

digital

RH70

Engineering Drawings

Digital Equipment Corporation

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CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

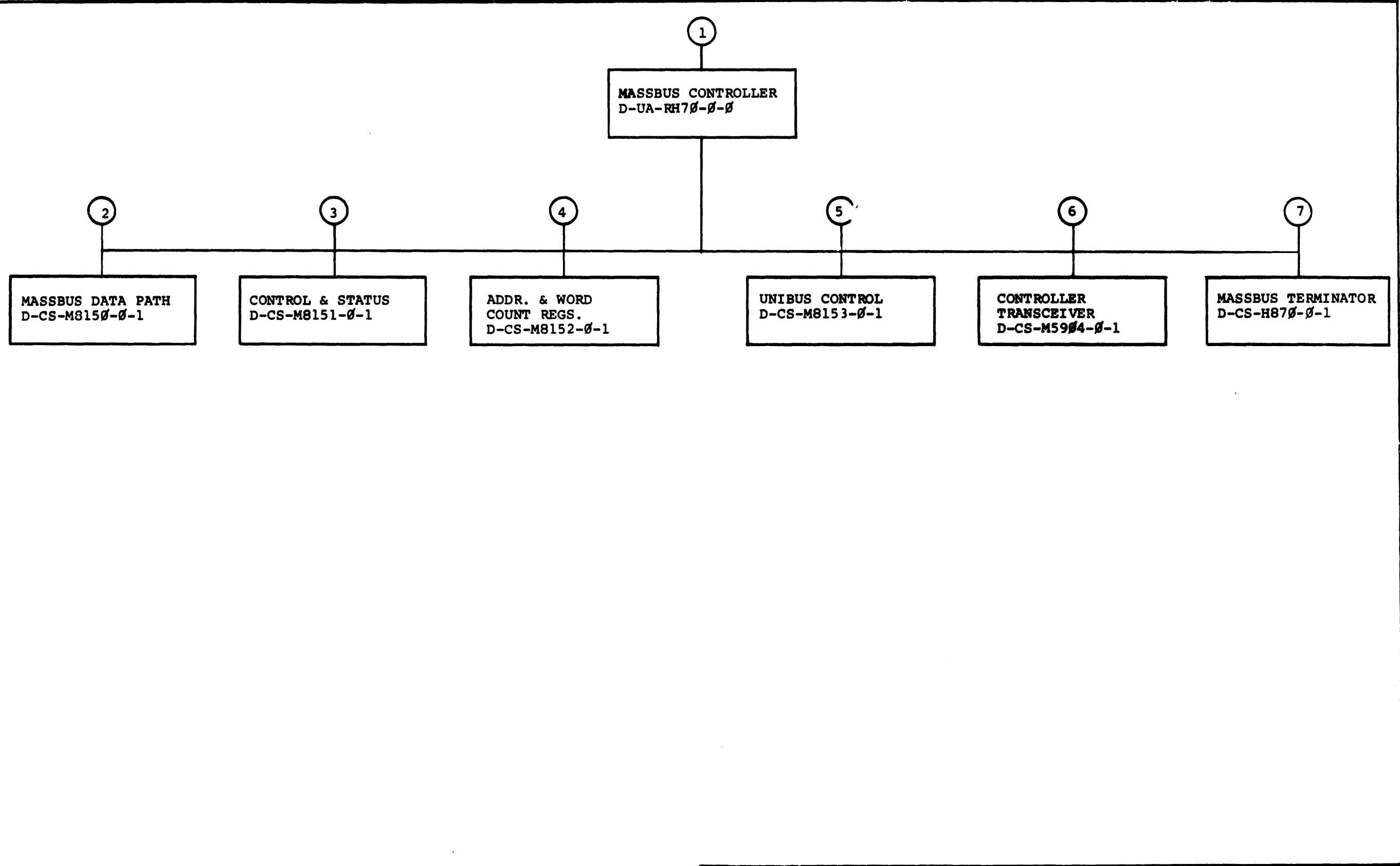
	SEQUENCE		SEQUENCE
DRAWING DIRECTORY RH7Ø	B-DD-RH7Ø-Ø		
MASSBUS CONTROLLER	D-UA-RH7Ø-Ø-Ø		
MASSBUS DATA PATH	D-CS-M815Ø-Ø-1		
CONTROL AND STATUS	D-CS-M8151-Ø-1		
ADDR. AND WORD COUNT REGS.	D-CS-M8152-Ø-1		
UNIBUS CONTROL	D-CS-M8153-Ø-1		
MASSBUS TRANSCEIVER	D-BS-RH7Ø-Ø-1		
UNIBUS CABLE AND GRANT CHAIN	D-IC-KB11-B-7		
RH7Ø DATA BUFFER TIM. DIAG.	D-TD-RH7Ø-Ø-5		
WRITE MASSBUS TIMING. DIAG.	D-TD-RH7Ø-Ø-6		
MASSBUS TIMING DIAG.	D-TD-RH7Ø-Ø-7		
WRITE COMMAND FLOW DIAG.	D-FD-RH7Ø-Ø-2		
WRITE CHECK COMM. FLOW DIAG.	D-FD-RH7Ø-Ø-3		
READ COMMAND FLOW DIAG.	D-FD-RH7Ø-Ø-4		
CONTROLLER TRANSCEIVER	D-CS-M59Ø4-Ø-1		
MASSBUS TERMINATOR	D-CS-H87Ø-Ø-1		

UNIT VARIATIONS		PRINT SET			
VAR	TITLE	1	2	3	4
RH7Ø-A	MASSBUS CONTROLLER	X			

REV	CHG. NO.	DATE

USED ON	OPTION	MODEL	DATE	DATE	TITLE
			J. FERGUSON	3/28/75	DRAWING DIRECTORY RH7Ø
			FERGUSON	Ø-11-75	
			S. Jenkins	4/14/75	
			Taylor	4/11/75	
			FIELD SERV.	4/10/75	
SHEET 1 OF 3					NUMBER
					RH7Ø-Ø
					REV

AIR
DEC 16-13751-1002-1A-RØ72



TITLE	DRAWING DIRECTORY RH70	SHEET 2 OF 3	SIZE CODE	B DD	NUMBER	RH70-0	REV
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CUSTOMER PRINT SET		ELECTRICAL					CUSTOMER PRINT SET		ELECTRICAL				
1	MFG. SET	FWD NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE	1	MFG. SET	FWD NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X		1		1	MASSBUS CONTROLLER						1	MODULE ECO HISTORY	
				1	C-SC-1209856-0-02								
X				3	D-BS-RH7Ø-Ø-1								
X				1	D-FD-RH7Ø-Ø-2								
X				1	D-FD-RH7Ø-Ø-3								
X				1	D-FD-RH7Ø-Ø-4								
X				4	D-TD-RH7Ø-Ø-5								
X				1	D-TD-RH7Ø-Ø-6								
X				1	D-TD-RH7Ø-Ø-7		X		5		6	UNIBUS CONTROL	
					A-SP-RH7Ø-Ø-8						1	X-Y COOR. HOLE LOCATION	
					A-SP-RH7Ø-Ø-9						1	ASSY/DRILLING HOLE LAYOUT	
X				1	D-IC-KB11-B-7						1	MODULE ECO HISTORY	
				4	D-UA-11/70-0-0								
					K-WL-7010329-0-1								
							X		6		2	CONTROLLER TRANSCEIVER	
X		2		9	D-CS-M815Ø-Ø-1						1	X-Y COOR. HOLE LOCATION	
				1	K-CO-M815Ø-Ø-4						1	ASSY/DRILLING HOLE LAYOUT	
				1	D-AH-M815Ø-Ø-5						1	MODULE ECO HISTORY	
				1	B-MH-M815Ø-Ø-6								
							X		7		1	MASSBUS TERMINATOR	
X		3		6	D-CS-M8151-Ø-1						1	X-Y COOR. HOLE LOCATION	
				1	K-CO-M8151-Ø-4						1	ASSY/DRILLING HOLE LAYOUT	
				1	D-AH-M8151-Ø-5						1	MODULE ECO HISTORY	
				1	B-MH-M8151-Ø-6								
X		4		7	D-CS-M8152-Ø-1								
				1	K-CO-M8152-Ø-4								
				1	D-AH-M8152-Ø-5								

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

TITLE
DRAWING DIRECTORY RH7Ø

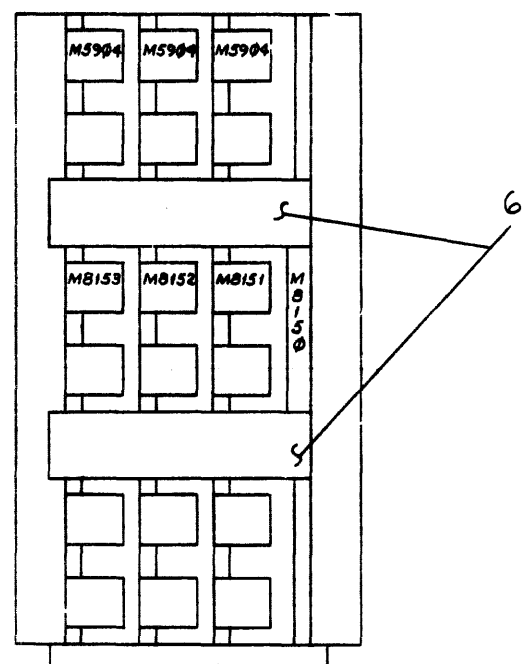
SHEET 3 OF 3 B DD NUMBER RH7Ø-Ø REV

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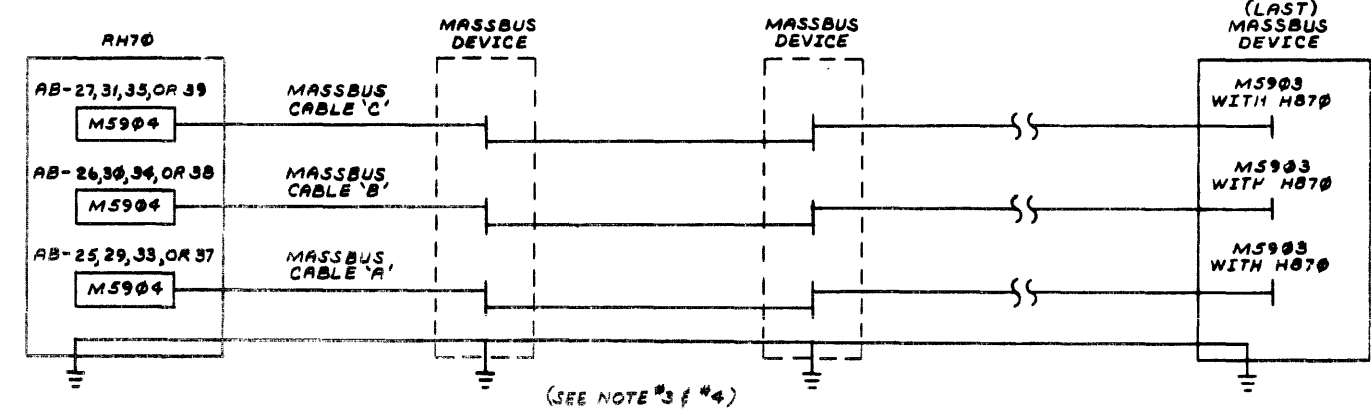
- NOTES:**
1. VIEW OF LOGIC IS FROM MODULE SIDE.
 2. SELECT PROPER JUMPER SETTINGS FOR UNIBUS ADDRESS, REGISTER LENGTH FIELD, AND VECTOR ADDRESS AS PER MASSBUS DEVICE USED.
 3. INSERT ONE H870 MASSBUS TERMINATOR MODULE IN J2 (ETCH SIDE OF H870 TO COMPONENT SIDE OF M5903) OF EACH OF THE M5903 MASSBUS TRANSCIEVER MODULES IN THE LAST MASSBUS DRIVE.
 4. COLORED EDGE OF MASSBUS CABLES SHOULD BE FACING MODULE HANDLE OF M5904 IN RH70 & M5903 IN MASSBUS DRIVES.
 5. ONE H870 MASSBUS TERMINATOR MODULE WILL BE INSERTED IN J1 (COMPONENT SIDE OUT) OF EACH OF THE 3 M5904 MODULES FOR SHIPMENT ONLY.
 6. M5904 MODULES MUST BE ETCH REVISION E OR LATER FOR PROPER MECHANICAL POSITION OF CABLE CONNECTOR ON MODULE.

LEGEND	
NUMBER	VARIATION
RH70-A	MASSBUS CONTROLLER PDP11/70

	4TH RH70				3RD RH70				2ND RH70				1ST RH70			
	CONTROLLER D				CONTROLLER C				CONTROLLER B				CONTROLLER A			
	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24
A	M5904	M5904	M5904	M8150	M5904	M5904	M5904	M8150	M5904	M5904	M5904	M8150	M5904	M5904	M5904	M8150
B	CONTROL- LER TRANS (MBSA)	CONTROL- LER TRANS (MBSB)	CONTROL- LER TRANS (MBSA)		CONTROL- LER TRANS (MBSB)	CONTROL- LER TRANS (MBSB)	CONTROL- LER TRANS (MBSA)		CONTROL- LER TRANS (MBSB)	CONTROL- LER TRANS (MBSB)	CONTROL- LER TRANS (MBSA)		CONTROL- LER TRANS (MBSB)	CONTROL- LER TRANS (MBSB)	CONTROL- LER TRANS (MBSA)	
C	SEE NOTES 4&5	SEE NOTES 4&5	SEE NOTES 4&5		SEE NOTES 4&5	SEE NOTES 4&5	SEE NOTES 4&5		SEE NOTES 4&5	SEE NOTES 4&5	SEE NOTES 4&5		SEE NOTES 4&5	SEE NOTES 4&5	SEE NOTES 4&5	
D	M8153	M8152	M8151	MASSBUS DATA PATH (MDP)	M8153	M8152	M8151	MASSBUS DATA PATH (MDP)	M8153	M8152	M8151	MASSBUS DATA PATH (MDP)	M8153	M8152	M8151	MASSBUS DATA PATH (MDP)
E	UNIBUS CNTRL (BCT)	ADDR & WC REGS (AWR)	CONTROL & STATUS (CST)		UNIBUS CNTRL (BCT)	ADDR & WC REGS (AWR)	CONTROL & STATUS (CST)		UNIBUS CNTRL (BCT)	ADDR & WC REGS (AWR)	CONTROL & STATUS (CST)		UNIBUS CNTRL (BCT)	ADDR & WC REGS (AWR)	CONTROL & STATUS (CST)	
F	SEE NOTE 2				SEE NOTE 2				SEE NOTE 2				SEE NOTE 2			



VIEW FROM MODULE SIDE



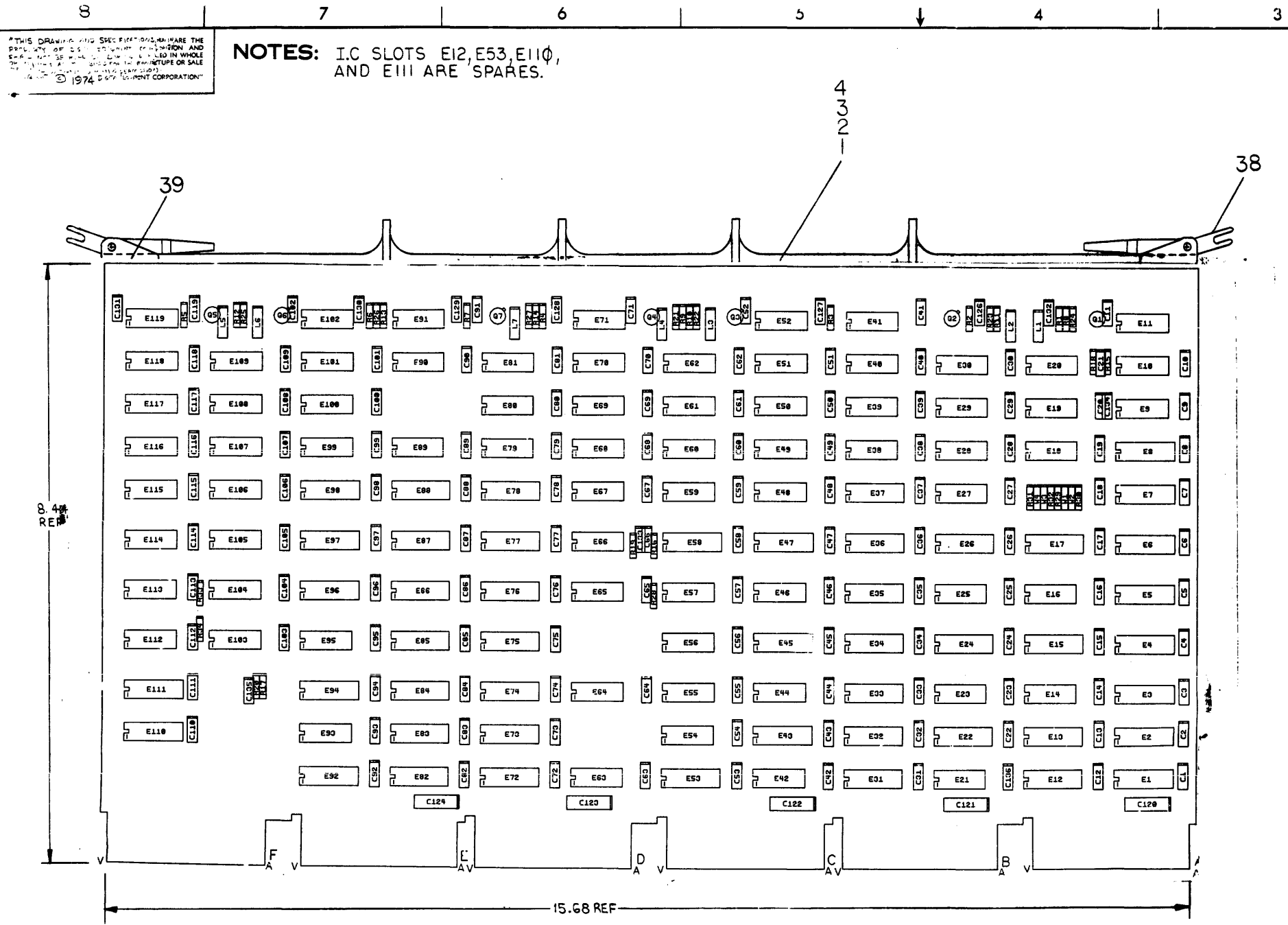
(SEE NOTE #3 & #4)

QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70	UNIT ASSEMBLY	D-UA-11/70-0-0	REF
3	MASSBUS TERMINATOR	H870	7
2	MODULE HOLDER	1209056	6
3	CONTROLLER TRANSCIEVER	M5904	5
1	UNIBUS CONTROL	M8153	4
1	ADDR. & WORD COUNT REGS.	M8152	3
1	CONTROL & STATUS	M8151	2
1	MASSBUS DATA PATH	M8150	1

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.															
RH70																				
DIMENSIONAL TOLERANCE		PARTS LIST																		
DIMENSIONS ARE MILLIMETERS UNLESS OTHERWISE SPECIFIED		<table border="1"> <tr> <td>DRN. <i>J. Dimen</i></td> <td>DATE 3-7-75</td> </tr> <tr> <td>CHK'D. <i>R. Dimen</i></td> <td>DATE 4-1-75</td> </tr> <tr> <td>ENG. <i>J. Dimen</i></td> <td>DATE 4-10-75</td> </tr> <tr> <td>FRG. <i>J. Dimen</i></td> <td>DATE 4-10-75</td> </tr> <tr> <td>PROV. <i>J. Dimen</i></td> <td>DATE 4-10-75</td> </tr> </table>				DRN. <i>J. Dimen</i>	DATE 3-7-75	CHK'D. <i>R. Dimen</i>	DATE 4-1-75	ENG. <i>J. Dimen</i>	DATE 4-10-75	FRG. <i>J. Dimen</i>	DATE 4-10-75	PROV. <i>J. Dimen</i>	DATE 4-10-75					
DRN. <i>J. Dimen</i>	DATE 3-7-75																			
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FRG. <i>J. Dimen</i>	DATE 4-10-75																			
PROV. <i>J. Dimen</i>	DATE 4-10-75																			
MILLIMETERS INCHES ANGLES		<table border="1"> <tr> <td>XXX ±0.10</td> <td>XXX ±0.20</td> <td>90° 30'</td> <td colspan="2">TITLE MASSBUS CONTROLLER (RH70)</td> </tr> <tr> <td>XX ±0.08</td> <td>XX ±0.22</td> <td></td> <td colspan="2">NUMBER DUA RH70-0-0</td> </tr> <tr> <td>X ±0.2</td> <td>X ±0.1</td> <td></td> <td colspan="2">REV.</td> </tr> </table>				XXX ±0.10	XXX ±0.20	90° 30'	TITLE MASSBUS CONTROLLER (RH70)		XX ±0.08	XX ±0.22		NUMBER DUA RH70-0-0		X ±0.2	X ±0.1		REV.	
XXX ±0.10	XXX ±0.20	90° 30'	TITLE MASSBUS CONTROLLER (RH70)																	
XX ±0.08	XX ±0.22		NUMBER DUA RH70-0-0																	
X ±0.2	X ±0.1		REV.																	
THIRD ANGLE PROJECTION REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		NEXT HIGHER ASSY.																		
MATERIAL FINISH		SCALE B-DD-RH70-0																		
		SHEET 1 OF 1																		

REV.	CHANGE NO.	DESCRIPTION

REV. 11/70 UNIT ASSEMBLY DUA RH70-0-0



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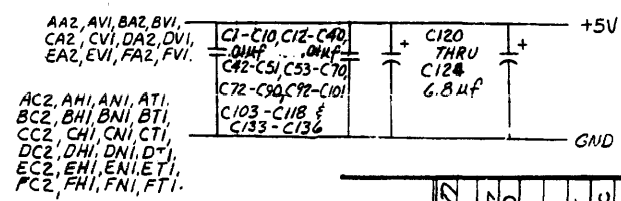
NOTES: I.C SLOTS E12, E53, E110, AND E111 ARE SPARES.

DIGITAL EQUIPMENT CORPORATION
MB150-0-1

REF	X-Y COORDINATE HOLE LOCATION	K-CO-8150-0-4	1
REF	ASSY/DRILLING HOLE LAYOUT	D-AH-8150-0-5	2
REF	MODULE ECO HISTORY	B-MH-8150-0-6	3
1	ETCHED CIRCUIT BOARD	5011276	4
118	C1 THRU C10, C12 THRU C40, C42 THRU C51, C53 THRU C70, C72 THRU C90, C92 THRU C101, C103 THRU C118, C133 THRU C136	CAP .01uf 20% 100V DISC	1001810-01
5	C120 THRU C124	CAP 6.8uf 10% 35V	1005308
7	C128 THRU C132	CAP 82pf 5% 100V	1000015
7	C11, C41, C52, C71, C91, C102, C119	CAP .22uf 50V CERAMIC	1010274-00
7	R1 THRU R7	RES 100 OHM 5% 1/4W	1300229
7	R8 THRU R14	RES 120 OHM 5% 1/4W	1300247
3	R15, R16, R17	RES 330 OHM 5% 1/4W	1300295
3	R18, R19, R20	RES 680 OHM 5% 1/4W	1301424
8	R21 THRU R26	RES 1K 5% 1/4W	1300385
4	R29 THRU R32	RES 1.5K 5% 1/4W	1300391
7	Q1 THRU Q7	TRANSISTOR DEC 3009B	1503100
7	L1 THRU L7	INDUCTOR 100uh	1810862
7	E11, E41, E52, E71, E91, E102, E118	DELAY - 10 TAP 250ns 100 OHM	1811243
8	E19, E38, E50, E99, E82, E80, E99, E100	IC DEC 74S00	1910532
9	E42, E55, E58, E57, E83 THRU E87	IC DEC 74HC1	1909849-00
1	E115	IC DEC 7402	1905054
8	E20, E51, E70, E101, E112, E118	IC DEC 74S04	1910534
2	E48, E90	IC DEC 74S10	1910536
8	E18, E30, E80, E88, E107, E108, E114, E118	IC DEC 74S11	1910537
1	E49	IC DEC 74H30	1909059
1	E54	IC DEC 74H40	1905588
2	E39, E89	IC DEC 74H50	1909080
8	E28, E81, E104, E105, E108, E113	IC DEC 74S84	1910542
8	E9, E29, E89, E79, E109, E117, E48, E81	IC DEC 74S74	1910544
2	E18, E183	IC DEC 7408	1910011
4	E82, E84, E98, E98	IC DEC 74157	1910855
14	E31, E33, E35, E37, E72, E74, E78, E78, E88, E84, E88, E88, E97	IC DEC 74S157	1910548
3	E22, E24, E28	IC DEC 74174	1910852
10	E2, E4, E8, E13, E15, E17, E32, E34, E38, E73, E75, E77, E83, E85, E87, E43, E45, E47	IC DEC 74S174	1910550
5	E1, E3, E5, E7, E8	IC DEC 74298	1911271
4	E21, E23, E25, E27	IC DEC 8242	1909712
8	E14, E16, E44, E48, E93, E95	IC DEC 82S82	1911291
4	W1 THRU W4	INSULATED JUMPERS	9009185
1		HANDLE	1210711-02
12		EYELET	8006732
1	R33	RES 270 OHM 5% 1/4 W	1301972
1	R34	RES 560 OHM 5% 1/4 W	1301890

IC TYPE	GND	+5V
IC DEC 74157	8	16
IC DEC 74S157	8	16
IC DEC 74S174	8	16
IC DEC 74174	8	16
IC DEC 74298	8	16

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



FIRST USED ON OPTION MODEL RH70

ETCH BOARD REV C

DATE 9-15-74

digital EQUIPMENT CORPORATION

TITLE MASSBUS DATA PATH (MDP)

SIZE CODE DICS M8150-0-1

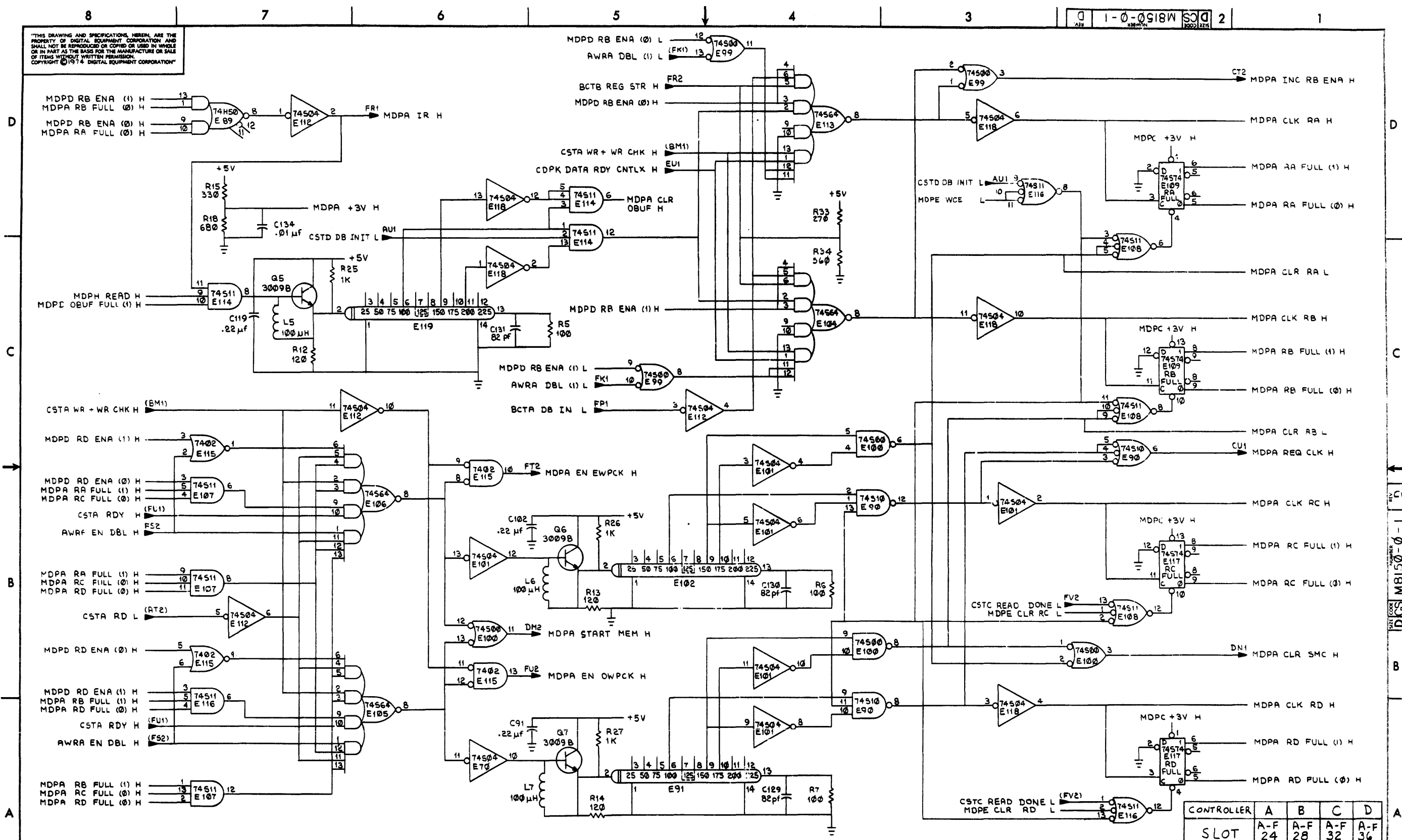
NUMBER 1

REV. 0

SHEET 1 OF 9

SEMICONDUCTOR CONVERSION CHART

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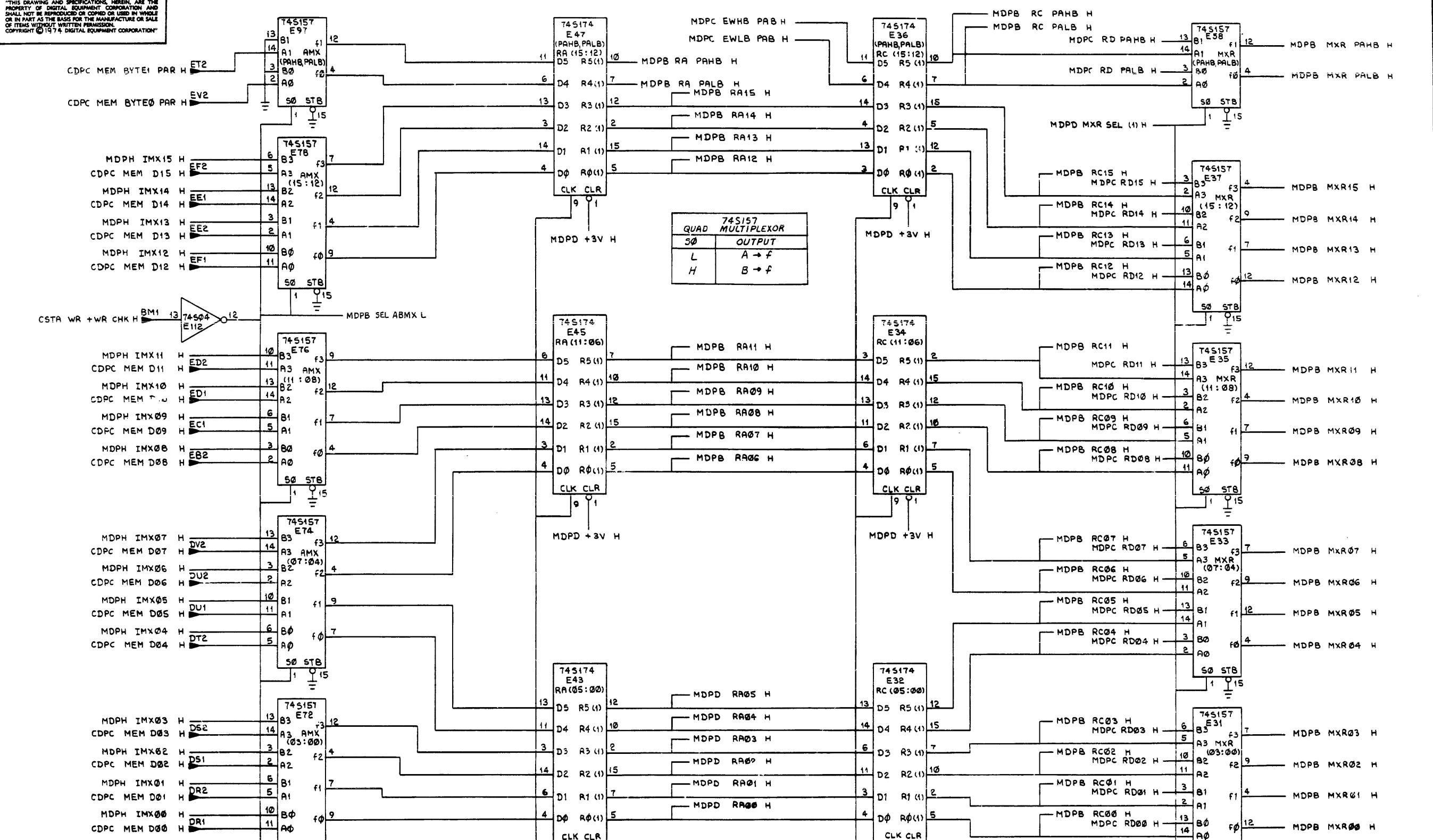
CONTROLLER	A	B	C	D
SLOT	A-F 24	A-F 28	A-F 32	A-F 36

(MEMORY REGISTERS CONTROL)

TITLE	MASSBUS DATA PATH (MDPA)	SIZE CODE	D CS	NUMBER	M8150-0-1	REV.	D
SCALE		SHEET	2 OF 9	DIST.			

REVISIONS		
CHK	CHANGE NO.	REV.

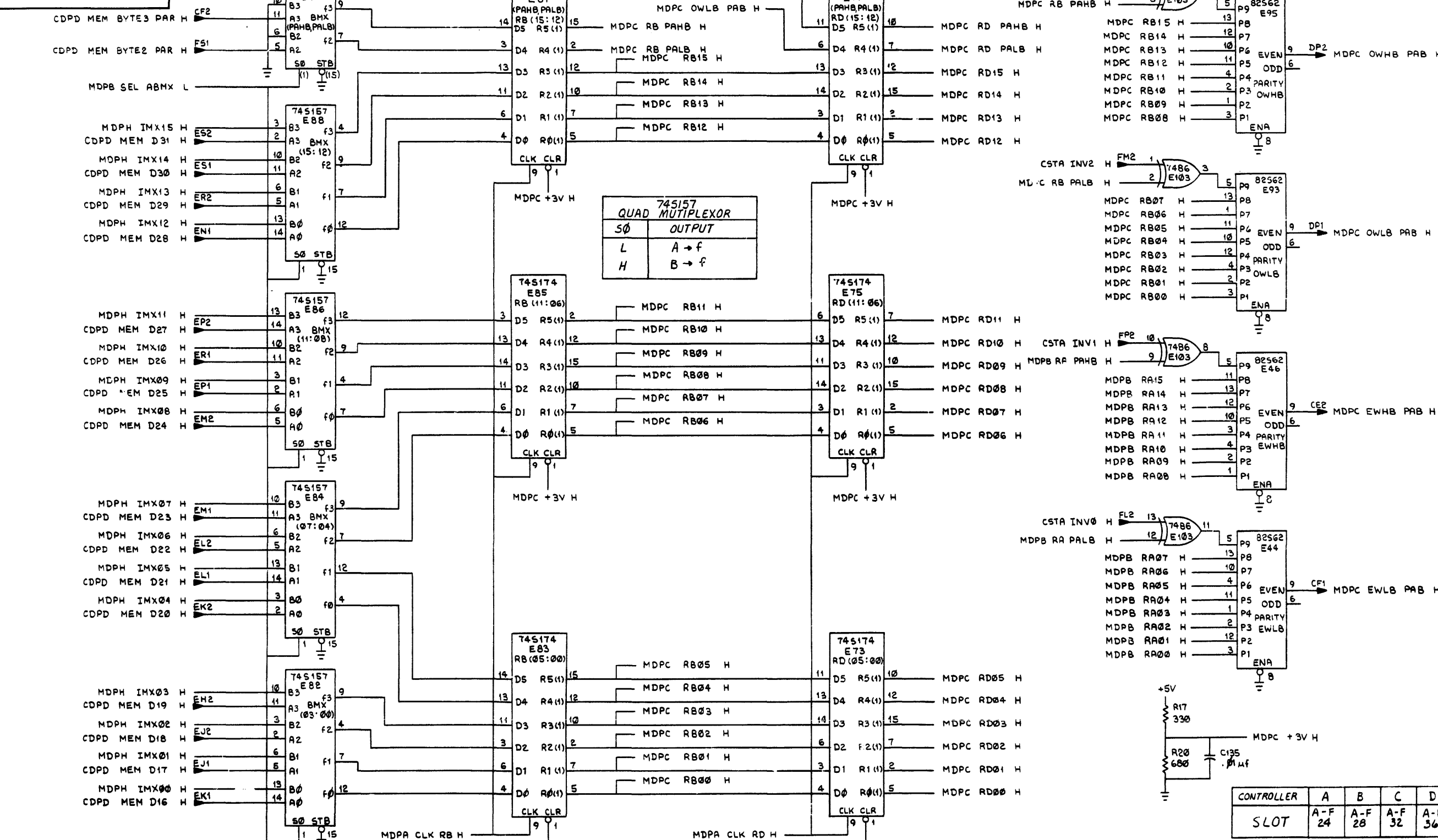
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(EVEN WORD MEMORY DATA REGISTERS & MIXER)

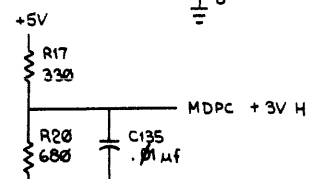
REVISIONS		
CHK	CHANGE NO.	REV.

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745174 QUAD MULTIPLEXOR

S \emptyset	OUTPUT
L	A \rightarrow f
H	B \rightarrow f



CONTROLLER	A	B	C	D
SLOT	A-F 24	A-F 28	A-F 32	A-F 36

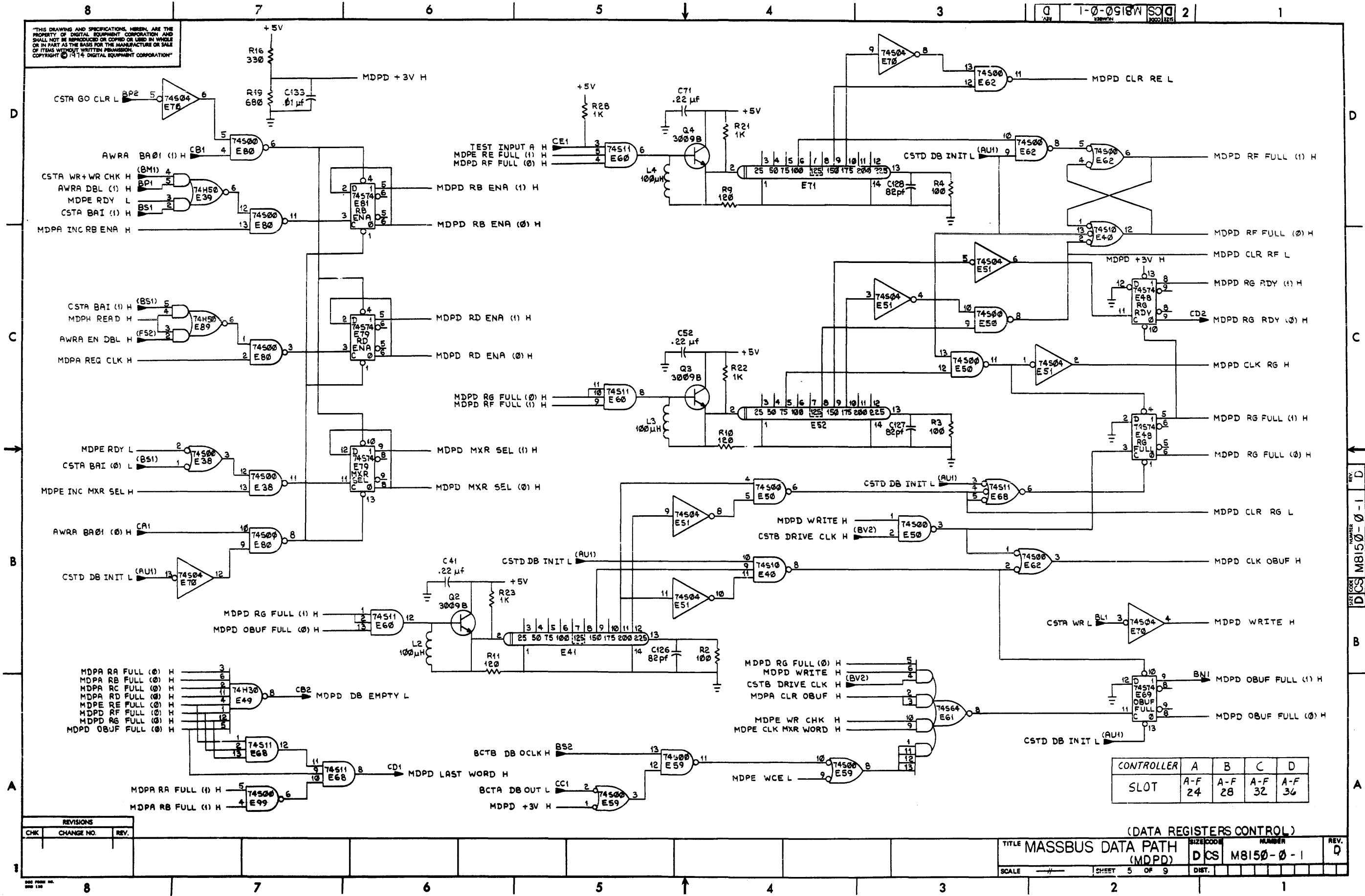
(ODD WORD MEMORY DATA REGISTERS & MEMORY PARITY GEN/CHECKERS)

REVISIONS

CHK	CHANGE NO.	REV.

TITLE	MASSBUS DATA PATH (MDPC)	SIZE CODE	D CS	NUMBER	M8150-0-1	REV.	D
SCALE		SHEET	4 OF 9	DIST.			

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CONTROLLER	A	B	C	D
SLOT	A-F 24	A-F 28	A-F 32	A-F 36

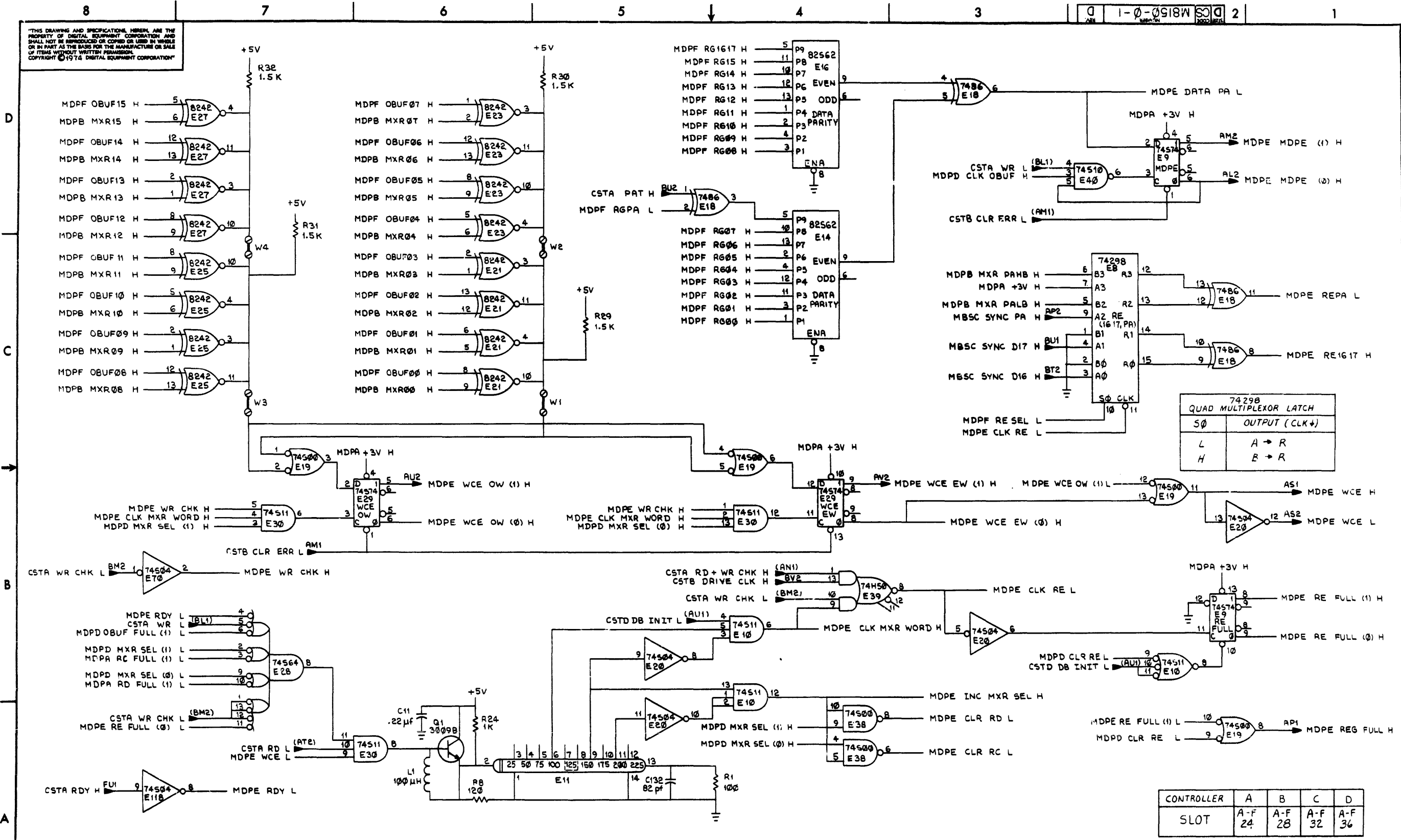
(DATA REGISTERS CONTROL)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	MASSBUS DATA PATH (MDPD)	SIZE CODE	D CS	NUMBER	M8150-0-1	REV.	0
SCALE	---	SHEET	5	OF	9	DIST.	

REV. D
NUMBER DCS M8150-0-1

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CONTROLLER	A	B	C	D
SLOT	A-F 24	A-F 28	A-F 32	A-F 36

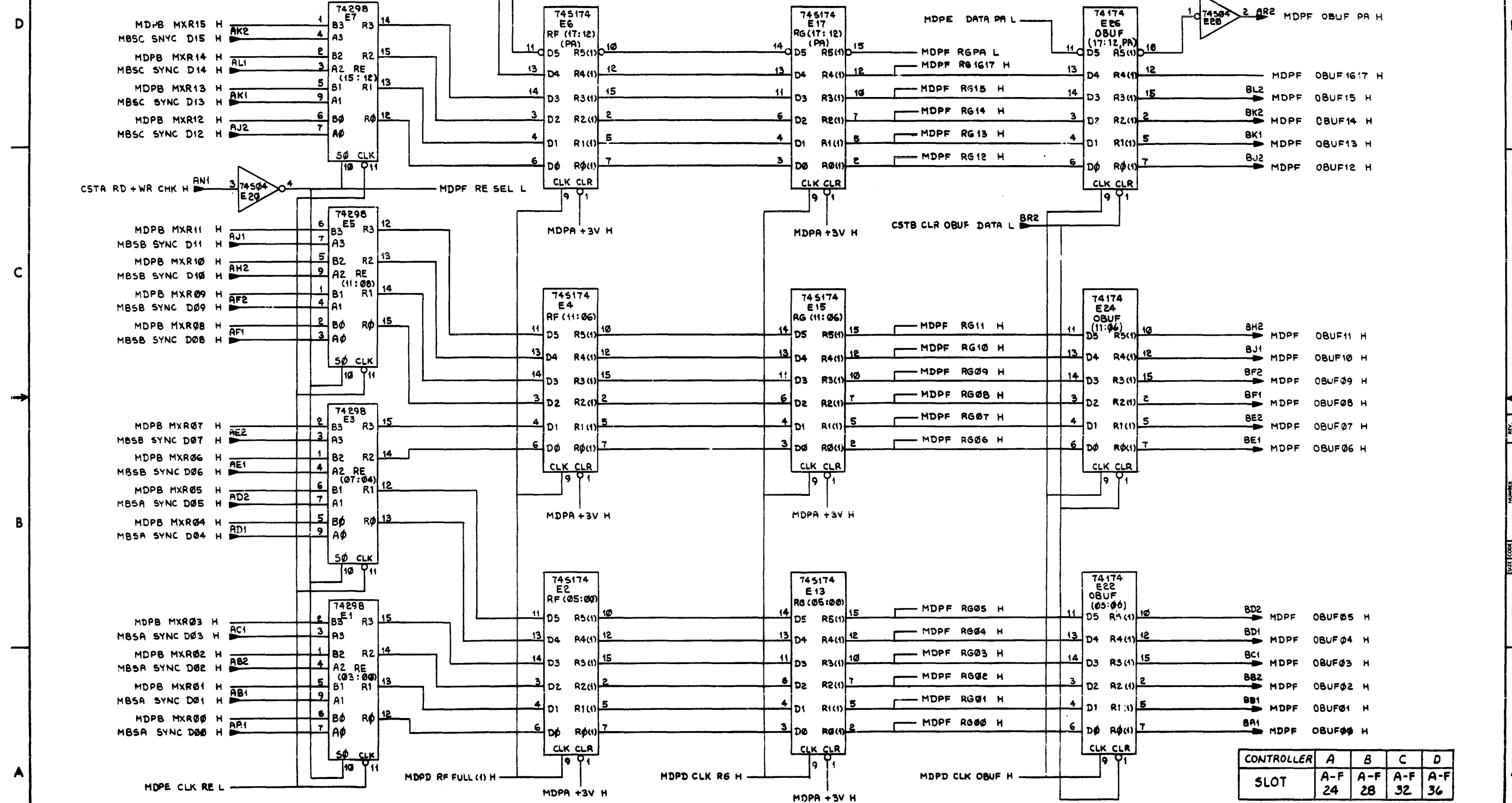
REVISIONS		
CHK	CHANGE NO.	REV.

(WRITE CHECK LOGIC; CLOCK RE, & DATA PARITY)
 TITLE MASSBUS DATA PATH (MDPE) NUMBER DCS M8150-0-1 REV. D
 SCALE SHEET 6 OF 9 DIST.

REV. D DCS M8150-0-1

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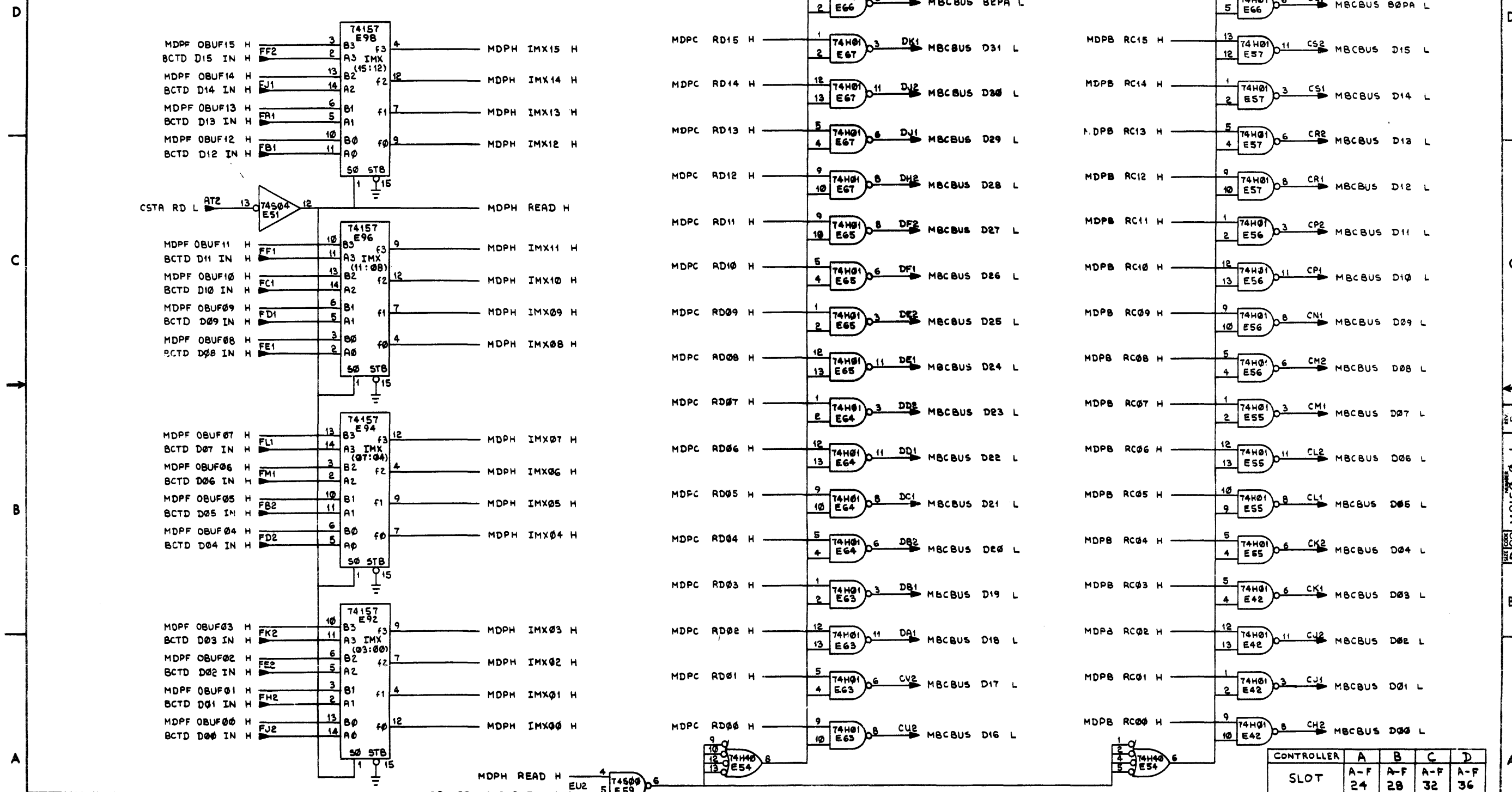
74298 QUAD MULTIPLEXOR LATCH	
S0	OUTPUT (CLK↑)
L	A → R
H	B → R



CONTROLLER	A	B	C	D
SLOT	A-F	A-F	A-F	A-F
	24	28	32	36

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74157 QUAD MULTIPLEXOR	
S0	OUTPUT
L	A → f
H	B → f



CONTROLLER	A	B	C	D
SLOT	A-F 24	A-F 28	A-F 32	A-F 36

(IMX & DATA DRIVERS)

REVISIONS		
CHK	CHANGE NO.	REV.

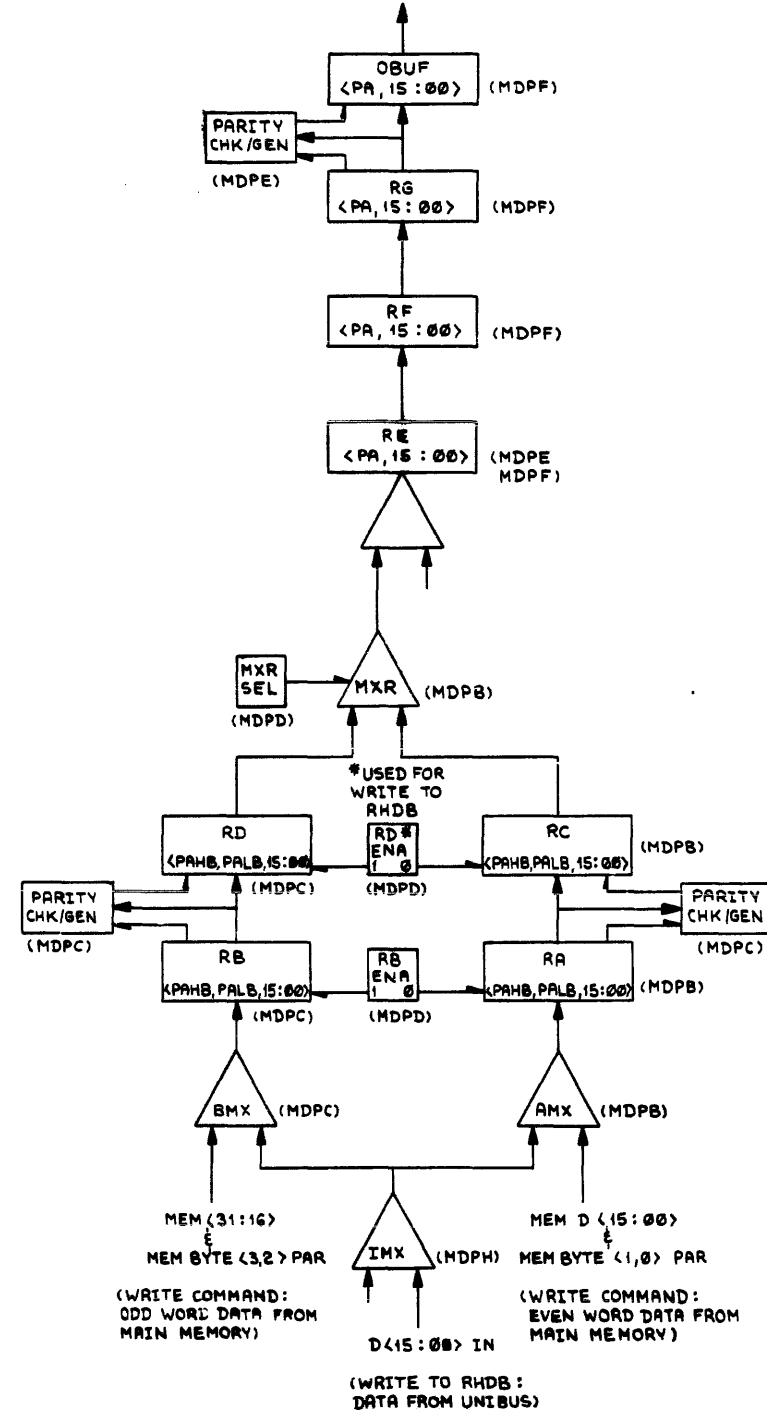
TITLE	MASSBUS DATA PATH (MDPH)	SIZE CODE	D	NUMBER	MB150-0-1	REV.	D
SCALE		SHEET	8	OF 9	DIST.		

REV. D
D E S M B 1 5 0 - 0 - 1

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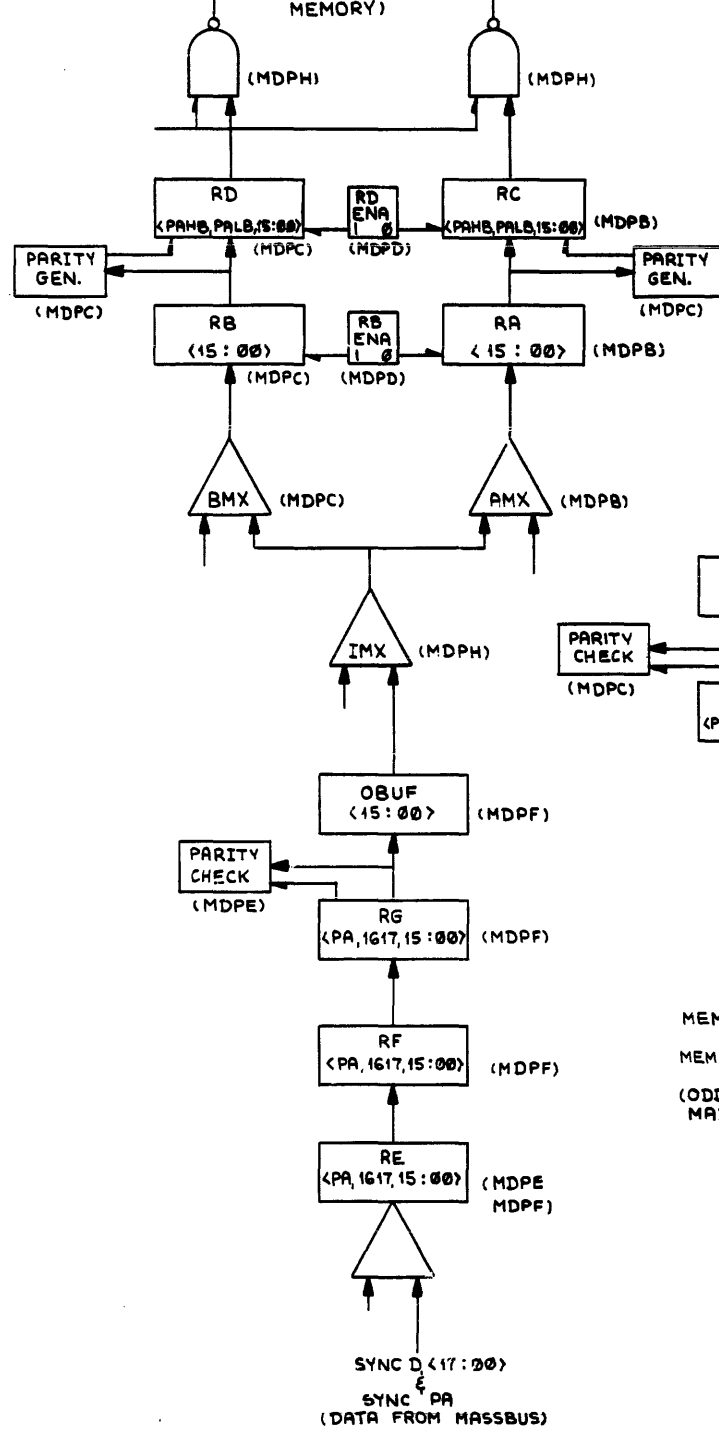
WRITE COMMAND OR READ-WRITE RHDB REGISTER

(READ FROM RHDB : TO UNIBUS)
(WRITE COMMAND : TO MASSBUS)

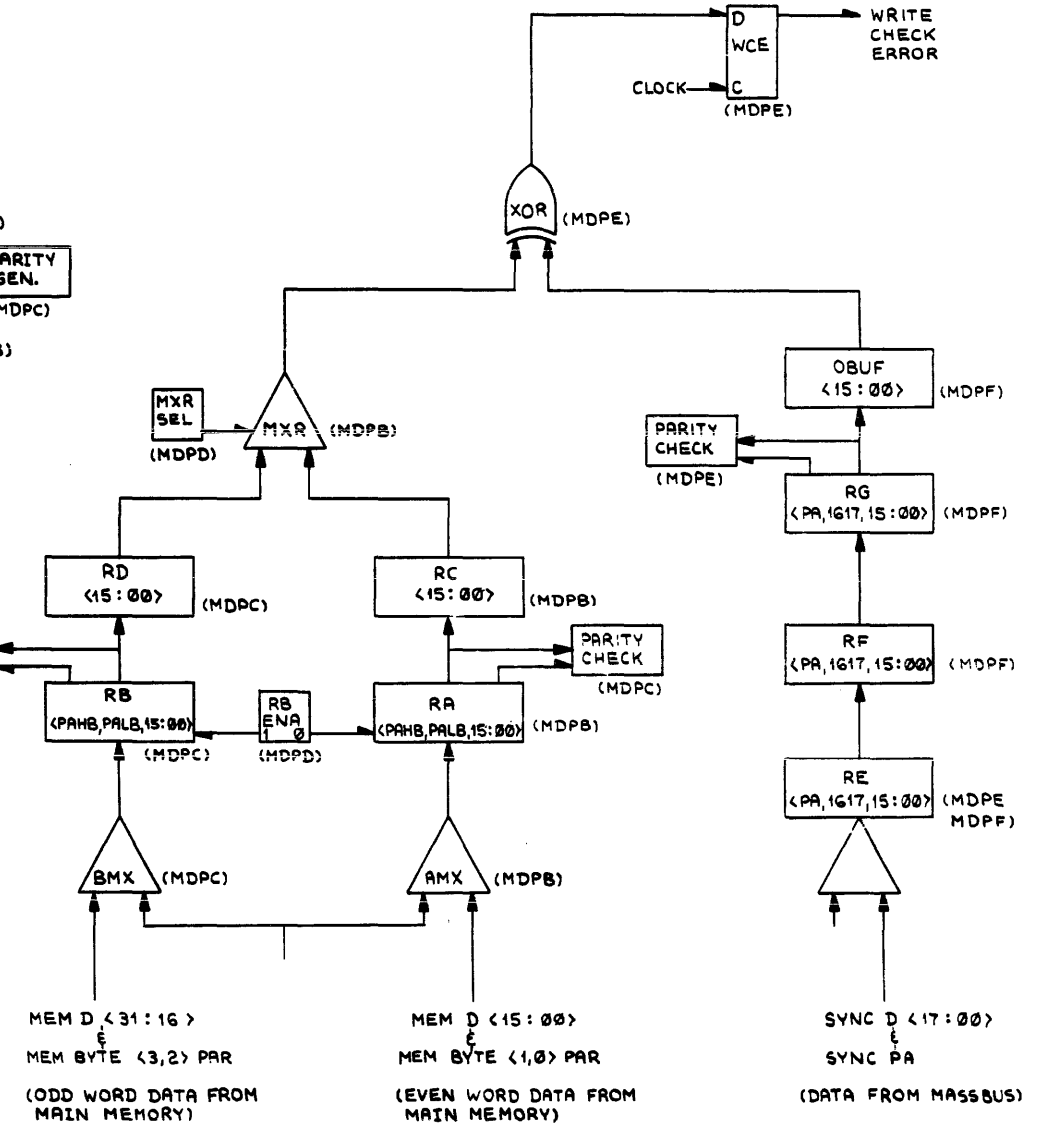


READ COMMAND

MBCBUS D<31:16> MBCBUS B<3,2> PA (TO MAIN MEMORY)
MBCBUS D<15:00> MBCBUS B<1,0> PA



WRITE CHECK COMMAND



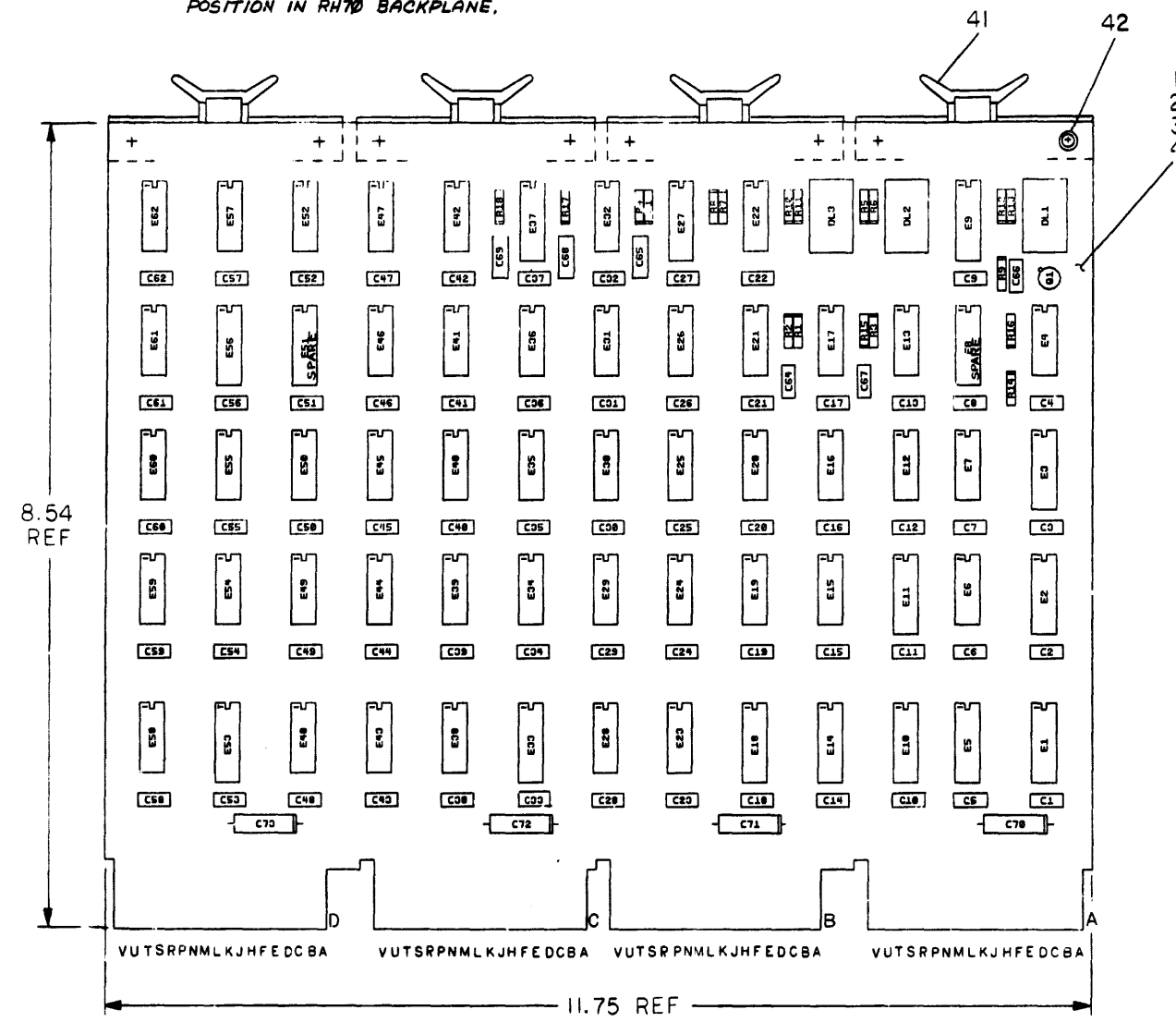
CONTROLLER	A	B	C	D
SLOT	A-F 24	A-F 28	A-F 32	A-F 36

(DATA PATH BLOCK DIAGRAM)

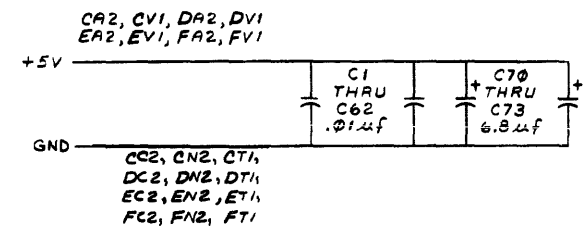
REVISIONS		
CHK	CHANGE NO.	REV.

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NOTES:
 1. IC SLOTS E0 & E51 ARE SPARES.
 2. PIN DESIGNATIONS ON CIRCUIT SCHEMATICS REFER TO MODULE POSITION IN RH70 BACKPLANE.



PIN NOMENCLATURE
 MODULE PIN: A, B, C, D
 BACKPLANE PIN: C, D, E, F



IC TYPE	GND	+5V
I.C. DEC 74175	8	16
I.C. DEC 74123	8	16
I.C. DEC 8640	1	8
I.C. DEC 8234	8	16
I.C. DEC 7442	8	16
I.C. DEC 74193	8	16
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.		
IC PIN LOCATIONS		

REF	X-Y COORDINATE HOLE LOCATION	K-CO-M8151-0-4	1
REF	ASSY/DRILLING HOLE LAYOUT	D-AH-M8151-0-5	2
REF	MODULE ECO HISTORY	B-MH-M8151-0-6	3
1	ETCHED CIRCUIT BOARD	501135F	4
84	C1 THRU C82, C84, C86	CAPACITOR .01uF 100V, 20%	5
4	C70 THRU C73	CAPACITOR 6.8uF 10% 35V	6
1	C85	CAPACITOR 47uF 20% 25V	7
1	C87	CAPACITOR 47pf 5% 100V	8
2	C88, C89	CAPACITOR 180pf 5% 100V	9
1	D1	DIODE 0684	10
3	R5, R10, R12	RESISTOR 150 OHM, 1/4 W, 5%	11
3	R8, R11, R13	RESISTOR 300 OHM, 1/4 W, 5%	12
2	R1, R9	RESISTOR 330 OHM, 1/4 W, 5%	13
2	R2, R9	RESISTOR 880 OHM, 1/4 W, 5%	14
3	R3, R14, R15	RESISTOR 1K OHM, 1/4 W, 5%	15
4	R7, R17, R18, R4	RESISTOR 5.8K OHM, 1/4 W, 5%	16
1	R18	RESISTOR 6.8K OHM, 1/4 W, 5%	17
1	Q1	TRANSISTOR DEC 3009 B	18
3	DL1, DL2, DL3	DELAY 50 NS	19
2	E45, E48	IC DEC 7400	20
3	E7, E12, E82	IC DEC 74000	21
2	E39, E48	IC DEC 74500	22
2	E34, E42	IC DEC 7402	23
4	E8, E38, E43, E49	IC DEC 7404	24
4	E35, E41, E58, E59	IC DEC 7408	25
3	E40, E44, E52	IC DEC 7410	26
2	E24, E32	IC DEC 74H10	27
5	E4, E25, E50, E54, E57	IC DEC 74H11	28
2	E22, E31	IC DEC 7437	29
1	E56	IC DEC 7442	30
1	E20	IC DEC 74H30	31
1	E28	IC DEC 74H50	32
10	E13, E15, E18, E21, E28, E30, E47, E55, E60, E61	IC DEC 74H74	33
3	E19, E23, E29	IC DEC 74S74	34
1	E38	IC DEC 74S84	35
2	E27, E37	IC DEC 74123	36
2	E33, E53	IC DEC 74175	37
1	E9	IC DEC 74193	38
8	E1, E2, E3, E5, E10, E11, E14, E18	IC DEC 8234	39
1	E17	IC DEC 8840	40
4		HANDLE, FLIP CHIP (MAGENTA)	41
8		EYELET	42
A/R		WIRE #30 AWG BUSS	43

FIRST USED ON OPTION MODEL: RH70

ETCH BOARD REV: A

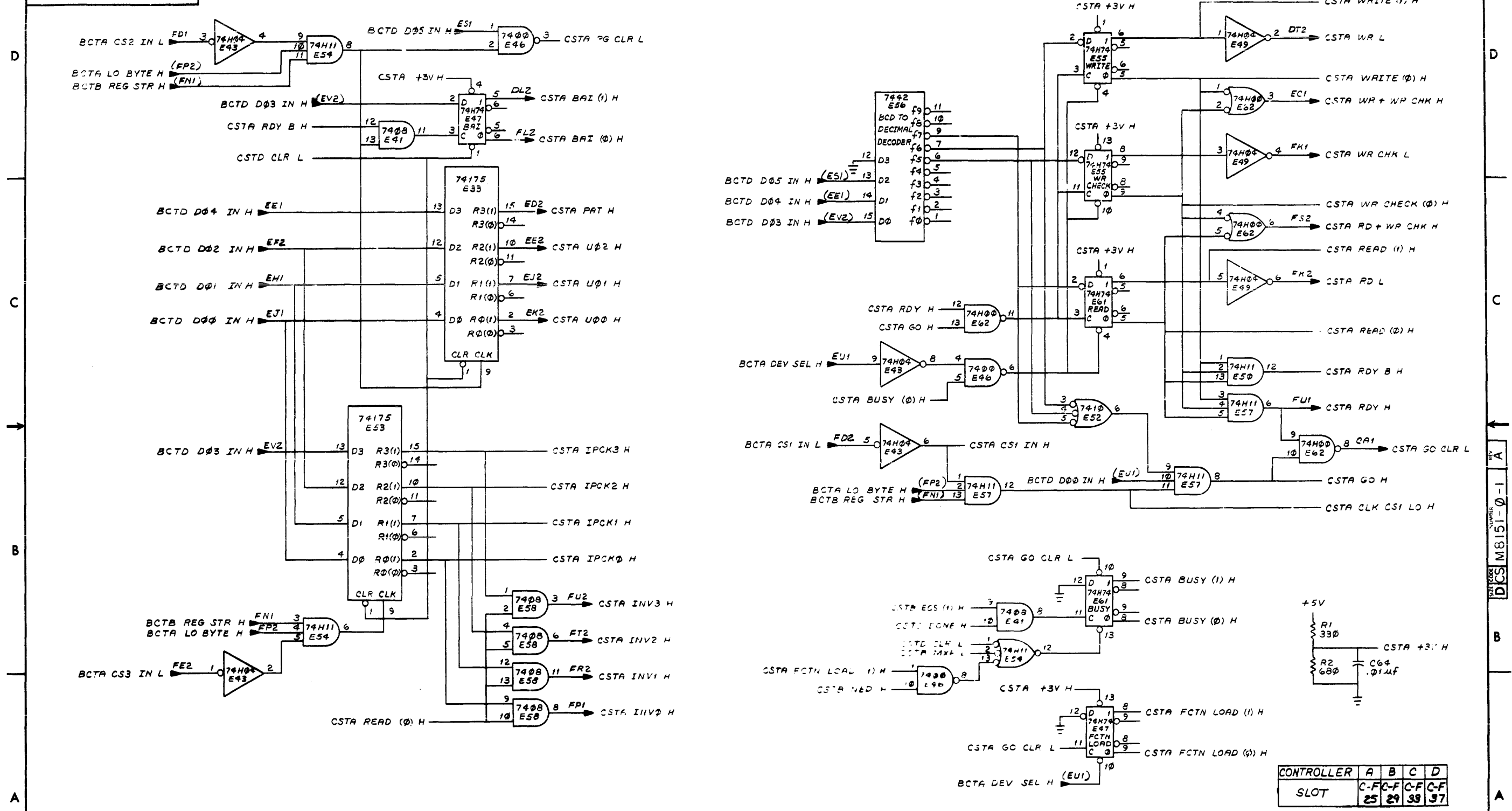
REVISIONS:

CHKD. DATE	11-7-74
ENGR. DATE	12-26-74
PRD. DATE	1-15-75
DATE	1-15-75

digital EQUIPMENT CORPORATION
 TITLE: CONTROL AND STATUS (CST)
 SIZE: CODE: DICS M8151-0-1
 NUMBER: A
 SCALE: 1 OF 6
 SHEET: 1 OF 6

SEMICONDUCTOR CONVERSION CHART

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CONTROLLER	A	B	C	D
SLOT	C-F0-F	C-F1-F	C-F2-F	C-F3-F
	25	29	33	37

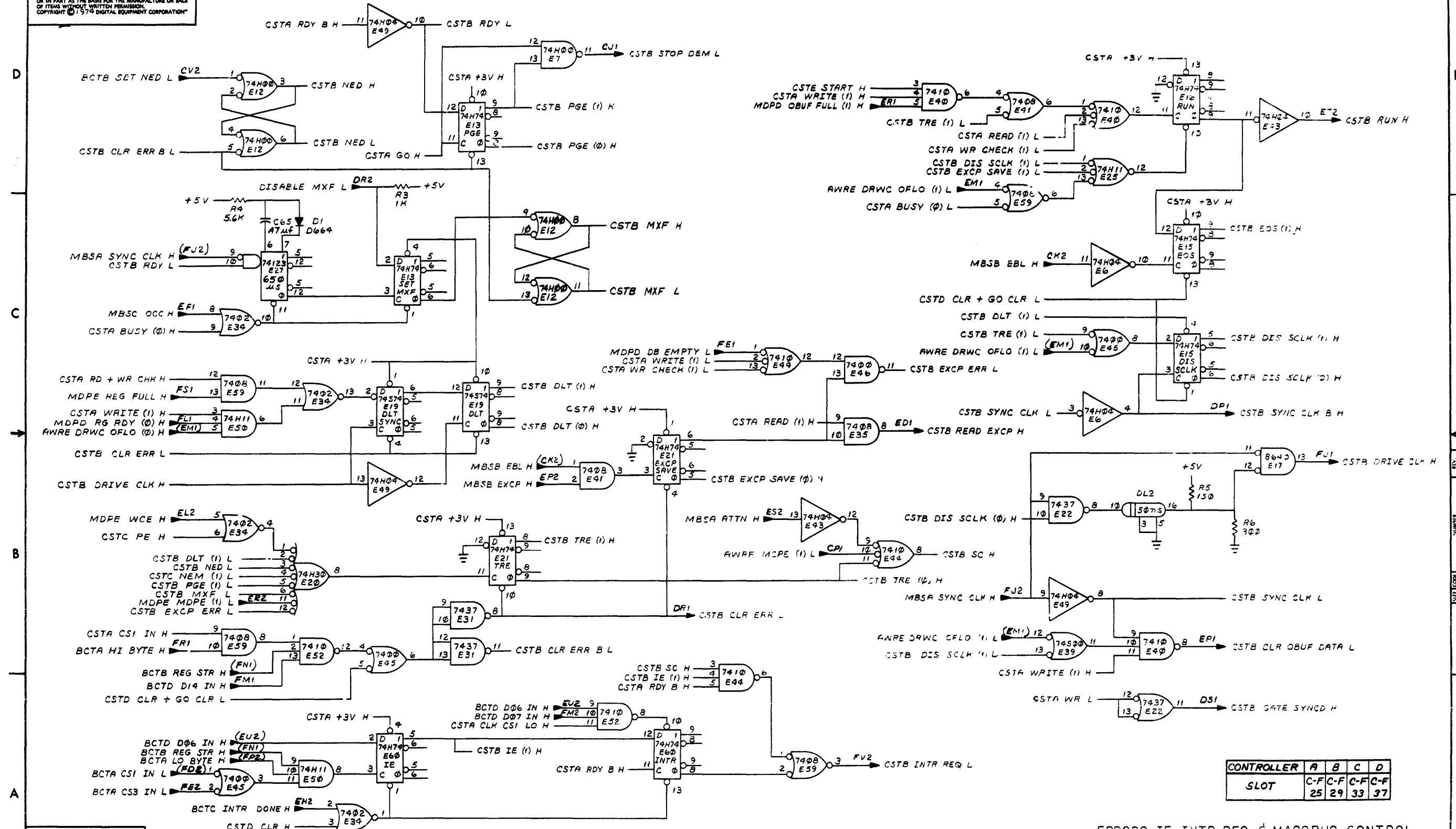
CSI, CS2, & CS3 CNTL & STATUS BITS; FUNCTION SELECT

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	CONTROL AND STATUS (CSTA)	SIZE CODE	D CS	NUMBER	M8151-0-1	REV.	A
SCALE		SHEET	2 OF 6	DIST.			

DCS M8151-0-1

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CONTROLLER	A	B	C	D
SLOT	C-F	C-F	C-F	C-F
	25	29	33	37

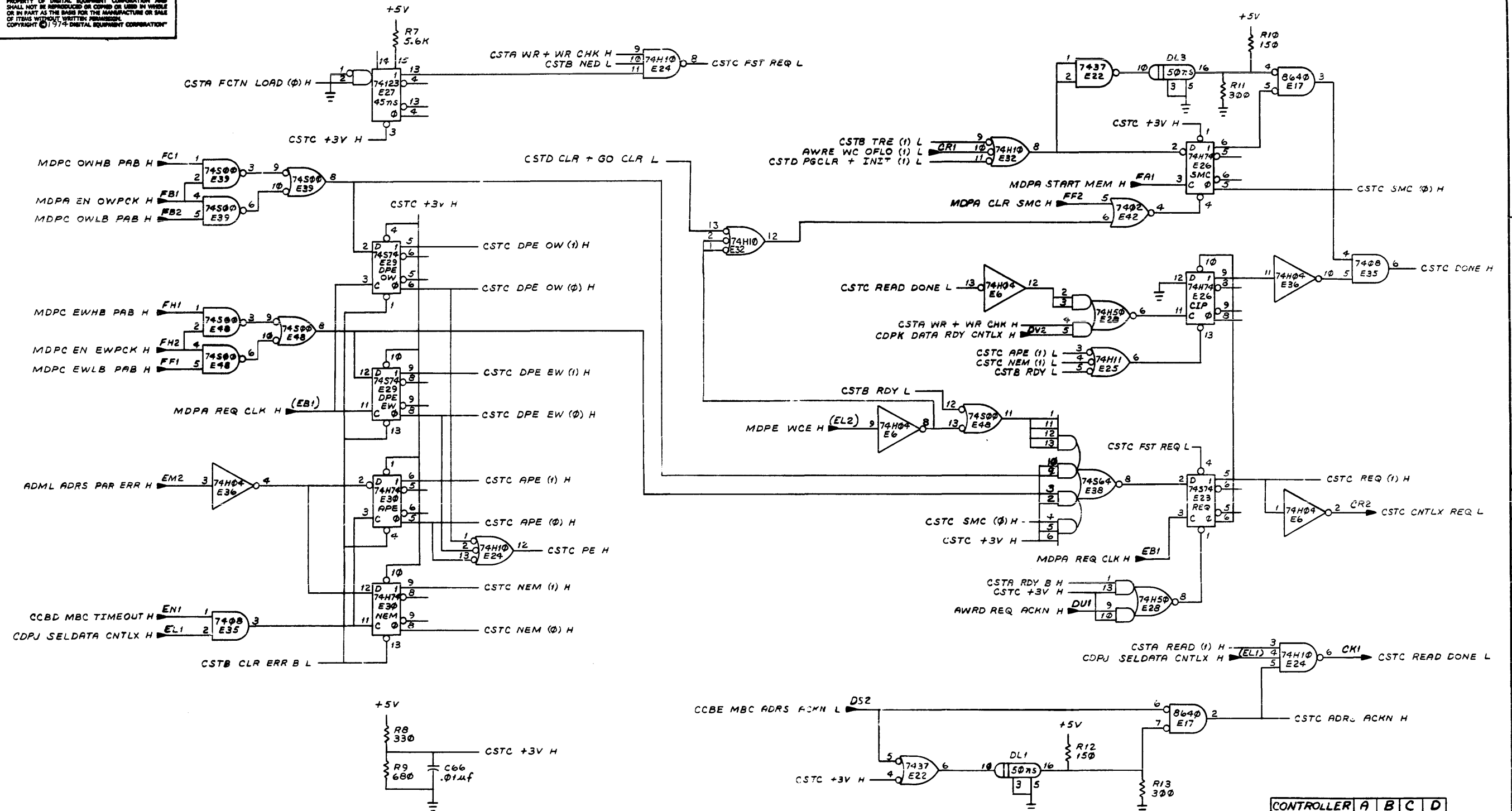
ERRORS; IE; INTR REQ; MASSBUS CONTROL

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	CONTROL AND STATUS (CSTB)	SIZE CODE	DCS	NUMBER	M8151-0-1	REV.	A
SCALE	H	SHEET	3 OF 6	DIST.			

REV. NUMBER DCS M8151-0-1-A

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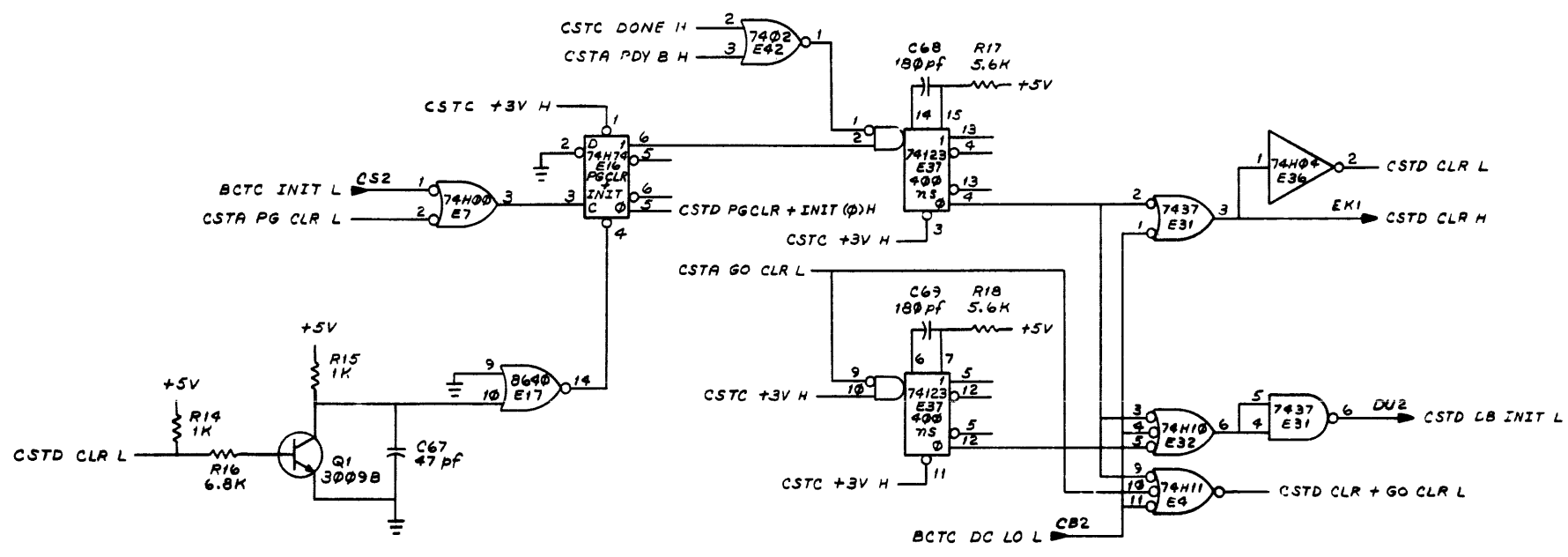
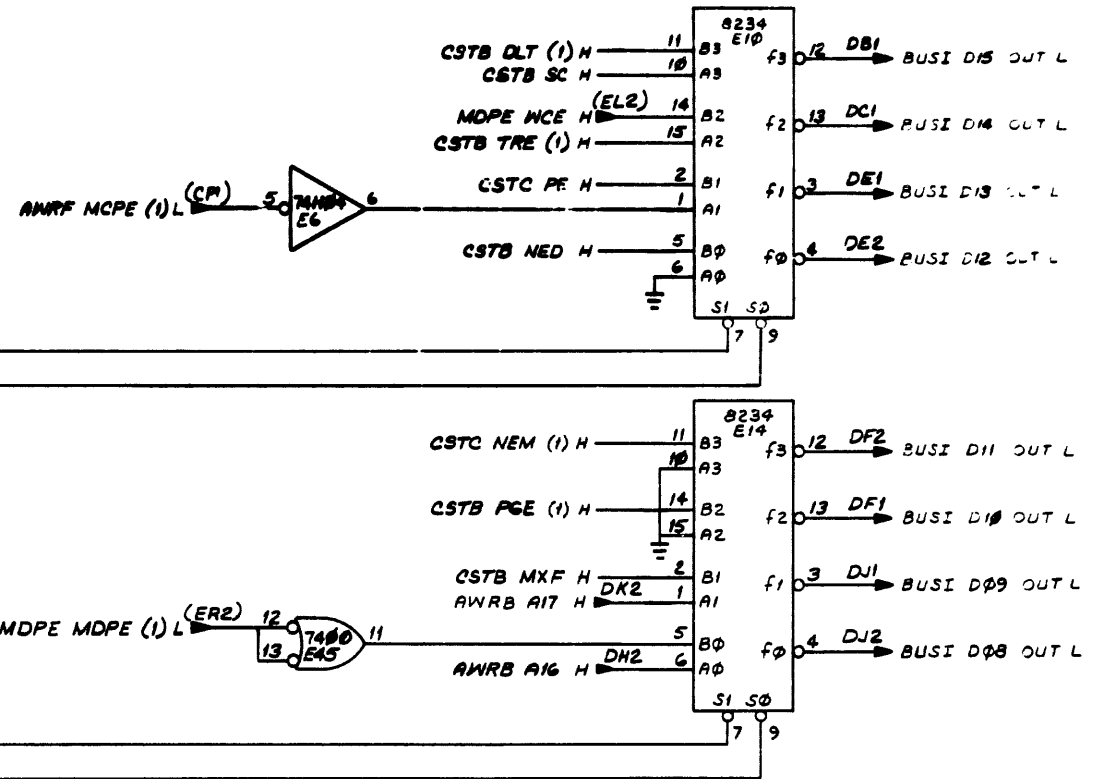
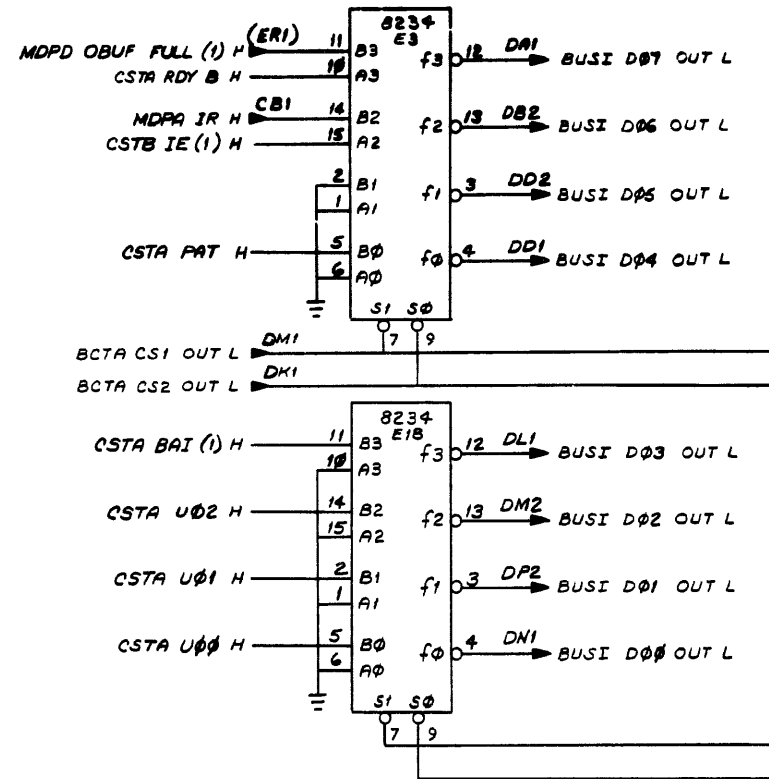
CONTROLLER	A	B	C	D
SLOT	C-F	C-F	C-F	C-F
	25	29	33	37

PE; NEM & MEMORY CYCLE CONTROL

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	CONTROL AND STATUS (CSTC)	SIZE CODE	DCS	NUMBER	M8151-0-1	REV.	A
SCALE	1/1	SHEET	4 OF 6	DIST.			

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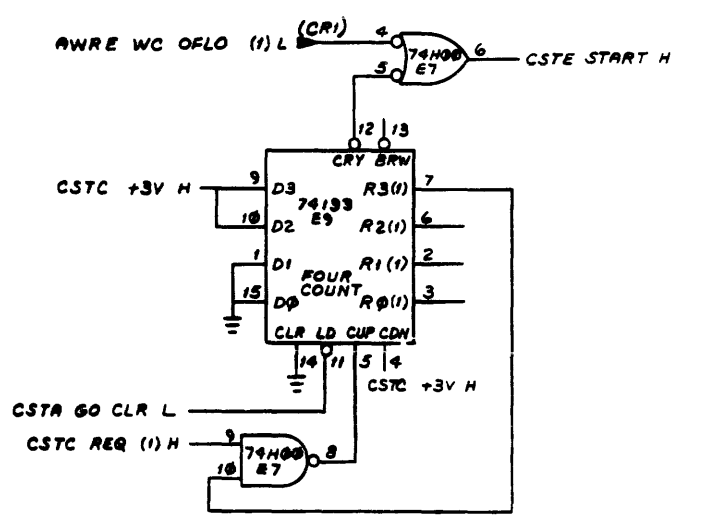
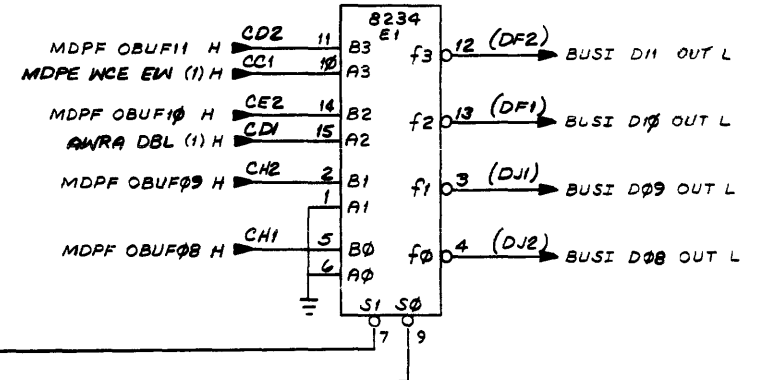
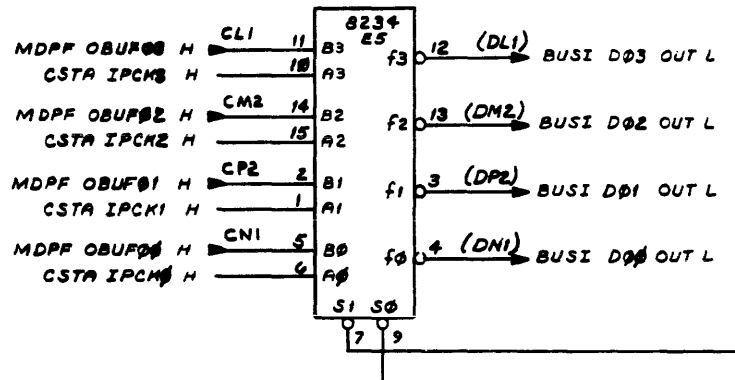
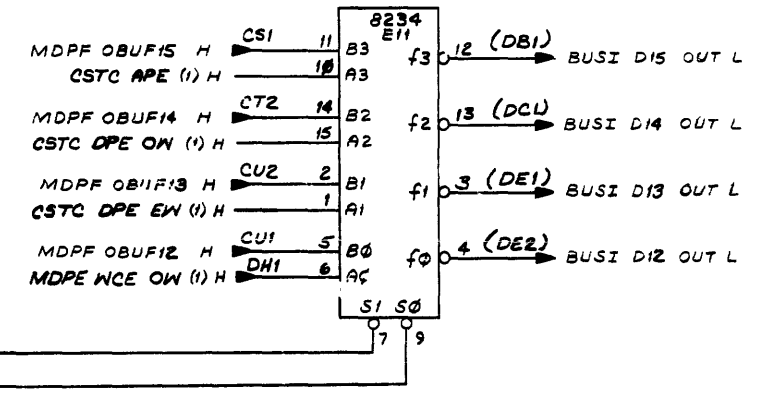
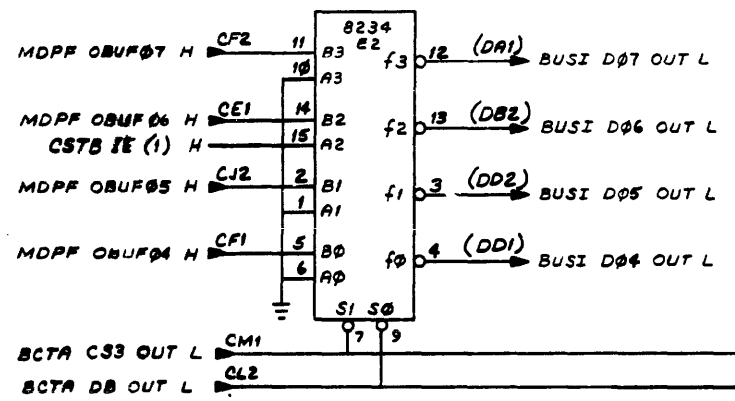
8234 OPEN COLLECTOR MULTIPLEXOR		
S0	S1	OUTPUT
L	L	B → f (NOT USED)
L	H	B → f
H	L	A → f
H	H	OFF

CONTROLLER	A	B	C	D
SLOT	C-F	C-F	C-F	C-F
	25	29	33	37

BUSI MUXS < CS1 & CS2 REGS. > & CLEAR LOGIC

REVISIONS		
CHK	CHANGE NO.	REV.

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8234 OPEN COLLECTOR MULTIPLEXOR		
S ϕ	S1	OUTPUT
L	L	B \rightarrow f (NOT USED)
L	H	B \rightarrow f
H	L	A \rightarrow f
H	H	OFF

CONTROLLER	A	B	C	D
SLOT	C-F	C-F	C-F	C-F
	25	29	33	37

BUSI MUXS. <DB & CS3 REGS.> & START

REVISIONS		
CHK	CHANGE NO.	REV.

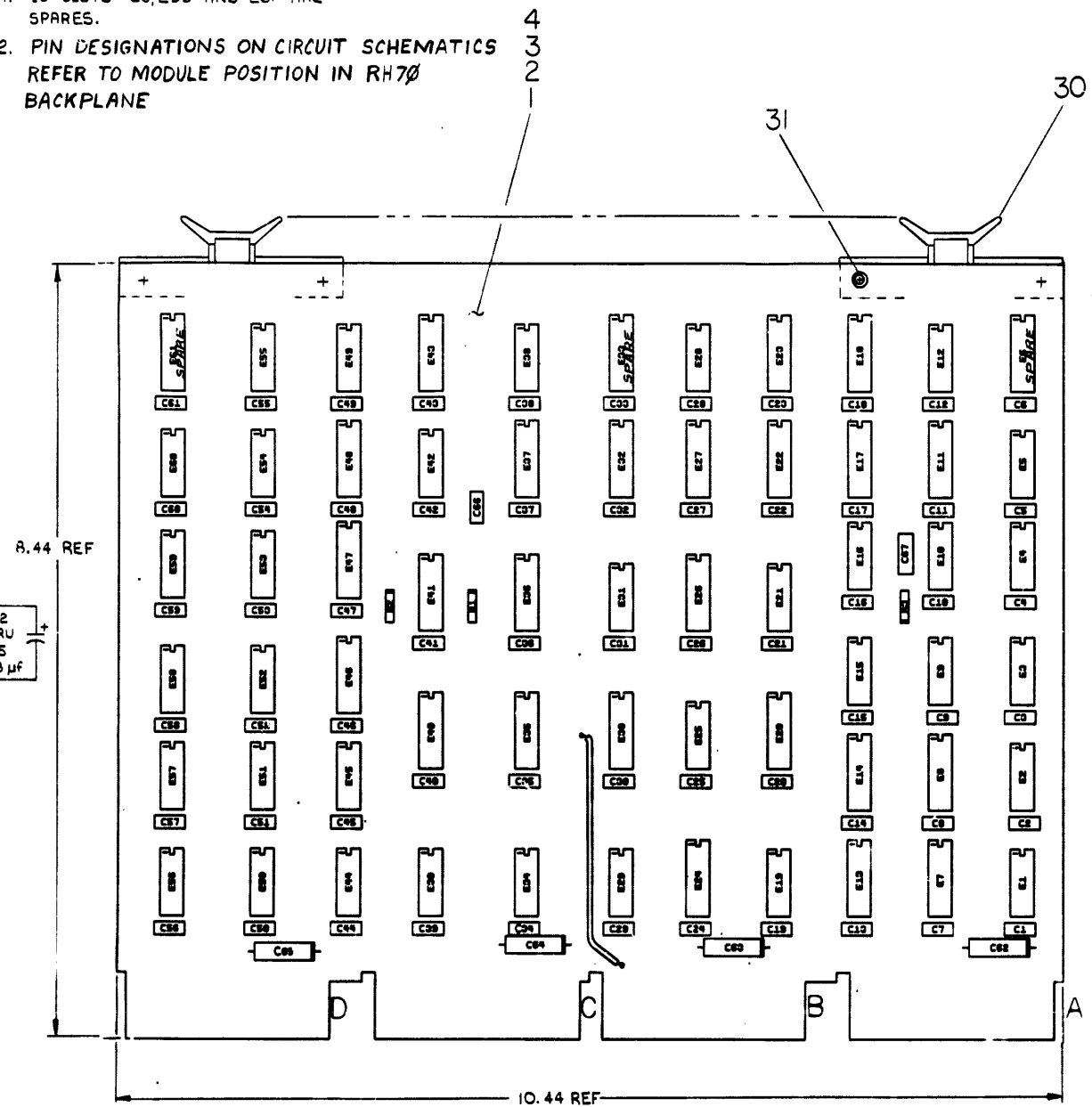
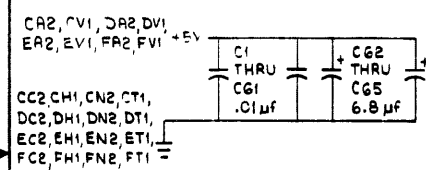
REV. A
NUMBER MB151-0-1
SIZE CODE DCS

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- NOTES:**
- IC SLOTS E6, E33 AND E61 ARE SPARES.
 - PIN DESIGNATIONS ON CIRCUIT SCHEMATICS REFER TO MODULE POSITION IN RH70 BACKPLANE

PIN NOMENCLATURE

MODULE PINS	BACKPLANE PINS
A	C
B	D
C	E
D	F



REF	X-Y COORDINATE HOLE LOCATION	K-CO-M8152-B-4	1
REF	ASSY/DRILLING HOLE LAYOUT	D-AH-M8152-B-5	2
REF	MODULE E.C.O. HISTORY	B-MH-M8152-B-6	3
1	ETCHED CIRCUIT BOARD	5011285	4
82	C1 THRU C86	CAPACITOR, .01uf, 100V, 20% DISC	5
4	C82 THRU C85	CAPACITOR, 6.8uf, 35V, 10%	6
1	C87	CAPACITOR, 27pf, 100V, 5%	7
1	R1	RESISTOR, 330, 1/4W, 5%	9
1	R2	RESISTOR, 880, 1/4W, 5%	9
1	R3	RESISTOR, 1K, 1/4W, 5%	10
4	E10, E42, E52, E53	I.C. DEC 74H00	1909056
6	E19, E21, E25, E29, E31, E34	I.C. DEC 74H01	1909849-00
4	E11, E17, E19, E22	I.C. DEC 74191	1910096
3	E38, E57, E51	I.C. DEC 74H04	1909931
1	E50	I.C. DEC 7408	1910155
3	E28, E54, E60	I.C. DEC 74H10	1909057
3	E5, E48, E59	I.C. DEC 74H11	1909267
1	E55	I.C. DEC 7427	1910078
2	E9, E15	I.C. DEC 74H30	1909059
1	E45	I.C. DEC 74H55	1909063
1	E58	I.C. DEC 74H53	1909062
1	E16	I.C. DEC 74S40	1910541
3	E4, E12, E56	I.C. DEC 74H74	1909867
1	E40	I.C. DEC 74157	1910655
1	E48	I.C. DEC 74H106	1910408
4	E1, E2, E39, E44	I.C. DEC 74180	1910724
10	E23, E27, E32, E35, E38, E37, E41, E43, E46, E47	I.C. DEC 74193	1910018
8	E7, E8, E13, E14, E20, E24, E28, E30	I.C. DEC 8234	1911315
1	E3	I.C. DEC 74S04	1910534
4		HANDLES FLIP CHIP (MAGENTA)	9008337-8
8		EYELET HANDLES	9008732
4"		WIRE #30 AWG BUSS (RETROFIT)	9105740-55

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.										
PARTS LIST														
RH70														
ETCH BOARD REV A														
<table border="1"> <tr> <td>DRN. DATE</td> <td>2/12/74</td> </tr> <tr> <td>CHK'D. DATE</td> <td>1/27/74</td> </tr> <tr> <td>END. DATE</td> <td>12-26-74</td> </tr> <tr> <td>PROF'NG. DATE</td> <td>12-27-74</td> </tr> <tr> <td>PROD. DATE</td> <td>1/26/75</td> </tr> </table>					DRN. DATE	2/12/74	CHK'D. DATE	1/27/74	END. DATE	12-26-74	PROF'NG. DATE	12-27-74	PROD. DATE	1/26/75
DRN. DATE	2/12/74													
CHK'D. DATE	1/27/74													
END. DATE	12-26-74													
PROF'NG. DATE	12-27-74													
PROD. DATE	1/26/75													
NEXT HIGHER ASSY		B-DD-RH70-0												
TITLE		ADDR. & WORD COUNT REGS. (AWR)												
DEC NO.		EIA NO.		REV. A										
SEMICONDUCTOR CONVERSION CHART		SCALE												
SHEET 1 OF 7		DIST.												

IC TYPE	GND	+5V
IC DEC 8234	8	16
IC DEC 74193	8	16
IC DEC 74H106	13	5
IC DEC 74157	8	16
IC DEC 74191	8	16

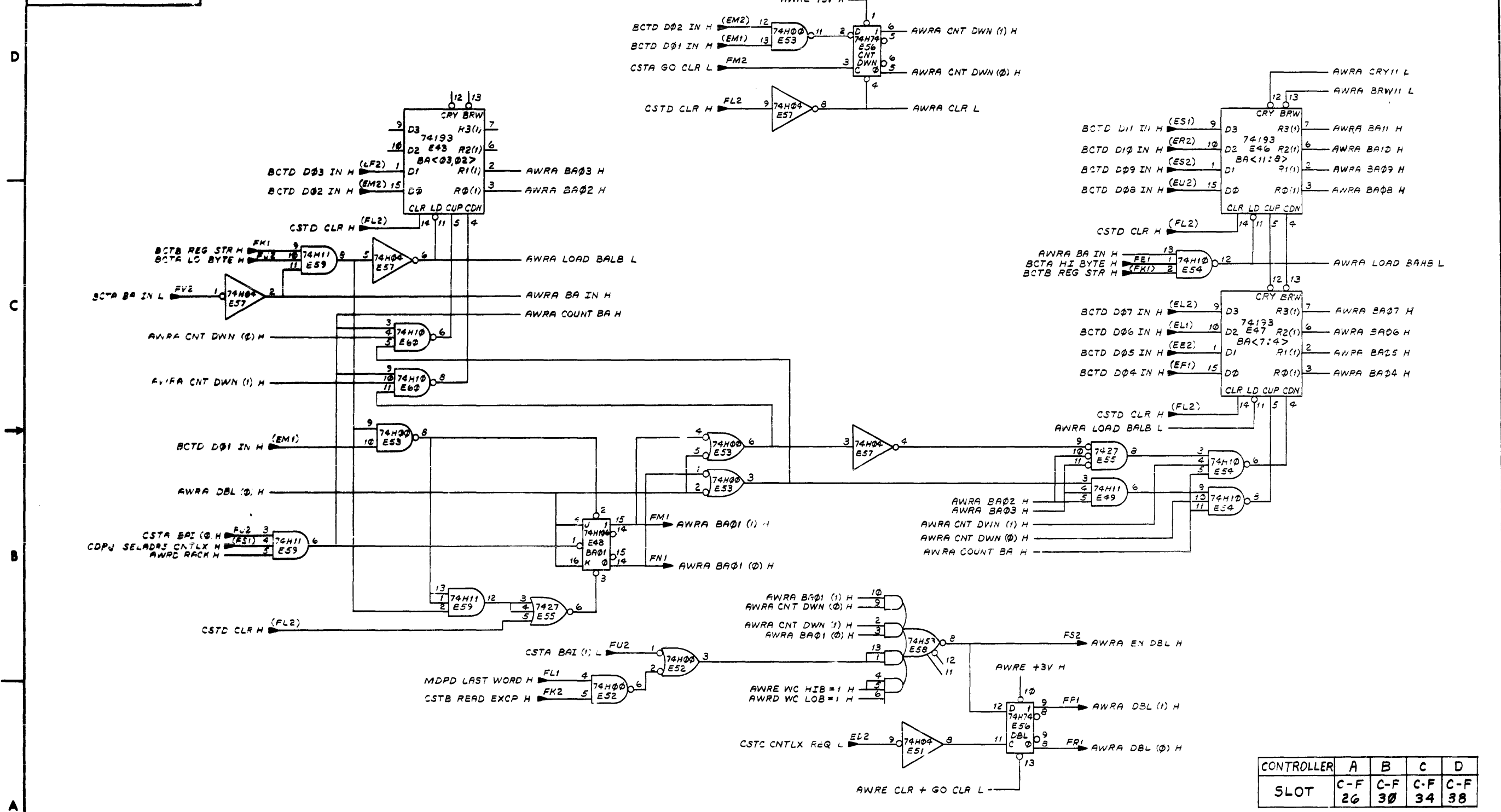
GND AND BY ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE

IC PIN LOCATIONS

128 Johnson (02/1/74)
P. SCHNOOR
MB152-0001
77
REVISIONS

D/CS M8152-0-1 A

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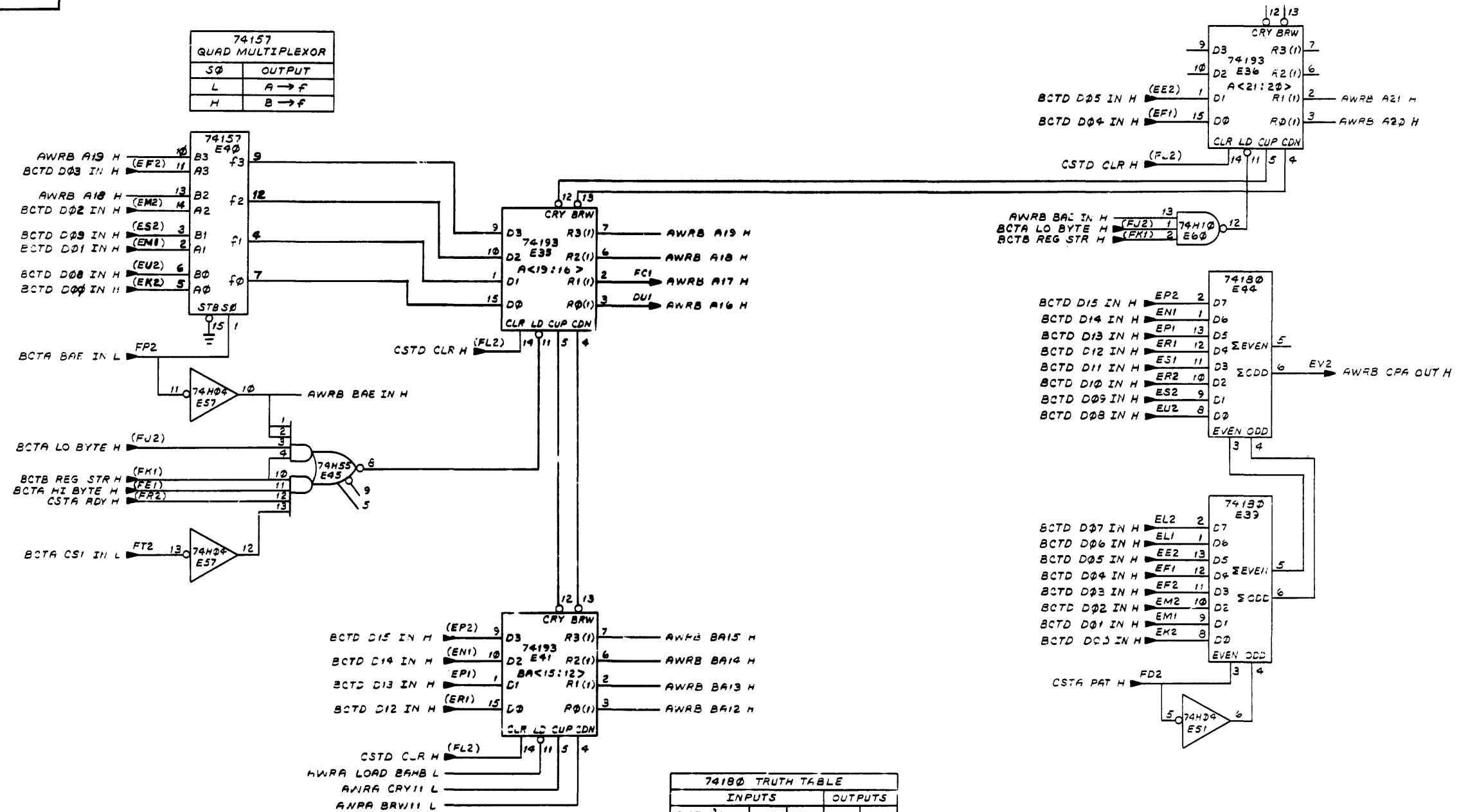
CONTROLLER	A	B	C	D
SLOT	C-F	C-F	C-F	C-F
	26	30	34	38

(BUS ADDR REG. <11:01>)

REVISIONS		
CHK	CHANGE NO.	REV.

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74157 QUAD MULTIPLEXOR	
S ϕ	OUTPUT
L	A \rightarrow F
H	B \rightarrow F



74180 TRUTH TABLE

INPUTS		OUTPUTS	
Σ OF H'S AT D ₃ -D ₇	EVEN	ODD	Σ EVEN Σ ODD
EVEN	L	H	L
ODD	L	H	H
EVEN	H	L	H
ODD	H	L	L

CONTROLLER	A	B	C	D
SLOTS	C-F	C-F	C-F	C-F
	26	30	34	38

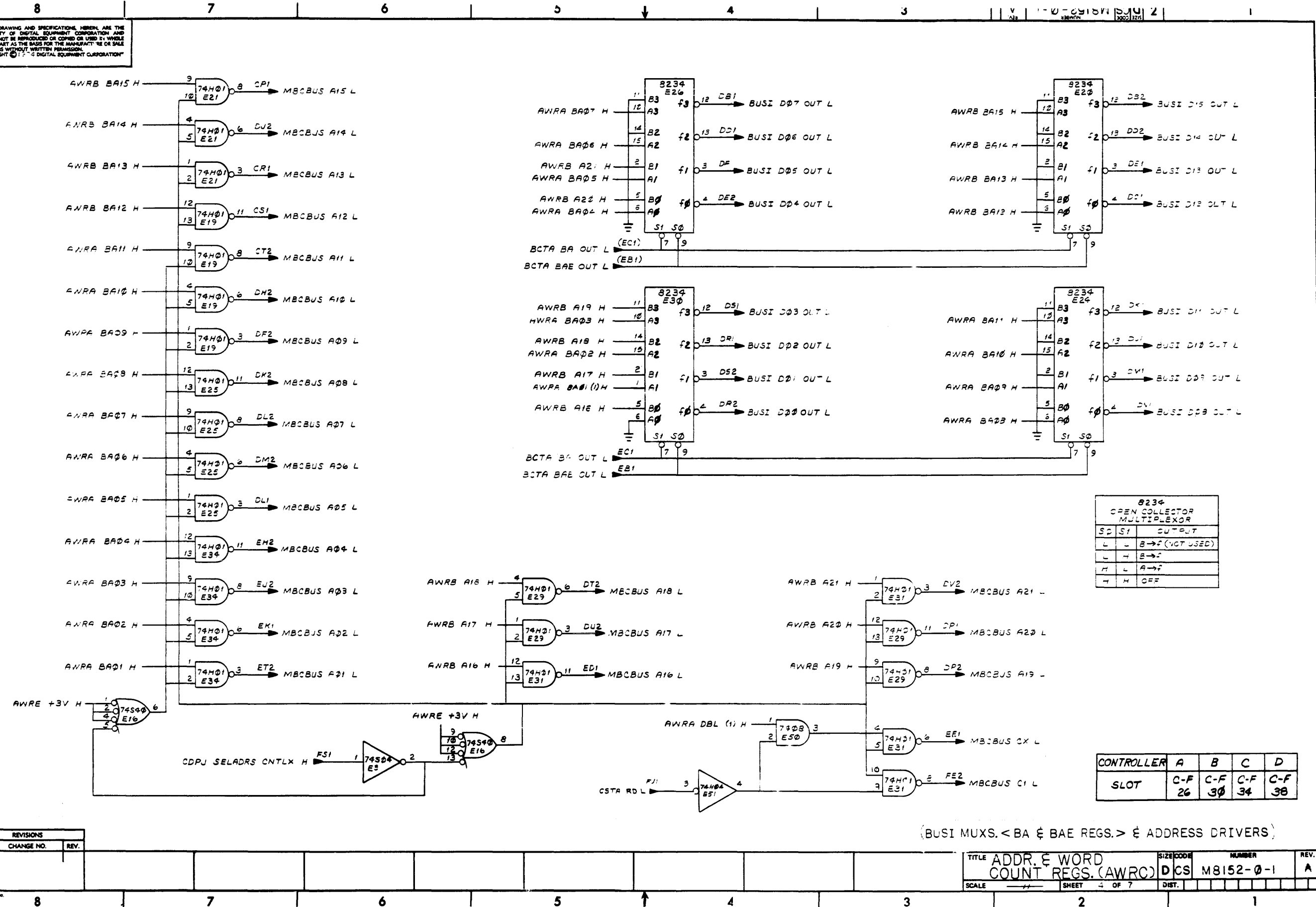
(BUS ADDR & EXTENSION < 21:12 > & CNTL PARITY OUT)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	ADDR. & WORD COUNT REGS.(AWRB)	SIZE CODE	DCS	NUMBER	M8152-0-1	REV.	A
SCALE	1/1	SHEET	3 OF 7	DIST.			

DCS M8152-0-1

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8234 OPEN COLLECTOR MULTIPLEXOR		
SD	SI	OUTPUT
L	-	B → F (NOT USED)
L	-	B → F
H	L	A → F
H	H	OFF

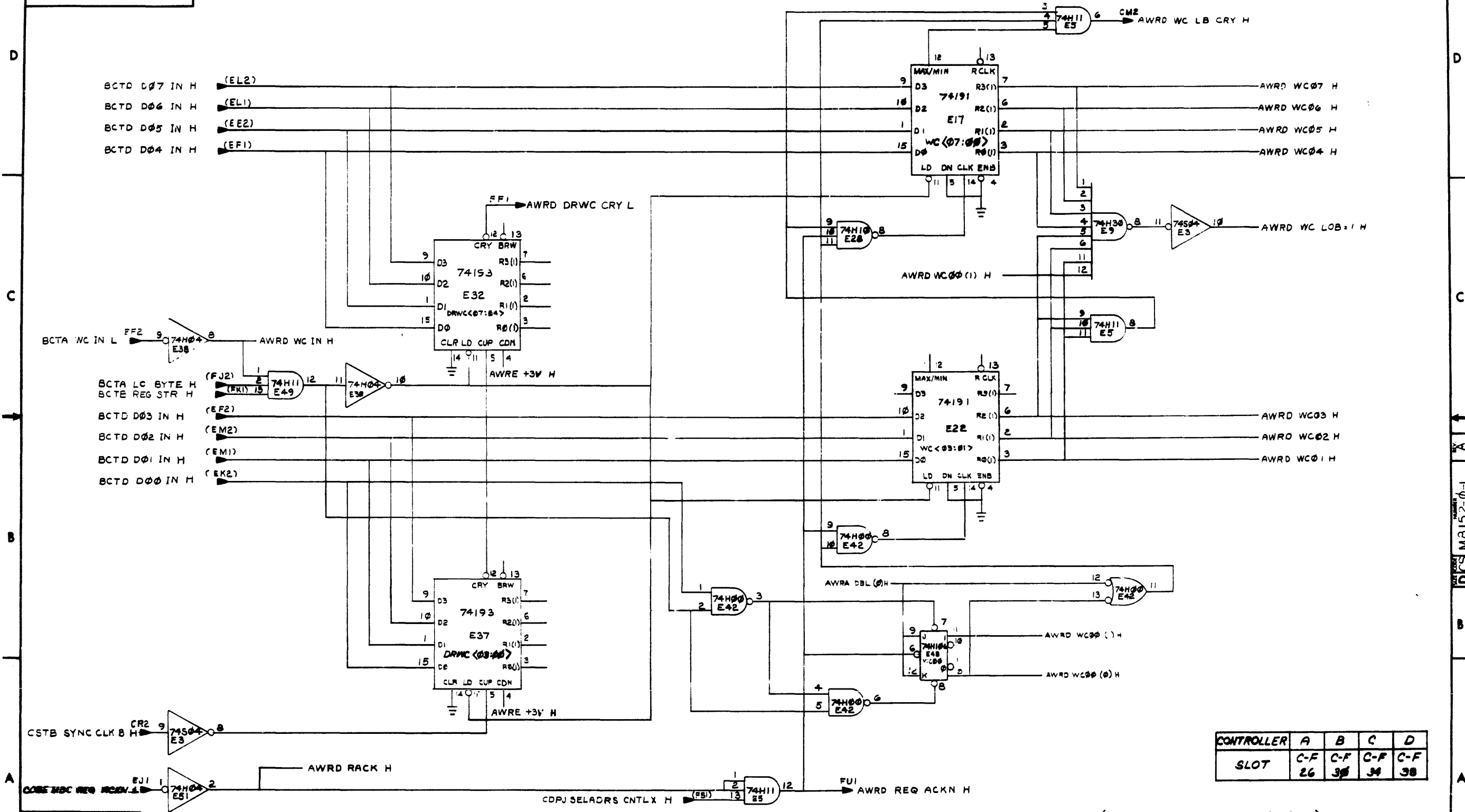
CONTROLLER	A	B	C	D
SLOT	C-F	C-F	C-F	C-F
	26	30	34	38

(BUSI MUXTS. < BA & BAE REGS. > & ADDRESS DRIVERS)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	ADDR. & WORD COUNT REGS. (AWRC)	SIZE CODE	DCS	NUMBER	M8152-0-1	REV.	A
SCALE		SHEET	4	OF	7	DIST.	

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CONTROLLER	A	B	C	D
SLOT	C-F	C-F	C-F	C-F
	26	30	34	38

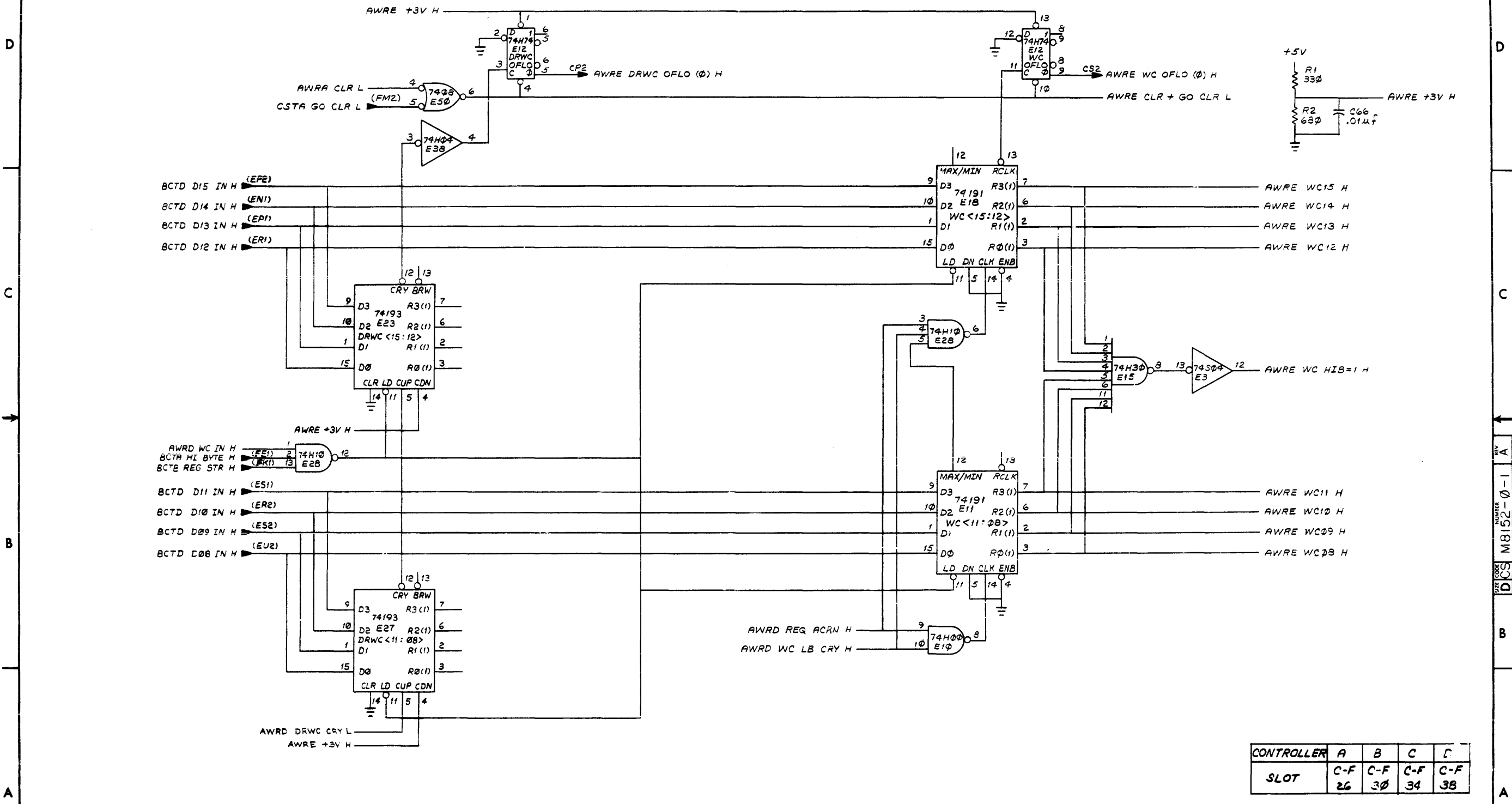
(WORD COUNT REGS. <07:00>)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	ADDR. & WORD COUNT REGS. (AWRD)	SIZE CODE	DCS	NUMBER	M8152-0-1	REV.	A
SCALE	1/1	SHEET	5	OF	7	DIST.	

DCS M8152-0-1

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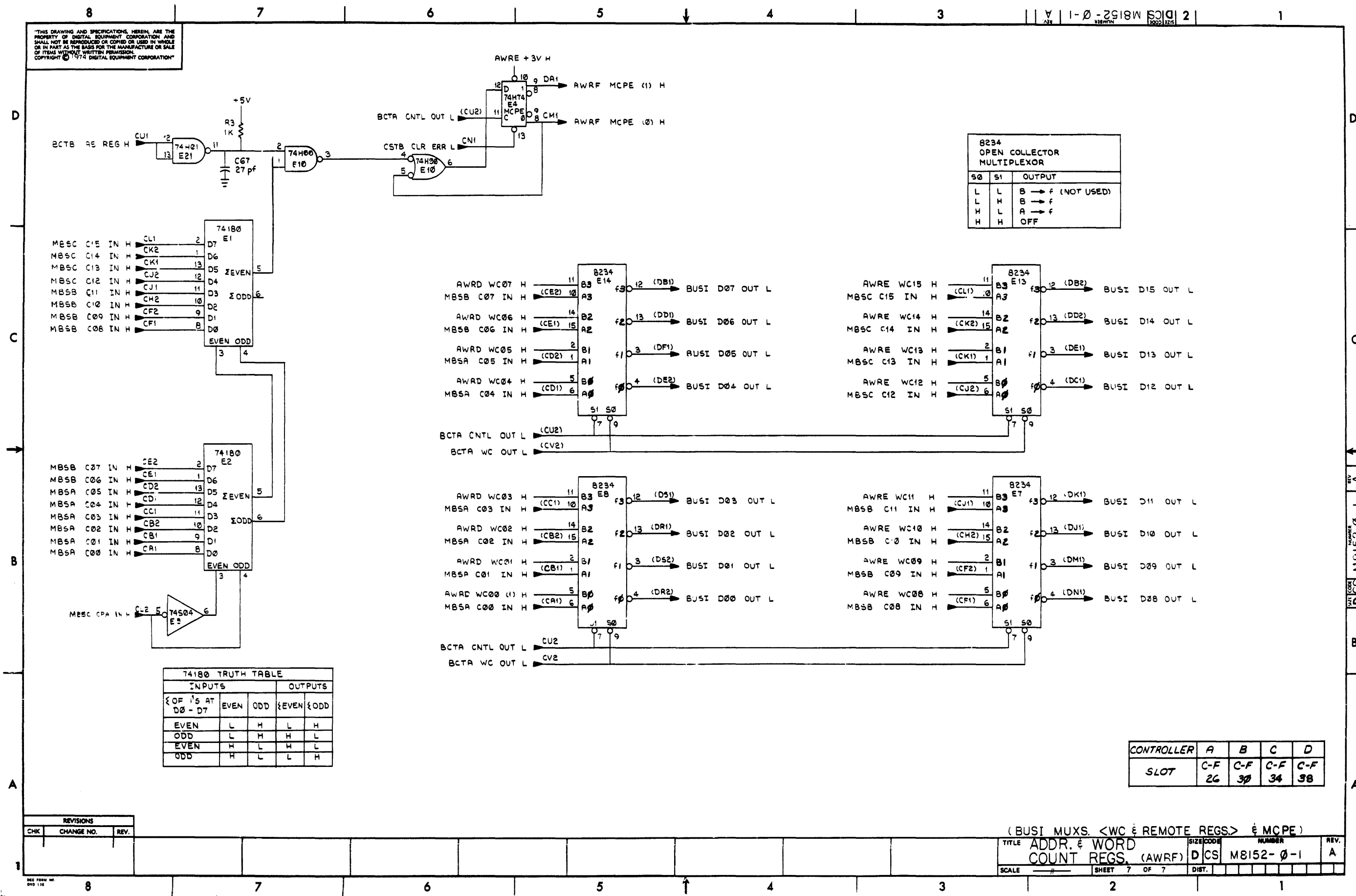
CONTROLLER	A	B	C	D
SLOT	C-F	C-F	C-F	C-F
	26	30	34	38

(WORD COUNT REGS <15:08> WC OFLO)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	ADDR. & WORD COUNT REGS. (AWRE)	SIZE/COORD	D CS	NUMBER	M8152-0-1	REV.	A
SCALE		SHEET	6	OF	7	DIST.	

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8234 OPEN COLLECTOR MULTIPLEXOR

S0	S1	OUTPUT
L	L	B → f (NOT USED)
L	H	B → f
H	L	A → f
H	H	OFF

74180 TRUTH TABLE

Σ OF 1'S AT D0 - D7	INPUTS		OUTPUTS	
	EVEN	ODD	ΣEVEN	ΣODD
EVEN	L	H	L	H
ODD	L	H	H	L
EVEN	H	L	H	L
ODD	H	L	L	H

CONTROLLER	A	B	C	D
SLOT	C-F	C-F	C-F	C-F
	26	30	34	38

REVISIONS

CHK	CHANGE NO.	REV.

(BUSI MUXTS. <WC & REMOTE REGS> & MCPE)

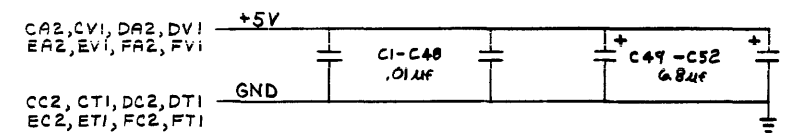
TITLE ADDR. & WORD COUNT REGS. (AWRF) DCS M8152-0-1

SCALE SHEET 7 OF 7 DIST. NUMBER REV. A

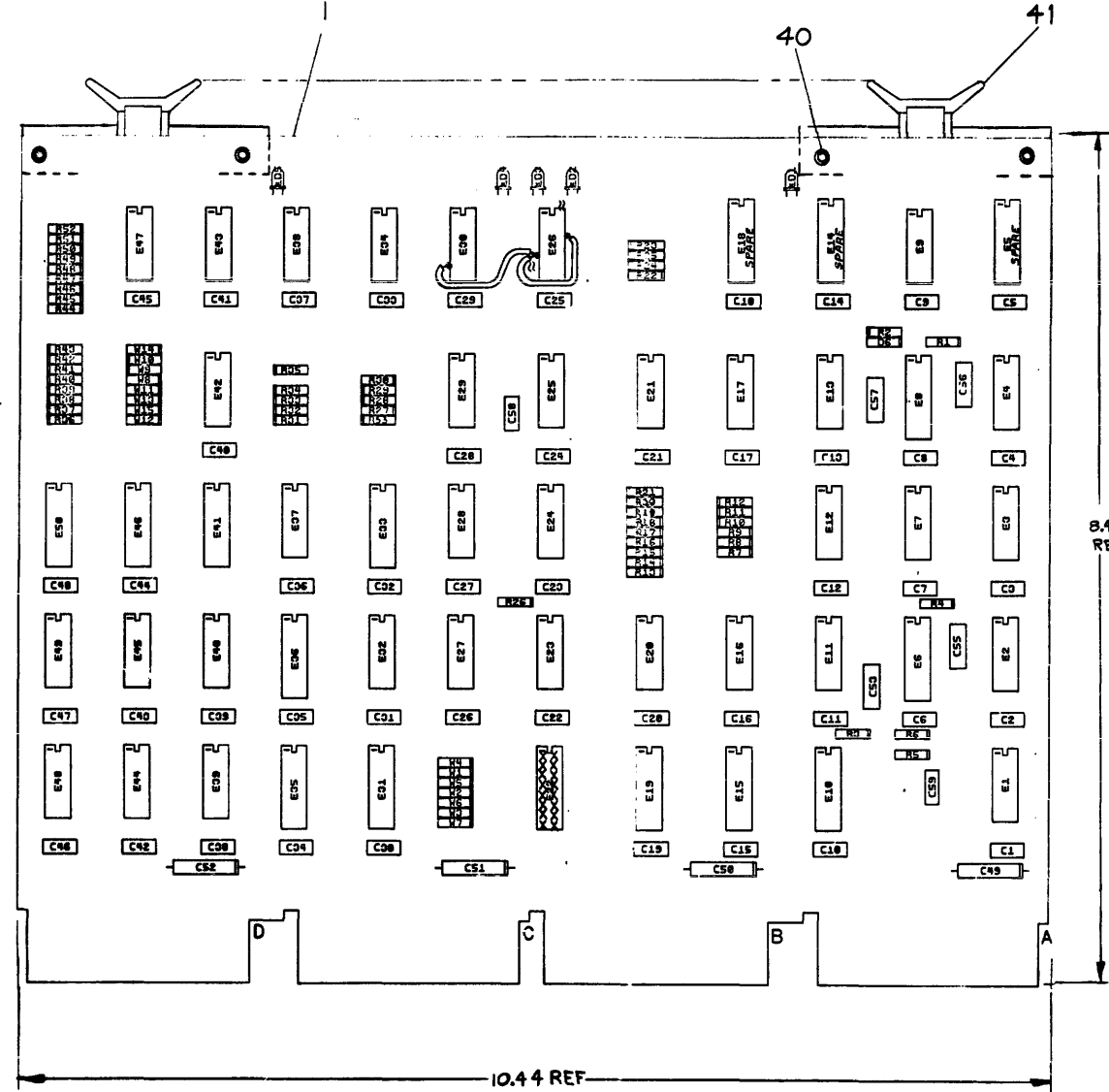
6 7 6 5 4 3

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NOTES:
 1. IC SLOTS E5, E14, AND E18 ARE SPARES.
 2. PIN DESIGNATIONS ON CIRCUIT SCHEMATICS REFER TO MODULE POSITION IN RH7Ø BACKPLANE.



PIN NOMENCLATURE	
MODULE PINS	BACKPLANE PINS
A	C
B	D
C	E
D	F



REF	X-Y COORDINATE HOLE LOCATION	K-CO-M8153-Ø-4	1
REF	ASSY/DRILLING HOLE LAYOUT	D-AH-M8153-Ø-5	2
REF	MODULE ECO HISTORY	B-MH-M8153-Ø-8	3
1	ETCHED CIRCUIT BOARD	5011271	4
1	CAPACITOR, 47pf, 100V, 5%	1000011	5
1	CAPACITOR, 100pf, 100V, 5%	1000016	6
1	CAPACITOR, 220pf, 100V, 5%	1000021	7
1	CAPACITOR, 330pf, 100V, 5%	1000023	8
49	C1 THRU C48, C59	1001810-01	9
4	C49 THRU C52	1005306	10
1	CAPACITOR, 22pf, 100V, 5%	1005820	11
1	D8	1100114	12
5	D1 THRU D4	1110864	13
1	E22	1209830	14
1	E41	1211323	15
1	R29	1300282	16
7	R6, R22 THRU R25, R28, R35	1300309	17
30	R7 THRU R21, R26, R30 THRU R34, R38 THRU R52	1300365	18
3	R5, R27, R53	1301322	19
3	R1, R3, R4	1301874	20
1	R2	1305348	21
2	E1, E30	1909004	22
2	E7, E9	1909056	23
2	E12, E38	1909057	24
2	E13, E43	1909267	25
4	E11, E17, E24, E28	1909667	26
5	E4, E27, E28, E29, E32	1909705	27
2	E42, E47	1909712	28
5	E9, E18, E20, E23, E34	1909931	29
3	E10, E15, E19	1910046	30
2	E2, E40	1910091	31
1	E25	1910195	32
1	E48	1910224	33
2	E8, E8	1910436	34
1	E21	1910078	35
4	E31, E33, E35, E36	1911117	36
6	E37, E39, E44, E45, E48, E49	1911489	37
1	E50	23040A1	38
1	(E22)	5408778	39
8	EYELET	9006732	40
4	HANDLE, FLIP CHIP (MAGENTA)	9006337-06	41
15	W1 THRU W15	9009185	42
A/R (E41)	#22 AWG BUSS WIRE (UNINSULATED)	9907960-01	43
2"	WIRE #30 AWG BUS (RETROFIT)	9105740-55	44

IC TYPE	GND	+5V
IC DEC 8640	1	8
IC DEC 8838	8	16
IC DEC 74123	8	16
IC DEC 7485	8	16
IC DEC 7442	8	16
IC DEC 8223	8	16
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

FIRST USED ON OPTION MODEL
RH7Ø

ETCH BOARD REV B

DRN	DATE	
CHKD	DATE	
ENGR	DATE	
PRD	DATE	
PROB	DATE	

TITLE: UNIBUS CONTROL (BCT)

SIZE CODE: DICS M8153-Ø-1

NUMBER: 1

REV: A

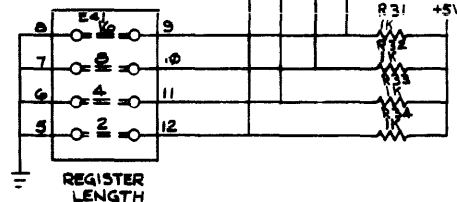
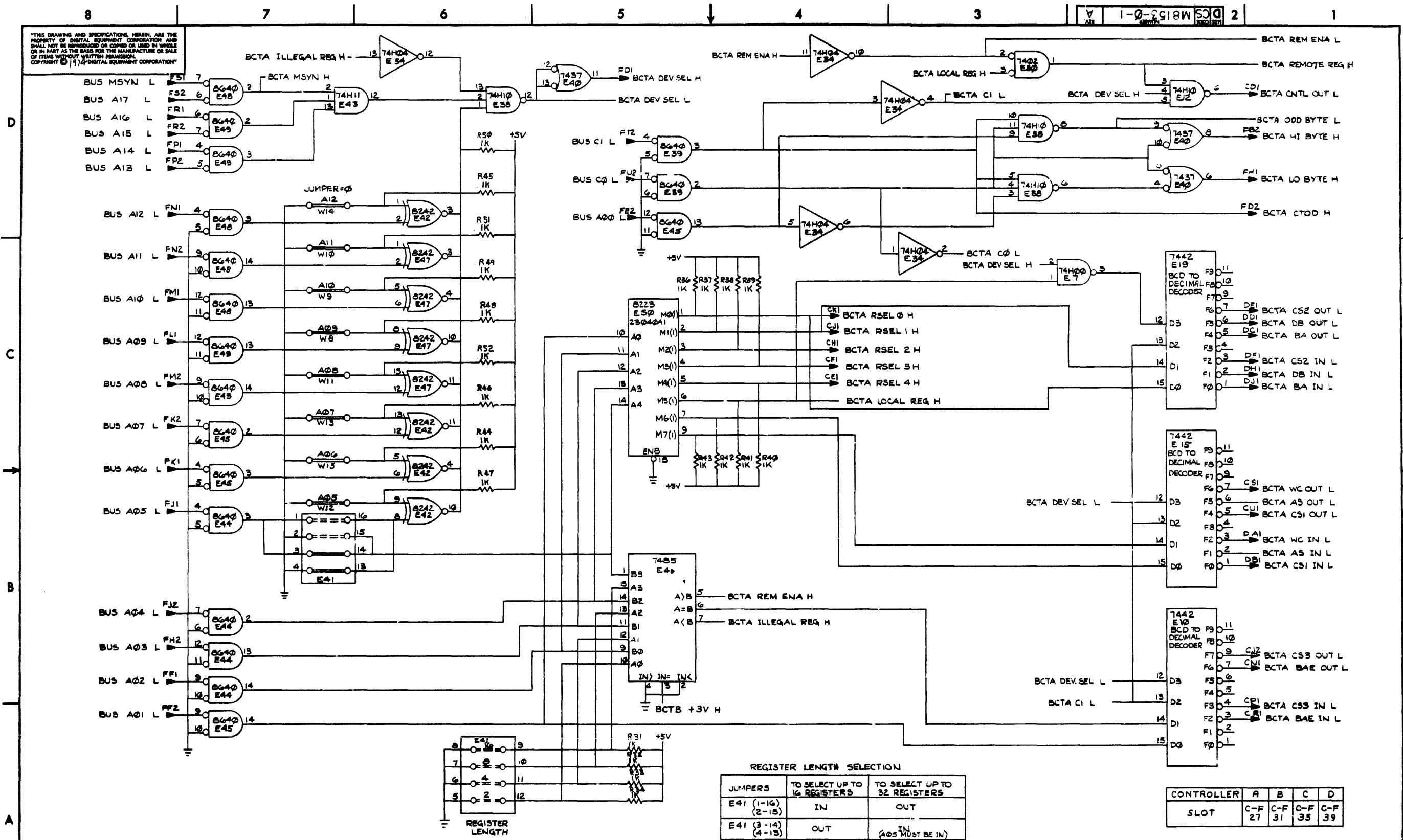
SCALE: 1/4"

SHEET: 1 OF 6

SEMICONDUCTOR CONVERSION CHART

8 7 6 5 4 3 2 1

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REGISTER LENGTH SELECTION

JUMPERS	TO SELECT UP TO 16 REGISTERS	TO SELECT UP TO 32 REGISTERS
E41 (1-16) (2-15)	IN	OUT
E41 (3-14) (4-13)	OUT	IN (A05 MUST BE IN)
E41 (5-12) (6-11) (7-10) (8-9)	THE SUM OF THE WEIGHTED VALUES OF JUMPERS REMOVED PLUS 2 IS THE NO. OF REGS SELECTED	

CONTROLLER

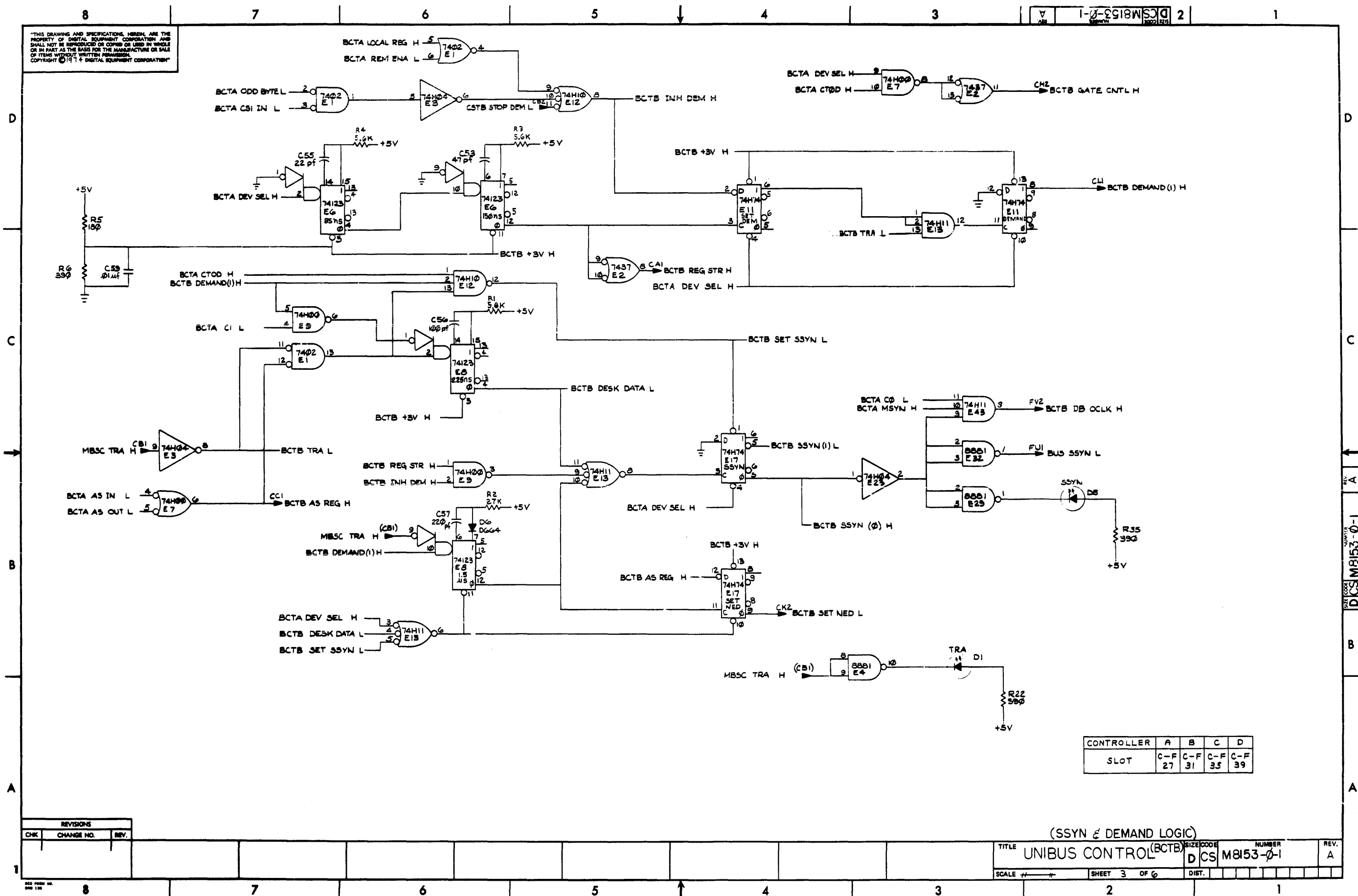
	A	B	C	D
SLOT	C-F	C-F	C-F	C-F

(REGISTER SELECTION)

REVISIONS

CHK	CHANGE NO.	REV.

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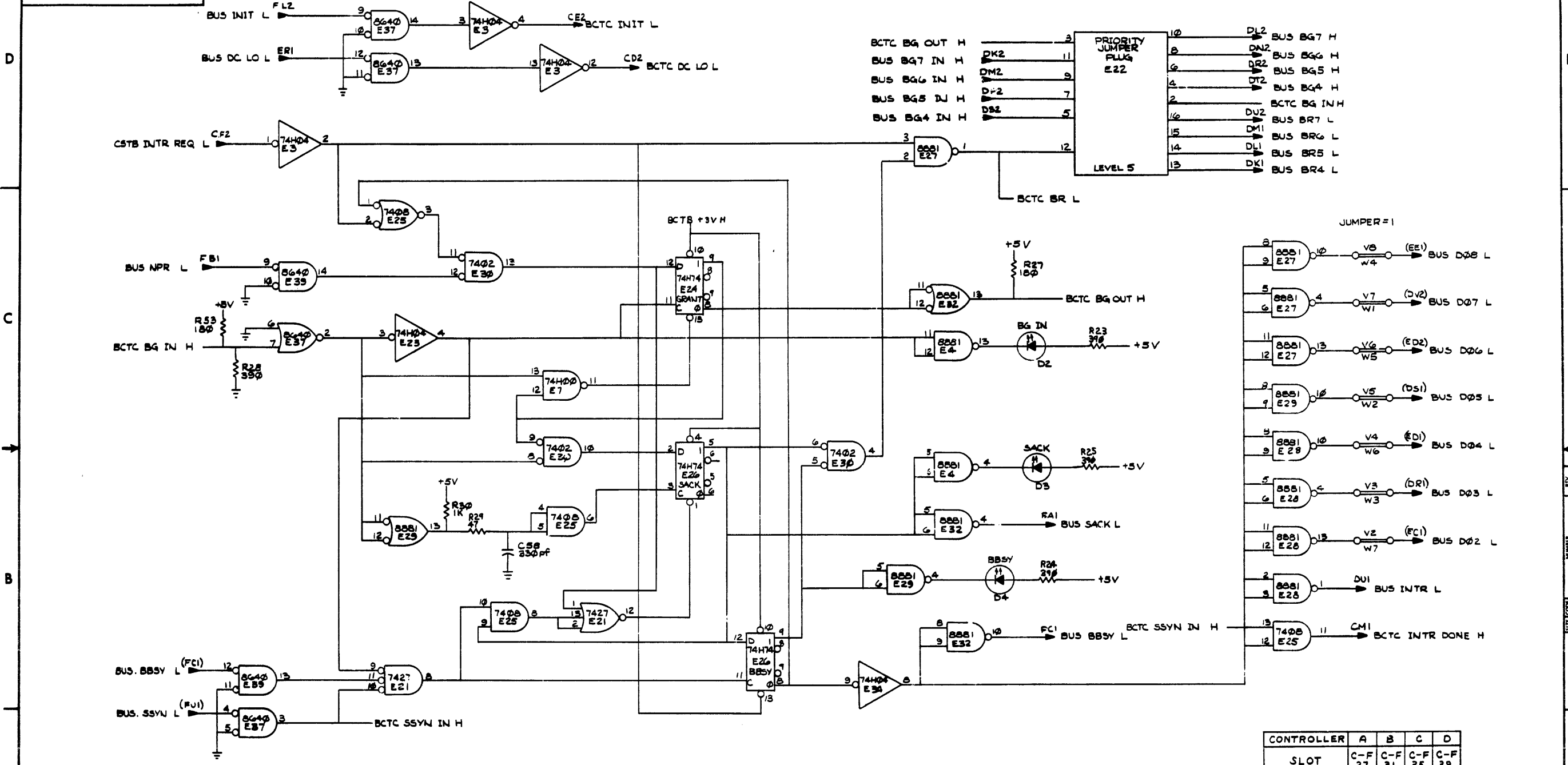


CONTROLLER	A	B	C	D
SLOT	C-F	C-F	C-F	C-F
	27	31	35	39

(SSYN & DEMAND LOGIC)

REVISIONS		
CHK	CHANGE NO.	REV.

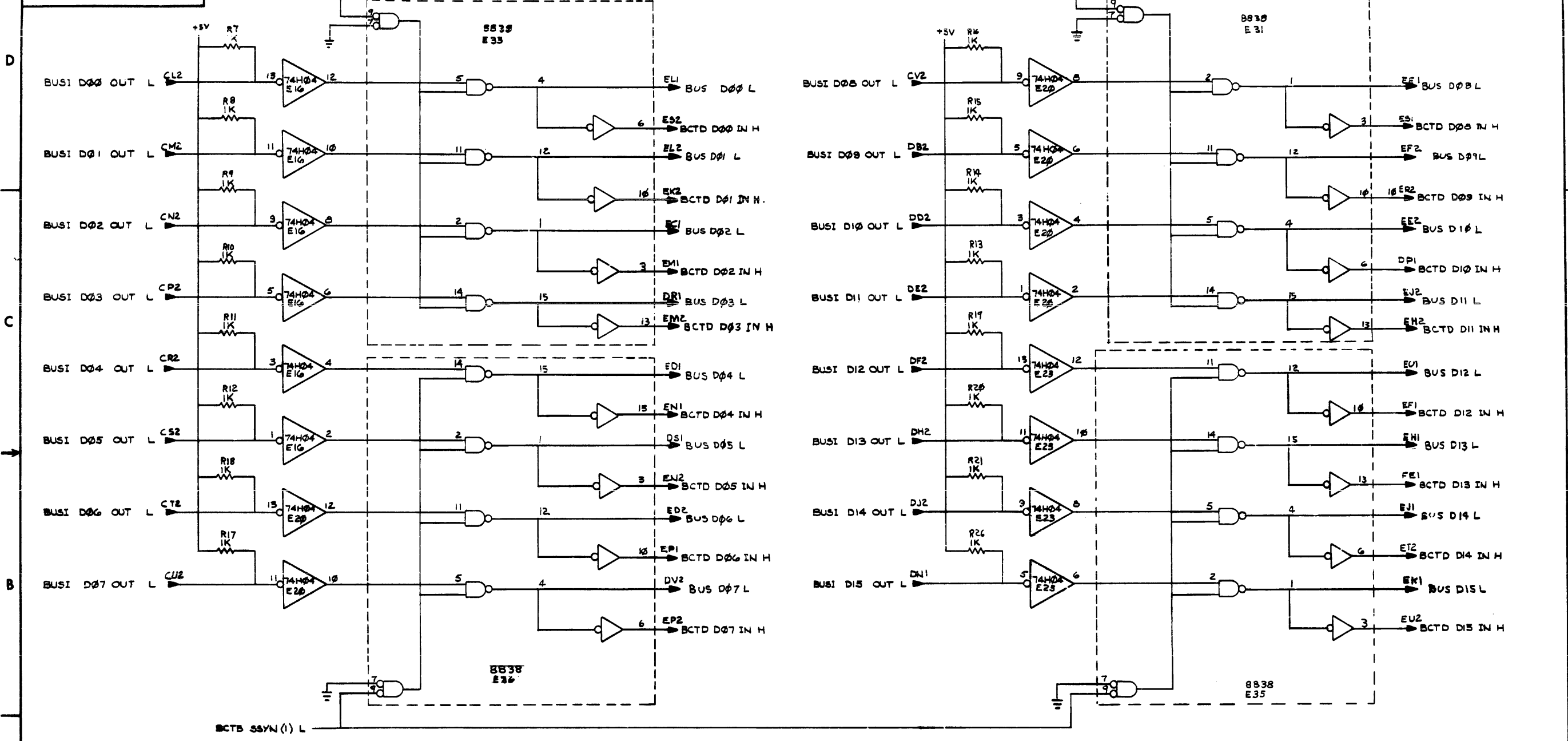
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CONTROLLER	A	B	C	D
SLOT	C-F 27	C-F 31	C-F 35	C-F 39

REVISIONS		
CHK	CHANGE NO.	REV.

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CONTROLLER	A	B	C	D
SLOT	C-F 27	C-F 31	C-F 35	C-F 39

REVISIONS		
CHK	CHANGE NO.	REV.

(UNIBUS DATA TRANSCEIVERS)
 TITLE UNIBUS CONTROL(BCTD) SIZE CODE DCS NUMBER M8153-0-1 REV. A
 SCALE -- SHEET 5 OF 6 DIST.

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NOTES:

1. THE RHBAE & RHCS3 REGISTERS WILL BE SELECTED AS THE LAST TWO REGISTERS IN THE REGISTER SET. THE JUMPERS ON BCTA SELECT THE DESIRED NUMBER OF REGISTERS IN THE SET. WHEN RHBAE OR RHCS3 IS SELECTED THE MASSBUS REGISTER SELECTION WILL BE DISABLED.

REGISTER SELECT PROM - 23040A1 (0223)								
OCTAL ADDR	LOCAL REG							
	M7	M6	M5	M4	M3	M2	M1	M0
00	L	L	L	L	L	L	L	L
01	H	L	H	L	L	L	H	H
02	H	H	H	L	L	L	L	L
03	H	H	L	L	L	H	L	H
04	H	H	H	L	L	L	H	L
05	H	H	L	L	L	L	L	H
06	H	H	L	L	L	L	H	L
07	L	H	L	L	L	H	L	L
10	H	H	L	L	L	H	H	H
11	H	H	H	L	L	L	L	H
12	H	H	L	L	L	L	H	H
13	H	H	L	L	L	H	H	L
14	H	H	L	L	H	L	L	L
15	H	H	L	L	H	L	L	H
16	H	H	L	L	H	L	H	L
17	H	H	L	L	H	L	H	H
20	H	H	L	L	H	H	L	L
21	H	H	L	L	H	H	L	H
22	H	H	L	L	H	H	H	L
23	H	H	L	L	H	H	H	H
24	H	H	L	H	L	L	L	L
25	H	H	L	H	L	L	L	H
26	H	H	L	H	L	L	H	L
27	H	H	L	H	L	L	H	H
30	H	H	L	H	L	H	L	L
31	H	H	L	H	L	H	L	H
32	H	H	L	H	L	H	H	L
33	H	H	L	H	L	H	H	H
34	H	H	L	H	H	L	L	L
35	H	H	L	H	H	L	L	H
36	H	H	L	H	H	L	H	L
37	H	H	L	H	H	L	H	H

REGISTER SELECTED SEE NOTE #1	UNIBUS ADDRESS SEE NOTE #1
RHCS1 & MASSBUS (00)	BASE ADDR5
RHWC	BASE +2
RHBA	BASE +4
MASSBUS (05)	BASE +6
RHCS2	BASE +10
MASSBUS (01)	BASE +12
MASSBUS (02)	BASE +14
MASSBUS (04)	BASE +16
MASSBUS (07)	BASE +20
RHDB	BASE +22
MASSBUS (03)	BASE +24
MASSBUS (06)	BASE +26
MASSBUS (10)	BASE +30
MASSBUS (11)	BASE +32
MASSBUS (12)	BASE +34
MASSBUS (13)	BASE +36
MASSBUS (14)	BASE +40
MASSBUS (15)	BASE +42
MASSBUS (16)	BASE +44
MASSBUS (17)	BASE +46
MASSBUS (20)	BASE +50
MASSBUS (21)	BASE +52
MASSBUS (22)	BASE +54
MASSBUS (23)	BASE +56
MASSBUS (24)	BASE +60
MASSBUS (25)	BASE +62
MASSBUS (26)	BASE +64
MASSBUS (27)	BASE +66
MASSBUS (30)	BASE +70
MASSBUS (31)	BASE +72
MASSBUS (32)	BASE +74
MASSBUS (35)	BASE +76

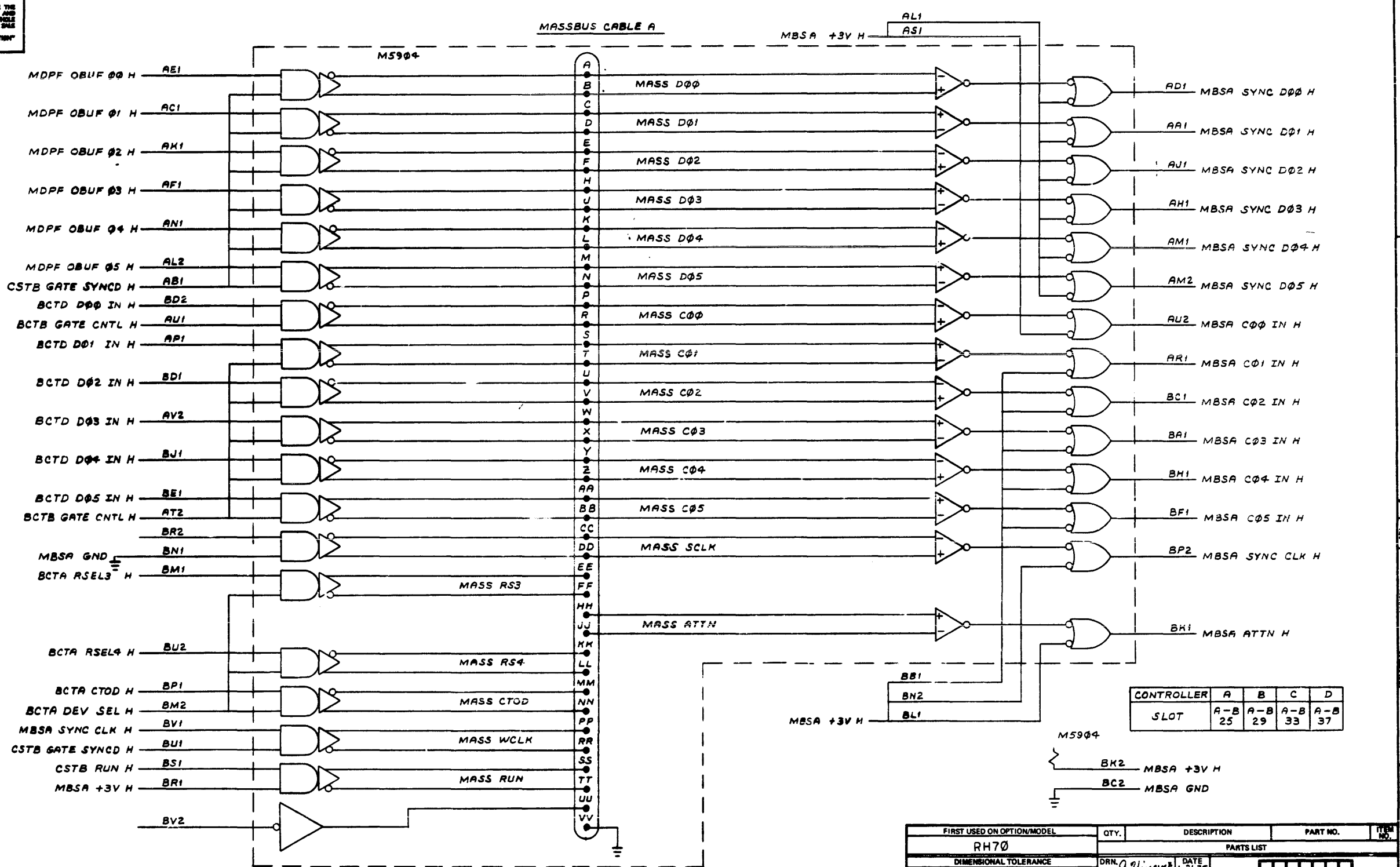
RHBAE, RHCS3

CONTROLLER	A	B	C	D
SLOT	C-F 27	C-F 31	C-F 35	C-F 39

(PROM TRUTH TABLE)

REVISIONS		
CHK	CHANGE NO.	REV.

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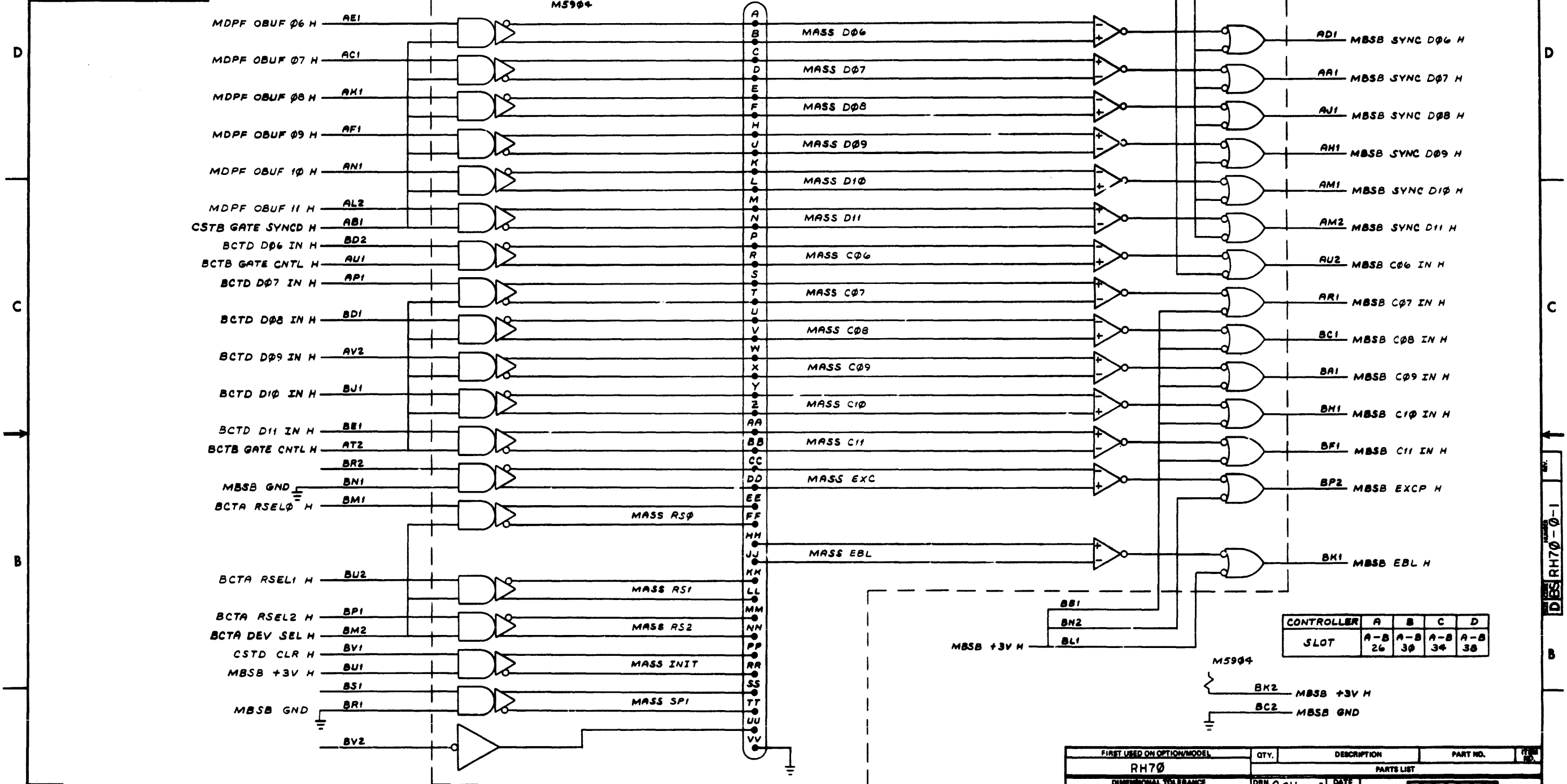
CONTROLLER	A	B	C	D
SLOT	A-B 25	A-B 29	A-B 33	A-B 37

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
RH70					
DIMENSIONAL TOLERANCE		PARTS LIST			
DIMENSIONS ARE MILLIMETERS UNLESS OTHERWISE SPECIFIED		DRN. J. Vincent	DATE 1-31-75		
		CHK'D	DATE 4-11-75		
		ENG. J. Jenkins	DATE 4-16-75		
		PROJ. ENG. J. Jenkins	DATE 4-18-75		
MILLIMETERS INCHES ANGLES		PROJ. J. Jenkins	DATE 4-18-75	TITLE	
XJX ±0.10	JOX ±0.005	10° 30'		MASSBUS TRANSCEIVER (MBSA)	
XK ±0.05	X ±0.02			NEXT HIGHER ASSY.	
X ±0.2	X ±0.1			MATERIAL	
THIRD ANGLE PROJECTION	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY			FINISH	
				B-DD-RH70-0	
				SCALE	
				SHEET 1 OF 3	
				SIZE CODE	
				D BS RH70-0-1	
				NUMBER	
				REV.	

REV. 1
D BS RH70-0-1

REVISIONS
CHANGE NO. REV.

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CONTROLLER	A	B	C	D
SLOT	A-B	A-B	A-B	A-B
	26	30	34	38

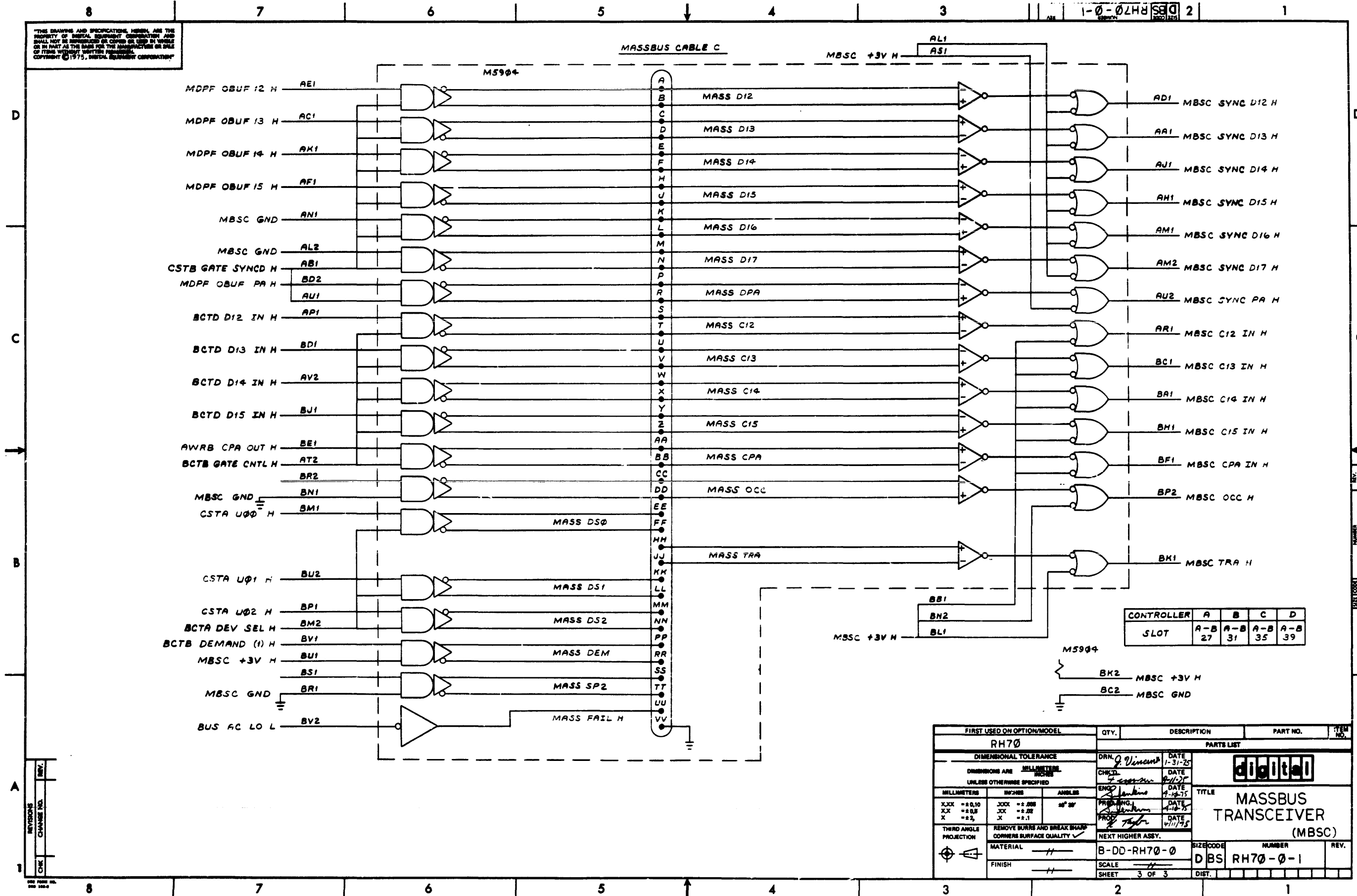
BK2 MBSB +3V H
BC2 MBSB GND

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	REV.
RH70				
PARTS LIST				
DIMENSIONAL TOLERANCE		DATE 1-31-75		
DIMENSIONS ARE MILLIMETERS UNLESS OTHERWISE SPECIFIED		CHECKED DATE 9-10-75		
MILLIMETERS INCHES ANGLES		DATE 7-16-75		
X,XX = ±0.10	XXX = ±0.005	° 0' 0"	DATE 4-16-75	
X.X = ±0.8	XX = ±0.02	X = ±2.1	DATE 4/9/75	
X = ±2				
THIRD ANGLE PROJECTION	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	NEXT HIGHER ASSY.		
MATERIAL	FINISH	SCALE	SIZE CODE	NUMBER
			B-DD-RH70-0	DBS RH70-0-1
		SHEET 2 OF 3		

REV.	CHANGE NO.	REVISIONS

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DIGITAL
RH70-0-1

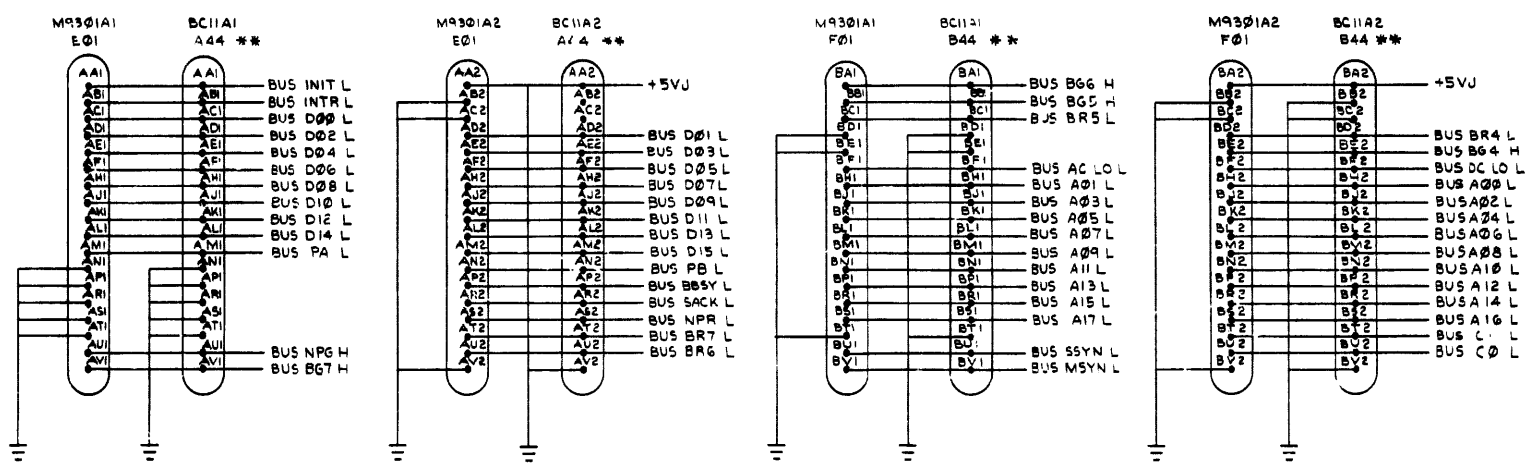
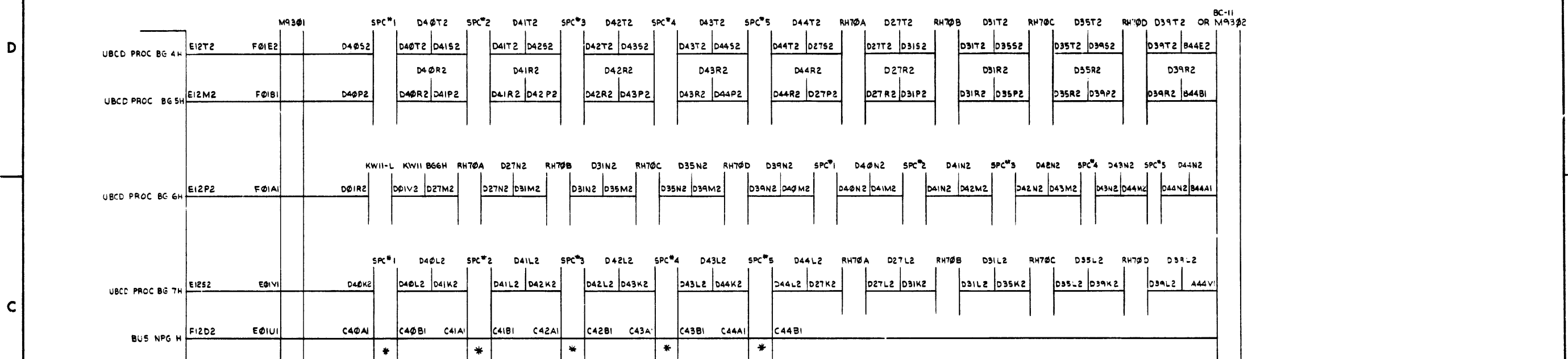


CONTROLLER	A	B	C	D
SLOT	A-B 27	A-B 31	A-B 35	A-B 39

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.								
RH70												
PARTS LIST												
DIMENSIONAL TOLERANCE		DRN. J. Vincent	DATE 1-31-75									
DIMENSIONS ARE MILLIMETERS UNLESS OTHERWISE SPECIFIED		CHKD. J. Vincent	DATE 1-31-75									
MILLIMETERS	INCHES	ANGLES	DATE 1-31-75	TITLE MASSBUS TRANSCEIVER (MBSC)								
XJC = ±0.10 XX = ±0.08 X = ±0.5	JXC = ±0.008 JXX = ±0.02 JX = ±0.1	30° 30'	DATE 1-31-75									
THIRD ANGLE PROJECTION	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PREP. J. Vincent	DATE 1-31-75	<table border="1"> <tr> <td>MATERIAL</td> <td>FINISH</td> <td>SCALE</td> <td>SHEET</td> </tr> <tr> <td></td> <td></td> <td>3 OF 3</td> <td></td> </tr> </table>	MATERIAL	FINISH	SCALE	SHEET			3 OF 3	
MATERIAL	FINISH	SCALE	SHEET									
		3 OF 3										
				<table border="1"> <tr> <td>SIZE CODE</td> <td>NUMBER</td> <td>REV.</td> </tr> <tr> <td>B-DD-RH70-0</td> <td>DBS RH70-0-1</td> <td></td> </tr> </table>	SIZE CODE	NUMBER	REV.	B-DD-RH70-0	DBS RH70-0-1			
SIZE CODE	NUMBER	REV.										
B-DD-RH70-0	DBS RH70-0-1											

DIBS/RH70-0-1

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* A TO B JUMPER CONNECTION TO BE REMOVED IF AN NPG DEVICE IS INSERTED IN AN S.P.C. SLOT.
 ** IF NO UNIBUS DEVICES ARE PRESENT, REPLACE BC11 CABLE WITH M9302 UNIBUS TERM.

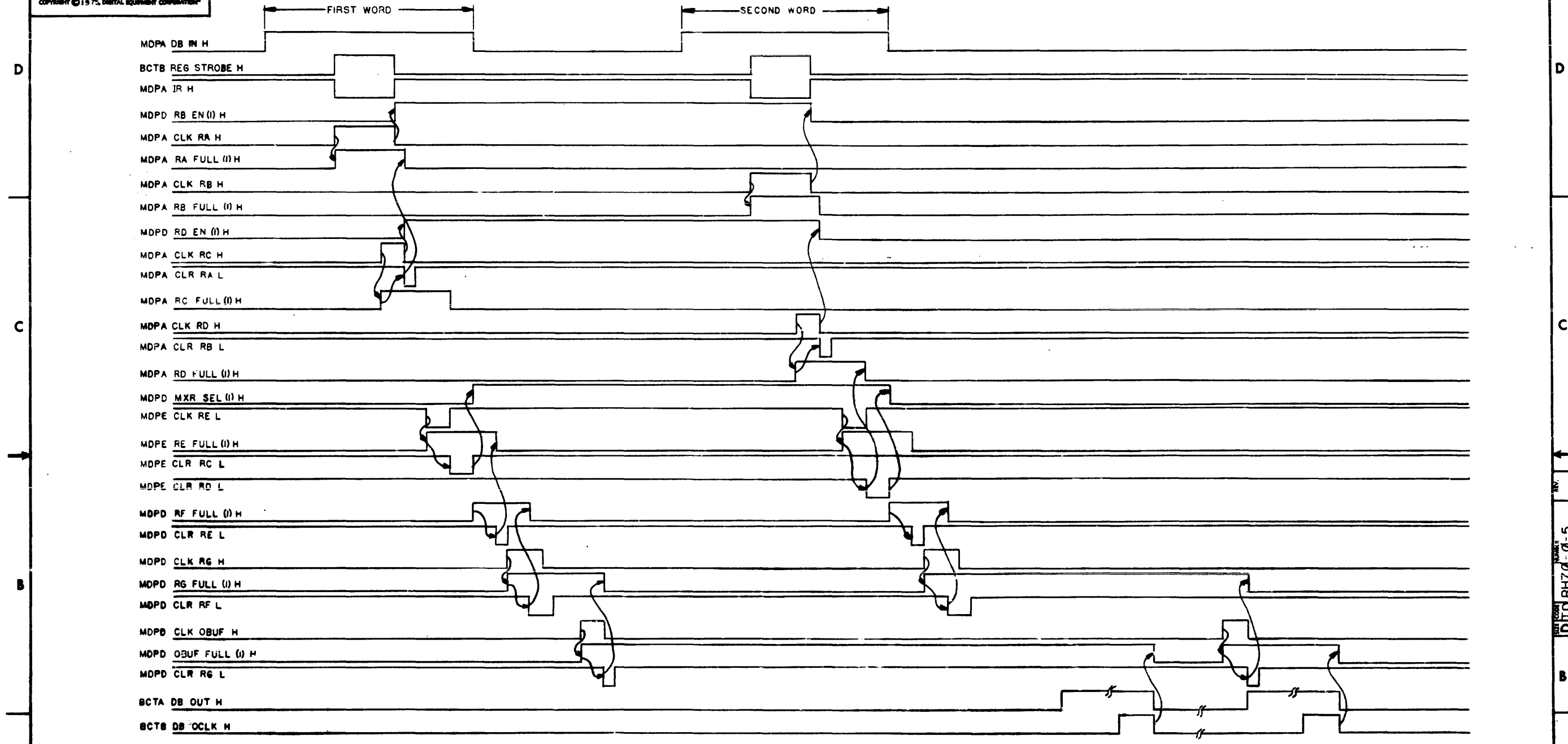
REV.	CHANGE NO.	DATE	BY
1	00004	12/22/75	P. DUBE
2		1/23/77	P. DUBE

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KB11				
PARTS LIST				
DIMENSIONAL TOLERANCE		DRN	DATE	
DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		CHK'D	DATE	
		ENG.	DATE	
		PROJ. ENG.	DATE	
		PROD.	DATE	
THIRD ANGLE PROJECTION	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	NEXT HIGHER ASSY.		
MATERIAL	FINISH	SCALE	SHEET	OF
B-DD-KB11-B	NONE		1	1
TITLE		SIZE/CODE	NUMBER	REV.
UNIBUS CABLE AND GRANT CHAIN		DIC	KB11-B-7	A
		DIST.		

REV. A
 NAME
 D I C KB11-B-7

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WRITE AND READ DATA BUFFER
A 2 WORD (MOV) TO RHDB FOLLOWED BY A 2 WORD (MOV) FROM RHDB

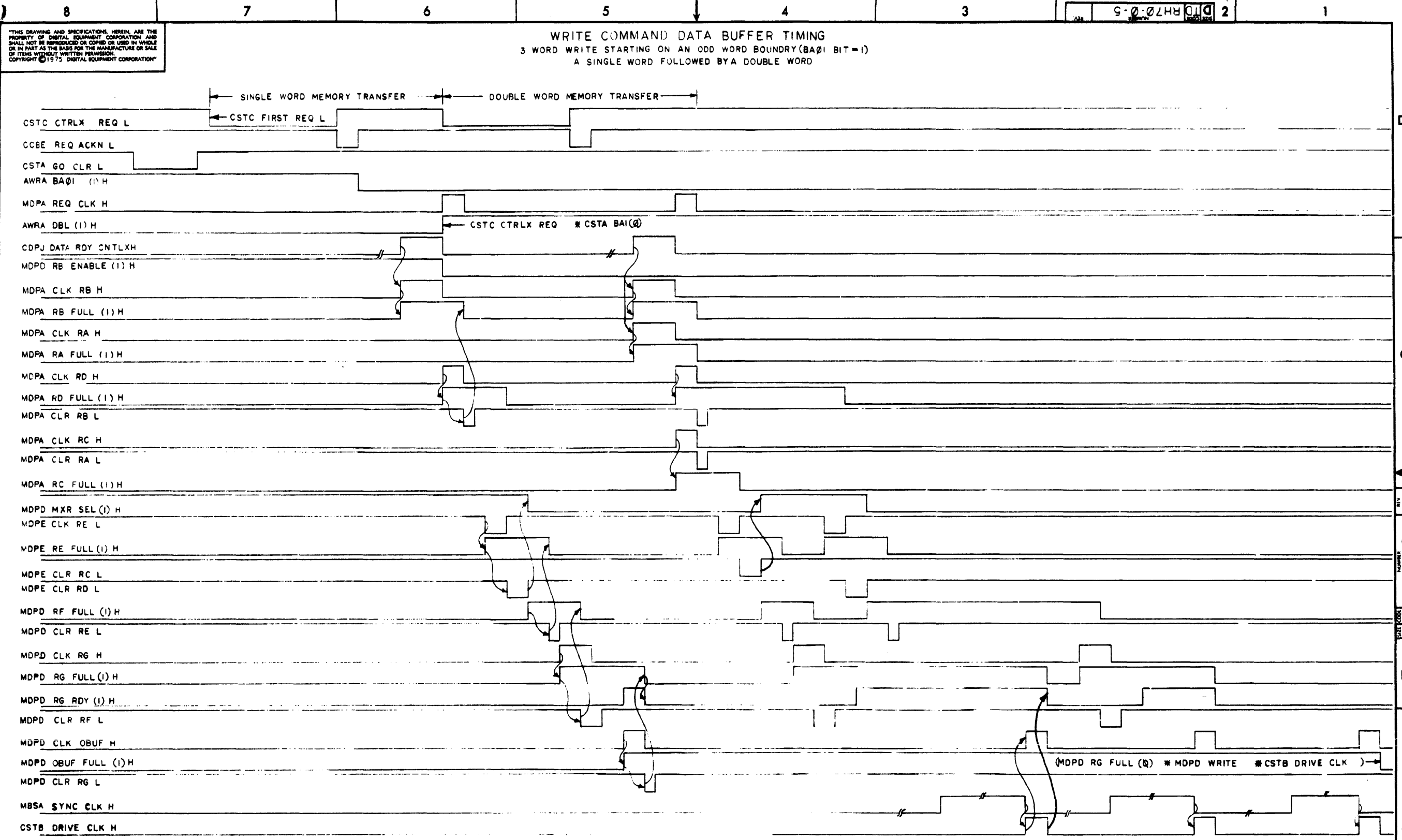


(WRITE-READ MAINTENANCE OPERATION)

FIRST USED ON OPTION MODEL		QTY.	DESCRIPTION	PART NO.
RH70				
DIMENSIONAL TOLERANCES		PARTS LIST		
DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED		DATE	DATE	
UNLESS OTHERWISE SPECIFIED		DATE	DATE	
MILLIMETERS	INCHES	DATE	DATE	
XXX --±0.10	JXX --±0.05	DATE	DATE	
XX --±0.5	JX --±0.25	DATE	DATE	
X --±2.0	J --±1.0	DATE	DATE	
THIRD ANGLE PROJECTION	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	NEXT HIGHER ASSY.		
	MATERIAL	B-DD-RH70-0	SIZE CODE	NUMBER
	FINISH	SCALE	D TD RH70-0-5	REV.
		SHEET 1 OF 4	DIST.	

REV. NO. 1
CHK

REV. NO. 1
D TD RH70-0-5



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WRITE COMMAND DATA BUFFER TIMING
 3 WORD WRITE STARTING ON AN ODD WORD BOUNDARY (BA01 BIT=1)
 A SINGLE WORD FOLLOWED BY A DOUBLE WORD

DITD RH70-0-5 2

REVISIONS		
CHK	CHANGE NO.	REV.

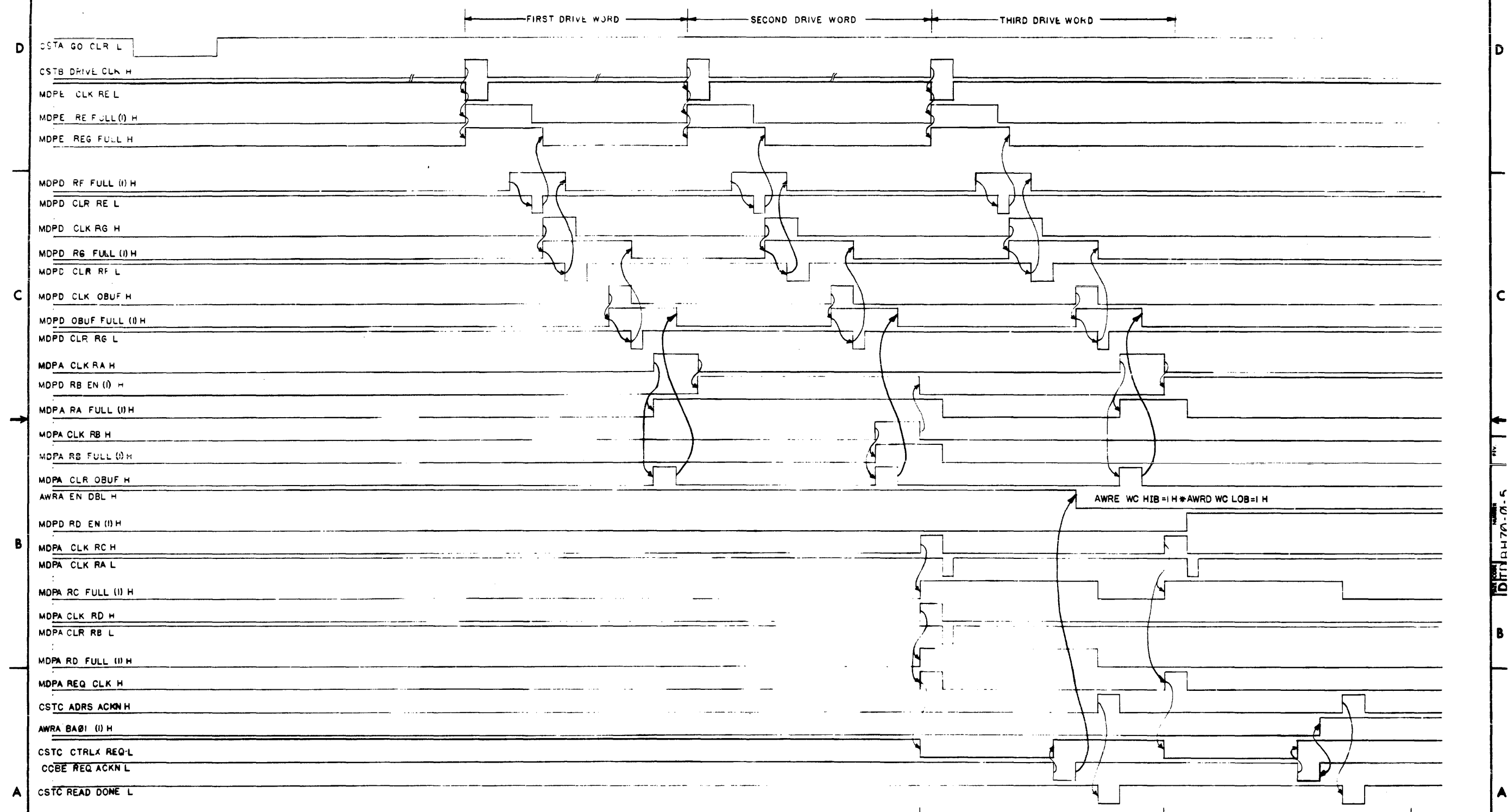
TITLE		NUMBER		REV.
RH70 DATA BUFFER TIMING DIAG.		DITD RH70-0-5		
SCALE	SHEET	OF	DIST.	
	2	4		

DITD RH70-0-5

(WRITE COMMAND)

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READ COMMAND DATA BUFFER TIMING
 3 WORDS STARTING ON AN EVEN WORD BOUNDARY (BA01 BIT=0)
 A DOUBLE WORD FOLLOWED BY A SINGLE WORD

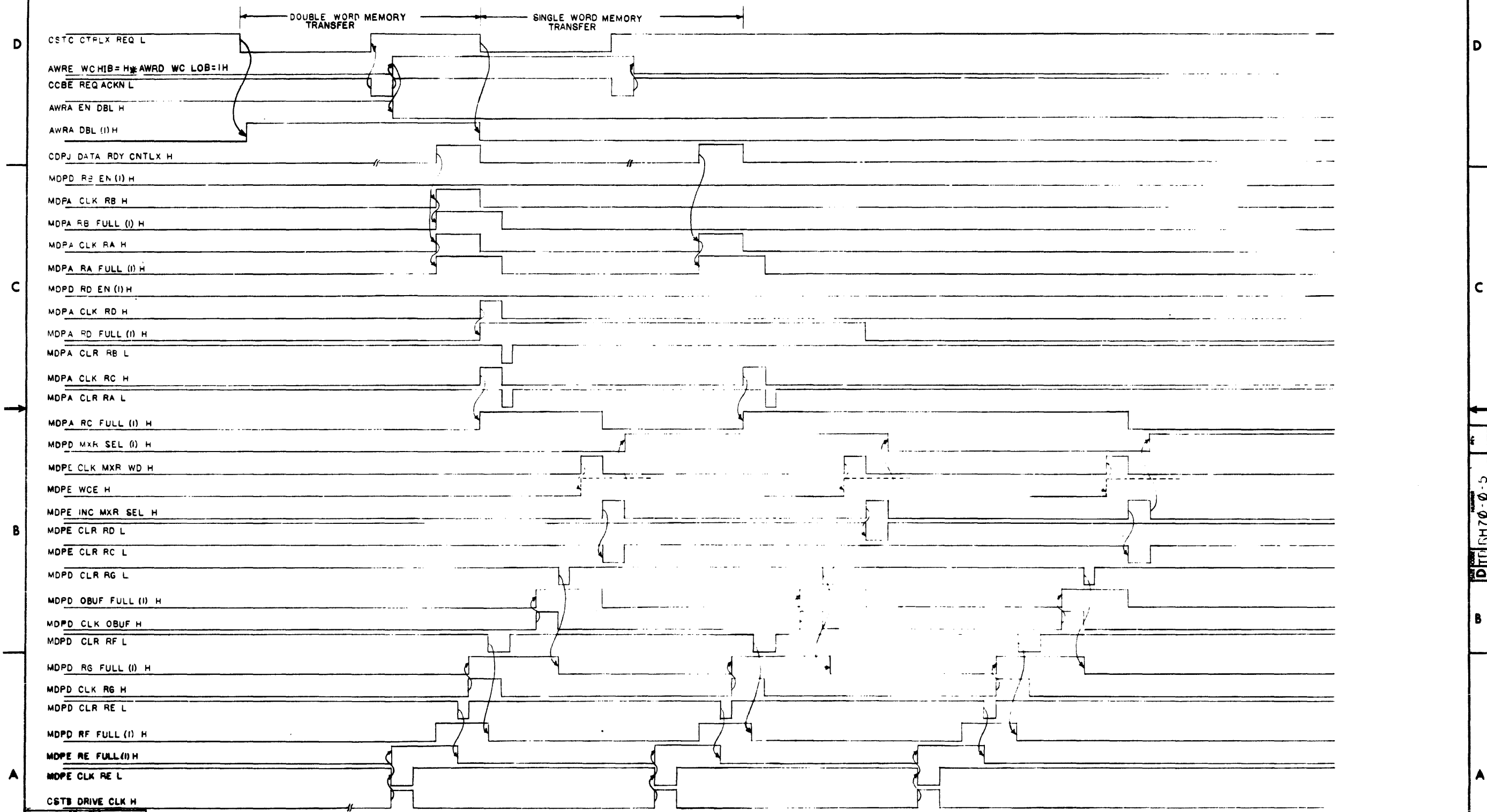


REVISIONS		
CHK	CHANGE NO.	REV.

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WRITE CHECK DATA BUFFER TIMING

3 WORDS STARTING ON AN EVEN WORD BOUNDRY (8A01 BIT - 0)
A DOUBLE WORD FOLLOWED BY A SINGLE WORD



REVISIONS		
CHK	CHANGE NO.	REV.

(WRITE CHECK COMMAND)

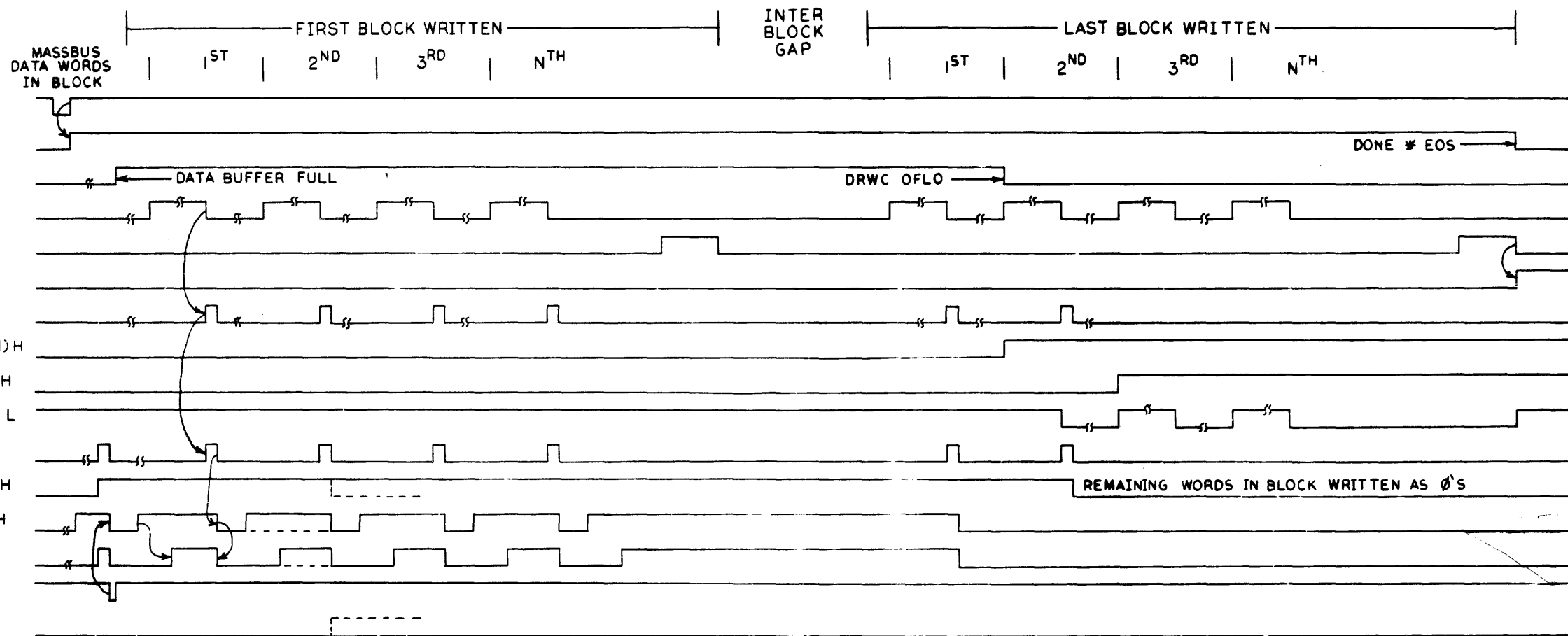
TITLE: RH70 DATA BUFFER TIMING DIAG		SIZE CODE: DTD	NUMBER: RH70-0-5	REV.:
SCALE: //	SHEET: 4 OF 4	DIST.:		

DIT/RH70-0-5

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DIGITAL EQUIPMENT CORPORATION
 DTD RH70-0-6 2

WRITE MASSBUS TIMING DIAGRAM



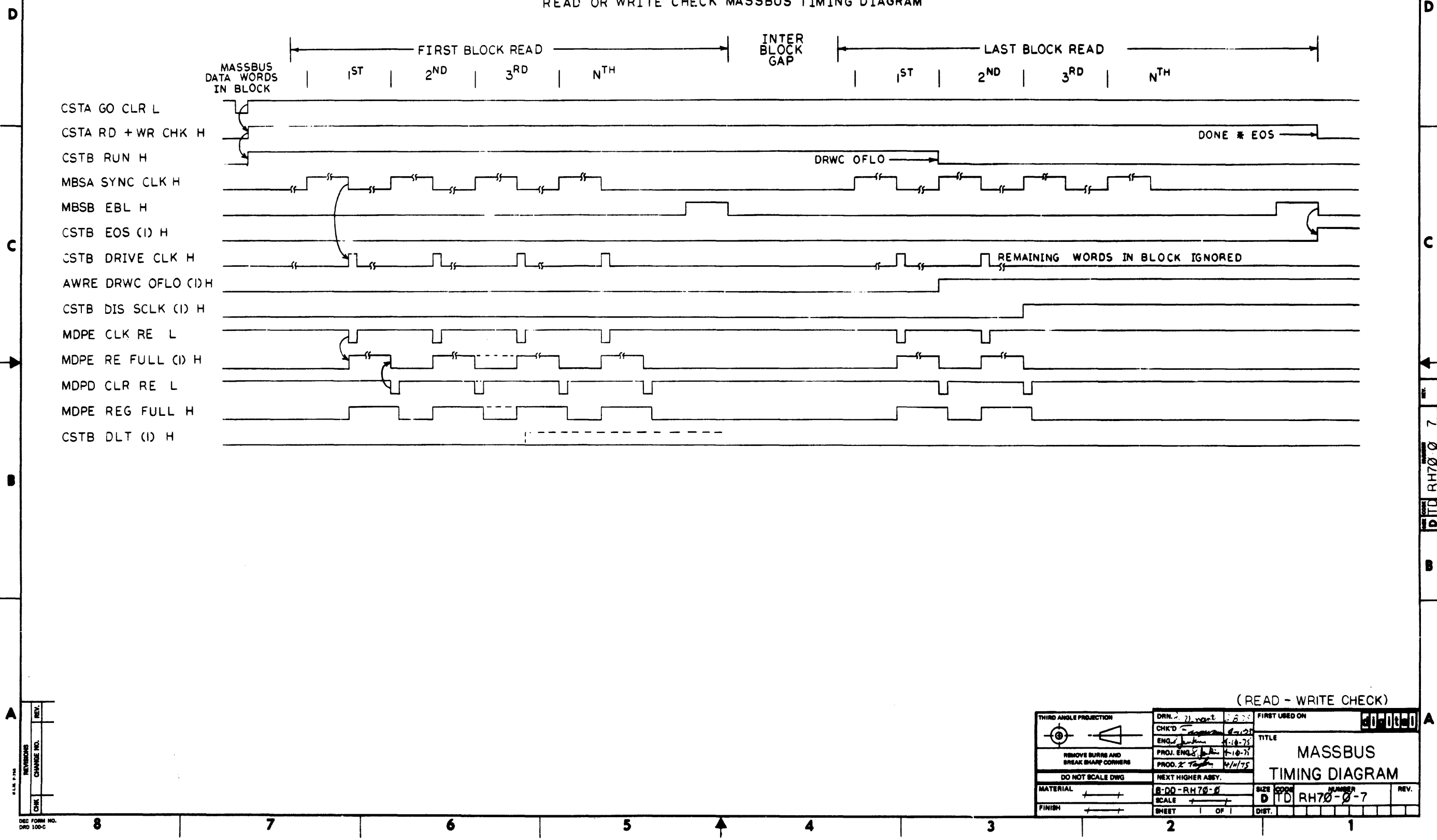
REV.	
CHANGE NO.	
CHK	

DEC FORM NO. DRG 100-C

THIRD ANGLE PROJECTION	DRN. <i>[Signature]</i>	FIRST USED ON	<i>[Date]</i>
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D <i>[Signature]</i>	TITLE	WRITE MASSBUS TIMING DIAGRAM
DO NOT SCALE DWG	PROJ. ENG. <i>[Signature]</i>	SIZE	D
MATERIAL	PROD. <i>[Signature]</i>	SCALE	1:1
FINISH	NEXT HIGHER ASBY.	SHEET	2 OF 1
		NUMBER	1
		REV.	

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READ OR WRITE CHECK MASSBUS TIMING DIAGRAM

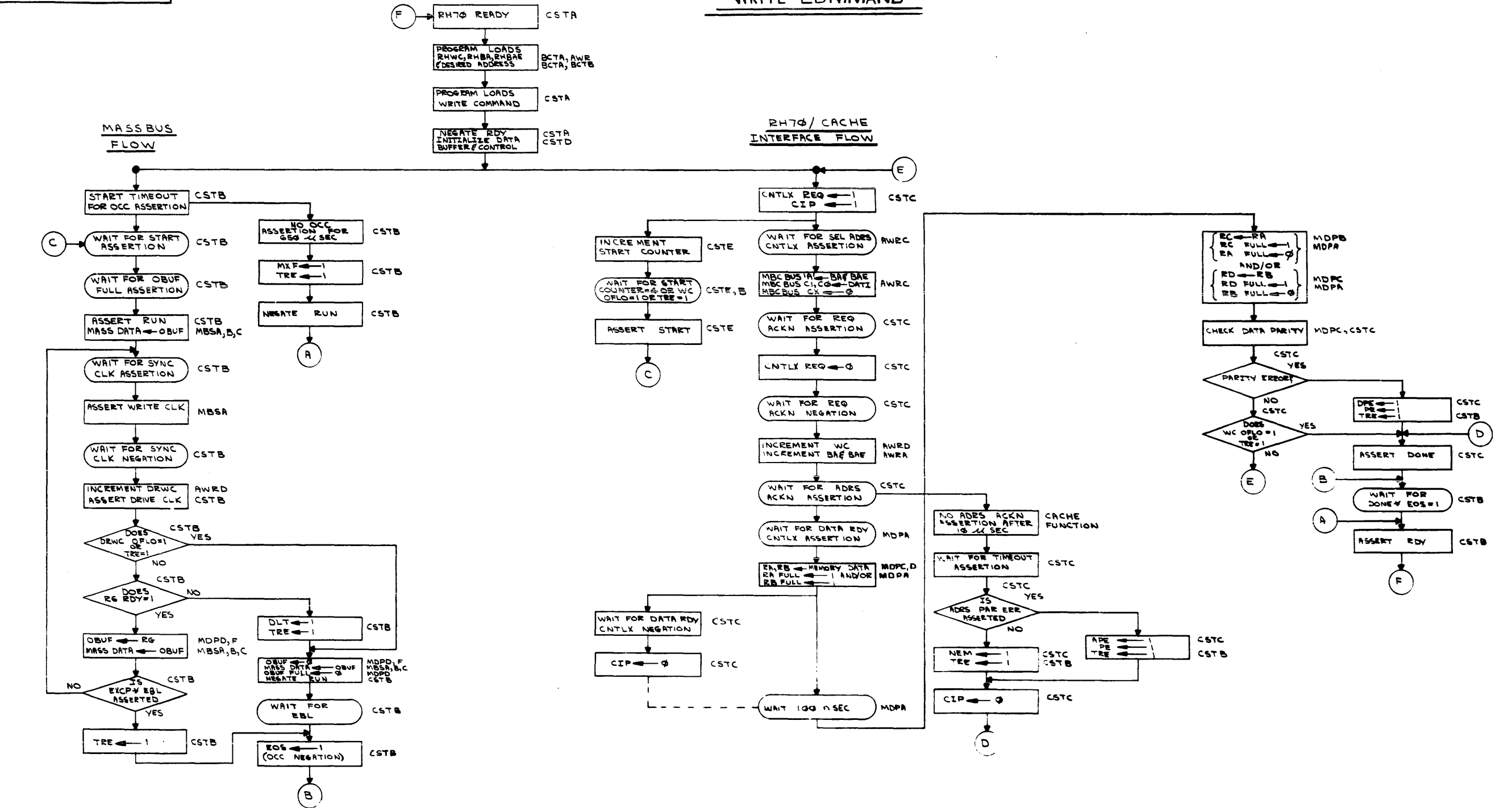


(READ - WRITE CHECK)

THIRD ANGLE PROJECTION	DRN. <i>[Signature]</i> 4-10-75	FIRST USED ON	20-0000
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D <i>[Signature]</i> 4-10-75	TITLE	MASSBUS TIMING DIAGRAM
DO NOT SCALE DWG	PROJ. ENGR. <i>[Signature]</i> 4-10-75	SIZE	D
MATERIAL	PROD. 2 <i>[Signature]</i> 4-10-75	CODE	RH70-0-7
FINISH	NEXT HIGHER ASBY.	NUMBER	7
		SCALE	
		SHEET	1 OF 1
		DIST.	

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WRITE COMMAND



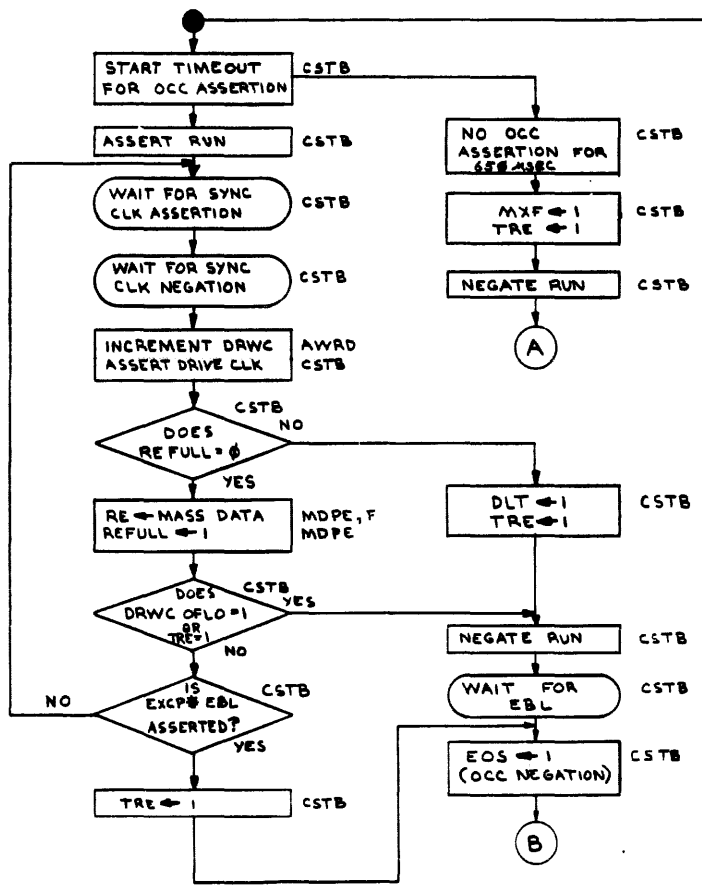
REV.	
CHANGE NO.	
CHK	

THIRD ANGLE PROJECTION	DRN. <i>X. V. B.</i> 2-28-75	FIRST USED ON RH70
REMOVE BURRS AND BREAK SHARP CORNERS	CHKD. <i>[Signature]</i> 4-1-75	
DO NOT SCALE DWG	ENG. <i>[Signature]</i> 4-18-75	TITLE
MATERIAL	PROD. <i>[Signature]</i> 4-18-75	WRITE COMMAND FLOW DIAGRAM
FINISH	NEXT HIGHER ASSY.	SIZE CODE
	B-DD-RH70-0	D
	SCALE	NUMBER
	SHEET 1 OF 2	D FDRH70-0-2
		REV

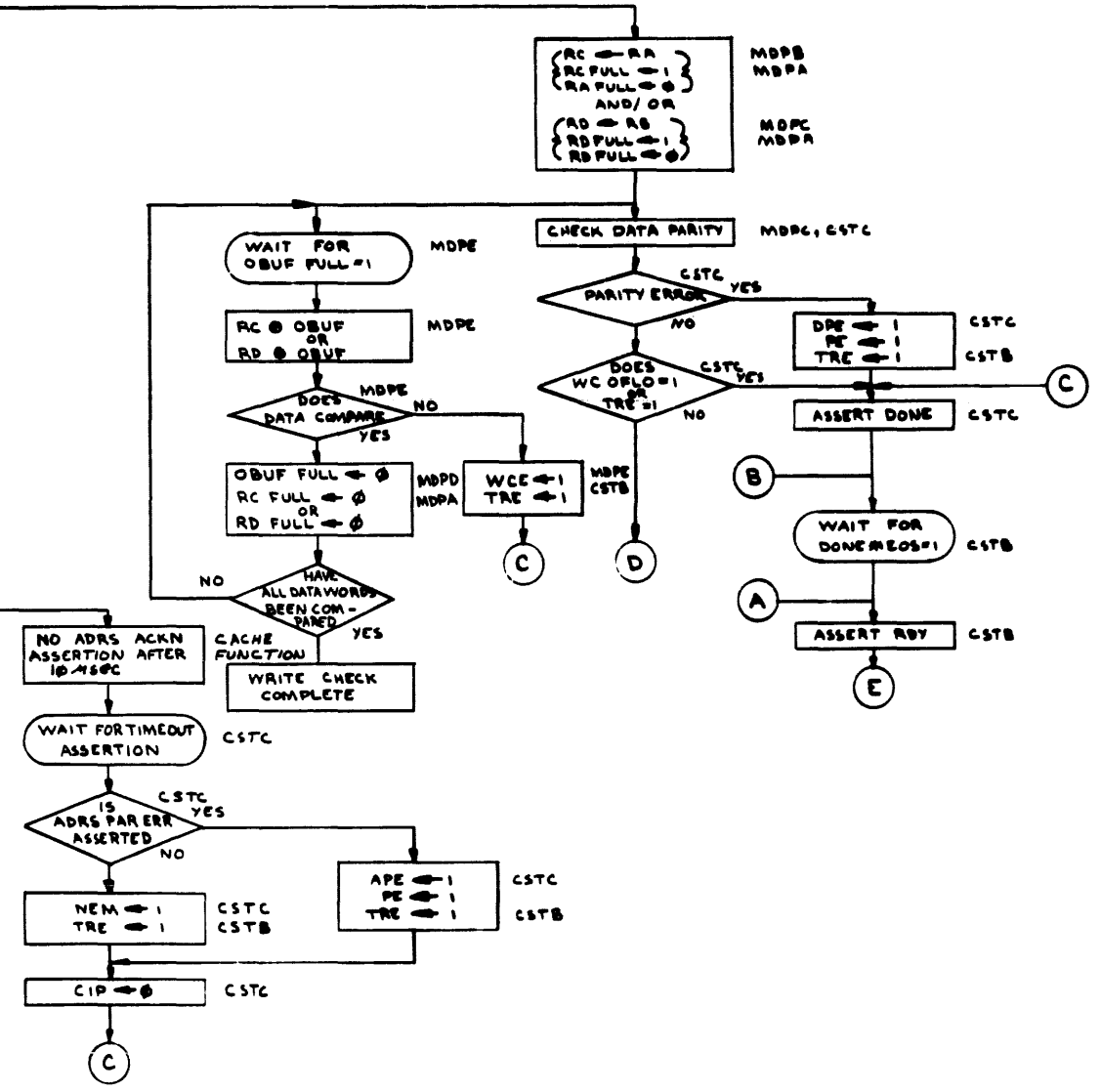
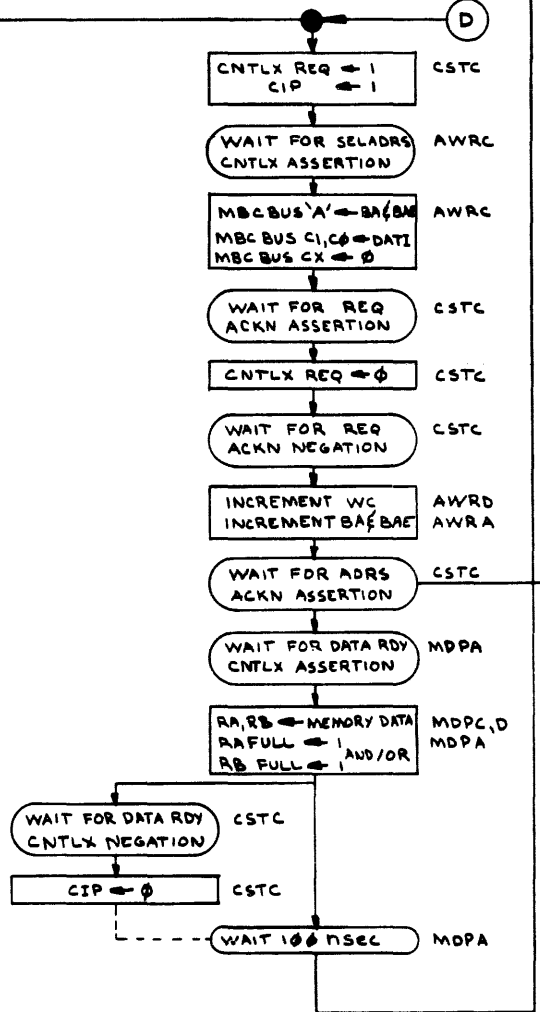
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WRITE CHECK COMMAND

MASS BUS FLOW



RH70/CACHE INTERFACE FLOW



REV. 1
CHANGE NO.
CHK

DEC FORM NO. DRG 100C

THIRD ANGLE PROJECTION	DRN. <i>[Signature]</i> 4-11-75	FIRST USED ON	00-0000
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D <i>[Signature]</i> 4-11-75	TITLE	WRITE CHECK COMMAND FLOW DIAGRAM
DO NOT SCALE DWG	PROJ. ENG. <i>[Signature]</i> 4-11-75	SIZE	D
MATERIAL	NEXT HIGHER ASSY.	SCALE	1 OF 1
FINISH	B DD - RH70 - 0	SHEET	1 OF 1
	SCALE	DRST.	

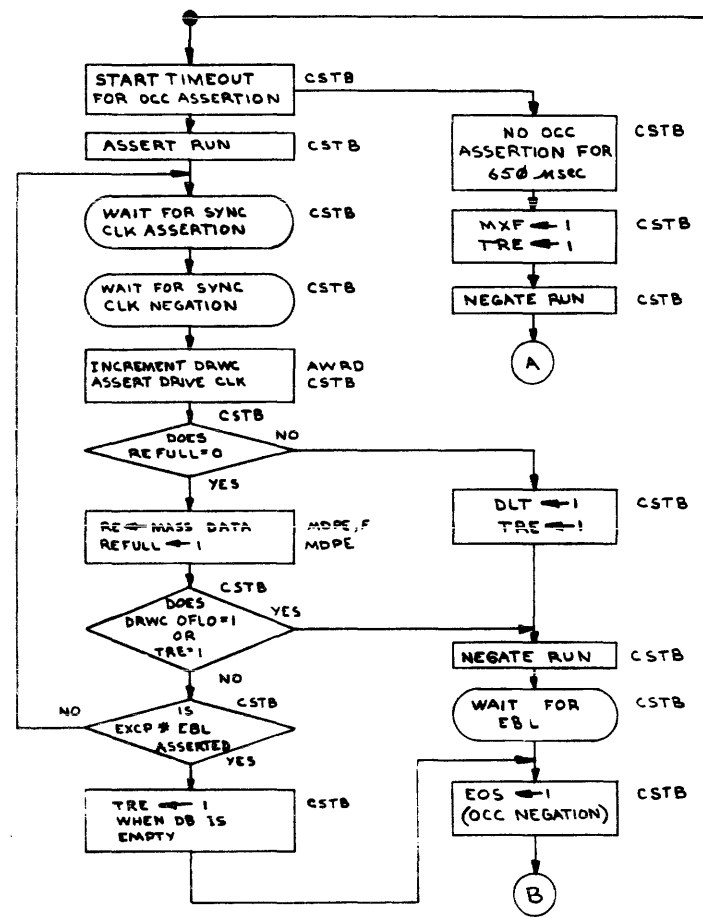
REV. 1
CHANGE NO.
CHK

REV. 1
CHANGE NO.
CHK

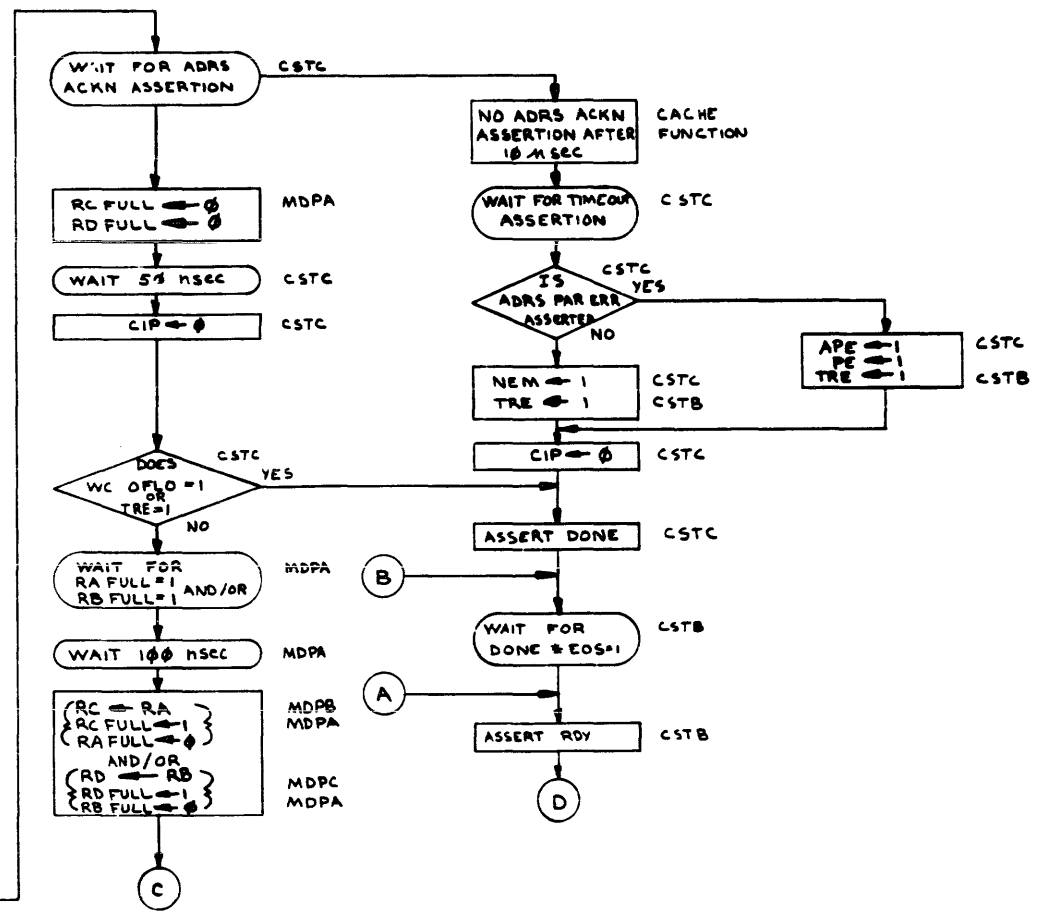
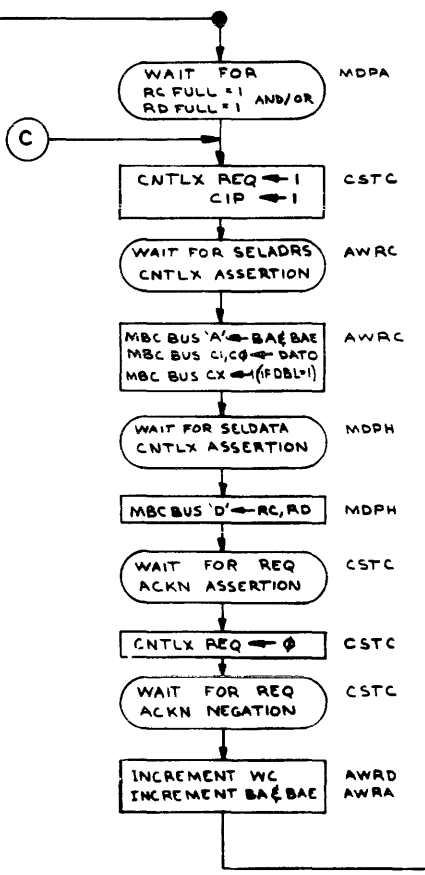
READ COMMAND

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MASS BUS FLOW



RH70 / CACHE INTERFACE FLOW

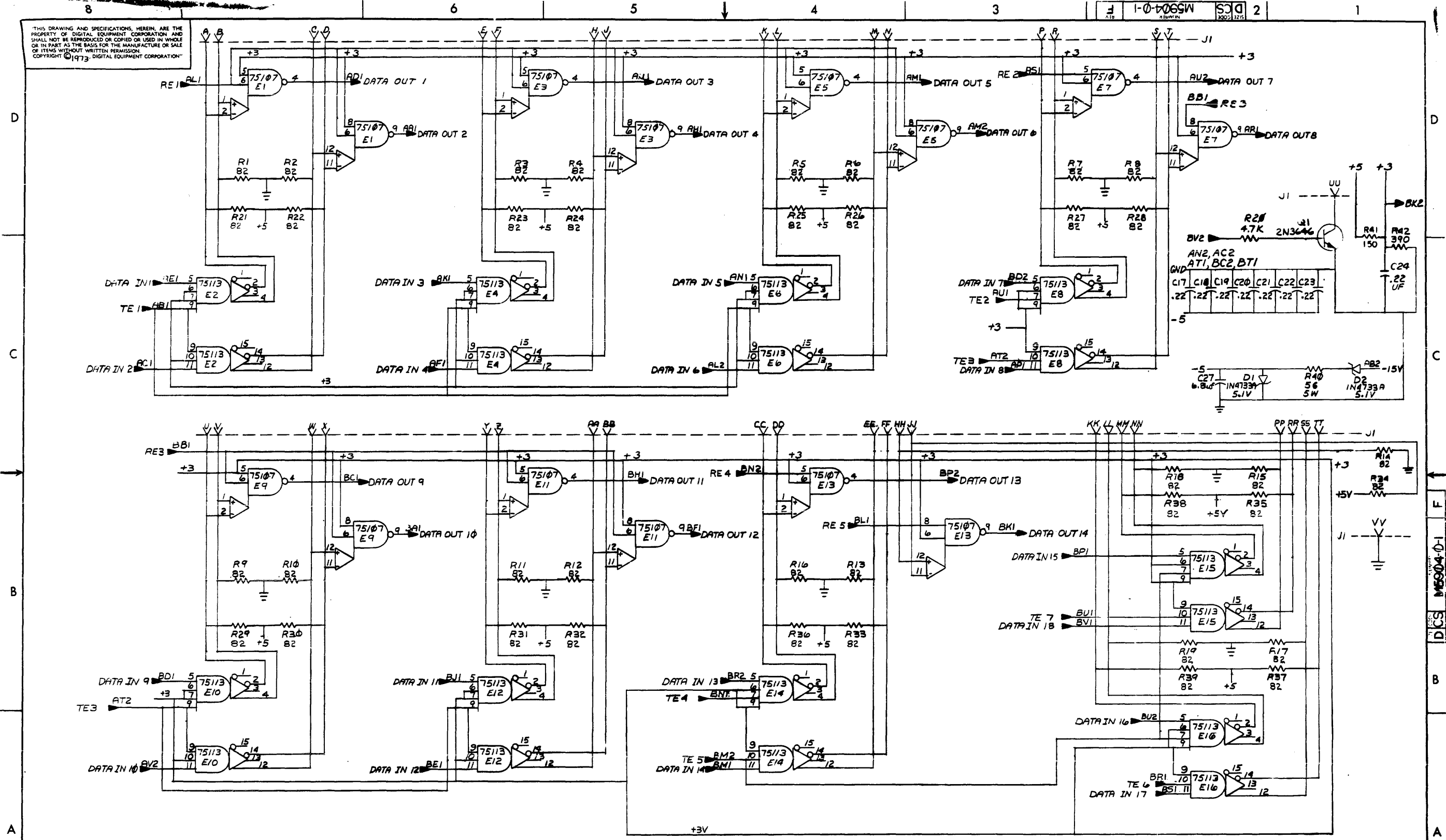


REV	
CHANGE NO.	
CHK	

THIRD ANGLE PROJECTION	DRN	FIRST USED ON
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D	TITLE
DO NOT SCALE DWG	ENG	READ COMMAND FLOW DIAGRAM
	PROJ. ENG.	SIZE CODE NUMBER
	PROD.	D FD RH70-0-4
MATERIAL	SCALE	DIST.
FINISH	SHEET 1 OF 1	

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1-0-106SW DCS 2



REVISIONS		
CHK	CHANGE NO.	REV.

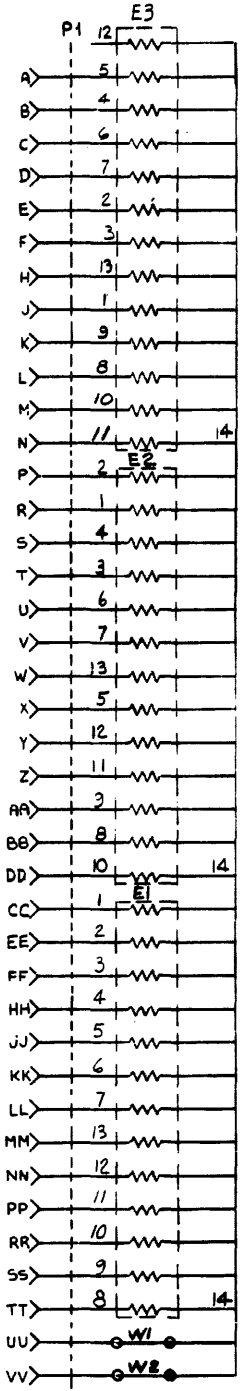
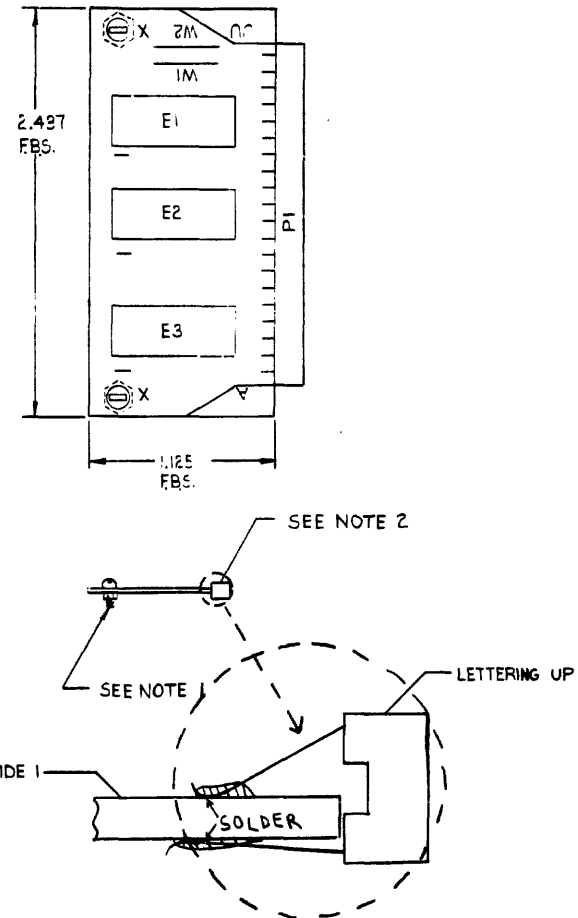
TITLE	CONTROLLED TRANSCIVER	SIZE CODE	DCS	NUMBER	M5904-0-1	REV.	F.
SCALE	SHEET 2 OF 2	DIST.					

DEC 1974 NO 080 138

DCS M5904-0-1

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- NOTES:**
- ASSEMBLE (2) SCREW AND NUT TO BOARD, CUT OFF SCREW FLUSH WITH NUT.
 - INSERT BOARD INTO CONNECTOR FINGERS AND SOLDER ON TO BOARD PADS AS PER DETAIL SHOWN, USING TOOLING #9412105-1 AS SOLDERING HOLDING FIXTURE
 - USE TOOLING 9412101-1 TO REWORK P1 PRIOR TO ASSEMBLY.



QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		ETCH CIRCUIT BOARD	5010845	1
1	P1	CONNECTOR, EDGE CARD 40 PIN	1211323-00	2
3	E1, E2, E3	RESISTOR PACK	1300005-05	3
2		SCREW NYLON *2-56 X 1/2 LG	9006410-05	4
2		NUT *2-56 1/2 ACROSS FLATS 1/16 THK	9007263	5
2	W1 & W2	REEL JUMPER (UNINSULATED)	9107560-1	6
REF		XY COOR. HOLE LOCATION	R-CO-H870-0-4	7
REF		ASSY DRILLING HOLE LAYOUT	D-AH-H870-0-5	8
REF		MODULE ECO HISTORY	B-MH-H870-0-6	9

IC TYPE	GND	+5V

SEMI CONDUCTOR CONVERSION CHART

REVISIONS:

CHK	CHANGE NO.	REV

PARTS LIST

ETCH BOARD REV: F

DATE: 1-8-74

DATE: 1-9-74

DATE: 3-2-74

DATE: 9-2-74

DATE: 1-7-74

TITLE: MASSBUS TERMINATOR

SIZE CODE: DCS NUMBER: H870-0-1

SCALE: NONE

SHEET OF