TM11
DECmagtape system
engineering drawings

DIGITAL EQUIPMENT CORPORATION • MAYNARD, MASSACHUSETTS

MASTER DRAWING LIST

MAINTENANCE MANUALS NO.	TITLE	UNIT VARIATIONS TM11-A	TM11-B
TM11-0	MAG TAPE CONT.	X	X

USED ON OPTIONS
PDP-11

REV.	DATE	CHG. NO.	APP'D.
A	5/71	00007	M.F.
B	6/71	00008	M.F.
C	7/71	00009	F.V.
D	8/71	00010	A.V.
E	12/71	00011	A.V.
F	1-4-72	00012	M.B.
H	5-25-72	00013	M.B.
J	8-4-72	00014	M.B.
K	11/72	00015	B.F.
L	3/73	00016	B.F.
M	3/73	00017	B.F.
N	5/73	00018	B.F.
P	4/74	00019	L.C.
R	7/74	00020	L.C.
S	2/75	7007261-E	L.C.
T	3/75	00021	L.C.
U	FEB-76	00022	L.C.

DRN. K. GULICK	DATE 5-5-71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D K. GULICK	DATE 5-5-71	
ENG. M. FRITZ	DATE 5-5-71	TITLE MAG TAPE CONT
PROJ. ENG. M. FRITZ	DATE 5-5-71	
PROD. B.E. Cross	DATE 5-7-71	
FIRST USED ON PDP-11		SIZE A / CODE ML / NUMBER TM11-0 / REV. U
SCALE NONE		
SHEET 1 OF 3		DIST.

DRA 131

Dec 16-(325)-1048-N471

PRINT SET TM11-0	DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.
X	D-DI-TM11-0-01	F	1	DRAWING INDEX LIST	
X	D-BS-TM11-0-03		1	BUS CABLE INTERFACE	
X	D-BS-TM11-0-04	A	1	MAG TAPE CABLE PRIOR JMPR MOD	
X	D-BS-TM11-0-05		1	TM11 MAIN PANEL CABLE CONN	
X	D-BS-TM11-0-06	C	1	START TAPE UNIT CONTROL	
X	D-BS-TM11-0-07	B	1	NON STOP CONTROL AND TIMER	
X	D-BS-TM11-0-08	B	1	CONTROL UNIT READY	
X	D-BS-TM11-0-09	D	1	FUNC DECODE & TAPE UNIT INTERF	
X	D-BS-TM11-0-10		1	TAPE UNIT INTERFACE	
X	D-BS-TM11-0-11		1	MAG TAPE READ/WRITE LINES	
X	D-BS-TM11-0-12	B	1	TAPE UNIT & REGISTER SELECT	
X	D-BS-TM11-0-13	A	1	NPR AND BR ENABLE	
X	D-BS-TM11-0-14		1	LOW BYTE COMMAND & STATUS REG	
X	D-BS-TM11-0-15		1	HIGH BYTE COMMAND & STATUS REG	
X	D-BS-TM11-0-16	A	1	DATA BUFFER & READ LINES TO BUS	
X	D-BS-TM11-0-17	B	1	DATA BFR CNTL & UNIBUS LINES	
X	D-BS-TM11-0-18	A	1	DATA BUFFER INPUTS	
X	D-BS-TM11-0-19	E	1	BTE, ILC, INIT	
X	D-BS-TM11-0-20	C	1	MAGNETIC TAPE ERRORS	
X	D-BS-TM11-0-21	F	1	TM11 COMBINED PACKAGES	
X	D-BS-TM11-0-22	C	1	REGISTER SELECT & DATA BUFFER	
X	B-CS-M688-0-01	#		UNIBUS POWER FAIL DRIVERS	
X	C-CS-M105-0-1	#		ADDRESS SELECTOR MODULE	
X	B-CS-M149-0-1	#		9 x 2 NAND WIRED OR MATRIX	
X	D-CS-M239-0-1	#		THREE 4-BIT COUNTER REGISTER	
X	D-CS-M7821-0-1	#		INTERRUPT CONTROL MODULE	
X	B-CS-M784-0-1	#		UNIBUS RECEIVER MODULE	
X	B-CS-M785-0-1	#		UNIBUS TRANSCEIVER MODULE	
X	D-CS-M795-0-1	#		WORD COUNT & CURRENT MEM ADDR	
X	D-CS-M797-0-1	#		REGISTER SELECT MODULE	
X	C-CS-M798-0-1	#		UNIBUS DRIVER	
X	D-CS-M796-0-1	#		UNIBUS MASTER CONTROL	

TITLE				
MAG TAPE CONTROL	SHEET 2 OF 3	SIZE A / CODE ML	NUMBER TM11-0	REV. U

DRA 132

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

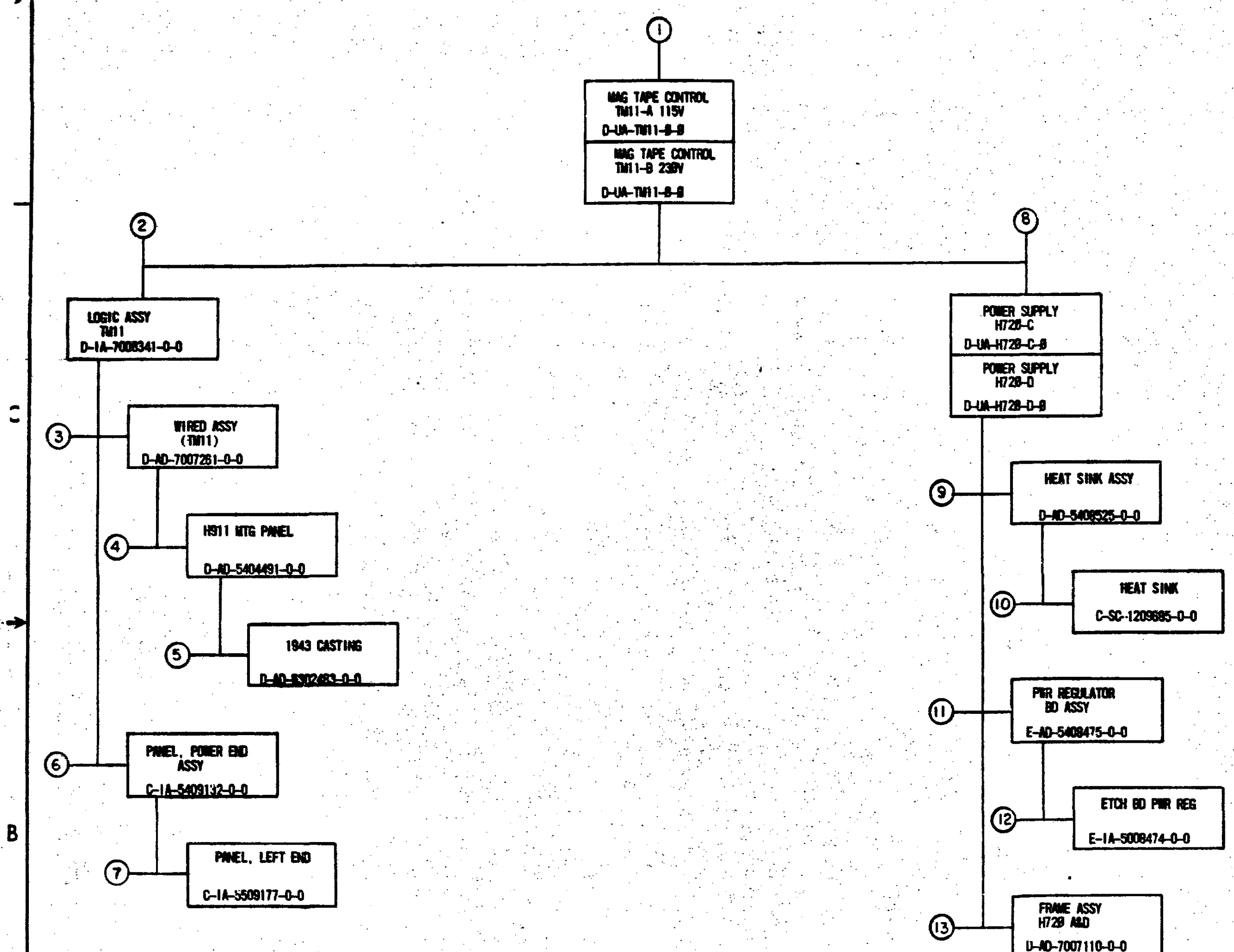
PRINT SET	DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.
X	D-MU-TM11-0-02	F	1	MODULE UTILIZATION	
X	D-AR-TM11-0-24	E	1	MAX CONFIGURATION	
X	A-PL-TM11-0-02	F	1	MODULE UTILIZATION (PL)	
X	A-AL-TM11-0-26	B	1	ACCESSORY LIST	
X	D-UA-TM11-0-0	D	1	MAG TAPE CONTROL	
X	A-PL-TM11-0-0	D	1	MAG TAPE CONTROL	
X	D-AD-7007261-0-0	C	1	WIRED ASSY (TM11)	
X	A-PL-7007261-0-0	C	1	WIRED ASSY (TM11) (PL)	
X	D-IA-7008341-0-0	B	1	LOGIC ASSY (TM11)	
C	K-WL-TM11-0-23	F	1	WIRE LIST	
X	A-SP-TM11-0-25	B	23	PROJECT SPECIFICATIONS	
X	A-SL-TM11-0-28	A	1	SOFTWARE LIST (LIBKIT)	
X	B-CS-G736-0-1	#		PRIORITY JUMPER MODULE	
X	B-CS-M163-0-1	#		DUAL BCD DECODER	
X	A-WT-7007261-0	V	1	AWT REVISION STATUS	

TITLE				
MAG TAPE CONTROL	SHEET 3 OF 3	SIZE A / CODE ML	NUMBER TM11-0	REV. U

DRA 132

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

...nd specifications, herein, are the prop... ...l Equipment Corporation and shall not be ...d or copied or used in whole or in part as ...is for the manufacture or sale of items without ...tten permission.



MECHANICAL

FIND NO.	DESCRIPTION	PART NO.	DEPT USAGE PROD	CUST	F/C
1.	MAG TAPE CONTROL (TM11-A)	D-UA-TM11-0-0			
	MAG TAPE CONTROL (PL)	A-PL-TM11-0-0			
	MAG TAPE CONTROL (TM11-B)	D-UA-TM11-0-0			
	MAG TAPE CONTROL (PL)	A-PL-TM11-0-0			
	CABLE ASSY (BC11A)	D-UA-BC11A-5-0			
	CABLE ASSY (BC11A)	D-UA-BC11A-6-0			
	POWER HARNESS	D-AD-7009742-0-0			
	PRIORITY JUMPER LEVEL #5	C-IA-5408778-0-0			
	MODULE HOLDER	C-SC-1209856-0-01			
	MODULE EXTENDER H850	D-SC-1209818-0-0			
	MAX CONFIGURATION (TM11)	D-AR-TM11-0-24			
2.	LOGIC ASSY (TM11)	D-IA-7008341-0-0			
	~~LOGIC ASSY (TM11) (PL)~~	~~A-PL-7008341-0-0~~			
3.	WIRED ASSY	D-AD-7007281-0-0			
	WIRED ASSY (PL)	A-PL-7007281-0-0			
	LOGIC FRAME DECALS	A-DC-7408371-0-0			
	AWT REVISION STATUS	A-WT-7007261-0			
4.	H911 MTG PANEL	D-AD-5404491-0-0			
	H911 MTG PANEL (PL)	A-PL-5404491-0-0			
	288 PIN CONN BLOCK #H803	E-SC-1205348-0-0			
5.	1943 CASTING	D-AD-5302483-0-0			
	1943 CASTING (PL)	A-PL-5302483-0-0			
	1943 FRAME CASTING	C-MD-1202885-0-0			
6.	PANEL, POWER END ASSY	C-IA-5409132-0-0			
7.	PANEL, LEFT END	C-IA-5509177-0-0			
	SILK SCREEN	A-SS-7408393-0-1			
8.	POWER SUPPLY (H720 C)	D-UA-H720-0-0			
	POWER SUPPLY (PL)	A-PL-H720-0-0			
	POWER SUPPLY (H720 D)	D-UA-H720-0-0			
	POWER SUPPLY (PL)	A-PL-H720-0-0			
	POWER SUPPLY CHASSIS	E-IA-5308519-0-0			
	POWER SUPPLY COVER	C-MD-5308518-0-0			
	BRACKET SUPPORT	C-MD-5308521-0-0			
	CAPACITOR BRACKET	D-MD-5308520-0-0			
	POWER SUPPLY DECALS	B-DC-5308524-0-0			
	POWER SUPPLY DECALS (120 U)	A-DC-5308771-0-0			
	POWER SUPPLY DECALS (240 U)	A-DC-5308772-0-0			
9.	HEAT SINK ASSY	D-AD-5408475-0-0			
	HEAT SINK ASSY (PL)	A-PL-5408475-0-0			
	COIL, TRANSFORMER	C-SC-1639762-0-0			
10.	HEAT SINK	C-SC-1209685-0-0			
	HEAT SINK BUSHING	A-SC-1209475-0-0			
11.	POWER REGULATOR BD ASSY	E-AD-5408475-0-0			
	POWER REGULATOR BD ASSY (PL)	A-PL-5408475-0-0			
	HEAT SINK	B-MD-5308733-0-0			
	X-Y COORDINATE HOLE LOCATION	K-CD-5408475-0-4			
	ASSY/DRILLING HOLE LAYOUT	AH-5408475-0-5			
12.	ETCH BOARD POWER REGULATOR	E-IA-5008474-0-0			
	ASSY/DRILLING HOLE LAYOUT	AH-5408475-0-5			
	PRINTED CIRCUIT LAYOUTS	PC-5008474			
13.	FRAME ASSY H720 C&D	D-AD-7007110-0-0			
	FRAME ASSY H720 C&D (PL)	A-PL-7007110-0-0			
	CHASSIS POWER SUPPLY	D-IA-7408392-0-0			
	SCREEN FAN	C-MD-7404881-0-0			

ELECTRICAL

FIND NO.	DESCRIPTION	PART NO.	DEPT USAGE PROD	CUST	F/C
1.	MAG TAPE CONTROL (TM11-A)	A-ML-TM11-A			
	MAG TAPE CONTROL (TM11-B)	A-ML-TM11-B			
	MODULE UTILIZATION	D-MU-TM11-0-02			
	MODULE UTILIZATION (PL)	A-PL-TM11-0-02			
	BUS CABLE INTERFACE	D-BS-TM11-0-03			
	MAG TAPE CABLE PRIOR JMPR MOD	D-BS-TM11-0-04			
	TM11 MAINT PANEL CABLE CONN	D-BS-TM11-0-05			
	START TAPE UNIT CONTROL	D-BS-TM11-0-06			
	TAPE UNIT MOTION AND TIMER	D-BS-TM11-0-07			
	CONTROL UNIT READY CONTROL	D-BS-TM11-0-08			
	FUNCT DECODE & TAPE UNIT INTERE	D-BS-TM11-0-09			
	TAPE UNIT INTERFACE	D-BS-TM11-0-10			
	MAG TAPE READ/WRITE LINES	D-BS-TM11-0-11			
	UNIT SELECT & ADDRESS SELECT	D-BS-TM11-0-12			
	NPR AND BR INPUTS	D-BS-TM11-0-13			
	LOW BYTE COMMAND & STATUS REQ	D-BS-TM11-0-14			
	HIGH BYTE	D-BS-TM11-0-15			
	DATA BUFFER & READ LINES TO BUS	D-BS-TM11-0-16			
	CURRENT MEMORY ASSRESS LINES	D-BS-TM11-0-17			
	DATA BUFFER INPUTS	D-BS-TM11-0-18			
	MAGNETIC TAPE ERR 1 AND INIT	D-BS-TM11-0-19			
	MAGNETIC TAPE ERRORS 2	D-BS-TM11-0-20			
	TM11 COMBINED PACKAGES	D-BS-TM11-0-21			
	REGISTER SELECT & DATA BUFFERS	D-BS-TM11-0-22			
	WIRE LIST	K-WL-TM11-0-23			
	MAX CONFIGURATION	D-AR-TM11-Ø-24			
	PROJECT SPECS	A-SP-TM11-Ø 25			
	ACCESSORY LIST	A-AL-TM11-Ø-26			
	MFG TEST SPEC & PROCEDURE	A-SP-TM11-Ø-27			
	SOFTWARE LIST	A-SL-TM11-Ø-28			
3.	WIRED ASSY	D-AD-7007281-0-0			
	WIRED ASSY	A-PL-7007281-0-0			
8.	CIRCUIT SCHEMATIC (H720-C)	D-CS-H720-0-1			
	CIRCUIT SCHEMATIC (H720-D)	D-CS-H720-0-1			
12.	ETCH BOARD REGULATOR	E-IA-5008474-0-0			
	PRINTED CIRCUIT	PC-5008474			

REV.	CHANGE NO	CHK
A	TM11-00007 Williams 6-4-71	[illegible]
	FRITZ M. Fritz 6-7-71	
B	TM11-00008 M Quinn 6-8-71	[illegible]
	FRITZ M. Fritz 6-30-71	
C	TM11-00012 M. Quinn 1-5-71	[illegible]
	M. BUCZYNSKI M. Buczynski 1-20-72	
D	TM11-00019 5-7-74	[illegible]
	L. CONDON [illegible] 5-17-74	
E	TM11-00020 [illegible] 7-3-14	[illegible]
	CONDON [illegible] 7-12-74	
F	TM11-00021 [illegible] 3-7-75	[illegible]
	E. MARTELLO E. Martello 3-12-75	

DEC FORM NO DRD 130

FIRST USED ON OPTION/MODEL TM11

DRN.	[illegible]	DATE 2/2/71
CHK'D.	[illegible]	DATE 4-6-71
ENG.	M. Fritz	DATE 4-6-71
PROJ. ENG.	M. Fritz	DATE 4-6-71
PROD.	[illegible]	DATE 5-7-71

NEXT HIGHER ASSY [illegible]

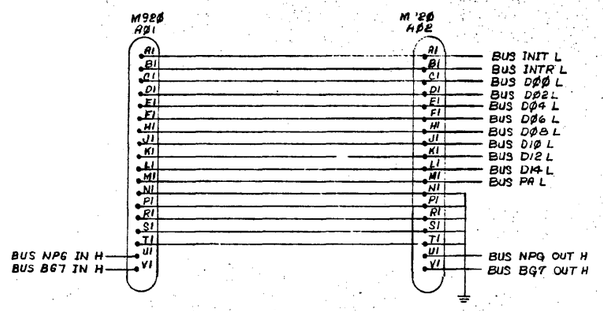
SCALE —/— SHEET 1 OF 1

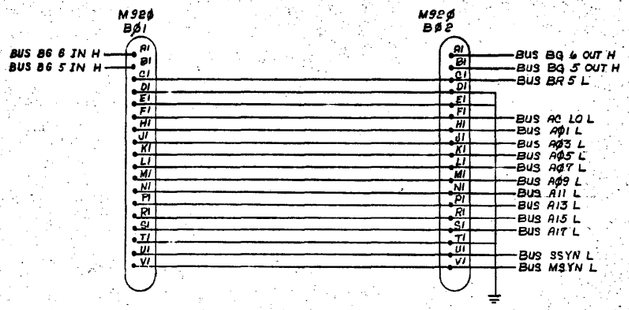
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

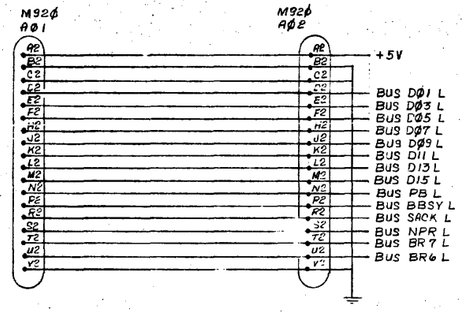
TITLE DRAWING INDEX LIST (TM11)

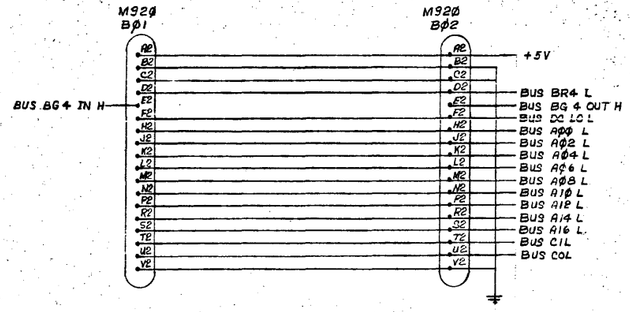
SIZE D CODE DI NUMBER TM11-Ø-1 REV

DIST.









REVISIONS	REV.	CHANGE NO.	CHK

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL: PDP-11

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY 125
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. Margaret Hauschildt	DATE 3-10-71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. Gordon McKenzie	DATE 3-29-71	
ENG. [illegible]	DATE 3-29-71	TITLE: BUS CABLE INTERFACE
PROJ. ENG. [illegible]	DATE 3-29-71	
PROD. [illegible]	DATE 5/6/71	

NEXT HIGHER ASSY: A-ML-TM11-Ø

SCALE: NONE

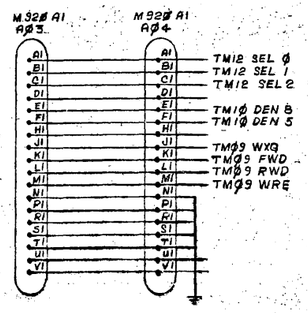
SHEET 1 OF 1

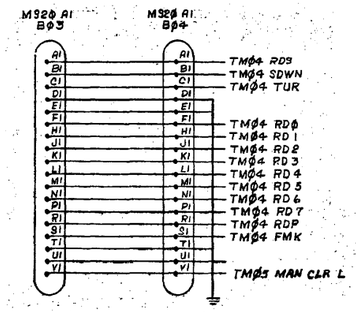
SIZE	CODE	NUMBER	REV.
D	BS	TM11-Ø-Ø3	

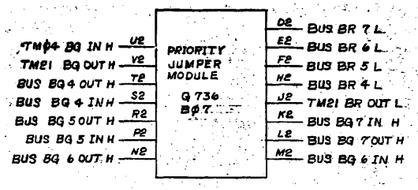
DIST.

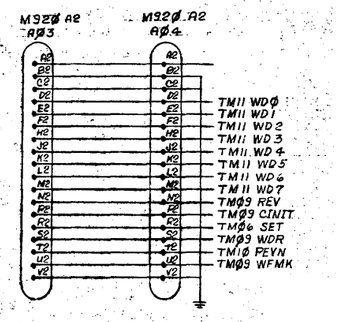
DEC FORM NO. DRD 100

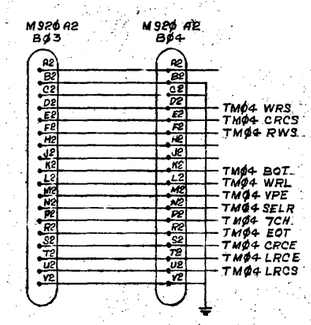
TM11-Ø-Ø3 D BS











FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11		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. [illegible] DATE 5-7-71
CHK'D [illegible] DATE 5-7-71
ENG. [illegible] DATE 5-27-71
PROJ. ENG. [illegible] DATE 5-7-71
PROG. [illegible] DATE 5/18/71
NEXT HIGHER ASSY. A-IAL-TM11-Ø
SCALE
SHEET OF

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE MAG TAPE CABLE PRICR JMPR MOD

SIZE D CODE BS NUMBER TM11-Ø-Ø4 REV A

DIST.

REVISIONS	REV	CHG	ORDER NO
	A		TM11-00009

5

M9Ø1
B27

- A1
- B1
- C1
- D1 — TM16 GO BIT H
- E1
- F1 — TM22 ADRS BIT 17 H
- H1 — TM22 ADRS BIT 16 H
- J1
- K1 — TM11 CHAN P H
- L1 — TM11 CHAN 7 H
- M1 — TM11 CHAN 6 H
- N1 — TM11 CHAN 5 H
- P1 — TM11 CHAN 4 H
- R1 — TM11 CHAN 3 H
- S1 — TM11 CHAN 2 H
- T1 — TM11 CHAN 1 H
- U1 — TM11 CHAN Ø H
- V1

M9Ø1
B35

- A — +8V
- B1 — TM1Ø SELR H
- C1 — TM2Ø CRE H
- D1 — TM2Ø ERR H
- E1 — TM2Ø RLE H
- F1 — TM12 UNIT SEL BIT Ø H
- H1 — TM1Ø WRL H
- J1 — TM1Ø 7CH H
- K1 — TM1Ø BOT H
- L1 — TM2Ø PAE H
- M1 — TM21 NXM H
- N1 — TM1Ø RWS H
- P1 — TM1Ø TUR H
- R1 — TM09 FUNCTION BIT 2 H
- S1
- T1 — TM05 MAN CLR L
- U1 — TM2Ø BGL H
- V1

M9Ø1
B65

- J2 — +5V
- K2
- L2
- M2 — TM16 CU READY H
- N2 — TM10 INT ENB H
- P2 — TM12 UNIT SEL BIT 2 H
- R2 — TM12 UNIT SEL BIT 1 H
- S2 — TM1Ø DEN 8 H
- T2 — TM1Ø SDWN H
- U2 — TM1Ø DEN 5 H
- V2 — TM1Ø PEVN H
- TM09 FUNCTION BIT 1 H
- TM19 ILC H
- TM09 FUNCTION BIT Ø H
- TM19 BTE H
- TM3Ø EOT H
- TM2Ø EOFF H

M9Ø1
B27

- A2
- B2 — TM13 BR INT H
- C2
- N2 — TM13 NPR ENB H
- E2
- F2
- H2 — TM17 PAR BIT H
- J2 — TM22 DATA BFR OUT BIT 7 H
- K2 — TM22 DATA BFR OUT BIT 6 H
- L2 — TM22 DATA BFR OUT BIT 5 H
- M2 — TM22 DATA BFR OUT BIT 4 H
- N2 — TM22 DATA BFR OUT BIT 3 H
- P2 — TM22 DATA BFR OUT BIT 2 H
- R2 — TM22 DATA BFR OUT BIT 1 H
- S2 — TM22 DATA BFR OUT BIT Ø H
- T2
- U2 — TM2Ø OVERFLOW H
- V2

REVISIONS			
REV.	CHANGE NO.	DATE	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11		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

DRAWN	G. Trotzkin	6/11/71
CHK'D	Tim Hunt / Ellen Gill	6/11/71
ENG	Tim Hunt	12-22-71
QUAL ENG	Tim Hunt	1-27-72
PROJ	M. E. Cote	2/8/72

MATERIAL —
FINISH —
NEXT HIGHER ASSY: A-ML-TMII-Ø
SCALE: NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE: TMII MAINT PANEL CABLE CONN

SIZE D | CODE BS | NUMBER TMII-Ø-Ø5 | REV
DWG.

TMII-Ø-Ø5

+3V(B22U1)
TM14 DØØ H
TM12 SLCT 1 OUT LO L
TM19 INIT H
TM06 GO STROBE 2H
M105 B22
M112 B15
TM06 GO BIT H
~TM06 GO BIT H
TM19 RWS L
TM10 TURL
TM10 SELR L
M112 A25
M216 B31
TM19 INIT L
TM19 GSD H
M117 A20
M364 A32
TM06 GO STROBE 1 H
TM06 GO STROBE 1 L
M216 A18
+3V (A30U1)
TM10 SELR H
M113 H29
M364 A32
TM06 GO STROBE 2H
TM06 GO STROBE 2L
+3V H
M397 A31
M105 B14
TM06 GO BIT H
~TM10 SELR H
M113 A27
M111 B26
TM19 GSD L
TM07 ENB SDWN GO L
M112 A26
TM06 GO BIT H
M113 A29
M203 A28
TM10 SDWN H
~TM06 GO BIT L
M113 A27
TM09 SPACE FWD L
TM09 SPACE REV L
M113 B19
TM06 SPACE H
TM16 SDWN H
TM19 BTE L
TM20 OVERFLOW L
TM20 INH BTE L
M115 A22
M112 A26
TM20 EOFF L
TM10 BOT L
M113 A29
TM19 INIT H
M112 B15
~TM19 SET ILC L
M111 B16
~TM08 REV BOT H
M115 A17
+3V(B05V1)
M627 B05
TM06 SET H

REVISIONS	REV.	CHK.
CHANGE NO. TMII-00009	A	
Extens P.E.N. FRITZ 3-3-71		
TMII-00010	B	
Extens 8-31-71 M.FRITZ		
TMII-00013	C	
Extens 9-1-71		
Extens 5-22-72 E.M.CZYNSKI		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11		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

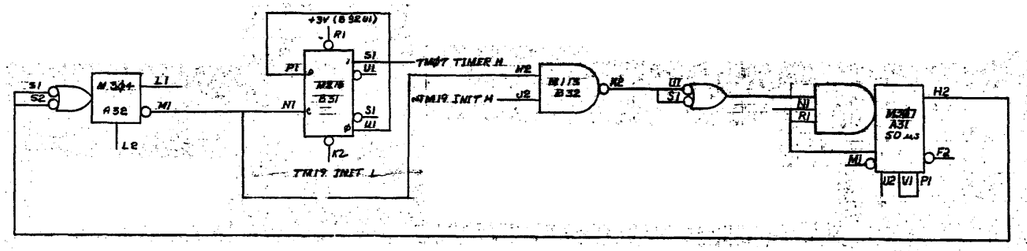
DRN. Approved Design Release DATE 3-6-71
CHK'D Myron Lent DATE 3/9/71
ENG. M. Fritz DATE 3-27-71
PROJ. ENG. M. Fritz DATE 3-27-71
PROD. Ed Cerny DATE 3/31/71
NEXT HIGHER ASSY.
SCALE NONE
SHEET OF

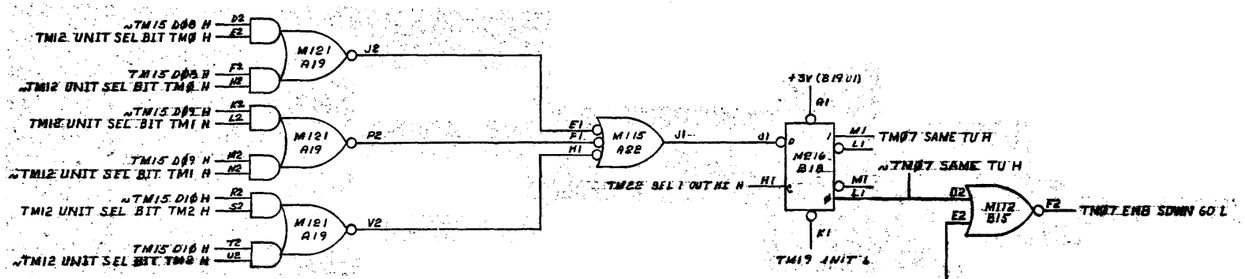
DIGITAL EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

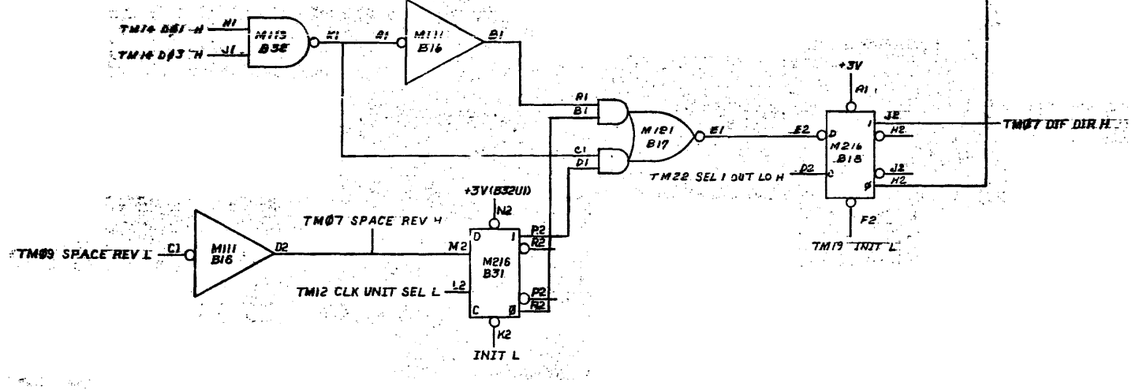
TITLE
START TAPE
UNIT CONTROL

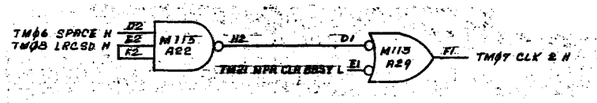
SIZE CODE D BS NUMBER TMII-0-06 REV C
DIST.

DEC FORM NO. CMD 102-0









NON STOP CONTROL & TMR

REVISIONS			
DWN	CHANGE NO.	REV.	
ERITZ 2-22-71	TM11-00009	A	
ERITZ 5-31-71	TM11-00010	B	
M.ERITZ 6-1-71			

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11		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

DWN. Maurice Donahue DATE 9-5-71
CHK'D Richard Marsh DATE March
ENG. M Fritz DATE 5-27-71
PROJ. ENGR. M Fritz DATE 5-27-71
PROD. Ed Gero DATE 6/1/71

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: NON STOP CONTROL & TIMER

NEXT HIGHER ASSY.: A-ML-TM11-0
SCALE: NONE
SHEET: OF

SIZE	CODE	NUMBER	REV.
D	BS	TM11-0-07	B

DIST.

TM19 ILC H
~TMIØ SELR H
TM22 SEL 5 OUT HI H
TM13 DI3 H
TM21 CARRY OUT 2 L
TMØ6 SPACE H
~TMØ6 SPACE L
~TMØ8 SPACE H
~TMIØ LRCS L
TMØ8 LRCSD H
TMIØ RWS H
~TMIØ SELR H
TMØ8 CHG TU ENB L
~TMØ8 CUR DEL H
TM2Ø ERR L
TMIØ BOT H
TMØ9 REWIND L
TMØ9 SPACE REV L
TMØ8 REV. BOT L

TM13 SET INT L
TMØ6 GO STROBE 2 L
TMØ8 SET BR L
TM19 INIT H
TMØ8 SET CUR L
TMØ8 CUR DEL H
TMØ6 GO STROBE 2 L
~TMØ8 CUR DEL H
+3V
TMØ6 GO BIT H
TMØ8 CU READY H
~TMØ8 CU READY H
+3V

REVISIONS			
CHK.	CHANGE NO.	REV.	
	TM11-00010	A	
	TM16-00013	B	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11		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. Margaret Daye Adams DATE 1-21-71
CHK'D Richard Gilmore DATE 3/24/71
ENG. M. Zak DATE 2-26-71
PROJ. ENG. M. Zak DATE 3-25-71
PROD. B. Elwood DATE 4/6/71
HEAT NUMBER ASSY A-M-L-N-11-2

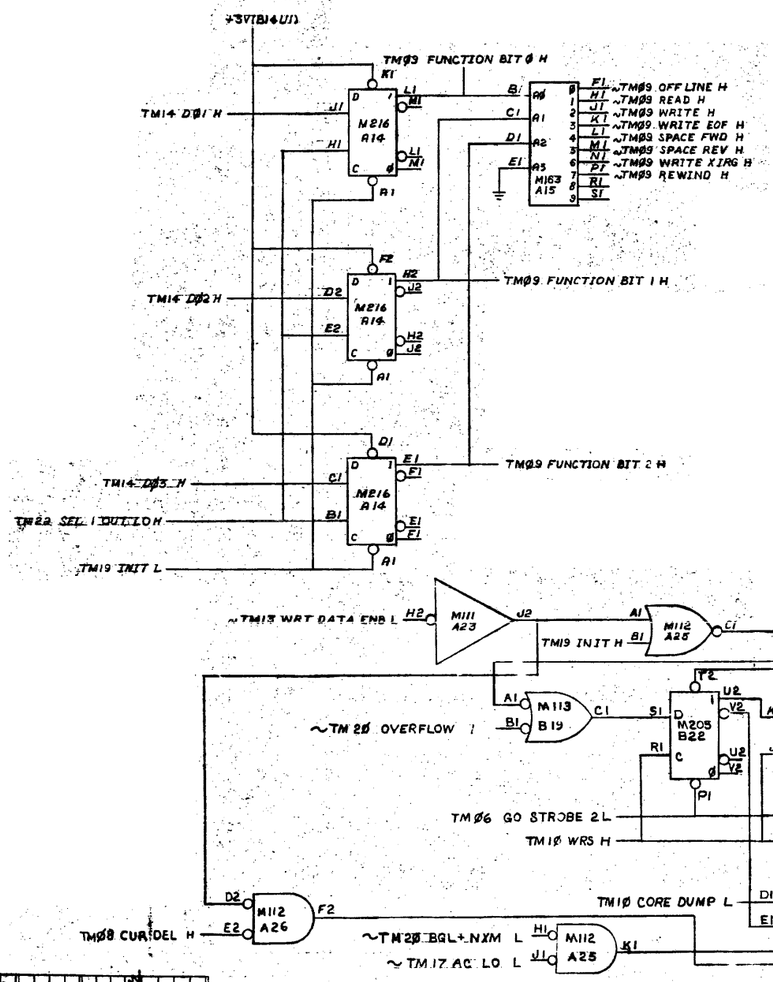
DIGITAL EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

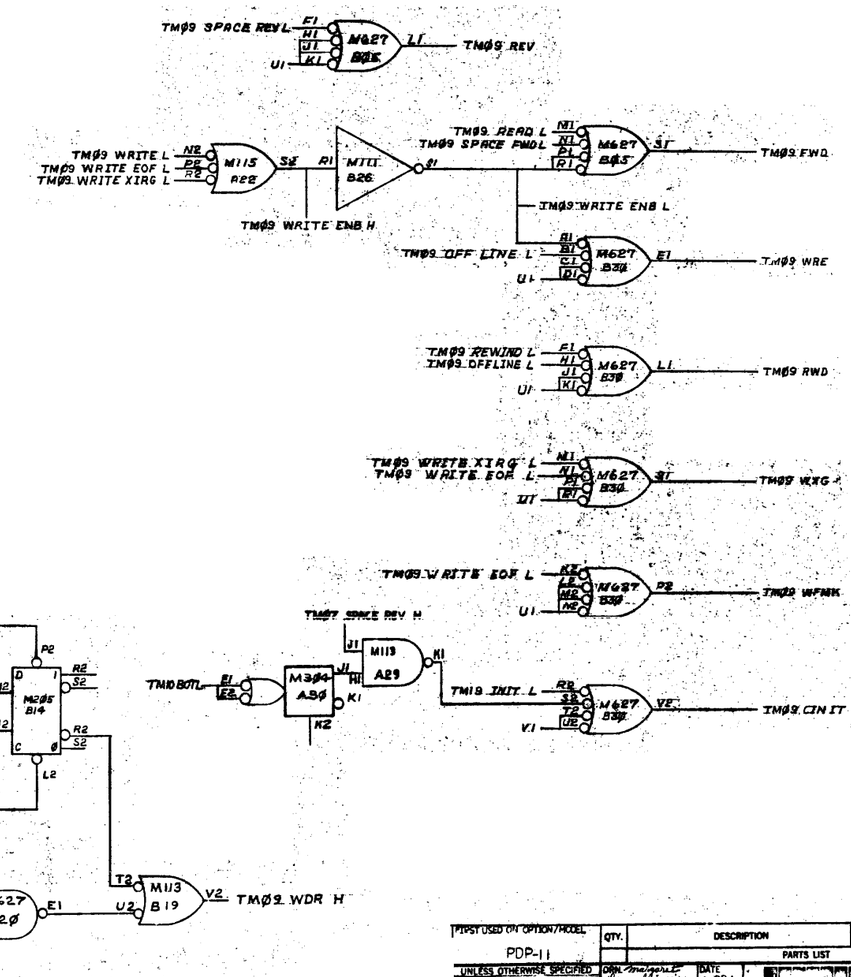
TITLE
CONTROL UNIT READY

SIZE D | CODE BS | NUMBER TM11-Ø-Ø8 | REV. B
SCALE NONE
SHEET 1 OF 1 | DIST.

DEC FORM 105
DRD 102A

9





REVISIONS	REV.	CHK.	
CHANGE NO. TM11-00007	A		E. Gilsan 6-4-71
TM11-00008	B	FRITZ	Jim Fritz 6-7-71
TM11-00013	C	FRITZ	Jim Fritz 6-10-71
TM11-00016	D	BUCZYNSKI	M Buczynski 6-22-72
		B. FITZGERALD	B. Fitzgerald 2-14-73

ITEM NO.	PART NO.	DESCRIPTION	QTY.	PARTS LIST
		PDP-11		

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.	Margaret Mayo-Hanson	DATE 1-28-71
CHK'D.	Richard Gilmore	DATE 2-1-71
ENG.	Jim Fritz	DATE 2-24-71
PROJ. ENG.	Jim Fritz	DATE 3-29-71
PROG.	B.C. Lo	DATE 4/6/71

NEXT HIGHER ASSY
A-ML-TM11-Ø
SCALE NONE
SHEET 1 OF 1

EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
FUNCT DECODE & TAPE UNT INTERF

SIZE D | CODE BS | NUMBER TM11-Ø-Ø9 | REV D
DIST.

+3V(A25U1)
K1
TM14 D06 H J1
D I L1 TMIØ INT ENB H
M216 A24
TM22 SEL 1 OUT LO H H1
C Q L1 ~TMIØ INT ENB H
A1

+3V(A25U1)
F2
TM15 D14 H E2
D I H2 TMIØ DEN 8 H
M216 A24
TM22 SEL 1 OUT HI H D2
C Q H2
A1
V1 M111 A06 U1 TMIØ DEN 8

+3V(A25U1)
D1
TM15 D13 H C1
D I E1
M216 A24
B1
C Q E1 F1
T2 M112 A26 V2 TMIØ DEN 5
U2
A1
TM19 INIT L
~TMIØ CORE DUMP L

+3V(A19U1)
L2
TM15 D11 H T2
D I V2 TMIØ PEVN H
M216 B31
S2
C Q V2 V1
U2 M111 A06 V2 TMIØ PEVN
K2
TM19 INIT L

TMIØ DEN 8 H
TMIØ 7CH H
P1 R1 S1 M115 A17 U1 TMIØ CORE DUMP L
K2 M111 B16 L2 TMIØ CORE DUMP H

TMIØ DEN 5 H

M121 A19
U1 +3V(A19U1)

TMØ4 TUR P2 M111 A06 R2 TMIØ TUR H
U1 M111 A23 K1 TMIØ TUR L

TMØ4 BOT L F1 M111 A05 H1 TMIØ BOT H
E2 M111 B26 F2 TMIØ BOT L

TMØ4 RWS Z1 M111 A05 M1 TMIØ RWS H
U2 M111 B26 V2 TMIØ RWS L

TMØ4 WRL H2 M111 A05 J2 TMIØ WRL H

TMØ4 CRCS A1 M111 A05 B1 TMIØ CRCS H

TMØ4 LRCS N1 M111 A06 P1 TMIØ LRCS H

TMØ4 WRS P2 M111 B26 R2 TMIØ WRS H

TMØ4 EOT C1 M111 A05 D2 TMIØ EOT H

TMIØ SELR H
TMØ4 SELR D1 M111 A05 E1 C1 M111 B16 E1 TMIØ SELR L

TMØ4 7CH E2 M111 A05 F2 TMIØ 7CH H
K2 M111 A06 L2 TMIØ 7CH L

TMØ4 SDWN J1 M111 A05 K1 TMIØ SDWN H
S2 M111 B26 T2 TMIØ SDWN L

TMØ4 RDS H2 M111 A06 J2 TMIØ RDS H

REVISIONS	REV.	CHANGE NO.	DATE	APPD.
DEC FORM NO 8003 MDA				

FIRST USED ON OPTION/MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11		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

	NAME	DATE
DRN. M. Sanderson		1-28-71
CHK'D. Marshall / M. Kazis		1-31-71
ENG. M. Fritz		3-29-71
PROJ. ENG. M. Fritz		3-29-71
PROD. B.E. Cross		5/6/71

NEXT HIGHER ASSY
USED ON TM11-Ø

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
TAPE UNIT INTERFACE

SIZE D CODE 85 NUMBER TM11-Ø-1Ø REV
SCALE NONE
SHEET / OF /
DIST.

TM10 CORE DUMP H — T2
~TM13 EVEN CHAR H — U2
M113 A27 → V2 → TM11 EVEN CHAR STB L

E2 M111 B16 F2 → TM11 EVEN CHAR STB H

TM22 DATA BFR OUT BIT 0 H — N1
TM22 DATA BFR OUT BIT 4 H — P1
M121 B17 → S1 → M111 A06 → B1 → TM11 WD7

TM22 DATA BFR OUT BIT 1 H — D2
TM22 DATA BFR OUT BIT 5 H — F2, N2
M121 B17 → U2 → C1 → M111 A06 → D2 → TM11 WD6

TM22 DATA BFR OUT BIT 2 H — K2, L2
TM22 DATA BFR OUT BIT 6 H — M2, N2
M121 B17 → P2 → D1 → M111 A06 → E1 → TM11 WD5

TM22 DATA BFR OUT BIT 3 H — R2, S2
TM22 DATA BFR OUT BIT 7 H — T2, U2
M121 B17 → V2 → F1 → M111 A06 → H1 → TM11 WD4

TM22 DATA FR OUT BIT 4 H — L2
~TM10 CORE DUMP H — M2
MH3 B29 → N2 → E2 → M111 A06 → F2 → TM11 WD3

TM22 DATA BFR OUT BIT 5 H — P2
~TM10 CORE DUMP H — R2
M113 B29 → S2 → J1 → M111 A06 → K1 → TM11 WD2

TM22 DATA BFR OUT BIT 7 H — P2
~TM10 7CH H — R2
M113 B19 → S2 → R1 → M111 A06 → S1 → TM11 WD0

TM22 DATA BFR OUT BIT 6 H — P1
~TM10 7CH H — R1
M113 B19 → S1 → M2 → M111 A06 → N2 → TM11 WD1

TM04 RD 7 — K2
M111 A05 → L2 → TM11 CHAN 0 H

TM04 RD 6 — N1
M111 A05 → P1 → TM11 CHAN 1 H

TM04 RD 5 — M2
M111 A05 → N2 → TM11 CHAN 2 H

TM04 RD 4 — A1
M111 A05 → S1 → TM11 CHAN 3 H

TM04 RD 3 — P2
M111 A05 → R2 → TM11 CHAN 4 H

TM04 RD 2 — V1
M111 A05 → U1 → TM11 CHAN 5 H

TM04 RD 1 — 32
M111 A05 → T2 → TM11 CHAN 6 H

TM04 RD 0 — U2
M111 A05 → V2 → TM11 CHAN 7 H

TM04 RDP — L1
M111 A06 → M1 → TM11 CHAN P H

REVISIONS	REV.
CHANGE NO.	
CHK	

DEC FORM NO. DRO 102A

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11		PARTS LIST		

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

MATERIAL —
FINISH —

DRN. M. Sandoval — DATE 11/27/71
CHK'D. Myrdal — DATE 3/24/72
ENG. M. Fultz — DATE 3-29-72
PROJ. ENG. M. Fultz — DATE 3-29-72
PROD. E. Cruz — DATE 5/16/72
NEXT HIGHER ASSY A-ML-TM11-Ø
SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: MAG TAPE READ/WRITE LINES

SIZE/CODE D BS — NUMBER TM11-Ø-11 — REV.
DIST.

12

TM12 ENB US CLK H

TM08 CHG TU ENB L
TM10 SDWN L
TM12 TUR L
M115 A17
~TM19 SEL 1 OUT H
M113 A27
M111 A23

+3V(B19V1)
TM12 UNIT SEL BIT Ø H
M216 A18
TM12 UNIT SEL BIT TM0 H
~TM12 UNIT SEL BIT TM0 H
M627 BØ5
TM12 SEL 2
TM19 INIT L
TM12 CLK UNIT SEL L

+3V(B19V1)
TM12 UNIT SEL BIT 1 H
M216 A18
TM12 UNIT SEL BIT TM1 H
~TM12 UNIT SEL BIT TM1 H
M627 BØ5
TM12 SEL 1

+3V(B19V1)
TM12 UNIT SEL BIT 2 H
M216 A18
TM12 UNIT SEL BIT TM2 H
~TM12 UNIT SEL BIT TM2 H
M627 BØ5
TM12 SEL Ø

+3V(A16U1)
TM15 DØ8 H
M216 A14
~TM12 UNIT SEL BIT Ø H
TM22 SEL 1 OUT HI H
TM12 UNIT SEL BIT Ø H
TM19 INIT L

+3V(A16U1)
TM15 DØ9 H
M216 A14
TM12 UNIT SEL BIT 1 H
~TM12 UNIT SEL BIT 1 H

+3V(A16U1)
TM15 DIØ H
M216 A14
TM12 UNIT SEL BIT 2 H
~TM12 UNIT SEL BIT 2 H

TM21 SSYN INH L
M111 B26
TM22 SEL 2 OUT LO H
M113 B21
TM12 SLCT 2 OUT LO L
TM22 SEL 2 OUT HI H
TM12 SLCT 2 OUT HI L
TM22 SEL 3 OUT LO H
TM12 SLCT 3 OUT LO L
TM12 SSYN INH H

TM22 SEL 4 OUT HI H
M111 A23
TM12 SEL 4 OUT HI L

TM22 SEL 3 OUT HI H
TM12 SLCT 3 OUT HI L
TM12 SLCT 1 OUT LO L
TM22 SEL 1 OUT LO H
M111 B26
TM12 SLCT 1 OUT LO H
TM22 SEL 4 OUT LO H
TM12 SLCT 4 OUT LO L

REVISIONS	REV	CHANGE NO.	ECO	DRAWN	CHECKED	APPROVED
	A	MII-00008	FRITZ	6-21-71		
	B	MII-00009	FRITZ	8-2-71		

FIRST USED ON OPTION/MODEL: PDP-11

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
MATERIAL
FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

	DATE
DRN	3/15/71
CHK'D	3/16/71
ENGR	5-24-71
MFG ENGR	5-24-71
QUAL ENGR	5/24/71

NEXT HIGHER ASSY: A-MI-TMII-Ø

EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: TAPE UNIT & REGISTER SELECT

SIZE DBS | NUMBER TM11-Ø-12 | REV B
SCALE | SHEET 1 OF 1 | DIST.

TMI3 READ H
TMIØ RDS H
M115 A17
TMI3 READ STB L
M111 B16
TMI3 READ STB H
~TMIØ LRCS L
M113 B21
~TMI3 LRC ENB H
+3V (B22 U1)
TMI5 DI4 H
TM22 SEL 5 OUT HI H
M205 B22
~TMI3 LRC ENB H
INIT L
TMIØ WRS H
M112 B15
M111 B26
TMI3 RDS+WRS H
TMIØ GO STROBE 2 L
M205 B22
TMI3 EVEN CHAR H
~TMI3 EVEN CHAR L
+3V
TMI3 RDS+WRS L
TMØ6 GO STROBE 2 H
TMØ9 WRITE L
TMØ9 WRITE XIAO L
M113 A16
TMI3 WRT DATA ENB H
M113 B32
TMI3 NPR SET H
~TM2Ø BGL+NXM H
~TM2Ø OVERFLOW H
M117 A28
+3V (B15 U1)
~TMII EVEN CHR STB H
M205 B14
TMI3 NPR ENB H
~TMI3 NPR ENB H
TMI9 INIT H
TM21 NPR CLEAR BUSY H
M112 A25
TMIØ CRCS H
TMIØ LRCS H
M112 B15
TMI3 CRCS+LRCS L
M111 B26
TMI3 CRCS+LRCS H
+3V
TMØ8 CU READY L
TMIØ RWS H
TMIØ BOT H
M113 B32
M216 B18
TMI9 INIT+GO L
TMIØ TUR H
M113 B32
TMØ8 SET BR L
M364 A3Ø 1 µS
TMI3 SET INT L
TMIØ INT ENB L
M364 A3Ø 1 µS
~TMI4 DØØ H
TM22 SLCT 1 OUT LO H
M115 A17
M113 B29
TMIØ INT ENB H
M113 A25
M283 A28
TMI3 BR INT H
~TMI3 BR INT H
TMI9 INIT H
TM21 INT DONE B H
M112 A25
TMØ9 READ L
M111 B26
TMI3 READ H

REVISIONS: REV. A; CHK'D; CHANGE NO. TM11-00013; BUCZYNSKI

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11		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. Margaret Daphnais — DATE 1-22-71
CHK'D. [illegible] — DATE 3-29-71
ENG. [illegible] — DATE 3-29-71
PROJ. ENG. [illegible] — DATE 3-29-71
PROD. [illegible] — DATE 3-29-71
NEXT HIGHER ASSY A-ML-TM11-Ø
SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: NPR AND BR ENABLE

SIZE D | CODE BS | NUMBER TM11-Ø-13 | REV. A | DIST.

DEC Form No. DRO 103A

14

TMØ8 CU READY H
TM21 NXM H
TMIØ INT ENB H
TMØ SEL R H
TM22 ADRS BIT 17 H
TMIØ BOT H
TM22 ADRS BIT 16 H
TMIØ 7CH H
TM09 FUNCTION BIT 2 H
TMIØ SDWN H
TM09 FUNCTION BIT 1 H
TMIØ WRL H
TM09 FUNCTION BIT Ø H
TMIØ RWS H
TMØ6 GO BIT H
TMIØ TUR H
TM22 SEL 1 IN L
TM22 SEL STATUS IN L

M149 BØ8 · M149 BØ8 · M149 BØ8 · M149 BØ8 · M149 BØ8 · M149 BØ8 · M149 BØ8 · M149 BØ8 · M149 BØ8 · M149 BØ8 · M149 BØ8 · M149 BØ8 · M149 BØ8 · M149 BØ8 · M149 BØ8 · M149 BØ8 · M149 BØ8 · M149 BØ8

D BIT Ø7 L · D BIT Ø6 L · D BIT Ø5 L · D BIT Ø4 L · D BIT Ø3 L · D BIT Ø2 L · D BIT Ø1 L · D BIT ØØ L

M798 AØ7 · M798 AØ7 · M798 AØ7 · M798 AØ7 · M798 AØ7 · M798 AØ7 · M798 AØ7 · M798 AØ7

BUS DØ7 L · BUS DØ6 L · BUS DØ5 L · BUS DØ4 L · BUS DØ3 L · BUS DØ2 L · BUS DØ1 L · BUS DØØ L

M784 BØ9 · M784 BØ9 · M784 BØ9 · M784 BØ9 · M784 BØ9 · M784 BØ9 · M784 BØ9 · M784 BØ9

TM14 DØ7 H
TM14 DØ6 H
TM14 DØ5 H
TM14 DØ4 H
TM14 DØ3 H
TM14 DØ2 H
TM14 DØ1 H
TM14 DØØ H

TM14 DØØ H → M111 A23 → TM14 DØØ L

NOTE:
L SIGNALS D BIT ØØ-Ø7L ARE COLLECTOR ORED INPUT POINTS.

FIRST USED ON OPTION/MODEL: PDP-11	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 63
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH
NEXT HIGHER ASSY

DRN 3.2.71 · CHK'D 3/19/71 · ENG. 3/19/71 · PROJ. ENG. 3-29-71 · PROG. 5/6/71

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: LOW BYTE COMMAND & STATUS REG

SCALE NONE · SHEET 1 OF 1 · SIZE D · CODE BS · NUMBER TM11-Ø-14 · REV · DIST

TM2Ø ERR H
TM19 ILC H
TM1Ø DEN 8 H
TM2Ø EOFF H
TM1Ø DEN 5 H
TM2Ø CRE H
TM2Ø PRE H
TM1Ø PEVN H
TM22 SEL 1 IN L
TM12 UNIT SEL BIT 2 H
TM1Ø EOT H
TM32 SEL STATUS IN L
TM12 UNIT SEL BIT 1 H
TM2Ø RLE H
TM12 UNIT SEL BIT Ø H
TM19 BTE H

M149 AØ8

M798 AØ7

D BIT 15 L
D BIT 14 L
D BIT 13 L
D BIT 12 L
D BIT 11 L
D BIT 1Ø L
D BIT Ø9 L
D BIT Ø8 L

BUS DI5 L
BUS DI4 L
BUS DI3 L
BUS DI2 L
BUS DI1 L
BUS DIØ L
BUS DØ9 L
BUS DØ8 L

M784 BØ9

TM15 DI5 H
TM15 DI4 H
TM15 DI3 H
TM15 DI2 H
TM15 DI1 H
TM15 DIØ H
TM15 DØ9 H
TM15 DØ8 H

M111 A23

TM15 DIØ L
TM15 DØ9 L
TM15 DØ8 L

NOTE:
1. SIGNALS D BIT Ø8-15L ARE COLLECTOR ORED INPUT POINTS.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .ØØØ FRACTIONS ± 1/64 ANGLES ± Ø°3Ø'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL
FINISH

DRN. Margaret Daughtridge	DATE 1-19-71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. Mike Mendes	DATE 3/26/71	
ENG. M.T.	DATE 3-29-71	
PROJ. ENG. M.T.	DATE 3-29-71	
PROD. B.E. Capra	DATE 5/6/71	

TITLE: HIGH BYTE COMMAND & STATUS REG

NEXT HIGHER ASSY: A-ML-TM11-Ø

SIZE D | CODE BS | NUMBER TM11-Ø-15 | REV.

SCALE

SHEET 1 OF 1

DIST.

REVISIONS: REV | CHANGE NO | DWN

TM22 DATA BFR OUT BIT 7 H
TM11 CHAN 7 H
TM22 DATA BFR OUT BIT 6 H
TM11 CHAN 6 H
TM22 DATA BFR OUT BIT 5 H
TM11 CHAN 5 H
TM22 DATA BFR OUT BIT 4 H
TM11 CHAN 4 H
TM22 DATA BFR OUT BIT 3 H
TM11 CHAN 3 H
TM22 DATA BFR OUT BIT 2 H
TM11 CHAN 2 H
TM22 DATA BFR OUT BIT 1 H
TM11 CHAN 1 H
TM22 DATA BFR OUT BIT Ø H
TM11 CHAN Ø H
TM17 LO DATA BYTE L
TM22 SEL 5 IN L

M149 A13 (A1, B1, C1, D1, E1, F1, F2, E2, H1, K1, J1, H2, K2, J2, L1, N1, M1, L2, N2, M2, P1, S1, R1, P2, S2, R2; U2, V2)

D BIT Ø7 L
D BIT Ø6 L
D BIT Ø5 L
D BIT Ø4 L
D BIT Ø3 L
D BIT Ø2 L
D BIT Ø1 L
D BIT ØØ L

TM17 HI DATA BYTE L
TM22 SEL 5 IN L

M149 B13 (A1, B1, C1, D1, F1, F2, E2, H1, K1, J1, H2, K2, J2, L1, N1, M1, L2, N2, M2, P1, S1, R1; U2, V2)

TM22 DATA BFR OUT BIT 7 H
TM07 TIMER H
TM22 DATA BFR OUT BIT 6 H
TM13 LRC ENB H
TM22 DATA BFR OUT BIT 5 H
TM22 DATA BFR OUT BIT 4 H
TM09 GSD H
TM22 DATA BFR OUT BIT 3 H
TM22 DATA BFR OUT BIT 2 H
TM22 DATA OUT BIT 1 H
TM17 D BIT ØØ IN H
TM11 CHAN P H

D BIT 15 L
D BIT 14 L
D BIT 13 L
D BIT 12 L
D BIT 11 L
D BIT 10 L
D BIT Ø9 L
D BIT Ø8 L

REVISIONS	REV.
CHANGE NO. 11-00008	A
DSK 6-23-71	
ENG 6-30-71	

FIRST USED ON OPTION/MODEL	PDP-11
UNLESS OTHERWISE SPECIFIED	DIMENSION IN INCHES; TOLERANCES: DECIMALS ± .005, FRACTIONS ± 1/64, ANGLES ± 0°30'; FINAL SURFACE QUALITY; REMOVE BURRS AND SHARP CORNERS
MATERIAL	
DRWN	A. Santelli 1/19/71
CHK'D	M. Fahey 2/24/71
ENG	M. Fahey 3-29-71
QUAL CNTL	M. Fahey 3-29-71
PROJ	G. Chang 5/4/71
NEXT HIGHER ASSY	A-ML-TM11-Ø
SCALE	NONE
SHEET 1 OF 1	

PARTS LIST — QTY. | DESCRIPTION | PART NO. | ITEM NO.

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DATA BUFFER & READ LINES TO BUS

SIZE D | CODE BS | NUMBER TM11-Ø-16 | REV. A | DIST.

TM11-Ø-16 A

TM13 NPR ENB H
TM22 DATA BFR OUT BIT Ø H
~TM13 NPR ENB H
M121 A14
M111 A23
TM17 D BIT Ø5 IN H
+3V(B24 U1)
TM13 CRCS+LRCS H
TM11 CHAN P H
~TM13 CRCS+LRCS H
TM15 DØ3 H
M121 B17
M111 B26
M216 B31
TM17 PAR BIT H
TM13 READ STB L
TM12 SEL 4 OUT HI L
M113 B29
TM19 INIT L
TM17 CMA BIT ØØ H
M295 B22
TM21 NPR CLEAR BBSY L
TM21 DATA→BUS H
M121 A19
TM17 HI DATA BYTE L
TM08 CU READY L
~TM17 CMA BIT ØØ H
TM17 LO DATA BYTE L
TM12 SEL 4 IN L
M111 A23
BUS INIT L
M785 B18
TM17 INIT REC H
BUS SSYN L
TM17 SSYN H
M111 AØ6
TM17 SSYN L
BUS AØ3 L
TM17 AØ3 H
BUS AØ2 L
TM17 AØ2 H
BUS AØ1 L
TM17 AØ1 H
BUS AC LO L
TM17 AC LO H
TM17 A16 H
BUS A16 L
TM22 ADRS BIT 16 H
M111 B26
TM17 A16 L
TM17 A17 H
BUS A17 L
TM22 ADRS BIT 17 H
M111 B26
TM17 A17 L
TM21 ADRS→BUS L

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP11		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. Margaret Dwyer DATE 3 Mar 71
CHK'D. Jim Mundt DATE 3/24/71
ENG. M. Fritz DATE 3-24-71
PROJ. ENG. M. Fritz DATE 3-24-71
PROG. T.E. Comm DATE 3/24/71
NEXT HIGHER ASSY. A-ML-TM11-Ø
SCALE
SHEET OF

DIGITAL EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE DATA BFR CNTL & UNIBUS LINES

SIZE D CODE BS NUMBER TM11-Ø-17 REV. B
DIST.

REVISIONS	REV	CHANGE NO.	BY	DATE
	A	TM11-00007	M. Fritz	6-4-71
	B	TM11-00010	M. Fritz	8-31-71
			M. Fritz	9-1-71

DEC FORM B16-B DRD 103-B

TM13 READ STB L
TM13 NPR ENB L
M2Ø5 B14
TØ8 LRCSD H
TM13 INIT+GO H
M112 A25
~TM17 CMA BIT ØØ H
~TM13 READ H
TM13 NPR ENB H
M115 A22
M113 A16
~ NPR ENB H
M113 B32

TM14 DØØ H
TM15 DØ8 H
TM11 CHAN Ø H
M127 B23
M111 B16
TM18 DATA BFR IN BIT Ø H
~TM1Ø CORE DUMP L
M112 A26

TM14 DØ1 H
TM15 DØ9 H
TM11 CHAN 1 H
TM18 DATA BFR IN BIT 1 H

TM14 DØ2 H
TM15 D10 H
TM11 CHAN 2 H
TM18 DATA BFR IN BIT 2 H

~TM13 READ H
TM13 NPR ENB H
TM17 CMA BIT ØØ L
M113 B19
M112 A25

TM14 DØ3 H
TM15 D11 H
TM11 CHAN 3 H
M127 B24
M111 B16
TM18 DATA BFR IN BIT 3 H

TM14 DØ4 H
TM15 D12 H
TM11 CHAN Ø H
TM11 CHAN 4 H
M127 B24
M111 B16
TM18 DATA BFR IN BIT 4 H

TM14 DØ5 H
TM15 D13 H
TM11 CHAN 1 H
TM11 CHAN 5 H
TM18 DATA BFR IN BIT 5 H

TM14 DØ6 H
TM15 D14 H
TM11 CHAN 2 H
TM11 CHAN 6 H
~TM1Ø 7CH H
M127 B25
M111 B16
TM18 DATA BFR IN BIT 6 H

TM14 DØ7 H
TM15 D15 H
TM11 CHAN 3 H
TM11 CHAN 7 H
~ TM1Ø 7CH H
M127 B25
M111 B16
TM18 DATA BFR IN BIT 7 H

TM19 INIT+GO
~TM11 EVEN CHR STB H
TM13 READ STB L
M216 B18
+3V
TM13 READ STB H
M113 A16
TM21 DATA STB 2 L
TM1 SLCT 4 OUT LO L
M117 A2Ø
TM18 DATA BFR STB 1 H

TM21 DATA STB 2 H
TM13 READ STB H
M112 A26
TM12 SLCT 4 OUT LO L
M113 A16
TM18 DATA BFR STB 2 H

REVISIONS: REV. A; CHANGE NO. 11-00009; DWN; CHK; APP; DEC FORM 40 DNO 1022A

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINISH SURFACE QUALITY √ REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH
NEXT HIGHER ASSY A-ML-TM11-Ø
SCALE NONE
SHEET / OF /

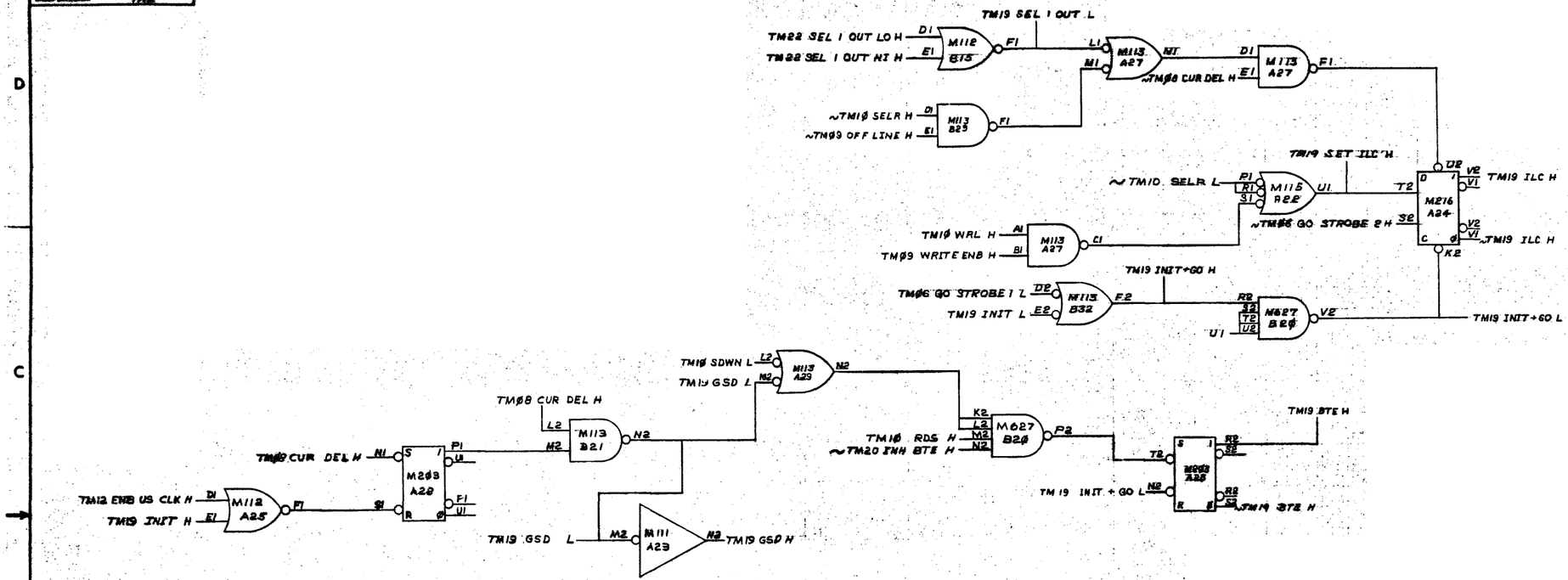
		DATE
DRN.	M. Scandurato	11-23-71
CHK'D.	M. Mandel	12-6-71
ENG.	M. Fultz	12-27-71
PROJ. ENG.	M. Fultz	12-29-71
APPD.	S. Elgers	5-8-71

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DATA BUFFER INPUTS

SIZE D | CODE BS | NUMBER TM11-Ø-18 | REV. A | DIST.

REV A | NUMBER TM11-Ø-18 | SIZE D | CODE BS



REVISIONS	REV.	CHK.	DRC
CHANGE NO.			
TM11-00008	A	M. Gudis 6-28-71	FRITZ
TM11-00009	B	M. Fritz 6-30-71	FRITZ
TM11-00010	C	M. Fritz 8-3-71	
TM11-00012	D	M. Fritz 8-31-71	M. FRITZ
TM11-00015	E	M. Fritz 9-1-71	M. BUCZYNSKI
		M. Buczynski 1-4-72	
		M. Buczynski 1/24/72	
		B. Fitzgerald 4-6-72	B. FITZGERALD
		B. Fitzgerald 11-1-72	

FIRST USED ON OPTION/MODEL: PDP-11	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

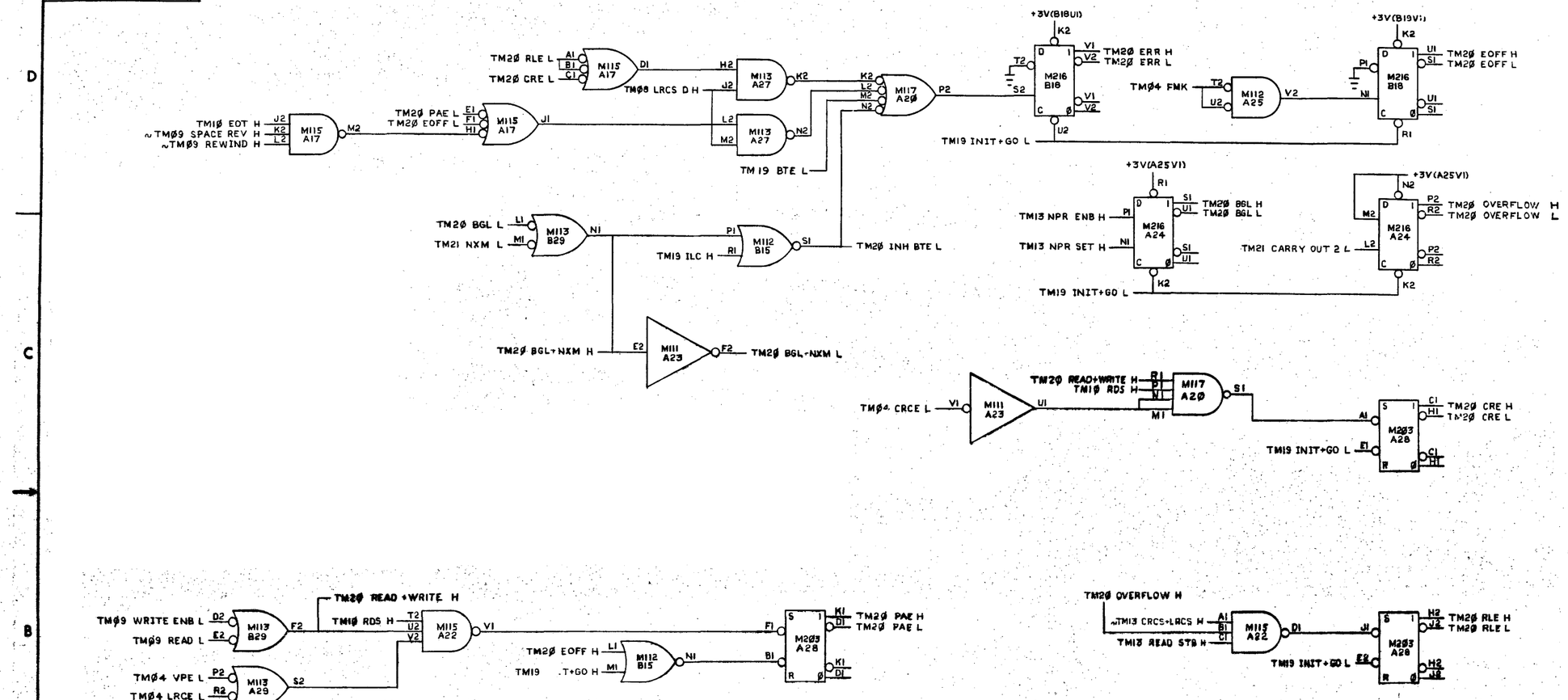
DRN. Malgorzata Wawrzkiewicz 1/15/71
CHK'D. Peter Conklin 1/29/71
ENG. M. Fritz 1/29/71
PROJ. ENG. M. Fritz 1/29/71
PROD. B. Egan 1/29/71
NEXT HIGHER ASSY A-ML-TM11-Ø
SCALE NONE
SHEET OF

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: BTE, ILC & INIT

SIZE D | CODE BS | NUMBER TM11-Ø-19 | REV E
DIST.

20



REVISIONS			
CHG	CHANGE NO	REV	
	M11-00010	A	
	M11-00011	B	
	TM11-00016	C	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11		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

DRW.	A. Santelli	DATE 3/17/71
CHK'D	[illegible]	DATE 3/24/71
ENG.	[illegible]	DATE 3-24-71
PROJ. LDR.	[illegible]	DATE 3-25-71
PROD.	[illegible]	DATE 3/26/71

NEXT HIGHER ASSY.: A-ML-TM11-Ø

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: MAGNETIC TAPE ERRORS

SIZE D | CODE BS | TM11-Ø-2Ø | REV C
SCALE NONE | SHEET | OF | DIST.

TMØ7 CLK 2 H
+3V(B14V1) H
TM21 NPR CLR BBSY H
+3V(B14V1) H
TM22 SEL 2 IN L
TM22 SEL 3 IN L
TM12 SLCT 2 OUT LO L
TM12 SLCT 3 OUT LO L
TM14 DØ3 H
TM14 DØ2 H
TM14 DØ1 H
TM14 DØØ H
M795 A12 B12
TM21 CARRY OUT 2 L
TM21 CARRY OUT 3 L
BUS AØ3 L
BUS AØ2 L
BUS AØ1 L
BUS AØØ L
D BIT Ø3 L
D BIT Ø2 L
D BIT Ø1 L
D BIT ØØ L
ADI
TM19 INIT H

TM21 ADRS→BUS L
TM14 DØ7 H
TM14 DØ6 H
TM14 DØ5 H
TM14 DØ4 H
M795 A12 B12
BUS AØ7 L
BUS AØ6 L
BUS AØ5 L
BUS AØ4 L
D BIT Ø7 L
D BIT Ø6 L
D BIT Ø5 L
D BIT Ø4 L
ADI

TM12 SLCT 2 OUT HI L
TM15 DI1 H
TM15 DIØ H
TM15 DØ9 H
TM15 DØ8 H
M795 A12 B12
BUS AI1 L
BUS AIØ L
BUS AØ9 L
BUS. AØ8 L
D BIT 11 L
D BIT 10 L
D BIT Ø9 L
D BIT Ø8 L
ADI

TM12 SLCT 3 OUT HI L
TM15 DI5 H
TM15 DI4 H
TM15 DI3 H
TM15 DI2 H
M795 A12 B12
BUS AI5 L
BUS AI4 L
BUS AI3 L
BUS AI2 L
D BIT 15 L
D BIT 14 L
D BIT 13 L
D BIT 12 L
ADI

TM21 DATA STB 2 L
~TM21 DATA STB 1 L
+3V(B14V1) H
M796 A11
TM21 DATA STB 2 H

TM13 NPR ENB H
BUS NPR L
BUS NPG IN H
TM13 BR INT H
TMØ4 BG IN H
+3V(B14V1) H
TM17 SSYN L
M7821 AIØ
BUS NPR L
BUS SACK L
BUS BBSY L
TM21 NPR MASTER L
~BUS NPG OUT L
TM21 BR OUT L
TM21 BR MASTER L
TM21 BG OUT H
BUS INTR L
BUS DØ8 L
BUS DØ7 L
BUS DØ6 L
BUS DØ5 L
BUS DØ4 L
BUS DØ3 L
BUS DØ2 L
TM21 INT DONE A H
TM21 INT DONE B H

K1 H1 M688 E1 B28 D2 TMØ6 SET H

TM13 READ H
TM17 SSYN H
TM19 INIT H
~TM21 DATA STB 2 H
TM19 INIT→GO L
TM21 NPR MASTER L
M796 A11
TM21 ADRS→BUS H
BUS C1 L
BUS CØ L
BUS MSYN L
TM21 DATA→BUS H
TM21 ADRS→BUS L
TM21 DATA STB 1 H
TM21 DATA STB 1 L
TM21 NPR CLR BBSY H
TM21 NPR CLR BBSY L
TM21 NXM H
~TM21 NXM H
TM21 CLR DATA RQ H
TM21 CLR DATA RQ L
TM21 DATA→BUS L

BUS MSYN L
TM17 AI7 L
TM17 AI6 L
BUS AI5 L
BUS AI4 L
BUS AI3 L
BUS AI2 L
BUS AI1 L
BUS AIØ L
BUS AØ9 L
BUS AØ8 L
BUS AØ7 L
BUS AØ6 L
BUS AØ5 L
BUS AØ4 L
BUS AØØ L
BUS C1 L
BUS CØ L
MIØ5 AØ9
012
11
10
09
08
07
06
05
04
03
BUS SSYN L
TM21 SSYN INH L
TM21 ADRS DEC MSYN H
TM21 IN H
TM21 OUT LO H
TM21 OUT HI H

REVISIONS	DIR	CHANGE NO	BY
A	TMII-00007	FRITZ
B	TMII-00009	FRITZ
C	TMII-00010	M.FRITZ
D	TMII-00012	W.BUCZYNSKI
E	TMII-00013	W. BUCZYNSKI
F	TMII-00016	B. FITZGERALD

FIRST USED ON OPTION/MODEL: PDP-11

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

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

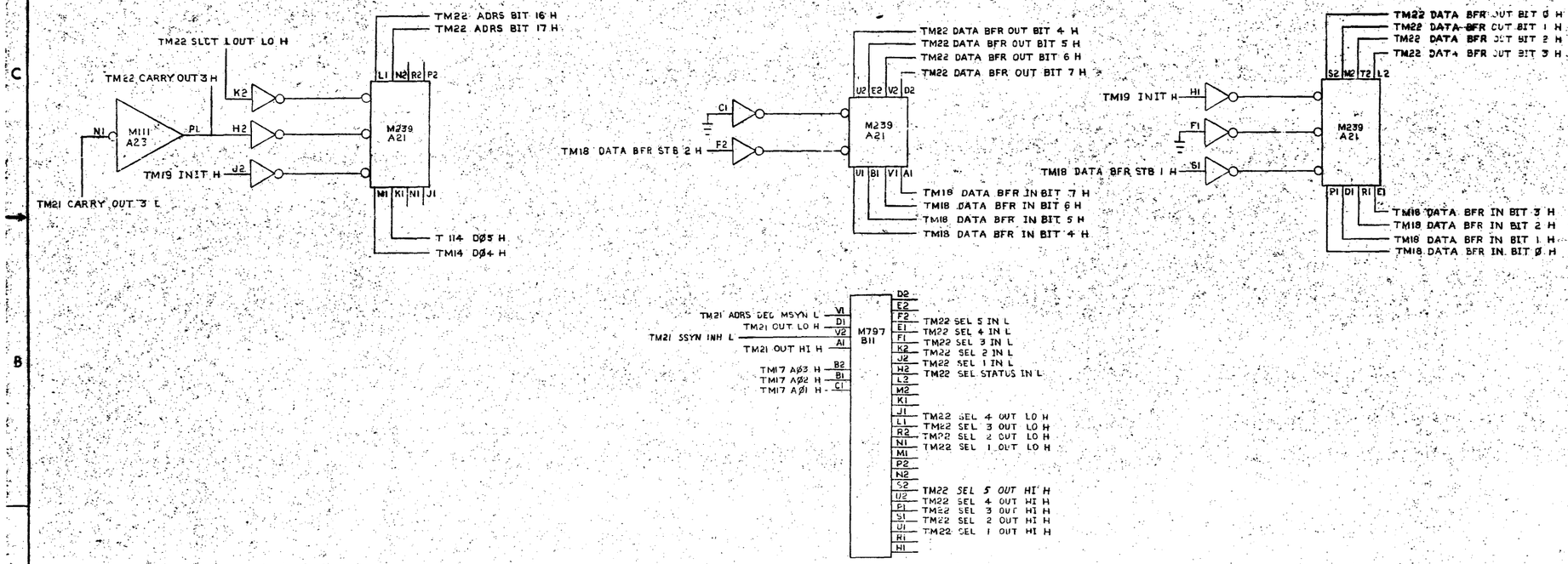
DRN. A. Fratelli 1/11/71
CHK'D Mundak Hanzo 1/29/71
ENG. M. Fritz 3-29-71
PROJ. ENG. M. Fritz 3-29-71
PROD. B Elsen 5/6/71
NEXT HIGHER ASSY A-ML-TMII-Ø
SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: TMII COMBINED PACKAGES

SIZE CODE D BS | NUMBER TMII-Ø-21 | REV. F | DIST.

22



REVISIONS				
CHK	CHANGE NO	REV		
	MII-00009	A	1 Move 2-2-71	BTT
	MII-00014	B	2nd 6-3-71	BTT
	MII-00018	C	2 August 7-22-71	BTT

DRAWN E. FITZGERALD 2 August 7-22-71

DEC FORM NO 1002 A

FIRST USED ON OPTION/MODEL: PDP-11

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. E. Fitzgerald DATE 1-21-71
CHK'D Maurice Eldridge DATE 2-2-71
ENG. [illegible] DATE 5-19-71
PROJ. ENG. [illegible] DATE 1-22-71
PROD. [illegible] DATE 5/6/71

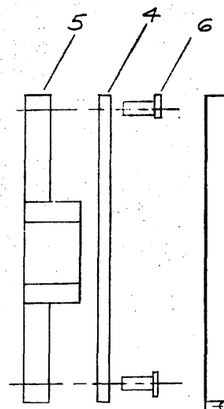
NEXT HIGHER ASSY
M111 TM11-0

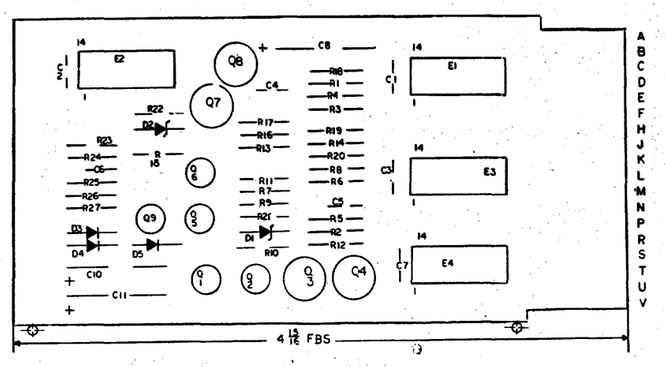
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

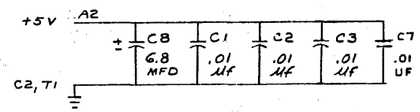
TITLE
REGISTER SELECT & DATA BUFFER

SIZE C | CODE DBS | NUMBER TM11-0-22 | REV C
SCALE NONE
SHEET 1 OF 1
DIST.

NOTES:







QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
				32
4	Q3,Q4,Q7,Q6	TRANSIPADS	9C07209	31
1	C11	CAP. 10UF 20V 10%	1004813	30
1	C10	CAP. 39UF 10V 10%	1000076	29
6	R7, R13, R19, R20, R19, R16	RES. 4.7K 1/4W 5%	1300447	28
2	R23 R24	RES. 1.5K 1/4W 5%	1300391	27
4	R12, R18, R25, R26	RES. 47Ω 1/4W 5%	1300316	26
				25
1	Q9	TRANSISTOR DEC 3009B	1503100	24
3	D3, D4, D5	DIODE D664	1100114	23
1	E2	IC DEC 7404	1909686	22
5	C1, C2, C3, C6, C7	CAP. .01μF 100V 20% DISC	1001610	21
1	C8	CAP 6.8UF 35V, 20% TANT	1000067	20
2	C4, C5	CAP 1000PF 100V 5% MICA	1000042	19
2	D1, D2	DIODE IN750A 4.7V ZENER	1100124	18
				17
4	R8, R11, R14, R17,	RES. 10K 1/4 5%	1300479	16
2	R1, R2,	RES. 3.9K 1/4, 5%	1300444	15
6	R4, R6, R15, R9 R21, R22	RES. 1K 1/4, 5%	1300365	14
3	R3, R5, R27	RES. 100 1/4, 5%	1300229	13
4	Q1, Q2, Q5, Q6	TRANS, DEC 6534D	1503409	12
2	Q3, Q7	TRANS. 2N1309	1501311	11
2	Q4, Q8	TRANS. 2N1308	1500583	10
1	E3	IC DEC 7405	1909930	9
2	E1, E4	IC DEC 74H52	1909061	8
				7
8		EYELET	9006732	6
1		HANDLE, FLIP CHIP-MAGENTA	7008337-06	5
1		ETCHED CKT BD	5010085	4
REF		MODULE ECO HISTORY	B-MH-M638-06	3
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M688-0-5	2
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M688-0-4	1

PARTS LIST

ETCH BOARD REV | B

DEC NO.	EIA NO.
DEC 6534D	NONE
2N1309	SAME
2N1308	SAME
1N748A	SAME

SEMICONDUCTOR CONVERSION CHART

FIRST USED ON OPTION MODEL: PDP 11

REV	REVISIONS	CHK	CHANGE NO.	
E	DON VONADA 8-6-74		M688-00005	
D	Martha Hunt 5-14-74		M688-00004	
C	S. ROTHMAN 12-3-73		M688-00003	
B	S.ROTHMAN 10-25-72		M688-00002	
A	S.ROTHMAN 9-20-72		M399-00001	

IC TYPE	GND	+ 5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		

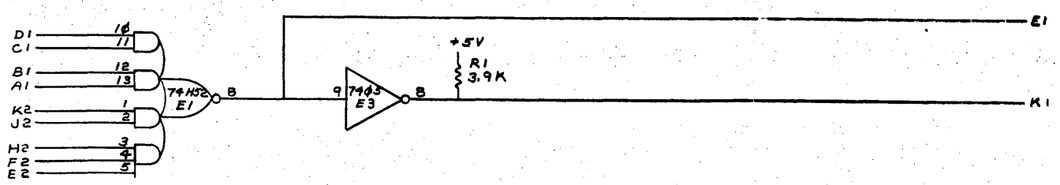
IC PIN LOCATIONS

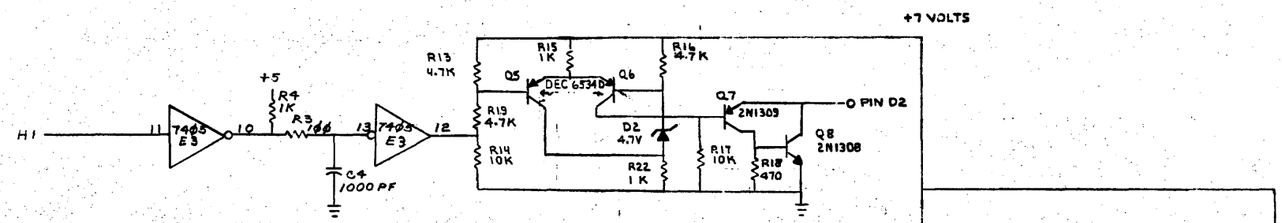
DRN G Wilson 5/16/72
CHK [illegible] 6/1/72
ENG [illegible] 6-7-72
PROJ. ENG. [illegible] 6-7-72
PROJ MGR [illegible] 6/9/72
NEXT HIGHER ASSY
SCALE NONE
SHEET 1 OF 2

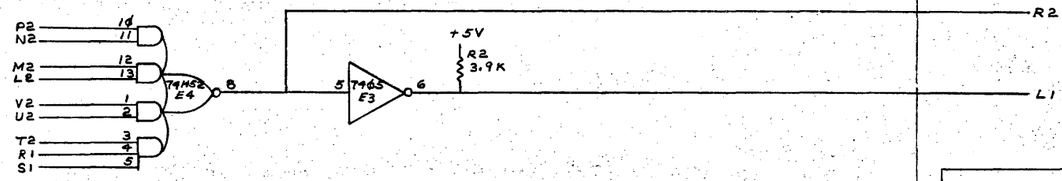
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

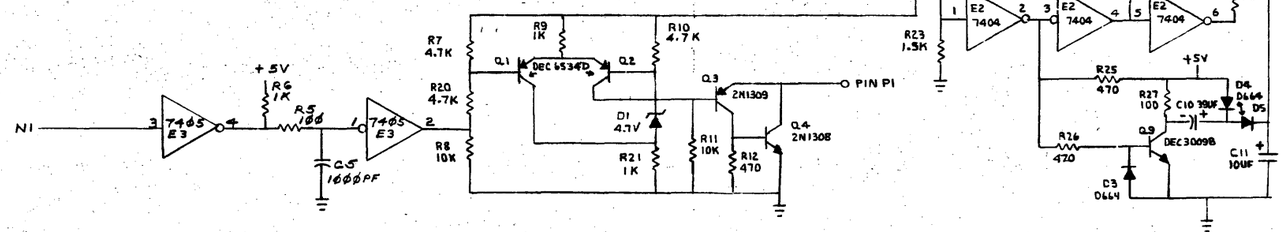
TITLE: UNIBUS POWER FAIL DRIVERS

SIZE D | CODE CS | NUMBER M688-0-1 | REV. E | DIST.









FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11		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. Wilson	DATE 5/18/72
CHK'D		DATE 6/1/72
ENG		DATE 6-1-72
PROJ. ENG		DATE 6-1-72
PROD		DATE 6/1/72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: UNIBUS POWER FAIL DRIVERS

NEXT HIGHER ASSY

SIZE	CODE	NUMBER	REV.
D	CS	M688-Ø-1	E

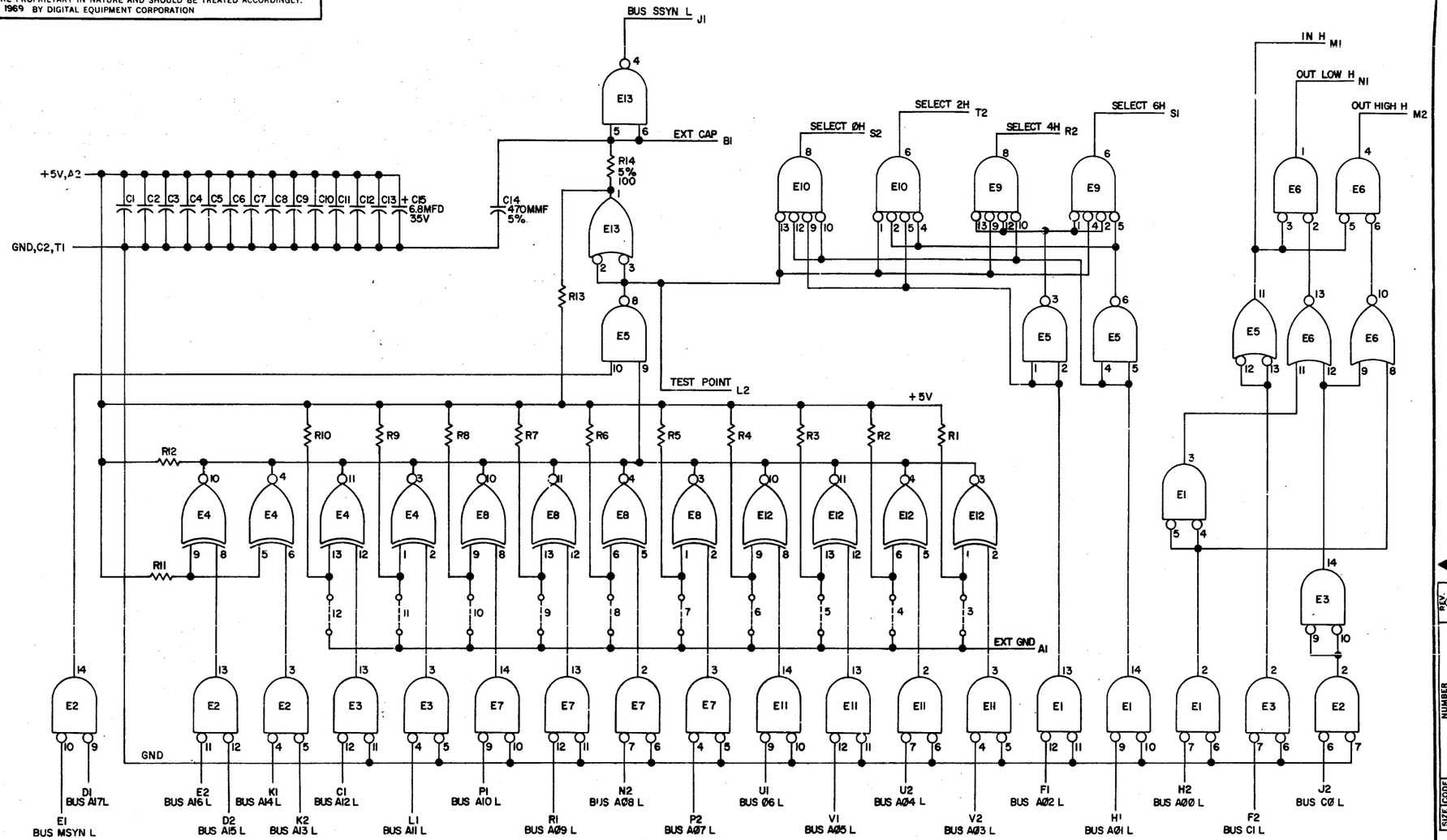
SCALE NONE
SHEET 2 OF 2
DIST.

REVISIONS: REV | CHANGE NO | CHK

DRAWING NO. SEE 1 THRU 0

DEC FORM NO DRD 102-B

D CS M688-Ø-1 E



UNLESS OTHERWISE INDICATED:
o----o INDICATES JUMPERS
RESISTORS ARE 1K, 1/4W, 5%
CAPACITORS ARE .01MFD, 100V, 20%
E1, E2, E3, E7, E11 ARE DEC8640
E4, E8, E12 ARE DEC8242
E9, E10 ARE DEC8815
E5 IS DEC74H00
E6 IS DEC7402
E13 IS DEC8881

PIN 1 ON E1, E2, E3, E7, E11 = GND
PIN 8 ON E1, E2, E3, E7, E11 = +5V
PIN 7 ON E4, E5, E6, E8, E9, E10, E12, E13 = GND
PIN 14 ON E4, E5, E6, E8, E9, E10, E12, E13 = +5V

REVISIONS	CHK	CHG NO.	REV.
	TS	LAI	A
	4/24	00008	B
	GR	00003	C

DRN.		DATE 11-26-69
CHK'D		DATE 1-9-70
ENG.		DATE 3-20-70
PROD.		DATE 4/17/70

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: ADDRESS SELECTOR M105

SIZE	CODE	NUMBER	REV
C	CS	M105-0-1	C

PRINTED CIRCUIT REV. C

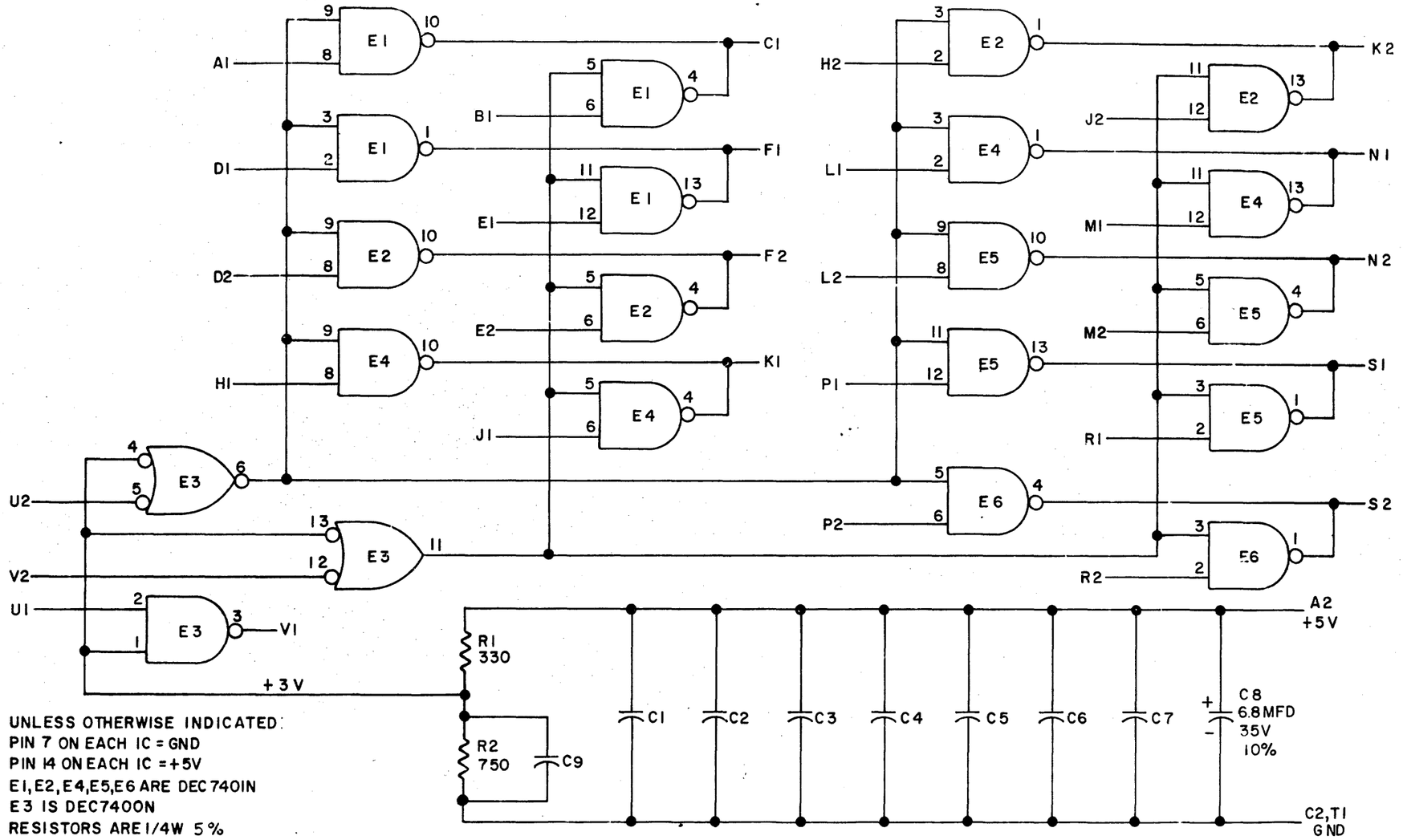
DEC FORM NO. DRC 102

MS 449-P6

DIST. 325 434 435

5 PINK

26



UNLESS OTHERWISE INDICATED:
PIN 7 ON EACH IC = GND
PIN 14 ON EACH IC = +5V
E1, E2, E4, E5, E6 ARE DEC 7401N
E3 IS DEC 7400N
RESISTORS ARE 1/4W 5%
CAPACITORS ARE .01MFD, 50V,

REVISIONS	CHK	CHG NO.	REV.
		0001	B
		0002	C
		0003	D

DRN.		DATE 3-26-69
CHK'D		DATE 3-28-69
ENGR		DATE 4/23/69
PROD.		DATE

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE 9X2 NAND WIRED OR MATRIX M149

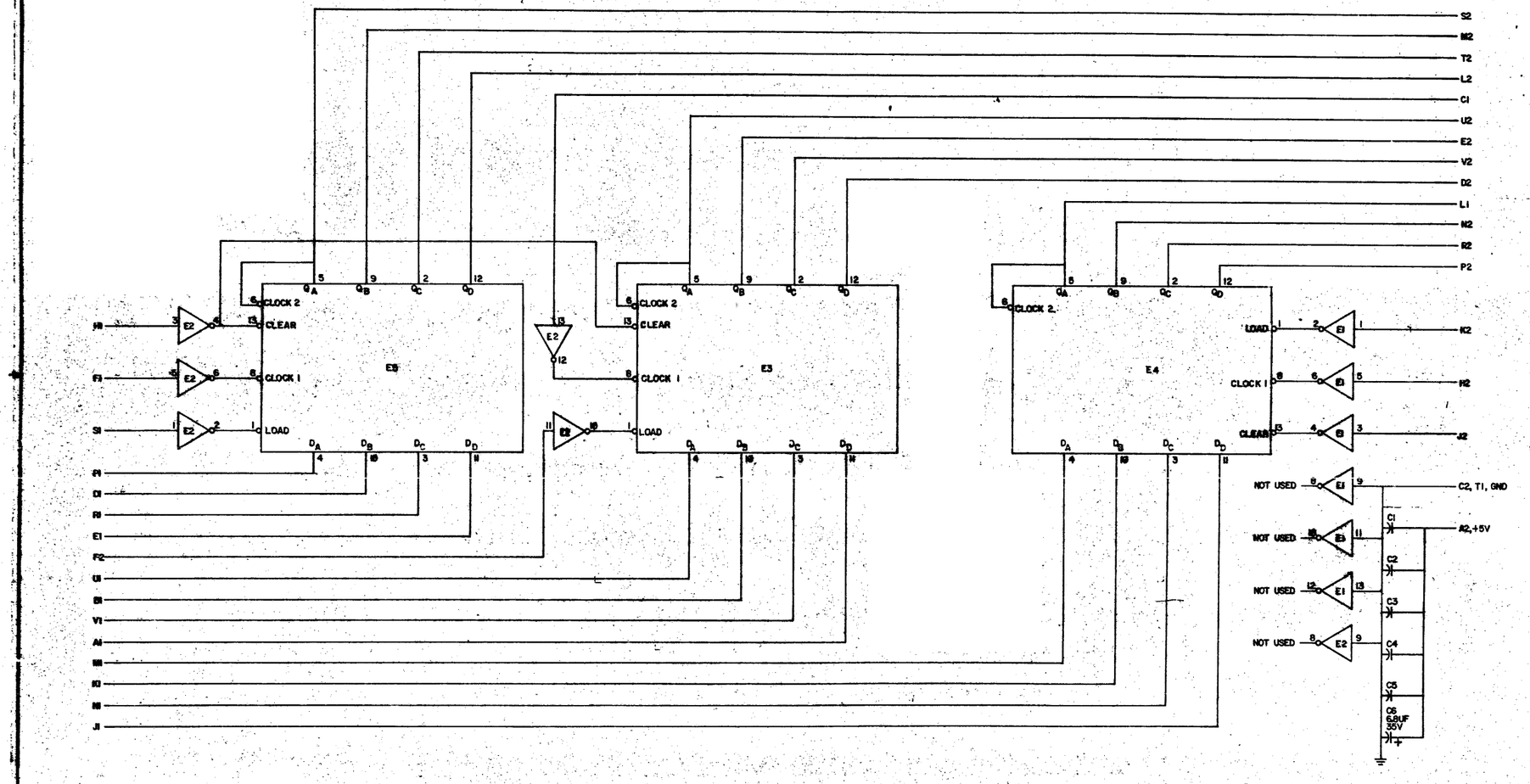
SIZE	CODE	NUMBER	REV
B	CS	M149-0-1	D

PRINTED CIRCUIT REV. C

DEC FORM NO. DRB 102

5 DIST. 324,434,435 PINK

THIS SCHEMATIC IS FURNISHED ONLY FOR TEST AND MAINTENANCE PURPOSES. THE CIRCUITS ARE PROPRIETARY IN NATURE AND SHOULD BE TREATED ACCORDINGLY. COPYRIGHT 1969 BY DIGITAL EQUIPMENT CORPORATION



UNLESS OTHERWISE INDICATED:
CAPACITORS ARE .01UF, 100V, 20%
E3,E4,E5 ARE DEC74197
E1,E2 ARE DEC74H04
ON ALL IC'S PIN 14 = +5V, PIN 7 = GND

TRANSISTOR & DIODE CONVERSION CHART

DIGITAL EQUIPMENT CORPORATION

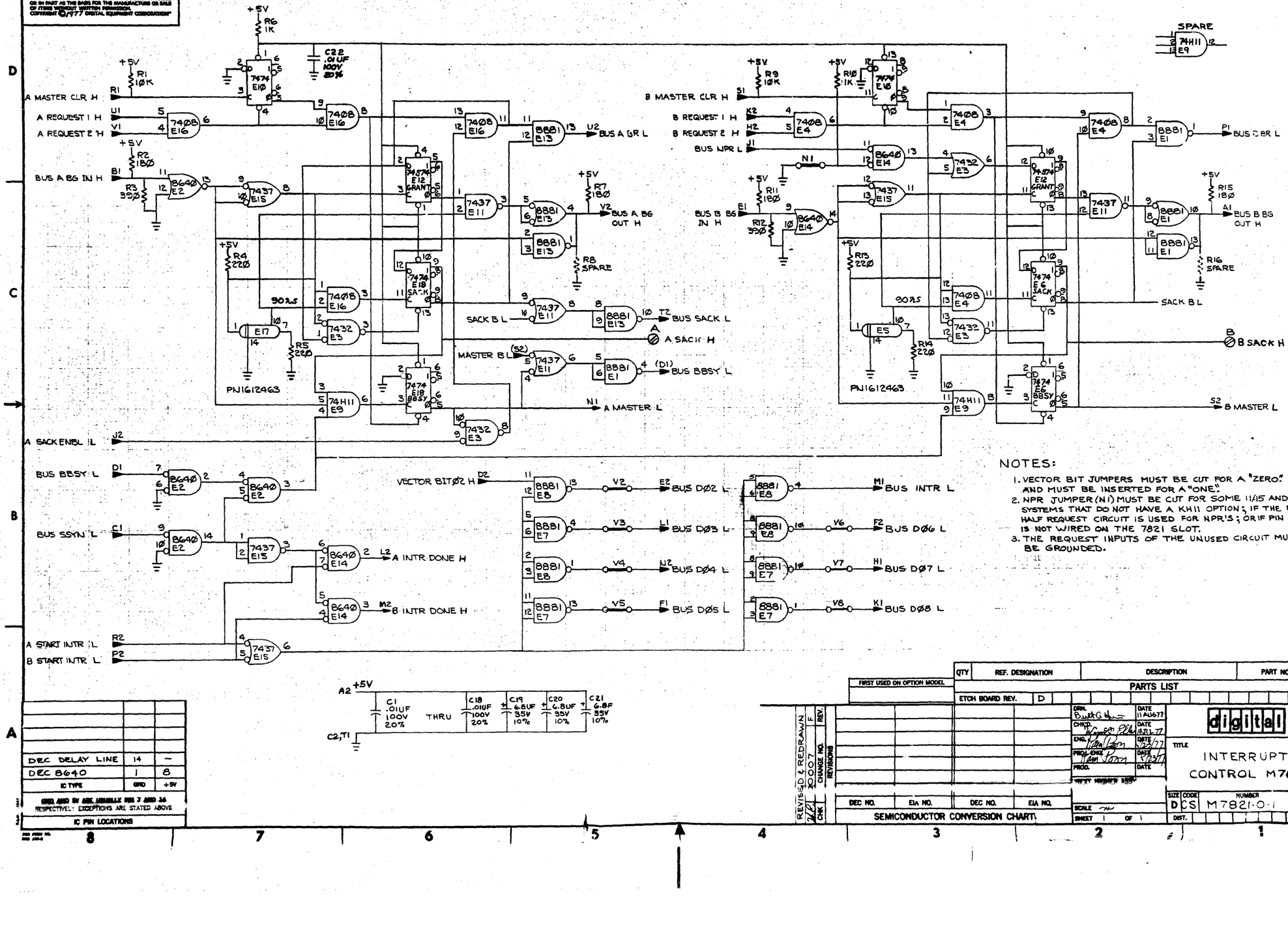
TITLE: THREE 4-BIT COUNTER/REGISTER M239

SIZE D | CODE CS | NUMBER M239-0-1 | REV A

PRINTED CIRCUIT REV. A

MS 1077

28



NOTES:

1. VECTOR BIT JUMPERS MUST BE CUT FOR A "ZERO." AND MUST BE INSERTED FOR A "ONE."
2. NPR JUMPER (N1) MUST BE CUT FOR SOME 11/15 AND 11/20 SYSTEMS THAT DO NOT HAVE A KH11 OPTION; IF THE RIGHT HALF REQUEST CIRCUIT IS USED FOR NPR'S; OR IF PIN J1 IS NOT WIRED ON THE 7821 SLOT.
3. THE REQUEST INPUTS OF THE UNUSED CIRCUIT MUST BE GROUNDED.

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

FIRST USED ON OPTION MODEL

PARTS LIST

ETCH BOARD REV. D

REVISED & REDRAWN 2007 CHANGE NO. F REV.

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

SEMICONDUCTOR CONVERSION CHART

DRN.	DATE
B.W.G.	11 AUG 77
CHK'D	DATE
Wayne Eberle	8-23-77
ENG.	DATE
Mike Conn	9-23-77
PROJ. ENGR.	DATE
Mike Conn	9-23-77
PROD.	DATE

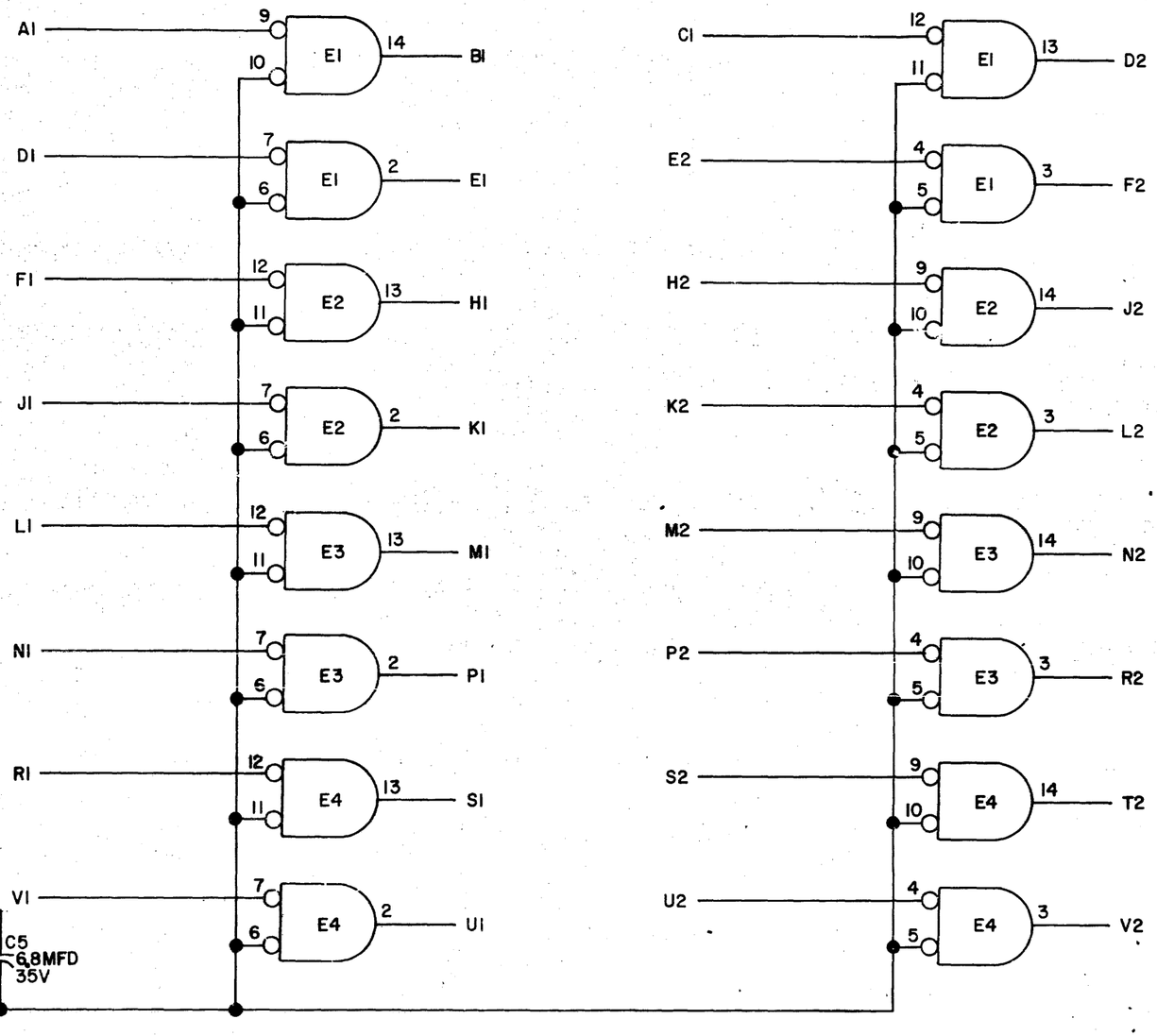
digital

TITLE
INTERRUPT CONTROL M7821

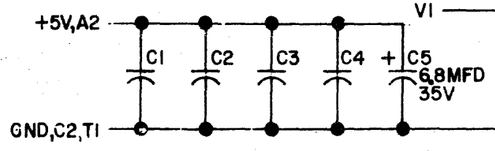
SIZE	CODE	NUMBER	REV.
D	CS	M7821-0-1	F

SCALE —
SHEET 1 OF 1
DIST.

NOTE:
FOR YA ONLY
ICs ARE DEC 384.



UNLESS OTHERWISE INDICATED:
CAPACITORS ARE .01MFD, 100V, 20%
IC'S ARE DEC 8640
PIN 1 ON EACH IC=GND
PIN 8 ON EACH IC=+5V



REVISIONS			
CHK	CHG NO	REV	
	00001	A	
	00002	B	
	00003	C	
LONDON	00004	D	
	00005	E	

DRN. G. Talbert DATE 11-1969
CHK'D. A. Antonuccio DATE 1-7-70
ENG. D. B. James DATE 1-11-70
PROD DATE

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA

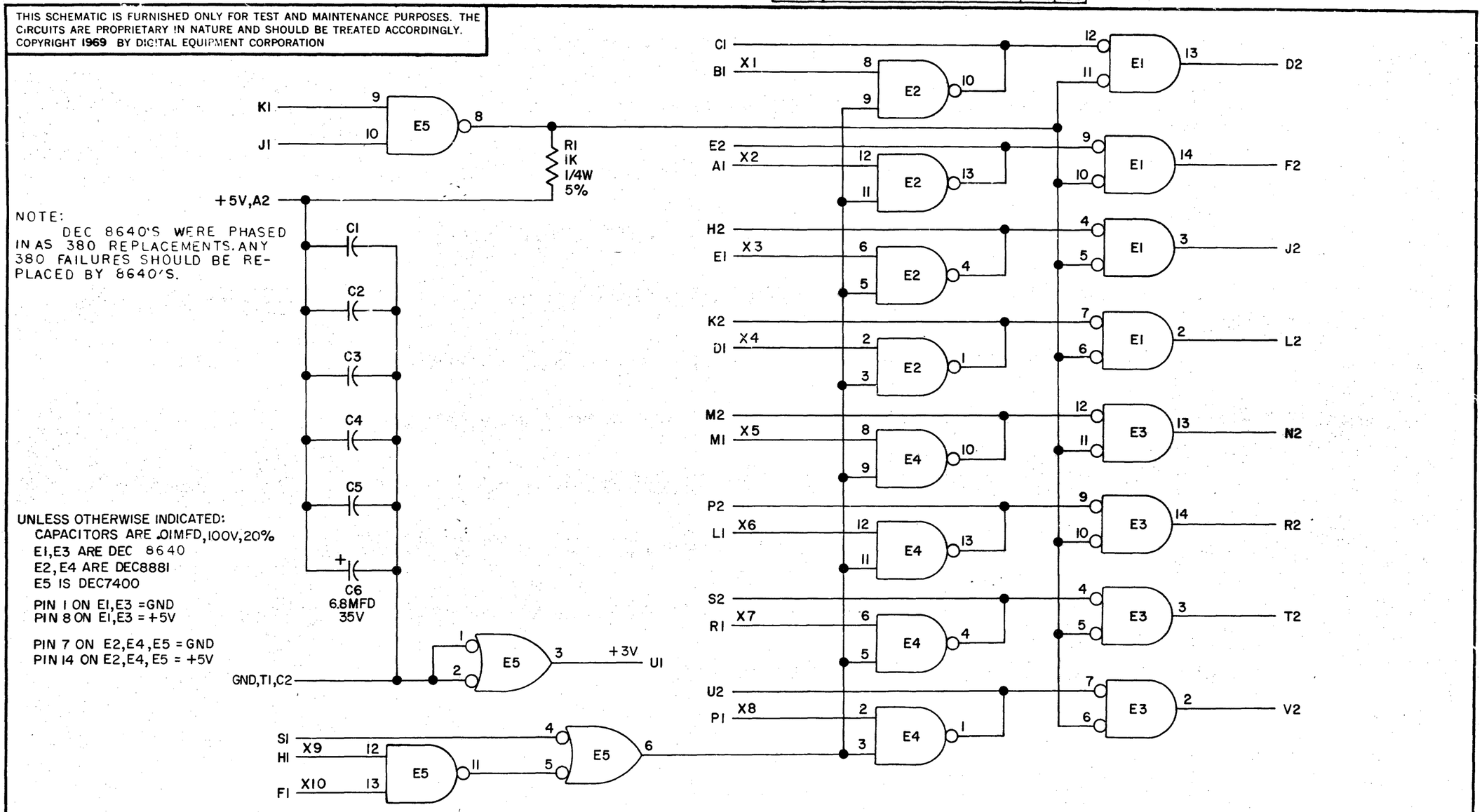
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE UNIBUS RECEIVERS
M784

SIZE	CODE	NUMBER	REV
B	CS	M784-0-1	E

PRINTED CIRCUIT REV. A B C

SIZE	CODE	NUMBER	REV
B	CS	M785-0-1	C



NOTE:
DEC 8640'S WERE PHASED IN AS 380 REPLACEMENTS. ANY 380 FAILURES SHOULD BE REPLACED BY 8640'S.

UNLESS OTHERWISE INDICATED:
CAPACITORS ARE .01MFD, 100V, 20%
E1, E3 ARE DEC 8640
E2, E4 ARE DEC8881
E5 IS DEC7400

PIN 1 ON E1, E3 = GND
PIN 8 ON E1, E3 = +5V

PIN 7 ON E2, E4, E5 = GND
PIN 14 ON E2, E4, E5 = +5V

REVISIONS	REV.	CHG NO.	
CHK	A	00001	
	B	00003	
	C	00004	

DRN.	C. Petey	DATE 11-1969
CHK'D		DATE 1-7-70
ENG.		DATE 3/11/70
PROD.		DATE

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

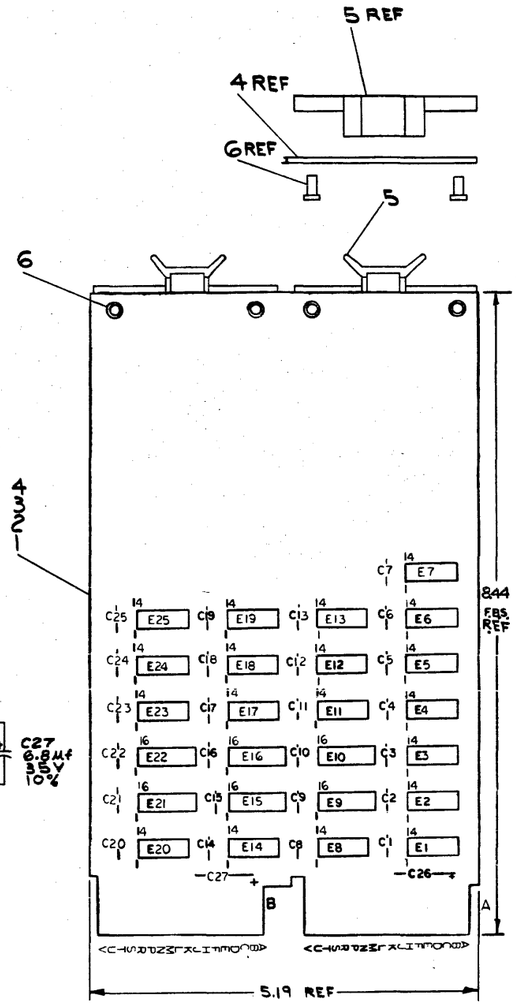
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

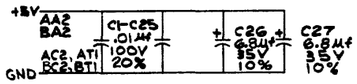
TITLE UNIBUS TRANCEIVERS M785

SIZE	CODE	NUMBER	REV.
B	CS	M785-0-1	C

PRINTED CIRCUIT REV. A B

NOTES:





REF		X-Y COORDINATE HOLE LOCATION	K-CO-M795-Ø-4	1
REF		ASS'Y/DRILLING HOLE LAYOUT	D-AH-M795-Ø-5	2
REF		MODULE ECO HISTORY	B-MH-M795-Ø-6	3
1		ETCHED CIRCUIT BOARD	5009040	4
2		HANDLE, FLIP CHIP MAGENTA	9008337-6	5
4		EYELET	9006732	6
25	C1-C25	CAP, .01 μf 100V 20% AXIAL	1001610	7
2	C26-C27	CAP, 6.8 μf 35V 10% S.TANT	1005306	8
1	E13	IC DEC 7400	1905575	9
1	E6	IC DEC 7420	1905577	10
2	E2, E3	IC DEC 8281	1909490	11
1	E25	IC DEC 7404	1909686	12
6	E9, E10, E15, E16, E21, E22	IC DEC 74193	1910018	13
1	E19	IC DEC 7437	1910091	14
1	E7	IC DEC 7408	1910155	15
12	E1, E4, E5, E8, E11, E12, E14, E17, E18, E20, E23, E24	IC DEC 8881	1909705	16

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

IC 74193	8	16
IC TYPE	GND	+ 5V

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE

IC PIN LOCATIONS

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

SEMICONDUCTOR CONVERSION CHART

FIRST USED ON OPTION MODEL: PDP11
ETCH BOARD REV: D

REV	REVISIONS	CHANGE NO.	CHK
C	M795-00003		

B. FITZGERALD 6/11/73

DRN. J. Ferguson 5-15-73
CHK'D. B. Fitzgerald 5-23-73
ENG. [illegible] 6/11/73
PROJ. ENG. [illegible] 6/11/73
PROG. [illegible] 6/12/73
NEXT HIGHER ASSY
SCALE
SHEET 1 OF 2

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: WC & CMA MODULE

SIZE D | CODE CS | NUMBER M795-Ø-1 | REV. C
DIST.

MATL CODE D CSM795-Ø-1 REV C

DEC FORM NO. DRD-135A

BT2 · 7437 E19 · AH2 · AL2 · AJ1 · AE1 · 8281 DC E3 (D3 D2 D1 DØ · R3(1) R2(1) R1(1) RØ(1) · CLR LD CLKI CLKØ) · 8881 E5 · 7420 E6 · 7404 E25 · 7400 E13 · AE2 · AB1 · AC1 · 7408 E7 · AD2 · AF2 · AM1 · AH1 · AN1 · AD1 · AF1 · 7408 E7 · AA1 · BV2 · BU2 · BU1 · AK1 · AL1 · AJ2 · AK2 · BV1

74193 E9 (D3 D2 D1 DØ · R3(1) R2(1) R1(1) RØ(1) · CRY BRW · CLR LD CUP CDN) · AM2 · AU1 · AN2 · AT2 · 8881 E11 · AP2 · AR2 · AS1 · AV1

74193 E10 · AP1 · AS2 · AR1 · BR2 · BS1

74193 E15 · AU2 · BE2 · AW2 · BF1 · 8881 E17 · BB1 · BD1 · BE1 · BK1

74193 E16 · BA1 · BD2 · BC1 · BN2 · 8881 E18

74193 E21 · BH1 · BN1 · BF2 · BL2 · 8881 E23 · BJ2 · BK2 · BL1 · BP1

74193 E22 · BJ1 · BM1 · BH2 · BM2 · BS2 · 8881 E24

BR1 · BP2

FIRST USED ON OPTION/MODEL: PDP11	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		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 5-15-73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D	DATE 5-23-73	
ENG	DATE 6/4/73	
PROJ. CODE	DATE 6/4/73	TITLE: WC & CMA MODULE
PROD.	DATE 6/6/73	
MATERIAL	NEXT HIGHER ASSY.	
FINISH	SCALE	SIZE D · CODE CS · NUMBER M795-Ø-1 · REV. C
	SHEET 2 OF 2	DIST.

V1 (ADDR DEC MSYN)-L
DI OUT LO-H
V2 BUSY-H
AI OUT HI-H

+5V, A2
C2, TI

C1 .01µf, 100V, 20%
C2 .01µf, 100V, 20%
C3 .01µf, 100V, 20%
C4 .01µf, 100V, 20%
C5 .01µf, 100V, 20%
C6 35V 6.8µf

A03 H
A02 H
A01 H

E1 START X-FER TIMING L HI

E2
SEL-7 IN L D2
SEL-6 IN L E2
SEL-5 IN L F2
SEL-4 IN L E1
SEL-3 IN L F1
SEL-2 IN L K2
SEL-1 IN L J2
SEL STATUS IN L H2

E6
8 SEL-7 OUT LO-H L2
10 SEL-6 OUT LO-H M2
12 SEL-5 OUT LO-H K1
8 SEL-4 OUT LO-H J1
10 SEL-3 OUT LO-H L1
2 SEL-2 OUT LO-H R2
6 SEL-1 OUT LO-H N1
4 SEL STATUS OUT LO-H M1

E9
4 SEL-7 OUT HI-H P2
6 SEL-6 OUT HI-H N2
8 SEL-5 OUT HI-H S2
10 SEL-4 OUT HI-H U2
12 SEL-3 OUT HI-H P1
6 SEL-2 OUT HI-H S1
4 SEL-1 OUT HI-H U1
2 SEL STATUS OUT HI-H R1

UNLESS OTHERWISE INDICATED:
CAPACITORS ARE .01µf, 100V, 20%
E1 IS A DEC74H53N
E2, E6, E9 ARE DEC825I
E3 IS A DEC7402N
E4, E5, E8 ARE DEC74H04N
E7 IS A DEC74H0N
E10 IS A DEC7400N
ON E2, E6, E9 PIN 16 = +5V
PIN 8 = GND
ON ALL OTHER IC'S PIN 14 = +5V
PIN 7 = GND

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

DRAWN Kenneth Cook 7/1/70
CHKD W. Hoover 7-27-70
ENGR R. B. Sukin 8-10-70

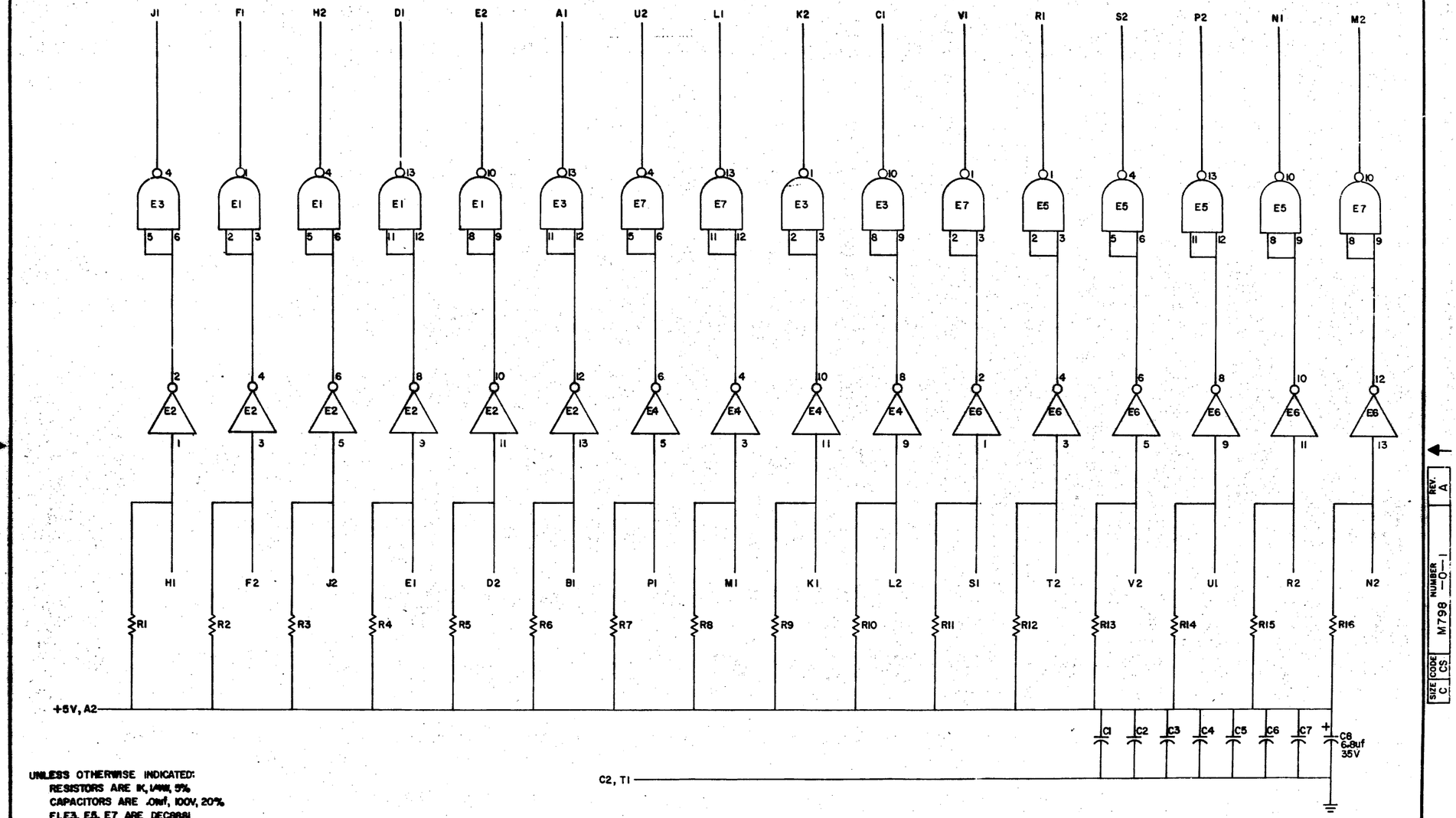
EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE REGISTER SELECT M797 MODULE
SIZE D | CODE CS | NUMBER M797 -0-1 | REV A
PRINTED CIRCUIT REV. B

DIST. 334, 434, 435

MT 72 LS 989

34



UNLESS OTHERWISE INDICATED:
RESISTORS ARE 1K, 1/4W, 5%
CAPACITORS ARE .01mf, 100V, 20%
E1, E3, E5, E7 ARE DEC8881
E2, E4, E6 ARE DEC7404

REVISIONS: ECO 6000 REV. A

DRN. [illegible] DATE 7/1/70
CHKD. D. Thomas DATE 7-28-70
ENG. D. Bisbee DATE 8/11-70
PROD. DATE

DEC FORM NO. DRC 108

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: UNIBUS DRIVER M798

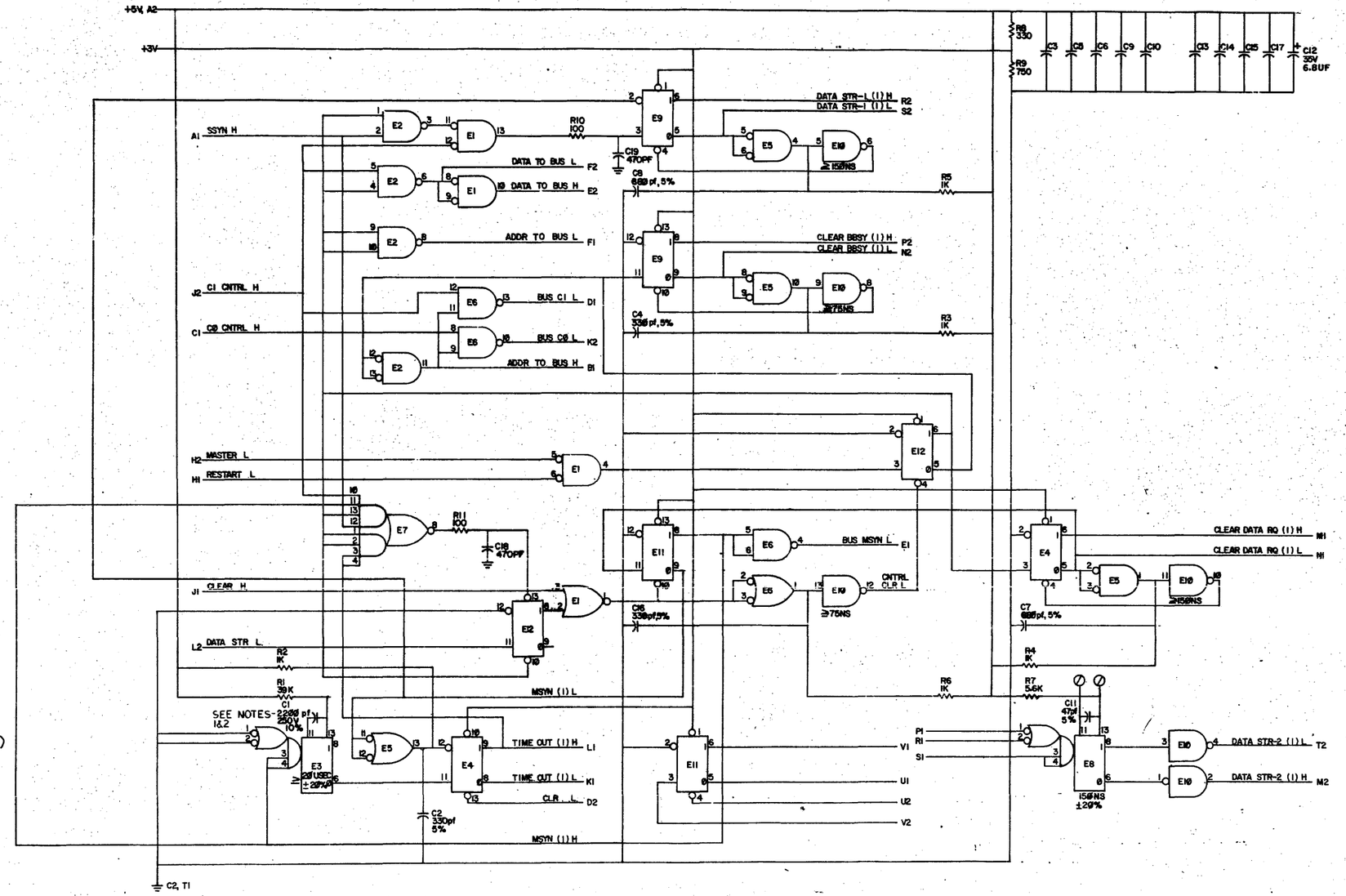
SIZE	CODE	NUMBER	REV.
C	CS	M798 -0-1	A

PRINTED CIRCUIT REV. B

SIZE C | CODE CS | NUMBER M798 -0-1 | REV. A

P1

PINK - BLUE



NOTE: 1. C1 IS CHANGED TO 5000 PF ± 20% (1001765) FOR A DELAY OF 3 μS MINIMUM WHEN USED WITH A DL 10.
2. FOR M796-YA CHANGE C1 TO 6.8 μf 35V (P/N-1000067)

UNLESS OTHERWISE INDICATED:
RESISTORS ARE 1/4W, 5%
CAPACITORS ARE .01μf, 100V, 20%
E1 IS DEC7402
E2 IS DEC7408
E3, E8 ARE DEC9601
E4, E9, E11, E12 ARE DEC7474
E5 IS DEC7451
E6 IS DEC8881
E7 IS DEC74H55
E10 IS DE7404
∅ = SPLIT LUGS

TRANSISTOR & DIODE CONVERSION CHART

EQUIPMENT CORPORATION

TITLE UNIBUS MASTER CONTROL M796

SIZE D CODE CS M796-0-1 REV E

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

Slot	Row	Module	Usage side 1	Usage side 2
1	A	M920	CABLE	
1	B		UNIBUS CONNECTOR	
2	A	M920	CABLE	
2	B		UNIBUS CONNECTOR	
3	A	M920	CABLE	
3	B		MAG TAPE CABLE CONNECTOR	
4	A	M930	TERMINATOR	
4	B		MAG TAPE CABLE TERMINATOR	
5	A	M111	CRCS, SELR, BOT, SDWN, RWS, CHAN1, CHAN 3, CHAN 5	EOT, 7 CH, WRL, CHAN Ø, CHAN 2, CHAN 4, CHAN 6, CHAN 7
5	B	M627	SET, REV, FWD	SEL 2, SEL 1, SEL Ø
6	A	M111	WD7, WD5, WD4, WD2, CHAN P, LRCS, WDØ, DEN 8	WD6, WD3, RDS, 7CH, WD1, TUR, SSYN, PEVN
6	B	M981	CABLE — KM11 MAINT PANEL CABLE CONNECTOR	
7	A	M798	UNIBUS DRIVER	
7	B	G736	PRIORITY JUMPER	
8	A	M149	D BIT 15, D BIT 14, D BIT 12, D BIT 10, D BIT 8	D BIT 13, D BIT 11, D BIT 9, D BIT 9
8	B	M149	D BIT Ø7, D BIT Ø6, D BIT Ø4, D BIT Ø2, D BIT ØØ	D BIT Ø5, D BIT Ø3, D BIT Ø1, D BIT Ø3
9	A	M105	DEVICE SELECTOR	
9	B	M784	BUS RECEIVER	
10	A	M7821	INTERRUPT CONTROL	
10	B	M785	BUS DRIVER & RECEIVER	
11	A	M796	UNIBUS MASTER CONTROL	
11	B	M797	REGISTER SELECT	
12	A	M795	WORD COUNT & CURRENT MEM ADDR	
13	A	M149	D BIT Ø7, D BIT Ø6, D BIT Ø4, D BIT Ø2, D BIT ØØ	D BIT Ø5, D BIT Ø3, D BIT Ø1, D BIT ØØ
13	B	M149	D BIT 15, D BIT 14, D BIT 12, D BIT 10, D BIT Ø8	D BIT 13, D BIT 11, D BIT Ø9, D BIT Ø8
14	A	M216	FUNC BIT 2, FUNC BIT Ø, UNIT SEL BIT 1	FUNC BIT 1, FUNC BIT 2, UNIT SEL BIT Ø
14	B	M205	NPR ENB, WDR	DATA BFR IN BIT Ø, WDR, GO STROB 2
15	A	M103	DUAL BINARY TO DEC DECODER	
15	B	M112	INIT, SEL 1 OUT, GO BIT, PAE	ENB SDWN GO, GO STROB 2, SET CUR, CRCS + LRCS, RDS & WRS
16	A	M113	DATA BFR STB 1&2, GO STROB1, WRT DATA ENB, CUR DEL	CUR DEL, DATA BFRIN BIT 1, NPR SET, INIT, INIT
16	B	M111	DIF DIR, SELR, RD STB, SET, BIT 1,3,5	SPACE REV, CHAR STB, BFR IN BIT Ø, CORE DUMP, DATA BFR IN BIT 2, 4 6
17	A	M115	ERR, ERR, SEL 2, CORE DUMP, READ STB	SET, ERR, BR INT
17	B	M121	DIF DIR, CRCS BIT, WD7	WD6, WD5, WD4
18	A	M216	UNIT SEL BIT TM2, UNIT SEL BIT TMØ, GO STROB 2	UNIT SEL BIT TM1, CUR DEL, CU READY
18	B	M216	DATA BFR STB 1, SAME TU, EOFF	DIF DIR, BR INT, ERR
19	A	M121	D BIT Ø8 IN, HI DATA BYTE, LO DATA BYTE, +3V (A19U1)	SAME TU, SAME TU, SAME TU
19	B	M113	WDR, WDR, GO STROB1, SPACE, WD1	DATA BFR IN BIT 3, GO STROB 1, GO STROB 1, WDØ, WDR
20	A	M117	NPR ENB, DATA BFR STB 1	CUR DEL, ERR, GO STROB 1
20	B	M627	WDR, INIT	INIT, BTE, INIT & GO
21	A	M239	4-BIT COUNTER	
21	B	M113	SLCT 2 OUT LO HI, SLCT 3 OUT LO, SLCT 4 OUT LO, READ STB, BTE	SLCT 3 OUT LO, SLCT 3 OUT LO, SET CUR, SET CUR
22	A	M115	RLE, SAME TU, ET ILL, PAE	CLK 2, DATA BFR IN BIT 1, WRITE ENB
22	B	M205	GO BIT, EVEN CHAR	CMA BIT ØØ, LRC ENB, WDR
23	A	M111	D BIT Ø8 IN, DØ9, DØ8, TUR, SEL 2, DATA BFR IN, DØØ, CRE	D1Ø, BGL & NXM, WDR, CUR DEL, GSD, SLCT 4 OUT HI, INIT, DATA BYTE
23	B	M127		DATA BFRIN BIT Ø, THRU, DATA BFR IN BIT 2
24	A	M216	DEN 5, INT ENB, BGL	DEN 8, BYTE CNT Ø, ILL
24	B	M127		DATA BFR IN BIT 3, THRU, DATA BFR IN BIT 5
25	A	M112	WDR, GSD, DATA BFR IN, GO STROBE 1, DATA BFRIN BIT 7	WDR, NPR ENB, CHG TU ENB, DATA BFRIN BIT 3, EOFF
25	B	M127		DATA BFR IN BIT 6, 7
26	A	M112	DATA BFR STB 2, BR INT	GO STROB 1, DATA BFRIN BIT 4, GO STROB 1, DEN 5
26	B	M111	SPACE, RDS WRS, GO STROBE 2, SLCT 1 OUT LO, A16, A17, CRCS LRCS	RD, BOT, S'CT 2 OUT LO, SET CUR, WRS, SDWN, RWS
27	A	M113	ET ILC, GO STROB1, ILC, GO STROBE 2	SEL 2, ERR, ERR, SET CUR, EVEN CHAR STB
27	B	M981	CABLE — RESERVED FOR IN HOUSE USE	
28	A	M203	CRE, PAE, GO STROB 1, GSD	RLE, BTE, BR INT
28	B	M688		
29	A	M113	CLK 2, CRE, GO STROB1, GO STROBE 1	BR INT, REV BOT, BTE, PAE, GO STROB 2
29	B	M113	ILC, BGL & NXM, CRCS BIT	PAE, WD3, WD2, BR INT
30	A	M304	CUR DEL, C INIT, BR INT, BR INT	GO STROB 2
30	B	M627	WRE, RWD, WX6	WFMK, CIN IT
31	A	M307	TIMER	
31	B	M216	PAR BIT, GO STROB 1, TIMER	DJF DIR, PEVN
32	A	M304	GO STROB 1, GO STROB 2, TIMER, LRCSD	
32	B	M113	DATA BFR IN BIT 2, BOT, SPACE REV, BR INT, CU RDY	INIT & GO, TIMER, RWD BOT, NPR SET, BTE
33–44	A, B			

REV.	CHANGE NO.	CHK.
A	TM11-00007	FRITZ 6-7-71
B	TM11-00008	FRITZ 6-30-71
C	TM11-00010	M.FRITZ 9-1-71
D	TM11-00012	M.BUCZYNSKI 1-5-72
E	TM11-00013	BUCZYNSKI 6-6-72
F	TM11-00014	BUCZYNSKI 8-11-22

FIRST USED ON OPTION/MODEL: PDP-11

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.

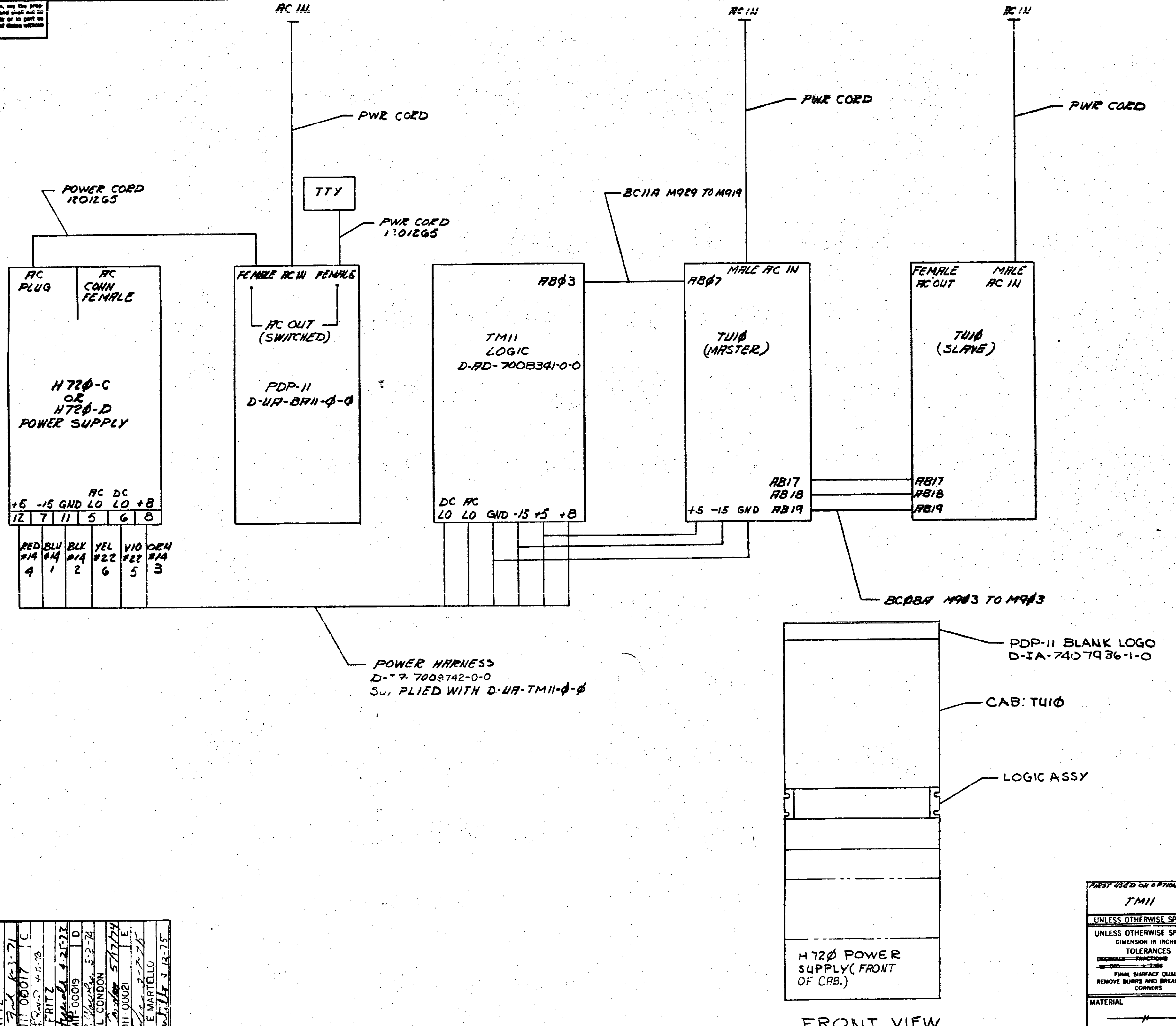
MATERIAL: — FINISH: — SCALE: NONE SHEET 1 OF 1

PROD. BE Cross DATE 5/6/71

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: MODULE UTILIZATION

SIZE D CODE MU NUMBER TM11-Ø-Ø2 REV. F



NOTES:

TU1Ø MAXIMUM CONFIGURATION:

1. MAXIUM OF 8 TRANSPORTS PER CONTROLLER.
2. TOTAL CABLE LENGTH NOT TO EXCEED 80 FEET.
3. ALL TRANSPORTS ARE TO BE BOLTED TOGETHER.
4. BC08A - 10 CABLES ARE USED TO INTERCONNECT TRANSPORTS.

REVISIONS

CHK	CHANGE NO.	REV
	TM11-00008	A
	M. Quinn 6-28-71	
	FRITZ	
	M. Fritz 6-30-71	
	TM11-00009	B
	8-2-71	
	FRITZ	
	M. Fritz 8-3-71	
	TM11-00017	C
	4-17-73	
	FRITZ	
	4-25-73	
	TM11-00019	D
	5-2-74	
	L CONDON	
	5/7/74	
	TM11-00021	E
	2-7-75	
	E. MARTELLO	
	3-12-75	

DEC FORM NO DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

FIRST USED ON OPTION/MODEL: TM11

UNLESS OTHERWISE SPECIFIED

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

MATERIAL —//—

FINISH —//—

DRN.	DATE 2/2/71
CHK'D.	DATE 4-1-71
ENG. M. Fritz	DATE 4-6-71
PROJ. ENG. M. Fritz	DATE 4-6-71
PROD.	DATE 5-7-71

NEXT HIGHER ASS'Y A-ML-TM11-A

SCALE —//—

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE MAX CONFIGURATION (TM11)

SIZE	CODE	NUMBER	REV
D	AR	TM11-Ø-24	E

DIST. G

38

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY A. FRATICELLI | CHECKED M. MacKenzie | SECTION 1
DATE 3/15/71 | DATE 3/31/71
ENG M. Fratt | PROD | ISSUED SECT. 1
DATE 5/6/71 | DATE B E Cross 5-7-71

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION
	G738	JUMPER MODULE	1
	M105	ADDRESS SELECTOR MODULE	1
	M111	INVERTER	5
	M112	NOR GATE	3
	M113	TEN 2-INPUT NAND GATES	7
	M115	EIGHT 3-INPUT NAND GATES	2
	M117	SIX 1-INPUT NAND GATES	1
	M121	AND OR GATES	2
	M127	2-2-2-3 NAD/NOR GATE	3
	M140	9X2 NAND WIRED OR MATRIX	4
	M163	DUAL BINARY TO DECIMAL DECORDER M163	1
	M203	S R/S FLIP FLOP	1
	M205	SET RESET FLIP FLOP	2
	M216	SIX FLIP FLOPS	5
	M239	THREE 4-BIT COUNTER REGISTER	1
	M304	ONE SHOT DELAY	2
	M307	INTEGRATING ONE SHOT	1
	M627	NAND POWER AMPLIFIER	3
	M7821	INTERRUPT CONTROL MODULE	1
	M784	UNIBUS RECEIVER MODULE	1
	M785	UNIBUS TRANSCEIVER MODULE	1
	M795	WORD COUNT & CURRENT MEM ADDR	1

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
MODULE UTILIZATION	D-MU-TM11-0-02	A	PL	TM11-0-02	F	TM11-00014
	SHEET 1 OF 2	DIST.				

DEC FORM NO.16-1031
DRA 110

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY A. FRATICELLI | CHECKED M. MacKenzie | SECTION 1
DATE 3/15/71 | DATE 3/31/71
ENG M. Fratt | PROD | ISSUED SECT. 1
DATE 5/6/71 | DATE B E Cross

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION
	M797	REGISTER SELECT MODULE	1
	M798	UNIBUS DRIVER	1
	M796	UNIBUS MASTER CONTROL	1
	M930	MAG TAPE CABLE TERMINATOR	1
	M688	UNIBUS POWER FAIL DRIVERS	1

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO
MODULE UTILIZATION	D-MU-TM11-0-02	A	PL	TM11-0-02	F	
	SHEET 2 OF 2	DIST.				

DEC FORM NO.16-1031
DRA 110

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ACCESSORY LIST

MADE BY K. HAMEL	CHECKED 6/13/72	SECTION
DATE 6/14/72	DATE	
ENG Michael Buczynski	PROD	ISSUED SECT.
DATE 7-16-72	DATE	

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 TM11-0							KIT CHECK BY ____ DATE ____	INSTALLATION CHECK BY ____ DATE ____
1	TM11-0	COMPLETE PRINT SET (SEE A-ML-TM11-0)	1								
2	DEC-11-HTMA-D	MAINTENANCE MANUAL	1								
3	LIB KIT-11-TM11-0	SOFTWARE KIT (SEE A-SL-TM11-0-28)	1								
4	BC11A-8	UNIBUS CABLE 8'	1								
	NOTE: THE FOLLOWING	ITEMS ARE REQUIRED FOR FIELD ADD-ONS ONLY)									
5	DEC-11-HR5A-D	H720 POWER SUPPLY ENGINEERING DRAWINGS	1								
6	DEC-11-HR5B-D	H720 POWER SUPPLY MAINTENANCE MANUAL	1								
7	MAINDEC-11-DEOGA-	GTP TAPE AND WRITE-UP (LATEST REVISION)									
	NOTE: THE FOLLOWING	ITEMS ARE REQUIRED WHEN UNIT IS NOT									
	CABINET-MOUNTED										
8	70-8288-8F	REMOTE SENSE CABLE (H720 POWER SUPPLY)	1								
9	70-7006-1	JUMPER PLUG (H720 POWER SUPPLY)	1								
10	70-7006-2	JUMPER PLUG (H720 POWER SUPPLY)	1								
11	BC[illegible]-5	MASTER INTERFACE CABLE 5'	1								
12	90-[illegible]251	MOUNTING HARDWARE	1								
13	91-7710/ 90-8849	HOOK UP WIRE	1								

TITLE	ASSY. NO.	SIZE	CODE	NUMBER	REV.	ECO NO
DEC MAGTAPE CONTROL PDP-11	D-UA-TM11-0-0	A	AL	TM11-0-26	B	TM11-00014
	SHEET OF	DIST.				

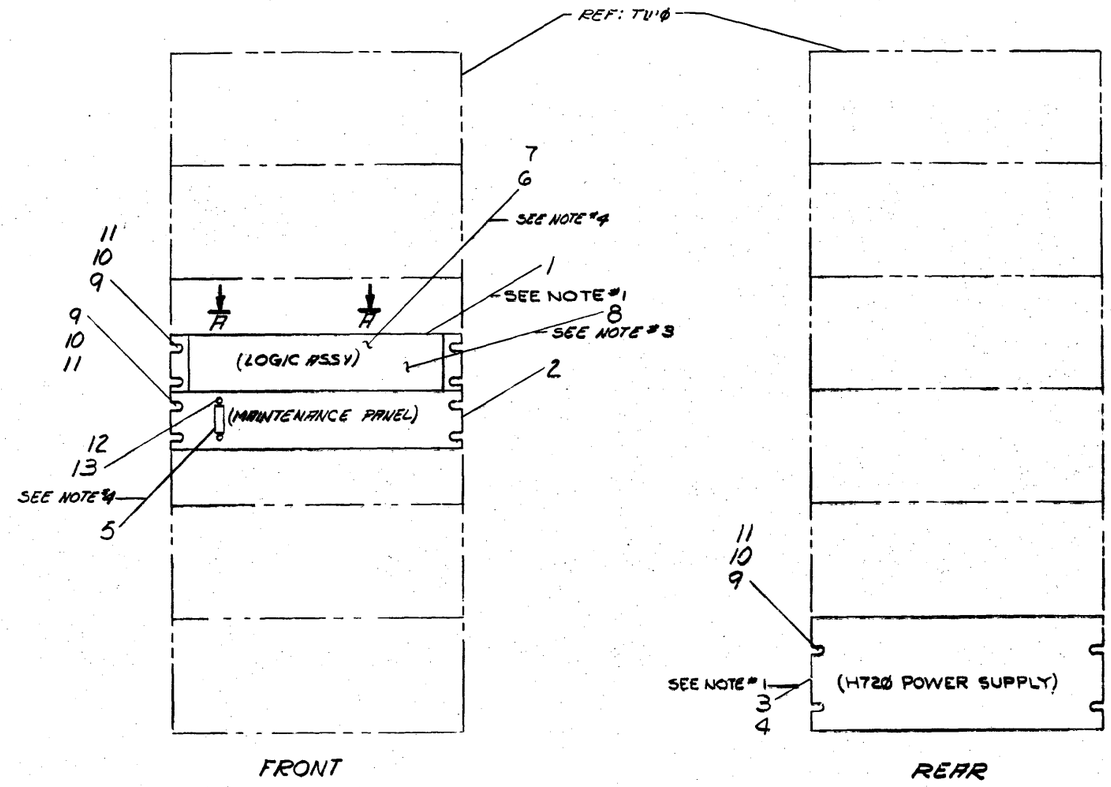
DEC 16 (325)-1075-N172 DRA 121

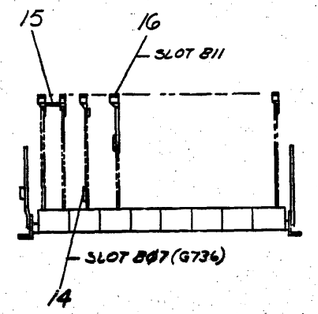
40

LEGEND	
NUMBER	VARIATION
TM11-A	115 V
TM11-B	230 V

NOTES:

1. ARRANGEMENT IN CAB TO BE DETERMINED BY SYSTEM REQUIREMENTS.
2. FOR DRAWING INDEX LIST REFER TO DWG # D-DI-TM11-Ø-1.
3. FOR MAX CONFIGURATION AND WIRING OF POWER HARNESS (ITEM # 8) REFER TO DWG # D-AR-TM11-Ø-24.
4. FOR LOCATION OF CABLES (ITEM NO'S 5, 6, & 7) REFER TO DWG # D-MU-TM11-Ø-Ø2.





VIEW A-A

REVISIONS				
CHK	CHANGE NO	REV		
	M11-00007	A	E. Goldstein	6-4-71
	M11-00009	B	E. Goldstein	6-7-71
	M11-00014	C	E. Goldstein	6-21-71
	M11-00019	D	E. Goldstein	8-11-72
	M11-00019	D	E. Goldstein	5-3-74

DEC 1 DRN NO DRD 102 A

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

PDP-11

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± FRACTIONS ± ANGLES ± 0°30' FINISH SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	A. Goldstein	DATE 5/26/71
CHK'D.	Jim Stolnack	DATE 6-1-71
ENG.	Jim Ford	DATE 6-2-71
PROJ. ENG.	Jim Ford	DATE 6-6-71
MGR.	G. E. Conlon	DATE 6-7-71

FIRST ASSEMBLY USED

APPL - TM11-A

SCALE —

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: MAG TAPE CONTROL

SIZE	CODE	NUMBER	REV.
D	UA	TM11-Ø-Ø	D

DIST.

SIZE D CODE UA NUMBER TM11-Ø-Ø

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY G. FLANDERS DATE 2/23/71	CHECKED KEN GULICK DATE 3/30/71	SECTION 1
ENG M. Fmt DATE 4-6-71	PROD BEhan DATE 5-7-71	ISSUED SECT. 1

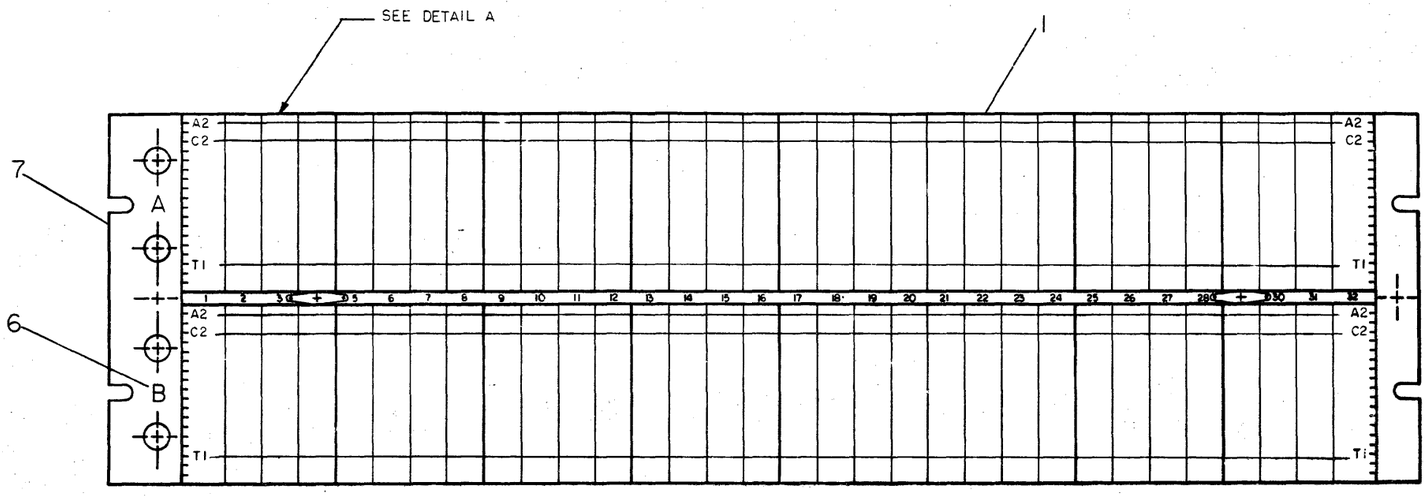
ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION TM11-A	TM11-B
1	D-IA-7008341-0-0	LOGIC ASSY (TM11)	1	1
2	D-IA-7408886-0-0	PANEL MAINTENANCE (TM11)	1	1
3	D-UA-H72Ø-C-Ø	H72Ø POWER SUPPLY	1	-
4	D-UA-H72Ø-D-Ø	H72Ø POWER SUPPLY	-	1
5	D-IA-7007222-0-0	MAINTENANCE CABLE EXTENDER ASSY	1	1
6	D-UA-BC11A-5-Ø	CABLE ASSY (BC11A)	1	1
7	D-UA-BC11A-8-Ø	CABLE ASSY (BC11A)	1	1
8	D-IA-7009742-0-0	POWER HARNESS	1	1
9	9006073-3	SCR PHL HD TRUSS #10-32 x ½ SST	12	12
10	9007786	SPEED NUT #C31758-032-27 TINN.	12	12
11	9007651	WASHER EXT TOOTH #10 HOLE	12	12
12	9006023-1	SCR PHL HD PAN #6-32 x 7/16 LG SST	2	2
13	9006560	NUT KEPS #6-32 SST	2	2
14	C-IA-5408778-0-0	PRIORITY JUMPER LEVEL #5	1	1
15	C-CS-1209856-0-01	MODULE HOLDER	8	8
16	D-SC-1209818-0-0	MODULE EXTENDER H85Ø	1	1
~~17~~	~~7406748~~	~~FILLER STRIPS FRONT~~	~~1~~	~~1~~
~~18~~	~~7406749~~	~~FILLER STRIPS REAR~~	~~1~~	~~1~~

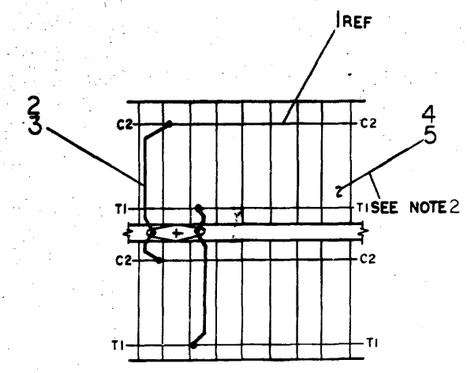
TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
MAG TAPE CONT ROL	D-UA-TM11-Ø-Ø	A	PL	TM11-Ø-Ø	D	TM11-C0019
	SHEET 1 OF 1	DIST.				

DEC FORM NO.16-1031
DRA 110

NOTES:

1. CONNECTIONS ON ITEM NUMBER 1 & 2 TO BE LOCATED AND SOLDERED AT MINIMUM PRACTICAL HEIGHT ABOVE BLOCKS.
2. USE YELLOW WIRE (ITEM #4) FOR MACHINE WRAPPED AND BLUE WIRE (ITEM #5) FOR HAND WRAPPED WIRING.





DETAIL A
2 PLACES

REVISIONS			
CHK	CHANGE NO.	REV.	
[illegible]	TM11-00020	A	1 Update [illegible] DMDON [illegible]
[illegible]	7007261-00001	B	[illegible] 2 CONDON [illegible]
[illegible]	TM11-00022	C	Copy Center 2 pcs [illegible]

FIRST USED ON OPTION/MODEL: PDP 11	QTY.	DESCRIPTION / PARTS LIST — PART NO. — ITEM NO.
DO NOT SCALE DRAWING. UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES: DECIMALS ± .005, FRACTIONS ± 1/64, ANGLES ± 0°30'. FINAL SURFACE QUALITY 125. REMOVE BURRS AND BREAK SHARP CORNERS.		
MATERIAL		
FINISH		

DRN. Mariano C. DATE 2-27-71
CHK'D. Windsor DATE 3-5-71
ENG. [illegible] DATE 3/9/71
PROJ. ENG. M. Fay DATE 3/9/71
PROD. [illegible] DATE 3-5-71
NEXT HIGHER ASSY D-IA-7008341-0-0
SCALE NONE
SHEET 1 OF 1

DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

TITLE: WIRED ASS'Y (TM11)

SIZE D | NUMBER AD-7007261-0-0 | REV. C

DIST.

43

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY M. MACKENZIE DATE 3/5/71	CHECKED M. MACKENZIE DATE 3/5/71	SECTION 1
ENG M. Mackenzie DATE 3/9/71	PROD BE Cross DATE 3-9-71	ISSUED SECT. 1

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION
1	9008428	BUS STRIP	A/R
2	9107560-01	22 AWG BUS WIRE	A/R
3	9107256-09	#22 TUBING, TEFLON, WHITE	A/R
4	9105740-44	30 AWG SOLID KYNAR INS. WIRE, YELLOW	A/R
5	9105740-66	30 AWG SOLID KYNAR INS. WIRE, BLUE	A/R
6	A-DC-7406371-0-0	LOGIC FRAME DECALS	A/R
7	D-AD-5404491-0-0	M911 MTG PANEL	1
8	A-DC-7411881-01	DECAL LOGIC ASSY.	1
9	K-WL-TM11-Ø-23	WIRE LIST	REF
10	A-WT-7007261-0	AWT REVISION STATUS	REF
11	3700040-0-0	PACKAGING INSTRUCTIONS	REF
12	9905016-4	COMPRESS-O-CARTON	A/R

TITLE: WIRED ASSY	ASSY NO.: D-AD-7007261-0-0	SIZE: A	CODE: PL	NUMBER: 7007261-0-0	REV.: C	ECO NO.: TM11-00022
	SHEET 1 OF 1	DIST.				

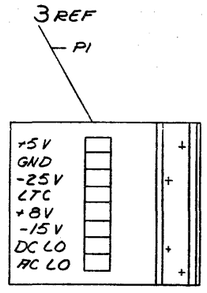
DEC FORM NO.
DRA 110

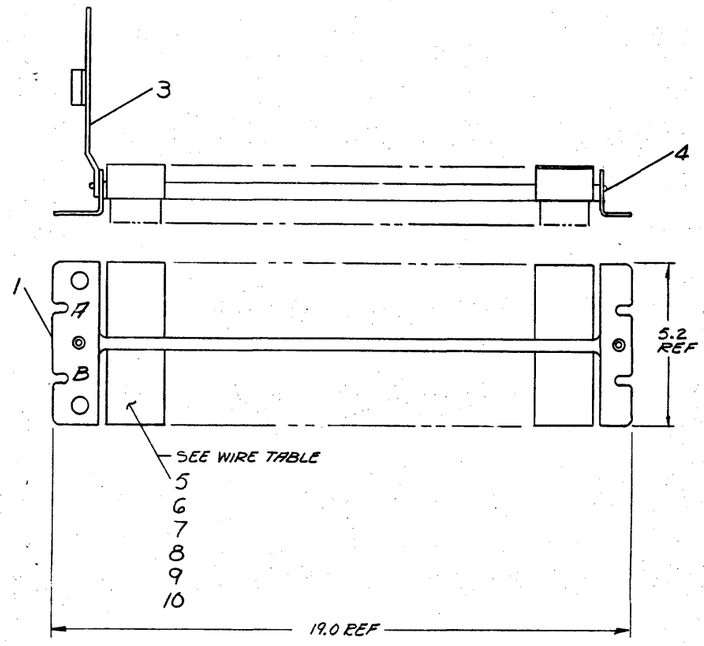
WIRE TABLE

ITEM NO	DESCRIPTION AWG	COLOR	FROM CONNECTION	WITH	TO CONNECTION	WITH
5	18	RED	P1 - +5V	SOLDER	A01A2	SOLDER
6	18	BLK	P1 - GND	↕	A01C2	↕
7	18	BLU	P1 - -15V	↕	A31B2	↕
8,9	22	YEL	P1 - ACLO	↕	B01F1	↕
8,10	22	VIO	P1 - DCLO	SOLDER	B01F2	SOLDER

EXTERNAL COMPONENT TABLE

ITEM	DESCRIPTION	FROM	TO
11	CAPACITOR	A09B1	A1IC2





REF	(AWT) WIRE REVISION	A-WF7007261-0	12
1	CAP TERMINATOR 1200PF 5% 100V	7409005	11
AR	#22 TEF THIN WALL TUBING VIO	9107256-77	10
AR	#22 TEF THIN WALL TUBING YEL	9107256-04	9
AR	#22 AWG BUS WIRE	9107560-01	8
AR	#18 AWG SOLID TEFLON INS BLU	9107696-66	7
AR	#18 AWG SOLID TEFLON INS BLK	9107696-00	6
AR	#18 AWG SOLID TEFLON INS RED	9107696-22	5
8	POP RIVET #RD44BS 2SMS	9006507	4
1	PANEL, POWER END ASSY	C-FA-5409132-0-0	3
~~1~~	~~PANEL, RIGHT END~~	~~C-FA-5409128-0-0~~	~~2~~
1	WIRER ASS'Y (TM11)	D-AD-7007261-0-0	1
QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL: TM11

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
~~DECIMALS FRACTIONS~~ ANGLES
~~THREE PLACES~~ ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

		DATE
DRN	[illegible]	3/23/71
CHK'D	[illegible]	4-1-71
ENG	M. Funk	4-6-71
PROJ. ENG.	M. Funk	4-8-71
PROD.	[illegible]	5-7-71

NEXT HIGHER ASS'Y
D-FA-7007261-0-0

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
LOGIC ASSY
(TM11)

SIZE D | CODE IA | NUMBER 7008341-0-0 | REV. B
SCALE —
SHEET 1 OF 1 | DIST

REVISIONS	REV
CHANGE NO	
M11-00007	A
M11-00020	B

CHK	
[illegible]	6-7-71
[illegible]	2-3-74

DEC FORM NO DRD 102A

DRWG NO	REVLTR
K-WL-TM11-Ø-23	T

REVISIONS				
REV LTR	ECO NO	DATE	ENG	
A	TM11-00002	4-12-71	MB	
B	TM11-00003	4-22-71	DW	
C	TM11-00004	5-12-71	DW	
D	TM11-00005	5-12-71	DW	
E	TM11-00007	6-4-71	DW	
F	TM11-00008	6-25-71	DW	
H	TM11-00009	8-2-71	DW	
J	TM11-00010	9-1-71	DW	
K	TM11-00011	12-13-71	MB	
L	TM11-00012	1-4-72	MB	
M	TM11-00013	5-25-72	MB	
N	TM11-00014	8-4-72	MB	
P	TM11-00015	12-6-72	BT	
R	TM11-00016	3-14-73	BT	
S	TM11-00018	5-23-73	BT	
T	TM11-00020	6-74	BT	

DRAWN Mary Lock / Mac Lengie	DATE 3/8/71	
CHECKED A. McAvoy	DATE 3/8/71	
ENG M. Fink	DATE 3/9/71	
PROJ ENG M. Fink	DATE 3/9/71	
PROD BE Gus	DATE 3-9-71	

digital
EQUIPMENT
CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
WIRE LIST
(TM11)

FOR TAPE* FILE*

ASSY NO	SIZE	CODE	DWG. NO.	REV LTR
D-AD-7007261-0-0	K	WL	TM11-Ø-23	T
SCALE —	SHEET 1 OF 1		DIST.	

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
+3V A16U1		A14N2		1-01 *		TM11-10			2				1
+3V A16U1		A14R1		1-02 *		TM11-10			1				1
+3V A16U1		A14U2		1-03 *		TM11-10			2				1
+3V A16U1		A16U1		1-04 *		TM11-10							1
+3V A16U1				1							8-4/8		1
+3V A19U1		A18K2		1-01 *			I		2				2
+3V A19U1		A19U1		1-02 *			R1		1				2
+3V A19U1		B31U2		1-03 *			R1						2
+3V A19U1				1							13-2/8		2
+3V A25U1		A24F2		1-01 *		TM11-08			1				3
+3V A25U1		A24D1		1-02 *		TM11-08			2				3
+3V A25U1		A24K1		1-03 *		TM11-08			1				3
+3V A25U1		A24M2		1-04 *		TM11-17			2				3
+3V A25U1		A24N2		1-05 *		TM11-17			1				3
+3V A25U1		A25U1		1-06 *		TM11-17							3
+3V A25U1				1							14-0/8		3
+3V A25V1		A24R1		1-01 *		TM11-17			1				4
+3V A25V1		A25V1		1-02 *		TM11-17							4
+3V A25V1				1							3-0/8		4
+3V B05U1		B05H1		1-01 *		TM11-07			2				5
+3V B05U1		B05E2		1-02 *		TM11-10			1				5
+3V B05U1		B05F2		1-03 *		TM11-10			2				5
+3V B05U1		B05J1		1-04 *		TM11-07			1				5
+3V B05U1		B05L2		1-05 *		TM11-10			2				5
+3V B05U1		B05R2		1-06 *		TM11-10			1				5
+3V B05U1		B05K1		1-07 *		TM11-07			2				5
+3V B05U1		B05M2		1-08 *		TM11-10			1				5
+3V B05U1		B05N2		1-09 *		TM11-10			2				5
+3V B05U1		B05U1		1-10 *		TM11-10							5
+3V B05U1				1							24-6/8		5
+3V B05V1		B05A1		1-01 *		TM11-04			2				6
+3V B05V1		B05B1		1-02 *		TM11-04			1				6
+3V B05V1		B05C1		1-03 *		TM11-04			2				6
+3V B05V1		B05S2		1-04 *		TM11-10			1				6
+3V B05V1		B05T2		1-05 *		TM11-10			2				6
+3V B05V1		B05V1		1-06 *		TM11-10			1				6
+3V B05V1		B05U2		1-07 *		TM11-10							6
+3V B05V1				1							16-6/8		6

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
+3V B14U1		A14D1		1-01 *		TM11-07			2				7
+3V B14U1		A14F2		1-02 *		TM11-07			1				7
+3V B14U1		A14K1		1-03 *		TM11-07			2				7
+3V B14U1		B14U1		1-04 *		TM11-07							7
+3V B14U1				1							11-6/8		7
+3V B14V1		A12B1		1-01 *		TM11-19			2				8
+3V B14V1		A12F1		1-02 *		TM11-18			1				8
+3V B14V1		A10D2		1-03 *		TM11-22			2				8
+3V B14V1		A11S1		1-04 *		TM11-24			1				8
+3V B14V1		B14V1		1-05 *		TM11-22							8
+3V B14V1				1							16-0/8		8
+3V B15U1		B14D1		1-01 *		TM11-11			1				9
+3V B15U1		B14P1		1-02 *		TM11-04			2				9
+3V B15U1		B15U1		1-03 *		TM11-11							9
+3V B15U1				1							6-4/8		9
+3V B19U1		B18A1		1-01 *		TM11-05			1				10
+3V B19U1		B19U1		1-02 *		TM11-05							10
+3V B19U1				1							4-4/8		10
+3V B19V1		A18D1		1-01 *		TM11-10			2				11
+3V B19V1		A18F2		1-02 *		TM11-10			1				11
+3V B19V1		A18K1		1-03 *		TM11-10			2				11
+3V B19V1		B18K2		1-04 *		TM11-17			1				11
+3V B19V1		B19V1		1-05 *		TM11-17			2				11
+3V B19V1		B20H2		1-06 *		TM11-16			1				11
+3V B19V1		B20F2		1-07 *		TM11-16			2				11
+3V B19V1		B20E2		1-08 *		TM11-16							11
+3V B19V1				1							23-6/8		11
+3V B20U1		B20J1		1-01 *		TM11-10			2				12
+3V B20U1		B20H1		1-02 *		TM11-10			1				12
+3V B20U1		B20K1		1-03 *		TM11-10			2				12
+3V B20U1		B20N1		1-04 *		TM11-16			1				12
+3V B20U1		B20P1		1-05 *		TM11-16			2				12
+3V B20U1		B20S2		1-06 *		TM11-16			1				12
+3V B20U1		B20U1		1-07 *		TM11-16			2				12
+3V B20U1		B20U2		1-08 *		TM11-16			1				12
+3V B20U1		B20R1		1-09 *		TM11-16			2				12
+3V B20U1		B20T2		1-10 *		TM11-16							12
+3V B20U1				1							23-6/8		12

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
+3V B22U1		B22D1		1-01 *		TM11-04				2				13
+3V B22U1		B22H2		1-02 *		TM11-25				1				13
+3V B22U1		B22H1		1-03 *		TM11-11				2				13
+3V B22U1		B22P2		1-04 *				I		1				13
+3V B22U1		B22U1		1-05 *		TM11-25								13
+3V B22U1				1								11-4/8		13
+3V B29U1		B29U1		1-01 *		TM11-25				1				14
+3V B29U1		B31D1		1-02 *		TM11-25								14
+3V B29U1				1								4-4/8		14
+3V B30U1		B30C1		1-01 *		TM11-07				1				15
+3V B30U1		B30D1		1-02 *		TM11-07				2				15
+3V B30U1		B30J1		1-03 *		TM11-07				1				15
+3V B30U1		B30L2		1-04 *		TM11-07				2				15
+3V B30U1		B30K1		1-05 *		TM11-07				1				15
+3V B30U1		B30M2		1-06 *		TM11-07				2				15
+3V B30U1		B30N2		1-07 *		TM11-07				1				15
+3V B30U1		B30R1		1-08 *		TM11-07				2				15
+3V B30U1		B30P1		1-09 *		TM11-07				1				15
+3V B30U1		B30U1		1-10 *		TM11-07								15
+3V B30U1				1								24-0/8		15
+3V B30V1		B30T2		1-01 *		TM11-07				2				16
+3V B30V1		B30V1		1-02 *		TM11-07				1				16
+3V B30V1		B30U2		1-03 *		TM11-07								16
+3V B30V1				1								5-2/8		16
+3V B32U1		B31R1		1-01 *				R1		1				17
+3V B32U1		B32U1		1-02 *				R1		2				17
+3V B32U1		B31N2		1-03 *				1						17
+3V B32U1				1								6-0/8		17
+8V		B06B1				TM11-03							1-PIN RUN	18
7 CH		A05E2		1-01 *		TM11-08				1			TERM HERE?	19
7 CH		B04P2		1-02 *	C	TM11-02				2			CABLE	19
7 CH		B03P2		1-03 *	C	TM11-02							CABLE	19
7 CH				1								9-0/8		19
7 CH	H	A05F2		1-01 *		TM11-08				1			TERM HERE?	20
7 CH	H	A06K2		1-02 *		TM11-08				2				20
7 CH	H	B06K1		1-03 *		TM11-12				1				20
7 CH	H	B08J1		1-04 *	C	TM11-03				2			CABLE	20
7 CH	H	A17S1		1-05 *		TM11-08							TERM HERE?	20
7 CH				1								19-2/8		20

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
7 CH	L	A06L2		1-01 *		TM11-08				2				21
7 CH	L	B19R1		1-02 *		TM11-09				1				21
7 CH	L	B19R2		1-03 *		TM11-09				2				21
7 CH	L	B25L1		1-04 *		TM11-15				1				21
7 CH	L	B25E1		1-05 *		TM11-15								21
7 CH				1								20-6/8		21
A01	H	B10N2		1-01 *		TM11-25				1				22
A01	H	B11C1		1-02 *		TM11-26								22
A01				1								3-4/8		22
A02	H	B10L2		1-01 *		TM11-25				1				23
A02	H	B11B1		1-02 *		TM11-26								23
A02				1								3-4/8		23
A03	H	B10J2		1-01 *		TM11-25				1				24
A03	H	B11B2		1-02 *		TM11-26								24
A03				1								3-2/8		24
A16	H	B10T2		1-01 *				I		1				25
A16	H	B26H2		1-02 *				I						25
A16				1								10-6/8		25
A16	L	A09E2		1-01 *				I		1				26
A16	L	B26J2		1-02 *				I						26
A16				1								12-2/8		26
A16C1		A16C1		1-01 *		TM11-15				1				27
A16C1		A20F1		1-02 *		TM11-15								27
A16C1				1								4-6/8		27
A16F2		A16F2		1-01 *		TM11-06				1				28
A16F2		A20E2		1-02 *		TM11-06								28
A16F2				1								4-2/8		28
A16K2		A16K2		1-01 *		TM11-15				1				29
A16K2		B23A1		1-02 *		TM11-15				2				29
A16K2		B23F1		1-03 *		TM11-15				1				29
A16K2		B23M1		1-04 *		TM11-15				2				29
A16K2		B24M1		1-05 *		TM11-15				1				29
A16K2		B24F1		1-06 *		TM11-15				2				29
A16K2		B24A1		1-07 *		TM11-15				1				29
A16K2		B25A1		1-08 *		TM11-15				2				29
A16K2		B25F1		1-09 *		TM11-15								29
A16K2				1								26-6/8		29

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
A16N2		A16N2		1-01 *		TM11-11				1				30
A16N2		B32R2		1-02 *		TM11-11								30
A16N2				1								11-4/8		30
A16S1		A16S1		1-01 *		TM11-06				1				31
A16S1		A20D2		1-02 *		TM11-06								31
A16S1				1								5-2/8		31
A16S2		A16S2		1-01 *		TM11-16				1				32
A16S2		A16T2		1-02 *		TM11-16								32
A16S2				1								2-4/8		32
A17	H	B10V2		1-01 *				I		1				33
A17	H	B26J1		1-02 *				I						33
A17				1								10-6/8		33
A17	L	B26K1		1-01 *				I		1				34
A17	L	A09D1		1-02 *				I						34
A17				1								12-2/8		34
A17D1		A17D1		1-01 *		TM11-17				1				35
A17D1		A27H2		1-02 *		TM11-17								35
A17D1				1								7-6/8		35
A17H2		A17H2		1-01 *		TM11-04				1				36
A17H2		B05D1		1-02 *		TM11-04								36
A17H2				1								9-4/8		36
A17J1		A17J1		1-01 *		TM11-17				1				37
A17J1		A27L2		1-02 *		TM11-17								37
A17J1				1								7-6/8		37
A17M2		A17M1		1-01 *		TM11-17				1				38
A17M2		A17M2		1-02 *		TM11-17								38
A17M2				1								3-0/8		38
A17S2		A17S2		1-01 *		TM11-11				1				39
A17S2		B29U2		1-02 *		TM11-11								39
A17S2				1								9-4/8		39
A18U1		A18U1		1-01 *		TM11-04				1				40
A18U1		A29U2		1-02 *		TM11-04								40
A18U1				1								8-0/8		40
A19E1		A19E1		1-01 *		TM11-25				1				41
A19E1		A23A1		1-02 *		TM11-25								41
A19E1				1								4-4/8		41

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
A19J2		A19J2		1-01 *		TM11-05				1				42
A19J2		A22E1		1-02 *		TM11-05								42
A19J2				1								3-6/8		42
A19P2		A19P2		1-01 *		TM11-05				1				43
A19P2		A22F1		1-02 *		TM11-05								43
A19P2				1								4-0/8		43
A19V2		A19V2		1-01 *		TM11-05				1				44
A19V2		A22H1		1-02 *		TM11-05								44
A19V2				1								4-2/8		44
A20E1		A20E1		1-01 *		TM11-11				1				45
A20E1		B14B1		1-02 *		TM11-11								45
A20E1				1								6-2/8		45
A20J2		A29B1		1-01 *						1				46
A20J2		A20J2		1-02 *		TM11-06				2				46
A20J2		B15L2		1-03 *		TM11-06								46
A20J2				1								13-4/8		46
A20P2		A20P2		1-01 *		TM11-17				1				47
A20P2		B18S2		1-02 *		TM11-17								47
A20P2				1								5-6/8		47
A20S1		A20S1		1-01 *						1				48
A20S1		A28A1		1-02 *										48
A20S1				1								7-0/8		48
A20V2		A20V2		1-01 *		TM11-04				1				49
A20V2		A32D1		1-02 *		TM11-04								49
A20V2				1								8-6/8		49
A22D1		A22D1		1-01 *		TM11-17				1				50
A22D1		A28J1		1-02 *		TM11-17								50
A22D1				1								5-4/8		50
A22H2		A22H2		1-01 *		TM11-05				1				51
A22H2		A29D1		1-02 *		TM11-05								51
A22H2				1								6-0/8		51
A22J1		A22J1		1-01 *		TM11-05				1				52
A22J1		B18J1		1-02 *		TM11-05								52
A22J1				1								6-0/8		52

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
A22M2		A16H2		1-01 *		TM11-16				1				53
A22M2		A22M2		1-02 *		TM11-16								53
A22M2				1								5-4/8		53
A22N1		A22N1		1-01 *						1				54
A22N1		A26H2		1-02 *										54
A22N1				1								4-6/8		54
A22V1		A22V1		1-01 *		TM11-17				1				55
A22V1		A28F1		1-02 *		TM11-17								55
A22V1				1								6-0/8		55
A23J2		A26D2		1-01 *						1				56
A23J2		A23J2		1-02 *		TM11-07				2				56
A23J2		A25A1		1-03 *		TM11-07								56
A23J2				1								7-4/8		56
A23L2		A16P1		1-01 *		TM11-06				1				57
A23L2		A23L2		1-02 *		TM11-06								57
A23L2				1								6-4/8		57
A24F1		A24F1		1-01 *		TM11-08				1				58
A24F1		A26T2		1-02 *		TM11-08								58
A24F1				1								4-2/8		58
A24J2		A06V1		1-01 *		TM11-08				1				59
A24J2		A24J2		1-02 *		TM11-08								59
A24J2				1								12-2/8		59
A25C1		A25C1		1-01 *		R1				2				60
A25C1		B14P2		1-02 *		R1				1				60
A25C1		B14L1		1-03 *		R1				2				60
A25C1		B22T2		1-04 *		1								60
A25C1				1								19-0/8		60
A25F1		A25F1		1-01 *		I				1				61
A25F1		A28S1		1-02 *		I								61
A25F1				1								4-2/8		61
A25F2		A25F2		1-01 *		1				1				62
A25F2		B14D2		1-02 *		1								62
A25F2				1								9-0/8		62
A25K1		A25K1		1-01 *		R1				1				63
A25K1		B20C1		1-02 *		R1								63
A25K1				1								5-6/8		63

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
A25K2		A25K2		1-01 *		TM11-11				1				64
A25K2		B14A1		1-02 *		TM11-11								64
A25K2				1								8-6/8		64
A25N1		A25N1		1-01 *			I			1				65
A25N1		B31H1		1-02 *			I							65
A25N1				1								6-2/8		65
A25S1		A25S1		1-01 *		TM11-15				1				66
A25S1		B25D2		1-02 *		TM11-15				2				66
A25S1		B25K2		1-03 *		TM11-15				1				66
A25S1		B24K2		1-04 *		TM11-15				2				66
A25S1		B24R2		1-05 *		TM11-15								66
A25S1				1								12-6/8		66
A25S2		A25S2		1-01 *		TM11-15				1				67
A25S2		B25C1		1-02 *		TM11-15				2				67
A25S2		B25J1		1-03 *		TM11-15				1				67
A25S2		B24P1		1-04 *		TM11-15				2				67
A25S2		B24J1		1-05 *		TM11-15				1				67
A25S2		B24C1		1-06 *		TM11-15				2				67
A25S2		B23C1		1-07 *		TM11-15				1				67
A25S2		B23J1		1-08 *		TM11-15				2				67
A25S2		B23P1		1-09 *		TM11-15								67
A25S2				1								24-6/8		67
A25V2		A25V2		1-01 *		TM11-17				1				68
A25V2		B18N1		1-02 *		TM11-17								68
A25V2				1								7-0/8		68
A26C1		A16D1		1-01 *		TM11-16				1				69
A26C1		A26C1		1-02 *		TM11-16								69
A26C1				1								7-2/8		69
A26F2		A26F2		1-01 *						1				70
A26F2		B20D1		1-02 *										70
A26F2				1								6-6/8		70
A26K2		A26K2		1-01 *		TM11-04				1				71
A26K2		B19M2		1-02 *		TM11-04								71
A26K2				1								7-0/8		71
A26N1		A26N1		1-01 *		TM11-11				1				72
A26N1		A28U2		1-02 *		TM11-11								72
A26N1				1								3-6/8		72

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
A26N2		A26N2		1-01 *		TM11-15		2				73
A26N2		B25F2		1-02 *		TM11-15		1				73
A26N2		B25M2		1-03 *		TM11-15		2				73
A26N2		B24N2		1-04 *		TM11-15		1				73
A26N2		B24M2		1-05 *		TM11-15		2				73
A26N2		B24T2		1-06 *		TM11-15		1				73
A26N2		B24U2		1-07 *		TM11-15						73
A26N2				1						18-2/8		73
A26S2		A26S2		1-01 *		TM11-04		1				74
A26S2		A29L1		1-02 *		TM11-04						74
A26S2				1						4-0/8		74
A27C1		A22S1		1-01 *		TM11-16		1				75
A27C1		A27C1		1-02 *		TM11-16						75
A27C1				1						5-4/8		75
A27F1		A24U2		1-01 *		TM11-16		1				76
A27F1		A27F1		1-02 *		TM11-16						76
A27F1				1						4-2/8		76
A27F2		A23L1		1-01 *		TM11-10		1				77
A27F2		A27F2		1-02 *		TM11-10						77
A27F2				1						4-6/8		77
A27K1		A20U2		1-01 *		TM11-04		1				78
A27K1		A27K1		1-02 *		TM11-04						78
A27K1				1						6-0/8		78
A27K2		A20K2		1-01 *		TM11-17		1				79
A27K2		A27K2		1-02 *		TM11-17						79
A27K2				1						5-6/8		79
A27N1		A27D1		1-01 *		TM11-16		1				80
A27N1		A27N1		1-02 *		TM11-16						80
A27N1				1						3-2/8		80
A27N2		A20L2		1-01 *		TM11-17		1				81
A27N2		A27N2		1-02 *		TM11-17						81
A27N2				1						6-0/8		81
A27S1		A31K2		1-01 *			I	1				82
A27S1		A31L2		1-02 *			I	2				82
A27S1		A27S1		1-03 *			I	1				82
A27S1		B20F1		1-04 *			I					82
A27S1				1						11-6/8		82

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
A27S2		A27S2		1-01 *			I	1				83
A27S2		B21T2		1-02 *			I					83
A27S2				1						6-4/8		83
A28P1		A28P1		1-01 *			I	1				84
A28P1		B21M2		1-02 *			I					84
A28P1				1						6-6/8		84
A28R1		A27J1		1-01 *		TM11-04		1				85
A28R1		A28R1		1-02 *		TM11-04						85
A28R1				1						3-2/8		85
A29F2		A28L2		1-01 *		TM11-11		1				86
A29F2		A29F2		1-02 *		TM11-11						86
A29F2				1						3-0/8		86
A29K1		A29K1	B30S2	1-01 *		TM11-17		1				87
A29K1		B30B2		1-02 *								87
A29K1				1						6-2/8		87
A29K2		A29K2		1-01 *			1	1				88
A29K2		B32M2		1-02 *			I					88
A29K2				1						6-0/8		88
A29N1		A28V2		1-01 *		TM11-04		1				89
A29N1		A29N1		1-02 *		TM11-04						89
A29N1				1						3-2/8		89
A29N2		A29N2		1-01 *			R1	2				90
A29N2		B20K2		1-02 *			R1	1				90
A29N2		B20L2		1-03 *			I					90
A29N2				1						10-4/8		90
A29S1		A26J2		1-01 *			R1	1				91
A29S1		A29S1		1-02 *		TM11-16						91
A29S1				1						3-6/8		91
A29S2		A22V2		1-01 *		TM11-17		1				92
A29S2		A29S2		1-02 *		TM11-17						92
A29S2				1						6-0/8		92
A29V2		A29V2		1-01 *		TM11-04		1				93
A29V2		A32E1		1-02 *		TM11-04						93
A29V2				1						4-4/8		93

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RUN NAME

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
A30H1		A20H2		1-01 *				R1			1				94
A30H1		A30H1		1-02 *				R1							94
A30H1				|								7-0/8		94
A30J1		A30J1		1-01 *							1				95
A30J1		A29H1		1-02 *											95
A30J1				|								3-0/8		95
A30L1		A1/N2		1-01 *		TM11-11					1				96
A30L1		A30L1		1-02 *		TM11-11									96
A30L1				|								8-6/8		96
A31A1		A31A1		1-01 *							1				97
A31A1		A31C1		1-02 *											97
A31A1				|								2-4/8		97
A31E2		A31E2		1-01 *							1				98
A31E2		B14R1		1-02 *											98
A31E2				|								12-4/8		98
A31H2		A32S2		1-01 *							1				99
A31H2		A32S1		1-02 *							2				99
A31H2		A31H2		1-03 *											99
A31H2				|								6-0/8		99
A31P1		A31P1		1-01 *							1				100
A31P1		A31V1		1-02 *											100
A31P1				|								3-0/8		100
A31R1		A31N1		1-01 *							2				101
A31R1		A31M1		1-02 *							1				101
A31R1		A31R1		1-03 *							2				101
A31R1		A31L1		1-04 *							1				101
A31R1		A11J2		1-05 *											101
A31R1				|								10-6/8		101
A32M1		A32M1		1-01 *		TM11-05					1				102
A32M1		B32H2		1-02 *		TM11-05					2				102
A32M1		B31N1		1-03 *		TM11-05									102
A32M1				|								8-0/8		102
AC LO	H	A25J1		1-01 *		TM11-07					1				103
AC LO	H	B10R2		1-02 *		TM11-25									103
AC LO				|								11-0/8		103

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RUN NAME

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
ADRS BIT 16	H	A21L1		1-01 *				R1			1				104
ADRS BIT 16	H	B10R1		1-02 *				R1			2				104
ADRS BIT 16	H	B08H1		1-03 *				R1			1				104
ADRS BIT 16	H	B2/E1		1-04 *				1							104
ADRS BIT 16				|								25-0/8		104
ADRS BIT 17	H	A21N2		1-01 *				R1			1				105
ADRS BIT 17	H	B08D2		1-02 *				R1			2				105
ADRS BIT 17	H	B10P1		1-03 *				R1			1				105
ADRS BIT 17	H	B2/D1		1-04 *				I							105
ADRS BIT 17				|								24-6/8		105
ADRS DEC MSYN	L	A09L2		1-01 *		TM11-21					1				106
ADRS DEC MSYN	L	B11V1		1-02 *		TM11-26									106
ADRS DEC MSYN				|								6-4/8		106
ADRS TO BUS	H	A11B1				TM11-24								1-PIN RUN	107
ADRS TO BUS	L	A11F1		1-01 *		TM11-24					1				108
ADRS TO BUS	L	B10S1		1-02 *		TM11-25					2				108
ADRS TO BUS	L	B12U2		1-03 *		TM11-18									108
ADRS TO BUS				1									10-2/8		108
B10K1		B10J1		1-01 *		TM11-25					1				109
B10K1		B10K1		1-02 *		TM11-25					2				109
B10K1		B10U1		1-03 *		TM11-14									109
B10K1				1									5-6/8		109
B12V1		B12U1		1-01 *		TM11-18					1				110
B12V1		B12V1		1-02 *		TM11-18									110
B12V1				1									2-4/8		110
B14J2		B24D2		1-01 *		TM11-15					2				111
B14J2		B23D2		1-02 *		TM11-15					1				111
B14J2		B23R2		1-03 *		TM11-15					2				111
B14J2		B23K2		1-04 *		TM11-15					1				111
B14J2		B14J2		1-05 *											111
B14J2				1									16-0/8		111
B14K2		B12B1		1-01 *							1				112
B14K2		A25L2		1-02 *							2				112
B14K2		A25R1		1-03 *							1				112
B14K2		B14K2		1-04 *											112
B14K2				|								17-6/8		112

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
B14M1		B14M1		1-01 *				R1			1				113
B14M1		B14N2		1-02 *				R1			2				113
B14M1		B20A1		1-03 *				I			1				113
B14M1		B19A1		1-04 *				I							113
B14M1				1									11-0/8		113
B14R2		B14R2		1-01 *				R1			1				114
B14R2		B19T2		1-02 *				R1							114
B14R2				1									5-0/8		114
B14U2		A32E2		1-01 *		TM11-04					1				115
B14U2		B14U2		1-02 *		TM11-04									115
B14U2				1									13-2/8		115
B15C1		B15C1		1-01 *				I			1				116
B15C1		A23S2		1-02 *				I							116
B15C1				1									7-2/8		116
B15K1		B15K1		1-01 *		TM11-04					1				117
B15K1		B22A1		1-02 *		TM11-04									117
B15K1				1									6-2/8		117
B15K2		A18R1		1-01 *		TM11-04					1				118
B15K2		B15K2		1-02 *		TM11-04									118
B15K2				1									5-0/8		118
B15N1		A28B1		1-01 *		TM11-17					1				119
B15N1		B15N1		1-02 *		TM11-17									119
B15N1				1									10-4/8		119
B16B1		B16B1		1-01 *		TM11-05					1				120
B16B1		B17A1		1-02 *		TM11-05									120
B16B1				1									2-6/8		120
B16K1		A17E2		1-01 *		TM11-04					1				121
B16K1		B16K1		1-02 *		TM11-04									121
B16K1				1									6-0/8		121
B17E1		B17E1		1-01 *		TM11-05					1				122
B17E1		B18E2		1-02 *		TM11-05									122
B17E1				1									3-0/8		122
B17J2		A06C1		1-01 *		TM11-09					1				123
B17J2		B17J2		1-02 *		TM11-09									123
B17J2				1									9-6/8		123

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
B17L1		B17L1		1-01 *				R1			1				124
B17L1		B26N1		1-02 *				R1							124
B17L1				1									7-0/8		124
B17P2		A06D1		1-01 *		TM11-09					1				125
B17P2		B17P2		1-02 *		TM11-09									125
B17P2				1									9-4/8		125
B17S1		A06A1		1-01 *		TM11-09					1				126
B17S1		B17S1		1-02 *		TM11-09									126
B17S1				1									9-6/8		126
B17V2		A06F1		1-01 *		TM11-09					1				127
B17V2		B17V2		1-02 *		TM11-09									127
B17V2				1									10-0/8		127
B18E1		A16A1		1-01 *		TM11-15					1				128
B18E1		B18E1		1-02 *		TM11-15									128
B18E1				1									6-0/8		128
B18H2		B18H2		1-01 *					I		1				129
B18H2		B15E2		1-02 *					I						129
B18H2				1									4-0/8		129
B18R2		B18R2		1-01 *		TM11-11					1				130
B18R2		B32L1		1-02 *		TM11-11									130
B18R2				1									9-2/8		130
B19C1		B22S1		1-01 *				R1			1				131
B19C1		B19C1		1-02 *				R1							131
B19C1				1									4-4/8		131
B19F1		B20B1		1-01 *				R1			1				132
B19F1		B19F1		1-02 *				R1							132
B19F1				1									3-0/8		132
B19F2		A25R2		1-01 *							1				133
B19F2		B19F2		1-02 *											133
B19F2				1									6-0/8		133
B19K1		A32D2		1-01 *		TM11-04					1				134
B19K1		B19K1		1-02 *		TM11-04									134
B19K1				1									10-6/8		134
B19K2		B19J1		1-01 *		TM11-04					1				135
B19K2		B19K2		1-02 *		TM11-04									135
B19K2				1									2-4/8		135

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
B19N2		B19J2		1-01 *				I			1				136
B19N2		B19H2		1-02 *				R1			2				136
B19N2		B19N2		1-03 *				R1							136
B19N2				1									5-4/8		136
B19S1		A06M2		1-01 *		TM11-09					1				137
B19S1		B19S1		1-02 *		TM11-09									137
B19S1				1									10-0/8		137
B19S2		A06R1		1-01 *		TM11-09					1				138
B19S2		B19S2		1-02 *		TM11-09									138
B19S2				1									10-2/8		138
B20E1		B20E1		1-01 *				I			1				139
B20E1		B19U2		1-02 *				I							139
B20E1				1									4-0/8		139
B20P2		A28T2		1-01 *				I			1				140
B20P2		B20P2		1-02 *				I							140
B20P2				1									7-4/8		140
B21S1		A17V2		1-01 *				I			1				141
B21S1		B21S1		1-02 *				I							141
B21S1				1									5-4/8		141
B21S2		B21S2		1-01 *				I			1				142
B21S2		B21U2		1-02 *				I							142
B21S2				1									2-4/8		142
B21V2		B21V2		1-01 *				I			1				143
B21V2		B26M2		1-02 *				I							143
B21V2				1									5-0/8		143
B22U2		B22U2		1-01 *				I			1				144
B22U2		B14K1		1-02 *				I							144
B22U2				1									7-0/8		144
B22V2		B22V2		1-01 *				I			1				145
B22V2		B19E1		1-02 *				I							145
B22V2				1									5-0/8		145
B23J2		B16H2		1-01 *		TM11-15					1				146
B23J2		B23J2		1-02 *		TM11-15									146
B23J2				1									6-0/8		146

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
B23P2		B16N1		1-01 *		TM11-15					1				147
B23P2		B23P2		1-02 *		TM11-15									147
B23P2				1									6-0/8		147
B23V2		B16M2		1-01 *		TM11-15					1				148
B23V2		B23V2		1-02 *		TM11-15									148
B23V2				1									6-2/8		148
B24J2		B16R1		1-01 *		TM11-15					1				149
B24J2		B24J2		1-02 *		TM11-15									149
B24J2				1									7-0/8		149
B24P2		B16P2		1-01 *		TM11-15					1				150
B24P2		B24P2		1-02 *		TM11-15									150
B24P2				1									6-2/8		150
B24V2		B16V1		1-01 *		TM11-15					1				151
B24V2		B24V2		1-02 *		TM11-15									151
B24V2				1									6-4/8		151
B25J2		B16S2		1-01 *		TM11-15					1				152
B25J2		B25J2		1-02 *		TM11-15									152
B25J2				1									7-2/8		152
B25P2		B16U2		1-01 *		TM11-15					1				153
B25P2		B25P2		1-02 *		TM11-15									153
B25P2				1									7-0/8		153
B26H1		B26H1		1-01 *				I			1				154
B26H1		B14T2		1-02 *				I							154
B26H1				1									8-4/8		154
B26N2		A20F2		1-01 *				I			1				155
B26N2		B26N2		1-02 *				I							155
B26N2				1									7-0/8		155
B26P1		B26P1		1-01 *				I			1				156
B26P1		B31C1		1-02 *				I							156
B26P1				1									5-4/8		156
B28K1		B28K1		1-01 *							1				157
B28K1		B28H1		1-02 *											157
B28K1				1									2-4/8		157
B29C1		B29C1		1-01 *							1				158
B29C1		B29H2		1-02 *											158
B29C1				1									3-0/8		158

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
B29F1		A27M1		1-01 *				I		1				159
B29F1		B29F1		1-02 *				I						159
B29F1				1								5-0/8		159
B29K1		A30D1		1-01 *		TM11-06				1				160
B29K1		B29K1		1-02 *		TM11-06								160
B29K1				1								6-0/8		160
B29K2		B29K2		1-01 *						2				161
B29K2		B29B1		1-02 *						1				161
B29K2		A29A1		1-03 *										161
B29K2				1								8-4/8		161
B29N2		A06E2		1-01 *		TM11-09				1				162
B29N2		B29N2		1-02 *		TM11-09								162
B29N2				1								15-4/8		162
B29S1		B29S1		1-01 *						1				163
B29S1		B31B1		1-02 *										163
B29S1				1								4-4/8		163
B29S2		A06J1		1-01 *		TM11-09				1				164
B29S2		B29S2		1-02 *		TM11-09								164
B29S2				1								15-4/8		164
B29V2		A29E2		1-01 *		TM11-11				1				165
B29V2		B29V2		1-02 *		TM11-11								165
B29V2				1								6-6/8		165
B31M1		A20S2		1-01 *		TM11-04				1				166
B31M1		B31M1		1-02 *		TM11-04								166
B31M1				1								8-4/8		166
B31P1		B31P1		1-01 *		TM11-05				1				167
B31P1		B31D1		1-02		TM11-05								167
B31P1				1								2-6/8		167
B31P2		B31P2		1-01 *					I	1				168
B31P2		B17D1		1-02 *					I					168
B31P2				1								10-0/8		168
B31R2		B31R2		1-01 *					I	1				169
B31R2		B17B1		1-02 *					I					169
B31R2				1								10-2/8		169

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
B31V1		A06U2		1-01 *		TM11-08				1				170
B31V1		B31V1		1-02 *		TM11-08								170
B31V1				1								16-0/8		170
B32C1		A16J2		1-01 *						1				171
B32C1		B32C1		1-02 *										171
B32C1				1								11-0/8		171
B32F1		B18L2		1-01 *						1				172
B32F1		B32F1		1-02 *										172
B32F1				1								9-2/8		172
B32K1		B16A1		1-01 *		TM11-05				2				173
B32K1		B17C1		1-02 *		TM11-05				1				173
B32K1		B32K1		1-03 *		TM11-05								173
B32K1				1								13-2/8		173
B32K2		A31S1		1-01 *		TM11-05				1				174
B32K2		A31U1		1-02 *		TM11-05				2				174
B32K2		B32K2		1-03 *		TM11-05								174
B32K2				1								7-0/8		174
B32N1		A30R1		1-01 *						1				175
B32N1		B32N1		1-02 *										175
B32N1				1								5-2/8		175
B32S1		B29H1		1-01 *		TM11-06				1				176
B32S1		B32S1		1-02 *		TM11-06								176
B32S1				1								4-2/8		176
BG IN	H	A10E1		1-01 *		TM11-22				1				177
BG IN	H	B07U2		1-02 *		TM11-02								177
BG IN				1								7-2/8		177
BG OUT	H	A10A1		1-01 *		TM11-22				1				178
BG OUT	H	B07V2		1-02 *		TM11-02								178
BG OUT				1								7-6/8		178
BGL	H	A24S1		1-01 *		TM11-17				1			TERM HERE?	179
BGL	H	A08J2		1-02 *		TM11-13				2				179
BGL	H	B06V1		1-03 *	C	TM11-03							CABLE	179
BGL				1								17-2/8		179
BGL	L	A24U1		1-01 *		TM11-17				1				180
BGL	L	B29L1		1-02 *		TM11-17								180
BGL				1								5-6/8		180

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BGL + NXM	H	A23E2		1-01 *		TM11-17			2				181
BGL + NXM	H	A25H1		1-02 *		TM11-07			1				181
BGL + NXM	H	B29N1		1-03 *		TM11-17			2				181
BGL + NXM	H	B15P1		1-04 *		TM11-17							181
BGL + NXM				1							19-4/8		181
BGL + NXM	L	A20A1		1-01 *		TM11-11			1				182
BGL + NXM	L	A23F2		1-02 *		TM11-17							182
BGL + NXM				1							4-4/8		182
BOT		A05F1		1-01 *		TM11-08			1			TERM HERE?	183
BOT		B04K2		1-02 *	C	TM11-02			2			CABLE	183
BOT		B03K2		1-03 *	C	TM11-02						CABLE	183
BOT				1							8-4/8		183
BOT	H	B26E2		1-01 *			R1		1				184
BOT	H	B32L2		1-02 *			R1		2				184
BOT	H	B32E1		1-03 *			P1		1				184
BOT	H	A05H1		1-04 *			R1		2				184
BOT	H	B08E2		1-05 *			R1		1				184
BOT	H	B06L1		1-06 *			R1						184
BOT				1							35-2/8		184
BOT	L	A30E2		1-01 *			R1		1				185
BOT	L	A30E1		1-02 *			R1		2				185
BOT	L	A29R1		1-03 *			I		1				185
BOT	L	B26F2		1-04 *			I						185
BOT				1							11-0/8		185
BR INT	H	A10H2		1-01 *			R1		1				186
BR INT	H	A10K2		1-02 *			R1		2				186
BR INT	H	A28P2		1-03 *			R1		1				186
BR INT	H	B27B2		1-04 *			I						186
BR INT				1							18-0/8		186
BR INT	L	A28M2				TM11-11						1-PIN RUN	187
BR MASTER	L	A10P2		1-01 *		TM11-22			2				188
BR MASTER	L	A10R2		1-02 *		TM11-22			1				188
BR MASTER	L	A10S2		1-03 *		TM11-22							188
BR MASTER				1							5-0/8		188
BR OUT	L	A10P1		1-01 *		TM11-22			1				189
BR OUT	L	B07J2		1-02 *		TM11-02							189
BR OUT				1							5-0/8		189

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BTE	H	A28R2		1-01 *			R1		1				190
BTE	H	A08R1		1-02 *			R1		2				190
BTE	H	B06S2		1-03 *			R1						190
BTE				1							18-0/8		190
BTE	L	A22K1		1-01 *					2				191
BTE	L	A20M2		1-02 *			R1		1				191
BTE	L	A28S2		1-03 *			R1						191
BTE				1							9-6/8		191
BUS A00	L	A12K2		1-01 *		TM11-18			2			TERM HERE?	192
BUS A00	L	A09H2		1-02 *		TM11-21			1				192
BUS A00	L	B02H2		1-03 *	C	TM11-01			2			CABLE	192
BUS A00	L	B01H2		1-04 *	C	TM11-01						CABLE	192
BUS A00				1							13-6/8		192
BUS A01	L	A12J2		1-01 *		TM11-18			2			TERM HERE?	193
BUS A01	L	B10M2		1-02 *		TM11-25			1				193
BUS A01	L	B02H1		1-03 *	C	TM11-01			2			CABLE	193
BUS A01	L	B01H1		1-04 *	C	TM11-01						CABLE	193
BUS A01				1							15-4/8		193
BUS A02	L	A12L1		1-01 *		TM11-18			2			TERM HERE?	194
BUS A02	L	B10K2		1-02 *		TM11-25			1				194
BUS A02	L	B02J2		1-03 *	C	TM11-01			2			CABLE	194
BUS A02	L	B01J2		1-04 *	C	TM11-01						CABLE	194
BUS A02				1							14-2/8		194
BUS A03	L	A12K1		1-01 *		TM11-18			2			TERM HERE?	195
BUS A03	L	B10H2		1-02 *		TM11-25			1				195
BUS A03	L	B02J1		1-03 *	C	TM11-01			2			CABLE	195
BUS A03	L	B01J1		1-04 *	C	TM11-01						CABLE	195
BUS A03				1							14-4/8		195
BUS A04	L	A12V1		1-01 *		TM11-18			2			TERM HERE?	196
BUS A04	L	A09U2		1-02 *		TM11-21			1				196
BUS A04	L	B02K2		1-03 *	C	TM11-01			2			CABLE	196
BUS A04	L	B01K2		1-04 *	C	TM11-01						CABLE	196
BUS A04				1							13-0/8		196
BUS A05	L	A12S1		1-01 *		TM11-18			2			TERM HERE?	197
BUS A05	L	A09V1		1-02 *		TM11-21			1				197
BUS A05	L	B02K1		1-03 *	C	TM11-01			2			CABLE	197
BUS A05	L	B01K1		1-04 *	C	TM11-01						CABLE	197
BUS A05				1							13-4/8		197

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BUS A06	L	A12R2		1-01 *		TM11-18		2			TERM HERE?	198
BUS A06	L	A09U1		1-02 *		TM11-21		1				198
BUS A06	L	B02L2		1-03 *	C	TM11-01		2			CABLE	198
BUS A06	L	B01L2		1-04 *	C	TM11-01					CABLE	198
BUS A06				1						13-4/8		198
BUS A07	L	A12P2		1-01 *		TM11-18		2			TERM HERE?	199
BUS A07	L	A09P2		1-02 *		TM11-21		1				199
BUS A07	L	B02L1		1-03 *	C	TM11-01		2			CABLE	199
BUS A07	L	B01L1		1-04 *	C	TM11-01					CABLE	199
BUS A07				1						13-4/8		199
BUS A08	L	A09N2		1-01 *		TM11-21		2			TERM HERE?	200
BUS A08	L	B12K1		1-02 *		TM11-18		1				200
BUS A08	L	B02M2		1-03 *	C	TM11-01		2			CABLE	200
BUS A08	L	B01M2		1-04 *	C	TM11-01					CABLE	200
BUS A08				1						15-2/8		200
BUS A09	L	A09R1		1-01 *		TM11-21		2			TERM HERE?	201
BUS A09	L	B12E1		1-02 *		TM11-18		1				201
BUS A09	L	B02M1		1-03 *	C	TM11-01		2			CABLE	201
BUS A09	L	B01M1		1-04 *	C	TM11-01					CABLE	201
BUS A09				1						15-0/8		201
BUS A10	L	A09P1		1-01 *		TM11-21		2			TERM HERE?	202
BUS A10	L	B12D1		1-02 *		TM11-18		1				202
BUS A10	L	B02N2		1-03 *	C	TM11-01		2			CABLE	202
BUS A10	L	B01N2		1-04 *	C	TM11-01					CABLE	202
BUS A10				1						15-0/8		202
BUS A11	L	A09L1		1-01 *		TM11-21		2			TERM HERE?	203
BUS A11	L	B12B1		1-02 *		TM11-18		1				203
BUS A11	L	B02N1		1-03 *	C	TM11-01		2			CABLE	203
BUS A11	L	B01N1		1-04 *	C	TM11-01					CABLE	203
BUS A11				1						15-4/8		203
BUS A12	L	A09C1		1-01 *		TM11-21		1			TERM HERE?	204
BUS A12	L	B12P1		1-02 *		TM11-18		2				204
BUS A12	L	B02P2		1-03 *	C	TM11-01		1			CABLE	204
BUS A12	L	B01P2		1-04 *	C	TM11-01					CABLE	204
BUS A12				1						16-6/8		204
BUS A13	L	A09K2		1-01 *		TM11-21		2			TERM HERE?	205
BUS A13	L	B12G1		1-02 *		TM11-18		1				205
BUS A13	L	B02P1		1-03 *	C	TM11-01		2			CABLE	205
BUS A13	L	B01P1		1-04 *	C	TM11-01					CABLE	205
BUS A13				1						16-2/8		205

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BUS A14	L	A09K1		1-01 *		TM11-21		2			TERM HERE?	206
BUS A14	L	B12K2		1-02 *		TM11-18		1				206
BUS A14	L	B02R2		1-03 *	C	TM11-01		2			CABLE	206
BUS A14	L	B01R2		1-04 *	C	TM11-01					CABLE	206
BUS A14				1						16-0/8		206
BUS A15	L	A09D2		1-01 *		TM11-21		2			TERM HERE?	207
BUS A15	L	B12J2		1-02 *		TM11-18		1				207
BUS A15	L	B02R1		1-03 *	C	TM11-01		2			CABLE	207
BUS A15	L	B01R1		1-04 *	C	TM11-01					CABLE	207
BUS A15				1						17-0/8		207
BUS A16	L	B10S2		1-01 *		R1		1				208
BUS A16	L	B02S2		1-02 *		R1		2				208
BUS A16	L	B01S2		1-03 *		R1						208
BUS A16				1						9-0/8		208
BUS A17	L	B10U2		1-01 *		R1		1				209
BUS A17	L	B02S1		1-02 *		R1		2				209
BUS A17	L	B01S1		1-03 *		R1						209
BUS A17				1						9-4/8		209
BUS AC LO	L	B01F1		1-01 *	C	TM11-01		2			CABLE	210
BUS AC LO	L	B02F1		1-02 *	C	TM11-01		1			CABLE	210
BUS AC LO	L	B10P2		1-03 *		TM11-25					TERM HERE?	210
BUS AC LO				1						9-4/8		210
BUS BBSY	L	A01P2		1-01 *	C	TM11-01		2			CABLE	211
BUS BBSY	L	A02P2		1-02 *	C	TM11-01		1			CABLE	211
BUS BBSY	L	A10D1		1-03 *		TM11-23					TERM HERE?	211
BUS BBSY				1						9-4/8		211
BUS BG 4 IN	H	B01E2		1-01 *		TM11-01		1				212
BUS BG 4 IN	H	B07S2		1-02 *		TM11-02						212
BUS BG 4 IN				1						6-0/8		212
BUS BG 4 OUT	H	B02E2		1-01 *	C	TM11-01		1			CABLE	213
BUS BG 4 OUT	H	B07T2		1-02 *		TM11-02					TERM HERE?	213
BUS BG 4 OUT				1						5-4/8		213
BUS BG 5 IN	H	B01B1		1-01 *		TM11-01		1				214
BUS BG 5 IN	H	B07P2		1-02 *		TM11-02						214
BUS BG 5 IN				1						6-0/8		214
BUS BG 5 OUT	H	B02B1		1-01 *	C	TM11-01		1			CABLE	215
BUS BG 5 OUT	H	B07R2		1-02 *		TM11-02					TERM HERE?	215
BUS BG 5 OUT				1						5-6/8		215

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BUS BG 6 IN	H	B01A1		1-01 *		TM11-01			1				216
BUS BG 6 IN	H	B07M2		1-02 *		TM11-02							216
BUS BG 6 IN				1							6-2/8		216
BUS BG 6 OUT	H	B02A1		1-01 *	C	TM11-01			1			CABLE	217
BUS BG 6 OUT	H	B07N2		1-02 *		TM11-02						TERM HERE?	217
BUS BG 6 OUT				1							5-6/8		217
BUS BG 7 IN	H	A01V1		1-01 *	C	TM11-01			1			CABLE	218
BUS BG 7 IN	H	B07K2		1-02 *		TM11-02						TERM HERE?	218
BUS BG 7 IN				1							6-2/8		218
BUS BG 7 OUT	H	A02V1		1-01 *	C	TM11-01			1			CABLE	219
BUS BG 7 OUT	H	B07L2		1-02 *		TM11-02						TERM HERE?	219
BUS BG 7 OUT				1							5-6/8		219
BUS BR 4	L	B01D2		1-01 *	C	TM11-01			2			CABLE	220
BUS BR 4	L	B02D2		1-02 *	C	TM11-01			1			CABLE	220
BUS BR 4	L	B07H2		1-03 *		TM11-02						TERM HERE?	220
BUS BR 4				1							7-6/8		220
BUS BR 5	L	B01C1		1-01 *	C	TM11-01			2			CABLE	221
BUS BR 5	L	B02C1		1-02 *	C	TM11-01			1			CABLE	221
BUS BR 5	L	B07F2		1-03 *		TM11-02						TERM HERE?	221
BUS BR 5				1							8-2/8		221
BUS BR 6	L	A01U2		1-01 *	C	TM11-01			2			CABLE	222
BUS BR 6	L	A02U2		1-02 *	C	TM11-01			1			CABLE	222
BUS BR 6	L	B07E2		1-03 *		TM11-02						TERM HERE?	222
BUS BR 6				1							8-2/8		222
BUS BR 7	L	A01T2		1-01 *	C	TM11-01			2			CABLE	223
BUS BR 7	L	A02T2		1-02 *	C	TM11-01			1			CABLE	223
BUS BR 7	L	B07D2		1-03 *		TM11-02						TERM HERE?	223
BUS BR 7				1							8-2/8		223
BUS C0	L	A11K2		1-01 *		TM11-24			2			TERM HERE?	224
BUS C0	L	A09J2		1-02 *		TM11-21			1				224
BUS C0	L	B02U2		1-03 *	C	TM11-01			2			CABLE	224
BUS C0	L	B01U2		1-04 *	C	TM11-01						CABLE	224
BUS C0				1							13-6/8		224
BUS C1	L	A11D1		1-01 *		TM11-24			2			TERM HERE?	225
BUS C1	L	A09F2		1-02 *		TM11-21			1				225
BUS C1	L	B02T2		1-03 *	C	TM11-01			2			CABLE	225
BUS C1	L	B01T2		1-04 *	C	TM11-01						CABLE	225
BUS C1				1							13-6/8		225

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BUS D00	L	A01C1		1-01 *	C	TM11-01			2			CABLE	226
BUS D00	L	A02C1		1-02 *	C	TM11-01			1			CABLE	226
BUS D00	L	A07U2		1-03 *		TM11-12			2				226
BUS D00	L	B09U2		1-04 *		TM11-12						TERM HERE?	226
BUS D00				1							14-0/8		226
BUS D01	L	A01D2		1-01 *	C	TM11-01			2			CABLE	227
BUS D01	L	A02D2		1-02 *	C	TM11-01			1			CABLE	227
BUS D01	L	A07S2		1-03 *		TM11-12			2				227
BUS D01	L	B09S2		1-04 *		TM11-12						TERM HERE?	227
BUS D01				1							13-4/8		227
BUS D02	L	A01D1		1-01 *	C	TM11-01			2			CABLE	228
BUS D02	L	A02D1		1-02 *	C	TM11-01			1			CABLE	228
BUS D02	L	A07P2		1-03 *		TM11-12			2				228
BUS D02	L	A10E2		1-04 *		TM11-22			1				228
BUS D02	L	B09P2		1-05 *		TM11-12						TERM HERE?	228
BUS D02				1							18-6/8		228
BUS D03	L	A01E2		1-01 *	C	TM11-01			2			CABLE	229
BUS D03	L	A02E2		1-02 *	C	TM11-01			1			CABLE	229
BUS D03	L	A07M2		1-03 *		TM11-12			2				229
BUS D03	L	A10L1		1-04 *		TM11-22			1				229
BUS D03	L	B09M2		1-05 *		TM11-12						TERM HERE?	229
BUS D03				1							17-2/8		229
BUS D04	L	A01E1		1-01 *	C	TM11-01			2			CABLE	230
BUS D04	L	A02E1		1-02 *	C	TM11-01			1			CABLE	230
BUS D04	L	A07K2		1-03 *		TM11-12			2				230
BUS D04	L	A10N2		1-04 *		TM11-22			1				230
BUS D04	L	B09K2		1-05 *		TM11-12						TERM HERE?	230
BUS D04				1							17-2/8		230
BUS D05	L	A01F2		1-01 *	C	TM11-01			2			CABLE	231
BUS D05	L	A02F2		1-02 *	C	TM11-01			1			CABLE	231
BUS D05	L	A07H2		1-03 *		TM11-12			2				231
BUS D05	L	A10F1		1-04 *		TM11-22			1				231
BUS D05	L	B09H2		1-05 *		TM11-12						TERM HERE?	231
BUS D05				1							16-6/8		231
BUS D06	L	A01F1		1-01 *	C	TM11-01			2			CABLE	232
BUS D06	L	A02F1		1-02 *	C	TM11-01			1			CABLE	232
BUS D06	L	A07E2		1-03 *		TM11-12			2				232
BUS D06	L	A10F2		1-04 *		TM11-22			1				232
BUS D06	L	B09E2		1-05 *		TM11-12						TERM HERE?	232
BUS D06				1							17-0/8		232

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BUS D07	L	A01G2		1-01 #	C	TM11-01			2			CABLE	233
BUS D07	L	A02H2		1-02 #	C	TM11-01			1			CABLE	233
BUS D07	L	A10H1		1-03 #		TM11-22			2				233
BUS D07	L	A07V1		1-04 #		TM11-12			1				233
BUS D07	L	B09C1		1-05 #		TM11-12						TERM HERE?	233
BUS D07				1							16-4/8		233
BUS D08	L	A01H1		1-01 #	C	TM11-01			2			CABLE	234
BUS D08	L	A02H1		1-02 #	C	TM11-01			1			CABLE	234
BUS D08	L	A07R1		1-03 #		TM11-13			2				234
BUS D08	L	A10K1		1-04 #					1				234
BUS D08	L	B09V1		1-05 #		TM11-13						TERM HERE?	234
BUS D08				1							18-4/8		234
BUS D09	L	A01J2		1-01 #	C	TM11-01			2			CABLE	235
BUS D09	L	A02J2		1-02 #	C	TM11-01			1			CABLE	235
BUS D09	L	A07N1		1-03 #		TM11-13			2				235
BUS D09	L	B09R1		1-04 #		TM11-13						TERM HERE?	235
BUS D09				1							13-2/8		235
BUS D10	L	A01J1		1-01 #	C	TM11-01			2			CABLE	236
BUS D10	L	A02J1		1-02 #	C	TM11-01			1			CABLE	236
BUS D10	L	A07L1		1-03 #		TM11-13			2				236
BUS D10	L	B09N1		1-04 #		TM11-13						TERM HERE?	236
BUS D10				1							13-4/8		236
BUS D11	L	A01K2		1-01 #	C	TM11-01			2			CABLE	237
BUS D11	L	A02K2		1-02 #	C	TM11-01			1			CABLE	237
BUS D11	L	A07J1		1-03 #		TM11-13			2				237
BUS D11	L	B09L1		1-04 #		TM11-13						TERM HERE?	237
BUS D11				1							13-2/8		237
BUS D12	L	A01K1		1-01 #	C	TM11-01			2			CABLE	238
BUS D12	L	A02K1		1-02 #	C	TM11-01			1			CABLE	238
BUS D12	L	A07F1		1-03 #		TM11-13			2				238
BUS D12	L	B09J1		1-04 #		TM11-13						TERM HERE?	238
BUS D12				1							13-6/8		238
BUS D13	L	A01L2		1-01 #	C	TM11-01			2			CABLE	239
BUS D13	L	A02L2		1-02 #	C	TM11-01			1			CABLE	239
BUS D13	L	A07D1		1-03 #		TM11-13			2				239
BUS D13	L	B09F1		1-04 #		TM11-13						TERM HERE?	239
BUS D13				1							13-4/8		239

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BUS D14	L	A01L1		1-01 #	C	TM11-01			2			CABLE	240
BUS D14	L	A02L1		1-02 #	C	TM11-01			1			CABLE	240
BUS D14	L	A07C1		1-03 #		TM11-13			2				240
BUS D14	L	B09D1		1-04 #		TM11-13						TERM HERE?	240
BUS D14				1							13-4/8		240
BUS D15	L	A01M2		1-01 #	C	TM11-01			2			CABLE	241
BUS D15	L	A02M2		1-02 #	C	TM11-01			1			CABLE	241
BUS D15	L	A07A1		1-03 #		TM11-13			2				241
BUS D15	L	B09A1		1-04 #		TM11-13						TERM HERE?	241
BUS D15				1							13-4/8		241
BUS DC LO	L	B01F2		1-01 #	C	TM11-01			1			CABLE	242
BUS DC LO	L	B02F2		1-02 #	C	TM11-01						CABLE	242
BUS DC LO				1							2-6/8		242
BUS INIT	L	A01A1		1-01 #	C	TM11-01			2			CABLE	243
BUS INIT	L	A02A1		1-02 #	C	TM11-01			1			CABLE	243
BUS INIT	L	B10C1		1-03 #		TM11-25						TERM HERE?	243
BUS INIT				1							10-2/8		243
BUS INTR	L	A01B1		1-01 #	C	TM11-01			2			CABLE	244
BUS INTR	L	A02B1		1-02 #	C	TM11-01			1			CABLE	244
BUS INTR	L	A10M1		1-03 #		TM11-22						TERM HERE?	244
BUS INTR				1							9-4/8		244
BUS MSYN	L	A11E1		1-01 #		TM11-24			2			TERM HERE?	245
BUS MSYN	L	A09E1		1-02 #		TM11-21			1				245
BUS MSYN	L	B02V1		1-03 #	C	TM11-01			2			CABLE	245
BUS MSYN	L	B01V1		1-04 #	C	TM11-01						CABLE	245
BUS MSYN				1							14-2/8		245
BUS NPG IN	H	A01U1		1-01 #	C	TM11-01			1			CABLE	246
BUS NPG IN	H	A10B1		1-02 #		TM11-23						TERM HERE?	246
BUS NPG IN				1							7-6/8		246
BUS NPG OUT	H	A02U1		1-01 #	C	TM11-01			1			CABLE	247
BUS NPG OUT	H	A10V2		1-02 #		TM11-23						TERM HERE?	247
BUS NPG OUT				1							6-6/8		247
BUS NPR	L	A01S2		1-01 #	C	TM11-01			2			CABLE	248
BUS NPR	L	A02S2		1-02 #	C	TM11-01			1			CABLE	248
BUS NPR	L	A10U2	A10J1	1-03 #		TM11-23			2				248
BUS NPR	L	A10J1		1-04 #								TERM HERE?	248
BUS NPR				1							12-6/8		248

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RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BUS PA	L	A01M1		1-01 *	C	TM11-01		1			CABLE	249
BUS PA	L	A02M1		1-02 *	C	TM11-01					CABLE	249
BUS PA				1						2-6/8		249
BUS PB	L	A01N2		1-01 *	C	TM11-01		1			CABLE	250
BUS PB	L	A02N2		1-02 *	C	TM11-01					CABLE	250
BUS PB				1						2-6/8		250
BUS SACK	L	A01R2		1-01 *	C	TM11-01		2			CABLE	251
BUS SACK	L	A02R2		1-02 *	C	TM11-01		1			CABLE	251
BUS SACK	L	A10T2		1-03 *		TM11-22					TERM HERE?	251
BUS SACK				1						9-2/8		251
BUS SSYN	L	A09J1		1-01 *		TM11-21		2			TERM HERE?	252
BUS SSYN	L	B10E2		1-02 *		TM11-25		1				252
BUS SSYN	L	B02U1		1-03 *	C	TM11-01		2			CABLE	252
BUS SSYN	L	B01U1		1-04 *	C	TM11-01					CABLE	252
BUS SSYN				1						15-0/8		252
CARRY OUT 2	L	A24L2		1-01 *		TM11-17		2				253
CARRY OUT 2	L	A24K2		1-02 *		TM11-06		1				253
CARRY OUT 2	L	B12S2		1-03 *		TM11-19						253
CARRY OUT 2				1						12-2/8		253
CARRY OUT 3	H	A23P1		1-01 *				1				254
CARRY OUT 3	H	A21H2		1-02 *		TM11-20						254
CARRY OUT 3				1						3-4/8		254
CARRY OUT 3	L	A23N1		1-01 *				1				255
CARRY OUT 3	L	B12P2		1-02 *		TM11-18						255
CARRY OUT 3				1						9-0/8		255
CHAN 0	H	A05L2		1-01 *			R1	2				256
CHAN 0	H	A13R1		1-02 *			R1	1				256
CHAN 0	H	B23E2		1-03 *			R1	2				256
CHAN 0	H	B24L2		1-04 *			R1	1				256
CHAN 0	H	B27S1		1-05 *			I					256
CHAN 0				1						21-4/8		256
CHAN 1	H	A05P1		1-01 *			R1	2				257
CHAN 1	H	A13M2		1-02 *			R1	1				257
CHAN 1	H	B24L2		1-03 *			R1	2				257
CHAN 1	H	B24S2		1-04 *			R1	1				257
CHAN 1	H	B27R1		1-05 *			I					257
CHAN 1				1						22-2/8		257

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RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
CHAN 2	H	A05N2		1-01 *			R1	2				258
CHAN 2	H	A13M1		1-02 *			R1	1				258
CHAN 2	H	B25E2		1-03 *			R1	2				258
CHAN 2	H	B24S2		1-04 *			R1	1				258
CHAN 2	H	B27P1		1-05 *			I					258
CHAN 2				1						23-6/8		258
CHAN 3	H	A05S1		1-01 *			R1	2				259
CHAN 3	H	A13J2		1-02 *			R1	1				259
CHAN 3	H	B24E2		1-03 *			R1	2				259
CHAN 3	H	B25L2		1-04 *			R1	1				259
CHAN 3	H	B27N1		1-05 *			I					259
CHAN 3				1						22-2/8		259
CHAN 4	H	A05R2		1-01 *			R1	2				260
CHAN 4	H	A13J1		1-02 *			R1	1				260
CHAN 4	H	B24L1		1-03 *			R1	2				260
CHAN 4	H	B27M1		1-04 *			I					260
CHAN 4				1						19-2/8		260
CHAN 5	H	A05U1		1-01 *			R1	2				261
CHAN 5	H	A13E2		1-02 *			R1	1				261
CHAN 5	H	B24S1		1-03 *			R1	2				261
CHAN 5	H	B27L1		1-04 *			I					261
CHAN 5				1						20-6/8		261
CHAN 6	H	A05T2		1-01 *			R1	2				262
CHAN 6	H	A13E1		1-02 *			R1	1				262
CHAN 6	H	B25H2		1-03 *			R1	2				262
CHAN 6	H	B27K1		1-04 *			I					262
CHAN 6				1						19-4/8		262
CHAN 7	H	A05V2		1-01 *			R1	2				263
CHAN 7	H	A13D1		1-02 *			R1	1				263
CHAN 7	H	B25N2		1-03 *			R1	2				263
CHAN 7	H	B27J1		1-04 *			I					263
CHAN 7				1						20-4/8		263
CHAN P	H	A06M1		1-01 *			R1	1				264
CHAN P	H	B13R1		1-02 *			R1	2				264
CHAN P	H	B17H1		1-03 *			R1	1				264
CHAN P	H	B27H1		1-04 *			I					264
CHAN P				1						19-0/8		264

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
CHG TU ENB	L	A17K1		1-01 *				I		1				265
CHG TU ENB	L	A25N2		1-02 *				I		2				265
CHG TU ENB	L	B32P1		1-03 *				I						265
CHG TU ENB				1								13-6/8		265
CINIT		A03P2		1-01 *	C	TM11-02				2			CABLE	266
CINIT		A04P2		1-02 *	C	TM11-02				1			CABLE	266
CINIT		B30V2		1-03 *		TM11-07							TERM HERE?	266
CINIT				1								19-6/8		266
CLK 2	H	A12C1		1-01 *		TM11-19				1				267
CLK 2	H	A29F1		1-02 *		TM11-05								267
CLK 2				1								11-2/8		267
CLK UNIT SEL	L	A18B1		1-01 *				I		2				268
CLK UNIT SEL	L	A18D2		1-02 *				I		1				268
CLK UNIT SEL	L	A23N1		1-03 *				I						268
CLK UNIT SEL				1								18-4/8		268
CLR DATA RQ	H	A11M1				TM11-24							1-PIN RUN	269
CLR DATA RQ	L	A11N1				TM11-24							1-PIN RUN	270
CMA BIT 00	H	A19F1		1-01 *		TM11-25				1				271
CMA BIT 00	H	B22J2		1-02 *		TM11-25								271
CMA BIT 00				1								6-0/8		271
CMA BIT 00	L	A19N1		1-01 *		TM11-25				2				272
CMA BIT 00	L	A25P2		1-02 *		TM11-15				1				272
CMA BIT 00	L	A22J2		1-03 *		TM11-15				2				272
CMA BIT 00	L	B22F2		1-04 *		TM11-25				1				272
CMA BIT 00	L	B22K2		1-05 *		TM11-25								272
CMA BIT 00				1								17-2/8		272
CORE DUMP	H	A27T2		1-01 *		TM11-09				1				273
CORE DUMP	H	A26M2		1-02 *		TM11-15				2				273
CORE DUMP	H	A26U2		1-03 *		TM11-08				1				273
CORE DUMP	H	B16L2		1-04 *		TM11-08								273
CORE DUMP				1								14-2/8		273

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
CORE DUMP	L	A17U1		1-01 *		TM11-08				1				274
CORE DUMP	L	B16K2		1-02 *		TM11-08				2				274
CORE DUMP	L	B19D1		1-03 *		TM11-07				1				274
CORE DUMP	L	A25P1		1-04 *		TM11-15				2				274
CORE DUMP	L	B29M2		1-05 *		TM11-09				1				274
CORE DUMP	L	B29R2		1-06 *		TM11-09								274
CORE DUMP				1								22-6/8		274
CRCE		A23V1		1-01 *		TM11-17				1			TERM HERE?	275
CRCE		B04S2		1-02 *	C	TM11-02				2			CABLE	275
CRCE		B03S2		1-03 *	C	TM11-02							CABLE	275
CRCE				1								15-4/8		275
CRCE	H	A20N1	A20M1	1-01 *						1				276
CRCE	H	A20M1		1-02 *						2				276
CRCE	H	A23U1		1-03 *		TM11-17								276
CRCE				1								6-6/8		276
CRCS		A05A1		1-01 *		TM11-08				1			TERM HERE?	277
CRCS		B04E2		1-02 *	C	TM11-02				2			CABLE	277
CRCS		B03E2		1-03 *	C	TM11-02							CABLE	277
CRCS				1								8-4/8		277
CRCS	H	A05B1		1-01 *		TM11-08				1				278
CRCS	H	B15P2		1-02 *			R1							278
CRCS				1								9-2/8		278
CRCS + LRCS	H	B26U1		1-01 *				I		1				279
CRCS + LRCS	H	B17F1		1-02 *				I						279
CRCS + LRCS				1								7-2/8		279
CRCS + LRCS	L	B26V1		1-01 *				I		1				280
CRCS + LRCS	L	B17J1		1-02 *				I		2				280
CRCS + LRCS	L	B15S2		1-03 *				I		1				280
CRCS + LRCS	L	A20D1		1-04 *				I		2				280
CRCS + LRCS	L	A22A1		1-05 *				I						280
CRCS + LRCS				1								22-0/8		280
CRE	H	A28C1		1-01 *			R1			1				281
CRE	H	A08E2		1-02 *			R1			2				281
CRE	H	B06D1		1-03 *			R1							281
CRE				1								17-6/8		281
CRE	L	A17C1		1-01 *		TM11-17				1				282
CRE	L	A28H1		1-02 *		TM11-17								282
CRE				1								8-0/8		282

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
CU READY	H	A18V2		1-01 *		TM11-06				1			TERM HERE?	283
CU READY	H	B08A1		1-02 *	C	TM11-03				2			CABLE	283
CU READY	H	B06D2		1-03 *		TM11-12							TERM HERE?	283
CU READY				1								11-2/8		283
CU READY	L	A18V1		1-01 *			R1			2				284
CU READY	L	B18M2		1-02 *			R1			1				284
CU READY	L	B22D2		1-03 *			R1							284
CU READY				1								9-0/8		284
CUR DEL	H	A18P2		1-01 *			R1			2				285
CUR DEL	H	B21L2		1-02 *			R1			1				285
CUR DEL	H	A26N1	A26E2	1-03 *			I			2				285
CUR DEL	H	A26E2		1-04 *										285
CUR DEL				1								15-6/8		285
CUR DEL	L	A18R2		1-01 *		TM11-06				1				286
CUR DEL	L	A2/E1		1-02 *		TM11-16				2				286
CUR DEL	L	B29J1		1-03 *		TM11-06								286
CUR DEL				1								13-0/8		286
D BIT 00	L	A12E1		1-01 *		TM11-12				2				287
D BIT 00	L	A13S1		1-02 *		TM11-14				1				287
D BIT 00	L	A07P1		1-03 *		TM11-12				2				287
D BIT 00	L	B08S1		1-04 *		TM11-18								287
D BIT 00				1								14-6/8		287
D BIT 01	L	A13N2		1-01 *		TM11-14				2				288
D BIT 01	L	A12J1		1-02 *		TM11-18				1				288
D BIT 01	L	A07V2		1-03 *		TM11-12				2				288
D BIT 01	L	B08N2		1-04 *		TM11-12								288
D BIT 01				1								13-0/8		288
D BIT 02	L	A12L2		1-01 *		TM11-18				1				289
D BIT 02	L	A13N1		1-02 *		TM11-14				2				289
D BIT 02	L	A07U1		1-03 *		TM11-12				1				289
D BIT 02	L	B08N1		1-04 *		TM11-12								289
D BIT 02				1								13-2/8		289
D BIT 03	L	A13K2		1-01 *		TM11-14				2				290
D BIT 03	L	A12H2		1-02 *		TM11-18				1				290
D BIT 03	L	A07N2		1-03 *		TM11-12				2				290
D BIT 03	L	B08K2		1-04 *		TM11-12								290
D BIT 03				1								13-0/8		290

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
D BIT 04	L	A07K1		1-01 *		TM11-12				2				291
D BIT 04	L	A13K1		1-02 *		TM11-14				1				291
D BIT 04	L	B12R2		1-03 *		TM11-18				2				291
D BIT 04	L	B08K1		1-04 *		TM11-12								291
D BIT 04				1								16-0/8		291
D BIT 05	L	A13F2		1-01 *		TM11-14				2				292
D BIT 05	L	A12R1		1-02 *		TM11-18				1				292
D BIT 05	L	A07J2		1-03 *		TM11-12				2				292
D BIT 05	L	B08F2		1-04 *		TM11-12								292
D BIT 05				1								13-6/8		292
D BIT 06	L	A12S2		1-01 *		TM11-18				2				293
D BIT 06	L	A13F1		1-02 *		TM11-14				1				293
D BIT 06	L	A07D2		1-03 *		TM11-12				2				293
D BIT 06	L	B08F1		1-04 *		TM11-12								293
D BIT 06				1								14-4/8		293
D BIT 07	L	A13C1		1-01 *		TM11-14				2				294
D BIT 07	L	A12P1		1-02 *		TM11-18				1				294
D BIT 07	L	A07S1		1-03 *		TM11-12				2				294
D BIT 07	L	B08C1		1-04 *		TM11-12								294
D BIT 07				1								12-4/8		294
D BIT 08	L	A07T2		1-01 *		TM11-13				1				295
D BIT 08	L	A08S1		1-02 *		TM11-13				2				295
D BIT 08	L	B12N2		1-03 *		TM11-18				1				295
D BIT 08	L	B13S1		1-04 *		TM11-14								295
D BIT 08				1								11-0/8		295
D BIT 08 IN	H	A23B1		1-01 *		TM11-25				1				296
D BIT 08 IN	H	B13P1		1-02 *		TM11-14								296
D BIT 08 IN				1								9-2/8		296
D BIT 09	L	A07R2		1-01 *		TM11-13				2				297
D BIT 09	L	A08N2		1-02 *		TM11-13				1				297
D BIT 09	L	B12C1		1-03 *		TM11-18				2				297
D BIT 09	L	B13N2		1-04 *		TM11-14								297
D BIT 09				1								11-4/8		297
D BIT 10	L	A07M1		1-01 *		TM11-13				2				298
D BIT 10	L	A08N1		1-02 *		TM11-18				1				298
D BIT 10	L	B12D2		1-03 *		TM11-13				2				298
D BIT 10	L	B13N1		1-04 *		TM11-14								298
D BIT 10				1								11-6/8		298

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
D BIT 11	L	A07H1		1-01 *		TM11-13			2				299
D BIT 11	L	A08K2		1-02 *		TM11-13			1				299
D BIT 11	L	B12A1		1-03 *		TM11-18			2				299
D BIT 11	L	B13K2		1-04 *		TM11-14							299
D BIT 11				1							11-6/8		299
D BIT 12	L	A07F2		1-01 *		TM11-13			1				300
D BIT 12	L	A08K1		1-02 *		TM11-13			2				300
D BIT 12	L	B13K1		1-03 *		TM11-14			1				300
D BIT 12	L	B12M2		1-04 *		TM11-18							300
D BIT 12				1							11-6/8		300
D BIT 13	L	A07E1		1-01 *		TM11-13			2				301
D BIT 13	L	A08F2		1-02 *		TM11-18			1				301
D BIT 13	L	B12H2		1-03 *		TM11-13			2				301
D BIT 13	L	B13F2		1-04 *		TM11-14							301
D BIT 13				1							12-2/8		301
D BIT 14	L	A08F1		1-01 *		TM11-14			2				302
D BIT 14	L	A07L2		1-02 *		TM11-13			1				302
D BIT 14	L	B13F1		1-03 *		TM11-13			2				302
D BIT 14	L	B12M1		1-04 *		TM11-18							302
D BIT 14				1							12-2/8		302
D BIT 15	L	A07B1		1-01 *		TM11-13			1				303
D BIT 15	L	A08C1		1-02 *		TM11-13			2				303
D BIT 15	L	B13C1		1-03 *		TM11-14			1				303
D BIT 15	L	B12J1		1-04 *		TM11-18							303
D BIT 15				1							12-2/8		303
D00	H	A23R1		1-01 *			R1		1				304
D00	H	B23B1		1-02 *			R1		2				304
D00	H	B22C1		1-03 *			R1		1				304
D00	H	A12N1		1-04 *			R1		2				304
D00	H	B09V2		1-05 *			R1						304
D00				1							21-0/8		304
D00	L	A17P2		1-01 *		TM11-11			1				305
D00	L	A23S1		1-02 *		TM11-12							305
D00				1							5-2/8		305
D01	H	B09T2		1-01 *		TM11-12			1				306
D01	H	A12H1		1-02 *		TM11-18			2				306
D01	H	A14J1		1-03 *		TM11-07			1				306
D01	H	B23H1		1-04 *		TM11-15			2				306
D01	H	B32H1		1-05 *		TM11-05							306
D01				1							24-6/8		306

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
D02	H	A14E2		1-01 *		TM11-07			1				307
D02	H	A12M1		1-02 *		TM11-18			2				307
D02	H	B09R2		1-03 *		TM11-12			1				307
D02	H	B23N1		1-04 *		TM11-15							307
D02				1							19-2/8		307
D03	H	B09N2		1-01 *		TM11-12			1				308
D03	H	A12F2		1-02 *		TM11-18			2				308
D03	H	A14C1		1-03 *		TM11-07			1				308
D03	H	B24B1		1-04 *		TM11-15			2				308
D03	H	B32J1		1-05 *		TM11-05							308
D03				1							25-0/8		308
D04	H	B09L2		1-01 *		TM11-12			2				309
D04	H	A12T2		1-02 *		TM11-18			1				309
D04	H	A21M1		1-03 *		TM11-20			2				309
D04	H	B24H1		1-04 *		TM11-15							309
D04				1							17-0/8		309
D05	H	B09J2		1-01 *		TM11-12			2				310
D05	H	A12N2		1-02 *		TM11-18			1				310
D05	H	A21K1		1-03 *		TM11-20			2				310
D05	H	B24N1		1-04 *		TM11-15							310
D05				1							18-2/8		310
D06	H	B09F2		1-01 *		TM11-12			2				311
D06	H	A12U1		1-02 *		TM11-18			1				311
D06	H	A24J1		1-03 *		TM11-08			2				311
D06	H	B25B1		1-04 *		TM11-15							311
D06				1							17-6/8		311
D07	H	A12N2		1-01 *		TM11-18			2				312
D07	H	B09D2		1-02 *		TM11-12			1				312
D07	H	B25H1		1-03 *		TM11-15							312
D07				1							15-0/8		312
D08	H	A19F2		1-01 *		TM11-05			2				313
D08	H	A23F1		1-02 *		TM11-13			1				313
D08	H	B23D1		1-03 *		TM11-15			2				313
D08	H	B17K1		1-04 *					1				313
D08	H	A14T2		1-05 *		TM11-10			2				313
D08	H	B12F1		1-06 *		TM11-18			1				313
D08	H	B09U1		1-07 *		TM11-13							313
D08				1							28-2/8		313

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
D08	L	A19D2		1-01 *		TM11-05				1				314
D08	L	A23H1		1-02 *		TM11-13								314
D08				1								4-2/8		314
D09	H	B24K1		1-01 *		TM11-15				1				315
D09	H	A23D1		1-02 *		TM11-13				2				315
D09	H	A19M2		1-03 *		TM11-05				1				315
D09	H	A14P1		1-04 *		TM11-18				2				315
D09	H	A12V2		1-05 *		TM11-10				1				315
D09	H	B09S1		1-06 *		TM11-13								315
D09				1								24-2/8		315
D09	L	A19K2		1-01 *		TM11-05				1				316
D09	L	A23E1		1-02 *		TM11-13								316
D09				1								4-2/8		316
D10	H	B09P1		1-01 *		TM11-13				1				317
D10	H	B12E2		1-02 *		TM11-18				2				317
D10	H	A14M2		1-03 *		TM11-10				1				317
D10	H	A19T2		1-04 *		TM11-05				2				317
D10	H	A23C1		1-05 *		TM11-13				1				317
D10	H	B23R1		1-06 *		TM11-15								317
D10				1								25-6/8		317
D10	L	A19R2		1-01 *		TM11-05				1				318
D10	L	A23D2		1-02 *		TM11-13								318
D10				1								5-0/8		318
D11	H	B09M1		1-01 *		TM11-13				2				319
D11	H	A12U2		1-02 *		TM11-18				1				319
D11	H	B24D1		1-03 *		TM11-15				2				319
D11	H	B31T2		1-04 *		TM11-08								319
D11				1								20-4/8		319
D12	H	B09K1		1-01 *		TM11-13				1				320
D12	H	B12L2		1-02 *		TM11-18				2				320
D12	H	A16P2		1-03 *		TM11-16				1				320
D12	H	B24K1		1-04 *		TM11-15								320
D12				1								16-6/8		320
D13	H	A24C1		1-01 *				R1		2				321
D13	H	B24R1		1-02 *				R1		1				321
D13	H	B12F2		1-03 *				R1		2				321
D13	H	B09H1		1-04 *				R1		1				321
D13	H	B21R2		1-05 *				I						321
D13				1								28-2/8		321

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
D14	H	B22N2		1-01 *				I		1				322
D14	H	A24E2		1-02 *				R1		2				322
D14	H	B25D1		1-03 *				R1		1				322
D14	H	B12N1		1-04 *				R1		2				322
D14	H	B09E1		1-05 *				R1						322
D14				1								25-0/8		322
D15	H	B09B1		1-01 *		TM11-13				2				323
D15	H	B12H1		1-02 *		TM11-18				1				323
D15	H	B25K1		1-03 *		TM11-15								323
D15				1								13-0/8		323
DATA BFR IN BIT 0	H	A21P1		1-01 *		TM11-20				1				324
DATA BFR IN BIT 0	H	B16J2		1-02 *		TM11-15								324
DATA BFR IN BIT 0				1								5-4/8		324
DATA BFR IN BIT 1	H	A21D1		1-01 *		TM11-20				1				325
DATA BFR IN BIT 1	H	B16P1		1-02 *		TM11-15								325
DATA BFR IN BIT 1				1								7-2/8		325
DATA BFR IN BIT 2	H	A21R1		1-01 *		TM11-20				1				326
DATA BFR IN BIT 2	H	B16N2		1-02 *		TM11-15								326
DATA BFR IN BIT 2				1								5-6/8		326
DATA BFR IN BIT 3	H	A21E1		1-01 *		TM11-20				1				327
DATA BFR IN BIT 3	H	B16S1		1-02 *		TM11-15								327
DATA BFR IN BIT 3				1								7-4/8		327
DATA BFR IN BIT 4	H	A21U1		1-01 *		TM11-20				1				328
DATA BFR IN BIT 4	H	B16R2		1-02 *		TM11-15								328
DATA BFR IN BIT 4				1								5-6/8		328
DATA BFR IN BIT 5	H	A21B1		1-01 *		TM11-20				1				329
DATA BFR IN BIT 5	H	B16U1		1-02 *		TM11-15								329
DATA BFR IN BIT 5				1								8-0/8		329
DATA BFR IN BIT 6	H	A21V1		1-01 *		TM11-20				1				330
DATA BFR IN BIT 6	H	B16T2		1-02 *		TM11-15								330
DATA BFR IN BIT 6				1								5-6/8		330
DATA BFR IN BIT 7	H	A21A1		1-01 *		TM11-20				1				331
DATA BFR IN BIT 7	H	B16V2		1-02 *		TM11-15								331
DATA BFR IN BIT 7				1								8-2/8		331

DATA BFR OUT BIT 0	H	B27S2		1-01 *			I		1					332
DATA BFR OUT BIT 0	H	A19B1		1-02 *			R1		2					332
DATA BFR OUT BIT 0	H	A21S2		1-03 *			R1		1					332
DATA BFR OUT BIT 0	H	B17N1		1-04 *			R1		2					332
DATA BFR OUT BIT 0	H	A13P1		1-05 *			R1							332
DATA BFR OUT BIT 0				1								24-6/8		332
DATA BFR OUT BIT 1	H	A13L2		1-01 *			R1		2					333
DATA BFR OUT BIT 1	H	B13L2		1-02 *			R1		1					333
DATA BFR OUT BIT 1	H	B17E2		1-03 *			R1		2					333
DATA BFR OUT BIT 1	H	A21M2		1-04 *			R1		1					333
DATA BFR OUT BIT 1	H	B27R2		1-05 *			I							333
DATA BFR OUT BIT 1				1								21-4/8		333
DATA BFR OUT BIT 2	H	A13L1		1-01 *			R1		2					334
DATA BFR OUT BIT 2	H	B13L1		1-02 *			R1		1					334
DATA BFR OUT BIT 2	H	B17L2		1-03 *			R1		2					334
DATA BFR OUT BIT 2	H	A21T2		1-04 *			R1		1					334
DATA BFR OUT BIT 2	H	B27P2		1-05 *			I							334
DATA BFR OUT BIT 2				1								21-0/8		334
DATA BFR OUT BIT 3	H	A21L2		1-01 *			R1		2					335
DATA BFR OUT BIT 3	H	A13H2		1-02 *			R1		1					335
DATA BFR OUT BIT 3	H	B13H2		1-03 *			R1		2					335
DATA BFR OUT BIT 3	H	B17S2		1-04 *			R1		1					335
DATA BFR OUT BIT 3	H	B27N2		1-05 *			I							335
DATA BFR OUT BIT 3				1								24-2/8		335
DATA BFR OUT BIT 4	H	A13H1		1-01 *			R1		2					336
DATA BFR OUT BIT 4	H	B13H1		1-02 *			R1		1					336
DATA BFR OUT BIT 4	H	B17R1		1-03 *			R1		2					336
DATA BFR OUT BIT 4	H	A21U2		1-04 *			R1		1					336
DATA BFR OUT BIT 4	H	B29L2		1-05 *			R1		2					336
DATA BFR OUT BIT 4	H	B27M2		1-06 *			I							336
DATA BFR OUT BIT 4				1								26-2/8		336
DATA BFR OUT BIT 5	H	B17H2		1-01 *			R1		2					337
DATA BFR OUT BIT 5	H	B13D2		1-02 *			R1		1					337
DATA BFR OUT BIT 5	H	A13D2		1-03 *			R1		2					337
DATA BFR OUT BIT 5	H	A21E2		1-04 *			R1		1					337
DATA BFR OUT BIT 5	H	B29P2		1-05 *			R1		2					337
DATA BFR OUT BIT 5	H	B27L2		1-06 *			I							337
DATA BFR OUT BIT 5				1								27-2/8		337

DATA BFR OUT BIT 6	H	A13D1		1-01 *			R1		2					338
DATA BFR OUT BIT 6	H	B13D1		1-02 *			R1		1					338
DATA BFR OUT BIT 6	H	B19P1		1-03 *			R1		2					338
DATA BFR OUT BIT 6	H	B17N2		1-04 *			R1		1					338
DATA BFR OUT BIT 6	H	A21V2		1-05 *			R1		2					338
DATA BFR OUT BIT 6	H	B27K2		1-06 *			I							338
DATA BFR OUT BIT 6				1								25-0/8		338
DATA BFR OUT BIT 7	H	A21D2		1-01 *			R1		1					339
DATA BFR OUT BIT 7	H	A13A1		1-02 *			R1		2					339
DATA BFR OUT BIT 7	H	B13A1		1-03 *			R1		1					339
DATA BFR OUT BIT 7	H	B17U2		1-04 *			R1		2					339
DATA BFR OUT BIT 7	H	B19P2		1-05 *			R1		1					339
DATA BFR OUT BIT 7	H	B27J2		1-06 *			I							339
DATA BFR OUT BIT 7				1								27-6/8		339
DATA BFR STB 1	H	A20L1		1-01 *	TM11-15				1					340
DATA BFR STB 1	H	A21S1		1-02 *	TM11-20									340
DATA BFR STB 1				1								3-2/8		340
DATA BFR STB 2	H	A16F1		1-01 *	TM11-15				1					341
DATA BFR STB 2	H	A21F2		1-02 *	TM11-20									341
DATA BFR STB 2				1								5-0/8		341
DATA STB 1	H	A11P1		1-01 *	TM11-24				1					342
DATA STB 1	H	A11R1		1-02 *	TM11-24				2					342
DATA STB 1	H	A11R2		1-03 *	TM11-24									342
DATA STB 1				1								5-0/8		342
DATA STB 1	L	A11S2			TM11-24								1-PIN RUN	343
DATA STB 2	H	A11N2		1-01 *	TM11-24				1					344
DATA STB 2	H	A20A1		1-02 *	TM11-15									344
DATA STB 2				1								10-2/8		344
DATA STB 2	L	A11T2		1-01 *	TM11-24				2					345
DATA STB 2	L	A11L2		1-02 *	TM11-24				1					345
DATA STB 2	L	A20H1		1-03 *	TM11-15									345
DATA STB 2				1								9-6/8		345
DATA TO BUS	H	A19N1		1-01 *	TM11-25				2					346
DATA TO BUS	H	A19H1		1-02 *	TM11-25				1					346
DATA TO BUS	H	A11E2		1-03 *	TM11-24									346
DATA TO BUS				1								9-2/8		346
DATA TO BUS	L	A11F2			TM11-24								1-PIN RUN	347

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
DEN 5		A03F1		1-01 *	C	TM11-02			2			CABLE	348
DEN 5		A04F1		1-02 *	C	TM11-02			1			CABLE	348
DEN 5		A26V2		1-03 *		TM11-08						TERM HERE?	348
DEN 5				1							17-0/8		348
DEN 5	H	A24E1		1-01 *		TM11-08			2			TERM HERE?	349
DEN 5	H	A17R1		1-02 *		TM11-08			1				349
DEN 5	H	A08D2		1-03 *		TM11-13			2				349
DEN 5	H	B06L2		1-04 *	C	TM11-03						CABLE	349
DEN 5				1							19-6/8		349
DEN 8		A03E1		1-01 *	C	TM11-02			2			CABLE	350
DEN 8		A04E1		1-02 *	C	TM11-02			1			CABLE	350
DEN 8		A06U1		1-03 *		TM11-08						TERM HERE?	350
DEN 8				1							7-0/8		350
DEN 8	H	A24H2		1-01 *		TM11-08			2			TERM HERE?	351
DEN 8	H	A17P1		1-02 *		TM11-08			1				351
DEN 8	H	A08D1		1-03 *	C	TM11-03			2			CABLE	351
DEN 8	H	B06J2		1-04 *		TM11-13						TERM HERE?	351
DEN 8				1							19-6/8		351
ENB SDWN GD	L	A26R2		1-01 *			R1		1				352
ENB SDWN GD	L	B15F2		1-02 *			R1						352
ENB SDWN GD				1							8-4/8		352
ENB US CLK	H	A17N1		1-01 *			1		1				353
ENB US CLK	H	A27D2		1-02 *			1		2				353
ENB US CLK	H	A25D1		1-03 *			1						353
ENB US CLK				1							11-4/8		353
EOFF	H	B18U1		1-01 *			R1		2				354
EOFF	H	B15L1		1-02 *			R1		1				354
EOFF	H	A08E1		1-03 *			R1		2				354
EOFF	H	B06U2		1-04 *			R2						354
EOFF				1							18-4/8		354
EOFF	L	A29P1		1-01 *			R1		1				355
EOFF	L	A17F1		1-02 *			R1		2				355
EOFF	L	B18S1		1-03 *			1						355
EOFF				1							15-0/8		355
EOT		A05C1		1-01 *		TM11-08			1			TERM HERE?	356
EOT		B04R2		1-02 *	C	TM11-02			2			CABLE	356
EOT		B03R2		1-03 *	C	TM11-02						CABLE	356
EOT				1							9-2/8		356

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
EOT	H	A17J2		1-01 *		TM11-17			1			TERM HERE?	357
EOT	H	A05D2		1-02 *		TM11-08			2				357
EOT	H	A08M1		1-03 *	C	TM11-03			1			CABLE	357
EOT	H	B06T2		1-04 *		TM11-13						TERM HERE?	357
EOT				1							18-2/8		357
ERR	H	A08A1		1-01 *		TM11-13			2			TERM HERE?	358
ERR	H	B06E1		1-02 *	C	TM11-03			1			CABLE	358
ERR	H	B18V1		1-03 *		TM11-17						TERM HERE?	358
ERR				1							15-2/8		358
ERR	L	A30D2		1-01 *			R1		1				359
ERR	L	B18V2		1-02 *			R1						359
ERR				1							10-2/8		359
EVEN CHAR	H	B22M1				TM11-11						1-PIN RUN	360
EVEN CHAR	L	A27U2		1-01 *		TM11-09			2				361
EVEN CHAR	L	B22K1		1-02 *		TM11-11			1				361
EVEN CHAR	L	B22N1		1-03 *		TM11-11							361
EVEN CHAR				1							8-4/8		361
EVEN CHAR STR	H	B16F2		1-01 *		TM11-09			1				362
EVEN CHAR STR	H	B17F2		1-02 *		TM11-09			2				362
EVEN CHAR STR	H	B17M2		1-03 *		TM11-09			1				362
EVEN CHAR STR	H	B17P1		1-04 *		TM11-09			2				362
EVEN CHAR STR	H	B17T2		1-05 *		TM11-09							362
EVEN CHAR STR				1							11-4/8		362
EVEN CHAR STR	L	A27V2		1-01 *		TM11-09			2				363
EVEN CHAR STR	L	B18C1		1-02 *		TM11-15			1				363
EVEN CHAR STR	L	B17D2		1-03 *		TM11-09			2				363
EVEN CHAR STR	L	B17K2		1-04 *		TM11-09			1				363
EVEN CHAR STR	L	B17R2		1-05 *		TM11-09			2				363
EVEN CHAR STR	L	B17M1		1-06 *		TM11-09			1				363
EVEN CHAR STR	L	B16E2		1-07 *		TM11-09			2				363
EVEN CHAR STR	L	B14C1		1-08 *		TM11-11							363
EVEN CHAR STR				1							26-0/8		363
FMK		A25U2		1-01 *					2			TERM HERE?	364
FMK		A25T2		1-02 *		TM11-17			1				364
FMK		B04B1		1-03 *	C	TM11-02			2			CABLE	364
FMK		B03B1		1-04 *	C	TM11-02						CABLE	364
FMK				1							19-4/8		364

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
FUNCTION BIT 0	H	A15B1		1-01 #		TM11-07		2			TERM HERE?	365
FUNCTION BIT 0	H	A14L1		1-02 #		TM11-07		1				365
FUNCTION BIT 0	H	B08L2		1-03 #		TM11-12		2				365
FUNCTION BIT 0	H	B06R2		1-04 #	C	TM11-03					CABLE	365
FUNCTION BIT 0				1						13-2/8		365
FUNCTION BIT 1	H	A15C1		1-01 #		TM11-07		2			TERM HERE?	366
FUNCTION BIT 1	H	A14H2		1-02 #		TM11-07		1				366
FUNCTION BIT 1	H	B08L1		1-03 #		TM11-12		2				366
FUNCTION BIT 1	H	B06N2		1-04 #	C	TM11-03					CABLE	366
FUNCTION BIT 1				1						13-0/8		366
FUNCTION BIT 2	H	A15D1		1-01 #		TM11-07		2			TERM HERE?	367
FUNCTION BIT 2	H	A14E1		1-02 #		TM11-07		1				367
FUNCTION BIT 2	H	B08H2		1-03 #		TM11-12		2				367
FUNCTION BIT 2	H	B06S1		1-04 #	C	TM11-03					CABLE	367
FUNCTION BIT 2				1						13-4/8		367
FWD		A03K1		1-01 #	C	TM11-02		2			CABLE	368
FWD		A04K1		1-02 #	C	TM11-02		1			CABLE	368
FWD		B05S1		1-03 #		TM11-07					TERM HERE?	368
FWD				1						8-6/8		368
GND 01		A01B2		1-01 #		TM11-01		1				369
GND 01		A01C2		1-02 #				2				369
GND 01		A01N1		1-03 #		TM11-01		1				369
GND 01		A01R1		1-04 #		TM11-01		2				369
GND 01		A01P1		1-05 #		TM11-01		1				369
GND 01		A01S1		1-06 #		TM11-01		2				369
GND 01		A01T1		1-07 #				1				369
GND 01		A01V2		1-08 #		TM11-01		2				369
GND 01		B01B2		1-09 #		TM11-01		1				369
GND 01		B01D1		1-10 #		TM11-01		2				369
GND 01		B01C2		1-11 #				1				369
GND 01		B01E1		1-12 #		TM11-01		2				369
GND 01		B01T1		1-13 #				1				369
GND 01		B01V2		1-14 #		TM11-01						369
GND 01				1						36-2/8		369

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
GND 02		A02B2		1-01 #		TM11-01		1				370
GND 02		A02C2		1-02 #				2				370
GND 02		A02N1		1-03 #		TM11-01		1				370
GND 02		A02R1		1-04 #		TM11-01		2				370
GND 02		A02P1		1-05 #		TM11-01		1				370
GND 02		A02S1		1-06 #		TM11-01		2				370
GND 02		A02T1		1-07 #				1				370
GND 02		A02V2		1-08 #		TM11-01		2				370
GND 02		B02B2		1-09 #		TM11-01		1				370
GND 02		B02D1		1-10 #		TM11-01		2				370
GND 02		B02C2		1-11 #				1				370
GND 02		B02E1		1-12 #		TM11-01		2				370
GND 02		B02T1		1-13 #				1				370
GND 02		B02V2		1-14 #		TM11-01						370
GND 02				1						36-2/8		370
GND 03		A03B2		1-01 #		TM11-02		1				371
GND 03		A03C2		1-02 #				2				371
GND 03		A03N1		1-03 #		TM11-02		1				371
GND 03		A03R1		1-04 #		TM11-02		2				371
GND 03		A03P1		1-05 #		TM11-02		1				371
GND 03		A03T1		1-06 #				2				371
GND 03		A03S1		1-07 #		TM11-02		1				371
GND 03		A03U1		1-08 #		TM11-02		2				371
GND 03		A03V1		1-09 #		TM11-02		1				371
GND 03		A03V2		1-10 #		TM11-02		2				371
GND 03		B03B2		1-11 #		TM11-02		1				371
GND 03		B03D1		1-12 #		TM11-02		2				371
GND 03		B03C2		1-13 #				1				371
GND 03		B03E1		1-14 #		TM11-02		2				371
GND 03		B03T1		1-15 #				1				371
GND 03		B03V2		1-16 #		TM11-02						371
GND 03				1						41-2/8		371

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
GND 04		A04B2		1-01 *		TM11-02		1				372
GND 04		A04C2		1-02 *				2				372
GND 04		A04N1		1-03 *		TM11-02		1				372
GND 04		A04R1		1-04 *		TM11-02		2				372
GND 04		A04P1		1-05 *		TM11-02		1				372
GND 04		A04T1		1-06 *				2				372
GND 04		A04S1		1-07 *		TM11-02		1				372
GND 04		A04U1		1-08 *		TM11-02		2				372
GND 04		A04V1		1-09 *		TM11-02		1				372
GND 04		A04V2		1-10 *		TM11-02		2				372
GND 04		B04B2		1-11 *		TM11-02		1				372
GND 04		B04D1		1-12 *		TM11-02		2				372
GND 04		B04C2		1-13 *				1				372
GND 04		B04E1		1-14 *		TM11-02		2				372
GND 04		B04T1		1-15 *				1				372
GND 04		B04V2		1-16 *		TM11-02						372
GND 04				1						41-2/8		372
GND 05		A05C2		1-01 *				1				373
GND 05		A05T1		1-02 *				2				373
GND 05		B05C2		1-03 *				1				373
GND 05		B05T1		1-04 *								373
GND 05				1						11-4/8		373
GND 06		A06C2		1-01 *				1				374
GND 06		A06T1		1-02 *				2				374
GND 06		B06C2		1-03 *				1				374
GND 06		B06T1		1-04 *								374
GND 06				1						11-4/8		374
GND 07		A07C2		1-01 *				1				375
GND 07		A07T1		1-02 *				2				375
GND 07		B07C2		1-03 *				1				375
GND 07		B07T1		1-04 *								375
GND 07				1						11-4/8		375
GND 08		A08C2		1-01 *				2				376
GND 08		A08H1		1-02 *				1				376
GND 08		A08T1		1-03 *				2				376
GND 08		B08C2		1-04 *				1				376
GND 08		B08T1		1-05 *								376
GND 08				1						14-0/8		376

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
GND 09		A09A1		1-01 *		TM11-21		1				377
GND 09		A09C2		1-02 *				2				377
GND 09		A09F1		1-03 *		TM11-21		1				377
GND 09		A09H1		1-04 *		TM11-21		2				377
GND 09		A09T1		1-05 *				1				377
GND 09		A09V2		1-06 *		TM11-21		2				377
GND 09		B09C2		1-07 *				1				377
GND 09		B09T1		1-08 *								377
GND 09				1						21-4/8		377
GND 10		A10C2		1-01 *				2				378
GND 10		A10J2		1-02 *		TM11-22		1				378
GND 10		A10R1		1-03 *		TM11-23		2				378
GND 10		A10S1		1-04 *		TM11-22		1				378
GND 10		A10T1		1-05 *				2				378
GND 10		B10A1		1-06 *		TM11-25		1				378
GND 10		B10D1		1-07 *		TM11-25		2				378
GND 10		B10B1		1-08 *		TM11-25		1				378
GND 10		B10C2		1-09 *				2				378
GND 10		B10E1		1-10 *		TM11-25		1				378
GND 10		B10F1		1-11 *		TM11-25		2				378
GND 10		B10L1		1-12 *				1				378
GND 10		B10M1		1-13 *		TM11-25		2				378
GND 10		B10T1		1-14 *								378
GND 10				1						35-6/8		378
GND 11		A11C2		1-01 *				1				379
GND 11		A11H1		1-02 *		TM11-24		2				379
GND 11		A11T1		1-03 *				1				379
GND 11		B11C2		1-04 *				2				379
GND 11		B11T1		1-05 *								379
GND 11				1						14-0/8		379
GND 12		A12C2		1-01 *				1				380
GND 12		A12T1		1-02 *				2				380
GND 12		B12C2		1-03 *				1				380
GND 12		B12T1		1-04 *								380
GND 12				1						11-4/8		380

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
GND 13		A13C2		1-01 *				2				381
GND 13		A13T1		1-02 *				1				381
GND 13		B13C2		1-03 *				2				381
GND 13		B13E2		1-04 *		TM11-14		1				381
GND 13		B13J2		1-05 *		TM11-14		2				381
GND 13		B13M2		1-06 *		TM11-14		1				381
GND 13		B13N1		1-07 *		TM11-14		2				381
GND 13		B13T1		1-08 *								381
GND 13				1						21-0/8		381
GND 14		A14C2		1-01 *				1				382
GND 14		A14T1		1-02 *				2				382
GND 14		B14C2		1-03 *				1				382
GND 14		B14F2		1-04 *				2				382
GND 14		B14T1		1-05 *				1				382
GND 14		B14S1		1-06 *		TM11-04						382
GND 14				1						16-4/8		382
GND 15		A15C2		1-01 *				1				383
GND 15		A15E1		1-02 *		TM11-07		2				383
GND 15		A15T1		1-03 *				1				383
GND 15		B15C2		1-04 *				2				383
GND 15		B15T1		1-05 *								383
GND 15				1						14-0/8		383
GND 16		A16C2		1-01 *				1				384
GND 16		A16T1		1-02 *				2				384
GND 16		B16C2		1-03 *				1				384
GND 16		B16T1		1-04 *								384
GND 16				1						11-4/8		384
GND 17		A17C2		1-01 *				1				385
GND 17		A17T1		1-02 *				2				385
GND 17		B17C2		1-03 *				1				385
GND 17		B17T1		1-04 *								385
GND 17				1						11-4/8		385
GND 18		A18C2		1-01 *				2				386
GND 18		A18M2		1-02 *		TM11-06		1				386
GND 18		A18P1		1-03 *		TM11-04		2				386
GND 18		A18T1		1-04 *				1				386
GND 18		A18T2		1-05 *		TM11-06		2				386
GND 18		B18C2		1-06 *				1				386
GND 18		B18P1		1-07 *		TM11-17		2				386
GND 18		B18T1		1-08 *				1				386
GND 18		B18T2		1-09 *		TM11-17						386
GND 18				1						23-6/8		386

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
GND 19		A19C2		1-01 *				1				387
GND 19		A19T1		1-02 *				2				387
GND 19		B19C2		1-03 *				1				387
GND 19		B19T1		1-04 *								387
GND 19				1						11-4/8		387
GND 20		A20C2		1-01 *				1				388
GND 20		A20T1		1-02 *				2				388
GND 20		B20C2		1-03 *				1				388
GND 20		B20T1		1-04 *								388
GND 20				1						11-4/8		388
GND 21		A21C2		1-01 *				2				389
GND 21		A21C1		1-02 *		TM11-20		1				389
GND 21		A21F1		1-03 *		TM11-20		2				389
GND 21		A21T1		1-04 *				1				389
GND 21		B21C2		1-05 *				2				389
GND 21		B21T1		1-06 *								389
GND 21				1						16-2/8		389
GND 22		A22C2		1-01 *				1				390
GND 22		A22T1		1-02 *				2				390
GND 22		B22C2		1-03 *				1				390
GND 22		B22T1		1-04 *								390
GND 22				1						11-4/8		390
GND 23		A23C2		1-01 *				2				391
GND 23		A23T1		1-02 *				1				391
GND 23		B23C2		1-03 *				2				391
GND 23		B23F2		1-04 *		TM11-15		1				391
GND 23		B23M2		1-05 *		TM11-15		2				391
GND 23		B23T2		1-06 *		TM11-15		1				391
GND 23		B23T1		1-07 *								391
GND 23				1						18-6/8		391
GND 24		A24C2		1-01 *				1				392
GND 24		A24T1		1-02 *				2				392
GND 24		B24C2		1-03 *				1				392
GND 24		B24F2		1-04 *		TM11-15		2				392
GND 24		B24T1		1-05 *								392
GND 24				1						14-0/8		392
GND 25		A25C2		1-01 *				1				393
GND 25		A25T1		1-02 *				2				393
GND 25		B25C2		1-03 *				1				393
GND 25		B25T1		1-04 *								393
GND 25				1						11-4/8		393

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
GND 26		A26C2		1-01 *							1				394
GND 26		A26T1		1-02 *							2				394
GND 26		B26C2		1-03 *							1				394
GND 26		B26T1		1-04 *											394
GND 26				1									11-4/8		394
GND 27		A27C2		1-01 *							1				395
GND 27		A27T1		1-02 *							2				395
GND 27		B27C2		1-03 *							1				395
GND 27		B27T1		1-04 *											395
GND 27				1									11-4/8		395
GND 28		A28C2		1-01 *							1				396
GND 28		A28T1		1-02 *							2				396
GND 28		B28C2		1-03 *							1				396
GND 28		B28T1	B28E1	1-04 *							2				396
GND 28		B28E1		1-05 *											396
GND 28				1									15-2/8		396
GND 29		A29C2		1-01 *							1				397
GND 29		A29T1		1-02 *							2				397
GND 29		B29C2		1-03 *							1				397
GND 29		B29T1		1-04 *											397
GND 29				1									11-4/8		397
GND 30		A30C2		1-01 *							1				398
GND 30		A30T1		1-02 *							2				398
GND 30		B30C2		1-03 *							1				398
GND 30		B30T1		1-04 *											398
GND 30				1									11-4/8		398
GND 31		A31C2		1-01 *							1				399
GND 31		A31T1		1-02 *							2				399
GND 31		B31C2		1-03 *							1				399
GND 31		B31J1		1-04 *		TM11-04					2				399
GND 31		B31T1		1-05 *											399
GND 31				1									13-6/8		399
GND 32		A32C2		1-01 *							1				400
GND 32		A32T1		1-02 *							2				400
GND 32		B32C2		1-03 *							1				400
GND 32		B32T1		1-04 *											400
GND 32				1									11-4/8		400

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
GO BIT	H	A28M1		1-01 *				I			1				401
GO BIT	H	A29M1		1-02 *				R1			2				401
GO BIT	H	A20R2		1-03 *				R1			1				401
GO BIT	H	B22E1		1-04 *				R1			2				401
GO BIT	H	B08P1		1-05 *				R1			1				401
GO BIT	H	B27B1		1-06 *				I			2				401
GO BIT	H	A27P1		1-07 *				I			1				401
GO BIT	H	A18B2		1-08 *				I							401
GO BIT				1									46-4/8		401
GO STROBE 1	H	A32F1				TM11-04								1-PIN RUN	402
GO STROBE 1	L	A18N1		1-01 *				R1			1				403
GO STROBE 1	L	A32H1		1-02 *				R1			2				403
GO STROBE 1	L	B12D2		1-03 *				R1							403
GO STROBE 1				1									14-4/8		403
GO STROBE 2	H	A32J1		1-01 *		TM11-04					2				404
GO STROBE 2	H	A17P2		1-02 *		TM11-04					1				404
GO STROBE 2	H	A16L2		1-03 *		TM11-11					2				404
GO STROBE 2	H	B15H2		1-04 *		TM11-04					1				404
GO STROBE 2	H	B15J1		1-05 *		TM11-04									404
GO STROBE 2				1									20-2/8		404
GO STROBE 2	L	A32K1		1-01 *				R1			2				405
GO STROBE 2	L	A24B2		1-02 *				R1			1				405
GO STROBE 2	L	A18L2		1-03 *				R1			2				405
GO STROBE 2	L	B14H1		1-04 *				R1			1				405
GO STROBE 2	L	B14L2		1-05 *				R1			2				405
GO STROBE 2	L	B22L1		1-06 *				R1			1				405
GO STROBE 2	L	B22P1	B29J2	1-07 *				I			2				405
GO STROBE 2	L	B29J2		1-08 *											405
GO STROBE 2				1									36-0/8		405
GSD	H	A23N2		1-01 *				I			1				406
GSD	H	B13J1		1-02 *				I							406
GSD				1									8-4/8		406
GSD	L	A29M2		1-01 *				R1			2				407
GSD	L	A20P2		1-02 *				R1			1				407
GSD	L	A20T2		1-03 *				R1			2				407
GSD	L	A23N2		1-04 *				R1			1				407
GSD	L	B21N2		1-05 *				I							407
GSD				1									19-0/8		407

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
HI DATA BYTE	L	A19L1		1-01 *		TM11-25					1				408
HI DATA BYTE	L	B13U2		1-02 *		TM11-14									408
HI DATA BYTE				1									7-2/8		408
ILC	H	A27P2		1-01 *					I		2				409
ILC	H	A24V2		1-02 *					R1		1				409
ILC	H	B15R1		1-03 *					R1		2				409
ILC	H	A08B1		1-04 *					R1		1				409
ILC	H	B06P2		1-05 *					R1						409
ILC				1									26-6/8		409
ILC	L	A24V1				TM11-16								1-PIN RUN	410
IN	H	A09M1				TM11-21								1-PIN RUN	411
INH BTE	L	B20N2		1-01 *					R1		2				412
INH BTE	L	B15S1		1-02 *					1		1				412
INH BTE	L	A20N2	A22M1	1-03 *					I		2				412
INH BTE	L	A22M1		1-04 *											412
INH BTE				1									15-2/8		412
INIT	H	A12D1		1-01 *					R1		1				413
INIT	H	A11J1		1-02 *					R1		2				413
INIT	H	B15H1		1-03 *					R1		1				413
INIT	H	B15J2		1-04 *					R1		2				413
INIT	H	B15M2		1-05 *					R1		1				413
INIT	H	B20M1		1-06 *					R1		2				413
INIT	H	B20D2		1-07 *					R1		1				413
INIT	H	A21H1		1-08 *					R1		2				413
INIT	H	A21J2		1-09 *					R1		1				413
INIT	H	A23T2		1-10 *					R1		2				413
INIT	H	A26L1		1-11 *					R1		1				413
INIT	H	A25H2		1-12 *					R1		2				413
INIT	H	A25B1		1-13 *					R1		1				413
INIT	H	A25E1		1-14 *					I						413
INIT				1									46-2/8		413

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
INIT	L	B22L2		1-01 *					I		2				414
INIT	L	B20J2		1-02 *					R1		1				414
INIT	L	B20S1		1-03 *					R1		2				414
INIT	L	B18K1		1-04 *					R1		1				414
INIT	L	B18F2		1-05 *					R1		2				414
INIT	L	A14K2		1-06 *					R1		1				414
INIT	L	A14A1		1-07 *					R1		2				414
INIT	L	A18A1		1-08 *					R1		1				414
INIT	L	A24A1		1-09 *					R1		2				414
INIT	L	B31A1		1-10 *					R1		1				414
INIT	L	B32J2		1-11 *					R1		2				414
INIT	L	B32E2		1-12 *					R1		1				414
INIT	L	B31K2		1-13 *					R1		2				414
INIT	L	B30R2		1-14 *					R1						414
INIT				1									52-0/8		414
INIT + GO	H	B15M1		1-01 *					R1		2				415
INIT + GO	H	B20R2		1-02 *					R1		1				415
INIT + GO	H	B32F2		1-03 *					R1		2				415
INIT + GO	H	A25E2		1-04 *					I						415
INIT + GO				1									21-4/8		415
INIT + GO	L	A24K2		1-01 *					R1		2				416
INIT + GO	L	A28E1		1-02 *					R1		1				416
INIT + GO	L	A28E2		1-03 *					R1		2				416
INIT + GO	L	A28N2		1-04 *					B1		1				416
INIT + GO	L	B20V2		1-05 *					R1		2				416
INIT + GO	L	B18U2		1-06 *					R1		1				416
INIT + GO	L	B18R1		1-07 *					R1		2				416
INIT + GO	L	B18D1		1-08 *					R1		1				416
INIT + GO	L	A11D2		1-09 *					R1		2				416
INIT + GO	L	B18N2		1-10 *					I						416
INIT + GO				1									41-6/8		416
INIT REC	H	B10D2		1-01 *		TM11-25					1				417
INIT REC	H	B15A1		1-02 *		TM11-16									417
INIT REC				1									8-6/8		417
INT DONE A	H	A10L2				TM11-22								1-PIN RUN	418
INT DONE B	H	A10M2		1-01 *		TM11-22					1				419
INT DONE B	H	A20M1		1-02 *		TM11-11									419
INT DONE B				1									10-0/8		419

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
INT ENB	H	A29D2		1-01 *							2			TERM MEMET	420
INT ENB	H	A24L1		1-02 *		TM11-08					1				420
INT ENB	H	B08D1		1-03 *	C	TM11-03					2			CABLE	420
INT ENB	H	B06E2		1-04 *		TM11-12								TERM MEMET	420
INT ENB				!									20-0/8		420
INT ENB	L	A30B2		1-01 *		TM11-11					1				421
INT ENB	L	A30B1		1-02 *		TM11-11					2				421
INT ENB	L	A24M1		1-03 *		TM11-08									421
INT ENB				!									8-0/8		421
LO DATA BYTE	L	A13U2		1-01 *		TM11-14					1				422
LO DATA BYTE	L	A19B1		1-02 *		TM11-25									422
LO DATA BYTE				!									5-2/8		422
LRC ENB	H	B22R2		1-01 *				I			1				423
LRC ENB	H	B13E1		1-02 *				I							423
LRC ENB				!									7-6/8		423
LRC ENB	L	B22B2		1-01 *				I			1				424
LRC ENB	L	B21R1		1-02 *				I							424
LRC ENB				!									3-0/8		424
LRCE		A29R2		1-01 *		TM11-17					1			TERM MEMET	425
LRCE		B04T2		1-02 *	C	TM11-02					2			CABLE	425
LRCE		B03T2		1-03 *	C	TM11-02								CABLE	425
LRCE				!									18-6/8		425
LRCS		A08N1		1-01 *		TM11-08					1			TERM MEMET	426
LRCS		B04U2		1-02 *	C	TM11-02					2			CABLE	426
LRCS		B03U2		1-03 *	C	TM11-02								CABLE	426
LRCS				!									8-6/8		426
LRCS	H	B15R2		1-01 *				R1			2				427
LRCS	H	A32R2		1-07 *				R1			1				427
LRCS	H	A32R1		1-03 *				R1			2				427
LRCS	H	B21P1		1-04 *				R1			1				427
LRCS	H	A06P1		1-05 *				R1							427
LRCS				!									34-4/8		427

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
LRCSD	H	A22F2		1-01 *				I			2				428
LRCSD	H	A16E2		1-02 *				R1			1				428
LRCSD	H	A22E2		1-03 *				R1			2				428
LRCSD	H	A27J2		1-04 *				R1			1				428
LRCSD	H	A27N2		1-05 *				R1			2				428
LRCSD	H	A32P1		1-06 *				R1			1				428
LRCSD	H	A25D2		1-07 *				I							428
LRCSD				!									29-4/8		428
MAN CLR	H	A16V2		1-01 *		TM11-16					1				429
MAN CLR	H	B15B1		1-02 *		TM11-16									429
MAN CLR				!									3-4/8		429
MAN CLR	L	A16U2		1-01 *				R1			1				430
MAN CLR	L	B06U1		1-02 *				R1			2				430
MAN CLR	L	B04V1		1-03 *				I							430
MAN CLR				!									12-0/8		430
NPR CLEAR BUSY	H	A11P2		1-01 *		TM11-24					2				431
NPR CLEAR BUSY	H	A12A1		1-02 *		TM11-10					1				431
NPR CLEAR BUSY	H	A25J2		1-03 *		TM11-11									431
NPR CLEAR BUSY				!									13-4/8		431
NPR CLEAR BUSY	L	A29E1		1-01 *		TM11-05					2				432
NPR CLEAR BUSY	L	B22E2		1-02 *		TM11-05					1				432
NPR CLEAR BUSY	L	A11N2		1-03 *		TM11-24									432
NPR CLEAR BUSY				!									15-2/8		432
NPR ENB	H	A10U1		1-01 *				R1			1				433
NPR ENB	H	A10V1		1-02 *				R1			2				433
NPR ENB	H	B14E1		1-03 *				R1			1				433
NPR ENB	H	B19E2		1-04 *				R1			2				433
NPR ENB	H	A24P1		1-05 *				R1			1				433
NPR ENB	H	A22L2		1-06 *				R1			2				433
NPR ENB	H	A19A1		1-07 *				R1			1				433
NPR ENB	H	B27D2		1-08 *				I							433
NPR ENB				!									33-4/8		433
NPR ENB	L	B14F1		1-01 *				R1			1				434
NPR ENB	L	B14E2		1-02 *				R1			2				434
NPR ENB	L	A19C1		1-03 *				R1			1				434
NPR ENB	L	B32A1		1-04 *				R1							434
NPR ENB				!									18-6/8		434
NPR MASTER	L	A10N1		1-01 *		TM11-23					1				435
NPR MASTER	L	A11N2		1-02 *		TM11-24									435
NPR MASTER				!									3-2/8		435

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
NPR SET	H	A20B1		1-01 *		TM11-11				2				436
NPR SET	H	A24N1		1-02 *		TM11-17				1				436
NPR SET	H	B32S2		1-03 *		TM11-11								436
NPR SET				1								12-6/8		436
NXM	H	A11L1		1-01 *		TM11-24				1			TERM HERE?	437
NXM	H	B08B1		1-02 *	C	TM11-03				2			CABLE	437
NXM	H	B06N1		1-03 *		TM11-12							TERM HERE?	437
NXM				1								8-6/8		437
NXM	L	A11K1		1-01 *		TM11-24				1				438
NXM	L	B29N1		1-02 *		TM11-17								438
NXM				1								12-4/8		438
OFF LINE	L	A15F1		1-01 *			R1			1				439
OFF LINE	L	B30H1		1-02 *			R1			2				439
OFF LINE	L	B30B1		1-03 *			R1			1				439
OFF LINE	L	B29E1		1-04 *			I							439
OFF LINE				1								17-2/8		439
OUT HI	H	A09M2		1-01 *		TM11-21				1				440
OUT HI	H	B11A1		1-02 *		TM11-26								440
OUT HI				1								4-2/8		440
OUT LO	H	A09N1		1-01 *		TM11-21				1				441
OUT LO	H	B11D1		1-02 *		TM11-26								441
OUT LO				1								4-4/8		441
OVERFLOW	H	A22B1		1-01 *			R1			1				442
OVERFLOW	H	A24P2		1-02 *			R1			2				442
OVERFLOW	H	B27U2		1-03 *			I			1				442
OVERFLOW	H	B19B1		1-04 *			I							442
OVERFLOW				1								17-6/8		442
OVERFLOW	L	A24R2		1-01 *			R1			1				443
OVERFLOW	L	A20C1	A22L1	1-02 *			R1			2				443
OVERFLOW	L	A22L1		1-03 *										443
OVERFLOW				1								9-0/8		443
PAE	H	A28K1		1-01 *			R1			1				444
PAE	H	A08J1		1-02 *			R1			2				444
PAE	H	B06M1		1-03 *			R1							444
PAE				1								18-2/8		444
PAE	L	A17E1		1-01 *		TM11-17				1				445
PAE	L	A28D1		1-02 *		TM11-17								445
PAE				1								8-0/8		445

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
PAR BIT	H	A19D1		1-01 *			I			1				446
PAR BIT	H	B31E1		1-02 *			I			2				446
PAR BIT	H	B27H2		1-03 *			I							446
PAR BIT				1								13-6/8		446
PEVN		A03T2		1-01 *	C	TM11-02				2			CABLE	447
PEVN		A04T2		1-02 *	C	TM11-02				1			CABLE	447
PEVN		A06V2		1-03 *		TM11-08							TERM HERE?	447
PEVN				1								6-2/8		447
PEVN	H	A08H2		1-01 *		TM11-13				2			TERM HERE?	448
PEVN	H	B06M2		1-02 *	C	TM11-03				1			CABLE	448
PEVN	H	B31V2		1-03 *		TM11-08							TERM HERE?	448
PEVN				1								21-2/8		448
RD 0		A05U2		1-01 *		TM11-09				1			TERM HERE?	449
RD 0		B04F1		1-02 *	C	TM11-02				2			CABLE	449
RD 0		B03F1		1-03 *	C	TM11-02							CABLE	449
RD 0				1								6-6/8		449
RD 1		A05S2		1-01 *		TM11-09				1			TERM HERE?	450
RD 1		B04H1		1-02 *	C	TM11-02				2			CABLE	450
RD 1		B03H1		1-03 *	C	TM11-02							CABLE	450
RD 1				1								7-2/8		450
RD 2		A05V1		1-01 *		TM11-09				1			TERM HERE?	451
RD 2		B04J1		1-02 *	C	TM11-02				2			CABLE	451
RD 2		B03J1		1-03 *	C	TM11-02							CABLE	451
RD 2				1								6-6/8		451
RD 3		A05P2		1-01 *		TM11-09				1			TERM HERE?	452
RD 3		B04K1		1-02 *	C	TM11-02				2			CABLE	452
RD 3		B03K1		1-03 *	C	TM11-02							CABLE	452
RD 3				1								7-6/8		452
RD 4		A05R1		1-01 *		TM11-09				1			TERM HERE?	453
RD 4		B04L1		1-02 *	C	TM11-02				2			CABLE	453
RD 4		B03L1		1-03 *	C	TM11-02							CABLE	453
RD 4				1								7-4/8		453
RD 5		A05M2		1-01 *		TM11-09				1			TERM HERE?	454
RD 5		B04M1		1-02 *	C	TM11-02				2			CABLE	454
RD 5		B03M1		1-03 *	C	TM11-02							CABLE	454
RD 5				1								8-2/8		454

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
RD 6		A05N1		1-01 *		TM11-09			1			TERM HERE?	455
RD 6		B04N1		1-02 *	C	TM11-02			2			CABLE	455
RD 6		B03N1		1-03 *	C	TM11-02						CABLE	455
RD 6				‖							8-0/8		455
RD 7		A05K2		1-01 *		TM11-09			1			TERM HERE?	456
RD 7		B04P1		1-02 *	C	TM11-02			2			CABLE	456
RD 7		B03P1		1-03 *	C	TM11-02						CABLE	456
RD 7				‖							8-6/8		456
RDP		A06L1		1-01 *		TM11-09			1			TERM HERE?	457
RDP		B04R1		1-02 *	C	TM11-02			2			CABLE	457
RDP		B03R1		1-03 *	C	TM11-02						CABLE	457
RDP				‖							8-6/8		457
RDS		A06H2		1-01 *		TM11-08			1			TERM HERE?	458
RDS		B04A1		1-02 *	C	TM11-02			2			CABLE	458
RDS		B03A1		1-03 *	C	TM11-02						CABLE	458
RDS				‖							7-6/8		458
RDS	H	A06J2		1-01 *			R1		1				459
RDS	H	A17U2		1-02 *			R1		2				459
RDS	H	A22T2	A20P1	1-03 *			R1		1				459
RDS	H	A20P1		1-04 *					2				459
RDS	H	B20M2		1-05 *			R1						459
RDS				‖							22-2/8		459
RDS + WRS	H	B22J1		1-01 *		TM11-11			1				460
RDS + WRS	H	B20E1		1-02 *		TM11-11							460
RDS + WRS				‖							4-4/8		460
RDS + WRS	L	B32P2		1-01 *		TM11-11			2				461
RDS + WRS	L	B20D1		1-02 *		TM11-11			1				461
RDS + WRS	L	B15V2		1-03 *		TM11-11							461
RDS + WRS				‖							14-2/8		461
READ	H	A11C1		1-01 *		TM11-24		1					462
READ	H	A11J2		1-02 *		TM11-24		2					462
READ	H	A17T2		1-03 *		TM11-11		1					462
READ	H	B20D2		1-04 *		TM11-15							462
READ				‖							16-4/8		462

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
READ	L	B29E2		1-01 *		TM11-17			1				463
READ	L	B20C1		1-02 *		TM11-11			2				463
READ	L	B19D2		1-03 *					1				463
READ	L	A22K2		1-04 *		TM11-15			2				463
READ	L	A15H1		1-05 *		TM11-07			1				463
READ	L	B05M1		1-06 *		TM11-07							463
READ				‖							29-6/8		463
READ + WRITE	H	A22U2		1-01 *					2				464
READ + WRITE	H	B29F2		1-02 *					1				464
READ + WRITE	H	A20R1		1-03 *									464
READ + WRITE				‖							14-2/8		464
READ STB	H	A26B1		1-01 *		TM11-15			1				465
READ STB	H	A22C1		1-02 *		TM11-17			2				465
READ STB	H	A16B1		1-03 *		TM11-15			1				465
READ STB	H	B16H1		1-04 *		TM11-11			2				465
READ STB	H	B15T2		1-05 *		TM11-11							465
READ STB				‖							19-0/8		465
READ STB	L	B14H2		1-01 *		TM11-15			2				466
READ STB	L	B16F1		1-02 *		TM11-11			1				466
READ STB	L	A17V1		1-03 *		TM11-11			2				466
READ STB	L	B18B1		1-04 *		TM11-15			1				466
READ STB	L	B29P1		1-05 *		TM11-25							466
READ STB				‖							18-4/8		466
REV		A03N2		1-01 *	C	TM11-02			2			CABLE	467
REV		A04N2		1-02 *	C	TM11-02			1			CABLE	467
REV		B05L1		1-03 *		TM11-07						TERM HERE?	467
REV				‖							7-6/8		467
REV BOT	L	A17D2		1-01 *			R1		2				468
REV BOT	L	B32R1		1-02 *			R1		1				468
REV BOT	L	B32N2		1-03 *			R1						468
REV BOT				‖							14-0/8		468
REWIND	L	A15P1		1-01 *			R1		2				469
REWIND	L	A17L2		1-02 *			R1		1				469
REWIND	L	A29H2		1-03 *			R1		2				469
REWIND	L	B30F1		1-04 *			R1						469
REWIND				‖							17-6/8		469
RLE	H	A28H2		1-01 *		TM11-17			1			TERM HERE?	470
RLE	H	A08M2		1-02 *	C	TM11-03			2			CABLE	470
RLE	H	B06F1		1-03 *		TM11-13						TERM HERE?	470
RLE				‖							17-4/8		470

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
RLE	L	A17B1		1-01 *				R1		1				471
RLE	L	A17A1		1-02 *				R1		2				471
RLE	L	A28J2		1-03 *				I						471
RLE				1								11-0/8		471
RWD		A03L1		1-01 *	C	TM11-02				2			CABLE	472
RWD		A04L1		1-02 *	C	TM11-02				1			CABLE	472
RWD		B30L1		1-03 *		TM11-07							TERM HERE?	472
RWD				1								19-2/8		472
RWS		A05L1		1-01 *		TM11-08				1			TERM HERE?	473
RWS		B04F2		1-02 *	C	TM11-02				2			CABLE	473
RWS		B03F2		1-03 *	C	TM11-02							CABLE	473
RWS				1								7-4/8		473
RWS	H	A25L2		1-01 *				R1		1				474
RWS	H	B32D1		1-02 *				R1		2				474
RWS	H	B26U2		1-03 *				R1		1				474
RWS	H	B06P1		1-04 *				R1		2				474
RWS	H	A05M1		1-05 *				R1		1				474
RWS	H	B08M2		1-06 *				R1						474
RWS				1								36-4/8		474
RWS	L	B26V2		1-01 *		TM11-08				1				475
RWS	L	B31K1		1-02 *		TM11-04								475
RWS				1								5-0/8		475
SAME TU	L	B18L1		1-01 *				R1		1				476
SAME TU	L	B15D2		1-02 *				I						476
SAME TU				1								4-0/8		476
SDWN		A05J1		1-01 *		TM11-08				1			TERM HERE?	477
SDWN		B04B1		1-02 *	C	TM11-02				2			CABLE	477
SDWN		B03B1		1-03 *		TM11-02							CABLE	477
SDWN				1								7-2/8		477
SDWN	H	A05K1		1-01 *		TM11-08				1			TERM HERE?	478
SDWN	H	B06K2		1-02 *	C	TM11-03				2			CABLE	478
SDWN	H	B08J2		1-03 *		TM11-12				1				478
SDWN	H	B19H1		1-04 *		TM11-04				2				478
SDWN	H	B26S2		1-05 *		TM11-08				1				478
SDWN	H	A27H1		1-06 *		TM11-04							TERM HERE?	478
SDWN				1								29-2/8		478

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
SDWN	L	A17L1		1-01 *				R1		1				479
SDWN	L	B26T2		1-02 *				R1		2				479
SDWN	L	A29L2		1-03 *				R1						479
SDWN				1								15-0/8		479
SEL 0		A03A1		1-01 *	C	TM11-02				2			CABLE	480
SEL 0		A04A1		1-02 *	C	TM11-02				1			CABLE	480
SEL 0		B05V2		1-03 *		TM11-10							TERM HERE?	480
SEL 0				1								10-2/8		480
SEL 1		A03B1		1-01 *	C	TM11-02				2			CABLE	481
SEL 1		A04B1		1-02 *	C	TM11-02				1			CABLE	481
SEL 1		B05P2		1-03 *		TM11-10							TERM HERE?	481
SEL 1				1								9-4/8		481
SEL 1 IN	L	A08U2		1-01 *				R1		2				482
SEL 1 IN	L	B11J2		1-02 *				R1		1				482
SEL 1 IN	L	B08U2		1-03 *				R1						482
SEL 1 IN				1								9-2/8		482
SEL 1 OUT	L	A27L1		1-01 *				R1		2				483
SEL 1 OUT	L	A27E2		1-02 *				R1		1				483
SEL 1 OUT	L	B15F1		1-03 *				R1						483
SEL 1 OUT				1								12-6/8		483
SEL 1 OUT HI	H	B11U1		1-01 *				R1		1				484
SEL 1 OUT HI	H	B15E1		1-02 *				R1		2				484
SEL 1 OUT HI	H	A14L2		1-03 *				R1		1				484
SEL 1 OUT HI	H	A14N1	A16R2	1-04 *				R1		2				484
SEL 1 OUT HI	H	A16R2		1-05 *				R1		1				484
SEL 1 OUT HI	H	A14B2		1-06 *				R1		2				484
SEL 1 OUT HI	H	B18H1		1-07 *				R1		1				484
SEL 1 OUT HI	H	A24B1		1-08 *				R1		2				484
SEL 1 OUT HI	H	A24D2		1-09 *				R1		1				484
SEL 1 OUT HI	H	B31S2		1-10 *				R1						484
SEL 1 OUT HI				1								42-0/8		484
SEL 1 OUT LO	H	B11N1		1-01 *				R1		1				485
SEL 1 OUT LO	H	B15D1		1-02 *				R1		2				485
SEL 1 OUT LO	H	B18D2		1-03 *				R1		1				485
SEL 1 OUT LO	H	A14H1		1-04 *				R1		2				485
SEL 1 OUT LO	H	A14D2		1-05 *				R1		1				485
SEL 1 OUT LO	H	A14B1		1-06 *				R1		2				485
SEL 1 OUT LO	H	A24H1		1-07 *				R1		1				485
SEL 1 OUT LO	H	B21H2		1-08 *				R1						485
SEL 1 OUT LO				1								33-4/8		485

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
SEL 2		A03C1		1-01 *	C	TM11-02				2			CABLE	486
SEL 2		A04C1		1-02 *	C	TM11-02				1			CABLE	486
SEL 2		B05J2		1-03 *		TM11-10							TERM HERE?	486
SEL 2				1								8-6/8		486
SEL 2 IN	L	B11K2		1-01 *		TM11-26				1				487
SEL 2 IN	L	B12T2		1-02 *		TM11-19								487
SEL 2 IN				1								3-4/8		487
SEL 2 OUT HI	H	B11S1		1-01 *			R1			1				488
SEL 2 OUT HI	H	B21D1		1-02 *			R1							488
SEL 2 OUT HI				1								8-0/8		488
SEL 2 OUT LO	H	B11R2		1-01 *			R1			1				489
SEL 2 OUT LO	H	B21A1		1-02 *			R1							489
SEL 2 OUT LO				1								7-6/8		489
SEL 3 IN	L	A12D2		1-01 *		TM11-18				1				490
SEL 3 IN	L	B11F1		1-02 *		TM11-26								490
SEL 3 IN				1								5-6/8		490
SEL 3 OUT HI	H	B11P1		1-01 *			R1			1				491
SEL 3 OUT HI	H	B21H1		1-02 *			R1							491
SEL 3 OUT HI				1								7-6/8		491
SEL 3 OUT LO	H	B11L1		1-01 *			R1			1				492
SEL 3 OUT LO	H	B21D2		1-02 *			R1							492
SEL 3 OUT LO				1								8-0/8		492
SEL 4 IN	H	A19J1		1-01 *		TM11-25				1				493
SEL 4 IN	H	A19K1		1-02 *		TM11-25				2				493
SEL 4 IN	H	A19P1		1-03 *		TM11-25				1				493
SEL 4 IN	H	A19R1		1-04 *		TM11-25				2				493
SEL 4 IN	H	A23V2		1-05 *		TM11-25								493
SEL 4 IN				1								12-4/8		493
SEL 4 IN	L	A23U2		1-01 *		TM11-25				1				494
SEL 4 IN	L	B11E1		1-02 *		TM11-26								494
SEL 4 IN				1								9-2/8		494
SEL 4 OUT HI	H	B11U2		1-01 *			R1			1				495
SEL 4 OUT HI	H	A23P2		1-02 *			R1							495
SEL 4 OUT HI				1								9-6/8		495
SEL 4 OUT HI	L	A23R2		1-01 *			R1			1				496
SEL 4 OUT HI	L	B29R1		1-02 *			R1							496
SEL 4 OUT HI				1								6-2/8		496

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
SEL 4 OUT LO	H	B21L1		1-01 *			R1			1				497
SEL 4 OUT LO	H	B11J1		1-02 *			R1							497
SEL 4 OUT LO				1								7-4/8		497
SEL 5 IN	L	B13V2		1-01 *		TM11-14				1				498
SEL 5 IN	L	A13V2		1-02 *		TM11-14				2				498
SEL 5 IN	L	B11F2		1-03 *		TM11-26								498
SEL 5 IN				1								9-0/8		498
SEL 5 OUT HI	H	B11S2		1-01 *			R1			1				499
SEL 5 OUT HI	H	B22M2		1-02 *			I			2				499
SEL 5 OUT HI	H	B21P2		1-03 *			I							499
SEL 5 OUT HI				1								11-0/8		499
SEL 5 OUT LO	H	B11K1				TM11-26							1-PIN RUN	500
SEL 6 IN	L	B11E2				TM11-26							1-PIN RUN	501
SEL 6 OUT HI	H	B11N2				TM11-26							1-PIN RUN	502
SEL 6 OUT LO	H	B11M2				TM11-26							1-PIN RUN	503
SEL 7 IN	L	B11D2				TM11-26							1-PIN RUN	504
SEL 7 OUT HI	H	B11P2				TM11-26							1-PIN RUN	505
SEL 7 OUT LO	H	B11L2				TM11-26							1-PIN RUN	506
SEL STATUS IN	L	A08V2		1-01 *		TM11-12		1						507
SEL STATUS IN	L	B08V2		1-02 *		TM11-13		2						507
SEL STATUS IN	L	B11H2		1-03 *		TM11-26								507
SEL STATUS IN				1								9-2/8		507
SEL STATUS OUT HI	H	B11R1				TM11-26							1-PIN RUN	508
SEL STATUS OUT LO	H	B11M1				TM11-26							1-PIN RUN	509
SELR		A05D1		1-01 *		TM11-08		1					TERM HERE?	510
SELR		B04N2		1-02 *	C	TM11-02		2					CABLE	510
SELR		B03N2		1-03 *	C	TM11-02							CABLE	510
SELR				1								9-0/8		510

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
SELR	H	A05E1		1-01 *				R1			1				511
SELR	H	B06C1		1-02 *				R1			2				511
SELR	H	B08E1		1-03 *				R1			1				511
SELR	H	B16D1		1-04 *				R1			2				511
SELR	H	A22R1		1-05 *				R1			1				511
SELR	H	A22P1		1-06 *				R1			2				511
SELR	H	A29T2		1-07 *				1							511
SELR				1									30-0/8		511
SELR	L	B29D1		1-01 *				I			2				512
SELR	L	A25M1		1-02 *				I			1				512
SELR	L	A25M2		1-03 *				I			2				512
SELR	L	A27R1		1-04 *				R1			1				512
SELR	L	A27R2		1-05 *				I			2				512
SELR	L	B16E1		1-06 *				R1							512
SELR				1									22-6/8		512
SET		A03R2		1-01 *	C	TM11-02					2			CABLE	513
SET		A04R2		1-02 *	C	TM11-02					1			CABLE	513
SET		B05E1	B28D2	1-03 *		TM11-04					2				513
SET		B28D2		1-04 *										TERM HERE?	513
SET				1									21-0/8		513
SET BR	L	A29C1		1-01 *	1						1				514
SET BR	L	A30R2		1-02 *											514
SET BR				1									4-0/8		514
SET CUR	L	A18N2		1-01 *					I		2				515
SET CUR	L	A18U2		1-02 *					I		1				515
SET CUR	L	B15N2		1-03 *					I						515
SET CUR				1									8-0/8		515
SET ILC	H	A24T2		1-01 *		TM11-16					2				516
SET ILC	H	A22U1		1-02 *		TM11-16					1				516
SET ILC	H	B16J1		1-03 *		TM11-04									516
SET ILC				1									9-6/8		516
SET INT	L	A30N1		1-01 *							1				517
SET INT	L	B29A1		1-02 *											517
SET INT				1									4-0/8		517
SLCT 1 OUT LO	H	B26N1		1-01 *					I		1				518
SLCT 1 OUT LO	H	A21K2		1-02 *					I		2				518
SLCT 1 OUT LO	H	A17R2		1-03 *					I						518
SLCT 1 OUT LO				1									10-6/8		518

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
SLCT 1 OUT LO	L	B21K2		1-01 *					I		2				519
SLCT 1 OUT LO	L	B22B1		1-02 *					I		1				519
SLCT 1 OUT LO	L	B26L1		1-03 *					I						519
SLCT 1 OUT LO				1									8-2/8		519
SLCT 2 OUT HI	L	B12S1		1-01 *					I		1				520
SLCT 2 OUT HI	L	B21F1		1-02 *					I						520
SLCT 2 OUT HI				1									7-4/8		520
SLCT 2 OUT LO	L	A12E2		1-01 *					I		1				521
SLCT 2 OUT LO	L	B21C1		1-02 *					I						521
SLCT 2 OUT LO				1									7-6/8		521
SLCT 3 OUT HI	L	B12R1		1-01 *					I		1				522
SLCT 3 OUT HI	L	B21K1		1-02 *					I						522
SLCT 3 OUT HI				1									7-0/8		522
SLCT 3 OUT LO	L	B12V2		1-01 *					I		1				523
SLCT 3 OUT LO	L	B21F2		1-02 *					I						523
SLCT 3 OUT LO				1									7-4/8		523
SLCT 4 OUT LO	L	A16E1		1-01 *					I		2				524
SLCT 4 OUT LO	L	A20K1		1-02 *					I		1				524
SLCT 4 OUT LO	L	A20J1		1-03 *					I		2				524
SLCT 4 OUT LO	L	B21N1		1-04 *					I						524
SLCT 4 OUT LO				1									12-6/8		524
SPACE	H	A22D2		1-01 *		TM11-05					1				525
SPACE	H	B26A1		1-02 *		TM11-06					2				525
SPACE	H	B19L2		1-03 *		TM11-04					1				525
SPACE	H	B19N1		1-04 *		TM11-04					2				525
SPACE	H	A16R1		1-05 *											525
SPACE				1									19-6/8		525
SPACE	L	A16D2		1-01 *		TM11-06					1				526
SPACE	L	B26B1		1-02 *		TM11-06									526
SPACE				1									8-2/8		526
SPACE FWD	L	A15L1		1-01 *		TM11-07					2				527
SPACE FWD	L	B19L1		1-02 *		TM11-04					1				527
SPACE FWD	L	B05N1		1-03 *		TM11-07									527
SPACE FWD				1									15-4/8		527
SPACE REV	H	A29J1		1-01 *	2						2				528
SPACE REV	H	B16D2		1-02 *				R1			1				528
SPACE REV	H	B31M2		1-03 *				R1							528
SPACE REV				1									19-4/8		528

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
SPACE REV	L	A29J2		1-01 #					I		1				529
SPACE REV	L	A14M1		1-02 #					R1		2				529
SPACE REV	L	A17K2		1-03 #					R1		1				529
SPACE REV	L	B19M1		1-04 #					R1		2				529
SPACE REV	L	B16C1		1-05 #					R1		1				529
SPACE REV	L	B05F1		1-06 #					R1						529
SPACE REV				1									31-6/8		529
SSYN	H	A11A1		1-01 #					R1		1				530
SSYN	H	B10F2		1-02 #					R1		2				530
SSYN	H	A06B2		1-03 #					I						530
SSYN				1									11-0/8		530
SSYN	L	A10C1		1-01 #					I		1				531
SSYN	L	A06T2		1-02 #					I						531
SSYN				1									4-6/8		531
SSYN INH	H	B26L2		1-01 #					1		2				532
SSYN INH	H	B21B1		1-02 #					I		1				532
SSYN INH	H	B21E1		1-03 #					1		2				532
SSYN INH	H	B21E2		1-04 #					I		1				532
SSYN INH	H	B21J1		1-05 #					1		2				532
SSYN INH	H	B21J2		1-06 #					I		1				532
SSYN INH	H	B21M1		1-07 #					I						532
SSYN INH				1									19-0/8		532
SSYN INH	L	A09B1		1-01 #					R1		1				533
SSYN INH	L	B26K2	B11V2	1-02 #					1		2				533
SSYN INH	L	B11V2		1-03 #											533
SSYN INH				1									22-6/8		533
START XFER TIMING	L	B11H1				TM11-26								1-PIN RUN	534
TIMER	H	B13B1		1-01 #		TM11-14					1				535
TIMER	H	B31S1		1-02 #		TM11-05									535
TIMER				1									12-0/8		535
TUR		B03C1		1-01 #					R1		2				536
TUR		B04C1		1-02 #					R1		1				536
TUR		A06P2		1-03 #					R1						536
TUR				1									7-2/8		536

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
TUR	H	B32M1		1-01 #					R1		2				537
TUR	H	A23J1		1-02 #					R1		1				537
TUR	H	A06R2		1-03 #					R1		2				537
TUR	H	B06R1		1-04 #					R1		1				537
TUR	H	B08R1		1-05 #					R1						537
TUR				1									27-4/8		537
TUR	L	A25L1		1-01 #					R1		2				538
TUR	L	A23K1		1-02 #					R1		1				538
TUR	L	A17M1		1-03 #					R1						538
TUR				1									9-0/8		538
UNIT SEL BIT 0	H	A18J1		1-01 #					R1		2				539
UNIT SEL BIT 0	H	A14V2		1-02 #					R1		1				539
UNIT SEL BIT 0	H	B06H1		1-03 #					R1		2				539
UNIT SEL BIT 0	H	A08P1		1-04 #					R1						539
UNIT SEL BIT 0				1									16-6/8		539
UNIT SEL BIT 1	H	A18E2		1-01 #					R1		1				540
UNIT SEL BIT 1	H	A14S1		1-02 #					R1		2				540
UNIT SEL BIT 1	H	A08L2		1-03 #					R1		1				540
UNIT SEL BIT 1	H	B06H2		1-04 #					R1						540
UNIT SEL BIT 1				1									15-6/8		540
UNIT SEL BIT 2	H	A18C1		1-01 #					R1		2				541
UNIT SEL BIT 2	H	A14P2		1-02 #					R1		1				541
UNIT SEL BIT 2	H	A08L1		1-03 #					R1		2				541
UNIT SEL BIT 2	H	B06F2		1-04 #					R1						541
UNIT SEL BIT 2				1									15-4/8		541
UNIT SEL BIT TM 0	H	A18L1		1-01 #					I		1				542
UNIT SEL BIT TM 0	H	A19E2		1-02 #					I						542
UNIT SEL BIT TM 0				1									3-2/8		542
UNIT SEL BIT TM 0	L	B05D2		1-01 #					I		1				543
UNIT SEL BIT TM 0	L	A18M1		1-02 #					I		2				543
UNIT SEL BIT TM 0	L	A19H2		1-03 #					I						543
UNIT SEL BIT TM 0				1									12-4/8		543
UNIT SEL BIT TM 1	H	A18H2		1-01 #					I		1				544
UNIT SEL BIT TM 1	H	A19L2		1-02 #					I						544
UNIT SEL BIT TM 1				1									3-2/8		544
UNIT SEL BIT TM 1	L	B05K2		1-01 #					I		1				545
UNIT SEL BIT TM 1	L	A18J2		1-02 #					I		2				545
UNIT SEL BIT TM 1	L	A19N2		1-03 #					I						545
UNIT SEL BIT TM 1				1									13-2/8		545

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
UNIT SEL BIT TM 2	H	A18E1		1-01 *			I		1				546
UNIT SEL BIT TM 2	H	A19B2		1-02 *			I						546
UNIT SEL BIT TM 2				1							4-0/8		546
UNIT SEL BIT TM 2	L	B05R2		1-01 *			I		1				547
UNIT SEL BIT TM 2	L	A18F1		1-02 *			I		2				547
UNIT SEL BIT TM 2	L	A19U2		1-03 *			I						547
UNIT SEL BIT TM 2				1							14-2/8		547
VPE		A29P2		1-01 *		TM11-17			1			TERM HERE?	548
VPE		B04M2		1-02 *	C	TM11-02			2			CABLE	548
VPE		B03M2		1-03 *	C	TM11-02						CABLE	548
VPE				1							18-6/8		548
WD 0		A04D2		1-01 *	C	TM11-02			2			CABLE	549
WD 0		A04D2		1-02 *	C	TM11-02			1			CABLE	549
WD 0		A06S1		1-03 *		TM11-09						TERM HERE?	549
WD 0				1							6-6/8		549
WD 1		A03E2		1-01 *	C	TM11-02			2			CABLE	550
WD 1		A04E2		1-02 *	C	TM11-02			1			CABLE	550
WD 1		A06N2		1-03 *		TM11-09						TERM HERE?	550
WD 1				1							6-4/8		550
WD 2		A03F2		1-01 *	C	TM11-02			2			CABLE	551
WD 2		A04F2		1-02 *	C	TM11-02			1			CABLE	551
WD 2		A06K1		1-03 *		TM11-09						TERM HERE?	551
WD 2				1							6-0/8		551
WD 3		A03H2		1-01 *	C	TM11-02			2			CABLE	552
WD 3		A04H2		1-02 *	C	TM11-02			1			CABLE	552
WD 3		A06F2		1-03 *		TM11-09						TERM HERE?	552
WD 3				1							6-2/8		552
WD 4		A03J2		1-01 *	C	TM11-02			2			CABLE	553
WD 4		A04J2		1-02 *	C	TM11-02			1			CABLE	553
WD 4		A06H1		1-03 *		TM11-09						TERM HERE?	553
WD 4				1							5-6/8		553
WD 5		A03K2		1-01 *	C	TM11-02			2			CABLE	554
WD 5		A04K2		1-02 *	C	TM11-02			1			CABLE	554
WD 5		A06E1		1-03 *		TM11-09						TERM HERE?	554
WD 5				1							6-0/8		554

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
WD 6		A03L2		1-01 *	C	TM11-02			2			CABLE	555
WD 6		A04L2		1-02 *	C	TM11-02			1			CABLE	555
WD 6		A06D2		1-03 *		TM11-09						TERM HERE?	555
WD 6				1							6-4/8		555
WD 7		A03M2		1-01 *	C	TM11-02			2			CABLE	556
WD 7		A04M2		1-02 *	C	TM11-02			1			CABLE	556
WD 7		A06B1		1-03 *		TM11-09						TERM HERE?	556
WD 7				1							6-4/8		556
WDR		A03S2		1-01 *			R1		2				557
WDR		A04S2		1-02 *			R1		1				557
WDR		B19V2		1-03 *			R1						557
WDR				1							14-0/8		557
WFMK		A03U2		1-01 *	C	TM11-02			2			CABLE	558
WFMK		A04U2		1-02 *	C	TM11-02			1			CABLE	558
WFMK		B30P2		1-03 *		TM11-07						TERM HERE?	558
WFMK				1							19-0/8		558
WRE		A03M1		1-01 *	C	TM11-02			2			CABLE	559
WRE		A04M1		1-02 *	C	TM11-02			1			CABLE	559
WRE		B30E1		1-03 *		TM11-07						TERM HERE?	559
WRE				1							19-0/8		559
WRITE	L	A15J1		1-01 *					2				560
WRITE	L	A16L1		1-02 *		TM11-11			1				560
WRITE	L	A22N2		1-03 *		TM11-07							560
WRITE				1							8-6/8		560
WRITE ENB	H	A27B1		1-01 *		TM11-16			2				561
WRITE ENB	H	A22S2		1-02 *		TM11-07			1				561
WRITE ENB	H	B26R1		1-03 *		TM11-07							561
WRITE ENB				1							11-2/8		561
WRITE ENB	L	B05P1		1-01 *		TM11-07			2				562
WRITE ENB	L	B05R1		1-02 *		TM11-07			1				562
WRITE ENB	L	B26S1		1-03 *		TM11-07			2				562
WRITE ENB	L	B30A1		1-04 *		TM11-07			1				562
WRITE ENB	L	B29D2		1-05 *		TM11-17							562
WRITE ENB				1							23-0/8		562
WRITE EOF	L	A15K1		1-01 *		TM11-07			1				563
WRITE EOF	L	A22P2		1-02 *		TM11-07			2				563
WRITE EOF	L	B30K2		1-03 *		TM11-07			1				563
WRITE EOF	L	B30N1		1-04 *		TM11-07							563
WRITE EOF				1							16-2/8		563

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
WRITE XIRG	L	A15N1		1-01 *		TM11-07		1				564
WRITE XIRG	L	A16M1		1-02 *		TM11-11		2				564
WRITE XIRG	L	A22R2		1-03 *		TM11-07		1				564
WRITE XIRG	L	B30M1		1-04 *		TM11-07						564
WRITE XIRG				I						15-6/8		564
WRL		A05H2		1-01 *		TM11-08		1			TERM HERE?	565
WRL		B04L2		1-02 *	C	TM11-02		2			CABLE	565
WRL		B03L2		1-03 *	C	TM11-02					CABLE	565
WRL				I						8-4/8		565
WRL	H	A27A1		1-01 *		TM11-16		1			TERM HERE?	566
WRL	H	A05J2		1-02 *		TM11-08		2				566
WRL	H	B06J1		1-03 *		TM11-12		1				566
WRL	H	B08M1		1-04 *	C	TM11-03					CABLE	566
WRL				I						22-0/8		566
WRS		B03D2		1-01 *	C	TM11-02		2			CABLE	567
WRS		B04D2		1-02 *	C	TM11-02		1			CABLE	567
WRS		B26P2		1-03 *		TM11-08					TERM HERE?	567
WRS				I						16-4/8		567
WRS	H	B14J1		1-01 *			R1	1				568
WRS	H	B14M2		1-02 *			R1	2				568
WRS	H	B15U2		1-03 *			R1	1				568
WRS	H	B26R2		1-04 *			R1	2				568
WRS	H	B22R1		1-05 *			I					568
WRS				I						18-6/8		568
WRT DATA ENB	H	A16N1		1-01 *			R1	1				569
WRT DATA ENB	H	A16M2		1-02 *			R1	2				569
WRT DATA ENB	H	A23H2		1-03 *			R1					569
WRT DATA ENB				I						8-4/8		569
WXG		A03J1		1-01 *	C	TM11-02		2			CABLE	570
WXG		A04J1		1-02 *	C	TM11-02		1			CABLE	570
WXG		B30S1		1-03 *		TM11-07					TERM HERE?	570
WXG				I						19-4/8		570

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION — DATE May 3, 197

TITLE TM11 SPECIFICATION

REVISIONS

REV		DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A			TM11-00008	FRITZ	6-25-71	M. Fritz	6-30-71
B			TM11-00010	FRITZ	8-31-71	M. Fritz	9-1-71

ENG	APPD	SIZE	CODE	NUMBER	REV
Malcolm Fritz	M. Fritz	A	SP	TM11-Ø-25	B

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ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE TM11 SPECIFICATION

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	SIZE	CODE	NUMBER	REV
	A	SP	TM11-Ø-25	B

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ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE TM11 SPECIFICATION

1. INTRODUCTION

The magnetic tape control unit interfaces the TU1Ø (positive bus version) to the PDP-11. Figure 1 shows the system block diagram which includes the PDP-11, the control unit, and up to eight TU1Ø magnetic tape units. One tape unit is referred to as the master, and all others in the system as slaves. Each tape unit, master and slave, consists of the TU1Ø cabinet, reel and reel motor control, capstan drive and read/write mechanical and electrical components. The master contains in addition, that section of the magnetic tape electronics which is shared by all tape units. This includes electronics for starting and stopping any tape unit, read and write pulses, gapping electronics, and parity generation and checking. Electronics may be shared because only one tape unit at a time may communicate with the processor.

The control unit is located in the cabinet of the master. Its modules are contained in the 1943 rack which is mounted below the tape unit. An indicator panel which contains a maintenance module is located below the tape unit. An indicator panel which contains a maintenance module is located below the 1943 rack. The maintenance module contains 28 lights (12 for the command register and 16 for the status register) and a power clear toggle switch.

Table shows the interface signals between the control unit and the master. Each signal is accompanied by its appropriate definition.

The control unit contains 6 addressable registers which are indicated below along with their respective bus addresses.

772520	STATUS REGISTER (MTS)
772522	COMMAND REGISTER (MTC)
772524	BYTE RECORD COUNTER (MTBRC)
772526	CURRENT MEMORY ADDRESS REGISTER (MTCMA)
772530	DATA BUFFER (MTD)
772532	TU1Ø READ LINES (MTRD)

In addition, the control unit contains a bus request interrupt whose vector address is 224 and whose bus request level is BR5.

1.1 MAGNETIC TAPE FORMAT

The control unit services both 9 and 7 channel magnetic tape units. A nine channel tape record is followed by three blank character spaces, a CRC character, three additional blank characters, and an LPC character. A seven channel record is followed by three blank character spaces and an LPC character.

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TITLE TM11 SPECIFICATION

2. CONTROL UNIT REGISTERS

The six registers used in the MTCU are the following:

1. COMMAND REGISTER (MTC)
2. STATUS REGISTER (MTS)
3. BYTE RECORD COUNTER (MTBRC)
4. CURRENT MEMORY ADDRESS REGISTER (MTCMA)
5. DATA BUFFER (MTD)
6. TU1Ø READ LINES (MTRD)

2.1 COMMAND REGISTER (MTC) AND STATUS REGISTER (MTS)

2.1.1 GENERAL

The formats for the command and status registers are shown in Figure 3. The three select bits, Unit Sel Bit Ø, Unit Sel Bit 1 and Unit Sel Bit 2, are used to select one out of eight possible magnetic tape units. All operations defined in the MTC and all status conditions defined in the MTS pertain to the MTU indicated by the three select bits. Bit Ø of the MTC begins the operation defined by function bits Ø, 1 and 2. The eight functions as defined by the three function bits are listed below in the order of function decodes with function bit Ø the least significant bit.

Ø OFF LINE
1 READ
2 WRITE
3 WRITE EOF
4 SPACE FORWARD
5 SPACE REVERSE
6 WRITE WITH EXTENDED INTERRECORD GAP
7 REWIND

In the functions read, write, write EOF, and write with extended IRG, the MTU advances in the forward direction one record. The EOF character and its associated LPC character is considered one record. In a space forward operation, the MTU advances in the forward direction a specified number of records, the number determined by the byte record counter. In a space reverse operation, the MTU moves in the reverse direction a specified number of records, the number also determined by the byte record counter. In a rewind operation, the tape reverses at a higher speed than that for the other functions and stops on the BOT marker. The OFF line operation

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turns the tape unit OFF line and rewinds the tape. While the tape unit is OFF line, the control unit may not write onto nor read from the tape. In addition, the tape unit must be in the OFF line state in order to remove the tape reels. In a write, write EOF, and write with extended IRG, the data portion of the record is transferred from core memory onto the tape. In a write EOF and write with extended IRG, a three inch segment of tape is erased prior to writing the first character. The characters following the data (CRC and LPC for a nine channel tape and LPC for a seven channel tape) are generated and written by the master.

In a read operation, the data portion of the record is transferred into memory; i.e. the CRC and LPC characters are not transferred into memory. Functions rewind, space forward, and space reverse are used for tape positioning only and do not affect the tape or core memory.

2.1.2 OPERATION

Figure 2 shows a timing diagram of the four basic states in a magnetic tape operation, when the processor sets the GO bit. The operation defined by the function bit occurs. In addition, oth the CU ready and TUR bits become Ø.

Fo all tape forward commands, the master transmits a CRCS and LPCS at the end of each record for a nine channel tape, and LPCS at the end of each record for a seven channel tape. For write, write EOF, or write with extended IRG operation, the control unit sends the level WDR (WRITE DATA READY) for all characters in the record. After the last WRS pulse, the control unit lowers the level on WDR. The master then writes the CRC character (if required) and the LPC character onto the tape.

The master also transmits the CRCS and LPCS pulses to the control unit when it reads the CRC and LPC characters it had just written.

After the master reads the LPC character, it times through the GAP shoutdown period. The purpose of the GAP shutdown period is to ensure a 3/4 inch GAP between records. The master then sends a stop command to the tape unit which then enters its settling down

period. The SDWN bit becomes a 1 during the settling down period. When the tape unit stops, it enters its idle period and the TUR bit becomes a 1.

In a tape reverse operation (not rewind) the master enters the GAP shutdown period immediately after the first data character passes under the read head. The settling down period then follows the GAP shutdown period.

In a tape forward command of one record (READ, WRITE, WRITE EOF, and WRITE with EXTENDED IRG) the CU READY bit becomes a 1 when the first LPC character is read. In a space forward and space reverse operation, the CU ready bit becomes a 1 at the start of an LPCS time in conjunction with spacing the required number of records. At the start of each SDWN time, the tape unit begins to slow down. Thus, for space forward and space reverse operations, a new GO command is automatically sent to the tape unit at the start of each SDWN time if the required number of records has not yet been spaced.

The master will accept and execute any new command during the SDWN period except if the new command is to the same tape unit as the one issuing SDWN and if the direction implied in the new command is opposite to the present direction. For the above exception, the master will accept the new command only after the tape unit has stopped, i.e.; SDWN a Ø and TUR a 1. The control unit accepts as legal all commands it receives while the CU ready bit is a 1, which includes commands received during the GAP shutdown or tape settling down periods. Thus, commands received during the GAP shutdown or settling down periods are buffered and transmitted to the master at the appropriate time as specified above.

For the operations write EOF and write the extended IRG, a three inch GAP is erased prior to writing the required characters.

For a write EOF command, the master writes an octal 23 followed by an LPC of octal 23 for a 9 channel tape or an octal 17 followed by an LPC of octal 17 for a 7 channel tape. On a 9 channel tape, the data tracks are designated Ø-7, with track Ø the least significant and track 7 the most significant; while on a 7 channel tape, the data trancks are designated Ø-5 with track Ø the least significant and track 5 the most significant.

Thus, octal 23 on a 9 channel tape has tracks Ø, 1 and 4 marked, while octal 17 on a 7 channel tape has tracks Ø,1,2 and 3 marked.

An EOF character and its corresponding LPC character constitutes a record. Thus, when a read command is given and an EOF character is read, the tape unit enters the GAP shutdown period after the LPC character following the EOF character is detected. In reading an EOF character, the EOF bit in the MTS and the ERR bit in the MTC becomes a one when the EOF bit is detected. Also, both the EOF character and its corresponding LPC character are loaded into consecutive memory locations, as determined the MTBRC.

During a space forward and space reverse operation, the tape unit begins to stop during the SDWN time following detection of either the EOF character or BOT marker.

When the OFF line command is given, the tape unit goes off line and then revinds to the BOT marker. At the start of the OFF line command, the CU ready and TUR bits become Ø, when the tape unit goes OFF line, the master sets the select remote bit in the MTS to A Ø.

A programming restriction is that a read operation should not follow directly after a write operation without at least one intervening tape moving operation. A record which is written on tape may be read after first issuing a space reverse command.

Other programming restrictions occur when using select remote along with tape unit ready. The select remote lines for all tape units which are not addressed are at Ø. A tape operation may be performed only on a selected tape unit and one whose SELR line is a 1. Thus, whenever a command is sent to a different tape unit from the one presently indicated by the unit select bits, the SELR line becomes Ø almost immediately (less than one instruction time later) and becomes a 1 about 1Ømicroseconds later. Shortly thereafter (less than one instruction time later) the TUR reading on the selected unit is valid. Thus, in programming, the SELR bit may be examined immediately after a command is sent to a different tape unit from the one indicated by the unit select bits. When SELR reads A 1, then TUR may be examined to determine the end of the tape operation. When a command

is to the same tape unit as the one indicated by the unit select bits, the SELR line remains at a 1. [illegible] the TUR line be a 1 prior to receiving the command, it would remain a 1 for approximately 1Ø microseconds. The CU ready bit, however, goes low immediately after the command is generated by the program. Thus, it may be advisable for the program to utilize both the CU ready and TUR bits to determine when for example to issue a new command in the reverse direction to the same tape unit as the one indicated by the unit select bits.

Any command received during the GAP shutdown time which is to a different tape unit from that of the previous command or is in the same direction as that in the previous command will be transmitted at the start of settle down time. Any command received during the GAP shutdown time which is both to the same tape unit and in the opposite direction as that of the previous command will not be transmitted until the end of settle down time. Any command received during settle down time will not be transmitted until the end of settle down time.

2.1.2.1 BUS REQUEST INTERRUPT - BR

A bus request interrupt occurs under the following conditions:

1. The CU ready bit changes from Ø to 1 when the INT ENB bit is a 1.
2. The ERR bit changes from Ø to 1 when the INT ENB is a 1.
3. The INT ENB bit changes from Ø to 1 if during the command, the GO bit remains at Ø.
4. The tape unit indicated by the unit select bity in the MTC completes its rewind operation before a new command to that tape unit has been received.

2.1.2.2 NON-PROCESSOR REQUEST - NPR

The control unit generates an NPR whenever it transfers data between the data buffer and core memory. In a read operation, the direction of transfer is from the data buffer to core memory. The RDS pulse, which

is used to strobe the data from the tape unit into the data buffer, is used to generate the NPR to the processor. When the request is granted, the control unit performs a DATO and transfers a byte from the data buffer into core memory. In a write, or write with extended IRG, the NPR is generated by the WRS (WRITE STROBE) pulse from the processor. When the request is granted, the control unit performs a DATI and transfers a byte from core memory into the data buffer. For both read and write operations, the address in core memory is determined by the current memory address register (MTCMA).

2.1.2. REWIND

When the control unit issues a rewind command to the master, the CU ready bit becomes a Ø. When the master detects the GO bit, it places TUR at a Ø. As soon as the tape unit begins to rewind, the master sets the RWS bit in the MTS to a 1. The CU ready bit then becomes a 1. The tape unit rewinds at a higher speed that that for a normal tape operation. When the BOT marker is detected, it begins to slow down. It comes to a complete stop at a point well beyond the BOT marker and then moves forward again until the BOT marker is again detected, whereupon, it comes to a final stop. SDWN becomes a 1 as soon as the BOT marker is detected while the tape is moving in the forward direction. When the tape unit comes to its final stop, SDWN becomes a Ø and TUR becomes a 1.

2.1.2.4 INITIALIZE

The control unit and the tape units are initialized by the following means:

1. Reset instruction from the processor.
2. By depressing the processor start switch.
3. By a power fail, either by the processor power supply or by the control unit power supply.

4. By the clear switch in the maintenance module.
5. By loading a 1 into bit 12 of the MTC.

1 clears all units in the system except the processor. 2 and 3 clear all units in the system including the processor and all peripherals. 4 and 5 clear only the control unit and tape units.

2.2 STATUS REGISTER

2.2.1 BIT CONTROL OF THE MTS

BITS Ø-6 and BIT 14 are set and cleared exclusively by the master. BITS 7-13 and 15 are set by the appropriate error condition and cleared by initialize, and by the GO pulse to the tape unit.

2.2.2 TAPE UNIT READY - TUR

The TUR bit is a 1 whenever the SELR bit is a 1 and the tape unit is not in motion.

2.2.3 REWIND STATUS - RWS

The RWS bit becomes a 1 at the start of a rewind operation, and becomes a Ø as soon as BOT is detected while the tape is moving in reverse.

2.2.4 WRITE LOCK - WRL

The WRL bit at a 1 prevents the control unit from writing information on tape.

2.2.5 SETTLE DOWN - SDWN

The SDWN bit is a 1 whenever the tape unit that is on line is slowing down. The exception occurs in a rewind operation in which the tape unit begins its initial stop while moving in the reverse direction.

2.2.6 SEVEN CHANNEL - 7CH

The 7CH bit at a 1 indicates a 7 channel tape unit, and the 7CH bit a Ø indicates a 9 channel tape unit.

2.2.7 BEGINNING OF TAPE - BOT

The BOT bit is a 1 when the BOT marker is read, and a Ø when the BOT marker is not read. BOT at a 1 does not

produce a 1 in the ERR bit.

2.2.8 SELECT REMOTE - SELR

The SELR bit is a Ø when the tape unit addressed does not exist, is off line, or has its power turned off.

2.2.9 NON-EXISTENT MEMORY - NXM

Non-existent memory error occurs in NPR operations when the control unit is bus master, and is performing data transfers into and out from the bus. The error occurs when the control unit does not receive a slave SYNC signal within 1Ø microseconds after it had issued a master SYNC signal. The ERR bit set simultaneously with NXM, thus terminating the operation. If the NXM occurred during a write or write with extended IRG operation, the control unit does not send the signal WDR to the master, while the master writes the CRC character (if required) and LPC character onto the tape.

2.2.10 BAD TAPE ERROR - BTE

Bad tape error occurs when a character is detected (RDS PULSE) during the gap shutdown or settling down period for all operations except rewind. (In a write, write EOF, or write with extended IRG operation,) both the BTE and ERR bits set immediately upon detection of bad tape. For both a read a space operation, the BTE bit sets immediately upon detection of bad tape. A new GO command is sent to the tape unit and the ERR bit sets upon detection of the next LPC character. If a bad tape error is again found during the GAP shutdown or settle down period, a new GO command is issued. The process of reissuing GO commands is continued until a true GAP is discovered whereupon the tape unit stops.

For a read operation, the MTBRC increments continuously and words are read into memory until the MTBRC overflows. For a space operation, the MTBRC stops incrementing as soon as BTE occurs. When the first true GAP is discovered, the tape unit stops regardle

It is not possible to artificially generate bad tape. Therefore, for diagnostic purposes, bad tape may be indicated by setting the CU ready bit prematurely, and thereby producing the gap shutdown period while the data is still being read. CU ready sets by a logic 1 on bit 15 of the address indicated by the TU1Ø read lines.

If bit 13 sets during a record for either a read or a write operation, bad tape error is indicated.

2.2.11 RECORD LENGTH ERROR - RLE

Record length error is detected only during a read operation. It occurs for long records only and is indicated as soon as the MTBRC increments beyond Ø, at which time both data transfer into memory and incrementing the MTCMA and MTBRC stop. The ERR bit sets when the LPC character is read. CU ready remains at Ø until the LPC character is read.

2.2.12 END OF TAPE - EOT

The EOT bit becomes a 1 as soon as the same EOT marker is read while the tape is moving in the forward direction. The EOT bit becomes a Ø as soon as the same point is read while the tape is moving in the reverse direction. The ERR bit, as a result of the EOT bit at a 1, sets only in the tape forward direction and coincidently with the reading of an LPC character.

2.2.13 BUS GRANT LATE - BGL

A bus grant late error occurs when the control unit, after issuing a request for the bus, does not receive a bus grant before the control unit receives the bus request for the following tape character. The condition is tested only for NPR (NON-PROCESSOR REQUEST) operations. The error is indicated when an NPR bus request has not been answered before the next WRS pulse for a write operation, or an RDS pulse for a read operation is received by the control unit. The operations which occur when the error is detected are identical to those indicated for the NXM error.

2.2.14 PARITY ERROR - PAE

Parity error is the OR of the lateral and longitudinal parity errors. A lateral parity error is indicated on any character in the record while a longitudinal parity error occurs only when the LPC character is detected. A lateral parity error does not affect the transfer of data; that is, in a write operation, the entire record is transferred to tape and in a read operation, the entire record is written into core memory. Also, for both parity erroa, the ERR bit sets only when the LPC character is detected.

Both lateral and longitudinal parity errors are detected during a read, write, and write with extended IRG operations. The entire record is checked including the CRC and LPC characters. Longitudinal parity error occurs when an odd number of 1's is detected on any track in the record. A lateral parity error occurs when an even number of 1's is detected on any character when PEVN is a Ø, or an odd number of 1's is detected on any character when PEVN is a 1.

2.2.15 CYCLICAL REDUNDANCY ERROR - CRE

Cyclical redundancy error is detected during a read or a write operation. It compares the CRC character written on a 9 channel tape during a write or write with extended IRG operation with the CRC character generated during a read operation. If they are not the same, CRCE from the tape unit becomes a 1 which forces the CRE bit to a 1, however, the ERR bit does not become a 1 until the LPC character is detected.

2.2.16 END OF FILE - EOF

An EOF character is detected during a read, space forward or space reverse operation. During the read or space forward operation, the EOF bit is set when the LPC character following the EOF character is read. During a space reverse operation, the EOF bit is set when the EOF character following its LPC character is read. The ERR bit sets when the LPC character following the EOF character is detected.

2.2.17 ILLEGAL COMMAND - ILC

1. Any DATO or DATOB to the MTC during the tape operation period (CU ready bit a Ø).
2. A WRITE, WRITE EOF, or WRITE WITH EXTENDED IRG operation when WRL is a Ø.
3. A COMMAND to a tape unit whose SELR bit is a Ø.
4. The SELR bit becoming a Ø during an operation other than in OFF Line Command.

If error conditions 1 through 4 above, the command is loaded into the MTC, but the GO pulse to the tape unit is not generated. In all 5 of the above error conditions, the ILC and ERR bits occur simultaneously.

2.3 COMMAND REGISTER

2.3.1 BIT CONTROL

Bits number 1-6, 8-11, 13 and 14 are set on a processor DATO when the correspoinding data bit on the bus is a 1, cleared on a processor DATO when the corresponding data bit on the bus is a Ø, and cleared on INIT. Bit Ø sets on a processor DATO when data bit Ø on the bus is a 1 and cleared at the time the GO puslse is sent to the tape unit. The normal time duration of bit Ø at a 1 is 1 microsecond. The time may be increased to as long as 1Ø milliseconds if bit Ø is received during the GAP shutdown or settle down period. Moreover, the time could be several minutes if bit Ø is received for a unit that is rewinding. Bit Ø also clears on the setting of an illegal command and a processor initialize. Bit 7 clears at the start of a tape operation, and sets at the end of a tape operation. In addition, bit 7 sets when ERR becomes a 1 or on INIT. Bit 15 sets as a function of bits 7-15 of the MTS, and clears on the OR of INIT and the GO command to the tape unit. Bit 12 becomes a 1 for 1 microsecond on a processor DATO when the corresponding data bit on the bus is a 1, and is always read by the processor as a Ø.

2.3.2 GO PULSE

The GO pulse is a 1 microsecond pulse and is used to perform the functions indicated by the function bits. The control of the GO pulse is defined in section 2.3.1.

2.3.2 FUNCTION BITS

The function bits are defined in section 2.1.1 and in figure 3.

2.3.4 EXTENDED MEMORY BITS - ADRS BIT 16, ADRS BIT 17

Bits 4 and 5 of the MTC correspond to bits 16 and 17 respectively of the bus address. These bits are an extension of the MTCMA, and increment during a tape operation.

2.3.5 INTERRUPT ENABLE - INT ENB

When the INT ENB bit is set, a PR interrupt to vector address 224 occurs whenever either the CU ready bit or the ERR bit change from Ø to 1 or whenever a tape unit that was set into rewind has arrived at the beginning of tape. The latter interrupt occurs only when the unit select lines remain unchanged and when a new command is not stored in the control unit awaiting execution to

to the tape unit. An interrupt also occurs on an instruction that changes the INT ENB bit from Ø to 1 and does not set the GO bit.

2.3.6 CONTROL UNIT READY - CU READY

The CU ready bit becomes a Ø at the beginning of all tape operations. It becomes a 1 when the first LPC character is detected for a read, write, write EOF, and write with extended interrecord GAP operations. It becomes a 1 for space forward and space reverse operations when the LPC character is detected in conjunction with spacing the required number of recrods. It also becomes a 1 when SELR becomes a Ø for an OFF LINE operation and when RWS becomes a 1 for a rewind operation.

2.3.7 UNIT SELECT BITS

The unit select bits are defined in section 2.1.1

2.3.8 EVEN PARITY - PEVN

PEVN is a 1 when the master writes even lateral parity on tape and when the master reads even lateral parity from tape. PEVN is a Ø when the master writes odd lateral parity on tape, and when the master reads odd lateral parity from tape. A search for parity error is made in all tape moving operations except space forward, space reverse, and rewind.

2.3.9 POWER CLEAR - PCLR

Power clear provides the means for the processor to clear the control unit and tape units without clearing any other device in the system. The PCLR bit is always read back by the processor as a Ø.

2.3.1Ø DENSITY DEN 8 AND DEN 5

The combinations of bits DEN 8 and DEN 5 and their definitions ar given below:

DEN 8	DEN 5	
Ø	Ø	2ØØ BPI 7 CHANNEL
Ø	1	556 BPI 7 CHANNEL
1	Ø	8ØØ BPI 7 CHANNEL
1	1	8ØØ BPI 9 CHANNEL

2.3.11 CORE DUMP

When transferring data between memory and a 7 channel tape when not in core dump mode, one byte in memory corresponds to one tape character. Because one byte contains 8 bits and one tape character contains 6 data bits, two bits within each byte are not utilized. Bits number 6, 7, 14 and 15 within each 16 bit data word are not utilized in the transfer. In a tape read operation, those bits are forced to Ø while in a tape write operation, these bits do not change.

When transferring data between memory and a 7 channel tape when in the core dump mode, one byte in memory corresponds to two characters. Thus, all bits within each byte in memory are used. Bits number 4 and 5, which are the two most significant bits on tape are not utilized.

2.3.12 ERROR - ERR

The ERR bit becomes a 1 if any of the bits 7 through 15 of the MTS become a 1. However, for some types of errors, all of which are indicated below, the ERR bit does not become a 1 until the LPC character is read in order to allow the operation being executed to be completed. All error bits except EOT are cleared by the next GO command or by the initialize signal. The error bits are described in section 2.2.

2.4 BYTE RECORD COUNTER - MTBRC

The MTBRC is a 16 bit binary counter which is used to count bytes in a read, write, or write with extended IRG operation, or records in a space forward or space reverse operation. When used in a write or write with extended IRG operation, the MTBRC is initially set by the program to the 2's complement of the number of bytes to be written on tape. The MTBRC becomes Ø after the last byte of the record has been read from memory. Thus, when the next WRS (WRITE STROBE) signal occurs from the master, the control unit will lower the WDR (WRITE DATA READY) line to the master indicating that there are no more data characters in the record.

When the MTBRC is used in a read operation, it is set to a number equal to or greater than the 2's complement of the number of tape characters to be loaded into memory. A record length error (RLE) occurs for long records only, and is indicated when a read pulse for data (RDS occurring in th

absence of CRCS and LPCS) occurs when the MTBRC is Ø. Neigher the CRC nor the LPC character is read into memory. The MTBRC increments by 1 immediately after each memory access.

When the MTBRC is used in a space forward or space reverse operation, it is set to the 2's complement of the number of records to be spaced. It is incremented by 1 at LPC time, whether the tape is moving in the forward or reverse direction. A new GO pulse is sent to the tape unit during the SDWN time if the MTBRC is not Ø during that time. When the tape unit is moving in reverse, the LPC character is detected before SDWN, but after the entire record has been traversed. Thus, both SDWN and the LPC character appear to be in different positions on tape from those when the tape unit is moving forward.

The MTBRC is available to the processor on a DATI. The bits are set or cleared on a processor DATO. INIT clears all bits in the MTBRC.

2.5 CURRENT MEMORY ADDRESS REGISTER - MTCMA

The MTCMA contains 16 of the possible 18 memory address bits. It is used in NPR operations to provide the memory address for data transfers in read, write, and write with extended IRG operations. Prior to issuing a command, the MTCMA is set to the memory address into which the first byte is loaded in a read operation, or from which the first byte is read in a write, or write with extended IRG operation. The MTCMA is incremented by a immediately after each memory access. Thus, at any instant of time the MTCMA points to the next higher address than the one which had most recently been accessed. When the entire record has been transferred, the MTCMA contains the address plus 1 of the last character in the record. For the error conditions bus grant late (BGL) and non-existent memory (NXM), the MTCMA contains the address of the location in which the failure occurred. The MTCMA is available to the processor on a DATI. The bits are set or cleared on a processor DATO. INIT clears all bits in the MTCMA.

2.6 DATA BUFFER - MTD

The data buffer is a 9 bit register which is used during a read, write, or write with extended IRG operation. In a read operation, the data buffer is a temporary storage register for characters read from tape before being stored into memory. In a processor read, all nine bits are stored into memory. Bits Ø thru 7 in memory correspond to channels 7 through Ø respectively from tape, and bit 8 corresponds to the parity bit. In an NPR operation only the data bits are read into

memory, and are alternately stored into the low and high bytes. In a write or write with extended IRG operation, the data buffer is a temporary storage register for characters read from core memory before they are written on tape. The parity bit is generated by the TU1Ø master and not by the control unit. The polarity of the parity bit is determined by the PEVN bit in the MTC.

In a read operation, the LPC character enters the data buffer when bit 14 of the address location for the TU1Ø read lines is a 1, and inhibited from doing so when bit 14 is a Ø. Thus, after reading a nine channel tape, the data buffer contains the LPC character when bit 14 is a 1 and the CRC character when bit 14 is a Ø. After reading a seven channel tape, the data buffer contains the LPC character when bit 14 is a 1 and the last data character when bit 14 is a Ø. After reading an EOF character, the data buffer contains all Ø's when bit 14 is a 1 and the LPC character when bit 14 is a Ø. The MTD is available to the processor on a DATI. Bits 9 thru 15 are read identically to bits 1 thru 7 respectively. Bits Ø thru 8 are set or cleared on a processor DATO. Bits 9 thru 15 are not affected by a processor DATO. INIT clears all bits in the MTD.

2.7 TU1Ø READ LINES - MTRD

The memory location allocated for the TU1Ø read lines are:

1. Bits Ø-7 for channels 7-Ø respectively.
2. Bit 8 for the parity bit.
3. Bit 12 for the gap shutdown bit.
4. Bit 13 for the BTE error generation.
5. Bit 14 for the CRC, LPC character selector.
6. Bit 15 for the timer.

For correct longtitudiual parity, bits Ø-8 are Ø after writing a record or reading a record from tape. For a longtitudinal parity error, one or more of the bits Ø-8 remains at a 1, the bit (s) at a 1 indicating the channel (s) containing the error. Bits Ø-8 are set and cleared by the tape unit. Bit 13 is a pulse generated by the processor. Bit 14 is set and cleared by the processor and cleared by INIT. Bits 12 and 15 are read only bits and are not affected by a processor DATO. The MTRD is available to the processor on a DATI except that bit 13 reads back as a Ø.

2.7.1 TIMER

TIMER is a 1ØØ microsecond signal with a 5Ø% duty cycle. The signal is used for diagnostic purposes in measuring the time duration of the tape operations. The timer is read as bit 15 in the memory location reserved for the TU1Ø read data lines.

2.8 ADDITIONS

When the TM11 receives commands to write either 1, 2, or 3 characters on tape, it will always write three data characters for the normal mode and four data characters for the core dump mode. The reason is that the master must write at least two data characters in a 9 channel mode in order to write the CRC and LPC characters, and three data characters in a 7 channel mode in order to write the LPC character. Likewise, if an NXM or BGL error occurs on the first character when writing a record, three characters are written for both the normal mode and core dump mode.

TABLE 1

SIGNALS FROM MASTER TO CONTROL UNIT

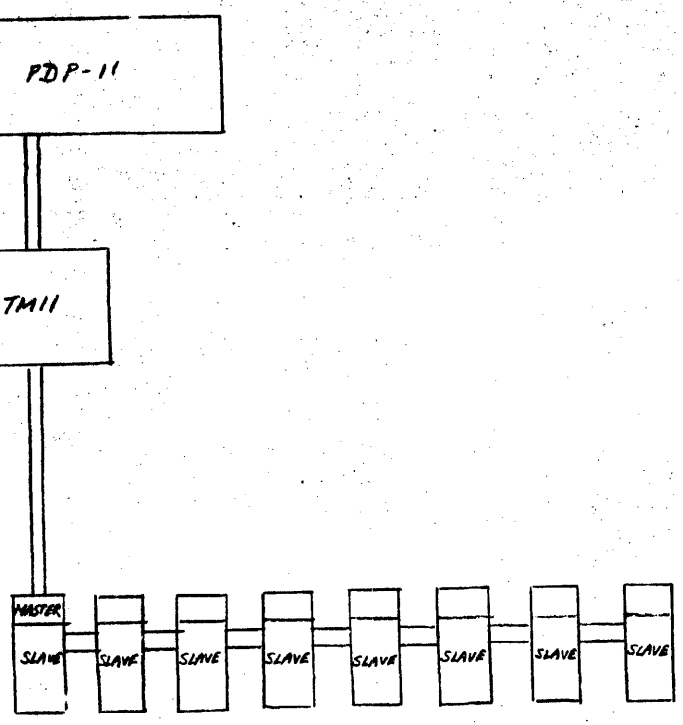
RDØ - RD7	READ DATA SIGNALS FROM MASTER
RDP	READ PARITY BIT
SDWN	TAPE SETTLE DOWN TIME BETWEEN STOP COMMAND AND WHEN TAPE UNIT STOPS
TUR	TAPE UNIT READY TUR IS TRUE WHEN THE SELECTED TAPE UNIT IS STOPPED AND WHEN SELECT REMOTE IS TRUE
SELR	SELECT REMOTE - TRUE WHEN UNIT IS SELECTED AND IS ON LINE
RWS	REWIND STATUS - TRUE WHEN SELECTED UNIT IS REWINDING
7CH	TRUE WHEN USING 7 CHANNEL OPERATION
WRL	WRITE LOCK - PREVENTS WRITING ON A TAPE
BOT	BEGINNING OF TAPE
EOT	END OF TAPE
WRS	WRITE STROBE (REQUESTS A CHARACTER FOR WRITING ONTO TAPE.)
RDS	READ STROBE - PRESENT FOR BOTH READ AND WRITE OPERATIONS
FMK	FILE MARK
CRCS	CRC STROBE - APPEARS WITH CRC CHARACTER
LPCS	LPC STROBE - APPEARS WITH LPC CHARACTERS
VPE	VERTICAL PARITY CHECK ERROR. SAMPLED WITH RDS.
LPCE	LONGITUDINAL PARITY CHECK ERROR. SAMPLED WITH LPCS.

SIGNALS FROM CONTROL UNIT TO MASTER

WDØ - WD7	WRITE DATA LINES TO MASTER
SET	REQUIRED TO START ANY TAPE OPERATION
FWD	TAPE FORWARD
REV	TAPE REVERSE
RWD	REWIND
WRE	WRITE ENABLE
PEVN	EVEN PARITY
DEN 8	TRUE FOR 8ØØ BPI 7 TRACK
DEN 5	TRUE FOR 556 BPI 7 TRACK DEN 8 AND DEN 5 ARE FALSE FOR 2ØØ BPI 7 TRACK DEN 8 AND DEN 5 ARE TURE FOR 8ØØ BPI 9 TRACK
WFMK	WRITE FILE MARK
WXG	WXG IS TRUE FOR WFMK AND WRITE WITH EXTENDED INTERRECORD GAP FUNCTIONS
SELØ, SEL1, SEL2	TAPE UNIT SELECT
WDR	WRITE DATA READY
CINIT	INITIALIZE

ENGINEERING SPECIFICATION [redacted] CONTINUATION SHEET

TITLE TU10 – TM11 SYSTEM CONFIGURATION



8 TU10 MAGNETIC TAPE UNITS

FIGURE 1

SIZE	CODE	NUMBER	REV
A	SP	TM11-Ø-25	B

DEC FORM NO 16-1022
DRA 108

ENGINEERING SPECIFICATION [redacted] CONTINUATION SHEET

TITLE STATES IN A TAPE FORWARD OPERATION

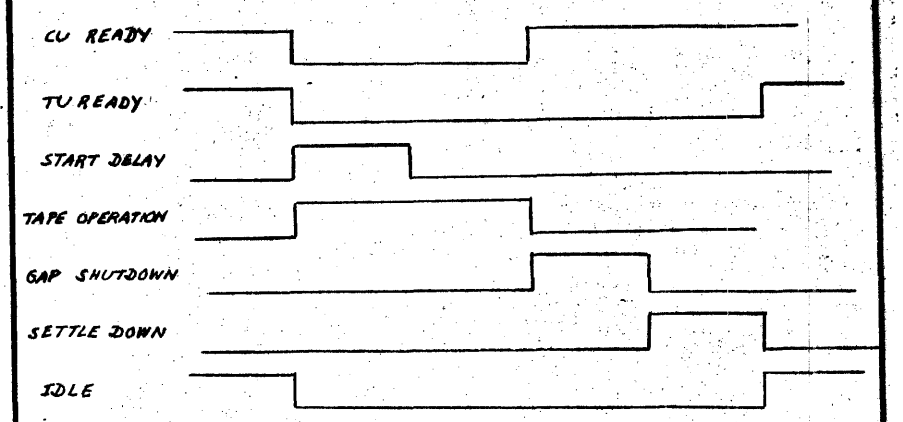


FIGURE 2

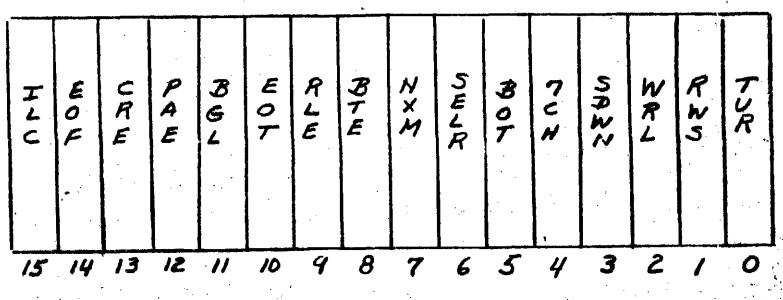
SIZE	CODE	NUMBER	REV
A	SP	TM11-Ø-25	B

DEC FORM NO 16-1022
DRA 108

ENGINEERING SPECIFICATION [redacted] CONTINUATION SHEET

TITLE FORMATS FOR STATUS AND COMMAND REGISTERS

STATUS REGISTER



COMMAND REGISTER

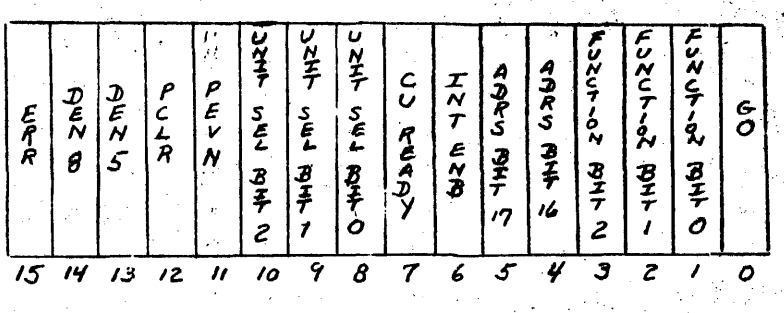


FIGURE 3

SIZE	CODE	NUMBER	REV
A	SP	TM11-Ø-25	B

DEC FORM NO 16-1022
DRA 108

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

SOFTWARE LIST

MADE BY M-Doerner	CHECKED Mauriello	SECTION
DATE 1-4-72	DATE 1-11-72	
ENG M. BUCZYNSKI	PROD [illegible]	ISSUED SECT.
DATE 12/29/71	DATE 2-3-72	

LEGEND

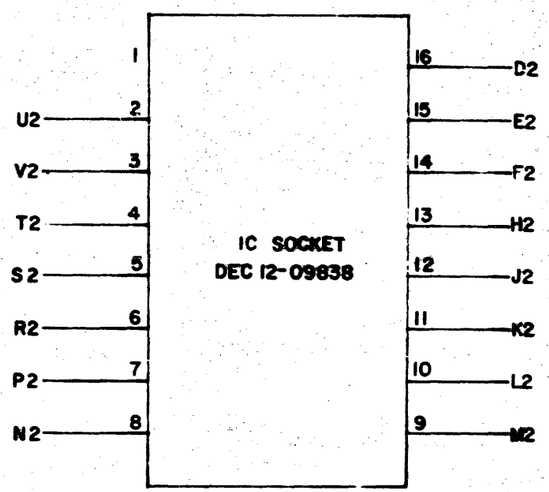
D	DOCUMENT
DN	DOCUMENT CHANGE NOTICE
PA	PAPER TAPE ASCII
PB	PAPER TAPE BINARY
PM	PAPER TAPE READ-IN-MODE

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION W/9 TRACK TU10	W/7 TRACK TU10						KIT CHECK BY ____ DATE ____	INSTALLATION CHECK BY ____ DATE ____
1	MAINDEC 11-DZTCA-A	INSTRUCTION SET	X	X							
2	MAINDEC 11-DZTMB-A	DATA RELIABILITY - 9 CHANNEL	X								
3	MAINDEC 11-DZTMC-A	DATA RELIABILITY - 7 CHANNEL		X							
4	MAINDEC 11-DZTMD-A	DRIVE FUNCTION TIMER	X	X							

TITLE	ASSY. NO.	SIZE	CODE	NUMBER	REV.	ECO NO
LIBKIT	SHEET 1 OF 1	A	SL	TM11-0-28	A	TM11-00014
		DIST.				

DEC FORM NO.
DRA 120

SIZE	CODE	NUMBER	REV
B	CS	G736-0-1	



REVISIONS	REV	CHG NO	CHK

DRN. George H Wyatt	DATE 8/20/70	
CHK'D Rueldine Blake	DATE 8/26/70	
ENG. [illegible]	DATE 9/1/70	
PROD. R. Johnson	DATE 10/20/70	

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: JUMPER MODULE G736

SIZE	CODE	NUMBER	REV.
B	CS	G736-0-1	
PRINTED CIRCUIT REV.	A		

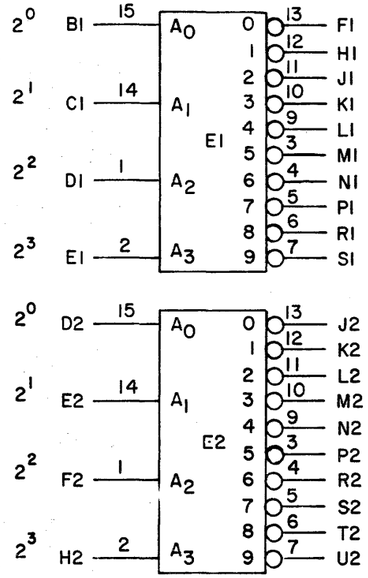
DEC FORM NO
DRB 102

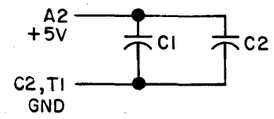
88

5

DIST. 324, 434, 435 3

PINK





UNLESS OTHERWISE INDICATED:
PIN 8 ON EACH IC = GND
PIN 16 ON EACH IC = +5V
E1 AND E2 ARE FAIRCHILD 9301
CAPACITORS ARE .01 MFD

REVISIONS	REV	CHG NO	CHK
	A	30001	

DRN.	BILL E.	DATE 12/9/69
CHK'D		DATE
ENG.		DATE
PROD.		DATE

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE DUAL BINARY TO DECIMAL DECODER M163

SIZE	CODE	NUMBER	REV.
B	CS	M163-0-1	A

PRINTED CIRCUIT REV. A

DEC FORM NO. DRB 102

DRAWING NUMBER	INIT REL	AUTOMATIC WIRE TESTER (AWT) REVISION STATUS																					
	T17	T	U	U																			
K-WL-TM11-0-23	S	T	T	T																			
D-AD-7007261-0-0	*	A	B	C																			
A-PL-7007261-0-0	*	A	B	C																			

REV. V

SIZE A | CODE WT | NUMBER 7007261-0

REVISIONS

REV.	CHANGE NO.	CHK
T	TM11-00020	—
	ORIGINATED	
U	7007261-0000	
V	TM11-00022	

DRN. S Chaitu	DATE 7-3-74	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D Gilbert	DATE 7-22-74	
ENG.	DATE	TITLE TM11 AWT REVISION STATUS
PROJ. ENG.	DATE	
PROD.	DATE	
FIRST USED ON TM11		SIZE A CODE WT NUMBER 7007261-0 REV. V
SCALE —		
SHEET 1 OF 1		DIST.

DRA 123

DEC 16-(325)-1097-N174

90