS IN FOR # OUT FOR 1
- DIODES ON OUTPUT OF INVERTERS ARE IN FOR 1  
DIODES ON INPUT OF INVERTERS ARE IN FOR #  
SOME DIODES ARE INSTALLED IN PRODUCTION TO FACILITATE CHECKOUT. A CUSTOMER WILL RE-ARRANGE DIODES TO HIS REQUIREMENTS
- DELAY OUTPUT IS ADJUSTED TO 2.2 S + 50 NS.
- DIODES AND JUMPERS SHOWN IN DOTTED LINES ARE NOT PUT ON THE BOARD DURING MANUFACTURE. THEY ARE ADDED DURING CHECKOUT AS REQUIRED. SOLID LINE JUMPERS ARE PUT IN WHEN BOARD IS ASSEMBLED.
- UNLESS OTHERWISE NOTED RESISTANCE IS IN OHMS 1/4W 5%.
- YAI JUMPER (ROM ADDRESS) IS ONLY INSTALLED IF THE PROM ADDRESSES OVERLAY CORE MEMORY ADDRESSES.
- UNLESS OTHERWISE SPECIFIED ALL DELAY TIMES ARE + 20%.



AC2, AF1, AF2, AT1, AT2  
BC1, BC2, BF1, BF2, BN1, BN2, BT1, BT2,  
CC1, CC2, CF1, CF2, CN1, CN2 CT2,  
DC1, DC2, DF1, DF2, DN1, DN2, DT1, DT2

DEC 1702A	-	12
DEC 5380	1	8
DEC 7384	1	8
DEC 74151	8	16
DEC 74123	8	16
DEC 74157	8	16
DEC 74174	8	16
DEC 74200	8	16
IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE		
IC PIN LOCATIONS		

QTY	QTY	QTY	QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1				C64	CAP 68 PF 100V 5% DM	1000014	5
1				C65	CAP 150 PF 100V 5% DM	1000019	6
2	6	3	7	SEE Y VARIATION CHART	IC DEC 1702 A	23041A4	7
1				C68	CAP 1000 PF 100V 5% DM	1000042	8
1				C57	CAP 39 MF 10V 16F S TANT	1000076	9
58				C1-C53, C69, C70, C71, C72, C74	CAP .01 MF 100V 20% DISC	1001610	10
1				C80	CAP 390 PF 100V 5% DM	1001631	11
1				C67	CAP 2700 PF 100V 5% DM	1001637	12
1				C63, C66	CAP 27 PF 100V 5% DM	1001739	13
6				C54, C55, C56, C58, C59, C73	CAP 6.8 MF 35V 10% S TANT	1005306	14
1				D15	DIODE D862	1100113	15
6				D16, D4, D6, D8, D9, D12	DIODE D684	1100114	16
1				D17	DIODE IN757A	1108990	17
2					FASTON TABS	9007112	18
2				R8, R29	RES 100 OHMS 1/4W 5%	1300229	19
1				R32	RES 220 OHMS 1/4W 5%	1300271	20
2				R24, R28	RES 470 OHMS 1/4W 5%	1300316	21
6				R7, R16, R17, R22, R36, R38	RES 1K OHMS 1/4W 5%	1300365	22
1				R35	RES 1.5K OHMS 1/4W 5%	1300391	23
1				R31	RES 2.2K OHMS 1/4W 5%	1300417	24
1				R18	RES 3K OHMS 1/4W 5%	1300432	25
1				R9	RES 3.3K OHMS 1/4W 5%	1300439	26
7				R1-R6, R12	RES 4.7K OHMS 1/4W 5%	1300447	27
3				R19, R21, R23	RES 10K OHMS 1/4W 5%	1300479	28
2				R20, R37	RES 15K OHMS 1/4W 5%	1300486	29
							30
2				R25, R26	RES 27 OHMS 1/4W 10%	1301420	31
1				R27	RES 22K OHMS 1/4W 5%	1301606	32
1				R30	RES 270 OHMS 1/4W 5%	1301872	33
							34
2				R33, R34	RES 4.7 OHMS 1W 5%	1304883	35
2				Q3, Q4	TRANSISTOR 3009B	1903100	36
1				Q1	TRANSISTOR 6531B	1906338	37
1				Q2	TRANSISTOR 3762	1908848	38
2				E29, E58	I.C. DEC 7474	1909547	39
1				E57	I.C. DEC 7400	1909575	40
2				E48, E59	I.C. DEC 7402	1909804	41
1				E12	I.C. DEC 74400	1909826	42
1				E13	I.C. DEC 74410	1909857	43
2				E9, E62	I.C. DEC 74411	1909867	44
7				E14, E31, E44, E45, E47, E56, E61	I.C. DEC 8081	1909705	45
3				E1, E17, E40	I.C. DEC 74404	1909831	46
0	0	0	1	SEE Y VARIATION CHART	I.C. DEC 74151	1909936	47
			3	E49, E53, E54	I.C. DEC 7400	1910155	48
			2		EYELETS-(65-47)	9006732	49
			5	E34, E52, E3, E5, E8	I.C. DEC 5380 (CAN USE 10880)	1910392 (1911113)	50
3	3	3	6	SEE Y VARIATION CHART	I.C. DEC 5384 (CAN USE 3841)	1910394 (1909486)	51
			56		SPLIT LUGS-4-7	9006735	52
			3	E21, E30, E38	I.C. DEC 74123	1910436	53
			2	E22, E39	I.C. DEC 74174	1910852	54
			3	W1, W2, W3	BUS WIRE #22 AWG	907560-01	55

FIRST USED ON OPTION MODEL  
**MR8-F**

ETCH BOARD REV **C**

3762 NONE  
6531B NONE  
IN757A NONE  
D664 IN3606  
J662 IN645

DEC NO. EIA NO. DEC NO. EIA NO.

SEMICONDUCTOR CONVERSION CHART

DATE 3-1-73  
DATE 10/11/73  
DATE 10/16/73

digital EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS

TITLE  
**PROM IK**

SIZE CODE  
DCS M8349-0-1

NUMBER  
REV. 0

SHEET 1 OF 7

REVISIONS

1	ORIGINATED	A
2	CHANGE NO.	REV

D. ADAMS  
12-5-73  
M8349-0000 B

168995 80-502 168995

THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION. COPYRIGHT © 1973, DIGITAL EQUIPMENT CORPORATION

D E S I G N 1-0-6438W S D 2

QTY	QTY	QTY	QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
12				SEE Y VARIATION CHART	I.C. DEC 7400 (310)	191018-2	56
4				8B, E10, E38, E80	I.C. DEC 74157	1910855	57
1				.002	CAP 200PF 100V 5%	1000025	58
							59
1				.040	RES. 10K POT 3/4 W 10%	1309143-10	60
1					HEAT SINK: TRANSISTOR	1210001	61
REF					X-Y COORDINATE HOLE LOCATION	K-CO-M8349-0-4	62
REF					ASSY/DRILLING HOLE LAYOUT	D-AH-M8349-0-5	63
REF					ECO MODULE HISTORY	B-MH-M8349-0-6	64
1					ETCH CIRCUIT BOARD	5010426	65

M8349-YA  
M8349-YC  
M8349-YD

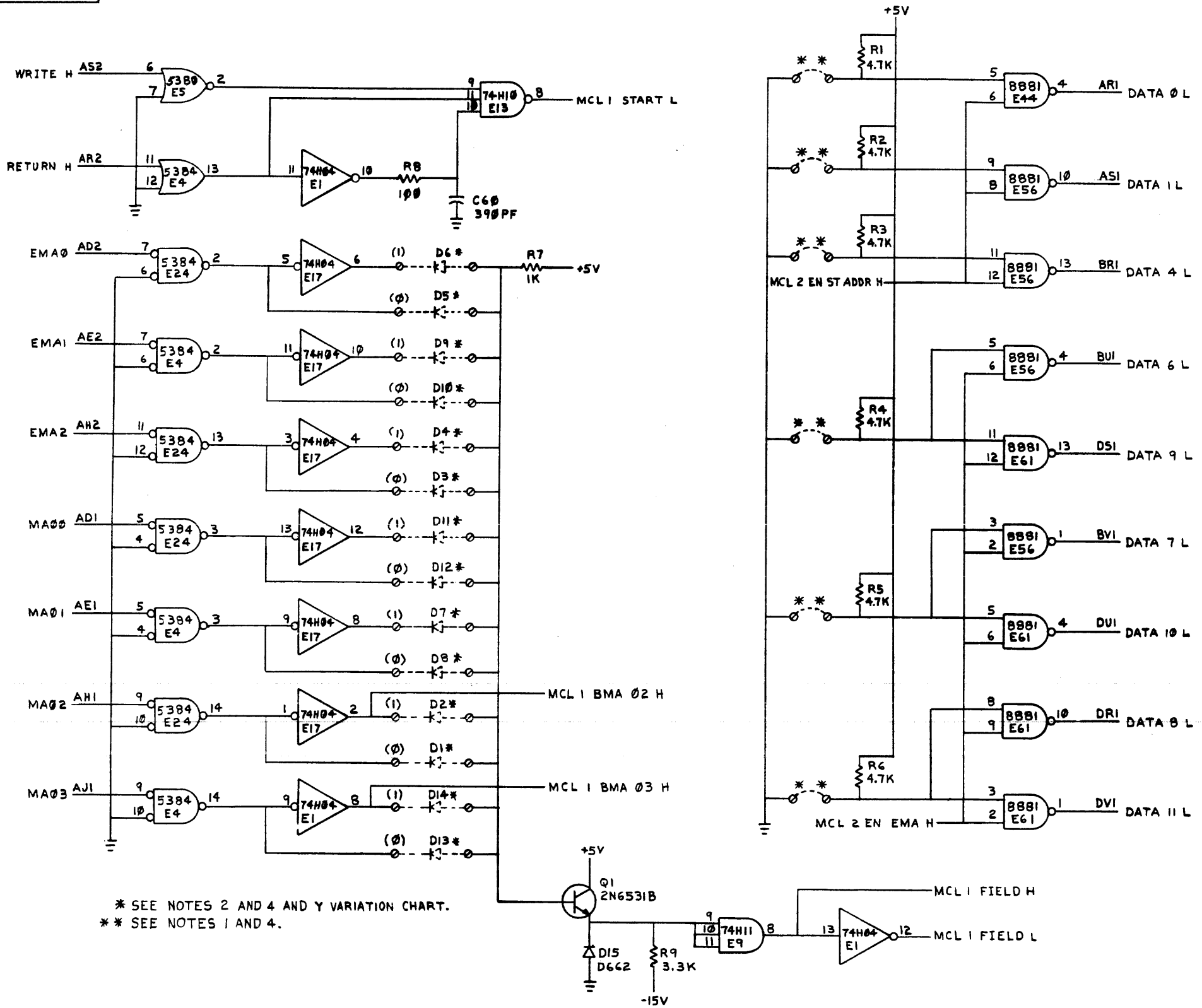
Y VARIATION CHART

COMPONENTS	M8349 YA	M8349 YC	M8349 YD	M8349
I.C. DEC 1702A	E26, E50	E26, E32, E38, E42, E50, E55	E26, E32, E50	E20, E26, E32, E38, E42, E50, E55
I.C. DEC 5384	E4, E24, E51	E4, E24, E51	E4, E24, E51	E4, E10, E24, E27, E43, E51
JUMPER YA1 SEE NOTE 6	IN	IN	IN	OUT
JUMPER YA2	IN	IN	IN	OUT
I.C. DEC 74151	0	0	0	E16
I.C. DEC 74200	0	0	0	E2, E7, E11, E15, E19, E23, E25, E28, E33, E37, E41, E46

REV. 001		CHANGE NO.		REV.		TITLE		SIZE CODE		NUMBER		REV.	
						PROM 1K		D CS		M8349-0-1		C	
SCALE		SHEET 2 OF 7		DIST.									



THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION. COPYRIGHT © 1973, DIGITAL EQUIPMENT CORPORATION



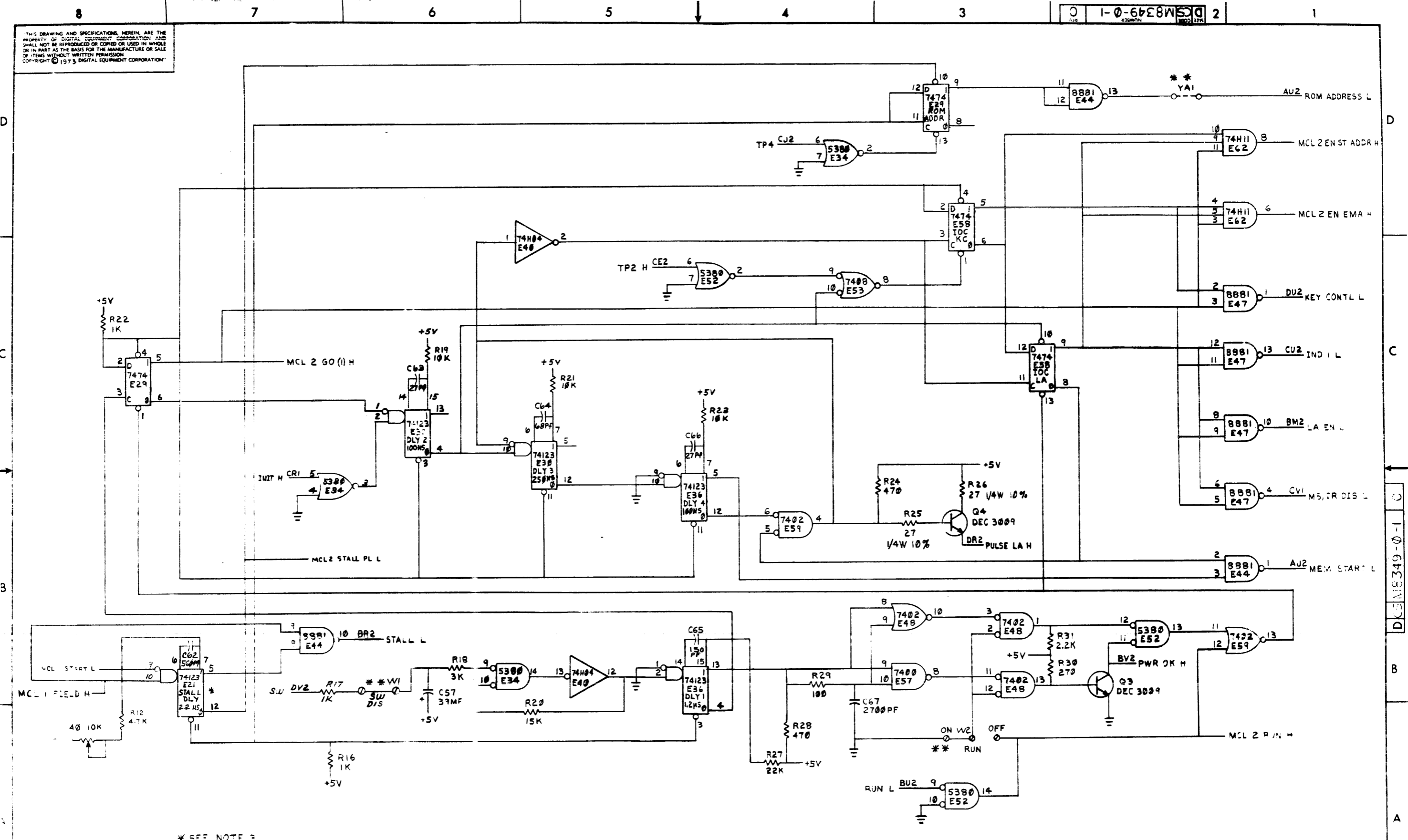
SW. STARTING ADDRESS

SW. FIELD SELECTION (IF AND DF)

\* SEE NOTES 2 AND 4 AND Y VARIATION CHART.  
 \*\* SEE NOTES 1 AND 4.

CHK	CHANGE NO	REV

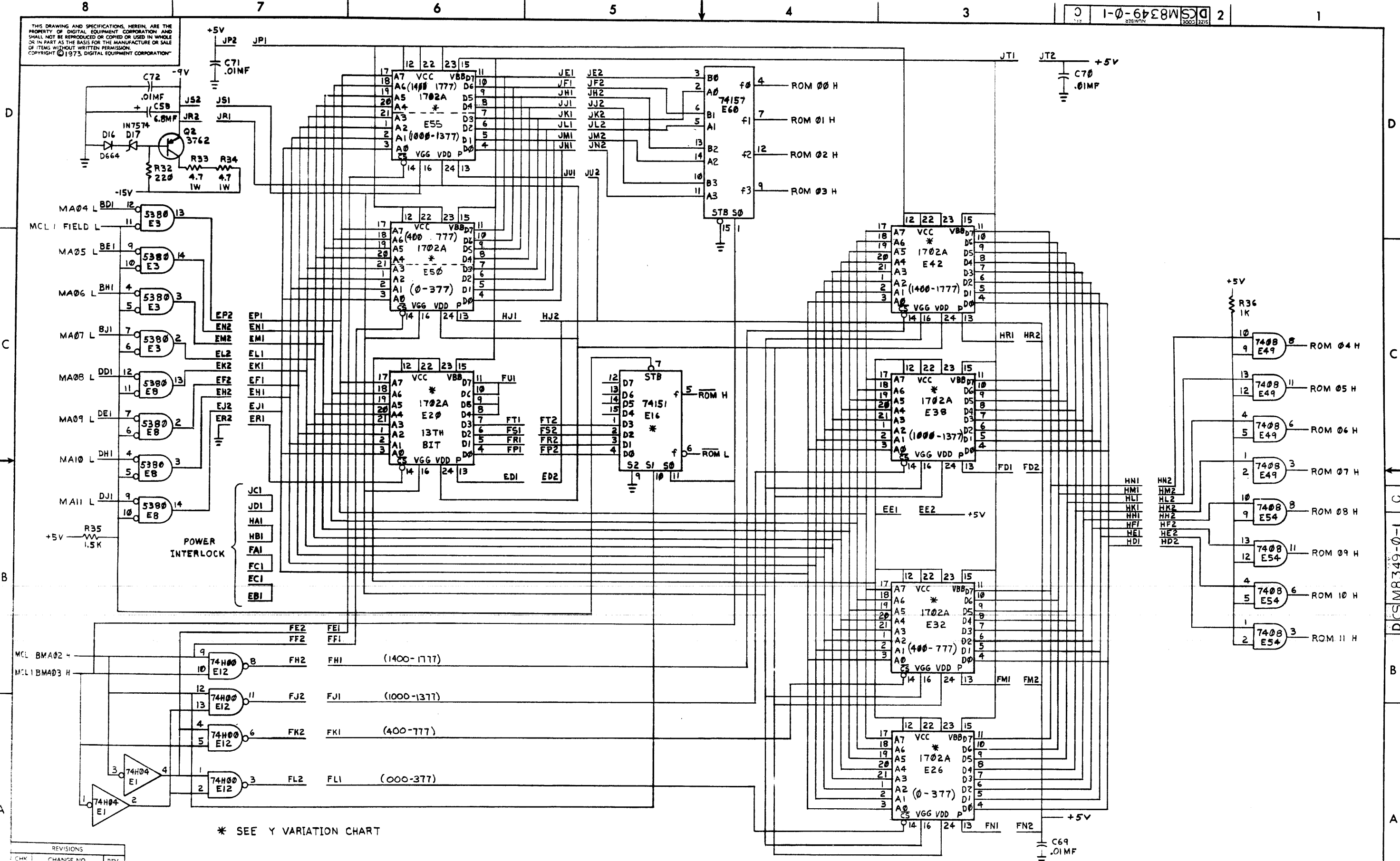
THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION. COPYRIGHT © 1973 DIGITAL EQUIPMENT CORPORATION



\* SEE NOTE 3  
 \*\* SEE NOTE 4

REVISIONS	CHANGE NO	REV

THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION. COPYRIGHT © 1973, DIGITAL EQUIPMENT CORPORATION

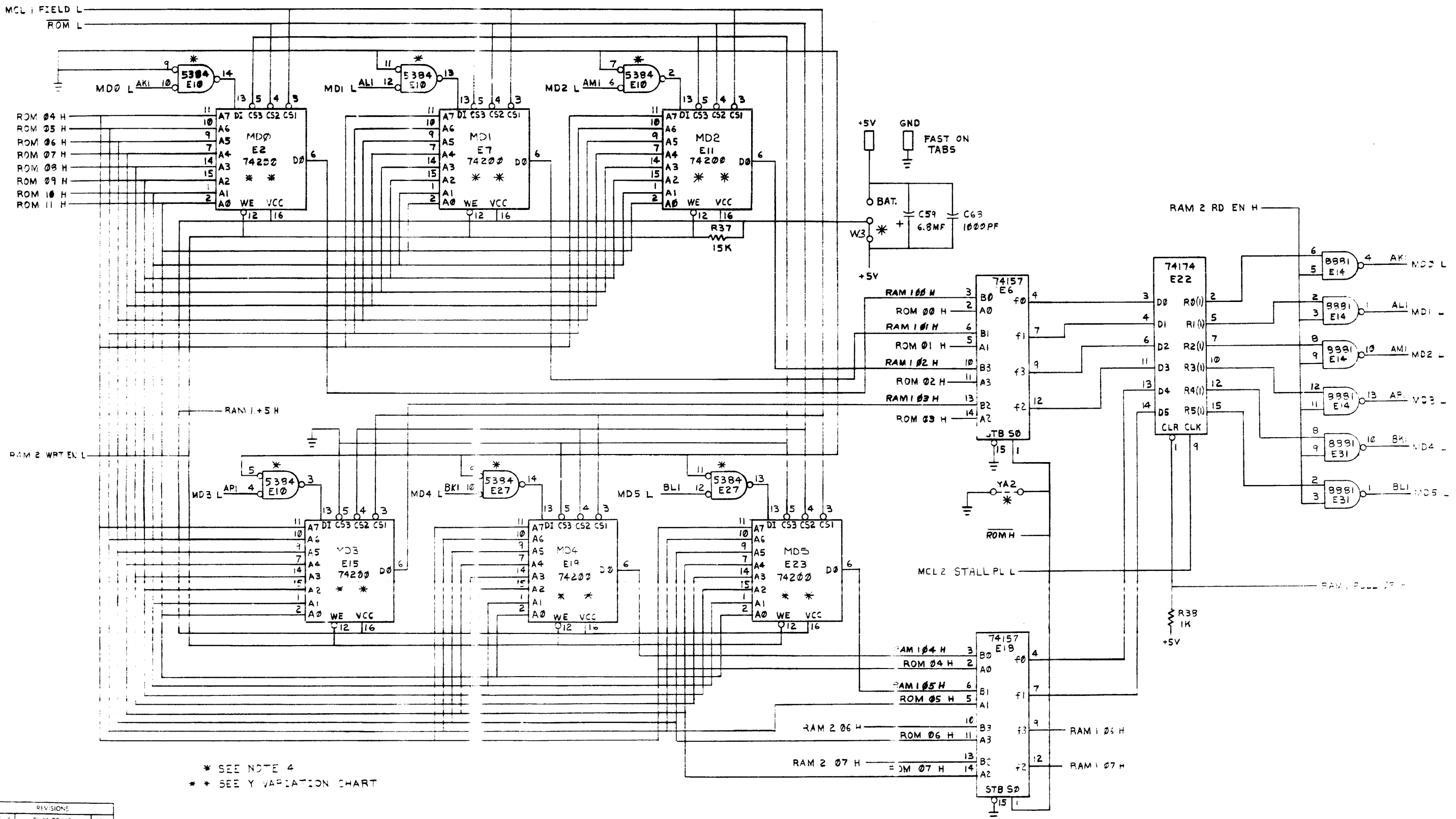


\* SEE Y VARIATION CHART

CHK	CHANGE NO	REV

TITLE	PROM 1K (ROM)	SIZE CODE	DCS	NUMBER	M8349-0-1	REV.	C
SCALE	1:1	SHEET	5	OF	7	DIST.	

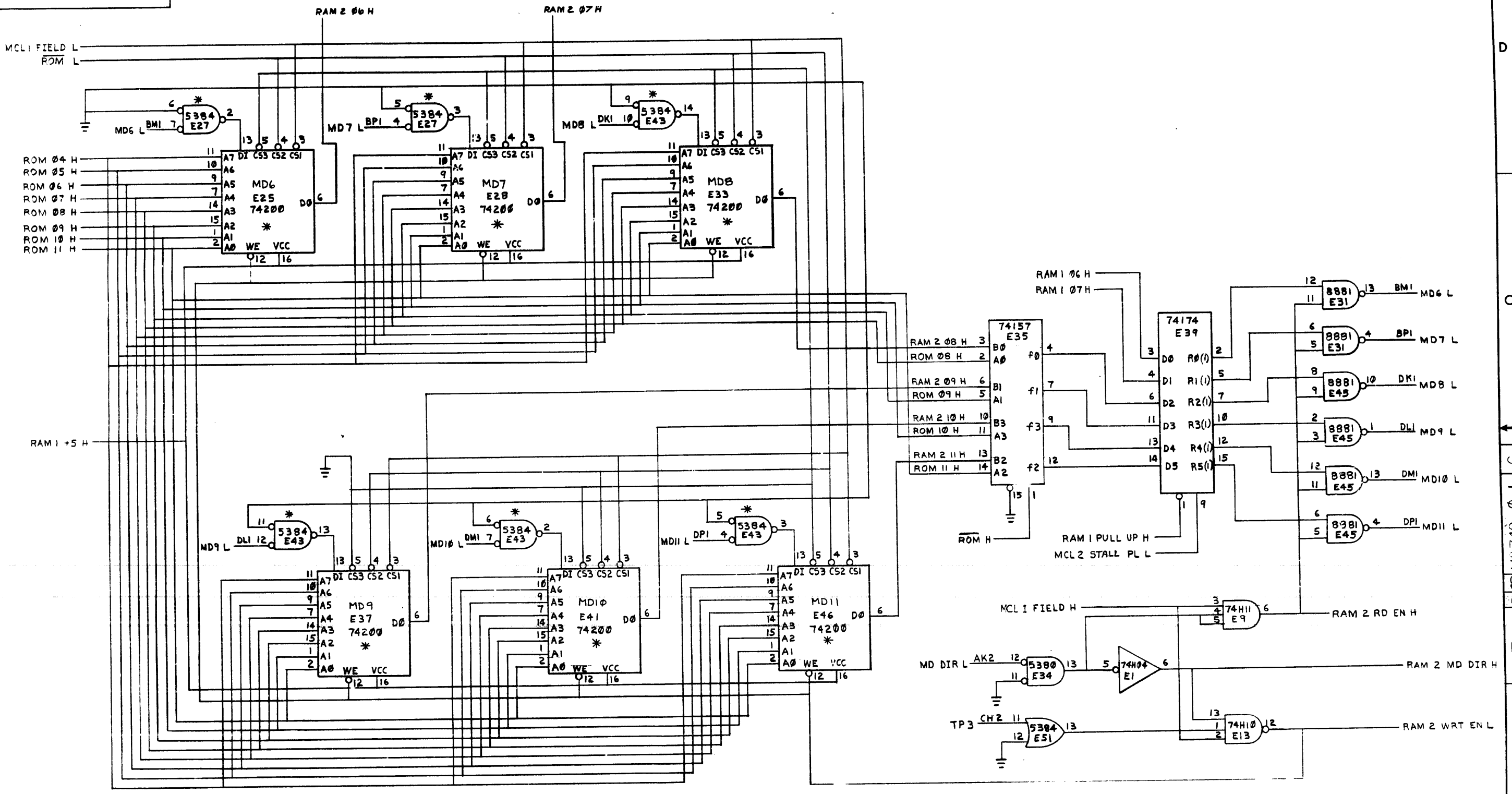
THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION. COPYRIGHT © 1973, DIGITAL EQUIPMENT CORPORATION



\* SEE NOTE 4  
 \*\* SEE Y VARIATION CHART

REV	CHANGE NO	REV

THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION. COPYRIGHT © 1973, DIGITAL EQUIPMENT CORPORATION.



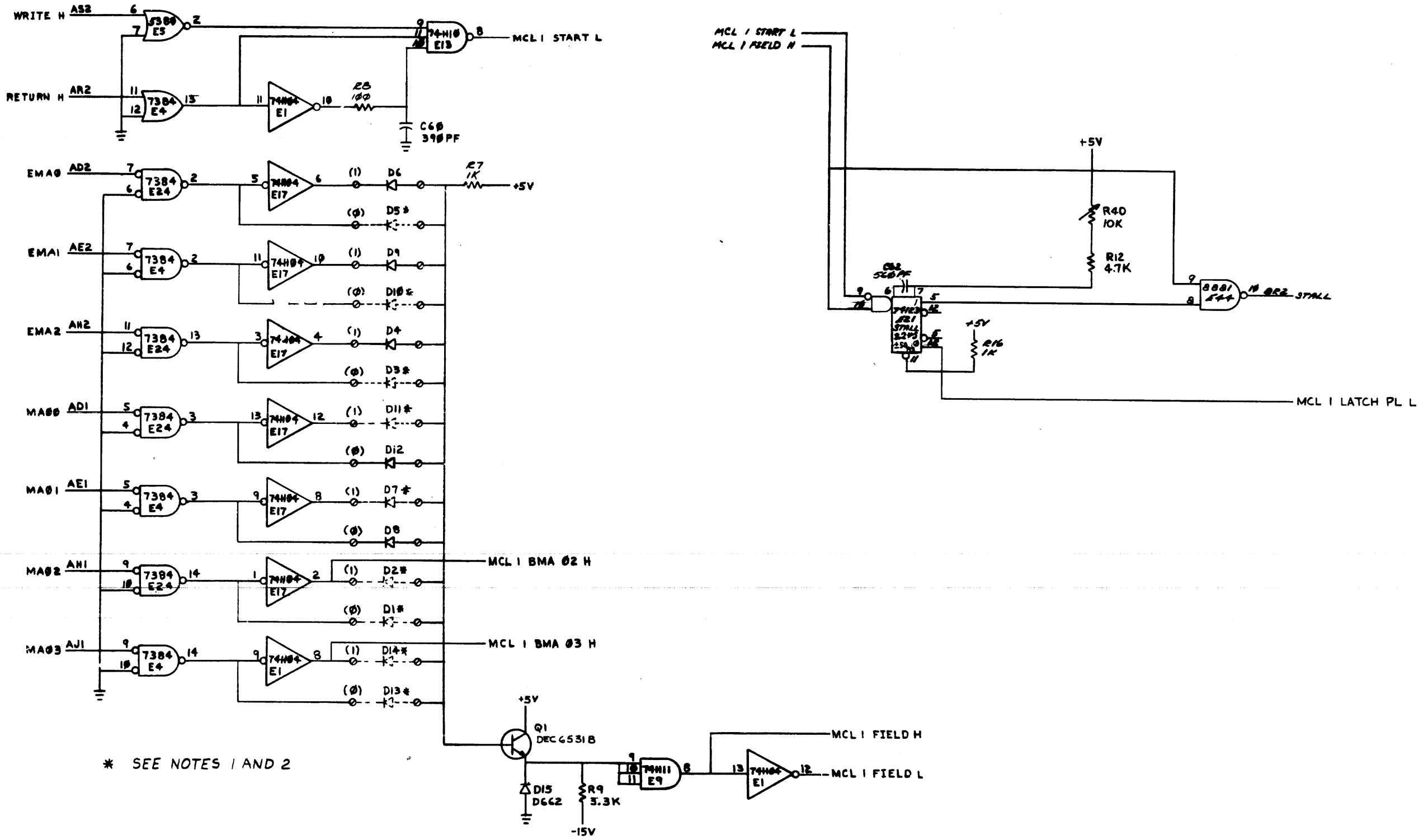
\* SEE Y VARIATION CHART

REVISIONS		
CHK	CHANGE NO	REV.

TITLE	PROM 1K (RAM 2)	SIZE/CODE	DCS	NUMBER	M8349-0-1	REV.	C
SCALE	+	SHEET	7	OF	7	DIST.	



THIS DRAWING AND SPECIFICATIONS HEREIN ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION. COPYRIGHT © 1973, DIGITAL EQUIPMENT CORPORATION

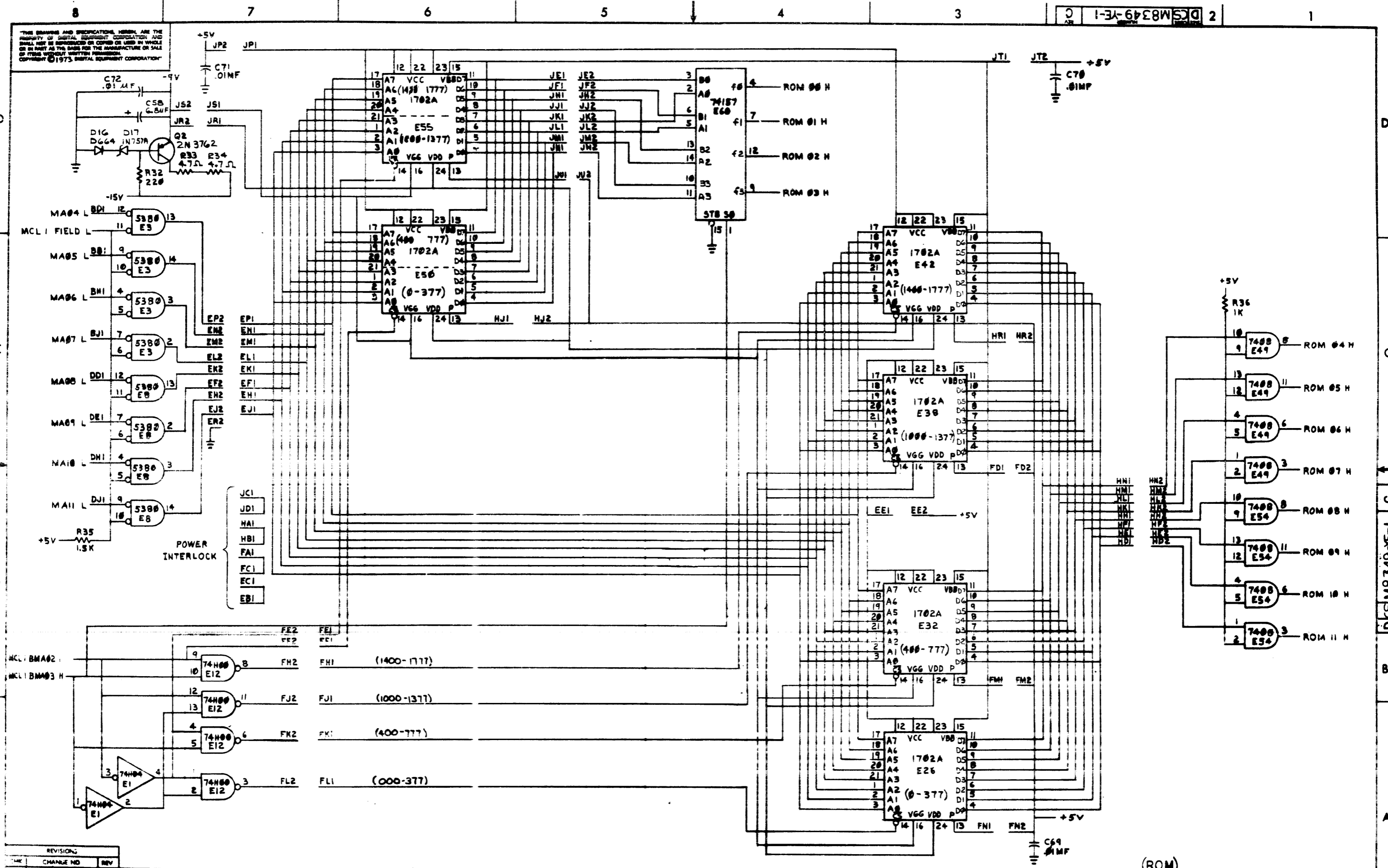


\* SEE NOTES 1 AND 2

REVISIONS		
CHK	CHANGE NO	REV.

(MCL 1)		TITLE	SIZE CODE	NUMBER	REV.
		PROM 1K X 12 BIT	D	CS M8349-YE-1	C
SCALE	SHEET	OF		DIST.	
1	2	4			

THIS DRAWING AND SPECIFICATIONS HEREIN ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF OTHER EQUIPMENT WITHOUT THE WRITTEN PERMISSION. COPYRIGHT © 1973, DIGITAL EQUIPMENT CORPORATION.

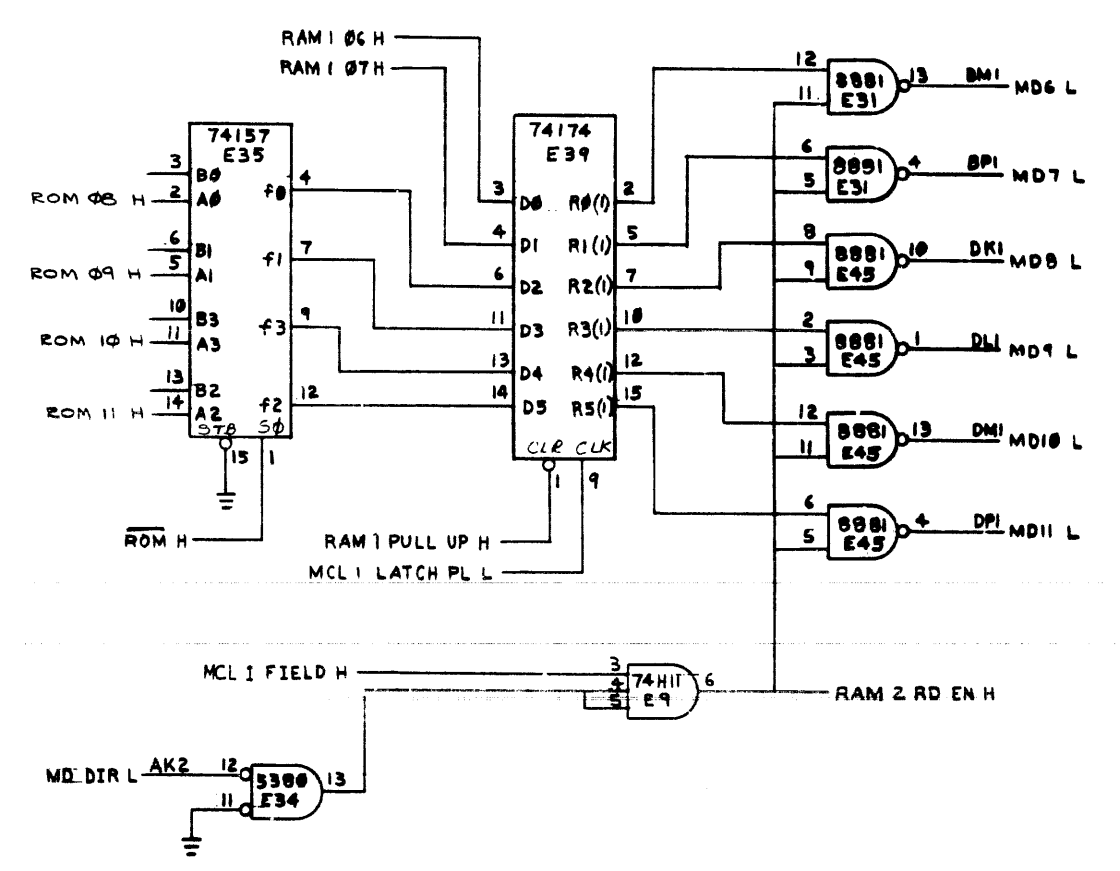
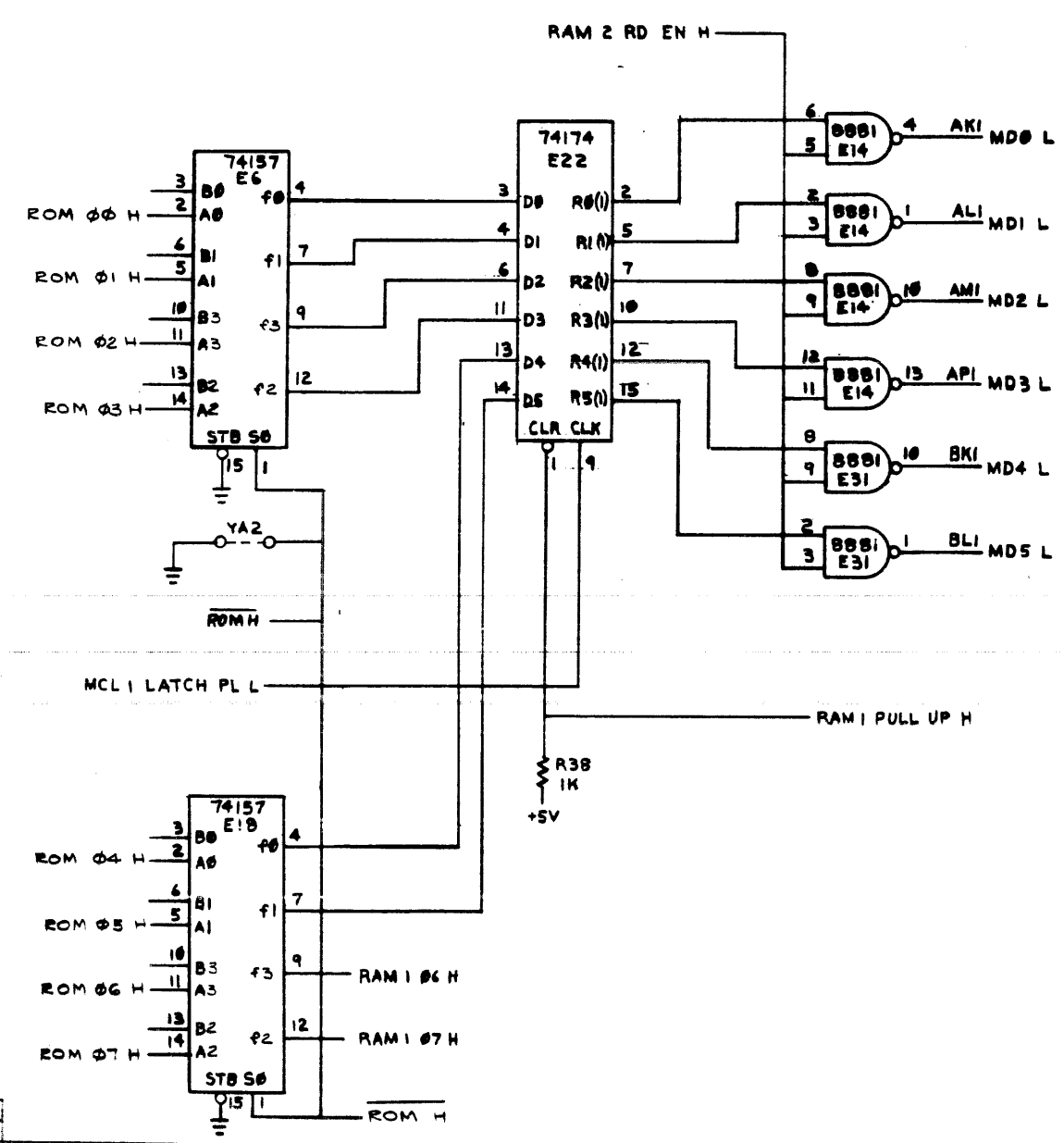


REVISIONS		
CHK	CHANGE NO	REV

TITLE	PROM 1K X 12 BIT	DATE CODE	DCS	NUMBER	M8349-YE-1	REV	C
SCALE	1:1	SHEET	3	OF 4	DIST.		



THE DRAWING AND SPECIFICATIONS HEREIN ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.  
 COPYRIGHT © 1973, DIGITAL EQUIPMENT CORPORATION



REVISIONS	
CHANGE NO.	REV.

DCS M8349-YE-1 C







DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			QUANTITY/VARIATION		
PARTS LIST			SP8-MB		
MADE BY Paul Gardner		CHECKED <i>[Signature]</i>	SECTION		
DATE 12/7/71		DATE 1-7-72	ISSUED SECT.		
ENG <i>[Signature]</i>		PROD R.K. Olson	ISSUED SECT.		
DATE 1-7-72		DATE 1-7-72	ISSUED SECT.		
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	SP8-MB		
1	1000004	Capacitor .02 MFD	2		
2	1000016	Capacitor .100 MFD	2		
3	1003053	Capacitor .47 MFD	2		
4	1005306	Capacitor 6.8 MFD	2		
5	1009678	Capacitor .47 MFD	2		
6	1110324	Solid State Lamp	1		
7	1110714	12A Diode Bridge NSS3514	1		
8	1209355	Switch, Micro	1		
9	1205032-1	Fan, Super Boxer	1		
10	1210043	Switch, Miniature Rotary	1		
11	1210073	Connector, 40 Terminal	2		
12	1210627	Rotary Switch	1		
13	1210790	Switch, DPST N.O.	1		
14	1210824	Thermostat	1		
15	1210830-5	Circuit Breaker, 5 Amp	1		
16	1210830-7	Circuit Breaker, 7 AMP	1		
17	1300229	Resistor 100 $\Omega$ , 1/4 W	2		
18	1300317	Resistor 470 $\Omega$ , 1/4W	2		
19	1300439	Resistor 3.3K $\Omega$ , 1/4W	2		
20	1301420	Resistor 27 $\Omega$ , 1/4W	2		
21	1302871	Resistor 1.2K, 1/8W	2		
22	1302941	Resistor 14.7K, 1/8W	2		
TITLE PDP 8F & 8M RECOMMENDED 2nd LEVEL SPARES (ALL VARIATIONS)		ASSY NO. B-DD-PDP8M- $\emptyset$	SIZE CODE A PL	NUMBER SP8-MB- $\emptyset$	REV. ECO NO. B PDP8M-00019
SHEET 1 OF 4		DIST.			

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			QUANTITY/VARIATION		
PARTS LIST			SP8-MB		
MADE BY Paul Gardner		CHECKED <i>[Signature]</i>	SECTION		
DATE 12/7/71		DATE 1-7-72	ISSUED SECT.		
ENG <i>[Signature]</i>		PROD R.K. Olson	ISSUED SECT.		
DATE 1-7-72		DATE 1-7-72	ISSUED SECT.		
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	SP8-MB		
23	1302955	Resistor 750 $\Omega$ , 1/8 W	2		
24	1302956	Resistor 196 $\Omega$ , 1/8 W	2		
25	1303156	Resistor 34.8K, 1/8W	2		
26	1304833	Resistor 1.96K, 1/8W	2		
27	1304855	Resistor 9.09K, 1/8W	2		
28	1304868	Resistor 2.74K, 1/8W	2		
29	1305128	Resistor 5.62K, 1/8W	2		
30	1305252	Resistor 68.1K, 1/8W	2		
31	1305872	Resistor .1 $\Omega$ , 5W, 5%	2		
32	1310032	Resistor 16.9 $\Omega$ , 6W	2		
33	1310071	Resistor 1K, 1%, Thermister	2		
34	1310709	Resistor .03 $\Omega$ , 7W, 3%	2		
35	1503409-01	MPS6534 Bar 2n3133	2		
36	1505321	2N4258	3		
37	1509338	MPS6531 or 2N1613	1		
38	1509632	DEC 2007	4		
39	1509649	2N3762	3		
40	1509854	DEC 8251	2		
41	1510015	DEC 4008	4		
42	1510151	RCA 40372	2		
43	1510196	2N5302	2		
44	1510706	GPS-A55 or MPS-A55	2		
TITLE PDP 8F & 8M RECOMMENDED 2nd LEVEL SPARES (ALL VARIATIONS)		ASSY NO. B-DD-PDP8M- $\emptyset$	SIZE CODE A PL	NUMBER SP8-MB- $\emptyset$	REV. ECO NO. B
SHEET 2 OF 4		DIST.			

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

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			QUANTITY/VARIATION		
PARTS LIST			SP8-MB		
MADE BY Paul Gardner		CHECKED <i>[Signature]</i>	SECTION		
DATE 12/7/71		DATE 1-7-72	ISSUED SECT.		
ENG <i>[Signature]</i>		PROD R.K. Olson	ISSUED SECT.		
DATE 1-7-72		DATE 1-7-72	ISSUED SECT.		
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	SP8-MB		
45	1510765	Triac Mac 11-3	2		
46	1609478	Transformer 1725	2		
47	1609651	Transformer 8010	2		
48	1609996	Transformer 6501	1		
49	1809880	Crystal 20 MHZ	1		
50	1809880-01	Crystal 14.418 MHZ	1		
51	1905521	Dec 1540	2		
52	1905547	DEC 7474	3		
53	1905586	DEC 74H40	2		
54	1909004	Dec 7402	2		
55	1909055	DEC 7495	2		
56	1909056	DEC 74H00	1		
57	1909057	DEC 74H10	1		
58	1909267	DEC 74H11	1		
59	1909373	DEC ML-9601	1		
60	1909594	DEC 8251B	2		
61	1909667	DEC 74H74	1		
62	1909686	DEC 7404	2		
63	1909705	DEC 8881	1		
64	1909867	DEC 4007	1		
65	1909927	DEC 74H87	1		
66	1909928	DEC 7416	2		
TITLE PDP 8F & 8M RECOMMENDED 2nd LEVEL SPARES (ALL VARIATIONS)		ASSY NO. B-DD-PDP8M- $\emptyset$	SIZE CODE A PL	NUMBER SP8-MB- $\emptyset$	REV. ECO NO. B
SHEET 3 OF 4		DIST.			

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			QUANTITY/VARIATION		
PARTS LIST			SP8-MB		
MADE BY Paul Gardner		CHECKED <i>[Signature]</i>	SECTION		
DATE 12/7/71		DATE 1-7-72	ISSUED SECT.		
ENG <i>[Signature]</i>		PROD R.K. Olson	ISSUED SECT.		
DATE 1-7-72		DATE 1-7-72	ISSUED SECT.		
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	SP8-MB		
67	1909929	DEC 7417	1		
68	1909930	DEC 7405	1		
69	1909931	DEC 74H04	1		
70	1909932	DEC 7483	1		
71	1909934	DEC 8266	2		
72	1909935	DEC 8235	1		
73	1909936	DEC 74151	2		
74	1909937	DEC 74153	1		
75	1909955	DEC 7412	1		
76	1909971	DEC 6380A	3		
77	1909972	DEC 6314A	1		
78	1909973	DEC 97401	5		
79	1910010	DEC FSA2501	4		
80	1910011	DEC 7486	1		
81	9007221	FUSE 5A	5		
82	9007226	FUSE 15A	5		
83	<del>9008349</del>	<del>Socket</del>	<del>40</del>		
84	<del>9008350-0</del>	<del>Housing</del>	<del>40</del>		
85	9008389	FUSE 125A 250V AGC 1/8	5		
86	1511102	DEC 4011	1		
87	1910048	DEC 7442-1	1		
88	1910973	RC NETWORK	1		
TITLE PDP 8F & 8M RECOMMENDED 2nd LEVEL SPARES (ALL VARIATIONS)		ASSY NO. B-DD-PDP8M- $\emptyset$	SIZE CODE A PL	NUMBER SP8-MB- $\emptyset$	REV. ECO NO. B
SHEET 4 OF 4		DIST.			

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

# DIGITAL EQUIPMENT CORPORATION

MAYNARD, MASSACHUSETTS

## ACCESSORY LIST

MADE BY J. CUDMORE	CHECKED PFYFFER	SECTION
DATE 7/21/69	DATE 7/25/69	1
ENG <i>W. [unclear]</i>	PROD <i>[unclear]</i>	ISSUED SECT.
DATE 7/28/69	DATE 7/29/69	1

### LEGEND

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

### QUANTITY / VARIATION

LT33-B, D, E, F, -H, TYPES	LT33-AA, -AB, -CA, -CB, -CC, -CD, -CE	KIT CHECK	BY	DATE	INSTALLATION CHECK	BY	DATE
1	1						
1	1						
1	1						
1	1						
1	1						

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION
1	36-5360	ROLLS, ROLLED OILED PAPER TAPE
2	36-5365	ROLL, <del>TX</del> PAPER
3	BULLETIN 273B	TTY MANUAL VOL #1 (VENDOR)
4	BULLETIN 310B	TTY MANUAL VOL #2 (VENDOR)
5	BULLETIN 1184B	TTY MANUAL PARTS (VENDOR)
6	1809137	ROLL TTY RIBBON

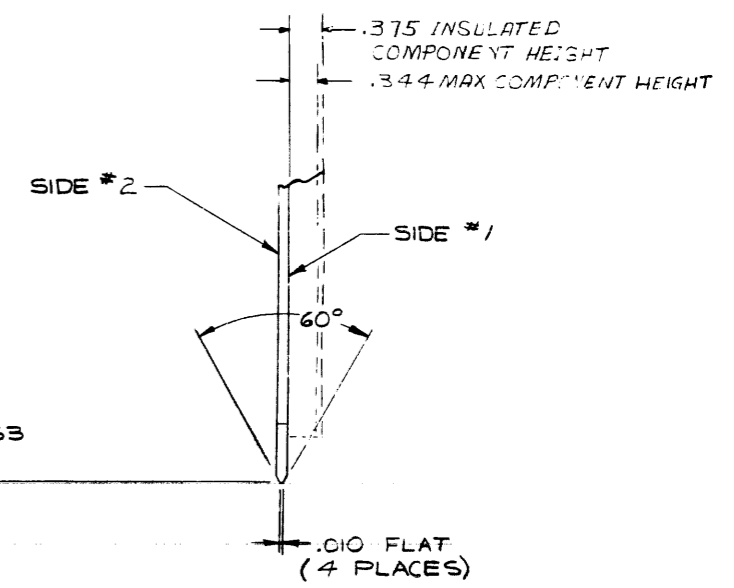
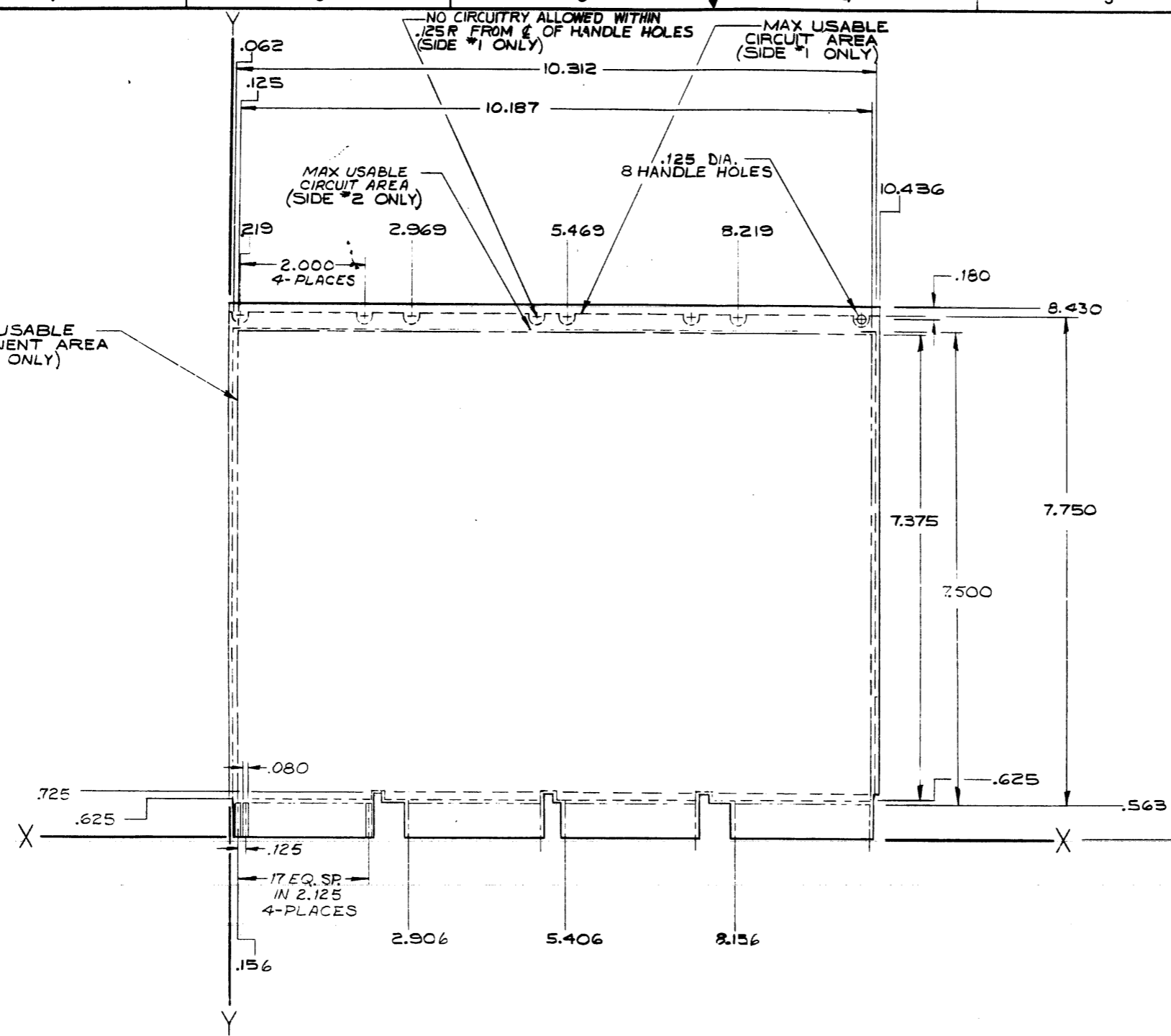
TITLE TELETYPE WRITERS LT33 SERIES	ASSY. NO.	SIZE CODE A AL	NUMBER LT33-0-12	REV. C	ECO NO LT 33-00009
SHEET 1 OF 1		DIST.			



This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or used in whole or in part as the basis for the manufacture or sale of items without written permission.

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

MAX USABLE COMPONENT AREA (SIDE #1 ONLY)



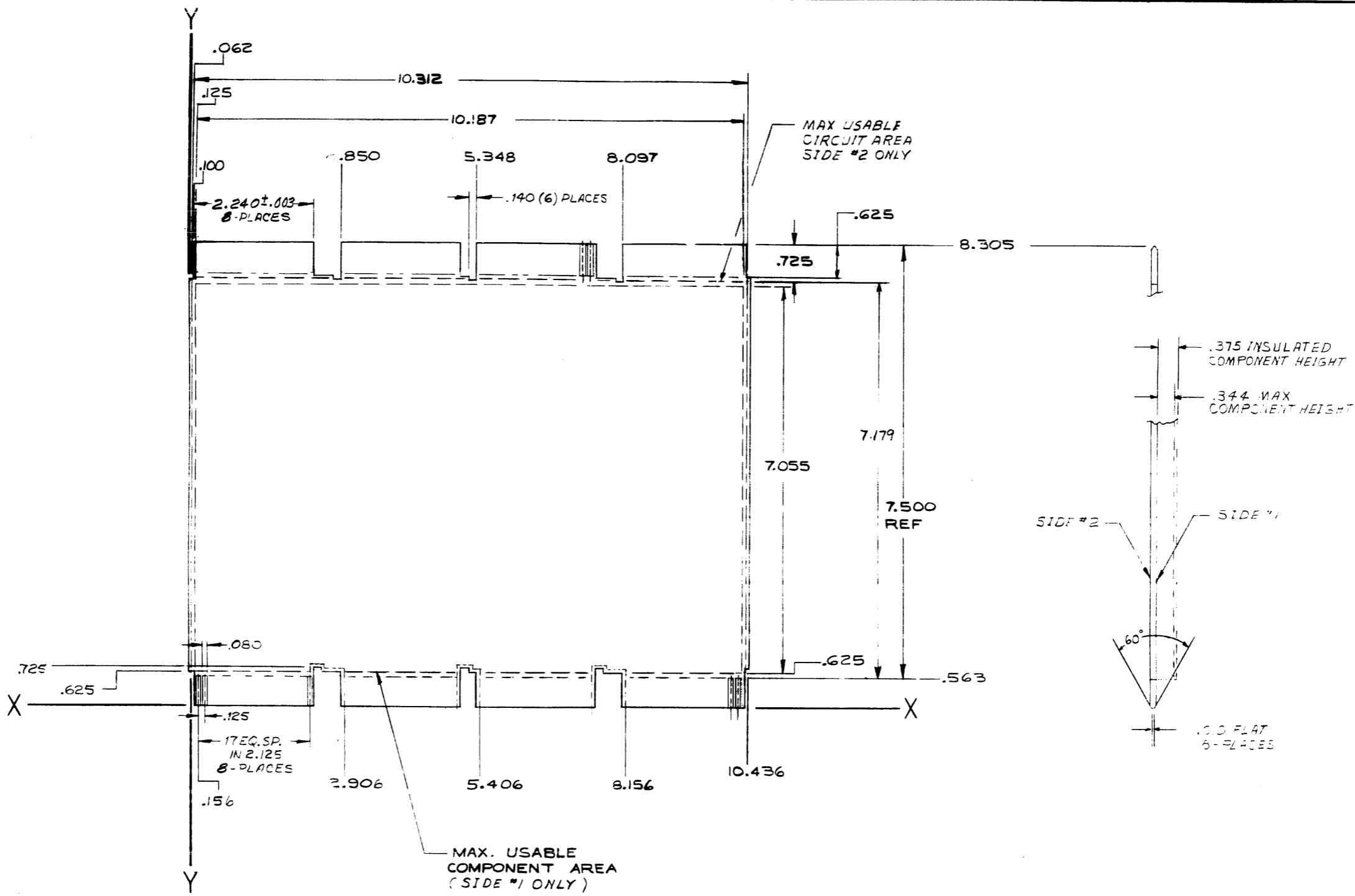
TOLERANCE DECIMALS  
 .XXX = ±.005  
 .XX = ±.02  
 .X = ±.1

FIRST USED ON OPT./MOD.	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED	DRN	DATE	<b>digital</b> CORPORATION TITLE: PANEL WITH CUSTOMER LABELS SIZE CODE: DMD NUMBER: 7605994-0-0 REV: 2 SCALE: 1/1 SHEET 1 OF 2	
UNLESS OTHERWISE SPECIFIED	CHKD	DATE		
UNLESS OTHERWISE SPECIFIED	ENG	DATE		
UNLESS OTHERWISE SPECIFIED	PROJ. ENG.	DATE		
DECIMALS: 1/1000 ANGLES: 0°30' FINAL SURFACE QUALITY: REMOVE BURRS AND BREAK SHARP CORNERS	DRN: <i>J. Quillin</i> DATE: 4-13-71 CHKD: <i>W. Williams</i> DATE: 5-5-71 ENG: <i>W. Williams</i> DATE: 5-5-71 PROJ. ENG.: <i>W. Williams</i> DATE: 5-5-71 PROD.: <i>W. Williams</i> DATE: 5-5-71			
MATERIAL	NEXT HIGHER ASS'Y.			
FINISH				

DATE: 5/6/71  
 BY: [Signature]  
 CHECKED: [Signature]  
 APPROVED: [Signature]

This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as a basis for the manufacture or sale of items without the permission of Digital Equipment Corporation.

REV A 0-0-0 7605994-0-0 DW 2



REV	CHG	NO	DATE

FIRST USED ON OPTION / MODEL  
+ + + + +

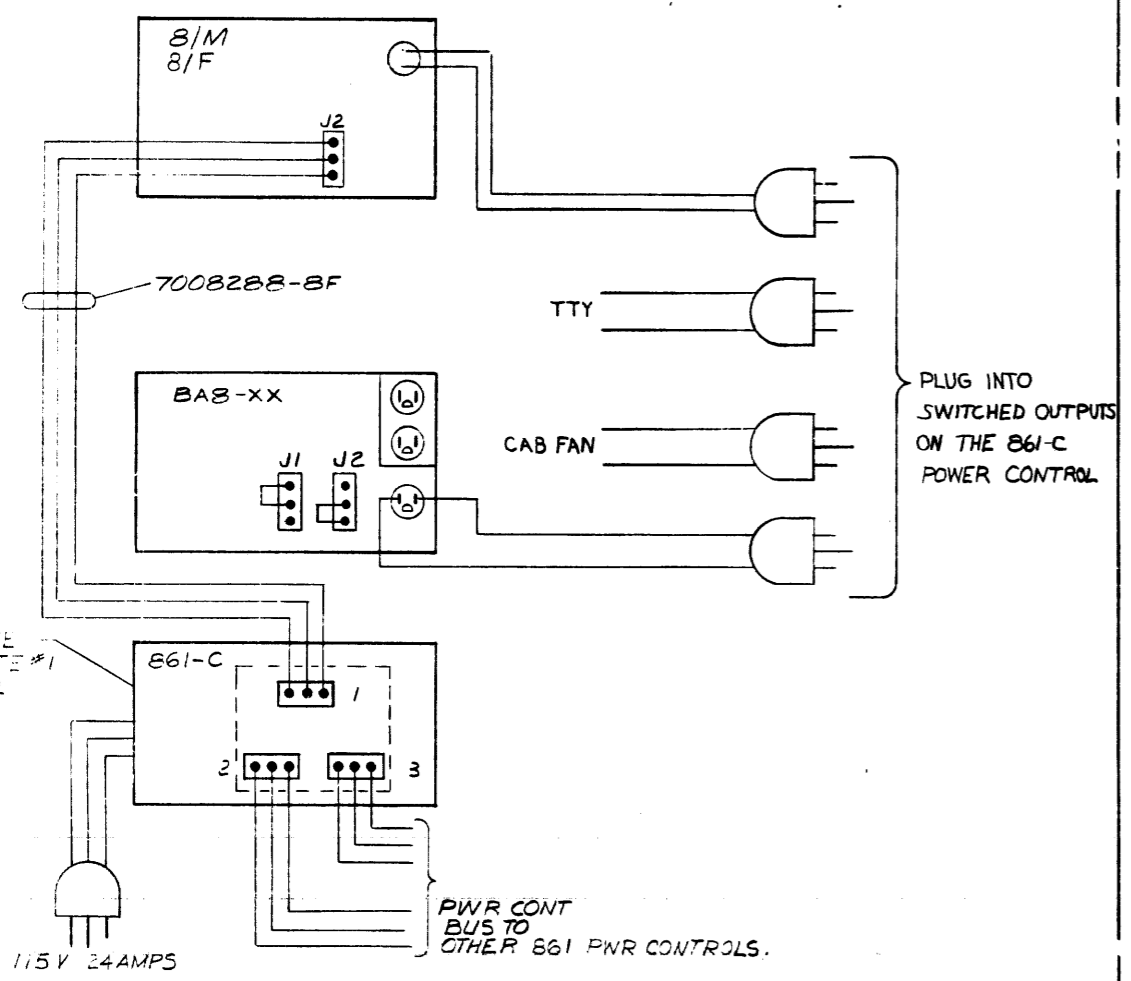
DO NOT SCALE DRAWING  
UNLESS OTHERWISE SPECIFIED  
DIMENSION IN INCHES  
TOLERANCES  
ANGLES ± 0°30'  
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS  
MATERIAL  
FINISH

QTY.	DESCRIPTION	PART NO	ITEM NO
PARTS LIST			
DRN: <i>[Signature]</i> DATE: 4-13-71 CHKD: <i>[Signature]</i> DATE: 5-5-71 ENGR: <i>[Signature]</i> DATE: 5-5-71 PROJ. ENG: <i>[Signature]</i> DATE: 5-5-71 PROJ. MGR: <i>[Signature]</i> DATE: 5-5-71		<b>digital</b> EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
TITLE PANEL DATA CUSTOMER			
SCALE: 1/1	SIZE CODE: D MD	NUMBER: 7605994-0-0	REV: -
SHEET: 2 OF 2	DIST: 6		

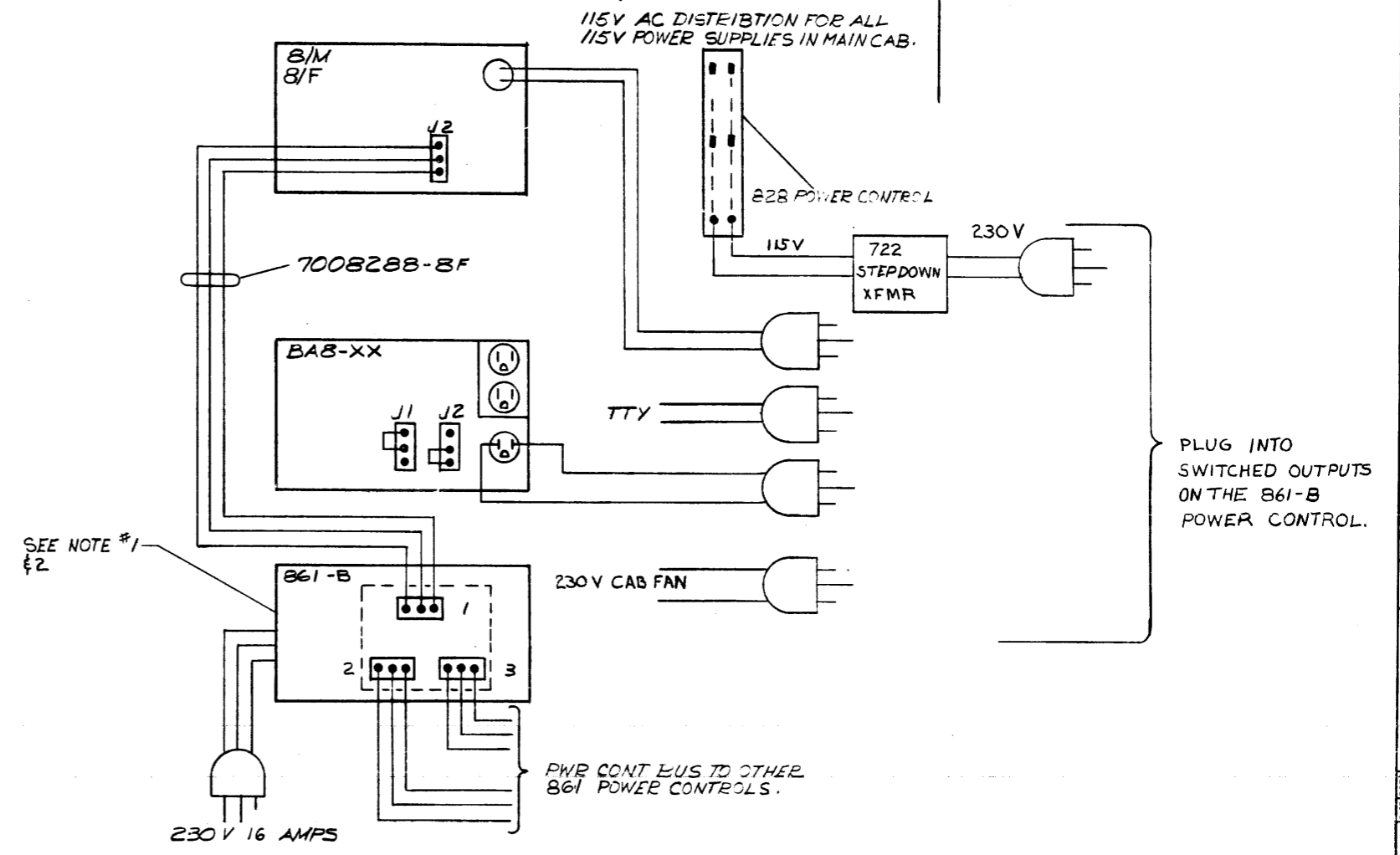


This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission. © 1973

- NOTES:**
- CONNECTORS 1, 2, & 3, ON THE 861 POWER CONTROL ARE ALL CONNECTED IN PARALLEL.
  - POWER CONTROLS WILL NOT BE SHIPPED WITH RACK MOUNTABLE (NOT CAB MOUNTED) SYSTEMS UNLESS SPECIFIED ON THE CONSTRUCTION REQUISITION.



8F OR 8M SYSTEM POWER WIRING FOR 115V



8F OR 8M SYSTEM POWER WIRING FOR 230V

REV	DATE	BY	CHKD
1	3-17-72	P. GARDNER	
2	3-17-72	P. GARDNER	
3	3-17-72	P. GARDNER	
4	3-17-72	P. GARDNER	
5	3-17-72	P. GARDNER	
6	3-17-72	P. GARDNER	
7	3-17-72	P. GARDNER	
8	3-17-72	P. GARDNER	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 8M				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN	DATE	<b>digital</b> EQUIPMENT CORPORATION MATTAPOISETT, MASSACHUSETTS	
DECIMALS .XXX = .005 .XX = .02 .X = .1	CHKD	DATE		
ANGLES ±0° 30'	ENG.	DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	PROJ. ENG.	DATE		
MATERIAL	PROD.	DATE	TITLE <b>SYSTEM POWER WIRING DIAG</b>	
FINISH	NEXT HIGHER ASSY.			
	B-DD-PDP8M-1			
	SCALE	SIZE CODE	NUMBER	REV
	1 / OF 1	DIC	PDP8M-0-03	C
		DIST.		

COMPUTER & EXPANDER PLUG-IN OPTIONS

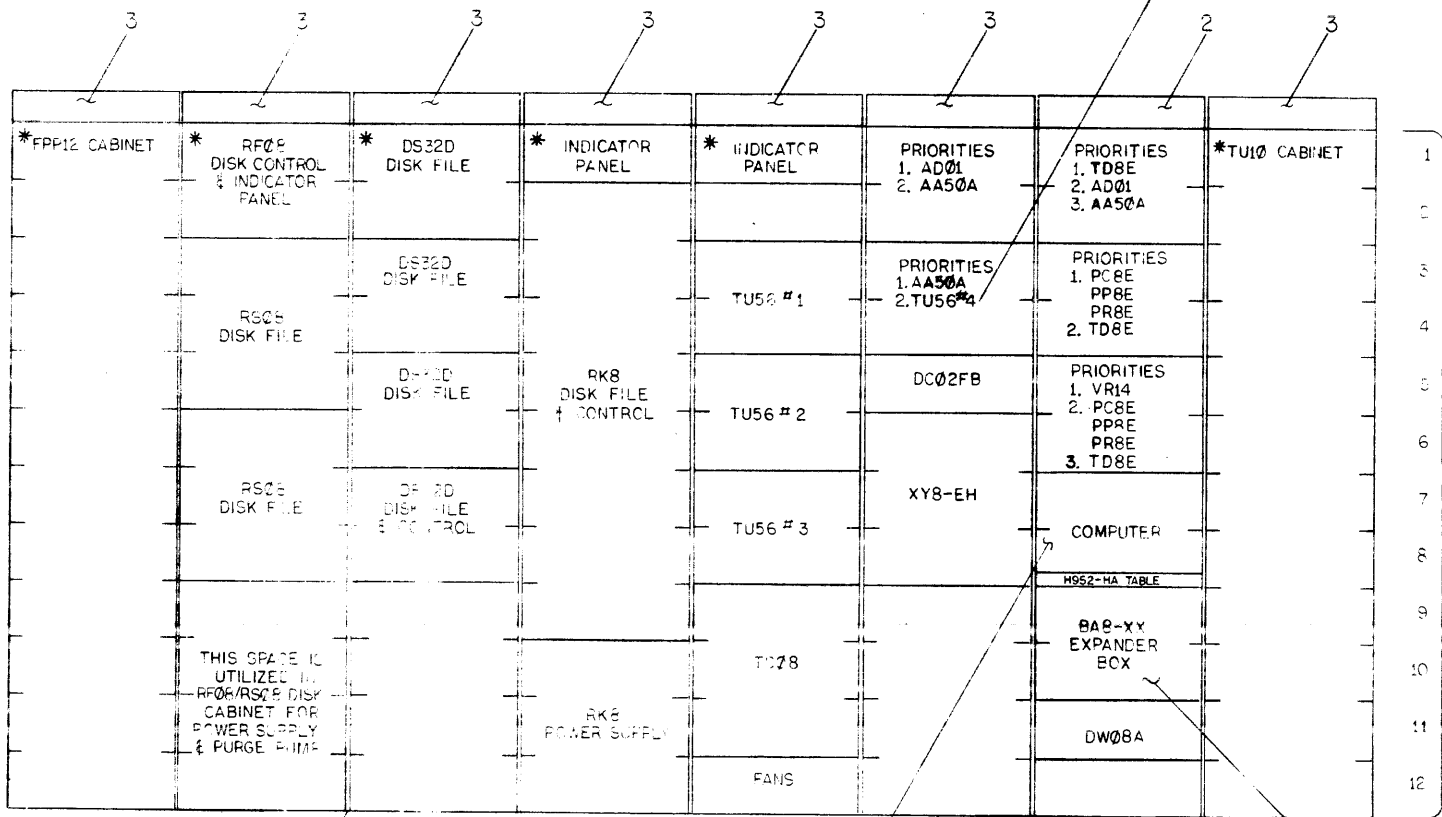
Table with columns: OPTION, CABLE ASSY. QTY., CABLE ASSY. ASSY. NO., OPTION, CABLE ASSY. QTY., CABLE ASSY. ASSY. NO., OPTION, CABLE ASSY. QTY., CABLE ASSY. ASSY. NO.

LEGEND table with columns: ITEM #1, ITEM #2, ITEM #3, ITEM #4

- NOTES: 1. IF AN EXPANDER BOX (BA8-XX) IS USED... 2. A MAXIMUM OF THREE DEC TAPES (TU56) IS ALLOWED PER CABINET... 3. SECURE ITEM #1 WITH ITEM #6 (SHIPPING BRACKET) BEFORE SHIPMENT...

Table with columns: SECTION, COVER PANEL

- 7. H950 - BC - 115V SYSTEM H950 - EC - 230V SYSTEM 8. H950 - AA - 115V SYSTEM H950 - AB - 230V SYSTEM



SEE NOTE #4

SEE NOTE #3

SEE NOTE #1

\* INDICATES A DEDICATED SUBSYSTEM CABINET

Table with columns: A/R, DESCRIPTION, PART NO., QTY.

Technical drawing metadata including: PART USED ON OPTION MODEL, UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES, DECIMALS, ANGLES, and EQUIPMENT CORPORATION logo.

# DIGITAL EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

## PACKAGING INSTRUCTION

 REV: C DATE: 4/73

TITLE PDP-8/F or PDP-8/M or PDP-16/M RACK MOUNTABLE

### MATERIAL REQUIREMENTS

Quantity	Identification Number	Purchase Spec.	Description
1	1-2406 2212 1604-0	9905273	Regular slotted carton with interior foam and corrugated pieces.
1	P150-2000 1300 4000-0	9905129-7	Polyethylene bag 20 x 13 x 40
A/R	--	--	Glasflex tape, 3-in. wide

### PACKAGING INSTRUCTIONS

Step	Procedure
1	Open the outer carton flaps (carton is purchased set up) and remove the top piece of foam, side protector, and bezel protector.
2	Place the polyethylene bag around the computer; close and seal the bag.
3	Place the computer inside the outer carton with the under side of the front bezel resting on the piece of white bead foam.
4	Replace the bezel protector in front of the bezel with the slits outboard of the computer.
5	Replace the side protector and foam piece.
6	Close and seal the carton using the 3 in. Glasflex tape.

ENG. <i>R. L. Blum</i>	5/8/73	APPD. <i>R. L. Blum</i>	4/8/73	SIZE A	CODE PI	NUMBER 3700055-0-0	REV C
---------------------------	--------	----------------------------	--------	-----------	------------	-----------------------	----------

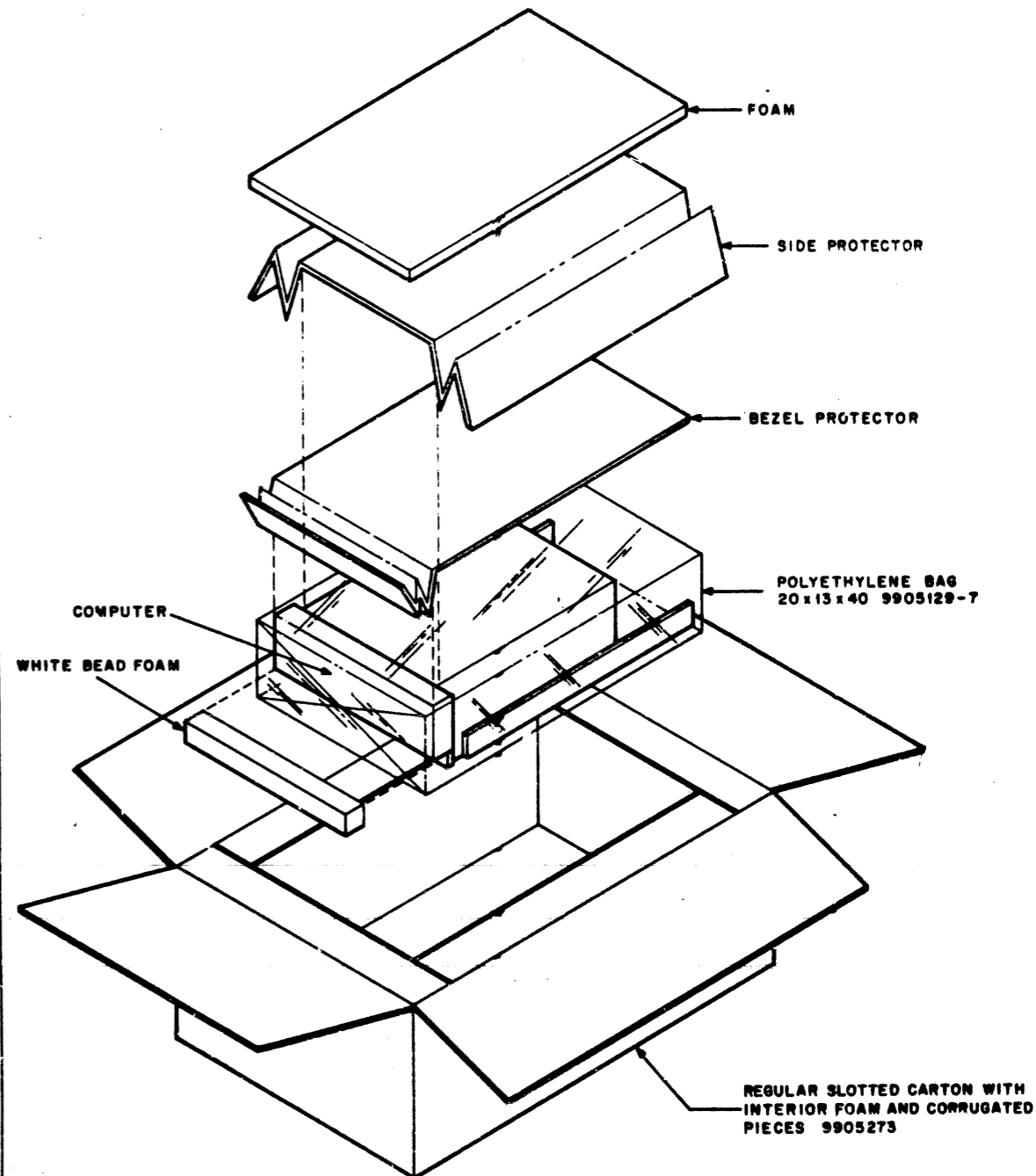
## PACKAGING INSTRUCTION

REV: \_\_\_\_\_ DATE: \_\_\_\_\_

### TITLE

PDP-8/F or PDP-8/M or PDP-16/M RACK MOUNTABLE

This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission.


 NOTE:  
Make changes to "C" size original only and rephotograph.

ENG. <i>R. L. Blum</i>	5/8/73	APPD. <i>R. L. Blum</i>	4/8/73	SIZE A	CODE PI	NUMBER 3700055-0-0	REV C
---------------------------	--------	----------------------------	--------	-----------	------------	-----------------------	----------



DIGITAL EQUIPMENT CORPORATION WORLDWIDE SALES AND SERVICE

MAIN OFFICE AND PLANT

Mainyand, Massachusetts, U.S.A. 01754 • Telephone: From Metropolitan Boston, 645-8600 • Elsewhere, (617)-857-5111 TWX: 710-547-0212 Cable: DIGITAL MAYN, Telex: 8446457

DOMESTIC

NORTHEAST

REGIONAL OFFICE: 205 Wyman Street, Waltham, Mass. 02154 Telephone: (617) 890-5350/5310 • Dataphone: 617-890-5012 • TWX: 710-547-0212

CONNECTICUT

440 Romney Avenue, Meriden, Conn. 06340 Telephone: (203) 263-4444 • Dataphone: 203-267-6229

NEW YORK

Romney 187 Wilson Creek Road, Rochester, New York Telephone: (716) 461-7300 • Dataphone: 716-461-7350

SYRACUSE

6700 Thompson Road, Syracuse, New York 13211 Telephone: (315) 451-1593/1595 • Dataphone: 315-454-4128

MID-ATLANTIC

REGIONAL OFFICE: U.S. Route 1, Princeton, New Jersey 08540 Telephone: (609) 426-2044

FLORIDA

Orlando, Suite 133, 7001 Lake Eftector Drive, Orlando, Florida 32805 Telephone: (813) 451-4455 • Dataphone: 305-850-2380

GEORGIA

Atlanta, 2614 Glenview Place, Suite 100 Atlanta, Georgia 30342 Telephone: (404) 451-7411 • Dataphone: 315-354-2360

NORTH CAROLINA

Durham, Chase Hill Executive Park 3700 Chapel Hill Blvd., Durham, North Carolina 27707 Telephone: (919) 499-3347 • Dataphone: 419-499-7337

NEW YORK

263 Passaic Ave., Fairfield, New Jersey 07006 Telephone: (201) 427-6280 • Dataphone: 201-927-9280

NEW JERSEY

Metuchen, 195 Main Street, Metuchen, New Jersey 08840 Telephone: (201) 543-4700/2300 • Dataphone: 201-548-0744

PRINCETON

Princeton, New Jersey 08540 Telephone: (609) 452-0340 • Dataphone: 609-452-2640

MID-ATLANTIC (cont.)

NEW YORK Long Island Telephone: (516) 491-1100 • Dataphone: 516-491-1100

MANHATTAN

310 7th Ave. New York, N.Y. 10013 Telephone: (212) 463-7400

PENNSYLVANIA

Philadelphia, 1142 Archway Blvd., Bala Cynwyd, Pennsylvania 19342 Telephone: (610) 875-4210

TENNESSEE

Memphis, 6311 Kingston Drive, Suite 111 Memphis, Tennessee 38120 Telephone: (901) 726-6371 • Dataphone: 915-984-0071

WASHINGTON D.C.

Executive Building 6611 Killebrew Ave., Riverdale, Maryland 20840 Telephone: (301) 773-1600/173-6797 • Dataphone: 301-779-1600 Ex. 89

CENTRAL

REGIONAL OFFICE: 1600 Pontiac Road, Northbrook, Illinois 60062 Telephone: (312) 439-2000 • Dataphone: 312-438-2000

INDIANA

Indianapolis, 21 Beschov Drive, Suite C Indianapolis, Indiana 46224 Telephone: (317) 245-4341 • Dataphone: 317-247-1210

ILLINOIS

Chicago, 1300 Frontage Road, Northbrook, Illinois 60062 Telephone: 312-488-2000

LOUISIANA

New Orleans, 3100 Poydras Drive, Suite 138 Metairie, Louisiana 70002 Telephone: 504-837-0257 • Dataphone: 504-833-2500

MICHIGAN

Ann Arbor, 220 North View Boulevard, Ann Arbor, Michigan 48105 Telephone: (313) 767-1151 • Dataphone: 313-760-6552

CENTRAL (cont.)

DETROIT 23777 Greenfield Road, Southfield, Michigan 48075 Telephone: (313) 371-3087

MINNESOTA

Minneapolis, 3030 Cedar Ave., South Minneapolis, Minnesota 55420 Telephone: (612) 854-6763/3-4-5 • Dataphone: 612-894-1410

MISSOURI

Kansas City, 12401 East 49th Street, Independence, Missouri 64055 Telephone: (816) 252-2303 • Dataphone: 816-461-3100

ST. LOUIS

Suite 110, 115 Progress Parkway, Maryland Heights, Missouri 63043 Telephone: (314) 972-4375 • Dataphone: 316-501-3100

OHIO

Cleveland, 2900 Euclid Avenue, Suite 101, Ohio 44117 Telephone: (216) 948-8494 • Dataphone: 216-948-8477

DAYTON

3101 Ketterling Boulevard, Dayton, Ohio 45429 Telephone: (513) 254-2023 • Dataphone: 513-258-4724

OKLAHOMA

Tulsa, 3140 S. Winston, W. Tulsa, Oklahoma 74135 Telephone: (918) 749-4216 • Dataphone: 918-749-9714

PENNSYLVANIA

Pittsburgh, 400 Penn. Center Boulevard, Pittsburgh, Pennsylvania 15222 Telephone: (412) 213-9424 • Dataphone: 412-874-6790

TEXAS

Dallas, Plaza North, Suite 513, 2650 L.B. Freeway, Dallas, Texas 75234 Telephone: (214) 470-7541 • Dataphone: 214-690-9061

HOUSTON

5639 Hornwood Drive, Monterey Park, Houston, Texas 77038 Telephone: (713) 777-0471 • Dataphone: 713-773-1071

WISCONSIN

Milwaukee, 8301 West Capitol Drive, Milwaukee, Wisconsin 53222 Telephone: (414) 463-6110 • Dataphone: 414-463-2115

WEST

REGIONAL OFFICE: 310 Sequel Way, Sunnyvale, California 94086 Telephone: (408) 739-6220 • Dataphone: 408-739-1000

ARIZONA

Phoenix, 4358 East Brookway Road, Phoenix, Arizona 85040 Telephone: (602) 266-3412 • Dataphone: 602-266-3371

CALIFORNIA

Santa Ana, 2115 S. Anna Street, Santa Ana, California 92704 Telephone: (714) 919-0460 • Dataphone: 714-919-7850

SAN DIEGO

6194 Mission Gorge Road, Suite 110, San Diego, California Telephone: (619) 394-3363 • Dataphone: 619-270-3028

SAN FRANCISCO

1400 Terra Bella, Mountain View, California 94039 Telephone: (415) 939-6200 • Dataphone: 415-939-6015

OAKLAND

2515 Edgewater Drive, Oakland, California 94612 Telephone: (415) 633-4533/7634 • Dataphone: 415-522-2162

WEST LOS ANGELES

1510 Cotner Avenue, Los Angeles, California 90023 Telephone: (213) 479-3791/4313 • Dataphone: 213-478-5826

COLORADO

Tulsa, 7501 E. Bellevue Avenue, Suite 5, Englewood, Colorado 80110 Telephone: (303) 770-8150 • Dataphone: 303-770-5228

NEW MEXICO

Albuquerque, 1200 Mariscal N.E., Albuquerque, New Mexico 87102 Telephone: (505) 296-4411/5426 • Dataphone: 505-294-2350

OREGON

Portland, Suite 188, 5319 S.W. Westgate Drive, Beaverton, Oregon 97007 Telephone: (503) 297-3761/3035

UTAH

Salt Lake City, 431 South 3rd East, Salt Lake City, Utah 84111 Telephone: (801) 728-4959 • Dataphone: 801-564-0266

WASHINGTON

Bellevue, 12401 N. Bellevue, Redmond, Washington 98072 Telephone: (206) 845-4110 • Dataphone: 206-747-3754

EUROPEAN HEADQUARTERS

Digital Equipment Corporation International Europe Centre, 6, route de l'Aire Sir Winston Churchillian 370 1211 Geneva 26, Switzerland Telephone: 42 75 30 • Telex: 22 683

FRANCE

Equipment Digital Centre, 94 533 Rue de Paris, France Telephone: 83 23 25 • Telex: 06-540

GRENOBLE

Equipment Digital Centre, 16 - Rue de General Mangin, 38 100 Grenoble, France Telephone: (76) 87-03-21 • Telex: 212-32362

GERMAN FEDERAL REPUBLIC

Digital Equipment GmbH, Munich, 3, Wattenbergstr. 2, Telephone: 2611-9501 • Telex: 524-026

COLOGNE

5, Koenigstr., An der Burg, Cologne Telephone: 0211-40 44 95 • Telex: 698-2269

FRANKFURT

675, Mainfrankstr. 2, Am Postamt, Frankfurt 60011 Telephone: 069 27 01 00 • Telex: 4170130

HANNOVER

3, Hildesheimer Platz, Hannover 3001 Telephone: 051 429 71 66 • Telex: 922-359

STUTTGART

D 700, Koenigsplatz, Stuttgart Telephone: 0711 75 40 07 • Telex: 725-0404

AUSTRIA

Digital Equipment Corporation GmbH, Vienna, Marktstrasse 136, 1181 Vienna 15, Austria Telephone: 88 81 88

UNITED KINGDOM

Digital Equipment Corporation Ltd., U.K. HEADQUARTERS, Warwick Road, Reading, Berkshire Telephone: 0734-563555 • Telex: 84327

READING

The Earning Post Building, Tesco Road, Reading, Berkshire Telephone: 0734-563555 • Telex: 84327

BIRMINGHAM

29, 31, Birmingham Road, Sutton Coldfield, Warwickshire Telephone: 0944 921 355 001 • Telex: 037 780

MANCHESTER

Digital Equipment Co. Ltd., Ardwick House, Chester Road, Stretford, Manchester M20 2JH Telephone: (051) 855-7011 • Telex: 661633

LONDON

Digital Equipment Co. Ltd., 15, Waterloo Road, London W1R Telephone: 01-274-2234 • Telex: 22371

EDINBURGH

Digital Equipment Co. Ltd., 11, West Register Street, Edinburgh Telephone: 0273 • Telex: 21112

NETHERLANDS

Digital Equipment N.V., THE HAGUE, Sir Winston Churchillian 370, Postbus 11590, The Hague, Netherlands Telephone: 94 9220 • Telex: 32533

BELGIUM

Digital Equipment N.V. (S.A.), BRUSSELS, 108 Rue D'Arlon, 1200 Brussels, Belgium Telephone: 92 12325 • Telex: 25307

SWEDEN

Digital Equipment AB, STOCKHOLM, Englundsvägen 7, 171 41 Solna, Sweden Telephone: 39 13 67 • Telex: 112 35

NORWAY

Digital Equipment Corp. A/S, Trondheimsveter 47, Oslo 5, Norway Telephone: 02 66 34 40 • Telex: 16079 DFC N

DENMARK

Digital Equipment Aktiefolag, COPENHAGEN, Hellerupsgade 66, 2900 Hellerup, Denmark Telephone: 01 77 40 07 • Telex: 725-0404

FINLAND

Digital Equipment AB, HELSINKI, Triestaantie 9, SF-00710 Helsinki 71 Telephone: 09 20 37 60 • Telex: 040 Digital Helsinki

SWITZERLAND

Digital Equipment Corporation S.A., GENEVA, 11, Route de l'Aire, 1211 Geneva 26, Switzerland Telephone: 42 79 16 00 • Telex: 24 683

ZURICH

Schweizerstrasse 21, CH-8008 Zurich, Switzerland Telephone: 01 62 35 85 • Telex: 66059

ITALY

Digital Equipment S.p.A., MILAN, Corso Garibaldi, 49, 20121 Milano, Italy Telephone: 870 748 694 394 • Telex: 32616

SPAIN

Digital Equipment Corporation Ltd., MADRID, Alvaro de las Alas, Enrique Larreta 12, Madrid 16 Telephone: 215 35 43 • Telex: 27245

BARCELONA

Ata Ingeniería S.A., Grandviver 76, Barcelona 6 Telephone: 221 44 66

ISRAEL

Digital Equipment Corporation Ltd., TEL AVIV, Suite 103, Southern Hebronik Street, Tel Aviv, Israel Telephone: 03 441 41 440760 • Telex: 030-33-2182

INTERNATIONAL

CANADA

Digital Equipment of Canada, Ltd., CANADIAN HEADQUARTERS, P.O. Box 11590, Ottawa, Ontario, Canada K2H 8K8 Telephone: (613) 592-6111 • TWX: 610-562-8732

TORONTO

2550 Goldenridge Road, Mississauga, Ontario Telephone: (416) 270-8400 • TWX: 610-492-7116

MONTRÉAL

9875 Côte de Liesse Road, Dorval, Québec, Canada H9G Telephone: (514) 658-9363 • TWX: 310-422-4124

CALGARY/Edmonton

Suite 140, 6240 Fisher Road S.E., Calgary, Alberta, Canada Telephone: 403-243-4681 • TWX: 403-265-7408

VANCOUVER

3170 West 12th Avenue, Vancouver 9, British Columbia, Canada Telephone: (604) 739-8616 • TWX: 610-929-2016

GENERAL INTERNATIONAL SALES

REGIONAL OFFICE: 146 Main Street, Framingham, Massachusetts 01704 Telephone: (617) 897-5111

AUSTRALIA

Digital Equipment Australia Pty. Ltd., SYDNEY, P.O. Box 451, Cross Street, N.S.W., Australia 2041 Telephone: 439 2166 • Telex: AA20740

MELBOURNE

59 Park Street, South Melbourne, Victoria, 3205 Telephone: 694-2660 • Telex: AA40618

PERTH

843 Murray Street, West Perth, Western Australia 6005 Telephone: 21 4993 • Telex: AA92740

ADELAIDE

5 Montross Avenue, Norwood, South Australia 5067 Telephone: 42-1339 • Telex: AA92825

BRISBANE

133 Leichhardt Street, Spring Hill, Brisbane, Queensland, Australia 4000 Telephone: 444047 • Telex: 760-45616

NEW ZEALAND

Digital Equipment Corporation Ltd., AUCKLAND, Hilton House, 430 Queen Street, Box 2871, Auckland, New Zealand Telephone: 75330

JAPAN

Digital Equipment Corporation International, Kowa Building No. 16 - Annex, First Floor, 3-3-1, Kojimachi, Chiyoda-ku, Tokyo 100, Japan Telephone: 358-2171 • Telex: 336492

JAPAN (cont.)

Pike Trading Co., Ltd. (sales only), Kojimachi, Chiyoda-ku, Tokyo, Japan Telephone: 3513245 • Telex: 761-1208

PUERTO RICO

Digital Equipment Corporation de Puerto Rico, MIRAMAR, American Airlines Bldg., 674 Ponce de León Miramar, Puerto Rico Telephone: 786 720-0262/87 • Telex: 601 2274

ARGENTINA

BUENOS AIRES, Canal 5 S.A., Avenida del Libertador 4771, Buenos Aires Telephone: 62-3185 • Telex: 311 2274

BRAZIL

RIO DE JANEIRO - GB, Implex S.A., Rua Desce 134, 2 e 3 andares 20423, Rio de Janeiro - GB Telephone: 024 746/0461/2625

SÃO PAULO

Implex S.A., Rua Tupac Katari 100, São Paulo - SP Telephone: 667-6256 • Telex: 310-0310

PORTO ALEGRE - RS

Sua Caixa 17, Santa Teresinha, Porto Alegre - RS Telephone: 247411

CHILE

SANTIAGO, Calle Concha y Oro, 141-44-0101, Casilla 44898, Correo 18 Telephone: 35673 • Cable: COCOPUL

INDIA

BOMBAY, Hindustan Computers Pvt. Ltd., 42, 1/1, Laxminagar, Marol, Bombay-6, W-401 101 Telephone: 33-1615/30-5344 • Telex: 211-2394

MEXICO

MEXICO CITY, Mexitek S.A., Eusebio Cárdenas 1, Azcapotzalco 06012 Telephone: 12 D.F. Telephone: (905) 658 6610

PHILIPPINES

MANILA, Starburst Computer Corporation, P.O. Box 1505, 416 Dasmariñas St., Manila Telephone: 44-3846 • Telex: 140-2266

CARACAS

Caracas, C.A. Acaranda 30999, Cascajal, Caracas Telephone: 76 5652 • Telex: 269827

VENEZUELA

COROL, C.A. Acaranda 30999, Cascajal, Caracas Telephone: 76 5652 • Telex: 269827