FIELD MAINTENANCE PRINT SET

TABLE OF CONTENTS

UNIT VARIATIONS COVERED BY THIS PRINT SET
RM05-AA
RM05-AB
RM05-AC
RM05-AD
RM05-BA
RM05-BB
RM05-BC
RM05-BD

THIS TABLE OF CONTE[illegible] AND [illegible] ARE [illegible]

SECTION 1 - RM05 DISK DRIVE (WHICH INCORPORATES A CDC DISK DRIVE).

SECTION 2 - CDC DISK DRIVE DOCUMENTATION.

RMØ5

Field Maintenance Print Set

Digital Equipment Corporation

MPØ1Ø75

SECTION 1

REV. B

TC RM05-1

REVISIONS	REV	A	B
	CHG. NO.	RELEASED TO ECO CONTROL AT REV A	RM05-CX 006 TF-18AUG81 HARDER (18 Aug 81)
	DATE		884

USED ON OPTION/MODEL	
RM05	

SHEET 1 OF 5

DRN. W. Maier	DATE 11 SEP 80	TITLE: RM[illegible] DISK [illegible]	
CHK'D W. Maier	DATE 11 SEP 80	SIZE B	CODE TC
PROJ. ENG. [illegible]	DATE [illegible]	DIST.	
FIELD SERV. [illegible]	DATE [illegible]		

DRB 124

TABLE OF CONTENTS - CONTINUED FROM PAGE 1

TABLE A

X INDICATES INSTALLING A JUMPER

S N BIT	JUMPER	RESULT S N BIT
1	X	
2		2
4	X	
8	X	
10		10
20		20
40		40
80	X	
100		100
200	X	
400	X	
800	X	
1000		1000
2000		2000
4000	X	
8000	X	
		3172 TOTAL

CARD LOCATOR CHART

TOP FRONT

M7687 M8685/M7685-YA M5922 M5922 M5923 M5923 M7684 M7686-YA

digital	120 VOLT 60 HZ	1 PH 2+G WIRE 24 AMP	MODEL RM05-AA CAB. S.N. CX-XXXXX

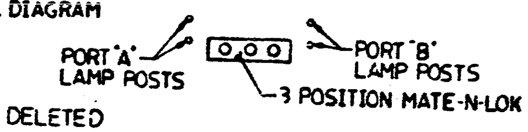
DETAIL G
SCALE: NONE
SEE NOTE 6

LEGEND

MODEL/OPTION NO	VOLTAGE	FREQUENCY	DESCRIPTION
RM05-AA	DRIVE 208V / MBA 120V	60 HZ	256 MBYTE DRIVE W/ SINGLE PORT MBA AND CABINET
RM05-AB	DRIVE 220V / MBA 240V	50 HZ	256 MBYTE DRIVE W/SINGLE PORT MBA CABINET
RM05-AC	DRIVE 206V / MBA 120V	60 HZ	256 MBYTE DRIVE W/SINGLE PORT MBA (SECOND MBA)
RM05-AD	DRIVE 220V / MBA 240V	50 HZ	256 MBYTE DRIVE W/SINGLE PORT MBA (SECOND MBA)
RM05-BA	DRIVE 205V / MBA 120V	60 HZ	256 MBYTE DRIVE W/ DUAL PORT MBA AND CABINET
RM05-BB	DRIVE 220V / MBA 240V	50 HZ	256 MBYTE DRIVE W/ DUAL PORT MBA AND CABINET
RM05-BC	DRIVE 208V / MBA 120V	60 HZ	256 MBYTE DRIVE W/ DUAL PORT MBA (SECOND MBA)
RM05-BD	DRIVE 220V / MBA 240V	50 HZ	256 MBYTE DRIVE W/ DUAL PORT MBA (SECOND MBA)

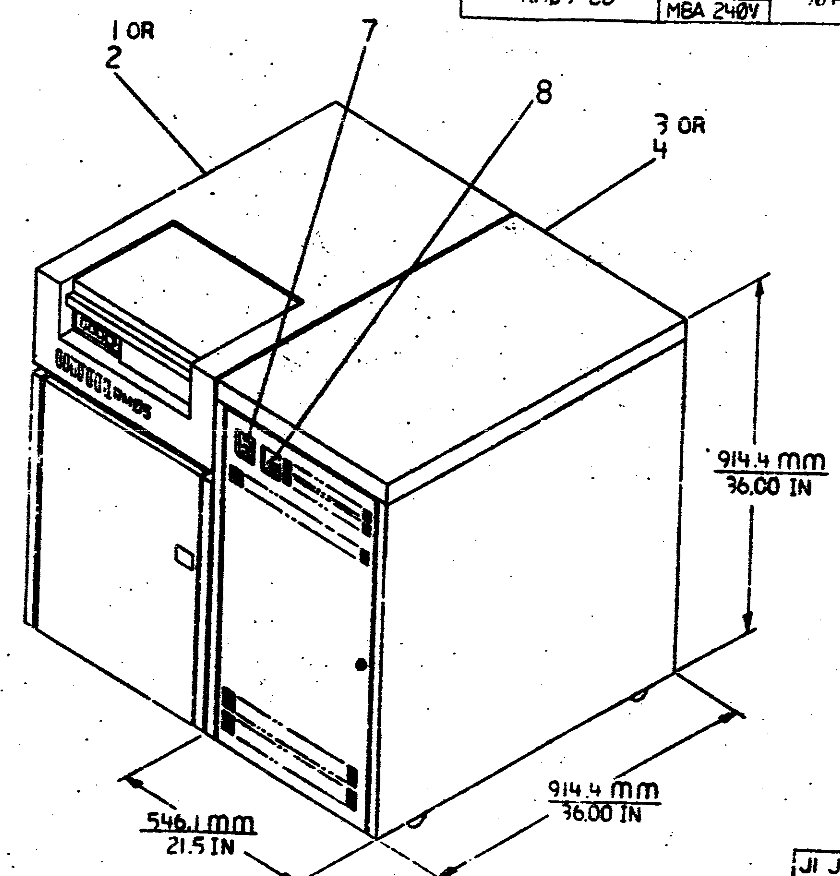
NOTES:

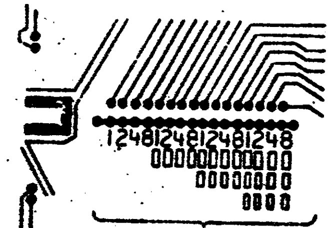
1. REMOVE PART FROM MBA AND SET ASIDE. IT IS NOT USED IN THIS CONFIGURATION.
2. DELETED
3. DIAGRAM



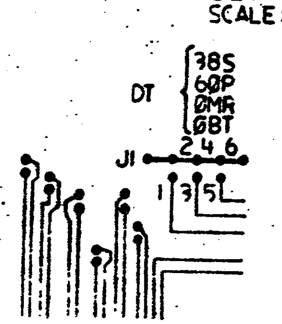
4. DELETED
5. DELETED
6. MANUFACTURING ORGANIZATION TO COMPLETE LABLE INFORMATION ACCORDING TO DETAIL G. (DETAIL G SHOWS MODEL RM05-AA AS EXAMPLE ONLY).
7. THIRTY TWO WIREWRAP POSTS, IDENTIFIED AS J4 OF THE MASS BUS ADAPTER WIRED ASSEMBLY, ALLOW THE SERIAL NO. TO BE WIRED INTO THE BACKPLANE. THE 16 POST PAIRS ARE IDENTIFIED AS 1, 2, 4...2000, 4000, 8000 PROVIDING A BCD REPRESENTATION OF THE SERIAL NO.. THE LAST FOUR DIGITS OF THE DEC SERIAL NO. ARE TO BE USED AS THE WIRED SERIAL NO.. A JUMPER (1214314-00) MUST BE INSTALLED FOR EACH LOGIC ZERO IN THE WIRED SERIAL NO.. FOR EXAMPLE IF THE SERIAL NO. IS 3172, IT IS WIRED PER DETAIL "H" AND TABLE "A".
8. THE MASS BUS ADAPTER MUST HAVE THE FOLLOWING JUMPERS INSTALLED ON J1 OF THE WIRED ASSY. SEE DETAIL "J" AND JUMPER CONFIGURATION.
9. DELETED
10. DELETED
11. TERMINATORS ARE ALWAYS INSTALLED IN J2 AND J6 OF THE MBA BACKPLANE ONLY ON THE LAST MBA IN A SERIES.
12. THIS ITEM SUPPLIED WITH CABINET AND MBA ASSY. D.P. (7017748-00) OR CABINET AND MBA ASSY. S.P. (7017613-00).
13. TO UPGRADE A SINGLE PORT MBA IN THE FIELD, ORDER 1 DUAL ACCESS KIT (C-AD-RM05-C-0) PER EACH MBA.

CAUTION: OFF-SHEET PARTS LIST EXISTS. SEE K-PL-RM05-0-DBP (Z1187).





SEE NOTE 7
DETAIL H
SCALE: NONE



SEE NOTE 8
DETAIL J
SCALE: NONE

SEE NOTE 8

J1 JUMPER CONFIGURATION JUMPER INSERTED	
SINGLE PORT DRIVE TYPE REG	5-6 20027
DUAL PORT DRIVE TYPE REG	24027

FIRST USED ON: RM05

TITLE: RM05 DISK DRIVE ASSEMBLY

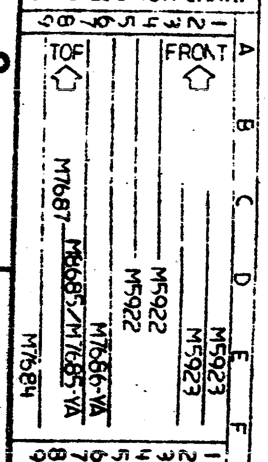
MATERIAL: SEE PARTS LIST

DO NOT SCALE DWG

SIZE D | CODE UA | NUMBER RM05-0-0 | REV. D

TABLE A		
X INDICATES INSTALLING A JUMPER		
S N BIT	JUMPER	RESULT S N BIT
1	X	
2		2
4	X	
8	X	
10		10
20		20
40		40
80	X	
100		100
200	X	
400	X	
800	X	
1000		1000
2000		2000
4000	X	
8000	X	
		3172 TOTAL

CARD LOCATOR CHART



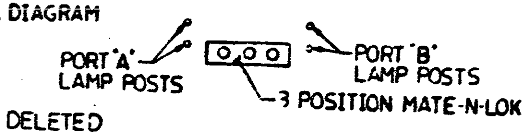
digital				
120 VOLT	1 PH	2+G WIRE	MODEL RM05-AA	
60 HZ	24 AMP		CAB. S.N. CX-XXXXX	

DETAIL G
SCALE: NONE
SEE NOTE 6

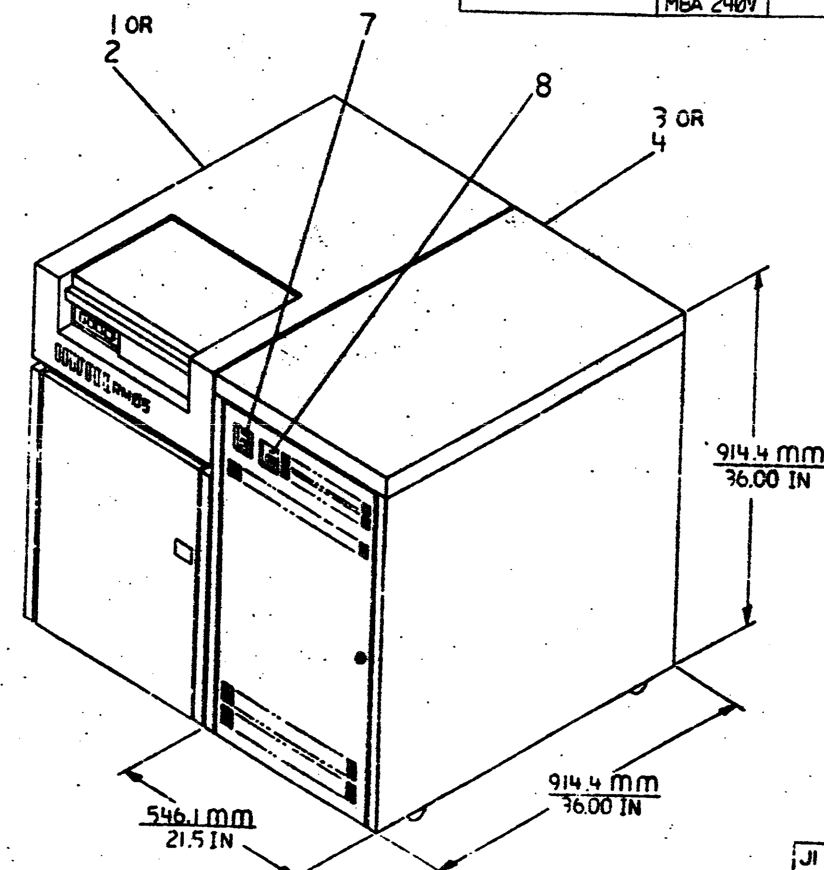
LEGEND			
MODEL/OPTION NO	VOLTAGE	FREQUENCY	DESCRIPTION
RM05-AA	DRIVE 208V / MBA 120V	60 HZ	256 MBYTE DRIVE W/ SINGLE PORT MBA AND CABINET
RM05-AB	DRIVE 220V / MBA 240V	50 HZ	256 MBYTE DRIVE W/SINGLE PORT MBA CABINET
RM05-AC	DRIVE 208V / MBA 120V	60 HZ	256 MBYTE DRIVE W/SINGLE PORT MBA (SECOND MBA)
RM05-AD	DRIVE 220V / MBA 240V	50 HZ	256 MBYTE DRIVE W/SINGLE PORT MBA (SECOND MBA)
RM05-BA	DRIVE 208V / MBA 120V	60 HZ	256 MBYTE DRIVE W/DUAL PORT MBA AND CABINET
RM05-BB	DRIVE 220V / MBA 240V	50 HZ	256 MBYTE DRIVE W/ DUAL PORT MBA AND CABINET
RM05-BC	DRIVE 208V / MBA 120V	60 HZ	256 MBYTE DRIVE W/DUAL PORT MBA (SECOND MBA)
RM05-BD	DRIVE 220V / MBA 240V	50 HZ	256 MBYTE DRIVE W/DUAL PORT MBA (SECOND MBA)

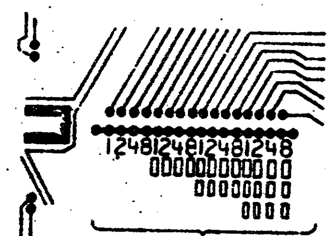
NOTES:

1. REMOVE PART FROM MBA AND SET ASIDE. IT IS NOT USED IN THIS CONFIGURATION.
2. DELETED
3. DIAGRAM

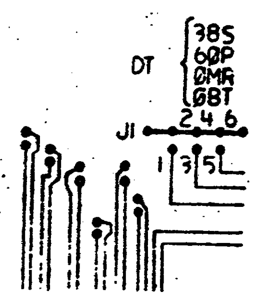


4. DELETED
5. DELETED
6. MANUFACTURING ORGANIZATION TO COMPLETE LABLE INFORMATION ACCORDING TO DETAIL G. (DETAIL G SHOWS MODEL RM05-AA AS EXAMPLE ONLY).
7. THIRTY TWO WIREWRAP POSTS, IDENTIFIED AS J4 OF THE MASS BUS ADAPTER WIRED ASSEMBLY, ALLOW THE SERIAL NO. TO BE WIRED INTO THE BACKPLANE. THE 16 POST PAIRS ARE IDENTIFIED AS 1, 2, 4....2000, 4000, 8000 PROVIDING A BCD REPRESENTATION OF THE SERIAL NO.. THE LAST FOUR DIGITS OF THE DEC SERIAL NO. ARE TO BE USED AS THE WIRED SERIAL NO.. A JUMPER (1214314-00) MUST BE INSTALLED FOR EACH LOGIC ZERO IN THE WIRED SERIAL NO.. FOR EXAMPLE IF THE SERIAL NO. IS 3172, IT IS WIRED PER DETAIL "H" AND TABLE "A".
8. THE MASS BUS ADAPTER MUST HAVE THE FOLLOWING JUMPERS INSTALLED ON J1 OF THE WIRED ASSY. SEE DETAIL "J" AND JUMPER CONFIGURATION.
9. DELETED
10. DELETED
11. TERMINATORS ARE ALWAYS INSTALLED IN J2 AND J6 OF THE MBA BACKPLANE ONLY ON THE LAST MBA IN A SERIES.
12. THIS ITEM SUPPLIED WITH CABINET AND MBA ASSY. D.P. (7017748-00) OR CABINET AND MBA ASSY. S.P. (7017613-00).
13. TO UPGRADE A SINGLE PORT MBA IN THE FIELD, ORDER 1 DUAL ACCESS KIT (C-AD-RM05-C-0) PER EACH MBA.





SEE NOTE 7
DETAIL H
SCALE: NONE



SEE NOTE 8
DETAIL J
SCALE: NONE

SEE NOTE 8

J1 JUMPER CONFIGURATION	JUMPER INSERTED
SINGLE PORT DRIVE TYPE REG	5-6 20027
DUAL PORT DRIVE TYPE REG	24027

CAUTION: OFF-SHEET PARTS LIST EXISTS. SEE K-PL- RM05-0-DBP (Z1187).

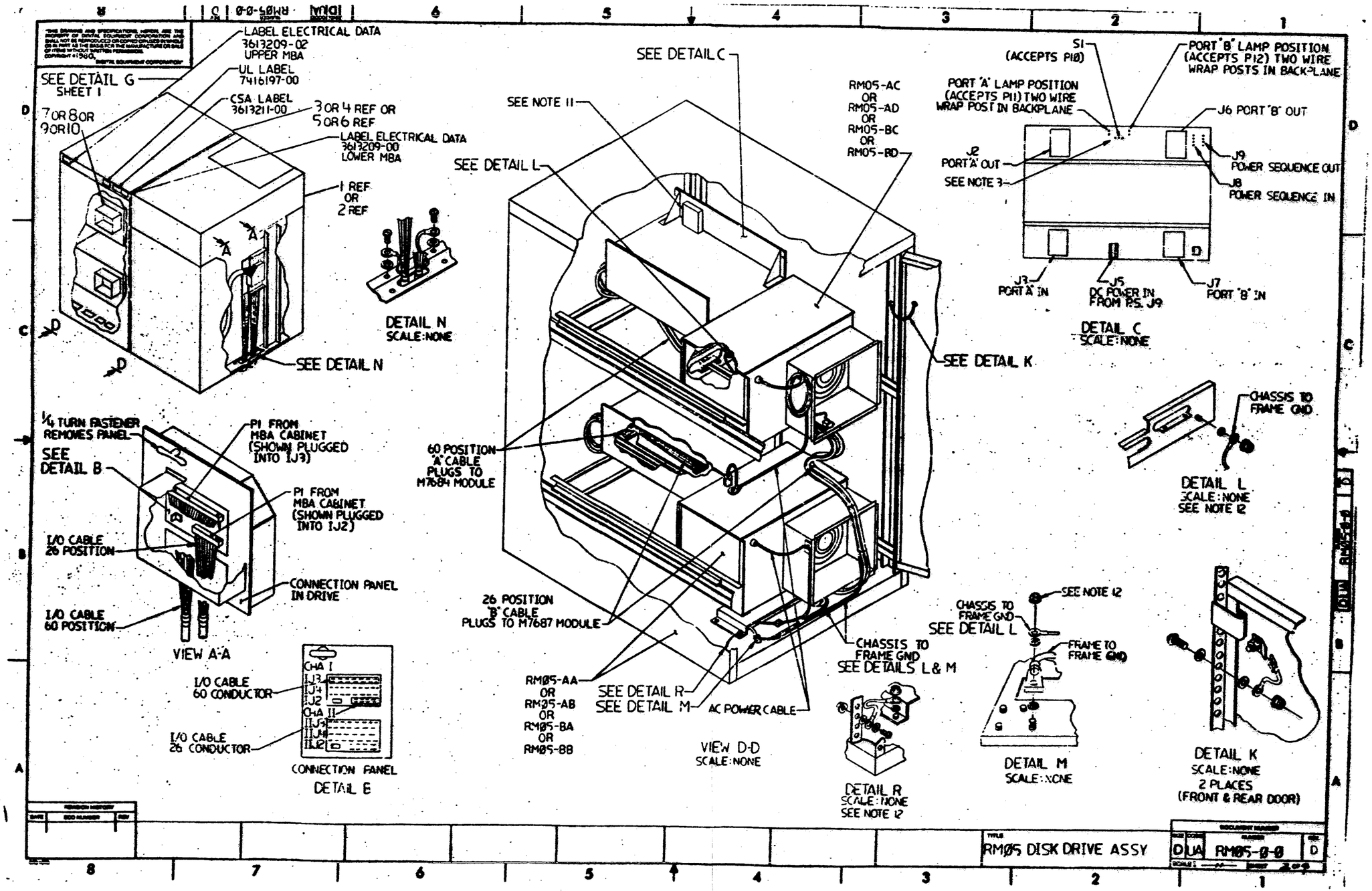
MATERIAL SEE PARTS LIST

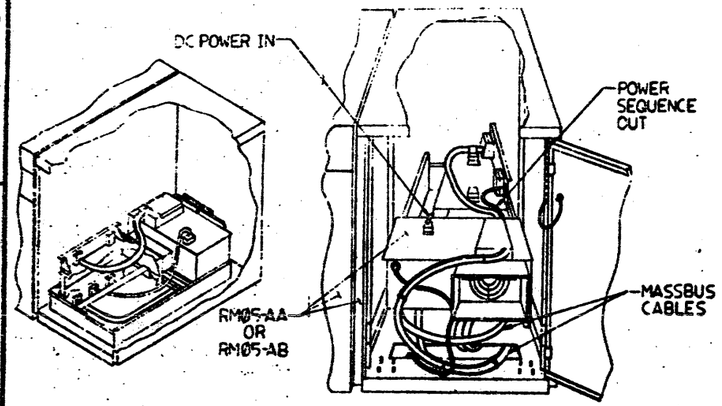
DO NOT SCALE DWG

FIRST USED ON RM05

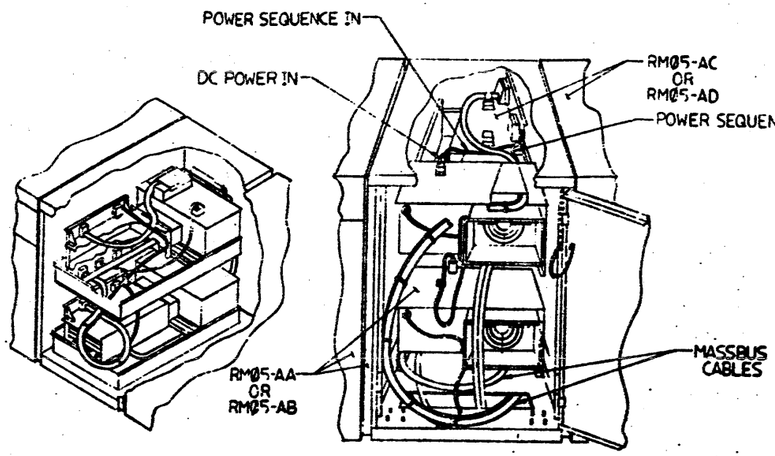
TITLE RM05 DISK DRIVE ASSEMBLY

SIZE D CODE UA NUMBER RM05-0-0 REV. D

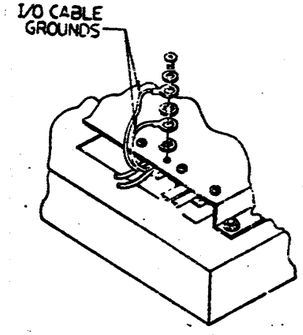

LABEL ELECTRICAL DATA 3613209-02 UPPER MBA
UL LABEL 7416197-00
CSA LABEL 3613211-00
SEE DETAIL G SHEET 1
7 OR 8 OR 9 OR 10
3 OR 4 REF OR 5 OR 6 REF
LABEL ELECTRICAL DATA 3613209-00 LOWER MBA
1 REF OR 2 REF
SEE DETAIL N
DETAIL N SCALE: NONE
SEE DETAIL C
SEE NOTE 11
SEE DETAIL L
RM05-AC OR RM05-AD OR RM05-BC OR RM05-BD
SEE DETAIL K
60 POSITION 'A' CABLE PLUGS TO M7684 MODULE
26 POSITION 'B' CABLE PLUGS TO M7687 MODULE
RM05-AA OR RM05-AB OR RM05-BA OR RM05-BB
SEE DETAIL R
SEE DETAIL M
AC POWER CABLE
VIEW D-D SCALE: NONE
S1 (ACCEPTS P10)
PORT 'B' LAMP POSITION (ACCEPTS P12) TWO WIRE WRAP POSTS IN BACKPLANE
PORT 'A' LAMP POSITION (ACCEPTS P11) TWO WIRE WRAP POST IN BACKPLANE
J6 PORT 'B' OUT
J2 PORT 'A' OUT
SEE NOTE 3
J9 POWER SEQUENCE OUT
J8 POWER SEQUENCE IN
J3 PORT 'A' IN
J5 DC POWER IN FROM PS J9
J7 PORT 'B' IN
DETAIL C SCALE: NONE
CHASSIS TO FRAME GND
DETAIL L SCALE: NONE SEE NOTE 12
1/4 TURN FASTENER REMOVES PANEL
SEE DETAIL B
P1 FROM MBA CABINET (SHOWN PLUGGED INTO IJ3)
P1 FROM MBA CABINET (SHOWN PLUGGED INTO IJ2)
I/O CABLE 26 POSITION
I/O CABLE 60 POSITION
CONNECTION PANEL IN DRIVE
VIEW A-A
I/O CABLE 60 CONDUCTOR
I/O CABLE 26 CONDUCTOR
CHA I
CHA II
CONNECTION PANEL
DETAIL B
SEE NOTE 12
CHASSIS TO FRAME GND SEE DETAIL L
FRAME TO FRAME GND
CHASSIS TO FRAME GND SEE DETAILS L & M
DETAIL M SCALE: NONE
DETAIL R SCALE: NONE SEE NOTE 12
DETAIL K SCALE: NONE 2 PLACES (FRONT & REAR DOOR)
RM05 DISK DRIVE ASSY
D UA RM05-0-0 D



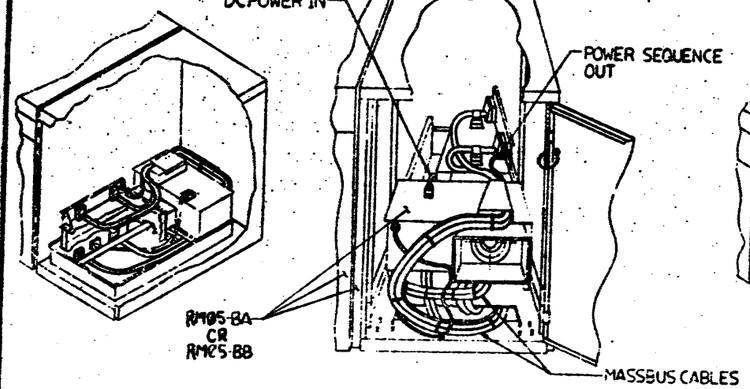
ONE MBA-SINGLE PORT
SEE D-AD-7017613-0-0



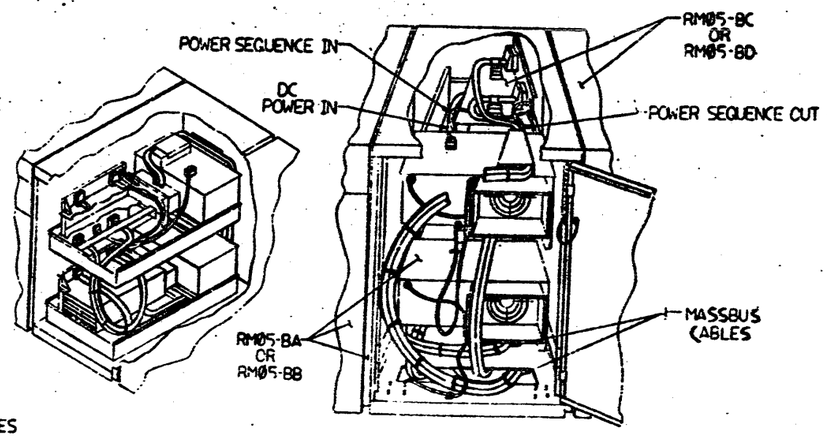
TWO MBA'S-SINGLE PORT
SEE D-AD-7017613-0-0
AND D-AD-7017606-0-0



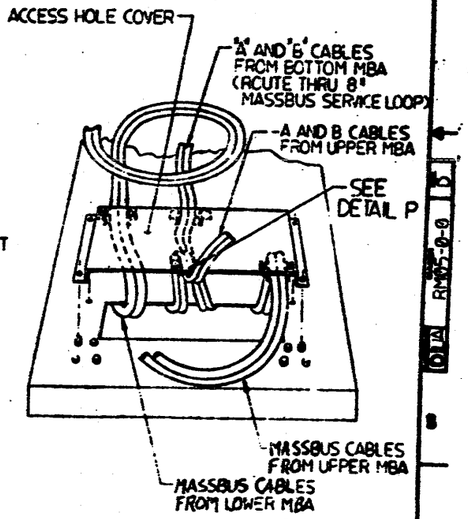
DETAIL P
SCALE: NONE



ONE MBA - DUAL PORT
SEE D-AD-7017748-0-0



TWO MBA'S - DUAL PORT
SEE D-AD-7017748-0-0
AND D-AD-7017747-0-0



CABLE MOUNTING TO ACCESS HOLE COVER

REVISION HISTORY		
DATE	ECO NUMBER	REV

TITLE	SIZE	CODE	DOCUMENT NUMBER	REV
RM05 DISK DRIVE ASSEMBLY	D	UA	RM05-0-0	D
	SCALE:		SHEET 5 OF 6	

CABLE CHART RM05—AC/AD

CABLE APPEARS ON DRAWING NO.	DESCRIPTION	FROM	TO	REMARKS
D-AD-7018322-0-0	JUMPER, POWER SEQUENCE			SEE NOTE 1
D-AD-7017606-0-0 D-AD-7017613-0-0	POWER SEQUENCE CABLE	J9 LOWER MBA	J8 UPPER MBA	
D-AD-7017747-0-0	MASS BUS CABLE, PORT 'A'	J2 LOWER MBA	J3 UPPER MBA	
D-AD-7018322-0-0	60 CONDUCTOR I/O CABLE	J1 ON M7684	IJ3 ON DISK DRIVE	
D-AD-7018322-0-0	26 CONDUCTOR I/O CABLE	J1 ON M7687	IJ2 ON DISK DRIVE	
D-AD-7018322-0-0	LINE CORD, AC INPUT	BACK OF POWER SUPPLY, UPPER MBA	J1 ON POWER SUPPLY, LOWER MBA	

CABLE CHART RM05 — BA/BB

D-AD-7018322-0-0	JUMPER, POWER SEQUENCE		PLUGS INTO J8 ON LOWER MBA	
D-AD-7017748-0-0	MASS BUS CABLE, PORT 'A'	HOST SYSTEM OR PREVIOUS MBA	J3 LOWER MBA	
D-AD-7018322-0-0	60 CONDUCTOR I/O CABLE	J1 ON M7684	IJ3 ON DISK DRIVE	
D-AD-7018322-0-0	26 CONDUCTOR I/O CABLE	J1 ON M7687	IJ2 ON DISK DRIVE	
D-AD-7018322-0-0	LINE CORD, AC INPUT	BACK OF POWER SUPPLY, LOWER MBA	WALL SOCKET	
D-AD-7017748-0-0	MASS BUS CABLE, PORT 'B'	HOST SYSTEM	J7 LOWER MBA	
D-AD-7017605-0-0	DUAL PORT HARNESS ASSEMBLY	J1 SWITCH PANEL ASSEMBLY	P11 TO PORT 'A' LAMP POSTS P12 TO PORT 'B' LAMP POSTS P10 TO 3PIN MATE-IN-LOK, MOUNTED IN SWITCH POSITION	SEE NOTE 3

CABLE CHART RM05 — AA/AB

D-AD-7018322-0-0	JUMPER, POWER SEQUENCE		PLUG INTO J8 ON LOWER MBA	
D-AD-7017613-0-0	MASS BUS CABLE PORT 'A'	HOST SYSTEM OR PREVIOUS MBA	J3 LOWER MBA	
D-AD-7018322-0-0	60 CONDUCTOR I/O CABLE	J1 ON M7684	IJ3 ON DISK DRIVE	
D-AD-7018322-0-0	26 CONDUCTOR I/O CABLE	J1 ON M7687	IJ2 ON DISK DRIVE	
D-AD-7018322-0-0	LINE CORD, AC INPUT	BACK OF POWER SUPPLY, LOWER MBA	WALL SOCKET	

CABLE CHART RM05-BC/BD

CABLE APPEARS ON DRAWING NO.	DESCRIPTION	FROM	TO	REMARKS
D-AD-7018322-0-0	JUMPER, POWER SEQUENCE			SEE NOTE 1
D-AD-7017747-0-0 D-AD-7017748-0-0	POWER SEQUENCE CABLE	J9 LOWER MBA	J8 UPPER MBA	
D-AD-7017747-0-0	MASS BUS CABLE PORT 'A'	J2 LOWER MBA	J3 UPPER MBA	
D-AD-7018322-0-0	60 CONDUCTOR I/O CABLE	J1 ON M7684	IJ3 ON DISK DRIVE	
D-AD-7018322-0-0	26 CONDUCTOR I/O CABLE	J1 ON M7687	IJ2 ON DISK DRIVE	
D-AD-7018322-0-0	LINE CORD, AC INPUT	BACK OF POWER SUPPLY, UPPER MBA	J1 ON POWER SUPPLY, LOWER MBA	
D-AD-7017747-0-0	MASS BUS CABLE, PORT 'B'	J6 LOWER MBA	J7 UPPER M8A	
D-AD-7017605-0-0	DUAL PORT HARNESS ASSY	J1 SWITCH PANEL ASSEMBLY	P11 TO PORT 'A' LAMP POSTS P12 TO PORT 'B' LAMP POSTS P10 TO 3PIN MATE-IN-LOK LOCATION IN SWITCH POSITION	SEE NOTE 3

REVISION HISTORY		
DATE	ECO NUMBER	REV

TITLE: RM05
DISK DRIVE ASSEMBLY

DOCUMENT NUMBER: D UA RM05-0-0 REV D
SCALE: — SHEET 4 OF 4

AUTOMATED BY PRTLST.3L(40)

P A R T S L I S T

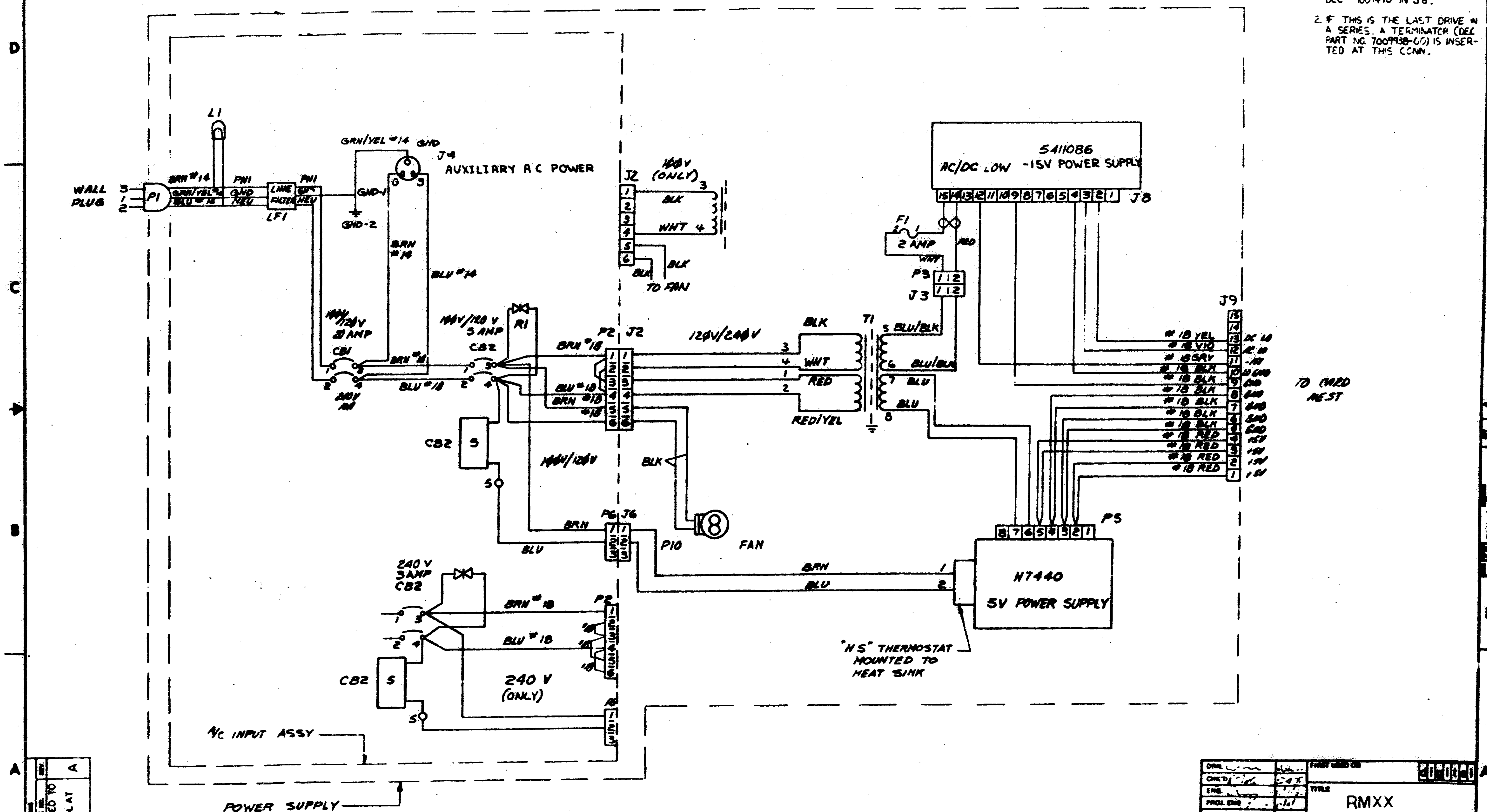
LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QUANTITY PER VARIATION AA	AB	AC	AD	BA	BB	BC	BD
1	1	D-AD-7017618-0-0	7017618-00	REWORK DRAWING, RM05 DISK DRIVE	1	-	1	-	1	-	1	-
2	2	D-AD-7017618-0-1	7017618-01	REWORK DRAWING, RM05 DISK DRIVE	-	1	-	1	-	1	-	1
3	3	D-AD-7017613-0-0	7017613-00	CABINET & MBA ASSY S.P. (60 HZ)	1	-	-	-	-	-	-	-
4	4	D-AD-7017613-0-0	7017613-01	CABINET & MBA ASSY S. P. (50 HZ)	-	1	-	-	-	-	-	-
5	5		7017748-00	CABINET & MBA ASSY D. P. (60HZ)	-	-	-	-	1	-	-	-
6	6		7017748-01	CABINET & MBA ASSY D. P. (50 HZ)	-	-	-	-	-	1	-	-
7	7		7017747-00	MBA ASSY, DUAL PORT (60 HZ)	-	-	-	-	-	-	1	-
8	8		7017747-01	MBA ASSY, DUAL PORT (50 HZ)	-	-	-	-	-	-	-	1
9	9		7017606-00	MBA ASSY, SINGLE PORT (60HZ)	-	-	1	-	-	-	-	-
10	10		7017606-01	MBA ASSY, SINGLE PORT (50HZ)	-	-	-	1	-	-	-	-
11	11		3017107-00	DISK PACK RM05P DATA	1	1	1	1	1	1	1	1

REVISION HISTORY			BASIC PART NO: ORM05
ENG	ECO NUMBER	REV	SECTION A OF A
---	INITIAL	*	SECTION, VARIATION INDEX
ME	RM05-CX002	A	[A] AA,AB,AC,AD,BA,BB,
ME	RM05-CX003	B	BC,BD
ME	RM05-CX004	C	[B]
WH	RM05-CX05A	D	
			[C]
			[D]
			[E]
			[F]

DRN: M. ENGLE	DATE: 05-FEB-80	D I G I T A L
CHK'D: B. NICHOLS	DATE: 05-FEB-80	TITLE: PARTS LIST
DES.ENG.: A. CLARK	DATE: 05-FEB-80	RM05 DISK DRIVE ASSEMBLY
RESP.ENG.: B. MONTERO	DATE: 05-FEB-80	DOCUMENT NUMBER
MFG.ENG.: B. BASSETT	DATE: 05-FEB-80	SIZE: K / CODE: PL / NUMBER: RM05-0-DBP / REV: D
ASSEMBLY NUMBER: D-UA-RM05-0-0	TOP DOCUMENT NUMBER: # B-DD-RM05-0	FILE NAME: Z1187D.PLS / EDIT #: 35

NOTES:

1. IF THIS IS THE FIRST DRIVE IN A SERIES, INSTALL JUMPER DEC # 7009490 IN J8.
2. IF THIS IS THE LAST DRIVE IN A SERIES, A TERMINATOR (DEC PART NO. 7009938-00) IS INSERTED AT THIS CONN.



RELEASED TO ECO CONTROL AT REV A		A

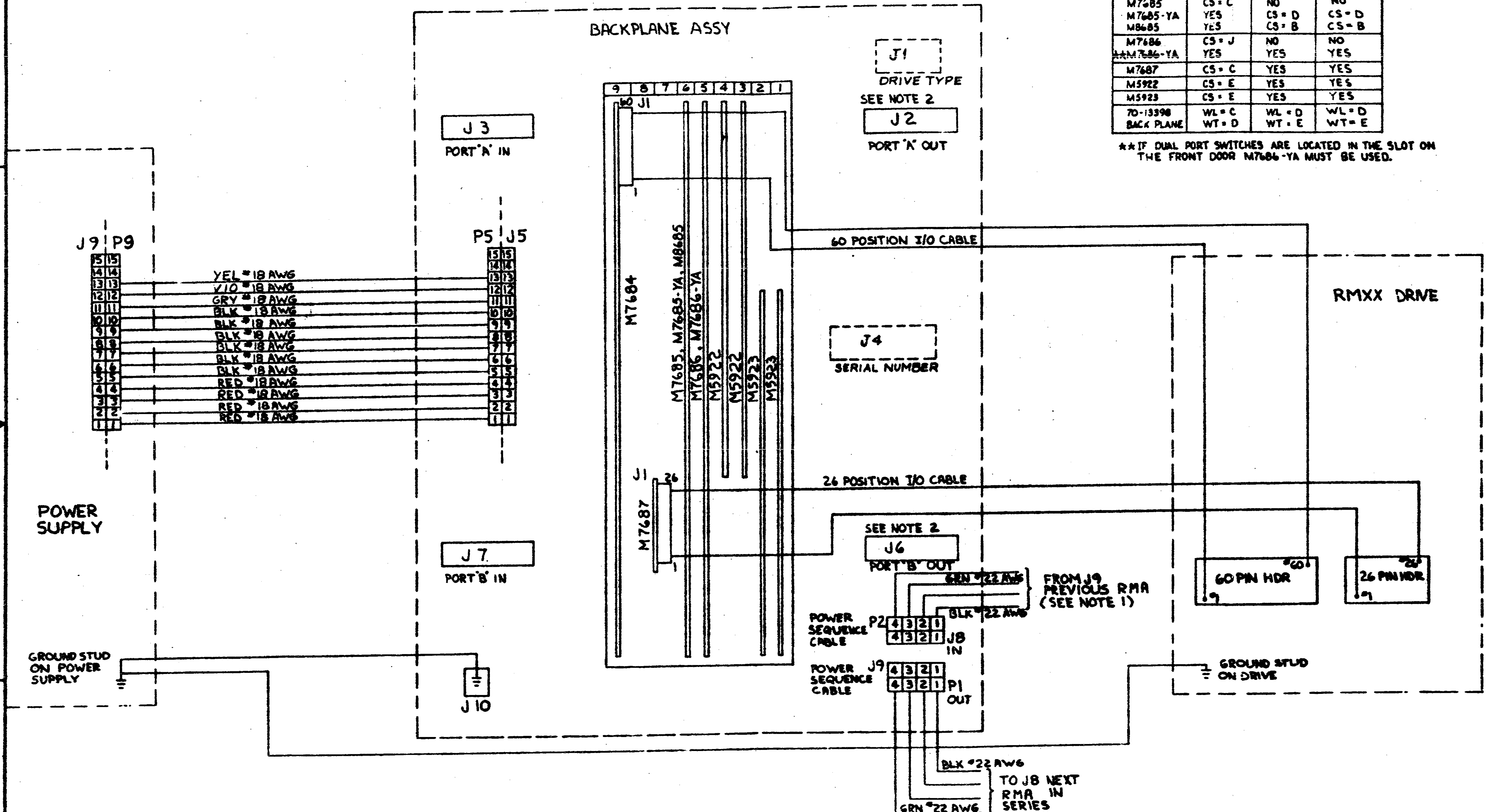
NEXT HIGHER ASSY	8-TC-RM82-0-1
SHEET 1 OF 2	

TITLE: RMXX SYSTEM DIAGRAM

SIZE	CODE	NUMBER	REV.
D	IC	RMXX-0-2	A

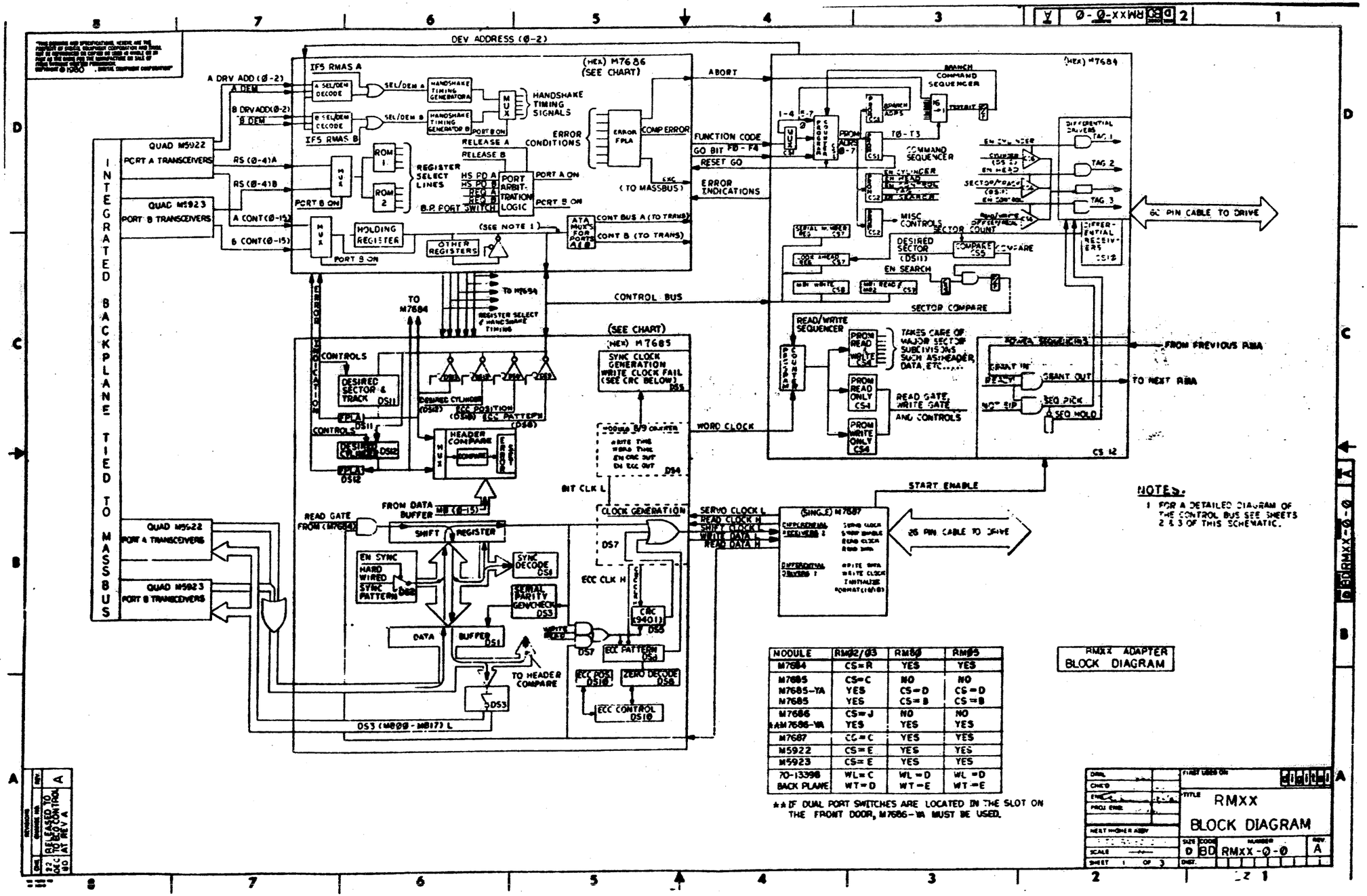
MODULE	RM02/03	RM80	RM05
M7684	CS = R	YES	YES
M7685 M7685-YA M8685	CS = C YES YES	NO CS = D CS = B	NO CS = D CS = B
M7686 **M7686-YA	CS = J YES	NO YES	NO YES
M7687	CS = C	YES	YES
M5922	CS = E	YES	YES
M5923	CS = E	YES	YES
70-13398 BACK PLANE	WL = C WT = D	WL = D WT = E	WL = D WT = E

** IF DUAL PORT SWITCHES ARE LOCATED IN THE SLOT ON THE FRONT DOOR M7686-YA MUST BE USED.


BACKPLANE ASSY
J1
DRIVE TYPE
SEE NOTE 2
J2
PORT 'A' OUT
J3
PORT 'A' IN
J9 P9
P5 J5
YEL #18 AWG
VIO #18 AWG
GRY #18 AWG
BLK #18 AWG
RED #18 AWG
M7684
M7685, M7685-YA, M8685
M7686, M7686-YA
M5922
M5923
60 POSITION I/O CABLE
J4
SERIAL NUMBER
RMXX DRIVE
POWER SUPPLY
26 POSITION I/O CABLE
M7687
SEE NOTE 2
J6
PORT 'B' OUT
J7
PORT 'B' IN
GRN #22 AWG
FROM J9 PREVIOUS RMA (SEE NOTE 1)
BLK #22 AWG
POWER SEQUENCE CABLE
P2
J8 IN
J9
P1 OUT
60 PIN HDR
26 PIN HDR
GROUND STUD ON POWER SUPPLY
J10
GROUND STUD ON DRIVE
TO J8 NEXT RMA IN SERIES

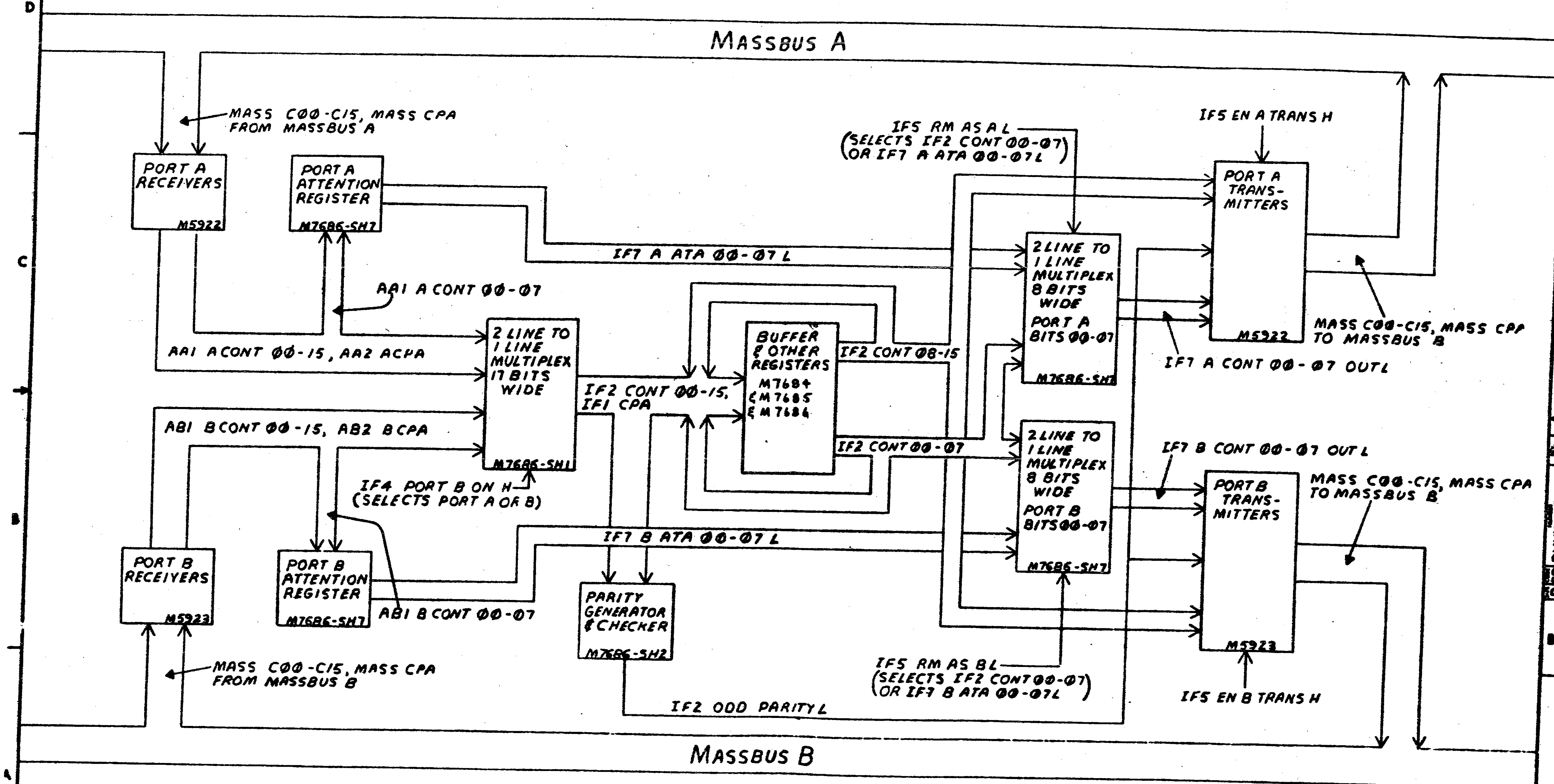
TITLE	SIZE	CODE	NUMBER	REV.
RMXX SYSTEM DIAGRAM	D	C	RMXX-Ø-2	A

SHEET 2 OF 2



MODULE	RM02/03	RM80	RM05
M7684	CS=R	YES	YES
M7685	CS=C	NO	NO
M7685-YA	YES	CS=D	CS=D
M7685	YES	CS=B	CS=B
M7686	CS=J	NO	NO
**M7686-YA	YES	YES	YES
M7687	CS=C	YES	YES
M5922	CS=E	YES	YES
M5923	CS=E	YES	YES
70-13398 BACK PLANE	WL=C WT=D	WL=D WT=E	WL=D WT=E

** IF DUAL PORT SWITCHES ARE LOCATED IN THE SLOT ON THE FRONT DOOR, M7686-YA MUST BE USED.



MASSBUS A
MASS C00-C15, MASS CPA FROM MASSBUS A
PORT A RECEIVERS
M5922
PORT A ATTENTION REGISTER
M7686-SH7
AA1 A CONT 00-07
AA1 ACONT 00-15, AA2 ACPA
2 LINE TO 1 LINE MULTIPLEX 17 BITS WIDE
M7686-SH1
IF7 A ATA 00-07 L
BUFFER & OTHER REGISTERS
M7684 & M7685 & M7686
IF2 CONT 08-15
IF2 CONT 00-15, IF1 CPA
IF2 CONT 00-07
IF5 RM AS A L (SELECTS IF2 CONT 00-07 OR IF7 A ATA 00-07 L)
2 LINE TO 1 LINE MULTIPLEX 8 BITS WIDE
PORT A BITS 00-07
M7686-SH7
IF5 EN A TRANS H
PORT A TRANS-MITTERS
M5922
MASS C00-C15, MASS CPA TO MASSBUS B
IF7 A CONT 00-07 OUT L
AB1 BCONT 00-15, AB2 BCPA
IF4 PORT B ON H (SELECTS PORT A OR B)
PORT B RECEIVERS
M5923
PORT B ATTENTION REGISTER
M7686-SH7
AB1 B CONT 00-07
IF7 B ATA 00-07 L
PARITY GENERATOR & CHECKER
M7686-SH2
2 LINE TO 1 LINE MULTIPLEX 8 BITS WIDE
PORT B BITS 00-07
M7686-SH7
IF7 B CONT 00-07 OUT L
PORT B TRANS-MITTERS
M5923
MASS C00-C15, MASS CPA TO MASSBUS B
IF5 RM AS B L (SELECTS IF2 CONT 00-07 OR IF7 B ATA 00-07 L)
IF5 EN B TRANS H
MASS C00-C15, MASS CPA FROM MASSBUS B
IF2 ODD PARITY L
MASSBUS B

DUAL PORT CONTROL BUS PATH

TITLE	SIZE	CODE	NUMBER	REV.
RMXX BLOCK DIAGRAM	D	BD	RMXX-Ø-Ø	A
SCALE —/— SHEET 2 OF 3				

CZ

SECTOR COUNT FROM DRIVE
STATUS+ERRORS FROM DRIVE
DRIVE ERROR SIGNALS
ERROR + STATUS FROM LOGIC
DEV ADDRESS LINES FROM DRIVE
A CONT (0-7) FOR RMAS (PORT A)
B CONT (0-7) FOR RMAS (PORT B)
LOOK AHEAD REG M7684 RMLA
DRIVE STATUS REG M7686 RMDS
HARDWIRED ON BACKPLANE
DRIVE TYPE REG M7686 RMDT
SERIAL NUMBER REG M7684 RMSN
LOGIC ERROR SIGNALS
ERROR REG #1 M7686 RMER1
ERROR REG #2 M7686 RMER2
CONTROL+STATUS REG #1 M7686 DVA F0-F4 GO RMCS1
TO LOGIC
MUX 8:1
ATA F/F
BCD TO DECIMAL DECODER
ATA REG
ATA 0-7
THIS LOGIC IS DUPLICATED ONE SECTION IS FOR PORT A AND ONE FOR PORT B
M7685
CONT OUT 0-7
TO MASSBUS DRIVERS
IF2 CONT 0-7
IF2 CONT 0-15
IF2 CONT 8-15 (TRI STATE)
A CONT (0-15) PORT A
B CONT (0-15) PORT B
PORT B ON
MUX
DISK ADDRESS REG M7685 RMDA
DESIRED CYLINDER REG M7685 RMDC
MAINT REG #1 WRITE M7684 RMMR1
TO LOGIC
MAINTENANCE REG #1+2 READ M7684
MR1 READ DATA (TO LOGIC)
MR2 READ DATA (TO LOGIC)
RMMR1 + RMMR2
ECC REG #1 M7685 RMEC1
COUNT CONTROL
PRELOAD POSITION
ECC REG #2 M7685
FROM ECC LOGIC
OFFSET REG M7686 RMOF
TO LOGIC
HOLDING (BUF) REG M7686 RMHR
FPLA M7685
DECODES SECTOR/TRACK POSITION INFORMATION
MUX M7684
FPLA M7685
DECODES CYLINDER POSITION INFORMATION
NRR (0-15)
COMPARE LOGIC M7685
ERROR CONDITION
CONTROL DATA
DRIVE BUS CONTROL
DRIVE BUS MUX (0-9) M7684
CYLINDER, TRACK AND CONTROL TO DRIVE

NOTES:
1. R AND T SIGNIFY DIFFERENTIAL RECEIVERS AND DRIVERS
2. T SIGNIFY A SET OF TRI STATE DRIVERS WITH A COMMON ENABLE.

CONTROL BUS AND REGISTER FUNCTIONS

REVISIONS		
ECN	CHANGE NO.	REV.

TITLE: RMXX BLOCK DIAGRAM	SIZE: D	CODE: BD	NUMBER: RMXX-0-0	REV: A
SCALE: —	SHEET 3 OF 3			

CZ 1

INDEX

RELEASED TO ECO CONTROL AT REV A

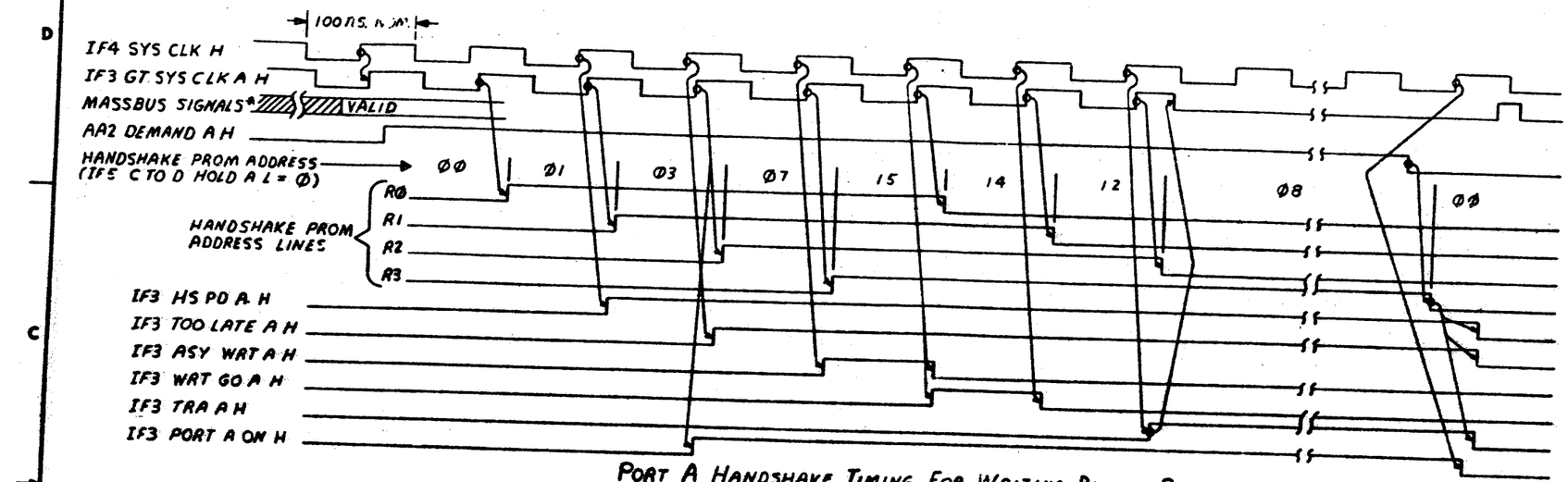
INDEX

INTERFACE TIMING DIAGRAM

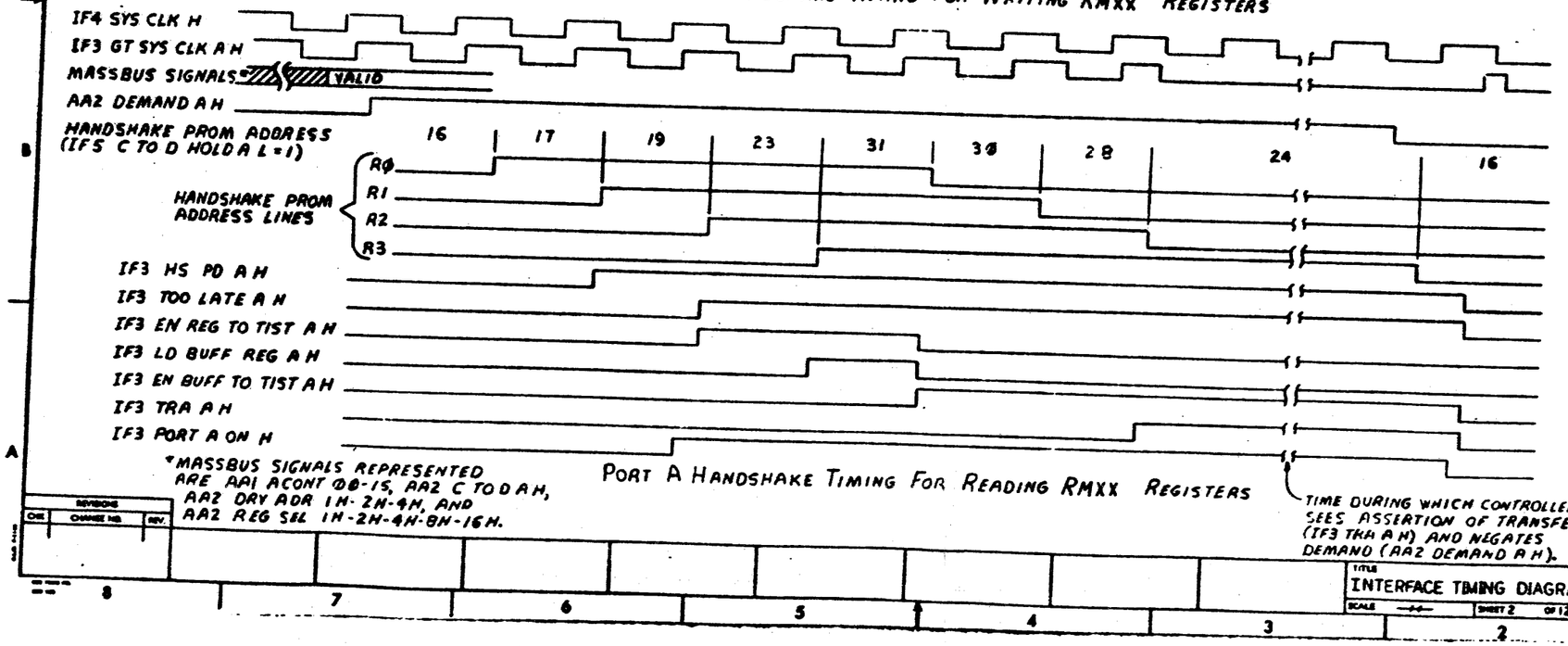
SIZE D | CODE TD | NUMBER RMXX-0-0 | REV A

SHEET 1 OF 12

CZ 1



PORT A HANDSHAKE TIMING FOR WRITING RMXX REGISTERS



PORT A HANDSHAKE TIMING FOR READING RMXX REGISTERS

*MASSBUS SIGNALS REPRESENTED ARE AA1 A CONT Ø0-15, AA2 C TO D A H, AA2 DRV ADR 1M-2M-4M, AND AA2 REG SEL 1M-2M-4M-8M-16M.

TIME DURING WHICH CONTROLLER SEES ASSERTION OF TRANSFER (IF3 TRA A H) AND NEGATES DEMAND (AA2 DEMAND A H).

HANDSHAKE PROM ADDRESS (DECIMAL) | IF3 HS PD A L | IF3 TOO LATE A H | IF3 TRA A L | IF3 EN BUFF TO TIST A H | IF3 LD BUFF REG A H | IF3 EN REG TO TIST A H | IF3 WRT GO A H | IF3 ASY WRT A H

00	0	0	1	1	0	0	1	0
01	0	0	1	1	0	0	0	0
02	1	0	1	1	0	0	1	0
03	0	0	1	1	0	0	0	0
04	1	0	1	1	0	0	1	0
05	1	0	1	1	0	0	1	0
06	1	0	1	1	0	0	1	0
07	0	0	1	1	0	0	1	0
08	1	0	1	1	0	0	1	0
09	1	0	1	1	0	0	1	0
10	1	0	1	1	0	0	1	0
11	1	0	1	1	0	0	1	0
12	0	1	0	1	0	0	0	0
13	1	0	1	1	0	0	1	0
14	0	1	1	1	0	0	0	0
15	0	1	1	1	0	0	1	0

HANDSHAKE PROM MAP FOR WRITING A REGISTER

16	1	0	1	1	0	0	1	0
17	0	0	1	1	0	0	0	0
18	1	0	1	1	0	0	1	0
19	0	0	1	1	0	0	1	0
20	1	0	1	1	0	0	1	0
21	1	0	1	1	0	0	1	0
22	1	0	1	1	0	0	1	0
23	0	0	1	1	1	0	0	0
24	1	0	1	1	0	0	0	0
25	1	0	1	1	0	0	1	0
26	1	0	1	1	0	0	1	0
27	1	0	1	1	0	0	1	0
28	0	0	0	0	0	0	0	0
29	1	0	1	1	0	0	1	0
30	0	0	1	1	0	0	0	0
31	0	0	1	1	0	0	0	0

HANDSHAKE PROM MAP FOR READING A REGISTER

NOTES:
1. TIMING IS SHOWN FOR PORT A. PORT B TIMING IS IDENTICAL.
2. ALL PROM ADDRESSES NOT SHOWN ABOVE ARE UNUSED.

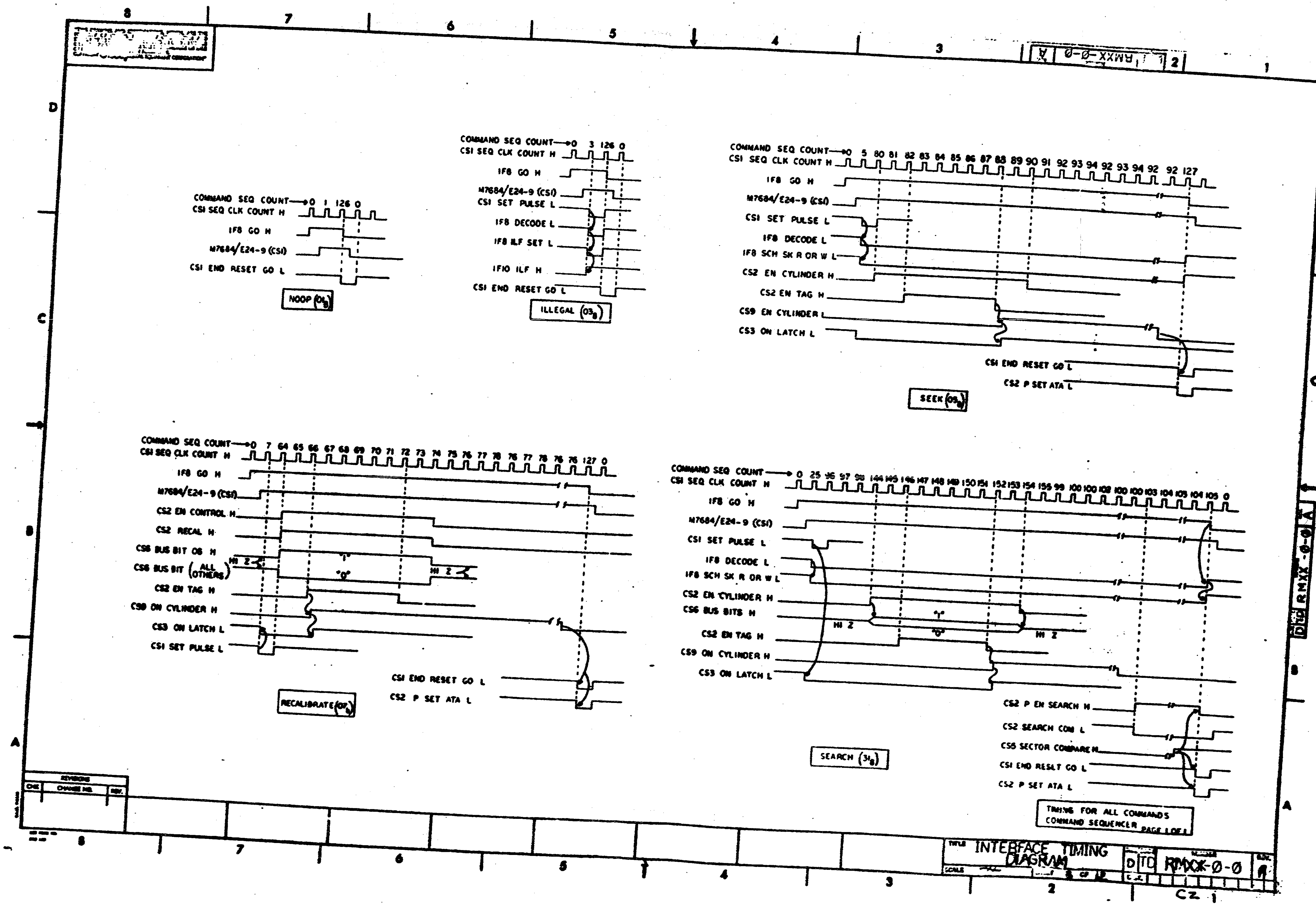
HANDSHAKE TIMING
SHEET 1 of 1

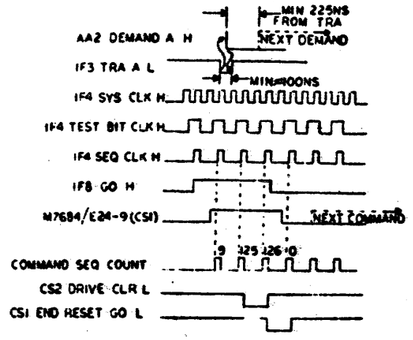
REVISIONS		
CHG	CHANGE NO.	REV.

TITLE: INTERFACE TIMING DIAGRAM							SIZE D	NUMBER RMXX-Ø-Ø	REV. A
SCALE —/4—	SHEET 2	OF 12					DIST.		

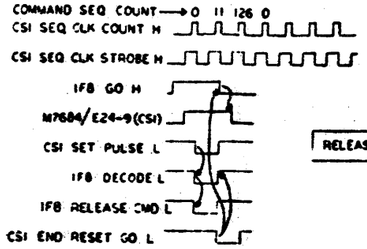
A.H

CZ 1

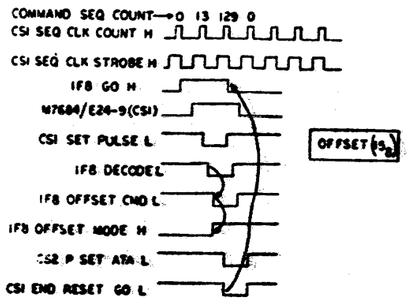

COMMAND SEQ COUNT→0 1 126 0
CSI SEQ CLK COUNT H
IF8 GO H
M7684/E24-9 (CSI)
CSI END RESET GO L
NOOP (01₈)
COMMAND SEQ COUNT→0 3 126 0
CSI SEQ CLK COUNT H
IF8 GO H
M7684/E24-9 (CSI)
CSI SET PULSE L
IF8 DECODE L
IF8 ILF SET L
IF10 ILF H
CSI END RESET GO L
ILLEGAL (03₈)
COMMAND SEQ COUNT→0 5 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 92 93 94 92 92 127
CSI SEQ CLK COUNT H
IF8 GO H
M7684/E24-9 (CSI)
CSI SET PULSE L
IF8 DECODE L
IF8 SCH SK R OR W L
CS2 EN CYLINDER H
CS2 EN TAG H
CS9 EN CYLINDER L
CS3 ON LATCH L
CSI END RESET GO L
CS2 P SET ATA L
SEEK (05₈)
COMMAND SEQ COUNT→0 7 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 76 77 78 76 76 127 0
CSI SEQ CLK COUNT H
IF8 GO H
M7684/E24-9 (CSI)
CS2 EN CONTROL H
CS2 RECAL H
CS6 BUS BIT 08 H
CS6 BUS BIT (ALL OTHERS)
HI Z
"1"
"0"
CS2 EN TAG H
CS9 ON CYLINDER H
CS3 ON LATCH L
CSI SET PULSE L
CSI END RESET GO L
CS2 P SET ATA L
RECALIBRATE (07₈)
COMMAND SEQ COUNT→0 25 96 97 98 144 145 146 147 148 149 150 151 152 153 154 155 99 100 100 102 100 100 103 104 105 104 105 0
CSI SEQ CLK COUNT H
IF8 GO H
M7684/E24-9 (CSI)
CSI SET PULSE L
IF8 DECODE L
IF8 SCH SK R OR W L
CS2 EN CYLINDER H
CS6 BUS BITS H
HI Z
"1"
"0"
CS2 EN TAG H
CS9 ON CYLINDER H
CS3 ON LATCH L
CS2 P EN SEARCH H
CS2 SEARCH COM L
CS5 SECTOR COMPARE H
CSI END RESLT GO L
CS2 P SET ATA L
SEARCH (31₈)
TIMING FOR ALL COMMANDS
COMMAND SEQUENCER PAGE 1 OF 1
INTERFACE TIMING DIAGRAM
D TD RMXX-0-0
REVISIONS
CHG CHANGE NO. REV.
RMXX-0-0 A



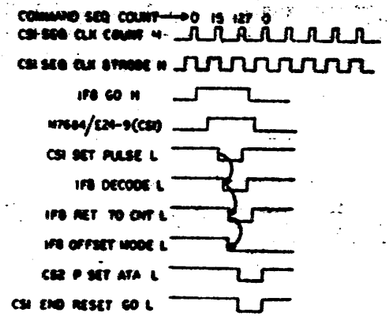
DRIVE CLEAR (01_8)



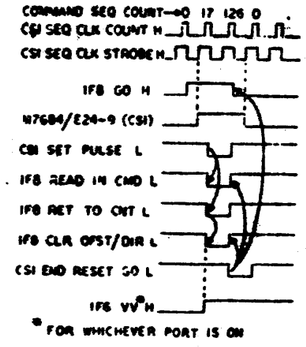
RELEASE (13_8)



OFFSET (15_8)

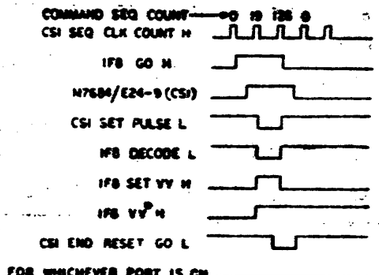


RETURN TO CENTERLINE (17_8)



* FOR WHICHEVER PORT IS ON

READ IN PRESET (21_8)



FOR WHICHEVER PORT IS ON

PACK ACKNOWLEDGE (23_8)

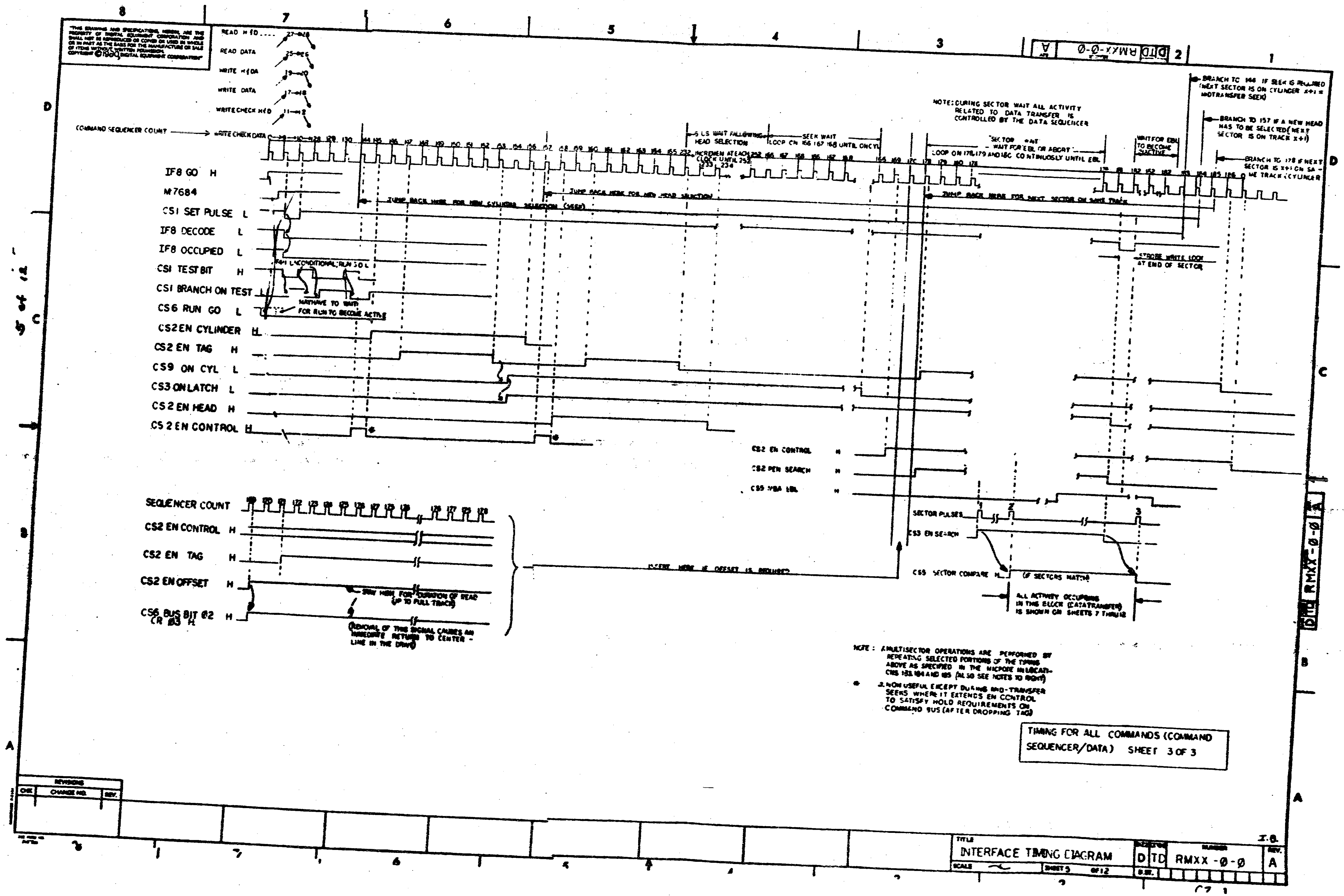
TIMING FOR ALL COMMANDS
COMMAND SEQUENCER PAGE 1 OF 1

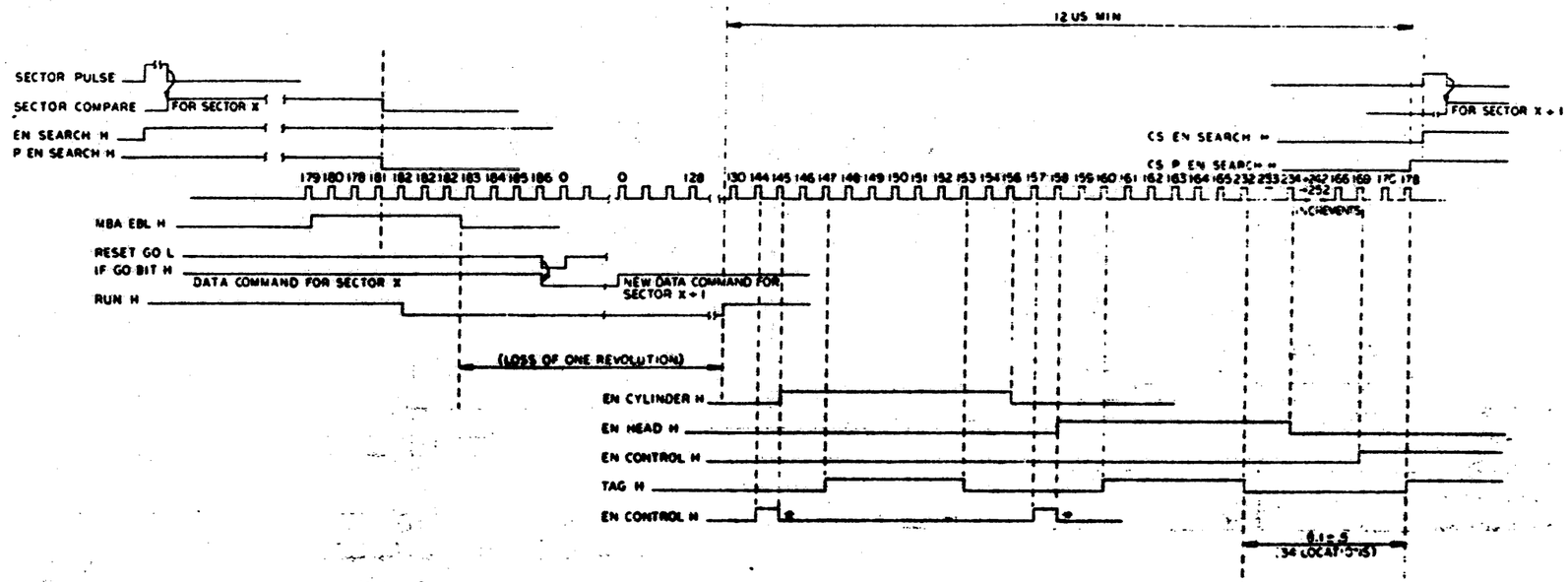
REVISIONS		
DWG	CHANGE NO.	REV

TITLE	INTERFACE TIMING DIAGRAM								
SCALE		SHEET 4 OF 12							
SIZE	CODE	NUMBER							REV
D	TD	RMXX-0-0							A
NEXT ASSY									

DWG RMXX-0-0 A

CZ 1


READ H FD
READ DATA
WRITE H FDA
WRITE DATA
WRITECHECK HFD
WRITE CHECK DATA
COMMAND SEQUENCER COUNT
IF8 GO H
M7684
CS1 SET PULSE L
IF8 DECODE L
IF8 OCCUPIED L
CS1 TEST BIT H
CS1 BRANCH ON TEST L
CS6 RUN GO L
CS2 EN CYLINDER H
CS2 EN TAG H
CS9 ON CYL L
CS3 ON LATCH L
CS2 EN HEAD H
CS2 EN CONTROL H
JUMP BACK HERE FOR NEW CYLINDER SELECTION (SEEK)
JUMP BACK HERE FOR NEW HEAD SELECTION
JUMP BACK HERE FOR NEXT SECTOR ON SAME TRACK
NOTE: DURING SECTOR WAIT ALL ACTIVITY RELATED TO DATA TRANSFER IS CONTROLLED BY THE DATA SEQUENCER
SEEK WAIT
LOOP ON 166 167 168 UNTIL ONCYL
SECTOR WAIT
WAIT FOR EBL OR ABORT
LOOP ON 178,179 AND 180 CONTINUOUSLY UNTIL EBL
WAIT FOR EBL TO BECOME INACTIVE
BRANCH TO 144 IF SEEK IS REQUIRED (NEXT SECTOR IS ON CYLINDER X+1 = MIDTRANSFER SEEK)
BRANCH TO 157 IF A NEW HEAD HAS TO BE SELECTED (NEXT SECTOR IS ON TRACK X+1)
BRANCH TO 178 IF NEXT SECTOR IS X+1 ON SAME TRACK/CYLINDER
STROBE WRITE LOCK AT END OF SECTOR
CS2 EN CONTROL H
CS2 PEN SEARCH H
CS5 MBA EBL H
SECTOR PULSES
CS3 EN SEARCH
CS5 SECTOR COMPARE H
(IF SECTORS MATCH)
ALL ACTIVITY OCCURRING IN THIS BLOCK (DATA TRANSFER) IS SHOWN ON SHEETS 7 THRU 12
SEQUENCER COUNT
CS2 EN CONTROL H
CS2 EN TAG H
CS2 EN OFFSET H
CS6 BUS BIT 02 H
STAY HERE FOR DURATION OF READ (UP TO FULL TRACK)
(REMOVAL OF THIS SIGNAL CAUSES AN IMMEDIATE RETURN TO CENTER-LINE IN THE DRIVE)
INSERT HERE IF OFFSET IS REQUIRED
NOTE: 1. MULTISECTOR OPERATIONS ARE PERFORMED BY REPEATING SELECTED PORTIONS OF THE TIMING ABOVE AS SPECIFIED IN THE MICRO LOCATIONS 183, 184 AND 185 (ALSO SEE NOTES TO RIGHT)
2. NOW USEFUL EXCEPT DURING MID-TRANSFER SEEKS WHERE IT EXTENDS EN CONTROL TO SATISFY HOLD REQUIREMENTS ON COMMAND BUS (AFTER DROPPING TAG)
TIMING FOR ALL COMMANDS (COMMAND SEQUENCER/DATA) SHEET 3 OF 3
INTERFACE TIMING DIAGRAM
D DTD RMXX-0-0 A
SHEET 5 OF 12
REVISIONS



NOTES:

#1. NON USEFUL EXCEPT DURING MID-TRANSFER SEEKS WHERE IT EXTENDS EN CONTROL TO SATISFY HOLD REQUIREMENTS ON COMMAND BUS (AFTER DROPPING TAG).

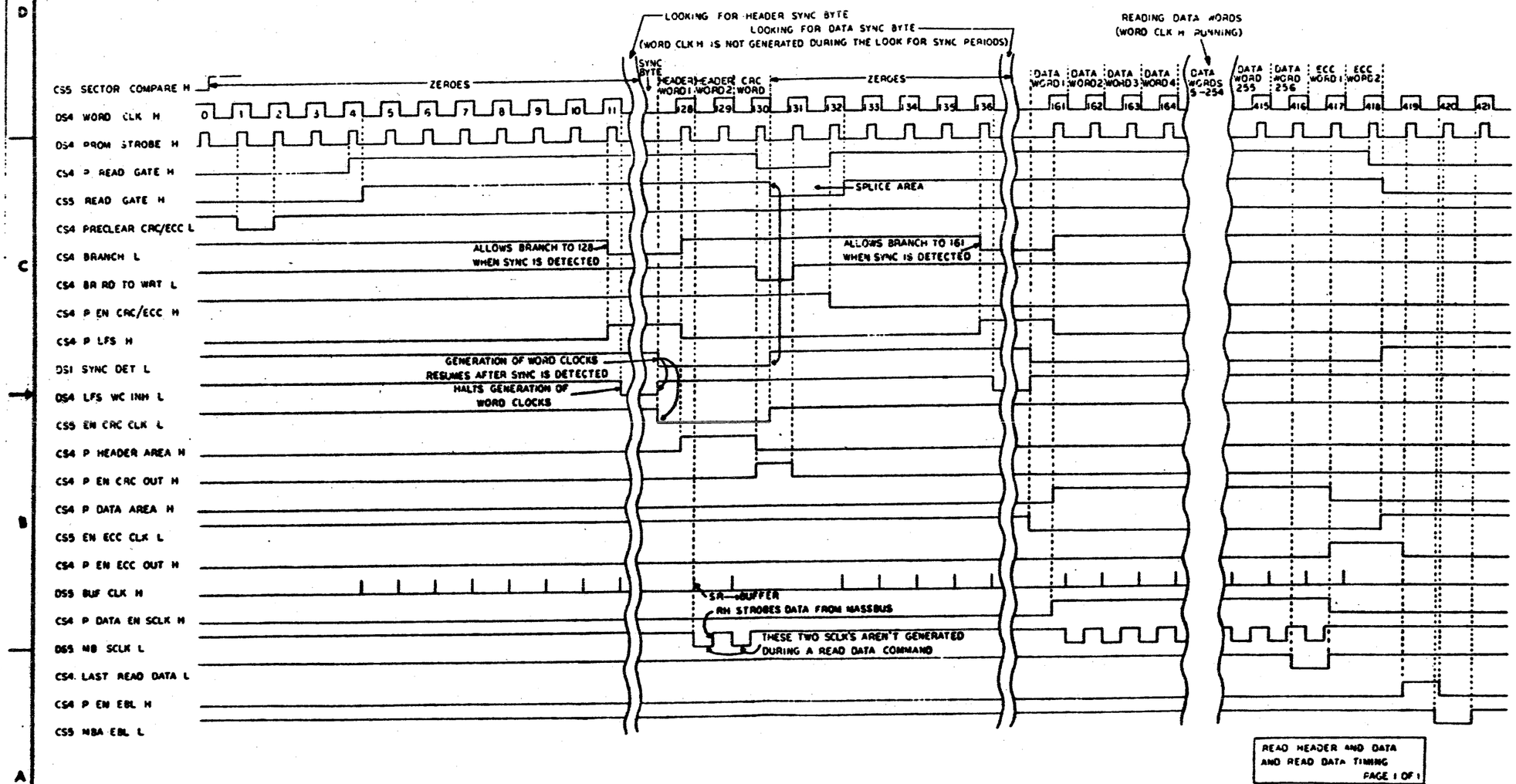
TIMING FOR START OF DATA COMMAND ON SECTOR X + 1 IMMEDIATELY FOLLOWING DATA COMMAND ON SECTOR X AND OFFSET TIMING

PAGE 1 OF 1

REVISION HISTORY		
DATE	ECO NUMBER	REV

TITLE	INTERFACE TIMING DIAGRAM
DOCUMENT NUMBER	DTC RMXX-0-0
REV	A
SCALE	—
SHEET	5 OF 12

DTC RMXX-0-0 A



READ HEADER AND DATA AND READ DATA TIMING
PAGE 1 OF 1

REVISIONS		
CHG	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
INTERFACE TIMING DIAGRAM	D	TD	RMXX-0-0	A
SCALE	SHEET 9 OF 12	DWG.		

READ DATA

WRITE DATA

ZEROES

SYNC BYTE

HEADER WORD 1 | HEADER WORD 2 | CRC WORD

ZEROES

SYNC

DATA WORD 0 | DATA WORDS 2-254 | DATA WORD 255 | DATA WORD 256 | ECC WORD 1 | ECC WORD 2 | POST-AMBLE WORD ZEROES

CS5 SECTOR COMPARE H
DS4 WORD CLK H
DS4 PROM STROBE H
CS4 P READ GATE H
CS5 READ GATE H
CS4 P RECLEAR CRC/ECC L
CS4 P EN CRC/ECC H
CS4 P LFS H
DS1 SYNC DET L
DS4 LFS WC 8H L
CS5 EN CRC CLK L
CS4 P HEADER AREA H
CS4 P EN CRC OUT H
DS5 BUF CLK H
CS4 BRANCH L
CS4 BR RD TO WRT L
CS4 P WRITE GATE H
CS4 DS WRITE GATE H
CS4 EN SYNC H
CS4 P DATA AREA H
CS5 EN ECC CLK L
CS4 P EN ECC OUT H
DS4 EN ECC OUT H
CS4 P DATA EN SCLK H
CS4 P EN LOAD SR H
DS5 MB SCLK L
DS3 WRT CLK L
DS5 EN LOAD SR H
CS4 P EN EBL H
CS5 MBA EBL L

READING ENDS

GENERATION OF WORD CLOCKS BEGINS AFTER SYNC IS DETECTED

HALTS GENERATION OF WORD CLOCKS

WORD LOADED FROM MASSBUS TO RMXX BUFFER

ALLOWS CHARGE FROM READ TO WRITE OPERATION

WRITING BEGINS

RMXX REQUESTS A WORD FROM THE RH

RMXX RECEIVES THE WORD FROM THE RH

SYNC LOADED INTO SHIFT REGISTER

DATA WORD LOADED INTO SHIFT REG

LOOKING FOR HEADERS SYNC WORD CLOCK H IS NOT GENERATED DURING THIS PERIOD. (RESET)

WRITING DATA WORDS WORD CLK H RUNNING

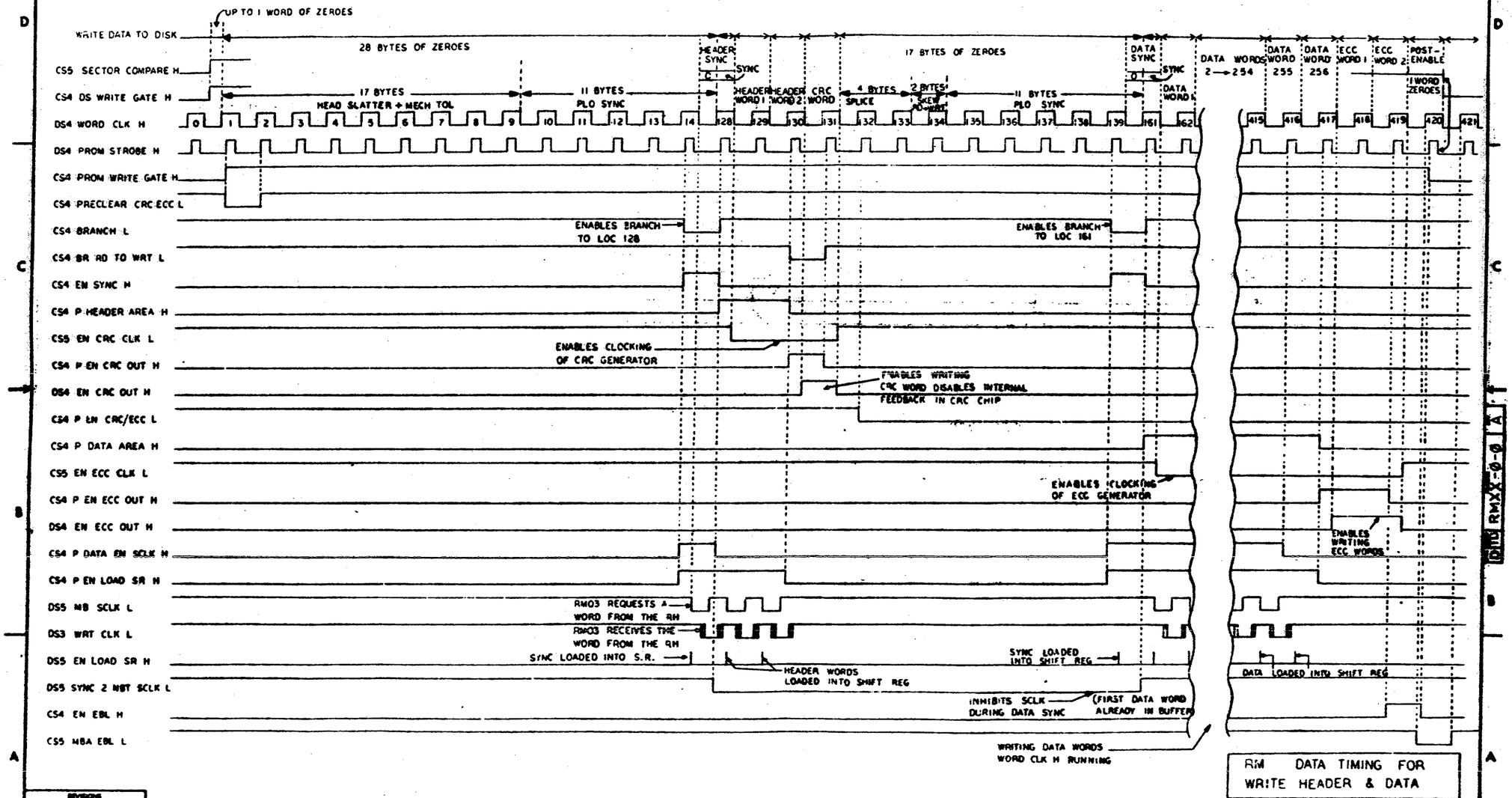
TIMING FOR WRITE DATA OPERATION SHEET 1 OF 1

REVISIONS		
ONE	CHANGE NO.	REV.

TITLE	INTERFACE TIMING DIAGRAM	SIZE D	CODE TD
SCALE	SHEET 10 OF 12	NUMBER RMXX -0-0	REV. A

E.E.

CZ

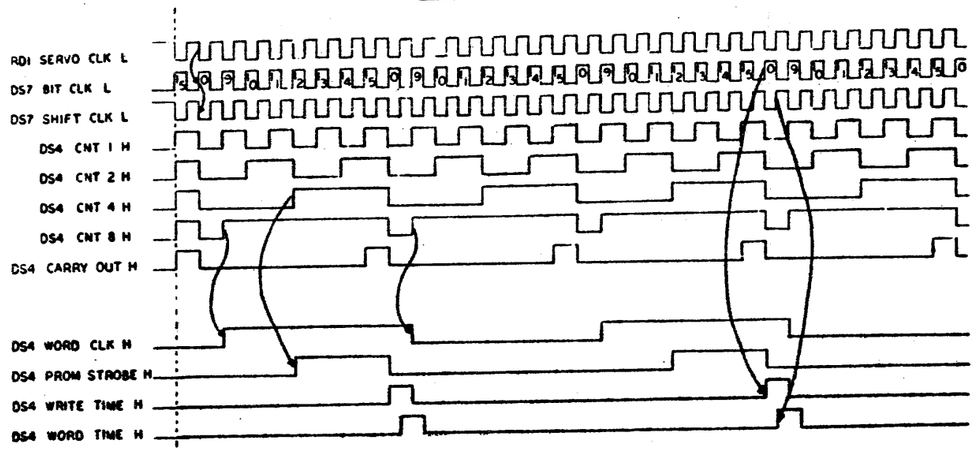


REVISIONS		
CHR	CHANGE NO.	REV.

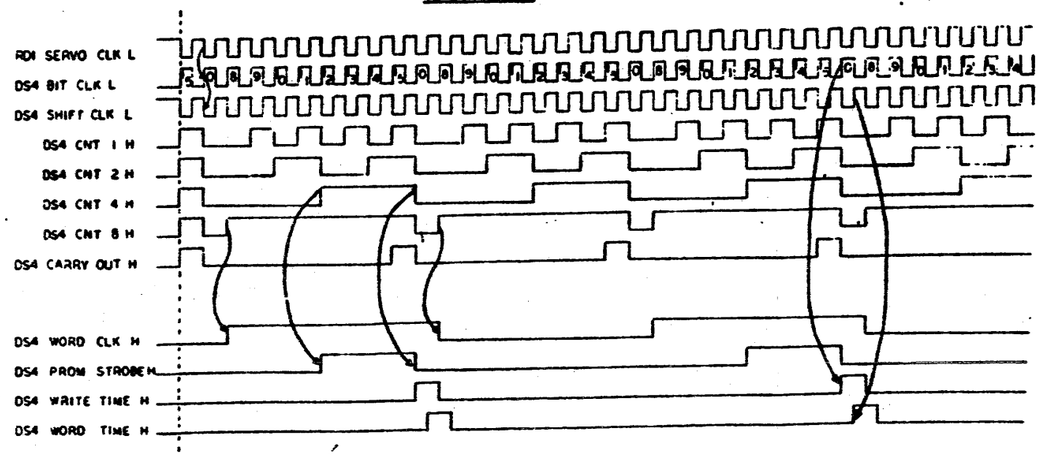
TITLE	SIZE	CODE	NUMBER	REV.
INTERFACE TIMING DIAGRAM	D	TD	RMXx-Ø-Ø	A
SCALE —	SHEET 5 OF 12		DIST.	

DTD RMXX-Ø-Ø A

16 BIT MODE



18 BIT MODE



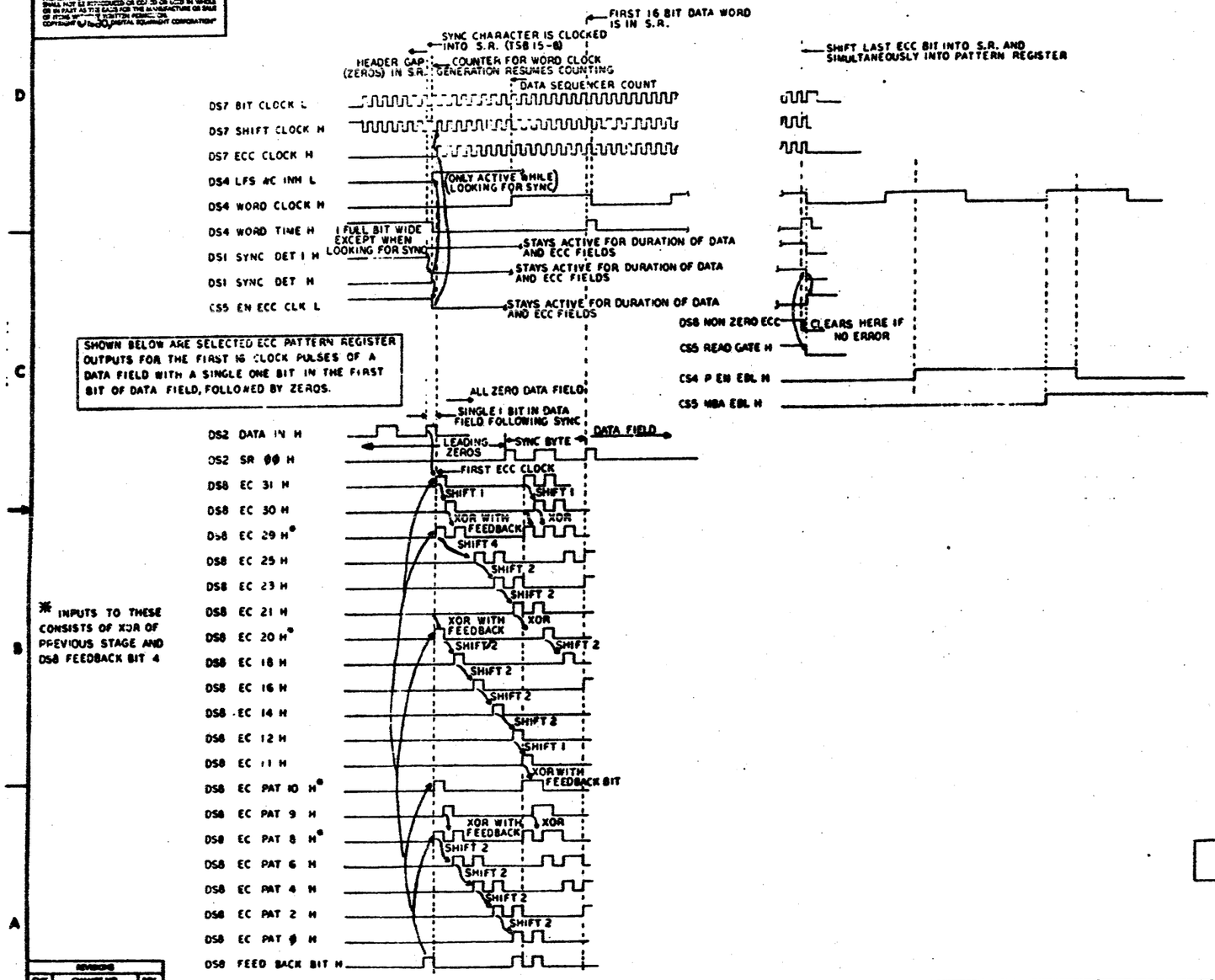
NOTE

1. THESE TIMING DIAGRAMS DESCRIBE THE BASIC DATA TIMING GENERATED ON THE M7685 MODULE (SHEET DS4).
2. THE NUMBER ENCLOSED UNDER THE LEADING EDGE OF THE SIGNAL DS7 BIT CLOCK L (_ 9 _) INDICATES THE COUNT VALUE OF E6 PRODUCED BY THE LEADING EDGE OF THAT PULSE.

BASIC DATA TIMING (CLOCK GENERATION) PAGE 1 OF 1

REVISIONS		
ECO	CHANGE NO.	REV.

TITLE: INTERFACE TIMING DIAGRAM
SIZE: D | CODE: TD | NUMBER: RMXX-Ø-Ø | REV: A
SCALE: ~ | SHEET 7 OF 12



TIMING FOR ECC CLOCK GENERATION AND PATTERN GENERATION DURING A READ OPERATION PAGE 1 OF 1

REVISIONS		
ECO	CHANGE NO.	REV.

TITLE	SIZE	NUMBER	REV
INTERFACE TIMING DIAGRAM	D	TD RMXX-Ø-Ø	A
SCALE	DRAWN 11 OF 12	CHKD	

DTD RMXX-Ø-Ø A

DS7 BIT CLOCK L
DS7 SHIFT CLOCK H
DS7 BCC CLOCK H
DS4 WORD CLK H
CS5 EN ECC CLK L
CS4 P EN EBL H
DS8 NON ZERO ECC H
DS8 DCK SET L
DS10 EN LOAD POS L
DS10 SET POS H
DS10 COUNT POS H
DS10 ECH SET L
IF9 ABORT L

LAST BIT OF ECC FIELD CLOCKED HERE PATTERN REG

POS REG PARALLEL LOADED BY EACH BCC CLOCK H (SEE NOTE 1)

POS REG INCREMENTED BY EACH BCC CLOCK

COUNTING LEADING ZEROES

COUNTING ERROR POSITION

POS REG REACHES END OF FIELD COUNT (SEE NOTE 2)

UNCORRECTABLE ERROR DETECTED

TRANSITION ON CS5 TERMINATES CLOCKING WITH BCK & ECH CLOCKS SET

TIMING FOR ECC HARD ERROR DETECTION

NOTES: (1) THE POSITION REGISTER IS PARALLEL RELOADED TO:
(a) $64088_{(8)}$ FOR 16 BIT MODE.
(b) $62086_{(8)}$ FOR 18 BIT MODE.
(2) THE END OF FIELD COUNT FOR THE POSITION REGISTER IS:
(a) $10040_{(8)}$ FOR 16 BIT MODE.
(b) $11040_{(8)}$ FOR 18 BIT MODE.

A SQUARED A ZERO ECC CORRECTABLE ERROR READ IS DETECTED DURING THE CORRECTION PERIOD TERMINATING AS AS SHOWN HERE.

LAST BIT SHIFTED INTO PATTERN REGISTER

DS7 BIT CLOCK L
DS7 SHIFT CLOCK H
DS7 ECC CLOCK H
DS8 NON ZERO ECC H
DS10 ECC DONE H
IF9 ABORT L

CORRECTION STOPS

CORRECTIBLE ERROR DETECTED

SEQUENCER ON CS6 TERMINATES CLOCKING WITH BCK CLOCK SET

ECC CORRECTION
SHEET 1 OF 1

REVISIONS		
CHK	CHANGE NO.	REV

TITLE	INTERFACE TIMING DIAGRAM
SIZE	D
CODE	TD
NUMBER	RMXX-Ø-Ø
REV.	A
SCALE	—
SHEET	12 OF 12
DIST	

1Cz

INDEX

INDEX
PAGE 1 OF 1

RELEASED TO ECO CONTROL AT REV A

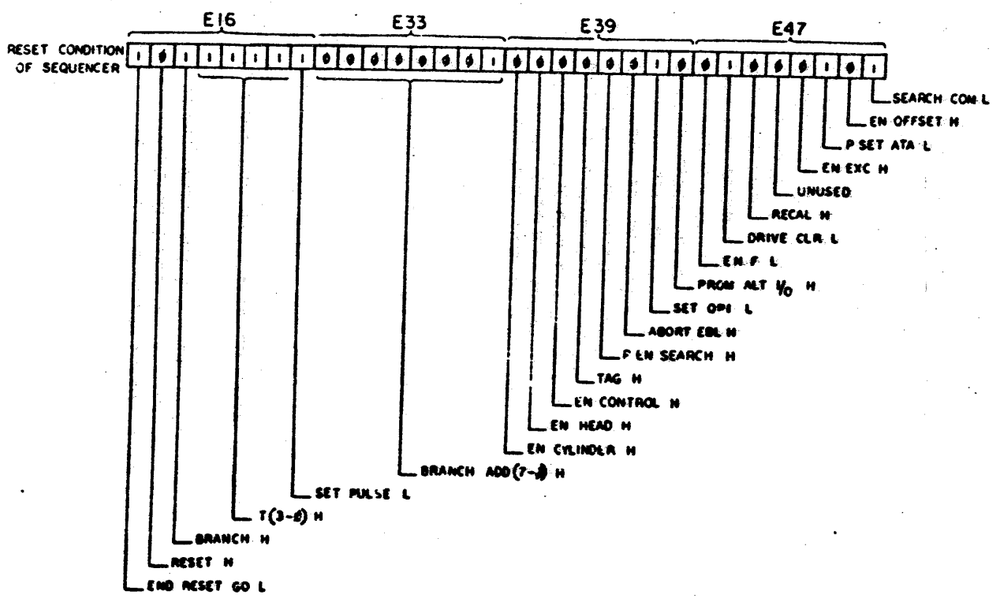
RMXX FLOW DIAGRAMS

NEXT HIGHER ASSY. B-TC-RM03-0-1

SIZE D CODE FD NUMBER RMXX-Ø-Ø REV. A

SHEET 1 OF 13

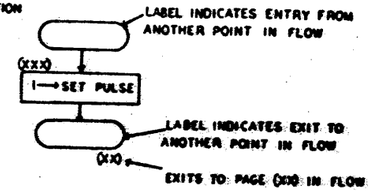
CZ 1



TEST CYCLE CODE	BRANCH CONDITION
00	OCCUPIED L
01	ON CYLINDER L
02	ABORT L
03	UNIT READY L
04	NOT USED
05	F 4 L
06	ON LATCH L
07	RUN AND GO L
10	MBA EBL L
11	SECTOR COMPARE L
12	OFFSET MODE L
13	DATA COMMAND L
14	SEEK REQUIRED L
15	NEW TRACK REQUIRED L
16	CONTINUE L
17	UNCONDITIONAL BRANCH

NOTE:

1. (xxx) IS ROM LOCATION IN OCTAL OF THIS MICROWORD



2. EXAMPLE 1→SET PULSE, MEANS ASSERT THE SIGNAL "SET PULSE L"
3. PROM 1/0 IS NOT SHOWN IN FLOWS.
   ALL OTHER SIGNALS ASSERTED DURING ANY MICROCODE WORD ARE SHOWN IN THE FLOW FOR THAT WORD.
4. ALL ADDRESSES, BRANCH ADDRESSES AND TEST CODES SHOWN IN THE FLOWS ARE IN OCTAL.

CONTROL SEQUENCER
RESET CONDITION AND BRANCH CODES PAGE 1 OF 1

REVISIONS
CHG	CHANGE NO.	REV.

TITLE RMXX FLOW DIAGRAMS
SIZE D | CODE FD | DRAWING RMXX-0-0 | REV. A
SCALE — | SHEET 2 OF 13
CZ 1

START

25↑
1 — BRANCH
17 — TEST CODE
1 — BR ADDR
1 — EN F

(UNIT READY=0) OR (V.V.=0) OR (COMP ERR=1) → ERROR START (2)

FC 1/41
FC 3/43
FC 5/45
FC 7/47
FC 11/51
FC 13/53
FC 15/53
FC 17/57
FC 21/61
FC 23/63
PACK ACK
FC 25/65
FC 27/67
FC 31/71
FC 33/73
FC 35/75
FC 37/77

0103
1 — BRANCH
17 — TEST CODE
176 — BR ADDR
1 — SET PULSE
END (3)

0101
1 — BRANCH
17 — TEST CODE
176 — BR ADDR
1 — SET PULSE
END (3)

0105
1 — BRANCH
5 — TEST CODE
120 — BR ADDR
1 — SET PULSE
F4=0
0106
1 — RESET
1 — END RESET GO
START (1)
SEEK (3)

0107
1 — BRANCH
5 — TEST CODE
188 — BR ADDR
1 — SET PULSE
F4=0
0110
1 — RESET
1 — END RESET GO
START (1)
RECAL (3)

0111
1 — BRANCH
5 — TEST CODE
175 — BR. ADDR.
1 — SET PULSE
F4=0
0112
1 — BRANCH
17 — TEST CODE
200 — BR. ADDR.
DRV CLR (3)

0113
1 — BRANCH
5 — TEST CODE
176 — BR. ADDR
1 — SET PULSE
0114
1 — BRANCH
17 — TEST CODE
200 — BR. ADDR.
END (3)

0115
1 — BRANCH
5 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
F4=0
0116
1 — RESET
1 — END RESET GO
START (1)
ATA (3)

0117
1 — BRANCH
5 — TEST CODE
177 — BR. ADDR.
1 — SET PULSE
F4=0
0120
1 — RESET
1 — END RESET GO
START (1)
ATA (3)

PRESET

0121
1 — BRANCH
5 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
F4=0
0122
1 — BRANCH
17 — TEST CODE
200 — BR. ADDR.
END (3)

0123
1 — BRANCH
5 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
0124
1 — BRANCH
17 — TEST CODE
200 — BR. ADDR.
END (3)

0125
1 — BRANCH
17 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
END (3)

0127
1 — BRANCH
17 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
END (3)

0131
1 — BRANCH
5 — TEST CODE
140 — BR. ADDR.
1 — SET PULSE
F4=0
0132
1 — BRANCH
17 — TEST CODE
200 — BR. ADDR.
SEARCH (4)

0133
1 — BRANCH
5 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
0134
1 — BRANCH
17 — TEST CODE
200 — BR. ADDR.
END (3)

0135
1 — BRANCH
17 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
END (3)

0137
1 — BRANCH
17 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
END (3)

DATA COMMANDS (5)

REVISIONS
CHG | CHANGE NO. | REV.

CONTROL SEQUENCER FLOW
START PAGE 1 OF 6

TITLE RMXX FLOW DIAGRAMS
SIZE D CODE FD RMXX-0-0 REV. A
SCALE -/- SHEET 3 OF 13

DEC RMXX-0-0 A

ERROR START

FC 1/41 → @41: 1 → BRANCH; 11 → TEST CODE; 208 → BR ADDR
- DATA CMD=1 → @42: 1 → BRANCH; 13 → TEST CODE; 117 → BR ADDR
  - DATA COMMANDS (5)
  - DATA (347)=1 → @43: 1 → RESET; 1 → END RESET GO
    - DATA COMMANDS (5)
    - START (1)
- DATA CMD=0 → DATA COMMANDS (5)

FC 3/43 → @43: 1 → RESET; 1 → END RESET GO

FC 5/45 → @45: 1 → RESET; 1 → END RESET GO → START (1)

FC 7/47 → @47: 1 → RESET; 1 → END RESET GO → START (1)

FC 11/51 → @51: 1 → BRANCH; 5 → TEST CODE; 179 → BR ADDR; 1 → SET PULSE
- F4=0 → @52: 1 → BRANCH; 17 → TEST CODE; 285 → BR ADDR → DRV CLR (3)
- F4≠0 → @54: 1 → BRANCH; 17 → TEST CODE; 285 → BR ADDR → END (3)

FC 13/53 → @53: 1 → BRANCH; 5 → TEST CODE; 176 → BR ADDR
- F4=0 → @52: 1 → BRANCH; 17 → TEST CODE; 285 → BR ADDR → DRV CLR (3)
- F4≠0 → @54: 1 → BRANCH; 17 → TEST CODE; 285 → BR ADDR → END (3)

FC 15/55 → @55: 1 → RESET; 1 → END RESET GO → START (1)

FC 17/57 → @57: 1 → RESET; 1 → END RESET GO → START (1)

FC 21/61 → @61: 1 → BRANCH; 5 → TEST CODE; 92 → BR ADDR
- F4=0 → @62: 1 → BRANCH; 17 → TEST CODE; 285 → BR ADDR → PRST (1)
- F4≠0 → @64: 1 → BRANCH; 17 → TEST CODE; 209 → BR ADDR → PACK ACK (1)

FC 23/63 → @63: 1 → BRANCH; 5 → TEST CODE; 425 → BR ADDR
- F4=0 → @62: 1 → BRANCH; 17 → TEST CODE; 285 → BR ADDR → PRST (1)
- F4≠0 → @64: 1 → BRANCH; 17 → TEST CODE; 209 → BR ADDR → PACK ACK (1)

FC 25/65 → @65: 1 → RESET; 1 → END RESET GO → START (1)

FC 27/67 → @67: 1 → RESET; 1 → END RESET GO → START (1)

FC 31/71 → @71: 1 → BRANCH; 5 → TEST CODE; 176 → BR ADDR
- F4=0 → @72: 1 → BRANCH; 17 → TEST CODE; 285 → BR ADDR → END (3)
- F4≠0 → END (3)

FC 33/73 → @73: 1 → BRANCH; 5 → TEST CODE; 176 → BR ADDR
- F4=0 → @74: 1 → BRANCH; 17 → TEST CODE; 285 → BR ADDR → END (3)
- F4≠0 → END (3)

FC 35/75 → @75: 1 → RESET; 1 → END RESET GO → START (1)

FC 37/77 → @77: 1 → RESET; 1 → END RESET GO → START (1)

ABORT EBL (6)

NOTE: THE BRANCH CONDITION IS NEVER TRUE AT LOCATIONS @41,@42.

CONTROL SEQUENCER FLOW
PAGE 2 OF 6: ERROR START

REVISIONS		
ECN	CHANGE NO.	REV

TITLE	SIZE	CODE	NUMBER	REV.
RMXX FLOW DIAGRAMS	D	FD	RMXX-Ø-Ø	A
SCALE —	SHEET 4 OF 13		DWG.	

CZ 1

RECAL

100
1 → BRANCH
3 → TEST CODE
117 → BR ADDR
1 → EN CONTROL
1 → RECALIBRATE

UNIT READY = 0 → OPI (3)

101
1 → BRANCH
2 → TEST CODE
176 → BR ADDR
1 → EN CONTROL
1 → RECALIBRATE

ABORT = 1 → END (3)

102-107
1 → EN CONTROL
1 → TAG
1 → RECALIBRATE

110-111
1 → EN CONTROL
1 → RECALIBRATE

112
INCREMENT

113
1 → BRANCH
6 → TEST CODE
117 → BR ADDR

OPI (3)

114
1 → BRANCH
1 → TEST CODE
177 → BR ADDR

ON CYL = 0 / ON CYL = 1

115
1 → BRANCH
2 → TEST CODE
176 → BR ADDR

ABORT = 0 / ABORT = 1

116
1 → BRANCH
17 → TEST CODE
114 → BR ADDR

END (3)

ATA (3)

SEEK

120
1 → BRANCH
3 → TEST CODE
117 → BR ADDR
1 → EN CYL

UNIT READY = 0 → OPI (3)

121
1 → BRANCH
2 → TEST CODE
176 → BR ADDR
1 → EN CYL

ABORT = 1 → END (3)

122-127
1 → EN CYL
1 → TAG

130-131
1 → EN CYL

132
INCREMENT

133
1 → BRANCH
6 → TEST CODE
117 → BR ADDR

ON LATCH = 1 → OPI (3)

134
1 → BRANCH
1 → TEST CODE
177 → BR ADDR

ON CYL = 0 / ON CYL = 1

135
1 → BRANCH
2 → TEST CODE
176 → BR ADDR

ABORT = 0 / ABORT = 1

136
1 → BRANCH
17 → TEST CODE
134 → BR ADDR

END (3)

ATA (3)

END

DRV CLR

175
1 → DRIVE CLEAR

176
1 → END RESET GO
1 → RESET

START (1)

OPI

117
1 → END RESET GO
1 → RESET
1 → SET OPI

START (1)

ATA

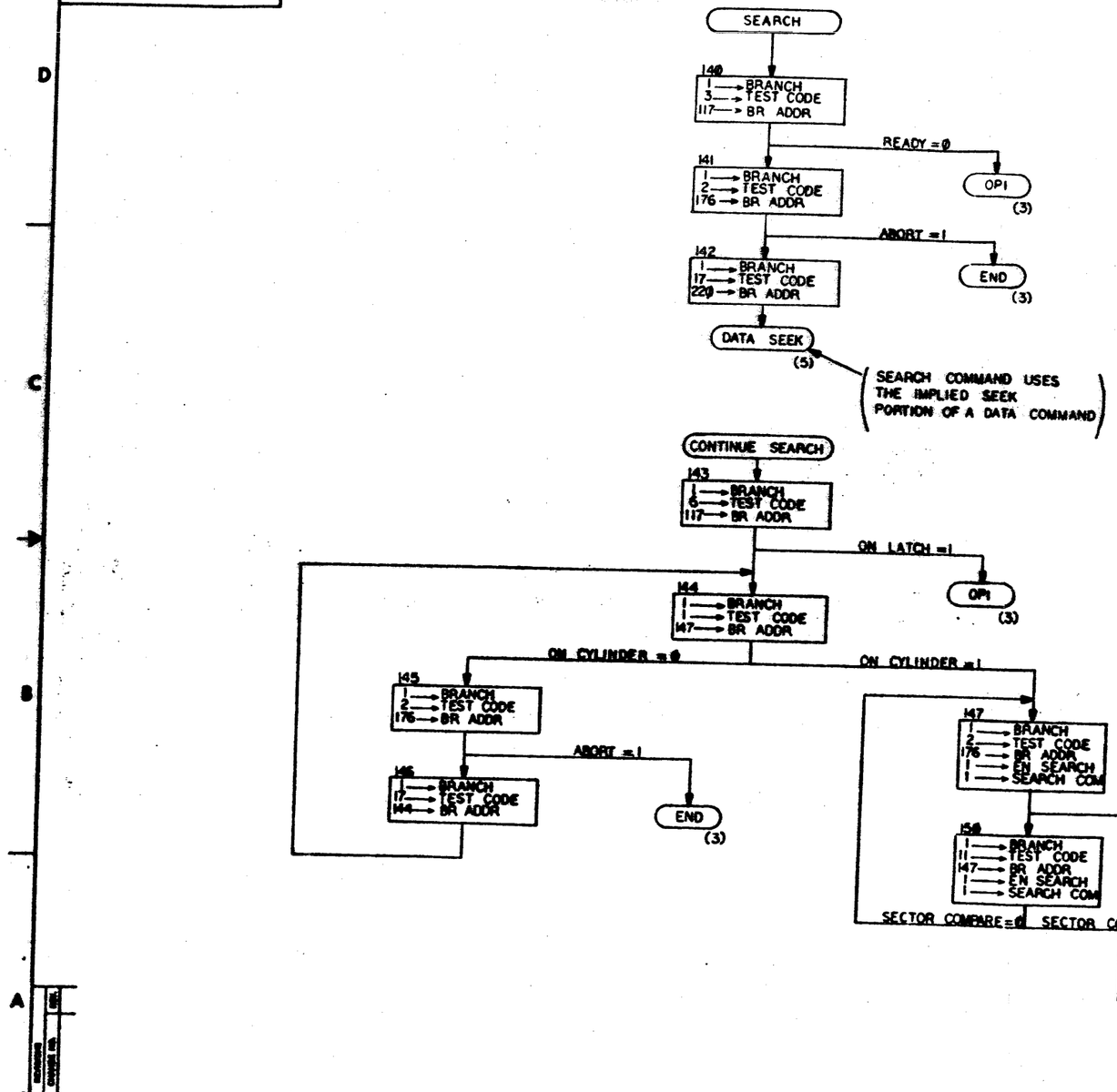
177
1 → END RESET GO
1 → RESET
1 → SET ATA

START (1)

CONTROL SEQUENCER FLOW
PAGE 3 OF 6: RECALIBRATE
SEEK
DRIVE CLEAR

TITLE: RMXX FLOW DIAGRAMS			
SIZE: D	CODE: FD	NUMBER: RMXX-0-0	REV: A
SCALE: —	SHEET: 5 OF 13		

CZ 1



CONTROL SEQUENCER FLOW
PAGE 4 OF 6: SEARCH

PROGRAMMER			
TITLE	RMXX FLOW DIAGRAMS		
SIZE D	CODE FD	NUMBER RMXX-0-0	REV. A
SCALE			
SHEET 6 OF 13			

DEC RMXX-0-0 A

DATA COMMANDS

200
1 → BRANCH
3 → TEST CODE
204 → BR ADDR
1 → EN EXC

READY = Ø → DATA OPI (6)

201
1 → BRANCH
2 → TEST CODE
205 → BR ADDR
1 → EN EXC

ABORT = 1 → ABORT EBL (6)

202
1 → BRANCH
7 → TEST CODE
220 → BR ADDR
1 → EN EXC

RUN AND GO = Ø

203
1 → BRANCH
17 → TEST CODE
201 → BR ADDR
1 → EN EXC

DATA SEEK

RUN AND GO = 1

220
1 → BRANCH
2 → TEST CODE
205 → BR ADDR
1 → EN EXC
1 → EN CNTR

ABORT = 1 → ABORT EBL (6)

221,222
1 → BRANCH
2 → TEST CODE
205 → BR ADDR
1 → EN CYL

ABORT = 1 → ABORT EBL (6)

223-230
1 → EN CYL
1 → TAG

231
1 → EN CYL

232
1 → BRANCH
Ø → TEST CODE
234 → BR ADDR
1 → EN CYL

OCCUPIED = Ø | OCCUPIED = 1

233
1 → BRANCH
17 → TEST CODE
143 → BR ADDR

CONTINUE SEARCH (4)

234 (5)

HEAD

234
1 → BRANCH
6 → TEST CODE
240 → BR ADDR

ON LATCH = 1 → DATA OPI (6)

235
1 → SET PULSE
1 → EN CNTR

236-237
1 → EN HEAD
1 → TAG

240-244
1 → EN HEAD
1 → TAG

245
1 → BRANCH
17 → TEST CODE
350 → BR ADDR
1 → EN HEAD
1 → TAG

350-351
1 → EN HEAD

352-373
INCREMENT
(5US WAIT)

374
1 → BRANCH
17 → TEST CODE
246 → BR ADDR

246
1 → BRANCH
1 → TEST CODE
251 → BR ADDR

ON CYL = Ø | ON CYL = 1

247
1 → BRANCH
2 → TEST CODE
205 → BR ADDR

ABORT = 1 → ABORT EBL (6)

250
1 → BRANCH
17 → TEST CODE
246 → BR ADDR

251
1 → EN CONTROL
1 → EN OFFSET

252
1 → BRANCH
12 → TEST CODE
262 → BR ADDR
1 → EN CONTROL
1 → EN OFFSET

OFFSET = 1 | OFFSET = Ø

DATA OFFSET (6)

262 (5)

262
262
1Ø → BRANCH
TEST CODE
265 → BR ADDR
EN CONTROL
1 → TAG
EN SEARCH
EN OFFSET
EN EXC

MBA EBL = Ø

265
1 → EN CONTROL
1 → TAG
1 → EN OFFSET
1 → EN EXC
1 → SET PULSE

MBA EBL = 1

266
1 → BRANCH
1Ø → TEST CODE
266 → BR ADDR
1 → EN CONTROL
1 → TAG
1 → EN OFFSET
1 → EN EXC

263
1 → BRANCH
2 → TEST CODE
205 → BR ADDR
1 → EN CONTROL
1 → TAG
1 → EN SEARCH
1 → EN OFFSET
1 → EN EXC

ABORT = 1 → ABORT EBL (6)

264
1 → BRANCH
17 → TEST CODE
262 → BR ADDR
EN CONTROL
TAG
EN SEARCH
EN OFFSET
EN EXC

267
1 → BRANCH
14 → TEST CODE
220 → BR ADDR
1 → EN CONTROL
1 → TAG
1 → EN OFFSET
1 → EN EXC

DATA SEEK (5) ← SEEK REQUIRED = 1

270
1 → BRANCH
15 → TEST CODE
235 → BR ADDR
1 → EN CONTROL
1 → TAG
1 → EN OFFSET
1 → EN EXC

HEAD (5) ← NEW TRACK ROD = 1

271
1 → BRANCH
16 → TEST CODE
262 → BR ADDR
1 → EN CONTROL
1 → TAG
1 → EN OFFSET

CONTINUE = 1

272
1 → RESET GO
1 → EN CONTROL
1 → EN OFFSET

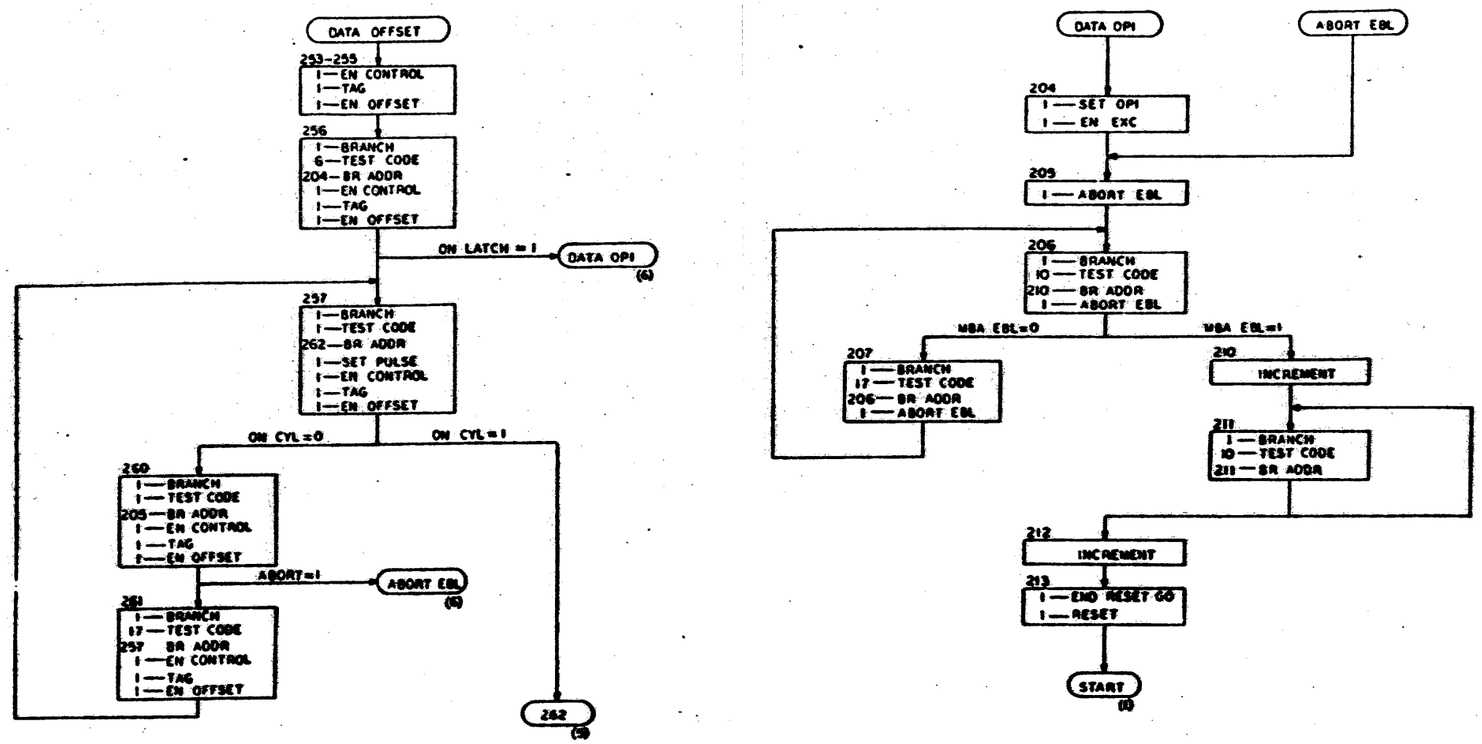
START

CONTROL SEQUENCER FLOW
PAGE 5 OF 6 DATA COMMANDS

DRWN		FIRST USED ON	
CHK'D			
ENGR.		TITLE	RMXX FLOW DIAGRAMS
PROJ. ENGR.			
MGR.			
NEXT HIGHER ASSY.			
SCALE		SIZE D / CODE FD	NUMBER RMXX-Ø-Ø / REV. A
SHEET 7 OF 13		DIST.	

RMXX-Ø-Ø A

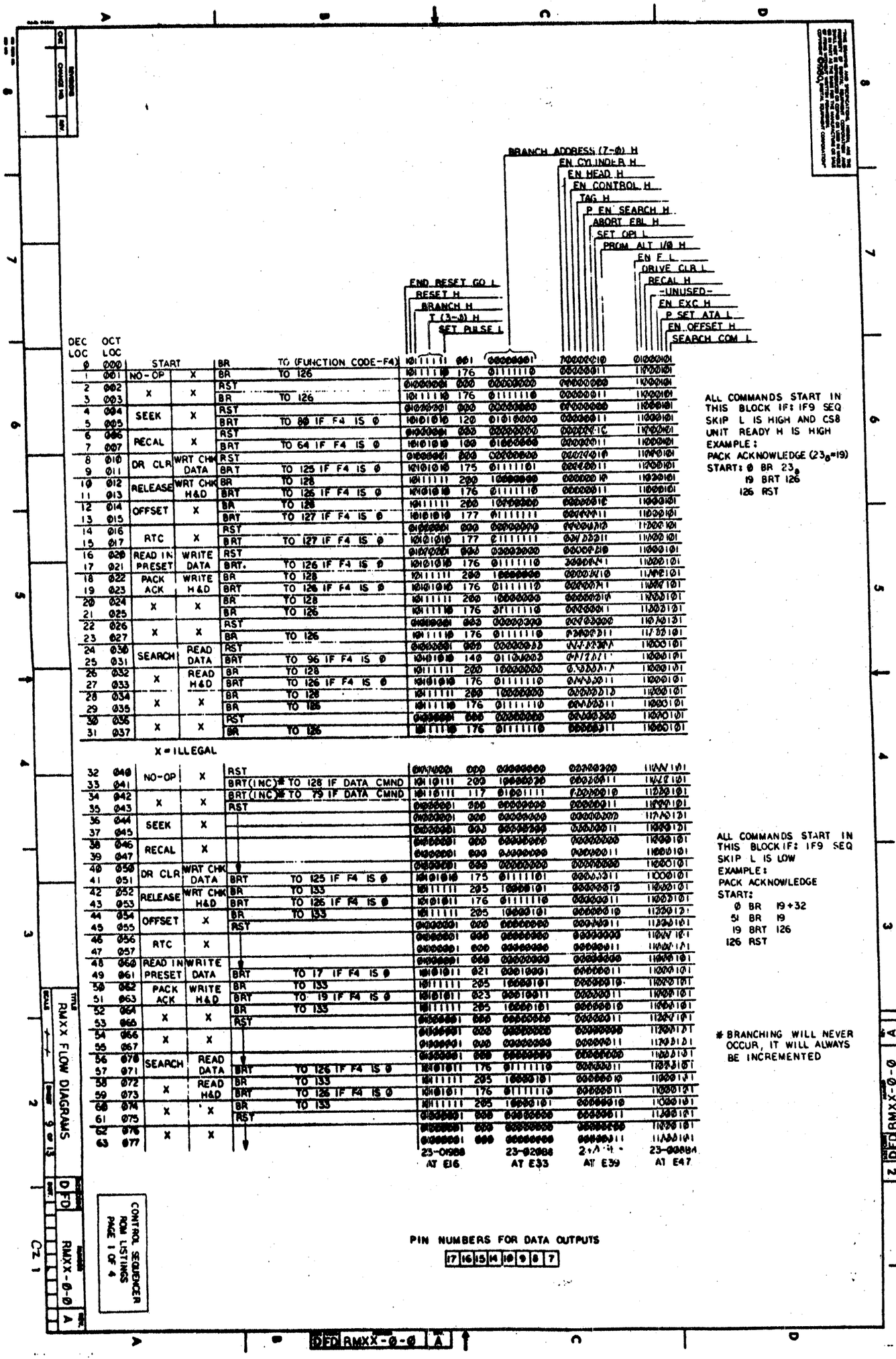
CZ 1

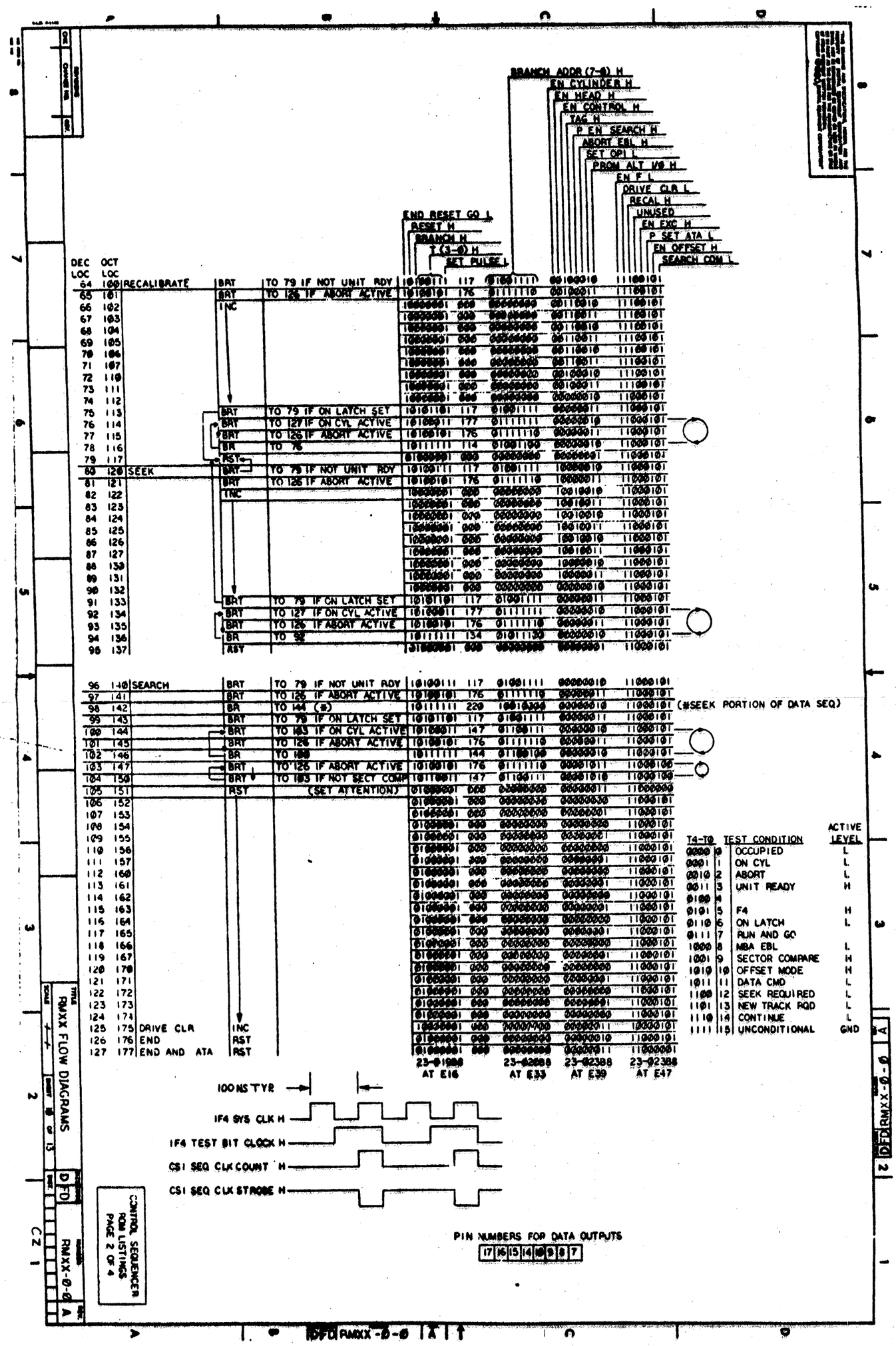


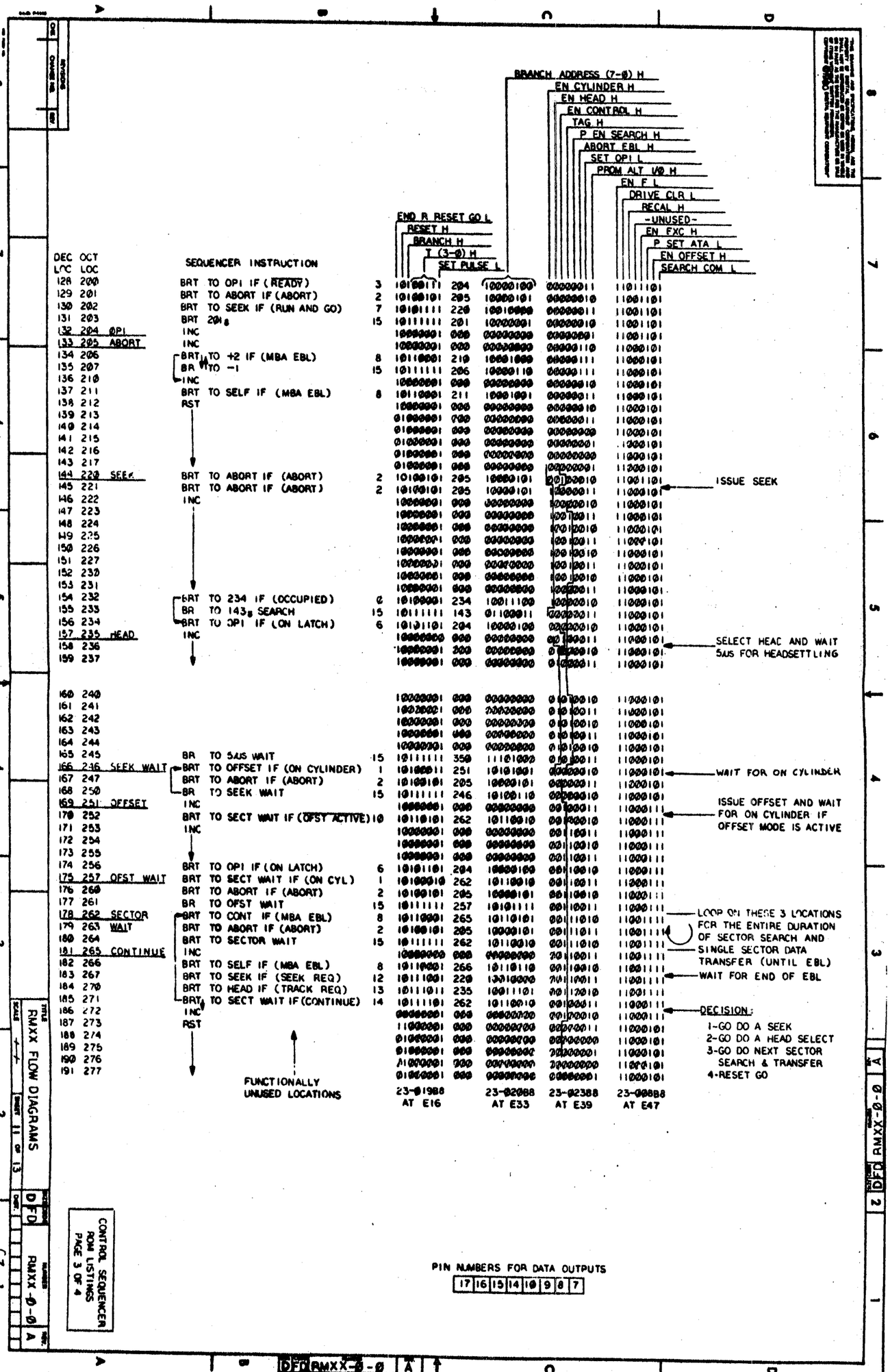
CONTROL SEQUENCER FLOW
DATA OPI
DATA OFFSET
ABORT EBL PAGE 6 OF 6

REVISIONS		
CHG	CHANGE NO.	REV

TITLE	RMXX FLOW DIAGRAMS	SIZE D	DWG FD
SCALE	SHEET 6 OF 13	NUMBER	RMXX-Ø-Ø REV A


BRANCH ADDRESS (7-0) H
EN CYLINDER H
EN HEAD H
EN CONTROL H
TAG H
P EN SEARCH H
ABORT EBL H
SET OPI L
PROM ALT I/O H
EN F L
DRIVE CLR L
RECAL H
-UNUSED-
EN EXC H
P SET ATA L
EN OFFSET H
SEARCH COM L
END RESET GO L
RESET H
BRANCH H
T (3-0) H
SET PULSE L
DEC LOC
OCT LOC
START
BR
TO (FUNCTION CODE-F4)
ALL COMMANDS START IN THIS BLOCK IF: IF9 SEQ SKIP L IS HIGH AND CS8 UNIT READY H IS HIGH
EXAMPLE:
PACK ACKNOWLEDGE (23_8=19)
START: Ø BR 23_8
19 BRT 126
126 RST
X = ILLEGAL
ALL COMMANDS START IN THIS BLOCK IF: IF9 SEQ SKIP L IS LOW
EXAMPLE:
PACK ACKNOWLEDGE
START:
Ø BR 19+32
51 BR 19
19 BRT 126
126 RST
BRANCHING WILL NEVER OCCUR, IT WILL ALWAYS BE INCREMENTED
23-0988 AT E16
23-0298 AT E33
23-0088 AT E47
PIN NUMBERS FOR DATA OUTPUTS
17 16 15 14 10 9 8 7
RMXX FLOW DIAGRAMS
CONTROL SEQUENCER ROM LISTINGS PAGE 1 OF 4
DFD RMXX-Ø-Ø A
C2 1

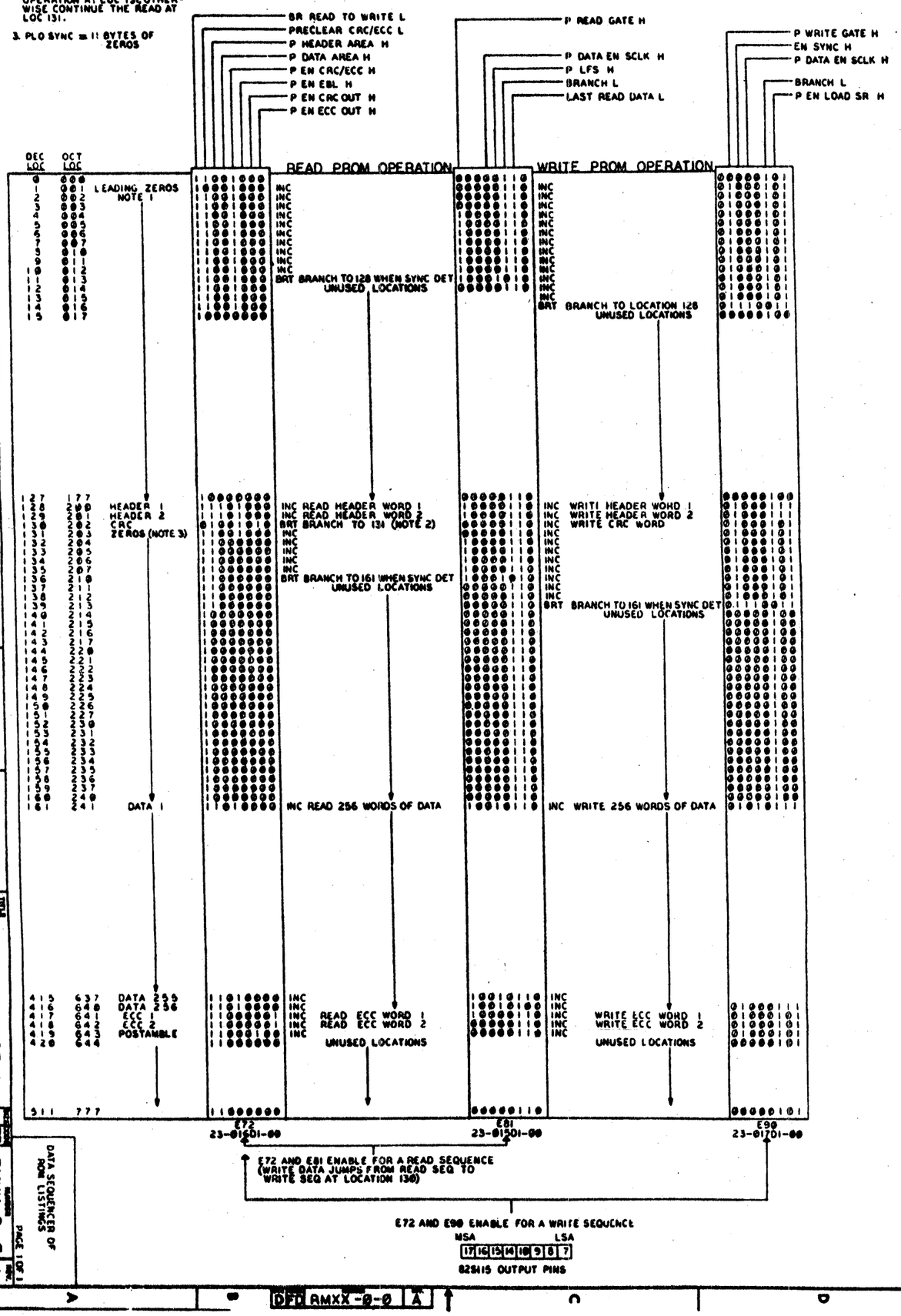

BRANCH ADDR (7-0) H
EN CYLINDER H
EN HEAD H
EN CONTROL H
TAG H
P EN SEARCH H
ABORT EBL H
SET OPI L
PROM ALT V0 H
EN F L
DRIVE CLR L
RECAL H
UNUSED
EN EXC H
P SET ATA L
EN OFFSET H
SEARCH COM L
END RESET GO L
RESET H
BRANCH H
T (3-0) H
SET PULSE L
DEC LOC
OCT LOC
64 100 RECALIBRATE
65 101
66 102
67 103
68 104
69 105
70 106
71 107
72 110
73 111
74 112
75 113
76 114
77 115
78 116
79 117
80 120 SEEK
81 121
82 122
83 123
84 124
85 125
86 126
87 127
88 130
89 131
90 132
91 133
92 134
93 135
94 136
95 137
96 140 SEARCH
97 141
98 142
99 143
100 144
101 145
102 146
103 147
104 150
105 151
106 152
107 153
108 154
109 155
110 156
111 157
112 160
113 161
114 162
115 163
116 164
117 165
118 166
119 167
120 170
121 171
122 172
123 173
124 174
125 175 DRIVE CLR
126 176 END
127 177 END AND ATA
BRT TO 79 IF NOT UNIT RDY
BRT TO 126 IF ABORT ACTIVE
INC
BRT TO 79 IF ON LATCH SET
BRT TO 127 IF ON CYL ACTIVE
BRT TO 126 IF ABORT ACTIVE
BR TO 76
RST
BRT TO 79 IF NOT UNIT RDY
BRT TO 126 IF ABORT ACTIVE
INC
BRT TO 79 IF ON LATCH SET
BRT TO 127 IF ON CYL ACTIVE
BRT TO 126 IF ABORT ACTIVE
BR TO 92
ASY
BRT TO 79 IF NOT UNIT RDY
BRT TO 126 IF ABORT ACTIVE
BR TO 144 (=)
BRT TO 79 IF ON LATCH SET
BRT TO 143 IF ON CYL ACTIVE
BRT TO 126 IF ABORT ACTIVE
BR TO 168
BRT TO 126 IF ABORT ACTIVE
BRT TO 183 IF NOT SECT COMP
RST (SET ATTENTION)
INC
RST
RST
(#SEEK PORTION OF DATA SEQ)
T4-T0 TEST CONDITION ACTIVE LEVEL
0000 0 OCCUPIED L
0001 1 ON CYL L
0010 2 ABORT L
0011 3 UNIT READY H
0100 4
0101 5 F4 H
0110 6 ON LATCH L
0111 7 RUN AND GO
1000 8 MBA EBL L
1001 9 SECTOR COMPARE H
1010 10 OFFSET MODE H
1011 11 DATA CMD L
1100 12 SEEK REQUIRED L
1101 13 NEW TRACK RQD L
1110 14 CONTINUE L
1111 15 UNCONDITIONAL GND
23-01988 AT E16
23-02089 AT E33
23-02388 AT E39
23-02388 AT E47
100NS TYR
IF4 SYS CLK H
IF4 TEST BIT CLOCK H
CSI SEQ CLK COUNT H
CSI SEQ CLK STROBE H
PIN NUMBERS FOR DATA OUTPUTS
17 16 15 14 13 12 11 10
RMXX FLOW DIAGRAMS
CONTROL SEQUENCER ROM LISTINGS PAGE 2 OF 4
DFD RMXX-0-0 A
DFD RMXX-0-0 A


BRANCH ADDRESS (7-0) H
EN CYLINDER H
EN HEAD H
EN CONTROL H
TAG H
P EN SEARCH H
ABORT EBL H
SET OPI L
PROM ALT I/O H
EN F L
DRIVE CLR L
RECAL H
-UNUSED-
EN FXC H
P SET ATA L
EN OFFSET H
SEARCH COM L
END R RESET GO L
RESET H
BRANCH H
T (3-0) H
SET PULSE L
DEC LOC OCT LOC
SEQUENCER INSTRUCTION
128 200 BRT TO OPI IF (READY) 3
129 201 BRT TO ABORT IF (ABORT) 2
130 202 BRT TO SEEK IF (RUN AND GO) 7
131 203 BRT 200₈ 15
132 204 ØPI INC
133 205 ABORT INC
134 206 BRT TO +2 IF (MBA EBL) 8
135 207 BR TO -1 15
136 210 INC
137 211 BRT TO SELF IF (MBA EBL) 8
138 212 RST
139 213
140 214
141 215
142 216
143 217
144 220 SEEK BRT TO ABORT IF (ABORT) 2
145 221 BRT TO ABORT IF (ABORT) 2
146 222 INC
147 223
148 224
149 225
150 226
151 227
152 230
153 231
154 232 BRT TO 234 IF (OCCUPIED) 0
155 233 BR TO 143₈ SEARCH 15
156 234 BRT TO OPI IF (ON LATCH) 6
157 235 HEAD INC
158 236
159 237
160 240
161 241
162 242
163 243
164 244
165 245 BR TO 5µS WAIT 15
166 246 SEEK WAIT BRT TO OFFSET IF (ON CYLINDER) 1
167 247 BRT TO ABORT IF (ABORT) 2
168 250 BR TO SEEK WAIT 15
169 251 OFFSET INC
170 252 BRT TO SECT WAIT IF (OFST ACTIVE) 10
171 253 INC
172 254
173 255
174 256 BRT TO OPI IF (ON LATCH) 6
175 257 OFST WAIT BRT TO SECT WAIT IF (ON CYL) 1
176 260 BRT TO ABORT IF (ABORT) 2
177 261 BR TO OFST WAIT 15
178 262 SECTOR BRT TO CONT IF (MBA EBL) 8
179 263 WAIT BRT TO ABORT IF (ABORT) 2
180 264 BRT TO SECTOR WAIT 15
181 265 CONTINUE INC
182 266 BRT TO SELF IF (MBA EBL) 8
183 267 BRT TO SEEK IF (SEEK REQ) 12
184 270 BRT TO HEAD IF (TRACK REQ) 13
185 271 BRT TO SECT WAIT IF (CONTINUE) 14
186 272 INC
187 273 RST
188 274
189 275
190 276
191 277
FUNCTIONALLY UNUSED LOCATIONS
23-01988 AT E16
23-02088 AT E33
23-02388 AT E39
23-00888 AT E47
ISSUE SEEK
SELECT HEAD AND WAIT 5µS FOR HEADSETTLING
WAIT FOR ON CYLINDER
ISSUE OFFSET AND WAIT FOR ON CYLINDER IF OFFSET MODE IS ACTIVE
LOOP ON THESE 3 LOCATIONS FOR THE ENTIRE DURATION OF SECTOR SEARCH AND SINGLE SECTOR DATA TRANSFER (UNTIL EBL)
WAIT FOR END OF EBL
DECISION:
1-GO DO A SEEK
2-GO DO A HEAD SELECT
3-GO DO NEXT SECTOR SEARCH & TRANSFER
4-RESET GO
PIN NUMBERS FOR DATA OUTPUTS
17 16 15 14 10 9 8 7
RMXX FLOW DIAGRAMS
SHEET 11 OF 13
DFD RMXX-Ø-Ø A
CONTROL SEQUENCER ROM LISTINGS PAGE 3 OF 4
DFD RMXX-Ø-Ø A
DFD RMXX-Ø-Ø A OF 2

BRANCH ADDRESS (7-0) H
EN CYLINDER H
EN HEAD H
EN CONTROL H
TAG H
P EN SEARCH H
ABORT EN H
SET OP1 L
PROM ALT I/O H
E.N.F. L
DRIVE CLR L
RECAL H
-UNUSED-
EN EXC H
P SET ATA L
EN OFFSET H
SEARCH COM L
END RESET GO L
RESET H
BRANCH H
T (3-0) H
SET PULSE L
PIN NUMBERS FOR DATA OUTPUTS
17 16 15 14 10 9 8 7
23-62388 AT E47
23-62388 AT E30
23-62388 AT E33
23-91080 AT E16
FUNCTIONALLY UNUSED LOCATIONS
WAIT PERIOD FOLLOWING HEAD SELECTION
TO 345, UNCONDITIONALLY
RST
INC
BA
RST
RST
RST
5 MICRO WAIT
OCT LOC
DEC LOC
CONTROL SEQUENCER ROM LISTINGS PAGE 4 OF 4
RMXX FLOW DIAGRAMS
RMXX-0-0
A
D
FD
CZ 1

NOTE.

1. SECTOR LEADING ZEROS PREAMBLE EQUALS 17 BYTES FOR HEAD SCATTER AND 11 BYTES FOR PLO SYNC.
2. IF THE COMMAND IS WRITE DATA, SWITCH TO WRITE PROM OPERATION AT LOC 134, OTHERWISE CONTINUE THE READ AT LOC 131.
3. PLO SYNC = 11 BYTES OF ZEROS



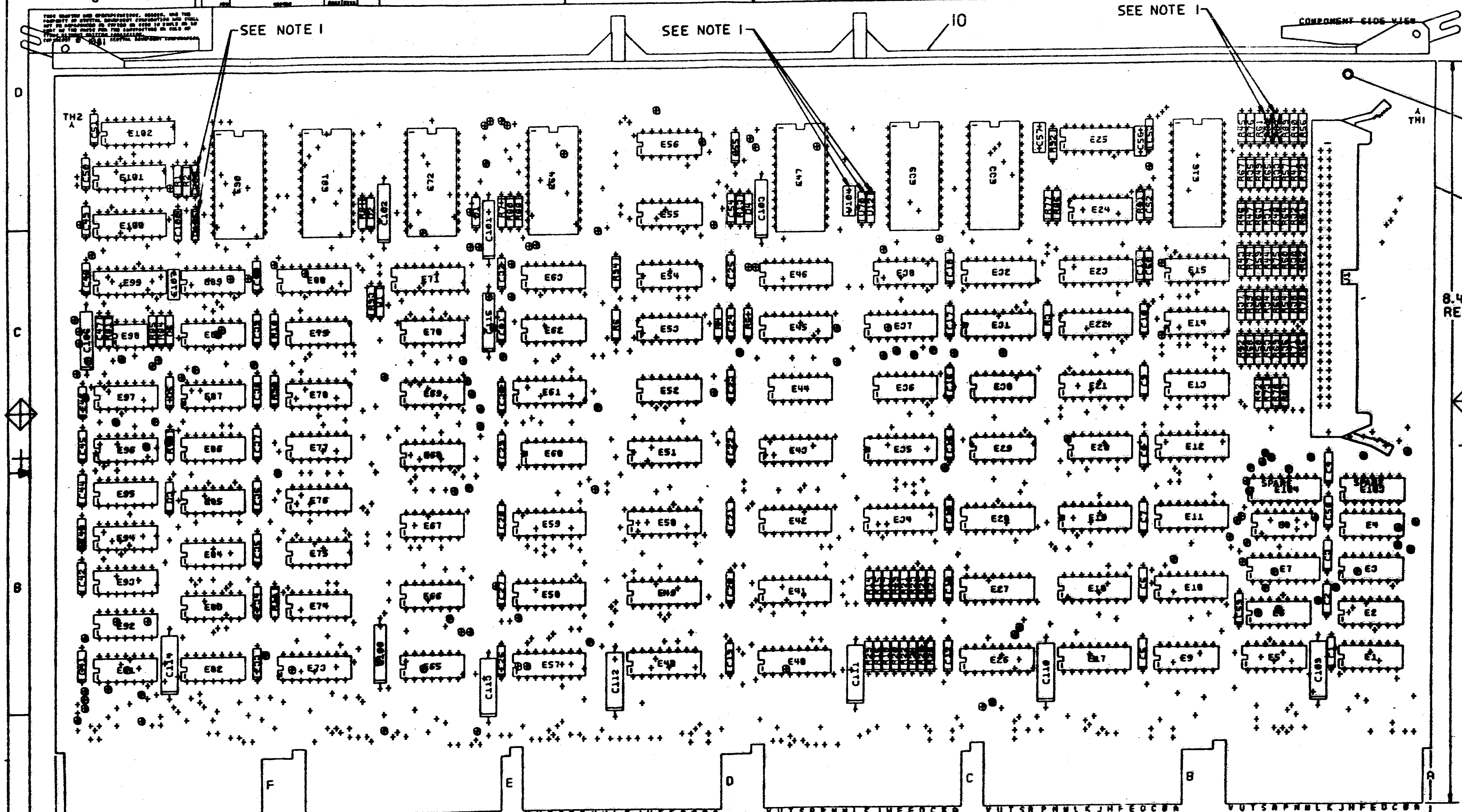
TITLE: RMXX FLOW DIAGRAM

DFD RMXX-0-0 A

DATA SEQUENCER OF ROM LISTINGS

PAGE 1 OF 1

DFD RMXX-0-0 A



NOTES:

1. R82, R83, U80, U105, U12, U70 & U104 ARE NOT USED.
2. E103 & E104 ARE SPARES.

STEP & REPEAT	± Y AXIS ____ STEP ___ TIMES
	± Y AXIS ____ STEP ___ TIMES

REV	CHANGE NO
S	REVISED & REDRAWN RN 8SEP81 M7684CX0A P. RAIKUNEN

ETCH REV. E-P1

SIGNATURES	DATE
DRN.	
CHK'D.	
MECH. ENG.	
PROJ. ENG.	
PROD.	
SCALE 2/1	
SHT. 1 OF 1	

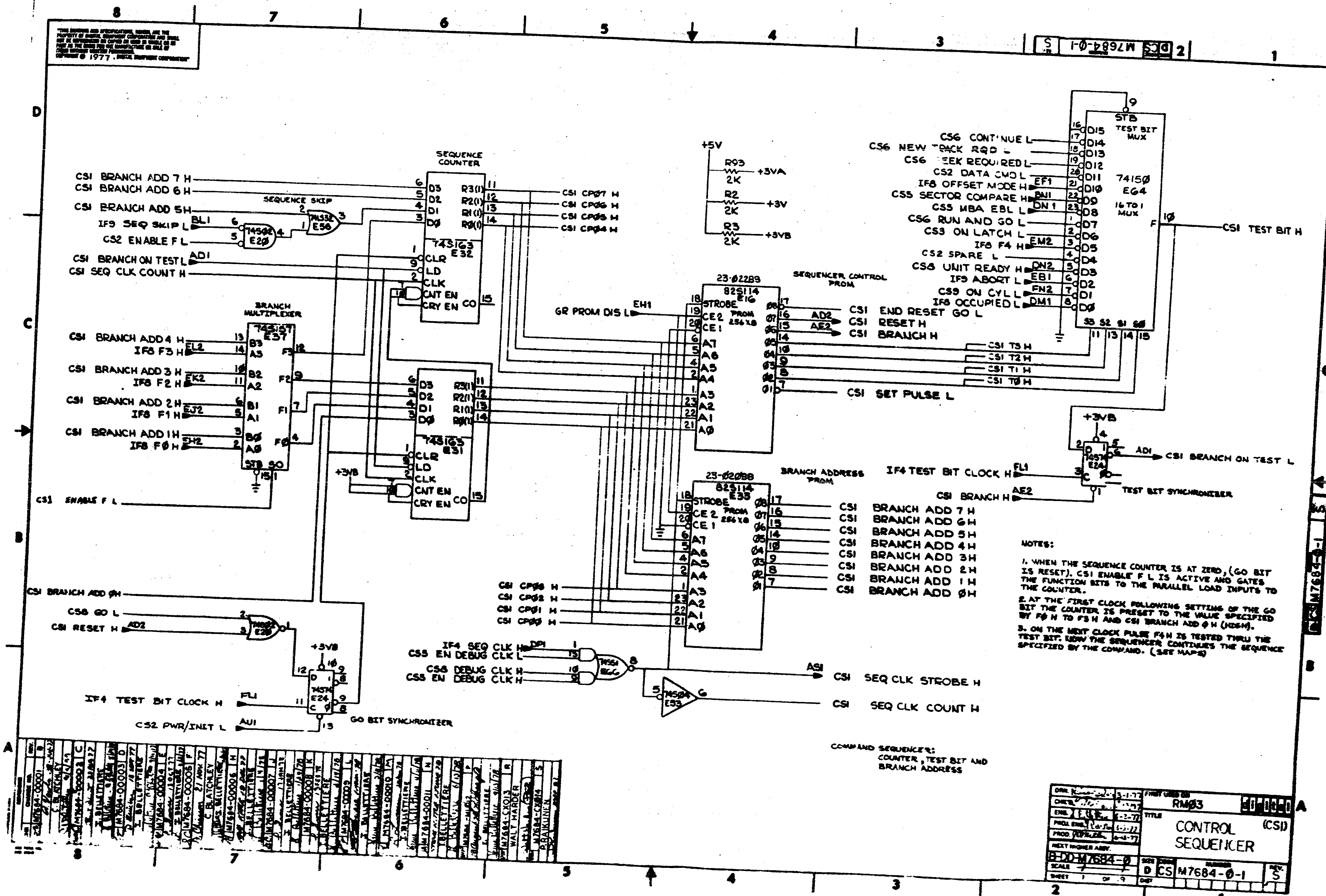
NEXT HIGHER ASSY. B-DP M7??

digital

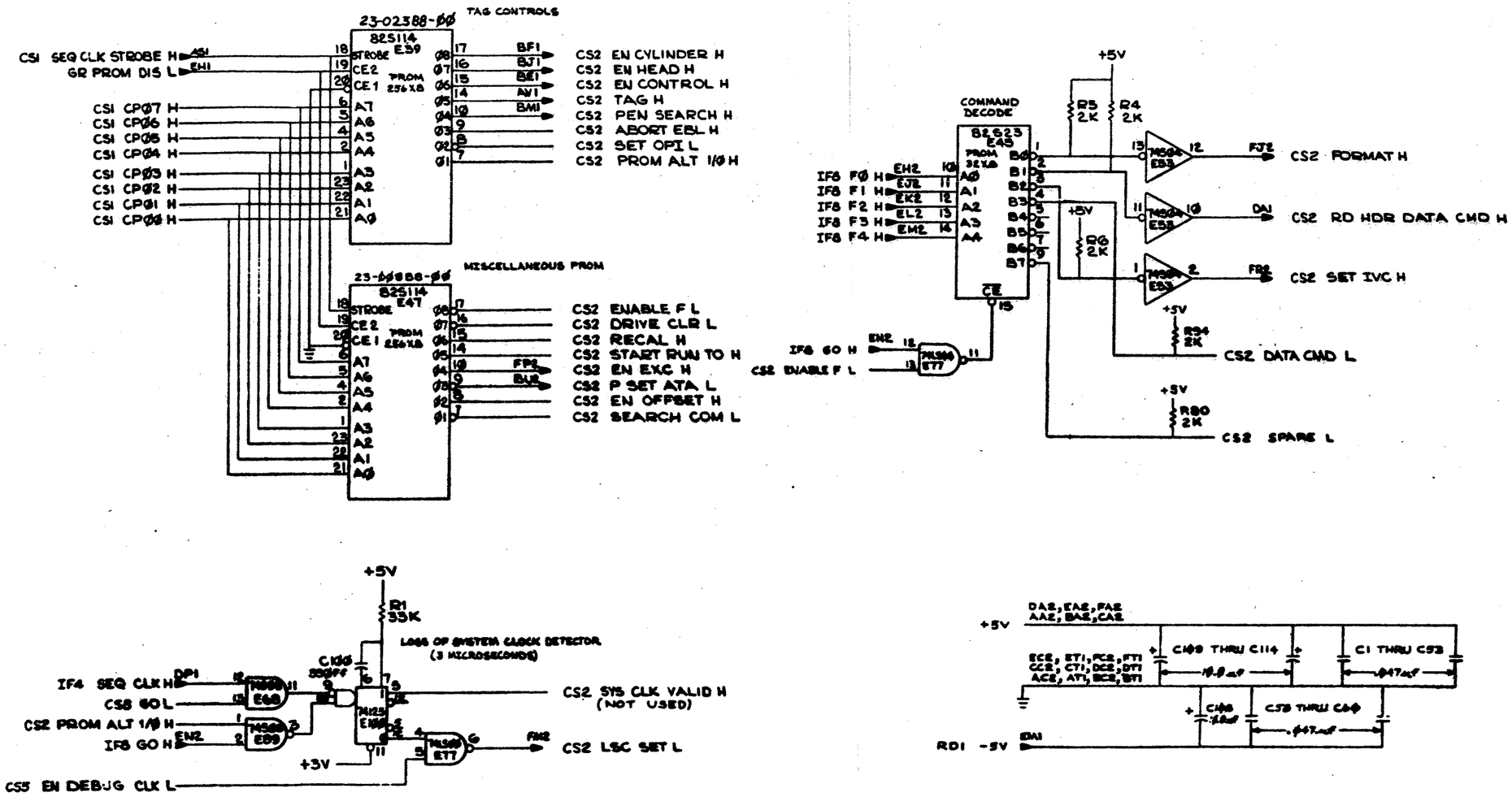
TITLE CONTROL SEQUENCER

SIZE	CODE	NUMBER	REV
D	UA	M7684-0-0	S

WO#291818E



SEQUENCE COUNTER
74S163 E32
SEQUENCE SKIP
BRANCH MULTIPLEXER
74S157 E37
74S163 E31
SEQUENCER CONTROL PROM
23-Ø2289 82S114 E16
BRANCH ADDRESS PROM
23-Ø2Ø88 82S114 E35
TEST BIT MUX
74150 E64
TEST BIT SYNCHRONIZER
GO BIT SYNCHRONIZER
CSI BRANCH ADD 7 H
CSI BRANCH ADD 6 H
CSI BRANCH ADD 5 H
IF9 SEQ SKIP L
CS2 ENABLE F L
CSI BRANCH ON TEST L
CSI SEQ CLK COUNT H
CSI BRANCH ADD 4 H
IF8 F3 H
CSI BRANCH ADD 3 H
IF8 F2 H
CSI BRANCH ADD 2 H
IF8 F1 H
CSI BRANCH ADD 1 H
IF8 FØ H
CSI ENABLE F L
CSI BRANCH ADD ØH
CS8 GO L
CSI RESET H
IF4 TEST BIT CLOCK H
CS2 PWR/INIT L
CSI CPØ7 H
CSI CPØ6 H
CSI CPØ5 H
CSI CPØ4 H
GR PROM DIS L
CSI END RESET GO L
CSI RESET H
CSI BRANCH H
CSI T3 H
CSI T2 H
CSI T1 H
CSI TØ H
CSI SET PULSE L
CSI TEST BIT H
CS6 CONTINUE L
CS6 NEW TRACK RQD L
CS6 SEEK REQUIRED L
CS2 DATA CMD L
IF8 OFFSET MODE H
CS5 SECTOR COMPARE H
CS5 MBA EBL L
CS6 RUN AND GO L
CS3 ON LATCH L
IF8 F4 H
CS2 SPARE L
CS8 UNIT READY H
IF5 ABORT L
CS9 ON CYL L
IF8 OCCUPIED L
CSI BRANCH ON TEST L
CSI CPØ6 H
CSI CPØ2 H
CSI CPØ1 H
CSI CPØØ H
CSI BRANCH ADD 7 H
CSI BRANCH ADD 6 H
CSI BRANCH ADD 5 H
CSI BRANCH ADD 4 H
CSI BRANCH ADD 3 H
CSI BRANCH ADD 2 H
CSI BRANCH ADD 1 H
CSI BRANCH ADD Ø H
IF4 SEQ CLK H
CS5 EN DEBUG CLK L
CS8 DEBUG CLK H
CS5 EN DEBUG CLK H
CSI SEQ CLK STROBE H
CSI SEQ CLK COUNT H
NOTES:
1. WHEN THE SEQUENCE COUNTER IS AT ZERO, (GO BIT IS RESET). CSI ENABLE F L IS ACTIVE AND GATES THE FUNCTION BITS TO THE PARALLEL LOAD INPUTS TO THE COUNTER.
2. AT THE FIRST CLOCK FOLLOWING SETTING OF THE GO BIT THE COUNTER IS PRESET TO THE VALUE SPECIFIED BY FØ H TO F3 H AND CSI BRANCH ADD Ø H (HIGH).
3. ON THE NEXT CLOCK PULSE F4 H IS TESTED THRU THE TEST BIT. NOW THE SEQUENCER CONTINUES THE SEQUENCE SPECIFIED BY THE COMMAND. (SEE MAPS)
COMMAND SEQUENCER: COUNTER, TEST BIT AND BRANCH ADDRESS
COPYRIGHT © 1977, DIGITAL EQUIPMENT CORPORATION
RMØ3
CONTROL SEQUENCER (CSI)
D CS M7684-Ø-1 S
NEXT HIGHER ASSY B-DD-M7684-Ø
SHEET 1 OF 9



COMMAND SEQUENCER: DRIVE CONTROLS (TAG) AND COMMAND DECODES

TITLE	CONTROL SEQUENCER (CS2)				
SIZE	D	CS	M7684-0-1		REV. S
SCALE		SHEET 2 OF 19			

+3VA

ENABLE SEARCH

CS3 RTC T.O. L
CS3 FMT CHANGE L
CS2 P EN SEARCH H — BMI
74LS11 E54
74LS74 E69
CS3 EN SEARCH H

CS8 SECT PULSE H
CS8 INDEX H — FRI
DT2
74S32 E84
CS3 INDEX L
74S00 E30
74S00 E89 — BPI
CS3 SECT/INDEX L
CS3 SECT/INDEX H

CS1 SET PULSE L
74LS76 E76
74LS74 E63
CS3 ON LATCH L
NOTE: DETECTS TRANSITION (HIGH) OF ON CYLINDER FOLLOWING INITIATION OF A SEEK OR OFFSET IN THE DRIVE. THIS SIGNAL IS USED FOR A TEST FUNCTION BY THE COMMAND SEQUENCER.

CS9 ON CYLINDER L — FN2

+3VB

CS2 DRIVE CLR L
IF6 INIT A/B L — ED2
CS4 POWER OK H — EL1
74LS10 E94
74S37 E88
CS3 MBA CLR L

CS1 END RESET GO L
IFII LSC L — FH2
CS2 LSC SET L — FM2
74LS32 E56
74H11 E75
CS3 RESET GO L

CS4 POWER OK H — EL1
IF6 INIT A/B L — ED2
74S00 E46
CS3 PWR/INIT L

CS1 SET PULSE L
74S04 E34
CS3 SET PULSE H

IF6 F2 H — EK2
74S08 E38
CS3 F2 L

CS5 OCCUPIED H
CS8 WRT PROT H — EJ1
CS3 SET PULSE H — AF1
74S00 E52
CS3 WLE SET L

CS2 EN CYLINDER H — BF1
74S04 E34
CS3 ENABLE CYL L

CS2 EN HEAD H — BJ1
74S04 E34
CS3 ENABLE HEAD L

CS2 EN CONTROL H — BE1
74S04 E58
CS3 ENABLE CNT L

+5V
R8 30K
RETURN TO CENTERLINE TIME OUT
C102 .68μF
D2 DG64
74123 E71
CS3 RTC T.O. L
NOTE: INHIBITS SEARCH FOR THE DURATION OF A RETURN TO CENTER LINE (RTC) BY THE POSITIONER. (4 MILLISECONDS)
+3VA

IF6 OFFSET MODE H — EF1
CS2 EN CONTROL H — BE1
74S128 E25

+5V
R91 30K
C56 .68μF
FORMAT BIT EDGE DETECTOR
74123 E25
CS4 POWER OK H — EL1

+5V
R92 30K
C57 .68μF
74123 E25
IF6 FMT 16 H — CF2
CS3 FMT CHANGE L
NOTE: INHIBITS SEARCH UNTIL NEXT INDEX PULSE FOLLOWING A CHANGE IN FORMAT.
+3VB

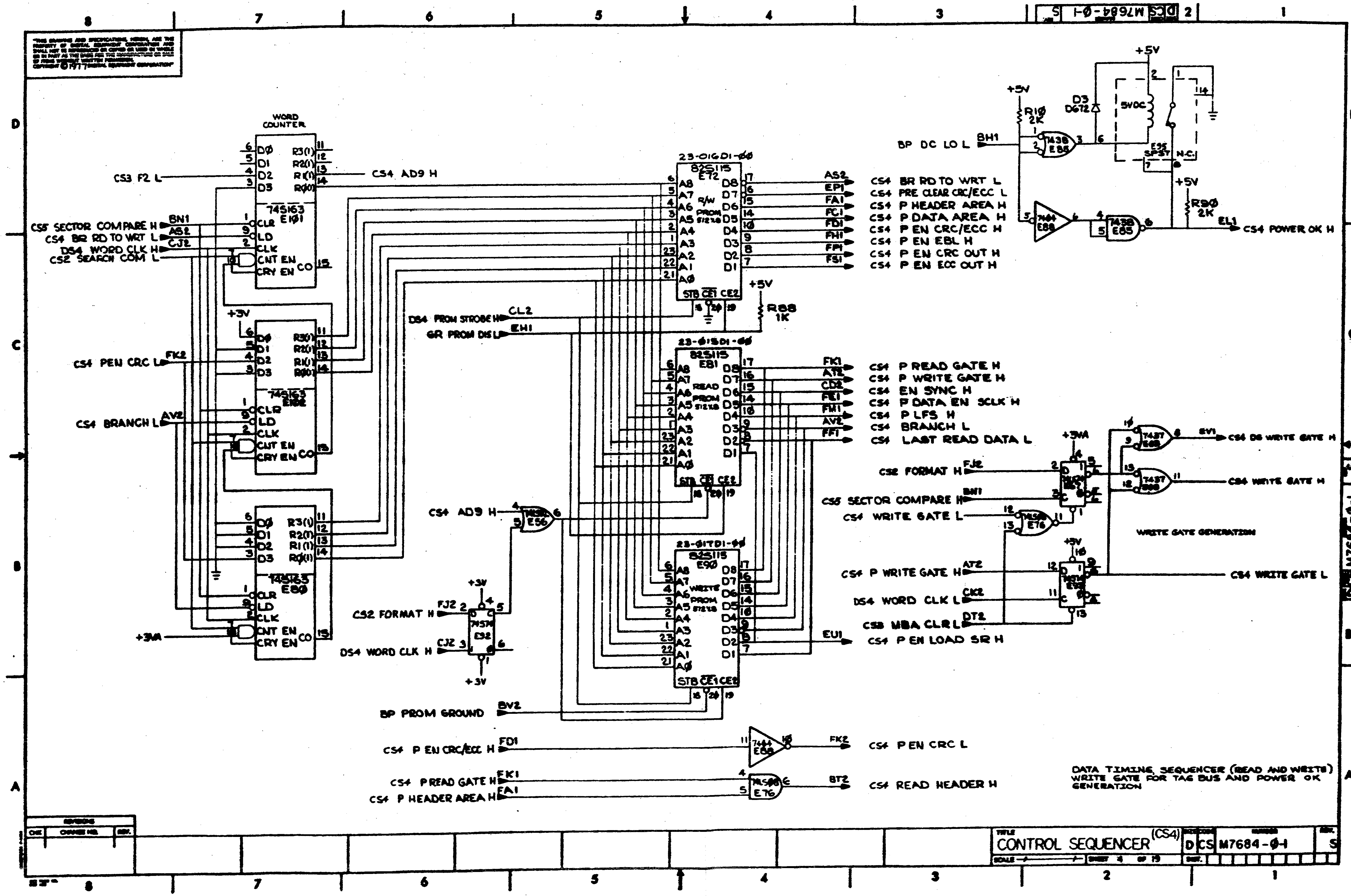
CS3 INDEX L
CS2 SET OPI L
CS6 RUN TIME OUT L
74LS51 E54
CS3 OPI SET L

+5V
R7 30K
W1 IS IN FOR DG64 ONLY
C108 5.5pF
C101 .64μF
W1
D1 DG64
74123 E71
CS8 SRCH TO DIS H
SEARCH TIME OUT (50 MILLISECONDS)
74LS74 E63
CS2 P EN SEARCH H — BMI
CS3 RESET GO L — EP2
74LS08 E76
CS5 SECTOR COMPARE L

SEARCH ENABLE AND INHIBITS, OPI, CLEAR GENERATION, WLE AND ENABLES TO TRI-STATE MUX'S FOR TAG BUS

REVISIONS
DIR | CHANGE NO. | REV.

TITLE: CONTROL SEQUENCER (CS3)
SIZE: D | CODE: CS | NUMBER: M7684-0-1 | REV: NS
SCALE: — | SHEET 3 OF 19
DIST:


WORD COUNTER
CS3 F2 L
CS4 AD9 H
CS5 SECTOR COMPARE H
CS4 BR RD TO WRT L
DS4 WORD CLK H
CS2 SEARCH COM L
74S163 E101
74S163 E102
74S163 E80
CS4 PEN CRC L
CS4 BRANCH L
+3VA
23-016D1-00
82S115 E72
R/W PROM 512X8
23-015D1-00
82S115 E81
READ PROM 512X8
23-017D1-00
82S115 E90
WRITE PROM 512X8
DS4 PROM STROBE H
GR PROM DIS L
R88 1K
CS4 BR RD TO WRT L
CS4 PRE CLEAR CRC/ECC L
CS4 P HEADER AREA H
CS4 P DATA AREA H
CS4 P EN CRC/ECC H
CS4 P EN EBL H
CS4 P EN CRC OUT H
CS4 P EN ECC OUT H
CS4 P READ GATE H
CS4 P WRITE GATE H
CS4 EN SYNC H
CS4 P DATA EN SCLK H
CS4 P LFS H
CS4 BRANCH L
CS4 LAST READ DATA L
CS4 P EN LOAD SR H
CS4 AD9 H
74S02 E56
CS2 FORMAT H
DS4 WORD CLK H
74S74 E32
BP PROM GROUND
CS4 P EN CRC/ECC H
7404 E88
CS4 PEN CRC L
CS4 P READ GATE H
CS4 P HEADER AREA H
74LS00 E76
CS4 READ HEADER H
BP DC LO L
7438 E85
7404 E88
D3 D672
5VDC
E35 SPST
N.C.
R10 2K
R90 2K
CS4 POWER OK H
CS2 FORMAT H
CS5 SECTOR COMPARE H
CS4 WRITE GATE L
CS4 P WRITE GATE H
DS4 WORD CLK L
CS8 MBA CLR L
7437 E68
CS4 DS WRITE GATE H
CS4 WRITE GATE H
CS4 WRITE GATE L
WRITE GATE GENERATION
DATA TIMING SEQUENCER (READ AND WRITE)
WRITE GATE FOR TAG BUS AND POWER OK GENERATION
CONTROL SEQUENCER (CS4)
D CS M7684-Ø-1 S
SHEET 4 OF 15

READ GATE GENERATION

+3V

CS4 P READ GATE H FK1 → 74S74 E93 → FJ1 CS5 READ GATE FAST H
DS4 WORD CLK L CK2 → 7437 E83 → ERI CS5 READ GATE H
CS3 MBA CLR L DT2

CS4 P HEADER AREA H FA1 → 74S32 E84 → FP1
CS4 P EN CRC OUT H
DS4 WORD CLK L CK2 → 74S74 E82
CS4 WRITE GATE H

CS4 P EN CRC/ECC H FD1 → 74S51 E66 → DV2 CS5 EN CRC CLK L
DS1 SYNC DET H CH2 → 74S20 E89
CS4 P EN CRC L FK2

CS4 P DATA AREA H FC1 → 74S32 E84 → FS1
CS4 P EN ECC OUT H
74S74 E82 → 74S11 E78 → DU1 CS5 EN ECC CLK L
DS10 EN CORRECT CLK L AU2

EBL GENERATION

+3VA

CS5 MBA EBL H → 74LS74 E78
IF9 EXC ERR H EA1
CS5 CLR EBL HOLD L

NOTE: THIS HOLDS EBL FOR ANOTHER FULL WORD DURATION SHOULD EXCEPTION OCCUR WHILE EBL IS ACTIVE.

74LS74 E78 → 74LS46 E84 → CS5 CLR EBL HOLD L

+3VA

CS4 P EN EBL H FH1 → 74LS08 E86 → 74LS27 E79
DS4 ECC WRD CNT INH L FV2
CS2 ABORT EBL H

74LS27 E79 → 74S74 E70
DS4 WORD CLK H CJ2
CS3 MBA CLR L DT2

74S74 E70 → 74LS32 E77 → CS5 MBA EBL H
CS6 DIAG EBL L
74LS32 E77 → 7464 E88 → DN1 CS5 MBA EBL L

CS4 WRITE GATE H
IF5 PORT A ON H BU1 → 74LS08 E5 → 7437 E1 → AH1 CS5 SYNC REC EN A H
IF4 PORT B ON H BV1 → 74LS08 E5 → 7437 E1 → AJ1 CS5 SYNC REC EN B H
IF5 PORT A ON H BU1
CS5 READ GATE H ERI → 74LS08 E5 → 7431 E1 → AK1 CS5 TRANSMIT EN A H
IF4 PORT B ON H BV1 → 74LS08 E5 → 7431 E1 → AL1 CS5 TRANSMIT EN B H

IF8 OCCUPIED L DM1 → 74S04 E53 → CS5 OCCUPIED H

IF5 PORT A ON H BU1 → 74S08 E9 → AM1 CS5 TRANSCEIVR EN A H
CS5 OCCUPIED H
IF4 PORT B ON H BV1 → 74S08 E9 → AN1 CS5 TRANSCEIVR EN B H

SECTOR COMPARE

7485 E73

DS11 SA 2 H EG2 → A0
DS11 SA 4 H ET2 → A1
DS11 SA 8 H EU2 → A2
DS11 SA 16 H EV2 → A3
CS10 SC2 H AH2 → B0
CS10 SC4 H AJ2 → B1
CS10 SC8 H AK2 → B2
CS10 SC16 H AL2 → B3
A>B, A=B, A<B

+5V
R11 1K
IN> IN= IN<

DS11 SA1 H ER2 → 74S04 ET4 → AF2 CS10 SC1 H

NOTE: THIS INHIBITS DRIVE TIMING ERROR (DTE) DURING ERROR CORRECTION

DS4 ECC WRD CNT INH L FV2
CS3 SECT/INDEX H → 74LS10 E94 → FD2 CS5 DTE SET L

+3VA

CS8 MR SECT COMP H → 74S32 E84 → 74S08 E55
CS3 EN SEARCH H

74S08 E55 → BN1 CS5 SECTOR COMPARE H, CS5 SECTOR COMPARE L

CS2 P EN SEARCH H BM1

+3VA

CS8 DEBUG EN H → 74S112 E61 → CS5 EN DEBUG CLK H, CS5 EN DEBUG CLK L
IF4 SEQ CLK H DP1
CS8 DEBUG EN L
CS8 MBA CLR L DT2

NOTE: DEBUG CLOCK SYNCHRONIZER

SECTOR COMPARE LOGIC, EBL GENERATION, CRC AND ECC CLOCK ENABLES, DATA TRANSCEIVER ENABLES TO MASS BUS AND READ GATE GOING TO TAG BUS

REVISIONS		
DR	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CONTROL SEQUENCER (CS5)	D	CS	M7684-0-1	S
SCALE —	SHEET 5 OF 19		DWG.	

8 7 6 5 4 3 2 1

+5V
R13 27K
C103 3.3uf
D4 D664
74123 E46
74S14 E70
-3VB
CS6 RUN TIME OUT L (20 MILLISECONDS)
CS3 ENABLE CYL L
CS6 RUN AND GO L
CS5 ØCCUPIED H
74LS08 E39
74LS00 E38
CS3 RESET GO L EP2

DM8097 E17
DS12 DC1 H BD2
DS12 DC2 H BE2
DS12 DC4 H BF2
DS12 DC8 H BH2
DS12 DC16 H BJ2
DS12 DC32 H BK2
CS6 BUS BIT ØØ H
CS6 BUS BIT Ø1 H
CS6 BUS BIT Ø2 H
CS6 BUS BIT Ø3 H
CS6 BUS BIT Ø4 H
CS6 BUS BIT Ø5 H

DM8097 E26
DS11 TA 1 H DP2
DS11 TA 2 H DR2
DS11 TA 4 H DS2
DS11 TA 8 H BR1
DS11 TA 16 H BS1

TRISTATE MULTIPLEXING OF SECTOR/TRACK, CYLINDER ADDRESS AND COMMANDS FOR TAG BUS.

CS3 ENABLE HEAD L
CS4 WRITE GATE H ER1
CS5 READ GATE H

DM8097 E18

IF8 GO H EN2
SA2 RUN H EC1
CS3 RESET GO L EP2
74S08 E68
74S00 E69
FL2
CS6 RUN AND GO H
CS6 RUN AND GO L

NOTE: FOLLOWING THE SETTING OF THE GO BIT, THIS SIGNAL ENABLES THE COMMAND SEQUENCER TO PROCEED WITH THE DATA SEQUENCE.

IF8 OFF DIR H EN1
74S04 E66
74S00 E55
74S08 E58

+3VB
DS12 LST SECT TRK H FE2
CS5 MBA EBL H
CS6 CONTINUE H AC1
CS3 MBA CLR L DT2
74LS74 E36
74S00 E44
AA1
CS6 SEEK REQUIRED H
CS6 SEEK REQUIRED L

NOTE: COMMAND SEQUENCER TESTS THIS LINE AT THE END OF EACH SECTOR OF DATA TRANSFERRED TO DETERMINE WHETHER OR NOT TO STEP THRU A CYLINDER TAG SEQUENCE.

IF8 OFFSET MODE H EF1
CS2 EN OFFSET H
74LS00 E56

DS12 DC64 H BL2
DS12 DC128 H BM2
DS12 DC256 H BN2
DS12 DC512 H BP2
CS6 BUS BIT Ø6 H
CS6 BUS BIT Ø7 H
CS6 BUS BIT Ø8 H
CS6 BUS BIT Ø9 H

DS11 LST SECT H FF2
+3VB
AB1
AR1
CS6 NEW TRACK REQ H
CS6 NEW TRACK REQ L

NOTE: COMMAND SEQUENCER TESTS THIS LINE AT THE END OF EACH SECTOR OF DATA TRANSFERRED TO DETERMINE WHETHER OR NOT TO STEP THRU A HEAD "TAG SEQUENCE.

DM8097 E27
DM8097 E28
CS2 RECAL H
CS3 ENABLE CNT L

IF9 EXC ERR H EA1
74LS74 E62
DV1
CS6 MB EXCEPTION H (NOT USED)
CS6 MB EXCEPTION L

CS1 SET PULSE L
SA2 RUN H EC1
IF9 ABORT L EB1
CS5 MBA EBL L DN1
CS3 MBA CLR L DT2
74S00 E65
74LS74 E62
AC1
CS6 CONTINUE H
CS6 CONTINUE L

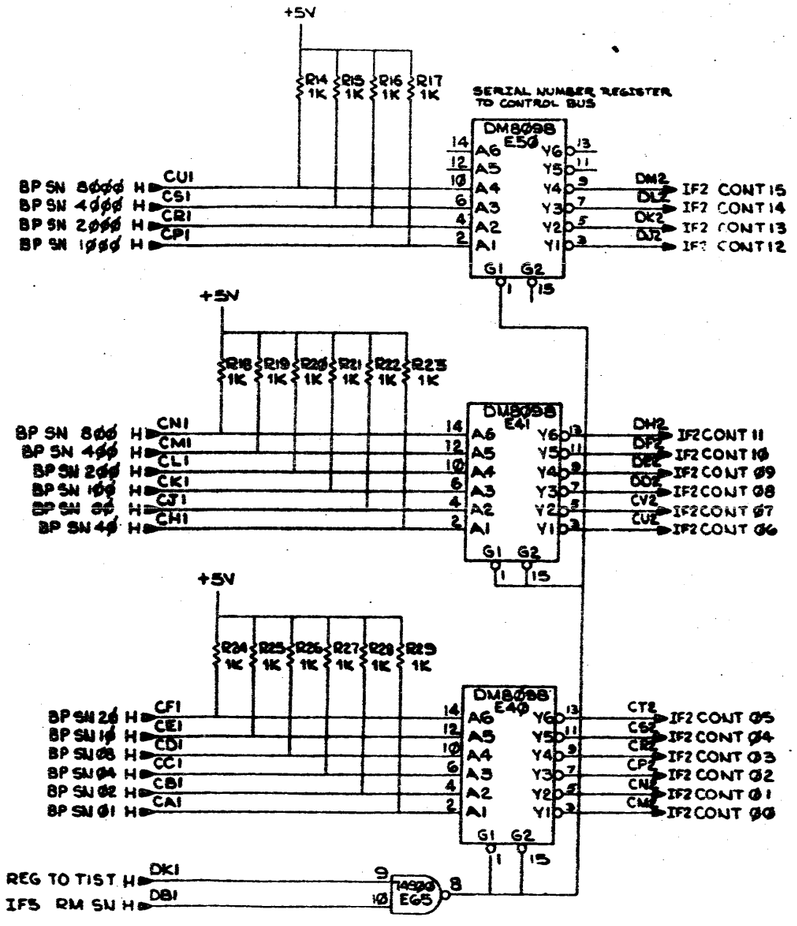
CONTROLS FOR MULTI SECTOR, MULTI TRACK, MULTI CYLINDER DATA TRANSFER AND TRISTATE MULTIPLEXING OF SECTOR/TRACK, CYLINDER ADDRESS AND COMMANDS FOR TAG BUS

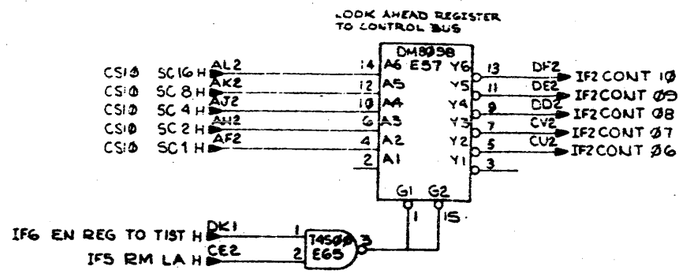
REVISIONS		
CHG	CHANGE NO.	REV.

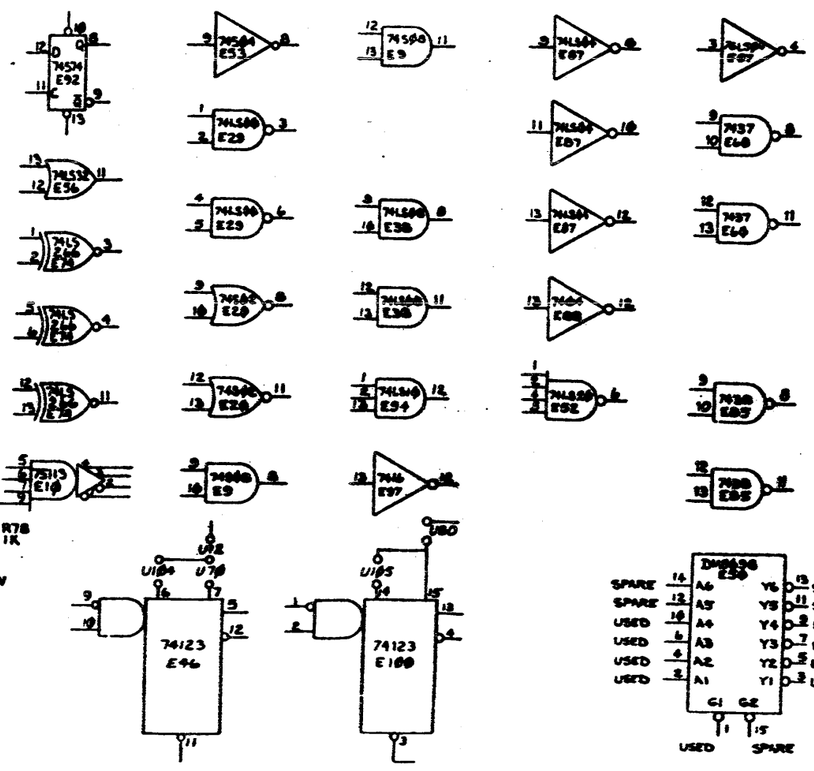
TITLE: CONTROL SEQUENCER (CS6)
SIZE D | CODE CS | NUMBER M7684-0-1 | REV. S
SCALE — | SHEET 6 OF 19

DCS M7684-0-1 S

NOTE: ALL ETCH REV B MODULES AND A LIMITED NUMBER OF ETCH REV C MODULES CONTAIN 56 OHM PULL UPS, R14 THRU R29. ECO NO. 6 WAS NOT RETROACTIVE.





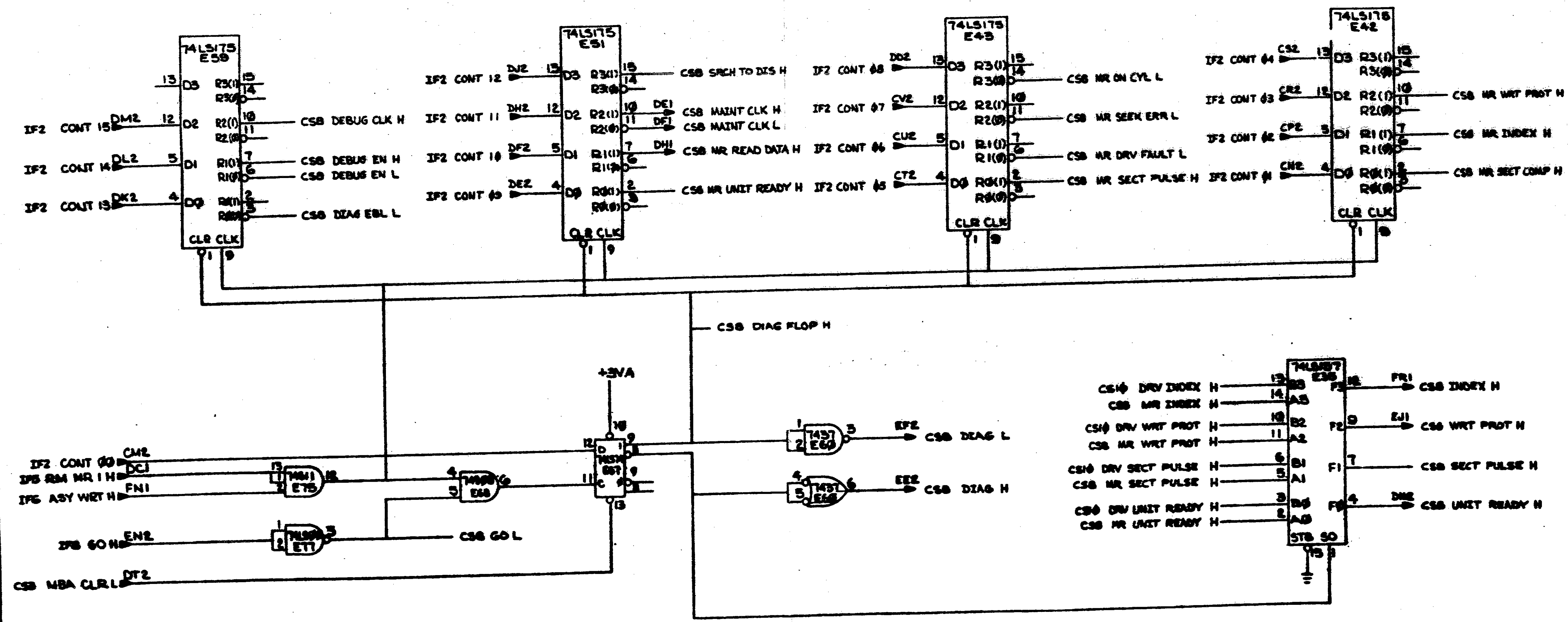


REGISTERS: SERIAL NUMBER & LOOK AHEAD

REVISIONS		
DIR	CHANGE NO.	REV.

TITLE			
CONTROL SEQUENCER (CS7)			
SCALE	SHEET 7 OF 19	NUMBER	REV.
		D CS M7684-0-1	S

D CS M7684-0-1

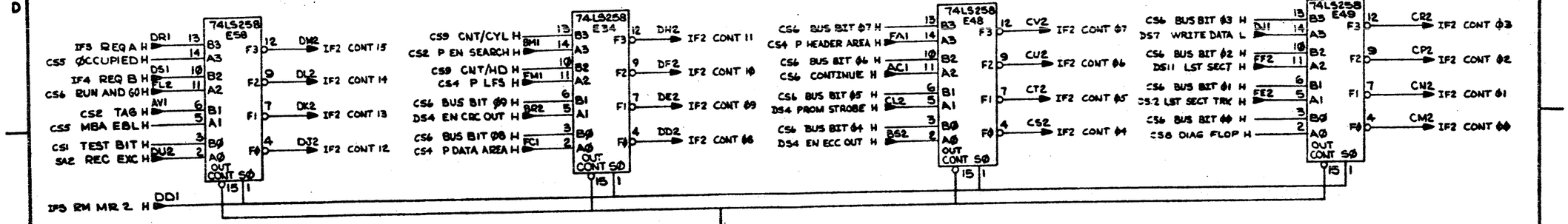


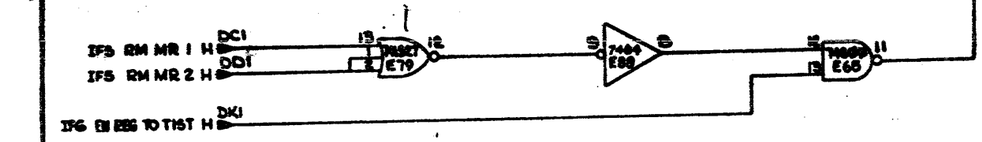
(MR1) MAINTENANCE REGISTER (WRITE ONLY)

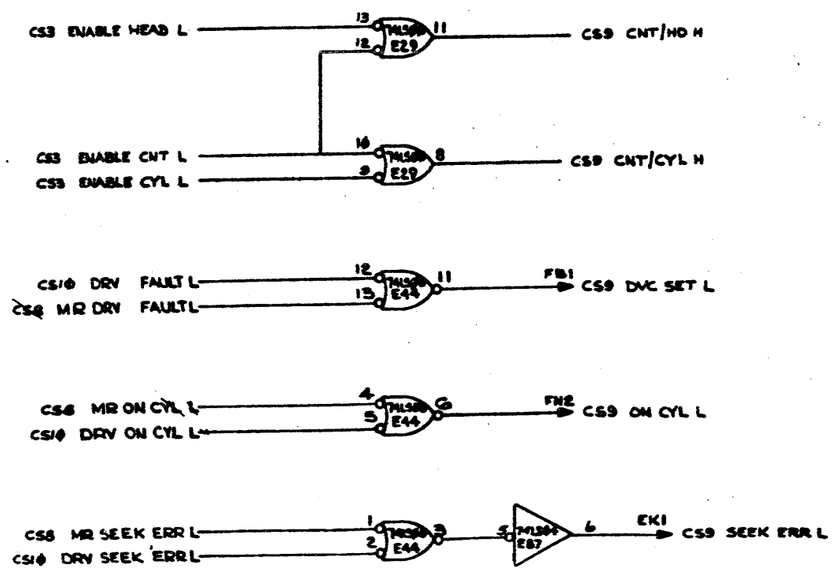
CONTROL SEQUENCER (CS8)

D CS M7684-0-1 REV. S

SHEET 8 OF 19





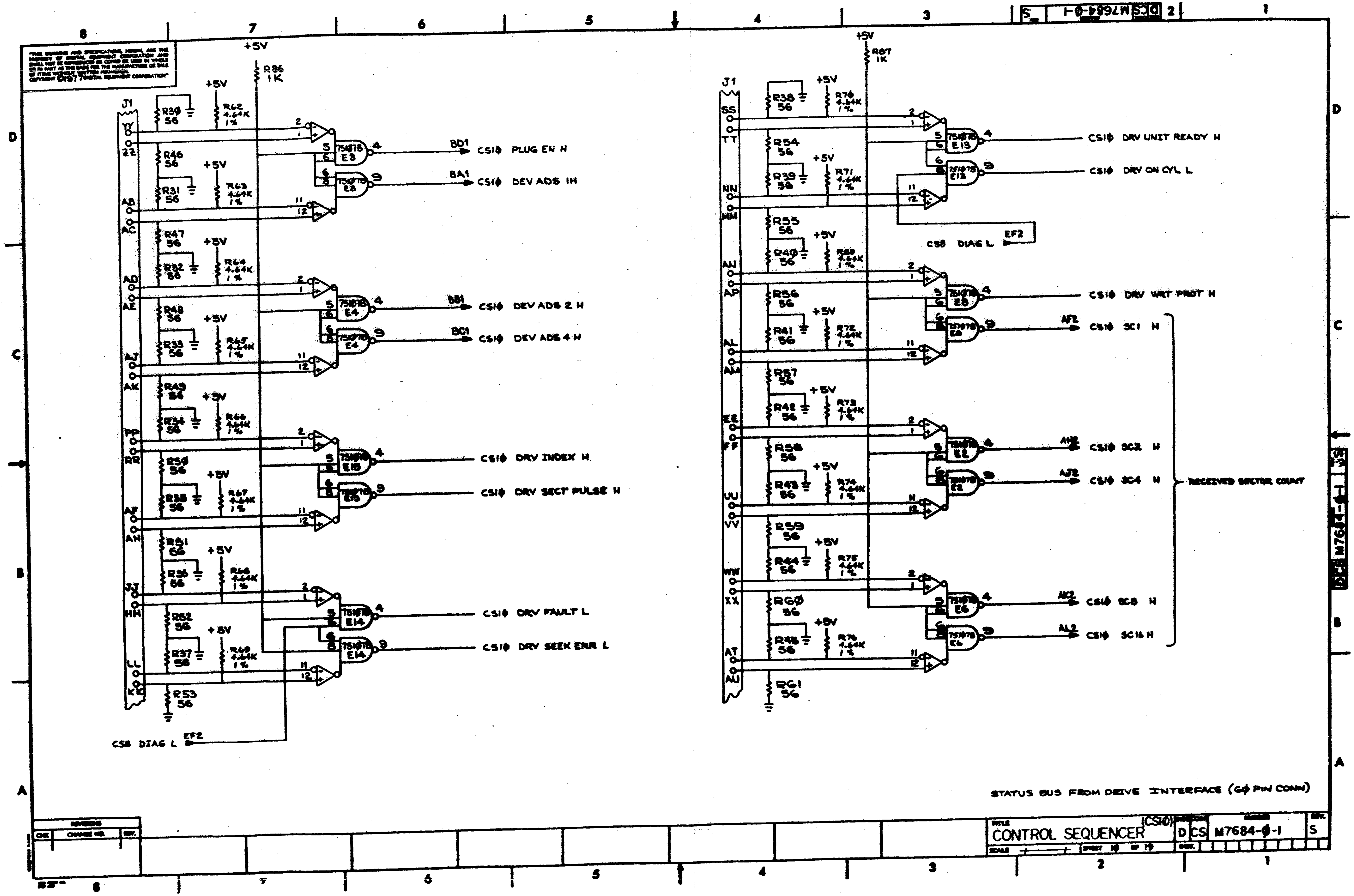


(MR1 & MR2) MAINTENANCE REGISTERS (READ ONLY)

REVISIONS		
ORG	CHANGE NO.	REV.

TITLE: CONTROL SEQUENCER (CS9)
SIZE: D | CODE: CS | NUMBER: M7684-Ø-1 | REV: 5
SCALE | SHEET 9 OF 19 | DEPT.

DCS M7684-Ø-1 S



CSIØ PLUG EN H
CSIØ DEV ADS 1H
CSIØ DEV ADS 2 H
CSIØ DEV ADS 4 H
CSIØ DRV INDEX H
CSIØ DRV SECT PULSE H
CSIØ DRV FAULT L
CSIØ DRV SEEK ERR L
CS8 DIAG L
CSIØ DRV UNIT READY H
CSIØ DRV ON CYL L
CS8 DIAG L
CSIØ DRV WRT PROT H
CSIØ SC1 H
CSIØ SC2 H
CSIØ SC4 H
CSIØ SC8 H
CSIØ SC16 H
RECEIVED SECTOR COUNT
STATUS BUS FROM DRIVE INTERFACE (6Ø PIN CONN)
CONTROL SEQUENCER (CSIØ)
D CS M7684-Ø-1 S

+5V
R77 1K

CS2 EN CYLINDER H BF1
CS11 TAG EN H
CS6 BUS BIT Ø0 H
CS2 EN CONTROL H BE1
CS11 TAG EN H
CS6 BUS BIT Ø1 H
CS2 EN HEAD H BJ1
CS11 TAG EN H
CS6 BUS BIT Ø2 H
CS6 BUS BIT Ø3 H
CS6 BUS BIT Ø4 H

75113 E22 — +TAG 1 / -TAG 1
75113 E22 — +BIT Ø / -BIT Ø
75113 E21 — +TAG 3 / -TAG 3
75113 E21 — +BIT 1 / -BIT 1
75113 E19 — +TAG 2 / -TAG 2
75113 E19 — +BIT 2 / -BIT 2
75113 E11 — +BIT 3 / -BIT 3
75113 E11 — +BIT 4 / -BIT 4

J1 pins B, A, J, H, F, E, K, D, C, M, R, P, T, S

CS8 DIAG L EF2

IF8 GO H EN2
CS2 TAG H AV1
74LS11 E54 — CS11 TAG EN H

+5V
R78 1K

CS6 BUS BIT Ø5 H
CS6 BUS BIT Ø6 H
CS6 BUS BIT Ø7 H
CS6 BUS BIT Ø8 H
CS6 BUS BIT Ø9 H

75113 E7 — +BIT 5 / -BIT 5
75113 E7 — +BIT 6 / -BIT 6
75113 E12 — +BIT 7 / -BIT 7
75113 E12 — +BIT 8 / -BIT 8
75113 E10 — +BIT 9 / -BIT 9

J1 pins V, U, X, W, Z, Y, BB, AA, DD, CC, AR, AS

CS12 POWER SEQ PICK L
CS12 POWER SEQ HOLD L

TAG BUS TO DRIVE INTERFACE (GØ PIN CONN)

REVISIONS		
ECO	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CONTROL SEQUENCER (CSII)	D	CS	M7684-Ø-1	S
SCALE —	SHEET 11 OF 19		DIST.	

DCS M7684-0-1

FS2 CS12 GRANT OUT L

+5V

E91 SPDT

5V DC

D5 D672

BP GRANT IN L FT2

CS12 DRV UP TO SPEED L

CS12 SEQ CLR H

+5V

R81 6.8 MEG Ω

C1Ø6 3.3 μf

C1Ø7 .01μf

555 E98 2.5 SEC

CTL VTH OCC R C

+5V

R84 3.3K

D6 D664

CS12 HOLD PICK H

74LS Ø4 E97

FU2 CS12 SIP L

CS8 UNIT READY H DN2

74LS04 E87

CS12 DRV RDY (1) L

74LS27 E96

FT2 BP GRANT IN L

CS12 UP TO SPEED H

CS12 DRV RDY (1) H

CS12 HOLD L

74LS27 E79

CS12 HOLD PICK H

+3V

CS12 DRV RDY (1) H

74LS08 E86

74LS112 E99

+5V

R83 1K

74LS Ø4 E97

CS12 DRVUP TO SPEED L

CS12 DRV RDY (1) L

CS12 UP TO SPEED H

CS12 PICK INHT H

+5V

RT9 6.8K

BP GRANT IN L FT2

74LS27 E96

CS12 SEQ CLR H

74LS Ø8 E89

74LS112 E99

CS12 HOLD L

74LS Ø4 E97

CS12 POWER SEQ PICK L

74LS Ø4 E97

CS12 POWER SEQ HOLD L

RD1 START ENABLE H FU1

CS4 POWER OK H EL1

74LS Ø8 E86

CS12 SEQ CLR L

74LS Ø4 E97

CS12 SEQ CLR H

CS12 SIP L FU2

CS12 HOLD PICK H

74LS27 E96

CS12 PICK INHT H

POWER UP SEQUENCE

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE CONTROL SEQUENCER (CS12)

SIZE D CODE CS NUMBER M7684-Ø-1 REV. S

SCALE — SHEET 12 OF 19 DIST.

DCS M7684-0-1 S

AA1	CS6 SEEK REQUIRED H
AB1	CS6 NEW TRACK REQ'D H
AC1	CS6 CONTINUE H
AD1	CSI BRANCH ON TEST L
AE1	SPARE
AF1	CS3 SET PULSE H
AH1	CS5 SYNC REC EN A H
AJ1	CS5 SYNC REC EN B H
AK1	CS5 TRANSMIT EN A H
AL1	CS5 TRANSMIT EN B H
AM1	CS5 TRNSCEIVR EN A H
AN1	CS5 TRNSCEIVR EN B H
AP1	SPARE
AR1	CS6 NEW TRACK REQD L
AS1	CSI SEQ CLK STROBE H
AT1	GND
AU1	CS3 PWR/INIT L
AV1	CS2 TAG H

BA1	CS8 DEV ADS 1 H
BB1	CS8 DEV ADS 2 H
BC1	CS8 DEV ADS 4 H
BD1	CS8 PLUG EN H
BE1	CS2 EN CONTROL H
BF1	CS2 EN CYLINDER H
BH1	BP DC LO L
BJ1	CS2 EN HEAD H
BK1	(NOT USED) IF8 DECODE L
BL1	IF9 SEQ SKIP L
BM1	CS2 P EN SEARCH H
BN1	CS5 SECTOR COMPARE H
BP1	CS3 SECT/INDEX L
BR1	DSII TA 8 H
BS1	DSII TA 16 H
BT1	GND
BU1	IF3 PORT A ON H
BV1	IF4 PORT B ON H

CA1	BP SN 01 H
CB1	BP SN 02 H
CC1	BP SN 04 H
CD1	BP SN 08 H
CE1	BP SN 10 H
CF1	BP SN 20 H
CH1	BP SN 40 H
CJ1	BP SN 80 H
CK1	BP SN 100 H
CL1	BP SN 200 H
CM1	BP SN 400 H
CN1	BP SN 800 H
CP1	BP SN 1000 H
CR1	BP SN 2000 H
CS1	BP SN 4000 H
CT1	GND
CU1	BP SN 8000 H
CV1	SPARE

DA1	CS2 RD HDR DATA CMD H
DB1	IF5 RM SN H
DC1	IF5 RM WR 1 H
DD1	IF5 RM WR 2 H
DE1	CS8 MAINT CLK H
DF1	CS8 MAINT CLK L
DH1	CS8 MR READ DATA H
DJ1	DS7 WRITE DATA L
DK1	IF6 EN REG TO TIST H
DL1	SPARE
DM1	IF8 OCCUPIED L
DN1	CS5 MBA EBL L
DP1	IF4 SEQ CLK H
DR1	IF3 REQ A H
DS1	IF4 REQ B H
DT1	GND
DU1	CS5 EN ECC CLOCK L
DV1	CS6 MB EXCEPTION L

EA1	IF9 EXC ERR H
EB1	IF9 ABORT L
EC1	SA2 [illegible] H
ED1	CS3 OPI SET L
EE1	CS3 WLE SET L
EF1	IF8 OFFSET MODE H
EH1	GR PROM DIS L
EJ1	CS8 WRT PROT H
EK1	CS9 SEEK ERR L
EL1	CS4 POWER OK H
EM1	RDI -5V
EN1	IF8 OFF DIR H
EP1	CS4 PRECLEAR CRC/ECC L
ER1	CS5 READ GATE H
ES1	SPARE
ET1	GND
EU1	CS4 P EN LOAD SR H
EV1	CS4 DS WRITE GATE H

FA1	CS4 P HEADER AREA H
FB1	CS9 DVC SET L
FC1	CS4 P DATA AREA H
FD1	CS4 P EN CRC/ECC H
FE1	CS4 P DATA EN SCLK H
FF1	CS4 LAST READ DATA L
FH1	CS4 P EN EBL H
FJ1	CS5 READ GATE FAST H
FK1	CS4 P READ GATE H
FL1	IF4 TEST BIT CLOCK H
FM1	CS4 P LFS H
FN1	IF6 ASY WRT H
FP1	CS4 P EN CRC OUT H
FR1	CS8 INDEX H
FS1	CS4 P EN ECC OUT H
FT1	GND
FU1	RDI START ENABLE H
FV1	SPARE

AA2	+5V
AB2	-15V
AC2	GND
AD2	CSI RESET H
AE2	CSI BRANCH H
AF2	CSI0 SC 1 H
AH2	CSI0 SC 2 H
AJ2	CSI0 SC 4 H
AK2	CSI0 SC 8 H
AL2	CSI0 SC 16 H
AM2	SPARE
AN2	SPARE
AP2	SPARE
AR2	SPARE
AS2	CS4 BR RD TO WRT L
AT2	CS4 P WRITE GATE H
AU2	DSI0 EN CORRECT CLK L
AV2	CS4 BRANCH L

BA2	+5V
BB2	-15V
BC2	GND
BD2	DSI2 DC 1 H
BE2	DSI2 DC 2 H
BF2	DSI2 DC 4 H
BH2	DSI2 DC 8 H
BJ2	DSI2 DC 16 H
BK2	DSI2 DC 32 H
BL2	DSI2 DC 64 H
BM2	DSI2 DC 128 H
BN2	DSI2 DC 256 H
BP2	DSI2 DC 512 H
BR2	DS4 EN CRC OUT H
BS2	DS4 EN ECC OUT H
BT2	CS4 READ HEADER H
BU2	CS2 P SET ATA L
BV2	BP PROM GROUND

CA2	+5V
CB2	-15V
CC2	GND
CD2	CS4 EN SYNC H
CE2	IF5 RM LA H
CF2	IF8 FMT 16 H
CH2	DSI SYNC DET H
CJ2	DS4 WORD CLK H
CK2	DS4 WORD CLK L
CL2	DS4 PROM STROBE H
CM2	IF2 CONT 00
CN2	IF2 CONT 01
CP2	IF2 CONT 02
CR2	IF2 CONT 03
CS2	IF2 CONT 04
CT2	IF2 CONT 05
CU2	IF2 CONT 06
CV2	IF2 CONT 07

DA2	+5V
DB2	-15V
DC2	GND
DD2	IF2 CONT 08
DE2	IF2 CONT 09
DF2	IF2 CONT 10
DH2	IF2 CONT 11
DJ2	IF2 CONT 12
DK2	IF2 CONT 13
DL2	IF2 CONT 14
DM2	IF2 CONT 15
DN2	CS8 UNIT READY H
DP2	DSII TA1 H
DR2	DSII TA2 H
DS2	DSII TA4 H
DT2	CS3 [illegible] CLR L
DU2	SA2 [illegible] EXC H
DV2	CS5 EN CRC CLOCK L

EA2	+5V
EB2	-15V
EC2	GND
ED2	IF5 INIT A/B L
EE2	CS8 DIAG H
EF2	CS8 DIAG L
EH2	IF8 F0 H
EJ2	IF8 F1 H
EK2	IF8 F2 H
EL2	IF8 F3 H
EM2	IF8 F4 H
EN2	IF8 GO H
EP2	CS3 RESET GO L
ER2	DSII SA 1 H
ES2	DSII SA 2 H
ET2	DSII SA 4 H
EU2	DSII SA 8 H
EV2	DSII SA 16 H

FA2	+5V
FB2	-15V
FC2	GND
FD2	CS5 DTE SET L
FE2	DSI2 LST SECT TRK H
FF2	DSII LST SECT H
FH2	IFII LSC L
FJ2	CS2 FORMAT H
FK2	CS4 P EN CRC L
FL2	CS6 RUN AND GO H
FM2	CS2 LSC SET L
FN2	CS9 ON CYL L
FP2	CS2 EN EXC H
FR2	CS2 SET IVC H
FS2	CSI2 GRANT OUT L
FT2	BP GRANT IN L
FU2	CSI2 SIP L
FV2	DS4 LCC WRD CNT INH L

I/O SIGNAL LIST

REVISIONS		
ECO	CHANGE NO.	REV.

TITLE CONTROL SEQUENCER (CS13)
SIZE DCS NUMBER M7684-0-1 REV S
SCALE SHEET 13 OF 19 DIST.

DEC PART NUMBER: 23-01501 ORIGINATOR: IAC'VE PELLETTIERE
LEFT COLUMN OF OCT DATA IS MSB(PIN 1) OF 3C) DATE ORIGINATED: 5-3-77
BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW
SHEET 1 OF 4

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	000	000	006	06	00000110
1	001	001	006	06	00000110
2	002	002	006	06	00000110
3	003	003	006	06	00000110
4	004	004	006	06	00000110
5	005	005	006	06	00000110
6	006	006	006	06	00000110
7	007	007	006	06	00000110
8	008	010	006	06	00000110
9	009	011	006	06	00000110
10	00A	012	006	06	00000110
11	00B	013	006	06	00000110
12	00C	014	006	06	00000110
13	00D	015	006	06	00000110
14	00E	016	006	06	00000110
15	00F	017	006	06	00000110
16	010	020	006	06	00000110
17	011	021	006	06	00000110
18	012	022	006	06	00000110
19	013	023	006	06	00000110
20	014	024	006	06	00000110
21	015	025	006	06	00000110
22	016	026	006	06	00000110
23	017	027	006	06	00000110
24	018	030	006	06	00000110
25	019	031	006	06	00000110
26	01A	032	006	06	00000110
27	01B	033	006	06	00000110
28	01C	034	006	06	00000110
29	01D	035	006	06	00000110
30	01E	036	006	06	00000110
31	01F	037	006	06	00000110
32	020	040	006	06	00000110
33	021	041	006	06	00000110
34	022	042	006	06	00000110
35	023	043	006	06	00000110
36	024	044	006	06	00000110
37	025	045	006	06	00000110
38	026	046	006	06	00000110
39	027	047	006	06	00000110
40	028	050	006	06	00000110
41	029	051	006	06	00000110
42	02A	052	006	06	00000110
43	02B	053	006	06	00000110
44	02C	054	006	06	00000110
45	02D	055	006	06	00000110
46	02E	056	006	06	00000110
47	02F	057	006	06	00000110
48	030	060	006	06	00000110
49	031	061	006	06	00000110
50	032	062	006	06	00000110
51	033	063	006	06	00000110
52	034	064	006	06	00000110
53	035	065	006	06	00000110
54	036	066	006	06	00000110
55	037	067	006	06	00000110
56	038	070	006	06	00000110
57	039	071	006	06	00000110
58	03A	072	006	06	00000110
59	03B	073	006	06	00000110
60	03C	074	006	06	00000110
61	03D	075	006	06	00000110
62	03E	076	006	06	00000110
63	03F	077	006	06	00000110
64	040	100	006	06	00000110
65	041	101	006	06	00000110
66	042	102	006	06	00000110
67	043	103	006	06	00000110
68	044	104	006	06	00000110
69	045	105	006	06	00000110
70	046	106	006	06	00000110
71	047	107	006	06	00000110
72	048	110	006	06	00000110
73	049	111	006	06	00000110
74	04A	112	006	06	00000110
75	04B	113	006	06	00000110
76	04C	114	006	06	00000110
77	04D	115	006	06	00000110
78	04E	116	006	06	00000110
79	04F	117	006	06	00000110
80	050	120	006	06	00000110
81	051	121	006	06	00000110
82	052	122	006	06	00000110
83	053	123	006	06	00000110
84	054	124	006	06	00000110
85	055	125	006	06	00000110
86	056	126	006	06	00000110
87	057	127	006	06	00000110
88	058	130	006	06	00000110
89	059	131	006	06	00000110
90	05A	132	006	06	00000110
91	05B	133	006	06	00000110
92	05C	134	006	06	00000110
93	05D	135	006	06	00000110
94	05E	136	006	06	00000110
95	05F	137	006	06	00000110
96	060	140	006	06	00000110
97	061	141	006	06	00000110
98	062	142	006	06	00000110
99	063	143	006	06	00000110
100	064	144	006	06	00000110
101	065	145	006	06	00000110
102	066	146	006	06	00000110
103	067	147	006	06	00000110
104	068	150	006	06	00000110
105	069	151	006	06	00000110
106	06A	152	006	06	00000110
107	06B	153	006	06	00000110
108	06C	154	006	06	00000110
109	06D	155	006	06	00000110
110	06E	156	006	06	00000110
111	06F	157	006	06	00000110
112	070	160	006	06	00000110
113	071	161	006	06	00000110
114	072	162	006	06	00000110
115	073	163	006	06	00000110
116	074	164	006	06	00000110
117	075	165	006	06	00000110
118	076	166	006	06	00000110
119	077	167	006	06	00000110
120	078	170	006	06	00000110
121	079	171	006	06	00000110
122	07A	172	006	06	00000110
123	07B	173	006	06	00000110
124	07C	174	006	06	00000110
125	07D	175	006	06	00000110
126	07E	176	006	06	00000110
127	07F	177	006	06	00000110

DEC PART NUMBER: 23-01501 ORIGINATOR: IRENE PELLETTIERE
LEFT COLUMN OF OCT DATA IS MSB(PIN 1 OF 3C) DATE ORIGINATED: 5-3-77
BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW
SHEET 3 OF 4

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
256	100	400	226	96	10010110
257	101	401	226	96	10010110
258	102	402	226	96	10010110
259	103	403	226	96	10010110
260	104	404	226	96	10010110
261	105	405	226	96	10010110
262	106	406	226	96	10010110
263	107	407	226	96	10010110
264	108	410	226	96	10010110
265	109	411	226	96	10010110
266	10A	412	226	96	10010110
267	10B	413	226	96	10010110
268	10C	414	226	96	10010110
269	10D	415	226	96	10010110
270	10E	416	226	96	10010110
271	10F	417	226	96	10010110
272	110	420	226	96	10010110
273	111	421	226	96	10010110
274	112	422	226	96	10010110
275	113	423	226	96	10010110
276	114	424	226	96	10010110
277	115	425	226	96	10010110
278	116	426	226	96	10010110
279	117	427	226	96	10010110
280	118	430	226	96	10010110
281	119	431	226	96	10010110
282	11A	432	226	96	10010110
283	11B	433	226	96	10010110
284	11C	434	226	96	10010110
285	11D	435	226	96	10010110
286	11E	436	226	96	10010110
287	11F	437	226	96	10010110
288	120	440	226	96	10010110
289	121	441	226	96	10010110
290	122	442	226	96	10010110
291	123	443	226	96	10010110
292	124	444	226	96	10010110
293	125	445	226	96	10010110
294	126	446	226	96	10010110
295	127	447	226	96	10010110
296	128	450	226	96	10010110
297	129	451	226	96	10010110
298	12A	452	226	96	10010110
299	12B	453	226	96	10010110
300	12C	454	226	96	10010110
301	12D	455	226	96	10010110
302	12E	456	226	96	10010110
303	12F	457	226	96	10010110
304	130	460	226	96	10010110
305	131	461	226	96	10010110
306	132	462	226	96	10010110
307	133	463	226	96	10010110
308	134	464	226	96	10010110
309	135	465	226	96	10010110
310	136	466	226	96	10010110
311	137	467	226	96	10010110
312	138	470	226	96	10010110
313	139	471	226	96	10010110
314	13A	472	226	96	10010110
315	13B	473	226	96	10010110
316	13C	474	226	96	10010110
317	13D	475	226	96	10010110
318	13E	476	226	96	10010110
319	13F	477	226	96	10010110
320	140	500	226	96	10010110
321	141	501	226	96	10010110
322	142	502	226	96	10010110
323	143	503	226	96	10010110
324	144	504	226	96	10010110
325	145	505	226	96	10010110
326	146	506	226	96	10010110
327	147	507	226	96	10010110
328	148	510	226	96	10010110
329	149	511	226	96	10010110
330	14A	512	226	96	10010110
331	14B	513	226	96	10010110
332	14C	514	226	96	10010110
333	14D	515	226	96	10010110
334	14E	516	226	96	10010110
335	14F	517	226	96	10010110
336	150	520	226	96	10010110
337	151	521	226	96	10010110
338	152	522	226	96	10010110
339	153	523	226	96	10010110
340	154	524	226	96	10010110
341	155	525	226	96	10010110
342	156	526	226	96	10010110
343	157	527	226	96	10010110
344	158	530	226	96	10010110
345	159	531	226	96	10010110
346	15A	532	226	96	10010110
347	15B	533	226	96	10010110
348	15C	534	226	96	10010110
349	15D	535	226	96	10010110
350	15E	536	226	96	10010110
351	15F	537	226	96	10010110
352	160	540	226	96	10010110
353	161	541	226	96	10010110
354	162	542	226	96	10010110
355	163	543	226	96	10010110
356	164	544	226	96	10010110
357	165	545	226	96	10010110
358	166	546	226	96	10010110
359	167	547	226	96	10010110
360	168	550	226	96	10010110
361	169	551	226	96	10010110
362	16A	552	226	96	10010110
363	16B	553	226	96	10010110
364	16C	554	226	96	10010110
365	16D	555	226	96	10010110
366	16E	556	226	96	10010110
367	16F	557	226	96	10010110
368	170	560	226	96	10010110
369	171	561	226	96	10010110
370	172	562	226	96	10010110
371	173	563	226	96	10010110
372	174	564	226	96	10010110
373	175	565	226	96	10010110
374	176	566	226	96	10010110
375	177	567	226	96	10010110
376	178	570	226	96	10010110
377	179	571	226	96	10010110
378	17A	572	226	96	10010110
379	17B	573	226	96	10010110
380	17C	574	226	96	10010110
381	17D	575	226	96	10010110
382	17E	576	226	96	10010110
383	17F	577	226	96	10010110

DEC PART NUMBER: 23-01501 ORIGINATOR: IRENE PELLETTIERE
LEFT COLUMN OF OCT DATA IS MSB(PIN 1 OF 3C) DATE ORIGINATED: 5-3-77
BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW
SHEET 2 OF 4

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
128	080	200	006	06	00000110
129	081	201	006	06	00000110
130	082	202	006	06	00000110
131	083	203	006	06	00000110
132	084	204	006	06	00000110
133	085	205	006	06	00000110
134	086	206	006	06	00000110
135	087	207	006	06	00000110
136	088	210	006	06	00000110
137	089	211	006	06	00000110
138	08A	212	006	06	00000110
139	08B	213	006	06	00000110
140	08C	214	006	06	00000110
141	08D	215	006	06	00000110
142	08E	216	006	06	00000110
143	08F	217	006	06	00000110
144	090	220	006	06	00000110
145	091	221	006	06	00000110
146	092	222	006	06	00000110
147	093	223	006	06	00000110
148	094	224	006	06	00000110
149	095	225	006	06	00000110
150	096	226	006	06	00000110
151	097	227	006	06	00000110
152	098	230	006	06	00000110
153	099	231	006	06	00000110
154	09A	232	006	06	00000110
155	09B	233	006	06	00000110
156	09C	234	006	06	00000110
157	09D	235	006	06	00000110
158	09E	236	006	06	00000110
159	09F	237	006	06	00000110
160	0A0	240	006	06	00000110
161	0A1	241	006	06	00000110
162	0A2	242	006	06	00000110
163	0A3	243	006	06	00000110
164	0A4	244	006	06	00000110
165	0A5	245	006	06	00000110
166	0A6	246	006	06	00000110
167	0A7	247	006	06	00000110
168	0A8	250	006	06	00000110
169	0A9	251	006	06	00000110
170	0AA	252	006	06	00000110
171	0AB	253	006	06	00000110
172	0AC	254	006	06	00000110
173	0AD	255	006	06	00000110
174	0AE	256	006	06	00000110
175	0AF	257	006	06	00000110
176	0B0	260	006	06	00000110
177	0B1	261	006	06	00000110
178	0B2	262	006	06	00000110
179	0B3	263	006	06	00000110
180	0B4	264	006	06	00000110
181	0B5	265	006	06	00000110
182	0B6	266	006	06	00000110
183	0B7	267	006	06	00000110
184	0B8	270	006	06	00000110
185	0B9	271	006	06	00000110
186	0BA	272	006	06	00000110
187	0BB	273	006	06	00000110
188	0BC	274	006	06	00000110
189	0BD	275	006	06	00000110
190	0BE	276	006	06	00000110
191	0BF	277	006	06	00000110
192	0C0	300	226	96	10010110
193	0C1	301	226	96	10010110
194	0C2	302	226	96	10010110
195	0C3	303	226	96	10010110
196	0C4	304	226	96	10010110
197	0C5	305	226	96	10010110
198	0C6	306	226	96	10010110
199	0C7	307	226	96	10010110
200	0C8	310	226	96	10010110
201	0C9	311	226	96	10010110
202	0CA	312	226	96	10010110
203	0CB	313	226	96	10010110
204	0CC	314	226	96	10010110
205	0CD	315	226	96	10010110
206	0CE	316	226	96	10010110
207	0CF	317	226	96	10010110
208	0D0	320	226	96	10010110
209	0D1	321	226	96	10010110
210	0D2	322	226	96	10010110
211	0D3	323	226	96	10010110
212	0D4	324	226	96	10010110
213	0D5	325	226	96	10010110
214	0D6	326	226	96	10010110
215	0D7	327	226	96	10010110
216	0D8	330	226	96	10010110
217	0D9	331	226	96	10010110
218	0DA	332	226	96	10010110
219	0DB	333	226	96	10010110
220	0DC	334	226	96	10010110
221	0DD	335	226	96	10010110
222	0DE	336	226	96	10010110
223	0DF	337	226	96	10010110
224	0E0	340	226	96	10010110
225	0E1	341	226	96	10010110
226	0E2	342	226	96	10010110
227	0E3	343	226	96	10010110
228	0E4	344	226	96	10010110
229	0E5	345	226	96	10010110
230	0E6	346	226	96	10010110
231	0E7	347	226	96	10010110
232	0E8	350	226	96	10010110
233	0E9	351	226	96	10010110
234	0EA	352	226	96	10010110
235	0EB	353	226	96	10010110
236	0EC	354	226	96	10010110
237	0ED	355	226	96	10010110
238	0EE	356	226	96	10010110
239	0EF	357	226	96	10010110
240	0F0	360	226	96	10010110
241	0F1	361	226	96	10010110
242	0F2	362	226	96	10010110
243	0F3	363	226	96	10010110
244	0F4	364	226	96	10010110
245	0F5	365	226	96	10010110
246	0F6	366	226	96	10010110
247	0F7	367	226	96	10010110
248	0F8	370	226	96	10010110
249	0F9	371	226	96	10010110
250	0FA	372	226	96	10010110
251	0FB	373	226	96	10010110
252	0FC	374	226	96	10010110
253	0FD	375	226	96	10010110
254	0FE	376	226	96	10010110
255	0FF	377	226	96	10010110

DEC PART NUMBER: 23-01501 ORIGINATOR: IRENE PELLETTIERE
LEFT COLUMN OF OCT DATA IS MSB(PIN 1 OF 3C) DATE ORIGINATED: 5-3-77
BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW
SHEET 4 OF 4

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
384	180	600	226	96	10010110
385	181	601	226	96	10010110
386	182	602	226	96	10010110
387	183	603	226	96	10010110
388	184	604	226	96	10010110
389	185	605	226	96	10010110
390	186	606	226	96	10010110
391	187	607	226	96	10010110
392	188	610	226	96	10010110
393	189	611	226	96	10010110
394	18A	612	226	96	10010110
395	18B	613	226	96	10010110
396	18C	614	226	96	10010110
397	18D	615	226	96	10010110
398	18E	616	226	96	10010110
399	18F	617	226	96	10010110
400	190	620	226	96	10010110
401	191	621	226	96	10010110
402	192	622	226	96	10010110
403	193	623	226	96	10010110
404	194	624	226	96	10010110
405	195	625	226	96	10010110
406	196	626	226	96	10010110
407	197	627	226	96	10010110
408	198	630	226	96	10010110
409	199	631	226	96	10010110
410	19A	632	226	96	10010110
411	19B	633	226	96	10010110
412	19C	634	226	96	10010110
413	19D	635	226	96	10010110
414	19E	636	226	96	10010110
415	19F	637	226	96	10010110
416	1A0	640	226	96	10010110
417	1A1	641	226	96	10010110
418	1A2	642	226	96	10010110
419	1A3	643	226	96	10010110
420	1A4	644	226	96	10010110
421	1A5	645	226	96	10010110
422	1A6	646	226	96	10010110
423	1A7	647	226	96	10010110
424	1A8	650	226	96	10010110
425	1A9	651	226	96	10010110
426	1AA	652	226	96	10010110
427	1AB	653	226	96	10010110
428	1AC	654	226	96	10010110
429	1AD	655	226	96	10010110
430	1AE	656	226	96	10010110
431	1AF	657	226	96	10010110
432	1B0	660	226	96	10010110
433	1B1	661	226	96	10010110
434	1B2	662	226	96	10010110
435	1B3	663	226	96	10010110
436	1B4	664	226	96	10010110
437	1B5	665	226	96	10010110
438	1B6	666	226	96	10010110
439	1B7	667	226	96	10010110
440	1B8	670	226	96	10010110
441	1B9	671	226	96	10010110
442	1BA	672	226	96	10010110
443	1BB	673	226	96	10010110
444	1BC	674	226	96	10010110
445	1BD	675	226	96	10010110
446	1BE	676	226	96	10010110
447	1BF	677	226	96	10010110
448	1C0	700	006	06	00000110
449	1C1	701	006	06	00000110
450	1C2	702	006	06	00000110
451	1C3	703	006	06	00000110
452	1C4	704	006	06	00000110
453	1C5	705	006	06	00000110
454	1C6	706	006	06	00000110
455	1C7	707	006	06	00000110
456	1C8	710	006	06	00000110
457	1C9	711	006	06	00000110
458	1CA	712	006	06	00000110
459	1CB	713	006	06	00000110
460	1CC	714	006	06	00000110
461	1CD	715	006	06	00000110
462	1CE	716	006	06	00000110
463	1CF	717	006	06	00000110
464	1D0	720	006	06	00000110
465	1D1	721	006	06	00000110
466	1D2	722	006	06	00000110
467	1D3	723	006	06	00000110
468	1D4	724	006	06	00000110
469	1D5	725	006	06	00000110
470	1D6	726	006	06	00000110
471	1D7	727	006	06	00000110
472	1D8	730	006	06	00000110
473	1D9	731	006	06	00000110
474	1DA	732	006	06	00000110
475	1DB	733	006	06	00000110
476	1DC	734	006	06	00000110
477	1DD	735	006	06	00000110
478	1DE	736	006	06	00000110
479	1DF	737	006	06	00000110
480	1E0	740	006	06	00000110
481	1E1	741	006	06	00000110
482	1E2	742	006	06	00000110
483	1E3	743	006	06	00000110
484	1E4	744	006	06	00000110
485	1E5	745	006	06	00000110
486	1E6	746	006	06	00000110
487	1E7	747	006	06	00000110
488	1E8	750	006	06	00000110
489	1E9	751	006	06	00000110
490	1EA	752	006	06	00000110
491	1EB	753	006	06	00000110
492	1EC	754	006	06	00000110
493	1ED	755	006	06	00000110
494	1EE	756	006	06	00000110
495	1EF	757	006	06	00000110
496	1F0	760	006	06	00000110
497	1F1	761	006	06	00000110
498	1F2	762	006	06	00000110
499	1F3	763	006	06	00000110
500	1F4	764	006	06	00000110
501	1F5	765	006	06	00000110
502	1F6	766	006	06	00000110
503	1F7	767	006	06	00000110
504	1F8	770	006	06	00000110
505	1F9	771	006	06	00000110
506	1FA	772	006	06	00000110
507	1FB	773	006	06	00000110
508	1FC	774	006	06	00000110
509	1FD	775	006	06	00000110
510	1FE	776	006	06	00000110
511	1FF	777	006	06	00000110

READ CONTROLS FROM AT E81 (CS4)

TITLE
512 X 8
ROM/PROM PATTERN SPEC
23-01501

REVISIONS		
LTR	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CONTROL SEQUENCER (CS14)	D	CS	M7684-0--	S
SCALE	SHEET 4 OF 19		DWG.	

M7684-0-1 S

DEC PART NUMBER: 23-01601
LEFT COLUMN OF BIN DATA IS MSB (PIN 17 OF 3C)
ORIGINATOR: IRENE BELLETTIERE
DATE ORIGINATED: 5-4-77
BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW
SHEET 1 OF 4

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	000	000	310	C8	11001000	32	020	040	200	80	10000000	64	040	100	200	80	10000000	96	060	140	200	80	10000000
1	001	001	310	C8	11001000	33	021	041	200	80	10000000	65	041	101	200	80	10000000	97	061	141	200	80	10000000
2	002	002	310	C8	11001000	34	022	042	200	80	10000000	66	042	102	200	80	10000000	98	062	142	200	80	10000000
3	003	003	310	C8	11001000	35	023	043	200	80	10000000	67	043	103	200	80	10000000	99	063	143	200	80	10000000
4	004	004	310	C8	11001000	36	024	044	200	80	10000000	68	044	104	200	80	10000000	100	064	144	200	80	10000000
5	005	005	310	C8	11001000	37	025	045	200	80	10000000	69	045	105	200	80	10000000	101	065	145	200	80	10000000
6	006	006	310	C8	11001000	38	026	046	200	80	10000000	70	046	106	200	80	10000000	102	066	146	200	80	10000000
7	007	007	310	C8	11001000	39	027	047	200	80	10000000	71	047	107	200	80	10000000	103	067	147	200	80	10000000
8	008	010	310	C8	11001000	40	028	050	200	80	10000000	72	048	110	200	80	10000000	104	068	150	200	80	10000000
9	009	011	310	C8	11001000	41	029	051	200	80	10000000	73	049	111	200	80	10000000	105	069	151	200	80	10000000
10	00A	012	310	C8	11001000	42	02A	052	200	80	10000000	74	04A	112	200	80	10000000	106	06A	152	200	80	10000000
11	00B	013	310	C8	11001000	43	02B	053	200	80	10000000	75	04B	113	200	80	10000000	107	06B	153	200	80	10000000
12	00C	014	310	C8	11001000	44	02C	054	200	80	10000000	76	04C	114	200	80	10000000	108	06C	154	200	80	10000000
13	00D	015	310	C8	11001000	45	02D	055	200	80	10000000	77	04D	115	200	80	10000000	109	06D	155	200	80	10000000
14	00E	016	310	C8	11001000	46	02E	056	200	80	10000000	78	04E	116	200	80	10000000	110	06E	156	200	80	10000000
15	00F	017	200	80	10000000	47	02F	057	200	80	10000000	79	04F	117	200	80	10000000	111	06F	157	200	80	10000000
16	010	020	200	80	10000000	48	030	060	200	80	10000000	80	050	120	200	80	10000000	112	070	160	200	80	10000000
17	011	021	200	80	10000000	49	031	061	200	80	10000000	81	051	121	200	80	10000000	113	071	161	200	80	10000000
18	012	022	200	80	10000000	50	032	062	200	80	10000000	82	052	122	200	80	10000000	114	072	162	200	80	10000000
19	013	023	200	80	10000000	51	033	063	200	80	10000000	83	053	123	200	80	10000000	115	073	163	200	80	10000000
20	014	024	200	80	10000000	52	034	064	200	80	10000000	84	054	124	200	80	10000000	116	074	164	200	80	10000000
21	015	025	200	80	10000000	53	035	065	200	80	10000000	85	055	125	200	80	10000000	117	075	165	200	80	10000000
22	016	026	200	80	10000000	54	036	066	200	80	10000000	86	056	126	200	80	10000000	118	076	166	200	80	10000000
23	017	027	200	80	10000000	55	037	067	200	80	10000000	87	057	127	200	80	10000000	119	077	167	200	80	10000000
24	018	030	200	80	10000000	56	038	070	200	80	10000000	88	058	130	200	80	10000000	120	078	170	200	80	10000000
25	019	031	200	80	10000000	57	039	071	200	80	10000000	89	059	131	200	80	10000000	121	079	171	200	80	10000000
26	01A	032	200	80	10000000	58	03A	072	200	80	10000000	90	05A	132	200	80	10000000	122	07A	172	200	80	10000000
27	01B	033	200	80	10000000	59	03B	073	200	80	10000000	91	05B	133	200	80	10000000	123	07B	173	200	80	10000000
28	01C	034	200	80	10000000	60	03C	074	200	80	10000000	92	05C	134	200	80	10000000	124	07C	174	200	80	10000000
29	01D	035	200	80	10000000	61	03D	075	200	80	10000000	93	05D	135	200	80	10000000	125	07D	175	200	80	10000000
30	01E	036	200	80	10000000	62	03E	076	200	80	10000000	94	05E	136	200	80	10000000	126	07E	176	200	80	10000000
31	01F	037	200	80	10000000	63	03F	077	200	80	10000000	95	05F	137	200	80	10000000	127	07F	177	200	80	10000000

DEC PART NUMBER: 23-01601
LEFT COLUMN OF BIN DATA IS MSB (PIN 17 OF 3C)
ORIGINATOR: IRENE BELLETTIERE
DATE ORIGINATED: 5-4-77
BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW
SHEET 3 OF 4

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
256	100	400	320	D0	11010000	288	120	440	320	D0	11010000	320	140	500	320	D0	11010000	352	160	540	320	D0	11010000
257	101	401	320	D0	11010000	289	121	441	320	D0	11010000	321	141	501	320	D0	11010000	353	161	541	320	D0	11010000
258	102	402	320	D0	11010000	290	122	442	320	D0	11010000	322	142	502	320	D0	11010000	354	162	542	320	D0	11010000
259	103	403	320	D0	11010000	291	123	443	320	D0	11010000	323	143	503	320	D0	11010000	355	163	543	320	D0	11010000
260	104	404	320	D0	11010000	292	124	444	320	D0	11010000	324	144	504	320	D0	11010000	356	164	544	320	D0	11010000
261	105	405	320	D0	11010000	293	125	445	320	D0	11010000	325	145	505	320	D0	11010000	357	165	545	320	D0	11010000
262	106	406	320	D0	11010000	294	126	446	320	D0	11010000	326	146	506	320	D0	11010000	358	166	546	320	D0	11010000
263	107	407	320	D0	11010000	295	127	447	320	D0	11010000	327	147	507	320	D0	11010000	359	167	547	320	D0	11010000
264	108	410	320	D0	11010000	296	128	450	320	D0	11010000	328	148	510	320	D0	11010000	360	168	550	320	D0	11010000
265	109	411	320	D0	11010000	297	129	451	320	D0	11010000	329	149	511	320	D0	11010000	361	169	551	320	D0	11010000
266	10A	412	320	D0	11010000	298	12A	452	320	D0	11010000	330	14A	512	320	D0	11010000	362	16A	552	320	D0	11010000
267	10B	413	320	D0	11010000	299	12B	453	320	D0	11010000	331	14B	513	320	D0	11010000	363	16B	553	320	D0	11010000
268	10C	414	320	D0	11010000	300	12C	454	320	D0	11010000	332	14C	514	320	D0	11010000	364	16C	554	320	D0	11010000
269	10D	415	320	D0	11010000	301	12D	455	320	D0	11010000	333	14D	515	320	D0	11010000	365	16D	555	320	D0	11010000
270	10E	416	320	D0	11010000	302	12E	456	320	D0	11010000	334	14E	516	320	D0	11010000	366	16E	556	320	D0	11010000
271	10F	417	320	D0	11010000	303	12F	457	320	D0	11010000	335	14F	517	320	D0	11010000	367	16F	557	320	D0	11010000
272	110	420	320	D0	11010000	304	130	460	320	D0	11010000	336	150	520	320	D0	11010000	368	170	560	320	D0	11010000
273	111	421	320	D0	11010000	305	131	461	320	D0	11010000	337	151	521	320	D0	11010000	369	171	561	320	D0	11010000
274	112	422	320	D0	11010000	306	132	462	320	D0	11010000	338	152	522	320	D0	11010000	370	172	562	320	D0	11010000
275	113	423	320	D0	11010000	307	133	463	320	D0	11010000	339	153	523	320	D0	11010000	371	173	563	320	D0	11010000
276	114	424	320	D0	11010000	308	134	464	320	D0	11010000	340	154	524	320	D0	11010000	372	174	564	320	D0	11010000
277	115	425	320	D0	11010000	309	135	465	320	D0	11010000	341	155	525	320	D0	11010000	373	175	565	320	D0	11010000
278	116	426	320	D0	11010000	310	136	466	320	D0	11010000	342	156	526	320	D0	11010000	374	176	566	320	D0	11010000
279	117	427	320	D0	11010000	311	137	467	320	D0	11010000	343	157	527	320	D0	11010000	375	177	567	320	D0	11010000
280	118	430	320	D0	11010000	312	138	470	320	D0	11010000	344	158	530	320	D0	11010000	376	178	570	320	D0	11010000
281	119	431	320	D0	11010000	313	139	471	320	D0	11010000	345	159	531	320	D0	11010000	377	179	571	320	D0	11010000
282	11A	432	320	D0	11010000	314	13A	472	320	D0	11010000	346	15A	532	320	D0	11010000	378	17A	572	320	D0	11010000
283	11B	433	320	D0	11010000	315	13B	473	320	D0	11010000	347	15B	533	320	D0	11010000	379	17B	573	320	D0	11010000
284	11C	434	320	D0	11010000	316	13C	474	320	D0	11010000	348	15C	534	320	D0	11010000	380	17C	574	320	D0	11010000
285	11D	435	320	D0	11010000	317	13D	475	320	D0	11010000	349	15D	535	320	D0	11010000	381	17D	575	320	D0	11010000
286	11E	436	320	D0	11010000	318	13E	476	320	D0	11010000	350	15E	536	320	D0	11010000	382	17E	576	320	D0	11010000
287	11F	437	320	D0	11010000	319	13F	477	320	D0	11010000	351	15F	537	320	D0	11010000	383	17F	577	320	D0	11010000

DEC PART NUMBER: 23-01601
LEFT COLUMN OF BIN DATA IS MSB (PIN 17 OF 3C)
ORIGINATOR: IRENE BELLETTIERE
DATE ORIGINATED: 5-4-77
BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW
SHEET 2 OF 4

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
128	080	200	350	E8	11101000	160	0A0	240	200	80	10000000	192	0C0	300	320	D0	11010000	224	0E0	340	320	D0	11010000
129	081	201	350	E8	11101000	161	0A1	241	320	D0	11010000	193	0C1	301	320	D0	11010000	225	0E1	341	320	D0	11010000
130	082	202	112	4A	01001010	162	0A2	242	320	D0	11010000	194	0C2	302	320	D0	11010000	226	0E2	342	320	D0	11010000
131	083	203	310	C8	11001000	163	0A3	243	320	D0	11010000	195	0C3	303	320	D0	11010000	227	0E3	343	320	D0	11010000
132	084	204	300	C0	11000000	164	0A4	244	320	D0	11010000	196	0C4	304	320	D0	11010000	228	0E4	344	320	D0	11010000
133	085	205	300	C0	11000000	165	0A5	245	320	D0	11010000	197	0C5	305	320	D0	11010000	229	0E5	345	320	D0	11010000
134	086	206	300	C0	11000000	166	0A6	246	320	D0	11010000	198	0C6	306	320	D0	11010000	230	0E6	346	320	D0	11010000
135	087	207	300	C0	11000000	167	0A7	247	320	D0	11010000	199	0C7	307	320	D0	11010000	231	0E7	347	320	D0	11010000
136	088	210	300	C0	11000000	168	0A8	250	320	D0	11010000	200	0C8	310	320	D0	11010000	232	0E8	350	320	D0	11010000
137	089	211	300	C0	11000000	169	0A9	251	320	D0	11010000	201	0C9	311	320	D0	11010000	233	0E9	351	320	D0	11010000
138	08A	212	300	C0	11000000	170	0AA	252	320	D0	11010000	202	0CA	312	320	D0	11010000	234	0EA	352	320	D0	11010000
139	08B	213	300	C0	11000000	171	0AB	253	320	D0	11010000	203	0CB	313	320	D0	11010000	235	0EB	353	320	D0	11010000
140	08C	214	200	80	10000000	172	0AC	254	320	D0	11010000	204	0CC	314	320	D0	11010000	236	0EC	354	320	D0	11010000
141	08D	215	200	80	10000000	173	0AD	255	320	D0	11010000	205	0CD	315	320	D0	11010000	237	0ED	355	320	D0	11010000
142	08E	216	200	80	10000000	174	0AE	256	320	D0	11010000	206	0CE	316	320	D0	11010000	238	0EE	356	320	D0	11010000
143	08F	217	200	80	10000000	175	0AF	257	320	D0	11010000	207	0CF	317	320	D0	11010000	239	0EF	357	320	D0	11010000
144	090	220	200	80	10000000	176	0B0	260	320	D0	11010000	208	0D0	320	320	D0	11010000	240	0F0	360	320	D0	11010000
145	091	221	200	80	10000000	177	0B1	261	320	D0	11010000	209	0D1	321	320	D0	11010000	241	0F1	361	320	D0	11010000
146	092	222	200	80	10000000	178	0B2	262	320	D0	11010000	210	0D2	322	320	D0	11010000	242	0F2	362	320	D0	11010000
147	093	223	200	80	10000000	179	0B3	263	320	D0	11010000	211	0D3	323	320	D0	11010000	243	0F3	363	320	D0	11010000
148	094	224	200	80	10000000	180	0B4	264	320	D0	11010000	212	0D4	324	320	D0	11010000	244	0F4	364	320	D0	11010000
149	095	225	200	80	10000000	181	0B5	265	320	D0	11010000	213	0D5	325	320	D0	11010000	245	0F5	365	320	D0	11010000
150	096	226	200	80	10000000	182	0B6	266	320	D0	11010000	214	0D6	326	320	D0	11010000	246	0F6	366	320	D0	11010000
151	097	227	200	80	10000000	183	0B7	267	320	D0	11010000	215	0D7	327	320	D0	11010000	247	0F7	367	320	D0	11010000
152	098	230	200	80	10000000	184	0B8	270	320	D0	11010000	216	0D8	330	320	D0	11010000	248	0F8	370	320	D0	11010000
153	099	231	200	80	10000000	185	0B9	271	320	D0	11010000	217	0D9	331	320	D0	11010000	249	0F9	371	320	D0	11010000
154	09A	232	200	80	10000000	186	0BA	272	320	D0	11010000	218	0DA	332	320	D0	11010000	250	0FA	372	320	D0	11010000
155	09B	233	200	80	10000000	187	0BB	273	320	D0	11010000	219	0DB	333	320	D0	11010000	251	0FB	373	320	D0	11010000
156	09C	234	200	80	10000000	188	0BC	274	320	D0	11010000	220	0DC	334	320	D0	11010000	252	0FC	374	320	D0	11010000
157	09D	235	200	80	10000000	189	0BD	275	320	D0	11010000	221	0DD	335	320	D0	11010000	253	0FD	375	320	D0	11010000
158	09E	236	200	80	10000000	190	0BE	276	320	D0	11010000	222	0DE	336	320	D0	11010000	254	0FE	376	320	D0	11010000
159	09F	237	200	80	10000000	191	0BF	277	320	D0	11010000	223	0DF	337	320	D0	11010000	255	0FF	377	320	D0	11010000

DEC PART NUMBER: 23-01601
LEFT COLUMN OF BIN DATA IS MSB (PIN 17 OF 3C)
ORIGINATOR: IRENE BELLETTIERE
DATE ORIGINATED: 5-4-77
BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW
SHEET 4 OF 4

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
384	180	600	320	D0	11010000	416	1A0	640	320	D0	11010000	448	1C0	700	300	C0	11000000	480	1E0	740	300	C0	11000000
385	181	601	320	D0	11010000	417	1A1	641	301	C1	11000001	449	1C1	701	300	C0	11000000	481	1E1	741	300	C0	11000000
386	182	602	320	D0	11010000	418	1A2	642	301	C1	11000001	450	1C2	702	300	C0	11000000	482	1E2	742	300	C0	11000000
387	183	603	320	D0	11010000	419	1A3	643	304	C4	11000100	451	1C3	703	300	C0	11000000	483	1E3	743	300	C0	11000000
388	184	604	320	D0	11010000	420	1A4	644	300	C0	11000000	452	1C4	704	300	C0	11000000	484	1E4	744	300	C0	11000000
389	185	605	320	D0	11010000	421	1A5	645	300	C0	11000000	453	1C5	705	300	C0	11000000	485	1E5	745	300	C0	11000000
390	186	606	320	D0	11010000	422	1A6	646	300	C0	11000000	454	1C6	706	300	C0	11000000	486	1E6	746	300	C0	11000000
391	187	607	320	D0	11010000	423	1A7	647	300	C0	11000000	455	1C7	707	300	C0	11000000	487	1E7	747	300	C0	11000000
392	188	610	320	D0	11010000	424	1A8	650	300	C0	11000000	456	1C8	710	300	C0	11000000	488	1E8	750	300	C0	11000000
393	189	611	320	D0	11010000	425	1A9	651	300	C0	11000000	457	1C9	711	300	C0	11000000	489	1E9	751	300	C0	11000000
394	18A	612	320	D0	11010000	426	1AA	652	300	C0	11000000	458	1CA	712	300	C0	11000000	490	1EA	752	300	C0	11000000
395	18B	613	320	D0	11010000	427	1AB	653	300	C0	11000000	459	1CB	713	300	C0	11000000	491	1EB	753	300	C0	11000000
396	18C	614	320	D0	11010000	428	1AC	654	300	C0	11000000	460	1CC	714	300	C0	11000000	492	1EC	754	300	C0	11000000
397	18D	615	320	D0	11010000	429	1AD	655	300	C0	11000000	461	1CD	715	300	C0	11000000	493	1ED	755	300	C0	11000000
398	18E	616	320	D0	11010000	430	1AE	656	300	C0	11000000	462	1CE	716	300	C0	11000000	494	1EE	756	300	C0	11000000
399	18F	617	320	D0	11010000	431	1AF	657	300	C0	11000000	463	1CF	717	300	C0	11000000	495	1EF	757	300	C0	11000000
400	190	620	320	D0	11010000	432	1B0	660	300	C0	11000000	464	1D0	720	300	C0	11000000	496	1F0	760	300	C0	11000000
401	191	621	320	D0	11010000	433	1B1	661	300	C0	11000000	465	1D1	721	300	C0	11000000	497	1F1	761	300	C0	11000000
402	192	622	320	D0	11010000	434	1B2	662	300	C0	11000000	466	1D2	722	300	C0	11000000	498	1F2	762	300	C0	11000000
403	193	623	320	D0	11010000	435	1B3	663	300	C0	11000000	467	1D3	723	300	C0	11000000	499	1F3	763	300	C0	11000000
404	194	624	320	D0	11010000	436	1B4	664	300	C0	11000000	468	1D4	724	300	C0	11000000	500	1F4	764	300	C0	11000000
405	195	625	320	D0	11010000	437	1B5	665	300	C0	11000000	469	1D5	725	300	C0	11000000	501	1F5	765	300	C0	11000000
406	196	626	320	D0	11010000	438	1B6	666	300	C0	11000000	470	1D6	726	300	C0	11000000	502	1F6	766	300	C0	11000000
407	197	627	320	D0	11010000	439	1B7	667	300	C0	11000000	471	1D7	727	300	C0	11000000	503	1F7	767	300	C0	11000000
408	198	630	320	D0	11010000	440	1B8	670	300	C0	11000000	472	1D8	730	300	C0	11000000	504	1F8	770	300	C0	11000000
409	199	631	320	D0	11010000	441	1B9	671	300	C0	11000000	473	1D9	731	300	C0	11000000	505	1F9	771	300	C0	11000000
410	19A	632	320	D0	11010000	442	1BA	672	300	C0	11000000	474	1DA	732	300	C0	11000000	506	1FA	772	300	C0	11000000
411	19B	633	320	D0	11010000	443	1BB	673	300	C0	11000000	475	1DB	733	300	C0	11000000	507	1FB	773	300	C0	11000000
412	19C	634	320	D0	11010000	444	1BC	674	300	C0	11000000	476	1DC	734	300	C0	11000000	508	1FC	774	300	C0	11000000
413	19D	635	320	D0	11010000	445	1BD	675	300	C0	11000000	477	1DD	735	300	C0	11000000	509	1FD	775	300	C0	11000000
414	19E	636	320	D0	11010000	446	1BE	676	300	C0	11000000	478	1DE	736	300	C0	11000000	510	1FE	776	300	C0	11000000
415	19F	637	320	D0	11010000	447	1BF	677	300	C0	11000000	479	1DF	737	300	C0	11000000	511	1FF	777	300	C0	11000000

COMMON READ/WRITE CONTROLS ROM AT E72 (CS4)

[illegible]
912 E 0
ROM/PROM PATTERN SPEC
23-01601

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE: CONTROL SEQUENCER (CS15)
SIZE: D
CODE: CS
NUMBER: M7684-0-1
REV.: S
SCALE:
SHEET 15 OF 19
DIST.:

DEC PART NUMBER: 23-017E1 ORIGINATOR: IRENE PELLETTIERE BINARY DATA "1" = HIGH SHEET 1 OF 4
LEFT COLUMN OF BIN DATA IS MSB (PIN 17 OF 20) DATA ORIGINATED: 3-4-77 BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	000	000	105	45	01000101	32	020	040	004	04	00000100
1	001	001	105	45	01000101	33	021	041	004	04	00000100
2	002	002	105	45	01000101	34	022	042	004	04	00000100
3	003	003	105	45	01000101	35	023	043	004	04	00000100
4	004	004	105	45	01000101	36	024	044	004	04	00000100
5	005	005	105	45	01000101	37	025	045	004	04	00000100
6	[illegible]	[illegible]	105	45	01000101	38	026	[illegible]	004	04	00000100
7	[illegible]	[illegible]	105	45	01000101	39	027	047	004	04	00000100
8	[illegible]	010	105	45	01000101	40	028	[illegible]	004	04	00000100
9	[illegible]	011	105	45	01000101	41	029	[illegible]	004	04	00000100
10	[illegible]	012	105	45	01000101	42	02A	052	004	04	00000100
11	[illegible]	013	105	45	01000101	43	02B	[illegible]	004	04	00000100
12	00C	014	105	45	01000101	44	02C	054	004	04	00000100
13	[illegible]	015	105	45	01000101	45	02D	[illegible]	004	04	00000100
14	00E	016	163	73	01110011	46	02E	[illegible]	004	04	00000100
15	00F	017	004	04	00000100	47	02F	057	004	04	00000100
16	010	020	004	04	00000100	48	030	[illegible]	004	04	00000100
17	011	021	004	04	00000100	49	031	[illegible]	004	04	00000100
18	012	022	004	04	00000100	50	032	[illegible]	004	04	00000100
19	013	023	004	04	00000100	51	033	[illegible]	004	04	00000100

DEC PART NUMBER: 23-017E1 ORIGINATOR: IRENE PELLETTIERE BINARY DATA "1" = HIGH SHEET 2 OF 4
LEFT COLUMN OF BIN DATA IS MSB (PIN 17 OF 20) DATA ORIGINATED: 3-4-77 BINARY DATA "0" = LOW

DEC PART NUMBER: 23-017E1 ORIGINATOR: IRENE PELLETTIERE BINARY DATA "1" = HIGH SHEET 3 OF 4
LEFT COLUMN OF BIN DATA IS MSB (PIN 17 OF 20) DATA ORIGINATED: 3-4-77 BINARY DATA "0" = LOW

DEC PART NUMBER: 23-017E1 ORIGINATOR: IRENE PELLETTIERE BINARY DATA "1" = HIGH SHEET 4 OF 4
LEFT COLUMN OF BIN DATA IS MSB (PIN 17 OF 20) DATA ORIGINATED: 3-4-77 BINARY DATA "0" = LOW

WRITE CONTROL PROM AT E30 (CS4)

TITLE
512 X 8
ROM/PROM PATTERN SPEC
23-017E1

REVISIONS: CHK | CHANGE NO. | REV.

TITLE: CONTROL SEQUENCER (CS16) | SIZE D | CODE CS | NUMBER M7684-0-1 | REV. S
SHEET 16 OF 19

DEC PART NUMBER: 23-008B8
LEFT COLUMN OF BIN DATA IS MSB (PIN 17 OF IC)
ORIGINATOR: IRENE PELLETTIERE
DATE ORIGINATED: 5-2-77
BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW
SHEET 1 OF 2

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	000	105	45	01000101
1	01	001	305	C5	11000101
2	02	002	305	C5	11000101
3	03	003	305	C5	11000101
4	04	004	305	C5	11000101
5	05	005	305	C5	11000101
6	06	006	305	C5	11000101
7	07	007	305	C5	11000101
8	08	010	305	C5	11000101
9	09	011	305	C5	11000101
10	0A	012	305	C5	11000101
11	0B	013	305	C5	11000101
12	0C	014	305	C5	11000101
13	0D	015	305	C5	11000101
14	0E	016	305	C5	11000101
15	0F	017	305	C5	11000101
16	10	020	305	C5	11000101
17	11	021	305	C5	11000101
18	12	022	305	C5	11000101
19	13	023	305	C5	11000101
20	14	024	305	C5	11000101
21	15	025	305	C5	11000101
22	16	026	305	C5	11000101
23	17	027	305	C5	11000101
24	18	030	305	C5	11000101
25	19	031	305	C5	11000101
26	1A	032	305	C5	11000101
27	1B	033	305	C5	11000101
28	1C	034	305	C5	11000101
29	1D	035	305	C5	11000101
30	1E	036	305	C5	11000101
31	1F	037	305	C5	11000101
32	20	040	305	C5	11000101
33	21	041	305	C5	11000101
34	22	042	305	C5	11000101
35	23	043	305	C5	11000101
36	24	044	305	C5	11000101
37	25	045	305	C5	11000101
38	26	046	305	C5	11000101
39	27	047	305	C5	11000101
40	28	050	305	C5	11000101
41	29	051	305	C5	11000101
42	2A	052	305	C5	11000101
43	2B	053	305	C5	11000101
44	2C	054	305	C5	11000101
45	2D	055	305	C5	11000101
46	2E	056	305	C5	11000101
47	2F	057	305	C5	11000101
48	30	060	305	C5	11000101
49	31	061	305	C5	11000101
50	32	062	305	C5	11000101
51	33	063	305	C5	11000101
52	34	064	305	C5	11000101
53	35	065	305	C5	11000101
54	36	066	305	C5	11000101
55	37	067	305	C5	11000101
56	38	070	305	C5	11000101
57	39	071	305	C5	11000101
58	3A	072	305	C5	11000101
59	3B	073	305	C5	11000101
60	3C	074	305	C5	11000101
61	3D	075	305	C5	11000101
62	3E	076	305	C5	11000101
63	3F	077	305	C5	11000101
64	40	100	345	E5	11100101
65	41	101	345	E5	11100101
66	42	102	345	E5	11100101
67	43	103	345	E5	11100101
68	44	104	345	E5	11100101
69	45	105	345	E5	11100101
70	46	106	345	E5	11100101
71	47	107	345	E5	11100101
72	48	110	345	E5	11100101
73	49	111	345	E5	11100101
74	4A	112	305	C5	11000101
75	4B	113	305	C5	11000101
76	4C	114	305	C5	11000101
77	4D	115	305	C5	11000101
78	4E	116	305	C5	11000101
79	4F	117	305	C5	11000101
80	50	120	305	C5	11000101
81	51	121	305	C5	11000101
82	52	122	305	C5	11000101
83	53	123	305	C5	11000101
84	54	124	305	C5	11000101
85	55	125	305	C5	11000101
86	56	126	305	C5	11000101
87	57	127	305	C5	11000101
88	58	130	305	C5	11000101
89	59	131	305	C5	11000101
90	5A	132	305	C5	11000101
91	5B	133	305	C5	11000101
92	5C	134	305	C5	11000101
93	5D	135	305	C5	11000101
94	5E	136	305	C5	11000101
95	5F	137	305	C5	11000101
96	60	140	305	C5	11000101
97	61	141	305	C5	11000101
98	62	142	305	C5	11000101
99	63	143	305	C5	11000101
100	64	144	305	C5	11000101
101	65	145	305	C5	11000101
102	66	146	305	C5	11000101
103	67	147	304	C4	11000100
104	68	150	304	C4	11000100
105	69	151	300	C0	11000000
106	6A	152	305	C5	11000101
107	6B	153	305	C5	11000101
108	6C	154	305	C5	11000101
109	6D	155	305	C5	11000101
110	6E	156	305	C5	11000101
111	6F	157	305	C5	11000101
112	70	160	305	C5	11000101
113	71	161	305	C5	11000101
114	72	162	305	C5	11000101
115	73	163	305	C5	11000101
116	74	164	305	C5	11000101
117	75	165	305	C5	11000101
118	76	166	305	C5	11000101
119	77	167	305	C5	11000101
120	78	170	305	C5	11000101
121	79	171	305	C5	11000101
122	7A	172	305	C5	11000101
123	7B	173	305	C5	11000101
124	7C	174	305	C5	11000101
125	7D	175	205	85	10000101
126	7E	176	305	C5	11000101
127	7F	177	301	C1	11000001

DEC PART NUMBER: 23-008B8
LEFT COLUMN OF BIN DATA IS MSB (PIN 17 OF IC)
ORIGINATOR: IRENE PELLETTIERE
DATE ORIGINATED: 5-2-77
BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW
SHEET 2 OF 2

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
128	80	200	335	DD	11011101
129	81	201	315	CD	11001101
130	82	202	315	CD	11001101
131	83	203	315	CD	11001101
132	84	204	315	CD	11001101
133	85	205	305	C5	11000101
134	86	206	305	C5	11000101
135	87	207	305	C5	11000101
136	88	210	305	C5	11000101
137	89	211	305	C5	11000101
138	8A	212	305	C5	11000101
139	8B	213	305	C5	11000101
140	8C	214	305	C5	11000101
141	8D	215	305	C5	11000101
142	8E	216	305	C5	11000101
143	8F	217	305	C5	11000101
144	90	220	315	CD	11001101
145	91	221	305	C5	11000101
146	92	222	305	C5	11000101
147	93	223	305	C5	11000101
148	94	224	305	C5	11000101
149	95	225	305	C5	11000101
150	96	226	305	C5	11000101
151	97	227	305	C5	11000101
152	98	230	305	C5	11000101
153	99	231	305	C5	11000101
154	9A	232	305	C5	11000101
155	9B	233	305	C5	11000101
156	9C	234	305	C5	11000101
157	9D	235	305	C5	11000101
158	9E	236	305	C5	11000101
159	9F	237	305	C5	11000101
160	A0	240	305	C5	11000101
161	A1	241	305	C5	11000101
162	A2	242	305	C5	11000101
163	A3	243	305	C5	11000101
164	A4	244	305	C5	11000101
165	A5	245	305	C5	11000101
166	A6	246	305	C5	11000101
167	A7	247	305	C5	11000101
168	A8	250	305	C5	11000101
169	A9	251	307	C7	11000111
170	AA	252	307	C7	11000111
171	AB	253	307	C7	11000111
172	AC	254	307	C7	11000111
173	AD	255	307	C7	11000111
174	AE	256	307	C7	11000111
175	AF	257	307	C7	11000111
176	B0	260	307	C7	11000111
177	B1	261	307	C7	11000111
178	B2	262	317	CF	11001111
179	B3	263	317	CF	11001111
180	B4	264	317	CF	11001111
181	B5	265	317	CF	11001111
182	B6	266	317	CF	11001111
183	B7	267	317	CF	11001111
184	B8	270	317	CF	11001111
185	B9	271	307	C7	11000111
186	BA	272	307	C7	11000111
187	BB	273	305	C5	11000101
188	BC	274	305	C5	11000101
189	BD	275	305	C5	11000101
190	BE	276	305	C5	11000101
191	BF	277	305	C5	11000101
192	C0	300	305	C5	11000101
193	C1	301	305	C5	11000101
194	C2	302	305	C5	11000101
195	C3	303	305	C5	11000101
196	C4	304	305	C5	11000101
197	C5	305	305	C5	11000101
198	C6	306	305	C5	11000101
199	C7	307	305	C5	11000101
200	C8	310	305	C5	11000101
201	C9	311	305	C5	11000101
202	CA	312	305	C5	11000101
203	CB	313	305	C5	11000101
204	CC	314	305	C5	11000101
205	CD	315	305	C5	11000101
206	CE	316	305	C5	11000101
207	CF	317	305	C5	11000101
208	D0	320	305	C5	11000101
209	D1	321	305	C5	11000101
210	D2	322	305	C5	11000101
211	D3	323	305	C5	11000101
212	D4	324	305	C5	11000101
213	D5	325	305	C5	11000101
214	D6	326	305	C5	11000101
215	D7	327	305	C5	11000101
216	D8	330	305	C5	11000101
217	D9	331	305	C5	11000101
218	DA	332	305	C5	11000101
219	DB	333	305	C5	11000101
220	DC	334	305	C5	11000101
221	DD	335	305	C5	11000101
222	DE	336	305	C5	11000101
223	DF	337	305	C5	11000101
224	E0	340	305	C5	11000101
225	E1	341	305	C5	11000101
226	E2	342	305	C5	11000101
227	E3	343	305	C5	11000101
228	E4	344	305	C5	11000101
229	E5	345	305	C5	11000101
230	E6	346	305	C5	11000101
231	E7	347	305	C5	11000101
232	E8	350	305	C5	11000101
233	E9	351	305	C5	11000101
234	EA	352	305	C5	11000101
235	EB	353	305	C5	11000101
236	EC	354	305	C5	11000101
237	ED	355	305	C5	11000101
238	EE	356	305	C5	11000101
239	EF	357	305	C5	11000101
240	F0	360	305	C5	11000101
241	F1	361	305	C5	11000101
242	F2	362	305	C5	11000101
243	F3	363	305	C5	11000101
244	F4	364	305	C5	11000101
245	F5	365	305	C5	11000101
246	F6	366	305	C5	11000101
247	F7	367	305	C5	11000101
248	F8	370	305	C5	11000101
249	F9	371	305	C5	11000101
250	FA	372	305	C5	11000101
251	FB	373	305	C5	11000101
252	FC	374	305	C5	11000101
253	FD	375	305	C5	11000101
254	FE	376	305	C5	11000101
255	FF	377	305	C5	11000101

COMMAND SEQUENCER MISCELLANEOUS AT E47 (CS2)

TITLE
256 X 8
ROM/PROM PATTERN SPEC
23-008B8

DEC PART NUMBER: 23-036B8
LEFT COLUMN OF BIN DATA IS MSB (PIN 17 OF IC)
ORIGINATOR: IRENE PELLETTIERE
DATE ORIGINATED: 12-6-77
BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW
SHEET 1 OF 2

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	000	002	02	00000010
1	01	001	003	03	00000011
2	02	002	000	00	00000000
3	03	003	003	03	00000011
4	04	004	000	00	00000000
5	05	005	003	03	00000011
6	06	006	002	02	00000010
7	07	007	003	03	00000011
8	08	010	002	02	00000010
9	09	011	003	03	00000011
10	0A	012	002	02	00000010
11	0B	013	003	03	00000011
12	0C	014	002	02	00000010
13	0D	015	003	03	00000011
14	0E	016	002	02	00000010
15	0F	017	003	03	00000011
16	10	020	002	02	00000010
17	11	021	003	03	00000011
18	12	022	002	02	00000010
19	13	023	003	03	00000011
20	14	024	002	02	00000010
21	15	025	003	03	00000011
22	16	026	000	00	00000000
23	17	027	003	03	00000011
24	18	030	000	00	00000000
25	19	031	003	03	00000011
26	1A	032	002	02	00000010
27	1B	033	003	03	00000011
28	1C	034	002	02	00000010
29	1D	035	003	03	00000011
30	1E	036	000	00	00000000
31	1F	037	003	03	00000011
32	20	040	000	00	00000000
33	21	041	003	03	00000011
34	22	042	002	02	00000010
35	23	043	003	03	00000011
36	24	044	000	00	00000000
37	25	045	003	03	00000011
38	26	046	000	00	00000000
39	27	047	003	03	00000011
40	28	050	000	00	00000000
41	29	051	003	03	00000011
42	2A	052	002	02	00000010
43	2B	053	003	03	00000011
44	2C	054	002	02	00000010
45	2D	055	003	03	00000011
46	2E	056	000	00	00000000
47	2F	057	003	03	00000011
48	30	060	000	00	00000000
49	31	061	003	03	00000011
50	32	062	002	02	00000010
51	33	063	003	03	00000011
52	34	064	002	02	00000010
53	35	065	003	03	00000011
54	36	066	000	00	00000000
55	37	067	003	03	00000011
56	38	070	000	00	00000000
57	39	071	003	03	00000011
58	3A	072	002	02	00000010
59	3B	073	003	03	00000011
60	3C	074	002	02	00000010
61	3D	075	003	03	00000011
62	3E	076	000	00	00000000
63	3F	077	003	03	00000011
64	40	100	042	22	00100010
65	41	101	043	23	00100011
66	42	102	062	32	00110010
67	43	103	063	33	00110011
68	44	104	062	32	00110010
69	45	105	063	33	00110011
70	46	106	062	32	00110010
71	47	107	063	33	00110011
72	48	110	042	22	00100010
73	49	111	043	23	00100011
74	4A	112	002	02	00000010
75	4B	113	003	03	00000011
76	4C	114	002	02	00000010
77	4D	115	003	03	00000011
78	4E	116	002	02	00000010
79	4F	117	001	01	00000001
80	50	120	202	82	10000010
81	51	121	203	83	10000011
82	52	122	222	92	10010010
83	53	123	223	93	10010011
84	54	124	222	92	10010010
85	55	125	223	93	10010011
86	56	126	222	92	10010010
87	57	127	223	93	10010011
88	58	130	202	82	10000010
89	59	131	203	83	10000011
90	5A	132	002	02	00000010
91	5B	133	003	03	00000011
92	5C	134	002	02	00000010
93	5D	135	003	03	00000011
94	5E	136	002	02	00000010
95	5F	137	001	01	00000001
96	60	140	002	02	00000010
97	61	141	003	03	00000011
98	62	142	002	02	00000010
99	63	143	003	03	00000011
100	64	144	002	02	00000010
101	65	145	003	03	00000011
102	66	146	002	02	00000010
103	67	147	013	0B	00001011
104	68	150	012	0A	00001010
105	69	151	003	03	00000011
106	6A	152	000	00	00000000
107	6B	153	001	01	00000001
108	6C	154	000	00	00000000
109	6D	155	001	01	00000001
110	6E	156	000	00	00000000
111	6F	157	001	01	00000001
112	70	160	000	00	00000000
113	71	161	001	01	00000001
114	72	162	000	00	00000000
115	73	163	001	01	00000001
116	74	164	000	00	00000000
117	75	165	001	01	00000001
118	76	166	000	00	00000000
119	77	167	001	01	00000001
120	78	170	000	00	00000000
121	79	171	001	01	00000001
122	7A	172	000	00	00000000
123	7B	173	001	01	00000001
124	7C	174	000	00	00000000
125	7D	175	003	03	00000011
126	7E	176	002	02	00000010
127	7F	177	003	03	00000011

DEC PART NUMBER: 23-036B8
LEFT COLUMN OF BIN DATA IS MSB (PIN 17 OF IC)
ORIGINATOR: IRENE PELLETTIERE
DATE ORIGINATED: 12-6-77
BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW
SHEET 2 OF 2

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
128	80	200	003	03	00000011
129	81	201	002	02	00000010
130	82	202	003	03	00000011
131	83	203	002	02	00000010
132	84	204	001	01	00000001
133	85	205	006	06	00000110
134	86	206	007	07	00000111
135	87	207	007	07	00000111
136	88	210	002	02	00000010
137	89	211	003	03	00000011
138	8A	212	002	02	00000010
139	8B	213	003	03	00000011
140	8C	214	000	00	00000000
141	8D	215	001	01	00000001
142	8E	216	000	00	00000000
143	8F	217	001	01	00000001
144	90	220	042	22	00100010
145	91	221	203	83	10000011
146	92	222	202	82	10000010
147	93	223	223	93	10010011
148	94	224	222	92	10010010
149	95	225	223	93	10010011
150	96	226	222	92	10010010
151	97	227	223	93	10010011
152	98	230	222	92	10010010
153	99	231	203	83	10000011
154	9A	232	202	82	10000010
155	9B	233	003	03	00000011
156	9C	234	002	02	00000010
157	9D	235	043	23	00100011
158	9E	236	102	42	01000010
159	9F	237	103	43	01000011
160	A0	240	122	52	01010010
161	A1	241	123	53	01010011
162	A2	242	122	52	01010010
163	A3	243	123	53	01010011
164	A4	244	122	52	01010010
165	A5	245	123	53	01010011
166	A6	246	002	02	00000010
167	A7	247	003	03	00000011
168	A8	250	002	02	00000010
169	A9	251	043	23	00100011
170	AA	252	042	22	00100010
171	AB	253	063	33	00110011
172	AC	254	062	32	00110010
173	AD	255	063	33	00110011
174	AE	256	062	32	00110010
175	AF	257	063	33	00110011
176	B0	260	062	32	00110010
177	B1	261	063	33	00110011
178	B2	262	072	3A	00111010
179	B3	263	073	3B	00111011
180	B4	264	072	3A	00111010
181	B5	265	063	33	00110011
182	B6	266	062	32	00110010
183	B7	267	063	33	00110011
184	B8	270	062	32	00110010
185	B9	271	043	23	00100011
186	BA	272	042	22	00100010
187	BB	273	043	23	00100011
188	BC	274	000	00	00000000
189	BD	275	001	01	00000001
190	BE	276	000	00	00000000
191	BF	277	001	01	00000001
192	C0	300	000	00	00000000
193	C1	301	001	01	00000001
194	C2	302	000	00	00000000
195	C3	303	001	01	00000001
196	C4	304	000	00	00000000
197	C5	305	001	01	00000001
198	C6	306	000	00	00000000
199	C7	307	001	01	00000001
200	C8	310	000	00	00000000
201	C9	311	001	01	00000001
202	CA	312	000	00	00000000
203	CB	313	001	01	00000001
204	CC	314	000	00	00000000
205	CD	315	001	01	00000001
206	CE	316	000	00	00000000
207	CF	317	001	01	00000001
208	D0	320	000	00	00000000
209	D1	321	001	01	00000001
210	D2	322	000	00	00000000
211	D3	323	001	01	00000001
212	D4	324	000	00	00000000
213	D5	325	001	01	00000001
214	D6	326	000	00	00000000
215	D7	327	001	01	00000001
216	D8	330	000	00	00000000
217	D9	331	001	01	00000001
218	DA	332	000	00	00000000
219	DB	333	001	01	00000001
220	DC	334	000	00	00000000
221	DD	335	001	01	00000001
222	DE	336	000	00	00000000
223	DF	337	001	01	00000001
224	E0	340	000	00	00000000
225	E1	341	001	01	00000001
226	E2	342	000	00	00000000
227	E3	343	001	01	00000001
228	E4	344	000	00	00000000
229	E5	345	001	01	00000001
230	E6	346	000	00	00000000
231	E7	347	001	01	00000001
232	E8	350	102	42	01000010
233	E9	351	103	43	01000011
234	EA	352	002	02	00000010
235	EB	353	003	03	00000011
236	EC	354	002	02	00000010
237	ED	355	003	03	00000011
238	EE	356	002	02	00000010
239	EF	357	003	03	00000011
240	F0	360	002	02	00000010
241	F1	361	003	03	00000011
242	F2	362	002	02	00000010
243	F3	363	003	03	00000011
244	F4	364	002	02	00000010
245	F5	365	003	03	00000011
246	F6	366	002	02	00000010
247	F7	367	003	03	00000011
248	F8	370	002	02	00000010
249	F9	371	003	03	00000011
250	FA	372	002	02	00000010
251	FB	373	003	03	00000011
252	FC	374	002	02	00000010
253	FD	375	001	01	00000001
254	FE	376	000	00	00000000
255	FF	377	001	01	00000001

TAG CONTROLS AT E39 (CS2)

TITLE
256 X 8
ROM/PROM PATTERN SPEC
23-036B8

REVISIONS
CHG | CHANGE NO. | REV.

TITLE CONTROL SEQUENCER (CS17)
SIZE D
CODE CS
NUMBER M7684-0-1
REV. S
SCALE
SHEET 17 OF 19
DIST.

DEC PART NUMBER: 23-01988
LEFT COLUMN OF BIN DATA IS MSB(PROM 17 OF 2C) ORIGINATOR: IRENE DELLETTIERE
DATE ORIGINATED: 8-25-77

BINARY DATA '1' = HIGH
BINARY DATA '0' = LOW

SHEET 1 OF 3

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT
0	00	000	377	BF 10111111	32	20	040	101	41 01000001	64	40	100	247	A7 10100111	96	60	140	247	A7 10100111
1	01	001	276	BE 10111110	33	21	041	267	B7 10110111	65	41	101	245	A5 10100101	97	61	141	276	BE 10111110
2	02	002	101	41 01000001	34	22	042	267	A7 10100111	66	42	102	201	01 10000001	98	62	142	277	BF 10111111
3	03	003	276	BE 10111110	35	23	043	101	41 01000001	67	43	103	201	01 10000001	99	63	143	255	AD 10101101
4	04	004	101	41 01000001	36	24	044	101	41 01000001	68	44	104	201	01 10000001	100	64	144	243	A3 10100011
5	05	005	101	41 01000001	37	25	045	101	41 01000001	69	45	105	201	01 10000001	101	65	145	245	A5 10100101
6	06	006	253	AB 10101011	38	26	046	101	41 01000001	70	46	106	201	01 10000001	102	66	146	277	BF 10111111
7	07	007	253	AB 10101011	39	27	047	101	41 01000001	71	47	107	201	01 10000001	103	67	147	245	A5 10100101
8	08	010	101	41 01000001	40	28	050	101	41 01000001	72	48	110	201	01 10000001	104	68	150	243	A3 10100011
9	09	011	101	41 01000001	41	29	051	253	AB 10101011	73	49	111	201	01 10000001	105	69	151	101	41 01000001
10	0A	012	277	BF 10111111	42	2A	052	277	BF 10111111	74	4A	112	201	01 10000001	106	6A	152	101	41 01000001
11	0B	013	253	AB 10101011	43	2B	053	253	AB 10101011	75	4B	113	266	AB 10101011	107	6B	153	101	41 01000001
12	0C	014	277	BF 10111111	44	2C	054	277	BF 10111111	76	4C	114	243	A3 10100011	108	6C	154	101	41 01000001
13	0D	015	253	AB 10101011	45	2D	055	101	41 01000001	77	4D	115	245	A5 10100101	109	6D	155	101	41 01000001
14	0E	016	101	41 01000001	46	2E	056	101	41 01000001	78	4E	116	277	BF 10111111	110	6E	156	101	41 01000001
15	0F	017	253	AB 10101011	47	2F	057	101	41 01000001	79	4F	117	245	A5 10100101	111	6F	157	101	41 01000001
16	10	020	101	41 01000001	48	30	060	101	41 01000001	80	50	120	247	A7 10100111	112	70	160	101	41 01000001
17	11	021	253	AB 10101011	49	31	061	253	AB 10101011	81	51	121	201	01 10000001	113	71	161	101	41 01000001
18	12	022	277	BF 10111111	50	32	062	277	BF 10111111	82	52	122	201	01 10000001	114	72	162	101	41 01000001
19	13	023	253	AB 10101011	51	33	063	253	AB 10101011	83	53	123	201	01 10000001	115	73	163	101	41 01000001
20	14	024	253	AB 10101011	52	34	064	277	BF 10111111	84	54	124	201	01 10000001	116	74	164	101	41 01000001
21	15	025	277	BF 10111111	53	35	065	101	41 01000001	85	55	125	201	01 10000001	117	75	165	101	41 01000001
22	16	026	276	BE 10111110	54	36	066	101	41 01000001	86	56	126	201	01 10000001	118	76	166	101	41 01000001
23	17	027	101	41 01000001	55	37	067	101	41 01000001	87	57	127	201	01 10000001	119	77	167	101	41 01000001
24	18	030	276	BE 10111110	56	38	070	101	41 01000001	88	58	130	201	01 10000001	120	78	170	101	41 01000001
25	19	031	101	41 01000001	57	39	071	253	AB 10101011	89	59	131	201	01 10000001	121	79	171	101	41 01000001
26	1A	032	253	AB 10101011	58	3A	072	277	BF 10111111	90	5A	132	201	01 10000001	122	7A	172	101	41 01000001
27	1B	033	277	BF 10111111	59	3B	073	253	AB 10101011	91	5B	133	201	01 10000001	123	7B	173	101	41 01000001
28	1C	034	253	AB 10101011	60	3C	074	277	BF 10111111	92	5C	134	201	01 10000001	124	7C	174	101	41 01000001
29	1D	035	277	BF 10111111	61	3D	075	101	41 01000001	93	5D	135	201	01 10000001	125	7D	175	101	41 01000001
30	1E	036	276	BE 10111110	62	3E	076	101	41 01000001	94	5E	136	201	01 10000001	126	7E	176	101	41 01000001
31	1F	037	101	41 01000001	63	3F	077	101	41 01000001	95	5F	137	201	01 10000001	127	7F	177	101	41 01000001

DEC PART NUMBER: 23-01988
LEFT COLUMN OF BIN DATA IS MSB(PROM 18 OF 2C) ORIGINATOR: IRENE DELLETTIERE
DATE ORIGINATED: 8-25-77

BINARY DATA '1' = HIGH
BINARY DATA '0' = LOW

SHEET 2 OF 3

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT
128	80	200	247	A7 10100111	160	A0	240	201	01 10000001	192	C0	300	101	41 01000001	224	E0	340	101	41 01000001
129	81	201	245	A5 10100101	161	A1	241	201	01 10000001	193	C1	301	101	41 01000001	225	E1	341	101	41 01000001
130	82	202	277	BF 10111111	162	A2	242	201	01 10000001	194	C2	302	101	41 01000001	226	E2	342	101	41 01000001
131	83	203	255	AD 10101101	163	A3	243	201	01 10000001	195	C3	303	101	41 01000001	227	E3	343	101	41 01000001
132	84	204	243	A3 10100011	164	A4	244	201	01 10000001	196	C4	304	101	41 01000001	228	E4	344	101	41 01000001
133	85	205	245	A5 10100101	165	A5	245	201	01 10000001	197	C5	305	101	41 01000001	229	E5	345	101	41 01000001
134	86	206	277	BF 10111111	166	A6	246	201	01 10000001	198	C6	306	101	41 01000001	230	E6	346	101	41 01000001
135	87	207	245	A5 10100101	167	A7	247	201	01 10000001	199	C7	307	101	41 01000001	231	E7	347	101	41 01000001
136	88	210	243	A3 10100011	168	A8	250	201	01 10000001	200	C8	310	101	41 01000001	232	E8	350	101	41 01000001
137	89	211	101	41 01000001	169	A9	251	201	01 10000001	201	C9	311	101	41 01000001	233	E9	351	101	41 01000001
138	8A	212	101	41 01000001	170	AA	252	201	01 10000001	202	CA	312	101	41 01000001	234	EA	352	101	41 01000001
139	8B	213	101	41 01000001	171	AB	253	201	01 10000001	203	CB	313	101	41 01000001	235	EB	353	101	41 01000001
140	8C	214	101	41 01000001	172	AC	254	201	01 10000001	204	CC	314	101	41 01000001	236	EC	354	101	41 01000001
141	8D	215	101	41 01000001	173	AD	255	201	01 10000001	205	CD	315	101	41 01000001	237	ED	355	101	41 01000001
142	8E	216	101	41 01000001	174	AE	256	201	01 10000001	206	CE	316	101	41 01000001	238	EE	356	101	41 01000001
143	8F	217	101	41 01000001	175	AF	257	201	01 10000001	207	CF	317	101	41 01000001	239	EF	357	101	41 01000001
144	90	220	101	41 01000001	176	B0	260	201	01 10000001	208	D0	320	101	41 01000001	240	F0	360	101	41 01000001
145	91	221	101	41 01000001	177	B1	261	201	01 10000001	209	D1	321	101	41 01000001	241	F1	361	101	41 01000001
146	92	222	101	41 01000001	178	B2	262	201	01 10000001	210	D2	322	101	41 01000001	242	F2	362	101	41 01000001
147	93	223	101	41 01000001	179	B3	263	201	01 10000001	211	D3	323	101	41 01000001	243	F3	363	101	41 01000001
148	94	224	101	41 01000001	180	B4	264	201	01 10000001	212	D4	324	101	41 01000001	244	F4	364	101	41 01000001
149	95	225	101	41 01000001	181	B5	265	201	01 10000001	213	D5	325	101	41 01000001	245	F5	365	101	41 01000001
150	96	226	101	41 01000001	182	B6	266	201	01 10000001	214	D6	326	101	41 01000001	246	F6	366	101	41 01000001
151	97	227	101	41 01000001	183	B7	267	201	01 10000001	215	D7	327	101	41 01000001	247	F7	367	101	41 01000001
152	98	230	101	41 01000001	184	B8	270	201	01 10000001	216	D8	330	101	41 01000001	248	F8	370	101	41 01000001
153	99	231	101	41 01000001	185	B9	271	201	01 10000001	217	D9	331	101	41 01000001	249	F9	371	101	41 01000001
154	9A	232	101	41 01000001	186	BA	272	201	01 10000001	218	DA	332	101	41 01000001	250	FA	372	101	41 01000001
155	9B	233	101	41 01000001	187	BB	273	201	01 10000001	219	DB	333	101	41 01000001	251	FB	373	101	41 01000001
156	9C	234	101	41 01000001	188	BC	274	201	01 10000001	220	DC	334	101	41 01000001	252	FC	374	101	41 01000001
157	9D	235	101	41 01000001	189	BD	275	201	01 10000001	221	DD	335	101	41 01000001	253	FD	375	101	41 01000001
158	9E	236	101	41 01000001	190	BE	276	201	01 10000001	222	DE	336	101	41 01000001	254	FE	376	101	41 01000001
159	9F	237	101	41 01000001	191	BF	277	201	01 10000001	223	DF	337	101	41 01000001	255	FF	377	101	41 01000001

DEC PART NUMBER: 23-02000
LEFT COLUMN OF BIN DATA IS MSB(PROM 17 OF 2C) ORIGINATOR: IRENE DELLETTIERE
DATE ORIGINATED: 8-25-77

BINARY DATA '1' = HIGH
BINARY DATA '0' = LOW

SHEET 1 OF 3

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT
0	00	000	001	01 00000001	32	20	040	200	00 00000000	64	40	100	117	4F 01001111	96	60	140	117	4F 01001111
1	01	001	176	7E 01111110	33	21	041	200	00 00000000	65	41	101	176	7E 01111110	97	61	141	176	7E 01111110
2	02	002	000	00 00000000	34	22	042	117	4F 01001111	66	42	102	000	00 00000000	98	62	142	220	90 10010000
3	03	003	176	7E 01111110	35	23	043	000	00 00000000	67	43	103	117	4F 01001111	99	63	143	117	4F 01001111
4	04	004	000	00 00000000	36	24	044	000	00 00000000	68	44	104	000	00 00000000	100	64	144	147	67 01100111
5	05	005	120	50 01010000	37	25	045	000	00 00000000	69	45	105	000	00 00000000	101	65	145	176	7E 01111110
6	06	006	000	00 00000000	38	26	046	000	00 00000000	70	46	106	000	00 00000000	102	66	146	164	74 01110100
7	07	007	000	00 00000000	39	27	047	000	00 00000000	71	47	107	000	00 00000000	103	67	147	176	7E 01111110
8	08	010	000	00 00000000	40	28	050	000	00 00000000	72	48	110	000	00 00000000	104	68	150	147	67 01100111
9	09	011	176	7E 01111101	41	29	051	176	7E 01111101	73	49	111	000	00 00000000	105	69	151	000	00 00000000
10	0A	012	200	00 10000000	42	2A	052	176	7E 01111110	74	4A	112	000	00 00000000	106	6A	152	000	00 00000000
11	0B	013	176	7E 01111110	43	2B	053	117	4F 01001111	75	4B	113	117	4F 01001111	107	6B	153	000	00 00000000
12	0C	014	200	00 10000000	44	2C	054	200	00 10000000	76	4C	114	177	7F 01111111	108	6C	154	000	00 00000000
13	0D	015	177	7F 01111111	45	2D	055	176	7E 01111110	77	4D	115	176	7E 01111110	109	6D	155	000	00 00000000
14	0E	016	000	00 00000000	46	2E	056	000	00 00000000	78	4E	116	117	4F 01001111	110	6E	156	000	00 00000000
15	0F	017	177	7F 01111111	47	2F	057	000	00 00000000	79	4F	117	000	00 00000000	111	6F	157	000	00 00000000
16	10	020	000	00 00000000	48	30	060	000	00 00000000	80	50	120	117	4F 01001111	112	70	160	000	00 00000000
17	11	021	176	7E 01111110	49	31	061	021	11 00010001	81	51	121	000	00 00000000	113	71	161	000	00 00000000
18	12	022	176	7E 01111110	50	32	062	021	11 00010001	82	52	122	000	00 00000000	114	72	162	000	00 00000000
19	13	023	176	7E 01111110	51	33	063	021	11 00010001	83	53	123	000	00 00000000	115	73	163	000	00 00000000
20	14	024	200	00 10000000	52	34	064	000	00 00000000	84	54	124	000	00 00000000	116	74	164	000	00 00000000
21	15	025	176	7E 01111110	53	35	065	000	00 00000000	85	55	125	000	00 00000000	117	75	165	000	00 00000000
22	16	026	000	00 00000000	54	36	066	000	00 00000000	86	56	126	000	00 00000000	118	76	166	000	00 00000000
23	17	027	000	00 00000000	55	37	067	000	00 00000000	87	57	127	000	00 00000000	119	77	167	000	00 00000000
24	18	030	000	00 00000000	56	38	070	000	00 00000000	88	58	130	000	00 00000000	120	78	170	000	00 00000000
25	19	031	176	7E 01111110	57	39	071	176	7E 01111110	89	59	131	000	00 00000000	121	79	171	000	00 00000000
26	1A	032	176	7E 01111110	58	3A	072	176	7E 01111110	90	5A	132	000	00 00000000	122	7A	172	000	00 00000000
27	1B	033	176	7E 01111110	59	3B	073	176	7E 01111110	91	5B	133	000	00 00000000	123	7B	173	000	00 00000000
28	1C	034	200	00 10000000	60	3C	074	200	00 10000000	92	5C	134	000	00 00000000	124	7C	174	000	00 00000000
29	1D	035	176	7E 01111110	61	3D	075	176	7E 01111110	93	5D	135	000	00 00000000	125	7D	175	000	00 00000000
30	1E	036	176	7E 01111110	62	3E	076	176	7E 01111110	94	5E	136	000	00 00000000	126	7E	176	000	00 00000000
31	1F	037	176	7E 01111110	63	3F	077	176	7E 01111110	95	5F	137	000	00 00000000	127	7F	177	000	00 00000000

DEC PART NUMBER: 23-02000
LEFT COLUMN OF BIN DATA IS MSB(PROM 18 OF 2C) ORIGINATOR: IRENE DELLETTIERE
DATE ORIGINATED: 8-25-77

BINARY DATA '1' = HIGH
BINARY DATA '0' = LOW

SHEET 2 OF 3

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT
128	80	200	200	00 10000000	160	A0	240	000	00 00000000	192	C0	300	000	00 00000000	224	E0	340	000	00 00000000
129	81	201	200	00 10000000	161	A1	241	000	00 00000000	193	C1	301	000	00 00000000	225	E1	341	000	00 00000000
130	82	202	200	00 10000000	162	A2	242	000	00 00000000	194	C2	302	000	00 00000000	226	E2	342	000	00 00000000
131	83	203	200	00 10000000	163	A3	243	000	00 00000000	195	C3	303	000	00 00000000	227	E3	343	000	00 00000000
132	84	204	200	00 10000000	164	A4	244	000	00 00000000	196	C4	304	000	00 00000000	228	E4	344	000	00 00000000
133	85	205	200	00 10000000	165	A5	245	000	00 00000000	197	C5	305	000	00 00000000	229	E5	345	000	00 00000000
134	86	206	200	00 10000000	166	A6	246	000	00 00000000	198	C6	306	000	00 00000000	230	E6	346	000	00 00000000
135	87	207	200	00 10000000	167	A7	247	000	00 00000000	199	C7	307	000	00 00000000	231	E7	347	000	00 00000000
136	88	210	200	00 10000000	168	A8	250	000	00 00000000	200	C8	310	000	00 00000000	232	E8	350	000	00 00000000
137	89	211	200	00 10000000	169	A9	251	000	00 00000000	201	C9	311	000	00 00000000	233	E9	351	000	00 00000000
138	8A	212	200	00 10000000	170	AA	252	000	00 00000000	202	CA	312	000	00 00000000	234	EA	352	000	00 00000000
139	8B	213	200	00 10000000	171	AB	253	000	00 00000000	203	CB	313	000	00 00000000	235	EB	353	000	00 00000000
140	8C	214	200	00 10000000	172	AC	254	000	00 00000000	204	CC	314	000	00 00000000	236	EC	354	000	00 00000000
141	8D	215	200	00 10000000	173	AD	255	000	00 00000000	205	CD	315	000	00 00000000	237	ED	355	000	00 00000000
142	8E	216	200	00 10000000	174	AE	256	000	00 00000000	206	CE	316	000	00 00000000	238	EE	356	000	00 00000000
143	8F	217	200	00 10000000	175	AF	257	000	00 00000000	207	CF	317	000	00 00000000	239	EF	357	000	00 00000000
144	90	220	200	00 10000000	176	B0	260	000	00 00000000	208	D0	320	000	00 00000000	240	F0	360	000	00 00000000
145	91	221	200	00 10000000	177	B1	261	000	00 00000000	209	D1	321	000	00 00000000	241	F1	361	000	00 00000000
146	92	222	200	00 10000000	178	B2	262	000	00 00000000	210	D2	322	000	00 00000000	242	F2	362	000	00 00000000
147	93	223	200	00 10000000	179	B3	263	000	00 00000000	211	D3	323	000	00 00000000	243	F3	363	000	00 00000000
148	94	224	200	00 10000000	180	B4	264	000	00 00000000	212	D4	324	000	00 00000000	244	F4	364	000	00 00000000
149	95	225	200	00 10000000	181	B5	265	000	00 00000000	213	D5	325	000	00 00000000	245	F5	365	000	00 00000000
150	96	226	200	00 10000000	182	B6	266	000	00 00000000	214	D6	326	000	00 00000000	246	F6	366	000	00 00000000
151	97	227	200	00 10000000	183	B7	267	000	00 00000000	215	D7	327	000	00 00000000	247	F7	367	000	00 00000000
152	98	230	200	00 10000000	184	B8	270	000	00 00000000	216	D8	330	000	00 00000000	248	F8	370	000	00 00000000
153	99	231	200	00 10000000	185	B9	271	000	00 00000000	217	D9	331	000	00 00000000	249	F9	371	000	00 00000000
154	9A	232	200	00 10000000	186	BA	272	000	00 00000000	218	DA	332	000	00 00000000	250	FA	372	000	00 00000000
155	9B	233	200	00 10000000	187	BB	273	000	00 00000000	219	DB	333	000	00 00000000	251	FB	373	000	00 00000000
156	9C	234	200	00 10000000	188	BC	274	000	00 00000000	220	DC	334	000	00 00000000	252	FC	374	000	00 00000000
157	9D	235	200	00 10000000	189	BD	275	000	00 00000000	221	DD	335	000	00 00000000	253	FD	375	000	00 00000000
158	9E	236	200	00 10000000	190	BE	276	000	00 00000000	222	DE	336	000	00 00000000	254	FE	376	000	00 00000000
159	9F	237	200	00 10000000	191	BF	277	000	00 00000000	223	DF	337	000	00 00000000	255	FF	377	000	00 00000000

SEQUENCER CONTROL PROM AT E16 (CS1)

256 X 8
ROM/PROM PATTERN NUMBER
23-02288

BRANCH ADDRESS AT E33 (CS1)

256 X 8
ROM/PROM PATTERN NUMBER
23-02000

REVISIONS		
ONE	CHANGE NO.	REV.

TITLE: CONTROL SEQUENCER (CS18)
SIZE/CODE: D CS
NUMBER: M7684-0-1
REV: S
SCALE:
SHEET 18 OF 19

M7684-0-1 SCD REV S

DEC PART NUMBER: 23-204A1
LEFT COLUMN OF BIN DATA IS MSB (PIN 9 OF IC)

ORIGINATOR: [illegible] PELLETIERE
DATE ORIGINATED: 4-29-77

BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW

SHEET 1 OF 1

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	00	017	0F	00001111
1	01	01	013	0B	00001011
2	02	02	013	0B	00001011
3	03	03	013	0B	00001011
4	04	04	017	0F	00001111
5	05	05	013	0B	00001011
6	06	06	013	0B	00001011
7	07	07	013	0B	00001011
8	08	10	017	0F	00001111
9	09	11	017	0F	00001111
10	0A	12	013	0B	00001011
11	0B	13	013	0B	00001011
12	0C	14	013	0B	00001011
13	0D	15	013	0B	00001011
14	0E	16	013	0B	00001011
15	0F	17	013	0B	00001011
16	10	20	013	0B	00001011
17	11	21	013	0B	00001011
18	12	22	013	0B	00001011
19	13	23	013	0B	00001011
20	14	24	003	03	00000011
21	15	25	003	03	00000011
22	16	26	013	0B	00001011
23	17	27	013	0B	00001011
24	18	30	003	03	00000011
25	19	31	002	02	00000010
26	1A	32	013	0B	00001011
27	1B	33	013	0B	00001011
28	1C	34	003	03	00000011
29	1D	35	001	01	00000001
30	1E	36	013	0B	00001011
31	1F	37	013	0B	00001011

COMMAND DECODE AT E45 (CS2)

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
32 X 8
ROM/PROM PATTERN SPEC
23-204A1

REVISIONS | CHK | CHANGE NO. | REV.

TITLE: CONTROL SEQUENCER (CS19)
SIZE: D | CODE: CS | NUMBER: M7684-0-1 | REV: S
SCALE | SHEET 19 OF 19 | DIST.

S M7684-0-1 CS D

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1	D-MD-5012484-0-0	5012484-00	M7684	1	
2	2		1012784-00	.047 MFD 50V +80-20% CER	58	C1-C55,C58-C60
3	3		1005306-00	*** THIS ITEM IS NOT USED ***	-	
4	4		1005334-00	3.3MFD 20V 10% S.TANT	3	C103,C106,C115
5	5		1009964-00	.68 MFD 35V 10% S.TANT	1	C102
6	6		1000042-00	1000.0 MMF 100V 5%200PPM MICA	2	C56,C57
7	7		1001631-00	390.0 MMF 100V 5%200PPM MICA	1	C100
8	8		1100114-00	D 664 QS\75PCB PIV= 25V SP	4	D1,D2,D4,D6
9	9		1105275-00	D 672 TR= 15NS PIV= 60V SI	2	D3,D5
10	10		1216988-02	HANDLE,MODULE,HEX TWO EJECTORS	1	
11	11		1302602-00	56.0 .25 W 5.0 % CC	32	R30-R61
12	12		1300365-00	1.0 K .25 W 5.0 % CC	23	R11,R14-R29,R77,R78,R85-R88
13	13		1302388-00	2.0 K .25 W 5.0 % CC	10	R2-R6,R10,R90,R93,R94,R80
14	14		1302394-00	30.0 K .25 W 5.0 % CC	4	R7,R8,R91,R92
15	15		1313349-00	33.0 K .25 W 5.0 % CC	1	R1
16	16		1305346-00	27.0 K .25 W 5.0 % CC	1	R13
17	17		1304856-00	4.64 K .25 W 1.0 % RN55D-F10	16	R62-R76,R89
18	18		1301423-00	6.80 K .25 W 5.0 % CC	1	R79
19	19		1302666-00	*** THIS ITEM IS NOT USED ***	-	
20	20		1300439-00	3.30 K .25 W 5.0 % CC	1	R84
21	21		9000024-01	EYELET,ROLL FLANGE .1210DX .192	12	
22	22		2300888-00	B8-01	1	E47
23	23		1910091-00	DEC 7437 AND GATE-QUAD 2IN,BU	3	E1,E60,E83
24	24		1911219-00	7438 NAND GATE-QUAD 2IN,B	1	E85
25	25		1909928-00	7416 INVERTER GATE-HEX 1I	1	E97
26	26		1910224-00	DEC 7485 COMPARATOR-4BIT	1	E73
27	27		1910436-00	DEC 74123 ONE SHOT-DUAL,RETRIG	4	E25,E46,E71,E100
28	28		1910153-00	DEC 74150 MUX 1 OF 16	1	E64
29	29		1910268-01	DEC 75107B-01 RECEIVER,LINE,DUA	8	E2,E3,E4,E6,E8,E13,E14,E15
30	30		1911341-00	75113 DRIVER,LINE,DUAL,MA	7	E7,E10,E11,E12,E19,E21,E22

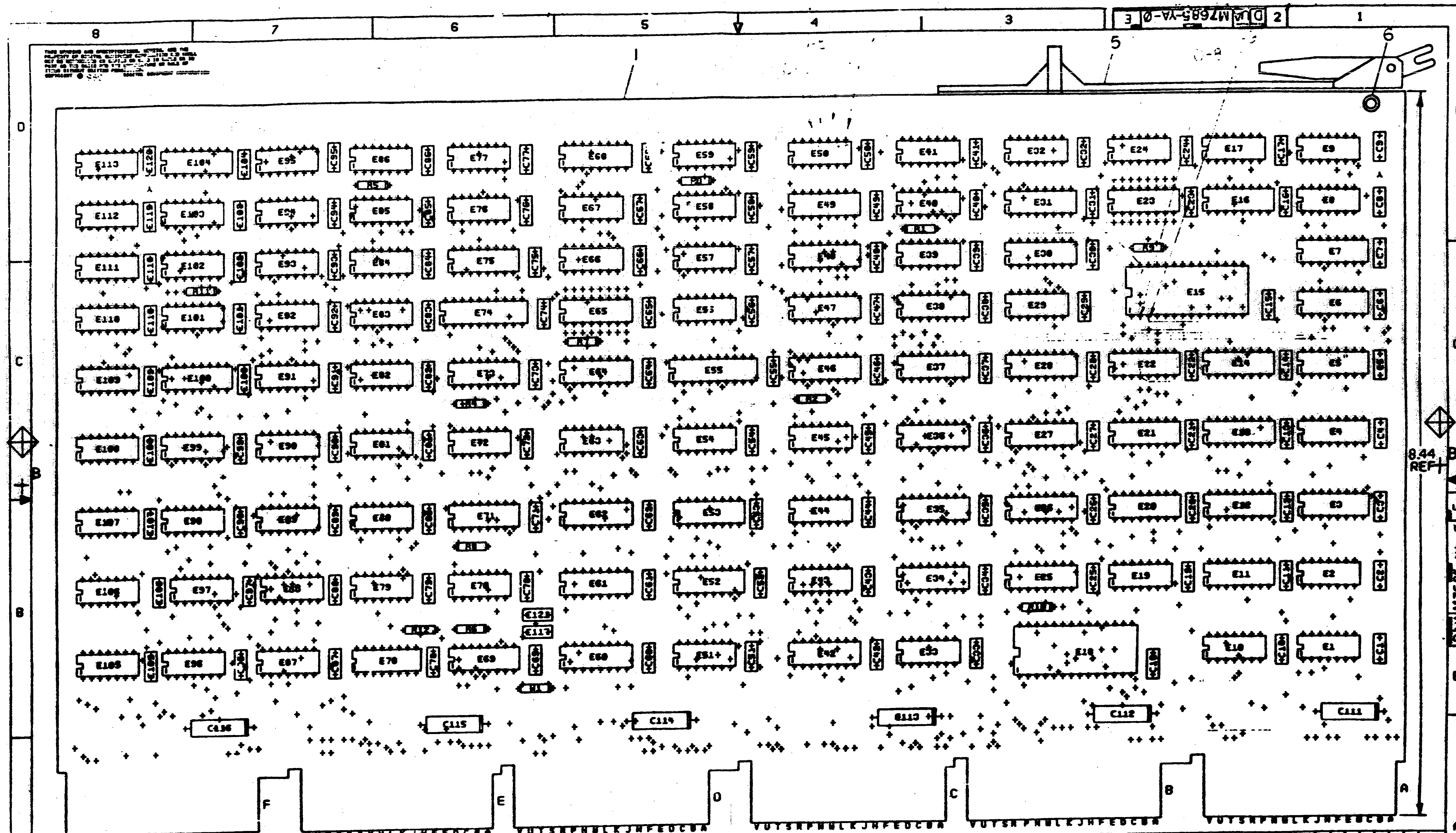
REVISION HISTORY			BASIC PART NO: M7684
ENG	ECO NUMBER	REV	SECTION A OF A
IB	00008	K	SECTION.VARIATION INDEX
KIT	00009	L	[A] 00
CL	00010	M	[B]
--	00011	N	[C]
BHF	ML012	P	[D]
WH	M7684-CX013	R	[E]
WH	M7684-CX014	S	[F]
WH			[H]
			[J]
			[K]
			[L]
			[M]
			[N]

DRN: JVV	DATE: 13-FEB-78		D	I	G	I	T	A	L	
CHK'D: RSW	DATE: 13-FEB-78	TITLE PARTS LIST								
DES.ENG: I.BELLETTIER	DATE: 13-FEB-78	CONTROL SEQUENCER								
RESP.ENG.: I.BELLETTIERE	DATE: 13-FEB-78	DOCUMENT NUMBER								
MFG.ENG.: J.MILLER	DATE: 13-FEB-78	SIZE: K	CODE: PL	NUMBER: M7684-0-DBP				REV: S		
ASSEMBLY NUMBER: D-UA-M7684-0-0	TOP DOCUMENT NUMBER: # B-DD-M7684-0	FILE NAME: Z1028S.PLS						EDIT #: 27		

LINE ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
31	31	1911527-00	8097 BUFFER GATE-HEX 2INP	5	E17,E18,E26,E27,E28
32	32	1914087-00	8098 BUFFER GATE-HEX 2IN,	4	E40,E41,E50,E57
33	33	1910532-00	74S00 NAND GATE-QUAD 2IN	2	E65,E89
34	34	1912388-00	74S02 NOR GATE-QUAD 2IN,PO	1	E20
35	35	1910534-00	74S04 INVERTER GATE-HEX 1I	1	E53
36	36	1912389-00	74S08 AND GATE-QUAD 2IN,PO	2	E9,E68
37	37	1910537-00	74S11 AND GATE-TRIPLE 3INP	1	E75
38	38	1911712-00	74S51 AND-OR GATE-INVERT D	1	E66
39	39	1910544-00	74S74 FF-D DUAL,EDGE TRIGG	5	E24,E70,E82,E92,E93
40	40	1910545-00	74S112 FF-JK DUAL,EDGE TRIG	3	E23,E61,E99
41	41	1910548-00	74S157 MUX 1 OF 2 (QUAD)	1	E37
42	42	1914082-00	74S163 COUNTER,SYNCH UP/DOW	5	E31,E32,E80,E101,E102
43	43	1913340-00	74S32 OR GATE-QUAD 2IN	1	E84
44	44	1912847-00	LS157 MUX 1 OF 2(QUAD)	1	E35
45	45	1912799-00	LS00 NAND-GATE-QUAD 2IN,P	3	E5,E29,E77
46	46	1912803-00	74LS04 INVERTER GATE,HEX	2	E30,E87
47	47	1912805-00	LS08 AND GATE-QUAD 2IN,PO	5	E38,E44,E55,E76,E86
48	48	1912807-00	LS10 NAND GATE-TRIPLE 3IN	1	E94
49	49	1912808-00	LS11 AND GATE-TRIPLE 3IN	1	E54
50	50	1912810-00	LS20 NAND GATE-DUAL 4IN	1	E52
51	51	1912813-00	LS27 NOR GATE-TRIPLE 3IN	2	E79,E96
52	52	1912816-00	LS32 OR GATE-QUAD 2IN,POS	1	E56
53	53	1912824-00	LS74 FF-D DUAL,EDGE TRIGG	6	E36,E62,E63,E67,E69,E78
54	54	1912853-00	LS175 FF-D QUAD	4	E42,E43,E51,E59
55	55	1911944-00	555CN TIMER,FUNCT.BLOCK	1	E98
56	56	23017D1-00	D1-02	1	E90
57	60	1912859-00	LS258 MUX 1 OF 2 (DUAL),	4	E34,E48,E49,E58
58	58	1912862-00	LS266 X-NOR GATE-QUAD,OPN,	1	E74
59	59	23022B8-00	B8-01	1	E16
60	60	23016D1-00	D1-02	1	E72
61	61	23204A1-00	A1-03,A1-04,A1-05	1	E45
62	62	1209941-11	*** THIS ITEM IS NOT USED ***	-	
63	63	23015D1-00	D1-02	1	E81
64	64	1909686-00	7404 INVERTER GATE-HEX 1I	1	E88
65	65	1214224-00	RLY,REED, 15V COIL,SPDT	1	E91
66	66	9105740-55	*** THIS ITEM IS NOT USED ***	-	
67	67	9107256-11	*** THIS ITEM IS NOT USED ***	-	
68	68	23020B8-00	B8-01	1	E33
69	69	23023B8-00	B8-01	1	E39
70	70	1214413-00	RLY,REED, 5V COIL,SPST	1	E95
71	71	9009185-00	JUMPER, WIRE, INSULATED, BLACK B	1	W1
72	72	1005965-00	*** THIS ITEM IS NOT USED ***	-	
73	73	1001610-00	.01 MFD 50V +80-20% Z5U CER	1	C107
74	74	1017472-00	10 MFD 35V +50-10% AL EL	8	C101,C108-C114
75	75	1312934-00	6.80 M .25 W 5.0 % CC	1	R81
76	76	1216832-04	HEADER 60POS WITH LATCHES	1	J1

D	I	B	I	T	A	L	TITLE	SECTION A OF A
							CONTROL SEQUENCER	

SIZE	CODE	DOCUMENT NUMBER	REV
K	PL	M7684-0-DBP	S



NOTES:

1. ... HOLES ... MAYNARD ONLY.
2. ... FOR RM02, OUT FOR RM03.
3. ... AND E55 ARE SPARE IC LOCATIONS.

CHANGE NO.	REV
M7685 YA · CX001 · P. ...	E

ETCH REV. CP1

P.C. DESIGN DATA BASE REV. CL1 & CM1

SIGNATURES	DATE
DRN.	
CHK'D	
ENG.	
PROJ. ENG.	
PROD.	
SCALE 2:1	
SHT. 1 OF 2	

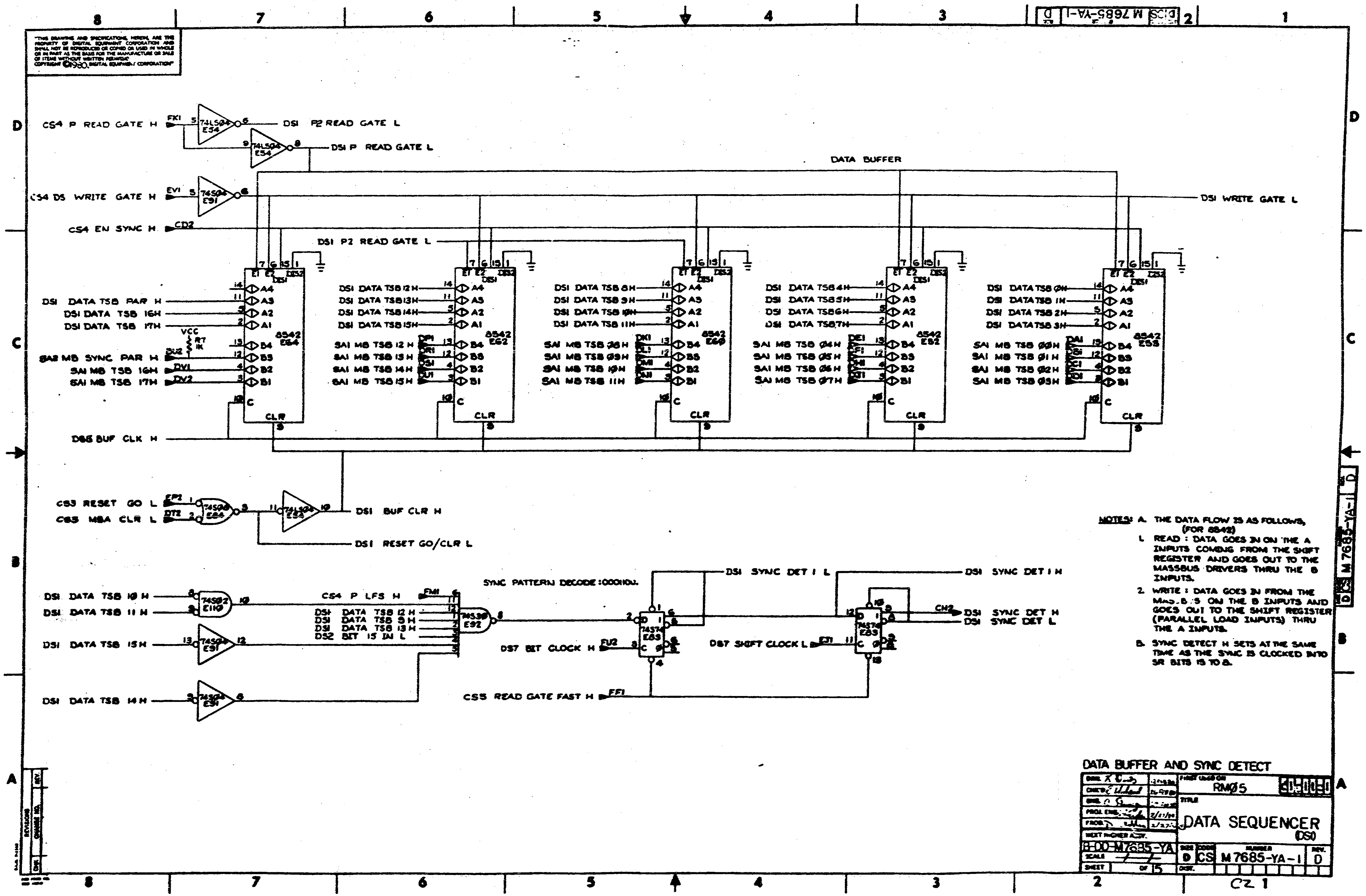
digital

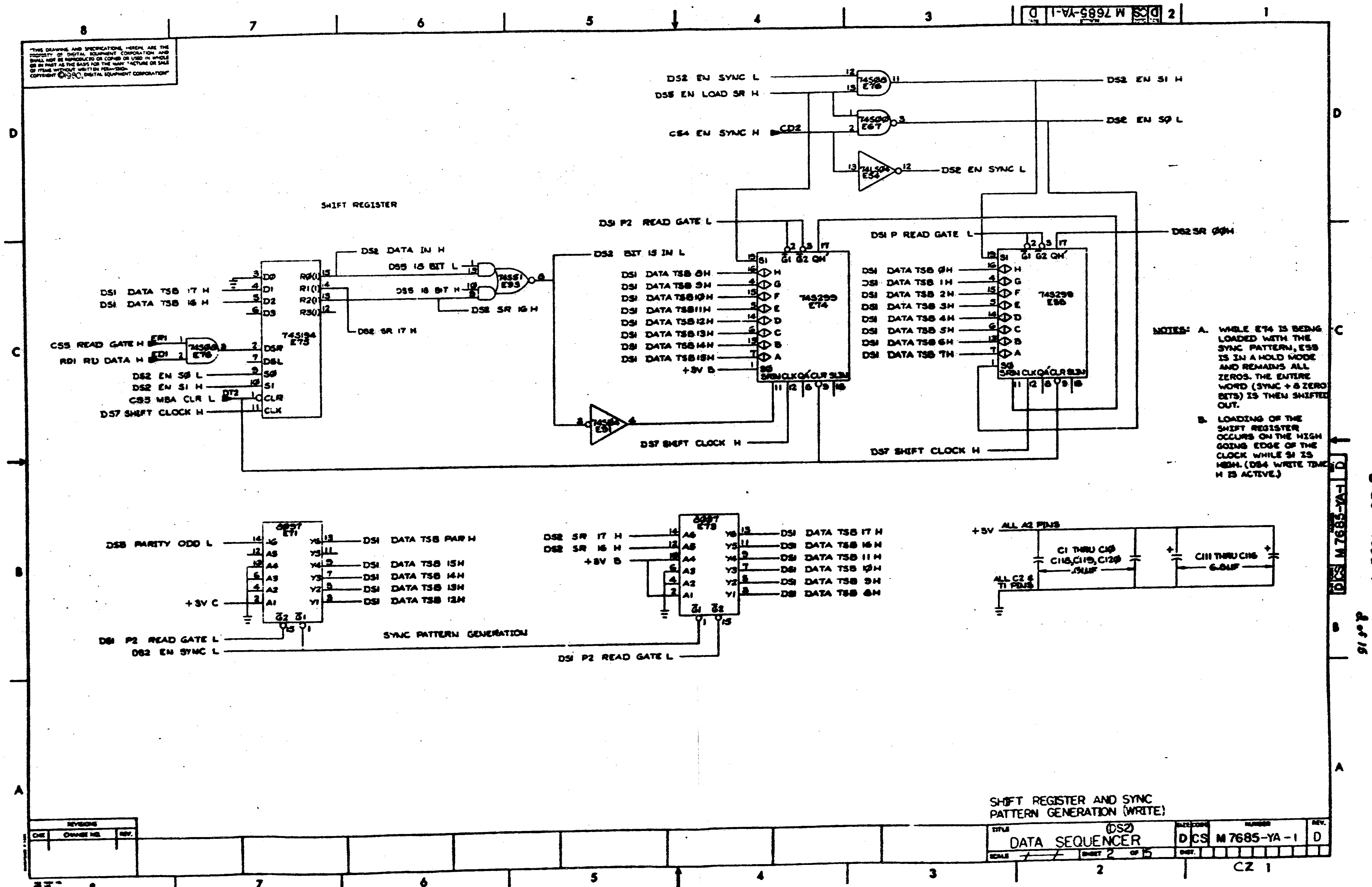
TITLE DATA SEQUENCER

SIZE	CODE	NUMBER	REV
D	UA	M7685-YA-0	E

NEXT HIGHER ASSY. B-DD-M7685-YA

CZ1 MS#29H10


CS4 P READ GATE H
DSI P2 READ GATE L
DSI P READ GATE L
DATA BUFFER
CS4 DS WRITE GATE H
DSI WRITE GATE L
CS4 EN SYNC H
DSI P2 READ GATE L
DSI DATA TSB PAR H
DSI DATA TSB 16H
DSI DATA TSB 17H
SAI MB SYNC PAR H
SAI MB TSB 16H
SAI MB TSB 17H
8542 E64
8542 E62
8542 E60
8542 E82
8542 E55
DSB BUF CLK H
CS3 RESET GO L
CS3 MBA CLR L
DSI BUF CLR H
DSI RESET GO/CLR L
SYNC PATTERN DECODE :000101.
DSI SYNC DET 1 L
DSI SYNC DET 1 H
DSI SYNC DET H
DSI SYNC DET L
CS4 P LFS H
DS7 BIT CLOCK H
DS7 SHIFT CLOCK L
CS5 READ GATE FAST H
NOTES: A. THE DATA FLOW IS AS FOLLOWS, (FOR 8542)
1. READ : DATA GOES IN ON THE A INPUTS COMING FROM THE SHIFT REGISTER AND GOES OUT TO THE MASSBUS DRIVERS THRU THE B INPUTS.
2. WRITE : DATA GOES IN FROM THE MASSBUS ON THE B INPUTS AND GOES OUT TO THE SHIFT REGISTER (PARALLEL LOAD INPUTS) THRU THE A INPUTS.
B. SYNC DETECT H SETS AT THE SAME TIME AS THE SYNC IS CLOCKED INTO SR BITS 15 TO 8.
DATA BUFFER AND SYNC DETECT
RM05
DATA SEQUENCER (DSI)
D CS M7685-YA-1 D
B-DD-M7685-YA
CZ 1



SHIFT REGISTER
DS2 EN SYNC L
DS5 EN LOAD SR H
CS4 EN SYNC H
CD2
DS2 EN S1 H
DS2 EN S0 L
DS2 EN SYNC L
74S86 E76
74S00 E67
74LS04 E54
DS1 P2 READ GATE L
DS1 P READ GATE L
DS2 SR 00H
DS2 DATA IN H
DS5 15 BIT L
DS5 16 BIT H
74S51 E93
DS2 SR 16 H
DS2 SR 17 H
DS2 BIT 15 IN L
DS1 DATA TSB 17 H
DS1 DATA TSB 16 H
CS5 READ GATE H
RD1 RD DATA H
74S86 E76
DS2 EN S0 L
DS2 EN S1 H
CS5 MBA CLR L
DS7 SHIFT CLOCK H
74S194 E73
DS1 DATA TSB 8H
DS1 DATA TSB 9H
DS1 DATA TSB 10H
DS1 DATA TSB 11H
DS1 DATA TSB 12H
DS1 DATA TSB 13H
DS1 DATA TSB 14H
DS1 DATA TSB 15H
+3V B
74S299 E74
DS1 DATA TSB 0H
DS1 DATA TSB 1H
DS1 DATA TSB 2H
DS1 DATA TSB 3H
DS1 DATA TSB 4H
DS1 DATA TSB 5H
DS1 DATA TSB 6H
DS1 DATA TSB 7H
74S299 E58
DS7 SHIFT CLOCK H
NOTES: A. WHILE E74 IS BEING LOADED WITH THE SYNC PATTERN, E58 IS IN A HOLD MODE AND REMAINS ALL ZEROS. THE ENTIRE WORD (SYNC + 8 ZERO BITS) IS THEN SHIFTED OUT.
B. LOADING OF THE SHIFT REGISTER OCCURS ON THE HIGH GOING EDGE OF THE CLOCK WHILE S1 IS HIGH. (DS4 WRITE TIME H IS ACTIVE.)
DS5 PARITY ODD L
+3V C
8097 E71
DS1 DATA TSB PAR H
DS1 DATA TSB 15H
DS1 DATA TSB 14H
DS1 DATA TSB 13H
DS1 DATA TSB 12H
DS1 P2 READ GATE L
DS2 EN SYNC L
SYNC PATTERN GENERATION
DS2 SR 17 H
DS2 SR 16 H
+3V B
8097 E73
DS1 DATA TSB 17 H
DS1 DATA TSB 16 H
DS1 DATA TSB 11 H
DS1 DATA TSB 10H
DS1 DATA TSB 9H
DS1 DATA TSB 8H
DS1 P2 READ GATE L
+5V
ALL A2 PINS
C1 THRU C10
C118, C119, C120
.01UF
C111 THRU C116
6.8UF
ALL C2 & T1 PINS
D CS M 7685-YA-1 D
D-CS-M7685-YA-1
SHIFT REGISTER AND SYNC PATTERN GENERATION (WRITE)
(DS2)
DATA SEQUENCER
D CS M 7685-YA-1 D
SHEET 2 OF 15
CZ 1

CS5 EN CRC CLOCK L
DS5 FMT 18H
SAI MB TSB 17H
SAI MB TSB 16H
SAI MB TSB 15H
SAI MB TSB 14H
SAI MB TSB 13H
SAI MB TSB 12H
SAI MB TSB 11H
SAI MB TSB 10H
SAI MB TSB 09H
SAI MB TSB 08H
SAI MB TSB 07H
SAI MB TSB 06H
SAI MB TSB 05H
SAI MB TSB 04H
SAI MB TSB 03H
SAI MB TSB 02H
SAI MB TSB 01H
SAI MB TSB 00H

DS3 MB17L
DS3 MB16L
DS5 MB15L
DS3 MB14L
DS3 MB13L
DS3 MB12L
DS3 MB11L
DS3 MB10L
DS3 MB09L
DS3 MB08L
DS3 MB07L
DS3 MB06L
DS3 MB05L
DS5 MB04L
DS3 MB03L
DS3 MB02L
DS3 MB01L
DS3 MB00L

+5V
R5 1K
+3V B
DS2 EN SYNC L
CS4 P EN LOAD SR H
DS4 WORD TIME H
CS4 DS WRITE GATE H
DS3 EN PAR GEN H
DS3 EN PAR GEN L
DS4 WORD TIME L
DS3 EN PAR CHECK H

DS1 SYNC DET 1 L
CS4 P LFS H
DS7 BIT CLOCK L
DS4 WORD TIME H
DS7 ECC INPUT DATA L
DS1 SYNC DET L
DS3 EN PAR GEN L
DS7 CRC INPUT DATA H
DS4 WORD TIME L
DS3 PARITY ODD H
DS3 PARITY ODD L

CS8 TRNSCEIVR EN A H
SA2 WRT CLK A H
CS3 TRNSCEIVR EN B H
SB2 WRT CLK B H
DS3 WRT CLK L

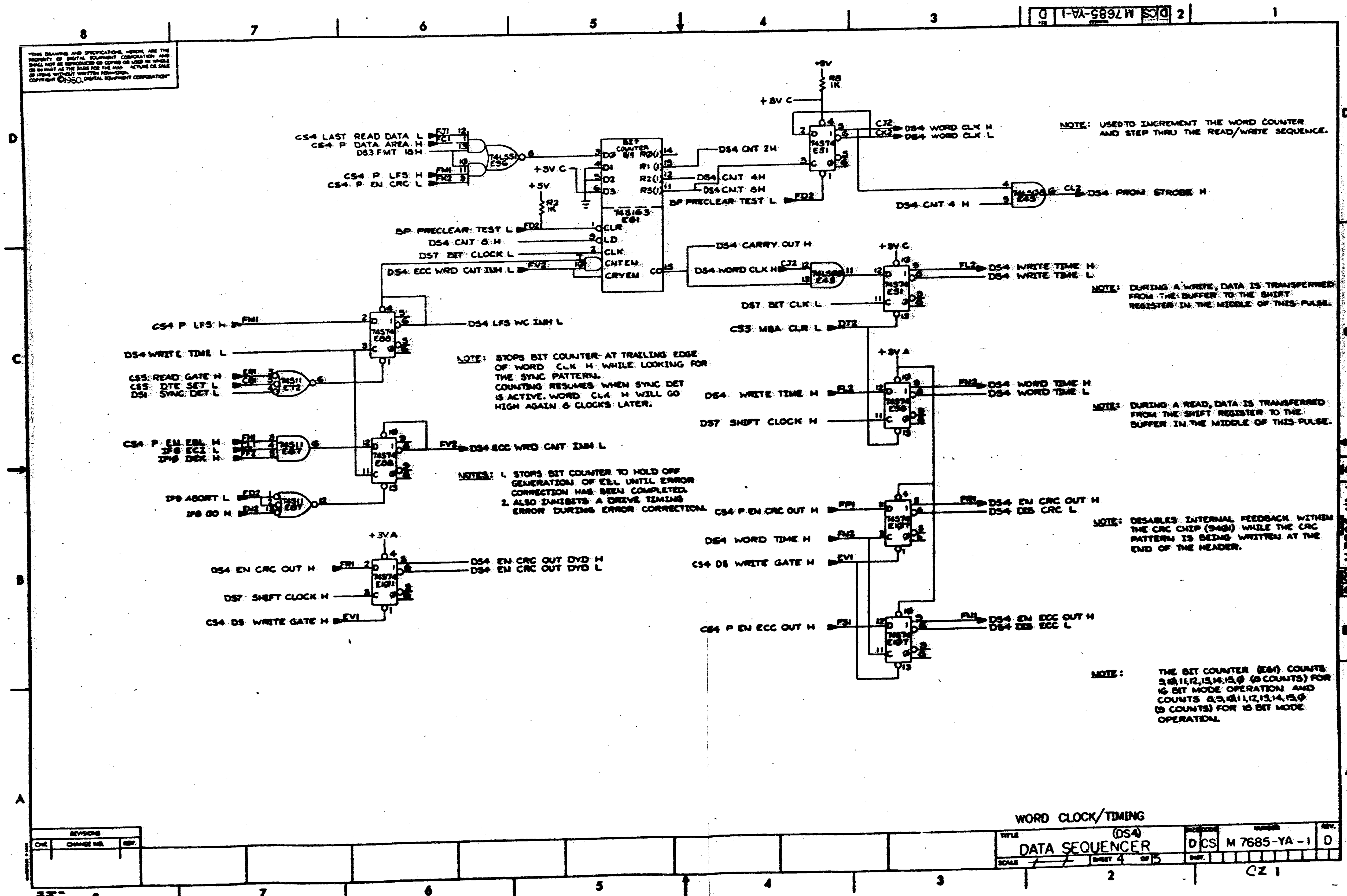
+3V C
WRITE PARITY BIT STORED
DS1 DATA TSB PAR H
DS4 WORD TIME L
IF8 FMT 16H
DS3 FMT 16 H
CS3 MBA CLR L
DS3 PARITY ODD H
DS4 WRITE TIME L
DS1 RESET GO/CLR L
DS3 SYNC PAR SET L

PARITY & DATA BUS

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	DATA SEQUENCER (DS3)			
SIZE	CODE	NUMBER		
D	CS	M 7685-YA-1		D
SCALE	SHEET 3 OF 5	DIST.		

CZ 1


NOTE: USED TO INCREMENT THE WORD COUNTER AND STEP THRU THE READ/WRITE SEQUENCE.
NOTE: DURING A WRITE, DATA IS TRANSFERRED FROM THE BUFFER TO THE SHIFT REGISTER IN THE MIDDLE OF THIS PULSE.
NOTE: DURING A READ, DATA IS TRANSFERRED FROM THE SHIFT REGISTER TO THE BUFFER IN THE MIDDLE OF THIS PULSE.
NOTE: DISABLES INTERNAL FEEDBACK WITHIN THE CRC CHIP (9401) WHILE THE CRC PATTERN IS BEING WRITTEN AT THE END OF THE HEADER.
NOTE: THE BIT COUNTER (E61) COUNTS 9,10,11,12,13,14,15,0 (8 COUNTS) FOR 16 BIT MODE OPERATION AND COUNTS 8,9,10,11,12,13,14,15,0 (9 COUNTS) FOR 18 BIT MODE OPERATION.
NOTE: STOPS BIT COUNTER AT TRAILING EDGE OF WORD CLK H WHILE LOOKING FOR THE SYNC PATTERN. COUNTING RESUMES WHEN SYNC DET IS ACTIVE. WORD CLK H WILL GO HIGH AGAIN 8 CLOCKS LATER.
NOTES: 1. STOPS BIT COUNTER TO HOLD OFF GENERATION OF ECL UNTIL ERROR CORRECTION HAS BEEN COMPLETED.
2. ALSO INHIBITS A DRIVE TIMING ERROR DURING ERROR CORRECTION.
DS4 WORD CLK H
DS4 WORD CLK L
DS4 PROM STROBE H
DS4 WRITE TIME H
DS4 WRITE TIME L
DS4 WORD TIME H
DS4 WORD TIME L
DS4 EN CRC OUT H
DS4 DIS CRC L
DS4 EN ECC OUT H
DS4 DIS ECC L
DS4 LFS WC INH L
DS4 ECC WRD CNT INH L
DS4 EN CRC OUT DYD H
DS4 EN CRC OUT DYD L
CS4 LAST READ DATA L
CS4 P DATA AREA H
DS3 FMT 18H
CS4 P LFS H
CS4 P EN CRC L
BP PRECLEAR TEST L
DS4 CNT 8 H
DS7 BIT CLOCK L
DS4 CNT 2H
DS4 CNT 4H
DS4 CNT 8H
DS4 CARRY OUT H
DS7 BIT CLK L
CS5 MBA CLR L
DS7 SHIFT CLOCK H
CS4 P EN CRC OUT H
CS4 DS WRITE GATE H
CS4 P EN ECC OUT H
WORD CLOCK/TIMING
(DS4)
DATA SEQUENCER
D CS M 7685-YA-1 D
SHEET 4 OF 5

+3VA

DS2 EN SYNC L
CS2 FORMAT H
FJ2
74S74 E98
DS5 SYNC 2 NBT SCLK L

NOTE: INHIBITS MAKING A REQUEST FOR DATA DURING WRITING OF THE SYNC BYTE PRECEDING THE DATA FIELD (THE FIRST REQUEST FOR DATA IS MADE WHILE WRITING SYNC BYTE PRECEDING THE HEADER FIELD)

DS5 SYNC 2 NBT SCLK L
CS4 P DATA EN SCLK H
CS4 P HEADER AREA H
IF8 F0 H
74LS51 E56
DS4 WORD TIME L
74S74 E78
DS5 MB SCLK H
DS5 MB SCLK L

DS4 CNT 2 H
DS4 WORD CLK H
CS3 MBA CLR L
74S00 E63
74S08 E84

CS4 DS WRITE GATE H
CS4 P EN LOAD SR H
DS4 WRITE TIME H
74S11 E87
DS5 EN LOAD SR H

CS4 P READ GATE H
DS4 WORD TIME H
DS7 SHIFT CLOCK L
74S10 E97
74S08 E63
DS5 BUF CLK H
DS3 WRT CLK L

DS4 DIS CRC L
+3VA
DS7 CRC INPUT DATA H
DS7 CRC CLOCK L
9401 E90 CRC GENERATOR CHECKER
DS5 CRC OUTPUT H
DS5 CRC ER H
74S20 E84
DS5 HCRC SET L
DS5 CRC DONE H
CS4 P EN CRC OUT H

CS4 PRECLEAR CRC/ECC L
CS3 MBA CLR L
74LS40 E81
74S00 E38
DS5 CLEAR ECC L
74S02 E28
DS5 CLEAR ECC A L

DS5 WRT CLK L
CS3 MBA CLR L
IF8 F2 H
74LS40 E43
74S74 E79
DS8 MBA SCLK H
WRITE CLOCK FAIL
DS4 WORD TIME H
74LS40 E81
DS5 WCF SET L

DSI SYNC DET 1 L
IF8 F2 H
74LS08 E81
CS4 P EN CRC L
DS5 FMT 18 H
74S10 E97
DS8 16 BIT L
74S04 E88
DS5 16 BIT H

CS4 P EN CRC OUT H
74LS74 E79
DS5 CRC DONE H
DS4 WORD TIME L
CS2 FORMAT H
74LS04 E44
74LS08 E45
CS3 SECT/INDEX L

NOTE: ENABLES COMMAND SEQUENCER TO ABORT IF THERE IS AN ERROR IN THE HEADER (INDICATES ENTIRE CRC HAS BEEN READ) AND ENABLES CHECKING FOR A CRC ERROR.

REVISIONS		
ECO	CHANGE NO.	REV.

SCLK/CRC/WCF

TITLE	(DS5) DATA SEQUENCER			
SCALE	SHEET 5 OF 15	SIZE D	CODE CS	NUMBER M 7685-YA-1
		DIST.		REV. D

CZ 1

74LS157 E30 MUX — SAI MB TSB 15 H → DI1; SAI MB TSB 14 H → DS1; DSH1 TA 16 H → C21; SAI MB TSB 12 H → DP1; DS6 HEADER FIRST L; STB

74LS85 E47 COMPARATOR — SAI MB TSB 15 H → DI1; SAI MB TSB 14 H → DS1; SAI MB TSB 15 H → DE1; SAI MB TSB 12 H → DP1; +5V D; IN>IN=IN<

74LS157 E28 MUX — DSH1 TA 6 H → CH1; DSH1 TA 4 H → DS2; DSH1 TA 2 H → DP2; DSH2 DC 512 H → BP2; DSH1 TA 1 H → DP1; DSH2 DC 256 H → BM2; DS6 HEADER FIRST L; STB

74LS85 E36 COMPARATOR — SAI MB TSB 11 H → DN1; SAI MB TSB 10 H → DM1; SAI MB TSB 09 H → DL1; SAI MB TSB 08 H → DK1; IN>IN=IN<

74LS157 E26 MUX — DSH2 DC 128 H → BM2; DSH2 DC 64 H → BL2; DSH2 DC 32 H → BK2; DSH1 SA 16 H → EV2; DSH2 DC 16 H → BT2; DS6 HEADER FIRST L; STB

74LS85 E35 COMPARATOR — SAI MB TSB 07 H → DJ1; SAI MB TSB 06 H → DH1; SAI MB TSB 05 H → DF1; SAI MB TSB 04 H → DB1; IN>IN=IN<

74LS157 E25 MUX — DSH1 SA 8 H → EU2; DSH2 DC 8 H → BN2; DSH1 SA 4 H → ET2; DSH2 DC 4 H → BF2; DSH1 SA 2 H → ES2; DSH2 DC 2 H → BE2; DSH1 SA 1 H → ER2; DSH2 DC 1 H → BD2; DS6 HEADER FIRST L; STB

74LS85 E34 COMPARATOR — SAI MB TSB 03 H → DD1; SAI MB TSB 02 H → DC1; SAI MB TSB 01 H → DB1; SAI MB TSB 00 H → DA1; IN>IN=IN<

+5V; 1K RES.

SAI MB TSB 15 H → DJ1; SAI MB TSB 14 H → DS1; BP 144 ENB H → BS1; DS6 HEADER FIRST H → AL2; DS6 FORMAT ER H; DS6 HEADER FIRST H → AL2

74LS175 E41 4 BIT REGISTER — D3 R3(1) R3(0); D2 R2(1) R2(0); D1 R1(1) R1(0); D0 R0(1) R0(0); CLK CLR

R3(0) → EA1 → DS6 SST BSE L; R2(0) → CM1 → DS6 PER SET L; R1(1) → DS6 HEADER FIRST L; R1(0) → AL2 → DS6 HEADER FIRST H; R0(1) → DS6 HCE H (NOT USED); R0(0) → CH1 → DS6 HCE SET L

DS6 EQUAL L; DS4 WORD CLK H → C73; C84 READ HEADER H → BT2; IP8 HCI L → CK1

NOTE: ERROR CHECKING IS DONE A HALF A WORD FOLLOWING LOADING OF THE BUFFER FROM THE SHIFT REGISTER.

IP8 FMT16H; SAI MBTSB16H → CM1 → DS6 FORMAT ER H

74LS86 E94 — DS6 EQUAL L

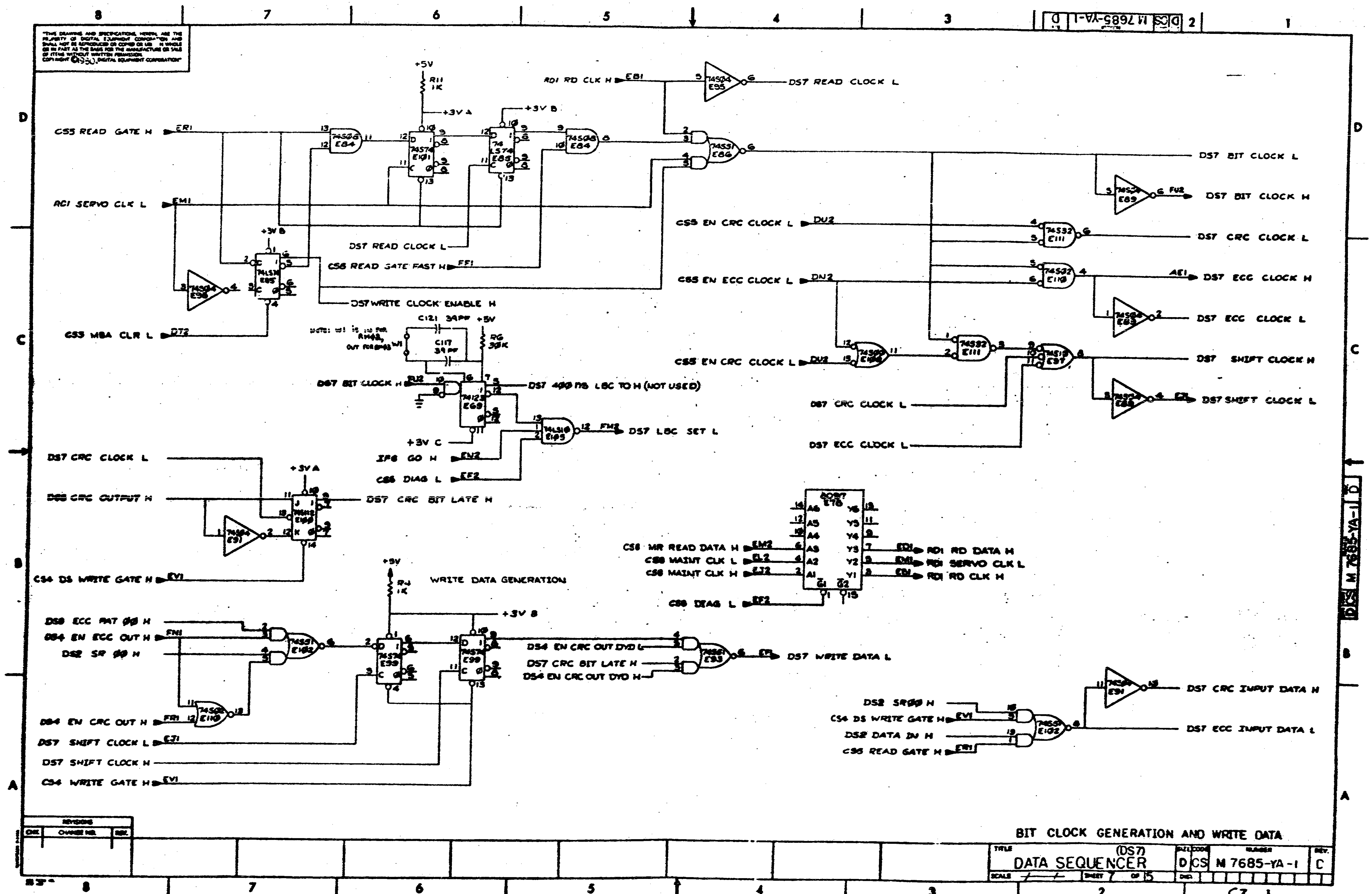
D-CS-M7685-YA-1 6 of 15

REVISIONS: CHK | CHANGE NO. | REV

HEADER COMPARE

TITLE (DS6) DATA SEQUENCER — SIZE D — CODE CS — NUMBER M7685-YA-1 — REV D — SCALE — SHEET 6 OF 15

C21

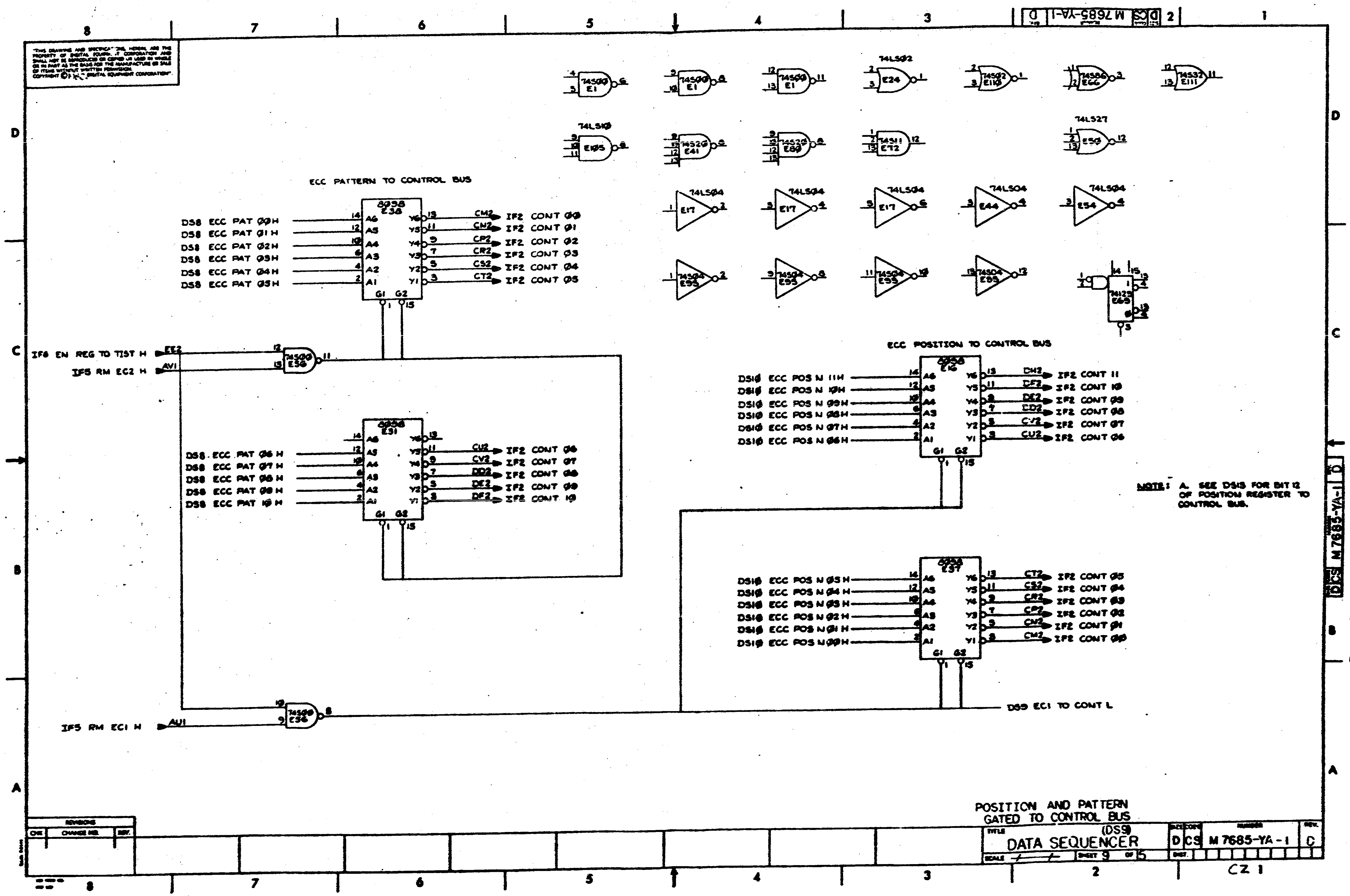

CS5 READ GATE H
RCI SERVO CLK L
CS3 MBA CLR L
RDI RD CLK H
DS7 READ CLOCK L
DS7 BIT CLOCK L
DS7 BIT CLOCK H
CS5 EN CRC CLOCK L
DS7 CRC CLOCK L
CS5 EN ECC CLOCK L
DS7 ECC CLOCK H
DS7 ECC CLOCK L
DS7 SHIFT CLOCK H
DS7 SHIFT CLOCK L
DS7 READ CLOCK L
CS6 READ GATE FAST H
DS7 WRITE CLOCK ENABLE H
DS7 BIT CLOCK H
DS7 400 nS LBC TO H (NOT USED)
DS7 LBC SET L
IF6 GO H
CS6 DIAG L
DS7 CRC CLOCK L
DS7 ECC CLOCK L
DS7 CRC CLOCK L
DS7 CRC BIT LATE H
CS4 DS WRITE GATE H
CS6 MR READ DATA H
CS6 MAINT CLK L
CS6 MAINT CLK H
CS6 DIAG L
RDI RD DATA H
RDI SERVO CLK L
RDI RD CLK H
WRITE DATA GENERATION
DS4 EN CRC OUT DYD L
DS7 CRC BIT LATE H
DS4 EN CRC OUT DYD H
DS7 WRITE DATA L
DS4 EN CRC OUT H
DS7 SHIFT CLOCK L
DS7 SHIFT CLOCK H
CS4 WRITE GATE H
DS2 SR00 H
CS4 DS WRITE GATE H
DS2 DATA IN H
CS6 READ GATE H
DS7 CRC INPUT DATA H
DS7 ECC INPUT DATA L
BIT CLOCK GENERATION AND WRITE DATA
DATA SEQUENCER (DS7)
M 7685-YA-1

ECC PATTERN REGISTER

DS8 EC 21 H
DS8 EC 30 H
DS7 ECC INPUT DATA L
DS4 EN ECC OUT H
DS8 ECC PAT 00 H
DS4 DES ECC L
74LS175 E104
DS8 EC 20 H
DS8 EC 29 H
DS8 EC 30 H
DS8 EC 31 H
DS8 EC 29 H
74LS164 E112 R7(1)
DS8 EC 21 H
DS8 EC 22 H
DS8 EC 23 H
DS8 EC 24 H
DS8 EC 25 H
DS8 EC 26 H
DS8 EC 27 H
DS8 EC 28 H
DC8 EC 28 H
74LS164 E103 R7(1)
DS8 EC 12 H
DS8 EC 13 H
DS8 EC 14 H
DS8 EC 15 H
DS8 EC 16 H
DS8 EC 17 H
DS8 EC 18 H
DS8 EC 19 H
74LS175 E66
DS8 ECC PAT 00 H
DS8 EC 12 H
DS8 ECC PAT 08 H
DS8 ECC PAT 09 H
DS8 ECC PAT 10 H
DS8 EC. 11 H
DS7 ECC CLOCK H
DS8 CLEAR ECC L
DS8 ECC FEEDBACK BIT H
DS8 EC 11 H
DCK SET L
DS8 EC 21 H
DS8 EC 22 H
DS8 EC 23 H
DS8 EC 24 H
DS8 EC 25 H
DS8 EC 26 H
DS8 EC 27 H
DS8 EC 28 H
DS8 EC 29 H
DS8 EC 30 H
DS8 EC 31 H
BP TEST L
+5V
DS8 EN CORRECTION H
DS8 DCK SET L
DS8 NON ZERO ECC H
DS7 SHIFT CLOCK L
DS8 CLEAR ECC L
DS8 EN CORRECTION H
DS8 ECC PAT 08 H
DATA CHECK GENERATION
74LS164 E39
DS8 ECC PAT 00 H
DS8 ECC PAT 01 H
DS8 ECC PAT 02 H
DS8 ECC PAT 03 H
DS8 ECC PAT 04 H
DS8 ECC PAT 05 H
DS8 ECC PAT 06 H
DS8 ECC PAT 07 H

ECC PATTERN REGISTER AND DCK GENERATION

TITLE (DS8) DATA SEQUENCER
SIZE D CODE CS NUMBER M7685-YA-1 REV D
SCALE 1/1 SHEET 8 OF 15



ECC PATTERN TO CONTROL BUS
DS8 ECC PAT ØØ H
DS8 ECC PAT Ø1 H
DS8 ECC PAT Ø2 H
DS8 ECC PAT Ø3 H
DS8 ECC PAT Ø4 H
DS8 ECC PAT Ø5 H
IF2 CONT ØØ
IF2 CONT Ø1
IF2 CONT Ø2
IF2 CONT Ø3
IF2 CONT Ø4
IF2 CONT Ø5
IF6 EN REG TO TST H
IF5 RM EC2 H
DS8 ECC PAT Ø6 H
DS8 ECC PAT Ø7 H
DS8 ECC PAT Ø8 H
DS8 ECC PAT Ø9 H
DS8 ECC PAT 1Ø H
IF2 CONT Ø6
IF2 CONT Ø7
IF2 CONT Ø8
IF2 CONT Ø9
IF2 CONT 1Ø
IF5 RM EC1 H
ECC POSITION TO CONTROL BUS
DS1Ø ECC POS N 11 H
DS1Ø ECC POS N 1Ø H
DS1Ø ECC POS N Ø9 H
DS1Ø ECC POS N Ø8 H
DS1Ø ECC POS N Ø7 H
DS1Ø ECC POS N Ø6 H
IF2 CONT 11
IF2 CONT 1Ø
IF2 CONT Ø9
IF2 CONT Ø8
IF2 CONT Ø7
IF2 CONT Ø6
DS1Ø ECC POS N Ø5 H
DS1Ø ECC POS N Ø4 H
DS1Ø ECC POS N Ø3 H
DS1Ø ECC POS N Ø2 H
DS1Ø ECC POS N Ø1 H
DS1Ø ECC POS N ØØ H
IF2 CONT Ø5
IF2 CONT Ø4
IF2 CONT Ø3
IF2 CONT Ø2
IF2 CONT Ø1
IF2 CONT ØØ
DS9 EC1 TO CONT L
NOTE: A. SEE DS13 FOR BIT 12 OF POSITION REGISTER TO CONTROL BUS.
POSITION AND PATTERN GATED TO CONTROL BUS
(DS9)
DATA SEQUENCER
D CS M 7685-YA-1 C
SHEET 9 OF 15
CZ 1

POSITION MAXIMUM COUNT DECODE

+5V
R1 1K
+3V D

DS1Ø ECC POSN 12H
DS1Ø ECC POSN Ø5H
DS1Ø COUNT POSN H
DS3 FMT 18 H
DS1Ø ECC POSN Ø9 H
DS8 CORRECTION CLK L
DS1Ø COUNT POSN H
DS8 NON ZERO ECC H
DS1Ø SET POS H
DS7 ECC CLOCK H
DS8 CLEAR ECC A L
DS3 CLEAR ECC L
START COUNTING POSITION
DS1Ø ECH H (NOT USED)
CS1 DS1Ø ECH SET L
DS8 EN CORRECTION H
DS1Ø ECC DONE H
DS1Ø ECC DONE L
DS8 CLK SET L
DS7 SHIFT CLOCK H
DS1Ø DONE OR ECH L
DS1Ø EN CORRECT CLK L
DS1Ø EN LOAD POS L
DS1Ø CORRECTION CLK L

POSITION COUNTER

+3V D
DS1Ø ECC POSN 12 H
DS1Ø ECC POSN Ø4 H
DS1Ø ECC POSN Ø5 H
DS1Ø ECC POSN Ø6 H
DS1Ø ECC POSN Ø7 H
ZP PRECLEAR TEST L
DS7 ECC CLOCK H
DS1Ø EC CAR 1 IN H
DS1Ø SET POS H
DS3 FMT 18 H
DS1Ø ECC POSN Ø8H
DS1Ø ECC POSN Ø9H
DS1Ø ECC POSN 10H
DS1Ø ECC POSN 11 H
DS1Ø EC CAR 2 IN H
DS1Ø EN LOAD POS L
DS7 ECC CLOCK H
DS1Ø EC CAR 1 IN H
DS1Ø EC CAR 2 OUT H
DS1Ø DONE OR ECH L
DS8 EN CORRECTION H
DS1Ø EC CAR 1 OUT H
DS1Ø ECC POSN Ø-3H
DS1Ø ECC POSN Ø1 H
DS1Ø ECC POSN Ø2H
DS1Ø ECC POSN Ø3H

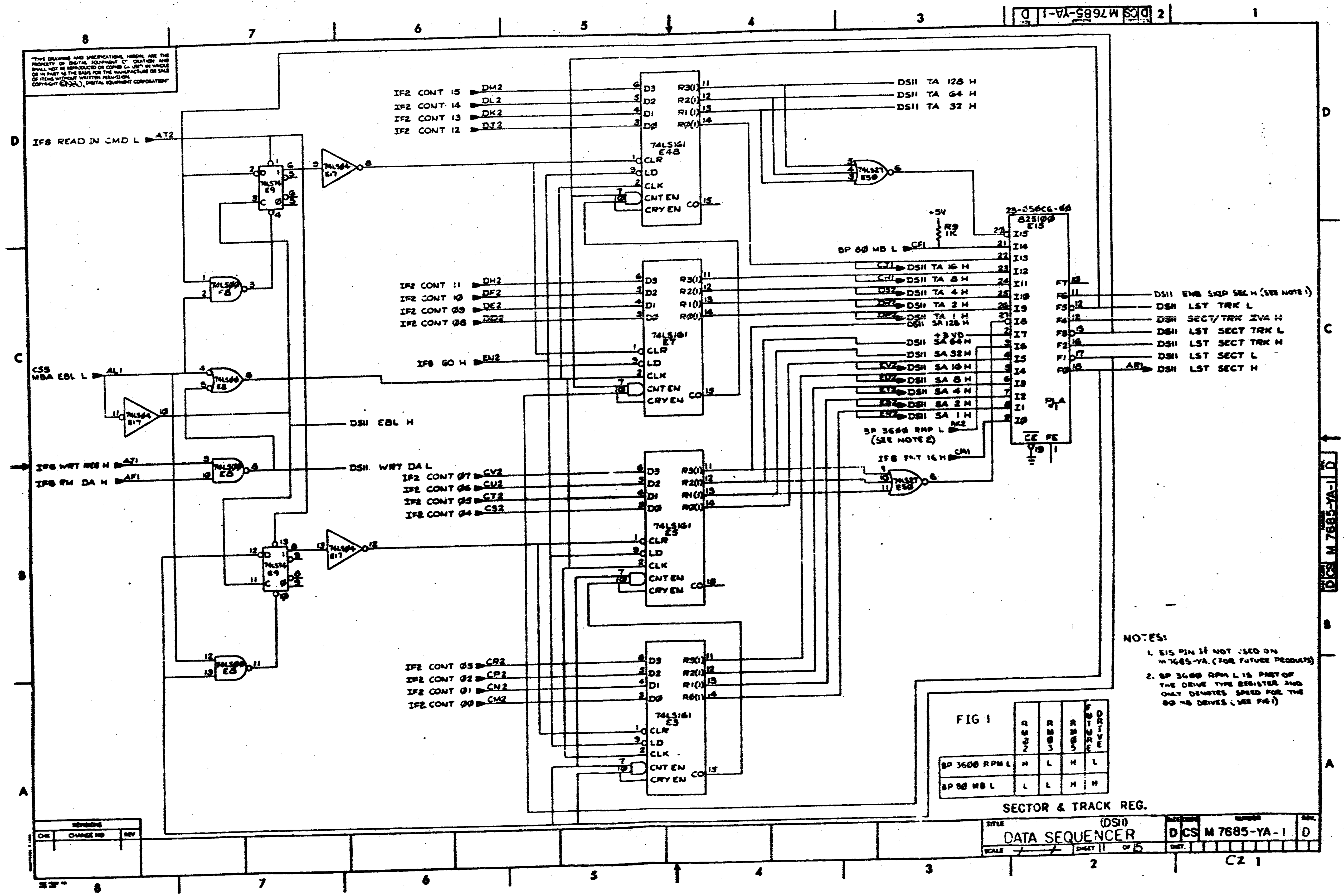
NOTES: 1. AAI AND ABI ARE CONNECTED ON THE BACKPLANE.
2. ACI AND ADI ARE CONNECTED ON THE BACKPLANE.
3. THESE RUNS WERE SPLIT ON THE MODULE TO SPEED UP TESTING OF THE MODULE.

POSITION COUNTER AND CORRECTION CONTROL LOGIC

REVISIONS		
ECO	CHANGE NO.	REV.

TITLE	DATA SEQUENCER (DSIØ)	DCS	M 7685-YA-1
SCALE	SHEET 10 OF 15		REV. D

CZ 1



IF2 CONT 15
IF2 CONT 14
IF2 CONT 13
IF2 CONT 12
IF8 READ IN CMD L
74LS161 E48
DSII TA 128 H
DSII TA 64 H
DSII TA 32 H
74LS27 E50
+5V
R9 1K
BP 80 MB L
23-356C6-00 82S100 E15
DSII TA 16 H
DSII TA 8 H
DSII TA 4 H
DSII TA 2 H
DSII TA 1 H
DSII SA 128 H
+3 VD
DSII SA 64 H
DSII SA 32 H
DSII SA 16 H
DSII SA 8 H
DSII SA 4 H
DSII SA 2 H
DSII SA 1 H
BP 3600 RMP L (SEE NOTE 2)
IF8 FNT 16 H
PLA
DSII ENB SKIP SEC H (SEE NOTE 1)
DSII LST TRK L
DSII SECT/TRK ZVA H
DSII LST SECT TRK L
DSII LST SECT TRK H
DSII LST SECT L
DSII LST SECT H
IF2 CONT 11
IF2 CONT 10
IF2 CONT 09
IF2 CONT 08
74LS161 E7
CSS MBA EBL L
IF8 GO H
DSII EBL H
IF8 WRT REG H
IF8 FM DA H
DSII WRT DA L
IF2 CONT 07
IF2 CONT 06
IF2 CONT 05
IF2 CONT 04
74LS161 E3
74LS74 E9
74LS04 E17
74LS00 E8
IF2 CONT 03
IF2 CONT 02
IF2 CONT 01
IF2 CONT 00
NOTES:
1. E15 PIN 11 NOT USED ON M7685-YA. (FOR FUTURE PRODUCTS)
2. BP 3600 RPM L IS PART OF THE DRIVE TYPE REGISTER AND ONLY DENOTES SPEED FOR THE 80 MB DRIVES (SEE FIG 1)
FIG 1
RM02
RM03
RM05
FUTURE DRIVE
BP 3600 RPM L H L H L
BP 80 MB L L L H H
SECTOR & TRACK REG.
(DSII)
DATA SEQUENCER
D CS M 7685-YA-1 D
SHEET 11 OF 15

IF2 CONT Ø9 ▶ DE2
IF2 CONT Ø8 ▶ DD2
IF8 READ IN CMD L ▶ AT2
IF8 GO H ▶ EN2
74LS161 E21
D3 D2 D1 D0 R3(I) R2(I) R1(I) R0(I) CLR LD CLK CNT EN CRY EN CO
CSS MBA EBL L ▶ AL1
74S00 E2
IF6 WRT REG H ▶ AT1
IF8 RM DC H ▶ AK1
74S00 E2
IF2 CONT Ø7 ▶ CV2
IF2 CONT Ø6 ▶ CU2
IF2 CONT Ø5 ▶ CT2
IF2 CONT Ø4 ▶ CS2
74LS161 E20
DS12 LST SECT TRK H ▶ FK2
74S74 E18
DS11 EBL H
IF8 OFFSET MODE H ▶ AP1
DS12 CLR OFF MID L ▶ AN1
CLEAR OFFSET MODE
DS12 DC CARI INH ▶ AE2
LAST BLOCK TRANSFERRED
DS12 LST H ▶ AN1
DS12 LAST ADD H ▶
IF2 CONT Ø3 ▶ CR2
IF2 CONT Ø2 ▶ CP2
IF2 CONT Ø1 ▶ CN2
IF2 CONT Ø0 ▶ CM2
74LS161 E12
DS11 WRT DA L ▶
CS4 POWER OK H ▶ CE1
74S00 E3
SA2 RUN H ▶ EC1
DS12 LBT H ▶
74S26 E76
BP2 ▶ DS12 DC 512 H
EN2 ▶ DS12 DC 256 H
BL2 ▶ DS12 DC 64 H
BM2 ▶ DS12 DC 128 H
BN2 ▶ DS12 DC 16 H
BK2 ▶ DS12 DC 32 H
BP2 ▶ DS12 DC 4 H
BN2 ▶ DS12 DC 8 H
BG2 ▶ DS12 DC 1 H
BE2 ▶ DS12 DC 2 H
AD2 ▶ DS12 DC CAR I OUT H
FK2 ▶ DS12 LST SECT TRK H
DS11 SECT/TRK IVA H
+5V
R19 1K
BP DC OPTION ▶ CD1
IF8 SCH SK R OR W L ▶ AS2
DS11 EBL H
23-022C6-00
82S129 E16
PLA
I15 I14 I13 I12 I11 I10 I9 I8 I7 I6 I5 I4 I3 I2 I1 I0
F7 F6 F5 F4 F3 F2 F1 F0
CE PE
AM2 ▶ DS12 MAX CYL L
AN2 ▶ DS12 ADR SET L
DS12 LAST ADD H
CS3 SET PULSE H ▶ AR2
74S00 E1
DS12 ADR SET L

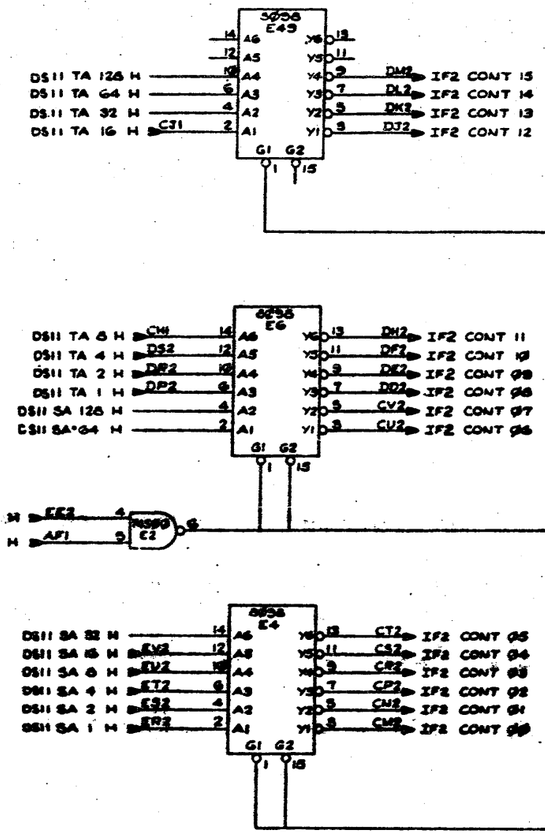
NOTE: AD2 AND AE2 ARE CONNECTED ON THE BACKPLANE. (RUN IS SPLIT TO SPEED UP TESTING OF THE MODULE)

DESIRED CYLINDER REG.

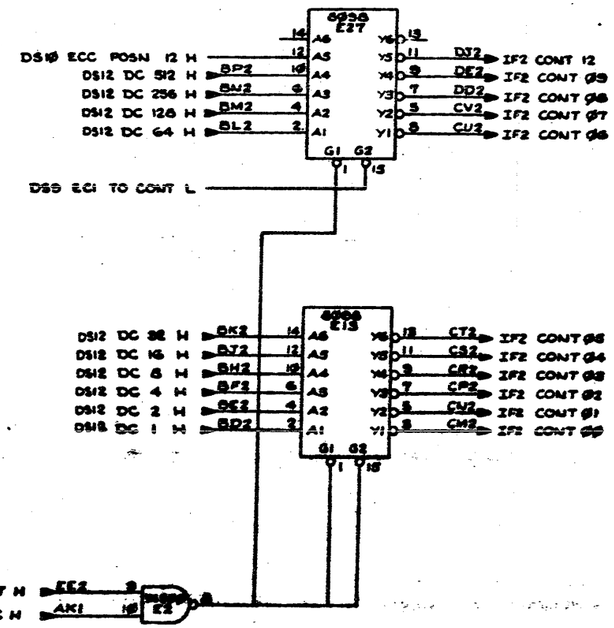
REVISIONS		
ZONE	CHANGE NO.	REV.

TITLE	DATA SEQUENCER (DS12)	SIZE/CODE	NUMBER / REV.
SCALE	SHEET 12 OF 15	D DCS	M 7685-YA-1 D
		DIST.	CZ 1

SECTOR/TRACK TO CONTROL BUS



DESIRED CYLINDER TO CONTROL BUS



REVISIONS		
ECN	CHANGE NO.	REV.

SECT/TRACK/DC GATED TO CONTROL BUS (DS13)

TITLE	SIZE	CODE	NUMBER	REV.
DATA SEQUENCER	D	CS	M7685-YA-1	D
SCALE	SHEET 13 OF 15		DWG.	

CZ1

AA1	DS10 EC CAR 1 OUT H
AB1	DS10 EC CAR 1 IN H
AC1	DS10 EC CAR 2 OUT H
AD1	DS10 EC CAR 2 IN H
AE1	DS7 ECC CLOCK H
AF1	IF5 RM DA H
AH1	SPARE
AJ1	IF6 WRT REG H
AK1	IF5 RM DC H
AL1	CS5 MBA EBL L
AM1	DS12 CLR OFF MD L
AN1	DS12 LBT H
AP1	IF8 OFFSET MODF H
AR1	DS11 LST SECT H
AS1	DS10 ECC DONE H
AT1	GND
AU1	IF5 RM EC1 H
AV1	IF5 RM EC2 H

BA1	DS3 MB 00 L
BB1	DS3 MB 01 L
BC1	DS3 MB 02 L
BC1	DS3 MB 03 L
BE1	DS3 MB 04 L
BF1	DS3 MB 05 L
BH1	DS3 MB 06 L
BJ1	DS3 MB 07 L
BK1	DS3 MB 08 L
BL1	DS3 MB 09 L
BM1	DS3 MB 10 L
BN1	DS3 MB 11 L
BP1	DS3 MB 12 L
BR1	DS3 MB 13 L
BS1	DS3 MB 14 L
BT1	GND
BU1	DS3 MB 15 L
BV1	DS3 MB 16 L

CA1	DS8 DCK SET L
CB1	CS5 DTE SET L
CC1	CS3 SECT/INDEX L
CD1	BP DC OPTION
CE1	CS4 POWER OK H
CF1	BP 80 MB L
CH1	DS11 TA 8 H
CJ1	DS11 TA 16 H
CK1	IF8 HCI L
CL1	IF8 ECI L
CM1	IF8 FMT 16 H
CN1	DS6 FER SET L
CP1	DS5 WCF SET L
CR1	DS5 MB SCLK L
CS1	DS10 ECH SET L
CT1	GND
CU1	DS6 HCE SET L
CV1	DS5 HCRC SET L

DA1	SA1 MB TSB 00 H
DB1	SA1 MB TSB 01 H
DC1	SA1 MB TSB 02 H
DC1	SA1 MB TSB 03 H
DE1	SA1 MB TSB 04 H
CF1	SA1 MB TSB 05 H
DH1	SA1 MB TSB 06 H
DJ1	SA1 MB TSB 07 H
DK1	SA1 MB TSB 08 H
DL1	SA1 MB TSB 09 H
DM1	SA1 MB TSB 10 H
DN1	SA1 MB TSB 11 H
DP1	SA1 MB TSB 12 H
DR1	SA1 MB TSB 13 H
DS1	SA1 MB TSB 14 H
DT1	GND
DU1	SA1 MB TSB 15 H
DV1	SA1 MB TSB 16 H

EA1	DS8 SET BSE L
EB1	RD1 RD CLK H
EC1	SA2 RUN H
ED1	RD1 RD DATA H
EE1	BP 144 ENB H
EF1	DS7 WRITE DATA L
EH1	SPARE
EJ1	DS7 SHIFT CLOCK L
EK1	SPARE
EL1	SPARE
EM1	RD1 SERVO CLK L
EN1	SPARE
EP1	DS3 SYNC PAR SET H
ER1	CS5 READ GATE H
ES1	CS4 PRECLEAR CRC/ECC L
ET1	GND
EU1	CS4 P EN LOAD SR H
EV1	CS4 DS WRITE GATE H

FA1	CS4 P HEADER AREA H
FB1	SPARE
FC1	CS4 P DATA AREA H
FD1	DS5 CRC DONE H
FE1	CS4 P DATA EN SCLK H
FF1	CS5 READ GATE FAST H
FH1	CS4 P EN EBL H
FJ1	CS4 LAST READ DATA L
FK1	CS4 P READ GATE H
FL1	SPARE
FM1	CS4 P LFS H
FN1	DS4 EN ECC OUT H
FP1	CS4 P EN CRC OUT H
FR1	DS4 EN CRC OUT H
FS1	CS4 P EN ECC OUT H
FT1	GND
FU1	SPARE
FV1	SPARE

AA2	+5V
AB2	−15V
AC2	GND
AD2	DS12 DC CAR 1 OUT H
AE2	DS12 DC CAR 1 IN H
AF2	SPARE
AH2	SPARE
AJ2	SPARE
AK2	BP 3600 RPM
AL2	DS8 HEADER FIRST H
AM2	DS12 MAX CYL L
AN2	DS12 AOE SET L
AP2	DS12 IAE SET L
AR2	CS3 SET PULSE H
AS2	IF8 SCH SK R OR W L
AT2	IF8 READ IN CMD L
AU2	DS10 EN CORRECT CLK L
AV2	BP TEST L

BA2	+5V
BB2	−15V
BC2	GND
BD2	DS12 DC 1 H
BE2	DS12 DC 2 H
BF2	DS12 DC 4 H
BH2	DS12 DC 8 H
BJ2	DS12 DC 16 H
BK2	DS12 DC 32 H
BL2	DS12 DC 64 H
BM2	DS12 DC 128 H
BN2	DS12 DC 256 H
BP2	DS12 DC 512 H
BR2	CS5 TRNSCEIVR EN B H
BS2	CS5 TRNSCEIVR EN A H
BT2	CS4 READ HEADER H
BU2	SA2 MB SYNC PAR H
BV2	DS3 MB 17 L

CA2	+5V
CB2	−15V
CC2	GND
CD2	CS4 EN SYNC H
CE2	SB2 WRT CLK B H
CF2	SA2 WRT CLK A H
CH2	DS8 SYNC DET H
CJ2	DS4 WORD CLK H
CK2	DS4 WORD CLK L
CL2	DS4 PROM STROBE H
CM2	IF2 CONT 00
CN2	IF2 CONT 01
CP2	IF2 CONT 02
CR2	IF2 CONT 03
CS2	IF2 CONT 04
CT2	IF2 CONT 05
CU2	IF2 CONT 06
CV2	IF2 CONT 07

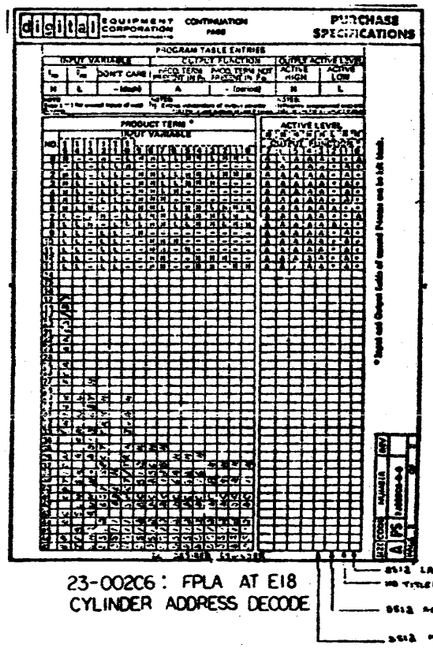
DA2	+5V
DB2	−15V
DC2	GND
DD2	IF2 CONT 08
DE2	IF2 CONT 09
DF2	IF2 CONT 10
DH2	IF2 CONT 11
DJ2	IF2 CONT 12
DK2	IF2 CONT 13
DL2	IF2 CONT 14
DM2	IF2 CONT 15
DN2	CS5 EN ECC CLOCK L
DP2	DS11 TA 1 H
DR2	DS11 TA 2 H
DS2	DS11 TA 4 H
DT2	CS3 MBA CLR L
DU2	CS5 EN CRC CLOCK L
DV2	SA1 MB TSB 17 H

EA2	+5V
EB2	−15V
EC2	GND
ED2	IF8 ABORT L
EE2	IF6 EN REG TO TEST H
EF2	CS8 DIAG L
EH2	IF8 F0 H
EJ2	CS8 MAINT CLK H
EK2	IF8 F2 H
EL2	CS8 MAINT CLK L
EM2	CS8 MB READ DATA H
EN2	IF8 GO H
EP2	CS3 RESET GO L
ER2	DS11 SA 1 H
ES2	DS11 SA 2 H
ET2	DS11 SA 4 H
EU2	DS11 SA 8 H
EV2	DS11 SA 16 H

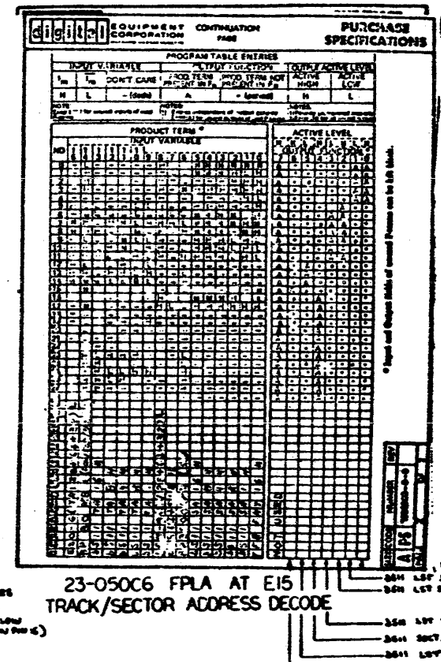
FA2	+5V
FB2	−15V
FC2	GND
FD2	BP PRECLEAR TEST L
FE2	DS12 LST SECT TRK H
FF2	IF10 DCK H
FH2	DS5 CRC ER H
FJ2	CS2 FORMAT H
FK2	CS4 P EN CSK L
FL2	DS4 WRITE TIME H
FM2	DS7 BC SET L
FN2	DS4 WORD TIME H
FP2	SPARE
FR2	DS3 EN PAR GEN H
FS2	DS3 EN PAR CHECK H
FT2	DS3 PARITY ODD H
FU2	DS7 BIT CLOCK H
FV2	DS4 ECC WRD CNT INH L

I/O SIGNAL LIST
(DS14)
TITLE DATA SEQUENCER
SIZE D CODE CS NUMBER M 7685-YA-1 REV. D
SCALE SHEET 4 OF 5

CZ 1



23-002C6 : FPLA AT E18
CYLINDER ADDRESS DECODE



23-050C6 FPLA AT E15
TRACK/SECTOR ADDRESS DECODE

* ALWAYS HIGH FOR M7685-YA, THIS PIN IS FOR FUTURE PRODUCTS.

** BP 3600 RPM L IS PART OF THE DRIVE TYPE RB6 AND ONLY DENOTES SPEED FOR 80 MB DRIVES (SEE FIG 1).

FIG 1

	RMB2	RMB3	RMB5	FUTURE DRIVE
BP 3600 RPM L	H	L	H	L
BP 80 MB L	L	L	H	H

REVISIONS		
ONE	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
DATA SEQUENCER	D	CS	M7685-YA-1	D
SCALE —	SHEET 15 OF 15		DWG	

AUTOMATED BY PRTLST.3L(40)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION YA	REFERENCE DESIGNATOR
1	1	D-MD-5012485-0-0	5012485-00	M7685	1	
2	2		1001610-01	.01 MFD 100V -20+80 Z5U DISC	113	C1-C110,C118-C120
3	3		1017472-00	10 MFD 35V +50-10% AL EL	6	C111-C116
4	4		1000010-00	39.0 MMF 100V 5%200PPM DM15S	2	C117,C121
5	5		1210711-02	HANDLE,MODULE,HEX	1	
6	6		9000024-01	EYELET, ROLLED FLANGE, .121 OD X	12	
7	7		1300365-00	1.0 K .25 W 5.0 % CC	11	R1-R5,R7,R8,R9,R10,R11,R12
8	8		1302394-00	30.0 K .25 W 5.0 % CC	1	R6
9	9		1912799-00	LS00 NAND-GATE-QUAD 2IN,P	2	E8,E81
10	10		1910532-00	74S00 NAND GATE-QUAD 2IN	7	E1,E2,E39,E56,E63,E67,E109
11	11		1912388-00	74S02 NOR GATE-QUAD 2IN,PO	1	E110
12	12		1912803-00	LS04 INVERTER GATE-HEX 1I	5	E17,E19,E33,E44,E54
13	13		1910534-00	74S04 INVERTER GATE-HEX 1I	3	E89,E91,E95
14	14		1912805-00	LS08 AND GATE-QUAD 2IN,PO	2	E43,E45
15	15		1912389-00	74S08 AND GATE-QUAD 2IN,PO	3	E76,E84,E106
16	16		1910536-00	74S10 NAND GATE-TRIPLE 3IN	2	E97,E108
17	17		1910537-00	74S11 AND GATE-TRIPLE 3INP	3	E57,E72,E87
18	18		1912801-00	LS02 NOR-GATE-QUAD 2IN	1	E24
19	19		1910539-00	74S20 NAND GATE-DUAL 4INPU	2	E41,E80
20	20		1914086-00	74S30 NAND GATE-POS 8IN	2	E59,E92
21	21		1913340-00	74S32 OR GATE-QUAD 2IN	1	E111
22	22		1912820-00	LS51 A-O-I GATE 2-WIDE 2I	1	E96
23	23		1911712-00	74S51 AND-OR GATE-INVERT D	3	E86,E93,E102
24	24		1910544-00	74S74 FF-D DUAL,EDGE TRIGG	12	E32,E40,E51,E58,E70,E82,E83,E88
					CONT	E98,E99,E101,E107
25	25		1912824-00	LS74 FF-D DUAL,EDGE TRIGG	4	E9,E10,E79,E85
26	26		1912828-00	LS85 COMPARATOR,4BIT MAGN	4	E34,E35,E36,E47
27	27		1912096-00	DEC 74S86 XOR GATE,QUAD 2IN	2	E66,E77
28	28		1910545-00	74S112 FF-JK DUAL,EDGE TRIG	1	E100
29	29		1910436-00	DEC 74123 ONE SHOT-DUAL,RETRIG	1	E69

RPd 26 Feb 80

REVISION HISTORY		
ENG	ECO NUMBER	REV
	INITIAL	D

BASIC PART NO: M7685

SECTION A OF A

SECTION.VARIATION INDEX

[A] YA
[B]
[C]
[D]
[E]
[F]
[H]
[J]
[K]
[L]
[M]
[N]

DRN: K. DAVIS	DATE: 6-FEB-80	D I G I T A L
CHK'D: R. MICHAUD	DATE: 21-FEB-80	TITLE: PARTS LIST DATA SEQUENCER
DES.ENG: C.DUNIGAN	DATE: 21-FEB-80	
RESP.ENG.: C. DUNIGAN	DATE: 21-FEB-80	DOCUMENT NUMBER
MFG.ENG.: D. CLARLIN	DATE: 21-FEB-80	SIZE: K; CODE: PL; NUMBER: M7685-YA-DBP; REV: D
ASSEMBLY NUMBER: D-UA-M7685-YA-0	TOP DOCUMENT NUMBER: $B-DD-M7685-YA	FILE NAME: Z1189D.PLS; EDIT #: 8

AUTOMATED BY PRTLST,3L(40)

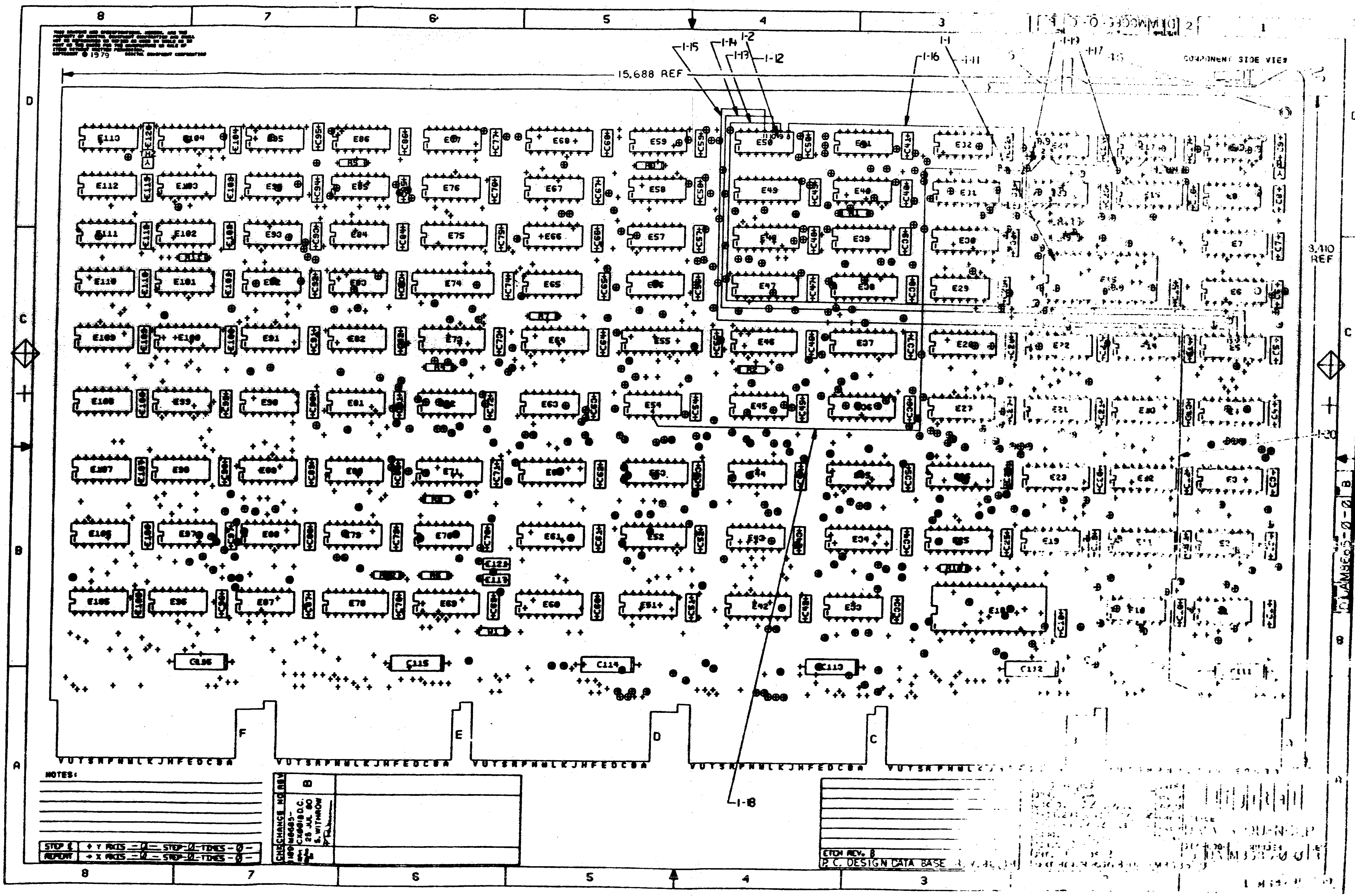
PARTS LIST

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION YA	REFERENCE DESIGNATOR
30	30		1912847-00	LS157 MUX 1 OF 2(QUAD)	4	E25,E26,E28,E30
31	31		1914082-00	74S163 COUNTER,SYNCH UP/DOW	5	E11,E14,E22,E46,E61
32	32		1912850-00	LS164 SHIFT REG, 8BIT SERI	3	E29,E103,E112
33	33		1912853-00	LS175 FF-D QUAD	3	E42,E68,E104
34	34		1910552-00	74S194 SHIFT REG,,4BIT RIGH	1	E75
35	35		1914085-00	74S260 NOR GATE-DUAL,POS	2	E94,E113
36	36		1914084-00	74S299 SHIFT REG,,8BIT RIGH	2	E55,E74
37	37		1911527-00	8097 BUFFER GATE-HEX 2INP	3	E71,E73,E78
38	38		1914087-00	8098 BUFFER GATE-HEX 2IN,	9	E4,E6,E13,E16,E27,E31,E37,E38,
					CONT	E49
39	39		1914083-00	8542 REGISTER,I/O-QUAD,TR	5	E52,E53,E60,E62,E64
40	40		1913474-00	9401 GENERATOR/CHECKER CR	1	E90
41	41		1912807-00	LS10 NAND GATE-TRIPLE 3IN	1	E105
42	42		1912849-00	LS161 COUNTER,SYNCHR,4BIT	7	E3,E5,E7,E12,E20,E21,E48
43	43		23050C6-00	C6-01	1	E15
44	44		1912813-00	LS27 NOR GATE-TRIPLE 3IN	1	E50
45	45		23002C6-00	C6-01	1	E18
46	46		9009185-00	JUMPER, WIRE, INSULATED, BLACK B	1	W1
47	47		9105740-55	WIRE(WRAP)30AWG UL1423	A/R	

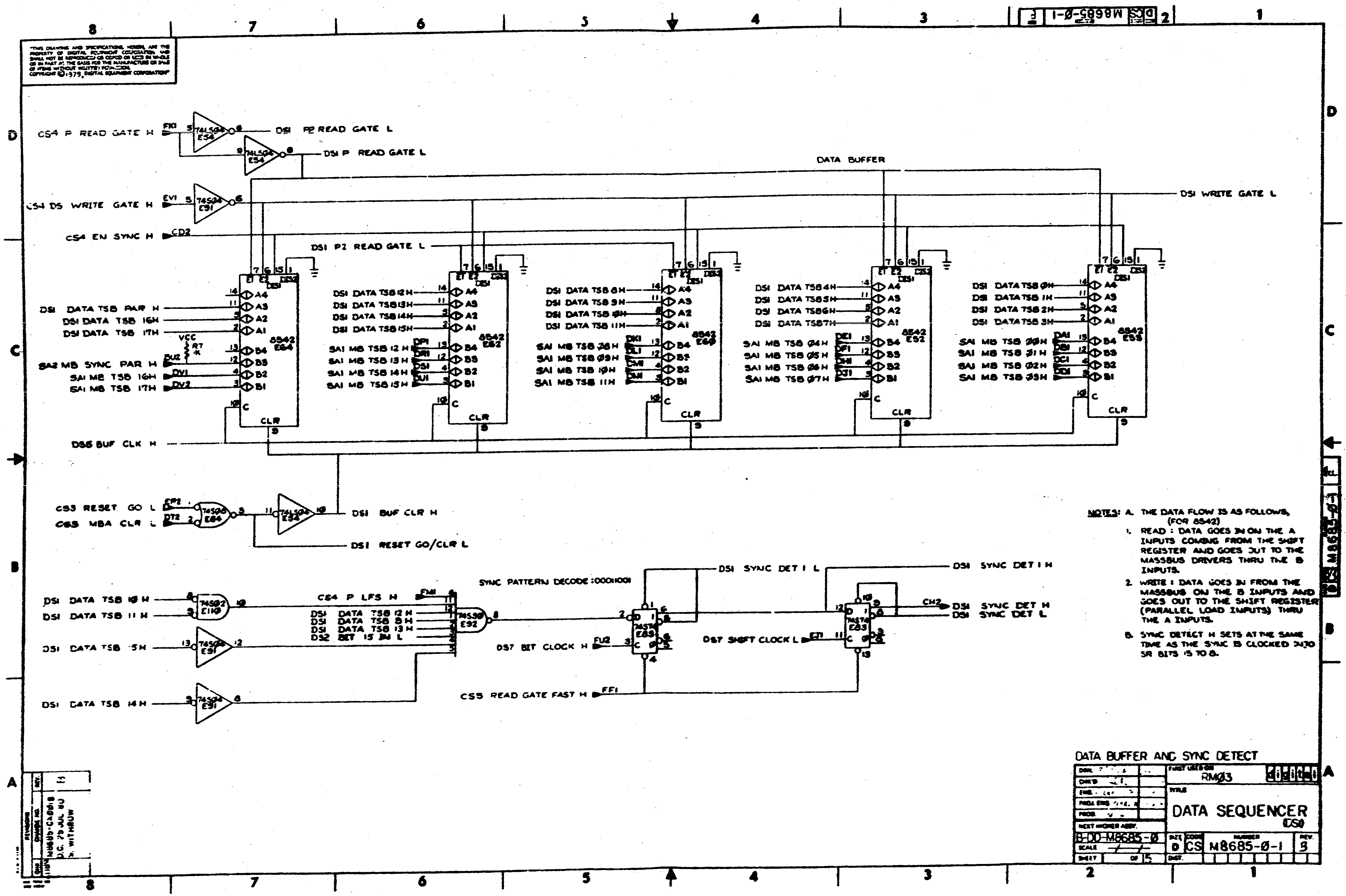
SIZE	CODE	DOCUMENT NUMBER	REV
K	FL	M7685-YA-DBP	D

DIGITAL

TITLE DATA SEQUENCER



15.688 REF
COMPONENT SIDE VIEW
3.410 REF
NOTES:
ETCH REV. B
P.C. DESIGN DATA BASE


DATA BUFFER
CS4 P READ GATE H
DSI P2 READ GATE L
DSI P READ GATE L
CS4 DS WRITE GATE H
DSI WRITE GATE L
CS4 EN SYNC H
DSI P2 READ GATE L
DSI DATA TSB PAR H
DSI DATA TSB 16H
DSI DATA TSB 17H
SA2 MB SYNC PAR H
SAI MB TSB 16H
SAI MB TSB 17H
8542 E64
DSI DATA TSB12H
DSI DATA TSB13H
DSI DATA TSB14H
DSI DATA TSB15H
SAI MB TSB 12 H
SAI MB TSB 13 H
SAI MB TSB 14 H
SAI MB TSB 15 H
8542 E62
DSI DATA TSB 8H
DSI DATA TSB 9H
DSI DATA TSB 10H
DSI DATA TSB 11H
SAI MB TSB 08H
SAI MB TSB 09H
SAI MB TSB 10H
SAI MB TSB 11H
8542 E60
DSI DATA TSB4H
DSI DATA TSB5H
DSI DATA TSB6H
DSI DATA TSB7H
SAI MB TSB 04H
SAI MB TSB 05H
SAI MB TSB 06H
SAI MB TSB 07H
8542 E52
DSI DATA TSB 0H
DSI DATA TSB 1H
DSI DATA TSB 2H
DSI DATA TSB 3H
SAI MB TSB 00H
SAI MB TSB 01H
SAI MB TSB 02H
SAI MB TSB 03H
8542 E58
DS6 BUF CLK H
CS3 RESET GO L
CS5 MBA CLR L
DSI BUF CLR H
DSI RESET GO/CLR L
SYNC PATTERN DECODE :0001001
DSI SYNC DET 1 L
DSI SYNC DET 1 H
DSI DATA TSB 10 H
DSI DATA TSB 11 H
DSI DATA TSB 15 H
DSI DATA TSB 14 H
CS4 P LFS H
DSI DATA TSB 12 H
DSI DATA TSB 8 H
DSI DATA TSB 13 H
DS2 BIT 15 IN L
DS7 BIT CLOCK H
DS7 SHIFT CLOCK L
DSI SYNC DET H
DSI SYNC DET L
CS5 READ GATE FAST H
NOTES: A. THE DATA FLOW IS AS FOLLOWS, (FOR 8542)
1. READ : DATA GOES IN ON THE A INPUTS COMING FROM THE SHIFT REGISTER AND GOES OUT TO THE MASSBUS DRIVERS THRU THE B INPUTS.
2. WRITE : DATA GOES IN FROM THE MASSBUS ON THE B INPUTS AND GOES OUT TO THE SHIFT REGISTER (PARALLEL LOAD INPUTS) THRU THE A INPUTS.
B. SYNC DETECT H SETS AT THE SAME TIME AS THE SYNC IS CLOCKED INTO SR BITS 15 TO 8.
DATA BUFFER AND SYNC DETECT
RM03
digital
DATA SEQUENCER (DS)
B-DD-M8685-0
D CS M8685-0-1 B

SHIFT REGISTER

DS2 DATA IN H
DS5 15 BIT L
DS5 15 BIT H
DS2 SR 15 H
DS2 SR 17 H
DS1 DATA TSB 17 H
DS1 DATA TSB 16 H
CS5 READ GATE H
RDI RD DATA H
DS2 EN SR L
DS2 EN SI H
CS5 MBA CLR L
DS7 SHIFT CLOCK H
74S194 E73
74S64 E76
74S51 E93

DS2 BIT 15 IN L
DS1 P2 READ GATE L
DS1 DATA TSB 0H
DS1 DATA TSB 9H
DS1 DATA TSB 10H
DS1 DATA TSB 11H
DS1 DATA TSB 12H
DS1 DATA TSB 13H
DS1 DATA TSB 14H
DS1 DATA TSB 15H
+3V B
74S240 E74
74S04 E51
DS7 SHIFT CLOCK H

DS2 EN SYNC L
DS5 EN LOAD SR H
CS4 EN SYNC H
CD2
74S08 E76
74S08 E67
74LS04 E54
DS2 EN SI H
DS2 EN SR L
DS2 EN SYNC L

DS1 P READ GATE L
DS2 SR 00H
DS1 DATA TSB 0H
DS1 DATA TSB 1H
DS1 DATA TSB 2H
DS1 DATA TSB 3H
DS1 DATA TSB 4H
DS1 DATA TSB 5H
DS1 DATA TSB 6H
DS1 DATA TSB 7H
74S299 E56
DS7 SHIFT CLOCK H

NOTES: A. WHILE E74 IS BEING LOADED WITH THE SYNC PATTERN, E56 IS IN A HOLD MODE AND REMAINS ALL ZEROS. THE ENTIRE WORD (SYNC + 8 ZERO BITS) IS THEN SHIFTED OUT.

B. LOADING OF THE SHIFT REGISTER OCCURS ON THE HIGH GOING EDGE OF THE CLOCK WHILE SI IS HIGH. (DS4 WRITE TIME H IS ACTIVE.)

DS8 PARITY ODD L
+3V C
DS1 DATA TSB PAR H
DS1 DATA TSB 15H
DS1 DATA TSB 14H
DS1 DATA TSB 13H
DS1 DATA TSB 12H
DS1 P2 READ GATE L
DS2 EN SYNC L
SYNC PATTERN GENERATION
4S257 E77

DS2 SR 17 H
DS2 SR 16 H
+3V B
DS1 DATA TSB 17 H
DS1 DATA TSB 16 H
DS1 DATA TSB 11 H
DS1 DATA TSB 10H
DS1 DATA TSB 9H
DS1 DATA TSB 8H
DS1 P2 READ GATE L
4S257 E79

+5V ALL A2 PINS
ALL C2 & T1 PINS
C1 THRU C110 C113,C119,C120 .01MFD
C111 THRU C116 15.0MFD

SHIFT REGISTER AND SYNC PATTERN GENERATION (WRITE)

REVISIONS		
CHG	CHANGE NO.	REV.

TITLE: DATA SEQUENCER (DS2)
SCALE: 1=1 SHEET 2 OF 15
D CS M8685-0-1 REV. B

+5V
R5
1K
+3V B

DS2 EN SYNC L
CS4 P EN LOAD SR H
DS4 WORD TIME H
CS4 DS WRITE GATE H
DS3 EN PAR GEN H
DS4 WORD TIME L
DS3 EN PAR GEN L
DS3 EN PAR CHECK H

CS5 EN CRC CLOCK L
DS3 FMT 16H
SAI MB TSB 17H
SAI MB TSB 16H
SAI MB TSB 15H
SAI MB TSB 14H
SAI MB TSB 13H
SAI MB TSB 12H
SAI MB TSB 11H
SAI MB TSB 10H
SAI MB TSB 09H
SAI MB TSB 08H
SAI MB TSB 07H
SAI MB TSB 06H
SAI MB TSB 05H
SAI MB TSB 04H
SAI MB TSB 03H
SAI MB TSB 02H
SAI MB TSB 01H
SAI MB TSB 00H
DS3 MB17L
DS3 MB16L
DS3 MB15L
DS3 MB14L
DS3 MB13L
DS3 MB12L
DS3 MB11L
DS3 MB10L
DS3 MB09L
DS3 MB08L
DS3 MB07L
DS3 MB06L
DS3 MB05L
DS3 MB04L
DS3 MB03L
DS3 MB02L
DS3 MB01L
DS3 MB00L

DS1 SYNC DET 1 L
CS4 P LFS H
DS7 BIT CLOCK L
DS4 WORD TIME H
DS7 ECC INPUT DATA L
DS1 SYNC DET L
DS3 EN PAR GEN L
DS7 CRC INPUT DATA H
DS4 WORD TIME L
DS3 PARITY ODD H
DS3 PARITY ODD L

DS3 EN PAR CHECK H
DS3 SYNC PAR SET H

CS6 TRNSCEIVR EN A H
SA2 WRT CLR A H
CS5 TRNSCEIVR EN B H
SB2 WRT CLR B H
DS5 WRT CLK L

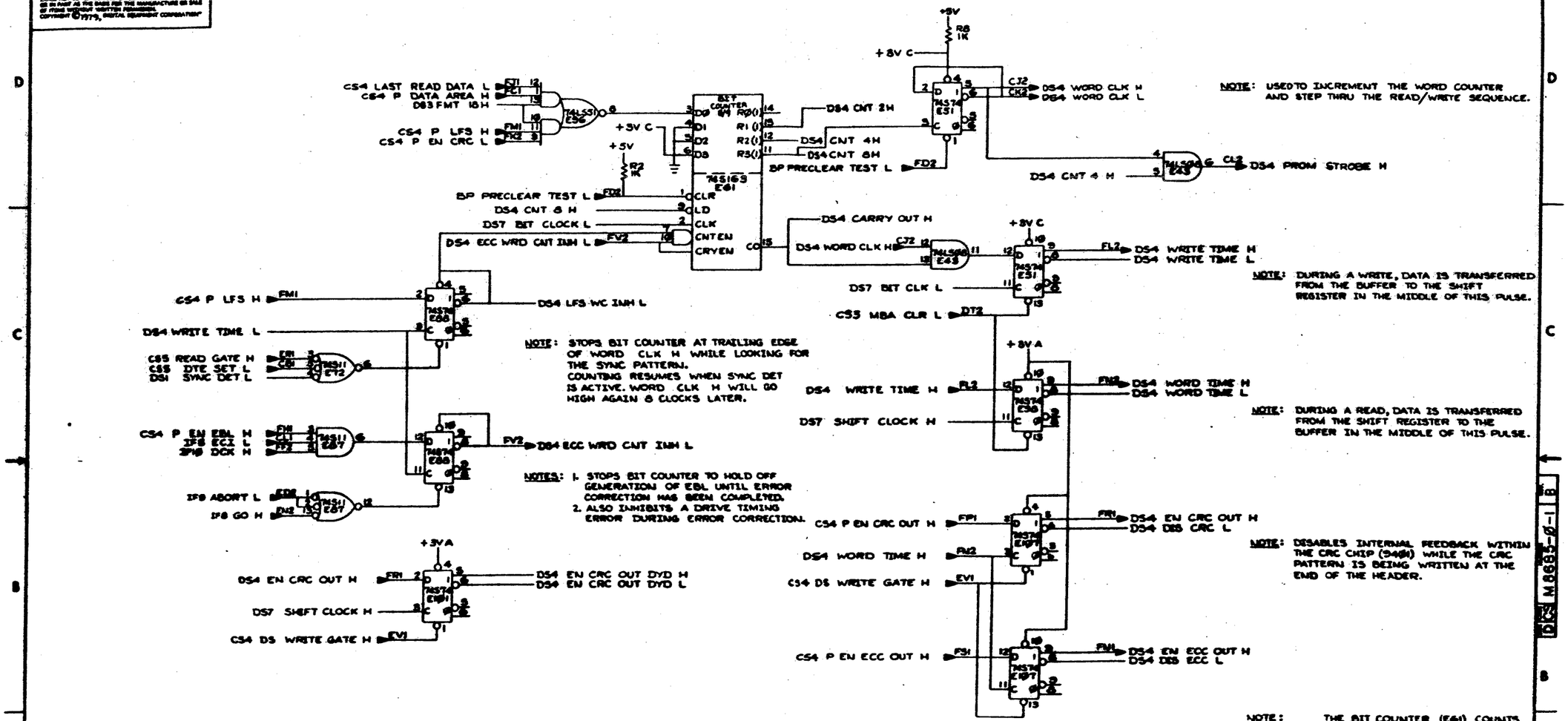
+3V C
WRITE PARITY BIT STORED
DS1 DATA TSB PAR H
DS4 WORD TIME L
IF8 FMT 16H
DS8 FMT 16 H
CS3 MBA CLR L
DS3 PARITY ODD H

DS4 WRITE TIME L
DS1 RESET GO/CLR L

REVISIONS
CHK | CHANGE NO. | REV

PARITY & DATA BUS

TITLE: DATA SEQUENCER (DS3)
SIZE: D | CODE: CS | NUMBER: M8685-Ø-1 | REV: E
SCALE: 1/1 | SHEET 3 OF 5 | SHT



REVISIONS		
CHR	CHANGE NO.	REV

WORD CLOCK/TIMING

TITLE	SIZE	CODE	NUMBER	REV.
(DS4) DATA SEQUENCER	D	CS	M8685-0-1	B
SCALE —	SHEET 4 OF 15			

+3VA

DS5 SYNC 2 NBT SCLK L

DS2 EN SYNC L

CS2 FORMAT H

NOTE: INHIBITS MAKING A REQUEST FOR DATA DURING WRITING OF THE SYNC BYTE PRECEDING THE DATA FIELD (THE FIRST REQUEST FOR DATA IS MADE WHILE WRITING SYNC BYTE PRECEDING THE HEADER FIELD)

DS5 SYNC 2 NBT SCLK L
CS4 P DATA EN SCLK H
CS4 P HEADER AREA H
IF8 FØ H

DS4 WORD TIME L

DS6 MB SCLK H
DS6 MB SCLK L

DS4 CNT 2 H
DS4 WORD CLK H
CS3 MBA CLR L

CS4 DS WRITE GATE H
CS4 P EN LOAD SR H
DS4 WRITE TIME H

DS5 EN LOAD SR H

CS4 P READ GATE H
DS4 WORD TIME H
DS7 SHIFT CLOCK L

DS6 BUF CLK H

DS3 WRT CLK L

DS4 DIS CRC L

+3VA

DS7 CRC INPUT DATA H

DS7 CRC CLOCK L

DS5 CRC OUTPUT H

DS5 CRC ER H

DS5 CRC DONE H
CS4 P EN CRC OUT H

DS5 HCRC SET L

CS4 PRECLEAR CRC/ECC L
CS3 MBA CLR L

DS5 CLEAR ECC L

DS5 CLEAR ECC A L

DS5 WRT CLK L
CS3 MBA CLR L
IF8 F2 H

WRITE CLOCK FAIL

DS4 WORD TIME H

DS5 WCF SET L

DS6 MBA SCLK H

DS1 SYNC DET 1 L
IF8 F2 H

DS5 16 BIT L

DS5 16 BIT H

CS4 P EN CRC L
DS5 FMT 16 H

CS4 P EN CRC OUT H

DS5 CRC DONE H

DS4 WORD TIME L

CS2 FORMAT H

CS3 SECT/INDEX L

NOTE: ENABLES COMMAND SEQUENCER TO ABORT IF THERE IS AN ERROR IN THE HEADER (INDICATES ENTIRE CRC HAS BEEN READ) AND ENABLES CHECKING FOR A CRC ERROR.

SCLK/CRC/WCF

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	DATA SEQUENCER (DS5)		
SIZE D	DCS M8685-Ø-1	REV. B	
SCALE 1/1	SHEET 5 OF 15		

DS13 ENB SKIP SEC H

74LS157 E38 MUX
SM MB TSB 15 H → DR1
SAI MB TSB 15 H → DU1
SAI MB TSB 14 H → DS1
DS11 TA 16 H → CJ1
SAI MB TSB 12 H → DP1
DS6 HEADER FIRST L

74LS85 E47 COMPARATOR
SAI MB TSB 15 H → DU1
SAI MB TSB 14 H → DS1
SAI MB TSB 13 H → DE1
SAI MB TSB 12 H → DP1
A>B, A=B, A<B

74LS157 E28 MUX
DS11 TA 8 H → CH1
DS11 TA 4 H → DS2
DS11 TA 2 H → DP2
DS12 DC 512 H → BP2
DS11 TA 1 H → DP2
DS12 DC 256 H → BN2
DS6 HEADER FIRST L

74LS85 E36 COMPARATOR
SAI MB TSB 11 H → DN1
SAI MB TSB 10 H → DH1
SAI MB TSB 09 H → DL1
SAI MB TSB 08 H → DK1
A>B, A=B, A<B

74LS157 E26 MUX
DS12 DC 128 H → BM2
DS12 DC 64 H → BL2
DS12 DC 32 H → BK2
DS11 SA 16 H → EV2
DS12 DC 16 H → BT2
DS6 HEADER FIRST L

74LS85 E35 COMPARATOR
SAI MB TSB 07 H → DJ1
SAI MB TSB 06 H → DH1
SAI MB TSB 05 H → DE1
SAI MB TSB 04 H → DS1
A>B, A=B, A<B

74LS157 E25 MUX
DS11 SA 8 H → EU2
DS12 DC 8 H → BH2
DS11 SA 4 H → ET2
DS12 DC 4 H → BF2
DS11 SA 2 H → ES2
DS12 DC 2 H → BE2
DS11 SA 1 H → ER2
DS12 DC 1 H → BD2
DS6 HEADER FIRST L

74LS85 E34 COMPARATOR
SAI MB TSB 03 H → DD1
SAI MB TSB 02 H → DC1
SAI MB TSB 01 H → DB1
SAI MB TSB 00 H → DA1
A>B, A=B, A<B

+5V
1K R15

SAI MB TSB 15 H → DU1
SAI MB TSB 14 H → DS1
BP 144 ENB H → BS1
DS6 HEADER FIRST H → AL2
DS6 FORMAT ER H
DS6 HEADER FIRST H → AL2
DS6 EQUAL L

74LS175 E42 4 BIT REGISTER
D3 R3(1), R3(0) → EA1 → DS6 SET BSE L
D2 R2(1), R2(0) → CN1 → DS6 FER SET L
D1 R1(1), R1(0) → DS6 HEADER FIRST L, AL2 → DS6 HEADER FIRST H
D0 R0(1), R0(0) → DS6 HCE H (NOT USED), CU1 → DS6 HCE SET L
CLK CLR

DS4 WORD CLK H → CJ2

NOTE: ERROR CHECKING IS DONE A HALF A WORD FOLLOWING LOADING OF THE BUFFER FROM THE SHIFT REGISTER.

CS4 READ HEADER H → BT2
IF8 HCI L → CK1

IF8 PNT 16 H → CN1
SAI MB TSB 12 H → DP1 → DS6 FORMAT ER H

+5V
DS6 HEADER FIRST H → DS1
SAI MB TSB 13 H → DR1
DS7 SSEZ L → CJ2
DS4 WORD CLK H → CJ2

IF2 CONT 05 → CJ2 → DS6 BSE H
DS13 RME R2 L → EL1 → DS6 SSE L
IF6 WRT REG H → AJ1

DS6 EQUAL L
CS9 MBA CLR L → DT2
DS13 ENB SKIP SEC H

HEADER COMPARE

REVISIONS		
CHG	CHANGE NO	BY

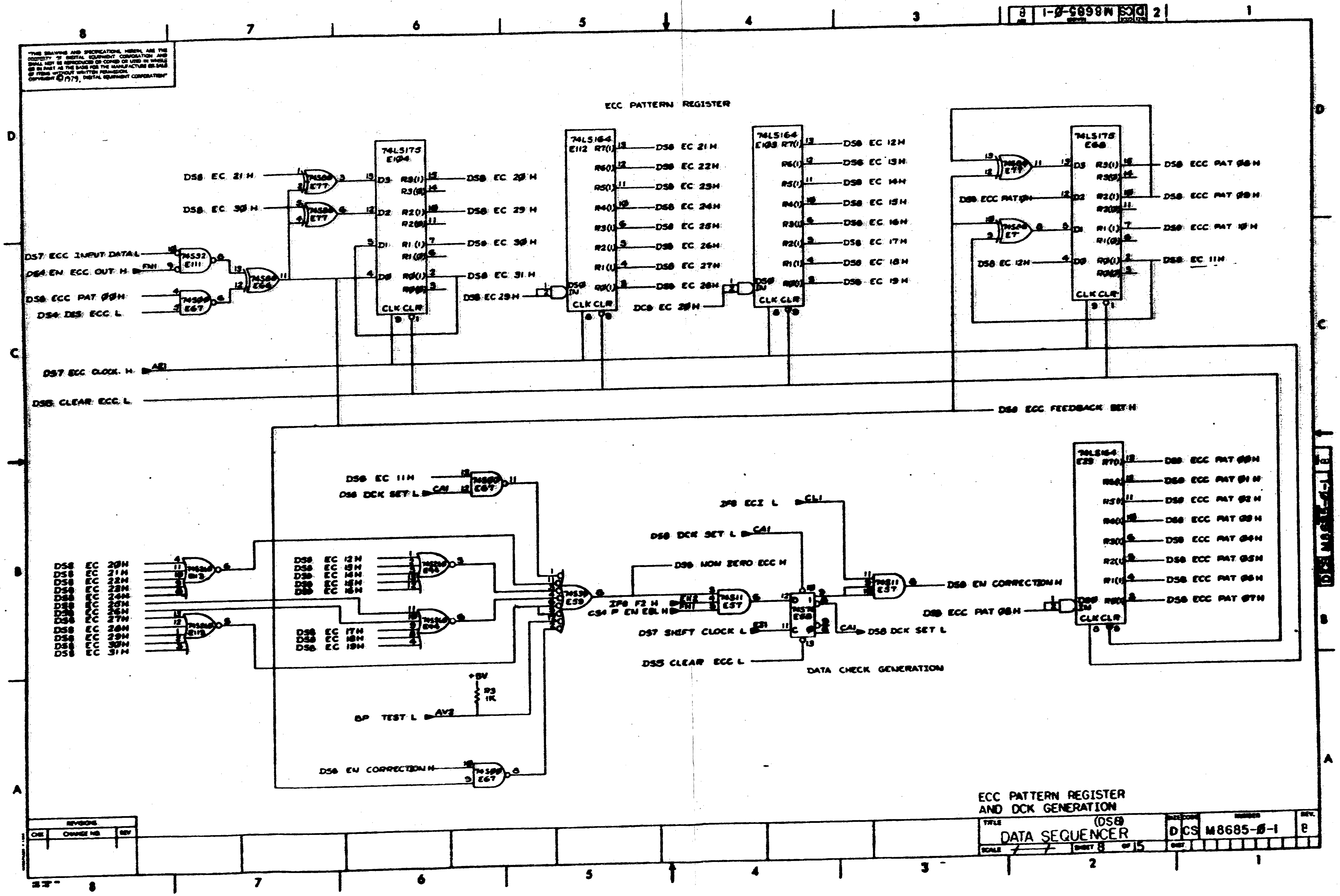
TITLE				
DATA SEQUENCER (DS6)		D	CS	M8685-00-1
SCALE —	SHEET 6 OF 15			REV B

+5V
R11 1K
+3V A
+3V B
RDI RD CLK H EB1
DS7 READ CLOCK L
CS5 READ GATE H ER1
RDI SERVO CLK L EM1
DS7 READ CLOCK L
CS6 READ GATE FAST H FF1
DS7 WRITE CLOCK ENABLE H
CS3 MBF CLR L D72
NOTE: W1 IS IN FOR RM02, OUT FOR RM03.
C121 39PF +5V
W1
C117 39 PF
RG 39K
DS7 BIT CLOCK H FU2
DS7 400 NS LBC TO H (NOT USED)
+3V C
IF8 GO H EN2
CS8 DIAG L EF2
DS7 LBC SET L FM2
DS7 CRC CLOCK L
DS8 CRC OUTPUT H
+3V A
DS7 CRC BIT LATE H
CS4 DS WRITE GATE H EV1
+3V
R4 1K
WRITE DATA GENERATION
+3V B
DS8 ECC PAT Ø Ø H
DS4 EN ECC OUT H FN1
DS2 SR Ø Ø H
DS4 EN CRC OUT H FR1
DS7 SHIFT CLOCK L EJ1
DS7 SHIFT CLOCK H
CS4 WRITE GATE H EV1
DS4 EN CRC OUT DVD L
DS7 CRC BIT LATE H
DS4 EN CRC OUT DVD H
DS7 WRITE DATA L ER1
DS7 SSEI L
CS8 MR READ DATA H EM2
CS8 MAINT CLK L EL2
CS8 MAINT CLK H EJ2
CS8 DIAG L EF2
DS13 ENA RDS TO TST L
DS13 RMOF L
DE2 IF2 CONT Ø9
FD1 RDI RD DATA H
EM1 RDI SERVO CLK L
EB1 RDI RD CLK H
IF2 CONT Ø9
DS13 RMOF L
DS6 WRT ENG L
DS7 SSEI H
DS7 SSEI L
IF8 READ IN CMD L AT2
DS11 EMB SKIP SRC H
CS6 NRM TRACK RED L
DS2 SR Ø Ø H
CS4 DS WRITE GATE H EV1
DS2 DATA IN H
CS5 READ GATE H ER1
DS7 CRC INPUT DATA H
DS7 ECC INPUT DATA L
CS5 EN CRC CLOCK L DU2
CS5 EN ECC CLOCK L DN2
CS5 EN CRC CLOCK L DU2
DS7 CRC CLOCK L
DS7 ECC CLOCK L
DS7 BIT CLOCK L
DS7 BIT CLOCK H FU2
DS7 CRC CLOCK L
DS7 ECC CLOCK H AE1
DS7 ECC CLOCK L
DS7 SHIFT CLOCK H
DS7 SHIFT CLOCK L EJ1

BIT CLOCK GENERATION AND WRITE DATA

REVISIONS		
CHR	CHANGE NO	REV

TITLE		SIZE	CODE	NUMBER	REV.
DATA SEQUENCER (DS7)		D	CS	M8685-Ø-1	B
SCALE 1 — 1	SHEET 7 OF 15				

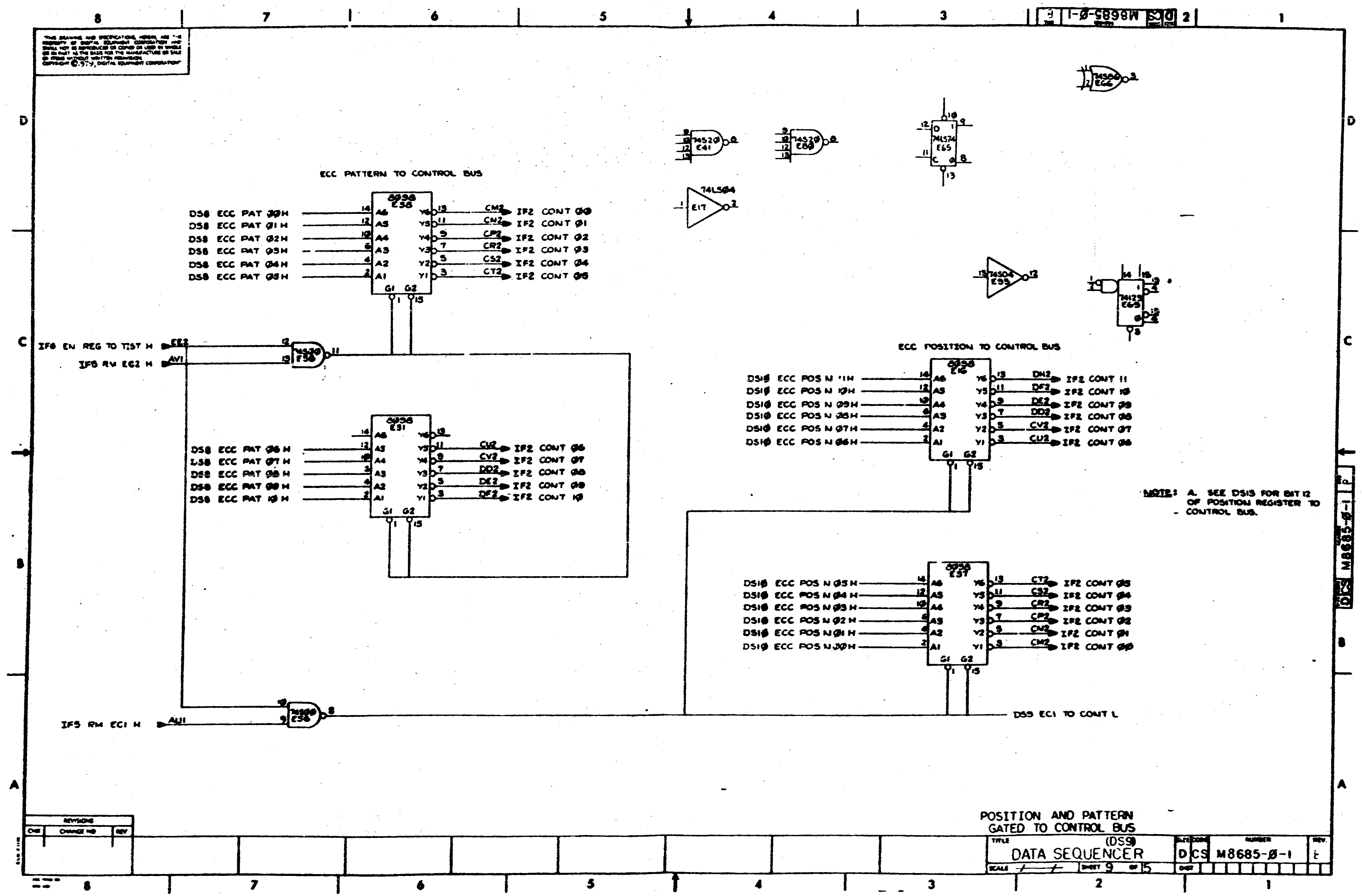


ECC PATTERN REGISTER AND DCK GENERATION

DATA SEQUENCER (DS8)

D CS M8685-0-1 B

SHEET 8 OF 15


ECC PATTERN TO CONTROL BUS
DS8 ECC PAT ØØ H
DS8 ECC PAT Ø1 H
DS8 ECC PAT Ø2 H
DS8 ECC PAT Ø3 H
DS8 ECC PAT Ø4 H
DS8 ECC PAT Ø5 H
IF2 CONT ØØ
IF2 CONT Ø1
IF2 CONT Ø2
IF2 CONT Ø3
IF2 CONT Ø4
IF2 CONT Ø5
IF8 EN REG TO TST H
IF5 RM EC2 H
DS8 ECC PAT Ø6 H
DS8 ECC PAT Ø7 H
DS8 ECC PAT Ø8 H
DS8 ECC PAT Ø9 H
DS8 ECC PAT 1Ø H
IF2 CONT Ø6
IF2 CONT Ø7
IF2 CONT Ø8
IF2 CONT Ø9
IF2 CONT 1Ø
IF5 RM EC1 H
ECC POSITION TO CONTROL BUS
DS1Ø ECC POS N 11 H
DS1Ø ECC POS N 1Ø H
DS1Ø ECC POS N Ø9 H
DS1Ø ECC POS N Ø8 H
DS1Ø ECC POS N Ø7 H
DS1Ø ECC POS N Ø6 H
IF2 CONT 11
IF2 CONT 1Ø
IF2 CONT Ø9
IF2 CONT Ø8
IF2 CONT Ø7
IF2 CONT Ø6
DS1Ø ECC POS N Ø5 H
DS1Ø ECC POS N Ø4 H
DS1Ø ECC POS N Ø3 H
DS1Ø ECC POS N Ø2 H
DS1Ø ECC POS N Ø1 H
DS1Ø ECC POS N ØØ H
IF2 CONT Ø5
IF2 CONT Ø4
IF2 CONT Ø3
IF2 CONT Ø2
IF2 CONT Ø1
IF2 CONT ØØ
DS9 EC1 TO CONT L
NOTE: A. SEE DS15 FOR BIT 12 OF POSITION REGISTER TO CONTROL BUS.
POSITION AND PATTERN GATED TO CONTROL BUS
(DS9)
DATA SEQUENCER
D CS M8685-Ø-1
SHEET 9 OF 15

POSITION MAXIMUM COUNT DECODE

DS1Ø ECC POSN 12H
DS1Ø ECC POSN Ø5H
DS1Ø COUNT POSN H
DS3 FMT 18 H
DS1Ø ECC POSN Ø9 H
DS8 NON ZERO ECC H
DS1Ø SET POS H
DS7 ECC CLOCK H
DS6 CLEAR ECC A L
DS5 CLEAR ECC L
DS8 CORRECTION CLK L
DS1Ø COUNT POSN H
START COUNTING POSITION
DS1Ø ECH H (NOT USED)
DS1Ø ECH SET L
DS8 EN CORRECTION H
DS1Ø DONE OR ECH L
DS1Ø EN LOAD POS L
DS1Ø CORRECTION CLK L
DS1Ø ECC DONE H
DS1Ø ECC DONE L
DS8 DCK SET L
DS7 SHIFT CLOCK H
DS1Ø EN CORRECT CLK L

+3V D

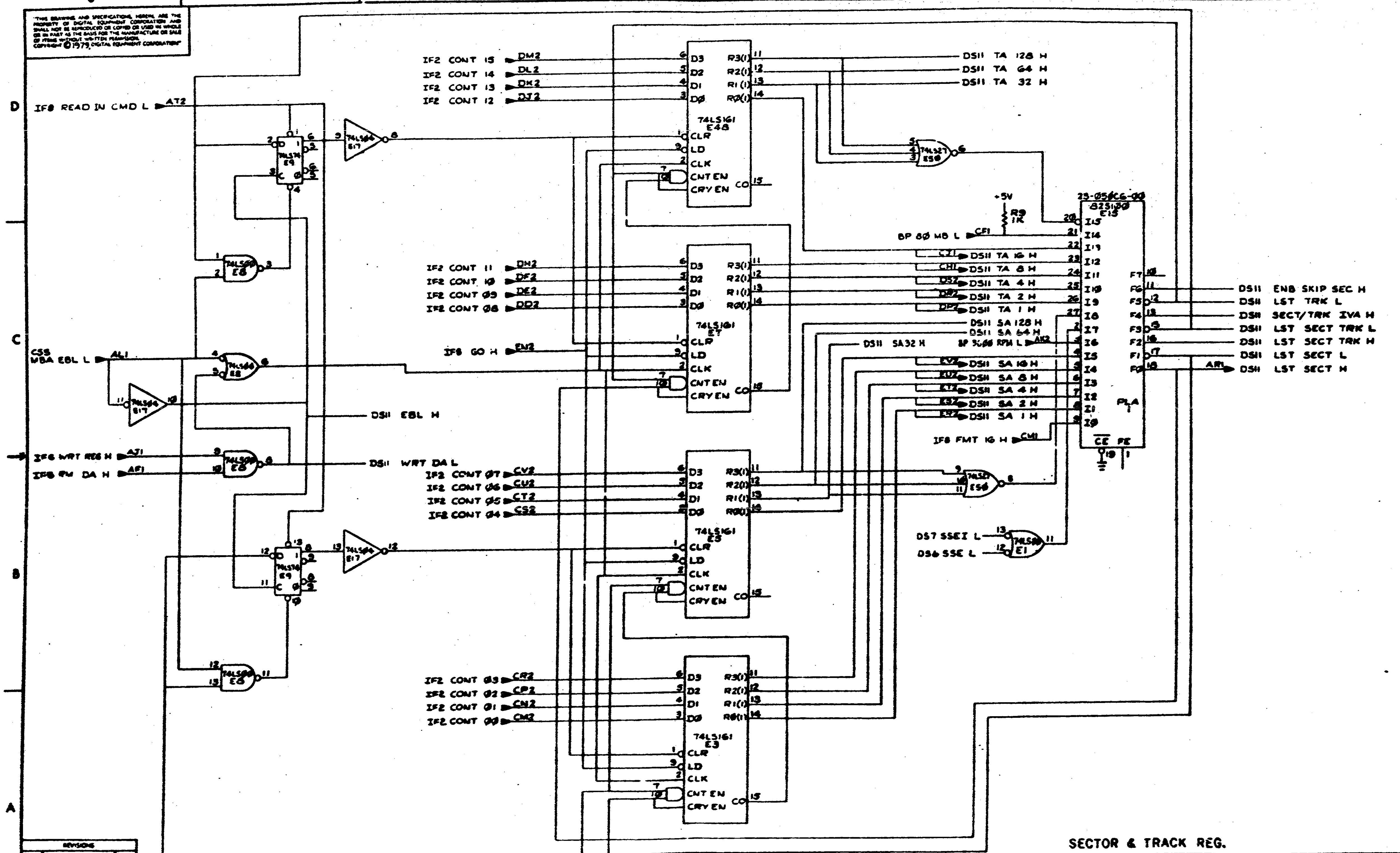
DP PRECLEAR TEST L
DS7 ECC CLOCK H
DS1Ø EC CAR 1 IN H
DS3 FMT 18 H
DS1Ø EC CAR 2 IN H
DS1Ø ECC POSN 12 H
DS1Ø SET POS H
POSITION COUNTER
DS1Ø EN LOAD POS L
DS7 ECC CLOCK H
DS1Ø EC CAR 1 IN H
DS1Ø ECC POSN Ø4 H
DS1Ø ECC POSN Ø5 H
DS1Ø ECC POSN Ø6 H
DS1Ø ECC POSN Ø7 H
DS1Ø ECC POSN ØØ H
DS1Ø ECC POSN Ø1 H
DS1Ø ECC POSN Ø2 H
DS1Ø ECC POSN Ø3 H
DS1Ø EC CAR 2 OUT H
DS1Ø EC CAR 1 OUT H

NOTES: 1. AAI AND ABI ARE CONNECTED ON THE BACKPLANE.
2. ACI AND ADI ARE CONNECTED ON THE BACKPLANE.
3. THESE RUNS WERE SPLIT ON THE MODULE TO SPEED UP TESTING OF THE MODULE.

POSITION COUNTER AND CORRECTION CONTROL LOGIC

TITLE	SIZE	NUMBER	REV
DATA SEQUENCER (DSIØ)	D	DCS M8685-Ø-1	B
SCALE	SHEET 10 OF 15		

DCS M8685-Ø-1



TITLE	SIZE	CODE	NUMBER	REV.
(DSII) DATA SEQUENCER	D	CS	M8685-Ø-1	E

SCALE — SHEET 11 OF 15

NOTE: FOR AN RM80, A JUMPER MUST BE ADDED TO THE BACKPLANE FROM CD1 TO CC2.

IF8 READ IN CMD L ← AT2
IF8 GO H ← EN2
IF2 CONT Ø9 ← DE2
IF2 CONT Ø8 ← DD2
74LS161 E21 — D3 D2 D1 D0 | R3(1) R2(1) R1(1) R0(1) | CLR LD CLK CNT EN CRY EN | CO

CS8 MBA EBL L ← AL1
74S00 E2

IF6 WRT REG H ← AT1
IF8 RM DC H ← AK1
74S00 E2

IF2 CONT Ø7 ← CV2
IF2 CONT Ø6 ← CU2
IF2 CONT Ø5 ← CT2
IF2 CONT Ø4 ← CS2
74LS161 E20 — D3 D2 D1 D0 | R3(1) R2(1) R1(1) R0(1) | CLR LD CLK CNT EN CRY EN | CO

DS12 LST SECT TRK H ← FE2
DSII EBL H
IF8 OFFSET MODE H ← AP1
74S00 E49 → DS12 CLR OFF MD L — CLEAR OFFSET MODE

DS12 DC CAR I INH ← AE2
LAST BLOCK TRANSFERRED → AN2 → DSII LBT H

DS12 LAST ADD H
74S00 E48

IF2 CONT Ø3 ← CR2
IF2 CONT Ø2 ← CP2
IF2 CONT Ø1 ← CN2
IF2 CONT Ø0 ← CM2
74LS161 E12 — D3 D2 D1 D0 | R3(1) R2(1) R1(1) R0(1) | CLR LD CLK CNT EN CRY EN | CO

DSII WRT DA L ← CE1
CS4 POWER OK H ← CE1
74S00 E43

SA2 RUN H ← EC1
DS12 LBT H
74S05 E76

BP2 → DS12 DC 512 H
BM2 → DS12 DC 256 H
BL2 → DS12 DC 64 H
BK2 → DS12 DC 128 H
BJ2 → DS12 DC 16 H
BH2 → DS12 DC 32 H
BF2 → DS12 DC 4 H
BE2 → DS12 DC 8 H
BD2 → DS12 DC 1 H
BC2 → DS12 DC 2 H
AD2 → DS12 DC CAR I OUT H

FE2 → DS12 LST SECT TRK H

DSII SECT/TRK IVA H

+5V
R19 1K
CD1
BP DC OPTION ← AB2
IF8 SCH SK R OR W L ← AB2
DSII EBL H
23-Ø38C6-Ø0
82S190 E18 — I15 I14 I13 I12 I11 I10 I9 I8 I7 I6 I5 I4 I3 I2 I1 I0 | F7 F6 F5 F4 F3 F2 F1 F0 | CE FE
F3 → AM2 → DS12 MAX CYL L
F2 → AN2 → DS12 AOE SET L
F0 → DS12 LAST ADD H

CS9 SET PULSE H ← AR2
74S00 E1 → AP1 → DS12 IAE SET L

NOTE: AD2 AND AE2 ARE CONNECTED ON THE BACKPLANE. (RUN IS SPLIT TO SPEED UP TESTING OF THE MODULE)

DESIRED CYLINDER REG.

REVISIONS		
ONE	CHANGE NO.	REV.

TITLE	DATA SEQUENCER (DS12)			
SIZE	CODE	NUMBER	REV.	
D	CS	M8685-Ø-1	B	
SCALE		SHEET 12 OF 15		

DEC M8685-Ø-1

SECTOR/TRACK TO CONTROL BUS

DS6 SSE H
DS11 TA 128 H
DS11 TA 64 H
DS11 TA 32 H
DS11 TA 16 H
DS13 ENA REG TO TST L
DS13 RMER2 L
IF6 EN REG TO TST H
IF5 RM DA H
DS13 ENA REG TO TST L
DS11 TA 8 H
DS11 TA 4 H
DS11 TA 2 H
DS11 TA 1 H
DS11 SA 128 H
DS11 SA 64 H
DS11 SA 32 H
DS11 SA 16 H
DS11 SA 8 H
DS11 SA 4 H
DS11 SA 2 H
DS11 SA 1 H
IF2 CONT 15
IF2 CONT 14
IF2 CONT 13
IF2 CONT 12
IF2 CONT 11
IF2 CONT 10
IF2 CONT 09
IF2 CONT 08
IF2 CONT 07
IF2 CONT 06
IF2 CONT 05
IF2 CONT 04
IF2 CONT 03
IF2 CONT 02
IF2 CONT 01
IF2 CONT 00

DESIRED CYLINDER TO CONTROL BUS

DS10 ECC POSN 12 H
DS12 DC 512 H
DS12 DC 256 H
DS12 DC 128 H
DS12 DC 64 H
DS9 ECI TO CONT L
DS12 DC 32 H
DS12 DC 16 H
DS12 DC 8 H
DS12 DC 4 H
DS12 DC 2 H
DS12 DC 1 H
IF6 EN REG TO TST H
IF5 RM DC H
IF5 RM ER2 H
IF5 RM OF H
DS13 RMER2 L
DS13 RMOF L
IF2 CONT 12
IF2 CONT 09
IF2 CONT 08
IF2 CONT 07
IF2 CONT 06
IF2 CONT 05
IF2 CONT 04
IF2 CONT 03
IF2 CONT 02
IF2 CONT 01
IF2 CONT 00

SECT/TRACK/DC
GATED TO CONTROL BUS

REVISIONS		
ONE	CHANGE NO.	REV

TITLE	(DS13) DATA SEQUENCER	SIZE D	CODE CS
SCALE	SHEET 13 OF 15	NUMBER M8685-Ø-1	REV E
		DIST	

M8685-Ø-1 REV E

AA1	DS1@ EC CAR 1 OUT H
AB1	DS1@ EC CAR 1 IN H
AC1	DS1@ EC CAR 2 OUT H
AD1	DS1@ EC CAR 2 IN H
AE1	DS7 RDC CLOCK H
AF1	IF5 RM DA H
AH1	CS6 NEW TRK RQD L
AJ1	IF6 WRT REQ H
AK1	IF5 RM DC H
AL1	CS6 MBA ENBL L
AM1	DS12 CLR OFF MB L
AN1	DS12 LBT H
AP1	IF8 OFFSET MODE H
AR1	DS11 LST SECT H
AS1	DS1@ ECC DONE H
AT1	GND
AU1	IF5 RM EC1 H
AV1	IF8 RM EC2 H

BA1	DS3 MB @@ L
BB1	DS3 MB @1 L
BC1	DS3 MB @2 L
BD1	DS3 MB @3 L
BE1	DS3 MB @4 L
BF1	DS3 MB @5 L
BH1	DS3 MB @6 L
BJ1	DS3 MB @7 L
BK1	DS3 MB @8 L
BL1	DS3 MB @9 L
BM1	DS3 MB 1@ L
BN1	DS3 MB 11 L
BP1	DS3 MB 12 L
BR1	DS3 MB 13 L
BS1	DS3 MB 14 L
BT1	GND
BU1	DS3 MB 15 L
BV1	DS3 MB 16 L

CA1	DS8 DCK SET L
CB1	CS5 DTE SET L
CC1	CS3 SECT/INDEX L
CD1	BP DC OPTION
CE1	CS4 POWER OK H
CF1	BP @@ MB L
CH1	DS11 TA @ H
CJ1	DS11 TA 16 H
CK1	IF8 HCI L
CL1	IF8 ECI L
CM1	IF8 FMT 16 H
CN1	DS6 FER SET L
CP1	DS5 WCF SET L
CR1	DS5 MB SCLK L
CS1	DS1@ ECH SET L
CT1	GND
CU1	DS6 HCE SET L
CV1	DS5 HCRC SET L

DA1	SAI MB TSB @@ H
DB1	SAI MB TSB @1 H
DC1	SAI MB TSB @2 H
DD1	SAI MB TSB @3 H
DE1	SAI MB TSB @4 H
DF1	SAI MB TSB @5 H
DH1	SAI MB TSB @6 H
DJ1	SAI MB TSB @7 H
DK1	SAI MB TSB @8 H
DL1	SAI MB TSB @9 H
DM1	SAI MB TSB 1@ H
DN1	SAI MB TSB 11 H
DP1	SAI MB TSB 12 H
DR1	SAI MB TSB 13 H
DS1	SAI MB TSB 14 H
DT1	GND
DU1	SAI MB TSB 15 H
DV1	SAI MB TSB 16 H

EA1	DS6 SET BSE L
EB1	RDI RD CLK H
EC1	SA2 RUN H
ED1	RDI RD DATA H
EE1	BP 144 ENB H
EF1	DS7 WRITE DATA L
EH1	SPARE
EJ1	DS7 SHIFT CLOCK L
EK1	SPARE
EL1	DS6 SSE L
EM1	RDI ERV2 CLK L
EN1	SPARE
EP1	DS3 SYNC PAR SET H
ER1	CS6 READ GATE H
ES1	CS4 PRECLEAR CRC/ECC L
ET1	GND
EU1	CS6 = EN LOAD SR H
EV1	CS4 DS WRITE GATE H

FA1	CS4 P HEADER AREA H
FB1	SPARE
FC1	CS4 P DATA AREA H
FD1	DS6 CRC DONE H
FE1	CS4 P DATA EN SCLK H
FF1	CS5 READ GATE FAST H
FH1	CS4 P EN ENBL H
FJ1	CS4 LAST READ DATA L
FK1	CS4 P READ GATE H
FL1	SPARE
FM1	CS4 P LFS H
FN1	DS4 EN ECC OUT H
FP1	CS4 P EN CRC OUT H
FR1	DS4 EN CRC OUT H
FS1	CS4 P EN ECC OUT H
FT1	GND
FU1	SPARE
FV1	SPARE

AA2	+5V
AB2	-15V
AC2	GND
AD2	DS12 DC CAR 1 OUT H
AE2	DS12 DC CAR 1 IN H
AF2	IF5 RM ER2 H
AH2	IF5 RM OF L
AJ2	SPARE
AK2	BP 3600 RPM L
AL2	DS8 HEADER FIRST H
AM2	DS8 MAX CYL L
AN2	DS12 AQE SET L
AP2	DS12 IAE SET L
AR2	CS3 SET PULSE H
AS2	IF8 SCH SK R OR W L
AT2	IF8 READ IN GND L
AU2	DS1@ EN CORRECT CLK L
AV2	BP TEST L

BA2	+5V
BB2	-15V
BC2	GND
BD2	DS12 DC 1 H
BE2	DS12 DC 2 H
BF2	DS12 DC 4 H
BH2	DS12 DC 8 H
BJ2	DS12 DC 16 H
BK2	DS12 DC 32 H
BL2	DS12 DC 64 H
BM2	DS12 DC 128 H
BN2	DS12 DC 256 H
BP2	DS12 DC 512 H
BR2	CS5 TRNSCEIVR EN B H
BS2	CS5 TRNSCEIVR EN A H
BT2	CS4 READ HEADER H
BU2	SA2 MB SYNC PAR H
BV2	DS3 MB 17 L

CA2	+5V
CB2	-15V
CC2	GND
CD2	CS4 EN SYNC H
CE2	SA2 WRT CLK B H
CF2	SA2 WRT CLK A H
CH2	DB SYNC DET H
CJ2	DS4 WORD CLK H
CK2	DS4 WORD CLK L
CL2	DS4 PROM STROBE H
CM2	IF2 CONT @@
CN2	IF2 CONT @1
CP2	IF2 CONT @2
CR2	IF2 CONT @3
CS2	IF2 CONT @4
CT2	IF2 CONT @5
CU2	IF2 CONT @6
CV2	IF2 CONT @7

DA2	+5V
DB2	-15V
DC2	GND
DD2	IF2 CONT @@
DE2	IF2 CONT @@
DF2	IF2 CONT 12
DH2	IF2 CONT 11
DJ2	IF2 CONT 12
DK2	IF2 CONT 13
DL2	IF2 CONT 14
DM2	IF2 CONT 15
DN2	CS6 EN ECC CLOCK L
DP2	DS11 TA 1 H
DR2	DS11 TA 2 H
DS2	DS11 TA 4 H
DT2	CS3 MBA CLR L
DU2	CS6 EN CRC CLOCK L
DV2	SAI MB TSB 17 H

EA2	+5V
EB2	-15V
EC2	GND
ED2	IF9 ABORT L
EE2	IF5 EN REG TO TEST H
EF2	CS8 DIAG L
EH2	IF8 F@ H
EJ2	CS8 MAINT CLK H
EK2	IF8 F2 H
EL2	CS8 MAINT CLK L
EM2	CS8 MR READ DATA H
EN2	IF8 GO H
EP2	CS3 RESET GO L
ER2	DS11 SA 1 H
ES2	DS11 SA 2 H
ET2	DS11 SA 4 H
EU2	DS11 SA 8 H
EV2	DS11 SA 16 H

FA2	+5V
FB2	-15V
FC2	GND
FD2	BP PRECLEAR TEST L
FE2	DS12 LST SECT TRK H
FF2	IF@ DCK H
FH2	DS5 CRC EN H
FJ2	CS2 FORMAT H
FK2	CS4 P EN CRC L
FL2	DS4 WRITE TIME H
FM2	DS7 LBC SET L
FN2	DS4 WORD TIME H
FP2	SPARE
FR2	DS3 EN PAR GEN H
FS2	DS3 EN PAR CHECK H
FT2	DS3 PARITY ODD H
FU2	DS7 BIT CLOCK H
FV2	DS4 ECC WRD CNT INH L

REVISIONS		
CHR	CHANGE NO	REV

I/O SIGNAL LIST

TITLE	(DSI4) DATA SEQUENCER	SIZE D	CODE CS	NUMBER M8685-Ø-1
SCALE	SHEET 14 OF 15	DIST		REV F

M8685-Ø-1 SCH

23-050C6: FPLA AT E15
TRACK/SECTOR ADDRESS DECODER

digital EQUIPMENT CORPORATION CONTINUATION PAGE **PURCHASE SPECIFICATIONS**

PROGRAM TABLE ENTRIES

INPUT VARIABLE			OUTPUT FUNCTION		OUTPUT ACTIVE LEVEL	
I_m	$\bar{I}_m$	DON'T CARE	PROD. TERM PRESENT IN F_p	PROD. TERM NOT PRESENT IN F_p	ACTIVE HIGH	ACTIVE LOW
H	L	– (dash)	A	• (period)	H	L

PRODUCT TERM * INPUT VARIABLE NO.	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	ACTIVE LEVEL OUTPUT FUNCTION 7 (H)	6 (H)	5 (L)	4 (H)	3 (L)	2 (H)	1 (L)	0 (H)
0	–	H	–	–	–	–	–	H	–	–	H	H	H	H	H	H	A	•	•	•	•	•	A	A
1	–	H	–	–	–	–	–	H	L	L	H	H	H	H	L	H	A	•	•	•	•	•	A	A
2	–	H	–	–	–	–	–	H	H	L	H	H	H	H	H	H	A	•	•	•	•	•	A	A
3	–	H	–	–	–	–	–	H	–	H	H	H	H	H	H	H	A	•	•	•	•	•	A	A
4	–	–	–	–	–	–	–	H	–	–	H	H	H	L	H	L	A	•	•	•	•	•	A	A
5	H	L	L	L	H	L	L	H	–	–	H	H	H	H	H	H	A	•	•	•	A	A	•	•
6	H	H	L	H	H	L	H	H	L	L	H	H	H	H	L	H	A	•	•	•	A	A	•	•
7	H	H	L	H	H	L	H	H	H	L	H	H	H	H	H	H	A	•	•	•	A	A	•	•
8	H	H	H	L	L	H	L	H	–	H	H	H	H	H	H	H	A	•	•	•	A	A	•	•
9	H	L	L	L	H	L	L	H	–	–	H	H	H	L	H	L	A	•	•	•	A	A	•	•
10	H	H	L	H	H	L	H	H	–	L	H	H	H	L	H	L	A	•	•	•	A	A	•	•
11	H	H	H	L	L	H	L	H	–	H	H	H	H	L	H	L	A	•	•	•	A	A	•	•
12	H	L	L	L	H	L	L	–	–	–	–	–	–	–	–	–	A	•	A	•	•	•	•	•
13	H	H	L	H	H	L	H	–	–	L	–	–	–	–	–	–	A	•	A	•	•	•	•	•
14	H	H	H	L	L	H	L	–	–	H	–	–	–	–	–	–	A	•	A	•	•	•	•	•
15	–	H	–	–	–	–	–	–	–	L	–	–	–	–	–	H	A	A	•	•	•	•	•	•
16	–	–	–	–	–	–	–	H	–	–	H	H	H	H	–	L	A	•	•	A	•	•	•	•
17	–	H	–	–	–	–	–	H	L	L	H	H	H	H	H	H	A	•	•	A	•	•	•	•
18	–	–	–	–	–	–	–	L	–	–	–	–	–	–	–	–	A	•	•	A	•	•	•	•
19	–	L	–	–	H	L	H	–	–	–	–	–	–	–	–	–	A	•	•	A	•	•	•	•
20	–	L	–	–	H	H	–	–	–	–	–	–	–	–	–	–	A	•	•	A	•	•	•	•
21	–	L	–	H	–	–	–	–	–	–	–	–	–	–	–	–	A	•	•	A	•	•	•	•
22	–	L	H	–	–	–	–	–	–	–	–	–	–	–	–	–	A	•	•	A	•	•	•	•
23	–	H	L	H	H	H	–	–	–	L	–	–	–	–	–	–	A	•	•	A	•	•	•	•
24	–	H	H	–	–	–	–	–	–	L	–	–	–	–	–	–	A	•	•	A	•	•	•	•
25	–	H	H	L	L	H	H	–	–	H	–	–	–	–	–	–	A	•	•	A	•	•	•	•
26	–	H	H	L	H	–	–	–	–	H	–	–	–	–	–	–	A	•	•	A	•	•	•	•
27	–	H	H	H	–	–	–	–	–	H	–	–	–	–	–	–	A	•	•	A	•	•	•	•
28	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	A	•	•	A	•	•	•	•

* Input and Output fields of unused P-terms can be left blank.

DSII LST SECT H (PIN 18)
DSII LST SECT L (PIN 17)
DSII LST SECT TRK H (PIN 16)
DSII LST SECT TRK L (PIN 15)
DSII SECT/TRK IVA H (PIN 13)
DSII LST TRK L (PIN 12)
DSII ENB SKIP SEC H

23-038C6: FPLA AT E18
CYLINDER ADDRESS DECODE

DSI2 LAST ADD H (PIN 18)
NO TITLE (DECODE OF INVALID ADDRESSES HIGH ACTIVE ON PIN 17)
DSI2 AOE SET L (ADDRESS OVERFLOW ERROR = AOE ON PIN 6)

TITLE	DOCUMENT NUMBER	REV
DATA SEQUENCER	D CS M8685-0-1	B

SHEET 15 OF 15

AUTOMATED BY PRTLST.3L(35)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1	D-MD-5014029-0-0	5014029-00	DRILL AND ETCH BRD	1	
2	2		1000010-00	39.0 MMF 100V 5%200PPM MICA	2	C117,C121
3	3		1001610-00	.01 MFD 50V +80-20% 25U CER	113	C1-C110,C118-C120
4	4		1017472-00	10 MFD 35V +50-10% AL EL	6	C111-C116
5	5		1210711-02	/REPLACED BY 12-16988-02	1	
6	6		1300365-00	1.0 K .25 W 5.0 % CC	11	R1-R5,R7-R12
7	7		1300398-00	1.80 K .25 W 5.0 % CC	2	R13,R14
8	8		1302394-00	30.0 K .25 W 5.0 % CC	1	R6
9	9		1910436-00	DEC 74123 ONE SHOT-DUAL,RETRIG	1	E69
10	10		1910532-00	74S00 NAND GATE-QUAD 2IN	7	E1,E2,E39,E56,E63,E67,E109
11	11		1910534-00	74S04 INVERTER GATE-HEX 1I	3	E89,E91,E95
12	12		1910536-00	74S10 NAND GATE-TRIPLE 3IN	2	E97,E108
13	13		1910537-00	74S11 AND GATE-TRIPLE 3INP	3	E57,E87,E72
14	14		1910539-00	74S20 NAND GATE-DUAL 4INPU	2	E41,E80
15	15		1910544-00	74S74 FF-D DUAL,EDGE TRIGG	12	E32,E40,E51,E58,E70,E82,E83,E88,
						CONT E98,E101,E107,E99
16	16		1910545-00	74S112 FF-JK DUAL,EDGE TRIG	1	E100
17	17		1910552-00	74S194 SHIFT REG.,4BIT RIGH	1	E75
18	18		1911527-00	8097 BUFFER GATE-HEX 2INP	3	E71,E73,E78
19	19		1911712-00	74S51 AND-OR GATE-INVERT D	3	E86,E93,E102
20	20		1912096-00	DEC 74S86 XOR GATE,QUAD 2IN	2	E66,E77
21	21		1912388-00	74S02 NOR GATE-QUAD 2IN,PO	1	E110
22	22		1912389-00	74S08 AND GATE-QUAD 2IN,PO	3	E76,E84,E106
23	23		1912799-00	LS00 NAND-GATE-QUAD 2IN,P	2	E8,E81
24	24		1912801-00	LS02 NOR-GATE-QUAD 2IN	1	E24
25	25		1912803-00	LS04 INVERTER GATE-HEX 1I	5	E17,E19,E33,E44,E54
26	26		1912805-00	LS08 AND GATE-QUAD 2IN,PO	2	E43,E45
27	27		1912807-00	LS10 NAND GATE-TRIPLE 3IN	1	E105
28	28		1912813-00	LS27 NOR GATE-TRIPLE 3IN	1	E50
29	29		1912820-00	LS51 A-O-I GATE 2-WIDE 2I	1	E96

REVISION HISTORY			BASIC PART NO: M8685
ENG	ECO NUMBER	REV	SECTION A OF A
	INITIAL	A	SECTION.VARIATION INDEX
SW	M8685-CX001B	B	[A] 00
			[B]
			[C]
			[D]
			[E]
			[F]
			[H]
			[J]
			[K]
			[L]
			[M]
			[N]

RPM 15 SEP 80

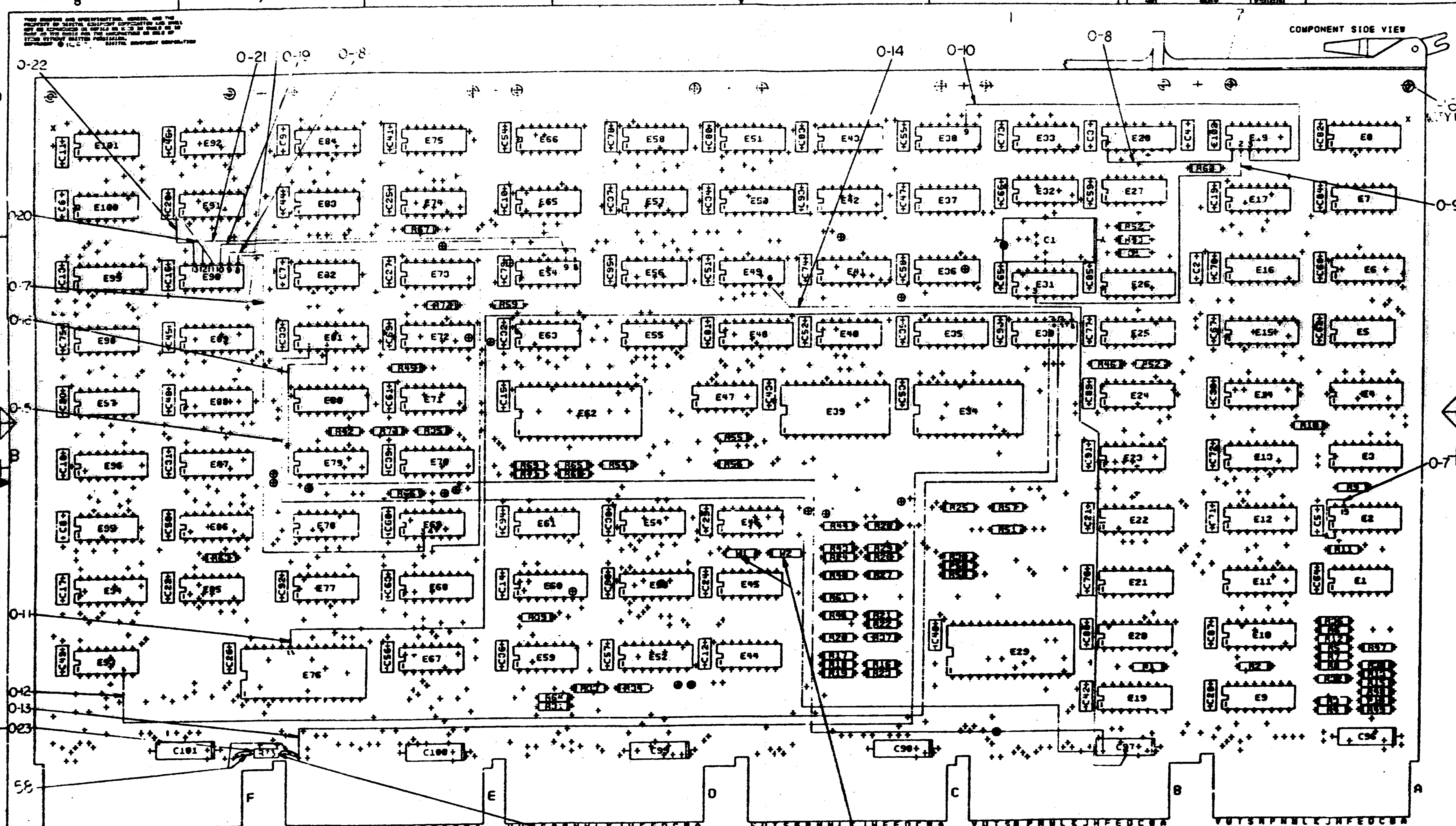
DRN: DON BILODEAU	DATE: 8-AUG-79	D I G I T A L
CHK'D: DON BILODEAU	DATE: 8-AUG-79	TITLE PARTS LIST
DES.ENG: S. WITHROW	DATE: 8-AUG-79	DATA SEQUENCER
RESP.ENG.: S. WITHROW	DATE: 2 NOV 79	DOCUMENT NUMBER
MFG.ENG.: A. MORGAN	DATE: 14 DEC 79	SIZE K / CODE PL / NUMBER M8685-0-DBP / REV B
ASSEMBLY NUMBER: D-UA-M8685-0-0	TOP DOCUMENT NUMBER: # B-DD-M8685-0	FILE NAME: Z0912B.PLS / EDIT #: 18

AUTOMATED BY PRTLST.3L(35)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
30	30		1912824-00	LS74 FF-D DUAL,EDGE TRIGG	6	E9,E10,E23,E65,E79,E85
31	31		1912828-00	LS85 COMPARATOR,4BIT MAGN	4	E34-E36,E47
32	32		1912847-00	LS157 MUX 1 OF 2(QUAD)	4	E25,E26,E28,E30
33	33		1912849-00	LS161 COUNTER,SYNCHR,4BIT	7	E3,E5,E7,E12,E20,E21,E48
34	34		1912850-00	LS164 SHIFT REG. 8BIT SERI	3	E29,E103,E112
35	35		1912853-00	LS175 FF-D QUAD	3	E42,E68,E104
36	36		1913340-00	74S32 OR GATE-QUAD 2IN	1	E111
37	37		1913474-00	9401 GENERATOR/CHECKER CR	1	E90
38	38		1914082-00	74S163 COUNTER,SYNCH UP/DOW	5	E11,E14,E22,E46,E61
39	39		1914083-00	8542 REGISTER,I/O-QUAD,TR	5	E52,E53,E60,E62,E64
40	40		1914084-00	74S299 SHIFT REG.,8BIT RIGH	2	E55,E74
41	41		1914085-00	74S260 NOR GATE-DUAL,POS	2	E94,E113
42	42		1914086-00	74S30 NAND GATE-POS 8IN	2	E59,E92
43	43		1914087-00	8098 BUFFER GATE-HEX 2IN,	9	E4,E6,E13,E16,E27,E31,E37,E38,
					CONT	E49
44	44		23050C6-00	C6-01	1	E15
45	45		23038C6-00	C6-01	1	E18
46	46		9000024-01	EYELET, ROLLED FLANGE, .121 OD X	12	
47	47		9009185-00	JUMPER, WIRE, INSULATED, BLACK B	1	W1
48	48		9105740-55	WIRE(WRAP)30AWG UL1423	A/R	
49	49		9009157-00	ADH,LIQ.RM.TEMP CURING COLORLESS	A/R	

DIGITAL	TITLE: DATA SEQUENCER	SECTION A OF A	
	SIZE: K	CODE: PL	DOCUMENT NUMBER: M8685-0-DBP
			REV: B



NOTES:

1. E HOLES .0?5 (+.00G -.0045) MAYNARD ONLY.
2. W1 MUST BE INSTALLED AND W2 MUST BE REMOVED AFTER GR TEST.
3. COMPONENT E73 IS HAND INSERTED.

SIGNATURES	DATE
DRN.	
CHK D.	
ENG.	
PROJ. ENG.	
PROD.	
SCALE: 2/1	
SHT. 1 OF 1	

P.C. DESIGN DATA BASE REV

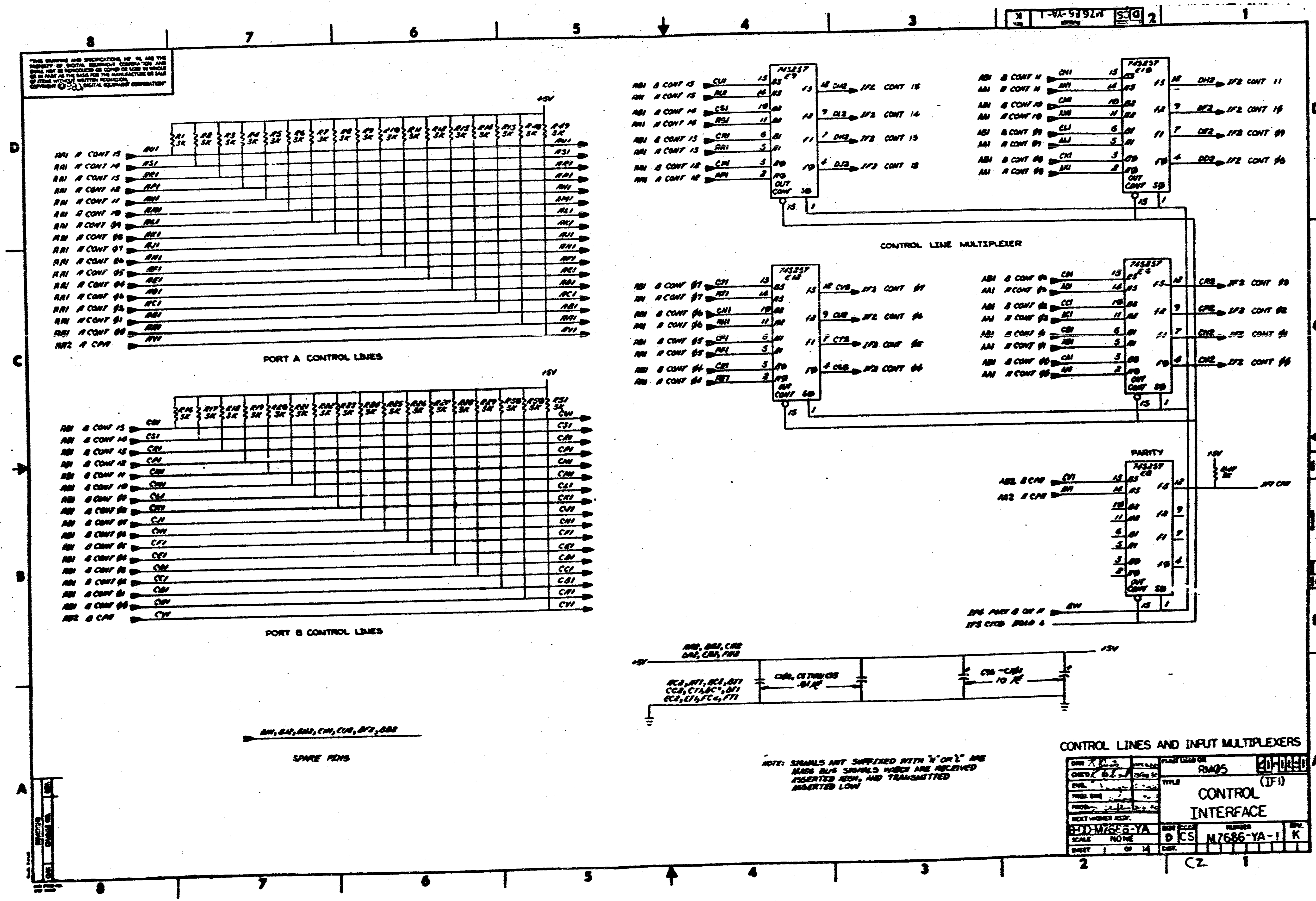
digital

TITLE
CONTROL INTERFACE

SIZE	CODE	NUMBER	REV
D	UA	M7686-YA-0	K

NEXT HIGHER ASSY. E-(I)-M7686-YA

1 MS# 291102


PORT A CONTROL LINES
PORT B CONTROL LINES
CONTROL LINE MULTIPLEXER
PARITY
74S257
+5V
SPARE PINS
NOTE: SIGNALS NOT SUFFIXED WITH "H" OR "L" ARE MASS BUS SIGNALS WHICH ARE RECEIVED ASSERTED HIGH, AND TRANSMITTED ASSERTED LOW
CONTROL LINES AND INPUT MULTIPLEXERS
RM05
(IF1)
CONTROL INTERFACE
D-DD-M7686-YA
SCALE NONE
SHEET 1 OF 14
D CS M7686-YA-1 K
CZ

PARITY GENERATOR AND CHECKER

SPARES

CONTROL LINE BUFFER (HOLDING REGISTER)

PARITY GEN/CHECK AND CONTROL LINE BUFFER

REVISIONS		
ECO	CHANGE NO.	REV.

TITLE				
CONTROL INTERFACE (IF2)				
SCALE: NONE	SHEET 2 OF 14	SIZE: D	CODE: CS	NUMBER: M7686-YA-1 REV: K

PORT A ON

REQUEST PORT A

RELEASE PORT A

PORT A HANDSHAKE

DUAL PORT TIME OUT

PORT A HANDSHAKE SELECTION, AND REQUEST CIRCUITS.
DUAL PORT TIME OUT

REVISIONS		
ENG	CHANGE NO.	REV.

TITLE	CONTROL INTERFACE (LF3)			
SCALE	NONE	SHEET 3 OF 16	SIZE D	CS
			DWG.	M7686-YA-1
			REV.	K

PORT B ON

REQUEST PORT B

RELEASE PORT B

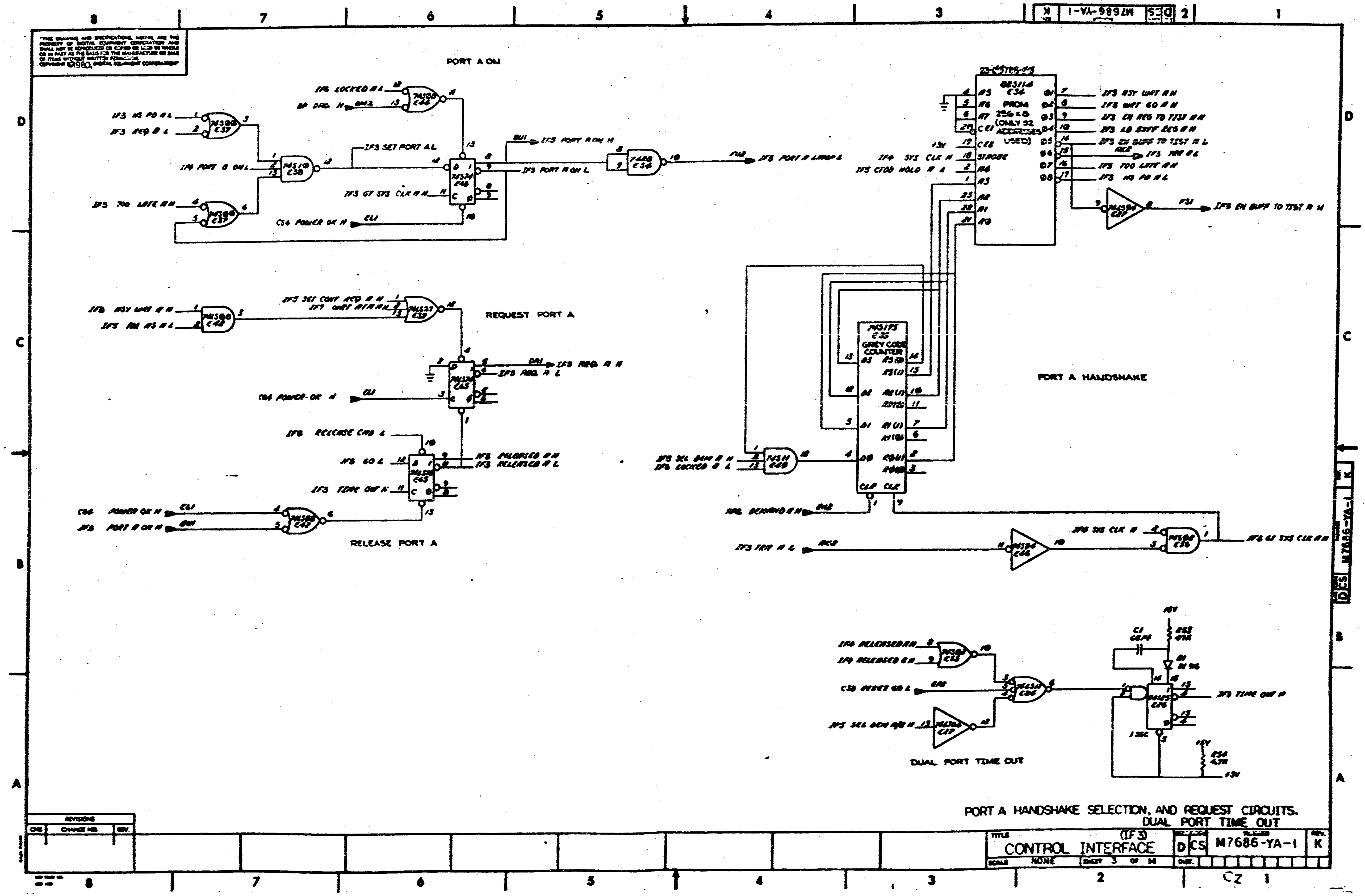
PORT B HANDSHAKE

GR SYS CLOCK

SYSTEM CLOCK

PORT B HANDSHAKE SELECTION, AND REQUEST CIRCUITS. SYSTEM CLOCK.

TITLE					
CONTROL INTERFACE (IF4)					
SCALE NONE	SHEET 4 OF 16	D	CS	M7686-YA-1	REV. K



PORT A ON
REQUEST PORT A
RELEASE PORT A
GREY CODE COUNTER
PROM
(ONLY 32 ADDRESSES USED)
STROBE
PORT A HANDSHAKE
DUAL PORT TIME OUT
PORT A HANDSHAKE SELECTION, AND REQUEST CIRCUITS.
DUAL PORT TIME OUT
CONTROL INTERFACE
(IF3)
D CS M7686-YA-1 K
NONE

PORT B CSR

REQUEST PORT B

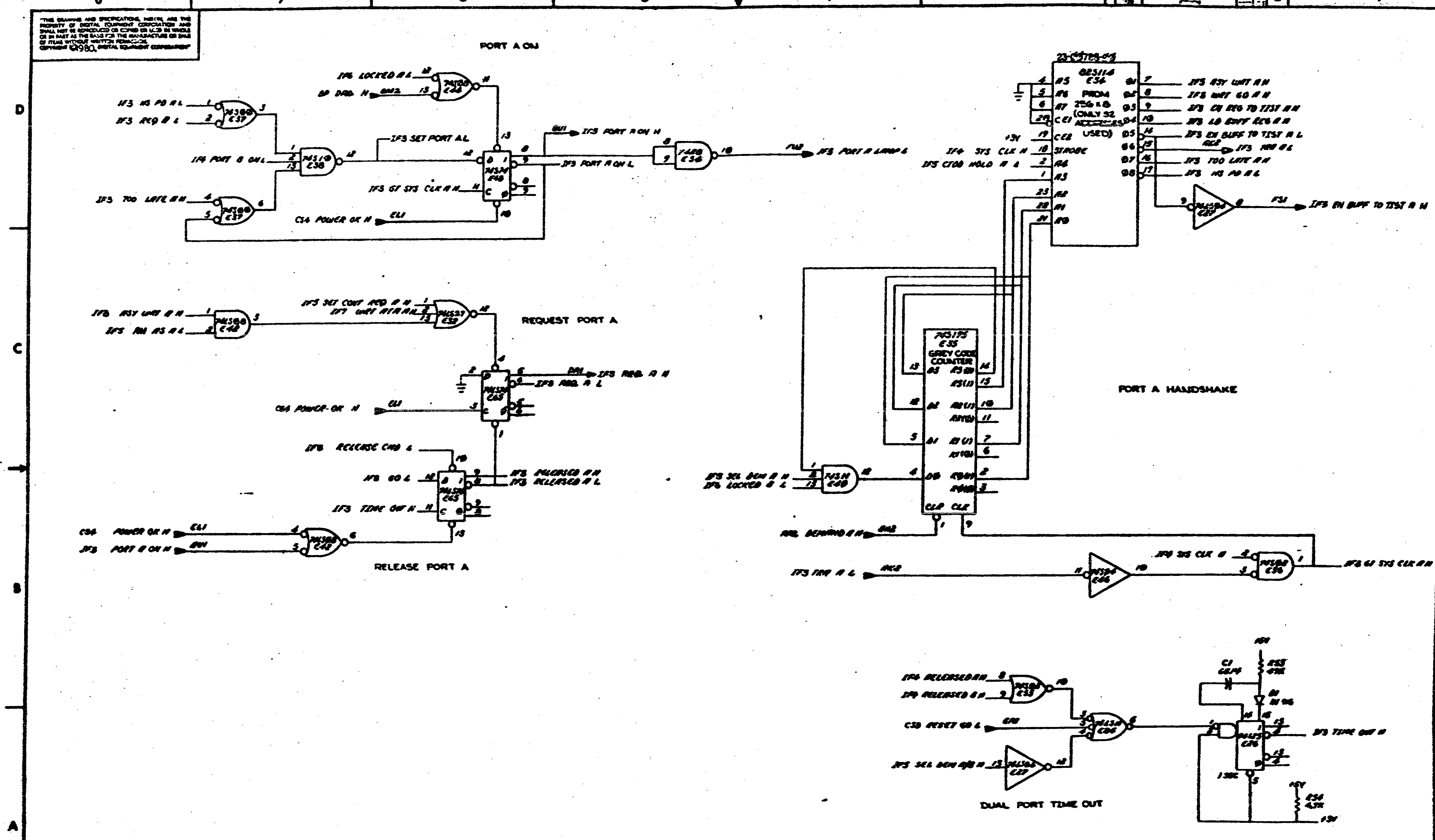
RELEASE PORT B

PORT B HANDSHAKE

PORT B HANDSHAKE SELECTION, AND REQUEST CIRCUITS. SYSTEM CLOCK.

SYSTEM CLOCK

TITLE				
CONTROL INTERFACE (TF4)				
SCALE	NONE	SHEET 4 OF 14	D CS M7686-YA-1	REV K



PORT A HANDSHAKE SELECTION, AND REQUEST CIRCUITS.
DUAL PORT TIME OUT

TITLE	(IF 3) CONTROL INTERFACE
SIZE	D
CODE	CS
NUMBER	M7686-YA-1
REV.	K
SCALE	NONE
SHEET	3 OF 14

PORT B ON

REQUEST PORT B

RELEASE PORT B

PORT B HANDSHAKE

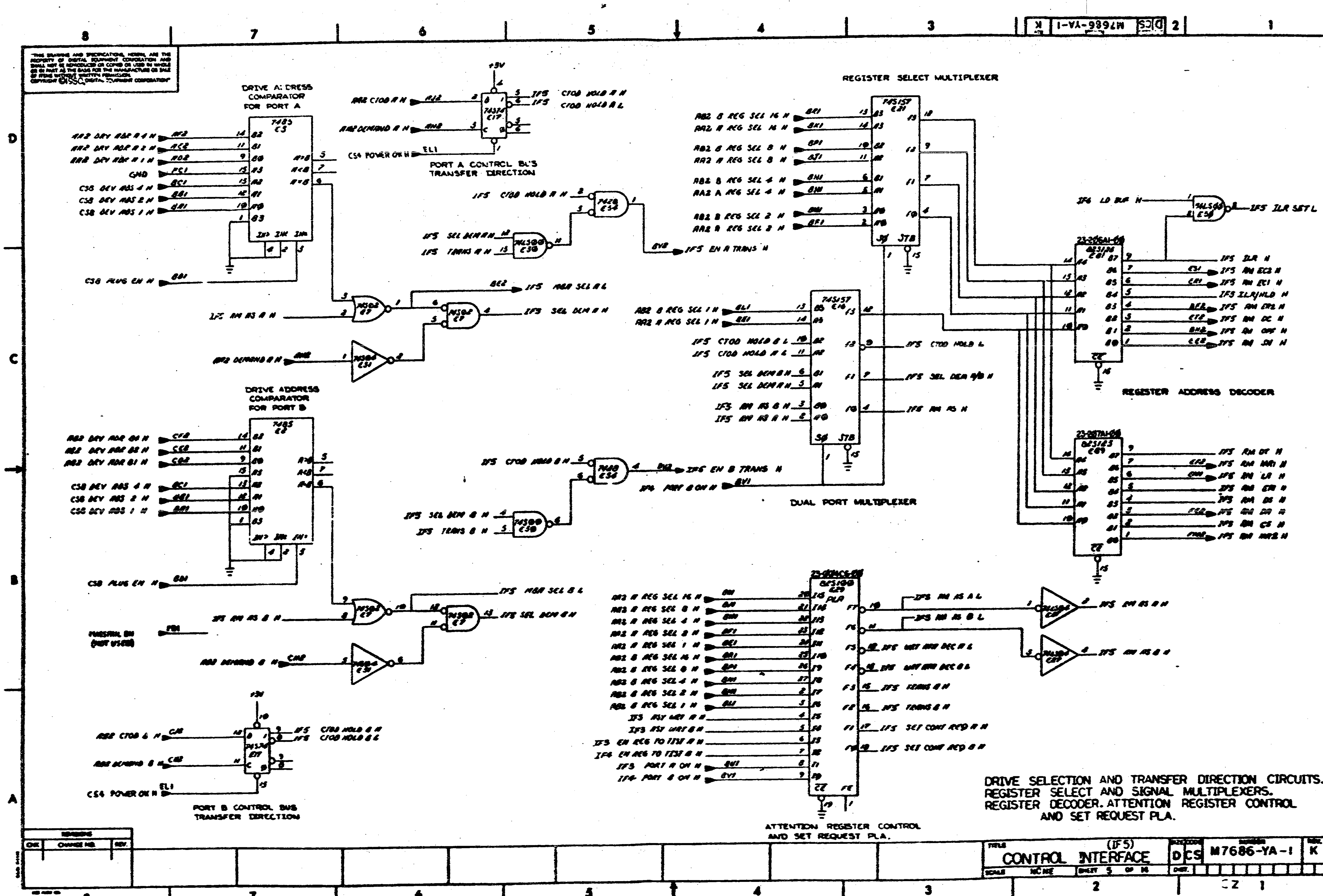
SYSTEM CLOCK

PORT B HANDSHAKE SELECTION, AND REQUEST CIRCUITS. SYSTEM CLOCK.

REVISIONS		
ECO	CHANGE NO.	REV.

TITLE	CONTROL INTERFACE (IF4)	D	CS	M7686-YA-1
SCALE	NONE	SHEET 4 OF 16		REV. K

M7686-YA-1 D CS K



DRIVE ADDRESS COMPARATOR FOR PORT A
PORT A CONTROL BUS TRANSFER DIRECTION
REGISTER SELECT MULTIPLEXER
DRIVE ADDRESS COMPARATOR FOR PORT B
DUAL PORT MULTIPLEXER
REGISTER ADDRESS DECODER
PORT B CONTROL BUS TRANSFER DIRECTION
ATTENTION REGISTER CONTROL AND SET REQUEST PLA.
DRIVE SELECTION AND TRANSFER DIRECTION CIRCUITS. REGISTER SELECT AND SIGNAL MULTIPLEXERS. REGISTER DECODER. ATTENTION REGISTER CONTROL AND SET REQUEST PLA.
CONTROL INTERFACE (IF5)
D CS M7686-YA-1 K

LOCKED ON PORT OR PROGRAMMABLE MODE SELECTOR

IF6 LOCKED A H

IF6 LOCKED A L

IF6 LOCKED B H

IF6 LOCKED B L

IF6 PSM H

VOLUME VALID BITS

IF6 W A H

IF6 W B H

UNIT READY EDGE DETECTOR

IF6 UNIT READY SELECT L

DUAL PORT MULTIPLEXER FOR HANDSHAKE SIGNALS, ATTENTION AND VOLUME VALID.

IF6 EN BUF TO TEST L

IF6 START RTH H

IF6 W H

IF6 W L

UNIT ATTENTION AND RMR SET PLA

IF6 LOCKED A H

IF6 SET ATA B L

IF6 LOCKED B H

IF6 SET ATA A L

IF6 ERR AIA B H

SINGLE/DUAL PORT SELECTION. VOLUME VALID BITS. UNIT READY EDGE DETECTOR. DUAL PORT MULTIPLEXER. ATTENTION AND RMR SET PLA. DUAL/SINGLE PORT SELECTION. SIGNAL MULTIPLEXERS. UNIT READY CIRCUIT.

REVISIONS		
CHG	CHANGE NO.	REV.

TITLE	CONTROL INTERFACE (IF6)			
SIZE	D	CS	M7686-YA-1	REV K
SCALE	NONE	SHEET 6 OF 14		

PORT A ATTENTION ADDRESS SELECTOR

PORT B ATTENTION ADDRESS SELECTOR

CONTROL/ATTENTION OUTPUT MULTIPLEXER (BITS 00-07)

PORT A WRITE ATTENTION

PORT B WRITE ATTENTION

ATTENTION A

ATTENTION B

ATTENTION REGISTERS AND MULTIPLEXERS

REVISIONS		
CHG	CHANGE NO	REV

TITLE	CONTROL INTERFACE (IF7)		SIZE	CODE	NUMBER
			D	CS	M7686-YA-1
SCALE	NONE	SHEET 7 OF 14			REV. K

COMMAND DECODER

OFFSET REGISTER BUFFER

CONTROL REGISTER TRISTATE BUFFER

GO BIT

CONTROL REGISTER

OFFSET REGISTER

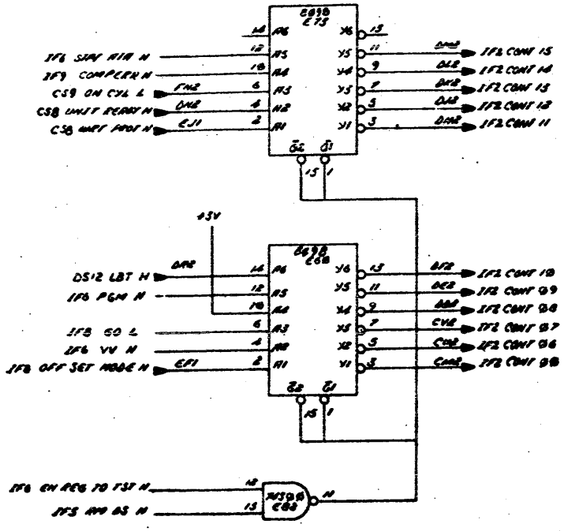
COMMAND DECODER ENABLE

CONTROL AND OFFSET REGISTERS. COMMAND DECODE.

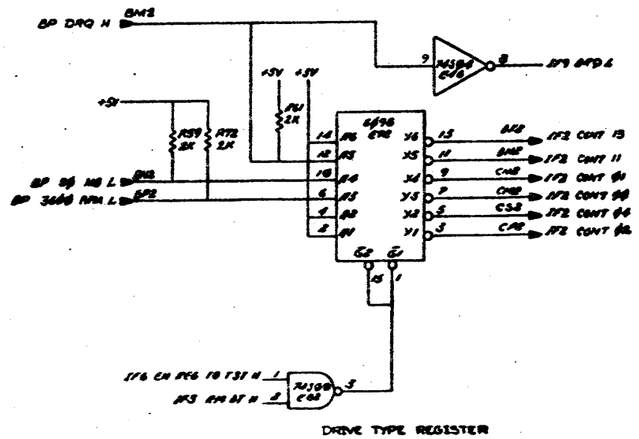
REVISIONS		
ECO	OWNER NO.	REV.

TITLE	CONTROL INTERFACE (IFB)		SIZE	NUMBER	REV.
			D	M7686-YA-1	K
SCALE	NONE	SHEET 8 OF 14			

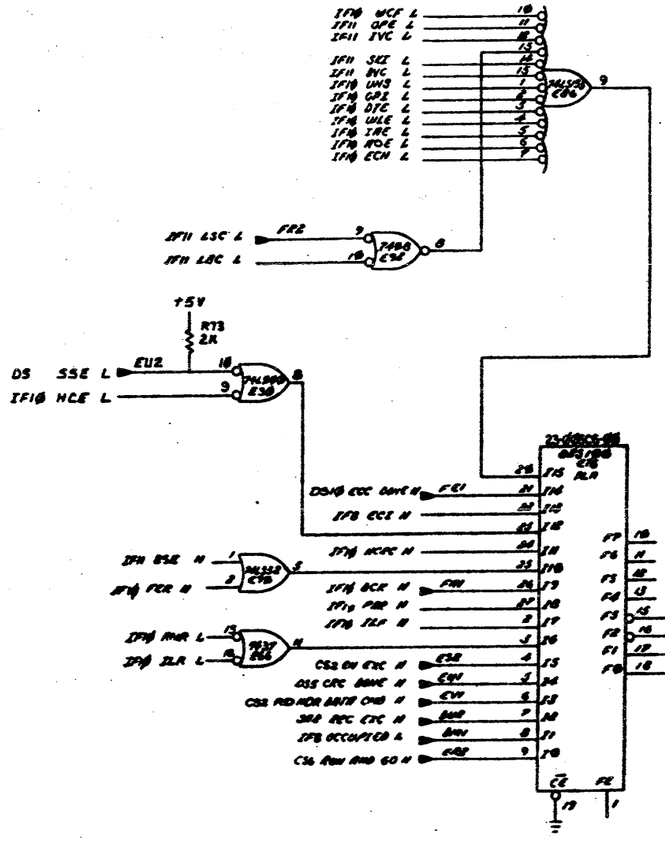
CZ 1



DRIVE STATUS REGISTER TRISTATE BUFFER



DRIVE TYPE REGISTER

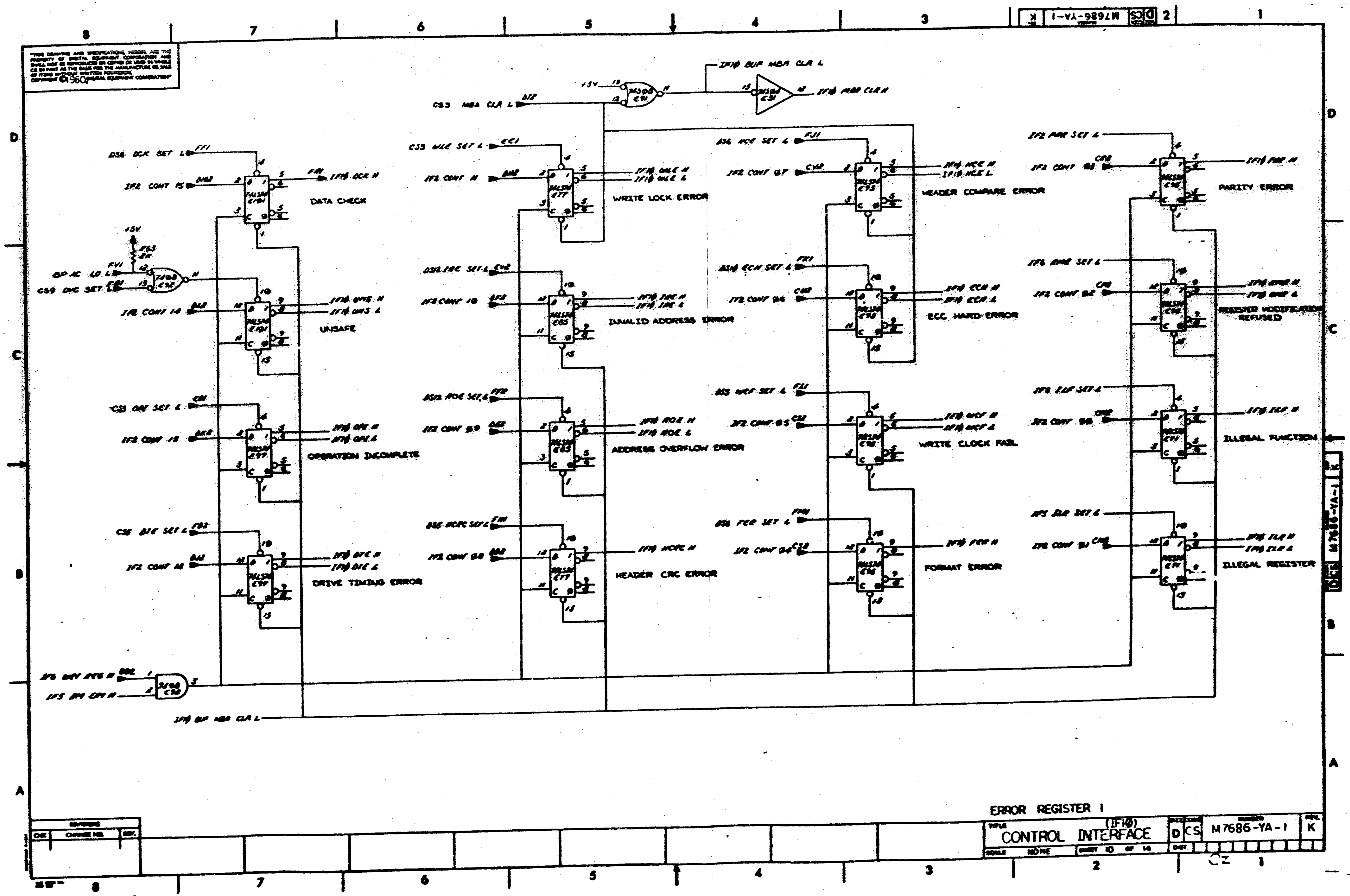


ERROR SUMMARY AND ABORT PLA

DRIVE STATUS AND DRIVE TYPE REGISTERS.
ERROR SUMMARY.

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE: CONTROL INTERFACE (IF9)			SIZE: D	NUMBER: M7686-YA-1 REV K
SCALE: NONE	SHEET 9 OF 16		DES	DIST.

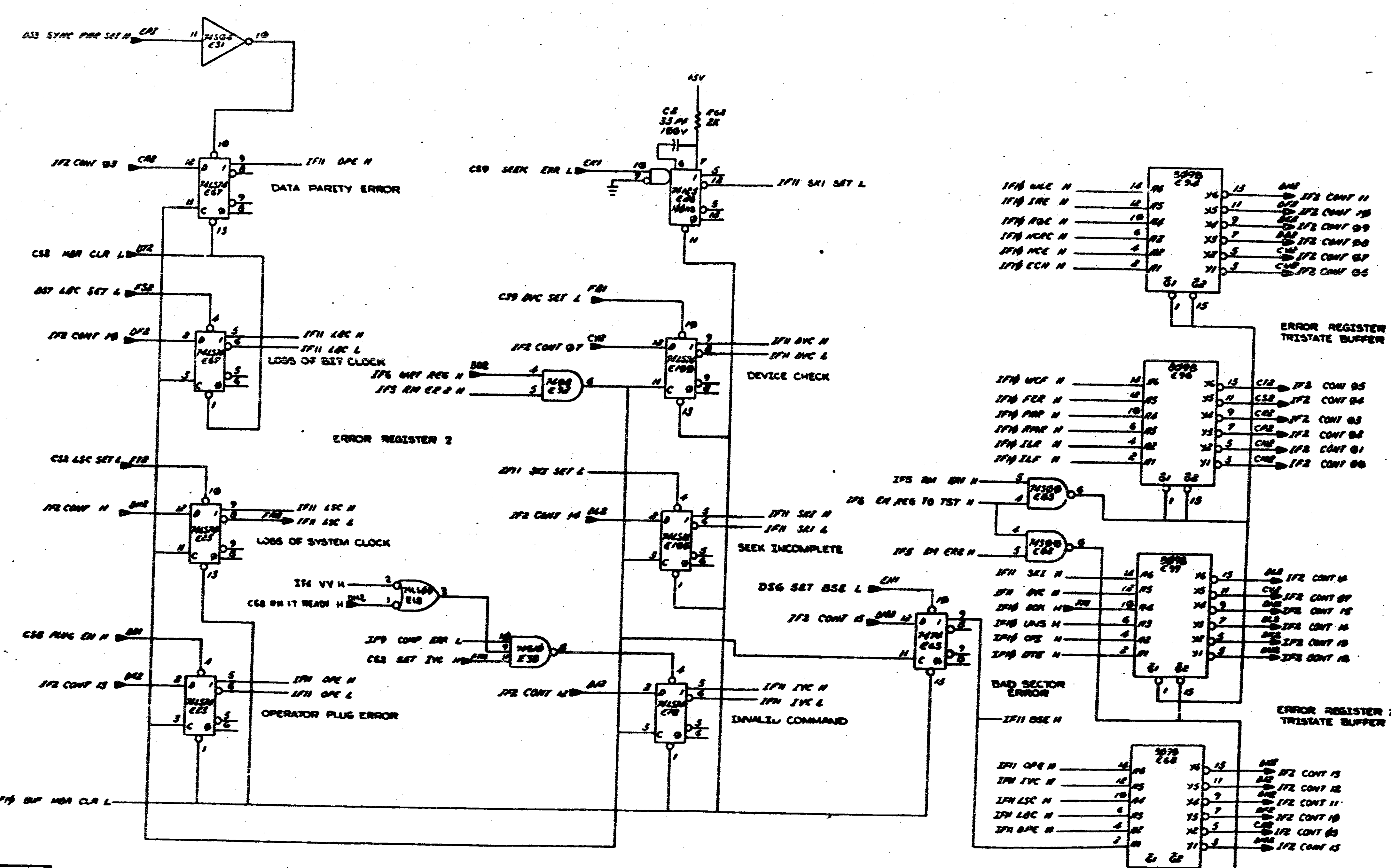


ERROR REGISTER 1

CONTROL INTERFACE (IF10)

D CS M7686-YA-1 K

SHEET 10 OF 14



ERROR REGISTER 2.
ERROR REGISTER BUFFERS.

CONTROL INTERFACE (IF11)

D CS M7686-YA-1 K

SCALE NONE SHEET 11 OF 14

Pin	Signal
AA1	AA1 A CONT ØØ
AB1	AA1 A CONT Ø1
AC1	AA1 A CONT Ø2
AD1	AA1 A CONT Ø3
AE1	AA1 A CONT Ø4
AF1	AA1 A CONT Ø5
AH1	AA1 A CONT Ø6
AJ1	AA1 A CONT Ø7
AK1	AA1 A CONT Ø8
AL1	AA1 A CONT Ø9
AM1	AA1 A CONT 1Ø
AN1	AA1 A CONT 11
AP1	AA1 A CONT 12
AR1	AA1 A CONT 13
AS1	AA1 A CONT 14
AT1	GND
AU1	AA1 A CONT 15
AV1	AA2 A CPA

Pin	Signal
BA1	CS8 DEV ADS 1 H
BB1	CS8 DEV ADS 2 H
BC1	CS8 DEV ADS 4 H
BD1	CS8 PLUG EN H
BE1	AA2 A REG SEL 1 H
BF1	AA2 A REG SEL 2 H
BH1	AA2 A REG SEL 4 H
BJ1	AA2 A REG SEL 8 H
BK1	AA2 A REG SEL 16 H
BL1	AB2 B REG SEL 1 H
BM1	AB2 B REG SEL 2 H
BN1	AB2 B REG SEL 4 H
BP1	AB2 B REG SEL 8 H
BR1	AB2 B REG SEL 16 H
BS1	BP LOCK PORT A L
BT1	GND
BU1	IF3 PORT A ON H
BV1	IF4 PORT B ON H

Pin	Signal
CA1	AB1 B CONT ØØ
CB1	AB1 B CONT Ø1
CC1	AB1 B CONT Ø2
CD1	AB1 B CONT Ø3
CE1	AB1 B CONT Ø4
CF1	AB1 B CONT Ø5
CH1	AB1 B CONT Ø6
CJ1	AB1 B CONT Ø7
CK1	AB1 B CONT Ø8
CL1	AB1 B CONT Ø9
CM1	AB1 B CONT 1Ø
CN1	AB1 B CONT 11
CP1	AB1 B CONT 12
CR1	AB1 B CONT 13
CS1	AB1 B CONT 14
CT1	GND
CU1	AB1 B CONT 15
CV1	AB2 B CPA

Pin	Signal
DA1	IF7 B CONT ØØ OUT L
DB1	IF7 B CONT Ø1 OUT L
DC1	IF7 B CONT Ø2 OUT L
DD1	IF7 B CONT Ø3 OUT L
DE1	IF7 B CONT Ø4 OUT L
DF1	IF7 B CONT Ø5 OUT L
DH1	IF7 B CONT Ø6 OUT L
DJ1	IF7 B CONT Ø7 OUT L
DK1	IF6 EN REG TO TIST H
DL1	DS6 SSE L
DM1	IF8 OCCUPIED L
DN1	CS5 MBA EBL L
DP1	IF4 SEQ CLK H
DR1	IF3 REQ A H
DS1	IF4 REQ B H
DT1	GND
DU1	AA2 INIT A H
DV1	AB2 INIT B H

Pin	Signal
EA1	IF9 EXC ERR H
EB1	IF9 ABORT L
EC1	DS12 CLR OFF MD L
ED1	CS3 OPI SET L
EE1	CS3 WLE SET L
EF1	IF8 OFFSET MODE H
EH1	DS6 SET BSE L
EJ1	CS8 WRT PROT H
EK1	CS8 SEEK ERR H
EL1	CS4 POWER OK H
EM1	IF5 RM LA H
EN1	IF8 OFF DIR H
EP1	DS3 SYNC PAR SET H
ER1	IF5 RM EC1 H
ES1	IF5 RM EC2 H
ET1	GND
EU1	DS5 CRC DONE H
EV1	CS2 RD HDR DATA CMD H

Pin	Signal
FA1	IFØ DCK H
FB1	CS9 DVC SET L
FC1	GND
FD1	MASS FAIL B H
FE1	DSØ ECC DONE H
FF1	DS8 DCK SET L
FH1	DS5 HCRC SET L
FJ1	DS6 HCE SET L
FK1	DS1Ø ECH SET L
FL1	DS5 WCF SET L
FM1	DS6 FER SET L
FN1	IF8 ASY WRT H
FP1	IF6 TEST BIT CLOCK H
FR1	CS2 SET NC H
FS1	IF3 EN BUF TO TIST A H
FT1	GND
FU1	IF4 EN BUF TO TIST B H
FV1	BP AC LO L

Pin	Signal
AA2	+5V
AB2	-15V
AC2	GND
AD2	AA2 DRV ADR A1 H
AE2	AA2 DRV ADR A2 H
AF2	AA2 DRV ADR A4 H
AH2	AA2 DEMAND A H
AJ2	AA2 CTOD A H
AK2	IF3 TRA A L
AL2	IF3 PAR BUS A L
AM2	IF7 A CONT ØØ OUT L
AN2	IF7 A CONT Ø1 OUT L
AP2	IF7 A CONT Ø2 OUT L
AR2	IF7 A CONT Ø3 OUT L
AS2	IF7 A CONT Ø4 OUT L
AT2	IF7 A CONT Ø5 OUT L
AU2	IF7 A CONT Ø6 OUT L
AV2	IF7 A CONT Ø7 OUT L

Pin	Signal
BA2	+5V
BB2	-15V
BC2	GND
BD2	IF6 WRT REG H
BE2	IF5 MBA SEL A L
BF2	IF5 RM ER2 H
BH2	IF5 RM OF H
BJ2	GR SYS CLOCK
BK2	IF8 DECODE L
BL2	IF9 SEQ SKP L
BM2	BP DRQ H
BN2	BP 8Ø MB L
BP2	BP 36ØØ RPM L
BR2	IF7 ATA A L
BS2	IF7 ATA B L
BT2	BP LOCK PORT B L
BU2	CS2 P SET ATA L
BV2	IF5 EN A TRANS H

Pin	Signal
CA2	+5V
CB2	-15V
CC2	GND
CD2	AB2 DRV ADR B 1 H
CE2	AB2 DRV ADR B 2 H
CF2	AB2 DRV ADR B 4 H
CH2	AB2 DEMAND B H
CJ2	AB2 CTOD B H
CK2	IF4 TRA B L
CL2	IF3 PAR BUS B L
CM2	IF2 CONT ØØ
CN2	IF2 CONT Ø1
CP2	IF2 CONT Ø2
CR2	IF2 CONT Ø3
CS2	IF2 CONT Ø4
CT2	IF2 CONT Ø5
CU2	IF2 CONT Ø6
CV2	IF2 CONT Ø7

Pin	Signal
DA2	+5V
DB2	-15V
DC2	GND
DD2	IF2 CONT Ø8
DE2	IF2 CONT Ø9
DF2	IF2 CONT 1Ø
DH2	IF2 CONT 11
DJ2	IF2 CONT 12
DK2	IF2 CONT 13
DL2	IF2 CONT 14
DM2	IF2 CONT 15
DN2	CS8 UNIT READY H
DP2	IF8 SCH SK R OR W L
DR2	DS11 LBT H
DS2	IF8 READ IN CMD L
DT2	CS3 MBA CLR L
DU2	SA2 REC EXC H
DV2	IF5 EN B TRANS H

Pin	Signal
EA2	+5V
EB2	-15V
EC2	GND
ED2	IF8 INIT A/B L
EE2	IF5 RM SN H
EF2	IF5 RM MR 1 H
EH2	IF8 FØ H
EJ2	IF8 F1 H
EK2	IF8 F2 H
EL2	IF8 F3 H
EM2	IF8 F4 H
EN2	IF8 GO H
EP2	CS3 RESET GO L
ER2	CS8 RUN AND GO H
ES2	CS2 EN EXC H
ET2	IF5 RM DC H
EU2	SPARE
EV2	DS12 IAE SET L

Pin	Signal
FA2	+5V
FB2	-15V
FC2	GND
FD2	CS5 DTE SET L
FE2	IF5 RM DA H
FF2	DS12 AOE SET L
FH2	IF8 FMT 16 H
FJ2	IF8 ECI L
FK2	IF8 HCI L
FL2	CS3 PWR/INIT L
FM2	IF5 RM MR2 H
FN2	CS8 ON CYL L
FP2	CS3 SET PULSE H
FR2	IF11 LSC L
FS2	DS7 LBC SET L
FT2	CS2 LSC SET L
FU2	IF3 PORT A LAMP L
FV2	IF4 PORT B LAMP L

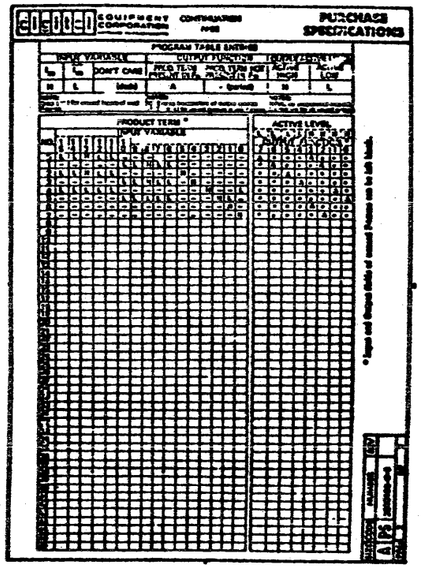
(I/O SIGNAL LIST)

CONTROL INTERFACE (IF12)

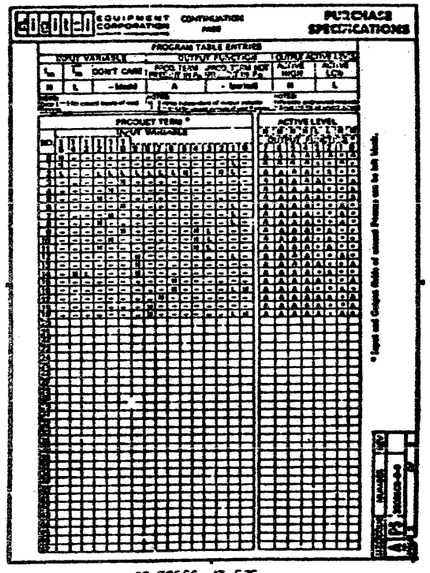
SIZE	CODE	NUMBER	REV
D	CS	M7686-YA-1	K

SCALE NONE — SHEET 12 OF 14

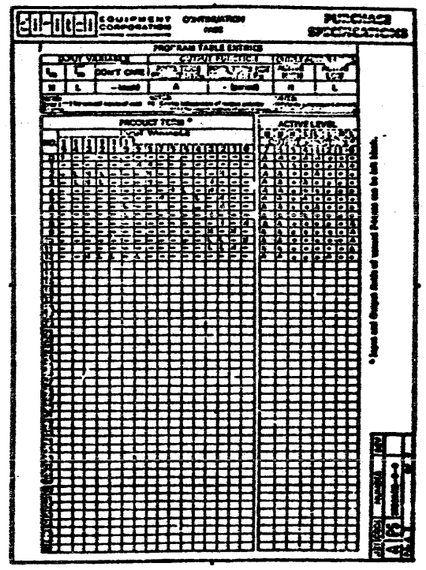
CZ



23-004C6 AT E29
ATTENTION REGISTER CONTROL
AND SET REQUEST



23-005C6 AT E76
ERROR SUMMARY AND ABORT



23-006C6 AT E62
INT, ATTENTION AND RMR SET

REVISIONS		
ECO	CHANGE NO.	REV

TITLE	CONTROL INTERFACE		
SIZE	CODE	NUMBER	REV
D	CS	M7686-YA-1	K
SCALE		SHEET 13 OF 14	

DCS M7686-YA-1 K

BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW

DEC PART NUMBER: 23-20561
LEFT COLUMN OF BIN DATA IS MSB

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	00	377	FF	11111111
1	01	01	373	FB	11111011
2	02	02	377	FF	11111111
3	03	03	337	DF	11011111
4	04	04	377	FF	11111111
5	05	05	367	F7	11110111
6	06	06	357	EF	11101111
7	07	07	337	DF	11011111
8	08	10	235	9D	10011101
9	09	11	373	FB	11111011
10	0A	12	373	FB	11111011
11	0B	13	373	FB	11111011
12	0C	14	377	FF	11111111
13	0D	15	373	FB	11111011
14	0E	16	373	FB	11111011
15	0F	17	373	FB	11111011
16	10	20	373	FB	11111011
17	11	21	373	FB	11111011
18	12	22	373	FB	11111011
19	13	23	373	FB	11111011
20	14	24	373	FB	11111011
21	15	25	376	FE	11111110
22	16	26	373	FB	11111011
23	17	27	373	FB	11111011
24	18	30	136	5E	01011110
25	19	31	136	5E	01011110
26	1A	32	373	FB	11111011
27	1B	33	373	FB	11111011
28	1C	34	136	5E	01011110
29	1D	35	136	5E	01011110
30	1E	36	373	FB	11111011
31	1F	37	373	FB	11111011

ORIGINATOR: IRENE DELLESTRINE
DATE ORIGINATED: 6-20-77

TITLE
32 X 8
ROM/PROM PATTERN SPEC
23-20561 AT E78
COMMAND DECODE

DEC PART NUMBER: 23-20561
LEFT COLUMN OF BIN DATA IS MSB

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	00	040	20	00100000
1	01	01	002	02	00000010
2	02	02	010	08	00001000
3	03	03	042	22	00100010
4	04	04	000	00	00000000
5	05	05	040	20	00100000
6	06	06	000	00	00000000
7	07	07	040	20	00100000
8	08	10	000	00	00000000
9	09	11	002	02	00000010
10	0A	12	000	00	00000000
11	0B	13	002	02	00000010
12	0C	14	000	00	00000000
13	0D	15	010	08	00001000
14	0E	16	000	00	00000000
15	0F	17	120	50	01010000
16	10	20	220	90	10010000
17	11	21	220	90	10010000
18	12	22	220	90	10010000
19	13	23	220	90	10010000
20	14	24	220	90	10010000
21	15	25	220	90	10010000
22	16	26	220	90	10010000
23	17	27	220	90	10010000
24	18	30	220	90	10010000
25	19	31	220	90	10010000
26	1A	32	220	90	10010000
27	1B	33	220	90	10010000
28	1C	34	220	90	10010000
29	1D	35	220	90	10010000
30	1E	36	220	90	10010000
31	1F	37	220	90	10010000

ORIGINATOR: IRENE DELLESTRINE
DATE ORIGINATED: 6-2-77

TITLE
32 X 8
ROM/PROM PATTERN SPEC
23-20561 AT E81
REGISTER ADDRESS DECODE

DEC PART NUMBER: 23-20781
LEFT COLUMN OF BIN DATA IS MSB

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	00	042	22	00100010
1	01	01	010	08	00001000
2	02	02	252	AA	10101010
3	03	03	174	7C	01111100
4	04	04	174	7C	01111100
5	05	05	174	7C	01111100
6	06	06	252	AA	10101010
7	07	07	174	7C	01111100
8	08	10	252	AA	10101010
9	09	11	252	AA	10101010
10	0A	12	252	AA	10101010
11	0B	13	252	AA	10101010
12	0C	14	252	AA	10101010
13	0D	15	252	AA	10101010
14	0E	16	252	AA	10101010
15	0F	17	252	AA	10101010
16	10	20	252	AA	10101010
17	11	21	252	AA	10101010
18	12	22	252	AA	10101010
19	13	23	252	AA	10101010
20	14	24	252	AA	10101010
21	15	25	252	AA	10101010
22	16	26	252	AA	10101010
23	17	27	252	AA	10101010
24	18	30	252	AA	10101010
25	19	31	252	AA	10101010
26	1A	32	252	AA	10101010
27	1B	33	252	AA	10101010
28	1C	34	252	AA	10101010
29	1D	35	252	AA	10101010
30	1E	36	252	AA	10101010
31	1F	37	252	AA	10101010

ORIGINATOR: IRENE DELLESTRINE
DATE ORIGINATED: 6-2-77

TITLE
32 X 8
ROM/PROM PATTERN SPEC
23-20781 AT E89
REGISTER ADDRESS DECODE

DEC PART NUMBER: 23-20700
LEFT COLUMN OF BIN DATA IS MSB

ORIGINATOR: IRENE DELLESTRINE
DATE ORIGINATED: 6-29-77

BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW

SHEET 1 OF 2

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	000	264	B0	10110000
1	01	001	266	B2	10110010
2	02	002	260	B0	10110000
3	03	003	262	B2	10110010
4	04	004	260	B0	10110000
5	05	005	262	B2	10110010
6	06	006	260	B0	10110000
7	07	007	171	79	01111001
8	08	010	260	B0	10110000
9	09	011	260	B0	10110000
10	0A	012	260	B0	10110000
11	0B	013	260	B0	10110000
12	0C	014	260	B0	10110000
13	0D	015	260	B0	10110000
14	0E	016	260	B0	10110000
15	0F	017	260	B0	10110000
16	10	020	260	B0	10110000
17	11	021	260	B0	10110000
18	12	022	260	B0	10110000
19	13	023	260	B0	10110000
20	14	024	260	B0	10110000
21	15	025	260	B0	10110000
22	16	026	260	B0	10110000
23	17	027	260	B0	10110000
24	18	030	260	B0	10110000
25	19	031	260	B0	10110000
26	1A	032	260	B0	10110000
27	1B	033	260	B0	10110000
28	1C	034	260	B0	10110000
29	1D	035	260	B0	10110000
30	1E	036	260	B0	10110000
31	1F	037	260	B0	10110000
32	20	040	240	A0	10100000
33	21	041	242	A2	10100010
34	22	042	240	A0	10100000
35	23	043	242	A2	10100010
36	24	044	240	A0	10100000
37	25	045	242	A2	10100010
38	26	046	240	A0	10100000
39	27	047	242	A2	10100010
40	28	050	240	A0	10100000
41	29	051	242	A2	10100010
42	2A	052	240	A0	10100000
43	2B	053	242	A2	10100010
44	2C	054	240	A0	10100000
45	2D	055	242	A2	10100010
46	2E	056	240	A0	10100000
47	2F	057	242	A2	10100010
48	30	060	240	A0	10100000
49	31	061	242	A2	10100010
50	32	062	240	A0	10100000
51	33	063	242	A2	10100010
52	34	064	240	A0	10100000
53	35	065	242	A2	10100010
54	36	066	240	A0	10100000
55	37	067	242	A2	10100010
56	38	070	240	A0	10100000
57	39	071	242	A2	10100010
58	3A	072	240	A0	10100000
59	3B	073	242	A2	10100010
60	3C	074	240	A0	10100000
61	3D	075	242	A2	10100010
62	3E	076	240	A0	10100000
63	3F	077	242	A2	10100010

ORIGINATOR: IRENE DELLESTRINE
DATE ORIGINATED: 6-29-77

BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW

SHEET 2 OF 2

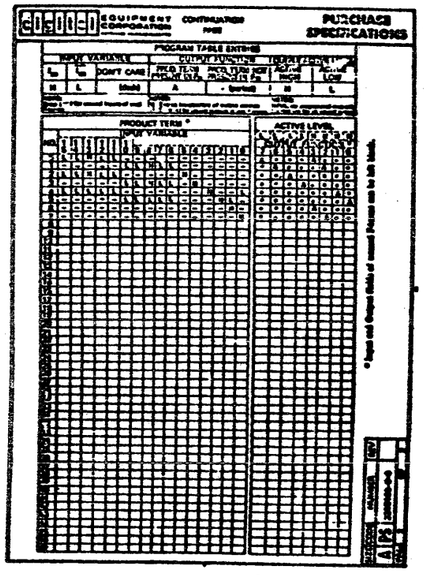
DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
64	40	100	272	B8	10111000
65	41	101	272	B8	10111000
66	42	102	272	B8	10111000
67	43	103	272	B8	10111000
68	44	104	272	B8	10111000
69	45	105	272	B8	10111000
70	46	106	272	B8	10111000
71	47	107	272	B8	10111000
72	48	110	272	B8	10111000
73	49	111	272	B8	10111000
74	4A	112	272	B8	10111000
75	4B	113	272	B8	10111000
76	4C	114	272	B8	10111000
77	4D	115	272	B8	10111000
78	4E	116	272	B8	10111000
79	4F	117	272	B8	10111000
80	50	120	272	B8	10111000
81	51	121	272	B8	10111000
82	52	122	272	B8	10111000
83	53	123	272	B8	10111000
84	54	124	272	B8	10111000
85	55	125	272	B8	10111000
86	56	126	272	B8	10111000
87	57	127	272	B8	10111000
88	58	130	272	B8	10111000
89	59	131	272	B8	10111000
90	5A	132	272	B8	10111000
91	5B	133	272	B8	10111000
92	5C	134	272	B8	10111000
93	5D	135	272	B8	10111000
94	5E	136	272	B8	10111000
95	5F	137	272	B8	10111000
96	60	140	272	B8	10111000
97	61	141	272	B8	10111000
98	62	142	272	B8	10111000
99	63	143	272	B8	10111000
100	64	144	272	B8	10111000
101	65	145	272	B8	10111000
102	66	146	272	B8	10111000
103	67	147	272	B8	10111000
104	68	150	272	B8	10111000
105	69	151	272	B8	10111000
106	6A	152	272	B8	10111000
107	6B	153	272	B8	10111000
108	6C	154	272	B8	10111000
109	6D	155	272	B8	10111000
110	6E	156	272	B8	10111000
111	6F	157	272	B8	10111000
112	70	160	272	B8	10111000
113	71	161	272	B8	10111000
114	72	162	272	B8	10111000
115	73	163	272	B8	10111000
116	74	164	272	B8	10111000
117	75	165	272	B8	10111000
118	76	166	272	B8	10111000
119	77	167	272	B8	10111000
120	78	170	272	B8	10111000
121	79	171	272	B8	10111000
122	7A	172	272	B8	10111000
123	7B	173	272	B8	10111000
124	7C	174	272	B8	10111000
125	7D	175	272	B8	10111000
126	7E	176	272	B8	10111000
127	7F	177	272	B8	10111000

TITLE
256 X 8
ROM/PROM PATTERN SPEC
23-20700
HANDSHAKE PROM AT E34 AND E39

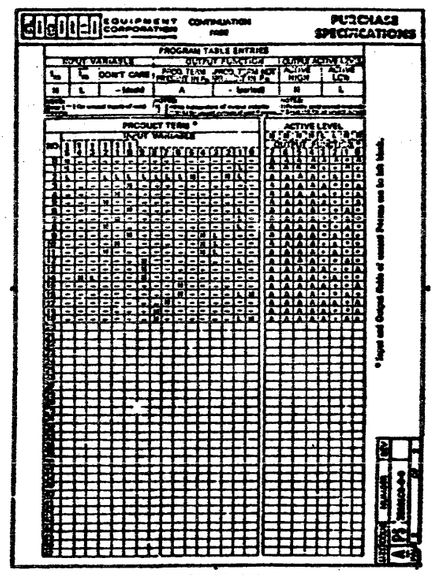
REV SYMB	CHANGE NO	REV
CHR		

TITLE: CONTROL INTERFACE
SIZE: D | CODE: CS | NUMBER: M7686-YA-1 | REV: K
SCALE: — | SHEET 14 OF 14 | DIST:

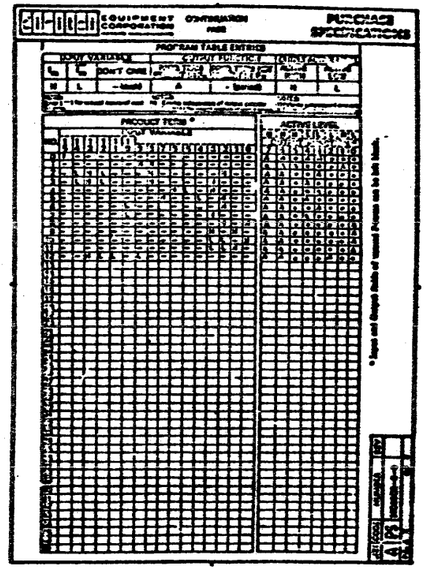
M7686-YA-1 K



23-004C6 AT E29
ATTENTION REGISTER CONTROL
AND SET REQUEST



23-005C6 AT E76
ERROR SUMMARY AND ABORT



23-006C6 AT E62
INIT, ATTENTION AND RMR SET

REVISIONS
ONE | CHANGE NO. | REV

TITLE CONTROL INTERFACE
SCALE — SHEET 13 OF 14
D | CS | M7686-YA-1 | REV K

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

BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW

DEC PART NUMBER: 23-205A1
LEFT COLUMN OF BIN DATA IS MSB

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	00	377	FF	11111111
1	01	01	373	FB	11111011
2	02	02	177	7F	01111111
3	03	03	337	DF	11011111
4	04	04	377	FF	11111111
5	05	05	367	F7	11110111
6	06	06	357	EF	11101111
7	07	07	337	DF	11011111
8	08	10	236	9E	10011110
9	09	11	375	FD	11111101
10	0A	12	373	FB	11111011
11	0B	13	373	FB	11111011
12	0C	14	177	7F	01111111
13	0D	15	373	FB	11111011
14	0E	16	373	FB	11111011
15	0F	17	373	FB	11111011
16	10	20	373	FB	11111011
17	11	21	373	FB	11111011
18	12	22	373	FB	11111011
19	13	23	373	FB	11111011
20	14	24	176	7E	01111110
21	15	25	176	7E	01111110
22	16	26	373	FB	11111011
23	17	27	373	FB	11111011
24	18	30	136	5E	01011110
25	19	31	136	5E	01011110
26	1A	32	373	FB	11111011
27	1B	33	373	FB	11111011
28	1C	34	176	7E	01111110
29	1D	35	176	7E	01111110
30	1E	36	373	FB	11111011
31	1F	37	373	FB	11111011

ORIGINATOR: IRENE BELLETIERE
DATE ORIGINATED: 6-6-77

TITLE
32 X 8
ROM/PROM PATTERN SPEC
23-205A1 AT E78

COMMAND DECODE

DEC PART NUMBER: 23-207A1
LEFT COLUMN OF BIN DATA IS MSB

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	00	002	02	00000010
1	01	01	010	08	00001000
2	02	02	[illegible]	[illegible]	[illegible]
3	03	03	100	40	01000000
4	04	04	000	00	00000000
5	05	05	[illegible]	[illegible]	[illegible]
6	06	06	200	80	10000000
7	07	07	040	20	00100000
8	08	10	[illegible]	[illegible]	[illegible]
9	09	11	[illegible]	[illegible]	[illegible]
10	0A	12	[illegible]	[illegible]	[illegible]
11	0B	13	[illegible]	[illegible]	[illegible]
12	0C	14	001	01	00000001
13	0D	15	[illegible]	[illegible]	[illegible]
14	0E	16	[illegible]	[illegible]	[illegible]
15	0F	17	[illegible]	[illegible]	[illegible]
16	10	20	[illegible]	[illegible]	[illegible]
17	11	21	[illegible]	[illegible]	[illegible]
18	12	22	[illegible]	[illegible]	[illegible]
19	13	23	[illegible]	[illegible]	[illegible]
20	14	24	[illegible]	[illegible]	[illegible]
21	15	25	[illegible]	[illegible]	[illegible]
22	16	26	[illegible]	[illegible]	[illegible]
23	17	27	[illegible]	[illegible]	[illegible]
24	18	30	[illegible]	[illegible]	[illegible]
25	19	31	[illegible]	[illegible]	[illegible]
26	1A	32	[illegible]	[illegible]	[illegible]
27	1B	33	[illegible]	[illegible]	[illegible]
28	1C	34	[illegible]	[illegible]	[illegible]
29	1D	35	[illegible]	[illegible]	[illegible]
30	1E	36	[illegible]	[illegible]	[illegible]
31	1F	37	[illegible]	[illegible]	[illegible]

ORIGINATOR: IRENE BELLETIERE
DATE ORIGINATED: 5-2-77

TITLE
32 X 8
ROM/PROM PATTERN SPEC
23-207A1 AT E89

REGISTER ADDRESS DECODE

DEC PART NUMBER: 23-206A1
LEFT COLUMN OF BIN DATA IS MSB

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	00	000	00	00000000
1	01	01	000	00	00000000
2	02	02	000	00	00000000
3	03	03	000	00	00000000
4	04	04	000	00	00000000
5	05	05	000	00	00000000
6	06	06	000	00	00000000
7	07	07	000	00	00000000
8	08	10	001	01	00000001
9	09	11	002	02	00000010
10	0A	12	004	04	00000100
11	0B	13	020	10	00010000
12	0C	14	000	00	00000000
13	0D	15	010	08	00001000
14	0E	16	040	20	00100000
15	0F	17	100	40	01000000
16	10	20	220	90	10010000
17	11	21	220	90	10010000
18	12	22	220	90	10010000
19	13	23	220	90	10010000
20	14	24	220	90	10010000
21	15	25	220	90	10010000
22	16	26	220	90	10010000
23	17	27	220	90	10010000
24	18	30	220	90	10010000
25	19	31	220	90	10010000
26	1A	32	220	90	10010000
27	1B	33	220	90	10010000
28	1C	34	220	90	10010000
29	1D	35	220	90	10010000
30	1E	36	220	90	10010000
31	1F	37	220	90	10010000

ORIGINATOR: IRENE BELLETIERE
DATE ORIGINATED: 5-2-77

TITLE
32 X 8
ROM/PROM PATTERN SPEC
23-206A1 AT E81

REGISTER ADDRESS DECODE

DEC PART NUMBER: 23-007B8
LEFT COLUMN OF BIN DATA IS MSB

ORIGINATOR: IRENE BELLETIERE
DATE ORIGINATED: 4-29-77

BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW

SHEET 1 OF 2

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	000	[illegible]	[illegible]	[illegible]
1	01	001	[illegible]	[illegible]	[illegible]
2	02	002	[illegible]	[illegible]	[illegible]
3	03	003	[illegible]	[illegible]	[illegible]
4	04	004	[illegible]	[illegible]	[illegible]
5	05	005	[illegible]	[illegible]	[illegible]
6	06	006	[illegible]	[illegible]	[illegible]
7	07	007	[illegible]	[illegible]	[illegible]
8	08	010	[illegible]	[illegible]	[illegible]
9	09	011	[illegible]	[illegible]	[illegible]
10	0A	012	[illegible]	[illegible]	[illegible]
11	0B	013	[illegible]	[illegible]	[illegible]
12	0C	014	[illegible]	[illegible]	[illegible]
13	0D	015	[illegible]	[illegible]	[illegible]
14	0E	016	[illegible]	[illegible]	[illegible]
15	0F	017	[illegible]	[illegible]	[illegible]
16	10	020	[illegible]	[illegible]	[illegible]
17	11	021	[illegible]	[illegible]	[illegible]
18	12	022	[illegible]	[illegible]	[illegible]
19	13	023	[illegible]	[illegible]	[illegible]
20	14	024	[illegible]	[illegible]	[illegible]
21	15	025	[illegible]	[illegible]	[illegible]
22	16	026	[illegible]	[illegible]	[illegible]
23	17	027	[illegible]	[illegible]	[illegible]
24	18	030	[illegible]	[illegible]	[illegible]
25	19	031	[illegible]	[illegible]	[illegible]
26	1A	032	[illegible]	[illegible]	[illegible]
27	1B	033	[illegible]	[illegible]	[illegible]
28	1C	034	[illegible]	[illegible]	[illegible]
29	1D	035	[illegible]	[illegible]	[illegible]
30	1E	036	[illegible]	[illegible]	[illegible]
31	1F	037	[illegible]	[illegible]	[illegible]
32	20	040	[illegible]	[illegible]	[illegible]
33	21	041	[illegible]	[illegible]	[illegible]
34	22	042	[illegible]	[illegible]	[illegible]
35	23	043	[illegible]	[illegible]	[illegible]
36	24	044	[illegible]	[illegible]	[illegible]
37	25	045	[illegible]	[illegible]	[illegible]
38	26	046	[illegible]	[illegible]	[illegible]
39	27	047	[illegible]	[illegible]	[illegible]
40	28	050	[illegible]	[illegible]	[illegible]
41	29	051	[illegible]	[illegible]	[illegible]
42	2A	052	[illegible]	[illegible]	[illegible]
43	2B	053	[illegible]	[illegible]	[illegible]
44	2C	054	[illegible]	[illegible]	[illegible]
45	2D	055	[illegible]	[illegible]	[illegible]
46	2E	056	[illegible]	[illegible]	[illegible]
47	2F	057	[illegible]	[illegible]	[illegible]
48	30	060	[illegible]	[illegible]	[illegible]
49	31	061	[illegible]	[illegible]	[illegible]
50	32	062	[illegible]	[illegible]	[illegible]
51	33	063	[illegible]	[illegible]	[illegible]
52	34	064	[illegible]	[illegible]	[illegible]
53	35	065	[illegible]	[illegible]	[illegible]
54	36	066	[illegible]	[illegible]	[illegible]
55	37	067	[illegible]	[illegible]	[illegible]
56	38	070	[illegible]	[illegible]	[illegible]
57	39	071	[illegible]	[illegible]	[illegible]
58	3A	072	[illegible]	[illegible]	[illegible]
59	3B	073	[illegible]	[illegible]	[illegible]
60	3C	074	[illegible]	[illegible]	[illegible]
61	3D	075	[illegible]	[illegible]	[illegible]
62	3E	076	[illegible]	[illegible]	[illegible]
63	3F	077	[illegible]	[illegible]	[illegible]
64	40	100	[illegible]	[illegible]	[illegible]
65	41	101	[illegible]	[illegible]	[illegible]
66	42	102	[illegible]	[illegible]	[illegible]
67	43	103	[illegible]	[illegible]	[illegible]
68	44	104	[illegible]	[illegible]	[illegible]
69	45	105	[illegible]	[illegible]	[illegible]
70	46	106	[illegible]	[illegible]	[illegible]
71	47	107	[illegible]	[illegible]	[illegible]
72	48	110	[illegible]	[illegible]	[illegible]
73	49	111	[illegible]	[illegible]	[illegible]
74	4A	112	[illegible]	[illegible]	[illegible]
75	4B	113	[illegible]	[illegible]	[illegible]
76	4C	114	[illegible]	[illegible]	[illegible]
77	4D	115	[illegible]	[illegible]	[illegible]
78	4E	116	[illegible]	[illegible]	[illegible]
79	4F	117	[illegible]	[illegible]	[illegible]
80	50	120	[illegible]	[illegible]	[illegible]
81	51	121	[illegible]	[illegible]	[illegible]
82	52	122	[illegible]	[illegible]	[illegible]
83	53	123	[illegible]	[illegible]	[illegible]
84	54	124	[illegible]	[illegible]	[illegible]
85	55	125	[illegible]	[illegible]	[illegible]
86	56	126	[illegible]	[illegible]	[illegible]
87	57	127	[illegible]	[illegible]	[illegible]
88	58	130	[illegible]	[illegible]	[illegible]
89	59	131	[illegible]	[illegible]	[illegible]
90	5A	132	[illegible]	[illegible]	[illegible]
91	5B	133	[illegible]	[illegible]	[illegible]
92	5C	134	[illegible]	[illegible]	[illegible]
93	5D	135	[illegible]	[illegible]	[illegible]
94	5E	136	[illegible]	[illegible]	[illegible]
95	5F	137	[illegible]	[illegible]	[illegible]
96	60	140	[illegible]	[illegible]	[illegible]
97	61	141	[illegible]	[illegible]	[illegible]
98	62	142	[illegible]	[illegible]	[illegible]
99	63	143	[illegible]	[illegible]	[illegible]
100	64	144	[illegible]	[illegible]	[illegible]
101	65	145	[illegible]	[illegible]	[illegible]
102	66	146	[illegible]	[illegible]	[illegible]
103	67	147	[illegible]	[illegible]	[illegible]
104	68	150	[illegible]	[illegible]	[illegible]
105	69	151	[illegible]	[illegible]	[illegible]
106	6A	152	[illegible]	[illegible]	[illegible]
107	6B	153	[illegible]	[illegible]	[illegible]
108	6C	154	[illegible]	[illegible]	[illegible]
109	6D	155	[illegible]	[illegible]	[illegible]
110	6E	156	[illegible]	[illegible]	[illegible]
111	6F	157	[illegible]	[illegible]	[illegible]
112	70	160	[illegible]	[illegible]	[illegible]
113	71	161	[illegible]	[illegible]	[illegible]
114	72	162	[illegible]	[illegible]	[illegible]
115	73	163	[illegible]	[illegible]	[illegible]
116	74	164	[illegible]	[illegible]	[illegible]
117	75	165	[illegible]	[illegible]	[illegible]
118	76	166	[illegible]	[illegible]	[illegible]
119	77	167	[illegible]	[illegible]	[illegible]
120	78	170	[illegible]	[illegible]	[illegible]
121	79	171	[illegible]	[illegible]	[illegible]
122	7A	172	[illegible]	[illegible]	[illegible]
123	7B	173	[illegible]	[illegible]	[illegible]
124	7C	174	[illegible]	[illegible]	[illegible]
125	7D	175	[illegible]	[illegible]	[illegible]
126	7E	176	[illegible]	[illegible]	[illegible]
127	7F	177	[illegible]	[illegible]	[illegible]

DEC PART NUMBER: 23-007B8
LEFT COLUMN OF BIN DATA IS MSB

ORIGINATOR: IRENE BELLETIERE
DATE ORIGINATED: 4-29-77

BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW

SHEET 2 OF 2

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
128	80	200	[illegible]	[illegible]	[illegible]
129	81	201	[illegible]	[illegible]	[illegible]
130	82	202	[illegible]	[illegible]	[illegible]
131	83	203	[illegible]	[illegible]	[illegible]
132	84	204	[illegible]	[illegible]	[illegible]
133	85	205	[illegible]	[illegible]	[illegible]
134	86	206	[illegible]	[illegible]	[illegible]
135	87	207	[illegible]	[illegible]	[illegible]
136	88	210	[illegible]	[illegible]	[illegible]
137	89	211	[illegible]	[illegible]	[illegible]
138	8A	212	[illegible]	[illegible]	[illegible]
139	8B	213	[illegible]	[illegible]	[illegible]
140	8C	214	[illegible]	[illegible]	[illegible]
141	8D	215	[illegible]	[illegible]	[illegible]
142	8E	216	[illegible]	[illegible]	[illegible]
143	8F	217	[illegible]	[illegible]	[illegible]
144	90	220	[illegible]	[illegible]	[illegible]
145	91	221	[illegible]	[illegible]	[illegible]
146	92	222	[illegible]	[illegible]	[illegible]
147	93	223	[illegible]	[illegible]	[illegible]
148	94	224	[illegible]	[illegible]	[illegible]
149	95	225	[illegible]	[illegible]	[illegible]
150	96	226	[illegible]	[illegible]	[illegible]
151	97	227	[illegible]	[illegible]	[illegible]
152	98	230	[illegible]	[illegible]	[illegible]
153	99	231	[illegible]	[illegible]	[illegible]
154	9A	232	[illegible]	[illegible]	[illegible]
155	9B	233	[illegible]	[illegible]	[illegible]
156	9C	234	[illegible]	[illegible]	[illegible]
157	9D	235	[illegible]	[illegible]	[illegible]
158	9E	236	[illegible]	[illegible]	[illegible]
159	9F	237	[illegible]	[illegible]	[illegible]
160	A0	240	[illegible]	[illegible]	[illegible]
161	A1	241	[illegible]	[illegible]	[illegible]
162	A2	242	[illegible]	[illegible]	[illegible]
163	A3	243	[illegible]	[illegible]	[illegible]
164	A4	244	[illegible]	[illegible]	[illegible]
165	A5	245	[illegible]	[illegible]	[illegible]
166	A6	246	[illegible]	[illegible]	[illegible]
167	A7	247	[illegible]	[illegible]	[illegible]
168	A8	250	[illegible]	[illegible]	[illegible]
169	A9	251	[illegible]	[illegible]	[illegible]
170	AA	252	[illegible]	[illegible]	[illegible]
171	AB	253	[illegible]	[illegible]	[illegible]
172	AC	254	[illegible]	[illegible]	[illegible]
173	AD	255	[illegible]	[illegible]	[illegible]
174	AE	256	[illegible]	[illegible]	[illegible]
175	AF	257	[illegible]	[illegible]	[illegible]
176	B0	260	[illegible]	[illegible]	[illegible]
177	B1	261	[illegible]	[illegible]	[illegible]
178	B2	262	[illegible]	[illegible]	[illegible]
179	B3	263	[illegible]	[illegible]	[illegible]
180	B4	264	[illegible]	[illegible]	[illegible]
181	B5	265	[illegible]	[illegible]	[illegible]
182	B6	266	[illegible]	[illegible]	[illegible]
183	B7	267	[illegible]	[illegible]	[illegible]
184	B8	270	[illegible]	[illegible]	[illegible]
185	B9	271	[illegible]	[illegible]	[illegible]
186	BA	272	[illegible]	[illegible]	[illegible]
187	BB	273	[illegible]	[illegible]	[illegible]
188	BC	274	[illegible]	[illegible]	[illegible]
189	BD	275	[illegible]	[illegible]	[illegible]
190	BE	276	[illegible]	[illegible]	[illegible]
191	BF	277	[illegible]	[illegible]	[illegible]
192	C0	300	[illegible]	[illegible]	[illegible]
193	C1	301	[illegible]	[illegible]	[illegible]
194	C2	302	[illegible]	[illegible]	[illegible]
195	C3	303	[illegible]	[illegible]	[illegible]
196	C4	304	[illegible]	[illegible]	[illegible]
197	C5	305	[illegible]	[illegible]	[illegible]
198	C6	306	[illegible]	[illegible]	[illegible]
199	C7	307	[illegible]	[illegible]	[illegible]
200	C8	310	[illegible]	[illegible]	[illegible]
201	C9	311	[illegible]	[illegible]	[illegible]
202	CA	312	[illegible]	[illegible]	[illegible]
203	CB	313	[illegible]	[illegible]	[illegible]
204	CC	314	[illegible]	[illegible]	[illegible]
205	CD	315	[illegible]	[illegible]	[illegible]
206	CE	316	[illegible]	[illegible]	[illegible]
207	CF	317	[illegible]	[illegible]	[illegible]
208	D0	320	[illegible]	[illegible]	[illegible]
209	D1	321	[illegible]	[illegible]	[illegible]
210	D2	322	[illegible]	[illegible]	[illegible]
211	D3	323	[illegible]	[illegible]	[illegible]
212	D4	324	[illegible]	[illegible]	[illegible]
213	D5	325	[illegible]	[illegible]	[illegible]
214	D6	326	[illegible]	[illegible]	[illegible]
215	D7	327	[illegible]	[illegible]	[illegible]
216	D8	330	[illegible]	[illegible]	[illegible]
217	D9	331	[illegible]	[illegible]	[illegible]
218	DA	332	[illegible]	[illegible]	[illegible]
219	DB	333	[illegible]	[illegible]	[illegible]
220	DC	334	[illegible]	[illegible]	[illegible]
221	DD	335	[illegible]	[illegible]	[illegible]
222	DE	336	[illegible]	[illegible]	[illegible]
223	DF	337	[illegible]	[illegible]	[illegible]
224	E0	340	[illegible]	[illegible]	[illegible]
225	E1	341	[illegible]	[illegible]	[illegible]
226	E2	342	[illegible]	[illegible]	[illegible]
227	E3	343	[illegible]	[illegible]	[illegible]
228	E4	344	[illegible]	[illegible]	[illegible]
229	E5	345	[illegible]	[illegible]	[illegible]
230	E6	346	[illegible]	[illegible]	[illegible]
231	E7	347	[illegible]	[illegible]	[illegible]
232	E8	350	[illegible]	[illegible]	[illegible]
233	E9	351	[illegible]	[illegible]	[illegible]
234	EA	352	[illegible]	[illegible]	[illegible]
235	EB	353	[illegible]	[illegible]	[illegible]
236	EC	354	[illegible]	[illegible]	[illegible]
237	ED	355	[illegible]	[illegible]	[illegible]
238	EE	356	[illegible]	[illegible]	[illegible]
239	EF	357	[illegible]	[illegible]	[illegible]
240	F0	360	[illegible]	[illegible]	[illegible]
241	F1	361	[illegible]	[illegible]	[illegible]
242	F2	362	[illegible]	[illegible]	[illegible]
243	F3	363	[illegible]	[illegible]	[illegible]
244	F4	364	[illegible]	[illegible]	[illegible]
245	F5	365	[illegible]	[illegible]	[illegible]
246	F6	366	[illegible]	[illegible]	[illegible]
247	F7	367	[illegible]	[illegible]	[illegible]
248	F8	370	[illegible]	[illegible]	[illegible]
249	F9	371	[illegible]	[illegible]	[illegible]
250	FA	372	[illegible]	[illegible]	[illegible]
251	FB	373	[illegible]	[illegible]	[illegible]
252	FC	374	[illegible]	[illegible]	[illegible]
253	FD	375	[illegible]	[illegible]	[illegible]
254	FE	376	[illegible]	[illegible]	[illegible]
255	FF	377	[illegible]	[illegible]	[illegible]

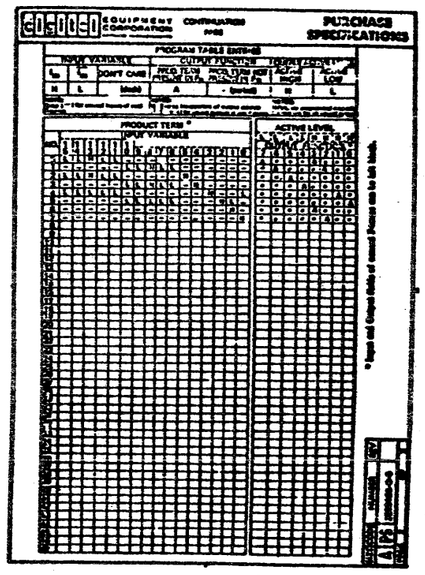
TITLE
256 X 8
ROM/PROM PATTERN SPEC
23-007B8

HANDSHAKE PROM AT E34 AND E39

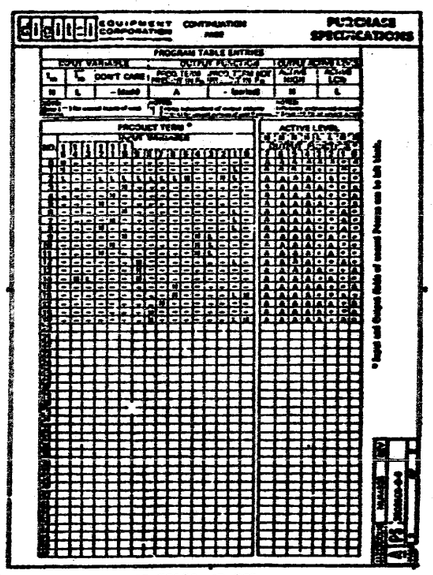
CHK	CHANGE NO	REV

TITLE: CONTROL INTERFACE
SIZE: D CODE: CS NUMBER: M7686-YA-1 REV: K
SCALE — SHEET 14 OF 14
DIST C2

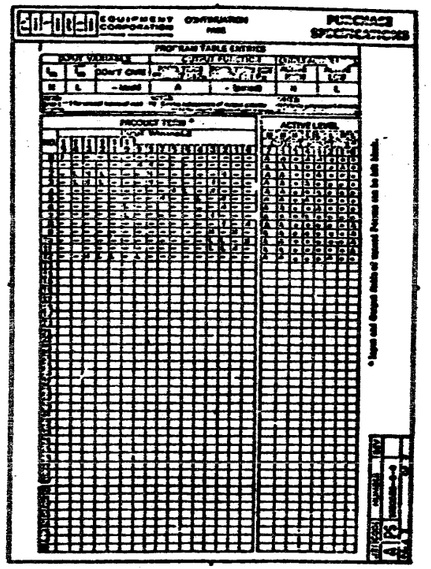
D CS M7686-YA-1 K



23-004C6 AT E29
ATTENTION REGISTER CONTROL
AND SET REQUEST



23-005C6 AT E76
ERROR SUMMARY AND ABORT



23-006C6 AT E62
INIT, ATTENTION AND FAIR SET

REVISIONS		
CHG	CHANGE NO.	REV

TITLE	SIZE	NUMBER	REV
CONTROL INTERFACE	D	DCS M7686-YA-1	K
SCALE —	SHEET 13 OF 14		

DCS M7686-YA-1 K

STANDARD DATA "1" = HIGH
STANDARD DATA "0" = LOW

DEC PART NUMBER: 23-20561
LEFT COLUMN OF BIN DATA IS MSB

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	00	377	FF	11111111
1	01	01	377	FF	11111111
2	02	02	177	7F	01111111
3	03	03	337	DF	11011111
4	04	04	373	FF	11111111
5	05	05	357	EF	11101111
6	06	06	367	F7	11110111
7	07	07	337	DF	11011111
8	08	10	335	FD	11011101
9	09	11	373	FB	11111011
10	0A	12	373	FB	11111011
11	0B	13	373	FB	11111011
12	0C	14	373	FB	11111011
13	0D	15	373	FB	11111011
14	0E	16	373	FB	11111011
15	0F	17	373	FB	11111011
16	10	20	373	FB	11111011
17	11	21	373	FB	11111011
18	12	22	373	FB	11111011
19	13	23	373	FB	11111011
20	14	24	176	7E	01111110
21	15	25	373	FB	11111011
22	16	26	373	FB	11111011
23	17	27	373	FB	11111011
24	18	30	136	5E	01011110
25	19	31	373	FB	11111011
26	1A	32	373	FB	11111011
27	1B	33	373	FB	11111011
28	1C	34	176	7E	01111110
29	1D	35	373	FB	11111011
30	1E	36	373	FB	11111011
31	1F	37	373	FB	11111011

ORIGINATOR: IRENE DELLETTERE
DATE ORIGINATED: 6-6-77

TITLE
32 X 8
ROM/PROM PATTERN SPEC
23-20561 AT E70
COMMAND DECODE

DEC PART NUMBER: 23-20561
LEFT COLUMN OF BIN DATA IS MSB

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	00	000	00	00000000
1	01	01	000	00	00000000
2	02	02	000	00	00000000
3	03	03	000	00	00000000
4	04	04	000	00	00000000
5	05	05	000	00	00000000
6	06	06	000	00	00000000
7	07	07	000	00	00000000
8	08	10	001	01	00000001
9	09	11	002	02	00000010
10	0A	12	004	04	00000100
11	0B	13	008	08	00001000
12	0C	14	020	10	00010000
13	0D	15	040	20	00100000
14	0E	16	100	40	01000000
15	0F	17	200	80	10000000
16	10	20	220	90	10010000
17	11	21	220	90	10010000
18	12	22	220	90	10010000
19	13	23	220	90	10010000
20	14	24	220	90	10010000
21	15	25	220	90	10010000
22	16	26	220	90	10010000
23	17	27	220	90	10010000
24	18	30	220	90	10010000
25	19	31	220	90	10010000
26	1A	32	220	90	10010000
27	1B	33	220	90	10010000
28	1C	34	220	90	10010000
29	1D	35	220	90	10010000
30	1E	36	220	90	10010000
31	1F	37	220	90	10010000

ORIGINATOR: IRENE DELLETTERE
DATE ORIGINATED: 6-6-77

TITLE
32 X 8
ROM/PROM PATTERN SPEC
23-20561 AT E81
REGISTER ADDRESS DECODE

DEC PART NUMBER: 23-20741
LEFT COLUMN OF BIN DATA IS MSB

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	00	003	03	00000011
1	01	01	010	08	00001000
2	02	02	020	10	00010000
3	03	03	043	23	00100011
4	04	04	044	24	00100100
5	05	05	045	25	00100101
6	06	06	046	26	00100110
7	07	07	047	27	00100111
8	08	10	050	28	00101000
9	09	11	051	29	00101001
10	0A	12	052	2A	00101010
11	0B	13	053	2B	00101011
12	0C	14	054	2C	00101100
13	0D	15	055	2D	00101101
14	0E	16	056	2E	00101110
15	0F	17	057	2F	00101111
16	10	20	060	30	00110000
17	11	21	061	31	00110001
18	12	22	062	32	00110010
19	13	23	063	33	00110011
20	14	24	064	34	00110100
21	15	25	065	35	00110101
22	16	26	066	36	00110110
23	17	27	067	37	00110111
24	18	30	070	38	00111000
25	19	31	071	39	00111001
26	1A	32	072	3A	00111010
27	1B	33	073	3B	00111011
28	1C	34	074	3C	00111100
29	1D	35	075	3D	00111101
30	1E	36	076	3E	00111110
31	1F	37	077	3F	00111111

ORIGINATOR: IRENE DELLETTERE
DATE ORIGINATED: 6-29-77

TITLE
32 X 8
ROM/PROM PATTERN SPEC
23-20741 AT E89
REGISTER ADDRESS DECODE

DEC PART NUMBER: 23-00700
LEFT COLUMN OF BIN DATA IS MSB

ORIGINATOR: IRENE DELLETTERE
DATE ORIGINATED: 6-29-77

STANDARD DATA "1" = HIGH
STANDARD DATA "0" = LOW
SHEET 1 OF 2

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	000	360	E0	11100000
1	01	001	000	00	00000000
2	02	002	160	E0	11100000
3	03	003	000	00	00000000
4	04	004	260	B0	10110000
5	05	005	000	00	00000000
6	06	006	260	B0	10110000
7	07	007	171	79	01111001
8	08	010	260	B0	10110000
9	09	011	000	00	00000000
10	0A	012	260	B0	10110000
11	0B	013	000	00	00000000
12	0C	014	260	B0	10110000
13	0D	015	000	00	00000000
14	0E	016	260	B0	10110000
15	0F	017	160	70	01110000
16	10	020	260	B0	10110000
17	11	021	000	00	00000000
18	12	022	260	B0	10110000
19	13	023	000	00	00000000
20	14	024	260	B0	10110000
21	15	025	000	00	00000000
22	16	026	260	B0	10110000
23	17	027	000	00	00000000
24	18	030	260	B0	10110000
25	19	031	000	00	00000000
26	1A	032	260	B0	10110000
27	1B	033	000	00	00000000
28	1C	034	260	B0	10110000
29	1D	035	000	00	00000000
30	1E	036	260	B0	10110000
31	1F	037	000	00	00000000

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
32	20	040	000	00	00000000
33	21	041	000	00	00000000
34	22	042	000	00	00000000
35	23	043	000	00	00000000
36	24	044	000	00	00000000
37	25	045	000	00	00000000
38	26	046	000	00	00000000
39	27	047	000	00	00000000
40	28	050	000	00	00000000
41	29	051	000	00	00000000
42	2A	052	000	00	00000000
43	2B	053	000	00	00000000
44	2C	054	000	00	00000000
45	2D	055	000	00	00000000
46	2E	056	000	00	00000000
47	2F	057	000	00	00000000
48	30	060	000	00	00000000
49	31	061	000	00	00000000
50	32	062	000	00	00000000
51	33	063	000	00	00000000
52	34	064	000	00	00000000
53	35	065	000	00	00000000
54	36	066	000	00	00000000
55	37	067	000	00	00000000
56	38	070	000	00	00000000
57	39	071	000	00	00000000
58	3A	072	000	00	00000000
59	3B	073	000	00	00000000
60	3C	074	000	00	00000000
61	3D	075	000	00	00000000
62	3E	076	000	00	00000000
63	3F	077	000	00	00000000

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
64	40	100	377	FF	11111111
65	41	101	000	00	00000000
66	42	102	377	FF	11111111
67	43	103	000	00	00000000
68	44	104	377	FF	11111111
69	45	105	000	00	00000000
70	46	106	377	FF	11111111
71	47	107	000	00	00000000
72	48	110	377	FF	11111111
73	49	111	000	00	00000000
74	4A	112	377	FF	11111111
75	4B	113	000	00	00000000
76	4C	114	377	FF	11111111
77	4D	115	000	00	00000000
78	4E	116	377	FF	11111111
79	4F	117	000	00	00000000
80	50	120	377	FF	11111111
81	51	121	000	00	00000000
82	52	122	377	FF	11111111
83	53	123	000	00	00000000
84	54	124	377	FF	11111111
85	55	125	000	00	00000000
86	56	126	377	FF	11111111
87	57	127	000	00	00000000
88	58	130	377	FF	11111111
89	59	131	000	00	00000000
90	5A	132	377	FF	11111111
91	5B	133	000	00	00000000
92	5C	134	377	FF	11111111
93	5D	135	000	00	00000000
94	5E	136	377	FF	11111111
95	5F	137	000	00	00000000

DEC PART NUMBER: 23-00700
LEFT COLUMN OF BIN DATA IS MSB

ORIGINATOR: IRENE DELLETTERE
DATE ORIGINATED: 6-29-77

STANDARD DATA "1" = HIGH
STANDARD DATA "0" = LOW
SHEET 2 OF 2

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
128	80	200	000	00	00000000
129	81	201	000	00	00000000
130	82	202	000	00	00000000
131	83	203	000	00	00000000
132	84	204	000	00	00000000
133	85	205	000	00	00000000
134	86	206	000	00	00000000
135	87	207	000	00	00000000
136	88	210	000	00	00000000
137	89	211	000	00	00000000
138	8A	212	000	00	00000000
139	8B	213	000	00	00000000
140	8C	214	000	00	00000000
141	8D	215	000	00	00000000
142	8E	216	000	00	00000000
143	8F	217	000	00	00000000
144	90	220	000	00	00000000
145	91	221	000	00	00000000
146	92	222	000	00	00000000
147	93	223	000	00	00000000
148	94	224	000	00	00000000
149	95	225	000	00	00000000
150	96	226	000	00	00000000
151	97	227	000	00	00000000
152	98	230	000	00	00000000
153	99	231	000	00	00000000
154	9A	232	000	00	00000000
155	9B	233	000	00	00000000
156	9C	234	000	00	00000000
157	9D	235	000	00	00000000
158	9E	236	000	00	00000000
159	9F	237	000	00	00000000
160	A0	240	000	00	00000000
161	A1	241	000	00	00000000
162	A2	242	000	00	00000000
163	A3	243	000	00	00000000
164	A4	244	000	00	00000000
165	A5	245	000	00	00000000
166	A6	246	000	00	00000000
167	A7	247	000	00	00000000
168	A8	250	000	00	00000000
169	A9	251	000	00	00000000
170	AA	252	000	00	00000000
171	AB	253	000	00	00000000
172	AC	254	000	00	00000000
173	AD	255	000	00	00000000
174	AE	256	000	00	00000000
175	AF	257	000	00	00000000
176	B0	260	000	00	00000000
177	B1	261	000	00	00000000
178	B2	262	000	00	00000000
179	B3	263	000	00	00000000
180	B4	264	000	00	00000000
181	B5	265	000	00	00000000
182	B6	266	000	00	00000000
183	B7	267	000	00	00000000
184	B8	270	000	00	00000000
185	B9	271	000	00	00000000
186	BA	272	000	00	00000000
187	BB	273	000	00	00000000
188	BC	274	000	00	00000000
189	BD	275	000	00	00000000
190	BE	276	000	00	00000000
191	BF	277	000	00	00000000

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
192	C0	300	000	00	00000000
193	C1	301	000	00	00000000
194	C2	302	000	00	00000000
195	C3	303	000	00	00000000
196	C4	304	000	00	00000000
197	C5	305	000	00	00000000
198	C6	306	000	00	00000000
199	C7	307	000	00	00000000
200	C8	310	000	00	00000000
201	C9	311	000	00	00000000
202	CA	312	000	00	00000000
203	CB	313	000	00	00000000
204	CC	314	000	00	00000000
205	CD	315	000	00	00000000
206	CE	316	000	00	00000000
207	CF	317	000	00	00000000
208	D0	320	000	00	00000000
209	D1	321	000	00	00000000
210	D2	322	000	00	00000000
211	D3	323	000	00	00000000
212	D4	324	000	00	00000000
213	D5	325	000	00	00000000
214	D6	326	000	00	00000000
215	D7	327	000	00	00000000
216	D8	330	000	00	00000000
217	D9	331	000	00	00000000
218	DA	332	000	00	00000000
219	DB	333	000	00	00000000
220	DC	334	000	00	00000000
221	DD	335	000	00	00000000
222	DE	336	000	00	00000000
223	DF	337	000	00	00000000
224	E0	340	000	00	00000000
225	E1	341	000	00	00000000
226	E2	342	000	00	00000000
227	E3	343	000	00	00000000
228	E4	344	000	00	00000000
229	E5	345	000	00	00000000
230	E6	346	000	00	00000000
231	E7	347	000	00	00000000
232	E8	350	000	00	00000000
233	E9	351	000	00	00000000
234	EA	352	000	00	00000000
235	EB	353	000	00	00000000
236	EC	354	000	00	00000000
237	ED	355	000	00	00000000
238	EE	356	000	00	00000000
239	EF	357	000	00	00000000
240	F0	360	000	00	00000000
241	F1	361	000	00	00000000
242	F2	362	000	00	00000000
243	F3	363	000	00	00000000
244	F4	364	000	00	00000000
245	F5	365	000	00	00000000
246	F6	366	000	00	00000000
247	F7	367	000	00	00000000
248	F8	370	000	00	00000000
249	F9	371	000	00	00000000
250	FA	372	000	00	00000000
251	FB	373	000	00	00000000
252	FC	374	000	00	00000000
253	FD	375	000	00	00000000
254	FE	376	000	00	00000000
255	FF	377	000	00	00000000

TITLE
256 X 8
ROM/PROM PATTERN SPEC
23-00700
HANDSHAKE PROM AT E34 AND E39

REV SIGNS		
CHG	CHANGE NO	REV

TITLE: CONTROL INTERFACE
SCALE: NONE
SHEET: 4 OF 14
SIZE: D
CODE: CS
NUMBER: M7686-YA-1
REV: K
DIST:

M7686-YA-1 K

AUTOMATED BY PRTLST.3L(40)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER		DESCRIPTION	QTY PER VARIATION YA	REFERENCE DESIGNATOR
1	1	D-MD-5012486-0-0	5012486-00		M7686	1	
2	2		1000082-00		68 MFD 15V 10% 150D S.TA	1	C1
3	3		1001610-01		.01 MFD 100V -20+80 Z5U DISC	92	C5-C95,C102
4	4		1017472-00		10 MFD 35V +50-10% AL EL	6	C96,C97,C98,C99,C100,C101
5	5		1000009-00		33.0 MMF 100V 5%200PPM DM15S	3	C2,C3,C4
6	6		1105275-00		D 672 TR= 15NS PIV= 60V SI	1	D1
7	7		1210711-02		HANDLE,MODULE,HEX	1	
8	8		1302388-00		2.0 K .25 W 5.0 % CC	14	R59,R61-R73
9	9		1300271-00		220.0 .25 W 5.0 % CC	2	R55,R56
10	10		1300432-00		3.0 K .25 W 5.0 % CC	51	R1-R51
11	11		1300447-00		4.70 K .25 W 5.0 % CC	1	R54
12	12		1302177-00		47.0 K .25 W 5.0 % CC	1	R53
13	13		1611300-00		DELAY= 10-125NS,5TAPS FAST RISE	1	E47
14	14		1910224-00		DEC 7485 COMPARATOR-4BIT	2	E2,E3
15	15		1910436-00		DEC 74123 ONE SHOT-DUAL,RETRIG	2	E26,E28
16	16		1910532-00		74S00 NAND GATE-QUAD 2IN	3	E37,E82,E83
17	17		1910534-00		74S04 INVERTER GATE-HEX 1I	2	E31,E44
18	18		1910536-00		74S10 NAND GATE-TRIPLE 3IN	1	E38
19	19		1910537-00		74S11 AND GATE-TRIPLE 3INP	2	E40,E69
20	20		1910544-00		74S74 FF-D DUAL,EDGE TRIGG	3	E17,E43,E45
21	21		1910548-00		74S157 MUX 1 OF 2 (QUAD)	8	E13,E14,E16,E21,E48,E50,E52,E53
22	22		1910957-00		74S175 FF-D QUAD COMMON CLO	2	E35,E41
23	23		1911330-00		74173 FF-D QUAD,TRISTATE	4	E19,E20,E24,E25
24	24		1911573-00		74S280 PARITY GEN/CHKR,9BIT	2	E1,E5
25	25		1911641-00	SN	74S257 MUX,QUAD 2 TO 1	5	E6,E8,E9,E10,E12
26	26		1912388-00		74S02 NOR GATE-QUAD 2IN,PO	4	E7,E36,E55,E59
27	27		1912389-00		74S08 AND GATE-QUAD 2IN,PO	3	E44,E49,E91
28	28		1912697-00		LS174 FF-D HEX W/CLEAR	1	E87
29	29		1912799-00		LS00 NAND-GATE-QUAD 2IN,P	3	E18,E30,E58
30	30		1912801-00		LS02 NOR-GATE-QUAD 2IN	3	E57,E64,E75

REVISION HISTORY		
ENG	ECO NUMBER	REV
	INITIAL	K

29-MAR-80

BASIC PART NO: M7686

SECTION A OF A

SECTION.VARIATION INDEX
[A] YA
[B]
[C]
[D]
[E]
[F]
[H]
[J]
[K]
[L]
[M]
[N]

DRN: K. DAVIS — DATE: 6-FEB-80

CHK'D: R. MICHAUD — DATE: 21-FEB-80

DES.ENG: C. DUNIGAN — DATE: 21-FEB-80

RESP.ENG.: C.DUNIGAN — DATE: 21-FEB-80

MFG.ENG.: D. CLAFLIN — DATE: 21-FEB-80

ASSEMBLY NUMBER: D-UA-M7686-YA-0

TOP DOCUMENT NUMBER: *B-DD-M7686-YA

D	I	G	I	T	A	L

TITLE: PARTS LIST
CONTROL INTERFACE

DOCUMENT NUMBER

SIZE	CODE	NUMBER	REV
K	PL	M7686-YA-DBP	K

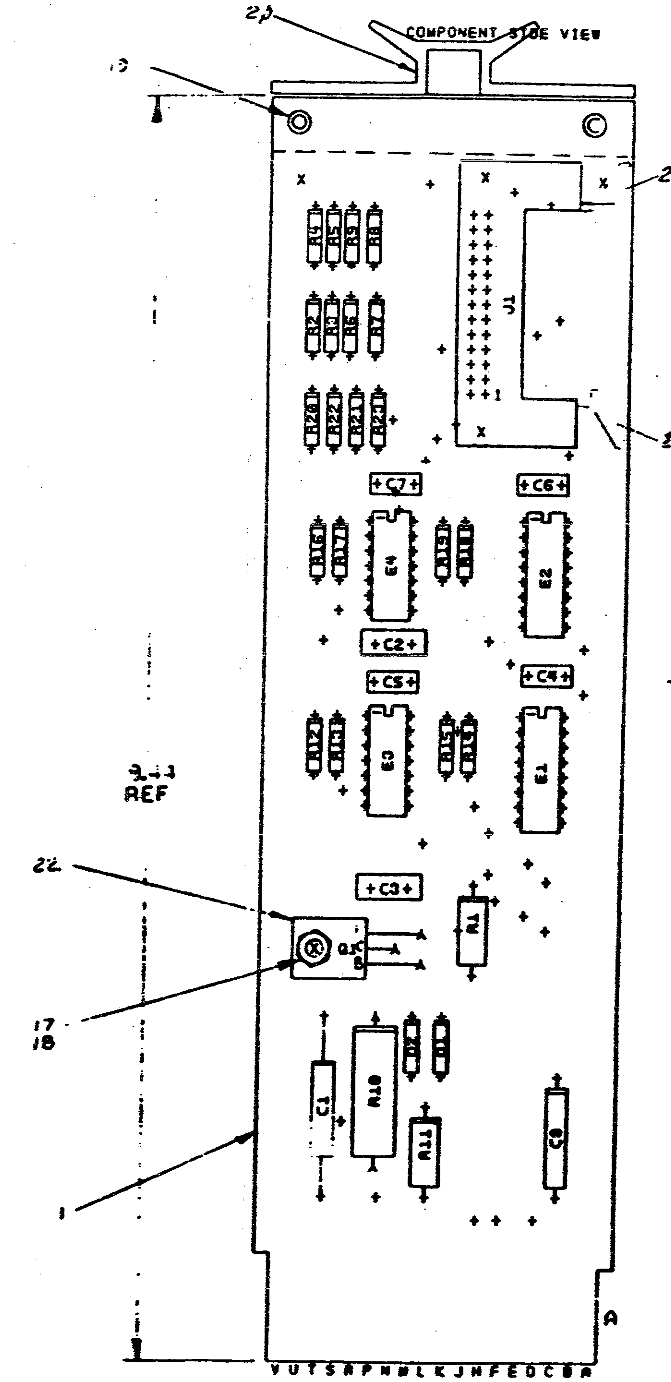
FILE NAME: Z1188K.PLS

EDIT #: 13

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION YA	REFERENCE DESIGNATOR
31	31		1912803-00	LS04 INVERTER GATE-HEX 1I	1	E27
32	32		1912805-00	LS08 AND GATE-QUAD 2IN,PO	1	E42
33	33		1912808-00	LS11 AND GATE-TRIPLE 3IN	1	E84
34	34		1912813-00	LS27 NOR GATE-TRIPLE 3IN	1	E32
35	35		1912819-00	LS42 DECODER,BCD-DECIMAL	2	E11,E15
36	36		1912824-00	LS74 FF-D DUAL,EDGE TRIGG	18	E23,E33,E51,E56,E63,E65,E67,E71,
						CONT E74,E77,E78,E85,E93,E95,E97,E98,
						CONT E100,E101
37	37		1912839-00	LS133 NAND GATE-POS	1	E86
38	38		1912844-00	LS151 MUX 1 OF 8 & DATA	2	E4,E22
39	39		1912853-00	LS175 FF-D QUAD	1	E88
40	40		1913312-00	7428P NOR GATE-QUAD 2IN POS	1	E54
41	41		23004C6-00	C6-01	1	E29
42	42		23007B8-00	B8-01	2	E34,E39
43	43		23206A1-00	A1-07	1	E81
44	44		23205A1-00	A1-03,A1-04,A1-05	1	E70
45	45		1914087-00	8098 BUFFER GATE-HEX 2IN,	9	E60,E68,E72,E73,E79,E80,E94,E96,
						CONT E99
46	46		9000024-01	EYELET, ROLLED FLANGE, .121 OD X	12	
47	47		1912816-00	LS32 OR GATE-QUAD 2IN,POS	1	E90
48	48		1905547-00	7474 FF-D DUAL,EDGE TRIGG	1	E61
49	49		1910155-00	DEC 7408 AND GATE,POS.QUAD 2I	1	E92
50	50		1910091-00	DEC 7437 AND GATE-QUAD 2IN,BU	1	E66
51	51		9105740-55	WIRE(WRAP)30AWG UL1423	A/R	
52	52		1300496-00	15.0 K .25 W 5.0 % CC	2	R57,R58
53	53		23005C6-00	C6-01	1	E76
54	54		23207A1-00	A1-C7	1	E89
55	55		23006C6-00	C6-01	1	E62
56	56	SEE NOTE 1	9009185-00	JUMPER, WIRE, INSULATED, BLACK B	2	W1,W2
57	57		1300479-00	10.0 K .25 W 5.0 % CC	2	R52,R60
58	58		9107267-11	TUBING,THIN WALL,.034ID UL	A/R	

59 NOTE: NOTE 1: W1 (9009185-00) SHOULD NOT BE AUTOMATICALLY INSERTED.

D	I	G	I	T	A	L	TITLE	SECTION A OF A	SIZE	CODE	DOCUMENT NUMBER	REV
							CONTROL INTERFACE		K	PL	M7686-YA-DBP	K



NOTES:

ETCH REV.	CP2
P.C. DESIGN DATA BASE REV.	CL2

SIGNATURES	DATE
DRN.	
CHK'D.	
ENG.	
PROJ.ENG.	
PROD.	
SCALE 2/1	
SHT. 1 OF 3	
NEXT HIGHER ASSY.	

digital

TITLE DRIVE DATA INTERFACE

SIZE	CODE	NUMBER	REV
B	UA	M7687-0-0	C

MS# Z14EA

+5V R1 1/2W 1% +3V

D57 WRITE DATA L F1 — 75113 E1 — RD1 WRT DATA (-) / RD1 WRT DATA (+)

CS8 DIAG L F2

D57 SHIFT CLOCK L J1 — 75113 E1 — RD1 WRT CLK (+) / RD1 WRT CLK (-)

+3V — 75113 E2 — RD1 INIT (-) / RD1 INIT (+)

CS3 MBA CLR L D2

75113 E2 — FORMAT (-) / FORMAT (+)

IF8 FMT H H V2

J1

RD DATA (+) R12 470

R2 56 +5V R20 4.64K 1/8W 1% RD DATA (-) R13 470

R3 56 +3V — 75365 E3 — D1 RD1 RD DATA H

CS8 DIAG H E2 — 75365 E3 — B1 RD1 RD CLK H

R4 56 RD CLK (+) R14 470 -5V

+5V R21 4.64K 1/8W 1% RD CLK (-) R15 470

R5 56 +5V R22 4.64K 1/8W 1% SERVO CLK (+) R16 470

R6 56 SERVO CLK (-) R17 470

R7 56 +3V — 75365 E4 — H1 RD1 SERVO CLK L

CS8 DIAG H (E2) — 75365 E4 — S1 RD1 START ENABLE H

R8 56 START ENABLE (+) R18 470 -5V

+5V R23 4.64K 1/8W 1% START ENABLE (-) R19 470

R9 56

A2 +5V

C4 THRU C7 .01UF

C8 6.8UF

T1

B2 -15V

R10 1/2W 5% 47

R11 22.6 1/2W

Q1 EP2174

C1 6.8UF

D1 IN4733A

D2 D672

C3 .22UF

C2 .22UF

E1 -5V

C2 GND

DRAWN	1-26-77	RM03
CHK		
ENGR		
PROJ ENGR		
PROD		
NEXT HIGHER ASSY		
8-00-M7687-0		
SCALE		
SHEET 1 OF 1		

TITLE: DRIVE DATA INTERFACE

SIZE D | CODE CS | NUMBER M7687-0-1 | REV C | DIST

DESIGNED			
DRAWN			
TRACED			
CHK			
APPD			
MFG			
QA			

DRAWING NO. M7687-0-1 REV C

LAST CHANGE 2428

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY JVV	CHECKED Bob Metzger	SECTION 1
DATE 12/16/76	DATE 2/2/77	
ENG DATE Irene Billestrere 5/11/77	PROD DATE 5/11/77	ISSUED SECTION 1

NOTES:
USED ON: OPTION / MODEL
RM03

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION	REF DESIGNATION
	D-MD-5012487-0-0		DRILL & ETCH DRAWING	REF	
	D-UA-M7687-0-0		UNIT ASSY.	REF	
	B-DD-M7687-0		DWG. DIRECTORY	REF	
	D-CS-M7687-0-1		CIRCUIT SCHEMATIC	REF	
1		5012487	ETCHED DIRCUIT BOARD	1	
2		10-05306-00	CAP, 6.8 UF 10% 35V	2	C8,C1
3		10-10274-00	CAP, 0.22 UF 50V	2	C2,C3
4		10-01610-01	CAP, .01 UF 100V DISC	4	C4,C5,C6,C7
~~5~~		~~10-00062-00~~	~~CAP 68UF 15V 10%~~	~~1~~	~~C1~~
6		11-05275-00	DIODE, D672	1	D2
7		11-09943-00	DIODE, IN4733A	1	D1
8		13-00274-00	RES, 220 ½W 5%	1	R11
9		13-00364-00	RES, 1K ½W 5%	1	R1
10		13-14023-00	RES, 47 2W 5%	1	R10
11		13-00316-00	RES, 470 ¼W 5%	8	R12 thru R19
12		13-02602-00	RES, 56 ¼W 5%	8	R2 thru R9
13		13-01802-00	RES 4.64K 1/8K 1% MF	4	R20 thru R23
14		15-12589-00	TRANS, PNP 40W, 60V, 3A	1	Q1
15		19-11341-00	I.C. DEC 75113	2	E1,E2
16		19-14091-00	I.C. DS3603	2	E3,E4
17		90-06010-04	SCREW BHM#4-40 x 5-16 LG	1	

E.C.O. NO. M7687-C CX003

EN-01140A-16-R278(325) DRB 125

TITLE DRIVE DATA INTERFACE	ASSY NO. D-UA M7687-0-0	SIZE B	CODE PL	NUMBER M7687-0-0	REV. C
	SHEET 1 OF 2	INSERTION PARTS LIST DATA BASE REV			

DIGITAL EQUIPMENT CORPORATION

PARTS LIST

MADE BY JVV DATE 12-16-76
CHECKED G. Bauman DATE 15 APR 77
SECTION 1
ENG DATE Norm Bellantoni 5/11/77
PROD DATE 5/12/77
ISSUED SECTION 1

NOTES:
USED ON / OPTION / MODEL
RM03

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION	REF DESIGNATION
18		90-06557-00	KEPNUT #4-40	1	
19		90-06732-00	EYELET	2	
20		90-08337-06	HANDLE, FLIP CHIP - MAGENTA	1	
21		12-09941-09	CONNECTOR 26 PIN	1	J1
22		90-08268-00	THERMAL COMPOUND	AR	
~~23~~		~~90-06004-00~~	~~SCREW BHM #2-56 x 7/16 LG~~	~~2~~	
~~24~~		~~90-06555-00~~	~~NUT, HEX~~	~~2~~	
~~25~~		~~90-06631-00~~	~~WASHER, INTLK #2~~	~~2~~	
26		12-09941-03	LATCH, LEFT	1	
27		12-09941-04	LATCH, RIGHT	1	

E.C.O. NO.

TITLE: DRIVE DATA INTERFACE

ASSY NO. D-UA-M7687-0-0
SHEET 2 OF 2

SIZE B | CODE PL | NUMBER M7687-0-0 | REV. C

INSERTION PARTS LIST DATA BASE REV

REWORK INSTRUCTIONS

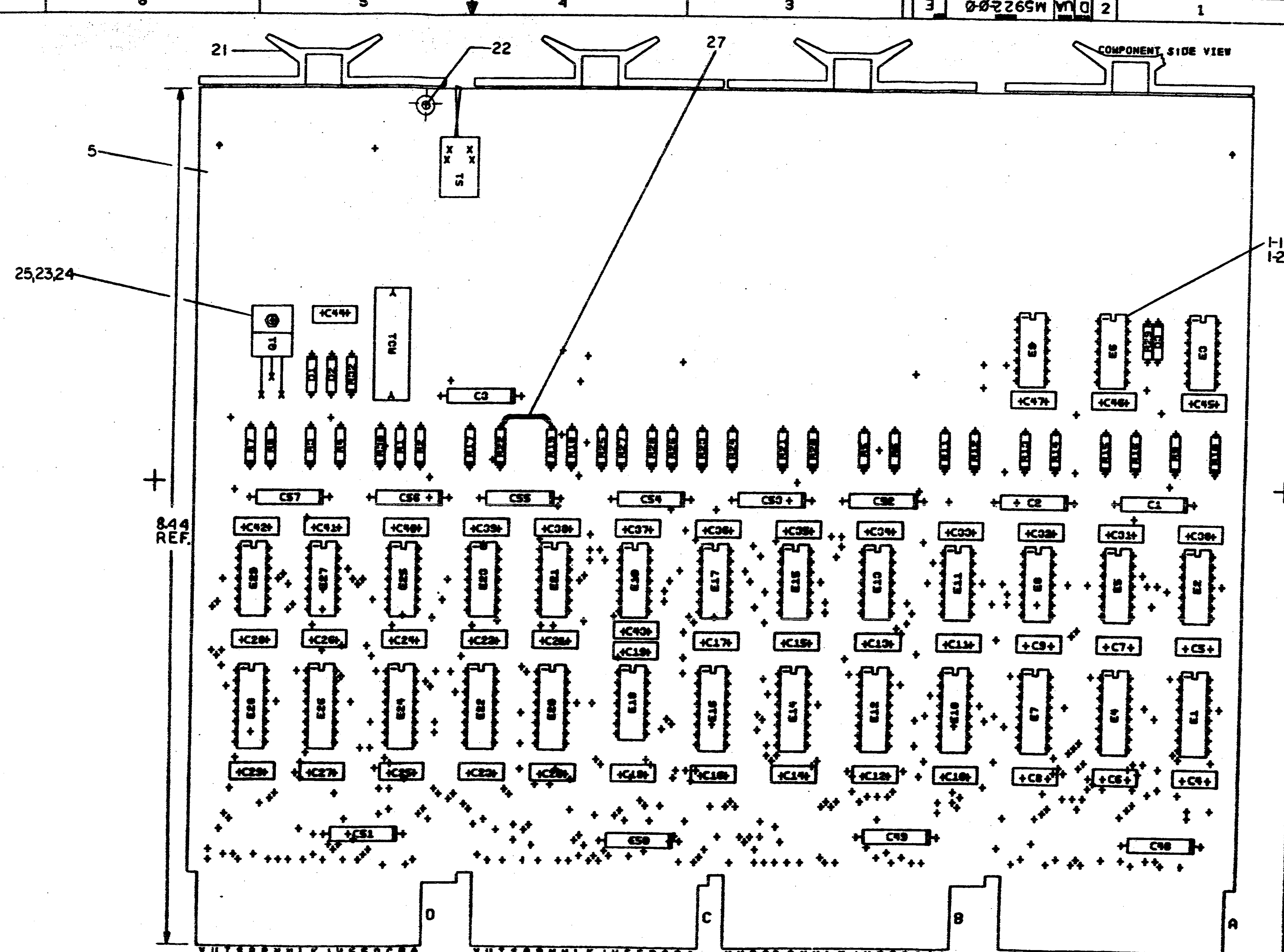
ECO # 1

COMPONENT DELETE SIDE 1:

1-1 DELETE E6 (P/N 1909686-00)

COMPONENT ADD SIDE 1:

1-2 ADD E6 (P/N 1911324-00)



NOTES:

CHK	CHANGE NO	REV
	M5922-ML00	D
672	M5922-CXXX K. DAVIS 10 NOV 80 C. DUNIGAN	E

ETCH REV. D

P.C. DESIGN DATA BASE REV. DL

SIGNATURES	DATE
DRN. [illegible]	[illegible]
CHK. D. E. [illegible]	[illegible]
ENG. [illegible]	[illegible]
PROJ. ENG. [illegible]	[illegible]
PROD. [illegible]	[illegible]
SCALE 2:1	
SHT. OF 3	
NEXT HIGHER ASSY.	

digital

TITLE MASS BUS TRANSCEIVER PORT A

SIZE	CODE	NUMBER	REV
D	UA	M5922-0-0	E

CZ 1 MS# 104518

IF2 CONT 15 (D53 MB 15L) DV1
IF2 CONT 14 (D53 MB 14L) DF1
IF2 CONT 13 (D53 MB 13L) DL2
IF2 CONT 12 (D53 MB 12L) DH1
IF2 CONT 11 (D53 MB 11L) DF2
IF2 CONT 10 (D53 MB 10L) DD1
IF2 CONT 09 (D53 MB 09L) DC1
IF2 CONT 08 (D53 MB 08L) DE2
IF5 EN A TRANS H (C56 TRANSMIT EN A H) CPE
AA2+3V (C55 SYNC REC EN A H) DJ2

75113 E24: CJ1 MASS C15 A H (MASS D15 A H); CH1 MASS C15 A L (MASS D15 A L); CK1 MASS C14 A H (MASS D14 A H); CL1 MASS C14 A L (MASS D14 A L)
75113 E26: CN1 MASS C13 A H (MASS D13 A H); CM1 MASS C13 A L (MASS D13 A L); CP1 MASS C12 A H (MASS D12 A H); CR1 MASS C12 A L (MASS D12 A L)
75113 E16: CA1 MASS C11 A H (MASS D11 A H); CB1 MASS C11 A L (MASS D11 A L); AF1 MASS C10 A H (MASS D10 A H); AE1 MASS C10 A L (MASS D10 A L)
75113 E28: CS1 MASS C09 A H (MASS D09 A H); CT2 MASS C09 A L (MASS D09 A L); CV1 MASS C08 A H (MASS D08 A H); CV2 MASS C08 A L (MASS D08 A L)
7414 E6; 7437 E9

75188 E25: +5V R1 3.3K; DL1 AA1 A CONT 15 (SA1 MB TSB 15H)
75188 E25: +5V R2 3.3K; DJ1 AA1 A CONT 14 (SA1 MB TSB 14H)
75188 E27: +5V R3 3.3K; DP1 AA1 A CONT 13 (SA1 MB TSB 13H)
75188 E27: +5V R4 3.3K; DM1 AA1 A CONT 12 (SA1 MB TSB 12H)
75188 E15: +5V R5 3.3K; DE1 AA1 A CONT 11 (SA1 MB TSB 11H)
75188 E15: +5V R6 3.3K; CR2 AA1 A CONT 10 (SA1 MB TSB 10H)
75188 E23: +5V R7 3.3K; CU1 AA1 A CONT 09 (SA1 MB TSB 09H)
75188 E23: +5V R8 3.3K; C92 AA1 A CONT 08 (SA1 MB TSB 08H)
DN1 AA1 REC EN H (SA1 REC EN H)

IF7 A CONT 07 OUT L AL2 (D53 MB 07 L)
IF7 A CONT 06 OUT L AK2 (D53 MB 06 L)
IF7 A CONT 05 OUT L BD2 (D53 MB 05 L)
IF7 A CONT 04 OUT L AU2 (D53 MB 04 L)
IF7 A CONT 03 OUT L AH2 (D53 MB 03 L)
IF7 A CONT 02 OUT L AE2 (D53 MB 02 L)
IF7 A CONT 01 OUT L AU1 (D53 MB 01 L)
IF7 A CONT 00 OUT L AM2 (D53 MB 00 L)
IF5 EN A TRANS H (C55 TRANSMIT EN A H) CPE
AA2+3V (C55 SYNC REC EN A H) DJ2

75113 E1: AC1 MASS C07 A H (MASS D07 A H); AD1 MASS C07 A L (MASS D07 A L); AB1 MASS C06 A H (MASS D06 A H); AA1 MASS C06 A L (MASS D06 A L)
75113 E1: AV2 MASS C05 A H (MASS D05 A H); AV1 MASS C05 A L (MASS D05 A L); AT2 MASS C04 A H (MASS D04 A H); AS1 MASS C04 A L (MASS D04 A L)
75113 E7: AP1 MASS C03 A H (MASS D03 A H); AR1 MASS C03 A L (MASS D03 A L); AN1 MASS C02 A H (MASS D02 A H); AM1 MASS C02 A L (MASS D02 A L)
75113 E4: AK1 MASS C01 A H (MASS D01 A H); AL1 MASS C01 A L (MASS D01 A L); AJ1 MASS C00 A H (MASS D00 A H); AH1 MASS C00 A L (MASS D00 A L)
7414 E6; 7437 E9

+5V R9 3.3K; AF2 AA1 A CONT 07 (SA1 MB TSB 07 H)
+5V R10 3.3K; AD2 AA1 A CONT 06 (SA1 MB TSB 06 H)
+5V R11 3.3K; BE2 AA1 A CONT 05 (SA1 MB TSB 05 H)
+5V R12 3.3K; AS2 AA1 A CONT 04 (SA1 MB TSB 04 H)
+5V R13 3.3K; AM2 AA1 A CONT 03 (SA1 MB TSB 03 H)
+5V R14 3.3K; AU2 AA1 A CONT 02 (SA1 MB TSB 02 H)
+5V R15 3.3K; AR2 AA1 A CONT 01 (SA1 MB TSB 01 H)
+5V R16 3.3K; AP2 AA1 A CONT 00 (SA1 MB TSB 00 H)
DA1 AA2+3V (SA2+3V)

DK2 AA1 TRAN EN H (SA1 TRAN EN H)

NOTE: SIGNAL NAMES NOT IN PARENTHESES ARE ASSOCIATED WITH ASYNCHRONOUS (CONTROL) SIGNALS. SIGNAL NAMES IN PARENTHESES ARE ASSOCIATED WITH SYNCHRONOUS (DATA) SIGNALS.

DRWN		3/28/77	FIRST USED ON: RM03
CHKD		3/28/77	
ENGR		4/4/77	TITLE: MASS BUS TRANSCEIVER PORT A
PROJ ENGR		4/28/77	
PROJ		5/2/77	
NEXT HIGHER ASSY			8-00-M5922-0
SCALE			SIZE D CODE CS NUMBER M5922-0-1 REV F
SHEET 1 OF 2			DWG

REVISIONS			
REV	ORDER NO.	DESCRIPTION	DATE
A	M5922-ML001	ORIGINAL RELEASE	4/28/77
B	M5922-CO001	CHANGE PER ECO M5922-CO001	5/2/77

R30 390 +5V

S1 ENABLE / DISABLE

IF4 TRA B L (IF8 OCCUPIED L)
AB2 +3V (CS5 TRNSCEIVR ENB H)
BM2, BL2 → 75113 E16 → CN1 MASS TRA B H (MASS OCC B H), CM1 MASS TRA B L (MASS OCC B L)

IF7 ATA B L (CS5 MBA EBL L)
BN2 → 75113 E16 → CF1 MASS ATTN B H (MASS EBL B H), CE1 MASS ATTN B L (MASS EBL B L)

ABI REC EN H (SBI REC EN H)
AU1
IF3 PAR BUS B L (D53 MB 16 L)
IF4 EN BUFF TO TIST B H (SBI TRAN EN H)
CV2 → 75113 E12 → DE1 MASS CPA B H (MASS DIG B H), DE1 MASS CPA B L (MASS DIG B L)
+5V R17 3.3K → 7500 E23 → DE2 AB2 B CPA H (SA2 MB TSB 15 H)

(D53 MB 17 L)
(CS5 TRANSMIT EN B H)
BP2, BR2 → 75113 E21 → DD1 MASS RS Ø B H (MASS DI7 B H), DC1 MASS RS Ø B L (MASS DI7 B L)
+5V R18 3.3K → 7500 E20 → CF2 AB2 B REG SEL 1 H (SA2 MB TSB 17 H)

(SA2 MB SYNC PAR H)
AU1 → 75113 E21 → CT2 MASS RS 1 B H (MASS DPA B H), CS1 MASS RS 1 B L (MASS DPA B L)
+5V R19 3.3K → 7500 E20 → CJ2 AB2 B REG SEL 2 H (SA2 MB SYNC PAR L)

(DS5 MB SCLK L)
(CS5 TRNSCEIVR ENB H)
DF2, BM2 → 75113 E14 → CD1 MASS RS 2 B H (MASS SCLK B H), CC1 MASS RS 2 B L (MASS SCLK B L)
+5V R20 3.3K → 7500 E15 → AR2 AB2 B REG SEL 4 H

+5V R21 3.3K → 7500 E15 → BD2 AB2 B REG SEL 8 H
MASS RS 3 B H, MASS RS 3 B L → CL2, CL1

AB2 MASS FAIL B L (SBI ARC EN H)
CH2
+5V R22 3.3K → 7500 E20 → CE2 AB2 B REG SEL 16 H
MASS RS 4 B H, MASS RS 4 B L → CK2, CK1

7414 E6, 7417 E9, 7417 E3, 7417 E3, 7417 E3, 75113 E22

AP2, AS2, AT2, AU2 — SPARE PINS

SPARE LOGIC

(CS6 MB EXCEPTION L), BL2
(CS5 TRNSCEIVR EN B H), BH2 → 75113 E14 → CB1 MASS C TO D B H (MASS EXC B H), CA1 MASS C TO D B L (MASS EXC B L)

CU1 AB2 +5V (SB2 +3V)

+5V R23 3.3K → 7500 E17 → BE2 AB2 C TO D B H (SA2 REC EXC H)

+5V R24 3.3K → 7500 E17 → AF1 AB2 DEMAND B H (SA2 RUN H)
AB2 3V (IF4 PORT B ON H), AN1
MASS DEM B H (MASS RUN B H), CV2
MASS DEM B L (MASS RUN B L), CV1

+5V D3 D672 R29 4.7K
MASS FAIL B H, DD2 → 7414 E6 → 7417 E5 → AF2 AB2 MASS FAIL B L

+5V R25 1K → 7500 E19 → AE1 AB2 INIT B H (SB2 WRT CLK B H)
MASS INIT B H (MASS WCLK B H), MASS INIT B L (MASS WCLK B L), CH1, CJ1

+5V R26 3.3K → 7500 E19 → BK2 AB2 DRV ADR B1 H
MASS DS Ø B H, MASS DS Ø B L, CU2, CS2

+5V R27 3.3K → 7500 E18 → CD2 AB2 DRV ADR B4 H
MASS DS 2 B H, MASS DS 2 B L, CP2, CP1

+5V R28 3.3K → 7500 E18 → BJ2 AB2 DRV ADR OUT 2 H
MASS DS 1 B H, MASS DS 1 B L, CR1, CR1

+5V — AA2, BA2, CA2, DA2
GND — AC2, AT1, BC2, BT1, CC2, CT1, DC2, DT1
C1, C2 C48 THRU C53 10 µf
C4 THRU C29, C49 THRU C47 0.22 µf
C3 10 µf
C44 0.22 µf
C5 DG72
D1 IN4733A
C30 THRU C43 0.22 µf
C34 THRU C37 .1 µf
-5V
Q1 EP2174
R32 470
R31 27 2W
-15V — AB2, BB2, CB2, DB2

REVISIONS: CHG | CHANGE NO. | REV

TITLE MASS BUS TRANSCEIVER PORT B
SIZE D | CODE CS | NUMBER M5923-Ø-1 | REV. F
SCALE | SHEET 2 OF 2 | DIST.

M5923-Ø-1 D CS 3 2

AUTOMATED BY PRTLST.2D(16)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1	D-CS-M5923-0-1		CIRCUIT SCHEMATIC	REF	
2	2	D-UA-M5923-0-0		UNIT ASSEMBLY	REF	
3	3	B-DD-M5923-0-0		DWG DIRECTORY	REF	
4	4	D-MD-5012533-0-0		DRILL AND ETCH DRAWING	REF	
5	5		5012533-00	M5923	1	
6	6		1017472-00	10 MFD 35V +50-10% AL EL	13	C1,C2,C3,C48-C57
7	7		1010274-00	.22 MFD 50V +80-20% Z5U CER	44	C4-C47
8	8		1105275-00	D 672 TR= 15NS PIV= 60V SI	2	D2,D3
9	9		1109943-00	1N 4733A VZ= 5.1 5% 1W Y	1	D1
10	10		1300316-00	470.0 .25 W 5.0 % CC	1	R32
11	11		1300439-00	3.30 K .25 W 5.0 % CC	27	R1-R24,R26,R27,R28
12	12		1300447-00	4.70 K .25 W 5.0 % CC	1	R29
13	13		1305624-00	27.0 2.0 W10.0 % CC	1	R31
14	14		1300309-00	390.0 .25 W 5.0 % CC	1	R30
15	15		1512589-00	PNP 40W SI 60 25	1	Q1
16	16		1911324-00	7414 INVERTER,HEX 1IN SCH	1	E6
17	17		1909929-00	7417 BUFFER GATE-HEX 1INP	1	E3
18	18		1910091-00	DEC 7437 AND GATE-QUAD 2IN,BU	1	E9
19	19		1910725-00	75108B RECEIVER,LINE,DUAL,	14	E2,E5,E8,E11,E13,E15,E17,E18,
						CONT E19,E20,E23,E25,E27,E29,
20	20		1911341-00	75113 DRIVER,LINE,DUAL,mA	12	E1,E4,E7,E10,E12,E14,E16,E21,
						CONT E22,E24,E26,E28
21	21		9008337-06	HANDLE, FLIP CHIP, MAGENTA	4	
22	22		9006732-00	EYELET, ROLLED FLANGE, .121 OD X	8	
23	23		9006010-01	SCREW,PAN,PHIL 4-40X 5/16 SS	1	
24	24		9006557-00	NUT,KEP , 4-40X 1/4 AF	1	
25	25		9008268-00	COMPOUND, THERMAL JOINT	A/R	
26	26		1210209-00	SW,TOG,SPDT,.01A@6V,ON/ON,SUBMIN	1	S1
27	27		1300365-00	1.0 K .25 W 5.0 % CC	1	R25

REVISION HISTORY			
ENG	ECO NUMBER	REV	
---	INIT	D	
ER	00001	D	
LC	M5923-CX002	E	
CD	M5923-CX003	F	
	W.C.M. 25 Nov 80		

BASIC PART NO: M5923

SECTION A OF A

SECTION.VARIATION INDEX
[A] 00
[B]
[C]
[D]
[E]
[F]
[H]
[J]
[K]
[L]
[M]
[N]

DRN: R SULLIVAN — DATE: 13-JUL-78

CHK'D: CB — DATE: 13-JUL-78

DES.ENG: RE — DATE: 13-JUL-78

RESP.ENG.: R E — DATE: 13-JUL-78

MFG.ENG.: MH — DATE: 13-JUL-78

ASSEMBLY NUMBER: D-UA-M5923-0-0

TOP DOCUMENT NUMBER: RM03

D	I	G	I	T	A	L

TITLE: PARTS LIST
MASSBUS TRANCEIVER PORT B

DOCUMENT NUMBER

SIZE	CODE	NUMBER	REV
K	PL	M5923-0-DBP	F

FILE NAME: Z0847F.PLS

EDIT #: 6

REWORK INSTRUCTIONS

COMPONENT DELETE SIDE 1:

1-1 DELETE E6 (P/N 1909686-00)

COMPONENT ADD SIDE 1.

1-2 ADD E6 (P/N 1911329-00)

21

23,24,25

COMPONENT SIDE VIEW

1-1
1-2

NOTES:

CHG	CHANGE NO.	REV

SIGNATURES	DATE
DRN.	
CHK'D.	
ENG.	
PROJ. ENG.	
PROD.	
SCALE	
SHT. 1 OF 3	
NEXT HIGHER ASSY.	

ETCH REV.
P.C. DESIGN DATA BASE REV.

digital

TITLE MASS BUS TRANSCEIVER PORT B

SIZE D | CODE | NUMBER M5923-04 | REV E

1 MS#

IF2 CONT 15 (DS3 MB 15L)
IF2 CONT 14 (DS3 MB 14L)
IF2 CONT 13 (DS3 MB 13L)
IF2 CONT 12 (DS3 MB 12L)
IF2 CONT 11 (DS3 MB 11L)
IF2 CONT 10 (DS3 MB 10L)
IF2 CONT 09 (DS3 MB 09L)
IF2 CONT 08 (DS3 MB 08L)
IF5 EN B TRANS H (CS5 TRANSMIT EN B H)

MASS CI5 BH (MASS DI5 BH)
MASS CI5 BL (MASS DI5 BL)
MASS CI4 BH (MASS DI4 BH)
MASS CI4 BL (MASS DI4 BL)
MASS CI3 BH (MASS DI3 BH)
MASS CI3 BL (MASS DI3 BL)
MASS CI2 BH (MASS DI2 BH)
MASS CI2 BL (MASS DI2 BL)
MASS CI1 BH (MASS DI1 BH)
MASS CI1 BL (MASS DI1 BL)
MASS CI0 BH (MASS DI0 BH)
MASS CI0 BL (MASS DI0 BL)
MASS CO9 BH (MASS DO9 BH)
MASS CO9 BL (MASS DO9 BL)
MASS CO8 BH (MASS DO8 BH)
MASS CO8 BL (MASS DO8 BL)

ABI B CONT 15 (SAI MB TSB 15)
ABI B CONT 14 (SAI MB TSB 14)
ABI B CONT 13 (SAI MB TSB 13)
ABI B CONT 12 (SAI MB TSB 12)
ABI B CONT 11 (SAI MB TSB 11)
ABI B CONT 10 (SAI MB TSB 10)
ABI B CONT 09 (SAI MB TSB 09)
ABI B CONT 08 (SAI MB TSB 08)
ABI REC EN H (SBI REC EN H)

IF7 B CONT 07 OUT L (DS3 MB 07 L)
IF7 B CONT 06 OUT L (DS3 MB 06 L)
IF7 B CONT 05 OUT L (DS3 MB 05 L)
IF7 B CONT 04 OUT L (DS3 MB 04 L)
IF7 B CONT 03 OUT L (DS3 MB 03 L)
IF7 B CONT 02 OUT L (DS3 MB 02 L)
IF7 B CONT 01 OUT L (DS3 MB 01 L)
IF7 B CONT 00 OUT L (DS3 MB 00 L)
IF5 EN B TRANS H (CS5 TRANSMIT EN B H)

MASS C07 BH (MASS D07 BH)
MASS C07 BL (MASS D07 BL)
MASS C06 BH (MASS D06 BH)
MASS C06 BL (MASS D06 BL)
MASS C05 BH (MASS D05 BH)
MASS C05 BL (MASS D05 BL)
MASS C04 BH (MASS D04 BH)
MASS C04 BL (MASS D04 BL)
MASS C03 BH (MASS D03 BH)
MASS C03 BL (MASS D03 BL)
MASS C02 BH (MASS D02 BH)
MASS C02 BL (MASS D02 BL)
MASS C01 BH (MASS D01 BH)
MASS C01 BL (MASS D01 BL)
MASS C00 BH (MASS D00 BH)
MASS C00 BL (MASS D00 BL)

ABI B CONT 07 (SAI MB TSB 07)
ABI B CONT 06 (SAI MB TSB 06)
ABI B CONT 05 (SAI MB TSB 05)
ABI B CONT 04 (SAI MB TSB 04)
ABI B CONT 03 (SAI MB TSB 03)
ABI B CONT 02 (SAI MB TSB 02)
ABI B CONT 01 (SAI MB TSB 01)
ABI B CONT 00 (SAI MB TSB 00)
ABI TRAN EN H (SBI TRAN EN H)

(CS5 SYNC REC EN BH)

NOTE: SIGNAL NAMES NOT IN PARENTHESES ARE ASSOCIATED WITH ASYNCHRONOUS (CONTROL) SIGNALS. SIGNAL NAMES IN PARENTHESES ARE ASSOCIATED WITH SYNCHRONOUS (DATA) SIGNALS.

DRWN	1-C-77
CHK'D	
ENGR	
PROJ ENGR	
PROD	
NEXT HIGHER ASSY	B-DD-M5923-0
SCALE	
SHEET 1 OF 2	

FIRST USED ON: RM03

TITLE: MASS BUS TRANSCEIVER PORT B

SIZE D | CODE CS | NUMBER M5923-0-1 | REV F

DIST.

REWORK INSTRUCTIONS

COMPONENT DELETE SIDE 1:

1-1 DELETE E6 (P/N 1909686-00)

COMPONENT ADD SIDE 1:

1-2 ADD E6 (P/N 1911324-00)

21

23,24,25

COMPONENT SIDE VIEW

1-1
1-2

NOTES:

CHG	CHANGE NO	REV
	--	

ETCH REV.	
P.C. DESIGN DATA BASE REV.	

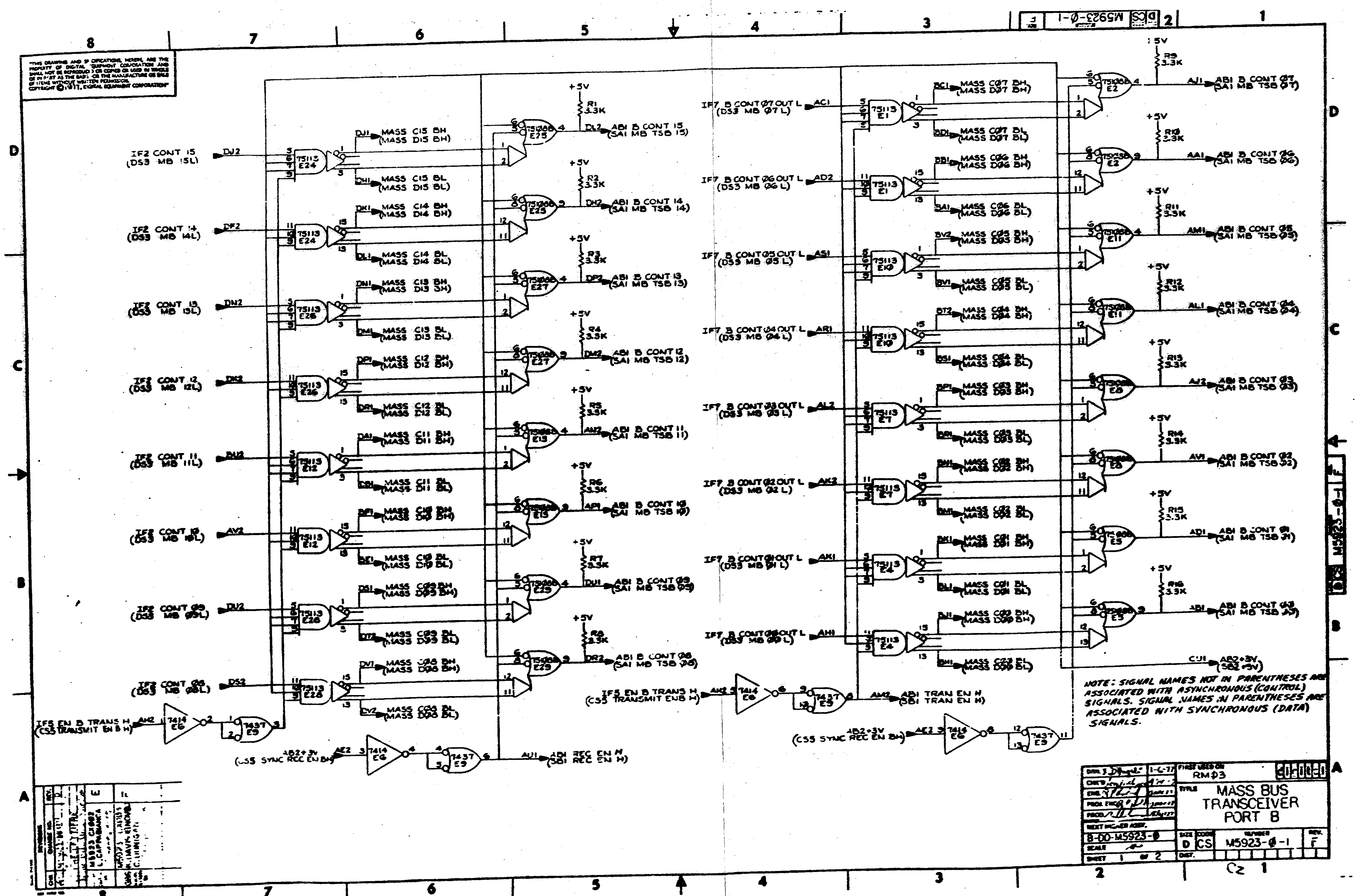
SIGNATURES	DATE
DRN.	
CHK'D.	
ENG.	
PROJ. ENG.	
PROD.	
SCALE	
SHT. 1 OF 3	
NEXT HIGHER ASSY.	

digital

TITLE MASS BUS TRANSCEIVER PORT B

SIZE D | CODE | NUMBER 54-15923-07 | REV E

1 MS8


NOTE: SIGNAL NAMES NOT IN PARENTHESES ARE ASSOCIATED WITH ASYNCHRONOUS (CONTROL) SIGNALS. SIGNAL NAMES IN PARENTHESES ARE ASSOCIATED WITH SYNCHRONOUS (DATA) SIGNALS.
FIRST USED ON RMØ3
MASS BUS TRANSCEIVER PORT B
B-DD-M5923-Ø
SHEET 1 OF 2
D CS M5923-Ø-1 F
IF5 EN B TRANS H (CS5 TRANSMIT EN B H)
(CS5 SYNC REC EN BH)
ABI REC EN H (SBI REC EN H)
ABI TRAN EN H (SBI TRAN EN H)

REWORK INSTRUCTIONS

COMPONENT DELETE SIDE 1:

1-1 DELETE E6 (P/N 1909686-00)

COMPONENT ADD SIDE 1:

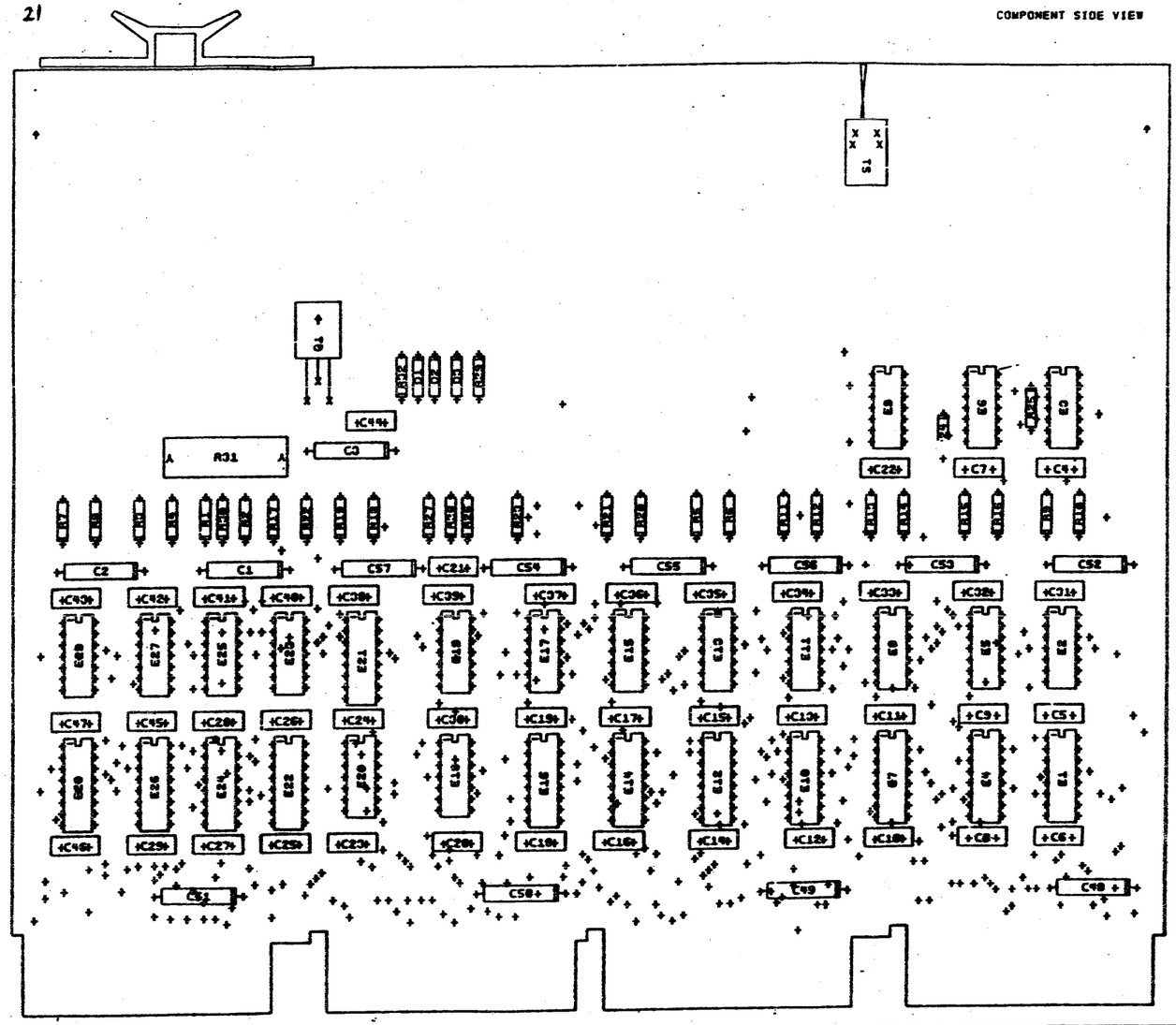
1-2 ADD E6 (P/N 1911324-00)

21

23,24,25

COMPONENT SIDE VIEW

H1
H2



NOTES:

CHG/CHANGE NO.	REV.

ECO# REV.
P.C. DESIGN DATA BASE REV.

SIGNATURES	DATE
DRN.	
CHK'D.	
ENG.	
PROJ. ENG.	
PROD.	
SCALE	
SHT. OF 3	
NEXT HIGHER ASSY.	

digital

TITLE MASS BUS TRANSCEIVER PORT B

SIZE	CODE	NUMBER	REV
D	18	M5923-01	E

MS#

IF2 CONT 15 (DS3 MB 15L)
IF2 CONT 14 (DS3 MB 14L)
IF2 CONT 13 (DS3 MB 13L)
IF2 CONT 12 (DS3 MB 12L)
IF2 CONT 11 (DS3 MB 11L)
IF2 CONT 10 (DS3 MB 10L)
IF2 CONT 09 (DS3 MB 09L)
IF2 CONT 08 (DS3 MB 08L)
IF5 EN B TRANS H (CS5 TRANSMIT EN B H)
(CS5 SYNC REC EN B H)

MASS C15 BH (MASS D15 BH)
MASS C15 BL (MASS D15 BL)
MASS C14 BH (MASS D14 BH)
MASS C14 BL (MASS D14 BL)
MASS C13 BH (MASS D13 BH)
MASS C13 BL (MASS D13 BL)
MASS C12 BH (MASS D12 BH)
MASS C12 BL (MASS D12 BL)
MASS C11 BH (MASS D11 BH)
MASS C11 BL (MASS D11 BL)
MASS C10 BH (MASS D10 BH)
MASS C10 BL (MASS D10 BL)
MASS C09 BH (MASS D09 BH)
MASS C09 BL (MASS D09 BL)
MASS C08 BH (MASS D08 BH)
MASS C08 BL (MASS D08 BL)

ABI B CONT 15 (SAI MB TSB 15)
ABI B CONT 14 (SAI MB TSB 14)
ABI B CONT 13 (SAI MB TSB 13)
ABI B CONT 12 (SAI MB TSB 12)
ABI B CONT 11 (SAI MB TSB 11)
ABI B CONT 10 (SAI MB TSB 10)
ABI B CONT 09 (SAI MB TSB 09)
ABI B CONT 08 (SAI MB TSB 08)
ABI REC EN H (SBI REC EN H)

IF7 B CONT 07 OUT L (DS3 MB 07 L)
IF7 B CONT 06 OUT L (DS3 MB 06 L)
IF7 B CONT 05 OUT L (DS3 MB 05 L)
IF7 B CONT 04 OUT L (DS3 MB 04 L)
IF7 B CONT 03 OUT L (DS3 MB 03 L)
IF7 B CONT 02 OUT L (DS3 MB 02 L)
IF7 B CONT 01 OUT L (DS3 MB 01 L)
IF7 B CONT 00 OUT L (DS3 MB 00 L)
IF5 EN B TRANS H (CS5 TRANSMIT EN B H)
(CS5 SYNC REC EN B H)

MASS C07 BH (MASS D07 BH)
MASS C07 BL (MASS D07 BL)
MASS C06 BH (MASS D06 BH)
MASS C06 BL (MASS D06 BL)
MASS C05 BH (MASS D05 BH)
MASS C05 BL (MASS D05 BL)
MASS C04 BH (MASS D04 BH)
MASS C04 BL (MASS D04 BL)
MASS C03 BH (MASS D03 BH)
MASS C03 BL (MASS D03 BL)
MASS C02 BH (MASS D02 BH)
MASS C02 BL (MASS D02 BL)
MASS C01 BH (MASS D01 BH)
MASS C01 BL (MASS D01 BL)
MASS C00 BH (MASS D00 BH)
MASS C00 BL (MASS D00 BL)

ABI B CONT 07 (SAI MB TSB 07)
ABI B CONT 06 (SAI MB TSB 06)
ABI B CONT 05 (SAI MB TSB 05)
ABI B CONT 04 (SAI MB TSB 04)
ABI B CONT 03 (SAI MB TSB 03)
ABI B CONT 02 (SAI MB TSB 02)
ABI B CONT 01 (SAI MB TSB 01)
ABI B CONT 00 (SAI MB TSB 00)
ABI TRAN EN H (SBI TRAN EN H)
(CS5 SYNC REC EN B H)

+5V
R1 3.3K
R2 3.3K
R3 3.3K
R4 3.3K
R5 3.3K
R6 3.3K
R7 3.3K
R8 3.3K
R9 3.3K
R10 3.3K
R11 3.3K
R12 3.3K
R13 3.3K
R14 3.3K
R15 3.3K
R16 3.3K

C1H ABD+3V (SBI +5V)

NOTE: SIGNAL NAMES NOT IN PARENTHESES ARE ASSOCIATED WITH ASYNCHRONOUS (CONTROL) SIGNALS. SIGNAL NAMES IN PARENTHESES ARE ASSOCIATED WITH SYNCHRONOUS (DATA) SIGNALS.

DRWN	1-6-71	FIRST USED ON	
CHK'D		RM03	
ENG		TITLE	MASS BUS TRANSCEIVER PORT B
PROJ ENGR			
PROJ MGR			
NEXT HIGHER ASSY			
8-00-M5923-0		SIZE D	CODE CS
SCALE		NUMBER	M5923-0-1
SHEET 1 OF 2		REV.	F

R3Ø 39Ø +5V

SI ENABLE / DISABLE

IF3 TRA A L (IF8 OCCUPIED L) CE2
AA2 3V (C55 TRNSCEIVR ENA H) DH2
75113 E16
BN1 MASS TRA A H (MASS OCC A H)
BM1 MASS TRA A L (MASS OCC A L)

IF7 ATA A L (C65 MBA EBL L) CH2
75113 E16
BF1 MASS ATTN A H (MASS EBL A H)
BE1 MASS ATTN A L (MASS EBL A L)

AA1 REC EN H (SA1 REC EN H) DN1
IF3 PAR BUS A L (D53 MB 16 L) DD2
IF3 EN BUFF TO TISTA H (SA1 TRAN EN H) CN2
75113 E22
75108B E28
R17 3.3K +5V
CE1 MASS CPA A H (MASS DIG A H)
CF1 MASS CPA A L (MASS DIG A L)
DB1 AA2 A CPA H (SA2 MB T9B 16 H)

(D53 MB 17 L) DB2
(C95 TRANSMIT ENA H) DS1
75113 E20
75108B E21
R18 3.3K +5V
CD1 MASS RSØ A H (MASS DI7 A H)
CC1 MASS RSØ A L (MASS DI7 A L)
BU1 AA2 A REG SEL 1 H (SA2 MB T9B 17 H)

BT2 MASS RS1 A H (MASS DPA A H)
(SA2 MB SYNC PAR H) DR1
75113 E20
75108B E21
R19 3.3K +5V
BS1 MASS RS1 A L (MASS DPA A L)
CH2 AA2 A REG SEL 2 H (SA2 MB SYNC PAR H)

(D55 MB SCLK L) DV2
(C95 TRANSCEIVR ENA H) DU1
75113 E14
BD1 MASS RS2 A H (MASS SCLK A H)
BC1 MASS RS2 A L (MASS SCLK A L)
75108B E15
R2Ø 3.3K +5V
CR2 AA2 A REG SEL 4 H

MASS RS3 A H BL2
MASS RS3 A L BL1
75108B E18
R21 3.3K +5V
CL2 AA2 A REG SEL 8 H

AA2 MASS FAIL A L (SA1 REC EN H) CJ2
MASS RS4 A H BK2
MASS RS4 A L BK1
75108B E25
R22 3.3K +5V
CK2 AA2 A REG SEL 16 H

DN1 DP2 DR2 DU2 SPARE PINS

7414 E6 (13→12) 7417 E3 (11→10)
7417 E3 (5→6) 7417 E3 (15→14)
7417 E3 (9→8) 75113 E22 (11→10, 15→14) SPARE LOGIC

(C56 MB EXCEPTION L) DT2
(C55 TRNSCEIVR ENA H) DU1
75113 E14
BB1 MASS C TO D A H (MASS EXC A H)
BA1 MASS C TO D A L (MASS EXC A L)

AA2 + 3V IF3 PORT A ON H) DM2
MASS DEM A H (MASS RUN A H) BV2
MASS DEM A L (MASS RUN A L) BV1
75108B E17
R23 3.3K +5V
BM2 AA2 C TO D A H (SA2 REC EXC H)
R24 3.3K +5V
BF2 AA2 DEMAND A H (SA2 RUN H)

+5V D3 DG72 R29 4.7K
MASS FAIL A H CD2
7414 E6
7417 E3 DK1 AA2 MASS FAIL A L

MASS INIT A H (MASS WCLK A H) BH1
MASS INIT A L (MASS WCLK A L) BJ1
75108B E16
R25 1K +5V
BJ2 AA2 INIT A H (SA2 WRT CLK A H)

MASS DSØ A H BU2
MASS DSØ A L BS2
75108B E18
R26 3.3K +5V
BH2 AA2 DRV ADR A 1 H

MASS DS1 A H BP2
MASS DS1 A L BP1
75108B E19
R27 3.3K +5V
CU2 AA2 DRV ADR A 4 H

MASS DS2 A H BR2
MASS DS2 A L BR1
75108B E19
R28 3.3K +5V
BN2 AA2 DRV ADR A 2 H

DA1 AA2 +3V (SA2 +3V)

+5V AA2, BA2, CA2, DA2
GND AC2, AT1, BC2, BT1, CC2, CT1, DC2, DT1
C1, C2, C48 THRU C58 10 µf
C4 THRU C29, C45 THRU C47 .22 µf
C44 .22 µf
C3 10 µf
D2 DG72
D1 1NK738A
C56 THRU C43 .22 µf
C54 THRU C57 10 µf
-5V
Q1 EP2174
R32 47Ø
-15V AB2, BB2
R34 27 2W

REVISIONS: CHG | CHANGE NO. | REV

TITLE MASS BUS TRANSCEIVER PORT A
SIZE D CODE DCS NUMBER M5922-Ø-1 REV F
SCALE SHEET 2 OF 2

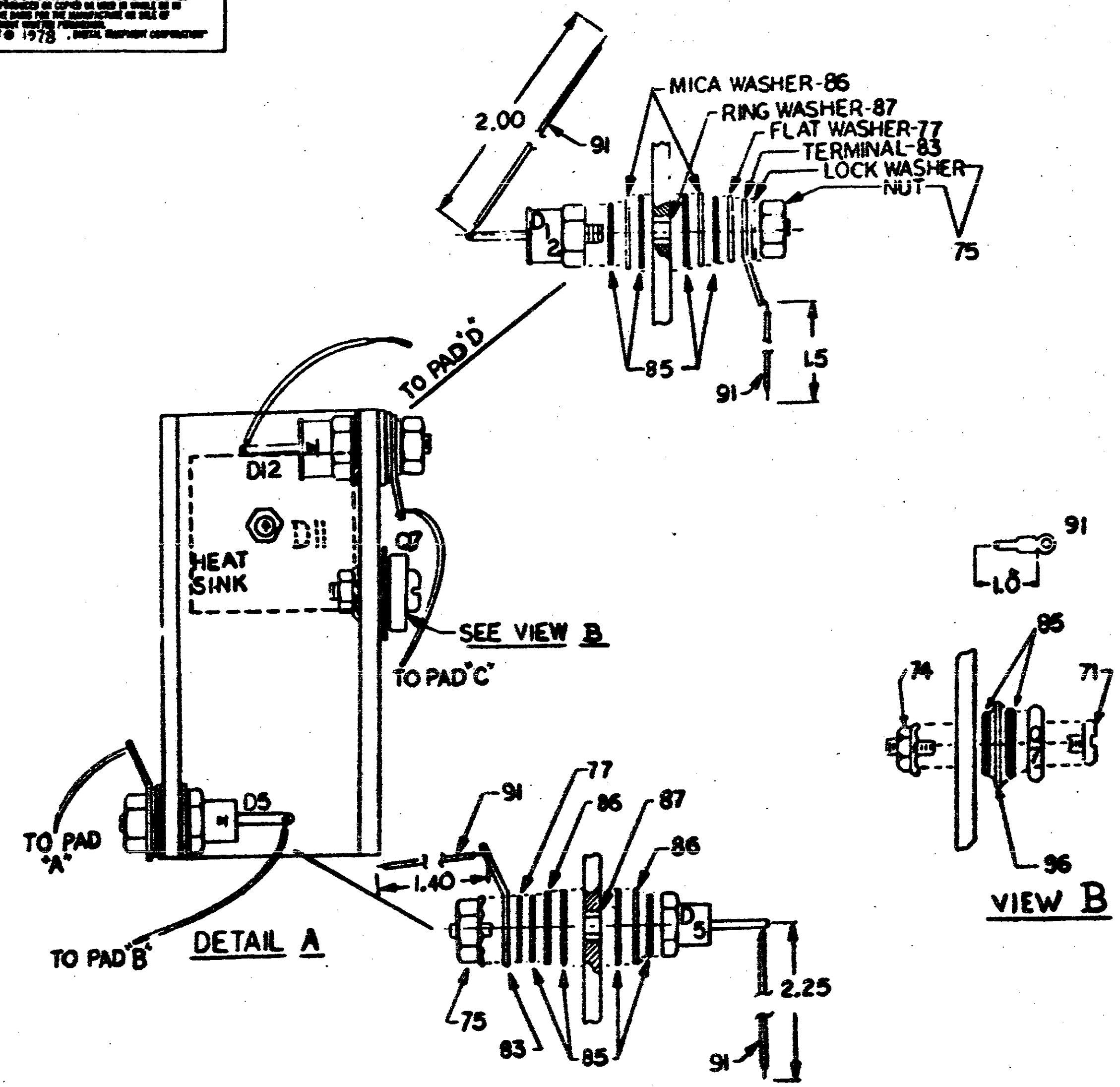
C21

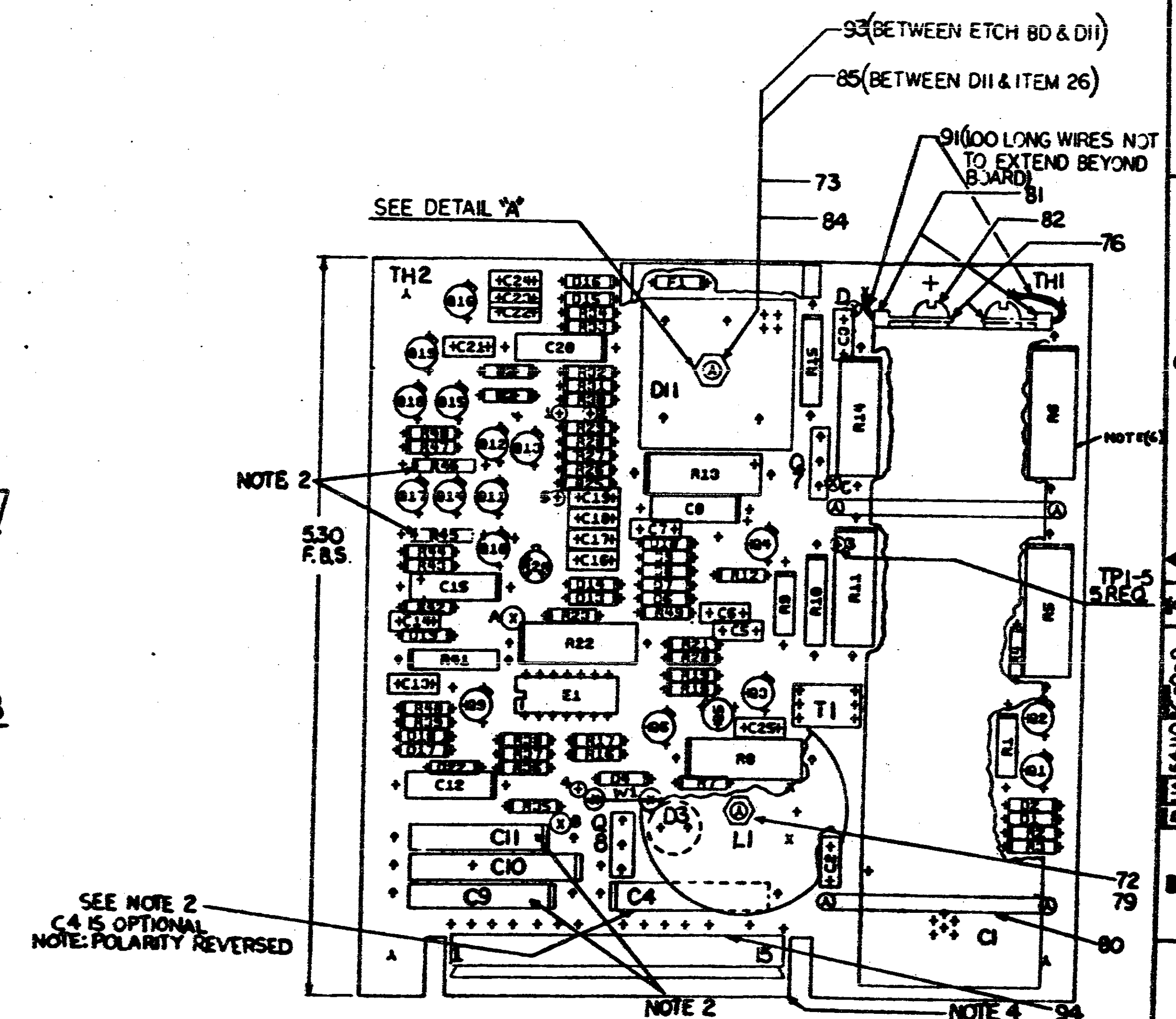
AUTOMATED BY PRTLST.2D(16) — P A R T S L I S T — SHEET A1 OF A1

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1	D-CS-M5922-0-1		CIRCUIT SCHEMATIC	REF	
2	2	D-UA-M5922-0-0		UNIT ASSEMBLY	REF	
3	3	B-DD-M5922-0-0		DWG. DIRECTORY	REF	
4	4	D-MD-5012462-0-0		DRILL & ETCH DWG.	REF	
5	5		5012462-00	M5922	1	
6	6		1017472-00	10 MFD 35V +50-10% AL EL	13	C1,C2,C3,C48-C57
7	7		1010274-00	.22 MFD 50V +80-20% Z5U CER	44	C4-C47
8	8		1105275-00	D 672 TR= 15NS PIV= 60V SI	2	D2,D3
9	9		1109943-00	1N 4733A VZ= 5.1 5% 1W Y	1	D1
10	10		1300316-00	470.0 .25 W 5.0 % CC	1	R32
11	11		1300439-00	3.30 K .25 W 5.0 % CC	27	R1-R24,R26,R27,R28
12	12		1300447-00	4.70 K .25 W 5.0 % CC	1	R29
13	13		1305624-00	27.0 2.0 W10.0 % CC	1	R31
14	14		1300309-00	390.0 .25 W 5.0 % CC	1	R30
15	15		1512589-00	PNP 40W SI 60 25	1	Q1
16	16		1911324-00	7414 INVERTER,HEX 1IN SCH	1	E6
17	17		1909929-00	7417 BUFFER GATE-HEX 1INP	1	E3
18	18		1910091-00	DEC 7437 AND GATE-QUAD 2IN,BU	1	E9
19	19		1910725-00	75108B RECEIVER,LINE,DUAL,	14	E2,E5,E8,E11,E13,E15,E17,E18, CONT E19,E21,E23,E25,E27,E29
20	20		1911341-00	75113 DRIVER,LINE,DUAL,MA	12	E1,E4,E7,E10,E12,E14,E16,E20, CONT E22,E24,E26,E28
21	21		9008337-06	HANDLE, FLIP CHIP, MAGENTA	4	
22	22		9006732-00	EYELET, ROLLED FLANGE, .121 OD X	8	
23	23		9006010-01	SCREW,PAN,PHIL 4-40X 5/16 SS	1	
24	24		9006557-00	NUT,KEP 4-40X 1/4 AF	1	
25	25		9008268-00	COMPOUND, THERMAL JOINT	A/R	
26	26		1210209-00	SW,TOG,SPDT,.01A@6V,ON/ON,SUBMIN	1	S1
27	27		9105740-55	WIRE(WRAP)30AWG UL1423	A/R	
28	28		1300365-00	1.0 K .25 W 5.0 % CC	1	R25

REVISION HISTORY			BASIC PART NO: M5922
ENG	ECO NUMBER	REV	SECTION A OF A
ER	00001	D	SECTION.VARIATION INDEX
LC	M5922-CX002	E	[A] 00
CD	M5922-CX003	F	[B]
	W.C.M. 24 Nov 80		[C]
			[D]
			[E]
			[F]
			[H]
			[J]
			[K]
			[L]
			[M]
			[N]

DRN: R. SULLIVAN	DATE: 17-JUL-78	D I G I T A L
CHK'D: C.BEVERLIE	DATE: 17-JUL-78	TITLE PARTS LIST MASS BUS TRANSCEIVER PORT A
DES.ENG: RV	DATE: 17-JUL-78	
RESP.ENG.: RV	DATE: 17-JUL-78	DOCUMENT NUMBER
MFG.ENG.: MR	DATE: 17-JUL-78	SIZE K / CODE PL / NUMBER M5922-0-DBP / REV F
ASSEMBLY NUMBER: D-UA-M5922-0-0	TOP DOCUMENT NUMBER: RM03	FILE NAME: Z0846F.PLS / EDIT # 6



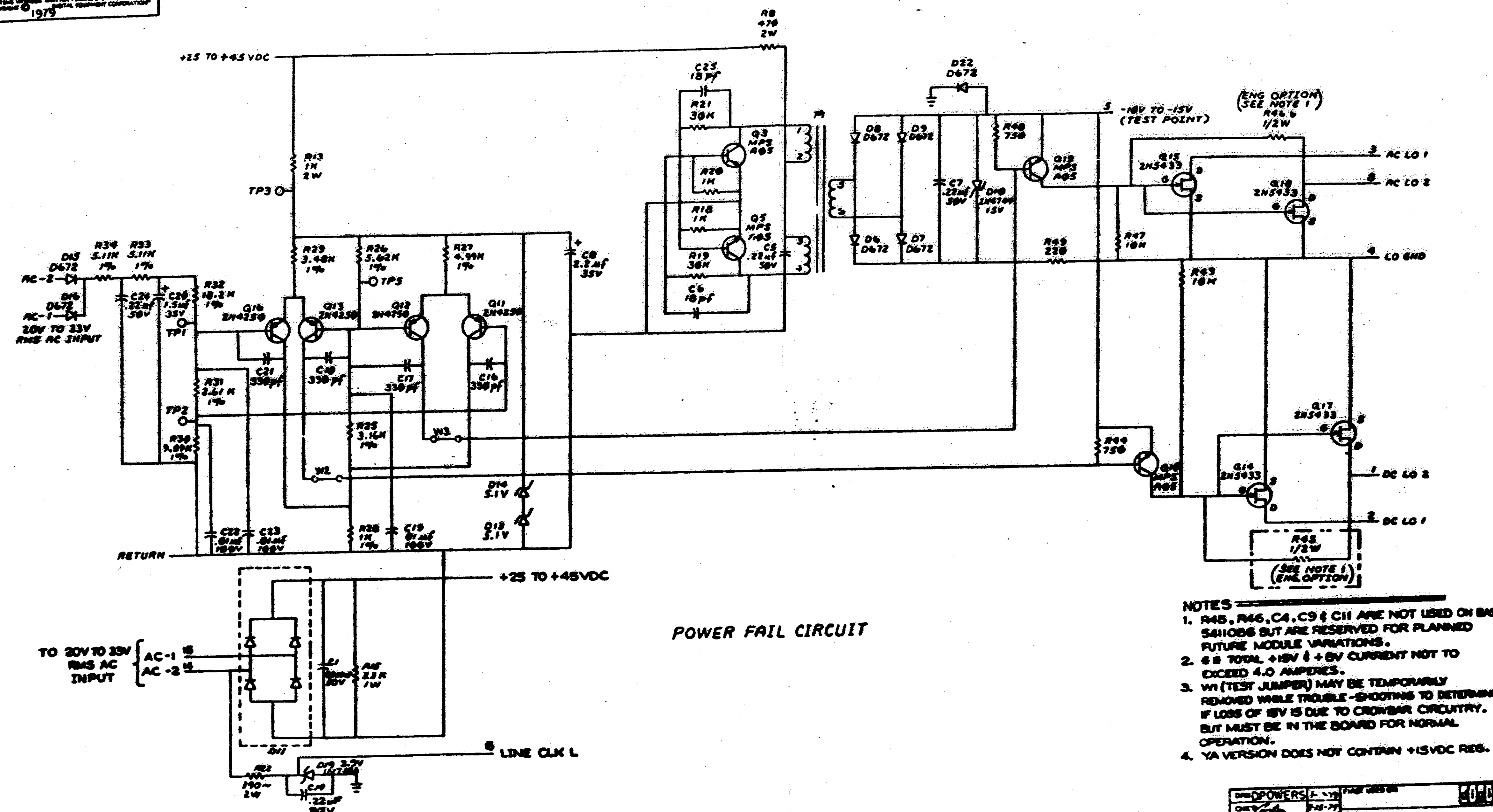


NOTES: 1. "B" HOLES (.0465 +.000 -.0045) ONLY MAYNARD
2. R45, R46, C4, C9, C11 ARE OPTIONAL COMP.
3. NON-ITEMIZED PARTS SUPPLIED WITH D12.
4. USE STD BEVEL AND BREAK TWO CORNERS.
5. D5, D12 & Q7 ARE SECURED TO ITEM 26 (HEAT SINK) AS SHOWN IN DETAIL "A". THIS UNIT IS ATTACHED TO D11 USING ITEMS 85, 73, 84.
6. FOR YA ADD JUMPER ACROSS R6 PADS

REV.	CHANGE NO.	
A	RE-DRAWN, MLO818	A. BARON
B	5411086 TWOOP	

DRN STU EVANS		ETCH REV E-P3
CHK'D		TITLE: POWER LINE MON. +15V REGULATOR
ENG.	2-6-79	
PROJ. ENG.	2-6-79	
PROD	2-6-79	
NEXT HIGHER ASSY.		
SCALE 2/1		SIZE D, CODE UA, NUMBER 5411086-0-0, REV B
SHEET 1 OF 2		

TW



NOTES
1. R45, R46, C4, C9 & C11 ARE NOT USED ON BASIC 5411086 BUT ARE RESERVED FOR PLANNED FUTURE MODULE VARIATIONS.
2. ⊕ TOTAL +15V & +5V CURRENT NOT TO EXCEED 4.0 AMPERES.
3. W1 (TEST JUMPER) MAY BE TEMPORARILY REMOVED WHILE TROUBLE-SHOOTING TO DETERMINE IF LOSS OF 15V IS DUE TO CROWBAR CIRCUITRY. BUT MUST BE IN THE BOARD FOR NORMAL OPERATION.
4. YA VERSION DOES NOT CONTAIN +15VDC REG.

DRN	D POWERS
NEXT HIGHER ASSY.	B-DD-5411086-0
SCALE	NONE
SHEET	1 OF 2
TITLE	POWER LINE MONITOR 15V REG
SIZE	D
CODE	CS
NUMBER	5411086-0-1
REV	N

+25 TO +45 VDC

F1

25 - 45 VDC

C3 .01μf

R14 220 2W, 10%

D12 IN3880

L1 500μH

Q7 MJE 3055

R9 27 1/2W

Q4 MPS A55

R12 22Ω

R10 2.2K 1W, 10%

R11 680 2W

TP4

+15V

R35 24.9K 1%

4.28V

D4 IN4004

D3 MR1@338

D5 IN2970B 6.8V

R91 150 1W

9 10 +15VDC ±5% @ 4A MAX (SEE NOTE 2)

7 +8VDC ±10% @ 1A MAX (SEE NOTE 2)

W1 (SEE NOTE 3)

D17 IN4744 15V ±5%

C12 2.2μf 35V

1/2 723C E1

REF

COMP

R34 511 1%

R24 200 4.28V

R17 1K 1%

R39 909 1%

R16 22K 1%

C15 2.2μf 35V

R23 47

Q6 MPS A65

A7 10Ω

D1 D672

C2 56pf

R2 75Ω

D2 IN748A 3.9V

R3 3.3K

Q1 2N4250

R1 1.5K 1/2W

R42 10K 1%

R38 680

R37 10

Q9 MPS A55

Q8 2N4441

C13 .01μf

R40 100

D18 IN963A 10V

C10 500μf 25V

C4 50μf 50V

C9 50μf 50V

C11 50μf 50V

SEE NOTE #1

11 12 13 GND GND GND

Q2 MPS A65

R6 .2 5W

R5 .2 5W

VR FOR VA VERSION

RETURN

15V REGULATOR
(SEE NOTE #1)

REVISIONS		
ONE	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV
PWR. LINE MONITOR/15V REG.	D	CS	5411086-0-1	N
SCALE	SHEET 2 OF 2		DWG	

TW

AUTOMATED BY PRTLST,3G(16)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	YA	REFERENCE DESIGNATOR
1	1	B-DD-5411086-0-0		DRAWING DIRECTORY	REF	REF	
2	2	D-UA-5411086-0-0		UNIT ASSEMBLY	REF	REF	
3	3	D-CS-5411086-0-1		CIRCUIT SCHEMATIC	REF	REF	
4	4		5011085-00	ETCH BRD 5411086	1	1	
5	5		1000012-00	56.0 MMF 100V 5%200PPM DM15S	1	0	C2
6	6		1000023-00	330.0 MMF 100V 5%200PPM DM15S	4	4	C16,C17,C18,C21
7	7		1001610-01	.01 MFD 100V -20+80 Z5U DISC	5	-	C3,C13,C19,C22,C23
			CONT		-	3	C19,C22,C23
8	8		1002431-00	2.2MFD 35V 10% 150S S.TA	3	-	C8,C12,C15
			CONT		-	1	C8
9	9		1002608-00	18.0 MMF 100V 5%200PPM DM15S	2	2	C6,C25
10	10		1009725-00	1.5MFD 35V 10% 150D S.TA	1	1	C20
11	11		1010274-01	.22 MFD 50V -20+80 Z5U CER	4	4	C5,C7,C14,C24
12	12		1010509-01	500 MFD 25V G% 6010 AL EL	1	0	C10
13	13		1010051-00	8400 MFD 50V G% 350 AL EL	1	1	C1
14	14		1100122-00	1N 748A VZ= 3.9 5%	2	-	D2,D19
			CONT		-	1	D19
15	15		1100134-00	1N 2970B VZ= 6.8 5% 10N M	1	0	D5
16	16		1103341-00	MR10330 PIV=300 I= 3A Z44 SM	1	0	D3
17	17		1105275-00	D 672 TR= 15NS PIV= 60V SI	8	-	D1,D6,D7,D8,D9,D15,D16,D22
			CONT		-	7	D6,D7,D8,D9,D15,D16,D22
18	18		1105648-00	1N 4744 VZ= 15.0 10% 1W	2	-	D14,D17
			CONT		-	1	D14
19	19		1105796-00	1N 4004 PIV=400 I= 1A D041 SP	1	0	D4
20	20		1109440-00	1N 3880 PIV=100 I= 6A D04 SM	1	0	D12
21	21		1110068-00	1N 967A VZ= 18.0 10% .40W Y	1	0	D18
22	22		1110324-00	*** THIS ITEM IS NOT USED ***	-	-	
23	23		1110714-00	MS53514 PWR0400 I=20A (TRW)	1	1	D11
24	24		1105873-00	4N5-1AZ1 VZ= 5.1 1% .400W	2	2	D13,D14
25	25		1205747-00	FUSE, SUB-MINI, 5.000A, 125V, A	1	0	F1

REVISION HISTORY			BASIC PART NO: 5411086										
ENG	ECO NUMBER	REV	SECTION A OF A	DRN: R PETERSON	DATE: 04-JAN-79		D	I	G	I	T	A	L
C.L	5411086-ML098	B	SECTION,VARIATION INDEX [A] 00,YA [B] [C] [D] [E] [F] [H] [J] [K] [L] [M] [N]	CHK'D: J FERGUSON	DATE: 04-JAN-79	TITLE: PARTS LIST PWR, LINE MONITOR/15V REG,							
				DES,ENG: V BOAEN	DATE: 04-JAN-79								
				RESP,ENG,: V BOAEN	DATE: 04-JAN-79	DOCUMENT NUMBER							
				MFG,ENG,: R PETERSON	DATE: 04-JAN-79	SIZE: K	CODE: PL	NUMBER: 5411086-0-DSP				REV: B	
				ASSEMBLY NUMBER: D-UA-5411086-0-0	TOP DOCUMENT NUMBER:			FILE NAME: Z02J38,PLS				EDIT #: 13	

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	QTY PER VARIATION YA	REFERENCE DESIGNATOR
26	26		1211986-00	HEAT SINK FOR H742	1	0	
27	27		1300202-00	47.0 .25 W 5.0 % CC	1	0	R23
28	28		1300229-00	100.0 .25 W 5.0 % CC	2	0	R7,R40
29	29		1300232-00	100.0 1.0 W 5.0 % CC	1	0	R41
30	30		1300271-00	220.0 .25 W 5.0 % CC	3	-	R4,R12,R49
			CONT		-	1	R49
31	31		1300278-00	220.0 2.0 W10.0 % CC	1	0	R14
32	32		1300348-00	680.0 2.0 W 5.0 % CC	1	0	R11
33	33		1300365-00	1.0 K .25 W 5.0 % CC	2	2	R10,R20
34	34		1300394-00	1.50 K .50 W 5.0 % CC	1	0	R1
35	35		1300420-00	2.20 K 1.0 W10.0 % CC	1	0	R10
36	36		1300437-00	3.30 K 1.0 W10.0 % CC	1	1	R15
37	37		1300439-00	3.30 K .25 W 5.0 % CC	1	0	R3
38	38		1300479-00	10.0 K .25 W 5.0 % CC	2	2	P43,R47
39	39		1301317-00	10.0 .25 W 5.0 % CC	1	0	R37
40	40		1301401-00	750.0 .25 W 5.0 % CC	3	-	R2,R44,R48
			CONT		-	2	R44,R48
41	41		1301424-00	680.0 .25 W 5.0 % CC	1	0	R38
42	42		1301808-00	22.0 K .25 W 5.0 % CC	1	0	R16
43	43		1301952-00	1.0 K 2.0 W 5.0 % CC	1	1	R13
44	44		1302253-00	27.0 .5W 5.0 % CC	1	0	R9
45	45		1302394-00	30.0 K .25 W 5.0 % CC	2	2	R19,R21
46	46		1302411-00	511 1/4W 1% RN55D-F 100PPM	1	0	R36
47	47		1302685-00	909 1/4W 1% RN55D-F 100PPM	1	0	R39
48	48		1303045-00	3.16 K 1/4W 1% RN55D-F 100PPM	1	1	R25
49	49		1303062-00	470.0 2.0 W 5.0 % CC	1	1	R8
50	50		1303114-00	1.0 K 1/4W 1% RN55D-F 100PPM	2	-	R17,R28
			CONT		-	1	R28
51	51		1303303-00	2.61 K 1/4W 1% RN55D-F 100PPM	1	1	R31
52	52		1303312-00	10.0 K 1/4W 1% RN55D-F 100PPM	1	0	R42
53	53		1304854-00	5.11 K 1/4W 1% RN55D-F 100PPM	2	2	R33,R34
54	54		1304855-00	9.09 K 1/4W 1% RN55D-F 100PPM	1	1	R30
55	55		1305114-00	3.48 K 1/4W 1% RN55D-F 100PPM	1	1	R29
56	56		1305128-00	5.62 K 1/4W 1% RN55D-F 100PPM	1	1	R26
57	57		1305324-00	4.99 K 1/4W 1% RN55D-F 100PPM	1	1	R27
58	58		1305405-00	24.9 K 1/4W 1% RN55D-F 100PPM	1	0	R35
59	59		1309150-10	200 1/2W20% POT 0 TO 250	1	0	R24
60	60		1309412-00	18.2 K 1/4W 1% RN55D-F 100PPM	1	1	R32
61	61		1309884-00	.2 5W 5% WW	2	0	R5,R6
62	62		1510555-00	MJE3055 NPN 90WC 8I 60 20 Y	1	0	Q7
63	63		1510705-00	XA 05 NPN 500MW 8I 60 50 P	6	-	Q2,Q3,Q5,Q6,Q18,Q19
			CONT		-	4	Q3,Q5,Q18,Q19
64	64		1510706-00	XA 55 PNP 500MW 8I 60 50 P	2	0	Q4,Q9
65	65		1505867-00	2N 4441 SCR 50V & 8A	1	0	Q8
66	66		1509142-00	DEC4250 PNP 200MW 8I 40250	5	-	Q1,Q11,Q12,Q13,Q16
			CONT		-	4	Q11,Q12,Q13,Q16
67	67		1511686-00	DEC5433 FET N 350MW 10 25 1A	4	4	Q14,Q15,Q17,Q18
68	68		1611868-00	500 UH 20% 5A	1	0	L1

DIGITAL	TITLE	SECTION A OF A	SIZE	CODE	DOCUMENT NUMBER	REV
	PWR. LINE MONITOR/15V REG.		K	PL	5411986-0-DSP	B

AUTOMATED BY PRTLST,3G(16)

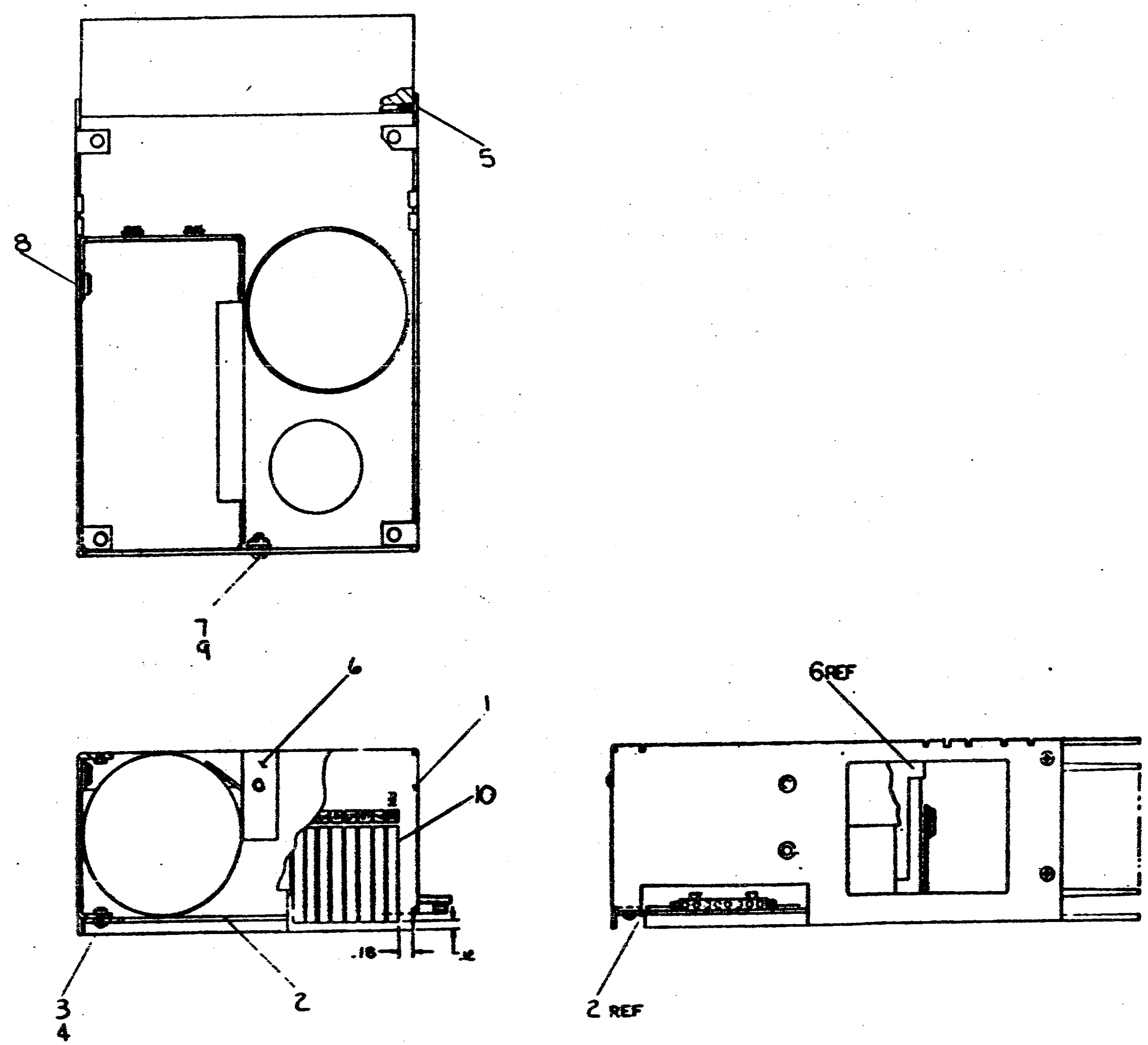
P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER 00	QTY PER YA	REFERENCE DESIGNATOR
69	69		1612026-00	PULSE XFMR RATIO 1:1:1 100UH	1	1	T1
70	70		1910415-00	723 VOLT REG VAR 2/37V	1	0	E1
71	71		9006012-01	SCREW,PAN ,PHIL, 4-40X 7/16	1	0	
72	72		9006020-01	SCREW,PAN ,PHIL, 6-32X 1/4	1	0	
73	73		9006027-01	SCREW,PAN ,PHIL, 6-32X 7/8	1	0	
74	74		9006557-00	NUT,KEP , 4-40X 1/4 AF	1	0	
75	75		9006565-00	NUT,KEP , 10-32X 3/8 AF	2	0	
76	76		9006635-00	WASHER,LOCK,INT,.310OD X .200ID	2	2	
77	77		9006666-00	WASHER, FLAT, .500 OD X .187 ID	2	0	
78	78		9006735-00	EYELET, FUNNEL FLANGE, .059 OD X	2	0	
79	79		9006851-00	SPACER, HEX, ALUM. 6-32, .250 X	1	0	
80	80		9007080-00	TIE, CABLE, SST-1.5M	4	4	
81	81		9007930-00	TERM RING 1POS INSULATED,22-16	2	2	
82	82		9008007-01	SCREW,PAN ,PHIL, 10-32X 1/4 S	2	2	
83	83		9008150-00	TERM LUG 1POS LOCKING,SOLDER	2	0	
84	84		9008185-00	NUT,KEP , 6-32X1/4 AF	1	0	
85	85		9008268-00	COMPOUND, THERMAL JOINT 6	A/R	0	
86	86		9008424-00	WASHER, FLAT, THERMAFILM, .562 O	1	0	
87	87		9008440-00	BUSHING, NYLON, .248 O.D. X .198	2	0	
88	88	BLANK			0	0	
89	89		1301883-00	390.0 2.W W10.0 % CC	1	1	R22
90	90		9009185-00 CONT	JUMPER, WIRE, INSULATED, BLACK B	3	3	W1,W2,W3
					*	*	W4,W2,W3
91	91		9107360-00	WIRE,STRND,18AWG,IPVC UL1429	A/R	A/R	
92	92	A-SP-11/45-TR-2		MODULE TEST PROCEDURE	REF	REF	
93	93		9006713-00	WASHER, NYLON, FLAT #8 .437 OD	1	1	
94	94		7413721-00	SHIM .010 IN.	1	1	
95	95	A-SP-5411086-B-3		ENG. SPEC-AND TEST PROC.	REF	REF	
96	96		9009597-00	INSULATOR, THERMA-FILM 8	1	0	
97	97		9107568-01	*** THIS ITEM IS NOT USED ***	*	*	

D	I	G	I	T	A	L	TITLE	SECTION A OF A
							PWR. LINE MONITOR/15V REG.	

SIZE	CODE	DOCUMENT NUMBER	REV
K	PL	5411086-B-DSP	B

NOTE:
1. FOR INTERPLANT PACKAGING ORDER PACKAGING MATERIAL PER A-SP-3700074-0-0



SEE NOTE 1

N/R	PACKAGING INSTRUCTIONS	A-SP-3700074-0-0	11
1	DECAL (H7440)	A-DC-7416945-9	10
1	WASHER, LOCK #6	9006633	9
1	SCREW, PHL F HD #6-32 X .18 LG	9008020-2	8
1	SCREW, PHL PAN HD #6-32 X .25 LG	9006020-1	7
1	CAPACITOR HOLDER	C-IA-7412388-0	6
4	SCREW, PHL FLAT HEAD #6 X .31 SELF-TAPPING	9009142-02	5
2	SCREW, PHL PAN HD #4-40 X .25	9008301-1	4
2	WASHER, LOCK #4	9006632	3
1	+5V REGULATOR BOARD	D-UA-5411793-YA-0	2
1	REGULATOR BRACKET	D-IA-5309756-09	1
	DESCRIPTION	DWG/PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

QUANTITY & VARIATION

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST

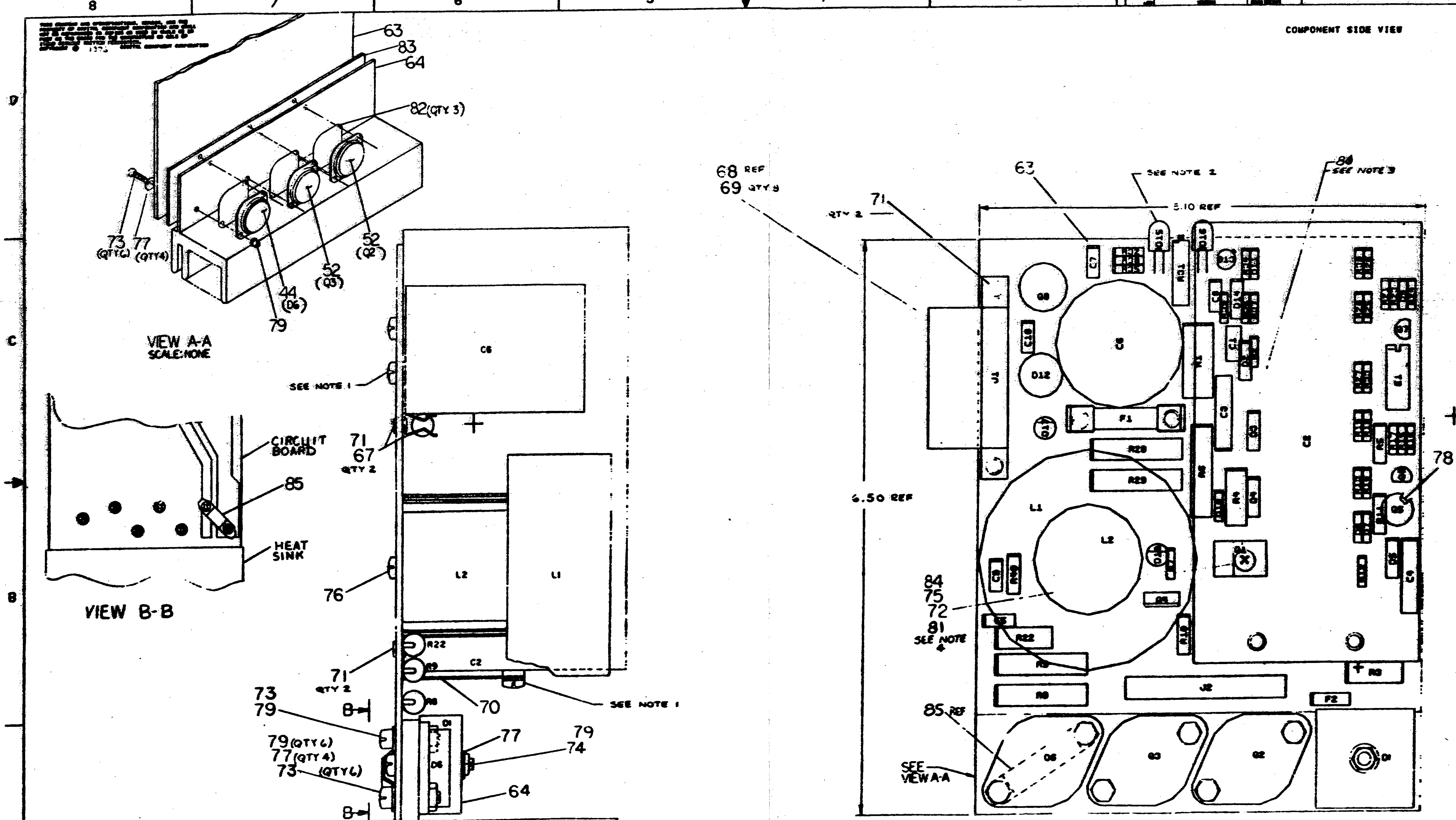
NEXT HIGHER ASSY.: B-DD-H7440-0

SCALE: 1/1

SHEET: 1 OF 1

TITLE: H7440 POWER SUPPLY ASSEMBLY

SIZE	CODE	NUMBER	REV.
D	UA	H7440-0-0	B



NOTES:

1. MTG HARDWARE FOR C2 & C6 ARE SUPPLIED WITH THE CAPACITORS
2. FOR VA VARIATION SEE PARTS LIST
3. SLEEVE LEADS OF D15 & D16 USING ITEM 84.
4. USE ITEM 81, COMPOUND, UNDER Q4 & D1.
5. TORQUE ALL HARDWARE TO 8 IN-LBS BEFORE SOLDERING COMPONENTS TO PC BOARD.

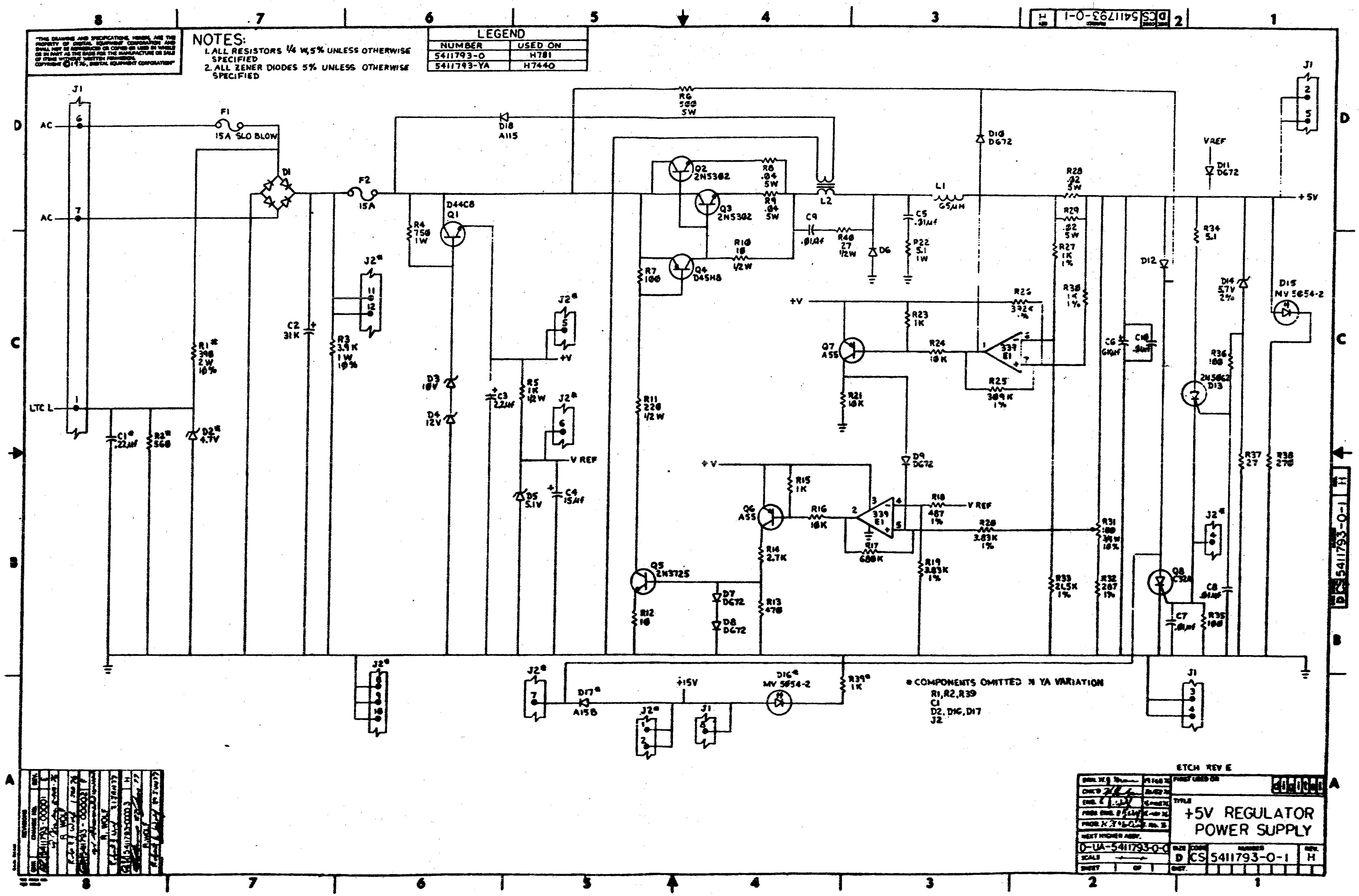
SIGNATURES	DATE
DRN.	
CHK'D.	
ENG.	
PROJ. ENG.	
PROD.	
SCALE 2/1	
SHT. OF	
NEXT HIGHER ASSY.	

digital

TITLE +5V REGULATOR POWER SUPPLY

SIZE	CODE	NUMBER	REV
B	UA	5411793-0-0	H

1 MSB 50727


NOTES:
1. ALL RESISTORS 1/4 W, 5% UNLESS OTHERWISE SPECIFIED
2. ALL ZENER DIODES 5% UNLESS OTHERWISE SPECIFIED
LEGEND
NUMBER | USED ON
5411793-0 | H781
5411793-YA | H7440
F1 15A SLO BLOW
F2 15A
Q1 D44C8
Q2 2N5302
Q3 2N5302
Q4 D45H8
Q5 2N3725
Q6 A55
Q7 A55
Q8 C32A
D13 2N5062
L1 65μH
+5V
V REF
+V
+15V
LTC L
AC
* COMPONENTS OMITTED IN YA VARIATION
R1, R2, R39
C1
D2, D16, D17
J2
ETCH REV E
+5V REGULATOR POWER SUPPLY
D-UA-5411793-0-0
D CS 5411793-0-1 H

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

ETCH REV E

MADE BY BOB WOLF	CHECKED [signature]	SECTION 1
DATE 11/SEPT/75	DATE 19 FEB 76	ISSUED SECT. 1
ENG [signature]	PROD [signature]	
DATE 16 MAR 76	DATE [illegible]	

QUANTITY/VARIATION

ITEM NO	DWG NO./PART NO.	DESCRIPTION		5411793-0-0		5411793-YA	
1	D-CS-5411793-0-1	+5V REGULATOR POWER SUPPLY (C.S.)		REF		REF	
2	D-AH-5411793-0-5	ASSY/DRILLING HOLE LAYOUT		REF		REF	
3	B-MH-5411793-0-6	MODULE ECO HISTORY		REF		REF	
4	1301880-00	RES 390, 2W, 10%		1	R1	0	
5	1301890-00	RES560, ¼W, 5%	CC	1	R2	0	
6	1302927-00	RES 3.9K, 1W, 10%		1	R3	1	
7	1302385-00	RES 750, 1W, 5%	CC	1	R4	1	
8	1300364-00	RES 1K, ¼W, 5%	CC	1	R5	1	
9	1303169-00	RES 500, 5W		1	R6	1	
10	1300229-00	RES 100, ¼W, 5%	CC	3	R7 R35 R36	3	
11	1311362-00	RES .04, 5W 5%	CC	2	R8 R9	2	
12	1300168-00	RES 10, ¼W, 5%	CC	1	R10	1	
13	1300274-00	RES 220, ¼W, 5%	CC	1	R11	1	
14	1301317-00	RES 10 ¼W 5%	CC	1	R12	1	
15	1300316-00	RES 470, ¼W, 5%	CC	1	R13	1	
16	1300426-00	RES 2.7K, ¼W, 5%	CC	1	R14	1	
17	1300365-00	RES 1K, ¼W, 5%	CC	3	R15 R23 R39	2	R15 R23
19	1310867-00	RES 680K, 1/4W, 5%	CC	1	R17	1	
19	1303114-00	RES 1K, ¼W, 1%	MF	2	R27 R30	2	
20	1311845-00	RES 487, 1/4W, 1%	MF	1	R18	1	
21	1309413-00	RES 3.83K, ¼W, 1%	MF	2	R19 R20	2	
22	1300479-00	RES 10K, ¼W, 5%	CC	3	R21 R16 R24	3	

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO
+5V REGULATOR POWER SUPPLY	D-UA-5411793-0-0	A	PL	5411793-0-0	H	5411793 00003
	SHEET 1 OF 4	DIST				

DEC FORM DEC 16-(325)-1031-N970
DRA 110

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

ETCH REV E

MADE BY BOB WOLF	CHECKED [signature]	SECTION 1
DATE 11/SEPT/75	DATE 19 FEB 76	ISSUED SECT. 1
ENG [signature]	PROD [signature]	
DATE 16 MAR 76	DATE [illegible]	

QUANTITY/VARIATION

ITEM NO	DWG NO./PART NO.	DESCRIPTION		5411793-0-0		5411793-YA	
23	1302136-00	RES 5.1, 1W, 5%	CC	1	R22	1	
24	1305428-00	RES 309K, 1/4W, 1%	MF	1	R25	1	
25	1305426-00	RES 392K, 1/4W, 1%	MF	1	R26	1	
26	1310876-00	RES .02 5W, 3%		2	R28 R29	2	
27	1309143-04	RES 100, 3/4W, 10% POT		1	R31	1	
28	1305124-00	RES 287, ¼W, 1%	MF	1	R32	1	
29	1309422-00	RES 5.1, ¼W, 5%	CC	1	R34	1	
30	1301522-00	RES 27 ¼W, 5%	CC	1	R37	1	
31	1301972-00	RES 270, ¼W, 5%	CC	1	R38	1	
32	1303155-00	RES 21.5K, 1/4W, 1%	MF	1	R33	1	
33	1010274-00	CAP .22UF, 50V		1	C1	0	
34	1010358-00	CAP 31K, UF, 50V		1	C2	1	
35	1002431-00	CAP 2.2UF, 35V 10%		1	C3	1	
36	1004812-00	CAP 15UF, 20V, 10%		1	C4	1	
37	1012704-00	CAP 6000UF, 10V		1	C5	1	
38	1001610-01	CAP .01UF 100V		5	C7 C8 C5 C9 C10	5	
39	1110714-00	DIODE RECTIFIER BRIDGE KSS3514		1	D1	1	
40	1110594-00	DIODE 5.1V, .4W, 5% ZENER 751A		1	D5	1	D5
41	1100125-00	DIODE 10V, .4W, 5% ZENER 758A		1	D3	1	
42	1110836-00	DIODE 12V, .4W, 5% ZENER 759A		1	D4	1	
43	1105275-00	DIODE DF72		5	D7 D9 D10 D11 D8	5	
44	1110715-00	DIODE RECTIFIER T03		1	D6	1	

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO
+5V REGULATOR POWER SUPPLY	D-UA-5411793-0-0	A	PL	5411793-0-0	H	
	SHEET 2 OF 4	DIST				

DEC FORM DEC 16-(325)-1031-N970
DRA 110

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

ETCH REV E

MADE BY BOB WOLF	CHECKED [signature]	SECTION 1
DATE 11/SEPT/75	DATE 19 FEB 76	ISSUED SECT. 1
ENG [signature]	PROD [signature]	
DATE 16 MAR 76	DATE [illegible]	

QUANTITY VARIATION

ITEM NO	DWG NO./PART NO.	DESCRIPTION		5411793-0-0		5411793-YA	
45	1103341-00	DIODE MR1033B		1	D12	1	
46	1110968-00	DIODE 2N5062 SCR		1	D13	1	
47	1111205-00	DIODE 5.7V, 2% 4W, ZENER		1	D14	1	
48	1110864-00	DIODE LED MV5054-2		2	D15 D16	1	D15
49	1110420-00	DIODE A15B		1	D17	0	
50	1112594-02	DIODE A115M		1	D18	1	
51	1510421-00	TRANS D44C8		1	Q1	1	
52	1510196-00	TRANS 2n5302		2	Q2 Q3	2	
53	1510708-00	TRANS D45H8		1	Q4	1	
54	1510959-00	TRANS 2N3725		1	Q5	1	
55	1510706-00	TRANS A55		2	Q6 Q7	2	
56	1510928-00	TRANS C32A		1	Q8	1	
57	1912108-00	I.C. LM 339		1	E1	1	
58	1212673-00	XFMR 65UH, 30A		1	L1	1	
59	1212672-00	XFMR 1:5		1	L2	1	
60	9007227-00	15A SLOW BLOW FUSE		1	F1	1	
61	1210929-00	15A PICO FUSE		1	F2	1	
62	1302253-00	RES. 27Ω, 1/2W, 5%	CC	1	R40	1	
63	5011792	ETCHED CIRCUIT BOARD		1		1	
64	1210737-01	HEAT SINK		1		1	
65	1100124-00	DIODE, 4.7V, 4W, 5% ZENER 790A		1	D2	0	
66	1212899	CONN 12 PIN		1	J2	0	

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO
+5V REGULATOR POWER SUPPLY	D-UA-5411793-0-0	A	PL	5411793-0-0	H	
	SHEET 3 OF 4	DIST				

DEC FORM DEC 16-(325)-1031-N970
DRA 110

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

ETCH REV E

MADE BY BOB WOLF	CHECKED [signature]	SECTION 1
DATE 9/11/75	DATE 19 FEB 76	ISSUED SECT. 1
ENG [signature]	PROD [signature]	
DATE [illegible]	DATE [illegible]	

QUANTITY/VARIATION

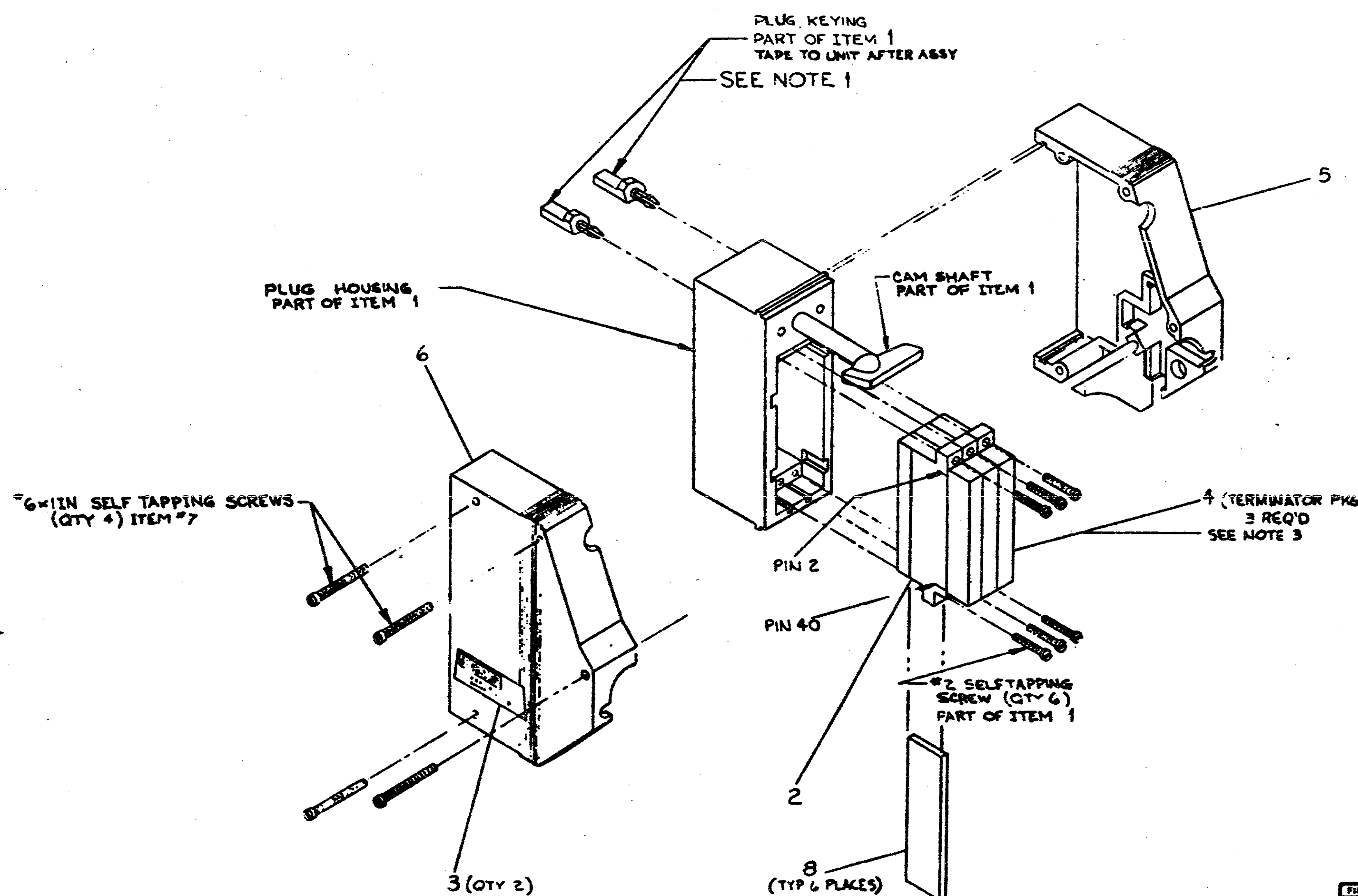
ITEM NO	DWG NO./PART NO.	DESCRIPTION	5411793-0-0	5411793-YA	
67	9007203-00	FUSE CLIP	2	2	
68	1209340-00	CONN MATE-N LOCK 8 PIN SKT	1	1	J1
69	1209416-01	CONN CONTACT MATE-N-LOCK SKT W/PC 8 TAB	8	8	
70	C-MD-5309759-0-C	CAP STRAPS	2	2	
71	9009000-00	EYELETS GS-4-B	6	6	
-					
72	9006557-00	4-40 KEPNUT	1	1	
73	9007793-01	SCREW 6-32 x 9/16 PHL PAN HD	6	6	
74	9006027-01	SCREW 6-32 x 7/8 PHL PAN HD	1	1	
75	9006010-01	SCREW 4-40 x 7/16 PHL PAN HD	1	1	
76	9006047-01	SCREW 8-32 x 2 PHL PAN HD	1	1	
77	9006653-00	FLAT WASHER #6	5	5	
78	9007201-00	TRANSIPAD	1	1	
79	9008185-00	6-32 KEPNUT	7	7	
80	9107256-11	TUBING, THIN WALL, CLR	AR	AR	
81	9008268-00	COMPOUND, THERMAL	AR	AR	
82	1213071-02	WASHER, INSULATING TO3	1	1	
83	1213071-07	WASHER, INSULATING	1	1	
84	9009769	WASHER, RECT. MFG.	1	1	
85	1214074-01	JUMPER, MECHANICAL	1	1	

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO
+5V REGULATOR POWER SUPPLY	D-UA-5411793-0-0	A	PL	5411793-0-0	H	
	SHEET 4 OF 4	DIST				

DEC FORM DEC 16-(325)-1031-N970
DRA 110

NOTES:

1. PLUG KEYING, PLUG HOUSING, CAM SHAFT & MOUNTING HARDWARE ARE PART OF ITEM 1 (PLUG HOUSING & CAMSHAFT KIT).
2. ~~CUT JUMPER W2 ON H870 TERMINATOR MODULES.~~
3. PRIOR TO ASSY OF ITEM 4 TO ITEM 2, CUT OFF LEAD AT PIN 39. CUT FLUSH WITH TERMINATOR BODY.



QTY.	DESCRIPTION	PART NO.	ITEM NO.
6	COVER, CONTACT	1211591-11	8
4	SELF THREAD SCREW #6×1	1211591-18	7
1	STRAIN RELIEF HOUSING R. H.	1211591-13	6
1	STRAIN RELIEF HOUSING L. H.	1211591-14	5
3	MASS BUS TERMINATOR	1313242	4
2	DECAL	A DC 7412208-00	3
3	PLUG ASSY	1211591-07	2
1	PLUG HOUSING & CAM SHAFT	1211591-01	1

PARTS LIST

FIRST USED ON OPTION-MODEL: RP04

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL: SEE PARTS LIST

NEXT HIGHER ASSY: E-UA-RP04-0-0

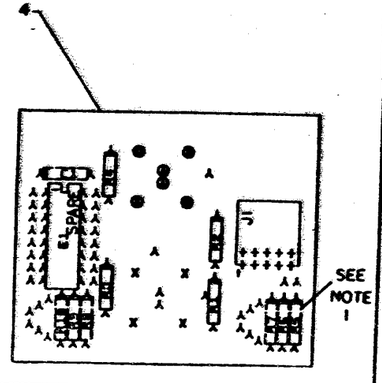
SHEET 1 OF 1

digital EQUIPMENT CORPORATION

TITLE: TERMINATOR PACK ASSY

SIZE D | CODE AD | NUMBER 7009938-0-0 | REV C

COMPONENT SIDE VIEW



NOTES: 1. R5 THRU R10,C1 ARE OPTIONAL COMPONENTS & ARE NOT TO BE INSTALLED AT ASSEMBLY.

ECN/CHANGE NO.	REV

ETCH REV. A
P.C. DESIGN DATA BASE REV. A1

SIGNATURES	DATE
DRN.	
CHK'D.	
ENG.	
PROJ. ENG.	
PROD.	

SCALE 2:1
SHT. 1 OF 1
NEXT HIGHER ASSY. B-00-5413762-0

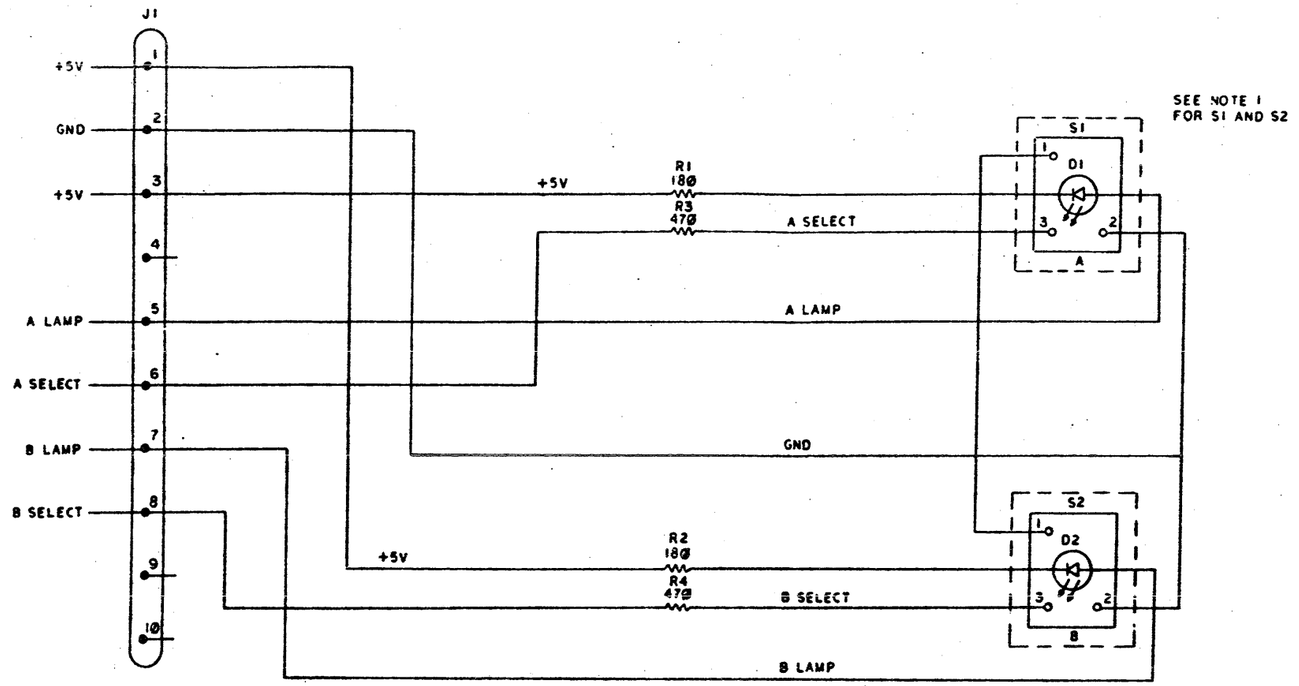
digital

TITLE RM02/03 DUAL PORT SWITCH

SIZE	CODE	NUMBER	REV
D	UA	5413762-0-0	*

1 MS#160459

NOTE:
1. S1 AND S2 SOLDER TO BOARD AT HIGHER ASSY.



DRN.	
CHK'D	
ENGR.	
PROJ. ENGR.	
PROD.	
NEXT HIGHER ASSY.	8-00-5413762-0
SCALE	
SHEET	1 OF 1

FIRST USED ON: RM02/03

TITLE: RM02/03 DUAL PORT SWITCH

SIZE	CODE	NUMBER	REV.
D	CS	5413762-0-1	*

NEXT ASSY.

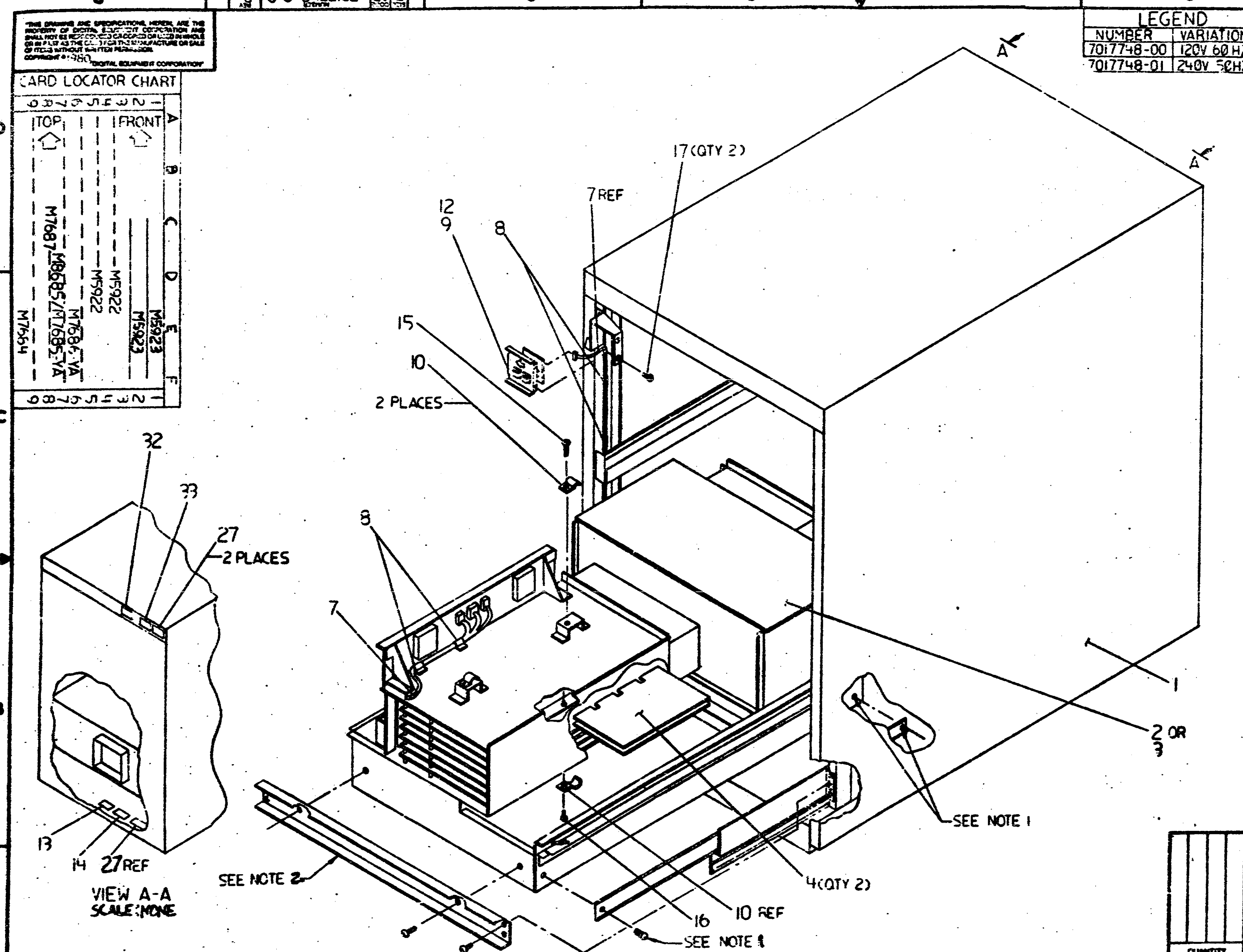
AUTOMATED BY PRTLST.3L(32)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION		QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1	D-UA-5413762-0-0		UNIT ASSY		REF	
2	2	D-CS-5413762-0-1		SCHEMATIC DIAGRAM		REF	
3	3	D-MD-5013761-0-0		DRILL & ETCH DWG		REF	
4	4		5013761-00	DRILL & ETCH BRD		1	
5	5		1212965-01	HEADER.100 10POS RT ANGLE		1	J1
6	6		1301322-00	180.0 .25 W 5.0 %	CC	2	R1,R2
7	7		1300316-00	470.0 .25 W 5.0 %	CC	2	R3,R4
8	8	D-EC-5013761-0-0		ETCH CUT DWG		REF	

REVISION HISTORY			BASIC PART NO: 5413762
ENG	ECO NUMBER	REV	SECTION A OF A
	INITIAL	*	SECTION.VARIATION INDEX [A] 00 [B] [C] [D] [E] [F] [H] [J] [K] [L] [M] [N]

DRN: BILL CASSIDY	DATE: 2-FEB-78	D I G I T A L
CHK'D: P.BOSSMAN	DATE: 19-JUN-79	TITLE PARTS LIST RM02/03 DUAL PORT SW
DES.ENG: LEO CAPPABIANCA	DATE: 06-JUN-79	
RESP.ENG.: L.CAPPABIANCA	DATE: 19-JUN-79	DOCUMENT NUMBER
MFG.ENG.: C.STEINWEG	DATE: 09-AUG-79	SIZE: K / CODE: PL / NUMBER: 5413762-0-DBP / REV: *
ASSEMBLY NUMBER: D-UA-5413762-0-0	TOP DOCUMENT NUMBER: *B-DD-5413762-0	FILE NAME: Z0213.PLS / EDIT #: 5



LEGEND	
NUMBER	VARIATION
7017748-00	120V 60 HZ
7017748-01	240V 50HZ

NOTES:

1. AFTER MBA CHASSIS (ITEM 2 OR 3) IS MOUNTED TO SLIDES, USE TWO 8-32 SCREWS (9006036-01) TO HARD MOUNT SLIDES TO FRONT OF CHASSIS. THEN SLIDE CHASSIS OUT REAR OF CABINET (ITEM 1) AND INSTALL REMAINING TWO SCREWS IN REAR MOUNTING HOLES OF SLIDES AND CHASSIS. SCREWS SUPPLIED WITH ITEM 2 OR 3.
2. SHIPPING BRACKET AND SIX 10-32 SCREWS (9006073-03) ARE TO BE INSTALLED AFTER MBA CHASSIS IS INSTALLED IN CABINET. SCREWS SUPPLIED WITH ITEM 2 OR 3.
3. FOR CABLING AND GROUNDING CONFIGURATION SEE D-UA-RM05-0-0.
4. SHIP THE FOLLOWING ITEMS UNASSEMBLED WITH UNIT:

ITEM NO.	QTY	PART NO.	DESCRIPTION
5	2	7419781-25	BC06S REWORK
6	1	7009491-02	POWER SEQUENCE CABLE
18	1	7412827-12	GROUND STRAP
20	1	7017755-05	GROUND STRAP
30	1	9006568-00	5/16 KEP NUT
31	2	9006638-00	5/16 LOCKWASHER

CAUTION: OFF SHEET PARTS LIST EXISTS. SEE K-PL-7017748-0-DBP (Z1200)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND THE FOLLOWING TOLERANCES APPLY (PER DEC STD 116)

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL: SEE PARTS LIST

NEXT HIGHER ASSY: D-UA-RM05-0-0

DATE: 23 APR 80

TITLE: CABINET AND MBA ASSY DUAL PORT

digital

DOCUMENT NUMBER: D AD 7017748-0-0

AUTOMATED BY PRTLST.3P(44)

PARTS LIST

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QUANTITY PER VARIATION 00	01
1	1	D-AD-7017612-0-0	7017612-00	CABINET ASSY	1	1
2	2	D-AD-7018322-0-0	7018322-00	MBA CHASSIS ASSY (60 HZ)	1	-
3	3	D-AD-7018322-0-0	7018322-01	MBA CHASSIS ASSY (50 HZ)	-	1
4	4		M5923-00	MASS BUS TRANSCEIVER, PORT B	2	2
5	5	E-IA-7419781-0-0	7419781-25	BC06S (REWORK) 25 FT.	2	2
6	6	D-IA-7009491-0-0	7009491-02	POWER SEQUENCE CABLE	1	1
7	7	D-IA-7016548-0-0	7016548-01	DUAL PORT HARNESS ASSEMBLY (66 I	1	1
8	8		9008341-00	CLIP,PVC HARNESS, DESKLASP,1"WID	4	4
9	9	C-AD-7017599-0-0	7017599-00	SWITCH PANEL ASSY (UPPER)	1	1
10	10	B-MD-7418607-0-0	7418607-00	CLAMP CABLE	2	2
11	11		7009938-00	*** THIS ITEM IS NOT USED ***	-	-
12	12		3617187-01	LABEL,"PORT SELECT (LEFT)" FOR	1	1
13	13	A-DC-7416197-0-0	7416197-02	SILK SCREEN	1	1
14	14		3613211-00	DECAL,CLEAR PREPRINTED CSA 1-1/4	1	1
15	15		9006418-01	SCREW,TAPPING,TYPE TT,PAN ,PHIL,	1	1
16	16		9006036-01	SCREW,PAN,PHIL 8-32X 5/16 SS	1	1
17	17		9008020-01	SCREW,PAN,PHIL 6-32X 3/16 SS	2	2
18	18	D-IA-7412827-0-0	7412827-12	RK06 GROUND CABLE	1	1
19	19	C-IA-7017754-0-0	7017754-12	*** THIS ITEM IS NOT USED ***	-	-
20	20	C-IA-7017755-0-0	7017755-05	STRAP, GROUNDING (4' 0")	1	1
21	21	C-IA-7017756-0-0	7017756-06	*** THIS ITEM IS NOT USED ***	-	-
22	22		9006635-00	*** THIS ITEM IS NOT USED ***	-	-
23	23		9006565-00	*** THIS ITEM IS NOT USED ***	-	-
24	24		1214434-02	*** THIS ITEM IS NOT USED ***	-	-
25	25		1209456-01	*** THIS ITEM IS NOT USED ***	-	-
26	26		1209350-03	*** THIS ITEM IS NOT USED ***	-	-
27	27		3613209-00	LABEL,ELECTRICAL DATA	2	2
28	28		7017610-0J	*** THIS ITEM IS NOT USED ***	-	-
29	29		9006073-03	*** THIS ITEM IS NOT USED ***	-	-
30	30		9006568-00	NUT,KEP ,5/16-18 X1/2 AF	1	1

REVISION HISTORY			BASIC PART NO: 7017748
ENG	ECO NUMBER	REV	SECTION A OF A
ME	7017748-CX001	A	SECTION. VARIATION INDEX
WH	RM05-CX05A	B	[A] 00,01
			[B]
			[C]
			[D]
			[E]
			[F]

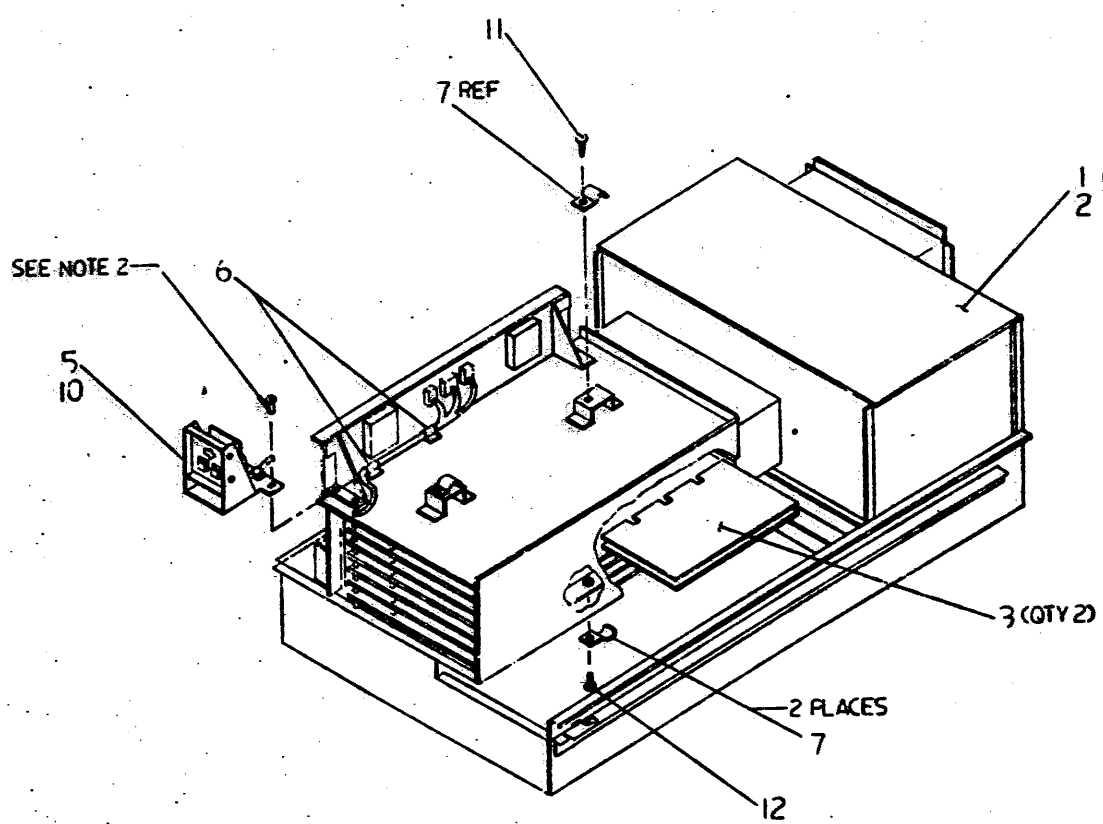
DRN: M. ENGLE	DATE: 12-MAY-80	DIGITAL
CHK'D: B. NICHOLS	DATE: 12-MAY-80	TITLE: PARTS LIST CABINET & MBA ASSY DUAL PORT
DES.ENG.: A. CLARK	DATE: 12-MAY-80	
RESP.ENG.: B. MONTERO	DATE: 12-MAY-80	DOCUMENT NUMBER
MFG.ENG.: C. STEINWEG	DATE: 12-MAY-80	SIZE: K; CODE: PL; NUMBER: 7017748-0-DBP; REV: B
ASSEMBLY NUMBER: D-AD-7017748-0-0	TOP DOCUMENT NUMBER: * B-DD-RM05-0	FILE NAME: Z1200B.PLS; EDIT #: 7

AUTOMATED BY PRTLST.3P(44)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QUANTITY PER VARIATION 00	01
31	31		9006638-00	WASHER,LOCK-INT,.6000D X .326ID	3	3
32	32	A-DC-7416197-0-0	7416197-01	DECAL	1	1
33	33		3613211-01	DECAL,CLEAR PREPRINTED CSA 1-1/4	1	1

DIGITAL	TITLE	SIZE	CODE	DOCUMENT NUMBER	REV
	CABINET & MBA ASSY DUAL PORT SECTION A OF A	K	PL	7017748-0-DBP	B



LEGEND

NUMBER	VARIATION
7017747-00	DUAL PORT, 120V 60HZ
7017747-01	DUAL PORT, 240V 50HZ

NOTES:

1. FOR CABLING AND GROUNDING CONFIGURATION SEE D-UA-RM05-0-0.
2. REMOVE EXISTING SCREWS FROM CARD CAGE BRACKET AND REPLACE, MOUNTING DUAL PORT SWITCH ASSEMBLY (ITEM 5) WHEN REQUIRED.
3. SHIP THE FOLLOWING ITEMS UNASSEMBLED WITH UNIT:

ITEM NO.	QTY	PART NO.	DESCRIPTION
4	2	7419781-04	BC06S REWORK
5	1	7017605-00	DUAL PORT SWITCH ASSY
9	1	7009491-00	POWER SEQUENCE CABLE
10	1	3617187-00	LABEL, PORT SELECT, RIGHT
13	1	7017755-05	GROUND STRAP
21	2	3613209-02	LABEL, ELECTRICAL DATA

CAUTION: OFF SHEET PARTS LIST EXISTS.
SEE K-PL-7017747-0-0BP (Z1199).

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND THE FOLLOWING TOLERANCES APPLY (PER DEC STD 710)

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL: SEE PARTS LIST

DRN: M. Engle 22 APR 80

D-UA-RM05-0-0

TITLE: MBA ASSEMBLY, DUAL PORT

D AD 7017747-0-0 B

REVISION HISTORY

REV	ECO NUMBER
A	7017747-CX281 M. ENGLE
B	RMO CHAPA

AUTOMATED BY PRTLST.3N(42)

PARTS LIST

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QUANTITY PER VARIATION 00	01
1	1	D-AD-7018322-0-0	7018322-00	MBA CHASSIS ASSY (60 HZ)	1	-
2	2	D-AD-7018322-0-0	7018322-01	MBA CHASSIS ASSY (50 HZ)	-	1
3	3		M5923-00	MASS BUS TRANSCEIVER, PORT B	2	2
4	4	C-MD-7419781-0-0	7419781-04	BC06S (REWORK) 4 FT.	2	2
5	5	C-IA-7017605-0-0	7017605-00	DUEL, PORT SWITCH ASSY	1	1
6	6		9008341-00	CLIP,PVC HARNESS, DESKLASP,1"WID	2	2
7	7	B-MD-7418607-0-0	7418607-00	CLAMP CABLE	2	2
8	8		7009938-00	*** THIS ITEM IS NOT USED ***	-	-
9	9	D-IA-7009491-0-0	7009491-00	CABLE	1	1
10	10		3617187-00	LABEL,"PORT SELECT (RIGHT)" FOR	1	1
11	11		9006418-01	SCREW,TAPPING,TYPE TT,PAN ,PHIL,	1	1
12	12		9006036-01	SCREW,PAN,PHIL 8-32X 5/16 SS	1	1
13	13	C-IA-7017755-0-0	7017755-05	STRAP, GROUNDING (4' 0")	1	1
14	14	C-IA-7017754-0-0	7017754-12	*** THIS ITEM IS NOT USED ***	-	-
15	15		9006565-00	*** THIS ITEM IS NOT USED ***	-	-
16	16		9006635-00	*** THIS ITEM IS NOT USED ***	-	-
17	17		1214434-02	*** THIS ITEM IS NOT USED ***	-	-
18	18		1209456-01	*** THIS ITEM IS NOT USED ***	-	-
19	19		1209350-03	*** THIS ITEM IS NOT USED ***	-	-
20	20	A-PI-3700589-0-0	3700589-00	PKG ASSY RM05 MASS BUS	REF	REF
21	21		3613209-02	LABEL,ELECTRICAL DATA	2	2
22	NOTE:	-				
23	NOTE:	-				
24	NOTE:	-				
25	NOTE:	-				

LEGEND

PART NUMBER	VARIATION
7017747-00	120V 60HZ
7017747-01	240V 50HZ

REVISION HISTORY			BASIC PART NO: 7017747
ENG	ECO NUMBER	REV	SECTION A OF A
	INITIAL	*	SECTION. VARIATION INDEX
GN	7017747-CX001	A	[A] 00,01
WH	RM05-CX05A	B	
			[B]
			[C]
			[D]
			[E]
			[F]

DRN: M.ENGLE	DATE: 12-MAY-80		D	I	G	I	T	A	L
CHK'D: B. NICHOLS	DATE: 12-MAY-80	TITLE PARTS LIST MBA ASSY,DUAL PORT							
DES.ENG.: A. CLARK	DATE: 12-MAY-80								
RESP.ENG.: B. MONTERO	DATE: 12-MAY-80	DOCUMENT NUMBER							
		SIZE: K	CODE: PL	NUMBER: 7017747-0-DBP	REV: B				
MFG.ENG.: C. STEINWEG	DATE: 12-MAY-80								
ASSEMBLY NUMBER: D-AD-7017747-0-0	TOP DOCUMENT NUMBER: *B-DD-RM05-0	FILE NAME: Z1199B.PLS	EDIT #: 14						