den Boer

digital

TMO2

Engineering Drawings

Digital Equipment Corporation

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

SEQUENCE

SEQUENCE

THIS IS PRINT SET

UNIT VARIATIONS

VAR	TITLE	PRINT SET 1	2		
TMØ2-CA	18 BIT PE & NRZI 115V	X	-		
TMØ2-CB	18 BIT PE & NRZI 230V	X	-		
TMØ2-FA	16 BIT PE & NRZI 115V	X	-		
TMØ2-FB	16 BIT PE & NRZI 230V	X	-		
TMØ2-FC	16 BIT NRZI 115V	X	-		
TMØ2-FD	16 BIT NRZI 230V	X	-		
TMØ2-FE	16 BIT PE & NRZI FOR TU45 115V	-	X		
TMØ2-FF	16 BIT PE & NRZI FOR TU45 230V	-	X		
TMØ2-CE	18 BIT PE & NRZI FOR TU45 115V		X		
TMØ2-CF	18 BIT PE & NRZI FOR TU45 230V		X		

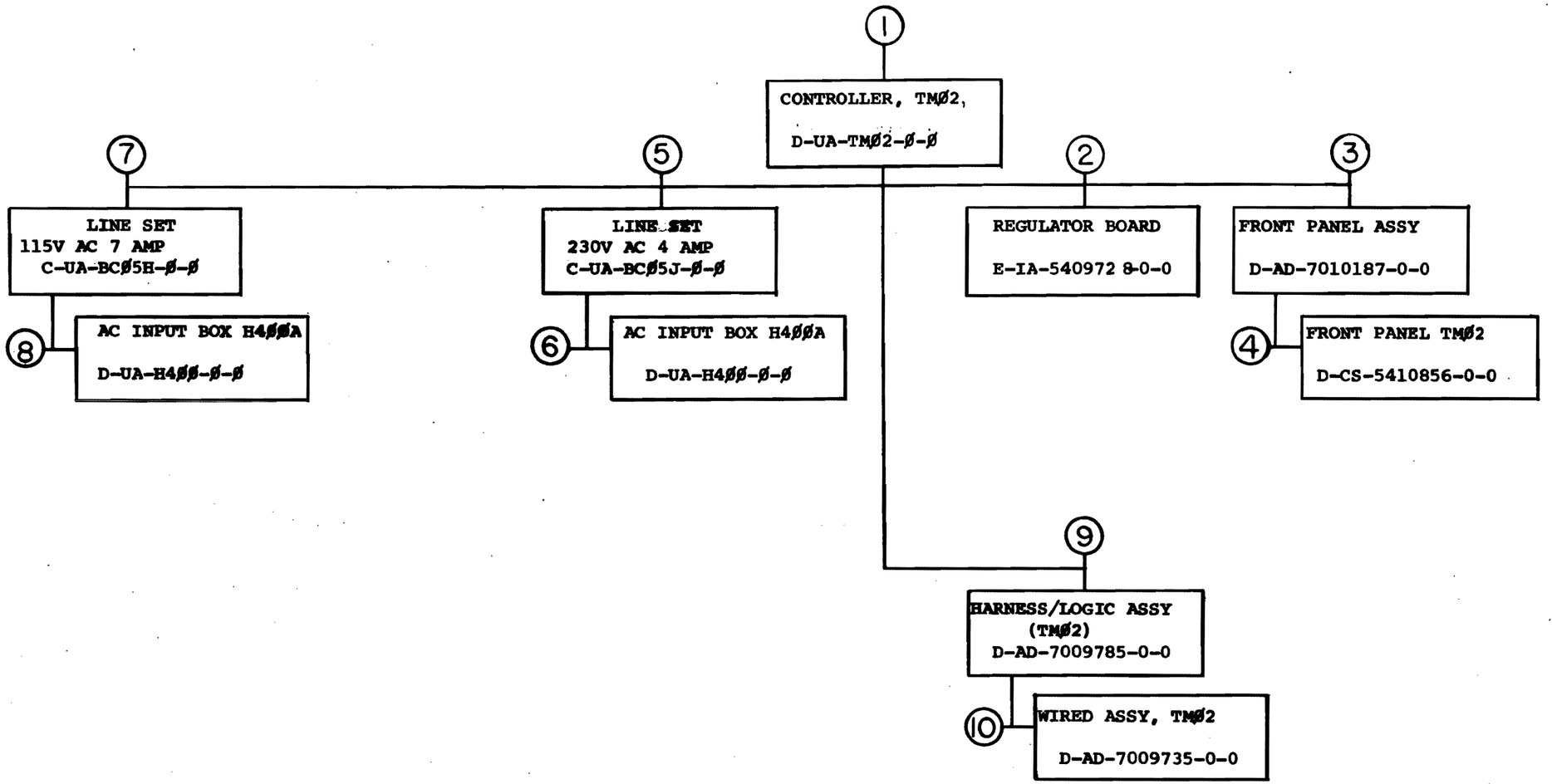
REVISIONS	DATE	CHG. NO.	REV
	7-75	TMØ2-7	D
	10-75	TU16-14	E
	FEB 76	TMØ2-8	F
	3-76	TMØ2-9	H
	5-76	TMØ2-10	J
	6-76	TMØ2-11	K
	8-76	TMØ2-12	L
	9-76	TMØ2-13	M
	11-76	TMØ2-14	N

USED ON OPTION/MODEL

SHEET 1 OF 4

DRN. D. Schmidt	DATE 8/28/74	TITLE 16/18 BIT FORMATTER
CHK'D. D. Schmidt	DATE 8/29/74	
PROJ ENG. J. Hess	DATE 8/29/74	
PROD. D.Staetler	DATE 8/29/74	SIZE B · CODE DD · NUMBER TMØ2-0 · REV N
FIELD SERV. R. Odom	DATE 9/3/74	DIST

DRB 106



TITLE	SHEET	OF	SIZE	CODE	NUMBER	REV
CONTROLLER,TMØ2	2	4	B	DD	TMØ2-Ø	N

DRB 107
DEC 16-(385)-1662-2-00671

ELECTRICAL

CUSTOMER PRINT SET 1	2			MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X	X				1	B-DD-TMØ2-Ø		4	16/18 BIT FORMATTER	
X	-					D-CS-M89Ø1-Ø-1		7	TU16 DATA SYNC	
X	-					D-CS-M89Ø2-Ø-1		5	TAPE CONTROL PHASE ENC.	
X	-					D-CS-M89Ø4-Ø-1		4	TAPE CONTROL NRZI	
X	-					D-CS-M89Ø5-Ø-1		6	MAINTENANCE REGISTER	
X	-					D-CS-M89Ø3-Ø-1		7	TAPE CONTROL COMMON MODE	
X	X					D-CS-M89Ø6-Ø-1		5	16 BIT FIDDLER	
X	X					D-CS-M89Ø7-Ø-1		2	CONNECTOR TERMINATOR	
X	X					D-CS-M89Ø8-Ø-1		2	RECEIVER TERMINATOR	
X	X					D-CS-M89Ø8-YA-1		2	RECEIVER TERMINATOR	
X	X					D-CS-M89Ø9-Ø-1		11	MASS BUS INTERFACE	
X	X					D-CS-M5903-YA-1		2	MASS BUS TERMINAL	
X	X					D-CS-M8914-Ø-1			18 BIT FIDDLER	
X	X					D-MU-TMØ2-Ø-MU	D	1	MODULE UTILIZATION	
X	X					D-CS-M5903-Ø-1		2	MASS BUS TERMINAL	
X	X					D-BS-TMØ2-Ø-2		4	MASS BUS RECEIVER	
	X					D-BS-TU16-Ø-2		2	MASS BUS TRANSCIEVER	
X	X				10	D-AD-7009735-0-0	D	1	WIRED ASSY	
						A-WT-7009735-0	#	1	AWT REVISION STATUS	
C	C					K-WL-TMØ2-Ø-WL	C	1	WIRE LIST	
						A-SP-TMØ2-Ø-1	A	47	TMØ2 ENGINEERING SPECIFICATION	
						A-SP-TMØ2-Ø-4			ON LINE CHECKOUT PROCEEDURE	
						A-SP-TU16-Ø-8			ACCEPTANCE PROCEEDURE	
						A-SP -TM02-0-3			CONVERSION PROCEDURE	
-	X				1	D-CS-M89Ø1-YA-1		7	TU45 DATA SYNC.	
-	X					D-CS-M89Ø2-YA-1		5	TAPE CONTROL PHASE ENG.	
-	X					D-CS-M89Ø3-YA-1		7	TAPE CONTROL COMMON MODE	
-	X					D-CS-M89Ø5-YA-1		6	MAINTENANCE REGISTER	
	X					D-CS-M8904-YA-1		4	TAPE CONTROL NRZI	

MECHANICAL

CUSTOMER PRINT SET 1	2			MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
					1	E-UA-TMØ2-Ø-Ø	E	1	CONTROLLER TMØ2	
						A-PL-TMØ2-Ø-Ø	E	2	PARTS LIST	
						D-IA-7010075-0-0		1	LOGIC, BOX	
						D-CS-5411128-0-1		1	MOUNT, SELECT SWITCH	
						A-DC-7412377-0-0		1	DECAL, CONTROLLER	
						D-UA-H740DA-Ø		2	POWER SUPPLY	
						C-IA-7010418-0-0		1	CABLE FAN	
						C-IA-7412368-0-0		1	BRACKET SHIPPING	
						C-MD-7409479-0-0		1	PLATE, PRESSURE	
X	X					D-AD-7009785-0-0		1	HARNESS ASSY LOGIC	
						E-MD-7414624-0-0		1	COVER SIDE	
						C-MD-7414626-0-0		1	CARD GUIDE REWORK	
						B-MD-7417877-0-0		1	STOP, TILT (UPWARD)	
X	X				2	E-IA-5409728-0-0		1	REGULATOR BOARD	
X	X					D-CS-5409728-0-1			REGULATOR BOARD	
						C-MD-5510892-1		1	#1 THERMAL STRAP	
						C-MD-5510891-1		1	#2 THERMAL STRAP	
						C-IA-5310126-0-0		1	HOLDER, CAPACITOR	
						C-MD-5309779-0-0		1	CONTACT, COMMON CAPACITOR	
						C-MD-5309781-0-0		1	CONTACT, CAPACITOR	

CUSTOMER PRINT SET CODES

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

TITLE		SIZE	CODE	NUMBER	REV
16/18 BIT FORMATTER	SHEET 3 OF 4	B	DD	TMØ2-Ø	N

DRB 108

DEC 16-(325)-1062-2B-R972

MECHANICAL

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
		5	C-UA-BCØ5J-Ø-Ø		1	LINE SET 230V AC 4 AMP	
		6	D-UA-H4ØØ-Ø-Ø		1	AC INPUT BOX H4ØØB	
			A-PL-H4ØØ-Ø-Ø		1	AC INPUT BOX	
			D-IA-5309845-0-0		1	BOX	
			C-MD-5309849-0-0		1	COVER	
			A-DC-5409900-0-0		1	POWER CONTROL (DECAL 230V)	
			C-IA-5409825-0-0		1	POWER CONTROL BOARD 230V	
		7	C-UA-BCØ5H-Ø-Ø		1	LINE SET 115V VAC 7 AMP	
		8	D-UA-H4ØØ-Ø-Ø		1	AC INPUT BOX, H4ØØA	
			A-PL-H4ØØ-Ø-Ø		1	AC INPUT BOX	
			D-IA-5309845-0-0		1	BOX	
			C-MD-5309849-0-0		1	COVER	
			A-DC-5309899-0-0		1	POWER CONTROL DECAL 115V	
			C-IA-5409824-0-0		1	POWER CONTROL BOARD 115V	
		9	D-AD-7009785-0-0		1	HARNESS/LOGIC ASSY (TMØ2)	
			D-IA-7011738-0-0	1	1	HARNESS/LOGIC (TMØ2)	
		10	D-AD-7009735-0-0	B	1	WIRED ASSY, TMØ2	
			1211439		1	LOGIC FRAME CASTING(11/Ø5)	
			1210258		1	288 PIN CONN BLOCK	
			1211425		1	72 PIN CONN BLOCK	
			1210698		1	CARD GUIDE	

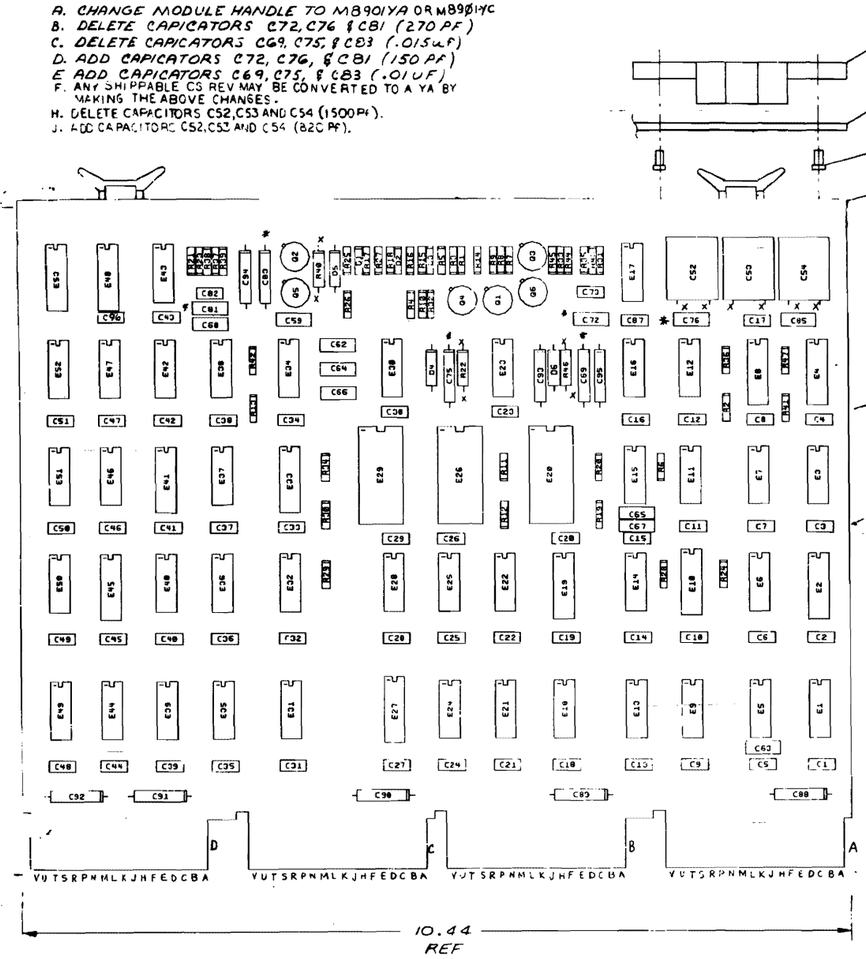
CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE

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

TITLE	SHEET	SIZE	CODE	NUMBER	REV
16/18 BIT FORMATTER	4 OF 4	B	DD	TMØ2-Ø	N

NOTES: *
M8901-YA
M8901-YC

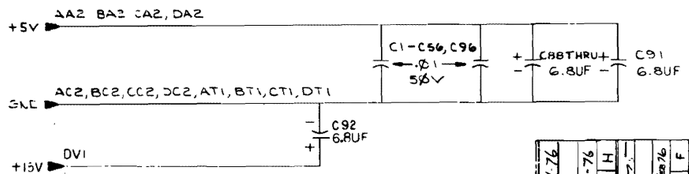
A. CHANGE MODULE HANDLE TO M8901YA OR M8901YC
B. DELETE CAPACITORS C72, C76 & C81 (270 PF)
C. DELETE CAPACITORS C69, C75, & C83 (.015uF)
D. ADD CAPACITORS C72, C76, & C81 (150 PF)
E. ADD CAPACITORS C69, C75, & C83 (.01UF)
F. ANY SHIPPABLE CS REV MAY BE CONVERTED TO A YA BY MAKING THE ABOVE CHANGES.
H. DELETE CAPACITORS C52, C53 AND C54 (1500PF).
J. ADD CAPACITORS C52, C53 AND C54 (820 PF).



74 72	12	24
4024	3	13
7417	7	16
4175	8	16
74 33	8	16
74 3	1	4
7476	13	5
IC TYPE	GND	+ 5V

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

IC PIN LOCATIONS



REF	REF	REF	REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8901-B-4	REF
REF	REF	REF	REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8901-B-5	REF
REF	REF	REF	REF		MODULE ECO HISTORY	B-MH-M8901-B-6	REF
1	1	1	1		ETCHED CIRCUIT BOARD	5010467	1
4	4	4	4		HANDLE, FLIP CHIP (MAGENTA)	9008337-6	2
8	8	8	8		EYELET	9006732	3
3	3	3	3	C63, C65, C67	CAP 220PF 100V D.M.	1000021	4
-	3	-	3	C72, C76, C81	CAP 270PF 100V D.M.	1000023	5
3	3	3	3	C59, C60, C85	CAP 470PF D.M.	1000024	6
3	3	3	3	C62, C64, C66	CAP 1000PF 100V D.M.	1000042	7
-	3	-	3	C69, C75, C83	CAP .015 UF 100V 10% MYLAR	1002630	8
55	55	55	55	C1 THRU 51, C82, C73, C87, C96	CAP .01UF 50V	1001610	9
8	8	8	8	C88-C95	CAP 6.8UF 35V 10%	1005306	10
-	3	-	3	C52, C53, C54	CAP 1500PF 100V 5% D.M.	1002428	11
3	-	3	-	C72, C76, C81	CAP 150PF 100V 5% D.M.	10000/9	12
3	3	3	3	D1, D2, D3	DIODE D664	1100114	13
3	3	3	3	D4, D5, D6	DIODE IN752A 5.6V 5% ZENER	1102808	14
9	9	9	9	R4, R5, R13, R15, R18, R24, R25, R28, R34	RES 100 1/4W 5%	1300229	15
4	4	4	4	R11, R3, R16, R26	RES 220 1/4W 5%	1300271	16
1	1	1	1	R12	RES 330 1/4W 5%	1300295	17
3	3	3	3	R1, R17, R27	RES 390 1/4W 5%	1300309	18
6	6	6	6	R2, R19, R29, R32, R39, R45	RES 470 1/4W 5%	1300316	19
6	6	6	6	R6, R14, R20, R30, R38, R42	RES 1K 1/4W 5%	1300365	20
3	3	3	3	R9, R23, R33	RES 2.7K 1/4W 5%	1300426	21
3	3	3	3	R36, R41, R47	RES 47K 1/4W 5%	1302177	22
3	3	3	3	R22, R40, R46	RES 120 1/2W 5%	1300243	23
3	-	3	-	C69, C75, C83	CAP .014F 100V 10% MYLR	1005784	24
3	-	3	-	C52, C53, C54	CAP, 820 PF 100V 5%	1000027	25
3	3	3	3	R8, R37, R43	RES 4.7K 1/4W 5%	1300447	26
8	8	8	8	E6, 7, 11, 32, 37, 52, 46, 40	I C 7474	1905547	27
1	2	1	2	E25, E48	I C 7400	1905575	28
2	2	2	2	E21, E89	I C 7450	1905580	29
2	2	2	2	E33 E41	I C 7476	1905585	30
4	4	4	4	E18, E36, E44, E49	I C 7473	1905587	31
4	4	4	4	E9, E35, E24, E28	I C 7401	1905590	32
2	2	2	2	E22, E50	I C 7404	1909686	33
1	1	1	1	E 30	I C 8242	1909712	34
2	2	2	2	E 5, E15	I C 7405	1909930	35
2	2	2	2	E 4, E8	I C 74123	1910436	36
2	2	2	2	E14, E31	I C 7426	1910011	37
3	3	3	3	E 2, E27, E45	I C 74193	1910018	38
6	6	6	6	E3 E12, E42, E1, E34, E47	I C 74137	1910035	39
1	-	2	2	E13, E51	I C 7408	1910155	40
1	1	1	1	E19	I C 74175	1910651	41
1	1	1	1	E10	I C 74174	1910652	42
2	2	2	2	E16, E38	I C 4024	1911038	43
3	3	3	3	E17, E23, E43	I C 4044	1911039	44
3	3	3	3	E20, E26, E29	I C 74172	1911293	45
3	3	-	-	E , E51, E53	I C 7408	1910155	46
6	6	6	6	Q1, Q2, Q3, Q4, Q5, Q6	TRANSISTOR DEC 65318	1509338	47
3	3	3	3	R44, R38, R10	RES. 330K 1/4 w 5%	1302091	48
3	3	3	3	R 7, R21, R31	RES. 8.2 K 1/4 5%	1303179	49

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

M8901YC / M8901YB / M8901YA / M8901

FIRST USED ON OPTION MODEL: TU16

ETCH BOARD REV: D

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

SEMICONDUCTOR CONVERSION CHART

REV	CHANGE NO.	CHK	
B	M8901-00001	JOHN HESS	11-6-74
C	M8901-00004	J.HESS	11-21-74
D		J.HESS	11-21-74
E	M8901-00005	J.HESS	1-31-74
F	M8901-00007	J.HESS	1-31-74
H	M8901-00008	R. MAC LEOD	4-1-76
		H.DRAB	4-ML-76

REVISIONS

DRN. H. Dennison DATE NOV 6 73
CHK'D. J. Cabana DATE 1/24/74
ENG. J. P. Stei DATE 1-31-74
PROJ. ENG. J. P. Stei DATE 1-31-74
PROD. DATE 1-31-74
NEXT HIGHER ASSY

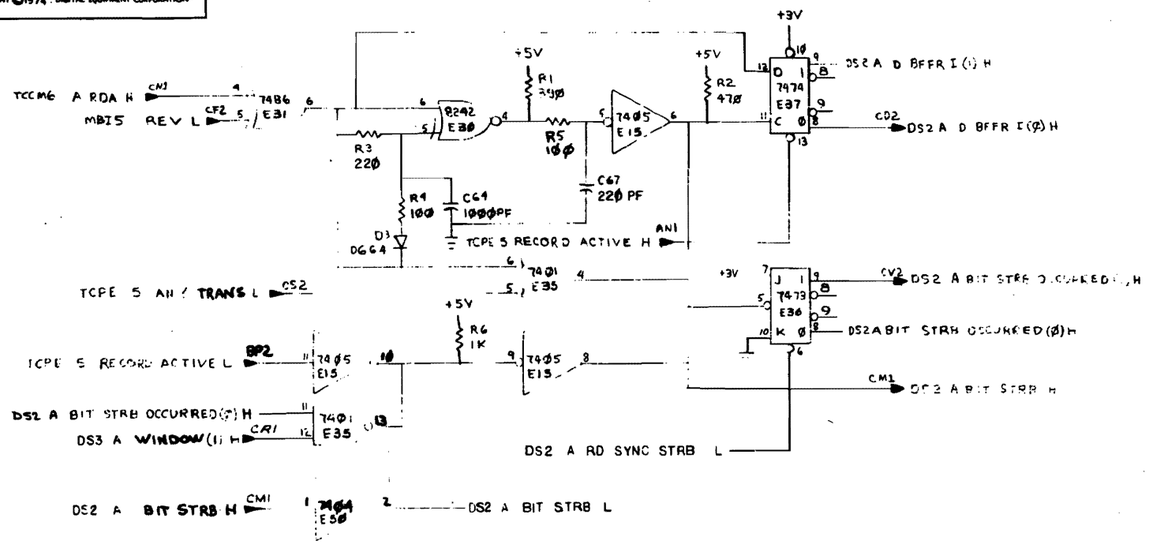
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: DATA SYNC (DS1)

SIZE D | CODE CS | NUMBER M8901-0-1 | REV. H

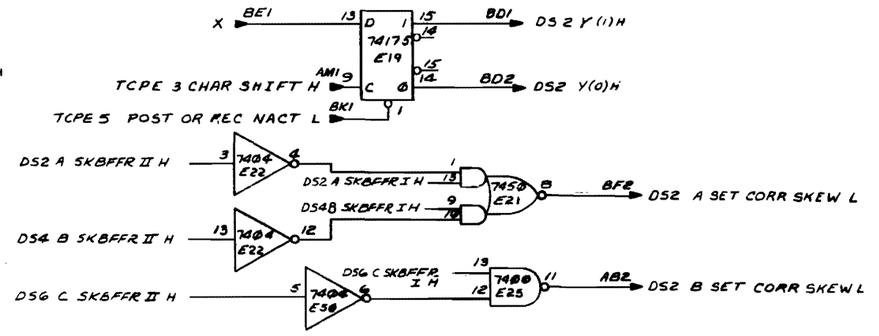
SCALE — SHEET 1 OF 7 | DIST.

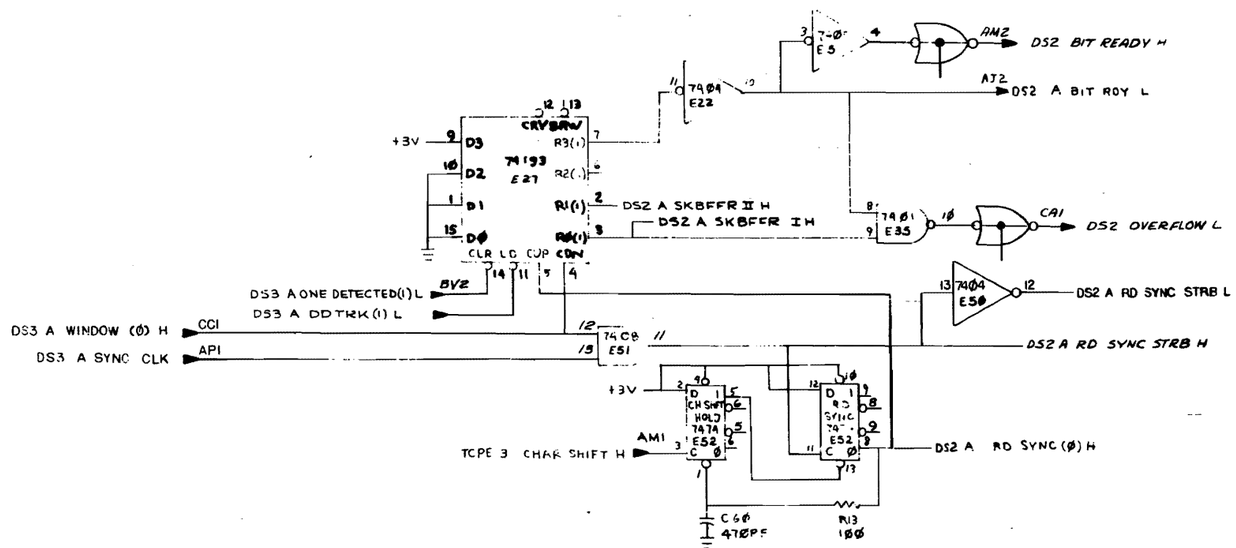
BIT STROBE AND WINDOW



	SLOT 1	SLOT 2	SLOT 3
X	SINGLE DD TRK H		INC COND H
Y(1) H	CER 1 (H)		INC DATA(1) H

USE X, Y, CHART TO DETERMINE INPUTS & OUTPUTS OF 74175 FLOP.





NOTE
1. PREFIX 'A' IS TO BE INTERPRETED AS FOLLOWS:
   MODULE IN SLOT 1 A IS BIT 2
   MODULE IN SLOT 2 A IS BIT P
   MODULE IN SLOT 3 A IS BIT 7
   EXAMPLE:
   A RDA H — CC1 N1 = RDA 2 H
   A RDA H — CC2 N1 = RDA P H
   A RDA H — CC3 N1 = RDA 7 H
2. M8901 MODULES ARE LOCATED IN SECTIONS C D E F OF TM02 LOGIC. THEREFORE PINS IN SECTION A OF THE MODULE ARE LOCATED IN C ON THE BACKPLANE ETC.

REVISIONS		
SHT	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
DATA SYNC (DS2)	D	CS	M8901-Ø-1	H
SCALE	SHEET 2 OF 7	DIST.		

TCPE2 PERR AND ONE DD TRK H
DS3 A DD TRK(1) H
74Ø8 E13
DS3 A BFFR A (1)H
74Ø86 E14
BFFRA 74175 E19
BFFRB 74174 E10
TCCM7 PES B H
74Ø1 E24
74Ø1 E35
74Ø0 E25
DS3 A RDB L
DS3,5,7,POST DETECT H
DS3 A POST PAT L
TCPE 3 CHAR SHIFT H
TCPE5 POST OR REC NACT L
TCPE 2.

DS2 A D BFFR(1) H
DS2 A BIT STRB OCCURRED (Ø) H
DS3 A WINDOW (Ø) H
74172 E26 (2X8 RANDOM ACCESS REG) 2W1
DS3 A SKEW BUFF DATA (1) H
DS3 A SKEW BUFF BSO(Ø) H
DS3 A ONE DETECTED (1) H
DS3 A ONE DETECTED (1) L
7476 E38
7400 E48
TCPE 5 POST OR REC NACT L
DROPPED BIT 74174 E10
DS3 A DROPPED BIT (1) H
TCPE 3 CHAR SHIFT H
74197 E34
DS3 A DIE DETECTED (1) H
DS3 A WINDOW (1) H
+3V
TCPE4 RD ADDR 1 (1) H
TCPE4 RD ADDR 2 (1) H
TCPE4 RD ADDR 3 (1) H
DS2 A BIT STRB OCCURRED (1) H
DS3 A WINDOW (Ø) H
ENVELOPE 7474 E37
DS2 A RD SYNC STRB H
TCPE 5 RECORD ACTIVE H
DS3 A DD TRK (1) H
DS3 A DD TRK (1) L
+5V
R36 47K
C52 150PF
74123 E8
DS2 A BIT STRB H
DS3 A ENV (1) H

NOTE
1. PREFIX 'A' IS TO BE INTERPRETED AS FOLLOWS:
   MODULE IN SLOT 1 — A IS BIT 2
   MODULE IN SLOT 2 — A IS BIT 5
   MODULE IN SLOT 3 — A IS BIT 7
   EXAMPLE
   A RDA H — CO1 N1 = RDA 2 H
   A RDA H — CO2 N1 = RDA 5 H
   A RDA H — CO3 N1 = RDA 7 H
2. M8901 MODULES ARE LOCATED IN SECTIONS C,D,E,F OF TM02 LOGIC. THEREFORE PINS IN SECTION A OF THE MODULE ARE LOCATED IN C ON THE BACKPLANE ETC.

M8901-YB
M8901-YC
TCPE 4 ENABLE SYNC (1) H
DS2 A BIT STRB H
TCCM3 READING H
DS3 ADD TRK(1) L
7473 E49
CVI DS3 A DATA SYNC (1) H
E39-02.
E39-04

TCPE 4 ENABLE SYNC (1) H
DS2 A BIT STRB H
TCCM 3 READING H
DS2 A BIT STRB L
TCCM 4 DATA HALF H
CVI DS3 A DATA SYNC (1) H
CUI DS3 TP2

DS3 A +5VDC
PHASE DETECTOR 4044 E23
R9 2.7K
R7 8.2K
R8 4.7K
R10 33Ø K
Q1 DEC 65318
C75 .015UF
R14 1K
4Ø91 E23
C76 270 PF
VCO 4Ø24 E16
C87 .Ø1 50V
+15V DVI
R32 47Ø
R22 12Ø 1/2W
D4 1N752A 5.6V
Q4 DEC 65318
C93 6.8UF
74197 E47
BVI DS3 TP3
CRI DS3 A WINDOW (1) H
CGI DS3 A WINDOW (Ø) H
7474 E32
API DSC A SYNC CLK

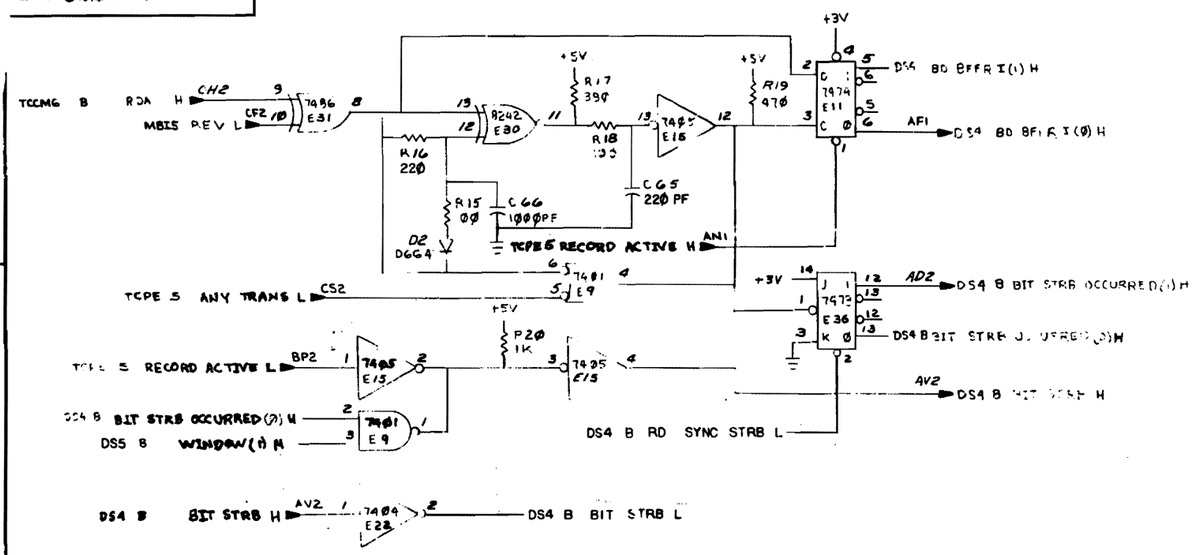
NOTE: * SEE NOTES ON SHEET 1.

REVISIONS		
HP	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
DATA SYNC (DS3)	D	CS	M8901-0-1	H
SCALE	SHEET 3 OF 7	DIST.		

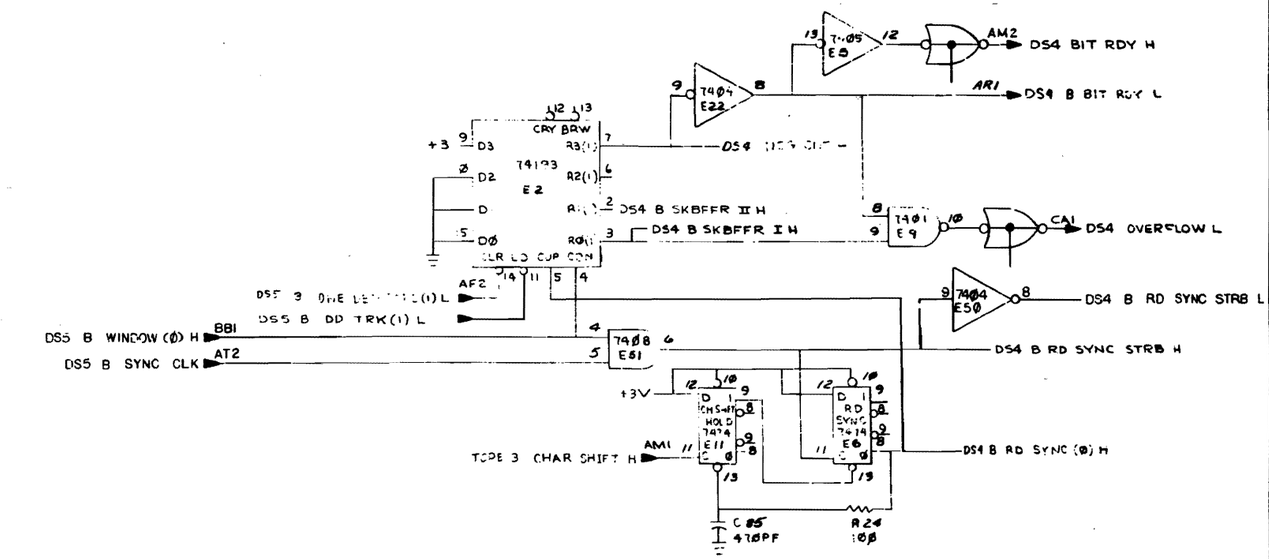
DRAWING M8901-0-1 H

BIT STROBE AND WINDOW



NOTE
1. PREFIX "B" IS TO BE INTERPRETED AS FOLLOWS:
   MODULE IN SLOT 1 B IS BIT Ø
   MODULE IN SLOT 2 B IS BIT 5
   MODULE IN SLOT 3 B IS BIT 1
   EXAMPLE:
   B RDA H — CO1 CH2 = RDA Ø H
   B RDA H — CO2 CH2 = RDA 5 H
   B RDA H — CO3 CH2 = RDA 1 H

2. M8901 MODULES ARE LOCATED IN SECTIONS C,D,E,F OF TM02 LOGIC. THEREFORE PINS IN SECTION A OF THE MODULE ARE LOCATED IN C ON THE BACKPLANE ETC.



REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
DATA SYNC (DS4)	D	CS	M8901-Ø-1	H
SCALE	SHEET 4 OF 7	DIST.		

DCSM8901-Ø-1

8

NOTE
PREFIX 'B' IS TO BE INTERPRETED AS FOLLOWS:
MODULE IN SLOT 1 B IS BIT Ø
MODULE IN SLOT 2 B IS BIT 5
MODULE IN SLOT 3 B IS BIT 1
EXAMPLE:
B RDA H — CO1 CH2 = RDA Ø H
B RDA H — CO2 CH2 = RDA 5 H
B RDA H — CO3 CH2 = RDA 1 H

TCPE2 PER AND ONE DD TRK H
DS5 B DD TRK (1) H
DS5 B BFFR A (1) H
BFFR B (1) H
DS5 B RDB L
DS5 B DD TRK (1) L
DS5 B BFFR A (Ø) H
DS5 B BFFR B (1) H
DS 3, 5, 7 POST DETECT H
DS5 B POST PAT L
TCPE 3 CHAR SHIFT H
TCPE 5 POST OR REC NACT L
DS5 B SKEW BUFF DATA (1) H
DS4 B D BFFR (1) H
DS4 B BIT STB OCCURRED (Ø) H
DS5 B WINDOW (Ø) H
DS5 B SKEW BUFF BSO (Ø) H
DS5 B ONE DETECTED (1) H
DS5 B ONE DETECTED (1) L
74172 E20 (2X8 RANDOM ACCESS REG)
2W/
DS5 B DROPPED BIT (1) H
74197 E2
DS5 B ONE DETECTED (1) H
DS5 B WINDOW (Ø) L
TCPE4 RD ADDR 1 (1) H
TCPE4 RD ADDR 2 (1) H
TCPE4 RD ADDR 3 (1) H
DS5 B DD TRK (1) H
DS5 B DD TRK (1) L
DS4 B BIT STRB OCCURRED (1) H
DS5 B WINDOW (Ø) H
DS4 BRD SYNC STRB H
TCPE 5 RECORD ACTIVE H
+5V
R41 47K
C53 1500PF
74123 E4
DS5 B ENV (1) H
DS4 B BIT STRB H
+3V

DS5 B DATA SYNC (1) H
TCPE 4 ENABLE SYNC (1) H
DS4 B BIT STRB H
TCCM 3 READING H
DS4 B BIT STRB L
TCCM 4 DATA HALF H
74S08 E21
PHASE DETECTOR 4044 E48 DF
R23 2.7K
R21 8.2K
R37 4.7K
R38 330K
R42 1K
C53 .015UF
C62 .01 50V
Q2 DEC 6531B
4044 E43
C61 270PF
VCO 4024 E58
B +5VDC
+12V
R39 470
D5 IN752A 5.6V
R40 120 1.2W
Q5 DEC 6531B
C54 5.6UF
TP1
74197 E3
DS5 B WINDOW (1) H
DS5 B WINDOW (Ø) H
DS5 B SYNC CLK
7474 E7
AC1 TP

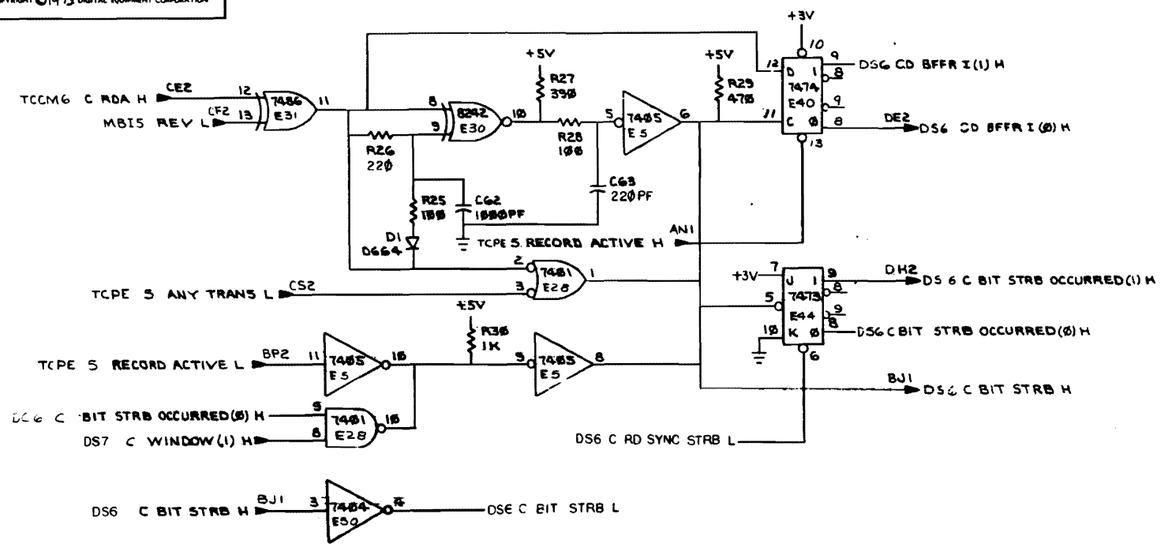
NOTE: * SEE NOTES ON SHEET 1.

REVISIONS		
LTR	CHANGE NO	REV

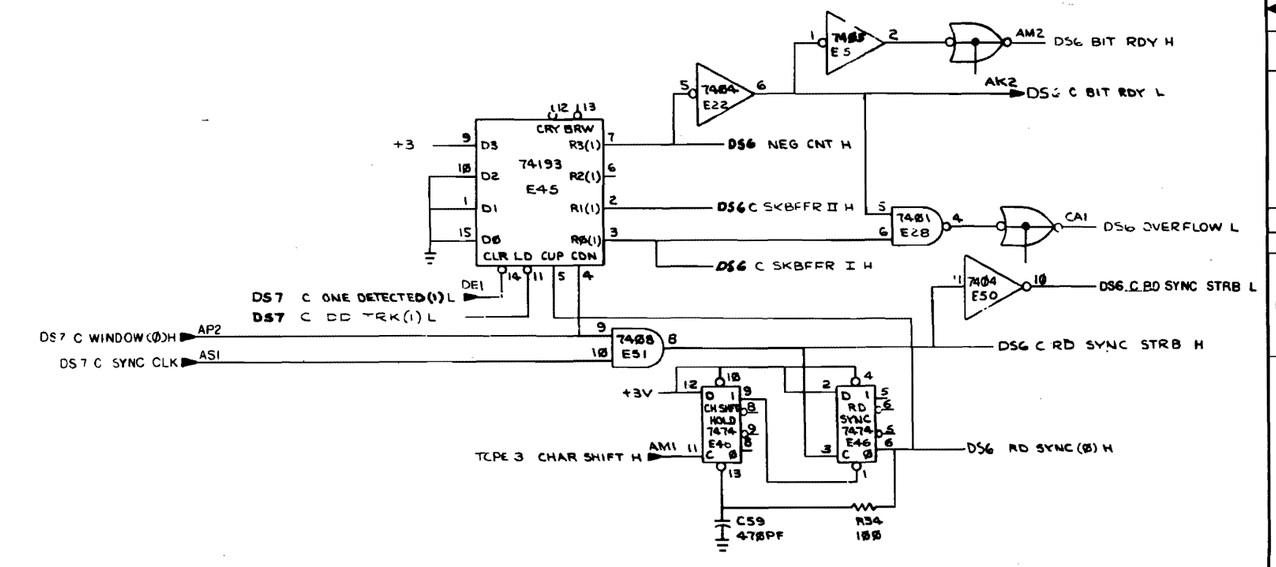
TITLE	SIZE	CODE	NUMBER	REV.
DATA SYNC (DS5)	D	CS	M8901-Ø-1	H
SCALE	SHEET 5 OF 7	DIST		

DCS M8901-Ø-1

BIT STROBE AND WINDOW



NOTE
PREFIX "C" IS TO BE INTERPRETED AS FOLLOWS:
MODULE IN SLOT 1 C IS BIT 4
MODULE IN SLOT 2 C IS BIT 6
MODULE IN SLOT 3 C IS BIT 3
EXAMPLE:
C RDA H — CO1 E2 = RDA 4 H
C RDA H — CO2 E2 = RDA 6 H
C RDA H — CO3 E2 = RDA 3 H



REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
DATA SYNC (DS6)	D	CS	M8901-0-1	H
SCALE	SHEET 6 OF 7		DIST.	

DCS M8901-0-1 H

NOTE
LETTER C IS TO BE INTERPRETED AS FOLLOWS:
MODULE IN SLOT 1 C IS BIT 4
MODULE IN SLOT 2 C IS BIT 6
MODULE IN SLOT 3 C IS BIT 3
EXAMPLE:
DS7 A = — CO1 E2 = RDA 4 =
DS7 B = — CO2 E2 = RDA 6 =
DS7 C = — CO3 E2 = RDA 3 =

TCPE2 PER AND ONE DD TRK H
DS7 C DD TRK(1) H
DF2
7400 E13
BM2
BM1
DS7 C BFFR A (1) H
7486 E14
D BFFR A 74175 E19 C CLR
D BFFR B 74174 E10 C CLR
TCCM7 PES B H
7451 E24
CJ1
DS7 C RDB L
DS7 C DD TRK(1) L
DS7 C BFFRA(Ø) H
DS7 C BFFRB(1) H
7400 E25
7451 E28
DS 3,5,7 C POST DETECT H
BR2
DS7 C POST PAT L
AMI
BK1
TCPE 3 CHAR SHIFT H
TCPE5 POST OR REC NACT L
DS7 C SKEW BUFF DATA(1) H
DS6 C D BFFRI(1) H
DS7 C WINDOW(Ø) H
DS7 C SKEW BUFF DSO(Ø) H
74172 E29 (2X8 RANDOM ACCESS REG) 2W1
1DA 1DB 1GW CK 1QA 1QB
1W0 1W1 1W2 1GR 2GR R0 R1 R2 1R0 1R1 1R2
DS6 C BIT STRB OCCURRED (Ø) H
7476 E41 J K
DE1
DS7 C ONE DETECTED (1) H
DS7 C ONE DETECTED (1) L
7400 E48
CS1
DS7C DROPPED BIT (1) H
DROPPED BIT 74174 E10
74197 E42 D3 D2 D1 D0 CLR LD CLK1 CLK0 R3(1) R2(1) R1(1) R0(1)
+3V
DS7 C ONE DETECTED (1) H
DS7 C WINDOW (Ø) L
TCPE4 RD ADDR 1(1) H
TCPE4 RD ADDR 2(1) H
TCPE4 RD ADDR 3(1) H
BT2
BU1
BU2
DS6 C BIT STRB OCCURRED (1) H
ENVELOPE 74174 E40
DS7 C WINDOW (Ø) H
DS6 C RD SYNC STRB H
TCPE 5 RECORD ACTIVE H
ANI
DD TRK CE41 7476 J K
DF2
DJ1
DS7 C DD TRK (1) H
DS7 C DD TRK (1) L
+5V
R47 47K
C54 1500PF
7474 E4
DJ2
DS7 C ENV (1) H
DS6 C BIT STRB H

TCPE4 ENABLE SYNC (1) H
BC1
CU2
DS7 C DATA SYNC (1) H
DS6 L BIT STRB H
BJ2
TCCM3 READING H
DS6 C BIT STRB L
TCCM4 DATA HALF H
CP2
7455 E39
CT2
DS7 TP12
PHASE DETECTOR 4044 E17 D1 PD R1 LF VI DF H1 PU
R33 2.7K
R31 8.2K
R43 4.7K
R44 330K
Q3 DEC 65310
C69 * .015UF
C73 .01 50V
4044 E17
R35 1K
C72 * 270PF
VCO 4024 E16
+15V
R45 470
R46 120 1/2W
D6 IN752A 5.6V
Q4 DEC 65318
C95 6.8UF
DS7 C +5VDC
74157 E1 D3 D2 D1 D0 R3(1) R2(1) R1(1) R0(1) CLR LD CLK1 CLK0
DP2
7474 E7
AN2
DS7 C WINDOW (1) H
AP2
DS7 C WINDOW (Ø) H
AS1
DS7 C SYNC CLK

NOTE : * SEE NOTES ON SHEET 1.

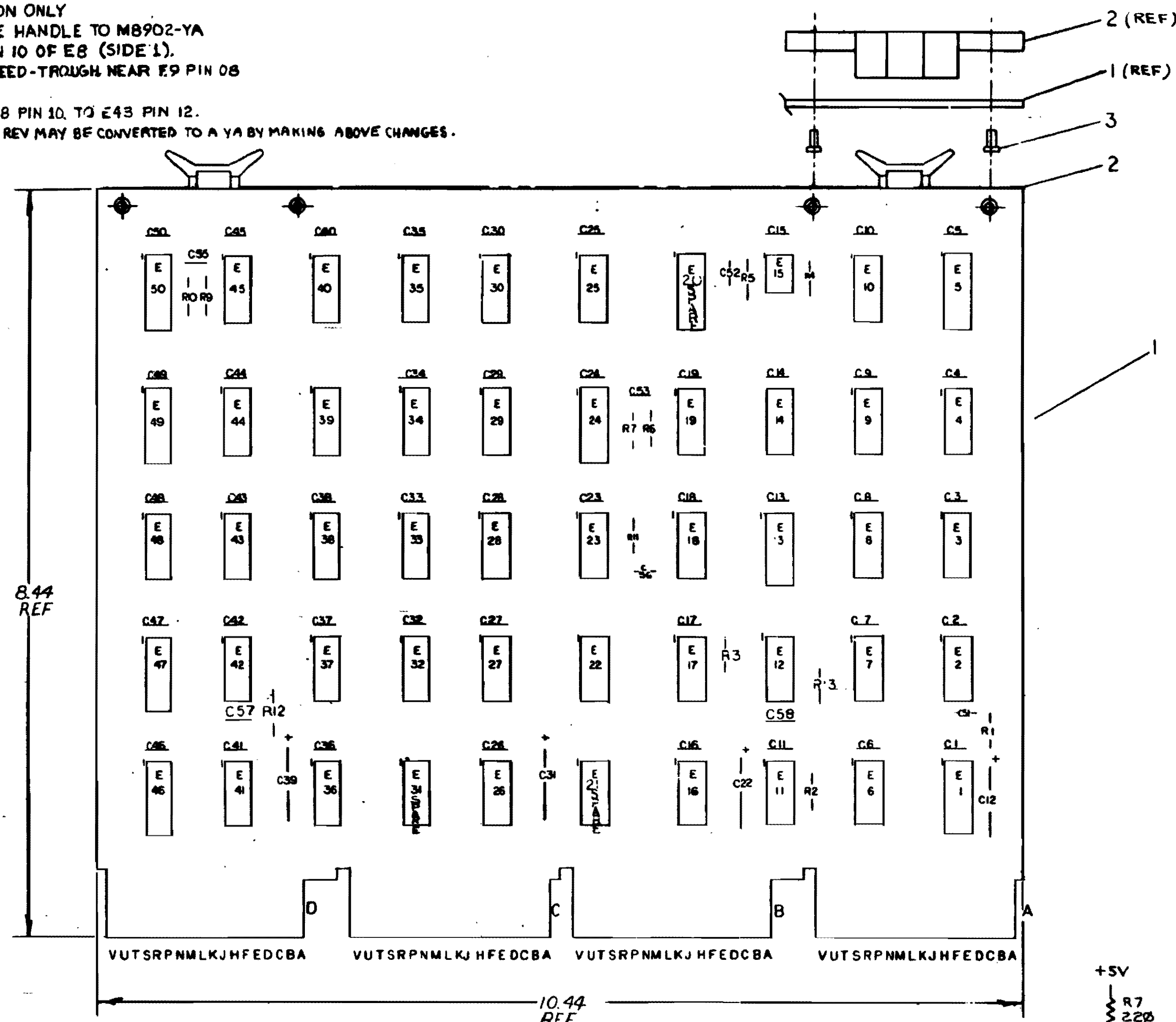
REVISIONS		
CHK	CHANGE NO	REV

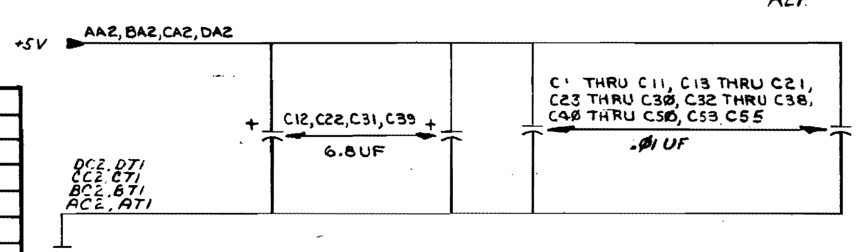
TITLE: DATA SYNC (DS 7)
SIZE: D
CODE: CS
NUMBER: M8901-Ø-1
REV: H
SCALE:
SHEET: 7 OF 7
DIST:

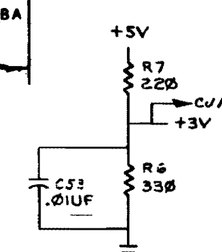
NOTES:

M8902-YA VERSION ONLY

1. CHANGE MODULE HANDLE TO M8902-YA
2. CUT ETCH AT PIN 10 OF E8 (SIDE 1).
3. ADD WIRE FROM FEED-TROUGH NEAR E9 PIN 08 TO E43 PIN 13.
4. ADD WIRE FROM E8 PIN 10. TO E43 PIN 12.
5. ANY SHIPPABLE CS REV MAY BE CONVERTED TO A YA BY MAKING ABOVE CHANGES.







M8902-YA QTY	M8902 QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
REF	REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8902-0-4	REF
REF	REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8902-0-5	REF
REF	REF		MODULE ECO HISTORY	B-MH-M8902-0-6	REF
1	1		ETCHED CIRCUIT BOARD	5010468	1
4	4		HANDLE, FLIPCHIP, MAGENTA	9008337-6	2
8	8		EYELET GS-4-7	9006792	3
2	2	C51, C52	CAP 1000PF MICA	1000042	4
47	47	C1 THRU C11, C13 THRU C19 C23 THRU C30, C32 THRU C38, C40 THRU C50, C53, 55, C56	CAP .01UF 100V 20% DISC	1001610-01	5
4	4	C12, C22, C31, C39	CAP 6.8UF 35V 10% S. TANT	1005300	6
3	3	R7, R9, R11	RES 220 1/4W 5%	1300271	7
2	2	R2, R6	RES 330 1/4W 5%	1300295	8
3	3	R3, R4, R10	RES 1K 1/4W 5%	1300365	9
6	6	E2, E3, E29, E34, E39, E5	IC 7474	1905547	10
5	5	E8, E27, E38, E44, E5	IC 7400	1905575	11
3	3	E4, E11, E18	IC 7410	1905576	12
2	2	E26, E36	IC 7430	1905578	13
3	3	E12, E32, E48	IC 7440	1905579	14
1	1	E35	IC 7401	1905590	15
5	5	E17, E19, E25, E33, E1	IC 7402	1909004	16
2	2	E46, E47	IC 8251	1909594	17
2	2	E28, E43	IC 7404	1909686	18
1	1	E49	IC 74175	1910651	19
2	2	E13, E24,	IC 74161	1910650	20
4	4	E6, E16, E41, E42	IC 7427	1910878	21
1	1	E30	IC 7405	1909330	22
4	4	E10, E23, E37, E40	IC 7408	1910155	23
3	3	E9, E14, E45	IC 74197	1910035	24
1	1	E7	IC 7437	1910091	25
1	1	E15	IC 75451	1910406	26
1	1	E22	IC 74180	1910724	27
1	1	R5	RES 150 1/4W 5%	1300250	28
3	3	R1, R12, R13	RES 100 1/4W 5%	1300229	29
2	2	C57, C58	CAP 220PF 100V D.M.	1000021	30

PARTS LIST

IC TYPE	GND	+ 5V
75451	4	8
74161	8	16
74175	8	16
8251	8	16

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

IC PIN LOCATIONS

FIRST USED ON OPTION MODEL: TU16

ETCH BOARD REV: F

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

SEMICONDUCTOR CONVERSION CHART

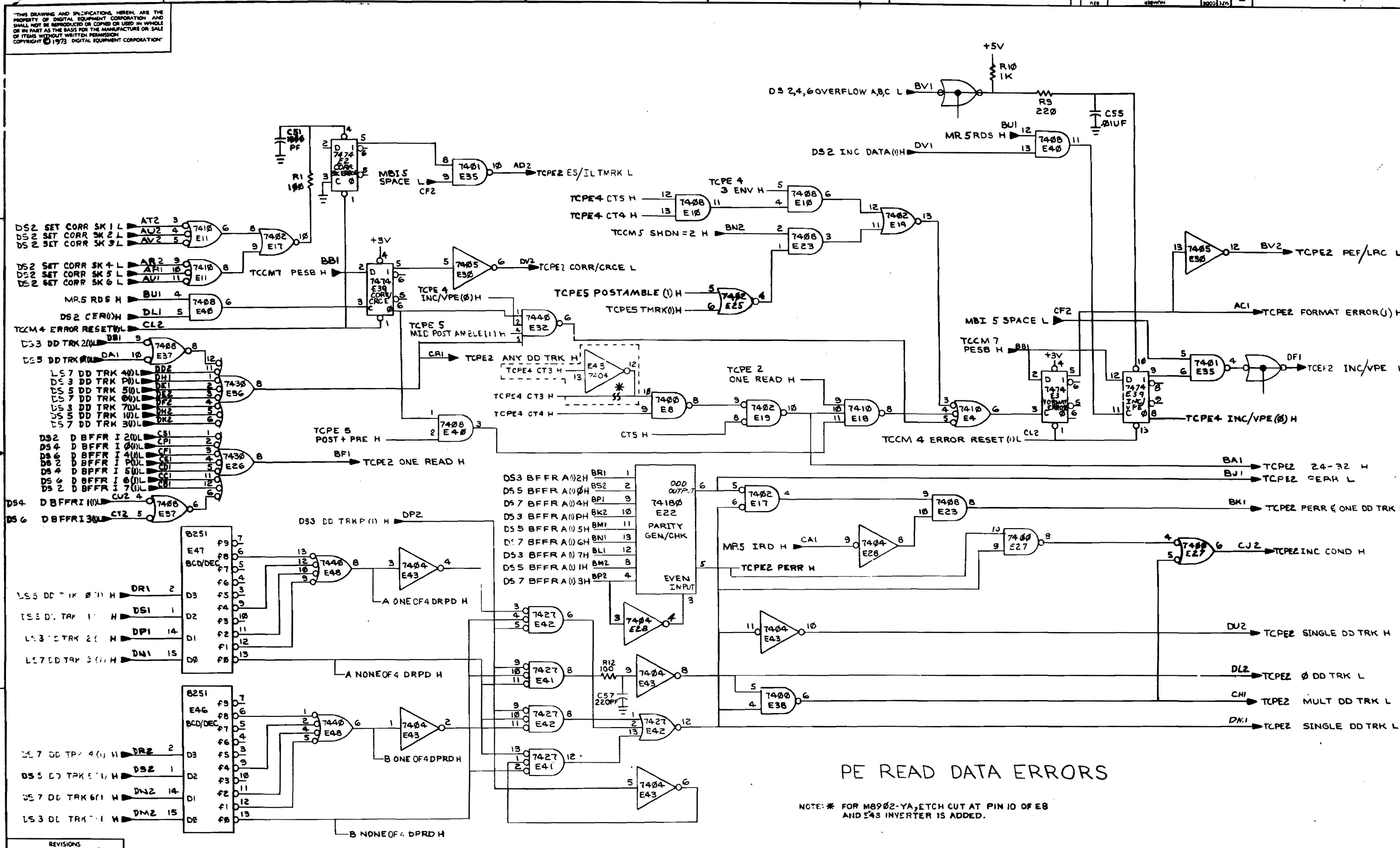
REVISIONS

DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

TITLE: TAPE CONTROL PHASE ENCODED (TCPE1)

SIZE: D CODE: CS NUMBER: M8902-0-1 REV. B

SCALE —— SHEET 1 OF 5



PE READ DATA ERRORS

NOTE: * FOR M8902-YA, ETCH CUT AT PIN 10 OF E8 AND E43 INVERTER IS ADDED.

REVISIONS		
CHK	CHANGE NO	REV

TITLE: TAPE CONTROL PHASE ENCODED (TCPE2)

SIZE: D | CODE: CS | NUMBER: M8902-0-1 | REV: H

SCALE —— | SHEET 2 OF 5 | DIST.

13

WRITE MAJOR STATES

TCPE 3 POSØ(1) L
TCPE 3 ONES L
TCPE 3 DATA(1) L
7410 E4
TCCM2 WDWBØ Ø(1)L AJ2
TCCM 3 WRT IDB L BF2
7404 E28
TCPE 3 PREØ(1) L
7440 E12
R13 100
C58 220 PF
BB1
TCCM7 PESB H
7400 E30
831
TCPE 3 PE WRT CLK ENBL L
+3V
10
74174 E2 POSØ
AM2
TCPE 3 POSØ (1) H
TCCM 4 ST CLK H BR2
AP2
TCPE 3 POSØ (Ø) H
TCCM 3 EIGHTY L BC1
7400 E44
7400 E44
MB1 5 WFMK L AF2
TCCM 3 FORTY H BD2
7408 E10
7402 E25
7427 E6
TCCM 3 TMWIP(0)H AF1
TCPE 3 PREØ (1) H
7408 E40
TCPE 3 DATA (1) H AB2
TCCM 4 WDR(1)H CD2
7400 E44
7400 E44
TCPE3 PRE1 (1) L
TCCM 4 WDR(1)L CE2
7408 E37
TCPE 3 DATA (1) H
74175 E49
PREØ DØ R3(1) R3(Ø)
PRE 1 D2 R2(1) R2(Ø)
DATA D1 R1(1) R1(Ø)
POS 1 DØ RØ(1) RØ(Ø)
CLR CLK
TCPE 3 PREØ(1) H
BL2
TCPE 3 PREØ (1) L
7408 E37
AL2
TCP3 ONES L
TCPE 3 PRE1(1) L
AB2
TCPE 3 DATA (1) H
AD1
TCPE 3 DATA (Ø) H
BD1
AA1
7402 E25
TCCM 7 PESB L
TCCM 3 ACCL H
TCPE3 CLR PE STATES L
MR5 WRPØ L AN2
7402 E25

PE READ DATA STROBE GENERATOR

74197 E45 4 BIT BIN CNTR
D3 D2 D1 DØ R3(1) R2(1) R1(1) RØ(1) CLR LD CLK1 CLKØ
TCPE 3 RDSD 2 H
TCPE 3 RDSD 1 H
7420 E50
TCPE 3 RDSD Ø H
TCPE 5 POSTOR REC NACT L
DU1
DS3 SYNC CLK PL
TCPE 5 INIT AND DS PLS L
+3V
7474 E5
TCPE 3 ENBL RDS(1)L
7402 E1
7401 E85
CV2
TCPE 3 RDS L
+5V
R2 330
DS BIT RDY H AV1
E8 7400
7437 E7
TCPE 3 CHAR SHIFT L
AM1
TCPE3 CHAR SHIFT H

Set segment word on address counter up 24 steps.

Preamble

Postamble

Data

Postamble

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
TAPE CONTROL (TCPE3) PHASE ENCODED	D	CS	M8902-Ø-1	H
SCALE	SHEET 3 OF 5	DIST.		

DICS M8902-Ø-1 H

DESKEW BUFFER READ ADDRESS COUNTER

+3V
74161 E24 4-BIT BIN CNTR
ENBCN RCRY D3 D2 D1 D0 RA(1) RB(1) RC(1) RD(1) CLR LD CLK ENBCR
AK2 → TCPE4 RD ADDR 3 H
AE2 → TCPE4 RD ADDR 2 H
DT2 → TCPE4 RD ADDR 1 H
TCPE3 CHAR SHIFT L
AL1
TCPE5 RECORD ACTIVE H
+3V

IDB TIMER

BU2 → TCPE4 IDB H

+3V
74161 E13 4-BIT BIN CNTR
TCPE 5 INIT + DS PLS L
+3V

7402 E33
TCCM4 200 BPI CLK H
CH2
7427 E16
7490 E12

DS3 ENV P(1) H
DS3 ENV 2(1) H
DS3 ENV 7(1) H
DS5 ENV 0(1) H
DS5 ENV 5(1) H
DS5 ENV 1(1) H
DS7 ENV 6(1) H
DS7 ENV 4(1) H
DS7 ENV 3(1) H

7427 E16
7427 E6
7427 E41
7418 E11
7402 E17

BH1 → TCPE4 3 ENV H
4K1 → TCPE4 ANY ENV H
DA2 → TCPE4 TMRK PATTERN H

+3V
7474 E5
TCPE4 CT1 H
TCPE4 CT0 H
AE1 → TCPE4 ENABLE SYNC W H
TCPE 3 CLR PE STATES L

TCPE 5 POST + PRE H
TCPE4 TMRK PATTERN H
TCPE 5 TMRK (1) H
TCPE 5 RECORD ACTIVE L
7427 E6
7408 E8
7408 E8

TCCM 4 DATA HALF H
CP2
TCCM 7 PESB H
881

74197 E14 4 BIT BIN CNTR *
D3 D2 D1 D0 R3(1) R2(1) R1(1) R0(1) CLR LD CLK1 CLK0
TCPE4 CT2 H
TCPE4 CT1 H
TCPE4 CT0 H
7400 E50

74197 E9 4 BIT BIN CNTR *
TCPE1 CT5 H
TCPE4 CT4 H
TCPE4 CT3 H

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
TAPE CONTROL (TCPE4) PHASE ENCODED	D	CS	M8902-0-1	H
SCALE —	SHEET 4 OF 5	DIST.		

READ MAJOR STATES

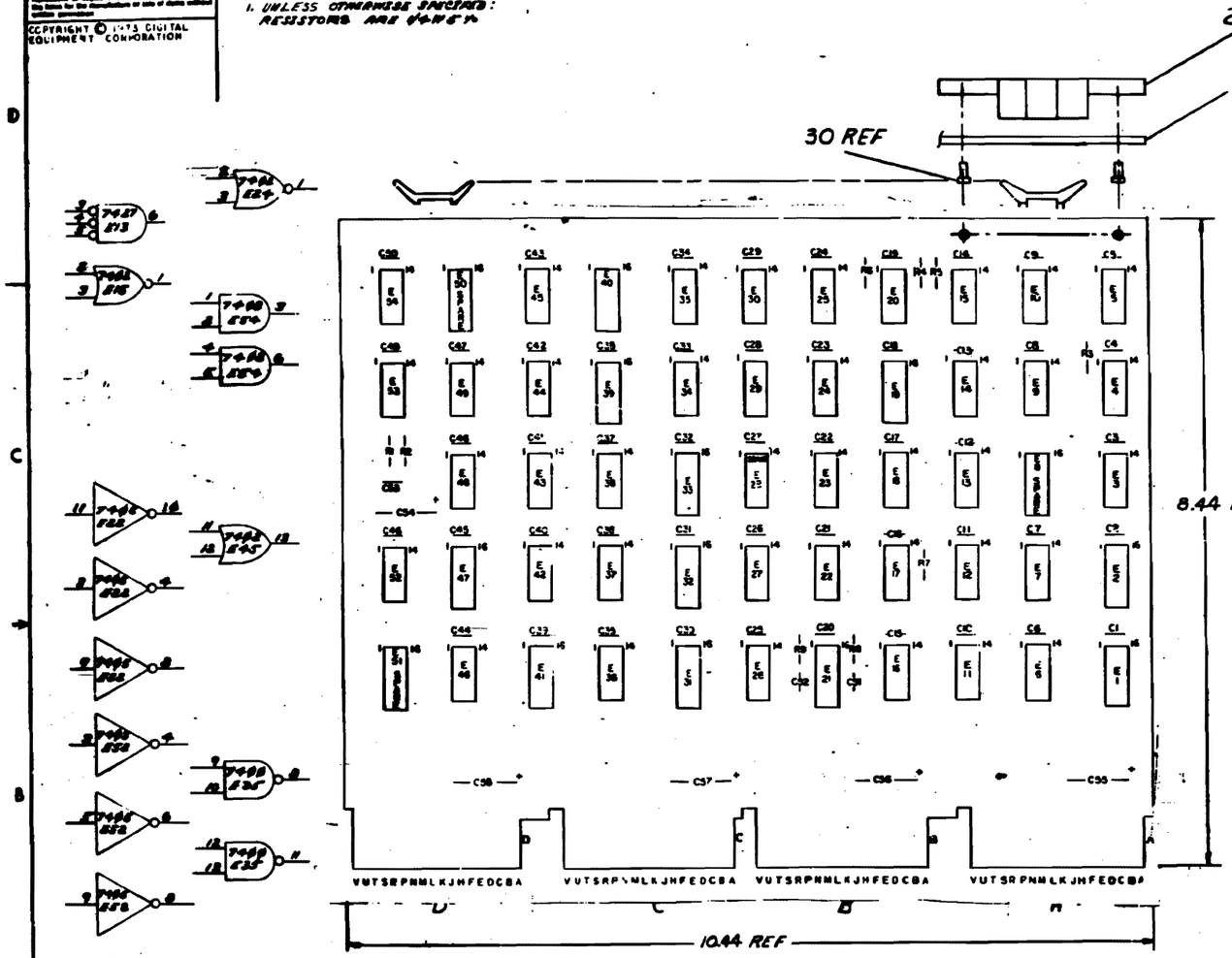
+3V
TCPE 5 POST AMBLE U H
TCPE5 MID POSTAMBLE (1) H
TCCM 4 DATA HALF H
CP2
7474 E29 MID POSTAMBLE
7400 E50
AB1
TCPE5 MID POSTAMBLE (1) L
TCPE4 CT5 H
TCPE5 POSTAMBLE (1) H
TCPE4 CT3 H
7400 E10
TCPE5 RECORD ACTIVE H
7402 E17
7400 E07
+5V
R3 1K
POST DETECT A,B,C H
AS1
TCPE 3 RDSD 2 H
TCPE4 TMRK PATTERN H
TCPE5 PE TMRK (1) H
7474 E34
TCPE4 3 ENV H
BH1
TCPE5 PE TMRK (1) L
TCPE5 PREAMBLE (1) H
CU1
TCPE5 PREAMBLE (1) L
DS 3,5,7 RECORD ACTIVE L
R11 220
C56 .01
7400 E23
BE2
TCPE5 POSTAMBLE (1) L
CS2
TCPE5 ANY TRANS L
MBIG DRV SET PLS H
AS2
7402 E39
TCPE5 INIT + DS PLS L
TCCM3 READING H
BJ2
MBI4 INIT PLS H
DD1
TCPE3 CHAR SHIFT H
AM1
7402 E33
TCCM3 ACC L H
AA1
TCPE5 POSTAMBLE (1) L
7400 E36
AN1
TCPE5 POST + PRE H
TCPE5 PREAMBLE (1) H
TCPE4 CT4 H
TCPE4 CT3 H
7410 E4
7437 E7
AP1
TCPE5 RECORD ACTIVE L
7405 E56
CV1
TCPE5 ENBL SHDN CNTR L
TCPE 5 PE TMRK (1) H
TCCM 3 READING H
BJ2
AL1
TCPE5 RECORD ACTIVE H
TCPE5 POSTAMBLE (1) H
TCPE5 RECORD ACTIVE H
7402 E19
R5 150
C52 1000 PF
7545 1 E15
R4 1K
BT2
TCPE5 POST OR REC NACT L
TCPE 5 PE TMRK (1) H
7401 E55
BB1
TCCM 7 PESB H
DC1
TCPE 5 TMRK L
TCPE4 ANY ENV H
AK1
7405 E56
CB2
TCPE5 RS SHDN CNTR L

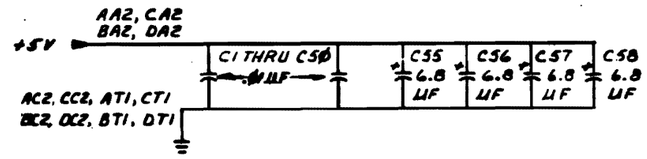
REVISIONS		
CHK	CHANGE NO	REV

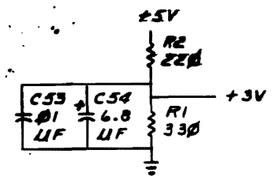
TITLE	SIZE	CODE	NUMBER	REV.
TAPE CONTROL PHASE ENCODED (TCPE5)	D	CS-M8902	-0-1	H
SCALE	SHEET 5 OF 5	DIST.		

DCSM8902-0-1 H

NOTES:
1. UNLESS OTHERWISE SPECIFIED: RESISTORS ARE OHMS







REF				
REF		X-Y COORDINATE HOLE LOCATION	X-CO-M8904-0-1	REF
REF		ASSY/DRILLING HOLE LAYOUT	D-AN-M8904-0-1	REF
REF		MODULE ECO HISTORY	B-AN-M8904-0-1	REF
1		ETCHED CIRCUIT BOARD	5010688	1
51	C1 THRU C50, C53,	CAP .01 UF, 100V, 20%	1001610	2
1	C52	CAP 27 PF, 100V, 5% DM	1001739	3
5	C54 THRU C58	CAP 6.8 UF, 35V, 10% TANT	1008306	4
1	R1	RES 330 1/4 W 5%	1300295	5
1	R2	RES 220 1/4 W 5%	1300271	6
5	R3 THRU R7	RES 1K 1/4 W 5%	1300345	7
2	R8, R9	RES 3.6K 1/4 W 5%	1301874	8
4	E10, E18, E35, E49	IC 7400	1905575	9
3	E4, E26, E27	IC 7401	1905590	10
3	E15, E24, E45	IC 7402	1909004	11
3	E20, E22, E52	IC 7403	1909930	12
3	E14, E25, E54	IC 7408	1910155	13
.	E5	IC 7410	1905576	14
1	E13	IC 7427	910878	15
1	E48	IC 7430	1905578	16
1	E17	IC 7473	1905587	17
5	E8, E9, E23, E30, E53	IC 7474	1905547	18
3	E31 THRU E33	IC 7475	1909030	19
10	E6, E7, E11, E12, E19, E36, E37, E38, E40, E44	IC 7486	1910011	20
1	E21	IC 74123	1910636	21
1	E16	IC 74161	1910650	22
3	E39, E41, E47	IC 74174	1910652	23
2	E1, E2	IC 74175	1910651	24
1	E34	IC 74180	1910726	25
2	E16, E48	IC 74197	1910035	26
2	E43, E46	IC 8815	1909713	27
				28
4		HANDLE, FLIP CHIP, MAGENTA	9C08337-6	29
8		EYELET	9004732	30
1	C51	CAP 270 PF-100V -5%-DM	1000322	31

IC TYPE	GND	+5V
74197	7	14
7475	5	12
74123	8	16
74161	8	16
74174	8	16
74175	8	16

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

IC PIN LOCATIONS

DEC NO.	EIA NO.

SEMICONDUCTOR CONVERSION CHART

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		
	ETCH BOARD REV	D		

PART USED ON OPTION MODEL: TU16

REVISIONS				
CHG	CHANGE NO.	DEC NO.	EIA NO.	
B	M8904-00001			
C	M8904-00002			

DRN: J. Hess 10-17-72
CHK'D: J. Curbow 11-1-72
ENGR: [illegible] 11-2-72
PROJ ENGR: [illegible] 11-7-72
PROJ: [illegible] 11-7-72
NEXT HIGHER ASSY: [illegible] 12-7-72

SCALE: 1=1
SHEET 1 OF 4

EQUIPMENT CORPORATION

TITLE: (CNRZI) TAPE CONTROL NRZI

DCS M8904-0-1 REV D

DIST:

DCS M8904-0-1 B

WRITE DATA CRCC GENERATOR

NRZ READ LATCH

NRZ READ ERRORS

BF4 WDBFC 8(1) H — BB1 — 7486 E7 — 74175 E2 — ALI — CNRZ2 CRC P (1) H (TRK 4)

TCCM3 SRV SET FLS L — AE2

TCCM2 XWD P H — BC1 — 7486 E7 — 74175 E2 — API — CNRZ2 CRC 7 (1) H (TRK 7)

BF4 WDBFC 7 H — BE1 — 7486 E7 — 74175 E2 — ANI — CNRZ2 CRC 6 (1) H (TRK 6)

BF4 WDBFC 6 H — BB2 — 7486 E11 — 7486 E6 — 74175 E2 — ANI — CNRZ2 CRC 5 (1) H (TRK 5)

BF4 WDBFC 5 H — BK1 — 7486 E11 — 7486 E6 — 74175 E1 — AKI — CNRZ2 CRC 4 (1) H (TRK 3)

TCCM2 XWD 4 H — BD2 — 7486 E11 — 7486 E6 — 74175 E1 — ASI — CNRZ2 CRC 3 (1) H (TRK 9)

BF4 WDBFC 3 (1) H — BL1 — 7486 E11 — 7486 E6 — 74175 E1 — AEI — CNRZ2 CRC 2 (1) H (TRK 1)

BF4 WDBFC 2 (1) H — BF1 — 7486 E7 — 74175 E1 — ARI — CNRZ2 CRC 1 (1) H (TRK 8)

BF4 WDBFC P (1) H — BJ1 — 7486 E12 — 74174 E3 — AJI — CNRZ2 CRC P (1) H (TRK 8)

TCCM4 WB CLK H — BA1 — 7486 E12 — ÷2 — +5V

7475 E31

TCCM6 RDA 7 H — DE2 — D6 R9(1) — CNRZ2 RD LATCH 7 (1) H

TCCM6 RDA 6 H — CU2 — D1 R1(1) — CNRZ2 RD LATCH 6 (1) H

TCCM6 RDA 5 H — CT2 — D2 R2(1) — CNRZ2 RD LATCH 5 (1) H

TCCM6 RDA 4 H — CR2 — D3 R5(1) — CNRZ2 RD LATCH 4 (1) H

7475 E32

TCCM6 RDA 3 H — DH2 — D6 R8(1) — CNRZ2 RD LATCH 3 (1) H

TCCM6 RDA 2 H — CH2 — D1 R1(1) — CNRZ2 RD LATCH 2 (1) H

TCCM6 RDA 1 H — DF2 — D2 R2(1) — CNRZ2 RD LATCH 1 (1) H

TCCM6 RDA Ø H — CH2 — D3 R3(1) — R8(0) CNRZ2 RD LATCH Ø (0) H; R3(0) CNRZ2 RD LATCH Ø (1) H

7475 E33

TCCM6 RDA P H — CS2 — D6 R8(1) — CNRZ2 RD LATCH P (1) H; R8(0) CNRZ2 RD LATCH P (1) L

CNRZ4 ERDS L

TCCM4 SPACE L — DPI — 7400 E35 — DNI — SCBL SET VPE H

CNRZ2 RD PAR EVEN H — DAI — 7486 E29 — MAG PVN(1) H

CNRZ2 DATA RDS L — 7402 E45

TCCMPES8 L — BD1 — 7403 E52 — DFI — CNRZ2 INC/VPE L

BDI — BPAR L

CNRZ4 -FWD CRCS — DP2 — 7402 E45

CNRZ3 CRCS ENBL L

CNRZ4 ERDS H — 7408 E54

+5V — 7403 E52 — EV2 — CNRZ2 CORR/CRC L

CNRZ4 LRCS ERRS H — 7408 E54

TCCM4 ERROR RESET (1) L — CL2

+5V — 74S02 E58 — 74S00 E52 — BV2 — CNRZ2 PARITY L

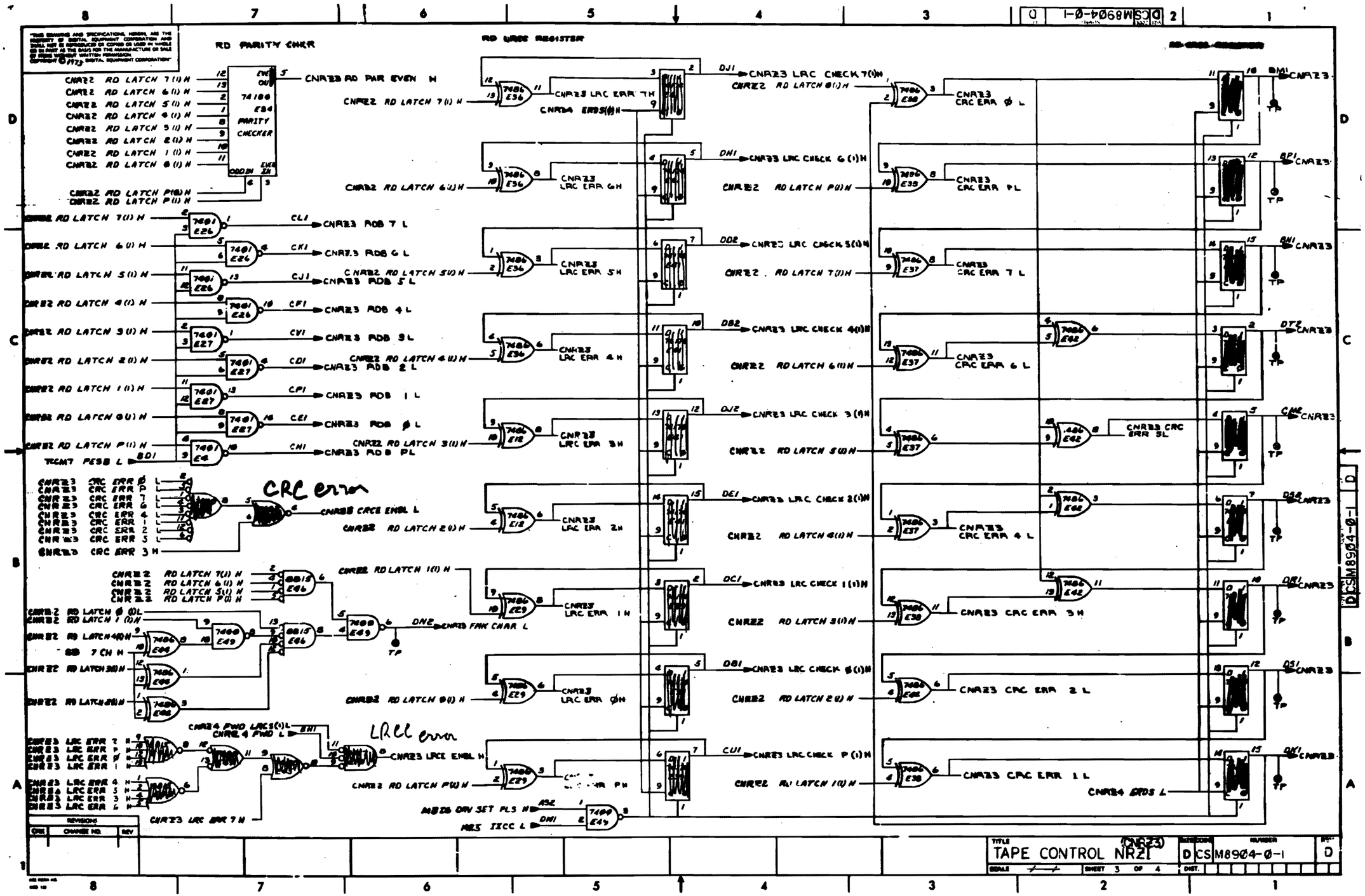
REVISIONS

CHK	CHANGE NO.	REV.

TITLE: TAPE CONTROL NRZI (CNRZ2)

SCALE: — SHEET: 2 OF 4

DRAWING NUMBER: DCS M8904-0-1 REV: D


RD PARITY CHKR
RD LRCC REGISTER
CRC error
LRCC error
TAPE CONTROL NR2I (CNR23)
DCS M8904-0-1
REVISIONS

TAPE MARK DETECT

CHECK CHAR DETECT

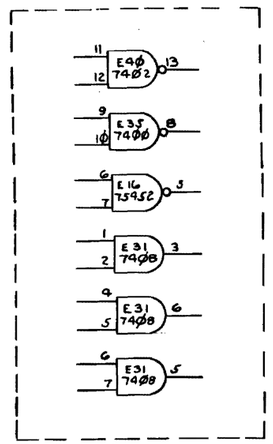
TAPE CONTROL NRZI

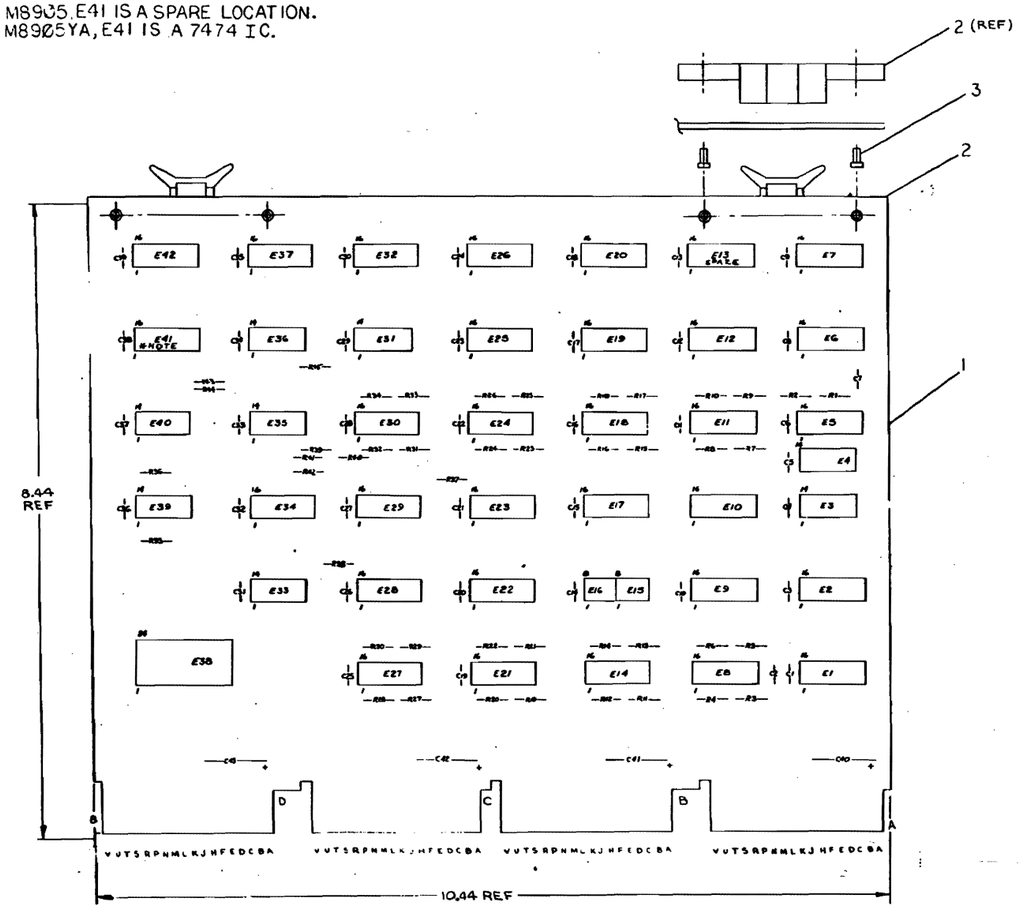
D CS M8904-0-1 D

SHEET 4 OF 4

NOTES:

* FOR M8905, E41 IS A SPARE LOCATION.
FOR M8905YA, E41 IS A 7474 IC.



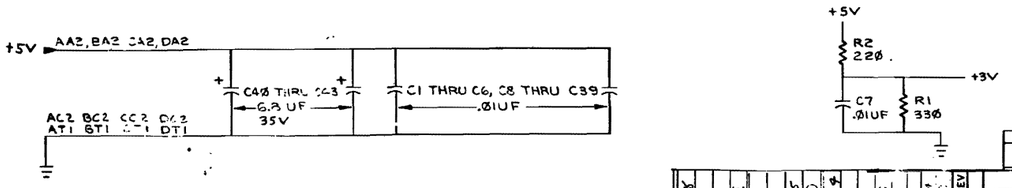


REF	REF				
REF	REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8905-Z-4	REF
REF	REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8905-0-5	REF
REF	REF		MODULE ECO HISTORY	B-MH-M8905-0-6	REF
1	1		ETCHED CIRCUIT BOARD	5010686	1
4	4		HANDLE, FLIP CHIP	9008337-6	2
8	8		EYELET	9006732	3
39	39	C1 THRU C39	CAP. .01UF 100V 20% DISC	1001610-01	4
4	4	C40 THRU C43	CAP. 6.8UF 35V 10% TANT	1005306	5
43	43	R3 THRU R45	RES 2K 1/4W 5%	1302388	6
1	1	R1	RES 330Ω 1/4W 5%	1300295	7
1	1	R2	RES 220Ω 1/4W 5%	1300271	8
1	1	E38	IC DEC 74154	1909701	9
5	5	E10, E17, E23, E29, E34	IC DEC 74153	1909937	10
1	1	E40	IC DEC 7402	1909004	11
1	1	E35	IC DEC 7400	1905575	12
3	3	E4, E33, E36	IC DEC 7404	1909686	13
4	4	E9, E12, E25, E28	IC DEC 74174	1910652	14
1	1	E3	IC DEC 7474	1905547	15
5	5	E5, E6, E7, E37, E42	IC DEC 74157	1910655	16
4	4	E8, E14, E21, E27	IC DEC 74173	1911330	17
2	2	E15, E16	IC DEC 75452	1910645-1	18
4	4	E19, E22, E26, E32	IC DEC 74175	1910651	19
7	7	E1, E2, E13, E18, E22, E24, E30	IC DEC 8234	1911315	20
1	1	E39	IC DEC 7481	1905590	21
1	1	E31	IC DEC 7408	1910155	22
1	-	E41	IC DEC 7474	1905547	23
A/R	A/R		WIRE #30 AWG GREEN	9105740-55	24

M8905YA / M8905

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST



8234	8	16
74175	8	16
75452	4	8
74174	8	16
74157	2	16
74173	2	16
74153	8	16
74154	12	24
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

BRUNING 40322-16459
CET FORM NO
DATE 1374

FIRST USED ON OPTION MODEL: TU16

ETCH BOARD REV: C

SEMICONDUCTOR CONVERSION CHART

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

REV	CHANGE NO.	CHK
E	3003	H.B.
D	2714	
C	2554	

		DATE
DRN.		3/5-73
CHK'D.		1/7/11
ENG.		
PROJ. ENG.		
PROD.		
NEXT HIGHER ASSY		
SCALE		
SHEET 1 OF 6		

EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE: MAINTENANCE REGISTER

SIZE D | CODE CS | NUMBER M8905-0-1 | REV. E

DIST.

M8905-0-1 REV E

MAINTENANCE REGISTER MULTIPLEXERS BITS 8-11

MAINTENANCE REGISTER BITS 8-11

RDC MUX BITS 0-3

+5V R37 2K

DS5 & CNRZ3: RDB Ø L — CE2 — 7404 E4 — MR2 RDB Ø H

MR4 CB — BR2
BF4 WDBFO Ø(1) H — BR2
TCCM2 WDWBO Ø(1) H — BD1
74153 E10: DØ CØ BØ AØ S1 SØ STØB; FØ
MR2 RDB Ø H

+5V R38 2K

DS5 & CNRZ3 RDB 1 L — CP2 — 7404 E4 — MR2 RDB 1 H

74174 E12: DØ D1 CLR CLK; RØ(1) RI(1)
MR2 MAINT 8(1)H
MR2 MAINT 9(1)H

74157 E6: BØ AØ B1 A1 STB SØ; FØ F1
BR1 — MR2 RDC Ø H
BP1 — MR2 RDC 1 H

MR4 C9 — BP2
BF4 WDBFO 1(1)H — BE1
TCCM2 WDWBO 1(1)H
74153 E10: D1 C1 B1 A1 S1 SØ STB1; F1

+5V R39 2K

DS3 & CNRZ3 RDB 2 L — CD2 — 7404 E4 — MR2 RDB 2 H

MR4 C10 — BN2
BF4 WDBFO 2(1) H — BN2
TCCM2 WDWBO 2(1) H
74153 E17: DØ CØ BØ AØ S1 SØ STBØ; FØ

+5V R40 2K

DS7 & CNRZ3 RDB 3 L — CV1 — 7404 E4 — MR2 RDB 3H

74174 E12: D2 D3 CLR CLK; R2(1) R3(1)
MR2 MAINT 10(1)H
MR2 MAINT 11(1)H

74157 E6: B3 A3 B2 A2 STB SØ; F3 F2
BN1 — MR2 RDC 2 H
BM1 — MR2 RDC 3 H

MR4 C11 — BM2
BF4 WDBFO 3(1)H — BJ2
TCCM2 WDWBO 3(1)H
74153 E17: DI CI BI AI S1 SØ STB1; FI

MR5 WRP 2 OR 3 H
MR5 WRP 1 OR 3 H
MR5: WRP 3 L
MBI4 MASCLR L
MR 5 DATA CLK H

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
MAINTENANCE REGISTER (MR2)	D	CS	M8905-Ø-1	E
SCALE —	SHEET 2 OF 6	DIST.		

DCS M8905-Ø-1 E

MAINTENANCE REGISTER MULTIPLEXER BITS 12-15

MAINTENANCE REGISTER BITS 12-15

REC MUX BITS 4-7

+5V R41 2K
DS7 & CNR23 RDB 4 L — CF2 — 11 — 7404 E4 — 10 — MR3 RDB 4H

MR4 C12 — 3 — 74153 E23 — 7 — MR3 RDB 4H
BF4 WBBF0 4 H — BF2 — 4
TCCM2 WDWB0 4 (1) H — DL2 — 5
6
2 — 14 — 1

+5V R42 2K
DS5 & CNR23 RDB 5 L — CJ2 — 13 — 7404 E4 — 12 — MR3 RDB 5H

MR4 C13 — 13 — 74153 E23 — 9 — MR3 RDB 5H
BF4 WBDF0 5 H — BF2 — 12
TCCM2 WDWB0 5 (1) H — DP2 — 11
10
2 — 14 — 15

+5V R43 2K
DS7 & CNR23 RDB 6 L — CK2 — 1 — 7404 E36 — 2 — MR3 RDB 6H

MR4 C14 — 3 — 74153 E29 — 7 — MR3 RDB 6H
BF4 WDBF0 6 H — CG2 — 4
TCCM2 WDWB0 6 (1) H — DP1 — 5
6
2 — 14 — 1

+5V R44 2K
DS3 & CNR23 RDB 7 L — CL2 — 3 — 7404 E36 — 4 — MR3 RDB 7H

MR4 C15 — 13 — 74153 E29 — 9 — MR3 RDB 7H
BF4 WDBF0 7 H — CT2 — 12
TCCM2 WDWB0 7 (1) H — DR1 — 11
12
2 — 14 — 15

MR5 WRP 2 OR 3 H
MR5 WRP 1 OR 3 H

MBI 4 MAS CLR L
MR5 DATA CLK H

74174 E12
13 — D4 — R4(1) — 12 — MR3 MAINT 12 (1) H
14 — D5 — R5(1) — 15 — MR3 MAINT 13 (1) H
CLR CLK
1 — 9

74175 E19
4 — D0 — R0(1) — 2 — MR3 MAINT 14 (1) H
5 — D1 — R1(1) — 7 — MR3 MAINT 15 (1) H
CLR CLK
1 — 9

74157 E42
3 — B0 — A0 — P0 — 4 — BL1 — MR3 RDC 4 H
6 — B1 — A1 — P1 — 7 — BK1 — MR3 RDC 5 H
STB S0
15 — 1

74157 E42
10 — B3 — A3 — P3 — 9 — BJ1 — MR3 RDC 6 H
13 — B2 — A2 — P2 — 12 — BH1 — MR3 RDC 7 H
STB S0
15 — 1

MR5 WRP 3 L

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
MAINTENANCE REGISTER (MR3)	D	CS	M8905-0-1	E
SCALE —	SHEET 3 OF 6	DIST		

CHECK CHAR. REGISTER
or dead track informatio

C-LINE LATCHES

MR2 RDB Ø H — DS5 DD TRK Ø(1)H — AD1
MR2 RDB 1 H — DS5 DD TRK 1(1) H — AC1
MR2 RDB 2 H — DS3 DD TRK 2(1) H — AA1
MR2 RDB 3 H — DS1 DD TRK 3(1)H — AD2
MR3 RDB 4 H — DS7 DD TRK 4 (1) H — DV1
MR3 RDB 5 H — DS5 DD TRK 5 (1) H — DT2
MR3 RDB 6 H — DS7 DD TRK 6 (1) H — DS2
MR3 RDB 7 H — DS3 DD TRK 7 (1) H — DU1
MR5 RDB P H — DS3 DD TRK P (1) H — AU1
TCCM7 PES B H — BB1
MBI 4 MA5 CLR L — BB2
TCPE4 MID POSTAMBLE(1) L — AB1
CNRZ4 CLK L CHK CHAR REG L — AF2

MR5 MAINT ØH
MR5 MAINT 1H
MR5 MAINT 2H
MR5 MAINT 3H
MR5 MAINT 4H
MR5 MAINT 5 H
MR5 MAINT 7H
MR2 MAINT 8 H
MR2 MAINT 9 H
MR2 MAINT 10 H
MR2 MAINT 11 H
MR3 MAINT 12 H
MR3 MAINT 13 H
MR3 MAINT 14 H
MR3 MAINT 15 H
MBI 2 R7 L — DM2
MBI 2 R3 L — DH2
MBI 2 LCTOD (1) H

CU1 TCCM7 CMUX Ø L
CS1 TCCM7 CMUX 1 L
CR1 TCCM7 CMUX 2 L
CP1 TCCM7 CMUX 3 L
CN1 TCCM7 CMUX 4 L
CM1 TCCM7 CMUX 5 L
CL1 TCCM7 CMUX 6 L
CK1 TCCM7 CMUX 7 L
CJ1 TCCM7 CMUX 8 L
CH1 TCCM7 CMUX 9 L
CF1 TCCM7 CMUX 10 L
CE1 TCCM7 CMUX 11 L
CD1 TCCM7 CMUX 12 L
CC1 TCCM7 CMUX 13 L
CB1 TCCM7 CMUX 14 L
CA1 TCCM7 CMUX 15 L

AR2 — MR4 C0
AP1 — MR4 C1
AR1 — MR4 C2
AS1 — MR4 C3
AP2 — MR4 C4
AN1 — MR4 C5
AM1 — MR4 C6
AM2 — MR4 C7
AK1 — MR4 C8
AL1 — MR4 C9
AJ2 — MR4 C10
AL2 — MR4 C11
AF1 — MR4 C12
AE1 — MR4 C13
AH1 — MR4 C14
AJ1 — MR4 C15

* SEE NOTE BELOW

*ON M8905, SIGNAL TCCM4 200 B.P.T.. CLK H FINGER DS1 GOES TO E24 PIN11.
ON M8905YA, SIGNAL TCCM4 200 B.P.T. CLK H FINGER DS1 GOES TO E41 PIN3 AND E41 PIN 5 GOES TO E24 PIN 11.

FOR M8905YA
TO E32-1

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
MAINTENANCE REGISTER (MR4)	D	CS	M8905-0-1	E
SCALE	SHEET 4 OF 6	DIST.		

M8905-0-1 E

84

MAINTENANCE REGISTER BITS 0-7

+5V P45 2K

DSS & CNRE 3 RDB P L — CH2 — 7404 E36 — MR5 RDB P H

MBI5 GO BUF H — AK2 — 7408 E31

74175 E19: D3 → R3(1) R3(0) → MR5 MAINT 7 (1) H; D2 → R2(1) R2(0) → MR5 MMCLK (1) H; CLR CLK; DC1

MR4 C7 — DB1
TCCM2 XWD P H — DB1
TCCM2 WDNBO P(1) H — DD1

74153 E34: D0 C0 B0 A0 → 1Ø; S1 S0 ST86

MR 5 RDS H — BU1

74153 E34: D1 C1 B1 A1 → 9; S1 S0 ST81

MR5 DATA CLK H

MR4 C4 — MR5 MAINT 4 (1) H
MR4 C3 — MR5 MAINT 3 (1) H
MR4 C2 — MR5 MAINT 2 (1) H
MR4 C1 — MR5 MAINT 1 (1) H
MR4 C0 — MR5 MAINT Ø (1) H

74174 E25: D1 D2 D3 D4 D0 → R1(1) R2(1) R3(1) R4(1) R0(1); CLR CLK

MR5 WRP 2 OR 3 H
MR5 WRP 1 OR 3 H
MBI4 MA5 CLR L — BS2

MR5 WRP 3 L — 7400 E35
MR5 WRP 2 L — 7400 E35
MR5 WRP 1 L — 7400 E35

MBI2 R3 L — DH2 — 7402 E48 — 7404 E36
MBI2 REG WRT L — DJ2 — 7402 E48
MBI2 R11 L — DK1 — 7402 E48 — MR5 WRT R11 H

DR2 — 7402 E48 — 10

74154 E38: F15 F14 F13 F12 F11 F10 F09 F08 F07 F06 F05 F04 F03 F02 F01 F00; ST81 ST80

DF1 — MR5 INC PREAMBLE L
DH1 — MR5 MM EOR CLR L
DM1 — MR5 IICC L
DJ1 — MR5 DISABLE OCC RCVR L
DV2 — MR5 WRP 3 L
DU2 — MR5 WRP 2 L
DN2 — MR5 WRP 1 L
DN1 — MR5 WRP Ø L

+5V R36 2K

7404 E33 → 7401 E39 → CV2 — MR5 RDS L
7404 E33 → BU1 — MR5 RDS H

DL1 — MR5 INC TMK L
DE2 — MR5 BIT STRB 2 H
+5V R35 2K
DF2 — MR5 BIT STRB 1 H

DB2 — MR5 EVEN PAR H
DD2 — MR5 IRD H

DCS M89Ø5-Ø-1

REVISIONS		
CHK	CHANGE NO.	REV

TITLE	SIZE	CODE	NUMBER	REV.
MAINTENANCE REGISTER (MR5)	D	CS	M89Ø5-Ø-1	E
SCALE —	SHEET 5 OF 6	DIST.		

TAPE CONTROL REGISTER

move of tape control

74174 E26: MR4 C0 MR4 C1 MR4 C2 MR4 C3 MR4 C4 MR4 C5 → MR6 SS2 (SB) L, MR6 SS1 (SB) L, MR6 SS0 (1) H, MR6 PVN (1) H

74174 E9: MR4 C6 MR4 C7 MR4 C8 → MR6 FMT 0 (1) H, MR6 FMT 1 (1) H, MR6 FMT 2 (1) H, MR6 SPARE (1) H

74174 E3: MR4 C10 MR4 C11 MR4 C12 → MR6 DEN 2 L, MR6 DEN 2 (1) H, MR6 EADDTE (1) H

7474 E3: MR4 C9 → MR6 DEN 1 (0) H, MR6 FMT 3 (1) H

MBI7 BRIP L, MR5 WRT R H, MBI 7 DRV SET PLS L

7404 E36 → MR6 DEN 0 (SB) H

MBI5 G0BUF H, MBI5 F1 H, MBI5 F2 H, MBI5 F3 H, MBI2 R0 L, MBI5 F4 H, MBI5 F5 H, MBI2 R11 L, +3V

8234 E22 → MRG CMUX 0 L, MRG CMUX 1 L, MRG CMUX 2 L, MRG CMUX 3 L

8234 E2 → MRG CMUX 4 L, MRG CMUX 5 L, MRG CMUX 6 L, MRG CMUX 11 L

8234 E1 → MRG CMUX 7 L, MRG CMUX 8 L, MRG CMUX 9 L, MRG CMUX 10 L

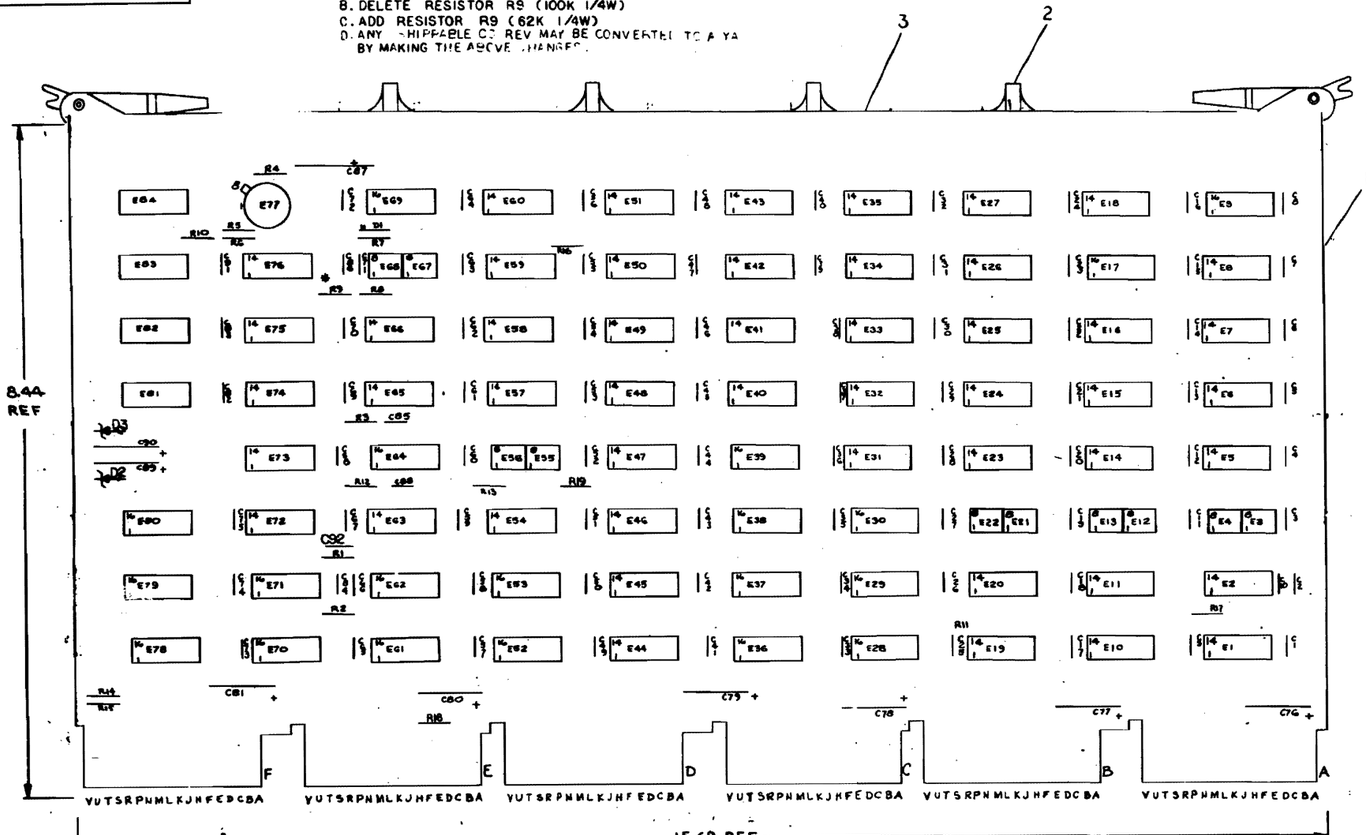
REVISIONS		
CHK	CHANGE NO	REV.

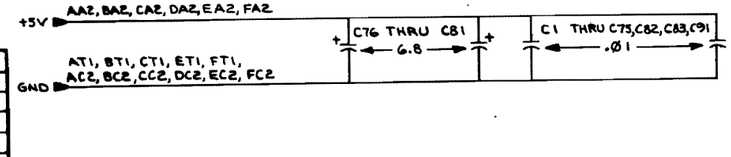
TITLE	SIZE	CODE	NUMBER	REV.
MAINTENANCE REGISTER (MR6)	D	CS	M8905-0-1	E

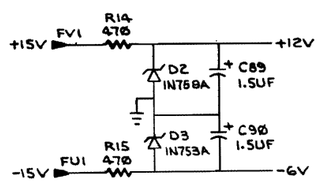
SCALE - 1/1 SHEET 6 OF 6 DIST.

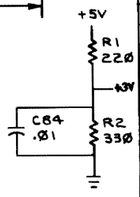
NOTES:

* M8903YA
A. CHANGE DESCRIPTION TO M8903YA
B. DELETE RESISTOR R9 (100K 1/4W)
C. ADD RESISTOR R9 (62K 1/4W)
D. ANY SHIPPABLE CS REV MAY BE CONVERTED TO A YA BY MAKING THE ABOVE CHANGES.









8640	1	8
7473	11	4
74153	8	16
74123	8	16
75452	4	8
74161	8	16
74175	8	16
74157	8	16
75453	4	8
8234	8	16
306	1	

IC TYPE	GND	+ 5V	-6V	+12V
			4	8

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

IC PIN LOCATIONS

QTY	M8903YA	M8903	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
—	REF			X-Y COORDINATE HOLE LOCATION	K-CO-M8903-0-4	REF
—	REF			ASSY/DRILLING HOLE LAYOUT	D-AH-M8903-0-5	REF
—	REF			MODULE ECO HISTORY	B-MH-M8903-0-6	REF
1	1			ETCHED CIRCUIT BOARD	5010469	1
1	1			HANDLE, HEX	1210711-2	2
12	12			EYELET	9006732	3
80	80		C1-C75,C84,C86,C87,C89,C91	CAP .01UF 100V 20% DISC	1001610-01	4
1	1		C87	CAP 100UF 20V 10% S.TANT	1004815	5
6	6		C76 THRU C81	CAP 6.8UF 35V 10% S.TANT	1005306	6
2	2		C85, C88	CAP 560PF 100V 5% DM	1000025	7
1	1		D1	DIODE D664	1100114	8
1	1		R1	RES 220 1/4W 5%	1300271	9
1	1		R2	RES 330 1/4W 5%	1300295	10
7	7		R5,R6,R10,R11,R13,R16,R19	RES 1K 1/4W 5%	1300365	11
1	—		R9	RES 62K 1 4W 5%	1304840	12
1	1		R4	RES 4.7K 1/4W 5%	1300447	13
3	3		R3,R7,R12	RES 10K 1/4W 5%	1300479	14
1	1		R8	RES 27 1/4W 5%	1301522	15
—	1		R9	RES 100K 1/4W 5%	1302466	16
7	7		E26,E31,E42,E57,E58,E65,E75	IC 7474	1905547	17
6	6		E25,E35,E66,E72,E74,E88	IC 7400	1905575	18
4	4		E7,E46,E60,E73	IC 7410	1905576	19
1	1		E18	IC 7473	1905567	20
5	5		E24,E41,E48,E50,E59	IC 7402	1909004	21
1	1		E77	IC 506	1909675	22
5	5		E34,E40,E54,E76,E82	IC 7404	1909686	23
5	5		E28,E29,E36,E37,E39	IC 74158	1909937	24
1	1		E32	IC 7486	1910011	25
6	6		E5,E6,E14,E15,E27,E51	IC 7417	1910035	26
8	8		E22,E33,E43,E47,E48,E63,E84	IC 7408	1910155	27
1	1		E64	IC 74123	1910436	28
5	5		E22,E55,E56,E67,E68	IC 75452	1910645	29
2	2		E9,E17	IC 74161	1910650	30
2	2		E30,E38	IC 74175	1910651	31
4	4		E69,E78,E79,E80	IC 74157	1910655	32
1	1		E44	IC 74180	1910724	33
2	2		E16,E45	IC 7427	1910878	34
5	5		E3,E4,E12,E13,E21	IC 75451	1910406	35
6	6		E1,E2,E10,E11,E19,E20	IC 8640	1911469	36
6	6		E52,E53,E61,E62,E70,E71	IC 8234	1911315	37
1	1		E81	IC 7405	1909930	38
2	2		C89,C90	CAP 1.5UF 35V 10% TANT	1009725	39
1	1		C92	CAP 1000PF 100V	1000042	40
1	1		D3	DIODE, ZENER 6.2V IN753A	1102421	41
1	1		D2	DIODE, ZENER 12V IN758A	1110836	42
3	3		R14, R15, R18	RES 470 1/4W 5%	1300316	43
1	1		R17.	RES 150 1/4W 5%	1300250	44

PARTS LIST

FIRST USED ON OPTION MODEL: TU16

ETCH BOARD REV: E

SEMICONDUCTOR CONVERSION CHART

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

REV	CHANGE NO.	REVISIONS
C	M8903-00001	JOHN HESS
D	M8903-00002	JOHN HESS
E	M8903-00003	J. HESS
F	M8903-00005	J. HESS

DRN: M. Gordon 10/23/73
CHKD: J. Carney 10/23/73
ENG: [illegible] 10-24-73
PROJ. ENG: [illegible] 10-24-73
PROD: [illegible] 1-28-74
NEXT HIGHER ASSY
SCALE: — — SHEET 1 OF 7

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: (TCCMI) TAPE CONTROL COMMON MODE

SIZE/CODE: DCS | NUMBER: M8903-0-1 | REV: F | DIST:

DCS M8903-0-1 REV F

WRITE MUX AND WRITE BUFFER

* M8914 PREFIX IS BFLR2,BF4
IS M8906 PREFIX

PAR.

TCCM2 WDWBO P(I)H FJ2
TCCM3 ID BURST TIME(I)H
TCPE3 ONES L CL2
TCCM2 PARITY DATA SET UP H

BF4 WDBFO2 DE1
BF4 WDBFO4 DK1
BF4 WDBFO6 DM1
BF4 WDBFO0 DJ1
BF4 WDBFO3 DV2
BF4 WDBFO5 DL1
BF4 WDBFO7 DN1
BF4 WDBFO1 DP1

BFLR2, BF4 WDBFO7H DN1
CNRZ2 CRC7(I)H CP1
BFLR2, BF4 WDBFO6H DM1
CNRZ2 CRC6(I)H CN1
BFLR2, BF4 WDBFO5H DL1
CNRZ2 CRC5(I)H CM1
CNRZ2 CRC4(I)H CK1
BFLR2, BF4 WDBFO4H DK1
DP2 TCCM2 XWD4 H
BFLR2, BF4 WDBFO3H DV2
CNRZ2 CRC3(I)H CS1
BFLR2, BF4 WDBFO2H DE1
CNRZ2 CRC2(I)H CE1
BFLR2, BF4 WDBFO1H DP1
CNRZ2 CRC1(I)H CR1
BFLR2, BF4 WDBFO0H DJ1
CNRZ2 CRC0(I)H CJ1
TCCM2 ONES H
DR1 TCCM2 XWDP H
CNRZ2 CRCP(I)H CL1
TCCM2 PARITY DATA SET UP H
TCCM2 DATA CLK H
TCCM4 DH1 WBCLK H
TCCM2 CLR P WB L

MR6 PVN H FA1
TCCM7 PESB L
MR5 INC: PREAMBLE L AA1
TCPE3 ONES L CL2
TCCM4 CRC STRB H
TCCM7 PESB H
TCCM4 PE CLK(I) L
TCPE3 DATA(I)H CB2
TCCM7 PESB L

PVN ALL ZEROS H

MR5 INCFMK L BE1
DF2 TCCM2 WDWB05 L
TCCM2 7CH TM0
TCCM2 7CH TM1
TCCM2 TM1(0)H

MEI6 DRV SET PLS H
TCCM4 CRC STRB + LRC STRB L
SBC2 7CH H
TCCM7 7CH L
TCCM3 ID BURST TIME (I) L
MB15 WRITE H AR2
TCCM4 LRC STRB SB L AK2
TCCM2 7CH TM1
TCCM2 TM1(0)H

SELECT INPUTS	DATA INPUTS	OUTPUT
S1 S0	A B C D	F
L L	L X X X	L
L L	H X X X	H
L H	X L X X	L
L H	X H X X	H
H L	X X L X	L
H L	X X H X	H
H H	X X X L	L
H H	X X X H	H

74153 FUNCTION TABLE

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
TAPE CONTROL COMMON MODE (TCCM2)	D	CS	M8903-0-1	F
SCALE	SHEET 2 OF 7	DIST.		

TCPE3 PRE Ø(1)L DL2
TCPE3 POS Ø(1)L CP2
7400 E72
TCCM6 PE CLK (1)H
7408 E47
TCCM3 READING L
TCCM4 800 BPI CLK H
7408 E47
7402 E48
+3V
74197 E6
D3 D2 D1 D0 R3(1) R2(1) R1(1) R0(1) CLR LD CLK1 CLKØ
SBB2RD 3H BP1
SBB2RD 4H BP2
SBB2RD 5H AH2
+3V
74197 E5
7408 E23
DD2
TCCM3 FORTY H
MBI 5 ERASE L DU1
MBI 5 WTMRK L CP2
7408 E25
TCCM7 BOT L
TCCM3 ACCL H
7410 E68
SB82RDP H BV1
7408 E23
SB82RDØ H BV2
7408 E23
TCPE3 POS Ø(1)H CM2
74197 E14
TCCM6 RD1 H
TCCM6 RD2 H
7410 E7
DC1
TCCM3 EIGHTY L
TCCM3 EMD H
TCCM7 PESB H
7427 E16
7410 E68
MBI 5 WRITE H
7400 E72
DF1
TCCM3 WRT ID BURST L
7410 E7
7427 E16
MBI 9 MASCLR L
7410 E7
7474 E26
TCCM3 ID BURST TIME (1) H
TCCM3 ID BURST TIME (1) L
7404 E68
TCCM3 WTMRK H
CE2
TCCM3 DRV SET PLS L
DJ2
TCCM3 READING H
7404 E76
DK2
TCCM3 READING L
TCCM3 READING L
7408 E23
TCCM5 EOR CIR L
7408 E63
TCCM3 EMD L
74197 E15
+3V
TCCM6 RD 0 H
7402 E24
7404 E68
MBI6 DEVSET PLS H CS2
7404 E68
EV2 TCCM3 AEMD (1)H
7474 E65
7474 E65
7474 E57
TCCM3 DECL H
TCCM3 ACCL
7545 2 E55
AV2
TCCM3 STOP (SB) L
FR1
TCCM3 STOP (Ø) H
7545 2 E55
AP2
TCCM3 ACCL (SB) L
CA1
TCCM3 ACCL H
MBI4 MAS CLR L DS2
TCCM4 800 BPI CLKL
+3V
SSB2 BOT H
7410 E73
TCCM4 WRP1,2,3L
7404 E68
AS2
TCCM3 EMD H
7400 E72
7408 E63
7400 E66
TCCM3 ACCL L
MBI 5 RWND L EJ2
7404 E54
7545 1 E12
BD2
TCCM3 RWND (SB) L

motor delay to stop tape on NRZI by 1 word after BOT and 3 words after EOT in PE mode. on word counting eighty (one word up to 14).

word gated once 57 ms after BOT

gated once 187 ms later total set time ≈ 120 m sec

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
TAPE CONTROL COMMON MODE (TCCM3)	D	CS	M8903-0-1	F
SCALE	SHEET 3 OF 6	DIST.		

MBI5 WRITE H
MBI5 DATA XFER H
MBI6 DRV SET PLS H
TCCM4 WRT CLK H
MBI9 WRT END L
TCCM3 WTMRK H
TCCM7 PESB H
TCCM4 WB CLK L
TCCM3 WTMRK H
TCCM5 EORS L
TCCM7 PESB L
TCCM4 WRT CLK H
TCCM4 WRT CLK L
TCCM7 PESB L
TCCM2 DATA CLK H
SBB2 TAPE WRT CLK
MR5 MM CLK(1)H
MR5 WRP 2 L
MR5 WRP 1 L
MR5 WRP 3 L
TCCM3 DECL H
MR5 WRP ϕ L
TCCM3 DRV SET PLS L
TCCM4 WRP 1,2,3L
TCCM4 WRT CLK L
TCCM3 ACCL (SB) L
SBC2 MOL H
MBI5 ERASE L
MBI5 SPACE H
MBI6 DRV SET PLS H
MBI4 MAS CLR L
TCCM3 WTMRK H
CALL OF LAST char. option allen
SBC2 7 CH H
TCCM7 PES B L
TCPE 3 PE WRT CLK EBNL L
+5V
R19 1K
TCCM4 CRC STRB H
AK2
TCCM4 LRC STRB (SB) L
TCCM4 CRC STRB + LRC STRB L
TCCM4 WRT CLK ENBL L
TCCM4 WRT CLK ENBL H
BK2
TCCM4 REC (SB) L
DH1
TCCM4 WB CLK H
DV1
TCCM4 WRT STRB H
TCCM4 WB CLK L
TCCM4 PE CLK (1) H
TCCM4 PE CLK (1) L
DR2
TCCM4 ST CLK L
DA1
TCCM4 MOL L
AS1
TCCM4 SLAVE SET PLS H
CT2
TCCM4 SPACE L
EL2
TCCM4 ERROR RESET (ϕ) L
9KHZ
EH2
TCCM4 200 BPI CLK H
TCCM4 800 BPI CLK L
36KHZ
TCCM4 800 BPI CLK H
EP2
TCCM4 DATA HALF H
72KHz
MBI 4 MASCLR L
AM1
SBB2 CLOCK H
144 KHZ

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
TAPE CONTROL (TCCM4) COMMON MICRO	D	CS	M8903-0-1	F
SCALE —	SHEET 4 OF 7	DIST.		

DCS M8903-0-1 F

GAP DETECTION TIMER

+3V
74161 E9 ENBCN RCRY D3 D2 D1 D0 R3(1) R2(1) R1(1) R0(1) CLR LD CLK ENBCR
+3V
7473 E18 J K
7408 E35
TCCM4 WRT CLK ENBL L
7408 E8
TCCM4 288 BPI CLK H
TCCM3 READING L
MBI5 ERASE L
7402 E41 DU1
TCCM3 DECL H
7404 E82
TCPE4 & CNRZ4 ENBL SHDN CNTR L
DN2
7402 E58
R16 1K
+5V
7427 E16
DB2
MBI 11 OPI(1)H
TCCM4 288 BPI CLK H
7402 E58
7404 E82
OPI RSTH
TCPE4 & CNRZ4 RST SHDN CNTR L
EB2
R18 470
+5V
74197 E51 D3 D2 D1 D0 R3(1) R2(1) R1(1) R0(1) CLR LD CLK1 CLK0
+3V
+5V
R3 12K
C85 560pF
74123 INSEC E64
TCCM5 EOR PLS (1)H
TCCM5 EOR PLS (1) L
7404 E76
TCCM5 EORS L
7402 E59
MBI 11 OPI(1)H
EV1
TCCM5 RECORD H
7402 E58
TCCM5 EORS H
7408 E65
CV1
TCCM5 SHDN = 8 H
DN2
TCCM5 SHDN = 2 H
7404 E76
TCPE5 POSTAMBLE(1) L
MR5 MAINT EOR L
EFE
DE2
7408 E45
7408 E63
CH1
TCCM5 EOR L
TCCM5 SHDN = 8 H
7404 E54
7474 E58 D C Ø
TCCM3 ACCL H
CA1
7402 E59
TCPE4 & CNRZ4 RST SHDN CNTR L
EB2
TCCM4 ERROR RESET L
+3V
7474 E58 D C Ø
+5V
FN2
TCCM5 NRG(1) L
7400 E66
TCCM3 DECL H
CF1
TCCM5 SET OPI L
MBI 4 MAS CLR L
DS2
7404 E54
7402 E59
MBI 6 DRV SET PLS H
C32
7408 E84
TCCM5 EOR PLS L
EF2
MR5 MAINT EOR L
7408 E63
TCCM5 EOR CLR L
MBI 11 OPI (1) H
7404 E82
R4 4.7K
+5V
R7 10K
D1 D664
R9
FOR R9, REFER TO NOTE ON SHEET 5
MBI 5 WRITE L
AP1
7545Z E68
MBI 7 SET OPI DLY H
FP2
7545Z E68
R8 27
TCCM5 OPI RST H
7545Z E56
+5V
R6 1K
C87 100 UF
C86 .01
R5 1K
+5V
R4 4.7K
3860 E77
7408 E74
FU2
TCCM5 7 SEC D'L TO L→H
Time delay
NOTE:
FOR M8903, R9 IS 100K, 1/4W, 5%
FOR M8903YA, R9 IS 62K, 1/4W, 5%

REVISIONS		
CHK	CHANGE NO	REV.

TITLE	SIZE	CODE	NUMBER	REV.
TAPE CONTROL COMMON MODE (TCCM5)	D	CS	M8903-0-1	F
SCALE —	SHEET 5 OF 7	DIST.		

SBB2 RD7(SB) L ← AE2 — 8640 E2 pin 9; pin 10 → GND; pin 14 → TCCM6 RD 7 H
TCCM2 WDWB0 7(1)H → 74157 E78 pin 14 (A2)
74157 E78: B2 pin 13, f2 pin 12 → FE2 → TCCM6 RDA7; SØ, STB, pin 1, pin 15

SBB2 RDG(SB) L ← AF2 — 8640 E2 pin 7; pin 6 → GND; pin 2 → TCCM6 RD 6 H
TCCM2 WDWB06(1)H → 74157 E78 pin 2 (AØ)
74157 E78: BØ pin 3, fØ pin 4 → EU2 → TCCM6 RDA6; SØ, STB, pin 1, pin 15

SBB2 RD5 H ← AH2
TCCM2 WDWB0 5(1)H → 74157 E8Ø pin 2 (AØ)
74157 E8Ø: BØ pin 3, fØ pin 4 → ET2 → TCCM6 RDA5; SØ, STB, pin 1, pin 15

SBB2 RD4 H ← BP2
TCCM2 WDWB0 4(1)H → 74157 E78 pin 5 (A1)
74157 E78: B1 pin 6, f1 pin 7 → ER2 → TCCM6 RDA4; SØ, STB, pin 1, pin 15

SBB2 RD3 H ← BP1
TCCM2 WDWB0 3(1)H → 74157 E78 pin 11 (A3)
74157 E78: B3 pin 10, f3 pin 9 → FH2 → TCCM6 RDA3; SØ, STB, pin 1, pin 15

SBB2 RD2(SB) L ← BS2 — 8640 E26 pin 11; pin 12 → GND; pin 13 → TCCM6 RD2H
TCCM2 WDWB02(1)H → 74157 E8Ø pin 5 (A1)
74157 E8Ø: B1 pin 6, f1 pin 7 → EM2 → TCCM6 RDA2; SØ, STB, pin 1, pin 15

SBB2 RD1(SB) L ← BU2 — 8640 E19 pin 4; pin 5 → GND; pin 3 → TCCM6 RD1H
TCCM2 WDWB01 (1)H → 74157 E8Ø pin 11 (A3)
74157 E8Ø: B3 pin 10, f3 pin 9 → FF2 → TCCM6 RDA1; SØ, STB, pin 1, pin 15

SBB2 RDØ H ← BV2
TCCM2 WDWB0 Ø(1)H → 74157 E8Ø pin 14 (A2)
74157 E8Ø: B2 pin 13, f2 pin 12 → EN2 → TCCM6 RDAØ; SØ, STB, pin 1, pin 15

SBB2 RDP H ← BV1
TCCM2 WDWB0 P (1) H → 74157 E79 pin 2 (AØ)
74157 E79: BØ pin 3, fØ pin 4 → ES2 → TCCM6 RDAP; SØ, STB, pin 1, pin 15

SBB2 RSDO(SB) L ← AL1 — 8640 E1 pin 11; pin 12 → TCCM7 PES B H; pin 13 → R17 150Ø → C92 1000PF → 74157 E79 pin 6 (B1)
TCCM4 REC(SB) L ← BK2 — 8640 E19 pin 9; pin 10 → GND; pin 14 → R17 150Ø
74157 E79: f1 pin 7 → FS2 → TCCM6 RSDO H; A1 pin 5

MRS WRPØ L ← FM2 (74157 E79 SØ, STB, pin 1, pin 15)

+5V → R12 10K → CBB 560pF → TCCM3 EMD H ← 7405 E81 pin 3; pin 4 → 74123 E64 pin 6; pin 7 → pin 5 → pin 12; pin 11 → +3V

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
TAPE CONTROL (TCCM6) COMMON MODE	D	CS	M8903-Ø-1	F
SCALE	SHEET 6 OF 7	DIST.		

SN,DS REGISTER MUX

SBB2 BOT H BH2 — 8640 E2 — BH1 TCCM7 BOT L

+5V R10 1K — 7404 E76 — CU1 TCCM7 TMRK H

TCPE4, CNR24 TMRK L FL1

SB SLA H BF2

SBC2 SNØ (SB) L AD1 — 8640 E1

SBC2 SNØ1 (SB) L AU2 — 8640 E10

SBC2 SN2 (SB) L BU1 — 8640 E20

TCPE4 IDB H DU2

SBC2 SN3 (SB) L AL2 — 8640 E2

8234 E70: A0 B0 A1 B1 A3 B3 A2 B2 S1 S0 → F0 F1 F3 F2

EU1 * TCCM7 CMUX Ø

ES1 TCCM7 CMUX 1

ER1 TCCM7 CMUX 2

EP1 TCCM7 CMUX 3

FD2 TCCM7 SDWN L

MBI 5 SPACE H

MBI5 GO BUF H

SBC2 SDWN H AM2 — 7400 E74

DD1 TCCM7 PES B L

+5V R11 1K — 7545Ø E56 — DB1 TCCM7 PES B H

SBC2 RWS H

SB PES (SB) L BJ1 — 8640 E26 — 75452 E22

SBC2 SN4 (SB) L AE1 — 8640 E1

SBC2 SN5 (SB) L AN1 — 8640 E10

SBC2 SN6 (SB) L BT2 — 8640 E19

MBI5 GO L FB1

8234 E61: A0 B0 A1 B1 A3 B3 A2 B2 S1 S0 → F0 F1 F3 F2

CMUX 4

EM1 TCCM7 CMUX 5

EL1 TCCM7 CMUX 6

EK1 TCCM7 CMUX 7

SBB2 SET SSC H BN2 — 7454 E76

SBC2 SN7 (SB) L AV1 — 8640 E10

D 7474 ET5 C Ø → FS1 TCCM7 SSC (1) L

MBI4 MAS CLR L DS2

SBC2 DT Ø H BJ2

SBC2 DT 1 H AN2

SBC2 DT 2 (SB) L BK1 — 8640 E20

8234 E71: A0 B0 A1 B1 A3 B3 A2 B2 S1 S0 → F0 F1 F3 F2

+3V

MBI2 R6 L FJ1

DT2 — CK2 — 7408 E49

7402 E59

7404 E54 — DH2 TCCM7 PIP H

BR2

SBC2 MOL H BM1

SBC2 SN12 H AH1

8234 E52: A0 B0 A1 B1 A3 B3 A2 B2 S1 S0 → F0 F1 F3 F2

ED1 TCCM7 CMUX 12

EC1 TCCM7 CMUX 13

EB1 TCCM7 CMUX 14

EA1 TCCM7 CMUX 15

SBC2 SN13 (SB) L AU1 — 8640 E10

MBI10 COMPER H CB1

SBC2 SN14 H BN1

MBI3 ATA H CC1

SBC2 SN15 (SB) L BF1 — 8640 E11

SBC2 SN8 (SB) L AF1 — 8640 E1

SBC2 SN9 (SB) L BD1 — 8640 E11

SBB2 END PT H BR1

SBC2 SN10 H BS1

SBC2 WRL H BM2

SBC2 SN11 (SB) L BC1 — 8640 E11

8234 E62: A0 B0 A1 B1 A3 B3 A2 B2 S1 S0 → F0 F1 F3 F2

EJ1 TCCM7 CMUX 8

EH1 TCCM7 CMUX 9

EF1 TCCM7 CMUX 10

EE1 TCCM7 CMUX 11

MBC2 R1 L FH1

MBC2 R1Ø L FM1

7404 E34 — CJ2 TCCM7 7CH L

SBC2 SPR H BE2

MRG DEN 2 H CV2

SBC2 7 CH H CU2

MRG EAODTE H CN2

MBI8 FCOF (1) L CH2

TCCM3 ACCL H CA1

8234 E55: A0 B0 A1 B1 A3 B3 A2 B2 S1 S0 → F0 F1 F3 F2

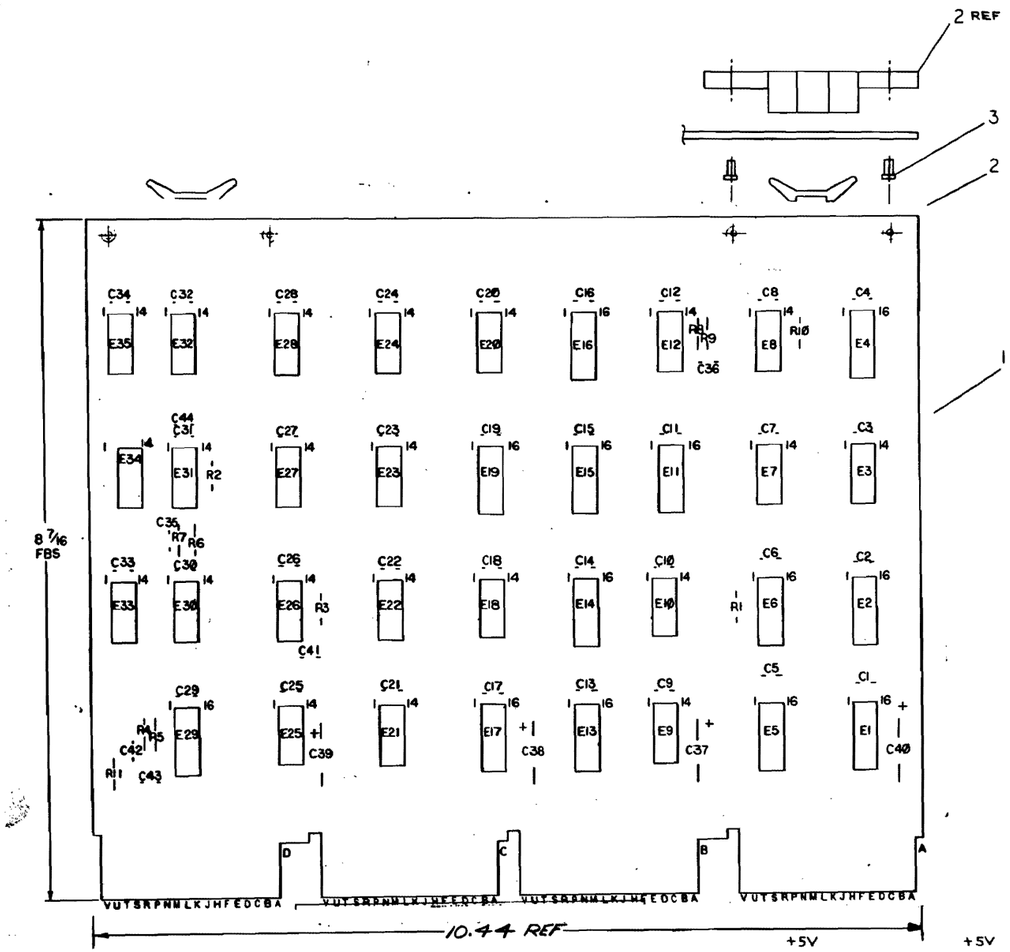
MBI2 R11 L FK1

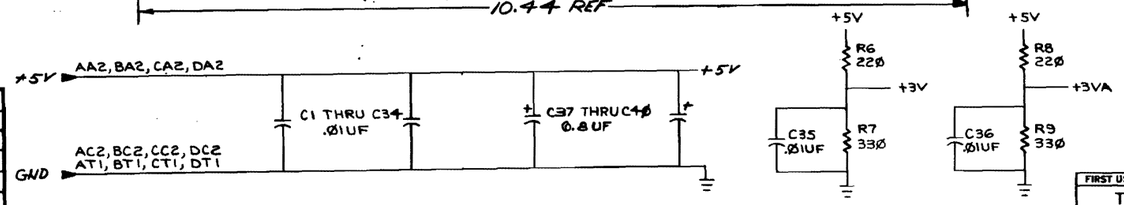
* CMUX LINES ALSO DRIVEN FROM M8905, M8909

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
TAPE CONTROL COMMAND MODE (TCCM7)	D	CS	M8903-Ø-1	F
SCALE —	SHEET 7 OF 7	DIST.		

NOTES:





74123	8	16
74174	8	16
74153	8	16
74157	8	16
74175	8	16
7442	8	16
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

DRAWING A-0433 16499

DEC FORM NO. DRD-138A

REF			
REF		X/Y COORDINATE HOLE LOCATION	K-CO-M8906-0-4
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8906-0-5
REF		MODULE ECO HISTORY	B-MH-M8906-0-6
1		ETCHED CIRCUIT BOARD	5010675
4		HANDLE, FLIP CHIP-MAGENTA	9008337-06
8		EYELET	9006732
36	C1 THRU C36	CAP. .01UF 100V 20% DISC	1001610-01
4	C37 THRU C40	CAP. 6.8UF 35V 10% TANT	1005306
1	C43	CAP. 150PF 100V 5% DM	1000019
1	C44	CAP. 470PF 100V 5% DM	1000024
1	C41	CAP. 680PF 100V 5% DM	1000026
1	R3	RES 150 1/4W 5%	1300250
2	R6, R8	RES 220 1/4W 5%	1300271
2	R7, R9	RES 330 1/4W 5%	1300295
1	R2	RES 100 1/4W 5%	1300229
1	R1	RES 1K 1/4W 5%	1300365
2	R10, R11	RES 470 1/4W 5%	1300316
1	R4	RES 5.6K 1/4W 5%	1301874
1	R5	RES 20K 1/4W 5%	1302391
3	E11, E13, E14	IC 74174	1910652
4	E1, E2, E5, E6	IC 74175	1910651
2	E15, E19	IC 74153	1909937
2	E4, E16	IC 74157	1910655
2	E9, E10	IC 4006	1910270
1	E17	IC 7442	1910046
1	E29	IC 74123	1910436
2	E23, E33	IC 7400	1905575
2	E28, E35	IC 7402	1909004
5	E18, E30, E31	IC 7404	1909686
3	E22, E24, E25	IC 7408	1910155
1	E21	IC 7410	1905576
1	E20	IC 74H11	1909267
2	E3, E7	IC 7427	1910678
2	E8, E34	IC 7486	1910011
3	E12, E26, E32	IC 7474	1905547
1	E27	IC 74H74	1909667
1	C42	CAP. 56PF 100V 5% DM	1000012

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION MODEL: TU16

ETCH BOARD REV: D

REV	CHANGE NO.	CHK	DATE	
B	M8906-00001	J.VAGIAS	7-16-74	H. Simmons
C	M8906-00003	J.VAGIAS	8-23-74	H. Simmons
D	M8906-00004	J.HESS	11-25-74	H. Simmons

REVISIONS

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

SEMICONDUCTOR CONVERSION CHART

DRN.		DATE 5/4/73
CHK'D.		DATE 11/19/74
ENGR.		DATE 1-14-74
PROJ. ENGR.		DATE 1-14-74
PROJ. LDR.		DATE 1-14-74

NEXT HIGHER ASSY

SCALE

SHEET 1 OF 5

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE (BFI)

16 BIT-
BIT FIDDLER

SIZE	CODE	NUMBER	REV.
D	CS	M8906-0-1	C

DIST.

BF2 P BF RUN (1)H

MBI 9 BF ENABLE H — AC1

TCCM 3 AEMD(1) H — CSE

+3V

R4 5.6K, C48 50 PF

DV2 BF2 ODD FRM (1)H

BF 2 SCLK(1)L — DLE

MBI 4 MAS CLR L

TCCM 3 READING L — DKE

BF2 SLCT-A(Ø)H

BF2 SLCT-B(Ø)H

MBI 6 FWD H — CRE

BF3 15 MODE L

BF2 SLCT-A(1)H

BF2 SLCT-B(1)H

MBI 4 MAS CLR L — DSE

MBI 5 WRITE L — API

TCCM 4 WRT STRB H — DVI

BF2 P-BF RUN(1)H

BF 2 SLCT-A (Ø)H

BF 2 SLCT-A (1)H

BF2 FCCLK H — AJE

R3 150Ω, C41 680 PF

BF3 15+ NORMAL L

BF2 SLCT-B (1)H

BF2 SLCT-B (Ø)H

+5V, R11 470

CNR24 CHECK CHAR L — DUE

MRB RDS H — DUI

5

BF3 15+NORMAL H

BF2P-BF RUN(1)H

R2 100Ω, C44 470 PF

BF2 SLCT-B(6) H — CPI

BF2 SLCT-A(1) H

BF3 CORE DUMP H — CBI

BF2 SLCT-B(1) H — CRI

BF2 CLK DH — CDI

BF2 CLK CH — CEI

BF2 CLK BH — CHI

BF2 CLK AH — CFI

dire temps saver abs en conditions normales d'opération sélectionné ici. (148)

TCCM 4 WRT STRB H — DVI

DL2 BF2 SCLK(1)L

C49 150 PF, R5 20K, +5V

MBI 6 WRITE L — API

BF2 CLR ERROR L

MBI 9 BF ENABLE H — ACI

MB WCLK H — BRI

DF1 BF2 SET DTE L

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
16 BIT- BIT FIDDLER (BF2)	D	CS	M8906-0-1	C
SCALE — SHEET 2 OF 5	DIST.			

MR6 FMT 3(1)H — BT2 — 7404 E18 — 4
MR6 FMT 2(1)H — DS1 — 7404 E38 — 8
MR6 FMT 1 H — BN2 — D1
MR6 FMT Ø H — BN2Z — DØ
7442 E17 — D3, D2, D1, DØ; F9, F8, F7, F6, F5, F4, F3, F2, F1, FØ

9 — 7404 E18 — 8 — CB1 — BF3 CORE DUMP H
BF3 CORE DUMP L
CN2 — BF3 IS MODE L
10, 11 — 7410 E21 — 8 — 11 — 7404 E18 — 1Ø — CA1 — BF3 BFFMTE H
5 — 7404 E18 — 6 — CC1 — BF3 NORMAL MODE H
BF3 NORMAL MODE L
12, 13 — 7400 E33 — 11 — 5 — 7404 E31 — 6 — BF3 IS + NORMAL L
BF3 IS + NORMAL H

MB D-17 REC H
MB D-16 REC H
MB D-15 REC H
MB D-14 REC H
MB D-13 REC H
MB D-12 REC H
MB D-11 REC H
MB D-1Ø REC H
→ 4008 E9

MB D-Ø9 REC H
MB D-Ø8 REC H
MB D-Ø7 REC H
MB D-Ø6 REC H
MB D-Ø5 REC H
MB D-Ø4 REC H
MB D-Ø3 REC H
MB D-Ø2 REC H
→ 4008 E18

MB D-Ø1 REC H
MB D-ØØ REC H

4008 E9 — 4008 E18 → 4008 E18 → MB DPA REC H — AE1

MR6 EVEN PAR H — CL2 — 7486 E8 — RD1 — BF3 DPA TM L
7486 E8 — 7486 E8 — AF1 — BF3 SET D PAR(1) H
+5V — R1Ø 47Ø
MB WCLK H — D CLR PARITY ERROR 7474 E11 — +3V — 1Ø
BF2 CLR ERROR L

mass bus data parity check

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE: 16 BIT - BIT FIDDLER (BF3)
SCALE: — SHEET 3 OF 5 — DIST.
SIZE D — CODE CS — NUMBER M8906-Ø-1 — REV. C

BF3 CORE DUMP L
TCCM 7 7 CH L CJ2

74174 WRITE BUFFER D12+17 E13

MB D-17 REC H BF1 — D5 — RS(1)
MB D-16 REC H BE2 — D4 — R4(1)
MB D-15 REC H BE1 — D3 — R3(1)
MB D-14 REC H BD2 — D2 — R2(1)
MB D-13 REC H BD1 — D1 — R1(1)
MB D-12 REC H BC1 — D0 — R0(0)
CLR CLK

74174 WRITE BUFFER D06+11 E14

MB D-11 REC H BB2 — D5 — RS(1)
MB D-10 REC H BB1 — D4 — R4(1)
MB D-09 REC H BA1 — D3 — R3(1)
MB D-08 REC H AV2 — D2 — R2(1)
MB D-07 REC H AV1 — D1 — R1(1)
MB D-06 REC H AV2 — D0 — R0(0)
CLR CLK

74174 WRITE BUFFER D00+05 E11

MB D-05 REC H AU1 — D5 — RS(1)
MB D-04 REC H AT2 — D4 — R4(1)
MB D-03 REC H AS2 — D3 — R3(1)
MB D-02 REC H AS1 — D2 — R2(1)
MB D-01 REC H AR2 — D1 — R1(1)
MB D-00 REC H AR1 — D0 — R0(0)
CLR CLK

MBI4 MASCLR L DS2

MBI WCLK H
MBI 9 BFENABLE H
74Ø8 E24 → BF4 CLK WRT BUF H

mux

74H11 E2Ø
DE2 → BF4WD BFO 7 H
DF2 → BF4WD BFO 6 H
74Ø8 E24
DH2 → BF4WD BFO 5 H
DJ2 → BF4WD BFO 4 H

STB1 STB0
DN2 → BF4 WD BFO 3 (1) H
DP2 → BF4 WD BFO 2 (1) H
DR2 → BF4 WD BFO 1 (1) H
DT2 → BF4 WD BFO Ø (1) H

BF2 SLCT-B (1) H
BF2 SLCT-A (1) H

SLCT-B	SLCT-A	FUNCTION
Ø	Ø	11[(7+9 TRK·CD·1ST FRM)+(CD·1ST FRM)]
Ø	1	11[7+9TRK·CD·2ND FRM]
1	Ø	11[(7+9TRK·CD·2ND FRM)+(CD·3RD FRM)]
1	1	11[7+9TRK·CD·4TH FRM]

normal PDP11

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
16 BIT - BIT FIDDLER (BF4)	D	CS	M8906-0-1	C
SCALE — SHEET 4 OF 5	DIST.			

MR3 RDC 7 H DJ1
MR3 RDC 6 H DH1
MR3 RDC 5 H DK1
MR3 RDC 4 H DL1
BF3 CORE DUMP H CB1

74157 E4
B3 A3 B2 A2 B1 A1 B0 A0 STB S0
F3 F2 F1 F0

BF2 CLK D H CD1

74175 E6
D3 R3(1) R3(0) D2 R2(1) R2(0) D1 R1(1) R1(0) D0 R0(1) R0(0) CLR CLK
+5V R1 1K
AP2 ANZ
BF5 D 17 TM L
BF5 D 16 TM L
AN1 BF5 D 15 TM (0)L
AM2 BF5 D 14 TM (0)L
AN1 BF5 D 13 TM (0)L
AL2 BF5 D 12 TM (0)L

BF2 CLK C H CE1

74175 E5
AL1 BF5 D 11 TM (0)L
AK2 BF5 D 10 TM (0)L
AK1 BF5 D 09 TM (0)L
AJ1 BF5 D 08 TM (0)L

BF2 CLK B H CH1

74175 E2
AH2 BF5 D 07 TM (0)L
AH1 BF5 D 06 TM (0)L
AF2 BF5 D 05 TM (0)L
AE2 BF5 D 04 TM (0)L

MR2 RDC 3 H DM1
MR2 RDC 2 H DN1
MR2 RDC 1 H DP1
MR2 RDC 0 H DR1
MB I 4 MAS CLR L DS2

74175 E1
AD2 BF5 D 03 TM (0)L
AB2 BF5 D 02 TM (0)L
AB1 BF5 D 01 TM (0)L
AA1 BF5 D 00 TM (0)L

BF 2 CLK A H CF1

REVISIONS
CHK	CHANGE NO.	REV.

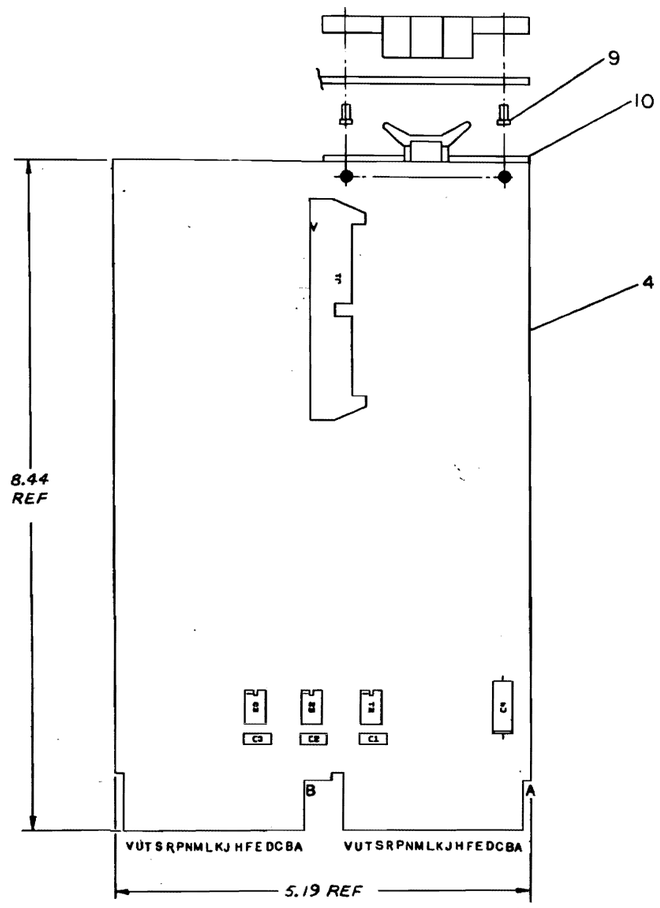
TITLE 16 BIT - (BF5) BIT FIDDLER
SIZE D CODE CS NUMBER M8906-0-1 REV. C
SCALE SHEET 5 OF 5 DIST.

DEC FORM NO DBD 128

SIZE CODE DCS NUMBER M8906-0-1 REV. C

38

NOTES:



QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8907-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8907-0-5	2
REF		MODULE ECO HISTORY	B-MH-M8907-0-6	3
1		ETCHED CIRCUIT BOARD	5010981	4
3	C1, C2, C3	CAP .01UF 100V 20% DISK	1001610-01	5
1	C4	CAP 6.8UF 35V 10% TANT	1005306	6
1	J1	CONN 40 PIN	1209941-01	7
3	E1, E2, E3	IC 75452	1910645-00	8
4		EYELET	9006732	9
2		HANDLE, FLIP-CHIP MAGENTA	9008337-6	10

PARTS LIST

75452	4	8
IC TYPE	GND	+ 5V

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

IC PIN LOCATIONS

FIRST USED ON OPTION MODEL: TU16

ETCH BOARD REV: A

REVISIONS	REV	CHANGE NO.	CHK	DEC NO.	EIA NO.	DEC NO.	EIA NO.

SEMICONDUCTOR CONVERSION CHART

DRN. T. Jamieson DATE 2/28/74
CHK'D. DATE
ENG. DATE
PROJ. ENG. DATE 9-6-74
PROD. DATE
NEXT HIGHER ASSY
SCALE
SHEET 1 OF 2

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: CONNECTOR TERMINATOR

SIZE D | CODE CS | NUMBER M8907-0-1 | REV. *

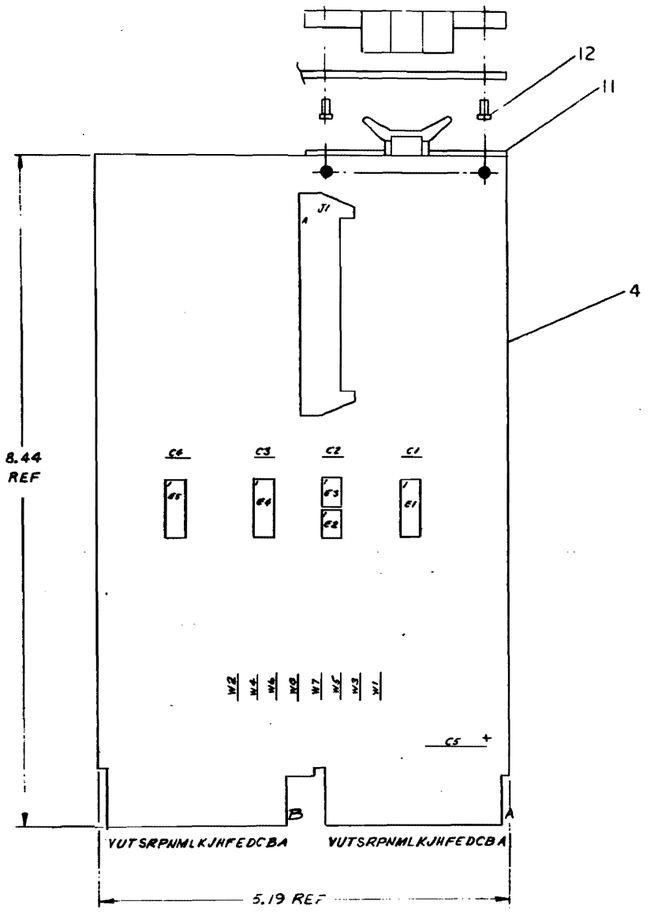
DIST.

REVISIONS		
CHK	CHANGE NO	REV.

TITLE	CONNECTOR TERMINATOR		
SIZE	CODE	NUMBER	REV.
D	CS	M8907-Ø-1	*
SCALE	SHEET 2 OF 2	DIST.	

M8907-Ø-1 * D CS

NOTES:



QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
REF		ADDITIONAL HOLE LOCATION	K-CO-M8908-0-4	1
REF		ASSY DRILLING HOLE LAYOUT	D-AH-M8908-0-5	2
REF		MODULE ECO HISTORY	B-MH-M8908-0-6	3
1		ETCHED CIRCUIT BOARD	5010982	4
4	C1 THRU C4	CAP .01UF 100V 20% DISC	1001610-01	5
1	C5	CAP 2.2UF 35V 2% TANT	1005306	6
1	J1	CONN 40 PIN	1209941-02	7
3	E2 E3	IC 75452	1910645-01	8
3	E1, E4, E5	IC 11380	1911113	9
8	W1 THRU W8	JUMPER, INSULATED	9009185	10
2		HANDLE, FLIP-CHIP MAGENTA	9008337-6	11
4		EYELET	9006732	12

75452	4	8
11380	1	8
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

REV	CHANGE NO	DEC NO	EIA NO
*			
A			
B			

SEMICONDUCTOR CONVERSION CHART

FIRST USED ON OPTION MODEL: TU16

ETCH BOARD REV: B

DRN.		DATE 2/27/76
CHK'D.		DATE
ENG.		DATE
PROJ. ENG.		DATE
PROD.		DATE
NEXT HIGHER ASSY		
SCALE		
SHEET 1 OF		

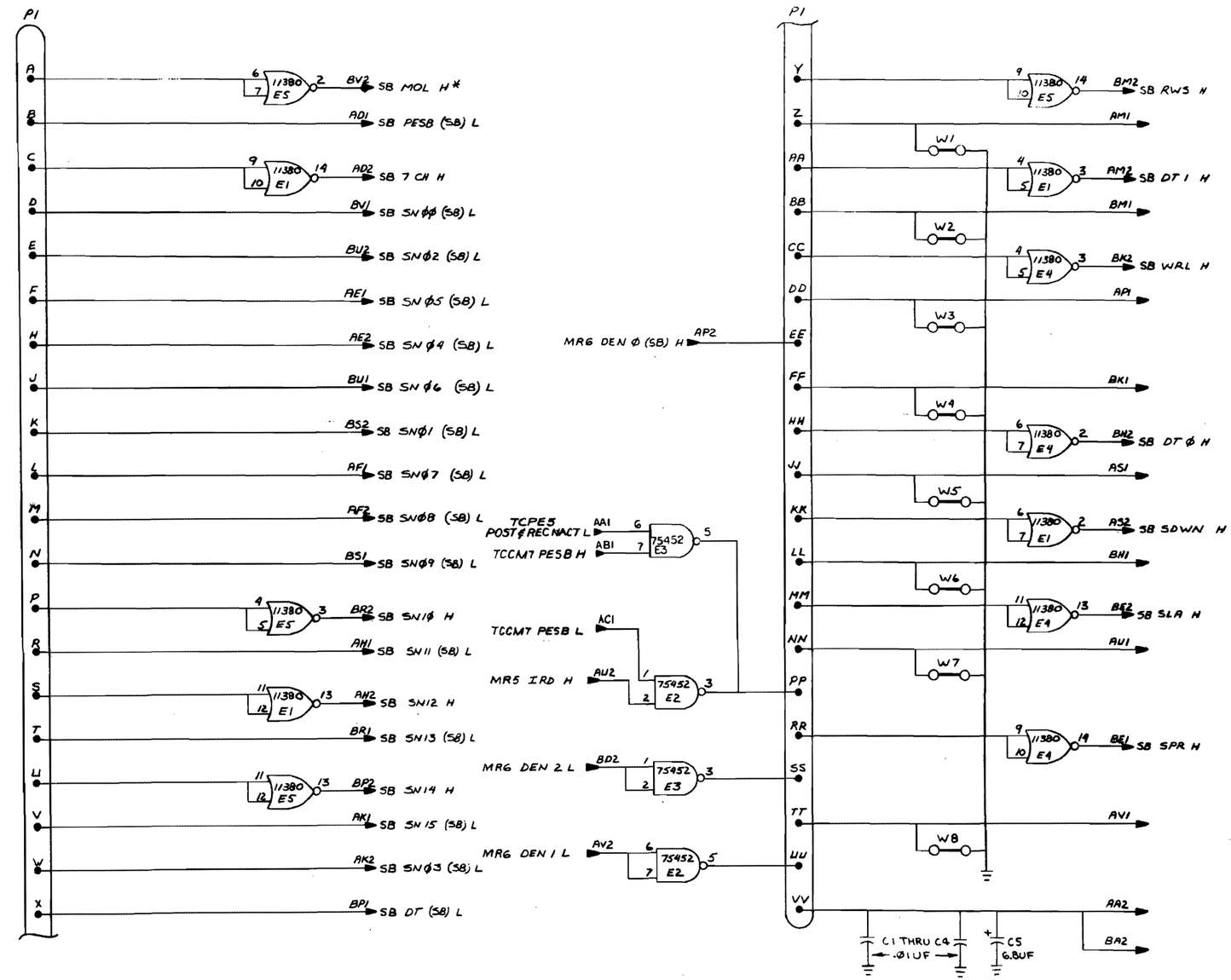
digital EQUIPMENT CORPORATION

TITLE: RECEIVER TERMINATOR

SIZE	CODE	NUMBER	REV.
D	CS	M8908-0-1	B

DIST

DCS M8908-0-1 B



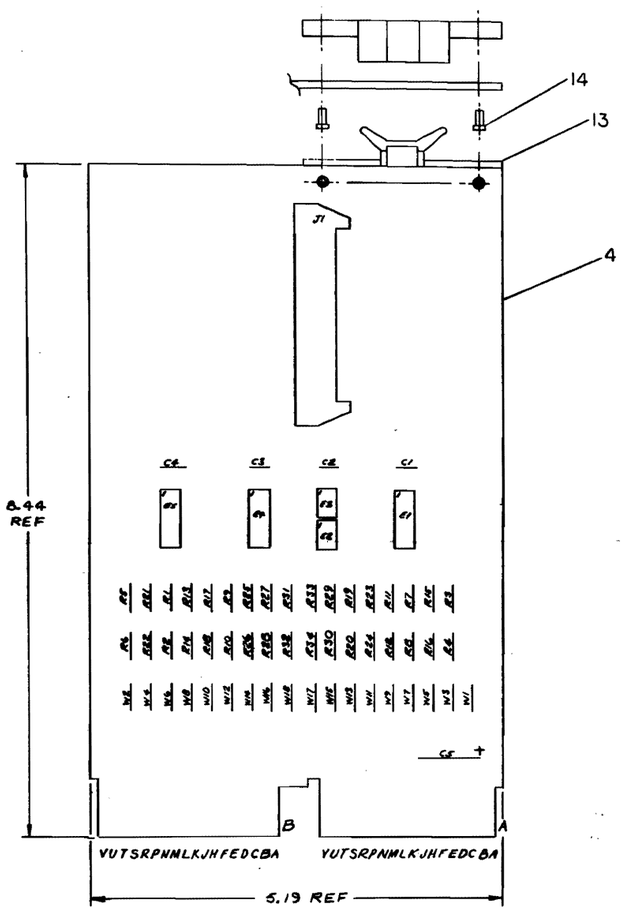
* NOTE: ALL SB SIGNALS ORIGINATE IN SELECTED SLAVE

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
RECEIVER TERMINATOR	D	CS	M8908-Ø-1	B
SCALE —	SHEET 2 OF 2	DIST.		

DRAWING NO. M8908-Ø-1 REV B

NOTES:



REF				
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8908-B-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8908-YA-5	2
REF		MODULE ECO HISTORY	B-MH-M8908-YA-6	3
1		ETCHED CIRCUIT BOARD	5010982	4
4	C1 THRU C4	CAP .01UF 100V 20% DISC	1001610-01	5
1	C5	CAP 6.8UF 35V 10% TANT	1005306	6
1	J1	CONN 40 PIN	1209941-02	7
10	R1, R3, R5, R7, R9, R11, R13, R15, R17, R19	RES 120 1/4W, 5%	1300247	8
17	R2, R4, R6, R8, R10, R12, R14, R16, R18, R20, R22, R24, R26, R28, R30, R32, R34	RES 220 1/4W, 5%	1300271	9
2	E2, E3	IC 75452	1910645-01	10
3	E1, E4, E5	IC 11380	1911113	11
18	W1 THRU W18	JUMPER, INSULATED	9009185	12
2		HANDLE, FLIP-CHIP, MAGENTA	9008337-6	13
4		EYELET	9006732	14
7	R21, R23, R25, R27, R29, R31, R33	RES 150 1/4W 5%	1300250	15
~~1~~	~~R35~~	~~RES 1K 1/4W 5%~~	~~1000000~~	~~16~~

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

ETCH BOARD REV B

75452	4	8
11380	1	8
IC TYPE	GND	+ 5V

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

IC PIN LOCATIONS

REV	CHANGE NO.	REVISIONS
A		INIT. RLSE
B	M8908 YA 00002	

H. DRAB

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

SEMICONDUCTOR CONVERSION CHART

FIRST USED ON OPTION MODEL: TU16

DRN.		DATE 2/27/74
CHK'D		DATE 3/1/74
ENG.		DATE 3/1/74
PROJ. ENG.		DATE
PROD.		DATE

NEXT HIGHER ASSY

SCALE

SHEET 1 OF 2

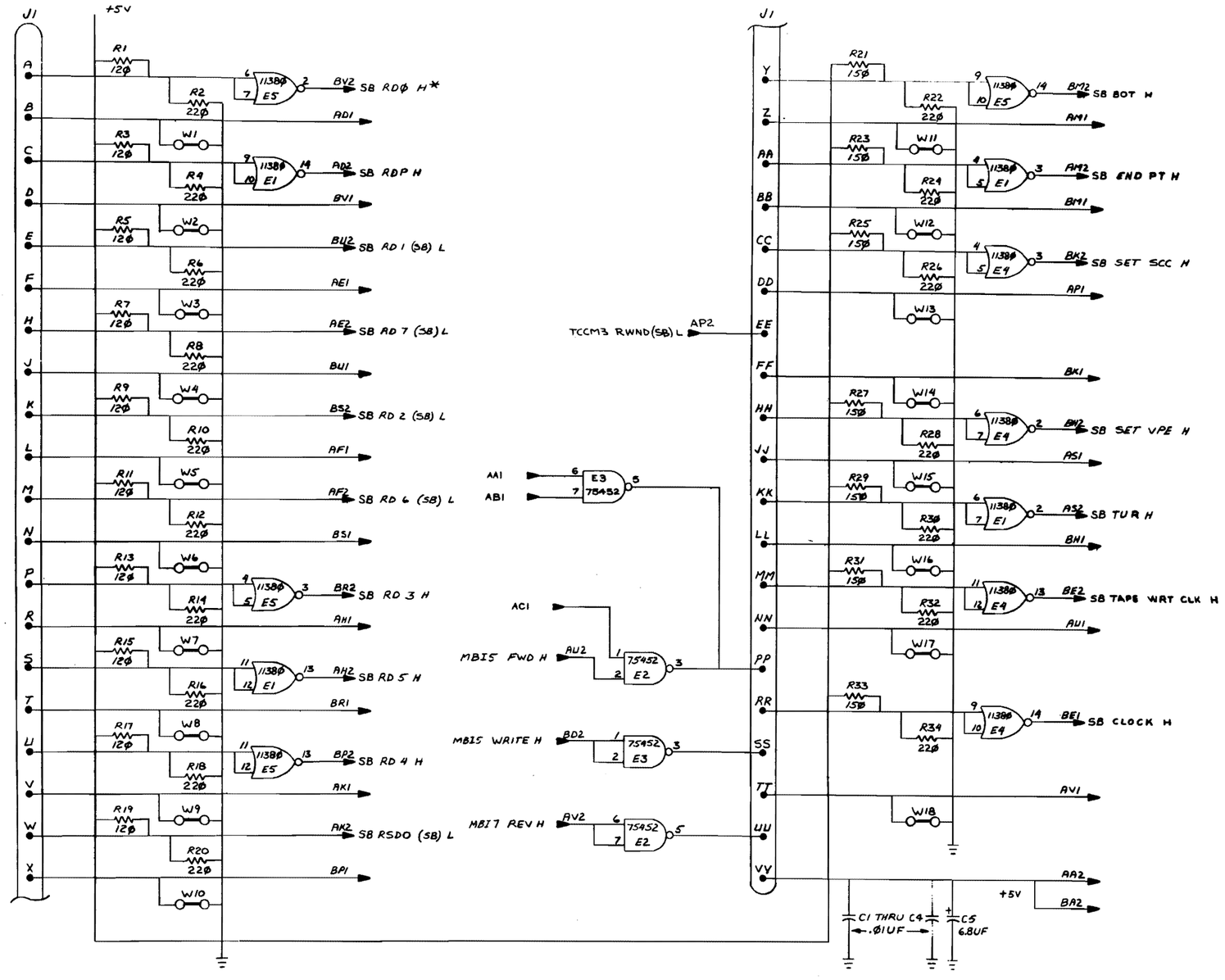
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: RECEIVER TERMINATOR

SIZE	CODE	NUMBER	REV.
D	CS	M8908-YA-1	B

DIST.

M8908-YA-1 B



*NOTE: ALL SB SIGNALS EXCEPT "SETSSC H" ORIGINATE IN SELECTED SLAVE. "SETSSC H" ORIGINATES IN ANY ON-LINE SLAVE.

REVISIONS		
CHK	CHANGE NO	REV.

TITLE	SIZE	CODE	NUMBER	REV.
RECEIVER TERMINATOR	D	CS	M8908-YA-1	B
SCALE —	SHEET 2 OF 2	DIST.		

4/4

SPARES

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   A RESISTANCE IS IN OHMS.
   B CAPACITANCE IS IN MICROFARADS.

REF				
		X-Y COORDINATE HOLE LOCATION	K-CO-M8909-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	A-AH-M8909-0-5	2
REF		MODULE ECO HISTORY	B-MH-M8909-0-6	3
1		ETCHED CIRCUIT BOARD	5010682	4
68	C1-C85,C100,C101,C111	CAP, .01UF 100V 20% DISC	1001610	5
1	C90	CAP,270PF 100V 5% DM	1000022	6
4	C88,C98,C92,C99	CAP,1000PF 100V 5% DM	1000042	7
1	E75	IC 74174	1910041	8
2	C95,C112	CAP 10PF 100V 5% DM	1000006	9
9	C102-C110	CAP,6.8UF 35V 10% STANT	1005308	10
5	C86,C87,C93,C94,C97	CAP 27PF 100V 5% DM	1001739	11
1	C91	CAP 330PF 100V 5% DM	1000023	12
1	D1	DIODE D664	1100114	13
2	R29,R38	RES 27K, 1/4 W 5 %	1305346	14
5	R2,R8,R26,R27,R49	RES 10K ¼W 5%	1300479	15
4	R1,R7,R22,R23	RES 6.8K ¼W 5%	1301423	16
29	R3-R6 R9-R20 R30,R32 R35-R40,R43,R24,R46,R50,R51	RES 1K ¼W 5%	1300365	17
3	R33,R41,R45	RES 330 ¼W 5%	1300295	18
4	R21,R34,R42,R44	RES 220 ¼W 5%	1300271	19
8	E3,E7,E29,E32,E43,E52,E53,E66	IC 7400	1905575	20
7	E2,E8,E11,E33,E39,E48,E51	IC 7402	1909004	21
5	E13,E37,E41,E46,E82	IC 7404	1909886	22
5	E12,E26,E44,E47,E76	IC 7408	1910155	23
2	E42,E56	IC 7410	1905576	24
1	E25	IC 7417	1909829	25
5	E17,E24,E38,E81,E81	IC 7427	1910878	26
4	E9,E55,E83,E78	IC 7430	1905578	27
3	E28,E54,E57	IC 7440	1905579	28
1	E31	IC 7450	1905580	29
14	E5,E10,E15,E20,E30,E35,E40,E45,E46,E65,E70,E75,E80,E85	IC 7474	1905547	30
1	E72	IC 7475	1909050	31
1	E22	IC 7485	1910224	32
1	E18	IC 7486	1910011	33
1	E16	IC 8640	1911469	34
7	E19,E23,E27,E34,E48,E4,E1	IC 74123	1910436	35
1	E76	IC 74145	1910047	36
1	E77	IC 74151	1909936	37
1	E14	IC 74154	1909701	38
1	E62	IC 74155	1910856	39
2	E64,E79	IC 74180	1910724	40
4	E59,E69,E74,E84	IC 74193	1910018	41
1	E36	IC 384	1909486	42
4	E58,E68,E73,E83	IC 8234	1911315	43
1		HANDLE, HEX	1210711-2	44
12		EYELET	9006732	45
1	C96	CAP 82PF 100V 5% DM	1000015	46
1	R25	RES 20K 1/4W 5%	1302391	47
1	R47	RES 470 1/4W 5%	1300316	48
1	R48	RES 5.6K 1/4W 5%	1301874	49
1	E67	IM 5600	23068A1	50
1	E6	IC 7416	1909928	51
1	W4	JUMPER, INSULATED	9009185	52
1	C 3	CAP, .33uf, 20V, 10% STANT	1005308	53
QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

IC TYPE	GND	+ 5V
DEC 7475	12	5
DEC 7485	8	16
DEC 74123	8	16
DEC 74145	8	16
DEC 74151	8	16
DEC 74154	12	24
DEC 74155	8	16
DEC 74193	8	16
DEC 384	1	8
DEC 8234	8	16

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

IC PIN LOCATIONS

+5V AA2, BA2, CA2, DA2, EA2, FA2

GND AC2, BC2, CC2, DC2, EC2, FC2 AT1, BT1, CT1, D71, ET1, FT1

C102 THRU C107 6.8UF

C1 THRU C85 .01UF

+5V R34 220

+3VB C108 6.8UF C111 .01 R33 330

+5V R44 220

+3VA C110 6.8UF C111 .01 R45 330

FIRST USED ON OPTION MODEL: TU16

ETCH BOARD REV: C

REVISIONS	REV	CHANGE NO	CHK
M8909-00004	D		
M8909-00002	C		
M8909-00001	B		

H. DRAB 10-NOV-76 E
H. CHAB 11-JAN-74 D
J. HESS 4-28-75 C
JOHN HESS 1-2-74 B

DEC NO.	EIA NO.

SEMICONDUCTOR CONVERSION CHART

DEC NO.	EIA NO.
D664	IN 3606

NEXT HIGHER ASSY

DRN. M. Davis 11-8-73
CHK'D [illegible] 1/22/74
ENG. / DATE
PROJ. ENG. / DATE
PROD. [illegible] 1/24/74

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: MASS BUS INTERFACE (MBI 1)

SIZE D | CODE DCS | NUMBER M8909-0-1 | REV E

SCALE / SHEET 1 OF 11 | DIST.

MAI4 INIT REC(I) H FDI

SSW1 US2 BE1 — 7416 E6

SSW1 US0 BJ2 — 7416 E6

SSW1 US1 BL1 — 7416 E6

+5V

R45 1K R40 1K R41 1K

7408 E22

MB3 DS0 BAI
MB3 DS1 BKI
MB3 DS2 BJI

A>B A=B A<B

IAD IAK IA=

DS ENBL L CB2 +5V R46 1K

+3VB

Two 2 Negative selection

7402 E8

7474 E19

+5V R25 20K C25 10PF R12 180

7413 E4 20NS

ALI MBI2 PULSE(I) H

+5V R45 56K R12 180

7413 E4 70NS

+3VB

+3VB

7474 E19

881 MBI 2 TRA(I)L

7419 E25 R38 1K AF2 MBI 2 ECR H

7474 E5

CLI MBI 2 LCTOD(I) H

7419 E25 R36 1K AJ2 MBI 2 ECS H

+3VB

MBI CTOD H AHI

MB3 DEM H AU2
MBI4 MASS FAIL L

7408 E18

7404 E13 MBI2 R4 H

7400 E9

MBI 2 ASYC WAT L

7427 E17

7400 E7 CM2 MBI 2 REG WAT L

7400 E3

7402 E2

MBI 2 SET AMR H

7408 E18

MBI 5 GO (I) L

74154 E14

Two 2 Negative selection

	AL2	MBI 2 R0 L
	AA1	MBI 2 R1 L
		MBI 2 R2 L
	FH2	MBI 2 R3 L
	AM1	MBI 2 R4 L
		MBI 2 R5 L
	AR1	MBI 2 R6 L
	AD1	MBI 2 R7 L
	AE1	MBI 2 R10 L
	AF1	MBI 2 R11 L

MB2 RS0H ARS
MB2 RS1H AH1
MB2 RS2H AT2
MBI RS3H AS2

STB1 STB0

7430 E9

7404 E13 MBI 2 SET ILR H

MBI RS4H AV2

7404 E13

REVISIONS		
CHK	CHANGE NO	REV

TITLE	MASS BUS INTERFACE (MBI 2)			
SCALE		SHEET 2 OF 11	SIZE D CODE CS NUMBER M8909-0-1	REV. E
			DIST.	

MBI 2 R4 L (RM1) 6
MBI 2 REG WRT L (RM2) 7
38 74 E36 2

MB2 C7 OF2 12 D7
MB2 C6 OD2 13 D6
MB1 C5 OB2 14 D5
MB1 C4 2R1 15 D4
MB1 C3 BU1 1 D3
MB1 C2 BS2 2 D2
MB1 C1 AD2 3 D1
MB1 C0 AE2 4 D0
S2 S1 S0
9 10 11
3B 74151 E77
4 5
6

MBI 4 MAS CLR L (RE2) 12
9 10 13 7448 ES7 8
+3V A
MBI 5 WRT R0 0 N 1 2 13 74 10 E56 12
MBI 10 COMPER L
5 7484 E41 6 MBI 3 END PT L
5B END PT H CF1 1
MBI 5 STRBATACHK(1) H 2 7448 ES2 3
MBI 5 RWND L 2
MBI 5 ERASE L 6
MBI 5 WFMK L 1 7448 ES7 6
5 7448 ES2 4
11 7448 E56 8
7448 ES7 1
7448 ES7 4
CCI MBI 3 ATA H
1 7464 E41 2 CVI MBI 3 ATTN L

een bit
meer TM02

74145 E78
MBI 2 US0 (BU2) 15 D0
MBI 2 US1 (BL1) 14 D1
MBI 2 US2 (BE1) 13 D2
12 D3
11 10 9 7 6 5 4 3 2 1
C MUX 7
C MUX 6
C MUX 5
C MUX 4
C MUX 3
C MUX 2
C MUX 1
C MUX 0
SEE NOTE

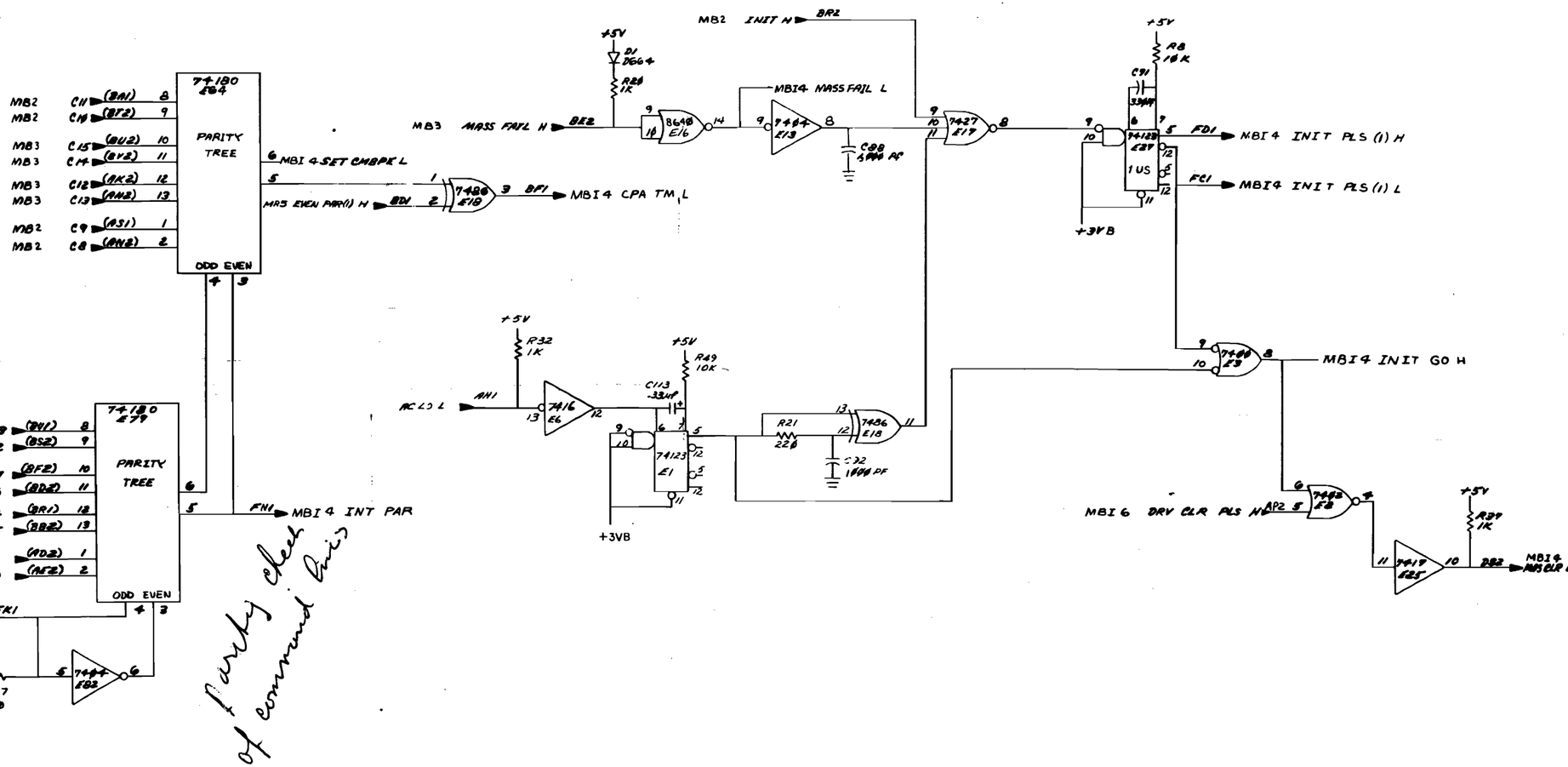
MBI 5 SPARE H 8 7442 E61 10
9
+5V
R2 10K
C87 .01 MF
MBI 5 GO BUF N 9 10
7438 E48 12
74 NS 4
11 +3V A
TCCM7 SSC L FS1 10
MBI 10 COMPER L 9 7408 ES2 8

MBI 2 R4 H 4 5 74 10 E56 6
+3V A

NOTE:
CMUX LINES ARE GENERATED ON M8909, M8903, M8905

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
MASS BUS INTERFACE (MBI3)	D	CS	M8909-0-1	E
SCALE —	SHEET 3 OF 11	DIST.		



REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
MASS BUS INTERFACE (MBI 4)	D	CS	M8909-0-1	E
SCALE —	SHEET 4 OF 11	DIST.		

MBI4 SET CMBPE L
MBI2 REG WRT L
MBI2 RD L
7402 E8
MBI C0 H
7400 E7
7474 E15
MBI5 GO (1) H
+3V8
R27 10K
C97 27PF
74:7 E25
R40 1K
+5V
CK2
MBI5 GO BUF H
74123 E19
MBI5 STRBATACHK (1) H
FB1
MBI5 GO (1) L
MBIG CLR GO L
MBI5 WRT RØØ H
MB C1
MB C2
MB C3
MB C4
MB C5
7475 E72
EM2
MBI5 F1 (1) H
EN2
MBI5 F2 (1) H
ER2
MBI5 F3 (1) H
ES2
MBI5 F4 (1) H
ET2
MBI5 F5 (1) H

IM-5600 E67
R11 1K
R12 1K
R15 1K
R13 1K
R9 1K
R14 1K
AB1
MBI5 DATA XFER H
MBI5 CHK IFC H

74155 E62
STDB STDA
DB
DA
S1 S0
FB3
FB2
FB1
FB0
FA3
FA2
FA1
FA0
R10 1K
EJ2
MBI5 RWND L
MBI5 DRV CLR L
CF2
MBI5 WFMK L
MBI5 SET ILF L
MBI5 NOP L
DE1
MBI5 ERASE L
EF2
MBI5 REV L

7402 E51
MBI5 WRITE COMMAND H
DT2
MBI5 SPACE H
7404 E41
MBI5 SPACE L
AR2
MBI5 WRITE H
API
MBI5 WRITE L
CR2
MBI5 FWD H
7474 E28
MBI6 DRV SET PLS H
7486 E18
MBI5 SAM DIR H

E67 TRUTH TABLE

ADDRESS					OUTPUTS								
14	13	12	11	10	9	7	6	5	4	3	2	1
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	1
0	0	0	1	0	0	0	0	0	0	0	1	0
0	0	0	1	1	0	0	0	0	0	0	1	1
0	0	1	0	0	0	0	0	0	0	1	0	0
0	0	1	0	1	0	0	0	0	0	1	0	1
0	0	1	1	0	0	0	0	0	0	1	1	0
0	0	1	1	1	0	0	0	0	0	1	1	1
0	1	0	0	0	0	0	0	0	1	0	0	0
0	1	0	0	1	0	0	0	0	1	0	0	1
0	1	0	1	0	0	0	0	0	1	0	1	0
0	1	0	1	1	0	0	0	0	1	0	1	1
0	1	1	0	0	0	0	0	0	1	1	0	0
0	1	1	0	1	0	0	0	0	1	1	0	1
0	1	1	1	0	0	0	0	0	1	1	1	0
0	1	1	1	1	0	0	0	0	1	1	1	1
1	0	0	0	0	0	0	0	1	0	0	0	0
1	0	0	0	1	0	0	0	1	0	0	0	1
1	0	0	1	0	0	0	0	1	0	0	1	0
1	0	0	1	1	0	0	0	1	0	0	1	1
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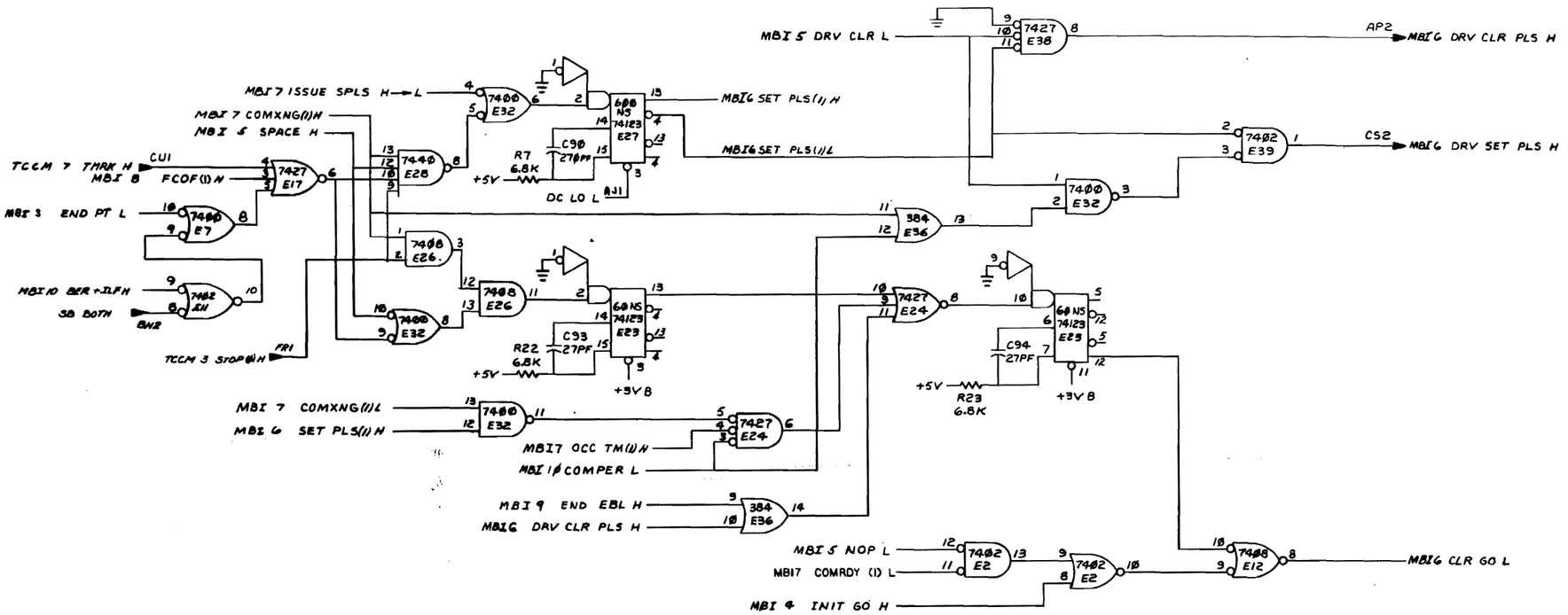
1	0	1	0	1	0	0	0	1	0	1	0	1
1	0	1	1	0	0	0	0	1	0	1	1	0
1	0	1	1	1	0	0	0	1	0	1	1	1
1	1	0	0	0	0	0	0	1	1	0	0	0
1	1	0	0	1	0	0	0	1	1	0	0	1
1	1	0	1	0	0	0	0	1	1	0	1	0
1	1	0	1	1	0	0	0	1	1	0	1	1
1	1	1	0	0	0	0	0	1	1	1	0	0
1	1	1	0	1	0	0	0	1	1	1	0	1
1	1	1	1	0	0	0	0	1	1	1	1	0
1	1	1	1	1	0	0	0	1	1	1	1	1

stroke the ATA check

Part of MTBS ?

REVISIONS		
CHK	CHANGE NO	REV

TITLE	MASS (MBI5) BUS INTERFACE				
SIZE	CODE	NUMBER	REV.
D	CS	M8909-0-1	E
SCALE	SHEET 5 OF 11	DIST.	



REVISIONS		
CHK	CHANGE NO.	REV

TITLE	SIZE	CODE	NUMBER	REV.
MASS (MBI6) BUS INTERFACE	D	DCS	M8909-0-1	E
SCALE —	SHEET 5 OF 11	DIST.		

MBI5 GO(I)H
MBI7 COMRDY (I) H
MBI7 COMRDY(I) L
74123 E19
R26 10K
C96 82 PF
+5V
+3VB
74Ø2 E49
MBI7 PREV ER(I) H
MBI1Ø COMPER H
MBI5 WRT RØØ H
7474 E3Ø
+3VB
MBI5 CHK IFC H
7408 E44
MBI7 CLK IIFC H
R16 1K
MBI5 REV L
7404 E41
B51
MBI7 REV H
MBI5 WRITE COMMAND H
SB WRL H
BM2
7458 E31
SB BOT H
BH2
MBI7 CHK ER H
MR6 DEA< (I) H
DH2
7486 E18
TCCM7 PESB L
DDI
7408 E71
MBI5 DRV CLR L
TCCM 4 MOL L
DAI
7404 E13
TCCM3 AEMD(I) H
CJ1
7402 E33
MBI7 MOL L/AEMD (I) H
+3VA
TCCM 7 PIP H
CV2
MBI 5 WRITE RØØ H
7474 E48
7408 E44
MBI7 COM RDY(I) H
SB TUR H
CN1
7404 E37
MBI 5 GO (I) L
TCCM 5 RECORD H
EW1
7427 EB1
TCPE4 & CNR24 ENBL SMDN CNTRL
FA1
+5
R50 1K
7400 E66
MB OCC REC H
DB1
7410 E42
MBI7 PREV OCC L
MBI5 DATA XFER H
MBI7 CHK ER L
+3VA
74123 E46
C86 27 PF
R1 6.8K
+5V
+3VA
+3VB
MBI5 WRITE L
7408 E47
MBI7 READ H
+5V
R39 1K
AM2
MBI7 EDS H
7417 E25
MBI7 OCC TM(I) H
DC1
BP1
MBI7 OCC TM(I) L
MBI5 GO(I) H
MBI7 CHK ER L
MBI8 IFCE L
7400 E52
MBI5 SET ILF L
7402 E49
7404 E37
MBI7 SET ILF F/F L
7408 E47
MBI7 SET NEF F/F L
7400 E43
MBI7 RIP H
8641 E16
8641 E16
MBI7 SET UNS L
MBI6 SET PLS L
MBI 7 SET OPI DLY(I)H
MBI 5 GO BUF H
7474 E48
FP2
MBI 7 SET OPI DLY(I)L
+3VB
7474 E38
MBI 7 COMXNG (I) H
MBI 7 COMXNG (I) L
7408 E71
MBI9 BER+ILFL
MBI6 DRV SET PLS H
7404 E37
CP1
MBI 7 DRV SET PLS L
MB RUN H
BN1
MBI 7 OCC TM(I) L
7408 E39
7427 E38
7404 E37
MBI 7 ISSUE SPLS H→L
MBI5 DRV CLR L
7404 E37
7427 E38
TCCM 7 SDWN L
CR1
MBI5 SAM DIR H
MR6 TCW(I) L
7408 E26
CE1
MBI7 RIP H
MBI4 MAS CLR L
+3VA
MBI 5 RWND L
MBI 5 F1(I) H
MBI 5 F2(I) H
7427 E61
MBI 7 COM RDY(I) H
7474 E45
MBI6 CLR GO L
7408 E71
MBI7 CLEAR ERRORS L
CU2
MBI7 BRIP(I) L

REVISIONS		
CHK	CHANGE NO.	REV

TITLE	SIZE	CODE	NUMBER	REV.
MASS BUS INTERFACE (MBI 7)	D	CS	M8909-Ø-1	E
SCALE —	SHEET 7 OF 11	DIST.		

frame count

MB C0 — MB C3 → 74193 E84 (CRY BRW; CLR LD CUP CDN; +3VA) → DP2 MBI 8 RG0500; FV2 MBI 8 RG0501; FV1 MBI 8 RG0502; FU1 MBI 8 RG0503

MB C8 — MB C11 → 74193 E69 (CRY BRW; CLR LD CUP CDN; +3VA) → MBI 8 RG0508; MBI 8 RG0509; MBI 8 RG0510; MBI 8 RG0511

MBI6 SET PLS (1)H → 7408 E26 → 7402 E11
MBI7 READ H → 7408 E26
MBI4 MAS CLR L → 7404 E48 → +3VA
D 7474 E60 (+3VA): MBI8 FCOF (1) H; CE2 → MBI8 FCOF (1) L
7402 E11 → 7408 E47 → MBI8 FR CNT DONE H
MBI7 COMXMB(1)H

MBI5 SPACE L
BF2 FC CLK H → AK1
MBI5 SPACE H
TCCM 5 RECORD H → EV1
7450 E51 → 7404 E48

MB C4 — MB C7 → 74193 E74 (CRY BRW; CLR LD CUP CDN; +3VA) → MBI 8 RG0504; MBI 8 RG0505; MBI 8 RG0506; MBI 8 RG0507

MB C12 — MB C15 → 74193 E59 (CRY BRW; CLR LD CUP CDN; +3VA) → MBI 8 RG0512; MBI 8 RG0513; MBI 8 RG0514; MBI 8 RG0515

MBI2 REG WRT L
MBI2 RS L → 7402 E8 → 7404 E48 → MBI 8 WRITE RG05 L

MBI8 RG0515
MBI8 RG0514
MBI8 RG0513
MBI8 RG0512
MBI8 RG0511
MBI8 RG0510
MBI8 RG0509
MBI8 RG0508 → 7430 E63

MBI8 RG0507
MBI8 RG0506
MBI8 RG0505
MBI8 RG0504 → 7430 E78

+5V
R24 1K

MBI8 RG0502
MBI8 RG0503 → 384 E36

7402 E33 → CK1 → MBI 8 SFC H

TCCM 7 PESB L
MBI7 OCC TM (1) H → DD1 → 7410 E42 → 7400 E53 → 7400 E53 → MBI 8 IFCE L
MBI7 CLK 11FC H

REVISIONS		
CHK	CHANGE NO	REV.

TITLE: MASS BUS INTERFACE (MBI 8)
SIZE D | CODE CS | NUMBER M8909-0-1 | REV. E
SCALE — | SHEET 8 OF 11 | DIST.

74164 E50 — R7(1), R6(1), R5(1), R4(1), R3(1), R2(1), R1(1), R0(1), SERIN, CLR, CLK

+3VA

MBI8 WRITE RG05 L

MBI8 RG05 00

MB EXC REC H — BK2 — 7400 E29

MBI 9 EXC TM L

7474 E35

CD1 → MBI9 EXC BY CONT (1)L

MBI 5 GO BUF H

MBI 10 DATA ERR H

MR6 EAODTE(1)H — CN2 — 7418 E42 — 7440 E28

+3VB

7408 E12

MBI 10 BER + ILF H — 7404 E48 — MBI9 BER + ILFL

MBI8 FR CNT DONE H — 7427 E61

MBI7 CHK ER H

MBI10 COM PER H — 7408 E47

TCCM5 EOR L — CH1

MBI7 OCC TM(1) H

7400 E29

7408 E71

FT2 → MBI 9 WRITE END L

+5V — R29 27K — C99 1000 PF

8 U5 74123 E34

+3VA — R28 27K — C98 1000 PF

MBI 7 COM XNG(1)H

MBI9 EBL PLS (1) L

7402 E33 — MBI9 END EBL H

MBI7 OCC TM (1) L — 7427 E24 — AC1 → MBI 9 BF ENBL H

7474 E35 — 7402 E33 — BL2 → MBI 9 EBL L

7400 E29 — BP2 → MBI 9 EXC TM L

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
MASS BUS INTERFACE (MBI9)	D	CS	M8939-0-1	E
SCALE —	SHEET 9 OF 11	DIST.		

MBI 11 ILF (1) H
MBI 8 RG0 5#0
MBI 11 ILR H
MBI 8 RG0 5#1
MBI 11 RMR (1) H
MBI 8 RG0 5#2
MBI 11 PAR (1) H
MBI 8 RG0 5#3
8234 E33
EUI C MUX 0 *
ESI C MUX 1
EPI C MUX 2
ERI C MUX 3
MBI 2 RSL
MBI 2 RZL
MBI 11 FMTE (1) H
MBI 8 RG0 5#4
MBI 11 DPAR (1) H
MBI 8 RG0 5#5
MBI 8 RG0 5#6
MBI 10 PEF/LRC H
MBI 8 RG0 5#7
8234 E79
ENI C MUX 4 *
EMI C MUX 5
ELI C MUX 6
EKI C MUX 7
TCCM S BTE L
MBI 8 RG0 5#8
MBI 11 FCE (1) H
MBI 8 RG0 5#9
MBI 11 NEF (1) H
MBI 8 RG0 5#11
8234 E80
EJI C MUX 8 *
ENI C MUX 9
EFI C MUX 10
EEI C MUX 11
MBI 11 DTE (1) H
MBI 8 RG0 5#12
MBI 11 OPI (1) H
MBI 8 RG0 5#13
MBI 11 UNS (1) H
MBI 8 RG0 5#14
MBI 10 CORR/CRC H
MBI 8 RG0 5#15
8234 E39
EDI C MUX 12 *
EC C MUX 13
FBI C MUX 14
EAI C MUX 15
TCPE 2/CWRE 2 ES/IFM L
TCPE 2/CWRE 2 IMC/VPE L
TCPE 2/CWRE 2 PEF/LRC L
TCPE 2/CWRE 2 CORR/CRC L
FMI
FLI
FFI
FJI
7404 E82
7404 E86
7404 E80
7404 E88
7404 E90
7404 E89
+5V
R19 1K
R16 1K
R17 1K
R3 1K
R10 1K
MBI 11 DPAR (1) L
MBI 10 DATA ERR H
7448 E54
7427 E81
MBI 10 COMPER L
Comparte error
7404 E37
CBI MBI 10 COMPER H
MBI 10 PEF/LRC H
MBI 10 CORR/CRC H
MBI 11 ILF (1) L
MBI 11 UNS (1) L
MBI 11 STE (1) L
MBI 11 OPI (1) L
7408 E84
MBI 10 BER + ILF H

* CMUX LINES ARE ORIGINATED ON M8909, M8903 & M8905

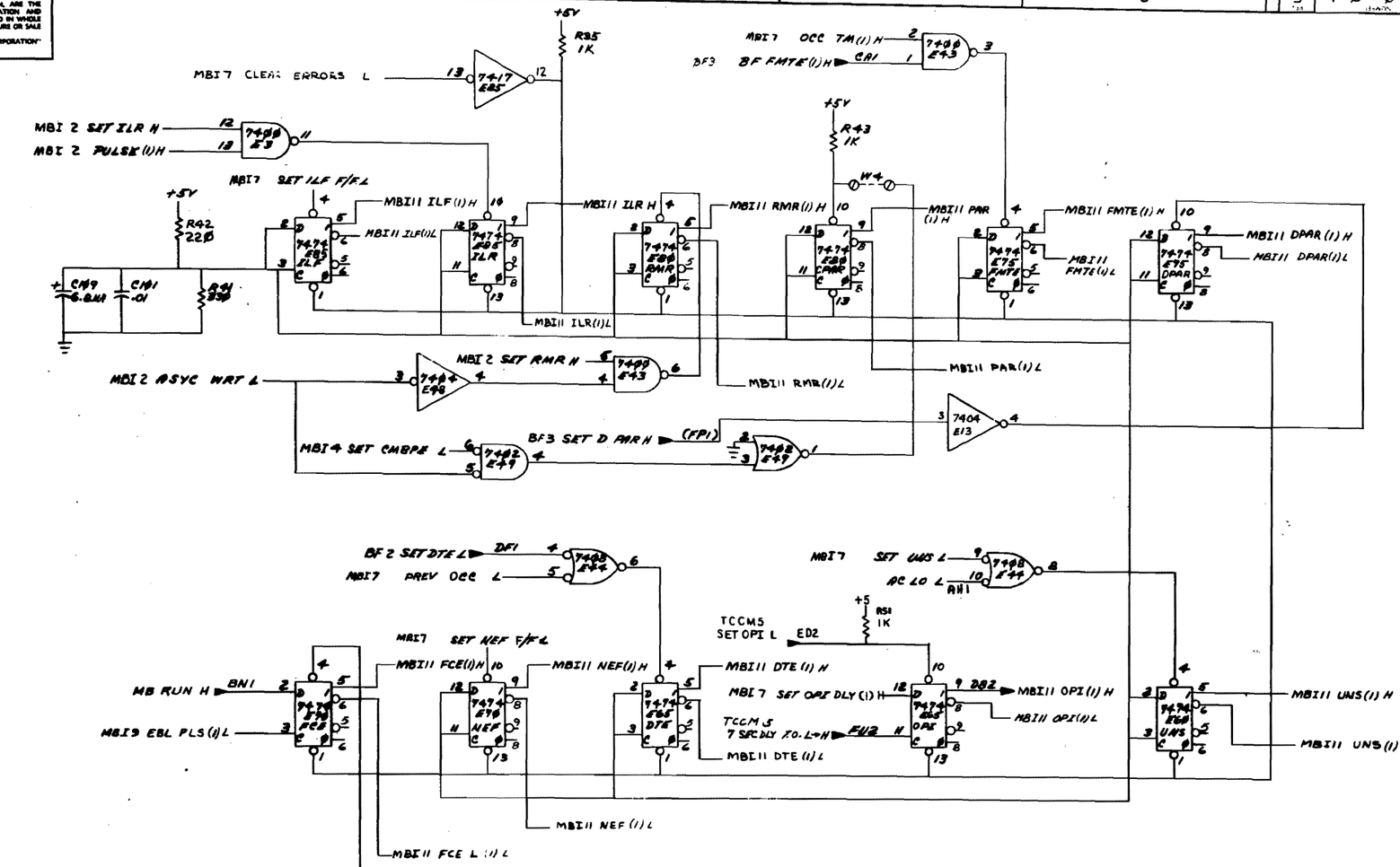
8234 TRUTH TABLE

SS	SO	S
0	0	B
0	1	A
1	0	B
1	1	H

REVISIONS

CHK	CHANGE NO.	REV.

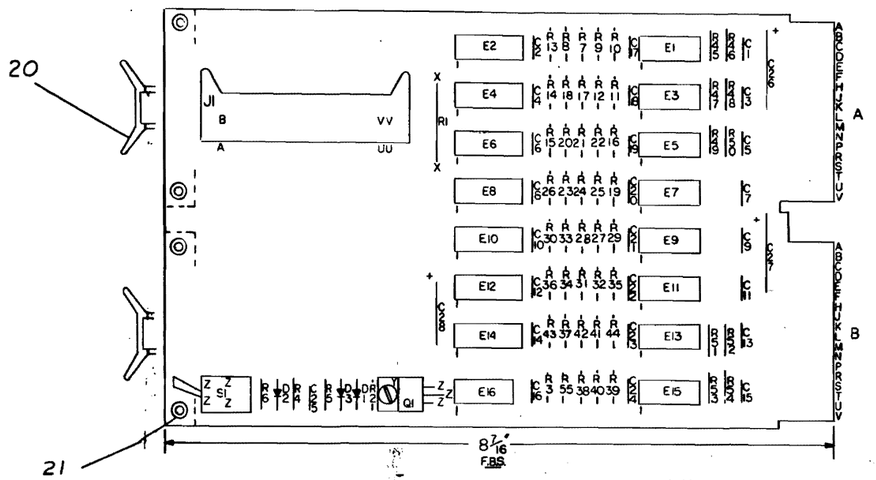
TITLE MASS BUSS INTERFACE (MBI 10)
SIZE D CODE CS NUMBER M8909-0-1 REV. E
SCALE
SHEET 10 OF 11
DIST.

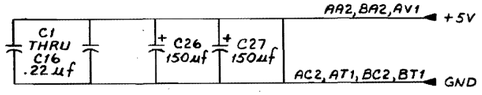


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
MASS BUS INTERFACE (MBI 11)	D	CS	M8909-0-1	E
SCALE — / — SHEET 11 OF 11	DIST.			

NOTES:





DEC. 75108 B	13	7	14
DEC. 75107	13	7	14
DEC. 75113	—	8	16
IC TYPE	-5V	GND	+5V

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

IC PIN LOCATIONS

DRAWING 40-833 16499

DEC FORM NO. DRD-136A

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M5903-YA-4	1
REF		ASSY/DRILLING-HOLE LAYOUT	D-AH-M5903-YA-5	2
REF		MODULE ECO HISTORY	B-MH-M5903-YA-6	3
1		ETCHED CIRCUIT BOARD	5010502	4
2	C26, C27	CAP. 150 µf 6V 20 %	1005572	5
25	C1 THRU C25	CAP. .22 µf 50 V	1010274	6
2	D2, D3	DIODE D672	1105275	7
1	D1	DIODE IN4733A 5.1 V	1109943	8
1	R4	RES. 330, 5%, 1/4 W	1300295	10
1	R6	RES. 4.7K, 5%, 1/4 W	1300447	11
1	R5	RES. 750, 5%, 1/4 W	1301401	12
38	R7 THRU R44	RES. 82, 5%, 1/4 W	1301477	13
1	J1	CONNECTOR SCOTCH FLEX	1209341-1	14
9	E1, 3, 5, 7, 9, 11, 13, 15, 16	I.C. DEC. 75108B	1910725	16
7	E2, E4, E6, E8, E10, E12, E14	I.C. DEC. 75113	1911341	17
2		HANDLE, FLIP-CHIP MAGENTA	9008337-06	20
4		EYELET	9009000	21
1	C28	CAP, 6.8 µf 35 V 10 %	1005306	22
1	S1	SWITCH	1210209	24
1	R1	RES. 36, 2W, 5%	1309994	25
1	R2	RES. 470, 1/4W 5%	1300516	26
1	Q1	TRAN. D45H8C	1510708-1	27
1		SCREW, PHM, 4-40 X 1/4	9008301-1	28
1		NUT, KEP 4-40	9006557	29
12	R33, R45-R55	RES. 3.3K, 1/4 W, 5 %	1300439	30

PARTS LIST

ETCH BOARD REV F

FIRST USED ON OPTION MODEL

DEC NO.	EIA NO.
IN4733A	NONE
D672	IN3653

SEMICONDUCTOR CONVERSION CHART

REV	REVISIONS	CHANGE NO.	CHK
A		M5903-00001	D. POTTER
B		M5903-00002	D. POTTER
C		M5903YA-00003	D. POTTER

DRN. J. Vincent 8-14-73
PROJ. ENG. 8-21-73
ENG. 8/24/73
QA 8/27/73
PROD. 10/1/73

NEXT HIGHER ASSY

SCALE —

SHEET 1 OF 2

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: MASS BUS TERMINAL

SIZE D | CODE CS | NUMBER M5903-YA-1 | REV C

DIST.

(AC2, AT1, BC2, BT1) GND

J1

REC ENAB COM 2 AJ1 — DATA IN 1 AE1 — TRANS ENAB COM 1 AB1 — DATA IN 2 AC1 — 75113 E2 — 75108 E1 — R45 3.3K +5 — AD1 DATA OUT 1 — AA1 DATA OUT 2 — R46 3.3K +5 — +3V

DATA IN 3 AM2 — DATA IN 4 AL2 — 75113 E4 — 75108 E3 — R47 3.3K +5 — AK1 DATA OUT 3 — AF1 DATA OUT 4 — R48 3.3K +5 — +3V

DATA IN 5 AP2 — DATA IN 6 AN2 — 75113 E6 — 75108 E5 — R49 3.3K +5 — AM1 DATA OUT 5 — AL1 DATA OUT 6 — R50 3.3K +5 — +3V

DATA IN 7 AU1 — TRANS ENAB COM 2 AU2 — TRANS ENAB COM 3 BS2 — DATA IN 8 AT2 — 75113 E8 — 75108 E7 — REC ENAB COM 2 AR1 — REC ENAB COM 3 AP1 — (BR2) +3V — AS1 DATA OUT 7 — AN1 DATA OUT 8

(AC2, AT1, BC2, BT1) GND

J1

REC ENAB COM 3 AP1 — DATA IN 9 BB1 — TRANS ENAB COM 3 (BS2) — DATA IN 10 AV2 — 75113 E10 — 75108 E9 — BA1 DATA OUT 9 — AV1 DATA OUT 10 — +3V

DATA IN 11 BJ2 — TCPA BF2 — DATA IN 12 BD1 — 75113 E12 — 75108 E11 — BE1 DATA OUT 11 — BC1 DATA OUT 12 — R51 3.3K +5 — +3V

REC ENAB COM 4 BK1 — DATA IN 13 BP2 — TRANS ENAB COM 4 BM1 — TRANS ENAB COM 5 BJ1 — DATA IN 14 BL2 — 75113 E14 — 75108 E13 — BL1 DATA OUT 13 — BF1 DATA OUT 14 — R52 3.3K +5 — +3V

REC ENAB COM 5 BH1 — REC ENAB COM 8 BN1 — REC ENAB COM 7 BS1 — 75113 E16 — 75108 E15 — R53 3.3K +5 — BV2 DATA OUT 16 — BP1 DATA OUT 18 — R54 3.3K +5 — BU1 DATA OUT 15 — BR1 DATA OUT 17 — R3 3.3K +5 — (BR2) +3V

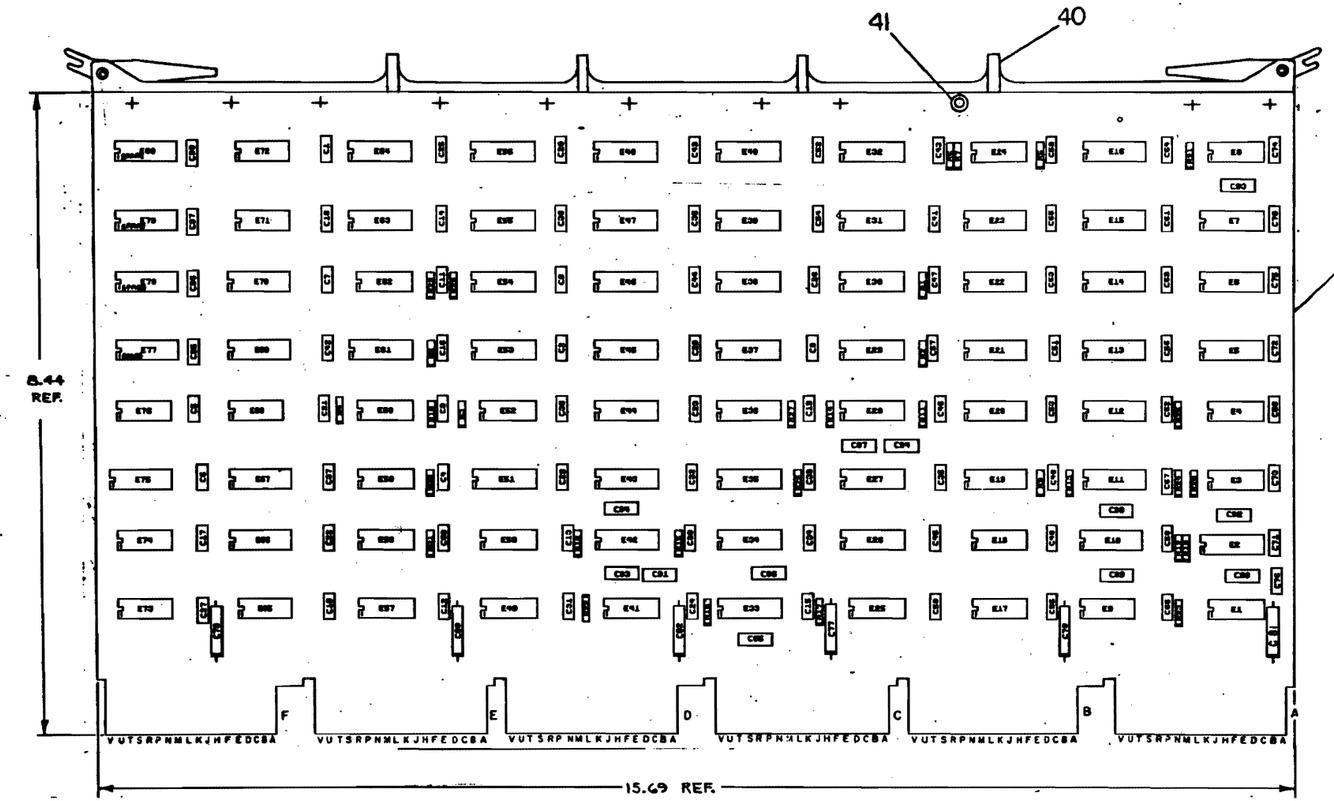
S1 ENABLE / OFF — BR2 +3V — R5 750 — C25 .22µf — R4 330 — -5 V — Q1 N45H8C — R2 470 1/4W — D1 1N4733A — D3 D672 — C17 THRU C24 .22µf — C28 6.8µf — AB2 R1 36, 2W, 5% -15V — (AA2, BA2, AV1) +5V — (AC2 AT1 BC2 BT1) GND

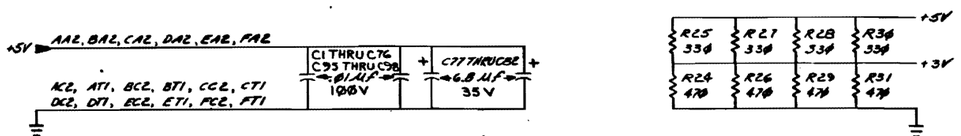
D2 D672 — +5V — R6 4.7K — BT2 — J1 UU VV

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
MASS BUS TERMINAL	D	CS	M5903-YA-1	C
SCALE — SHEET 2 OF 2	DIST.			

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   A. ALL RESISTORS ARE 1/4W, ± 5%





5600	8	16
74151	8	16
74123	8	16
7496	12	5
7485	8	16
74153	8	16
384	1	8
8266	8	16
74194	8	16
74193	8	16
74157	8	16
74155	8	16
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
REF		CIRCUIT SCHEMATIC	C-CS-M8914-0-1	REF
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8914-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8914-0-5	2
REF		MODULE ECO HISTORY	B-MH-M8914-0-6	3
1		ETCHED CIRCUIT BOARD	5011107-00	4
1	C83	CAP 1000 PF, 100V, 5% MYLAR	1000042-00	5
5	C84 THRU C88	CAP .10 µF, 100V, 5% MYLAR	1000006-00	6
2	C89, C90	CAP .27 µF, 100V, 5% MYLAR	1001739-00	7
1	C91	CAP .33 µF, 100V, 5% MYLAR	1000009-00	8
1	C92	CAP 100PF, 100V, 5% MYLAR	1000016-00	9
1	C93	CAP .180 µF, 100V, 5% MYLAR	1000020-00	10
1	C94	CAP .270 µF, 100V, 5% MYLAR	1000022-00	11
80	C1 THRU C76, C95 THRU C98	CAP .01 µF, 100V, 20% DISC	1001610-01	12
6	C77 THRU C82	CAP 6.8 µF, 35V, 10% S.TANT	1005306-00	13
4	R25, R27, R28, R30	RES 330, 1/4W, 5%	1300295-00	14
14	R1-R9, R23, R24, R26, R29, R31	RES 470, 1/4W, 5%	1300316-00	15
1	R10	RES 1K, 1/4W, 5%	1300365-00	16
11	R11 THRU R21	RES 10K, 1/4W, 5%	1300479-00	17
1	R22	RES 100, 1/4W, 5%	1300229-00	18
1	E40	I.C. 74155	1910656-00	19
8	E5-E7, E15, E31, E34, E46, E75	I.C. 74157	1910655-00	20
2	E9, E17	I.C. 74180	1910724-00	21
1	E70	I.C. 74193	1910048-00	22
12	E16, E20-E23, E29, E30 E38, E41, E55, E56, E63	I.C. 74194	1910625-00	23
1	E65	I.C. 384	1909486-00	24
2	E44, E46	I.C. 74153	1909937-00	25
5	E8, E50, E58, E75, E76	I.C. 7400	1905575-00	26
3	E1, E49, E59	I.C. 7402	1909004-00	27
2	E64, E68	I.C. 7404	1909486-00	28
3	E24, E57, E60	I.C. 7408	1910155-00	29
1	E71	I.C. 7410	1905576-00	30
1	E72	I.C. 7416	1909928-00	31
1	E74	I.C. 7440	1906579-00	32
4	E9, E18, E52, E62	I.C. 7474	1905547-00	33
1	E69	I.C. 7485	1910224-00	34
2	E25, E41	I.C. 7486	1910011-00	35
1	E67	I.C. 7496	1910363-00	36
1	E8	I.C. 74121	1910230-00	37
5	E2, E10 E28, E33, E42	I.C. 74123	1910436-00	38
8	E32, E36, E37, E39, E45, E48 E53, E54	I.C. 74151	1909936-00	39
1		HEX HANDLE ASSY	12 10711-2	40
12		EYELET	9006732-00	41
10	E11-E14, E19, E24, E27 E35, E43, E51	I.C. 8266	1909934-00	42
1	E61	I.C. 5400	23093A1-00	43

FIRST USED ON OPTION MODEL

PARTS LIST

ETCH BOARD REV. C

SEMICONDUCTOR CONVERSION CHART

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

REVISIONS	REV.	CHANGE NO.	ORIGINATED	CHK
	C		M8914-00001	
	B			

H. DRAB 12-17-75
W. LUFKIN 11-14-75

DRN W. LUFKIN DATE 10-8-75
CHK DATE 10/10/75
ENG DATE 11/6/75
PROJ. ENG DATE 5-6-75
PROD. DATE
NEXT HIGHER ASSY
SCALE
SHEET 1 OF 8

digital

TITLE
18 BIT BIT FIDDLER
(BFLR 1)

SIZE D | CODE CS | NUMBER M8914-0-1 | REV. C
DIST.

BFLR5 BDATA 40 — BFLR5 MUX DATA 40 — BFLR4 BDATA 24 — BFLR4 BDATA 16 — BFLR3 BDATA 8 — BFLR3 BDATA 0 → 74151 E32 (STB) → DE2 → BFLR2 WDBFO 7 H

BFLR5 BDATA 41 — BFLR5 BDATA 33 — BFLR4 BDATA 25 — BFLR4 BDATA 17 — BFLR3 BDATA 9 — BFLR3 BDATA 1 → 74151 E36 (STB) → DF2 → BFLR2 WDBFO 6 H

BFLR5 BDATA 42 — BFLR5 BDATA 34 — BFLR4 BDATA 26 — BFLR4 BDATA 18 — BFLR3 BDATA 10 — BFLR3 BDATA 2 → 74151 E37 (STB) → DH2 → BFLR2 WDBFO 5 H

BFLR5 BDATA 43 — BFLR5 BDATA 35 — BFLR4 BDATA 27 — BFLR4 BDATA 19 — BFLR3 BDATA 11 — BFLR3 BDATA 3 → 74151 E39 (STB) → DJ2 → BFLR2 WDBFO 4 H

BFLR5 BDATA 44 — BFLR5 BDATA 36 — BFLR4 BDATA 28 — BFLR4 BDATA 20 — BFLR3 BDATA 12 — BFLR3 BDATA 4 → 74151 E48 (STB) → DK2 → BFLR2 WDBFO 3 H

BFLR5 BDATA 45 — BFLR5 BDATA 37 — BFLR4 BDATA 29 — BFLR4 BDATA 21 — BFLR3 BDATA 13 — BFLR3 BDATA 5 → 74151 E54 (STB) → DP2 → BFLR2 WDBFO 2 H

BFLR5 BDATA 46 — BFLR5 BDATA 38 — BFLR4 BDATA 30 — BFLR4 BDATA 22 — BFLR3 BDATA 14 — BFLR3 BDATA 6 → 74151 E45 (STB) → DR2 → BFLR2 WDBFO 1 H

BFLR5 BDATA 47 — BFLR5 BDATA 39 — BFLR4 BDATA 31 — BFLR4 BDATA 23 — BFLR3 BDATA 15 — BFLR3 BDATA 7 → 74151 E53 (STB) → DT2 → BFLR2 WDBFO Ø H

BFLR7 CHAR PTR Ø H
BFLR7 CHAR PTR 1 H
BFLR7 CHAR PTR 2 H

BFLR4 BDATA 21 — BFLR3 BDATA 3 — BFLR4 BDATA 20 — BFLR3 BDATA 2 — BFLR4 BDATA 19 — BFLR3 BDATA 1 — BFLR4 BDATA 18 — BFLR3 BDATA Ø → 74157 E15 → AME → BFLR2 DI4 TM L; ANI → BFLR2 DI5 TM L; AN2 → BFLR2 DI6 TM L; AP2 → BFLR2 DI7 TM L
BFLR8 SEL OUT L

BFLR8 LD PLS (1) L → 74157 E51 (FS1) → AA1 → BFLR2 DØ TM L; AB1 → BFLR2 DI TM L
BFLR4 BDATA 17 — BFLR4 BDATA 16 → BFLR2 LD 2ND HALF L; BFLR2 LD 1ST HALF L

BFLR4 BDATA 25 — BFLR3 BDATA 7 — BFLR4 BDATA 24 — BFLR3 BDATA 6 — BFLR4 BDATA 23 — BFLR3 BDATA 5 — BFLR4 BDATA 22 — BFLR3 BDATA 4 → 74157 E7 → AK2 → BFLR2 DIØ TM L; AL1 → BFLR2 DI1 TM L; AL2 → BFLR2 DI2 TM L; AM1 → BFLR2 DI3 TM L

BFLR8 BWRITE H → STB1 STBØ
BFLR6 PBIT 4(Ø) H — BFLR5 BDATA 35 — BFLR5 BDATA 39 — BFLR6 PBIT 3(Ø) H — BFLR5 BDATA 34 — BFLR5 BDATA 38 → 74153 E46

BFLR4 BDATA 29 — BFLR3 BDATA 11 — BFLR4 BDATA 28 — BFLR3 BDATA 10 — BFLR4 BDATA 27 — BFLR3 BDATA 9 — BFLR4 BDATA 26 — BFLR3 BDATA 8 → 74157 E6 → AN1 → BFLR2 D6 TM L; AN2 → BFLR2 D7 TM L; AJ1 → BFLR2 D8 TM L; AK1 → BFLR2 D9 TM L

BFLR8 BWRITE H → STB1 STBØ
BFLR6 PBIT 2(Ø) H — BFLR5 BDATA 33 — BFLR5 BDATA 37 — BFLR6 PBIT 1(Ø) H — BFLR5 BDATA 32 — BFLR5 BDATA 36 → 74153 E44

MRG FMT 1 H → BM2
MRG FMT Ø H → BM2

BFLR3 BDATA 15 — BFLR3 BDATA 14 — BFLR4 BDATA 31 — BFLR3 BDATA 13 — BFLR4 BDATA 30 — BFLR3 BDATA 12 → 74157 E5 → ABZ → BFLR2 D2 TM L; AD2 → BFLR2 D3 TM L; AE2 → BFLR2 D4 TM L; AF2 → BFLR2 D5 TM L

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
18 BIT BIT FIDDLER (BFLR 2)	D	CS	M8914-Ø-1	G
SCALE — SHEET 2 OF 8	DIST.			

BFLR8 SHIFT LEFT H → 7416 E72 → BFLR3 SHIFT LEFT L
R2 470 +5V

MB DI4 REC H BD2
MR3 RDC 4 H DL1
MB DI5 REC H BE1
MR3 RDC 5 H DM1
MB DI6 REC H BE2
MR3 RDC 6 H DJ1
MB DI7 REC H BF1
MR3 RDC 7 H DN1

BFLR7 CLOCK 1 L
BFLR2 LD 1ST HALF L
7408 E60 → BFLR4 CLR 1 L
BFLR3 CLK 1 H

MB DI0 REC H BB1
MR2 RDC 0 H BM2
MB DI1 REC H BB2
MR2 RDC 1 H BN1
MB DI2 REC H BC1
MR2 RDC 2 H BJ1
MB DI3 REC H BD1
MR2 RDC 3 H BJ2

MB DI6 REC H AU2
MB DI7 REC H AV1
MB DI8 REC H AV2
MB DI9 REC H BA1

BFLR7 CLOCK 2 L
7408 EG0 → BFLR3 CLK 2H

MB DI2 REC H AS1
MB DI3 REC H AS2
MB DI4 REC H AT2
MB DI5 REC H AU1

BFLR8 B WRITE L

BFLR8 SHIFT RT H → 7416 E72 → BFLR3 SHIFT RT L
R1 470 +5V

BFLR8 BDATA 16
BFLR4 CLR 2 L

B3 A3 B2 A2 B1 A1 B0 A0 — 8266 E19 — Q3 Q2 Q1 Q0 — S1 S0
74194 E23 — D3 D2 D1 D0 — R3(1) R2(1) R1(1) R0(1) — CLK DSL CLR
BFLR3 BDATA 3
BFLR3 BDATA 2
BFLR3 BDATA 1
BFLR3 BDATA 0

8266 E26
74194 E30
BFLR3 BDATA 7
BFLR3 BDATA 6
BFLR3 BDATA 5
BFLR3 BDATA 4

8266 E14
74194 E22
BFLR3 BDATA 11
BFLR3 BDATA 10
BFLR3 BDATA 9
BFLR3 BDATA 8

8266 E27
74194 E29
BFLR3 BDATA 15
BFLR3 BDATA 14
BFLR3 BDATA 13
BFLR3 BDATA 12

REVISIONS | CHK | CHANGE NO. | REV.

TITLE 18 BIT BIT FIDDLER (BFLR3)
SCALE — SHEET 3 OF 8
SIZE D | CODE DCS | NUMBER M8914-0-1 | REV. C
DIST.

BFLR 6 DATA 16 H
MR3 ADC 4 H
BFLR 6 DATA 17 H
MR3 ADC 5 H
BFLR 6 DATA 18 H
MR3 ADC 6 H
BFLR 6 DATA 19 H
MR3 ADC 7 H
DL1
DK1
DJ1
DH1
8266 E35
BFLR8 LD PLS (1) L
BFLR7 CLOCK 3 L
74S08 E29
MB D12 REC H
MR2 ADC 0 H
MB D13 REC H
MR2 ADC 1 H
MB D14 REC H
MR2 ADC 2 H
MB D15 REC H
MR2 ADC 3 H
BC1
BHI
BD1
BH1
BD2
BJ1
BE1
BJ2
8266 E12
MB D08 REC H
MB D09 REC H
MB D10 REC H
MB D11 REC H
AVC
BA1
BB1
BB2
8266 E13
BFLR2 LD 2ND HALF L
BFLR7 CLOCK 4 L
74S08 E24
MB D04 REC H
MB D05 REC H
MB D06 REC H
MB D07 REC H
AT2
AU1
AU2
AV1
8266 E11
BFLR8 BWRITE L
BFLR5 BDATA 32
BFLR3 BDATA 15
BFLR3 SHIFT LEFT L
BFLR3 SHIFT RT L
74194 E30
74194 E16
74194 E21
74194 E26
BFLR4 CLK 3H
BFLR4 CLK 4H
BFLR4 B DATA 19
BFLR4 B DATA 18
BFLR4 B DATA 17
BFLR4 B DATA 16
BFLR4 B DATA 23
BFLR4 B DATA 22
BFLR4 B DATA 21
BFLR4 B DATA 20
BFLR4 B DATA 27
BFLR4 B DATA 26
BFLR4 B DATA 25
BFLR4 B DATA 24
BFLR4 B DATA 31
BFLR4 B DATA 30
BFLR4 B DATA 29
BFLR4 B DATA 28
BFLR7 STROBE L
BFLR8 BWRITE L
74S02 E33
74S04 E34
STB8 STB4 74155
BFLR7 CHAR PTR 2 H
BFLR7 CHAR PTR 1 H
BFLR7 CHAR PTR 0 H
BFLR4 CLR 2 L
BFLR4 CLR 1 L
BFLR4 CLR 5 L

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
18 BIT BIT FIDDLER (BFLR 4)	D	CS	M8914-0-1	C
SCALE	SHEET 4 OF 5	DIST.		

MB DØØ REC H
MR3 RDC 4 H
MB DØ1 REC H
MR3 RDC 5 H
MB DØ2 REC H
MR3 RDC 6 H
MB DØ3 REC H
MR3 RDC 7 H
BFLR 2 LD 2ND HALF L
BFLR 7 CLOCK 5 L
MB DØØ REC H
MR2 RDC Ø H
MB DØ1 REC H
MR2 RDC 1 H
MB DØ2 REC H
MR2 RDC 2 H
MB DØ3 REC H
MR2 RDC 3 H
BFLR8 B WRITE L

BFLR4 BDATA 31
BFLR3 SHIFT LEFT L
BFLR3 SHIFT RT L
BFLR 7 NO SHIFT L
BFLR4 CLR S L
BFLR5 CLOCK 6 L

BFLR5 BDATA 35
BFLR5 BDATA 34
BFLR5 BDATA 33
BFLR5 BDATA 32
BFLR5 BDATA 39
BFLR5 BDATA 38
BFLR5 BDATA 37
BFLR5 BDATA 36
BFLR5 BDATA 43
BFLR5 BDATA 42
BFLR5 BDATA 41
BFLR5 BDATA 40
BFLR7 NOT 7CNL
BFLR 5 MUX DATA 40
BFLR5 BDATA 47
BFLR5 BDATA 46
BFLR5 BDATA 45
BFLR5 BDATA 44

REVISIONS
CHK | CHANGE NO. | REV.

TITLE 18 BIT BIT FIDDLER (BFLR 5)
SIZE D | CODE CS | NUMBER M8914-Ø-1 | REV. C
SCALE | SHEET 5 OF 8 | DIST.

MB D16 REC H — BE2
MB D17 REC H — BF1
MB DØ4 REC H — AR1
BFLR4 B DATA 17
MB DØ1 REC H — AR2
BFLR4 B DATA 16

74157 E34 (STB SA)
BFLR6 DATA 16 H
BFLR6 DATA 17 H
BFLR6 DATA ØØ H
BFLR6 DATA Ø1 H

BFLR8 LD SEL H

7486 E25

74180 E17
MB D16 REC H — BE1
MB D14 REC H — BD2
MB D13 REC H — BD1
MB D12 REC H — BC1
MB D11 REC H — BB2
MB DØ REC H — BB1
D4 EVEN — FA1 (T.P.)
D5 ODD
+3V

74180 E9
MB DØ9 REC H — BA1
MB DØ8 REC H — AV2
MB DØ7 REC H — AV1
MB DØ6 REC H — AU2
MB DØ5 REC H — AT2
MB DØ4 REC H — AS2
MB DØ3 REC H — AS1
MB DØ2 REC H
D4 EVEN
D5 ODD

+3V
BFLR3 CLK 1 H — BFLR6 PBIT 1(Ø5) H
BFLR3 CLK 2 H — BFLR6 PBIT 2(Ø3) H
BFLR4 CLK 3 H — BFLR6 PBIT 3(Ø5) H
CNR22 BPAR L — EB1 — 7404 E64
BFLR4 CLK 4 H — BFLR6 PBIT 4(Ø5) H

+3V
R23 470
MB DPA REC H — AE1
7486 E25
AF1 — BFLR6 SET DPAR H
BFLR8 LD PLS (1) L
MB19 BF ENBL H — AC1
EC1 — BFLR6 GEN PAR H
MRS EVEN PAR H — FC2
7486 E25
7404 E64
EP1 — BFLR6 DPA TM L

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
18 BIT BIT FIDDLER (BFLR 6)	D	CS	M8914-Ø-1	C
SCALE	SHEET 6 OF 8	DIST.		

BFLR 8 SR 1 H
BFLR8 START DELAY
BFLR 7 DELAY ENBL H
BFLR 8 BWRT STRB H
BFLR 8 BWRITE H
BFLR 8 BWRITE L
BLFR 7 FCCLK H
BFLR 8 RD ENBL L
MRG FMT 0 H
MRG FMT 1 H
BFLR 7 NOT 7 CH L
BFLR 7 NO SHIFTS L
MRG FMT 2 H
MRG FMT 3 H
TCCMT PESB H
BFLR7 CNTR INIT L
CHR 4 CHK CHAR L
MR 5 EDS H
BFLR 7 CHAR MTCH H
MBI 9 BF ENBL H
BFLR 8 LD CMTR H
BFLR 8 LD SEL H
MBIS RSV L
BFLR 8 LD SEL H
BFLR 8 SR 1 H
BFLR 7 DELAY ENBL H
BFLR 7 CLK SR H
CAI
BFLR7 SET BF FMTB H
BFLR7 STROBE L
BFLR7 CLOCK 1 L
BFLR7 CLOCK 2 L
BFLR7 CLOCK 3 L
BFLR7 CLOCK 4 L
BFLR7 CLOCK 5 L
BFLR7 CLOCK 6 L
FBI
BFLR7 CHAR PTR 2 H
ENI
BFLR7 CHAR PTR 1 H
EJI
BFLR7 CHAR PTR 0 H

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
18 BIT BIT FIDDLER (BFLR 7)	D	CS	M8914-0-1	C
SCALE	SHEET 7 OF 8		DIST.	

TCCM4 WRITE STRB H
DVI
BFLR8 BWRT STRB H
C96 27pF R13 10K +5V
74123 E16
TCCM3 EMD H
CB2
C89 27pF R12 10K +5V
74123 E16
+3V
74174 E18
MBI3 BF ENBL H
AC1
MBI3 GO BUF H
ED2
MBI3 WRITE L
API
7402 E7
BFLR8 BWRITE H
7404 E32
+5V
470Ω
BFLR8 BWRITE L
7400 E3
BFLR8 RD ENBL L
C94 27pF R11 +5V
74123 E28
BFLR 7 CNTR INIT L
+3V
MBI8 SFC H
EK1
MBI8 RG Ø5 Ø0 H
EH1
MBI8 RG Ø5 Ø1 H
FL1
MBI8 RG Ø5 Ø2 H
FN1
MBI8 RG Ø5 Ø3 H
FS1
7400 E60
7400 E74
7402 E49
7400 E76
BFLR 7 CHAR MTCH H
74157 E66
BFLR8 START DELAY
STB S0
7400 E57
MB WCLK REC H
BR1
BFLR8 LD CNTR H
7402 E1
7402 E1
BFLR 8 WRITE H
C88 10pF R9 10K +5V
74123 E2
+3V
BFLR8 BWRT STRB H
7400 E56
74174 E4
DF1
BFLR 8 SET DTE L
BFLR 8 LD PLS (1) L
BFLR 8 SHIFT RT H
BFLR 8 SHIFT LEFT H
FP1
BFLR 8 LD SEL H
ES1
BFLR 8 SR 3 H
FR1
BFLR 8 SR 0 H
7496 E67
SET4
SET3
SET2
SET1
SET0
SERIN
CLR CLK SET ENB
7410 E71
7404 E68
FM1
BFLR 8 SR 1 H
EM1
BFLR 8 SCLK TM H
74157 E75
BFLR 7 CLK SR H
BFLR 8 BWRTSTRB H
7400 E73
7400 E76
7400 E73
7400 E76
7400 E76
7400 E74
7404 E68
MBI5 REV L
CR2
7486 E41
7486 E41
R22 100K
C83 1000PF
C92 100pF R20 10K
74123 E2
+3V
C93 100pF R21 10K
74121 E8
DL2
BFLR 8 SCLK TM L
BFLR 8 SEL OUT L

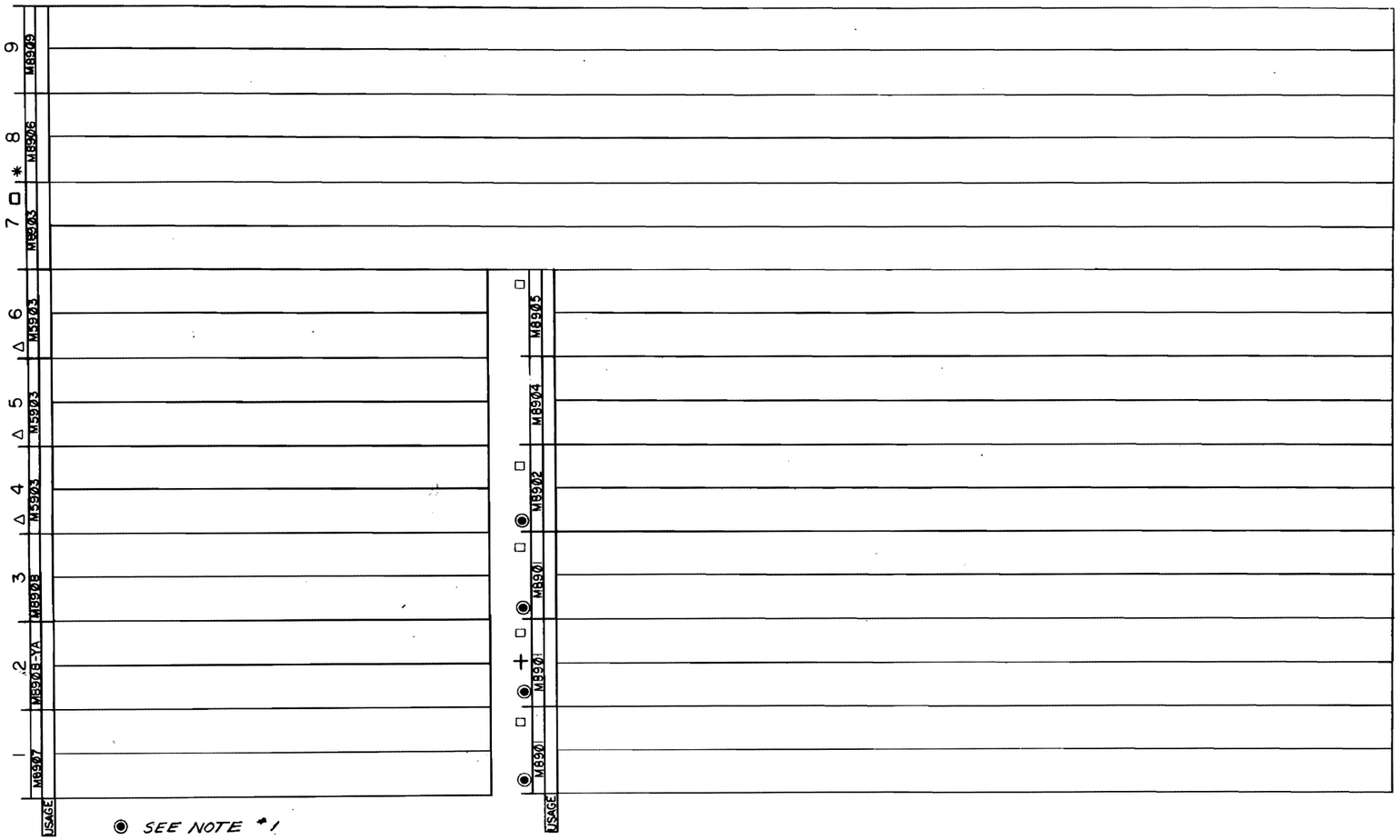
REVISIONS		
OK	CHANGE NO.	REV.

TITLE: 18 BIT BIT FIDDLER (BFLR 8)
SCALE: — SHEET: 8 OF 8
SIZE D | CODE CS | NUMBER M8914-Ø-1 | REV. C
DIST.

DCS M8914-Ø-1 C

NOTES:

1. THESE SLOTS ARE NOT USED FOR TMØ2 FC, TMØ2 FD.
2. M59Ø3 ARE REPLACED BY M59Ø3-YA IF TMØ2 IS LAST DEVICE ON THE MASSBUSS.
3. M89Ø6 IS REPLACED BY M8914 IN TMØ2 CA, TMØ2 CB, TMØ2CE, TMØ2CF.
4. FOR TMØ2 FE, TMØ2 FF, CE & CF
   REPLACE M8901S WITH M89Ø1-YA S
   REPLACE M8902 WITH M8902-YA
   REPLACE M8903 WITH M8903-YA
   REPLACE M8905 WITH M8905-YA
   REPLACE M8904 WITH M8904-YA
5. USE M8901-YB OR YC IN SLOT 2, M8901-Ø OR M8901-YA IN SLOTS 1 AND 3.



◉ SEE NOTE *1.
△ SEE NOTE *2.
✳ SEE NOTE *3.
□ SEE NOTE *4.
+ SEE NOTE *5.

TMØ2 CE,CF	TMØ2 FC,FD	TMØ2 FE,FF	TMØ2 FA,FB	TMØ2 CA,CB	DESCRIPTION	PART NO.	ITEM NO.
1	–	1	1	–	TU45 NRZ TAPE CONT	M8904-YA	19
3	–	3	–	–	TU45 DATA SYNC	M8901-YC	18
–	–	–	1	1	TU16 DATA SYNC	M8901-YB	17
1	–	–	–	1	18 BIT FIDDLER	M8914	16
1	–	1	–	–	MAINTENANCE REG.	M8905-YA	15
1	–	1	–	–	TAPE CONT. COMMON MODE	M8903-YA	14
1	–	1	–	–	TAPE CONT. PHASE ENC	M8902-YA	13
–	–	–	–	–	TU45 DATA SYNC.	M8901-YA	12
–	–	–	1	1	TAPE CONT. PHASE ENC.	M8902	11
–	1	–	1	1	MAINTENANCE REGIST	M8905	10
3	3	3	3	3	MASS BUS TERMINAL	M5903	9
1	1	1	1	1	MASS BUS INTERFACE	M8909	8
1	1	1	1	1	RECEIVER TERMINATOR	M8908-YA	7
1	1	1	1	1	RECEIVER TERMINATOR	M8908	6
1	1	1	1	1	CONN TERMINATOR	M8907	5
–	1	1	1	–	16 BIT FIDDLER	M8906	4
–	1	–	1	1	TAPE CONTROL NRZI	M8904	3
–	1	–	1	1	TAPE CONT. COMMON MODE	M8903	2
–	–	–	2	2	TU16 DATA SYNC	M8901	1

PARTS LIST

FIRST USED ON OPTION/MODEL: TMØ2

DIMENSIONAL TOLERANCE
DIMENSIONS ARE MILLIMETERS / INCHES
UNLESS OTHERWISE SPECIFIED

MILLIMETERS	INCHES	ANGLES
X.XX = ±0.10	.XXX = ±.005	±0° 30'
X.X = ±0.5	.XX = ±.02	
X = ±2.	.X = ±.1	

THIRD ANGLE PROJECTION
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. J. HESS DATE 7-30-74
CHK'D. R. Hall DATE 7-31-74
ENG. J. HESS DATE 9-5-74
PROJ. ENG. DATE 9-5-74
PROD. DATE 9-5-74
NEXT HIGHER ASSY. D UA-TMØ2-Ø-Ø
SCALE
SHEET OF

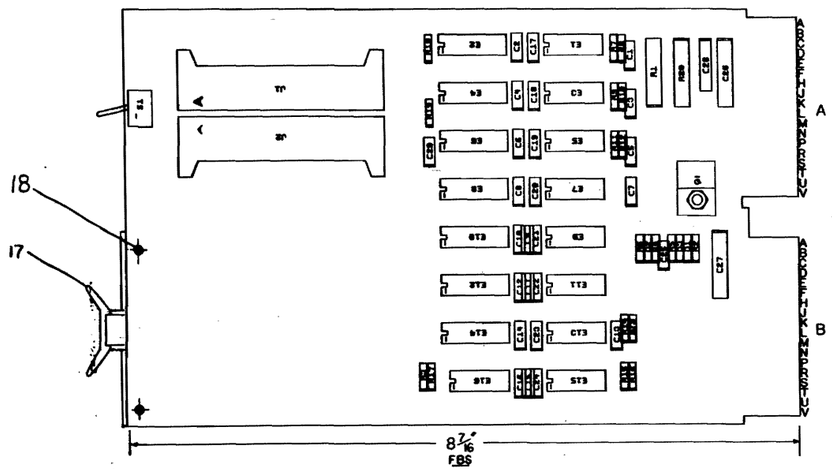
digital

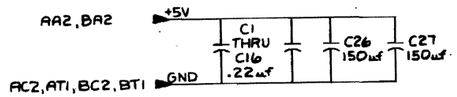
TITLE: MODULE UTILIZATION (16K)

SIZE D | CODE MU | NUMBER TMØ2-Ø-MU | REV. D
DIST.

REVISIONS	CHK	CHANGE NO.	REV.
	RH	TMØ2 00017	A
	RH	TU16-00014	B
	RH	TMØ2-00009	C
			D

NOTES:





REF.			
REF		X-Y COORDINATE HOLE LOCATION	M-CO-M5903-0-4
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M5903-0-5
REF		MODULE ECO HISTORY	B-MH-M5903-0-6
1		ETCHED CIRCUIT BOARD	5010502
26	C1 THRU C25, C29	CAP. .22 µf 50V 20%	1010274
1	C28	CAP. 68 µf 35V 10%	1005306
1	D1	DIODE 1N4733A 5.1V	1109943
2	D2, D3	DIODE D672	1105275
2	R4, R18	RES. 330 1/4W 5%	1300295
2	R5, R19	RES. 750 1/4W 5%	1301401
1	R6	RES. 4.7K 1/4W 5%	1300447
2	J1, J2	CONN. SCOTCH FLEX 3432-1002	1209941-02
7	E2, E4, E6, E8, E10, E12, E14	I.C. DEC 75113	1911341
9	E1, 3, 5, 7, 9, 11, 13, 15, 16	I.C. DEC 75108B	1910725
1		HANDLE, FLIP CHIP, MAGENTA	9008337-6
2		EYELET	9006732
2	C26, C27	CAP. 150 µf 6V 20%	1005572
1	S1	SWITCH	1210209
2	R1, R20	RES, 68, 2W, 5%	1302308
1	R2	RES, 470, 1/4W, 5%	1300316
1	Q1	TRANS D45H8C	1510708-01
1		SCREW PHM 4-40 X 1/4	9008301-01
1		NUT, KEP 4-40	9006557
12	R3, R7 - R17	RES, 3.3K, 1/4W, 5%	1300439
4		LEFT LATCH	1209941-03
4		RIGHT LATCH	1209941-04
A/R		THERMAL COMPOUND	9008268

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

ETCH BOARD REV H

	D672	IN 3653
	IN4733A	NONE
DEC NO.	DEC NO.	EIA NO.

SEMICONDUCTOR CONVERSION CHART

DEC 75107B	13	7	14
DEC 75108B	13	7	14
DEC 75113	—	8	16
IC TYPE	-5V	GND	+5V

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

IC PIN LOCATIONS

FIRST USED ON OPTION MODEL: RHII

REV	CHANGE NO.	CHK	REVISIONS
D	ORIGINATED		M5903-00001 D. POTTER 1/16/74
E			M5903-00002 D. POTTER 7 JAN 74
F			M5903-00003 D. POTTER 4-29-74
H			M5903-00004 T. STAMBAUGH 3-18-74
J			

DRN R. Cavitter DATE 8/3/73
CHK DATE 8/24/73
ENG DATE 9/14/73
PROD DATE 9/14/73
NEXT HIGHER ASSY
SCALE NONE
SHEET 1 OF 2

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: DRIVE TRANSCEIVER

SIZE D | CODE DCS | NUMBER M5903-0-1 | REV. J | DIST.

REC ENAB COM 2 AJ1 — DATA OUT 1 AD1 — DATA OUT 2 AB1 — DATA OUT 3 AK1 — DATA OUT 4 AF1 — DATA OUT 5 AM1 — DATA OUT 6 AL1 — DATA OUT 7 AS1 — DATA OUT 8 AN1

DATA IN 1 AE1 — TRANS ENAB COM 1 AB1 — DATA IN 2 AC1 — DATA IN 3 AM2 — DATA IN 4 AL2 — DATA IN 5 AP2 — DATA IN 6 AN2 — DATA IN 7 AU1 — TRANS ENAB COM 2 AU2 — TRANS ENAB COM 3 BS2 — DATA IN 8 AT2

REC ENAB COM 3 (AP1) — DATA OUT 9 BA1 — DATA OUT 10 AV1 — DATA OUT 11 BE1 — DATA OUT 12 BC1 — DATA OUT 13 BL1 — DATA OUT 14 BF1 — DATA OUT 15 BU1 — DATA OUT 16 BV2 — DATA OUT 17 BR1 — DATA OUT 18 BP1

DATA IN 9 BB1 — TRANS ENAB COM 4 (BS2) — DATA IN 10 AV2 — DATA IN 11 BJ2 — TCPA BF2 — DATA IN 12 BD1 — DATA IN 13 BP2 — TRANS ENAB COM 5 BM1 — DATA IN 14 BL2 — TRANS ENAB COM 6 BJ1 — REC ENAB COM 4 BK1 — REC ENAB COM 5 BH1 — REC ENAB COM 8 BN1 — REC ENAB COM 7 BS1

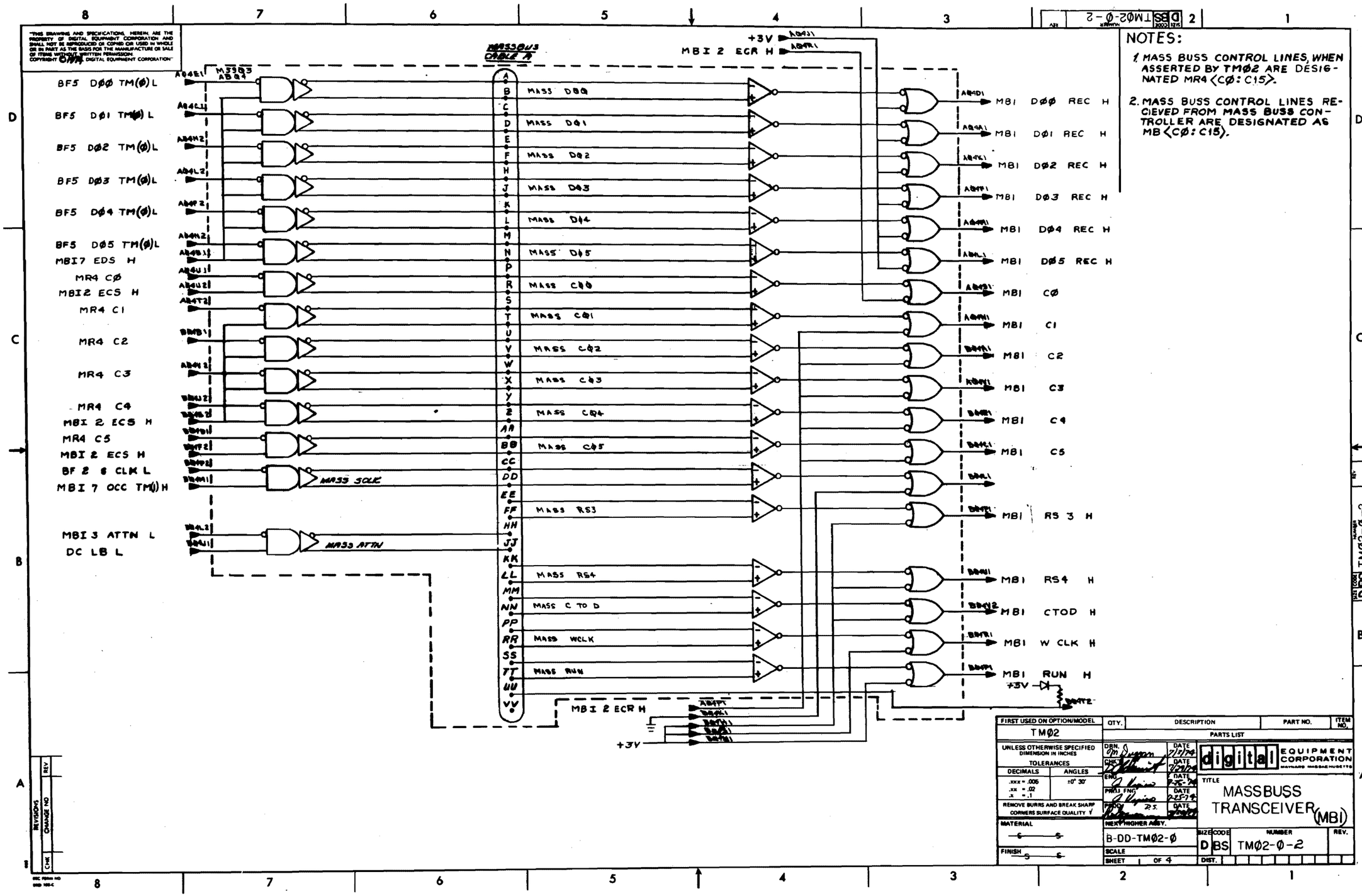
S1 ENABLE OFF — (BR2) +3V — R5 750 — C25 .22 µF — R4 330 — -5V — C17 THRU C24 .22µF — Q1 D45H8C — R2 470 — D1 1N4733A — D3 D672 — C28 68µF — R1 68, 2W, 5% — R20 68, 2W, 5% — AB2 -15 V — (AA2, BA2) +5 V — (AC2, AT1, BC2, BT1) GND — C29 .22UF — R18 330 — R19 750 — +3V(A)

J1 J2 — VV UU TT SS RR PP NN MM LL KK JJ HH FF EE DD CC BB AA Z Y W V U T S R P N M L K J H F E D C B A — A B C D E F H J K L M N P R S T U V W X Z AA BB CC DD EE FF HH JJ KK LL MM NN PP RR SS TT UU VV

D2 D672 — +5V — R6 4.7 K — BT2

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE: DRIVE TRANSCEIVER
SIZE: D — CODE: DCS — NUMBER: M5903-0-1 — REV: J
SCALE: NONE — SHEET 2 OF 2 — DIST.



NOTES:

1. MASS BUSS CONTROL LINES, WHEN ASSERTED BY TMØ2 ARE DESIGNATED MR4 <CØ:C15>.
2. MASS BUSS CONTROL LINES RECIEVED FROM MASS BUSS CONTROLLER ARE DESIGNATED AS MB <CØ:C15>.

FIRST USED ON OPTION/MODEL: TMØ2	QTY.	DESCRIPTION: PARTS LIST	PART NO. / ITEM NO.
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. M Duggan 7/3/74; CHK. 7/24/74; ENG. J Wynne 7-25-74; PROJ. ENG. J Wynne 7-25-74; PROD. 7-25-74	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	TITLE: MASSBUSS TRANSCEIVER (MBI)
MATERIAL: — —	NEXT HIGHER ASSY.: B-DD-TMØ2-Ø	SIZE D; CODE BS; NUMBER TMØ2-Ø-2; REV.	
FINISH: — —	SCALE	SHEET 1 OF 4	DIST.

REVISIONS: REV. | CHANGE NO | CHK

MASSBUS CABLE 2

+3V
MBI2 ECR H

BF5 DØ6 TM(Ø)L
BF5 DØ7 TM(Ø)L
BF5 DØ8 TM(Ø)L
BF5 DØ9 TM(Ø)L
BF5 DIØ TM(Ø) L
BF5 D11 TM(Ø) L
MBI7 EDS H
MR4 C6
MBI2 ECS H
MR4 C7
MR4 C8
MR4 C9
MR4 C1Ø
MBI2 ECS H
MR4 C11
MBI2 ECS H
MBI 9 EXC TM L
MBI 7 OCC TM(1) H
MBI 9 EBL L
MBI 7 OCC TM(1) H

MASS DØ6
MASS DØ7
MASS DØ8
MASS DØ9
MASS DIØ
MASS D11
MASS CØ6
MASS CØ7
MASS CØ8
MASS CØ9
MASS C1Ø
MASS C11
MASS EXC
MASS RSØ
MASS EBL
MASS RS1
MASS RS2
MASS INIT
MASS SPARE 1

MB2 DØ6 REC H
MB2 DØ7 REC H
MB2 DØ8 REC H
MB2 DØ9 REC H
MB2 DIØ REC H
MB2 D11 REC H
MB2 C6
MB2 C7
MB2 C8
MB2 C9
MB2 C1Ø
MB2 C11
MB2 EXC REC H
MB2 RS Ø H
MB2 RS 1 H
MB2 RS 2 H
MB2 INIT H

+3V
T2

MBI 2 ECR H
+3V

REVISIONS		
REV	CHANGE NO	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
TMØ2		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. DATE 7-25-74
CHKD. DATE 7-25-74
ENG. DATE 7-25-74
PROJ ENG. DATE 7-25-74
PROD .2 % DATE 7-25-74
NEXT HIGHER ASSY.
SCALE
SHEET 2 OF 4

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
MASSBUS TRANSCEIVER (MB2)

SIZE	CODE	NUMBER	REV.
D	BS	TMØ2-Ø-2	

DIST.

MASSBUS CABLE C

+3V

BF5 D12 TM(Ø) L — A0 6E1 — MASS D12
BF5 D13 TM(Ø) L — A0 6C1 — MASS D13
BF5 D14 TM(Ø) L — A0 6M2 — MASS D14
BF5 D15 TM(Ø) L — A0 6L2 — MASS D15
BF5 D16 TM(Ø) L — A0 6P2 — MASS D16
BF5 D17 TM(Ø) L — A0 6N2 — MASS D17
MBI 7 EDS H — A0 6B1 — MASS DPA
BF3 DPA TM L — A0 6U1
MBI 7 EDS H — A0 6U2
MR4 C12 — A0 6T2 — MASS C12
MR4 C13 — B0 6B1 — MASS C13
MR4 C14 — A0 6V2 — MASS C14
MR4 C15 — B0 6J2 — MASS C15
MBI2 ECS H — B0 6J2
MBI4 CPA TM L — B0 6D1 — MASS CPA
MBI2 ECS H — B0 6F2
MBI 7 OCC TM(1) L — B0 6R2 — MASS OCC
MBI 7 OCC TM(1) H — B0 6H1
MBI2 TRA (1) L — B0 6L2 — MASS TRA
DC LO L — B0 6J1
MASS DS1
MASS DS2
MASS DEM
MASS SPARE 2
MASS FAIL H

MBI2 ECR H — A0 6P1
MR5 SEL ALT STATUS L — B0 6K1
+3V — B0 6H1
B0 6S1
B0 6N1

A0 6J1
A0 6R1

A0 6B1 — MB3 D12 REC H
A0 6A1 — MB3 D13 REC H
A0 6K1 — MB3 D14 REC H
A0 6F1 — MB3 D15 REC H
A0 6M1 — MB3 D16 REC H
A0 6L1 — MB3 D17 REC H
A0 6S1 — MB3 DPA REC H
A0 6N1 — MB3 C12
B0 6A1 — MB3 C13
A0 6V1 — MB3 C14
B0 6E1 — MB3 C15
B0 6C1 — MB3 CPA REC H
B0 6L1 — MB3 OCCUPIED REC H
B0 6F1 — MB3 DS Ø
B0 6U1 — MB3 DS 1
B0 6V2 — MB3 DS 2
B0 6R1 — MB3 DEM H
B0 6P1 — +3V — B0 6T2 — MB3 MASS FAIL H

REVISIONS	REV	CHANGE NO	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
TMØ2		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
NEXT HIGHER ASSY.
SCALE
SHEET 3 OF 4

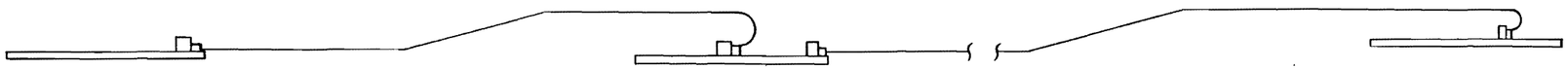
DRN. DATE 2/4/74
CHKD. DATE
ENG. DATE 2-25-74
PROJ. ENGR. DATE 2-25-74
PROD. ENGR. DATE 2-25-74

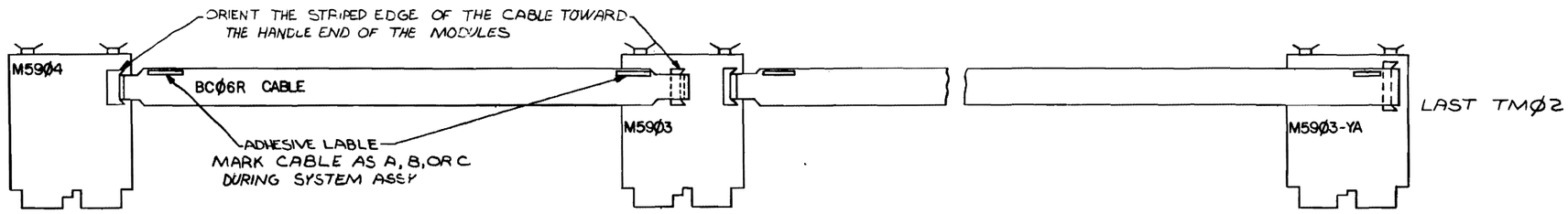
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: MASSBUS TRANSCEIVER (MB3)

SIZE	CODE	NUMBER	REV.
D	BS	TMØ2-Ø-2	

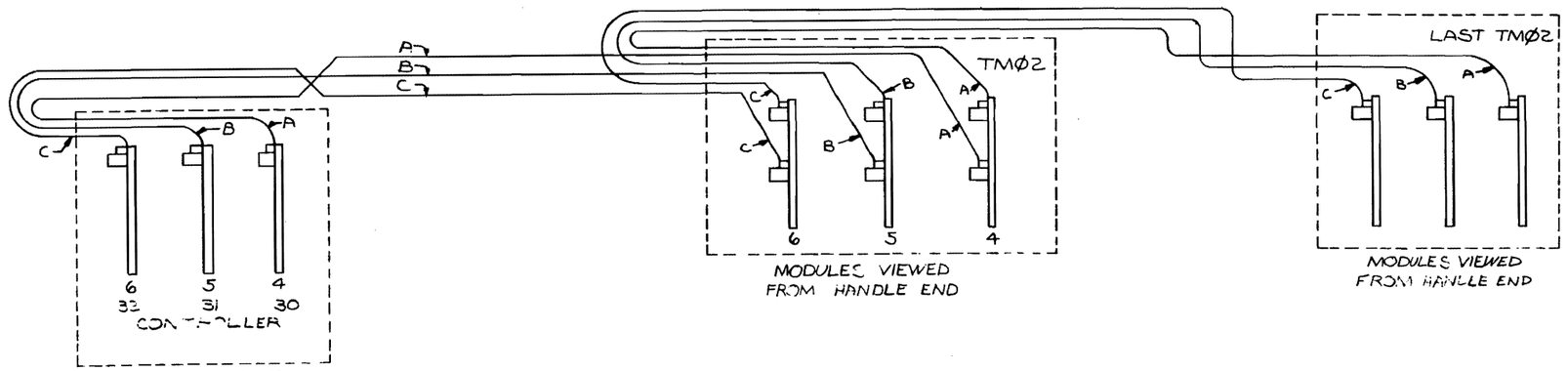
DIST.





IN THE RH-11 MASSBUS CONTROLLER
SLOT 4 IS FOR CABLE A
SLOT 5 IS FOR CABLE B
SLOT 6 IS FOR CABLE C
IN THE RH 10 MASSBUS CONTROLLER
SLOT 30 IS FOR CABLE A
SLOT 31 IS FOR CABLE B
SLOT 32 IS FOR CABLE C

IN THE TM02 TAPE CONTROLLER
SLOT 4 IS FOR CABLE A
SLOT 5 IS FOR CABLE B
SLOT 6 IS FOR CABLE C

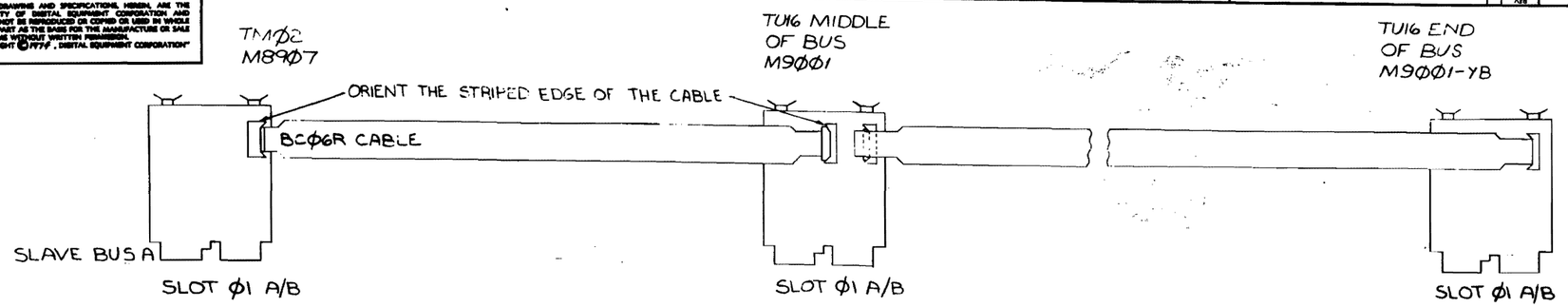


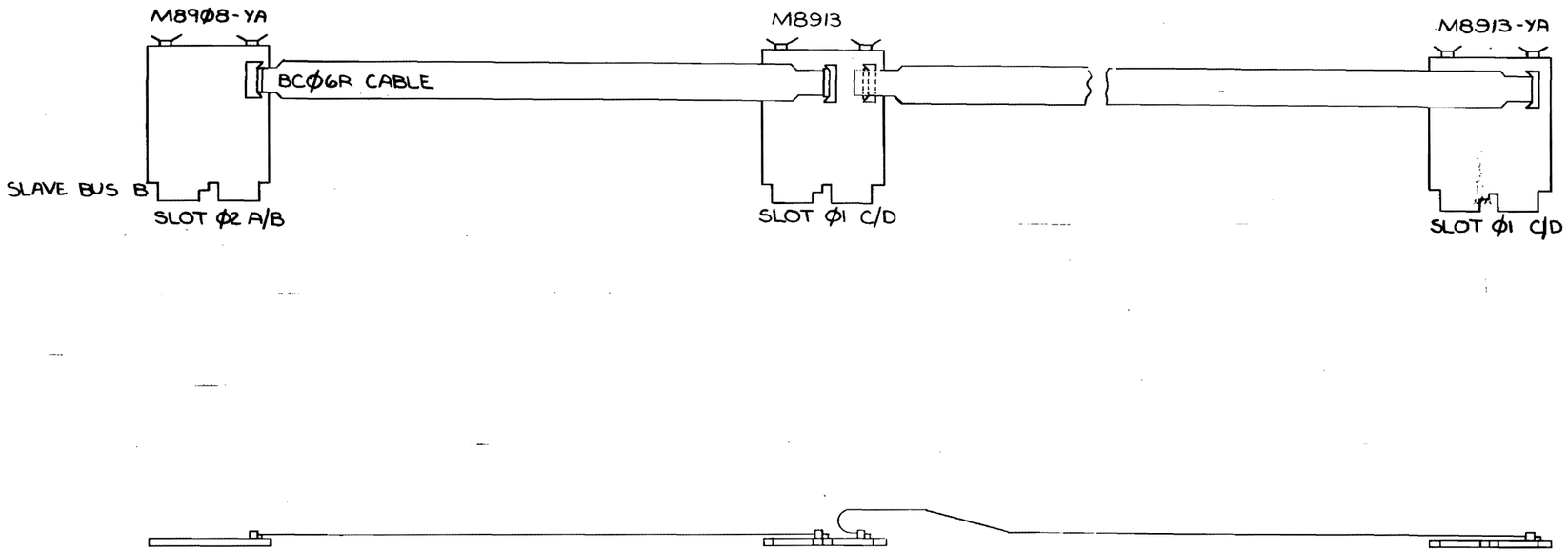
REVISIONS		
CHK	CHANGE NO	REV

TITLE	TM02 MASSBUS TRANSCEIVER			
SCALE		SHEET 4 OF 4	SIZE D	CODE BS
DIST.			NUMBER TM02-0-2	REV.

DEC F189-1.5
0180 1371

DBS TM02-0-2





FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
TU16		PARTS LIST		

DIMENSIONAL TOLERANCE
DIMENSIONS ARE [redacted] INCHES
UNLESS OTHERWISE SPECIFIED

MILLIMETERS	INCHES	ANGLES
X.XX ±0.10	.XXX ±.005	±0° 30'
XX ±0.5	.XX ±.02	
X ±2.	.X ±.1	

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

		DATE
DRN.	[redacted]	9-27-79
CHK'D.	[redacted]	DATE
ENG.	[redacted]	DATE
PROJ. ENG.	[redacted]	DATE
PROD.	[redacted]	DATE
NEXT HIGHER ASSY.	B-DD-TU16-0	
SCALE	½	
SHEET	1 OF 2	

digital

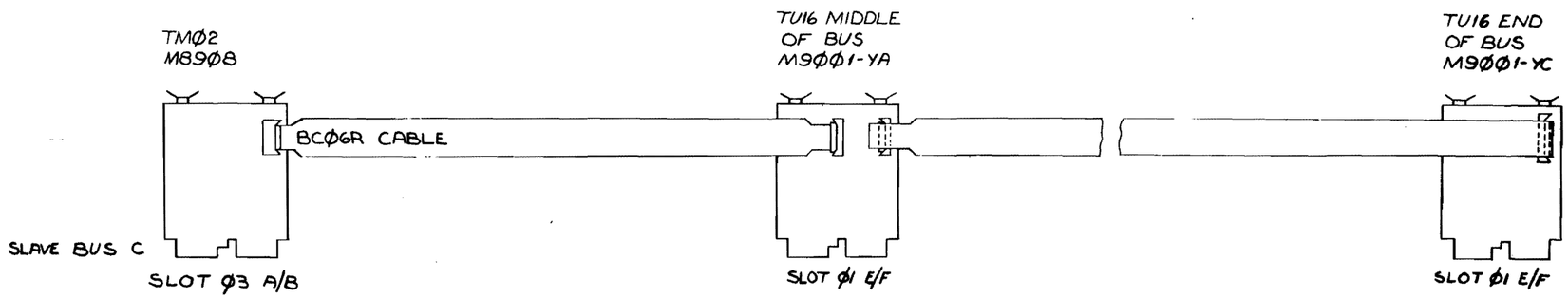
TITLE: MASSBUS TRANSCIEVER (TU16)

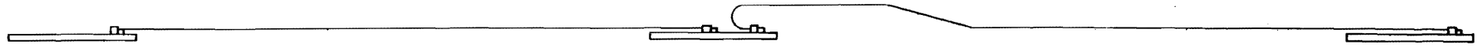
SIZE	CODE	NUMBER	REV.
D	BS	TU16-0-2	

DIST.

REVISIONS	CHANGE NO.	REV.

NEXT ASSY BS TU16-0-2



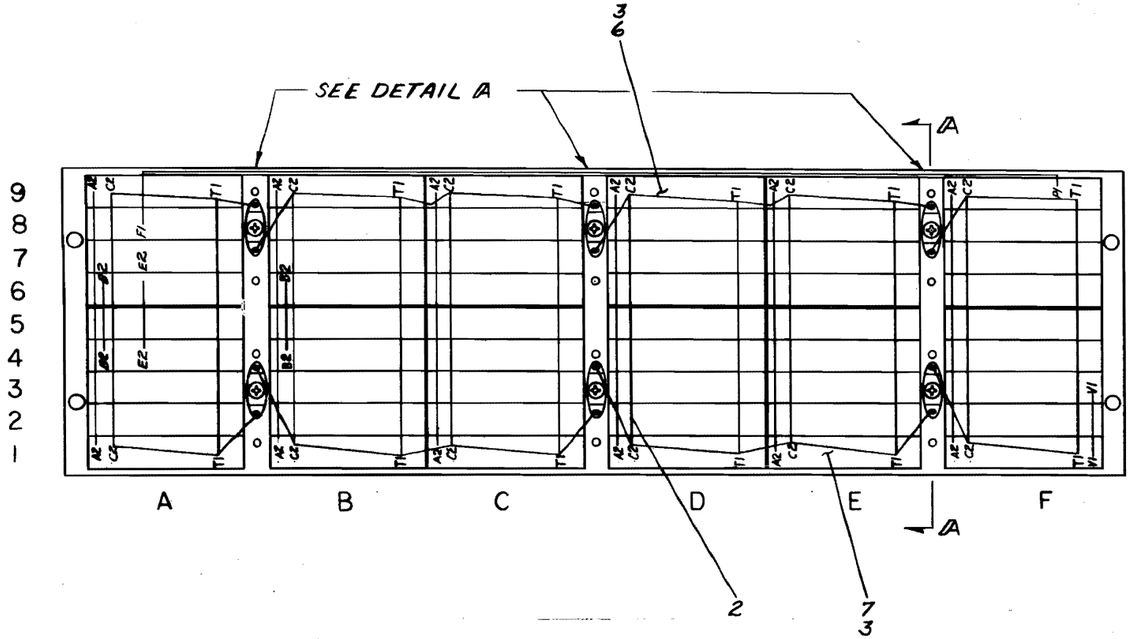


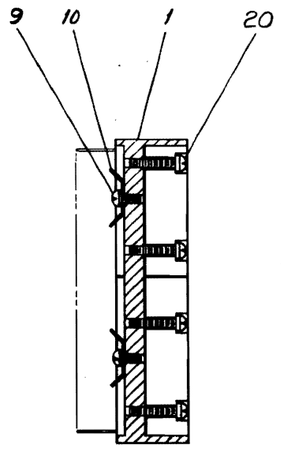
REVISIONS		
CHK	CHANGE NO	REV

TITLE	MASSBUS TRANSCIEVER (TU16)		
SIZE	CODE	NUMBER	REV.
D	BS	TU16 - Ø - 2	
SCALE	SHEET 2 OF 2	DIST.	

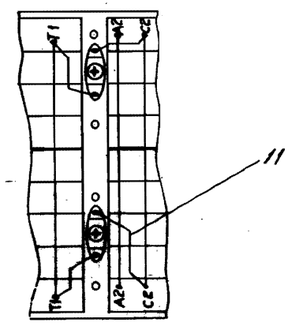
DEC 11-0-2 D BS TU16-Ø-2

74





SECTION A-A



DETAIL A
3 PLACES
SEE NOTE 2.

NOTES:

1. AFTER BUSSING ALL A2 PINS ARE TIED TOGETHER ON SLOT 1, USING ITEM #11 (BUSS WIRE) AND ITEM #12 (TUBING) EXAMPLE AØIA2 TO BØIA2 ETC. THRU FØIA2. ALL C2 PINS AND ALL T1 PINS ARE TIED TOGETHER USING ITEM #11 (BUSSING) AND ITEM #14 (TUBING) FOLLOWING DETAIL "A" AND THE PRINT.
2. CONNECTIONS ON ITEMS #2 & #11 TO BE SOLDERED AND LOCATED AT MINIMUM PRACTICAL HEIGHT ABOVE BLOCKS.
3. B2 BUSSING IN SECTIONS A & B MUST BE TIED TOGETHER. USE ITEM #11 (BUSS WIRE) AND ITEM #13 (TUBING) TIE AØ4B2 TO BØ4B2.
4. INSTALL CARD GUIDES (ITEM #15) BY REMOVING 12 SCREWS OF ITEM # 5 AND REPLACE WITH 12 SCREWS ITEM # 20.

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		
12	SCR, PHIL FLAT HD 8-32 x .81	9009070-00	20
A/R	COMPRESS-O-CARTON	9905016-4	19
REF	PACKAGING INSTRUCTIONS	5700040-00	18
1	DECAL, LOGIC ASSY	A-DC-7411881-01	17
REF	AWT REVISION STATUS	A-WT-7009735-0	16
6	CARD GUIDE	1210698-00	15
A/R	TUB TEFLON #22 AWG (WHITE)	9107256-09	14
A/R	TUB, TEFLON #22 AWG (BLU)	9107256-06	13
A/R	TUB, TEFLON #22 AWG (RED)	9107256-02	12
A/R	WIRE, BUS #22 AWG	9107560-01	11
6	LUG, SOLDER	9006772	10
6	SCREW, #6-32 x 5/16 LG SELF TAP	9006021-01	9
REF	WIRE LIST	A-WL-TMØ2-Ø-ML	8
3	CONN BLOCK 72 PIN	1211425	7
6	CONN BLOCK 288 PIN	1210858	6
15	SCREW, SELF TAP PHL HD SPECIAL #2-32 x .81 LG.	9006120-06	5
1	LOGIC SERIAL # DECAL	ASS-	4
A/R	WIRE, #30 AWG SOLID KYNAR INS.	9105940-44	3
A/R	BUS STRIP	9008428	2
1	CASTING, LOGIC FRAME (M8)	1211439	1

FIRST USED ON OPTION/MODEL	TUI6		
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	SEE PARTS LIST		
FINISH	—		

DRN. D. Hess DATE 1-2-74
CHK'D. [illegible] DATE 2-6-74
ENG. J. R. Hess DATE 2-20-74
PROJ. ENG. J. R. Hess DATE 2-20-74
PROD. [illegible] DATE 6 MAR 74

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: WIRED ASSY (TMØ2)

NEXT HIGHER ASSY. D-AD-7009735-0-0
SCALE 1/1
SHEET OF

SIZE D | CODE AD | NUMBER 7009735-0-0 | REV. D
DIST.

REVISIONS		
DWG. NO. 7009735-0-0	CHANGE NO. 7Z	REV. A
M02	2006	B
TM02	6011	C

DRAWING NO. REV. 1999
DEC 11994 ND
DRD 188-A

REVISIONS			
CHK	CHANGE NO.	REV.	
DH	TMØ2-00001	A	G. Dawkins 9-20-74 J. HESS 9-26-74
RBB	TMØ2-00005	B	E. Ramos 1-10-75 J. HESS 4-10-75
B.H.	TMØ2-00012	C	

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
TU16		PARTS LIST		

DRN. D Schmidt	DATE 2/20/74	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. D. Schmidt	DATE 2/20/74	
ENG. J. R. Flora	DATE 2-20-74	TITLE WIRE LIST (TMØ2)
PROJ. ENG. J. R. Flora	DATE 2-20-74	
PROD. D. A. Battle	DATE 5-31-74	
NEXT HIGHER ASSEMBLY D-AD-7009735-0-0		SIZE K CODE WL NUMBER TMØ2-Ø-WL REV. C
SCALE f — f		
SHEET 1 OF 1		DIST.

DEC FORM NO. DRB 109

76

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	PV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
+15V		F03V1		1-01 *							1		2-4/8	1
+15V		F07V1		1-02 *										1
+15V				1									2-4/8	1
+3V		A06J1		1-01 *							1		1	2
+3V		A05J1		1-02 *							2		1	2
+3V		A06J1		1-03 *							1		1-2/8	2
+3V		A06K1		1-04 *							2		2-3/8	2
+3V		R16H1		1-05 *							1		1-3/8	2
+3V		R04H1		1-06 *							2		1	2
+3V		R05H1		1-07 *							1		4-4/8	2
+3V		R05K1		1-08 *							2		0-5/8	2
+3V		R14N1		1-09 *							1		0-4/8	2
+3V		R04R2		1-10 *							2		0-1/8	2
+3V		R05S1		1-11 *							1		0-5/8	2
+3V		R05R2		1-12 *							2		0-1/8	2
+3V		R06S1		1-13 *							1		0-5/8	2
+3V		R06P2		1-14 *										2
+3V				1									11-2/8	2
-15V		R04R2		1-01 *							1		13-7/8	3
-15V		F07D1		1-02 *										3
-15V				1									13-7/8	3
-VOLT		A04P2		1-01 *							1		0-5/8	4
-VOLT		A04P2		1-02 *										4
-VOLT				1									0-5/8	4
15 MODE-		CURR2											1-PIN RUN	5
24-32 H		DR4A1											1-PIN RUN	6
200 APICLK(1) H		F04H2		1-01 *							2		2	7
200 APICLK(1) H		E07H2		1-02 *							1		4-7/8	7
200 APICLK(1) H		F06S1		1-03 *										7
200 APICLK(1) H				1									6-7/8	7
3 FSV H		D04H1											1-PIN RUN	8
7 CH H		A03U2		1-01 *							1		7-3/8	9
7 CH H		C03U2		1-02 *							2		1	9
7 CH H		C02U2		1-03 *							1		1	9
7 CH H		C01U2		1-04 *							2		7-4/8	9
7 CH H		C05U2		1-05 *							1		1-4/8	9
7 CH H		C07U2		1-06 *										9
7 CH H				1									13-3/8	9
7 CH L		C05J2		1-01 *							1		1-4/8	10
7 CH L		C07J2		1-02 *							2		1	10
7 CH L		C08J2		1-03 *										10
7 CH L				1									2-4/8	10
7 CH TM0		R07R2		1-01 *							1		3-6/8	11
7 CH TM0		R01R1		1-02 *										11
7 CH TM0				1									3-6/8	11

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	PV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
7 CH TM1		A07F1		1-01 *							1		3-4/8	12
7 CH TM1		A01R1		1-02 *										12
7 CH TM1				1									3-4/8	12
7 SEC DRY TOL TO H		F07U2		1-01 *							1		1-1/8	13
7 SEC DRY TOL TO H		F09U2		1-02 *										13
7 SEC DRY TOL TO H				1									1-4/8	13
A E40(1) H		C09J1		1-01 *							2		1-5/8	14
A E40(1) H		C08S2		1-02 *							1		0-3/8	14
A E40(1) H		E07V2		1-03 *							2		1-4/8	14
A E40(1) H		F09V2		1-04 *										14
A E40(1) H				1									9-4/8	14
AC LO L		A09H1											1-PIN RUN	15
ACCL H		C04A1		1-01 *							1		2	16
ACCL H		C07A1		1-02 *										16
ACCL H				1									2-4/8	16
ACCL(SA) L		A01H2		1-01 *							1		4-1/8	17
ACCL(SA) L		A07F2		1-02 *										17
ACCL(SA) L				1									1-1/8	17
ANY DD IRR H		E04K1											1-PIN RUN	18
ANY FSV H		C04K1											1-PIN RUN	19
ANY TRANS L		F01S2		1-01 *							2		1	20
ANY TRANS L		E02S2		1-02 *							1		1	20
ANY TRANS L		F03S2		1-03 *							2		1	20
ANY TRANS L		E04S2		1-04 *										20
ANY TRANS L				1									3-0/8	20
ATA H		C07C1		1-01 *							1		1-4/8	21
ATA H		C09C1		1-02 *										21
ATA H				1									1-4/8	21
ATTN L		R04L2		1-01 *							1		6-1/8	22
ATTN L		C09V1		1-02 *										22
ATTN L				1									6-1/8	22
BF ENBL H		A08C1		1-01 *							1		1	23
BF ENBL H		A09C1		1-02 *										23
BF ENBL H				1									1-0/8	23
BF FMTE H		C08A1		1-01 *							1		1	24
BF FMTE H		C09A1		1-02 *										24
BF FMTE H				1									1-0/8	24
BFFR A H		D01H1		1-01 *							1		3-1/8	25
BFFR A H		D04S2		1-02 *										25
BFFR A H				1									3-1/8	25

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
BFFR A 1		D03H1		1-01 *							1		1-3/8	26
BFFR A 1		D04M2		1-02 *										26
BFFR A 1				1									1-3/8	26
BFFR A 2		D01L2		1-01 *							1		2-1/8	27
BFFR A 2		D04R1		1-02 *										27
BFFR A 2				1									2-1/8	27
BFFR A 3		D03M1		1-01 *							1		1-3/8	28
BFFR A 3		D04P2		1-02 *										28
BFFR A 3				1									1-3/8	28
BFFR A 4		D01M1		1-01 *							1		2-1/8	29
BFFR A 4		D04P1		1-02 *										29
BFFR A 4				1									2-1/8	29
BFFR A 5		D02H1		1-01 *							1		1-7/8	30
BFFR A 5		D04M1		1-02 *										30
BFFR A 5				1									1-7/8	30
BFFR A 6		D02M1		1-01 *							1		1-5/8	31
BFFR A 6		D04N1		1-02 *										31
BFFR A 6				1									1-5/8	31
BFFR A 7		D03L2		1-01 *							1		0-4/8	32
BFFR A 7		D04L1		1-02 *										32
BFFR A 7				1									0-4/8	32
BFFR A P		D02L2		1-01 *							1		1-3/8	33
BFFR A P		D04K2		1-02 *										33
BFFR A P				1									1-3/8	33
BIT RDY 1 L		D01R2											1-PIN RUN	34
BIT RDY 2 L		C01R2											1-PIN RUN	35
BIT RDY 3 L		E01T2											1-PIN RUN	36
BIT RDY 4 L		D02R2											1-PIN RUN	37
BIT RDY 5 L		C02R2											1-PIN RUN	38
BIT RDY 6 L		E02T2											1-PIN RUN	39
BIT RDY 7 L		D03R2											1-PIN RUN	40
BIT RDY 8 L		C03R2											1-PIN RUN	41
BIT RDY 9 L		E03T2											1-PIN RUN	42
BIT RDY H		C01M2		1-01 *							1		1	43
BIT RDY H		C02M2		1-02 *							2		1	43
BIT RDY H		C03M2		1-03 *							1		1-5/8	43
BIT RDY H		C04V1		1-04 *										43
BIT RDY H				1									3-5/8	43

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
BIT STRB 1 H		C03V2		1-01 *							1		8-3/8	44
BIT STRB 1 H		F06F2		1-02 *										44
BIT STRB 1 H				1									8-3/8	44
BIT STRB 2 H		E01M1		1-01 *							1		4-5/8	45
BIT STRB 2 H		F06E2		1-02 *										45
BIT STRB 2 H				1									4-5/8	45
BOT H		B02M2		1-01 *							1		3-3/8	46
BOT H		B07H2		1-02 *							2		1-4/8	46
BOT H		B09H2		1-03 *										46
BOT H				1									4-7/8	46
BOT L		B07H1		1-01 *							1		1-4/8	47
BOT L		B09H1		1-02 *										47
BOT L				1									1-4/8	47
BPAR L		F08B1		1-01 *							1		2-5/8	48
BPAR L		D05U1		1-02 *										48
BPAR L				1									2-5/8	48
BRIP(1) L		C09U2		1-01 *							1		8-3/8	49
BRIP(1) L		F06C1		1-02 *										49
BRIP(1) L				1									8-3/8	49
BTE(0) H		F07N2		1-01 *							1		1-3/8	50
BTE(0) H		F09L1		1-02 *										50
BTE(0) H				1									1-3/8	50
C00		A09E2		1-01 *							2		4-3/8	51
C00		A04S1		1-02 *							1		0-4/8	51
C00		A04U1		1-03 *							2		6-5/8	51
C00		C06R2		1-04 *										51
C00				1									11-4/8	51
C01		A09D2		1-01 *							1		4-1/8	52
C01		A04N1		1-02 *							2		1	52
C01		A04T2		1-03 *							1		5-7/8	52
C01		C06P1		1-04 *										52
C01				1									11-0/8	52
C02		B04A1		1-01 *							1		0+1/8	53
C02		B04B1		1-02 *							2		4-5/8	53
C02		B09S2		1-03 *							1		4-1/8	53
C02		C06R1		1-04 *										53
C02				1									8-7/8	53
C03		A04V2		1-01 *							1		0-4/8	54
C03		A04V1		1-02 *							2		4	54
C03		B09U1		1-03 *							1		3-7/8	54
C03		C06S1		1-04 *										54
C03				1									8-3/8	54

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
C04		H04E1		1-01 *							1		0-5/8	55
C04		B04J2		1-02 *							2		3-3/8	55
C04		AW9P1		1-03 *							1		4-1/8	55
C04		C06P2		1-04 *										55
C04				1									8-1/8	55
C05		AW9H2		1-01 *							2		3-3/8	56
C05		B04C1		1-02 *							1		0-1/8	56
C05		H04D1		1-03 *							2		4-7/8	56
C05		C06N1		1-04 *										56
C05				1									8-3/8	56
C06		AW5S1		1-01 *							1		0-4/8	57
C06		AW5U1		1-02 *							2		3-7/8	57
C06		AW9D2		1-03 *							1		5-5/8	57
C06		C06M1		1-04 *										57
C06				1									10-0/8	57
C07		AW5N1		1-01 *							2		1	58
C07		AW5T2		1-02 *							1		3-2/8	58
C07		B04F2		1-03 *							2		5-1/8	58
C07		C06M2		1-04 *										58
C07				1									9-3/8	58
C08		AW9N2		1-01 *							2		3-7/8	59
C08		H05H1		1-02 *							1		0-1/8	59
C08		H05A1		1-03 *							2		4-3/8	59
C08		C06K1		1-04 *										59
C08				1									8-3/8	59
C09		AW9S1		1-01 *							2		2-3/8	60
C09		AW5V2		1-02 *							1		0-4/8	60
C09		AW5V1		1-03 *							2		5-1/8	60
C09		C06L1		1-04 *										60
C09				1									8-0/8	60
C10		B05E1		1-01 *							1		0-5/8	61
C10		B05J2		1-02 *							2		3-3/8	61
C10		C06J2		1-03 *							1		2-5/8	61
C10		B09T2		1-04 *										61
C10				1									6-5/8	61
C11		B09A1		1-01 *							2		2-5/8	62
C11		B05C1		1-02 *							1		0-1/8	62
C11		B05D1		1-03 *							2		4-3/8	62
C11		C06L2		1-04 *										62
C11				1									7-1/8	62
C12		AW9K2		1-01 *							1		2-3/8	63
C12		AW6N1		1-02 *							2		1	63
C12		AW6T2		1-03 *							1		4-5/8	63
C12		C06F1		1-04 *										63
C12				1									8-0/8	63

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
C13		A09H2		1-01 *							2		3-1/8	64
C13		B06A1		1-02 *							1		0-1/8	64
C13		AW6H1		1-03 *							2		3-3/8	64
C13		C06F1		1-04 *										64
C13				1									6-5/8	64
C14		A06V2		1-01 *							1		0-4/8	65
C14		AW6V1		1-02 *							2		4-3/8	65
C14		C06H1		1-03 *							1		3-3/8	65
C14		H09V2		1-04 *										65
C14				1									8-2/8	65
C15		AW6E1		1-01 *							1		0-5/8	66
C15		B06J2		1-02 *							2		2-2/8	66
C15		AW6F2		1-03 *							1		2-5/8	66
C15		C06J1		1-04 *										66
C15				1									5-3/8	66
CER(1) H		D01D1		1-01 *							1		7-7/8	67
CER(1) H		F01G1		1-02 *										67
CER(1) H				1									7-7/8	67
CHAR CNTO H		F01S1		1-01 *							1		1	68
CHAR CNTO H		F02S1		1-02 *							2		1	68
CHAR CNTO H		F03S1		1-03 *							1		10-3/8	68
CHAR CNTO H		C04C1		1-04 *										68
CHAR CNTO H				1									12-3/8	68
CHAR SHIFT H		C01M1		1-01 *							2		1	69
CHAR SHIFT H		C02M1		1-02 *							1		1	69
CHAR SHIFT H		C03M1		1-03 *							2		1	69
CHAR SHIFT H		C04M1		1-04 *										69
CHAR SHIFT H				1									3-0/8	69
CHK CHAR L		C05N2		1-01 *							1		5-1/8	70
CHK CHAR L		D08U2		1-02 *										70
CHK CHAR L				1									5-1/8	70
CLK A H		C08F1											1-PIN RUN	71
CLK B H		C08H1											1-PIN RUN	72
CLK C H		C08E1											1-PIN RUN	73
CLK D H		C08D1											1-PIN RUN	74
CLK L CK CHAR REG L		C05F2		1-01 *							1		1	75
CLK L CK CHAR REG L		C06F2		1-02 *										75
CLK L CK CHAR REG L				1									1-0/8	75
CLOCK H		A07M1		1-01 *							1		4	76
CLOCK H		H02F1		1-02 *										76
CLOCK H				1									4-0/8	76

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
CMUX 00		E06U1		1-01 *							2		1	77
CMUX 00		E07U1		1-02 *							1		1-4/8	77
CMUX 00		E09U1		1-03 *										77
CMUX 00				1									2-4/8	77
CMUX 01		E06S1		1-01 *							2		1	78
CMUX 01		E07S1		1-02 *							1		1-4/8	78
CMUX 01		E09S1		1-03 *										78
CMUX 01				1									2-4/8	78
CMUX 02		E06R1		1-01 *							2		1	79
CMUX 02		E07R1		1-02 *							1		1-3/8	79
CMUX 02		E09P1		1-03 *										79
CMUX 02				1									2-3/8	79
CMUX 03		F06P1		1-01 *							2		1	80
CMUX 03		E07P1		1-02 *							1		1-5/8	80
CMUX 03		E09R1		1-03 *										80
CMUX 03				1									2-5/8	80
CMUX 04		F06N1		1-01 *							2		1	81
CMUX 04		E07N1		1-02 *							1		1-4/8	81
CMUX 04		E09N1		1-03 *										81
CMUX 04				1									2-4/8	81
CMUX 05		E06M1		1-01 *							2		1	82
CMUX 05		E07M1		1-02 *							1		1-4/8	82
CMUX 05		E09M1		1-03 *										82
CMUX 05				1									2-4/8	82
CMUX 06		E06L1		1-01 *							2		1	83
CMUX 06		E07L1		1-02 *							1		1-4/8	83
CMUX 06		F09L1		1-03 *										83
CMUX 06				1									2-4/8	83
CMUX 07		E06K1		1-01 *							2		1	84
CMUX 07		E07K1		1-02 *							1		1-4/8	84
CMUX 07		E09K1		1-03 *										84
CMUX 07				1									2-4/8	84
CMUX 08		E06J1		1-01 *							2		1	85
CMUX 08		E07J1		1-02 *							1		1-4/8	85
CMUX 08		E09J1		1-03 *										85
CMUX 08				1									2-4/8	85
CMUX 09		E06H1		1-01 *							2		1	86
CMUX 09		E07H1		1-02 *							1		1-4/8	86
CMUX 09		E09H1		1-03 *										86
CMUX 09				1									2-4/8	86
CMUX 10		E06F1		1-01 *							2		1	87
CMUX 10		E07F1		1-02 *							1		1-4/8	87
CMUX 10		E09F1		1-03 *										87
CMUX 10				1									2-4/8	87

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
CMUX 11		E06E1		1-01 *							2		1	88
CMUX 11		E07E1		1-02 *							1		1-4/8	88
CMUX 11		E09E1		1-03 *										88
CMUX 11				1									2-4/8	88
CMUX 12		F06D1		1-01 *							2		1	89
CMUX 12		E07D1		1-02 *							1		1-4/8	89
CMUX 12		E09D1		1-03 *										89
CMUX 12				1									2-4/8	89
CMUX 13		E06C1		1-01 *							2		1	90
CMUX 13		E07C1		1-02 *							1		1-4/8	90
CMUX 13		E09C1		1-03 *										90
CMUX 13				1									2-4/8	90
CMUX 14		E06B1		1-01 *							2		1	91
CMUX 14		E07B1		1-02 *							1		1-4/8	91
CMUX 14		E09B1		1-03 *										91
CMUX 14				1									2-4/8	91
CMUX 15		E06A1		1-01 *							2		1	92
CMUX 15		E07A1		1-02 *							1		1-4/8	92
CMUX 15		E09A1		1-03 *										92
CMUX 15				1									2-4/8	92
COMPER H		C07B1		1-01 *							1		1-4/8	93
COMPER H		C09B1		1-02 *										93
COMPER H				1									1-4/8	93
CORE DUMP		C08B1											1-PIN RUN	94
CORR/CRCE,L		F04V2		1-01 *							2		1	95
CORR/CRCE,L		F05V2		1-02 *							1		2-7/8	95
CORR/CRCE,L		F09J1		1-03 *										95
CORR/CRCE,L				1									3-7/8	95
CPA REC H		A06C1		1-01 *							1		13-1/8	96
CPA REC H		F09K1		1-02 *										96
CPA REC H				1									13-1/8	96
CPA TM L		B06D1		1-01 *							1		2-1/8	97
CPA TM L		B09F1		1-02 *										97
CPA TM L				1									2-1/8	97
CRC 0(1) H		C05J1		1-01 *							1		1-4/8	98
CRC 0(1) H		C07J1		1-02 *										98
CRC 0(1) H				1									1-4/8	98
CRC 1(1) H		C05R1		1-01 *							1		1-4/8	99
CRC 1(1) H		C07R1		1-02 *										99
CRC 1(1) H				1									1-4/8	99
CRC 2(1) H		C05E1		1-01 *							1		1-4/8	100
CRC 2(1) H		C07E1		1-02 *										100
CRC 2(1) H				1									1-4/8	100

TM2.C
RUN NAME

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A/P NAME	PIN	ORDER	HAY -	O	DRAW	RV	RG	Y	X	Z	REMARKS	PC LENGTH EXCEPTIONS FLAG	RUN NUMBER
		OPT											
D BFFR I 1 L	FF3D2	1-A1 *		1								0-4/R	115
D BFFR I 7 L	FH4R1	1-A2 *											115
D BFFR I 7 L				1								0-4/R	115
D BFFR J P L	FU2D2	1-N1 *		1								1-1/R	116
D BFFR I P L	F01F1	1-02 *											116
D BFFR I P L				1								1-1/R	116
D BFFR I 6 L	FH4C1	1-G1 *		1								4-1/R	114
D BFFR I 6 L	F02F2	1-N2 *											114
D BFFR I 6 L				1								4-1/R	114
D BFFR I 5 L	FE4D1	1-U2 *		1								6-3/R	113
D BFFR I 5 L	C02F1	1-N1 *		1								6-3/R	113
D BFFR I 5 L				1								6-3/R	113
D BFFR I 4 L	F01F2	1-N2 *											112
D BFFR I 4 L	F04F1	1-N1 *		1								4-3/R	112
D BFFR I 4 L				1								4-3/R	112
D BFFR I 3 L	FH3F2	1-U2 *											111
D BFFR I 3 L	FH4T2	1-N1 *		1								2-3/R	111
D BFFR I 3 L				1								2-3/R	111
D BFFR I 2 L	FH4S1	1-N2 *											110
D BFFR I 2 L	E01D2	1-N1 *		1								2-2/R	110
D BFFR I 2 L				1								2-2/R	110
D BFFR I 1 L	FH4U2	1-U2 *											109
D BFFR I 1 L	C03F1	1-A1 *		1								7-5/R	109
D BFFR I 1 L				1								7-5/R	109
CRC 3(1) H	C05S1	1-01 *		1								1-4/R	101
CRC 3(1) H	C07S1	1-02 *											101
CRC 3(1) H				1								1-4/R	101
CRC 4(1) H	C05K1	1-01 *		1								1-4/R	102
CRC 4(1) H	C07K1	1-02 *											102
CRC 4(1) H				1								1-4/R	102
CRC 5(1) H	C05M1	1-01 *		1								1-4/R	103
CRC 5(1) H	C07M1	1-02 *											103
CRC 5(1) H				1								1-4/R	103
CRC 6(1) H	C05N1	1-01 *		1								1-4/R	104
CRC 6(1) H	C07N1	1-02 *											104
CRC 6(1) H				1								1-4/R	104
CRC 7(1) H	C05P1	1-N1 *		1								1-4/R	105
CRC 7(1) H	C07P1	1-N2 *											105
CRC 7(1) H				1								1-4/R	105
CRC P(1) H	C05L1	1-U1 *		1								1-4/R	106
CRC P(1) H	C07L1	1-N2 *											106
CRC P(1) H				1								1-4/R	106
C10D H	FN9N1	1-01 *		1								6-1/R	107
C10D H	PH4V2	1-N2 *											107
C10D H				1								6-1/R	107
D BFFR I 0 L	C01F1	1-N1 *		1								7-7/R	108
D BFFR I 0 L	E04P1	1-N2 *											108
D BFFR I 0 L				1								7-7/R	108
DM1 REC H													
DM1 REC H	AN4A1	1-01 *		1								4-1/R	119
DM1 REC H	AN8R2	1-02 *											119
DM1 REC H				1								4-1/R	119
DM2 TM(0) L													
DM2 TM(0) L	AU8A1	1-01 *		1								2-7/R	118
DM2 TM(0) L				1								2-7/R	118
DM2 REC H													
DM4 REC H	AM4D1	1-N1 *		1								3-4/R	117
DM4 REC H	AU8R1	1-N2 *											117
DM4 REC H				1								3-4/R	117
DM5 TM(0) L													
DM5 TM(0) L	AM8E2	1-02 *											128
DM5 TM(M) L	AM4M2	1-M1 *		1								3-1/R	128
DM5 REC H													
DM5 REC H	AM8U1	1-02 *											127
DM5 REC H	AM4L1	1-01 *		1								3-1/R	127
DM5 REC H				1								3-1/R	127
DM1 TM(0) L													
DM1 TM(0) L	AU8R1	1-02 *											120
DM1 TM(M) L	AM4C1	1-M1 *		1								2-5/R	120
DM1 TM(M) L				1								2-5/R	120
DM2 TM(C) L													
DM2 TM(0) L	AM8R2	1-02 *											122
DM2 TM(0) L	AM4M2	1-M1 *		1								3-5/R	122
DM2 TM(0) L				1								3-5/R	122
DM3 REC H													
DM3 REC H	AM8S2	1-02 *											123
DM3 REC H	AM4F1	1-01 *		1								3-5/R	123
DM3 REC H				1								3-5/R	123
DM3 TM L													
DM3 TM L	AM8D2	1-02 *											124
DM3 TM L	AM4L2	1-01 *		1								3-1/R	124
DM3 TM L				1								3-1/R	124
DM4 REC H													
DM4 REC H	AM8T2	1-02 *											125
DM4 REC H	AM4M1	1-01 *		1								3-3/R	125
DM4 REC H				1								3-3/R	125
DM4 TM(0) L													
DM4 TM(M) L	AM8E2	1-02 *											126
DM4 TM(0) L	AM4P2	1-01 *		1								3-3/R	126
DM4 TM(0) L				1								3-3/R	126

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RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
D06 REC H		AW5D1		1-01 *							1		2-6/8	129
D06 REC H		AW8U2		1-02 *										129
D06 REC H				1									2-6/8	129
D06 TM(0) L		AW5E1		1-01 *							1		2-1/8	130
D06 TM(0) L		AW8H1		1-02 *										130
D06 TM(0) L				1									2-1/8	130
D07 REC H		AW5A1		1-01 *							1		3-4/8	131
D07 REC H		AW8V1		1-02 *										131
D07 REC H				1									3-4/8	131
D07 TM(0) L		AW5C1		1-01 *							1		2-5/8	132
D07 TM(0) L		AW8H2		1-02 *										132
D07 TM(0) L				1									2-5/8	132
D08 REC H		AW5K1		1-01 *							1		3-3/8	133
D08 REC H		AW8V2		1-02 *										133
D08 REC H				1									3-3/8	133
D08 TM(0) L		AW5M2		1-01 *							1		2-1/8	134
D08 TM(0) L		AW8J1		1-02 *										134
D08 TM(0) L				1									2-1/8	134
D09 REC H		AW5F1		1-01 *							1		3-6/8	135
D09 REC H		AW8A1		1-02 *										135
D09 REC H				1									3-6/8	135
D09 TM(0) L		AW5L2		1-01 *							1		1-5/8	136
D09 TM(0) L		AW8A1		1-02 *										136
D09 TM(0) L				1									1-5/8	136
D10 REC H		AW5M1		1-01 *							1		2-6/8	137
D10 REC H		AW8R1		1-02 *										137
D10 REC H				1									2-6/8	137
D10 TM(0) L		AW5P2		1-01 *							1		2-3/8	138
D10 TM(0) L		AW8K2		1-02 *										138
D10 TM(0) L				1									2-3/8	138
D11 REC H		AW5L1		1-01 *							1		2-7/8	139
D11 REC H		AW8P2		1-02 *										139
D11 REC H				1									2-7/8	139
D11 TM(0) L		AW5N2		1-01 *							1		1-7/8	140
D11 TM(0) L		AW8E1		1-02 *										140
D11 TM(0) L				1									1-7/8	140
D12 REC H		AW6D1		1-01 *							1		3-7/8	141
D12 REC H		AW8C1		1-02 *										141
D12 REC H				1									3-7/8	141
D12 TM(0) L		AW6E1		1-01 *							1		2-3/8	142
D12 TM(0) L		AW8L2		1-02 *										142
D12 TM(0) L				1									2-3/8	142

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RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
D13 REC H		AW6A1		1-01 *							1		4-5/8	143
D13 REC H		AW8D1		1-02 *										143
D13 REC H				1									4-5/8	143
D13 TM(0) L		AW6C1		1-01 *							1		1-7/8	144
D13 TM(0) L		AW8M1		1-02 *										144
D13 TM(0) L				1									1-7/8	144
D14 REC H		AW6K1		1-01 *							1		3-6/8	145
D14 REC H		AW8D2		1-02 *										145
D14 REC H				1									3-6/8	145
D14 TM(0) L		AW6M2		1-01 *							1		1-4/8	146
D14 TM(0) L		AW8M2		1-02 *										146
D14 TM(0) L				1									1-4/8	146
D15 REC H		AW6F1		1-01 *							1		3-7/8	147
D15 REC H		AW8E1		1-02 *										147
D15 REC H				1									3-7/8	147
D15 TM(0) L		AW6L2		1-01 *							1		1-3/8	148
D15 TM(0) L		AW8N1		1-02 *										148
D15 TM(0) L				1									1-3/8	148
D16 REC H		AW6M1		1-01 *							1		3-4/8	149
D16 REC H		AW8E2		1-02 *										149
D16 REC H				1									3-4/8	149
D16 TM(0) L		AW6P2		1-01 *							1		1-5/8	150
D16 TM(0) L		AW8N2		1-02 *										150
D16 TM(0) L				1									1-5/8	150
D17 REC H		AW6L1		1-01 *							1		3-5/8	151
D17 REC H		AW8F1		1-02 *										151
D17 REC H				1									3-5/8	151
D17 TM(0) L		AW6N2		1-01 *							1		1-3/8	152
D17 TM(0) L		AW8P2		1-02 *										152
D17 TM(0) L				1									1-3/8	152
DATA H		CW4B2		1-01 *							1		2	153
DATA H		CW7B2		1-02 *										153
DATA H				1									2-0/8	153
DATA HALF(1) H		EW1P2		1-01 *							2		1	154
DATA HALF(1) H		EW2P2		1-02 *							1		1	154
DATA HALF(1) H		EW3P2		1-03 *							2		1	154
DATA HALF(1) H		EW4P2		1-04 *							1		2	154
DATA HALF(1) H		EW7P2		1-05 *										154
DATA HALF(1) H				1									5-0/8	154
DATA L		CW4D1										1-PIN RUN		155
DATA RDS H		DW5H2										1-PIN RUN		156

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RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
DATA XFER H		A07H1		1-01 *							1		1-4/8	157
DATA XFER H		A09H1		1-02 *										157
DATA XFER H				1									1-4/8	157
DC LO L		A09J1		1-01 *							1		4-2/8	158
DC LO L		B04J1		1-02 *							2		1-4/8	158
DC LO L		B06J1		1-03 *										158
DC LO L				1									5-6/8	158
DD TRK 0(1) H		C06D1		1-01 *							2		4-4/8	159
DD TRK 0(1) H		D01F2		1-02 *							1		8-1/8	159
DD TRK 0(1) H		F04R1		1-03 *										159
DD TRK 0(1) H				1									12-5/8	159
DD TRK 0(1) L		C01V1		1-01 *							1		7-5/8	160
DD TRK 0(1) L		F04A1		1-02 *										160
DD TRK 0(1) L				1									7-5/8	160
DD TRK 1(1) H		C06C1		1-01 *							2		4-5/8	161
DD TRK 1(1) H		D03E2		1-02 *							1		7-1/8	161
DD TRK 1(1) H		F04S1		1-03 *										161
DD TRK 1(1) H				1									11-6/8	161
DD TRK 1(1) L		C03V1		1-01 *							1		7-5/8	162
DD TRK 1(1) L		F03H2		1-02 *										162
DD TRK 1(1) L				1									7-5/8	162
DD TRK 2(1) H		C06A1		1-01 *							1		9-3/8	163
DD TRK 2(1) H		F01R2		1-02 *							2		4-1/8	163
DD TRK 2(1) H		F03F1		1-03 *										163
DD TRK 2(1) H				1									13-4/8	163
DD TRK 2(1) L		F01P1		1-01 *							1		2-5/8	164
DD TRK 2(1) L		F04H1		1-02 *										164
DD TRK 2(1) L				1									2-5/8	164
DD TRK 3(1) H		C06E2		1-01 *							1		10-1/8	165
DD TRK 3(1) H		F03F2		1-02 *							2		1-3/8	165
DD TRK 3(1) H		F03M1		1-03 *										165
DD TRK 3(1) H				1									11-4/8	165
DD TRK 3(1) L		F03J1		1-01 *							1		1-1/8	166
DD TRK 3(1) L		F03K2		1-02 *										166
DD TRK 3(1) L				1									1-1/8	166
DD TRK 4(1) H		F01F2		1-01 *							1		2-5/8	167
DD TRK 4(1) H		F04R2		1-02 *							2		1-3/8	167
DD TRK 4(1) H		F06V1		1-03 *										167
DD TRK 4(1) H				1									4-0/8	167
DD TRK 4(1) L		F01J1		1-01 *							1		2-5/8	168
DD TRK 4(1) L		F04D2		1-02 *										168
DD TRK 4(1) L				1									2-5/8	168

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RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
DD TRK 5(1) H		D02E2		1-01 *							1		7-7/8	169
DD TRK 5(1) H		F04S2		1-02 *							2		1-5/8	169
DD TRK 5(1) H		F06T2		1-03 *										169
DD TRK 5(1) H				1									9-4/8	169
DD TRK 5(1) L		C02V1		1-01 *							1		7-5/8	170
DD TRK 5(1) L		F04E1		1-02 *										170
DD TRK 5(1) L				1									7-5/8	170
DD TRK 6(1) H		F02F2		1-01 *							2		1-6/8	171
DD TRK 6(1) H		F04N2		1-02 *							1		1-5/8	171
DD TRK 6(1) H		F06S2		1-03 *										171
DD TRK 6(1) H				1									3-3/8	171
DD TRK 6(1) L		F02J1		1-01 *							1		1-7/8	172
DD TRK 6(1) L		F04E2		1-02 *										172
DD TRK 6(1) L				1									1-7/8	172
DD TRK 7(1) H		F03R2		1-01 *							1		3-1/8	173
DD TRK 7(1) H		F04M2		1-02 *							2		1-4/8	173
DD TRK 7(1) H		F06U1		1-03 *										173
DD TRK 7(1) H				1									4-5/8	173
DD TRK 7(1) L		F03P1		1-01 *							1		3-1/8	174
DD TRK 7(1) L		F04F2		1-02 *										174
DD TRK 7(1) L				1									3-1/8	174
DD TRK P H		C06U1		1-01 *							1		6-7/8	175
DD TRK P H		F02R2		1-02 *							2		3-7/8	175
DD TRK P H		F04P2		1-03 *										175
DD TRK P H				1									10-6/8	175
DD TRK P L		F02P1		1-01 *							1		3-3/8	176
DD TRK P L		F04H1		1-02 *										176
DD TRK P L				1									3-3/8	176
DEM H		A09U2		1-01 *							1		4-1/8	177
DEM H		B06P1		1-02 *										177
DEM H				1									4-1/8	177
DEN 0 (SH) H		A03P2		1-01 *							1		9-5/8	178
DEN 0 (SH) H		D06L2		1-02 *										178
DEN 0 (SH) H				1									9-5/8	178
DEN 1(0) H		A03V2		1-01 *							1		9-5/8	179
DEN 1(0) H		D06T2		1-02 *										179
DEN 1(0) H				1									9-5/8	179
DEN 2(1) H		C06V2		1-01 *							2		1	180
DEN 2(1) H		C07V2		1-02 *							1		2-3/8	180
DEN 2(1) H		D09H2		1-03 *										180
DEN 2(1) H				1									3-3/8	180
DPA REC H		A06S1		1-01 *							1		2-1/8	181
DPA REC H		A08E1		1-02 *										181
DPA REC H				1									2-1/8	181

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RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	RG	Y	X	Z	OPT REMARKS	MC LEMGTH FLAG	EXCEPTIONS	RUN NUMBER
DPA TM 1				1-01 *									2-6/8		182
DPA TM 1		AM6U1	E08P1	1-02 *								2	12-1/8		182
DPA TM 1		A08O1		1-03 *									14-7/8		182
DPA TM 1		EWRP1													182
DPA TM 1				1											
DROPPED BIT 0 H		C01K1											1-PIN RUN		183
DROPPED BIT 1 H		C03E1											1-PIN RUN		184
DROPPED BIT 2 H		CM1U1											1-PIN RUN		185
DROPPED BIT 3 H		FA1S1											1-PIN RUN		186
DROPPED BIT 4 H		KA1S1											1-PIN RUN		187
DROPPED BIT 5 H		C02E1											1-PIN RUN		188
DROPPED BIT 6 H		EA2S1											1-PIN RUN		189
DROPPED BIT 7 H		C03U1											1-PIN RUN		19M
DROPPED BIT P H		C02U1											1-PIN RUN		191
DRV CLR PLS H		A09P2		1-01 *								1	5-1/8		192
DRV CLR PLS H		HA1D2		1-02 *											192
DRV CLR PLS H				1									5-1/8		
DRV SET PLS H		C04S2		1-01 *								2			193
DRV SET PLS H		C05S2		1-02 *								1	1-4/8		193
DRV SET PLS H		C07S2		1-03 *								2	1-4/8		193
DRV SET PLS H		C09S2		1-04 *											193
DRV SET PLS H				1									4-0/8		
DRV SET PLS L		C05E2		1-01 *								1	1-4/8		194
DRV SET PLS L		C07E2		1-02 *								2	1-4/8		194
DRV SET PLS L		C09P1		1-03 *								1	2-4/8		194
DRV SET PLS L		D06A1		1-04 *											194
DRV SET PLS L				1									5-4/8		
OS ENABLE		C09B2		1-01 *								1	8-6/8		195
OS ENABLE		EA9D2		1-02 *											195
OS ENABLE				1									8-6/8		
DSO		P05F1		1-01 *								1	2-3/H		196
DSO		EA9W1		1-02 *											196
DSO				1									2-3/8		
DS1		H05U1		1-01 *								1	2-5/H		197
DS1		EC3K1		1-02 *											197
DS1				1									2-5/8		
DS2		H06V2		1-01 *								1	2-2/H		198
DS2		K09J1		1-02 *											198
DS2				1									2-2/8		
DSA													2-5/8		199
DTO H		H03H2		1-01 *								1			199
DTO H		B07J2		1-02 *											
DTO H				1									2-5/8		
DTI H		AA3M2		1-01 *								1	2-5/8		200
DTI H		AE7N2		1-02 *											200
DTI H				1									2-5/8		
DT2 (SR) L		H03P1		1-01 *								1	2-7/H		201
DT2 (SR) L		H07K1		1-02 *											201
DT2 (SR) L				1									2-7/H		
EA0OTF(1) H		C06N2		1-01 *								2	1-4/H		202
EA0OTE(1) H		C07N2		1-02 *								1	1-4/H		202
EA0OTE(1) H		C09N2		1-03 *											202
EA0OTE(1) H				1									2-4/H		202
EBL L		H05L2		1-01 *								1	2-4/8		203
EHL L		H04L2		1-02 *											203
EBL L				1									2-4/H		203
ECP H		A04P1		1-01 *								2	0-1/8		204
ECP H		A04H1		1-02 *								1	0-5/8		204
ECP H		A05P1		1-03 *								2	4-1/8		204
ECP H		A05R1		1-04 *								1	0-5/8		204
ECR H		A06F1		1-05 *								2	3-1/H		204
ECR H		AM9F2		1-06 *											204
ECR H				1									4-5/8		
ECS H		AA9J2		1-01 *								1	3-5/H		205
ECS H		A05U2		1-02 *								2	1		205
ECS H		A04U2		1-03 *								1	1-7/H		205
ECS H		BN4E2		1-04 *								2	1		205
ECS H		BU5F2		1-05 *								1	1		205
ECS H		R06F2		1-06 *								2	1-5/8		205
ECS H		H06S2		1-07 *								1	1		205
ECS H		R05S2		1-08 *								2	1		205
ECS H		R04S2		1-09 *											205
ECS H				1									12-1/8		205
EDS H		AA4B1		1-01 *								2	1		206
EDS H		AA5R1		1-02 *								1	1		206
EDS H		A06B1		1-03 *								2	2-3/H		206
EDS H		AA6U2		1-04 *								1	2-5/H		206
EDS H		AA9M2		1-05 *											206
EDS H				1									7-0/8		206
EIGHTY L		D04C1		1-01 *								1	4		207
EIGHTY L		D07C1		1-02 *											207
EIGHTY L				1									2-0/8		207
EMD H		AM7S2		1-01 *								1	4-7/H		208
EMD H		RN1E2		1-02 *											208
EMD H				1									4-7/8		208

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY = ORDER	Q	DRAW OPT	RV	PG	Y	X	Z	REMARKS	SC LENGTH EXCEPTIONS FLAG	RUN NUMBER
ENABLE SYNC(1) H		C44E1		1-01 *							1		3-3/8	209
ENABLE SYNC(1) H		D03C1		1-02 *							2		1	209
ENABLE SYNC(1) H		D02C1		1-03 *							1		1	209
ENABLE SYNC(1) H		D01C1		1-04 *										209
ENABLE SYNC(1) H				1									5-3/8	209
ENBL SHDW CNTR L		D07M2		1-01 *							2		1-4/8	210
ENBL SHDW CNTR L		D05K2		1-02 *							1		4-4/8	210
ENBL SHDW CNTR L		E04V1	E09A1	1-03 *							2		3-3/8	210
ENBL SHDW CNTR L		E09A1		1-04 *										210
ENBL SHDW CNTR L				1									9-2/8	210
END PT H		A02M2		1-01 *							1		5-1/8	211
END PT H		A07R1		1-02 *							2		2-5/8	211
END PT H		C09F1		1-03 *										211
END PT H				1									7-0/8	211
ENV 1(1) H		D01K2		1-01 *							1		2-7/8	212
ENV 1(1) H		D04K2		1-02 *										212
ENV 1(1) H				1									2-7/8	212
ENV 2(1) H		C01H2		1-01 *							1		1-0/8	213
ENV 2(1) H		C04H1		1-02 *										213
ENV 2(1) H				1									1-0/8	213
ENV 3(1) H		E01J2		1-01 *							1		1-0/8	214
ENV 3(1) H		E04J1		1-02 *										214
ENV 3(1) H				1									1-0/8	214
ENV 4(1) H		D02M2		1-01 *							1		1-3/8	215
ENV 4(1) H		D04E1		1-02 *										215
ENV 4(1) H				1									1-3/8	215
ENV 5(1) H		C07H2		1-01 *							1		1-4/8	216
ENV 5(1) H		C08H2		1-02 *										216
ENV 5(1) H				1									1-4/8	216
ENV 6(1) H		E02J2		1-01 *							1		1-4/8	217
ENV 6(1) H		E04J2		1-02 *										217
ENV 6(1) H				1									1-4/8	217
ENV 7(1) H		C03K2		1-01 *							1		1	218
ENV 7(1) H		C04H2		1-02 *										218
ENV 7(1) H				1									1-4/8	218
ENV 8(1) H		C03E2		1-01 *							1		4-5/8	219
ENV 8(1) H		C04J1		1-02 *										219
ENV 8(1) H				1									4-5/8	219
ENV 9(1) H		E03J2		1-01 *							1		4-1/8	220
ENV 9(1) H		E04K1		1-02 *										220
ENV 9(1) H				1									4-1/8	220
EOR L		C07H1		1-01 *							1		1-4/8	221
EOR L		C09H1		1-02 *										221
EOR L				1									1-4/8	221

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY = ORDER	Q	DRAW OPT	RV	PG	Y	X	Z	REMARKS	SC LENGTH EXCEPTIONS FLAG	RUN NUMBER
ERASE L		D07G1		1-01 *							1		2-5/8	222
ERASE L		D09E1		1-02 *										222
ERASE L				1									2-5/8	222
ERDS(1) H		D05R2											1-PIN RUN	223
ERDS(1) H		E05R2											1-PIN RUN	224
ERROR RESET L		E04L2		1-01 *							2		1	225
ERROR RESET L		E05L2		1-02 *							1		1-4/8	225
ERROR RESET L		E07L2		1-03 *										225
ERROR RESET L				1									2-4/8	225
ES/II PARA L		C04D2		1-01 *							2		1	226
ES/II PARA L		C05D2		1-02 *							1		10-7/8	226
ES/II PARA L		E09M1		1-03 *										226
ES/II PARA L				1									11-7/8	226
EVEN PAR H		E09D1		1-01 *							2		1-7/8	227
EVEN PAR H		C08L2		1-02 *							1		4-3/8	227
EVEN PAR H		E10M2		1-03 *										227
EVEN PAR H				1									12-2/8	227
EXC RX CONT(1) L		C09D1											1-PIN RUN	228
EXC REC H		A05L1		1-01 *							1		2-5/8	229
EXC REC H		A09K2		1-02 *										229
EXC REC H				1									2-5/8	229
EXC TM L		E05F2		1-01 *							1		2-4/8	230
EXC TM L		E09F2		1-02 *										230
EXC TM L				1									2-4/8	230
F1 H		E06M2		1-01 *							1		2	231
F1 H		E09M2		1-02 *										231
F1 H				1									2-0/8	231
F2 H		E06N2		1-01 *							1		2	232
F2 H		E09N2		1-02 *										232
F2 H				1									2-0/8	232
F3 H		E06P2		1-01 *							1		2	233
F3 H		E09P2		1-02 *										233
F3 H				1									2-0/8	233
F4 H		C06S2		1-01 *							1		7-1/8	234
F4 H		E09S2		1-02 *										234
F4 H				1									7-1/8	234
F5 H		C06T2		1-01 *							1		7-1/8	235
F5 H		E09T2		1-02 *										235
F5 H				1									7-1/8	235

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC FLAG	LENGTH EXCEPTIONS	RUN NUMBER
FCCLK H		A#HJ2		1-#1 *							1		#-1/#		236
FCCLK H		A#9K1		1-#2 *											236
FCCLK H				1									#-1/#		236
FCOF(1) L		C#7H2		1-#1 *							1		1-5/#		237
FCOF(1) L		C#9E2		1-#2 *											237
FCOF(1) L				1									1-5/#		237
FMK PATTERN H		F#4R2												1=PIN RUN	238
FMT #(1) H		F#RM2		1-#1 *							1		#-1/#		239
FMT #(1) H		D#6F1		1-#2 *											239
FMT #(1) H				1									6-1/#		239
FMT 1(1) H		F#RN2		1-#1 *							1		7-3/#		240
FMT 1(1) H		D#6U2		1-#2 *											240
FMT 1(1) H				1									7-3/#		240
FMT 2(1) H		D#6V2		1-#1 *							1		1-2/#		241
FMT 2(1) H		D#8S1		1-#2 *											241
FMT 2(1) H				1									1-2/#		241
FMT 3(1) H		A#HT2		1-#1 *							1		10-3/#		242
FMT 3(1) H		F#0R1		1-#2 *											242
FMT 3(1) H				1									10-3/#		242
FORTY H		D#4D2		1-#1 *							1		2		243
FORTY H		D#7D2		1-#2 *											243
FORTY H				1									2-#/#		243
FWD CRCS H		D#5R2												1=PIN RUN	244
FWD CRCS L		F#5P2												1=PIN RUN	245
FWD H		A#2A1		1-#1 * 2							2		#-1/#		246
FWD H		A#2B1		1-#2 *							1		#-1/#		246
FWD H		A#2C1		1-#3 *							2		2-3/#		246
FWD H		A#2D2		1-#4 *							1		6-7/#		246
FWD H		C#9R2		1-#5 *							2		1		246
FWD H		C#RP2		1-#6 *							1		2		246
FWD H		C#5F2		1-#7 *											246
FWD H				1									12-4/#		246
FWD L		D#5H1												1=PIN RUN	247
FWD LRCS(1) H		D#5T2												1=PIN RUN	248
GND		B#4T1		1-#1 *							2		1-3/#		249
GND		B#4K1		1-#2 *							1		1-2/#		249
GND		B#5N1		1-#3 *							2		1		249
GND		F#6N1		1-#4 *											249
GND				1									3-5/#		249

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC FLAG	LENGTH EXCEPTIONS	RUN NUMBER
GO BUF H		C#6K2		1-#1 *							2		1		250
GO BUF H		C#7K2		1-#2 *							1		1-4/#		250
GO BUF H		C#9K2	EM8D2	1-#3 *							2		5-3/#		250
GO BUF H		F#8D2		1-#4 *											250
GO BUF H				1									7-7/#		250
GO L		F#7B1		1-#1 *							1		1-4/#		251
GO L		F#9R1		1-#2 *											251
GO L				1									1-4/#		251
ID8(1) H		D#4U2		1-#1 *							1		2		252
ID8(1) H		D#7U2		1-#2 *											252
ID8(1) H				1									2-#/#		252
II CC L		F#5M1		1-#1 *							1		1		253
II CC L		F#6M1		1-#2 *											253
II CC L				1									1-#/#		253
INC COND H		D#3E1		1-#1 *							1		4-1/#		254
INC COND H		F#4J2		1-#2 *											254
INC COND H				1									4-1/#		254
INC DATA H		D#3D1		1-#1 *							1		7-7/#		255
INC DATA H		F#4V1		1-#2 *											255
INC DATA H				1									7-7/#		255
INC FMK L		F#7E1		1-#1 *							1		11-7/#		256
INC FMK L		F#6L1		1-#2 *											256
INC FMK L				1									11-7/#		256
INC PREAMBLE L		A#7A1		1-#1 *							1		14-5/#		257
INC PREAMBLE L		F#6F1		1-#2 *											257
INC PREAMBLE L				1									14-5/#		257
INC/VPE L		F#4F1		1-#1 *							2		1		258
INC/VPE L		F#5F1		1-#2 *							1		2-3/#		258
INC/VPE L		F#9H1		1-#3 *											258
INC/VPE L				1									3-3/#		258
INIT H		B#5R1		1-#1 *							1		2-6/#		259
INIT H		B#9K2		1-#2 *											259
INIT H				1									2-6/#		259
INIT PLS(1) H		A#1U2		1-#1 *							1		13-3/#		260
INIT PLS(1) H		F#4D1		1-#2 *							2		1		260
INIT PLS(1) H		F#5D1		1-#3 *							1		2-4/#		260
INIT PLS(1) H		F#9D1		1-#4 *											260
INIT PLS(1) H				1									16-7/#		260
INIT PLS(1) L		F#9C1												1=PIN RUN	261
INT PAR		F#9N1												1=PIN RUN	262

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	O	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC FLAG	LENGTH	EXCEPTIONS	RUN NUMBER
IRD H		A03U2		1-01 *							1			9-1/8		263
IRD H		F04A1		1-02 *							2			4-7/8		263
IRD H		F06D2		1-03 *												263
IRD H				1										14-0/8		263
LCTOD(1) H		C09L1		1-01 *							1			7-7/8		264
LCTOD(1) H		F06U2		1-02 *												264
LCTOD(1) H				1										7-7/8		264
LRC CHK 0 H		F05R1													1=PIN RUN	265
LRC CHK 1 H		F05C1													1=PIN RUN	266
LRC CHK 2 H		F05K1													1=PIN RUN	267
LRC CHK 3 H		F05J2													1=PIN RUN	268
LRC CHK 4 H		F05R2													1=PIN RUN	269
LRC CHK 5 H		F05D2													1=PIN RUN	270
LRC CHK 6 H		F05H1													1=PIN RUN	271
LRC CHK 7 H		F05J1													1=PIN RUN	272
LRC CHK P(1) H		F05U1													1=PIN RUN	273
LRC STRB (SH) L		A01K2		1-01 *							1			3-4/8		274
LRC STRB (SH) L		A07K2		1-02 *												274
LRC STRB (SH) L				1										3-4/8		274
MAS CLR L		C06B2		1-01 *							2			1		275
MAS CLR L		D07B2		1-02 *							1			1		275
MAS CLR L		D08B2		1-03 *							2			1		275
MAS CLR L		D09B2		1-04 *												275
MAS CLR L				1										3-0/8		275
MAS FAIL H		A06T2		1-01 *							1			2-3/8		276
MAS FAIL H		A09F2		1-02 *												276
MAS FAIL H				1										2-3/8		276
MID POSTMBLE(A) H		C04R1		1-01 *							1			1-4/8		277
MID POSTMBLE(A) H		C06R1		1-02 *												277
MID POSTMBLE(A) H				1										1-4/8		277
MM EOR CLR L		F07F2		1-01 *							1			4-1/8		278
MM EOR CLR L		F06H1		1-02 *												278
MM EOR CLR L				1										4-1/8		278
MMCLR(1) H		D06C1		1-01 *							1			4-3/8		279
MMCLR(1) H		E07K2		1-02 *												279
MMCLR(1) H				1										4-3/8		279
MOL H		B03V2		1-01 *							1			2-7/8		280
MOL H		B07M1		1-02 *												280
MOL H				1										2-7/8		280

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	O	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC FLAG	LENGTH	EXCEPTIONS	RUN NUMBER
MOL L		D07A1		1-01 *							1			1-4/8		281
MOL L		D09A1		1-02 *												281
MOL L				1										1-4/8		281
MULT OD TRP L		F04H1													1=PIN RUN	282
NO CHAR FD L		D05F2													1=PIN RUN	283
NORMAL MODE		C08C1													1=PIN RUN	284
NPZ RAM CHAR L		F05N2													1=PIN RUN	285
OCC TM(1) H		A04M1		1-01 *							2			1		286
OCC TM(1) H		F05M1		1-02 *							1			0-5/8		286
OCC TM(1) H		A05J1		1-03 *							2			0-5/8		286
OCC TM(1) H		F06M1		1-04 *							1			6-1/8		286
OCC TM(1) H		D09C1		1-05 *												286
OCC TM(1) H				1										0-3/8		286
OCC TM(1) L		A06P2		1-01 *							1			1-6/8		287
OCC TM(1) L		B09P1		1-02 *												287
OCC TM(1) L				1										1-6/8		287
OCCUPIED REC H		A06L1		1-01 *							1			6-1/8		288
OCCUPIED REC H		D09B1		1-02 *												288
OCCUPIED REC H				1										6-1/8		288
ODD PRM H		B08F2													1=PIN RUN	289
ONE DET 0 L		C01F2		1-01 *							1			7-3/8		290
ONE DET 0 L		E04L1		1-02 *												290
ONE DET 0 L				1										7-3/8		290
ONE DET 1 L		C03F2		1-01 *							1			6-5/8		291
ONE DET 1 L		F04M2		1-02 *												291
ONE DET 1 L				1										6-5/8		291
ONE DET 2 L		D01V2		1-01 *							1			2-2/8		292
ONE DET 2 L		E04K1		1-02 *												292
ONE DET 2 L				1										2-2/8		292
ONE DET 3 L		F04N2		1-01 *							1			3-1/8		293
ONE DET 3 L		F03F1		1-02 *												293
ONE DET 3 L				1										3-1/8		293
ONE DET 4 L		F04M1		1-01 *							1			3-2/8		294
ONE DET 4 L		F01E1		1-02 *												294
ONE DET 4 L				1										3-2/8		294
ONE DET 5 L		C02F2		1-01 *							1			7-1/8		295
ONE DET 5 L		F04N1		1-02 *												295
ONE DET 5 L				1										7-1/8		295

RUN NAME	A/P	PIN NAME	ORDER PIN	RAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC FLAG	LENGTH	EXCEPTIONS	RUN NUMBER
ONE DET 6 L		E04K2		1-01 *							1			3-7/8		296
ONE DET 6 L		F02F1		1-02 *												296
ONE DET 6 L				1										3-7/8		296
ONE DET 7 L		D03V2		1-01 *							1			2-7/8		297
ONE DET 7 L		E04R2		1-02 *												297
ONE DET 7 L				1										2-7/8		297
ONE DET F L		D02V2													1-PIN RUN	298
ONE READ H		D04F1													1-PIN RUN	299
ONES L		C04L2		1-01 *							1			2		300
ONES L		C07L2		1-02 *												300
ONES L				1										2-0/8		300
OPI(1) H		D07R2		1-01 *							1			1-4/8		301
OPI(1) H		D09R2		1-02 *												301
OPI(1) H				1										1-4/8		301
OVERFLOW A,B,C, L		D04V1		1-01 *							1			1-2/8		302
OVERFLOW A,B,C, L		E03A1		1-02 *							2			1		302
OVERFLOW A,B,C, L		E02A1		1-03 *							1			1		302
OVERFLOW A,B,C, L		E01A1		1-04 *												302
OVERFLOW A,B,C, L				1										3-2/8		302
PE WRT CLK ENBL L		D04S1		1-01 *							1			2		303
PE WRT CLK ENBL L		D07S1		1-02 *												303
PE WRT CLK ENBL L				1										2-0/8		303
PEF/LRC L		D04V2		1-01 *							2			1		304
PEF/LRC L		D05V2		1-02 *							1			5-7/8		304
PEF/LRC L		F09F1		1-03 *												304
PEF/LRC L				1										6-7/8		304
PERR AND ONE DD TRK H		D01M2		1-01 *							1			1		305
PERR AND ONE DD TRK H		D02M2		1-02 *							2			1		305
PERR AND ONE DD TRK H		D03M2		1-03 *							1			0-4/8		305
PERR AND ONE DD TRK H		D04K1		1-04 *												305
PERR AND ONE DD TRK H				1										2-4/8		305
PERR L		D04J1													1-PIN RUN	306
PES(SR) L		A03D1		1-01 *							1			5-5/8		307
PES(SR) L		E07J1		1-02 *												307
PES(SR) L				1										5-5/8		307
PESR H		A03R1		1-01 * 2							2			10-3/8		308
PESR H		D07R1		1-02 *							1			1		308
PESR H		D06R1		1-03 *							2			1-4/8		308
PESR H		D04R1		1-04 *							1			3-3/8		308
PESR H		E03R1		1-05 *							2			1		308
PESR H		E02R1		1-06 *							1			1		308
PESR H		E01R1	E08L1	1-07 *							2			4-7/8		308
PESR H		E08L1		1-08 *												308
PESR H				1										23-1/8		308

RUN NAME	A/P	PIN NAME	ORDER PIN	RAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC FLAG	LENGTH	EXCEPTIONS	RUN NUMBER
PESR L		A03C1		1-01 *							1			9-1/8		309
PESR L		D07D1		1-02 *							2			1		309
PESR L		D05D1		1-03 *							1			1-4/8		309
PESR L		D07D1		1-04 *							2			1-4/8		309
PESR L		D09D1		1-05 *												309
PESR L				1										13-1/8		309
PIP H		C09V2		1-01 *							1			2-2/8		310
PIP H		D07H2		1-02 *												310
PIP H				1										2-2/8		310
POS A(4) H		C04P2		1-01 *							1			2		311
POS A(4) H		C07P2		1-02 *												311
POS A(4) H				1										2-0/8		311
POS A(1) H		C04N2		1-01 *							1			2		312
POS A(1) H		C07N2		1-02 *												312
POS A(1) H				1										2-0/8		312
POST DETECT A,B,C H		C01S2		1-01 *							1			1		313
POST DETECT A,B,C H		C02S2		1-02 *							2			1		313
POST DETECT A,B,C H		C03S2		1-03 *							1			0-4/8		313
POST DETECT A,B,C H		C04S1		1-04 *												313
POST DETECT A,B,C H				1										2-4/8		313
POST OR PRE H		C04N1													1-PIN RUN	314
POST OR REC N ACT L		A03A1		1-01 *							1			14-3/8		315
POST OR REC N ACT L		D01K1		1-02 *							2			1		315
POST OR REC N ACT L		D02K1		1-03 *							1			1		315
POST OR REC N ACT L		D03K1		1-04 *							2			1-6/8		315
POST OR REC N ACT L		D04T2		1-05 *												315
POST OR REC N ACT L				1										14-1/8		315
POSTAMBLE(0) H		D04E2		1-01 *							1			2		316
POSTAMBLE(0) H		D07E2		1-02 *												316
POSTAMBLE(0) H				1										2-0/8		316
PRE A(1) L		D04L2		1-01 *							1			2		317
PRE A(1) L		D07L2		1-02 *												317
PRE A(1) L				1										2-0/8		317
PREAMBLE(A) H		F04U1													1-PIN RUN	318
PULSE(1) H		A09L1													1-PIN RUN	319
PVN(1) H		F05A1		1-01 *							2			1		320
PVN(1) H		F06A1		1-02 *							1			1		320
PVN(1) H		F07A1		1-03 *												320
PVN(1) H				1										2-0/8		320
R00 L		A09L2		1-01 *							1			11-1/8		321
R00 L		D06V1		1-02 *												321
R00 L				1										11-1/8		321

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q DRAW OPT	RV RG Y X	Z	REMARKS	NC LENGTH	EXCEPTIONS FLAG	RUN NUMBER
RØ1 L		AØ9A1		1-Ø1 *			1		15-3/8		322
RØ1 L		FØ7H1		1-Ø2 *							322
RØ1 L				1					15-3/8		322
RØ3 L		FØ6H2		1-Ø1 *			1		2		323
RØ3 L		FØ9H2		1-Ø2 *							323
RØ3 L				1					2-Ø/8		323
RØ4 L		AØ9M1								1-PIN RUN	324
RØ6 L		AØ9R1		1-Ø1 *			1		13-7/8		325
RØ6 L		FØ7J1		1-Ø2 *							325
RØ6 L				1					13-7/8		325
RØ7 L		AØ9D1		1-Ø1 *			1		15-7/8		326
RØ7 L		FØ6M2		1-Ø2 *							326
RØ7 L				1					15-7/8		326
R1Ø L		AØ9E1	FØ7M1	1-Ø1 *			1		15-3/8		327
R1Ø L		FØ7M1		1-Ø2 *							327
R1Ø L				1					15-3/8		327
R11 L		AØ9F1	FØ7K1	1-Ø1 *			1		15-1/8		328
R11 L		FØ7K1	FØ6K1	1-Ø2 *			2		1		328
R11 L		FØ6K1		1-Ø3 *							328
R11 L				1					16-1/8		328
RD Ø H		BØ2V2		1-Ø1 *			1		3		329
RD Ø H		BØ7V2		1-Ø2 *							329
RD Ø H				1					3-Ø/8		329
RD 1(SB) L		BØ2U2		1-Ø1 *			1		3		330
RD 1(SB) L		BØ7U2		1-Ø2 *							330
RD 1(SB) L				1					3-Ø/8		330
RD 2(SB) L		BØ2S2		1-Ø1 *			1		3		331
RD 2(SB) L		BØ7S2		1-Ø2 *							331
RD 2(SB) L				1					3-Ø/8		331
RD 3 H		BØ2R2		1-Ø1 *			1		2-5/8		332
RD 3 H		BØ7R1		1-Ø2 *							332
RD 3 H				1					2-5/8		332
RD 4 H		BØ2P2		1-Ø1 *			1		3		333
RD 4 H		BØ7P2		1-Ø2 *							333
RD 4 H				1					3-Ø/8		333
RD 5 H		AØ2H2		1-Ø1 *			1		3		334
RD 5 H		AØ7H2		1-Ø2 *							334
RD 5 H				1					3-Ø/8		334
RD 6(SB) L		AØ2F2		1-Ø1 *			1		3		335
RD 6(SB) L		AØ7F2		1-Ø2 *							335
RD 6(SB) L				1					3-Ø/8		335

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q DRAW OPT	RV RG Y X	Z	REMARKS	NC LENGTH	EXCEPTIONS FLAG	RUN NUMBER
RD 7(SB) L		AØ2E2		1-Ø1 *			1		3		336
RD 7(SB) L		AØ7E2		1-Ø2 *							336
RD 7(SB) L				1					3-Ø/8		336
RD ACTV L		DØ5L2								1-PIN RUN	337
RD ADDR 1(1) H		DØ1T2		1-Ø1 *			1		1		338
RD ADDR 1(1) H		DØ2T2		1-Ø2 *			2		1		338
RD ADDR 1(1) H		DØ3T2		1-Ø3 *			1		6-1/8		338
RD ADDR 1(1) H		FØ4T2		1-Ø4 *							338
RD ADDR 1(1) H				1					8-1/8		338
RD ADDR 2(1) H		CØ4F2		1-Ø1 *			1		5-3/8		339
RD ADDR 2(1) H		DØ3U1		1-Ø2 *			2		1		339
RD ADDR 2(1) H		DØ2U1		1-Ø3 *			1		1		339
RD ADDR 2(1) H		DØ1U1		1-Ø4 *							339
RD ADDR 2(1) H				1					7-3/8		339
RD ADDR 3(1) H		CØ4K2		1-Ø1 *			1		4-5/8		340
RD ADDR 3(1) H		DØ3U2		1-Ø2 *			2		1		340
RD ADDR 3(1) H		DØ2U2		1-Ø3 *			1		1		340
RD ADDR 3(1) H		DØ1U2		1-Ø4 *							340
RD ADDR 3(1) H				1					6-5/8		340
RD P H		AØ2D2		1-Ø1 *			1		7-1/8		341
RD P H		BØ7V1		1-Ø2 *							341
RD P H				1					7-1/8		341
RDA Ø H		FØ1H2		1-Ø1 *			1		3-1/8		342
RDA Ø H		EØ5N2		1-Ø2 *			2		1-4/8		342
RDA Ø H		EØ7N2		1-Ø3 *							342
RDA Ø H				1					4-5/8		342
RDA 1 H		FØ3H2		1-Ø1 *			1		4-1/8		343
RDA 1 H		FØ7F2		1-Ø2 *			2		1-4/8		343
RDA 1 H		FØ5F2		1-Ø3 *							343
RDA 1 H				1					5-5/8		343
RDA 2 H		EØ1N1		1-Ø1 *			1		2-5/8		344
RDA 2 H		EØ5M2		1-Ø2 *			2		1-4/8		344
RDA 2 H		EØ7M2		1-Ø3 *							344
RDA 2 H				1					4-1/8		344
RDA 3 H		EØ3E2		1-Ø1 *			1		4-3/8		345
RDA 3 H		FØ5H2		1-Ø2 *			2		1-4/8		345
RDA 3 H		FØ7H2		1-Ø3 *							345
RDA 3 H				1					5-7/8		345
RDA 4 H		EØ1E2		1-Ø1 *			1		3-5/8		346
RDA 4 H		FØ5R2		1-Ø2 *			2		1-4/8		346
RDA 4 H		FØ7R2		1-Ø3 *							346
RDA 4 H				1					5-1/8		346

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
RDA 5 H		E02H2		1-01 *							1		2-6/8	347
RDA 5 H		E05T2		1-02 *							2		1-4/8	347
RDA 5 H		E07T2		1-03 *										347
RDA 5 H				1									4-2/8	347
RDA 6 H		E02E2		1-01 *							1		2-5/8	348
RDA 6 H		E05U2		1-02 *							2		1-4/8	348
RDA 6 H		E07U2		1-03 *										348
RDA 6 H				1									4-1/8	348
RDA 7 H		E03N1		1-01 *							1		3-3/8	349
RDA 7 H		E07F2		1-02 *							2		1-4/8	349
RDA 7 H		E05E2		1-03 *										349
RDA 7 H				1									4-7/8	349
RDA P H		E02N1		1-01 *							1		2-3/8	350
RDA P H		E05S2		1-02 *							2		1-4/8	350
RDA P H		E07S2		1-03 *										350
RDA P H				1									3-7/8	350
RDB 0 L		E01M2		1-01 *							1		2-7/8	351
RDB 0 L		E05E1		1-02 *							2		1-2/8	351
RDB 0 L		E06E2		1-03 *										351
RDB 0 L				1									4-1/8	351
RDB 1 L		E03M2		1-01 *							1		1-3/8	352
RDB 1 L		E05P1		1-02 *							2		1-2/8	352
RDB 1 L		E06P2		1-03 *										352
RDB 1 L				1									2-5/8	352
RDB 2 L		E01H1		1-01 *							1		2-7/8	353
RDB 2 L		E05D1		1-02 *							2		1-2/8	353
RDB 2 L		E06D2		1-03 *										353
RDB 2 L				1									4-1/8	353
RDB 3 L		E03J1		1-01 *							1		2-1/8	354
RDB 3 L		E05V1		1-02 *							2		1	354
RDB 3 L		E06V1		1-03 *										354
RDB 3 L				1									3-1/8	354
RDB 4 L		E01J1		1-01 *							1		2-5/8	355
RDB 4 L		E05K1		1-02 *							2		1-2/8	355
RDB 4 L		E06F2		1-03 *										355
RDB 4 L				1									3-7/8	355
RDB 5 L		E02M2		1-01 *							1		2-1/8	356
RDB 5 L		E05J1		1-02 *							2		1-2/8	356
RDB 5 L		E06J2		1-03 *										356
RDB 5 L				1									3-3/8	356
RDB 6 L		E02J1		1-01 *							1		1-7/8	357
RDB 6 L		E05K1		1-02 *							2		1-2/8	357
RDB 6 L		E06K2		1-03 *										357
RDB 6 L				1									3-1/8	357

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
RDB 7 L		E03H1		1-01 *							1		1-7/8	358
RDB 7 L		E05L1		1-02 *							2		1-2/8	358
RDB 7 L		E06L2		1-03 *										358
RDB 7 L				1									3-1/8	358
RDB P L		E02H1		1-01 *							1		2	359
RDB P L		E05H1		1-02 *							2		1-2/8	359
RDB P L		E06H2		1-03 *										359
RDB P L				1									3-2/8	359
RDC 0 H		D06H2		1-01 *							1		7-5/8	360
RDC 0 H		D06R1		1-02 *										360
RDC 0 H				1									7-5/8	360
RDC 1 H		D06H1		1-01 *							1		7-3/8	361
RDC 1 H		D06P1		1-02 *										361
RDC 1 H				1									7-3/8	361
RDC 2 H		D06J1		1-01 *							1		7-1/8	362
RDC 2 H		D06N1		1-02 *										362
RDC 2 H				1									7-1/8	362
RDC 3 H		D06J2		1-01 *							1		7-3/8	363
RDC 3 H		D06M1		1-02 *										363
RDC 3 H				1									7-3/8	363
RDC 4 H		D06L1		1-01 *							1		1-4/8	364
RDC 4 H		D06E1		1-02 *										364
RDC 4 H				1									1-4/8	364
RDC 5 H		D06K1		1-01 *							1		1-4/8	365
RDC 5 H		D06N1		1-02 *										365
RDC 5 H				1									1-4/8	365
RDC 6 H		D06J1		1-01 *							1		1-4/8	366
RDC 6 H		D08J1		1-02 *										366
RDC 6 H				1									1-4/8	366
RDC 7 H		D06H1		1-01 *							1		1-4/8	367
RDC 7 H		D08H1		1-02 *										367
RDC 7 H				1									1-4/8	367
RDS H		D04U1		1-01 *							2		1-4/8	368
RDS H		D06U1		1-02 *							1		1-4/8	368
RDS H		D08U1		1-03 *										368
RDS H				1									3-0/8	368
RDS L		E04V2		1-01 *							2		1	369
RDS L		E05V2		1-02 *							1		1	369
RDS L		E06V2		1-03 *										369
RDS L				1									2-0/8	369

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC FLAG	LENGTH EXCEPTIONS	RUN NUMBER
READING H		D01J2		1-01 *							1		1		370
READING H		D02J2		1-02 *							2		1		370
READING H		D03J2		1-03 *							1		1		370
READING H		D04J2		1-04 *							2		1		370
READING H		D05J2		1-05 *							1		1-4/8		370
READING H		D07J2		1-06 *											370
READING H				1									5-4/8		370
READING L		D05K2		1-01 *							1		1-4/8		371
READING L		D07K2		1-02 *							2		1		371
READING L		D08K2		1-03 *											371
READING L				1									2-4/8		371
REC (SB) L		A01M2		1-01 *							1		3-7/8		372
REC (SB) L		A07K2		1-02 *											372
REC (SB) L				1									3-7/8		372
RECORD ACTIVE H		C01N1		1-01 *							2		1		373
RECORD ACTIVE H		C02N1		1-02 *							1		1		373
RECORD ACTIVE H		C03N1		1-03 *							2		1		373
RECORD ACTIVE H		C04L1		1-04 *											373
RECORD ACTIVE H				1									3-0/8		373
RECORD ACTIVE L		C04P1		1-01 *							1		3-3/8		374
RECORD ACTIVE L		D03P2		1-02 *							2		1		374
RECORD ACTIVE L		D02P2		1-03 *							1		1		374
RECORD ACTIVE L		D01P2		1-04 *											374
RECORD ACTIVE L				1									5-3/8		374
RECORD H		F07V1		1-01 *							1		1-4/8		375
RECORD H		F09V1		1-02 *											375
RECORD H				1									1-4/8		375
REG WRT L		C09N2		1-01 *							1		9-3/8		376
REG WRT L		F06J2		1-02 *											376
REG WRT L				1									9-3/8		376
REV CHCS(1) H		D05U2											1-PIN RUN		377
REV H		A02V2		1-01 *							1		5-1/8		378
REV H		B09S1		1-02 *											378
REV H				1									5-1/8		378
REV L		E01F2		1-01 *							2		1		379
REV L		E02F2		1-02 *							1		1		379
REV L		E03F2		1-03 *							2		1-4/8		379
REV L		E05F2		1-04 *							1		2-4/8		379
REV L		E09F2		1-05 *											379
REV L				1									6-0/8		379
REV LHCS H		D05S2											1-PIN RUN		380
REV LHCS L		D05F2											1-PIN RUN		381

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC FLAG	LENGTH EXCEPTIONS	RUN NUMBER
RG 0500		D09P2	F08H1	1-01 *							1		2-7/8		382
RG 0500		E08H1		1-02 *											382
RG 0500				1									2-7/8		382
RG 0501		F09V2	F08L1	1-01 *							1		1-6/8		383
RG 0501		E08L1		1-02 *											383
RG 0501				1									1-6/8		383
RG 0502		F09V1	F08N1	1-01 *							1		1-3/8		384
RG 0502		E08N1		1-02 *											384
RG 0502				1									1-3/8		384
RG 0503		F09U1	F08S1	1-01 *							1		1		385
RG 0503		E08S1		1-02 *											385
RG 0503				1									1-6/8		385
RS 0 H		A09R2		1-01 *							1		5-4/8		386
RS 0 H		B05F1		1-02 *											386
RS 0 H				1									5-4/8		386
RS 1 H		A09U1		1-01 *							1		4-5/8		387
RS 1 H		B05U1		1-02 *											387
RS 1 H				1									4-5/8		387
RS 2 H		A09T2		1-01 *							1		5-2/8		388
RS 2 H		B05V2		1-02 *											388
RS 2 H				1									5-2/8		388
RS 3 H		A09S2		1-01 *							1		4-5/8		389
RS 3 H		B04F1		1-02 *											389
RS 3 H				1									4-5/8		389
RS 4 H		A09V2		1-01 *							1		4-3/8		390
RS 4 H		B04U1		1-02 *											390
RS 4 H				1									4-3/8		390
RS SHDN CNTR L		F04R2		1-01 *							2		1		391
RS SHDN CNTR L		F05R2		1-02 *							1		1-4/8		391
RS SHDN CNTR L		E07R2		1-03 *											391
RS SHDN CNTR L				1									2-4/8		391
RSDO H		D05N2		1-01 *							1		6-7/8		392
RSDO H		F07S2		1-02 *											392
RSDO H				1									6-7/8		392
RSDO(SB) L		A02K2		1-01 *							1		2-7/8		393
RSDO(SB) L		A07L1		1-02 *											393
RSDO(SB) L				1									2-7/8		393
RUN H		B04P1		1-01 *							1		3-1/8		394
RUN H		B09N1		1-02 *											394
RUN H				1									3-1/8		394
RWND (SB) L		A02P2		1-01 *							1		4-5/8		395
RWND (SB) L		B07D2		1-02 *											395
RWND (SB) L				1									4-5/8		395

RUN NAME	A/P	PIN NAME	ORDER PIN	RAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	QC FLAG	LENGTH EXCEPTIONS	RUN NUMBER
RWND L		E07J2		1-01 *							1		1-4/8		396
RWND L		E09J2		1-02 *											396
RWND L				1									1-4/8		396
RWS H		B03M2		1-01 *							1		2-7/8		397
RWS H		B07R2		1-02 *											397
RWS H				1									2-7/8		397
S CLK L		B04P2		1-01 *							1		7-3/8		398
S CLK L		D08L2		1-02 *											398
S CLK L				1									7-3/8		398
SDWN H		A03S2		1-01 *							1		2-7/8		399
SDWN H		A07M2		1-02 *											399
SDWN H				1									2-7/8		399
SDWN L		C09R1		1-01 *							1		7-7/8		400
SDWN L		F07D2		1-02 *											400
SDWN L				1									7-7/8		400
SELALT STATUS L		B06K1		1-01 *							1		14-7/8		401
SELALT STATUS L		F06J1		1-02 *											401
SELALT STATUS L				1									14-7/8		401
SET BF PAR F/F L		D09N2												1=PIN RUN	402
SET CORR SK 1 L		C04T2		1-01 *							1		2-5/8		403
SET CORR SK 1 L		D01F2		1-02 *											403
SET CORR SK 1 L				1									2-5/8		403
SET CORR SK 2 L		C01R2		1-01 *							1		3-1/8		404
SET CORR SK 2 L		C04U2		1-02 *											404
SET CORR SK 2 L				1									3-1/8		404
SET CORR SK 3 L		C03V2		1-01 *							1		2-1/8		405
SET CORR SK 3 L		D02F2		1-02 *											405
SET CORR SK 3 L				1									2-1/8		405
SET CORR SK 4 L		C02R2		1-01 *							1		2-5/8		406
SET CORR SK 4 L		C04R2		1-02 *											406
SET CORR SK 4 L				1									2-5/8		406
SET CORR SK 5 L		C04F1		1-01 *							1		2-3/8		407
SET CORR SK 5 L		D03F2		1-02 *											407
SET CORR SK 5 L				1									2-3/8		407
SET CORR SK 6 L		C03R2		1-01 *							1		2-3/8		408
SET CORR SK 6 L		C03U1		1-02 *											408
SET CORR SK 6 L				1									2-3/8		408
SET DPAR(1) H		A04F1		1-01 *	K						1		14-7/8		409
SET DPAR(1) H		F09P1		1-02 *											409
SET DPAR(1) H				1									14-7/8		409

RUN NAME	A/P	PIN NAME	ORDER PIN	RAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	QC FLAG	LENGTH EXCEPTIONS	RUN NUMBER
SET DTE L		C08F1		1-01 *							1		1		410
SET DTE L		D09F1		1-02 *											410
SET DTE L				1									1-0/8		410
SET ONE DETECTED L		A04J1		1-01 *							1		3-5/8		411
SET ONE DETECTED L		F03H1		1-02 *							2		1		411
SET ONE DETECTED L		F02H1		1-03 *							1		1		411
SET ONE DETECTED L		F01H1		1-04 *											411
SET ONE DETECTED L				1									5-5/8		411
SET OPI		C07F1		1-01 *							1		6-5/8		412
SET OPI		E09D2		1-02 *											412
SET OPI				1									6-5/8		412
SET OPI D*Y(1) L		F07P2		1-01 *							1		1-3/8		413
SET OPI D*Y(1) L		F09P2		1-02 *											413
SET OPI D*Y(1) L				1									1-4/8		413
SET SCC H		E02K2		1-01 *							1		3-3/8		414
SET SCC H		A07K2		1-02 *											414
SET SCC H				1									3-3/8		414
SET VPE H		A02H2		1-01 *							1		12-7/8		415
SET VPE H		F05N1		1-02 *											415
SET VPE H				1									12-7/8		415
SFC H		C09K1	E08K1	1-01 *							1		6-1/8		416
SFC H		E08K1		1-02 *											416
SFC H				1									6-1/8		416
SHDN 2(1) H		D04N2		1-01 *							1		2		417
SHDN 2(1) H		D07N2		1-02 *											417
SHDN 2(1) H				1									2-0/8		417
SHDN 4(1) H		C05V1		1-01 *							1		1-4/8		418
SHDN 4(1) H		C07V1		1-02 *											418
SHDN 4(1) H				1									1-4/8		418
SINGLE DD TRK H		D01E1		1-01 *							1		8-7/8		419
SINGLE DD TRK H		F04D2		1-02 *											419
SINGLE DD TRK H				1									8-7/8		419
SINGLE DD TRK L		F04M1												1=PIN RUN	420
SLA H		A03F2		1-01 *							1		2-5/8		421
SLA H		A07F2		1-02 *											421
SLA H				1									2-5/8		421
SLAVE SET PLS H		A01S2		1-01 *							1		3-2/8		422
SLAVE SET PLS H		A07S1		1-02 *											422
SLAVE SET PLS H				1									3-2/8		422
SLOT-A		C0AP1												1=PIN RUN	423
SLOT-B		C0BP1												1=PIN RUN	424

TM02.C RUN NAME	A/P	KFP28R.V34(62)-1 PIN NAME	ORDER PIN	31-JUL-75 WAY - ORDER	Q	DRAW OPT	RV RG Y	X	Z	29-JUL-76 REMARKS	11:19 PAGE 33 NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
SN0(SH) L		A07D1		1-01 *					1		6-7/8	425
SN0(SH) L		B03V1		1-02 *								425
SN0(SH) L				1							6-7/8	425
SN01(SH) L		A07U2		1-01 *					1		4	426
SN01(SH) L		B03S2		1-02 *								426
SN01(SH) L				1							4-0/8	426
SN02(SH) L		B03U2		1-01 *					1		2-2/8	427
SN02(SH) L		B07U1		1-02 *								427
SN02(SH) L				1							2-2/8	427
SN03(SH) L		A03R2		1-01 *					1		2-5/8	428
SN03(SH) L		A07L2		1-02 *								428
SN03(SH) L				1							2-5/8	428
SN04(SH) L		A03E2		1-01 *					1		2-2/8	429
SN04(SH) L		A07E1		1-02 *								429
SN04(SH) L				1							2-2/8	429
SN05(SH) L		A03F1		1-01 *					1		3-3/8	430
SN05(SH) L		A07N1		1-02 *								430
SN05(SH) L				1							3-3/8	430
SN06(SH) L		B03U1		1-01 *					1		2-7/8	431
SN06(SH) L		B07T2		1-02 *								431
SN06(SH) L				1							2-7/8	431
SN07(SH) L		A03F1		1-01 *					1		3-2/8	432
SN07(SH) L		A07V1		1-02 *								432
SN07(SH) L				1							3-2/8	432
SN08(SH) L		A03F2		1-01 *					1		2-2/8	433
SN08(SH) L		A07F1		1-02 *								433
SN08(SH) L				1							2-2/8	433
SN09(SH) L		B03S1		1-01 *					1		3-6/8	434
SN09(SH) L		B07D1		1-02 *								434
SN09(SH) L				1							3-6/8	434
SN10 H		B03P2		1-01 *					1		2-1/8	435
SN10 H		B07S1		1-02 *								435
SN10 H				1							2-1/8	435
SN11(SH) L		A03H1		1-01 *					1		3-4/8	436
SN11(SH) L		B07C1		1-02 *								436
SN11(SH) L				1							3-4/8	436
SN12 H		A03H2		1-01 *					1		2-2/8	437
SN12 H		A07H1		1-02 *								437
SN12 H				1							2-2/8	437
SN13(SH) L		A07U1		1-01 *					1		3-7/8	438
SN13(SH) L		B03P1		1-02 *								438
SN13(SH) L				1							3-7/8	438

TM02.C RUN NAME	A/P	KFP28R.V34(62)-1 PIN NAME	ORDER PIN	31-JUL-75 WAY - ORDER	Q	DRAW OPT	RV RG Y	X	Z	29-JUL-76 REMARKS	11:19 PAGE 34 NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
SN14 H		B03P2		1-01 *					1		2-3/8	439
SN14 H		B07N1		1-02 *								439
SN14 H				1							2-3/8	439
SN15(SH) L		A03K1		1-01 *					1		3-6/8	440
SN15(SH) L		B07F1		1-02 *								440
SN15(SH) L				1							3-6/8	440
SPACE H		D07T2		1-01 *					1		1-4/8	441
SPACE H		D09T2		1-02 *								441
SPACE H				1							1-4/8	441
SPACE L		C07T2		1-01 *					1		5-7/8	442
SPACE L		F04F2		1-02 *					2		4-1/8	442
SPACE L		F05P1		1-03 *								442
SPACE L				1							10-0/8	442
SPR H		B03F1		1-01 *					1		2-6/8	443
SPR H		B07E2		1-02 *								443
SPR H				1							2-6/8	443
SS0(1) H		B01H2		1-01 *					1		13-5/8	444
SS0(1) H		F06K2		1-02 *								444
SS0(1) H				1							13-5/8	444
SS1(SH) L		F01P2		1-01 *					1		5-1/8	445
SS1(SH) L		C06V1		1-02 *								445
SS1(SH) L				1							5-1/8	445
SS2(SH) L		B01M2		1-01 *					1		7-7/8	446
SS2(SH) L		D06K2		1-02 *								446
SS2(SH) L				1							7-7/8	446
SSC L		F07S1		1-01 *					1		1-4/8	447
SSC L		F09S1		1-02 *								447
SSC L				1							1-4/8	447
ST CLK		D04R2		1-01 *					1		2	448
ST CLK		D07R2		1-02 *								448
ST CLK				1							2-0/8	448
STOP(0) H		F07P1		1-01 *					1		1-4/8	449
STOP(0) H		F09P1		1-02 *								449
STOP(0) H				1							1-4/8	449
STOP(SH) L		A01V2		1-01 *					1		3-4/8	450
STOP(SH) L		A07V2		1-02 *								450
STOP(SH) L				1							3-4/8	450
SYNC CLK 4 L		C02P1		1-01 *					1		9-7/8	451
SYNC CLK 4 L		F04U1		1-02 *								451
SYNC CLK 4 L				1							9-7/8	451
TAPE WRT CLK H		B02E2		1-01 *					1		4	452
TAPE WRT CLK H		C07D2		1-02 *								452
TAPE WRT CLK H				1							4-0/8	452

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RUN NAME	PIN NAME	BAY - Q ORDER	Z	NC LENGTH	EXCEPTIONS	RUN NUMBER
TC*(2) H	CØ6H2	1-Ø1 *	1	1-7/8		453
TC*(2) H	CØ9E1	1-Ø2 *				453
TC*(2) H		1		1-7/8		453
TM 1 (Ø) H	AØ7P2	1-Ø1 *	1	3-6/8		454
TM 1 (Ø) H	AØ1H1	1-Ø2 *				454
TM 1 (Ø) H		1		3-6/8		454
TMRK H	CØ7D1	1-Ø1 *	1	1-4/8		455
TMRK H	CØ9D1	1-Ø2 *				455
TMRK H		1		1-4/8		455
TMRK L	FØ4C1	1-Ø1 *	1	1-5/8		456
TMRK L	FØ5E1	1-Ø2 *	2	1-3/8		456
TMRK L	FØ7L1	1-Ø3 *				456
TMRK L		1		3-1/8		456
TMAIP H	CØ4F1	1-Ø1 *	1	2-1/8		457
TMAIP H	CØ7D1	1-Ø2 *				457
TMAIP H		1		2-1/8		457
TRA(1) L	BØ6L2	1-Ø1 *	1	2-1/8		458
TRA(1) L	FØ9B1	1-Ø2 *				458
TRA(1) L		1		2-1/8		458
TUR H	AØ2S2	1-Ø1 *	1	6-6/8		459
TUR H	CØ9N1	1-Ø2 *				459
TUR H		1		6-6/8		459
US Ø	EØ9J2				1-PIN RUN	460
US 1	BØ9L1				1-PIN RUN	461
US 2	FØ9E1				1-PIN RUN	462
W CLK H	FØ4F1	1-Ø1 *	1	2-4/8		463
W CLK H	FØ8P1	1-Ø2 *				463
W CLK H		1		2-4/8		463
WB CLK H	DØ5A1	1-Ø1 *	1	1-6/8		464
WB CLK H	DØ7H1	1-Ø2 *				464
WB CLK H		1		1-6/8		464
WD Ø(SB) L	AØ7D2	1-Ø1 *	1	6-2/8		465
WD Ø(SB) L	FØ1V2	1-Ø2 *				465
WD Ø(SB) L		1		6-2/8		465
WD 1(SB) L	FØ1U2	1-Ø1 *	1	4-3/8		466
WD 1(SB) L	BØ7L2	1-Ø2 *				466
WD 1(SB) L		1		4-3/8		466
WD 2(SB) L	BØ1S2	1-Ø1 *	1	3-7/8		467
WD 2(SB) L	FØ7L1	1-Ø2 *				467
WD 2(SB) L		1		3-7/8		467

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RUN NAME	PIN NAME	BAY - Q ORDER	Z	NC LENGTH	EXCEPTIONS	RUN NUMBER
WD 3(SB) L	AØ1P2	1-Ø1 *	1	3-5/8		468
WD 3(SB) L	AØ7K1	1-Ø2 *				468
WD 3(SB) L		1		3-5/8		468
WD 4(SB) L	BØ1K2	1-Ø1 *	1	4-1/8		469
WD 4(SB) L	BØ7R1	1-Ø2 *				469
WD 4(SB) L		1		4-1/8		469
WD 5(SB) L	AØ1M2	1-Ø1 *	1	4-1/8		470
WD 5(SB) L	AØ7T2	1-Ø2 *				470
WD 5(SB) L		1		4-1/8		470
WD 6(SB) L	AØ1F2	1-Ø1 *	1	3-5/8		471
WD 6(SB) L	AØ7J2	1-Ø2 *				471
WD 6(SB) L		1		3-5/8		471
WD 7(SB) L	AØ1E2	1-Ø1 *	1	3-5/8		472
WD 7(SB) L	AØ7J1	1-Ø2 *				472
WD 7(SB) L		1		3-5/8		472
WD BFO Ø(1) H	DØ5P1	1-Ø1 *	1	1-6/8		473
WD BFO Ø(1) H	DØ7J1	1-Ø2 *	2	1-3/8		473
WD BFO Ø(1) H	DØ6R2	1-Ø3 *	1	1-5/8		473
WD BFO Ø(1) H	DØ8T2	1-Ø4 *				473
WD BFO Ø(1) H		1		4-6/8		473
WD BFO 1(1) H	DØ5J1	1-Ø1 *	2	1-3/8		474
WD BFO 1(1) H	DØ6P2	1-Ø2 *	1	Ø-4/8		474
WD BFO 1(1) H	DØ7P1	1-Ø3 *	2	1-3/8		474
WD BFO 1(1) H	DØ8P2	1-Ø4 *				474
WD BFO 1(1) H		1		3-2/8		474
WD BFO 2(1) H	DØ5F1	1-Ø1 *	2	1-3/8		475
WD BFO 2(1) H	DØ7F1	1-Ø2 *	1	1-3/8		475
WD BFO 2(1) H	DØ6N2	1-Ø3 *	2	1-3/8		475
WD BFO 2(1) H	DØ8P2	1-Ø4 *				475
WD BFO 2(1) H		1		4-1/8		475
WD BFO 3(1) H	DØ5L1	1-Ø1 *	2	1-1/8		476
WD BFO 3(1) H	DØ6M2	1-Ø2 *	1	1-5/8		476
WD BFO 3(1) H	DØ7V2	1-Ø3 *	2	1-3/8		476
WD BFO 3(1) H	DØ8N2	1-Ø4 *				476
WD BFO 3(1) H		1		4-1/8		476
WD BFO 4(1) H	DØ6F2	1-Ø1 *	1	Ø-5/8		477
WD BFO 4(1) H	DØ7K1	1-Ø2 *	2	1-3/8		477
WD BFO 4(1) H	DØ8J2	1-Ø3 *				477
WD BFO 4(1) H		1		2-Ø/8		477
WD BFO 5(1) H	DØ5K1	1-Ø1 *	1	1-3/8		478
WD BFO 5(1) H	DØ6F2	1-Ø2 *	2	1-2/8		478
WD BFO 5(1) H	DØ7L1	1-Ø3 *	1	1-2/8		478
WD BFO 5(1) H	DØ8H2	1-Ø4 *				478
WD BFO 5(1) H		1		3-7/8		478

RUN NAME	A/P	PIN NAME	ORDER PIN	RAY = ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
WD WRO 6(1) H		D05H2		1-01 *							1		2-3/8	479
WD WRO 6(1) H		D08F2		1-02 *							2		1-5/8	479
WD WRO 6(1) H		D07M1		1-03 *							1		3-5/8	479
WD WRO 6(1) H		E06S2		1-04 *										479
WD WRO 6(1) H				1									7-5/8	479
WD WRO 7(1) H		D05E1		1-01 *							1		2-4/8	480
WD WRO 7(1) H		D08F2		1-02 *							2		1-5/8	480
WD WRO 7(1) H		D07N1		1-03 *							1		3-5/8	480
WD WRO 7(1) H		E06T2		1-04 *										480
WD WRO 7(1) H				1									7-4/8	480
WD P(SP) L		A01D2		1-01 *							1		3-1/8	481
WD P(SP) L		A47C1		1-02 *										481
WD P(SP) L				1									3-1/8	481
WD WRO 0(1) H		D06D1		1-01 *							1		6-1/8	482
WD WRO 0(1) H		F07E1	A01V1	1-02 *							2		12-1/8	482
WD WRO 0(1) H		A01V1		1-03 *										482
WD WRO 0(1) H				1									18-2/8	482
WD WRO 1(1) H		D06E1		1-01 *							1		7-1/8	483
WD WRO 1(1) H		F07P1	A01U1	1-02 *							2		13-3/8	483
WD WRO 1(1) H		A01U1		1-03 *										483
WD WRO 1(1) H				1									20-4/8	483
WD WRO 2(1) H		D06H2		1-01 *							1		5-5/8	484
WD WRO 2(1) H		F07D1	A01T2	1-02 *							2		12-1/8	484
WD WRO 2(1) H		A01T2		1-03 *										484
WD WRO 2(1) H				1									17-5/8	484
WD WRO 3(1) H		D06J2		1-01 *							1		6-7/8	485
WD WRO 3(1) H		F07R2	A01R2	1-02 *							2		16-5/8	485
WD WRO 3(1) H		A01R2		1-03 *										485
WD WRO 3(1) H				1									23-4/8	485
WD WRO 4(1) H		F06L2		1-01 *							1		1	486
WD WRO 4(1) H		F07F1	A01L2	1-02 *							2		13-1/8	486
WD WRO 4(1) H		F01L2		1-03 *										486
WD WRO 4(1) H				1									14-1/8	486
WD WRO 5 L		C04J2		1-01 *							1		1-3/8	487
WD WRO 5 L		D07F2		1-02 *										487
WD WRO 5 L				1									4-3/8	487
WD WRO 5(1) H		F06P2		1-01 *							1		1-1/8	488
WD WRO 5(1) H		F07P2	A01N2	1-02 *							2		16-1/8	488
WD WRO 5(1) H		A01N2		1-03 *										488
WD WRO 5(1) H				1									17-2/8	488
WD WRO 6(1) H		E06F1		1-01 *							1		1-5/8	489
WD WRO 6(1) H		F07L2	A01J2	1-02 *							2		16-7/8	489
WD WRO 6(1) H		A01J2		1-03 *										489
WD WRO 6(1) H				1									18-4/8	489

RUN NAME	A/P	PIN NAME	ORDER PIN	RAY = ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
WD WRO 7(1) H		F06R1		1-01 *							1		1	490
WD WRO 7(1) H		F07N1	A01F1	1-02 *							2		17-5/8	490
WD WRO 7(1) H		A01F1		1-03 *										490
WD WRO 7(1) H				1									18-5/8	490
WD WRO P H		E06D1		1-01 *							1		1-3/8	491
WD WRO P H		F07J2	A01H2	1-02 *							2		17-3/8	491
WD WRO P H		A01H2		1-03 *										491
WD WRO P H				1									18-6/8	491
WDR(.) H		F04E2		1-01 *							1		2	492
WDR(.) H		F07F2		1-02 *										492
WDR(.) H				1									2-0/8	492
WDR(1) H		F04D2		1-01 *							1		2	493
WDR(1) H		E07D2		1-02 *										493
WDR(1) H				1									2-0/8	493
WFMK L		C04F2		1-01 *							1		2	494
WFMK L		C07F2		1-02 *							2		1-4/8	494
WFMK L		C09F2		1-03 *										494
WFMK L				1									3-4/8	494
WRITE END L		A09V1		1-01 *							1		13-5/8	495
WRITE END L		F09I2		1-02 *							2		1-4/8	495
WRITE END L		F07T2		1-03 *										495
WRITE END L				1									15-1/8	495
WRITE H		A09P2		1-01 *							2		1-4/8	496
WRITE H		A07P2		1-02 *							1		4-3/8	496
WRITE H		B02D2		1-03 *										496
WRITE H				1									5-7/8	496
WRITE IDR L		D04F2		1-01 *							1		1-6/8	497
WRITE IDR L		D07F1		1-02 *										497
WRITE IDR L				1									1-6/8	497
WRITE L		A07P1		1-01 *							2		1	498
WRITE L		A08P1		1-02 *							1		1	498
WRITE L		A09P1		1-03 *										498
WRITE L				1									2-0/8	498
WRL H		B03K2		1-01 *							1		2-5/8	499
WRL H		B07M2		1-02 *							2		1-4/8	499
WRL H		B09M2		1-03 *										499
WRL H				1									4-1/8	499
WRP 0 L		C04N2		1-01 *							1		9-1/8	500
WRP 0 L		F06N1		1-02 *							2		1-1/8	500
WRP 0 L		F07M2		1-03 *										500
WRP 0 L				1									10-2/8	500
WRP 1 L		F06N2		1-01 *							1		2-1/8	501
WRP 1 L		F07R2		1-02 *										501
WRP 1 L				1									2-1/8	501

	A/P	PIN	ORDER	MAKE PIN ORDER	MAY - Q DRAW HV RG Y X Z	OPT	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
MKF 2 L		FW6U2	1-01 *		1			2-3/8	502
MKP 2 L		FW7C1	1-02 *						502
MKP 2 L			1					2-3/8	502
MPP 3 L		RW4S1	1-01 *		1			12-5/8	503
MHP 3 L		FW6V2	1-02 *		2			1	503
MRP 3 L		FW7V2	1-03 *						503
MPP 3 L			1					13-5/8	503
MHI CLK H		RW7A1	1-01 *		1			4-1/8	504
MPI CLK H		C095D1	1-02 *						504
MPI CLK H			1					4-1/8	504
MPI STRB H		DW7Y1	1-01 *		1			1	505
MFI STRB H		DP8Y1	1-02 *						505
MRI STRB H			1					1-3/8	505
X AD P H		D05C1	1-01 *		2			2-2/8	506
X AD P H		D07B1	1-02 *		1			5-1/4	506
X AD P H		FW6Y1	1-03 *						506
X AD P H			1					7-1/8	506
X AD 1 H		D05D2	1-01 *		1			1-7/8	507
X AD 1 H		D07P2	1-02 *						507
X AD 1 H			1					1-7/8	507

Spooler runtime 19 Seconds, 131 KCS, 364 disk reads, 4 disk writes, 39 dates

```
###U## User X-LIST SUPP [2H2,2H2] Job  TMH2 Seq. 387 Date 24-NOV-76 15:58:30 Monitor DEC-1H Cadnet/1 6.#2A2 ##E#U##
###T## User X-LIST SUPP [2H2,2H2] Job  TMH2 Seq. 387 Date 24-NOV-76 15:58:30 Monitor DEC-1G Cadnet/1 6.#2A2 ##E#T##
###S## User X-LIST SUPP [2H2,2H2] Job  TMH2 Seq. 387 Date 24-NOV-76 15:58:30 Monitor DEC-1F Cadnet/1 6.#2A2 ##E#S##
###R## User X-LIST SUPP [2H2,2H2] Job  TMH2 Seq. 387 Date 24-NOV-76 15:58:30 Monitor DEC-1E Cadnet/1 6.#2A2 ##E#R##
###Q## User X-LIST SUPP [2H2,2H2] Job  TMH2 Seq. 387 Date 24-NOV-76 15:58:30 Monitor DEC-1D Cadnet/1 6.#2A2 ##E#Q##
###P## User X-LIST SUPP [2H2,2H2] Job  TMH2 Seq. 387 Date 24-NOV-76 15:58:30 Monitor DEC-1C Cadnet/1 6.#2A2 ##E#P##
###N## User X-LIST SUPP [2H2,2H2] Job  TMH2 Seq. 387 Date 24-NOV-76 15:58:30 Monitor DEC-1B Cadnet/1 6.#2A2 ##E#N##
###M## User X-LIST SUPP [2H2,2H2] Job  TMH2 Seq. 387 Date 24-NOV-76 15:58:30 Monitor DEC-1A Cadnet/1 6.#2A2 ##E#M##
###L## User X-LIST SUPP [2H2,2H2] Job  TMH2 Seq. 387 Date 24-NOV-76 15:58:30 Monitor DEC-19 Cadnet/1 6.#2A2 ##E#L##
###K## User X-LIST SUPP [2H2,2H2] Job  TMH2 Seq. 387 Date 24-NOV-76 15:58:30 Monitor DEC-18 Cadnet/1 6.#2A2 ##E#K##
###J## User X-LIST SUPP [2H2,2H2] Job  TMH2 Seq. 387 Date 24-NOV-76 15:58:30 Monitor DEC-17 Cadnet/1 6.#2A2 ##E#J##
###H## User X-LIST SUPP [2H2,2H2] Job  TMH2 Seq. 387 Date 24-NOV-76 15:58:30 Monitor DEC-16 Cadnet/1 6.#2A2 ##E#H##
```

EXTERNAL COMPONENT TABLE

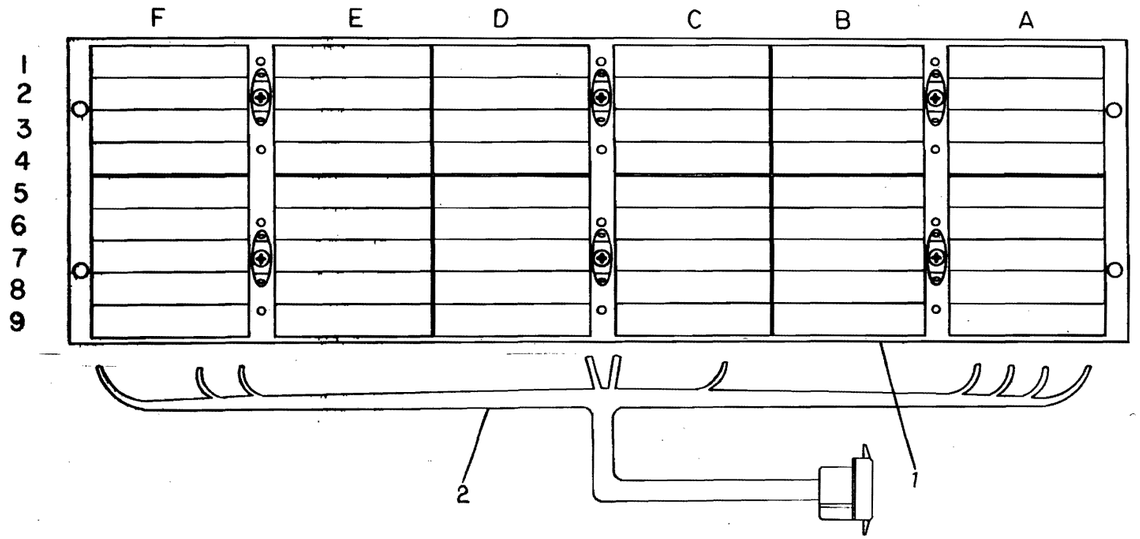
ITEM NO.	DESCRIPTION	FROM	TO	REMARKS
3	RES. 1/4W 5%, 30 AWG	B04J1	C04A2	PULL-UP FOR DC LO
4	PATCH CORD	C06U2	B03D2	DEN 2 L SEE NOTE 2

WIRE TABLE

ITEM NO	DESCRIPTION COLOR	AWG	FROM CONN	FROM WITH	TO CONN	TO WITH	REMARKS
2	BLK	14	P1-5	PT-9	F01C2	SOLD	GND
	BLK		P1-4	PT-3	A01C2		GND
	RED		P1-1	PT-8	F01A2		+5
	RED		P1-2	PT-2	A01A2		+5
	BLU		P1-7	PT-5	B04B2		-15
	ORN		P1-10	PT-10	F01V1		+15
	RED		P1-3	PT-7	D01A2		+5
	BLK	14	P1-6	PT-6	D01C2		GND
	YEL	22	P1-11	PT-1	A09H1		AC LO
2	VIO	22	P1-12	PT-4	A09J1	SOLD	DC LO

NOTES:

1. REFER TO PRINT "D-IA-7011738-0-0 FOR POINTS (PT) ON HARNESS.
2. FOR NRZ ONLY OPERATION LOCATE ITEM # 4 BETWEEN B03D2 AND B04R2.
3. ADD ITEM 5 (TUBING) TO ALL PINS ADJACENT TO SOLDER CONNECTIONS.



A/R	DESCRIPTION	PART NO.	ITEM NO.
A/R	TUBING	9107256-02	5
1	PATCHCORD	915-6	4
1	1.5K Ω, 1/4W, 5%, 30 AWG	7407751	3
1	HARNESS, LOGIC (TMØ2)	D-IA-7011738-0-0	2
1	WIRED ASSY (TMØ2)	D-AD-7009735-0-0	1

PARTS LIST

FIRST USED ON OPTION/MODEL: TU16

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: SEE PARTS LIST

FINISH

DRN. D. Abbott 2/10/74
CHKD. [illegible] 4/10/74
ENG. J. Hess 4/30/74
PROJ. ENG. [illegible] 4-30-74
PROD. [illegible] 4-30-74
NEXT HIGHER ASSY.
SCALE NONE
SHEET OF

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: HARNESS/LOGIC ASSY (TMØ2)

SIZE	CODE	NUMBER	REV.
D	AD	7009785-0-0	B

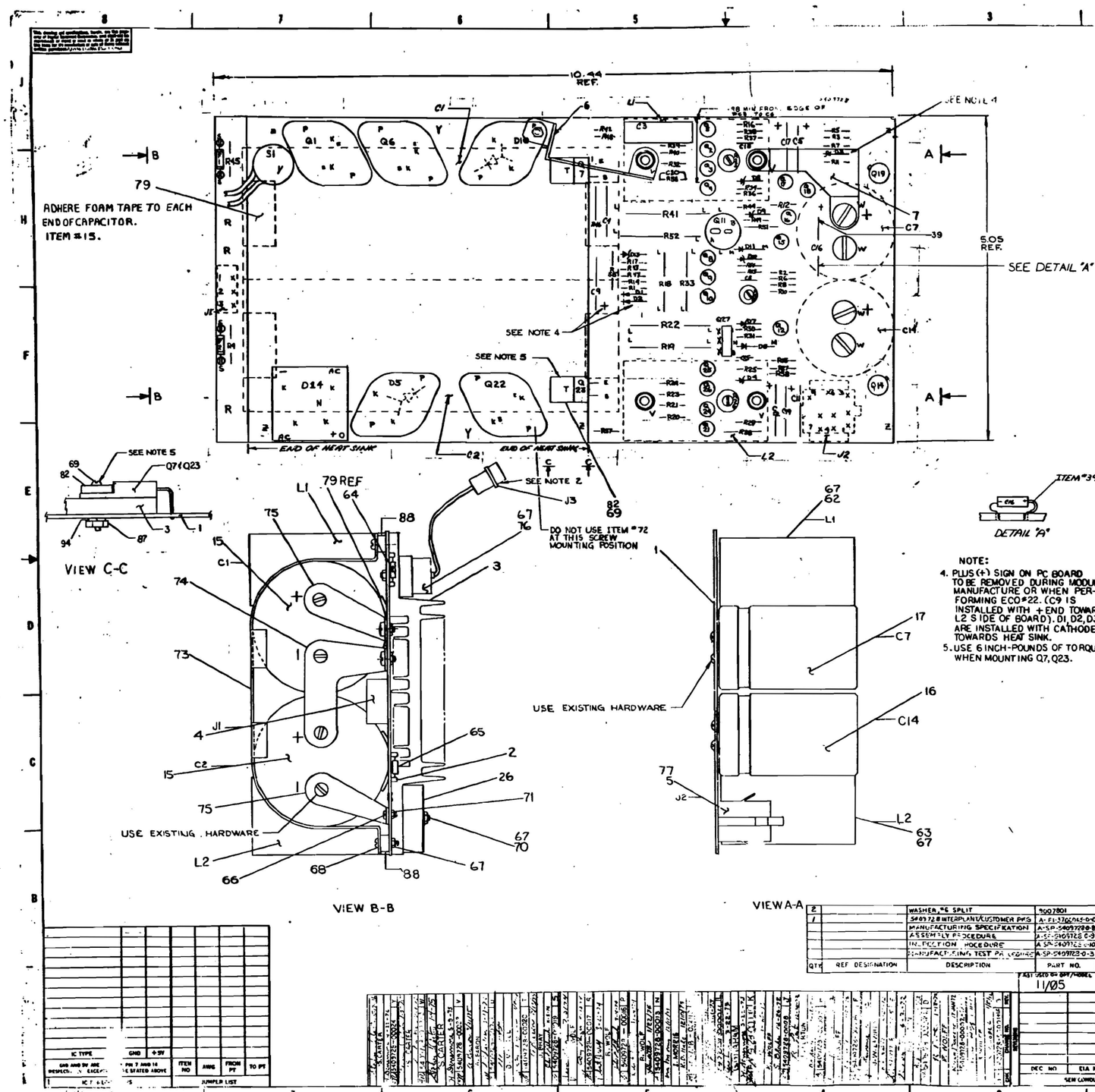
DIST.

REVISIONS	CHANGE NO	REV
DWN	7009785-00001	A
ENGR J. HESS		
DWN	TU16-0004	B
ENGR J. HESS		

BFC FORM NO. DRD 100-A

DIGITAL 69-971 11/69

DIA 7009785-0-0 REV B



NOTES:

1. (THERMAL COMPOUND) BETWEEN TRANSISTOR AND HEAT SINK FOR Q1, Q6, Q7, Q22, Q23. D5, D10, D14 & D21.
2. TRIM LEADS ON ITEM #76 (THERMOSTAT) TO (8) INCHES AND ATTACH ITEM #84 (PINS) AND ITEM #83 (HOUSING) AS SHOWN.
3. APPLY FLAT WASHER ITEM #72 BETWEEN SCR. HD. AND ETCHED BOARD WHEN MOUNTING COMPONENTS Q1, Q6, Q22, D5 & D10.
4. PLUS (+) SIGN ON PC BOARD TO BE REMOVED DURING MODULE MANUFACTURE OR WHEN PERFORMING ECO #22. (C9 IS INSTALLED WITH + END TOWARDS L2 SIDE OF BOARD). D1, D2, D3 ARE INSTALLED WITH CATHODES TOWARDS HEAT SINK.
5. USE 6 INCH-POUNDS OF TORQUE WHEN MOUNTING Q7, Q23.

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO
2		WASHER, #6 SPLIT	9007801	94
1		540372B INTERPLAN/CUSTOMER PKG	A-EI-370065-00	93
		MANUFACTURING SPECIFICATION	A-SP-540372B-B	92
		ASSEMBLY PROCEDURE	A-SP-540372B-B	91
		INSPECTION PROCEDURE	A-SP-540372B-H0	90
		MANUFACTURING TEST PROCEDURE	A-SP-540372B-03	89

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO
2		SPACER, ALUM #6, 1/4 AF X 1/8" LG	9003883	98
9		NUT 6-32	9008937	97
1	Q11	XSTR C338, A1933	1811778	96
1	Q21	XSTR 855	1510705-01	95
2		PINS MALE CRIMP	1209376-01	94
1	J3	MATE-N-LOK CONNECTOR	1418428-2	93
2		WASHER, NYLY	9009758	92
1	D15	DIODE, ZENER, 5.1 V, 2%	1111208	91
1	C12, C19	CAP 2.2 MF 35V 10% TANT	1002431	90
4		1" LG FOAM TAPE	9004967-1	79
2	R39, R40	RES 5.1 1/4 W 5%	1309422	70
9		PIN FEMALE	1209376	77
1	S1	THERMOSTAT SPST	1210884	76
2		CONTACT, CAPACITOR	C-MD-380973B-0-07	75
1		CONTACT, COMMON CAPACITOR	C-MD-380977B0-07	74
1		HOLDER, CAPACITOR	C-IA-551026-0-07	73
9		WASHER, #6 FLAT	9006588	72
3		NUT, KEPS 4-40	9006737	71
1		SCR PHL PAN HD 6-32 X 3/8 LG.	9004026-1	70
2		SCR PHL PAN HD 6-32 X 1/2 LG	9006024-01	69
12		SCR PH. HD 6-32 X 5/8 LG	9001215 1	68
18		NUT KEPS #6-32 X 1/4	9008188	67
3		SCR PHL PAN HD 4-40 X 3/16 LG	9006010-1	66
1	F2	FUSE 10 AMP, PICO	1210928-01	65
1	F1	FUSE 15 AMP, PICO	1210929	64
1	L2	CHOKE, 100 UH 10A MPC 4445	1811031	63
1	L1	CHOKE, 60 UH 20A MPC 4289	1810717	62
1	Q27	XSTR MAC 11-3	1510765	61
1	Q1	XSTR MJE800	1511682	60
2	Q7, Q23	XSTR 2N6 HS/B	1810708-2	59
4	Q3 Q8 Q9, Q14	XSTR KA39	1810706	58
9	Q15, Q16, Q17, Q18, Q20, Q24, Q25	XSTR XA95	1810705	57
2	Q6 Q22	XSTR 2N3502	1810196	56
2	Q19, Q19	XSTR 2N5433	1311686	55
2	Q2, Q5	XSTR 855	1310706-01	54
1	R41	RES 40Ω, 7W, 5%	1310709-08	53
1	R36	RES 68Ω, 1/4W, 5%	1801426	52
1	R23	RES .2 5W 5%	1309864	51
3	R26, R35, R50	POT, 100, 1/2W ±20% 62 PR	1309150-05	50
1	R52	RES .1 5W, 5% WW	1305872	49
1	R33	RES .39 2W 5% WW	1310868	48
1	R10	RES 35K 1/8W 1% MF	1305312	47
2	R25, R34	RES 383, 1/8W 1% MF	1306125	46
6	R2, R5, R6 R11, R12, R3	RES 10K, 1/8W, 1% MF	1303912	45
4	R8, R1, R7, R36	RES 15, 1/8W, 1% MF	1303114	44
2	R27, R38	RES 464, 1/8 W, 1% MF	1303027	43
1	R31	RES 100, 25%, PTC	1310927-1	42
1	R49	RES MT, 1/8 W, 1% MF	1306874	41
2		SPACER 6-32 X 1/4 AF X 3/8 LG	9006857	40
AR		TFE TUBING 3/8" Long	51-07866-11	39
2	R24 R47	RES 68K 1/4W, 5%	1301387	38
5	R30, R31, R39, R48, R49	RES 10 1/4 W, 5%	1301317	37
3	R18, R53, R57	RES. 10K 1/4 W, 5%	1309419	36
4	R28, R46, R4, R45	RES 4.7K 1/8 W, 5%	1309448	35
1	R55	RES 8.74, 1/2 W, 1%	1309465	34
1	R19	RES .06 5W 5% WW	1310876-52	33
2	R29, R37	RES 1K, 1/8 W, 5%	1309369	32
3	R44, R8, R58	RES 330 1/4 W 5%	1309249	31
1	R16	RES 100, 2W, 5%	1392380	30
7	R15, R17, R23, R31, R32, R42, R53	RES 100, 1/4W 5%	1309229	29
1	D7	DIODE IN3274B 18V ZENER	1110766	28
2	D8, D10	DIODE 20 AMP FAST RECOVERY RECT	1110715	27
1	D14	DIODE, BRIDGE RECTIFIER	1110714	26
1	D3	DIODE 51V ZENER	1110925	25
2	D6 D11	DIODE IN5624	1110420	24
2	D1 D2	DIODE IN4004	1105796	23
2	D4, D5	DIODE IN753A 6.2 V ZENER	1102421	22
1	D9	DIODE 4.2% 2.4 V ZENER	1101938	21
1	D13	DIODE IN748A 3.9 V ZENER	1100128	20
1	C18	CAP 1000 PF, 100% DM	1000042	19
1	C9	CAP 20 MF 50V 5% S.TANT	1000001-91	18
1	C7	CAP 6000 MF 10V -10+75% AL EL	1010709	17
1	C14	CAP 4500 MF 25V -10+75% AL EL	1010703	16
2	C1, C2	CAP 24000 MF 50V -10% +75%	1010702	15
1	C16	CAP 250 MF, 25V 75% AL EL	1002791	14
1	C3	CAP 1 UF 100V 10%	1011032	13
2	C8 C13	CAP .22 MF, 50V	1010274	12
2	C5, C17	CAP 6.8 MF 35V 10% S.TANT	1005X6	11
2	C4, C11	CAPACITOR .033 MF, 100V 10% MYLAR	1000050	10
1	C20	CAP 22 UUFD, 2.5KV CER.	1002035	9
AR		THERMAL COMPOUND	9009168	8
1		#2 THERMAL STRAP	C-MC-351089-1	7
1		#1 THERMAL STRAP	C-MC-351140-1	6
1	J2	MATE-N-LOCK CONNECTOR	1209350-09	5
1	J1	MATE-N-LOCK CONNECTOR	1418492-08	4
1		HEAT SINK	1210594	3
4		5-11 LUG	9006735	2
1		ETCHED BOARD	5009127	1
		MODULE ECO HISTORY	B-MH-540372B-0-08	SHT
		X-Y COORDINATE HOLE LOC.	X-CC-540372B0-0	SHT
		CIRCUIT SCHEMATIC	S-CS-540372B-0-0	SHT

QTY	DESIGNATION	DESCRIPTION	PART NO.	ITEM NO

IC TYPE	GND	+5V

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

DEC NO	EIA NO

SEMICONDUCTOR CONVERSION CHART

ASSIGNED BY DPT/MODEL 11/05

ETCH BOARD REV

PARTS LIST

EQUIPMENT CORPORATION.

TITLE: REGULATOR BOARD

FINISHED ASY 540372B1-0

SIZE A | DWG 540372B-0-0 | REV

SCALE 2/1 | SHEET 1 OF 1

98