FIELD MAINTENANCE PRINT SET

TABLE OF CONTENTS

UNIT VARIATIONS COVERED BY THIS PRINT SET

RMØ3

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.

MPØØ35Ø

REVISIONS	REV.	CHG. NO.	DATE
	A	RMØ3-1	3-77
	B	RMØ3-CXØ22 C.DUNIGAN	1 MAY 80

USED ON OPTION/MODEL

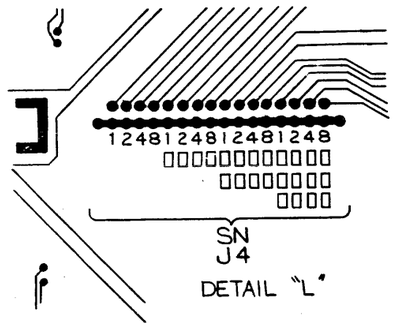
SHEET I OF 1

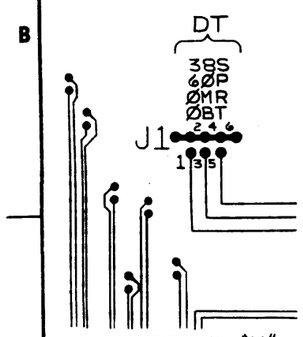
DRN. D. Schmidt	DATE 3/MAR/77	digital
CHK'D D. Schmidt	DATE 4/APR/77	TITLE: RMØ3 Disk Drive
PROJ. ENG. C. Blattner	DATE 19 APR 77	
FIELD SERV.	DATE 20/APR/77	

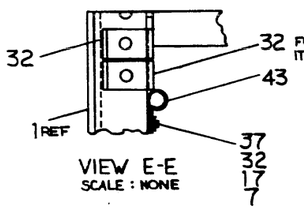
SIZE	CODE	NUMBER	REV.
B	TC	RMØ3-Ø-1	B
DIST.			

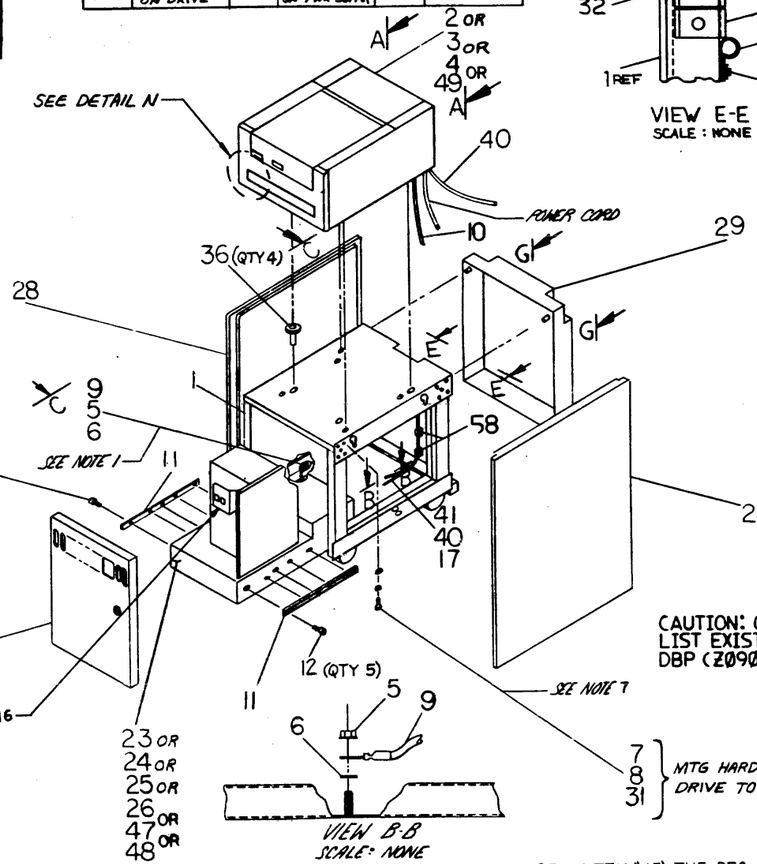
ENG-01124-1-0078-(3Z)

DRB 124









LEGEND

NUMBER	VOLTS	HZ	ACCESS	MASS BUS ADAPTER
RM03-AA	120	60	SINGLE	ITEM 23
RM03-AE	100	60	SINGLE	ITEM 47
RM03-AD	240	50	SINGLE	ITEM 24
RM03-BA	120	60	DUAL	ITEM 25
RM03-BE	100	60	DUAL	ITEM 48
RM03-BD	240	50	DUAL	ITEM 26
RM03-AH	120	60	SINGLE	ITEM 23
RM03-AJ	240	50	SINGLE	ITEM 24
RM03-BH	120	60	DUAL	ITEM 25
RM03-BJ	240	50	DUAL	ITEM 26
RM03-AF	100	50	SINGLE	ITEM 47
RM03-BF	100	50	DUAL	ITEM 48

CABLE CHART

ITEM NO	FROM		TO		REMARKS
	CONN	WITH	CONN	WITH	
18	PREVIOUS DRIVE PORT "A" OUT J2	—	J3 (PORT "A" IN)	—	—
—	J2 (PORT "A" OUT)	—	NEXT DRIVE J3 PORT "A" IN	—	SEE NOTE 2
18	PREVIOUS DRIVE PORT "B" OUT J6	—	J7 (PORT "B" IN)	—	—
—	J6 (PORT "B" OUT)	—	NEXT DRIVE PORT "B" IN J7	—	SEE NOTE 2
22	PREVIOUS DRIVE PWR SEQ [illegible] OUT	—	J8 PWR SEQ IN	—	SEE NOTE 8
10	GND STUD ON DRIVE	—	GROUND STUD ON MAIN CHASSIS	—	—
REF	J1 (60 PIN CONN ON M7684 CARD)	FLAT CABLE	60 PIN HDR ON DRIVE	—	CABLE IS ON CARD ON MBA
REF	J1 (26 PIN CONN ON M7687 CARD)	FLAT CABLE	26 PIN HDR ON DRIVE	—	CABLE IS ON CARD ON MBA
REF	POWER CORD ON DRIVE	—	POWER RECEPT. ON PWR SUPPLY	—	—

LABEL CHART

OPTION NO.	MODEL	VOLTS	HZ	AMPS	WIRES	PHASE
RM03-AA	RM03-AA	120	60	12	3	1
RM03-AE	RM03-AE	100	60	12	3	1
RM03-AD	RM03-AD	240	50	7	3	1
RM03-BA	RM03-BA	120	60	12	3	1
RM03-BE	RM03-BE	100	60	12	3	1
RM03-BD	RM03-BD	240	50	7	3	1
RM03-AH	RM03-AH	120	60	12	3	1
RM03-AJ	RM03-AJ	240	50	7	3	1
RM03-BH	RM03-BH	120	60	12	3	1
RM03-BJ	RM03-BJ	240	50	7	3	1
RM03-AF	RM03-AF	100	50	12	3	1
RM03-BF	RM03-BF	100	50	12	3	1

CARD LOCATOR CHART

9 8 7 6 5 4 3 2 1

J1
CONTROL SEQUENCER BD (M7684)
DRIVE INTERFACE BD (M7687)
J1
DATA SEQUENCER BD (M7685)
CONTROL INTERFACE BD (M7686)
XCRV PORT'A' (M5922)
XCVR PORT'A' (M5922)
XCVR PORT 'B' M5923
XCVR PORT 'B' M5923

CAUTION: OFF SHEET PARTS LIST EXISTS. SEE K-PL-RM03-0-DBP (Z0906).

S/N BIT	JUMPER	RESULT BCD S/N
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

("X" INDICATES INSTALLING A JUMPER)
DETAIL "M"

NOTES:

1. THIS HARDWARE IS FOR THE PURPOSE OF FASTENING A GROUND STRAP IN A MULTIPLE DRIVE SYSTEM.
2. IF THIS IS THE LAST DRIVE IN A SERIES, A TERMINATOR (DEC PART NO. 7009938-00) IS INSERTED AT THIS CONNECTION.
3. CARTRIDGE (ITEM #14) WILL BE SHIPPED IN ITS OWN CONTAINER.

~~4. I.D LABEL (ITEM #15) SERIAL NUMBER TO BE THAT OF DISK DRIVE (ITEMS 2,3 OR 4) ALL OTHER I.D. INFROMATION TO BE OBTAINED FROM LABEL CHART.~~

4. THE UL, CSA AND FCC LABELS (ITEMS #19,20,53,54) ARE TO BE ATTACHED TO 60 HZ UNITS ONLY.
5. THE TOTAL NUMBER OF DISK DRIVES ATTACHED TO A MASS BUSS CONTROLLER MUST NOT EXCEED EIGHT.
6. THE TOTAL LENGTH OF ALL DRIVE BUS CABLES (ITEM #18) ATTACHED TO A MASS BUSS CONTROLLER MUST NOT EXCEED 160 FT.
7. TORQUE MOUNTING BOLTS (ITEM #31) TO 30 INCH-POUNDS.
8. IF THIS IS THE FIRST DRIVE IN A SERIES, INSTALL JUMPER DEC #7009490 IN J8.

~~10. ATTACH (ITEM 36) SPACER TO DRIVE BEFORE TYING DEVICE TO CAB.~~

9. SCREWS TO BE REMOVED FROM CHASSIS ASSY. AND REINSTALLED TO FASTEN SHIPPING BRACKET (ITEM 27) IN PLACE. (2 REAR CORNERS.)
10. CABLE MOUNT (ITEM #39) TO BE USED TO PROVIDE SERVICE LOOP FOR FLAT CABLES.
11. SLIDE ASSY. (ITEM 11) MOUNTS TO FOUR CABINET VERTICALS IN HOLES 5 & 8.
12. THE MASS BUS ADAPTER MUST HAVE THE FOLLOWING JUMPERS (ITEM 52) INSTALLED ON J1 OF THE WIRED ASSY, SEE DETAIL "K"
    - A. FOR SINGLE PORT,
      JUMPER PIN 1 TO PIN 2
      JUMPER PIN 3 TO PIN 4
      JUMPER PIN 5 TO PIN 6
    - B. FOR DUAL PORT,
      JUMPER PIN 3 TO PIN 4
      JUMPER PIN 5 TO PIN 6

(CONT)

(NOTES CONT.)

13. THIRTY TWO WIREWRAP POSTS IDENTIFIED AS J4 OF THE MASS BUS ADAPTER WIRED ASSY, 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 (ITEM 52) MUST BE INSTALLED FOR EACH LOGIC ZERO IN THE WIRED SERIAL NO., FOR EXAMPLE, IF THE SERIAL NO. IS 3172 IT IS WIRED IN PER DETAIL "L" & DETAIL "M."
14. APPLICATION - FOR BEST ADHESION
    - A. CLEAN SURFACE WITH SOLVENT, I.E. (ISOPROPHYL ALCOHOL).
    - B. REMOVE BACK PAPER PER VENDOR.
    - C. RUB ALL LETTERING TO CLEAN AREA BEFORE REMOVING FRONT PAPER FROM DECAL USING A DULL ROUNDED INSTRUMENT. WHEN REMOVING FRONT PAPER, FOLLOW INSTRUCTIONS ON DECAL PER VENDOR.
15. ON I.D. LABEL (ITEM #15) THE DEC SERIAL NUMBER WILL BE A 5 DIGIT NUMBER ASSIGNED AT PLACE OF MANUFACTURE, PRECEEDED BY PLANT CODE. PLACE OF MANUFACTURE WILL KEEP RECORD OF CORRELATION BETWEEN THE VENDOR SERIAL NUMBER AND DEC SERIAL NUMBER.
16. SWITCH ASSEMBLY IS ON DUAL PORT DRIVES ONLY. SEE DRAWING # D-AD-7013830-0-0 CARD NEST ASSY.

REVISIONS

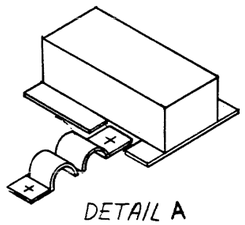
REV.	CHANGE NO.	
A	RM03-00002	C. BLATCHLEY
B	RM03-00004	C. BLATCHLEY
C	RM03-00006	C. BLATCHLEY
D	RM03-00007	C. BLATCHLEY
E	RM03-00010	BELLETTIERE
F	RM03-ML015	R. BERTHIAUME
H	RM03-ML018	L. CAPPABIANCA
J	RM03-CZ020	L. CAPPABIANCA
K	RM03-CX021	R. BERTHIAUME
L	RM03-CX022A	C. DUNIGAN
M	RM03-CX027	RAIKUNEN 29 JAN 82
N	RM03-CX028	W. HARDER 27 APR 82
P	SEE SHEET 2	

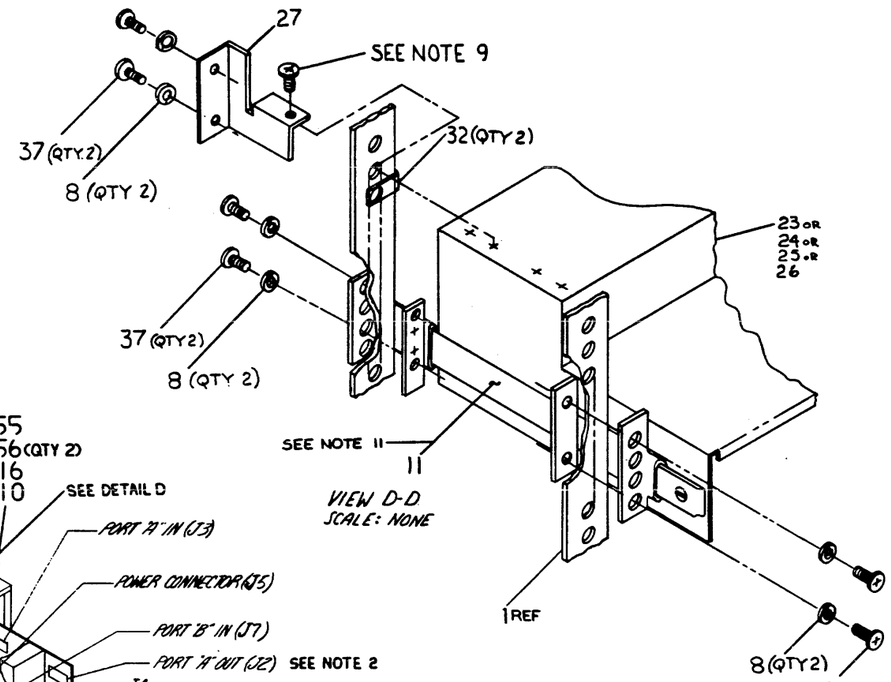
DESCRIPTION	DWG./PART NO.	ITEM NO.

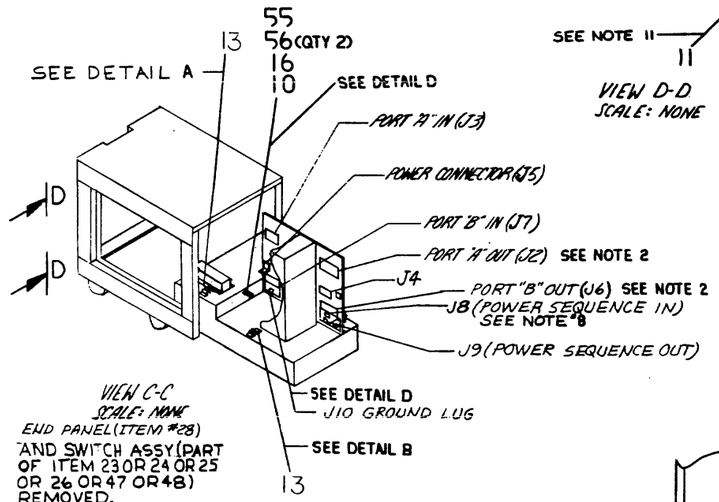
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

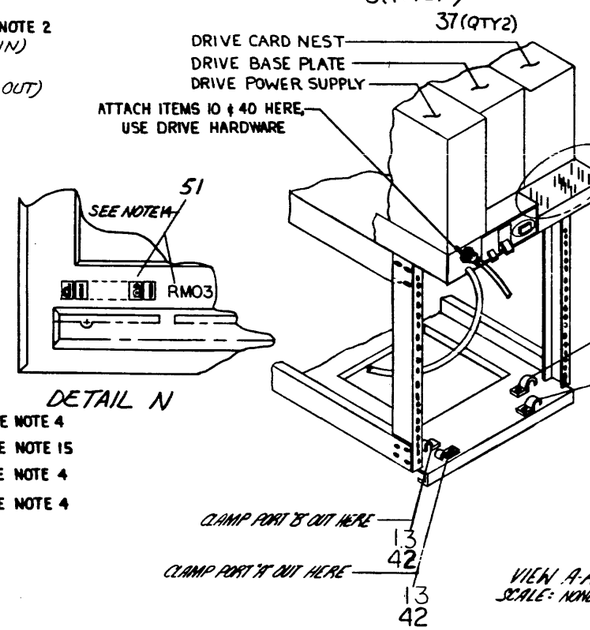
CLASS OF ACCURACY (CHECK ONE)	OVER 0 TO 0.2	OVER 0.2 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
MEDIUM ☐	±.004	±.008	±.012	±.016	±.024	±.04
PREFERRED ☐	±.012	±.016	±.025	±.04	±.063	±0.1

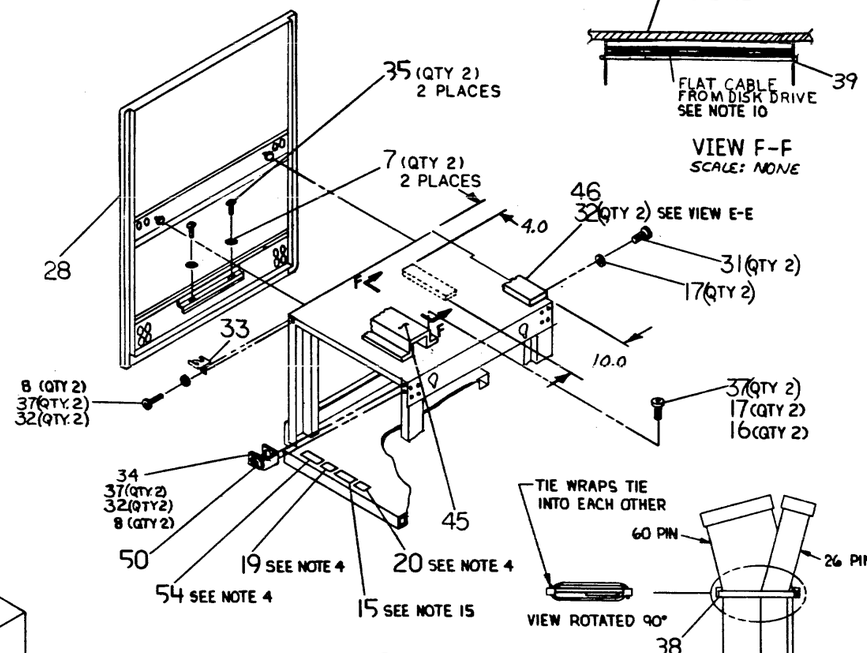
ANGLES ±0° 30'
SURFACE QUALITY IN MICROINCHES
QUANTITY & VARIATION
THIRD ANGLE PROJECTION
REMOVE BURRS AND BREAK SHARP CORNERS
DO NOT SCALE DWG
MATERIAL
FINISH
DRN 22FEB77
CHK'D
ENG.
PROJ. ENG.
PROD.
NEXT HIGHER ASSY. B-DD-RM03-0
SCALE
SHEET 1 OF 2
FIRST USED ON RM03
digital
TITLE RM03 DISK DRIVE
SIZE D CODE UA NUMBER RM03-0-0 REV. S
DIST.

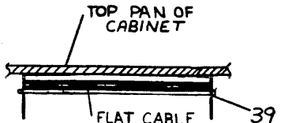


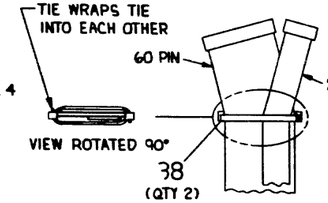


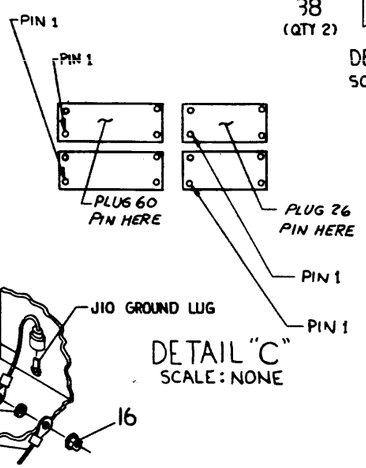


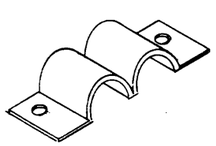


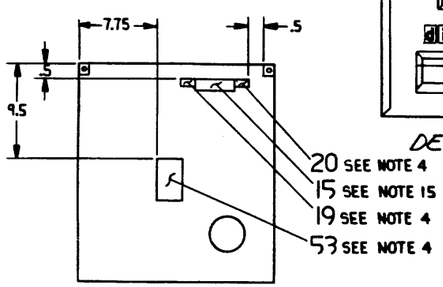












REVISIONS		
CHK	CHANGE NO.	REV.
1483 25 SEP 82	RM03-CX029 C.L.H. 1SEPT82 R. CRUPPER 9/2/82	P
1464 23 NOV 82	RM03-CX032 W.S. 9 NOV, 82 P. RAIKUNEN	R
1436 29 DEC 82	RM03-CX031 AP 20DEC82 C. DUNIGAN 29 DEC 82	S

DEC FORM NO. DRD 137

TITLE		SIZE	CODE	NUMBER	REV.
RM03 DISK DRIVE		D	UA	RM03-0-0	S
SCALE	SHEET 2 OF 2	DIST.			

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QUANTITY PER VARIATION AA	AE	AD	BA	BE	BD	AH	AJ	BH	BJ	AF	BF
1	1	C-AD-7014035-0-0	7014035-00	FRAME ASSY	1	1	1	1	1	1	1	1	1	1	1	1
2	2		3014043-00	STORAGE MODULE DRIVE 3600RPM,120	1	-	-	1	-	-	1	-	1	-	-	-
3	3		3014043-01	STORAGE MODULE DRIVE 3600RPM,240	-	-	1	-	-	1	-	1	-	1	-	-
4	4		3014043-02	STORAGE MODULE DRIVE 3600RPM,100	-	1	-	-	1	-	-	-	-	-	-	-
5	5		9006568-00	NUT,HEX EXT TOOTH LCKWSHR5/16-18	2	2	2	2	2	2	2	2	2	2	2	2
6	6		9006638-00	WASHER,LOCK INTERNAL STEEL	2	2	2	2	2	2	2	2	2	2	2	2
7	7		9008146-00	WASHER,FLAT SST	9	9	9	9	9	9	9	9	9	9	9	9
8	8		9007906-00	WASHER,HELICAL SPLIT STEEL	20	20	20	20	20	20	20	20	20	20	20	20
9	9	D-IA-7412827-0-0	7412827-03	STRAP GROUND 3FT RP04	1	1	1	1	1	1	1	1	1	1	1	1
10	10	C-IA-7013825-0-0	7013825-09	JUMPER ASSY	1	1	1	1	1	1	1	1	1	1	1	1
11	11		1214191-00	SLIDE,CHASSIS ASSY16IN W/BRACKE	1	1	1	1	1	1	1	1	1	1	1	1
12	12		9006418-01	SCREW,TAP PAN PHIL THD RL 8-	10	10	10	10	10	10	10	10	10	10	10	10
13	13	B-MD-7418607-0-0	7418607-00	CLAMP CABLE	6	6	6	12	12	12	6	6	12	12	6	12
14	14		ORM03-P	DISK PACK	1	1	1	1	1	1	1	1	1	1	1	1
15	15		3617674-00	LABEL,SERIAL & POWER,UNIVERSAL	2	2	2	2	2	2	2	2	2	2	2	2
16	16		9006565-00	NUT,HEX EXT TOOTH LCKWSHR 10-32	3	3	3	3	3	3	3	3	3	3	3	3
17	17		9009706-00	WASHER,LOCK INTERNAL STEEL	6	6	6	6	6	6	6	6	6	6	6	6
18	18	E-UA-BC06S-0-0	BC06S-15	MASS BUS CABLE	1	1	1	2	2	2	1	1	2	2	1	2
19	19	A-DC-7416197-0-0	7416197-02	DECAL-UL LISTED EDP	2	2	-	2	2	-	2	-	2	-	-	-
20	20		3613211-00	DECAL,CLEAR PREPRINTED CSA 1-1/4	2	2	2	2	2	2	2	2	2	2	2	2
21	21	A-SP-3700653-0-0	3700653-01	PKG. DISK DRIVE RM02/RM03	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
22	22	D-IA-7009491-0-0	7009491-02	POWER SEQUENCE CABLE	1	1	1	1	1	1	1	1	1	1	1	1
23	23	E-AD-7014010-0-0	7014010-00	MASS BUSS ADAPTER	1	-	-	-	-	-	1	-	-	-	-	-
24	24	E-AD-7014010-0-0	7014010-01	MASS BUSS ADAPTER	-	-	1	-	-	-	-	1	-	-	-	-
25	25	E-AD-7014010-0-0	7014010-02	MASS BUSS ADAPTER	-	-	-	1	-	-	-	-	1	-	-	-
26	26	E-AD-7014010-0-0	7014010-03	MASS BUSS ADAPTER	-	-	-	-	-	1	-	-	-	1	-	-
27	27	C-MD-7418609-0-0	7418609-00	BRACKET, SHIPPING	2	2	2	2	2	2	2	2	2	2	2	2
28	28	D-IA-7014034-0-0	7014034-00	SIDE PANEL ASSY	2	2	2	2	2	2	2	2	2	2	2	2
29	29	C-IA-7014148-0-0	7014148-00	REAR COVER ASSY	1	1	1	1	1	1	1	1	1	1	1	1
30	30	D-IA-7012830-0-0	7012830-02	FRONT DOOR ASSY (DARK GREY)	1	1	1	1	1	1	-	-	-	-	1	1

REVISION HISTORY			
ENG	ECO NUMBER	REV	
	RM03-CX021A	K	
LC	RM03-CX022	L	
PR	RM03-CX027	M	
WH	RM03-CX028	N	
RC	RM03-CX029	P	
PR	RM03-CX032	R	
CD	RM03-CX031	S	
	29DEC82		
	29DEC82		

BASIC PART NO: ORM03

SECTION A OF A

SECTION. VARIATION INDEX
[A] AA,AE,AD,BA,BE,BD, AH,AJ,BH,BJ,AF,BF
[B]
[C]
[D]
[E]
[F]

DRN: B. HALE

CHK'D: D. SCHMIDT

DES.ENG.: W. DUNHAM JR.

RESP.ENG.: W. DUNHAM JR.

MFG.ENG.: J. D. MILLER

DATE: 4-APR-77

DATE: 4-APR-77

DATE: 4-APR-77

DATE: 4-APR-77

SIZE	CODE	NUMBER	REV
K	PL	RM03-0-DBP	S

ASSEMBLY NUMBER: D-UA-RM03-0-0

TOP DOCUMENT NUMBER: #B-DD-RM03-0

FILE NAME: Z0906S.PLS

EDIT #: 26

D	I	G	I	T	A	L

TITLE: PARTS LIST

RM03 DISK DRIVE

DOCUMENT NUMBER

AUTOMATED BY PRTLST.3L(36)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QUANTITY PER VARIATION AA	AE	AD	BA	BE	BD	AH	AJ	BH	BJ	AF	BF
31	31		9006075-01	SCREW,MACH PAN PHIL 10-	6	6	6	6	6	6	6	6	6	6	6	6
32	32		9007786-00	NUT,U-NUT RETAINER .240ID	13	13	13	13	13	13	13	13	13	13	13	13
33	33	C-MD-7416904-0-0	7416904-00	BRACKET	1	1	1	1	1	1	1	1	1	1	1	1
34	34	C-MD-7420336-0-0	7420336-00	RECEPTACLE BRKT	1	1	1	1	1	1	1	1	1	1	1	1
35	35		9009894-00	SCREW,SEMS HEX SLOT 10-	4	4	4	4	4	4	4	4	4	4	4	4
36	36	B-MD-7418891-0-0	7418891-00	SPACER, CHASSIS	4	4	4	4	4	4	4	4	4	4	4	4
37	37		9006073-03	SCREW,MACH TRUSS PHIL 10-	19	19	19	19	19	19	19	19	19	19	19	19
38	38		9007032-00	TIE,CABLE BUNDL.DIA 0-1-3/4"=101	2	2	2	2	2	2	2	2	2	2	2	2
39	39		1215911-00	CLAMP, CABLE,NYLON W/ADHESIVE MN	1	1	1	1	1	1	1	1	1	1	1	1
40	40	C-IA-7013825-0-0	7013825-10	WIRE JUMPER ASSY	1	1	1	1	1	1	1	1	1	1	1	1
41	41		9006231-09	SCREW,MACH HEX PLN 10-	1	1	1	1	1	1	1	1	1	1	1	1
42	42		9006041-01	SCREW,MACH PAN PHIL 8-	2	2	2	4	4	4	2	2	4	4	2	4
43	43		9007087-00	CLAMP,CABLE,SCREW MTD. 5/8 "	1	1	1	1	1	1	1	1	1	1	1	1
44	44	D-IA-7012830-0-0	7012830-03	FRONT DOOR ASSY (MULLEN BLUE)	-	-	-	-	-	-	1	1	1	1	-	-
45	45	C-MD-7420177-0-0	7420177-00	FRONT SUPPORT	1	1	1	1	1	1	1	1	1	1	1	1
46	46	D-MD-7420178-0-0	7420178-00	REAR SUPPORT	1	1	1	1	1	1	1	1	1	1	1	1
47	47	E-AD-7014010-0-0	7014010-04	MASS BUS ADAPTER (100V 50/60HZ S	-	1	-	-	-	-	-	-	-	-	1	-
48	48	E-AD-7014010-0-0	7014010-05	MASS BUS ADAPTER (100V 50/60HZ D	-	-	-	-	1	-	-	-	-	-	-	1
49	49		3014043-03	STORAGE MODULE DRIVE 3600RPM,100	-	-	-	-	-	-	-	-	-	-	1	1
50	50		1212972-02	SPRING,RECEPTACLE 1.04 WDX1.5	1	1	1	1	1	1	1	1	1	1	1	1
51	51		3615393-01	LABEL,RUB-ON,RM03	1	1	1	1	1	1	1	1	1	1	1	1
52	52		1214314-00	CONN,P+S 02SKT(1X02).100CC JUM	1	1	-	1	1	-	1	-	1	-	-	-
53	53		3618307-06	ASSY,04,02	1	1	-	1	1	-	1	-	1	-	-	-
54	54		3617880-01	LABEL,NON-COMPLIANT FCC	1	1	1	1	1	1	1	1	1	1	1	1
55	55		9007651-00	WASHER,LOCK EXTERNAL STEEL	2	2	2	2	2	2	2	2	2	2	2	2
56	56		7014133-00	GROUND WIRE ASSY	1	1	1	1	1	1	1	1	1	1	1	1
57	57		9007031-00	TIE,CABLE BUNDL.DIA 0- 3/4"=101	2	2	2	2	2	2	2	2	2	2	2	2

58 NOTE: -

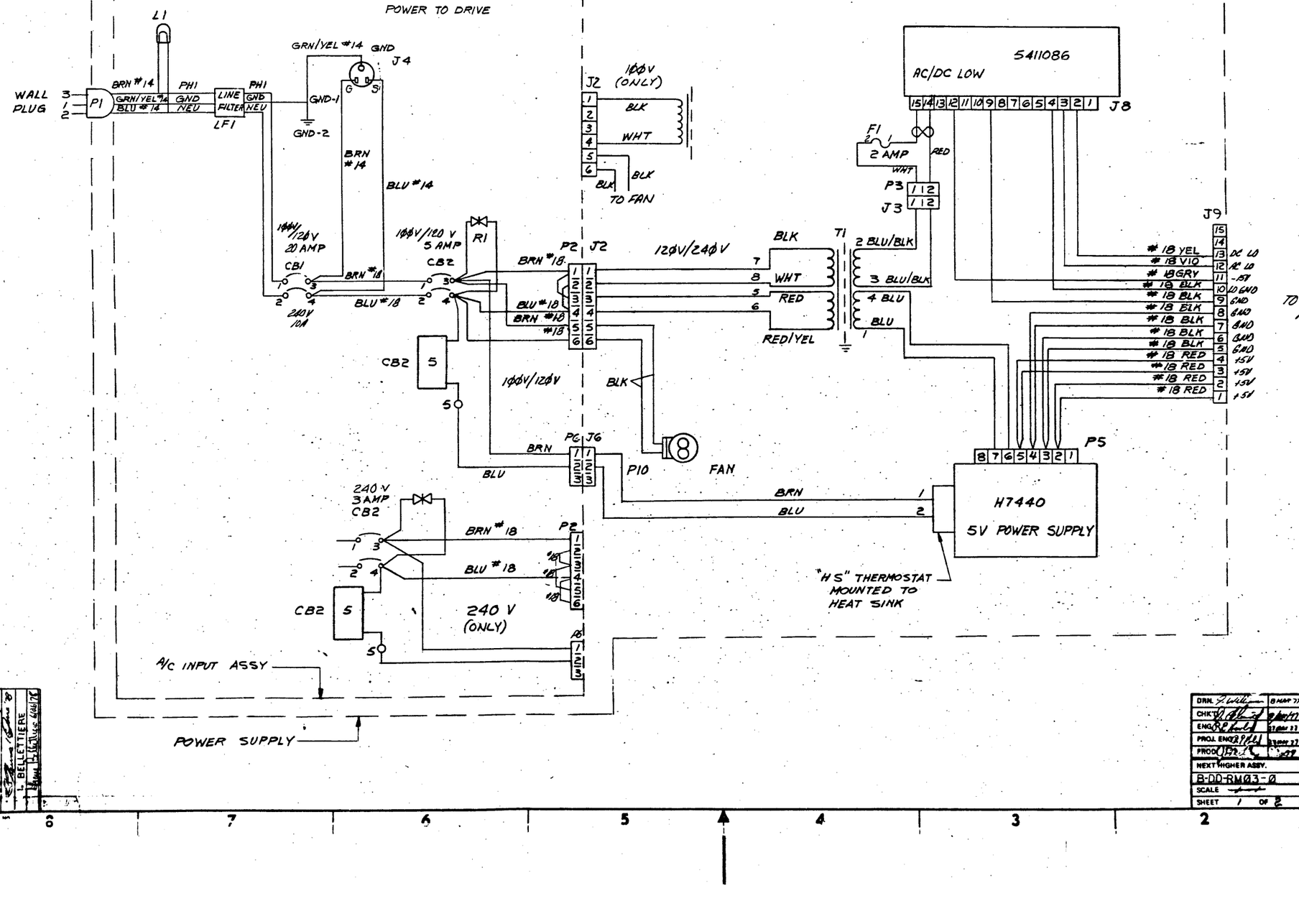
- LEGEND -

	PART NO.	ACCESS	PART NO.	ACCESS
59 NOTE: -				
60 NOTE: -	RM03-AA, 120V 60HZ	SINGLE	RM03-AH, 120V 60HZ	SINGLE
61 NOTE: -	RM03-AE, 100V 60HZ	SINGLE	RM03-AJ, 240V 50HZ	SINGLE
62 NOTE: -	RM03-AD, 240V 50HZ	SINGLE	RM03-BH, 120V 60HZ	DUAL
63 NOTE: -	RM03-BA, 120V 60HZ	DUAL	RM03-BJ, 240 50HZ	DUAL
64 NOTE: -	RM03-BE, 100V 60HZ	DUAL	RM03-AF, 100V 50HZ	SINGLE
65 NOTE: -	RM03-BD, 240V 50HZ	DUAL	RM03-BF, 100V 50HZ	DUAL

D	I	G	I	T	A	L	TITLE	SECTION A OF A	SIZE	CODE	DOCUMENT NUMBER	REV
							RM03 DISK DRIVE		K	PL	RM03-0-DBP	S

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.



REVISIONS	REV.
CHANGE NO. RM03-00013	A
L. BELLETTIERE 6 MAY 77	

DRN.		FIRST USED ON	digital
CHK'D		RM03	
ENGR		TITLE	
PROJ. ENGR		RM03 SYSTEM DIAGRAM	
PROD.			
NEXT HIGHER ASSY.	B-DD-RM03-0		
SCALE		SIZE D / CODE IC / NUMBER RM03-0-2 / REV. A	
SHEET 1 OF 2		DIST.	

BACKPLANE ASSY

J1
DRIVE TYPE
SEE NOTE 2

J2
PORT "A" OUT

J3
PORT "A" IN

J4
SERIAL NUMBER

J7
PORT "B" IN

J10

J9 P9 — P5 J5

YEL #18 AWG
VIO #18 AWG
GRY #18 AWG
BLK #18 AWG
BLK #18 AWG
BLK #18 AWG
BLK #18 AWG
BLK #18 AWG
RED #18 AWG
RED #18 AWG
RED #18 AWG
RED #18 AWG

J1 60 — 1

M7684
M7685
M7686
M5922
M5922
M5923
M5923
M5923

60 POSITION I/O CABLE

J1 26 — 1
M7687

26 POSITION I/O CABLE

SEE NOTE 2
J6
PORT "B" OUT

GRN #22 AWG
BLK #22 AWG
FROM J9 PREVIOUS DRIVE (SEE NOTE 1)

POWER SEQUENCE CABLE P2 4 3 2 1 / 4 3 2 1 J8 IN

POWER SEQUENCE CABLE J9 4 3 2 1 / 4 3 2 1 P1 OUT

BLK #22 AWG
GRN #22 AWG
TO J8 NEXT DRIVE IN SERIES

RMØ3 DRIVE

60 PIN HDR #60 #1
26 PIN HDR #26 #1

GROUND STUD ON DRIVE

POWER SUPPLY

GROUND STUD ON POWER SUPPLY

REVISIONS

CHK	CHANGE NO.	REV.

TITLE	RMØ3 SYSTEM DIAGRAM
SIZE	D
CODE	IC
NUMBER	RMØ3-Ø-2
REV.	A
SCALE	
SHEET	2 OF 2
DIST.	

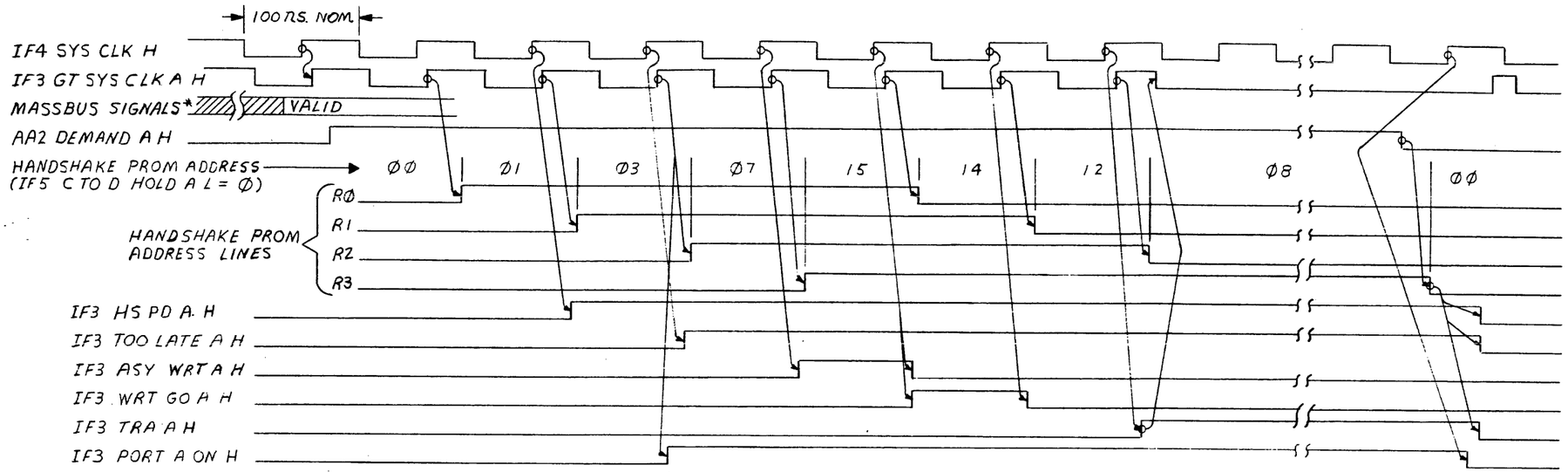
INDEX

INDEX

REVISIONS			
DR#	CHANGE NO.		REV.
CE	RM03-MOD1		A

T. BELLETTIERE 11/29/78

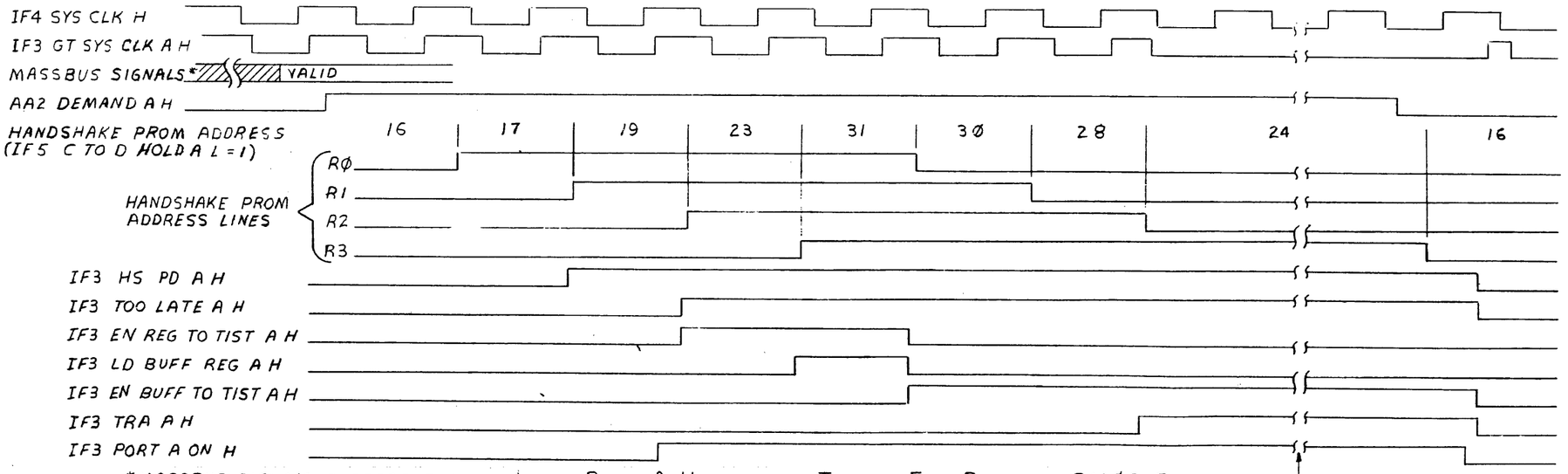
DRN. BPH	11/27/78	FIRST USED ON RM03
CHK'D	7/19/79	
ENGR.	4/5/79	TITLE INTERFACE TIMING DIAGRAM
PROJ. ENG.	4/5/79	
PROD.	11/9/78	
NEXT HIGHER ASSY.		
SCALE		SIZE D / CODE TD / NUMBER RM03-0-0 / REV. A
SHEET 1 OF 12		DIST.



PORT A HANDSHAKE TIMING FOR WRITING RMØ3 REGISTERS

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
ØØ	1	Ø	1	1	Ø	Ø	1	Ø
Ø1	1	Ø	Ø	1	Ø	Ø	Ø	Ø
Ø2	1	Ø	1	1	Ø	Ø	1	Ø
Ø3	Ø	1	1	1	Ø	Ø	Ø	Ø
Ø4	1	Ø	1	1	Ø	Ø	1	Ø
Ø5	1	Ø	1	1	Ø	Ø	1	Ø
Ø6	1	Ø	1	1	Ø	Ø	1	Ø
Ø7	Ø	1	1	1	1	Ø	Ø	1
Ø8	1	Ø	1	1	Ø	1	1	Ø
Ø9	1	Ø	1	1	Ø	1	Ø	Ø
1Ø	1	Ø	1	1	Ø	1	Ø	Ø
11	1	Ø	1	1	Ø	1	Ø	Ø
12	Ø	1	Ø	1	Ø	1	Ø	Ø
13	1	Ø	1	1	Ø	Ø	1	Ø
14	Ø	1	1	1	Ø	Ø	Ø	Ø
15	Ø	1	1	1	Ø	Ø	1	Ø

HANDSHAKE PROM MAP FOR WRITING A REGISTER



PORT A HANDSHAKE TIMING FOR READING RMØ3 REGISTERS

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
16	1	Ø	1	1	Ø	Ø	1	Ø
17	Ø	Ø	1	1	Ø	Ø	Ø	Ø
18	1	Ø	1	1	Ø	Ø	1	Ø
19	Ø	1	1	1	Ø	1	1	Ø
2Ø	1	Ø	1	1	Ø	Ø	1	Ø
21	1	Ø	1	1	Ø	Ø	1	Ø
22	1	Ø	1	1	Ø	Ø	1	Ø
23	Ø	1	1	1	1	1	Ø	Ø
24	1	Ø	1	1	Ø	Ø	Ø	Ø
25	1	Ø	1	1	Ø	Ø	1	Ø
26	1	Ø	1	1	Ø	Ø	1	Ø
27	1	Ø	1	1	Ø	Ø	1	Ø
28	Ø	1	Ø	Ø	Ø	Ø	Ø	Ø
29	1	Ø	1	1	Ø	Ø	1	Ø
3Ø	Ø	1	1	Ø	Ø	Ø	Ø	Ø
31	Ø	1	1	Ø	Ø	Ø	Ø	Ø

HANDSHAKE PROM MAP FOR READING A REGISTER

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

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

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

A.H

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
INTERFACE TIMING DIAGRAM	D	TD	RMØ3-Ø - Ø	A
SCALE —//— SHEET 2 OF 12	DIST.			

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 (01_8)

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
IFIO ILF H
CSI END RESET GO L

ILLEGAL (03_8)

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 (05_8)

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 06 H
CS6 BUS BIT (ALL OTHERS)
HI Z
"1"
"0"
HI Z
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 (07_8)

COMMAND SEQ COUNT → 0 25 36 97 98 144 145 146 147 148 149 150 151 152 153 154 155 99 100 100 102 100 100 103 104 103 104 105 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"
HI Z
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 RESET GO L
CS2 P SET ATA L

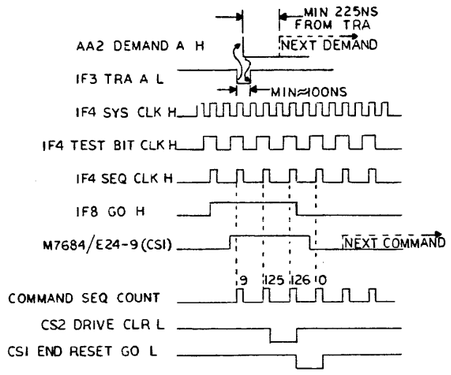
SEARCH (31_8)

TIMING FOR ALL COMMANDS
COMMAND SEQUENCER PAGE 1 OF 1

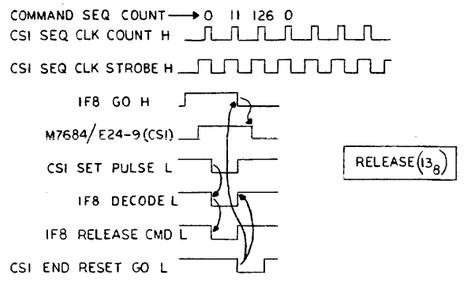
REVISIONS

CHK	CHANGE NO.	REV.

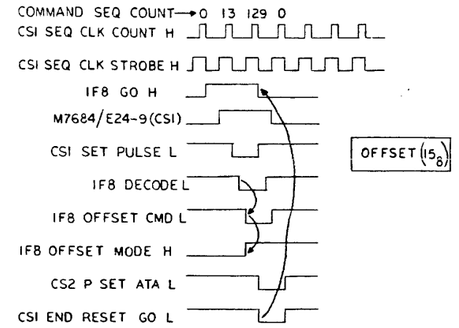
TITLE	SIZE	CODE	NUMBER	REV.
INTERFACE TIMING DIAGRAMS	D	TD	RMØ3-Ø-Ø	A
SCALE	SHEET 3 OF 12	DIST.		



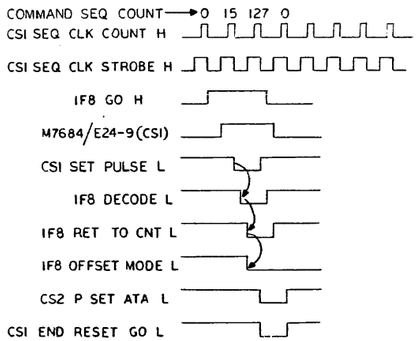
DRIVE CLEAR (11_8)



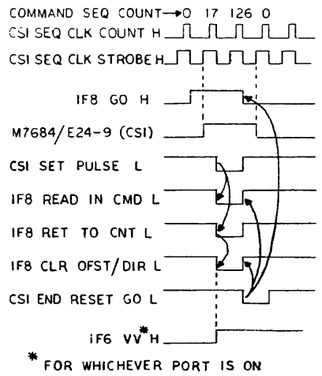
RELEASE (13_8)



OFFSET (15_8)

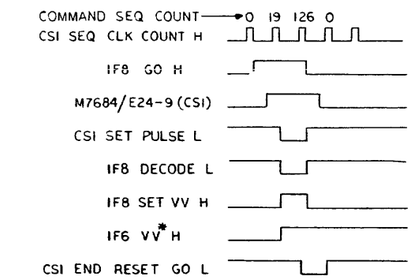


RETURN TO CENTERLINE (17_8)



* 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		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
INTERFACE TIMING DIAGRAMS	D	TD	RMØ3-Ø-Ø	A
SCALE	SHEET 4 OF 12	DIST.		

DTD RMØ3-Ø-Ø A

READ H/D 27→29
READ DATA 25→26
WRITE H/CA 19→20
WRITE DATA 17→18
WRITE CHECK H/D 11→12

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)

NOTE: DURING SECTOR WAIT ALL ACTIVITY RELATED TO DATA TRANSFER IS CONTROLLED BY THE DATA SEQUENCER

5 µS WAIT FOLLOWING HEAD SELECTION

SEEK WAIT LOOP ON 166 167 168 UNTIL ONCYL

"SECTOR WAIT" — WAIT FOR EBL OR ABORT — LOOP ON 178,179 AND 18C CONTINUOSLY UNTIL EBL

WAIT FOR EBL TO BECOME INACTIVE

BRANCH TO 178 IF NEXT SECTOR IS X+1 ON SAME TRACK & CYLINDER

COMMAND SEQUENCER COUNT → WRITE CHECK DATA C→3C→1C→128 129 130 144 145 146 147 148 149 14C 151 152 153 154 156 157 158 159 160 161 162 163 164 165 232 INCREMENT AT EACH CLOCK UNTIL 252 233 234 252 166 167 168 166 167 168 166 169 17C 178 179 180 178 175 181 182 182 183 184 185 186 0

JUMP BACK HERE FOR NEXT SECTOR ON SAME TRACK

JUMP BACK HERE FOR NEW HEAD SELECTION

JUMP BACK HERE FOR NEW CYLINDER SELECTION (SEEK)

STROBE WRITE LOCK AT END OF SECTOR

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

F4-1 UNCONDITIONAL; RUN GO L

MAY HAVE TO WAIT FOR RUN TO BECOME ACTIVE

*

CS2 EN CONTROL H
CS2 PEN SEARCH H
CS5 MBA EBL H
SECTOR PULSES 1 2 3
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 169 170 171 172 173 174 175 176 177 175 176 176 177 175 178
CS2 EN CONTROL H
CS2 EN TAG H
CS2 EN OFFSET H — STAY HIGH FOR DURATION OF READ (UP TO FULL TRACK)
CS6 BUS BIT Ø2 OR Ø3 H. — (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 MICRODE IN LOCATIONS 183, 184 AND 185 (ALSO SEE NOTES TO RIGHT)

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

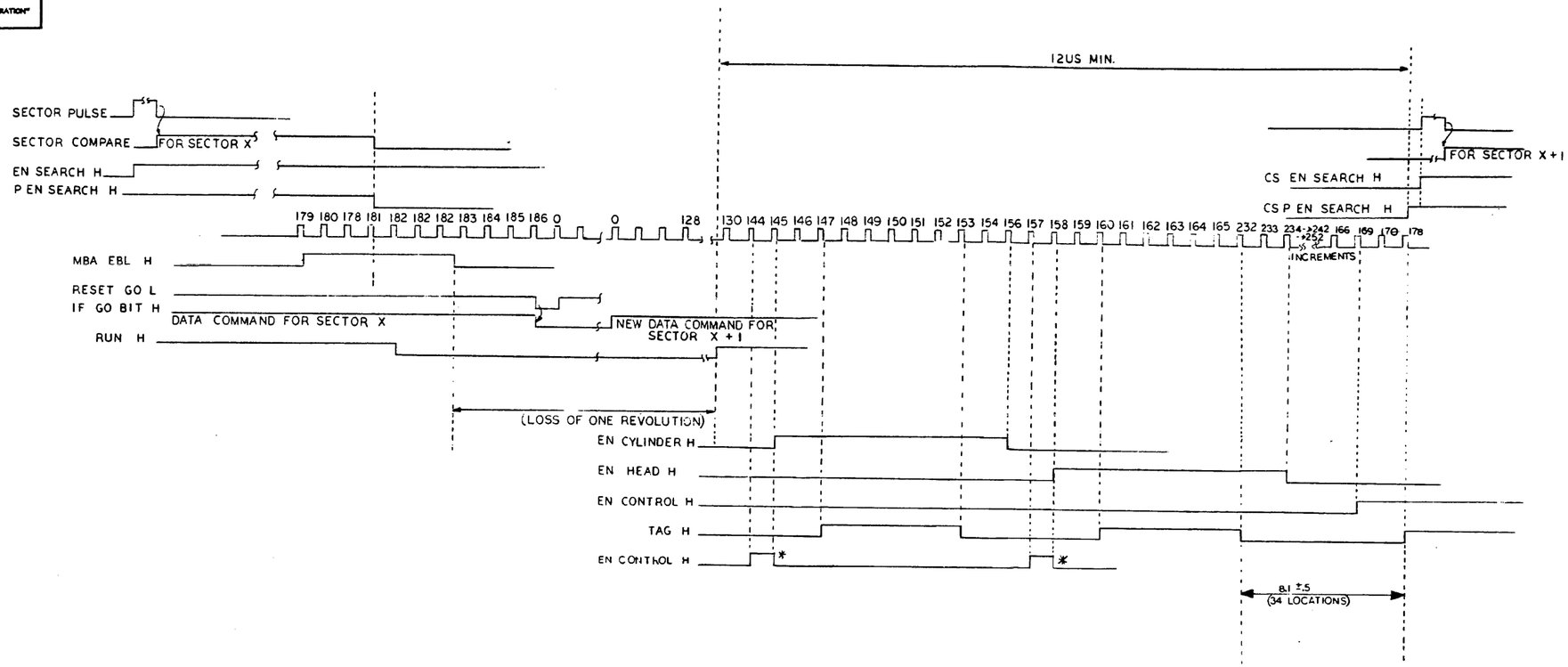
TIMING FOR ALL COMMANDS (COMMAND SEQUENCER/DATA) SHEET 3 OF 3

REVISIONS		
CHK	CHANGE NO.	REV.

I.B.

TITLE	SIZE	CODE	NUMBER	REV.
INTERFACE TIMING DIAGRAMS	D	TD	RMØ3-Ø-Ø	A
SCALE — SHEET 5 OF 12	DIST.			

DTD RMØ3-Ø-Ø REV A



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

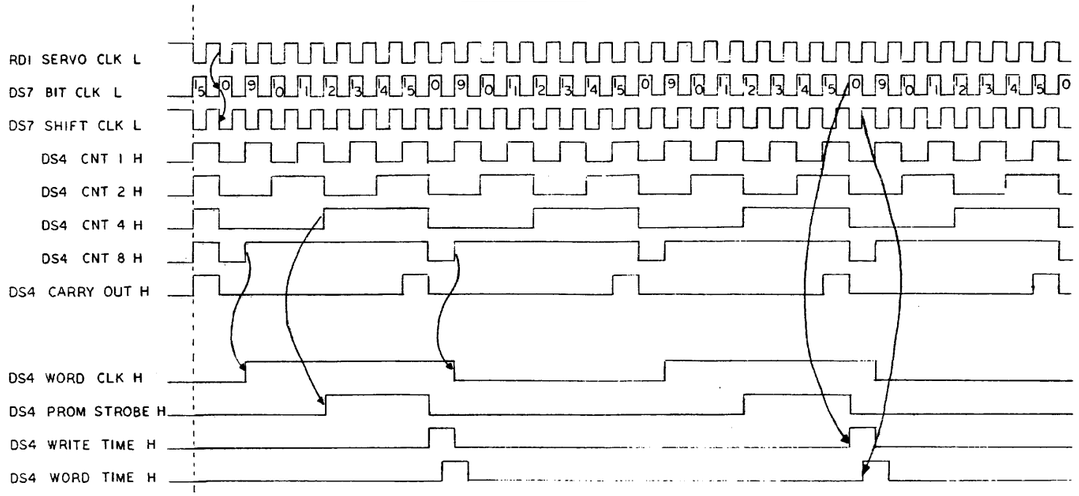
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
INTERFACE TIMING DIAGRAMS	D	TD	RMØ3-Ø-Ø	A
SCALE	SHEET 6 OF 12	DIST.		

NEXT ASSY | USED ON | APPLICATION

DTD RMØ3-Ø-Ø REV A

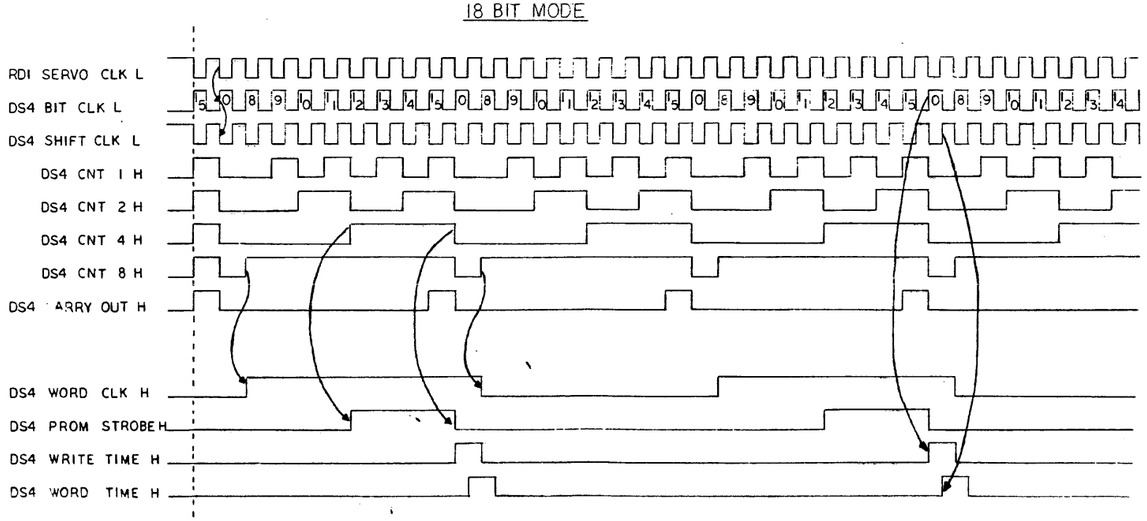
16 BIT MODE



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 (59) INDICATES THE COUNT VALUE OF E6 PRODUCED BY THE LEADING EDGE OF THAT PULSE.

18 BIT MODE



BASIC DATA TIMING
(CLOCK GENERATION)
PAGE 1 OF 1

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	INTERFACE TIMING DIAGRAMS	SIZE/CODE D TD	NUMBER RMØ3-Ø-Ø / REV. A
SCALE	SHEET 7 OF 12	DIST.	

UP TO 1 WORD OF ZEROES

WRITE DATA TO DISK — 28 BYTES OF ZEROES — HEADER SYNC 0 1 SYNC — 17 BYTES OF ZEROES — DATA SYNC 0 SYNC — DATA WORDS 2 → 254 — DATA WORD 255 — DATA WORD 256 — ECC WORD 1 — ECC WORD 2 — POST-ENABLE

CS5 SECTOR COMPARE H

CS4 DS WRITE GATE H — 17 BYTES HEAD SCATTER + MECH TOL — 11 BYTES PLO SYNC — HEADER WORD 1 — HEADER WORD 2 — HEADER CRC WORD — 4 BYTES SPLICE — 2 BYTES SKEW RD→WRT — 11 BYTES PLO SYNC — DATA WORD 1 — 1 WORD ZEROES

DS4 WORD CLK H — 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 128 129 130 131 132 133 134 135 136 137 138 139 161 162 415 416 417 418 419 420 421

DS4 PROM STROBE H

CS4 PROM WRITE GATE H

CS4 PRECLEAR CRC ECC L

CS4 BRANCH L — ENABLES BRANCH TO LOC 128 — ENABLES BRANCH TO LOC 161

CS4 BR RD TO WRT L

CS4 EN SYNC H

CS4 P HEADER AREA H

CS5 EN CRC CLK L

CS4 P EN CRC OUT H — ENABLES CLOCKING OF CRC GENERATOR

DS4 EN CRC OUT H — ENABLES WRITING CRC WORD DISABLES INTERNAL FEEDBACK IN CRC CHIP

CS4 P EN CRC/ECC L

CS4 P DATA AREA H

CS5 EN ECC CLK L

CS4 P EN ECC OUT H — ENABLES CLOCKING OF ECC GENERATOR

DS4 EN ECC OUT H — ENABLES WRITING ECC WORDS

CS4 P DATA EN SCLK H

CS4 P EN LOAD SR H

DS5 MB SCLK L — RM03 REQUESTS A WORD FROM THE RH

DS3 WRT CLK L — RM03 RECEIVES THE WORD FROM THE RH

DS5 EN LOAD SR H — SYNC LOADED INTO S.R. — SYNC LOADED INTO SHIFT REG — DATA LOADED INTO SHIFT REG

DS5 SYNC 2 NBT SCLK L — HEADER WORDS LOADED INTO SHIFT REG

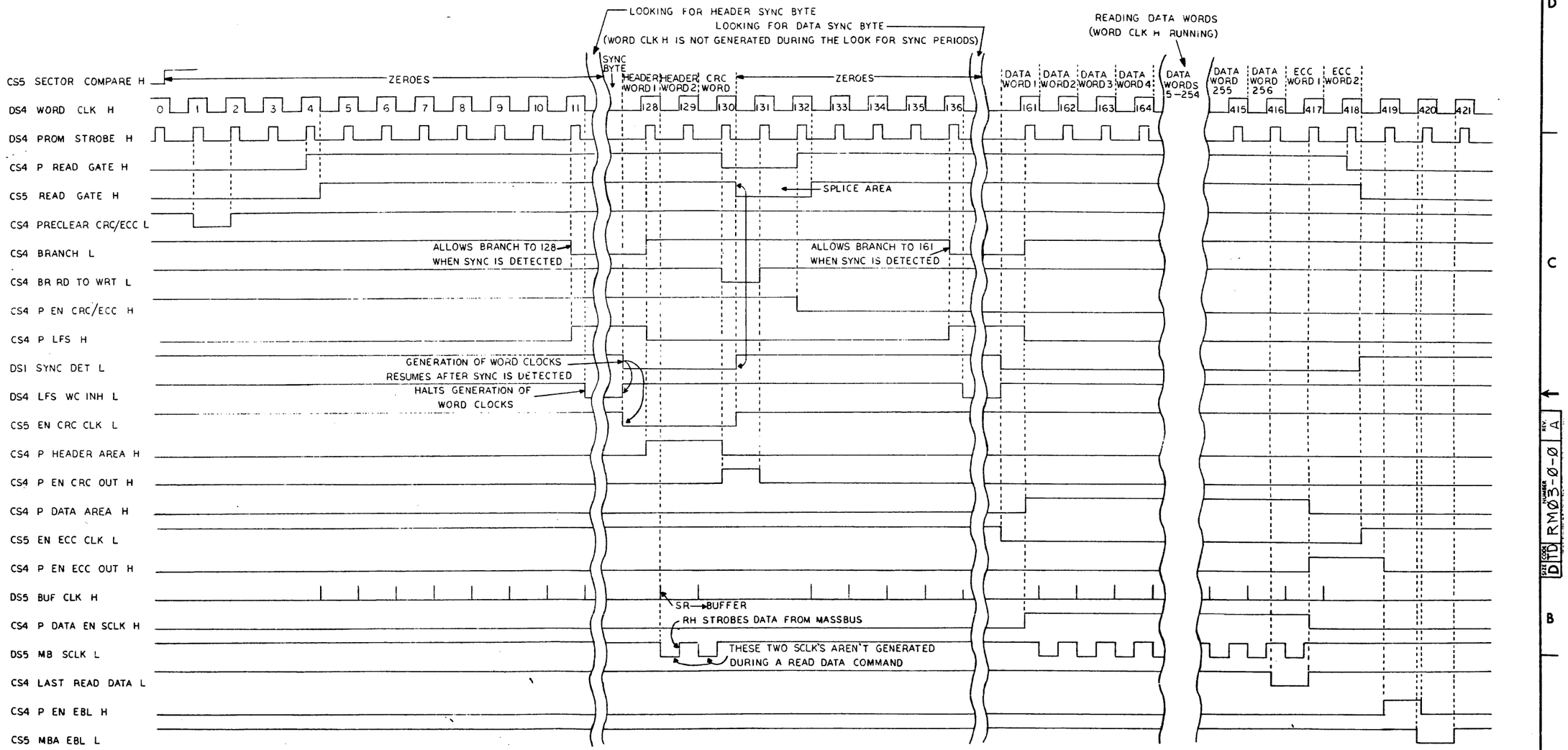
CS4 EN EBL H — INHIBITS SCLK DURING DATA SYNC — (FIRST DATA WORD ALREADY IN BUFFER)

CS5 MBA EBL L — WRITING DATA WORDS WORD CLK H RUNNING

RM DATA TIMING FOR WRITE HEADER & DATA

REVISIONS		
CHK	CHANGE NO.	REV.

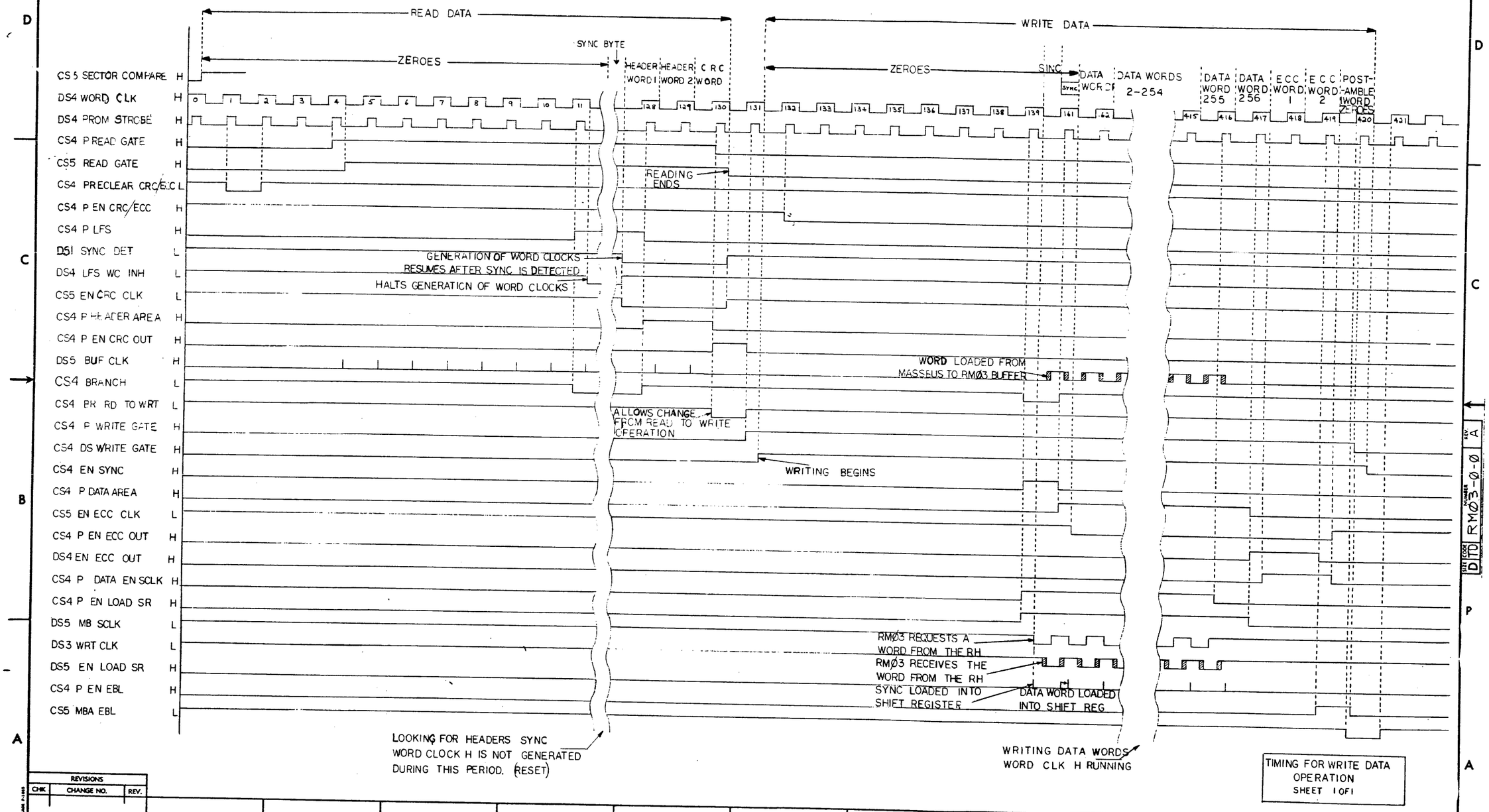
TITLE	SIZE	CODE	NUMBER	REV.
INTERFACE TIMING DIAGRAMS	D	TD	RMØ3-Ø-Ø	A
SCALE	SHEET 8 OF 12	DIST.		



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

REVISIONS		
CHK	CHANGE NO.	REV.

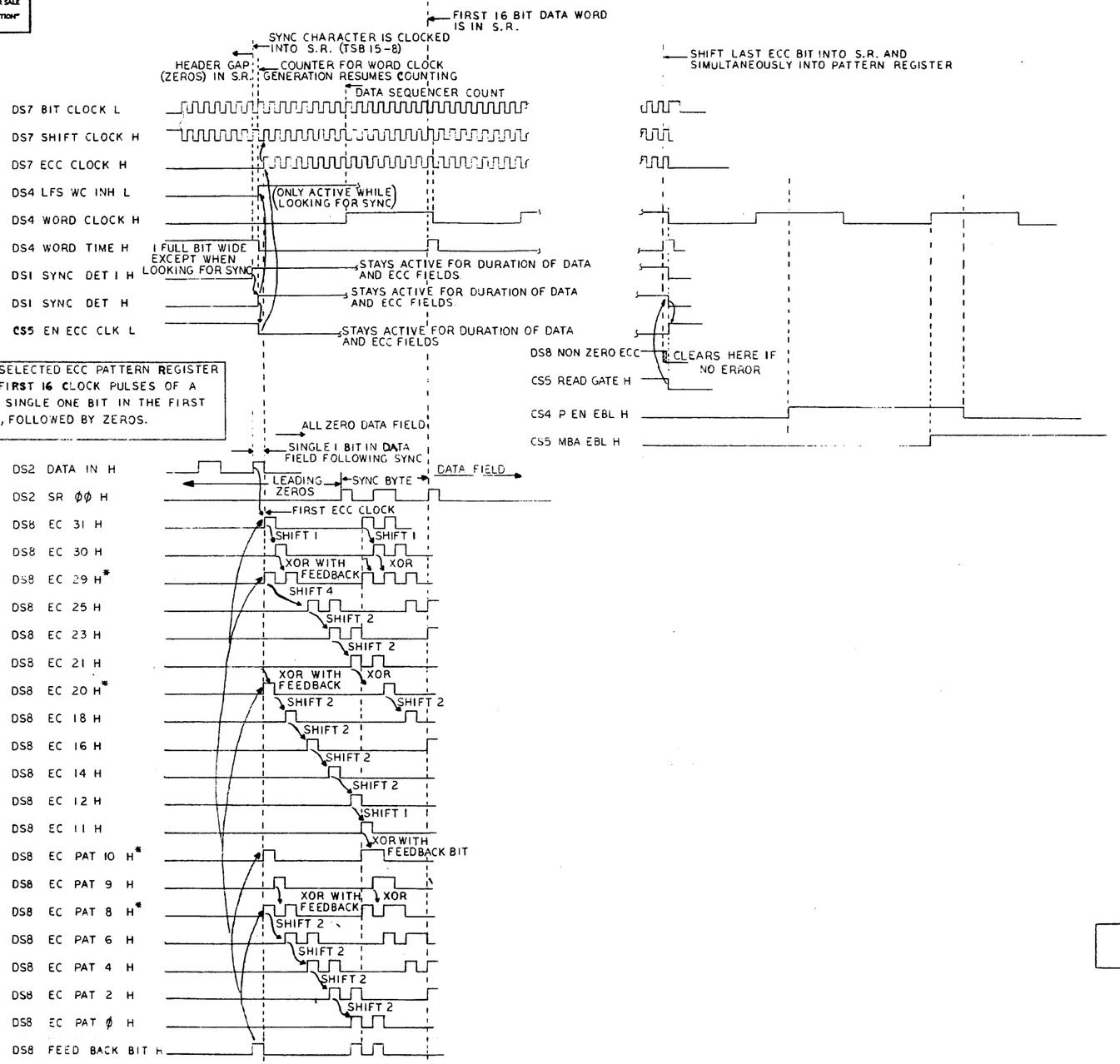
TITLE	SIZE	CODE	NUMBER	REV.
INTERFACE TIMING DIAGRAMS	D	TD	RMØ3-Ø-Ø	A
SCALE	SHEET 9 OF 12	DIST.		



TIMING FOR WRITE DATA OPERATION
SHEET 1 OF 1

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
INTERFACE TIMING DIAGRAMS	D	TD	RMØ3-Ø-Ø	A
SCALE	SHEET 10 OF 12	DIST.		



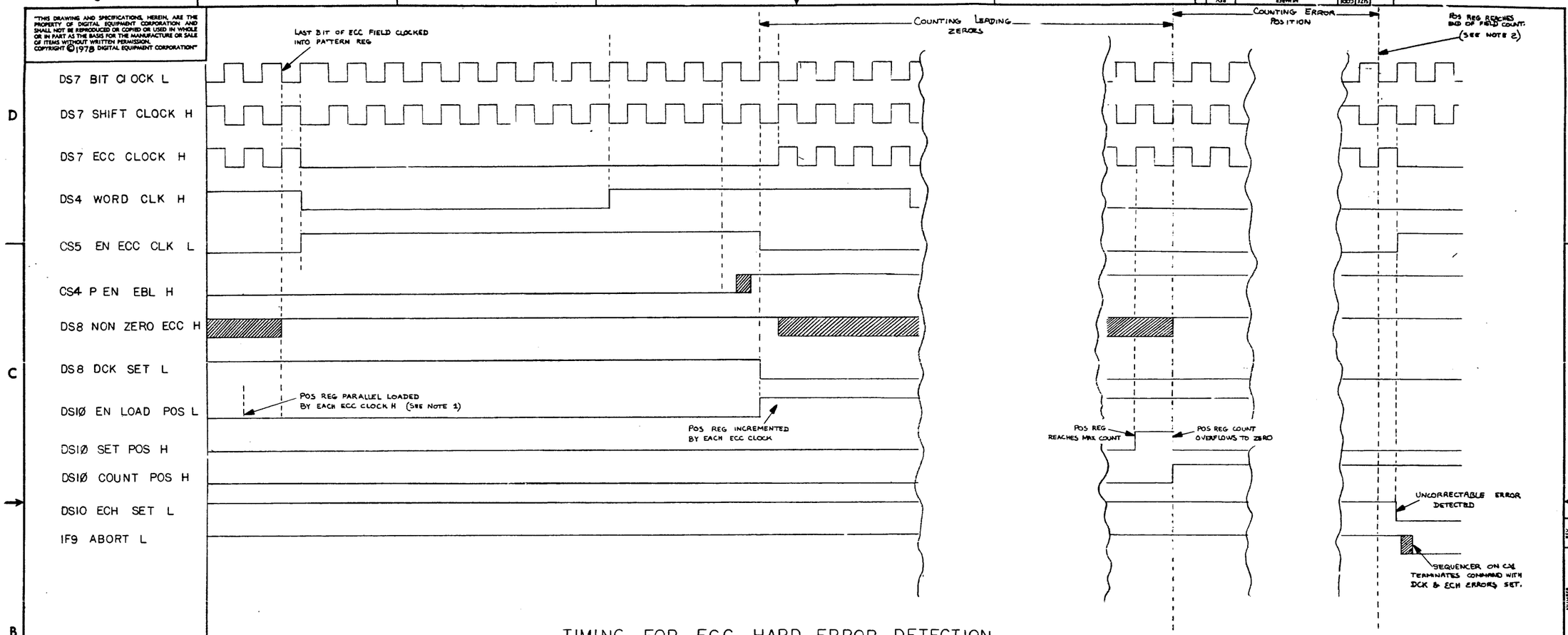
SHOWN BELOW ARE SELECTED ECC PATTERN REGISTER OUTPUTS FOR THE FIRST 16 CLOCK PULSES OF A DATA FIELD WITH A SINGLE ONE BIT IN THE FIRST BIT OF DATA FIELD, FOLLOWED BY ZEROS.

* INPUTS TO THESE CONSISTS OF XOR OF PREVIOUS STAGE AND DS8 FEEDBACK BIT 4

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

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
INTERFACE TIMING DIAGRAMS	D	TD	RMØ3-Ø-Ø	A
SCALE	SHEET 11 OF 12	DIST.		

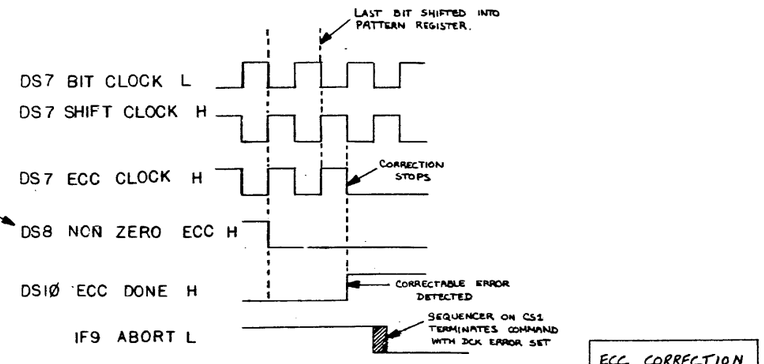


TIMING FOR ECC HARD ERROR DETECTION

NOTES: (1) THE POSITION REGISTER IS PARALLEL RELOADED TO:
- (a) $64066_{(8)}$ FOR 16 BIT MODE.
- (b) $65066_{(8)}$ 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.

ASSUMING A ZERO ECC CORRECTABLE ERROR RESULT IS DETECTED DURING THE CORRECTION PERIOD TERMINATION IS AS SHOWN HERE.



ECC CORRECTION
SHEET 1 of 1

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	INTERFACE TIMING DIAGRAM	
SIZE / CODE	D / TD	NUMBER RMØ3-Ø-Ø
REV.	A	
SCALE		SHEET 12 OF 12
DIST.		

DEV ADDRESS (Ø-2)

INTEGRATED BACKPLANE TIED TO MASSBUS

QUAD M5922 PORT A TRANSCEIVERS

QUAD M5923 PORT B TRANSCEIVERS

A DRV ADD (Ø-2)
A DEM
B DRV ADD (Ø-2)
B DEM

IF5 RMAS A
A SEL/DEM DECODE
SEL/DEM A
HANDSHAKE TIMING GENERATOR A
IF5 RMAS B
B SEL/DEM DECODE
SEL/DEM B
HANDSHAKE TIMING GENERATOR B
MUX
HANDSHAKE TIMING SIGNALS
PORT B ON

(HEX) M7686

RS (Ø-4)A
RS (Ø-4)B
A CONT (Ø-15)
B CONT (Ø-15)
MUX
ROM 1
ROM 2
REGISTER SELECT LINES
PORT B ON
RELEASE A
RELEASE B
HS PD A
HS PD B
REQ A
REQ B
B.P. PORT SWITCH
PORT ARBITRATION LOGIC
PORT A ON
PORT B ON
ERROR CONDITIONS
ERROR FPLA
COMP ERROR
EXC
(TO MASSBUS)
HOLDING REGISTER
OTHER REGISTERS
(SEE NOTE 1)
ATA MUX'S FOR PORTS A&B
CONT BUS A (TO TRANS)
CONT B (TO TRANS)
PORT B ON

ABORT
FUNCTION CODE
GO BIT FØ - F4
RESET GO
ERROR INDICATIONS

TO M7684
TO M7634
REGISTER SELECT & HANDSHAKE TIMING
CONTROL BUS

ERROR INDICATION

(HEX) M7685

CONTROLS
DESIRED SECTOR & TRACK DS11
FPLA
CONTROLS DS11
DESIRED CYLINDER DS12
FPLA DS12
DS13 DS13 DS9 DS9
DESIRED CYLINDER (DS12) ECC POSITION (DS10) ECC PATTERN (DS8)
HEADER COMPARE
COMPARE
ERROR
MUX
SYNC CLOCK GENERATION WRITE CLOCK FAIL (SEE CRC BELOW) DS5
MODULO 8/9 COUNTER
WRITE TIME
WORD TIME
EN CRC OUT
EN ECC OUT
DS4
WORD CLOCK
BIT CLK L
CLOCK GENERATION
DS7
FROM DATA BUFFER MB (Ø-15)
READ GATE FROM (M7684)
SHIFT REGISTER
EN SYNC
HARD WIRED
SYNC PATTERN DS2
SYNC DECODE DS1
SERIAL PARITY GEN/CHECK DS3
DATA BUFFER DS1
TO HEADER COMPARE
DS3
DS3 (MBØØ-MB17) L
ECC CLK H
CRC (9401) DS5
WRITE READ
DS7
ECC PATTERN DS8
ECC POS. DS10
ZERO DECODE DS8
ECC CONTROL DS10

(HEX) M7684

BRANCH COMMAND SEQUENCER
PROM CS1
BRANCH ADRS
16 → 1
TEST BIT
P/F
1-4 5-7 Ø
MUX CS1
PROGRAM COUNTER CS1
PROM ADRS Ø-7
TØ-T3
COMMAND SEQUENCER
EN CYLINDER
EN HEAD
EN CONTROL
TAG
EN SEARCH
MISC CONTROLS
SECTOR COUNT
SERIAL NUMBER REG CS7
LOOK AHEAD REG CS7
MRI WRITE CS8
MRI READ MR2 CS9
DESIRED SECTOR (DS11)
COMPARE CS5
COMPARE
EN SEARCH
SECTOR COMPARE
DIFFERENTIAL DRIVERS
TAG 1
TAG 2
TAG 3
EN CYLINDER
CYLINDER (DS12)
EN HEAD
SECTOR/TRACK (DS11)
EN CONTROL
READ/WRITE OFFSET/REAL
DIFFERENTIAL RECEIVERS CS10
60 PIN CABLE TO DRIVE

READ/WRITE SEQUENCER
PROGRAM COUNTER
PROM READ & WRITE CS4
TAKES CARE OF MAJOR SECTOR SUBDIVISONS SUCH AS: HEADER, DATA, ETC.....
PROM READ ONLY CS4
READ GATE, WRITE GATE AND CONTROLS
PROM WRITE ONLY CS4

POWER SEQUENCING
GRANT IN
READY
GRANT OUT
NOT SIP
SEQ PICK
SEQ HOLD
CS 12
FROM PREVIOUS RMØ3
TO NEXT RMØ3

START ENABLE

(SINGLE) M7687
DIFFERENTIAL RECEIVERS : SERVO CLOCK, START ENABLE, READ CLOCK, READ DATA
DIFFERENTIAL DRIVERS : WRITE DATA, WRITE CLOCK, INITIALIZE, FORMAT (16/18)
SERVO CLOCK L
READ CLOCK H
SHIFT CLOCK L
WRITE DATA L
READ DATA H
26 PIN CABLE TO DRIVE

NOTES:
1 FOR A DETAILED DIAGRAM OF THE CONTROL BUS SEE SHEETS 2 & 3 OF THIS SCHEMATIC.

RMØ3 ADAPTER BLOCK DIAGRAM

REVISIONS			
REV.	CHANGE NO.	CHK.	

DRN. J VANDERMAAL	3/6/78	FIRST USED ON RMØ3
CHK'D		digital
ENG.	4/5/78	TITLE RMØ3 BLOCK DIAGRAM
PROJ. ENG.	4/5/78	
PROD.		
NEXT HIGHER ASSY.		
B-TE-RMØ3-Ø-1		SIZE D CODE BD NUMBER RMØ3-Ø-0 REV.
SCALE		
SHEET 1 OF 3		DIST.

MASSBUS A

MASS CØØ-C15, MASS CPA FROM MASSBUS A

PORT A RECEIVERS M5922

PORT A ATTENTION REGISTER M7686-SH7

IF7 A ATA ØØ-Ø7 L

AA1 A CONT ØØ-Ø7

AA1 A CONT ØØ-15, AA2 ACPA

2 LINE TO 1 LINE MULTIPLEX 17 BITS WIDE M7686-SH1

IF2 CONT ØØ-15, IF1 CPA

BUFFER & OTHER REGISTERS M7684 & M7685 & M7686

IF2 CONT Ø8-15

IF2 CONT ØØ-Ø7

IF5 RM AS A L (SELECTS IF2 CONT ØØ-Ø7) OR IF7 A ATA ØØ-Ø7L

2 LINE TO 1 LINE MULTIPLEX 8 BITS WIDE PORT A BITS ØØ-Ø7 M7686-SH7

IF5 EN A TRANS H

PORT A TRANS-MITTERS M5922

MASS CØØ-C15, MASS CPA TO MASSBUS B

IF7 A CONT ØØ-Ø7 OUT L

IF7 B CONT ØØ-Ø7 OUT L

2 LINE TO 1 LINE MULTIPLEX 8 BITS WIDE PORT B BITS ØØ-Ø7 M7686-SH7

PORT B TRANS-MITTERS M5923

MASS CØØ-C15, MASS CPA TO MASSBUS B

ABI B CONT ØØ-15, AB2 B CPA

IF4 PORT B ON H (SELECTS PORT A OR B)

IF7 B ATA ØØ-Ø7 L

PORT B RECEIVERS M5923

PORT B ATTENTION REGISTER M7686-SH7

ABI B CONT ØØ-Ø7

PARITY GENERATOR & CHECKER M7686-SH2

IF5 RM AS B L (SELECTS IF2 CONT ØØ-Ø7) OR IF7 B ATA ØØ-Ø7L

IF5 EN B TRANS H

MASS CØØ-C15, MASS CPA FROM MASSBUS B

IF2 ODD PARITY L

MASSBUS B

DUAL PORT CONTROL BUS PATH

REVISIONS

CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
RMØ3 BLOCK DIAGRAM	D	BD	RMØ3-Ø-Ø	

SCALE —//— SHEET 2 OF 3 DIST.

SECTOR COUNT FROM DRIVE
STATUS+ERRORS FROM DRIVE
DEV ADDRESS LINES FROM DRIVE
R
LOOK AHEAD REG M7684
RMLA
6–10
DRIVE STATUS REG M7686
RMDS
1,6–15
DRIVE ERROR SIGNALS
ERROR + STATUS FROM LOGIC
A CONT (0–7) FOR RMAS (PORT A)
B CONT (0–7) FOR RMAS (PORT B)
DEV ADDRESS 0–2
HARDWIRED ON BACKPLANE
DRIVE TYPE REG M7686
0,2,4,11,13
RMDT
SERIAL NUMBER REG M7684
0–15
RMSN
IF2 CONT 0–15
LOGIC ERROR SIGNALS
ERROR REG #1 M7686
0–15
RMERI
ERROR REG #2 M7686
3,7,10–15
RMER2
CONTROL+STATUS REG #1 M7686
DVA | F0–F4 | GO
0–5,11
RMCSI
TO LOGIC
0–5
MUX 8:1
ATA F/F
BCD TO DECIMAL DECODER
ATA 0–7
ATA REG
THIS LOGIC IS DUPLICATED
ONE SECTION IS FOR PORT A AND ONE FOR PORT B
MUX
CONT OUT 0–7
IF2 CONT 0–7
TO MASSBUS DRIVERS
M7685
A CONT (0–15) PORT A
B CONT (0–15) PORT B
MUX
PORT B ON
IF2 CONT 0–15 (TRI STATE)
IF2 CONT 8–15
DISK ADDRESS REG M7685
RMDA
0–15
DESIRED CYLINDER REG M7685
RMDC
0–9
MAINT REG #1 WRITE M7684
RMMRI
1–15
D M
TO LOGIC
MAINTENANCE REG #1+2 READ M7684
RMMRI + RMMR2
MR1 READ DATA (TO LOGIC)
MR2 READ DATA
ECC REG #1 M7685
0–12
RMECI
COUNT CONTROL
PRELOAD POSITION
ECC REG #2 M7685
0–10
FROM ECC LOGIC
OFFSET REG M7686
7,10–12
RMOF
TO LOGIC
HOLDING (BUF) REG M7686
RMHR
FPLA M7685
DECODES SECTOR/TRACK POSITION INFORMATION
FPLA M7685
DECODES CYLINDER POSITION INFORMATION
MUX M7685
8–12
MB (0–15)
COMPARE LOGIC M7685
ERROR CONDITION
CONTROL DATA
DRIVE BUS CONTROL
DRIVE BUS MUX (0–9) M7684
T
CYLINDER, TRACK AND CONTROL TO DRIVE

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

CONTROL BUS AND REGISTER FUNCTIONS

REVISIONS		
CHK	CHANGE NO.	REV.

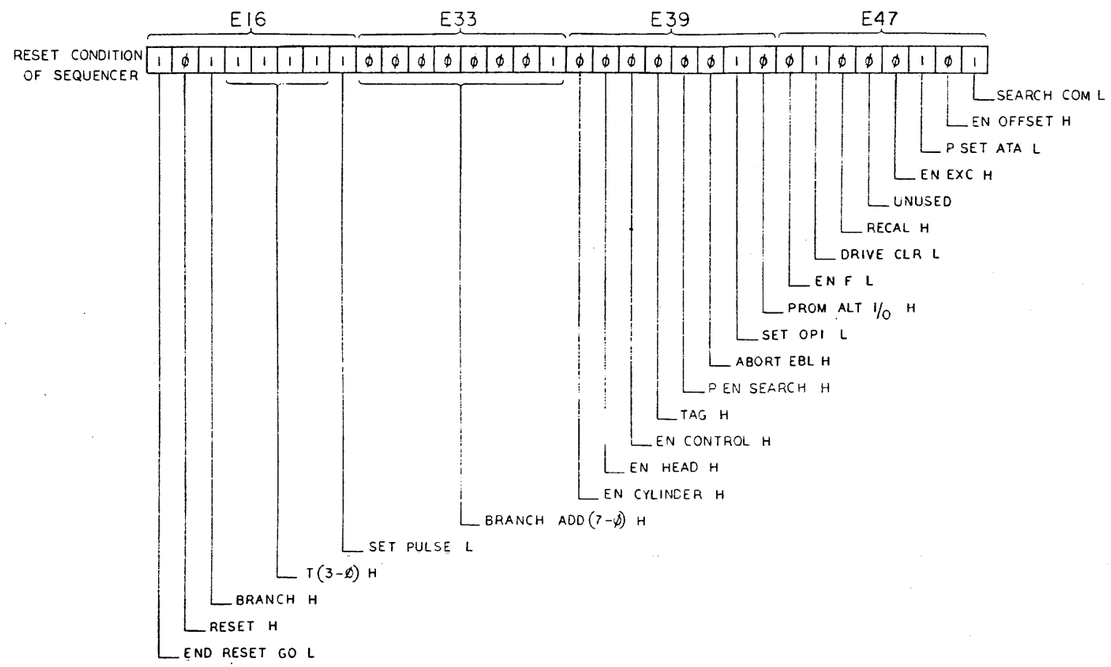
TITLE RMØ3 BLOCK DIAGRAM
SIZE D CODE BD NUMBER RMØ3-Ø-Ø REV.
SCALE SHEET 3 OF 3 DIST.

INDEX

INDEX
PAGE 1 OF 1

REVISIONS		
CHK	CHANGE NO.	REV.
EK	ECO RM03-RM017	A
	Release to Prod 7/25	
	1. BULLETIN E	
	per Engineering 10-31-78	

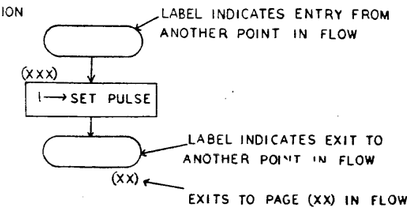
DRN. J Vincent	8/21/78	FIRST USED ON RM03
CHK'D C E	4/11/78	
ENG. F Zeile	4/6/78	TITLE RM03 FLOW DIAGRAMS
PROJ. ENG.		
PROD.		
NEXT HIGHER ASSY.		
3-72-RM03-0-01		SIZE D CODE FD NUMBER RM03-0-0 REV. A
SCALE		
SHEET 1 OF 13		DIST.



TEST CODE (OCTAL)	BRANCH CONDITION
ØØ	OCCUPIED L
Ø1	ON CYLINDER L
Ø2	ABORT L
Ø3	UNIT READY L
Ø4	NOT USED
Ø5	F 4 L
Ø6	ON LATCH L
Ø7	RUN AND GO L
1Ø	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 I/O 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		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
RMØ3 FLOW DIAGRAMS	D	FD	RMØ3-Ø-Ø	A
SCALE	SHEET 2 OF 13	DIST.		

START

ØØØ
1 — BRANCH
17 — TEST CODE
1 — BR ADDR
1 — EN F

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

FC 1/41

FC 3/43
ØØ3
1 — BRANCH
17 — TEST CODE
176 — BR ADDR
1 — SET PULSE
END (3)

FC 5/45

FC 7/47
ØØ7
1 — BRANCH
5 — TEST CODE
1ØØ — BR ADDR
1 — SET PULSE
F4=Ø
Ø1Ø
1 — RESET
1 — END RESET GO
START (1)
RECAL (3)

FC 11/51

FC 13/53
Ø13
1 — BRANCH
5 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
Ø14
1 — BRANCH
17 — TEST CODE
2ØØ — BR. ADDR.
END (3)

FC 15/55

FC 17/57
Ø17
1 — BRANCH
5 — TEST CODE
177 — BR. ADDR.
1 — SET PULSE
F4=Ø
Ø2Ø
1 — RESET
1 — END RESET GO
START (1)
ATA (3)

FC 21/61

PACK ACK

FC 23/63
Ø23
1 — BRANCH
5 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
Ø24
1 — BRANCH
17 — TEST CODE
2ØØ — BR. ADDR.
END (3)

FC 25/65

FC 27/67
Ø27
1 — BRANCH
17 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
END (3)

FC 31/71

FC 33/73
Ø33
1 — BRANCH
5 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
Ø34
1 — BRANCH
17 — TEST CODE
2ØØ — BR. ADDR.
END (3)

FC 35/75

FC 37/77
Ø37
1 — BRANCH
17 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
END (3)

PRESET

ØØ1
1 — BRANCH
17 — TEST CODE
176 — BR ADDR
1 — SET PULSE
END (3)

ØØ5
1 — BRANCH
5 — TEST CODE
120 — BR ADDR
1 — SET PULSE
F4=Ø
ØØ6
1 — RESET
1 — END RESET GO
START (1)
SEEK (3)

Ø11
1 — BRANCH
5 — TEST CODE
175 — BR. ADDR.
1 — SET PULSE
F4=Ø
Ø12
1 — BRANCH
17 — TEST CODE
2ØØ — BR. ADDR.
DRV CLR (3)

Ø15
1 — BRANCH
5 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
F4=Ø
Ø16
1 — RESET
1 — END RESET GO
START (1)
ATA (3)

Ø21
1 — BRANCH
5 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
F4=Ø
Ø22
1 — BRANCH
17 — TEST CODE
2ØØ — BR. ADDR.
END (3)

Ø25
1 — BRANCH
17 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
END (3)

Ø31
1 — BRANCH
5 — TEST CODE
14Ø — BR. ADDR.
1 — SET PULSE
F4=Ø
Ø32
1 — BRANCH
17 — TEST CODE
2ØØ — BR. ADDR.
SEARCH (4)

Ø35
1 — BRANCH
17 — TEST CODE
176 — BR. ADDR.
1 — SET PULSE
END (3)

DATA COMMANDS (5)

CONTROL SEQUENCER FLOW
START PAGE 1 OF 6

REVISIONS

CHK	CHANGE NO.	REV.

TITLE	RMØ3 FLOW DIAGRAMS		
SCALE	SHEET 3 OF 13	SIZE D CODE FD	NUMBER RMØ3-Ø-Ø REV. A
		DIST.	

DEC FORM NO. DRD 138

ERROR START

FC 1/41 → Ø41: 1 → BRANCH; 11 → TEST CODE; 2ØØ → BR ADDR
- DATA CMD=1 → DATA COMMANDS (5)
- Ø42: 1 → BRANCH; 13 → TEST CODE; 117 → BR ADDR
  - DATA CMD=1 → DATA COMMANDS (5)
  - Ø43: 1 → RESET; 1 → END RESET GO → START (1)

NOTE: THE BRANCH CONDITION IS NEVER TRUE AT LOCATIONS Ø41, Ø42.

FC 3/43

FC 5/45 → Ø45: 1 → RESET; 1 → END RESET GO → START (1)

FC 7/47 → Ø47: 1 → RESET; 1 → END RESET GO → START (1)

FC 11/51 → Ø51: 1 → BRANCH; 5 → TEST CODE; 175 → BR ADDR; 1 → SET PULSE
- F4 = Ø → Ø52: 1 → BRANCH; 17 → TEST CODE; 2Ø5 → BR ADDR → DRV CLR (3)
- F4 = Ø

FC 13/53 → Ø53: 1 → BRANCH; 5 → TEST CODE; 176 → BR ADDR
- F4 = Ø → Ø54: 1 → BRANCH; 17 → TEST CODE; 2Ø5 → BR ADDR → END (3)

FC 15/55 → Ø55: 1 → RESET; 1 → END RESET GO → START (1)

FC 17/57 → Ø57: 1 → RESET; 1 → END RESET GO → START (1)

FC 21/61 → Ø61: 1 → BRANCH; 5 → TEST CODE; Ø21 → BR ADDR
- F4 = Ø → Ø62: 1 → BRANCH; 17 → TEST CODE; 2Ø5 → BR ADDR → PRST (1)
- F4 = Ø

FC 23/63 → Ø63: 1 → BRANCH; 5 → TEST CODE; Ø23 → BR ADDR
- F4 = Ø → Ø64: 1 → BRANCH; 17 → TEST CODE; 2Ø5 → BR ADDR → PACK ACK (1)

FC 25/65 → Ø65: 1 → RESET; 1 → END RESET GO → START (1)

FC 27/67 → Ø67: 1 → RESET; 1 → END RESET GO → START (1)

FC 31/71 → Ø71: 1 → BRANCH; 5 → TEST CODE; 176 → BR ADDR
- F4 = Ø → Ø72: 1 → BRANCH; 17 → TEST CODE; 2Ø5 → BR ADDR → END (3)
- F4 = Ø

FC 33/73 → Ø73: 1 → BRANCH; 5 → TEST CODE; 176 → BR ADDR
- F4 = Ø → Ø74: 1 → BRANCH; 17 → TEST CODE; 2Ø5 → BR ADDR → END (3)
- F4 = Ø

FC 35/75 → Ø75: 1 → RESET; 1 → END RESET GO → START (1)

FC 37/77 → Ø77: 1 → RESET; 1 → END RESET GO → START (1)

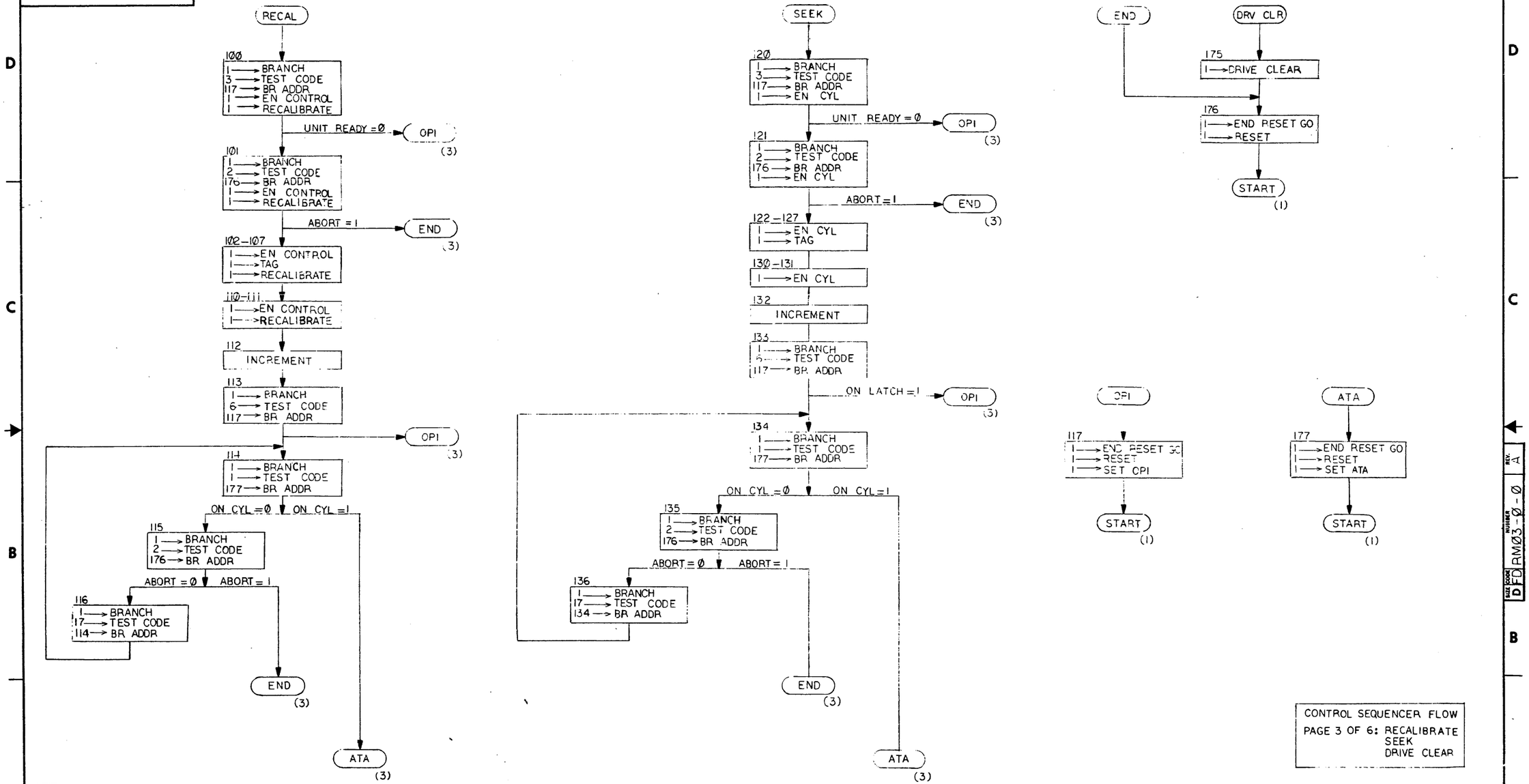
ABORT EBL (5)

CONTROL SEQUENCER FLOW
PAGE 2 OF 6: ERROR START

REVISIONS		
CHK	CHANGE NO.	REV

TITLE	SIZE	CODE	NUMBER	REV.
RMØ3 FLOW DIAGRAMS	D	FD	RMØ3-Ø-Ø	A
SCALE	SHEET 4 OF 13	DIST.		

DEC FORM NO. 7010 138

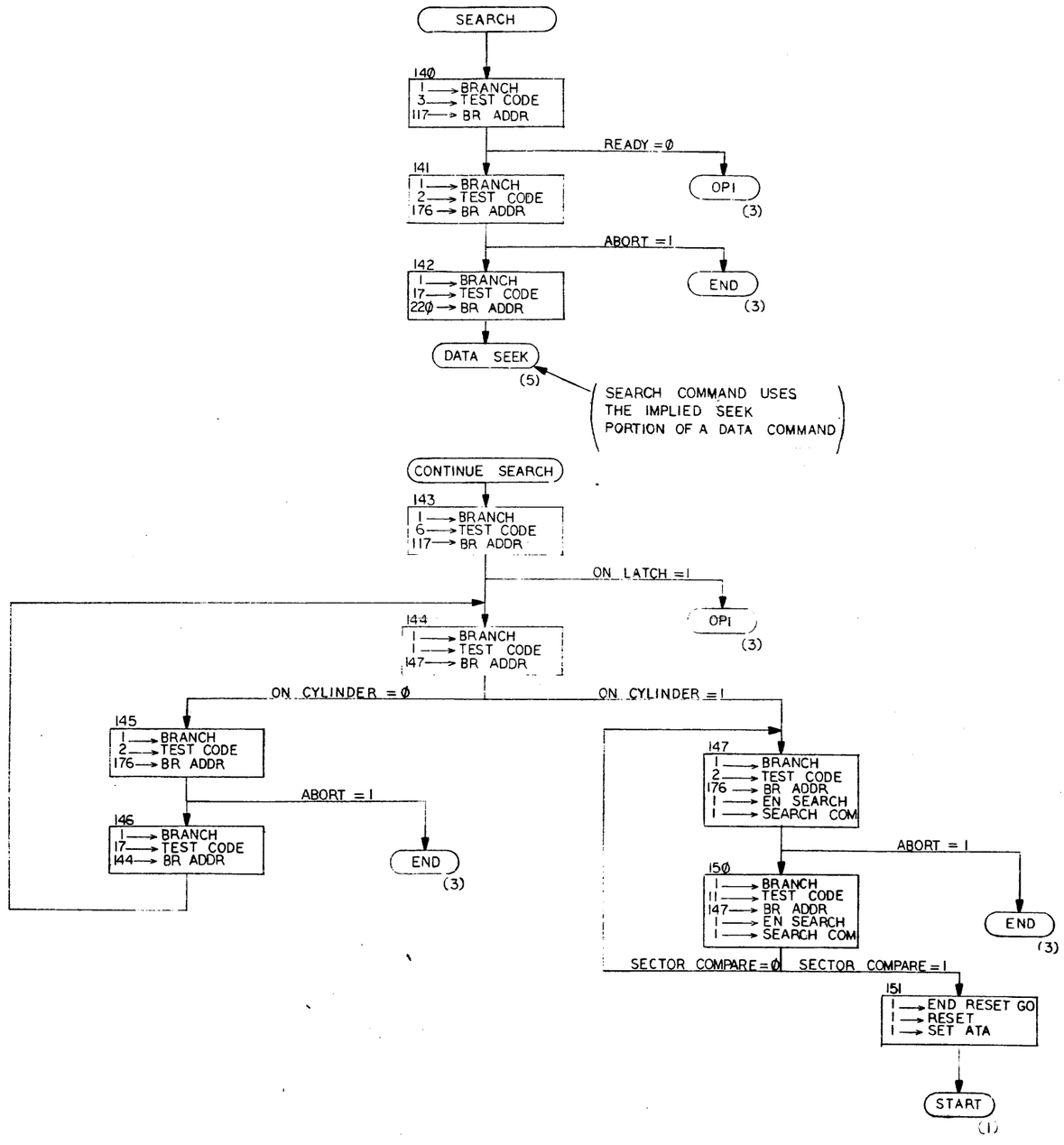


CONTROL SEQUENCER FLOW
PAGE 3 OF 6: RECALIBRATE
SEEK
DRIVE CLEAR

REVISIONS	REV.	CHANGE NO.	CHK

DRN.		FIRST USED ON AMØ3	digital
CHK'D		TITLE	
ENG.		RMØ3 FLOW DIAGRAMS	
PROJ. ENG.			
PROD.			
NEXT HIGHER ASSY.			
SCALE		SIZE D / CODE FD / NUMBER RMØ3-Ø-Ø / REV. A	
SHEET 5 OF 13		DIST.	

RMØ3-Ø-Ø
D FD RMØ3-Ø-Ø A



CONTROL SEQUENCER FLOW
PAGE 4 OF 6: SEARCH

DRN.		FIRST USED ON RMØ3	digital
CHK'D		TITLE	
ENG.		RMØ3 FLOW DIAGRAMS	
PROJ. ENG.			
PROD.			
NEXT HIGHER ASSY.			
SCALE		SIZE D / CODE FD / NUMBER RMØ3-Ø-Ø / REV. A	
SHEET 6 OF 13		DIST.	

REVISIONS | REV. | CHANGE NO. | CHK

SIZE D | CODE FD | NUMBER RMØ3-Ø-Ø | REV. A

DATA COMMANDS

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

READY = 0 → 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 = 0

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

RUN AND GO = 1 → DATA SEEK

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
0 → TEST CODE
234 → IBR ADDR
1 → EN CYL

OCCUPIED = 0 | 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 = 0 | 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 = 0

DATA OFFSET (6)

262 (5)

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

MBA EBL = 0

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

MBA EBL = 1

266
1 → BRANCH
10 → 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
1 → EN CONTROL
1 → TAG
1 → EN SEARCH
1 → EN OFFSET
1 → EN EXC

257
1 → BRANCH
14 → TEST CODE
220 → BR ADDR
1 → EN CONTROL
1 → TAG
1 → EN OFFSET
1 → EN EXC

SEEK REQUIRED = 1 → DATA SEEK (5)

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

NEW TRACK RQD = 1 → HEAD (5)

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

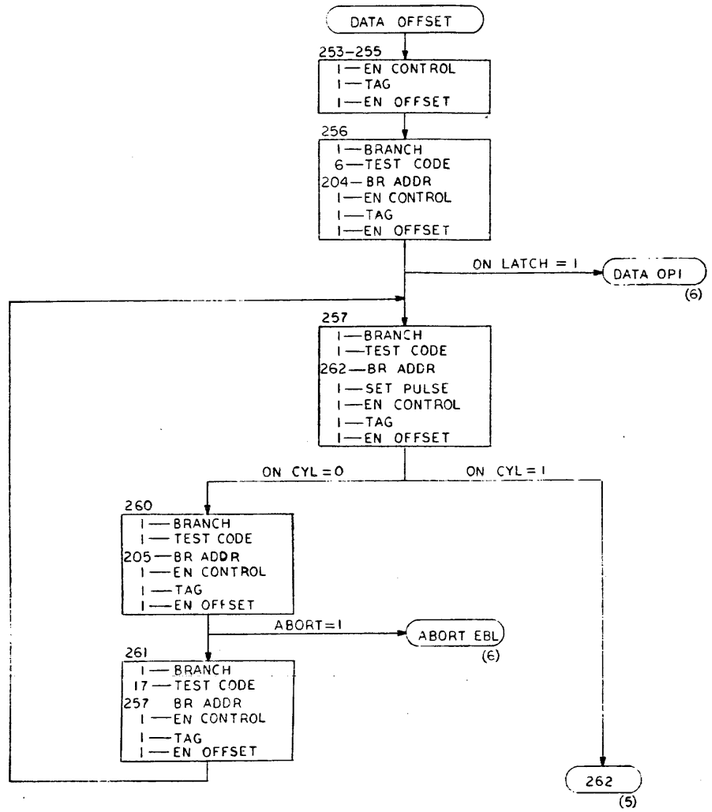
START

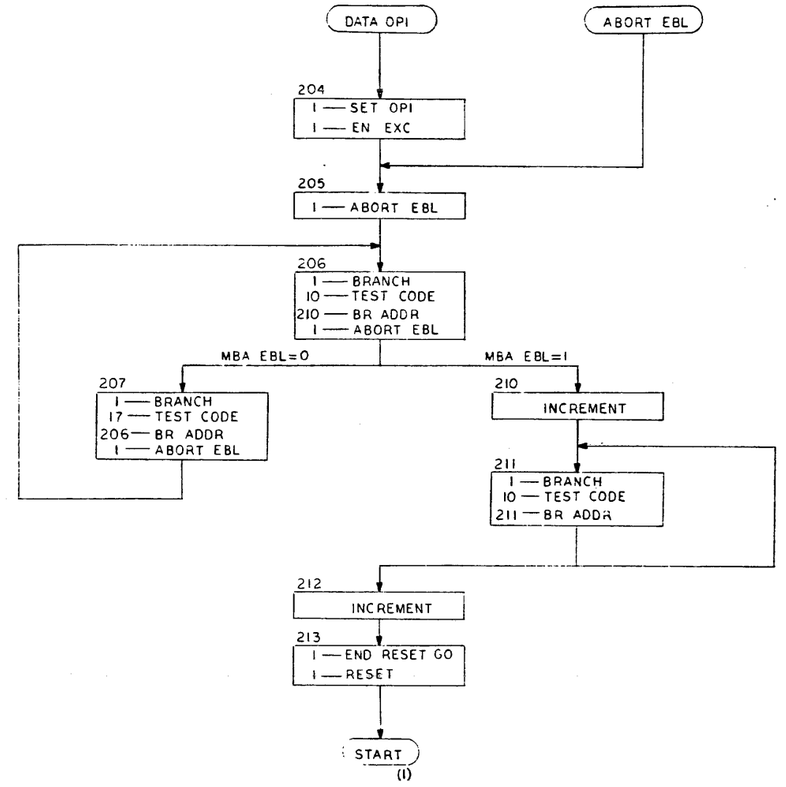
CONTROL SEQUENCER FLOW
PAGE 5 OF 6 DATA COMMANDS

REVISIONS		
REV.	CHANGE NO.	CHK
A		

DRN.		FIRST USED ON RM03	digital
CHK'D		TITLE	
ENG.		RM03 FLOW DIAGRAMS	
PROJ. ENG.			
PROD.			
NEXT HIGHER ASSY.			
SCALE		SIZE D / CODE FD / NUMBER RM03-0-0 / REV. A	
SHEET 7 OF 13		DIST.	

RM03-0-0 REV A SIZE D CODE FD





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

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
RM03 FLOW DIAGRAMS	D	FD	RM03-0-0	A
SCALE	SHEET 8 OF 13	DIST.		

DEC FORM NO. D 136

CHK	REVISIONS	REV.
	CHANGE NO.	

BRANCH ADDRESS (7-Ø) H
EN CYLINDER H
EN HEAD H
EN CONTROL H
TAG H
P EN SEARCH H
ABORT EBL H
SET OPL L
PROM ALT I/Ø 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-Ø) H
SET PULSE L

DEC LOC	OCT LOC	START		BR	TO (FUNCTION CODE-F4)					
Ø	ØØØ	START		BR	TO (FUNCTION CODE-F4)	1Ø111111	ØØ1	ØØØØØØØ1	ØØØØØØ1Ø	Ø1ØØØ1Ø1
1	ØØ1	NO-OP	X	BR	TO 126	1Ø111111	176	Ø1111111	ØØ111ØØ1	11ØØØ1Ø1
2	ØØ2	X	X	RST		Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØØØ	11ØØØ1Ø1
3	ØØ3			BR	TO 126	1Ø111111	176	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
4	ØØ4	SEEK	X	RST		Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØØØ	11ØØØ1Ø1
5	ØØ5			BRT	TO 80 IF F4 IS Ø	1Ø1Ø1Ø1Ø	12Ø	Ø1Ø1ØØØØ	ØØØØØØ11	11ØØØ1Ø1
6	ØØ6	RECAL	X	RST		Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØ1Ø	11ØØØ1Ø1
7	ØØ7			BRT	TO 64 IF F4 IS Ø	1Ø1Ø1Ø1Ø	1ØØ	Ø1ØØØØØØ	ØØØØØØ11	11ØØØ1Ø1
8	ØĪØ	DR CLR	WRT CHK	RST		Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØ1Ø	11ØØØ1Ø1
9	ØĪ1		DATA	BRT	TO 125 IF F4 IS Ø	1Ø1Ø1Ø1Ø	175	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
1Ø	Ø12	RELEASE	WRT CHK	BR	TO 128	1Ø111111	2ØØ	1ØØØØØØØ	ØØØØØØ1Ø	11ØØØ1Ø1
11	Ø13		H&D	BRT	TO 126 IF F4 IS Ø	1Ø1Ø1Ø1Ø	176	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
12	Ø14	OFFSET	X	BR	TO 128	1Ø111111	2ØØ	1ØØØØØØØ	ØØØØØØ1Ø	11ØØØ1Ø1
13	Ø15			BRT	TO 127 IF F4 IS Ø	1Ø1Ø1Ø1Ø	177	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
14	Ø16	RTC	X	RST		Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØ1Ø	11ØØØ1Ø1
15	Ø17			BRT	TO 127 IF F4 IS Ø	1Ø1Ø1Ø1Ø	177	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
16	Ø2Ø	READ IN	WRITE	RST		Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØ1Ø	11ØØØ1Ø1
17	Ø21	PRESET	DATA	BRT	TO 126 IF F4 IS Ø	1Ø1Ø1Ø1Ø	176	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
18	Ø22	PACK	WRITE	BR	TO 128	1Ø111111	2ØØ	1ØØØØØØØ	ØØØØØØ1Ø	11ØØØ1Ø1
19	Ø23	ACK	H&D	BRT	TO 126 IF F4 IS Ø	1Ø1Ø1Ø1Ø	176	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
2Ø	Ø24	X	X	BR	TO 128	1Ø111111	2ØØ	1ØØØØØØØ	ØØØØØØ1Ø	11ØØØ1Ø1
21	Ø25			BR	TO 126	1Ø111111	176	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
22	Ø26	X	X	RST		Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØØØ	11ØØØ1Ø1
23	Ø27			BR	TO 126	1Ø111111	176	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
24	Ø3Ø	SEARCH	READ	RST		Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØØØ	11ØØØ1Ø1
25	Ø31		DATA	BRT	TO 96 IF F4 IS Ø	1Ø1Ø1Ø1Ø	14Ø	Ø11ØØØØØ	ØØØØØØ11	11ØØØ1Ø1
26	Ø32	X	READ	BR	TO 128	1Ø111111	2ØØ	1ØØØØØØØ	ØØØØØØ1Ø	11ØØØ1Ø1
27	Ø33		H&D	BRT	TO 126 IF F4 IS Ø	1Ø1Ø1Ø1Ø	176	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
28	Ø34	X	X	BR	TO 128	1Ø111111	2ØØ	1ØØØØØØØ	ØØØØØØ1Ø	11ØØØ1Ø1
29	Ø35			BR	TO 126	1Ø111111	176	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
3Ø	Ø36	X	X	RST		Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØØØ	11ØØØ1Ø1
31	Ø37			BR	TO 126	1Ø111111	176	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
		X = ILLEGAL								
32	Ø4Ø	NO-OP	X	RST		Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØØØ	11ØØØ1Ø1
33	Ø41			BRT(INC)*	TO 128 IF DATA CMND	1Ø11Ø111	2ØØ	1ØØØØØØØ	ØØØØØØ11	11ØØØ1Ø1
34	Ø42	X	X	BRT(INC)*	TO 79 IF DATA CMND	1Ø11Ø111	117	Ø1ØØ1111	ØØØØØØ1Ø	11ØØØ1Ø1
35	Ø43			RST		Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØ11	11ØØØ1Ø1
36	Ø44	SEEK	X			Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØ1Ø	11ØØØ1Ø1
37	Ø45					Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØ11	11ØØØ1Ø1
38	Ø46	RECAL	X			Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØØØ	11ØØØ1Ø1
39	Ø47					Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØ11	11ØØØ1Ø1
4Ø	Ø5Ø	DR CLR	WRT CHK			Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØØØ	11ØØØ1Ø1
41	Ø51		DATA	BRT	TO 125 IF F4 IS Ø	1Ø1Ø1Ø1Ø	175	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
42	Ø52	RELEASE	WRT CHK	BR	TO 133	1Ø111111	2Ø5	1ØØØØ1Ø1	ØØØØØØ1Ø	11ØØØ1Ø1
43	Ø53		H&D	BRT	TO 126 IF F4 IS Ø	1Ø1Ø1Ø11	176	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
44	Ø54	OFFSET	X	BR	TO 133	1Ø111111	2Ø5	1ØØØØ1Ø1	ØØØØØØ1Ø	11ØØØ1Ø1
45	Ø55			RST		Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØ11	11ØØØ1Ø1
46	Ø56	RTC	X			Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØØØ	11ØØØ1Ø1
47	Ø57					Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØ11	11ØØØ1Ø1
48	Ø6Ø	READ IN	WRITE			Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØØØ	11ØØØ1Ø1
49	Ø61	PRESET	DATA	BRT	TO 17 IF F4 IS Ø	1Ø1Ø1Ø11	Ø21	ØØØ1ØØØ1	ØØØØØØ11	11ØØØ1Ø1
5Ø	Ø62	PACK	WRITE	BR	TO 133	1Ø111111	2Ø5	1ØØØØ1Ø1	ØØØØØØ1Ø	11ØØØ1Ø1
51	Ø63	ACK	H&D	BRT	TO 19 IF F4 IS Ø	1Ø1Ø1Ø11	Ø23	ØØØ1Ø1Ø1	ØØØØØØ11	11ØØØ1Ø1
52	Ø64	X	X	BR	TO 133	1Ø111111	2Ø5	1ØØØØ1Ø1	ØØØØØØ1Ø	11ØØØ1Ø1
53	Ø65			RST		Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØ11	11ØØØ1Ø1
54	Ø66	X	X			Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØØØ	11ØØØ1Ø1
55	Ø67					Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØ11	11ØØØ1Ø1
56	Ø7Ø	SEARCH	READ			Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØØØ	11ØØØ1Ø1
57	Ø71		DATA	BRT	TO 126 IF F4 IS Ø	1Ø1Ø1Ø11	176	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
58	Ø72	X	READ	BR	TO 133	1Ø111111	2Ø5	1ØØØØ1Ø1	ØØØØØØ1Ø	11ØØØ1Ø1
59	Ø73		H&D	BRT	TO 126 IF F4 IS Ø	1Ø1Ø1Ø11	176	Ø1111111	ØØØØØØ11	11ØØØ1Ø1
6Ø	Ø74	X	X	BR	TO 133	1Ø111111	2Ø5	1ØØØØ1Ø1	ØØØØØØ1Ø	11ØØØ1Ø1
61	Ø75			RST		Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØ11	11ØØØ1Ø1
62	Ø76	X	X			Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØØØ	11ØØØ1Ø1
63	Ø77					Ø1ØØØØØ1	ØØØ	ØØØØØØØØ	ØØØØØØ11	11ØØØ1Ø1
						23-Ø19B8 AT E16		23-Ø2ØB8 AT E33	23Ø2368 AT E39	23-ØØ8B8 AT E47

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

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

PIN NUMBERS FOR DATA OUTPUTS

17	16	15	14	1Ø	9	8	7

CONTROL SEQUENCER ROM LISTINGS PAGE 1 OF 4

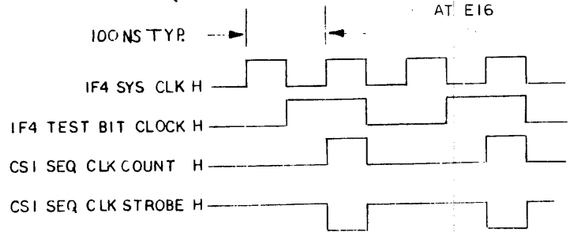
TITLE	RMØ3 FLOW DIAGRAMS
SCALE	
SHEET	9 OF 13
SIZE	D
CODE	FD
NUMBER	RMØ3-Ø-Ø
REV.	A
DIST.	

SIZE CODE DFD RMØ3-Ø-Ø REV A

DEC LOC	OCT LOC				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 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
64	100	RECALIBRATE	BRT	TO 79 IF NOT UNIT RDY	10100111	117	01001111	00100010	11000101																
65	101		BRT	TO 126 IF ABORT ACTIVE	10100101	176	01111110	00100011	11000101																
66	102		INC		10000001	000	00000000	00110010	11000101																
67	103				10000001	000	00000000	00110011	11000101																
68	104				10000001	000	00000000	00110010	11000101																
69	105				10000001	000	00000000	00110011	11000101																
70	106				10000001	000	00000000	00110010	11000101																
71	107				10000001	000	00000000	00110011	11000101																
72	110				10000001	000	00000000	00100010	11000101																
73	111				10000001	000	00000000	00100011	11000101																
74	112				10000001	000	00000000	00000010	11000101																
75	113		BRT	TO 79 IF ON LATCH SET	10101101	117	01001111	00000011	11000101																
76	114		BRT	TO 127 IF ON CYL ACTIVE	10100011	177	01111111	00000010	11000101																
77	115		BRT	TO 126 IF ABORT ACTIVE	10100101	176	01111110	00000011	11000101																
78	116		BR	TO 76	10111111	114	01001100	00000010	11000101																
79	117		RST		01000001	000	00000000	00000001	11000101																
80	120	SEEK	BRT	TO 79 IF NOT UNIT RDY	10100111	117	01001111	00000010	11000101																
81	121		BRT	TO 126 IF ABORT ACTIVE	10100101	176	01111110	00000011	11000101																
82	122		INC		10000001	000	00000000	00010010	11000101																
83	123				10000001	000	00000000	00010011	11000101																
84	124				10000001	000	00000000	00010010	11000101																
85	125				10000001	000	00000000	00010011	11000101																
86	126				10000001	000	00000000	00010010	11000101																
87	127				10000001	000	00000000	00010011	11000101																
88	130				10000001	000	00000000	00000010	11000101																
89	131				10000001	000	00000000	00000011	11000101																
90	132				10000001	000	00000000	00000010	11000101																
91	133		BRT	TO 79 IF ON LATCH SET	10101101	117	01001111	00000011	11000101																
92	134		BRT	TO 127 IF ON CYL ACTIVE	10100011	177	01111111	00000010	11000101																
93	135		BRT	TO 126 IF ABORT ACTIVE	10100101	176	01111110	00000011	11000101																
94	136		BR	TO 92	10111111	134	01011100	00000010	11000101																
95	137		RST		01000001	000	00000000	00000001	11000101																
96	140	SEARCH	BRT	TO 79 IF NOT UNIT RDY	10100111	117	01001111	00000010	11000101																
97	141		BRT	TO 126 IF ABORT ACTIVE	10100101	176	01111110	00000011	11000101																
98	142		BR	TO 144 (*)	10111111	220	10010000	00000010	11000101																
99	143		BRT	TO 79 IF ON LATCH SET	10101101	117	01001111	00000011	11000101																
100	144		BRT	TO 103 IF ON CYL ACTIVE	10100011	147	01100111	00000010	11000101																
101	145		BRT	TO 126 IF ABORT ACTIVE	10100101	176	01111110	00000011	11000101																
102	146		BR	TO 100	10111111	144	01100100	00000010	11000101																
103	147		BRT	TO 126 IF ABORT ACTIVE	10100101	176	01111110	00001011	11000100																
104	150		BRT	TO 103 IF NOT SECT COMP	10110011	147	01100111	00001010	11000100																
105	151		RST	(SET ATTENTION)	01000001	000	00000000	00000011	11000000																
106	152				01000001	000	00000000	00000000	11000101																
107	153				01000001	000	00000000	00000000	11000101																
108	154				01000001	000	00000000	00000000	11000101																
109	155				01000001	000	00000000	00000000	11000101																
110	156				01000001	000	00000000	00000000	11000101																
111	157				01000001	000	00000000	00000000	11000101																
112	160				01000001	000	00000000	00000000	11000101																
113	161				01000001	000	00000000	00000000	11000101																
114	162				01000001	000	00000000	00000000	11000101																
115	163				01000001	000	00000000	00000000	11000101																
116	164				01000001	000	00000000	00000000	11000101																
117	165				01000001	000	00000000	00000000	11000101																
118	166				01000001	000	00000000	00000000	11000101																
119	167				01000001	000	00000000	00000000	11000101																
120	170				01000001	000	00000000	00000000	11000101																
121	171				01000001	000	00000000	00000000	11000101																
122	172				01000001	000	00000000	00000000	11000101																
123	173				01000001	000	00000000	00000000	11000101																
124	174				01000001	000	00000000	00000000	11000101																
125	175	DRIVE CLR	INC		10000001	000	00000000	00000000	11000101																
126	176	END	RST		01000001	000	00000000	00000010	11000101																
127	177	END AND ATA	RST		01000001	000	00000000	00000011	11000001																
					23-019B8 AT E16		23-020B8 AT E33	23-023B8 AT E39	23-023B8 AT E47																

(*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

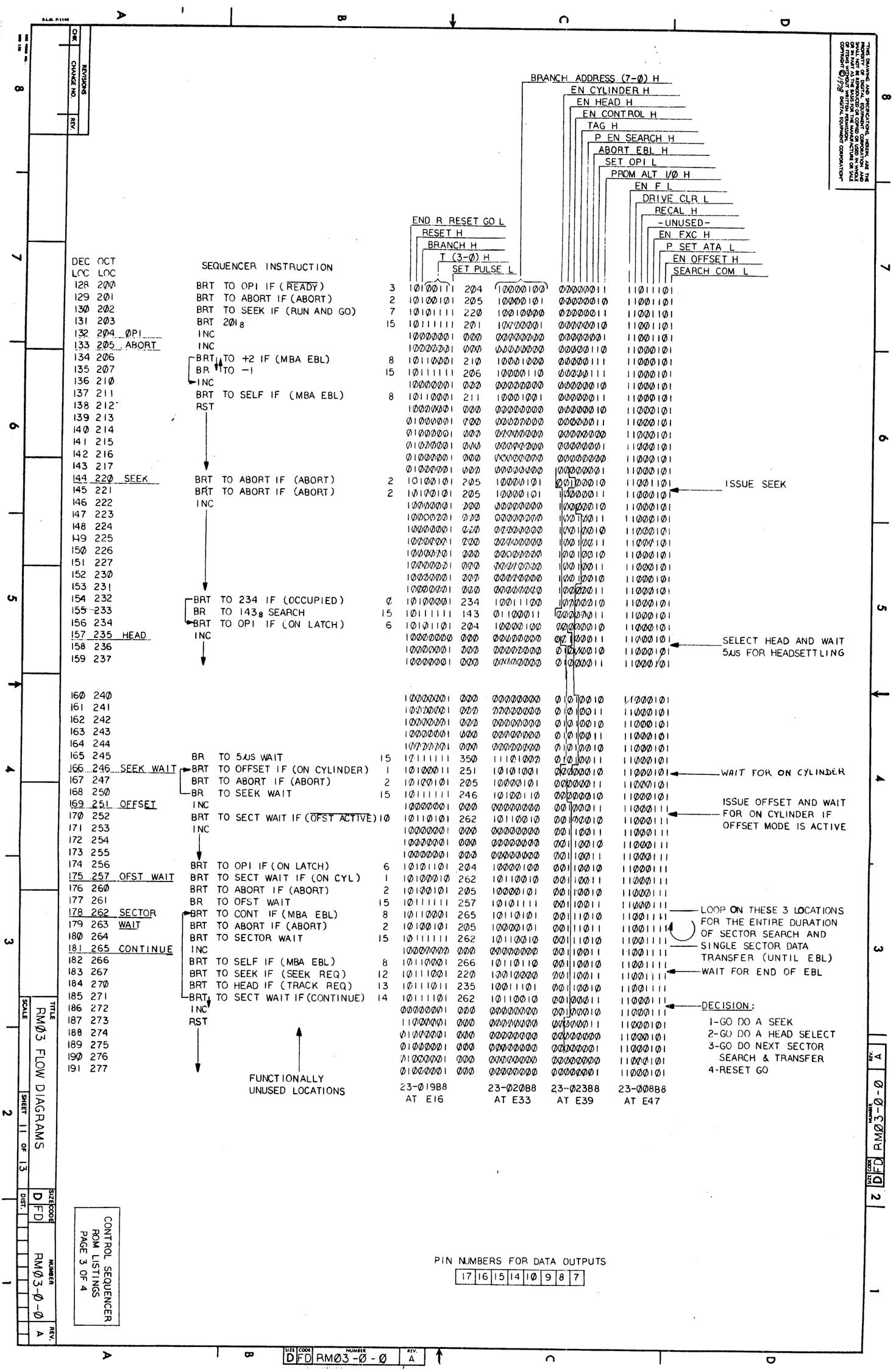


PIN NUMBERS FOR DATA OUTPUTS

17	16	15	14	10	9	8	7

CONTROL SEQUENCER ROM LISTINGS PAGE 2 OF 4

TITLE: RM03 FLOW DIAGRAMS
SIZE: D | CODE: FD | NUMBER: RM03-0-0 | REV: A
SCALE | SHEET 10 OF 13 | DIST.


BRANCH ADDRESS (7-Ø) 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/Ø H
EN F L
DRIVE CLR L
RECAL H
-UNUSED-
EN EXC H
P SET ATA L
EN OFFSET H
SEARCH COM L
END R RESET GO L
RESET H
BRANCH H
T (3-Ø) 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 201₈ 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) Ø
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
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
23-Ø19B8 AT E16
23-Ø2ØB8 AT E33
23-Ø23B8 AT E39
23-ØØ8B8 AT E47
PIN NUMBERS FOR DATA OUTPUTS
17 16 15 14 10 9 8 7
CONTROL SEQUENCER ROM LISTINGS PAGE 3 OF 4
TITLE RMØ3 FLOW DIAGRAMS
SIZE D CODE FD NUMBER RMØ3-Ø-Ø REV. A
SCALE
SHEET 11 OF 13
DIST.
REVISIONS CHK CHANGE NO. REV.
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SIZE D CODE FD NUMBER RMØ3-Ø-Ø REV. A
REV. A
SIZE CODE DFD NUMBER RMØ3-Ø-Ø REV. A
SHEET 2

DEC LOC	OCT LOC			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
192	300	RST																							
193	301																								
194	302																								
195	303																								
196	304																								
197	305																								
198	306																								
199	307																								
200	310																								
201	311																								
202	312																								
203	313																								
204	314																								
205	315																								
206	316		FUNCTIONALLY UNUSED LOCATIONS																						
207	317																								
208	320																								
209	321																								
210	322																								
211	323																								
212	324																								
213	325																								
214	326																								
215	327																								
216	330																								
217	331																								
218	332																								
219	333																								
220	334																								
221	335																								
222	336																								
223	337																								
224	340																								
225	341																								
226	342																								
227	343																								
228	344																								
229	345																								
230	346																								
231	347																								
232	350	5 MICRO	INC																						
233	351	WAIT																							
234	352																								
235	353																								
236	354																								
237	355		WAIT PERIOD FOLLOWING HEAD SELECTION																						
238	356																								
239	357																								
240	360																								
241	361																								
242	362																								
243	363																								
244	364																								
245	365																								
246	366																								
247	367																								
248	370																								
249	371																								
250	372																								
251	373																								
252	374	BR TO 246$_8$ UNCONDITIONALLY		15	1	0	1	1	1	1	1	1	2	4	6	0	1	0	1	0	0	1	1	0	0
253	375	RST																							
254	376	RST																							
255	377	RST																							
					23-019B8 AT E16							23-020B8 AT E33										23-023B8 AT E39				23-008B8 AT E47

PIN NUMBERS FOR DATA OUTPUTS

17	16	15	14	10	9	8	7

CONTROL SEQUENCER ROM LISTINGS PAGE 4 OF 4

SIZE	CODE	NUMBER	REV.
D	FD	RM03-0-0	A

SIZE	CODE	NUMBER	REV.
D	FD	RM03-0-0	A

TITLE: RM03 FLOW DIAGRAMS
SCALE
SHEET 12 OF 13
DIST.
SIZE CODE: D FD
NUMBER: RM03-0-0
REV: A

CHK	REVISIONS	CHANGE NO	REV.

CHK | REVISIONS | CHANGE NO. | REV.

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 131, OTHERWISE CONTINUE THE READ AT LOC 131.
3. PLO SYNC = 11 BYTES OF ZEROS

DEC LOC	OCT LOC		BR READ TO WRITE L PRECLEAR CRC/ECC L P HEADER AREA H P DATA AREA H P EN CRC/ECC H P EN EBL H P EN CRC OUT H P EN ECC OUT H	READ PROM OPERATION	P READ GATE H P DATA EN SCLK H P LFS H BRANCH L LAST READ DATA L	WRITE PROM OPERATION	P WRITE GATE H EN SYNC H P DATA EN SCLK H BRANCH L P EN LOAD SR H
0	000		1 1 0 0 1 0 0 0		0 0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 1
1	001	LEADING ZEROS NOTE 1	1 0 0 0 1 0 0 0	INC	0 0 0 0 0 0 1 1 0	INC	0 0 0 0 0 1 0 1
2	002		1 1 0 0 1 0 0 0	INC	0 0 0 0 0 0 1 1 0	INC	0 0 0 0 0 1 0 1
3	003		1 1 0 0 1 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 0 0 0 1 0 1
4	004		1 1 0 0 1 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 0 0 0 1 0 1
5	005		1 1 0 0 1 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 0 0 0 1 0 1
6	006		1 1 0 0 1 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 0 0 0 1 0 1
7	007		1 1 0 0 1 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 0 0 0 1 0 1
8	010		1 1 0 0 1 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 0 0 0 1 0 1
9	011		1 1 0 0 1 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 0 0 0 1 0 1
10	012		1 1 0 0 1 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 0 0 0 1 0 1
11	013		1 1 0 0 1 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 0 0 0 1 0 1
12	014		1 1 0 0 1 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 0 0 0 1 0 1
13	015		1 1 0 0 1 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 0 0 0 1 0 1
14	016		1 1 0 0 1 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 0 0 0 1 0 1
15	017		1 0 0 0 0 0 0 0	BRT BRANCH TO 128 WHEN SYNC DET UNUSED LOCATIONS	0 0 0 0 0 0 1 1 0	INC BRT BRANCH TO LOCATION 128 UNUSED LOCATIONS	0 0 0 0 0 1 0 0
127	177		1 0 0 0 0 0 0 0		0 0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
128	200	HEADER 1	1 1 1 0 1 0 0 0	INC READ HEADER WORD 1	0 0 0 0 0 0 1 1 0	INC WRITE HEADER WORD 1	0 0 1 0 0 0 1 1
129	201	HEADER 2	1 1 0 0 1 0 0 0	INC READ HEADER WORD 2	0 0 0 0 0 0 1 1 0	INC WRITE HEADER WORD 2	0 0 1 0 0 0 1 1
130	202	CRC	0 1 0 0 1 0 1 0	BRT BRANCH TO 131 (NOTE 2)	0 0 0 0 0 0 1 1 0	INC WRITE CRC WORD	0 0 1 0 0 0 1 0
131	203	ZEROS (NOTE 3)	1 1 0 0 1 0 0 0	INC	0 0 0 0 0 0 1 1 0	INC	0 0 1 0 0 0 1 0
132	204		1 1 0 0 0 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 1 0 0 0 1 0
133	205		1 1 0 0 0 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 1 0 0 0 1 0
134	206		1 1 0 0 0 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 1 0 0 0 1 0
135	207		1 1 0 0 0 0 0 0	INC	1 0 0 0 0 0 1 1 0	INC	0 0 1 0 0 0 1 0
136	210		1 1 0 0 0 0 0 0	BRT BRANCH TO 161 WHEN SYNC DET UNUSED LOCATIONS	1 0 0 0 0 1 1 0	INC	0 0 1 0 0 0 1 0
137	211		1 1 0 0 0 0 0 0		0 0 0 0 0 1 1 0	INC	0 0 1 0 0 0 1 0
138	212		1 1 0 0 0 0 0 0		0 0 0 0 0 1 1 0	INC	0 0 1 0 0 0 1 0
139	213		1 1 0 0 0 0 0 0		0 0 0 0 0 1 1 0	INC	0 0 1 0 0 0 1 0
140	214		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0	BRT BRANCH TO 161 WHEN SYNC DET UNUSED LOCATIONS	0 0 0 0 0 1 0 0
141	215		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
142	216		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
143	217		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
144	220		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
145	221		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
146	222		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
147	223		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
148	224		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
149	225		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
150	226		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
151	227		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
152	230		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
153	231		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
154	232		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
155	233		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
156	234		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
157	235		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
158	236		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
159	237		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
160	240		1 0 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 0
161	241	DATA 1	1 1 0 1 0 0 0 0	INC READ 256 WORDS OF DATA	1 0 0 1 0 1 1 0	INC WRITE 256 WORDS OF DATA	0 1 0 1 0 1 1 1
415	637	DATA 255	1 1 0 1 0 0 0 0	INC	1 0 0 1 0 1 1 0	INC	
416	640	DATA 256	1 1 1 0 1 0 0 0	INC	1 0 0 0 0 1 1 0	INC	
417	641	ECC 1	1 1 0 0 0 0 0 1	INC READ ECC WORD 1	0 0 0 0 0 1 1 0	INC WRITE ECC WORD 1	0 1 0 0 0 1 1 1
418	642	ECC 2	1 1 0 0 0 0 0 1	INC READ ECC WORD 2	0 0 0 0 0 1 1 0	INC WRITE ECC WORD 2	0 1 0 0 0 1 1 1
419	643	POSTAMBLE	1 1 0 0 0 1 0 0	INC		INC	
420	644		1 1 0 0 0 0 0 0	UNUSED LOCATIONS		UNUSED LOCATIONS	
511	777		1 1 0 0 0 0 0 0		0 0 0 0 0 1 1 0		0 0 0 0 0 1 0 1

E72 23-016DI-00 | E81 23-015DI-00 | E90 23-017DI-00

E72 AND E81 ENABLE FOR A READ SEQUENCE (WRITE DATA JUMPS FROM READ SEQ TO WRITE SEQ AT LOCATION 130)

E72 AND E90 ENABLE FOR A WRITE SEQUENCE

MSA LSA

17	16	15	14	10	9	8	7

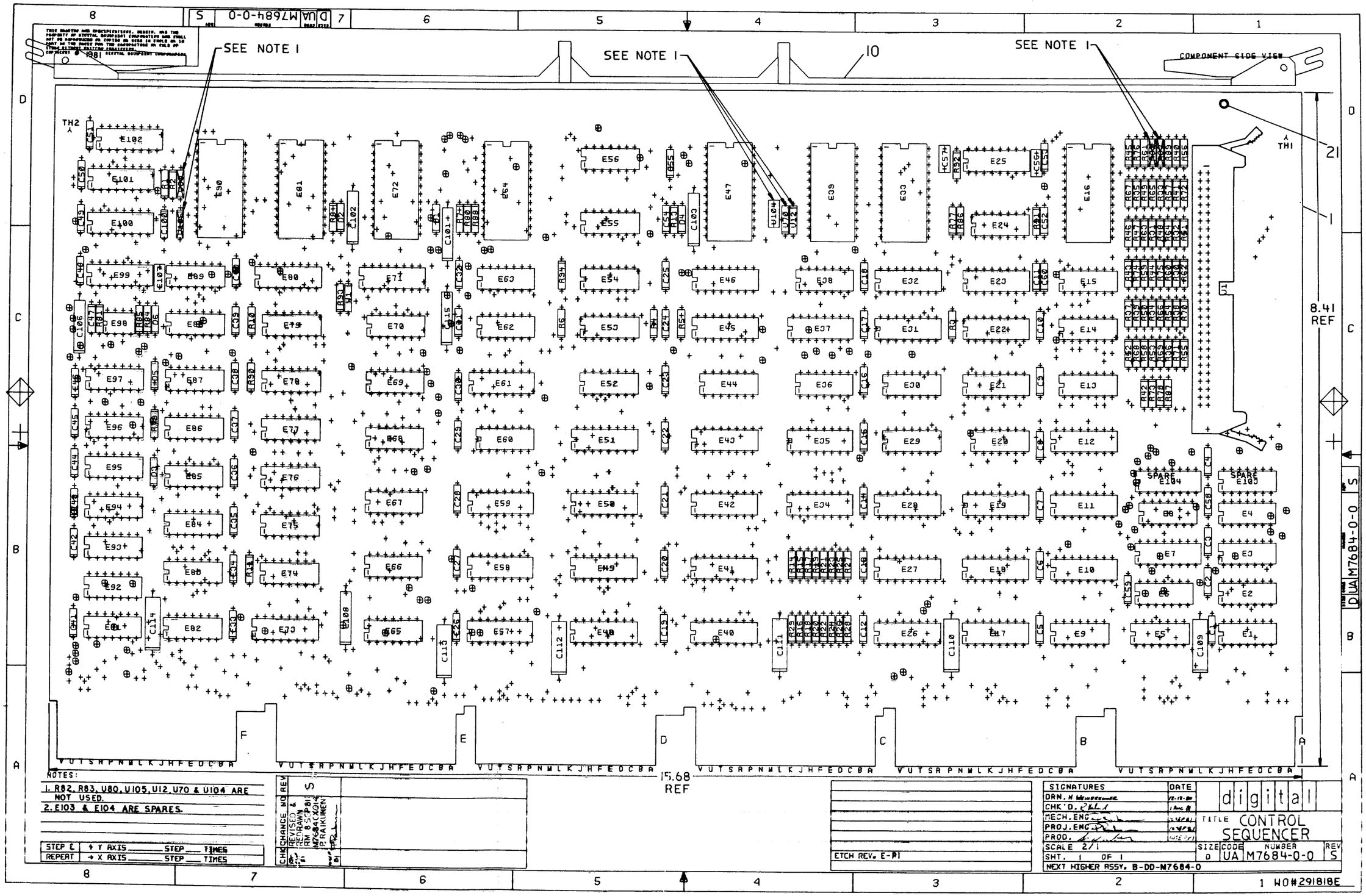
825115 OUTPUT PINS

TITLE: RM03 FLOW DIAGRAM
SCALE | SHEET 13 OF 13
SIZE/CODE: D FD
NUMBER: RM03-0-0
REV: A
DIST.
PAGE 1 OF 1

DATA SEQUENCER OF ROM LISTINGS

DFD RM03-0-0 REV. A

DFD RM03-0-0 REV. A



NOTES:

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

STEP &	↑ Y AXIS ____ STEP ____ TIMES
REPEAT	→ X AXIS ____ STEP ____ TIMES

CHG	CHANGE NO	REV
		S
	REVISED & REDRAWN PER ECO M7684-ECO-14 RM 8 SEP 81 P. RAIKUNEN	

ETCH REV. E-01

SIGNATURES	DATE
DRN. N Weinbrenner	12-12-80
CHK'D. E Bell	1 Dec 81
MECH. ENG.	12/4/81
PROJ. ENG.	12/4/81
PROD.	12/8/81

digital

TITLE CONTROL SEQUENCER

SCALE 2/1	SIZE	CODE	NUMBER	REV
SHT. 1 OF 1	D	UA	M7684-0-0	S
NEXT HIGHER ASSY. B-DD-M7684-0				

1 WO# 291818E

DUA M7684-0-0 S

CSI BRANCH ADD 7 H
CSI BRANCH ADD 6 H
CSI BRANCH ADD 5 H
IF8 SEQ SKIP L
CS2 ENABLE F L
CSI BRANCH ON TEST L
CSI SEQ CLK COUNT H
SEQUENCE SKIP
74LS32 E56
74S02 E20
SEQUENCE COUNTER
74S163 E32
D3 D2 D1 DØ
R3(I) R2(I) R1(I) RØ(I)
CLR LD CLK CNT EN CRY EN CO
CSI CPØ7 H
CSI CPØ6 H
CSI CPØ5 H
CSI CPØ4 H
+5V
R93 2K +3VA
R2 2K +3V
R3 2K +3VB
BRANCH MULTIPLEXER
74S157 E37
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
B3 A3 B2 A2 B1 A1 BØ AØ
F3 F2 F1 FØ
STB SO
CS1 ENABLE F L
74S163 E31
+3VB
CSI CPØ3 H
CSI CPØ2 H
CSI CPØ1 H
CSI CPØØ H
CSI BRANCH ADD ØH
CS8 GO L
CSI RESET H
74S02 E20
74ST4 E24
IF4 TEST BIT CLOCK H
CS2 PWR/INIT L
GO BIT SYNCHRONIZER
GR PROM DIS L
23-ØØ2B8
82S114 E16
STROBE CE2 CE1
A7 A6 A5 A4 A3 A2 A1 AØ
PROM 256X8
SEQUENCER CONTROL PROM
Ø8 Ø7 Ø6 Ø5 Ø4 Ø3 Ø2 Ø1
CSI END RESET GO L
CSI RESET H
CSI BRANCH H
CSI SET PULSE L
CSI T3 H
CSI T2 H
CSI T1 H
CSI TØ H
23-Ø2ØB8
82S114 E33
BRANCH ADDRESS PROM
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 ØH
IF4 SEQ CLK H
CS5 EN DEBUG CLK L
CS8 DEBUG CLK H
CS5 EN DEBUG CLK H
74S51 E66
74S04 E53
ASI
CSI SEQ CLK STROBE. H
CSI SEQ CLK COUNT H
STB TEST BIT MUX
7415Ø E64
16 TO 1 MUX
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
IF9 ABORT L
CS9 ON CYL L
IF8 OCCUPIED L
D15 D14 D13 D12 D11 DIØ D9 D8 D7 D6 D5 D4 D3 D2 D1 DØ
S3 S2 S1 SØ
CSI TEST BIT H
+3VB
74S74 E24
IF4 TEST BIT CLOCK H
CSI BRANCH H
TEST BIT SYNCHRONIZER
CSI BRANCH ON TEST L

NOTES:

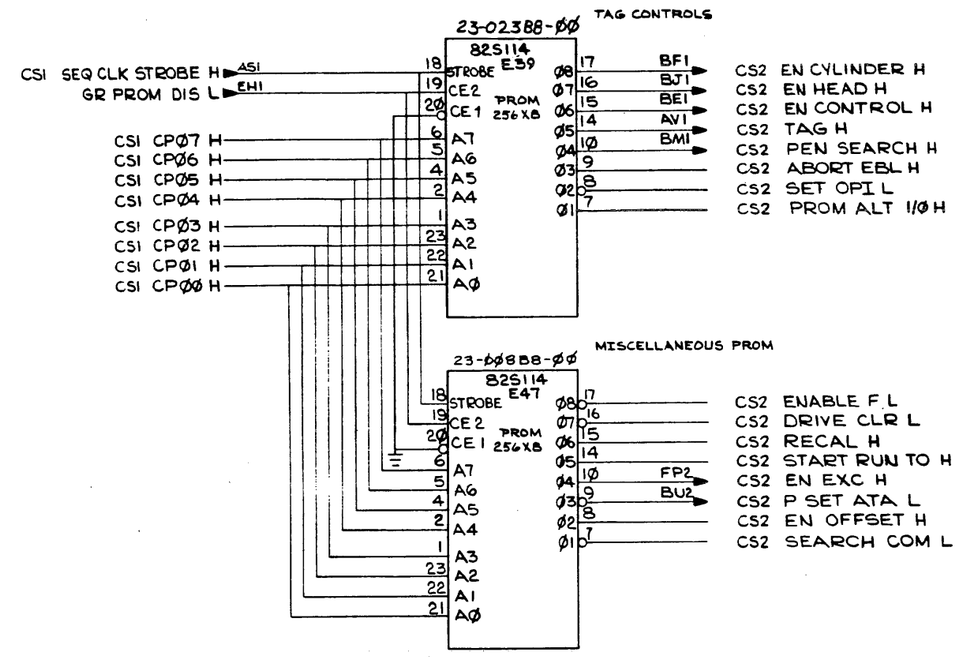
1. WHEN THE SEQUENCE COUNTER IS AT ZERO, (GO BIT IS RESET). CSI ENABLE F L IS ACTIVE AND GATES THE FUNCTION BITS TO THE PARALLEL LOAD INPUTS TO THE COUNTER.
2. AT THE FIRST CLOCK FOLLOWING SETTING OF THE GO BIT THE COUNTER IS PRESET TO THE VALUE SPECIFIED BY FØ H TO F3 H AND CSI BRANCH ADD Ø H (HIGH).
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)

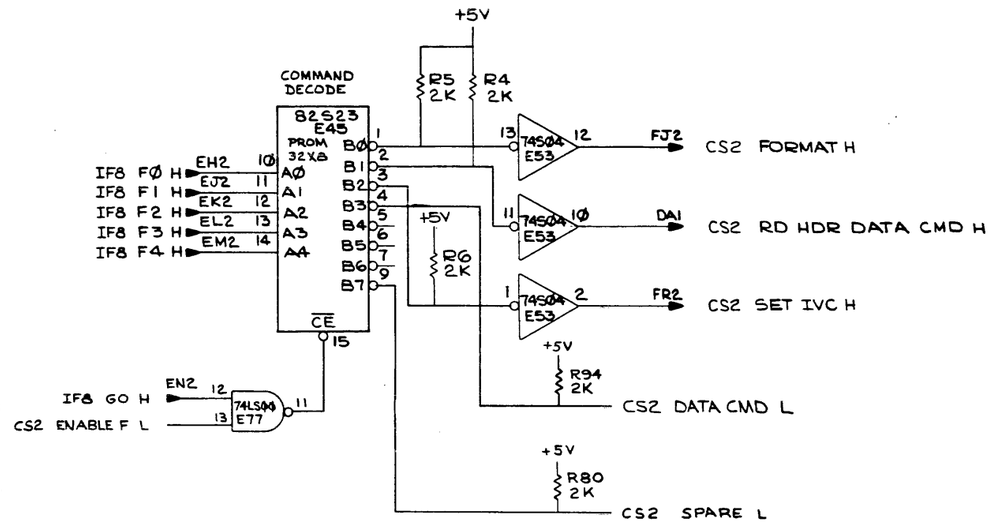
COMMAND SEQUENCER:
COUNTER, TEST BIT AND BRANCH ADDRESS

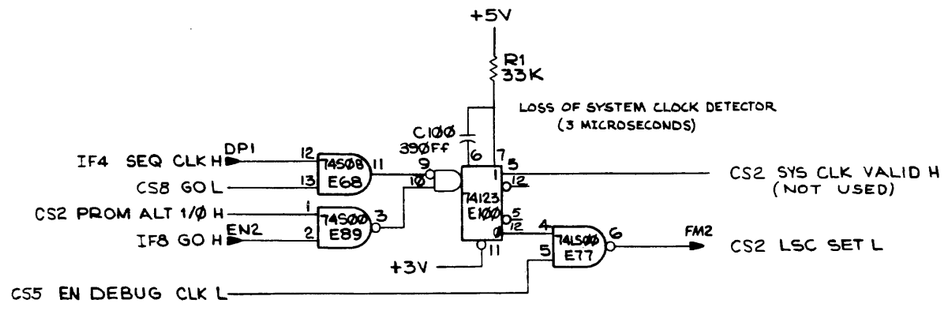
REVISIONS			
DWN.	CHANGE NO.	REV.	
	M7684-00001	B	
	M7684-00002	C	
	M7684-00003	D	
	M7684-00004	E	
	M7684-00005	F	
	M7684-00006	H	
	M7684-00007	J	
	M7684-00008	K	
	M7684-00009	L	
	M7684-00010	M	
	M7684-00011	N	
	M7684-CX013	R	
	M7684-CX014	S	

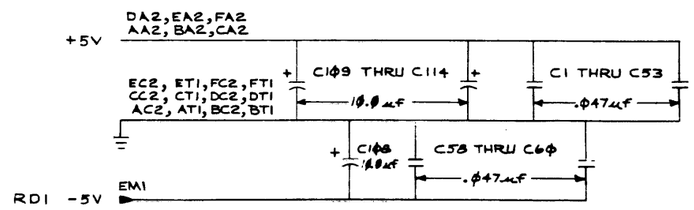
DRN.		3-1-77
CHK'D		3-1-77
ENG.		4-3-77
PROJ. ENG.		4-5-77
PROD.		4-15-77
NEXT HIGHER ASSY.	B-DD-M7684-Ø	
SCALE		
SHEET	1 OF 19	

FIRST USED ON: RMØ3
TITLE: CONTROL SEQUENCER (CSI)
SIZE D | CODE CS | NUMBER M7684-Ø-1 | REV. S
DIST.









COMMAND SEQUENCER: DRIVE CONTROLS (TAG) AND COMMAND DECODES

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CONTROL SEQUENCER (CS2)	D	CS	M7684-Ø-1	S
SCALE —	SHEET 2 OF 19	DIST.		

CS3 RTC T.O. L
CS3 FMT CHANGE L
CS2 P EN SEARCH H BM1
74LS11 E54
+3VA
ENABLE SEARCH
74LS74 E69
CS3 EN SEARCH H

CS8 SECT PULSE H
CS8 INDEX H FR1
CS3 MBA CLR L DT2
74LS32 E84
74LS04 E30
CS3 INDEX L
74LS00 E89
BP1
CS3 SECT/INDEX L
CS3 SECT/INDEX H

CS1 SET PULSE L
74LS08 E76
74LS74 E63
CS3 ON LATCH L
CS9 ON CYLINDER L FN2
+3VB

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.

CS2 DRIVE CLR L
IF6 INIT A/B L ED2
CS4 POWER OK H EL1
74LS10 E94
7437 E83
DT2
CS3 MBA CLR L

CS1 END RESET GO L
IF11 LSC L FH2
CS2 LSC SET L FM2
74LS32 E56
74S11 E75
EP2
CS3 RESET GO L

CS4 POWER OK H EL1
IF6 INIT A/B L ED2
74LS08 E68
AU1
CS3 PWR/INIT L

CS1 SET PULSE L
74LS04 E30
AF1
CS3 SET PULSE H

IF8 F2 H EK2
74LS04 E30
CS3 F2 L

CS5 OCCUPIED H
CS8 WRT PROT H EJ1
CS3 SET PULSE H AF1
74LS20 E52
EE1
CS3 WLE SET L

CS2 EN CYLINDER H BF1
74LS04 E30
CS3 ENABLE CYL L

CS2 EN HEAD H BJ1
74LS04 E30
CS3 ENABLE HEAD L

CS2 EN CONTROL H BE1
74LS04 E30
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)

IF8 OFFSET MODE H EF1
CS2 EN CONTROL H BE1
74S112 E23
+3VA

+5V
R91 30K
C56 1000pF
FORMAT BIT EDGE DETECTOR
74123 E25
CS4 POWER ØK H EL1

+5V
R92 30K
C57 1000pF
IF8 FMT16 H CF2
74123 E25
+3VB
74S112 E23
CS3 FMT CHANGE L

NOTE: INHIBITS SEARCH UNTIL NEXT INDEX PULSE FOLLOWING A CHANGE IN FORMAT.

CS3 INDEX L
CS2 SET OPI L
CS6 RUN TIME OUT L
74LS11 E54
ED1
CS3 OPI SET L

+5V
W1 IS IN FOR RM02 ONLY
R7 30K
C115 3.3μF
C101 .68μF
W1
D1 DG64
CS8 SRCH TO DIS H
74123 E71
74LS74 E63
SEARCH TIME OUT (50 MILLISECONDS)
CS2 P EN SEARCH H BM1
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		
OK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CONTROL SEQUENCER (CS3)	D	CS	M7684-Ø-1	S
SCALE — SHEET 3 OF 19	DIST.			

WORD COUNTER

74S163 E1Ø1

CS3 F2 L
CS5 SECTOR COMPARE H
CS4 BR RD TO WRT L
DS4 WORD CLK H
CS2 SEARCH COM L
BN1
AS2
CJ2
CS4 AD9 H

74S163 E1Ø2

CS4 PEN CRC L
FK2
CS4 BRANCH L
AV2
+3V

74S163 E8Ø

+3VA

23-Ø16D1-ØØ
82S115 E72
R/W PROM 512X8
STB CE1 CE2
DS4 PROM STROBE H
CL2
GR PROM DIS L
EH1
+5V
R88 1K

AS2
EP1
FA1
FC1
FD1
FH1
FP1
FS1

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

23-Ø15D1-ØØ
82S115 E81
READ PROM 512X8

FK1
AT2
CD2
FE1
FM1
AV2
FF1

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

74LS32 E56

23-Ø17D1-ØØ
82S115 E9Ø
WRITE PROM 512X8

EU1
CS4 P EN LOAD SR H

+3V
CS2 FORMAT H
FJ2
74S74 E92
DS4 WORD CLK H
CJ2

BP PROM GROUND
BV2

+5V
D3 DG72
5VDC
BP DC LO L
BH1
R1Ø 2K
7438 E85
E95 SPST N.C.
7404 E88
R9Ø 2K
EL1
CS4 POWER OK H

CS4 P EN CRC/ECC H
FD1
7404 E88
1Ø
FK2
CS4 P EN CRC L

CS4 P READ GATE H
FK1
CS4 P HEADER AREA H
FA1
74LS08 E76
BT2
CS4 READ HEADER H

+3VA
CS2 FORMAT H
FJ2
74S74 E67
CS5 SECTOR COMPARE H
BN1
CS4 WRITE GATE L
74LS08 E76

7437 E83
EV1
CS4 DS WRITE GATE H
CS4 WRITE GATE H

WRITE GATE GENERATION

+3V
CS4 P WRITE GATE H
AT2
DS4 WORD CLK L
CK2
CS3 MBA CLR L
DT2
74S74 E93
CS4 WRITE GATE L

DATA TIMING SEQUENCER (READ AND WRITE) WRITE GATE FOR TAG BUS AND POWER OK GENERATION

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CONTROL SEQUENCER (CS4)	D	CS	M7684-Ø-1	S
SCALE — SHEET 4 OF 19	DIST.			

READ GATE GENERATION

+3V

CS4 P READ GATE H — FK1 — 74S74 E93 — FJ1 — CS5 READ GATE FAST H
DS4 WORD CLK L — CK2
CS3 MBA CLR L — DT2
7437 E83 — ER1 — CS5 READ GATE H

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

CS4 P EN CRC/ECC H — FD1 — 74S51 E66 — DV2 — CS5 EN CRC CLK L
DS1 SYNC DET H — CH2
CS4 P EN CRC L — FK2 — 74S00 E89

CS4 P DATA AREA H — FC1 — 74S32 E84
CS4 P EN ECC OUT H — FS1
74S74 E82 — 74S11 E75 — DU1 — CS5 EN ECC CLK L
DSIØ 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 E76 — 74LS08 E86 — CS5 CLR EBL HOLD L

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

+3VA

74S74 E70
DS4 WORD CLK H — CJ2
CS3 MBA CLR L — DT2
CS8 DIAG EBL L
74LS00 E77 — CS5 MBA EBL H
7464 E88 — DN1 — CS5 MBA EBL L

CS4 WRITE GATE H — BU1 — 74LS00 E5 — 7437 E1 — AH1 — CS5 SYNC REC EN A H
IF3 PORT A ON H

IF4 PORT B ON H — BV1 — 74LS00 E5 — 7437 E1 — AJ1 — CS5 SYNC REC EN B H

IF3 PORT A ON H — BU1 — 74LS00 E5 — 7437 E1 — AK1 — CS5 TRANSMIT EN A H
CS5 READ GATE H — ER1

IF4 PORT B ON H — BV1 — 74LS00 E5 — 7437 E1 — AL1 — CS5 TRANSMIT EN B H

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

IF3 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 — ES2 — A0
DS11 SA 4 H — ET2 — A1
DS11 SA 8 H — EU2 — A2
DS11 SA16 H — EV2 — A3
CSIØ SC2 H — AH2 — B0
CSIØ SC4 H — AJ2 — B1
CSIØ SC8 H — AK2 — B2
CSIØ SC16 H — AL2 — B3

A>B — 5
A=B — 6
A<B — 7

IN> IN= IN>

+5V — R11 1K

DS11 SA1 H — ER2 — 74LS266 E74 — AF2 — CSIØ 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

CS8 MR SECT COMP H
CS3 EN SEARCH H
74S32 E84 — 74LS08 E55

+3VA

74S112 E61 — BN1 — CS5 SECTOR COMPARE H
CS5 SECTOR COMPARE L

CS2 P EN SEARCH H — BM1

+3VA

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

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		
CHK	CHANGE NO.	REV.

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

+5V
R13 2.7K
C103 3.3μf
D4 D664
74123 E46
74S74 E70
+3VB
CS6 RUN TIME OUT L (2Ø MILLISECONDS)
CS6 RUN AND GO L
CS5 ØCCUPIED H
74LSØ3 E39
74LSØ8 E38
CS3 RESET GO L
EP2

IF8 GO H
SA2 RUN H
CS3 RESET GO L
EN2
EC1
EP2
74SØ8 E68
74LS74 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.

DS12 LST SECT TRK H
CS5 MBA EBL H
CS6 CONTINUE H
CS3 MBA CLR L
FE2
AC1
DT2
74LS74 E36
74LSØ8 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.

DS11 LST SECT H
FF2
AB1
AR1
CS6 NEW TRACK RQD H
CS6 NEW TRACK RQD 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.

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
IF9 ABORT L
CS5 MBA EBL L
CS3 MBA CLR L
EC1
EB1
DN1
DT2
74SØØ E65
74LS74 E62
AC1
CS6 CONTINUE H
CS6 CONTINUE L

DS12 DC1 H
DS12 DC2 H
DS12 DC4 H
DS12 DC8 H
DS12 DC16 H
DS12 DC32 H
BD2
BE2
BF2
BH2
BJ2
BK2
DM8Ø97 E17
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
CS3 ENABLE CYL L

DS11 TA 1 H
DS11 TA 2 H
DS11 TA 4 H
DS11 TA 8 H
DS11 TA 16 H
DP2
DR2
DS2
BR1
BS1
DM8Ø97 E26
TRISTATE MULTIPLEXING OF SECTOR/TRACK, CYLINDER ADDRESS AND COMMANDS FOR TAG BUS.
CS3 ENABLE HEAD L

CS4 WRITE GATE H
CS5 READ GATE H
ER1
DM8Ø97 E18
IF8 OFF DIR H
EN1
74SØ8 E55
74Ø4 E88

IF8 OFFSET MODE H
CS2 EN OFFSET H
EF1
74LSØ8 E55
DS12 DC64 H
DS12 DC128 H
DS12 DC256 H
DS12 DC512 H
BL2
BM2
BN2
BP2
DM8Ø97 E27
CS6 BUS BIT Ø6 H
CS6 BUS BIT Ø7 H
CS6 BUS BIT Ø8 H
CS6 BUS BIT Ø9 H

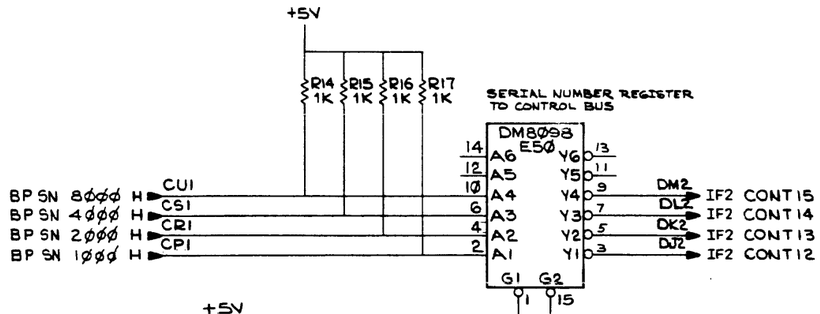
CS2 RECAL H
DM8Ø97 E28
CS3 ENABLE CNT L

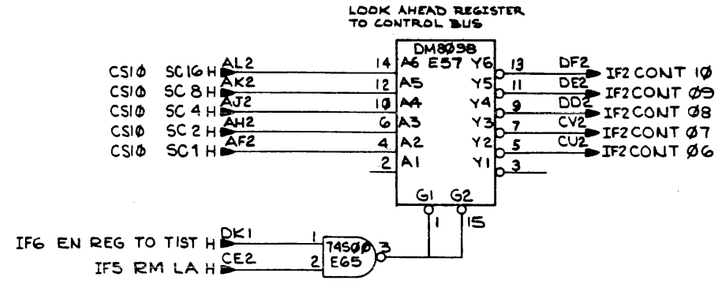
CONTROLS FOR MULTI SECTOR, MULTI TRACK, MULTI CYLINDER DATA TRANSFER AND TRISTATE MULTIPLEXING OF SECTOR/TRACK, CYLINDER ADDRESS AND COMMANDS FOR TAG BUS

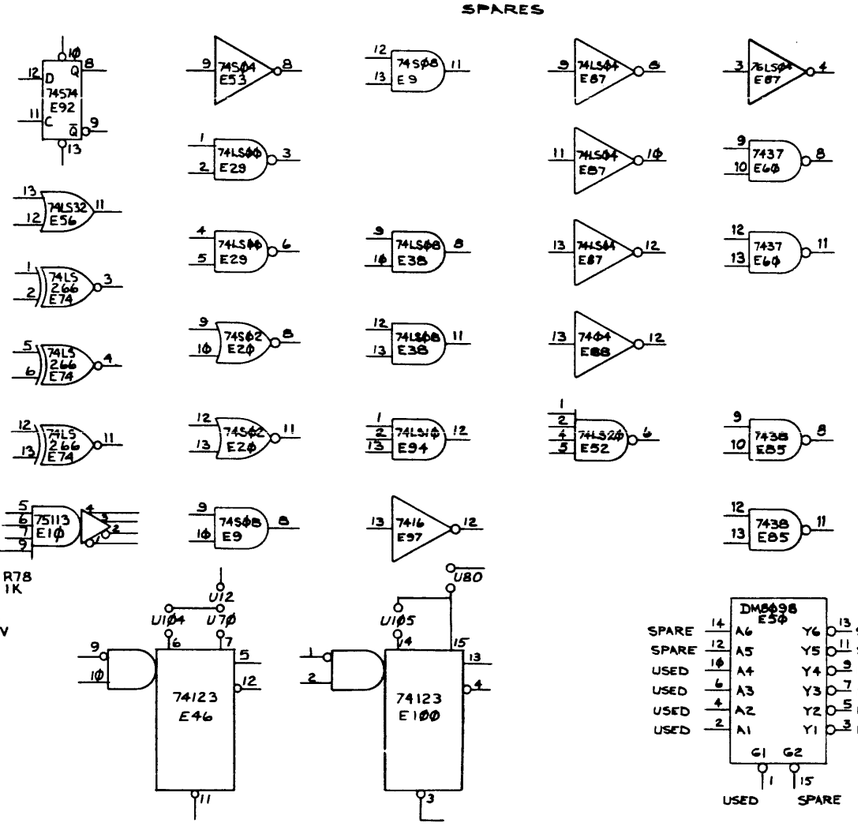
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CONTROL SEQUENCER (CS6)	D	CS	M7684-Ø-1	S
SCALE	SHEET 6 OF 19	DIST.		

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		
CHK	CHANGE NO.	REV.

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

DCS M7684-0-1 REV S

74LS175 E59
IF2 CONT 15 — DM2 — D2
IF2 CONT 14 — DL2 — D1
IF2 CONT 13 — DK2 — DØ
R3(1) R3(Ø) R2(1) R2(Ø) R1(1) R1(Ø) R0(1) R0(Ø)
CSB DEBUG CLK H
CSB DEBUG EN H
CSB DEBUG EN L
CSB DIAG EBL L
CLR CLK

74LS175 E51
IF2 CONT 12 — DJ2 — D3
IF2 CONT 11 — DH2 — D2
IF2 CONT 10 — DF2 — D1
IF2 CONT Ø9 — DE2 — DØ
CSB SRCH TO DIS H
CSB MAINT CLK H
CSB MAINT CLK L
CSB MR READ DATA H
CSB MR UNIT READY H
CLR CLK

74LS175 E43
IF2 CONT Ø8 — DD2 — D3
IF2 CONT Ø7 — CV2 — D2
IF2 CONT Ø6 — CU2 — D1
IF2 CONT Ø5 — CT2 — DØ
CSB MR ON CYL L
CSB MR SEEK ERR L
CSB MR DRV FAULT L
CSB MR SECT PULSE H
CLR CLK

74LS175 E42
IF2 CONT Ø4 — CS2 — D3
IF2 CONT Ø3 — CR2 — D2
IF2 CONT Ø2 — CP2 — D1
IF2 CONT Ø1 — CN2 — DØ
CSB MR WRT PROT H
CSB MR INDEX H
CSB MR SECT COMP H
CLR CLK

CSB DIAG FLOP H

+3VA

IF2 CONT ØØ — CM2
IF5 RM MR1 H — DC1
IF6 ASY WRT H — FN1
74S11 E75
74S08 E68
74S74 E67
IF8 GO H — EN2
74LSØØ E77
CSB GO L
CS3 MBA CLR L — DT2

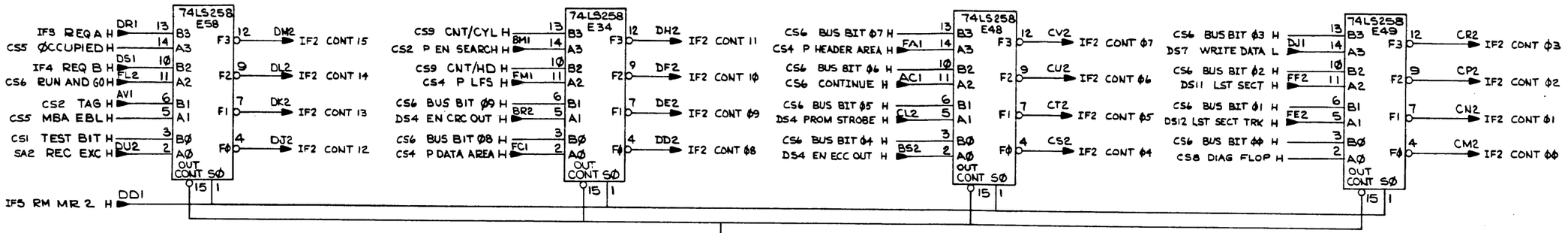
7437 E6Ø — EF2 — CSB DIAG L
7437 E6Ø — EE2 — CSB DIAG H

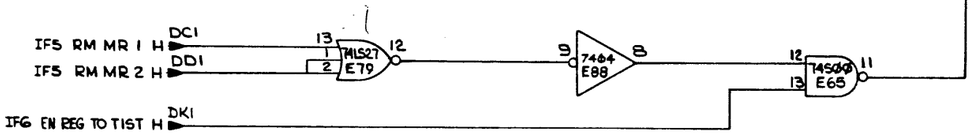
74LS157 E35
CSIØ DRV INDEX H — CSB MR INDEX H — FR1 — CSB INDEX H
CSIØ DRV WRT PROT H — CSB MR WRT PROT H — EJ1 — CSB WRT PROT H
CSIØ DRV SECT PULSE H — CSB MR SECT PULSE H — F1 — CSB SECT PULSE H
CSIØ DRV UNIT READY H — CSB MR UNIT READY H — DN2 — CSB UNIT READY H
STB SO

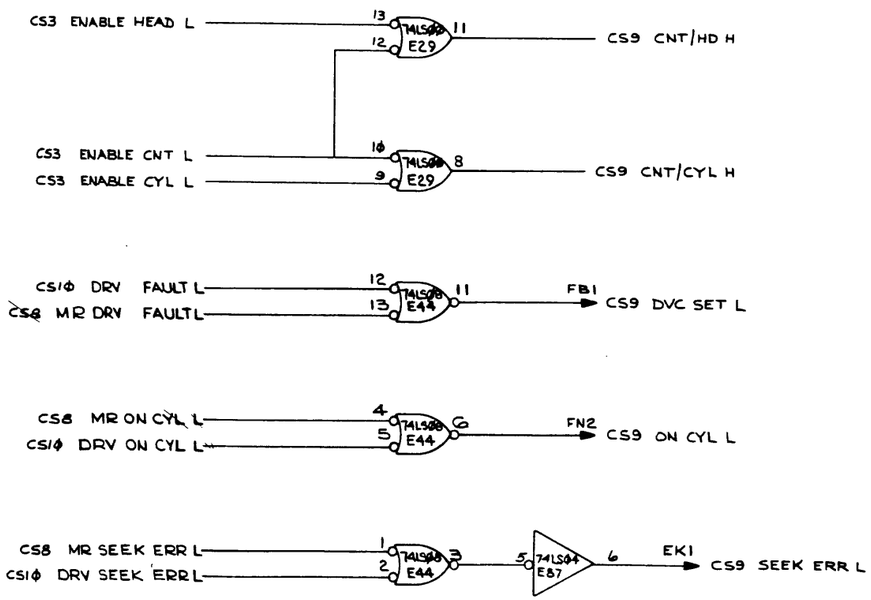
(MR1) MAINTENANCE REGISTER (WRITE ONLY)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE: CONTROL SEQUENCER (CSB)
SIZE D | CODE CS | NUMBER M7684-Ø-1 | REV. S
SCALE — | SHEET 8 OF 19 | DIST.







REVISIONS		
CHK	CHANGE NO.	REV.

(MR1 & MR2) MAINTENANCE REGISTERS (READ ONLY)

TITLE	SIZE	CODE	NUMBER	REV.
CONTROL SEQUENCER (CS9)	D	CS	M7684-Ø-1	S
SCALE —	SHEET 9 OF 19		DIST.	

+5V R86 1K

J1 — YY, ZZ, AB, AC, AD, AE, AJ, AK, PP, RR, AF, AH, JJ, HH, LL, KK

R30 56 R62 4.64K 1% — 75107B E3 — BD1 — CS1Φ PLUG EN H
R46 56 R31 56 R63 4.64K 1% — 75107B E3 — BA1 — CS1Φ DEV ADS 1H
R47 56 R32 56 R64 4.64K 1% — 75107B E4 — BB1 — CS1Φ DEV ADS 2 H
R48 56 R33 56 R65 4.64K 1% — 75107B E4 — BC1 — CS1Φ DEV ADS 4 H
R49 56 R34 56 R66 4.64K 1% — 75107B E15 — CS1Φ DRV INDEX H
R50 56 R35 56 R67 4.64K 1% — 75107B E15 — CS1Φ DRV SECT PULSE H
R51 56 R36 56 R68 4.64K 1% — 75107B E14 — CS1Φ DRV FAULT L
R52 56 R37 56 R69 4.64K 1% — 75107B E14 — CS1Φ DRV SEEK ERR L
R53 56

CS8 DIAG L ← EF2

+5V R87 1K

J1 — SS, TT, NN, MM, AN, AP, AL, AM, EE, FF, UU, VV, WW, XX, AT, AU

R38 56 R70 4.64K 1% — 75107B E13 — CS1Φ DRV UNIT READY H
R54 56 R39 56 R71 4.64K 1% — 75107B E13 — CS1Φ DRV ON CYL L
R55 56 R40 56 R89 4.64K 1% — 75107B E8 — CS1Φ DRV WRT PROT H
R56 56 R41 56 R72 4.64K 1% — 75107B E8 — AF2 — CS1Φ SC1 H
R57 56 R42 56 R73 4.64K 1% — 75107B E2 — AH2 — CS1Φ SC2 H
R58 56 R43 56 R74 4.64K 1% — 75107B E2 — AJ2 — CS1Φ SC4 H
R59 56 R44 56 R75 4.64K 1% — 75107B E6 — AK2 — CS1Φ SC8 H
R60 56 R45 56 R76 4.64K 1% — 75107B E6 — AL2 — CS1Φ SC16 H
R61 56

RECEIVED SECTOR COUNT

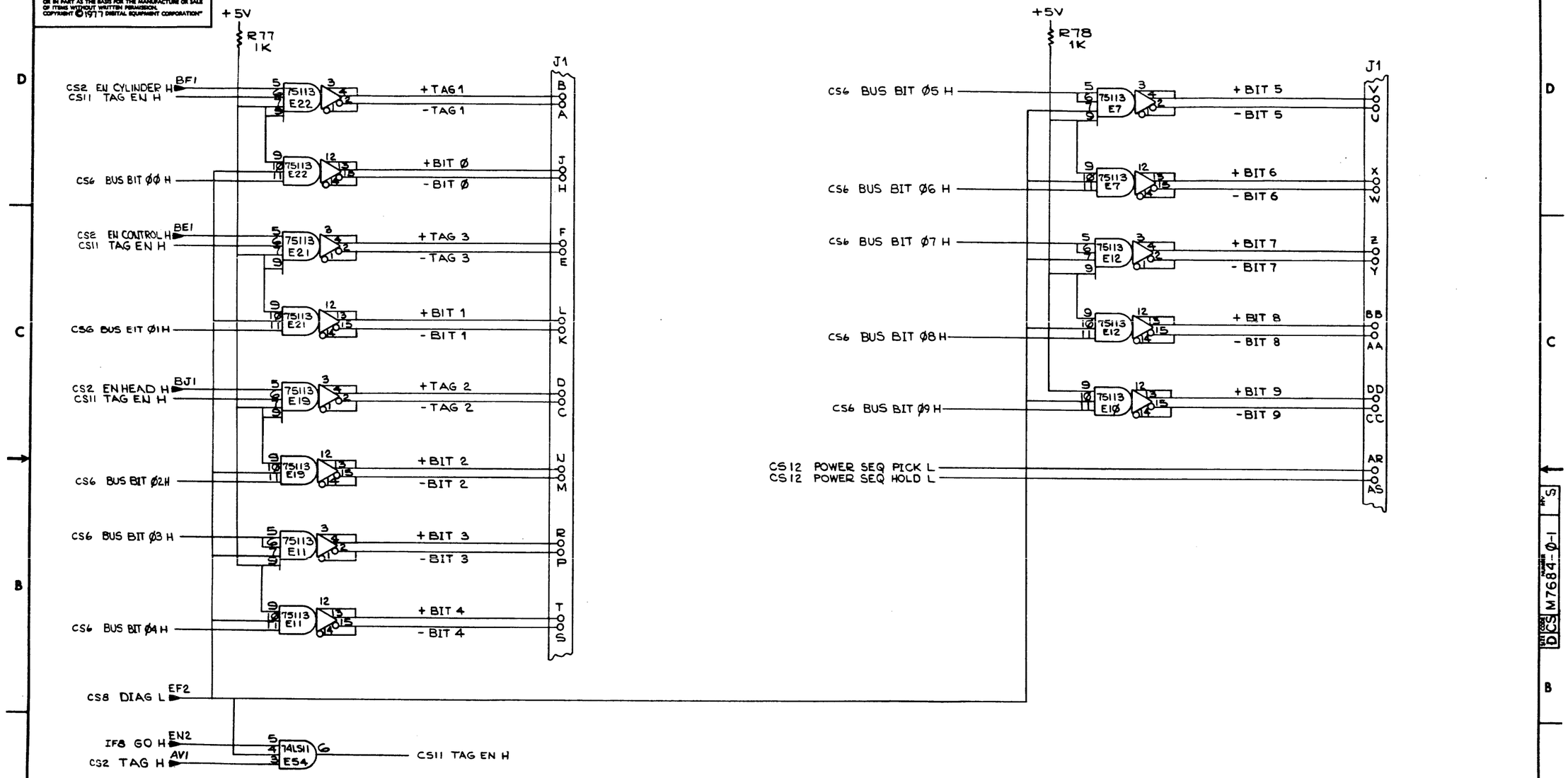
CS8 DIAG L ← EF2

STATUS BUS FROM DRIVE INTERFACE (GΦ PIN CONN)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CONTROL SEQUENCER (CS1Φ)	D	CS	M7684-Φ-1	S
SCALE —	SHEET 10 OF 19	DIST.		

DCS M7684-Φ-1 REV S



TAG BUS TO DRIVE INTERFACE (60 PIN CONN)

REVISIONS		
CHK	CHANGE NO.	REV.

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

D CS M7684-Ø-1 S

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 .Ø1µf

CTL VTH DCG 555 E98 25 SEC

+5V R84 3.3K

D6 D664

CS12 HOLD PICK H — 7416 E97 — FU2 CS12 SIP L

CS8 UNIT READY H DN2 — 74LS04 E87

CS12 DRV RDY (1) L — 74LS27 E96 — CS12 UP TO SPEED H

BP GRANT IN L FT2

CS12 DRV RDY (1) H — 74LS27 E79 — CS12 HOLD PICK H

74S08 E86

+3V

CS12 DRV RDY (1) H

74S112 E99

+5V R85 1K

7416 E97 — CS12 DRVUP TO SPEED L

CS12 DRV RDY (1) L

CS12 UP TO SPEED H

CS12 PICK INHT H

+5V R79 6.8K

BP GRANT IN L FT2 — 74LS27 E96

CS12 SEQ CLR H

74S00 E89

74LS112 E99

7416 E97 — CS12 POWER SEQ PICK L

7416 E97 — CS12 POWER SEQ HOLD L

CS12 HOLD L

RDI START ENABLE H FU1

CS4 POWER OK H EL1 — 74LS08 E86

CS12 SEQ CLR L

7416 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	SIZE	CODE	NUMBER	REV.
CONTROL SEQUENCER (CS12)	D	CS	M7684-Ø-1	S
SCALE —	SHEET 12 OF 19	DIST.		

AAI	CS6 SEEK REQUIRED H	BAI	CS8 DEV ADS 1 H	CAI	BP SN Ø1 H	DAI	CS2 RD HDR DATA CMD H	EAI	IF9 EXC ERR H	FAI	CS4 P HEADER AREA H
ABI	CS6 NEW TRACK REQ'D H	BBI	CS8 DEV ADS 2 H	CBI	BP SN Ø2 H	DBI	IF5 RM SN H	EBI	IF9 ABORT L	FBI	CS9 DVC SET L
ACI	CS6 CONTINUE H	BCI	CS8 DEV ADS 4 H	CCI	BP SN Ø4 H	DCI	IF5 RM MR 1 H	ECI	SA2 RUN H	FCI	CS4 P DATA AREA H
ADI	CSI BRANCH ON TEST L	BDI	CS8 PLUG EN H	CDI	BP SN Ø8 H	DDI	IF5 RM MR 2 H	EDI	CS3 OPI SET L	FDI	CS4 P EN CRC/ECC H
AEI	SPARE	BEI	CS2 EN CONTROL H	CEI	BP SN 1Ø H	DEI	CS8 MAINT CLK H	EEI	CS3 WLE SET L	FEI	CS4 P DATA EN SCLK H
AFI	CS3 SET PULSE H	BFI	CS2 EN CYLINDER H	CFI	BP SN 2Ø H	DFI	CS8 MAINT CLK L	EFI	IF8 OFFSET MODE H	FFI	CS4 LAST READ DATA L
AHI	CS5 SYNC REC EN A H	BHI	BP DC LO L	CHI	BP SN 4Ø H	DHI	CS8 MR READ DATA H	EHI	GR PROM DIS L	FHI	CS4 P EN EBL H
AJI	CS5 SYNC REC EN B H	BJI	CS2 EN HEAD H	CJI	BP SN 8Ø H	DJI	DS7 WRITE DATA L	EJI	CS8 WRT PROT H	FJI	CS5 READ GATE FAST H
AKI	CS5 TRANSMIT EN A H	BKI	(NOT USED) IF8 DECODE L	CKI	BP SN 1ØØ H	DKI	IF6 EN REG TO TIST H	EKI	CS9 SEEK ERR L	FKI	CS4 P READ GATE H
ALI	CS5 TRANSMIT EN B H	BLI	IF9 SEQ SKIP L	CLI	BP SN 2ØØ H	DLI	SPARE	ELI	CS4 POWER OK H	FLI	IF4 TEST BIT CLOCK H
AMI	CS5 TRNSCEIVR EN A H	BMI	CS2 P EN SEARCH H	CMI	BP SN 4ØØ H	DMI	IF8 OCCUPIED L	EMI	RDI -5V	FMI	CS4 P LFS H
ANI	CS5 TRNSCEIVR EN B H	BNI	CS5 SECTOR COMPARE H	CNI	BP SN 8ØØ H	DNI	CS5 MBA EBL L	ENI	IF8 OFF DIR H	FNI	IF6 ASY WRT H
API	SPARE	BPI	CS3 SECT/INDEX L	CPI	BP SN 1ØØØ H	DPI	IF4 SEQ CLK H	EPI	CS4 PRECLEAR CRC/ECC L	FPI	CS4 P EN CRC OUT H
ARI	CS6 NEW TRACK REQD L	BRI	DSII TA 8 H	CRI	BP SN 2ØØØ H	DRI	IF3 REQ A H	ERI	CS5 READ GATE H	FRI	CS8 INDEX H
ASI	CSI SEQ CLK STROBE H	BSI	DSII TA 16 H	CSI	BP SN 4ØØØ H	DSI	IF4 REQ B H	ESI	SPARE	FSI	CS4 P EN ECC OUT H
ATI	GND	BTI	GND	CTI	GND	DTI	GND	ETI	GND	FTI	GND
AUI	CS3 PWR/INIT L	BUI	IF3 PORT A ON H	CUI	BP SN 8ØØØ H	DUI	CS5 EN ECC CLOCK L	EUI	CS4 P EN LOAD SR H	FUI	RDI START ENABLE H
AVI	CS2 TAG H	BVI	IF4 PORT B ON H	CVI	SPARE	DVI	CS6 MB EXCEPTION L	EVI	CS4 DS WRITE GATE H	FVI	SPARE

AA2	+5V	BA2	+5V	CA2	+5V	DA2	+5V	EA2	+5V	FA2	+5V
AB2	-15V	BB2	-15V	CB2	-15V	DB2	-15V	EB2	-15V	FB2	-15V
AC2	GND	BC2	GND	CC2	GND	DC2	GND	EC2	GND	FC2	GND
AD2	CSI RESET H	BD2	DSI2 DC 1 H	CD2	CS4 EN SYNC H	DD2	IF2 CONT Ø8	ED2	IF6 INIT A/B L	FD2	CS5 DTE SET L
AE2	CSI BRANCH H	BE2	DSI2 DC 2 H	CE2	IF5 RM LA H	DE2	IF2 CONT Ø9	EE2	CS8 DIAG H	FE2	DSI2 LST SECT TRK H
AF2	CSIØ SC 1 H	BF2	DSI2 DC 4 H	CF2	IF8 FMT 16 H	DF2	IF2 CONT 1Ø	EF2	CS8 DIAG L	FF2	DSII LST SECT H
AH2	CSIØ SC 2 H	BH2	DSI2 DC 8 H	CH2	DSI SYNC DET H	DH2	IF2 CONT 11	EH2	IF8 FØ H	FH2	IFII LSC L
AJ2	CSIØ SC 4 H	BJ2	DSI2 DC 16 H	CJ2	DS4 WORD CLK H	DJ2	IF2 CONT 12	EJ2	IF8 F1 H	FJ2	CS2 FORMAT H
AK2	CSIØ SC 8 H	BK2	DSI2 DC 32 H	CK2	DS4 WORD CLK L	DK2	IF2 CONT 13	EK2	IF8 F2 H	FK2	CS4 P EN CRC L
AL2	CSIØ SC 16 H	BL2	DSI2 DC 64 H	CL2	DS4 PROM STROBE H	DL2	IF2 CONT 14	EL2	IF8 F3 H	FL2	CS6 RUN AND GO H
AM2	SPARE	BM2	DSI2 DC 128 H	CM2	IF2 CONT ØØ	DM2	IF2 CONT 15	EM2	IF8 F4 H	FM2	CS2 LSC SET L
AN2	SPARE	BN2	DSI2 DC 256 H	CN2	IF2 CONT Ø1	DN2	CS8 UNIT READY H	EN2	IF8 GO H	FN2	CS9 ON CYL L
AP2	SPARE	BP2	DSI2 DC 512 H	CP2	IF2 CONT Ø2	DP2	DSII TA1 H	EP2	CS3 RESET GO L	FP2	CS2 EN EXC H
AR2	SPARE	BR2	DS4 EN CRC OUT H	CR2	IF2 CONT Ø3	DR2	DSII TA2 H	ER2	DSII SA 1 H	FR2	CS2 SET IVC H
AS2	CS4 BR RD TO WRT L	BS2	DS4 EN ECC OUT H	CS2	IF2 CONT Ø4	DS2	DSII TA4 H	ES2	DSII SA 2 H	FS2	CSI2 GRANT OUT L
AT2	CS4 P WRITE GATE H	BT2	CS4 READ HEADER H	CT2	IF2 CONT Ø5	DT2	CS3 MBA CLR L	ET2	DSII SA 4 H	FT2	BP GRANT IN L
AU2	DSIØ EN CORRECT CLK L	BU2	CS2 P SET ATA L	CU2	IF2 CONT Ø6	DU2	SA2 REC EXC H	EU2	DSII SA 8 H	FU2	CSI2 SIP L
AV2	CS4 BRANCH L	BV2	BP PROM GROUND	CV2	IF2 CONT Ø7	DV2	CS5 EN CRC CLOCK L	EV2	DSII SA 16 H	FV2	DS4 ECC WRD CNT INH L

REVISIONS

CHK	CHANGE NO.	REV.

I/O SIGNAL LIST

TITLE	SIZE	CODE	NUMBER	REV.
CONTROL SEQUENCER (CS 13)	D	DCS	M7684-Ø-1	S
SCALE — SHEET 13 OF 19	DIST.			

AAI	CS6 SEEK REQUIRED H
ABI	CS6 NEW TRACK REQ'D H
ACI	CS6 CONTINUE H
ADI	CSI BRANCH ON TEST L
AEI	SPARE
AFI	CS3 SET PULSE H
AHI	CS5 SYNC REC EN A H
AJI	CS5 SYNC REC EN B H
AKI	CS5 TRANSMIT EN A H
ALI	CS5 TRANSMIT EN B H
AMI	CS5 TRNSCEIVR EN A H
ANI	CS5 TRNSCEIVR EN B H
API	SPARE
ARI	CS6 NEW TRACK REQD L
ASI	CSI SEQ CLK STROBE H
ATI	GND
AUI	CS3 PWR/INIT L
AVI	CS2 TAG H

BAI	CS8 DEV ADS 1 H
BBI	CS8 DEV ADS 2 H
BCI	CS8 DEV ADS 4 H
BDI	CS8 PLUG EN H
BEI	CS2 EN CONTROL H
BFI	CS2 EN CYLINDER H
BHI	BP DC LO L
BJI	CS2 EN HEAD H
BKI	(NOT USED) IF8 DECODE L
BLI	IF9 SEQ SKIP L
BMI	CS2 P EN SEARCH H
BNI	CS5 SECTOR COMPARE H
BPI	CS3 SECT/INDEX L
BRI	DSII TA 8 H
BSI	DSII TA 16 H
BTI	GND
BUI	IF3 PORT A ON H
BVI	IF4 PORT B ON H

CAI	BP SN Ø1 H
CBI	BP SN Ø2 H
CCI	BP SN Ø4 H
CDI	BP SN Ø8 H
CEI	BP SN 1Ø H
CFI	BP SN 2Ø H
CHI	BP SN 4Ø H
CJI	BP SN 8Ø H
CKI	BP SN 1ØØ H
CLI	BP SN 2ØØ H
CMI	BP SN 4ØØ H
CNI	BP SN 8ØØ H
CPI	BP SN 1ØØØ H
CRI	BP SN 2ØØØ H
CSI	BP SN 4ØØØ H
CTI	GND
CUI	BP SN 8ØØØ H
CVI	SPARE

DAI	CS2 RD HDR DATA CMD H
DBI	IF5 RM SN H
DCI	IF5 RM MR 1 H
DDI	IF5 RM MR 2 H
DEI	CS8 MAINT CLK H
DFI	CS8 MAINT CLK L
DHI	CS8 MR READ DATA H
DJI	DS7 WRITE DATA L
DKI	IF6 EN REG TO TIST H
DLI	SPARE
DMI	IF8 OCCUPIED L
DNI	CS5 MBA EBL L
DPI	IF4 SEQ CLK H
DRI	IF3 REQ A H
DSI	IF4 REQ B H
DTI	GND
DUI	CS5 EN ECC CLOCK L
DVI	CS6 MB EXCEPTION L

EAI	IF9 EXC ERR H
EBI	IF9 ABORT L
ECI	SA2 RUN H
EDI	CS3 OPI SET L
EEI	CS3 WLE SET L
EFI	IF8 OFFSET MODE H
EHI	GR PROM DIS L
EJI	CS8 WRT PROT H
EKI	CS9 SEEK ERR L
ELI	CS4 POWER OK H
EMI	RDI -5V
ENI	IF8 OFF DIR H
EPI	CS4 PRECLEAR CRC/ECC L
ERI	CS5 READ GATE H
ESI	SPARE
ETI	GND
EUI	CS4 P EN LOAD SR H
EVI	CS4 DS WRITE GATE H

FAI	CS4 P HEADER AREA H
FBI	CS9 DVC SET L
FCI	CS4 P DATA AREA H
FDI	CS4 P EN CRC/ECC H
FEI	CS4 P DATA EN SCLK H
FFI	CS4 LAST READ DATA L
FHI	CS4 P EN EBL H
FJI	CS5 READ GATE FAST H
FKI	CS4 P READ GATE H
FLI	IF4 TEST BIT CLOCK H
FMI	CS4 P LFS H
FNI	IF6 ASY WRT H
FPI	CS4 P EN CRC OUT H
FRI	CS8 INDEX H
FSI	CS4 P EN ECC OUT H
FTI	GND
FUI	RDI START ENABLE H
FVI	SPARE

AA2	+5V
AB2	-15V
AC2	GND
AD2	CSI RESET H
AE2	CSI BRANCH H
AF2	CSIØ SC 1 H
AH2	CSIØ SC 2 H
AJ2	CSIØ SC 4 H
AK2	CSIØ SC 8 H
AL2	CSIØ 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	DSIØ 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 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

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	DSII TA1 H
DR2	DSII TA2 H
DS2	DSII TA4 H
DT2	CS3 MBA CLR L
DU2	SA2 REC EXC H
DV2	CS5 EN CRC CLOCK L

EA2	+5V
EB2	-15V
EC2	GND
ED2	IF6 INIT A/B L
EE2	CS8 DIAG H
EF2	CS8 DIAG L
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	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 ECC WRD CNT INH L

I/O SIGNAL LIST

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	CONTROL SEQUENCER (CS 13)		
SIZE D	CODE CS	NUMBER M7684-Ø-1	REV. S
SCALE	SHEET 13 OF 19	DIST.	

DEC PART NUMBER: 23-01601
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF IC) 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
0	000	000	310	C0	11001000
1	001	001	210	80	10001000
2	002	002	310	C0	11001000
3	003	003	310	C0	11001000
4	004	004	310	C0	11001000
5	005	005	310	C0	11001000
6	006	006	310	C0	11001000
7	007	007	310	C0	11001000
8	008	010	310	C0	11001000
9	009	011	310	C0	11001000
10	00A	012	310	C0	11001000
11	00B	013	310	C0	11001000
12	00C	014	310	C0	11001000
13	00D	015	310	C0	11001000
14	00E	016	310	C0	11001000
15	00F	017	200	80	10000000
16	010	020	200	80	10000000
17	011	021	200	80	10000000
18	012	022	200	80	10000000
19	013	023	200	80	10000000
20	014	024	200	80	10000000
21	015	025	200	80	10000000
22	016	026	200	80	10000000
23	017	027	200	80	10000000
24	018	030	200	80	10000000
25	019	031	200	80	10000000
26	01A	032	200	80	10000000
27	01B	033	200	80	10000000
28	01C	034	200	80	10000000
29	01D	035	200	80	10000000
30	01E	036	200	80	10000000
31	01F	037	200	80	10000000
32	020	040	200	80	10000000
33	021	041	200	80	10000000
34	022	042	200	80	10000000
35	023	043	200	80	10000000
36	024	044	200	80	10000000
37	025	045	200	80	10000000
38	026	046	200	80	10000000
39	027	047	200	80	10000000
40	028	050	200	80	10000000
41	029	051	200	80	10000000
42	02A	052	200	80	10000000
43	02B	053	200	80	10000000
44	02C	054	200	80	10000000
45	02D	055	200	80	10000000
46	02E	056	200	80	10000000
47	02F	057	200	80	10000000
48	030	060	200	80	10000000
49	031	061	200	80	10000000
50	032	062	200	80	10000000
51	033	063	200	80	10000000
52	034	064	200	80	10000000
53	035	065	200	80	10000000
54	036	066	200	80	10000000
55	037	067	200	80	10000000
56	038	070	200	80	10000000
57	039	071	200	80	10000000
58	03A	072	200	80	10000000
59	03B	073	200	80	10000000
60	03C	074	200	80	10000000
61	03D	075	200	80	10000000
62	03E	076	200	80	10000000
63	03F	077	200	80	10000000
64	040	100	200	80	10000000
65	041	101	200	80	10000000
66	042	102	200	80	10000000
67	043	103	200	80	10000000
68	044	104	200	80	10000000
69	045	105	200	80	10000000
70	046	106	200	80	10000000
71	047	107	200	80	10000000
72	048	110	200	80	10000000
73	049	111	200	80	10000000
74	04A	112	200	80	10000000
75	04B	113	200	80	10000000
76	04C	114	200	80	10000000
77	04D	115	200	80	10000000
78	04E	116	200	80	10000000
79	04F	117	200	80	10000000
80	050	120	200	80	10000000
81	051	121	200	80	10000000
82	052	122	200	80	10000000
83	053	123	200	80	10000000
84	054	124	200	80	10000000
85	055	125	200	80	10000000
86	056	126	200	80	10000000
87	057	127	200	80	10000000
88	058	130	200	80	10000000
89	059	131	200	80	10000000
90	05A	132	200	80	10000000
91	05B	133	200	80	10000000
92	05C	134	200	80	10000000
93	05D	135	200	80	10000000
94	05E	136	200	80	10000000
95	05F	137	200	80	10000000
96	060	140	200	80	10000000
97	061	141	200	80	10000000
98	062	142	200	80	10000000
99	063	143	200	80	10000000
100	064	144	200	80	10000000
101	065	145	200	80	10000000
102	066	146	200	80	10000000
103	067	147	200	80	10000000
104	068	150	200	80	10000000
105	069	151	200	80	10000000
106	06A	152	200	80	10000000
107	06B	153	200	80	10000000
108	06C	154	200	80	10000000
109	06D	155	200	80	10000000
110	06E	156	200	80	10000000
111	06F	157	200	80	10000000
112	070	160	200	80	10000000
113	071	161	200	80	10000000
114	072	162	200	80	10000000
115	073	163	200	80	10000000
116	074	164	200	80	10000000
117	075	165	200	80	10000000
118	076	166	200	80	10000000
119	077	167	200	80	10000000
120	078	170	200	80	10000000
121	079	171	200	80	10000000
122	07A	172	200	80	10000000
123	07B	173	200	80	10000000
124	07C	174	200	80	10000000
125	07D	175	200	80	10000000
126	07E	176	200	80	10000000
127	07F	177	200	80	10000000

DEC PART NUMBER: 23-01601
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF IC) 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
128	080	200	350	E8	11101000
129	081	201	350	E8	11101000
130	082	202	112	4A	01001010
131	083	203	310	C0	11001000
132	084	204	300	C0	11000000
133	085	205	300	C0	11000000
134	086	206	300	C0	11000000
135	087	207	300	C0	11000000
136	088	210	300	C0	11000000
137	089	211	300	C0	11000000
138	08A	212	300	C0	11000000
139	08B	213	300	C0	11000000
140	08C	214	200	80	10000000
141	08D	215	200	80	10000000
142	08E	216	200	80	10000000
143	08F	217	200	80	10000000
144	090	220	200	80	10000000
145	091	221	200	80	10000000
146	092	222	200	80	10000000
147	093	223	200	80	10000000
148	094	224	200	80	10000000
149	095	225	200	80	10000000
150	096	226	200	80	10000000
151	097	227	200	80	10000000
152	098	230	200	80	10000000
153	099	231	200	80	10000000
154	09A	232	200	80	10000000
155	09B	233	200	80	10000000
156	09C	234	200	80	10000000
157	09D	235	200	80	10000000
158	09E	236	200	80	10000000
159	09F	237	200	80	10000000
160	0A0	240	200	80	10000000
161	0A1	241	320	D0	11010000
162	0A2	242	320	D0	11010000
163	0A3	243	320	D0	11010000
164	0A4	244	320	D0	11010000
165	0A5	245	320	D0	11010000
166	0A6	246	320	D0	11010000
167	0A7	247	320	D0	11010000
168	0A8	250	320	D0	11010000
169	0A9	251	320	D0	11010000
170	0AA	252	320	D0	11010000
171	0AB	253	320	D0	11010000
172	0AC	254	320	D0	11010000
173	0AD	255	320	D0	11010000
174	0AE	256	320	D0	11010000
175	0AF	257	320	D0	11010000
176	0B0	260	320	D0	11010000
177	0B1	261	320	D0	11010000
178	0B2	262	320	D0	11010000
179	0B3	263	320	D0	11010000
180	0B4	264	320	D0	11010000
181	0B5	265	320	D0	11010000
182	0B6	266	320	D0	11010000
183	0B7	267	320	D0	11010000
184	0B8	270	320	D0	11010000
185	0B9	271	320	D0	11010000
186	0BA	272	320	D0	11010000
187	0BB	273	320	D0	11010000
188	0BC	274	320	D0	11010000
189	0BD	275	320	D0	11010000
190	0BE	276	320	D0	11010000
191	0BF	277	320	D0	11010000
192	0C0	300	320	D0	11010000
193	0C1	301	320	D0	11010000
194	0C2	302	320	D0	11010000
195	0C3	303	320	D0	11010000
196	0C4	304	320	D0	11010000
197	0C5	305	320	D0	11010000
198	0C6	306	320	D0	11010000
199	0C7	307	320	D0	11010000
200	0C8	310	320	D0	11010000
201	0C9	311	320	D0	11010000
202	0CA	312	320	D0	11010000
203	0CB	313	320	D0	11010000
204	0CC	314	320	D0	11010000
205	0CD	315	320	D0	11010000
206	0CE	316	320	D0	11010000
207	0CF	317	320	D0	11010000
208	0D0	320	320	D0	11010000
209	0D1	321	320	D0	11010000
210	0D2	322	320	D0	11010000
211	0D3	323	320	D0	11010000
212	0D4	324	320	D0	11010000
213	0D5	325	320	D0	11010000
214	0D6	326	320	D0	11010000
215	0D7	327	320	D0	11010000
216	0D8	330	320	D0	11010000
217	0D9	331	320	D0	11010000
218	0DA	332	320	D0	11010000
219	0DB	333	320	D0	11010000
220	0DC	334	320	D0	11010000
221	0DD	335	320	D0	11010000
222	0DE	336	320	D0	11010000
223	0DF	337	320	D0	11010000
224	0E0	340	320	D0	11010000
225	0E1	341	320	D0	11010000
226	0E2	342	320	D0	11010000
227	0E3	343	320	D0	11010000
228	0E4	344	320	D0	11010000
229	0E5	345	320	D0	11010000
230	0E6	346	320	D0	11010000
231	0E7	347	320	D0	11010000
232	0E8	350	320	D0	11010000
233	0E9	351	320	D0	11010000
234	0EA	352	320	D0	11010000
235	0EB	353	320	D0	11010000
236	0EC	354	320	D0	11010000
237	0ED	355	320	D0	11010000
238	0EE	356	320	D0	11010000
239	0EF	357	320	D0	11010000
240	0F0	360	320	D0	11010000
241	0F1	361	320	D0	11010000
242	0F2	362	320	D0	11010000
243	0F3	363	320	D0	11010000
244	0F4	364	320	D0	11010000
245	0F5	365	320	D0	11010000
246	0F6	366	320	D0	11010000
247	0F7	367	320	D0	11010000
248	0F8	370	320	D0	11010000
249	0F9	371	320	D0	11010000
250	0FA	372	320	D0	11010000
251	0FB	373	320	D0	11010000
252	0FC	374	320	D0	11010000
253	0FD	375	320	D0	11010000
254	0FE	376	320	D0	11010000
255	0FF	377	320	D0	11010000

DEC PART NUMBER: 23-01601
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF IC) 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
256	100	400	320	D0	11010000
257	101	401	320	D0	11010000
258	102	402	320	D0	11010000
259	103	403	320	D0	11010000
260	104	404	320	D0	11010000
261	105	405	320	D0	11010000
262	106	406	320	D0	11010000
263	107	407	320	D0	11010000
264	108	410	320	D0	11010000
265	109	411	320	D0	11010000
266	10A	412	320	D0	11010000
267	10B	413	320	D0	11010000
268	10C	414	320	D0	11010000
269	10D	415	320	D0	11010000
270	10E	416	320	D0	11010000
271	10F	417	320	D0	11010000
272	110	420	320	D0	11010000
273	111	421	320	D0	11010000
274	112	422	320	D0	11010000
275	113	423	320	D0	11010000
276	114	424	320	D0	11010000
277	115	425	320	D0	11010000
278	116	426	320	D0	11010000
279	117	427	320	D0	11010000
280	118	430	320	D0	11010000
281	119	431	320	D0	11010000
282	11A	432	320	D0	11010000
283	11B	433	320	D0	11010000
284	11C	434	320	D0	11010000
285	11D	435	320	D0	11010000
286	11E	436	320	D0	11010000
287	11F	437	320	D0	11010000
288	120	440	320	D0	11010000
289	121	441	320	D0	11010000
290	122	442	320	D0	11010000
291	123	443	320	D0	11010000
292	124	444	320	D0	11010000
293	125	445	320	D0	11010000
294	126	446	320	D0	11010000
295	127	447	320	D0	11010000
296	128	450	320	D0	11010000
297	129	451	320	D0	11010000
298	12A	452	320	D0	11010000
299	12B	453	320	D0	11010000
300	12C	454	320	D0	11010000
301	12D	455	320	D0	11010000
302	12E	456	320	D0	11010000
303	12F	457	320	D0	11010000
304	130	460	320	D0	11010000
305	131	461	320	D0	11010000
306	132	462	320	D0	11010000
307	133	463	320	D0	11010000
308	134	464	320	D0	11010000
309	135	465	320	D0	11010000
310	136	466	320	D0	11010000
311	137	467	320	D0	11010000
312	138	470	320	D0	11010000
313	139	471	320	D0	11010000
314	13A	472	320	D0	11010000
315	13B	473	320	D0	11010000
316	13C	474	320	D0	11010000
317	13D	475	320	D0	11010000
318	13E	476	320	D0	11010000
319	13F	477	320	D0	11010000
320	140	500	320	D0	11010000
321	141	501	320	D0	11010000
322	142	502	320	D0	11010000
323	143	503	320	D0	11010000
324	144	504	320	D0	11010000
325	145	505	320	D0	11010000
326	146	506	320	D0	11010000
327	147	507	320	D0	11010000
328	148	510	320	D0	11010000
329	149	511	320	D0	11010000
330	14A	512	320	D0	11010000
331	14B	513	320	D0	11010000
332	14C	514	320	D0	11010000
333	14D	515	320	D0	11010000
334	14E	516	320	D0	11010000
335	14F	517	320	D0	11010000
336	150	520	320	D0	11010000
337	151	521	320	D0	11010000
338	152	522	320	D0	11010000
339	153	523	320	D0	11010000
340	154	524	320	D0	11010000
341	155	525	320	D0	11010000
342	156	526	320	D0	11010000
343	157	527	320	D0	11010000
344	158	530	320	D0	11010000
345	159	531	320	D0	11010000
346	15A	532	320	D0	11010000
347	15B	533	320	D0	11010000
348	15C	534	320	D0	11010000
349	15D	535	320	D0	11010000
350	15E	536	320	D0	11010000
351	15F	537	320	D0	11010000
352	160	540	320	D0	11010000
353	161	541	320	D0	11010000
354	162	542	320	D0	11010000
355	163	543	320	D0	11010000
356	164	544	320	D0	11010000
357	165	545	320	D0	11010000
358	166	546	320	D0	11010000
359	167	547	320	D0	11010000
360	168	550	320	D0	11010000
361	169	551	320	D0	11010000
362	16A	552	320	D0	11010000
363	16B	553	320	D0	11010000
364	16C	554	320	D0	11010000
365	16D	555	320	D0	11010000
366	16E	556	320	D0	11010000
367	16F	557	320	D0	11010000
368	170	560	320	D0	11010000
369	171	561	320	D0	11010000
370	172	562	320	D0	11010000
371	173	563	320	D0	11010000
372	174	564	320	D0	11010000
373	175	565	320	D0	11010000
374	176	566	320	D0	11010000
375	177	567	320	D0	11010000
376	178	570	320	D0	11010000
377	179	571	320	D0	11010000
378	17A	572	320	D0	11010000
379	17B	573	320	D0	11010000
380	17C	574	320	D0	11010000
381	17D	575	320	D0	11010000
382	17E	576	320	D0	11010000
383	17F	577	320	D0	11010000

DEC PART NUMBER: 23-01601
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF IC) 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
384	180	600	320	D0	11010000
385	181	601	320	D0	11010000
386	182	602	320	D0	11010000
387	183	603	320	D0	11010000
388	184	604	320	D0	11010000
389	185	605	320	D0	11010000
390	186	606	320	D0	11010000
391	187	607	320	D0	11010000
392	188	610	320	D0	11010000
393	189	611	320	D0	11010000
394	18A	612	320	D0	11010000
395	188	613	320	D0	11010000
396	18C	614	320	D0	11010000
397	18D	615	320	D0	11010000
398	18E	616	320	D0	11010000
399	18F	617	320	D0	11010000
400	190	620	320	D0	11010000
401	191	621	320	D0	11010000
402	192	622	320	D0	11010000
403	193	623	320	D0	11010000
404	194	624	320	D0	11010000
405	195	625	320	D0	11010000
406	196	626	320	D0	11010000
407	197	627	320	D0	11010000
408	198	630	320	D0	11010000
409	199	631	320	D0	11010000
410	19A	632	320	D0	11010000
411	19B	633	320	D0	11010000
412	19C	634	320	D0	11010000
413	190	635	320	D0	11010000
414	19E	636	320	D0	11010000
415	19F	637	320	D0	11010000
416	1A0	640	320	D0	11010000
417	1A1	641	301	C1	11000001
418	1A2	642	301	C1	11000001
419	1A3	643	304	C4	11000100
420	1A4	644	300	C0	11000000
421	1A5	645	300	C0	11000000
422	1A6	646	300	C0	11000000
423	1A7	647	300	C0	11000000
424	1A8	650	300	C0	11000000
425	1A9	651	300	C0	11000000
426	1AA	652	300	C0	11000000
427	1AB	653	300	C0	11000000
428	1AC	654	300	C0	11000000
429	1AD	655	300	C0	11000000
430	1AE	656	300	C0	11000000
431	1AF	657	300	C0	11000000
432	1B0	660	300	C0	11000000
433	1B1	661	300	C0	11000000
434	1B2	662	300	C0	11000000
435	1B3	663	300	C0	11000000
436	1B4	664	300	C0	11000000
437	1B5	665	300	C0	11000000
438	1B6	666	300	C0	11000000
439	1B7	667	300	C0	11000000
440	1B8	670	300	C0	11000000
441	1B9	671	300	C0	11000000
442	1BA	672	300	C0	11000000
443	1BB	673	300	C0	11000000
444	1BC	674	300	C0	11000000
445	1BD	675	300	C0	11000000
446	1BE	676	300	C0	11000000
447	1BF	677	300	C0	11000000
448	1C0	700	300	C0	11000000
449	1C1	701	300	C0	11000000
450	1C2	702	300	C0	11000000
451	1C3	703	300	C0	11000000
452	1C4	704	300	C0	11000000
453	1C5	705	300	C0	11000000
454	1C6	706	300	C0	11000000
455	1C7	707	300	C0	11000000
456	1C8	710	300	C0	11000000
457	1C9	711	300	C0	11000000
458	1CA	712	300	C0	11000000
459	1CB	713	300	C0	11000000
460	1CC	714	300	C0	11000000
461	1CD	715	300	C0	11000000
462	1CE	716	300	C0	11000000
463	1CF	717	300	C0	11000000
464	1D0	720	300	C0	11000000
465	1D1	721	300	C0	11000000
466	1D2	722	300	C0	11000000
467	1D3	723	300	C0	11000000
468	1D4	724	300	C0	11000000
469	1D5	725	300	C0	11000000
470	1D6	726	300	C0	11000000
471	1D7	727	300	C0	11000000
472	1D8	730	300	C0	11000000
473	1D9	731	300	C0	11000000
474	1DA	732	300	C0	11000000
475	1DB	733	300	C0	11000000
476	1DC	734	300	C0	11000000
477	1DD	735	300	C0	11000000
478	1DE	736	300	C0	11000000
479	1DF	737	300	C0	11000000
480	1E0	740	300	C0	11000000
481	1E1	741	300	C0	11000000
482	1E2	742	300	C0	11000000
483	1E3	743	300	C0	11000000
484	1E4	744	300	C0	11000000
485	1E5	745	300	C0	11000000
486	1E6	746	300	C0	11000000
487	1E7	747	300	C0	11000000
488	1E8	750	300	C0	11000000
489	1E9	751	300	C0	11000000
490	1EA	752	300	C0	11000000
491	1EB	753	300	C0	11000000
492	1EC	754	300	C0	11000000
493	1ED	755	300	C0	11000000
494	1EE	756	300	C0	11000000
495	1EF	757	300	C0	11000000
496	1F0	760	300	C0	11000000
497	1F1	761	300	C0	11000000
498	1F2	762	300	C0	11000000
499	1F3	763	300	C0	11000000
500	1F4	764	300	C0	11000000
501	1F5	765	300	C0	11000000
502	1F6	766	300	C0	11000000
503	1F7	767	300	C0	11000000
504	1F8	770	300	C0	11000000
505	1F9	771	300	C0	11000000
506	1FA	772	300	C0	11000000
507	1FB	773	300	C0	11000000
508	1FC	774	300	C0	11000000
509	1FD	775	300	C0	11000000
510	1FE	776	300	C0	11000000
511	1FF	777	300	C0	11000000

COMMON READ/WRITE CONTROLS PROM AT E 72 (CS4)

TITLE
512 X 8
ROM/PROM PATTERN SPEC
23-01601

REVISIONS		
CHK	CHANGE NO.	REV.

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

M7684-0-1 S

DEC PART NUMBER: 23-016D1 ORIGINATOR: IRENE BELLETTIERE BINARY DATA "1" = HIGH SHEET 1 OF 4
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF 3C) DATE ORIGINATED: 5-4-77 BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	BIN DAT
0	000	000	310	C8	11001000
1	001	001	210	88	10001000
2	002	002	310	C8	11001000
3	003	003	310	C8	11001000
4	004	004	310	C8	11001000
5	005	005	310	C8	11001000
6	006	006	310	C8	11001000
7	007	007	310	C8	11001000
8	008	010	310	C8	11001000
9	009	011	310	C8	11001000
10	00A	012	310	C8	11001000
11	00B	013	310	C8	11001000
12	00C	014	310	C8	11001000
13	00D	015	310	C8	11001000
14	00E	016	310	C8	11001000
15	00F	017	200	80	10000000
16	010	020	200	80	10000000
17	011	021	200	80	10000000
18	012	022	200	80	10000000
19	013	023	200	80	10000000
20	014	024	200	80	10000000
21	015	025	200	80	10000000
22	016	026	200	80	10000000
23	017	027	200	80	10000000
24	018	030	200	80	10000000
25	019	031	200	80	10000000
26	01A	032	200	80	10000000
27	01B	033	200	80	10000000
28	01C	034	200	80	10000000
29	01D	035	200	80	10000000
30	01E	036	200	80	10000000
31	01F	037	200	80	10000000
32	020	040	200	80	10000000
33	021	041	200	80	10000000
34	022	042	200	80	10000000
35	023	043	200	80	10000000
36	024	044	200	80	10000000
37	025	045	200	80	10000000
38	026	046	200	80	10000000
39	027	047	200	80	10000000
40	028	050	200	80	10000000
41	029	051	200	80	10000000
42	02A	052	200	80	10000000
43	02B	053	200	80	10000000
44	02C	054	200	80	10000000
45	02D	055	200	80	10000000
46	02E	056	200	80	10000000
47	02F	057	200	80	10000000
48	030	060	200	80	10000000
49	031	061	200	80	10000000
50	032	062	200	80	10000000
51	033	063	200	80	10000000
52	034	064	200	80	10000000
53	035	065	200	80	10000000
54	036	066	200	80	10000000
55	037	067	200	80	10000000
56	038	070	200	80	10000000
57	039	071	200	80	10000000
58	03A	072	200	80	10000000
59	03B	073	200	80	10000000
60	03C	074	200	80	10000000
61	03D	075	200	80	10000000
62	03E	076	200	80	10000000
63	03F	077	200	80	10000000
64	040	100	200	80	10000000
65	041	101	200	80	10000000
66	042	102	200	80	10000000
67	043	103	200	80	10000000
68	044	104	200	80	10000000
69	045	105	200	80	10000000
70	046	106	200	80	10000000
71	047	107	200	80	10000000
72	048	110	200	80	10000000
73	049	111	200	80	10000000
74	04A	112	200	80	10000000
75	04B	113	200	80	10000000
76	04C	114	200	80	10000000
77	04D	115	200	80	10000000
78	04E	116	200	80	10000000
79	04F	117	200	80	10000000
80	050	120	200	80	10000000
81	051	121	200	80	10000000
82	052	122	200	80	10000000
83	053	123	200	80	10000000
84	054	124	200	80	10000000
85	055	125	200	80	10000000
86	056	126	200	80	10000000
87	057	127	200	80	10000000
88	058	130	200	80	10000000
89	059	131	200	80	10000000
90	05A	132	200	80	10000000
91	05B	133	200	80	10000000
92	05C	134	200	80	10000000
93	05D	135	200	80	10000000
94	05E	136	200	80	10000000
95	05F	137	200	80	10000000
96	060	140	200	80	10000000
97	061	141	200	80	10000000
98	062	142	200	80	10000000
99	063	143	200	80	10000000
100	064	144	200	80	10000000
101	065	145	200	80	10000000
102	066	146	200	80	10000000
103	067	147	200	80	10000000
104	068	150	200	80	10000000
105	069	151	200	80	10000000
106	06A	152	200	80	10000000
107	06B	153	200	80	10000000
108	06C	154	200	80	10000000
109	06D	155	200	80	10000000
110	06E	156	200	80	10000000
111	06F	157	200	80	10000000
112	070	160	200	80	10000000
113	071	161	200	80	10000000
114	072	162	200	80	10000000
115	073	163	200	80	10000000
116	074	164	200	80	10000000
117	075	165	200	80	10000000
118	076	166	200	80	10000000
119	077	167	200	80	10000000
120	078	170	200	80	10000000
121	079	171	200	80	10000000
122	07A	172	200	80	10000000
123	07B	173	200	80	10000000
124	07C	174	200	80	10000000
125	07D	175	200	80	10000000
126	07E	176	200	80	10000000
127	07F	177	200	80	10000000

DEC PART NUMBER: 23-016D1 ORIGINATOR: IRENE BELLETTIERE BINARY DATA "1" = HIGH SHEET 2 OF 4
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF 3C) DATE ORIGINATED: 5-4-77 BINARY DATA "0" = LOW

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

DEC PART NUMBER: 23-016D1 ORIGINATOR: IRENE BELLETTIERE BINARY DATA "1" = HIGH SHEET 3 OF 4
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF 3C) DATE ORIGINATED: 5-4-77 BINARY DATA "0" = LOW

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

DEC PART NUMBER: 23-016D1 ORIGINATOR: IRENE BELLETTIERE BINARY DATA "1" = HIGH SHEET 4 OF 4
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF 3C) DATE ORIGINATED: 5-4-77 BINARY DATA "0" = LOW

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

COMMON READ/WRITE CONTROLS PROM AT E 72 (CS4)

TITLE
512 X 8
ROM/PROM PATTERN SPEC
23-016D1

REVISIONS		
CHK	CHANGE NO.	REV.

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

M7684-0-1 REV S

DEC PART NUMBER: 23-01701 ORIGINATOR: IRENE PELLETTIERE BINARY DATA "1" = HIGH SHEET 1 OF 4
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF 3C) DATE ORIGINATED: 5-4-77 BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	BIN DAT
0	000	000	105	45	01000101
1	001	001	105	45	01000101
2	002	002	105	45	01000101
3	003	003	105	45	01000101
4	004	004	105	45	01000101
5	005	005	105	45	01000101
6	006	006	105	45	01000101
7	007	007	105	45	01000101
8	008	010	105	45	01000101
9	009	011	105	45	01000101
10	00A	012	105	45	01000101
11	00B	013	105	45	01000101
12	00C	014	105	45	01000101
13	00D	015	105	45	01000101
14	00E	016	163	73	01110011
15	00F	017	004	04	00000100
16	010	020	004	04	00000100
17	011	021	004	04	00000100
18	012	022	004	04	00000100
19	013	023	004	04	00000100
20	014	024	004	04	00000100
21	015	025	004	04	00000100
22	016	026	004	04	00000100
23	017	027	004	04	00000100
24	018	030	004	04	00000100
25	019	031	004	04	00000100
26	01A	032	004	04	00000100
27	01B	033	004	04	00000100
28	01C	034	004	04	00000100
29	01D	035	004	04	00000100
30	01E	036	004	04	00000100
31	01F	037	004	04	00000100
32	020	040	004	04	00000100
33	021	041	004	04	00000100
34	022	042	004	04	00000100
35	023	043	004	04	00000100
36	024	044	004	04	00000100
37	025	045	004	04	00000100
38	026	046	004	04	00000100
39	027	047	004	04	00000100
40	028	050	004	04	00000100
41	029	051	004	04	00000100
42	02A	052	004	04	00000100
43	02B	053	004	04	00000100
44	02C	054	004	04	00000100
45	02D	055	004	04	00000100
46	02E	056	004	04	00000100
47	02F	057	004	04	00000100
48	030	060	004	04	00000100
49	031	061	004	04	00000100
50	032	062	004	04	00000100
51	033	063	004	04	00000100
52	034	064	004	04	00000100
53	035	065	004	04	00000100
54	036	066	004	04	00000100
55	037	067	004	04	00000100
56	038	070	004	04	00000100
57	039	071	004	04	00000100
58	03A	072	004	04	00000100
59	03B	073	004	04	00000100
60	03C	074	004	04	00000100
61	03D	075	004	04	00000100
62	03E	076	004	04	00000100
63	03F	077	004	04	00000100
64	040	100	004	04	00000100
65	041	101	004	04	00000100
66	042	102	004	04	00000100
67	043	103	004	04	00000100
68	044	104	004	04	00000100
69	045	105	004	04	00000100
70	046	106	004	04	00000100
71	047	107	004	04	00000100
72	048	110	004	04	00000100
73	049	111	004	04	00000100
74	04A	112	004	04	00000100
75	04B	113	004	04	00000100
76	04C	114	004	04	00000100
77	04D	115	004	04	00000100
78	04E	116	004	04	00000100
79	04F	117	004	04	00000100
80	050	120	004	04	00000100
81	051	121	004	04	00000100
82	052	122	004	04	00000100
83	053	123	004	04	00000100
84	054	124	004	04	00000100
85	055	125	004	04	00000100
86	056	126	004	04	00000100
87	057	127	004	04	00000100
88	058	130	004	04	00000100
89	059	131	004	04	00000100
90	05A	132	004	04	00000100
91	05B	133	004	04	00000100
92	05C	134	004	04	00000100
93	05D	135	004	04	00000100
94	05E	136	004	04	00000100
95	05F	137	004	04	00000100
96	060	140	004	04	00000100
97	061	141	004	04	00000100
98	062	142	004	04	00000100
99	063	143	004	04	00000100
100	064	144	004	04	00000100
101	065	145	004	04	00000100
102	066	146	004	04	00000100
103	067	147	004	04	00000100
104	068	150	004	04	00000100
105	069	151	004	04	00000100
106	06A	152	004	04	00000100
107	06B	153	004	04	00000100
108	06C	154	004	04	00000100
109	06D	155	004	04	00000100
110	06E	156	004	04	00000100
111	06F	157	004	04	00000100
112	070	160	004	04	00000100
113	071	161	004	04	00000100
114	072	162	004	04	00000100
115	073	163	004	04	00000100
116	074	164	004	04	00000100
117	075	165	004	04	00000100
118	076	166	004	04	00000100
119	077	167	004	04	00000100
120	078	170	004	04	00000100
121	079	171	004	04	00000100
122	07A	172	004	04	00000100
123	07B	173	004	04	00000100
124	07C	174	004	04	00000100
125	07D	175	004	04	00000100
126	07E	176	004	04	00000100
127	07F	177	004	04	00000100

DEC PART NUMBER: 23-01701 ORIGINATOR: IRENE PELLETTIERE BINARY DATA "1" = HIGH SHEET 2 OF 4
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF 3C) DATE ORIGINATED: 5-4-77 BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	BIN DAT
128	080	200	127	57	01010111
129	081	201	127	57	01010111
130	082	202	127	57	01010111
131	083	203	127	57	01010111
132	084	204	127	57	01010111
133	085	205	127	57	01010111
134	086	206	127	57	01010111
135	087	207	127	57	01010111
136	088	210	127	57	01010111
137	089	211	127	57	01010111
138	08A	212	127	57	01010111
139	08B	213	127	57	01010111
140	08C	214	127	57	01010111
141	08D	215	127	57	01010111
142	08E	216	127	57	01010111
143	08F	217	127	57	01010111
144	090	220	127	57	01010111
145	091	221	127	57	01010111
146	092	222	127	57	01010111
147	093	223	127	57	01010111
148	094	224	127	57	01010111
149	095	225	127	57	01010111
150	096	226	127	57	01010111
151	097	227	127	57	01010111
152	098	230	127	57	01010111
153	099	231	127	57	01010111
154	09A	232	127	57	01010111
155	09B	233	127	57	01010111
156	09C	234	127	57	01010111
157	09D	235	127	57	01010111
158	09E	236	127	57	01010111
159	09F	237	127	57	01010111
160	0A0	240	004	04	00000100
161	0A1	241	127	57	01010111
162	0A2	242	127	57	01010111
163	0A3	243	127	57	01010111
164	0A4	244	127	57	01010111
165	0A5	245	127	57	01010111
166	0A6	246	127	57	01010111
167	0A7	247	127	57	01010111
168	0A8	250	127	57	01010111
169	0A9	251	127	57	01010111
170	0AA	252	127	57	01010111
171	0AB	253	127	57	01010111
172	0AC	254	127	57	01010111
173	0AD	255	127	57	01010111
174	0AE	256	127	57	01010111
175	0AF	257	127	57	01010111
176	0B0	260	127	57	01010111
177	0B1	261	127	57	01010111
178	0B2	262	127	57	01010111
179	0B3	263	127	57	01010111
180	0B4	264	127	57	01010111
181	0B5	265	127	57	01010111
182	0B6	266	127	57	01010111
183	0B7	267	127	57	01010111
184	0B8	270	127	57	01010111
185	0B9	271	127	57	01010111
186	0BA	272	127	57	01010111
187	0BB	273	127	57	01010111
188	0BC	274	127	57	01010111
189	0BD	275	127	57	01010111
190	0BE	276	127	57	01010111
191	0BF	277	127	57	01010111
192	0C0	300	127	57	01010111
193	0C1	301	127	57	01010111
194	0C2	302	127	57	01010111
195	0C3	303	127	57	01010111
196	0C4	304	127	57	01010111
197	0C5	305	127	57	01010111
198	0C6	306	127	57	01010111
199	0C7	307	127	57	01010111
200	0C8	310	127	57	01010111
201	0C9	311	127	57	01010111
202	0CA	312	127	57	01010111
203	0CB	313	127	57	01010111
204	0CC	314	127	57	01010111
205	0CD	315	127	57	01010111
206	0CE	316	127	57	01010111
207	0CF	317	127	57	01010111
208	0D0	320	127	57	01010111
209	0D1	321	127	57	01010111
210	0D2	322	127	57	01010111
211	0D3	323	127	57	01010111
212	0D4	324	127	57	01010111
213	0D5	325	127	57	01010111
214	0D6	326	127	57	01010111
215	0D7	327	127	57	01010111
216	0D8	330	127	57	01010111
217	0D9	331	127	57	01010111
218	0DA	332	127	57	01010111
219	0DB	333	127	57	01010111
220	0DC	334	127	57	01010111
221	0DD	335	127	57	01010111
222	0DE	336	127	57	01010111
223	0DF	337	127	57	01010111
224	0E0	340	127	57	01010111
225	0E1	341	127	57	01010111
226	0E2	342	127	57	01010111
227	0E3	343	127	57	01010111
228	0E4	344	127	57	01010111
229	0E5	345	127	57	01010111
230	0E6	346	127	57	01010111
231	0E7	347	127	57	01010111
232	0E8	350	127	57	01010111
233	0E9	351	127	57	01010111
234	0EA	352	127	57	01010111
235	0EB	353	127	57	01010111
236	0EC	354	127	57	01010111
237	0ED	355	127	57	01010111
238	0EE	356	127	57	01010111
239	0EF	357	127	57	01010111
240	0F0	360	127	57	01010111
241	0F1	361	127	57	01010111
242	0F2	362	127	57	01010111
243	0F3	363	127	57	01010111
244	0F4	364	127	57	01010111
245	0F5	365	127	57	01010111
246	0F6	366	127	57	01010111
247	0F7	367	127	57	01010111
248	0F8	370	127	57	01010111
249	0F9	371	127	57	01010111
250	0FA	372	127	57	01010111
251	0FB	373	127	57	01010111
252	0FC	374	127	57	01010111
253	0FD	375	127	57	01010111
254	0FE	376	127	57	01010111
255	0FF	377	127	57	01010111

DEC PART NUMBER: 23-01701 ORIGINATOR: IRENE PELLETTIERE BINARY DATA "1" = HIGH SHEET 3 OF 4
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF 3C) DATE ORIGINATED: 5-4-77 BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	BIN DAT
256	100	400	127	57	01010111
257	101	401	127	57	01010111
258	102	402	127	57	01010111
259	103	403	127	57	01010111
260	104	404	127	57	01010111
261	105	405	127	57	01010111
262	106	406	127	57	01010111
263	107	407	127	57	01010111
264	108	410	127	57	01010111
265	109	411	127	57	01010111
266	10A	412	127	57	01010111
267	10B	413	127	57	01010111
268	10C	414	127	57	01010111
269	10D	415	127	57	01010111
270	10E	416	127	57	01010111
271	10F	417	127	57	01010111
272	110	420	127	57	01010111
273	111	421	127	57	01010111
274	112	422	127	57	01010111
275	113	423	127	57	01010111
276	114	424	127	57	01010111
277	115	425	127	57	01010111
278	116	426	127	57	01010111
279	117	427	127	57	01010111
280	118	430	127	57	01010111
281	119	431	127	57	01010111
282	11A	432	127	57	01010111
283	11B	433	127	57	01010111
284	11C	434	127	57	01010111
285	11D	435	127	57	01010111
286	11E	436	127	57	01010111
287	11F	437	127	57	01010111
288	120	440	127	57	01010111
289	121	441	127	57	01010111
290	122	442	127	57	01010111
291	123	443	127	57	01010111
292	124	444	127	57	01010111
293	125	445	127	57	01010111
294	126	446	127	57	01010111
295	127	447	127	57	01010111
296	128	450	127	57	01010111
297	129	451	127	57	01010111
298	12A	452	127	57	01010111
299	12B	453	127	57	01010111
300	12C	454	127	57	01010111
301	12D	455	127	57	01010111
302	12E	456	127	57	01010111
303	12F	457	127	57	01010111
304	130	460	127	57	01010111
305	131	461	127	57	01010111
306	132	462	127	57	01010111
307	133	463	127	57	01010111
308	134	464	127	57	01010111
309	135	465	127	57	01010111
310	136	466	127	57	01010111
311	137	467	127	57	01010111
312	138	470	127	57	01010111
313	139	471	127	57	01010111
314	13A	472	127	57	01010111
315	13B	473	127	57	01010111
316	13C	474	127	57	01010111
317	13D	475	127	57	01010111
318	13E	476	127	57	01010111
319	13F	477	127	57	01010111
320	140	500	127	57	01010111
321	141	501	127	57	01010111
322	142	502	127	57	01010111
323	143	503	127	57	01010111
324	144	504	127	57	01010111
325	145	505	127	57	01010111
326	146	506	127	57	01010111
327	147	507	127	57	01010111
328	148	510	127	57	01010111
329	149	511	127	57	01010111
330	14A	512	127	57	01010111
331	14B	513	127	57	01010111
332	14C	514	127	57	01010111
333	14D	515	127	57	01010111
334	14E	516	127	57	01010111
335	14F	517	127	57	01010111
336	150	520	127	57	01010111
337	151	521	127	57	01010111
338	152	522	127	57	01010111
339	153	523	127	57	01010111
340	154	524	127	57	01010111
341	155	525	127	57	01010111
342	156	526	127	57	01010111
343	157	527	127	57	01010111
344	158	530	127	57	01010111
345	159	531	127	57	01010111
346	15A	532	127	57	01010111
347	15B	533	127	57	01010111
348	15C	534	127	57	01010111
349	15D	535	127	57	01010111
350	15E	536	127	57	01010111
351	15F	537	127	57	01010111
352	160	540	127	57	01010111
353	161	541	127	57	01010111
354	162	542	127	57	01010111
355	163	543	127	57	01010111
356	164	544	127	57	01010111
357	165	545	127	57	01010111
358	166	546	127	57	01010111
359	167	547	127	57	01010111
360	168	550	127	57	01010111
361	169	551	127	57	01010111
362	16A	552	127	57	01010111
363	16B	553	127	57	01010111
364	16C	554	127	57	01010111
365	16D	555	127	57	01010111
366	16E	556	127	57	01010111
367	16F	557	127	57	01010111
368	170	560	127	57	01010111
369	171	561	127	57	01010111
370	172	562	127	57	01010111
371	173	563	127	57	01010111
372	174	564	127	57	01010111
373	175	565	127	57	01010111
374	176	566	127	57	01010111
375	177	567	127	57	01010111
376	178	570	127	57	01010111
377	179	571	127	57	01010111
378	17A	572	127	57	01010111
379	17B	573	127	57	01010111
380	17C	574	127	57	01010111
381	17D	575	127	57	01010111
382	17E	576	127	57	01010111
383	17F	577	127	57	01010111

DEC PART NUMBER: 23-01701 ORIGINATOR: IRENE PELLETTIERE BINARY DATA "1" = HIGH SHEET 4 OF 4
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF 3C) DATE ORIGINATED: 5-4-77 BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX BIN DAT	BIN DAT
384	180	600	127	57	01010111
385	181	601	127	57	01010111
386	182	602	127	57	01010111
387	183	603	127	57	01010111
388	184	604	127	57	01010111
389	185	605	127	57	01010111
390	186	606	127	57	01010111
391	187	607	127	57	01010111
392	188	610	127	57	01010111
393	189	611	127	57	01010111
394	18A	612	127	57	01010111
395	18B	613	127	57	01010111
396	18C	614	127	57	01010111
397	18D	615	127	57	01010111
398	18E	616	127	57	01010111
399	18F	617	127	57	01010111
400	190	620	127	57	01010111
401	191	621	127	57	01010111
402	192	622	127	57	01010111
403	193	623	127	57	01010111
404	194	624	127	57	01010111
405	195	625	127	57	01010111
406	196	626	127	57	01010111
407	197	627	127	57	01010111
408	198	630	127	57	01010111
409	199	631	127	57	01010111
410	19A	632	127	57	01010111
411	19B	633	127	57	01010111
412	19C	634	127	57	01010111
413	19D	635	127	57	01010111
414	19E	636	127	57	01010111
415	19F	637	127	57	01010111
416	1A0	640	127	57	01010111
417	1A1	641	127	57	01010111
418	1A2	642	127	57	01010111
419	1A3	643	127	57	01010111
420	1A4	644	127	57	01010111
421	1A5	645	127	57	01010111
422	1A6	646	127	57	01010111
423	1A7	647	127	57	01010111
424	1A8	650	127	57	01010111
425	1A9	651	127	57	01010111
426	1AA	652	127	57	01010111
427	1AB	653	127	57	01010111
428	1AC	654	127	57	01010111
429	1AD	655	127	57	01010111
430	1AE	656	127	57	01010111
431	1AF	657	127	57	01010111
432	1B0	660	127	57	01010111
433	1B1	661	127	57	01010111
434	1B2	662	127	57	01010111
435	1B3	663	127	57	01010111
436	1B4	664	127	57	01010111
437	1B5	665	127	57	01010111
438	1B6	666	127	57	01010111
439	1B7	667	127	57	01010111
440	1B8	670	127	57	01010111
441	1B9	671	127	57	01010111
442	1BA	672	127	57	01010111
443	1BB	673	127	57	01010111
444	1BC	674	127	57	01010111
445	1BD	675	127	57	01010111
446	1BE	676	127	57	01010111
447	1BF	677	127	57	01010111
448	1C0	700	004	04	00000100
449	1C1	701	004	04	00000100
450	1C2	702	004	04	00000100
451	1C3	703	004	04	00000100
452	1C4	704	004	04	00000100
453	1C5	705	004	04	00000100
454	1C6	706	004	04	00000100
455	1C7	707	004	04	00000100
456	1C8	710	004	04	00000100
457	1C9	711	004	04	00000100
458	1CA	712	004	04	00000100
459	1CB	713	004	04	00000100
460	1CC	714	004	04	00000100
461	1CD	715	004	04	00000100
462	1CE	716	004	04	00000100
463	1CF	717	004	04	00000100
464	1D0	720	004	04	00000100
465	1D1	721	004	04	00000100
466	1D2	722	004	04	00000100
467	1D3	723	004	04	00000100
468	1D4	724	004	04	00000100
469	1D5	725	004	04	00000100
470	1D6	726	004	04	00000100
471	1D7	727	004	04	00000100
472	1D8	730	004	04	00000100
473	1D9	731	004	04	00000100
474	1DA	732	004	04	00000100
475	1DB	733	004	04	00000100
476	1DC	734	004	04	00000100
477	1DD	735	004	04	00000100
478	1DE	736	004	04	00000100
479	1DF	737	004	04	00000100
480	1E0	740	004	04	00000100
481	1E1	741	004	04	00000100
482	1E2	742	004	04	00000100
483	1E3	743	004	04	00000100
484	1E4	744	004	04	00000100
485	1E5	745	004	04	00000100
486	1E6	746	004	04	00000100
487	1E7	747	004	04	00000100
488	1E8	750	004	04	00000100
489	1E9	751	004	04	00000100
490	1EA	752	004	04	00000100
491	1EB	753	004	04	00000100
492	1EC	754	004	04	00000100
493	1ED	755	004	04	00000100
494	1EE	756	004	04	00000100
495	1EF	757	004	04	00000100
496	1F0	760	004	04	00000100
497	1F1	761	004	04	00000100
498	1F2	762	004	04	00000100
499	1F3	763	004	04	00000100
500	1F4	764	004	04	00000100
501	1F5	765	004	04	00000100
502	1F6	766	004	04	00000100
503	1F7	767	004	04	00000100
504	1F8	770	004	04	00000100
505	1F9	771	004	04	00000100
506	1FA	772	004	04	00000100
507	1FB	773	004	04	00000100
508	1FC	774	004	04	00000100
509	1FD	775	004	04	00000100
510	1FE	776	004	04	00000100
511	1FF	777	004	04	00000100

WRITE CONTROL PROM AT E30 (CS4)

TITLE
512 X 8
ROM/PROM PATTERN SPEC
23-01701

REVISIONS		
CHK	CHANGE NO.	REV.

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

DEC PART NUMBER: 23-08888
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF IC) ORIGINATOR: IRENE BELLETTIERE 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	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	00	000	105	45	01000101	32	20	040	305	C5	11000101	64	40	100	345	E5	11100101	96	60	140	305	C5	11000101
1	01	001	305	C5	11000101	33	21	041	305	C5	11000101	65	41	101	345	E5	11100101	97	61	141	305	C5	11000101
2	02	002	305	C5	11000101	34	22	042	305	C5	11000101	66	42	102	345	E5	11100101	98	62	142	305	C5	11000101
3	03	003	305	C5	11000101	35	23	043	305	C5	11000101	67	43	103	345	E5	11100101	99	63	143	305	C5	11000101
4	04	004	305	C5	11000101	36	24	044	305	C5	11000101	68	44	104	345	E5	11100101	100	64	144	305	C5	11000101
5	05	005	305	C5	11000101	37	25	045	305	C5	11000101	69	45	105	345	E5	11100101	101	65	145	305	C5	11000101
6	06	006	305	C5	11000101	38	26	046	305	C5	11000101	70	46	106	345	E5	11100101	102	66	146	305	C5	11000101
7	07	007	305	C5	11000101	39	27	047	305	C5	11000101	71	47	107	345	E5	11100101	103	67	147	305	C4	11000100
8	08	010	305	C5	11000101	40	28	050	305	C5	11000101	72	48	110	345	E5	11100101	104	68	150	304	C4	11000100
9	09	011	305	C5	11000101	41	29	051	305	C5	11000101	73	49	111	345	E5	11100101	105	69	151	300	C0	11000000
10	0A	012	305	C5	11000101	42	2A	052	305	C5	11000101	74	4A	112	305	C5	11000101	106	6A	152	305	C5	11000101
11	0B	013	305	C5	11000101	43	2B	053	305	C5	11000101	75	4B	113	305	C5	11000101	107	6B	153	305	C5	11000101
12	0C	014	305	C5	11000101	44	2C	054	305	C5	11000101	76	4C	114	305	C5	11000101	108	6C	154	305	C5	11000101
13	0D	015	305	C5	11000101	45	2D	055	305	C5	11000101	77	4D	115	305	C5	11000101	109	6D	155	305	C5	11000101
14	0E	016	305	C5	11000101	46	2E	056	305	C5	11000101	78	4E	116	305	C5	11000101	110	6E	156	305	C5	11000101
15	0F	017	305	C5	11000101	47	2F	057	305	C5	11000101	79	4F	117	305	C5	11000101	111	6F	157	305	C5	11000101
16	10	020	305	C5	11000101	48	30	060	305	C5	11000101	80	50	120	305	C5	11000101	112	70	160	305	C5	11000101
17	11	021	305	C5	11000101	49	31	061	305	C5	11000101	81	51	121	305	C5	11000101	113	71	161	305	C5	11000101
18	12	022	305	C5	11000101	50	32	062	305	C5	11000101	82	52	122	305	C5	11000101	114	72	162	305	C5	11000101
19	13	023	305	C5	11000101	51	33	063	305	C5	11000101	83	53	123	305	C5	11000101	115	73	163	305	C5	11000101
20	14	024	305	C5	11000101	52	34	064	305	C5	11000101	84	54	124	305	C5	11000101	116	74	164	305	C5	11000101
21	15	025	305	C5	11000101	53	35	065	305	C5	11000101	85	55	125	305	C5	11000101	117	75	165	305	C5	11000101
22	16	026	305	C5	11000101	54	36	066	305	C5	11000101	86	56	126	305	C5	11000101	118	76	166	305	C5	11000101
23	17	027	305	C5	11000101	55	37	067	305	C5	11000101	87	57	127	305	C5	11000101	119	77	167	305	C5	11000101
24	18	030	305	C5	11000101	56	38	070	305	C5	11000101	88	58	130	305	C5	11000101	120	78	170	305	C5	11000101
25	19	031	305	C5	11000101	57	39	071	305	C5	11000101	89	59	131	305	C5	11000101	121	79	171	305	C5	11000101
26	1A	032	305	C5	11000101	58	3A	072	305	C5	11000101	90	5A	132	305	C5	11000101	122	7A	172	305	C5	11000101
27	1B	033	305	C5	11000101	59	3B	073	305	C5	11000101	91	5B	133	305	C5	11000101	123	7B	173	305	C5	11000101
28	1C	034	305	C5	11000101	60	3C	074	305	C5	11000101	92	5C	134	305	C5	11000101	124	7C	174	305	C5	11000101
29	1D	035	305	C5	11000101	61	3D	075	305	C5	11000101	93	5D	135	305	C5	11000101	125	7D	175	305	C5	11000101
30	1E	036	305	C5	11000101	62	3E	076	305	C5	11000101	94	5E	136	305	C5	11000101	126	7E	176	305	C5	11000101
31	1F	037	305	C5	11000101	63	3F	077	305	C5	11000101	95	5F	137	305	C5	11000101	127	7F	177	301	C1	11000001

DEC PART NUMBER: 23-08888
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF IC) ORIGINATOR: IRENE BELLETTIERE 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	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
126	00	200	335	DD	11011101	160	A0	240	305	C5	11000101	192	C0	300	305	C5	11000101	224	E0	340	305	C5	11000101
129	01	201	315	CD	11001101	161	A1	241	305	C5	11000101	193	C1	301	305	C5	11000101	225	E1	341	305	C5	11000101
130	02	202	315	CD	11001101	162	A2	242	305	C5	11000101	194	C2	302	305	C5	11000101	226	E2	342	305	C5	11000101
131	03	203	315	CD	11001101	163	A3	243	305	C5	11000101	195	C3	303	305	C5	11000101	227	E3	343	305	C5	11000101
132	04	204	315	CD	11001101	164	A4	244	305	C5	11000101	196	C4	304	305	C5	11000101	228	E4	344	305	C5	11000101
133	05	205	305	C5	11000101	165	A5	245	305	C5	11000101	197	C5	305	305	C5	11000101	229	E5	345	305	C5	11000101
134	06	206	305	C5	11000101	166	A6	246	305	C5	11000101	198	C6	306	305	C5	11000101	230	E6	346	305	C5	11000101
135	07	207	305	C5	11000101	167	A7	247	305	C5	11000101	199	C7	307	305	C5	11000101	231	E7	347	305	C5	11000101
136	08	210	305	C5	11000101	168	A8	250	305	C5	11000101	200	C8	310	305	C5	11000101	232	E8	350	305	C5	11000101
137	09	211	305	C5	11000101	169	A9	251	307	C7	11000111	201	C9	311	305	C5	11000101	233	E9	351	305	C5	11000101
138	0A	212	305	C5	11000101	170	AA	252	307	C7	11000111	202	CA	312	305	C5	11000101	234	EA	352	305	C5	11000101
139	0B	213	305	C5	11000101	171	AB	253	307	C7	11000111	203	CB	313	305	C5	11000101	235	EB	353	305	C5	11000101
140	0C	214	305	C5	11000101	172	AC	254	307	C7	11000111	204	CC	314	305	C5	11000101	236	EC	354	305	C5	11000101
141	0D	215	305	C5	11000101	173	AD	255	307	C7	11000111	205	CD	315	305	C5	11000101	237	ED	355	305	C5	11000101
142	0E	216	305	C5	11000101	174	AE	256	307	C7	11000111	206	CE	316	305	C5	11000101	238	EE	356	305	C5	11000101
143	0F	217	305	C5	11000101	175	AF	257	307	C7	11000111	207	CF	317	305	C5	11000101	239	EF	357	305	C5	11000101
144	90	220	315	CD	11001101	176	B0	260	307	C7	11000111	208	D0	320	305	C5	11000101	240	F0	360	305	C5	11000101
145	91	221	305	C5	11000101	177	B1	261	307	C7	11000111	209	D1	321	305	C5	11000101	241	F1	361	305	C5	11000101
146	92	222	305	C5	11000101	178	B2	262	317	CF	11001111	210	D2	322	305	C5	11000101	242	F2	362	305	C5	11000101
147	93	223	305	C5	11000101	179	B3	263	317	CF	11001111	211	D3	323	305	C5	11000101	243	F3	363	305	C5	11000101
148	94	224	305	C5	11000101	180	B4	264	317	CF	11001111	212	D4	324	305	C5	11000101	244	F4	364	305	C5	11000101
149	95	225	305	C5	11000101	181	B5	265	317	CF	11001111	213	D5	325	305	C5	11000101	245	F5	365	305	C5	11000101
150	96	226	305	C5	11000101	182	B6	266	317	CF	11001111	214	D6	326	305	C5	11000101	246	F6	366	305	C5	11000101
151	97	227	305	C5	11000101	183	B7	267	317	CF	11001111	215	D7	327	305	C5	11000101	247	F7	367	305	C5	11000101
152	98	230	305	C5	11000101	184	B8	270	317	CF	11001111	216	D8	330	305	C5	11000101	248	F8	370	305	C5	11000101
153	99	231	305	C5	11000101	185	B9	271	307	C7	11000111	217	D9	331	305	C5	11000101	249	F9	371	305	C5	11000101
154	9A	232	305	C5	11000101	186	BA	272	307	C7	11000111	218	DA	332	305	C5	11000101	250	FA	372	305	C5	11000101
155	9B	233	305	C5	11000101	187	BB	273	305	C5	11000101	219	DB	333	305	C5	11000101	251	FB	373	305	C5	11000101
156	9C	234	305	C5	11000101	188	BC	274	305	C5	11000101	220	DC	334	305	C5	11000101	252	FC	374	305	C5	11000101
157	9D	235	305	C5	11000101	189	BD	275	305	C5	11000101	221	DD	335	305	C5	11000101	253	FD	375	305	C5	11000101
158	9E	236	305	C5	11000101	190	BE	276	305	C5	11000101	222	DE	336	305	C5	11000101	254	FE	376	305	C5	11000101
159	9F	237	305	C5	11000101	191	BF	277	305	C5	11000101	223	DF	337	305	C5	11000101	255	FF	377	305	C5	11000101

COMMAND SEQUENCER MISCELLANEOUS AT E47 (CS2)

111146	
256 X 8	
ROM/PROM PATTERN SPEC	
23-08888	

DEC PART NUMBER: 29-08388
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF IC) ORIGINATOR: IRENE BELLETTIERE 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	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	00	000	000	00	00000000	32	20	040	000	00	00000000	64	40	100	042	22	00100010	96	60	140	002	02	00000010
1	01	001	003	03	00000011	33	21	041	003	03	00000011	65	41	101	043	23	00100011	97	61	141	003	03	00000011
2	02	002	000	00	00000000	34	22	042	002	02	00000010	66	42	102	042	22	00100010	98	62	142	002	02	00000010
3	03	003	003	03	00000011	35	23	043	003	03	00000011	67	43	103	043	23	00100011	99	63	143	003	03	00000011
4	04	004	000	00	00000000	36	24	044	000	00	00000000	68	44	104	042	22	00100010	100	64	144	002	02	00000010
5	05	005	003	03	00000011	37	25	045	003	03	00000011	69	45	105	043	23	00100011	101	65	145	003	03	00000011
6	06	006	002	02	00000010	38	26	046	000	00	00000000	70	46	106	042	22	00100010	102	66	146	002	02	00000010
7	07	007	003	03	00000011	39	27	047	003	03	00000011	71	47	107	043	23	00100011	103	67	147	013	0B	00001011
8	08	010	002	02	00000010	40	28	050	002	02	00000010	72	48	110	042	22	00100010	104	68	150	012	0A	00001010
9	09	011	003	03	00000011	41	29	051	003	03	00000011	73	49	111	043	23	00100011	105	69	151	003	03	00000011
10	0A	012	002	02	00000010	42	2A	052	002	02	00000010	74	4A	112	002	02	00000010	106	6A	152	002	02	00000010
11	0B	013	003	03	00000011	43	2B	053	003	03	00000011	75	4B	113	003	03	00000011	107	6B	153	001	01	00000001
12	0C	014	002	02	00000010	44	2C	054	002	02	00000010	76	4C	114	002	02	00000010	108	6C	154	000	00	00000000
13	0D	015	003	03	00000011	45	2D	055	003	03	00000011	77	4D	115	003	03	00000011	109	6D	155	001	01	00000001
14	0E	016	002	02	00000010	46	2E	056	000	00	00000000	78	4E	116	002	02	00000010	110	6E	156	000	00	00000000
15	0F	017	003	03	00000011	47	2F	057	003	03	00000011	79	4F	117	001	01	00000001	111	6F	157	001	01	00000001
16	10	020	002	02	00000010	48	30	060	000	00	00000000	80	50	120	202	02	10000010	112	70	160	000	00	00000000
17	11	021	003	03	00000011	49	31	061	003	03	00000011	81	51	121	203	03	10000011	113	71	161	001	01	00000001
18	12	022	002	02	00000010	50	32	062	002	02	00000010	82	52	122	202	02	10000010	114	72	162	000	00	00000000
19	13	023	003	03	00000011	51	33	063	003	03	00000011	83	53	123	203	03	10000011	115	73	163	001	01	00000001
20	14	024	002	02	00000010	52	34	064	002	02	00000010	84	54	124	202	02	10000010	116	74	164	000	00	00000000
21	15	025	003	03	00000011	53	35	065	003	03	00000011	85	55	125	203	03	10000011	117	75	165	001	01	00000001
22	16	026	000	00	00000000	54	36	066	000	00	00000000	86	56	126	202	02	10000010	118	76	166	000	00	00000000
23	17	027	003	03	00000011	55	37	067	003	03	00000011	87	57	127	203	03	10000011	119	77	167	001	01	00000001
24	18	030	002	02	00000010	56	38	070	000	00	00000000	88	58	130	202	02	10000010	120	78	170	000	00	00000000
25	19	031	003	03	00000011	57	39	071	003	03	00000011	89	59	131	203	03	10000011	121	79	171	001	01	00000001
26	1A	032	002	02	00000010	58	3A	072	002	02	00000010	90	5A	132	002	02	00000010	122	7A	172	000	00	00000000
27	1B	033	003	03	00000011	59	3B	073	003	03	00000011	91	5B	133	003	03	00000011	123	7B	173	001	01	00000001
28	1C	034	000	00	00000000	60	3C	074	002	02	00000010	92	5C	134	002	02	00000010	124	7C	174	000	00	00000000
29	1D	035	003	03	00000011	61	3D	075	003	03	00000011	93	5D	135	003	03	00000011	125	7D	175	001	01	00000001
30	1E	036	000	00	00000000	62	3E	076	000	00	00000000	94	5E	136	002	02	00000010	126	7E	176	002	02	00000010
31	1F	037	003	03	00000011	63	3F	077	003	03	00000011	95	5F	137	001	01	00000001	127	7F	177	003	03	00000011

DEC PART NUMBER: 29-08388
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF IC) ORIGINATOR: IRENE BELLETTIERE 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	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	80	200	003	03	00000011	160	A0	240	122	52	01010010	192	C0	300	000	00	00000000	224	E0	340	000	00	00000000
129	01	201	002	02	00000010	161	A1	241	123	53	01010011	193	C1	301	001	01	00000001	225	E1	341	001	01	00000001
130	02	202	003	03	00000011	162	A2	242	122	52	01010010	194	C2	302	000	00	00000000	226	E2	342	000	00	00000000
131	03	203	002	02	00000010	163	A3	243	123	53	01010011	195	C3	303	001	01	00000001	227	E3	343	001	01	00000001
132	04	204	001	01	00000001	164	A4	244	122	52	01010010	196	C4	304	000	00	00000000	228	E4	344	000	00	00000000
133	05	205	000	00	00000000	165	A5	245	123	53	01010011	197	C5	305	001	01	00000001	229	E5	345	001	01	00000001
134	06	206	007	07	00000111	166	A6	246	002	02	00000010	198	C6	306	000	00	00000000	230	E6	346	000	00	00000000
135	07	207	007	07	00000111	167	A7	247	003	03	00000011	199	C7	307	001	01	00000001	231	E7	347	001	01	00000001
136	08	210	002	02	00000010	168	A8	250	002	02	00000010	200	C8	310	000	00	00000000	232	E8	350	102	42	01000010
137	09	211	003	03	00000011	169	A9	251	043	23	00100011	201	C9	311	001	01	00000001	233	E9	351	103	43	01000011
138	0A	212	002	02	00000010	170	AA	252	042	22	00100010	202	CA	312	000	00	00000000	234	EA	352	002	02	00000010
139	0B	213	003	03	00000011	171	AB	253	043	23	00100011	203	CB	313	001	01	00000001	235	EB	353	003	03	00000011
140	0C	214	000	00	00000000	172	AC	254	042	22	00100010	204	CC	314	000	00	00000000	236	EC	354	002	02	00000010
141	0D	215	001	01	00000001	173	AD	255	043	23	00100011	205	CD	315	001	01	00000001	237	ED	355	003	03	00000011
142	0E	216	000	00	00000000	174	AE	256	042	22	00100010	206	CE	316	000	00	00000000	238	EE	356	002	02	00000010
143	0F	217	001	01	00000001	175	AF	257	043	23	00100011	207	CF	317	001	01	00000001	239	EF	357	003	03	00000011
144	90	220	042	22	00100010	176	B0	260	042	22	00100010	208	D0	320	000	00	00000000	240	F0	360	002	02	00000010
145	91	221	043	23	00100011	177	B1	261	043	23	00100011	209	D1	321	001	01	00000001	241	F1	361	003	03	00000011
146	92	222	042	22	00100010	178	B2	262	042	22	00100010	210	D2	322	000	00	00000000	242	F2	362	002	02	00000010
147	93	223	043	23	00100011	179	B3	263	043	23	00100011	211	D3	323	001	01	00000001	243	F3	363	003	03	00000011
148	94	224	042	22	00100010	180	B4	264	042	22	00100010	212	D4	324	000	00	00000000	244	F4	364	002	02	00000010
149	95	225	043	23	00100011	181	B5	265	043	23	00100011	213	D5	325	001	01	00000001	245	F5	365	003	03	00000011
150	96	226	042	22	00100010	182	B6	266	042	22	00100010	214	D6	326	000	00	00000000	246	F6	366	002	02	00000010
151	97	227	043	23	00100011	183	B7	267	043	23	00100011	215	D7	327	001	01	00000001	247	F7	367	003	03	00000011
152	98	230	042	22	00100010	184	B8	270	042	22	00100010	216	D8	330	000	00	00000000	248	F8	370	002	02	00000010
153	99	231	043	23	00100011	185	B9	271	043	23	00100011	217	D9	331	001	01	00000001	249	F9	371	003	03	00000011
154	9A	232	042	22	00100010	186	BA	272	042	22	00100010	218	DA	332	000	00	00000000	250	FA	372	002	02	00000010
155	9B	233	043	23	00100011	187	BB	273	043	23	00100011	219	DB	333	001	01	00000001	251	FB	373	003	03	00000011
156	9C	234	042	22	00100010	188	BC	274	042	22	00100010	220	DC	334	000	00	00000000	252	FC	374	002	02	00000010
157	9D	235	043	23	00100011	189	BD	275	001	01	00000001	221	DD	335	001	01	00000001	253	FD	375	001	01	00000001
158	9E	236	042	22	00100010	190	BE	276	000	00	00000000	222	DE	336	000	00	00000000	254	FE	376	000	00	00000000
159	9F	237	103	43	01000011	191	BF	277	001	01	00000001	223	DF	337	001	01	00000001	255	FF	377	001	01	00000001

TAG CONTROLS AT E39 (CS2)

111146	
256 X 8	
ROM/PROM PATTERN SPEC	
23-08388	

REVISIONS		
CHK	CHANGE NO.	REV.

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

M7684-0-1 S
DCS

DEC PART NUMBER: 23-01988 ORIGINATOR: IRENE BELLETTIERE BINARY DATA "1" = HIGH SHEET 1 OF 2
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF IC) DATE ORIGINATED: 8-25-77 BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	000	277	BF	10111111
1	01	001	276	BE	10111110
2	02	002	101	41	01000001
3	03	003	276	BE	10111110
4	04	004	101	41	01000001
5	05	005	252	AA	10101010
6	06	006	101	41	01000001
7	07	007	252	AA	10101010
8	08	010	101	41	01000001
9	09	011	252	AA	10101010
10	0A	012	277	BF	10111111
11	0B	013	252	AA	10101010
12	0C	014	277	BF	10111111
13	0D	015	252	AA	10101010
14	0E	016	101	41	01000001
15	0F	017	252	AA	10101010
16	10	020	101	41	01000001
17	11	021	252	AA	10101010
18	12	022	277	BF	10111111
19	13	023	252	AA	10101010
20	14	024	277	BF	10111111
21	15	025	276	BE	10111110
22	16	026	101	41	01000001
23	17	027	276	BE	10111110
24	18	030	101	41	01000001
25	19	031	252	AA	10101010
26	1A	032	277	BF	10111111
27	1B	033	252	AA	10101010
28	1C	034	277	BF	10111111
29	1D	035	276	BE	10111110
30	1E	036	101	41	01000001
31	1F	037	276	BE	10111110
32	20	040	101	41	01000001
33	21	041	267	B7	10110111
34	22	042	247	A7	10110111
35	23	043	101	41	01000001
36	24	044	101	41	01000001
37	25	045	101	41	01000001
38	26	046	101	41	01000001
39	27	047	101	41	01000001
40	28	050	101	41	01000001
41	29	051	252	AA	1P101010
42	2A	052	277	BF	10111111
43	2B	053	253	AB	10101011
44	2C	054	277	BF	10111111
45	2D	055	101	41	01000001
46	2E	056	101	41	01000001
47	2F	057	101	41	01000001
48	30	060	101	41	01000001
49	31	061	253	AB	1P101011
50	32	062	277	BF	10111111
51	33	063	253	AB	10101011
52	34	064	277	BF	10111111
53	35	065	101	41	01000001
54	36	066	101	41	01000001
55	37	067	101	41	01000001
56	38	070	101	41	01000001
57	39	071	253	AB	1P101011
58	3A	072	277	BF	10111111
59	3B	073	253	AB	1P101011
60	3C	074	277	BF	10111111
61	3D	075	101	41	01000001
62	3E	076	101	41	01000001
63	3F	077	101	41	01000001
64	40	100	247	A7	10110111
65	41	101	245	A5	10100101
66	42	102	247	A7	10110111
67	43	103	101	41	01000001
68	44	104	101	41	01000001
69	45	105	101	41	01000001
70	46	106	101	41	01000001
71	47	107	101	41	01000001
72	48	110	101	41	01000001
73	49	111	101	41	01000001
74	4A	112	101	41	01000001
75	4B	113	255	AD	10101101
76	4C	114	243	A3	10100011
77	4D	115	245	A5	10100101
78	4E	116	277	BF	10111111
79	4F	117	101	41	01000001
80	50	120	247	A7	10100111
81	51	121	245	A5	10100101
82	52	122	201	81	10000001
83	53	123	201	81	10000001
84	54	124	201	81	10000001
85	55	125	201	81	10000001
86	56	126	201	81	10000001
87	57	127	201	81	10000001
88	58	130	201	81	10000001
89	59	131	201	81	10000001
90	5A	132	201	81	10000001
91	5B	133	255	AD	10101101
92	5C	134	243	A3	10100011
93	5D	135	245	A5	10100101
94	5E	136	277	BF	10111111
95	5F	137	101	41	01000001
96	60	140	247	A7	10100111
97	61	141	245	A5	10100101
98	62	142	277	BF	10111111
99	63	143	255	AD	10101101
100	64	144	243	A3	10100011
101	65	145	245	A5	10100101
102	66	146	277	BF	10111111
103	67	147	245	A5	10100101
104	68	150	263	B3	10110011
105	69	151	101	41	01000001
106	6A	152	101	41	01000001
107	6B	153	101	41	01000001
108	6C	154	101	41	01000001
109	6D	155	101	41	01000001
110	6E	156	101	41	01000001
111	6F	157	101	41	01000001
112	70	160	101	41	01000001
113	71	161	101	41	01000001
114	72	162	101	41	01000001
115	73	163	101	41	01000001
116	74	164	101	41	01000001
117	75	165	101	41	01000001
118	76	166	101	41	01000001
119	77	167	101	41	01000001
120	78	170	101	41	01000001
121	79	171	101	41	01000001
122	7A	172	101	41	01000001
123	7B	173	101	41	01000001
124	7C	174	101	41	01000001
125	7D	175	201	81	10000001
126	7E	176	101	41	01000001
127	7F	177	101	41	01000001
128	80	200	247	A7	10100111
129	81	201	245	A5	10100101
130	82	202	257	AF	10101111
131	83	203	277	BF	10111111
132	84	204	201	81	10000001
133	85	205	201	81	10000001
134	86	206	261	B1	10110001
135	87	207	277	BF	10111111
136	88	210	201	81	10000001
137	89	211	261	B1	10110001
138	8A	212	201	81	10000001
139	8B	213	101	41	01000001
140	8C	214	101	41	01000001
141	8D	215	101	41	01000001
142	8E	216	101	41	01000001
143	8F	217	101	41	01000001
144	90	220	245	A5	10100101
145	91	221	245	A5	10100101
146	92	222	201	81	10000001
147	93	223	201	81	10000001
148	94	224	201	81	10000001
149	95	225	201	81	10000001
150	96	226	201	81	10000001
151	97	227	201	81	10000001
152	98	230	201	81	10000001
153	99	231	201	81	10000001
154	9A	232	241	A1	10100001
155	9B	233	277	BF	10111111
156	9C	234	255	AD	10101101
157	9D	235	200	80	10000000
158	9E	236	201	81	10000001
159	9F	237	201	81	10000001
160	A0	240	201	81	10000001
161	A1	241	201	81	10000001
162	A2	242	201	81	10000001
163	A3	243	201	81	10000001
164	A4	244	201	81	10000001
165	A5	245	277	BF	10111111
166	A6	246	243	A3	10100011
167	A7	247	245	A5	10100101
168	A8	250	277	BF	10111111
169	A9	251	201	81	10000001
170	AA	252	265	B5	10110101
171	AB	253	201	81	10000001
172	AC	254	201	81	10000001
173	AD	255	201	81	10000001
174	AE	256	255	AD	10101101
175	AF	257	242	A2	10100010
176	B0	260	245	A5	10100101
177	B1	261	277	BF	10111111
178	B2	262	261	B1	10110001
179	B3	263	245	A5	10100101
180	B4	264	277	BF	10111111
181	B5	265	200	80	10000000
182	B6	266	261	B1	10110001
183	B7	267	271	B9	10111001
184	B8	270	273	BB	10111011
185	B9	271	275	BD	10111101
186	BA	272	001	01	00000001
187	BB	273	301	C1	11000001
188	BC	274	101	41	01000001
189	BD	275	101	41	01000001
190	BE	276	101	41	01000001
191	BF	277	101	41	01000001
192	C0	300	201	81	10000001
193	C1	301	101	41	01000001
194	C2	302	101	41	01000001
195	C3	303	101	41	01000001
196	C4	304	101	41	01000001
197	C5	305	101	41	01000001
198	C6	306	101	41	01000001
199	C7	307	101	41	01000001
200	C8	310	101	41	01000001
201	C9	311	101	41	01000001
202	CA	312	101	41	01000001
203	CB	313	101	41	01000001
204	CC	314	101	41	01000001
205	CD	315	101	41	01000001
206	CE	316	101	41	01000001
207	CF	317	101	41	01000001
208	D0	320	101	41	01000001
209	D1	321	101	41	01000001
210	D2	322	101	41	01000001
211	D3	323	101	41	01000001
212	D4	324	101	41	01000001
213	D5	325	101	41	01000001
214	D6	326	101	41	01000001
215	D7	327	101	41	01000001
216	D8	330	101	41	01000001
217	D9	331	101	41	01000001
218	DA	332	101	41	01000001
219	DB	333	101	41	01000001
220	DC	334	101	41	01000001
221	DD	335	101	41	01000001
222	DE	336	101	41	01000001
223	DF	337	101	41	01000001
224	E0	340	101	41	01000001
225	E1	341	101	41	01000001
226	E2	342	101	41	01000001
227	E3	343	101	41	01000001
228	E4	344	101	41	01000001
229	E5	345	101	41	01000001
230	E6	346	101	41	01000001
231	E7	347	101	41	01000001
232	E8	350	201	81	10000001
233	E9	351	201	81	10000001
234	EA	352	201	81	10000001
235	EB	353	201	81	10000001
236	EC	354	201	81	10000001
237	ED	355	201	81	10000001
238	EE	356	201	81	10000001
239	EF	357	201	81	10000001
240	F0	360	201	81	10000001
241	F1	361	201	81	10000001
242	F2	362	201	81	10000001
243	F3	363	201	81	10000001
244	F4	364	201	81	10000001
245	F5	365	201	81	10000001
246	F6	366	201	81	10000001
247	F7	367	201	81	10000001
248	F8	370	201	81	10000001
249	F9	371	201	81	10000001
250	FA	372	201	81	10000001
251	FB	373	201	81	10000001
252	FC	374	277	BF	10111111
253	FD	375	101	41	01000001
254	FE	376	101	41	01000001
255	FF	377	101	41	01000001

SEQUENCER CONTROL PROM AT E16 (CS1)

TITLE
256 X 8
ROM/PROM PATTERN SPEC
23-02288

DEC PART NUMBER: 23-02080 ORIGINATOR: IRENE BELLETTIERE BINARY DATA "1" = HIGH SHEET 1 OF 2
LEFT COLUMN OF BIN DATA IS MSB(PIN 17 OF IC) DATE ORIGINATED: 8-25-77 BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	000	001	01	00000001
1	01	001	176	7E	01111110
2	02	002	000	00	00000000
3	03	003	176	7E	01111110
4	04	004	000	00	00000000
5	05	005	120	50	01010000
6	06	006	000	00	00000000
7	07	007	000	00	00000000
8	08	010	000	00	00000000
9	09	011	175	7D	01111101
10	0A	012	200	80	10000000
11	0B	013	176	7E	01111110
12	0C	014	200	80	10000000
13	0D	015	177	7F	01111111
14	0E	016	000	00	00000000
15	0F	017	177	7F	01111111
16	10	020	000	00	00000000
17	11	021	176	7E	01111110
18	12	022	200	80	10000000
19	13	023	176	7E	01111110
20	14	024	200	80	10000000
21	15	025	176	7E	01111110
22	16	026	000	00	00000000
23	17	027	176	7E	01111110
24	18	030	000	00	00000000
25	19	031	140	60	01100000
26	1A	032	200	80	10000000
27	1B	033	176	7E	01111110
28	1C	034	200	80	10000000
29	1D	035	176	7E	01111110
30	1E	036	000	00	00000000
31	1F	037	176	7E	01111110
32	20	040	000	00	00000000
33	21	041	200	80	10000000
34	22	042	117	4F	01001111
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	175	7D	01111101
42	2A	052	205	85	10000101
43	2B	053	176	7E	01111110
44	2C	054	205	85	10000101
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	021	11	00010001
50	32	062	205	85	10000101
51	33	063	023	13	00010011
52	34	064	205	85	10000101
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	176	7E	01111110
58	3A	072	205	85	10000101
59	3B	073	176	7E	01111110
60	3C	074	205	85	10000101
61	3D	075	000	00	00000000
62	3E	076	000	00	00000000
63	3F	077	000	00	00000000
64	40	100	117	4F	01001111
65	41	101	176	7E	01111110
66	42	102	000	00	00000000
67	43	103	000	00	00000000
68	44	104	000	00	00000000
69	45	105	000	00	00000000
70	46	106	000	00	00000000
71	47	107	000	00	00000000
72	48	110	000	00	00000000
73	49	111	000	00	00000000
74	4A	112	000	00	00000000
75	4B	113	117	4F	01001111
76	4C	114	177	7F	01111111
77	4D	115	176	7E	01111110
78	4E	116	114	4C	01001100
79	4F	117	000	00	00000000
80	50	120	117	4F	01001111
81	51	121	176	7E	01111110
82	52	122	000	00	00000000
83	53	123	000	00	00000000
84	54	124	000	00	00000000
85	55	125	000	00	00000000
86	56	126	000	00	00000000
87	57	127	000	00	00000000
88	58	130	000	00	00000000
89	59	131	000	00	00000000
90	5A	132	000	00	00000000
91	5B	133	117	4F	01001111
92	5C	134	177	7F	01111111
93	5D	135	176	7E	01111110
94	5E	136	134	5C	01011100
95	5F	137	000	00	00000000
96	60	140	117	4F	01001111
97	61	141	176	7E	01111110
98	62	142	220	90	10010000
99	63	143	117	4F	01001111
100	64	144	147	67	01100111
101	65	145	176	7E	01111110
102	66	146	144	64	01100100
103	67	147	176	7E	01111110
104	68	150	147	67	01100111
105	69	151	000	00	00000000
106	6A	152	000	00	00000000
107	6B	153	000	00	00000000
108	6C	154	000	00	00000000
109	6D	155	000	00	00000000
110	6E	156	000	00	00000000
111	6F	157	000	00	00000000
112	70	160	000	00	00000000
113	71	161	000	00	00000000
114	72	162	000	00	00000000
115	73	163	000	00	00000000
116	74	164	000	00	00000000
117	75	165	000	00	00000000
118	76	166	000	00	00000000
119	77	167	000	00	00000000
120	78	170	000	00	00000000
121	79	171	000	00	00000000
122	7A	172	000	00	00000000
123	7B	173	000	00	00000000
124	7C	174	000	00	00000000
125	7D	175	000	00	00000000
126	7E	176	000	00	00000000
127	7F	177	000	00	00000000
128	80	200	204	84	10000100
129	81	201	205	85	10000101
130	82	202	220	90	10010000
131	83	203	201	81	10000001
132	84	204	000	00	00000000
133	85	205	000	00	00000000
134	86	206	210	88	10001000
135	87	207	206	86	10000110
136	88	210	000	00	00000000
137	89	211	211	89	10001001
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	205	85	10000101
145	91	221	205	85	10000101
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	234	9C	10011100
155	9B	233	143	63	01100011
156	9C	234	204	84	10000100
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	350	E5	11101000
166	A6	246	251	A9	10101001
167	A7	247	205	85	10000101
168	A8	250	246	A6	10100110
169	A9	251	000	00	00000000
170	AA	252	262	B2	10110010
171	AB	253	000	00	00000000
172	AC	254	000	00	00000000
173	AD	255	000	00	00000000
174	AE	256	204	84	10000100
175	AF	257	262	B2	10110010
176	B0	260	205	85	10000101
177	B1	261	257	AF	10101111
178	B2	262	263	B3	10110011
179	B3	263	205	85	10000101
180	B4	264	262	B2	10110010
181	B5	265	000	00	00000000
182	B6	266	246	A6	10100110
183	B7	267	220	90	10010000
184	B8	270	235	9D	10011101
185	B9	271	262	B2	10110010
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
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

BRANCH ADDRESS AT E33 (CS1)

TITLE
256 X 8
ROM/PROM PATTERN SPEC
23-02080

REVISIONS		
CHK	CHANGE NO.	REV.

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

M7684-0-1 S D CS

DEC PART NUMBER: 23-264A1
LEFT COLUMN OF BIN DATA IS MSB(PIN 9 OF 5)

ORIGINATOR: IRENE KELLEITIENE
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
23-264A1

REVISIONS		
CHK	CHANGE NO.	REV.

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

AUTOMATED BY PRTLST.1D(10) — P A R T S L I S T — SHEET A1 OF A2

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	6.8MFD 35V 10% S.TANT	1	C101
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 % CF	32	R30-R61
12	12		1300365-00	1.0 K .25 W 5.0 % CF	23	R11,R14-R29,R77,R78,R85-R88
13	13		1302388-00	2.0 K .25 W 5.0 % CF	10	R2-R6,R10,R90,R93,R94,R80
14	14		1302394-00	30.0 K .25 W 5.0 % CF	4	R7,R8,R91,R92
15	15		1313349-00	33.0 K .25 W 5.0 % CF	1	R1
16	16		1305346-00	27.0 K .25 W 5.0 % CF	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 % CF	1	R79
19	19		1302666-00	*** THIS ITEM IS NOT USED ***	-	
20	20		1300439-00	3.30 K .25 W 5.0 % CF	1	R84
21	21		9000024-01	EYELET,ROLLED 0.1210DX0.192	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

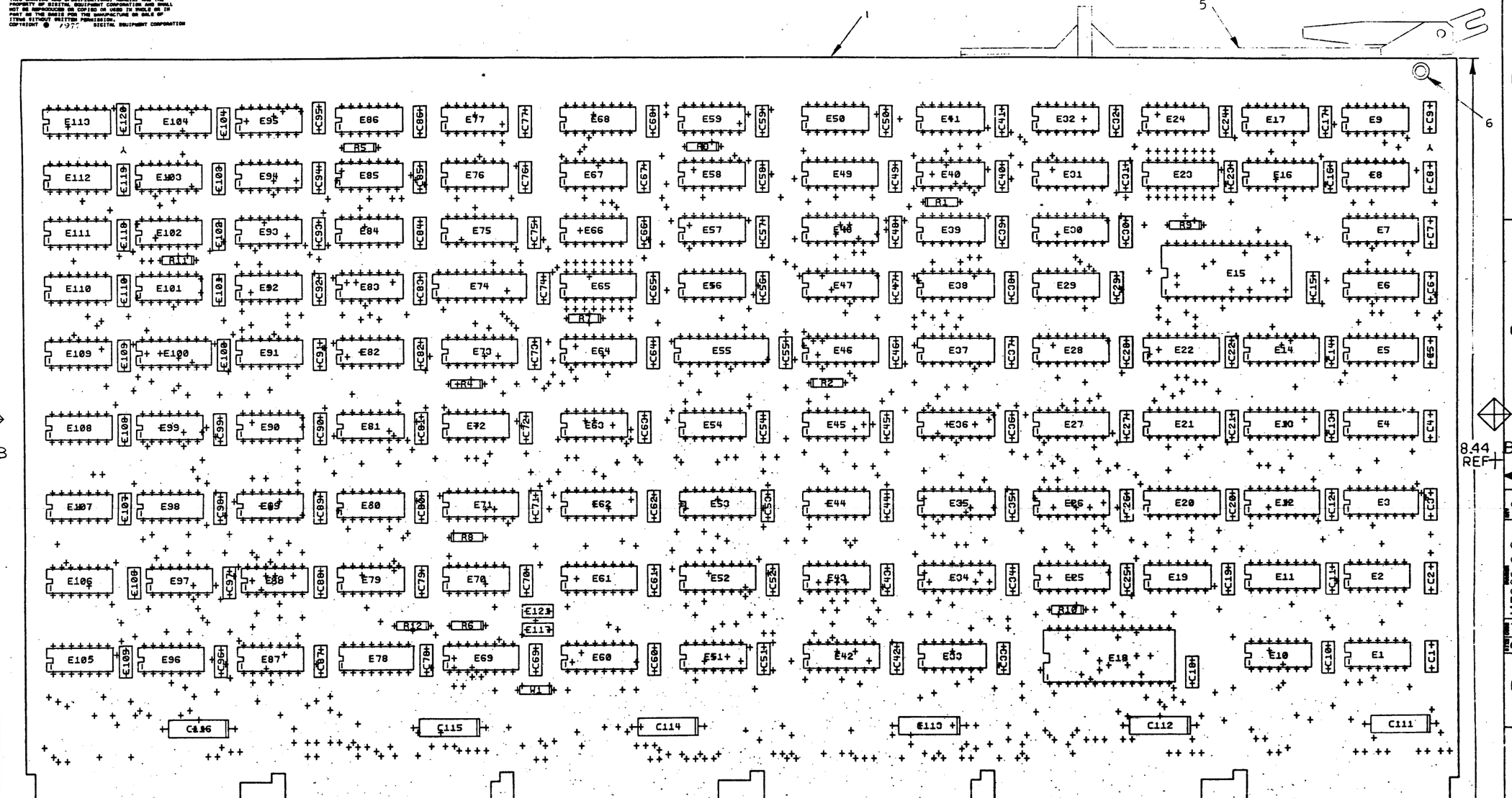
REVISION HISTORY			BASIC PART NO: M7684											
ENG	ECO NUMBER	REV	SECTION A OF A	DRN: JVV	DATE: 13-FEB-78		D	I	G	I	T	A	L
IB	00008	K	SECTION.VARIATION INDEX	CHK'D: RSW	DATE: 13-FEB-78	TITLE: PARTS LIST							
KIT	00009	L	[A] 00			CONTROL SEQUENCER							
CL	00010	M	[B]										
--	00011	N	[C]	DES.ENG: I.BELLETTIER	DATE: 13-FEB-78								
BHF	ML012	P	[D]			DOCUMENT NUMBER							
WH	M7684-CX013	R	[E]			SIZE: K	CODE: PL	NUMBER: M7684-0-DBP	REV: T				
WH	M7684-CX014	S	[F]	RESP.ENG.: I.BELLETTIERE	DATE: 13-FEB-78								
PR	M7684-CX015	T	[H]										
			[J]										
			[K]	MFG.ENG.: J.MILLER	DATE: 13-FEB-78								
			[L]										
			[M]	ASSEMBLY NUMBER: D-UA-M7684-0-0	TOP DOCUMENT NUMBER: # B-DD-M7684-0	FILE NAME: Z1028T.PLS	EDIT #: 28						
			[N]										

RPM 7 OCT 82 DCR

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	LS04 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	7	C108-C114
75	75		1312934-00	6.80 M .25 W 5.0 % CF	1	R81
76	76		1216832-04	PCB,HEADER 60POS(2X30).100CC 90D	1	J1

DIAGITAL	TITLE	
	CONTROL SEQUENCER	SECTION A OF A

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



NOTES:
1. B HOLES .0465 (+.000-.0045) MAYNARD ONLY
2. W1 IS W/ PCN 5198, OUT FOR EM#3

CH	CHANGE NO	REV
DWE	M7685-00001 REVISED W/DRAWN	B
	M7685-2	C
	B. Jackson 22 MAR 77	
	C. BLATCHLEY	
	R. BELLETTIERE JUN77	

ETCH REV. GP1
P.C. DESIGN DATA BASE REV. C1 & CM1

SIGNATURES	DATE
DRN. L. White	4/29/77
CHK'D	
ENG.	
PROJ. ENG.	
PROD.	
SCALE 2:1	
SHT. 1 OF 5	
NEXT HIGHER ASSY. B-DD-M7685-0	

digital

TITLE DATA SEQUENCER

SIZE	CODE	NUMBER	REV
D	UA	M7685-0-0	C

MS# 121486

CS4 P READ GATE H — FK1 — 74LS04 E54 — DS1 P2 READ GATE L
74LS04 E54 — DS1 P READ GATE L

DATA BUFFER

CS4 DS WRITE GATE H — EV1 — 74S04 E91
DSI WRITE GATE L
CS4 EN SYNC H — CD2
DS1 P2 READ GATE L

DSI DATA TSB PAR H
DSI DATA TSB 16H
DSI DATA TSB 17H
SA2 MB SYNC PAR H — BU2 — VCC — RT 1K
SA1 MB TSB 16H — DV1
SA1 MB TSB 17H — DV2
8542 E64

DSI DATA TSB 12 H
DSI DATA TSB 13 H
DSI DATA TSB 14 H
DSI DATA TSB 15 H
SA1 MB TSB 12 H — DP1
SA1 MB TSB 13 H — DR1
SA1 MB TSB 14 H — DS1
SA1 MB TSB 15 H — DU1
8542 E62

DSI DATA TSB 8 H
DSI DATA TSB 9 H
DSI DATA TSB 10 H
DSI DATA TSB 11 H
SA1 MB TSB 08 H — DK1
SA1 MB TSB 09 H — DL1
SA1 MB TSB 10 H — DM1
SA1 MB TSB 11 H — DN1
8542 E60

DSI DATA TSB 4 H
DSI DATA TSB 5 H
DSI DATA TSB 6 H
DSI DATA TSB 7 H
SA1 MB TSB 04 H — DE1
SA1 MB TSB 05 H — DF1
SA1 MB TSB 06 H — DH1
SA1 MB TSB 07 H — DJ1
8542 E52

DSI DATA TSB 00 H
DSI DATA TSB 01 H
DSI DATA TSB 02 H
DSI DATA TSB 03 H
SA1 MB TSB 00 H — DA1
SA1 MB TSB 01 H — DB1
SA1 MB TSB 02 H — DC1
SA1 MB TSB 03 H — DD1
8542 E53

DS5 BUF CLK H

CS3 RESET GO L — EP2 — 74S08 E84
CS3 MBA CLR L — DT2
74LS04 E54 — DSI BUF CLR H
DSI RESET GO/CLR L

DSI DATA TSB 10 H — 74S02 E110
DSI DATA TSB 11 H
DSI DATA TSB 15 H — 74S04 E91
DSI DATA TSB 14 H — 74S04 E91

CS4 P LFS H — FM1
DSI DATA TSB 12 H
DSI DATA TSB 8 H
DSI DATA TSB 13 H
DS2 BIT 15 IN L
74S30 E92

SYNC PATTERN DECODE : 00011001

DS7 BIT CLOCK H — FU2 — 74S74 E83
DSI SYNC DET 1 L
DSI SYNC DET 1 H
DS7 SHIFT CLOCK L — ET1 — 74S74 E83
CH2
DSI SYNC DET H
DSI SYNC DET L

CS5 READ GATE FAST H — FF1

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.

REVISIONS		
CHK'D	CHANGE NO.	REV.
A. HUNT	M7685-00001	B
E. BELLETTIERE		
[illegible]	M7685-00002	C
B. Olsson 22 NOV 77		
C. BLATCHLEY (AMD)		
E. BELLETTIERE		

DATA BUFFER AND SYNC DETECT

DRN. S. Conroy	5-16-77	FIRST USED ON	digital
CHK'D D. Nowicki	6-4-77	RMØ3	
ENG. H. Bellettiere	6-6-77	TITLE	
PROJ. ENG. [illegible]	6-6-77	DATA SEQUENCER (DS8)	
PROD. [illegible]	6-13-77		
NEXT HIGHER ASSY.			
B-DD-M7685-Ø		SIZE D	CODE CS	NUMBER M7685-Ø-1	REV. C
SCALE		SHEET OF 15	DIST.		

SHIFT REGISTER

DS2 DATA IN H
DS5 18 BIT L
DS5 18 BIT H
DS2 SR 16 H
DS2 SR 17 H
DS2 BIT 15 IN L
DSI DATA TSB 17 H
DSI DATA TSB 16 H
CS5 READ GATE H
RDI RD DATA H
DS2 EN SØ L
DS2 EN SI H
CS3 MBA CLR L
DS7 SHIFT CLOCK H
74S194 E73
74S08 E76
74S51 E93
74S04 E51

DS2 EN SYNC L
DS5 EN LOAD SR H
CS4 EN SYNC H
CD2
74S08 E76
74S00 E67
74L504 E54
DS2 EN SI H
DS2 EN SØ L
DS2 EN SYNC L

DSI P2 READ GATE L
DSI P READ GATE L
DS2 SR ØØH
DSI DATA TSB 8H
DSI DATA TSB 9H
DSI DATA TSB ØH
DSI DATA TSB 1H
DSI DATA TSB 2H
DSI DATA TSB 3H
DSI DATA TSB 4H
DSI DATA TSB 5H
DSI DATA TSB 6H
DSI DATA TSB 7H
+3V B
74S299 E74
74S299 E55
DS7 SHIFT CLOCK H

NOTES:
A. WHILE E74 IS BEING LOADED WITH THE SYNC PATTERN, E55 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.)

DS3 PARITY ODD L
+3V C
DSI DATA TSB PAR H
DSI DATA TSB 15H
DSI DATA TSB 14H
DSI DATA TSB 13H
DSI DATA TSB 12H
8097 E71
DSI P2 READ GATE L
DS2 EN SYNC L
SYNC PATTERN GENERATION

DS2 SR 17 H
DS2 SR 16 H
+3V B
DSI DATA TSB 17 H
DSI DATA TSB 16 H
DSI DATA TSB 11 H
DSI DATA TSB ØH
DSI DATA TSB 9H
DSI DATA TSB 8H
8097 E73
DSI P2 READ GATE L

+5V
ALL A2 PINS
ALL C2 & T1 PINS
C1 THRU C1Ø
C118, C119, C12Ø
.Ø1µF
C111 THRU C116
6.8µF

SHIFT REGISTER AND SYNC PATTERN GENERATION (WRITE)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE (DS2) DATA SEQUENCER
SIZE D | CODE CS | NUMBER M 7685-Ø-1 | REV. C
SCALE — | SHEET 2 OF 15 | DIST.

CS5 EN CRC CLOCK L — DU2 — 74S08 E106
DS3 FMT 18H
SAI MB TSB 17H — DV2 — 74S08 EG3 — BV2 — DS3 MB17L
SAI MB TSB 16H — DV1 — 74S08 EG3 — BV1 — DS3 MB16L
SAI MB TSB 15H — DU1 — 74LS04 E44 — BU1 — DS3 MB15L
SAI MB TSB 14H — DS1 — 74LS04 E44 — BS1 — DS3 MB14L
SAI MB TSB 13H — DR1 — 74LS04 E44 — BR1 — DS3 MB13L
SAI MB TSB 12H — DP1 — 74LS04 E44 — BP1 — DS3 MB12L
SAI MB TSB 11H — DN1 — 74LS04 E33 — BN1 — DS3 MB11L
SAI MB TSB 10H — DM1 — 74LS04 E33 — BM1 — DS3 MB10L
SAI MB TSB 09H — DL1 — 74LS04 E33 — BL1 — DS3 MB09L
SAI MB TSB 08H — DK1 — 74LS04 E33 — BK1 — DS3 MB08L
SAI MB TSB 07H — DJ1 — 74LS04 E33 — BJ1 — DS3 MB07L
SAI MB TSB 06H — DH1 — 74LS04 E33 — BH1 — DS3 MB06L
SAI MB TSB 05H — DF1 — 74LS04 E19 — BF1 — DS3 MB05L
SAI MB TSB 04H — DE1 — 74LS04 E19 — BE1 — DS3 MB04L
SAI MB TSB 03H — DD1 — 74LS04 E19 — BD1 — DS3 MB03L
SAI MB TSB 02H — DC1 — 74LS04 E19 — BC1 — DS3 MB02L
SAI MB TSB 01H — DB1 — 74LS04 E19 — BB1 — DS3 MB01L
SAI MB TSB 00H — DA1 — 74LS04 E19 — BA1 — DS3 MB00L

+5V — R5 1K — +3V B
DS2 EN SYNC L — EU1 — 74LS08 E45
CS4 P EN LOAD SR H
DS4 WORD TIME H — FN2 — 74S74 E82 — FR2 — DS3 EN PAR GEN H
DS4 WORD TIME L — 74S74 E82 — FS2 — DS3 EN PAR CHECK H
DS3 EN PAR GEN L
CS4 D3 WRITE GATE H — EV1

DS1 SYNC DET 1 L — 74S00 E109
CS4 P LFS H — FM1
DS7 BIT CLOCK L
DS4 WORD TIME H — FN2 — 74S10 E108
DS7 ECC INPUT DATA L
DS1 SYNC DET L — 74S00 E56
DS3 EN PAR GEN L
74S00 E109 — 74S12 E104 — FT2 — DS3 PARITY ODD H / DS3 PARITY ODD L
DS7 CRC INPUT DATA H — 74S10 E108
DS4 WORD TIME L

DS3 EN PAR CHECK H — FS2 — 74S08 E76 — 74S74 E58 — EP1 — DS3 SYNC PAR SET H

CS5 TRNSCEIVR EN A H / SA2 WRT CLK A H — BS2 / CP2
CS5 TRNSCEIVR EN B H / SB2 WRT CLK B H — BR2 / CE2 — 74S51 E86 — DS3 WRT CLK L

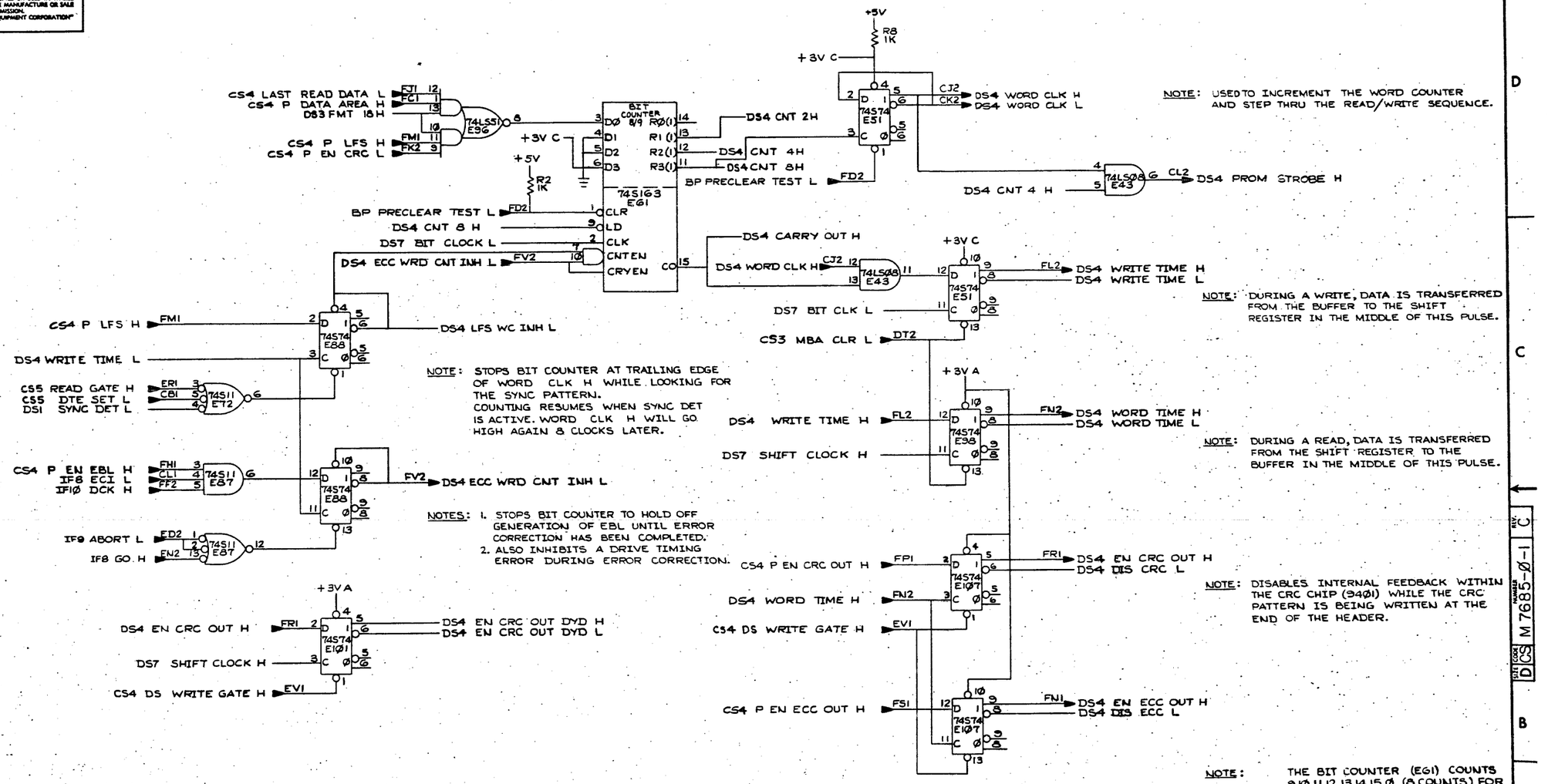
+3V C — WRITE PARITY BIT STORED
DS1 DATA TSB PAR H — 74S74 E70
DS4 WORD TIME L
IF8 FMT 16H — CM1 — 74S04 E89 — DS3 FMT 18 H
CS3 MBA CLR L — DT2
DS3 PARITY ODD H — FT2 — 74S08 EGG
DS4 WRITE TIME L
DS1 RESET GO/CLR L

REVISIONS

CHK	CHANGE NO.	REV.

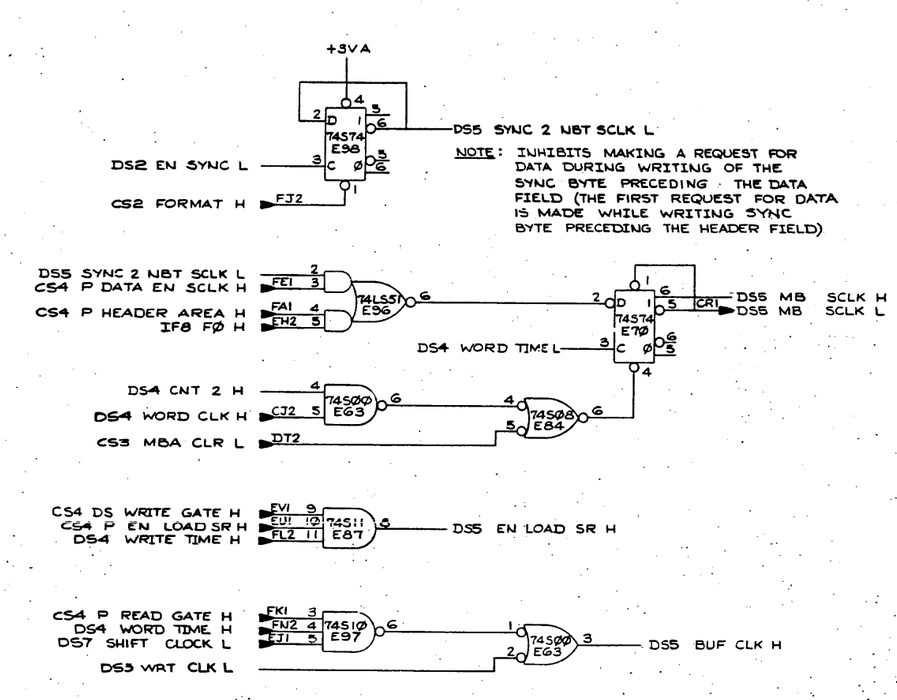
PARITY & DATA BUS

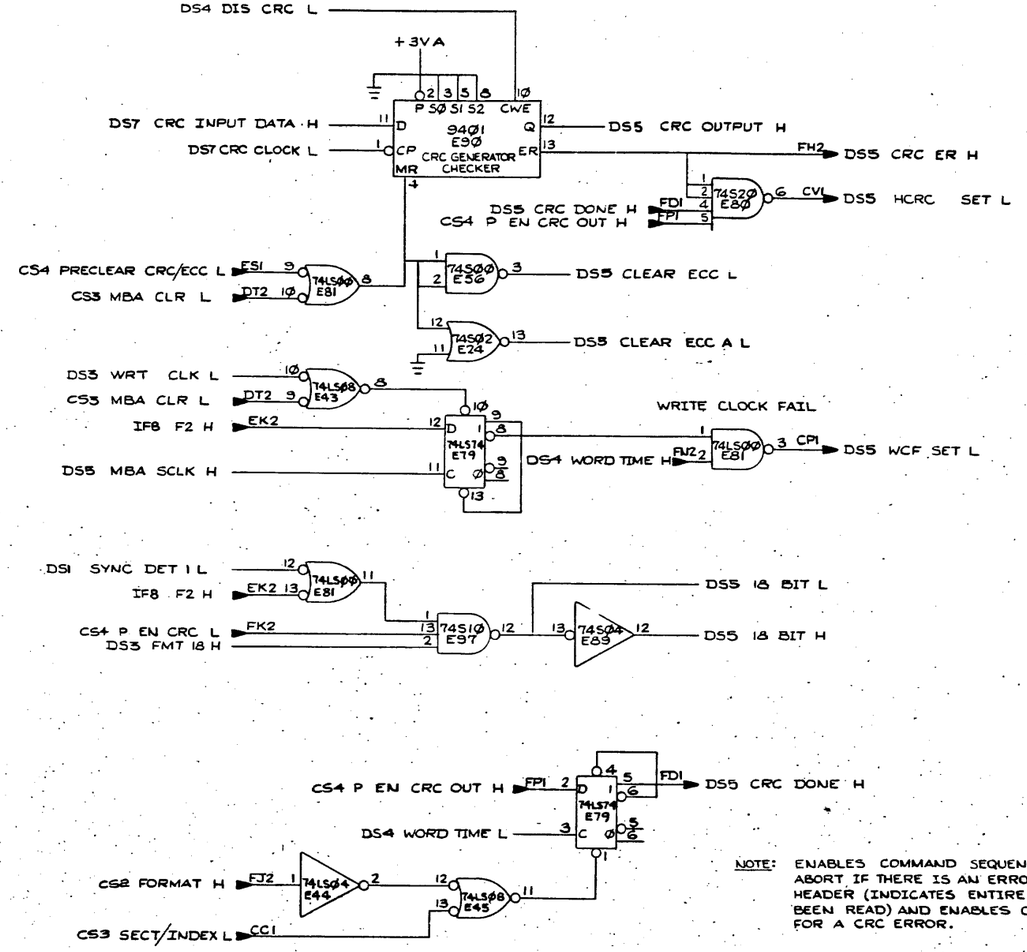
TITLE DATA SEQUENCER (DS3)
SIZE D | CODE CS | NUMBER M 7685-Ø-1 | REV C
SCALE — | SHEET 3 OF 5 | DIST.



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE: WORD CLOCK/TIMING (DS4) DATA SEQUENCER
SIZE D | CODE CS | NUMBER M 7685-Ø-1 | REV. C
SCALE — | SHEET 4 OF 15 | DIST.





REVISIONS		
CHK	CHANGE NO.	REV.

SCLK/CRC/WCF

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

74LS157 E3Ø MUX
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

74LS157 E28 MUX
DS11 TA 8 H — CH1
DS11 TA 4 H — DS2
DS11 TA 2 H — DR2
DS12 DC 512 H — BP2
DS11 TA 1 H — DP2
DS12 DC 256 H — BN2
DS6 HEADER FIRST L

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 — BJ2
DS6 HEADER FIRST L

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 E47 COMPARATOR
SAI MB TSB 15 H — DU1
SAI MB TSB 14 H — DS1
SAI MB TSB 13 H — DR1
SAI MB TSB 12 H — DP1
+3V D
A>B, A=B, A<B; IN>IN=IN<

74LS85 E36 COMPARATOR
SAI MB TSB 11 H — DN1
SAI MB TSB 10 H — DM1
SAI MB TSB Ø9 H — DL1
SAI MB TSB Ø8 H — DK1

74LS85 E35 COMPARATOR
SAI MB TSB Ø7 H — DJ1
SAI MB TSB Ø6 H — DH1
SAI MB TSB Ø5 H — DF1
SAI MB TSB Ø4 H — DE1

74LS85 E34 COMPARATOR
SAI MB TSB Ø3 H — DD1
SAI MB TSB Ø2 H — DC1
SAI MB TSB Ø1 H — DB1
SAI MB TSB ØØ H — DA1

+5V
1K R12
74LSØ9 E81
SAI MB TSB 15 H — DU1
SAI MB TSB 14 H — DS1
74S11 E72
BP 144 ENB H — EE1
74LSØ8 E45
DS6 HEADER FIRST H — AL2
DS6 FORMAT ER H

74LS175 E42 4 BIT REGISTER
D3 R3(1) R3(Ø) — EA1 — DS6 SET BSE L
D2 R2(1) R2(Ø) — CN1 — DS6 FER SET L
D1 R1(1) R1(Ø) — AL2 — DS6 HEADER FIRST L; DS6 HEADER FIRST H
DØ R Ø(1) R Ø(Ø) — CU1 — DS6 HCE H (NOT USED); DS6 HCE SET L
CLK CLR
DS6 EQUAL L
DS4 WORD CLK H — CJ2

CS4 READ HEADER H — BT2
IF8 HCI L — CK1
74LSØ8 E45

IF8 FMT16H — CM1
SAI MBTSB12H — DP1
74S86 E66 — DS6 FORMAT ER H

74LSØ4 E54 — DS6 EQUAL L

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

REVISIONS | CHK | CHANGE NO. | REV.

HEADER COMPARE

TITLE (DSE) DATA SEQUENCER | SIZE D | CODE DCS | NUMBER M7685-Ø-1 | REV C | SCALE | SHEET 6 OF 15 | DIST.

DEC FORM NO. DNO 130

+5V
R11 1K
+3V A
+3V B
RDI RD CLK H EBI
74SØ4 E95
DS7 READ CLOCK L
CS5 READ GATE H ERI
74SØ8 E84
74S74 E1Ø1
74LS74 E85
74SØ8 E84
74S51 E86
DS7 BIT CLOCK L
74SØ4 E89
FU2
DS7 BIT CLOCK H
RDI SERVO CLK L EMI
+3V B
DS7 READ CLOCK L
74LS74 E85
CS5 READ GATE FAST H FFI
74SØ4 E95
DS7 WRITE CLOCK ENABLE H
CS5 EN CRC CLOCK L DU2
74S32 E111
DS7 CRC CLOCK L
CS5 EN ECC CLOCK L DN2
74SØ2 E1Ø
AE1
DS7 ECC CLOCK H
74SØ4 E89
DS7 ECC CLOCK L
CS3 MBA CLR L DT2
NOTE: W1 IS IN FOR RM93, OUT FOR RM93 W1
C121 39PF +5V
C117 39PF
RG 3ØK
DS7 BIT CLOCK H FU2
74123 EG9
DS7 4ØØ NS LBC TO H (NOT USED)
CS5 EN CRC CLOCK L DU2
74SØØ E1Ø9
74S32 E111
74S1Ø E97
DS7 SHIFT CLOCK H
74SØ4 E89
EJ1
DS7 SHIFT CLOCK L
DS7 CRC CLOCK L
DS7 ECC CLOCK L
+3V C
IF8 GO H EN2
CS8 DIAG L EF2
74LS1Ø E1Ø5
FM2
DS7 LBC SET L
DS7 CRC CLOCK L
+3V A
DS5 CRC OUTPUT H
74S112 E1ØØ
74SØ4 E91
DS7 CRC BIT LATE H
CS4 DS WRITE GATE H EVI
WRITE DATA GENERATION
+5V
R4 1K
+3V B
8097 E78
CS8 MR READ DATA H EM2
CS8 MAINT CLK L EL2
CS8 MAINT CLK H EJ2
CS8 DIAG L EF2
EDI RDI RD DATA H
EMI RDI SERVO CLK L
EBI RDI RD CLK H
DS8 ECC PAT ØØ H
DS4 EN ECC OUT H FNI
DS2 SR ØØ H
74S51 E1Ø2
74S74 E99
DS4 EN CRC OUT DYD L
DS7 CRC BIT LATE H
DS4 EN CRC OUT DYD H
74S51 E93
EFI
DS7 WRITE DATA L
74S02 E11Ø
DS4 EN CRC OUT H FRI
DS7 SHIFT CLOCK L EJ1
DS7 SHIFT CLOCK H
CS4 WRITE GATE H EVI
DS2 SRØØ H
CS4 DS WRITE GATE H EVI
DS2 DATA IN H
CS5 READ GATE H ERI
74S51 E1Ø2
74SØ4 E91
DS7 CRC INPUT DATA H
DS7 ECC INPUT DATA L

REVISIONS		
CHK	CHANGE NO.	REV.

BIT CLOCK GENERATION AND WRITE DATA

TITLE		SIZE	CODE	NUMBER	REV.
DATA SEQUENCER	(DS7)	D	CS	M 7685-Ø-1	C
SCALE —	SHEET 7 OF 15	DIST.			

ECC PATTERN REGISTER

DS8 EC 21 H
DS8 EC 30 H
DS7 ECC INPUT DATA L
DS4 EN ECC OUT H
FN1
DS8 ECC PAT ØØ H
DS4 DIS ECC L
74S32 E111
74S86 E77
74S86 E77
74S86 EG6
74S ØØ EG7
74LS175 E1Ø4
DS8 EC 2Ø H
DS8 EC 29 H
DS8 EC 3Ø H
DS8 EC 31 H
DS8 EC 29 H
74LS164 E112 R7(I)
74LS164 E1Ø3 R7(I)
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 2Ø H
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
74S26Ø E113
74S26Ø E94
74S26Ø E94
74S3Ø E59
DS8 ECC PAT Ø8 H
DS8 ECC PAT Ø9 H
DS8 EC 11 H
74LS175 EG8
DS8 ECC PAT 1ØH
DS8 EC 12H
DS8 ECC PAT Ø8 H
DS8 ECC PAT Ø9 H
DS8 ECC PAT 1Ø H
DS8 EC 11H
DS7 ECC CLOCK H
AE1
DS5 CLEAR ECC L
DS8 ECC FEEDBACK BIT H
DS8 EC 11H
DS8 DCK SET L
CA1
74S ØØ EG7
74LS164 E29 R7(I)
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
DS8 ECC PAT Ø6 H
DS8 ECC PAT Ø7 H
IF8 ECI L
CL1
DS8 DCK SET L
CA1
DS8 NON ZERO ECC H
IF8 F2 H
CS4 P EN EBL H
EK2
FH1
74S11 E57
74S11 E57
DS8 EN CORRECTION H
DS7 SHIFT CLOCK L
EJ1
74S74 E58
DS8 ECC PAT Ø8 H
DS8 DCK SET L
DS5 CLEAR ECC L
DATA CHECK GENERATION
+5V
R3
1K
BP TEST L
AV2
DS8 EN CORRECTION H
74S ØØ EG7

REVISIONS		
CHK	CHANGE NO.	REV.

ECC PATTERN REGISTER AND DCK GENERATION

TITLE	SIZE	CODE	NUMBER	REV.
(DS8) DATA SEQUENCER	D	CS	M 7685-Ø-1	C
SCALE — SHEET 8 OF 15	DIST.			

NEXT ASSY | USED ON | M 7685-Ø-1 | REV. C

74S00 E1 | 74S00 E1 | 74S00 E1 | 74LSØ2 E24 | 74S02 E11Ø | 74S86 E66 | 74S32 E111

74LS1Ø E1Ø5 | 74S20 E41 | 74S20 E80 | 74S11 E72 | 74LS27 E5Ø | 74LS27 E5Ø

74LSØ4 E17 | 74LSØ4 E17 | 74LSØ4 E17 | 74LSØ4 E44 | 74LSØ4 E54

74LSØ4 E55 | 74S04 E55 | 74S04 E55 | 74S04 E55 | 74123 E69

ECC PATTERN TO CONTROL BUS

8Ø98 E38

DS8 ECC PAT ØØ H	A6	Y6	CM2 → IF2 CONT ØØ
DS8 ECC PAT Ø1 H	A5	Y5	CN2 → IF2 CONT Ø1
DS8 ECC PAT Ø2 H	A4	Y4	CP2 → IF2 CONT Ø2
DS8 ECC PAT Ø3 H	A3	Y3	CR2 → IF2 CONT Ø3
DS8 ECC PAT Ø4 H	A2	Y2	CS2 → IF2 CONT Ø4
DS8 ECC PAT Ø5 H	A1	Y1	CT2 → IF2 CONT Ø5

G1 G2

IF6 EN REG TO TIST H — EE2 — 74SØØ E56

IF5 RM EC2 H — AV1

8Ø98 E31

DS8 ECC PAT Ø6 H	A6	Y6	CU2 → IF2 CONT Ø6
DS8 ECC PAT Ø7 H	A5	Y5	CV2 → IF2 CONT Ø7
DS8 ECC PAT Ø8 H	A4	Y4	DD2 → IF2 CONT Ø8
DS8 ECC PAT Ø9 H	A3	Y3	DE2 → IF2 CONT Ø9
DS8 ECC PAT 1Ø H	A2	Y2	DF2 → IF2 CONT 1Ø
	A1	Y1	

G1 G2

IF5 RM EC1 H — AU1 — 74SØØ E56

ECC POSITION TO CONTROL BUS

8Ø98 E16

DSIØ ECC POS N 11H	A6	Y6	DH2 → IF2 CONT 11
DSIØ ECC POS N 1ØH	A5	Y5	DF2 → IF2 CONT 1Ø
DSIØ ECC POS N Ø9H	A4	Y4	DE2 → IF2 CONT Ø9
DSIØ ECC POS N Ø8H	A3	Y3	DD2 → IF2 CONT Ø8
DSIØ ECC POS N Ø7H	A2	Y2	CV2 → IF2 CONT Ø7
DSIØ ECC POS N Ø6H	A1	Y1	CU2 → IF2 CONT Ø6

G1 G2

8Ø98 E37

DSIØ ECC POS N Ø5 H	A6	Y6	CT2 → IF2 CONT Ø5
DSIØ ECC POS N Ø4 H	A5	Y5	CS2 → IF2 CONT Ø4
DSIØ ECC POS N Ø3 H	A4	Y4	CR2 → IF2 CONT Ø3
DSIØ ECC POS N Ø2 H	A3	Y3	CP2 → IF2 CONT Ø2
DSIØ ECC POS N Ø1 H	A2	Y2	CN2 → IF2 CONT Ø1
DSIØ ECC POS N ØØH	A1	Y1	CM2 → IF2 CONT ØØ

G1 G2

DS9 EC1 TO CONT L

NOTE: A. SEE DS13 FOR BIT 12 OF POSITION REGISTER TO CONTROL BUS.

REVISIONS

CHK	CHANGE NO.	REV.

POSITION AND PATTERN GATED TO CONTROL BUS

TITLE (DS9) DATA SEQUENCER

SIZE D | CODE CS | NUMBER M 7685-Ø-1 | REV C

SCALE — | SHEET 9 OF 15 | DIST.

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
74S2Ø E41
74S2Ø E35
74S02 E24
DS1Ø ECH H (NOT USED)
CS1
DS1Ø ECH SET L
DS8 EN CORRECTION H
DS1Ø CORRECTION CLK L
74S74 E40
74S11 E57
AU2
DS1Ø EN CORRECT CLK L
DS1Ø DONE OR ECH L
DS1Ø EN LOAD POS L
DS8 NON ZERO ECC H
DS1Ø SET POS H
DS7 ECC CLOCK H
AE1
74S74 E32
START COUNTING POSITION
AS1
DS1Ø ECC DONE H
DS1Ø ECC DONE L
CA1
DS8 DCK SET L
DS7 SHIFT CLOCK H
74S74 E40
74S74 E32
74S74 E32
74S2Ø E39
74S2Ø E39
74S2Ø E39
DS1Ø CORRECTION CLK L
DS5 CLEAR ECC A L
DS5 CLEAR ECC L

POSITION COUNTER

+3V D
DS1Ø ECC POSN 12 H
BP PRECLEAR TEST L
FD2
DS7 ECC CLOCK H
AE1
DS1Ø EC CAR 1 IN H
AB1
745163 E11
DS1Ø SET POS H
DS3 FMT 18 H
DS1Ø ECC POSN Ø8H
DS1Ø ECC POSN Ø9H
DS1Ø ECC POSN 1ØH
DS1Ø ECC POSN 11H
745163 E14
DS1Ø EC CAR 2 IN H
AD1
+3V D
DS1Ø EN LOAD POS L
DS7 ECC CLOCK H
DS1Ø EC CAR 1 IN H
AB1
745163 E22
DS1Ø ECC POSN Ø4 H
DS1Ø ECC POSN Ø5 H
DS1Ø ECC POSN Ø6 H
DS1Ø ECC POSN Ø7 H
AC1
DS1Ø EC CAR 2 OUT H
+3V D
DS1Ø DONE OR ECH L
DS8 EN CORRECTION H
745163 E46
DS1Ø ECC POSN ØØH
DS1Ø ECC POSN Ø1 H
DS1Ø ECC POSN Ø2H
DS1Ø ECC POSN Ø3H
AA1
DS1Ø EC CAR 1 OUT H

NOTES: 1. AA1 AND AB1 ARE CONNECTED ON THE BACKPLANE.
2. AC1 AND AD1 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		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
DATA SEQUENCER (DSIØ)	D	DCS	M 7685-Ø-1	C
SCALE —	SHEET 1Ø OF 15	DIST.		

IF8 READ IN CMD L AT2

74LS74 E9 — 74LS04 E17 — 74LS00 E8 — 74LS04 E17 — 74LS00 E8 — 74LS74 E9 — 74LS04 E17 — 74LS00 E8

CS5 MBA EBL L AL1

DSII EBL H

IF6 WRT REG H AJ1
IF5 RM DA H AF1

DSII WRT DA L

IF2 CONT 15 DM2
IF2 CONT 14 DL2
IF2 CONT 13 DK2
IF2 CONT 12 DJ2

IF2 CONT 11 DH2
IF2 CONT 10 DF2
IF2 CONT 09 DE2
IF2 CONT 08 DD2

IF8 GO H EN2

IF2 CONT 07 CV2
IF2 CONT 06 CU2
IF2 CONT 05 CT2
IF2 CONT 04 CS2

IF2 CONT 03 CR2
IF2 CONT 02 CP2
IF2 CONT 01 CN2
IF2 CONT 00 CM2

74LS161 E48 — 74LS161 E7 — 74LS161 E5 — 74LS161 E3
D3 D2 D1 D0 — R3(I) R2(I) R1(I) R0(I)
CLR LD CLK CNT EN CRY EN CO

74LS27 E50

DSII TA 128 H
DSII TA 64 H
DSII TA 32 H

+5V
R9 1K

BP 80 MB L CF1

DSII TA 16 H CJ1
DSII TA 8 H CH1
DSII TA 4 H DS2
DSII TA 2 H DR2
DSII TA 1 H DP2
DSII SA 128 H
DSII SA 64 H
DSII SA 32 H
DSII SA 16 H EV2
DSII SA 8 H EU2
DSII SA 4 H ET2
DSII SA 2 H ES2
DSII SA 1 H ER2

IF8 FMT 16 H CM1

23-00306-00
82S100 E15
I15 I14 I13 I12 I11 I10 I9 I8 I7 I6 I5 I4 I3 I2 I1 I0
CE FE
PLA #1
F7 F6 F5 F4 F3 F2 F1 F0

DSII LST TRK L
DSII SECT/TRK IVA H
DSII LST SECT TRK L
DSII LST SECT TRK H
DSII LST SECT L
AR1 DSII LST SECT H

REVISIONS		
CHK	CHANGE NO.	REV.

SECTOR & TRACK REG.

TITLE	SIZE	CODE	NUMBER	REV.
DATA SEQUENCER (DSII)	D	CS	M 7685-Ø-1	C
SCALE — / —	SHEET 11 OF 15	DIST.		

IF2 CONT Ø9 DE2
IF2 CONT Ø8 DD2
IF8 READ IN CMD L AT2
IF8 GO H EN2
74LS161 E21
D3 D2 DI DØ R3(1) R2(1) R1(1) RØ(1) CLR LD CLK CNT EN CRY EN CO

SA2 RUN H EC1
DS12 LBT H IØ
74SØ8 E76

BP2 DS12 DC 512 H
BN2 DS12 DC 256 H

CS5 MBA EBL L AL1
74SØØ E2

IF6 WRT REG H AJ1
IF5 RM DC H AK1
74SØØ E2

IF2 CONT ØT CV2
IF2 CONT Ø6 CU2
IF2 CONT Ø5 CT2
IF2 CONT Ø4 CS2
74LS161 E2Ø

BL2 DS12 DC 64 H
BM2 DS12 DC 128 H
BJ2 DS12 DC 16 H
BK2 DS12 DC 32 H

DS12 LST SECT TRK H FE2
DS11 EBL H
IF8 OFFSET MODE H AP1
74LS74 E1Ø
D C
AM1 DS12 CLR OFF MD L
CLEAR OFFSET MODE

DS12 DC CAR I IN H AE2

LAST BLOCK TRANSFERRED AN1 DS12 LBT H
DS12 LAST ADD H
74LS74 E1Ø

IF2 CONT Ø3 CR2
IF2 CONT Ø2 CP2
IF2 CONT Ø1 CN2
IF2 CONT ØØ CM2
74LS161 E12

BF2 DS12 DC 4 H
BH2 DS12 DC 8 H
BD2 DS12 DC 1 H
BE2 DS12 DC 2 H
AD2 DS12 DC CAR I OUT H

DS11 WRT DA L
CS4 POWER OK H CE1
74LS08 E43

FE2 DS12 LST SECT TRK H

DS11 SECT/TRK IVA H

+5V
RIØ 1K
23-ØØ2C6-ØØ
8251ØØ E18
BP DC OPTION CD1
IF8 SCH SK R OR W L AS2
DS11 EBL H
I15 I14 I13 I12 I11 IIØ I9 I8 I7 I6 I5 I4 I3 I2 I1 IØ
F7 F6 F5 F4 F3 F2 F1 FØ
AM2 DS12 MAX CYL L
AN2 DS12 AOE SET L
DS12 LAST ADD H
PLA #2
CE FE

CS3 SET PULSE H AR2
74SØØ E1
AP2 DS12 IAE SET L

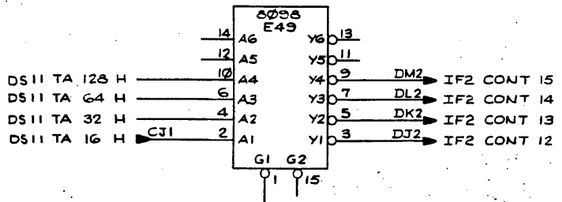
NOTE: AD2 AND AE2 ARE CONNECTED ON THE BACKPLANE. (RUN IS SPLIT TO SPEED UP TESTING OF THE MODULE)

REVISIONS
CHK | CHANGE NO | REV

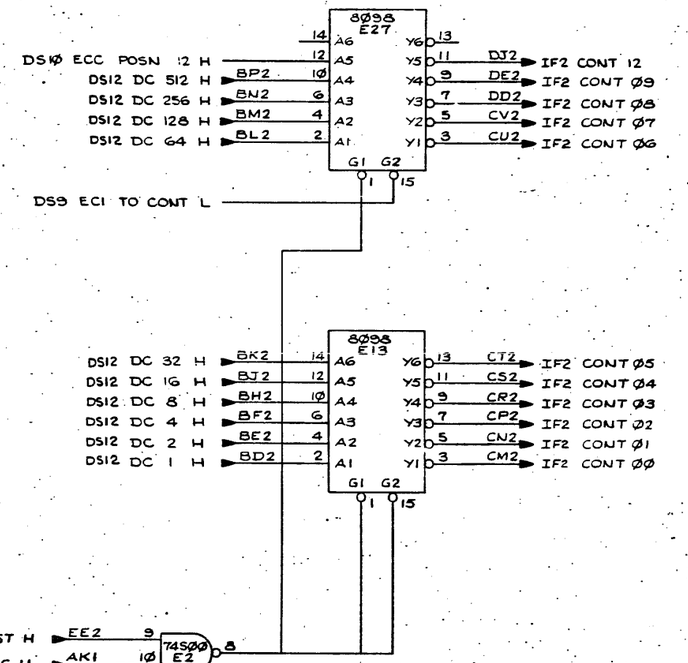
DESIRED CYLINDER REG.

TITLE (DSI2) DATA SEQUENCER
SCALE 1/1 SHEET 12 OF 15
SIZE D CODE DCS NUMBER M 7685-Ø-1 REV C
DIST.

SECTOR/TRACK TO CONTROL BUS



DESIRED CYLINDER TO CONTROL BUS



REVISIONS		
CHK	CHANGE NO.	REV.

SECT/TRACK/DC
GATED TO CONTROL BUS

TITLE		SIZE	CODE	NUMBER	REV.
DATA SEQUENCER	(DSI3)	D	CS	M7685-0-1	C
SCALE —/—/—	SHEET 13 OF 15	DIST.			

M7685-0-1 REV C
SIZE CODE DCS

AAI	DSIØ EC CAR 1 OUT H
ABI	DSIØ EC CAR 1 IN H
ACI	DSIØ EC CAR 2 OUT H
ADI	DSIØ EC CAR 2 IN H
AEI	DS7 ECC CLOCK H
AFI	IF5 RM DA H
AHI	SPARE
AJI	IF6 WRT REG H
AKI	IF5 RM DC H
ALI	CS5 MBA EBL L
AMI	DSI2 CLR OFF MD L
ANI	DSI2 LBT H
API	IF8 OFFSET MODE H
ARI	DSII LST SECT H
ASI	DSIØ ECC DONE H
ATI	GND
AUI	IF5 RM EC1 H
AVI	IF5 RM EC2 H

BAI	DS3 MB ØØ L
BBI	DS3 MB Ø1 L
BCI	DS3 MB Ø2 L
BDI	DS3 MB Ø3 L
BEI	DS3 MB Ø4 L
BFI	DS3 MB Ø5 L
BHI	DS3 MB Ø6 L
BJI	DS3 MB Ø7 L
BKI	DS3 MB Ø8 L
BLI	DS3 MB Ø9 L
BMI	DS3 MB 1Ø L
BNI	DS3 MB 11 L
BPI	DS3 MB 12 L
BRI	DS3 MB 13 L
BSI	DS3 MB 14 L
BTI	GND
BUI	DS3 MB 15 L
BVI	DS3 MB 16 L

CAI	DS8 DCK SET L
CBI	CS5 DTE SET L
CCI	CS3 SECT/INDEX L
CDI	BP DC OPTION
CEI	CS4 POWER OK H
CFI	BP 8Ø MB L
CHI	DSII TA 8 H
CJI	DSII TA 16 H
CKI	IF8 HCI L
CLI	IF8 ECI L
CMI	IF8 FMT 16 H
CNI	DS6 FER SET L
CPI	DS5 WCF SET L
CRI	DS5 MB SCLK L
CSI	DSIØ ECH SET L
CTI	GND
CUI	DS6 HCE SET L
CVI	DS5 HCRC SET L

DAI	SAI MB TSB ØØ H
DBI	SAI MB TSB Ø1 H
DCI	SAI MB TSB Ø2 H
DDI	SAI MB TSB Ø3 H
DEI	SAI MB TSB Ø4 H
DFI	SAI MB TSB Ø5 H
DHI	SAI MB TSB Ø6 H
DJI	SAI MB TSB Ø7 H
DKI	SAI MB TSB Ø9 H
DLI	SAI MB TSB Ø9 H
DMI	SAI MB TSB 1Ø H
DNI	SAI MB TSB 11 H
DPI	SAI MB TSB 12 H
DRI	SAI MB TSB 13 H
DSI	SAI MB TSB 14 H
DTI	GND
DUI	SAI MB TSB 15 H
DVI	SAI MB TSB 16 H

EAI	DS6 SET BSE L
EBI	RDI RD CLK H
ECI	SA2 RUN H
EDI	RDI RD DATA H
EEI	BP 44 ENB H
EFI	DS7 WRITE DATA L
EHI	SPARE
EJI	DS7 SHIFT CLOCK L
EKI	SPARE
ELI	SPARE
EMI	RDI SERVO CLK L
ENI	SPARE
EPI	DS3 SYNC PAR SET H
ERI	CS6 READ GATE H
ESI	CS4 PRECLEAR CRC/ECC L
ETI	GND
EUI	CS4 P EN LOAD SR H
EVI	CS4 DS WRITE GATE H

FAI	CS4 P HEADER AREA H
FBI	SPARE
FCI	CS4 P DATA AREA H
FDI	DS6 CRC DONE H
FEI	CS4 P DATA EN SCLK H
FFI	CS5 READ GATE FAST H
FHI	CS4 P EN EBL H
FJI	CS4 LAST READ DATA L
FKI	CS4 P READ GATE H
FLI	SPARE
FMI	CS4 P LFS H
FNI	DS4 EN ECC OUT H
FPI	CS4 P EN CRC OUT H
FRI	DS4 EN CRC OUT H
FSI	CS4 P EN ECC OUT H
FTI	GND
FUI	SPARE
FVI	SPARE

AA2	+5V
AB2	-15V
AC2	GND
AD2	DSI2 DC CAR 1 OUT H
AE2	DSI2 DC CAR 1 IN H
AF2	SPARE
AH2	SPARE
AJ2	SPARE
AK2	SPARE
AL2	DS6 HEADER FIRST H
AM2	DS2 MAX CYL L
AN2	DSI2 AOE SET L
AP2	DSI2 IAE SET L
AR2	CS3 SET PULSE H
AS2	IF8 SCH SK R OR W L
AT2	IF8 READ IN CMD L
AU2	DSIØ EN CORRECT CLK L
AV2	BP TEST 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	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	DSI SYNC DET H
CJ2	DS4 WORD CLK H
CK2	DS4 WORD CLK L
CL2	DS4 PROM STROBE H
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

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	CS5 EN ECC CLOCK L
DP2	DSII TA 1 H
DR2	DSII TA 2 H
DS2	DSII TA 4 H
DT2	CS3 MBA CLR L
DU2	CS5 EN CRC CLOCK L
DV2	SAI MB TSB 17 H

EA2	+5V
EB2	-15V
EC2	GND
ED2	IF9 ABORT L
EE2	IF6 EN REG TO TIST H
EF2	CS8 DIAG L
EH2	IF8 FØ 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	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	BP PRECLEAR TEST L
FE2	DSI2 LST SECT TRK H
FF2	IFIØ DCK H
FH2	DS5 CRC ER 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

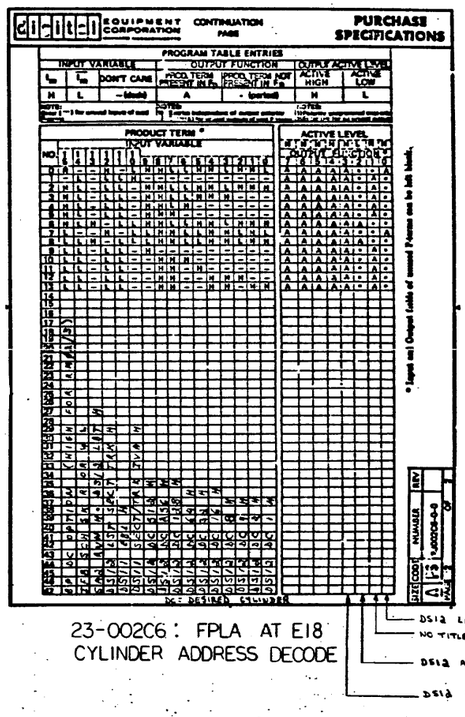
REVISIONS		
CHK	CHANGE NO.	REV.

I/O SIGNAL LIST

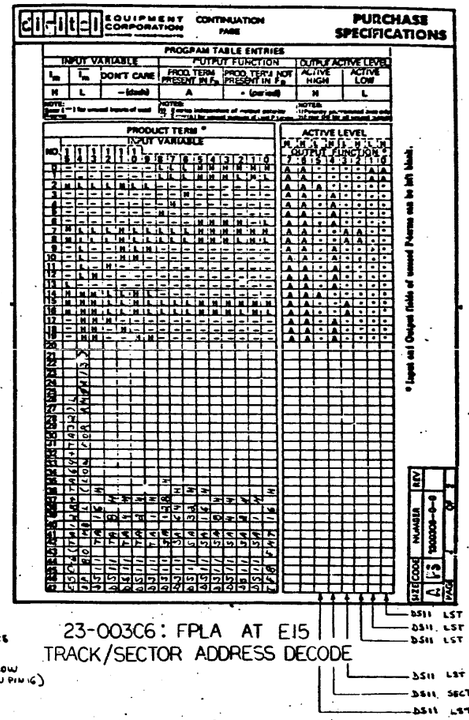
TITLE DATA SEQUENCER (DS14)

SIZE D | CODE DCS | NUMBER M 7685-Ø-1 | REV. C

SCALE -/-/- | SHEET 4 OF 5 | DIST.



23-002C6: FPLA AT E18
CYLINDER ADDRESS DECODE



23-003C6: FPLA AT E15
TRACK/SECTOR ADDRESS DECODE

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
DATA SEQUENCER	D	CS	M7685-0-1	C
SCALE — SHEET 5 OF 5	DIST.			

M7685-0-1 REV C
SIZE D CODE DCS NUMBER M7685-0-1 REV C

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY S. BELTBER DATE 12-20/76 | CHECKED Paul Kendrick DATE 2/10/77 | SECTION 1
ENG Bruce Bellettiere DATE 10 June 1977 | PROD J Miller DATE 6-13-77 | ISSUED SECTION 1

NOTES:
USED ON: OPTION/MODEL
RM03

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY/VARIATION	REF DESIGNATION
	D-CS-M7685-Ø-1		DATA SEQUENCER (C.S.)	REF	
	D-UA-M7685-Ø-Ø		UNIT ASSY.	REF	
	B-LD-M7685-Ø		DWG. DIRECTORY	REF	
	D-MD-5012485-Ø-Ø		DRILL AND ETCH DWG.	REF	
1		5012485	ETCH BOARD	1	
2		10-01610-01	CAP, .01 UF 100V (DISC.)	113	C1 thru C110, C118 thru C120
3		10-05306-00	CAP, 6.8 UF 35V 10% (TANT)	6	C111 thru C116
4		10-00010-00	CAP, 39 PF 100V 5% DM	2	C117, C121
5		12-10711-02	HANDLE, ASSY.	1	
6		90-00024-01	EYELET	12	
7		13-00365-00	RES, 1K 1/4W 5%	11	R1 thru R5,R7,R8,R9,R10,R11,R12
8		13-02394-00	RES, 30K 1/4W 5%	1	R6
9		19-12799-00	I.C. 74LS00	2	E8,E81
10		19-10532-00	I.C. 74S00	7	E1,E2,E39,E56,E63,E67,E109
11		19-12388-00	I.C 74S02	1	E110
12		19-12803-00	I.C. 74LS04	5	E17,E19,E33,E44,E54
13		19-10534-00	I.C. 74S04	3	E89,E91,E95
14		19-12805-00	I.C. 74LS08	2	E43,E45
15		19-12389-00	I.C. 74S08	3	E76,E84,E106
16		19-10536-00	I.C. 74S10	2	E97,E108
17		19-10537-00	I.C. 74S11	3	E57,E87,E72
18		19-12801-00	I.C. 74LS02	1	E24

E.C.O. NO. 00001 00002

TITLE: DATA SEQUENCER
ASSY NO.: D-UA-M7685-0-0
SHEET 1 OF 3
SIZE B | CODE PL | NUMBER M7685-Ø-Ø | REV. C
INSERTION PARTS LIST DATA BASE REV A

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY S. BELTZER DATE 12/20/76 — CHECKED P. KENDRICK DATE 2.10/77 — SECTION 1
ENG Irene Bellettiere DATE 10 June 1977 — PROD Jomiller DATE 6-13-77 — ISSUED SECTION 1

NOTES:
USED ON: OPTION/MODEL
RM03

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY/VARIATION	REF DESIGNATION
19		19-10539-00	I.C. 74S20	2	E41,E80
20		19-14086-00	I.C. 74S30	2	E59,E92
21		19-13340-00	I.C. 74S32	1	E111
22		19-12820-00	I.C. 74LS51	1	E96
23		19-11712-00	I.C. 74S51	3	E86,E93,E102
24		19-10544-00	I.C. 74S74	12	E32,E40,E51,E58,E70,E82,E83,E88,E98,
25		19-12824-00	I.C. 74LS74	4	E101,E107,E90
26		19-12828-00	I.C. 74LS85	4	E9,E10,E79,E85
27		19-12096-00	I.C 74S86	2	E34,E35,E36,E47
28		19-10545-00	I.C. 74S112	1	E66,E77
29		19-10436-00	I.C. 74123	1	E100
30		19-12847-00	I.C. 74LS157	4	E69
31		19-14082-00	I.C. 74S163	5	E25,E26,E28,E30
32		19-12850-00	I.C. 74LS164	3	E11,E14,E22,E46,E61
33		19-12853-00	I.C. 74LS175	3	E29,E103,E112
34		19-10552-00	I.C. 745194	1	E42,E68,E104
35		19-14085-00	I.C. 74S260	2	E75
36		19-14084-00	I.C. 74S299	2	E94,E113
37		19-11527-00	I.C. DM8097	3	E55,E74
38		19-14087-00	I.C. DM8098	9	E71,E73,E78
39		19-14083-00	I.C. DM8542	5	E4,E6,E13,E16,E27,E31,E37,E38,E49
					E52,E53,E60,E62,E64

E.C.O. NO.

TITLE: DATA SEQUENCER

ASSY NO. D-UA-M7685-0-0 — SHEET 2 OF 3

SIZE B — CODE PL — NUMBER M7685-Ø-Ø — REV. C

INSERTION PARTS LIST DATA BASE REV A

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY S. BELTZER DATE 12-20-76 BW
CHECKED PAUL KENDRICK DATE 2/10/77
SECTION 1
ENG Jane Robottom DATE 10 June 1977
PROD J Doniller DATE 6-13-77
ISSUED SECTION 1

NOTES:
USED ON: OPTION/MODEL
RM03

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY/VARIATION	REF DESIGNATION
40		19-13474-00	I.C. 9401	1	E90
41		19-12807	I.C. 74LS10	1	E105
42		19-12849	I.C. 74LS161	7	E3,E5,E7,E12,E20,E21,E48
43		23-ØØ3C6-Ø1	I.C. 82S100	1	E15
44		I.C. SPARE LOCATIONS		2	E23,E65,~~E106~~
45		19-12813	I.C. 74LS27	1	E50
46		~~91-05740-55~~	~~WIRE #30 AWG, GRN~~	~~A/R~~	
47		23-ØØ2C6-ØØ	I.C. 825100	1	E18
48		90-09185	JUMPER	1	W1

E.C.O. NO.

TITLE DATA PROCESSOR

ASSY NO. D-UA-M7F85-0-0
SIZE B | CODE PL | NUMBER M7F85-Ø-Ø | REV. C
SHEET 3 OF 3
INSERTION PARTS LIST DATA BASE REV A

COMPONENT SIDE VIEW

NOTES:
1. 8 HOLES .0465 (+.000-.0035) MAYNARD ONLY
2. W1 MUST BE INSTALLED AND W2 MUST BE REMOVED AFTER QA TEST

CHG	CHANGE NO	REV
MT	M7686-4	E
TB		
TB	BELLETTIERE	F
TB	M7685-5	
TB	BELLETTIERE	
TB	M7686-ML6	H
	E.EARLIE	
	M7686-CK867 W.HARDEN	J

ETCH REV. C
P-C DESIGN DATA BASE REV. 2486 C-PI

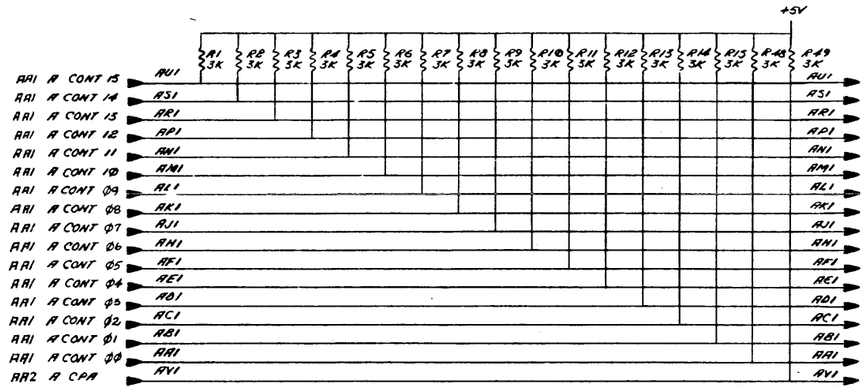
SIGNATURES	DATE
DRN	7-15-77
CHK D.	7-28-77
ENG.	8-10-77
PROJ.ENG.	8-30-77
PROD.	
SCALE 2:	
SHT. 1 OF 6	
NEXT HIGHER ASSY. BDD-M7686-0	

digital

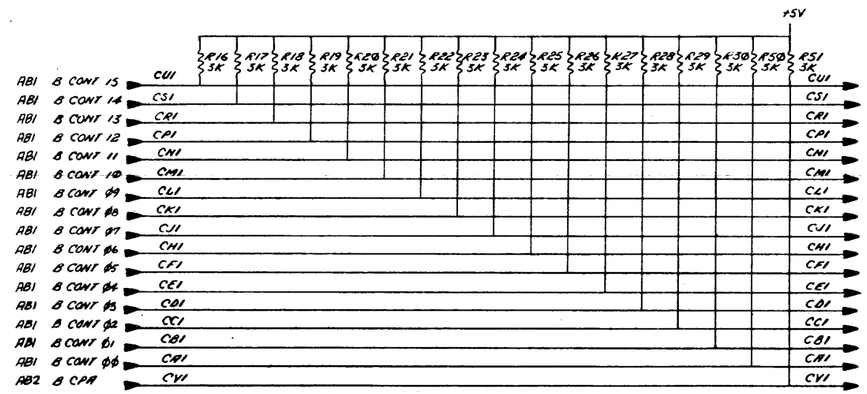
TITLE: CONTROL INTERFACE

SIZE	CODE	NUMBER	REV
D	UA	M7686-0-0	J

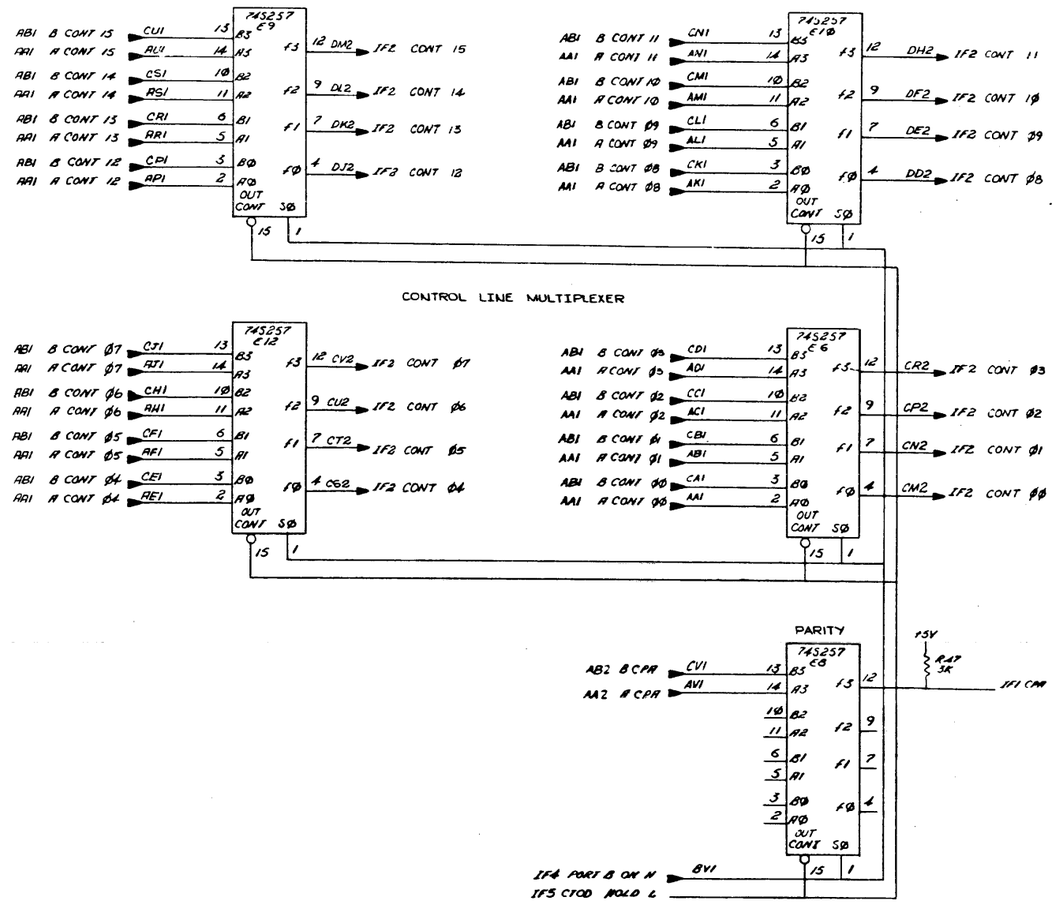
1 MS#121487

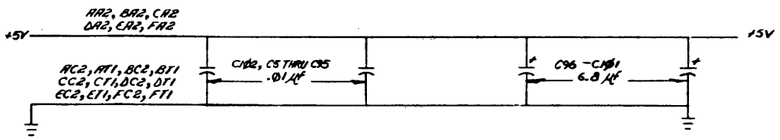


PORT A CONTROL LINES



PORT B CONTROL LINES





DN1, BJ2, BH2, EN1, EU2, BF2, BD2

SPARE PINS

NOTE: SIGNALS NOT SUFFIXED WITH "H" OR "L" ARE MASS BUS SIGNALS WHICH ARE RECEIVED ASSERTED HIGH, AND TRANSMITTED ASSERTED LOW

REVISIONS		
CHK	CHANGE NO.	REV
CS	M7686-00001	B
	M7686-00002	C
	M7686-00003	D
	M7686-00004	E
	M7686-ML004	F
	M7686-ML005	H
	M7686-CX007	J

CONTROL LINES AND INPUT MULTIPLEXERS

DRN		3/1/77
CHK'D		6/8/77
ENG.		6/8/77
PROJ. ENGR		6/3/77
PROD.		6/8/77
NEXT HIGHER ASSY.	B-DD-M7686-0	
SCALE	NONE	
SHEET	1 OF 14	

FIRST USED ON: RMØ3 — digital

TITLE: CONTROL INTERFACE (IF1)

SIZE: D | CODE: CS | NUMBER: M7686-0-1 | RFV: J

DIST.

CZ

IF2 CONT Ø0 CM2
IF2 CONT Ø1 CN2
IF2 CONT Ø2 CP2
IF2 CONT Ø3 CR2
IF2 CONT Ø4 CS2
IF2 CONT Ø5 CT2
IF2 CONT Ø6 CU2
IF2 CONT Ø7 CV2

74S280 E5 — Σ ODD → IF2 ODD PARITY H; Σ EVEN → IF2 ODD PARITY L

IF11 DPE H, IF2 ODD PARITY H → 74S02 E35 → IF2 PAR SET L

IF2 ODD PARITY L, IF6 ASY WRT H → FN1 → 74S08 E44 → IF2 CONT PAR SET H

IF2 CONT Ø8 DD2
IF2 CONT Ø9 DE2
IF2 CONT 10 DF2
IF2 CONT 11 DH2
IF2 CONT 12 DJ2
IF2 CONT 13 DK2
IF2 CONT 14 DL2
IF2 CONT 15 DM2
IF1 CPAR

74S280 E1 — Σ ODD; Σ EVEN

PARITY GENERATOR AND CHECKER

IF3 PORT A ON H, BU1 → 74S08 E49 → AL2 → IF3 PAR BUS A L
IF2 ODD PARITY L

IF4 PORT B ON H, BV1 → 74S08 E49 → CL2 → IF3 PAR BUS B L

SPARES

74LSØØ E18; 74LSØØ E18; 74LSØØ E58; 7437 E66
74LS32 E9Ø; 74LS32 E9Ø; 74LS32 E9Ø
74LSØ2 E57; 74LSØ2 E57
74LSØ2 E64; 74LSØ2 E55; 74LSØ2 E55; 74LSØ2 E36; 74LSØ2 E59
74S74 E45

+5V

IF5 ILR/HLD H, IF6 EN BUF TO TIST L → 74173 E19 (DATA ENA, OUT CONT, CLK, CLR) → DM2 IF2 CONT 15, DL2 IF2 CONT 14, DK2 IF2 CONT 13, DJ2 IF2 CONT 12
R'31 3K R'32 3K R'33 3K R'34 3K

74173 E24 → DH2 IF2 CONT 11, DF2 IF2 CONT 10, DE2 IF2 CONT Ø9, DD2 IF2 CONT Ø8
R35 3K R36 3K R37 3K R38 3K

CONTROL LINE BUFFER (HOLDING REGISTER)

74173 E23 → CV2 IF2 CONT Ø7, CU2 IF2 CONT Ø6, CT2 IF2 CONT Ø5, CS2 IF2 CONT Ø4
R39 3K R40 3K R41 3K R42 3K

74173 E25 → CR2 IF2 CONT Ø3, CP2 IF2 CONT Ø2, CN2 IF2 CONT Ø1, CM2 IF2 CONT Ø0
R43 3K R44 3K R45 3K R46 3K

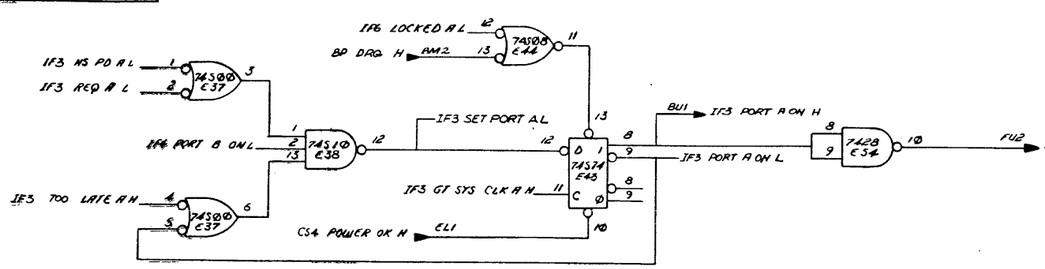
IF6 LD BUF H
IF0 MSR CLR H

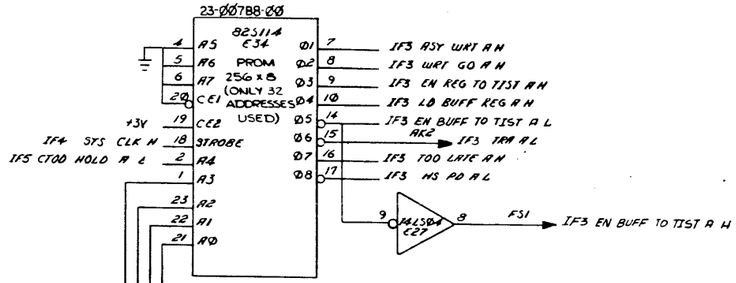
REVISIONS
CHK | CHANGE NO. | REV.

PARITY GEN/CHECK AND CONTROL LINE BUFFER

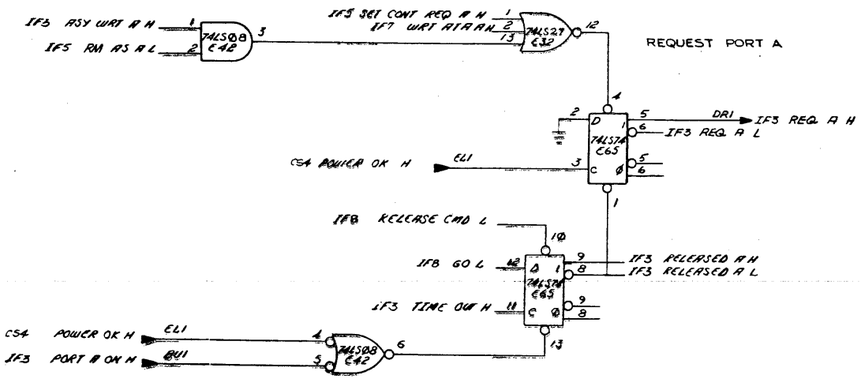
TITLE CONTROL INTERFACE (IF2) | SIZE D | CODE CS | NUMBER M7686-0-1 | REV J
SCALE NONE | SHEET 2 OF 14 | DIST

PORT A ON

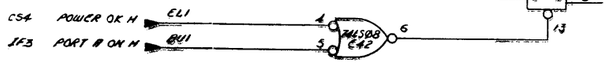




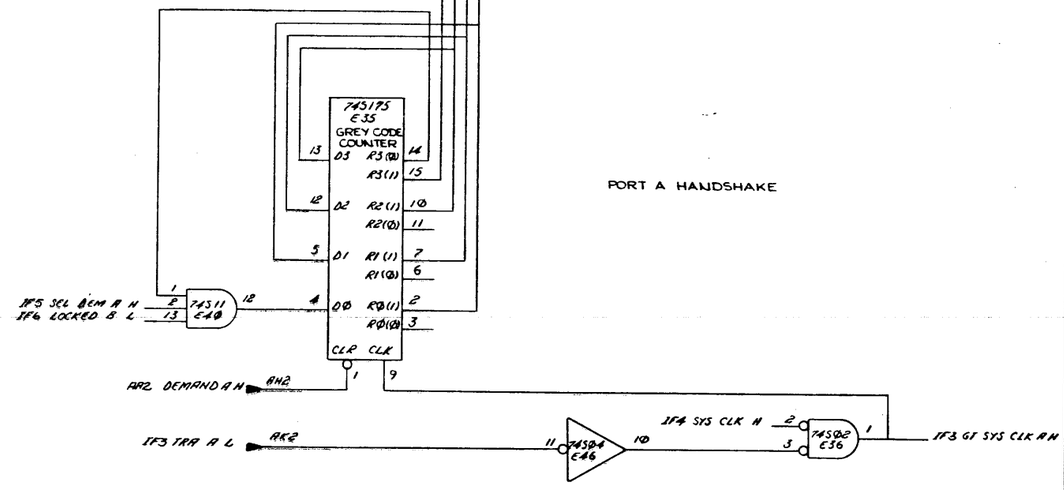
REQUEST PORT A



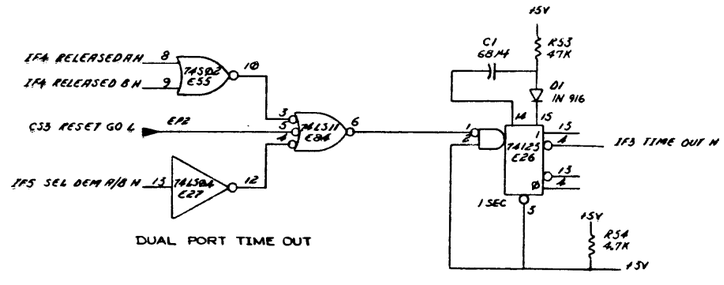
RELEASE PORT A



PORT A HANDSHAKE



DUAL PORT TIME OUT



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

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE	CODE	NUMBER	REV.
CONTROL INTERFACE	(IF3)	D	CS	M7686-0-1	J
SCALE NONE	SHEET 3 OF 14	DIST.			

PORT B ON

BP DRQ H BM2 — 7437 C66 — IF LOCKED B H

IF4 HS PO B L, IF4 REQ B L — 74S00 C37

IF5 PORT A ON L — 74S10 C38

IF4 TOO LATE B H — 74S00 C37

IF4 SETPORT B L

IF4 GT SYS CLK B H — 74S74 E43

IF8 POWER OK L, IF9 DRQ L — 74LS02 C57

IF4 PORT B ON L — 7437 C66 — BV1 — IF4 PORT B ON H

7428 C54 — FV2 — IF4 PORT B LAMP L

23-007B8-00

825114 C39 PROM 256 X 8 (ONLY 32 ADDRESSES USED)

+5V, IF4 SYS CLK L, IF5 CTOD HOLD B L

IF4 ASY WRT B H, IF4 WRT GO B H, IF4 EN REG TO TIST B H, IF4 LD BUFF REG B H, IF4 EN BUFF TO TIST B L, IF4 TOO LATE B H, IF4 NS PO B L

CK2 — IF IRA B L

74LS04 C27 — FU1 — IF4 EN BUFF TO TIST B H

IF4 ASY WRT B H, IF5 RM HS B L — 74LS00 C42

IF5 SET CONT REQ B H, IF7 WRT RTN B H — 74LS27 C38

REQUEST PORT B

74LS74 C74 — DS1 — IF4 REQ B H, IF4 REQ B L

CS4 POWER OK H — EL1

IF8 RELEASE CMD L, IF8 GO L — 74LS74 C74 — IF4 RELEASED B H, IF4 RELEASED B L

IF3 TIME OUT H

CS4 POWER OK H — EL1, IF4 PORT B ON H — BV1 — 74LS08 C48

RELEASE PORT B

PORT B HANDSHAKE

74S175 C41 GREY CODE COUNTER

IF5 SCL DEM B H, IF6 LOCKED A L — 74S11 C48

ARB2 DEMAND B H — CK2

IF4 IRA B L — CK2 — 74S04 C46

IF4 SYS CLK H — 74S08 C56 — IF4 GT SYS CLK B H

CS4 POWER OK H — EL1

74S74 C45 — FP1 — IF4 TEST BIT CLOCK H

+3V

74S08 C44 — DP1 — IF4 SEQ CLK H

74S04 C46 — IF4 SYS CLK H — IF4 SYS CLK L

GR SYS CLOCK — BJ2 — W1, W2

C47, R35 220Ω, R65 220Ω

SYSTEM CLOCK

NOTES: 1. W2 IS INSERTED FOR GR TEST ONLY
2. W1 IS INSERTED FOR OPERATION OF MODULE IN THE SYSTEM

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

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CONTROL INTERFACE (IF4)	D	CS	M7686-0-1	J
SCALE NONE	SHEET 4 OF 14	DIST.		

DRIVE ADDRESS COMPARATOR FOR PORT A

7485 C3

AR2 DRV ADR A 4 H — AR2
AR2 DRV ADR A 2 H — AC2
AR2 DRV ADR A 1 H — AD2
GND — FC1
CS8 DEV ADS 4 H — BC1
CS8 DEV ADS 2 H — BB1
CS8 DEV ADS 1 H — BA1
CS8 PLUG EN H — BD1

A>B, A<B, A=B

IN> IN< IN=

+3V

AB2 CTOD A H — AJ2
AR2 DEMAND A H — AH2
CS4 POWER OK H — EL1

74S74 C17

IF5 CTOD HOLD A H
IF5 CTOD HOLD A L

PORT A CONTROL BUS TRANSFER DIRECTION

IF5 CTOD HOLD A H — 7428 C54 — BV2 — IF5 EN A TRANS H
IF5 SEL DEM A H, IF5 TRANS A H — 74LS00 C30

IF5 RM AS A H — 74S02 E7 — BE2 — IF5 MBA SEL A L
74S02 C7 — IF5 SEL DEM A H
AR2 DEMAND A H — 74S04 E31

REGISTER SELECT MULTIPLEXER

74S157 E21

AB2 B REG SEL 16 H — BR1
AR2 A REG SEL 16 H — BK1
AB2 B REG SEL 8 H — BP1
AR2 A REG SEL 8 H — BJ1
AB2 B REG SEL 4 H — BN1
AR2 A REG SEL 4 H — BH1
AB2 B REG SEL 2 H — BM1
AR2 A REG SEL 2 H — BF1

S0, STB

74S157 E16

AB2 B REG SEL 1 H — BL1
AR2 A REG SEL 1 H — BE1
IF5 CTOD HOLD B L
IF5 CTOD HOLD A L
IF5 SEL DEM B H
IF5 SEL DEM A H
IF5 RM AS B H
IF5 RM AS A H

IF5 CTOD HOLD L
IF5 SEL DEM A/B H
IF5 RM AS H

DUAL PORT MULTIPLEXER

IF6 LD BUF H — 74LS08 E50 — IF5 ILR SET L

23-206A1-00 (8S3123 E81)

IF5 ILR H
IF5 RM EC2 H
IF5 RM EC1 H
IF5 ILR/HLD H
IF5 RM ER2 H
IF5 RM DC H
IF5 RM OFF H
IF5 RM JN H

REGISTER ADDRESS DECODER

23-207A1-00 (8S3123 E89)

IF5 RM DT H
IF5 RM MR1 H
IF5 RM LA H
IF5 RM ER1 H
IF5 RM OS H
IF5 RM DR H
IF5 RM CS H
IF5 RM MR2 H

DRIVE ADDRESS COMPARATOR FOR PORT B

7485 C2

AB2 DRV ADR B4 H — CF2
AB2 DRV ADR B2 H — CC2
AB2 DRV ADR B1 H — CD2
CS8 DEV ADS 4 H — BC1
CS8 DEV ADS 2 H — BB1
CS8 DEV ADS 1 H — BA1
CS8 PLUG EN H — BD1

A>B, A<B, A=B

IN> IN< IN=

MASSFAIL BH (NOT USED) — FD1

IF5 RM AS B H — 74S02 E7 — IF5 MBA SEL B L
74S02 C7 — IF5 SEL DEM B H
AB2 DEMAND B H — CN2 — 74S04 E31

+3V

AB2 CTOD B H — CJ2
AB2 DEMAND B H — CN2
CS4 POWER OK H — EL1

74S74 E17

IF5 CTOD HOLD B H
IF5 CTOD HOLD B L

PORT B CONTROL BUS TRANSFER DIRECTION

IF5 CTOD HOLD B H — 7428 C54 — DV2 — IF5 EN B TRANS H
IF4 PORT B ON H — BV1
IF5 SEL DEM B H, IF5 TRANS B H — 74S00 E30

23-004C6-00 (8S3100 E29 PLA)

AR2 A REG SEL 16 H — BK1
AR2 A REG SEL 8 H — BJ1
AR2 A REG SEL 4 H — BN1
AR2 A REG SEL 2 H — BF1
AR2 A REG SEL 1 H — BE1
AB2 B REG SEL 16 H — BR1
AB2 B REG SEL 8 H — BP1
AB2 B REG SEL 4 H — BN1
AB2 B REG SEL 2 H — BM1
AB2 B REG SEL 1 H — BL1
IF3 ASY WRT A H
IF3 ASY WRT B H
IF3 EN REG TO TIST A H
IF4 EN REG TO TIST B H
IF3 PORT A ON H — BU1
IF4 PORT B ON H — BV1

CE, FE

IF5 RM AS A L — 74LS04 E29 — IF5 RM AS A H
IF5 RM AS B L — 74LS04 E27 — IF5 RM AS B H

F7 — IF5 WRT ATA DEC A L
F6 — IF5 WRT ATA DEC B L
F5 — IF5 IRANS A H
F4 — IF5 TRANS B H
F3 — IF5 SET CONT REQ A H
F2 — IF5 SET CONT REQ B H

ATTENTION REGISTER CONTROL AND SET REQUEST PLA.

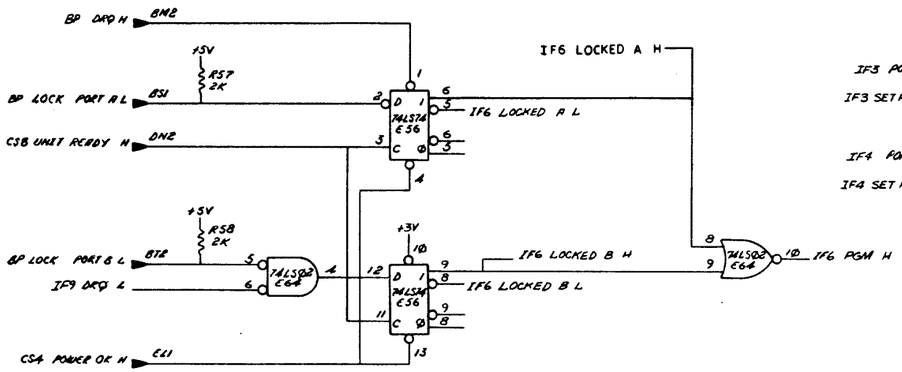
DRIVE SELECTION AND TRANSFER DIRECTION CIRCUITS.
REGISTER SELECT AND SIGNAL MULTIPLEXERS.
REGISTER DECODER. ATTENTION REGISTER CONTROL AND SET REQUEST PLA.

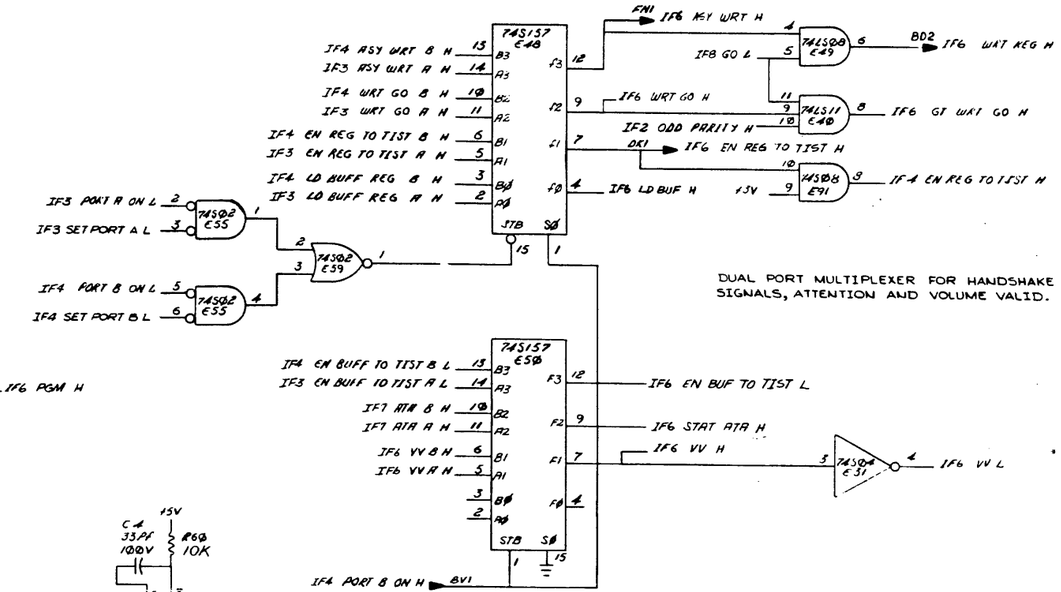
REVISIONS		
ONK	CHANGE NO	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CONTROL INTERFACE (IF5)	D	CS	M7686-0-1	J
SCALE NONE	SHEET 5 OF 14	DIST.		

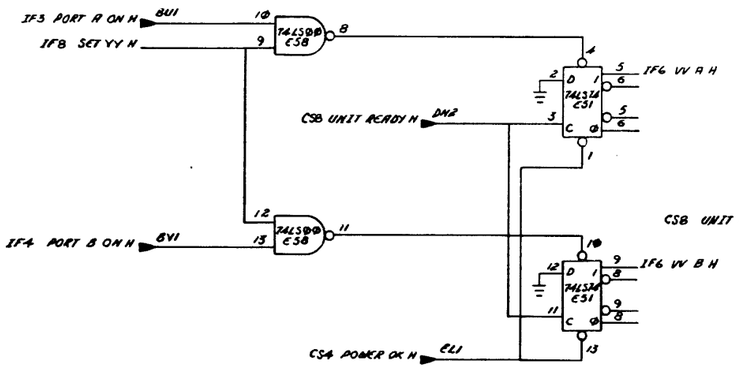
CZ 1

LOCKED ON PORT OR PROGRAMMABLE MODE SELECTOR

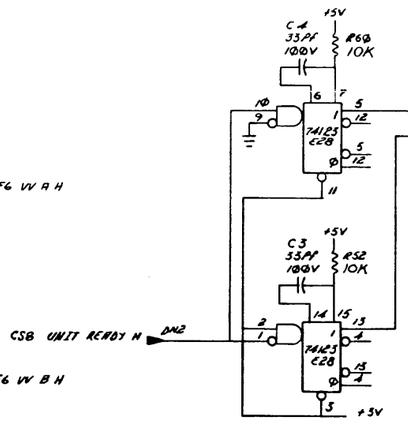




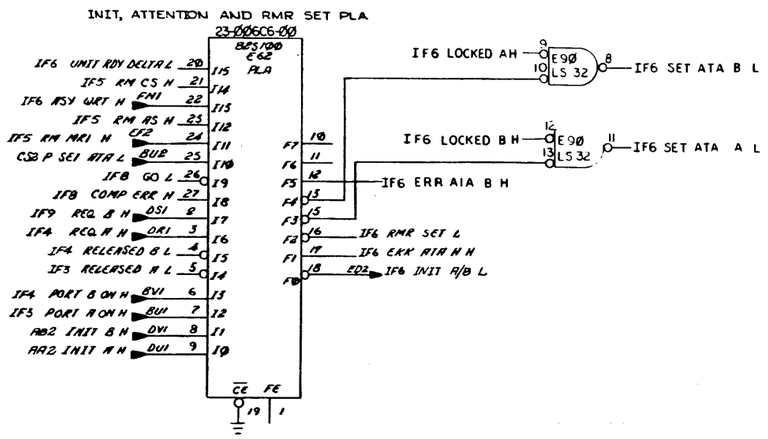
DUAL PORT MULTIPLEXER FOR HANDSHAKE SIGNALS, ATTENTION AND VOLUME VALID.



VOLUME VALID BITS



UNIT READY EDGE DETECTOR



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		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CONTROL INTERFACE (IF6)	D	CS	M7686-0-1	J
SCALE NONE SHEET 6 OF 14	DIST.			

PORT A ATTENTION ADDRESS SELECTOR

PORT B ATTENTION ADDRESS SELECTOR

CONTROL/ATTENTION OUTPUT MULTIPLEXER (BITS Ø0-Ø7)

PORT A WRITE ATTENTION

PORT B WRITE ATTENTION

ATTENTION A

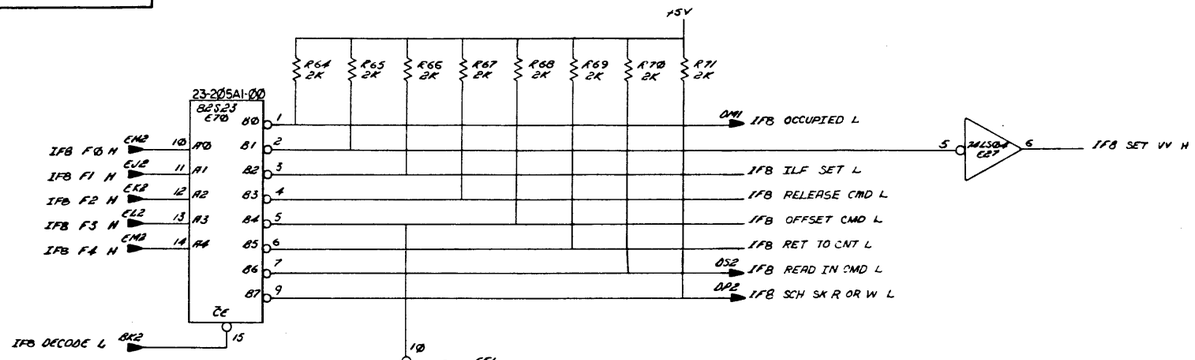
ATTENTION B

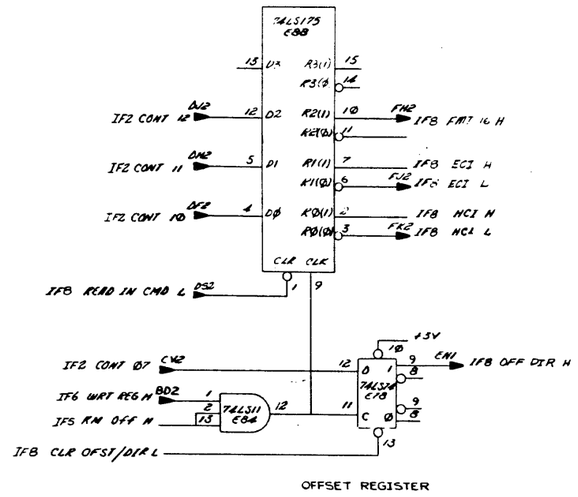
ATTENTION REGISTERS AND MULTIPLEXERS

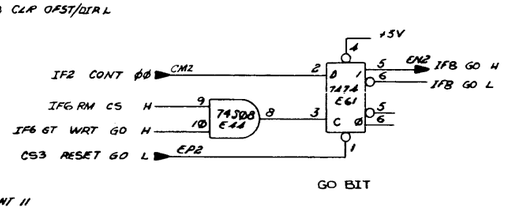
REVISIONS		
CHK	CHANGE NO.	REV.

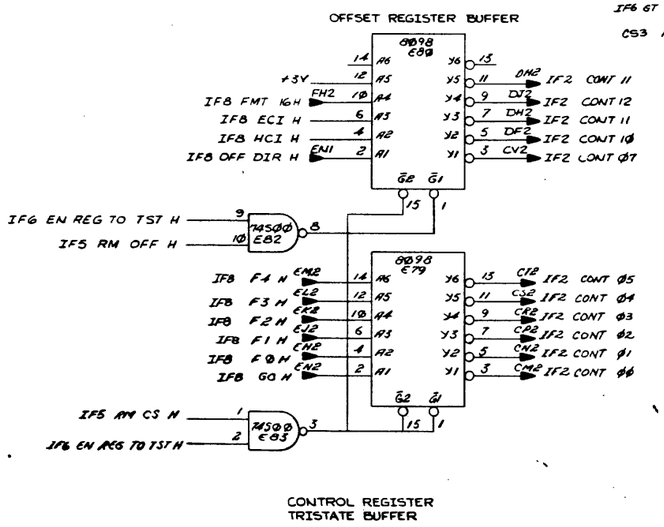
TITLE	SIZE	CODE	NUMBER	REV.
CONTROL INTERFACE (IF7)	D	DCS	M7686-0-1	J
SCALE NONE	SHEET 7 OF 14	DIST.		

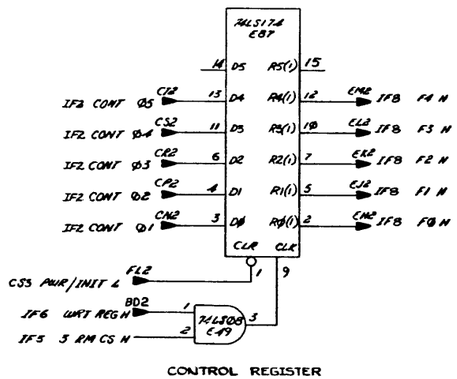
DEC FORM NO. DBD 138

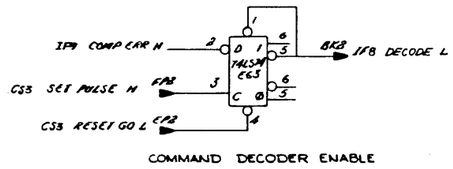










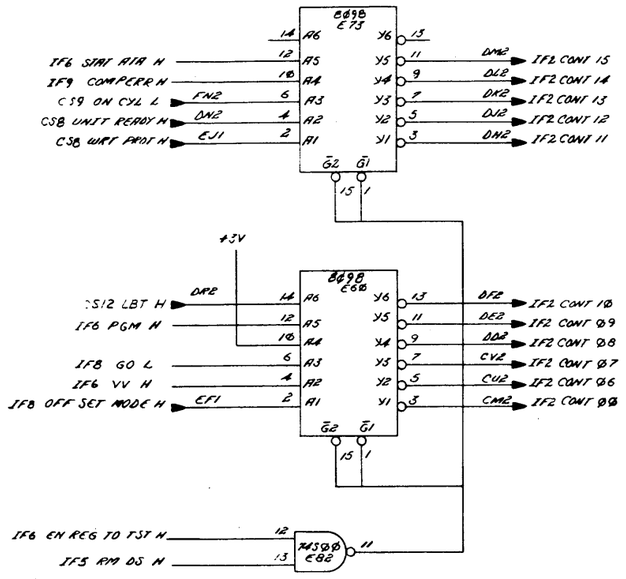


REVISIONS

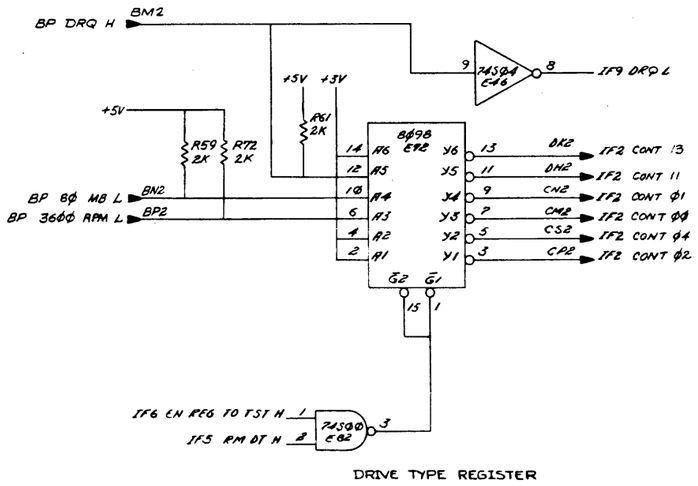
CHK	CHANGE NO.	REV.

CONTROL AND OFFSET REGISTERS.
COMMAND DECODE.

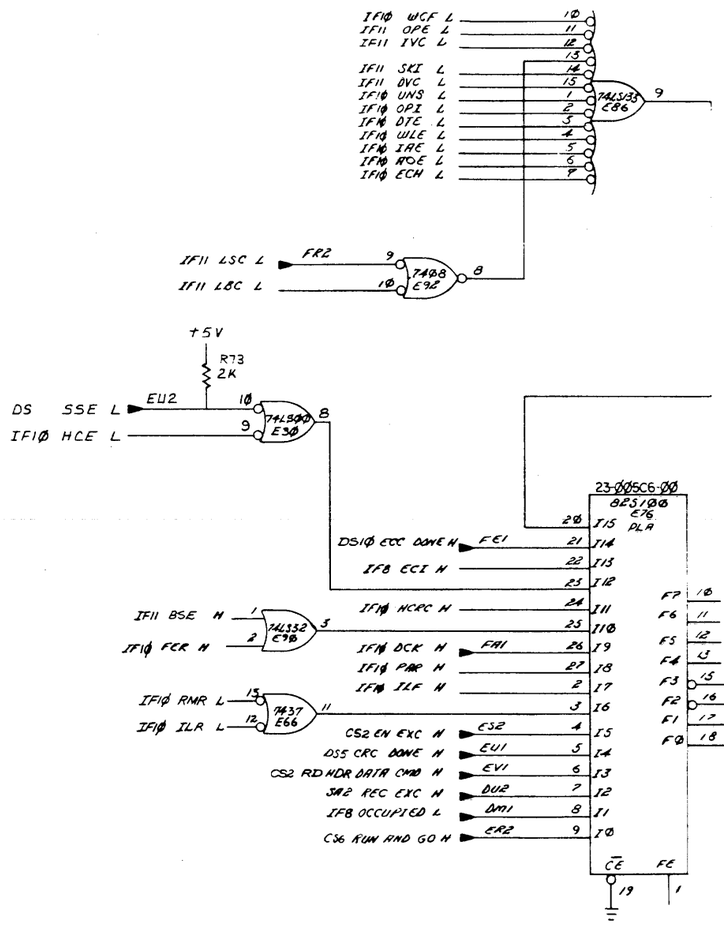
TITLE	SIZE	CODE	NUMBER	REV.
CONTROL INTERFACE (IF8)	D	CS	M7686-0-1	J
SCALE NONE	SHEET 8 OF 14	DIST.		



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	SIZE	CODE	NUMBER	REV.
CONTROL INTERFACE (IF9)	D	CS	M7686-Ø-1	J
SCALE NONE	SHEET 9 OF 14	DIST.		

CZ

IF1Ø BUF MBA CLR L

+5V — 74S08 E91 — CS3 MBA CLR L (DT2) — 74S04 E31 — IF1Ø MBA CLR H

DATA CHECK
DS8 DCK SET L (FF1) · IF2 CONT 15 (DM2) · 74LS74 E101 · IF1Ø DCK H (FA1)

WRITE LOCK ERROR
CS3 WLE SET L (EE1) · IF2 CONT 11 (DH2) · 74LS74 E77 · IF1Ø WLE H · IF1Ø WLE L

HEADER COMPARE ERROR
DS6 HCE SET L (FJ1) · IF2 CONT Ø7 (CV2) · 74LS74 E93 · IF1Ø HCE H · IF1Ø HCE L

PARITY ERROR
IF2 PAR SET L · IF2 CONT Ø3 (CR2) · 74LS74 E98 · IF1Ø PAR H

+5V — R63 2K — BP AC LO L (FV1) — CS9 DVC SET L (FB1) — 74Ø8 E92

UNSAFE
IF2 CONT 14 (DL2) · 74LS74 E101 · IF1Ø UNS H · IF1Ø UNS L

INVALID ADDRESS ERROR
DS12 IAE SET L (EV2) · IF2 CONT 1Ø (DF2) · 74LS74 E85 · IF1Ø IAE H · IF1Ø IAE L

ECC HARD ERROR
DS1Ø ECH SET L (FK1) · IF2 CONT Ø6 (CU2) · 74LS74 E93 · IF1Ø ECH H · IF1Ø ECH L

REGISTER MODIFICATION REFUSED
IF6 RMR SET L · IF2 CONT Ø2 (CP2) · 74LS74 E98 · IF1Ø RMR H · IF1Ø RMR L

OPERATION INCOMPLETE
CS3 OPI SET L (EC1) · IF2 CONT 13 (DK2) · 74LS74 E97 · IF1Ø OPI H · IF1Ø OPI L

ADDRESS OVERFLOW ERROR
DS12 AOE SET L (FF2) · IF2 CONT Ø9 (DE2) · 74LS74 E85 · IF1Ø AOE H · IF1Ø AOE L

WRITE CLOCK FAIL
DS5 WCF SET L (FL1) · IF2 CONT Ø5 (C12) · 74LS74 E95 · IF1Ø WCF H · IF1Ø WCF L

ILLEGAL FUNCTION
IF8 ILF SET L · IF2 CONT Ø0 (CM2) · 74LS74 E71 · IF1Ø ILF H

DRIVE TIMING ERROR
CS5 DTE SET L (FD2) · IF2 CONT 12 (DJ2) · 74LS74 E97 · IF1Ø DTE H · IF1Ø DTE L

HEADER CRC ERROR
DS5 HCRC SET L (FH1) · IF2 CONT Ø8 (DD2) · 74LS74 E77 · IF1Ø HCRC H

FORMAT ERROR
DS6 FER SET L (FM1) · IF2 CONT Ø4 (CS2) · 74LS74 E93 · IF1Ø FER H

ILLEGAL REGISTER
IF5 ILR SET L · IF2 CONT Ø1 (CN2) · 74LS74 E71 · IF1Ø ILR H · IF1Ø ILR L

IF6 WRT REG H (BD2) · IF5 RM ERR H · 74Ø8 E92

IF1Ø BUF MBA CLR L

REVISIONS		
CHK	CHANGE NO.	REV.

ERROR REGISTER 1

TITLE		SIZE	CODE	NUMBER	REV.
CONTROL INTERFACE (IF1Ø)		D	CS	M7686-Ø-1	J
SCALE NONE	SHEET 10 OF 14	DIST.			

DS3 SYNC PAR SET H — EPI — 74S04 E31

IF2 CONT Ø3 — CR2 — 74LS74 E67 — IFII DPE H
DATA PARITY ERROR

CS3 MBR CLR L — DT2

DS7 LBC SET L — FS2
IF2 CONT 1Ø — DF2 — 74LS74 E67 — IFII LBC H, IFII LBC L
LOSS OF BIT CLOCK

CS2 LSC SET L — FT2
IF2 CONT 11 — DH2 — 74LS74 E23 — IFII LSC H, FR2 — IFN LSC L
LOSS OF SYSTEM CLOCK

IF6 VV H, CS8 UN IT READY H — DN2 — 74LS08 E18
IF9 COMP ERR L, CS2 SET IVC H — FR1 — 74S10 E38

CS8 PLUG EN H — BD1
IF2 CONT 13 — DK2 — 74LS74 E25 — IFII OPE H, IFII OPE L
OPERATOR PLUG ERROR

IFIØ BUF MBR CLR L

+5V — C2 33 pf 1000V — R62 2K

CS9 SEEK ERR L — ER1 — 74123 E26 — IFII SKI SET L

CS9 DVC SET L — FB1
IF2 CONT Ø7 — CV2 — 74LS74 E100 — IFII DVC H, IFII DVC L
DEVICE CHECK

IF6 WRT REG H, IF5 RM ER2 H — BD2 — 74Ø8 E92

ERROR REGISTER 2

IFII SKI SET L
IF2 CONT 14 — DL2 — 74LS74 E100 — IFII SKI H, IFII SKI L
SEEK INCOMPLETE

DSG SET BSE L — EN1
IF2 CONT 15 — DN2 — 7474 E63
BAD SECTOR ERROR

IF2 CONT 12 — DJ2 — 74LS74 E78 — IFII IVC H, IFII IVC L
INVALID COMMAND

IFIØ WLE H, IFIØ IRE H, IFIØ AQE H, IFIØ MCRC H, IFIØ NCE H, IFIØ ECM H — 8Ø98 E94 — DM2 IF2 CONT 11, DF2 IF2 CONT 1Ø, DC2 IF2 CONT Ø9, DD2 IF2 CONT Ø8, CV2 IF2 CONT Ø7, CVR IF2 CONT Ø6

ERROR REGISTER 1 TRISTATE BUFFER

IFIØ WCF H, IFIØ FER H, IFIØ PAR H, IFIØ RMR H, IFIØ ILR H, IFIØ ILF H — 8Ø98 E96 — C12 IF2 CONT Ø5, CS2 IF2 CONT Ø4, CR2 IF2 CONT Ø3, CP2 IF2 CONT Ø2, CN2 IF2 CONT Ø1, CM2 IF2 CONT ØØ

IF5 RM ER1 H — 74SØØ E83
IF6 EM REG TO TST H — 74SØØ E83
IF5 RM ER2 H — 74SØØ E92

IFII SKI H, IFII DVC H, IFIØ DCK H, IFIØ UNS H, IFIØ OPI H, IFIØ DTE H — FR1 — 8Ø98 E99 — DL2 IF2 CONT 14, CV2 IF2 CONT Ø7, DN2 IF2 CONT 15, DL2 IF2 CONT 14, DK2 IF2 CONT 13, DJ2 IF2 CONT 12

IFII BSE H

ERROR REGISTER 2 TRISTATE BUFFER

IFII OPE H, IFII IVC H, IFII LSC H, IFII LBC H, IFII OPE H — 8Ø98 E68 — DK2 IF2 CONT 13, DJ2 IF2 CONT 12, DN2 IF2 CONT 11, DK2 IF2 CONT 1Ø, CR2 IF2 CONT Ø3, DM2 IF2 CONT 15

ERROR REGISTER 2.
ERROR REGISTER BUFFERS.

REVISIONS

CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CONTROL INTERFACE (IFII)	D	CS	M7686-Ø-1	J
SCALE NONE	SHEET 11 OF 14	DIST.		

AAI	AAI A CONT ØØ
ABI	AAI A CONT Ø1
ACI	AAI A CONT Ø2
ADI	AAI A CONT Ø3
AEI	AAI A CONT Ø4
AFI	AAI A CONT Ø5
AHI	AAI A CONT Ø6
AJI	AAI A CONT Ø7
AKI	AAI A CONT Ø8
ALI	AAI A CONT Ø9
AMI	AAI A CONT 1Ø
ANI	AAI A CONT 11
API	AAI A CONT 12
ARI	AAI A CONT 13
ASI	AAI A CONT 14
ATI	GND
AUI	AAI A CONT 15
AVI	AA2 A CPA

BAI	CS8 DEV ADS 1 H
BBI	CS8 DEV ADS 2 H
BCI	CS8 DEV ADS 4 H
BDI	CS8 PLUG EN H
BEI	AA2 A REG SEL 1 H
BFI	AA2 A REG SEL 2 H
BHI	AA2 A REG SEL 4 H
BJI	AA2 A REG SEL 8 H
BKI	AA2 A REG SEL 16 H
BLI	AB2 B REG SEL 1 H
BMI	AB2 B REG SEL 2 H
BNI	AB2 B REG SEL 4 H
BPI	AB2 B REG SEL 8 H
BRI	AB2 B REG SEL 16 H
BSI	BP LOCK PORT A L
BTI	GND
BUI	IF3 PORT A ON H
BVI	IF4 PORT B ON H

CAI	ABI B CONT ØØ
CBI	ABI B CONT Ø1
CCI	ABI B CONT Ø2
CDI	ABI B CONT Ø3
CEI	ABI B CONT Ø4
CFI	ABI B CONT Ø5
CHI	ABI B CONT Ø6
CJI	ABI B CONT Ø7
CKI	ABI B CONT Ø8
CLI	ABI B CONT Ø9
CMI	ABI B CONT 1Ø
CNI	ABI B CONT 11
CPI	ABI B CONT 12
CRI	ABI B CONT 13
CSI	ABI B CONT 14
CTI	GND
CUI	ABI B CONT 15
CVI	AB2 B CPA

DAI	IF7 B CONT ØØ OUT L
DBI	IF7 B CONT Ø1 OUT L
DCI	IF7 B CONT Ø2 OUT L
DDI	IF7 B CONT Ø3 OUT L
DEI	IF7 B CONT Ø4 OUT L
DFI	IF7 B CONT Ø5 OUT L
DHI	IF7 B CONT Ø6 OUT L
DJI	IF7 B CONT Ø7 OUT L
DKI	IF6 EN REG TO TIST H
DLI	DSG SSE L
DMI	IF8 OCCUPIED L
DNI	CS5 MBA EBL L
DPI	IF4 SEQ CLK H
DRI	IF3 REQ A H
DSI	IF4 REQ B H
DTI	GND
DUI	AA2 INIT A H
DVI	AB2 INIT B H

EAI	IF9 EXC ERR H
EBI	IF9 ABORT L
ECI	DSI2 CLR OFF MD L
EDI	CS3 OPI SET L
EEI	CS3 WLE SET L
EFI	IF8 OFFSET MODE H
EHI	DS6 SET BSE L
EJI	CS8 WRT PROT H
EKI	CS9 SEEK ERR H
ELI	CS4 POWER OK H
EMI	IF5 RM LA H
ENI	IF8 OFF DIR H
EPI	DS3 SYNC PAR SET H
ERI	IF5 RM EC1 H
ESI	IF5 RM EC2 H
ETI	GND
EUI	DS5 CRC DONE H
EVI	CS2 RD HDR DATA CMD H

FAI	IFIØ DCK H
FBI	CS9 DVC SET L
FCI	GND
FDI	MASS FAIL B H
FEI	DSIØ ECC DONE H
FFI	DS8 DCK SET L
FHI	DS5 HCRC SET L
FJI	DS6 HCE SET L
FKI	DSIØ ECH SET L
FLI	DS5 WCF SET L
FMI	DS6 FER SET L
FNI	IF6 ASY WRT H
FPI	IF4 TEST BIT CLOCK H
FRI	CS2 SET IVC H
FSI	IF3 EN BUF TO TIST A H
FTI	GND
FUI	IF4 EN BUF TO TIST B H
FVI	BP AC LO L

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

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 SKIP L
BM2	BP DRQ H
BN2	BP 8Ø MB L
BP2	BP 3600 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

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

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	DSII LBT H
DS2	IF8 READ IN CMD L
DT2	CS3 MBA CLR L
DU2	SA2 REC EXC H
DV2	IF5 EN B TRANS H

EA2	+5V
EB2	-15V
EC2	GND
ED2	IF6 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	CS6 RUN AND GO H
ES2	CS2 EN EXC H
ET2	IF5 RM DC H
EU2	SPARE
EV2	DSI2 IAE SET L

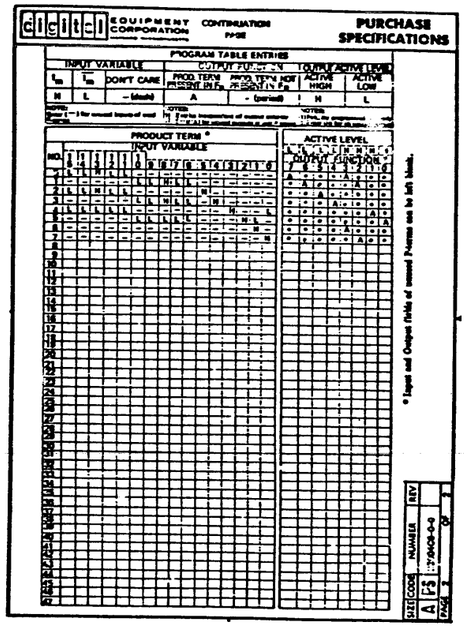
FA2	+5V
FB2	-15V
FC2	GND
FD2	CS5 DTE SET L
FE2	IF5 RM DA H
FF2	DSI2 AOE SET L
FH2	IF8 FMT 16 H
FJ2	IF8 ECI L
FK2	IF8 HCI L
FL2	CS3 PWR/INIT L
FM2	IF5 RM MR2 H
FN2	CS9 ON CYL L
FP2	CS3 SET PULSE H
FR2	IFII LSC L
FS2	DS7 LBC SET L
FT2	CS2 LSC SET L
FU2	IF3 PORT A LAMP L
FV2	IF4 PORT B LAMP L

REVISIONS

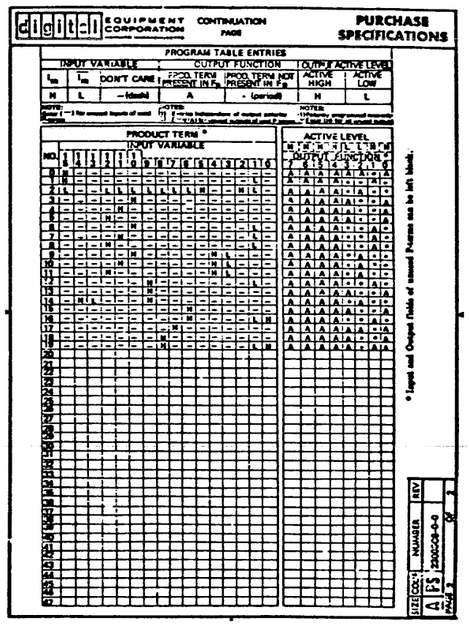
CHK	CHANGE NO.	REV.

(I/O SIGNAL LIST)

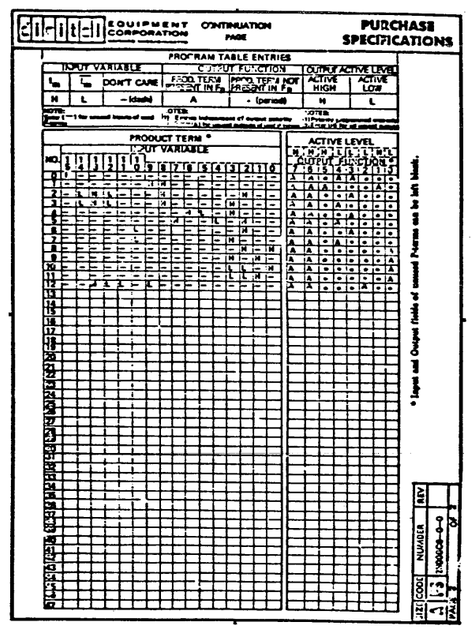
TITLE: CONTROL INTERFACE (IF12)
SIZE: D | CODE: CS | NUMBER: M7686-Ø-1 | REV: J
SCALE: NONE | SHEET 12 OF 14 | DIST.
CZ 1



23-ØØ4C6 AT E29
ATTENTION REGISTER CONTROL
AND SET REQUEST



23-ØØ5C6 AT E76
ERROR SUMMARY AND ABORT



23-ØØ6C6 AT E62
INIT, ATTENTION AND RMR SET

REVISIONS

CHK	CHANGE NO.	REV.

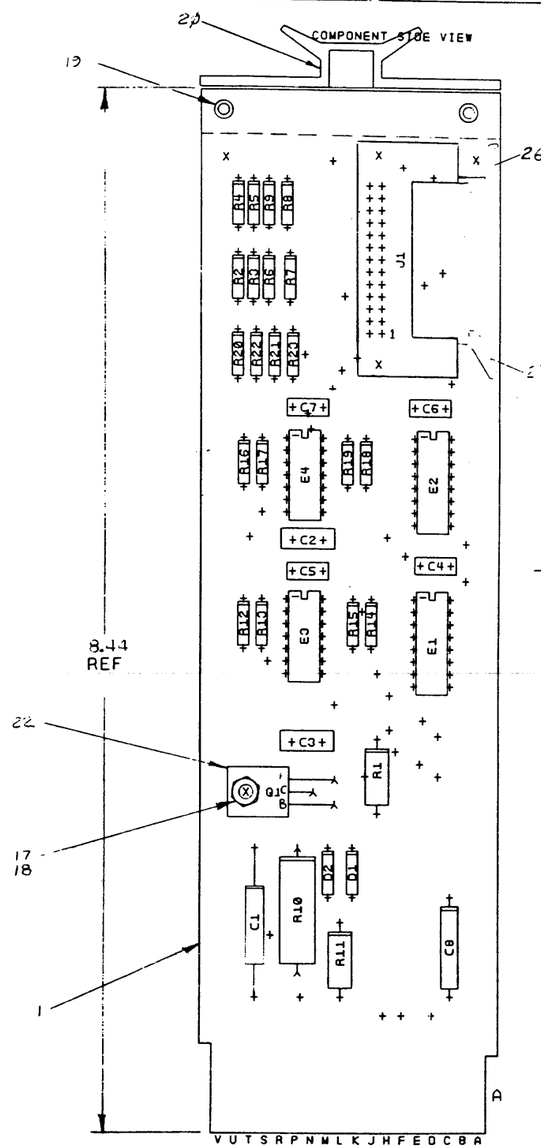
TITLE	SIZE	CODE	NUMBER	REV.
CONTROL INTERFACE	D	CS	M7686-Ø-1	J
SCALE —/— SHEET 13 OF 14	DIST.			

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
31	31		1912697-00	LS174 FF-D HEX W/CLEAR	1	E87
32	32		1912799-00	LS00 NAND-GATE-QUAD 2IN,P	3	E58,E18,E30
33	33		1912801-00	LS02 NOR-GATE-QUAD 2IN	3	E57,E64,E75
34	34		1912803-00	LS04 INVERTER GATE-HEX 1I	1	E27
35	35		1912805-00	LS08 AND GATE-QUAD 2IN,PO	1	E42
36	36		1912808-00	LS11 AND GATE-TRIPLE 3IN	1	E84
37	37		1912813-00	LS27 NOR GATE-TRIPLE 3IN	1	E32
38	38		1912819-00	LS42 DECODER,BCD-DECIMAL	2	E11,E15
39	39		1912824-00	LS74 FF-D DUAL,EDGE TRIGG	18	E23,E51,E67,E71,E93,E95,E77,E97,
						CONT E85,E98,E78,E100,E56,E101,E63,
						CONT E74,E65,E33
40	40		1912839-00	LS133 NAND GATE-POS	1	E86
41	41		1912844-00	LS151 MUX 1 OF 8 & DATA	2	E4,E22
42	42		1912853-00	LS175 FF-D QUAD	1	E88
43	43		1913312-00	7428P NOR GATE-QUAD 2IN POS	1	E54
44	44		23004C6-00	C6-01	1	E29
45	45		23007B8-00	B8-01	2	E34,E39
46	46		23206A1-00	A1-07	1	E81
47	47		23205A1-00	A1-03,A1-04,A1-05	1	E70
48	48		1914087-00	8098 BUFFER GATE-HEX 2IN,	9	E60,E68,E72,E73,E79,E80,E94,E96,
						CONT E99
49	49		9000024-01	EYELET, ROLLED FLANGE, .121 OD X	12	
50	50		1912816-00	LS32 OR GATE-QUAD 2IN,POS	1	E90
51	51		1905547-00	7474 FF-D DUAL,EDGE TRIGG	1	E61
52	52		1910155-00	DEC 7408 AND GATE,POS.QUAD 2I	1	E92
53	53		1910091-00	DEC 7437 AND GATE-QUAD 2IN,BU	1	E66
54	54		9105740-55	WIRE(WRAP)30AWG UL1423	A/R	
55	55		5012486-00	M7686	1	
56	56		23005C6-00	C6-01	1	E76
57	57		23207A1-00	A1-07	1	E89
58	58		23006C6-00	C6-01	1	E62
59	59		9009185-00	JUMPER, WIRE, INSULATED, BLACK B	1	J2
60	60		1300479-00	10 K 1/4W 5% CC	2	R52,R60

D	I	G	I	T	A	L	TITLE	SECTION A OF A	SIZE	CODE	DOCUMENT NUMBER	REV
							CONTROL INTERFACE		K	PL	M7686-0-DBP	J



NOTES:

CHG	CHANGE NO	REV
	M76P-0X765	C

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. B.D. M7621-0	

digital

TITLE DRIVE INTERFACE DATA

SIZE	CODE	NUMBER	REV
D	UA	M7687-0-0	

M7687-0-0 UA D

MS# 214FA

+5V — R1 1/2W 1K — +3V

DS7 WRITE DATA L — F1 — 75113 E1 — RDI WRT DATA (-) / RDI WRT DATA (+)

CS8 DIAG L — F2

DS7 SHIFT CLOCK L — J1 — 75113 E1 — RDI WRT CLK (+) / RDI WRT CLK (-)

+3V — CS3 MBA CLR L — D2 — 75113 E2 — RDI INIT (-) / RDI INIT (+)

IF8 FMT 16 H — V2 — 75113 E2 — FORMAT (-) / FORMAT (+)

J1

+5V — A2 — C4 THRU C7 .Ø1uF — C8 6.8uF — T1

-15V — B2 — R10 5% 47 — R11 22Ø 1/2W — Q1 EP2174 — E1 -5V

C1 6.8uF — D1 IN4733A — D2 D672 — C3 .22uF — C2 .22uF — GND — C2

RD DATA (+) — R12 47Ø — R2 56 — +5V R2Ø 4.69K 1/8W 1% — RD DATA (-) — R13 47Ø — R3 56 — R4 56

+3V — CS8 DIAG H (E2) — DS3Ø3 E3 — D1 RDI RD DATA H

DS3Ø3 E3 — B1 RDI RD CLK H

RD CLK (+) — R14 47Ø — +5V R21 4.64K 1/8W 1% — RD CLK (-) — R15 47Ø — R5 56 — R6 56

-5V

+5V R22 4.69K 1/8W 1% — SERVO CLK (+) — R16 47Ø — SERVO CLK (-) — R17 47Ø — R7 56 — R8 56

+3V — CS8 DIAG H (E2) — DS3Ø3 E4 — M1 RDI SERVO CLK L

DS3Ø3 E4 — S1 RDI START ENABLE H

START ENABLE (+) — R18 47Ø — +5V R23 4.69K 1/8W 1% — START ENABLE (-) — R19 47Ø — R9 56

- 5V

DRN. Tony Noble	1-26-77	FIRST USED ON RMØ3	digital
CHK'D	5/11/77	TITLE DRIVE DATA INTERFACE	
ENG.	5/11/77		
PROJ. ENG.	5/11/77		
PROD.	5/11/77		
NEXT HIGHER ASSY. B-DD-M7687-Ø		SIZE D CODE CS NUMBER M7687-Ø-1 REV C	
SCALE			
SHEET 1 OF 1		DIST.	

REVISIONS			
BY	CHANGE NO.	REV.	
	ECO-00001	B	8-15-77
	ECO-00001	C	1-23-78

M7687-CX0003 C
LEO CAPPABIANCA

DIGITAL EQUIPMENT CORPORATION

PARTS LIST

MADE BY JVV	CHECKED Tom Mahoney	SECTION 1
DATE 12/16/76	DATE 2/2/77	
ENG DATE Irene Billestine 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 CIRCUIT 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~~		~~10-00002-00~~	~~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. 00001 M7687-C CX 003

EN-01140A-16-R276(325) DRB 125

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

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY JVV DATE 12-16-76 | CHECKED D Bowman DATE 15 APR 77 | SECTION 1
ENG DATE Irene Bellitteri 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~~		~~90-06004-04~~	~~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.

EN-01140A-16-R276(325) DRB 125

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

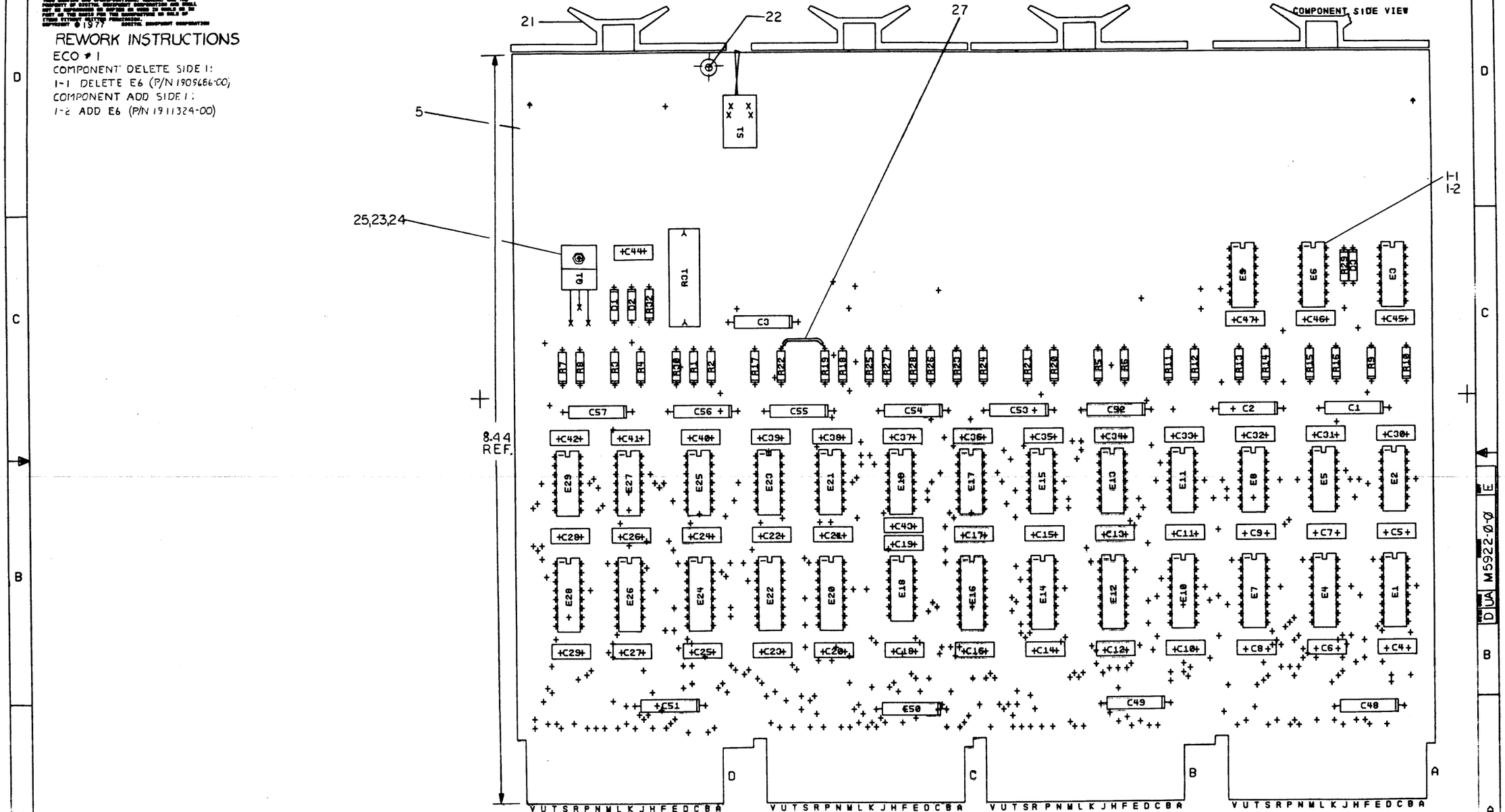
ECO # 1

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:

CHG	CHANGE NO	REV
	M5922-ØLOO	D

M5922-CKØØ
672 K.DAVIS 19 NOV 80 C.DUNIGAN
E

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

SIGNATURES	DATE
DRN.	2-15-77
CHK'D.	2-18-77
ENG.	
PROJ.ENG.	
PROD.	
SCALE 2:1	
SHT. OF 3	
NEXT HIGHER ASSY.	

digital

TITLE MASS BUS TRANSCEIVER PORT A

SIZE	CODE	NUMBER	REV
D	UA	M5922-Ø-Ø	E

CZ 1 MS# 104518

M5922-ØØ D UA

IF2 CONT 15 (DS3 MB 15L) DV1 — 75113 E24 — CJ1 MASS C15 A H (MASS D15 A H); CH1 MASS C15 A L (MASS D15 A L)
IF2 CONT 14 (DS3 MB 14L) DF1 — 75113 E24 — CK1 MASS C14 A H (MASS D14 A H); CL1 MASS C14 A L (MASS D14 A L)
IF2 CONT 13 (DS3 MB 13L) DL2 — 75113 E26 — CN1 MASS C13 A H (MASS D13 A H); CM1 MASS C13 A L (MASS D13 A L)
IF2 CONT 12 (DS3 MB 12L) DH1 — 75113 E26 — CP1 MASS C12 A H (MASS D12 A H); CR1 MASS C12 A L (MASS D12 A L)
IF2 CONT 11 (DS3 MB 11L) DF2 — 75113 E12 — CA1 MASS C11 A H (MASS D11 A H); CB1 MASS C11 A L (MASS D11 A L)
IF2 CONT 10 (DS3 MB 10L) DD1 — 75113 E12 — AF1 MASS C10 A H (MASS D10 A H); AE1 MASS C10 A L (MASS D10 A L)
IF2 CONT 09 (DS3 MB 09L) DC1 — 75113 E28 — CS1 MASS C09 A H (MASS D09 A H); CT2 MASS C09 A L (MASS D09 A L)
IF2 CONT 08 (DS3 MB 08L) DE2 — 75113 E28 — CV1 MASS C08 A H (MASS D08 A H); CV2 MASS C08 A L (MASS D08 A L)

+5V R1 3.3K — 751088 E25 — DL1 AA1 A CONT 15 (SA1 MB TSB 15H)
+5V R2 3.3K — 751088 E25 — DJ1 AA1 A CONT 14 (SA1 MB TSB 14H)
+5V R3 3.3K — 751088 E27 — DP1 AA1 A CONT 13 (SA1 MB TSB 13H)
+5V R4 3.3K — 751088 E27 — DM1 AA1 A CONT 12 (SA1 MB TSB 12H)
+5V R5 3.3K — 751088 E13 — DE1 AA1 A CONT 11 (SA1 MB TSB 11H)
+5V RG 3.3K — 751088 E13 — CR2 AA1 A CONT 10 (SA1 MB TSB 10H)
+5V R7 3.3K — 751088 E29 — CU1 AA1 A CONT 09 (SA1 MB TSB 09H)
+5V R8 3.3K — 751088 E29 — CS2 AA1 A CONT 08 (SA1 MB TSB 08H)

IF5 EN A TRANS H (CS5 TRANSMIT EN A H) CP2 — 7414 E6 — 7437 E9
AA2+3V (CS5 SYNC REC EN A H) DJ2 — 7414 E6 — 7437 E9 — DN1 AA1 REC EN H (SA1 REC EN H)

IF7 A CONT Ø7 OUT L (DS3 MB Ø7 L) AL2 — 75113 E1 — AC1 MASS CØ7 A H (MASS DØ7 A H); AD1 MASS CØ7 A L (MASS DØ7 A L)
IF7 A CONT Ø6 OUT L (DS3 MB Ø6 L) AK2 — 75113 E1 — AB1 MASS CØ6 A H (MASS DØ6 A H); AA1 MASS CØ6 A L (MASS DØ6 A L)
IF7 A CONT Ø5 OUT L (DS3 MB Ø5 L) BD2 — 75113 E10 — AV2 MASS CØ5 A H (MASS DØ5 A H); AV1 MASS CØ5 A L (MASS DØ5 A L)
IF7 A CONT Ø4 OUT L (DS3 MB Ø4 L) AU2 — 75113 E10 — AT2 MASS CØ4 A H (MASS DØ4 A H); AS1 MASS CØ4 A L (MASS DØ4 A L)
IF7 A CONT Ø3 OUT L (DS3 MB Ø3 L) AH2 — 75113 E7 — AP1 MASS CØ3 A H (MASS DØ3 A H); AR1 MASS CØ3 A L (MASS DØ3 A L)
IF7 A CONT Ø2 OUT L (DS3 MB Ø2 L) AE2 — 75113 E7 — AN1 MASS CØ2 A H (MASS DØ2 A H); AM1 MASS CØ2 A L (MASS DØ2 A L)
IF7 A CONT Ø1 OUT L (DS3 MB Ø1 L) AU1 — 75113 E4 — AK1 MASS CØ1 A H (MASS DØ1 A H); AL1 MASS CØ1 A L (MASS DØ1 A L)
IF7 A CONT ØØ OUT L (DS3 MB ØØ L) AN2 — 75113 E4 — AJ1 MASS CØØ A H (MASS DØØ A H); AH1 MASS CØØ A L (MASS DØØ A L)

+5V R9 3.3K — 751088 E2 — AF2 AA1 A CONT Ø7 (SA1 MB TSB Ø7 H)
+5V R10 3.3K — 751088 E2 — AD2 AA1 A CONT Ø6 (SA1 MB TSB Ø6 H)
+5V R11 3.3K — 751088 E11 — BE2 AA1 A CONT Ø5 (SA1 MB TSB Ø5 H)
+5V R12 3.3K — 751088 E11 — AS2 AA1 A CONT Ø4 (SA1 MB TSB Ø4 H)
+5V R13 3.3K — 751088 E8 — AM2 AA1 A CONT Ø3 (SA1 MB TSB Ø3 H)
+5V R14 3.3K — 751088 E8 — AU2 AA1 A CONT Ø2 (SA1 MB TSB Ø2 H)
+5V R15 3.3K — 751088 E5 — AR2 AA1 A CONT Ø1 (SA1 MB TSB Ø1 H)
+5V R16 3.3K — 751088 E5 — AP2 AA1 A CONT ØØ (SA1 MB TSB ØØ H)

IF5 EN A TRANS H (CS5 TRANSMIT EN A H) CP2 — 7414 E6 — 7437 E9 — DK2 AA1 TRAN EN H (SA1 TRAN EN H)
AA2+3V (CS5 SYNC REC EN A H) DJ2 — 7414 E6 — 7437 E9 — DA1 AA2+3V (SA2 +3V)

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

REVISIONS	CHK	CHANGE NO.	REV.
	CS2	M5922-ML001	D
		I. BELLETTIERE 5/14/76	E
		M5922-CX002 L. CAPPABIANCA	
		M5922-CX003 K. DAVIS 19 NOV 80	F
		672 C. DUNIGAN	

DRN.		3/8/77
CHK'D		4/14/77
ENG.		11 MAY 77
PROJ. ENG.		11 MAY 77
PROD.		5/20/77
NEXT HIGHER ASSY.	B-DD-M5922-Ø	
SCALE		
SHEET	1 OF 2	

FIRST USED ON RMØ3 — digital

TITLE MASS BUS TRANSCEIVER PORT A

SIZE D — CODE CS — NUMBER M5922-Ø-1 — REV. F — DIST.

CZ 1

R30 390 +5V

IF3 TRA A L (IF8 OCCUPIED L) CE2
AA2 3V (CS5 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 (CS5 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 (DS3 MB 16 L) DD2
IF3 EN BUFF TO TISTA H (SA1 TRAN EN H) CN2
75113 E22 → CE1 MASS CPA A H (MASS DIG A H); CF1 MASS CPA A L (MASS DIG A L)
+5V R17 3.3K
75108B E23 → DB1 AA2 A CPA H (SA2 MB TSB 16 H)

(DS3 MB 17 L) DS2
(CS5 TRANSMIT ENA H) DS1
75113 E20 → CD1 MASS RS0 A H (MASS DI7 A H); CC1 MASS RS0 A L (MASS DI7 A L)
+5V R18 3.3K
75108B E21 → BU1 AA2 A REG SEL 1 H (SA2 MB TSB 17 H)

BT2 MASS RS1 A H (MASS DPA A H)
(SA2 MB SYNC PAR H) DR1
75113 E20 → BS1 MASS RS1 A L (MASS DPA A L)
+5V R19 3.3K
75108B E21 → CM2 AA2 A REG SEL 2 H (SA2 MB SYNC PAR H)

BD1 MASS RS2 A H (MASS SCLK A H)
(DS5 MB SCLK L) DV2
(CS5 TRNSCEIVR ENA H) DU1
75113 E14 → BC1 MASS RS2 A L (MASS SCLK A L)
+5V R20 3.3K
75108B E15 → CF2 AA2 A REG SEL 4 H

MASS RS3 A H BL2
MASS RS3 A L BL1
+5V R21 3.3K
75108B E15 → 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
+5V R22 3.3K
75108B E23 → CK2 AA2 A REG SEL 16 H

DN1
DP2
DR2
DU2
SPARE PINS

7414 E6; 7417 E3; 7417 E3; 7417 E3; 7417 E3; 75113 E22
SPARE LOGIC

S1 ENABLE / DISABLE

(CS6 MB EXCEPTION L) DT2
(CS5 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)

DA1 AA2 +3V (SA2 +3V)
+5V R23 3.3K
75108B E17 → BM2 AA2 C TO D A H (SA2 REC EXC H)

AA2 + 3V IF 3 PORT A ON H) DM2
MASS DEM A H (MASS RUN A H) BV2
MASS DEM A L (MASS RUN A L) BV1
+5V R24 3.3K
75108B E17 → 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
+5V R25 1K
75108B E18 → BJ2 AA2 INIT A H (SA2 WRT CLK A H)

MASS DS0 A H BU2
MASS DS0 A L BS2
+5V R26 3.3K
75108B E18 → BH2 AA2 DRV ADR A 1 H

MASS DS2 A H BP2
MASS DS2 A L BP1
+5V R27 3.3K
75108B E19 → CU2 AA2 DRV ADR A 4 H

MASS DS1 A H BR2
MASS DS1 A L BR1
+5V R28 3.3K
75108B E19 → BN2 AA2 DRV ADR A 2 H

+5V AA2, BA2, CA2, DA2
GND AC2, AT1, BC2, BT1, CC2, CT1, DC2, DT1
C1, C2, C48 THRU C53 10 µf
C4 THRU C29, C45 THRU C47 .0.22µf
C3 10 µf
C44 .0.22µf
D2 DG72
D1 IN4733A
C30 THRU C43 .0.22µf
C54 THRU C57 10 µf
-5V
Q1 EP2174
R32 47Ø
-15V AB2, BB2
R31 27 2W

REVISIONS
CHK | CHANGE NO. | REV

TITLE MASS BUS TRANSCEIVER PORT A
SIZE D CODE DCS NUMBER M5922-0-1 REV F
SCALE — SHEET 2 OF 2 DIST.

BBC FORM NO. 5955 1/80

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		
ENG	ECO NUMBER	REV
ER	00001	D
LC	M5922-CX002	E
CD	M5922-CX003	F
	W.C.M. 24 Nov 80	

BASIC PART NO: M5922

SECTION A OF A

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

DRN: R. SULLIVAN	DATE: 17-JUL-78	
CHK'D: C.BEVERLIE	DATE: 17-JUL-78	
DES.ENG: RV	DATE: 17-JUL-78	
RESP.ENG.: RV	DATE: 17-JUL-78	
MFG.ENG.: MR	DATE: 17-JUL-78	

	D	I	G	I	T	A	L		

TITLE PARTS LIST

MASS BUS TRANSCEIVER PORT A

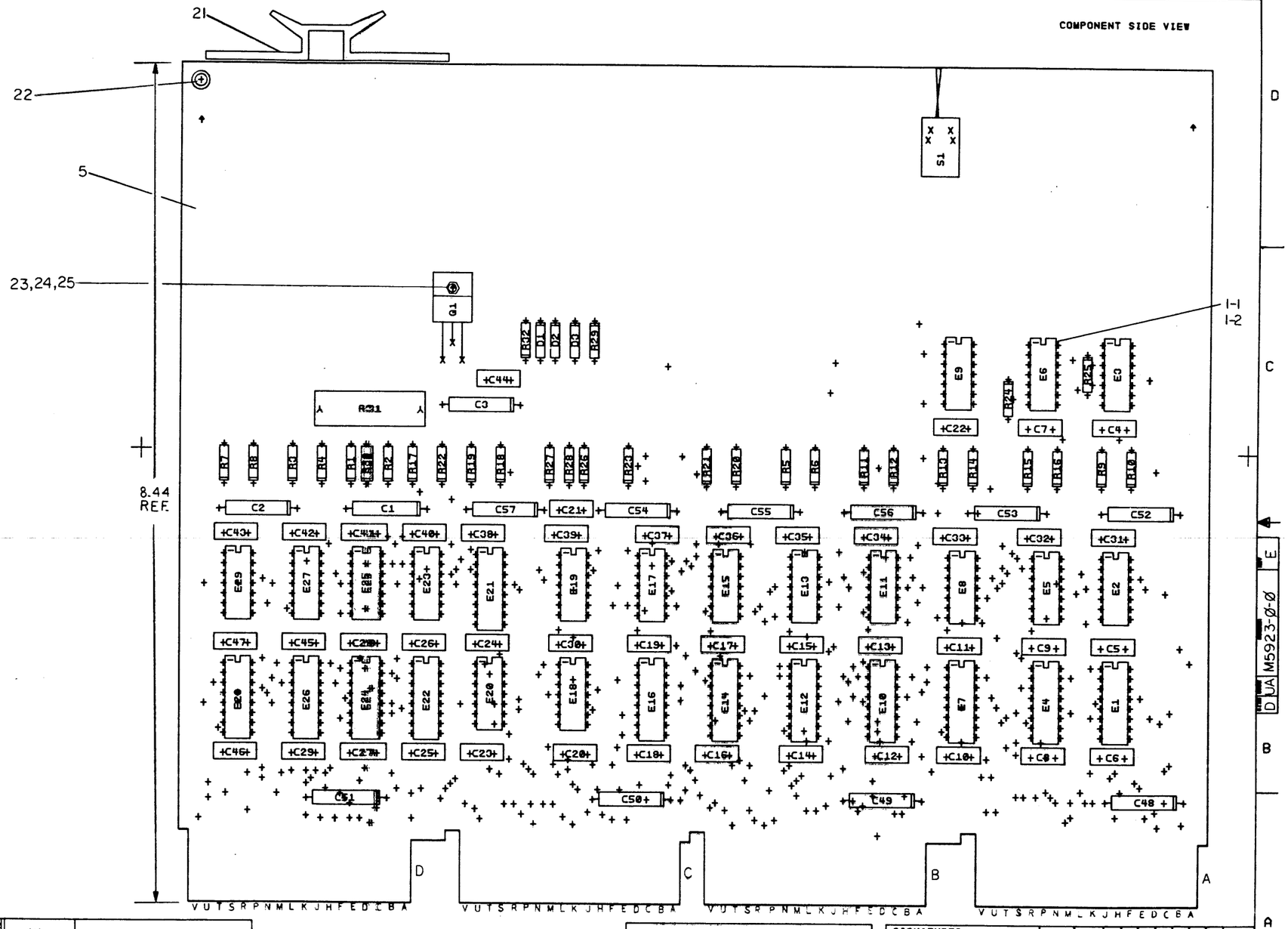
DOCUMENT NUMBER

SIZE	CODE	NUMBER	REV
K	PL	M5922-0-DBP	F

ASSEMBLY NUMBER:	TOP DOCUMENT NUMBER:	FILE NAME:	EDIT #
D-UA-M5922-0-0	RM03	Z0846F.PLS	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 1911324-00)

COMPONENT SIDE VIEW



NOTES:

CHK	CHANGE NO	REV
GZ	M5923-MAINT	D
	ECO LETTER	E

M5923-CX-0
K.DAVIS
16 NOV 80
C.DUNIGAN

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

SIGNATURES	DATE
DRN.	2-21-77
CHK'D.	3-23-77
ENG.	12 MAY 77
PROJ. ENG	12 MAY 77
PROD	5/13/77
SCALE 2/1	
SHT. 1 OF 3	
NEXT HIGHER ASSY. B DD-M5923-00	

digital

TITLE MASS BUS TRANSCEIVER PORT B

SIZE	CODE	NUMBER	REV
D	UA	M5923-0-0	E

CZ 1 MS#104581

D UA M5923-0-0 E

IF2 CONT 15 (DS3 MB 15L) — DJ2 — 75113 E24 — DJ1 MASS CI5 BH (MASS DI5 BH) — DH1 MASS CI5 BL (MASS DI5 BL)

IF2 CONT 14 (DS3 MB 14L) — DF2 — 75113 E24 — DK1 MASS CI4 BH (MASS DI4 BH) — DL1 MASS CI4 BL (MASS DI4 BL)

IF2 CONT 13 (DS3 MB 13L) — DN2 — 75113 E26 — DN1 MASS CI3 BH (MASS DI3 BH) — DM1 MASS CI3 BL (MASS DI3 BL)

IF2 CONT 12 (DS3 MB 12L) — DK2 — 75113 E26 — DP1 MASS CI2 BH (MASS DI2 BH) — DR1 MASS CI2 BL (MASS DI2 BL)

IF2 CONT 11 (DS3 MB 11L) — BU2 — 75113 E12 — DA1 MASS CI1 BH (MASS DI1 BH) — DB1 MASS CI1 BL (MASS DI1 BL)

IF2 CONT 10 (DS3 MB 10L) — AV2 — 75113 E12 — BF1 MASS CI0 BH (MASS DI0 BH) — BE1 MASS CI0 BL (MASS DI0 BL)

IF2 CONT 09 (DS3 MB 09L) — DU2 — 75113 E28 — DS1 MASS CØ9 BH (MASS DØ9 BH) — DT2 MASS CØ9 BL (MASS DØ9 BL)

IF2 CONT 08 (DS3 MB 08L) — DS2 — 75113 E28 — DV1 MASS CØ8 BH (MASS DØ8 BH) — DV2 MASS CØ8 BL (MASS DØ8 BL)

IF5 EN B TRANS H (CS5 TRANSMIT EN B H) — AH2 — 7414 E6 — 7437 E9

AB2+3V (CS5 SYNC REC EN BH) — AE2 — 7414 E6 — 7437 E9 — AU1 ABI REC EN H (SBI REC EN H)

+5V R1 3.3K — DL2 ABI B CONT 15 (SAI MB TSB 15)

+5V R2 3.3K — DH2 ABI B CONT 14 (SAI MB TSB 14)

+5V R3 3.3K — DP2 ABI B CONT 13 (SAI MB TSB 13)

+5V R4 3.3K — DM2 ABI B CONT 12 (SAI MB TSB 12)

+5V R5 3.3K — AN2 ABI B CONT 11 (SAI MB TSB 11)

+5V R6 3.3K — API ABI B CONT 10 (SAI MB TSB 10)

+5V R7 3.3K — DU1 ABI B CONT 09 (SAI MB TSB 09)

+5V R8 3.3K — DR2 ABI B CONT 08 (SAI MB TSB 08)

IF7 B CONT Ø7 OUT L (DS3 MB Ø7 L) — AC1 — 75113 E1 — BC1 MASS CØ7 BH (MASS DØ7 BH) — BD1 MASS CØ7 BL (MASS DØ7 BL)

IF7 B CONT Ø6 OUT L (DS3 MB Ø6 L) — AD2 — 75113 E1 — BB1 MASS CØ6 BH (MASS DØ6 BH) — BA1 MASS CØ6 BL (MASS DØ6 BL)

IF7 B CONT Ø5 OUT L (DS3 MB Ø5 L) — AS1 — 75113 E10 — BV2 MASS CØ5 BH (MASS DØ5 BH) — BV1 MASS CØ5 BL (MASS DØ5 BL)

IF7 B CONT Ø4 OUT L (DS3 MB Ø4 L) — AR1 — 75113 E10 — BT2 MASS CØ4 BH (MASS DØ4 BH) — BS1 MASS CØ4 BL (MASS DØ4 BL)

IF7 B CONT Ø3 OUT L (DS3 MB Ø3 L) — AL2 — 75113 E7 — BP1 MASS CØ3 BH (MASS DØ3 BH) — BR1 MASS CØ3 BL (MASS DØ3 BL)

IF7 B CONT Ø2 OUT L (DS3 MB Ø2 L) — AK2 — 75113 E7 — BN1 MASS CØ2 BH (MASS DØ2 BH) — BM1 MASS CØ2 BL (MASS DØ2 BL)

IF7 B CONT Ø1 OUT L (DS3 MB Ø1 L) — AK1 — 75113 E4 — BK1 MASS CØ1 BH (MASS DØ1 BH) — BL1 MASS CØ1 BL (MASS DØ1 BL)

IF7 B CONT ØØ OUT L (DS3 MB ØØ L) — AH1 — 75113 E4 — BJ1 MASS CØØ BH (MASS DØØ BH) — BH1 MASS CØØ BL (MASS DØØ BL)

IF5 EN B TRANS H (CS5 TRANSMIT ENB H) — AH2 — 7414 E6 — 7437 E9 — AM2 ABI TRAN EN H (SBI TRAN EN H)

AB2+3V (CS5 SYNC REC EN BH) — AE2 — 7414 E6 — 7437 E9

+5V R9 3.3K — AJ1 ABI B CONT Ø7 (SAI MB TSB ØT)

+5V RØ 3.3K — AA1 ABI B CONT Ø6 (SAI MB TSB Ø6)

+5V R11 3.3K — AM1 ABI B CONT Ø5 (SAI MB TSB Ø5)

+5V R12 3.3K — AL1 ABI B CONT Ø4 (SAI MB TSB Ø4)

+5V R13 3.3K — AJ2 ABI B CONT Ø3 (SAI MB TSB Ø3)

+5V R14 3.3K — AV1 ABI B CONT Ø2 (SAI MB TSB Ø2)

+5V R15 3.3K — AD1 ABI B CONT Ø1 (SAI MB TSB Ø1)

+5V RIG 3.3K — ABI ABI B CONT ØØ (SAI MB TSB ØØ)

CU1 — AB2+3V (SB2+3V)

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

REVISIONS			
CHK	CHANGE NO.	REV.	
	M5923-M1001	D	E
	M5923-CX002 L. CAPOBIANCA	E	F
	M5923-CX003 K. DAVIS BNOVED C. DUNIGAN	F	

DRN.		1-6-77
CHK'D		1/14/77
ENG.		2 MAY 77
PROJ. ENG.		2 MAY 77
PROD.		6/14/77
NEXT HIGHER ASSY.	B-DD-M5923-Ø	
SCALE		
SHEET	1 OF 2	

FIRST USED ON RMØ3

digital

TITLE MASS BUS TRANSCEIVER PORT B

SIZE	CODE	NUMBER	REV.
D	CS	M5923-Ø-1	F

DIST.