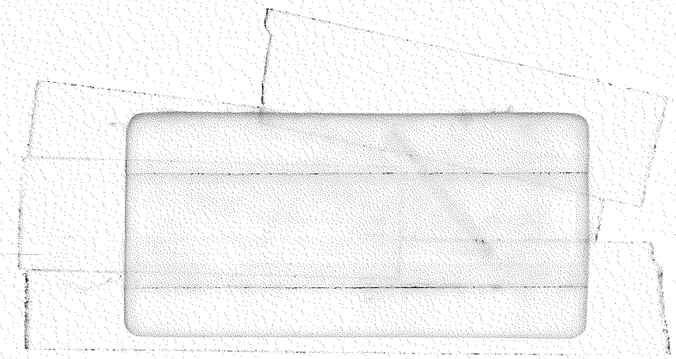
digital

Digital Equipment Corporation
Maynard, Massachusetts

PDP-12
maintenance manual
volume III
system drawings

laboratory data products



DEC-12-HR1B-D

PDP-12
maintenance manual
volume III
system drawings

DIGITAL EQUIPMENT CORPORATION • MAYNARD, MASSACHUSETTS

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DIGITAL	COMPUTER LAB

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Foreword

The *PDP-12 Maintenance Manual* published in four separate volumes, is a guide for Field Service Engineers or other personnel involved with the care and maintenance of the PDP-12 Computer. The Maintenance Manual is organized as follows:

VOLUME I PRINCIPLES OF OPERATION

This volume contains a description of PDP-12 logic. An overall view of the system is presented in seven chapters entitled Central Processor, Memory, Input/Output, Teletype, LINC Devices, Tape Processor, and Prewired I/O Bus Options. The text describes logical relationships among the various elements of the PDP-12.

VOLUME II INSTALLATION AND MAINTENANCE

The first chapters of this volume describe the unpacking, installation, and preliminary check-out procedures for the PDP-12. The remainder of the book comprises procedures used in the day-to-day maintenance, adjustment, and repair of the computer.

VOLUME III LOGIC SCHEMATICS

Volume III consists primarily of flow charts and block schematics that describe the PDP-12. The block schematics, lists, and flow charts in Volume III are reduced (11 in. x 17 in.) versions of the engineering drawings.

VOLUME IV MODULE SCHEMATICS

The circuit schematics in Volume IV describe all the module types used in the PDP-12, including both the regular production DEC modules and those designed especially for the PDP-12.

PDP-12 System Drawings

INTRODUCTION

This volume contains all block schematics and flow diagrams for the PDP-12A. The PDP-12A system configuration is the largest of three standard PDP-12 system configurations: PDP-12A, PDP-12B, and PDP-12C. Engineering Drawing D DI PDP-12-0-1 indicates the block schematics and flow diagrams that apply to each particular system configuration. Module circuit diagrams for the PDP-12 are located in Volume 4 of the PDP-12 Maintenance Manual (DEC-12-HR4A-D).

All drawings that appear in this volume are included in the set previously supplied with the equipment. Individual drawings in the original equipment set may differ from those printed in this manual because of changes and updating. In such cases, the original equipment drawings are to be used.

DRAWING NOMENCLATURE

Each DEC drawing is identified by a short descriptive title and a five-part alphanumeric code. An example of the code is given in Figure 1.

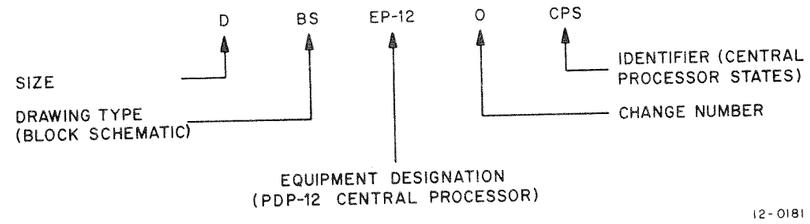


Figure 1 Drawing Identification Code

Size

The first letter indicates the size of the drawing: A, B, C, or D. Size A is the smallest.

Type

The next two letters identify the type of drawing, using the following code:

AD	Assembly Drawing
AR	Arrangement Drawing
BS	Block Schematic (logic and circuitry)
CD	Cable Diagram
CL	Cable List
CS	Circuit Schematic (electrical components)
DI	Drawing Index
FD	Flow Diagram
KS	Key Slot
ML	Master Drawing List
MU	Module Utilization (rack locations)
PL	Parts List
PW	Power Wiring
RS	Replacement Schematic
TD	Timing Diagram
UA	Unit Assembly
WD	Wiring Diagram
WL	Wiring List

Equipment

The third part of the drawing code specifies the device, component, or other discrete part of the PDP-12A to which the information on that drawing applies.

Examples:	VC12	CRT Display Control
	TU55	LINCtape Transport
	7005983	Fan Housing Assembly
	H951	Cabinet Assembly

Change Number

The next digit reflects major design changes in the equipment described on the drawing.

Drawing Identifier

The final portion of the alphanumeric code identifies the drawing itself, either by a three-letter abbreviation or a series number. The abbreviation usually suggests the full title of the drawing.

Examples:	MPG	MEM Page Extn Control
	IPC	Interprocessor Cables

SIGNAL NAMES

Every signal on a block schematic is given a name that identifies the origin, nature, and assertion level of the signal. When the signal originates from a flip-flop, the output side (1 or 0) is given in parentheses.

Examples:

CYI ADD NDX H
The origin of the signal ADD NDX is found on drawing D-BS-EP12-0-CYI. The signal level is HIGH (H) for assertion. If the signal is a pulse, H would indicate that the signal is positive-going.

CPS EXECUTE (1) H
The signal originates from the EXECUTE flip-flop on drawing D-BS-EP12-0-CPS. It is taken from the 1 output and is asserted when that output is HIGH.

MODULE IDENTIFICATION

Inside each logic symbol on a block schematic is a name code. The name code identifies the type of module on which the element is found and the location of that module in the logic rack. The modules are arranged on the rack in two groups in vertical rows, upper (memory) and lower (processor). The rows are identified by capital letters from right to left on the wiring side of the logic rack. The upper rows are labeled, A, B, C, D, E, F; the lower rows are labeled H, J, K, L, M, N.

Each row contains 40 module slots, numbered 1 through 40 from top to bottom.

Example:

M119 H26
This gate is on an M119 DEC module located in row H, slot 26.

Many flip-flops have a descriptive name in addition to a location code.

Example:

CPS FETCH M216 K06; FLK LINK M216 J12.
The first part of a descriptive name identifies the drawing.

All DEC module connector blocks have 18 pin positions. The pin positions are identified by capital letters A through V (G, I, O, and Q are omitted), reading from right to left on the wiring side of the logic rack. All modules used in the PDP-12 are double-sided; thus, each pin position provides two pin terminals. There are a total of 36 connections to each module. On the block schematics, each pin is identified by a letter-number code outside the logic symbol, adjacent to its associated signal. The letter specifies the pin position. The number indicates which side of the module is used (side 1 is the component side).

Examples:

M2	Pin position M, side 2
H1	Pin position H, side 1

Some of the modules used in the PDP-12 are double-width and occupy two slots in adjacent rows of the rack. An individual element on such a module is coded in a normal manner; the location number specifies only the row and slot to which the element is connected. On some drawings (such as those for the memory axis selectors), an entire circuit is identified collectively; in this case, both slot locations are identified.

Examples:

G611 C06 D06
This double-width module is found at slot 06 in rows C and D.

LOGIC SYMBOLOGY

The logic symbols used in these drawings conform basically to MIL-STD-806B.

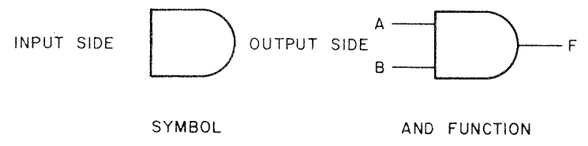
Assertion Levels

In the truth tables, H represents a HIGH (+3V) assertion level or a positive-going pulse, and L represents a LOW (0V) level or a negative-going pulse.

On the drawings, a small circle at the input to a function indicates that the signal must be LOW for assertion. If there is no circle, the assertion level is HIGH. Similarly, a small circle at the output of a function indicates that the output level is LOW when the function is TRUE. If there is no circle, the TRUE output is HIGH.

AND, NAND

Figure 2 shows the symbol for an AND gate and the general form of a pure AND function. The output of an AND function is HIGH only if all the inputs are HIGH.

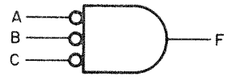


A	B	F
L	L	L
L	H	L
H	L	L
H	H	H

12-0182

Figure 2 AND Gate Symbol, AND Function, and Truth Table

Figure 3 shows a 3-input version of a NAND (Negated AND) function. The output is LOW only if all inputs are HIGH.



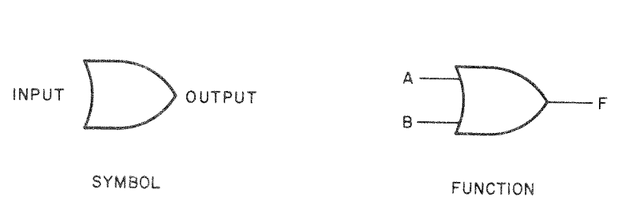
INPUT			OUTPUT
A	B	C	F
L	L	L	H
L	L	H	L
L	H	L	L
L	H	H	L
H	L	L	L
H	L	H	L
H	H	L	L
H	H	H	L

12-0183

Figure 3 NAND Gate

OR, NOR

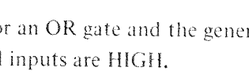
Figure 4 shows the symbol for an OR gate and the general form of a pure OR function. The output of an OR function is HIGH if any or all inputs are HIGH.



A	B	F
L	L	L
L	H	H
H	L	H
H	H	H

Figure 4 OR Gate Symbol, OR Function, and Truth Table

Figure 5 shows a 3-input version of the NOR (Negated OR) function. The output is HIGH when any or all inputs are LOW.



INPUT			OUTPUT
A	B	C	F
L	L	L	H
L	L	H	H
L	H	L	H
L	H	H	H
H	L	L	H
H	L	H	H
H	H	L	H
H	H	H	L

12-0185

Figure 5 NOR Gate

Note that the NOR truth tables are the same as those for NAND; however, the signal levels are reversed. Different gates are used for design convenience and circuit function simplification. A NOR gate is used to emphasize that any input or combination of inputs will activate the function (make it TRUE). A NAND gate is used to emphasize that all inputs must be asserted to activate the function. The NOR and NAND gates are schematic representations of DeMorgan's Law.

Flip-Flops

Figure 6 illustrates a flip-flop. A flip-flop has four inputs: SET (S), RESET (R), DATA (D), and CLOCK (C). Each flip-flop has two outputs, 1 and 0. The flip-flop is bistable; it remains in one of its two logic states (1 or 0) until an input condition causes it to change.

A flip-flop is set to the 1 state if either of the following conditions occurs:

a. A negative-going pulse appears at the SET input.
b. The DATA input is HIGH, and a positive-going pulse appears at the CLOCK input.

A flip-flop is set to the 0 state if either of the following conditions occurs:

a. A negative-going pulse appears at the RESET input.
b. The DATA input is LOW, and a positive-going pulse appears at the CLOCK input.

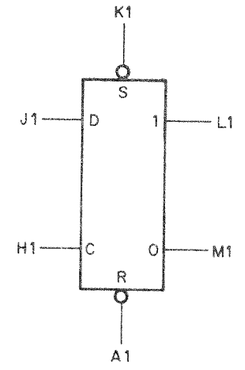


Figure 6 Flip-Flop

When a flip-flop is in the 1 state, the 1 output is HIGH and the 0 output is LOW. When a flip-flop is in the 0 state, the 0 output is HIGH and the 1 output is LOW.

Redefined Flip-Flops

Figure 7 illustrates a "redefined" flip-flop. The redefined flip-flop is physically identical to the flip-flop shown in Figure 6. The difference, however, is the manner in which the inputs: S (SET), R (RESET), and D (DATA) and the outputs: 1 and 0 are logically defined. In Figure 7, note that the pin numbering of the S and R inputs and the 1 and 0 outputs are opposite those shown in Figure 6; in addition, the D input is shown with a small circle to indicate that a low signal enables the change of state, thereby identifying the flip-flop as redefined.

Normally, the S and R inputs of a redefined flip-flop are high; a change from a high state to a low state at either of these inputs causes the flip-flop to SET or RESET respectively. If the D input is LOW and a pulse is applied to the C input, the redefined flip-flop goes to its logical 1 (SET) state and, conversely, to 0 (RESET) in the opposite case.

One-Shot Delay

The symbol for a one-shot delay function is shown in Figure 8. When the delay is not activated, it remains in the 0 state, and the output is LOW.

When any of the inputs goes from HIGH to LOW (level change or pulse), the output goes HIGH and remains HIGH until the specified delay time has elapsed. The delay-time range can be determined from the pin connections and the proper table in the DEC Logic Handbook (M302 module).

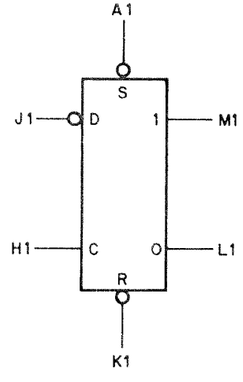


Figure 7 "Redefined" Flip-Flop

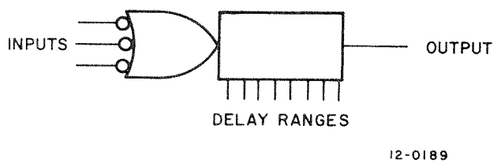


Figure 8 One-Shot Delay

Delay Lines

The symbol in Figure 9 represents a tapped delay line.

The outputs are arranged in two rows, from left to right: J2 to N2 on the top, and P2 to U2 on the bottom. The taps provide delays from 50 ns (J2) to 500 ns (U2) in 50 ns steps.

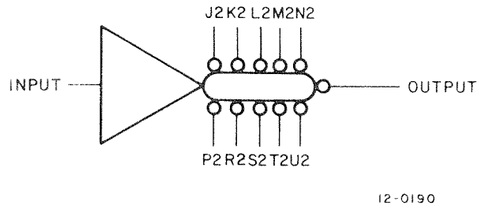


Figure 9 Delay Line

Schmitt Trigger

The symbol for a Schmitt Trigger function is shown in Figure 10.

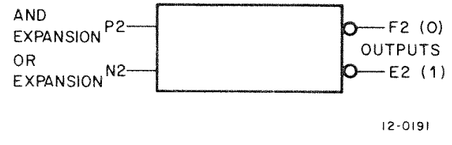


Figure 10 Schmitt Trigger

When the function is inactive, the 0 output is HIGH, and the 1 output is LOW. When the input level rises from below the lower voltage threshold to above the upper voltage threshold, the outputs reverse state. The outputs remain in this state until the input voltage falls below the lower voltage threshold again.

Amplifiers

The symbol in Figure 11 represents a current or voltage amplifier.

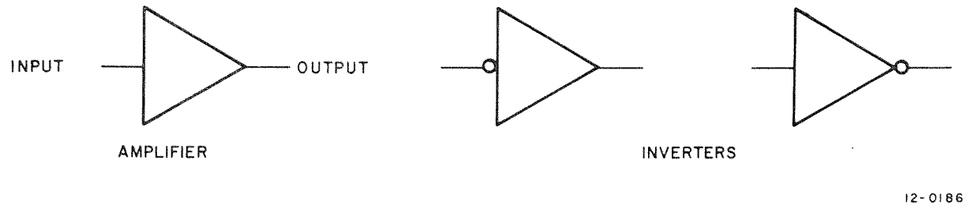


Figure 11 Amplifier and Inverters

If a small circle appears at either the input or output (but not both), the gate functions as a signal inverter.

Other Functions

A rectangle is used to represent many circuit functions (such as pulse amplifiers, inhibit drivers, clocks, etc.). Normally the circuit context or the element name clarifies the function intended. For specific uses, refer to the particular module schematic in Volume 4 of this manual, or to the DEC Logic Handbook.

MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
D-UA-PDP 12-0-0	M	2	PDP 12 SYSTEM
A-PL-PDP 12-0-0	M	4	PDP 12 SYSTEM (PARTS LIST)
D-DI-PDP 12-0-1	Y	5	DRAWING INDEX
D-AR-PDP 12-0-2	H	5	PDP 12 CONFIGURATION
D-IC-PDP 12-0-3	A	1	POWER WIRING & SIGNAL CABLES
~~A-SP-PDP 12-0-4~~	~~—~~		~~SHIPPING & INSTALLATION SPEC~~
A-SP-PDP 12-0-5	REF	23	ACCEPTANCE SPEC.
A-SP-PDP 12-0-6	REF	1	SYSTEM SPECIFICATIONS
A-AL-PDP 12-0-7	REF	1	HARDWARE KIT
A-SP-PDP 12-0-8	REF	1	SPARE PARTS
A-SL-PDP 12-0-9	REF	5	SOFTWARE KIT
D-FD-PDP 12-0-10	E	1	MANUAL TIMING FUNCTION PART 1
D-FD-PDP 12-0-11	B	1	MANUAL TIMING FUNCTION PART 2
D-FD-PDP 12-0-12	D	1	LINC FETCH 1A
D-FD-PDP 12-0-13	E	1	LINC FETCH 1B
D-FD-PDP 12-0-14	C	1	LINC FETCH 2
D-FD-PDP 12-0-15		1	LINC DEFER
D-FD-PDP 12-0-16	B	1	LINC EXECUTE
D-FD-PDP 12-0-17	B	1	LINC EXECUTE
D-FD-PDP 12-0-18	C	1	LINC EXECUTE
D-FD-PDP 12-0-19	A	1	LINC EXECUTE
D-FD-PDP 12-0-20	B	1	EXECUTE 2 & INTERRUPT
D-FD-PDP 12-0-21	B	1	PDP-8 MODE FETCH
D-FD-PDP 12-0-22	B	1	PDP-8 MODE DEFER & EXECUTE
D-FD-PDP 12-0-23	C	1	BREAK
A-ML-EP12-0	##	2	PDP 12 PROCESSOR
A-ML-EM12-0	#	1	BASIC 4K MEMORY
A-ML-MC12-0	##	1	MEMORY EXTENSION CONTROL
A-ML-TC12-0	##	2	LINC TAPE CONTROL
A-ML-VC12-0	##	2	DISPLAY CONTROLS
A-ML-KE12-0	#	2	ARITHEMATIC OPERATION
A-ML-XY12-0	##	1	PLOTTER CONTROL
A-ML-KT12-0	#	1	PDP 12 TIME SHARING OPTION

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
U	1/70	12-50	L.G.
V	1/70	12-51	L.G.
W	2/70	EP12-20	L.G.
Y	2/70	12-57	L.G.
Z	2/70	12-60	L.G.
AA	2/70	EM12-30	L.G.
AB	2/70	12-64	R.B.
AC	3/70	EM12-35	L.G.
AD	4/70	H950-72	C.G.
AE	4/70	VR12-24	R.B.
AF	6/70	12-73	R.B.
AH	6/70	EP12-23	L.G.
AJ	6/70	12-76	L.G.
AK	8/70	12-79	L.G.
AL	8/70	12-83	L.G.
AM	9/70	12-85	L.G.

DRN. J.Aprea 3/	DATE 10/69	
CHK'D. R.Hutnack	DATE 3/69	
ENG. L. Gale 3	DATE 10/69	
PROJ ENG. L. Gale 3	DATE 10/69	
PROD. L. Gale 3	DATE 10/69	
FIRST USED ON PDP-12		
SCALE		
SHEET 1 OF 2		

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE

PDP-12
SYSTEM

SIZE	CODE	NUMBER	REV.
A	ML	PDP 12-0	A

DIST.

DEC FORM NO

A

MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
A-ML-DP12-A	~~—~~	1	TTY DATA PHONE
A-ML-DP12-B	#	1	TTY DATA PHONE EIA LEVELS
A-ML-KP12-0	##	1	POWER FAIL/RESTART
A-ML-KW12-0	##	2	REAL TIME CLOCK
~~A-ML-KW12-B~~		~~1~~	~~SIMPLE CLOCK~~
~~A-ML-KW12-C~~		~~1~~	~~SIMPLE CLOCK~~
A-ML-TC12-F	##	1	8 TAPE CONTROL
A-ML-AD12-0	##	1	ANALOG TO DIGITAL CONVERTER
A-ML-AG12-0	##	1	ADDITIONAL PRE-AMPS
A-ML-AM12-0	##	1	MULTIPLEXER EXPANDER
D-CS-724-0-1	#	1	724 P/S SCHEMATIC
D-AD-7005983-0-0	#	2	FAN HSG ASS'Y
C-CS-5408112-0-1	#	1	SWITCH BD. CIRCUIT SCHEMATIC
C-CS-5408114-0-1	#	1	LIGHT BD. CIRCUIT SCHEMATIC
C-CS-5408124-0-1	#	1	RELAY BD. CIRCUIT SCHEMATIC
D-CS-7005963-0-1	#	1	RELAY PANEL CIRCUIT SCHEMATIC
D-CS-7005964-0-1	#	1	ANALOG PANEL CIRCUIT SCHEMATIC
D-CS-7006046-0-1	#	1	ANALOG EXT. PANEL CKT SCHEMATIC
A-PL-SC12-0-0	REF	1	COLOR KITS FOR PDP-12
A-ML-TU56-0	##	1	TU56-0 50/60 HZ
A-ML-VR14-0	REF	1	VR14 50/60 HZ (ANY AC VOLTAGE)
~~A-ML-VC12-C~~	~~#~~	~~1~~	~~COLOR SCOPE CONTROL~~
A-ML-LT33-0	REF	2	ASR-33 TTY
A-ML-KF12-0	#	1	AUTO PRIORITY INTERRUPT
A-ML-AG12-A	REF	1	KNOB/PREAMPS
~~D-BS-AG12-A-03~~	~~REF~~		~~PREAMP/KNOB FOR A-D CHAN Ø-7~~
A-ML-FPP12-0	REF	4	FLOATING POINT PROCESSOR
A-ML-DM12-0	##	1	DATA BREAK MULTIPLEXER
~~A-ML-PDP12-10~~		~~1~~	~~PDP12-10 CONFIGURATION~~
~~A-ML-PDP12-20~~		~~1~~	~~PDP12-20 CONFIGURATION~~
~~A-ML-PDP12-30~~		~~1~~	~~PDP12-30 CONFIGURATION~~
~~A-ML-PDP12-40~~		~~1~~	~~PDP12-40 CONFIGURATION~~
A-SP-724-0-4	##	3	SPECIFICATIONS-724 POWER SUPPLY
A-ML-DR12-0	#	1	RELAY BUFFER

REVISIONS			
REV.	DATE	CHG. NO.	APP'D
AN	11/70	12-00088	D.M.
AP	3/71	12-00092	J.S.
AR	4/71	12-00093	J.S.
AS	7/71	12-00095	F.V.
AT	8/71	EM12-37	R.M.
AU	10/71	EP12-[illegible]	R.M.
AV	1/72	12-00099	R.M.

DRN. J.Aprea 3/	DATE 10/69	
CHK'D. R.Hutnick	DATE 3/69	
ENG. L.Gale 3	DATE 10/69	
PROJ ENG. L.Gale 3	DATE 10/69	
PROD. L.Gale 3	DATE 10/69	
FIRST USED ON PDP-12		
SCALE		
SHEET 2 OF 2		

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE

PDP-12
SYSTEM

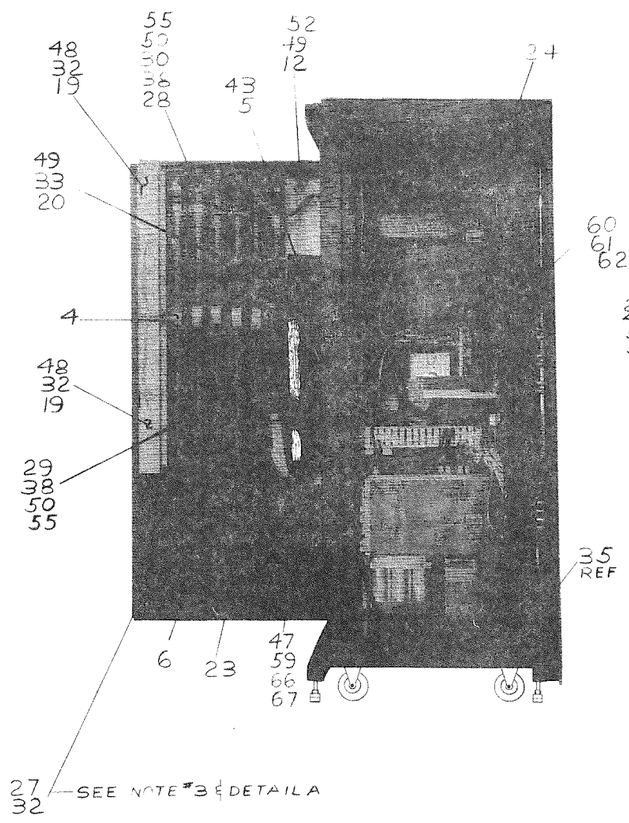
SIZE	CODE	NUMBER	REV.
A	ML	PDP 12-0	

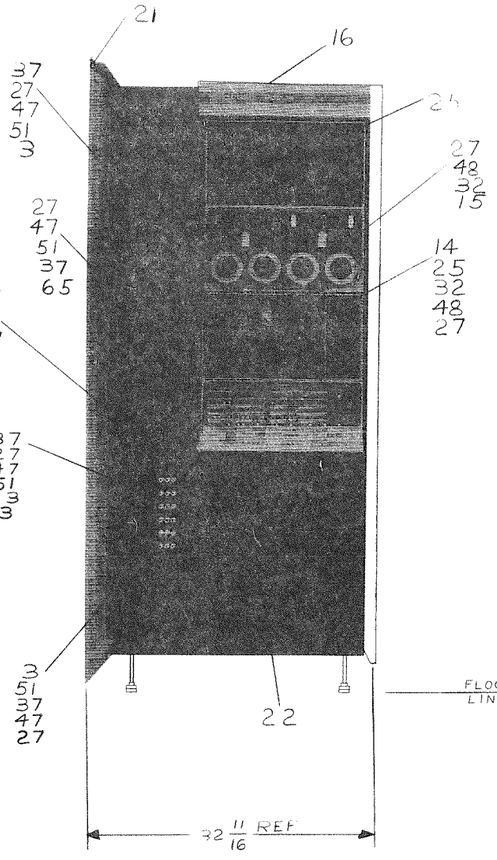
DIST.

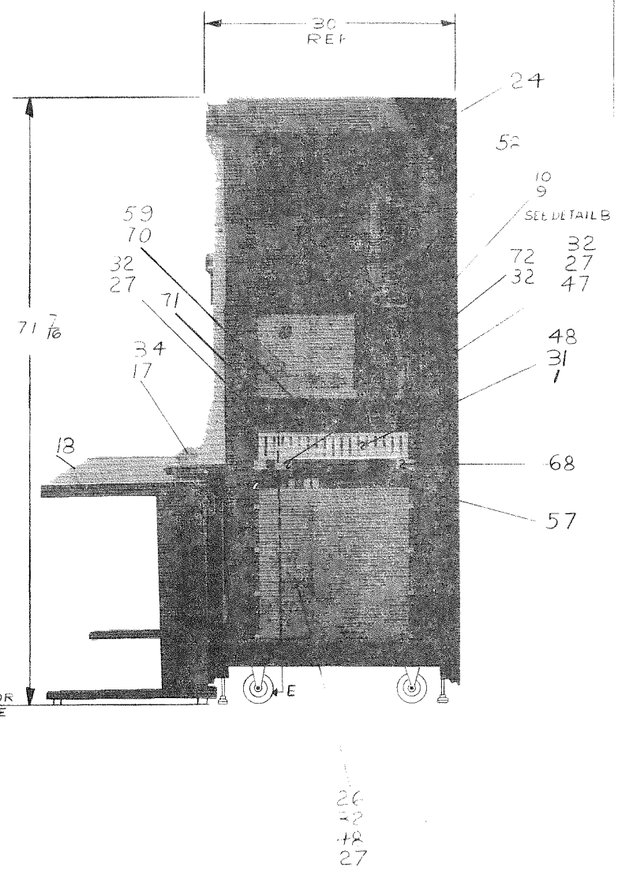
DEC FORM NO

A

NOTES:
1. FOR DRAWING INDEX LIST SEE DWG. NO. D-IX-PDP12-0-1.
2. FOR FINAL EQUIPMENT LAYOUT SEE DWG. NO. D-AR-PDP12-0-2.
3. ITEM #6 & 35 USED 3 PLACES ON KLAK TELENIUM DOOR ARE FOR SHIPPING PURPOSES ONLY.
4. FOR POWER WIRING & SIGNAL CABLE LOCATIONS SEE DWG. D-IC-PDP12-0-2.
5. ITEM #5 & 19 USED FOR 240V SYSTEM ONLY.







REVISIONS	CHK	CHANGE NO.	REV.
		12-00094	K
REVISED & REDRAWN			
M. Quinn 6-4-71			
SCANLAN		12-00095	L
		Edwiane 7-30-71	
		R. MOORE	
		A. Mac 8-2-71	
		12-00099	M
		R MOORE	

DEC FORM NO 1-100

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

FIRST USED ON OPTION/MODEL: PDP12

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

MATERIAL: /

FINISH: /

DRN. J FLEMING	DATE	8-26-69
CHK'D. K-RUSS	DATE	8-27-69
ENG. E SALE	DATE	8-11-69
PROJ. ENG. E SALE	DATE	8-11-69
PROD. D CALL	DATE	8-15-69

NEXT HIGHER ASSY

SCALE NONE

SHEET 1 OF 2

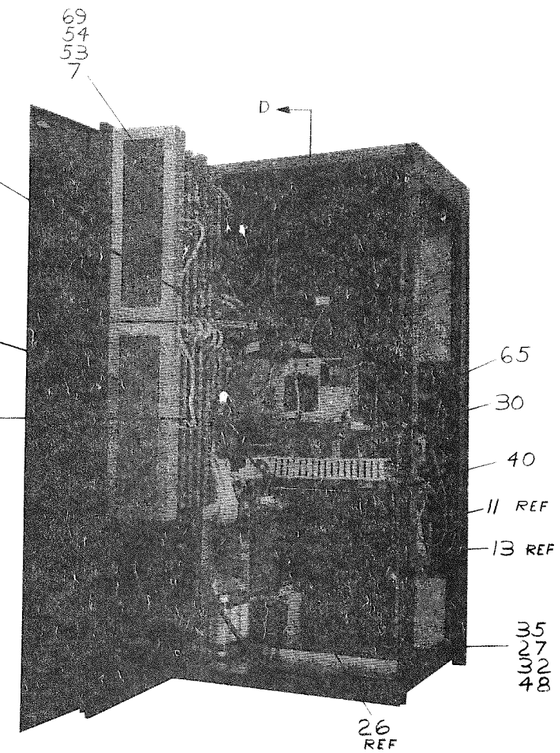
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: PDP12 ASSEMBLY

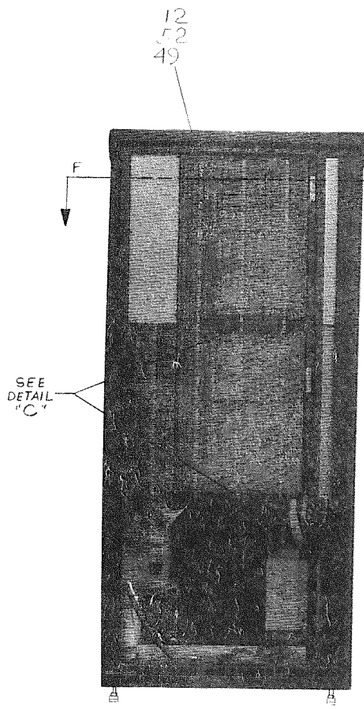
SIZE	CODE	NUMBER	REV.
D	UA	PDP12-0-0	M

DIST.

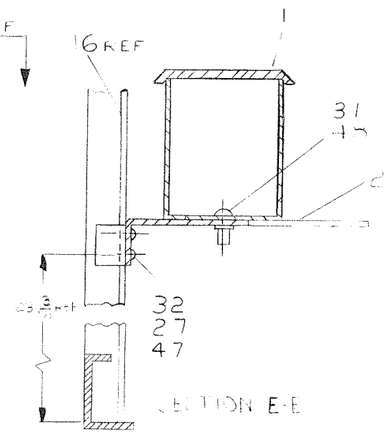
SIZE D CODE UA NUMBER PDP12-0-0 REV M



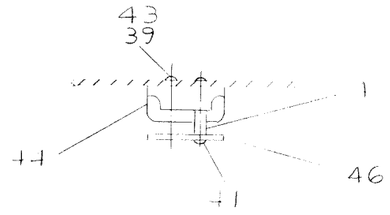
REAR VIEW-DOOR & PLENUM OPEN



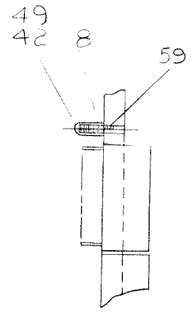
REAR VIEW-DOOR REMOVED



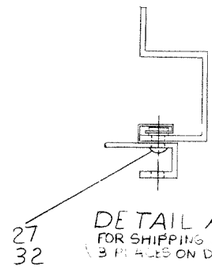
SECTION E-E



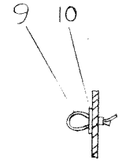
SECTION D-D



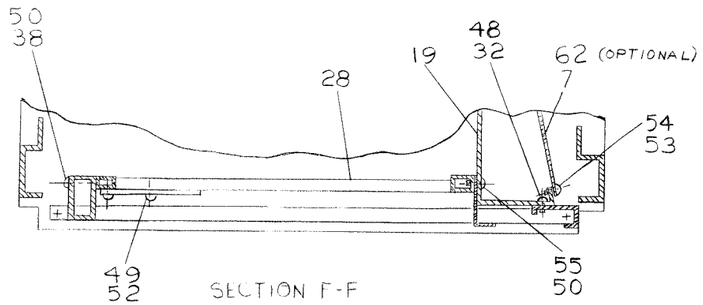
DETAIL C



DETAIL A
(FOR SHIPPING ONLY
3 BRACES ON DOOR)



DETAIL B



SECTION F-F

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

FIRST USED ON OPTION/MODEL: FDP12	DO NOT SCALE DRAWING	DRN. J FLEMING DATE 8-26-69
	UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY ✓ REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D. K RUSS DATE 8-[illegible]-69
		ENG. L GALE DATE 8-11-69
		PROJ. ENG. L GALE DATE 8-11-69
		PROD. D GALL DATE 8-18-69
	MATERIAL	NEXT HIGHER ASSY
	FINISH	SCALE NONE
		SHEET 2 OF 2

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: FDP12 ASSEMBLY

SIZE D | CODE | NUMBER: DUAFDP12-0-0 | REV. M

DIST.

REVISIONS	REV.	CHK.
CHANGE NO.		

DEC FORM NO 1100

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY J. FLEMING	CHECKED K. RUSS	SECTION 1
DATE 5/15/69	DATE 8/1/69	
ENG L. Gale	PROD A Cull	ISSUED SECT. 1
DATE 8/11/69	DATE 8/18/69	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY/VARIATION PDP12-A	PDP12-B	PDP12-C	PDP12-10	PDP12-20	PDP12-30	PDP12-40
1	C-MD-7406898-0-0	DUCT CABLE	2	2	2	2	2	2	2
2	C-IA-7406900-0-0	BRACKET, DUCT	2	2	2	2	2	2	2
3	C-MD-7406844-0-0	PANEL BLANK (NARROW)	4	5	5	4	4	3	3
4	C-IA-7006111-0-0	PDP 12 LOGIC CABLES	1	1	1	1	1	1	1
5	1203185-2	PRECISION POWER SUPPLY ±15V	1	1	0	1	1	1	1
6	D-IA-7006186-0-0	CABLE LOGIC POWER	2	2	2	2	2	2	2
7	D-IA-7407277-0-0	SCREEN, FAN	2	2	2	2	2	2	2
8	9008258	SPACER 1/4 AF X 1-3/8 LG #8-32	2	2	2	2	2	2	2
9	9007032	TIE WRAP SST-2-B (PANDUIT)	A/R	A/R	A/R	A/R	A/R	A/R	A/R
10	9006714	WASHER .250 X .500 X .062 THK	A/R	A/R	A/R	A/R	A/R	A/R	A/R
11	D-AD-7005964-0-0	ANALOG PANEL ASSY	1	1	1	1	1	1	1
12	C-IA-7406947-0-0	PANEL, CONN	2	2	2	2	2	2	2
13	D-AD-7005963-0-0	RELAY PANEL ASSY	1	-	-	1	1	1	1
14	D-UA-VR14-Ø-Ø	VR14 DISPLAY	1	1	-	-	1	1	1
15	D-UA-TU56-Ø-Ø	TAPE UNIT TU56	1	1	-	-	1	1	1
~~15~~	~~D-UA-TU55-A-Ø~~	~~TAPE UNIT TU55 (50 HZ)~~	~~2~~	~~2~~					
16	E-AD-7005950-0-0	CAB FRAME ASSY	1	1	1	1	1	1	1
17	E-AD-7005955-0-0	CONSOLE ASSY	1	1	1	1	1	1	1
18	E-AD-7005958-0-0	TABLE ASSY	1	1	1	1	1	1	1
19	D-AD-7005983-0-0	FAN HOUSING ASSY	2	2	2	2	2	2	2
20	C-AD-7006045-0-0	POWER SUPPLY BRKT ASSY	1	1	-	1	1	1	1
21	D-UA-H951-TB-Ø	NARROW DOOR	1	1	1	1	1	1	1

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
PDP 12 ASSEMBLY	D-UA-PDP12-Ø-Ø	A	PL	PDP12-Ø-Ø	M	12-00099
	SHEET 1 OF 4	DIST.				

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY J. FLEMING	CHECKED K. RUSS	SECTION 1
DATE 5/15/69	DATE 8/1/69	
ENG L. Gale	PROD A Cull	ISSUED SECT. 1
DATE 8/11/69	DATE 8/18/69	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY/VARIATION PDP12-A	PDP12-B	PDP12-C	PDP12-10	PDP12-20	PDP12-30	PDP12-40
22	D-UA-H95Ø-HB-Ø	SHORT DOOR ASSY	1	1	1	1	1	1	1
23	D-UA-H951-BA-Ø	30" FULL DOOR ASSY	1	1	1	1	1	1	1
24	D-UA-H952-A-Ø	END PANEL	2	2	2	2	2	2	2
25	D-UA-H952-Q-Ø	COVER PANEL 10 1/2"	1	1	3	-	1	1	1
26	D-UA-724-Ø-Ø	POWER SUPPLY 724	1	1	1	1	1	1	1
27	9007786	SPEED NUT #10-32 TINNERMANN	69	69	69	69	71	71	71
28	EM12-Ø	BASIC 4K MEMORY	1	1	1	1	1	1	1
29	EP12-0	PDP12 PROCESSOR	1	1	1	1	1	1	1
30	D-IA-7006231-0-0	LINC TAPE D.C PWR HARNESS	1	1	1	1	1	1	1
31	9006071-3	SCR PHL HD TRUSS #10-32 X 3/8 LG	4	4	4	4	4	4	4
32	9006074-3	SCR PHL HD TRUSS #10-32 X 5/8 LG	49	49	49	49	54	54	54
33	9006039-1	SCR PHL HD PAN #8-32 X 1/2 SST	4	4	-	4	4	4	4
34	9006071-2	SCR PHL HD FLAT #10-32 X 3/8 LG	4	4	4	4	4	4	4
~~35~~	~~D-AD-7006060-0-0~~	~~ASSY XFMR MTG PANEL 50 CYCLE ONLY~~	~~1~~	~~1~~					
36	D-IA-7006238-0-0	INTERNAL SCOPE CABLE	1	1	-	1	1	1	1
37	9006712	WASH .250 I.D X .375 OD X .032 THK	24	24	24	24	24	24	24
38	9006063-3	SCR PHL HD TRUSS 1/4-20 X 1 3/4 LG	6	6	6	6	6	6	6
39	9006026-1	SCR PHL HD PAN #6-32 X 3/4 LG	4	4	4	4	4	4	4
40	1201265	POWER CORD	2	2	-	2	2	2	2
41	9006020-1	SCR PHL HD PAN #6-32 X 1/4 LG	2	2	2	2	2	2	2
42	9008208	SCR PHL HD PAN #8-32 X 1/2 LG NYLON	2	2	2	2	2	2	2
43	9006560	NUT KEPS #6-32 SST	8	8	4	8	8	8	8

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
PDP 12 ASSEMBLY	D-UA-PDP12-Ø-Ø	A	PL	PDP12-Ø-Ø	M	
	SHEET 2 OF 4	DIST.				

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY J. FLEMING	CHECKED K. RUSS	SECTION 1
DATE 5/15/69	DATE 8/1/69	
ENG L. Gale	PROD D. Call	ISSUED SECT. 1
DATE 8/11/69	DATE 8/18/69	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	PDP12-A	PDP12-B	PDP12-C	PDP12-10	PDP12-20	PDP12-30	PDP12-40
44	9006902	TERM STRIP #4-541 CINCH JONES	1	1	1	1	1	1	1
45	9006851	SPACER 1/4AF X 1/2 #6-32 AL	2	2	2	2	2	2	2
46	B-MD-7404721-0-0	PROTECTION COVER 541 (4 TERM)	1	1	1	1	1	1	1
47	9006635	WASH INT TOOTH #10	30	30	30	30	30	30	30
48	9007651	WASH EXT TOOTH #10	44	44	44	44	44	44	44
49	9006634	WASH INT TOOTH #8	11	11	11	11	11	11	11
50	9006724	WASH EXT TOOTH 1/4	12	12	12	12	12	12	12
51	9007630-3	SCR PHL HD TRUSS #10-32 X 3/4 BLK PASS	24	24	24	24	24	24	24
52	9006040-1	SCR PHL HD PAN #8-32 X 5/8 LG	9	9	9	9	9	9	9
53	9006022-1	SCR PHL HD PAN #6-32 X 3/8 LG	5	5	5	5	5	5	5
54	9006633	WASH INT TOOTH #6	5	5	5	5	5	5	5
55	9006058-3	SCR PHL HD TRUSS 1/4-20 X 3/4 LG	6	6	6	6	6	6	6
56	E-IA-7006037-0-0	MAIN FRAME HARNESS 120 VAC	1	1	1	1	1	1	1
57	E-IA-7006038-0-0	MAIN FRAME HARNESS DC	1	1	1	1	1	1	1
58	9107673-03	CORD #14/3 WIRE ~~GRY~~	2	2	-	2	2	2	2
59	9006077-3	SCR PHL HD TRUSS #10-32 X 1 LG	4	4	4	4	8	8	8
60	7408322	BRACKET MOUNTING BLOCK	2	2	—	-	2	2	2
61	7408321	MOUNTING BRACKET TU56	1	1	—	-	1	1	1
62	9006073-3	SCR PHL HD TRUSS #10-32 X 1/2 LG	2	2	—	-	2	2	2
~~63~~	~~C-UA-VP12-A-0~~	~~FILTER ASSY~~	~~1~~	~~1~~					
REF	D-IC-PDP12-Ø-3	POWER WIRING & SIGNAL CONN.							
~~64~~	~~1809804~~	~~LABEL, "0" WHITE, MYLAR~~	~~2~~	~~2~~	~~-~~	~~2~~	~~2~~	~~2~~	~~2~~

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO.
PDP 12 ASSEMBLY	D-UA-PDP12-Ø-Ø	A	PL	PDP12-Ø-Ø	M	
	SHEET 3 OF 4	DIST.				

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

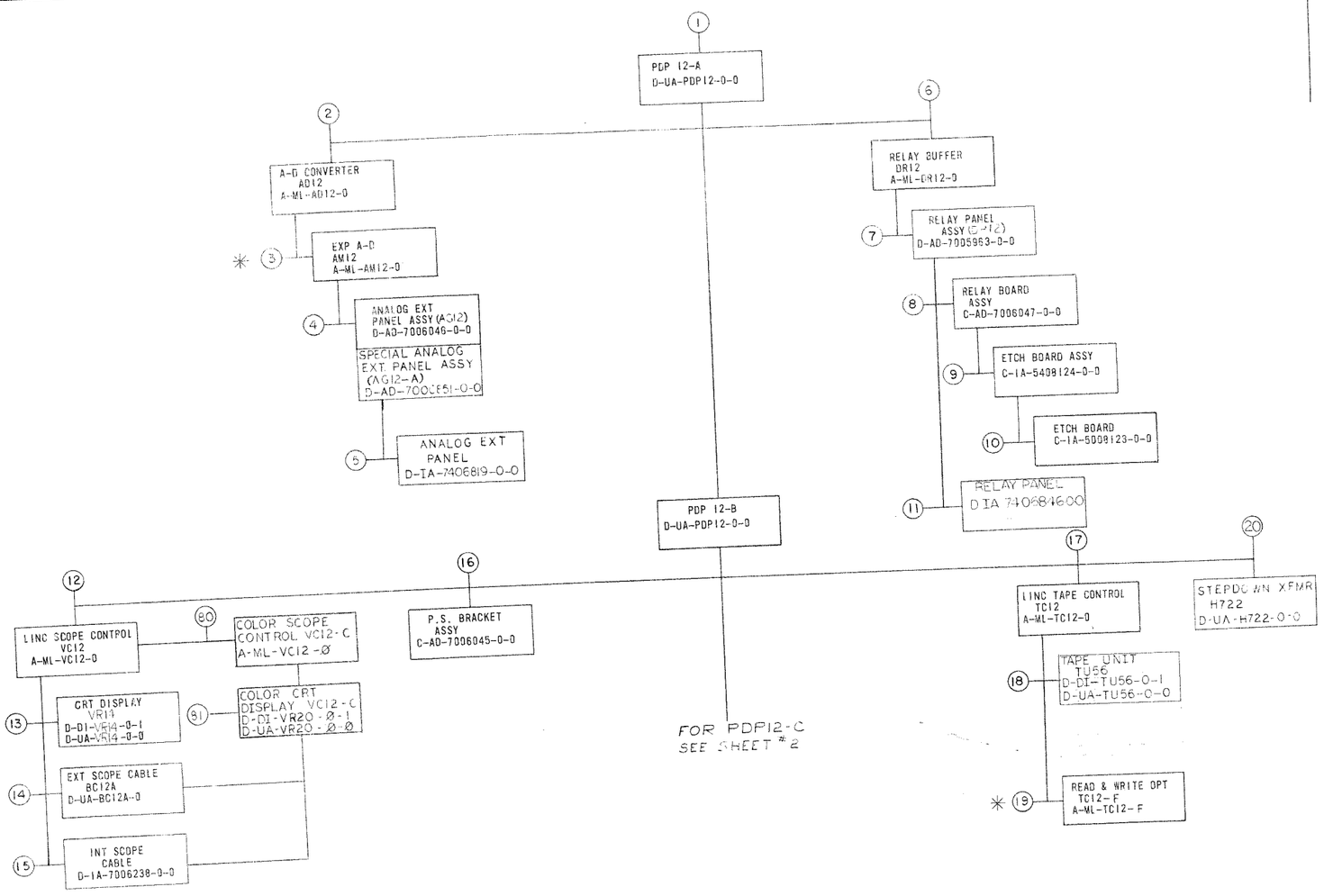
PARTS LIST

MADE BY J. FLEMING	CHECKED K. RUSS	SECTION 1
DATE 5/15/69	DATE 8/1/69	
ENG L. GALE	PROD D. CALL	ISSUED SECT. 1
DATE 8/11/69	DATE 8/18/69	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	PDP12-A	PDP12-B	PDP12-C	PDP12-10	PDP12-20	PDP12-30	PDP12-40
~~65~~	~~D-AD-7006335-0-0~~	~~CLOCK CONTROL PANEL ASSY~~	~~-~~	~~-~~	~~1~~	~~-~~	~~-~~	~~1~~	~~1~~
66	C-IA-740898Ø-0-0	BRACKET, EXTRUSION	1	1	1	1	1	1	1
67	C-IA-7408981-0-0	BRACKET, HOLDOWN	2	2	2	2	2	2	2
68	7408983	BRACKET, SMALL DUCT	1	1	1	1	1	1	1
69	1205748	FILTER, MESH	2	2	2	2	2	2	2
70	9007772-13	PLASTIC CLAMP, DAKOTA	-	-	-	-	2	2	2
71	D-IA-7409121-0-0	BAR, CABLE MOUNTING	-	-	-	-	1	1	1
72	9007772-9	PLASTIC CLAMP, DAKOTA	-	-	-	-	1	1	1
73	TC12-Ø	LINC TAPE CONTROL	1	1	-	-	1	1	1
74	VC12-Ø	LINC SCOPE CONTROL	1	1	-	-	1	1	1
75	AD12-Ø	ANALOG TO DIGITAL CONVERTER	1	-	-	1	1	1	1
76	KF12-Ø	AUTOMATIC PRIORITY INTERRUPT	-	-	-	-	1	1	1
77	KW12-A	REAL TIME CLOCK	-	-	-	-	-	1	1
78	MC12-Ø	MEMORY EXTENSION CONTROL	-	-	-	-	-	1	1
79	DR12-Ø	RELAY BUFFER	1	-	-	1	1	1	1
80	LT33-DC	ASR33 TTY (115V 60HZ)	(1 per 115V 60Hz Systems)						
81	LT33-DD	ASR33 TTY (230V 50Hz)	(1 per 230V 50Hz Systems)						
82	LT33-DE	ASR33 TTY (100V 50Hz)	(1 per 100V 50Hz Systems)						
83	FPP12-O	FLOATING POINT PROCESSOR	-	-	-	-	-	-	1

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO
PDP 12 ASSEMBLY	D-UA-PDP12-Ø-Ø	A	PL	PDP12-Ø-Ø	M	
	SHEET 4 OF 4	DIST.				

NOTES:
1. * ASTERISK INDICATES OPTIONS AVAILABLE.
2. LETTER DESIGNATION ABOVE BLOCK INDICATES THAT PART IS USED ONLY ON THAT SYSTEM WITH SAME LETTER DESIGNATION.



CHK	CHANGE NO	REV
ACS	12-00031 D. NEVALA	A
PW	12-00032 T. Quillen 10-27-69 GALE	B
ACS	12-00034 T. Quillen 10-30-69 NEVALA	C
ACS	12-00035 T. Quillen 11-6-69 GALE	D
ACS	12-00040 T. Quillen 11-21-69 NEVALA	E
ACS	12-00043	F
ACS	12-00044 NEVALA	H
ACS	12-00047 L. GALE	J
ACS	12-00050 T. Quillen 1-22-70 GALE	K
	12-00065 T. Quillen 3-3-70 GALF	L
FV	12-00064 R. BERNIER 3/5/71	M
FV	EM12-00035 T. Quillen 3-25-70 GALE	N
	H950-00001 T. Quillen 5-5-70 GRAHAM 5-6-70	P
	VR12-00024 T. Quillen 5-15-70 BERNIER	R
FV	12-00083 BULIANSKY	S
FV	12-00088 12-1-70 D-MACKLIN	T
	12-00093 REDRAW-REVISED-SHEET 2 OF 5 5-4-71 SCANLAN	U
	MISC-00086 VARTANIAN	V
	EM12-00051 9-27-71 R. MOORE 9-30-71	W

SEE SHEET 2

DEC FORM NO.
DRD 300

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL
PDP12

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

MATERIAL —
FINISH —

DRN.	J. F. Emery	DATE 5-29-69
CHK'D.		DATE
ENG.	L. Gale	DATE 8/11/69
PROJ. ENG.	L. Gale	DATE 8/11/69
PROD.		DATE

NEXT HIGHER ASSY
A-ML-PDP12-0

SCALE —
SHEET 1 OF 5

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
DRAWING INDEX LIST (PDP12)

SIZE	CODE	NUMBER	REV
D	DI	PDP12-0-1	Y

DIST. G

SIZE D CODE DI NUMBER PDP12 - Ø - 1 REV Y

1 PDP 12-C
D-UA-PDP12-0-0

21 CAB FRAME ASSY
E-AD-7005950-0-0

- 23 H951 AA30" CAB
  E-UA-H951-AA-0
  D-DI-H951-0-1
- 24 H952-C FAN ASSY
  A-PL-H952-C-0
  D-DI-H952-0-1
- 25 H952-F LEVELER SET
  A-PL-H952-F-0
  D-DI-H952-0-1
- 26 H952-E CASTER SET
  A-PL-H952-E-0
  D-DI-H952-0-1
- 27 PANEL LOGO PDP12
  C-IA-7406933-0-0
- 28 INLAY PANEL
  C-IA-7406847-0-0

22 CONSOLE ASSY
E-AD-7005955-0-0

- 30 SWITCH BOARD ASSY
  D-IA-7006009-0-0
- 31 SWITCH BOARD (CONSOLE)
  D-AD-5408112-0-0
  - 32 ETCH BOARD SWITCH
    D-IA-5008111-0-0
- 33 INDICATOR PANEL
  D-IA-7406915-0-0
- 34 LIGHT BOARD ASSY
  D-AD-7006309-0-0
- 35 LIGHT BOARD (CONSOLE)
  D-IA-5408114-0-0
  - 36 ETCH BOARD LIGHT (CONSOLE)
    E-IA-5008113-0-0

37 TABLE ASSY
E-AD-7005959-0-0

38 FAN HOUSING ASSY
D-AD-7005983-0-0

39 H951-T8 NARROW DOOR
D-UA-H951-T8-0
D-DI-H951-0-1

40 H950-H8 SHORT DOOR ASSY
A-PL-H950-H8-0
D-DI-H950-0-1

41 H951-8A FULL LENGTH DOOR
A-PL-H951-8A-0
D-DI-H951-0-1

42 H952-A END PANEL
A-PL-H952-A-0
D-DI-H951-0-1

43 H950-Q COVER PANEL
A-PL-H950-Q-0
D-DI-H950-0-1

44 POWER SUPPLY 724
D-UA-724-0-0

- 45 UPPER MTG PANEL ASSY
  D-AD-5408232-0-0
- 46 HEAT SINK ASSY
  D-AD-5408298-0-0
- 47 CONN ASSY HEAT SINK
  C-IA-5408291-0-0
  - 48 ETCH BOARD HEAT SINK
    C-IA-5009293-0-0
- 49 CONN. FILTER CAP
  C-IA-5408292-0-0
  - 50 ETCH BOARD FILTER CAP
    C-IA-5009294-0-0

51 LOGIC POWER CABLE
D-IA-7006166-0-0

- 52 POWER CONN G780
  C-UA-G780-0-0

53 ANALOG PANEL ASSY
D-AD-7005964-0-0

- 54 ANALOG PANEL
  D-IA-7406845-0-0

55 BASIC 4K MEMORY EM12
A-ML-EM12-0

- 56 LOGIC FRAME ASSY MEMORY (EM12)
  D-AD-7005979-0-0
  - 57 MTG BAR ASSY
    D-IA-7406100-00

59 PDP12 PROCESSOR EP12
A-ML-EP12-0

- 60 LOGIC FRAME ASSY (EP12)
  D-AD-7005976-0-0
  - 57 MTG BAR ASSY
    D-IA-7406100-0-0

61 * PLOTTER CONTROL XY12
A-ML-XY12-0-0

62 * REAL TIME CLOCK KW12A
A-ML-KW12-Ø

- 63 CLOCK CONTROL PANEL ASSY
  D-AD-7006335-0-0
  - 64 CLOCK CONTROL PANEL
    D-MD-7407414-0-0

65 * EXT MEMORY CONTROL MC12
A-ML-MC12-0

- 66 ADD 4K MEMORY MM81-A *
  A-ML-MM81-A-0

67 * ARITHMATIC OPERATION KE12
A-ML-KE12-0

68 * PWR FAIL RESTART KP12
A-ML-KP12-0

69 * TTY DATA PHONE DP12-A
A-ML-DP12-A

70 * TTY DATA PHONE DP12-B
A-ML-DP12-B

71 * TIME SHARING KT12
A-ML-KT12-0

73 * SIMPLE CLOCK KW12-B
A-ML-KW12-Ø

74 * SIMPLE CLOCK KW12-C
A-ML-KW12-Ø

76 * DATA BREAK MULTIPLEXER
A-ML-DM12-Ø

78 * I/O ACCESS PANEL
A-ML-H309-0

80 * COLOR DISPLAY CONTROL
A-ML-VC12-C

81 * COLOR DISPLAY
A-ML-VR20-0

82 611/601 SCOPE CONTROL
A-ML-VC12-5

79 * ANALYTICAL INSTRUMENTATION PACKAGE
A-ML-AIP12-0

* = OPTION

REVISIONS

CHK	CHANGE NO.	REV
R. MOORE	12-00099	Y

DEC FORM NO. DMD 100

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL: PDP12

DO NOT SCALE DRAWING

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

MATERIAL —

FINISH —

		DATE
DRN.		
CHK'D.	A. Hart	8/11/69
ENG.	J. Yale	8/11/69
PROJ. ENG.	J. Yale	8/11/69
PROD.	A. Hart	8/11/69

NEXT HIGHER ASSY

SCALE —

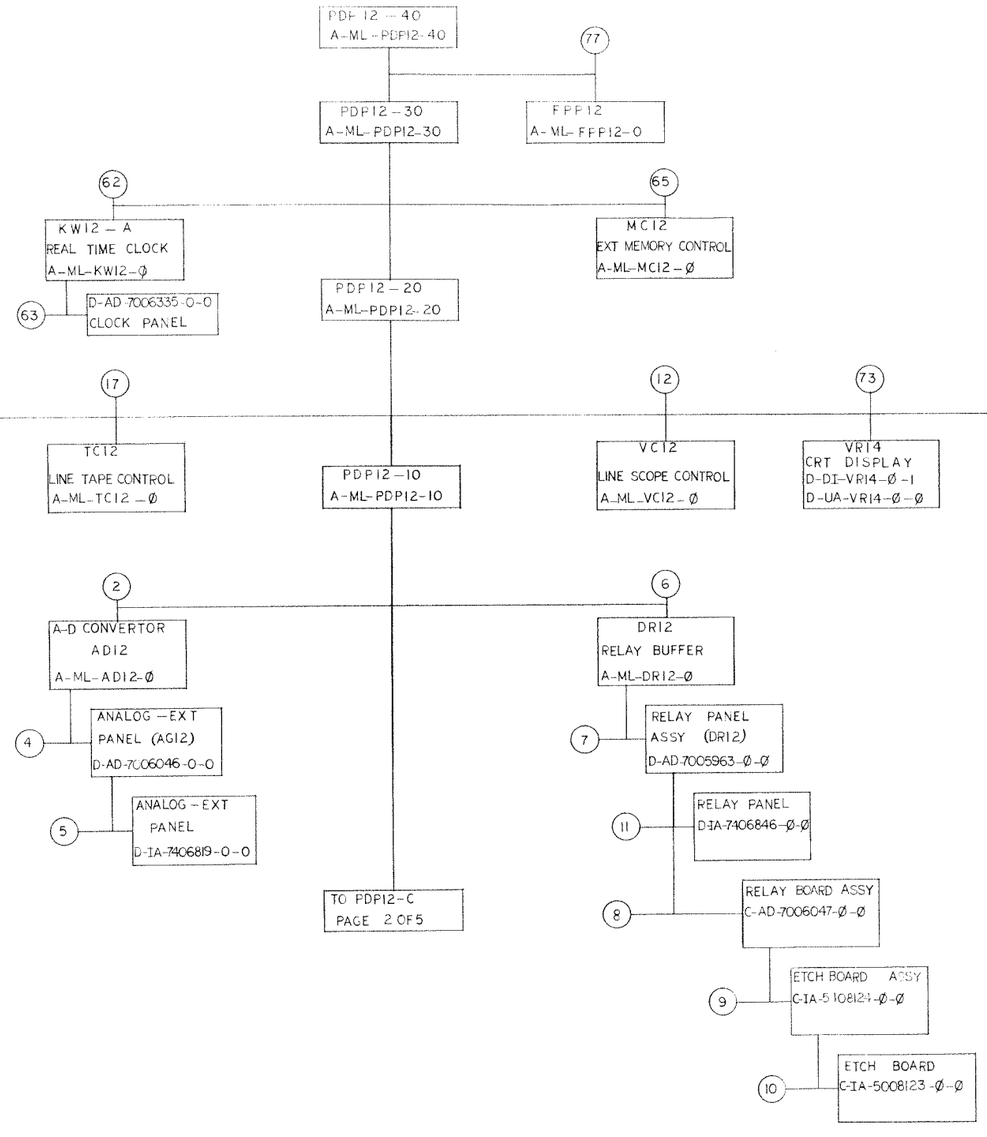
SHEET 2 OF 5

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: DRAWING INDEX LIST (PDP12)

SIZE D | CODE DI | NUMBER PDP12 - Ø - 1 | REV Y

DIST.



REVISIONS	REV	CHANGE NO	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —————

FINISH ————— —

DRN. J FLEMING	DATE 6-29-69	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D K RUSS	DATE 7-21-69	TITLE DRAWING INDEX LIST (PDP12)
ENG. L GALE	DATE 6-11-69	
PROJ. ENG. L GALE	DATE 6-11-69	
PROD. D CALL	DATE 6-18-69	
NEXT HIGHER ASSY.		SIZE D CODE DI NUMBER PDP12-0-1 REV. Y
SCALE NONE		
SHEET 3 OF 5		DIST.

DEC FORM NO DRD 102-B

FIND NO	DESCRIPTION	DWG NUMBER	DEPT USAGE PROD	CUST	F/C
1	PDP12 SYSTEM	D-UA-PDP12-0-0			
	PDP12 (PL)	A-PL-PDP12-0-0			
	DUCT, CABLE	C-MD-7406899-0-0			
	BRACKET, DUCT	C-IA-7406900-0-0			
	PANEL BLANK (NARROW)	C-MD-7406844-0-0			
	PDP12 LOGIC CABLE	C-IA-7006111-0-0			
(A+B)	PRECISION POWER SUPPLY	1203185-0-0			
	SCREEN, FAN	D-IA-7407277-0-0			
	PANEL, CONN	C-IA-7406947-0-0			
(A&B)	HARNESS MAIN FRAME 120 VAC	E-IA 7006037-0-0			
	HARNESS MAIN FRAME DC	E-IA-7006038-0-0			
(A&B)	HARNESS LINC TAPE DC PWR	D-IA-7006231-0-0			
	PROTECTION COVER 541 (4TERM)	B-MD-7404721-0-0			
	SHIPPING BRKT TU55	C-MD-7407759-0-0			
2	A-D CONVERTER (AD12)	A-ML-AD12-0			
* 3	EPANDED A-D (AM12)	A-ML-AM12-0			
* 4	ANALOG EXT PANEL ASSY (AG12)	D-AD-7006846-0-0			
	ANALOG EXT PANEL ASSY (PL)	A-PL-7006846-0-0			
	LOGIC DECALS	A-DC-7407193-0-0			
	SPECIAL ANALOG EXT. PANEL ASSY (AG12-A)	D-AD-7006851-0-0			
	SPECIAL ANALOG EXT. PANEL ASSY (PL)	A-PL-7006851-0-0			
5	ANALOG EXT PANEL	D-IA-7406819-0-0			
	ANALOG EXT PANEL SILK SCREEN	C-SS-7406819-0-1			
	BRACKET, CABLE	B-MD-7406901-0-0			
6	RELAY BUFFER (DR12)	A-ML-DR12-0			
7	RELAY PANEL ASSY(DR12)	D-AD-7005963-0-0			
	RELAY PANEL ASSY (PL)	A-PL-7005963-0-0			
	BRACKET, CABLE	B-MD-7406901-0-0			
	CABLE ASSY (G783)	C-IA-7006028-1-0			
	LOGIC DECALS	A-DC-7407193-0-0			
	W/28 CABLE ASSY	D-IA-7007005-0-0			
9	RELAY BOARD ASSY	C-AD-7006047-0-0			
	RELAY BOARD ASSY	A-PL-7006047-0-0			
9	ETCH BOARD ASSY	C-IA-5408124-0-0			
10	ETCH BOARD, RELAY	C-IA-5008123-0-0			
	FLIP CHIP MODULE (BLANK)	D-MD-1402230-0-0			
	ASSY/DRILLING HOLE LAYOUT	C-AH-5408124-0-5			
	PRINTED CIRCUIT LAYOUT	PC-5008123			
11	RELAY PANEL	D-IA-7406846-0-0			
	RELAY PANEL, SILK SCREEN	C-SS-7406846-0-1			
12	LINC SCOPE CONTROL (VC12)	A-ML-VC12-0			
13	CRT DISPLAY	D-UA-VR14-0-0			
	CRT DISPLAY	A-PL-VR14-0-0			
	DRAWING INDEX LIST	D-DI-VR14-0-1			
14	EXT SCOPE CABLE (BC12A)	D-UA-BC12A-0-0			
15	INT SCOPE CABLE	D-IA-7006238-0-0			
	W/28 CABLE ASSY	D-IA-7007005-0-0			
16	P.S. BRACKET ASSY	C-AD-7006045-0-0			
	P.S BRACKET ASSY (PL)	A-PL-7006045-0-0			
	BRACKET, MTG	C-MD-7407059-0-0			
	PRECISION P.S. CABLE	C-IA-7006167-0-0			
	LOGIC DECALS	A-DC-7407193-0-0			
17	LINC TAPE CONTROL (TC12)	A-ML-TC12-0			

FIND NO	DESCRIPTION	DWG NUMBER	DEPT USAGE PROD	CUST	F/C
18	TAPE UNIT (TU56)	D-UA-TU56-0-0			
	TAPE UNIT (TU56) (PL)	A-PL-TU56-0-0			
	DRAWING INDEX LIST	D-DI-TU56-0-1			
	~~TAPE UNIT (TU55-A) (FU)~~	~~D-UA-TU55-A-0~~			
	~~TAPE UNIT (TU55-A) (FU)~~	~~A-PL-TU55-A-0~~			
	~~DRAWING INDEX~~	~~D-DI-TU55-A-13~~			
* 19	READ WRITE OPT TC12-F	A-ML-TC12-F			
20	XFMR STEPDOWN	D-UA-H722-0-0			
	XFMR STEPDOWN (PL)	A-PL-H722-0-0			
	~~PANEL XFMR MTG~~	~~D-IA-7407072-0-0~~			
	~~COVER PROTECTION (541) 6 TERM~~	~~B-MD-7405436-0-0~~			
21	PDP12 CABINET FRAME ASSY	E-AD-7005950-0-0			
	PDP12 CABINET FRAME ASSY (PL)	A-PL-7005950-0-0			
	POST 19"	D-IA-7406796-0-0			
	DOOR, PLENUM	E-IA-7407648-0-0			
	PIN, DOOR	B-MD-7406672-0-0			
	RETAINER, DOOR PIN	B-MD-7406670-0-0			
	BRACKET CONTROL PANEL R.H.	C-IA-7407093-2-0			
	BRACKET CONTROL PANEL L.H.	C-IA-7407093-1-0			
	PLENUM, SPACER	A-MD-7406268-0-0			
	COVER CONSOLE BOTTOM	C-MD-7407280-0-0			
23	H951-AA30" CABINET ASSY	E-UA-H951-AA-0			
	H951-AA 30" CABINET ASSY	A-PL-H951-AA-0			
	H951 DRAWING INDEX LIST	D-DI-H951-0-1			
24	H952-C FAN	A-PL-H952-C-0			
	H952 DRAWING INDEX LIST	D-DI-H952-0-1			
25	H952-F LEVELER SET	A-PL-H952-F-0			
	H952 DRAWING INDEX LIST	D-DI-H952-0-1			
26	H952-E CASTER SET	A-PL-H952-E-0			
	H952-E DRAWING INDEX LIST	D-DI-H952-0-1			
27	PANEL, LOGO PDP12	C-IA-7406933-0-0			
	PANEL FRAME H950-L	D-UA-H950-L-0			
	H950 DRAWING INDEX	D-DI-H950-0-1			
28	PANEL INLAY PDP12	C-IA-7406847-0-0			
	LOGO (BRITE CHARTREUSE)	C-SS-7406847-0-1			
	LOGO (LIME PEEL)	C-SS-7406847-0-2			
29	CONSOLE ASSY	E-AD-7005955-0-0			
	CONSOLE ASSY (PL)	A-PL-7005955-0-0			
	COVER, SWITCH	D-MD-7407173-0-0			
	BEZEL, CONSOLE	E-MD-7407125-0-0			
	SUPPORT, GLASS	D-IA-7407103-0-0			
30	SWITCH BOARD ASSY	D-IA-7006009-0-0			
	LOGIC DECALS	A-DC-7407193-0-0			
31	SWITCH BOARD (CONSOLE)	D-AD-5408112-0-0			
	SWITCH BOARD (CONSOLE) (PL)	A-PL-5408112-0-0			
	SPACER BAR, SWITCH BOARD	C-MD-7406823-0-0			
	(LIME PEEL) ROCKER SWITCH RS-9-3-FB-PC	C-AD-5404413-11-0			
	(CHARTREUSE)ROCKER SWITCH RS-9-3-FB-PC	C-AD-5404413-12-0			
	(LIME PEEL)ROCKER SW RS-5-0-FB-PC	C-AD-5404331-11-0			
	(CHARTREUSE)ROCKER SW RS-5-0-FB-PC	C-AD-5404331-12-0			
32	ETCH BOARD, SWITCH	D-IA-5008111-0-0			
	ASSY/DRILLING HOLE LAYOUT	C-AH-5408112-0-5			
	PRINTED CIRCUIT LAYOUT	PC5008111-0-0			
33	INDICATOR PANEL	D-IA-7406815-0-0			
	IND PNL SILK SCREEN STEP#1	C-SS-7406815-0-1			
	IND PNL SILK SCREEN STEP#2	C-SS-7406815-0-2			
	IND PNL SILK SCREEN STEP#3	C-SS-7406815-0-3			
	IND PNL SILK SCREEN STEP#4	C-SS-7406815-0-4			
	IND PNL SILK SCREEN STEP#5	C-SS-7406815-0-5			

FIND NO	DESCRIPTION	DWG NUMBER	DEPT USAGE PROD	CUST	F/C
34	LIGHT BOARD ASSY	D-AD-7006008-0-0			
	LIGHT BOARD ASSY (PL)	A-PL-7006008-0-0			
	LOGIC DECALS	A-DC-7407193-0-0			
35	LIGHT BOARD (CONSOLE)	D-IA-5408114-0-0			
36	ETCH BOARD, LIGHT (CONSOLE)	E-IA-5008113-0-0			
	ASSY DRILLING HOLE LAYOUT	C-AH-5408114-0-0			
	PRINTED CIRCUIT LAYOUT	PC-5008113-0-0			
37	TABLE ASSY	E-AD-7005958-0-0			
	TABLE ASSY (PL)	A-PL-7005158-0-0			
	TOP, TABLE	D-IA-7406836-0-0			
	FRAME, TABLE	E-IA-7406839-0-0			
38	FAN HOUSING ASSY	D-AD-7005983-0-0			
	FAN HOUSING ASSY (PL)	A-PL-7005983-0-0			
	CHASSIS, FAN HOUSING	E-IA-7407254-0-0			
	TERMINAL STRIP	C-IA-7405083-0-0			
	COVER, FAN HOUSING	D-MD-7406948-0-0			
	FAN DECALS	A-DC-7406899-0-0			
39	H951-TB NARROW DOOR	D-UA-H951-TB-0			
	H951-TB NARROW DOOR (PL)	A-PL-H951-TB-0			
	H951 DRAWING INDEX LIST	D-DI-H951-0-1			
40	H950-HB SHORT DOOR ASSY	D-UA-H950-HB-0			
	H950-HB SHORT DOOR ASSY (PL)	A-PL-H950-HB-0			
	H950 DRAWING INDEX LIST	D-DI-H950-0-1			
41	H951-BA- FULL LENGTH DOOR 30"	D-UA- H951-BA-0			
	H951-BA-FULL LENGTH DOOR 30" (PL)	A-PL-H951-BA-0			
	H951 DRAWING IND X LIST	D-DI-H951-0-1			
42	H952-A END PANEL	D-UA-H952-A-0			
	H952-A END PANEL (PL)	A-PL-H952-A-0			
	H952 DRAWING INDEX LIST	D-DI-H952-0-1			
43	H950-Q COVER PANEL (PL)	D-UA-H950-Q-0			
	H950-Q COVER PANEL (PL)	A-PL-H950-Q-0			
	H950 DRAWING INDEX LIST	D-DI-H950-0-1			
44	POWER SUPPLY 724	D-UA-724-0-0			
	POWER SUPPLY 724 (PL)	A-PL-724-0-0			
	724 POWER SUPPLY DECALS	B-DC-5308247-0-0			
	WIRE HARNESS 724 P.S.	E-IA-7006244-0-0			
	SCREEN,COVER	D-IA-5308206-0-0			
	CHASSIS, P.S.	E-IA-5308197-0-0			
	PLATE COVER TRANSFORMER	C-MD-5304562-0-0			
	COVER	B-MD-5304563-0-0			
	BRACKET HOLD DOWN	C-MD-5304561-0-0			
	CAUTION CHECK LABEL	A-DC-5308410-0-0			
	SPECS. 724 P.S.	A-SP-724-0-4			
45	UPPER MTG PANEL ASSY	D-AD-5408232-0-0			
	UPPER MTG PANEL ASSY (PL)	A-PL-5408232-0-0			
	UPPER MTG PANEL	E-IA-5308205-0-0			
46	HEAT SINK ASSY	D-AD-5408298-0-0			
	HEAT SINK ASSY (PL)	A-PL-5408298-0-0			
	INSULATOR, HEAT SINK	B-MD-5308300-0-0			
	HEAT SINK	C-SC-1209474-0-0			
47	CONN ASSY HEAT SINK	C-IA-5408291-0-0			
48	ETCH BOARD, HEAT SINK	C-IA-5008293-0-0			
	ASSY/DRILLING HOLE LAYOUT	C-AH-5408293-0-5			
	X-Y COORDINATE HOLE LOC	K-CO-5008294-0-4			

FIND NO	DESCRIPTION	DWG NUMBER	DEPT USAGE PROD	CUST	F/C
49	CONN, FILTER CAP	C-IA-5408292-0-0			
50	ETCH BOARD, FILTER CAP	C-IA-5008294-0-0			
	ASSY DRILLING HOLE LAYOUT	C-AH-5408292-0-5			
	X-Y COORDINATE HOLE LAYOUT	K-CO-5008294-0-4			
51	CABLE LOGIC POWER	D-IA-7006186-0-0			
52	POWER CONN G780	C-UA-G780-0-0			
	TAB FASTON	A-MD-7407196-0-0			
	INTERLOCK, POWER CONN	B-MD-7406958-0-0			
	ETCH BOARD	D-IA-5008253-0-0			
53	ANALOG PANEL ASSY	D-AD-7005964-0-0			
	ANALOG PANEL ASSY (PL)	A-PL-7005964-0-0			
	INSULATOR MICROSWITCH	B-MD-7407049-0-0			
	SWITCH ROTARY	B-MD-7407195-0-0			
	LOGIC DECAL	A-DC-7407193-0-0			
	G783 CABLE ASSY	C-IA-7006029-1-0			
54	ANALOG PANEL	D-IA-7406845-0-0			
	ANALOG PANEL SILK SCREEN	C-SS-7406845-0-1			
55	BASIC 4K MEMORY (EM12)	A-ML-EM12-0			
56	LOGIC ASSY MEMORY(EM12)	D-AD-7005979-0-0			
	LOGIC ASSY MEMORY (PL)	A-PL-7005979-0-0			
	288 PIN CONN BLOCK	E-SC-1205348-0-0			
	LOGIC FRAME DECALS	A-DC-7406370-0-0			
	LOGIC FRAME	D-IA-7407207-0-0			
57	MTG BAR ASSY	D-IA-7406100-0-0			
	MTG BAR	C-MD-7405035-0-0			
63	KW12 CONTROL PANEL	D-AD-7006335-0-0			
80	COLOR SCOPE CONTROL (VC12-C)	A-ML-VC12-C-0			
81	CRT DISPLAY (COLOR)	D-UA-VR2Ø-Ø-Ø			
	CRT DISPLAY (COLOR)	A-PL-VR2Ø-Ø-Ø			
	DRAWING INDEX LIST	D-DI-VR2Ø-Ø-1			

FIRST USED ON OPTION/MODEL
PDP12

QTY. | DESCRIPTION | PART NO. | ITEM NO.

PARTS LIST

REVISIONS | REV. | CHANGE NO. | CHK.

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

MATERIAL —

FINISH —

DRN.	J F Conroy	DATE 6/11/69
CHK'D.	Richard	DATE 7/15/69
ENG.	Gale	DATE 8/11/69
PROJ. ENG.	Gale	DATE 8/11/69
PROD.	Walt C	DATE 8/11/69

NEXT HIGHER ASSY

SCALE NONE

SHEET 4 OF 5

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
DRAWING INDEX LIST (PDP12)

SIZE D | CODE | NUMBER DD1 PDP12 - Ø - 1 | REV Y

DIST.

DEC FORM NO. DRD 100

SIZE D | CODE DD1 | NUMBER PDP12-Ø-1 | REV Y

MECHANICAL			DEPT USAGE		
FIND NO	DESCRIPTION	PART NO.	PROD	CUST	F C
59	PDP12 PROCESSOR (EPI2)	A-ML-EPI2-0			
60	LOGIC ASSEMBLY (EPI2) LOGIC ASSEMBLY (PL) 288 PIN CONN BLOCK LOGIC FRAME DECALS LOGIC FRAME	D-AD-7005976-0-0 A-PL-7005976-0-0 E-SC-1205348-1-0 A-DC-7406273-0-0 D-IA-7407207-0-0			
*62	REAL TIME CLOCK (KW12)	A-ML-KW12-0			
63	CLOCK CONTROL PANEL(KW12) CLOCK CONTROL PANEL SWITCH ROTARY	D-AD-7006335-0-0 A-PL-7006335-0-0 B-MD-7407540-0-0			
64	CLOCK CONTROL PANEL CLOCK CONTROL PANEL SCREEN	D-1A-7407414-0-0 D-SS-7407414-0-1			

ELECTRICAL			DEPT USAGE		
FIND NO	DESCRIPTION	PART NO.	PROD	CUST	F C
1	PDP 12 PDP12 CONFIGURATION POWER WIRING ~~SHIPPING & INSTALLATION SPEC~~ ACCEPTANCE SPEC SYSTEM SPEC HARDWARE KIT SPARE PARTS SOFTWARE KIT MANUAL TIMING FUNCTION PT1 MANUAL TIMING FUNCTION PT2 LINC FETCH 1A LINC FETCH 1B LINC FETCH 2 LINC DEFER LINC EXECUTE LINC EXECUTE LINC EXECUTE LINC EXECUTE EXECUTE 2 & INTERRUPT PDP-8 MODE FETCH PDP-8 MODE DEFER & EXECUTE BREAK	A-ML-PDP12-0 D-AR-PDP12-0-2 D-IC-PDP12-0-3 ~~A-SP-PDP12-8-4~~ A-SP-PDP12-0-5 A-SP-PDP12-0-6 A-AL-PDP12-0-7 A-SP-PDP12-0-8 A-SL-PDP12-0-9 D-FD-PDP12-0-10 D-FD-PDP12-0-11 D-FD-PDP12-0-12 D-FD-PDP12-0-13 D-FD-PDP12-0-14 D-FD-PDP12-0-15 D-FD-PDP12-0-16 D-FD-PDP12-0-17 D-FD-PDP12-0-18 D-FD-PDP12-0-19 D-FD-PDP12-0-20 D-FD-PDP12-0-21 D-FD-PDP12-0-22 D-FD-PDP12-0-23			
2	A-D CONVERTER A-D CONVERTER YADA CHAN 10-17 YADB CHAN 20-37 YADC A-D CONTROL	A-ML-AD12-0 D-BS-AD12-0-YAD D-BS-AD12-0-YADA D-BS-AD12-0-YADB D-BS-AD12-0-YADC			
*3	EXPANDED A-D	A-ML-AM12-0			
4	ADDITIONAL PREAMPS	A-ML-AG12-0			
4	KNOB/PREAMPS	A-ML-AG12-A			
6	RELAY BUFFER	A-ML-DR12-0			
7	RELAY PANEL ASSY CIRCUIT SCHEMATIC	D-AD-7005963-0-0 C-CS-7005963-0-1			
9	ETCH BOARD ASSY CIRCUIT SCHEMATIC	C-1A-5408124-0-0 C-CS-5408124-0-1			
12	LINC SCOPE CONTROL LINC-8 SCOPE DISPLAY DIS INTENSITY REGULATOR DSC DISPLAY CONTROL DSX HORIZONTAL D-A DSY VERTICAL D-A DISPLAY INT REG	A-ML-VC12-0 D-FD-VC12-0-4 D-BS-VC12-0-DIS D-BS-VC12-0-DSC D-BS-VC12-0-DSX D-BS-VC12-0-DSY D-BS-VC12-0-DSI			
13	CRT DISPLAY CIRCUIT SCHEMATIC	A-ML-VR14-0 D-CS-VR14-0-1			
17	LINC TAPE CONTROL TAPE PROCESSOR MJR. ST. FLOW TAPE INST SETUP TIMING SEARCH TIMING BLOCK MODE READING BLOCK MODE WRITE BLOCK MODE CHECKING MARK TIMING INTERPROCESSOR SIGNALS TAPE CONTROL STATES TAPE EXTENDED OPERATIONS TAPE EXTENDED FIELDS TAPE GROUP COUNTER TAPE INSTRUCTION TAPE UNIT AND MOTION TAPE REG ENABLE CONTROL TAPE REG LOAD CONTROL TRANSPORT CONTROL TAPE DELAYS TAPE MAINT TAPE MAINT REG TAPE READERS-WRITERS LTRA BITS 0 & 1 LTRB BITS 2 & 3 LTRC BITS 4 & 5 LTRD BITS 6 & 7 LTRE BITS 8 & 9 LTRF BITS 10 & 11 TAPE STATES TAPE TIME PULSES TAPE MARK WINDOW	A-ML-TC12-0 D-FD-TC12-0-10 D-FD-TC12-0-11 D-FD-TC12-0-12 D-FD-TC12-0-13 D-FD-TC12-0-14 D-FD-TC12-0-15 D-FD-TC12-0-16 D-BS-TC12-0-LIP D-BS-TC12-0-LCS D-BS-TC12-0-LCX D-BS-TC12-0-LCXF D-BS-TC12-0-LGP D-BS-TC12-0-LIN D-BS-TC12-0-LWU D-BS-TC12-0-LRE D-BS-TC12-0-LRL D-BS-TC12-0-LTC D-BS-TC12-0-LTD D-BS-TC12-0-LTM D-BS-TC12-0-LTMR D-BS-TC12-0-LTR D-BS-TC12-0-LTRA D-BS-TC12-0-LTRB D-BS-TC12-0-LTRC D-BS-TC12-0-LTRD D-BS-TC12-0-LTRE D-BS-TC12-0-LTRF D-BS-TC12-0-LTS D-BS-TC12-0-LTT D-BS-TC12-0-LWN			

ELECTRICAL			DEPT USAGE		
FIND NO	DESCRIPTION	PART NO	PROD	CUST	F C
18	TAPE UNIT TU56 ~~TAPE UNIT 50 HZ~~	A-ML-TU56-0 ~~A-ML-TU55-1~~			
*19	READ & WRITE OPTION	A-ML-TC12-F			
31	SWITCH BOARD ASSY CIRCUIT SCHEMATIC	D-AD-5408112-0-0 D-CS-5408112-0-1			
35	LIGHT BOARD ASSY CIRCUIT SCHEMATIC	D-1A-5408114-0-0 D-CS-5408114-0-1			
38	FAN HOUSING ASSY	D-AD-7005983-0-0			
44	724 POWER SUPPLY CIRCUIT SCHEMATIC	D-UA-724-0-0 D-CS-724-0-1			
52	POWER CONN G780 CIRCUIT SCHEMATIC	C-UA-G780-0-0 B-CS-G780-0-1			
53	ANALOG PANEL ASSY CIRCUIT SCHEMATIC	D-AD-7005964-0-0 C-CS-7005964-0-1			
55	BASIC 4K MEMORY	A-ML-EM12-0			
	MODULE UTILIZATION RACK A-D MODULE UTILIZATION (PL) MODULE UTILIZATION RACK E-F MODULE UTILIZATION (PL) WIRE LIST POWER WIRE LIST MCS SENSE AMPS & INHIBIT DRIVERS X-AXIS SELECTION Y-AXIS SELECTION MEMORY CONTROL INTER PROC CABLES	D-MU-EM12-0-1 A-PL-EM12-0-1 D-MU-EM12-0-2 A-PL-EM12-0-2 K-WL-EM12-0-3 A-WL-EM12-0-4 D-BS-EM12-0-MCS D-BS-EM12-0-MCX D-BS-EM12-0-MCY D-BS-EM12-0-MCT D-BS-EM12-0-IPCM			
56	WIRED ASSY (EM12) WIRED ASSY PL	D-AD-7005979-0-0 A-PL-7005979-0-0			
59	PDP12 PROCESSOR MODULE UTILIZATION RACK ~~H-I~~ MODULE UTILIZATION (PL) ~~MODULE UTILIZATION RACK J-N~~ ~~MODULE UTILIZATION (PL)~~	A-ML-EP12-0 D-MU-EP12-0-1 A-PL-EP12-0-1 ~~D-MU-EP12-0-2~~ ~~A-PL-EP12-0-2~~			
	CONSOLE STARTS CONSOLE INDICATORS CENTRAL PROCESSOR RUN CENTRAL PROCESSOR STATES CP TIME STATES CENTRAL PROCESSOR TIME PULSES CONSOLE SWITCH INPUTS CARRY INSERTS FLOW & END SHIFT LINK LOGIC IO & EXT MEM CABLES INSTRUCTION REGISTER INSTRUCTIONS INPUT TO PART A I/O INPUT TO PART B I/O IO CONTROL & TIMING IO OUTPUT BUFFERS RELAY BUFFER INTER PROC CABLES MEM EXTN AC INPUTS MEM PAGE EXTN CONTROLS PROCESSOR MISC A PROCESSOR MISC B PRA PROCESSOR BITS 0 & 1 PRB PROCESSOR BITS 2 & 3 PRC PROCESSOR BITS 4 & 5 PRD PROCESSOR BITS 6 & 7 PRE PROCESSOR BITS 8 & 9 PRF PROCESSOR BITS 10 & 11 REGISTER CONTROL A REG IN ENABLE 2 REGISTER CONTROL C REG ENABLE 4 REG SHIFT & MQ INPUTS PROCESSOR REGISTER LOAD CONTROL SKIP FF & H BITS EP12 BITS MULQUOTIENT PROCESSOR REGISTOR GATING	D-BS-EP12-0-CST D-BS-EP12-0-CIN D-BS-EP12-0-CPR D-BS-EP12-0-CPS D-BS-EP12-0-CPT D-BS-EP12-0-CPTP D-BS-EP12-0-CSI D-BS-EP12-0-CYI D-BS-EP12-0-FLE D-BS-EP12-0-FLK D-BS-EP12-0-IOB D-BS-EP12-0-INR D-BS-EP12-0-INS D-BS-EP12-0-IOA D-BS-EP12-0-IOB D-BS-EP12-0-IOC D-BS-EP12-0-IOO D-BS-EP12-0-IOR D-BS-EP12-0-IPC D-BS-EP12-0-MEA D-BS-EP12-0-MPG D-BS-EP12-0-PWA D-BS-EP12-0-PMB D-BS-EP12-0-PRA D-BS-EP12-0-PRB D-BS-EP12-0-PRC D-BS-EP12-0-PRD D-BS-EP12-0-PRE D-BS-EP12-0-PRF D-BS-EP12-0-RCA D-BS-EP12-0-RCB D-BS-EP12-0-RCC D-BS-EP12-0-RCD D-BS-EP12-0-RCS D-BS-EP12-0-RCL D-BS-EP12-0-SKH D-BS-EP12-0-SKL D-BS-EP12-0-MQR D-BS-EP12-0-PRG			

ELECTRICAL			DEPT USAGE		
FIND NO	DESCRIPTION	PART NO.	PROD	CUST	F C
59 (CONT)	SET/RESTORE FIELDS SPECIAL LEVELS 1 TTI TELETYPE RECEIVER TTO TELETYPE TRANSMITTER WIRE LIST D.C. POWER PROCESSOR LOGIC	D-BS-EPI2-0-SRF D-BS-EPI2-0-SLA D-BS-EPI2-0-TTI D-BS-EPI2-0-TTO K-WL-EPI2-0-3 A-WL-EPI2-0-4			
60	WIRED ASSY(EPI2)	D-AD-7005976-0-0			
* 61	WIRED ASSY(PL) PLOTTER CONTROL (XY12)	A-PL-7005976-0-0 A-ML-XY12-0			
62*	CLOCK (KW12-A)	A-ML-KW12-0			
* 63	CLOCK CONTROL CIRCUIT SCHEMATIC	D-CS-7006335-0-1			
* 65	EXT MEMORY CONTROL (MC12)	A-ML-MC12-0			
* 66	ADDITIONAL 4K MEMORY (MM8I A)	A-ML-MM8I A-0			
* 67	ARITHMETIC OPERATION (KE12)	A-ML-KE12-0			
* 68	PWR FAIL RESTART (KP12)	A-ML-KP12-0			
* 69	TTY DATAPHONE (DP12-A)	A-ML-DP12-A			
* 70	TTY DATAPHONE (DP12-B)	A-ML-DP12-B			
* 71	TIME SHARING (KT12)	A-ML-KT12-0			
73	CLOCK (KW12-B)	A-ML-KW12-0			
74	CLOCK (KW12-C)	A-ML-KW12-0			
* 75	AUTOMATIC PRIORITY INTERRUPT	A-ML-KF12-0			
* 76	DATA BREAK MULTIPLEXER	A-ML-DM12-0			
* 77	FLOATING POINT PROCESSOR	A-ML-FPP12-0			
* 78	I/O ACCESS PANEL H309	A-ML-H309-0			
* 79	ANALYTICAL INSTRUMENTATION - PACKAGE	A-ML-AIP12-0			
80	COLOR DISPLAY CONTROL	A-ML-VC12-C-			
81	COLOR DISPLAY	A-ML-VR20-0			
82	611/601 SCOPE CONTROL	A-ML-VC12-S			

REVISIONS			
REV	CHANGE NO.	CHK	

FIRST USED ON OPTION MODEL: PDP12

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN.	J. Fleming	DATE 1-13-69
CHK'D.	[illegible]	DATE 2/24/69
ENG.	L. Gale	DATE 3/11/69
PROJ. ENG.	L. Gale	DATE 3/11/69
PROD.	[illegible]	DATE 3/18/69

NEXT HIGHER ASSY.

SCALE NONE

SHEET 5 OF 8

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

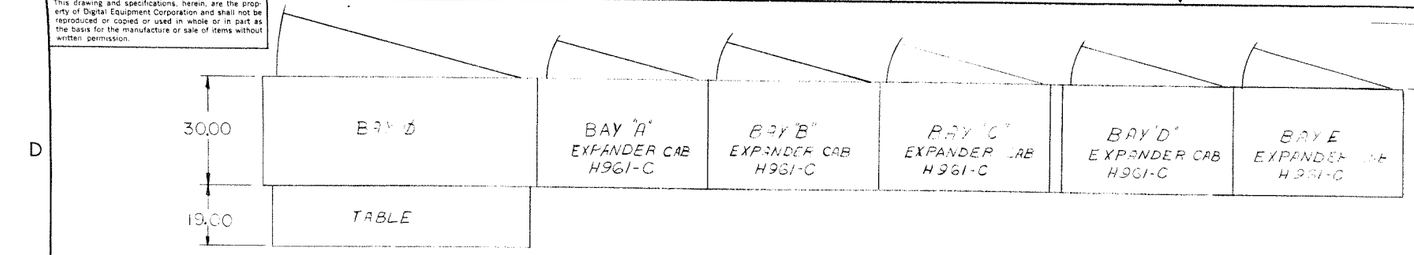
TITLE: DRAWING INDEX LIST (PDP 12)

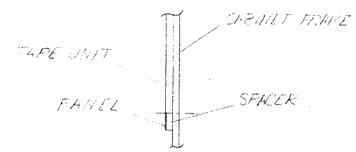
SIZE D | CODE DDI | NUMBER PDP12-0-1 | REV Y

DIST.

DEC FORM NO. DRD 100

SIZE D | CODE DDI | NUMBER PDP12-0-1 | REV Y

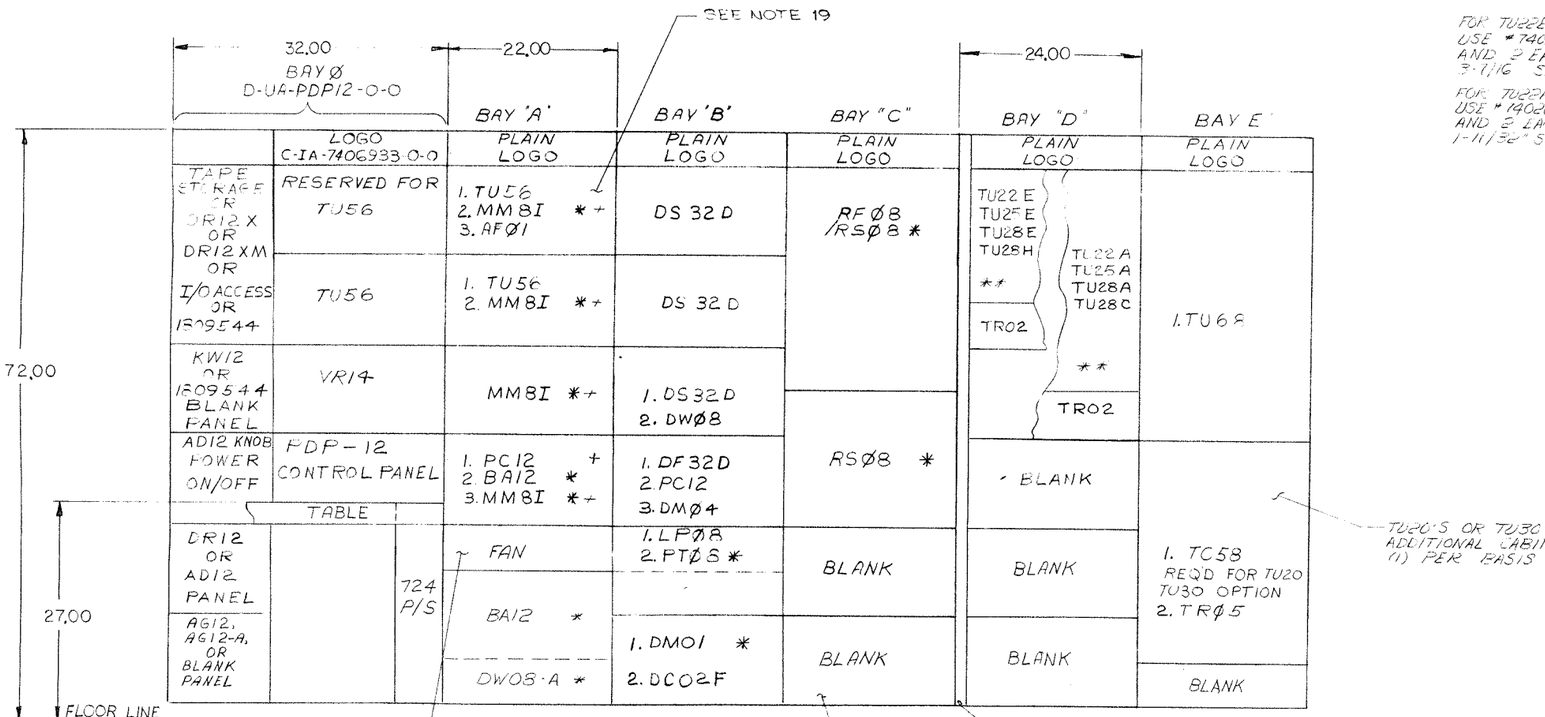




DETAIL A

FOR TU22E TU25E TU28E OR TU28H USE "7402015 3-7/16" PANEL AND 2 EACH "7406676-2-0 3-7/16" STANDOFF (SPACER)

FOR TU22A, TU25A, TU28A OR TU28C USE "7402025 1-11/32" PANEL AND 2 EACH "7406676-1-0 1-11/32" STANDOFF (SPACER)



FRONT VIEW

SEE NOTE 19

FILLER STRIP (C-MD-7407470-0-0) REQ'D WHEN USING TU22/25/28/58/68 OPTIONS.

SEE NOTE #3

TU20'S OR TU30'S REQUIRE ADDITIONAL CABINETS ON A (1) PER BASIS

NOTES:

COVER PANELS AND DOORS

1. IF OPTION IS NOT REQUIRED IN PRIORITY AREA OR BLANK IS LISTED FOR CAB 'A' THRU 'D' USE PANEL H950-QA
2. * ASTERISK DESIGNATES OPTIONS THAT REQUIRE H950-QA COVER PANEL
3. A MAXIMUM OF (2) RS08 OPTIONS AND (1) RF08 OPTION CAN BE USED PER CABINET
4. TC58 OR DF/DS 32 OPTIONS IN ANY EXPANDER BAY REQUIRE "[illegible]-0-0 DOOR

CABLING AND OPTION PLACEMENT CONSIDERATIONS

5. I/O CABLES TO MM8I OPTION TO BE KEPT AS SHORT AS POSSIBLE
6. I/O CABLES SHOULD NOT CROSS OVER EACH OTHER. FOR CABLE LENGTHS AVAILABLE AND PREFERRED ROUTING SEE SHEET #3 DETAIL 'A'
7. PC12 OPTION SHOULD ALWAYS BE IMMEDIATELY ABOVE BA12 OPTION, ALSO CONVENIENT FOR THE OPERATOR.
8. DS32 SHOULD ALWAYS BE ABOVE DF32
9. TU56'S SHOULD ALWAYS BE MTD NEAR TOP OF OPTION BAYS FOR OPERATOR'S CONVENIENCE
10. SHOULD A CONFLICT OCCUR FOR A GIVEN OPTION LOCATION RELOCATE LOWER PRIORITY OPTION DIRECTLY ACROSS IN BAY 'B'

PWR CONTROL AND POWER SUPPLY PLACEMENT AND REQUIREMENT CONSIDERATIONS

11. PWR SUPPLIES ALWAYS MOUNT ON THE REAR PLENUM DOOR BUT MUST NOT BE ADJACENT TO DF/DS32 DISC OPTIONS.
12. A 734B VARIABLE PWR SUPPLY IS REQUIRED TO MARGIN THE DF/DS32 DISC OPTION.
13. A 783 P/S MUST BE DEDICATED TO THE DS/DF32 DISC SECTION.
14. ONE OR MORE 783 P/S WILL BE USED TO HANDLE OTHER OPTIONS IN BAY 'A'
15. AN 854 PWR CONTROL SEPARATE 20 AMP SERVICE (ON SAME PHASE AS COMPUTER) IS USED FOR THE FIRST OPTION CAB AND WILL HANDLE AS WELL OTHER BAYS
16. THE RS/RF08 AND MAG TAPE CABS WHICH ARE COMPLETELY DEFINED IN OTHER PRINT SETS USE THEIR OWN POWER CONTROL AND WILL REQUIRE SEPARATE 20 AMP SERVICES.

OTHER CONSIDERATIONS

17. A FULL LENGTH DOOR MAY BE USED ON THE FRONT OF AN OPTION CABINET WHICH IS COMPLETELY FILLED WITH LOGIC AND WITHOUT OPERATOR CONTROLS.
18. ALWAYS USE COVER PANELS FOR OPTION CABINETS WHICH MAY HAVE LOGIC ADDED AT A LATER TIME.
19. USE 7006315-1 OR 7005530-1 FAN ASSEMBLY FOR OPTION DESIGNATED BY SYSTEM LAYOUT.
20. USE (1) 5-1/4" "7005909 AC SERVICE RECEPTACLE ASSEMBLY FOR SYSTEMS HAVING MORE THAN 2 TTY'S.
21. ** DENOTES UNITS REQUIRING FILLER STRIPS. (SEE DETAIL A)
22. "GRAIN OF WHEAT" LAMPS, PN#3-8793, SHOULD BE USED FOR BLOWN FUSE DETERMINATION ON ALL OPTION BOXES. ONE LAMP ONLY NEED BE INSTALLED FROM THOSE AVAILABLE TO THE SYSTEM MUST BE MOUNTED TO BE VISIBLE AT ALL TIMES.

REVISIONS				
CHK.	CHANGE NO.	REV.		
[illegible]	12-00051	A	TO [illegible]	12/70
FV	12-00060	B	GALE	
D. MACKLIN	12-00079	C	S. Mack	3-3-70
FV	12-00088	D	D. MACKLIN	11-20-70
FV	12-00093	E	D. MACKLIN	11/17/70
SCALAN	1-2271	F	R. TRAFTON	11-22-71
RJ	1-CC043	G	Board of Changes	11-22-71
RJ	1-CC099	H	Drawing Release	2-7-72

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL	PDP12		
DO NOT SCALE DRAWING			
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES			
TOLERANCES	DECIMALS ± .005	FRACTIONS ± 1/64	ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓			
REMOVE BURRS AND BREAK SHARP CORNERS			
MATERIAL			
FINISH			

DRN.	R. Duffy	DATE 10-9-69
CHK'D	D. Kerr	DATE 10-15-69
ENG.	[illegible]	DATE 11-17-69
PROJ. ENG.	[illegible]	DATE 10-17-69
PROD.	[illegible]	DATE 10/17/69
NEXT HIGHER ASSY		
SCALE		
SHEET 1 OF 5		

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: EQUIPMENT LAYOUT (PDP12)

SIZE	CODE	NUMBER	REV.
D	AR	PDP12-Ø-2	H
DIST.			

SIZE D CODE AR NUMBER PDP12-Ø-2 REV H

DEC 1FORM NO. 1040 1170

BAY "E" | BAY "D" | BAY "C" | BAY "B" | BAY "A" | BAY "Ø"

BAY "E"	BAY "D"	BAY "C"	BAY "B"	BAY "A"	BAY "Ø"	
			PWR DIST PNL #7005909	PWR DIST PNL #7005909	BASIC 4K MEMORY EM12	FAN ASSY
					CENTRAL PROCESSOR EP12	FAN ASSY
				854 PWR CONT.		
783 P/S FOR TC58			734B P/S VARIABLE FOR RF/RS08	783 P/S		
			783 P/S	783 P/S		

REAR VIEW

BAY Ø (D-UA-PDP12-0-0) BAY "A" (H-961-C CAB)

	LOGO	LOGO
TAPE STORAGE OR DR12X OR DR12XM OR I/O ACCESS OR 1809544	RESERVED FOR TU56	DS32D
	TU56	DS 32D
KW12 OR 1809544 BLANK PANEL	VR14	DS 32D
AD12 KNOBS POWER ON/OFF	PDP-12 CONTROL PANEL	DF 32D
	TABLE	
DR12 AND AD12 PANEL	724 P/S	DW08-A
		BLANK
AG12, AG12A OR BLANK PANEL		BLANK

FRONT VIEW

\# 7005500 DOOR REQ'D.

BAY "A" | BAY Ø

BAY "A"	BAY Ø	
PWR DIST #7005909	MEMORY EM12	FAN ASSY
	PROCESSOR EP12	FAN ASSY
854 PWR CONT		
783 P/S		

REAR VIEW

DISK CONFIGURATION

BAY Ø (D-UA-PDP12-0-0) BAY "A" (H-961-C CAB)

	LOGO	LOGO
TAPE STORAGE OR DR12X OR DR12XM OR I/O ACCESS OR 1809544	BLANK	BLANK
	BLANK	AX08
KW12 OR 1809544 BLANK PANEL	BLANK	BLANK W/ COVER #9508-PA
		RM 503
AD12 KNOBS POWER ON/OFF	PDP-12 CONTROL PANEL	PC12
	TABLE	
DR12 OR AD12 PANEL	724 P/S	BA12 *
AG12, AG12A OR BLANK PANEL		DW08-A *
		BLANK

FRONT VIEW (LAB-8 CONFIGURATION)

(1) 783 P/S & 854 PWR CONT REQ'D ON BOTTOM OF REAR DOOR

REVISIONS	REV	CHANGE NO.	CHK

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL: PDP12

DO NOT SCALE DRAWING

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

MATERIAL

FINISH

		DATE
DRN.	D. Sisl	10-Apr
CHK'D.	A. Kotok	10-Apr
ENG.	J. G.	10 Apr
PROJ. ENG.	J. G.	10 Apr
PROD.	A. Cook	10 Apr

NEXT HIGHER ASSY

SCALE —

SHEET 2 OF 2

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

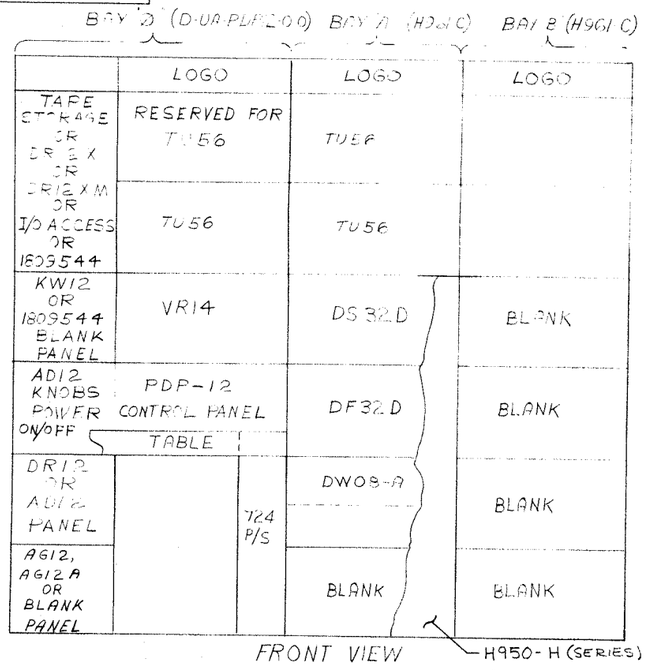
TITLE: EQUIPMENT LAYOUT PDP12

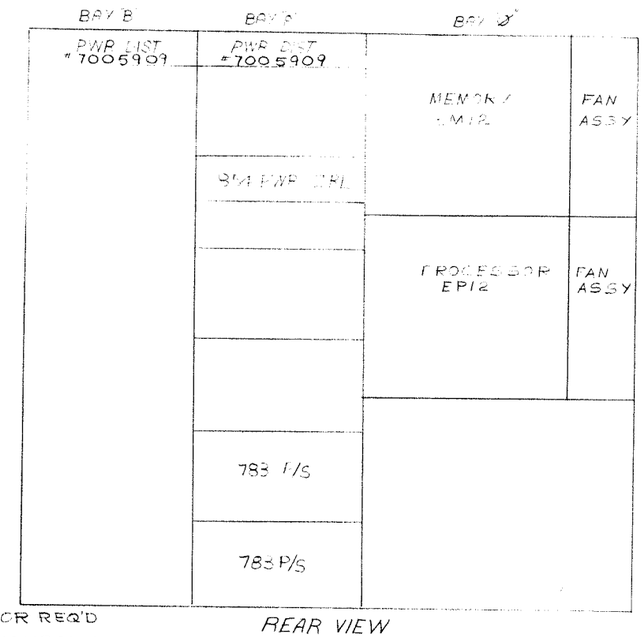
SIZE	CODE	NUMBER	REV.
D	AR	PDP12-0-2	H

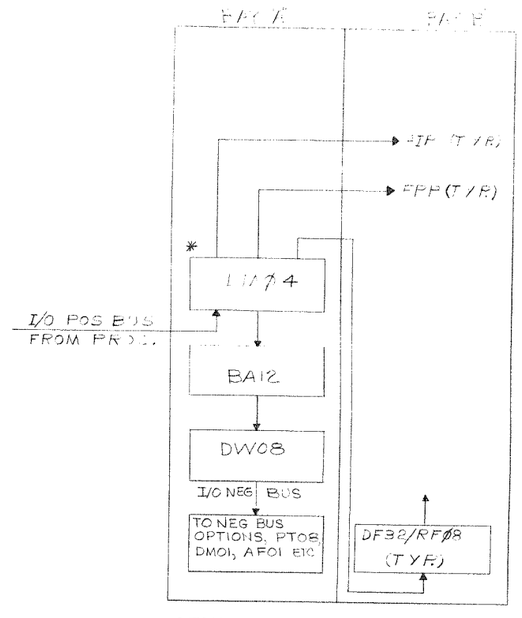
DIST.

DEC FORM NO. DRD 100

REV	NUMBER	SIZE	CODE
H	PDP12-0-2	D	AR



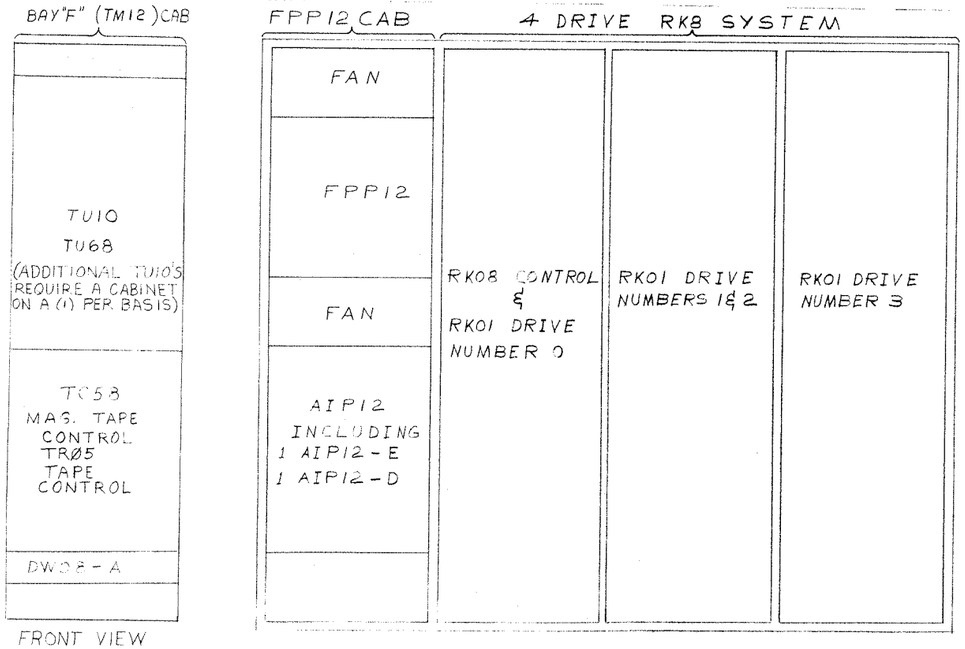




DETAIL OF PREFERRED I/O BUS ROUTING

DETAIL-A

* DM04 MAY BE REPLACED BY DM12 IF INSTALLED.



REVISIONS	REV.	CHANGE NO.	CHK

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL: PDP12

DO NOT SCALE DRAWING

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

MATERIAL

FINISH

NEXT HIGHER ASSY

DRN.		DATE 10-15-69
CHK'D.		DATE 10-15-69
ENG.		DATE 10/15/69
PROJ. ENG.		DATE 10/15/69
PROD.		DATE 10/15/69

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: EQUIPMENT LAYOUT PDP12

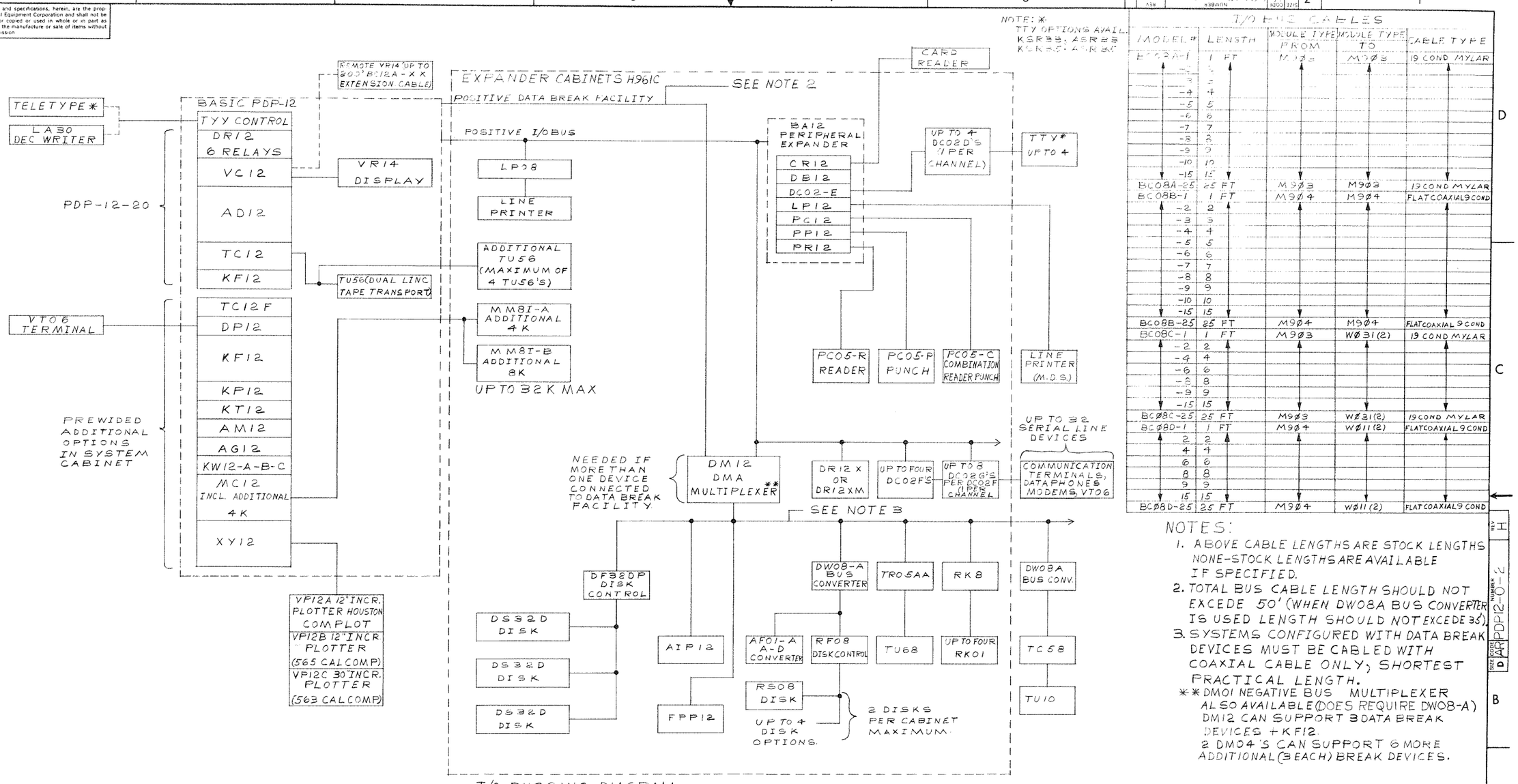
SIZE	CODE	NUMBER	REV.
D	A6	PDP12-Ø-2	H

SCALE

SHEET 3 OF 5

DIST.

DEC FORM NO. DRD. 100



I/O BUSSING DIAGRAM

NOTE: * TTY OPTIONS AVAIL. KSR33, ASR33 KSR35, ASR35

I/O BUS CABLES

MODEL #	LENGTH	MODULE TYPE FROM	MODULE TYPE TO	CABLE TYPE
BC08A-1	1 FT	M9Ø3	M9Ø3	19 COND MYLAR
-2	2			
-3	3			
-4	4			
-5	5			
-6	6			
-7	7			
-8	8			
-9	9			
-10	10			
-15	15			
BC08A-25	25 FT	M9Ø3	M9Ø3	19 COND MYLAR
BC08B-1	1 FT	M9Ø4	M9Ø4	FLAT COAXIAL 9 COND
-2	2			
-3	3			
-4	4			
-5	5			
-6	6			
-7	7			
-8	8			
-9	9			
-10	10			
-15	15			
BC08B-25	25 FT	M9Ø4	M9Ø4	FLAT COAXIAL 9 COND
BC08C-1	1 FT	M9Ø3	WØ31(2)	19 COND MYLAR
-2	2			
-4	4			
-6	6			
-8	8			
-9	9			
-15	15			
BC08C-25	25 FT	M9Ø3	WØ31(2)	19 COND MYLAR
BC08D-1	1 FT	M9Ø4	WØ11(2)	FLAT COAXIAL 9 COND
2	2			
4	4			
6	6			
8	8			
9	9			
15	15			
BC08D-25	25 FT	M9Ø4	WØ11(2)	FLAT COAXIAL 9 COND

NOTES:

1. ABOVE CABLE LENGTHS ARE STOCK LENGTHS NONE-STOCK LENGTHS ARE AVAILABLE IF SPECIFIED.
2. TOTAL BUS CABLE LENGTH SHOULD NOT EXCEDE 50' (WHEN DW08A BUS CONVERTER IS USED LENGTH SHOULD NOT EXCEDE 35').
3. SYSTEMS CONFIGURED WITH DATA BREAK DEVICES MUST BE CABLED WITH COAXIAL CABLE ONLY; SHORTEST PRACTICAL LENGTH.

** DMOI NEGATIVE BUS MULTIPLEXER ALSO AVAILABLE (DOES REQUIRE DW08-A) DM12 CAN SUPPORT 3 DATA BREAK DEVICES + KF12. 2 DM04'S CAN SUPPORT 6 MORE ADDITIONAL (3 EACH) BREAK DEVICES.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP12	PARTS LIST			

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS .XXX = .005 .XX = .02 X = .1 ANGLES ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL —
FINISH —

DRN. G GIANOULIS	DATE 10-10-65	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. K-RUSS	DATE 10-15-65	
ENG. L-GALE	DATE 10-17-65	
PROJ. ENG. L-GALE	DATE 10-17-65	
PROD. D-GALL	DATE 10-17-65	
NEXT HIGHER ASSY.		
SCALE —		
SHEET 4 OF 5		

TITLE: EQUIPMENT LAYCUT (PDP12)

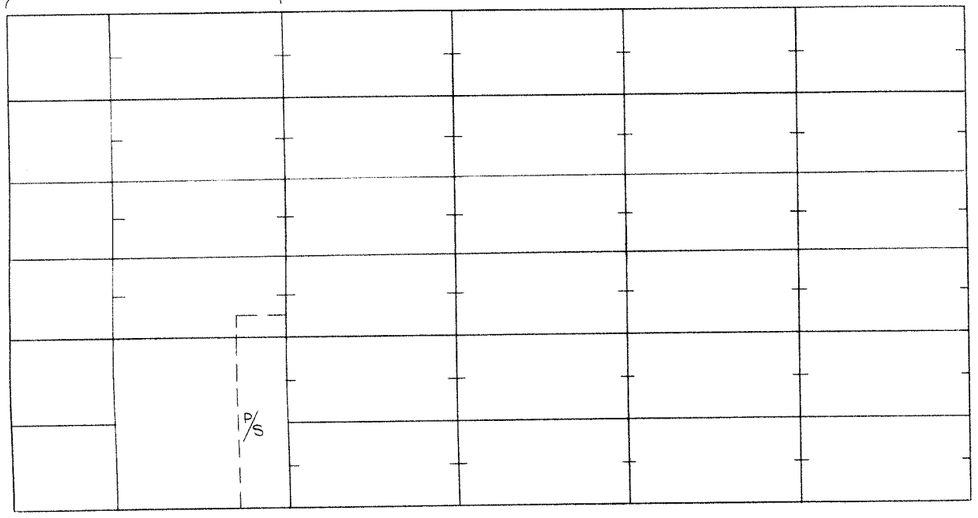
SIZE D | CODE AR | NUMBER PDP12-0-2 | REV. H | DIST. G

REVISIONS: REV | CHANGE NO | CHK

DEC FORM NO DRD 102-B

PDP12 | OPTION CABS H-961-C

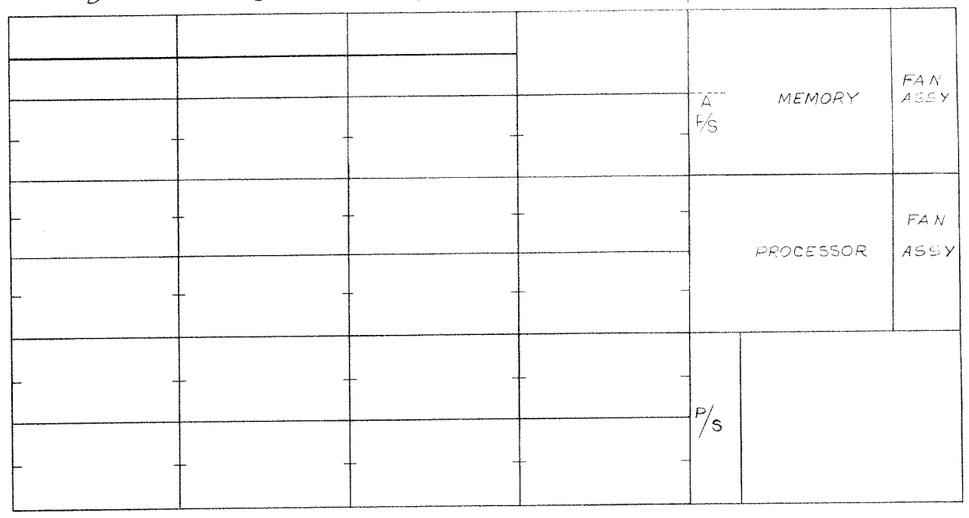
A B C D



FRONT VIEW

OPTION CABS | PDP12

D C B A



REAR VIEW

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL: PDP12

DO NOT SCALE DRAWING

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

MATERIAL

FINISH

DRN.	R. RIFFIN	DATE 10/16/69
CHK'D.	R. LU	DATE 10/16/69
ENG.	L. WOLF	DATE 10/16/69
PROJ. ENG.	L. WOLF	DATE 10/16/69
PROD.	D. CALL	DATE 10/16/69

NEXT HIGHER ASSY

SCALE

SHEET OF

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: EQUIPMENT LAYOUT PDP12

SIZE	CODE	NUMBER	REV.
D	AR	PDP12-Ø-2	H

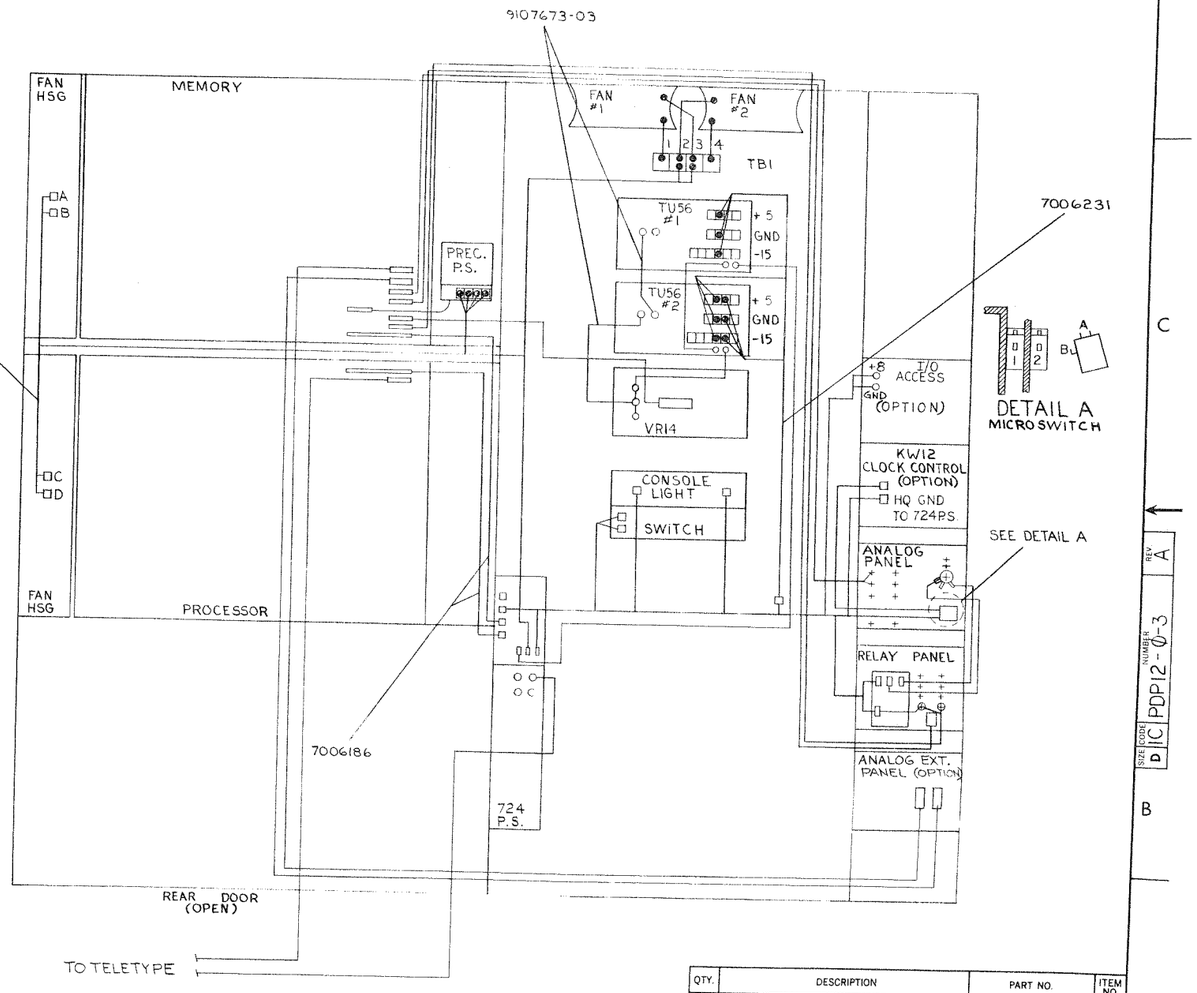
DIST.

POWER WIRING & CABLES

PART NO.	COLOR	FROM/HARNESS LEAD NO.	TO SYS. LOC.	REMARKS
7006038	—	P1	724 P S CONSOLE CONN	POWER CABLE D.C.
	—	P2	724 P S CONSOLE SWITCH	
	BLU	8	SW BD-15V TAB	
	BLU	9	SW BD-15V PANEL ID	
	BLK	10	LIGHT BD GND TAB	
	BLK	11	" " GND TAB	
	ORN	12	" " +15V TAB	
	ORN	13	" " +15V TAB	
	ORN	14	RELAY BD +15V TAB	
	BLK	15	RELAY BD GND TAB	
	WHT	16	MICRO SW. 2B(COM)	
	RED	17	" " 2A(N.O.)	
	BLU	19	" " 1A(N.O.)	
	BLU	19	" " 1B(COM)	
7006038	—	P3	LINC TAPE D.C.	POWER CABLE D.C.
			CABLE 7006231-P1	
7006231		P1	PWR CABLE D.C.	LINC TAPE D.C.
			7006038-P3	
	BLK	1	TU56 (2) GND	
	RED	2	" +5	
	BLU	3	" -15	
	RED	7	" (1) +5	
	BLU	8	" -15	
	BLK	9	" GND	
	BLU	10	(2) -15	
	RED	11	" +5	
7006231	BLK	12	" GND	LINC TAPE D.C.
7006037	—	P1	FAN HSG CONN B	MAIN FRAME 120 VAC
	—	P2	" " " A	
	—	P3	724 P'S 115 VAC AU.TA.	
	WHT	7	TB1 - 2	
	RED	8	TB1 - 3	
	WHT	9	PREC. P'S - WHT	
	RED	10	" " RED	
	WHT	11	" " WHT	
	RED	12	" " RED	
	—	P4	FAN HSG CONN D	
7006037	—	P5	" " " C	MAIN FRAME 120 VAC
7006186	—	724 P S MEMORY	LOGIC EF 40	LOGIC PWR CABLE
7006186	—	724 P S PROCESSOR	LOGIC MN 01	LOGIC PWR CABLE
REF	GRN	RELAY PANEL JAX	RELAY BD GND TAB	PANEL LEAD WIRE
REF	ORN	ANALOG PNL R10-1	RELAY BD SPKR #1	PANEL LEAD WIRE
REF	VIO	" R10-3	" " SPKR #3	PANEL LEAD WIRE
REF	—	PRECISION P'S	LOGIC E 35	LOGIC PWR CABLE
REF	BLK	FAN #1	TB1 - 1	
REF	BLK	FAN #1	TB1 - 3	
REF	BLK	FAN #2	TB1 - 2	
REF	BLK	FAN #2	TB1 - 4	
REF	—	TRIAD XMFR INPUT	724 P'S SERV. RECP.	240 VAC SYS. ONLY } SEE NOTE #1
1201265	—	TRIAD XMFR OUTPUT	TU55 (1) AC INPUT	240 VAC SYS. ONLY } SEE NOTE #1
9107673-03	GRY	TU55 (1) AC OUTPUT	TU55 (2) AC INPUT	
9107673-03	GRY	TU55(2) AC OUTPUT	VR12 AC INPUT	
1201265	—	724 P'S SERV RECP	TU55(1) AC INPUT	115 VAC SYS. ONLY } SEE NOTE #1
REF	RED	KW12 CLOCK PNL	MICRO SW 2A (N.O.)	PANEL LEAD WIRE
REF		TELETYPE	724 PS SERV RECP	POWER CORD
REF	WHT	KW12 PNL	724 P.S.	HQ GND

SIGNAL CABLE CONNS.

PART	FROM	TO	REMARKS
7006238	VR12 AMP CONN	LOGIC F 38	INTERNAL SCOPE CABLE
ANALOG PNL	ANALOG PANEL CHAN 0-7	LOGIC F 33	
RELAY PNL	RELAY PNL CHAN 10-17	LOGIC F 32	
RELAY PNL	RELAY PNL SCP CBL	LOGIC F 39	
REF	TU55(#1) - AB02	TU55(#2) AB02	INFO CONN
REF	TU55(#1) AB03	LOGIC EF06	" "
REF	TU55(#1) A05	TU55(#2) A05	COMMAND CONN
REF	TU55(#1) A06	LOGIC E05	" "
CONSOLE	CONSOLE SWITCHES	LOGIC N 33	
		N 34	
	CONSOLE SWITCHES	N 35	
	CONSOLE LIGHT BD	N 36	
		N 29	
		N 30	
		N 31	
CONSOLE	CONSOLE LIGHT BD	LOGIC N 32	
RELAY PNL	RELAY BOARD	LOGIC N 28	
REF	TELETYPE	LOGIC N02	
ANALOG EXT	ANALOG EXT CHAN 20-27	LOGIC F 31	OPTION
ANALOG EXT	ANALOG EXT CHAN 30-37	LOGIC F 30	OPTION



REVISIONS	REV.
CHANGE NO. 12-00093 SCANLAN 5-14-71	A

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

FIRST USED ON OPTION/MODEL: PDP12

DO NOT SCALE DRAWING

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

MATERIAL

FINISH

		DATE
DRN	A Kantha	6/27/69
CHK'D	R Rines	7/8/69
ENG	L Gale	8/11/69
PROJ. ENG	L Gale	8/11/69
PROD.	N Call Wiles	

NEXT HIGHER ASSY: C-UA-PDP12-0-√

SCALE: NONE

SHEET: OF

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: POWER WIRING & SIGNAL CABLES

SIZE	CODE	NUMBER	REV
D	IC	PDP12-0-3	A

DIST.

DEC FORM NO. DRD 100

MANUAL TIME PULSE FUNCTIONS

MANUAL FUNCTION TIMING CHAIN IS STARTED IF RUN = 0 "AND" ONE OF THESE KEYS ARE DEPRESSED OR RUN = 1 "AND" INTERNAL PAUSE = 1 "AND" IN PROGRES = 1 "AND" KEY I/O PRESET

MFT Ø

IO PRESET: Ø → SKIP; Ø → STATES; Ø → H

FILL + EXAM: Ø → SKIP; Ø → STATES; Ø → H

FILL STEP: Ø → SKIP; Ø → STATES; Ø → H

STEP EXAM: Ø → SKIP; Ø → STATFS; Ø → H

START 2Ø: Ø → SKIP; Ø → STATES; Ø → H

START 4ØØ: Ø → SKIP; Ø → STATES; Ø → H

START LSW: Ø → SKIP; Ø → STATES; Ø → H

CONT

DO: Ø → SKIP; Ø → STATES; Ø → H

MFT 1

I/O PRESET PULSE Ø → THE WORLD INCLUDING AC, LINK, FLOW, AUTO, ETC.

KEY LINC → SET LINC MODE

-KEY LINC → SET 8 MODE

1 → STEP EXAM FF

1 → A ENABLE

1 → AUTO FF IF AUTO SW ON

1 → FILL STEP

2Ø → PC

4ØØ → PC

LSW → PC

LSW Ø,1 → IB - IF Ø3,Ø4

IFSWØ -2 → IB, IFØ, 2

1 → A ENABLE

1 → AUTO FF IF AUTO SW ON

1 → DO FF

Ø → EN MEM

MFT 2

1 → IBØ3, IFØ3 DFØ3, DFØ4

1 → RUN

1 → RUN

1 → RUN

1 → RUN

PC → MA

1 → RUN

WAIT FURTHER CONSOLE ACTIONS

T1 FLOW 11

T1 FLOW 11

T1 FLOW 11

LINC MODE

8 MODE

LINC MODE FETCH FLOW 12

8 MODE FETCH FLOW 21

T1 FLOW 11

LINC MODE { PC 2-11 → MA 2-11; IF 3-4 → MA Ø-1

8 MODE PC Ø-11 → MA Ø-11

REVISIONS			
CHK	CHANGE NO.	REV.	
rcb	EP12-00003	A	T. Quilty 5-30-69 GALE
rcb	EP12-00004	B	L. GALE
rcb	EP12-00006	C	T. Quilty 7-23-69 GALE
rcb	EP12-00015	D	L. GALE
FV	12-00085	E	T. Quilty 9-23-70 GALE

PARTS LIST			
QTY.	DESCRIPTION	PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN	Joe Orria	DATE 9-24-68
CHK'D		DATE 2/16/69
ENG		DATE 2/17/69
PROJ. ENG.		DATE 2/19/69
PROD.	W. Gale	DATE 3/1/69

FIRST USED ON PDP-12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: MANUAL TIMING FUNCTIONS PART 1

SIZE D | CODE FD | NUMBER PDP12-Ø-10 | REV. E

DEC FORM NO. DRD 102A

START MEM
T1

STROBE
T2

T3

T4

T5

DO

PC → MA

MA → PC
Ø → IR

LSW → IR
LSW → MB

PERFORM INSTRUCTION
IF 2 WORD IN ST
DOES NOT START
MEM NEXT CYCLE, RSW → MB

Ø → RUN
Ø → DO FF

Ø → AUTO FF IF
AUTO KEY = Ø

AUTO RESTART DELAY

(AUTO FF=1
(AUTO+CO KEYS=1)

AUTO FF=Ø

AUTO RESTART
1 → DO FF
1 → RUN

T1
DO

FILL + EXAM

LSW → MA

*

FILL STEP

MA → MA

*

STEP EXAM

MA+1 → MA

*

Ø → IR

FILL + FILLSTEP

EXAM + STEP EXAM

RSW → MB

MEM → MB

FILL

FILLSTEP

AUTO FF(1)

AUTO FF(Ø)

1 → INT PAUSE

PAUSE
WAIT FOR RELEASE OF
KEY FILL STEP

Ø → INT. PAUSE

Ø → RUN
Ø → AUTO

WAIT FOR FURTHER
CONSOLE ACTION

Ø → FILL STEP FF
1 → STEP EXAM FF
SET STEP EXAM KEY
Ø → RUN
Ø → AUTO FF IF
AUTO KEY = Ø

AUTO FF (1)

AUTO FF (Ø)

AUTO RESTART DELAY

1 → RUN

TO T1
STEP EXAM

TO MFT Ø
STEP EXAM
FLOW 10

EXAM

STEPEXAM

Ø → RUN
Ø → AUTO

WAIT FOR FURTHER
CONSOLE ACTION

Ø → RUN
Ø → STEP EXAM

Ø → AUTO FF IF
AUTO KEY = Ø

AUTO(Ø)

AUTO(1)

AUTO RESTART DELAY

AUTO FF (Ø)

AUTO FF (1)

(AUTO KEY=1 * FILLSTEP)

(AUTO KEY=1 * STEP EXAM)

AUTO RESTART
1 → RUN
1 → FILLSTEP FF

TO T1
FILL STEP

AUTO RESTART
1 → RUN
1 → STEP EXAM FF

TO T1
STEP EXAM

LINC MODE { PC 2-11 → MA 2-11
IF 3-4 → MA Ø-1

8 MODE PC Ø-11 → MA Ø-11

* GNI IS DISABLED THEREFORE NO MAJOR STATE

REVISIONS			
CHK	CHANGE NO.	REV.	
[illegible]	EP12-00015	A	
John Horne 3-16-67	L. GALE 10-17-67	B	
FV	12-000085	C	
	GALE 2-28-70		

DEC FORM NO.
CPD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

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

MATERIAL

FINISH

DRN.	Joe Ogura	DATE 9-26-68
CHK'D.	[illegible]	DATE 2/12/69
ENGR.	[illegible]	DATE 2/14/69
PROJ. ENG.	[illegible]	DATE 2/14/69
PROD.	[illegible]	DATE 2/14/69

FIRST USED ON
PDP-12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
MANUAL TIMING
FUNCTIONS
PART 2

SIZE	CODE	NUMBER	REV.
D	FD	PDP12-Ø-11	B

DIST.

ENTER HERE FROM END OF PREVIOUS INSTRUCTION (GNI TRUE)

EVENT TIME

START MEM T 1

NOT BRK OR INT / BRK OR INT

DO FF = Ø: PC + SKIP → MA 2-11; IF 5-9 → MA Ø-1; 1 → FETCH

DO FF = 1: PC 2-11 → MA 2-11; IF 3-9 → MA Ø-1; 1 → FETCH

PROG / DATA

1 → INTERRUPT

3 CYCLE / NOT 3 CYCLE

1 → WC

NOT TAPE / TAPE

1 → BREAK

1 → TAPE BREAK

STROBE T 2

MA+1 → PC

Ø → IR

MA → PC

Ø → IR

T 3

MEM → MB
MEM → IR
Ø → SKIP
Ø → H

LSW → MB
LSW → IR

T 4

→ CONT

MSC

N = Ø-4 / N = 4-11 / N = 12-17 / LIF / LDF

T 5

N = Ø: Ø → RUN

N = 1: I=Ø AC → TAPE EXT REG; I=1 TAPE EXT REG → AC

N = 2: SELECT PDP-8 MODE

N = 3: I=Ø TAC → AC; I=1 TAC → TMA SETUP

N = 4, I = Ø	AC BIT	
	AC	AC BIT = 1 SET FF
	BIT	AC BIT = Ø CLEAR FF
	2	TRAP FLIP-FLOP
	3	TAPE TRAP
	4	HALF SIZE CHARACTER
	5	FAST SAMPLE
	6	DISABLE TELETYPE INTERRUPT
	7	GENERATE IO PWR CLEAR

N = 4, I = 1: CONTROL FLIP-FLOPS TO AC

N = 5: MQ N → AC N+1

N = 6: Ø → PC SAVE

N = 7:

N = 10:

N = 11: CLEAR → AC; CLEAR → LINK; CLEAR → MQ

N = 12:

N = 13:

N = 14: AC 6-11 → R Ø-5

N = 15: R Ø-5 → AC 6-11

N = 16: NO OPERATION

N = 17: $\overline{AC}$ → AC

LIF: MB Ø7-11 → IB ØØ-Ø4; Ø → INHIBIT SYNC

1 → INT INHIBIT LOAD SAVE FIELD

LDF: MB Ø7-11 → DF ØØ-Ø4

NEXT INSTRUCTION

▲ INDICATES 10 BIT ADDITION (BITS 2-11)

REVISIONS					
CHK	CHANGE NO.	REV			
[illegible]	EP12-00002	A	J. SCANLON	[illegible]	1/26/65
[illegible]	EP12-00003	B	T. Gauthier	5-30-69	
			GALE		
[illegible]	EP12-00015	C	L. GALE	8/68	
[illegible]	12-00085	D	T. Gauthier	9-23-70	
			GALE		

UNLESS OTHERWISE SPECIFIED			
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	DRN.	DATE 12/4/67
	CHK'D.	DATE 2/19/69
	ENG.	DATE 2/19/69
	PROD. ENG.	DATE 2/19/69
	PROD.	DATE 2/19/69
MATERIAL	FIRST USED ON PDP-12	
FINISH	SCALE	
	SHEET 1 OF 1	

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: LINC FETCH 1A

SIZE	CODE	NUMBER	REV.
D	FD	PDP12-Ø-12	D

DIST.

REV D

NUMBER PDP12-Ø-12

SIZE CODE D FD

DEC FORM NO. DRD 102A

SIZE	CODE	NUMBER	REV
D	FD	PDP12-Ø-13	E

EVENT TIME

START MEM T1

STROBE T2

T3

T4

T5

JMP • X ≠ Ø
JMP • X=Ø • SAVE PC (Ø)

FROM 1A

EOR
SCR
ROL

N=Ø | N≠Ø

1 → RECYCLE SYNC
1 → T5 RECYCLE *

SKL
SNS
SKP

I=Ø + COND MET
I=1 + NOT COND MET

1 → SKIP

JMP
X≠Ø
SAVE PC (1)

Ø → PC Ø-11

ADD, STC
DIS,
XSK

IBØ-4 → IFØ-4

Ø → INT INHIBIT
IF INHIBIT SYNC=1

N=Ø | N≠Ø

ROR | SCR | ROL

Ø → RECYCLE SYNC
ONE MORE T5
Ø → T5 RECYCLE

AC_N → AC_N-1
MQ → MQ_N-1
AC11 → MQØ

AC_N → AC_N-1
MQ → MQ_N-1
AC11 → MQØ
ACØ → ACØ

AC_N → AC_N+1

INCLUDE LINK IN SHIFT PATH IF IR7=1

(N-1) → N

NEXT INSTRUCTION

1 → EXECUTE

* OCCURS AT OFF PAUSE

REVISIONS				
	CHK	CHANGE NO.		REV.
J. SCANLON 1/2/68	mcB	EP12-00002		A
J. Scanlon 2/1/68	mcB	EP12-00003		B
T. Gwillim 5/21/69		GALE		
T. Gwillim 11/6/69	mcB	EP12-00016		C
T. Gwillim 11-14-69		GALE		
T. Gwillim 2-27-70	EV	EM12-00030		D
T. Gwillim 3-28-70	EV	IC-00085		E
		GALE		

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN.	Joe Orrico	DATE 10/4/68
CHK'D	D. Scanlon	DATE 2/1/69
ENG	T. Gwillim	DATE 2/1/69
PROJ ENG.	T. Gwillim	DATE 2/11/69
PROD.	Gale	DATE 3/4/69

FIRST USED ON
PDP-12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
LINC FETCH
1B

SIZE	CODE	NUMBER	REV.
D	FD	PDP12-Ø-13	E

DIST.

DEC FORM NO. DRD 102A

EVENT TIME

START MEM T1

STROBE T2

T3

FROM FETCH 1A

OPR

EXC NO INST

MTP

SET

[IR Ø2(1) * IR Ø,1 = (Ø)] (IB+HB)

SAM

T4

N = 16
N = 17
N = ØØ

TRAP EN (1)

TRAP EN (1)

TRAP EN (Ø)

TRAP EN(Ø)

1 → INT INH
Ø → INH SYNC

NOT SAM PAUSE

SAM PAUSE

1 → RECYCLE SYNC

1 → T5 RECYCLE*

T5

N=ØØ (IOT LINC MODE)

N=16

N=17

RSW → AC

LSW → AC

ENT TRAP(1) * ENT TRAP(1)

ENT TRAP(Ø) + ENT TRAP(Ø)

I=Ø

I=1

(I=1 * B=Ø)

NOT(I=1 * B=Ø)

RECYCLE UNTIL SAM IS COMPLETE

A-D BUFFER → AC

1 → EXECUTE

NEXT INSTRUCTION

1 → INTERRUPT

NEXT INSTRUCTION

1 → INTERRUPT

1 → EXECUTE (SEE TAPE TIMING)

1 → DEFER

1 → EXECUTE

1 → DEFER

NEXT INSTRUCTION

* OCCURS AT OFF PAUSE

REVISIONS			
CHK	CHANGE NO.	REV.	
DHS	EP12-00003	A	12-29-69 GALE
[illegible]	EP12-00015	B	[illegible] L. GALE
FV	12-00085	C	12-22-70 GALE

DEC FORM NO. DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN.	Joe Ogrosa	DATE 10-5-68
CHK'D	[illegible]	DATE 2/15/69
ENG.	[illegible]	DATE 2/14/69
PROD. ENG.	[illegible]	DATE 2/14/69
PROD.	[illegible]	DATE 2/14/69

FIRST USED ON
PDP-12

SCALE

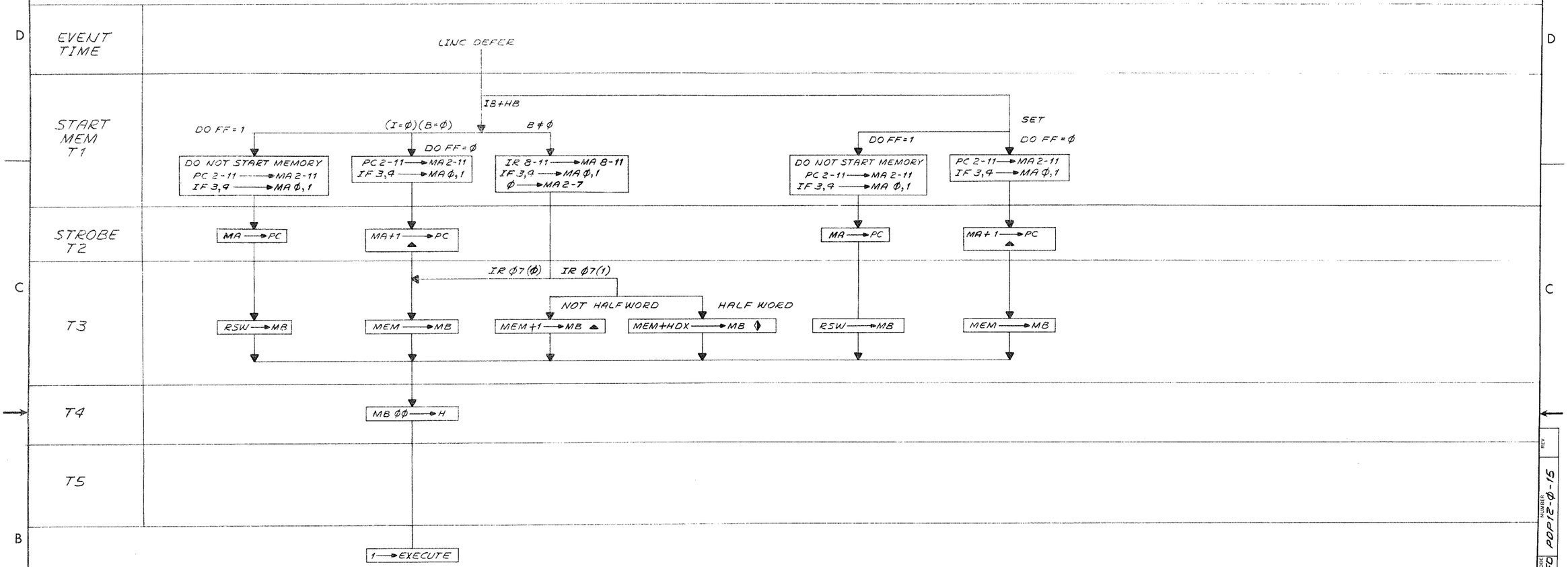
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
LINC FETCH 2

SIZE D | CODE FD | NUMBER PDP12-Ø-14 | REV. C

DIST.



▲ INDICATES 10 BIT ADDITION (BITS 2-11)
◆ HALF WORD INDEXING

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL

FINISH

DRN.	Joe Dura	DATE 24 Aug 68
CHK'D	D. Scanlon	DATE 2/10/69
ENG.	[illegible]	DATE 2/10/69
PROJ. ENG.	[illegible]	DATE 2/10/69
PROD.	[illegible]	DATE [illegible]

FIRST USED ON PDP-12

SCALE

SHEET OF

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: LINC DEFER

SIZE D | CODE FD | NUMBER PDP12-Ø-15 | REV

DIST.

REVISIONS: REV | CHANGE NO | DATE

EXECUTE

EVENT TIME

START MEM T1

IB + HB

I=1 * B=Ø
DO FF=Ø
PC 2-11 → MA 2-11
IF 3-4 → MA Ø-1

I=1 * E=1
LO FF=1
DO NOT START MEMORY

NOT(I=1 * B=Ø)
MB → MA 2-11

STROBE T2

MA+1 → PC

USE RSW INSTEAD OF MEM AT T3

LDA | STA | ADA | ADM | LAM | BCL BSE BCO SAE | CONT.

T3

MEM → MB | AC → MB | MEM → MB | Σ(MEM & AC) → MB → AC, OVERFLOW → FLO FF | Σ(LINK & MEM & AC) → MB → AC, CARRY → LINK, OVERFLOW → FLOW FF | MEM → MB

BCL | BSE | BCO | SAE

T4

MB → AC | Σ MB & AC → AC, OVERFLOW → FLO FF | MB BIT CLEAR → AC | MB BIT SET → AC | MB BIT CLEAR → AC, MB BIT SET → AC

T5

AC=MB THEN 1 → SKP

NEXT INSTRUCTION

▲ INDICATES 1Ø BIT ADDITION (BITS 2-11)

△ LINC INDIRECT ADDRESSING [MB 2-11 → MA 2-11 { MB Ø1=1 DF 3-4 → MA Ø-1 ; MB Ø1=Ø IF 3-4 → MA Ø-1 }]

REVISIONS			
REV.	CHANGE NO.	CHK.	
A	EP12-00003		T Quillin 5-29-69
B	12-00085	EV	GALE 6/20/69
			T Quillin 9/23/70
			GALE 9-25-70

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN. Joe Dyna DATE 9-SEPT 68
CHK. T Scanlan DATE 2/19/69
ENG. DATE
PROJ. ENG. DATE
PROD. DATE

FIRST USED ON PDP-12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: LINC EXECUTE

SIZE D | CODE FD | NUMBER PDP12-Ø-16 | REV. B

DIST.

FORM NO 102A

EXECUTE (CONT.)

EVENT TIME

START MEM T1

STROBE T2

T3

T4

T5

IB+HB (CONT.)

SRO

$MEM_N \rightarrow MB_{N-1}$

NEXT INSTRUCTION

LDH

$MEM \rightarrow MB$
$MEM \rightarrow AC$

H=Ø

$AC_R \rightarrow MB_L$
$MEM_R \rightarrow MB_R$

H=1

$AC_R \rightarrow MB_R$
$MEM_L \rightarrow MB_L$

H=Ø

$AC_L \rightarrow AC_R$
$Ø \rightarrow AC_L$

H=1

$AC_R \rightarrow AC_R$
$Ø \rightarrow AC_L$

IF MBØØ=Ø
1 → SKIP

STH

$MEM \rightarrow MB$

H=Ø

$AC_R \rightarrow AC_L$
$AC_L \rightarrow AC_R$

H=1

IF $AC_L \neq MB_L$ THEN
1 → SKIP

$AC_R \rightarrow AC_L$
$AC_L \rightarrow AC_R$

IF $AC_R \neq MB_R$ THEN
1 → SKIP

SHD

$MEM \rightarrow MB$

DSC

$MEM \rightarrow MB$

DISPLAY BUSY

1 → INT PAUSE

PAUSE
WAIT UNTIL PREVIOUS DISPLAY IS DONE

DISPLAY NOT BUSY

$MB \rightarrow$ INT REG
$AC \rightarrow$ VERT
$Ø \rightarrow$ VA7-1Ø
$1 \rightarrow$ HA9
$Ø \rightarrow$ HA1Ø

1 → EXECUTE 2

REVISIONS			
CHK	CHANGE NO.	REV.	
[illegible]	EP12-00003	A	[illegible] 7-21-71 GALE
FV	12-00085	B	[illegible] 9-20-70 GALE

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL

FINISH

DRN.	[illegible]	DATE 10/4/68
CHKD.	[illegible]	DATE 2/10/67
ENGR.	[illegible]	DATE 2/19/68
PROJ. ENG.	[illegible]	DATE 2/19/68
PROD.	[illegible]	DATE 2/19/68

FIRST USED ON
PDP-12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
LINC EXECUTE

SIZE	CODE	NUMBER	REV.
D	FD	PDP12-Ø-17	B

DIST.

DEC FORM NO. LPD 102A

EXECUTE

EVENT TIME

START MEM T1

STROBE T2

T3

T4

T5

ENTER

ADD STC

MB 2-11 → MA 2-11
IF 3,4 → MA Ø,1

JMP

Ø → MA 2-11
IF 3,4 → MA Ø,1

XSK DIS

IR 8-11 → MA 8-11
Ø → MA 2-7
IF 3,4 → MA Ø,1

SET

I=1 I=Ø

DO FF=Ø

DO NOT START MEMORY
PC 2-11 → MA 2-11

PC 2-11 → MA 2-11

MB → MA △

MTP IOT = [OPR * N = ØØ]

DO FF=(1) DO FF=(Ø)

DO NOT START MEMORY
PC 2-11 → MA 2-11

PC 2-11 → MA 2-11
IF 3,4 → MA Ø,1

ADD

STC

SAVE PC (1)

SAVE PC (Ø)

MA → PC

MA+1 → PC

MA 2-11 → PC 2-11

MA+1 → PC

MEM → MB

AC → MB

PC → MB
1 → MB Ø,1

MEM → MB

I=Ø I=1

MEM → MB

MEM+1 → MB

RSW → MB

MEM → MB

RSW → MB

MEM → MB

[OPR * N=ØØ] = IOB

MTP [OPR * N = ØØ] = IOB

XSK DIS

DISPLAY BUSY DISPLAY NOT BUSY

NO PAUSE (Ø) NO PAUSE (1)

1 → INT PAUSE

1 → INT PAUSE

RESTART WHEN DISPLAY IS FINISHED

MB+AC → AC

Ø → AC

QN BN → TAPE CONTROL
START TAPE EXECUTION

1 → IOT PAUSE

OVERFLOW → FLOW

1 → SAVE PC

IR 2-11 → PC 2-11
IF 3-4 → PC Ø,1
1 → INHIBIT SYNC

MB 2-11 = 1777
1 → SKP

MB Ø → CHANNEL
1 → ACTIVE
AC → VERT
MB → HORZ
1 → IN 11
Ø → VA 7-10
1 → HA 9
Ø → HA 10

RESTART ON COMMAND FROM TAPE CONTROL

NOT MTB MTB

TR → AC

IOT PAUSE

MB 11 (1) → IOP 1

MB 10 (1) → IOP 2

MB 09 (1) → IOP 4

Ø → IOT PAUSE

1 → TAPE BREAK

1 → EXECUTE 2

TO DISPLAY CONTROL FLOW DIAGRAM

NEXT INST

▲ INDICATES 1Ø BIT ADDITION (BITS 2-11)

△ INDICATES LINC INDIRECT ADDRESS MB 2-11 → MA 2-11 { IF MB Ø1 = 1 DF 3-4 → MA Ø-1 ; IF MB Ø1 = Ø IF 3-4 → MA Ø-1 }

REVISIONS	REV.	CHK.	CHANGE NO
	A		EP12-00002
	B		EP12-00003
	C	FV	12-00035

J. SCANLON 5/22/68
GATE 6/20/68
GATE 7/24/68

UNLESS OTHERWISE SPECIFIED			
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	DRN. Joe Sousa	DATE 10/4/67	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
	CHK.	DATE 2/18/69	
	ENG.	DATE 2/18/69	TITLE LINC EXECUTE
	PROJ. ENG.	DATE 2/18/69	
MATERIAL	PROD.	DATE 2/18/69	
FINISH	FIRST USED ON PDP 12		SIZE D CODE FD NUMBER PDP12-Ø-18 REV. C
	SCALE		DIST.
	SHEET 1 OF 1		

DEC FORM NO DPD 102A

SIZE D CODE FD NUMBER PDP12-Ø-18 REV C

START MEM T1

STROBE T2

MUL

T3

MEM → MB
Ø → N (IR 8-11)

T4

AC ØØ = Ø | AC ØØ = 1

AC → MQ
Ø → LINK

AC → MQ
1 → LINK

1 → RECYCLE SYNC

OFF PAUSE

1 → T5 RECYCLE

T5

MB → AC

N = 17 | AC ØØ = Ø | AC ØØ = 1

AC → MB
AC → AC
LINK → LINK

AC → MB
AC → AC
LINK → LINK

N = 16

Ø → AC

N ≠ 2 | MQ 11 = Ø | MQ 11 = 1

AC N → AC N-1

Σ AC+MB → AC N-1

N = 2 | H = 1 | H = Ø

AC → AC

MQ N → AC N+1

N = 1 | LINK = Ø | LINK = 1

AC → AC

AC → AC

Ø → RECYCLE SYNC

N = 1

Ø → T5 RECYCLE

NEXT INSTRUCTION

T5D

(N-1) → N

(N-1) → N

(N-1) → N

Σ AC 11 → MQ ØØ
MQ N → MQ N+1

(N-1) → N

(N-1) → N

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL

FINISH

		DATE
DRN.	Joe Harris	2/5/69
CHKD.	D Rosenfeld	2/5/69
ENG.	Eng.	2/5/69
PROJ. ENG.	Eng.	2/5/69
PROD.	M Cuff	2/5/69

FIRST USED ON: PDP-12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: LINC EXECUTE

SIZE	CODE	NUMBER	REV.
D	FD	PDP12-Ø-19	A

DIST.

REVISIONS	REV.
CHANGE NO.	A
CHK	FV

DRAWING NO. 1-D05E
SCALE None
DATE 9-22-70

DIGITAL FORM NO. 102A

EXECUTE 2

EVENT TIME

START MEM T1

DSC

1 → MA 2-11
IF 3-9 → MA Ø-1

SET

IR 8-11 → MA 8-11
Ø → MA 2-7
IF 3-9 → MA Ø-1

STROBE T2

SIZE (1) (FULL SIZE)

AC Ø-6 → AC Ø-6
$3Ø_8$ → AC 7-11

SIZE (Ø) (HALF SIZE)

AC Ø-7 → AC Ø-7
$1Ø_8$ → AC 8-11

T3

Σ MEM ξ $1Ø_8$ → MB

Σ MEM ξ $Ø_8$ → MB

T4

Ø → VB-11
MB → HORZ

T5

SIZE (Ø) SIZE (1) (FULL SIZE)

1 → HA 1Ø

1 → V7

1 → ACTIVE

TO DISPLAY CONTROL FLOW DIAGRAM

TO NEXT INSTRUCTION

TO NEXT INSTRUCTION

▲ INDICATES 1Ø BIT ADDITION (BITS 2-11)

INTERRUPT

DF * IF → SAVE FIELD BUFFER
Ø → DF, IF

PDP-8 MODE

Ø → MA
Ø → INT EN

LINC MODE

NOT TRAP

ØØØØ → MA
Ø → INT EN

TRAP

Ø1ØØ → MA
Ø → INT EN
Ø → TRAP

Ø → IA

PC + SKIP → MB

MA + 1 → PC

TO NEXT INSTRUCTION

▭ THESE FUNCTIONS OCCUR AT TPSD OF PREVIOUS CYCLE

REVISIONS				
CHK	CHANGE NO.	REV.		
CB	EP12-00015	A	L. GALE	10-17-69
FV	12-00085	B	T. Gallo	9-22-70

DEC FORM NO SPD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN	Joe Agosa	DATE 6 SEPT 68
CHK'D	G. Scanlon	DATE 2/19/69
ENG	[illegible]	DATE 2/19/69
PROJ. ENG.	[illegible]	DATE 2/19/69
PROD.	W. Call	DATE 2/19/69

FIRST USED ON PDP-12

SCALE

SHEET OF

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE

EXECUTE 2 & INTERRUPT

SIZE	CODE	NUMBER	REV.
D	FD	PDP12-Ø-2Ø	B

DIST.

REV B
NUMBER PDP12-Ø-2Ø
SIZE CODE D FD

START MEM T1

STROBE T2

T3

T4

T5

ENTER HERE FROM END OF PREVIOUS INSTRUCTION

NOT BREAK REQ

BREAK REQ

PROG

DATA

1→INTERRUPT

3 CYCLE

NOT 3 CYCLE

1→WC

NOT TAPE

TAPE

1→BREAK

1→TAPE BREAK

DO FF=Ø

DO FF=1

PC+SKIP→MA
1→FETCH

PC→MA
1→FETCH

MA+1→PC
Ø→IR

MA→PC

Ø→SKIP
MEM→MB
MEM→IR
Ø→H

LSW→MB
LSW→IR

AND
TAD
ISZ
DCA
JMS

JMP

OPR

IOT

IR Ø3=Ø

IR Ø3=1

IR 11=Ø

IR 11=1

EAE INST

*
1→IOT PAUSE

IR Ø3=Ø

IR Ø3=1

IR Ø4=1

IR Ø4=Ø

MB 5-11→PC 5-11
MA Ø-4→PC Ø-4

MB 5-11→PC 5-11
Ø→PC Ø-4

MB Ø4 MB Ø6
Ø Ø AC→AC
Ø 1 $\overline{AC}$→AC
1 Ø Ø→AC
1 1 AC+$\overline{AC}$→AC

MB Ø5 MB Ø7
Ø Ø L→L
Ø 1 $\overline{L}$→L
1 Ø Ø→L
1 1 L+$\overline{L}$→L

MB 11 (1)→CARRY IN

MB Ø6 * AC=Ø
+
MB Ø5 * AC Ø Ø=1
+
MB Ø7 * L=1
1→SKIP IN

MB Ø8=Ø
SKIP IN→SKIP

MB Ø8=1
$\overline{SKIP\ IN}$→SKIP

MB Ø9=1

MB Ø8=MB Ø9=Ø

MB Ø8=1

ROTATE AC & L LEFT 1

NO SHIFT

ROTATE AC & L RIGHT 1

MB 1Ø=Ø

MB 1Ø=1

MB 1Ø=1

ROTATE AC & L LEFT 1

NO SHIFT
AC→AC
L→L

ROTATE AC & L RIGHT 1

NO SHIFT
MB Ø4 MB Ø9
Ø Ø AC→AC
Ø 1 RS+AC→AC
1 Ø Ø→AC
1 1 RS→AC

MB 1Ø=1
Ø→RUN

IOT PAUSE

MB 11=1
IOP 1

MB 1Ø=1
IOP 2

MB Ø9=1
IOP 4

Ø→IOT PAUSE

EXECUTE

DEFER

FETCH

* OCCURS AT OFF PAUSE

REVISIONS

REV	CHANGE NO	CHK	
A	EP12-00002	J. SCANLON	9-24-70
B	12-00085		GALE 9-24-70

DEC FORM NO. DRD 102A

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

DRN. Joe Yoza DATE 8-7-68
CHK'D. J. Scanlon DATE 2/16/68
ENG. DATE
PROJ. ENG. DATE 2/19/69
PROD. DATE
FIRST USED ON PDP 12
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
PDP-8 MODE FETCH

SIZE D | CODE FD | NUMBER PDP12-Ø-21 | REV B

DIST.

REV B | SIZE D | CODE FD | NUMBER PDP12-Ø-21

DEFER

EXECUTE

START MEM T1

STROBE T2

T3

T4

T5

IR Ø4 = Ø

IR Ø4 = 1

MB 5-11 → MA 5-11
Ø → MA Ø-4

MB 5-11 → MA 5-11
MA Ø-4 → MA Ø-4

AUTO INDEX

NOT AUTO INDEX

MEM + 1 → MB

MEM → MB

JMP

NOT JMP

MB → PC

1 → FETCH

NEXT INST

1 → EXECUTE

FROM FETCH

FROM DEFER

IR Ø7 = Ø

IR Ø4 = 1

MB 5-11 → MA 5-11
Ø → MA Ø-4

MB 5-11 → MA 5-11
MA Ø-4 → MA Ø-4

MB → MA

AND
TAD

MEM → MB

ISZ

MEM + 1 → MB
CARRY → SKP

DCA

AC → MB

JMS

PC → MB

AND

TAD

AC, BCL → AC

Σ AC AND MB → L, AC

Ø → AC

MA + 1 → PC

$\overline{AC}$ → AC

1 → FETCH

NEXT INST

REVISIONS

REV	CHANGE NO	CHK	
A	EP12-COOL2	J. SCANLON	1/27/70
B	12-00085	T. Cudlip	9-23-70
		GALE	9/24/70

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN.	Joe Bryan	DATE 23 AUG 68
CHK'D	J. Scanlon	DATE 9/18/69
ENG.		DATE
PROJ. ENG.		DATE
PROD.	T. Cudlip	DATE 9-24-70

FIRST USED ON
PDP-12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
PDP 8 MODE DEFER & EXECUTE

SIZE	CODE	NUMBER	REV
D	FD	PDP12-Ø-22	B

DIST.

DEC FORM NO
DRD 102A

WORD COUNT

START MEM T1

DATA ACC → MA
EXT DA → BF Ø-2

STROBE T2

Ø → IR

T3

MEM+1 → MB
CARRY → WC OVERFLOW

T4

T5

1 → CA

CURRENT ADDRESS

MA+1 → MA

Ø → IR

INCREMENT CA

MEM+1 → MB

NOT INCREMENT CA

MEM → MB

1 → BREAK

BREAK

ENTER FROM CA

MB → MA

ENTER SINGLE CYCLE BREAK

DATA ADD → MA
EXT DA Ø-2 → BF Ø-2

Ø → IR

DATA OUT

MEM → MB

DATA IN

DATA IN → MB

INCR. MEM

MEM + 1 → MB
CARRY → WCO

NEXT INST

TAPE BREAK INTERRUPT

TAPE ADD → MA

Ø → TAPE BREAK RQST

Ø → IR

IN MEM

TMA+1 → TMA

TAPE BUF → MB

OUT MEM

MEM → MB

NO PAUSE (Ø)

1 → INT PAUSE

NO PAUSE (1)

NOT LAST WORD

PAUSE
WAIT FOR TAPE WORD

LAST WORD

*Ø → INT PAUSE

CHECKSUM → AC

TAPE BREAK

NEXT INST

* OCCURS AT OFF PAUSE

REVISIONS			
CHK	CHANGE NO.	REV.	
DCS	EP12-00009	A	8-22-69
DCS	EP12-00015	B	8-22-69
FV	12-00085	C	12-17-69

GALE 1-28-70

DEC 11BM NO
DEC 11DA

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

MATERIAL

FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

DRN.		DATE 23AUG68
CHK'D.		DATE 2/18/69
ENG.		DATE
PROJ. ENG.		DATE
PROD.		DATE

FIRST USED ON PDP-12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: BREAK

SIZE	CODE	NUMBER	REV
D	FD	PDP12-Ø-23	C

DIST.

MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
A-ML-PDP12-0	REF		PDP-12 SYSTEM
D-BS-EP12-0-CIN	D	1	CONSOLE INDICATORS
D-BS-EP12-0-CPR	H	1	CENTRAL PROCESSOR RUN
D-BS-EP12-0-CPS	R	1	CENTRAL PROCESSOR STATES
D-BS-EP12-0-CPT	E	1	CP TIME STATES
D-BS-EP12-0-CPTP	F	1	CENTRAL PROCESSOR TIME PULSES
D-BS-EP12-0-CSI	C	1	CONSOLE SWITCH INPUTS
D-BS-EP12-0-CST	K	1	CONSOLE STARTS
D-BS-EP12-0-CYI	B	1	CARRY INSERTS
D-BS-EP12-0-FLE	C	1	FLOW & END SHIFT
D-BS-EP12-0-FLK	D	1	LINK LOGIC
D-BS-EP12-0-ICB	H	1	IO & EXT MEM CABLES
D-BS-EP12-0-INR	C	1	INSTRUCTION REGISTER
D-BS-EP12-0-INS	H	1	INSTRUCTIONS
D-BS-EP12-0-IOA	A	1	IO INPUT PART A
D-BS-EP12-0-IOB	F	1	IO INPUT PART B
D-BS-EP12-0-IOC	H	1	IO CONTROL & TIMING
D-BS-EP12-0-IOO	A	L	IO OUTPUT BUFFERS
D-BS-EP12-0-IOR	B	1	RELAY BUFFER
D-BS-EP12-0-IPC	K	1	INTER PROC CABLES
D-BS-EP12-0-MEA	H	1	MEM EXTN AC INPUTS
D-BS-EP12-0-MPG	L	1	MEM PAGE EXTN CONTROLS
D-BS-EP12-0-MOR	B	1	MUL QUOTIENT
D-BS-EP12-0-PMA	B	1	PROCESSOR MISCELLANEOUS A
D-BS-EP12-0-PMB	A	1	PROCESSOR MISCELLANEOUS B
D-BS-EP12-0-PRA	D	1	PRA PROCESSOR BITS 0 & 1
D-BS-EP12-0-PRB	C	1	PRB PROCESSOR BITS 2 & 3
D-BS-EP12-0-PRC	C	1	PRC PROCESSOR BITS 4 & 5
D-BS-EP12-0-PRD	C	1	PRD PROCESSOR BITS 6 & 7
D-BS-EP12-0-PRE	C	1	PRE PROCESSOR BITS 8 & 9
D-BS-EP12-0-PRF	C	1	PRF PROCESSOR BITS 10 & 11
D-BS-EP12-0-PRG	B	1	PROCESSOR REGISTER GATING

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
AM	6/71	00040	D.M.
AN	6/71	00041	R.M.
AP	8/71	00042	R.M.
AR	10/71	00043	R.M.
AS	1/72	00044	R.M.
AT	2/72	00045	R.M.
AU	7/72	00046	R.I.

DRN. J. Aprea	DATE 030769	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D. R.Hutnak	DATE 030769		
ENG. L.Gale	DATE 031069	TITLE PDP-12 PROCESSOR	
PROJ. ENG. L.Gale	DATE 031069		
PROD. D. Call	DATE 031069		
FIRST USED ON PDP-12		SIZE A / CODE ML / NUMBER EP12-0 / REV. AU	
SCALE			
SHEET 1 OF 2		DIST.	

DEC FORM NO. DRA 103

MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
D-BS-EP12-0-RCA	A	1	REGISTER CONTROL A
D-BS-EP12-0-RCB	D	1	REGISTER CONTROL B
D-BS-EP12-0-RCC	B	1	REGISTER CONTROL C
D-BS-EP12-0-RCD	D	1	REGISTER CONTROL D
D-BS-EP12-0-RCL	H	1	PROCESSOR REGISTER LOAD CONTROL
D-BS-EP12-0-RCS	B	1	REG SHIFT & MO INPUTS
D-BS-EP12-0-SKH	D	1	SKIP FF & H BITS
D-BS-EP12-0-SKL	C	1	EP12 SKIPS
D-BS-EP12-0-SLA	A	1	SPECIAL LEVELS 1
D-BS-EP12-0-TTI	B	1	TTI TELETYPE RECEIVER
D-BS-EP12-0-TTO		1	TTO TELETYPE TRANSMITTER
D-BS-EP12-0-SRF	A	1	SET & RESTORE FIELDS
A-WL-EP12-0-4	B	3	DC POWER PROCESSOR LOGIC
K-WL-EP12-0-3	AC		WIRE LIST
D-MU-EP12-0-1	M	2	MODULE UTILIZATION PROC
A-PL-EP12-0-1	M	3	MODULE UTILIZATION PROC (PARTS LIST)
D-AD-7005976-0-0	M	1	WIRED ASSY CP & IO (EP12)
A-PL-7005976-0-0	M	1	WIRED ASSY PL CP & IO (EP12)

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.

DRN. J.Aprea	DATE 030769	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D. R.Hutnak	DATE 030769		
ENG. L.Gale	DATE 031069	TITLE PDP-12 PROCESSOR	
PROJ. ENG. L.Gale	DATE 031069		
PROD. D.Call	DATE 031069		
FIRST USED ON PDP-12		SIZE A / CODE ML / NUMBER EP12-0 / REV. AU	
SCALE			
SHEET 2 OF 2		DIST.	

DEC FORM NO. DRA 103

M900 N29

A1	MPG DF Ø4 (1)L
B1	PRB MA Ø3 (1)L
C1	IOR R Ø0 (1)L
D1	PRC PC Ø4 (1)L
E1	INR IR Ø4 (1)L
F1	IOR R Ø2 (1)L
H1	PRB PC Ø3 (1)L
J1	MPG DF Ø3 (1)L
K1	INR IR Ø7 (1)L
L1	IOR R Ø1 (1)L
M1	INR IR Ø8 (1)L
N1	INR IR Ø3 (1)L
P1	PRB MA Ø2 (1)L
R1	MXR IF Ø1 (1)L
S1	INR IR Ø1 (1)L
T1	
U1	
V1	

M900 N30

A1	PRF PC 1Ø (1)L
B1	PRE MA Ø9 (1)L
C1	LCS SEARCH (1)L
D1	PRF PC 11 (1)L
E1	PRF MA 1Ø (1)L
F1	CPS FETCH (1)L
H1	PRE PC Ø9 (1)L
J1	MQR MQ Ø0 (1)L
K1	CPS EXECUTE (1)L
L1	LCS IDLE (1)L
M1	CPS DEFER (1)L
N1	PRE MA Ø8 (1)L
P1	PRC PC Ø5 (1)L
R1	IOR R Ø4 (1)L
S1	PRD PC Ø6 (1)L
T1	
U1	
V1	

M900 N31

A1	PRC AC Ø5 (1)L
B1	PRC MB Ø4 (1)L
C1	LCX EX ADD FORMAT (1)L
D1	PRD AC Ø6 (1)L
E1	PRC MB Ø5 (1)L
F1	CPS BREAK (1)L
H1	PRC AC Ø4 (1)L
J1	MQR MQ Ø5 (1)L
K1	MQR MQ Ø7 (1)L
L1	MQR MQ Ø6 (1)L
M1	LCX NO PAUSE (1)L
N1	PRB MB Ø3 (1)L
P1	PRA MB Ø0 (1)L
R1	LCS CHK WRD (1)L
S1	FLK LINK (1)L
T1	
U1	
V1	

M900 N32

A1	IOC INT EN (1)L
B1	CPS EN TRAP (1)L
C1	LIN TINR 11 (1)L
D1	CPT INT PAUSE (1)L
E1	CPT IOT PAUSE (1)L
F1	CPR 8 MODE H
H1	PRF MB 11 (1)L
J1	MQR MQ 1Ø (1)L
K1	CST AUTO (1)L
L1	CPR RUN (1)L
M1	CPR L MODE H
N1	PRF AC 11 (1)L
P1	PRD MB Ø7 (1)L
R1	CPS T BREAK (1)L
S1	PRE MB Ø8 (1)L
T1	
U1	
V1	

M900 N29

A2	
B2	
C2	
D2	INR IR Ø0 (1)L
E2	PRB PC Ø2 (1)L
F2	MPG IF Ø3 (1)L
H2	PRA PC Ø0 (1)L
J2	MXR IF Ø2 (1)L
K2	MPG IF Ø4 (1)L
L2	PRA MA Ø0 (1)L
M2	PRA PC Ø1 (1)L
N2	INR IR Ø6 (1)L
P2	MXR DF Ø0 (1)L
R2	INR IR Ø2 (1)L
S2	MXR IF Ø0 (1)L
T2	PRA MA Ø1 (1)L
U2	MXR DF Ø2 (1)L
V2	MXR DF Ø1 (1)L

M900 N30

A2	
B2	
C2	
D2	PRD MA Ø7 (1)L
E2	PRE PC Ø8 (1)L
F2	MQR MQ Ø1 (1)L
H2	PRD PC Ø7 (1)L
J2	IOR R Ø3 (1)L
K2	MQR MQ Ø2 (1)L
L2	PRD MA Ø6 (1)L
M2	PRC MA Ø4 (1)L
N2	LCS BLOCK (1)L
P2	INR IR 11 (1)L
R2	PRC MA Ø5 (1)L
S2	IOR R Ø5 (1)L
T2	INR IR Ø5 (1)L
U2	INR IR Ø9 (1)L
V2	INR IR 1Ø (1)L

M900 N31

A2	
B2	
C2	
D2	PRB AC Ø2 (1)L
E2	PRB AC Ø3 (1)L
F2	LIP PROGRESS (1)L *
H2	PRA AC Ø1 (1)L
J2	CPS INTER (1)L
K2	CPS WC (1)L
L2	PRF MA 11 (1)L
M2	PRA MB Ø1 (1)L
N2	CPS CA (1)L
P2	MQR MQ Ø4 (1)L
R2	PRA AC Ø0 (1)L
S2	LCS TURN ARND (1)L
T2	PRB MB Ø2 (1)L
U2	MQR MQ Ø3 (1)L
V2	CPS EXC 2 (1)L

M900 N32

A2	
B2	
C2	
D2	PRF AC 1Ø (1)L
E2	PRF MB 1Ø (1)L
F2	LIN TINR 1Ø (1)L
H2	PRE MB Ø9 (1)L
J2	MQR MQ Ø8 (1)L
K2	FLE FLOW (1)L
L2	PRE AC Ø9 (1)L
M2	PRD MB Ø6 (1)L
N2	MQR MQ 11 (1)L
P2	MQR MQ Ø9 (1)L
R2	PRE AC Ø8 (1)L
S2	LIN TINR Ø9 (1)L
T2	PRD AC Ø7 (1)L
U2	LCX MARK (1)L
V2	SKH SKIP (1)L

*NOTE: THIS SIGNAL IS CONNECTED TO THE "IP" LIGHT ON THE CONSOLE LIGHT PANEL.

REVISIONS		
CHK	CHANGE NO.	REV.
JB	EP12-00001	A
	ADS	
	J SCANLAN 3/13/69	
NR	EP12-00015	B
	K COTE 10/14/69	
	J SCANLAN 10/17/69	
NR	EP12-00016	C
	K.COTE 11-12-69	
	J.SCANLAN 11-14-69	
TC	EP12-00023	D
	[illegible] 2-21-70	
	D Markin 7-2-70	

DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D. J BISONETTE	DATE 2/20/69		
ENG. L GALE	DATE 2/20/69	TITLE CONSOLE INDICATORS	
PROJ. ENG. L GALE	DATE 2/20/69		
PROD. D CALL	DATE 2/20/69		
FIRST USED ON EP12		SIZE D / CODE 85 / NUMBER EP12-Ø-CIN	REV. D
SCALE		SHEET 1 OF 1	DIST.

CSI IF SW Ø H L2 — M141 K38 — H2 CPR IF SW Ø L

CSI IF SW 1 H D2 — M141 K38 — F2 CPR IF SW 1 L

CSI IF SW 2 H E2 — M141 K39 — H2 CPR IF SW 2 L

CST MFTP2 L D1, -CSI KEY IO PRESET L E1 — M112 L10 — F1, D2, E2 — M112 L10 — F2 CPR SET RUN L

CST AUTO RESTART H

CST AUTO (Ø)H A1 — M112 L10 — C1 CPR HALT L

CPR L HALT L A1, CPR 8 HALT L B1 — M113 L09 — C1 — B1 — CPR HALT H

INS MSC H A1, INS N EQ ØØ H B1, CPS FETCH B (1)H C1 — M115 L08 — D1 CPR L HALT L

SLA OPR2 H E1, PRF MB 1Ø (1)H F1, CPS FETCH B (1)H H1 — M115 L08 — J1 CPR 8 HALT L

CST FILL STEP (1)L D2, CSI KEY SS L E2, CPR MATCH L F2, MCT PWR STOP L H2 — M117 K05 — J2

CPS GNI H A1, CST DO (1)H B1, LIP PROGRESS (Ø)H C1, CPT TS RECYCLE (Ø)H D1, E1, F1 — M160 K08 — R1

CPR ENABLE RUN H — U2

CSI (FILLS+EXAMS) H H1, CST MFTSØ H J1

CPR HALT H K1, TSS UF (Ø)H L1

LIP PROGRESS (Ø)H M1, CSI KEY STOP H N1, CPS GNI H P1

CPTP TPS H S2 — CPR RUN M216 L07 (D 1, C Ø) — T2, V2, V1, K2 — CST IO PRESET L

CPR IOT 6141 L

CPR SET MODE H D1, CSI KEY LINC H E1 — M113 L09 — F1

CPR IOT 6141 H

PRB MB Ø3 (Ø)H M1, PRC MB Ø4 (Ø)H N1, PRC MB Ø5 (1)H P1, PRD MB Ø6 (1)H R1, PRD MB Ø7 (Ø)H R2, INS N EQ Ø1 H S2, INS IOT H T2, +3V K10U1 H U2 — M119 K10 — V2 — N1 — M111 J09 — P1

CPTP TP1 H D2, E2 — M113 L09 — F2 — RES SET L MODE L J1

F1, H1, K1 — M617 K12 — L1 CPR L MODE H

CPTP TP1 H D2, INS MSC H E2, INS N EQ Ø2 H F2 — M115 K13 — H2 — RES SET 8 MODE L P1

M1, N1, P1, R1 — M617 K12 — S1 CPR 8 MODE H

MPG MEM EXTN PRESET L R1 — M111 M38 — S1 CPR SET MODE H

H2 — M113 L09 (-CSI KEY LINC H J2) — K2

CSI KEY F STOP H L1, CPS FETCH B (1)H M1 — M113 L09 — N1 — P1, R1 — M113 L09 — S1

CSI KEY E STOP H L2, CPS FETCH (Ø)H M2 — M113 L09 — N2

PRA ADDRESS MATCH Ø-1 H H1, PRB ADDRESS MATCH 2-3 H J1, PRC ADDRESS MATCH 4-5 H K1, PRD ADDRESS MATCH 6-7 H K2, PRE ADDRESS MATCH 8-9 H L2, PRF ADDR MATCH 1Ø-11 H M2, N2 — M119 K10 — F1 — P2 CPR MATCH L

CSI IF SW Ø H L1, -MXF EA Ø H M1 — M141 K39 — K1

CSI IF SW 1 H L2, -MXF EA 1 H M2

CSI IF SW 2 H U1, -MXF EA 2 H V1

-CPR IF SW Ø H U2, MXF EA Ø H V2 — M141 K38 — T2

-CPR IF SW 1 H U2, MXF EA 1 H V2 — M141 K39 — T2

-CPR IF SW 2 H U2, MXF EA 2 H V2 — M141 K40 — T2

REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
JB	EP12-00001	A	GH	EP12-00026	E
	ADS			S GOLDSBY 9/1/70	
	J SCANLAN 3/13/69			D MACKLIN 9/2/70	
	EP12-00003	B	GH	EP12-00036	F
	A WASHINGTON 6/17/69			R SOFKA 5-6-71	
	L GALE 6/20/69			J SCANLAN 5/20/71	
NR	EP12-00006	C		EP12-00014	H
	A WASHINGTON 8/8/69				
	L GALE 8/13/69				
NR	EP12-00016	D			
	K COTE 11/12/69				
	J SCANLAN 11/14/69				

DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D. V BISONETE	DATE 2/20/69		
ENG. L GALE	DATE 2/20/69	TITLE CENTRAL PROCESSOR RUN	
PROJ. ENG. L GALE	DATE 2/20/69		
PROD. D GALL	DATE 2/20/69		
FIRST USED ON EP12		SIZE D	CODE 85
SCALE		NUMBER EP12-Ø-CPR	REV. H
SHEET 1 OF 1		DIST.	

CPS DEFER (1)L → M617 J07 → P2 CPS DEFER B (1)H

CPS EXECUTE (1)L → M617 J07 → V2 CPS EXECUTE B (1)H

D1 → M111 K09 → E1 CPS FETCH SET H

CPS FETCH SET L

CPS INTERRUPT SET L → M111 K03 → F2 CPS INTERRUPT SET H

F1 → M111 K09 → H1 CPS TAPE SET H

+3V K03V1 H

-CPS INTERRUPT SET H
CPS GNI H
-CPS TAPE SET H
-CPS BREAK SET H
CPTP TP1 H → M117 K05 → E1

CPS FETCH M216 K06 (C1 → F1, B1 → E1, D1)

CPS DEFER M216 K06 (E2 → J2, D2 → H2, F2)

CPS EXECUTE M216 K06 (J1 → M1, H1 → L1, K1)

CPS EXC 2 M216 K06 (M2 → R2, L2 → P2, N2)

CPS INTER M216 K06 (P1 → U1, N1 → S1, R1)

CPS WC M216 K06 (T2 → V1, S2 → V2, U2)

CPS CA M216 K07 (C1 → F1, B1 → E1, D1)

CPS BREAK M216 K07 (M2 → F2, L2 → R2, K2)

CPS T BREAK M216 K07 (E2 → J2, D2 → H2, F2)

A1 → +3V K03U1 H

-CSI KEY CONT H
CST MFTP0 H
+3V K03U1 H
+3V K03U1 H
M617 J07 → L1
CPS CLR STATES L

CPS DEFER SET L

CPS EXC SET L

CPS EXC 2 SET L

CPS INTERRUPT SET L

CPS WORD COUNT SET L

CPS SET B FIELD H

-CPS 8(OPR+IOT) H
CPR 8 MODE H
INR IR Ø3 (1)H
CPS FETCH B (1)H
CPS FETCH B (1)H
INS LINC INDIR H
CPS FETCH (1)H
INR IR Ø7 B (Ø)H
INS SET H
M160 K08 → T2

-CPS GNI H
-CPS SPECIAL CYCLE H
-CPS EXC 2 SET H
M117 K05 → L1

CPS EXECUTE B (1)H
SLA (DSC+SET) H
M113 K03 → F1

CPS BREAK SYNC (1)H
M133 P03 → C1, D1
M611 P04 → E1, U2
CPS GNI H → T2
M113 K03 → V2
CPS BREAK SET L
CPS TRAP L

IOB 3 CYCLE H
M113 K03 → K1, H2
CPS CA (1)L → P1
M113 K03 → S1

CPS GNI H
CPS TAPE SYNC (1)H
CPS BREAK SYNC (Ø)H
M115 K13 → N1 CPS TAPE SET L

CPS GNI L → C1
M111 K09 → D2 CPS GNI H

INS TAPE TRAP L
INS NO INST L
M117 H35 → J2

INS LOPR H
-INS N EQ 17 H
-INS N EQ 16 H
-INS N EQ Ø0 H
M117 H35 → L1

CPS EN TRAP (1)H
CPTP TP4 H
M115 K04 → J1, L1

-IOC IO PRESET H
CPS INTER (Ø)H
M113 K03 → N1
M115 J05 → S2 CPS TRAP L
CPS TRAP H

-CPS BREAK SET H
-CPS TAPE SET H
CPS GNI H
M117 K05 → S1 CPS INTERRUPT SET L

CPS INT SYNC (1)L
M113 K03 → S2

A1 +3V J06U1 H

PRB AC Ø2 (1)L → E2
RCL LOAD MSC 4 H → D2
CPS EN TRAP M216 J12 → J2, H2

F2 CPT IO PRESET L

**CPTP TP5S H
IOC START IO TIME H
M112 J10 → S1
CPS CLOCK SYNC H → H1

CPS BSC M216 J29 (J1, L1, M1, C Ø)

SKH CLR SKIPS L → A1

+3V K03U1 H → A1

INS MSC H
INS N-2 H
M113 K22 → F1

-CPR IOT 6141 H
MPG INT INHIBIT (Ø)H
IOC INT DELAY (1)H
IOB INT REQ H
CPS FETCH SET H
+3V H26U1 H
M119 H26 → J2, J1
CPT TS1 (1)H → H1

M216 K07 (D 1, C Ø) → M1 CPS INT SYNC (1)H, L1 CPS INT SYNC (Ø)H, K1

IOC INT EN (Ø)L

IOB BREAK REQ H → P1
M216 K07 (D 1, C Ø) → S1 CPS BREAK SYNC (1)H, U1 CPS BREAK SYNC (Ø)H, K2

LIP TAPE BRK REQ (1)H → T2
CPTP OFF PAUSE H → S2
M216 K07 (D 1, C Ø) → V2 CPS TAPE SYNC (1)H, V1 CPS TAPE SYNC (Ø)H, K2

CPS CLR STATES L

-CPS EXC 2 SET H
-CPS DEFER SET H
M115 K04 → U1 CPS GNI L

***CPTP TP5S L
CPTP TP2 L
IOC START IO TIME L
M617 J21 → J2

CPS BRK SYNC CLK H

***CPTP TP5 L
IOC OFF SAMPLE L
M115 K04 → N1 CPS CLOCK SYNC H

CPS SPECIAL CYCLE H → H2
M111 K09 → J2 CPS SPECIAL CYCLE L

INR IR Ø0 (1)H
INR IR Ø1 (1)H
M113 K03 → C1

CPS 8(OPR+IOT) L
CPS FETCH B (1)H
CPR 8 MODE H
-INS 8 JMP H

CPS FETCH B (1)H
-SLA L 1 WORD FORMAT H

CPS DEFER (1)H
-INS 8 JMP H

M160 J11 → R1

CPS WC (1)L
CPS CA (1)L
M115 K04 → D1 CPS SPECIAL CYCLE H K1

CST(FILLS+EXIMFTSØ L

CPS FETCH B (1)H
EAEC LONG INST H

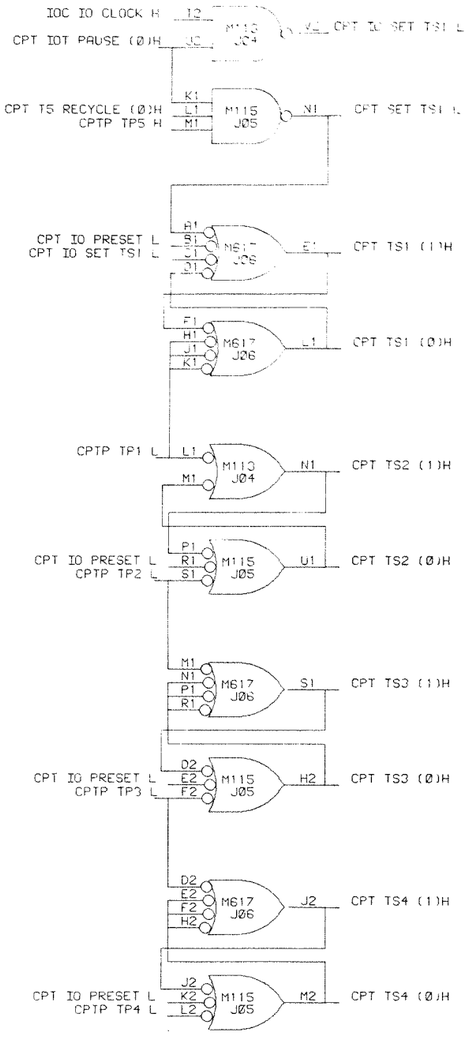
CPS FETCH (1)L
+3V J07U1 H
M617 J07 → J2 CPS FETCH B (1)H

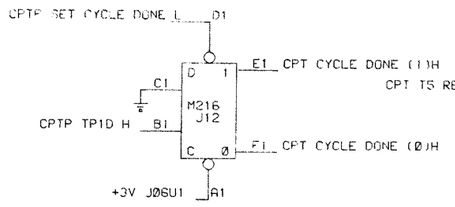
*NOTE: SKH CLR SKIPS L SERVES NO LOGICAL PURPOSE HERE EXCEPT FOR POWER CLEAR. THIS CLEARS COMMON WITH FLIP FLOP ON SKH PRINT.

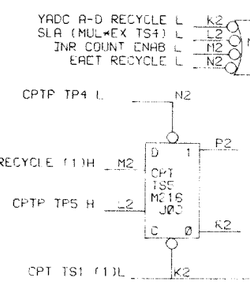
NOTE: PDP12'S WITH DMØI'S PERFORM THE FOLLOWING CHANGES:
** REPLACE WITH CPTP TP5H
*** REPLACE WITH CPTP TP5L
H05H2-J10P1 DEL
J10P1-J04K1 DEL
H05H2-J04K1 ADD
J04P1-J10P1 ADD
J21D2-H34K1 DEL
J21D2-J05E1 ADD
K04K1-J05H1 DEL
K04K1-L33B1 DEL
L33B1-J05H1 ADD
K14K1-J06D2 DEL

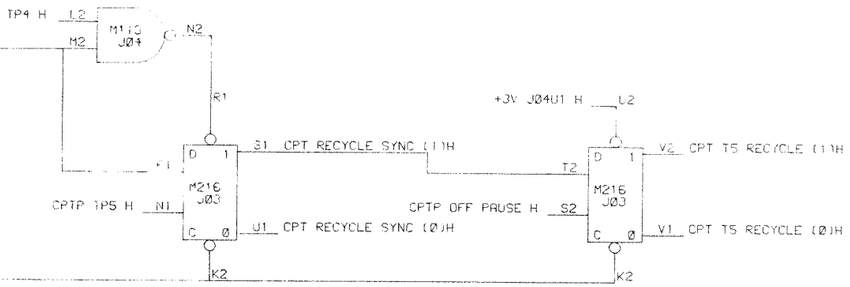
REVISIONS			REVISIONS			REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
JB	EP12-00001	A	NR	EP12-00007	E	GH	EP12-00026	K		EP12-00044	P
	ADS			A WASHINGTON 8/15/69			S. GOLDSBY 9-1-70				
	J SCANLAN 3/13/69			L GALE 8/20/69			D. MACKLIN 9-2-70				
	EP12-00002	B	NR	EP12-00009	F	GH	EP12-00030	L		EP12-00046	R
	A WASHINGTON 5/20/69			A WASHINGTON 8/20/69			K WALSH 11/18/70			IKITAIAN	
	J SCANLAN 5/22/69			L GALE 8/22/69			D MACKLIN 11/9/70				
	EP12-00004	C	FV	EP12-00021	H	JH	EP12-00036	M			
	A WASHINGTON 7/9/69			D SOUTHER 6/6/70			R.SOFKA 5-18-71				
				J SCANLAN 6/17/70			J.SCANLON 5-20-71				
NR	EP12-00006	D	TC	EP12-00023	J	GH	EP12-00037	N			
	A WASHINGTON 8/6/69			D SOUTHER 6/30/70			G.WYATT 5-28-71				
	J SCANLAN 8/20/69			D MACKLIN 7/2/70			J.SCANLAN 6-2-71				

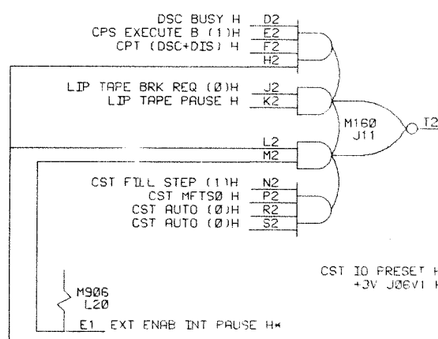
DRN D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D J BISONETE	DATE 2/20/69	
ENG L GALE	DATE 2/20/69	TITLE CENTRAL PROCESSOR STATES
PROJ. ENG L GALE	DATE 2/20/69	
PROD D CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D · CODE BS · NUMBER EP12-Ø-CPS · REV. R
SCALE		DIST.
SHEET 1 OF 1		

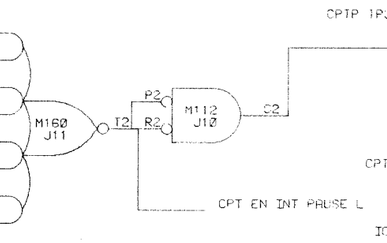


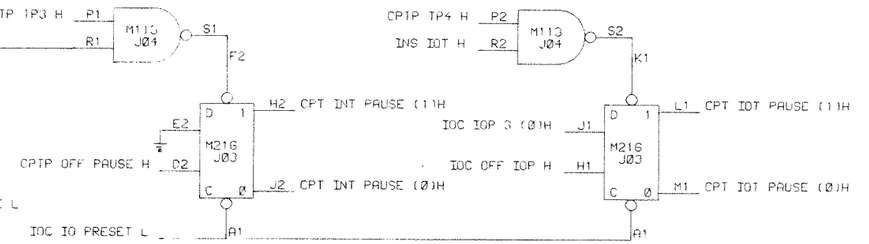


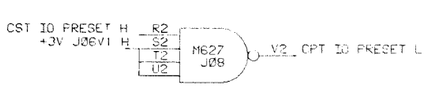


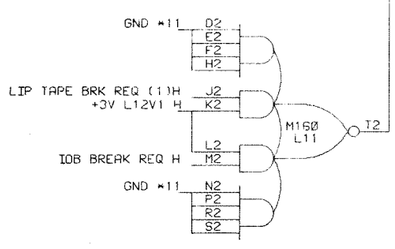


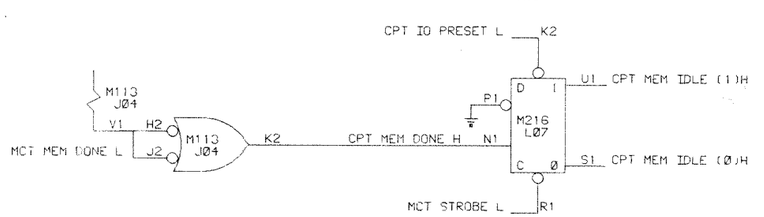


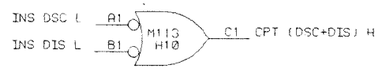












NOTE:
* THIS SIGNAL PERMITS AN I/O DEVICE TO PAUSE THE CPU IF GROUND WIRE IS REMOVED FROM N16V2. DATA BREAKS AND TAPE BREAKS ARE STILL PERMITTED.

REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
	EP12-00001	A	MH	EP12-00032	E
	ADS		K. ROSS 11/3/70		
	J. SCANLAN 6/2/69				
	EP12-00003	B			
	A.WASHINGTON 6/17/69				
	L. GALE 6/20/69				
FV	EP12-00021	C			
	D SOUTHER 6/15/70				
	J. SCANLAN 6/17/70				
GH	EP12-00026	D			
	S GOLDSBY 9/1/70				
	D MACKLIN 9/2/70				

DRN. D. SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D. J.BISONETE	DATE 2/20/69		
ENG. L. GALE	DATE 2/20/69	TITLE CP TIME STATES	
PROJ. ENG. L. GALE	DATE 2/20/69		
PROD. D. CHILL	DATE 2/20/69		
FIRST USED ON FP12		SIZE D	CODE AS
SCALE		NUMBER EP12-Ø-CPT	REV. E
SHEET 1 OF 1		DIST.	

*G718 H08
K2 H2 J2 J2 L2 M2 N2
CPT TS1 (1)H H2 M310 H05 V2 P2 R2 S2 T2 U2

CST MFTP2 H T2
U2 M112 J10 V2 CPTP SET CYCLE DONE L

E1 M310 H05 F1 CPTP SET CYCLE DONE H

CPTP TP2 H
C1 M111 J09 D2 CPTP TP2 L

CPTP TP1 L
CPR RUN (1)H K2
CPT CYCLE DONE (1)H L2
CPT MEM IDLE (1)H M2
CPT MEM IDLE (1)H N2
M617 L05 P2
D2 E2 F2 H2 M617 L05 J2 CPTP TP1 H

A1 CST EN MEM (1)L B1 M112 J10 C1 CPTP START MEMORY H
J1 M111 K09 K1 CPTP START MEMORY L

E1 M310 H06 F1 CPTP TP1D H
J2 K2 L2 M2 N2
CPTP TP1 H H2 M310 H06 V2 P2 R2 S2 T2 U2

M700 KL32 A7 (S)
MCT STROBE L F2
A1 B1 C1 D1 M617 J07 E1 H2

*G718 H08
N2 L2 M2 E1 M310 H07 F1 D1 M111 J09 E1 CPTP TP3 L
CPTP TP3 H

J2 K2 L2 M2 N2
M310 H07 V2 P2 R2 S2 T2 U2

*G718 H08
S2 P2 R2 H1 M310 H07 J1 E2 M111 J09 F2 CPTP TP4 L
CPTP TP4 H

CST EN MEM (0)H
D2 M113 J04 F2
H1 M310 H06 J1 E2

*G718 H08
F2 D2 E2 H1 M310 H05 J1 CPTP OFF PAUSE H

CPTP TP4 H S1
CPT INT PAUSE (0)H U1
CPT TS RECYCLE (1)H V1
CPTP TP5D H U2
M160 J11 V2

CPTP TP5S H
H1 M113 J04 K1 H2 M310 H09 V2
J1

*G718 H08
V2 T2 U2 H1 M310 H09 J1 CPTP TP5 H F1 M111 J03 H1 CPTP TP5 L

J2 K2 L2 M2 N2
P2 R2 S2 T2 U2

*G718 H08
C1 A1 B1 E1 M310 H09 F1 CPTP TP5D H

-CPT EN INT PAUSE H E1
CPT INT PAUSE (1)H F1
CPT TSS (1)H H1
M115 J05 J1

J1 M111 H04 K1 CPTP TP5S L

H1 M310 H03 J1 CPTP LTP5 H S2 M111 M38 T2 CPTP LTP5 L

NOTE:
BY TURNING G718 MODULE OVER THE SYSTEM WILL OPERATE APPROX 150 NSECS FASTER. THIS SPEED IS BEYOND GUARANTEED OPERATION BUT POTENTIALLY USEFUL FOR SPECIAL MAINTENANCE BROKEN LINES INDICATE CONNECTION WHEN MODULE IS INVERTED.

REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
	EP12-00002	A		EP12-00030	F
	A.WASHINGTON 5/20/69				
	J. SCANLAN 5/22/69				
NR	EP12-00007	C			
	A.WASHINGTON 8/15/69				
	L. GALE 3/20/69				
FV	EP12-00021	D			
	D. SOUTHER 6/15/70				
	J. SCANLAN 6/17/70				
GH	EP12-00026	E			
	S. GOLDSBY 9-1-70				
	D. MACKLIN 9-2-70				

DRN. D. SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D J. BISONETTE	DATE 2/20/69	TITLE CENTRAL PROSESSOR TIME PULSES
ENG. L. GALE	DATE 2/20/69	
PROJ. ENG. L. GALE	DATE 2/20/69	
PROD. D. CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D | CODE BS | NUMBER EP12-0-CPTP | REV. F
SCALE		
SHEET 1 OF 1		DIST.

CSI KEY FILL L K2
CSI KEY EXAM L L2
CSI KEY FILL STEP L M2
CSI KEY STEP EXAM L N2
M117 L39
P2
V1
M111 M40
U1 CSI (FILLS+EXAMS) L

CSI (FILLS+EXAMS) H

P2
CST MFTSØ H R2
M113 L40
S2 CSI (FILLS+EX)MFTSØ L

CSI KEY FILL STEP L L1
CSI(KEY STEP EXXMFTSØ) L M1
M113 L40
N1 CSI (KEY FS+SE) H

CST STEP EXAM (1)L L2
CST FILL STEP (1)L M2
M113 L40
N2 CSI (FILL+EX STEP) H

CSI KEY CONT L P1
CSI KEY DO L R1
M113 L40
S1 CSI KEY (DO+CONT) H E2
M111 M40
F2 CSI KEY (DO+CONT) L

CSI KEY E STOP H H1
CSI KEY F STOP H J1
M112 L38
K1 CSI KEY (E+F STOP) L

CSI KEY STOP L N1
M111 M38
P1 CSI KEY STOP H

CSI KEY ST 20 L T2
CSI KEY ST 400 L U2
CSI KEY ST LSW L V2
M115 K13
V1 CSI KEY STARTS H H2
M111 M40
J2 CSI KEY STARTS L

CSI KEY FILL L D2
CSI KEY EXAM L E2
M113 N40
F2 CSI (FILL+EXAM) H

CSI (FILLS+EX)MFTSØ L K2
M111 M38
L2 CSI (FILLS+EX)MFTSØ H

CSI KEY ST LSW L T2
CSI KEY IO PRESET L U2
M113 M08
V2 CSI KEYS CLEAR H

CSI KEY ST 20 L K2
M111 M40
L2 CSI KEY ST 20 H

CSI KEY F STOP L U2
M111 M38
V2 CSI KEY F STOP H

CSI KEY ST 400 L M2
M111 M40
N2 CSI KEY ST 400 H

CSI KEY DO L P2
M111 M40
R2 CSI KEY DO H

CSI KEY STEP EXAM IN L M2
M111 M38
N2 CSI KEY STEP EXAM IN H

CSI KEY FILL L A1
CSI KEY FILL STEP L B1
M113 N40
C1 CSI FILLS H

CSI KEY STEP EXAM IN L T2
CST STEP EXAM (1)L U2
M113 L40
V2
CSI KEY STEP EXAM H R1
M111 M40
S1 CSI KEY STEP EXAM L

H2
CST MFTSØ H J2
M113 N40
K2 CSI(KEY STEP EXXMFTSØ) L

CSI KEY LINC L A1
M111 M38
B1 CSI KEY LINC H

CSI KEY AUTO L C1
M111 M38
D2 CSI KEY AUTO H

CSI (FILL+EX STEP) H S2
M111 M40
T2 CSI (FILL+EX STEP) L

CSI KEY FILL STEP L D1
M111 M38
E1 CSI KEY FILL STEP H

CSI KEY ST LSW L U2
M111 M40
V2 CSI KEY ST LSW H

CSI KEY IO PRESET L J1
M111 M38
K1 CSI KEY IO PRESET H

G793 N33
G916 N37
M1 CSI LSW 10 H
L1 CSI LSW 09 H
K1 CSI LSW 08 H
J1 CSI LSW 07 H
H1 CSI LSW 06 H
F1 CSI LSW 05 H
E1 CSI LSW 04 H
D1 CSI LSW 03 H
C1 CSI LSW 02 H
B1 CSI LSW 01 H
A1 CSI LSW 00 H

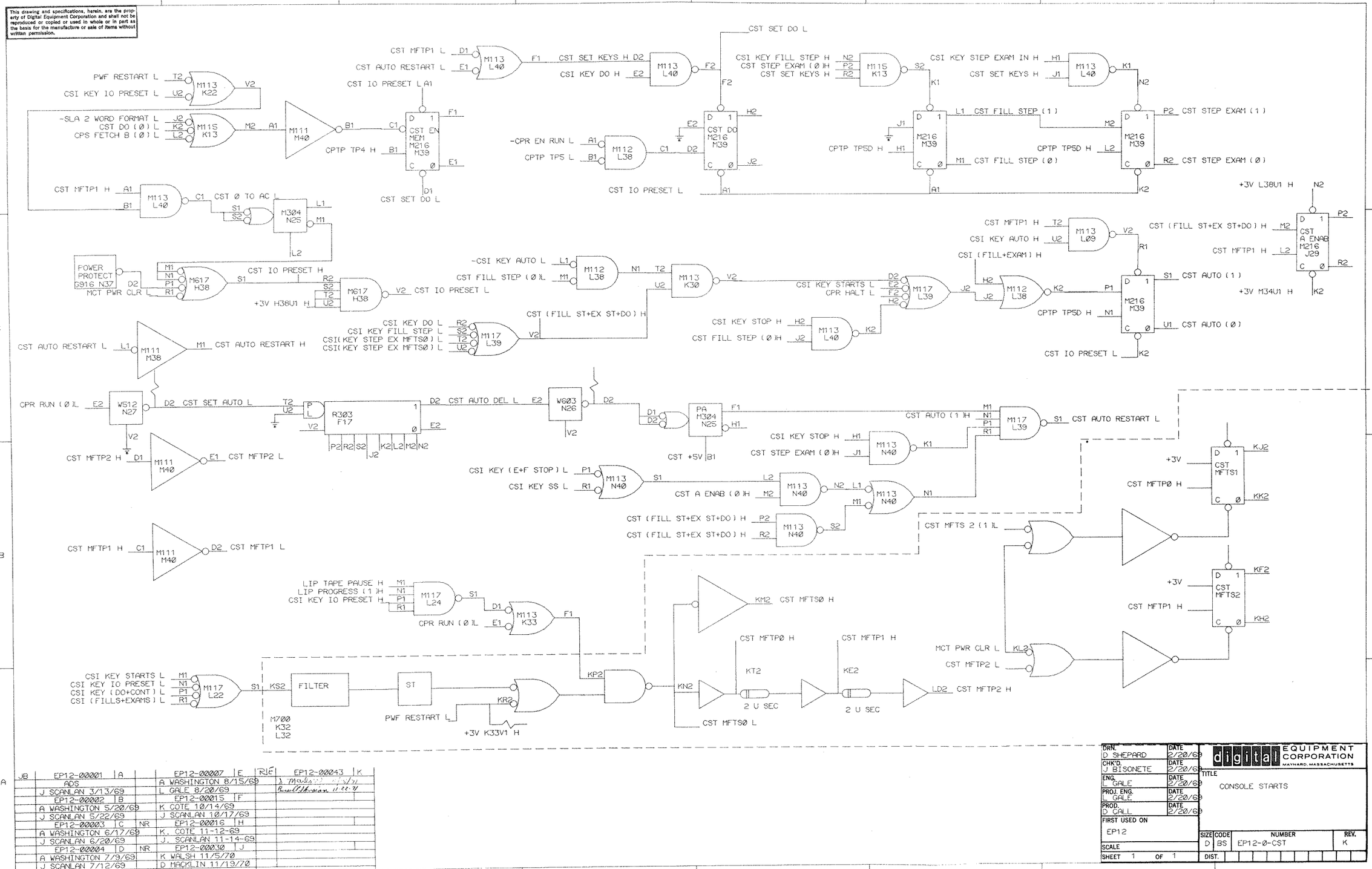
G793 N34
G916 N37
M2
S1 CSI IF SW 2 H
R1 CSI IF SW 1 H
P1 CSI IF SW 0 H
N1 CSI LSW 11 H
CSI RSW 02 H
CSI RSW 01 H
CSI RSW 00 H
CSI KEY AUTO L
CSI KEY MARK L
CSI KEY EXAM L
CSI KEY STEP EXAM IN L
CSI KEY FILL L
CSI KEY FILL STEP L
CSI RSW 07 H
CSI RSW 06 H
CSI RSW 05 H
CSI RSW 04 H
CSI RSW 03 H

G793 N35
CSI SNS 03 H
CSI SNS 02 H
CSI SNS 01 H
CSI SNS 00 H
CSI RSW 11 H
CSI RSW 10 H
CSI RSW 09 H
CSI RSW 08 H

G793 N36
G916 N37
U1 CSI KEY CONT L
V1 CSI KEY ST LSW L
L2 CSI KEY ST 400 L
K2 CSI KEY ST 20 L
CSI KEY LINC L
CSI KEY STOP L
CSI KEY SS L
CSI KEY E STOP L
CSI KEY F STOP L
CSI KEY IO PRESET L
CSI KEY DO L
CSI SNS 05 H
CSI SNS 04 H

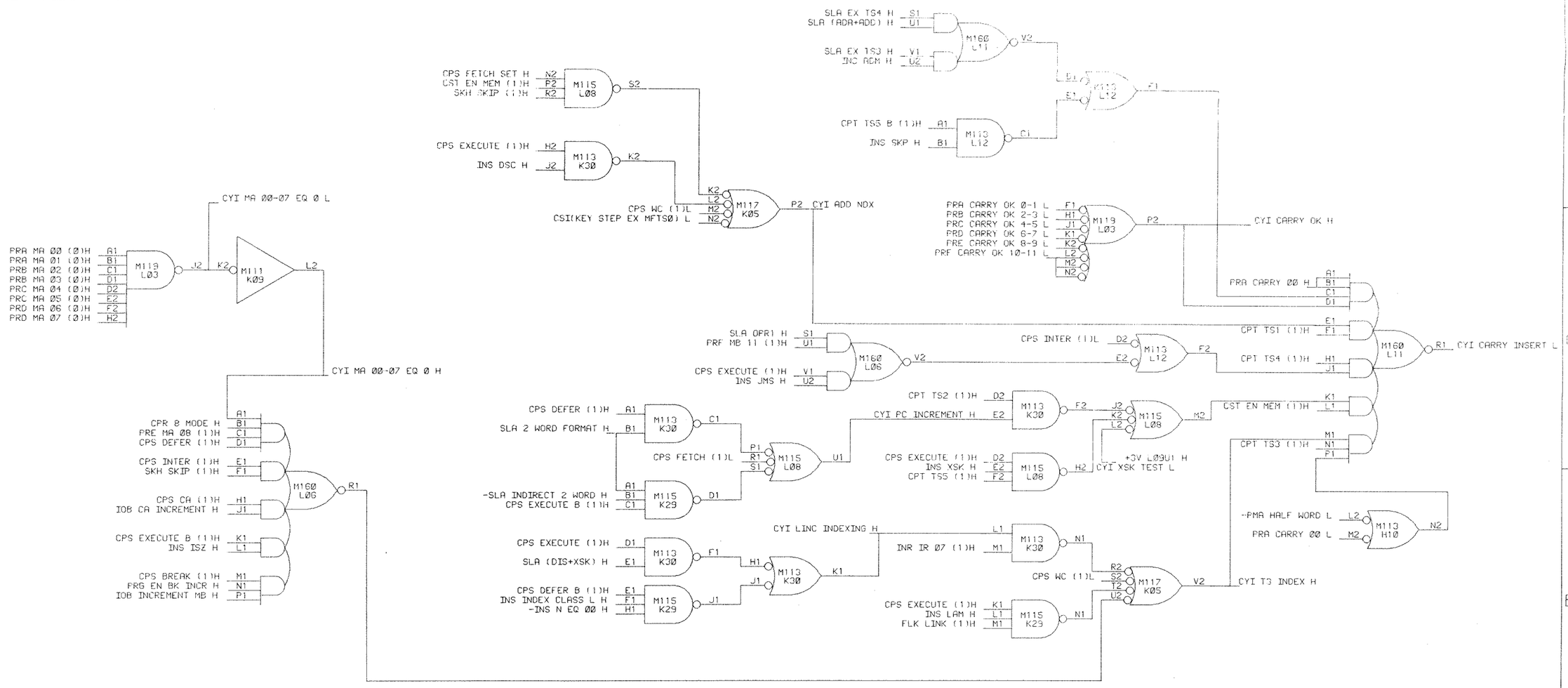
REVISIONS		
CHK	CHANGE NO.	REV.
JB	EP12-00001	A
	ADS	
	J SCANLAN 3/13/69	
JB	EP12-00002	B
	A WASHINGTON 5/20/69	
	J SCANLAN	
NR	EP12-00007	C
	A WASHINGTON 8/20/69	
	L GALE 8/20/69	

DRN. D.SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J.BISONETE	DATE 2/20/69	
ENG. L.GALE	DATE 2/20/69	TITLE CONSOLE SWITCH INPUTS
PROJ. ENG. L.GALE	DATE 2/20/69	
PROD. D.CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D CODE BS NUMBER EP12-0-CS1 REV. C
SCALE		DIST.
SHEET 1 OF 1		



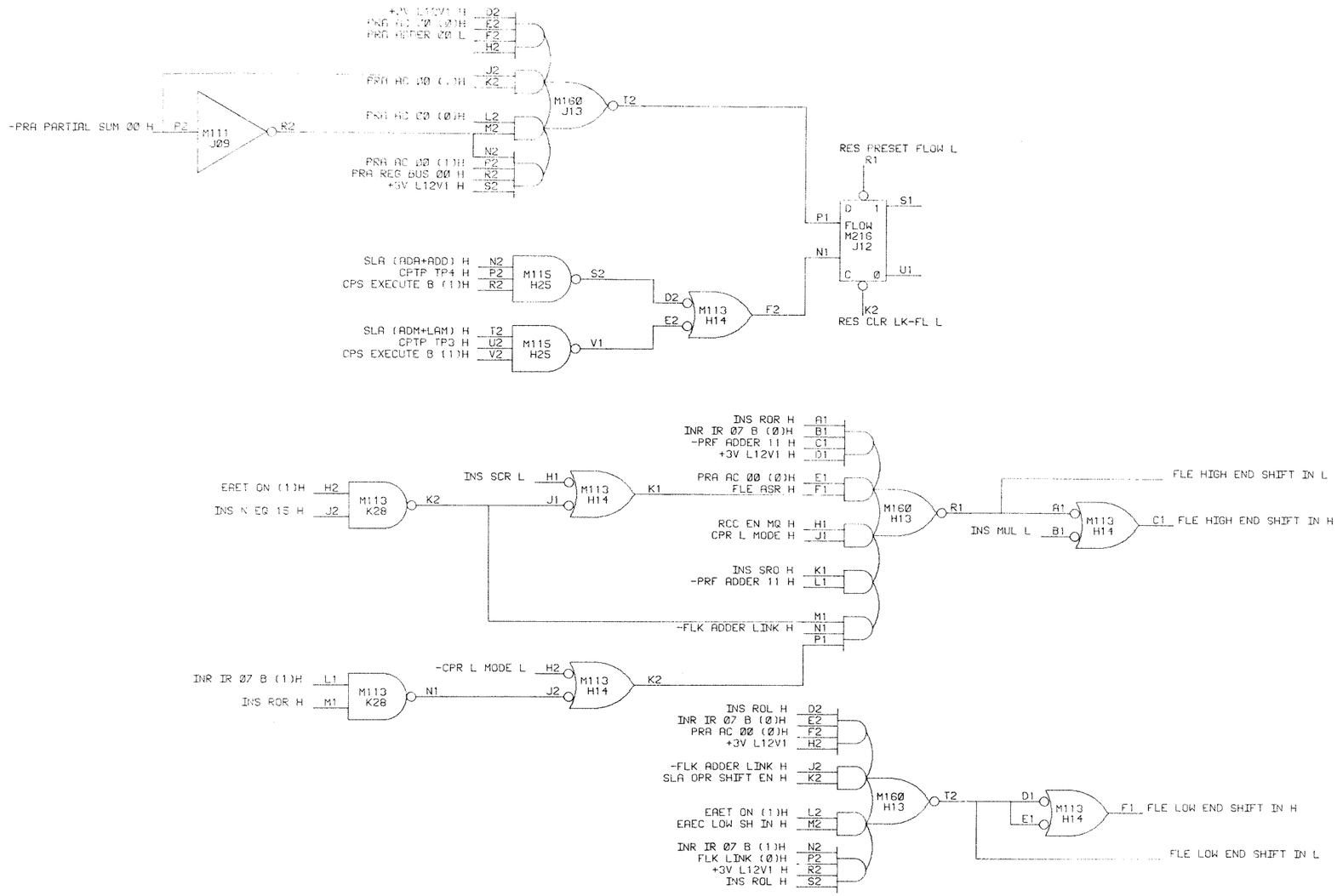
JB	EP12-00001	A		EP12-00007	E	RIE	EP12-00043	K
	ADS			A WASHINGTON 8/15/69				
	J SCANLAN 3/13/69			L GALE 8/20/69				
	EP12-00002	B		EP12-00015	F			
	A WASHINGTON 5/20/69			K COTE 10/14/69				
	J SCANLAN 5/22/69			J SCANLAN 10/17/69				
	EP12-00003	C	NR	EP12-00016	H			
	A WASHINGTON 6/17/69			K. COTE 11-12-69				
	J SCANLAN 6/20/69			J. SCANLAN 11-14-69				
	EP12-00004	D	NR	EP12-00030	J			
	A WASHINGTON 7/9/69			K WALSH 11/5/70				
	J SCANLAN 7/12/69			D MACKLIN 11/19/70				

DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J BISONETE	DATE 2/20/69	
ENG. L GALE	DATE 2/20/69	TITLE CONSOLE STARTS
PROJ. ENG. L GALE	DATE 2/20/69	
PROD. D CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D | CODE BS | NUMBER EP12-Ø-CST | REV. K
SCALE		
SHEET 1 OF 1		DIST.



REVISIONS		
CHK	CHANGE NO.	REV.
JB	EP12-00001	A
	ADS J.SCANLON 3-13-69	
	EP12-00008	B
	George Wyatt 5-24-71	

DRN. D.SHEPPARD	DATE 2-20-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J.BISSONETTE	DATE 2-20-69	
ENG. L.GALE	DATE 2-20-69	TITLE CARRY INSERT
PROJ. ENG. L.GALE	DATE 2-20-69	
PROD. M.CALL	DATE 2-20-69	
FIRST USED ON EP12		SIZE D · CODE BS · NUMBER EP12-Ø-CYI · REV. B
SCALE		
SHEET 1 OF 1		DIST.



REVISIONS		
CHK	CHANGE NO.	REV.
JB	EP12-00001	A
	ADS	
	J. SCANLAN 3/13/69	
NR	EP12-00003	B
	A WASHINGTON 6/17/69	
	L GALE 6/20/69	
DW	EP12-00036	C

DRN. D. SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D J. BISONETE	DATE 2/20/69	
ENG. L. GALE	DATE 2/20/69	TITLE FLOW & END SHIFT
PROJ. ENG. L. GALE	DATE 2/20/69	
PROD. D. CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D / CODE BS / NUMBER EP12-0-FLE / REV. C
SCALE		
SHEET 1 OF 1		DIST.

-SLA OPR1 H P2
RCC EN -AC H R2
M113 K28 S2
T2
M113 J25 V2
U2
PRD MB Ø7 (1)H T2
SLA (OPR1*TS4) H U2
M113 K28 V2

FLK COMP L H
V2 FLK LINK (Ø)H S1 U1
FLK LINK (1)H V1
FLK LINK EN H U2
M160 K21 V2
R1 M111 KØ9

PRA CARRY ØØ H S1 U1
-PRA CARRY ØØ H V1 U2
S1
M160 J13 V2

-FLK ADDER LINK H A1
-RCS MUL COM AC TO MQ H B1
-RCS MUL AC TO MQ H C1
RCS EN NO SHIFT H D1
INS MUL H E1
RCS EN AC TO MQ H F1
PRA ADDER ØØ L H1
RCS EN SHIFT LEFT H J1
RCS EN SHIFT RIGHT H K1
L1
FLE ASR H M1
PRA AC ØØ (Ø)H N1
EAEC INST H P1
M160 J13 R1

-PRF ADDER 11 H L2
EAET ON (Ø)H M2
M113 H14 N2
EAEC MUL ADD L L1 M1
M113 H14 N1

RES PRESET LINK L
N2
RCL LOAD AC H L2
EAEC LINK LD EN H M2
M113 L12 N2
RCL MUL SET MQ L S1 U1
V1 U2
M160 H12 V2
M2 D 1 P2
FLK LINK M216 J12
L2 C Ø R2
K2
RES CLR LK-FL L

+3V L12U1 H A1
+3V L12U1 H B1
SLA MUL GO H C1
INS N EQ 17 H D1
SLA L ROTATES H E1
INR IR Ø7 B (1)H F1
M160 H12 R1
INS LAM H H1
INS LAM H J1
INS MSC H K1
INS N EQ 11 H L1
CPR 8 MODE H M1
-INS AND H N1
-INS AND H P1

FLK (MSC*N EQ 11) L
INS MSC H L2
INS N EQ 11 H M2
M113 K28 N2
EAEC LINK DISABLE L P1 R1
M113 K28 S1

INS MUL H D2
FLK COMP L H E2
F2
H2
J2
K2
M160 H12 T2 -FLK LINK EN L
INS LAM H L2
M2
SLA (OPR1*TS4) H N2
P2
R2
S2

PRC MB Ø5 (Ø)H P2
PRD MB Ø7 (Ø)H R2
M113 H1Ø S2
PRC MB Ø5 (1)H T2
PRD MB Ø7 (1)H U2
M113 H1Ø V2

REVISIONS		
CHK	CHANGE NO.	REV.
JB	EP12-00001	A
	ADS	
	J. SCANLAN 3/13/69	
PD	EP12-00002	B
	A.WASHINGTON 6/20/69	
	J. SCANLAN 6/22/69	
GH	EP12-00003	C
	ADS	
	J. SCANLAN	
	EP12-00036	D

DRN. D. SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J.BISONETE	DATE 2/20/69	
ENG. L. GALE	DATE 2/20/69	TITLE LINK LOGIC
PROJ. ENG. L. GALE	DATE 2/20/69	
PROD. D. CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D CODE 85 NUMBER EP12-Ø-FLK REV. D
SCALE		SHEET 1 OF 1 DIST.

M903 N14

B1	IOO BAC 00 (1)H
D1	IOO BAC 01 (1)H
E1	IOO BAC 02 (1)H
H1	IOO BAC 03 (1)H
J1	IOO BAC 04 (1)H
L1	IOO BAC 05 (1)H
M1	IOO BAC 06 (1)H
P1	IOO BAC 07 (1)H
S1	IOO BAC 08 (1)H

M903 N15

B1	IOO BMB 00 (1)H
D1	IOO BMB 01 (1)H
E1	IOO BMB 02 (1)H
H1	IOO BMB 03 (0)H
J1	IOO BMB 03 (1)H
L1	IOO BMB 04 (0)H
M1	IOO BMB 04 (1)H
P1	IOO BMB 05 (0)H
S1	IOO BMB 05 (1)H

M903 N16

B1	EXT IO BUS 00 L
D1	EXT IO BUS 01 L
E1	EXT IO BUS 02 L
H1	EXT IO BUS 03 L
J1	EXT IO BUS 04 L
L1	EXT IO BUS 05 L
M1	EXT IO BUS 06 L
P1	EXT IO BUS 07 L
S1	EXT IO BUS 08 L

M903 N17

B1	EXT DATA ADD 00 L
D1	EXT DATA ADD 01 L
E1	EXT DATA ADD 02 L
H1	EXT DATA ADD 03 L
J1	EXT DATA ADD 04 L
L1	EXT DATA ADD 05 L
M1	EXT DATA ADD 06 L
P1	EXT DATA ADD 07 L
S1	EXT DATA ADD 08 L

M903 N18

B1	EXT DATA 00 L
D1	EXT DATA 01 L
E1	EXT DATA 02 L
H1	EXT DATA 03 L
J1	EXT DATA 04 L
L1	EXT DATA 05 L
M1	EXT DATA 06 L
P1	EXT DATA 07 L
S1	EXT DATA 08 L

M903 N13

B1	IOB XL 00 H
D1	IOB XL 01 H
E1	IOB XL 02 H
H1	IOB XL 03 H
J1	IOB XL 04 H
L1	IOB XL 05 H
M1	IOB XL 06 H
P1	IOB XL 07 H
S1	IOB XL 10 H

M903 N14

D2	IOO BAC 09 (1)H
E2	IOO BAC 10 (1)H
H2	IOO BAC 11 (1)H
K2	IOO BIOP 1 H
M2	IOO BIOP 2 H
P2	IOO BIOP 4 H
S2	IOO BTS 5 (1)H
T2	IOO BTS 2 (1)H
V2	IOO BA INITIALIZE H

M903 N15

D2	IOO BMB 06 (0)H
E2	IOO BMB 06 (1)H
H2	IOO BMB 07 (0)H
K2	IOO BMB 07 (1)H
M2	IOO BMB 08 (0)H
P2	IOO BMB 08 (1)H
S2	IOO BMB 09 (1)H
T2	IOO BMB 10 (1)H
V2	IOO BMB 11 (1)H

M903 N16

D2	EXT IO BUS 09 L
E2	EXT IO BUS 10 L
H2	EXT IO BUS 11 L
K2	EXT SKIP BUS L
M2	EXT INT RQST BUS L
P2	EXT AC CLEAR BUS L
S2	IOO B RUN (0)H
T2	MEA BRK SYNC CLK B H
V2	EXT ENAB INT PAUSE H

M903 N17

D2	EXT DATA ADD 09 L
E2	EXT DATA ADD 10 L
H2	EXT DATA ADD 11 L
K2	EXT BREAK RQST L
M2	IOB DATA IN H
P2	IOO B BREAK (0)H
S2	IOO ADD ACCEPTED (0)H
T2	EXT INCREMENT MB L
V2	IOO BB INITIALIZE H

M903 N18

D2	EXT DATA 09 L
E2	EXT DATA 10 L
H2	EXT DATA 11 L
K2	EXT 3 CYCLE L
M2	IOB CA INCREMENT H
P2	IOO WC OVERFLOW (0)H
S2	EXT EXT DATA ADD 02 L
T2	EXT EXT DATA ADD 01 L
V2	EXT EXT DATA ADD 00 L

M903 N13

D2	IOB XL 11 H
E2	IOB XL 12 H
H2	IOB XL 13 H

NOTE:
IF AN FPP12 IS NOT USED. ADD GROUND WIRE N16V2 TO N19T1. IF FPP12 IS ADDED TO BUS. GROUND MUST BE REMOVED.

W021 N20

D2	MXB MCBMB 03 (0)H
E2	MXB MCBMB 04 (0)H
H2	MXB MCBMB 05 (0)H
K2	MXB BMA 00 (1)H
M2	MXB BMA 01 (1)H
P2	MXB BMA 02 (1)H
S2	MXB BMA 03 (1)H
T2	MXB BMA 04 (1)H
V2	MXB BMA 05 (1)H

W021 N21

D2	MXB BMA 06 (1)H
E2	MXB BMA 07 (1)H
H2	MXB BMA 08 (1)H
K2	MXB BMA 09 (1)H
M2	MXB BMA 10 (1)H
P2	MXB BMA 11 (1)H
S2	MXB MCBMB 00 (0)H
T2	MXB MCBMB 01 (0)H
V2	MXB MCBMB 02 (0)H

W021 N22

D2	MXF EA 0 H
E2	MXF EA 1 H
H2	MXF EA 2 H
K2	MXB MCBMB 06 (0)H
M2	MXB MCBMB 07 (0)H
P2	MXB MCBMB 08 (0)H
S2	MXB MCBMB 09 (0)H
T2	MXB MCBMB 10 (0)H
V2	MXB MCBMB 11 (0)H

W021 N23

E2	MCS MEM 00 H
H2	MCS MEM 01 H
K2	MCS MEM 02 H
M2	MCS MEM 03 H
P2	MCS MEM 04 H
S2	MCS MEM 05 H
T2	MCS MEM 06 H
V2	MCS MEM 07 H

W021 N24 *

D2	MCS MEM 08 H
E2	MCS MEM 09 H
H2	MCS MEM 10 H
K2	MCS MEM 11 H
M2	MXB START MEMORY H
P2	MCT STROBE L
S2	MCT MEM DONE L
V2	MXB MEM TP3 H

* PLACE A M906 CABLE TERMINATOR MODULE AT THE END OF THIS BUS WHEN USING A MM8I. ADD +5V TO THE RESPECTIVE MODULE SLOT. (A32A2 OR D32A2)

REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
JB	EP12-00001	A		EP12-00032	E
	ADS			K ROSS 1/15/71	
	J SCANLAN 3/13/69			J SCANLAN 1/17/71	
PD	EP12-00002	B		EP12-00034	F
	A WASHINGTON 5/20/69			K ROSS 1/27/71	
	J SCANLAN 5/22/69			J SCANLAN 2/5/71	
FV	EP12-00021	C		EP12-00046	H
	D SOUTHER 6/15/70			[illegible] 8/1/72	
	J SCANLAN 6/17/70			IKNAIAN	
GH	EP12-00026	D		[illegible]	
	S GOLDSBY 9/1/70				
	D MACKLIN 9/2/70				

DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CH'K'D J BISONETE	DATE 2/20/69	TITLE IO & EXT MEM CABLES
ENG. L GALE	DATE 2/20/69	
PROJ. ENG. L GALE	DATE 2/20/69	
PROD. D CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D / CODE 85 / NUMBER EP12-0-ICB / REV. H
SCALE		DIST.
SHEET 1 OF 1		

2/4/72

PRA REG BUS Ø0 H
PRA REG BUS Ø1 H
PRB REG BUS Ø2 H
PRB REG BUS Ø3 H
PRC REG BUS Ø4 H
PRC REG BUS Ø5 H
PRD REG BUS Ø6 H
PRD REG BUS Ø7 H
+3V H36V1 H
+3V H36U1 H
IOR IO PRESET L

M216 H39 — IR Ø0
M216 H39 — IR Ø1
M216 H39 — IR Ø2
M216 H39 — IR Ø3
M216 H39 — IR Ø4
M216 H39 — IR Ø5
M216 H40 — IR Ø6
M216 H40 — IR Ø7
M216 H40 — IR Ø8
M216 H40 — IR Ø9
M216 H40 — IR 10
M216 H40 — IR 11

M617 H38 — INR IR Ø7 B (Ø)H
M617 H38 — INR IR Ø7 B (1)H

CPTP TP2 H
CPS DEFER (Ø)H
CPS EXECUTE (Ø)H
CPS EXC 2 (Ø)H
M617 H38 — INR CLEAR IR L

M617 H38 — INR LOAD IR Ø-7 H
INR LOAD IR 8-11 H

CPS FETCH B (1)H
M113 H36 — S2

CPTP TP3 H
SLA (MUL*EXECUTE) H
M113 H36 — K2

M115 H31 — D1

CPTP TP5D H
-INS BRM H
CPT RECYCLE SYNC (1)H
CPR L MODE H
M117 H35 — E1

INS N EQ Ø0 H
M113 H36 — F2

INR COUNT ENAB H
INR IR Ø8 (1)H
-INS N EQ 10 H
M115 H37 — S2

M115 H37 — M2

PRE REG BUS Ø8 H
INR (FETCH*TS3) H
M113 H36 — S1

PRE REG BUS Ø9 H
M113 H36 — K1

M115 H37 — N1

INR CARRY 10 L
INR IR Ø9 (1)H
INR COUNT ENAB H
M115 H37 — U1

M111 H34 — C1

INR IR Ø9 (Ø)H
M115 H37 — V1

INR IR 10 (Ø)H
INR IR 11 (Ø)H
M115 H37 — H2

INR CARRY 10 L
M115 H37 — D1

INR COUNT ENAB H
INR IR 10 (1)H
INR IR 11 (1)H
M115 H37 — J1

PRF REG BUS 10 H
M113 H36 — N2

INR (FETCH*TS3) H
PRF REG BUS 11 H
M113 H36 — N1

M113 H36 — C1

INR COUNT ENAB H
INR IR 11 (Ø)H
M113 H36 — F1

SLA L ROTATES H
-INS N EQ Ø0 H
SLA MUL GO H
-INS N EQ Ø1 H
M121 H33 — E1

M111 H34 — E1 INR COUNT ENAB H
INR COUNT ENAB L

CPS FETCH (1)L
CPT TS3 (1)L
M112 H32 — C1 INR (FETCH*TS3) H

REVISIONS		
CHK	CHANGE NO.	REV.
JB	EP12-00001	A
	ADS	
	J SCANLAN 3-13-69	
GB	EP12-00003	B
	B KORTELING 6-17-69	
	L. GALE 6-20-69	
RC	EP12-00023	C
	7-2-69	

DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D.	DATE	
ENG. L. GALE	DATE 2-27-69	TITLE: INSTRUCTION REGISTER
PROJ. ENG. L. GALE	DATE 2-20-69	
PROD. L. GALE	DATE 2-20-69	
FIRST USED ON: EP12		
SCALE		SIZE D · CODE BS · NUMBER EP12-Ø-INR · REV. C
SHEET 1 OF 1		DIST.

+3V J33U1 H, CPR 8 MODE H → M161 J36 → INS 8IOT L/H, INS 8 JMP L/H, INS JMS L/H, INS DCA L/H, INS ISZ L/H, INS TAD L/H, INS AND L/H
INR IR 00 (1)H, INR IR 01 (1)H, INR IR 02 (1)H → U1 2^2 2^1 2^0

INR IR 03 (1)H, INR IR 02 (0)H, INS SGRP H → M161 J37 → INS EXC L/H, INS PRE MTP L/H, INS LDF L/H, INS LIF L/H, INS NO INST 1 L/H, INS NO INST 2 L/H, INS LOPR L/H, INS SKP L/H, INS SXL L/H
INR IR 04 (1)H, INR IR 05 (1)H, INR IR 06 (1)H → U1 2^2 2^1 2^0

INR IR 03 (1)H, INR IR 02 (1)H, INS SGRP H → M161 J38 → INS DSC L/H, INS NO INST 2 L/H, INS BCO L/H, INS BSE L/H, INS BCL L/H, INS SRO L/H, INS SAE L/H, INS SHD L/H
INR IR 04 (1)H, INR IR 05 (1)H, INR IR 06 (1)H → U1 2^2 2^1 2^0

+3V J33U1 H, INR IR 08 (1)H → M161 J39 → INS N EQ 17 L/H, INS N EQ 16 L/H, INS N EQ 15 L/H, INS N EQ 14 L/H, INS N EQ 13 L/H, INS N EQ 12 L/H, INS N EQ 11 L/H, INS N EQ 10 L/H
INR IR 09 (1)H, INR IR 10 (1)H, INR IR 11 (1)H → U1 2^2 2^1 2^0

+3V J33U1 H, INR IR 08 (0)H → M161 J40 → INS N EQ 07 L/H, INS N EQ 06 L/H, INS N EQ 05 L/H, INS N EQ 04 L/H, INS N EQ 03 L/H, INS N EQ 02 L/H, INS N EQ 01 L/H, INS N EQ 00 L/H
INR IR 09 (1)H, INR IR 10 (1)H, INR IR 11 (1)H → U1 2^2 2^1 2^0

CPR 8 MODE H, INR IR 00 (1)H, INR IR 01 (1)H, INR IR 02 (1)H → M627 J14 → E1, P2 → M111 H34 → R2 INS 8 OPR H; INS 8 OPR L

INR IR 00 (0)H, INR IR 01 (1)H → M115 H31 → J1 INS ADD L

INS SGRP L
CPR L MODE H, INR IR 00 (0)H, INR IR 01 (0)H → M115 H31 → H2 → M111 H34 → H1 INS SGRP H

INR IR 03 (0)H, INR IR 02 (0)H → M161 J34 → INS SCR L/H, INS ROR L/H, INS ROL L/H, INS XSK L/H, INS DIS L/H, INS SAM L/H, INS SET L/H, INS MSC L/H
INR IR 04 (1)H, INR IR 05 (1)H, INR IR 06 (1)H → U1 2^2 2^1 2^0

INR IR 03 (0)H, INR IR 02 (1)H → M161 J35 → INS STH L/H, INS LDH L/H, INS MUL L/H, INS LAM L/H, INS ADM L/H, INS ADA L/H, INS STA L/H, INS LDA L/H
INR IR 04 (1)H, INR IR 05 (1)H, INR IR 06 (1)H → U1 2^2 2^1 2^0

INS SGRP H, INR IR 02 (1)H → M113 J33 → C1 INS INDEX CLASS L L, H2 → M111 H34 → J2 INS INDEX CLASS L H

INR IR 00 (0)H, INR IR 01 (1)H, INR IR 02 (1)H → M115 H31 → J2, K2, L2 → M2 INS LJMP L; → M111 H34 → L2 INS LJMP H

INS EXC L, INS NO INST 1 L, INS NO INST 2 L → M115 H31 → U1 INS NO INST H; → M111 J09 → S1 INS NO INST L

-INS N EQ 00 H, INS (L INDEX * B EQ 0) L → M113 J33 → F1 INS (L INDEX * B EQ 0) L

INR IR 01 (0)H, CPR L MODE H → M115 H31 → K1, L1, M1 → N1 INS STC L

INS N EQ 00 H, INR IR 07 B (1)H → M113 J33 → N1 INS (I EQ 1 *B EQ 0) L

INS INDEX CLASS L H, INS (I EQ 1 *B EQ 0) L → M113 J33 → N2 → M111 H34 → F2 INS LINC INDIR H

INS 8 IOT H, TSS UF (0)H → M113 H14 → V2 → H1 → M113 J33 → K1 INS IOT H
INS LOPR H, INS N EQ 00 H, CPS EXECUTE (1)H → M115 H31 → S2 → J1

INS LJMP H, INR IR 02 (0)H, INR IR 03 (0)H, INR IR 04 (0)H, INR IR 05 (0), INR IR 06 (0)H, INS (I EQ 0*B EQ 0)H, RCD SAVE PC(0)H → M119 J32 → J2 INS (LJMP*X EQ 0) L
INS LJMP H → M113 J33 → F2 INS (LJMP*-XEQ 0) L

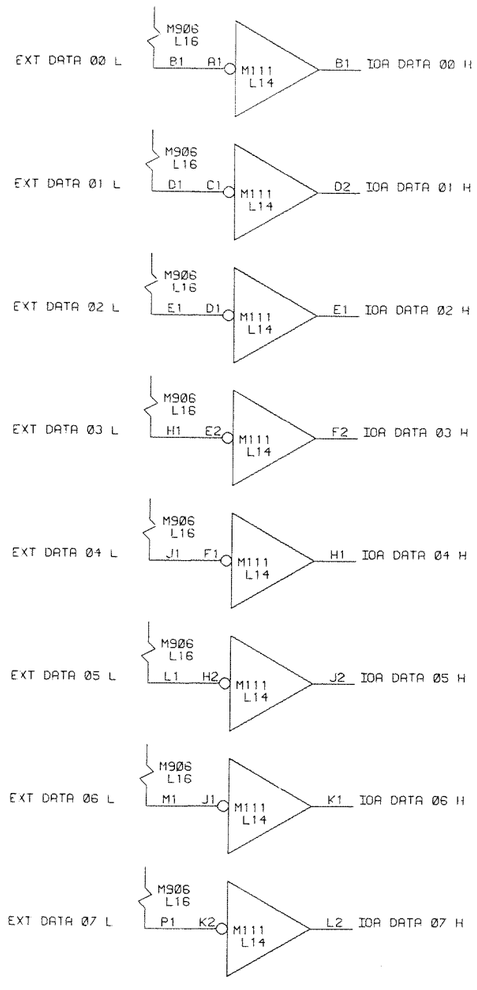
INS N EQ 00 H, INR IR 07 (0)H → M113 J33 → S1 INS I EQ 0 * B EQ 0 L

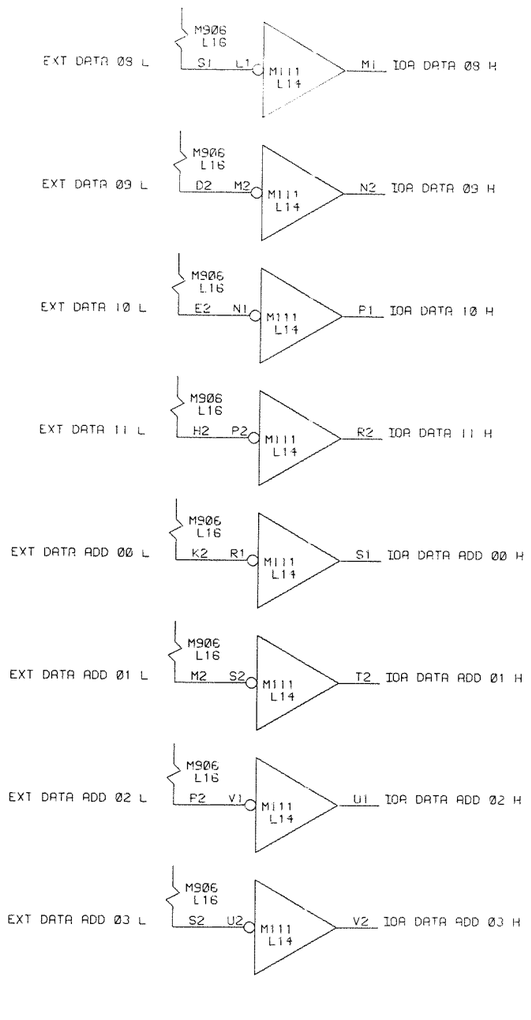
INS MSC L → M111 L15 → S1 INS B MSC H

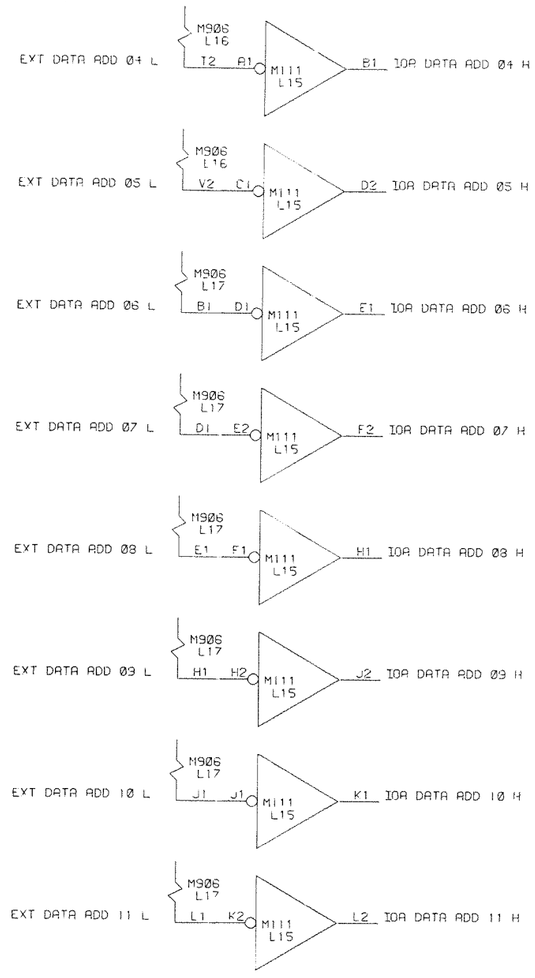
INS PRE MTP H, RCD EN T TRAP (1)H, CPS EN TRAP (1)H → M115 K29 → U1 INS TAPE TRAP LP2
INS PRE MTP H → M113 J33 → S2, N1 → INS MTP L → M111 H34 → P1 INS MTP H

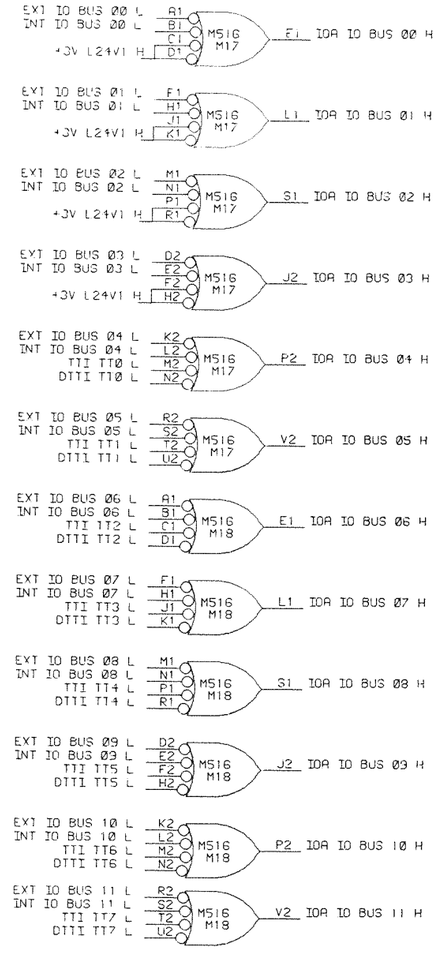
REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
NR	EP12-00001	A	NR	EP12-00030	E
	ADS			K WALSH 11/5/70	
	J SCANLAN 3/13/69			D MACKLIN 11/13/70	
NR	EP12-00007	B	RJE	EP12-00043	F
	ADS			[illegible]	
	L GALE 8/20/69			[illegible] 11-22-71	
NR	EP12-00016	C	RJE	EP12-[illegible]	H
	K. COTE 11-12-69			[illegible]	
	J. SCANLAN 11-14-69			R MOORE	
FV	EP12-00021	D		[illegible]	
	D. SOUTHER 6-15-70				
	J SCANLAN 6-17-70				

DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D J BISONETE	DATE 2/20/69	
ENG. L GALE	DATE 2/20/69	TITLE: INSTRUCTIONS
PROJ. ENG. L GALE	DATE 2/20/69	
PROD. D CALL	DATE 2/20/69	
FIRST USED ON: EP12		SIZE D; CODE BS; NUMBER EP12-0-INS; REV. H
SCALE		
SHEET 1 OF 1		DIST.









NOTE:

ALL SIGNALS STARTING WITH 'EXT' COME FROM THE EXTERNAL IO BUS. THE CABLES ARE SHOWN ON DRAWING IC8. SEE DRAWING IO8 FOR DESCRIPTION OF M516 INPUTS.

REVISIONS		
CHK	CHANGE NO.	REV.

DRN.	DATE
CHK'D.	DATE
ENG.	DATE
PROJ. ENG.	DATE
PROD.	DATE
FIRST USED ON	EP12
SCALE	
SHEET 1 OF 1	

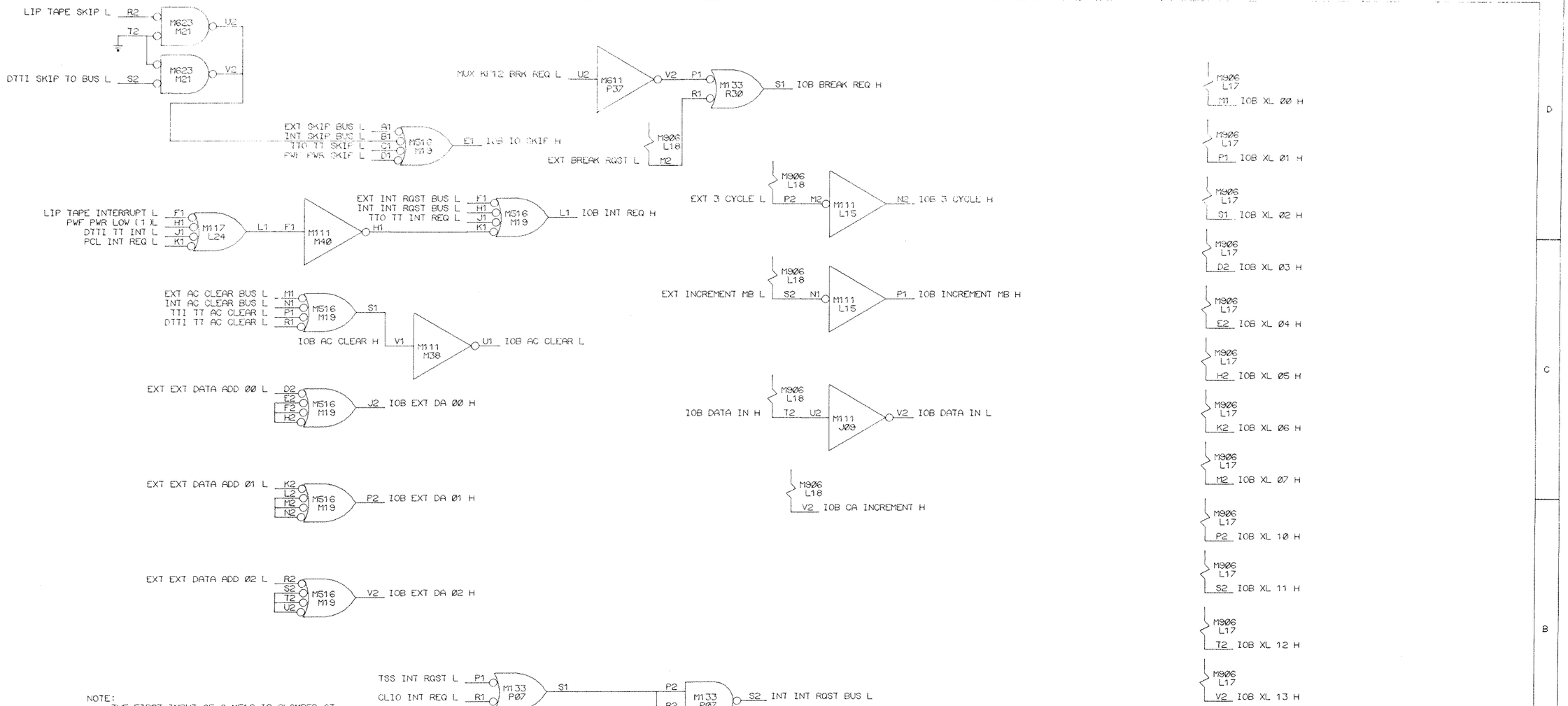
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: IO INPUT PART A

SIZE	CODE	NUMBER	REV.
D	BS	EP12-0-IOA	A

DIST.

REV B SHOWS PULL-UPS FROM L20 ON DTTI INPUTS.

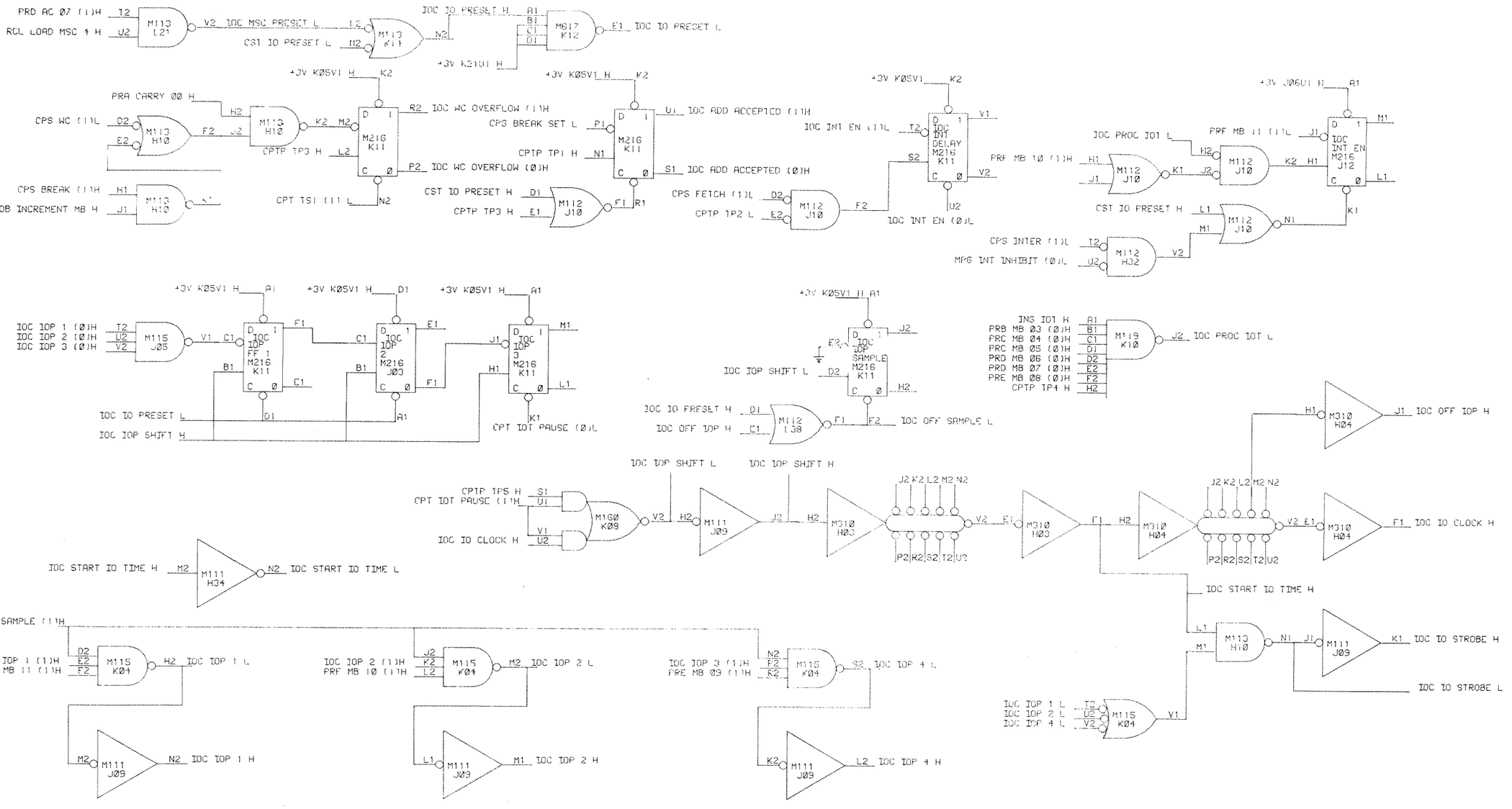


NOTE:
THE FIRST INPUT OF A M516 IS CLAMPED AT GND AND +3V. IN ADDITION, THIS INPUT IS SUPPLIED WITH 220 OHMS TO +5V. THE SECOND INPUT IS EFFECTIVELY A 5ØØ OHMS TO 3.3V. BOTH THE FIRST AND SECOND INPUTS ARE USED FOR COLLECTOR ORED BUS INPUTS THIRD AND FORTH M516 INPUTS ARE STD TTL GATE INPUTS.

NOTE:
ALL SIGNALS PREFIXED WITH 'EXT' AS WELL AS IOB DATA IN, IOB CA INCREMENT, AND THE IOB XL SIGNALS COME FROM THE EXTERNAL IO BUS. THE CABLE CONNECTIONS ARE SHOWN ON DRAWING ICB.

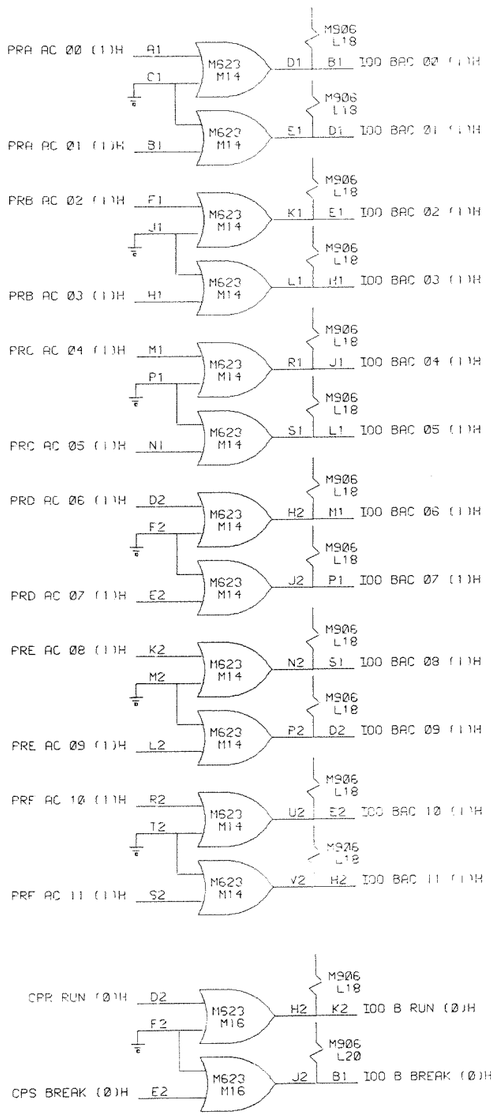
REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
JB	EP12-00001	A	GH	EP12-0003G	E
	ADS			R SOFKA 5-6-71	
	J SCANLAN 3/13/69			J SCANLAN 5-20-71	
	EP12-0001G	B		EP12-00044	F
	K.COTE 11/12/69				
	J.SCANLAN 11/14/69				
GH	EP12-0002J	C			
	D. SOUTHER 6-30-70				
	D. MACKLIN 7-2-70				
GH	EP12-0003Ø	D			
	K WALSH 11/5/70				
	D MACKLIN 11/19/70				

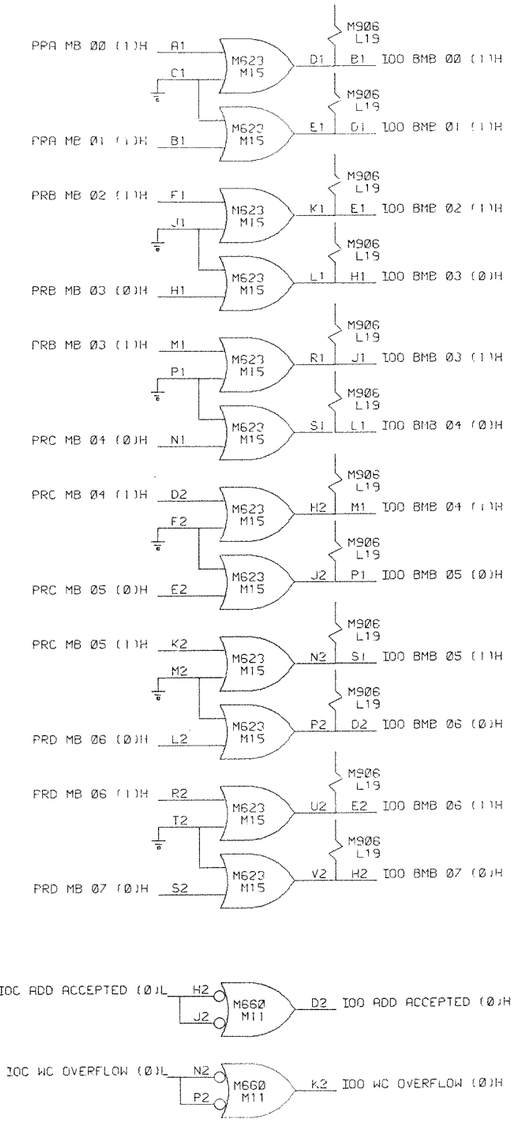
DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J BISONETE	DATE 2/20/69	
ENG. L GALE	DATE 2/20/69	TITLE IO INPUT PART B
PROJ. ENG. L GALE	DATE 2/20/69	
PROD. D CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D CODE BS NUMBER EP12-Ø-10B REV. F
SCALE		
SHEET 1 OF 1		DIST.

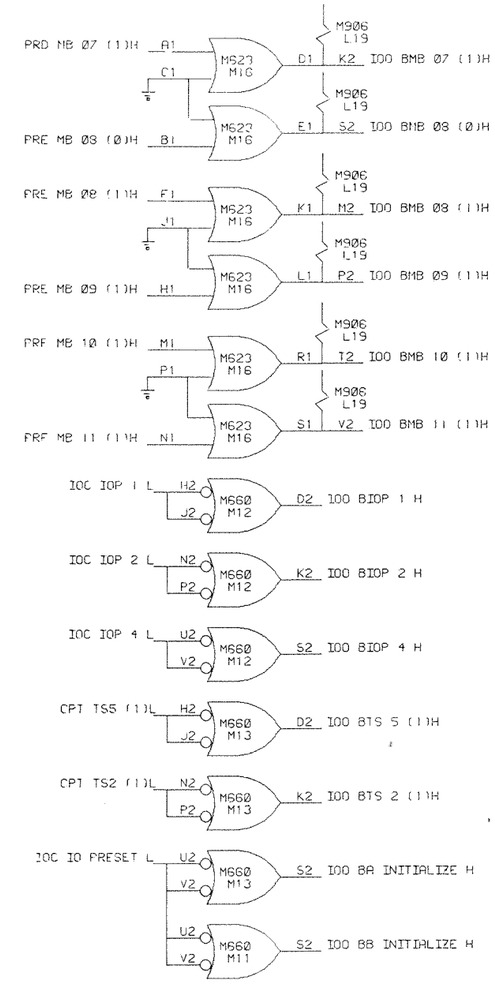


REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
JB	EP12-00001	A	GH	EP12-00026	E
	ADS			S. GOLDSBY 9-1-70	
	J. SCANLAN 3/13/69			D. MACKLIN 9-2-70	
PD	EP12-00002	B	JF	EP12-00030	F
	A.WASHINGTON 5/20/69			R.SOFKA 11-17-70	
	J. SCANLAN 5/22/69			D.MACKLIN 11-19-70	
NR	EP12-00013	C		EP12-00039	H
	D. SOUTHER 10/1/69			George Wyatt 6-2-71	
	J. SCANLAN 10/6/69				
FV	EP12-00021	D			
	D. SOUTHER 6/15/70				
	J. SCANLAN 6/17/70				

DRN. D SHEPARD	DATE 2/20/68	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J. BISONETE	DATE 2/20/68	
ENG. L. GALE	DATE 2/20/68	TITLE IO CONTROL & TIMING
PROJ. ENG. L. GALE	DATE 2/20/68	
PROD. D. CALL	DATE 2/20/68	
FIRST USED ON EP12		SIZE D / CODE 85 / NUMBER EP12-Ø-IOC / REV. H
SCALE		DIST.
SHEET 1 OF 1		



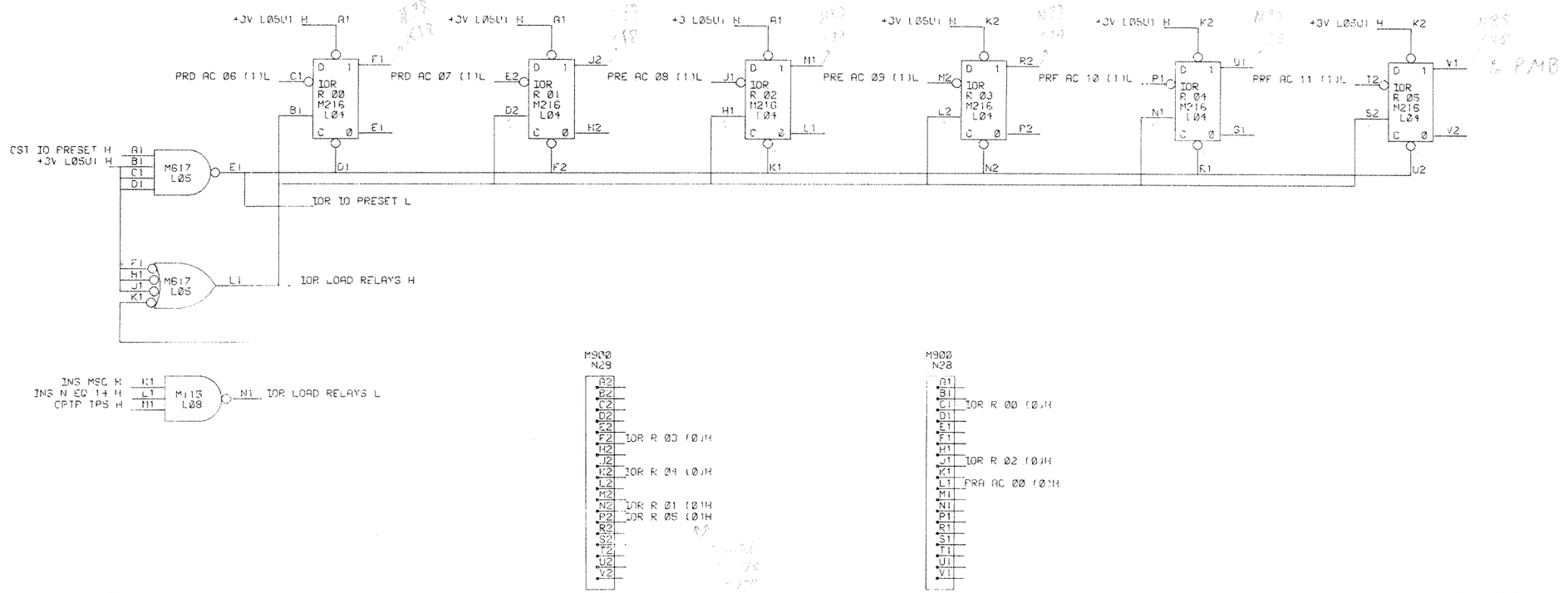




NOTE:
THESE TWO INITIALIZE SIGNALS ARE LOGICALLY IDENTICAL BUT GO OUT ON SEPARATE WIRES.

REVISIONS		
CHK	CHANGE NO.	REV.
	EP12-00002	A

DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D.	DATE	
ENG.	DATE	TITLE: IO OUTPUT BUFFERS
PROJ. ENG.	DATE	
PROD.	DATE	
FIRST USED ON: EP12		SIZE: D; CODE: 85; NUMBER: EP12-0-100; REV.: A
SCALE		
SHEET 1 OF 1		DIST.



REVISIONS		
CHK	CHANGE NO.	REV.
	EP12-00001	A
	ADS	
	J.SCANLAN 6-2-63	
	EP12-0000J	B

DRN. D.L.SHEPARD	DATE 2-20-63	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J.BISONETTE	DATE 2-20-63	
ENG. L.SOLE	DATE 2-20-63	TITLE RELAY BUFFER
PROJ. ENG. L.SOLE	DATE 2-20-63	
PROD. D.CALL	DATE 2-20-63	
FIRST USED ON EP12		SIZE D CODE BS NUMBER EP12-0-IOR REV. B
SCALE		DIST.
SHEET 1 OF 1		

M901 H01

A1	LIP PROGRESS (1)H
B1	LTR WRITE ON L
C1	LIP TAPE PAUSE H
D1	LIP TAPE BRK REQ (0)H
E1	LIP TAPE INTERRUPT L
F1	LIP MSC TAC TO AC H
H1	LTP8 BLOCK (1)H
J1	LTP8 TAPE WORD H
K1	LIP TAPE BRK REQ (1)H
L1	LCS TURN ARND (1)H
M1	LIP PROGRESS (0)H
N1	LIP TAPE OUT H
P1	LTR MARK ON L
R1	LWN IM H
S1	LIP CHK SUM TO AC L
T1	GD
U1	LIP CHK SUM LD AC L
V1	GND

M903 J01

B1	MCS MEM 00 H
D1	MCS MEM 01 H
E1	MCS MEM 02 H
H1	MCS MEM 03 H
J1	MCS MEM 04 H
L1	MCS MEM 05 H
M1	MCS MEM 06 H
P1	MCS MEM 07 H
S1	MCS MEM 08 H

M903 K01

B1	PRB MB 00 (0)H
D1	PRB MB 01 (1)H
E1	PRC MB 04 (0)H
H1	PRC MB 04 (1)H
J1	PRC MB 05 (0)H
L1	PRC MB 05 (1)H
M1	PRC MB 06 (0)H
P1	PRC MB 06 (1)H
S1	PRD MB 07 (0)H

M903 L01

B1	PRA MA 00 (0)H
D1	PRA MA 00 (1)H
E1	PRA MA 01 (1)H
H1	PRB MA 02 (1)H
J1	PRB MA 03 (0)H
L1	PRB MA 03 (1)H
M1	PRC MA 04 (1)H
P1	PRC MA 05 (1)H
S1	PRD MA 06 (0)H

M903 H02

B1	INT IO BUS 00 L
D1	INT IO BUS 01 L
E1	INT IO BUS 02 L
H1	INT IO BUS 03 L
J1	INT IO BUS 04 L
L1	INT IO BUS 05 L
M1	INT IO BUS 06 L
P1	INT IO BUS 07 L
S1	INT IO BUS 08 L

M901 M02

A1	PWF POWER LOW (0)H
B1	CST SET AUTO L
C1	PRD AC 07 (0)H
D1	PRE AC 08 (0)H
E1	PRE AC 09 (0)H
F1	CPT T5 RECYCLE (0)H
H1	CST AUTO DEL L
L1	INR IR 07 (0)H
K1	INR IR 07 B (1)H
L1	INR IR 09 (1)H
M1	INR IR 10 (1)H
N1	INR IR 11 (1)H
P1	INS N EQ 01 H
R1	INS N EQ 03 H
S1	CST D0 (1)H
T1	GND
U1	DSC SIZE (0)H
V1	PWF RESTART L

M901 H01

A2	+5V
B2	SLA EX TS4 H
C2	GND
D2	LTRA TAPE BUS 00 H
E2	LTRA TAPE BUS 01 H
F2	LTRB TAPE BUS 02 H
H2	LTRB TAPE BUS 03 H
J2	LTRC TAPE BUS 04 H
K2	LTRC TAPE BUS 05 H
L2	LTRD TAPE BUS 06 H
M2	LTRD TAPE BUS 07 H
N2	LTRE TAPE BUS 08 H
P2	LTRE TAPE BUS 09 H
R2	LTRF TAPE BUS 10 H
S2	LTRF TAPE BUS 11 H
T2	LIP TAPE BUS TO AC L
U2	
V2	LIP TAPE SKIP L

M903 J01

D2	MCS MEM 09 H
E2	MCS MEM 10 H
H2	MCS MEM 11 H
K2	PRA MB 00 (0)H
M2	PRA MB 00 (1)H
P2	PRA MB 01 (0)H
S2	PRA MB 01 (1)H
T2	PRB MB 02 (0)H
V2	PRB MB 02 (1)H

M903 K01

D2	PRD MB 07 (1)H
E2	PRE MB 08 (0)H
H2	PRE MB 08 (1)H
K2	PRE MB 09 (0)H
M2	PRE MB 09 (1)H
P2	PRF MB 10 (0)H
S2	PRF MB 10 (1)H
T2	PRF MB 11 (0)H
V2	PRF MB 11 (1)H

M903 L01

D2	PRD MA 06 (1)H
E2	PRD MA 07 (1)H
H2	PRE MA 08 (1)H
K2	PRE MA 09 (0)H
M2	PRE MA 09 (1)H
P2	PRF MA 10 (1)H
S2	PRF MA 11 (1)H
T2	MCT STROBE L
V2	MCT MEM DONE L

M903 H02

D2	INT IO BUS 09 L
E2	INT IO BUS 10 L
H2	INT IO BUS 11 L
K2	INT SKIP BUS L
M2	INT AC CLEAR BUS L
P2	DSC Z DRIVER H
S2	MXF EA 2 H
T2	IOC IO STROBE H
V2	INS SAM H

M901 M02

A2	CLIO INT RQST L
B2	DSC 503 INTEN L
C2	GND
D2	LCS IDLE (1)L
E2	LCS SEARCH (1)L
F2	LCS BLOCK (1)L
H2	LCX NO PAUSE (1)L
J2	LCX EX ADD FORMAT (1)L
K2	LCS CHK WRD (1)L
L2	MCT PWR STOP L
M2	LIN TINR 11 (1)L
N2	LIN TINR 10 (1)L
P2	LIN TINR 09 (1)L
R2	LCX MARK (1)L
S2	INS MTP H
T2	INS 8 MSC H
U2	CS1 KEY MARK L
V2	LIP TAPE WORD (1)H

M903 J02

B1	CPTP START MEMORY H
D1	IOC IO PRESET L
E1	CPTP TP2 H
H1	CPTP TP5D H
J1	CPTP TP4 H
L1	CPTP TP5 H
M1	IOC IOP 1 L
P1	IOC IOP 2 L
S1	IOC IOP 4 L

* USE M906 IF SYSTEM DOES NOT HAVE TAPES.

M903 J02

D2	MCT PWR CLR L
E2	CPT TS2 (1)H
H2	CPT TS3 (1)H
K2	CPT TS4 (1)H
M2	CPT TS5 B (1)H
P2	CPS EXECUTE B (1)H
S2	CPS FETCH B (1)H
T2	CST IO PRESET L
V2	PWF PWR SKIP L

M903 K02

B1	PRA AC 00 (1)H
D1	PRA AC 01 (1)H
E1	PRB AC 02 (1)H
H1	PRB AC 03 (1)H
J1	PRC AC 04 (0)H
L1	PRC AC 04 (1)H
M1	PRC AC 05 (1)H
P1	PRD AC 06 (1)H
S1	PRD AC 07 (1)H

M903 K02

D2	PRE AC 08 (1)H
E2	PRE AC 09 (1)H
H2	PRF AC 10 (0)H
K2	PRF AC 10 (1)H
M2	PRF AC 11 (0)H
P2	PRF AC 11 (1)H
S2	RCL LOAD MSC 4 H
T2	PRB AC 03 (0)H
V2	CPS T BREAK (1)H

M901 L02

A1	YAD AD 02 (1)H
B1	YADC AD 03 (0)H
C1	YADC AD 04 (0)H
D1	YADC AD 05 (0)H
E1	YADC AD 06 (0)H
F1	YADC AD 07 (0)H
H1	YADC AD 08 (0)H
J1	YADC AD 09 (0)H
K1	YADC AD 10 (0)H
L1	YADC AD 11 (0)H
M1	CPT (DSC*DIS) H
N1	SLA (DSC*EXECUTE 2) L
P1	INS DIS L
R1	INS DSC L
S1	CPR RUN (1)H
T1	GND
U1	DSC BUSY H
V1	YADC A-D RECYCLE L

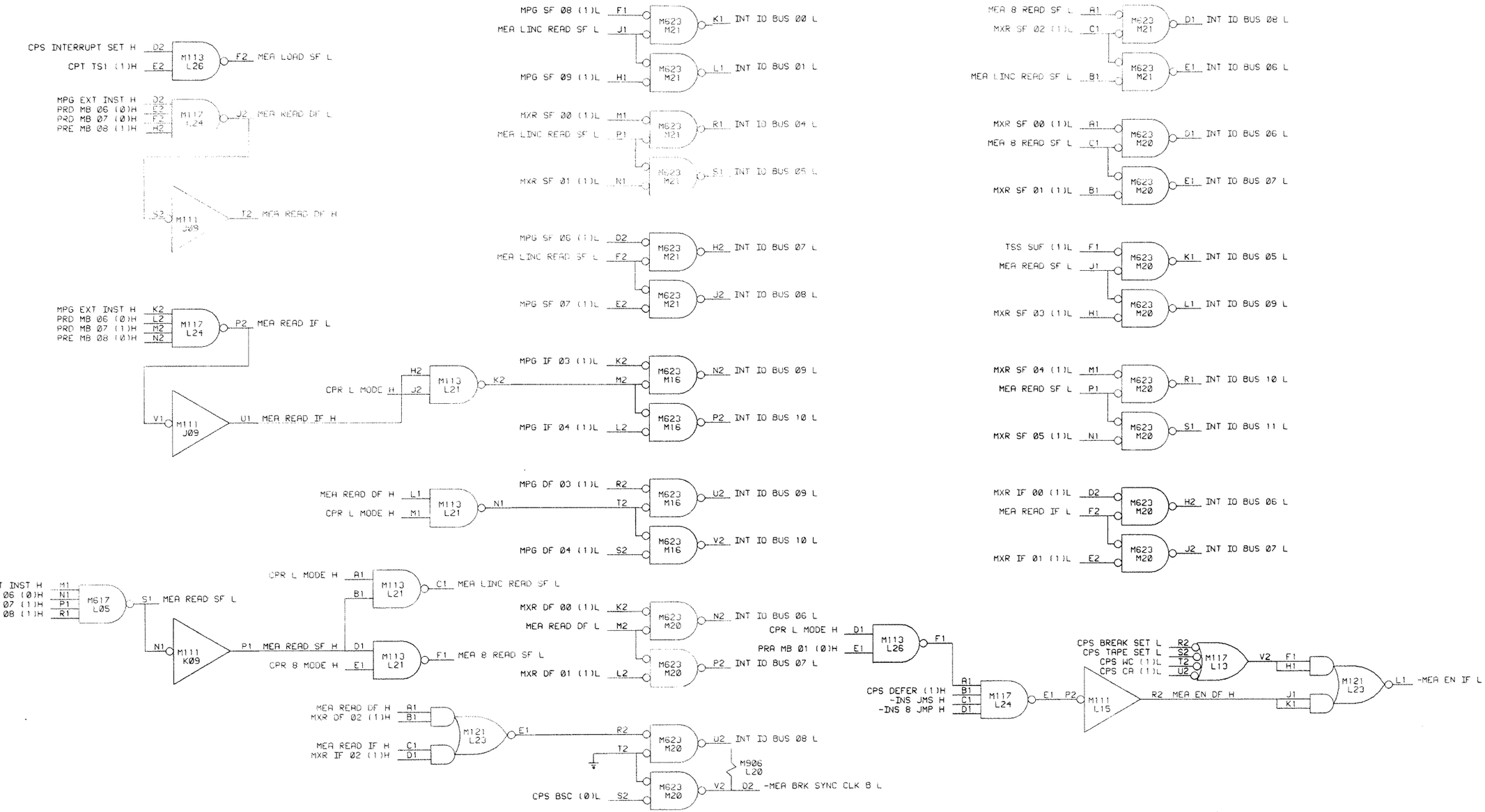
* ADD GND DISABLE WIRE FOR PDP-12C SYSTEMS ONLY WHICH DO NOT HAVE VC12 SCOPE CONTROL.

M901 L02

A2	MXF EA 0 L
B2	MXF EA 1 L
C2	
D2	MXR DF 00 (1)H
E2	MXR DF 01 (1)H
F2	MXR DF 02 (1)H
H2	MPGDF 03 (1)H
J2	MPG DF 04 (1)H
K2	MXR IF 00 (1)H
L2	MXR IF 01 (1)H
M2	MXR IF 02 (1)H
N2	MPG IF 03 (1)H
P2	MPG IF 04 (1)H
R2	INR IR 08 (1)H
S2	YADC FAST SAM (1)H
T2	LCX TF 00 (1)H
U2	LCX TF 01 (1)H
V2	LCX TF 02 (1)H

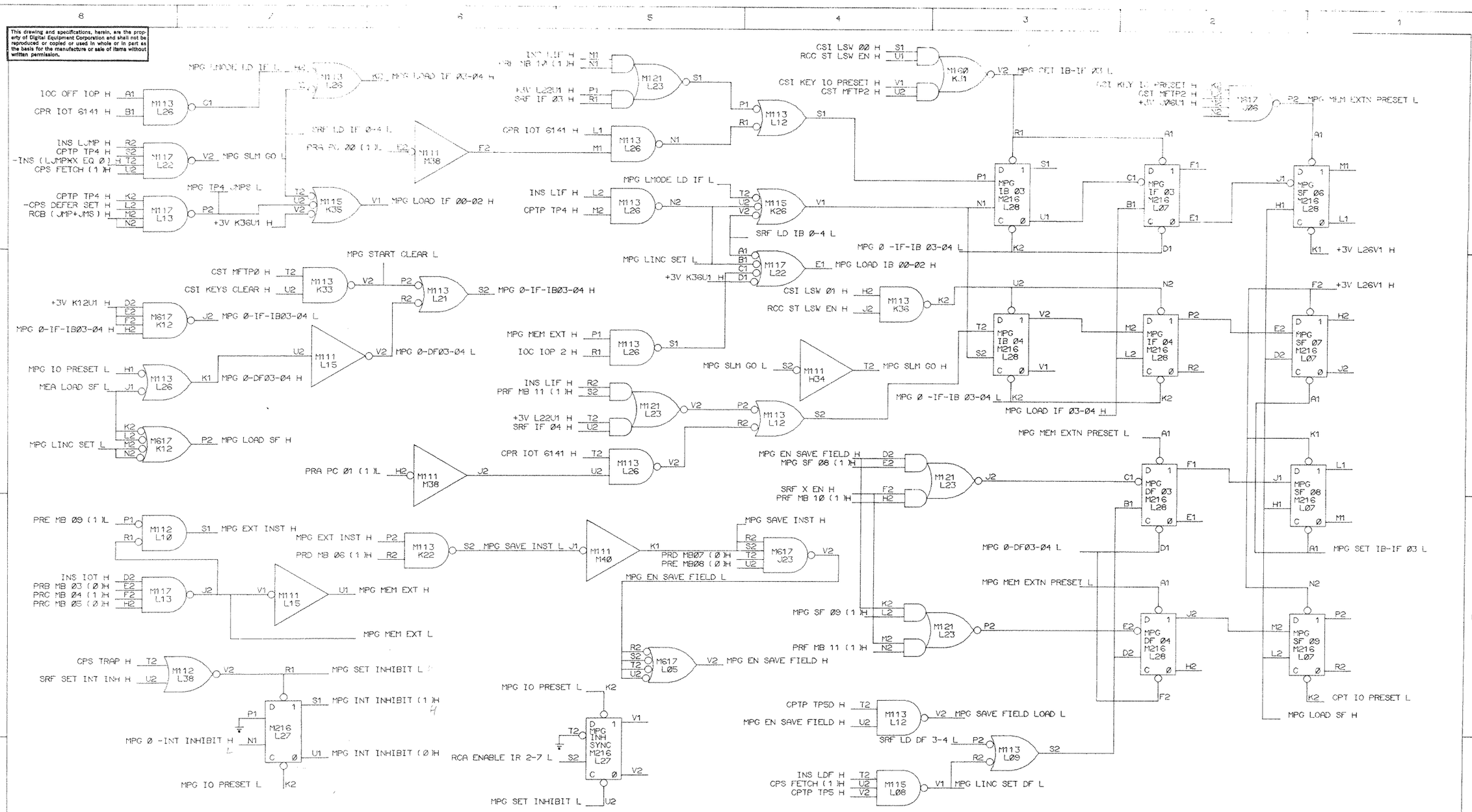
REVISIONS			REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
JB	EP12-00001	A	NR	EP12-00007	E		EP12-00036	K
	ADS			A WASHINGTON				
	J SCANLAN 3/13/69			J SCANLAN				
	EP12-00002	B	NR	EP12-00011	F			
	A WASHINGTON 5/20/69			BRUCE KORTEJING				
	J SCANLAN 5/22/69			J SCANLAN				
NR	EP12-00004	C		EP12-M016	H			
	A WASHINGTON 7/9/69			ADS				
	J SCANLAN 7/9/69			J SCANLAN				
	EP12-00006	D	GH	EP12-00033	J			
	A WASHINGTON			N CATE 2/2/71				
	J SCANLAN			J SCANLAN 2/14/71				

DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J BISONETE	DATE 2/20/69	
ENG. L GALE	DATE 2/20/69	TITLE INTER PROC CABLES
PROJ. ENG. L GALE	DATE 2/20/69	
PROD. D CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D · CODE 85 · NUMBER EP12-0-IPC · REV. K
SCALE		
SHEET 1 OF 1		DIST.



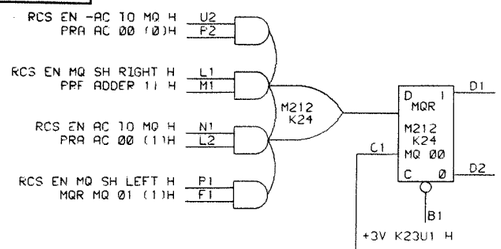
REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
JB	EP12-00001	A	FV	EP12-00021	E
	ADS			D. SOUTHER 6-16-70	
	J SCANLAN 3/13/69			J. SCANLAN 6-17-70	
	EP12-00002	B	TC	EP12-00023	F
	A WASHINGTON 5/20/69			D. SOUTHER 6-30-70	
	J SCANLAN 5/22/69			D. MACKLIN 7-2-70	
NR	EP12-00004	C	[illegible]	EP12-00030	H
	A WASHINGTON 7/9/69			[illegible]	
	L GALE 7/15/69				
NR	EP12-00015	D			
	K.COTE 10-14-69				
	J.SCANLAN 10-17-69				

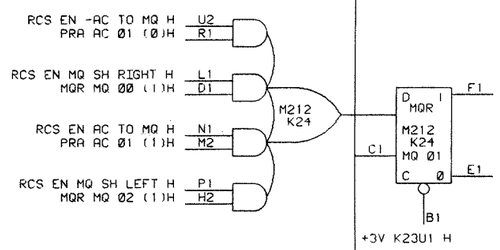
DRN D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHKD J BISONETE	DATE 2/20/69	TITLE MEM EXTN AC INPUTS
ENG L GALE	DATE 2/20/69	
PROJ ENG L GALE	DATE 2/20/69	
PROD J CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D / CODE BS / NUMBER EP12-0-MEA / REV. H
SCALE		
SHEET 1 OF 1		DIST.

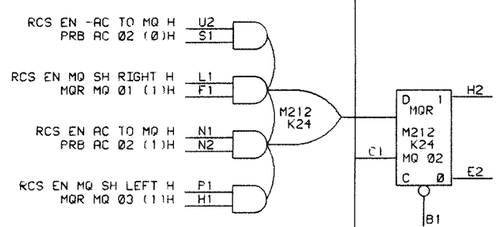


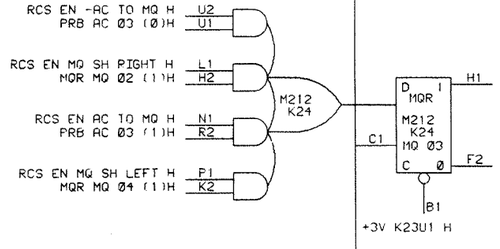
REVISIONS			REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
JB	EP12-00001	A	NR	EP12-00007	E	GH	EP12-00036	K
	ADS			A WASHINGTON 8/20/69			R SOFKA 5-6-71	
	J SCANLAN 3/13/69			L GALE 8/22/69			J SCANLAN 5-20-71	
PD	EP12-00002	B	NR	EP12-00015	F		EP12-00044	L
	A WASHINGTON 5/20/69			K. COTE 10-14-69				
	J SCANLAN 5/22/69			J. SCANLAN 10-14-69				
	EP12-00003	C	NR	EP12-00018	H			
	A WASHINGTON 6/18/69			D. SOUTHER 12-2-69				
	L GALE 6/20/69			J. SCANLAN 12-4-69				
NR	EP12-00004	D	GH	EP12-00030	J			
	A WASHINGTON 7/9/69			K WALSH 11/16/70				
				D MACKLIN 11/19/70				

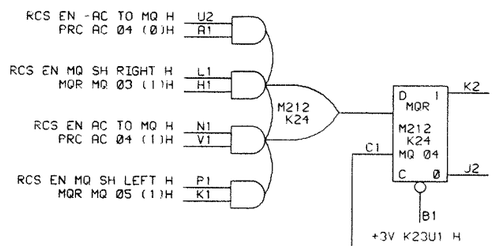
DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J BISONETE	DATE 2/20/69	
ENG. L GALE	DATE 2/20/69	TITLE MEM PAGE EXTN CONTROL
PROJ. ENG. L GALE	DATE 2/20/69	
PROD. D CALL	DATE 2/20/69	
FIRST USED ON EP12		
SCALE		
SHEET 1 OF 1		SIZE D | CODE BS | NUMBER EP12-0-MPG | REV. L | DIST.

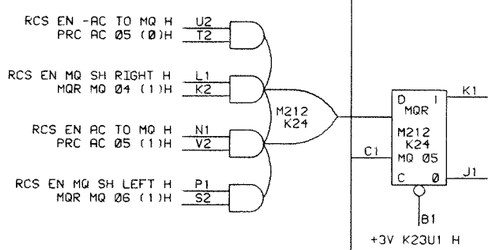


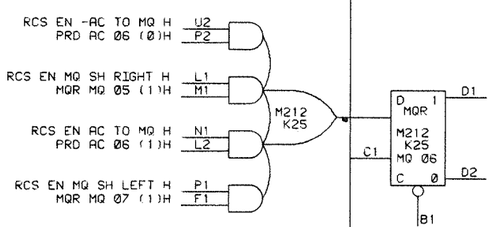


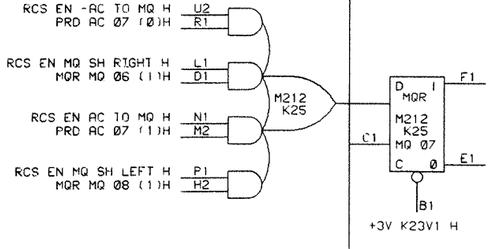


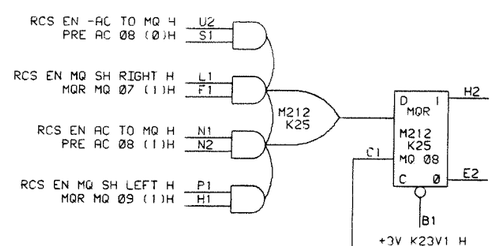


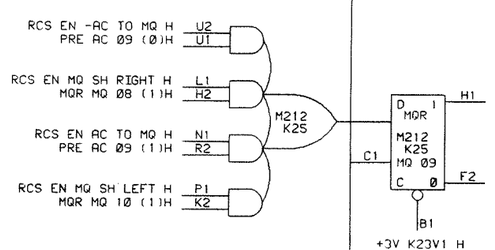


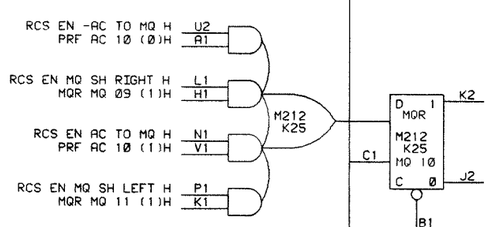


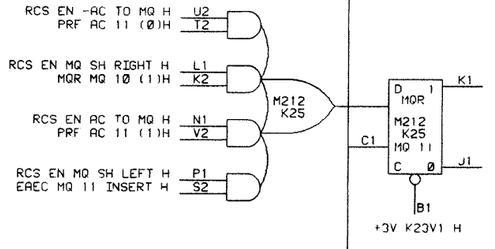












REVISIONS		
CHK	CHANGE NO.	REV.
PD	EP12-00002	A
	A.WASHINGTON 5-20-69	
	J. SCANLAN 5-22-69	
	EP12-00030	B
	11-19-70	

DRN. D. SHEPARD	DATE 2-20-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J.BISSONNETTE	DATE 2-20-69	
ENG. L. GALE	DATE 2-20-69	TITLE: MUL QUOTIENT
PROJ. ENG. L. GALE	DATE 2-20-69	
PROD. D. CALL	DATE 2-20-69	
FIRST USED ON: EP12		SIZE D; CODE BS; NUMBER EP12-0-MQR; REV. B
SCALE		DIST.
SHEET 1 OF 1		

INS LOH L A1
INS STH L B1
INS SHD L C1
M115 K13
D1 PMA HALF WORD H P1
CYI TO INDEX H R1
CPT TS3 (1)H S1
M115 K13 U1

B1

RCB EN DF ADDRESS H C1 MPG DF Ø3 (1)H D1
RCD EN DATA BITS H D2 IOA DATA Ø0 H E1
RCC EN IO BUS H E2 IOA IO BUS Ø0 H F1
RCD EN AC N-6L H F2 PRD AC Ø6 (1)H H1
M169 K15
A1 PMA TMSC Ø0 H

+3V K14U1 H
L1
RCD EN A D H R2 YAD AD Ø2 (1)H S1
RCD EN TAPE BUS H P2 LTRA TAPE BUS Ø0 H R1
RCC SET PC Ø-1 H N2 RCC SET PC Ø-1 H P1
RCB EN IF ADDRESS H M2 MPG IF Ø3 (1)H N1
M169 K15
M1 PMA BMSC Ø0 H

+3V K14U1 H
J1
RCB EN DF ADDRESS H C1 MPG DF Ø4 (1)H H2
RCD EN DATA BITS H D2 IOA DATA Ø1 H J2
RCC EN IO BUS H E2 IOA IO BUS Ø1 H K2
RCD EN AC N-6 L H F2 PRD AC Ø7 (1)H L2
M169 K15
K1 PMA TMSC Ø1 H

+3V K14U1 H
U2
RCD EN A D H R2 YAD AD Ø2 (1)H V1
RCD EN TAPE BUS H P2 LTRA TAPE BUS Ø1 H U1
RCC SET PC Ø-1 H N2 RCC SET PC Ø-1 H T2
RCB EN IF ADDRESS H M2 MPG IF Ø4 (1)H S2
M169 K15
V2 PMA BMSC Ø1 H

+3V K14U1 H
B1
CSI MF1S1 (1)H C1
RCD EN DATA BITS H D2 IOA DATA Ø2 H E1
RCC EN IO BUS H E2 IOA IO BUS Ø2 H F1
RCD EN AC N-6 L H F2 PRE AC Ø8 (1)H H1
M169 K16
A1 PMA TMSC Ø2 H

+3V K14U1 H
L1
RCD EN A D H R2 YAD AD Ø2 (1)H S1
RCD EN TAPE BUS H P2 LTRB TAPE BUS Ø2 H R1
RCA ENABLE IR 2-7 H N2 INR IR Ø2 (1)H P1
RCA EN MSC 4 H M2 CPS EN TRAP (1)H N1
M169 K16
M1 PMA BMSC Ø2 H

+3V K14U1 H
J1
CSI MF1S1 (1)H C1
CSI KEY ST 400 H H2
RCD EN DATA BITS H D2 IOA DATA Ø3 H J2
RCC EN IO BUS H E2 IOA IO BUS Ø3 H K2
RCD EN AC N-6 L H F2 PRE AC Ø9 (1)H L2
M169 K16
K1 PMA TMSC Ø3 H

+3V K14U1 H
U2
RCD EN A D H R2 YADC AD Ø3 (Ø)H V1
RCD EN TAPE BUS H P2 LTRB TAPE BUS Ø3 H U1
RCA ENABLE IR 2-7 H N2 INR IR Ø3 (1)H T2
RCA EN MSC 4 H M2 RCD EN 1 TRAP (1)H S2
M169 K16
V2 PMA BMSC Ø3 H

+3V K14U1 H
B1
RCD EN DATA BITS H C1 IOA DATA Ø4 H D1
RCC EN IO BUS H D2 IOA IO BUS Ø4 H E1
RCD EN AC N-6 L H E2 PRF AC 10 (1)H F1
M169 K17
A1 PMA TMSC Ø4 H

+3V K14U1 H
L1
RCD EN A D H R2 YADC AD Ø4 (Ø)H S1
RCD EN TAPE BUS H P2 LTRC TAPE BUS Ø4 H R1
RCA ENABLE IR 2-7 H N2 INR IR Ø4 (1)H P1
RCA EN MSC 4 H M2 PMA SIZE (1)H N1
M169 K17
M1 PMA BMSC Ø4 H

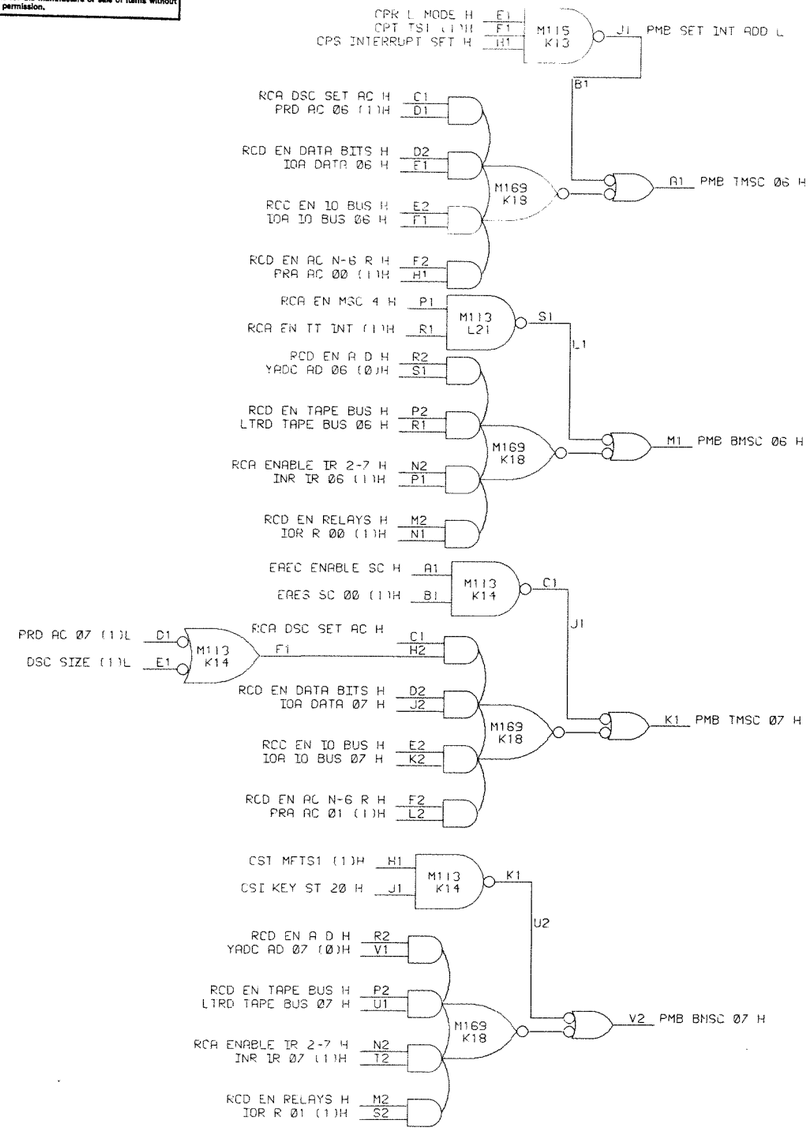
DSC SIZE (1)L S2
M111 L15
T2
CPS TRAP L L1
PMB SET INT ADD L M1
M112 H32
N1

+3V K14U1 H
J1
RCD EN DATA BITS H C1 IOA DATA Ø5 H H2
RCC EN IO BUS H D2 IOA IO BUS Ø5 H J2
RCD EN AC N-6 L H E2 PRF AC 11 (1)H K2
M169 K17
K1 PMA TMSC Ø5 H

+3V K14U1 H
U2
RCD EN A D H R2 YADC AD Ø5 (Ø)H V1
RCD EN TAPE BUS H P2 LTRC TAPE BUS Ø5 H U1
RCA ENABLE IR 2-7 H N2 INR IR Ø5 (1)H T2
RCA EN MSC 4 H M2 YADC FAST SAM (1)H S2
M169 K17
V2 PMA BMSC Ø5 H

REVISIONS		
CHK	CHANGE NO.	REV.
JB	EP12-00001	A
	ADS	
	J SCANLAN 3/13/69	
	EP12-00015	B

DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J BISONETE	DATE 2/20/69	
ENG. L GALE	DATE 2/20/69	TITLE PROCESSOR MISCELLANEOUS A
PROJ. ENG. L GALE	DATE 2/20/69	
PROD. D CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D CODE 85 NUMBER EP12-0-PMA REV. B
SCALE		
SHEET 1 OF 1		DIST.



REVISIONS		
CHK	CHANGE NO.	REV.

DRN.	DATE
CHK'D.	DATE
ENG.	DATE
PROJ. ENG.	DATE
PROD.	DATE
FIRST USED ON	EP12
SCALE	
SHEET 1 OF 1	

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: PROCESSOR MISCELLANEOUS B

SIZE	CODE	NUMBER	REV.
D	85	EP12-0-PMB	A

DIST.

PRA CARRY ØØ L

R2 S2 T2 U2 — M627 J14 V2 — PRA CARRY ØØ H

+3VJ14U1

RCD EN DATA ADD H (JL2 HN1)
IOA DATA ADD ØØ H

RCB EN MEM Ø-5 H (HV1 HL1)
MCS MEM ØØ H

RCC EN PC Ø-1 H (HK1)
PRA PC ØØ (1) H

RCD EN RSW Ø-5 H (HD2 HE2)
CSI RSW ØØ H

RCB EN MA Ø-4 H (HR1)
PRA MA ØØ (1) H

RCB EN MB Ø-1 H (HP1)
PRA MB ØØ (1) H

PMA BMSC ØØ H (HF2)

PRA AC ØØ (1) H (HJ2 HJ1)
RCA SET AC H

JT2 — PRA PARTIAL SUM ØØ L

RCC EN BCL H (JD1)
PRA MB ØØ (Ø) H
PRA AC ØØ (1) H

RCA EN AC Ø-5 H (HT2)
PRA AC ØØ (1) H

RCC EN-AC H (JH1)
PRA AC ØØ (Ø) H

RCC EN MQ H (HS2 HR2)
MQR MQ ØØ (1) H

PMA TMSC ØØ H (HU1)

RCC EN BSE H (JE1)
PRA MB ØØ (1) H
PRA AC ØØ (Ø) H

HP2

HH1 — ADD — HH2 PRA ADDER ØØ L

RCS EN SHIFT RIGHT H (HE1 HB1)
FLE HIGH END SHIFT IN H

RCS EN NO SHIFT H (HJ2)

RCS EN SHIFT LEFT H (HF1)
- PRA ADDER Ø1 H

RCC EN LSW H (HC1)

HD1

CSI LSW ØØ H (HN2)

PRA MA ØØ (1) H
PRA MA ØØ (Ø) H
PRA MA Ø1 (Ø) H
PRA MA Ø1 (1) H

HA1 — PRA ADDRESS MATCH Ø-1 H

CSI LSW Ø1 H (HM2)

RCD EN DATA ADD H (JL2 JP1)
IOA DATA ADD Ø1 H

RCB EN MEM Ø-5 H (HV1 JL1)
MCS MEM Ø1 H

RCC EN PC Ø-1 H (HK1)
PRA PC Ø1 (1) H

RCD EN RSW Ø-5 H (HD2 JM1)
CSI RSW Ø1 H

RCB EN MA Ø-4 H (JM2)
PRA MA Ø1 (1) H

RCB EN MB Ø-1 H (JP2)
PRA MB Ø1 (1) H

PMA BMSC Ø1 H (JN1)

PRA AC Ø1 (1) H (HJ1)
RCA SET AC H

JV2

RCC EN BCL H (JD1)
PRA MB Ø1 (Ø) H
PRA AC Ø1 (1) H

RCA EN AC Ø-5 H (HT2)
PRA AC Ø1 (1) H

RCC EN-AC H (JH1)
PRA AC Ø1 (Ø) H

RCC EN MQ H (HS2 JJ1)
MQR MQ Ø1 (1) H

PMA TMSC Ø1 H (JK1)

RCC EN BSE H (JE1)
PRA MB Ø1 (1) H
PRA AC Ø1 (Ø) H

JH2

ADD — HK2 PRA ADDER Ø1 L

RCS EN NO SHIFT H (HJ2)

RCS EN SHIFT LEFT H (HF1 HL2)
- PRA ADDER Ø2 H

RCS EN SHIFT RIGHT H (HE1)
- PRA ADDER ØØ H

HM1 — PRA CARRY IN Ø1 L

RCC EN LSW H (HC1)

HV2

PRA PARTIAL SUM Ø1 L

RCL LOAD MA H (JF2) — PRA MA ØØ (D 1, C Ø) — JV1 HS1
RCL LOAD PC H (JA1) — PRA PC ØØ — JB1
PRA REG BUS ØØ H — PRA MB ØØ — JS1 JF1
RCL LOAD MB H (JC1)
RCL LOAD AC H (HU2) — PRA AC ØØ — JU1 HB2

RCL LOAD MA H (JF2) — PRA MA Ø1 — JK2 JN2
RCL LOAD PC H (JA1) — PRA PC Ø1 — JE2
RCL LOAD MB H (JC1) — PRA MB Ø1 — JR1 JR2
PRA REG BUS Ø1 H — PRA AC Ø1 — JD2 JJ2
RCL LOAD AC H (HU2)

- PRA PARTIAL SUM ØØ H (IT2)

PRA AC ØØ (1) H (HJ2)
- PRA PARTIAL SUM ØØ H (IT2)
PRA AC ØØ (Ø) H
- PRA PARTIAL SUM Ø1 H (JV2)
PRA AC Ø1 (Ø) H (JT2)
PRA AC Ø1 (1) H (JT2)

JU2 — PRA CARRY OK Ø-1 L

- PRA PARTIAL SUM Ø1 H (JV2)

PRA AC ØØ (1) H
PRA MB ØØ (Ø) H
PRA AC ØØ (Ø) H
PRA MB ØØ (1) H
PRA AC Ø1 (1) H
PRA MB Ø1 (Ø) H
PRA AC Ø1 (Ø) H
PRA MB Ø1 (1) H

JS2 — PRA AC-EQ MB Ø,1 L

CYI ADD NDX H (D2)
CPT TS 1(1) H (E2)
CPR L MODE H (F2)
+3VJ14U1 (H2)
M627 J14 V2

+3VJ14U1 (K2)
CPR L MODE H (L2)
CYI PC INCREMENT H (M2)
CPT TS 2(1) H (N2)
M627 J14 P2

PRA LINC COUNT L (F1 H1 J1 K1)
M627 J14 L1
- PRA CARRY IN Ø1 H

- PRA CARRY Ø2 L

SLA (DSC * EXECUTE 2) H (S1 U1)
CPT TS 3(1) H
CYI LINC INDEXING H (V1 U2)
M160 H13 V2 — PRA LINC COUNT L

- PRB CARRY Ø2 H (M1 N1 P1 R1)
+3V J14 U1
M627 J14 S1 — - PRA CARRY Ø2 L

M221
H15
J15

REVISIONS	REV	CHANGE NO	CHK
	A	00002	
	B	EP12-00004	
	C	EP12-00015	
	D	EP12-00023	

J. SCANLON 12/13/68
L. GALE 2/15/69
L. GALE 10/17/69
T. Gwatkin 6-30-70
GALE 7-2-70

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL

FINISH

DRN. [illegible] DATE 12/13/68
CHK J. Scanlon DATE 2/15/69
ENG. L. Gale DATE 2/15/69
PROJ. ENG. L. Gale DATE 2/19/69
PROD. D. Call DATE 2/19/69

FIRST USED ON EP12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
PRA
PROCESSOR REG.
BITS Ø & 1

SIZE D | CODE BS | NUMBER EP12-Ø-PRA | REV. D

DIST.

DEC FORM NO. DRD 102A

RCD EN DATA ADD H JL2
IOA DATA ADD Ø2 H HN1
RCB EN MEM Ø-5 H HV1
MCS MEM Ø2 H HL1
RCC EN PC 2-11 H HK1
PRB PC Ø2 (1) H
RCD EN RSW Ø-5 H HD2
CSI RSW Ø2 H HE2
RCB EN MA Ø-9 H HR1
PRB MA Ø2(1) H
RCB EN MB 2-9 H HP1
PRB MB Ø2(1) H
PMA BMSC Ø2 H HF2
PRB AC Ø2 (1) H HJ1
RCA SET AC H
JT2
PRB PARTIAL SUM Ø2 L
RCC EN BCL H JD1
PRB MB Ø2(Ø) H
PRB AC Ø2(1) H
RCA EN AC Ø-5 H HT2
PRB AC Ø2(1) H
RCC EN-AC H JH1
PRB AC Ø2(Ø) H
RCC EN MQ H HS2
MQR MQ Ø2(1) H HR2
PMA TMSC Ø2 H HU1
RCC EN BSE H JE1
PRB MB Ø2(1) H
PRB AC Ø2(Ø) H
HP2
HH1
ADD
HH2 PRB ADDER Ø2 L
PRB CARRY Ø2 L
RCS EN SHIFT RIGHT H HE1
-PRB ADDER Ø1 H HB1
RCS EN NO SHIFT H HJ2
RCS EN SHIFT LEFT H HF1
-PRB ADDER Ø3 H
RCC EN LSW H HC1
HD1
PRB REG BUS Ø2 H
CSI LSW Ø2 H HN2
PRB MA Ø2(1) H
PRB MA Ø2(Ø) H
PRB MA Ø3(Ø) H
PRB MA Ø3(1) H
HA1
PRB ADDRESS MATCH 2-3 H
HM2
CSI LSW Ø3 H
RCD EN DATA ADD H JL2
IOA DATA ADD Ø3 H JP1
RCB EN MEM Ø-5 H HV1
MCS MEM Ø3 H JL1
RCC EN PC 2-11 H HK1
PRB PC Ø3(1) H
RCD EN RSW Ø-5 H HD2
CSI RSW Ø3 H JM1
RCB EN MA Ø-9 H JM2
PRB MA Ø3(1) H
RCB EN MB 2-9 H JP2
PRB MB Ø3(1) H
PMA BMSC Ø3 H JN1
PRB AC Ø3(1) H HJ1
RCA SET AC H
JV2
RCC EN BCL H JD1
PRB MB Ø3(Ø) H
PRB AC Ø3(1) H
RCA EN AC Ø-5 H HT2
PRB AC Ø3(1) H
RCC EN-AC H JH1
PRB AC Ø3(Ø) H
RCC EN MQ H HS2
MQR MQ Ø3(1) H JJ1
PMA TMSC Ø3 H JK1
RCC EN BSE H JE1
PRB MB Ø3(1) H
PRB AC Ø3(Ø) H
JH2
ADD
HK2 PRB ADDER Ø3 L
HM1
PRC CARRY Ø4 L
PRB PARTIAL SUM Ø3 L
RCC EN LSW H HC1
RCS EN NO SHIFT H HJ2
RCS EN SHIFT LEFT H HF1
-PRB ADDER Ø4 H HL2
RCS EN SHIFT RIGHT H HE1
-PRB ADDER Ø2 H
HV2
PRB REG BUS Ø3 H

RCL LOAD MA H JF2
RCL LOAD PC H JA1
RCL LOAD MB H JC1
RCL LOAD AC H HU2
D 1 C Ø
PRB MA Ø2 HS1 JV1
PRB PC Ø2 JB1
PRB MB Ø2 JF1 JS1
PRB AC Ø2 HB2 JU1
PRB MA Ø3 JN2 JK2
PRB PC Ø3 JE2
PRB MB Ø3 JR2 JR1
PRB AC Ø3 JJ2 JD2

-PRB PARTIAL SUM Ø2 H
PRB AC Ø2(1) H
-PRB PARTIAL SUM Ø2 H
PRB AC Ø2(Ø) H
-PRB PARTIAL SUM Ø3 H
PRB AC Ø3(Ø) H
PRB AC Ø3 (1) H
JU2 PRB CARRY OK 2-3 L
-PRB PARTIAL SUM Ø3 H

PRB AC Ø2(1) H
PRB MB Ø2(Ø) H
PRB AC Ø2(Ø) H
PRB MB Ø2(1) H
PRB AC Ø3(1) H
PRB MB Ø3(Ø) H
PRB AC Ø3(Ø) H
PRB MB Ø3(1) H
JS2 PRB AC-EQ MB 2-3 L

M221
H16
J16

REVISIONS			
CHK	CHANGE NO.		REV.
	00002	J. Mercer	A
	EP12-00015	J. SCANLON	B
	EP12-00023	J. Scanlon 10-17-69	C
		Walter Mercer 6-30-70	
		L. GALE	
		L. Gale 7-2-70	

DEC FORM NO. DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

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

DRN. DATE 12/13/68
CHK. J. Scanlon DATE 2/14/69
ENG. DATE 2/14/69
PROJ. ENG. L. Gale DATE 2/14/69
PROD. DATE 2/17/69

FIRST USED ON EP12
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
PRB
PROCESSOR REG.
BITS 2 & 3

SIZE D | CODE 85 | NUMBER EP12-Ø-PRB | REV. C
DIST.

RCD EN DATA ADD H (JL2) / IOA DATA ADD Ø4 H (HN1) → JT2
RCB EN MEM Ø-5 H (HV1) / MCS MEM Ø4 H (HL1)
RCC EN PC 2-11 H (HK1) / PRC PC Ø4 (1) H
RCD EN RSW Ø-5 H (HD2) / CSI RSW Ø4 H (HE2)
RCB EN MA Ø-4 H (HR1) / PRC MA Ø4 (1) H
RCB EN MB 2-4 H (HP1) / PRC MB Ø4 (1) H
PMA BMSC Ø4 H (HF2)
PRC AC Ø4 (1) H (HJ1) / RCA SET AC H

RCC EN BCL H (JD1) / PRC MB Ø4 (Ø) H / PRC AC Ø4 (1) H
RCA EN AC Ø-5 H (HT2) / PRC AC Ø4 (1) H
RCC EN-AC H (JH1) / PRC AC Ø4 (Ø) H
RCC EN MQ H (HS2) / MQR MQ Ø4 (1) H
PMA TMSC Ø4 H (HU1)
RCC EN BSE H (JE1) / PRC MB Ø4 (1) H / PRC AC Ø4 (Ø) H
→ HP2

PRC CARRY Ø4 L
PRC PARTIAL SUM Ø4 L
HH1 → ADD
HH2 PRC ADDER Ø4 L

RCS EN SHIFT RIGHT H (HE1) / -PRB ADDER Ø3 H (HB1)
RCS EN NO SHIFT H (HJ2)
RCS EN SHIFT LEFT H (HF1) / -PRC ADDER Ø5 H
RCC EN LSW H (HC1)
→ HD1

CSI LSW Ø4 H → HN2
PRC MA Ø4 (1) H
PRC MA Ø4 (Ø) H
PRC MA Ø5 (Ø) H
PRC MA Ø5 (1) H
→ HA1 PRC ADDRESS MATCH 4-5 H

CSI LSW Ø5 H → HM2

RCC EN BCL H (JD1) / PRC MB Ø5 (Ø) H / PRC AC Ø5 (1) H
RCA EN AC Ø-5 H (HT2) / PRC AC Ø5 (1) H
RCC EN-AC H (JH1) / PRC AC Ø5 (Ø) H
RCC EN MQ H (HS2) / MQR MQ Ø5 (1) H
PMA TMSC Ø5 H (JK1)
RCC EN BSE H (JE1) / PRC MB Ø5 (1) H / PRC AC Ø5 (Ø) H
→ JH2

RCD EN DATA ADD H (JL2) / IOA DATA ADD Ø5 H (JP1)
RCB EN MEM Ø-5 H (HV1) / MCS MEM Ø5 H (JL1)
RCC EN PC 2-11 H (HK1) / PRC PC Ø5 (1) H
RCD EN RSW Ø-5 H (HD2) / CSI RSW Ø5 H (JM1)
RCB EN MA 5-11 H (JM2) / PRC MA Ø5 (1) H
RCB EN MB 5-11 H (JP2) / PRC MB Ø5 (1) H
PMA BMSC Ø5 H (JN1)
PRC AC Ø5 (1) H (HJ1) / RCA SET AC H
→ JV2

PRD CARRY Ø6 L
PRC PARTIAL SUM Ø5 L
HM1 ← ADD
HK2 PRC ADDER Ø5 L

RCC EN LSW H (HC1)
RCS EN NO SHIFT H (HJ2)
RCS EN SHIFT LEFT H (HL2) / -PRC ADDER Ø6 H
RCS EN SHIFT RIGHT H (HE1) / -PRC ADDER Ø4 H
→ HV2

PRC REG BUS Ø4 H (HD1)
RCL LOAD MA H (JF2) → D 1 PRC MA Ø4 C Ø (HS1 / JV1)
RCL LOAD PC H (JA1) → PRC PC Ø4 (JB1)
RCL LOAD MB H (JC1) → PRC MB Ø4 (JF1 / JS1)
RCL LOAD AC H (HU2) → PRC AC Ø4 (HB2 / JU1)

PRC REG BUS Ø5 H (HV2)
RCL LOAD MA H (JF2) → PRC MA Ø5 (JN2 / JK2)
RCL LOAD PC H (JA1) → PRC PC Ø5 (JE2)
RCL LOAD MB H (JC1) → PRC MB Ø5 (JR2 / JR1)
RCL LOAD AC H (HU2) → PRC AC Ø5 (JJ2 / JD2)

-PRC PARTIAL SUM Ø4 H
PRC AC Ø4 (1) H
-PRC PARTIAL SUM Ø4 H / PRC AC Ø4 (Ø) H
-PRC PARTIAL SUM Ø5 H / PRC AC Ø5 (Ø) H
PRC AC Ø5 (1) H
→ JU2 PR CARRY OK 4-5 L
-PRC PARTIAL SUM Ø5 H

PRC AC Ø4 (1) H / PRC MB Ø4 (Ø) H
PRC AC Ø4 (Ø) H / PRC MB Ø4 (1) H
PRC AC Ø5 (1) H / PRC MB Ø5 (Ø) H
PRC AC Ø5 (Ø) H / PRC MB Ø5 (1) H
→ JS2 PRC AC-EQ MB 4-5 L

M221
H17
J17

REVISIONS	CHANGE NO	CHK	REV
	00002	DB	A
	EP12-00015	DB	B
FV	EP12-00023		C

DEC FORM NO DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL

FINISH

DRN J. Sherrod DATE 12/13/68
CHK J. SCANLON DATE 2/18/69
ENG L. GALE DATE 2/14/69
PROJ ENG L. GALE DATE 2/14/69
PROD W. Call DATE 2/14/69

FIRST USED ON EP12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
PRC
PROCESSOR REG.
BITS 4 & 5

SIZE D | CODE 85 | NUMBER EP12-Ø-PRC | REV C

DIST.

Made: 7-2-70

RCD EN DATA ADD H — JL2
IOA DATA ADD Ø6 H — HN1
RCB EN MEM 6-11 H — HV1
MCS MEM Ø6 H — HL1
RCC EN PC 2-11 H — HK1
PRD PC Ø6(1) H
RCD EN RSW 6-11 H — HD2
CSI RSW Ø6 H — HE2
RCB EN MA 5-11 H — HR1
PRD MA Ø5(1) H
RCB EN MB 5-11 H — HP1
PRD MB Ø6(1) H
PMB BMSC Ø6 H — HF2
PRD AC Ø6(1) H
RCA SET AC H — HJ1
→ JT2

RCC EN BCL H — JD1
PRD MB Ø6(Ø) H
PRD AC Ø6(1) H
RCA EN AC 6-11 H — HT2
PRD AC Ø6(1) H
RCC EN-AC H — JH1
PRD AC Ø6(Ø) H
RCC EN MQ H — HS2
MQR MQ Ø6(1) H — HR2
PMB TMSC Ø6 H — HU1
RCC EN BSE H — JE1
PRD MB Ø6(1) H
PRD AC Ø6(Ø) H
→ HP2

PRD PARTIAL SUM Ø6 L

PRD CARRY Ø6 L

ADD
HH1
HH2 PRD ADDER Ø6 L

RCS EN SHIFT RIGHT H — HE1
-PRC ADDER Ø5 H — HB1
RCS EN NO SHIFT H — HJ2
RCS EN SHIFT LEFT H — HF1
-PRD ADDER Ø7 H
RCC EN LSW H — HC1
→ HD1

CSI LSW Ø6 H — HN2

PRD MA Ø6(1) H
PRD MA Ø6(Ø) H
PRD MA Ø7(Ø) H
PRD MA Ø7(1) H
→ HA1

PRD ADDRESS MATCH 6-7 H

CSI LSW Ø7 H — HM2

RCC EN BCL H — JD1
PRD MB Ø7(Ø) H
PRD AC Ø7(1) H
RCA EN AC 6-11 H — HT2
PRD AC Ø7(1) H
RCC EN-AC H — JH1
PRD AC Ø7(Ø) H
RCC EN MQ H — HS2
MQR MQ Ø7(1) H — JJ1
PMB TMSC Ø7 H — JK1
RCC EN BSE H — JE1
PRD MB Ø7(1) H
PRD AC Ø7(Ø) H
→ JH2

ADD
HM1
HK2 PRD ADDER Ø7 L

PRE CARRY Ø8 L

RCC EN LSW H — HC1
RCS EN NO SHIFT H — HJ2
RCS EN SHIFT LEFT H — HF1
-PRE ADDER Ø8 H — HL2
RCS EN SHIFT RIGHT H — HE1
-PRD ADDER Ø6 H
→ HV2

RCD EN DATA ADD H — JL2
IOA DATA ADD Ø7 H — JP1
RCB EN MEM 6-11 H — HV1
MCS MEM Ø7 H — JL1
RCC EN PC 2-11 H — HK1
PRD PC Ø7(1) H
RCD EN RSW 6-11 H — HD2
CSI RSW Ø7 H — JM1
RCB EN MA 5-11 H — JM2
PRD MA Ø7(1) H
RCB EN MB 5-11 H — JP2
PRD MB Ø7(1) H
PMB BMSC Ø7 H — JN1
PRD AC Ø7(1) H
RCA SET AC H — HJ1
→ JV2

PRD PARTIAL SUM Ø7 L

RCL LOAD MA H — JF2
RCL LOAD PC H — JA1
RCL LOAD MB H — JC1
RCL LOAD AC H — HU2
RCL LOAD MA H — JF2
RCL LOAD PC H — JA1
RCL LOAD MB H — JC1
RCL LOAD AC H — HU2

PRD REG BUS Ø6 H

PRD REG BUS Ø7 H

PRD MA Ø6	HS1	JV1	
PRD PC Ø6		JB1	
PRD MB Ø6	JF1	JS1	
PRD AC Ø6	HB2	JU1	
PRD MA Ø7	JN2	JK2	
PRD PC Ø7		JE2	
PRD MB Ø7	JR2	JR1	
PRD AC Ø7	JJ2	JD2	

- PRD PARTIAL SUM Ø6 H
PRD AC Ø6(1) H
-PRD PARTIAL SUM Ø6 H
PRD AC Ø6(Ø) H
-PRD PARTIAL SUM Ø7 H
PRD AC Ø7(Ø) H
PRD AC Ø7(1) H
→ JU2 PRD CARRY OK 6-7 L

- PRD PARTIAL SUM Ø7 H

PRD AC Ø6(1) H
PRD MB Ø6(Ø) H
PRD AC Ø6(Ø) H
PRD MB Ø6(1) H
PRD AC Ø7(1) H
PRD MB Ø7(Ø) H
PRD AC Ø7(Ø) H
PRD MB Ø7(1) H
→ JS2 PRD AC-EQ MB 6-7 L

M221
H18
J18

REVISIONS	REV.
CHK Cash — CHANGE NO. 00002	A
S Mercer J SCANLON 12/13/68	
Cash EP12-00015 — Curtis Monroe 1/16/69	B
L. GALE 10-17-69	
Fv EP12-00023 — Keith Smith 6 30 70	C
GALE 7-2-70	

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

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

DRN Joe Ogura 12/13/68
CHK J Scanlon 2/18/69
ENG L Gale 2/18/69
PROJ. ENG. L Gale 2/18/69
PROD. W Call 2/19/69
FIRST USED ON EP12

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
PRD
PROCESSOR REG.
BITS 6 & 7

SIZE D — CODE BS — NUMBER EP12-Ø-PRD — REV. C
SCALE
SHEET 1 OF 1
DIST.

DEC FORM NO DRD 102A

EP12-Ø-PRD REV C

RCD EN DATA ADD H (JL2) / IOA DATA ADD Ø8 H (HN1) → JT2
RCB EN MEM 6-11 H (HV1) / MCS MEM Ø8 H (HL1) → JT2
RCC EN PC 2-11 H (HK1) / PRE PC Ø8(1) H → JT2
RCD EN RSW 6-11 H (HD2) / CSI RSW Ø8 H (HE2) → JT2
RCB EN MA 5-11 H (HR1) / PRE MA Ø8(1) H → JT2
RCB EN MB 5-11 H (HP1) / PRE MB Ø8(1) H → JT2
PMB BMSC Ø8 H (HF2) → JT2
PRE AC Ø8(1) H / RCA SET AC H (HJ1) → JT2

JT2 PRE PARTIAL SUM Ø8 L

RCC EN BCL H (JD1) / PRE MB Ø8(Ø) H / PRE AC Ø8(1) H → HP2
RCA EN AC 6-11 H (HT2) / PRE AC Ø8(1) H → HP2
RCC EN-AC H (JH1) / PRE AC Ø8(Ø) H → HP2
RCC EN MQ H (HS2) / MQR MQ Ø8(1) H (HR2) → HP2
PMB TMSC Ø8 H (HU1) → HP2
RCC EN BSE H (JE1) / PRE MB Ø8(1) H / PRE AC Ø8(Ø) H → HP2

HP2

PRE CARRY Ø8 L

HH1 ADD HH2 PRE ADDER Ø8 L

RCS EN SHIFT RIGHT H (HE1) / -PRD ADDER Ø7 H (HB1)
RCS EN NO SHIFT H (HJ2)
RCS EN SHIFT LEFT H (HF1) / -PRE ADDER Ø9 H
RCC EN LSW H (HC1)

HD1

CSI LSW Ø8 H (HN2) → HA1
PRE MA Ø8(1) H → HA1
PRE MA Ø8(Ø) H → HA1
PRE MA Ø9(Ø) H → HA1
PRE MA Ø9(1) H → HA1

HA1 PRE ADDRESS MATCH 8-9 H

PRE REG BUS Ø8 H

RCL LOAD MA H (JF2) → HS1 PRE MA Ø8 (C Ø) JV1
RCL LOAD PC H (JA1) → JF1 PRE PC Ø8 (C Ø) JB1
RCL LOAD MB H (JC1) → JS1 PRE MB Ø8 (C Ø)
RCL LOAD AC H (HU2) → HB2 PRE AC Ø8 (C Ø) JU1

- PRE PARTIAL SUM Ø8 H
PRE AC Ø8(1) H
-PRE PARTIAL SUM Ø8 H / PRE AC Ø8(Ø) H
-PRE PARTIAL SUM Ø9 H / PRE AC Ø9(Ø) H
PRE AC Ø9(1) H
→ JU2 PRE CARRY OK 8-9 L

- PRE PARTIAL SUM Ø9 H

RCL LOAD MA H (JF2) → JN2 PRE MA Ø9 (C Ø) JK2
RCL LOAD PC H (JA1) → JE2 PRE PC Ø9 (C Ø)
RCL LOAD MB H (JC1) → JR1 PRE MB Ø9 (C Ø) JR2
RCL LOAD AC H (HU2) → JD2 PRE AC Ø9 (C Ø) JJ2

PRE AC Ø8(1) H / PRE MB Ø8(Ø) H
PRE AC Ø8(Ø) H / PRE MB Ø8(1) H
PRE AC Ø9(1) H / PRE MB Ø9(Ø) H
PRE AC Ø9(Ø) H / PRE MB Ø9(1) H
→ JS2 PRE AC-EQ MB 8-9 L

RCD EN DATA ADD H (JL2) / IOA DATA ADD Ø9 H (JP1) → JV2
RCB EN MEM 6-11 H (HV1) / MCS MEM Ø9 H (JL1) → JV2
RCC EN PC 2-11 H (HK1) / PRE PC Ø9(1) H → JV2
RCD EN RSW 6-11 H (HD2) / CSI RSW Ø9 H (JM1) → JV2
RCB EN MA 5-11 H (JM2) / PRE MA Ø9(1) H → JV2
RCB EN MB 5-11 H (JP2) / PRE MB Ø9(1) H → JV2
PMB BMSC Ø9 H (JN1) → JV2
PRE AC Ø9(1) H / RCA SET AC H (HJ1) → JV2

JV2 PRE PARTIAL SUM Ø9 L

RCC EN BCL H (JD1) / PRE MB Ø9(Ø) H / PRE AC Ø9(1) H → JH2
RCA EN AC 6-11 H (HT2) / PRE AC Ø9(1) H → JH2
RCC EN-AC H (JH1) / PRE AC Ø9(Ø) H → JH2
RCC EN MQ H (HS2) / MQR MQ Ø9(1) H (JJ1) → JH2
PMB TMSC Ø9 H (JK1) → JH2
RCC EN BSE H (JE1) / PRE MB Ø9 (1) H / PRE AC Ø9 (Ø) H → JH2

JH2

PRF CARRY 1Ø L

HM1 ADD HK2 PRE ADDER Ø9 L

CSI LSW Ø9 H (HM2)

RCC EN LSW H (HC1)
RCS EN NO SHIFT H (HJ2)
RCS EN SHIFT LEFT H (HF1) / -PRF ADDER 1Ø H (HL2)
RCS EN SHIFT RIGHT H (HE1) / -PRE ADDER Ø8 H

HV2

PRE REG BUS Ø9 H

M221
H19
J19

REVISIONS			
CHK	CHANGE NO.	REV.	
Dick	00002	A	G Munro 10/2/68 J SCANLON 10/2/68
Dick	EP12-00015	B	Jack Mason 10-28-69
Fv	EP12-00023	C	L GALE 12/16/69 Fv Quillen 6-30-70 GALE 7-2-70

DEC FORM NO DRD 102A

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

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

DRN. Joe Mura	DATE 12/13/68	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D D Scanlan	DATE 2/18/69	
ENG. L Gale	DATE 2/19/69	TITLE PRE PROCESSOR REG. BITS 8 & 9
PROD. ENG. L Gale	DATE 2/19/69	
PROD. M Wall	DATE 2/18/70	
FIRST USED ON EP12		SIZE D CODE 85 NUMBER EP12-Ø-PRE REV. C
SCALE		
SHEET 1 OF 1		DIST.

RCD EN DATA ADD H (JL2) · IOA DATA ADD 1Ø H (HN1) → JT2
RCB EN MEM 6-11 H (HV1) · MCS MEM 1Ø H (HL1)
RCC EN PC 2-11 H (HK1) · PRF PC 1Ø (1) H
RCD EN RSW 6-11 H (HD2) · CSI RSW 1Ø H (HE2)
RCB EN MA 5-11 H (HR1) · PRF MA 1Ø (1) H
RCB EN MB 5-11 H (HP1) · PRF MB 1Ø (1) H
PMB BMSC 1Ø H (HF2)
PRF AC 1Ø (1) H (HJ1) · RCA SET AC H

RCC EN BCL H (JD1) · PRF MB 1Ø (Ø) H · PRF AC 1Ø (1) H
RCA EN AC 6-11 H (HT2) · PRF AC 1Ø (1) H
RCC EN-AC H (JH1) · PRF AC 1Ø (Ø) H
RCC EN MQ H (HS2) · MQR MQ 1Ø (1) H
PMB TMSC 1Ø H (HU1)
RCC EN BSE H (JE1) · PRF MB 1Ø (1) H · PRF AC 1Ø (Ø) H
→ HP2

PRF PARTIAL SUM 1Ø L
PRF CARRY 1Ø L
HH1 · ADD · HH2 PRF ADDER 1Ø L

RCS EN SHIFT RIGHT H (HE1) · -PRE ADDER Ø9 H (HB1)
RCS EN NO SHIFT H (HJ2)
RCS EN SHIFT LEFT H (HF1) · -PRF ADDER 11 H
RCC EN LSW H (HC1)
→ HD1

CSI LSW 1Ø H → HN2
PRF MA 1Ø (1) H
PRF MA 1Ø (Ø) H
PRF MA 11 (Ø) H
PRF MA 11 (1) H
→ HA1 PRF ADDRESS MATCH 1Ø-11 H

CSI LSW 11 H → HM2

RCC EN BCL H (JD1) · PRF MB 11 (Ø) H · PRF AC 11 (1) H
RCA EN AC 6-11 H (HT2) · PRF AC 11 (1) H
RCC EN-AC H (JH1) · PRF AC 11 (Ø) H
RCC EN MQ H (HS2) · MQR MQ 11 (1) H (JJ1)
PMB TMSC 11 H (JK1)
RCC EN BSE H (JE1) · PRF MB 11 (1) H · PRF AC 11 (Ø) H
→ JH2

RCD EN DATA ADD H (JL2) · IOA DATA ADD 11 H (JP1)
RCB EN MEM 6-11 H (HV1) · MCS MEM 11 H (JL1)
RCC EN PC 2-11 H (HK1) · PRF PC 11 (1) H
RCD EN RSW 6-11 H (HD2) · CSI RSW 11 H (JM1)
RCB EN MA 5-11 H (JM2) · PRF MA 11 (1) H
RCB EN MB 5-11 H (JP2) · PRF MB 11 (1) H
PMB BMSC 11 H (JN1)
PRF AC 11 (1) H (HJ1) · RCA SET AC H
→ JV2

ADD · HK2 PRF ADDER 11 L
HM1 · CYI CARRY INSERT L
PRF PARTIAL SUM 11 L

RCC EN LSW H (HC1)
RCS EN NO SHIFT H (HJ2)
RCS EN SHIFT LEFT H (HF1) · FLE LOW END SHIFT IN H (HL2)
RCS EN SHIFT RIGHT H (HE1) · -PRF ADDER 1Ø H
→ HV2

RCL LOAD MA H (JF2) → D PRF MA 1Ø C Ø (JV1)
RCL LOAD PC H (JA1) → D PRF PC 1Ø C Ø (JB1)
RCL LOAD MB H (JC1) → D PRF MB 1Ø C Ø (JS1)
RCL LOAD AC H (HU2) → D PRF AC 1Ø C Ø (JU1)
RCL LOAD MA H (JF2) → D PRF MA 11 C Ø (JK2)
RCL LOAD PC H (JA1) → D PRF PC 11 C Ø (JE2)
RCL LOAD MB H (JC1) → D PRF MB 11 C Ø (JR1)
RCL LOAD AC H (HU2) → D PRF AC 11 C Ø (JD2)

- PRF PARTIAL SUM 1Ø H
PRF AC 1Ø (1) H
-PRF PARTIAL SUM 1Ø H · PRF AC 1Ø (Ø) H
-PRF PARTIAL SUM 11 H · PRF AC 11 (Ø) H
PRF AC 11 (1) H
→ JU2 PRF CARRY OK 1Ø-11 L

- PRF PARTIAL SUM 11 H

PRF AC 1Ø (1) H · PRF MB 1Ø (Ø) H
PRF AC 1Ø (Ø) H · PRF MB 1Ø (1) H
PRF AC 11 (1) H · PRF MB 11 (Ø) H
PRF AC 11 (Ø) H · PRF MB 11 (1) H
→ JS2 PRF AC-EQ MB 1Ø-11 L

PRF ADDER 11 L → D1 · E1 · M113 K28 · F1 → PRF ADDER 11 H

M221
H2Ø
J2Ø

REVISIONS	REV.	CHK	CHANGE NO.
J. SCANLON 12/1/67	A	2nd	00002
J. Scanlon 12/1/67	B	2nd	EP12-00015
L. GALE 12-11-68			
J. Scanlon 12-11-68	C	FV	EP12-00023
L. GALE 4-30-70			
D. Mackie 7-2-70			

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

DRN. Joe Joyce 12/3/68
CHKD. J. Scanlon 2/18/69
ENG. 2/19/69
PROJ. ENG. 2/19/69
PROD. W. Call 2/19/69
FIRST USED ON EP12

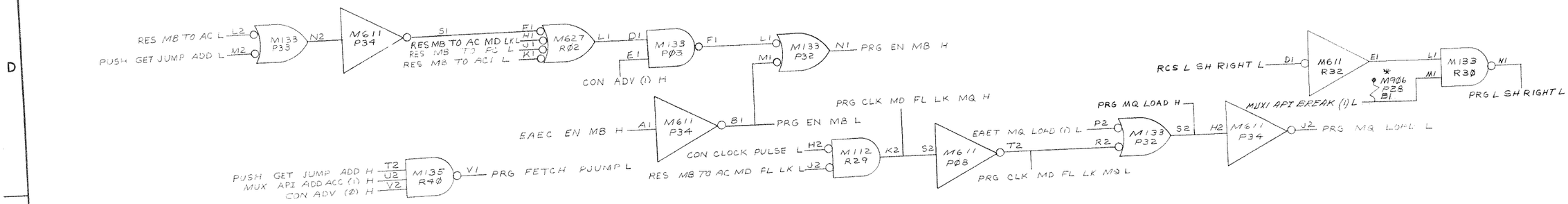
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

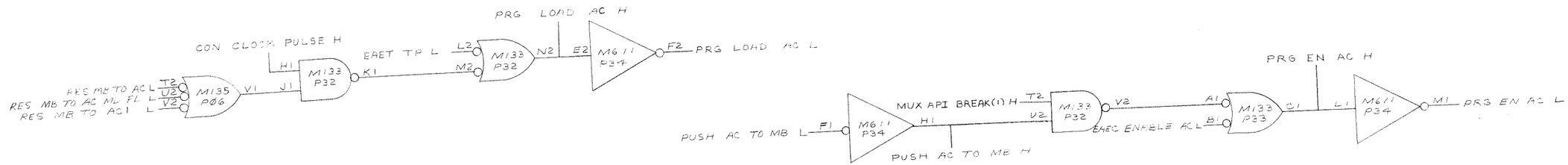
TITLE: PRF PROCESSOR REG. BITS 1Ø & 11

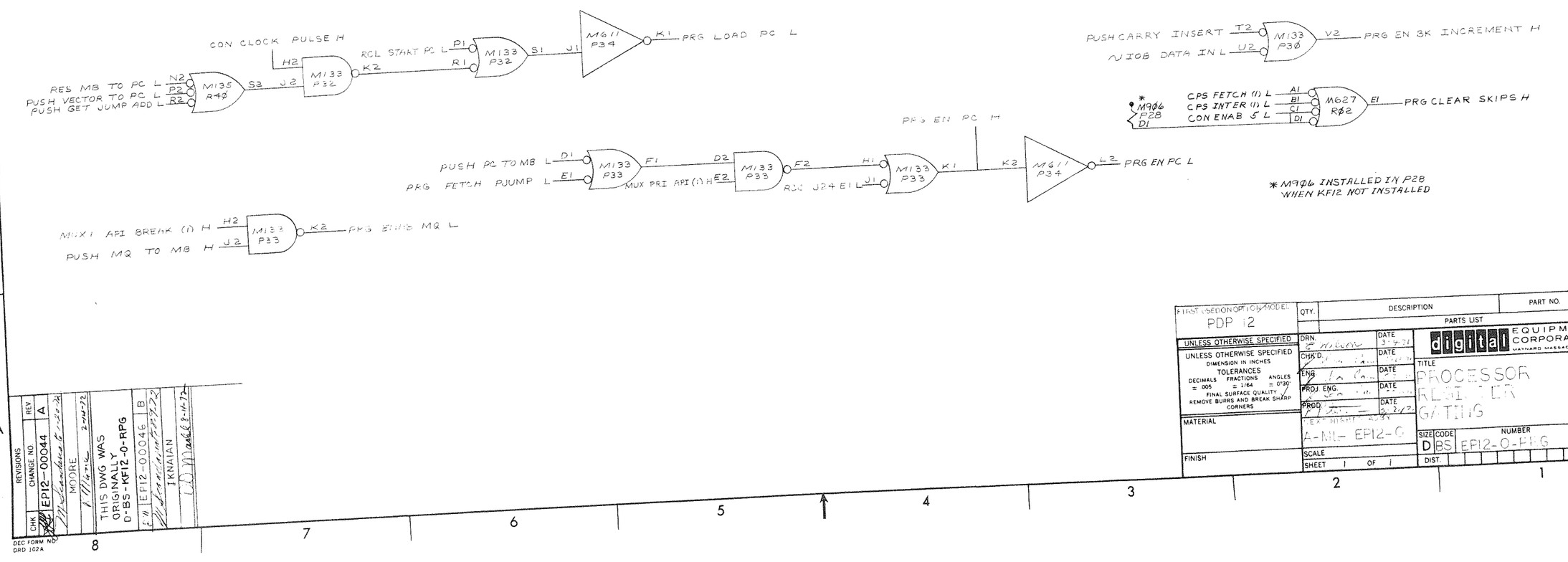
SIZE D · CODE 85 · NUMBER EP12-Ø-PRF · REV. C
SCALE
SHEET 1 OF 1
DIST.

DEC FORM NO. DRD 102A

EP12-Ø-PRF C · NUMBER EP12-Ø-PRF · REV C · SIZE D · CODE 85







*M9Ø6 INSTALLED IN P28 WHEN KF12 NOT INSTALLED

REVISIONS		
CHK	CHANGE NO	REV
	EP12-00044	A
	Mclaughlin 6-20-72	
	MOORE 2-14-72	
	Mclaughlin 8-11-72	
	THIS DWG WAS ORIGINALLY D-BS-KF12-0-RPG	B
	E.W. EP12-00046	
	M. Mclaughlin 8-23-72	
	TKNAIAN 8-11-72	

DEC FORM NO. DRD 102A

FIRST USED ON OPTION MODEL: PDP 12	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN.	DATE 3-14-72
CHK'D.	DATE
ENG.	DATE
PROJ. ENG.	DATE
PROD.	DATE 3-21-72
TEST NIGHT AUDIT A-ML-EP12-0	
SCALE	
SHEET 1 OF 1	

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: PROCESSOR REGISTER GATING

SIZE	CODE	NUMBER	REV.
D	BS	EP12-0-PRG	B

DIST.

SIZE D | CODE BS | NUMBER EP12-0-PRG | REV B

INS LJMP H P1
SLA EX TS5 H R1
M113 K30
S1 RCA ENABLE IR 2-7 L
S2 M111 K34 T2 RCA ENABLE IR 2-7 H

INS SET H T2
CPS EXECUTE (1)H U2
CPT TS1 (1)H V2
M115 K29 V1

SLA (DIS+XSK) L P2
INS (L INDEX * B EQ 0) L R2
M113 K30 S2

J2
K2
L2
M115 K29 M2 RCA ENABLE IR 8-11 H

D2
E2
F2
CPS FETCH B (1)H
M115 K29 H2

SLA (DSC*EXECUTE 2) H P1
CPT TS2 (1)H R1
M113 H14 S1
V1 M111 K34 U1 RCA DSC SET AC H

M1
N1
P1
R1
PRG EN AC L
RCA T3 ADDS L
M117 J22 S1 RCA EN AC 0-5 H

PRC MB 04 (0)H R2
PRD MB 06 (1)H S2
PRC MB 04 (1)H T2
PRD MB 06 (0)H U2
M121 J24 V2

P1
SLA OPR1 H R1
M113 J31 S1

RCC BSE EN AC L T2
RCB AC ADDS L U2
V2 M115 J30 V1

RCB (STC+DCA+STA) H A1
CPS EXECUTE (1)H B1
CPT TS3 (1)H C1
+3V J32U1 H D1
CPT TS4 (1)H E1
F1
M1600 J28 R1

RCC EN IO BUS H H1
-IOB AC CLEAR H J1

CPT TS5 (1)H K1
L1

SLA OPR1 L M1
SLA L ROTATES L N1
SLA MUL ADD L P1
R1
M117 H30 S1

SLA MUL GO H M1
-RCC TS COMP AC H N1
P1

S2 M111 K09 T2 RCA (OPR2*TS5) H

SLA OPR2 H P2
CPT TS5 (1)H R2
M113 J31 S2
RCA (OPR2*TS5) L

L2
PRC MB 04 (0)L M2
M112 L10 N2 RCA SET AC H

L1
M1
M112 L10 N1

INS N EQ 02 H T2
SKH H (1)H U2
M113 J31 V2

INS N EQ 17 L N2
INS N EQ 01 L P2
R2
M115 K29 S2

F1
PRG EN AC L H1
J1
K1
M117 J22 L1 RCA EN AC 6-11 H

INS LDH S1
SLA EX TS4 H U1
INS STH H V1
SLA EX TS3 H U2
M1600 J28 V2

U2 M111 K34 V2

SKH H (1)H A1
B1
M113 K28 C1

+3V M34U1 H K2

SLA (ADM+LAM) H L2
SLA EX TS3 H M2
M113 J31 N2 RCA T3 ADDS L

INS MSC H D2
INR IR 07 B (1)H E2
INS N EQ 04 H F2
+3V L22U1 H H2
M117 L22 J2
V1 M111 K09 U1 RCA EN LD MSC 4 H

PRD AC 06 (1)L T2
RCL LOAD MSC 4 H S2
D 1 RCA EN TT INT M216 J29 C 0
V1
V2

CST IO PRESET L U2

RCA EN MSC 4 L

P2
CPT TS5 (1)L R2
M112 L38 S2 RCA EN MSC 4 H

REVISIONS		
CHK	CHANGE NO.	REV.
	EP12-00036	A

DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D. J BISONETTE	DATE 2/20/69		
ENG. L GALE	DATE 2/20/69	TITLE REGISTER CONTROL A	
PROJ. ENG. D CALL	DATE 2/20/69		
PROD.	DATE		
FIRST USED ON EP12		SIZE D	CODE 85
SCALE		NUMBER EP12-0-RCA	REV. A
SHEET 1 OF 1		DIST.	

RCB 8 ADDRESS L — D1
RCB 8 JMP ADDRESS L — E1
M113 J25 — F1
-RCB EN MB H — T2
INR IR Ø4 (1)H — U2
V2
M115 H22 — V1
D2
M113 K28 — F2 RCB EN MA Ø-4 H
E2

CYI PC INCREMENT H — D2
-CPTP TP2 H — E2
CPT TS2 (1)H — F2
CPS WC (1)H — H2
CPT TS1 (1)H — J2
K2
M160 J26 — T2 H1
M113 K28 — K1 RCB EN MA 5-11 H
RCB (ST+FS EN MA) H — L2
M2
J1
CPT TS4 (1)H — N2
CPS EXECUTE B (1)H — P2
INS JMS H — R2
S2

CPS INTER (1)H — D2
CPT TS4 (1)H — E2
M113 J25 — F2

RCA ENABLE IR 2-7 L — L2
M113 K03 — N2 RCB EN IF ADDRESS H
M2
-CSI (FILLS+EX)MFTSØ H — A1
CPR L MODE H — B1
CPT TS1 (1)H — C1
MEA EN IF H — D1
M117 L13 — E1
RCB EN IF ADDRESS L

CPS DEFER (1)H — F1
PRA MB Ø1 (1)H — H1
CPT TS1 (1)H — J1
CPR L MODE H — K1
M117 L13 — L1
M2
M111 K09 — N2 RCB EN DF ADDRESS H
RCB EN DF ADDRESS L

RCB (JMP*SAVE PC)L — T2
INS JMS L — U2
M113 H36 — V2 RCB (LJMP + JMS) H

CSI (FILL+EX STEP) L — I2
U2
M113 K14 — V2 RCB (ST+FS EN MA) H
CSI (KEY FS+SE) H — P2
CST AUTO (1)H — R2
S2
INS 8 JMP L — H2
INS JMS L — J2
M113 J33 — K2 RCB (JMP+JMS) H

CPS DEFER (1)H — N2
CPR 8 MODE H — P2
-INS 8 JMP H — R2
M115 H22 — S2
H2
CPS CA (1)L — J2
M113 J25 — K2
INS 8 JMP H — A1
CPS DEFER B (1)H — B1
CPT TS4 (1)H — C1
D1
SLA MUL ADD H — E1
MQR MQ 11 (1)H — F1
M160 J26 — R1
CPT TS1 (1)H — H1
J1
PRG EN MB H — K1
L1

INS ADD L — N2
INS ADA L — P2
INS TAD L — R2
M115 K26 — S2 RCB AC ADDS H
INS DSC L — J2
INS LOA L — K2
L2
M115 H22 — M2
CPT TS4 (1)H — M1
PRG EN MB H(1)H — N1
P1
P2
CPS EXECUTE B (1)H — R2
M113 J25 — S2 RCB AC ADDS L

SLA (ADD+STC) H — S1
CPS FETCH B (1)H — U1
M160 J26 — V2
INS INDEX CLASS L H — V1
CPS DEFER B (1)H — U2
L2
M113 J25 — N2
CPT TS1 (1)H — L1
M1
M113 J25 — M2
INS SET H — P1
CPS DEFER B (1)H — R1
S1

CPS DEFER SET L — L1
CPS EXC SET L — M1
M113 L12 — N1
CPT TS1 (1)H — M1
CPS DEFER (Ø)H — N1
P1
R1
M117 L13 — S1
RCB EN MB L — M1
CYI XSK TEST L — N1
RCB MUL LOAD AC L — P1
RCB TS1 EN MB L — R1
M119 H26 — V2 RCB EN MB 5-11 H
RCB 8 ADDRESS
RCB 8 JMP ADDRESS L — R2
S2
T2
U2
-CPR L MODE L — H2
-EAEC INST L — J2
M112 L10 — K2

INR IR ØØ (1)H — F1
INR IR Ø1 (Ø)H — H1
INR IR Ø2 (1)H — J1
INR IR Ø3 (Ø)H — K1
CPT TS4 (1)H — K2
+3V H24V1 H — L2
M2
CPR 8 MODE H — N2
M119 H26 — P2 RCB 8 JMP ADDRESS L

INS L JMP H — A1
RCD SAVE PC (1)H — B1
M113 K33 — C1 RCB (JMP*SAVE PC)L
F1
INS JMS L — H1
INS STH L — J1
+3V L22V1 H — K1
M117 L22 — L1
CSI FILLS H — A1
CST MFTSØ H — B1
CST STEP EXAM (Ø)H — C1
D1
IOB DATA IN H — E1
CPS BREAK (1)H — F1
M160 J27 — R1
H1
CPS EXECUTE B (1)H — J1
CPS T BREAK (1)H — K1
LIP TAPE OUT H — L1

INS STA L — J2
INS DCA L — K2
INS STC L — L2
M115 K26 — M2 RCB (STC+DCA+STA) H
M1
CPS EXECUTE B (1)H — N1
P1

RCD EN AC N-6 L H — P1
CST EN MEM (1)H — R1
INS STH H — S1
M115 H22 — U1
P2
M113 H21 — S2 RCB EN MEM 6-11 H
R2
RCB GO MEM TS3 L — D2
CPS INTER (Ø)H — E2
CPT TS3 (1)H — F2
CST EN MEM (1)H — H2
M117 H30 — J2
T2
M113 H21 — V2 RCB EN MEM Ø-5 H
U2
RCA EN AC 6-11 H — D2
CST EN MEM (1)H — E2
INS STH H — F2
M115 H22 — H2

SLA MUL GO H — H1
INS N EQ ØØ H — J1
M113 J25 — K1 RCB MUL LOAD AC L

RCB EN MB L
A1
M113 J25 — B1
C1 RCB EN MB Ø-1 H

CPT TS1 (1)H — L1
M113 J25 — M1
RCB MUL LOAD AC L — R2
N1 RCB TS1 EN MB L — S2
CYI XSK TEST L — T2
M117 H30 — U2 V2 RCB EN MB 2-4 H

REVISIONS		
CHK	CHANGE NO.	REV.
JB	EP12-00001	A
	ADS	
	J SCANLAN 3/13/69	
NR	EP12-00015	B
	K COTE 10/14/69	
	J SCANLAN 10/17/69	
TC	EP12-00023	C
	D SOUTHER 6/30/70	
	D MACKLIN 7/2/70	
KK	EP12-00036	D

DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J BISONETE	DATE 2/20/69	
ENG. L GALE	DATE 2/20/69	TITLE REGISTER CONTROL B
PROJ. ENG. L GALE	DATE 2/20/69	
PROD. D CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D CODE 85 NUMBER EP12-Ø-RCB REV. D
SCALE		
SHEET 1 OF 1		DIST.

SLA MUL GO H D2
INS N EQ 17 H E2
PRA AC 00 (1)H F2
SLA (MSC*TS5) H H2
INS N EQ 17 H J2
INS AND H K2
RCC (EXTS4 + EXTS5) H L2
SLA MUL GO H M2
INS N EQ 01 H N2
FLK LINK (1)H P2
R2
S2
M160 J28
I2 RCC T5 COMP AC L

SLA OPR1 H A1
CPT TS4 (1)H B1
PRD MB 06 (1)H C1
M115 H25
D1
RCC T5 COMP AC L K2
EAEC ENABLE -AC L L2
M2
N2
M617 H23
P2 RCC EN =AC H

SLA EX TS4 L P1
SLA EC TS5 L R1
M113 H10
S1 RCC (EXTS4 + EXTS5) H

CPT IDT PAUSE (1)L A1
B1
C1
D1
M617 K23
E1 RCC EN IO BUS H

CPR 8 MODE H A1
RCC EN PC 2-11 H B1
M113 H24
C1
D2
E2
M113 H24
F2 RCC EN PC 0-1 H

RCB (LJMP + JMS) H A1
SLA EX TS3 H B1
M121 J24
E1 RCC TS3 JMPS+INTER L
CPT TS3 (1)H C1
CPS INTER (1)H D1

PRG EN PC L
H1
J1
M113 H24
K1 RCC EN PC 2-11 H

CST MFTS1 (0)H E1
CPT TS1 (1)H F1
H1
M115 H25
J1
RCC PC FOR MA H

CPS FETCH SET L D1
E1
M113 H24
F1

CPS FETCH B (1)H L1
SLA 2 WORD FORMAT H M1
M113 H24
N1

RCB (JMP*SAVE PC) L L2
SLA EX TS3 L M2
M112 J10
N2 RCC SET PC 0-1 H

RCC ST LSW EN L L1
M111 H34
M1 RCC ST LSW EN H

RCC EN LSW H R1
M111 H34
S1 RCC EN LSW L

INS BCL H H2
J2
M113 H24
K2

SLA EX TS4 H L2
INS BCO H M2
M113 H24
N2

SLA EX TS4 H P1
INS AND H R1
M113 H24
S1

A1
B1
C1
D1
M617 H23
E1 RCC EN BCL H

INS BSE H P2
SLA EX TS4 H R2
M113 H24
S2

F1
H1
J1
K1
M617 H23
L1 RCC EN BSE H
RCC BSE EN AC L

SLA MUL GO H K1
SKH H (0)H L1
INS N EQ 02 H M1
M115 H25
N1

M1
PRG EN MQ L N1
EAEC ENABLE MQ L P1
R1
M617 H23
S1 RCC EN MQ H

SLA (MSC*TS5) H T2
INS N EQ 05 H U2
M113 H24
V2

SLA (LOPR*TS5) H F1
INS N EQ 17 H H1
M121 J24
L1 RCC LSW EN1 L

CST MFTS2 (1)H J1
CSI (FILL+EXAM) H K1

D2
E2
F2
H2
M617 H23
J2 RCC EN LSW H

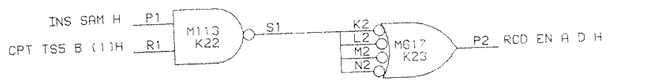
RCC ST LSW EN L

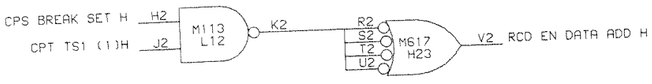
CSI KEY ST LSW H L2
CST MFTS1 (1)H M2
M113 K30
N2

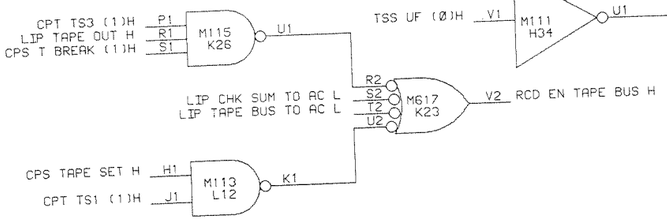
CPT TS3 (1)H P1
CST DO (1)H R1
CPS FETCH (1)H S1
M115 H25
U1
RCC EN DO LSW L

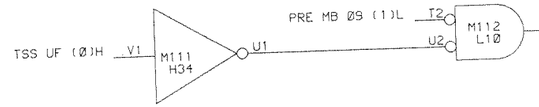
REVISIONS		
CHK	CHANGE NO.	REV.
	EP12-0000	A
	ADS	
	J SCANLON	
	EP12-00036	B

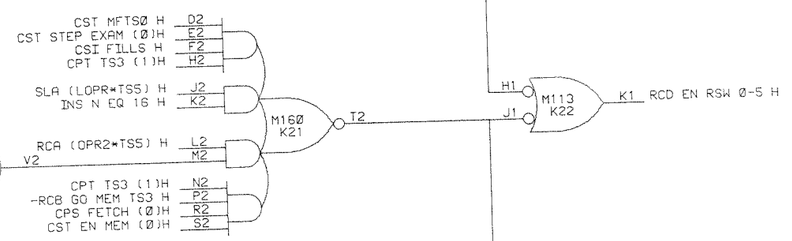
DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J BISONETE	DATE 2/20/69	
ENG. L GALE	DATE 2/20/69	TITLE REGISTER CONTROL C
PROJ. ENG. L GALE	DATE 2/20/69	
PROD. D CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D / CODE 85 / NUMBER EP12-0-RCC / REV. B
SCALE		DIST.
SHEET 1 OF 1		

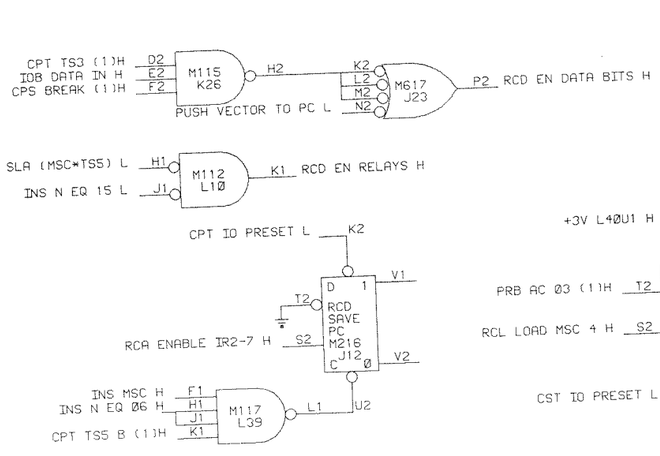












REVISIONS		
CHK	CHANGE NO.	REV.
JB	EP12-00001	A
	ADS	
	J. SCANLAN 1/13/69	
PD	EP12-00002	B
	A.WASHINGTON 6/20/69	
	J. SCANLAN 6/22/69	
	EP12-00003	C
	A WASHINGTON 6/19/69	
	L GALE 6/20/69	
JB	EP12-00036	D
	K. White 5/6/71	
	J. Scanlan 7/21/71	

DRN. S. SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J. BISONETE	DATE 2/20/69	
ENG. L. GALE	DATE 2/20/69	TITLE REGISTER CONTROL D
PROJ. ENG. L. GALE	DATE 2/20/69	
PROD. D. CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D CODE BS NUMBER EP12-Ø-RCD REV. D
SCALE		DIST.
SHEET 1 OF 1		

SLA MUL GO H
INS N EQ 17 H
CPTP TP5 H
M115 H22
J1

CPS EXC 2 (Ø)H
CPTP TP3 H
M113 H21
C1

+3V J21U1 H
M617 J21
L1 RCL LOAD MB H

-INS SET H
M113 H21
F1

CPTP TP1 L
M617 J21
E1 RCL LOAD MA H

CST MFTP2 H
-CSI KEY IO PRESET H
M113 L26
S2

INS MUL H
CPTP TP4 H
CPS EXECUTE B (1)H
M115 H22
N1 RCL MUL SET MQ L

+3V J32U1 H
FLK (MSC*N EQ 11) L
EAEC EN LD MQ L
M115 J30
S2

M113 K22
C1

PRG MQ LD L
M617 J21
V2 RCL LOAD MQ H

CPTP TP5 H
-INS N EQ ØØ H
RCS EN MQ SH RIGHT H
CPR L MODE H
M117 J22
V2

INS MSC H
INS N EQ Ø4 H
CPT TS5 B (1)H
INR IR Ø7 B (Ø)H
M617 JØ7
S1 RCL LOAD MSC 4 L

M111 KØ9
R2 RCL LOAD MSC 4 H

INS N EQ Ø5 L
INS N EQ 11 L
INS N EQ 15 L
INS N EQ 17 L
M117 H35
V2

INS MSC H
INS LOPR H
M121 H33
J2

INS N EQ 17 L
INS N EQ 16 L
M115 J30
N1

INS SAM L
SLA L ROTATES L
EAEC SETUP L
EAEC LAST DIV L
SLA OPR1 L
SLA OPR2 L
M119 H28
P2

CPTP TP5 H
M113 H21
F2

PRG LD AC L
M617 J21
S1 RCL LOAD AC H

INS SHD L
CPS EXECUTE (1) L
M112 H32
SKH H (Ø)H
S1

INS AND H
CPS EXECUTE B (1)H
M121 H33
P2

SLA OPR1 L
RCB AC ADDS L
M117 H30
P2

CPTP TP4 H
M113 H21
K1

RCL 4 LOAD H

INS LDA L
INS DCA L
INS STC L
INS LDH L
INS BCL L
INS BSE L
INS BCO L
M119 H28
J2

CPS EXECUTE (1)H
M113 J31
K1

LIP MSC TAC TO AC H
CPTP TP5 H
M113 H14
S2

IOC IO STROBE L
CST Ø TO AC L
LIP CHK SUM LD AC L
M117 J22
E1

INS LDH L
INS ADM L
INS LAM L
M115 J30
U1

+3V H21V1 H
CPT T5 RECYCLE (1)H
SLA MUL GO H
CPTP TP5 H
CPTP TP2 H
SLA (DSC*EXECUTE 2) H
M160 K21
R1

CPTP TP5 H
RCA EN LD MSC 4 H
CPTP TP3 H
CPS EXECUTE B (1)H

CPS DEFER B (1)H
INS 8 JMP H
M121 H33
V2

CPS EXECUTE B (1)H
INS JMS H

CPS INTER (1)L
M115 J30
M2

INR IR Ø3 (Ø)H
CPS FETCH B (1)H
INS 8 JMP H
M115 J30
H2

CSI KEY STARTS L
PWF RESTART L
M113 L21
N2

CST MFTP1 H
M113 H21
S1 RCL START PC L

CPTP TP4 H
M113 H21
N2 RCL TP4 LD PC L

CYI PC INCREMENT H
CPTP TP2 H
M113 H21
N1

RCL TP4 LD PC L
PRG LD PC L
M617 J21
P2 RCL LOAD PC H

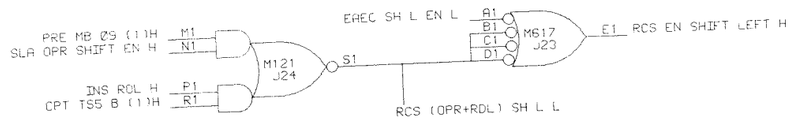
INS LJMP H
CPS EXECUTE B (1)H
M113 J31
N1

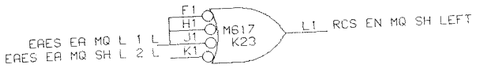
INS (LJMP*X EQ Ø) L
M113 J31
H2

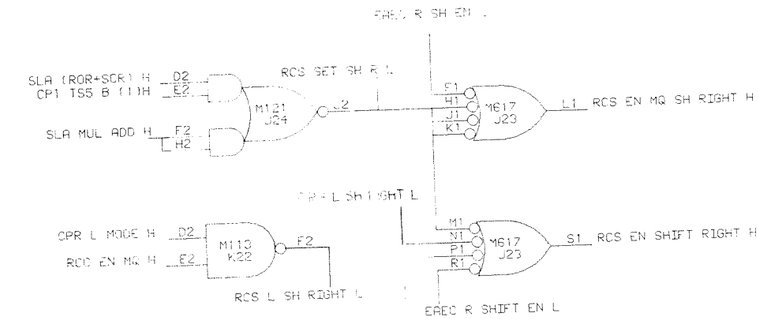
CPTP TP5 H
M113 H21
K2

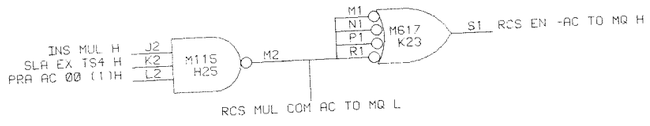
REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
	EP12-00001	A	NR	EP12-00016	E
	ADS			K.COTE 11-12-69	
	J SCANLAN 3/13/69			J.SCANLAN 11-14-69	
NR	EP12-00006	B	TC	EP12-00023	F
	A WASHINGTON 8/17/69			D SOUTHER 6/23/70	
	L GALE 8/20/69			D MACKLIN 7/2/70	
NR	EP12-00007	C		EP12-00036	H
	A WASHINGTON 8/6/69				
	J SCANLAN 8/6/69				
	EP12-00015	D			
	K COTE 10/14/69				
	J SCANLAN 10/17/69				

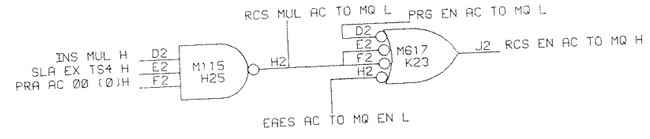
DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J BISONETTE	DATE 2/20/69	
ENG. L GALE	DATE 2/20/69	TITLE PROCESSOR REGISTER LOAD CONTROL
PROJ. ENG. L GALE	DATE 2/20/69	
PROG. D CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D / CODE 85 / NUMBER EP12-Ø-RCL / REV. H
SCALE		
SHEET 1 OF 1		DIST.

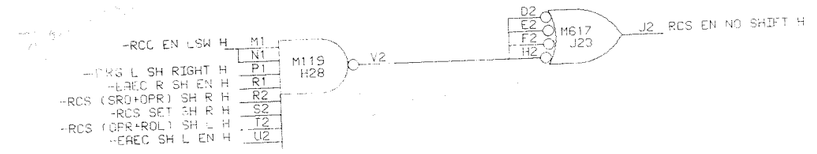












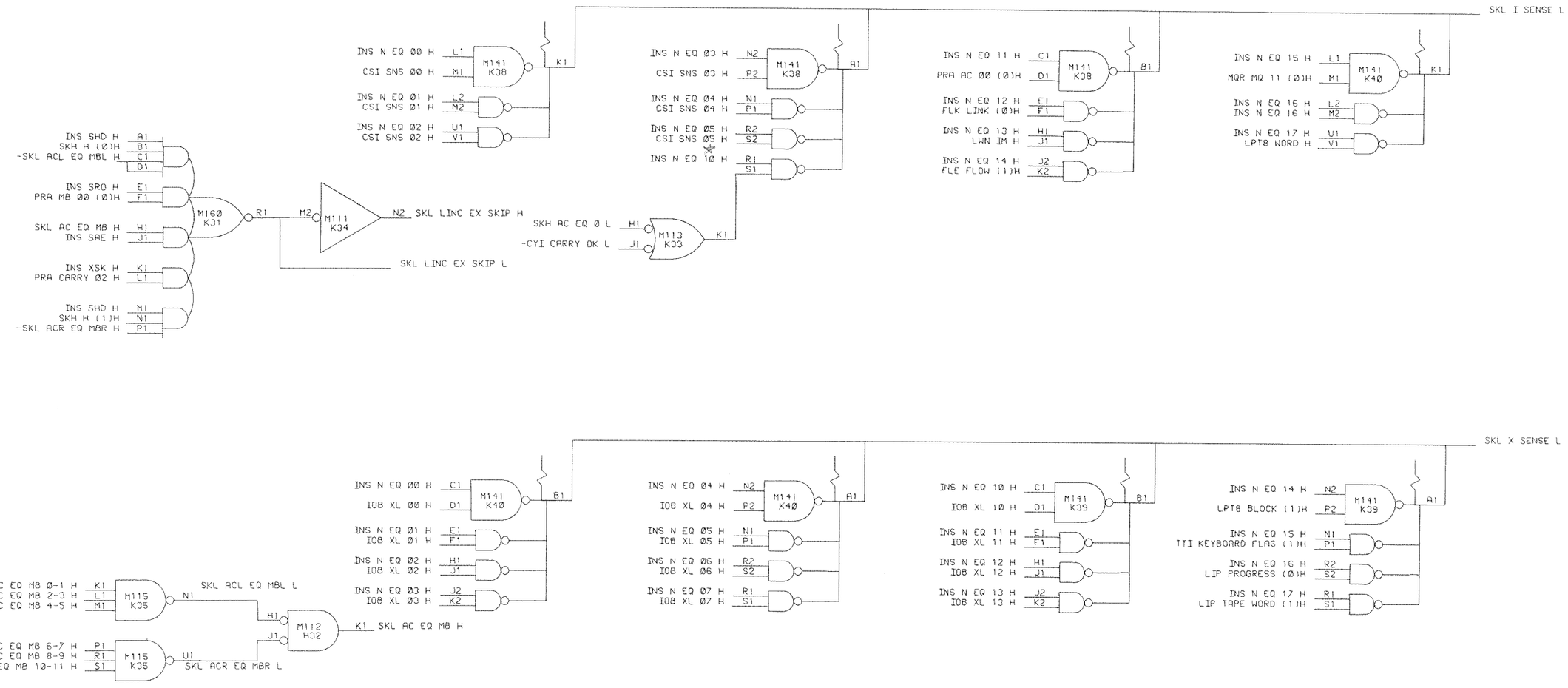
REVISIONS		
CHK	CHANGE NO.	REV.
	EP12-00036	A
	EP12-[illegible]D16	B
	TKNAIAN	

DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J BISONETE	DATE 2/20/69	
ENG. L GALE	DATE 2/20/69	TITLE REG SHIFT & MQ INPUTS
PROJ. ENG. L GALE	DATE 2/20/69	
PROD.	DATE	
FIRST USED ON EP12	SIZE D	CODE BS
SCALE	NUMBER EP12-Ø-RCS	REV. T
SHEET 1 OF 1	DIST.	

SKL I SENSE L
INS SKP L
INS SXL L
SKL X SENSE L
M112 H32
M160 K37
INR IR Ø7 B (1)H
INS SKP H
INR IR Ø7 B (Ø)H
INS SXL H
SKH L FETCH SKIP L
SKL LINC EX SKIP L
M115 J3Ø
INS ISZ H
CPS EXECUTE B (1)H
PRA CARRY Ø Ø H
+3V K33U1 H
IOC IOP SAMPLE (1)H
IOB ID SKIP H
M111 K34
PRE MB Ø8 (Ø)H
SLA OPR2 H
PRE MB Ø8 (1)H
FLK LINK (1)H
PRD MB Ø7 (1)H
M121 H33
PRA AC Ø Ø (1)H
PRC MB Ø5 (1)H
M113 J31
M115 K35
CPTP TP3 H
CPS EXECUTE B (1)H
INS ISZ H
PRA AC Ø Ø (Ø)H
PRA AC Ø1 (Ø)H
PRB AC Ø2 (Ø)H
PRB AC Ø3 (Ø)H
M117 H3Ø
PRD MB Ø6 (1)H
M115 H31
SKH AC EQ Ø L
SKH LOW AC EQ Ø H
IOC*IO STROBE H
SKH SKIP (Ø)H
CPTP TP4 H
SKH LINC EX SKIP L
SKL LINC EX SKIP H
CPS EXECUTE B (1)H
M113 K33
M115 H22
SKH L FETCH SKIP L
INS SHD H
CPS EXECUTE B (1)H
CPTP TP5 H
CPTP TP5 H
CPS DEFER B (1)H
CPR L MODE H
PRA MB Ø Ø (1)H
M119 J32
PRC AC Ø4 (Ø)H
PRC AC Ø5 (Ø)H
PRD AC Ø6 (Ø)H
PRD AC Ø7 (Ø)H
PRE AC Ø8 (Ø)H
PRE AC Ø9 (Ø)H
PRF AC 1Ø (Ø)H
PRF AC 11 (Ø)H
M905 PØ2
CPS FETCH (1)L
CPS INTER (1)L
PRG CLEAR SKIPS H
CPTP TP3 H
-CSI KEY CONT H
CST MFTPØ H
M160 J27
SKH CLR SKIPS L
M216 J29
SKH SKIP
SKH H
SKH CLR SKIPS L

REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
JB	ØØØØT	H	TC	EP12-ØØØ23	C
	ADS			D SOUTHER 5/3Ø/7Ø	
				D MACKLIN 7/2/7Ø	
	J.SCANLAN 3-13-69			EP12-ØØØ36 D	
	EP12-ØØØØ6 B				

DRN. D L SHEPARD	DATE 2-2Ø-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J.BISONETTE	DATE 2-2Ø-69	
ENG. L.GALE	DATE 2-2Ø-69	TITLE SKIP FF & H BIT
PROJ. ENG. L.GALE	DATE 2-2Ø-69	
PROD. D.CALL	DATE 2-2Ø-69	
FIRST USED ON EP12		SIZE D CODE BS NUMBER EP12-Ø-SKH REV. D
SCALE		
SHEET 1 OF 1		DIST.



REVISIONS		
CHK	CHANGE NO.	REV.
JB	EP12-00001	A
	ADS	
	J SCANLAN 3/13/69	
	EP12-00003	B
	A WASHINGTON 6/17/69	
	L GALE 6/20/69	
	EP12-00016	C

* for Ø6 & Ø7 see F 12-C-C02

DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J BISONETE	DATE 2/20/69	
ENG. L GALE	DATE 2/20/69	TITLE EP12 SKIPS
PROJ. ENG. L GALE	DATE 2/20/69	
PROD. D CALL	DATE 2/20/69	
FIRST USED ON EP12		SIZE D / CODE 85 / NUMBER EP12-Ø-SKL / REV. C
SCALE		DIST.
SHEET 1 OF 1		

INS INDEX CLASS L L L2
INS N EQ 00 L M2
M112 L38
N2
A1 M111 K34 B1 SLA INDEX CLASS IZ L
SLA INDEX CLASS IZ H

INS LOPR H T2
INS N EQ 00 H U2
M113 K36
V2
SLA INDEX CLASS IZ L M1
INS SET L N1
P1
R1
M117 H35
S1
C1 M111 K34 D2 SLA 2 WORD FORMAT L
SLA 2 WORD FORMAT H

EAEC LONG INST H D2
INS MTP H E2
M112 L38
F2

-INS INDEX CLASS L H K2
-SLA 2 WORD FORMAT H L2
-SLA (DIS+XSK) H M2
-SLA FULL ADD 2 CYCLE H N2
M117 H35
P2 SLA L 1 WORD FORMAT L

INS ADD L A1
INS STC L B1
INS (LJMP*-XEQ 0) L C1
M115 K35
D1
E2 M111 K34 F2 SLA FULL ADD 2 CYCLE L
SLA FULL ADD 2 CYCLE H

INS ROR L D2
INS ROL L E2
INS SCR L F2
M115 K35
H2
T2
-INS N EQ 00 H U2
M113 J33
V2 SLA L ROTATES L
SLA L ROTATES H

INS SET H S1
INR IR 07 B (0)H U1
M160 K37
V2 SLA INDIRECT 2 WORD
SLA INDEX CLASS IZ H V1
INR IR 07 B (0)H U2

EAEC MUL ADD L L1
M113 K33
N1 SLA MUL ADD H
SLA MUL GO H F1
-INS N EQ 00 H H1
-INS N EQ 17 H J1
-INS N EQ 16 H K1
-INS N EQ 02 H K2
-INS N EQ 01 H L2
M2
+3V J32U1 H N2
M119 J32
P2
M1
SLA MUL ADD L

INS MUL H E1
CPT TS5 (1)H F1
CPS EXECUTE B (1)H H1
M115 K35
J1
F1 M111 K34 H1 SLA MUL GO H
SLA MUL GO L

INS DSC H A1
CPS EXC 2 (1)H B1
M113 K36
C1
CPT TS3 (1)L D1
E1
M112 H32
F1 SLA DSC CNT MB H
SLA (DSC*EXECUTE 2) L D1
M111 K34
E1 SLA (DSC*EXECUTE 2) H

INS ADD L L1
INS STC L M1
M113 K36
N1 SLA (ADD+STC) H

INS ADA L D1
INS ADD L E1
M113 K36
F1 SLA (ADA+ADD) H

INS ADM L L2
INS LAM L M2
M113 K36
N2 SLA (ADM+LAM) H

INS ROR L D2
INS SCR L E2
M113 K36
F2 SLA (ROR+SCR) H

INS DSC L P1
INS SET L R1
M113 K36
S1 SLA (DSC+SET) H

INS DIS L H1
INS XSK L J1
M113 K36
K1
H2 M111 K34 J2 SLA (DIS+XSK) L
SLA (DIS+XSK) H

INS LOPR H P2
CPT TS5 B (1)H R2
M113 K36
S2
J1 M111 K34 K1 SLA (LOPR*TS5) L
SLA (LOPR*TS5) L

INS MUL L P2
CPS EXECUTE (1)L R2
M112 H32
S2 SLA (MUL*EXECUTE) H

INS MSC H D2
CPT TS5 B (1)H E2
M113 K33
F2
K2 M111 K34 L2 SLA (MSC*TS5) H
SLA (MSC*TS5) L

INS MUL H D1
SLA EX TS4 H E1
M113 H10
F1 SLA (MUL*EX TS4) L

+3V J08U1
A1
B1
C1
D1
M627 J08
E1 SLA EX TS3 H
F1
H1
CPT TS3 (1)H J1
CPS EXECUTE B (1)H K1
M627 J08
L1 SLA EX TS3 L
M1
CPT TS4 (1)H N1
P1
R1
M627 J08
S1 SLA EX TS4 L
D2
E2
F2
+3V J08U1 H2
M627 J08
J2 SLA EX TS4 H

CPS EXECUTE B (1)H K2
CPT TS5 (1)H L2
+3V J08V1 H M2
+3V J08V1 H N2
M627 J08
P2 SLA EX TS5 L
L1 M111 K09 M1 SLA EX TS5 H

INS 8 OPR L D2
INR IR 03 (0)L E2
M112 H32
F2 U2 M111 H34 V2 SLA OPR1 L
SLA OPR 1 H

A1
CPT TS4 (1)H B1
M113 J04
C1 A1 M111 J09 B1 SLA (OPR1*TS4) H
SLA (OPR1*TS4) L

D1
SLA OPR1 H A1
CPT TS5 (1)H B1
PRF MB 10 (1)H C1
M115 J05
D1 E1 M113 J04 F1 SLA OPR SHIFT EN H

INS 8 OPR H J2
INR IR 03 (1)H K2
INR IR 11 (0)H L2
M115 K35
M2 L1 M111 K34 M1 SLA OPR2 H
SLA OPR2 L

REVISIONS		
CHK	CHANGE NO.	REV.
TC	EP12-00023	A
	Diana Scothon 6-30-70	
	S Mack 7-2-70	

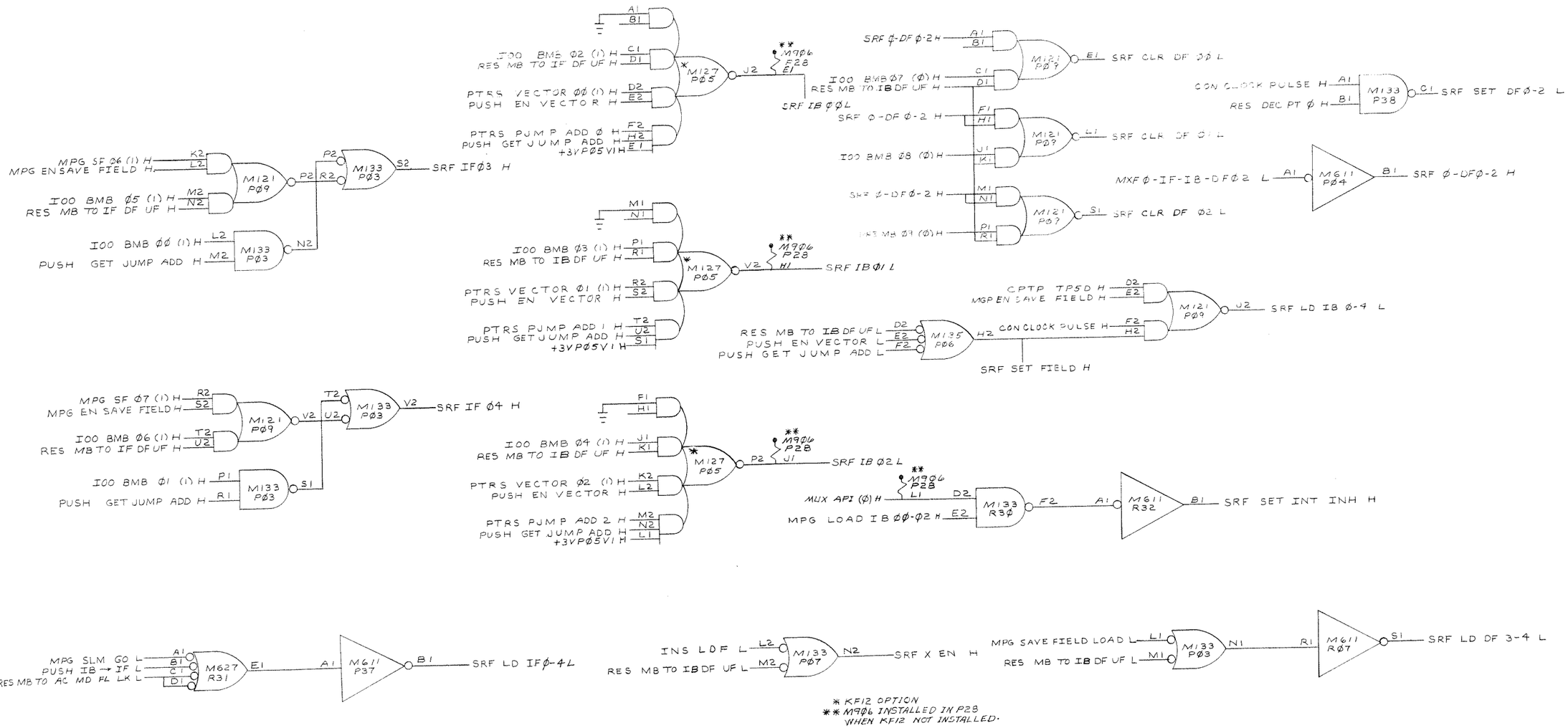
DRN.	R.L. SHUARD	DATE 2.20.69
CHK'D.	J.F. BISONETTE	DATE 2.20.69
ENG.	L. GALE	DATE 2.27.69
PROJ. ENG.	L. GALE	DATE 2.20.69
PROD.	L. CALL	DATE 2.20.69
FIRST USED ON	EP12	
SCALE		
SHEET	1 OF 1	

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: SPECIAL LEVELS 1

SIZE	CODE	NUMBER	REV.
D	BS	EP12-0-SLA	A

DIST.



* KF12 OPTION
** M9Ø6 INSTALLED IN P28 WHEN KF12 NOT INSTALLED.

REVISIONS	REV
CHANGE NO. EP12-00044	A
CHK Milan-Arnold 12-1-72	
MOORE 12-4-72	

THIS DWG WAS ORIGINALLY D-BS-KF12-O-SRF

DEC FORM NO. DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005	±0° 30'
.XX = .02	
.X = .1	

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

	NAME	DATE
DRN.	E Wilson	3-5-71
CHK'D.	Jon Pa...	
ENG.	Jon Pa...	
PROJ. ENG.	Jon Pa...	
PROD.	K Pa...	

NEXT HIGHER ASSY. A-ML-EP12-0

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE SET & RESTORE FIELDS

SIZE	CODE	NUMBER	REV.
D	BS	EP12-O-SRF	A

DIST.

TTI TT0 L
TTI TT1 L
TTI TT2 L
TTI TT3 L
TTI TT4 L
TTI TT5 L
TTI TT6 L
TTI TT7 L
TTI SKIP L
MK2
MR2
MS2
ML1
MM1
MP2
MT2
MN2
NH2
ND2
IOC IOP 1 H
TTI KEYBOARD SELECT H
+3V
TTI STROBE H
TTI REC PRESET L
TTI DATA H
TTI SHIFT H
+3V
MR1
MK1
MJ2
TTI 0
TTI 1
TTI 2
TTI 3
TTI 4
TTI 5
TTI 6
TTI 7
KEYBOARD FLAG (1) H
MF2
KEYBOARD FLAG (0) H
TTI START ENABLE L
+3V M08U1H
TTO TTI CLOCK H
NR1
NS2
TTI REC PRESET L
TTI KEYBOARD SELECT H
IOC IOP 2 H
NJ2
NE2
TTI TT AC CLEAR L
TTI CLOCK SCALE 2 (1) H
TTI IN ACTIVE (1) H
NU1
MS1
TTI SHIFT H
TTI SHIFT L
NK2
+3V
ND1
ME2
TTI KCC L
IOC IO PRESET H
NF2
+3V
TTI SETUP L
READ BUSSY
ML2
PL2
TTI KEYBOARD SELECT H
IOC IOP 4 H
+3V
TTI STROBE H
W0076
N02
E2
NM2
ST
TTI SHIFT H
TTI SPIKE DETECTOR (1) H
TTI DATA H
+3V
MM2
PRB MB 03 (0) H
PRC MB 04 (0) H
PRC MB 05 (0) H
PRD MB 06 (0) H
PRD MB 07 (1) H
PRE MB 08 (1) H
MD2
ME1
MF1
MH1
MH2
MJ1
+3V
MP1
+3V M08U1H
TTI KEYBOARD SELECT H
TTI KEYBOARD FLAG (1) L
H2
J2
M113
M08
K2
TTI KEYBOARD FLAG (1) H
M7006
M006
N006
TTI IN ACTIVE (1) L
TTI IN LAST UNIT (1) L
TTI START ENABLE L
TTI TTI 7 (0) H
TTI SHIFT H
TTI IN LAST UNIT
NR2
TTI IN STOP 2 (1) L
TTO TTI CLOCK H
MN1
TTI CLOCK SCALE 0
TTI CLOCK SCALE 1
TTI CLOCK SCALE 2
NT2
NS1
TTI START ENABLE L
NP2
TTI IN STOP 1
NU2
TTI IN STOP 2
NV2
TTI REC PRESET L
NS2
TTI IN ACTIVE
NN2
TTI SETUP L
-TTI SHIFT H
TTI SPIKE DETECTOR (1) H
TTI SPIKE DETECTOR (0) H
TTI KCC L
MV2
TTI READER RUN
NL2
MU2
W0076
N02
M2
READER ENABLE
TTI SHIFT L
TTI IN LAST UNIT (1) H
+3V

REVISIONS	REV	CHANGE NO.	CHK
	A	00002	MB
J. SCANLON 5/12/69	B	EP12-00015	MB
L.GALE 11/17/69			

DEC FORM NO. DRD 102A

UNLESS OTHERWISE SPECIFIED		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY ✓ REMOVE BURRS AND BREAK SHARP CORNERS	DRN.	DATE 1-6-68
	CHK.	DATE 2-18-69
	ENG.	DATE 2/14/69
	PROJ. ENG.	DATE 2/19/69
	PROD.	DATE 2/19/69
MATERIAL	FIRST USED ON EP12	
FINISH	SCALE	
	SHEET OF	

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: TTI TELETYPE RECEIVER

SIZE	CODE	NUMBER	REV.
D	85	EP12-0-TTI	B

DIST.

EP12-0-TTI B
SIZE D CODE 85 NUMBER EP12-0-TTI REV B

PRB MB Ø3(Ø) H ME2
PRC MB Ø4(Ø) H ME1
PRC MB Ø5(Ø) H MF2
PRD MB Ø6(1) H MF1
PRD MB Ø7(Ø) H MH2
PRE MB Ø8(Ø) H MJ2
+3V NJ1 H NJ1

MN1
+3V MØBU1
TTO SELECT H
MS1
IOC IOP4 H
MR1

+3V MØBU1 MN2
PRC AC Ø4(1) H MP2
PRC AC Ø5(1) H MR2
PRD AC Ø6(1) H ML2
PRD AC Ø7(1) H MM2
PRE AC Ø8(1) H MU2
PRE AC Ø9(1) H MS2
PRF AC 1Ø(1) H MT2
PRF AC 11(1) H MU1

TTO ENB (MK2, ML1)
TTO Ø
TTO 1
TTO 2
TTO 3
TTO 4
TTO 5
TTO 6
TTO 7 (MJ1)
TTO SHIFT H
TTO PRESET L
MH1
TTO = Ø L

TTO OUT ACTIVE (Ø) L
TTO LINE (MD2)
MV2 TTO MAGNET DRIVER H
PNP OPEN COL
-CURRENT OUT
-CURRENT OUTPUT

M7Ø7
MØ7
NØ7

TTO OUT ACTIVE (1) L
+3V MØBU1 NS2
- TTO SHIFT L

TTO OUT ACTIVE (1) H
TTO FREQ DIV (NP2)
- TTO CLOCK H

TTO OUT STOP 1 (NR2)
TTO OUT STOP 1.5 (NP1)
TTO OUT STOP 2 (NN1)

TTO OUT STOP 2 (Ø) H NN2
TTO ENB (1) H MK1
TTO OUT ACTIVE (1) H
- TTO = Ø H

+3V
TTO OUT ACTIVE (1) L
+3V
TTO SHIFT H

TTO OUT ACTIVE (MD1)
TTO = Ø L
TTO TPR FLG (NK2)
TTO SELECT H
IOC IOP 1 H
NH2
NJ2 TTO SKIP L

TTO MAGNET DRIVER H
+5V
-15V
-30V
W Ø7G NØ2

CLK 880 HZ
J2
M2 N2
L2
K2 TTO CLOCK L
P2 R2 TTO TTI CLOCK H
M452 NØ8

TTI SKIP L
M113 MØ8 (D2, E2, F2, A1, B1, C1)
TTO TT SKIP L
TTO SKIP L

IOC IO PRESET H NE2
+3V
TTO PRESET L
+3V MØBU1 NF2
+3V
TTO SELECT H
IOC IOP 2 H ND2

RCA EN
TT INT (Ø) H
TTI KEYBOARD FLAG (1) L H1
TTO TPR FLG (1) L J1
M113 MØ8 (K1, E1, D1, F1)
TTO TT INT L

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

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

MATERIAL
FINISH

DRN. DATE 12-27-68
CHK'D. DATE 2-18-69
ENG. DATE 2/17/69
PROJ. ENG. DATE 2/14/69
PROD. DATE 2/15/69
FIRST USED ON EP12
SCALE
SHEET OF

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
TTO TELETYPE TRANSMITTER

SIZE D | CODE 85 | NUMBER EP12-Ø-TTO | REV.
DIST.

REVISIONS | REV | CHANGE NO. | CHK

DEC FORM NO. DRD 102A

SIZE D | CODE 85 | NUMBER EP12-Ø-TTO | REV

SIGNAL NAME	FROM PIN	TO PIN	COLOR	REMARKS
GROUND	N01B1	N40C2	BLACK	
	N01C1	N02C2		
	N01V1	N40T1		
	N01U1	M40T1		
	N01T1	M40C2		
	N01S1	M02C2		WIRE IS
	N01R1	M02T1		#24 AWG
	N01N1	L40C2		
	N01M1	L01T1		
	N01L1	L01C2		
	N01K1	K40T1		
	N01J1	K40C2		
	N01H1	K01T1		
	N01F1	K01C2		
	N01E1	J40T1		
	N01D1	J40C2		
	N01P1	L40T1		
	M01U1	J01C2		
	M01T1	J18T1		
	M01S1	J18C2		
	M01R1	H40T1		
	M01P1	H40C2		
	M01N1	H01T1		
	M01V1	J01T1		
	M01M1	H01C2		
	M01L1	H18T1		

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
A	11-21-69	EP12-00017	JS.
B	6-22-71	EP12-00041	RM

DRN. R. Kingsbury	DATE	3/11/69
CHK'D. R. Kingsbury	DATE	3/11/69
ENG. L. Gale	DATE	3/10/69
PROJ. ENG. L. Gale	DATE	3/10/69
PROD. D. Call	DATE	3/10/69
FIRST USED ON		
SCALE		
SHEET 1 OF 3		

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
GENERAL WIRING SHEET
FOR
D C POWER PROCESSOR LOGIC

SIZE	CODE	NUMBER	REV.
A	WL	EP12-0-4	B

DIST.

DEC FORM NO. DRA 104

SIGNAL NAME	FROM PIN	TO PIN	COLOR	REMARKS
GROUND	M01K1	H18C2	BLACK	
+10v	N01E2	N27A2	GREEN	
+5v	N01E2	N40A2	RED	
	M01V2	M40A2		
	M01U2	M04A2		WIRE IS
	M01T2	L40A2		#24 AWG
	M01S2	L03A2		
	M01R2	K40A2		
	M01P2	K03A2		
	M01N2	J40A2		
	M01M2	J18A2		
	M01L2	J03A2		
	M01K2	H40A2		
	M01J2	H18A2		
	M01H2	H03A2		
	M01F2	N28A2		
	M01E2	J09A2		
	M01D2	K18A2		
	M01C2	L18A2		
	M01B2	M18A2		
	M01A2	N12A2		
-15v	N01L2	N33B2	BLUE	
	N01K2	N02B2	BLUE	
	N01J2	N03B2	BLUE	

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.

DRN. R. Kingsbury	DATE	3/11/69
CHK'D. R. Kingsbury	DATE	3/11/69
ENG. L. Gale	DATE	3/10/69
PROJ. ENG. L. Gale	DATE	3/10/69
PROD. D. Call	DATE	3/10/69
FIRST USED ON		
SCALE		
SHEET 2 OF 3		

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
GENERAL WIRING SHEET
FOR
DC POWER PROCESSOR LOGIC

SIZE	CODE	NUMBER	REV.
A	WL	EP12-0-4	B

DIST.

DEC FORM NO. DRA 104

SIGNAL NAME	FROM PIN	TO PIN	COLOR	REMARKS
-30v	NO1P2	NO2V2	YELLOW	
-30v	NO1S2	NO3V2	YELLOW	
				WIRE IS
+5 VOLTS	MØ1T2	PØ3A2	RED	#24 AWG
	MØ1N2	P27A2		
	MØ1F2	R4ØA2		
	MØ1R2	R21A2		
	MØ1V2	RØ1A2		
GND	NØ1H1	P22C2	BLACK	
	NØ1P1	P4ØC2		
	NØ1T1	RØ1T1		
	NØ1M1	R2ØT1		
	M4ØT1	P4ØT1		

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.

DRN. KINGSBURY	DATE 3/69	
CHK'D. KINGSBURY	DATE 3/69	
ENG. L. GALE	DATE 3/69	
PROJ. ENG. L. GALE	DATE 3/69	
PROD. D. CALL	DATE 3/69	
FIRST USED ON		
SCALE		
SHEET 3 OF 3		

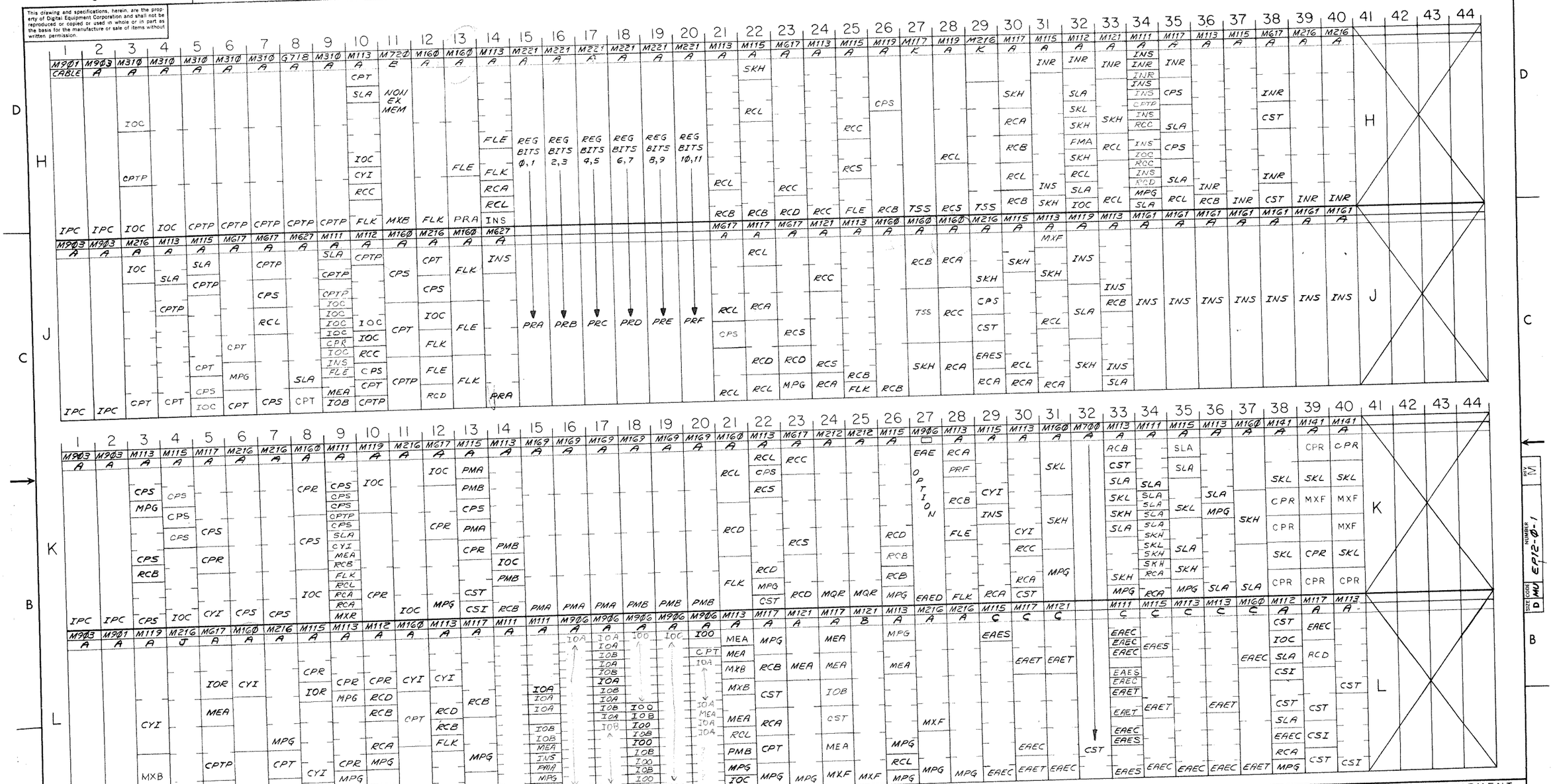
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
GENERAL WIRING SHEET
FOR
D C POWER PROCESSOR LOGIC

SIZE	CODE	NUMBER	REV.
A	WL	EP12-0-4	B

DIST.

DEC FORM NO.
DRA 104



USE ONLY IF KE12 IS NOT INSTALLED

A = EP12
B = MC12
C = KE12
D = ASR33
E = DP12A
F = XY12
H = VC12
J = DR12
K = KT12

REVISIONS	REV.	CHK	DATE	NAME
RELEASED UNDER REV A 3/1/69	A			
00002	B	JSCANLON	6/20/69	
EP12-00003	C		8-20-69	
EP12-00007	D		11-14-69	
EP12-00016	E		11-6-69	
EP12-00027	F		9-10-70	
EP12-00030	H		9/8/70	
EP12-00043	J	D MACKLIN	11-17-70	
EP12-00043	K	R IKNAIAN	11-4-71	
EP12-00044	L	R MOORE	1-14-72	
EP12-00045	M	R MOORE	2-25-72	
EP12-00046	N	R IKNAIAN	3-22-72	

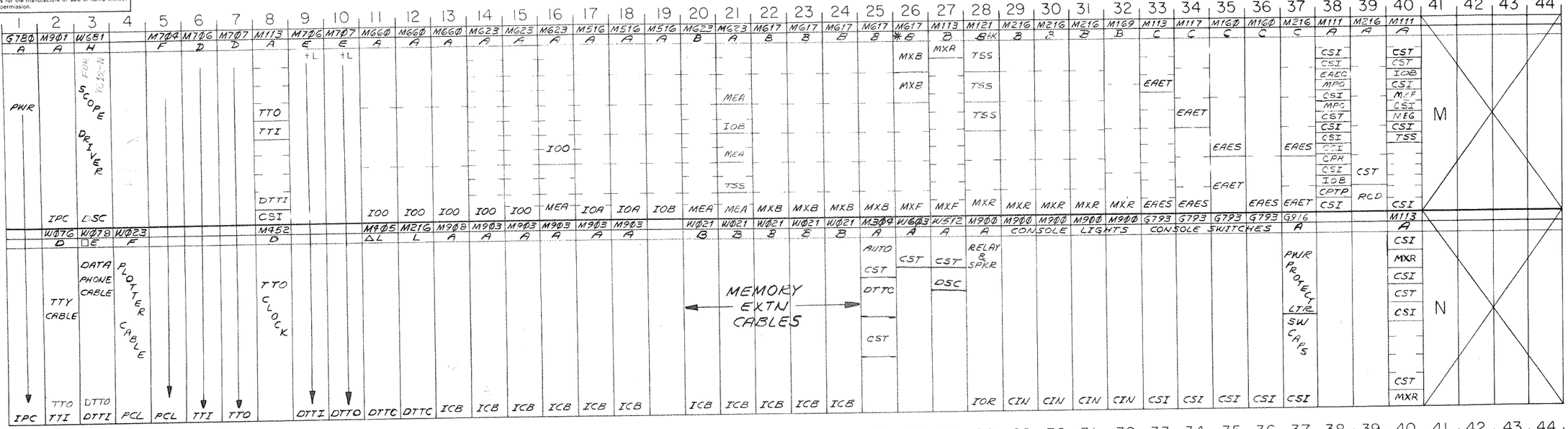
UNLESS OTHERWISE SPECIFIED	DRN.	DATE 12-23-68
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	CHK	DATE 2/11/69
	ENG.	DATE 2/14/69
	PROJ. ENG.	DATE 2/18/69
	PROD.	DATE 2/19/69
MATERIAL	NEXT HIGHER ASSY. PDP-12	
FIRST USED ON OPTION MODEL FINISH	SCALE	SHEET 1 OF 2

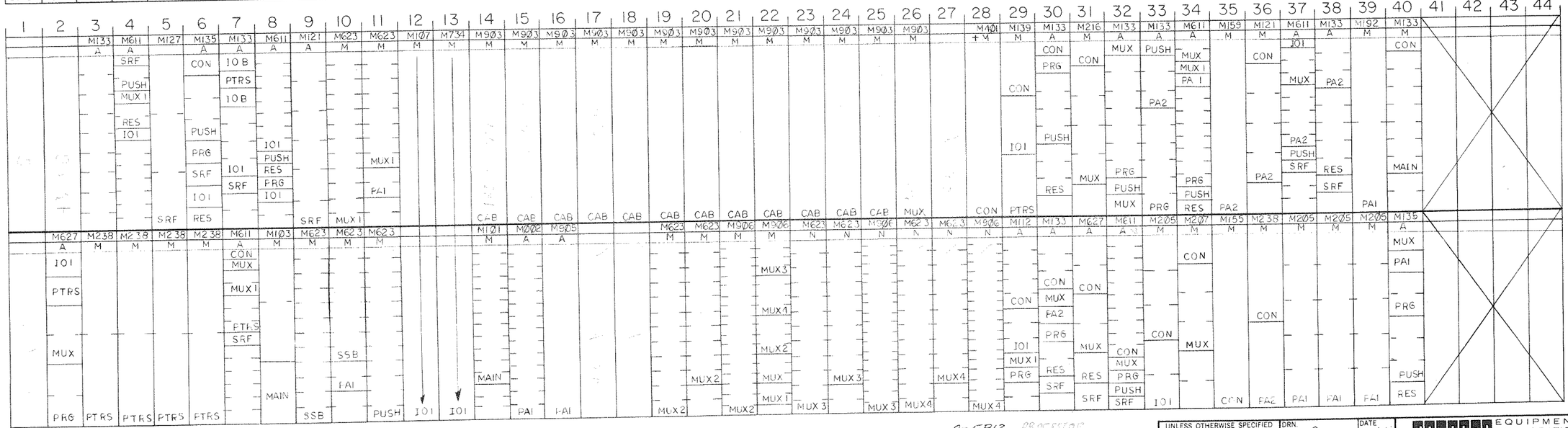
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: MODULE UTILIZATION PROCESSOR

SIZE D | CODE MU | NUMBER EP12-0-1 | REV. M | DIST.

DEC FORM NO. ORD 105





* WHEN THE MC12 IS NOT INSTALLED USE A WØ23 WITH PINS J2, P2, V2, GROUNDED.

□ USE WØ76 FOR DP12A, M820 FOR DPI2B. WHEN NEITHER CARD INSTALLED USE G700YA.

△ = USE A G718 FOR DP12A

\+ INSERT MØØ6 WHEN KF12 NOT INSTALLED.

A = EP12 PROCESSOR
B = MC12 MEM EXTN
C = KE12 EAE
D = ASR33 TTY
E = DP12A DATA PHONE
F = KY12 PLOTTER CONTROL
H = VC12 CRT
J = DP12 TIME SHARE
K = KT12 EXTENDED ARITHMETIC (EAE)
L = DP12 B MEM. EXTENDER
M = KF12 PWR. FAIL INTERR
N = DM12 DMA

REVISIONS	REV	CHANGE NO	CHK
		ORIGINALLY WAS DWG [-MU-EP12-0-2	

DEC FORM NO. DRD 105

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

DRN. DATE 10-12-67
CHK'D DATE 2/15/68
ENG. DATE 2/14/68
PROJ. ENG. DATE 2/14
PROD DATE 3/4/68
FIRST USED ON PDP-12
SCALE
SHEET 2 OF 2

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
MODULE UTILIZATION PROCESSOR

SIZE D | CODE MU | NUMBER EP12-Ø-1 | REV M
DIST.

SIZE D | CODE MU | NUMBER EP12-Ø-1 | REV M

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY J. APREA	CHECKED J. SCANLON	SECTION	
DATE 10/29/68	DATE 2/18/69		
ENG L. GALE	PROD D. CALL	ISSUED SECT.	
DATE 2/19/69	DATE 2/10/69		

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	EP12	MC12	KE12	DP12A	DP12B	XY12	VC12N	DR12	KT12	KF12	DM12
	G700YA	DATAPHONE DISABLE				1	1						
	G718	TIMING JUMPER	1			1							
	G780	CONTROL FOR 739 POWER SUPPLY	1										
	M002	15 LOADS	1										
	M101	BUS DATA INTERFACE										1	
	M103	DEVICE SELECTOR										1	
	M107	DEVICE SELECTOR										1	
	M111	INVERTER	8		1								
	M112	NOR GATE	5										
	M113	NAND GATE	23										
	M115	NAND GATE	11		2								
	M117	NAND GATE	9		2						1		
	M119	NAND GATE	5										
	M121	AND/NOR GATE	4	2	1							1	
	M127	2-2-2-3 AND/NOR GATE										1	
	M133	10-2 INPUT NAND GATES	7									1	
	M135	8-3 INPUT NAND GATES	2										
	M139	3-8 INPUT NAND GATES										1	
	M141	NAND/OR GATES	3										
	M155	4 TO 16 LINE DECODER										1	
	M159	ADDER										1	

QUANTITY/VARIATION

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
MODULE COUNT	D-MU-EP12-Ø-1	A	PL	EP12-Ø-1	M	EP12-00016
	SHEET 1 OF 3	DIST.				

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY J. APREA	CHECKED J. SCANLON	SECTION	
DATE 10/29/68	DATE 2/18/69		
ENG L. GALE	PROD D. CALL	ISSUED SECT.	
DATE 2/19/69	DATE 2/10/69		

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	EP12	MC12	KE12	DP12A	DP12B	XY12	VC12N	DR12	KT12	KF12	DM12
	M160	AND/NOR GATE	12		3								
	M161	BINARY TO OCTAL/DECIMAL DECODER	7										
	M169	GATING MODULE	6		1								
	M192	2-8 BIT PRIORITY ENCODERS										1	
	M205	5 "D" FLIP-FLOPS										4	
	M207	J-K FLIP-FLOPS										1	
	M212	SHIFT REGISTER	2										
	M216	FLIP FLOP	14	3	1		1			1	1	1	
	M221	PROC. REGISTER	6										
	M238	SYNCHRONOUS 4 BIT UP/DN COUNTER										5	
	M304	PULSE AMPLIFIER	1										
	M310	DELAY LINE	6										
	M401	VARIABLE CLOCK										1	
	M405	CRYSTAL CLOCK					1						
	M452	VARIABLE CLOCK	1										
	M516	POSITIVE BUS RECEIVER	3										
	M611	HIGH SPEED POWER INVERTER	6										
	M617	FOUR-INPUT POWER NAND GATE	8	5									
	M623	BUS DRIVER	5									7	4
	M627	NAND POWER AMPLIFIER	4										
	M660	POSITIVE LEVEL DRIVER	3										

QUANTITY/VARIATION

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
MODULE COUNT	D-MU-EP12-Ø-1	A	PL	EP12-Ø-1	M	
	SHEET 2 OF 3	DIST.				

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

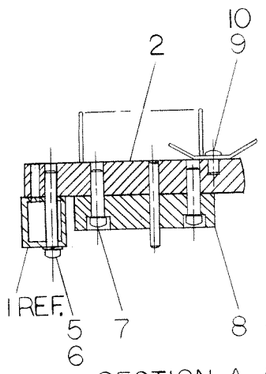
PARTS LIST

MADE BY	J. APREA	CHECKED J. SCANLON	SECTION
DATE	10/29/68	DATE 2/18/69	
ENG	L. GALE	PROD D. CALL	ISSUED SECT.
DATE	2/19/69	DATE 2/10/69	

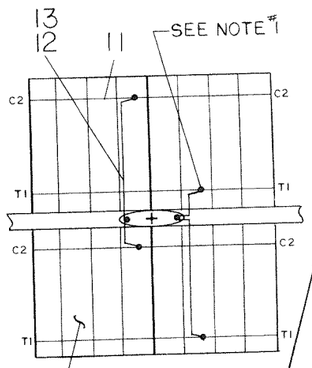
ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION												
			EP12	MC12	KE12	DP12A	DP12B	XY12	VC12N	DR12	KT12	KF12	DM12		
	M700	MANUAL FUNCTION TIMING	1												
	M704	PLOTTER CONTROL						1							
	M706	TELETYPE RECEIVER	1			1	1								
	M707	TELETYPE TRANSMITTER	1			1	1								
	M720	NON EXISTANT MEM.		1											
	M734	I/O BUS INPUT MULTIPLEXER										1			
	M906	CABLE TERMINATOR	5									2	2		
	M908	RIBBON CONNECTOR	1												
	W023	I/O CABLE CONNECTOR	1												
	W078	TTY INTERFACE	1												
	W512	POSITIVE LEVEL CONVERTER	1												
	W603	POSITIVE LEVEL AMP							1						
	W681	SCOPE INTENSIFIER	1												
	G916	POWER PROTECT	1												
	M905	SELECTOR BOARD													

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	FCO NO.
MODULE COUNT	D-MU-EP12-Ø-1	A	PL	EP12-Ø-1	M	
	SHEET 3 OF 3	DIST.				

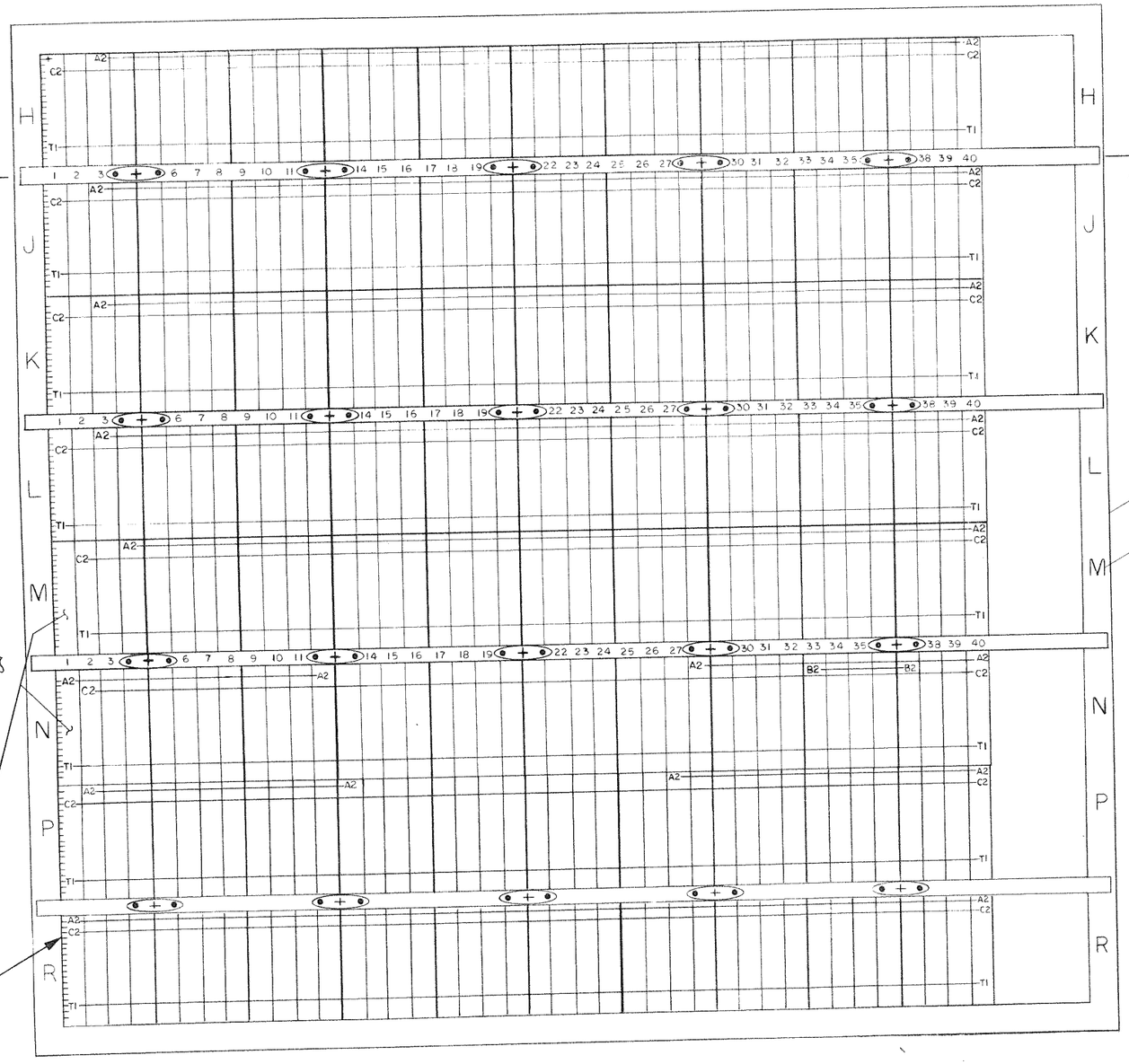
DEC FORM DEC 16-(325)-1031-N870
DRA 110



SECTION A-A
SCALE 1/1



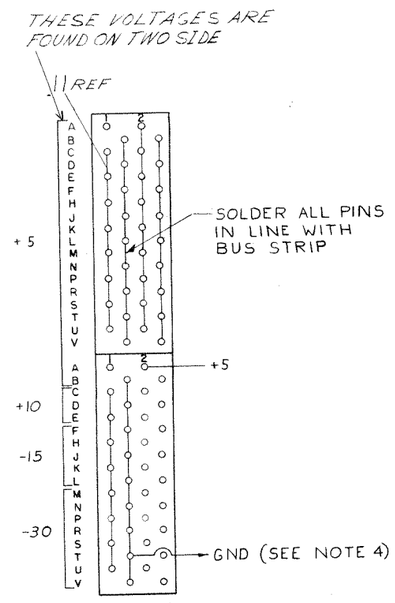
DETAIL A
15 PLACES
SEE NOTE #2



NOTES:

1. CONNECTIONS ON ITEMS #11 & #12 TO BE SOLDERED AND LOCATED AT MINIMUM PRACTICAL HEIGHT ABOVE BOARD.
2. ALL CONN BLOCKS TO BE GROUNDED TO GND LUGS AS SHOWN.
3. USE YELLOW WIRE (ITEM #3) FOR MACHINE WRAPPED & BLUE WIRE (ITEM #4) FOR HAND WRAPPED WIRE.
4. PINS ON SIDE #1 OF MØ1 & NØ1 ARE GND.

THESE VOLTAGES ARE FOUND ON TWO SIDE



MEN ØI
DETAIL B

REVISIONS			
CHK	CHANGE NO.	REV	
	12-11-68	Ø1	A
BW	12-00004		
Betty Wade	2-13-69		
S. ZNAMIEROWSKI			B
S Znamierowski	7/9/69		
	12-00007		
J Foulk			
J CLAYTON	3/2/69		C
	12-00009		
	3-2-69		
ZNAMIEROWSKI			
S Znamierowski	3/4/69		D
	12-00010		
Tom Henry	3-11-69		
GALE	3/14/69		E
	EP12-00002		
Scanlon	4/1/69		
SCANLON			F
	EP12-00008		
	8-1-69		
GALE			
L Gale	8/15/68		H
	EP12-00014		
L. GALE	9-27-68		
L Gale	11-29-68		J
	EP12-00017		
L GALE	12/4/68		K
	EP12-00036		
J SCANLAN	1-29-71		L
	EP12-00041		
M. Moore	6-28-71		M
	EP12-00046		
J KNAIAN	8-11-72		

ITEM NO.	PART NO.	DESCRIPTION	QTY.
		PARTS LIST	

FIRST USED ON OPTION/MODEL: PDP12

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

		DATE
DRN.		1-16-69
CHK'D.		1-23-69
ENG.		DATE
PROJ. ENG.		1-6-69
PROD.		1/21/69

NEXT HIGHER ASSY.
A-ML-EP12-0

SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
LOGIC FRAME ASSY (EP12)

SIZE	CODE	NUMBER	REV
D	AD	7005976-0-0	M

DIST. G

DEC FORM NO. DRD 100

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY G. GIANOULIS	CHECKED K. RUSS	SECTION 1
DATE 9/16/68	DATE 12/30/68	
ENG [signature]	PROD [signature]	ISSUED SECT. 1
DATE 1/7/69	DATE 1/7/69	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION
1	D-IA-7407207-0-0	LOGIC FRAME	1
2	D-IA-7406100-0-0	MTG BAR	4
3	9105740-5	#30 AWG SOLID TEF INS WIRE YELLOW	A/R
4	9105740-7	#30 AWG SOLID TEF INS WIRE BLUE	A/R
5	9008210	SCR PH HD PAN #8-32 x 1 SST W/NYLON PATCH	8
6	9006634	WASHER INT TOOTH #8	8
7	9006120	SCR PHL HD FIL POSI DRIVE #8-32 x 5/8 CPS	80
8	E-SC-1205348-0-0	288 PIN CONN BLOCK	40
9	9006121	SCR PHL HD FIL POSI DRIVE #8-32 x 3/8 CPS	20
10	9007597	TERMINAL #2116-08-00 SHAKIPROOF	20
11	1205541	STRIP, BUS	A/R
12	9107560-1	#22 AWG WIRE BUS	A/R
13	9107265	TUBING TEFLON #22 WHT	A/R
14	A-DC-7406370-0-0	LOGIC FRAME DECALS	A/R
REF	K-ML-EP12-0-3	WIRE LIST	

TITLE LOGIC FRAME ASSY (EP12)	ASSY NO. D-AD-7005976-0-0	SIZE A	CODE PL	NUMBER 7005976-0-0	REV M	ECO NO. EP12-00046
	SHEET 1 OF 1	DIST. 6				

DEC FORM NO.
DRA 110

MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
D-AD-7005979-0-0	J	1	WIRED ASSY MEMORY (EM12)
A-PL-7005979-0-0	J	1	WIRED ASSY MEMORY (PARTS LIST) EM12
D-MU-EM12-0-1	S	1	MODULE UTILIZATION RACK A-D
D-MU-EM12-0-2	M	1	MODULE UTILIZATION RACK E-F
A-PL-EM12-0-1	S	1	MODULE UTILIZATION RACK A-D (PARTS LIST)
A-PL-EM12-0-2	M	1	MODULE UTILIZATION RACK E-F (PARTS LIST)
K-WL-EM12-0-3	AA		WIRE LIST
A-WL-EM12-0-4	B	3	POWER WIRE LIST
D-BS-EM12-0-IPCM	J	1	INTER PROC CABLES
D-BS-EM12-0-MCS	A	1	MCS SENSE AMPS & INHIBIT DRIVERS
D-BS-EM12-0-MCT	C	1	MEMORY CONTROL
D-BS-EM12-0-MCX	B	1	X-AXIS SELECTION
D-BS-EM12-0-MCY	B	1	Y-AXIS SELECTION
A-ML-PDP12-0	REF.		PDP-12 SYSTEM

REVISIONS

REV.	DATE	CHG. NO.	APP'D.
AK	10/71	00054	R.M.
AL	12/71	00055	R.M.
AM	6/72	00057	D.M.
AN	8/72	00058	R.I.

DRN. J.Aorea	DATE 3/7/69
CHK'D. R.Hutnak	DATE 3/10/69
ENG. L.Gale	DATE 3/10/69
PROJ ENG. L.Gale	DATE 3/10/69
PROD. D.Call	DATE 3/10/69
FIRST USED ON PDP-12	
SCALE	
SHEET 1 OF 1	

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE

BASIC 4K MEMORY

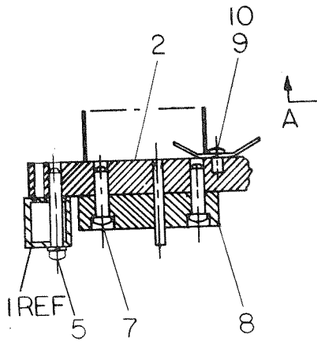
SIZE	CODE	NUMBER	REV.
A	ML	EM12-0	AN

DIST.

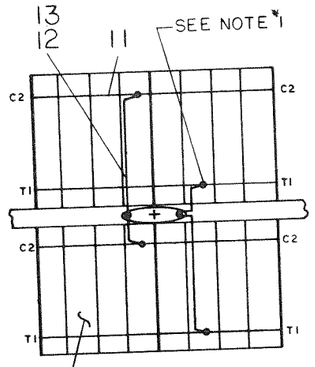
X

DEC FORM NO.
DRA 103

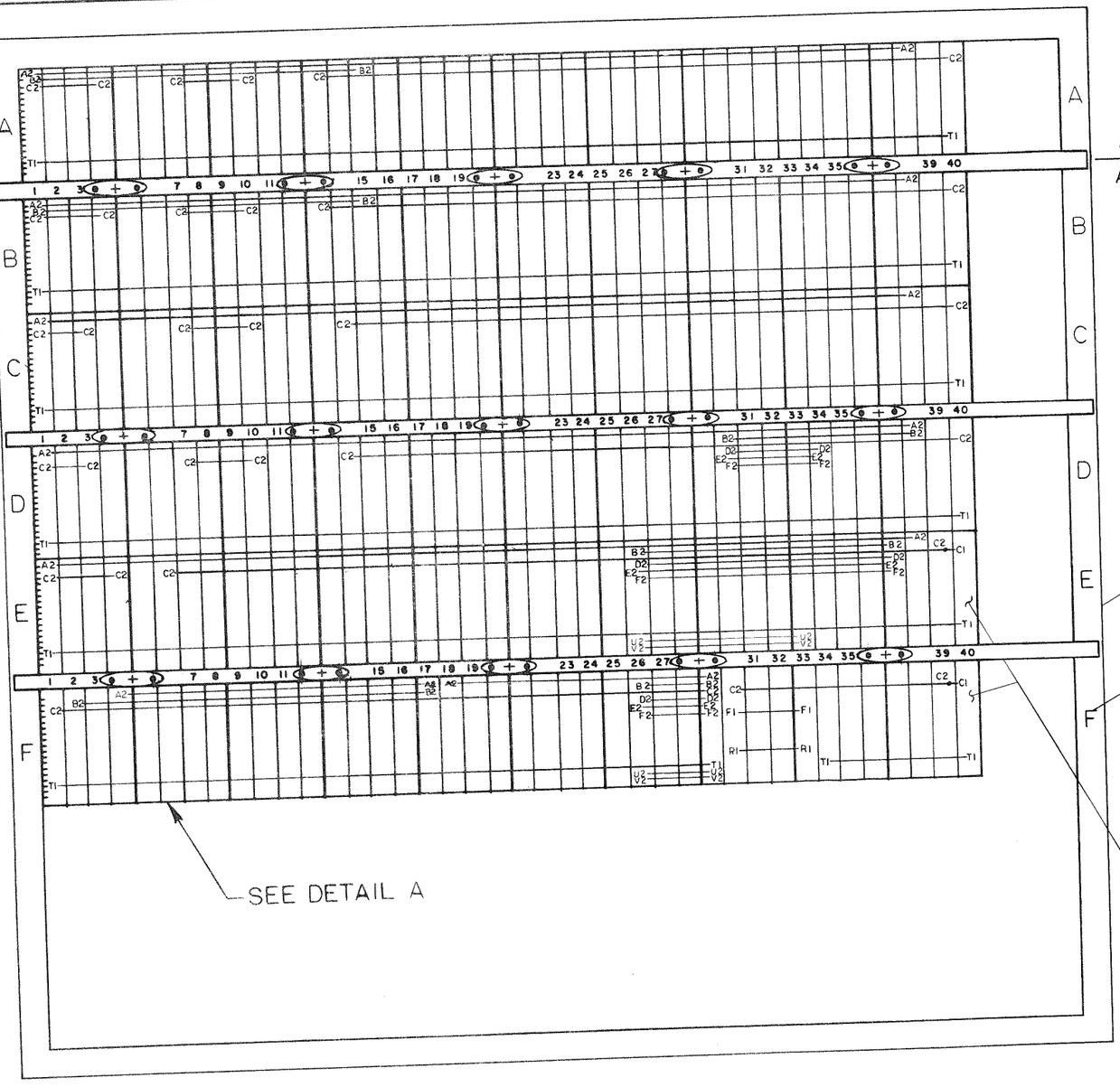
NOTES:
1. CONNECTIONS ON ITEMS #11 & #12 TO BE SOLDERED AND LOCATED AT MINIMUM PRACTICAL HEIGHT ABOVE BOARD.
2. ALL CONN BLOCKS TO BE GROUNDED TO GND LUGS AS SHOWN.
3. USE YELLOW WIRE (ITEM #3) FOR MACHINE WRAPPED & BLUE WIRE (ITEM #4) FOR HAND WRAPPED WIRE.
4. SIDE #1 PINS OF E4Ø & F4Ø ARE GND.

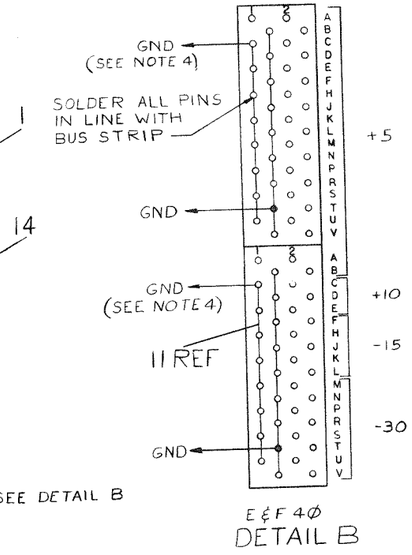


SECTION A-A
SCALE 1/1



DETAIL A
15 PLACES
SEE NOTE #2





E & F 4Ø
DETAIL B

REVISIONS									
CHK	CHANGE NO.	REV.							
	12-00004	A							
Betty Ubuto 2-1469									
S. ZNAMIEROWSKI 2/17/69									
Adriamaurus 2/17/69									
12-00006	B								
Paul 2/21/69									
CLAYTON									
12-00009	C								
Tom Denny 3-7-69									
ZNAMIEROWSKI									
Adriamaurus 3/11/69									
12-00010	D								
Tom Denny 3-11-69									
GALE									
D. Clayton 3/14/69									
EM12-00001	E								
J. Minnar									
GALE									
Paul 4/24/69									
EM12-00006	F								
J. Sullivan 7-30-69									
GALE									
Paul 8/15/69									
EM12-00008	H								
L. GALE									
Paul 8-15-69									
EM12-00018	J								
I. CANOU 11-20-69									
GALE									
D. Minnar 12-4-69									

DEC DID FORM NO.

FIRST USED ON OPTION MODEL: PDP12	QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINISH SURFACE QUALITY ✓ REMOVE BURRS AND BREAK SHARP CORNERS	DRN. B. Ubuto	DATE 9-18-68	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
	CHK'D. K. Truss	DATE 1-3-69	
	ENG. Adriamaurus	DATE 1/14/69	TITLE LOGIC FRAME ASSY (EM12)
	PROJ. ENG. Gale	DATE 1-16-69	
MATERIAL —	PROD. D Call	DATE 1/21/69	
FINISH —	NEXT HIGHER ASSY A-ML-EM12-0		SIZE CODE D AD 7005979-0-0 REV. J
	SCALE NONE		DIST.
	SHEET 1 OF 1		

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

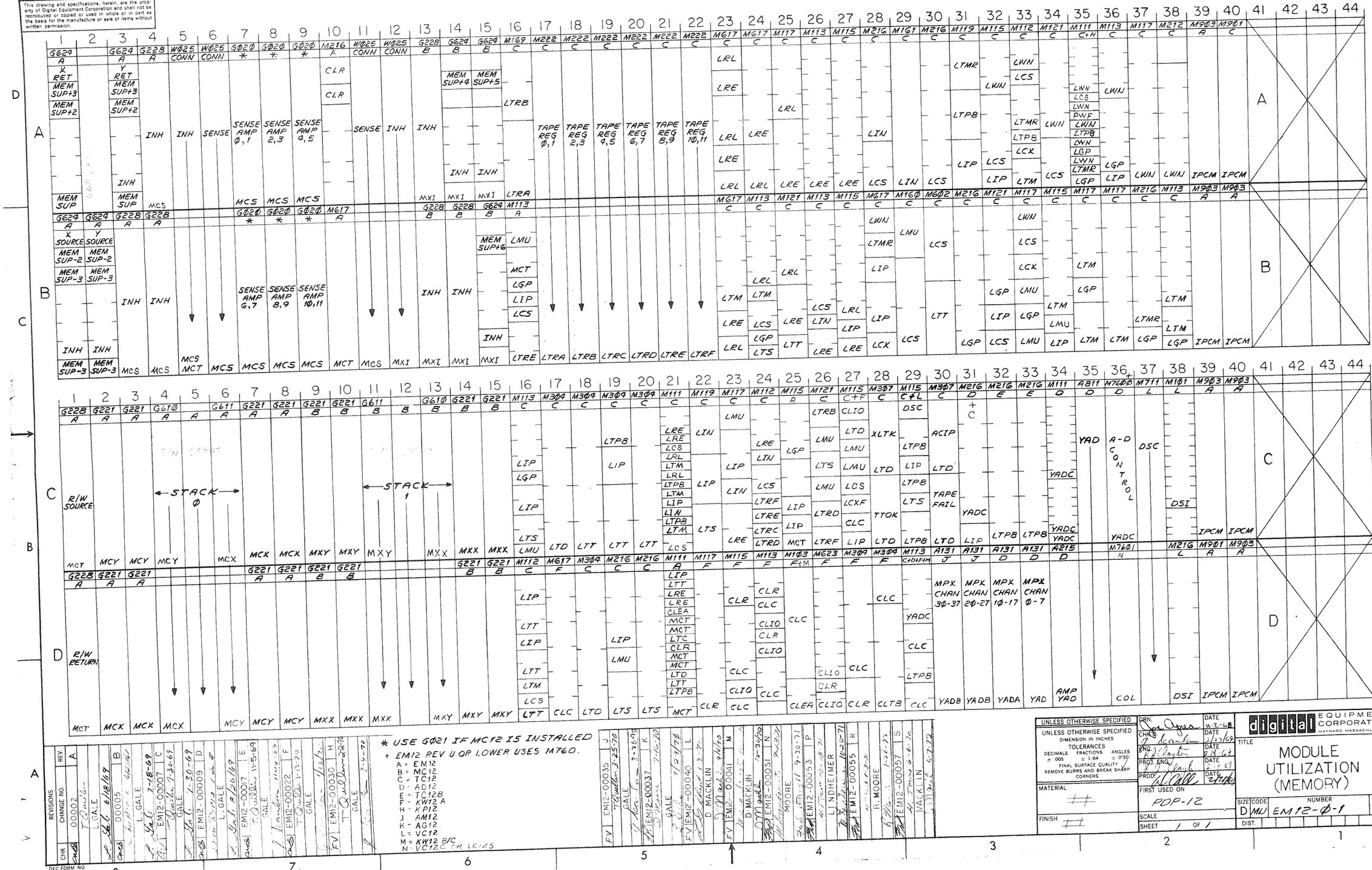
PARTS LIST

MADE BY G. GIANOULIS	CHECKED K.RUSS	SECTION 1
DATE 9/17/68	DATE 12/30/68	
ENG [illegible]	PROD [illegible]	ISSUED SECT. 1
DATE 1/7/69	DATE 1/7/69	

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION
1	D-1A-7407207-0-0	DOOR FRAME REWORK	1
2	D-IA-7406100-0-0	MTG BAR	3
3	9105740-5	#30 AWG SOLID TEF INS WIRE YELLOW	A/R
4	9105740-7	#30 AWG SOLID TEF INS WIRE BLUE	A/R
5	9006043-1	SCR PH HD PAN #8-32 x 1 SST	6
6	9006634	WASHER INT TOOTH #8	6
7	9006120	SCR PHL HD FIL POSI DRIVE #8-32 x 5/8 CPS	60
8	E-SC-1205348-0-0	288 PIN CONN BLOCK	30
9	9006121	SCR PHL HD FIL POSI DRIVE #8-32 x 3/8 CPS	15
10	9007597	TERMINAL #2116-08-00 SHAKEPROOF	15
11	1205541	STRIP, BUS	A/R
12	9107560-1	#22 AWG WIRE BUS	A/R
13	9107265	TUBING TEFLON #22 WHT	A/R
14	A-DC-7406370-0-0	LOGIC FRAME DECALS	A/R
REF	K-WL-EM12-0-4	WIRE LIST	

TITLE LOGIC FRAME ASSY (EM12)	ASSY NO. D-AD-7005979-0-0	SIZE A	CODE PL	NUMBER 7005979-0-0	REV. J	ECO NO. EM12-00018
	SHEET 1 OF 1	DIST. G				

DEC FORM NO.
DRA 110



* USE GØ21 IF MC12 IS INSTALLED

\+ EM12 REV U OR LOWER USES M760.

A = EM12
B = MC12
C = TC12
D = AD12
E = TC128
F = KW12 A
H = KP12
J = AM12
K = AG12
L = VC12
M = KW12 B/C
N = VC12C FOR LCIAS

REVISIONS				
CHK	CHANGE NO.	REV.		
GALE	00002	A	6/16/68	L. GALE
GALE	00005	B	6/18/68	L. GALE
GALE	EM12-00007	C	7-18-69	L. GALE
GALE	EM12-00009	D	7-30-69	L. GALE
GALE	EM12-00017	E	11-5-69	L. GALE
GALE	EM12-00022	F	1-13-70	L. GALE
GALE	EM12-00030	H	2-27-70	T. QUELLER
GALE	EM12-00035	J	3-25-70	T. QUELLER
GALE	EM12-00037	K	3-16-70	L. GALE
GALE	EM12-00040	L	7-2-70	L. GALE
D. MACKLIN	EM12-00041	M	9-4-70	D. MACKLIN
D. MACKLIN	EM12-00051	N	10-30-70	D. MACKLIN
MOORE	EM12-00053	P	9-30-71	R. MOORE
LINDHEIMER	EM12-00055	R	11-26-71	R. MOORE
WALKLIN	EM12-00057	S	1-26-72	WALKLIN

DEC FORM NO. DRD 105

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

DRN.	Jon Green	DATE 11-2-68
CHK'D	L Scanlon	DATE 11/27/68
ENG.	L Scanlon	DATE 2-14-69
PROJ. ENG.	T Clark	DATE 2-14-69
PROD.	W Cahill	DATE 2-14-69

FIRST USED ON PDP-12
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
MODULE UTILIZATION (MEMORY)

SIZE	CODE	NUMBER	REV.
D	MU	EM12-Ø-1	S

DIST.

	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	31	32	33	34	35	36	37	38	39	40	41	42	43	44
	G805 A	G826 A	M217 F	M217 F	W023 C	W032 C	M217 F	M216 A	M216 *F	M310 A	M310 A	M310 A	M310 A	M360 A	M360 B	M117 C	M117 C	M216 C	M121 C	M216 C	M9Ø1 C	M121 B	M113 B	M216 B	M216 C	A214 K	A214 K	A214 K	A214 K	A214 K	A214 K	A214 K	A214 K	A1Ø5 D	W023 D	A615 L	A615 L	M216 L	M3Ø1 A	G750 A				
	MCT	MCT		CLKA				MCT					STROBE Ø	STROBE 1			LTC		LTT			+ C	+ C		LCKF	OPT PREAMPS CHAN 20-21	PREAMPS CHAN 22-23	PREAMPS CHAN 24-25	PREAMPS CHAN 26-27	PREAMPS CHAN 1Ø-11	PREAMPS CHAN 12-13	PREAMPS CHAN 14-15	PREAMPS CHAN 16-17	5¢ HOLD	HQ PWR SUPPLY	Y AXIS	K AXIS		DSI	IPCM	E			
				CLKB		TAPE HEAD CABLE		MCT									LTC		LTS				LCKF		LCK																		
								MCT									LRE		LTS	LCK		LCKF	LCKF		LCK																		
																	LMU			LTS		DSC	LTRF	LCKF	LCK	YADB	YADB	YADB	YADB	YADA	YADA	YADA	YADA		YAD			DSI	IPCM					
			CLKA		LTC		CLKB	LCX	CLR	MCT	MCT	MCT	MCT	MCT	MCT	LTC		LMU	LMU								A214 K	A214 K	A214 K	A214 K	G783 J	G783 J	G783 J	G783 J	M				W028 L	W028 L	A				
			M703 H	G882 C	G882 C		G882 C	G882 C	G882 C	G853 C	W520 C	R107 C	W512 C	W512 C	W512 C	W603 C	R303 A	M9Ø5 FORM **	M216 F	M719 *F	M719 F	M719 F	M603 F	M503 F	CABLE ***	CLEA													SCOPE CABLE VR12	SCOPE CABLE 5Ø3	POWER	F			
			PWR FAIL PWF	MARK LTR	TIME LTR	LTR	D1 LTR	D2 LTR	D3 LTR	RES. BD LTC	UNIT OK LTC		(MARK TIME) LTR (WRITE) LTR			LTR	AUTO RESTART CST	CLTB	CLC CLR CLIO CLR	CLTB CLC CLC CLC	CLTB CLR CLR CLR	CLTB CLIO CLR CLR	CLEA	CLEC	CLEB	OPT PREAMPS CHAN 30-31	OPT PREAMPS CHAN 32-33	OPT PREAMPS CHAN 34-35	OPT PREAMPS CHAN 36-37	ANALOG INPUTS CHAN 3Ø-37	ANALOG INPUTS CHAN 2Ø-27	ANALOG INPUTS CHAN 1Ø-17	ANALOG INPUTS CHAN Ø-7										
						LTR								LTC		LTR		CLTB	CLTB	CLEA	CLEB	CLEC		CLR	CLEB	YADB	YADB	YADB	YADB	YADB	YADB	YADA	YAD	YAD		DSY	DSX	DSX	DSX					

	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	31	32	33	34	35	36	37	38	39	40	41	42	43	44

REVISIONS			
CHK	CHANGE NO.	REV.	
DWS	00002	A	T Quillin 6/18/69 L GALE
DWS	EM12-00009	B	L Gale 8/12/69
DWS	EM12-00017	C	T Quillin 11-5-69 GALE
FV	EM12-00035	D	T Quillin 3-26-70 GALE
FV	EM12-00037	E	3-26-70 GALE
FV	EM12-00039	F	7-2-70 GALE
	EM12-00040	H	8-25-70 C MACKLIN
	EM12-00041	J	9-4-70 C MACKLIN
FV	EM12-00044	K	10-30-70 D MACKLIN
	EM12-00053	L	2-2-71 SCANLON
Fred	EM12-00055	M	10-20-71 LINDHEIMER
Paul			1-3-72 R. MOORE

DEC FORM NO. DF-J 105

** USE M9Ø1 WITH KW12-B
USE M9Ø5 WITH KW12-A
OR KW12-C
+ EM12 REV. U OR LOWER USES A9Ø4

A = EM12
B = MC12
C = TC12
D = AD12
E = TC128
F = KW12-A
H = KP12
J = AM12
K = AG12
L = VC12
M = KW12-B, KW12-C

* USE W023 WITH PINS C2-P2 JUMPERED IN SLOT E9 AND M9Ø8 WITH PINS C2-E1 JUMPERED IN SLOT F20 WHEN KW12A IS NOT INSTALLED

*** USE M87Ø WITH KW12B OR KW12C

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

DRN		DATE 11-24-69
CHK		DATE 2/27/69
ENG		DATE 2-25-69
PROJ. ENG.		DATE 2-26-69
PROD.		DATE 2/26/69
FIRST USED ON	PDP-12	
SCALE		
SHEET	1 OF 1	

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: MODULE UTILIZATION (MEMORY)

SIZE D | CODE MU | NUMBER EM12-Ø-2 | REV. M

DIST.

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY R. COOK
DATE 3/27/69
ENG L. Hale
DATE 5/6/69
CHECKED J. FLEMING
DATE 4/1/69
PROD W Cull
DATE 5/6/69
SECTION
ISSUED SECT.

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	EM12	MC12	TC12	AD12	TC12-F	KW12-A	KP12	AM12	AG12	VC12	KW12-B	KW12-C
	G624	RISISTOR BOARD	4	3										
	G228	INHIBIT DRIVER	5	3										
	G020	SENSE AMP	6											
	G021	SENSE AMP		6										
	M169	GATING MODULE			1									
	M222	TAPE REGISTER			6									
	M617	FOUR-INPUT POWER NAND GATE			4			1						
	M113	NAND GATE			7	1		2					1	1
	M115	NAND GATE			7			1				1		
	M216	SIx FLIP FLOPS	1		6	1	2					1		
	M161	BINARY TO OCTAL/DECIMAL DECODER			1									
	M119	NAND GATE			2									
	M112	NOR GATE			3									
	M121	AND/NOR GATE			4									
	M111	INVERTER	1		2	1			1					
	M212	SHIFT REGISTER			1									
	M160	AND/NOR GATE			1									
	M602	PULSE AMPLIFIER			1									
	M117	NAND GATE			6			1				1		
	G221	MEMORY SELECTOR	8	8										

TITLE: MODULE COUNT
ASSY NO. D-MU-EM12-0-1
SHEET 1 OF 2
SIZE A | CODE PL | NUMBER EM12-0-1 | REV S | ECO NO. EM12-00057
DIST.

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY R. COOK
DATE 3/27/69
ENG L. Hale
DATE 5/6/69
CHECKED J. FLEMING
DATE 4/1/69
PROD W Cull
DATE 5/6/69
SECTION
ISSUED SECT.

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	EM12	MC12	TC12	AD12	TC12-F	KW12-A	KP12	AM12	AG12	VC12-C* VC12	KW12-B	KW12-C
	M304	PULSE AMPLIFIER			5			2						
	M307	ONE SHOT			2									
	A811	A-D CONVERTER				1								
*	M7600	A-D CONTROL				1								
	M711	DISPLAY CONTROL										1		
	M101	BUS DATA INTERFACE										1		
	M103	DEVICE SELECTOR						1					1	1
	M623	BUS DRIVER						1						
	A131	MULTIPLEXER				2				2				
	A215	ANALOG BUFFER				1								
	M7601	611/COLOR CONTROL										1*		
*	AD12'S PRE-WIRED TO	EM12 REV. U OR LOWER												
	USE M760 INSTEAD OF	M7600.												

TITLE: MODULE COUNT
ASSY NO. D-MU-EM12-0-1
SHEET 2 OF 2
SIZE A | CODE PL | NUMBER EM12-0-1 | REV S | ECO NO.
DIST.

DEC FORM NO.
DRA 110

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY R. COOK	CHECKED J. FLEMING	SECTION
DATE 3/27/69	DATE 4/1/69	
ENG L. Gale	PROD D Hall	ISSUED SECT.
DATE 5/6/69	DATE 5/6/69	

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	EM12	MC12	TC12	AD12	TC12-F	KW12-A	KP12	AM12	AG12	VC12	KW12-C	KW12-B
	G805	NEGATIVE REGULATOR	1											
	G826	REGULATOR CONTROL	1											
	M217	CLOCK COUNTER BUFFER						3						
	M216	SIx FLIP FLOP	1	1	3			2				1		
	M310	DELAY LINE	4											
	M360	VARIABLE DELAY	1	1										
	M117	NAND GATE			2									
	M121	AND/NOR GATE		1	1									
	M401	VARIABLE CLOCK			1									
	M113	NAND GATE		1										
	A214	AMPLIFIER				4					8			
*	A405	SAMPLE & HOLD				1								
	A615	D-A										2		
	G780	CONTROL FOR 739 POWER SUPPLY	1											
	M703	POWER FAIL							1					
	G882	MANCHESTER READER WRITER			5									
	G853	MOTION & SELECTION CIRCUIT			1									
	W520	COMPARATOR			1									
	R107	INVERTER			1									
	W512	POSITIVE LEVEL CONVERTER			3									
	W603	PULSE LEVEL AMPLIFIER			1									
	R303	INTERGRATING ONE SHOT	1											

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
MODULE COUNT	D-MU-EM12-0-2	A	PL	EM12-0-2	M	EM12-00055
	SHEET 1 OF 2	DIST.				

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY R. COOK	CHECKED J. FLEMING	SECTION
DATE 3/27/69	DATE 4/1/69	
ENG L. Gale	PROD D Hall	ISSUED SECT.
DATE 5/6/69	DATE 5/6/69	

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	EM12	MC12	TC12	AD12	TC12-F	KW12-A	KP12	AM12	AG12	VC12	KW12-C	KW12-B
	M405	CRYSTAL CLOCK						1					1	
	M719	SUPER CLOCK SYNCRONIZER						3						
	M503	SCHMIDT TRIG & PA						2						
	~~G783~~	~~CABLE CONNECTOR~~				~~2~~					~~2~~			
	M870	SIMPLE CLOCK											1	1
	M401	VARIABLE CLOCK												1
*	AD12'S PRE-WIRED TO EM12 REV. U OR LOWER USE A404 INSTEAD OF A405.													

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
MODULE COUNT	D-MU-EM12-0-2	A	PL	EM12-0-2	M	
	SHEET 2 OF 2	DIST.				

DEC FORM NO.
DRA 110

SIGNAL NAME	FROM PIN	TO PIN	COLOR	REMARKS
Ground	F4ØV1	F28T1	Black	
	F4ØU1	F28C2		
	F40T1	FØ1C2		
	F4ØS1	F34C2		
	F4ØR1	FØ1T1		
	F4ØP1	F39C2		
	F4ØN1	EØ1C2		
	F4ØM1	EØ6C2		Wire is #24
	F4ØL1	EØ1T1		A.W.G.
	F4ØK1	E39C2		
	F4ØJ1	DØ1T1		
	F4ØH1	DO1C2		
	F4ØF1	DIØC2		
	F4ØE1	DI4C2		
	F4ØD1	D4ØT1		
	F4ØC1	D4ØC2		
	F4ØB1	CØ1T1		
	E4ØV1	CØ1C2		
	E4ØU1	C1ØC2		
	E4ØT1	C14C2		
	E4ØS1	C4ØT1		
	E4ØR1	C4ØC2		
	E4ØP1	BØ1T1		
	E4ØN1	BØ1C2		
	E4ØM1	B1ØC2		
	E4ØL1	B13C2		

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
A	4/69	00001	
B	11-20-69	EM12-00018	

DRN. J Scanlon	DATE 3/10/69	
CHK'D. J Scanlon	DATE 3/10/69	
ENG. L. Gale	DATE 3/11/69	
PROJ. ENG. L. Gale	DATE 3/11/69	
PROD. D Call	DATE 3/11/69	
FIRST USED ON		
SCALE		
SHEET 1 OF 3		

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
GENERAL WIRING SHEET
FOR DC Power Memory Logic

SIZE	CODE	NUMBER	REV.
A	WL	EM12-0-4	B

DIST.

DEC FORM NO.
DRA 104

SIGNAL NAME	FROM PIN	TO PIN	COLOR	REMARKS
Ground	E4ØK1	B4ØT1	Black	
	E4ØJ1	B4ØC2		
	E4ØH1	A01T1		
	E4ØE1	AØ1C2		
	E4ØD1	A1ØC2		
	E4ØC1	A13C2		Wire is #24
	E4ØB1	A4ØT1		A. W. G.
	E4ØD1	A4ØC2		
	E4ØF1	B19C2		
	E4ØH1	A19C2		
	F4ØV1	EØ1P2		
	F4ØU1	FØ1L2		
+5V	F4ØA2	FØ2A2	RED	
	E4ØV2	E38A2		
	E40U2	EØ1A2		
	E4ØT2	D38A2		
	E40S2	DØ1A2		
	E4ØR2	C38A2		
	E4ØP2	CØ1A2		
	E4ØN2	B38A2		
	E4ØM2	BØ1A2		
	E4ØL2	A38A2		
	E4ØK2	A01A2		
	E4ØJ2	B19A2		
	E4ØH2	A19A2		
	F4ØB2	F29A2		

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.

DRN. J Scanlon	DATE 3/10/69	
CHK'D. J Scanlon	DATE 3/10/69	
ENG. L. Gale	DATE 3/11/69	
PROJ. ENG. L. Gale	DATE 3/11/69	
PROD. D Call	DATE 3/11/69	
FIRST USED ON		
SCALE		
SHEET 2 OF 3		

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
GENERAL WIRING SHEET
FOR DC POWER Memory Logic

SIZE	CODE	NUMBER	REV.
A	WL	EM12-0-4	B

DIST.

DEC FORM NO.
DRA 104

SIGNAL NAME	FROM PIN	TO PIN	COLOR	REMARKS
+10V	F4ØD2	F17A2	Green	
-15V	F4ØL2	F29B2	Blue	
	F4ØK2	FØ2B2		
	F4ØJ2	E37B2		
	F4ØH2	D33B2		Wire is #24
	F40F2	A01B2		A. W. G.
	F4ØK2	BØ1B2		
-30V	F4ØN2	F4ØP2	Yellow	
	F4ØM2	F4ØN2		
	F4ØP2	EØ1E2		
	F4ØR2	F4ØS2		
	F4ØS2	E01F2		
	E4042	E4ØV2		
	F4ØT2	F4Ø42		
	F4ØV2	EØ1H2		
+5V	E4ØF2	C19A2		
	E4ØE2	D19A2		
MCT X R/W SOURCE	CØIKI	CØ7T2	GREEN	
MCT Y R/W SOURCE	CØISI	CØ2T2	GREEN	

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.

DRN.	G Scanlon	DATE 3/10/69
CHK'D.	G Scanlon	DATE 3/10/69
ENG.	L Gale	DATE 3/10/69
PROG. ENG.	L Gale	DATE 3/10/69
PROD.	D Call	DATE 3/10/69
FIRST USED ON		
SCALE		
SHEET 3 OF 3		

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
GENERAL WIRING SHEET
FOR DC ~~POWER~~ MEMORY Logic

SIZE	CODE	NUMBER	REV.
A	WL	EM12-0-4	B

DIST.

DEC FORM NO.
DRA 104

M901 A40

A1	LIP PROGRESS (1)H
B1	LTR WRITE ON L
C1	LIP TAPE PAUSE H
D1	LIP TAPE BRK REQ (Ø)H
E1	LIP TAPE INTERRUPT L
F1	LIP MSC TAC TO AC H
H1	LTP8 BLOCK (1)H
J1	LTP8 WORD H
K1	LIP TAPE BRK REQ (1)H
L1	LCS TURN ARND (1)L
M1	LIP PROGRESS (Ø)H
N1	LIP TAPE OUT H
P1	LTR MARK ON L
R1	LWN IM H
S1	LIP CHK SUM TO AC L
T1	GND
U1	LIP CHK SUM LD AC L
V1	GND

M903 B40

B1	MCS MEM ØØ H
H1	MCS MEM Ø3 H
J1	MCS MEM Ø4 H
L1	MCS MEM Ø5 H
M1	MCS MEM Ø6 H
P1	MCS MEM Ø7 H
S1	MCS MEM Ø8 H

M903 C40

B1	PRB MB Ø3 (Ø)H
D1	PRB MB Ø3 (1)H
E1	PRC MB Ø4 (Ø)H
H1	PRC MB Ø4 (1)H
J1	PRC MB Ø5 (Ø)H
L1	PPC MB Ø5 (1)H
M1	PRD MB Ø6 (Ø)H
P1	PRD MB Ø6 (1)H
S1	PRD MB Ø7 (Ø)H

M903 D40

B1	PRA MA ØØ (Ø)H
D1	PRA MA ØØ (1)H
E1	PRA MA Ø1 (1)H
H1	PRB MA Ø2 (1)H
J1	PRB MA Ø3 (Ø)H
L1	PRB MA Ø3 (1)H
M1	PRC MA Ø4 (1)H
P1	PRC MA Ø5 (1)H
S1	PRD MA Ø6 (Ø)H

M903 A39

B1	INT IO BUS ØØ L
D1	INT IO BUS Ø1 L
E1	INT IO BUS Ø2 L
H1	INT IO BUS Ø3 L
J1	INT IO BUS Ø4 L
L1	INT IO BUS Ø5 L
M1	INT IO BUS Ø6 L
P1	INT IO BUS Ø7 L
S1	INT IO BUS Ø8 L

M901 E39

A1	PWF PWR LOW (Ø)H
B1	LST SET AUTO L
C1	PRD AC Ø7 (Ø)H
D1	PRE AC Ø8 (Ø)H
E1	PRE AC Ø9 (Ø)H
F1	CPT TS RECYCLE (Ø)H
H1	CST AUTO DEL L
J1	INR IR Ø7 (1)H
K1	INR IR Ø7 (1)H
L1	INR IR Ø9 (1)H
M1	INR IR 10 (1)H
N1	INR IR 11 (1)H
P1	INS N EQ Ø1 H
R1	INS N EQ Ø3 H
S1	CST DØ (1)H
T1	GND
U1	DSC SIZE (Ø)H
V1	PWF RESTART L

M901 A40

B2	SLA EX TS4 H
D2	LTRA TAPE BUS ØØ H
E2	LTRA TAPE BUS Ø1 H
F2	LTRB TAPE BUS Ø2 H
H2	LTRB TAPE BUS Ø3 H
J2	LTRC TAPE BUS Ø4 H
K2	LTRC TAPE BUS Ø5 H
L2	LTRD TAPE BUS Ø6 H
M2	LTRD TAPE BUS Ø7 H
N2	LTRE TAPE BUS Ø8 H
P2	LTRE TAPE BUS Ø9 H
R2	LTRF TAPE BUS 10 H
S2	LTRF TAPE BUS 11 H
T2	LIP TAPE BUS TO AC L
U2	GND
V2	LIP TAPE SKIP L

M903 B40

D2	MCS MEM Ø9 H
E2	MCS MEM 10 H
H2	MCS MEM 11 H
K2	PRA MB ØØ (Ø)H
M2	PRA MB ØØ (1)H
P2	PRA MB Ø1 (Ø)H
S2	PRA MB Ø1 (1)H
T2	PRB MB Ø2 (Ø)H
V2	PRB MB Ø2 (1)H

M903 C40

D2	PRD MB Ø7 (1)H
E2	PRE MB Ø8 (Ø)H
H2	PRE MB Ø8 (1)H
K2	PRE MB Ø9 (Ø)H
M2	PRE MB Ø9 (1)H
P2	PRF MB 10 (Ø)H
S2	PRF MB 10 (1)H
T2	PRF MB 11 (Ø)H
V2	PRF MB 11 (1)H

M903 D40

D2	PRD MA Ø6 (1)H
E2	PRD MA Ø7 (1)H
H2	PRE MA Ø8 (1)H
K2	PRE MA Ø9 (Ø)H
M2	PRE MA Ø9 (1)H
P2	PRF MA 10 (1)H
S2	PRF MA 11 (1)H
T2	MCT STROBE L
V2	MCT MEM DONE L

M903 A39

D2	INT IO BUS Ø9 L
E2	INT IO BUS 10 L
H2	INT IO BUS 11 L
K2	INT SKIP BUS L
M2	INT AC CLEAR BUS L
P2	DSC Z DRIVER
S2	MXF EA 2 H
T2	IOC IO STROBE L
V2	INS SAM H

M901 E39

A2	CLIO INT RQST L
B2	DSC 503 INTEN L
D2	LCS IDLE (1)L
E2	LCS SEARCH (1)L
F2	LCS BLOCK (1)L
H2	LCX NO PAUSE (1)L
J2	LCX EX ADD FORMAT (1)L
K2	LCS CHK WRD (1)L
L2	MCT PWR STOP L
M2	LIN TINR 11 (1)L
N2	LIN TINR 10 (1)L
P2	LIN TINR Ø9 (1)L
R2	LCX MARK (1)L
S2	INS MTP H
T2	INS B MSC H
U2	CSI KEY MARK L
V2	LIP TAPE WORD (1)H

M903 B39

B1	CPTP START MEMORY H
D1	IOC IO PRESET L
E1	CPTP TP2 H
H1	CPTP TP5D H
J1	CPTP TP4 H
L1	CPTP TP5 H
M1	IOC IOP 1 L
P1	IOC IOP 2 L
S1	IOC IOP 4 L

M903 B39

D2	MCT PWR CLR L
E2	CPT TS2 (1)H
H2	CPT TS3 (1)H
K2	CPT TS4 (1)H
M2	CPT TS5 B (1)H
P2	CPS EXECUTE B (1)H
S2	CPS FETCH B (1)H
T2	CST IO PRESET H
V2	PWF PWR SKIP L

M903 C39

B1	PRA AC ØØ (1)H
D1	PRA AC Ø1 (1)H
E1	PRB AC Ø2 (1)H
H1	PRB AC Ø3 (1)H
J1	PRC AC Ø4 (Ø)H
L1	PRC AC Ø4 (1)H
M1	PRC AC Ø5 (1)H
P1	PRD AC Ø6 (1)H
S1	PRD AC Ø7 (1)H

M903 C39

D2	PRE AC Ø8 (1)H
E2	PRE AC Ø9 (1)H
H2	PRF AC 10 (Ø)H
K2	PRF AC 10 (1)H
M2	PRF AC 11 (Ø)H
P2	PRF AC 11 (1)H
S2	RCL LOAD MSC 4 H
T2	PRB AC Ø3 (Ø)H
V2	LIP TAPE BRK REQ (Ø)H

M901 D39

B1	YAD AD Ø2 (1)H
C1	YADC AD Ø3 (Ø)H
D1	YADC AD Ø4 (Ø)H
E1	YADC AD Ø5 (Ø)H
F1	YADC AD Ø6 (Ø)H
H1	YADC AD Ø7 (Ø)H
J1	YADC AD Ø8 (Ø)H
K1	YADC AD Ø9 (Ø)H
L1	YADC AD 10 (Ø)H
M1	YADC AD 11 (Ø)H
N1	CPT (DIS+DSC) H
P1	SLA (DSC+EXECUTE 2) L
R1	INS DIS L
S1	INS DSC L
T1	CPR RUN (1)H
U1	GND
V1	DSC BUSY H
	YADC A-D RECYCLE L

M901 D39

A2	MXF EA (Ø)L
B2	MXF EA (1)L
D2	MXF DF ØØ (1)H
E2	MXR DF Ø1 (1)H
F2	MXR DF Ø2 (1)H
H2	MPG DF Ø3 (1)H
J2	MPG DF Ø4 (1)H
K2	MXR IF ØØ (1)H
L2	MXR IF Ø1 (1)H
M2	MXR IF Ø2 (1)H
N2	MPG TF Ø3 (1)H
P2	MPG TF Ø4 (1)H
R2	INR IR Ø8 (1)H
S2	YADC FAST SAM (1)H
T2	LCX TF ØØ (1)H
U2	LCX TF Ø1 (1)H
V2	LCX TF Ø2 (1)H

REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
	EM12-00002	A	NR	EM12-00015	E
	J FASSHAUSER 4-15-69			ADS	
	L GALE 4-29-69			J SCANLAN	
	EM12-00002	B	NR	EM12-00017	F
	A WASHINGTON 6-15-69			A WASHINGTON 11-13-69	
	L GALE			J SCANLAN 11-14-69	
	EM12-00004	C		EM12-00044	H
	B KORTLANG 9-12-69			ADS	
	L GALE 9-12-69			J SCANLAN	
NR	EM12-00007	D		EM12-00047	J
	B KORTLANG 9-26-69				
	L GALE 9-26-69				

DRN. D.L.SHEPARD	DATE 3-3-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D. J.R.BISONETE	DATE 3-9-69		
ENG. L.GALE	DATE 3-9-69	TITLE INTER PROC CABLES	
PROJ. ENG. L.GALE	DATE 3-9-69		
PROD. D.CALL	DATE 3-9-69		
FIRST USED ON EM12		SIZE D	CODE BS
SCALE		NUMBER EM12-0-IPCM	REV. J
SHEET 1 OF 1		DIST.	

W Ø25 A Ø5 B Ø5 — AC2 AD2 AE2 AF2 AH2 AJ2 AK2 AL2 AM2 AN2 AP2 AR2 BC2 BD2 BE2 BF2 BH2 BJ2 BK2 BL2 BM2 BN2 BP2 BR2

MCT MEMORY SUPPLY+1
MCT MEMORY SUPPLY-1
MCT MEM SUPPLY+2
MCT MEM SUPPLY-2
MCT MEM SUPPLY+3
MCT MEM SUPPLY-3
MCT B INHIBIT H
MCT B FIELD (Ø) H

INHIB DRIVER Ø · 1 · 2 · 3 · 4 · 5 · 6 · 7 · 8 · 9 · 1Ø · 11

G624 A03 · G624 B02 · G624 B01

PRA MBØØ (Ø) H · PRA MBØ1 (Ø) H · PRB MBØ2 (Ø) H · PRB MBØ3 (Ø) H · PRC MBØ4 (Ø) H · PRC MBØ5 (Ø) H · PRD MBØ6 (Ø) H · PRD MBØ7 (Ø) H · PRE MBØ8 (Ø) H · PRE MBØ9 (Ø) · PRF MB1Ø (Ø) H · PRF MB11 (Ø) H

G228 A04 · G228 B04 · G228 B03

G021 * A07 · G021 * A08 · G021 * A09 · G021 * B07 · G021 * B08 · G021 * B09

MCS MEM ØØ H · MCS MEM Ø1 H · MCS MEM Ø2 H · MCS MEM Ø3 H · MCS MEM Ø4 H · MCS MEM Ø5 H · MCS MEM Ø6 H · MCS MEM Ø7 H · MCS MEM Ø8 H · MCS MEM Ø9 H · MCS MEM 1Ø H · MCS MEM 11 H

MCT B MEM ENABLE H
MCT MEM BEGIN L
SENSE Ø Ø · SENSE Ø1 · SENSE Ø2 · SENSE Ø3 · SENSE Ø4 · SENSE Ø5 · SENSE Ø6 · SENSE Ø7 · SENSE Ø8 · SENSE Ø9 · SENSE 1Ø · SENSE 11

MCT STROBE FIELD Ø H
MCT STROBE FIELD 1 H
SLICE

W Ø25 A Ø6 B Ø6 — AC2 AD2 AE2 AF2 AH2 AJ2 AK2 AL2 AM2 AN2 AP2 AR2 BC2 BD2 BE2 BF2 BH2 BJ2 BK2 BL2 BM2 BN2 BP2 BR2

W Ø25 A11 B11 — AC2 AD2 AE2 AF2 AH2 AJ2 AK2 AL2 AM2 AN2 AP2 AR2 BC2 BD2 BE2 BF2 BH2 BJ2 BK2 BL2 BM2 BN2 BP2 BR2

* USE G Ø2Ø ONLY IF MC12 IS NOT INSTALLED

GØ21 pin 52: N.C.

REVISIONS	REV
CHANGE NO EMI2-00003	A
CHK 2nd T. Quill 10-23-68	
L. GALE 8/9/68	

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

DRN	Joe Ogura	DATE 1-17-68
CHK	A. Scanlon	DATE 2/27/69
ENG	D. Clayton	DATE 2-28-69
PROJ. ENG	D. Clayton	DATE 2-28-69
PROD	L. Hall	DATE 3/4/69

FIRST USED ON: EM12
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: MCS SENSE AMPS & INHIBIT DRIVERS

SIZE D | CODE BS | NUMBER EM12-Ø-MCS | REV A | DIST.

DEC FORM NO DRD 102

MG17 B1Ø

MCT B MEM ENABLE H

+3V B1ØV1 H

MCT B FIELD (Ø)H

+3V B1ØV1H

MCT B FIELD (1)H

MCT B INHIBIT H

M111 D21

MCT MEM BEGIN L

M21G EØ8

MCT MEM ENABLE

MCT FIELD

MCT READ

MCT INHIBIT

MCT WRITE

CST IO PRESET L

+3V B1ØU1 L

CPTP START MEMORY H

MXF EA2 H

M36Ø E14

MCT MEM DONE L

M113 B16

M31Ø E1Ø

M31Ø E11

M31Ø E12

M31Ø E13

MCT MEM FINISH H

-MXF EA Ø H

-MXF EA 1 H

M36Ø E14

MCT FIELD (Ø) H

MCT STROBE FIELD Ø H

M36Ø * E15

MCT FIELD (1) H

MCT STROBE FIELD 1 H

MCT STROBE L

PWF STOP OK H

-MCT POWER OK H

M115 C25

MCT PWR STOP L

G624 AØ3

G624 AØ1

G624 BØ2

G625 BØ1

MCT MEMORY SUPPLY +Ø

MCT NEG CLAMP H

MCT MEMORY SUPPLY -Ø

G826 E2 F2

-MCT POWER OK H

-MCT POWER CLEAR H

W25 BØ5

THERMISTOR

REGULATOR AND POWER DETECTOR

PWF STOP OK H

-MCT SHUTDOWN H

G805 EØ1 FØ1

NEGATIVE REGULATOR

FM2 +Ø
FN2 +Ø
FP2 +1
FR2 +2
FS2 +3
FT2 +4
FU2 +5
FV2 +6

-Ø EM2
-1 EM2
-2 EU2
-3 EK2
-4 EL2
-5 EM2
-6 EN2

MCT X R/W SOURCE

MCT Y R/W SOURCE

MCT X R/W RETURN

MCT Y R/W RETURN

G228 DØ1

G228 CØ1

+3V B1ØU1H

MCT READ(1) H

MCT WRITE(1) H

* USE ONLY IF MC12 IS INSTALLED

REVISIONS									
CHK	CHANGE NO.	REV							
	00002	A	T. Quillin	L. GALE	8/18/68				
	EM12-00004	B	L. GALE	T. Quillin	L. Gale 8-18-68				
	EM12-00017	C	T. Quillin 11-5-69	GALE	L. Scanlon 11-4-69				

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

MATERIAL

FINISH

DRN.		DATE 2-13-69
CHK'D	L. Scanlon	DATE 2/17/69
ENG.		DATE 2-24-69
PROJ. ENG.		DATE 2-24-69
PROD.		DATE 3/11/69

FIRST USED ON EM12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
MCT MEMORY CONTROL

SIZE D | CODE 85 | NUMBER EM12-Ø-MCT | REV. C

DIST.

DEC FORM NO. DRD 102A

G221 CØ8

G611 CØ6 DØ6

CV2 CU2 CT2 CS2 CR2 CP2 CN2 CM2 CL2 CK2 CJ2 CH2 CF2 CE2 CD2 CC2

R2I S2I N2I P2I L2I M2I J2I K2I

7Ø 71 72 73 74 75 76 77
6Ø 67
5Ø 57
4Ø 47
3Ø 37
2Ø 27
1Ø 17
ØØ Ø1 Ø2 Ø3 Ø4 Ø5 Ø6 Ø7

PRA MAØ1 (1)H — H2
PRB MAØ2 (1)H — F2
MCT NEG CLAMP H — V2
PRA MA ØØ(1)H — E2
D2
T2

G221 CØ7

PRA MAØ1 (1)H — H2
PRB MAØ2 (1)H — F2
MCT NEG CLAMP H — V2
PRA MA ØØ(Ø)H — E2
MCT B FIELD (Ø)H — D2
T2

MCT X R/W SOURCE

DC2 DD2 DE2 DF2 DH2 DJ2 DK2 DL2 DM2 DN2 DP2 DR2 DS2 DT2 DU2 DV2

G610 CØ4 DØ4

MCT X R/W RETURN

K2 J2 M2 L2 P2 N2 S2 R2

T2

MCT B FIELD (Ø)H — D2
PRB MAØ3 (Ø)H — E2
MCT NEG CLAMP H — V2
PRC MAØ5 (1)H — F2
PRC MAØ4 (1)H — H2

G221 DØ2

PRB MAØ3 (1)H — E2
D2
PRC MAØ5 (1)H — F2
PRC MAØ4 (1)H — H2

G221 DØ3

V2 MCT NEG CLAMP H

REVISIONS			
CHK	CHANGE NO.	REV	
	EM12-00015	A	L. GALE 10/7/69
FV	EM12-00030	B	T.O.W. 2-2-70
			GALE Ja. 2. — 3-4-70

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

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

MATERIAL

FINISH

DRN.		DATE 1-28-69
CHKD.	D. Scanlon	DATE 2/25/69
ENG.	P.J. Clayton	DATE 2-28-69
PROJ. ENG.	P.J. Clayton	DATE 2-28-69
PROG.	J. Mall	DATE 2/28/69

FIRST USED ON EM12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
MCX
X AXIS SELECTION

SIZE	CODE	NUMBER	REV.
D	BS	EM12-Ø-MCX	B

DIST.

DEC FORM NO DRD 102

EM12-Ø-MCX B BS D

G221 CØ3

G610 CØ8 DØ8

CV2 CU2 CT2 CS2 CR2 CP2 CN2 CM2 CL2 CK2 CJ2 CH2 CF2 CE2 CD2 CC2

7Ø 71 72 73 74 75 76 77
6Ø 67
5Ø 57
4Ø 47
3Ø 37
2Ø 27
1Ø 17
ØØ Ø1 Ø2 Ø3 Ø4 Ø5 Ø6 Ø7

DC2 DD2 DE2 DF2 DH2 DJ2 DK2 DL2 DM2 DN2 DP2 DR2 DS2 DT2 DU2 DV2

G611 CØ9 DØ6

PRD MAØ7 (1)H — H2
PRE MAØ8 (1)H — F2
MCT NEG CLAMP H — V2
PRD MAØ6(1)H — E2
D2
T2
G221 CØ2
V2

PRD MAØ7 (1)H — H2
PRE MAØ8 (1)H — F2
PRD MAØ6(Ø)H — E2
MCT B FIELD (Ø)H — D2
T2

MCT Y R/W SOURCE
MCT Y R/W RETURN

MCT B FIELD(Ø)H — D2
PRE MAØ9(Ø)H — E2
MCT NEG CLAMP H — V2
PRF MA11 (1)H — F2
PRF MAIØ (1)H — H2
G221 DØ7

PRE MAØ9(1)H — D2 E2
PRF MA 11(1)H — F2
PRF MA 1Ø(1)H — H2
G221 DØ8

V2 MCT NEG CLAMP H

REVISIONS			
CHK	CHANGE NO.	REV.	
DB	EM12-00015	A	L. GALE 10/15/69
FV	EM12-00030	B	T. Quillen 3-2-70
			GALE 3-4-70

DEC FORM NO. DRD 102

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

MATERIAL

FINISH

DRN	DATE
Joe Hanna	1-23-69
CHKD D Carlson	DATE 2/27/69
ENG R Clayton	DATE 2-26-69
PROJ ENG R Clayton	DATE 2-27-69
PROD W Hall	DATE 3-4-69

FIRST USED ON EM12

SCALE

SHEET OF

QTY. | DESCRIPTION | PART NO. | ITEM NO.

PARTS LIST

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
MCY
Y AXIS SELECTION

SIZE	CODE	NUMBER	REV.
D	BS	EM12-Ø-MCY	B

DIST.

REV B | SIZE D | CODE BS | NUMBER EM12-Ø-MCY

Orig. Lost
Retyped 10/6/70

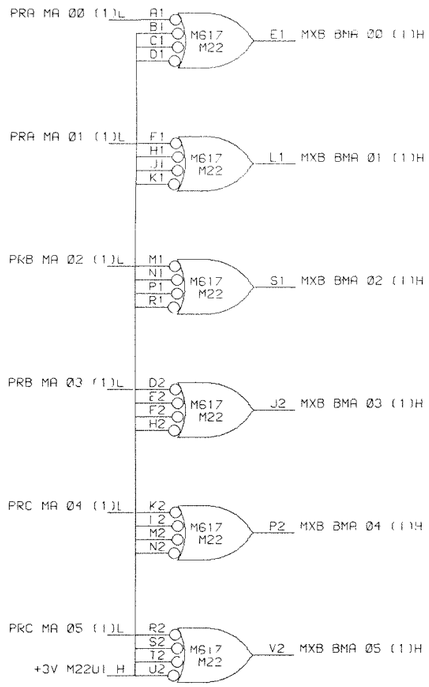
MASTER DRAWING LIST

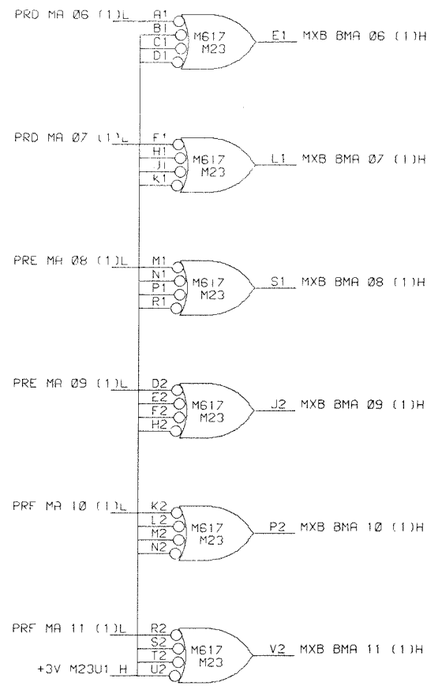
DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
D-MU-EP12-0-1	REF	2	MODULE UTILIZATION PROC
D-MU-EM12-0-1	REF		MODULE UTILIZATION (MEMORY)
D-MU-EM12-0-2	REF		MODULE UTILIZATION (MEMORY)
A-ML-EP12-0	REF	2	PROCESSOR
A-ML-EM12-0	REF	1	MEMORY
D-BS-MC12-0-MXB	D	1	MEM EXTN BUFFER
D-BS-MC12-0-MXF	L	1	MEM EXTN FIELD
D-BS-MC12-0-MXI	A	1	MXI INHIBIT DRIVERS
D-BS-MC12-0-MXR	F	1	MEM EXTN REGISTERS
D-BS-MC12-0-MXX	B	1	X-AXIS SELECTION
D-BS-MC12-0-MXY	B	1	Y-AXIS SELECTION
A-PL-EP12-0-1	REF	3	MODULE UTILIZATION PROC PL
A-PL-EM12-0-1	REF		MODULE UTILIZATION MEM PL
A-PL-EM12-0-2	REF		MODULE UTILIZATION MEM PL

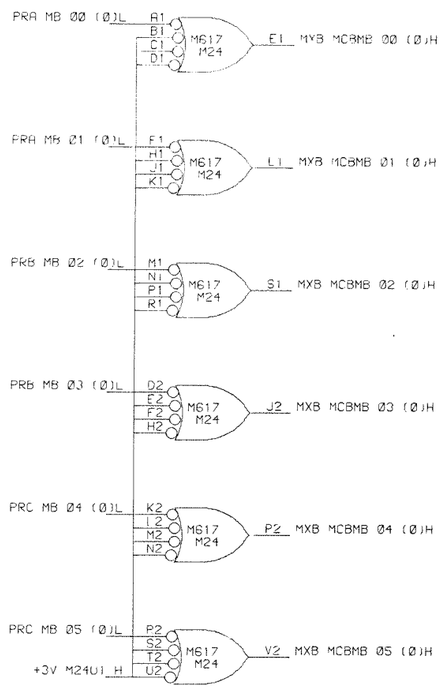
REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
A	3/18/69	EP12-1	J.S.
B	4/18/69	EP12-2	J.S.
C	5/21/69	EP12-3	L.G.
D	6/5/69	EP12-4	L.G.
E	6/11/69	EM12-3	L.G.
F	6/69	EP12-6	L.G.
H	7/69	EP12-7	L.G.
J	7/69	EP12-9	L.G.
K	9/69	EM12-15	L.G.
L	2/70	EM12-30	L.G.
M	5/70	EP12-21	L.G.
N	7/70	EP12-26	L.G.
P	10/70	EP12-30	L.G.
R	3/71	EP12-36	J.S.
S	1/72	EP12-44	R.M.
T	7/72	EP12-46	R.I.

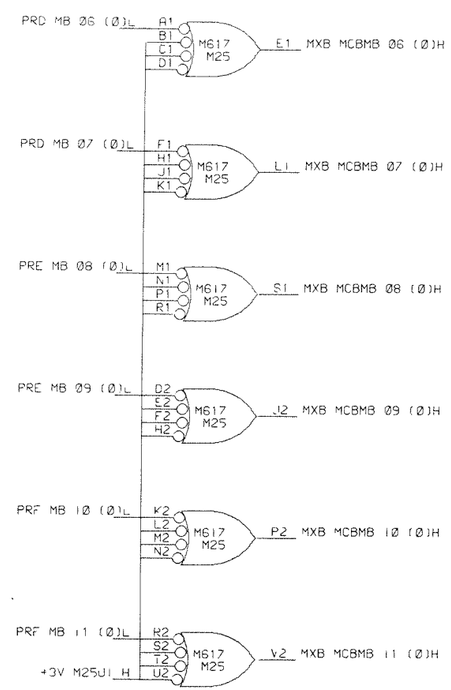
DRN. J. Aprea	DATE 3/7/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. R.Hutnak	DATE 3/7/69	
ENG. L. Gale	DATE 3/10/69	
PROJ. ENG. L. Gale	DATE 3/10/69	
PROD. D. Call	DATE 3/10/69	
FIRST USED ON PDP-12		TITLE MEMORY EXTENSION CONTROL
SCALE		SIZE A · CODE ML · NUMBER MC12-0 · REV. T
SHEET 1 OF 1		DIST.

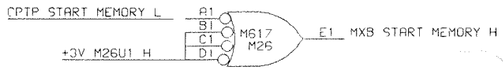
DEC FORM NO.
DRA 103

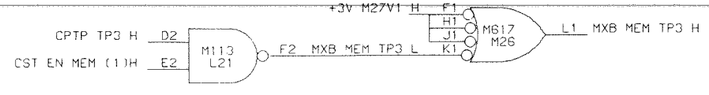


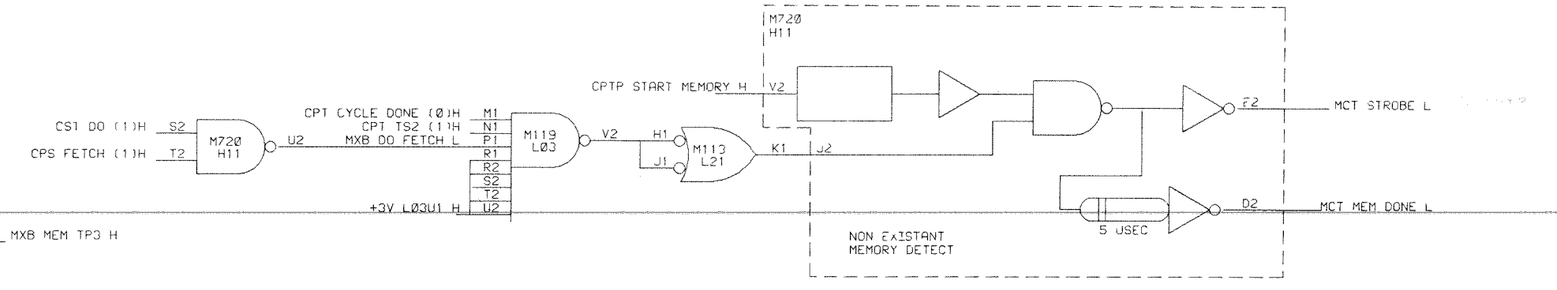






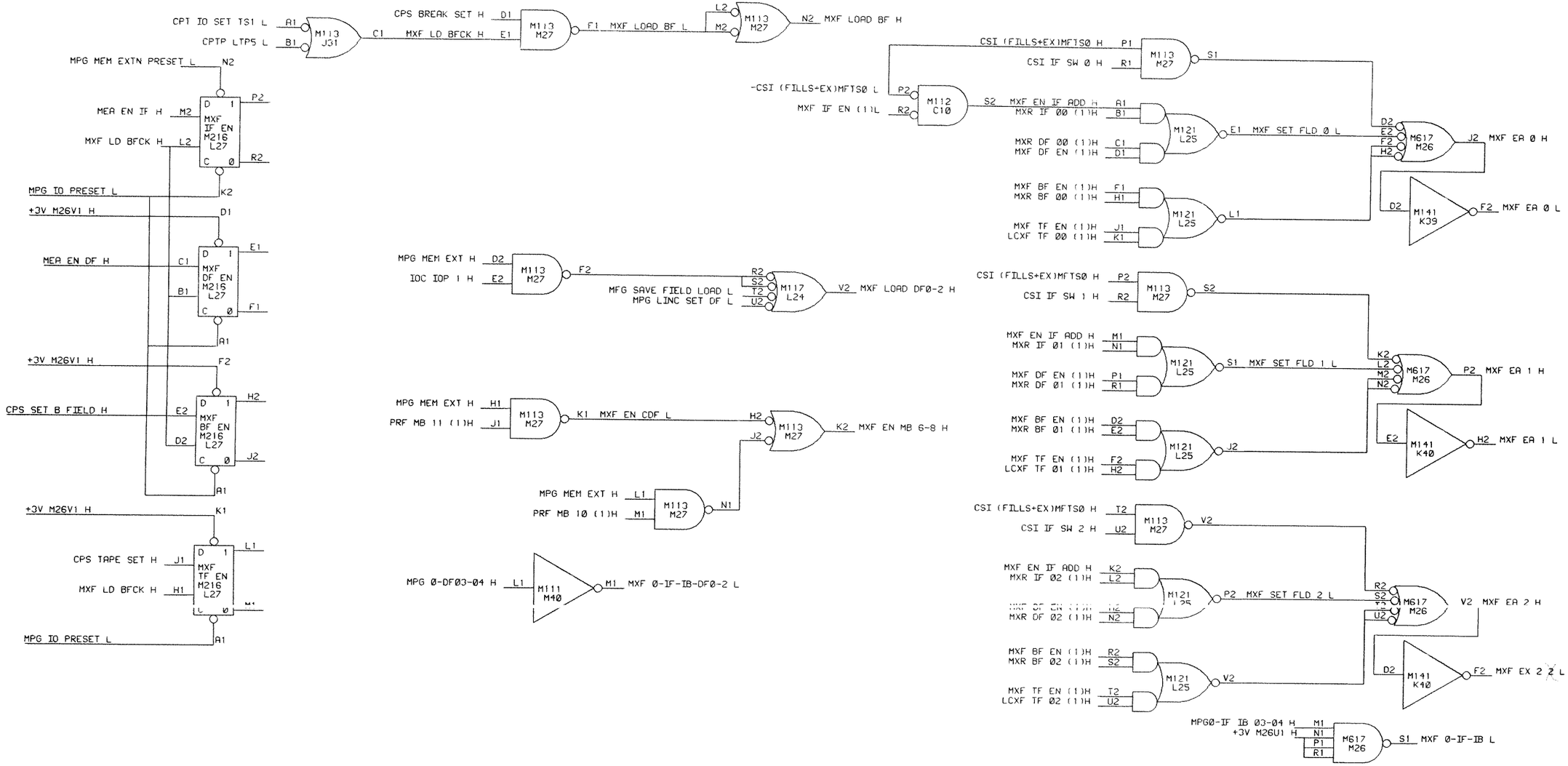






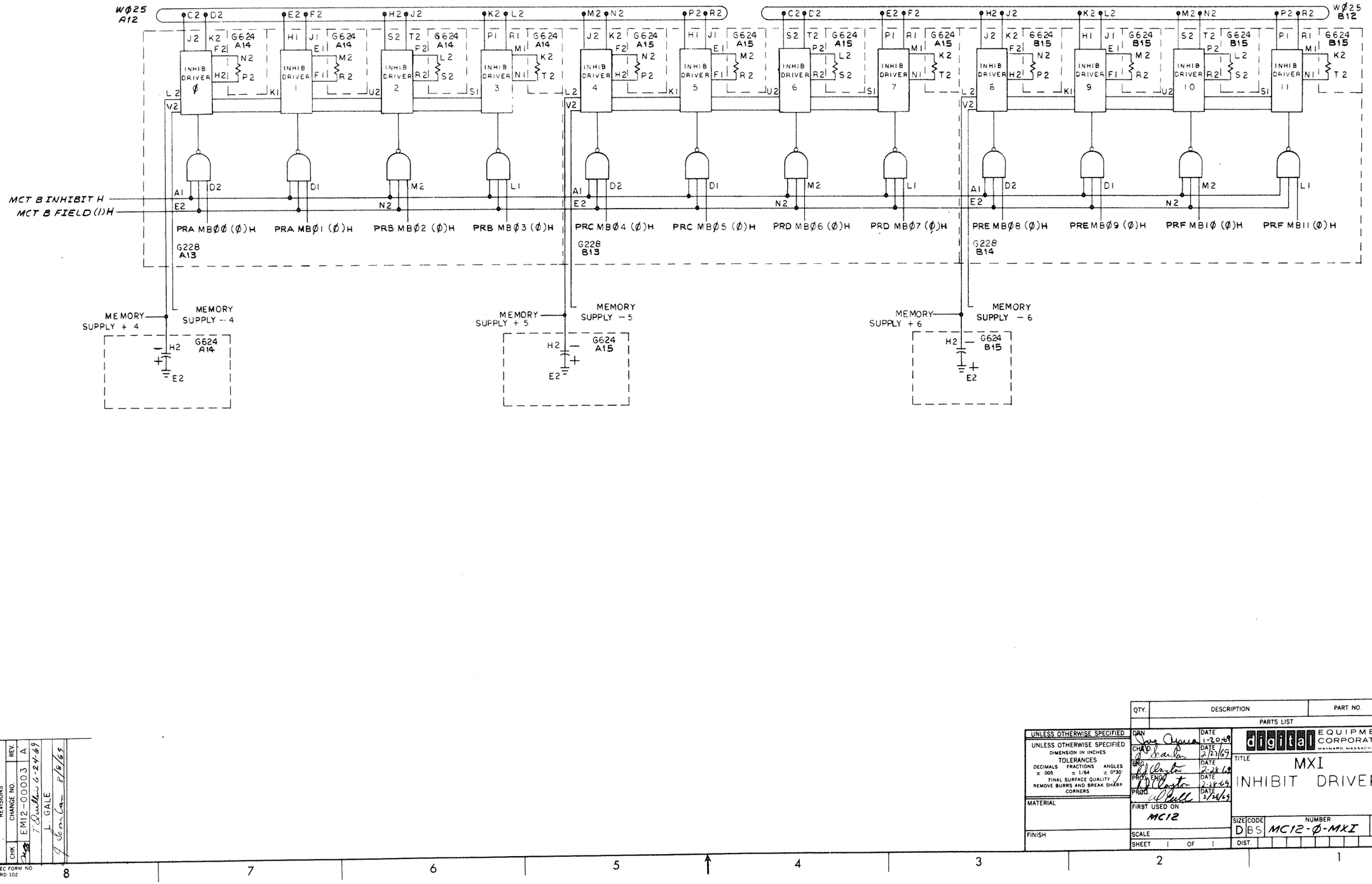
REVISIONS		
CHK	CHANGE NO.	REV.
JB	EP12-00001	A
	ADS	
	J SCANLAN 3/13/69	
PD	EP12-00002	B
	A WASHINGTON 5/20/69	
	J SCANLAN 5/22/69	
GH	EP12-00026	C
	S. GOLDSBY 9-1-70	
	D. MACKLIN 9-2-70	
	EP12-00030	D

DRN. D SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CH'KD. J BISONETE	DATE 2/20/69	
ENG. L GALE	DATE 2/20/69	TITLE MEM EXTN BUFFER
PROJ. ENG. L GALE	DATE 2/20/69	
PROD. D CALL	DATE 2/20/69	
FIRST USED ON MC12		SIZE D / CODE BS / NUMBER MC12-Ø-MXB / REV. D
SCALE		
SHEET 1 OF 1		DIST.



REVISIONS			REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
	EM12-00001	A	NR	EP12-00007	E	GH	EP12-00026	K
	ADS			A.WASHINGTON 8/15/69			S. GOLDSBY 9-1-70	
	J. SCANLAN 3/13/69			L. GALE 8/20/69			D. MACKLIN 9-2-70	
	EP12-00003	B	NR	EP12-00009	F		EP12-00030	L
	A.WASHINGTON 5/20/69			A.WASHINGTON 8/20/69				
	J. SCANLAN 5/22/69			J. SCANLAN 8/20/69				
	EP12-00004	C		EM12-00015	H			
	A.WASHINGTON 7/9/69			K. BOGGS 10/14/69				
	J. SCANLAN			J. SCANLAN 10/17/69				
NR	EP12-00006	D	FV	EP12-00021	J			
	A.WASHINGTON 8/6/69			D. SOUTHER 6/17/70				
	J. SCANLAN 8/6/69			J.SCANLAN 6/17/70				

DRN. D. SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D. J. BISONETE	DATE 2/20/69	TITLE MEM EXTN FIELD	
ENG. L. GALE	DATE 2/20/69		
PROJ. ENG. L. GALE	DATE 2/20/69		
PROD. D. CALL	DATE 2/20/69		
FIRST USED ON MC12		SIZE D	CODE BS
SCALE		NUMBER MC12-0-MXF	REV. L
SHEET 1 OF 1		DIST.	



REVISIONS			
CHK.	CHANGE NO.	REV.	
Dg	EM12-00003	A	
T. Sullo 6-24-69			
L. GALE			
J. Garcia 8/6/69			

DEC FORM NO DRD 102

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

MATERIAL

FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

DRN	Jose Garcia	DATE 1-20-69
CHKD	J. Garcia	DATE 2/21/69
ENG	R. Clayton	DATE 2-28-69
PROJ. ENG	R. Clayton	DATE 2-28-69
PROD	A. Bell	DATE 3/26/69

FIRST USED ON MC12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
MXI
INHIBIT DRIVERS

SIZE	CODE	NUMBER	REV
D	BS	MC12-Ø-MXI	A

DIST.

REV A | NUMBER MC12-Ø-MXI | SIZE D | CODE BS

M121 L23 U1 MXR SF 00 (1)L

M121 L23 V1 MXR SF 01 (1)L

M117 L24 U1 MXR SF 02 (1)L

+3V M22V1 H — MXR SF 00 M216 M30 — +3V M23V1 H
MXR IF 00 (1)H — MPG LOAD SF H

+3V M22V1 H — MXR SF 01 M216 M30 — +3V M23V1 H
MXR IF 01 (1)H — MPG LOAD SF H

+3V M22V1 H — MXR SF 02 M216 M30 — +3V M23V1 H
MXR IF 02 (1)H — MPG LOAD SF H

+3V M22V1 H — MXR SF 03 M216 M30 — +3V M23V1 H
MXR DF 00 (1)H — MPG LOAD SF H

+3V M22V1 H — MXR SF 04 M216 M30 — +3V M23V1 H
MXR DF 01 (1)H — MPG LOAD SF H

+3V M22V1 H — MXR SF 05 M216 M30 — +3V M23V1 H
MXR DF 02 (1)H — MPG LOAD SF H

SRF IBØØ L
MXF EN IF SW H
CSI IF SW Ø H
MXF EN MB 6-8 H
PRD MB Ø6 (1)H
MXR EN MB 7-9 H
PRD MB Ø7 (1)H
MPG EN SAVE FIELD H
MXR SF Ø1 (1)H
M169 M32

RCC ST LSW EN H
CSI IF SW Ø H
M113 M27
A1 MXR SET IB ØØ H
MPG LOAD IB ØØ-Ø2 H
MXR IB ØØ M216 M31
MXF Ø-IF-IB-Ø-2 L
MXR IF ØØ M216 M31

SRF IBØ1 L
MXF EN MB 6-8 H
PRD MB Ø7 (1)H
MXR EN MB 7-9 H
PRE MB Ø8 (1)H
MPG EN SAVE FIELD H
MXR SF Ø1 (1)H
M169 M32

RCC ST LSW EN H
CSI IF SW 1 H
M113 N40
K1 MXR SET IB Ø1 H
MPG LOAD IB ØØ-Ø2 H
MXR IB Ø1 M216 M31
MXF Ø-IF-IB-Ø-2 L
MXR IF Ø1 M216 M31

SRF IBØ2 L
MXF EN MB 6-8 H
PRE MB Ø8 (1)H
MXR EN MB 7-9 H
PRE MB Ø9 (1)H
MPG EN SAVE FIELD H
MXR SF Ø2 (1)H
M169 M32

RCC ST LSW EN H
CSI IF SW 2 H
M113 N40
M1 MXR SET IB Ø2 H
MPG LOAD IB ØØ-Ø2 H
MXR IB Ø2 M216 M31
MXF Ø-IF-IB-Ø-2 L
MXR IF Ø2 M216 M31

CON AFI REQ OK L
M121 L25 U1
MXF EN MB 6-8 H
MXF EN MB 6-8 H
MXR EN MB 7-9 H
MPG EN SAVE FIELD H
MPG EN SAVE FIELD H
M169 M32
V2 -MXR EN MB 7-9 H
M111 K09
V2 MXR EN MB 7-9 H

MPG LOAD IF ØØ-Ø2 H

SRF SET DF Ø-2 L
MXR SET IB ØØ H
-MPG EN SAVE FIELD H
MXR SF Ø3 (1)H
MPG EN SAVE FIELD H
M121 M28
MXF LOAD DFØ-2 H
MXR DF ØØ M216 M29
SRF CLR DF ØØ L

SRF SET DF Ø-2 L
MXR SET IB Ø1 H
-MPG EN SAVE FIELD H
MXR SF Ø4 (1)H
MPG EN SAVE FIELD H
M121 M28
MXF LOAD DFØ-2 H
MXR DF Ø1 M216 M29
SRF CLR DF Ø1 L

SRF SET DF Ø-2 L
MXR SET IB Ø2 H
-MPG EN SAVE FIELD H
MXR SF Ø5 (1)H
MPG EN SAVE FIELD H
M121 M28
MXF LOAD DFØ-2 H
MXR DF Ø2 M216 M29
SRF CLR DF Ø2 L

+3V M25V1 H — MXR BF ØØ M216 M29 — +3V M25V1 H
IOB EXT DA ØØ H — MXF LOAD BF H

+3V M25V1 H — MXR BF Ø1 M216 M29 — +3V M25V1 H
IOB EXT DA Ø1 H — MXF LOAD BF H

+3V M25V1 H — MXR BF Ø2 M216 M29 — +3V M25V1 H
IOB EXT DA Ø2 H — MXF LOAD BF H

REVISIONS					
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV
JB	EP12-00001	A	[illegible]	EP12-00036	E
	ADS			[illegible]	
	J. SCANLAN 3/13/69			SCANLAN	
	EP12-00003	B		[illegible]	
	A.WASHINGTON 6/18/69		[illegible]	EP12-00046	F
	L. GALE 6/20/69			[illegible]	
NR	EP12-00004	C		IKNAIAN	
	A.WASHINGTON 7-9-69			[illegible]	
	L. GALE 7-15-69				
	EP12-00030	D			
	[illegible]				
	[illegible] 11-17-69				

DRN. D. SHEPARD	DATE 2/20/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D J. BISONETE	DATE 2/20/69	TITLE: MEM EXTN REGISTER
ENG. L. GALE	DATE 2/20/69	
PROJ. ENG. L. GALE	DATE 2/20/69	
PROD. D. CALL	DATE 2/20/69	
FIRST USED ON MC12		SIZE D | CODE BS | NUMBER MC12-Ø-MXR | REV. F
SCALE		DIST.
SHEET 1 OF 1		

G611 C13 D13

G221 C14

CV2 CU2 CT2 CS2 CR2 CP2 CN2 CM2 CL2 CK2 CJ2 CH2 CF2 CE2 CD2 CC2

7Ø 71 72 73 74 75 76 77
6Ø 67
5Ø 57
4Ø 47
3Ø 37
2Ø 27
1Ø 17
ØØ Ø1 Ø2 Ø3 Ø4 Ø5 Ø6 Ø7

PRA MA Ø1(1)H
PRB MA Ø2(1)H
MCT NEG CLAMP H
PRA MA ØØ(1)H
G221 C15
PRA MA Ø1(1)H
PRB MA Ø2(1)H
PRA MA ØØ(Ø)H
MCT B FIELD(1)H
MCT X R/W SOURCE

DC2 DD2 DE2 DF2 DH2 DJ2 DK2 DL2 DM2 DN2 DP2 DR2 DS2 DT2 DU2 DV2

G610 C11 D11

MCT X R/W RETURN
MCT B FIELD (1)H
PRB MA Ø3(Ø)H
PRB MA Ø3(1)H
PRC MA Ø5(1)H
PRC MA ØØ(1)H
PRC MA Ø4(1)H
G221 DØ9
G221 D1Ø
MCT NEG CLAMP H

REVISIONS			
CHK	CHANGE NO.	REV.	
DWS	EM12-00015	A	
FV	EM12-00030	B	

L. GALE 9/17/69
T. Sullivan 2-3-70
GALE 3-4-70

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

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

MATERIAL

FINISH

DRN		DATE 11-20-69
CHKD		DATE 12/1/69
ENG	L. Gale	DATE 2/28/69
PROJ. ENG	L. Gale	DATE 2/28/69
PROD.	W. Cahill	DATE 3/4/69

FIRST USED ON: MC12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: MXX X AXIS SELECTION

SIZE D | CODE BS | NUMBER MC12-Ø-MXX | REV. B

DIST.

DEC FORM NO. DRD 102

G221 C10

G610 C11 & D11

CV2 CU2 CT2 CS2 CR2 CP2 CN2 CM2 CL2 CK2 CJ2 CH2 CF2 CE2 CD2 CC2

70 71 72 73 74 75 76 77 67 57 47 37 27 17 07 Ø1 Ø2 Ø3 Ø4 Ø5 Ø6 Ø7 60 50 40 30 20 10 00

DC2 DD2 DE2 DF2 DH2 DJ2 DK2 DL2 DM2 DN2 DP2 DR2 DS2 DT2 DU2 DV2

G611 C13 D13

PRD MAØ7 (1)H

PRE MAØ8 (1)H

MCT NEG CLAMP H

PRD MA Ø6 (1)H

G221 CØ9

PRD MAØ7 (1)H

PRE MAØ8 (1)H

PRD MA Ø6(Ø)H

MCT B FIELD (1)H

MCT Y R/W SOURCE

MCT Y R/W RETURN

MCT B FIELD(1)H

PRE MAØ9(Ø)H

PRE MAØ9(1)H

PRF MA1Ø(1)H

PRF MA11(1)H

PRF MA1Ø(1)H

G221 D14

G221 D15

MCT NEG CLAMP

REVISIONS			
REV.	CHANGE NO.	CHK.	
A	EM12-30030	FW	

QTY.	DESCRIPTION	PART NO	ITEM NO

PARTS LIST

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

MATERIAL

FINISH

DRN	DATE 1-30-69
CHK'D	DATE 2-2-69
ENG	DATE 2/28/69
PROJ ENG	DATE 2/28/69
PROD	DATE 3/5/69

FIRST USED ON MC12

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE MXY
Y AXIS SELECTION

SIZE D | CODE BS | NUMBER MC12-Ø-MXY | REV.

SCALE

SHEET 1 OF 1 | DIST.

DEC FORM NO DRD 102

MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
A-ML-PDP 12-0	REF.		PDP-12 SYSTEMS
D-MU-EM12-0-1	REF		MODULE UTILIZATION MEM
D-MU-EM12-0-2	REF		MODULE UTILIZATION MEM
K-WL-EM12-0-3	REF		WIRE LIST
A-PL-EM12-0-1	REF		MODULE UTILIZATION MEM PL.
A-PL-EM12-0-2	REF		MODULE UTILIZATION MEM PL.
D-FD-TC12-0-10	B	1	TAPE PROCESSOR MJR. ST. FLOW
D-FD-TC12-0-11	D	1	TAPE INST SETUP TIMING
D-FD-TC12-0-12	C	1	SEARCH TIMING
D-FD-TC12-0-13	C	1	BLOCK MODE READING
D-FD-TC12-0-14	C	1	BLOCK MODE WRITE
D-FD-TC12-0-15	C	1	BLOCK MODE CHECKING
D-FD-TC12-0-16	A	1	MARK TIMING
D-BS-TC12-0-LCS	E	1	TAPE CONTROL STATES
D-BS-TC12-0-LCX	B	1	TAPE EXTENDED OPERATIONS
D-BS-TC12-0-LCXF	A	1	TAPE EXTENDED FIELDS
D-BS-TC12-0-LGP	C	1	TAPE GROUP COUNTER
D-BS-TC12-0-LIN		1	TAPE INSTRUCTION
D-BS-TC12-0-LIP	E	1	INTERPROCESSOR SIGNALS
D-BS-TC12-0-LMU	B	1	TAPE UNIT AND MOTION
D-BS-TC12-0-LRE	C	1	TAPE REG ENABLE CONTROL
D-BS-TC12-0-LRL	A	1	TAPE REG LOAD CONTROL
D-BS-TC12-0-LTC	C	1	TRANSPORT CONTROL
D-BS-TC12-0-LTD	H	1	TAPE DELAYS
D-BS-TC12-0-LTM	A	1	TAPE MAINT
D-BS-TC12-0-LTMR	A	1	TAPE MAINT REG
D-BS-TC12-0-LTR	B	1	TAPE READERS-WRITERS
D-BS-TC12-0-LTRA	E	1	LTRA BITS 0 & 1
D-BS-TC12-0-LTRB	D	1	LTRB BITS 2 & 3
D-BS-TC12-0-LTRC	C	1	LTRC BITS 4 & 5
D-BS-TC12-0-LTRD	B	1	LTRD BITS 6 & 7
D-BS-TC12-0-LTRE	B	1	LTRE BITS 8 & 9
D-BS-TC12-0-LTRF	E	1	LTRF BITS 10 & 11

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
A	3/69	EM12-01	L.G.
B	5/69	EM12-02	L.G.
C	6/69	EM12-03	L.G.
D	6/69	EM12-04	L.G.
E	6/69	EM12-5	L.G.
F	7/69	EM12-7	L.G.
H	8/69	EM12-09	L.G.
J	8/69	EM12-10	L.G.
K	9/69	EM12-11	L.G.
L	9/69	EM12-15	L.G.
M	10/69	EM12-17	L.G.
N	12/69	EM12-19	L.G.
P	1/70	EM12-22	L.G.
R	2/70	EM12-30	L.G.
S	2/70	EM12-32	L.G.

DRN. J. APREA	DATE 3/7/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. R. HUTNAK	DATE 3/7/69	
ENG. L. Gale	DATE 3/10/69	TITLE LINC TAPE CONTROL
PROJ. ENG. L. Gale	DATE 3/10/69	
PROD. D Call	DATE 3/10/69	
FIRST USED ON PDP-12		SIZE A / CODE ML / NUMBER TC12-0 / REV V
SCALE		
SHEET 1 OF 2		DIST.

DEC FORM NO. DRA 103

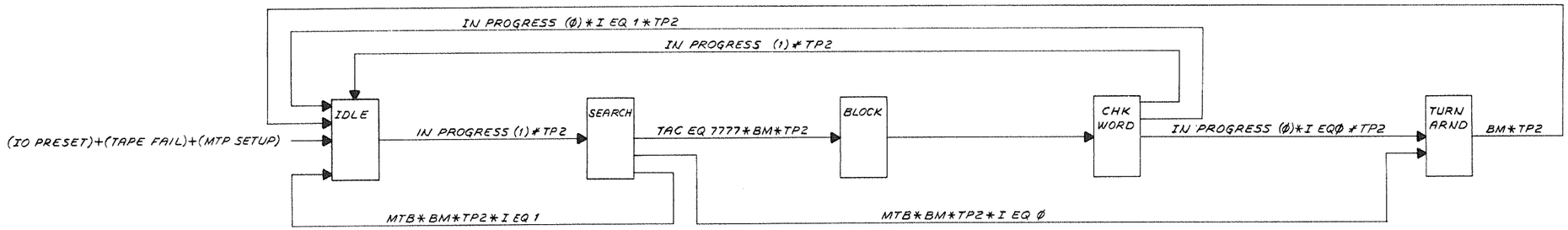
MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
D-BS-TC12-0-LTS	D	1	TAPE STATES
D-BS-TC12-0-LTT	C	1	TAPE TIME PULSES
D-BS-TC12-0-LWN	D	1	TAPE MARK WINDOW

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
T	7/70	EM12-37	L.G.
U	8/70	EM12-38	L.G.
V	10/70	EM12-41	L.G.

DRN. J. APREA	DATE 3/10/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. R. Hutnak	DATE 3/10/69	
ENG. L. Gale	DATE 3/10/69	TITLE LINC TAPE CONTROL
PROJ. ENG. L. Gale	DATE 3/10/69	
PROD. D Call	DATE 3/10/69	
FIRST USED ON PDP-12		SIZE A / CODE ML / NUMBER TC12-0 / REV V
SCALE		
SHEET 2 OF 2		DIST.

DEC FORM NO. DRA 103



REVISIONS			
CHK	CHANGE NO.	REV.	
[illegible]	00002	A	T. QUILLIN L. GALE [illegible] 10-5-67
[illegible]	EM12-00015	B	L. GALE 10/17/67

UNLESS OTHERWISE SPECIFIED		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY √ REMOVE BURRS AND BREAK SHARP CORNERS	DRN. Joe Aprea	DATE 6 SEPT 68
	CHK'D. [illegible]	DATE 2/27/67
	ENG. [illegible]	DATE 2-28-69
	PROJ. ENG. [illegible]	DATE 2-28-69
	PROD. [illegible]	DATE 3/28/67
MATERIAL	FIRST USED ON TC12	
FINISH	SCALE	
	SHEET 1 OF 1	

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

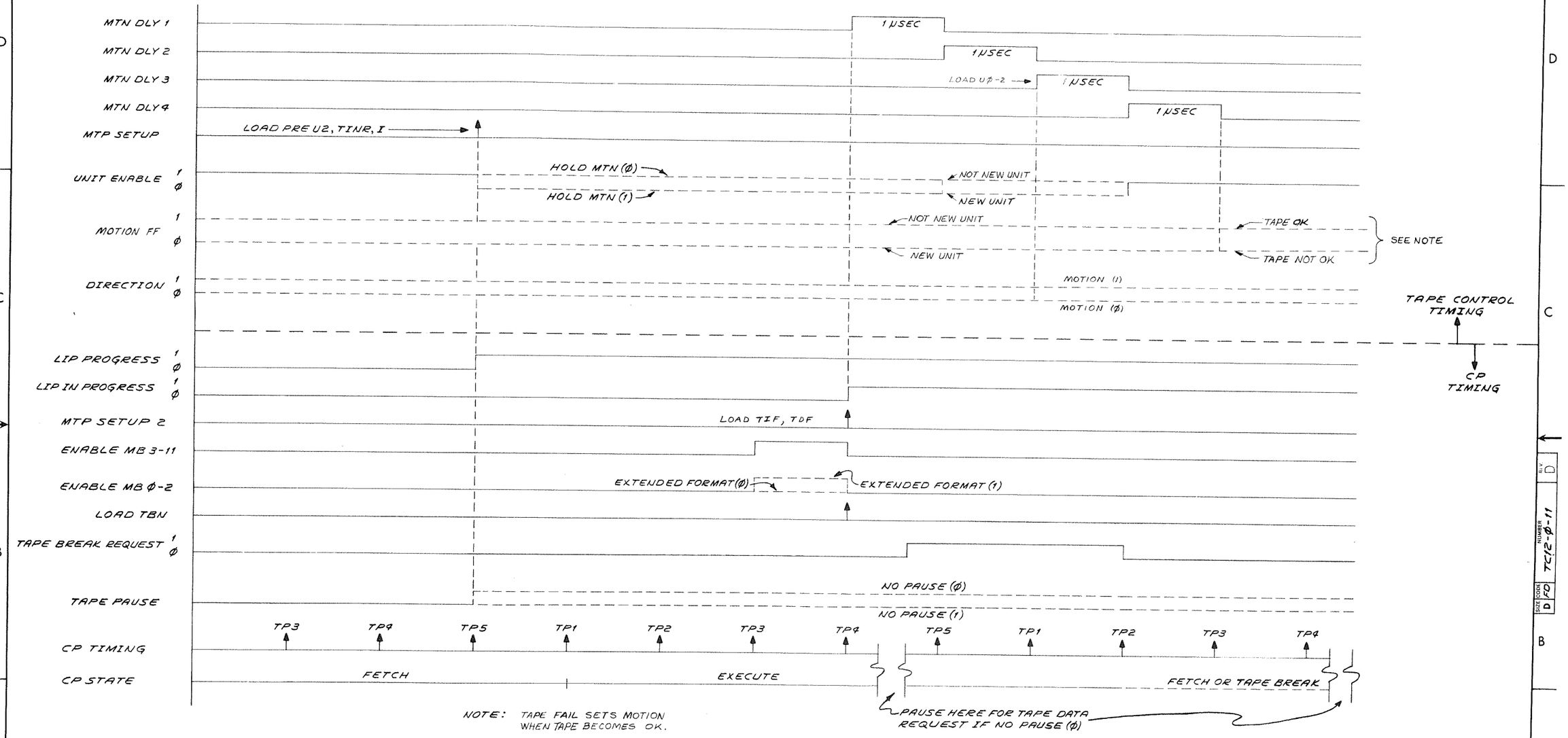
TITLE: TAPE PROCESSOR MJR. ST. FLOW

SIZE	CODE	NUMBER	REV.
D	FD	TC12-Ø-1Ø	B

DIST.

DEC FORM NO. DRD 102A

SIZE D | CODE FD | NUMBER TC12-Ø-1Ø | REV B



NOTE: TAPE FAIL SETS MOTION WHEN TAPE BECOMES OK.

REVISIONS				
CHK	CHANGE NO.	REV.		
DRB	00002	A	T. Burke	L GALE 6/18/69
DRB	EM12-00003	B	T. QUINLIN 6-24-69	L.GALE
DRB	EM12-00015	C		L. GALE 8/5/69
DRB	EM12-00017	D	T. QUINLIN 11-5-69	L. GALE 11-14-69

UNLESS OTHERWISE SPECIFIED		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY ✓ REMOVE BURRS AND BREAK SHARP CORNERS	DRN.	DATE 11-24-68
	CHK'D.	DATE 12/2/69
	ENG.	DATE 12-4-69
	PROJ. ENG.	DATE 12-4-69
	PROD.	DATE 12-4-69
MATERIAL	FIRST USED ON TC12	
FINISH	SCALE	
	SHEET 1 OF 1	

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

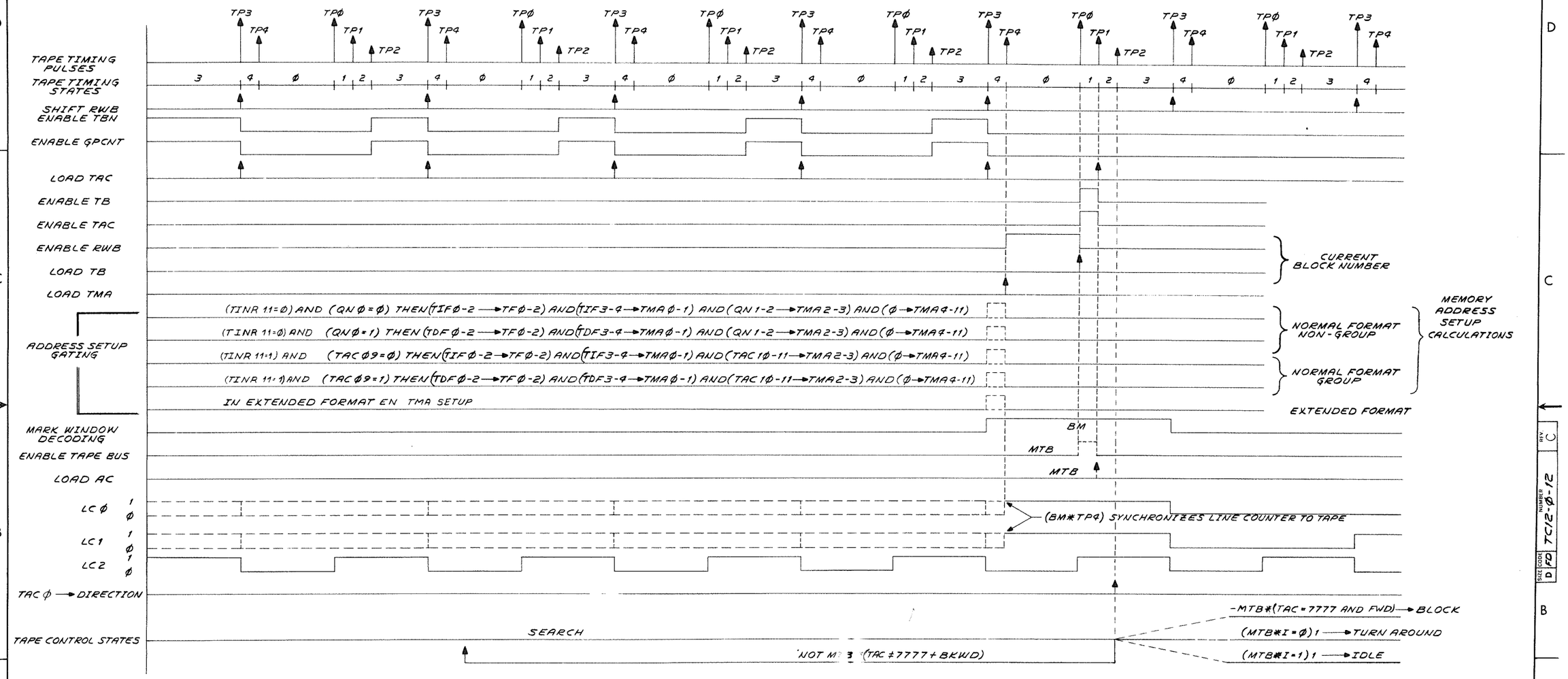
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: LINC TAPE INST SETUP TIMING

SIZE	CODE	NUMBER	REV.
D	FD	TC12-Ø-11	D

DIST.

DEC FORM NO. DRD 102A



NOTE:
TIMING NOT SHOWN TO SCALE. TPØ & TP3 ARE DERIVED FROM ZERO CROSSINGS OF TAPE TIMING TRACK. TPØ & TP3 ARE SEPARATED BY APPROXIMATELY 15 μSEC. TTS1, TTS2, TTS4 ARE EACH 0.5 μSEC.

REVISIONS	CHK	CHANGE NO.	REV.
		00002 T QUILLIN L GALE 6/18/68	A
		EM12-00003 T. QUILLIN 6-24-69 L GALE 8/6/69	B
		EM12-00015 L. GALE 10/17/69	C

DEC FORM NO. DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

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

MATERIAL

FINISH

DRN.	DATE 11-25-68
CHK'D	DATE 2/27/69
ENG.	DATE 2-26-69
PROJ. ENG.	DATE 2-26-69
PROD.	DATE 2/26/69

FIRST USED ON TC12

SCALE

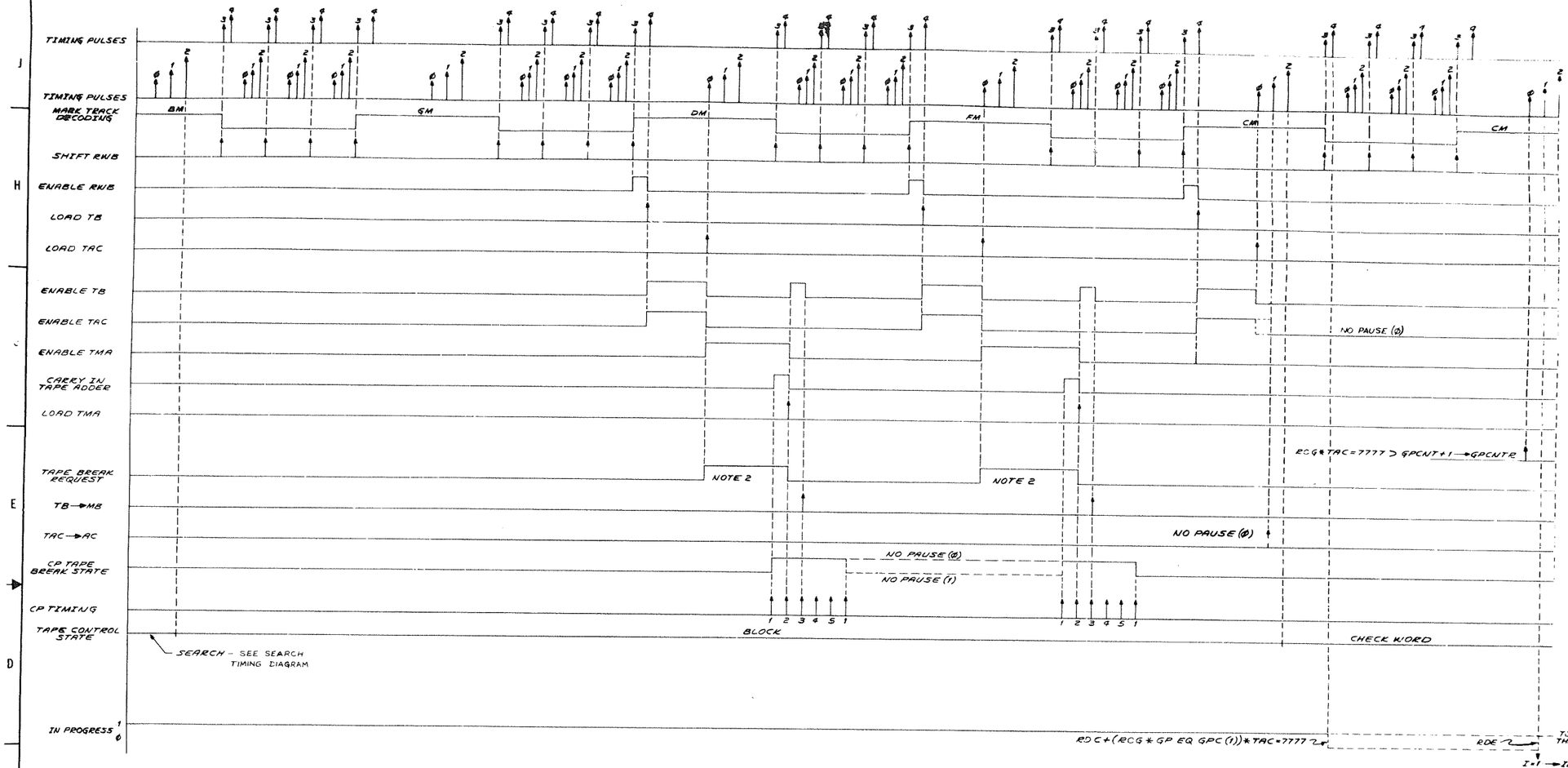
SHEET / OF /

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
SEARCH TIMING

SIZE	CODE	NUMBER	REV.
D	FD	TC12-Ø-12	C

DIST.



NOTES:
1. TIMING AND MARK TRACK DECODING NOT SHOWN TO SCALE
2. TIMING BETWEEN TAPE BREAK REQUEST AND CP TAPE BREAK STATE IS PROGRAM DEPENDENT

REVISIONS					
DR#	CHANGE NO.	REV.			
	00002	A	T. QUILLIN	L. GALE	6/16/67
	EMP-00003	B	L. GALE		8/16/67
	EMP-00005	C	L. GALE		11/1/67

QTY	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL

FINISH

DRN J. Quinn DATE 1-14-68
CHK T. Quillin DATE 2/27/68
ENG J. Lee DATE 3/18/68
PROJ. W. Clark DATE 3/18/68

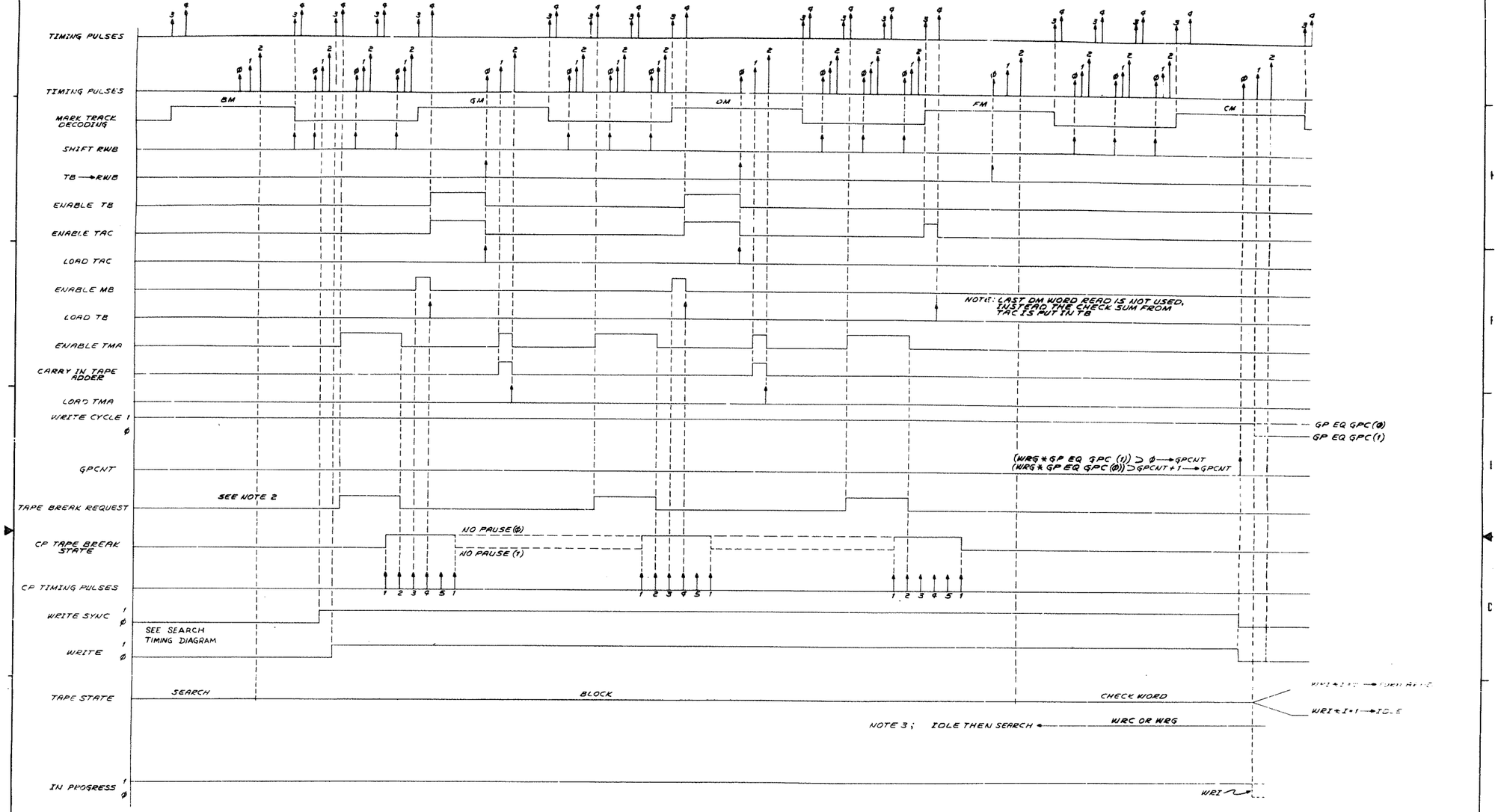
FIRST USED ON PDP-12

digital EQUIPMENT CORPORATION

TITLE
BLOCK MODE READING

SIZE E | CODE FO | NUMBER 7C12-0-13 | REV. C
SCALE
SHEET 1 OF 1 | DIST

ASSOC 7C12-0-13



NOTES:
1. TIMING AND MARK TRACK DECODING NOT SHOWN TO SCALE.
2. TIMING BETWEEN TAPE BREAK REQUEST AND CP TAPE BREAK STATE IS PROGRAM DEPENDENT.
3. PERFORMS CHECK PHASE WHEN WRITE CYCLE GOES TO ZERO.

REVISIONS			
DOR	CHANGE NO.	REV.	
[illegible]	00015	A	V. Gallin
			L. GALE
[illegible]	EM12-00003	B	[illegible]
			T. Gallin 6-30-65
			L.GALE
[illegible]	EM12-00015	C	[illegible]
			L. GALE 11/1/65

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

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

DRN	DATE 11-6-68	digital EQUIPMENT CORPORATION
CHKD	DATE 12/1/69	
ENGR	DATE 12/6/69	TITLE
PROJ ENG	DATE 12/8/69	BLOCK MODE WRITE
MGR	DATE 12/9/69	
FIRST USED ON PDP-12		SIZE E CODE FD NUMBER TC12-0-19 REV. -
SCALE		DIST.
SHEET 1 OF 1		

BSC FORM NO. DNE 109

TIMING PULSES

TIMING PULSES

MARK TRACK DECODING — GM | DM | FM | CM | CM

SHIFT RWB

ENABLE RWB

SEE SEARCH TIMING DIAGRAM

LOAD TB

ENABLE TB

ENABLE TAC

LOAD TAC — IF NO PAUSE (Ø)

TAPE BUS TO AC — (AC=7777)*(RDG+(WRG*WRITE CYCLE=Ø)) ⊃ GPCNT+1 → GPCNT

(WRC+WRG)*TAC≠7777*⊃1 → WRITE CYCLE

TAPE CONTROL STATE — BLOCK | CHECK WORD

IN PROGRESS 1 / Ø — (WRC+WRG)*(WRITE CYCLE(Ø)*GP=GPC(1)*TAC=7777) — CHK TAPE → TO IDLE THEN SEARCH; I=1 → IDLE; I=Ø → TURN ARND

QTY	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED
DIMENSIONS IN INCHES
TOLERANCES
DECIMALS ± FRACTIONS ± ANGLES ±
FINISH
MATERIAL

DRN.		DATE
DSN.		DATE
PROJ. MGR.		DATE
PROG.		DATE

FIRST USED ON: PDP-12
SCALE
SHEET 1 OF 1

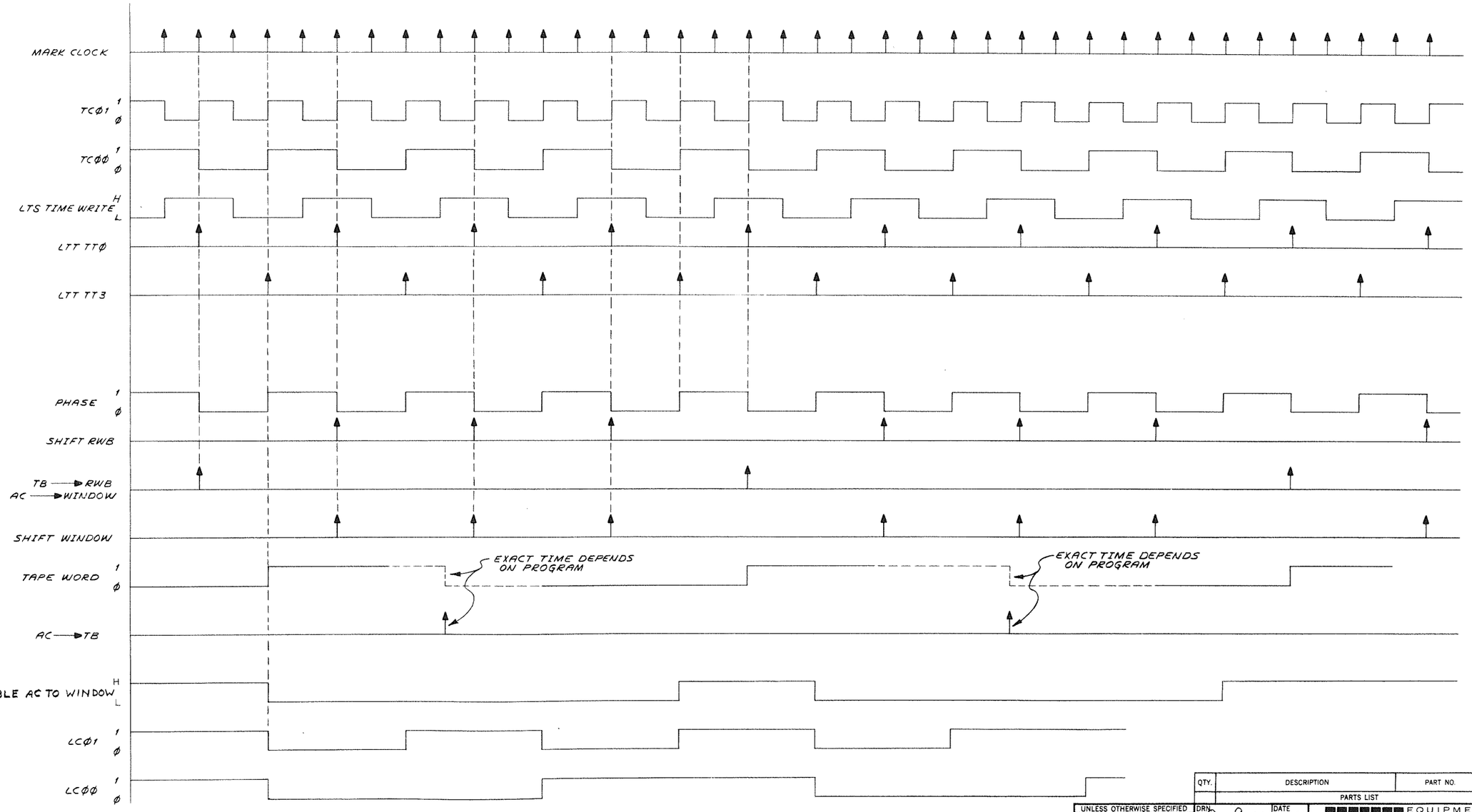
digital EQUIPMENT CORPORATION

TITLE: BLOCK MODE CHECKING

SIZE: E | CODE: FD | NUMBER: TC12-Ø-15 | REV:
DIST

DRN	DRAWING NO.	REV.
	10002	A
	EM12-20003	B
	EM12-20012	C

L. GALT 6/1968
GALT 8/1968
GALT 10/1968



REVISIONS		
CHK	CHANGE NO.	REV
Dgg	EM12-00003 TSU/LLIN 8-27-69	A
	LSALE 8/6/69	

DEC FORM NO DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN	Joe Ayer	DATE 9-21-68
CHK'D	Jean Sammet	DATE 2/27/69
ENG	[illegible]	DATE 2-28-69
PROJ. ENG	[illegible]	DATE 2/28/69
PROD	[illegible]	DATE 2/28/69

FIRST USED ON TC12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: MARK TIMING

SIZE	CODE	NUMBER	REV.
D	FO	TC12-Ø-16	A

DIST.

REV. A | NUMBER TC12-Ø-16 | SIZE D | CODE FO

LCS TAPE OK L

LCS WRI TAPE H
-LTC WRITE EN H
LTC B UNIT SEL H
M113 B26
M115 C27
M111 C21
F2 LCS TAPE OK H

+3V A34V1 H
PRE AC Ø8 (1)H
LTMR IDT 6152 H
LTT TP1 H
-LCS CLR WRITE H
M121 A34
M216 A30
LCS WRITE SYNC (1)H
LCS WRITE SYNC (Ø)H
LTT TP3 H
LCS WRITE M216 A30

-LTP8 WRITE SEL L
LCX MARK (Ø)L
M112 D16

LCS IDLE (1)L
LCS SEARCH (1)L
LCS TURN ARND (1)H
M113 B24
M112 A33

-LCS TAPE OK L
LCS WRITE CYCLE (Ø)L
M117 B33

LIN WRI L
LIN WRC L
LIN WRG L
M115 A32
LCS WRI TAPE H

LWN CM H
LTS TTS Ø1 (1)H
M121 B32
LCS CLR WRITE L

LRL (BM*SEARCH) H
LIN MTB H
M113 B26
LCS (MTB*BM*SEARCH) L

LIP IN PROGRESS (Ø)H
LCS CHK WRD (1)H
LCS MTP END H

LIN I (Ø)H
LCS SET TURN ARND L
+3V A34V1 H
LCS TURN ARND (1)H
LCS TURN ARND (Ø)H
M216 A30

LCS TAPE GO H
LTT CLOSE WINDOW L
LIP MTP SETUP L
LIP TAPE PRESET L
M115 A32
M111 A35
LCS BLOCK (1)L
LCS TAPE GO L
LCS CHK WRD (1)H
LCS CHK WRD (Ø)H

-LIN MTB H
LCS SEARCH (1)H
LCS BLOCK M216 A30

LCS CHK WRD (1)H
LIP IN PROGRESS (1)H
LIN I (1)H
LCS MTP END H
M160 B29

LGP GP EQ GPC (1)H
LCS WRITE CYCLE (1)H
LIN TAC EQ 7777 H
LCS WRITE CYCLE (Ø)H
M121 A34
LIP MTP SETUP L
M216 A28
LCS WRITE CYCLE (1)H
LCS WRITE CYCLE (Ø)H
LTT TP1 H
LCS (CM*CHK WRD) H
M113 B24
+3V A34V1 H

LWN FM H
LTT TP2 H
LCS BLOCK (1)H
LCS WRITE (1)H
LWN CM L
LCS BLOCK (1)L
M112 C24
LCS (CM*BLOCK) H
LTT TP2 H
LCS CHK WRD (1)L
LWN CM L
LCS (CM*CHK WRD) H
LRL (BM*SEARCH) H
LIN MTB L
LIN TAC EQ (7777*FWD) L
M112 B16
M160 B29

LCS IDLE (1)L
LCS SEARCH M216 A30

LCS TURN ARND (1)L
M113 B26

LTT TP1 H
LIP IN PROGRESS (1)H
LCS IDLE (1)H
M115 A32
M602 B30
LCS IDLE M216 A28

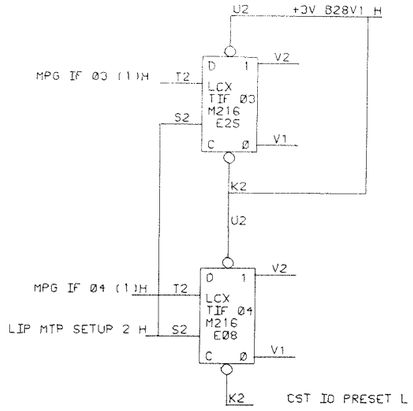
LTT TP1 H
LCS TURN ARND (1)H
LWN BM H
M115 A32
LCS TA CHANGE STATE L

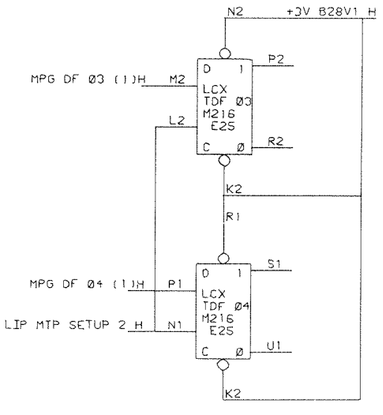
NOTE:
STATE CHANGES ON TRAILING EDGE OF CHANGE STATE PULSE

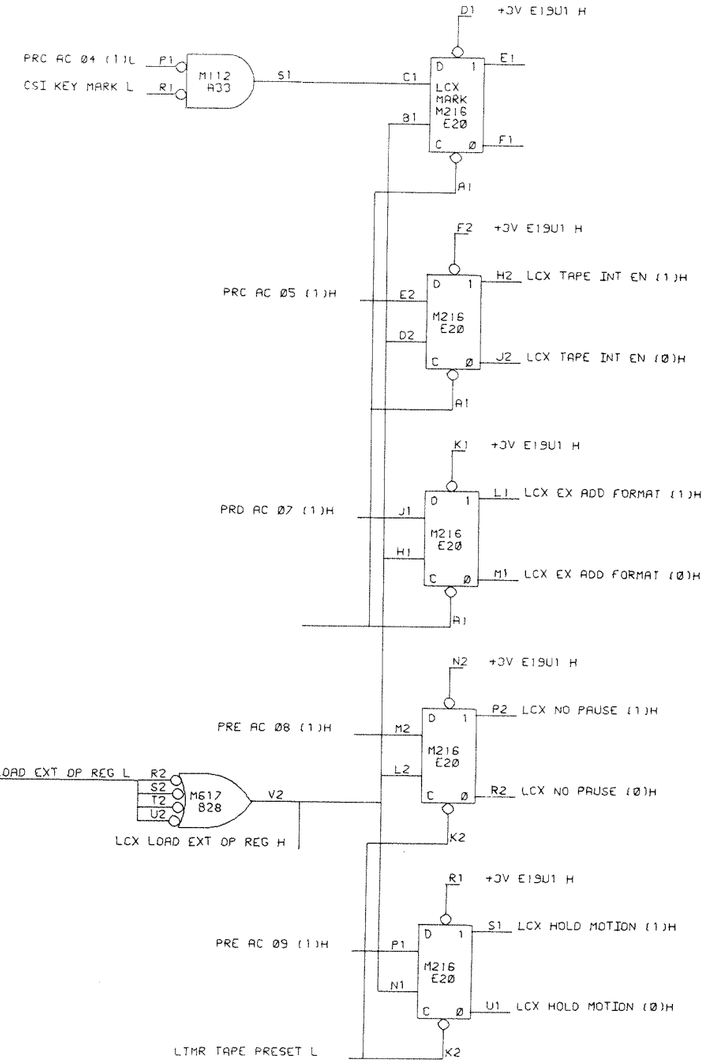
REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
	EM12-00003	A	MR	EM12-00017	E
	L GALE				
	EM12-00007	B			
	B KORTLING 8-5-69				
	L GALE				
NR	EM12-00009	C			
	B KORTLING				
	L GALE 8-26-69				
NR	EM12-00015	D			
	K BOGGS 10-14-69				
	J SCANLAN 10-17-69				

DRN. D SHEPARD	DATE 3-10-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J BISCHETE	DATE 3-10-69	
ENG. L GALE	DATE 3-10-69	TITLE TAPE CONT STATES + INST
PROJ. ENG. L GALE	DATE 3-10-69	
PROD. D CALL	DATE 3-10-69	
FIRST USED ON TC12		SIZE D / CODE BS / NUMBER TC12-Ø-LCS / REV. E
SCALE		
SHEET 1 OF 1		DIST.

LIP TAPE PRESET L

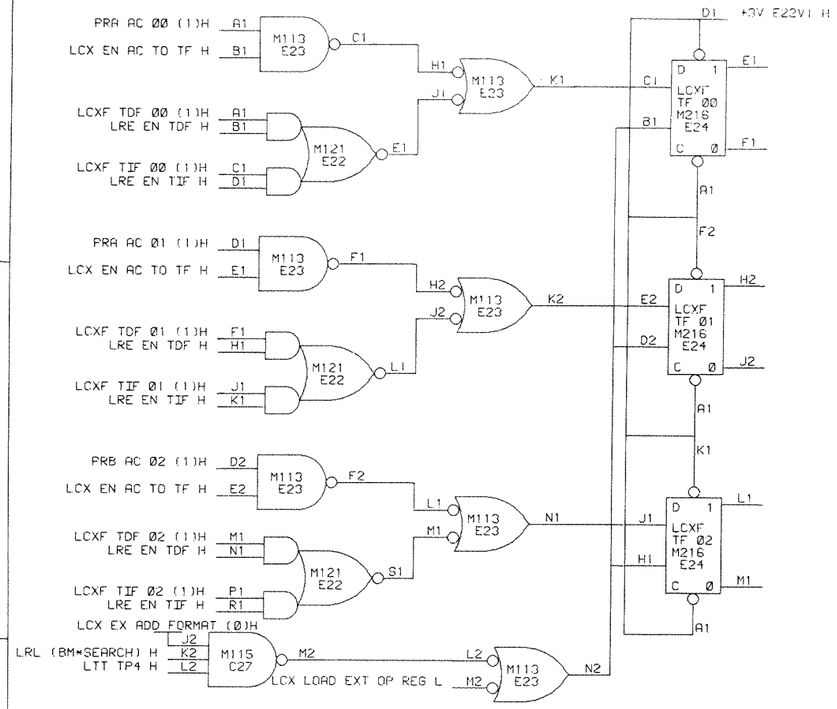


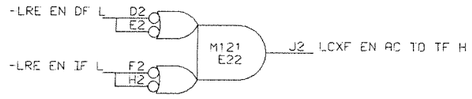


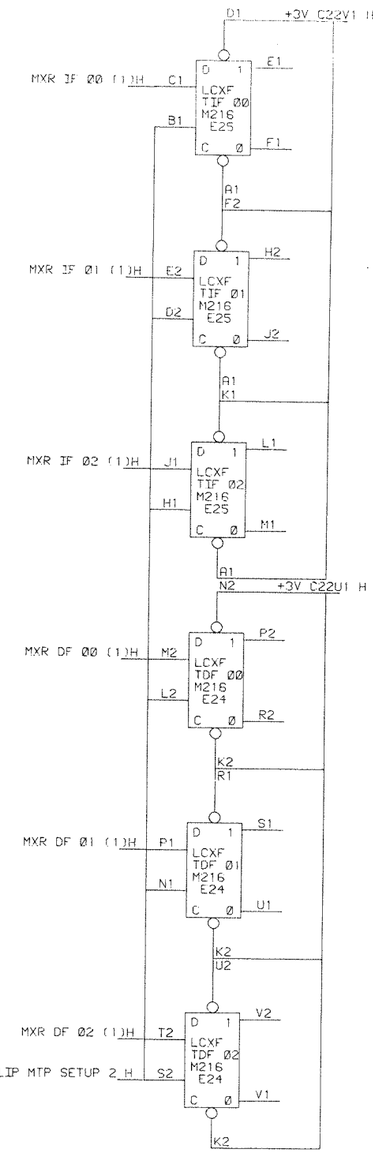


REVISIONS		
CHK	CHANGE NO.	REV.
	EM12-00002	A
	A. WASHINGTON	
	L. GALE	
	EM12-00007	B
	BRUCE KORTELING	
	L. GALE	

DRN. D.L.SHEPARD	DATE 3-9-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J.K. BISONETE	DATE 3-9-69	
ENG. L.GALE	DATE 3-9-69	TITLE: TAPE EXTENDED OPERATIONS
PROJ. ENG. L.GALE	DATE 3-9-69	
PROD. D. CALL	DATE 3-9-69	
FIRST USED ON TC12		SIZE D | CODE 65 | NUMBER TC12-0-LCX | REV. B
SCALE		
SHEET 1 OF 1		DIST.







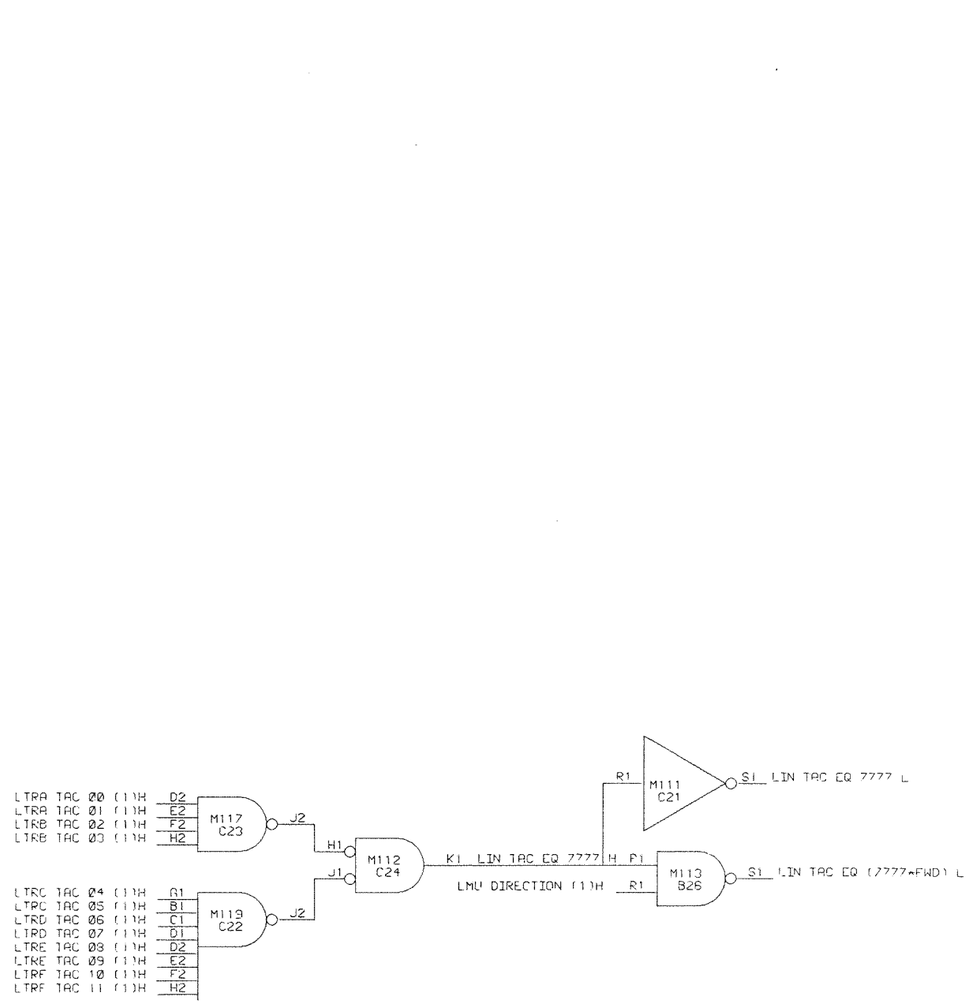
REVISIONS		
CHK	CHANGE NO.	REV.
	EM12-00002	

DRN. D.J.SHEPARD	DATE 3-9-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J.K.BISONETE	DATE 3-9-69	TITLE: TAPE EXTENDED FIELDS
ENG. L.GALE	DATE 3-9-69	
PROJ. ENG. L.GALE	DATE 3-9-69	
PROD. D.CALL	DATE 3-9-69	
FIRST USED ON: TC12		SIZE D | CODE BS | NUMBER TC12-0-LCXF | REV. A
SCALE		
SHEET 1 OF 1		DIST.

LGP GPCNT 2 (Ø)H
LGP GPCNT 1 (Ø)H
LGP GPCNT Ø (Ø)H
M115 C25
M113 A36
LGP GPCNT Ø (1)H
LGP GPCNT 1 (Ø)L
LGP GPCNT 2 (Ø)L
M113 A36
LGP GPCNT 1 (Ø)H
LGP GPCNT 2 (Ø)H
LGP GPCNT 1 (1)H
LGP GPCNT 2 (1)H
M121 B32
LGP COUNT GPCNT H
LGP GPCNT 2 (Ø)H
M111 A35
V2 LGP Ø TO GPCNT L
LIP MTP SETUP L
M113 A36
LIN WRG H
LCS WRITE CYCLE (1)H
LGP GP EQ GPC (1)H
LGP GPCNT STROBE H
M117 B35
PRA MB Ø0 (1)H
PRA MB Ø1 (1)H
PRA MB Ø2 (1)H
LIP MTP SETUP 2 H
+3V B32V1 H
LGP GPCNT Ø
LGP GPCNT 1
LGP GPCNT 2
M216 B31
+3V B32U1 H
LGP GP Ø0 (Ø)H
LGP GP Ø0 (1)H
LGP GP Ø1 (Ø)H
LGP GP Ø1 (1)H
LGP GP Ø2 (Ø)H
LGP GP Ø2 (1)H
M121 B32
LCS WRITE CYCLE (Ø)H
LIN WRG H
M113 C16
LIN RDC L
M113 B16
LGP GPCNT STROBE H
LIN TAC EQ 7777 H
M115 C25
LIN WRG H
LGP GPCNT STROBE H
LCS WRITE CYCLE (1)H
LGP GP EQ GPC (Ø)H
M117 B33
M113 B38
V2 LGP COUNT GPCNT H
LIN TINR 11 (Ø)L
M113 A36
LTT TP2 H
+3V A31U1 H
LGP GP EQ GPC M216 B37
LIP TAPE PRESET L
LCS (CM=CHK WRD) H
LTT TPØ H
M113 B24
S2 LGP GPCNT STROBE L
M111 A35
R2 LGP GPCNT STROBE H

REVISIONS		
CHK	CHANGE NO.	REV.
NR	EM12-0001S	A
	K BOGGS 10-14-69	
	J SCANLAN 10-17-69	
AC	EM12-00037	B
	K KRYSIAK 7-23-70	
	G GALE 7-29-70	
✓1	EM12-00041	C
	Mache 12/21/71	

DRN. D SHEPHARD	DATE 3-10-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J BISONETE	DATE 3-10-69	
ENG. L GALE	DATE 3-10-69	TITLE: TAPE GROUP COUNTER
PROJ. ENG. L GALE	DATE 3-10-69	
PROD. D CALL	DATE 3-10-69	
FIRST USED ON: TC12		SIZE D | CODE BS | NUMBER TC12-Ø-LGP | REV. C
SCALE		
SHEET 1 OF 1		DIST.



REVISIONS		
CHK	CHANGE NO.	REV.

DRN.	DATE
CHK'D.	DATE
ENG.	DATE
PROJ. ENG.	DATE
PROD.	DATE
FIRST USED ON	TC12
SCALE	
SHEET 1 OF 1	

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
TAPE INSTR

SIZE	CODE	NUMBER	REV.
D	BS	TC12-Ø-LIN	ØØ

DIST.

LIP TAPE PRESET L — A1
LTS LC ØØ (1)L — C1
LTS LC Ø1 (Ø)H — B1
LTM CLEAR TAPE WORD L — D1
M216 D19 (D 1, C Ø)
F1 LIP TAPE WORD (1)H
E1 LIP TAPE WORD (Ø)H

INS MTP H — T2
CPT TS5B (1)H — U2
CPS FETCH B (1)H — V2
M115 B34
V1 — M2 — M111 C21
N2 LIP MTP SETUP H
LIP MTP SETUP L

LCS WRI TAPE H — M1
LCS WRITE CYCLE (1)H — N1
LCS BLOCK (1)H — P1
LTS LC ØØ (Ø)H — R1
LTT TP4 H — R2
LTS LC Ø1 (1)H — S2
+3V A31V1 H — T2, U2
M119 A31 — V2

LIN TINR Ø9 (Ø)H — M1
LWN (FM*DM) H — N1
LCS BLOCK (1)H — P1
LTT TPØ H — R1
M117 C23 — S1
P1, R1, S1 — M115 C25 — U1 LIP TAPE BRK REQ (1)H

CPS T BREAK (1)H — T2
CPTP TP2 H — U2
M113 A36 — V2
LIP TAPE PRESET L
D2, E2, F2 — M115 C25 — H2 LIP TAPE BRK REQ (Ø)H

LWN CM H — D1
LCS BLOCK (1)H — E1
M113 C16
F1 LIP (CM*BLOCK) L — D2
LCS (MTB*BM*SEARCH) L — E2
M113 C16
F2 — LTS TTS Ø1 (1)H — H1; LCX NO PAUSE (Ø)H — J1; K1
M117 C23
L1 LIP CHK SUM TO AC L — A1
M111 D21
B1 — LTT TP1 H — M1
M113 C16
N1 LIP CHK SUM LD AC L

LTM TAPE PRESET L — A1
IOC IO PRESET L — B1
M113 C16
C1 LIP TAPE PRESET H — K2, L2, M2, N2
M617 B28
P2 LIP TAPE PRESET L

LCS WRITE CYCLE (Ø)L — H1
LIN TINR Ø9 (Ø)L — J1
M113 C16
K1 — F1; H1, J1, K1; K2, L2, M2, N2
M119 C22
P2 LIP CHK OK L

LCX NO PAUSE (Ø)H — H2
CST DO (1)H — J2
M112 D16
K2 — A1; LIP PROGRESS (1)L — B1
M112 D16
C1 LIP TAPE PAUSE H

LCS BLOCK (1)L — D1
LIN TINR Ø9 (Ø)L — E1
M112 D16
F1 LIP TAPE CUT H

LIP MTP SETUP 2 L — F2
D 1, E2 — M216 D19 — C Ø
H2 LIP IN PROGRESS (1)H
J2 LIP IN PROGRESS (Ø)H
A1 LIP TAPE PRESET L

LIP END INST L
LIN TINR 1Ø (1)H — N2
LCS (CM*CHK WRD) H — P2
LTT TP1 H — R2
M115 C25
S2 — J2, K2, L2; M2 — D2
LCS (MTB*BM*SEARCH) L

INS MTP H — T2
CPTP TP4 H — U2
CPS EXECUTE B (1)H — V2
M115 A32
V1 LIP MTP SETUP 2 L — D2, E2, F2
+3V B28U1 H — H2
M617 B28
J2 LIP MTP SETUP 2 H

LIN MTB H — M1
LWN BM H — N1
-LTD ACIP H — P1
R1 — M617 B28 — S1
LIP CHK OK L — T2, U2
LIP END INST L — V2
M115 C27
V1 LIP CLR PROGRESS H

LTT TP2 H — E1, E2
M304 C19 — J1, K1, K2

K1 LIP MTP SETUP L
D 1, J1 — M216 D19 — C Ø
L1 LIP PROGRESS (1)H
H1 — M1 LIP PROGRESS (Ø)H
A1 LIP TAPE PRESET L

LTMR IOT 6154 H — K2
-LTM EN AC H — L2
M121 B32
P2 LIP TAPE BUS TO AC L
CPT TS5 B (1)H — M2
N2

LRE MSC TAC TO AC L — N2
LRE EN EX OP BUF L — P2
R2 — M115 B27
S2 LIP MSC TAC TO AC H

LIP MTP SETUP L — L1
LIP TAPE PRESET L — M1
M113 B16
N1 — K2, L2
LTMR IOT 6151 H — M2
PRC AC04 (1)H — N2
M121 E22
P2

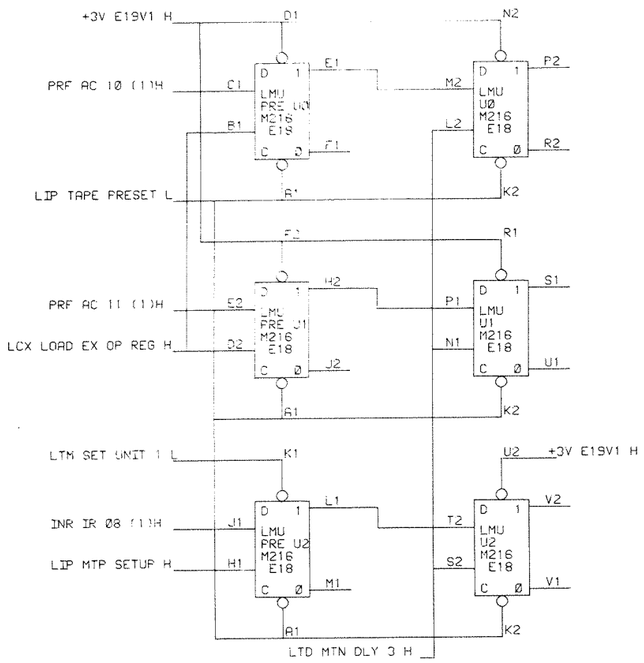
+3V D29V1 H — K2
T2 — D 1, LIP TAPE DONE M216 C31 C — Ø
V1 LIP TAPE DONE (1)H
S2 — LIP PROGRESS (Ø)H
V2
U2

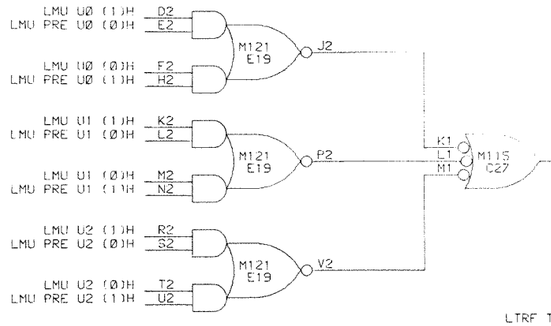
LIP TAPE PRESET L — A1
LCX TAPE IN1 EN (1)H — L2
LIP TAPE DONE (1)H — M2
M113 C16
N2 LIP TAPE INTERRUPT L

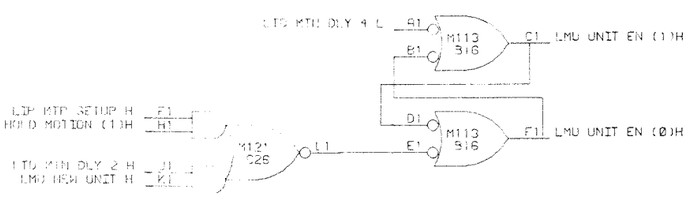
P1, S1 — M115 C29 — U1 LIP TAPE SKIP L
PRC AC05 (1)H — R1
LTMR IOT 6151 H

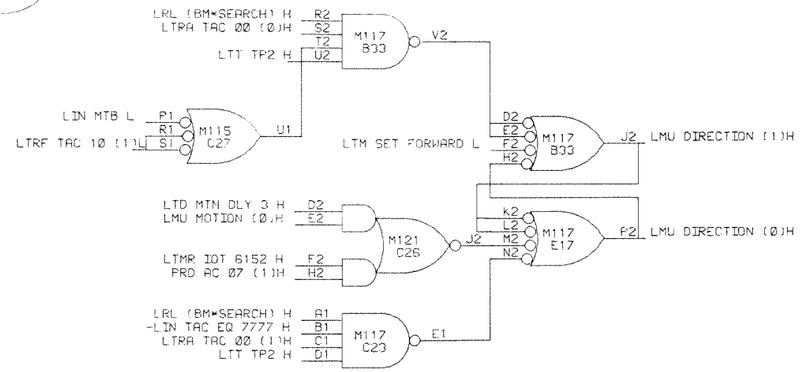
REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
CD	EM12-00002	A		EM12-00032	E
	J FASSHAUER 4-15-69				
	L GALE 4-24-69				
	EM12-00003	B			
	ADS				
	L GALE				
NR	EM12-00007	C			
	B KORTELING 8-25-69				
	L GALE 8-26-69				
	EM12-00017	D			

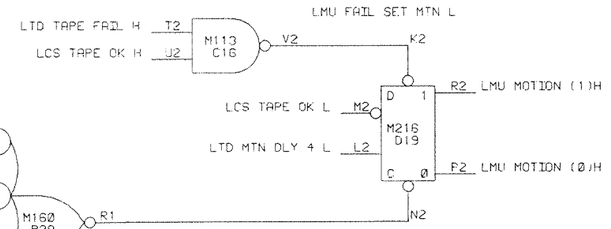
DRN D SHEPARD	DATE 3-5-69	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD J BISONETE	DATE 3-5-69	
ENG L GALE	DATE 3-5-69	TITLE INTERPROCESSOR SIGNALS
PROJ. ENG L GALE	DATE 3-5-69	
PROD D CALL	DATE 3-5-69	
FIRST USED ON TC12		SIZE D; CODE BS; NUMBER TC12-0-LIP; REV. E
SCALE		
SHEET OF		DIST.

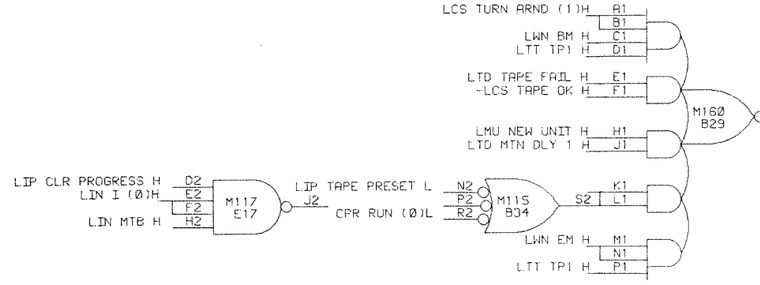












REVISIONS		
CHK	CHANGE NO.	REV.
NR	EM12-00003	A
	ADS	
	J SCANLAN 8/7/69	
	EM12-00017	B

DRN. D SHEPARD	DATE 5-10-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J BISONETE	DATE 5-10-69	
ENG. L GALE	DATE 5-10-69	TITLE: TAPE UNIT AND MOTION
PROJ. ENG. L GALE	DATE 5-10-69	
PROD. D CALL	DATE 5-10-69	
FIRST USED ON: TC12		SIZE D · CODE BS · NUMBER TC12-0-LMU · REV. B
SCALE		
SHEET 1 OF 1		DIST.

CPT TS5 B (1)H N1
LIP IN PROGRESS (Ø)H N1
P1
R1
M117 E17
S1
F1 M111 D21
H1 LRE (TS5 * INPRG (Ø)) H

INS B MSC H R2
INR IR Ø7 B (1)H S2
CPT TS5 B (1)H T2
INS N EQ Ø3 H U2
LTM EN AC L
M117 A25
V2
D2 E2 F2 H2 M617 A24
J2 LRE EN AC H

INS MTP H T2
SLA EX TS4 H U2
M113 A26
V2
H2 M113 A26
K2 LRE EN MB 3-11 H
J2

INS MTP H D2
SLA EX TS4 H E2
LCX EX ADD FORMAT (1)H F2
M115 A27
H2
L1 M113 A26
N1 LRE EN MB Ø-2 H
M1

LCS WRITE SYNC (1)H K2
CPT TS4 (1)H L2
CPS TAPE BREAK (1)H M2
+3V C23U1 H N2
M117 C23
P2

D1 M111 C21 E1 LRE EN EX OP BUF H

INS B MSC H R2
INS N EQ Ø1 H S2
LRE (TS5 * INPRG (Ø)) H T2
INR IR Ø7 B (1)H U2
M117 C23
V2
LRE EN EX OP BUF L

INS B MSC H D2
INR IR Ø7 B (Ø)H E2
INS N EQ Ø3 H F2
H2
M117 A25
J2
LRE MSC TAC TO AC L

LIP CHK SUM TO AC L T2
LRL (BM*SEARCH)L U2
M113 B26
V2
LTS TTS Ø1 (1)H D2 E2
M121 B25
J2
LTM TEST SUM L A1 B1 C1 D1 M617 A24 E1 LRE EN TAC H

LCS WRITE (1)L D2
LWN FM L E2
M112 C24
F2
LTS TTS Ø4 (1)H F2 H2
LRE (WRITE * FM)H

LRL BLOCK EN TAC LD H J2
LCS BLOCK (1)H K2
LTS TTS Ø0 (1)H L2
M115 A27
M2

LTM TEST SUM L F1
LTM EN TB L H1 J1 K1 M617 A24 L1 LRE EN TB H

LRL (BM*SEARCH)H K2
LTS TTS Ø1 (1)H L2
M121 B25
P2

CPT TS3 (1)H M2
LRE READ IN MEM H N2

LIP TAPE BRK REQ (1)L

LCS WRITE SYNC (1)H N2
LWN (GM*DM) H P2
LTS TTS Ø2 (1)H R2
M115 A27
S2
LTM EN TMA L K2 L2 M2 N2 M617 A23 P2 LRE EN TMA H

LRE READ IN MEM L

CPS TAPE BREAK (1)H T2
LIN TINR Ø9 (Ø)H U2
LCS BLOCK (1)H V2
M115 B27
V1
C1 M111 C21
D2
CPT TS2 (1)H L2
M2
M113 A26
N2
P1 R1 M113 A26 S1

LRE READ IN MEM H

D1 M111 D21 E1 LRE TAPE CARRY IN L

LTM EN TMA SETUP L

LCX EX ADD FORMAT (1)L A1
B1
M112 C24
C1
F1 M111 C21 H1
K2 L2 M2 N2 M617 B23 P2 LRE EN TMA SETUP H

LRL (BM*SEARCH) H P2
LTS TTS Ø4 (1)H R2
M113 B26
S2
D1
LCX EX ADD FORMAT (Ø)L E1
M112 C24
F1

LCS BLOCK (1)H K2
LRL BLOCK EN TAC LD H L2
LCS WRITE (Ø)H M2
LTS TTS Ø4 (1)H N2
M117 A25
P2
LTM EN RWB L F1 H1
LTP8 EN RWB L J1 K1 M617 A23 L1 LRE EN RWB H

LRL (BM*SEARCH) H P2
LTS TTS Ø0 (1)H R2
M113 A26
S2

LTM EN TBN L M1
LTM EN TBN L N1
LTM EN TBN L P1
R1
M617 A24
S1 LRE EN TBN H

LCS SEARCH (1)H T2
-LWN BM H U2
LTS TTS Ø3 (1)H V2
M115 A27
V1
A1 M111 C21 B1 LRE EN GPCNT H

LIN TINR 11 (Ø)H A1
LGP GP Ø0 (1)H B1
C1
M115 A27
D1
A1 M113 A26 C1 LRE EN GP 1-2 H
D1 M113 A26 F1 LRE EN TDF H

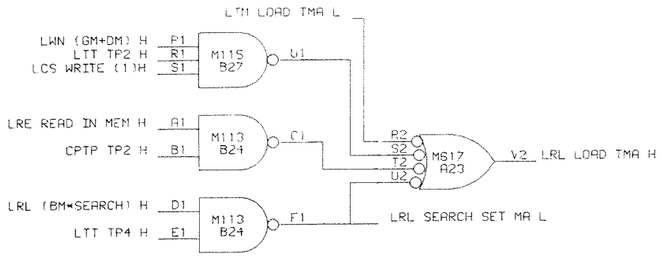
LIN TINR 11 (1)H E1
LTRE TAC Ø9 (1)H F1
H1
M115 A27
J1
E1 M113 A26 D2 F2 LRE EN TAC 10-11 H

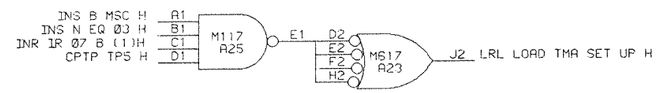
LIN TINR 11 (Ø)H K1
LGP GP Ø0 (Ø)H L1
M1
M115 A27
N1
H1 M113 A26 J1 K1 LRE EN TIF H

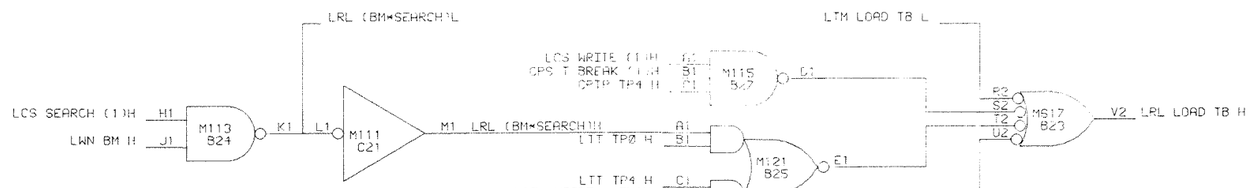
LIN TINR 11 (1)H P1
LTRE TAC Ø9 (Ø)H R1
S1
M115 A27
U1

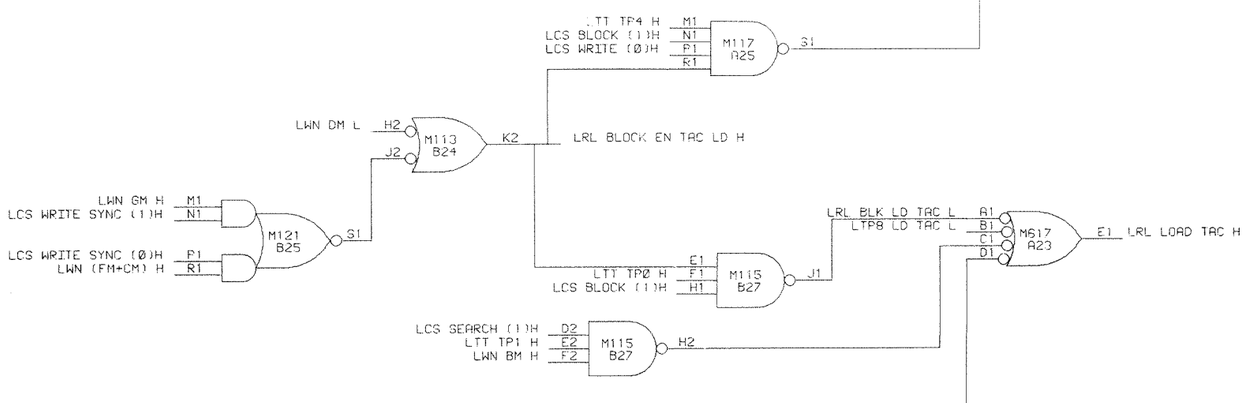
REVISIONS		
CHK	CHANGE NO.	REV.
	EM12-00002	A
	ADS	
	L GALE	
NR	EM12-00007	B
	B KOTELING 8-31-69	
	L GALE 8-26-69	
7	EM12-00041	C
	Mesh 10/3/69	

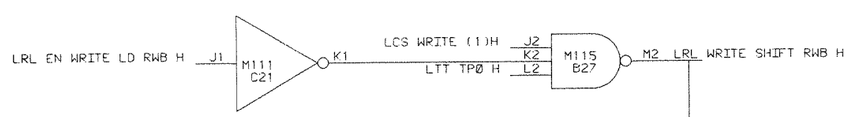
DRN. D SHEPARD	DATE 3-9-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J BISONNETTE	DATE 3-9-69	
ENG. L GALE	DATE 3-9-69	TITLE: TAPE REG ENABLE CTRL
PROJ. ENG. L GALE	DATE 3-9-69	
PROD. D CALL	DATE 3-9-69	
FIRST USED ON: TC12		SIZE D; CODE BS; NUMBER TC12-0-LRE; REV. C
SCALE		
SHEET 1 OF 1		DIST.











REVISIONS		
CHK	CHANGE NO.	REV.
	EM12-00007	A
	BRUCE KORTELING	
	L. GALE	

DRN.	DATE
CHK'D.	DATE
ENG.	DATE
PROJ. ENG.	DATE
PROD.	DATE
FIRST USED ON	TC12
SCALE	
SHEET 1 OF 1	

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
TAPE REG LOAD CONTROL

SIZE	CODE	NUMBER	REV.
D	BS	TC12-Ø-LRL	A

DIST.

LMU MOTION (1)L — E2 — W512 F15 — D2 — LTC GO H — V2

LMU MOTION (Ø)L — H2 — W512 F15 — F2 — LTC STOP H — V2

LMU DIRECTION (Ø)L — K2 — W512 F15 — J2 — LTC FWD H — V2

LMU DIRECTION (1)L — M2 — W512 F15 — L2 — LTC REV H — V2

LIP TAPE PRESET H — P2 — W512 F15 — N2 — LTC ALL HALT L — V2

W023 E05

A2 —
B2 —
C2 — LTC GO H
D2 — LTC STOP H
E2 — LTC FWD H
F2 — LTC REV H
H2 — LTC ALL HALT L
J2 —
K2 —
L2 — LTC SINGLE UNIT H
M2 — LTC UNIT 1
N2 — LTC UNIT 2
P2 — LTC UNIT 3
R2 — LTC UNIT 4
S2 — LTC UNIT 5
T2 — LTC UNIT 6
U2 — LTC UNIT 7
V2 — LTC UNIT 8

LTC WRITE ON H

G853 F1Ø

K2 → D2 → W520 F11 (+ / −) → H2
K2 → L2 → W520 F11 (+ / −) → N2

H2 → U2 → W603 F16 → T2 — LTC B UNIT SEL H — V2

S2 — W603 F16 — R2 — LTC WRITE EN L — L1 — M111 D21 — M1 — LTC WRITE EN H

+3V B22U2 H — V2

LMU UØ (Ø)H — A1
LMU U1 (Ø)H — B1
LMU U2 (Ø)H — C1
LMU UNIT EN (1)H — D1
→ M117 E16 — E1 — LTC UNIT 8 L — E2 — W512 F14 — D2 — LTC UNIT 8 H — V2

LMU UNIT EN (1)H — F1
LMU UØ (Ø)H — H1
LMU U1 (Ø)H — J1
LMU U2 (1)H — K1
→ M117 E16 — L1 — LTC UNIT 1 L — H2 — W512 F14 — F2 — LTC UNIT 1 H — V2

LMU UNIT EN (1)H — M1
LMU UØ (Ø)H — N1
LMU U1 (1)H — P1
LMU U2 (Ø)H — R1
→ M117 E16 — S1 — LTC UNIT 2 L — K2 — W512 F14 — J2 — LTC UNIT 2 H — V2

LMU UNIT EN (1)H — D2
LMU UØ (Ø)H — E2
LMU U1 (1)H — F2
LMU U2 (1)H — H2
→ M117 E16 — J2 — LTC UNIT 3 L — M2 — W512 F14 — L2 — LTC UNIT 3 H — V2

LMU UNIT EN (1)H — K2
LMU UØ (1)H — L2
LMU U1 (Ø)H — M2
LMU U2 (Ø)H — N2
→ M117 E16 — P2 — LTC UNIT 4 L — P2 — W512 F14 — N2 — LTC UNIT 4 H — V2

LMU UNIT EN (1)H — R2
LMU UØ (1)H — S2
LMU U1 (Ø)H — T2
LMU U2 (1)H — U2
→ M117 E16 — V2 — LTC UNIT 5 L — S2 — W512 F14 — R2 — LTC UNIT 5 H — V2

LMU UNIT EN (1)H — A1
LMU UØ (1)H — B1
LMU U1 (1)H — C1
LMU U2 (Ø)H — D1
→ M117 E17 — E1 — LTC UNIT 6 L — U2 — W512 F14 — T2 — LTC UNIT 6 H — V2

LMU UNIT EN (1)H — F1
LMU UØ (1)H — H1
LMU U1 (1)H — J1
LMU U2 (1)H — K1
→ M117 E17 — L1 — LTC UNIT 7 L — S2 — W512 F15 — R2 — LTC UNIT 7 H — V2

REVISIONS		
CHK	CHANGE NO.	REV.
NR	EM12-00004	B
	B VADITO	
	L GALE 8-18-69	
	EM12-00015	C

DRN.	D L SHEPARD	DATE 3-8-69
CHK'D.	L K BISONETTE	DATE 3-9-69
ENG.	L GALE	DATE 3-8-69
PROJ. ENG.	L GALE	DATE 3-9-69
PROD.	R COLI	DATE 3-9-69
FIRST USED ON	TC12	
SCALE		
SHEET	1 OF 1	

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: TRANSPORT CONTROL

SIZE	CODE	NUMBER	REV.
D	BS	TC12-Ø-LTC	C

DIST.

DELAY SETTINGS			
DELAY	TU55	TOLL.	SWITCH SET *
TTOK	48 USEC	+_ 4	5
ACIP	180 MSEC	+_ 20	1
XTLX	7 USEC	+_ 1	5
TAPE FAIL	300 MSEC	+_ 50	1
MARK CLOCK	7.5 USEC	+_ 0.3	5

* ON M307 REV.8 AND GREATER-SEE B-CS-M307-0-1 FOR DETAILS.

REVISIONS			REVISIONS		
CHK	CHANGE NO.	REV.	CHK	CHANGE NO.	REV.
	EM12-00001	A	NR	EM12-00017	E
	J FASSHAUER 4/15/69			A WASHINGTON 11-3-69	
	L GALE 4/29/69			J SCANLAN 11-14-69	
	EM12-00002	B		EM12-00037	F
	A WASHINGTON			K KRYSIAK	
	J SCANLAN			J SCANLAN	
	EM12-00003	C	HC	EM12-00038	H
	A WASHINGTON				
	J SCANLAN			D Marden 3-17-70	
	EM12-00011	D			
	A WASHINGTON				
	J SCANLAN				

DRN. D SHEPARD	DATE 3-9-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D. J BISONETE	DATE 3-9-69		
ENG. L GALE	DATE 3-9-69	TITLE TAPE DELAYS	
PROJ. ENG. L GALE	DATE 3-9-69		
PROD. D CALL	DATE 3-9-69		
FIRST USED ON TC12		SIZE D	CODE BS
SCALE		NUMBER TC12-0-LTD	REV. H
SHEET 1 OF 1		DIST.	

PRD AC Ø6 (1)H A1
LTMR IOT 6151 H B1
M113 B38
C1 LTM SIMULATE TPØ L

LTMR IOT 6151 H D1
PRD AC Ø7 (1)H E1
M113 B38
F1 LTM SIMULATE TPR L

PRA AC Ø0 (1)H D2
LTMR IOT 6152 H E2
M113 B38
F2 LTM TAPE PRESET L

PRA AC Ø1 (1)H H1
LTMR IOT 6152 H J1
M113 B38
K1 LTM SHIFT RWB L

PRB AC Ø2 (1)H H2
LTMR IOT 6152 H J2
M113 B38
K2 LTM TB TO RWB L

PRB AC Ø3 (1)H L1
LTMR IOT 6152 H M1
M113 B38
N1 LTM TEST SUM L

PRC AC Ø4 (1)H L2
LTMR IOT 6152 H M2
M113 B38
N2 LTM CLEAR TAPE WORD

PRC AC Ø5 (1)H P1
LTMR IOT 6152 H R1
M113 B38
S1 LTM SET FORWARD L

PRD AC Ø6 (1)H P2
LTMR IOT 6152 H R2
M113 B38
S2 LTM SET UNIT 1 L

LTMR MAINT IR Ø2 (Ø)H A1
LTMR MAINT IR Ø3 (Ø)H B1
C1
M115 B34
D1 LTM LOAD TB L

LTMR MAINT IR Ø2 (Ø)H E1
LTMR MAINT IR Ø3 (1)H F1
H1
M115 B34
J1 LTM LOAD TBN L

LTMR MAINT IR Ø2 (1)H K1
LTMR MAINT IR Ø3 (1)H L1
M1
M115 B34
N1 LTM LOAD TMA L

IOC IO STROBE H V1
M111 C21
U1
LTM EN AC L P1
R1
M112 D16
S1
LTMR MAINT IR Ø2 (1)H P1
LTMR MAINT IR Ø3 (Ø)H R1
S1
M115 B34
U1 LTM LOAD TAC L

L1
M1
M113 B24
N1 LTM LOAD TAC H

LTMR IOT 6152 H D2
IOC IO STROBE H E2
PRB AC Ø3 (1)H F2
M115 B34
H2 LTM LOAD SUM L

LTMR IOT G154 H J2
LTMR MAINT IR Ø0 (Ø)H K2
LTMR MAINT IR Ø1 (Ø)H L2
M115 B34
M2 LTM EN AC L

LTMR MAINT IR Ø0 (Ø)L T2
LTMR MAINT IR Ø1 (1)L U2
M112 A33
V2

LTMR IOT G154 H A1
LTMR MAINT IR Ø2 (Ø)H B1
LTMR MAINT IR Ø3 (Ø)H C1
D1
M117 B36
E1 LTM EN TMA SETUP L

LTMR IOT G154 H F1
LTMR MAINT IR Ø2 (Ø)H H1
LTMR MAINT IR Ø3 (1)H J1
K1
M117 B36
L1 LTM EN TBN L

LTMR IOT G154 H M1
LTMR MAINT IR Ø2 (1)H N1
LTMR MAINT IR Ø3 (Ø)H P1
R1
M117 B36
S1 LTM EN TB L

LTMR IOT G154 H D2
LTMR MAINT IR Ø2 (1)H E2
LTMR MAINT IR Ø3 (1)H F2
H2
M117 B36
J2 LTM EN RWB L

LTMR IOT G154 L P2
LTMR MAINT IR Ø0 (1)L R2
M112 A33
S2

LTMR MAINT IR Ø1 (Ø)H K2
LTMR MAINT IR Ø2 (Ø)H L2
LTMR MAINT IR Ø3 (Ø)H M2
N2
M117 B36
P2
P1
B1
C1
D1
M617 B23
E1 LTM EN MARK WIND H

LTMR MAINT IR Ø1 (Ø)H R2
LTMR MAINT IR Ø2 (Ø)H S2
LTMR MAINT IR Ø3 (1)H T2
U2
M117 B36
V2
F1
H1
J1
K1
M617 B23
L1 LTM EN STATES H

LTMR MAINT IR Ø1 (Ø)H A1
LTMR MAINT IR Ø2 (1)H B1
LTMR MAINT IR Ø3 (Ø)H C1
D1
M117 B35
E1
M1
N1
P1
R1
M617 B23
S1 LTM EN UNITS H

LTMR MAINT IR Ø1 (Ø)H F1
LTMR MAINT IR Ø2 (1)H H1
LTMR MAINT IR Ø3 (1)H J1
K1
M117 B35
L1
D2
E2
F2
H2
M617 B23
J2 LTM EN INSTR H
LTM EN INSTR L

LTMR MAINT IR Ø1 (1)H M1
LTMR MAINT IR Ø2 (Ø)H N1
LTMR MAINT IR Ø3 (Ø)H P1
R1
M117 B35
S1 N1
M111 C21
P1 LTM EN STATUS 1 H

LTMR MAINT IR Ø1 (1)H R2
LTMR MAINT IR Ø2 (Ø)H S2
LTMR MAINT IR Ø3 (1)H T2
U2
M117 B35
V2 H2
M111 C21
J2 LTM EN STATUS 2 H

LTMR MAINT IR Ø1 (1)H K2
LTMR MAINT IR Ø2 (1)H L2
LTMR MAINT IR Ø3 (Ø)H M2
N2
M117 B35
P2 LTM EN TMA L

REVISIONS		
CHK	CHANGE NO.	REV.
	EM12-ØØØØ3	A

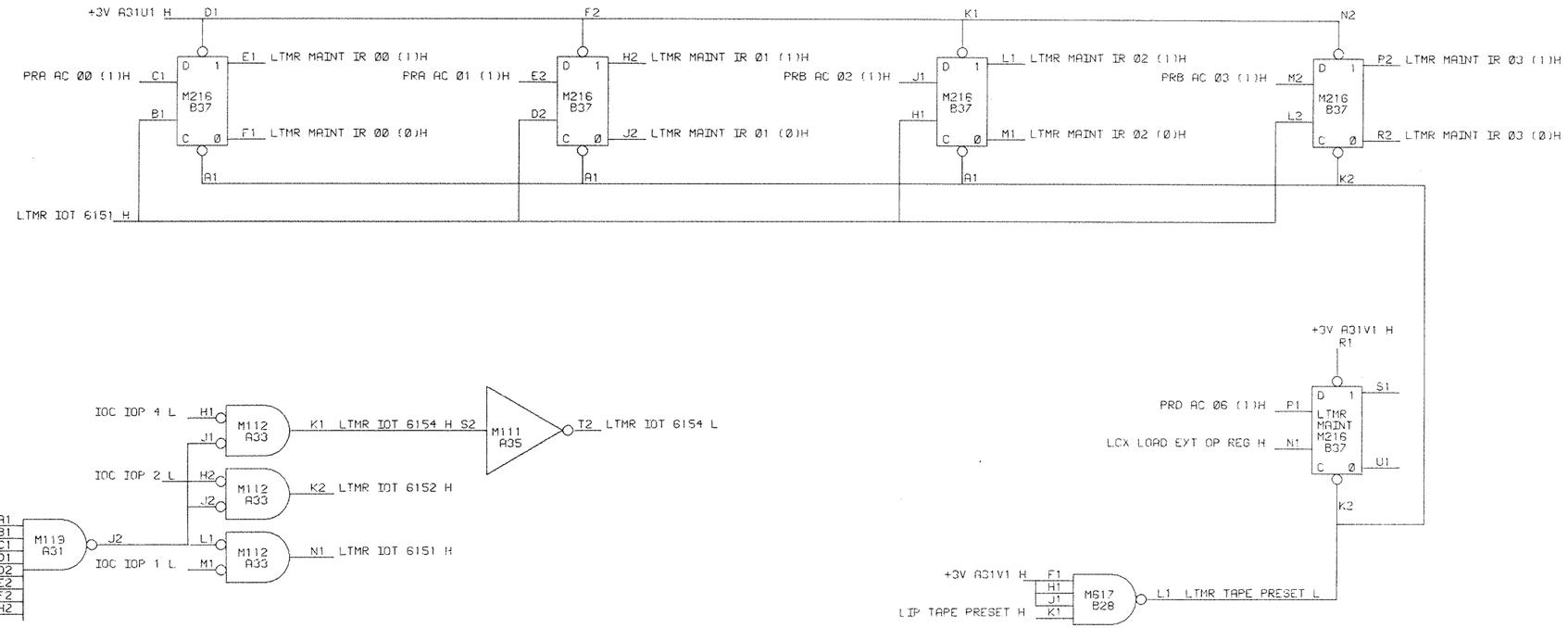
DRN. D.L.SHEPARD	DATE 3-10-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J.BISONETTE	DATE 3-10-69	
ENG. L.GALE	DATE 3-10-69	TITLE TAPE MAINT SIGNALS
PROJ. ENG. L.GALE	DATE 3-10-69	
PROD. D.CALI	DATE 3-10-69	
FIRST USED ON TC12		SIZE D / CODE 8S / NUMBER TC12-Ø-LTM / REV. A
SCALE		
SHEET 1 OF 1		DIST.

MSC 3 TAC TO AC
MSC I 3 AC TO TMA SETUP

IOT 6151	
AC BIT	FUNCTION
0	TO MAINT INST REG
1	TO MAINT INST REG
2	TO MAINT INST REG
3	TO MAINT INST REG
4	CLEAR TAPE DONE
5	SKIP ON TAPE DONE
6	GENERATE TT0
7	GENERATE TT3
8	SIMULATE MARK INPUT
9	SIMULATE DATA 1 INPUT
10	SIMULATE DATA 2 INPUT
11	SIMULATE DATA 3 INPUT

IOT 6152	
AC BIT	FUNCTION
0	TAPE PRESET
1	SHIFT RWB
2	TB TO RWB
3	TB + TAC TO TAC
4	0 TO TAPE WORD FF
5	SET 8 TAPE
6	SET UNIT 1
7	SET BKWRD
8	SET WRITE SYNC
9	SET 8 TAPE MOTN
10	SET 8 WRITE
11	

IOT 6154	
CONTENTS MAINT INST REG	ACTION
000 0	AC TO TB
000 1	AC TO TBN
001 0	AC TO TAC
001 1	AC TO TMA
010 0	TMA SETUP TO AC
010 1	TBN TO AC
011 0	TB TO AC
011 1	RWB TO AC
100 0	MARK WINDOW TO AC
100 1	STATES TO AC
101 0	UNITS + MTN TO AC
101 1	TINST TO AC
110 0	MISC STATUS 1 TO AC
110 1	MISC STATUS 2 TO AC
111 0	TMA TO AC
111 1	NOT USED



REVISIONS		
CHK	CHANGE NO.	REV.
	EM12-00017	A

DRN D SHEPARD	DATE 3-10-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D J BISONETE	DATE 3-10-69	
ENG L GALE	DATE 3-10-69	TITLE TAPE MAINT REG
PROJ. ENG L GALE	DATE 3-10-69	
PROD D CALL	DATE 3-10-69	
FIRST USED ON TC12		SIZE D / CODE BS / NUMBER TC12-0-LTMR / REV. A
SCALE		
SHEET 1 OF 1		DIST.

TAPE HEADS

HEAD SELECTION RELAYS LOCATED IN TU55 TAPE TRANSPORT

W032 TAPE TRANSPORT A02, B02 — AF2 AJ2 AH2 AK2 | AN2 AR2 AP2 AS2 | BDZ AU2 AV2 AT2 | BJ2 BF2 BH2 BE2 | BP2 BM2 BV2 BT2

W032 E06, F06 — EF2 EJ2 EH2 EK2 | EN2 ER2 EP2 ES2 | FD2 EU2 EV2 ET2 | FJ2 FF2 FH2 FE2 | FP2 FM2 FN2 FT2

LTR HEAD T H | LTR HEAD M H | LTR HEAD D1 H | LTR HEAD D2 H

G882 F05 — D2 F2 E2 | U2 V2 | T WRITE J2 K2 | R2 N2 P2

G882 F04 — D2 F2 E2 | U2 V2 | M WRITE J2 K2 | R2 N2 P2

G882 F07 — D2 F2 E2 | U2 V2 | D1 WRITE J2 K2 | R2 N2 P2

G882 F08 — D2 F2 E2 | U2 V2 | D2 WRITE J2 K2 | R2 N2 P2

G882 F09 — D2 F2 E2 | U2 V2 | D3 WRITE J2 K2 | R2 N2 P2

LTR T READ-3 L — E2 — W603 F16 — D2 — LTR T READ H

LTR TIME WRITE-3 L — D2 — R107 F12 — E2 — LTR TIME WRITE-3 H

LTR MARK CHAN L — H2 — W603 F16 — F2 — LTR M READ H

LTR MARK WRITE-3 L — F2 — R107 F12 — H2 — LTR MARK WRITE-3 H

LTR D1 CHAN L — K2 — W603 F16 — J2 — LTR D1 READ H

LTR DATA 1 WRITE-3 L — J2 — R107 F12 — K2 — LTR DATA 1 WRITE-3 H

LTR D2 CHAN L — M2 — W603 F16 — L2 — LTR D2 READ H

LTR DATA 2 WRITE-3 L — L2 — R107 F12 — M2 — LTR DATA 2 WRITE-3 H

LTR D3 CHAN L — P2 — W603 F16 — N2 — LTR D3 READ H

LTR DATA 3 WRITE-3 L — N2 — R107 F12 — P2

LTR MARK ON L — D2 — W512 F13 — E2 — LCS MARK (1)H

F2 — W512 F13 — H2 — LTS TIME WRITE L

H2 — N37 POWER PROTECT G916

LTR WRITE ON L — J2 — W512 F13 — K2 — LWN MARK WRITE L

L2 — W512 F13 — M2 — LCS WRITE (1)H

N2 — W512 F13 — P2 — LTRA RWB 00 OUT H

F2 — N37 POWER PROTECT G916

R2 — W512 F13 — S2 — LTRC RWB 04 OUT H

T2 — W512 F13 — U2 — LTRE RWB 08 OUT H

REVISIONS	REV	CHANGE NO.	CHK	
	A	00002		T. QUILLIN 6/18/69 L. GALE 6/18/69
	B	EM12-00003		T. QUILLIN 6/27/69 L GALE 8/8/69

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN.	Joe Arpea	DATE 21 AUG 68
CHK'D	Jean Lam	DATE 2/27/69
ENG.	Richard	DATE 2-26-69
PROJ. ENG.		DATE
PROG.	Al Ball	DATE 2/26/69

FIRST USED ON TC12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: LTR TAPE READER-WRITERS

SIZE	CODE	NUMBER	REV.
D	BS	TC12-0-LTR	B

DIST.

DEC FORM NO. DRD 102A

SIZE D BS NUMBER TC12-0-LTR REV B

-LTS PHASE H — BS2 — BV1 — LTRA RWB ØØ OUT H

LTRA CARRY OUT ØØ L — AV2 — BV2 — LTRA TAPE BUS ØØ H

BN2 BM2 — PRA AC ØØ(1)H LRE EN AC H — BP2 BU1
LWN WIND SHADE (1)H LTM EN MARK WIND H — BK2 BL2
LIN TAC EQ 7777 H LTM EN STATES H — BJ2 BS1
-LTC UNIT 8 H LTM EN UNITS H — BR1 BF1
LCXF TF ØØ(1)H LRE EN EX OP BUF H — BM1 BL1
LTRA TB ØØ(1)H LRE EN TB H — BK1

PRA MB ØØ(1)H LRE EN MB Ø-2 H — AS1 AR2
LTS PHASE H LTM EN STATUS 1 H — AM2 AE2
LTRA RWB ØØ(1)H LRE EN RWB H — AD2
LTRA TBN ØØ(1)H LRE EN TBN H — AM1 AL1
LTRA TMA ØØ(1)H LRE EN TMA H — AS2
LTR TMA SET UP ØØ(1)H LRE EN TMA SET UP H — AP1
LTRA MSC IN ØØ H — AP2
LTRA TAC ØØ(1)H LRE EN TAC H — AL2

BN1 — AN2

D 1 LTRA TMA SETUP ØØ C Ø — AR1
D 1 LTRA TMA ØØ C Ø — AT2
D 1 LTRA TBN ØØ C Ø — AU1
D 1 LTRA TAC ØØ C Ø — AN1 — AJ2
D 1 LTRA TB ØØ C Ø — BP1
D 1 LTRA RWB ØØ C Ø

PRA AC Ø1(1)H LRE EN AC H — BH2 BU1
LWN WIND ØØ(1)H LTM EN MARK WIND H — BJ1 BL2
LCS IDLE (1)H LTM EN STATES H — BC1 BS1
-LTC UNIT 1 H LTM EN UNITS H — BH1 BF1
LCXF TF Ø1(1)H LRE EN EX OP BUF H — BE1 BL1
LTRA TB Ø1(1)H LRE EN TB H — BK1

PRA MB Ø1(1)H LRE EN MB Ø-2 H — AB2 AC1
LIP IN PROGRESS (1)H LTM EN STATUS 1 H — AE1 AE2
LTRA RWB Ø1(1)H LRE EN RWB H — AD2
LTRA TBN Ø1(1)H LRE EN TBN H — AF2 AL1
LTRA TMA Ø1(1)H LRE EN TMA H — AS2
LTR TMA SET UP Ø1(1)H LRE EN TMA SET UP H — AP1
LTRA TAC Ø1(1)H LRE EN TAC H — AL2

BB1 — BB2

LRE EN TDF H — R2
LCX TDF Ø4(1)H — S1
LRE EN TIF H — P2
LCX TIF Ø4(1)H — R1
LTM EN INSTR H — N2
LIN RCG H — P1
R.DG → ?
LTM EN STATUS 2 H — M2
LTP8 WRITE SEL H — N1

M169 A16 — L1 — M1
+3V B16 G1 H

BR2 — LTRA TAPE BUS Ø1 H

D 1 LTRA TMA SETUP Ø1 C Ø — AH1
D 1 LTRA TMA Ø1 C Ø — AD1
D 1 LTRA TBN Ø1 C Ø — AK2
D 1 LTRA TAC Ø1 C Ø — AH2 — AB1
D 1 LTRA TB Ø1 C Ø — BD1
D 1 LTRA RWB Ø1 C Ø — BD2

LRL LOAD TMA H — AU2
LRL LOAD TBN H — AJ1
LRL LOAD TAC H — AA1
LRL LOAD TB H — BT2
LRL TB TO RWB H — BF2
LRL SHIFT RWB H — BE2

LTRB RWB Ø2 OUT H

LTRB CARRY OUT Ø2 L — BA1
LRL LOAD TMA SET UP H — AK1

LRE EN TDF H — R2
LCX TDF Ø3(1)H — V1
LRE EN TIF H — P2
LCX TIF Ø3(1)H — U1
LTM EN INSTR H — N2
LIN RDC H — T2
LTM EN STATUS 2 H — M2
LTP8 TAPE SEL H — S2

M169 A16 — U2 — V2 — LTRA MSC IN ØØ H
+3V B16 U1 H

M222
A17
B17

REVISIONS				
CHK	CHANGE NO.	REV.		
	00002	A	T. Quillin	L. GALE
	EM12-00004	B	T. Quillin	L. GALE
	EM12-00009	C	L. GALE	
	EM12-00015	D	L. GALE	
	EM12-00032	E	T. Quillin	GALE

DEC FORM NO. DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

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

DRN. — DATE 12-8-68
CHK'D — DATE 2/27/69
ENG — DATE 2/28/69
PROJ. ENG. — DATE 2/28/69
PROD. — DATE 2/28/69
FIRST USED ON TC12
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
LTRA
BITS Ø & 1

SIZE D | CODE BS | NUMBER TC12-Ø-LTRA | REV. E
DIST.

+3V C26U1 H — BS2 — BV1 — LTRB RWB Ø2 OUT H

LTRB CARRY OUT Ø2 L — AV2

PRB AC Ø2(1) H — BN2, BM2, BP2, BU1
LRE EN AC H

LWN WIND Ø1(1) H — BK2, BL2
LTM EN MARK WIND H

LCS SEARCH (1) H — BJ2, BS1
LTM EN STATES H

-LTC UNIT 2 H — BR1, BF1
LTM EN UNITS H

LCXF TF Ø2(1) H — BM1, BL1
LRE EN EX OP BUF H

LTRB TB Ø2(1) H — BK1
LRE EN TB H

BN1, AN2

PRB MB Ø2(1) H — AS1, AR2
LRE EN MB Ø-2 H

LTS LC ØØ(1) H — AM2, AE2
LTM EN STATUS 1 H

LTRA RWB Ø2(1) H — AD2
LRE EN RWB H

LTRA TBN Ø2(1) H — AM1, AL1
LRE EN TBN H

LTRA TMA Ø2(1) H — AS2
LRE EN TMA H

LTR TMA SET UP Ø2(1) H — AP1
LRE EN TMA SET UP H

LTRB MSC IN Ø2 H — AP2

LTRA TAC Ø2(1) H — AL2
LRE EN TAC H

BV2 — LTRB TAPE BUS Ø2 H

LTRB TMA SETUP Ø2	AR1	LTRB TMA Ø2	AT2
LTRB TBN Ø2	AU1	LTRB TAC Ø2	AN1, AJ2
LTRB TB Ø2	BP1	LTRB RWB Ø2	

PRB AC Ø3(1) H — BH2, BU1
LRE EN AC H

LWN WIND Ø2(1) H — BJ1, BL2
LTM EN MARK WIND H

LCS BLOCK (1) H — BC1, BS1
LTM EN STATES H

-LTC UNIT 3 H — BH1, BF1
LTM EN UNITS H

LRE EN EX OP BUS H — BE1, BL1

LTRA TB Ø3(1) H — BK1
LRE EN TB H

LRE EN GP 1-2 H — C1, D1
LGP GP Ø2(1) H

LRE EN TAC 1Ø-11 H — D2, E1
LTRF TAC 11(1) H

LTM EN INSTR H — E2, F1
LIN MTB H

LTM EN STATUS 2 H — F2, H1

M169 A1G

A1 — B1 — +3V B1GU1 H

BB1, BB2

PRB MB Ø3(1) H — AB2, AC1
LRE EN MB 3-11 H

LTS LC Ø1(1) H — AE1, AE2
LTM EN STATUS 1 H

LTRA RWB Ø3(1) H — AQ2
LRE EN RWB H

LTRA TBN Ø3(1) H — AF2, AL1
LRE EN TBN H

LTRA TMA Ø3(1) H — AS2
LRE EN TMA H

LTR TMA SET UP Ø3(1) H — AP1
LRE EN TMA SET UP H

AF1

LTRA TAC Ø3(1) H — AL2
LRE EN TAC H

LTRC CARRY OUT Ø4L — BA1

LRL LOAD TMA SET UP H — AK1

BR2 — LTRB TAPE BUS Ø3 H

LTRB TMA SETUP Ø3	AH1	LTRB TMA Ø3	AD1
LTRB TBN Ø3	AK2	LTRB TAC Ø3	AH2, AB1
LTRB TB Ø3	BD1	LTRB RWB Ø3	AV1, BD2

LRL LOAD TMA H — AU2
LRL LOAD TBN H — AJ1
LRL LOAD TAC H — AA1
LRL LOAD TB H — BT2
LRL TB TO RWB H — BF2
LRL SHIFT RWB H — BE2

LTMR MAINT (1) H — A1
PRE AC Ø9(1) H — B1

LTMR MAINT (Ø) H — C1
LTR DI READ H — D1

M121 C26 — E1

LRE EN GP 1-2 H — C1, H2
LGP GP Ø1(1) H

LRE EN TAC 1Ø-11 H — D2, J2
LTRF TAC 1Ø(1) H

LTM ? — LTRF EN INSTR H — E2, K2
LIN RDE H

LTM EN STATUS 2 H — F2, L2

M169 A1G — J1 — K1 — LTRB MSC IN Ø2 H

+3V B1GU1 H

M222
A18
B18

REVISIONS	CHK	CHANGE NO.	REV.
	Fred	00002 T.Quilling L.GALE 6/18/68	A
	Fred	EM12-00003 T.Quilling 6-24-69 L.GALE 8/6/65	B
	Fred	EM12-00009 Jo Ro Mendro 8-20-69 L. GALE 8/20/69	C
	Fred	EM12-00015 L. GALE 10/15/69	D

DEC FORM NO DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

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

DRN. — DATE 12-8-68
CHK. — DATE 2/27/69
ENG. — DATE 2-28-69
PROJ. ENG. — DATE 2-28-69
PROD. — DATE 2/24/65
FIRST USED ON TC12
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
LTRB
BITS 2&3

SIZE D | CODE 85 | NUMBER TC12-Ø-LTRB | REV D
DIST.

LRE EN EX OP BUF H — BN2
LCX MARK (1) H — BM2

PRC AC Ø4 (1) H — BP2
LRE EN AC H — BU1

LWN WIND Ø3 (1) H — BK2
LTM EN MARK WIND H — BL2

LCS CHECK WORD (1) H — BJ2
LTM EN STATES H — BS1

-LTC UNIT 4 H — BR1
LTM EN UNITS H — BF1

LIN WRC H — BM1
LTM EN INSTR H — BL1

LTRC TB Ø4 (1) H — BK1
LRE EN TB H

BN1
AN2

PRC MB Ø4 (1) H — AS1
LRE EN MB 3-11 H — AR2

LWN MARK WRITE H — AM2
LTM EN STATUS 1 H — AE2

LTRC RWB Ø4 (1) H — AD2
LRE EN RWB H

LTRC TBN Ø4 (1) H — AM1
LRE EN TBN H — AL1

LTRC TMA Ø4 (1) H — AS2
LRE EN TMA H

LTR TMA SET UP Ø4 (1) H — AP1
LRE EN TMA SET UP H

AP2

LTRC TAC Ø4 (1) H — AL2
LRE EN TAC H

LTRC CARRY OUT Ø4 L — AV2

LTRC TAPE BUS Ø4 H — BV2

-LTS PHASE H — BS2

BV1 — LTRC RWB Ø4 OUT H

D 1 LTRC TMA SETUP Ø4 C Ø — AR1
D 1 LTRC TMA Ø4 C Ø — AT2
D 1 LTRC TBN Ø4 C Ø — AU1
D 1 LTRC TAC Ø4 C Ø — AN1 — AJ2
D 1 LTRC TB Ø4 C Ø — BP1
D 1 LTRC RWB Ø4 C Ø

PRC AC Ø5 (1) H — BH2
LRE EN AC H — BU1

LWN EM H — BJ1
LTM EN MARK WIND H — BL2

LCS TURN AROND (1) H — BC1
LTM EN STATES H — BS1

-LTC UNIT 5 H — BH1
LTM EN UNITS H — BF1

LIN WRG H — BE1
LTM EN INSTR H — BL1

LTRC TB Ø5 (1) H — BK1
LRE EN TB H

BB1
BB2

PRC MB Ø5 (1) H — AB2
LRE EN MB 3-11 H — AC1

LTRA RWB ØØ OUT H — AE1
LTM EN STATUS 1 H — AE2

LTRC RWB Ø5 (1) H — AD2
LRE EN RWB H

LTRC TBN Ø5 (1) H — AF2
LRE EN TBN H — AL1

LTRC TMA Ø5 (1) H — AS2
LRE EN TMA H

LTR TMA SET UP Ø5 (1) H — AP1
LRE EN TMA SET UP H

LRE EN EX OP BUF L — P2
LCX TAPE INT EN (1) L — R2
M112 C24 — S2 — AF1

LTRC TAC Ø5 (1) H — AL2
LRE EN TAC H

LTRD CARRY OUT Ø6 L — BA1

LRL LOAD TMA SET UP H — AK1

BR2 — LTRC TAPE BUS Ø5 H

D 1 LTRC TMA SETUP Ø5 C Ø — AH1
D 1 LTRC TMA Ø5 C Ø — AD1
D 1 LTRC TBN Ø5 C Ø — AK2
D 1 LTRC TAC Ø5 C Ø — AH2 — AB1
D 1 LTRC TB Ø5 C Ø — BO1
D 1 LTRC RWB Ø5 C Ø — BO2

LRL LOAD TMA H — AU2
LRL LOAD TBN H — AJ1
LRL LOAD TAC H — AA1
LRL LOAD TB H — BT2
LRL TB TO RWB H — BF2
LRL SHIFT RWB H — BE2
LTRD RWB Ø6 OUT H

M222
A19
B19

REVISIONS	REV.	CHK	CHANGE NO.
	A	DB	00002
T. QUILLIN L. GALE 6/18/68	B	FV	EM12-00030
T. QUILLIN 2.2.70 GALE	C		EM12-00037
D. Moore 1-16-70 GALE 2/21/70			

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL

FINISH

DRN. — DATE 12-8-68
CHK'D — DATE 2/27/69
ENG. — DATE 2-28-69
PROJ. ENGR. — DATE 2-28-69
PROD. — DATE 3/2-3/69

FIRST USED ON TC12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
LTRC
BITS 4&5

SIZE	CODE	NUMBER	REV.
D	BS	TC12-Ø-LTRC	C

DIST.

DEC FORM NO DRD 102A

SIZE D | CODE 85 | NUMBER TC12-0-LTRD | REV B

LTM MAINT (1) H — BN2 / BM2
LRE EN EX OP BUF H
PRD AC Ø6(1) H — BP2 / BU1
LRE EN AC H
LWN CM H — BK2 / BL2
LTM EN MARK WIND H
LCS WRITE (1) H — BJ2 / BS1
LTM EN STATES H
-LTC UNIT 6 H — BR1 / BF1
LTM EN UNITS H
LIN WRI H — BM1 / BL1
LTM EN INSTR H
LTRD TB Ø6(1) H — BK1
LRE EN TB H

PRD MB Ø6(1) H — AS1 / AR2
LRE EN MB 3-11 H
LTRC RWB Ø4 OUT H — AM2 / AE2
LTM EN STATUS 1 H
LTRD RWB Ø6(1) H — AD2
LRE EN RWB H
LTRD TBN Ø6(1) H — AM1 / AL1
LRE EN TBN H
LTRD TMA Ø6(1) H — AS2
LRE EN TMA H
LTR TMA SET UP Ø6(1) H — AP1
LRE EN TMA SET UP H
AP2
LTRD TAC Ø6(1) H — AL2
LRE EN TAC H

BN1
AN2
AV2
LTRD CARRY OUT Ø6 L

+3V C26U1 H — BS2
BV1 — LTRD RWB Ø6 OUT H
BV2 — LTRD TAPE BUS Ø6 H

D 1 LTRD TMA SETUP Ø6 C Ø — AR1
D 1 LTRD TMA Ø6 C Ø — AT2
D 1 LTRD TBN Ø6 C Ø — AU1
D 1 LTRD TAC Ø6 C Ø — AN1 / AJ2
D 1 LTRD TB Ø6 C Ø — BP1
D 1 LTRD RWB Ø6 C Ø

PRD AC Ø7(1) H — BH2 / BU1
LRE EN AC H
LWN GM H — BJ1 / BL2
LTM EN MARK WIND H
LCS WRITE CYCLE H — BC1 / BS1
LTM EN STATES H
-LTC UNIT 7 H — BH1 / BF1
LTM EN UNITS H
LIN CHK H — BE1 / BL1
LTM EN INSTR H
LTRD TB Ø7(1) H — BK1
LRE EN TB H

PRD MB Ø7(1) H — AB2 / AC1
LRE EN MB 3-11 H
LTRE RWB Ø8 OUT H — AE1 / AE2
LTM EN STATUS 1 H
LTRD RWB Ø7(1) H — AD2
LRE EN RWB H
LTRD TBN Ø7(1) H — AF2 / AL1
LRE EN TBN H
LTRD TMA Ø7(1) H — AS
LRE EN TMA H
LTR TMA SET UP Ø7(1) H — AP1
LRE EN TMA SET UP H
LRE EN EX OP BUF L — T2
LCX EX ADD FORMAT (1) L — U2
M112 C29 — V2 — AF1
LTRD TAC Ø7(1) H — AL2
LRE EN TAC H

BB1
BB2
LTRE CARRY OUT Ø8 L — BA1

BR2 — LTRD TAPE BUS Ø7 H

D 1 LTRD TMA SETUP Ø7 C Ø — AH1
D 1 LTRD TMA Ø7 C Ø — AD1
D 1 LTRD TBN Ø7 C Ø — AK2
D 1 LTRD TAC Ø7 C Ø — AH2 / AB1
D 1 LTRD TB Ø7 C Ø — BD1
D 1 LTRD RWB Ø7 C Ø — BD2

LRL LOAD TMA H — AU2
LRL LOAD TBN H — AJ1
LRL LOAD TAC H — AA1
LRL LOAD TB H — BT2
LRL TB TO RWB H — BF2
LRL SHIFT RWB H — BE2

LTMR MAINT (1) H — K2 / L2
PRF AC 1Ø(1) H
LTMR MAINT (Ø) H — M2 / N2
LTR D2 READ H
M121 C26 — P2

LRL LOAD TMA SET UP H — AK1

M222
A2Ø
B2Ø

REVISIONS

REV.	CHANGE NO.	CHK	
A	00002	Bill	T. QUILTY I. GALE 6/18/68
B	EM12-00030	FV	Terrillo 2-3-70 GALE 3-4-70

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

DRN. — DATE 12-8-68
CHK'D — DATE 2-12-69
ENG. — DATE 2-28-69
PROJ. ENGR. — DATE 2-24-69
PROD. — DATE 2-28-69
FIRST USED ON TC12
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
LTRD
BITS 6 & 7

SIZE	CODE	NUMBER	REV.
D	BS	TC12-Ø-LTRD	B

DIST.

DEC FORM NO. DRD 102A

LTM EN INSTR H — BN2
LIN I H — BM2
PRE AC ØB(1) H — BP2
LRE EN AC H — BU1
LWN DM H — BK2
LTM EN MARK WIND H — BL2
LTD ACIP H — BJ2
LTM EN STATES H — BS1
LMU MOTION (1) H — BR1
LTM EN UNITS H — BF1
LRE EN CPCNT H — BM1 — BL1
LTRE TB ØB(1) H — BK1
LRE EN TB H

PRE MB ØB(1) H — AS1
LRE EN MB 3-11 H — AR2
LGP GP EQ GPC (1) H — AM2
LTM EN STATUS 1 H — AE2
LTRE RWB ØB(1) H — AD2
LRE EN RWB H
LTRE TBN ØB(1) H — AM1
LRE EN TBN H — AL1
LTRE TMA ØB(1) H — AS2
LRE EN TMA H
LTR TMA SET UP ØB(1) H — APT
LRE EN TMA SET UP H
LRE EN EX OP BUF L — P1
LCX NO PAUSE (1) L — R1
M112 C24 — S1 — AP2
LTRE TAC ØB(1) H — AL2
LRE EN TAC H

LTRE CARRY OUT ØB L — AV2
BN1
AN2
BV2 — LTRE TAPE BUS ØB H
-LTS PHASE H — BS2
BV1 — LTRE RWB ØB OUT H

D 1 LTRE TMA SETUP ØB C Ø — AR1
D 1 LTRE TMA ØB C Ø — AT2
D 1 LTRE TBN ØB C Ø — AU1
D 1 LTRE TAC ØB C Ø — AN1 — AJ2
D 1 LTRE TB ØB C Ø — BP1
D 1 LTRE RWB ØB C Ø

PRE AC Ø9(1) H — BH2
LRE EN AC H — BU1
LWN FM H — BJ1
LTM EN MARK WIND H — BL2
LTS TTOK H — BC1
LTM EN STATES H — BS1
LMU DIRECTION (1) H — BH1
LTM EN UNITS H — BF1
LGP GPCNT Ø(1) H — BE1
LRE EN GPCNT H — BL1
LTRE TB Ø9(1) H — BK1
LRE EN TB H

PRE MB Ø9(1) H — AB2
LRE EN MB 3-11 H — AC1
LGP GPCNT Ø(1) H — AE1
LTM EN STATUS 1 H — AE2
LTRE RWB Ø9(1) H — AD2
LRE EN RWB H
LTRE TBN Ø9(1) H — AF2
LRE EN TBN H — AL1
LTRE TMA Ø9(1) H — AS2
LRE EN TMA H
LTR TMA SET UP Ø9(1) H — AP1
LRE EN TMA SET UP H
LTM EN INSTR H — T2
LGP GP Ø(1) H — U2
M113 B16 — V2
P1
M113 B16 — S1 — AF1
LRE EN EX OP BUF H — P2
LCX HOLD MOTION (1) H — R2
M113 B16 — S2
R1
LTRE TAC Ø9(1) H — AL2
LRE EN TAC H

LTRF CARRY OUT 1Ø L — BA1
LRL LOAD TMA SET UP H — AK1

BB1
BB2
BR2 — LTRE TAPE BUS Ø9 H

D 1 LTRE TMA SETUP Ø9 C Ø — AH1
D 1 LTRE TMA Ø9 C Ø — AD1
D 1 LTRE TBN Ø9 C Ø — AK2
D 1 LTRE TAC Ø9 C Ø — AH2
D 1 LTRE TB Ø9 C Ø — BD1
D 1 LTRE RWB Ø9 C Ø — BD2

LRL LOAD TMA H — AU2
LRL LOAD TBN H — AJ1
LRL LOAD TAC H — AA1
LRL LOAD TB H — BT2
LRL TB TO RWB H — BF2
LRL SHIFT RWB H — BE2
LTRF RWB 1Ø OUT H

M222
A21
B21

REVISIONS	REV.	CHK	DRN	DATE
CHANGE NO. 00002	A		T QUILLIN	6/18/68
			L GALE	
EM112-00017	B		K Waller	11-5-69
			GALE	
			L Gale	11-14-69

DEC FORM NO. DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL

FINISH

DRN.	DATE	12-8-68
CHK.	DATE	2/27/69
ENG.	DATE	2-28-69
PROJ. ENG.	DATE	2-28-69
PROD.	DATE	3/2/69

FIRST USED ON TC12

SCALE

SHEET / OF /

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
LTRE
BITS 8&9

SIZE	CODE	NUMBER	REV.
D	85	TC12-Ø-LTRE	B

DIST.

LTM EN INSTR H — BN2
LGP GP Ø1(1) H — BM2
PRF AC 1Ø(1) H — BP2
LRE EN AC H — BU1
LWN BM H — BK2
LTM EN MARK WIND H — BL2
LTS TIMING OK H — BJ2
LTM EN STATES H — BS1
LCS TAPE OK H — BR1
LTM EN UNITS H — BF1
LGP GPCNT 1(1) H — BM1
LRE EN GPCNT H — BL1
LTRF TB 1Ø(1) H — BK1
LRE EN TB H

LRE EN EX OP BUF L — L2
LMU PRE U Ø (1) L — M2
M112 C24 — N2 — AP2

PRF MB 1Ø(1) H — AS1
LRE EN MB 3-11 H — AR2
LGP GPCNT 1(1) H — AM2
LTM EN STATUS 1 H — AE2
LTRF RWB 1Ø(1) H — AD2
LRE EN RWB H
LTRF TBN 1Ø(1) H — AM1
LRE EN TBN H — AL1
LTRF TMA 1Ø(1) H — AS2
LRE EN TMA H
LTR TMA SET UP 1Ø(1) H — AP1
LRE EN TMA SET UP H
LTRF TAC 1Ø(1) H — AL2
LRE EN TAC H

BN1
AN2
AV2 — LTRF CARRY OUT 1ØL

PRF AC 11(1) H — BH2
LRE EN AC H — BU1
LWN IM H — BJ1
LTM EN MARK WIND H — BL2
LTT TAPE FAIL DELAY H — BC1
LTM EN STATES H — BS1
LTC WRITE EN H — BH1
LTM EN UNITS H — BF1
LGP GPCNT 2(1) H — BE1
LRE EN GPCNT H — BL1
LTRF TB 11(1) H — BK1
LRE EN TB H

PRF MB 11(1) H — AB2
LRE EN MB 3-11 H — AC1
LGP GPCNT 2(1) H — AE1
LTM EN STATUS 1 H — AE2
LTRF RWB 11(1) H — AD2
LRE EN RWB H
LTRF TBN 11(1) H — AF2
LRE EN TBN H — AL1
LTRF TMA 11(1) H — AS1
LRE EN TMA H
LTR TMA SET UP 11(1) H — AP2
LRE EN TMA SET UP H
LTRF TAC 11(1) H — AF1
LRE EN TAC H — AL2

LTM EN INSTR H — P2
LGP GPØ2 (1) H — R2
LRE EN EX OP BUF H — P1
LMU PRE U1 (1) H — R1
M113 E23 — S2 — T2
M113 E23 — S1 — U2
M113 E23 — V2

BB1
BB2
LRE TAPE CARRY IN L — BA1
LRL LOAD TMA SET UP H — AK1

+3V C26U1 H — BS2
BV1 — LTRF RWB 1Ø OUT H
BV2 — LTRF TAPE BUS 1Ø H
BR2 — LTRF TABE BUS 11 H

D 1 LTRF TMA SETUP 1Ø C Ø — AR1
D 1 LTRF TMA 1Ø C Ø — AT2
D 1 LTRF TBN 1Ø C Ø — AU1
D 1 LTRF TAC 1Ø C Ø — AN1 — AJ2
D 1 LTRF TB 1Ø C Ø — BP1
D 1 LTRF RWB 1Ø C Ø

D 1 LTRF TMA SETUP 11 C Ø — AH1
D 1 LTRF TMA 11 C Ø — AD1
D 1 LTRF TBN 11 C Ø — AK2
D 1 LTRF TAC 11 C Ø — AH2 — AB1
D 1 LTRF TB 11 C Ø — BO1
D 1 LTRF RWB 11 C Ø — BO2

LRL LOAD TMA H — AU2
LRL LOAD TBN H — AJ1
LRL LOAD TAC H — AA1
LRL LOAD TB H — BT2
LRL TB TO RWB H — BF2
LRL SHIFT RWB H — BE2

LTMR MAINT (1) H — R2
PRF AC 11(1) H — S2
LTMR MAINT (Ø) H — T2
LTR D3 READ H — U2
M121 C26 — V2

M222
A22
B22

REVISIONS	CHANGE NO.	CHK	REV.
	00002 T.Guillin L.GALE		A
2nd	EM12-00003 T.Guillin L.GALE		B
2nd	EM12-00015 L.GALE		C
2nd	EM12-00017 T.Guillin GALE 11-5-69		D
2nd	EM12-00019 L.GALE		E

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

DRN. — DATE 12-8-68
CHK — DATE 2/27/69
ENG — DATE 2-28-69
PROJ. ENG — DATE 2-28-69
PROD — DATE 3/3/69
FIRST USED ON TC12
SCALE
SHEET / OF /

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

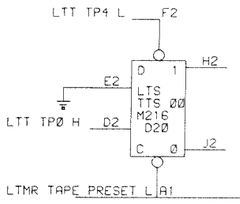
TITLE
LTRF
BITS 1Ø&11

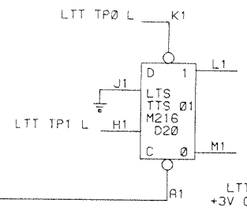
SIZE	CODE	NUMBER	REV.
D	BS	TC12-Ø-LTRF	E

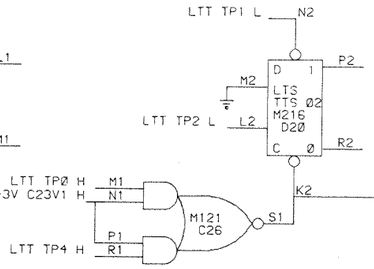
DIST.

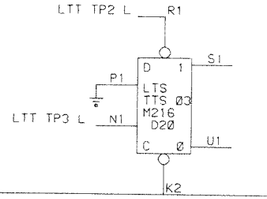
DEC FORM NO DRD 102A

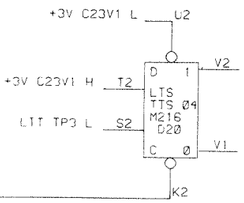
SIZE CODE D BS NUMBER TC12-Ø-LTRF REV E

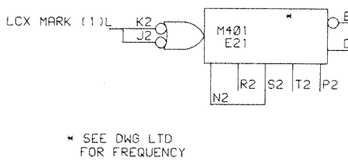




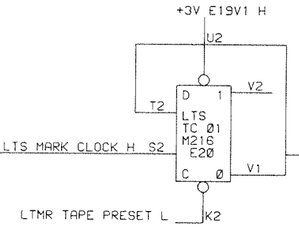


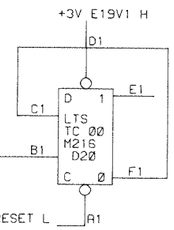


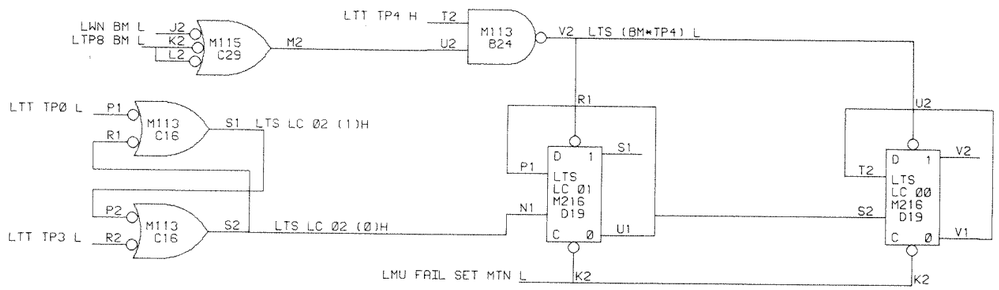




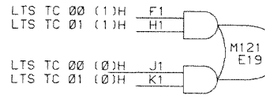
* SEE DWG LTD
FOR FREQUENCY

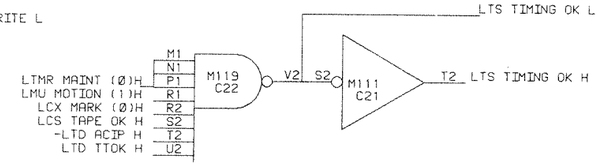


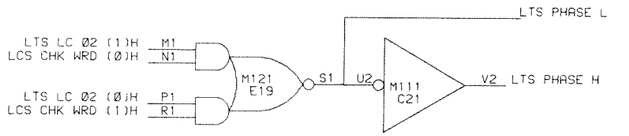




NOTE:
LMU FAIL SET MTN SERVES NO LOGICAL
FUNCTION FOR LC Ø1 AND LC Ø0

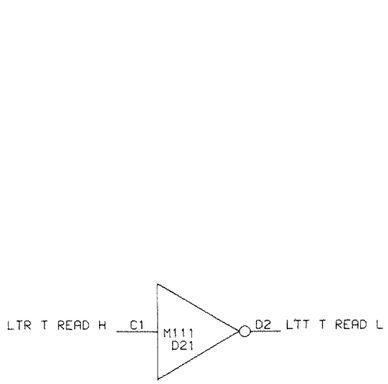


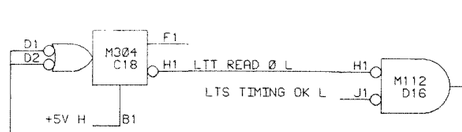


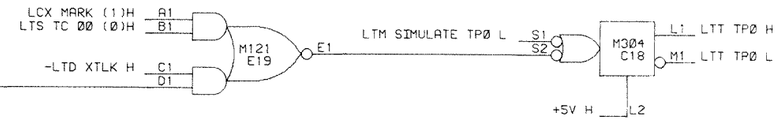


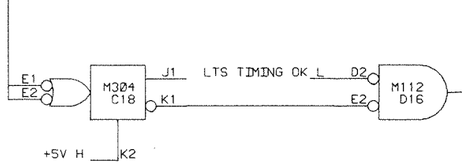
REVISIONS		
CHK	CHANGE NO.	REV.
	EM12-00002	A
	J SCANLAN 6-18-69	
	A WASHINGTON 6-5-69	
NR	EM12-00003	B
	A WASHINGTON 7-69	
	J SCANLAN 7-8-69	
MK	EM12-00015	C
	K BOGGS	
	J SCANLAN	
MK	EM12-00022	D
	[illegible]	

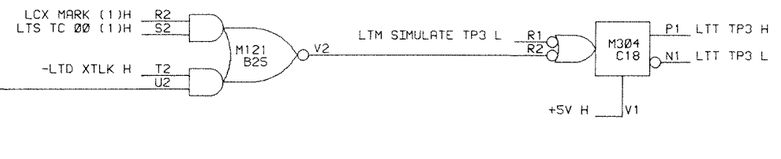
DRN. D.J. SHEPARD	DATE 8-9-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J.K. BISONETE	DATE 8-9-69	
ENG. L. GALE	DATE 8-9-69	TITLE: TAPE STATES
PROJ. ENG. L. GALE	DATE 8-9-69	
PROD. D. CALL	DATE 8-9-69	
FIRST USED ON: TC12		SIZE D | CODE BS | NUMBER TC12-Ø-LTS | REV. D
SCALE		
SHEET 1 OF 1		DIST.

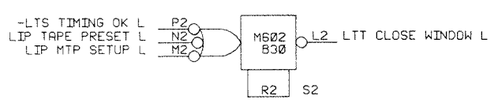


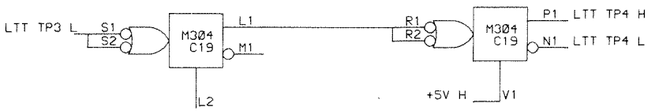






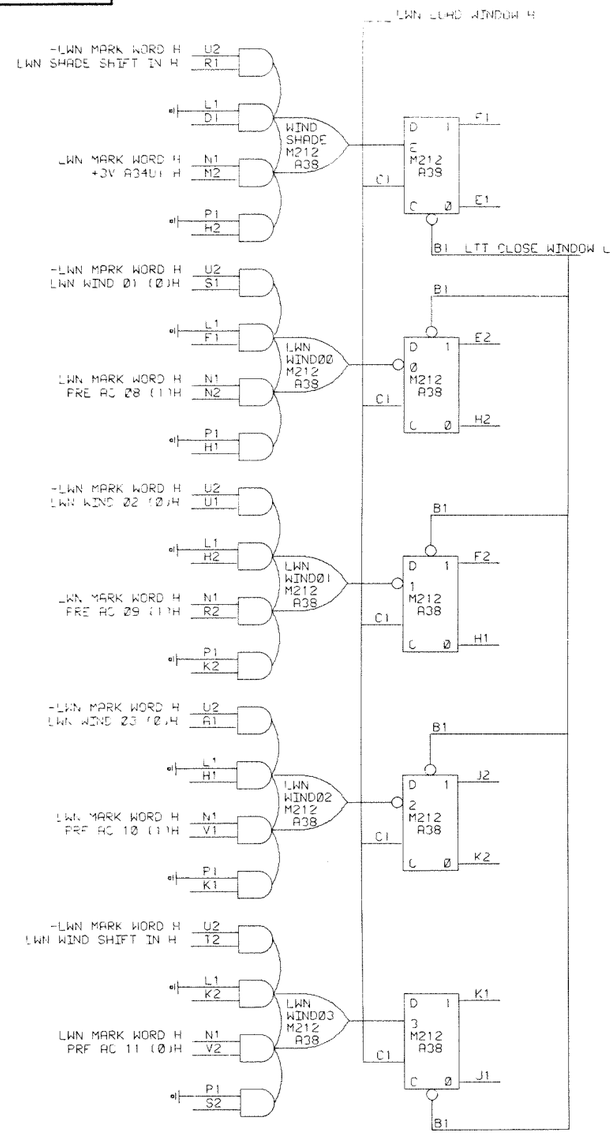


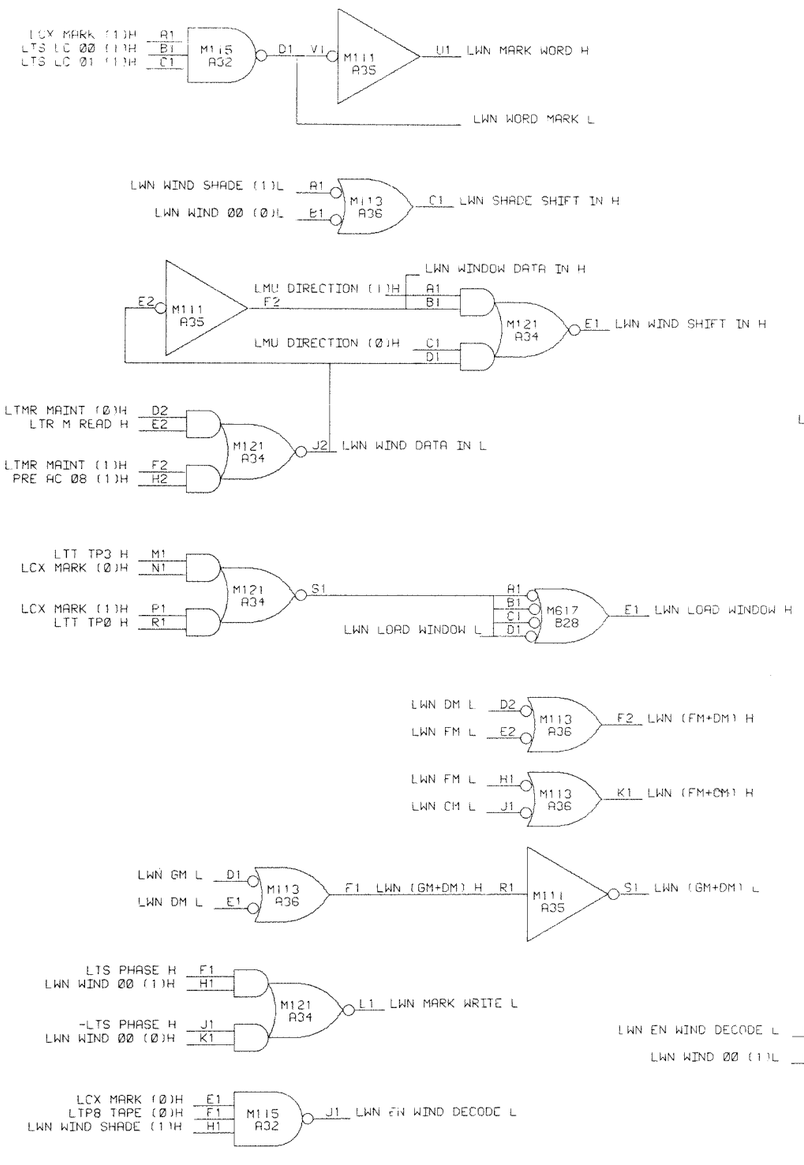


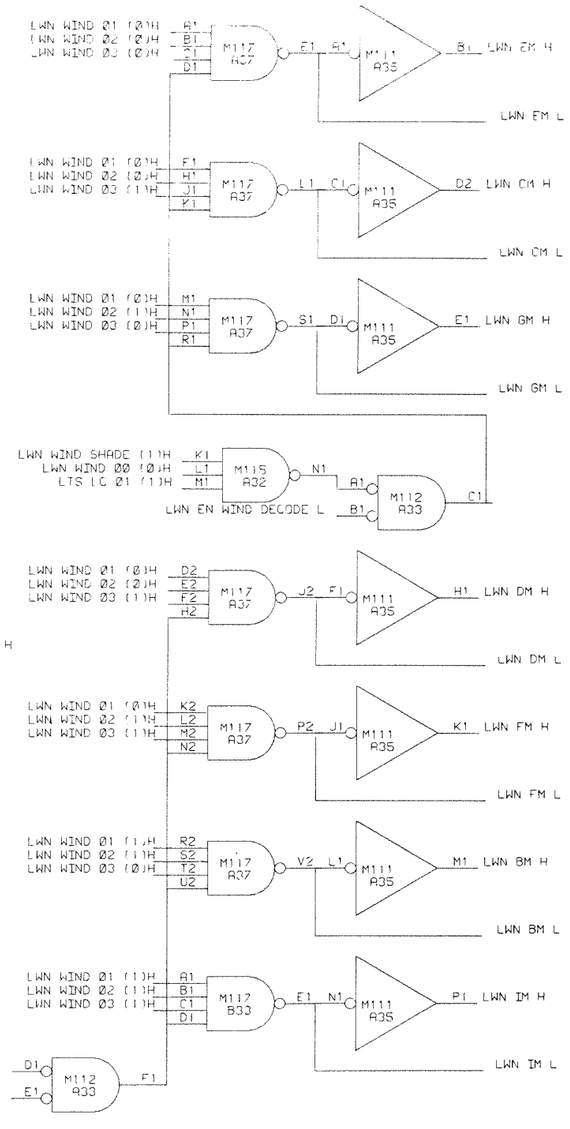


REVISIONS		
CHK	CHANGE NO.	REV.
PD	EM12-00001	A
	J FASSHAUER 4-15-69	
	L GALE 4-24-69	
NR	EM12-00005	B
	A WASHINGTON 7-18-69	
	L GALE 7-18-69	
	EM12-00015	C

DRN. D.L.SHEPARD	DATE 8-9-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D J.K.BISONETE	DATE 8-9-69	
ENG. L.GALE	DATE 8-9-69	TITLE TAPE TIME PULSES
PROJ. ENG. L.GALE	DATE 8-9-69	
PROD. D.CALL	DATE 8-9-69	
FIRST USED ON TC12		SIZE D | CODE BS | NUMBER TC12-Ø-LTT | REV. C
SCALE		DIST.
SHEET 1 OF 1		







REVISIONS		
CHK	CHANGE NO.	REV.
NR	EM12-00005	A
	J FASSHAUER 4-15-69	
	L GALE 4-29-69	
	EM12-00015	B
	KEN BOGGS 10-14-69	
	J SCANLAN 10-17-69	
NR	EM12-00032	C
	A.WASHINGTON 3-13-70	
	J SCANLAN 3-16-70	
	EM12-00041	D

DRN. D SHEPARD	DATE 3-9-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D. L DISONETE	DATE 3-9-69	TITLE TAPE MARK WINDOW	
ENG. L GALE	DATE 3-9-69		
PROJ. ENG. L GALE	DATE 3-9-69		
PROD. D CHILL	DATE 3-9-69		
FIRST USED ON TC12		SIZE D / CODE BS / NUMBER TC12-Ø-LWN / REV. D	
SCALE			
SHEET 1 OF 1		DIST.	

MASTER DRAWING LIST

MAINTENANCE MANUALS NO.	TITLE	UNIT VARIATIONS VC12-0	VC12-C	VC12-N	VC12-S
VC12-Linc Scope Control		X			
VC12-C Color Control			X		
VC12-N Neg Intens Adapt				X	
VC12-S 611/601 Control					X

USED ON OPTIONS							
PDP-12							

REVISIONS

REV.	DATE	CHG. NO.	APP'D.
M	1/72	12-00099	R.M.
N	2/72	VC12S-00001	F.S.
P	8/72	EM12-58	RI

DRN. APREA	DATE 3/69	
CHK'D. HUTNAK	DATE 3/69	
ENG GALE	DATE 3/69	
PROJ. ENG GALE	DATE 3/69	
PROD. CALL	DATE 3/69	
FIRST USED ON PDP-12		
SCALE		
SHEET 1 OF 2		

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
PDP-12
Display Controls

SIZE	CODE	NUMBER	REV.
A	ML	VC12-0	P

DIST.

PRINT SET VC12-0	VC12-C	VC12-N	VC12-S			DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.
X						D-FD-VC12-0-4	C	1	Linc-8 Scope Display	
X		X				D-BS-VC12-0-DSC	F	1	DSC Display Control	
X			X			D-BS-VC12-0-DSX	F	1	DSX Horizontal D-A	
X						D-BS-VC12-0-DSY	B	1	DSY Vertical D-A	
X						D-BS-VC12-0-DSI		1	Display Int Reg	
	X					D-CS-VC12-C-COL	A	1	Color Control	
X	X	X	X			A-PL-VC12-0-0	A	1	PDP-12 Scope Control	
	X					A-SL-VC12-C-2		1	VC12C Software List	
X						A-SP-VC12-0-5		5	VC12 Specifications	
	X					A-SP-VC12-C-1		5	Specifications (Color Control)	
		X				D-IA-7006975-0-0	#	1	Cable Assy (VC12N)	
			X			D-CS-VC12-S-3		1	611/601 CIRCUIT SCHEMATIC	
			X			D-CS-VC12-S-1		1	611 SCOPE CONTROL	
			X			A-SP-VC12-S-2		14	INSTALLATION ACCEPTANCE PROCEDURE	
			X			C-IA-7008521-0-0	#	1	611/601 SCOPE CABLE	
			X			C-IA-7008793-0-0	#	1	611/601 RELAY WIRING DIAGRAM	

TITLE		SIZE	CODE	NUMBER	REV
PDP-12 Display Controls	SHEET 2 OF 2	A	ML	VC12-0	-

DRA 132

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY DATE D. MACKLIN 1-8-72	CHECKED DATE 1-31-72	SECTION 1
ENG D Macklin DATE 2-2-72	PROD DATE 2-4-72	ISSUED SECT. 1

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION VC12-0	VC12-C	VC12-N	VC12-S
	A615	D-A	2			
	M101	Bus Data Interface	1			
	M115	Nand Gate	1			
	M117	Nand Gate	1			
	M216	Six Flop Flops	2			
	M711	Display Control	1			
	M7601	611/color Control		1		1
	W681	Scope Intensifier			1	
	D-IA-7000238-0-0	Internal Scope Cable	*			
	D-IA-7006975-0-0	Cable Assy (VC12N)			1	
	D-AD-7005963-0-0	Relay Panel Assy.	**			
	12-03185-2	Precision Power Supply ± 15V	Δ			
	C-AD-7006045-0-0	Power Supply BRKT Assy.	Δ			

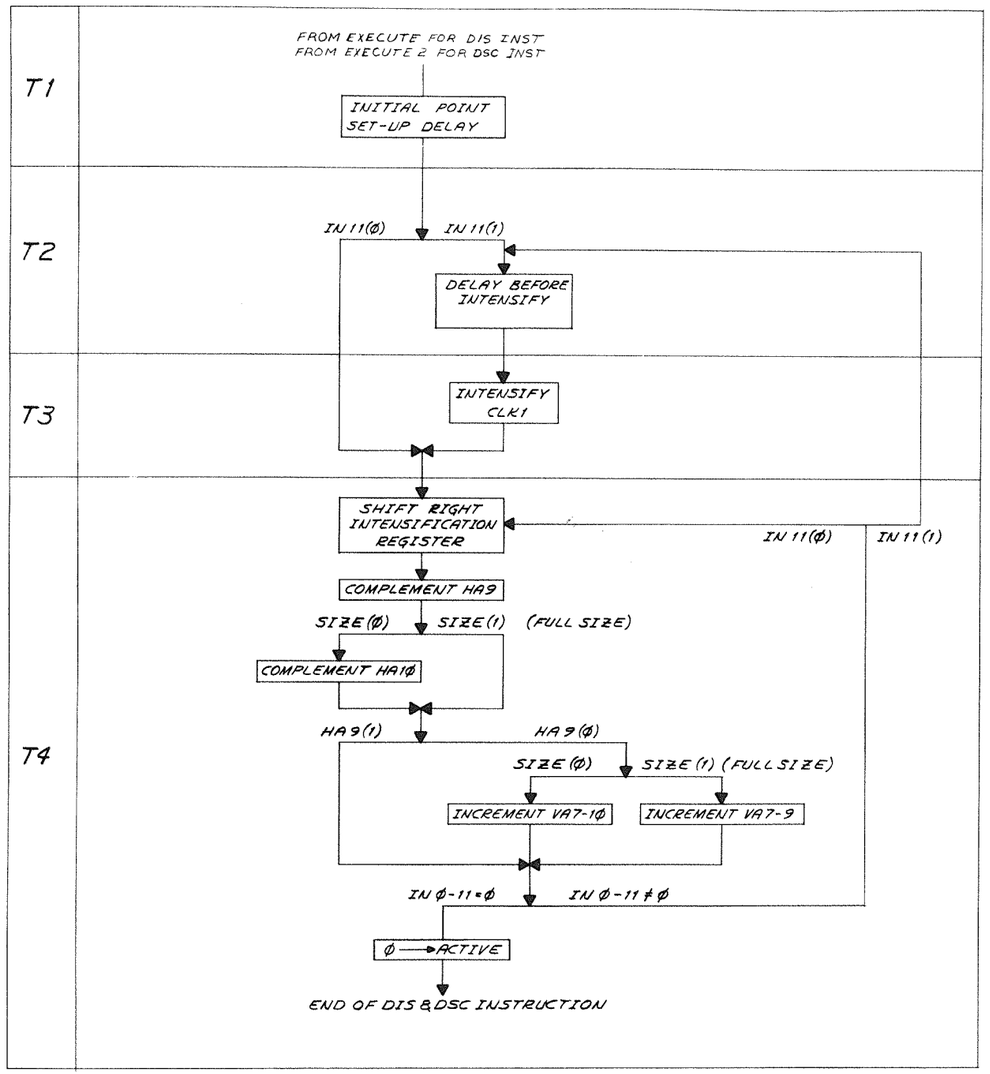
* Quantity of "One" when adding this option (VC12) to a PDP-12-C System.

** Quantity of "One" when adding this option (VC12) to a PDP-12-C System with no added AD12 or DR12 option.

Δ Quantity of "One" Each when adding this option (VC12) to a PDP-12-C System with no added AD12 or KW12 option.

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
PDP-12 Display Controls	SHEET 1 OF 1	A	PL	VC12-0-0	A	VC12S-00001
		DIST.				

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



TIMING TABLE (μSECS)

	STD SYS	COMMENTS
T1	25.Ø	CAN BE CHANGED BY REPLACING 30K Ω RESISTOR ADJACENT TO POLARITY SWITCH ON M711 15K Ω = 1Ø μSECS 7K Ω = 5 μSECS
T2	1.5 OR 7.Ø	PULSE REPETION RATE SWITCH SETS DESIRED TIME
T3	.5 OR 1Ø.Ø	INTENSIFICATION PULSE WIDTH IS DETERMINED BY WIDTH SWITCH SETTING ON M711
T4	.8	NON-ADJUSTABLE FIXED TIME

REVISIONS				
REV.	CHANGE NO.	CHK		
A	00002		T. Quilici	
			L. GALE	
B	EM12-00008		L. GALE	6/18/68
C	EM12-00033		L. GALE	8-15-68

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN.	Joe Aspra	DATE 2/22/69
CHKD.	J. Scanlan	DATE 2/27/69
ENG.	E.N. Clayton	DATE 2-28-69
PROJ. ENG.	E.N. Clayton	DATE 2-28-69
PROD.	N. Wall	DATE 2/28/69

FIRST USED ON: VC12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: LINC-8 SCOPE DISPLAY DIS & DSC

SIZE	CODE	NUMBER	REV.
D	FD	VC12-Ø-9	C

DIST.

DEC FORM NO. DRD 102A

PRC MB5 (1)H
DSC LD IN H
A1
B1
C1
M115
C29
D1
DSC LD MB5 L

DSC BUSY L
D 1
DSC ACTIVE
C Ø
DM2
DN2
DSC BUSY H

DSC LD HORZ H

DSI IN 11(Ø)H
DSI IN 10(Ø)H
DSI IN 9(Ø)H
DP1
DD2
DE1

DSI IN 8(Ø)H
DSI IN 7(Ø)H
DSI IN 6(Ø)H
DJ1
DF2
DH1

DSI IN 5(Ø)H
DSI IN 4(Ø)H
DSI IN 3(Ø)H
DK1
DH2
DJ2

DSI IN 2(Ø)H
DSI IN 1(Ø)H
DSI IN Ø(Ø)H
DL2
DL1
DK2

DSC CLK 1 OUTPUT

DSC SHFT H
DSC SHFT L
DN1
CD2
CE2
(CD2, CE2 OPTIONAL INPUTS CLAMPED AT +3V)

DSI IN 11(Ø)H
DP1

DSC ACTIVE (1) H
DSC LD HORZ H
DLY = 25 μSEC
DSC INITIAL DELAY L

DSI IN 11 (1) H
CF1
CLK 1 OUTPUT
CLK 2
LONG CLK 1 INPUT
SHORT CLK 2
START
CF1
DSI IN 11 (1) H

DT2
DSC INTEN L
DV1
DSC Z DRIVER H
DSC INTEN H
DU1
H2
W512
N27
F2
J2
K2
L2
WGB1
MØ3
N2
DSC 5Ø3 INTEN L
A2
B2
+1Ø
-15
VC12-N OPTION

SLA (DSC * EXECUTE 2) L
R2
S2
M121
E22
V2
DSC START DSC H
- DSC BUSY L
T2
U2

CPT TS5 B(1) H
DSC START DSC H
CV2
CT2
CD1
DSC CLR V8-11 L
CU2
DSC CLR V7 L

CST IO PRESET L
CR2
PRC AC Ø4(1)H
DD1
DSC SIZE
RCL LOAD MSC4 H
CV1
C Ø
DU2

DSC SHFT L
DE2
DSC HA 1Ø H

DSX HA 9 (1) L
DV2
DF2
DSC VA 1Ø H

DSX HA 9 (1) H
DM1
DSY VA 1Ø (Ø) H
DP2
DSC SIZE (Ø) H
DR2
DSC VA 9 H

CPT TS5 B(1) H
CPT (DIS+DSC) H
CPS EXECUTE B(1) H
-DSC BUSY H
CP2
CE1
CH1
DM2
CJ2
DSC INITIALIZE L

-INS DIS H
CL2
-INS DSC H
CL1

CM2
DSC LD IN H
CK2
DSC LD VERT H
CST IO PRESET L
DSC CLR V8-11L
CR2
CD1
DS2
DSC LD HORZ H
DSC LD MB5 L
CH2
CF2
DSC SET IN 11 L

DSY V8 (1)H
CS1
CU1
DSC 8 L
DSY V7 (1)H
CS2
CV2
DSC 7 L
D 1
V8
C Ø
DSY V9 (Ø) H
CJ1
V7
DSC INITIALIZE L

M711
C37
D37
REV H ON SEPARATE SHEET

REVISIONS	REV	CHK	CHANGE NO.			
	A		00002	T. GUILLIN L. GALE	6/18/68	
	B		EM12-00033	L. GALE	3-9-70	
	C		EM12-00037	L. GALE	7/29/70	
	D		EM12-00044	GALE	7/29/70	
	E		12-00059	SCANLON	2-27-71	
	F		EM12-00056	IKNAIAN	2-14-72	

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

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

DRN Joe Aguia DATE 4-SEPT-68
CHK'D J Scanlon DATE 2/27/69
ENG W Clayton DATE 2-28-69
PROJ. ENG C Clayton DATE 2-28-69
PROD W Bell DATE 2-24-69
FIRST USED ON VC12
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
DSC
DISPLAY CONTROL

SIZE D | CODE 08S | NUMBER VC12-Ø-DSC | REV. F
DIST.

DEC FORM NO. DRD 102A

DSX X OUT L
DSX X DEF L
EH2
EJ2

FU2 FV2 CHAN FS2 FT2 — DSC LD HORZ H — PRA MB Ø(1) H
H3 EN2 FD2 — PRB MB 3(1) H
H4 EP1 — PRC MB 4(1) H
H5 EU1 — PRC MB 5(1) H
H6 EV1 — PRD MB 6(1) H
EP2 ES2 ET2 H7 EU2 EV2 — PRD MB 7(1) L
EH1 EE2 FF1 H8 FE1 FK1 +3V — PRE MB 8(1) L

EH2
EJ2 OUTPUT
+5V EA2
-15V EB2
-15V H.Q. EE2
+15V H.Q. ED2
HQ GND EF2
+5V FA2
A615

G783 F38 / G783 F39

A1	A1	DSX CHAN(Ø) H
B1	B1	GND
C1	C1	DSC Z DRIVER L
D1	D1	
E1	E1	HQ GND 37
F1	F1	GND
H1	H1	DSX X DEF L
J1	J1	HQ GND 36
K1	K1	DSY Y DEF L
L1	L1	GND
M1	M1	COL RED L/SG11 INT H **
N1	N1	
P1	P1	
R1	R1	GND
S1	S1	DSC 503 INTEN L/ ERASE DONE
T1	T1	GND
U1	U1	
V1	V1	

GND

*W628 F38 / *W628 F39

A2	A2	
B2	B2	
C2	C2	GND
D2	D2	DSX CHAN(Ø) H
E2	E2	DSX X OUT L
F2	F2	GND
H2	H2	HQ GND 37
J2	J2	GND
K2	K2	DSC Z DRIVER H
L2	L2	GND
M2	M2	DSY Y OUT L
N2	N2	GND
P2	P2	HQ GND 36
R2	R2	GND
S2	S2	COL RED L/SG11 INT H **
T2	T2	GND
U2	U2	GND
V2	V2	DSC 503 INTEN L/ERASE DONE **

H9 FJ1 — PRE MB 9(1) L
H1Ø FL1 — PRF MB 1Ø(1) L
H11 FE2 FK1 — PRF MB 11(1) L
FD2 +3V — DSC LD HORZ H

DSC INITIALIZE L
HA 9 FL2 FM2 FR2 FJ2 FP2 +3V
DSC SHIFT H

+3V
HA1Ø FK2 FJ2 FF2 FH2
DSC HA1Ø H
DSC INITIALIZE L

NOTE: HQ POWER FOR THIS MODULE AND E,F 36 IS DERIVED FROM HQ POWER SUPPLY SHOWN ON AD12-0-YAD
*AG783 CABLE ASSY. MAY ALSO BE USED.
** USED WITH VC12-S OPTION

A615
E37
F37

REVISIONS	CHK	CHANGE NO.	REV.
	Dick	00002	A
		EM12-00008	B
		EM12-00039	C
		12-00096	D
		EM12 00054	E
		VC12S-00001	F

T QUILLIN 6/18/69
L GALE 8-15-69
L GALE 8-20-70
L GALE 8-26-70
R MOORE 6-2-71
R MOORE 6-12-71
R MOORE 10-2-71
F STRAIGHT 6-28-72

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

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

DRN.	Jos Ogden	DATE 2-16-69
CHK'D.	R Moore	DATE 2/27/69
ENG.	R Moore	DATE 3-26-69
PROJ ENG	R Moore	DATE 3-26-69
PROD.	R Moore	DATE 3/26/69

FIRST USED ON VC12
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
DSX HORIZONTAL D-A

SIZE	CODE	NUMBER	REV.
D	85	VC12-Ø-DSX	F

DIST.

DEC FORM NO. DPD 102A

DSY Y OUT L

DSY Y DEF L

EH2

EJ2

V3 — EN2 — FD2

V4 — EP1

V5 — EU1

V6 — EV1

V7 — ES2 — EP2 — DSC 7 L — ET2 — EV2 — EU2 — DSC CLR V7 L

V8 — ER2 — DSC 8 L — FF1 — FH1 — FK1 — FE1 — DSC CLR V8-11 L

DSC LD VERT H

PRB AC 3 (Ø) H

PRC AC 4 (1) H

PRC AC 5 (1) H

PRD AC 6 (1) H

PRD AC 7 (1) L

PRE AC 8 (1) L

EH2

EJ2 OUTPUT

AG15

+5V — EA2

-15V — EB2

-15V H.Q. — EE2

+15V H.Q. — ED2

HQ GND — EF2

+5V — FA2

V9 — FJ1 — FD2

V1Ø — FL1

V11 — FE2 — FK1

DSC LD VERT H

PRE AC 9 (1) L

PRF AC 1Ø (1) L

PRF AC 11 (1) L

DSC CLR V8-11 L

+3V

VA9 — FL2 — FR2 — FM2 — FN2 — FP2

DSC VA 9 H

+3V

VA1Ø — FK2 — FJ2 — FF2 — FH2

DSC VA 1Ø H

DSC INITIALIZE L

AG15
E36
F36

ITEM NO.	PART NO.	DESCRIPTION	QTY.

PARTS LIST

REVISIONS	REV.	CHANGE NO.	CHK	
	A	2000		6/18/68
	B	EM1200039		8-20-70

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN.	Joe Jones	DATE 6-2-68
CHKD.	D Scanlon	DATE 7/27/68
ENG.	P Clayton	DATE 8-28-68
PROJ. ENG.	P Clayton	DATE 8-28-68
PROD.	A Ball	DATE 8-28-68

FIRST USED ON VC12

SCALE

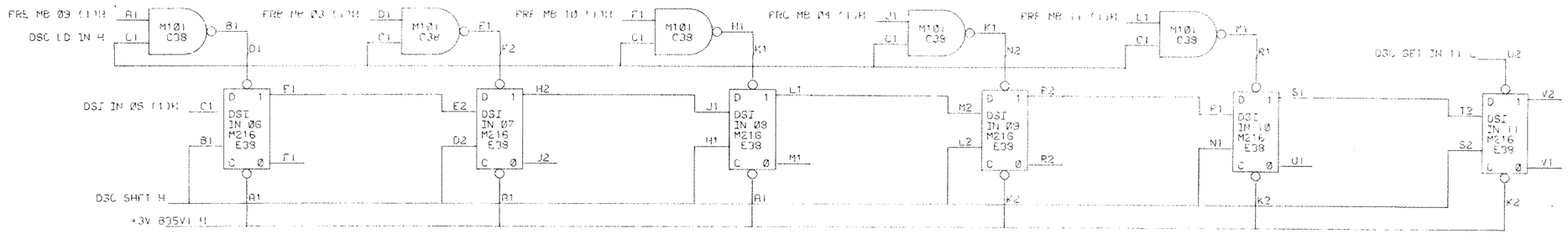
SHEET OF

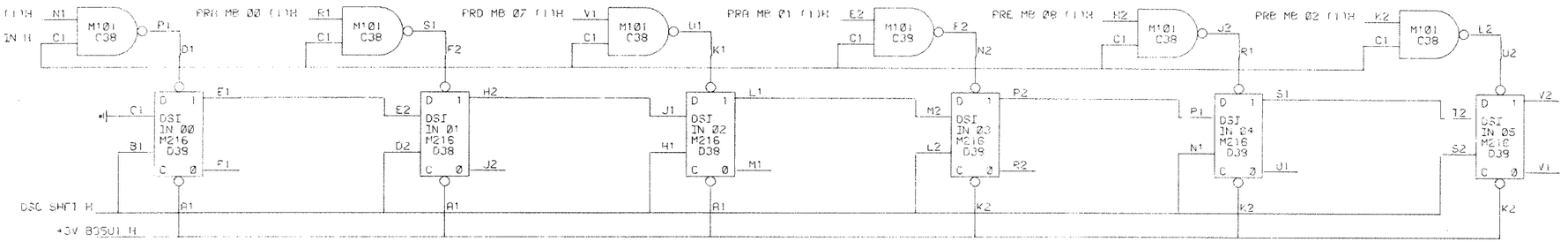
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
DSY
VERTICAL D-A

SIZE	CODE	NUMBER	REV.
D	85	VC12-Ø-DSY	B

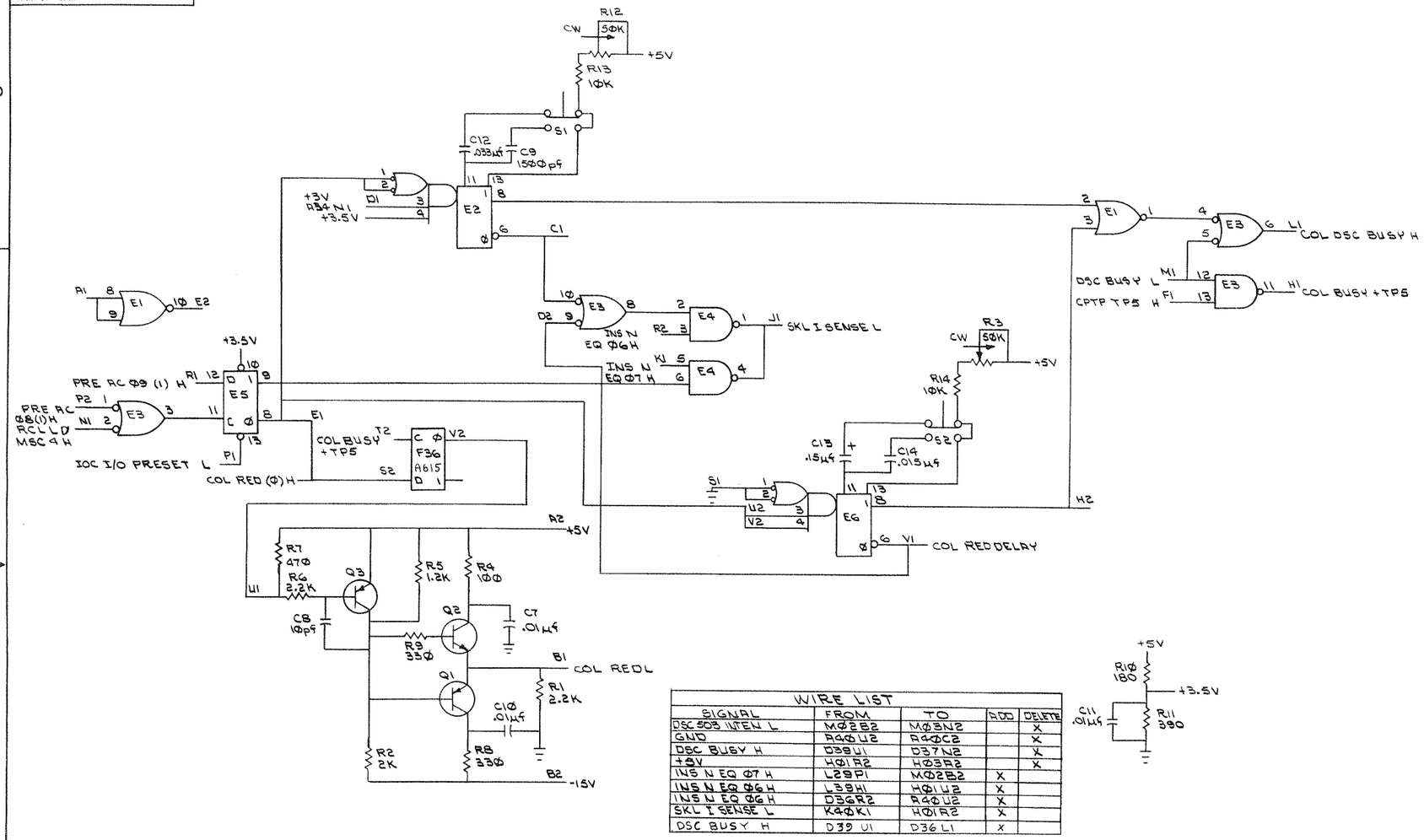
DIST.





REVISIONS		
CHK	CHANGE NO.	REV.

DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D.	DATE	
ENG.	DATE	TITLE: DISPLAY INT REG
PROJ. ENG.	DATE	
PROD.	DATE	
FIRST USED ON: VC12		SIZE: D / CODE: BS / NUMBER: VC12-Ø-DSI / REV.: ØØ
SCALE		
SHEET 1 OF 1		DIST.



NOTE:
HAND WIRING LIST BELOW REQUIRED BEFORE INSTALLING INTO THE PDP-12

WIRE LIST

SIGNAL	FROM	TO	ADD	DELETE
DSC 503 WTEN L	MΦ2B2	MΦ3N2		X
GND	RΦΦU2	RΦΦC2		X
DSC BUSY H	D39U1	D37N2		X
+5V	HΦ1R2	HΦ3R2		X
INS N EQ Φ7 H	L29P1	MΦ2B2	X	
INS N EQ Φ6 H	L29H1	HΦ1U2	X	
INS N EQ Φ5 H	D36R2	RΦΦU2	X	
SKL I SENSE L	KΦΦK1	HΦ1R2	X	
DSC BUSY H	D39 U1	D36 L1	X	

D36
M7601

REVISIONS		
CHK	CHANGE NO.	REV
	VC12C-00001	A
K Tatum 11-3-71		
F STRAIGHT		
F Straight 11-5-71		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VC12-C		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
XXX = .005 .XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —//—

FINISH —//—

DRN.	DATE	30 Jun 71
CHK'D	DATE	8/13/71
ENG.	DATE	8/16/71
PROJ. ENG.	DATE	8/16/71
PROD.	DATE	8/19/71

NEXT HIGHER ASSY. —//—

SCALE NONE

SHEET OF

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
COLOR SCOPE CONTROL

SIZE	CODE	NUMBER	REV.
D	CS	VC12-C-COL	A

DIST.

DEC FORM NO
DRD 102-B

SIZE D CS CODE VC12-C-COL NUMBER REV A

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 9/24/69

TITLE VC12 SPECIFICATIONS

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

GENERAL

The VC12 Scope Control consists of electronic circuitry designed to convert digital voltage levels into analog voltages for application to the input amplifier circuitry of suitable CRT display scopes. Timing and logical circuitry designed to permit the display of information derived from the PDP-12 central processor and memory asynchronously in either of two modes, Point Plotting or Character Display, is provided.

INSTRUCTIONS

DIS mnemonic 140+20I+α

DSC mnemonic 1740+20I+β

DIGITAL TO ANALOG CONVERTER

VOLTAGE RANGE

Condition: digital input = 000_8 Ø v ± .3 v

digital input = 777_8 -5.85 v ± .3 v

DEFINITION

The output voltage range is divided into 512 equal parts ± 1/2 part.

TEMPERATURE STABILITY

.02% / ^{o}C

ENG	APPD	SIZE	CODE	NUMBER	REV
R. L. Douglas	L. Gale	A	SP	VC12-0-5	

DEC FORM NO. DRA 107

ENGINEERING SPECIFICATION

digital CONTINUATION SHEET

TITLE VC12 SPECIFICATIONS

TOTAL TRANSITION TIME

.3% of maximum voltage transition 5 μsec + 25 nsec/ft. of output cable length

DC OUTPUT IMPEDANCE

100 Ω min. -- 200 Ω max.

WORST CASE LOAD CONDITIONS

1 KΩ min in parallel with 5000 pf max.

MAXIMUM CABLE LENGTH

200 ft.

DIGITAL CIRCUITRY

Input Conditions: 2 TTL unit load at the data input from processor registers.

Other digital signals are generated on the M711 logical control circuit.

DISPLAY CHARACTER

Two additional register elements, drivers, and weighted resistors are provided to add the weighted values of 2 increments and 4 increments under control of the M711.

LOGICAL CONTROL CIRCUITRY

INPUT LOADS

TS5	3 TTL unit loads
EXECUTE B(1)	1 TTL unit load
DIS	1 TTL unit load
DSC	1 TTL unit load
DIS + DSC	1 TTL unit load
PIE DSC • EXECUTE 2	2 TTL unit loads
PRFAC(4)1	1 TTL unit load

SIZE	CODE	NUMBER	REV
A	SP	VC12-0-5	

DEC FORM NO DRA 108

OUTPUT DRIVE CAPABILITIES

BUSY H	10 TTL unit loads
BUSY L	8 TTL unit loads
Intensify H	10 unit loads if pol switch -
Intensify L	10 unit loads if pol switch +
Intensify A*	20 ma to +3 v
	8 ma to Ø v

* Intensify A is a push pull driver exhibiting 100 (nominal) drive impedance to ground or plus five volts. The polarity switch allows change of pulse polarity by connecting the input to the driver to either Intensify H or Intensify L outputs. The output has an integrator circuit built in to limit rise and fall time effects on the analog output.

INTENSIFICATION PATTERN REGISTER

BUFFER SIZE AND TYPE

12 bit shift register

NATURE OF LOAD SOURCE

1's transfer from memory buffer

INSTRUCTION EXECUTION TIME

DIS: $< 27 + a\,\mu sec$ where a = .5 μsec if width switch is MIN position or
a = 10 μsec if width switch is MAX position.

DSC: $< 27.5 + 1.5a + 2.5b + .5b$

where a = number of non intensified points **
b = number of intensified points ***

** The PRR switch sets the time between intensification pulses during the execution of the DSC instruction.

Thus, the third term of the DSC time formula should read as written if the PRR switch is in FAST position or +7.6b for the PRR switch in SLOW position.

*** The WIDTH switch sets the width of the intensification pulse.

Thus, the fourth term of the DSC should read as written if the WIDTH switch is MIN or + 10b if the WIDTH switch is set to MAX position.

TIMING MODE

Asynchronous

NOTE: Execution times indicate the actual duration of execution of the display instructions; because of the asynchronous nature of the VC12 control the processor is free to execute other nondisplay instructions after 3.2 μsec for DIS instructions or 4.8 μsec for DSC instructions.

The PDP-12 processor will pause if instructed to execute a display instruction before completion of a previous display instruction unless forced to abort completion of the first display instruction in favor of execution of the second instruction by the assertion of a tape interrupt.

LOGICAL FUNCTION of VC12 shall be as illustrated on prints

FD-PDP12-Ø-17
FD-PDP12-Ø-18
FD-PDP12-Ø-2Ø
FD-VC12-Ø-4

CHARACTER DISPLAY

CHARACTER SIZE

Defined by a flip flop storage element in conjunction with circuitry in the logical control and Digital to Analog Converter modules.

The flip flop storage element is jam loaded from the contents of AC bit 4 by pulses produced during the execution of ESF instruction (Code ØØØ4). $C(AC_4)$ = 1 indicates half size.

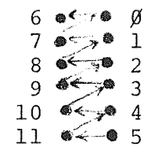
POINT INCREMENT SIZE

Half size: 24 mv. ±3 mv.*

Full size: 48 mv. ±5 mv.*

* On a VR12 adjusted to display a 6.75 inch by 9 inch image, half size character point increments shall be .026 inches on the vertical axis and .035 inches on the horizontal axis; and full size character point increments shall be .052 inches on the vertical axis and .070 inches on the horizontal axis.

THE ANALOG CIRCUITRY, CONTROL AND PATTERN INTENSIFICATION REGISTERS shall be constructed that the beam will be directed on the CRT to two parallel 6 point lines, the points of which are to be intensified by a 1 in the appropriate memory bit as indicated in the diagram below.



DISPLAY CHANNEL

A flip flop storage element shall be provided to apply to an appropriate output pin a digital voltage capable of driving up to 10 TTL gate input loads.

Load Source (channel flip flop) bit Ø of the alpha register referenced if a DIS instruction, or memory loc ØØØ1 if a DSC instruction.

"AND" logic gates must be provided at the CRT display logically select the intensification pulses defined to coincide with the analog points to be displayed on either channel as defined by the logic level.

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

SOFTWARE LIST

MADE BY Fred STRAIGHT DATE 10-5-71	CHECKED Fred Straight DATE 10-5-71	SECTION
ENG Fred Straight DATE 10-5-71	PROD M. Conroy DATE 10-7-71	ISSUED SECT.

LEGEND

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

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION VC12-C	KIT CHECK BY ____ DATE ____	INSTALLATION CHECK BY ____ DATE ____
	MAINDEC-12-D6BC-D	VR14/VR20 MAINTENANCE DIAGNOSTIC WRITE UP	1		
	MAINDEC-12-D6BC-PB	VR14/VR20 MAINTENANCE DIAGNOSTIC BINARY	1		

TITLE VC12 COLOR CONTROL	ASSY. NO. SHEET 1 OF 1	SIZE A / CODE SL / NUMBER VC12-C-2	REV.	ECO NO
		DIST.		

DEC FORM NO.
DRA 120

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE SEPT.21,1971

TITLE VC12-C SPECIFICATIONS

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG	APPD	SIZE	CODE	NUMBER	REV
Fred Straight 9/71	7/26/71	A	SP	VC12-C-1	

GENERAL DESCRIPTION

The VC12-C VR20 Color Display Control is a one module option to the PDP-12 computer. It adds the logic to the VR14 scope control (VC12-Ø) necessary to operate a VR20 two Color Display.

The following ECO's are required before installation of the VC12-C:

ECO	Description
EM12-ØØØ39	Change wiring to scope portion of EM12.
12-ØØØ96	Adds required wiring to internal scope cable 7006238 and BC12A
EM12-ØØØ51	Adds required wiring to EM12.

PROGRAMMING

There are four instructions unique to the VC12-C option. A summary of these is given below. For reference the standard VR14 display instructions* are described also.

*Reference Specification A-SP-VC12-Ø-5

VC12-C INSTRUCTION SUMMARY (LINC MODE)

MNEUMONIC	CODE	DESCRIPTION
ESF	ØØØ4	If the accumulator =14 the ESF instruction will set the VR20 to red mode. If the AC=1Ø the green mode will be set. I/O preset sets the green mode.
RSKP	447 + 20I	Skip on red mode if I=Ø Skip on green mode if I=1
DSKP	446 + 20I	Skip on color not ready if I=Ø Skip on color ready if I=1 Used after the ESF instruction to indicate the VR20 has switched colors

VC12 INSTRUCTIONS (REFERENCE)

MNEUMONIC	CODE	DESCRIPTION
DIS	140 + 20I + α	Display a dot. If I=Ø the contents of the α register is the horizontal coordinate. If I=1 the contents of α incremented by one is the horizontal coordinate. If bit Ø of the contents of α = Ø channel 1 is set. If bit Ø=1 channel 2 is set. In all cases the AC holds the vertical coordinate
DSC	174Ø + 20I + β	Display character instruction displays at 2 x 6 dot matrix. The address of the pattern word is either taken from the contents of β, (I=Ø) or contents of β + 1, (I=1)

NOTE:

Previous to this option linc codes Ø466 and Ø467 were implied unconditional skips. Any programs that use these codes and are to be customer modified to utilize the color scope will require redefining these codes.

Programs written on the dial assembler are unaffected because dial defines the skip as Ø456.

PROGRAM EXAMPLE

This routine illustrates a method of displaying two dots at center screen on the VR20. One dot will be in green on channel 1, the other in red on channel 2.

```
MNEUMONIC          ADDRESS/CONTENTS      COMMENT

        *20
Start,  LDA          4Ø2Ø/1ØØØ      /Store Address,
        XADD1        4Ø21/ØØ45      /of X Coordinate,
        STC ALPHA    4Ø22/4ØØ2      /into the α register
        LDA I        4Ø23/1Ø20      /Put green mode,
        1Ø           4Ø24/ØØ10      /No. into AC.
        ESF          4Ø25/ØØØ4      /set green mode.
        DSKP I       4Ø26/Ø466      /done switching green?
        JMP.-1       4Ø27/6Ø26      /no wait.
        CLR          4Ø3Ø/ØØ11      /set vertical coord.=Ø
        DIS ALPHA    4Ø31/Ø142      /display a green dot.
        LDA          4Ø32/1ØØØ      /Store address of,
        XADD2        4Ø33/ØØ46      /X coord. plus channel,
        STC          4Ø34/4ØØ2      /2 Into the α register.
        LDA I        4Ø35/1Ø2Ø      /Put red mode no.,
        14           4Ø36/ØØ14      /into the AC.
        ESF          4Ø37/ØØØ4      /set red mode.
        DSKP I       4Ø4Ø/Ø466      /Done switching to red?
        JMP.-1       4Ø41/6Ø4Ø      /No wait.
        CLR          4Ø42/ØØ11      /set vertical coord=Ø.
        DIS ALPHA    4Ø43/Ø142      /Display A red dot.
        JMP START    4Ø44/6Ø2Ø      /Do it all again.

XADD1,  14ØØ         4Ø45/14ØØ      /X coord. Chan 1
XADD2,  54ØØ         4Ø46/54ØØ      /X coord. Chan 2

ALPHA =2                            /defined for assembler
DSKP  =446                          /
```

GENERAL SPECIFICATIONS

NOMINAL COLOR SWITCHING DELAYS:

Red to Green	1.6 MS
Green to Red	.3 MS

DETAILED DESCRIPTION

The M7601 module is utilized only when changing or testing color status on the VR20.

Initially "IOC I/O presset L" sets the pre-color flip-flop to the green mode. The first instruction following sets the scope to green via signal "CoL Busy + TP5" The color flip-flop is part of the A615 D/A module located in slot F36. When a program color change is initiated "RcL LD MSC 4 H" toggles the pre-color flip-flop. The one shot applicable to the color change is triggered and at TP5 time (if no display in progress) the color flip-flop is set to the desired mode. The VR20 scope starts changing color. During this period no display is allowed because "CoL DSC Busy H" is asserted for the length of the delay. Any attempt at displaying will hang the processor in internal pause.

The active one-shot enables the other input to the "INS N EØ 6 H" gate and the instruction Ø446 will cause a skip. At any time, the "INS or EQ Ø7 H" gate reflects the color the scope is in, and can be sampled by the Ø447 instruction.

INSTALLATION AND ACCEPTANCE

1. Insure ECO's EM12-ØØ39, EM12-ØØØ51 and 12-ØØØ96 are installed.

2. Install red wires as per the hand wiring list on print D-CS-VC12-C-CoL.

3. Install the M7601 module into slot D36.

4. Adjust the delays at pin D36B1 for 1.6 MS (red to green) and .3MS (green to red). Use main DEC 12-D6BC or the sample program attached.

5. The VC12-C will be considered acceptable upon successful completion of mainDEC 12-D6BC.

MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
A-ML-EP12-0	REF	2	PROCESSOR
D-MU-EP12-0-1	REF	2	MODULE UTILIZATION PROC.
A-PL-EP12-0-1	REF	3	MODULE UTILIZATION PROC. (PL)
D-BS-KF12-0-CON	B	1	CONTROL GATING
D-BS-KF12-0-I01	B	1	IOT GENERATOR
D-BS-KF12-0-MAIN		1	MAINTENANCE
D-BS-KF12-0-MUX	D	1	MULTIPLEXER CONTROL
D-BS-KF12-0-MUX1		1	MUX API
D-BS-KF12-0-MUX2		1	MUX DEVICE 1
D-BS-KF12-0-PA1	A	1	PRIORITY LEVELS IN
D-BS-KF12-0-PA2		1	PRIORITY DECODING
D-BS-KF12-0-PTRS		1	STACK & VECTOR POINTERS
D-BS-KF12-0-PUSH		1	PUSH GATING
D-BS-KF12-0-RES	B	1	RESTORE GATING
D-BS-KF12-0-SSB		1	SAVE STATUS BITS
D-IC-KF12-0-CAB		1	BREAK DEVICE CABLE
D-FD-KF12-0-MRG	A	1	MAJOR REGISTER GATING
D-FD-KF12-0-FD	A	1	FLOW DIAGRAM
D-FD-KF12-0-FDBF		1	BLOCK FLOW
D-FD-KF12-0-FDVG		1	VECTOR GATING
A-SP-KF12-0-1	REF		ENGINEERING SPECIFICATIONS

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
A	0671	EP12-40	D.M.
B	8/71	EP12-42	R.M.
C	10/71	EP12-43	R.M.
D	1/72	EP12-~~44~~	R.M.
E	7/72	EP12-46	R.I.

DRN. E.WILSON	DATE 3/17/71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D.	DATE 5-21-71	
ENG.	DATE 5-21-71	
PROJ/ENG.	DATE 5-21-71	
PROD.	DATE 5/21/71	
FIRST USED ON PDP12		TITLE AUTOMATIC PRIORITY INTERRUPT
SCALE		SIZE A · CODE ML · NUMBER KF12-0 · REV. E
SHEET 1 OF 1		DIST.

DEC FORM NO. DRA 103

CPTP TP2 H A1 / CON PUSH (Ø) H B1 / CON RESTORE (Ø) H C1 → M135 P06 (D1, S2) → M611 R32 (T2) → CON CLOCK PRIORITIES H

SET OSC TO 5 MHz

M401 P28 (K2, J2, E2, D2, M2, N2, R2, S2, T2, P2) → CON CLOCK L / CON CLOCK H

CON PUSH (Ø) H A1 / CON RESTORE (Ø) H B1 / CPS FETCH (1) H C1 / CPTP TP3 H D1 / PA2 PRIORITY OK H D2 / IO1 API ON (1) H E2 / +3V P29 U/H F2 / H2 → M139 P29 (J2) → CON INTERRUPT (1) L

CON CLOCK H H1 / CON ADV (1) H J1 → M133 P30 (K1, J1) → M611 R32 (K1) → CON CLOCK PULSE H

CON CLOCK PULSE L

RCD SAVE PC (1) L H1 / MPS INT INHIBIT (Ø) L J1 → M112 R29 (K1) → CON NOT CPU CRIT H

CON BRK DONE (1) L F1 / PUSH SKIP ENAB & L H1 / RES DEC PT Ø L J1 / IO1 IO PRESET L K1 → M627 R31 (L1, F2) → M207 R34 CON ADV (J, I, C, K, Ø; H2, J2, D2, E2, A1)

+3V R29 V/H

+3V R31 V/H

CON INTERRUPT (1) L H1 / IO1 PJUMP (1) L J1 → M133 R30 (K1) → M611 R32 (U2, V2) → CON SET PUSH L

CON SET PUSH H

MPS MEM EXT H

INS LIF L / P2 / R2 → M133 P30 (S2, M1) → M112 R29 (N1) → CON IF OR DF L

INS MSC H H2

INS LDF L → M133 R30 (K2) → CON DJR L

INS N EQ 6 H J2

CON SET PUSH L H2 → M205 R33 CON PUSH (F2, D, I, J2, K2, C, Ø, E2, J2, K2)

IO1 IO PRESET H

CON RESTORE (1) H A1 / CON ENAB 6 H B1 → M112 R29 (C1) → D2

*M906 P28

CON PUSH (1) H C1 / CON RESTORE (1) H F1 — INTERNAL GND

IO1 IOT RESTORE L P2 → M205 R33 CON RESTORE (N2, D, I, R2, S2, C, Ø, M2, L2)

IO1 IO PRESET H

CON ENAB 6 L

** NOTE
1. TRAILING EDGE OF API ADD ACC(1)L SETS BRK DONE FLOP.
* M906 INSTALLED IN P28 WHEN KF12 NOT INSTALLED.

+3V R31 U/H → T2 / S1 → M205 R33 CON BRK DONE (D, I, U2, V2, C, Ø, P1)

** MUX1 API ADD ACC(1)L R1

CON CLOCK PULSE H D2 / IO1 IO PRESET H E2 → M112 R29 (F2) → CON RESET BRK DONE L

L2 / M2 → M155 R36 DECODER (D-2⁴, C-2³, B-2¹, A-2⁰)

E1, F1 → M105 L30 4 BIT UP/DOWN COUNTER (D2, E2, K1, J1, LD, CLR, Q D, Q C, Q B, Q A, DWN; F2, H2, L1, L2; K1, J1, H1, F1; J2, K2)

+3V R31 U/H J1 / CON FETCH CLR H H1

CON CLOCK PULSE L

L1	CON ENAB Ø L	M1 CON ENAB Ø H
S1	CON ENAB 1 L	L2 CON ENAB 1 H
R1	CON ENAB 2 L	P1 CON ENAB 2 H
P1	CON ENAB 3 L	S1 CON ENAB 3 H
N1	CON ENAB 4 L	R2 CON ENAB 4 H
M1	CON ENAB 5 L	V1 CON ENAB 5 H
T2	CON ENAB 6 L	

M611 R32

CON API BRK REQ (1) H K2 / CON NOT CPU CRIT H L2 / ∿CON IF OR DF H M2 / ∿CON DJR H N2 → M627 R31 (P2) → CON API REQ OK L

P1 / R1 → M133 P40 (S1) → CON ENAB 6 H

CPS FETCH (1) H A1 / CPT TS 3 (1) H B1 → M133 R30 (C1) → M611 R32 (H2, J2) → CON FETCH CLR H

CON FETCH CLR L

CON API BRK REQ L

CON PUSH (1) H D1 / CON RESTORE (1) H E1 → M112 R29 (F1) → M611 R07 (K2, L2) → M216 P31 CON API BRK REQ (T2, D, I, V1, V2, C, Ø, S2, V2, U2)

+3V R31 U/H K2

CON API BRK REQ H

CON ENAB 5 H K2 / MUX1 API ADD ACC(1) H L2 → M121 P36 (M2, N2, P2)

+3V P38 V/H M2 / IO1 IO PRESET H N2

CON CLR BRK REQ L

REVISIONS	REV	CHANGE NO	CHK
	A	EP12-0004A	MOORE 5-14-72
	B	EP12-0004B	IKNAIAN 5-14-72

DEC FORM NO. 9D 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005 / .XX = .02 / X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —

FINISH —

DRN.		DATE 3-5-71
CHK'D.		DATE
ENG.		DATE
PROJ. ENG.		DATE
PROD.		DATE

NEXT HIGHER ASSY. A-VL-KF12-Ø

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: CONTROL GATING

SIZE	CODE	NUMBER	REV.
D	BS	KF12-Ø-CON	B

DIST

6760
5000

IOO BMB Ø3 (1) H PD2
IOO BMB Ø4 (1) H PE2
IOO BMB Ø5 (1) H PF2
IOO BMB Ø6 (1) H PH2
IOO BMB Ø7 (1) H PJ2
IOO BMB Ø8 (1) H PK2
+3V PØ7 U1 H RD2
RE2
PD1 — IO1 DEV 77 H

M611 PØ8
IO1 IOT 3-1 L D1 — E1 — IO1 RFLD H
IO1 IOT 4-4 L F1 — H1 — IO1 R STACK H
IO1 IOT 5-1 L E2 — F2 — IO1 RVELTR H
IO1 IOT 2 L J1 — K1 — IO1 IOT SET LEV H

IO1 IOT 5Ɛ 3Ɛ 4 H
IO1 IOT 5-1 L J2
IO1 IOT 3-7 L K2
IO1 IOT 4 L L2
M135 PØ6 — M2 — N1 — M611 PØ8 — P1 — RF2 — M7Ø7 PR12 — RP7 — EXT AC CLEAR BUS L
+3V PØ7 U1 — PV2

M7Ø7 PR12
IOO BIOP 1 H PM2 — RH2 — IO7 RESTORE L
IOO BIOP 2 H PN2 — RM2 — IO1 IOT 2 L
IOO BIOP 4 H PP2 — RJ2 — IO1 IOT 3-1 L
IOO BMB Ø9 (1) H PA1 — RN2 — IO1 IOT 3-2 L
IOO BMB 1Ø (1) H PB1 — RS2 — IO1 IOT 4-4 L
RK2 — IO1 IOT 5-1 L
RT2 — IO1 IOT 5-4 L
RP2 — IO1 IOT 6-2 L
RU2 — IO1 IOT 6-4 L
RL2 — IO1 IOT 7-1 L
RR2 — IO1 IOT 7-2 L
IOO BMB 11 (1) H PC1 — RV2 — IO1 IOT 7-4 L

IOO BMB Ø3 (1) H M1
IOO BMB Ø4 (1) H N1
IOO BMB Ø5 (1) H P1
IOO BMB Ø6 (1) H R1
IOO BMB Ø7 (1) H R2
IOO BMB Ø8 (Ø) H S2
INS IOT H T2
CPT IOT PAUSE (1) H U2
M139 P29 — V2 — IO1 PUSH JUMP L

PRE MB Ø9 (Ø) H D2
IOO BMB 1Ø (1) H E2
M133 PØ7 — F2 — H1 — M133 PØ7 — K1
PRF MB 11 (1) L J1

IOO BMB 1Ø (1) H D2
IOO BMB Ø9 (1) H E2
PRF MB 11 (Ø) H F2
IO1 PROC IOT H H2
M627 RØ2 — J2 — IO1 API ON L

IO1 API OFF L
H2 — M133 PØ7 — K2
J2

IOC PROC IOT L A1 — M611 PØ8 — B1 — IO1 PROC IOT H

IO1 IOT 7-1 L P1
IO1 API ON (Ø) L R1
M112 R29 — S1 — L1 — M611 PØ8 — M1 — IO1 LD VECTOR L

IO1 IOT 6-2 L P2
IO1 API ON (Ø) L R2
M112 R29 — S2 — K2 — M611 PØ8 — L2 — IO1 LD STACK L

IO1 IOT 2 L L2
IO1 API ON (Ø) L M2
M112 R29 — N2 — L1 — M133 PØ7 — N1 — IO1 LD STACK-VEC FLOL
IOO BAC Ø7 (1) H M1

IOC IO PRESET L U2
M611 PØ4 — V2 — IO1 IO PRESET H
P2 — M611 PØ8 — R2 — IO1 IO PRESET L
V1 — M611 P37 — U1 — IO1 IO PRESET BUFL

IO1 API ON L D1
C1 — M2Ø5 R33 IO1 API ON — E1 — F1
IO1 IO PRESET H B1
C — Ø
IO1 API OFF L A1

IO1 PUSH JUMP L
K1 — M2Ø5 R33 IO1 PJMP — M1 — N1
J1 — L1
C — Ø
CON CLR BRK REQ L H1

M734 PRI3
PD2 PE2 PF2 PH2 PJ2 PK2
IO1 IOT 5Ɛ 3Ɛ 4 H
IO1 RFLD H PM2
IO1 R STACK H PN2
IO1 RVECTR H PP2
PA1 IO1 EN WORD A H
PB1 IO1 EN WORD B H
PC1 IO1 EN WORD C H

PTRS STACK ØØ (Ø) H PF1 — Ø
PTRS STACK Ø1 (Ø) H PH1 — 1
PTRS STACK Ø2 (Ø) H PJ1 — 2
PTRS VELTOR ØØ (Ø) H PK1 — 3 — WORD A
PTRS VELTOR Ø1 (Ø) H PL1 — 4
PTRS VELTOR Ø2 (Ø) H PM1 — 5
+3V PØ7 U1 H PN1 — 6 — M734
+3V PØ7 U1 H PP1 — 7
~ PA2 PRES LEV 3 H PR1 — 8
~ PA2 PRES LEV 2 H PS1 — 9
~ PA2 PRES LEV 1 H PU1 — 1Ø
~ PA2 PRES LEV Ø H PV1 — 11
I/O BUS

PTRS STACK Ø3 (Ø) H PD1 — Ø
PTRS STACK Ø4 (Ø) H PE1 — 1
PTRS STACK Ø5 (Ø) H PR2 — 2
PTRS STACK Ø6 (Ø) H PS2 — 3 — WORD B
PTRS STACK Ø7 (Ø) H PT2 — 4
PTRS STACK Ø8 (Ø) H PU2 — 5
PTRS STACK Ø9 (Ø) H PV2 — 6 — M734
PTRS STACK 1Ø (Ø) H RD2 — 7
PTRS STACK 11 (Ø) H RE2 — 8
PTRS STACK 12 (Ø) H RF2 — 9
PTRS STACK 13 (Ø) H RU1 — 1Ø
PTRS STACK 14 (Ø) H RV1 — 11
I/O BUS

PTRS VECTOR Ø3 (Ø) H RH2 — Ø
PTRS VECTOR Ø4 (Ø) H RJ2 — 1
PTRS VECTOR Ø5 (Ø) H RK2 — 2 — WORD C
PTRS VECTOR Ø6 (Ø) H RL2 — 3
PTRS VECTOR Ø7 (Ø) H RM2 — 4
PTRS VECTOR Ø8 (Ø) H RN2 — 5
PTRS VECTOR Ø9 (Ø) H RP2 — 6 — M734
~ PA1 LSB SEL H RR2 — 7
PA2 TRAIL 2 H RS2 — 8
PA2 TRAIL 1 H PT2 — 9
PA2 TRAIL Ø H RU2 — 1Ø
+3V PØ7 U1 RV2 — 11
I/O BUS

RAI — EXT I/O BUS ØØ L
RBI — EXT I/O BUS Ø1 L
RCI — EXT I/O BUS Ø2 L
RDI — EXT I/O BUS Ø3 L
REI — EXT I/O BUS Ø4 L
RFI — EXT I/O BUS Ø5 L
RHI — EXT I/O BUS Ø6 L
RJI — EXT I/O BUS Ø7 L
RKI — EXT I/O BUS Ø8 L
RLI — EXT I/O BUS Ø9 L
RMI — EXT I/O BUS 1Ø L
RNI — EXT I/O BUS 11 L

REVISIONS	REV
CHANGE NO EP12-00044	A
CHK MOORE	
1 APR 72	
# EP12 DOC 4E	1-
1 APR 72	
IKNAIAN	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX = .005, XX = .02, X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

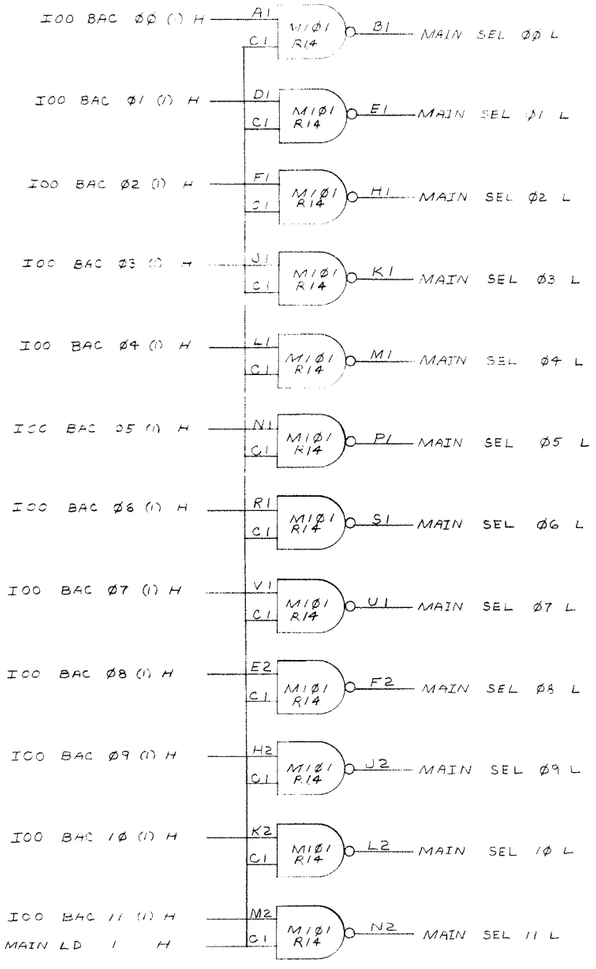
DRN. M. Brown — DATE 5-2-71
CHK'D — DATE
ENG. — DATE
PROJ. ENG. — DATE
PROD. — DATE

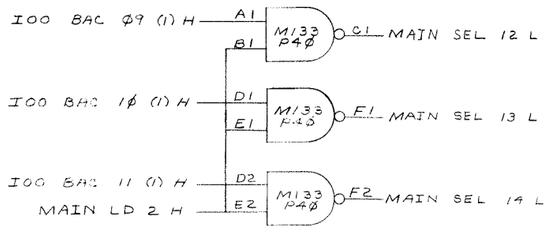
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

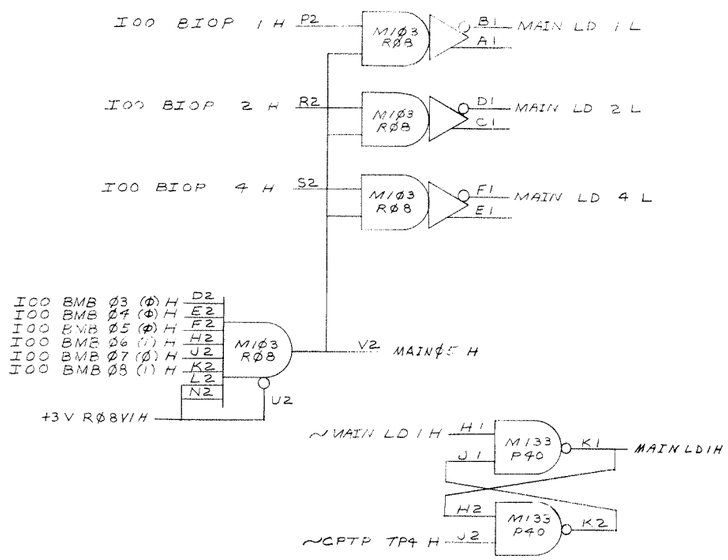
TITLE: IOT GENERATOR

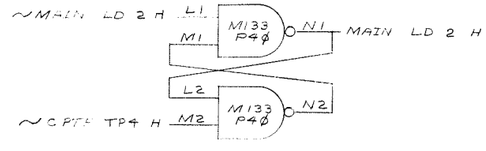
NEXT HIGHER ASSY. A-ML-KF12-Ø
SCALE
SHEET 1 OF 1
SIZE D | CODE BS | NUMBER KF12-Ø-IO1 | REV. B
DIST.

DEC FORM NO. DRD 102-B









FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX = .005, XX = .02, X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY ✓

DRN.	DATE	2-23-71
CHK'D	DATE	
ENG.	DATE	
PROJ. ENG.	DATE	
PROD.	DATE	

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

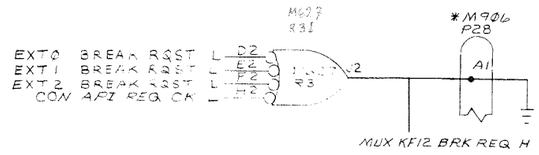
TITLE: MAINTENANCE

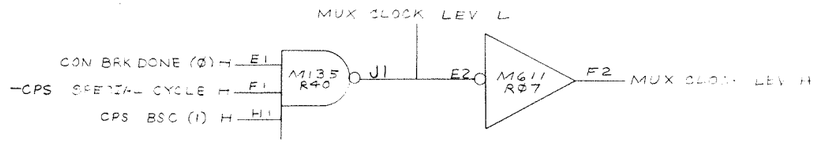
MATERIAL
FINISH
NEXT HIGHER ASSY: A-MI-KF12-C
SCALE
SHEET 1 OF 1

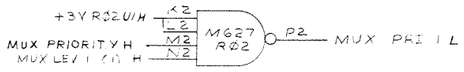
SIZE D | CODE BS | NUMBER KF12-C-MAIN | REV.
DIST.

REVISIONS: REV | CHANGE NO | CHK

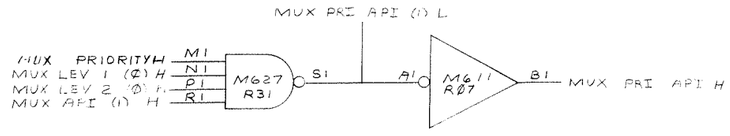
SIZE D | CODE BS | NUMBER KF12-O-MAIN | REV

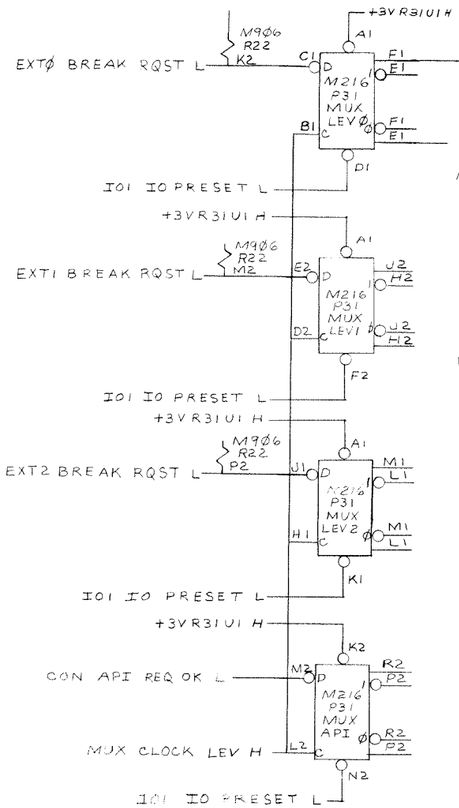


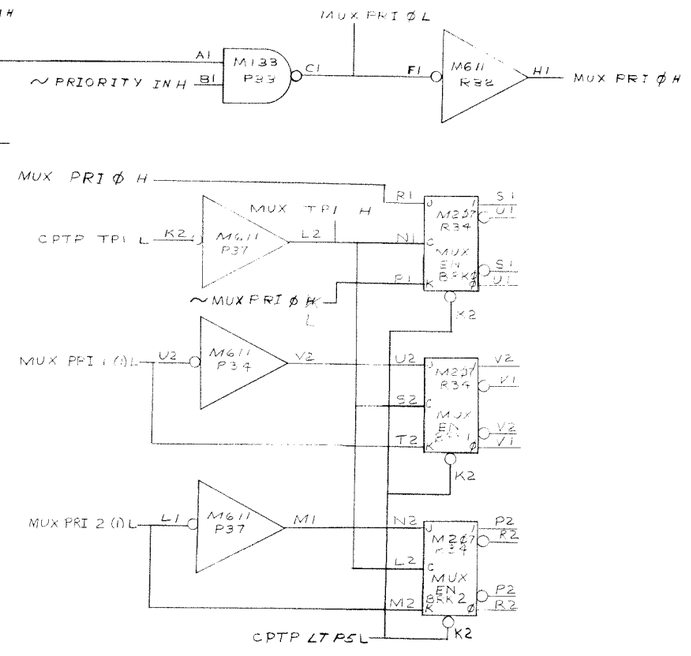


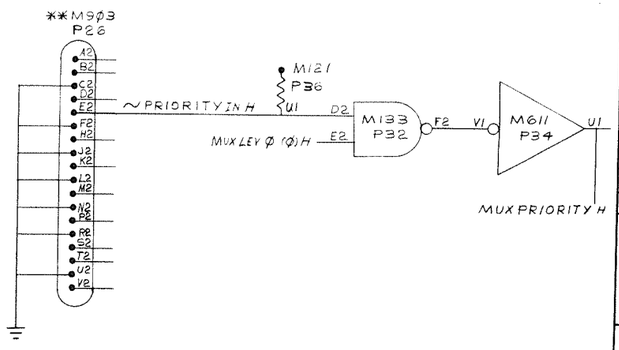


NOTE:
1. *M906 INSTALLED IN P28 WHEN KF12 NOT INSTALLED.
2. **CABLE FROM DMØ4.









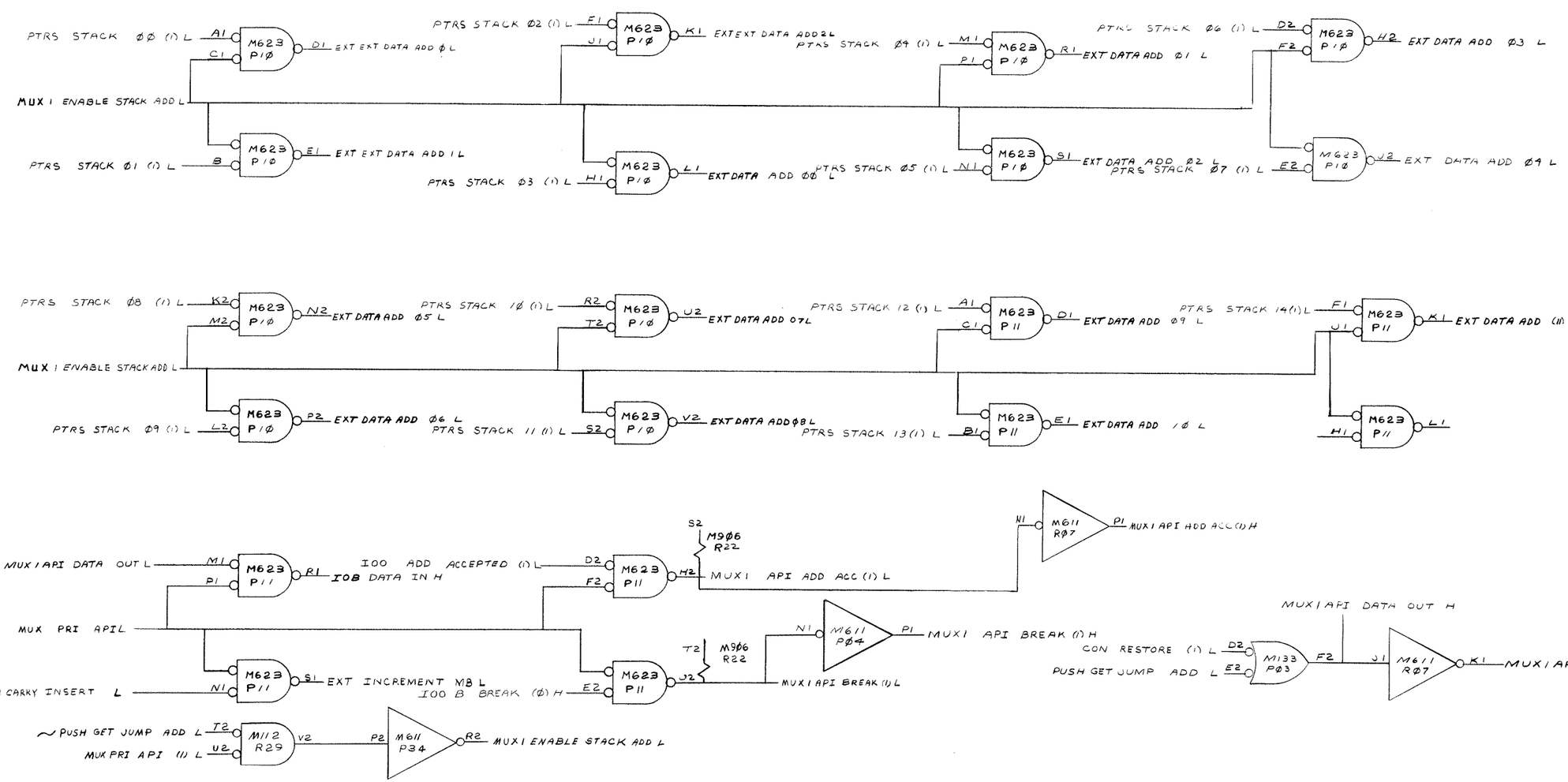
REVISIONS	REV	CHK	
CHANGE NO EP12-00040	A		M. Gorman 6-22-71
MACKLIN			M. Gorman 6-28-71
EP12-00042	B		[illegible] 7-8-71
RMOORE			M. Gorman 9-9-71
EP12-00044	C		[illegible] 2-14-72
MOORE			[illegible] 2-14-72
EP12-00046	D		[illegible] 4-4-72
IKNAIAN			[illegible] 4-7-72

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005, .XX = .02, .X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

DRN. E. Wilson	DATE 3-5-71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. [illegible]	DATE 3-1-71	
ENG. [illegible]	DATE 3-1-71	TITLE MULTIPLEXER CONTROL
PROJ. ENG. [illegible]	DATE 3-1-71	
PROD. [illegible]	DATE 3-2-71	
MATERIAL	NEXT HIGHER ASSY. A-ML-KF12-7	SIZE D, CODE BS, NUMBER KF12-Ø-MUX, REV. D
FINISH	SCALE	
	SHEET OF	DIST.

DEC FORM NO DRD 102-B



REVISIONS	CHANGE NO.	REV

FIRST USED ON OPTION/MOD	PDP12
UNLESS OTHERWISE SPECIFIED	
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	
MATERIAL	
FINISH	

PARTS LIST

QTY.	DESCRIPTION	PART NO.	ITEM NO.

DRN. M-Goines	DATE 3-23-71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D.	DATE	
ENG.	DATE	
PROJ. ENG.	DATE	
PROD.	DATE 4/21/71	
NEXT HIGHER ASSY	A-ML-KF12-Ø	
SCALE		
SHEET 1 OF 1		

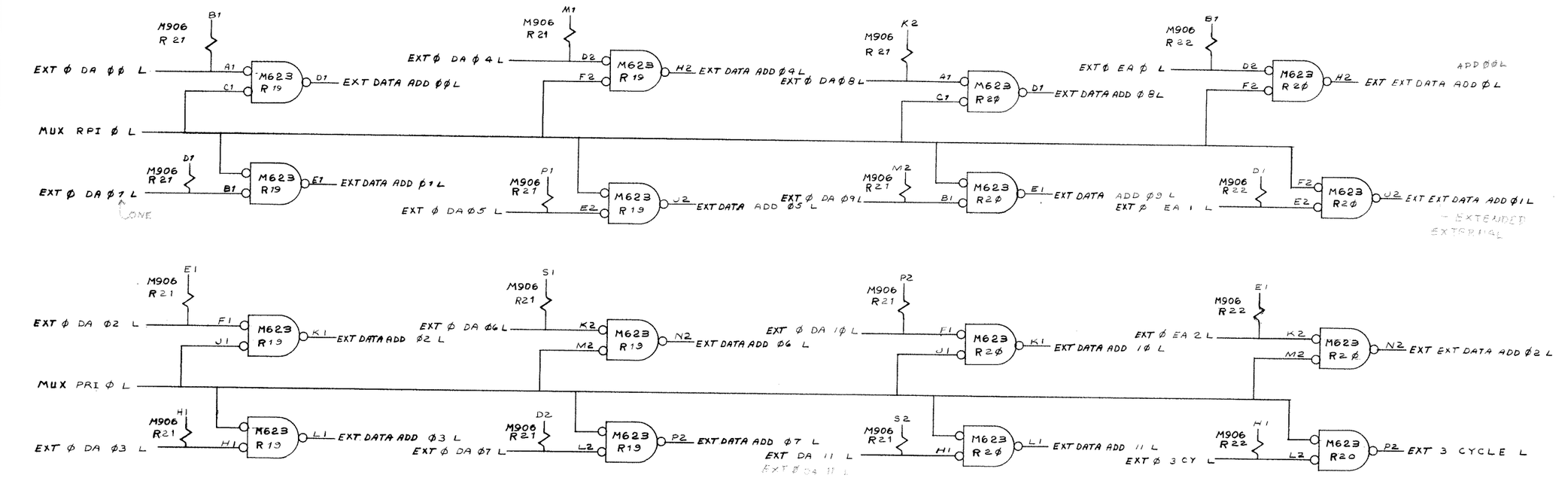
TITLE: CHANNEL-MULTIPLEXER MUX-API

SIZE	CODE	NUMBER	REV
D	BS	KF12-Ø-MUX 1	

DIST.

SIZE	CODE	NUMBER	REV
D	BS	KF12-Ø-MUX	

DEC FORM NO DRD 102A



REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP12		PARTS LIST		

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

MATERIAL

FINISH

DRN. M. Doiron	DATE 2-23-71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. Ben Cain	DATE 3-11-71	
ENG. Ed Solomon	DATE 3-11-71	TITLE: CHANNEL-MULTIPLEXER
PROJ. ENG. Ben Cain	DATE 3-11-71	
PROD. R Peterson	DATE 3/11/71	
NEXT HIGHER ASSY: A-ML-KF12-Ø		SIZE D CODE BS NUMBER KF12-Ø-MUX2 REV
SCALE		DIST.
SHEET 1 OF 1		

DEC FORM NO. DRD 102A

MAIN SEL ØØ L
EXT LEV Ø L
M ØØ2 R15 D2 F2
M2Ø5 R37 PAI LEV Ø
D2 K2 J2 E2 H2
IOI IO PRESET BUF L

MAIN SEL Ø5 L
EXT LEV 5 L
M ØØ2 R15 K2 F2
M2Ø5 R38 PAI LEV 5
D2 K2 J2 E2 H2

MAIN SEL 1Ø L
EXT LEV 1Ø L
M ØØ2 R15 R2 F2
M2Ø5 R39 PAI LEV 1Ø
D2 K2 J2 E2 H2

MAIN SEL Ø1 L
EXT LEV 1 L
M ØØ2 R15 E2
M2Ø5 R37 PAI LEV 1
L2 N2 S2 R2 M2 P2
IOI IO PRESET BUF L

MAIN SEL Ø6 L
EXT LEV 6 L
M ØØ2 R15 L2
M2Ø5 R38 PAI LEV 6
L2 N2 S2 R2 M2 P2

MAIN SEL 11 L
EXT LEV 11 L
M ØØ2 R15 S2
M2Ø5 R39 PAI LEV 11
L2 N2 S2 R2 M2 P2

MAIN SEL Ø2 L
EXT LEV 2 L
M ØØ2 R15 F2
M2Ø5 R37 PAI LEV 2
P1 S1 V2 U2 R1 T2
IOI IO PRESET BUF L

MAIN SEL Ø7 L
EXT LEV 7 L
M ØØ2 R15 M2
M2Ø5 R38 PAI LEV 7
P1 S1 V2 U2 R1 T2

MAIN SEL 12 L
EXT LEV 12 L
M ØØ2 R15 T2
M2Ø5 R39 PAI LEV 12
P1 S1 V2 U2 R1 T2

MAIN SEL Ø3 L
EXT LEV 3 L
M ØØ2 R15 H2
M2Ø5 R37 PAI LEV 3
A1 C1 F1 E1 B1 D1
IOI IO PRESET BUF L

MAIN SEL Ø8 L
EXT LEV 8 L
M ØØ2 R15 N2
M2Ø5 R38 PAI LEV 8
A1 C1 F1 E1 B1 D1

MAIN SEL 13 L
EXT LEV 13 L
M ØØ2 R15 U2
M2Ø5 R39 PAI LEV 13
A1 C1 F1 E1 B1 D1

MAIN SEL Ø4 L
EXT LEV 4 L
M ØØ2 R15 J2
M2Ø5 R37 PAI LEV 4
H1 K1 N1 M1 J1 L1
IOI IO PRESET BUF L

MAIN SEL Ø9 L
EXT LEV 9 L
M ØØ2 R15 P2
M2Ø5 R38 PAI LEV 9
H1 K1 N1 M1 J1 L1

MAIN SEL 14 L
EXT LEV 14 L
+3V M121 P36 V1
M2Ø5 R39 PAI LEV 14
H1 K1 N1 M1 J1 L1

CON CLOCK PRIORITIES H

EXT INT RQST BUS 1 L
EXT INT RQST BUS 2 L
EXT INT RQST BUS 3 L
M135 R4Ø A1 B1 C1 D1 S2
M611 P34 T2
PAI LS LEV INT L
M623 P11 R2 T2 U2
EXT INT RQST BUS L
(THIS SIGNAL IS EFFECTIVE ONLY WHEN THE KF12 IS NOT SELECTED)
EXT INT RQST BUS 4 L
M623 P11 S2 V2

EXT INT RQST BUS 5 L
M623 R1Ø K2 M2 N2
M623 R1Ø L2 P2
EXT INT RQST BUS L
EXT INT RQST BUS 6 L

J1
M192 P39 E IN
GND E2
PAI LEV 14 (1) L D1
PAI LEV 13 (1) L E1
PAI LEV 12 (1) L F1
PAI LEV 11 (1) L K1
PAI LEV 1Ø (1) L L1
PAI LEV 9 (1) L L2
PAI LEV 8 (1) L K2
E OUT
GS H1 PAI LSB SEL L
A2 H2 PAI LSB BIT 2 L
A1 F2 PAI LSB BIT 1 L
AØ D2 PAI LSB BIT Ø L
J2

S1
M192 P39 E IN
PAI LEV 7 (1) L N2
PAI LEV 6 (1) L M1
PAI LEV 5 (1) L N1
PAI LEV 4 (1) L P1
PAI LEV 3 (1) L U1
PAI LEV 2 (1) L V1
PAI LEV 1 (1) L V2
PAI LEV Ø (1) L U2
E OUT
GS R1 PAI TRIAL S L
A2 R2 PAI MSB BIT 2 L
A1 P2 PAI MSB BIT 1 L
AØ M2 PAI MSB BIT Ø L
S2

* NOTE;
M192 "ENCODER" CHARACTERISTICS;
① "E OUT" IS LOW WHEN ALL INPUTS ARE HIGH.
② WHEN "E IN" IS HIGH ALL OUTPUTS ARE HIGH.

M9Ø5 R16
PWF PWR LOW (1) L A1
CLIP TAPE INTERRUPT L C1
CLIO INT RQST L E1
TSS INT RQST L H1
TTO TPR FLG (1) L K1
TTI KEYBOARD FLAG (1) L M1
DTTI KEYBOARD FLAG (1) L P1
DTTO TPR FLG (1) L U1
PCL INT RQST L E2
EXT INT RQST BUS 1 L H2
EXT INT RQST BUS 2 L K2
EXT INT RQST BUS 3 L M2
EXT INT RQST BUS 4 L P2
EXT INT RQST BUS 5 L S2
EXT INT RQST BUS 6 L U2
B1 EXT LEV Ø L
D1 EXT LEV 1 L
F1 EXT LEV 2 L
H1 EXT LEV 3 L
K1 EXT LEV 4 L
M1 EXT LEV 5 L
N1 EXT LEV 6 L
R1 EXT LEV 7 L
V1 EXT LEV 8 L
F2 EXT LEV 9 L
J2 EXT LEV 11 L
L2 EXT LEV 12 L
N2 EXT LEV 13 L
R2 EXT LEV 14 L

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005, .XX = .02, .X = .1; ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. E. Nilsson DATE 2-25-71
CHK'D. DATE
ENG. DATE
PROJ. ENG. DATE
PROD. DATE

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

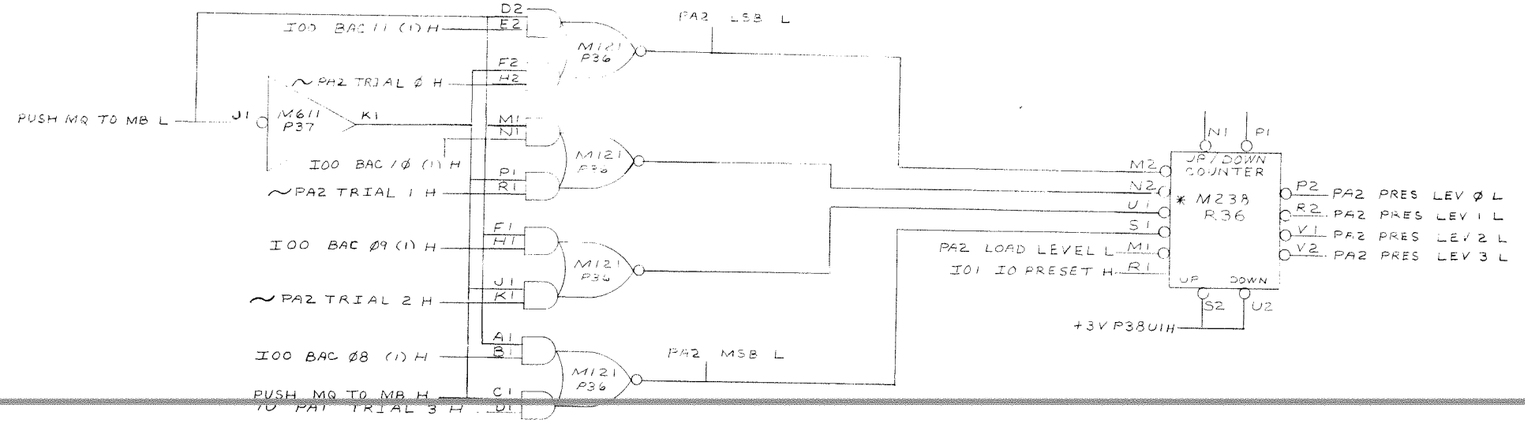
TITLE: PRIORITY LEVELS IN

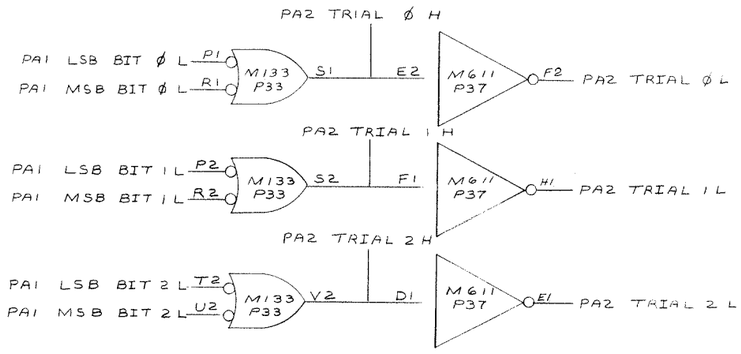
NEXT HIGHER ASSY. A-ML-KF12-0
SCALE
SHEET 1 OF 1

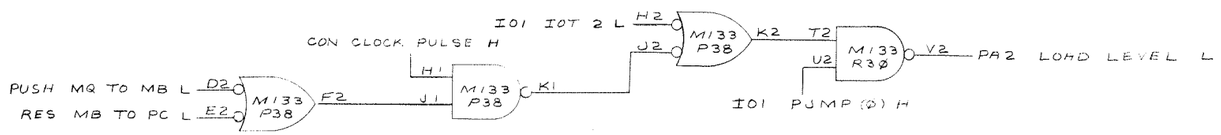
SIZE D | CODE BS | NUMBER KF12-Ø-PAI | REV. A | DIST.

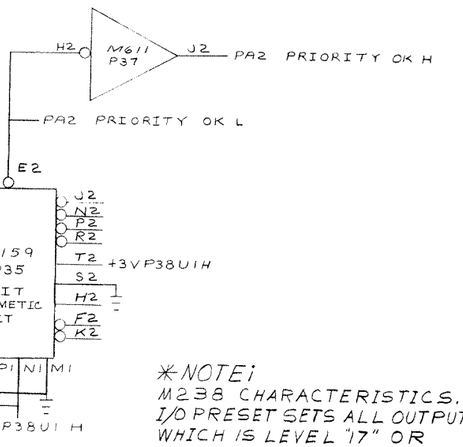
REV A
NUMBER D BS KF12-0-PAI

MACKLIN 6-25-71









*NOTE:
M238 CHARACTERISTICS.
I/O PRESET SETS ALL OUTPUTS LOW WHICH IS LEVEL "1" OR MACHINE LEVEL.

REVISIONS		
REV	CHANGE NO	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

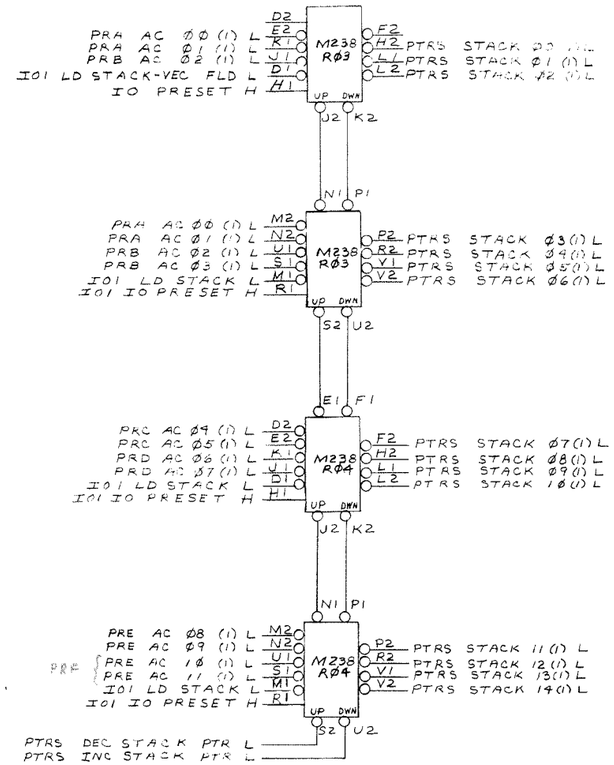
DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	±0° 30'

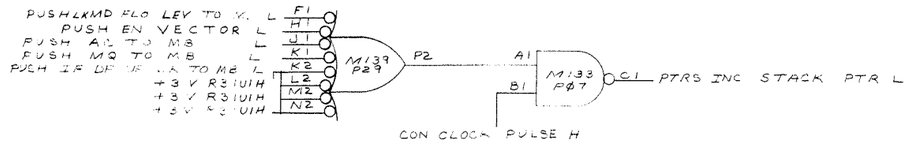
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

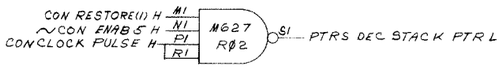
MATERIAL

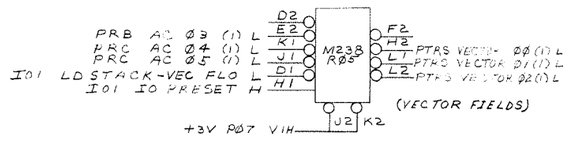
FINISH

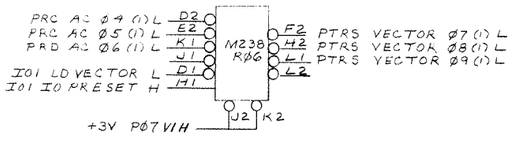
DRN. E Wilson	DATE 3-9-71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D.	DATE	
ENG.	DATE	TITLE PRIORTY DECODING
PROJ. ENG.	DATE	
PROD.	DATE 3/24/71	
NEXT HIGHER ASSY. A-ML-KF12-0		
SCALE		SIZE D CODE BS NUMBER KF12-0-PA2 REV.
SHEET / OF /		DIST.

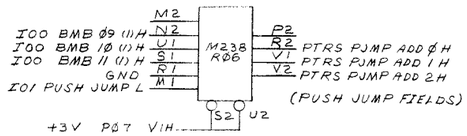


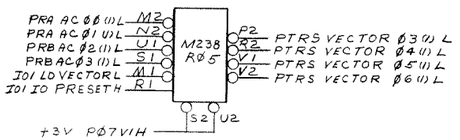


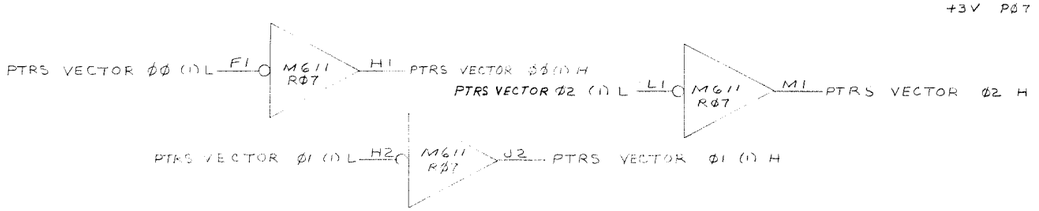










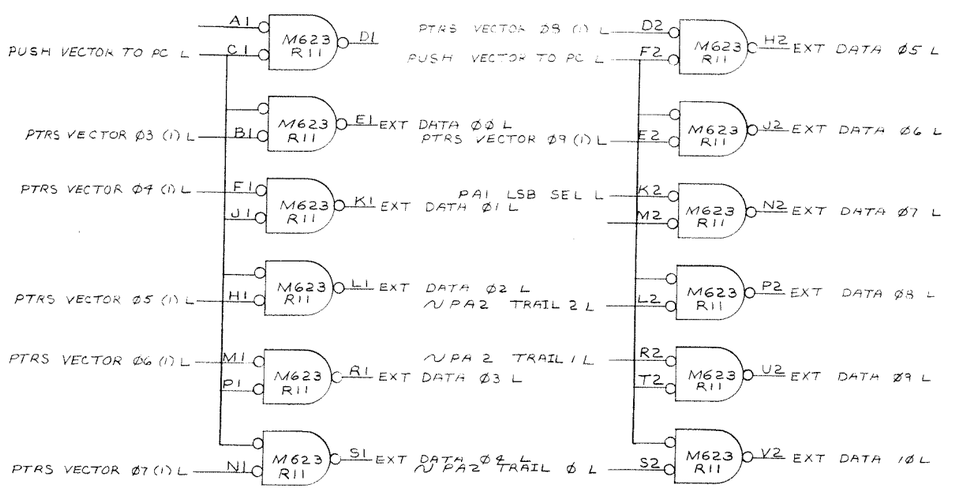


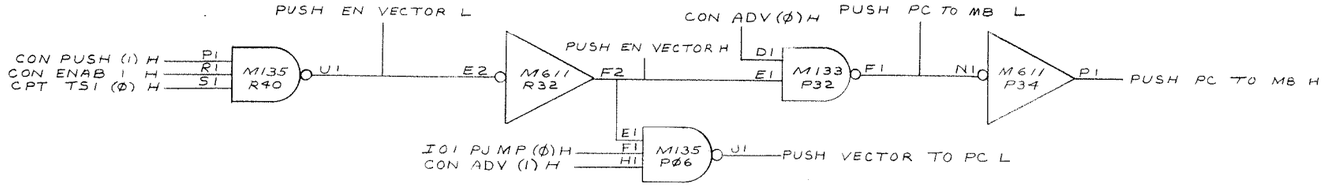
REVISIONS	REV	CHANGE NO.	CHK

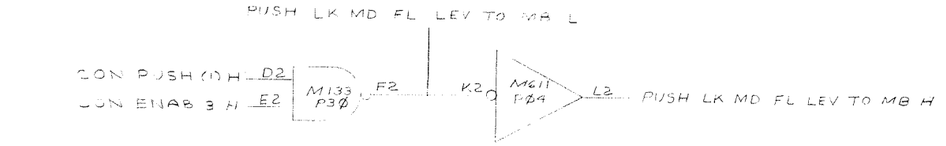
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 12		PARTS LIST		

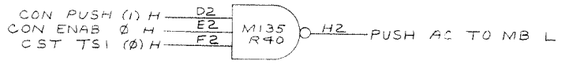
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. E. Wilson	DATE 2-24-71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
DECIMALS: .XXX = .005, .XX = .02, .X = .1 — ANGLES: ±0° 30'	CHK'D.	DATE 3-1-71	TITLE: STACK & VECTOR POINTERS
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	ENG.	DATE	
	PROJ. ENG.	DATE	
	PROD.	DATE 3/2/71	
MATERIAL	NEXT HIGHER ASSY. A-ML-KF12-0		SIZE D · CODE BS · NUMBER KF12-0-PTRS · REV.
FINISH	SCALE		
	SHEET 1 OF 1		DIST

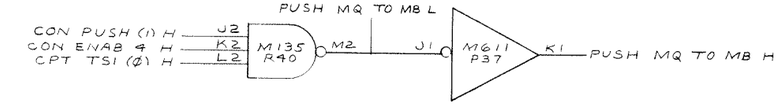
DEC FORM NO. DRD 102-B

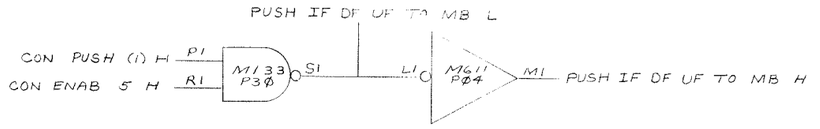


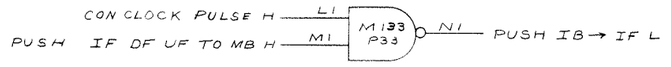


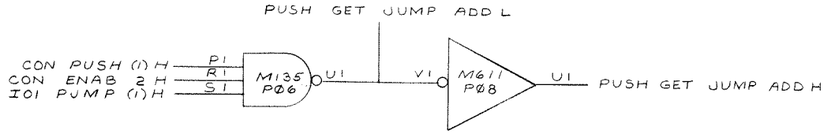


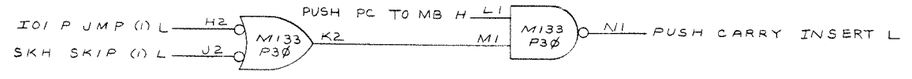


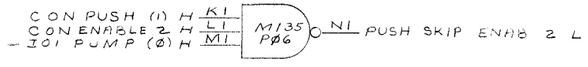






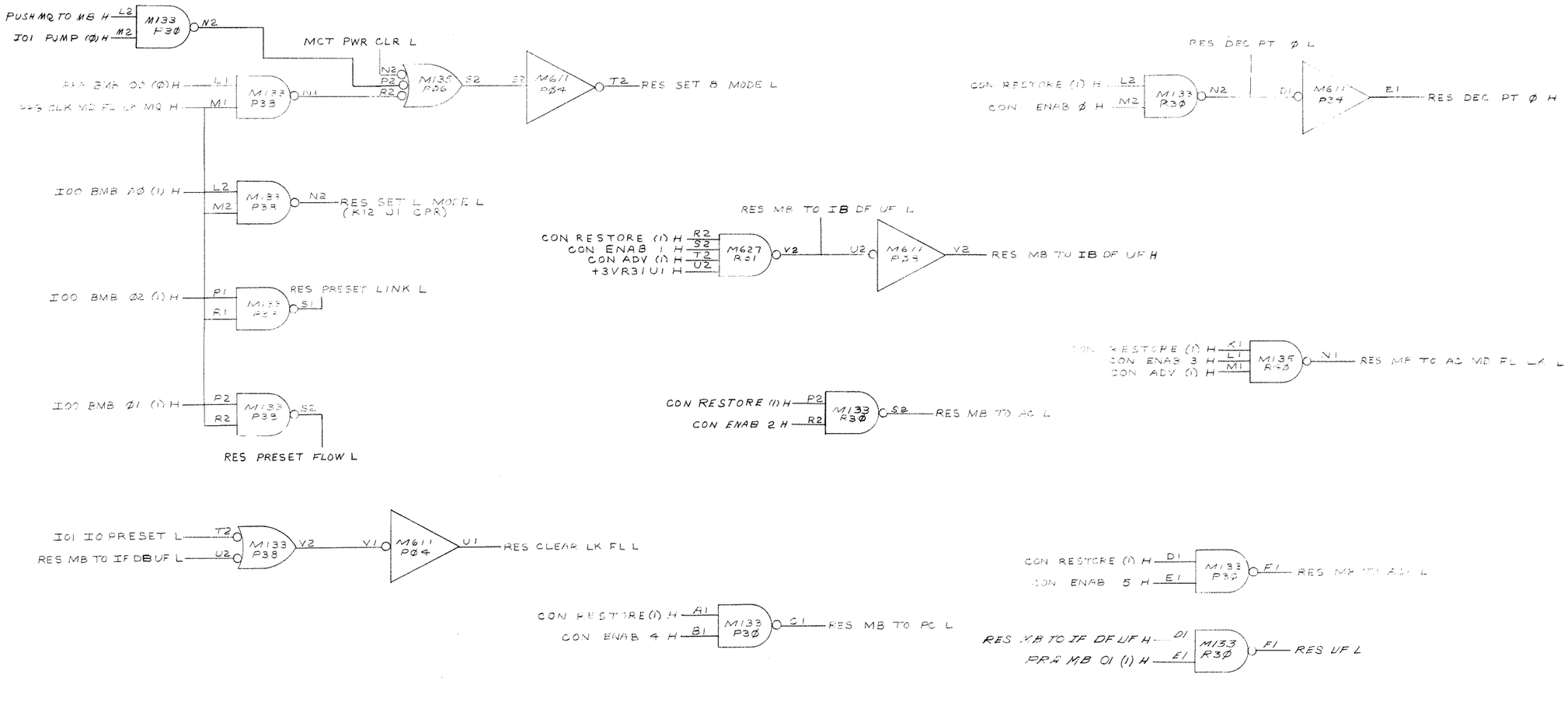






FIRST USED ON OPTION/MODEL: PDP 12	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	
UNLESS OTHERWISE SPECIFIED	DRN. E Wilson	DATE 3-2-71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D.	DATE	TITLE: PUSH GATING
	ENG.	DATE	
	PROJ. ENG.	DATE	
MATERIAL	PROD.	DATE	NEXT HIGHER ASSY: A-M1-KF12-0
FINISH	SCALE		SIZE D / CODE BS / NUMBER KF12-0-PUSH / REV
	SHEET OF		DIST.

REV	CHANGE NO	SIGNATURE



REVISIONS			
CHK	CHANGE NO.	REV.	
	EP12-00344	A	MOORE
	EP12-00346	B	IKNAIAN

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN.	DATE	3-4-71
CHK'D.	DATE	3-4-71
ENG.	DATE	3-24-71
PROJ. ENG.	DATE	3-24-71
PROD.	DATE	3-24-71

NEXT HIGHER ASSY.

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

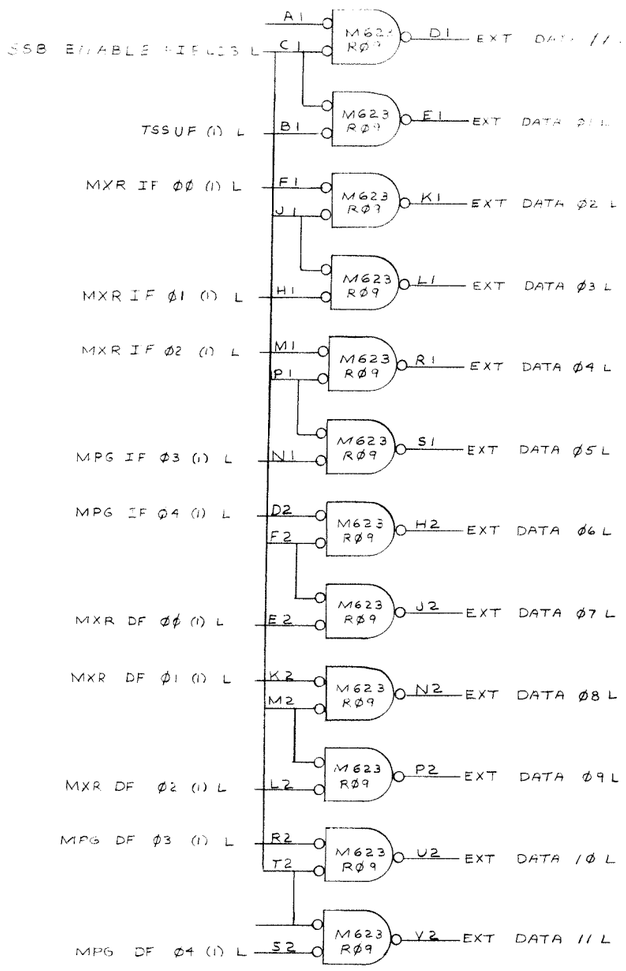
TITLE: RESTORE GATING

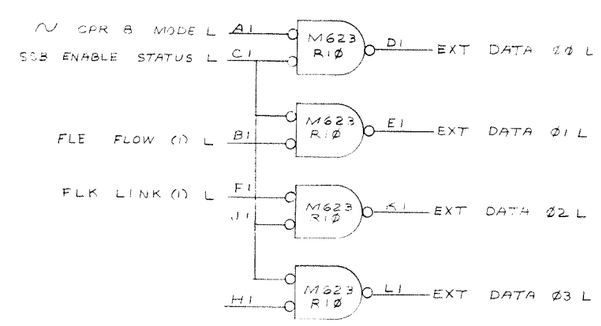
SIZE	CODE	NUMBER	REV.
D	BS	KF12-0-RES	B

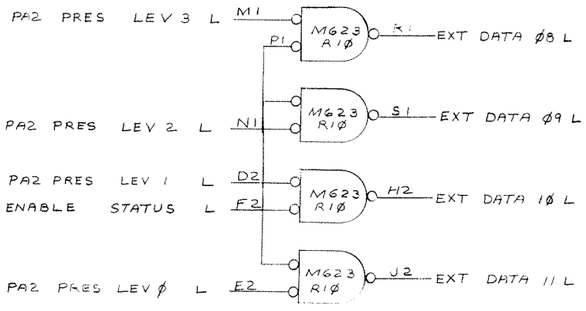
DIST.

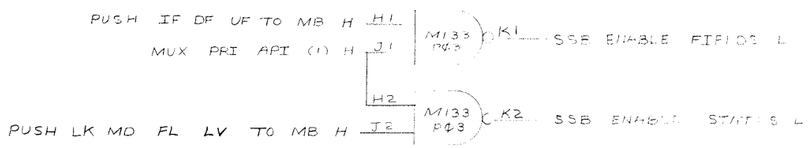
NEXT ASSY D BS KF12-0-RES REV B

SEC FORM NO 1081 102-B









REVISIONS	REV	CHANGE NO	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 12		PARTS LIST		

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

MATERIAL

FINISH

DRN	E. Wilson	DATE 2-22-72
CHK'D		DATE
ENG.		DATE
PROJ. ENG.		DATE
PROD.		DATE 3/24/72

NEXT HIGHER ASSY
A-ML-KF12-0

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
SAVE STATUS BITS

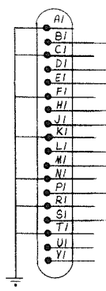
SIZE	CODE	NUMBER	REV.
D	BS	KF12-0-SSB	

SCALE
SHEET OF
DIST.

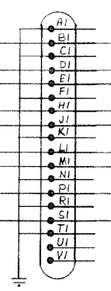
DEC FORM NO. DRD 102A

P14 - P19 [illegible]

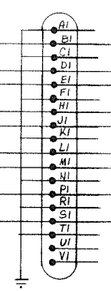
M9Ø3 P14



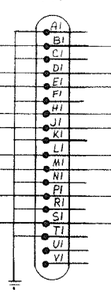
M9Ø3 P15



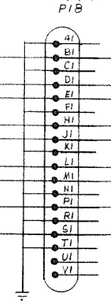
M9Ø3 P16



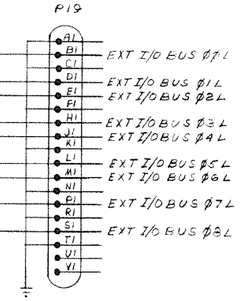
M9Ø3 P17



M9Ø3 P18

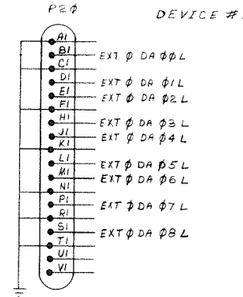


M9Ø3 P19

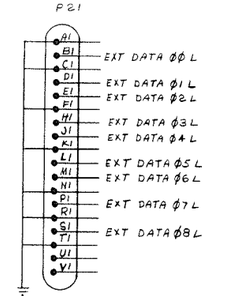


M9Ø3 P2Ø

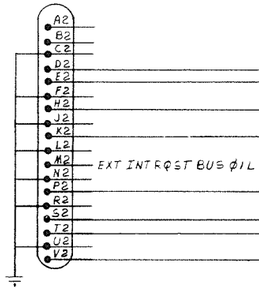
DEVICE #1



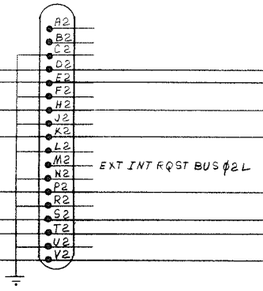
M9Ø3 P21



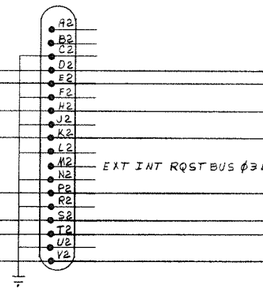
M9Ø3 P14



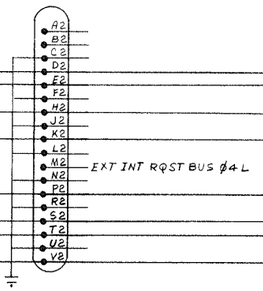
M9Ø3 P15



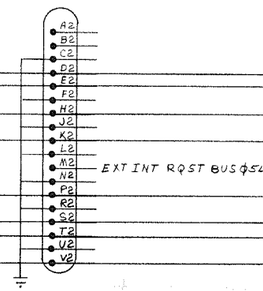
M9Ø3 P16



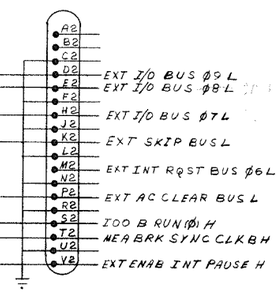
M9Ø3 P17



M9Ø3 P18

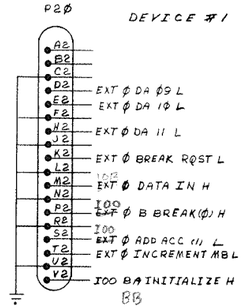


M9Ø3 P19



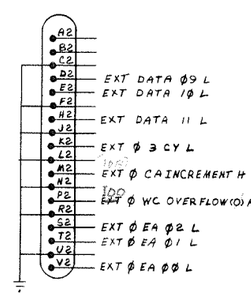
M9Ø3 P2Ø

DEVICE #1



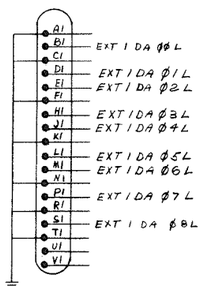
BB

M9Ø3 P21

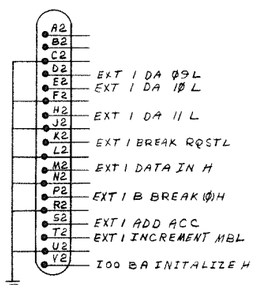


M9Ø3 P22

DEVICE # 2

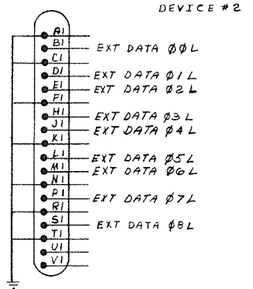


M9Ø3 P22

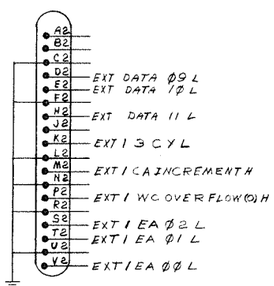


M9Ø3 P23

DEVICE #2

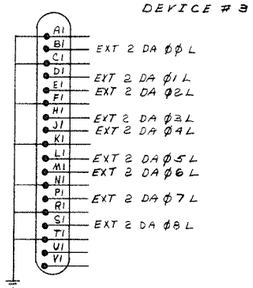


M9Ø3 P23

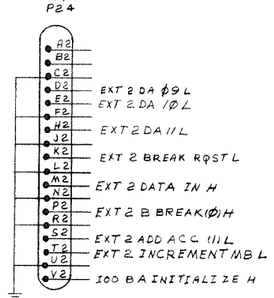


M9Ø4 P24

DEVICE # 3

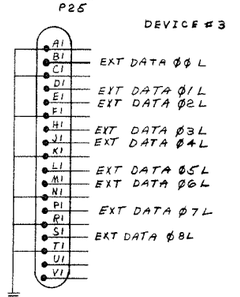


M9Ø4 P24

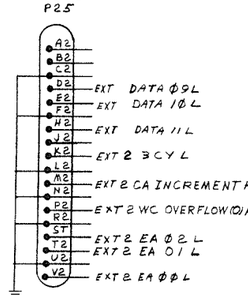


M9Ø3 P25

DEVICE # 3



M9Ø3 P25



P20 - P25 [illegible]

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
XXX = .005 XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN. M-Bairos	DATE 3-9-71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D.	DATE	
ENG.	DATE	
PROJ. ENG.	DATE	
PROD.	DATE 3/12	

TITLE: BREAK DEVICE CABLES

NEXT HIGHER ASSY.: A-ML-KF12-Ø

SCALE

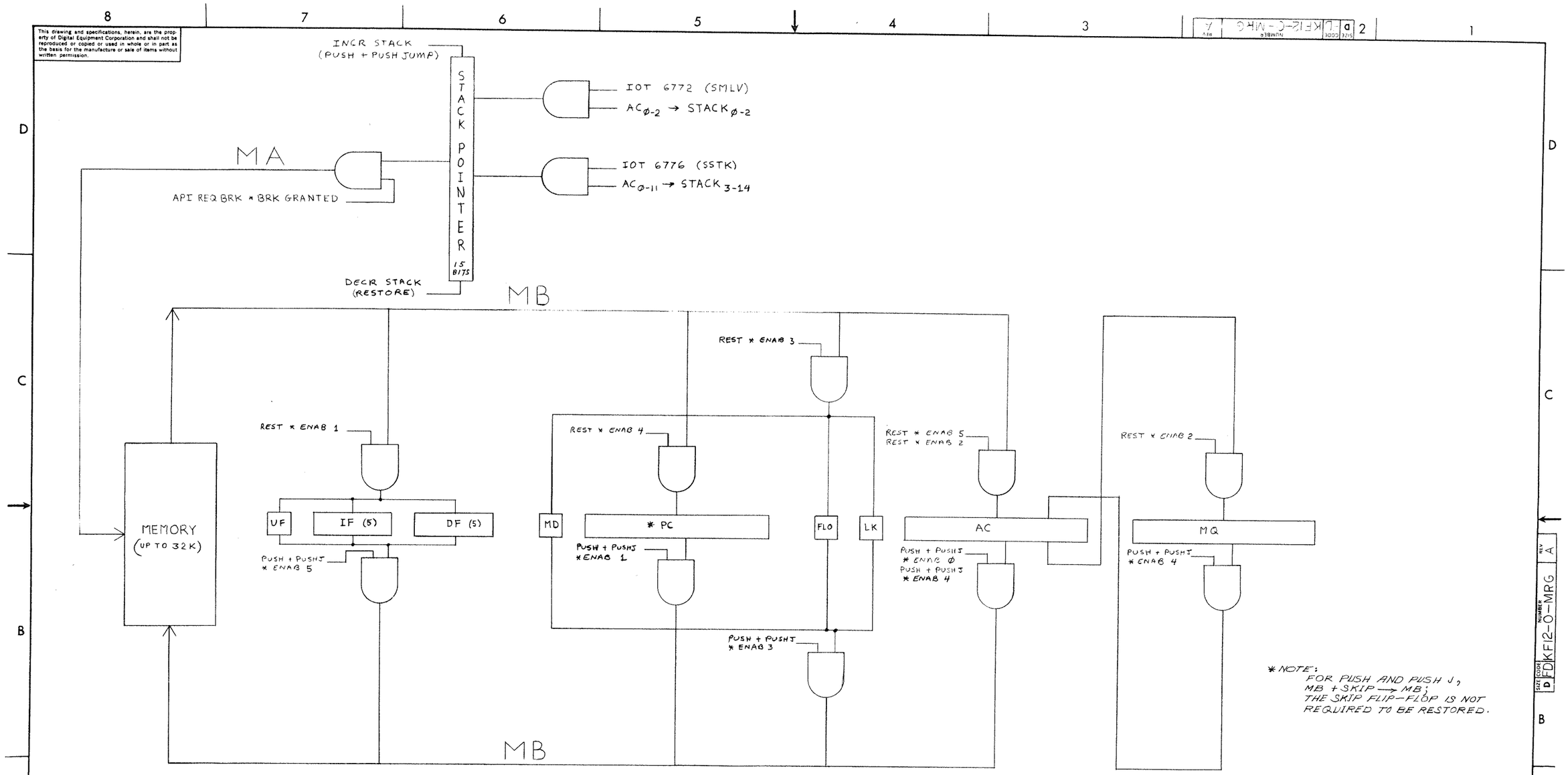
SHEET 1 OF 1

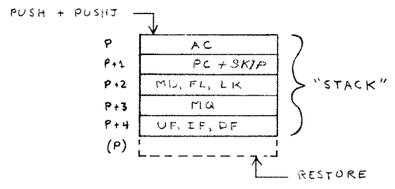
SIZE	CODE	NUMBER	REV.
D	IC	KF12-0-CAB	

DIST.

NO. REVISIONS — REV. — CHANGE NO. — DATE

SIZE D CODE BSK NUMBER KF12-Ø-BDC REV





REVISIONS		
CHK	CHANGE NO	REV
[illegible]	E17-30046	A
	[illegible]	
	TKNAIAN	
	[illegible]	

FIRST USED ON OPTION/MODEL: PDP12	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY ✓

MATERIAL —

FINISH —

DRN. M LONG	DATE 5/16/72	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D [illegible]	DATE [illegible]	
ENG. [illegible]	DATE [illegible]	TITLE: MAJOR REGISTER-GATING
PROJ. ENG. [illegible]	DATE [illegible]	
PROD. [illegible]	DATE 7-7-72	

NEXT HIGHER ASSY.: A-ML-KF12-O

SCALE —

SHEET [illegible] OF [illegible]

SIZE	CODE	NUMBER	REV.
D	FD	KF12-O-MRG	A

DIST.

DEC FORM NO 1061 102-B

PUSH

INTERRUPT REQ * PRIORITY OK
OR
PUSH JUMP >
SET PUSH AND BRK REQ

ENAB Ø
* BREAK #1
STACK → BF, MA
AC → MB
INCR STACK
INCRENAB

ENAB 1
* BREAK #2
STACK → BF, MA
PC + SKIP → MB
PJMP (1) > CARRY INSERT
INCRSTACK
INCRENAB

PUSH JUMP
NO
YES

VECTOR Ø-2 → IBØ-2
VECTOR 3-9 → PCØ-6
TRIAL LEV → PC 7-1Ø
INCR ENAB

ENAB 2
* BREAK #3
PC → MA
MB → PC
PJMP ADD Ø-2 → IBØ-2
INCRENAB

ENAB 3
* BREAK #4
STACK → BF, MA
LK MD FL LEV → MB
INCR STACK
INCR ENAB

ENAB 4
* BREAK #5
STACK → BF, MA
MQ → MB
INCR STACK
INCR ENAB

ENAB 5
* BREAK #6
STACK → BF, MA
IF DF UF → MB
IB → IF
INCR STACK
INCR ENAB
Ø → BRK REQ

ENAB 6
Ø → PUSH
Ø → PUSH JMP

RESTORE

JOT RESTORE >
SET RESTORE
SET BRK REQ

ENAB Ø
INHRENAB
DECR STACK
SET DF Ø-2

ENAB 1
* BREAK #1
STACK → BF, MA
MB → IB DF UF
DECR STACK
INC ENAB

ENAB 2
* BREAK #2
STACK → BF, MA
MB → AC
DECR STACK
INCRENAB

ENAB 3
* BREAK #3
STACK → BF, MA
AC → MQ
MB → MD FL LK AC
IB → IF
DECRSTACK
INCRENAB

ENAB 4
* BREAK #4
STACK → BF, MA
MB → PC
AC 8-11 → LEVEL
DECR STACK
INCR ENAB

ENAB 5
* BREAK #5
STACK → BF, MA
MB → AC
INCRENAB
Ø → BRK REQ

ENAB 6
Ø → RESTORE

* NOTE
1. THE KF12 HAS LOWEST PRIORITY ON THE BUS. BREAK REQUESTS FROM OTHER DEVICES WILL BE ACKNOWLEDGED DURING A PUSH OR RESTORE.

REVISIONS	REV
CHANGE NO.	A
CHK	EP12-0046
	IKNAIAN 8-17-72

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —

FINISH

DRN.	DATE	3-22-72
CHK'D.	DATE	3-23-72
ENG.	DATE	3-23-72
PROJ. ENG.	DATE	3-23-72
PROD.	DATE	3-24-72

NEXT HIGHER ASSY. A-ML-KF12-Ø

SCALE NONE

SHEET OF 1

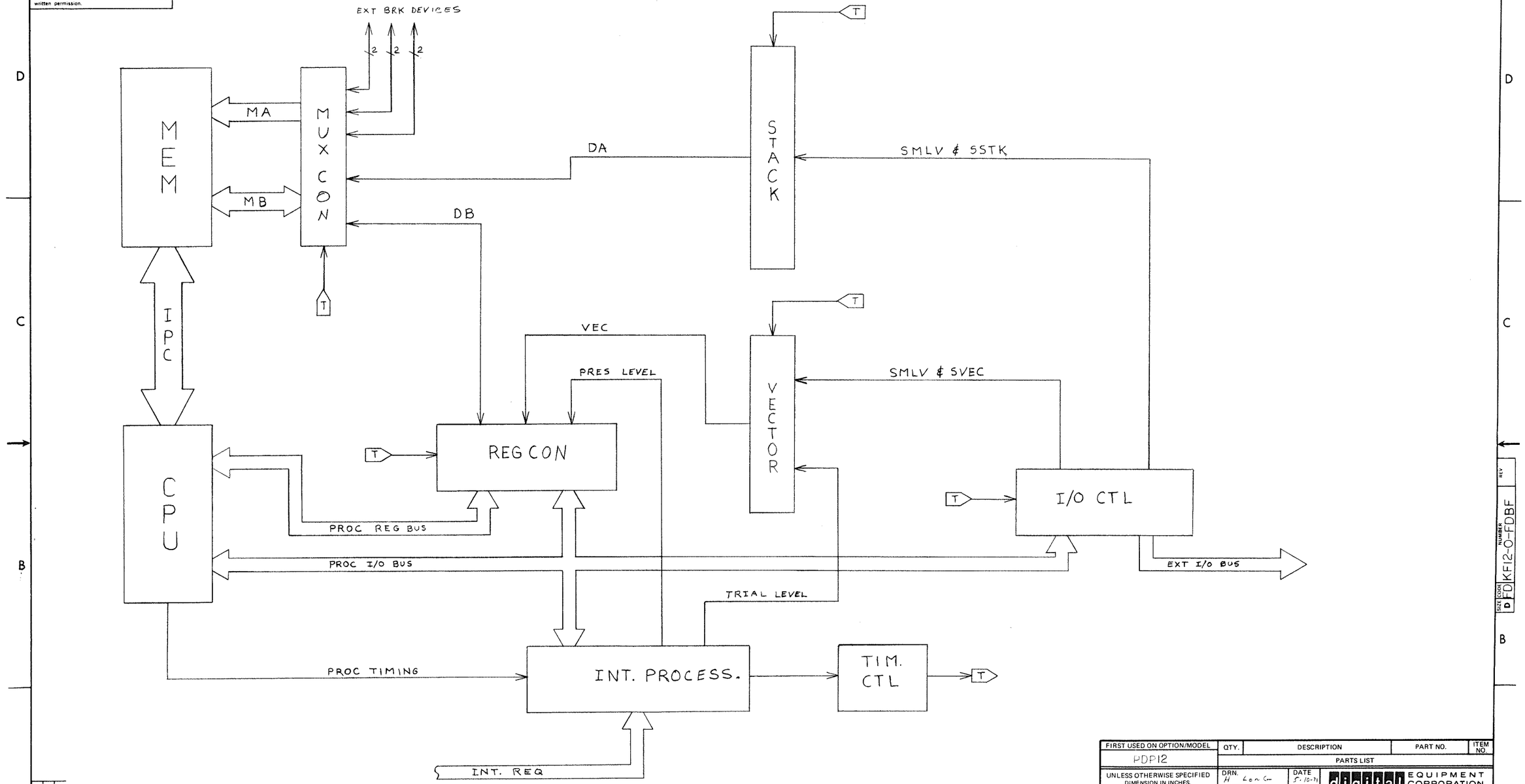
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: FLOW-DIAGRAM

SIZE	CODE	NUMBER	REV.
D	FD	KF12-Ø-FD	A

DIST.

DEC FORM NO. DRD 102-B



REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

		DATE
DRN.	M Lenahan	5/10/71
CHK'D.	Jon Cam	5/21/71
ENG.	Jon Cam	5/21/71
PROJ. ENG.	Jon Cam	5/21/71
PROD.	[illegible]	6/21/71

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: BLOCK FLOW

NEXT HIGHER ASSY.: A-ML-KF12-0

SCALE:

SHEET / OF /

SIZE	CODE	NUMBER	REV.
D	FD	KF12-0-FDBF	

DIST.

DEC FORM NO DRD 102-B

IOT 6772 (SMLV)

$AC_{3-5} \rightarrow VEC_{\emptyset-2}$

IOT 6777 (SVEC)

$AC_{\emptyset-6} \rightarrow VEC_{3-9}$

1 OF 15 INTERRUPTS

15

D 1 F/F C Ø

CLOCK

15

VEC | Ø | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

TRIAL | Ø | 1 | 2 | 3 |

NOTE: INTERRUPT REQUEST IS NOT GRANTED UNLESS TRIAL LEVEL (VALUE) IS LESS THAN PRESENT LEVEL.

PUSH * ~ PUSHJ

~ PUSHJ * PUSH * ENAB 1

~ PUSHJ * PUSH * ENAB 1

Ø

IF | Ø | 1 | 2 | 3 | 4 |

PC | Ø | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |

PUSH * ENAB 5

PUSH * PUSHJ * ENAB 2
(CONTAINS VECTOR ADDRESS)

IB | Ø | 1 | 2 |

MB | Ø | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |

PUSHJ

IR | 9 | 10 | 11 |

PUSHJ MB→PC IS ACTUALLY LOADED VIA:

PC→MA

MEM→MB

MB→PC

REVISIONS | REV | CHANGE NO | CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. H. Lewis	DATE 12/71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
DECIMALS: .XXX = .005, .XX = .02, .X = .1 — ANGLES: ±0° 30'	CHK'D	DATE 2/1/71	TITLE: VECTOR GATING
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	ENG.	DATE 2/1/71	
	PROJ. ENG.	DATE 2/1/71	
MATERIAL	PROD.	DATE 2/1/71	
FINISH	NEXT HIGHER ASSY. A-ML-KF12-0	SIZE D	CODE FD	NUMBER KF12-Ø-FDVG	REV.
	SCALE	DIST.			
	SHEET / OF /				

SIZE D | CODE FD | NUMBER KF12-0-FDVG | REV

FORM NO 1PD 102-B

MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
~~A-PL-DM12-0-0~~		~~1~~	~~3 CHANNEL DATA BREAK MUX~~
D-BS-DM12-0-MUX3		1	MUX DEVICE 2
D-BS-DM12-0-MUX4		1	MUX DEVICE 3
A-SP-DM12-0-1	REF		ENGINEERING SPECIFICATIONS
A-ML-EP12-0	REF	2	PROCESSOR
D-MU-EP12-0-1	REF	2	MODULE UTILIZATION PROC.
A-PL-EP12-0-1	REF	3	MODULE UTILIZATION PROC. (PL)

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
A	10/71	EP12-43	R.M.
B	1/71	EP12-44	R.M.

DRN.	DATE	5-20-71
CHK'D	DATE	
ENG.	DATE	
PROJ. ENG.	DATE	5-21-71
PROD. R Peterson	DATE	5/21/71
FIRST USED ON	KF12	
SCALE		
SHEET	1 OF 1	

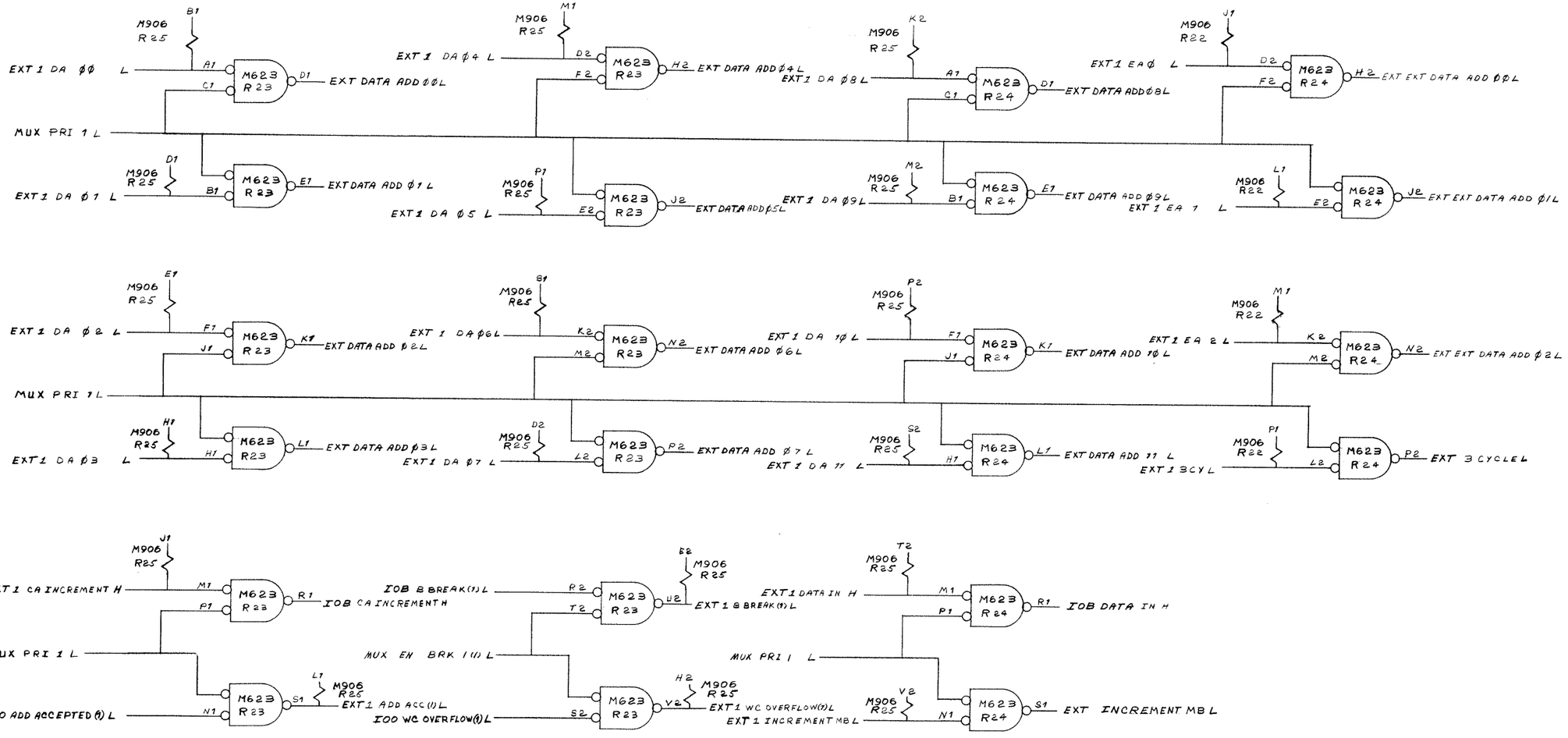
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
3 CHANNEL
DATA BREAK MUX

SIZE	CODE	NUMBER	REV.
A	ML	DM12-0	B

DIST.

DEC FORM NO.16-1033
DRA 103



REVISIONS	REV	CHK
CHANGE NO.		

DEC FORM NO. DRD 102A

FIRST USED ON OPTION/MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN. M-Doiron	DATE 2-23-71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CH'K'D.	DATE 3-21-71	
ENG.	DATE 3-21-71	
PROJ. ENG.	DATE 3-21-71	TITLE: MUX DEVICE 2
PROD. R Peterson	DATE 6/21/71	

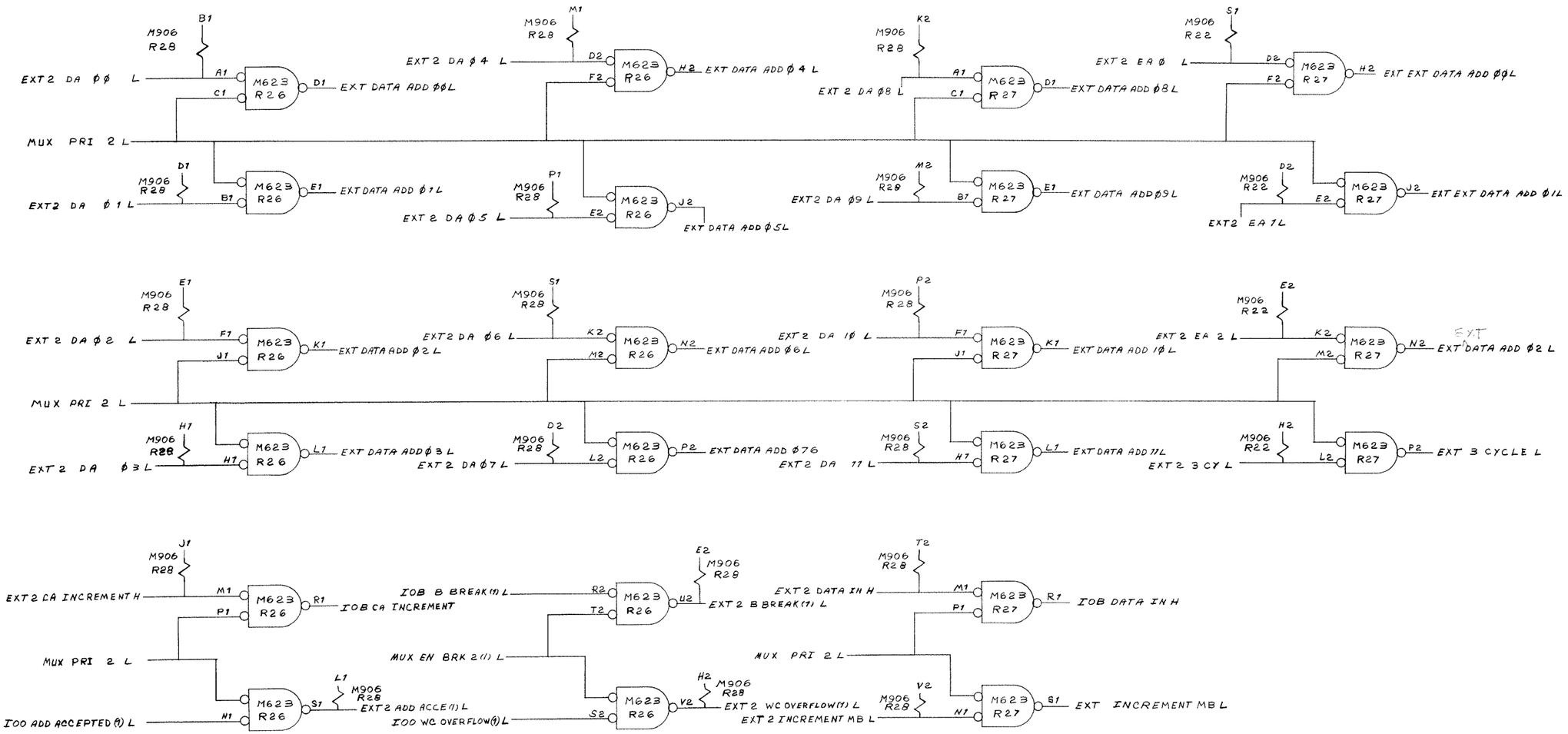
NEXT HIGHER ASSY: A-ML-KF12-Ø

SCALE

SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	BS	DM12-0-MUX3	

DIST.



FIRST USED ON OPTION/MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN. M. Quinn	DATE 8-23-71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. Scanlan	DATE 8-31-71	
ENG. Scanlan	DATE 8-31-71	
PROJ. ENG. Scanlan	DATE 8-31-71	
PROD.	DATE 9/21/71	
NEXT HIGHER ASSY	A-ML-KF12-Ø	
SCALE		
SHEET 1 OF 1		

TITLE: MUX DEVICE 3

SIZE	CODE	NUMBER	REV
D	BS	DM12-Ø-MUX4	

DIST.

REVISIONS	REV.	CHANGE NO.	CHK

DEC FORM NO. ED 102A

SIZE D BS DM12-Ø-MUX4 REV
NUMBER DM12-Ø-MUX4 REV

MASTER DRAWING LIST

MAINTENANCE MANUALS NO.	TITLE	UNIT VARIATIONS KE12-0
KE12-0	ARITHMETIC OPERATION	X

USED ON OPTIONS							

REVISIONS REV.	CHG. NO.	DATE	APP'D.
A	EP12-01	3-18-69	JS
B	EP12-04	6-5-69	LG
C	EP12-30	10-70	LG
D	MISC-86	7/71	A.V.
E	EP12-44	1/72	R.M.

DRN. J. APREA	DATE 3-7-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. R. HUTNAK	DATE 3-7-69	
ENG. L. GALE	DATE 3-10-69	TITLE ARITHMETIC OPERATION
PROJ. ENG. L. GALE	DATE 3-10-69	
PROD. D. CALL	DATE 3-10-69	
FIRST USED ON PDP-12		SIZE A | CODE ML | NUMBER KE12-Ø | REV. E
SCALE		
SHEET 1 OF 2		DIST.

PRINT SET KE12-Ø	DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.
X	D-FD-KE12-0-2	A	1	EAE FETCH	
X	D-FD-KE12-0-3		1	EAE EXECUTE PART 1	
X	D-FD-KE12-0-4		1	EAE EXECUTE PART 2	
X	D-BS-KE12-0-EAEC	B	1	EAE CONTROL	
X	D-BS-KE12-0-EAED	A	1	EAE DISABLE	
X	D-BS-KE12-0-EAES		1	EAE STEP COUNTER TMD CONTROL	
X	D-BS-KE12-0-EAET		1	EAE TIMING	
	A-ML-EP12-0	REF	2	PROCESSOR	
	D-MU-EP12-0-1	REF	2	MODULE UTILIZATION PROC.	
	A-PL-EP12-0-1	REF	3	MODULE UTILIZATION PROC. (PL)	

TITLE				
ARITHMETIC OPERATION	SHEET 2 OF 2	SIZE A | CODE ML	NUMBER KE12-Ø	REV E

DRA 132

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

T1

T2

T3

T4

OFF PAUSE

T5

OPR·IR3=1 · IR11=1

NOT NMI

NMI

AC∅∅≠AC∅1+(AC3-11=∅ . MQ0-11=∅)

NOT AC∅∅≠AC∅1+(AC3-11=∅ . MQ0-11=∅)

∅ → SC

∅ → SC
1 → RECYCLE SYNC

1 → T5 RECYCLE

IR4	IR7	
1	∅	∅ → AC
1	1	∅ → MQ
		∅ → AC
∅	1	AC → MQ
		∅ → AC

IR5	IR6	
1	∅	MQ+AC → AC
∅	1	SC+AC → AC

1 → EAE ON
1 → RECYCLE SYNC

NOT AC∅1≠AC∅2+(AC3-11=∅ . MQ0-11=∅)

AC∅1≠AC∅2+(AC3-11=∅ . MQ0-11=∅)

LINK, AC, MQ SHIFT LEFT
SC+1 → SC
∅ → MQ11

LINK, AC, MQ SHIFT LEFT
SC+1 → SC
∅ → MQ11

∅ → RECYCLE SYNC

∅ → T5 RECYCLE

∅ → EAE ON

NMI+T5 RECYCLE (1)

(N=5) MUY
(N=7) DIV
(N=15) ASR
(N=17) LSR

∅ → LINK

(N=3) SCL
(N=13) SHL

N=1
NMI+T5 RECYLE (1)

∅ → EXECUTE

1 → FETCH

TO NEXT INSTRUCTION

REVISIONS			
REV.	CHANGE NO	CHK	
A	EP12-00030	FV	11/13/69 D. MACKLIN

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL

FINISH

DRN.		DATE 11-22-68
CHK.		DATE 12/16/69
ENG.		DATE 2/14/69
PROJ. ENG.		DATE 2/14/69
PROD.		DATE 2/14/69

FIRST USED ON
KE12

SCALE

SHEET / OF /

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
EAE FETCH

SIZE	CODE	NUMBER	REV.
D	FD	KE12-0-2	A

DIST.

DEC FORM NO. DRD 102A

SIZE D CODE FD NUMBER KE12-0-2 REV A

EAE EXECUTE (PART 1)

T1: PC → MA

T2: DO = Ø: MA+1 → PC; DO = 1: MA → PC

T3: MEM → MB; RSW → MB

T4: NOT MUY+DIV: MEM → SC; N = 3 (SCL); N ≠ 8: 1 → RECYCLE SYNC

MUY+DIV

OFF PAUSE: 1 → T5 RECYCLE

T5:

1 → EAE ON T5 RECYCLE

- SHL (N=13): LINK, AC, MQ SHIFT LEFT; Ø → MQ11
- ASR (N=15): AC, MQ SHIFT RIGHT; AC00 → LINK, AC00, AC01
- LSR (N=17): AC, MQ SHIFT RIGHT; Ø → AC00

SC ≠ 17: SC+1 → SC

SC = 17: Ø → RECYCLE SYNC; SC+1 → SC

Ø → T5 RECYCLE

Ø → EAE ON

DIV

MUY

Ø → SC

1 → RECYCLE SYNC

1 → T5 RECYCLE

1 → T5 RECYCLE

1 → EAE ON

MQ11 = Ø: LINK, AC, MQ SHIFT RIGHT

MQ11 = 1: LINK, Σ (AC+MB) MQ SHIFT RIGHT

SC = 13: Ø → RECYCLE SYNC; SC+1 → SC

SC ≠ 13: SC+1 → SC

MUY (N=5)

1 → FETCH

TO NEXT INSTRUCTION

REVISIONS | REV. | CHANGE NO. | CHK

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL

FINISH

DRN. [signature] DATE 11-20-68
CHK. [signature] DATE 2/18/69
ENG. [signature] DATE 2/19/69
PROJ. ENG. [signature] DATE 2/19/69
PROD. [signature] DATE 2/19/69

FIRST USED ON KE12

SCALE

SHEET OF

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: EAE EXECUTE PART 1

SIZE D | CODE FD | NUMBER KE12-Ø-3 | REV.

DIST.

DEC FORM NO. DRD 102A

SIZE D | CODE FD | NUMBER KE12-Ø-3 | REV.

EAE EXECUTE PART 2 (DIVIDE)

T0

T2

T3

T4

OFF PAUSE

T5

ENTER FROM EAE EXECUTE PART 1

Ø → SC
1 → RECYCLE SYNC

1 → T5 RECYCLE

Ø → T5 RECYCLE

1 → EAE ON

(SC=Ø)+(SC=1)+MQ1Ø≠MQ11

EN
Σ (MB) AND $\overline{\text{LINK}}$ AND $\overline{\text{AC}}$

(SC≠Ø)+(SC≠1)+MQ1Ø=MQ11

EN
Σ MB AND LINK AND AC

SC=Ø + NOT CARRY ØØ

EN Σ NO SHIFT
LOAD AC

EN SUM SHIFT LEFT
EN MQ SHIFT LEFT
LOAD AC LOAD MQ
LOAD LINK

NOT SC≠Ø+MQ11(1)

SC=Ø+MQ11(1)

MQ ØØ → AC11

$\overline{\text{MQ ØØ}}$ → AC11

SC=Ø + NOT CARRY ØØ

SC≠Ø + CARRY ØØ

Ø → RECYCLE SYNC

SC=Ø

SC≠Ø

Ø → MQ11

Σ LINK ADDER
AND MQ11
→ MQ11

SC=14

SC≠14

LOAD MQ
SC+1 → SC
Ø → RECYCLE SYNC

LOAD MQ
SC+1 → SC

Ø → T5 RECYCLE

MQ 1Ø(Ø) MQ 11(Ø)	MQ 1Ø(Ø) MQ 11(1)	MQ 1Ø(1) MQ 11(Ø)	MQ 1Ø(1) MQ 11(1)
Σ MB AND AC → AC	AC → AC	Σ MB AND $\overline{\text{AC}}$ → AC	$\overline{\text{AC}}$ → AC

1 → FETCH

TO NEXT INSTRUCTION

REVISIONS	CHANGE NO.	CHK
REV.		

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL

FINISH

		DATE
DRN.		11-22-68
CHK'D	Scanlon	3/19/69
ENG.		3/19/69
PROJ. ENG.		3/19/69
PROD.	W Call	3/19/69

FIRST USED ON
KE12

SCALE

SHEET OF

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
EAE EXECUTE
PART 2

SIZE	CODE	NUMBER	REV.
D	FD	KE12-Ø-4	

DIST.

DEC FORM NO.
DRD 102A

SIZE D CODE FD NUMBER KE12-Ø-4 REV.

EAEC LONG INST L
EAEC INST H
-INS N EQ Ø1 H
-INS N EQ 11 H
M111 L29
J1
M113 L35
N1 EAEC LONG INST H

EAEC INST L
INS 8 OPR H
INR IR Ø3 (1)H
INR IR 11 (1)H
M115 L29
N1
M113 L35
K2 EAEC INST H

INS N EQ 11 H
M113 L35
C1
M113 L35
F1 EAEC NMI H
EAEC NMI L

CPS EXECUTE (1)H
EAEC INST H
M113 L35
F2
M111 L33
L2 EAEC EXECUTE H
EAEC EXECUTE L

-FLK ADDER LINK H
M111 L33
MQR MQ 11 (Ø)H
MQR MQ 11 (1)H
-FLK ADDER LINK H
M121 L31
V2

EAES SC Ø1 (Ø)L
EAES SC Ø2 (Ø)L
-EAEC DIV EXECUTE L
M115 L34
M2
EAEC INST H
RCS EN MQ SH LEFT H
M115 L34
S2 EAEC SH L EN L

EAET ON (1)H
EAEC EXECUTE H
-INS N EQ 13 H
-INS N EQ Ø7 H
M117 L30
S1 EAEC R SH EN L

EAEC MQ 11 INSERT L
-EAES SC EQ Ø H
EAEC DIV EXECUTE H
M115 L29
M2
F1
M111 M38
H1 EAEC MQ 11 INSERT H

EAEC SETUP H
INR IR Ø5 (1)H
M113 L36
N2 EAEC ENABLE MQ L

C1
M111 L33
D2 EAEC SETUP H

EAEC INST H
CPT TSS (1)H
EAET ON (Ø)H
CPS FETCH B (1)H
M117 L30
J2
EAEC SETUP L
D2
M121 L31
INR IR Ø6 (1)L
J2 EAEC ENABLE SC H

MQR MQ 10 (Ø)H
MQR MQ 11 (Ø)H
MQR MQ 10 (1)H
MQR MQ 11 (1)H
M121 L31
P2
E2
M111 L33
F2
-EAES SCØ-3 EQ Ø H
EAEC DIV EXECUTE H
-INS N EQ Ø7 H
EAET ON (1)H
M160 L37
R1 EAEC ENABLE AC L
INS N EQ Ø7 H
M115 L34
V1 EAEC ENABLE -AC L

EAEC SETUP H
MQR MQ 10 (Ø)H
EAEC LAST DIV H
MQR MQ 10 (Ø)H
EAEC SETUP H
INR IR Ø7 B (Ø)H
INR IR Ø4 (Ø)H
EAET ON (1)L
EAEC DIV EXECUTE L
M117 L39
E1

EAEC SETUP H
M113 L36
S1 EAEC EN LD MQ L
M111 L33
B1 EAEC AC TO MQ EN H
P2
PRC MB Ø4 (Ø)H
M113 L36
S2 EAEC AC TO MQ EN L

INS N EQ Ø5 H
CPT TS RECYCLE (1)H
EAET ON (1)H
M115 L29
H2 EAEC MUL ADD L

EAEC DIV EXECUTE L
EAEC LAST DIV H
MQR MQ 11 (Ø)H
M113 L35
V2 EAEC EN MB H

INS N EQ Ø7 H
EAEC EXECUTE H
CPT RECYCLE SYNC (1)H
M115 L29
U1
J1
M111 L33
K1 EAEC DIV EXECUTE H
EAEC DIV EXECUTE L

INS N EQ Ø7 H
EAET ON (1)H
EAES SC Ø1 (1)H
CPT RECYCLE SYNC (Ø)H
M117 L30
P2
EAEC LAST DIV L
H1
M113 L35
K1 EAEC LAST DIV H

EAEC DIV EXECUTE H
MQR MQ 11 (1)L
EAES SC EQ Ø L
M113 L35
N2
M113 L35
S1
MQR MQ Ø0 (1)H
MQR MQ Ø0 (Ø)H
M121 L31
S1 -EAEC LOW SH IN L
D1
M111 L33
E1

EAEC ENABLE -AC L
EAEC SETUP H
INR IR Ø9 (1)H
M115 L29
V1
M115 L29
S2 EAEC LINK DISABLE H
EAEC EXECUTE H
INS N EQ 17 H
M113 L36
V2 -EAEC LINK LD EN L
P1
M112 L38
S1 EAEC LINK DISABLE L

REVISIONS		
ORIG	CHANGE NO.	REV.
JB	00001	A
JR	J.SCANLAN 3-13-69	
	EP12-00001	B
	[signature] 7-9-69	
	[signature] 7-15-69	

DRN. D.L.SHEPARD	DATE 2-20-69	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. J.BISONETTE	DATE 2-20-69	
ENG. L.JALF	DATE 2-20-69	TITLE EAE CONTROL
PROJ. ENG. M GALE	DATE 2-20-69	
PROD. W CALL	DATE 2-20-69	
FIRST USED ON KE12		SIZE D / CODE 85 / NUMBER KE12-Ø-EAEC / REV. B
SCALE		
SHEET 1 OF 1		DIST.

M906
K27
B1 EAEC EN LD MQ L *M90E K27

M906
K27
J1 EAEC ENABLE -AC L

M906
K27
E1 EAEC AC TO MQ EN L

M906
K27
H1 EAEC ENABLE AC L

M906
K27
J1 EAEC ENABLE MQ L

M906
K27
L1 EAEC LAST DIV L

M906
K27
V2 EAET MQ LOAD (0)H — EAEC LINC DISABLE H N2

M906
K27
P1 EAEC LINK LD EN — EAEC LONG INST H R2

M906
K27
S1 EAEC MUL ADD L — EAEC EN MB H F1

M906
K27
D2 EAEC R SH EN L — EAEC ENABLE SC H K1

M906
K27
E2 EAEC SETUP L — EAEC INST H N1

M906
K27
H2 EAEC SH L EN L — EAEC MQ 11 INSERT H R1

M906
K27
K2 EAET ON (0)H — RCS EN MQ SH LEFT H F2

M906
K27
M2 EAET RECYCLE L — EAET ON (1)H J2

M906
K27
P2 FLE K28K2

* INSERTED ONLY WHEN SYSTEM DOES NOT HAVE KE12.

REVISIONS		
CODE	CHANGE NO.	REV.
DS	00002	A
	ADS	
G Scanlon 3/13/69		

DRN.	R A Shepard	DATE 2/20/69
CHK'D.	T L Bonnette	DATE 2/24/69
ENGR.		DATE
PROJ. ENG.		DATE
PROD.		DATE
FIRST USED ON	KE12	
SCALE		
SHEET 1 OF 1		

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: EAE DISABLE

SIZE	CODE	NUMBER	REV.
D	66	KE12-0-EAED	A

DIST.

EAES SC Ø1 (1)H K2
EAES SC Ø2 (1)H L2
EAES SC Ø3 (1)H M2
EAES SC Ø4 (1)H N2
M117 M34
P2

+3V M34U1 H D2
EAET ON B (1)H E2
EAES SC Ø0 (1)H F2
H2
J2 K2
PRD MB Ø7 (Ø)H L2
EAES EN MB TO SC H M2
+3V M34U1 H N2
EAET ON B (1)H P2
EAES SC Ø0 (Ø)H R2
S2
M160 M35
T2

U2 M111 L33 V2

EAES SC Ø2 (1)H E1
EAES SC Ø3 (1)H F1
EAES SC Ø4 (1)H H1
M115 L34
J1

H2 M113 M33
EAES SC Ø0 (1)H J2
K2 EAES SC FULL L

P2 M111 L33 R2

EAES SC Ø3 (1)H L1
EAES SC Ø4 (1)H M1
M113 M33
N1 R1 M111 L33 S1

EAEC NMI H A1
EAET ON (1)H B1
C1
M115 L29
D1 EAES EA MQ SH L 1 L

EAES SC 3 EQ Ø L

EAES SC Ø0 (Ø)H R2
EAES SC Ø1 (Ø)H S2
EAES SC Ø2 (Ø)H T2
EAES SC Ø3 (Ø)H U2
M117 M34
V2 V1 M111 L33 U1

EAES SC Ø-3 EQ Ø H
H1
EAES SC Ø4 (Ø)H J1
M113 M33
K1 EAES SC EQ Ø L

EAEC DIV EXECUTE L L2
INS N EQ 13 L M2
M113 M33
N2

D2
CPT TS RECYCLE (1)H E2
-EAET DIV OVFLOW H F2
EAEC EXECUTE H H2
M117 M34
J2 EAES EA MQ SH L 2

-INS N EQ Ø5 H A1
-INS N EQ Ø7 H B1
SLA EX TS4 H C1
M115 L34
D1 S2 M111 L33 T2

EAES EN MB TO SC H

EAEC NMI L P1
EAEC EXECUTE L R1
M113 M33
S1

CPTP TP4 H P2
R2
EAET MQ LOAD (1)L U2
M113 M33
S2 T2 M113 M33

EAES SC Ø1 (1)H D2
EAET ON B (1)H E2
F2
H2
J2 K2
M160 M36
T2

EAES EN MB TO SC H L2
PRE MB Ø8 (Ø)H M2
N2
EAES SC Ø1 (Ø)H P2
EAET ON B (1)H R2
+3V M34U1 S2

EAET ON B (1)H A1
EAES SC Ø2 (Ø)H B1
C1
EAES (SC Ø3*SC Ø4) H D1
E1
F1
H1
J1
M160 M36
R1

PRE MB Ø9 (Ø)H K1
EAES EN MB TO SC H L1
EAES (SC Ø3*SC Ø4) L M1
EAES SC Ø2 (1)H N1
EAET ON B (1)H P1

EAES SC Ø3 (Ø)H A1
EAES SC Ø4 (1)H B1
EAET ON B (1)H C1
D1
E1
F1
M160 M35
R1

H1
J1
EAES EN MB TO SC H K1
PRF MB 10 (Ø)H L1
EAES SC Ø3 (1)H M1
EAES SC Ø4 (Ø)H N1
P1

EAET ON B (1)H S1
EAES SC Ø4 (Ø)H U1
M160 M36
V2

PRF MB 11 (Ø)H V1
U2
EAES EN MB TO SC H

+3V M34U1 H A1
D 1 F1
C1 EAES SC Ø0 M216 M37
B1
C Ø E1
V2 EAES LOAD SC H
+3V M34U1 H D1

+3V M34U1 H A1
D 1 J2
E2 EAES SC Ø1 M216 M37
EAES LOAD SC H D2
C Ø H2
+3V M34U1 H F2

+3V M34U1 H A1
D 1 M1
J1 EAES SC Ø2 M216 M37
EAES LOAD SC H H1
C Ø L1
+3V M34U1 H K1

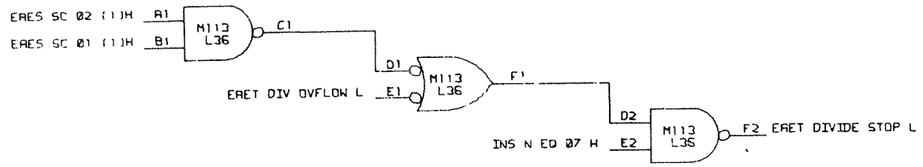
+3V M33U1 H K2
D 1 K2
M2 EAES SC Ø3 M216 M37
EAES LOAD SC H L2
C Ø P2
+3V M33U1 H N2

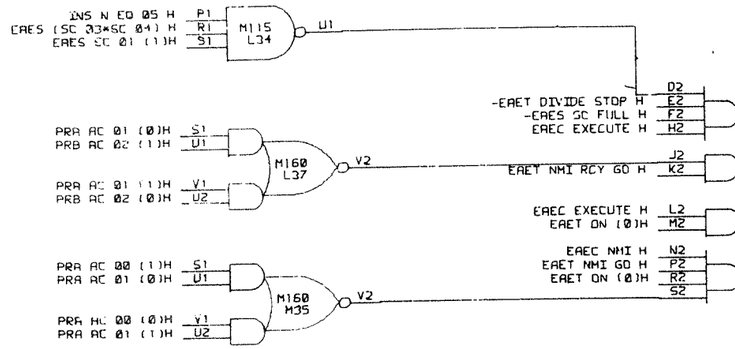
+3V M34U1 H K2
D 1 U1
P1 EAES SC Ø4 M216 J29
EAES LOAD SC H N1
C Ø S1
+3V M34U1 H R1

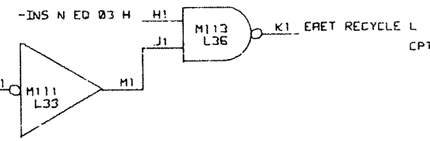
NOTE:
N=Ø1 NOP
N=Ø3 SCL
N=Ø5 MUY
N=Ø7 DVI
N=11 NMI
N=13 SHL
N=15 ASR
N=17 LSR

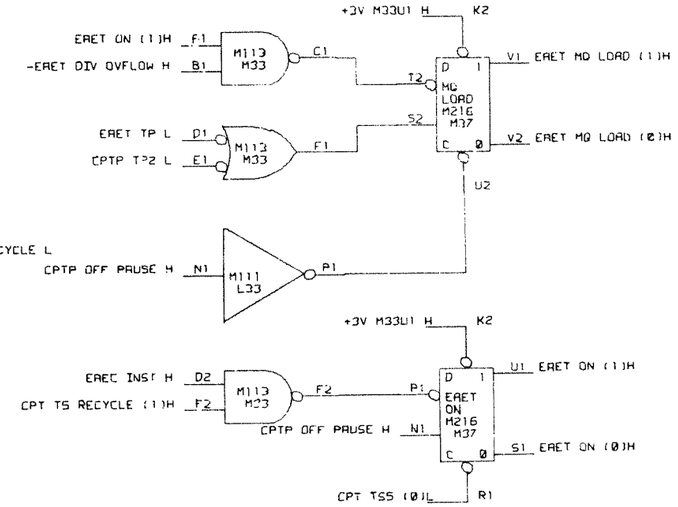
REVISIONS		
CHK	CHANGE NO.	REV.

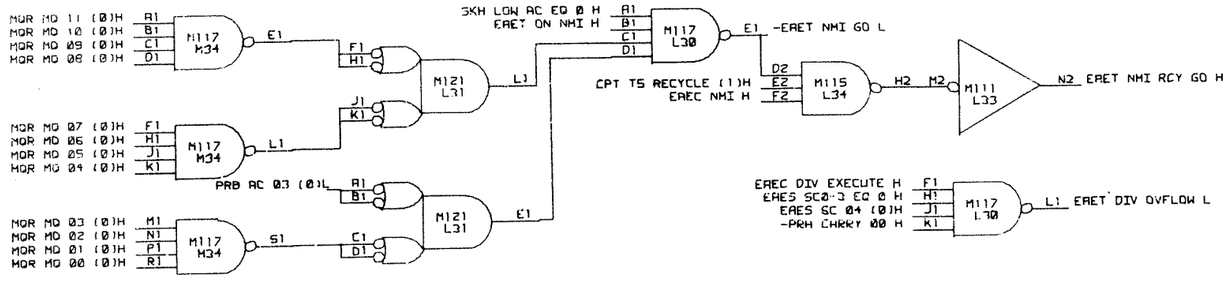
DRN. B. J. Maynard	DATE 4/24/69	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
CHK'D. J. Bierman	DATE 2/24/67	TITLE EAE STEP COUNTER & MQ CONTROL	
ENG. L. Hale	DATE 2/24/67		
MAINT. L. Hale	DATE 2/24/67		
PROJ. W. Dell	DATE 2/24/67		
NEXT USED ON KE12			
SCALE		SIZE D	CODE 85
SHEET 1 OF 1		NUMBER KE12-0-EAES	REV. 00
		DIST.	

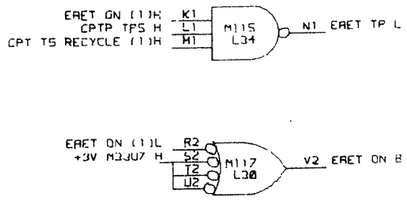












DRN.	S Shepard	DATE	6/28/84
CHK'D.	D Bennett	DATE	7/24/84
		DATE	7/26/84
		DATE	7/26/84
		DATE	8/24/84
USED ON	KE12		
SCALE			
SHEET	1 OF 1		

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: EAE TIMING

SIZE	CODE	NUMBER	REV.
D	BS	KE12-0-EAET	00

DIST.

MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
A-ML-EP12-0	REF	2	PROCESSOR
~~A-ML-PDP12-0~~		~~2~~	~~PDP12 SYSTEM~~
~~K-WL-EP12-0-3~~	~~REF~~		~~WIRE LIST~~
D-MU-EP12-0-1	REF	2	MODULE UTILIZATION PROC
~~D-MU-EP12-0-2~~	~~REF~~		~~MODULE UTILIZATION PROC~~
D-BS-XY12-0-PCL	A	1	PCL PLOTTER CONTROL
A-PL-EP12-0-1	REF	3	MODULE UTILIZATION PROC PL
~~A-PL-EP12-0-2~~	~~REF~~		~~MODULE UTILIZATION PROC PL~~
C-IA-7005543-0-0	#	1	PLOTTER CONTROL CABLE W023

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
A	12/69	00001	L.G.
B	6/70	EP12-23	L.G.
C	3/71	EP12-36	J.S.
D	1/72	EP12-~~44~~	R.M.

DRN. J. APREA	DATE 3/7/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. R. HUTNAK	DATE 3/7/69	
ENG. L. Gale	DATE 3/10/69	TITLE PLOTTER CONTROL
PROJ. ENG. L. Gale	DATE 3/10/69	
PROD. W Call	DATE 3/10/69	
FIRST USED ON PDP-12		SIZE A / CODE ML / NUMBER XY12-0 / REV. D
SCALE		
SHEET 1 OF 1		DIST.

DEC FORM NO. DRA 103

PRE MB Ø8 (Ø)L
PRD MB Ø7 (Ø)L
PRB MB Ø3 (1)H — MF2
PRC MB Ø4 (Ø)H — MH2
PRD MB Ø6 (Ø)H — MD2
PRC MB Ø5 (1)H — ME2
IOC IOP 1 H — NH2
PCL PLTR IOT H
PCL FAST OP DONE L
PRE MB Ø8 (1)H — MK2 — PEN RIGHT — MJ2 PCL PEN R H
PRD MB Ø7 (1)H — MS2 — PEN LEFT — ML2 PCL PEN L H
PRD MB Ø7 (Ø)H
PRE MB Ø8 (Ø)H
5Ø INST L — DRUM UP — MN2 PCL DRUM UP H
PCL PLTR IOT H — MM2
IOC IOP 2 H — NP2
M7Ø4
MØ5
NØ5
IOC IOP 4 H
PCL PTRL IOT H
PRE MB Ø8 (1)H — DRUM DOWN — MR2 PCL DRUM DOWN H
IOC IOP 1 L — NL2
IOC IOP 4 H — NT2
PRD MB Ø7 (Ø)H — NU1
NM2
IOC IOP 2 L
PCL PLTR IOT H
PCL 5Ø INST L
DLY 1 2.5 MS Ø — NJ2 — DLY 1 2.5 MS Ø — DLY 2 (1)H — DLY 2 (Ø)H
5Ø INST L
5Ø INST H
MU2 — PEN UP — MT2 PCL PEN UP H
PCL SLOW OP DONE L
PRD MB Ø7 (1)H — PEN DOWN — MV2 PCL PEN DOWN H
WØ25
NØ9
CANNON SK-19-21Ø-½
PCL PLTR FLAG (Ø)H — NS2
PCL PLTR IOT H
IOC IOP 9 H
PRE MB Ø8 (Ø)H — NV1
DLY 1 35 MS Ø — NK2 — DLY 1 35 MS Ø
PCL IO PRESET L
ND2 — PCL SLOW OP DONE L
DLY 2 (1)H
DLY 2 (1)L
PCL IO PRESET L — MP2 — PCL FAST OP DONE L
PLTR FLAG — PCL PLTR IOT H — IOC IOP 1 H — PCL 5Ø INST H — NE2 — INT SKIP BUS L
NOTE: SKIP AND INT REQUESTS ARE OPEN COLLECTOR OUTPUT
+3V — NF2 — PCL INT RQST BUS L
PCL PLTR IOT H
IOC IOP 2 H
PCL 5Ø INST H
IOC IO PRESET H — NN2 — PCL IO PRESET L

C2 15 · P2 4 · R2 3 · S2 1 · T2 2 · U2 9 · V2 10

REVISIONS			
CHK	CHANGE NO.	REV.	
MK	EP12-00036	A	
	Released 4-27-71		
	J. SCANLAN		
	J. Scanlan 3-20-71		

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

DRN. Joe Ayers DATE 2-5-69
CHK'D. J. Pompeo DATE 2-25-69
ENG. K. Claycomb DATE 2-28-69
PROJ. ENG. J. Hall DATE 2-28-69
PROD. J. Hall DATE 3/4/69
FIRST USED ON XY12
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

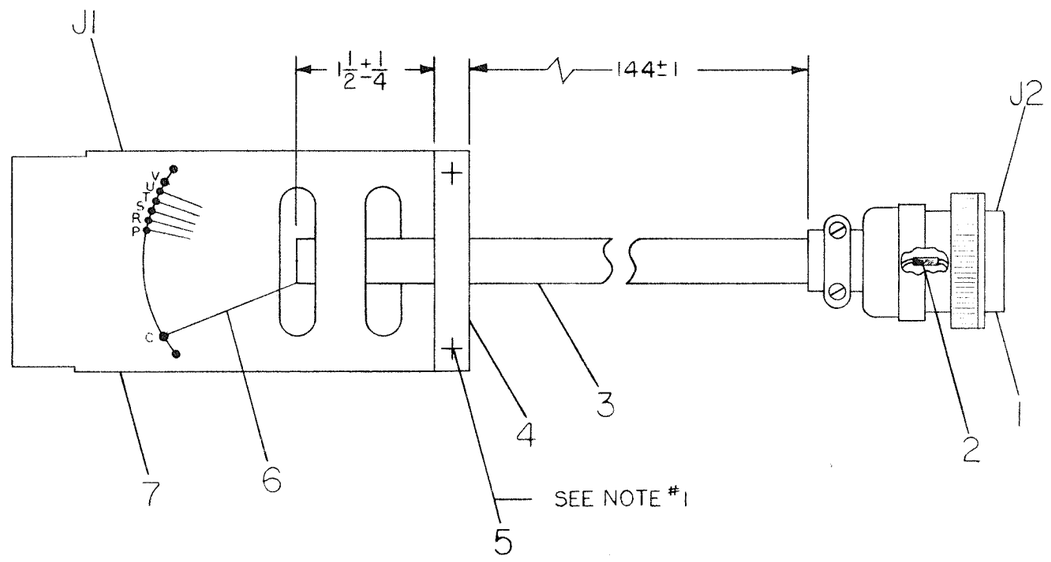
TITLE
PCL PLOTTER CONTROL

SIZE D | CODE BS | NUMBER XY12-Ø-PCL | REV. A
DIST.

DEC FORM NO. DRD 102A

XY12-Ø-PCL | D | BS | A

WIRE TABLE	
CONNECTION	
FROM	TO
J1 - C	J2 - 15
P	4
R	3
S	1
T	2
U	9
J1 - V	J2 - 10



NOTES:

1. ASSEMBLE CABLE CLAMP #4 WITH EYELETS #5 AFTER WIRE #6 IS SOLDERED TO BOARD.

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		
1	WØ23 CABLE CONNECTOR	5002726	7
A/R	#18 AWG STRD TEF WHT		6
2	EYELET #A-94 E.B. STIMPSON		5
1	CLABLE CLAMP	5302016	4
A/R	BLK VINYL TUBING #2 — 17/64 ID		3
7	TUBING HY-SHRINK #18 X 1/4 LONG RED		2
1	CANNON SK-19-21C-1/2		1

REVISIONS			
CHK	CHANGE NO.	REV.	
GM	ECO 58101 CHANGED DIM FROM 120±1 TO 144±1	A	L. Gale 10/10/67
	WØ23-00003	B	L. GALE

UNLESS OTHERWISE SPECIFIED

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

MATERIAL //

FINISH //

DRN. P Sweeney	DATE	6-30-67
CHK'D. W Cunningham	DATE	7-21-67
ENG. D Woods	DATE	7-22-67
PROJ. ENG. D Woods	DATE	7-22-67
PROD. D Woods	DATE	7-22-67

FIRST USED ON C-UA-35C-C-0

SCALE 1/1

SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
PLOTTER CONTROL CABLE WØ23

SIZE	CODE	NUMBER	REV.
C	1A	7005543-0-0	B

DIST. 6

REV. B
NUMBER 7005543-0-0
SIZE C CODE 1A

DEC FORM NO. DRC 100

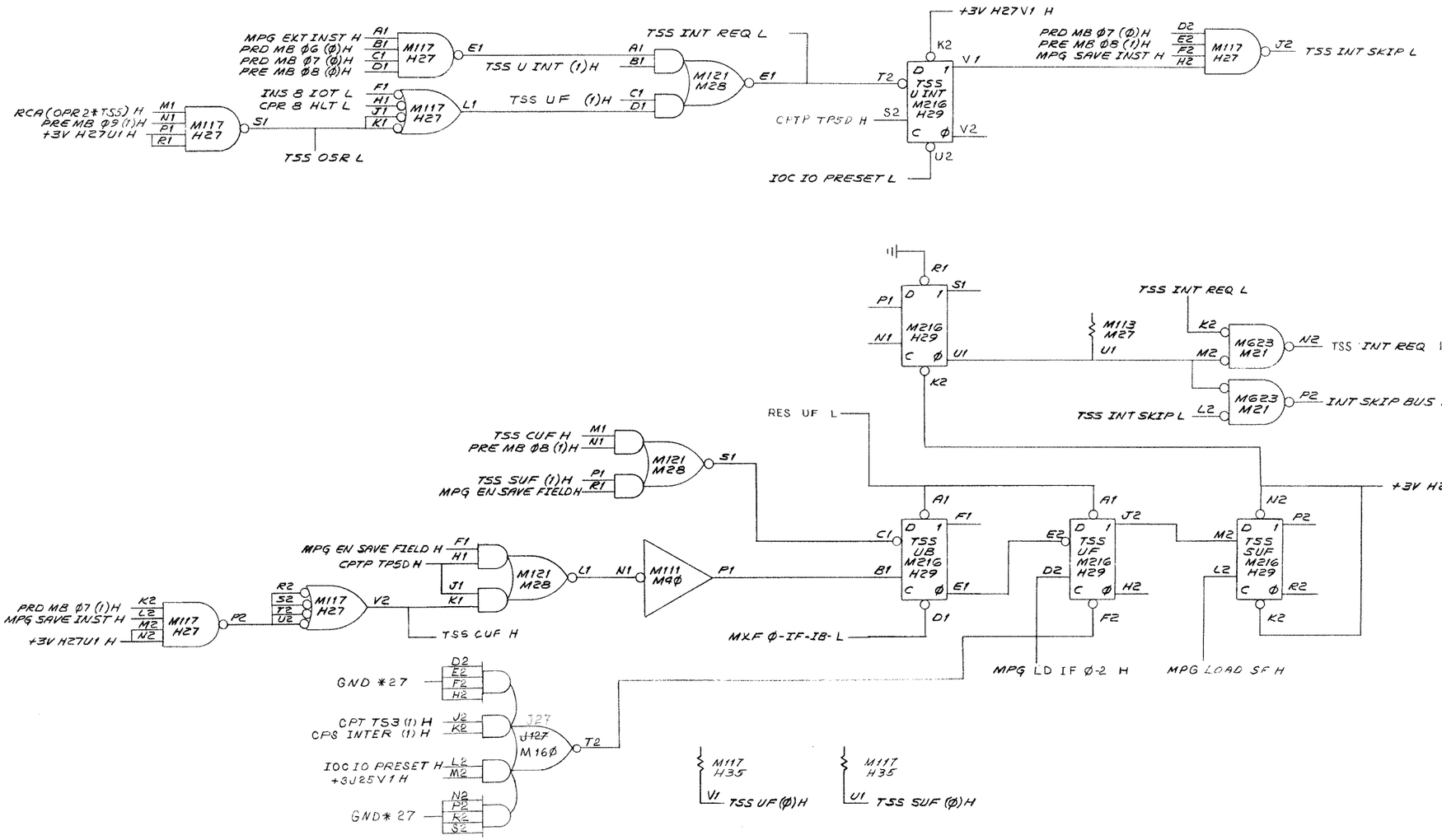
MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
A-ML-EP12-0	REF	2	PROCESSOR
D-MU-EP12-0-1	REF	2	MODULE UTILIZATION PROC
D-BS-KT12-0-TSS	D	1	PDP-12 TIME SHARING OPTION
A-PL-EP12-0-1	REF	3	MODULE UTILIZATION PROC PL
A-SL-KT12-0-2		1	SOFTWARE LIST
A-SP-KT12-0-1		2	ACCEPTANCE PROCEDURE

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
A	4/18/69	EP12-02	J.S.
B	7/70	EP12-26	L.G.
C	10/70	EP12-30	L.G.
D	3/71	EP12-36	J.S.
E	1/72	EP12-44	R.M.
F	7/72	EP12-46	R.I.

DRN. J. SCANLAN	DATE 3/7/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. R. Hutnak	DATE 3/7/69	
ENG. L. Gale	DATE 3/10/69	
PROJ. ENG. L. Gale	DATE 3/10/69	
PROD. W Call	DATE 3/10/69	
FIRST USED ON		TITLE: PDP-12 TIME SHARING OPTION
SCALE		SIZE A · CODE ML · NUMBER KT12-0 · REV. F
SHEET 1 OF 1		DIST.

DEC FORM NO. DRA 103



REVISIONS	CHANGE NO.	REV.	CHK
J. SCANLON 3/22/69	EP12-00002	A	
D. MACKLIN 8/18/70	EP12-00026	B	
D. MACKLIN 9-2-70	EP12-00030	C	
D. MACKLIN 11-9-70	EP12-00036	D	
J. SCANLAN 5-20-71			

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL

FINISH

DRN. DATE 3/1/69
CHKD. V. Scanlan DATE 3/1/69
ENG. DATE 3/1/69
PROJ. ENG. DATE 3/1/69
PROD. D. Call DATE 3/1/69
FIRST USED ON KT12
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
PDP-12 TIME SHARING OPTION

SIZE D | CODE BS | NUMBER KT12-Ø-TSS | REV. D | DIST.

DEC FORM NO. DRD 102A

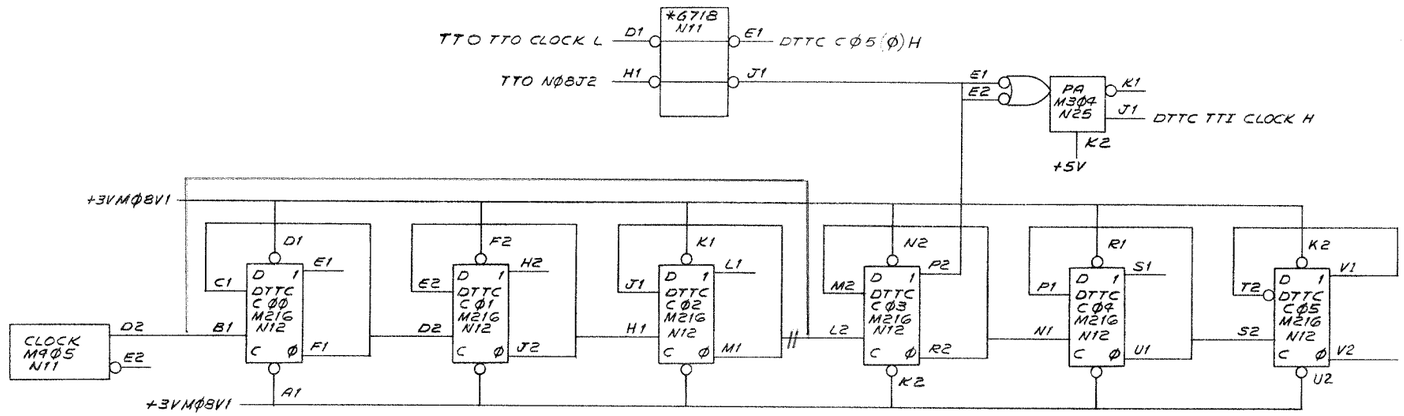
MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
~~A-ML-PDP12-0~~	~~REF~~	~~2~~	~~PDP 12 SYSTEM~~
A-ML-EP12-0	REF	2	PROCESSOR
~~K-WL-EP12-0-3~~	~~REF~~		~~WIRE LIST~~
D-MU-EP12-0-1	REF	2	MODULE UTILIZATION PROC.
~~D-MU-EP12-0-2~~	~~REF~~		~~MODULE UTILIZATION PROC.~~
A-PL-EP12-0-1	REF	3	MODULE UTILIZATION PROC. PL
~~A-PL-EP12-0-2~~	~~REF~~		~~MODULE UTILIZATION PROC. PL~~
D-BS-DP12-0-DTTC	B	1	DTTC DATAPHONE CLOCK
D-BS-DP12-0-DTTI	B	1	DTTI TELETYPE RECEIVER
D-BS-DP12-0-DTTO	C	1	DTTO TELETYPE TRANSMITTER
A-SP-DP12-0-1		7	ENGINEERING SPECIFICATION

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
A	2/70	EP12-20	L.G.
B	5/70	EP12-22	D.C.
C	9/70	EP12-29	L.G.
D	1/72	EP12-44	R.M.

DRN. J.APREA	DATE 3/7/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. K. RUSS	DATE 7/25/69	
ENG. [signature]	DATE 8/11/69	TITLE TTY/DATAPHONE
PROJ. ENG. [signature]	DATE 8/11/69	
PROD. [signature]	DATE 8/18/69	
FIRST USED ON PDP12		SIZE A · CODE ML · NUMBER DP12-A · REV. D
SCALE —		
SHEET 1 OF 1		DIST.

DEC FORM NO. DRA 103



DP12-A

WHEN THE DP12 IS USED TO DRIVE A TELETYPE AT 11Ø BAUD, THE MØ5 (N11) AND M216 (N12) ARE NOT USED. G718 MODULE IS PLACED IN SLOT N11 THEREBY CONNECTING THE PDP-12 TELETYPE TO THE DP12 INPUT AND OUTPUT MODULES.

DP12-B

WHEN THE DP12 IS USED AT OTHER BAUD RATES (UP TO 1Ø,ØØØ BAUD) THE CRYSTAL CLOCK (MØ5, N11) IS SELECTED TO BE 128 TIMES THE BAUD RATE.

FOR BAUD RATES BETWEEN 1Ø,ØØØ TO 1ØØ,ØØØ THE WIRE FROM N12L2 TO N12M1 IS REMOVED AND A WIRE IS ADDED FROM N12L2 TO N11D2. THE CRYSTAL RATE IS THEN SELECTED TO BE 16 TIMES THE BAUD RATE.

USE CABLE BC01A-25 FOR INTER-CONNECTION TO DATAPHONE.

The function of G718 is given by these two jumpers:
N11 D1 - N11 E1
N11 H1 - N11 J1

CHANGE INCORPORATED

REVISIONS	CHK	CHANGE NO.	REV.
	GALE	EP12-00003	A
	GALE	EP12-00020	B

DEC FORM NO. DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL

FINISH

		DATE
DRN.	Joe Ayers	2-23-69
CHK'D.	M Scanlon	2/27/69
ENG.	M Scanlon	2-27-69
PROJ. ENG.	M Scanlon	2-27-69
PROD.	D Gale	2/28/69

FIRST USED ON: D12

SCALE NONE

SHEET OF

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
DTTC
DATAPHONE CLOCK

SIZE	CODE	NUMBER	REV.
D	BS	DP12-Ø-DTTC	B

DIST.

DTTI TT0 L
DTTI TT1 L
DTTI TT2 L
DTTI TT3 L
DTTI TT4 L
DTTI TT5 L
DTTI TT6 L
DTTI TT7 L
DTTI SKIP L
MK2
MR2
MS2
ML1
MM1
MP2
MT2
MN2
NH2
U1
M117 L13
DTTI STROBE H
DTTI REC PRESET L
DTTI DATA H
DTTI SHIFT H
+3V
MR1
MK1
MJ2
DTTI 0
DTTI 1
DTTI 2
DTTI 3
DTTI 4
DTTI 5
DTTI 6
DTTI 7
ND2
IOC IOP 1 H
DTTI KEYBOARD SELECT H
DTTI KEYBOARD FLAG (1)H
MF2
DTTI KEYBOARD FLAG (0)H
DTTI CLOCK SCALE 2 (1)H
DTTI IN ACTIVE (1)H
NU1
MS1
DTTI SHIFT L
NK2
DTTI START ENABLE L
+3V M0BV1 H
DTTO TTI CLOCK H
NR1
NS2
DTTI REC PRESET L
DTTI KEYBOARD SELECT H
IOC IOP 2 H
NJ2
NE2
DTTI TT AC CLEAR L
V1
M113 L21
+3V
ND1
ME2
DTTI KCC L
IOC IO PRESET H
NF2
+3V
DTTI SHIFT H
DTTI SPIKE DETECTOR (1)H
DTTI DATA H
+3V
DTTI SETUP L
DTTI KEYBOARD SELECT H
IOC IOP 4 H
ML2
+3V
MV1
DTTI STROBE H
DTTI SKIP L
DTTO SKIP L
L1
M1
M113 M08
N1
L2
M2
N2
DTTI SKIP TO BUS L
* SEE NOTE N03
E2
NM2
ST
MM2
DTTI DATA L
PRB MB 03 (1)H
PRC MB 04 (0)H
PRC MB 05 (0)H
PRD MB 06 (0)H
PRD MB 07 (0)H
PRE MB 08 (0)H
MD2
ME1
MF1
MH1
MH2
MJ1
+3V
MP1
+3V M08V1 H
DTTI KEYBOARD SELECT H
M113 K22
U1
DTTO TPR FLG (1)L
DTTI KEYBOARD FLAG (1)L
P1
R1
M113 M08
S1
P2
M113 M08
R2
S2
DTTI TT INT L
RCA EN TT INT (0)H
DTTI IN ACTIVE (1)L
DTTI IN LAST UNIT (1)L
DTTI START ENABLE L
M7006
M009
N009
DTTI DTTI 7 (0)H
DTTI SHIFT H
DTTI IN LAST UNIT
NR2
DTTC TTI CLOCK H
MN1
DTTI CLOCK SCALE 0
DTTI CLOCK SCALE 1
DTTI CLOCK SCALE 2
NT2
NS1
DTTI START ENABLE L
NP2
DTTI IN STOP 1
NU2
DTTI IN STOP 2
NV2
DTTI REC PRESET L
NS2
NN2
DTTI IN ACTIVE
DTTI SETUP L
-DTTI SHIFT H
DTTI SPIKE DETECTOR (1)H
DTTI SPIKE DETECTOR (0)H
DTTI KCC L
MV2
NL2
DTTI READER RUN
* SEE NOTE N03
MU2
M2
DTTI B READER RUN H
DTTI SHIFT H
DTTI IN LAST UNIT (1)H
+3V

NOTE: USE A W076 TELETYPE MODULE WITH DPI2-A OPTION. WITH DPI2-B OPTION USE M850 LEVEL CONVERTER. WHEN NEITHER CONNECTOR IS INSERTED, INSTALL G700YA DATAPHONE DISABLE MODULE TO PREVENT SPURIOUS INTERRUPTS CAUSED BY FLOATING DTTI DATA L.

REVISIONS			
CHK	CHANGE NO.	REV.	
	EP12-00034	A	L. GALE 7/15/69
FV	EP12-00022	B	CLAYTON 7/22/70

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

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

DRN.		DATE 2-22-69
CH'D.		DATE 2/27/69
ENG.	R. D. Clayton	DATE 2-28-69
PROJ. ENG.	R. D. Clayton	DATE 2-28-69
PROD.	W. Hall	DATE 2/28/69

FIRST USED ON DP12
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
DTTI TELETYPE RECEIVER

SIZE	CODE	NUMBER	REV.
D	BS	DP12-0-DTTI	B

DIST.

DEC FORM NO. DRD 102A

PRB MB Ø3 (1) H
PRC MB Ø4 (Ø) H
PRC MB Ø5 (Ø) H
PRD MB Ø6 (Ø) H
PRD MB Ø7 (Ø) H
PRE MB Ø8 (1) H
+3V NJ1 H
ME2
ME1
MF2
MF1
MH2
MJ2
NJ1

MN1
+3V MØBV1 H
DTTO SELECT H
MS1
IOC IOP 4 H
MR1

* NOTE: USE A WØ76 TELETYPE MODULE WITH DPI2-A OPTION. WITH DPI2-B OPTION USE M850 LEVEL CONVERTER. WHEN NEITHER CONNECTOR IS INSERTED, INSTALL G700YA DATAPHONE DISABLE MODULE TO PREVENT SPURIOUS INTERRUPTS CAUSED BY FLOATING DTTI DATA L.

+3V MØBV1 H — MN2
MP2 — PRC AC Ø4 (1) H
MR2 — PRC AC Ø5 (1) H
ML2 — PRD AC Ø6 (1) H
MM2 — PRD AC Ø7 (1) H
MU2 — PRE AC Ø8 (1) H
MS2 — PRE AC Ø9 (1) H
MT2 — PRF AC 1Ø (1) H
MU1 — PRF AC 11 (1) H

DTTO ENB — MK2
DTTO Ø
DTTO 1
DTTO 2
DTTO 3
DTTO 4
DTTO 5
DTTO 6
DTTO 7
ML1

DTTO SHIFT H
DTTO PRESET L

DTTO OUT ACTIVE (Ø) L
DTTO LINE — MD2
MV2 — DTTO B MAGNET DRIVER H

DTTO = Ø L
MH1

M7Ø7
M1Ø
N1Ø

DTTO OUT ACTIVE (1) L
+3V MØBV1 H
-DTTO SHIFT L

DTTO OUT ACTIVE (1) H
DTTO FREQ DIV — NP2
DTTC CØ5(Ø) H

DTTO OUT STOP 1 — NR2
DTTO OUT STOP 1.5 — NP1
DTTO OUT STOP 2 — NN1

+3V — DTTO SHIFT H

DTTO OUT STOP 2 (Ø) H — NN2
DTTO ENB (1) H — MK1
DTTO OUT ACTIVE (1) H
-DTTO = Ø H

DTTO OUT ACTIVE — MD1
C Ø

+3V
DTTO OUT ACTIVE (1) L
+3V
IOC IOP 1 H — NH2 — NJ2 — DTTO SKIP L
M113 L13 V1
DTTO SELECT H

DTTO = Ø L
DTTO SHIFT H
DTTO TPR2 FLG — NK2

IOC IO PRESET H — NE2
+3V
DTTO PRESET L

+3V MØBV1 H — NF2
+3V
+3V
DTTO SELECT H
IOC IOP 2 H — NØ2

A2 — +5V
B2 — -15V
C2
D2
E2
F2 — DTTI DATA L
H2 — DTTO B MAGNET DRIVER H
J2
K2
L2
M2 — DTTI B READER RUN H
N2
P2
R2
S2
T2
U2
V2 — -3ØV

*SEE NOTE NØ3

REVISIONS			
CHK	CHANGE NO.	REV.	
Smith	EP12-00003	A	
Smith	EP12-00004	B	
FV	EP12-00022	C	

T. QUILLIN 6/20/69
GALE
L. Gale 1/15/69
L. GALE 1/15/69
Russell 5-18-70
CLAYTON
J. Scanlan 5/21/70

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

DRN.	Joe Cyrus	DATE 2-22-69
CHK'D.	J. Scanlan	DATE 2/27/69
ENG.		DATE 2-4-69
PROJ. ENG.		DATE 3-19-69
PROD.	W. Hall	DATE 3/28/69

FIRST USED ON DPI2
SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
DTTO TELETYPE TRANSMITTER

SIZE	CODE	NUMBER	REV.
D	85	DP12-Ø-DTTO	C

DIST.

DEC FORM NO. DRD 102A

SIZE D 85 | NUMBER DP12-Ø-DTTO | REV. C

MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
~~A-ML-PDP12-0~~	~~REF~~	~~2~~	~~PDP 12 SYSTEM~~
A-ML-EP12-0	REF	2	PROCESSOR
~~K-WL-EP12-0-3~~	~~REF~~		~~WIRE LIST~~
D-MU-EP12-0-1	REF	2	MODULE UTILIZATION PROC.
~~D-MU-EP12-0-2~~	~~REF~~		~~MODULE UTILIZATION PROC.~~
A-PL-EP12-0-1	REF	3	MODULE UTILIZATION PROC. PL
~~A-PL-EP12-0-2~~	~~REF~~		~~MODULE UTILIZATION PROC. PL~~
D-BS-DP12-0-DTTC	B	1	DTTC DATAPHONE CLOCK
D-BS-DP12-0-DTTI	B	1	DTTI TELETYPE RECEIVER
D-BS-DP12-0-DTTO	C	1	DTTO TELETYPE TRANSMITTER
D-IA-BC01A-0-0	#	1	LEVEL CONVERTER (BI POLAR) CABLE
A-SP-DP12-0-1		7	ENGINEERING SPECIFICATION

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
A	2/70	EP12-20	L.G.
B	5/70	EP12-22	D.C.
C	9/70	EP12-29	L.G.
D	1/72	EP12-44	R.M.

DRN. J. APREA	DATE 3/7/69	
CHK'D. K. RUSS	DATE 7/25/69	
ENG. L. Gale	DATE 8/11/69	
PROJ. ENG. L. Gale	DATE 8/11/69	
PROD. [illegible]	DATE 8/18/69	
FIRST USED ON PDP12		
SCALE #		
SHEET 1 OF 1		

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE

TTY/DATAPHONE
(EIA LEVEL)

SIZE	CODE	NUMBER	REV.
A	ML	DP12-B	D

DIST.

DEC FORM NO. DRA 103

LEGEND

NUMBER	DIM "A"	TOLERANCE
BCØIA-5	5 FT	± 2 IN
BCØIA-10	10 FT	± 3 IN
BCØIA-15	15 FT	± 4 IN
BCØIA-20	20 FT	± 5 IN
BCØIA-25	25FT	±6 IN
BCØIA-30	30 FT	± 7 IN
BCØIA-35	35 FT	± 8IN
BCØIA-40	40 FT	± 10 IN
BCØIA-45	45 FT	± 11 IN
BCØIA-50	50 FT	± 12IN

WIRE TABLE

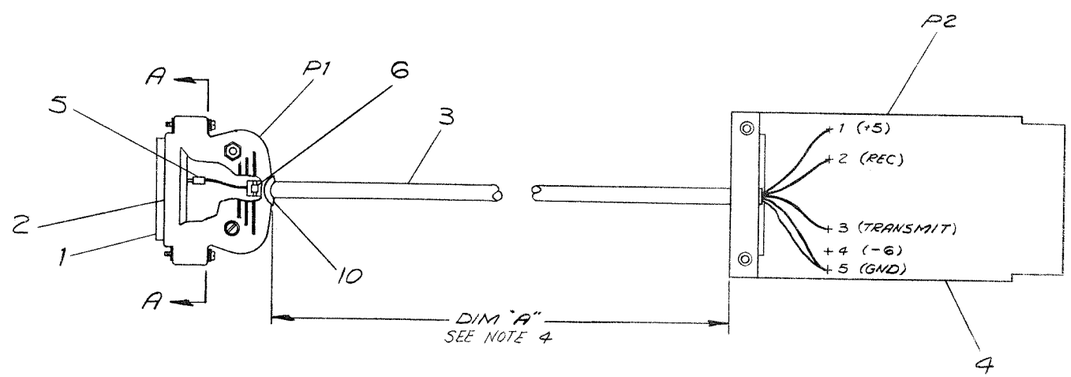
ITEM NO	DESCRIPTION AWG	COLOR	FROM CONNECTION	FROM WITH	TO CONNECTION	TO WITH
3	#22	BLK	P1-1	5-SOLDER	P2-5	SOLDER
3	#22	RED	P1-2	5-SOLDER	P2-3	SOLDER
3	#22	GRN	P1-3	5-SOLDER	P2-2	SOLDER
3	#22	ORN	P1-7	5-SOLDER	P2-5	SOLDER
3	#22	WHT	P1-20	5-SOLDER	P2-1	SOLDER

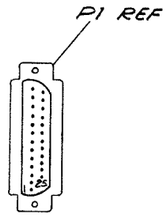
NOTES:

1. EACH SOLDERED CONNECTION ON P1 SHALL BE INSULATED WITH A 1/4 INCH PIECE OF HY-SHRINK TUBING (#5)
2. APPLY TAPE (#9) BETWEEN CABLE (#3) AND BOARD (#4) THEN SOLDER. ASSEMBLE CLAMP (#8) & EYELETS (#7) TO BOARD AFTER SOLDERING.
3. ~~VARIATIONS AND LENGTHS SHOWN IN LEGEND ARE STANDARD OTHER THAN STANDARD. VARIATIONS WILL BE SPECIFIED BY ALPHANUMERIC DESIGNATION. FOR LENGTHS OTHER THAN FOOT INCREMENTS FROM ONE (1) FOOT THRU NINE (9) FEET, ELEVEN (11) INCHES.~~

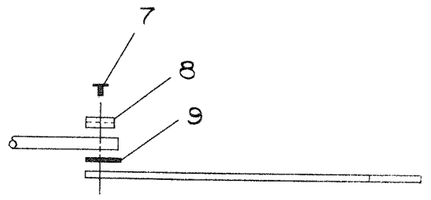
   ~~A = 1" G = 7"~~
   ~~B = 2" H = 8"~~
   ~~C = 3" J = 9"~~
   ~~D = 4" K = 10"~~
   ~~E = 5" L = 11"~~
   ~~F = 6"~~

   ~~EXAMPLE: BCØ2X - 5D = 5'4"~~
   ~~LENGTHS WILL BE IN FOOT INCREMENTS FROM TEN (10) FEET ON. AND WILL BE SPECIFIED BY THE CORRESPONDING NUMERICAL DESIGNATION~~
   ~~EXAMPLE: BCØ2X - 11 = 11 FEET~~
   ~~THE TOLERANCE ON DIMENSION "A" WILL BE ± 2 % OF THE FOOT INCREMENT.~~
4. CABLE TO BE CUT TO DIM "A" + 8 INCHES





SECTION A-A



QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	GROMMET #809 A.I.R.	9007668	10
A/R	TAPE #4032 1/2 x 1 3/4 YDS (3M CO)	9007834-0-0	9
1	CABLE CLAMP	1202704	8
2	EYELET #GS-4-7 STIMPSON	9008732	7
1	TIE WRAP PANDUIT #SST-1B	9007031	6
4	HEAT SHRINK TUBING 1/8 DIA	9107255	5
1	M850 CABLE CONN	M850	4
A/R	CABLE, BELDEN 5 COND	9107680	3
1	PLUG CINCH HOOD #DBS/22G-1	1205885	2
1	PLUG CINCH DB-25P	1205886	1

PARTS LIST

REVISIONS	CHK	CHANGE NO.	REV.
		BCØIA-00001	A
		LKL ØTZ	
		BCØIA-00003	B
		L. KLOTZ	

FIRST USED ON OPTION/MODEL: BCØIA

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

DRN. [illegible] DATE 5-5-69
CHK'D. [illegible] DATE 9/16/69
ENG. [illegible] DATE 9/16/69
PROJ. ENG. [illegible] DATE 9/16/69
PROD [illegible] DATE 9/16/69
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
LEVEL CONVERTER (BI POLAR)

SIZE D | CODE IA | NUMBER BCØIA-Ø-Ø | REV. B
DIST. G

DEC FORM NO. DRD 100

SIZE D | CODE IA | NUMBER BCØIA-Ø-Ø | REV. B

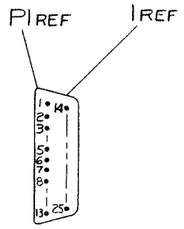
LEGEND	
NUMBER	"A" DIM
BCØ1J-1Ø	10' ± 2"
BCØ1J-25	25' ± 5"

WIRE TABLE

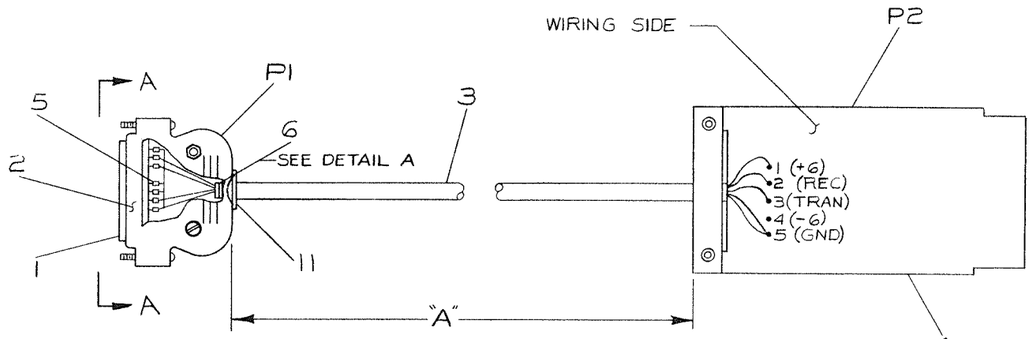
ITEM NO.	DESCRIPTION AWG	COLOR	FROM CONNECTION	TO CONNECTION	REMARKS
3		BLK	P1-7	P2-5	
3		GRN	P1-2	P2-2	
3		RED	P1-3	P2-3	
3		BRN	P1-1	P2-5	
10	22		P1-5	P1-6	JUMPER
10	22		P1-6	P1-8	JUMPER
3		WHT	P1-5	P2-1	

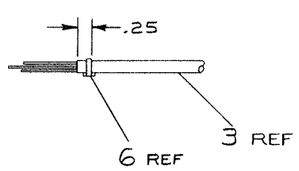
NOTES:

1. ALL WIRE [illegible] TO BE INSULATED WITH A .25 INCH PIECE OF TUBING (ITEM #5).
2. APPLY TAPE (ITEM #9) BETWEEN CABLE (ITEM #3) AND BOARD (ITEM #4), ALSO BETWEEN CLAMP (ITEM #8) AND CABLE.

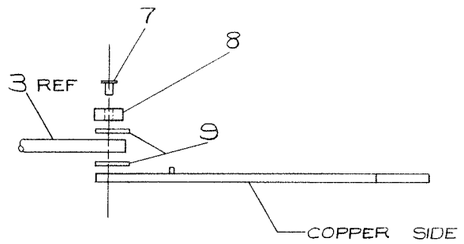


VIEW A-A
SCALE: NONE





DETAIL A



QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	GROMMET	9007668	11
A/R	22 AWG BUS WIRE	9107560-01	10
A/R	TAPE, "4032, .03 THK x .50W	9007834	9
1	CABLE CLAMP	1202704	8
2	EYELET, "GS-4-7, STIMPSON	9006732	7
1	TIE WRAP, PANDUIT "SST-1B	9007031	6
A/R	HIGH SHRINK TUBING, WHT, .12 IN	9107255	5
1	EIA LEVEL CONVERTER	M850	4
A/R	CABLE, BELDON, 5 COND	9107630	3
1	CANNON PLUG HOOD "DB51226-1	1205895	2
1	CANNON CONNECTOR DE-19604-433 (DBM25S)	1204975	1

PARTS LIST

FIRST USED ON OPTION/MODEL: LT37

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
~~DECIMALS FRACTIONS ANGULAR~~
~~± .005 ± 1/64 ± 1°~~
FINAL SURFACE QUALITY 63
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. W.F. McCarthy	DATE 5/6/70	
CHK'D. [illegible]	DATE 5-20-70	
ENG. [illegible]	DATE 5/29/70	
PROJ. ENG. [illegible]	DATE 5/20/70	
PROD. D Call	DATE 5/20/70	

NEXT HIGHER ASSY: D-UA-LT37-Ø-Ø
SCALE: NONE
SHEET 1 OF

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: LEVEL CONVERTER (BI POLAR)

SIZE D | CODE | NUMBER: BCØ1J-Ø-Ø | REV.
DIST.

REVISIONS | REV. | CHANGE NO. | CHK.

DEC FORM NO. DRD 100

MASTER DRAWING LIST

MAINTENANCE MANUALS NO.	TITLE	UNIT VARIATIONS KP12-Ø
KP12-Ø	POWERFAIL/RESTART	X

USED ON OPTIONS							
EP12							

REVISIONS	REV.	DATE	CHG. NO.	APP'D.
	A	8/71	MISC-86	mcb

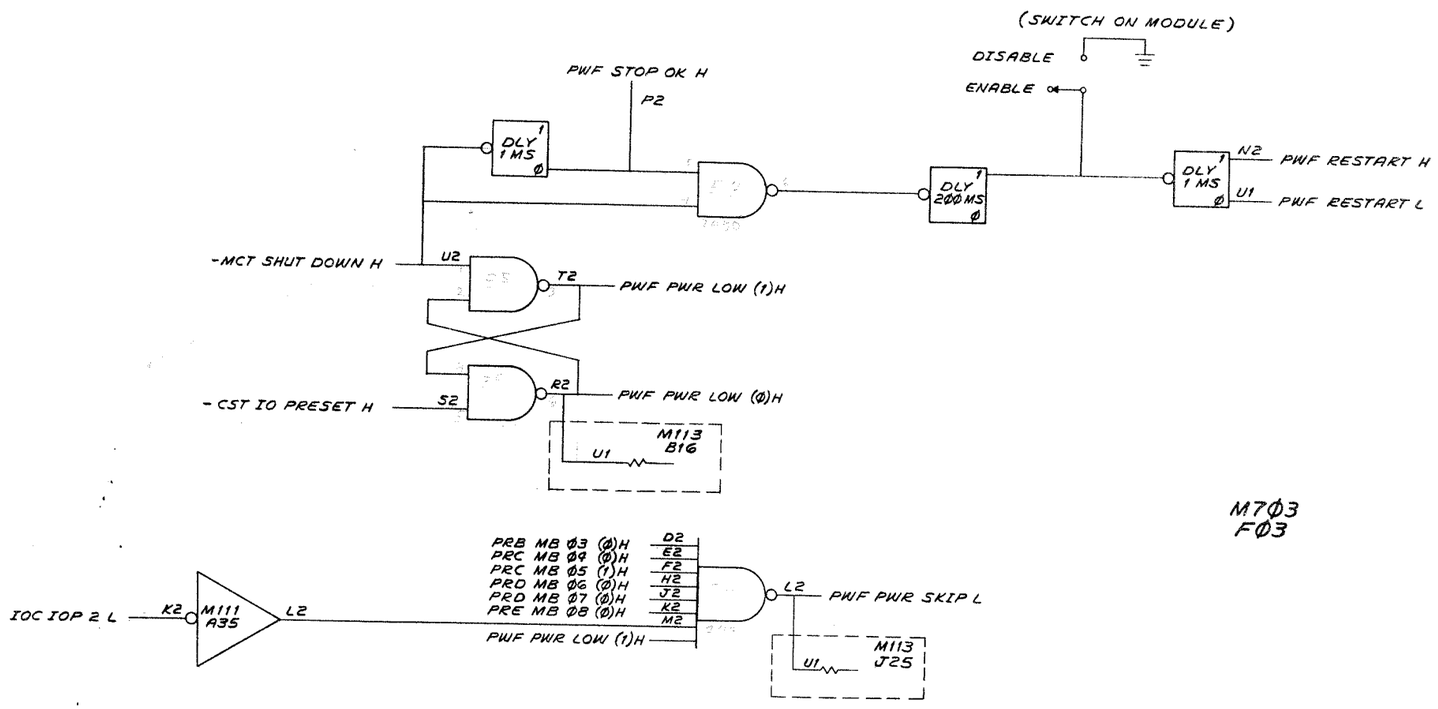
DRN. J. APREA	DATE 3-7-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. R. HUTNAK	DATE 3-7-69	
ENG. GALE	DATE 3-10-69	TITLE POWER FAIL/RESTART
PROJ. ENG. GALE	DATE 3-10-69	
PROD. D. CALL	DATE 3-10-69	
FIRST USED ON PDP12		SIZE A · CODE ML · NUMBER KP12-Ø · REV. A
SCALE —		
SHEET 1 OF 2		DIST.

PRINT SET KP12-Ø	DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.
X	D-BS-KP12-Ø-PWF		1	PWF POWER FAIL/RESTART	
1	K-WL-EP12-0-3	REF		WIRELIST	

TITLE		SIZE	CODE	NUMBER	REV.
POWER FAIL/RESTART	SHEET 2 OF 2	A	ML	KP12-Ø	A

DRA 132

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



REVISIONS	CHANGE NO.	CHK
REV.		

DEC FORM NO. DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN	DATE	2-11-69
CHK'D	DATE	2/27/69
ENG	DATE	2-28-69
PROJ. ENG.	DATE	2-28-69
PROD.	DATE	2/24/69

FIRST USED ON
KP12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
POWER FAILURE/ RESTART

SIZE	CODE	NUMBER	REV.
D	85	KP12-Ø-PWF	

DIST.

MASTER DRAWING LIST

MAINTENANCE MANUALS NO.	TITLE	UNIT VARIATIONS KW12-A	KW12-B	KW12-C
KW12-Ø	CLOCK OPTION	X	X	X

USED ON OPTIONS							
PDP 12							

REVISIONS	REV.	DATE	CHG. NO.	APP'D.
	ORIG	8/71	MISC-86	—
	A	12/71	EM12-55	D.M.
	B	6/72	EM12-57	

DRN. APEA	DATE 3-7-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. R. HUTANK	DATE 3-7-69	
ENG. GALE	DATE 3-10-69	TITLE: CLOCK
PROJ. ENG. GALE	DATE 3-10-69	
PROD. CALL	DATE 3-10-69	
FIRST USED ON: PDP12		SIZE A · CODE ML · NUMBER KW12-Ø · REV. B
SCALE #		DIST.
SHEET 1 OF 2		

PRINT SET KW12-Ø	DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.
X	D-BS-KW12-Ø-CLC	E	1	CLC CLOCK IO CONTROL	
X	D-BS-KW12-Ø-CLEA	E	1	CLEA INPUT CHANNEL 1	
X	D-BS-KW12-Ø-CLEB	D	1	CLEB INPUT CHANNEL 2	
X	D-BS-KW12-Ø-CLEC	D	1	CLEC INPUT CHANNEL 3	
X	D-BS-KW12-Ø-CLIO	B	1	CLIO CLOCK TO INPUT	
X	D-BS-KW12-Ø-CLKA		1	CLKA CLOCK AND BUFFER 00-05	
X	D-BS-KW12-Ø-CLKB		1	CLKB CLOCK AND BUFFER 06-11	
X	D-BS-KW12-Ø-CLR	E	1	CLR CLOCK RATE	
X	D-BS-KW12-Ø-CLTB	A	1	CLTB CLOCK TIME BASE	
X	D-CS-7006335-0-1	C	1	CLOCK CONTROL CIRCUIT SCHEMATIC	
X	D-AD-7006335-0-0	E	2	CLOCK CONTROL PANEL ASSEMBLY	
X	A-PL-7006335-0-0	E	2	CLOCK CONTROL PANEL ASSEMBLY (PL)	
X	A-PL-KW12-Ø-Ø	A	1	KW12 CLOCK CONTROL	
X	A-SP-KW12-Ø-1	A	8	KW12 REAL TIME CLOCK	
X	D-BS-KW12-Ø-CLUB	B	1	SIMPLE CLOCK	
X	A-SP-KW12-B-1		1	ENGINEERING SPECIFICATION	
—	K-WL-EM12-0-3	REF		WIRELIST	

TITLE		SIZE	CODE	NUMBER	REV.
CLOCK	SHEET 2 OF 2	A	ML	KW12-Ø	B

DRA 132

DEC 16 (325)-1048-1-N471

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY [illegible] DATE 12-17-69	CHECKED W Sutherland DATE 12-17-69	SECTION
ENG L. Gallo DATE 12/10/69	PROD D. Call DATE 12-18-69	ISSUED SECT.

ITEM NO.	DWG NO./PART NO. CL BASIC VAR.	DESCRIPTION	QTY/VAR KW12-A	KW12-B	KW12-C		UNIT COST		UNIT QUANTITY	QUANTITY ISSUED
	M503	Schmidt Trigger & PA	3							
	M719	Super Clock Synchronizer	3							
	M405	Crystal Clock	1		1					
	M216	Six Flip Flop	2							
	M217	Clock Counter Buffer	3							
	M623	Bus Driver	1							
	M103	Device Selector	1	1	1					
	M304	Pulse Amplifier	2							
	M117	NAND Gate	1							
	M115	NAND Gate	1							
	M113	NAND Gate	2	1	1					
	M617	Four Input Power NAND Gate	1							
	D-AD-7006335-0-0	Clock Control Panel	1							
	1203185-2	Power Supply (for PDP-12C only)	1							
	C-AD-7006045-0-0	Power Supply Bracket Assembly (12C only)	1							
	M870	Simple Clock		1	1					
	M401	Variable Clock		1						

TITLE	ASSY NO	SIZE	CODE	NUMBER	REV	ECO NO.
(KW12) Clock Control	SHEET 1 OF 1	A	PL	KW12-Ø-Ø	A	EM12-00041
		DIST.				

DEC FORM NO 16 1027
DRA 123

IOC IOP 1 L — M113 D29 P2, R2 → S2
+3V D29U1 H
CLC IOC IOP 1 H → M103 D25 P2 → B1 CLC IOP 1 L, A1 CLC IOP 1 H

IOC IOP 2 L — M113 D29 T2, U2 → V2
CLC IOC IOP 2 H → M103 D25 R2 → D1 CLC IOP 2 L, C1 CLC IOP 2 H

IOC IOP 4 L — M113 D29 H2, J2 → K2
CLC IOC IOP 4 H → M103 D25 S2 → F1 CLC IOP 4 L, E1 CLC IOP 4 H

PRB MB Ø3 (Ø)H, PRC MB Ø4 (Ø)H, PRC MB Ø5 (1)H, PRD MB Ø6 (Ø)H, PRD MB Ø7 (1)H, PRE MB Ø8 (1)H → M103 D25 D2, E2, F2, H2, J2, K2, L2, N2 → V2 CLC IOT SELECT H
U2 → +3V
V1 → M113 D29

IOC IO PRESET L — M719 F2Ø D1 → E1
+3 D29U1 H
M617 D17 K2, L2, M2, N2 → P2 CLC CLOCK PRESET L
CLC CLOCK PRESET H

PRE MB Ø9 (1)H, CLC IOP 2 H — M113 D24 P2, R2 → S2
S2 → D1
D 1 CLC IO SYNC M216 F19 C Ø: C1 ⏚, B1 CLC IOP 4 L, E1, F1 → A1 CLC CLOCK PRESET L

- CLC SYNC STROBE 2 H — M113 D29 P1, R1 → S1
S1 → D2
PA M3Ø4 D27 D1, F1, H1, B1
CLC CLOCK PRESET L → M113 D29 L1, M1 → N1
N1 → E2
M719 F2Ø E2 → D2, D1
M719 F21 E1 → CLC SYNC STROBE 1 H
M719 F2Ø U1 → 18K → +5V; B2 ⏚
CLC SYNC STROBE 1 L
E1, E2 → PA M3Ø4 D27 J1 → CLC SYNC STROBE 2 H, K1 → CLC SYNC STROBE 2 L, K2 → +5V D27 H

CLC IOP 1 H, PRE MB Ø9 (1)H, PRF MB 1Ø (Ø)H — M115 C27 N2, P2, R2 → S2 CLC EN STATUS TO AC L

CLC IOP 4 H, PRF MB 1Ø (Ø)H, PRF MB 11 (1)H — M115 D23 T2, U2, V2 → V1 CLC CLR STATUS L

CLC IOP 1 H, PRE MB Ø9 (Ø)H, PRF MB 1Ø (1)H — M617 D17 A1, B1, C1, D1 → E1 CLC CLR BUF L

CLC IOP 4 H, PRF MB 1Ø (Ø)H, PRF MB 11 (Ø)H — M115 D23 K1, L1, M1 → N1
N1 → M617 D17 F1, H1, J1, K1 → L1 CLC LD CTRL 2 H

CLC IOP 2 H, PRE MB Ø9 (Ø)H, PRF MB 11 (1)H — M115 D23 P1, R1, S1 → U1
U1 → M617 D17 M1, N1, P1, R1 → S1 CLC AC TO BUF H

CLC IOP 4 H, PRF MB 1Ø (1)H — M113 D24 D2, E2 → F2
F2 → M617 D17 D2, E2, F2, H2 → J2 CLC BUF TO AC H

CLC IOP 2 H, PRE MB Ø9 (Ø)H, PRF MB 11 (Ø)H — M115 D23 D2, E2, F2 → H2
H2, D1, D2 → PA M3Ø9 D28 F1, H1 → CLC LD CTRL 1 H, CLC LD CTRL 1 L
B1 → +5V D28 H

CLC IOP 4 H, PRF MB 1Ø (1)H, PRF MB 11 (1)H — M115 D23 J2, K2, L2 → M2
M2 → M617 D17 R2, S2, T2, U2 → V2 CLC CNT TO BUF H
CLEA CNT TO BUF L, CLEB CNT TO BUF L, CLEC CNT TO BUF L

L2, M2 → M113 D24 N2
N2 → PA M3Ø4 D27 S1, S2 → L1 CLC CLR CNT H, M1 CLC CLR CNT L
CLR MODE 2 (1)H
L2 → +5V D27 H

CLC SYNC STROBE 2 L, CLR MODE 1 (1)L — M719 F2Ø S2, V1 → T2 CLC STROBE EVENTS H

REVISIONS	REV.
CHANGE NO. 00001	A
CHK	
L. GALE 4/24/68	
EM12-00017	B
GALE 11-5-68	
EM12-00019	C
GALE 11-14-69	
EM12-00041	D
D. MACKLIN 10/2/70	
EM12-00057	E
MACKLIN 6-7-72	

DEC FORM NO. DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

DRN. Joe Arua DATE 1-28-69
CHK'D G Scanlon DATE 2/27/69
ENG. L. Gale DATE 2/28/69
PROJ. ENG. L. Gale DATE 2/28/69
PROD. A Clark DATE 3/6/69
FIRST USED ON KW12

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
CLC
CLOCK IO CONTROL

SIZE D | CODE 85 | NUMBER KW12-Ø-CLC | REV. E
DIST.
SHEET 1 OF 1

SIZE D | CODE 85 | NUMBER KW12-Ø-CLC | REV. E

M5Ø3
F23

G783
F25

C2
B1
A1
L1
H2
H1
J2
ST
P2
S2
PA
S1
T2

F2 — HQ GND
E2 — +15 HQ
A2 — +5
D2 — -15 HQ

CLEA EN INPUT 1 (1)H

CLC LD CTRL 1 H — F2
CLC STROBE EVENTS H — K2
PRD AC Ø7 (1)H — H2
CLEA PRE EVENT 1 (Ø)H
CLEA EVENT 1 (1)H

L2 — CLEA STROBE EVENT 1 L

D 1 / C Ø — CLEA INPUT 1 — R1

CLC SYNC STROBE 1H — J2

CLC CLR STATUS L — S1

PRD AC Ø6 (1)H — K1

CLC LD CTRL 2 H — J1

CLC CLOCK PRESET H — P1

D 1 / C Ø — CLEA PRE EVENT 1 (1)H / CLEA PRE EVENT 1 (Ø)H — R2

D 1 / C Ø — CLEA EN INPUT 1 (1)H / CLEA EN INPUT 1 (Ø)H — L1

D 1 / C Ø — V2 — CLEA EN EV 1 INT (1)H / CLEA EN EV 1 INT (Ø)H

E2 — M111 D21 — F2 — L1 — M1 — M1Ø3 D25 — N1 — CLEA CNT TO BUF L

CLR RATE Ø (Ø)L — H1
CLR RATE 1 (Ø)L — J1
M1Ø3 D26 — K1 — -CLEA EXT RATE H — N1

D 1 / C Ø — CLEA EVENT 3 — M1

U2 — CLEA INT REQ L

M719
F2Ø

REVISIONS	REV.
CHANGE NO. 00001 — S. Mendes — L GALE — 9/24/69	A
00002 — T. QUILLIN — L GALE — 6/18/69	B
EM12-00015 — Debbie Mercer — L. GALE — 10/17/69	C
EM12-00030 — T Quillin — GALE	D
EM12-00055 — R. MOORE	E

DEC FORM NO. DRD 102A

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

MATERIAL

FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

DRN.		DATE 12-1-69
CHKD.		DATE 12/2/69
ENG.		DATE 2/28/69
PROJ. ENG.		DATE 2/28/69
PROD.		DATE 2/28/69

FIRST USED ON KW12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
CLEA
INPUT CHAN 1

SIZE	CODE	NUMBER	REV.
D	BS	KW12-Ø-CLEA	E

DIST.

SIZE D CODE BS NUMBER KW12-Ø-CLEA REV E

G783 F25

H1 E1 M1 — K2 K1 L2 — ST — R2 — U2 — PA — R1 V2

MSØ3 F23

D2 +15V HQ
A2 +5
E2 -15V HQ
F2 HQ GND

CLC LD CTRL 1 H — F2
CLC STROBE EVENTS H — K2
PRE AC Ø9 (1)H — H2
CLEB PRE EVENT 2 (Ø)H
CLEB EVENT 2 (1)H
CLC SYNC STROBE 1 H — J2
CLC CLR STATUS L — S1
PRE AC ØB (1)H — K1
CLC LD CTRL 2 H — J1
CLC CLOCK PRESET H — P1

F1 — CLEB CLEA EN INPUT 2 (1)H

L2 — CLEB CNT TO BUF L

CLEB INPUT 2: D 1, C Ø, R1

D 1 — CLEB PRE EVENT 2 (1)H
C Ø, R2 — CLEB PRE EVENT 2 (Ø)H

+3V D24V1 H — N1

CLEB EVENT 2: D 1, C Ø, M1

U2 — CLEB INT REQ L

CLEB EN INPUT 2: D 1, C Ø, L1
- CLEB EN INPUT 2 (1)H
- CLEB EN INPUT 2 (Ø)H

V2
- CLEB CLEA EN EV 2 INT (1)H
- CLEB CLEA EN EV 2 INT (Ø)H

M719 F21

REVISIONS	REV.	CHK	CHANGE NO.
L. GALE 1/24/69	A		00001
L. GALE 6/18/68	B		00002
L. GALE 10/17/69	C		EM12-00015
R. MOORE 1-3-72	D		EM12-00055

DEC FORM NO. DRD 102A

PARTS LIST

QTY.	DESCRIPTION	PART NO.	ITEM NO.

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

MATERIAL

FINISH

DRN.		DATE 1-31-69
CHKD.		DATE 2/27/69
ENG.		DATE 2/28/69
PROJ. ENG.		DATE 2/28/69
PROD.		DATE 2/28/69

FIRST USED ON KW12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
CLEB
INPUT CHAN 2

SIZE	CODE	NUMBER	REV
D	BS	KW12-Ø-CLEB	D

DIST.

G783
F25

K1 J1 N1 C1 D1

H2 H1 J2 E1 +6.2V D1 -6.2V

ST P2 S2 PA S1 T2

M5Ø3
F24

D2 +15 HQ
E2 -15 HQ
A2 +5
F2 HQ GND

CLC LD CTRL 1 H F2

CLC STROBE EVENTS H K2

PRF AC 11 (1)H H2

CLEC PRE EVENT 3 (Ø)H

CLEC EVENT 3 (1)H

F1

CLEC CLEA EN INPUT 2 (1)H

L2 CLEC CNT TO BUF L

+3V D24V1 H N1

D 1 CLEC INPUT 3 C Ø R1

D 1 PRE-EVENT C Ø R2 CLEC PRE EVENT 3 (1)H CLEC PRE EVENT 3 (Ø)H

D 1 CLEC EVENT 3 C Ø M1

CLC SYNC STROBE 1 H J2

CLC CLR STATUS L S1

U2 CLEC INT REQ L

PRF AC 1Ø (1)H K1

M719
F22

D 1 ENABLE C Ø L1 CLEC EN INPUT 3 (1)H CLEC EN INPUT 3 (Ø)H

CLC LD CTRL 2 H J1

D 1 V2 C Ø CLEC EN EV 3 INT (1)H CLEC EN EV 3 INT (Ø)H

CLC CLOCK PRESET H P1

REVISIONS	CHK	CHANGE NO.	REV
	DHB	00001	A
L. GALE 1/24/69			
	DHB	00002	B
L. GALE 1/28/69			
	DHB	EM12-00015	C
L. GALE 11/1/69			
		EM12-00055	D
R. MOORE 1-3-72			

DEC FORM NO. DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL

FINISH

DRN.		DATE 2-1-69
CHK'D		DATE 2/6/69
ENG.		DATE 2/28/69
PROJ. ENG.		DATE 2/28/69
PROD.		DATE 3/26/69

FIRST USED ON KW12

SCALE

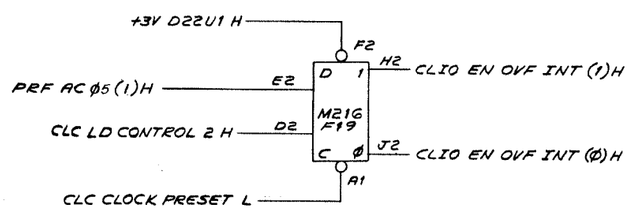
SHEET 1 OF 1

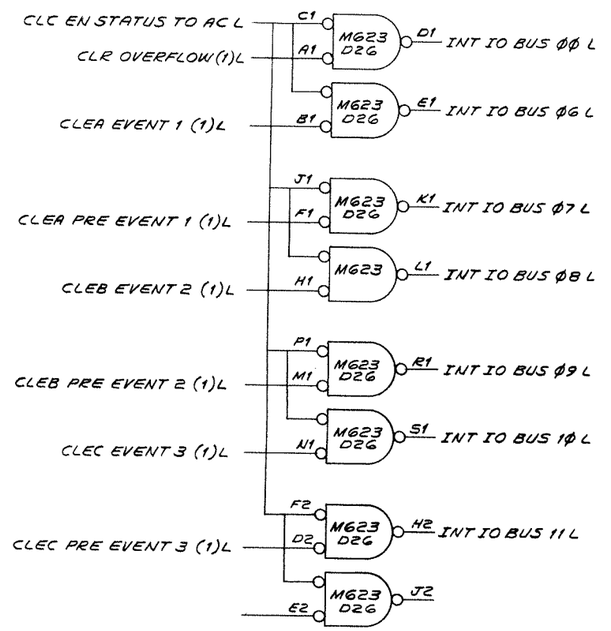
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

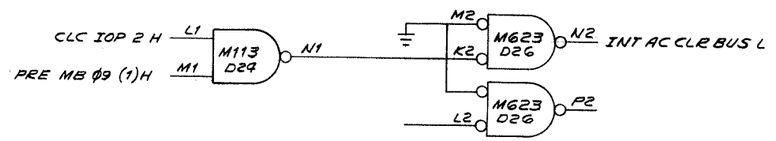
TITLE
CLEC
INPUT CHAN 3

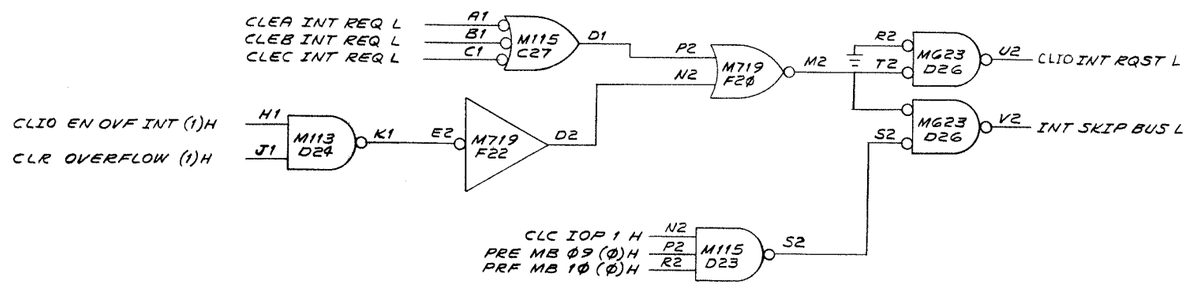
SIZE D | CODE BS | NUMBER KW12-Ø-CLEC | REV. D

DIST.









REVISIONS			
CHK	CHANGE NO.		REV.
	00002	T. Guillow	A
		L GALE 6/19/68	
	EM12-00047		B
		SCANLAN 5-3-71	
		SCANLAN 5-4-71	

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN.	Joe Agosta	DATE 1-29-69
CHKD.	D. Scanlan	DATE 2/27/69
ENG.	L. Gale	DATE 2/28/69
PROJ. ENG.	L. Gale	DATE 2/28/69
PROD.	N Call	DATE 3/1/69

FIRST USED ON
KW12

SCALE

SHEET 1 OF 1

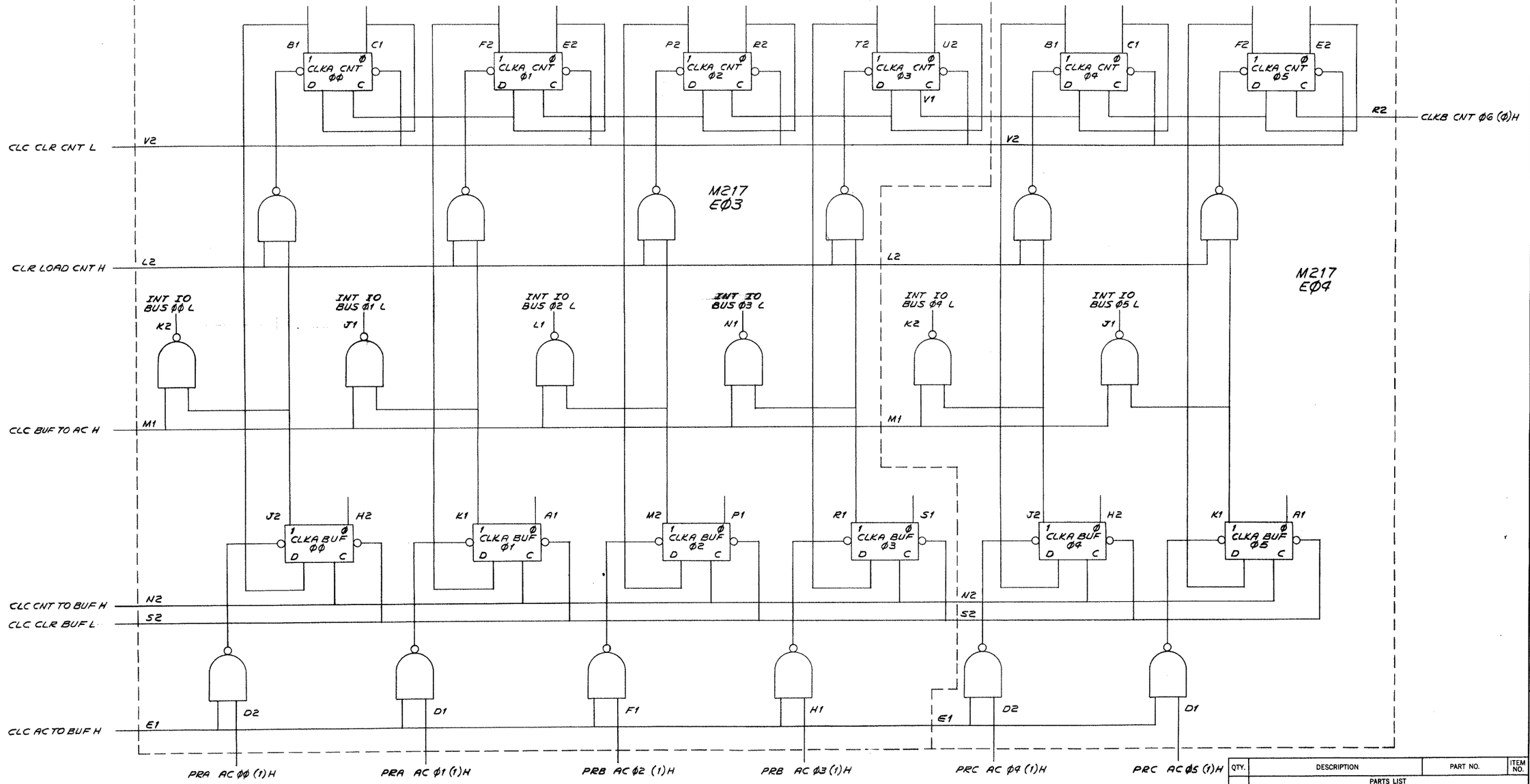
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
CLIO
CLOCK IO INPUT

SIZE	CODE	NUMBER	REV.
D	85	KW12-Ø-CLIO	B

DIST.

DEC FORM NO. DRD 102A



QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

		DATE
DRN.	Joe Agnew	1-31-69
CHKD.	D Stanton	2/21/69
ENG.	Dale	2/28/69
PROJ. ENG.	Dale	2/28/69
PROD.	D Cull	2/28/69

FIRST USED ON KW12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
CLKA
CLOCK & BUFFER
ØØ - Ø5

SIZE	CODE	NUMBER	REV.
D	85	KW12-Ø-CLKA	

DIST.

REVISIONS | REV. | CHANGE NO. | CHK

FORM NO. 102A

CLC CLR CNT L — V2

CLR LOAD CNT H — L2

CLC BUF TO AC H — M1

CLC CNT TO BUF H — N2

CLC CLR BUF L — S2

CLC AC TO BUF H — E1

P2 R2 — 1 CLKB CNT Ø6 D C Ø — M217 EØ4

T2 U2 — 1 CLKB CNT Ø7 D C Ø — V1

B1 C1 — 1 CLKB CNT Ø8 D C Ø

F2 E2 — 1 CLKB CNT Ø9 D C Ø

P2 R2 — 1 CLKB CNT 1Ø D C Ø

T2 U2 — 1 CLKB CNT 11 D C Ø — M217 EØ7 — V1 — CLR COUNT (Ø)H

INT IO BUS Ø6 L — L1

INT IO BUS Ø7 L — N1

INT IO BUS Ø8 L — K2

INT IO BUS Ø9 L — J1

INT IO BUS 1Ø L — L1

INT IO BUS 11 L — N1

M2 P1 — 1 CLKB BUF Ø6 D C Ø

R1 S1 — 1 CLKB BUF Ø7 D C Ø

J2 H2 — 1 CLKB BUF Ø8 D C Ø

K1 A1 — 1 CLKB BUF Ø9 D C Ø

M2 P1 — 1 CLKB BUF 1Ø D C Ø

R1 S1 — 1 CLKB BUF 11 D C Ø

F1 — PRD AC Ø6 (1)H

H1 — PRD AC Ø7 (1)H

D2 — PRE AC Ø8 (1)H

D1 — PRE AC Ø9 (1)H

F1 — PRF AC 1Ø (1)H

H1 — PRF AC 11 (1)H

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO. DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN.	DATE	1-31-69
CHK'D.	DATE	2/3/69
ENG.	DATE	2/28/69
PROJ. ENG.	DATE	2/28/69
PROD.	DATE	3/2/69

FIRST USED ON KW12

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE

CLKB
CLOCK & BUFFER
Ø6 - 11

SIZE	CODE	NUMBER	REV.
D	BS	KW12-Ø-CLKB	

DIST.

REV | SIZE D | CODE BS | NUMBER KW12-Ø-CLKB

+3V D22V1 H
PRA AC ØØ (1)H
CLC LD CTRL 1 H
CLC CLOCK PRESET L
PRA AC Ø1 (1)H
PRB AC Ø2 (1)H
PRB AC Ø3 (1)H
PRC AC Ø4 (1)H
PRC AC Ø5 (1)H
M117 D22
+3V D22U1 H
+3V D22V1 H
CLR RATE Ø (Ø)H
CLR RATE 1 (Ø)H
CLR RATE 2 (1)H
-CLTB ØØØK HERTZ H
CLR RATE Ø (Ø)H
CLR RATE 1 (1)H
CLR RATE 2 (Ø)H
- CLTB 1ØØK HERTZ (Ø)H
CLR RATE Ø (Ø)H
CLR RATE 1 (1)H
CLR RATE 2 (1)H
-CLTB 1ØK HERTZ H
CLR RATE Ø (1)H
CLR RATE 1 (Ø)H
CLR RATE 2 (Ø)H
-CLTB 1K HERTZ H
CLR RATE Ø (1)H
CLR RATE 1 (Ø)H
CLR RATE 2 (1)H
-CLTB 1ØØ HERTZ H
CLEA PRE EVENT 1 (Ø)H
M115 D23
M719 F22
M719 F21
M113 D24
PRA AC ØØ (1)H
M111 D21
CLC CLR STATUS L
+3VD22U1 H
CLC CLR CNT L
CLKA CNT ØØ (Ø)H
CLR OVERFLOW (1)H
CLR OVERFLOW (Ø)H
CLC CLOCK PRESET H
CLC CLOCK PRESET L
+3VC23U1
CLC SYNC STROBE IH
CLC CLR CNT L
CLKA CNT ØØ(Ø)H
CLC LD CTRL 2 H
PRC AC Ø4 (1) H
CLR EXT A-D START L
CLR CLOCK PRESET L
P1 CLR EXT A-D START H
CLR MODE 2 (1)L
CLR MODE 1 (Ø) H
M117 D17 U1
CLR LOAD CNT H

REVISIONS	REV.
CHK CHANGE NO. 00001	A
EM12-00003	B
EM12-00009	C
EM12-00034	D
EM12-00055	E

DEC FORM NO. DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

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

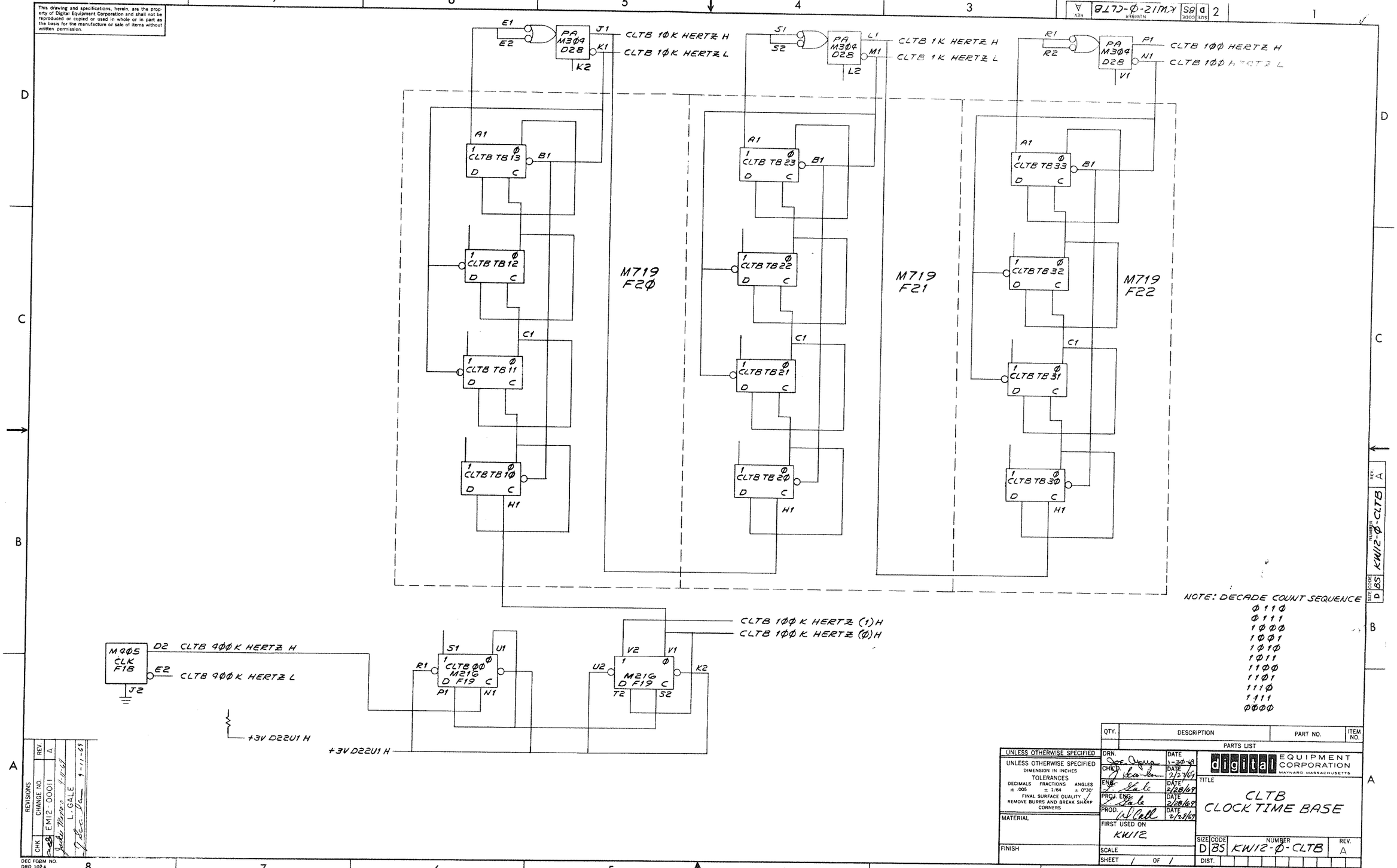
MATERIAL
FINISH

DRN. J. Ojeda 1-24-69
CHK'D L. Gale 2-27-69
ENG. L. Gale 2/28/69
PROD. ENG. L. Gale 2/28/69
PROD. D. Hall 3/28/69
FIRST USED ON KW12
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
CLR
CLOCK RATE

SIZE D | CODE BS | NUMBER KW12-Ø-CLR | REV. E
DIST.



NOTE: DECADE COUNT SEQUENCE

Ø 1 1 Ø
Ø 1 1 1
1 Ø Ø Ø
1 Ø Ø 1
1 Ø 1 Ø
1 Ø 1 1
1 1 Ø Ø
1 1 Ø 1
1 1 1 Ø
1 1 1 1
Ø Ø Ø Ø

REVISIONS			
CHK	CHANGE NO.	REV.	
JMG	EM12-00011	A	
Jake Mara 7-11-69			
L. GALE 7-11-69			

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL

FINISH

DRN.	Joe Mara	DATE 1-30-69
CHK'D	L. Gale	DATE 2/2/69
ENG.	L. Gale	DATE 2/28/69
PROJ. ENG.	L. Gale	DATE 2/28/69
PROD.	J. Clark	DATE 2/28/69

FIRST USED ON
KW12

SCALE

SHEET / OF /

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
CLTB
CLOCK TIME BASE

SIZE	CODE	NUMBER	REV.
D	BS	KW12-Ø-CLTB	A

DIST.

DEC FORM NO. DRD 102A

NOTES:
1. ✳ SLOT F18 CONTAINS M401 FOR KW12B AND M405 KW12C.
2. FOR THE KW12B THE M401 WILL NOMINALLY BE SET TO THE RANGE 1.75KHZ TO 17.5 KHZ BY CONNECTING PINS N2-T2 AS SHOWN ON THE DRAWING. FREQUENCY IS VARIABLE WITHIN THE RANGE BY A POT. ADJUSTMENT ON M401. OTHER FREQUENCY RANGES MAY BE HAD BY THE FOLLOWING:

	INTERCONNECTIONS REQ'D
1.5 MHZ TO 10MHZ	NONE (NOT RECOMMENDED)
175 KHZ TO 1.75 MHZ	F18N2 — F18R2
17.5 KHZ TO 175 KHZ	F18N2 — F18S2
1.75 KHZ TO 17.5 KHZ	F18N2 — F18T2
175 HZ TO 1.75 KHZ	F18N2 — F18P2

CLC IOP(4)L
M870 F-25
N2
D 1
C Ø
CLC IOP(2)L
IOC IO PRESET L
D2
K2
K2
J2
✳ F18
E2
D2
CLT B 400 KHZ H
N2 R2 S2 T2 P2
(CLT B 1.25 KHZ)
E2
D 1
C Ø
CLC IOP(1)H
J2
INT SKIP BUS L
H2
CLIO INT RQST L
F2
CLC IOP(4)H
PRF MB 11(1)H
M2
L2
IOC IOP(1)L
+3V (D29U1)
P2
R2
M113 D29
S2
P2
M103 D25
B1 CLC IOP (1) L
A1 CLC IOP (1) H
IOC IOP(2)L
T2
U2
M113 D29
V2
R2
M103 D25
D1 CLC IOP (2) L
C1 CLC IOP (2) H
IOC IOP (4) L
H2
J2
M113 D29
K2
S2
M103 D25
F1 CLC IOP (4) L
E1 CLC IOP (4) H
PRB MB Ø3 (Ø) H D2
PRC MB Ø4 (Ø) H E2
PRC MB Ø5 (1) H F2
PRD MB Ø6 (Ø) H H2
PRD MB Ø7 (1) H J2
PRE MB Ø8 (1) H K2
L2
N2
+3V (D29V1)
M103 D25
U2
V
M113 D29
U1
+3V (D29U1)
M113 D29
V1
+3V (D29V1)

REVISIONS			
CHK	CHANGE NO.	REV.	
FV	EM12-00041	A	11/69
D MACKLIN	EM12-00047	B	10/30/70
SCANLAN			3-7-71

FIRST USED ON OPTION/MODEL	KW12		
UNLESS OTHERWISE SPECIFIED			
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS			
MATERIAL			
FINISH			

PARTS LIST

QTY.	DESCRIPTION	PART NO.	ITEM NO.

DRN	R Fontaine	DATE 12/1/70
CHK'D	A Neale	DATE 3/5/70
ENG	A Scales	DATE 12/70
PROJ. ENG.	Leeds	DATE 12/9/70
PROD.	A. Scales	DATE 3/1/72
NEXT HIGHER ASSY	A-ML-KW12-B	
SCALE		
SHEET	1 OF 1	

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: SIMPLE CLOCK

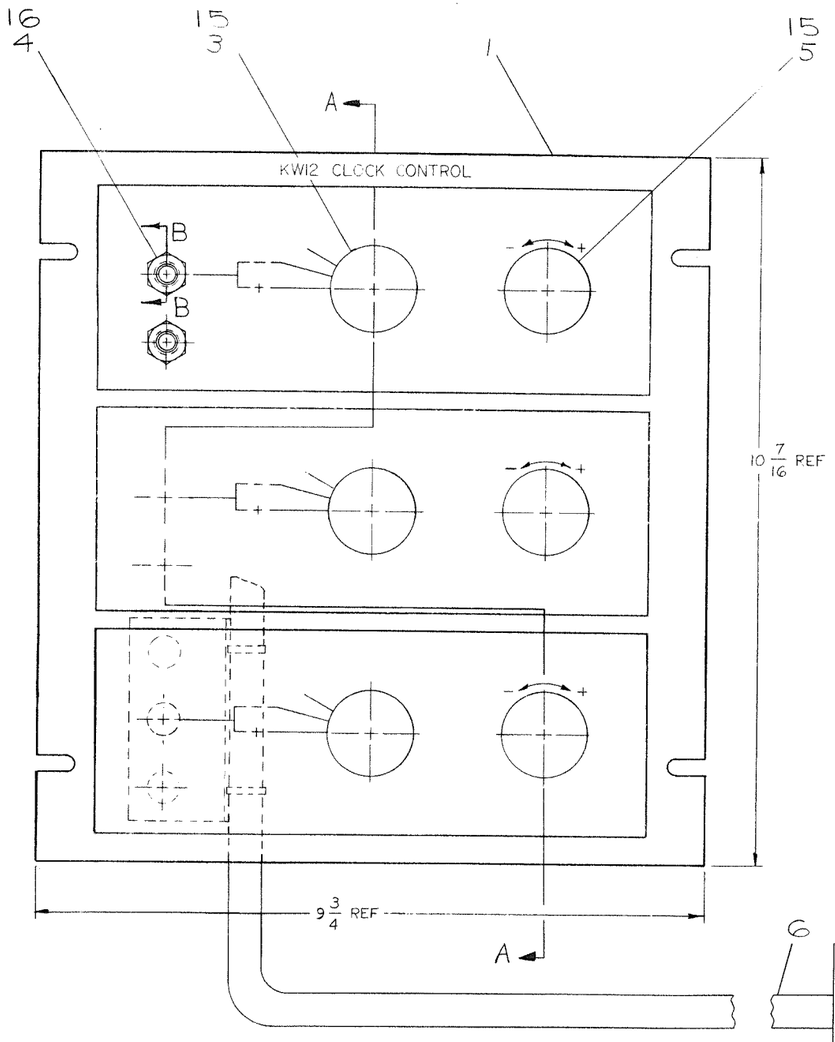
SIZE	CODE	NUMBER	REV.
D	BS	KW12-Ø-CLUB	B

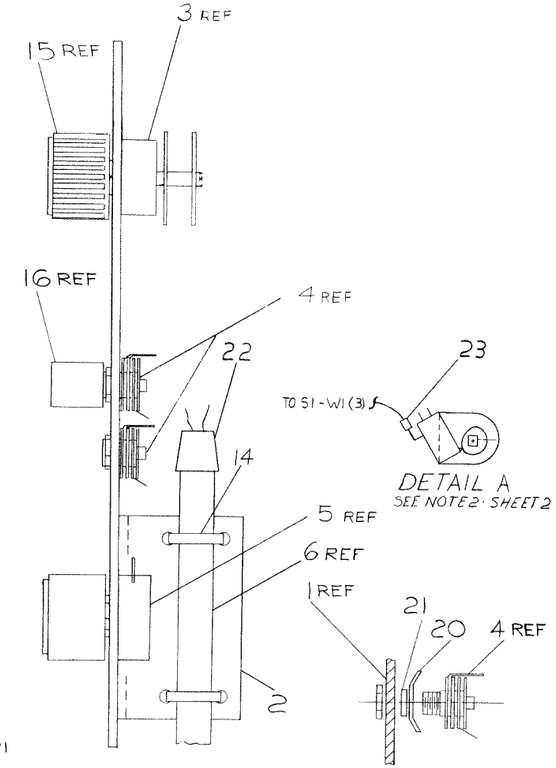
DIST.

DEC FORM NO. DRD 102A

SIZE D BS KW12-Ø-CLUB REV B

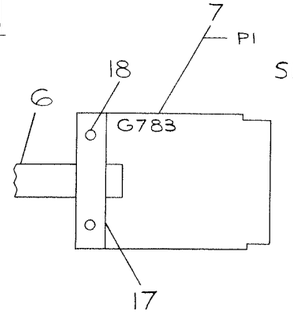
NOTES
1. TWIST DRAIN WIRES OF PAIR #2,5, AND 6 TOGETHER AND SOLDER TO GND LUG.





SECTION A-A

SECTION B-B



DETAIL A
SEE NOTE 2 SHEET 2

REVISIONS	CHK	CHANGE NO.	REV.
		EM12-00013	A
L. GALE 6-19-67			
L. Gale 9-22-68		EM12-00014	B
T. Quadros 10-10-69			
GALE 10/10/69		EM12-00020	C
T. Quadros 12-17-69			
GALE 12-18-69			
T. Quadros 3-26-70		EM12-00045	D
TEICHER 3-26-70			
T. Quadros 7-11-71		EM12-00050	E
R. NANIAN 7-23-71			

DEC FORM NO. DRD 100

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KW12		PARTS LIST		

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

MATERIAL

FINISH

DRN. QUADROS DATE 15 JUL 69
CHK'D. DATE 8/11/69
ENG. L. Gale DATE 8/11/69
PROJ. ENG. L. Gale DATE 8/11/69
PROD. W. Call DATE 8/14/69
NEXT HIGHER ASSY A-ML-KW12-Ø
SCALE NONE
SHEET 1 OF 2

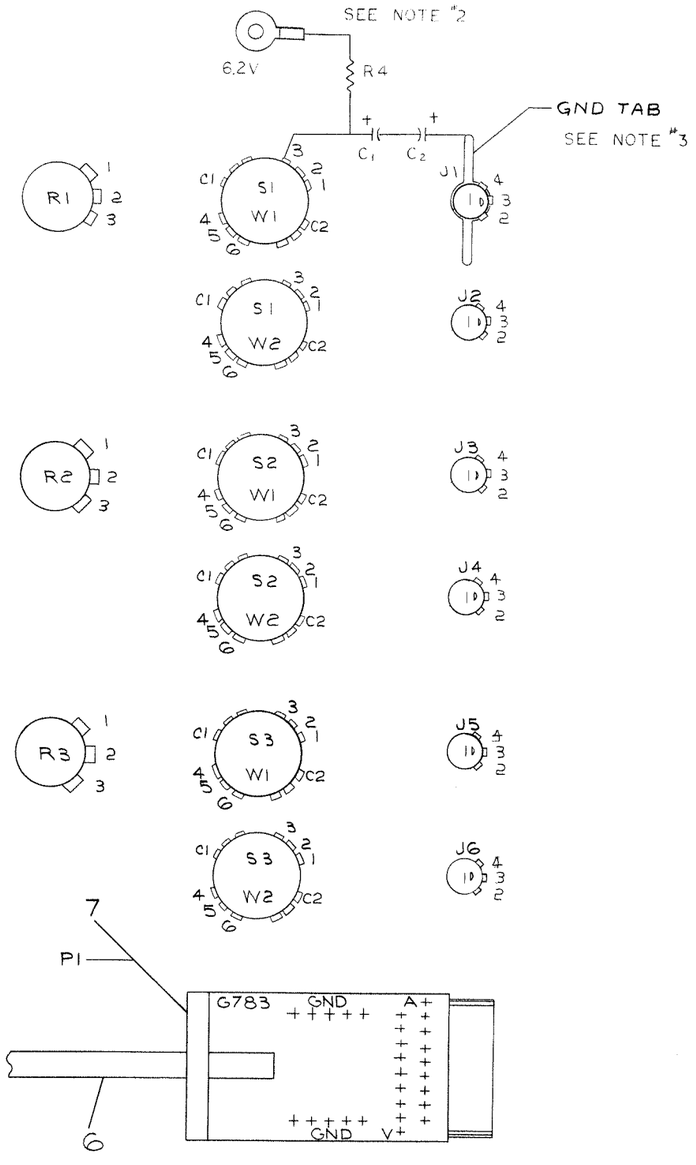
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE (KW12) CLOCK CONTROL PANEL

SIZE	CODE	NUMBER	REV
D	AD	7006335-0-0	E

DIST.

SIZE D CODE AD NUMBER 7006335-0-0 REV E



WIRING DIAGRAM
VIEW FROM REAR OF PANEL

WIRE TABLE

ITEM NO	AWG	COLOR	FROM	TO	REMARKS	SIGNAL
6	22	BLK	P1-A1	S1-W1(C1)	RED SHIELD PAIR#1	-CLK1
		RED	P1-B1	S1-W1(C2)		+CLK1
		DRAIN	P1-GND	S1-W1(6)		SYS GND
		BLK	P1-C1	S1-W2(1)	GRN SHIELD PAIR#2	+6.2V
		WHT	P1-D1	S1-W2(2)		-6.2V
		DRAIN	P1-GND	GND TAB		SYS GND
		BLK	P1-E1	S2-W1(C1)	BLU SHIELD PAIR#3	-CLK2
		GRN	P1-H1	S2-W1(C2)		+CLK2
		DRAIN	P1-GND	S2-W1(6)		SYS GND
		BLK	P1-J1	S3-W1(C1)	BLU SHIELD PAIR#4	-CLK3
		BLU	P1-K1	S3-W1(C2)		+CLK3
		DRAIN	P1-GND	S3-W1(6)		SYS GND
		BLK	P1-L1	R1-2	BLU SHIELD PAIR#5	VCLK1
		YEL	P1-M1	R2-2		VCLK2
		DRAIN	P1-GND	GND TAB		SYS GND
		BLK	P1-N1	R3-2	BLU SHIELD PAIR#6	VCLK3
		BRN	P1-P1	GND TAB		SYS GND
6		DRAIN	P1-GND	GND TAB		SYS GND
8		BLK	S1-W1(1)	S1-W1(5)		-CLK1
			S1-W1(5)	J1-2		-CLK1
			J1-2	J1-4		-CLK1
			J1-4	J2-2		-CLK1
			S2-W1(1)	S2-W1(5)		-CLK2
			S2-W1(5)	J3-2		-CLK2
			J3-2	J3-4		-CLK2
			J3-4	J4-2		-CLK2
			S3-W1(1)	S3-W1(5)		-CLK3
			S3-W1(5)	J5-2		-CLK3
			J5-2	J5-4		-CLK3
			J5-4	J6-2		-CLK3
			S1-W2(1)	S1-W2(5)		+6.2V
			S1-W2(5)	S2-W2(1)		+6.2V
			S2-W2(1)	S2-W2(5)		+6.2V
			S2-W2(5)	S3-W2(1)		+6.2V
			S3-W2(1)	S3-W2(5)		+6.2V
			S1-W2(C1)	R1-1		+6.2V
			S1-W2(C2)	R1-3		VCLK1
			S3-W2(C1)	R3-1		+6.2V
8		BLK	S3-W2(C2)	R3-3		VCLK3
9		RED	S1-W1(2)	S1-W1(4)		+CLK1
			S1-W1(2)	J1-3		+CLK1
			J1-3	J2-3		+CLK1
			R4-C1+	S1-W1(3)	NOTE 2	
			S1-W1(3)	S2-W1(3)		
9		RED	S2-W1(3)	S3-W1(3)		
10		BRN	S1-W1(6)	J1-1		CLK1 HQ GND
			J1-1	J2-1		CLK1 HQ GND
			S2-W1(6)	J3-1		CLK2 HQ GND
			J3-1	J4-1		CLK2 HQ GND
			S3-W1(6)	J5-1		CLK3 HQ GND
			J5-1	J6-1		CLK3 HQ GND
			S1-W2(3)	S1-W2(6)		SYS GND
			S1-W2(6)	S2-W2(3)		
			S2-W2(3)	S2-W2(6)		
			S2-W2(6)	S3-W2(3)		
			S3-W2(3)	S3-W2(6)		
10		BRN	S3-W2(6)	GND TAB		SYS GND
11		WHT	S1-W2(2)	S2-W2(2)		-6.2V
11		WHT	S2-W2(2)	S3-W2(2)		-6.2V
12		GRN	S2-W1(2)	S2-W1(4)		+CLK2
12		GRN	S2-W1(2)	J3-3		+CLK2
12		GRN	J3-3	J4-3		+CLK2
13		BLU	S3-W1(2)	S3-W1(4)		+CLK3
13		BLU	S3-W1(2)	J5-3		+CLK3
13		BLU	J5-3	J6-3		+CLK3
19		YEL	R2-1	S2-W2(C1)		+6.2V
19	22	YEL	R2-3	S2-W2(C2)		VCLK2

NOTES:

1. C1 IS WIPER CONTACT FOR SWITCH POSITIONS 1,2,3.
   C2 IS WIPER CONTACT FOR SWITCH POSITIONS 4,5,6.
2. 26" LONG RED WIRE FROM POWER SWITCH TO R4 SHOULD BE TIE-WRAPPED TO BELDEN CABLE (ITEM #6) WITH SMALL TIE WRAPS (ITEM #28) AND SHOULD BE CONNECTED TO POWER SWITCH AS SHOWN IN DETAIL "A".
3. 65 INCHES LONG 18 AWG. WHT. FROM GND. TAP SHOULD BE CONNECTED TO PIN 12 OF P7 ON 724 POWER SUPPLY. TERMINATE WIRE WITH AMP PIN # 1209378-01.

WIRE TABLE

ITEM NO	AWG	COLOR	FROM	TO	REMARKS	SIGNAL
20	22	WHT	S3-W2(2)	S3-W2(4)		-6.2V
20	22	WHT	S3-W2(4)	S2-W2(4)		-6.2V
20	22	WHT	S2-W2(4)	S1-W2(4)		-6.2V
30			C2+	GND TAP		GND
30			C1-	C2-		

FIRST USED ON OPTION/MODEL

DO NOT SCALE DRAWING

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

MATERIAL

FINISH

NEXT HIGHER ASSY

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

DRN. F. Ferguson	DATE 7-25-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D K. Russ	DATE 8-5-69	
ENG. L. Hale	DATE 8/11/69	TITLE KW12 CLOCK CONTROL PANEL
PROJ. ENG. L. Hale	DATE 8/11/69	
PROD. W. Scalf	DATE 8/18/69	
SCALE NONE	SHEET 2 OF 2	SIZE D CODE AD NUMBER 7006335-0-0 REV. E
		DIST.

REVISIONS: REV. | CHANGE NO. | CHK

DEC FORM NO. DRD 100

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY FRANK E. SOUSA	CHECKED K. RUSS	SECTION
DATE 7/15/69	DATE 7/16/69	1
ENG L. Gale	PROD W Call	ISSUED SECT.
DATE 8/11/69	DATE 8/18/69	1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION
1	D-IA-7407414-0-0	PANEL	1
2	B-MD-7406901-0-0	CABLE BRKT	1
3	B-MD-7407540-0-0	SWITCH ROTARY	3
4	1203562	JAX #13-B 3 COND SWITCH CRAFT	6
5	1309402-07	POT 5K 2W 20% A & B	3
6	9107582	CABLE #8778 BELDEN	8FT.
7	G783	CONN, CABLE G783	1
8	9107350-00	WIRE #22 AWG BLK STRD TEF INS	A/R
9	9107350-22	WIRE #22 AWG RED STRD TEF INS	A/R
10	9107350-11	WIRE #22 AWG BRN STRD TEF INS	A/R
11	9107350-99	WIRE #22 AWG WHT STRD TEF INS	A/R
12	9107350-55	WIRE #22 AWG GRN STRD TEF INS	A/R
13	9107350-66	WIRE #22 AWG BLU STRD TEF INS	A/R
14	9007032	TIE WRAP #SST-2-B PANDUIT	2
15	1209244	KNOB BUCKEYE SS-125L-2	6
16	1209430	PHONE PLUG #90 SWITCHCRAFT	6
17	1202790	CABLE CLAMP	1
18	9006741	EYELET A94 STIMPSON	2
19	9107350-44	WIRE #22 AWG YEL STRD TEF INS	A/R
20	9007612	SOLDER LUG	1
21	9008979	WASHER INT TOOTH 3/8	1
22	9107252	TUBING SHRINKABLE 3/8 DIA. WHT	A/R

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO.
(KW12) CLOCK CONTROL PNL	D-AD-7006335-0-0	A	PL	7006335-0-0	E	EM12-00050

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY FRANK E. SOUSA	CHECKED K. RUSS	SECTION
DATE 7-15-69	DATE 7-16-69	1
ENG L. GALE	PROD D. CALL	ISSUED SECT.
DATE 8-11-69	DATE 8-18-69	1

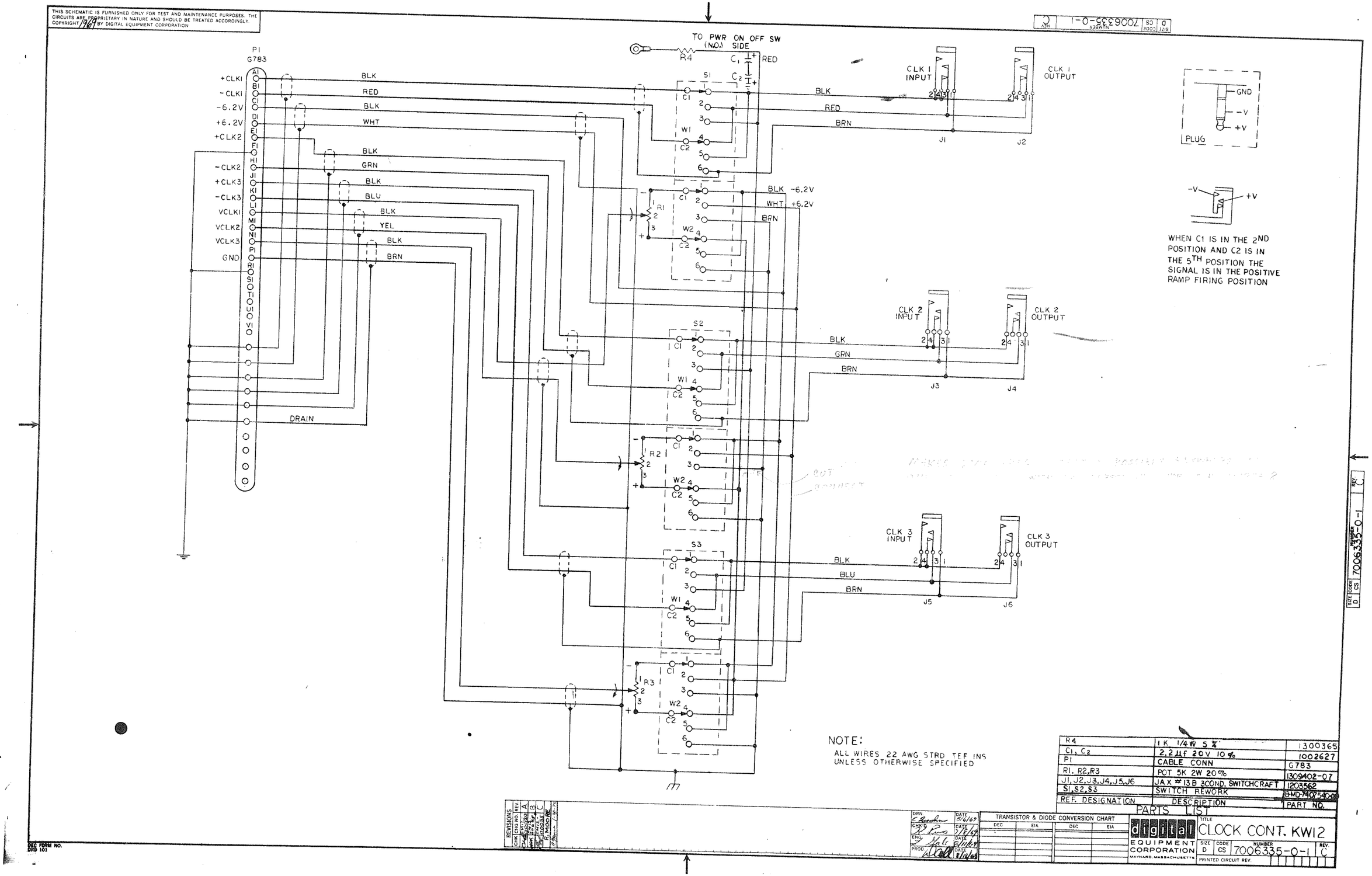
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION
23	9007929	CONN, SOLDERLESS #50321 ARKLESS	1
24	9107256-10	#22 TUBING, CLR	A/R
25	9107256-06	#22 TUBING, BLU	A/R
26	9107256-01	#22 TUBING, BRN	A/R
27	9107256-02	#22 TUBING, RED	A/R
28	90007031	TIE WRAP PANDUIT #SST-1B	8
29	1300365	RESISTOR 1K, ¼W, 5%	1
30	1002627	CAPACITOR 2.2 MFD 20V 10%	2
31	9107360-99	WIRE #18 AWG WHT.	65"
32	1209378-01	PIN #606204 AMP	1
33	9107714-01	TUBING, POLYOLEFIN HEAT SHRINK - BLK	A/R
34	9107278-11	TUBING, #18 AWG TEFLON WIRE - NATURAL	A/R

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
(KW12) CLOCK CONTROL PNL	D-AD-7006335-0-0	A	PL	7006335-0-0	E	

SHEET 2 OF 2

DIST. G

DEC FORM NO.
DRA 110



NOTE:
ALL WIRES 22 AWG STRD TEF INS UNLESS OTHERWISE SPECIFIED

REF. DESIGNATION	DESCRIPTION	PART NO.
R4	1K 1/4W 5%	1300365
C1, C2	2.2 μf 20V 10%	1002627
P1	CABLE CONN	G783
R1, R2, R3	POT 5K 2W 20%	1309402-07
J1, J2, J3, J4, J5, J6	JAX # 13B 3COND. SWITCHCRAFT	1203562
S1, S2, S3	SWITCH REWORK	BMD-140540-00

PARTS LIST

REVISIONS			
CHG NO.	ENG NO.	REV.	
2	7006335-0-1	A	
3	7006335-0-1	B	
4	7006335-0-1	C	

DRN.		DATE 12/6/69
CHK'D		DATE 12/6/69
ENG.		DATE 12/16/69
PROD		DATE 12/16/69

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: CLOCK CONT. KW12

SIZE D | CODE CS | NUMBER 7006335-0-1 | REV. C

PRINTED CIRCUIT REV.

DEC FORM NO. DRD 101

7006335-0-1 REV C

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 8-26-69

TITLE KW-12 Real Time Clock

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	ECO CHANGE	EM12-00055	R. MOORE	12/71	R Moore	1-24-72

Scope: The following information details the function and operation of the KW-12 - Real Time Clock Option for the PDP-12.

ENG	APPD	SIZE	CODE	NUMBER	REV
S. Teicher	L. Gale	A	SP	KW12-0-1	A

DEC FORM NO. DRA 107

ENGINEERING SPECIFICATION

digital CONTINUATION SHEET

TITLE KW-12 Real Time Clock

Functional Description

The KW-12 is a PDP-12 Option that may be used to measure intervals or count events with a great deal of flexibility. In addition, to a 12-bit counter the KW-12 has a crystal controlled programmable time base and three external input channels.

Logically the KW-12 contains the following sections.

a.) Clock Control Register

The Clock Control Register is set by an IOT instruction and controls the rate of the time base and the mode of counting.

b.) Clock Enable Register

The clock enable register is set by an IOT instruction and selectively enables each of the three input channels and the clock interrupt line. A special function of the Clock Enable Register is to permit presetting of the Clock Counter.

c.) Clock Buffer Preset Register

The Clock Buffer Preset Register stores data being transferred from the A/C to the Clock Counter or from the Clock Counter to the A/C.

d.) Clock Counter

The Clock Counter is a 12-bit Binary Counter with an over-flow indicator. The contents of the Clock Counter may be transferred to the Buffer Preset Register or the Clock Counter may be preset by the Buffer Preset Register.

e.) Programmable Time Base

The Programmable Time Base provides pulses to the Clock Counter according to the rate set in the Clock Counter Register.

	SIZE	CODE	NUMBER	REV
	A	SP	KW12 - 0 - 1	A

DEC FORM NO DRA 108

f.) External Input Channels

Three External Input Channels are provided to record external events. Each channel contains an adjustable threshold Schmitt Trigger and gating set by the Clock Enable Register. All three channels may actuate the Clock Interrupt or cause the contents of the Clock Counter to be transferred to the Clock Buffer Preset Register. In addition, channel 1 and 3 have special capabilities as noted below:

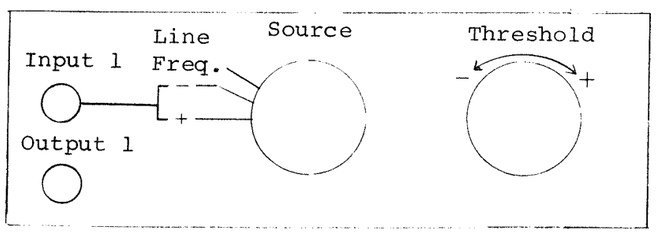
1) Channel 1

An event at channel 1 may be used as an input to the Clock Counter.

2) Channel 3

An event at channel 3 may be used to reset the Clock Counter.

Nominal Input Voltage Range	± 5 Volts
Input Type	differential
Input Resistance	10,000 ohms
Input Threshold	variable between -5 and +5
Slope	Selector switch or 60 Hz line frequency
Minimum duration input pulse	2 μsec
Maximum Permissible Input Voltage	± 50 volts



Typical Channel

Clock Control Panel

Location - behind door on left side of the front of the PDP-12.

Input Jack Type - 3 conductor phone plug

Output

This receptacle permits the input signal to be connected to another external device or to the analog input jacks of the A-D Converter.

Operation

The KW-12 is connected to the PDP-12 as a standard I/O device with device select code 13. Each data transfer from or to the clock requires 4.25 usec. All instructions for the KW-12 have the following form:

Mnemonic* $(613X)_8$ where X is $(1\text{-}7)_8$ the instructions are as follows:

	Octal Code	
CLSK	6131	Skip on Clock Interrupt Interrupt Conditions a) Enable Event 1 Interrupt (1) and Event 1 (1) b) Enable Event 2 Interrupt (1) and Event 2 (1) c) Enable Event 3 Interrupt (1) and Event 3 (1) d) Enable Overflow Interrupt (1) and Overflow (1)
CLLR	6132	C(AC) → C (Clock Control Register) The AC is unchanged

*Mnemonic defined in DIAL PMode only. In LMode user must define symbol himself.

Clock Control Register

Count Rate Reg.			Mode Reg.			Not Used		Not Used		Not Used	
00	01	02	03	04	05	06	07	08	09	10	11
C0	C1	C2	M0	M1	M2						
								Sim. Ch. 1 Event		Sim. Ch. 2 Event	Sim. Ch. 3 Event

Count C0	Rate C1	Reg. C2	Counting Rate
0	0	0	Stop Counter
0	0	1	400 KHZ
0	1	0	100 KHZ
0	1	1	10 KHZ
1	0	0	1 KHZ
1	1	0	Rate of input Channel 1
1	1	1	Stop Counter (Providing Channel 1 enabled - otherwise rate = 0)

Mode M0	Control M1	Reg. M2	
0	0	0	Counter runs as selected rate and overflows every 4096 counts. Overflow remains set until cleared with 6135 instructions.
0	0	1	*Counter runs at selected rate. Overflow causes C (Buffer Preset Reg.) to be transferred to the Clock Counter which continues to run. Overflow remains set until cleared with 6135 instructions.

*Whenever mode control register M2 goes from 0 to 1 the Clock Counter is cleared.

Mode	Control	Reg.	
0	1	0	Counter runs at selected rate. When the following occurs, the Clock Counter is transferred to the Buffer Preset Register and the Counter continues. Enable Event X (1) and Event X (1) X= 1,2,3
0	1	1	Counter runs at selected rate. When the following occurs C (Clock Counter) is transferred to the Buffer Preset Register and the Clock Counter continues to run either from the present count or zero as shown. Enable Event X (1) and Event X (1) X= 1,2 Clock Counter continues from present count. Enable Event 3 (1) and Event 3 (1) also causes the Clock Control Counter to be cleared

100)
101) When M0 is a (1) the occurrence of overflow is used
110) to trigger the A/D Converter if A-D Control also has
111) FAST-SAMPLE flip-flop set. The remaining two mode control bits are decoded exactly as above. *

CLAB 6133 C (AC) ⟶ C (Buffer Preset Register) The AC is unchanged

CLEN 6134 C (AC) ⟶ C (Clock Enable Register)

Enable Register Bit

00 - 03 Not used
04 C (Buffer Preset Register) ⟶ (ORed) C (Clock Counter)

*This bars A-D conversion starts by the SAM instruction. A--D conversion starts with Clock Overflow only; loaded into AC by SAM instruction only.

04 cont'd. If mode control register M2 (1).

05 Enable Interrupt when Overflow (1)

06 Enable Interrupt on Event (1)

07 Enable Input Channel (1)

08 Enable Interrupt on Event 2 (1)

09 Enable Input Channel 2

10 Enable Interrupt on Event 3 (1)

11 Enable Input Channel 3

CLSA 6135 Clock status is inclusive ORed into the AC. The clock status bits are then cleared.

AC Bit

00 Overflow (1)

01 - 05 Not used

06 Event 1 (1)

07 Pre-Event (1)

08 Event 2 (1)

09 Pre-Event 2 (1)

10 Event 3 (1)

11 Pre-Event 3 (1)

If both Event X (1) and Pre-Event X (1) then 2 or more events have occurred on Channel X since the previous 6135 instruction.

*~~Overflow flip-flop should be cleared with the 6135 IOT prior to use his instruction.~~

CLBA 6136 C (Buffer Preset Register) → C (AC)

CLCA 6137 C (Clock Counter) → C (Buffer Preset Register) → C (AC)

The following PDP-12 Drawings apply to the KW-12:

A-ML-PDP-12-0	PDP12 System
K-WL-EM12-0-3	Wire List
D-MU-EM12-0-1	Module Utilization Mem
D-MU-EM12-0-2	Module Utilization Mem
D-BS-KW12-0-CLC	CLC Clock IO Control
D-BS-KW12-0-CLEA	CLEA Input Channel 1
D-BS-KW12-0-CLEB	CLEB Input Channel 2
D-BS-KW12-0-CLEC	CLEC Input Channel 3
D-BS-KW12-0-CLIO	CLIO Clock to Input
D-BS-KW12-0-CLKA	CLKA Clock & Buffer 00-05
D-BS-KW12-0-CLKB	CLKB Clock & Buffer 06-11
D-BS-KW12-0-CLR	CLR Clock Rate
D-BS-KW12-0-CLTB	CLTB Clock Time Base
A-PL-EM12-0-1	Module Utilization MEM PL
A-PL-EM12-0-2	Module Utilization Mem PL
A-AD-7006335-0-0	Clock Control Panel Assembly
A-PL-7006335-0-0	Clock Control Panel Assembly (Parts List)
D-CS-70006335-0-1	Clock Control Circuit Schematic
A-PL-EM12-0-1	Module Utilization
A-PL-EM12-0-2	Module Utilization

MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
A-SP-TC12-F-1		3	ENGINEERING SPECS.
D-FD-TC12-F-2			TIMING DIAGRAM
A-SP-TC12-F-3		2	ACCEPTANCE & CHECKOUT PROCEDURE
D-BS-TC12-F-LTP8	D	1	LTP8 TAPE CONTROL
K-WL-EM12-0-3	REF		WIRE LIST
D-MU-EM-0-1	REF		MODULE UTILIZATION MEM
D-MU-EM-0-2	REF		MODULE UTILIZATION MEM
A-PL-EM12-0-1	REF		MODULE UTILIZATION MEM PL
A-PL-EM12-0-2	REF		MODULE UTILIZATION MEM PL

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
A	3/69	EM12-01	L.G.
B	6/69	EM12-04	L.G.
C	8/69	EM12-10	L.G.
D	2/70	EM12-32	L.G.
E	4/70	EM12-36	L.G.

DRN. J. APREA	DATE 3/10/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. D. Hutchins	DATE 3/10/69	
ENG. L. Gale	DATE 3/10/69	
PROJ. ENG. L. Gale	DATE 3/10/69	
PROD. A. Mark	DATE 3/10/69	
FIRST USED ON PDP-12		
SCALE		
SHEET OF		

TITLE: 8 TAPE CONTROL

SIZE	CODE	NUMBER	REV.
A	ML	TC12-F	E

DIST.

DEC FORM NO. DRA 103

LTP8 W1(1)H
LTP8 W2(1)H
M112 A33 → N2

+3V A33U1 H
+3V A33V1 H
−LWN WINDOW DATA IN L
LTP8 CLOSE 8 WIND L
LTT TP3 H

LTP8 W9 M21G C33 (A1, C1, B1 → F1, E1, D1)
LTP8 W8 M21G C33 (E2, D2 → J2, H2, F2)
LTP8 W7 M21G C33 (J1, H1 → M1, L1, K1)
LTP8 W6 M21G C33 (M2, L2 → K2, R2, N2)
LTP8 W5 M21G C33 (P1, N1 → U1, S1, R1)
LTP8 W4 M21G C33 (T2, S2 → V1, V2, U2)
LTP8 W3 M21G C32 (C1, B1 → A1, F1, D1)
LTP8 W2 M21G C32 (P1, N1 → K2, U1, S1)
LTP8 W1 M21G C32 (J1, H1 → M1, L1, K1)

LTP8 SET 8 TAPE L
LIP TAPE PRESET H
+3V A33V1 H
LTP8 TAPE M21G C32 (M2, L2 → N2, P2, K2, R2)

LTP8 TAPE SEL H
LTP8 W1(1)H
M115 C29 (E1, F1, H1 → J1) → LTP8 BM L

LTP8 W9(Ø)H
LTP8 W8(1)H
LTP8 W7(1)H
LTP8 W6(Ø)H
LTP8 W5(1)H
LTP8 W9(Ø)H
LTP8 W3(1)H
LTP8 W2(Ø)H
M119 A31 (F1, H1, J1, K1, K2, L2, M2, N2 → P2)
M2 → M111 A35 → N2

LTT CLOSE WINDOW L
LIP TAPE PRESET L
PA M309 C19 (D1, D2 → F1, H1; B1 = +5V)
F1 → LTP8 CLOSE 8 WIND H
H1 → LTP8 CLOSE 8 WIND L

LTMR IOT 6152 H
PRE AC Ø9(1)H
+3V C22U1 H
M115 C29 (N2, P2, R2 → S2) → LTP8 SET 8 MTN L

LTMR IOT 6152 H
PRF AC 1Ø(1)H
+3V C22U1 H
M115 C29 (D2, E2, F2 → H2) → LTP8 SET 8 TAPE L

+3V A33V1 H
LTP8 BM L
LTT TP9 H
LTM CLEAR TAPE WORD L
LTP8 SET 8 TAPE L
LTP8 CLOSE 8 WIND L
PRF AC11(1) L

LTP8 BLOCK M216 C32 (A1, E2, D2 → J2, H2, F2)
LTP8 WRITE M216 C32 (K2, T2, S2 → V1, V2, U2)
M112 C24 → V1
M111 D21 (M2 → N2) → LTP 8 WRITE SEL H

M111 C21 (K2 → L2) → LTP8 TAPE WORD H

LTS LC ØØ(Ø)H
LTS LC Ø1(1)H
M115 C29 (T2, U2, V2 → V1)
LTP8 TAPE WORD L
LTP8 BM L
M113 D29 (P1, R1 → S1)

LTS TTS9(1)H
LTP8 WRITE(Ø)H
M115 C29 (K1, L1, M1 → N1) → LTP8 EN RWB L

LTT TP9 H
M113 D29 (L2, M2 → N2) → LTP8 LD TAC L

M112 C24
LTP8 TAPE (1) L
M111 C21 (U1, P2 → R2) → LTP8 TAPE SEL H

IOT 6152	
AC BIT	FUNCTIONS
AC 9(1)	CLEAR BLOCK
AC 5(1)	SET BACKWARD
AC 6(1)	SELECT UNIT 1
AC 7(1)	SET FORWARD
AC 9(1)	SET 8 MOTION & FORWARD IF MOTION = Ø
AC 1Ø(1)	SEL 8 TAPE AND AC 11 → WRITE

SKL 14 = SKIP ON 8 BLOCK
SKL 17 = SKIP ON 8 WORD
TAPE PRESET = Ø → WRITE
Ø → MOTION
DESELECT 8 TAPE

REVISIONS	CHK	CHANGE NO.	REV.
		EM12-00001	A
		L. GALE 4/24/69	
		EM12-00004	B
		L. GALE 8-18-69	
		EM12-00010	C
DWG. # WAS TC12B-0-LTP8			
		GALE 8/25/69	
		EM12-000032	D
		GALE 3-9-70	
		GALE 3/16/70	

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

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

MATERIAL
FINISH

		DATE
UNLESS OTHERWISE SPECIFIED		
DRN.		1-29-69
CHKD.		2/12/69
ENG.		2-12-69
PROJ. ENG.		2-12-69
PROD.		2/25/69

FIRST USED ON TC12-F
SCALE
SHEET / OF /

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
LTP8
8 TAPE CONTROL

SIZE	CODE	NUMBER	REV.
D	85	TC12-F-LTP8	D

DIST.

DEC FORM NO. DRD 102A

MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
A-ML-PDP12-0		1	PDP12 SYSTEM
K-WL-EM12-0-3	REF		WIRE LIST
D-MU-EM12-0-1	REF		MODULE UTILIZATION MEM
D-MU-EM12-0-2	REF		MODULE UTILIZATION MEM
D-BS-AD12-0-YAD	D	1	A-D CONVERTER
D-BS-AD12-0-YADA	A	1	YADA CHAN 10-17
D-BS-AD12-0-YADB	A	1	YADB CHAN 20-37
D-BS-AD12-0-YADC	E	1	YADC A-D CONTROL
A-PL-EM12-0-1	REF		MODULE UTILIZATION MEM PL
A-PL-EM12-0-2	REF		MODULE UTILIZATION MEM PL
A-SP-AD12-0-1	E	8	PDP-12 ANALOG TO DIGITAL CONVERTER

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
A	3/69	EM12-01	L.G.
B	4/69	EM12-02	L.G.
C	7/69	EM12-08	L.G.
D	8/69	EM12-09	L.G.
E	1/70	12-55	L.G.
F	4/70	12-68	L.G.
H	6/70	12-76	L.G.
J	10/70	EM12-41	L.G.
K	11/70	EP12-30	L.G.
L	0671	00001	R.S.
M	10/71	EM12-53	RM

DEC FORM NO. DRA 103

DRN. J. APREA	DATE	3/2/69
CHK'D. R. HUTANK	DATE	3/7/69
ENG.	DATE	3/10/69
PROJ. ENG.	DATE	3/10/69
PROD.	DATE	3/10/69
FIRST USED ON: PDP-12		
SCALE		
SHEET 1 OF 1		

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
ANALOG TO DIGITAL CONVERTER

SIZE	CODE	NUMBER	REV
A	ML	AD12-0	M

DIST.

G783
F33

YAD ANALOG CHAN 7 — CW — E1 — R2 — R2
YAD ANALOG CHAN 6 — CW — H1 — S1 — S1
YAD ANALOG CHAN 5 — CW — J1 — P1 — P1
YAD ANALOG CHAN 4 — CW — K1 — T2 — T2
YAD ANALOG CHAN 3 — CW — L1 — M1 — M1
YAD ANALOG CHAN 2 — CW — M1 — L2 — L2
YAD ANALOG CHAN 1 — CW — N1 — K1 — K1
YAD ANALOG CHAN Ø — CW — P1 — N2 — N2

ANALOG BUFF A215 D34

W Ø 23 E35
F2 BLK
H2 BLK
J2 BLK
K2 BLK
L2 ORG
D2 RED
S2
E2 BLU
M2 GRN
12-031852
120VAC@7-420CPS)
CLR EXT A-D START H

D1 -7V -15V
J2 H2 +7V +15V
C1
F1
R1
GRD

D2 +15V REG
E2 -15V REG
F2 HQ GRD

+5V A2 -15V B2 GRD C2 +15V REG D2 -15V REG E2 HQ GND F2

V2

YADC IR 11(1)H
YADC IR 1Ø(1)H
YADC IR 11(Ø)H
YADC IR 11(1)H
C1 YADC IR 1Ø(Ø)H
YADC IR Ø9(1)H
YADC IR 11(Ø)H
YADC IR 11(1)H
D1 YADC IR 1Ø(1)H
YADC IR 11(Ø)H
B1 YADC IR 11(1)H
E1 YADC IR 1Ø(Ø)H
A1 YADC IR Ø9(Ø)H
F1 YADC IR 11(Ø)H

D33 MULTIPLEX A131
U1
H1 YADC N EQ ØØ L
YAD MPX RTN H

* AD12'S PRE-WIRED TO EM12 REV.V OR HIGHER USES A9Ø5 INSTEAD OF A9ØØ.

YAD MPX MODE H
ANA. BUF A215 D34
+15V REG D2
-15V REG F2
HQ GRD F2
P2
U2
YAD MPX RTN H
V2
E34 F34
FJ2
+15V REG ED2
FL2
FF2
YADC HOLD (1) L
-15V REG EE2
FM2
HQ GRD EF2
FK2
EU2 ES2 FA2 +5V
SAMPLE & HOLD A9ØØ4 EH2 FH2
EJ2
EV2
EM12 HIGHER THAN REV. U USES A405
DV2
A-D CONV AB11
C35 D35
YADC START H CH2
+15V REG DU2
-15V REG CV2
HQ GRD DN2
+5V CA2
29 CE2 YAD AD 2(1) H
28 CD2 YAD AD 3(1) H
27 CN2 YAD AD 4(1) H
26 CM2 YAD AD5(1) H
25 DL2 YAD AD6(1) H
24 DR2 YAD AD 7(1) H
23 DK2 YAD AD8(1) H
22 DP2 YAD AD9(1) H
21 DS2 YAD AD 1Ø(1) H
20 DT2 YAD AD 11 (1) H
DM2
YAD DONE H

REVISIONS	REV.	CHK
CHANGE NO. 00001	A	
EM12-00008	B	
12-00076	C	
EM12-00053	D	

L GALE 4/24/69
L GALE 5-15-69
L GALE 7-2-70
LINDHEIMER 10-20-71

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

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

MATERIAL
FINISH

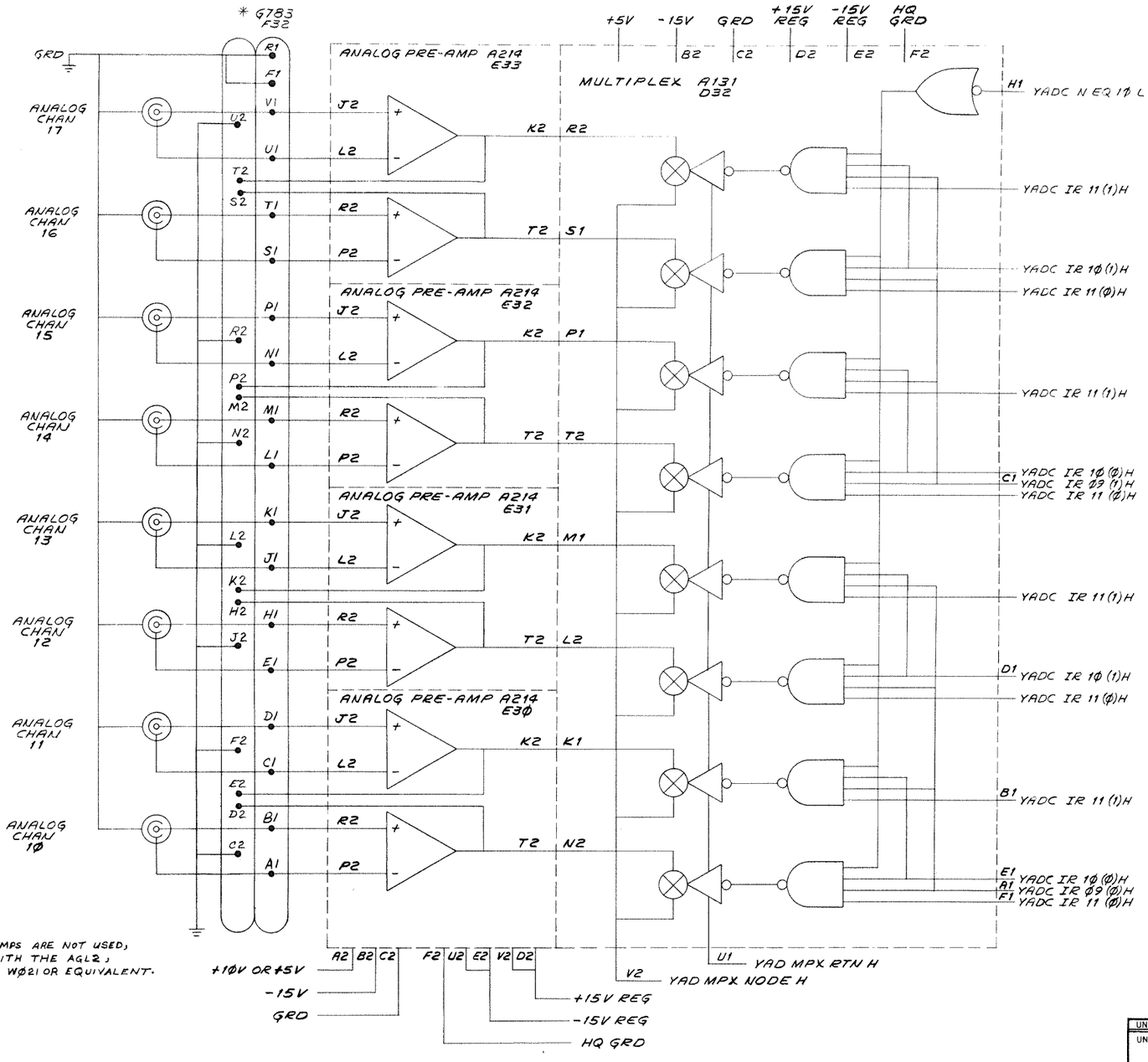
DRN. DATE 1-4-68
CHKD. DATE 2/27/68
ENG. DATE 2-26-68
PROJ. ENG. DATE 2-26-68
PROD. DATE 2/21/68
FIRST USED ON AD12
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
A-D CONVERTER YAD

SIZE D | CODE 85 | NUMBER AD12-Ø-YAD | REV. D
DIST.

DEC FORM NO. DRD 102A



* WHEN PREAMPS ARE NOT USED, SUCH AS WITH THE AGL2, CABLE IS A WØ21 OR EQUIVALENT.

REVISIONS	CHK	CHANGE NO.	REV
		00002	A
		T. QUILLIN	
		L. GALE	
		6/18/69	

DEC FORM NO DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

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

MATERIAL

FINISH

DRN.	DATE	1-4-69
CHK'D	DATE	2/27/69
ENG.	DATE	2-28-69
PROJ. ENG.	DATE	2-28-69
PROG.	DATE	2-28-69

FIRST USED ON AD12

SCALE

SHEET / OF /

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
YAD A
CHAN 1Ø-17

SIZE	CODE	NUMBER	REV.
D	BS	AD12-Ø-YADA	A

DIST.

REV A | NUMBER AD12-Ø-YADA | SIZE D | CODE BS

+5V | -15V LOGIC | GRD | +15V REG | -15V REG | HQ GRD

* G783 F3Ø

PREAMP A214 E29 — MULTIPLEX A131 D31

GND — ANALOG CHAN 27 — ANALOG CHAN 26 — ANALOG CHAN 25 — ANALOG CHAN 24 — ANALOG CHAN 23 — ANALOG CHAN 22 — ANALOG CHAN 21 — ANALOG CHAN 2Ø

PREAMP A214 E28 — PREAMP A214 E27 — PREAMP A216 E26

H1 YADC N EQ 2Ø L

YADC IR B 11 (1)H
YADC IR B 1Ø (1)H
YADC IR B 11 (Ø)H
YADC IR B 1Ø (Ø)H
YADC IR B Ø9 (1)H
YADC IR B 11 (Ø)H
YADC IR B 11 (1)H
YADC IR B 1Ø (1)H
YADC IR B 11 (1)H
B1 YADC IR B 11 (1)H
E1 YADC IR B 1Ø (Ø)H
A1 YADC IR B Ø9 (Ø)H
F1 YADC IR B 11 (Ø)H

V2 U1 — YAD MPX RTN H

* G783 F31

* WHEN PREAMPS ARE NOT USE — SUCH AS WITH THE AGL2 — CABLE IS A WØ21 OR EQUIVALENT.

* G783 F3Ø

PREAMP A214 F29 — MULTIPLEX A131 D3Ø

GND — ANALOG CHAN 37 — ANALOG CHAN 36 — ANALOG CHAN 35 — ANALOG CHAN 34 — ANALOG CHAN 33 — ANALOG CHAN 32 — ANALOG CHAN 31 — ANALOG CHAN 3Ø

PREAMP A214 F28 — PREAMP A214 F27 — PREAMP A214 F26

H1 YADC N EQ 3Ø L

YADC IR B 11 (1)H
YADC IR B 1Ø (1)H
YADC IR B 11 (Ø)H
YADC IR B 11 (1)H
YADC IR B 1Ø (Ø)H
YADC IR B Ø9 (1)H
YAD IR B 11 (Ø)H
YADC IR B 11 (1)H
D1 YADC IR B 1Ø (1)H
YADC IR B 11 (1)H
B1 YADC IR B 11 (1)H
E1 YADC IR B 1Ø (Ø)H
A1 YADC IR B Ø9 (Ø)H
F1 YADC IR B 11 (Ø)H
U1 YAD MPX RTN H

YAD MPX NODE H

A2 B2 C2 V2 D2 E2 F2 V2

+1ØV OR +5V
-15V
GRD
HQ GRD
-15V REG
+15V REG

REVISIONS			
REV.	CHANGE NO.	CHK	
A	00002		T QUILLIN LGALE 1 Dec 68

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

DRN.		DATE 1-4-68
CHK'D		DATE 2/2/69
ENG.		DATE 2/2/69
PROJ. ENG.		DATE 2/28/69
PROG		DATE 3/11/69
FIRST USED ON	9012	
SCALE		
SHEET 1 OF 1		

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE

YAD B
CHAN 2Ø-37

SIZE	CODE	NUMBER	REV.
D	BS	AD12-Ø-YADB	A

DIST.

DEC FORM NO. DRD 102A

+3V D29U1 H
INR IR Ø7 B (1)H
INR IR Ø8 (1)H
INR IR Ø9 (1)H
INR IR 1Ø (1)H
INR IR 11 (1)H
+3V D29V1 H
YADC LOAD A-D IR H
YADC IR Ø7 (Ø)H
YADC IR Ø8 (Ø)H
YADC IR Ø7 (1)H
YADC IR Ø8 (1)H
YADC IR Ø9 (Ø)H
YADC IR 1Ø (Ø)H
YADC IR 11 (Ø)H
YADC IR Ø9 (1)H
YADC IR 1Ø (1)H
YADC IR 11 (1)H

YADC FAST SAM (Ø)H
CPTP TP4 H
INS SAM H
INS SAM H
CPTP TP5D H
YADC A-D PAUSE (1)H
YADC A-D BUSY (Ø)L
YADC FAST SAM (1)L
YADC FAST SAM (1)H
CLR MODE ØØ (1)H
CLR EXT A-D START H
CLC CLOCK PRESET H
YAD DONE H
DELAY
5.4 SEC-M76Ø
3.4 SEC-M76ØØ
PULSER
1.4 SEC-M76Ø
.4 SEC-M76ØØ
YADC START H
YADC A-D BUSY
YADC HOLD
+3V

IOC IO PRESET L
CPT T5 RECYCLE (Ø)H
CPTP TP5 H
INS SAM H
RCL LOAD MSC Ø9 H
YADC AC Ø5 (Ø)H
YAD DONE H
YADC A-D PAUSE

PRC AC Ø5 (1)H
RCL LOAD MSC Ø9 H
IOC IO PRESET L
YADC FAST SAM

M76ØØ*
C36

YADC A-D PAUSE (1)H
YADC FAST SAM (Ø)H
INS SAM H
YADC A-D BUSY (1)H
YADC FAST SAM (1)H
+3V D29 V1 H
YADC A-D RECYCLE L
M119 L Ø3

PRC AC Ø5 (1) H
YADC AC Ø5 (1)L
YAD AD Ø3 (1)H
YADC AD Ø3 (1)L
YAD AD Ø4 (1)H
YADC AD Ø4 (1)L
YAD AL Ø5 (1)H
YADC AD Ø5 (1)L
YAD AD Ø6 (1)H
YADC AD Ø6 (1)L
YAD AD Ø7 (1)H
YADC AD Ø7 (1)L
YAD AD Ø8 (1)H
YADC AD Ø8 (1)L
YAD AD Ø9 (1)H
YADC AD Ø9 (1)L
YAD AD 1Ø (1) H
YADC AD 1Ø (1)L
YAD AD 11 (1)H
YADC AD 11 (1) L
YADC IR 11 (Ø)L
YADC IR B 11 (Ø)H
YADC IR 11 (1)L
YADC IR B 11 (1)H
YADC IR 1Ø (Ø)L
YADC IR B 1Ø (Ø)H
YADC IR 1Ø (1)L
YADC IR B 1Ø (1)H
YADC IR Ø9 (Ø)L
YADC IR B Ø9 (Ø)H
YADC IR Ø9 (1)L
YADC IR B Ø9 (1)H

* AD12'S PRE-WIRED TO EM12 REV. U OR LOWER USE M76Ø INSTEAD OF M76ØØ.

REVISIONS	REV.	CHANGE NO.	CHK	
	A	00001		L.GALE 4/24/68
	B	EM12-00009		L.GALE 8/26/68
FV	C	EM12-00041		D. MACKLIN 10/30/69
FV	D	EP12-00030		D.MACKLIN 10-20-70
	E	EE12-00053		LINDHEIMER 10-20-71

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

DRN. Joe Ames	DATE 2-12-69	
CHK'D.	DATE 2/27/69	
ENG.	DATE 2-27-69	
PROJ. ENG.	DATE 2-27-69	
PROD.	DATE 3/5/69	
FIRST USED ON AD12		
SCALE		
SHEET 1 OF 1		

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
YADC
A-D CONTROL

SIZE	CODE	NUMBER	REV.
D	BS	AD12-Ø-YADC	E

DIST.

DEC FORM NO. DRD 102A

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE

TITLE PDP-12 ANALOG TO DIGITAL CONVERTER

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
	1) AD12, AM12, AG12 Specifications 2) AD12, AM12, AG12 Parts Allocation 3) Adjustment Procedure					
A	DWG. NO. WAS A-SP-PDP12-1-6	12-00055	T.J.DUGGAN	2-3-70	T.J.Duggan	2/4/70
B		12-00068	L. GALE	4-15-70	L. Gale	4/21/70
C		12-00076	BUDIANSKY	6-4-70	D Budiansky	7/2/70
D	CHANGE PER ECO	AD12-00001	SCHWEGLER	5-6-71	R Schwegler	6/24/71
E	CHANGE PER ECO	EM12 00053	LINDERHEIMER	10-18-71		

ENG	APPD	SIZE	CODE	NUMBER	REV
L. Gale 6/3/69	L. Gale 6/3/69	A	SP	AD12-0-1	E

DEC FORM NO. DRA 107

ENGINEERING SPECIFICATION

digital CONTINUATION SHEET

TITLE

1) AD12, AM12, AG12 Specifications

Analog Input

Input Voltage Range: AD-12, AG12	±1 volt
AM-12	±5 volts
Input Resistance AD-12, AG12 (normal noninverting connection):	±2% 70 k Ω, 300 pf in parallel
(inverting input connection):	35 k, 300 pf in parallel
AM-12	>10 meg. ohms, 300 pf to selected multiplex
Common-Mode Rejection: AD12, AG12 (source IMP <250)	25 db worse case 35 db typical
AM-12	No. com. mode rej.
Common-Mode Voltage Range: AD12, AG12	±3.5 volts from system fault line ground
Input Protection: AD-12, AG12	±67 volts from fault line indefinitely 120-volts rms for 5 sec.
AM-12	± 8 volts indef.
Overvoltage Recovery Time: AD12, AG12	8 μsec
Frequency Response: AD12, AG12, AM12	0- to 30-kHz flat 60-kHz 3-db down
Parameter Pots: AD12	8 10-turn parameter potentiometers are provided. 1-½ to 2 turns at each extreme are beyond the A to D range.
Long Term Stability (1 hour)	Better than 1% for ± 30C.

Multiplexer Performance

Number and Type:	16 FET multiplex switches expandable to 32 (AM-12)

SIZE	CODE	NUMBER	REV
A	SP	AD12-0-1	E

DEC FORM NO DRA 108

1) AD12, AM12, AG12 Specifications cont'd.

A/D Performance (See Note 1)

Resolution:	10 bits ±½ LSB ± .1%/°C for Inputs to ch. 10→ 37
Conversion Rate:	50 kHz
Sample Acquisition Time:	5 μsec (±1 μsec)
Aperture Time:	200 nsec

Mechanical

Precision-stabilized power supplies, input amplifiers, sample-and-hold multiplexers and analog-to-digital converter modules are located with the memory in the PDP-12 main frame. Connection is made to the data terminal section to the left of the console.

Analog parameters may be set in by precision 10 turn potentiometers.

Analog input jacks are provided to accept standard three-contact phone plugs.

Inverting inputs must have dc resistance less than 250 Ω in all input conditions.

No temp or long term stability is implied for parameter pots.

AM12 inputs have a small current leakage, similar to a capactive charge, as the channel first becomes selected under some conditions. This leakage is less than 3 ma for a period not to exceed 1 μsec.

Note 1 - Newer AD12's use A405 sample and hold and a M7600 A-D Control Module. This newer version has a faster sample rate. See sheet 8 of this specification.

Qty.		Part #	Use in AD12	Location	Print Ref.
4		A214	8 Analog Preamplifiers	E30 to E33	AD12-Ø-YADA
2		A131	16 Multiplex FET Switches	D32, D33	AD12-Ø-YAD AD12-Ø-YADA
1		A215	Pot. Filter Cap., Zener Ref. & Bootstrap Amp.	D34	AD-12-Ø-YAD
1	*	A405	Sample and Hold	E34, F34	AD-12-Ø-YAD
1		A811	A/D Converter Mod.	C35, D35	AD-12-Ø-YAD
1	*	M7600	A/D Control Logic	C36	AD-12-Ø-YADC
1		12-3185-2	Regulated Power Supply ±15V	Lower Right of Memory Panel	UA-PDP-12-Ø-Ø
1		700-6045	Bracket		700-6045
1		700-7964	Analog Panel	To Left of PDP-12 Console	CS-700-7964 AD-700-5964
			Connects to ADC with Cable		
			Terminated in G783 con.	F33	AD-12-Ø-YAD
1		700-5963	Relay Input	Below Power Switch Panel	CS-700-5963 AD-700-5963
			Panel--8 Phone Plug Recept.		
			Cable Terminated in G783	F32	AD-12-Ø-YADA

* AD12's pre-wired to EM12 Rev U or lower use A404 and M760.

Qty.	Part #	Use in AM12	Location	Print Ref.
2	A131	16 Multiplex FET Switches	D30, D31	AD-12-Ø-YADB
		Input Connector	F30, F31	AD-12-Ø-YADB

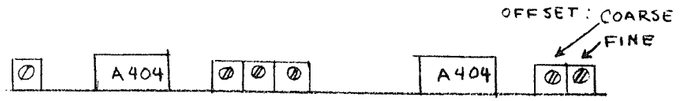
Qty.	Part #	Use in AG12	Location	Print Ref.
8	A214	Analog Preamplifiers	E26-E29	AD12-Ø-YADB
			F26-F29	
		Input, Relay Panel	F30-F31	AD-700-6046
				AD12-Ø-YADB

1) Set Ch. Ø pot about 5 turns from either end.

2) Connect pin D34N2 to D34F2.

3) Run AD TST Program with all sense switches → Ø.

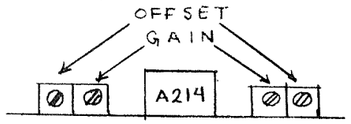
** 4) Adjust A404 Sample and Hold offset until Ch. Ø reaches the threshold point of +Ø and -Ø volts.



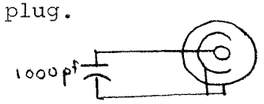
5) Remove D34N2 to D34F2 connection.

6) Turn parameter potentiometer slowly 10 turns over the full range. Assure that each count is displayed on Ch. Ø display. Repeat this test on each of the remaining parameter pots. (1-½ to 2 turns at each end of the pot do not offset the number displayed.)

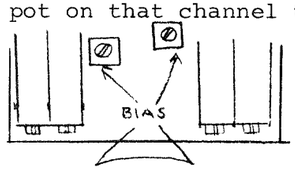
7) Insert EDC Prec. Voltage source in channel to be tested; set to Ø volts, then adjust offset pots on respective A214 to the switching point of +Ø and -Ø volts.



Note: If the boards have been tested in the module test facility, bias has been preset. If the bias has not been preset, place A214 on module extender and insert a phone plug with the following circuit in place of the EDC plug.



Adjust the bias pot on that channel to assure ±Ø volts display.



** See Sheet 8 of this specification for A405 layout.

Replace EDC and assure ±Ø volts.
Readjust offset if necessary.

8) Set EDC to +.985; adjust gain to indicate +776 readout on channel under test.

9) Increase EDC voltage to +.995; assure +777.

10) Set EDC at -.985; assure -776 reading. If necessary, slightly readjust the offset pot on the A214 in question, but insure that a reading of +Ø or -Ø (or the ±Ø threshold) is still present when EDC is set to Ø volts. See step 7.

11) Record voltage of switching indecision point for the numbers -770 to -777 and +000 to +007; assure non is less 1 mv nor greater than 3 mv.

12) Repeat steps 7 through 12 for successive analog channels.

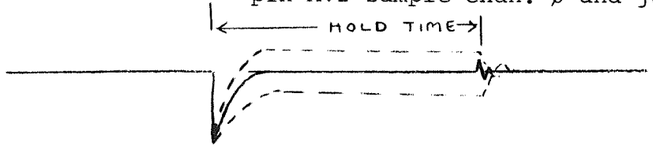
* 13) A note about the other pots on the A404: Only the offset pot should be adjusted in the normal set-up procedure of the PDP-12 analog-to-digital converter.

* Use step 13 on Sheet 8 of this specification when A405 is installed. If inadvertently other pots are adjusted, the following information may be helpful:

Pot A (marked on board) is the amplifier balance

Pot B — is gain. This adjustment is very fine; being only ±.2% misadjustment would not be disasterous.

Pot C — is pedistal, to adjust this look at pin AV2 sample chan. Ø and jump back.



Adjust this voltage to hold exactly equal to sample voltage.

Pot D — No normal machine mode facilitates readjustment.

The analog preamplifiers are designed with bias circuitry to simplify change of input characteristics from DC to AC sources for signals applied to the noninverting input. The inverting input must at all times be driven from a low DC impedance.

NEWER AD12's

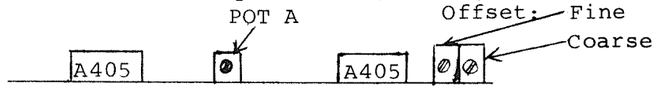
When A405 and M7600 are installed, the following performance specifications hold:

A/D Performance

Resolution:	10 bits ±½ LSB ± .1%/°C for Inputs to ch. 10→37
Conversion Rate:	69 KHz
Sample Acquisition Time:	3 usec (±1 usec)
Aperture Time:	100 nsec

Steps 4 and 13 are modified as follows:

4) Adjust A405 Sample and Hold offset until Ch. Ø reaches the threshold point of +Ø and -Ø volts.

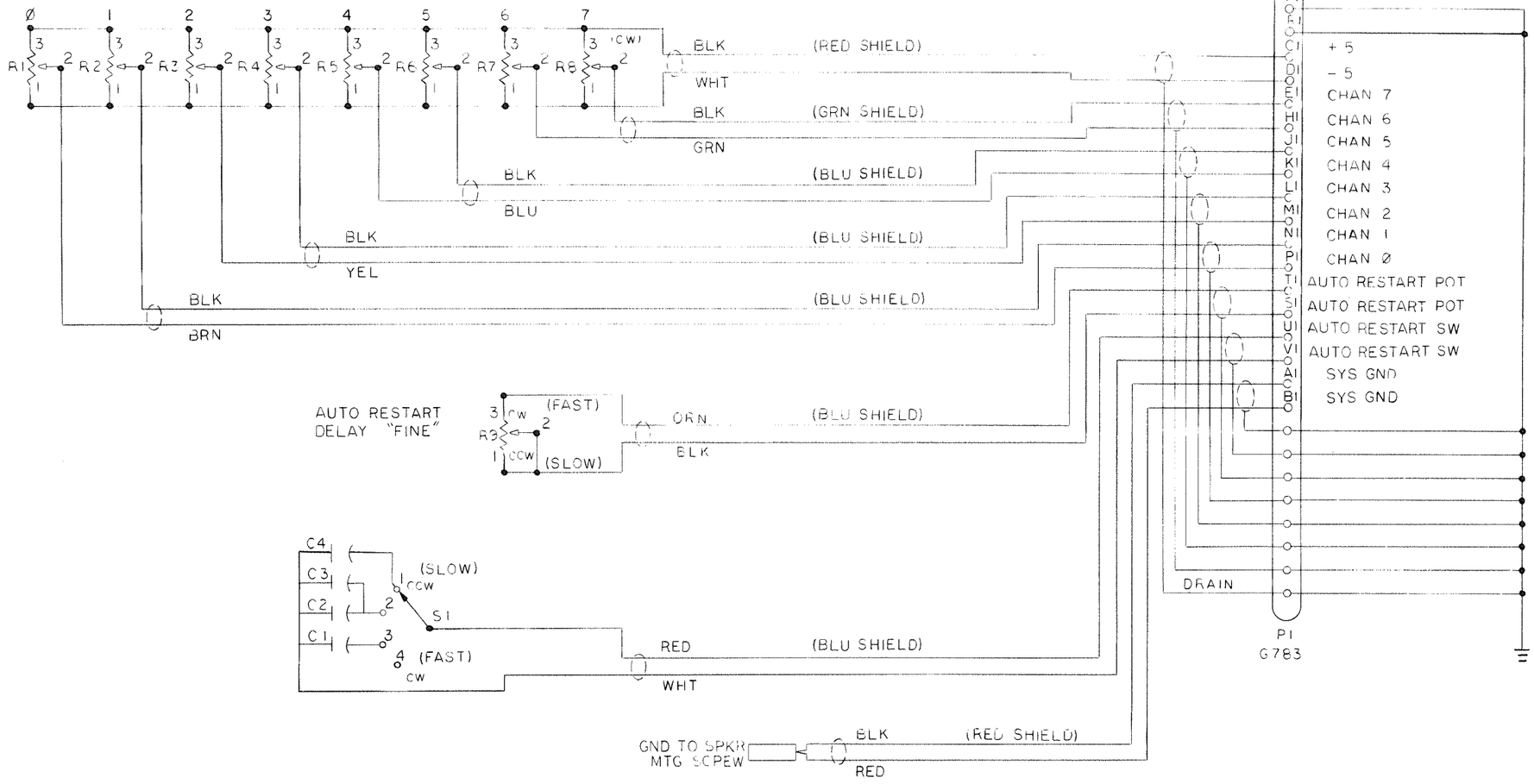


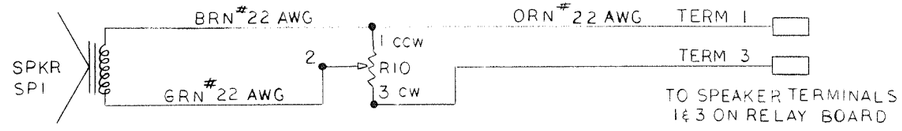
13) A note about the other pot on the A405: Only the offset pots should be adjusted in the normal set-up procedure of the PDP-12 analog-to-digital converter.

Pot A (marked on board) is the amplifier balance

The analog preamplifiers are designed with bias circuitry to simplify change of input characteristics from DC to AC sources for signals applied to the noninverting input. The inverting input must at all times be driven from a low DC impedance.

ANALOG CHANNELS Ø THRU 7





NOTE: WIRE IS BELDEN CABLE #8774 EXCEPT AS NOTED

REF DESIG	DESCRIRTION	PART NO
C4	CAPICITOR 10 MFD 20V	1004813
SP1	SPEAKER 4 BMS-45 45Ω 3W	1204880
P1	CABLE CONN	G783
C1	CAPACITOR .033MFD 100 V	1000050
C2	CAPACITOR .15MFD 35 V	1002180
C3	CAPACITOR .47μf 35V	1005965
S1	SWITCH PA-020 CENTRALAB	1209304
R10	POT 2.5K OHM JAIN 056S252UA	1309402-06
R9	POT 25K JAIN 056S253 UA	1309402-09
R1 THRU R8	POT 5K OHM 10 TURN DUNCAN	1309532-6

PARTS LIST

REVISIONS

CHK	CHG NO	REV
	10554	A

DRN	[illegible]	DATE 10 JUN 69
CHK'D	[illegible]	DATE 25 Jun 69
ENG.	[illegible]	DATE 8/11/69
PROD.	[illegible]	DATE 8/11/69

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE ANALOG PANEL PDP-12

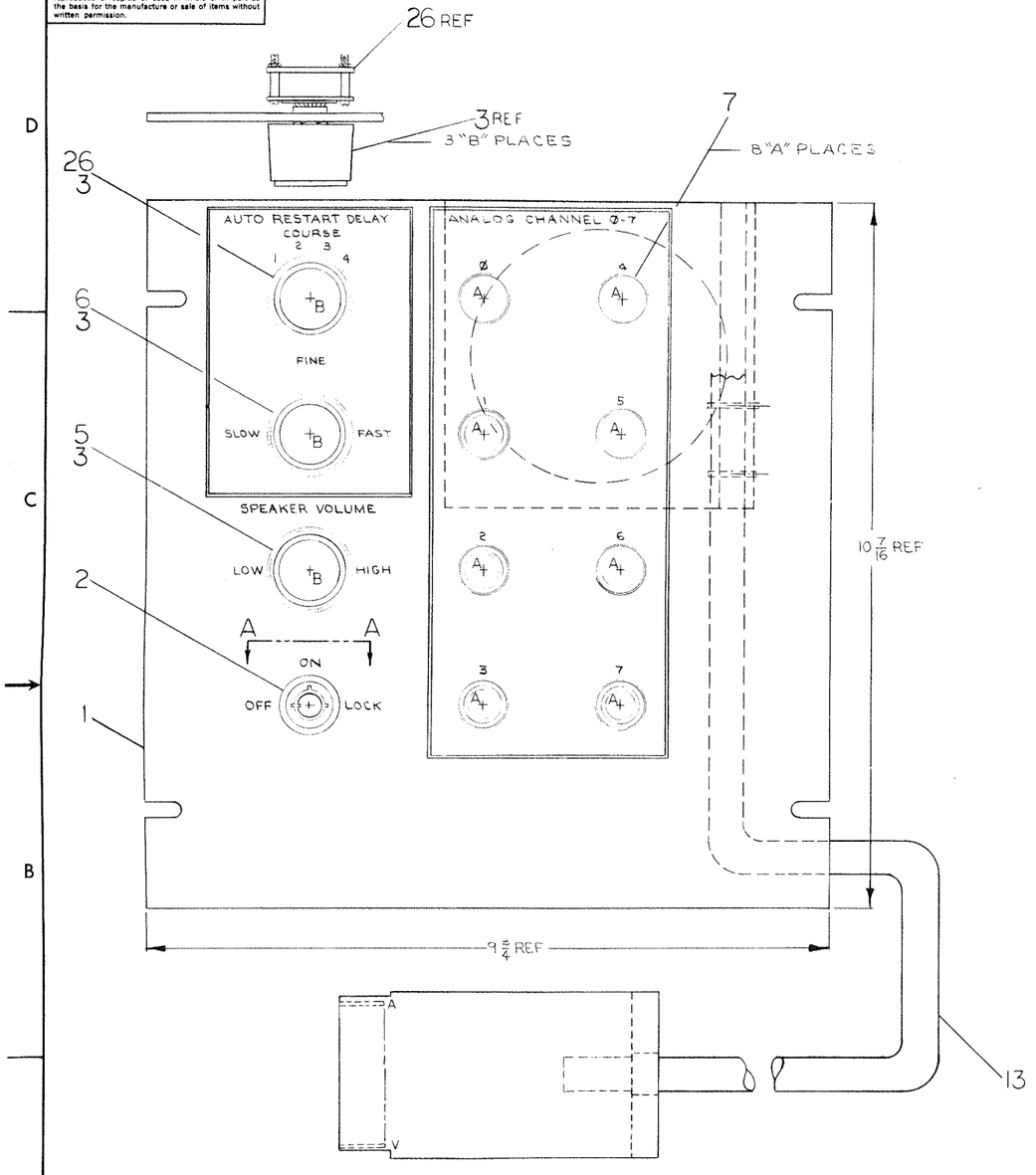
SIZE	CODE	NUMBER	REV.
C	CS	7005964-0-1	A

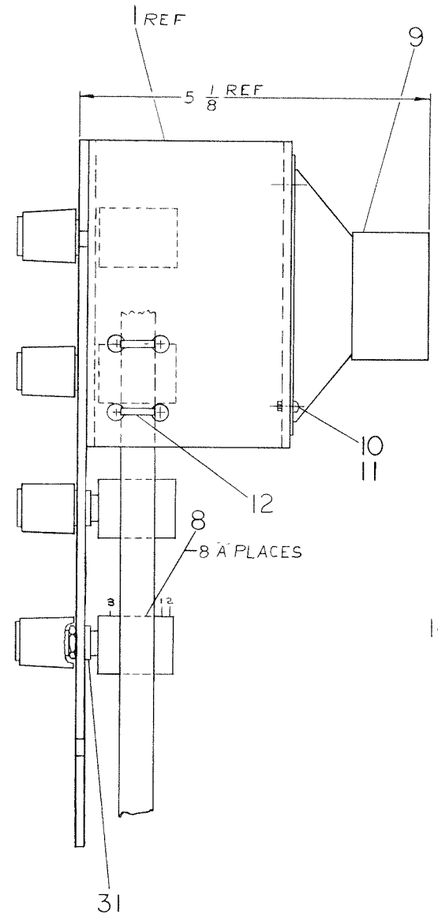
PRINTED CIRCUIT REV.

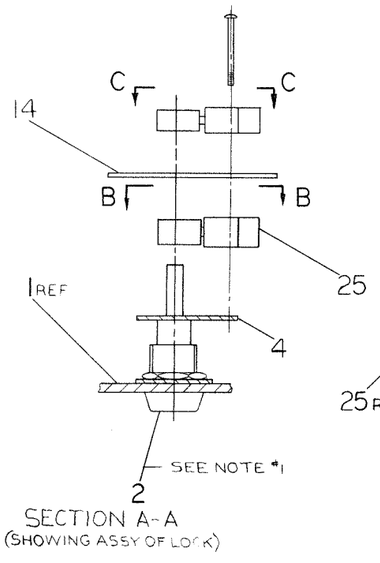
SIZE C | CODE CS | NUMBER 7005964-0-1 | REV A

DEC FORM NO.
DRC 102

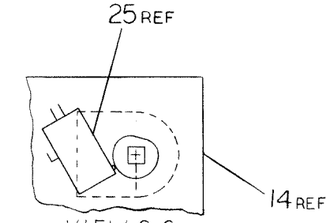
NOTES:
1. FIRST ASSEMBLE LOCK KEY (ITEM #2) TO CAM (ITEM #1). AFTER KEY IS IN POSITION, SLIDE WASHER (ITEM #3) AGAINST 1ST CAM. THEN ASSEMBLE REMAINING CAM & MICROSWITCH ASSEMBLY ITEM #14 AS SHOWN IN VIEW C-C.
2. WIRES FROM ITEM #13, NOT USED ARE TO BE CUT OFF AT CASING.
3. ATTACH GND LUG (ITEM #32) & WASHER (ITEM #34) TO SPEAKER MTG. SCREW



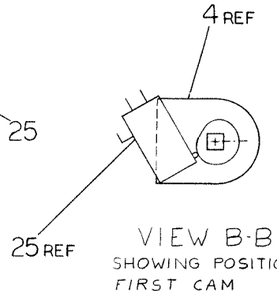




SECTION A-A
(SHOWING ASSY OF LOCK)



VIEW C-C
SHOWING POSITION OF SECOND CAM



VIEW B-B
SHOWING POSITION OF FIRST CAM

REVISIONS			
CHK	CHANGE NO.	REV.	
DCB	12-00011	A	Add Hardware L. GALE 5/21/69
R.C.	12-00054	B	T.Q. MAR-25-70 GALE 2/16/70
FV	12-00067	C	L. GALE 4-7-70

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN. Stan Potras	DATE 10/2/68	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. R. Russ	DATE 2/20/69	
ENG. L. Gale	DATE 3-5-69	
PROJ. ENG. L. Gale	DATE 3-3-69	
PROD. A.O'Neill	DATE 3/19/69	

NEXT HIGHER ASSY
D-UA-PDP12-Ø-Ø

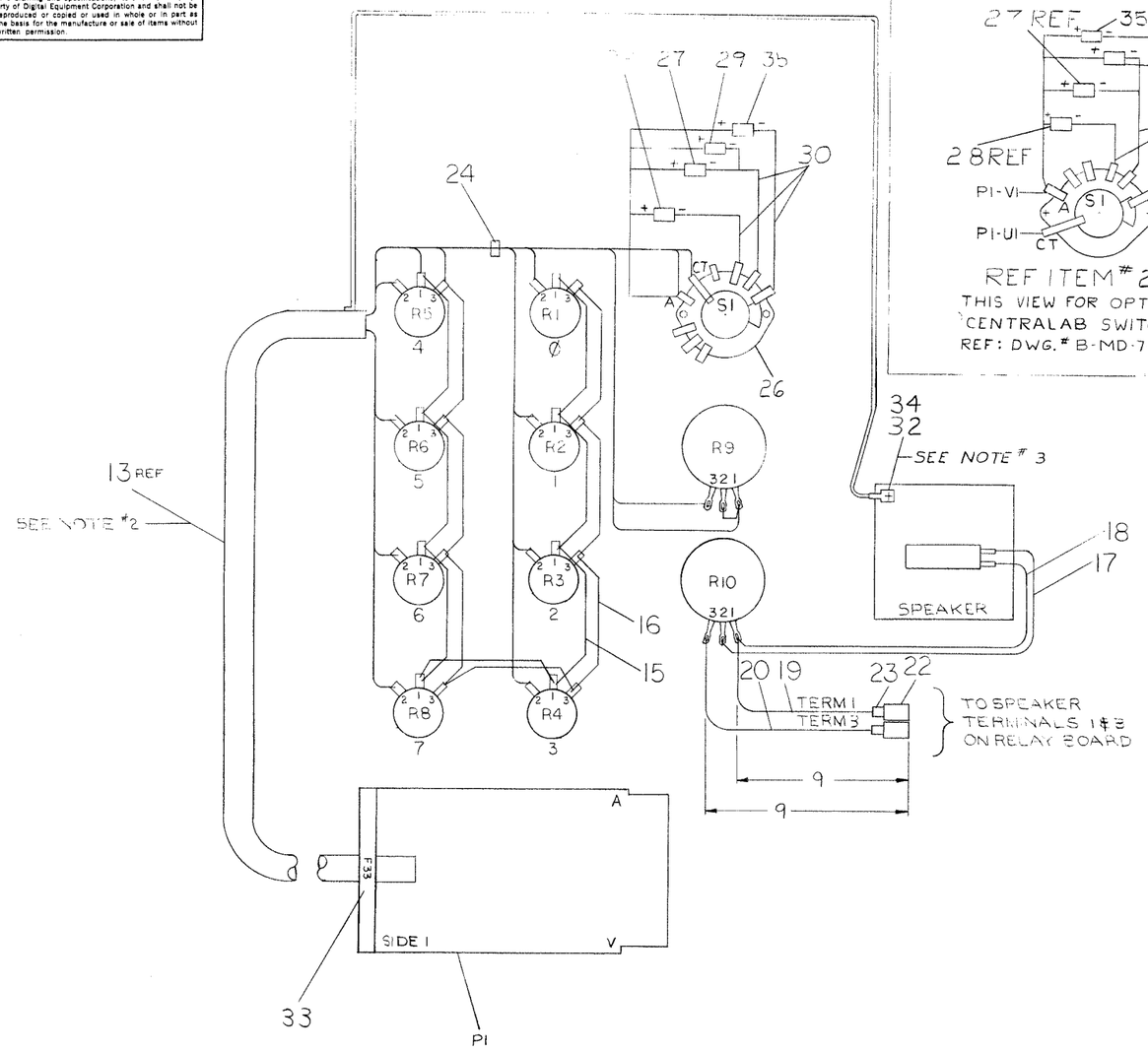
SCALE NONE
SHEET 1 OF 2

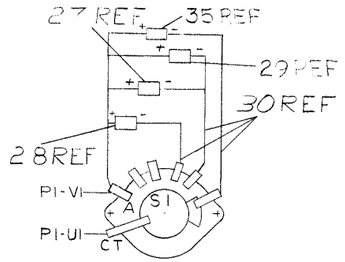
TITLE
ANALOG PANEL ASSY

SIZE	CODE	NUMBER	REV.
D	AD	7005964-0-0	C

DIST.

DEC FORM NO. DRD 100





REF ITEM # 26
THIS VIEW FOR OPTIONAL REWORKED CENTRALAB SWITCH ONLY
REF: DWG. # B-MD-7407195-0-0

WIRE TABLE

ITEM NO	AWG	COLOR	FROM	TO	REMARKS	SIGNAL
13	22	BLU	P1-P1	R1-2	BLU SHIELD PAIR # 6	CHAN Ø
		BLK	P1-N1	R2-2		CHAN 1
		YEL	P1-M1	R3-2	BLU SHIELD PAIR # 5	CHAN 2
		BLK	P1-L1	R4-2		CHAN 3
		BLU	P1-K1	R5-2	BLU SHIELD PAIR # 4	CHAN 4
		BLK	P1-J1	R6-2		CHAN 5
		GRN	P1-H1	R7-2	GRN SHIELD PAIR # 3	CHAN 6
		BLK	P1-E1	R8-2		CHAN 7
		WHT	P1-D1	R5-1	RED SHIELD PAIR # 2	-5
		BLK	P1-C1	R5-3		+5
		ORN	P1-T1	R9-3	BLU SHIELD PAIR # 7	AUTO RESTART POT
		BLK	P1-S1	R9-1		AUTO RESTART POT
		RED	P1-U1	S1-CT	BLU SHIELD PAIR # 8	AUTO RESTART SW
13		WHT	P1-V1	S1-A		AUTO RESTART SW
15		WHT	R1-1	R2-1		-5
			R2-1	R3-1		-5
			R3-1	R4-1		-5
			R4-1	R8-1		-5
			R8-1	R7-1		-5
			R7-1	R6-1		-5
15		WHT	R6-1	R5-1		-5
16		BLK	R1-3	R2-3		+5
			R2-3	R3-3		+5
			R3-3	R4-3		+5
			R4-3	R8-3		+5
			R8-3	R7-3		+5
			R7-3	R6-3		+5
			R6-3	R5-3		+5
16		BLK	R9-2	R9-1		AUTO RESART POT
17		GRN	SPKR	R10-2		SPKR OUTPUT
18		BRN	SPKR	R10-1		SPKR OUTPUT
19		ORN	R10-1	TERM 1		SPKR AMP OUTPUT TERM 1
20	22	VIO	R10-3	TERM 3		SPKR AMP OUTPUT TERM 3
13	22	BLK	P1-A1	SPKRGND	RED SHIELD PAIR # 1	SYS GND
13	22	RED	P1-B1	SPKRGND		SYS GND

REVISIONS	REV.	CHANGE NO.	CHK

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

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN.		DATE 10/15/68
CHK'D		DATE 2/28/69
ENG.		DATE 3-3-69
PROJ. ENG.		DATE 3-3-69
PROD.		DATE 3/5/69

NEXT HI-PER ASSY

SCALE NONE
SHEET 2 OF 2

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
ANALOG PANEL ASSY

SIZE	CODE	NUMBER	REV.
D	AD	7005964-0-0	C

DIST.

DEC FORM NO. DRD 100

SIZE D CODE AD NUMBER 7005964-0-0 REV C

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY S. POITRAS
DATE 10/9/68

CHECKED K. RUSS
DATE 11/21/68

SECTION 1

ENG DATE L. Gale 3-3-69

PROD DATE as call 3/3/69

ISSUED SECT. 1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION
1	D-IA-7406845-0-0	ANALOG PANEL	1
2	1209236-00	SWITCH EXA-112-2 CHICAGO LOCK CO. (BARREL)	1
3	1209244	KNOB, BUCKEYE SS-125L-2	3
4	1209236-01	BRACKET CHICAGO LOCK	1
5	1309402-06	POT 2.5K OHM #JAIN056S252UA A-B	1
6	1309402-09	POT 25K OHM #JAIN056S253UA A-B	1
7	1209245	KNOB, BUCKEYE SSN 70-2	8
8	1309532-6	POT. 5K OHM 10 TURN DUNCAN	8
9	1204880	SPEAKER 4 BMS-45, 45 OHM 3W OXFORD	1
10	9006022-1	SCR PHL PAN HD #6-32 x 3/8 LG	4
11	9006560	KEPS NUT #6-32	4
12	9007032	TIEWRAP #SST-2-B PANDUIT	2
13	C-IA-7006028-1-0	CABLE ASSEMBLY (G783)	1
14	B-MD-7407049-0-0	INSULATOR, SWITCH	1
15	9107350-10	WIRE #22 AWG STRD TEF INS (WHT)	A/R
16	9107350-1	WIRE #22 AWG STRD TEF INS (BLK)	A/R
17	9107350-6	WIRE #22 AWG STRD TEF INS (GRN)	A/R
18	9107350-2	WIRE #22 AWG STRD TEF INS (BRN)	A/R
19	9107350-4	WIRE #22 AWG STRD TEF INS (ORN)	A/R
20	9107350-8	WIRE #22 AWG STRD TEF INS (VIO)	A/R
~~21~~	~~9107252~~	~~TUBING SHRINKABLE WHT 3/8~~	~~A/R~~
22	9006997	FASTON TAB #42025-1	2

TITLE: ANALOG PANEL ASSY

ASSY NO. D-AD-7005964-0-0

SHEET 1 OF 2

SIZE A | CODE PL | NUMBER 7005964-0-0 | REV. C | ECO NO. 12-00067

DIST. 6

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY S. POITRAS
DATE 10/9/68

CHECKED K. RUSS
DATE 11/21/68

SECTION 1

ENG DATE L. Gale 3-3-69

PROD DATE as call 3/3/69

ISSUED SECT. 1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION
~~23~~	~~9107255~~	~~TUBING WHT SHRINKABLE 1/8 O.D.~~	A/R
24	9007031	TY. WRAP #SST-1-B PANDUIT	A/R
25	1209355	MICRO SW #6831 "MICRO"	2
** 26	B-MD-7407195-0-0	SWITCH CENTRALAB (REWORK)	1
26	1209394	SWITCH CENTRALAB PA-020	1
27	1005965	CAPACITOR .47 uf 35V 10%	1
28	1000050	CAPACITOR .033 MFD 100V 10%	1
29	1002180	CAPACITOR .15 MFD 35V 10%	1
30	9107256-02	TUBING #22 AWG TEF (BRN)	A/R
31	9006680	WASHER .401 ID X .812 OD	8
32	9007634	SOLDERLESS CONN #36242	1
33	A-DC-7407193-0-0	LOGIC DECAL	A/R
34	9007649	WASHER EXT TOOTH #6	1
35	1004813	CAPICITOR 10 MFD 20 V 10%	1
**	OPTIONAL SWITCH SEE ASSY DWG.		

TITLE: ANALOG PANEL ASSY

ASSY NO. D-AD-7005964-0-0

SHEET 2 OF 2

SIZE A | CODE PL | NUMBER 7005964-0-0 | REV. C | ECO NO.

DIST. 6

DEC FORM NO.
DRA 110

MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
A-ML-AD12-0	REF	1	ANALOG TO DIGITAL CONVERTER
D-BS-AD12-0-YAD	REF	1	A-D CONVERTER
D-BS-AD12-0-YADA	REF	1	YADA CHAN 10-17
D-BS-AD12-0-YADB	REF	1	YADB CHAN 20-37
D-BS-AD12-0-YADC	REF	1	YADC A-D CONTROL
D-MU-EM12-0-1	REF	1	MODULE UTILIZATION MEMORY
D-MU-EM12-0-2	REF	1	MODULE UTILIZATION MEMORY
A-PL-EM12-0-1	REF	1	MODULE COUNT
A-PL-EM12-0-2	REF	1	MODULE COUNT
D-AD-7006046-0-0	A	2	ANALOG EXTENSION PANEL
A-PL-7006046-0-0	A	1	ANALOG EXTENSION PANEL (PL)

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
A	7/70	EM12-37	L.G.

DRN.	K.RUSS	DATE 8/1/69
CHK'D.	K.RUSS	DATE 8/1/69
ENG.	L. Hale	DATE 8/11/69
PROJ. ENG.	L. Hale	DATE 8/11/69
PROD	D Hall	DATE 8/18/69

FIRST USED ON: PDP12

SCALE: H

SHEET 1 OF 1

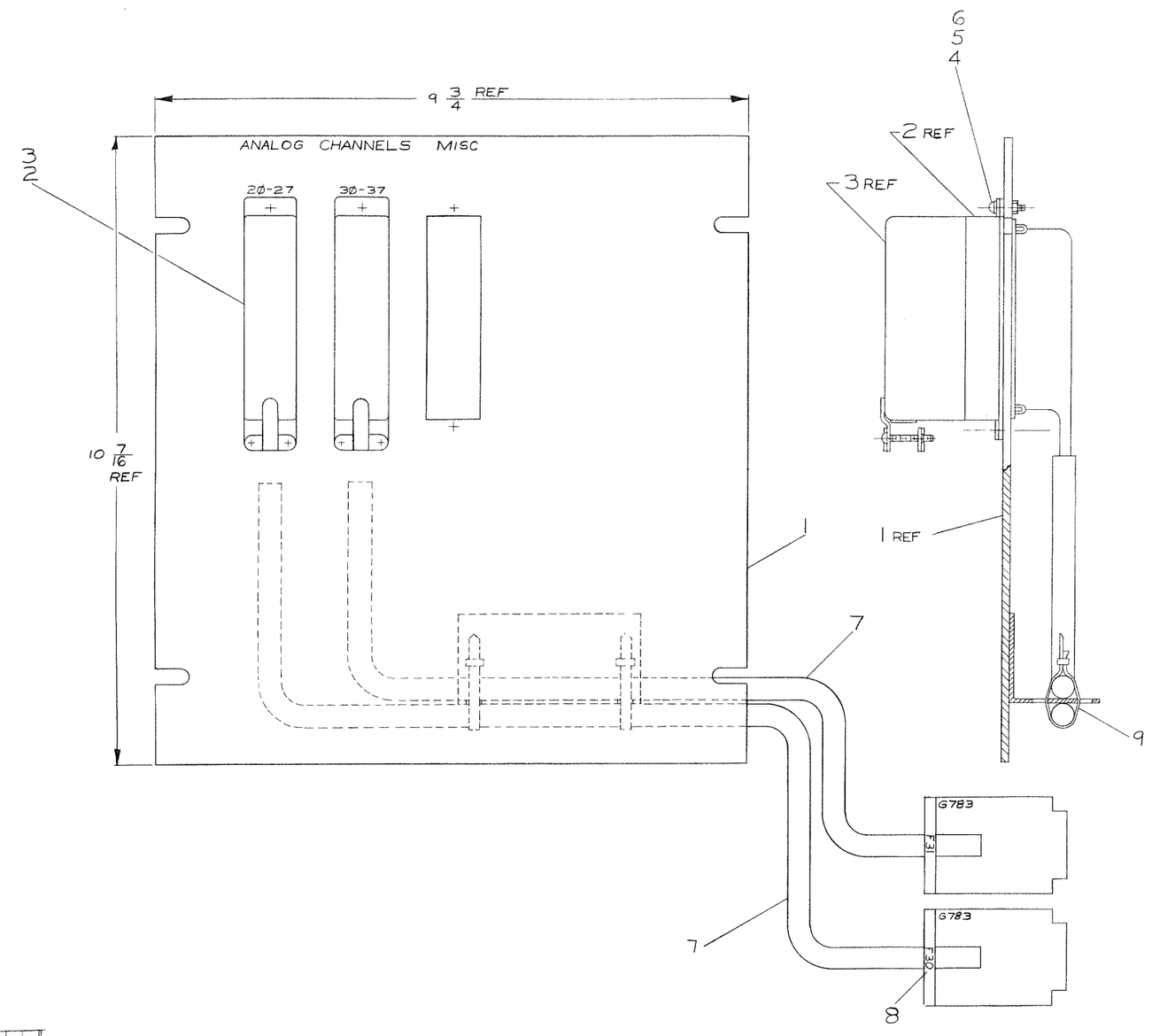
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: A-D ADDITIONAL PREAMPS

SIZE	CODE	NUMBER	REV.
A	ML	AG12-0	A

DIST.

DEC FORM NO. DRA 103



REVISIONS			
REV.	CHANGE NO.	CHK	
A	AM12-00001		
	T. Quellen 8-1-69		
	GALE		
	[illegible] 8/15/69		

DEC FORM NO. DRD 100

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

		DATE
DRN	Cook	2/28/69
CHK'D	[illegible]	2/28/69
ENG.	[illegible]	2/28/69
PROJ. ENG.	[illegible]	2/3/69
PROD.	[illegible]	3/3/69

NEXT HIGHER ASSY
A-ML-AG12-Ø

SCALE

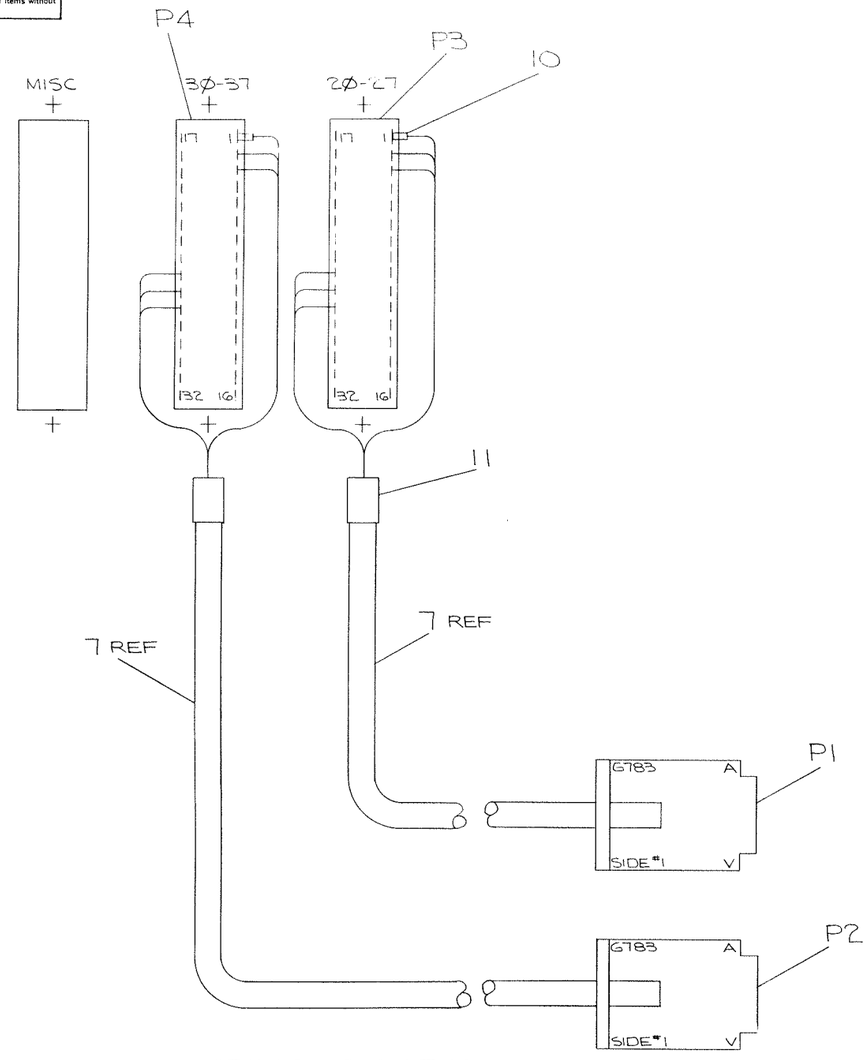
SHEET 1 OF 2

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
ANALOG EXT
PANEL ASSY (AG12)

SIZE	CODE	NUMBER	REV.
D	AD	7006046-0-0	A

DIST.



WIRING DIAGRAM

VIEW TAKEN FROM REAR OF PANEL

WIRE TABLE

ITEM NO.	AWG	DESCRIPTION COLOR	CONNECTIONS FROM	TO	REMARKS	SIGNAL
7	22	BLK	P1-A1	P3-1	RED SHIELD PAIR #1	-CHAN 20
		RED	P1-B1	-2		+CHAN 20
		DRAIN	GND	-3		SYS GND
		BLK	P1-C1	-4	RED SHIELD PAIR #2	-CHAN 21
		WHT	P1-D1	-5		+CHAN 21
		DRAIN	GND	-6		SYS GND
		BLK	P1-E1	-7	GRN SHIELD PAIR #3	-CHAN 22
		GRN	P1-H1	-8		+CHAN 22
		DRAIN	GND	-9		SYS GND
		BLK	P1-J1	-10	BLU SHIELD PAIR # 4	-CHAN 23
		BLU	P1-K1	-11		+CHAN 23
		DRAIN	GND	-12		SYS GND
		BLK	P1-L1	-13	BLU SHIELD PAIR #5	-CHAN 24
		YEL	P1-M1	-14		+CHAN 24
		DRAIN	GND	-15		SYS GND
		BLK	P1-N1	-16	BLU SHIELD PAIR #6	-CHAN 25
		BRN	P1-P1	-32		+CHAN 25
		DRAIN	GND	-31		SYS GND
		BLK	P1-S1	-30	BLU SHIELD PAIR #7	-CHAN 26
		ORN	P1-T1	-29		+CHAN 26
		DRAIN	GND	-28		SYS GND
		RED	P1-U1	-27	BLU SHIELD PAIR #8	-CHAN 27
		WHT	P1-V1	-26		+CHAN 27
7	22	DRAIN	GND	-25		SYS GND
				-24		
				-23		
				-22		
				-21		
				-20		
				-19		
				-18		
				P3-17		
7	22	BLK	P2-A1	P4-1	RED SHIELD PAIR #1	-CHAN 30
		RED	P2-B1	-2		+CHAN 30
		DRAIN	GND	-3		SYS GND
		BLK	P2-C1	-4	RED SHIELD PAIR #2	-CHAN 31
		WHT	P2-D1	-5		+CHAN 31
		DRAIN	GND	-6		SYS GND
		BLK	P2-E1	-7	GRN SHIELD PAIR #3	-CHAN 32
		GRN	P2-H1	-8		+CHAN 32
		DRAIN	GND	-9		SYS GND
		BLK	P2-J1	-10	BLU SHIELD PAIR # 4	-CHAN 33
		BLU	P2-K1	-11		+CHAN 33
		DRAIN	GND	-12		SYS GND
		BLK	P2-L1	-13	BLU SHIELD PAIR #5	-CHAN 34
		YEL	P2-M1	-14		+CHAN 34
		DRAIN	GND	-15		SYS GND
		BLK	P2-N1	-16	BLU SHIELD PAIR #6	-CHAN 35
		BRN	P2-P1	-32		+CHAN 35
		DRAIN	GND	-31		SYS GND
		BLK	P2-S1	-30	BLU SHIELD PAIR #7	-CHAN 36
		ORN	P2-T1	-29		+CHAN 36
		DRAIN	GND	-28		SYS GND
		RED	P2-U1	-27	BLU SHIELD PAIR #8	-CHAN 37
		WHT	P2-V1	-26		+CHAN 37
7	22	DRAIN	GND	-25		SYS GND
				-24		
				-23		
				-22		
				-21		
				-20		
				-19		
				-18		
				P4-17		

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

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

MATERIAL —//—

FINISH —//—

DRN.	DATE	2/28/69
CHK'D	DATE	2/28/69
ENG.	DATE	3/3/69
PROJ. ENG.	DATE	3/3/69
PROD.	DATE	3/5/69

NEXT HIGHER ASSY

SCALE —//—

SHEET 2 OF 2

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
ANALOG EXT PANEL ASSY (AG12)

SIZE	CODE	NUMBER	REV.
D	AD	7006046-0-0	A

DIST.

DEC FORM NO. DRD 100

SIZE D CODE AD NUMBER 7006046-0-0 REV A

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

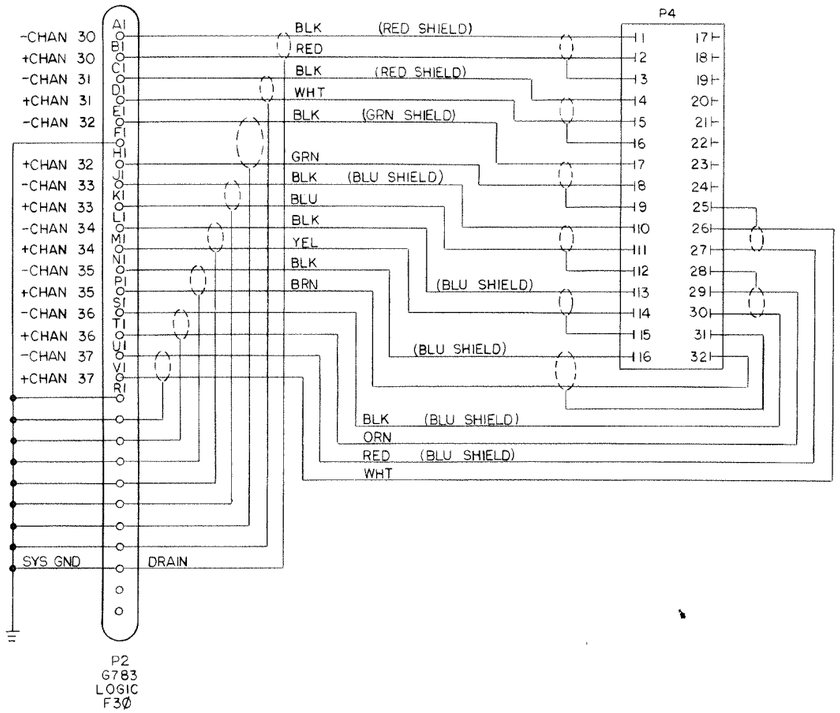
PARTS LIST

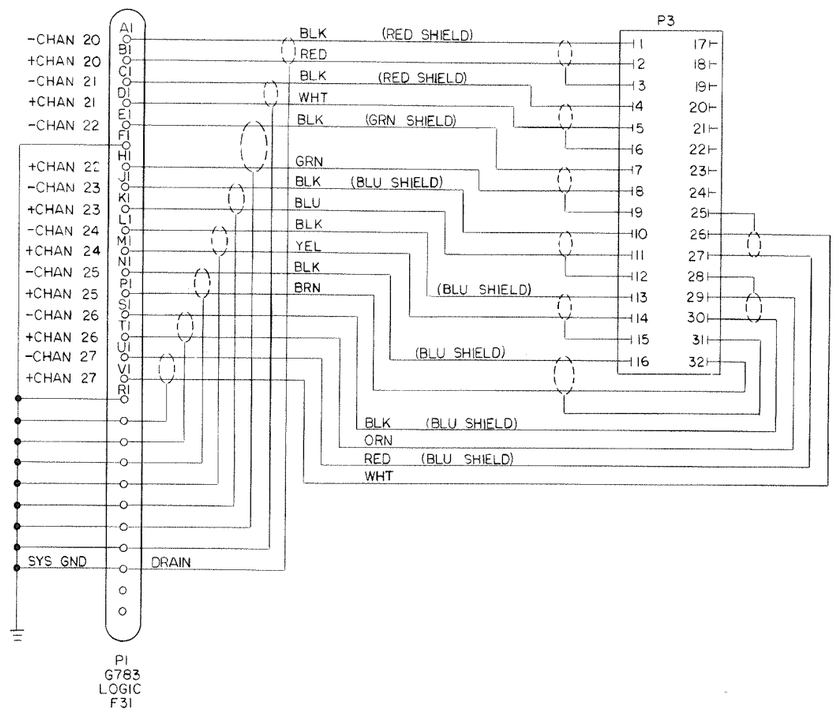
MADE BY W.F. McCARTHY DATE 12/2/68	CHECKED K. RUSS DATE 12/11/68	SECTION 1
ENG DATE L. Yoki 3-3-69	PROD D Call DATE 3/3/69	ISSUED SECT. 1

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION
1	D-IA-7406819-0-0	ANALOG EXT PANEL	1
2	120357**8**	CONN BLUE RIBBON #26-4401-32**P** AMP	2
3	120358**4**	CONN BLUE RIBBON #26-4501-32**S** AMP	2
4	9006010-1	SCR PHL HD PAN #4-40 x 5/16 LG	4
5	9006557	NUT KEPS #4-40	4
6	9006632	WASH INT TOOTH #4	**4**
7	C-IA-7006028-**2**-0	CABLE ASSY (G783)	**2**
8	A-DC-7407193-0-0	LOGIC DECALS	A/R
9	9007032	TIE WRAP #SST-2-B PANDUIT	2
10	9107255	TUBING SHRINKABLE WHT 1/8 DIA	A/R
11	9107252	TUBING SHRINKABLE WHT 3/8 DIA	A/R

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
ANALOG EXT PANEL ASSY (A612)	D-AD-7006046-0-0	A	PL	7006046-0-0	A	AM12-00001
	SHEET 1 OF 1	DIST.	G			

DEC FORM NO.
DRA 110





NOTE: WIRE IS BELDEN CABLE #8774

REF DESIGNATION	DESCRIPTION	PART NO.
P3, P4	CONN #26-4401-32P-AMP	1203578
P1, P2	G783 CABLE CONN.	G783

PARTS LIST

REVISIONS			
CHK	CHG NO.	REV.	
	21-Jan-70		

DRN	K.T. Hall	DATE 8/15/69
CHK'D	K.W. Russ	DATE 8/18/69
ENG	L. Yale	DATE 8/18/69
PROJ	D. Call	DATE 8/18/69

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE ANALOG EXT PANEL PDP 12

SIZE	CODE	NUMBER	REV.
D	CS	7006046-0-1	

PRINTED CIRCUIT REV.

DEC FORM NO. DRD 101

P4K

SIZE CODE D CS NUMBER 7006046-0-1 REV.

MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
A-ML-AD12-0	REF	1	ANALOG TO DIGITAL CONVERTER
D-BS-AD12-0-YAD	REF	1	A-D CONVERTER
D-BS-AD12-0-YADA	REF	1	YADA CHAN 10-17
D-BS-AD12-0-YADB	REF	1	YADB CHAN 20-37
D-BS-AD12-0-YADC	REF	1	YADC A-D CONTROL
D-MU-EM12-0-1	REF	1	MODULE UTILIZATION MEMORY
D-MU-EM12-0-2	REF	1	MODULE UTILIZATION MEMORY
A-PL-EM12-0-1	REF	1	MODULE COUNT
A-PL-EM12-0-2	REF	1	MODULE COUNT

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.

DRN. K. RUSS	DATE 8/1/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. K. RUSS	DATE 8/1/69	
ENG. L. Gale	DATE 8/11/69	TITLE EXPANDED MULTIPLEXER
PROJ. ENG. L. Gale	DATE 8/11/69	
PROD. W Call	DATE 8/18/69	
FIRST USED ON PDP 12		SIZE A / CODE ML / NUMBER AM12-0 / REV.
SCALE -H-		
SHEET 1 OF 1		DIST.

DEC FORM NO. DRA 103

MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
A-ML-EP12-0	REF	2	PDP 12 PROCESSOR
D-MU-EP12-0-1	REF	2	MODULE UTILIZATION PROC.
~~D-MU-EP12-0-2~~	~~REF~~	~~1~~	~~MODULE UTILIZATION PROC.~~
A-PL-EP12-0-1	REF	3	MODULE COUNT
~~A-PL-EP12-0-2~~	~~REF~~	~~1~~	~~MODULE COUNT~~
D-BS-EP12-0-IOR	REF	1	RELAY BUFFER
D-AD-7005963-0-0	D	1	RELAY PANEL ASSY
A-PL-7005963-0-0	D	1	RELAY PANEL ASSY (PL)
D-CS-7005963-0-1	B	1	RELAY PANEL CIRCUIT SCHEMATIC

REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
A	7/71	12-96	F.V.
B	1/72	EP12-44	R.M.

DRN. K. RUSS	DATE 8/4/69	
CHK'D. K. RUSS	DATE 8/4/69	
ENG. L. Gale	DATE 8/11/69	
PROJ. ENG. L. Gale	DATE 8/11/69	
PROD. W. Cull	DATE 8/18/69	
FIRST USED ON PDP 12		
SCALE —		
SHEET 1 OF 1		

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
RELAY BUFFER

SIZE	CODE	NUMBER	REV.
A	ML	DR12-0	B

DIST.

DEC FORM NO. DRA 103

NOTES:
1. WIRE IS BELDEN CABLE #8774
2. WIRE IS BELDEN CABLE #8778

ANALOG CHANNEL

SEE NOTE 1

J1Ø — RED (RED SHIELD), BLK
J11 — WHT (RED SHIELD), BLK
J12 — GRN (GRN SHIELD), BLK
J13 — BLU (BLU SHIELD), BLK
J14 — YEL (BLU SHIELD), BLK
J15 — BRN (BLU SHIELD), BLK
J16 — ORN (BLU SHIELD), BLK
J17 — WHT (BLU SHIELD), RED
GRN #22 AWG

TO GND TAB ON RELAY BD.

BIFILAR CABLE

+CHAN 1Ø
-CHAN 1Ø
+CHAN 11
-CHAN 11
+CHAN 12
-CHAN 12
+CHAN 13
-CHAN 13
+CHAN 14
-CHAN 14
+CHAN 15
-CHAN 15
+CHAN 16
-CHAN 16
+CHAN 17
-CHAN 17
DRAIN

P1
G783
LOGIC F32

SEE NOTE 2

P2		P3
CHAN SEL D2	47Ω	BLK — 1
GND C2		RED — 2
GND C2		3
DSC INT K2	47Ω	BLK — 4
GND F2		WHT — 5
GND F2		6
X HQ GND H2		BLK — 7
DSC X OUT L E2	47Ω	GRN — 8
GND J2		9
Y HQ GND P2		BLK — 10
DSC Y OUT L M2	47Ω	BLU — 11
GND L2		12
503 INT V2	47Ω	BLK — 19
GND U2		BRN — 20
GND U2		21
GND T2		BLK — 13
COL RED L S2	47Ω	YEL — 14
GND R2		15

W028

REF. DESIGNATION	DESCRIPTION	PART NO.
PARTS LIST		
P2	W028 CABLE ASSY.	7007005-7E-0
P3	CONN BLU RIBBON 26-4401-24P	1209265
P1	G783 CABLE CONN.	G783
J1Ø THRU J17	JAX 13-B 3 COND SWITCHCRAFT	1203562

REVISIONS

CHN	CHG NO.	REV.
FV	000562	A
[illegible]	[illegible]	B

DRN	[illegible]	DATE 8/13/69
CHK'D	[illegible]	DATE 8-19-69
ENG.	[illegible]	DATE 8/18/69
PROD.	[illegible]	DATE 8/18/69

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

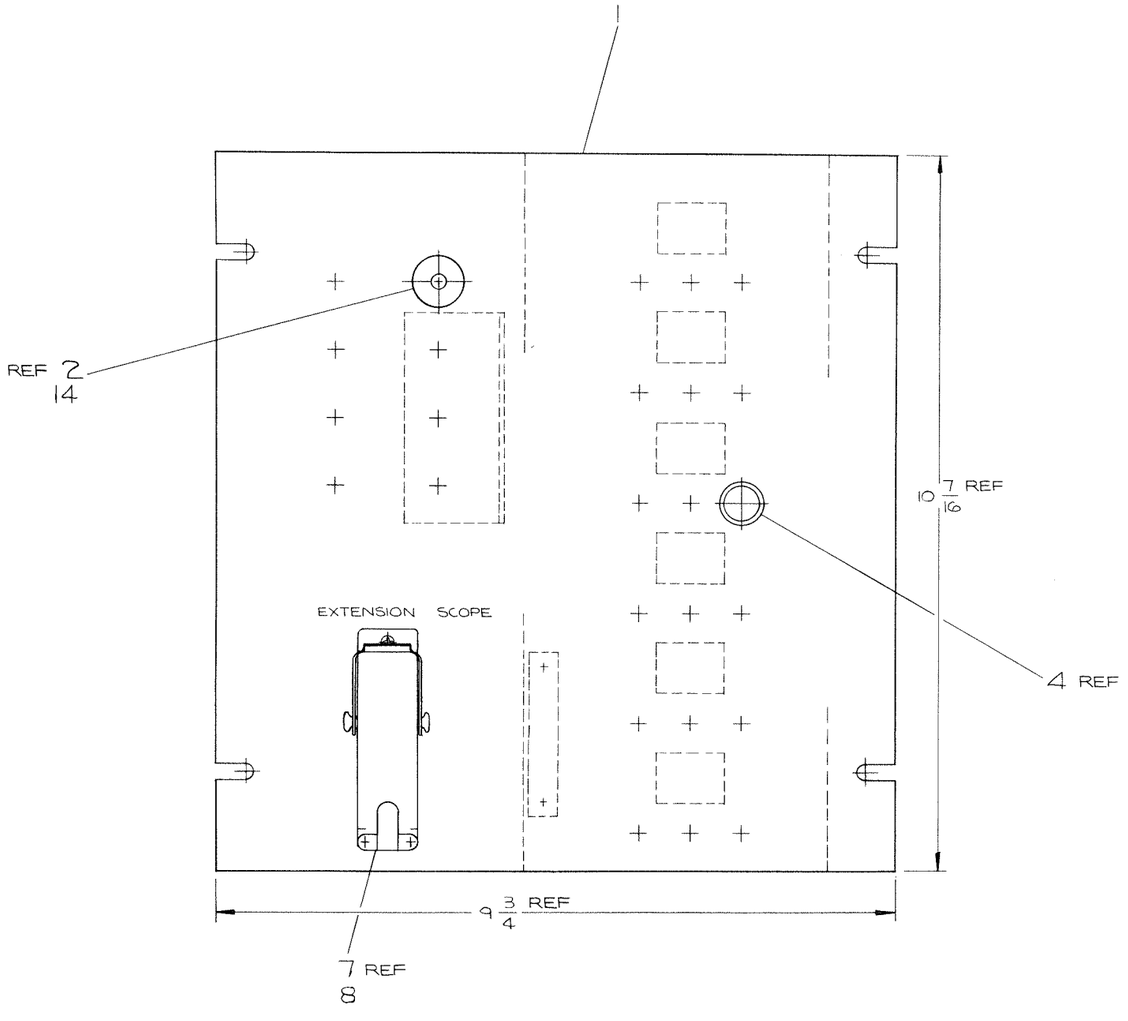
TITLE: RELAY PANEL PDP 12

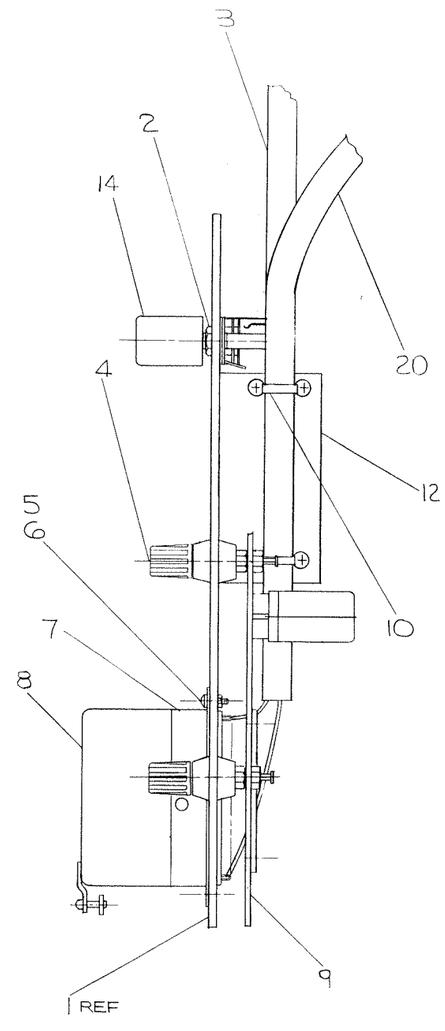
SIZE D | CODE CS | NUMBER 7005963-0-1 | REV B

PRINTED CIRCUIT REV.

DEC FORM NO. DRD 101

NOTES:
1. ALL WIRES FROM ITEM # 3 NOT USED ARE TO BE CUT OFF AT CASING.





REVISIONS			
CHK	CHANGE NO.	REV.	
[illegible]	DRI2-00001	A	Schaffer 7-30-69 GALE
[illegible]	12-00026	B	L. GALE
[illegible]	12-00082	C	G. BUDIANSKY
[illegible]	12-00096	D	R. MOCHE

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP12		PARTS LIST		

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

MATERIAL —//—
FINISH —//—

DRN. [illegible] DATE 11-21-68
CHK'D. A. Rugg DATE 11-22-68
ENG. [illegible] DATE 2-3-69
PROJ. ENG. [illegible] DATE 2-3-69
PROD. [illegible] DATE 3/3/69
NEXT HIGHER ASSY A-ML-DR12-Ø
SCALE —//—
SHEET 1 OF 2

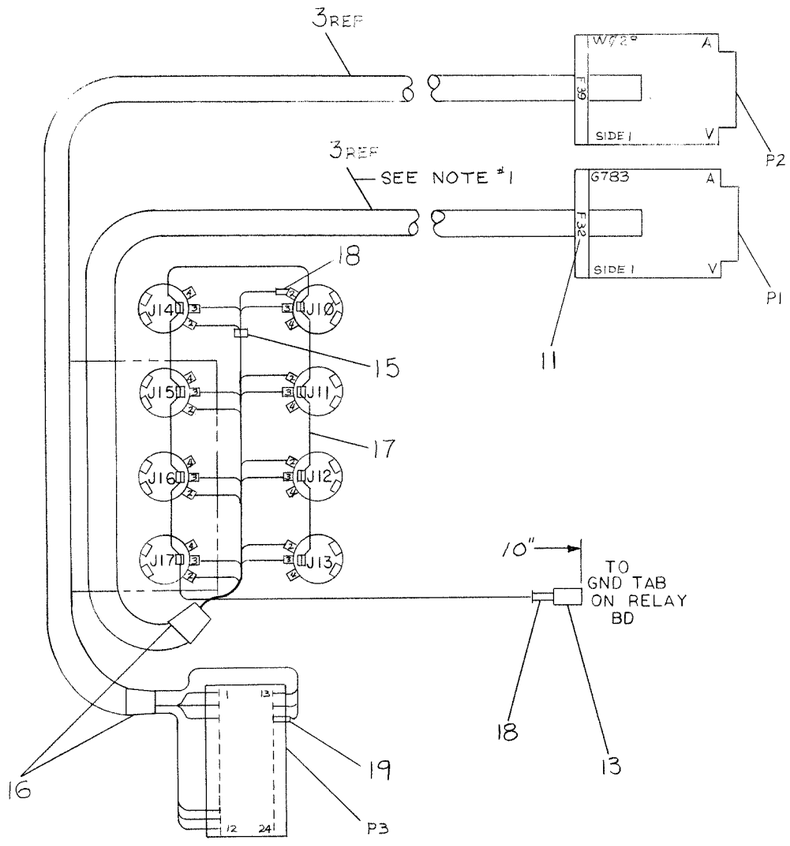
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
RELAY PANEL ASSY (DR12)

SIZE D | CODE | NUMBER AD7005963-0-0 | REV. D
DIST.

DEC FORM NO. DRD 100

SIZE D | CODE | NUMBER AD7005963-0-0 | REV. D



WIRING DIAGRAM
VIEW LOOKING AT REAR OF PANEL

WIRE TABLE

ITEM NO	AWG	COLOR	FROM	TO	REMARKS	SIGNAL
3	22	BLK	P1-A1	J10-2	RED SHIELD PAIR#1	-CHAN 10
		RED	P1-B1	J10-3		+CHAN 10
		DRAIN	GND	OPEN		
		BLK	P1-C1	J11-2	RED SHIELD PAIR#2	-CHAN 11
		WHT	P1-D1	J11-3		+CHAN 11
		DRAIN	GND	OPEN		
		BLK	P1-E1	J12-2	GRN SHIELD PAIR#3	-CHAN 12
		GRN	P1-H1	J12-3		+CHAN 12
		DRAIN	GND	OPEN		
		BLK	P1-J1	J13-2	BLU SHIELD PAIR#4	-CHAN 13
		BLU	P1-K1	J13-3		+CHAN 13
		DRAIN	GND	OPEN		
		BLK	P1-L1	J14-2	BLU SHIELD PAIR#5	-CHAN 14
		YEL	P1-M1	J14-3		+CHAN 14
		DRAIN	GND	OPEN		
		BLK	P1-N1	J15-2	BLU SHIELD PAIR#6	-CHAN 15
		BRN	P1-P1	J15-3		+CHAN 15
		DRAIN	GND	OPEN		
		BLK	P1-S1	J16-2	BLU SHIELD PAIR#7	-CHAN 16
		ORN	P1-T1	J16-3		+CHAN 16
		DRAIN	GND	OPEN		
		RED	P1-U1	J17-2	BLU SHIELD PAIR#8	-CHAN 17
		WHT	P1-V1	J17-3		+CHAN 17
3	22	DRAIN	GND	OPEN		
17	22	GRN	J17-1	J16-1		SYS GND
			J16-1	J15-1		
			J15-1	J14-1		
			J14-1	J10-1		
			J10-1	J11-1		
			J11-1	J12-1		
			J12-1	J13-1		
17	22	GRN	J17-1	GND TAB		SYS GND
3	22	BLK	P2-D2*	P3-1	PAIR#1	CHAN SEL
		RED	GND	P3-2		GND
		DRAIN	GND	P3-3		SHIELD
		BLK	P2-K2*	P3-4	PAIR#2	DSC INT
		WHT	GND	P3-5		GND
		DRAIN	GND	P3-6		SHIELD
		BLK	P2-H2	P3-7	PAIR# 3	X HQ GND
		GRN	P2-E2*	P3-8		DSC X OUT L
		DRAIN	GND	P3-9		SHIELD
		BLK	P2-P2	P3-10	PAIR# 4	Y HQ GND
		BLU	P2-M2*	P3-11		DSC Y OUTL
		DRAIN	GND	P3-12		SHIELD
		BLK	P2-T2	P3-13	PAIR#5	GND
		YEL	F2-S2	P3-14		COL RED L
		DRAIN	GND	P3-15		SHIELD
				P3-16		
				P3-17	NOT USED	
				P3-18		
		BLK	P2-V2*	P3-19	PAIR#6	503 INT
		BRN	GND	P3-20		GND
		DRAIN	GND	P3-21		SHIELD
				P3-22		
				P3-23	NOT USED	
3	22			P3-24		

* THROUGH 47Ω RESISTOR

REVISIONS

REV.	CHANGE NO.	CHK

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

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN	Stan Pat	DATE 11/22/68
CHK'D	R Russ	DATE 11/22/68
ENG.		DATE
PROJ. ENG.		DATE 2-5-69
PROD.		DATE

NEXT HIGHER ASS'Y

SCALE NONE

SHEET 2 OF 2

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
RELAY PANEL ASS'Y (DR12)

SIZE	CODE	NUMBER	REV
D	AD	7005963-0-0	D

DIST.

DEC FORM NO. DRD 100

SIZE D CODE AD NUMBER 7005963-0-0 REV D

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

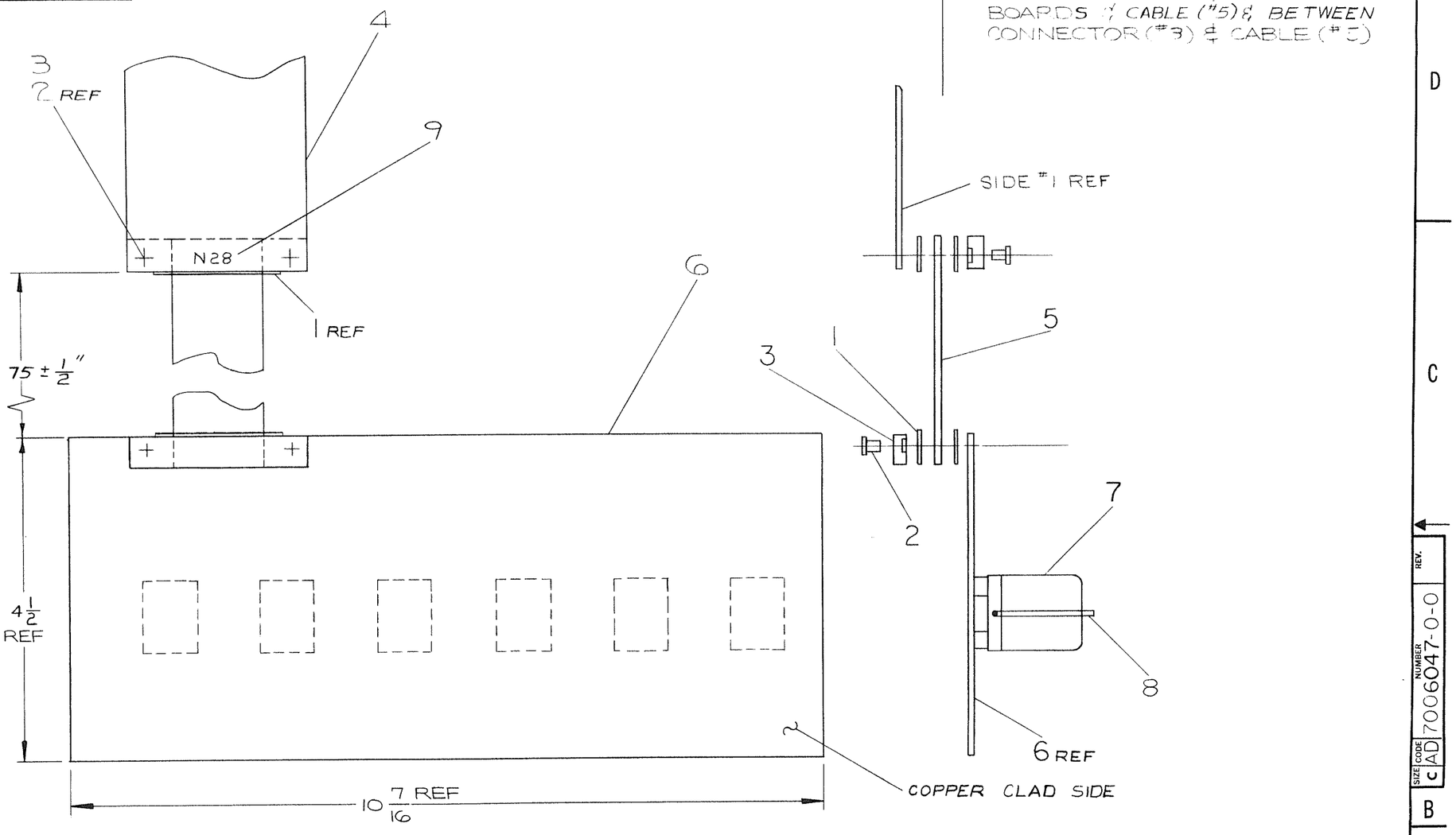
MADE BY R. COOK	CHECKED K. RUSS	SECTION
DATE 10/8/68	DATE ~~11~~/11/68	1
ENG DATE L. Gale 3/3/69	PROD DATE W Cole 3/3/69	ISSUED SECT. 1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION
1	D-IA-7406846-0-0	PANEL RELAY	1
2	1203562	JAX #13-B 3 COND SWITCH CRAFT	8
3	C-IA-7006028-1-0	CABLE ASSY G783	1
4	1209352-02	BINDER POST #DF31 WTC SUPERIOR ELEC.	18
5	9006010-1	SCR PHL HD PAN #4-40 x 5/16 LG	2
6	9006557	NUT KEPS #4-40	2
7	1209265	CONN BLU RIBBON #26-4401-24P AMP	1
8	1209277	CONN BLU RIBBON #26-4501-24S AMP	1
9	C-AD-7006047-0-0	RELAY BD. ASSY	1
10	9007032	TIE WRAP #SST-2-B PANDUIT	2
11	A-DC-7407193-0-0	LOGIC DECALS	A/R
12	B-MD-7406901-0-0	CABLE BRACKET	1
13	9006997	FASTON TAB #42025-1	1
14	1209430	PHONE PLUG #90 SWITCH CRAFT	8
15	9007031	TIE WRAP #SST-1-B PANDUIT	A/R
16	9107252	TUBING SHRINKABLE WHT 3/8 DIA	A/R
17	9107350-6	WIRE #22 AWG STRD TEF/INS (GRN)	A/R
18	9107305	TUBING SHRINKABLE RED 3/16 DIA	A/R
19	9107255	TUBING SHRINKABLE WHT 1/8 DIA	A/R
20	C-IA-7007005-7E-0	CABLE ASSY WC28	1

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
RELAY PANEL ASSY (DRI2)	D-AD-7005963-0-0	A	PL	7005963-0-0	D	12-00096
	SHEET 1 OF 1	DIST. 6				

DEC FORM NO.
DRA 110

NOTES:
1. INSTALL TAPE (#) BETWEEN BOARDS & CABLE (#5) & BETWEEN CONNECTOR (#3) & CABLE (#5)



REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 12		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

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

MATERIAL —//—

FINISH —//—

DRN. B. Cook	DATE 10/3/68	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. R. Bruss	DATE 1-9-69	
ENG. L. Gale	DATE 3-3-69	TITLE: RELAY BOARD ASSY
PROJ. ENG. L. Gale	DATE 3-3-69	
PROD. W Call	DATE 3/3/69	
NEXT HIGHER ASSY: D-AD-7005963-0-0		SIZE C CODE AD NUMBER 7006047-0-0 REV.
SCALE —//—		DIST.
SHEET 1 OF 1		

SIZE C CODE AD NUMBER 7006047-0-0 REV.

DEC FORM NO. DRC 100

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

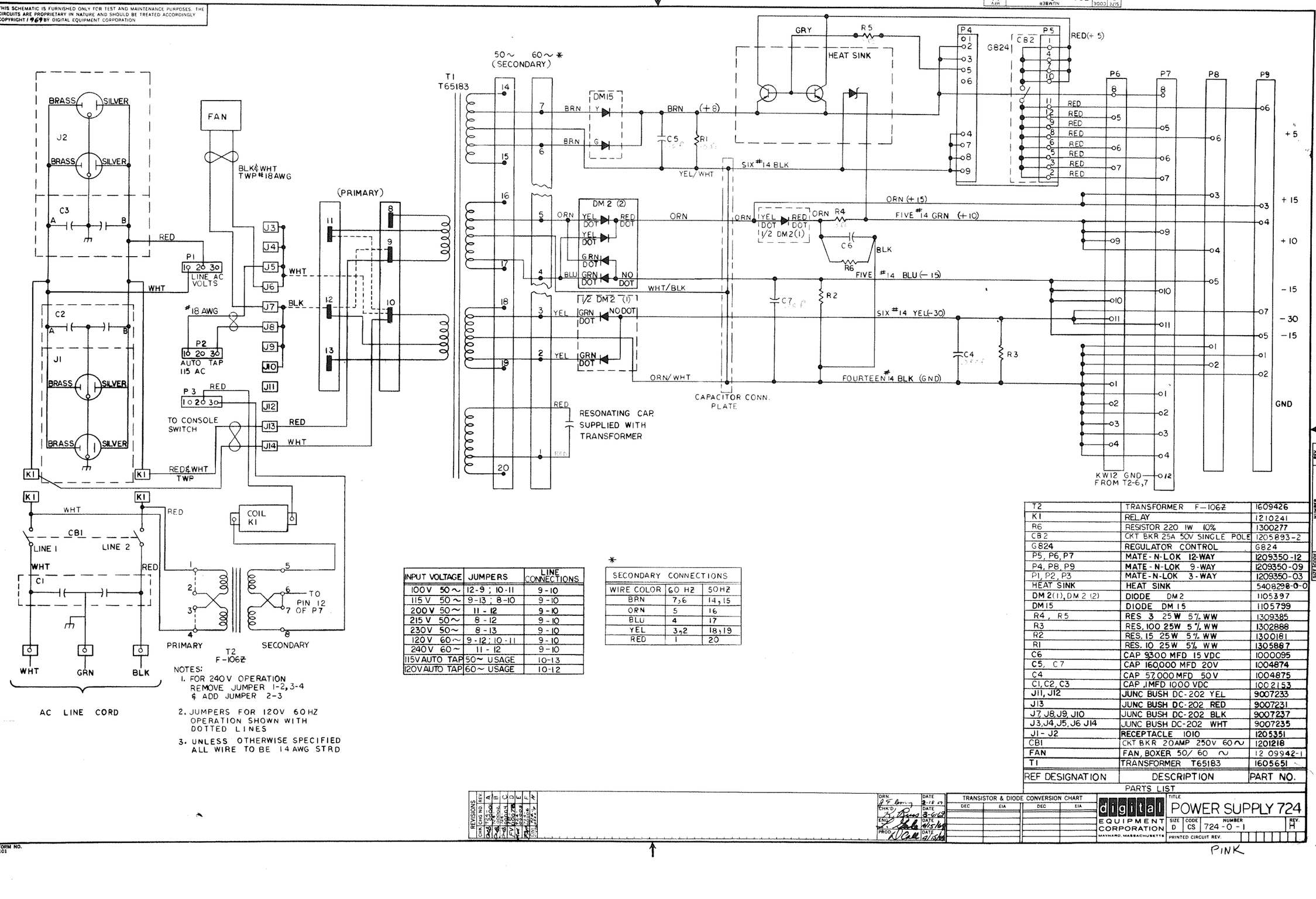
PARTS LIST

MADE BY R. COOK DATE 10/9/68	CHECKED K. RUSS DATE 1/8/69	SECTION 1
ENG DATE L. Gab 3-3-69	PROD W/O Call DATE 3/3/69	ISSUED SECT. 1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION
1	9007834	TAPE #4032 ½ WIDEX 1-3/16 LG 3M CO	A/R
2	9006732	EYELET #GS-4-7 STIMPSON	4
3	1202704	CABLE CLAMP	2
4	M900	CABLE CONN M900	1
5	9105692 -1	FLEX PRINT CABLE 19 COND	A/R
6	C-IA-5408124-0-0	ETCH BOARD ASSY	1
7	1209349	RELAY #1368 PARELCO	6
8	1209423	RELAY CLIP PARELCO	6
9	A-DC-7407193-0-0	LOGIC DECALS	A/R

TITLE RELAY BOARD ASSY	ASSY NO. C-AD-7006047-0-0	SIZE A	CODE PL	NUMBER 7006047-0-0	REV.	ECO NO.
	SHEET 1 OF 1	DIST. G				

DEC FORM NO.
DRA 110



INPUT VOLTAGE	JUMPERS	LINE CONNECTIONS
100V 50~	12-9 ; 10-11	9-10
115 V 50~	9-13 ; 8-10	9-10
200V 50~	11 - 12	9-10
215 V 50~	8 - 12	9-10
230V 50~	8 - 13	9-10
120V 60~	9-12 ; 10-11	9-10
240V 60~	11 - 12	9-10
115VAUTO TAP	50~ USAGE	10-13
120VAUTO TAP	60~ USAGE	10-12

*

SECONDARY CONNECTIONS		
WIRE COLOR	60 HZ	50HZ
BRN	7,6	14,15
ORN	5	16
BLU	4	17
YEL	3,2	18,19
RED	1	20

NOTES:
1. FOR 240V OPERATION REMOVE JUMPER 1-2, 3-4 & ADD JUMPER 2-3
2. JUMPERS FOR 120V 60HZ OPERATION SHOWN WITH DOTTED LINES
3. UNLESS OTHERWISE SPECIFIED ALL WIRE TO BE 14 AWG STRD

REF DESIGNATION	DESCRIPTION	PART NO.
T2	TRANSFORMER F-106Z	1609426
K1	RELAY	1210241
R6	RESISTOR 220 1W 10%	1300277
CB2	CKT BKR 25A 50V SINGLE POLE	1205893-2
G824	REGULATOR CONTROL	G824
P5, P6, P7	MATE-N-LOK 12-WAY	1209350-12
P4, P8, P9	MATE-N-LOK 9-WAY	1209350-09
P1, P2, P3	MATE-N-LOK 3-WAY	1209350-03
HEAT SINK	HEAT SINK	5408298-0-0
DM2(1), DM2 (2)	DIODE DM2	1105397
DM15	DIODE DM15	1105799
R4 , R5	RES 3 25W 5% WW	1309385
R3	RES. 100 25W 5% WW	1302888
R2	RES. 15 25W 5% WW	1300181
R1	RES. 10 25W 5% WW	1305887
C6	CAP 9300 MFD 15 VDC	1000095
C5, C7	CAP 160,000 MFD 20V	1004874
C4	CAP 57,000 MFD 50 V	1004875
C1, C2, C3	CAP .1MFD 1000 VDC	1002153
J11, J12	JUNC BUSH DC-202 YEL	9007233
J13	JUNC BUSH DC-202 RED	9007231
J7, J8, J9, J10	JUNC BUSH DC-202 BLK	9007237
J3, J4, J5, J6 J14	JUNC BUSH DC-202 WHT	9007235
J1 - J2	RECEPTACLE 1010	1205351
CB1	CKT BKR 20AMP 250V 60~	1201218
FAN	FAN, BOXER 50/ 60 ~	12 09942-1
T1	TRANSFORMER T65183	1605651

PARTS LIST

REVISIONS											
CHK	CHG NO	REV									
2nd	1	A									
3rd	2	B									
4th	3	C									
FV	4	D									
Inf	5	E									
	6	F									
	7	H									

DRN. [illegible] DATE 2-18-69
CH'D/ [illegible] DATE 3-6-69
ENG [illegible] DATE 4/5/69
PROD [illegible] DATE 4/15/69

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: POWER SUPPLY 724

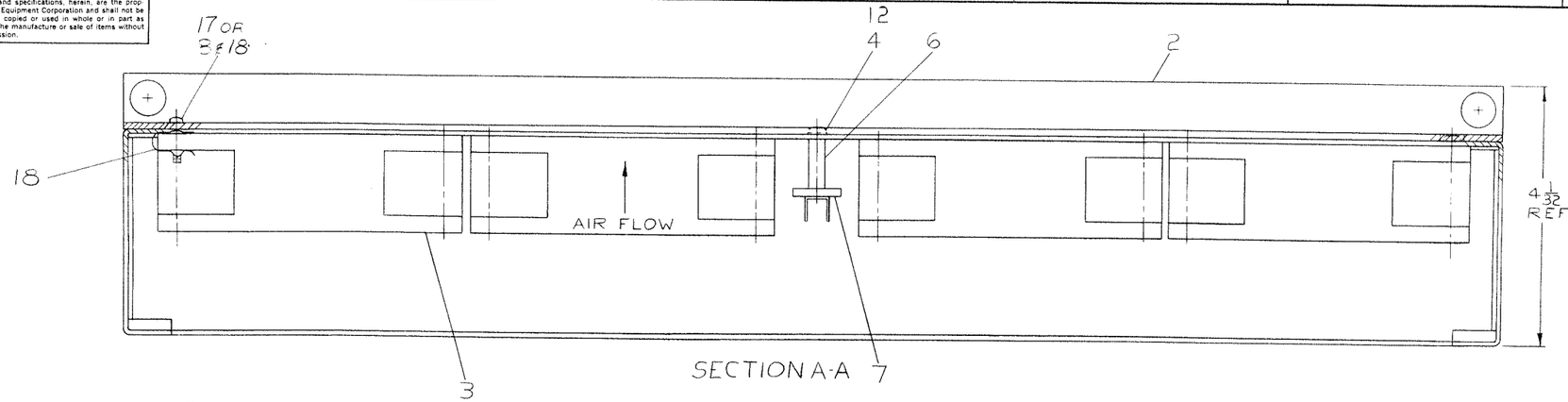
SIZE D | CODE CS | NUMBER 724-0-1 | REV. H

PRINTED CIRCUIT REV.

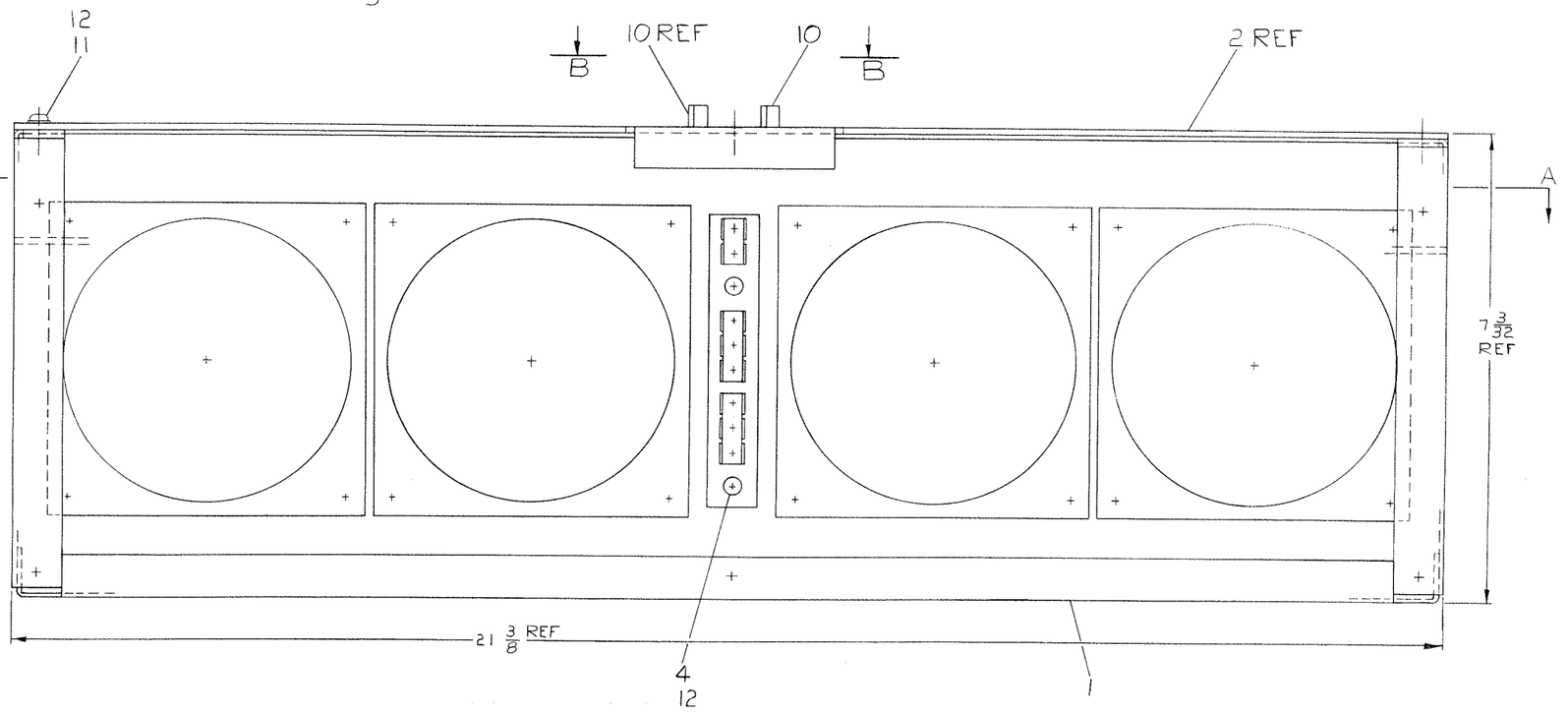
PINK

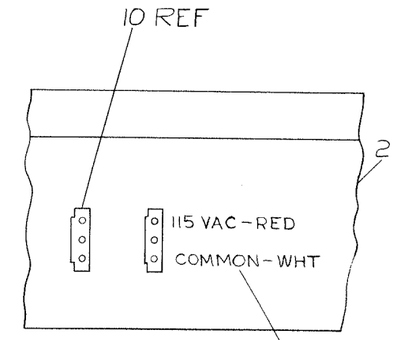
DEC FORM NO. DRD 101

NOTES:
1. USE ITEM 17 WITH # 1209942 FAN, AND ITEM 8 & 18 WITH # 1209942-1 FAN.



SECTION A-A



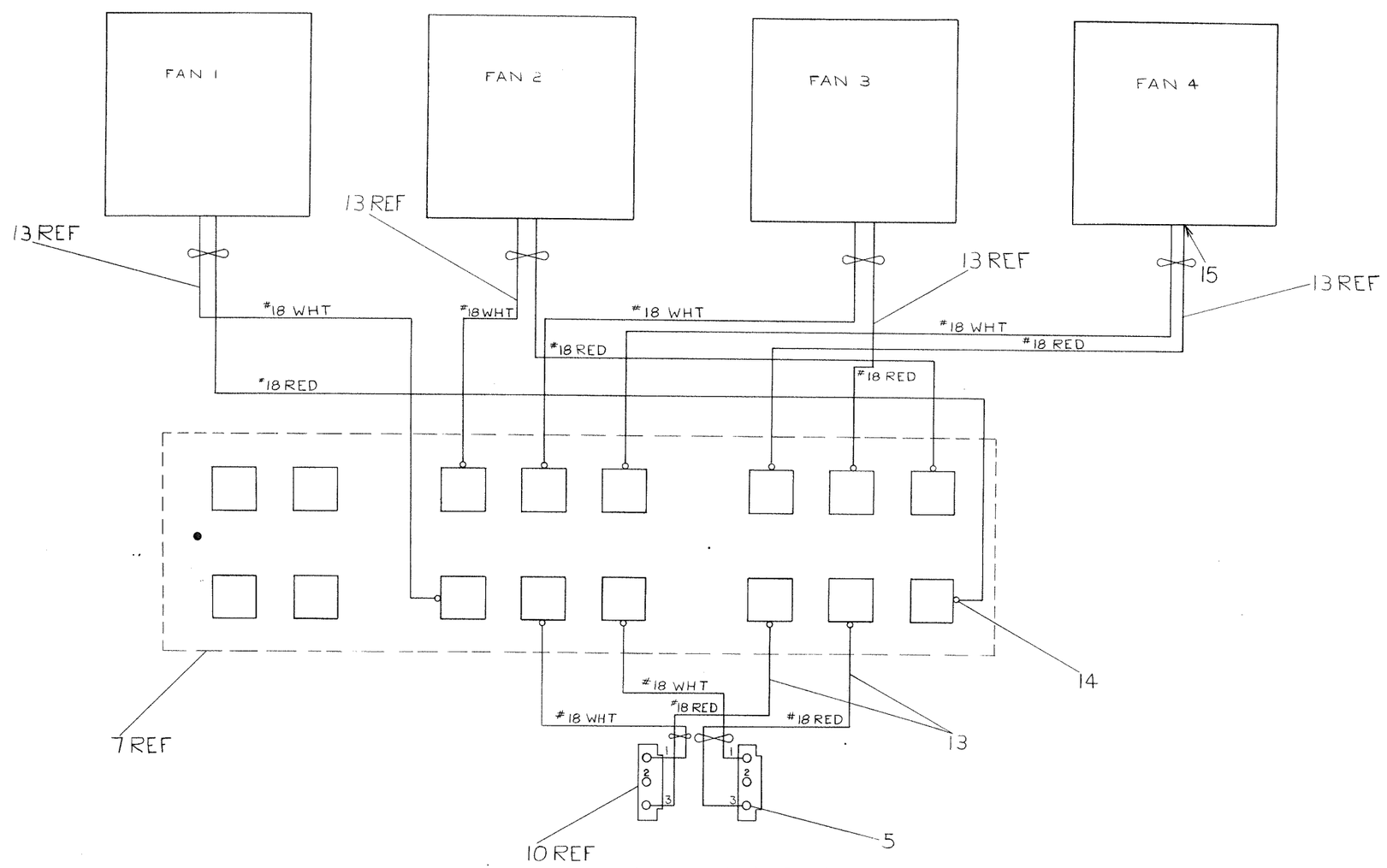


VIEW B-B

REVISIONS			
CHK	CHANGE NO.	REV.	
	12-00014	A	REVISED & REDRAWN T. Quinn 4-30-69 S. ZNAMIEROWSKI
	12-00028	B	D. NEVALA
	12-00041	C	T.Q. 12-10-69 GALE
	12-00074	D	L. GALE 1/9/70

FIRST USED ON OPTION/MODEL: PDP-12	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	
UNLESS OTHERWISE SPECIFIED	DRN. J. Fleming	DATE 2-21-69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D.	DATE 2/19	TITLE: FAN HOUSING ASSY
	ENG.	DATE 4/3	
	PROJ. ENG.	DATE 4/4/69	
	PROD.	DATE 4/11/69	
MATERIAL	NEXT HIGHER ASSY D-UA-PDP12-0-0		SIZE D CODE AD NUMBER 7005983-0-0 REV. J
FINISH	SCALE 1/1		
	SHEET 1 OF 2		DIST.

DEC FORM NO. DRD 100



WIRING DIAGRAM

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

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN.	J. O'Leary	DATE 3-21-69
CHK'D	Neil Rees	DATE 4/4/69
ENG.	[illegible]	DATE 4/5/69
PROJ. ENG.	[illegible]	DATE 4/9/69
PROD.	[illegible]	DATE 4/11/69

NEXT HIGHER ASSY

SCALE NONE
SHEET 2 OF 2

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
FAN HOUSING ASSY

SIZE	CODE	NUMBER	REV.
D	AD	7005983-0-0	D

DIST. G

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO. DRD 100

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY J. FLEMING	CHECKED K. RUSS	SECTION 1
DATE 3/21/69	DATE 4/2/69	
ENG [illegible]	PROD W Cole	ISSUED SECT. 1
DATE 4/2/69	DATE 4/11/69	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION
1	E-IA-7407254-0-0	CHASSIS, FAN HOUSING	1
2	D-MD-7406948-0-0	COVER, FAN HOUSING	1
3	1209942 or 1209942-1	FAN	4
4	9006022-1	SCR PHL HD PAN #6-32 X 3/8 SST	4
5	1209379-01	PIN #60619-4 AMP	4
6	9006859	SPACER 1/4 AF X 3/4 X #6-32	2
7	C-IA-7405083-0-0	TERMINAL STRIP	1
8	9006024-1	SCR PHL HD PAN #6-32 X 1/2 SST	16
9	~~9006560~~	~~NUT KEPS #6-32~~	~~16~~
10	1209350-03	HOUSING SOCKET MATE-N-LOK	2
11	9006021-1	SCR PHL HD PAN #6-32 X 5/16	3
12	9006633	WASH INT TOOTH #6	7
13	9107430-29	WIRE #18 AWG STRD TWP (RED & WHT)	A/R
14	9006997	CONN SLDS #42025-1 AMP	12
15	9107305	TUBING SHRINKABLE #14 X 9/16 LG RED	8
16	A-DC-7406899-0-0	FAN DECALS	A/R
17	9006121	SCR, SELFTAPPING 8-32 x 3/8 LG	16
18	9008202	FAN CLIP	16
19	9007031	TIE WRAP SST-1B PANDUIT	5

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
FAN HOUSING ASSY	D-AD-7005983-0-0	A	PL	7005983-0-0	D	12-00074
	SHEET 1 OF 1	DIST. 6				

DEC FORM NO.
DRA 110