

digital

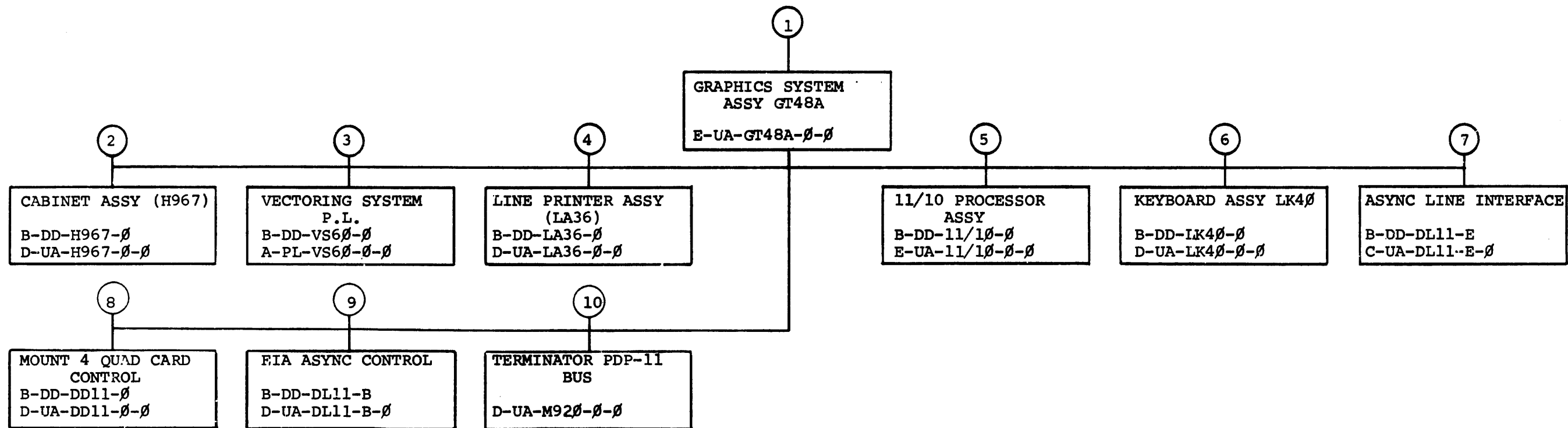
GT48A

Engineering Drawings

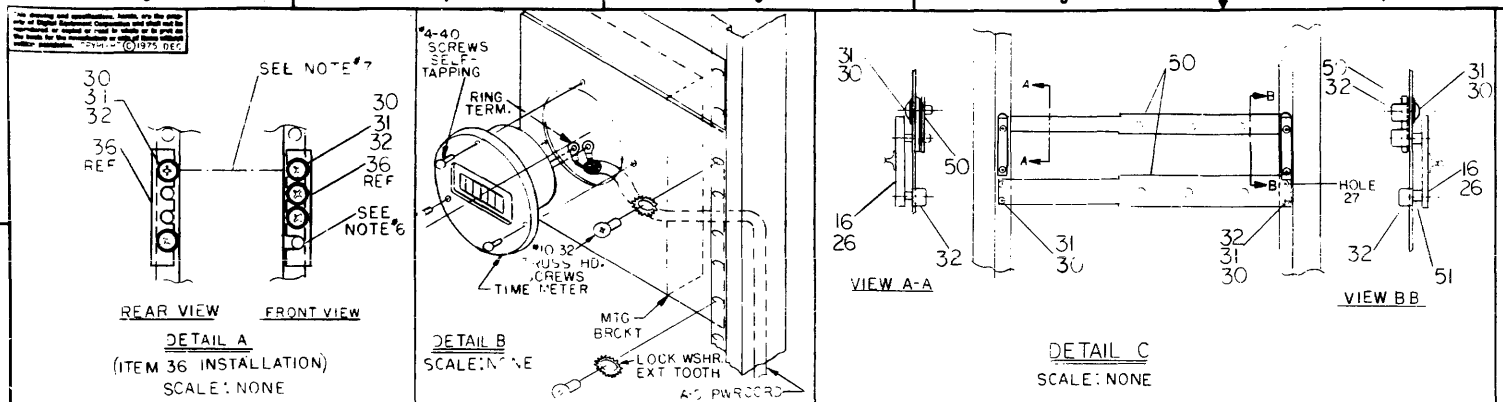
Digital Equipment Corporation

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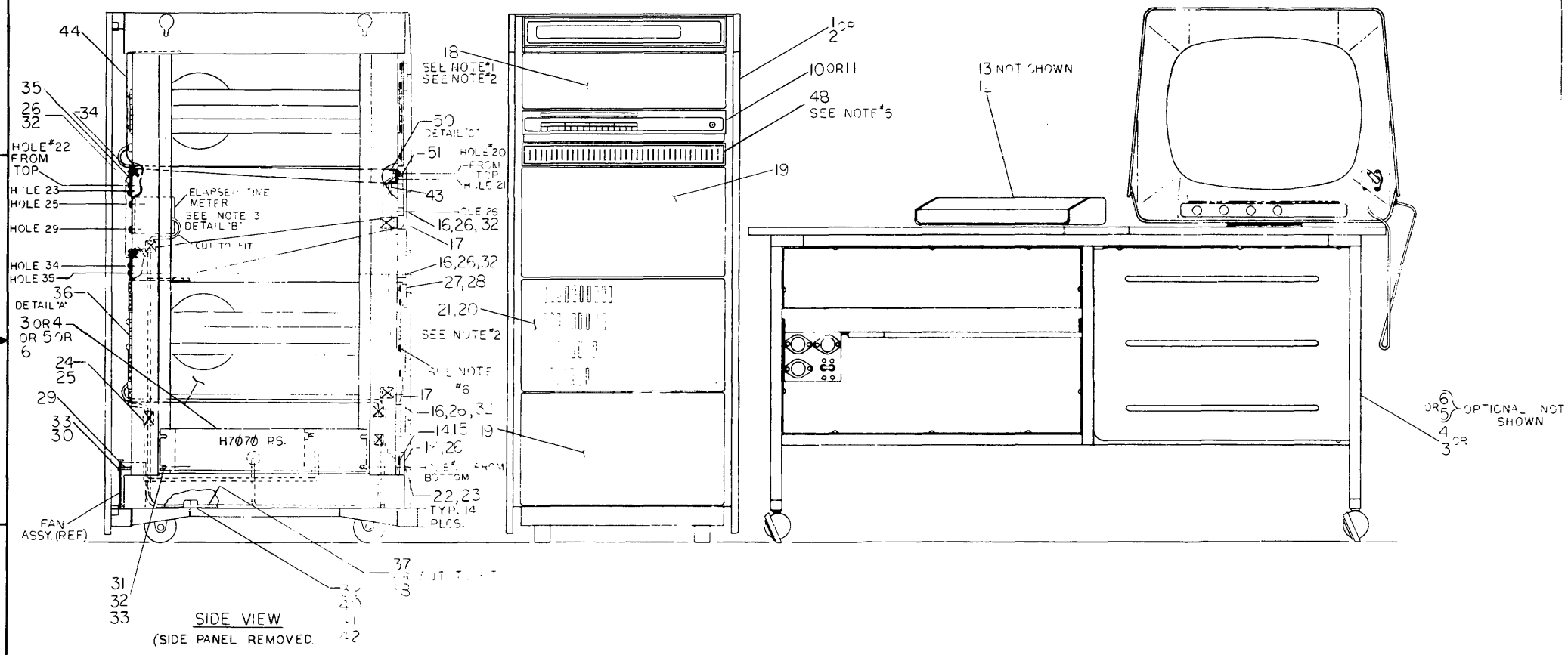
TITLE	SHEET	SIZE	CODE	NUMBER	REV
GRAPHICS SYSTEM GT48A	2 OF 4	B	DD	GT48A-Ø	



LEGEND

NUMBER	VARIATION
GT48A-AA	115VAC 60HZ
GT48A-AB	230VAC 50HZ
GT48A-BA	115VAC 60HZ
GT48A-BB	230VAC 50HZ
GT48A-CA	115VAC 60HZ
GT48A-CB	230VAC 50HZ
GT48A-DA	115VAC 60HZ
GT48A-DB	230VAC 50HZ

- NOTES:**
- REMOVE 5.25" POP PANEL FROM 1110 PROCESSOR (ITEM 10 UR11) AND RETURN TO STOCK. REPLACE WITH 5.25" PANEL (ITEM#18).
 - USE OFF-CENTER BALL STUDS FOR 5.25" POP PANEL AND 10.5" SLOTTED POP PANEL ONLY. ALL OTHER POSITIONS USE STRIP STUDS (ITEM#16).
 - MTG. HARDWARE AND AC PWR CORD SUPPLIED WITH 1560 OPTIONS (ITEMS 3GR4, 5OR6).
 - REFER TO B-DD-GT48A-3, NEXT HIGHER ASSEMBLY.
 - REMOVE 1.75" FILLER STRIP FROM 1110 PROCESSOR AND RETURN TO STOCK. REPLACE WITH 1.75" FILLER STRIP (DE GREY) ITEM#48.
 - THREE SCREWS USED IN MTG FRONT OF CHASSIS TRACKS (ITEM#36) TO BE LOCATED SUCH THAT SCREW HEAD OF ITEM#31 DOES NOT INTERFERE WITH INSERT ON MODULE BOXES WHEN MODULE BOX IS PUSHED INTO CABINET.
 - TO MOUNT CHASSIS TRACKS (ITEM#36) USE TOP HOLE FOR GUIDE. HOLE #13 FROM TOP IS GUIDE FOR 1110 PROCESSOR. MTG. HOLE #23 FROM TOP IS GUIDE FOR VT#3 EXPANDER BOX.
 - REF DWG. E-IC-GT48A-0-1 FOR ALL WIRING CONNECTIONS.



SEE A-PL-GT48A-0-0

CHECKED BY: <i>[Signature]</i> DATE: <i>[Date]</i> TOLERANCES: <i>[Value]</i> DIMENSIONS: <i>[Value]</i> FINISH: <i>[Value]</i> MATERIAL: <i>[Value]</i> PART: <i>[Value]</i>	DIGITAL EQUIPMENT CORPORATION GRAPHICS SYSTEM GT48A GT48A 1/4 GT48A-0-1
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DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			QUANTITY/VARIATION							
PARTS LIST			GT48A-AA	GT48A-AB	GT48A-BA	GT48A-BB	GT48A-CA	GT48A-CB	GT48A-DA	GT48A-DB
MADE BY	J. BISOL	CHECKED	SECTION							
DATE	9/15/75	DATE	1							
ENG	<i>P. C. Cattle</i>	PROD	ISSUED SECT.							
DATE	10-29-75	DATE	1							
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	GT48A-AA	GT48A-AB	GT48A-BA	GT48A-BB	GT48A-CA	GT48A-CB	GT48A-DA	GT48A-DB
1	E-UA-H967-KP-β	CABINET ASSY, H967 (115V)	1	-	1	-	1	-	1	-
2	E-UA-H967-KR-β	CABINET ASSY, H967 (230V)	-	1	-	1	-	1	-	1
3	A-PL-VS6β-AA-β	VECTORING SYSTEM (VS6β)	1	-	1	-	-	-	-	-
4	A-PL-VS6β-AB-β	VECTORING SYSTEM (VS6β)	-	1	-	1	-	-	-	-
5	A-PL-VS6β-CA-β	VECTORING SYSTEM (VS6β)	-	-	-	-	1	-	1	-
6	A-PL-VS6β-CB-β	VECTORING SYSTEM (VS6β)	-	-	-	-	-	1	-	1
7	C-UA-DL11-E-β	ASYNC. LINE INTERFACE	1	1	1	1	1	1	1	1
8	E-UA-LA36-CA-β	LINE PRINTER (LA36) (NOT SHOWN)	-	-	1	-	-	-	1	-
9	E-UA-LA36-CB-β	LINE PRINTER (LA36) (NOT SHOWN)	-	-	-	1	-	-	-	1
10	E-UA-11/10-SC	11/10 PROCESSOR (115V)	1	-	1	-	1	-	1	-
11	E-UA-11/10-SD	11/10 PROCESSOR (230V)	-	1	-	1	-	1	-	1
12	D-UA-LK4β-A-β	KEYBOARD ASSY LK4β-A	1	1	-	-	1	1	-	-
13	D-UA-LK4β-B-β	KEYBOARD ASSY LK4β-B (NOT SHOWN)	-	-	-	-	1	1	-	-
14	9006664	WSHR FLAT .437 OD X .218 ID X .062 THK	4	4	4	4	4	4	4	4
15	9006073-3	SCRW PHL FLT HD #10-32 X 1/2 LG	4	4	4	4	4	4	4	4
16	B-IA-7413731-0-0	STRIP, STUD MTG.	8	8	8	8	8	8	8	8
17	B-MD-7407789-0-0	SPACER 1/8 IN. THK	4	4	4	4	4	4	4	4
18	D-IA-7414219-0-0	PANEL, 5.25 IN	1	1	1	1	1	1	1	1
19	D-IA-7413730-0-0	PANEL, 10.5 IN	2	2	2	2	2	2	2	2
20	D-IA-7414152-0-0	PANEL, 10.5 IN SLOTTED	1	1	1	1	1	1	1	1
21	1212657-0-0	FILTER, FOAM (10.5 IN)	1	1	1	1	1	1	1	1
22	9007775-01	BALL STUD	14	14	14	14	14	14	14	14
TITLE			ASSY NO.		SIZE CODE		NUMBER		REV. ECO NO.	
GRAPHICS SYSTEM (GT48A)			E-UA-GT48A-β-β		A PL		GT48A-β-β			
SHEET 1 OF 3			DIST.							

DEC FORM DEC 16-(325)-1031-N870
DRA 110

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			QUANTITY/VARIATION							
PARTS LIST			GT48A-AA	GT48A-AB	GT48A-BA	GT48A-BB	GT48A-CA	GT48A-CB	GT48A-DA	GT48A-DB
MADE BY	J. BISOL	CHECKED	SECTION							
DATE	9/15/75	DATE	1							
ENG	<i>P. C. Cattle</i>	PROD	ISSUED SECT.							
DATE	10-29-75	DATE	1							
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	GT48A-AA	GT48A-AB	GT48A-BA	GT48A-BB	GT48A-CA	GT48A-CB	GT48A-DA	GT48A-DB
45	D-IA-7008360-0-0	COUPLER BERG TO MATE-N-LOK	1	1	1	1	2	2	2	2
46	DD11-A	MOUNT, 4 QUAD CARD CONTROL	-	-	-	-	1	1	1	1
47	DL11-B	EIA ASYNC CONTROL	-	-	-	-	1	1	1	1
48	A-MD-7414970-0-0	REWORK, SLOTTED BEZEL	1	1	1	1	1	1	1	1
49	M93β	TERMINATOR PDP-11 BUS	-	-	-	-	1	1	1	1
50	D-IA-7409268-0-0	SUPPORT, CABLE	2	2	2	2	2	2	2	2
51	9008825	SPACER ROUND #10 HOLE 1/8" LG	4	4	4	4	4	4	4	4
TITLE			ASSY NO.		SIZE CODE		NUMBER		REV. ECO NO.	
GRAPHICS SYSTEM (GT48A)			E-UA-GT48A-β-β		A PL		GT48A-β-β			
SHEET 3 OF 3			DIST.							

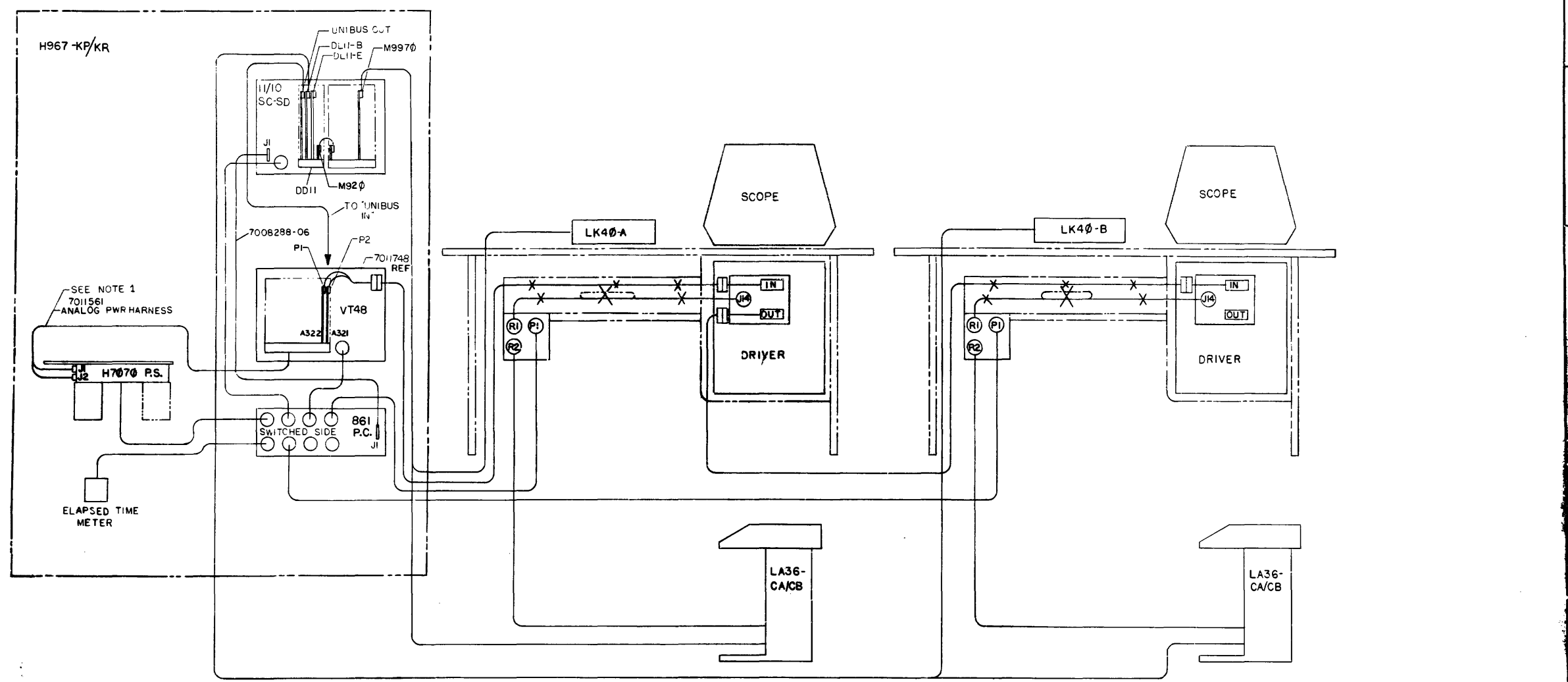
DEC FORM DEC 16-(325)-1031-N870
DRA 110

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			QUANTITY/VARIATION							
PARTS LIST			GT48A-AA	GT48A-AB	GT48A-BA	GT48A-BB	GT48A-CA	GT48A-CB	GT48A-DA	GT48A-DB
MADE BY	J. BISOL	CHECKED	SECTION							
DATE	9/15/75	DATE	1							
ENG	<i>P. C. Cattle</i>	PROD	ISSUED SECT.							
DATE	10-29-75	DATE	1							
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	GT48A-AA	GT48A-AB	GT48A-BA	GT48A-BB	GT48A-CA	GT48A-CB	GT48A-DA	GT48A-DB
23	9006633	WSHR, INT. TOOTH LK #6 HOLE	14	14	14	14	14	14	14	14
24	9007032	CABLE TIE	12	12	12	12	12	12	12	12
25	9007880	MOUNT CABLE TIE	12	12	12	12	12	12	12	12
26	9006074-2	SCRW PHL FLT HD #10-32 X 1/8 LG	12	12	12	12	12	12	12	12
27	9008007-2	SCRW PHL FLT HD #10-32 X 1/4 LG	12	12	12	12	12	12	12	12
28	B-IA-7413771-0-0	STRIP, OFF-CENTER STUD MTG	6	6	6	6	6	6	6	6
29	9006825	STAND-OFF #10 HOLE X 3/8 AF X 1.0 LG	4	4	4	4	4	4	4	4
30	9007651	WSHR, EXT. TOOTH LK #10 HOLE	40	40	40	40	40	40	40	40
31	9006071-3	SCRW PHL TRUSS HD #10-32 X 3/8 LG	40	40	40	40	40	40	40	40
32	9007786	NUT, TINNED #10-32	46	46	46	46	46	46	46	46
33	9009019-3	SCRW PHL TRUSS HD #10-32 X 1-3/8 LG	4	4	4	4	4	4	4	4
34	C-IA-7411633-0-0	CLAMP, STRAIN RELIEF	2	2	2	2	2	2	2	2
35	C-IA-7411632-0-0	STRAIN RELIEF	2	2	2	2	2	2	2	2
36	1211825	CHASSIS TRACKS	2PK	2PR	2PR	2PR	2PR	2PR	2PR	2PR
37	170015-6	PWR CORD (115VAC, 10 AMP)	2	-	2	-	2	-	2	-
38	1700016-6	PWR CORD (230VAC, 10 AMP)	-	2	-	2	-	2	-	2
39	1210821-02	CONN. MATE-N-LOK 2SKT HSG	1	1	1	1	1	1	1	1
40	1210822-02	CONN. MATE-N-LOK 2PIN HSG	1	1	1	1	1	1	1	1
41	1209376-03	MATE-N-LOK PIN, STRIP	2	2	2	2	2	2	2	2
42	1209379-03	MATE-N-LOK HSG, STRIP	2	2	2	2	2	2	2	2
43	D-IA-7008288-06	CABLE ASSY 6 FT	1	1	1	1	1	1	1	1
44	BC11A-15	UNIBUS CONNECTOR	1	1	1	1	1	1	1	1
TITLE			ASSY NO.		SIZE CODE		NUMBER		REV. ECO NO.	
GRAPHICS SYSTEM (GT48A)			E-UA-GT48A-β-β		A PL		GT48A-β-β			
SHEET 2 OF 3			DIST.							

DEC FORM DEC 16-(325)-1031-N870
DRA 110

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NOTES:
 1. REFERENCE FOR CONNECTIONS:
 D-UA-VT48-2-2.
 2. REF P/L: A-PL-GT48A-2-2 AND
 E-UA-GT48A-2-2.



H
F
E
D
C
B

H
F
E
D
C
B

REV.	DESCRIPTION	DATE	BY	CHECKED	DATE
1	INITIAL ISSUE				
2	REVISION				
3	REVISION				
4	REVISION				
5	REVISION				

QUANTITY & VARIATION	DESCRIPTION	DWG. PART NO.	TYPE
	INTERCONNECTING CABLES (GT48A)	GT48A-2-1	

THIRD ANGLE PROJECTION	DATE	BY	CHECKED	DATE
REMOVE BURRS AND BREAK SHARP CORNERS				
DO NOT SCALE DIMS				
MATERIAL				
FINISH				

REVISIONS
 CHANGE NO.
 DATE

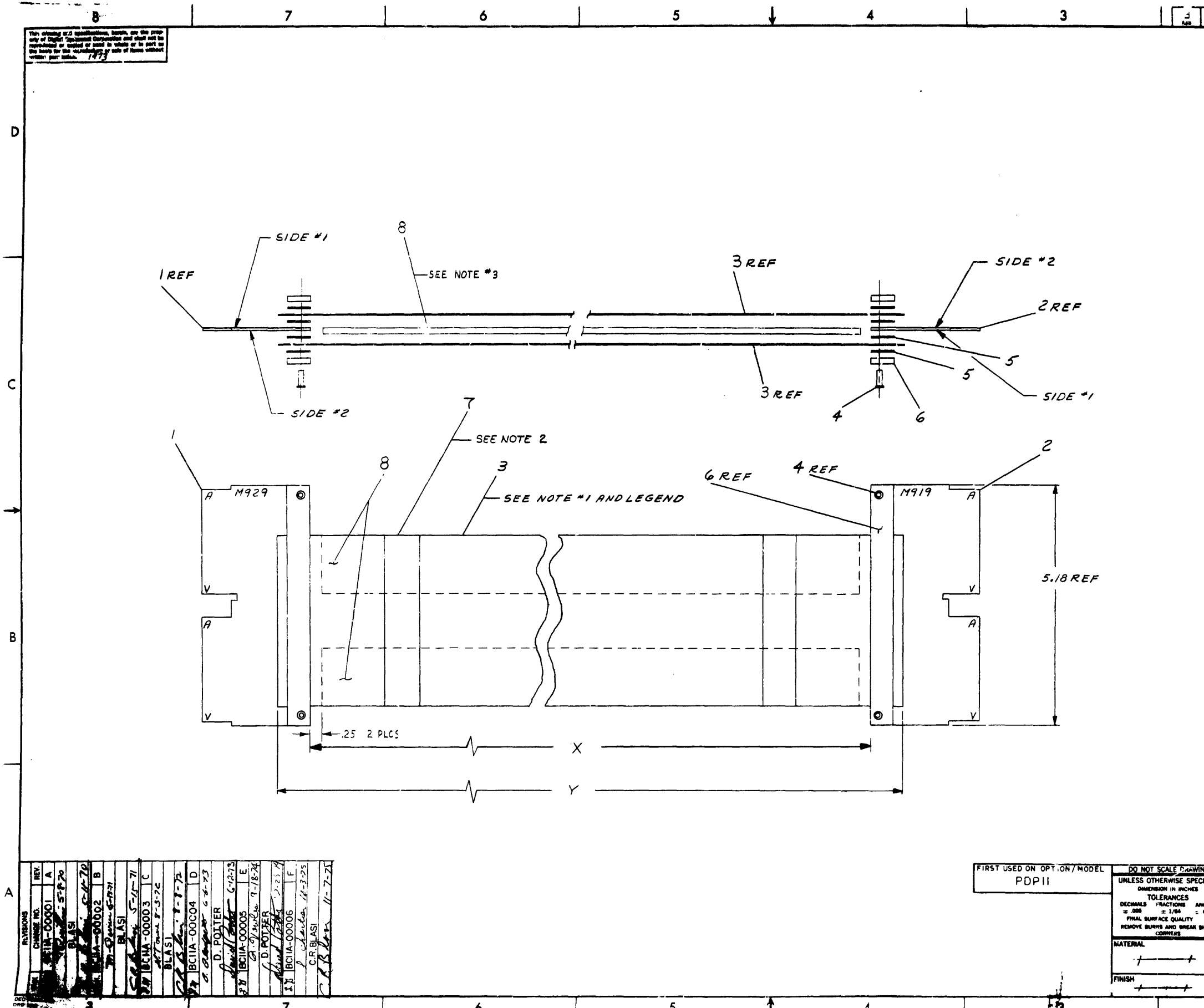
GT48A-1

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UNBCHIA-0-0 2

NOTES:

- VARIATIONS AND LENGTHS SHOWN IN LEGEND ARE STANDARD. OTHER THAN STANDARD VARIATIONS WILL BE SPECIFIED BY ALPHANUMERIC DESIGNATION. FOR LENGTHS OTHER THAN FOOT INCREMENTS FROM ONE (1) FOOT THRU NINE (9) FEET, ELEVEN (11) INCHES.
 A=1" G=7"
 B=2" H=8"
 C=3" J=9"
 D=4" K=10"
 E=5" L=11"
 F=6"
 EXAMPLE: BC11A-3D=3'4". LENGTHS WILL BE IN FOOT INCREMENTS FROM TEN (10) FEET ON, AND WILL BE SPECIFIED BY THE CORRESPONDING NUMERICAL DESIGNATION. EXAMPLE: BC11A-11=11 FEET. THE TOLERANCE ON DIMENSION "N" WILL BE 2% OF THE FOOT INCREMENT.
- FLEXPRINTS TO BE BOUND TOGETHER BY WRAPPING WITH BLACK ELECTRICAL TAPE (ITEM 7) EVERY 18 INCHES.
- INSTALL 2 PIECES OF FOAM TAPE (ITEM 8) BETWEEN FLEX PRINT CABLES AS SHOWN.



QTY.	DESCRIPTION	PART NO.
1/R	GRAY FOAM	9008881
1/R	BLK ELECTRICAL TAPE	9003260
4	CLAMP, CABLE	C-3C-12075000
1/R	TAPE #4032 1/2W X 3 1/4L	9007834
4	EYELET GS-9-11 STIMPSON	9008350
2	CABLE, FLEXPRINT	1700002-01
1	EXT. BUS CONN	A-PL-M919-1
1	BUS CONN	A-PL-M929-1

REV.	CHANGE NO.	REV.	DATE	BY	DATE	BY
1	00001	A	11/17/67	H. Buss		
2	00002	B	11/17/67	H. Buss		
3	00003	C	11/17/67	H. Buss		
4	00004	D	11/17/67	H. Buss		
5	00005	E	11/17/67	H. Buss		
6	00006	F	11/17/67	H. Buss		

FIRST USED ON OPT. ON / MODEL: PDPII
 DO NOT SCALE DRAWING
 UNLESS OTHERWISE SPECIFIED
 DIMENSION IN INCHES
 TOLERANCES: DECIMALS FRACTIONS ANGLES
 ±.008 ±1/64 ±0°30'
 FINISH: REMOVE BURRS AND BREAK SHARP CORNERS
 MATERIAL: + + +
 FINISH: + + +
 NEXT HIGHER ASSY: D-1A-11/20-0-0-0
 SCALE: 1/1
 SHEET: 1 OF 2
 PARTS LIST: EQUIPMENT CORPORATION
 TITLE: CABLE ASSY
 DWA

REV.	CHANGE NO.	REV.	DATE	BY	DATE	BY
1	00001	A	11-7-71	BLASI		
2	00002	B	5-1-71	BLASI		
3	00003	C	8-3-72	BLASI		
4	00004	D	1-1-72	BLASI		
5	00005	E	6-2-73	D. POTTER		
6	00006	F	9-18-74	D. POTTER		
7	00006	F	2-23-74	D. POTTER		
			11-7-75	C.R. BLASI		

8	7	6	5	4	3	2	1																	
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		NUMBER	DIM"X" VARIATION	DIM"Y"(PRECUT) REF.																				
		BC11A-02	2'0"±0.5"	2'1.5"																				
		BC11A-03	3'0"±1.0"	3'1.5"																				
		BC11A-04	4'0"±1.0"	4'1.5"																				
		BC11A-05	5'0"±1.0"	5'1.5"																				
		BC11A-06	6'0"±1.0"	6'1.5"																				
		BC11A-07	7'0"±2.0"	7'1.5"																				
		BC11A-08	8'0"±2.0"	8'1.5"																				
		BC11A-09	9'0"±2.0"	9'1.5"																				
		BC11A-10	10'0"±2.0"	10'1.5"																				
		BC11A-11	11'0"±3.0"	11'1.5"																				
		BC11A-12	12'0"±3.0"	12'1.5"																				
		BC11A-13	13'0"±3.0"	13'1.5"																				
		BC11A-14	14'0"±3.0"	14'1.5"																				
		BC11A-15	15'0"±4.0"	15'1.5"																				
		BC11A-16	16'0"±4.0"	16'1.5"																				
		BC11A-17	17'0"±4.0"	17'1.5"																				
		BC11A-18	18'0"±4.0"	18'1.5"																				
		BC11A-19	19'0"±5.0"	19'1.5"																				
		BC11A-20	20'0"±5.0"	20'1.5"																				
		BC11A-21	21'0"±5.0"	21'1.5"																				
		BC11A-22	22'0"±5.0"	22'1.5"																				
		BC11A-23	23'0"±6.0"	23'1.5"																				
		BC11A-24	24'0"±6.0"	24'1.5"																				
		BC11A-25	25'0"±6.0"	25'1.5"																				
		BC11A-0F	0'6"±0.5"	0'7.5"																				
		BC11A-8F	8'6"±2.0"	8'7.5"																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="3">REVISIONS</th></tr> <tr> <th style="width: 30%;">CHK</th> <th style="width: 30%;">CHANGE NO</th> <th style="width: 40%;">REV</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>		REVISIONS			CHK	CHANGE NO	REV				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">TITLE CABLE ASSY BC11A</td> <td style="width: 10%;">S ZELOJEL</td> <td style="width: 10%;">NUMBER BC11A-0-0</td> <td style="width: 10%;">REV. F</td> </tr> <tr> <td style="font-size: small;">DATE</td> <td style="font-size: small;">SHEET 2 OF 2</td> <td style="font-size: small;">DIST.</td> <td> </td> </tr> </table>						TITLE CABLE ASSY BC11A	S ZELOJEL	NUMBER BC11A-0-0	REV. F	DATE	SHEET 2 OF 2	DIST.	
		REVISIONS																						
CHK	CHANGE NO	REV																						
TITLE CABLE ASSY BC11A	S ZELOJEL	NUMBER BC11A-0-0	REV. F																					
DATE	SHEET 2 OF 2	DIST.																						
8	7	6	5	4	3	2	1																	

A
B
C
D
F
BC11A-0-0
DUA BC11A-0-0

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WIRE TABLE

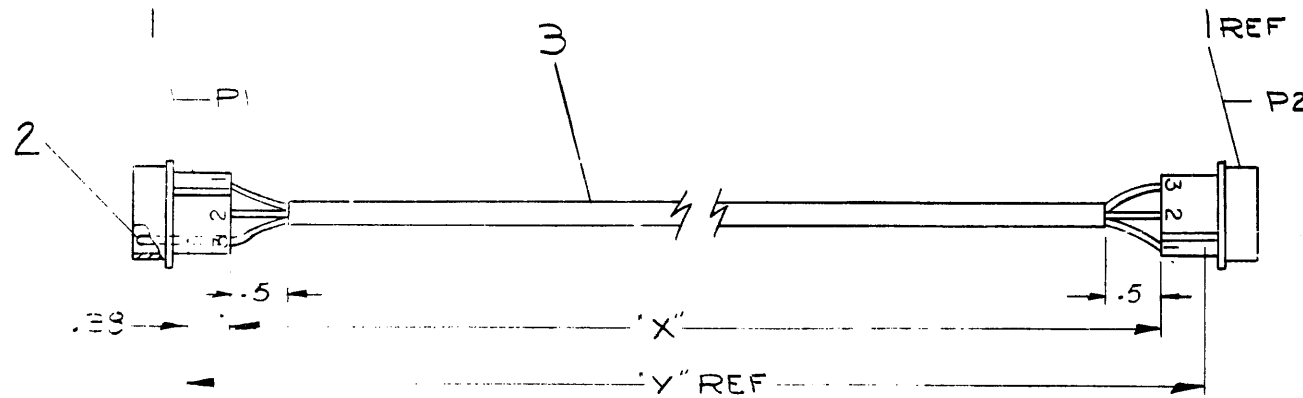
ITEM NO	DESCRIPTION		TO		FROM	
	AWG	COLOR	CONNECTION	WITH	CONNECTION	WITH
3	22	RED	P1-1	2	P2-1	2
3	22	BLK	P1-2	2	P2-2	2
3	22	GRN	P1-3	2	P2-3	2

LEGEND

NUMBER	DIM'X VARIATION	DIM'Y (PRECUT) REF
7008288-3F	3FT. 6 IN ± 1 IN.	3FT. 6.3 IN ± 1 IN.
7008288-8F	8FT. 6 IN ± 2 IN.	8FT. 6.8 IN ± 2 IN.
7008288-06	6FT. ± 2 IN.	6FT. 0.8 IN ± 2 IN.
7008288-12	12FT. ± 3 IN.	12FT. 0.8 IN ± 3 IN.
7008288-05	5FT. ± 1 IN.	5FT. 0.8 IN ± 2 IN.
7008288-10	10FT. ± 2 IN.	10FT. 0.8 IN ± 3 IN.
7008288-15	15FT. ± 3 IN.	15FT. 0.8 IN ± 3 IN.
7008288-08	8FT. ± 2 IN.	8FT. 0.8 IN ± 2 IN.
7008288-30	30FT. ± 7 IN.	30FT. 0.8 IN ± 7 IN.
7008288-40	40FT. ± 10 IN.	40FT. 0.8 IN ± 10 IN.

NOTES:

~~THE REMAINING BLK WIRE IS TO BE CUT BACK AT JACKET (BOTH ENDS)~~



REVISIONS	
CHK	CHANGE NO. REV.
Y.S.	7008288-00001 A
R. BURTON	
J.H.	7008288-00002 B
D. LEWIS	
J.H.	7008288-00003 C
B. MINOR	
J.H.	7008288-00004 D
J. PROVICENT	
J.H.	7008288-00005 E
F. DOLL	
J.H.	7008288-00006 F
J. MCINTYRE	

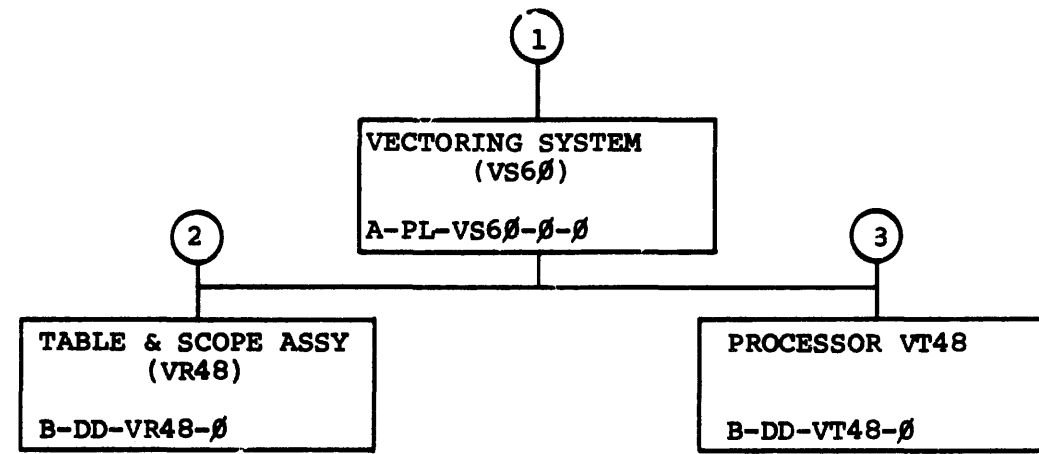
FIRST USED ON CONTROL PANEL
PDP/11

UNLESS OTHERWISE SPECIFIED	DRN.	DATE
UNLESS OTHERWISE SPECIFIED	CHK'D.	DATE
DIMENSION IN INCHES	ENG.	DATE
TOLERANCES	PROJ. ENG.	DATE
DECIMALS = FRACTIONS	PROD.	DATE
± .006 ± 1/64 ± 0°30'		
FINAL SURFACE QUALITY		
REMOVE BURRS AND BREAK SHARP CORNERS		
MATERIAL		
SEE PARTS LIST		
FINISH		

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	A/F WIRE, 3 COND #22AWG	9107756	3
	6 PIN MALE #G0620-1	1209378	2
	2 PIN HOUSING #1-480305-0	1209351-03	1

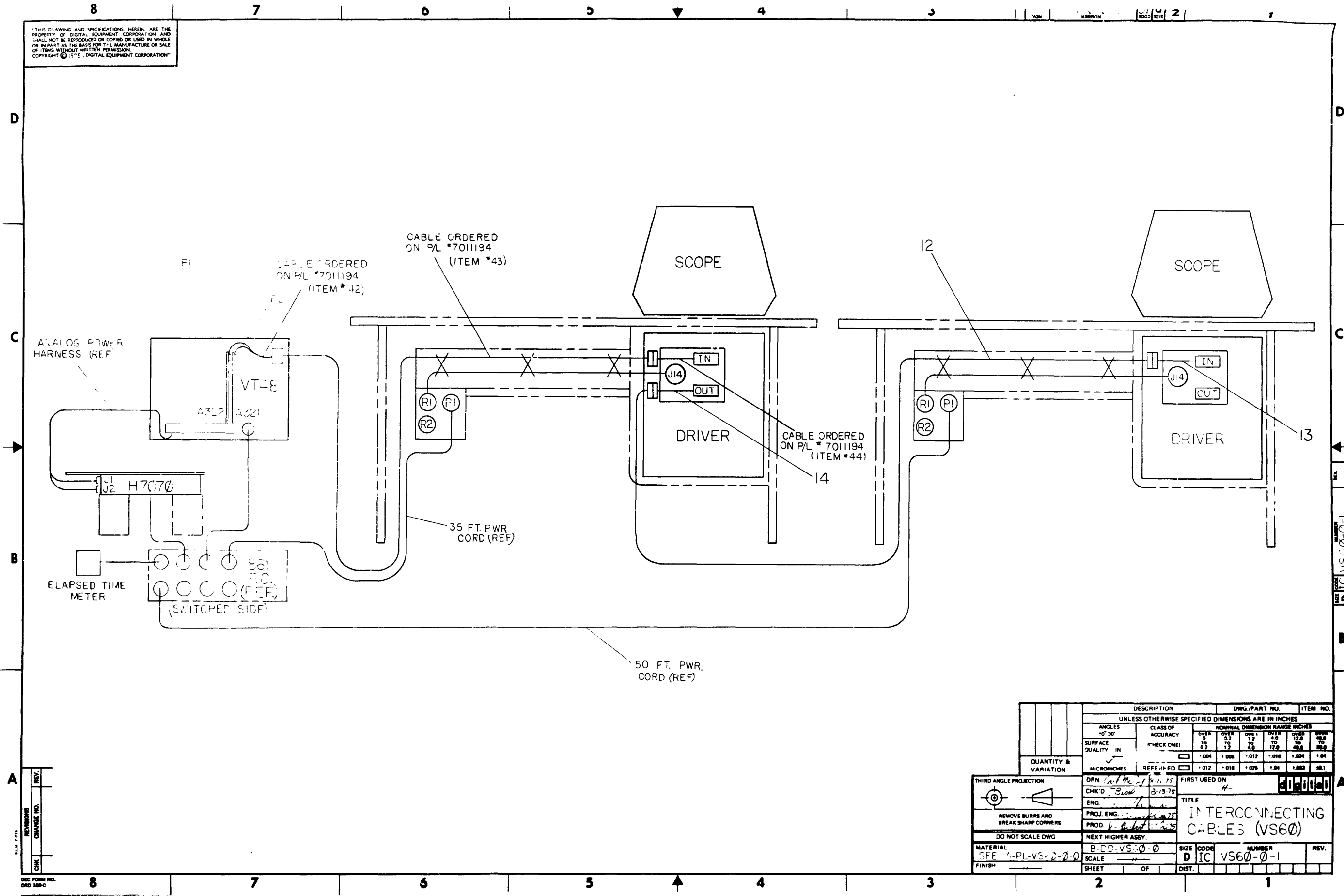
PARTS LIST		TITLE	
DRN. <i>of...</i> DATE 3/22/71 CHK'D. <i>T...</i> DATE 3/31/71 ENG. <i>...</i> DATE 4/1/71 PROJ. ENG. <i>...</i> DATE 4/1/71 PROD. <i>...</i> DATE 4/1/71		digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS CABLE ASSY	
MATERIAL		SIZE CODE	NUMBER
SEE PARTS LIST		CIA	7008288-0-0
FINISH		DIST.	REV. F
SCALE 1:1		SHEET 1 OF 1	

SIZE CODE NUMBER REV.
CIA 7008288-0-0 F



TITLE	SHEET 2 OF 3	SIZE CODE	NUMBER	REV
VECTORIZING SYSTEM (VS60)		B DD	VS60-0	A

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REV. 1
D I C VS60-0-1

DESCRIPTION	DWG/PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
ANGLES 10° 30'	CLASS OF ACCURACY	NOMINAL DIMENSION RANGE INCHES
SURFACE QUALITY IN	MICROINCHES	OVER 0 TO 0.25
		0.25 TO 0.50
QUANTITY & VARIATION	CHECK ONE	0.50 TO 1.00
		1.00 TO 1.50
THIRD ANGLE PROJECTION	FIRST USED ON	1.50 TO 2.00
		2.00 TO 3.00
REMOVE BURRS AND BREAK SHARP CORNERS	DO NOT SCALE DWG	NEXT HIGHER ASSY.
MATERIAL SFE 4-PL-VS-2-0-0	B-00-VS-0-0	SIZE CODE D I C
FINISH	SCALE	NUMBER VS60-0-1

REV.	CHANGE NO.

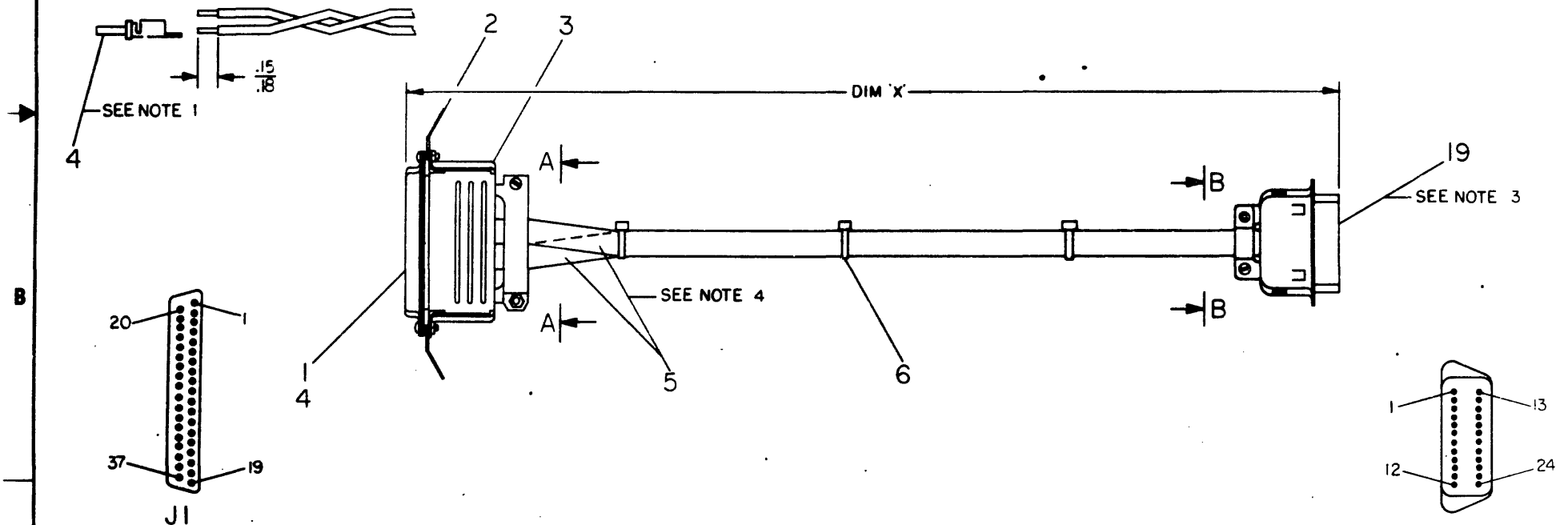
DEC FORM NO. DED 100-C

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WIRE TABLE						
ITEM NO.	DESCRIPTION	FROM	TO	REMARKS		
14	26 WHT	J1-1	J1-3	GND D		
14	26 WHT	J1-17	J1-3	GND D		
14	26 WHT	PI-5	J1-19	GND D		
14	26 WHT	PI-5	J1-19	GND D		
7	GRN	J1-16	PI-7	SOLDER UNBLANK Ø		
11	ORN	J1-4	PI-4	LP SW 1		
13	26 BRN	J1-2	PI-3	LP OUT 1		
15	26 TWP	BRN	PI-8	SPARE		
15	26 TWP	WHT	PI-13	COLOR BUSY		
16	26 TWP	BLU	PI-10	SOLDER X IN		
16	26 TWP	WHT	PI-9	SOLDER GND A		
14	26 WHT	J1-31	J1-28	GND A		
17	26 TWP	GRY	PI-12	SOLDER Y IN		
17	26 TWP	WHT	PI-11	SOLDER GND A		
14	26 WHT	J1-13	J1-9	GND A		
7	26 GRN	J1-18	PI-15	SOLDER COLOR 1		
9	26 BLU	J1-36	PI-14	SOLDER COLOR Ø		

WIRE TABLE						
ITEM NO.	DESCRIPTION	FROM	TO	REMARKS		
14	26 WHT	J1-20	J1-22	GND D		
14	26 WHT	J1-37	J1-22	GND D		
14	26 WHT	J1-37	J1-22	GND D		
14	26 WHT	J1-37	J1-22	GND D		
12	26 TWP	BLK	PI-16	SOLDER J1-35		
12	26 TWP	WHT	J1-6	PI-17	SOLDER Z IN	
12	26 TWP	BLK	J1-27	PI-19	SOLDER X MINOR	
14	26 WHT	PI-18	J1-24	GND A		
14	26 WHT	J1-26	J1-33	GND A		
15	26 TWP	BRN	J1-8	PI-21	SOLDER Y MINOR	
15	26 TWP	WHT	PI-20	SOLDER GND A		
14	26 WHT	J1-7	J1-5	GND A		
14	26 WHT	J1-7	J1-15	GND A		
14	26 BRN	J1-25	PI-22	SOLDER +5V		
8	26 BLK	J1-32	PI-24	SOLDER -15V		
7	26 GRN	J1-14	PI-23	SOLDER +15V		

NOTES:
 1. CRIMP AND ASSEMBLY TOOLS:
 CCT-D HAND CRIMPER
 ABT-500 AUTO-CRIMPER
 CIET-20-NDB PIN INSERTION TOOL
 2. TO BE TWISTED PRIOR TO ASSY.
 14 TWISTS PER FOOT ±2.
 3. ALL SOLDERED CONNECTIONS ON CONNECTOR PI TO BE COVERED WITH ITEM #18 (TUBING).
 4. WIRES IDENTIFIED WITH ASTERISK * TO BE BUNDLED TOGETHER USING ITEM #5 (TUBING). ALL OTHER WIRES TO BE BUNDLED IN SEPARATE TUBING ALSO USING ITEM #5.



VIEW A-A
NO SCALE

7011806-1B	1 FT.-2 IN. ± 1 IN
NUMBER	DIM 'X' VARIATION
LEGEND	

VIEW B-B
NO SCALE

DESCRIPTION	DWG. PART NO.	ITEM NO.
1 CONN., 24 PIN	203466	19
A/R TUBING, TFE .027 I.D. CLR	9107256-00	18
A/R WIRE, 26 TWP IPVC GRY/WHT	9107678-89	17
A/R WIRE, 26 TWP IPVC BLU/WHT	9107678-69	16
A/R WIRE, 26 TWP IPVC BRN/WHT	9107678-19	15
A/R WIRE, 26 AWG STRD IPVC WHT	9107636-99	14
A/R WIRE, 26 AWG STRD IPVC BLK	9107636-11	13
A/R WIRE, 26 TWP IPVC BLK/WHT	9107678-09	12
A/R WIRE, 26 AWG STRD IPVC ORN	9107636-33	11
A/R WIRE, 26 AWG STRD IPVC YEL	9107636-44	10
A/R WIRE, 26 AWG STRD IPVC BLU	9107636-66	9
A/R WIRE, 26 AWG STRD IPVC BLK	9107636-00	8
A/R WIRE, 26 AWG STRD IPVC GRN	9107636-55	7
A/R CABLE TIE	9007031	6
A/R TUBING	907244	5
36 SOCKET, CONTACT	9009762-00	4
2 LATCH, SPRING	122702	3
1 JUNCTION SHELL	212701	2
1 CONN. BODY	12244	1

THIRD ANGLE PROJECTION	DRN: [Signature]	CHECKED IN: [Signature]
REMOVE BURRS AND BREAK SHARP CORNERS	CHKD: [Signature]	DATE: [Date]
DO NOT SCALE DWG	DATE: [Date]	REV: [Revision]
MATERIAL SEE PARTS LIST	DATE: [Date]	REV: [Revision]
FINISH	DATE: [Date]	REV: [Revision]

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

CLASS OF ACCURACY	OVER 0 TO 1.0	OVER 1.0 TO 3.0	OVER 3.0 TO 6.0	OVER 6.0 TO 30.0	OVER 30.0 TO 100.0
ASSEMBLY	±0.015	±0.025	±0.040	±0.075	±0.150
GENERAL	±0.030	±0.050	±0.075	±0.150	±0.300
QUALITY	±0.010	±0.020	±0.030	±0.060	±0.120

QUANTITY & VARIATION

DATE: [Date]

REV: [Revision]

7011806-1B

VS60

ADAPTER CABLE, SCOPE (2)

DATE: [Date]

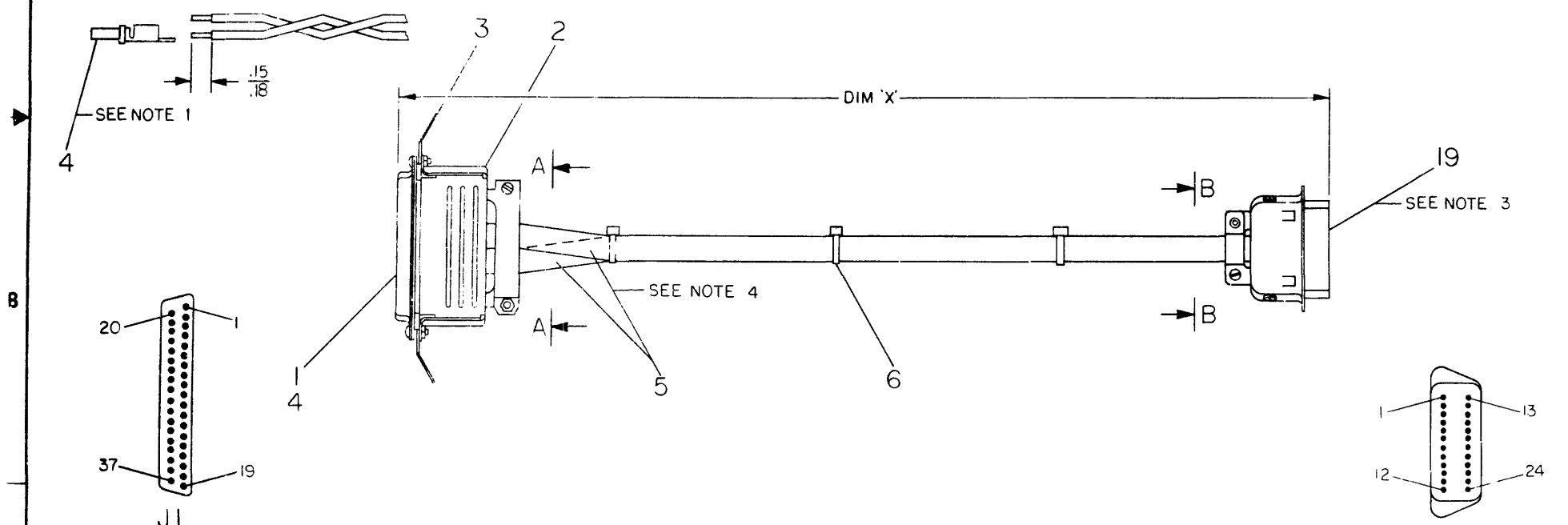
REV: [Revision]

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WIRE TABLE							
ITEM NO.	DESCRIPTION	FROM	TO	REMARKS			
12	26 AWG BLK	J1-16	PI-2	SOLDER LP SW 0			
11	26 AWG WHT	J1-18	PI-1	SOLDER LP OUT 0			
13	26 AWG ORN	J1-34	PI-4	SOLDER LP SW 1			
8	26 AWG BRN	J1-36	PI-3	SOLDER LP OUT 1			
8	26 AWG BLK	J1-19	J1-17	4 D GND			
8	26 AWG BLK	J1-1	J1-3	4 D GND			
11	26 AWG CRN	PI-5	J1-3	4 D GND			
10	26 AWG YEL	J1-4	PI-6	SOLDER UNBLANK 0			
8	26 AWG BLK	J1-37	J1-35	4 D GND			
8	26 AWG BLK	J1-20	J1-35	4 D GND			
8	26 AWG BLK	J1-20	J1-22	4 D GND			
11	26 AWG CRN	PI-16	J1-22	4 D GND			
7	26 AWG GRN	J1-23	PI-7	SOLDER UNBLANK 1			
15	26 AWG WHT	J1-27	PI-13	SOLDER COLOR BUSY			
8	26 AWG BRN	PI-22	J1-8	4 +5V REV A			
8	26 AWG ELK	J1-28	J1-8	4 +5V REV A			
*16	26 AWG BLU	J1-28	PI-10	4 X OUT			
16	26 AWG WHT	J1-29	PI-9	SOLDER A GND			
14	26 AWG WHT	J1-29	J1-26	4 A GND			

WIRE TABLE							
ITEM NO.	DESCRIPTION	FROM	TO	REMARKS			
*17	26 AWG GRY	J1-9	PI-12	SOLDER Y OUT			
17	26 AWG WHT	J1-11	PI-11	SOLDER A GND			
14	26 AWG WHT	J1-2	J1-7	4 A GND			
7	26 AWG GRN	J1-2	PI-15	SOLDER COLOR 1			
9	26 AWG BLU	J1-21	PI-14	COLOR 0			
*17	26 AWG GRY	J1-32	PI-22	+5V			
17	26 AWG WHT	J1-4	PI-17	Z OUT			
12	26 AWG BLK	J1-30	PI-19	X MINOR			
14	26 AWG WHT	J1-31	PI-18	SOLDER A GND			
14	26 AWG WHT	J1-24	J1-33	4 A GND			
*15	26 AWG BRN	J1-12	PI-21	SOLDER Y MINOR			
14	26 AWG WHT	J1-13	PI-20	SOLDER A GND			
14	26 AWG WHT	J1-5	J1-15	4 A GND			
8	26 AWG BLK	J1-25	PI-24	SOLDER -15V			
7	26 AWG GRN	J1-6	PI-23	SOLDER +15V			

NOTES:
 1. CRIMP AND ASSEMBLY TOOLS:
 CCT-D HAND CRIMPER
 ABT-500 AUTO-CRIMPER
 CIET-20-NDB PIN INSERTION TOOL
 2. TO BE TWISTED PRIOR TO ASSY.
 14 TWISTS PER FOOT ±2.
 3. ALL SOLDERED CONNECTIONS ON CONNECTOR PI TO BE COVERED WITH ITEM *18 (TUBING).
 4. WIRES IDENTIFIED WITH ASTERISK * TO BE BUNDLED TOGETHER USING ITEM *5 (TUBING). ALL OTHER WIRES TO BE BUNDLED IN SEPARATE TUBING ALSO USING ITEM *5.



DESCRIPTION	DWG./PART NO.	ITEM NO.
CONN, 24 PIN	1203466	19
TUBING, TFE .027 I.D. CLR	9107256-00	18
WIRE, 26 TWP IPVC GRY/WHT	9107678-89	17
WIRE, 26 TWP IPVC BLU/WHT	9107678-69	16
WIRE, 26 TWP IPVC BRN/WHT	9107678-19	15
WIRE, 26 AWG STRD IPVC WHT	9107636-99	14
WIRE, 26 AWG STRD IPVC BRN	9107636-11	13
WIRE, 26 TWP IPVC BLK/WHT	9107678-09	12
WIRE, 26 AWG STRD IPVC ORN	9107636-33	11
WIRE, 26 AWG STRD IPVC YEL	9107636-44	10
WIRE, 26 AWG STRD IPVC BLU	9107636-66	9
WIRE, 26 AWG STRD IPVC BLK	9107636-00	8
WIRE, 26 AWG STRD IPVC GRN	9107636-55	7
CABLE TIE	9007031	6
TUBING	9107244	5
SOCKET CONTACT	9009762-00	4
LATCH SPRING	1212702	3
JUNCTION SHELL	1212701	2
CONN. BODY	1211244	1

7011747-1B	FT.-2IN. ± 1IN.
NUMBER	DIM 'X' VARIATION
LEGEND	

VIEW B-B
NO SCALE

VIEW A-A
NO SCALE

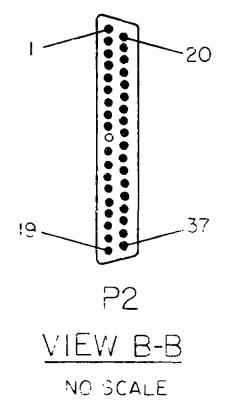
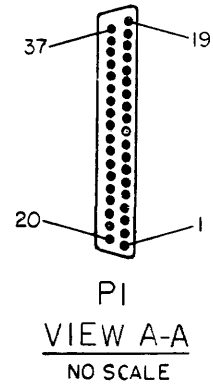
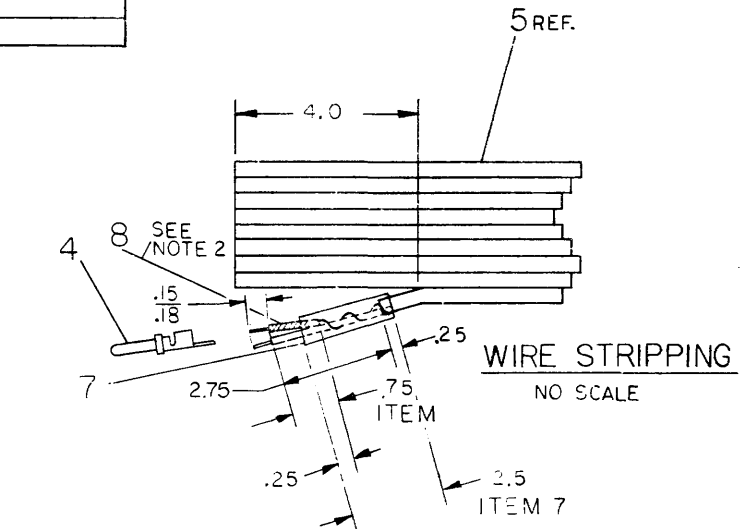
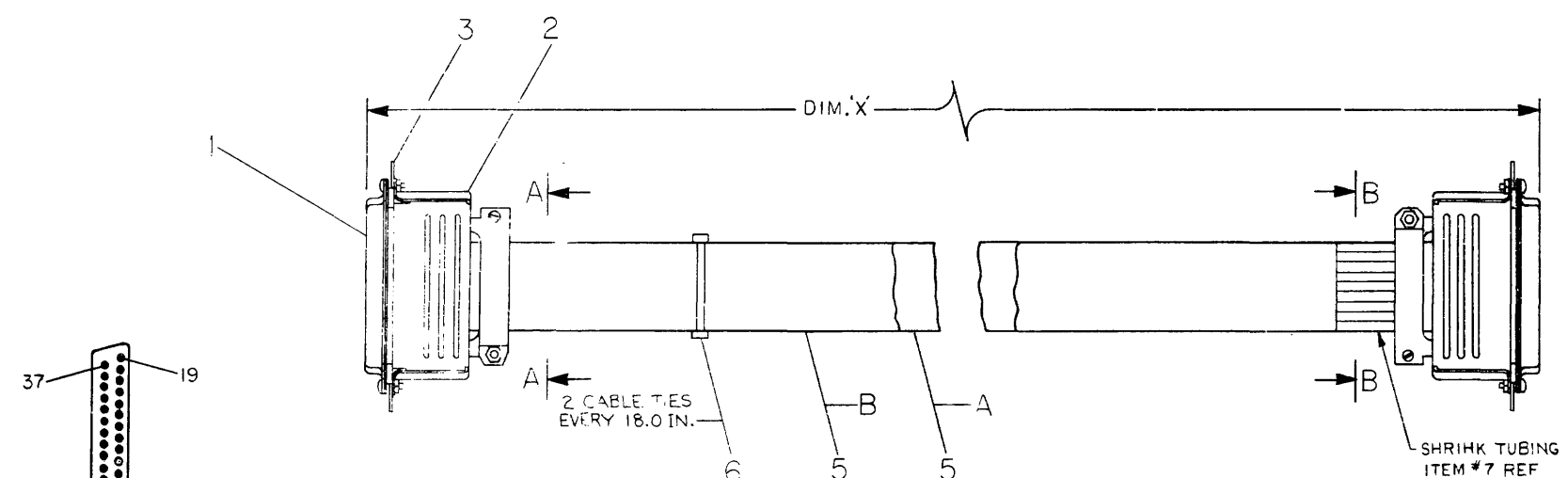
REV.	DATE	BY	CHK'D
1	8-25-78	...	...
2	...	...	...

THIRD ANGLE PROJECTION	DRN: <i>Carl McG...</i> 8-25-78	FIRST USED ON	VS60
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D: <i>...</i> 5-22-78	TITLE	ADAPTER CABLE, SCOPE (1)
DO NOT SCALE DWG	PROJ. ENG: <i>...</i> 11-29-78	SIZE	A-PL-VS60-0-0
MATERIAL	PROD. <i>...</i> 11-29-78	SCALE	D IA 7011747-0-0
SEE PARTS LIST	NEXT HIGHER ASSY.	SHEET	OF
FINISH		DIST.	

WIRE TABLE						
ITEM NO.	DESCRIPTION	FROM	TO	WITH	WITH	REMARKS
5A	29 BLUE	PI-1	P2-19	4	4	
	29 WHT	PI-2	P2-18	4	4	
	SILVER	PI-3	P2-17			
	WHT	PI-4	P2-16			
	SILVER	PI-5	P2-15			
	WHT	PI-6	P2-14			
	SILVER	PI-7	P2-13			
	WHT	PI-8	P2-12			
	SILVER	PI-9	P2-11			
	WHT	PI-11	P2-9			
	WHT	PI-12	P2-8			
	SILVER	PI-13	P2-7			
	WHT	PI-14	P2-6			
	SILVER	PI-15	P2-5			
	WHT	PI-16	P2-4			
	SILVER	PI-17	P2-3			
	5A	29 WHT	PI-18	P2-2		
29 SILVER		PI-19	P2-1	4	4	

WIRE TABLE						
ITEM NO.	DESCRIPTION	FROM	TO	WITH	WITH	REMARKS
5B	29 BLUE	PI-20	P2-37	4	4	
	29 WHT	PI-21	P2-36	4	4	
	SILVER	PI-22	P2-35			
	WHT	PI-23	P2-34			
	SILVER	PI-24	P2-33			
	WHT	PI-25	P2-32			
	SILVER	PI-26	P2-31			
	WHT	PI-27	P2-30			
	SILVER	PI-28	P2-29			
	WHT	PI-29	P2-28			
	WHT	PI-30	P2-27			
	SILVER	PI-31	P2-26			
	WHT	PI-32	P2-25			
	SILVER	PI-33	P2-24			
	WHT	PI-34	P2-23			
	SILVER	PI-35	P2-22			
	5B	29 WHT	PI-36	P2-21		
29 SILVER		PI-37	P2-20	4	4	

NOTES:
 1. CRIMP AND ASSEMBLY TOOLS:
 CCT-D*G-1 HAND CRIMPER
 ABT-500 AUTO-CRIMPER
 CIET-20-NDB PIN INSERTION TOOL
 2. PLACE TUBING OVER SHIELD WIRES.
 SHIELD WIRES ARE COVERED WITH
 BLUE OR SILVER SHIELDING.



7011746-35	35 FT. ± 7 IN.
7011746-21	25 FT. ± 3 IN.
NUMBER	VARIATION
LEGEND	

QTY	DESCRIPTION	DWG. PART NO.	ITEM NO.
4	1/4" A/R TUBING TFE (BLK) .027 I.D.	9107256-00	8
4	1/4" A/R TUBING, SHRINK (WHT) 1/16 I.D.	9107305-09	7
4	1/4" A/R CABLE TIE, 5-3/4 x 3/32 W	9007031	6
4	1/4" A/R CABLE, COAX 18 COND	1700001-01	5
74	74 PIN	9009763-00	4
4	4 LATCH, END DISK	1211246	3
2	2 JUNCTION SHELL	1212701	2
2	2 CONN. BODY	1212700	1

QUANTITY & VARIATION	DESCRIPTION	DWG. PART NO.	ITEM NO.	NOMINAL DIMENSION RANGE INCHES				
				OVER 0 TO 0.2	OVER 0.2 TO 0.5	OVER 0.5 TO 1.0	OVER 1.0 TO 2.0	OVER 2.0 TO 5.0
	ANGLES 40° 30'							
	SURFACE QUALITY IN							
	MICROINCHES							

THIRD ANGLE PROJECTION

DRN: Carl McCoy 8-14-75 FIRST USED ON: VR48

CHK'D: [Signature] 8-14-75

ENG: [Signature] 8-14-75

PROJ. ENG: [Signature] 8-14-75

PROD: [Signature] 8-14-75

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL: A-PL-VS60-0-0

SCALE: 1/1

FINISH: [Symbol]

TITLE: CABLE, INTER-SCOPE

SIZE: D

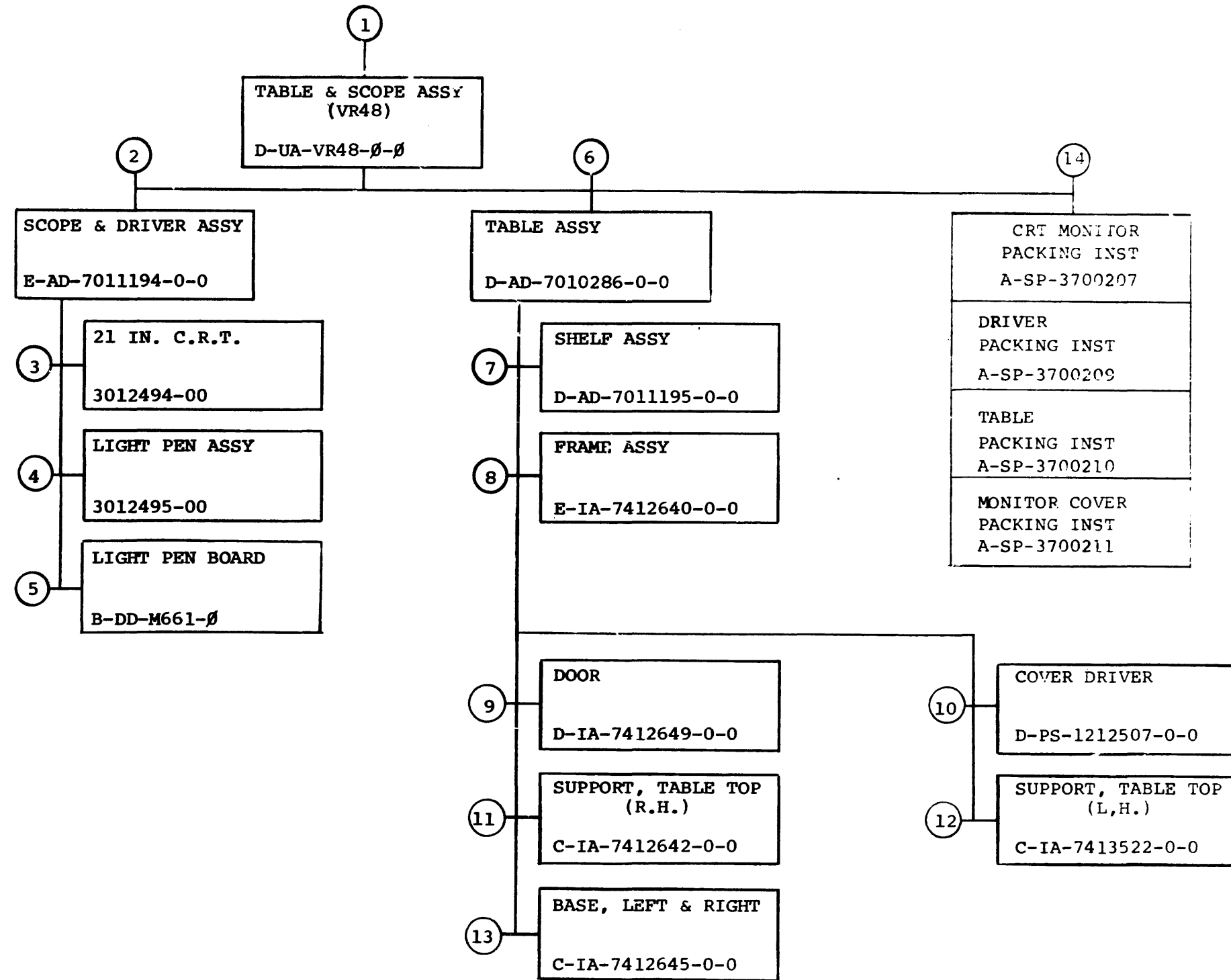
CODE: IA

NUMBER: 7011746-0-0

SHEET: 1 OF 1

DIST: [Symbol]

REV.	CHANGED NO.	BY	DATE
1	7011746-00001	A	
2		H. LAVOIE	12-11-75

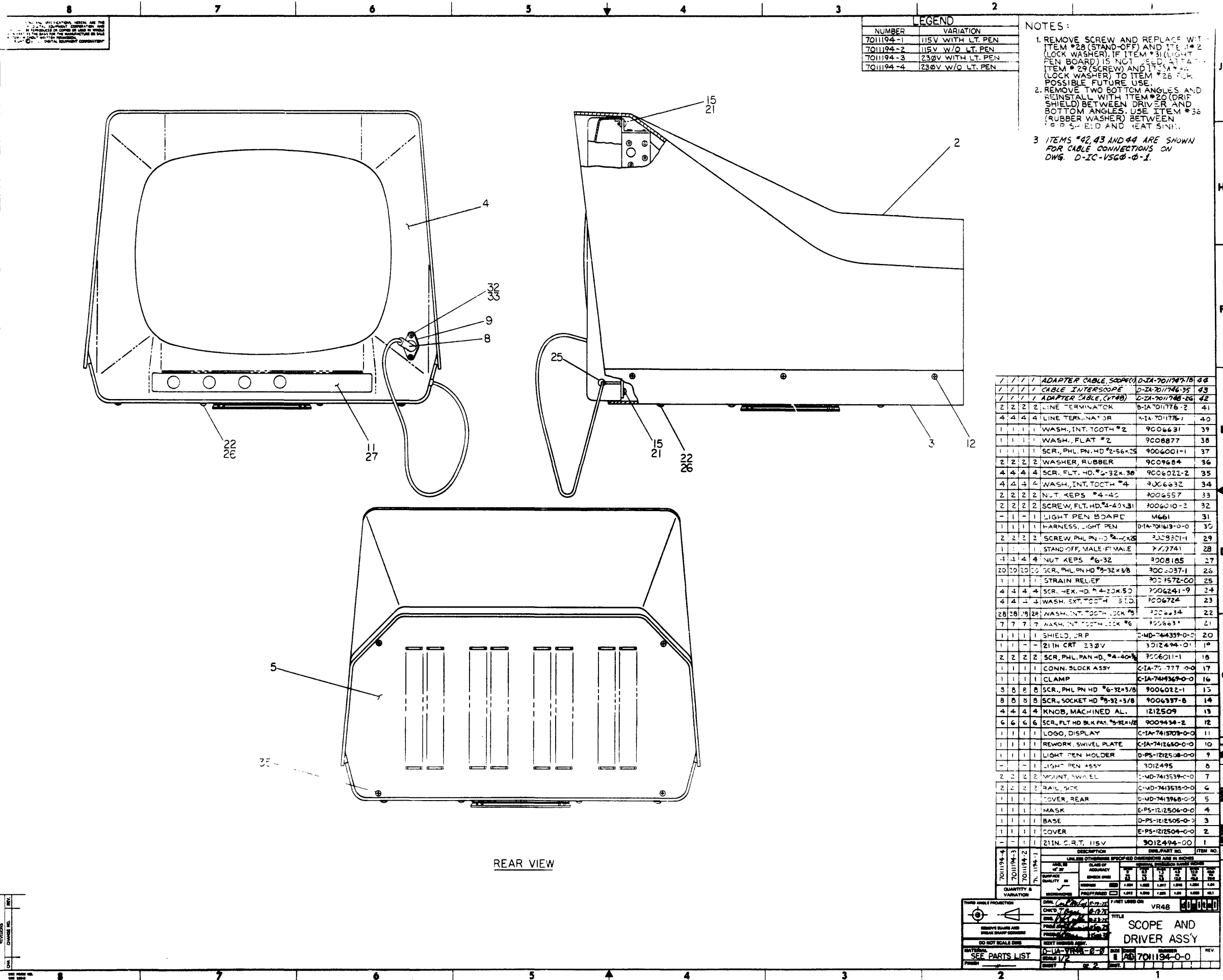


TITLE	SHEET 2 OF 5	SIZE CODE	NUMBER	REV
TABLE & SCOPE ASSY (VR48)		B DD	VR48-Ø	A

CUSTOMER PRINT SET		ELECTRICAL					CUSTOMER PRINT SET		ELECTRICAL					
VR48	SET	MFG. NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE	SET	MFG. NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X		1	D-UA-VR48-0-0	#	1	TABLE & SCOPE ASSY (VR48)			3	3012494-00	#	2	21 IN. C.R.T.	
X			A-PL-VR48-0-0	#	1	TABLE & SCOPE ASSY (VR48)								
X			A-PL-VR48-0-1	#	1	TABLE & SCOPE ASSY SHIPPING LIST								
			D-IA-7009898-1	#	1	POWER CORD 230VAC 6 FT								
			D-IA-7009898-4	#	1	POWER CORD 230VAC 35 FT								
			D-IA-7009898-5	#	1	POWER CORD 230VAC 50 FT								
X			D-IC-VR48-0-2	#		CABLE CONTINUITY PRINT								
									4	3012495-0-0	#	1	LIGHT PEN ASSY	
X		2	E-AD-7011194-0-0	#	2	SCOPE & DRIVER ASSY								
			C-IA-7011777-0-0	#	1	CONNECTOR BLOCK ASSY								
	X		D-IA-7011613-0-0	#	1	HARNES LIGHT PEN								
			B-IA-7011776-0-0	#	1	LINE TERMINATOR			6	D-AD-7010286-0-0	#	1	TABLE ASSY	
	X		D-IA-7011747-0-0	#	1	ADAPTER CABLE, SCOPE (1)								
	X		D-IA-7011746-0-0	#	1	CABLE, INTERSCOPE								
	X		D-IA-7011748-0-0	#	1	ADAPTER CABLE (VT48)								
X		5	B-DD-M661-0-0	#	2	DWG. DIR. M661								
	X		D-UA-M661-0-0	#	5	LIGHT PEN BOARD								

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
TABLE & SCOPE ASSY (VR48)
SHEET 3 OF 5
SIZE CODE B DD
NUMBER VR48-0
REV A



NUMBER	VARIATION
7011194-1	115V WITH LT. PEN
7011194-2	115V W/O LT. PEN
7011194-3	230V WITH LT. PEN
7011194-4	230V W/O LT. PEN

NOTES:

1. REMOVE SCREW AND REPLACE WITH ITEM #28 (STAND-OFF) AND ITEM #2 (LOCK WASHER). IF ITEM #31 (LIGHT PEN BOARD) IS NOT USED, ATTA ITEM #29 (SCREW) AND ITEM #34 (LOCK WASHER) TO ITEM #26 FOR POSSIBLE FUTURE USE.
2. REMOVE TWO BOTTOM ANGLES AND REINSTALL WITH ITEM #20 (DRIFT SHIELD) BETWEEN DRIVER AND BOTTOM ANGLES. USE ITEM #36 (RUBBER WASHER) BETWEEN ITEM #20 AND HEAT SINK.
3. ITEMS #42, 43 AND 44 ARE SHOWN FOR CABLE CONNECTIONS ON DWG. D-IC-V560-0-1.

1	1	1	ADAPTER CABLE, SCOPE	D-IA-701194-10	48
1	1	1	CABLE INTERSCOPE	D-IA-701194-35	43
1	1	1	ADAPTER CABLE, (VT8)	D-IA-701194-26	42
2	2	2	LINE TERMINATOR	B-IA-701176-2	41
4	4	4	LINE TERMINATOR	B-IA-701176-1	40
1	1	1	WASH., INT. TOOTH #2	9006631	39
1	1	1	WASH., FLAT #2	9008877	38
1	1	1	SCR., PHL. PN. HD #2-56x.25	9006001-1	37
2	2	2	WASHER, RUBBER	9009684	36
4	4	4	SCR., FLT. HD. #4-32x.38	9006022-2	35
4	4	4	WASH., INT. TOOTH #4	9006632	34
2	2	2	NUT KEPS #4-40	9006557	33
2	2	2	SCREW, FLT. HD. #4-40x.31	9006010-2	32
-	-	-	LIGHT PEN BOARD	M661	31
1	1	1	HARNES., LIGHT PEN	D-IA-701194-0-0	30
2	2	2	SCREW, PHL. PN. HD #4-40x.38	9009301-1	29
1	1	1	STAND-OFF, MALE-F MALE	9007741	28
4	4	4	NUT KEPS #6-32	9008185	27
20	20	20	SCR., PHL. PN. HD #8-32x3/8	9006037-1	26
1	1	1	STRAIN RELIEF	9001572-00	25
4	4	4	SCR., HEX. HD. #4-20x.50	9006241-9	24
4	4	4	WASH., EXT. TOOTH #3/8 STD.	9006724	23
28	28	28	WASH., INT. TOOTH LOCK #3	9006634	22
7	7	7	WASH., INT. TOOTH LOCK #6	9006633	21
1	1	1	SHIELD, CRP	C-MD-744339-0-0	20
1	1	1	21IN CRT 230V	9012494-01	19
2	2	2	SCR., PHL. PN. HD. #4-40x.38	9006011-1	18
1	1	1	CONN. BLOCK ASSY	C-IA-701194-0-0	17
1	1	1	CLAMP	C-IA-744369-0-0	16
8	8	8	SCR., PHL. PN. HD #6-32x3/8	9006022-1	15
8	8	8	SCR., SOCKET HD #8-32x3/8	9006337-8	14
4	4	4	KNOB, MACHINED AL.	1212509	13
6	6	6	SCR., FLT. HD BLK PAS. #8-32x1/2	9009434-2	12
1	1	1	LOGO, DISPLAY	C-IA-7415709-0-0	11
1	1	1	REWORK, SWIVEL PLATE	C-IA-7412650-0-0	10
1	1	1	LIGHT PEN HOLDER	D-PS-1212508-0-0	9
-	-	-	LIGHT PEN ASSY	9012495	8
2	2	2	W/UNT, SWIVEL	C-MD-7413539-0-0	7
2	2	2	RAIL, SIDE	C-MD-7413538-0-0	6
1	1	1	COVER, REAR	D-MD-7413968-0-0	5
1	1	1	MASK	E-PS-1212506-0-0	4
1	1	1	BASE	D-PS-1212505-0-0	3
1	1	1	COVER	E-PS-1212504-0-0	2
-	-	-	21IN. CRT. 115V	9012494-00	1

REAR VIEW

THIS SHIELD PROTECTOR IS TO BE USED ON THE SCOPE AND DRIVER ASSY.

DO NOT SCALE DIMS

SEE PARTS LIST

DATE: 10-12-71

BY: [Signature]

REV: 20

ITEM NO: 701194-0-0

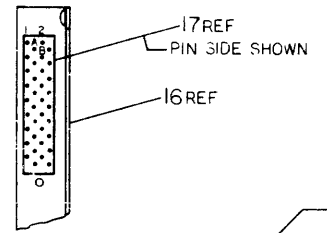
TITLE: SCOPE AND DRIVER ASSY

6 7 6 5 4 3 2 1

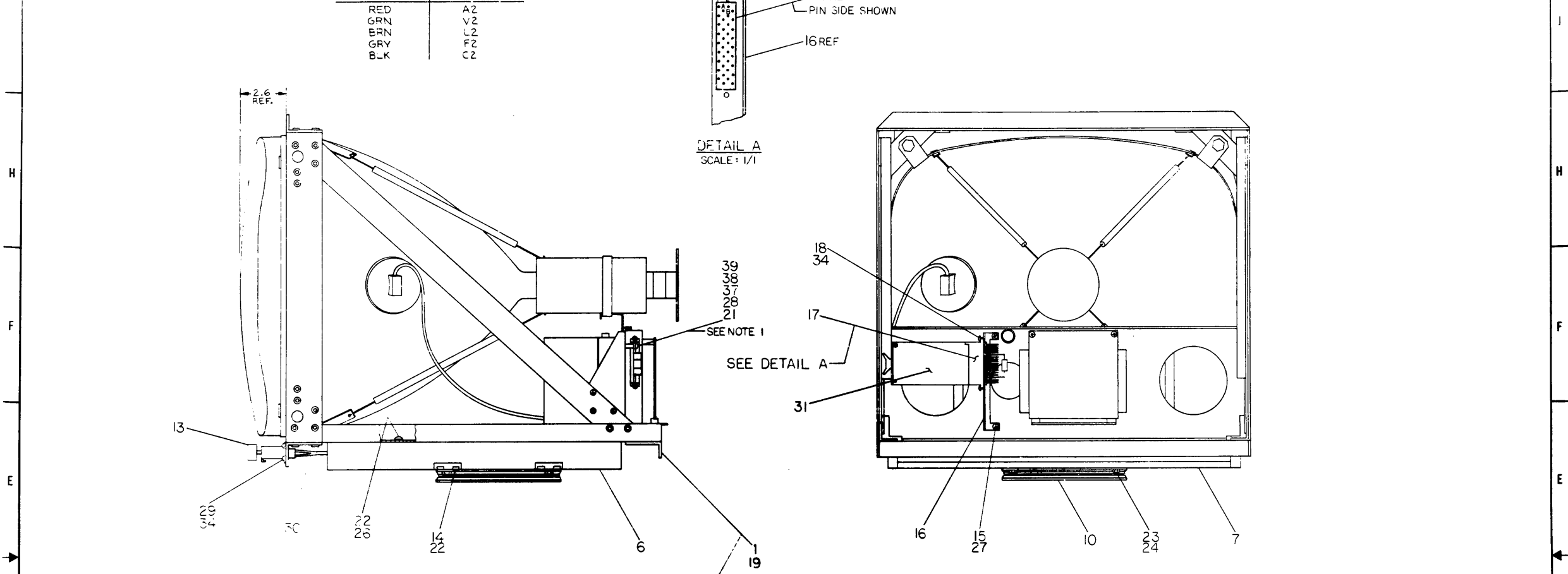
ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES.
 DIMENSIONS IN PARENTHESES OR CORNERS ARE UNLESS OTHERWISE SPECIFIED.
 DIMENSIONS IN PARENTHESES OR CORNERS ARE UNLESS OTHERWISE SPECIFIED.
 DIMENSIONS IN PARENTHESES OR CORNERS ARE UNLESS OTHERWISE SPECIFIED.

LIGHT PEN HARNESS CONNECTIONS

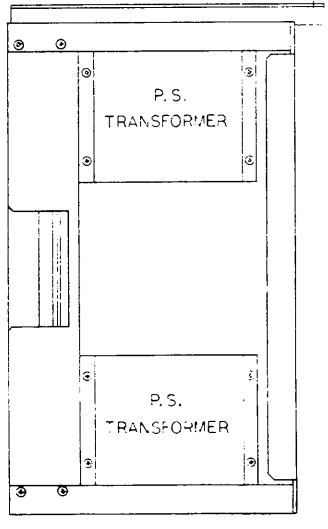
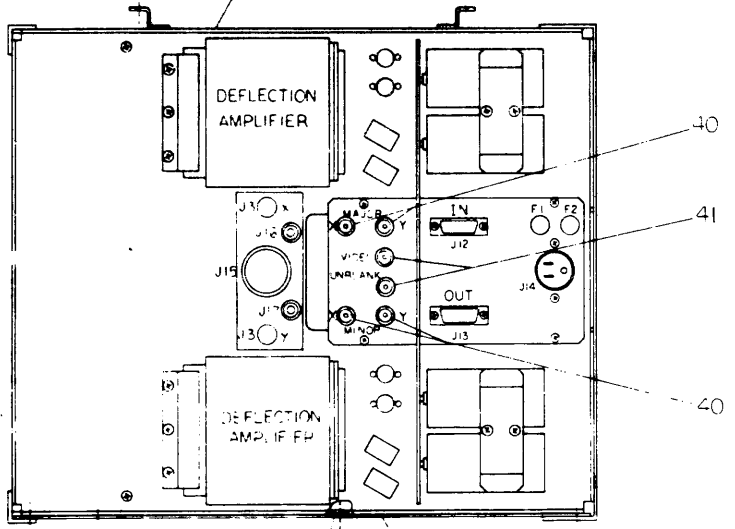
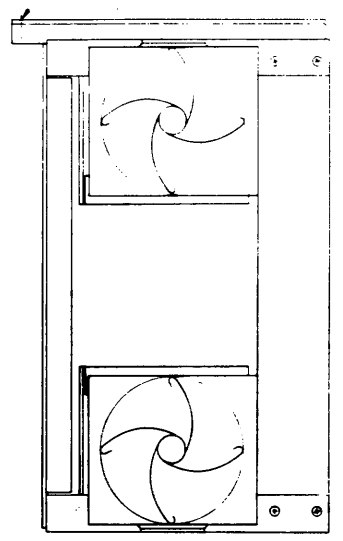
FROM ITEM 30	TO ITEM 17
RED	A2
GRN	V2
BRN	L2
GRY	F2
BLK	C2



DETAIL A
SCALE: 1/1



MTB HOLES
2 PLCS



SEE NOTE 2

EAD 701194-0-0

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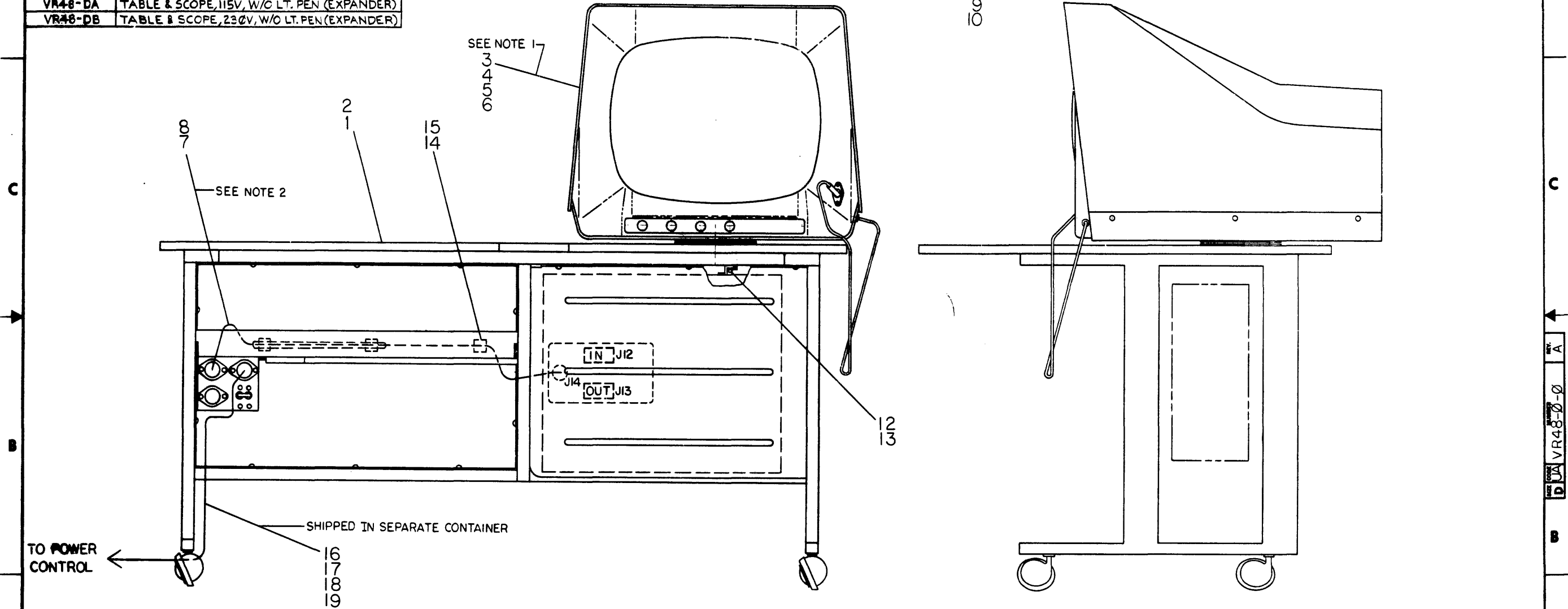
LEGEND	
NUMBER	VARIATION
VR48-AA	TABLE & SCOPE, 115V, WITH LT. PEN
VR48-AB	TABLE & SCOPE, 230V, WITH LT. PEN
VR48-BA	TABLE & SCOPE, 115V, WITH LT. PEN (EXPANDER)
VR48-BB	TABLE & SCOPE, 230V, WITH LT. PEN (EXPANDER)
VR48-CA	TABLE & SCOPE, 115V, W/O LT. PEN
VR48-CB	TABLE & SCOPE, 230V, W/O LT. PEN
VR48-DA	TABLE & SCOPE, 115V, W/O LT. PEN (EXPANDER)
VR48-DB	TABLE & SCOPE, 230V, W/O LT. PEN (EXPANDER)

POWER CONNECTION LEGEND

FROM CRT MONITOR HARNESS	TO DRIVER
XP3	J3-X
PI6	J16
PI7	J17
YP3	J3-Y
PI5	J15

NOTES:

1. FOR DRIVER TO MONITOR CABLE CONNECTIONS SEE E-AD-7011194-0-0. CABLES FROM MONITOR ASSY TO BE ROUTED THROUGH HOLE IN TABLE TOWARDS REAR OF DRIVER ASSEMBLY TO ASSEMBLY OF MONITOR TO TABLE TOP.
2. DRESS BEHIND SHELF AND LOOP EXCESS CORD TO BE HIDDEN FROM VIEW.



TO POWER CONTROL

SHIPPED IN SEPARATE CONTAINER

REV.	DATE	BY	CHK'D
1	1-15-75	J. J. CRANE	J. J. CRANE
2	1-22-75	J. J. CRANE	J. J. CRANE
3	1-22-75	J. J. CRANE	J. J. CRANE

DESCRIPTION		DWG./PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
ANGLES 30°-90°	CLASS OF ACCURACY	NOMINAL DIMENSION RANGE INCHES	
SURFACE QUALITY IN	(CHECK ONE)	OVER 0 TO 0.2	OVER 0.2 TO 0.4
		OVER 0.4 TO 1.2	OVER 1.2 TO 4.0
MICROINCHES	PREFERRED	±.004	±.008
		±.012	±.016
THIRD ANGLE PROJECTION		DRN. Carl Moran 5-9-75	FIRST USED ON VR48
REMOVE BURRS AND BREAK SHARP CORNERS		CHK'D J. Basol 3-3-75	TITLE
DO NOT SCALE DWG		ENG. C. J. Crane 11 SEP 75	TABLE & SCOPE ASSY (VR48)
MATERIAL SEE A-PL-VR48-0-0		PROJ. ENG. J. J. Crane 11 SEP 75	SIZE CODE NUMBER REV.
FINISH		NEXT HIGHER ASSY.	D UA VR48-0-0 A
SCALE 1/4		SHEET OF DIST.	

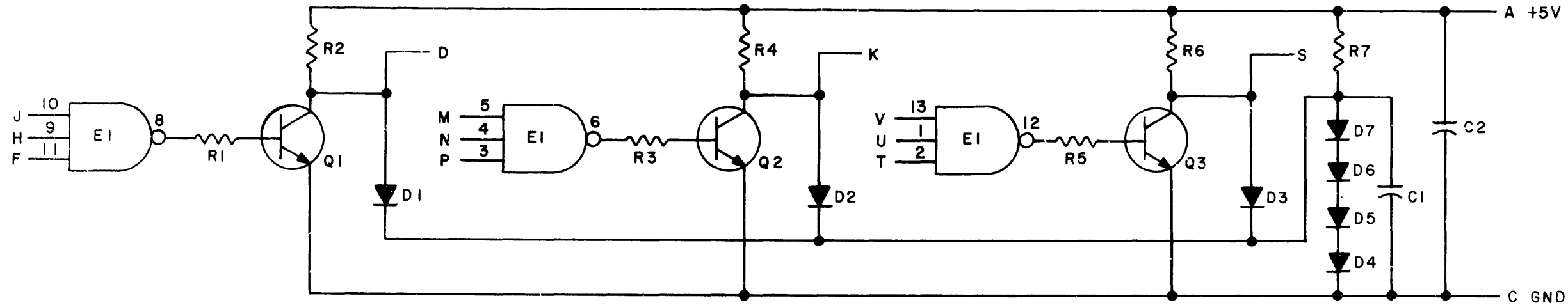
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST					QUANTITY / VARIATION									
MADE BY C. B. MCCOY		CHECKED J. Bisol		SECTION	VR48-AA	VR48-AB	VR48-BA	VR48-BB	VR48-CA	VR48-CB	VR48-DA	VR48-DB		
DATE 7/3/75		DATE 13 Aug. 75		ISSUED SECT.										
ENG P.K. Crabbe		PROD R. Larsen		ISSUED SECT.										
DATE 11 SEPT 75		DATE 11-5-75												
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION												
1	D-AD-7010286-1-0	TABLE ASSY (115V)			1	-	1	-	1	-	1	-		
2	D-AD-7010286-2-0	TABLE ASSY (230V)			-	1	-	1	-	1	-	1		
3	E-AD-7011194-1-0	SCOPE & DRIVER ASSY (115V) WITH L.P.			1	-	1	-	-	-	-	-		
4	E-AD-7011194-2-0	SCOPE & DRIVER ASSY (115V) W/O L.P.			-	-	-	-	1	-	1	-		
5	E-AD-7011194-3-0	SCOPE & DRIVER ASSY (230V) WITH L.P.			-	1	-	1	-	-	-	-		
6	E-AD-7011194-4-0	SCOPE & DRIVER ASSY (230V) W/O L.P.			-	-	-	-	-	1	-	1		
7	9107673-6	POWER CORD 115VAC 6 FT.			1	-	1	-	1	-	1	-		
8	D-IA-7009898-1	POWER CORD 230VAC 6 FT.			-	1	-	1	-	1	-	1		
9	9006245-9	SCREW, HEX HD. 1/4-20 X 1.25 LG.			4	4	4	4	4	4	4	4		
10	9006724	WASHER, EXT. TOOTH LOCK .25 I.D.			4	4	4	4	4	4	4	4		
11	90078 7	NUT, HEX 1/4-20 NYLOCK			4	4	4	4	4	4	4	4		
12	9006039-1	SCREW, PHL PN HD #8-32 X .50 LG.			2	2	2	2	2	2	2	2		
13	9006634	WASHER, INT TOOTH LOCK #8			2	2	2	2	2	2	2	2		
14	9007880	CABLE TIES			A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R		
15	9007867	CABLE TIE MOUNTS			3	3	3	3	3	3	3	3		
16	9107673-35	POWER CORD 115VAC 35 FT.			1	-	-	-	1	-	-	-		
17	D-IA-7009898-4	POWER CORD 230VAC 35 FT.			-	1	-	-	-	1	-	-		
18	9107673-50	POWER CORD 115VAC 50 FT.			-	-	1	-	-	-	1	-		
19	D-IA-7009898-5	POWER CORD 230VAC 50 FT.			-	-	-	1	-	-	-	1		
20	A-SP-3700207	CRT. MONITOR PACK. INSTR.			1	1	1	1	1	1	1	1		
21	A-SP-3700209	DRIVER PACK. INSTR.			1	1	1	1	1	1	1	1		
22	A-SP-3700210	TABLE PACK. INSTR.			1	1	1	1	1	1	1	1		
TITLE TABLE & SCOPE ASSY (VR48)				ASSY NO. D-UA-VR48-0-0	SIZE A	CODE PL	NUMBER VR48-0-0			REV. A	ECO NO. VR48-00002			
SHEET 1 OF 2				DIST.										

DEC FORM DEC 16 (325) 1031 N870
DRA 110

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST					QUANTITY / VARIATION									
MADE BY C. B. McCOY		CHECKED J. BISOL		SECTION	VR48-AA	VR48-AB	VR48-BA	VR48-BB	VR48-CA	VR48-CB	VR48-DA	VR48-DB		
DATE 7/3/75		DATE 13 Aug 75		ISSUED SECT.										
ENG D. K. CRABBE		PROD R. LARSEN		ISSUED SECT.										
DATE 11 SEPT. 75		DATE 11 SEPT. 75												
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION												
23	A-SP-3700211	MONITOR COVER PACK. INSTR.			1	1	1	1	1	1	1	1		
TITLE TABLE & SCOPE ASSY (VR48)				ASSY NO. D-UA-VR48-0-0	SIZE A	CODE PL	NUMBER VR48-0-0			REV. A	ECO NO.			
SHEET 2 OF 2				DIST.										

DEC FORM DEC 16 (325) 1031 N870
DRA 110

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NOTES:
 PIN 7 ON IC = GND
 PIN 14 ON IC = +5V

E1	INTEGRATED CKT. DEC7410N	1905576
Q1, Q2, Q3	TRANSISTOR DEC3009B-S	1503100
R7	RES. 330 1/4W 5% CC	1300295
R2, R4, R6	RES. 220 1/4W 5% CC	1300271
R1, R3, R5	RES. 680 1/4W 5% CC	1301424
D4-D7	DIODE D662	1100113
D1, D2, D3	DIODE D664	1100114
C1, C2	CAP. .01MFD 100V 20% DISC	1001610
PARTS LIST		A-PL-M661-0-0
REFERENCE DESIGNATION	DESCRIPTION	PART NO.



REVISIONS NO. DATE BY	DRN. <i>M. Keller</i>	DATE 6-28-68	TRANSISTOR & DIODE CONVERSION CHART				EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE POSITIVE LEVEL DRIVER M661			
	CH'D <i>M. Keller</i>	DATE 6/28/68	DEC	EIA	DEC	EIA		SIZE B	CODE CS	NUMBER M661-0-1	REV
	ENG. <i>JL</i>	DATE 7/7/68	DEC3009B	2N3009				PRINTED CIRCUIT REV			
	PROD.	DATE	D662	IN645				A			

REV 327 234 236

DIGITAL EQUIPMENT CORPORATION

MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY D.K.Crabbe
DATE 5 August 1975

CHECKED J.Bisol
DATE 29 Sept. 1975

SECTION
1

ENG D.K.Crabbe
DATE 10 Oct. 1975

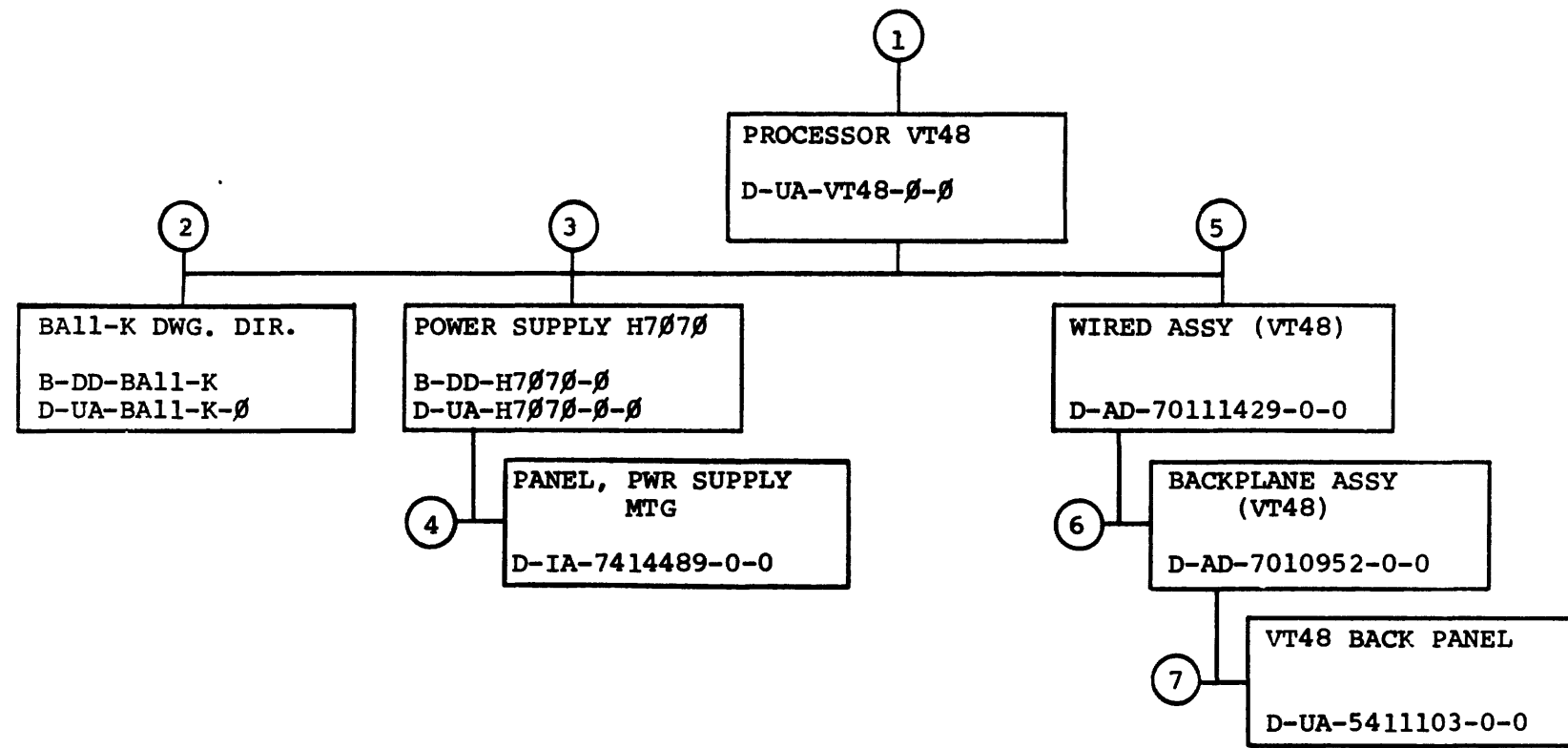
PROD R.E.Powers
DATE 31 Oct. 1975

ISSUED SECT.
1

QUANTITY / VARIATION

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION										
			VR48-AA	VR48-AB	VR48-BA	VR48-BB	VR48-CA	VR48-CB	VR48-DA	VR48-DB			
1	9107673-35	Pwr cord 115VAC 35 Ft.	1	-	-	-	1	-	-	-			
2	D-IA-7009898-4	Pwr cord 230VAC 35 Ft.	-	1	-	-	-	1	-	-			
3	9107673-50	Pwr cord 115VAC 50 Ft.	-	-	1	-	-	-	1	-			
4	D-IA-7009898-5	Pwr cord 230VAC 50 Ft.	-	-	-	1	-	-	-	1			
5	3700207	CRT Monitor Pack. Instr.	1	1	1	1	1	1	1	1			
6	3700209	Driver Pack. Instr.	1	1	1	1	1	1	1	1			
7	3700210	Table Pack. Instr.	1	1	1	1	1	1	1	1			
8	3700211	Monitor Cover Pack. Instr.	1	1	1	1	1	1	1	1			
9	Part of 3012494	Scope Prints (Vendor Supplied)	1	1	1	1	1	1	1	1			

TITLE Table & Scope Shipping List	ASSY NO. D-UA-VR48-Ø-Ø	SIZE A	CODE PL	NUMBER VR48-Ø-1	REV. A	ECO NO. VR48-Ø-ØØØ2
SHEET 1 OF 1		DIST.				



TITLE	SHEET	OF	SIZE	CODE	NUMBER	REV
PROCESSOR, VT48	2	4	B	DD	VT48-Ø	A

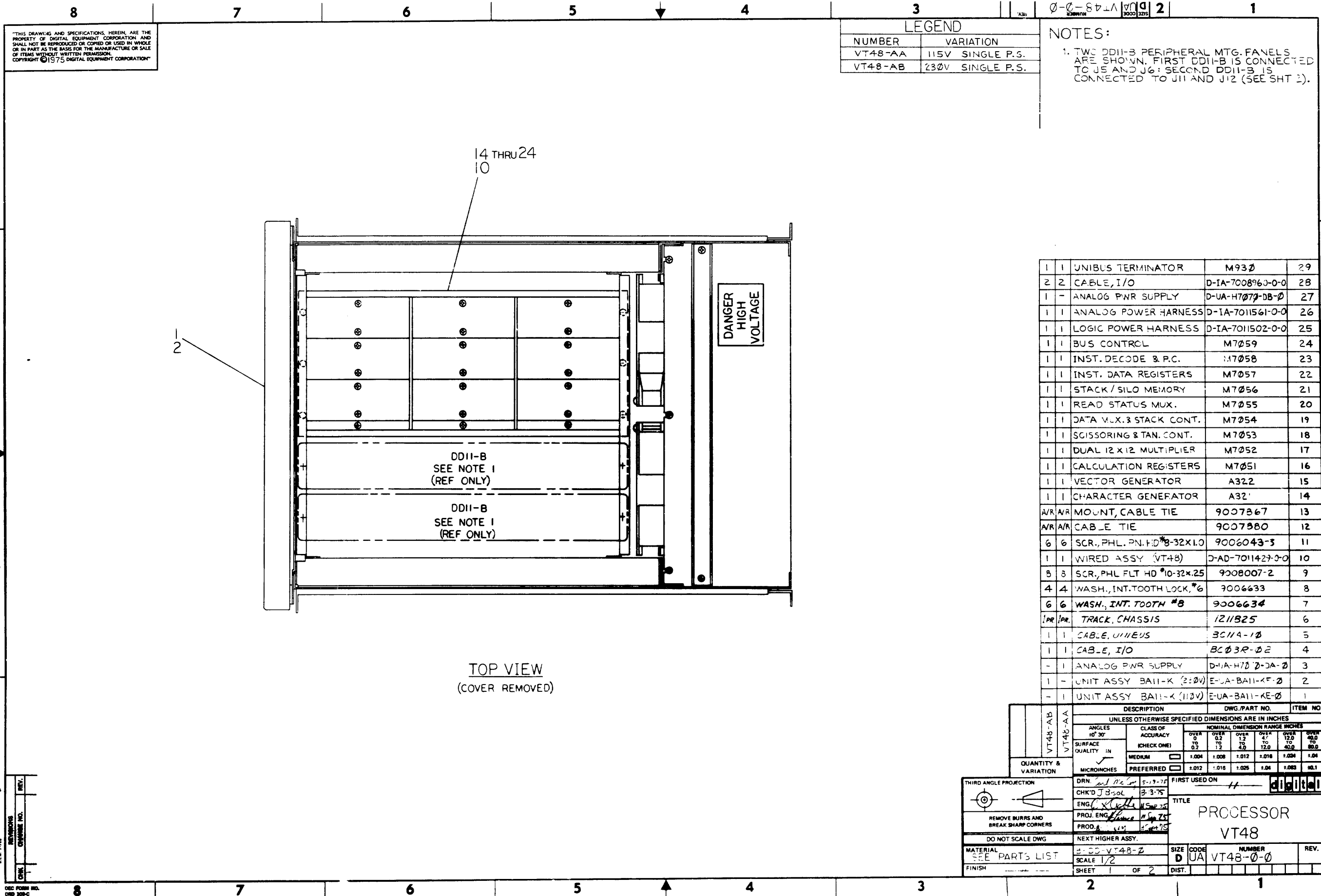
CUSTOMER PRINT SET		MECHANICAL					CUSTOMER PRINT SET		MECHANICAL						
	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE		MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
		1	D-UA-VT48-0-0	#	2	PROCESSOR, VT48				4	D-IA-7414480-0-0		1	PANEL, POWER SUPPLY MTG	
			A-PL-VT48-0-1	#	1	PROCESSOR, VT48 SHIPPING LIST					C-DC-7414817-0-0		1	DECAL, MARKING H7070	
		2	B-DD-BALL-K	#	4	DWG. DIR. BALL-K				6	D-AD-7010952-0-0	#	1	BACK PLANE ASSY (VT48)	
			E-UA-BALL-K-0		2	UNIT ASSY BALL-K					D-MD-7409259-0-0		1	SUPPORT LOGIC FRAME	
			A-PL-BALL-K-0		1	UNIT ASSY BALL-K P.L.					C-MD-7412336-0-0		1	BAR, END	
											C-MD-7412337-0-0		1	BAR, PIN BLOCK MTG.	
											E-PS-1210258-0-0			BLOCK, 288 PIN	
											D-PS-1211425-0-0			BLOCK, 72 PIN	
		3	B-DD-H7070-0-0	#	3	POWER SUPPLY H7070									
			A-PL-H7070-0-0	#	2	POWER SUPPLY H7070 P.L.									
			E-UA-H7070-A-0		2	POWER SUPPLY H7070 ASSY									
			E-UA-H7070-B-0		2	POWER SUPPLY H7070 ASSY									
			E-UA-H7070-CA-0		2	POWER SUPPLY H7070 ASSY									
			E-UA-H7070-CB-0		2	POWER SUPPLY H7070 ASSY									
			E-UA-H7070-DA-0		2	POWER SUPPLY H7070 ASSY									
			E-UA-H7070-DB-0		2	POWER SUPPLY H7070 ASSY									
			D-MD-7414488-0-0		1	H7070 MTG PANEL									
			A-PS-1203185-02		11	PWR SUPPLY 1.5 AMPS									
			A-PS-1203185-04		11	PWR SUPPLY .5 AMPS									

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
PROCESSOR VT48

SIZE CODE NUMBER
SHEET 4 OF 4 B DD VT48-0

REV
A



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LEGEND	
NUMBER	VARIATION
VT48-AA	115V SINGLE P.S.
VT48-AB	230V SINGLE P.S.

NOTES:
 1. TWO DDII-B PERIPHERAL MTG. PANELS ARE SHOWN. FIRST DDII-B IS CONNECTED TO J5 AND J6; SECOND DDII-B IS CONNECTED TO J11 AND J12 (SEE SHT 2).

TOP VIEW
(COVER REMOVED)

1	1	UNIBUS TERMINATOR	M930	29
2	2	CABLE, I/O	D-IA-7008960-0-0	28
1	-	ANALOG PWR SUPPLY	D-UA-H7079-DB-0	27
1	1	ANALOG POWER HARNESS	D-IA-7011561-0-0	26
1	1	LOGIC POWER HARNESS	D-IA-7011502-0-0	25
1	1	BUS CONTROL	M7059	24
1	1	INST. DECODE & P.C.	M7058	23
1	1	INST. DATA REGISTERS	M7057	22
1	1	STACK/SILO MEMORY	M7056	21
1	1	READ STATUS MUX.	M7055	20
1	1	DATA MUX. & STACK CONT.	M7054	19
1	1	SCISSORING & TAN. CONT.	M7053	18
1	1	DUAL 12 X 12 MULTIPLIER	M7052	17
1	1	CALCULATION REGISTERS	M7051	16
1	1	VECTOR GENERATOR	A322	15
1	1	CHARACTER GENERATOR	A321	14
A/R	A/R	MOUNT, CABLE TIE	9007867	13
A/R	A/R	CABLE TIE	9007880	12
6	6	SCR., PHL. PN. HD #8-32X1.0	9006043-3	11
1	1	WIRED ASSY (VT48)	D-AD-7011427-0-0	10
3	3	SCR., PHL FLT HD #10-32X.25	9008007-2	9
4	4	WASH., INT. TOOTH LOCK, #6	9006633	8
6	6	WASH., INT. TOOTH #8	9006634	7
1	1	TRACK, CHASSIS	1211825	6
1	1	CABLE, UNIBUS	BC114-10	5
1	1	CABLE, I/O	BC03R-02	4
-	1	ANALOG PWR SUPPLY	D-IA-H7079-DA-0	3
1	-	UNIT ASSY BA11-K (2:0V)	E-IA-BA11-KF-0	2
-	1	UNIT ASSY BA11-K (110V)	E-UA-BA11-KE-0	1

DESCRIPTION		DWG./PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
ANGLES 10° 30'	CLASS OF ACCURACY	NOMINAL DIMENSION RANGE INCHES	
SURFACE QUALITY	(CHECK ONE)	OVER TO	OVER TO
IN	MEDIUM	0 0.2	0.2 0.5
MICROINCHES	PREFERRED	0.5 1.0	1.0 1.5
QUANTITY & VARIATION		1.5 2.0	2.0 3.0
THIRD ANGLE PROJECTION	DRN. <i>and</i> <i>12</i> <i>5-19-75</i>	FIRST USED ON <i>11</i>	
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D <i>J B SOL</i> <i>3-3-75</i>	TITLE	
DO NOT SCALE DWG	ENG. <i>X</i> <i>15</i> <i>5-19-75</i>	PROCESSOR	
MATERIAL SEE PARTS LIST	PROJ. ENG. <i>11</i> <i>5-19-75</i>	VT48	
FINISH	PROD. <i>11</i> <i>5-19-75</i>	SIZE	CODE
	NEXT HIGHER ASSY.	D	UA
		NUMBER	REV.
		VT48-0-0	
		SHEET	DIST.
		1	

REV.	DESCRIPTION
1	ISSUED FOR MANUFACTURE

DEC FORM NO. 010 300-C

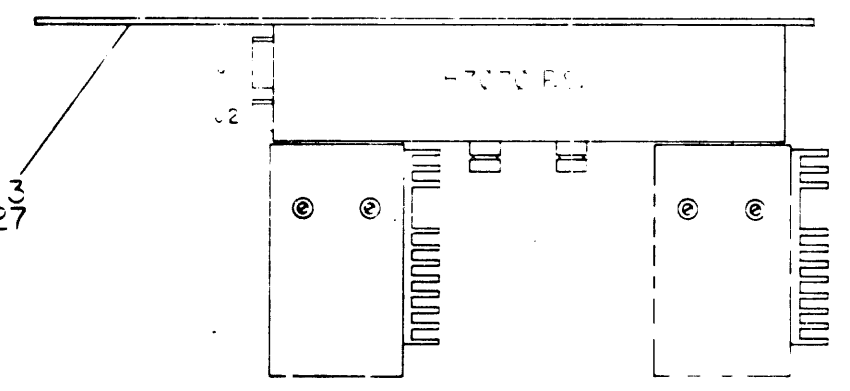
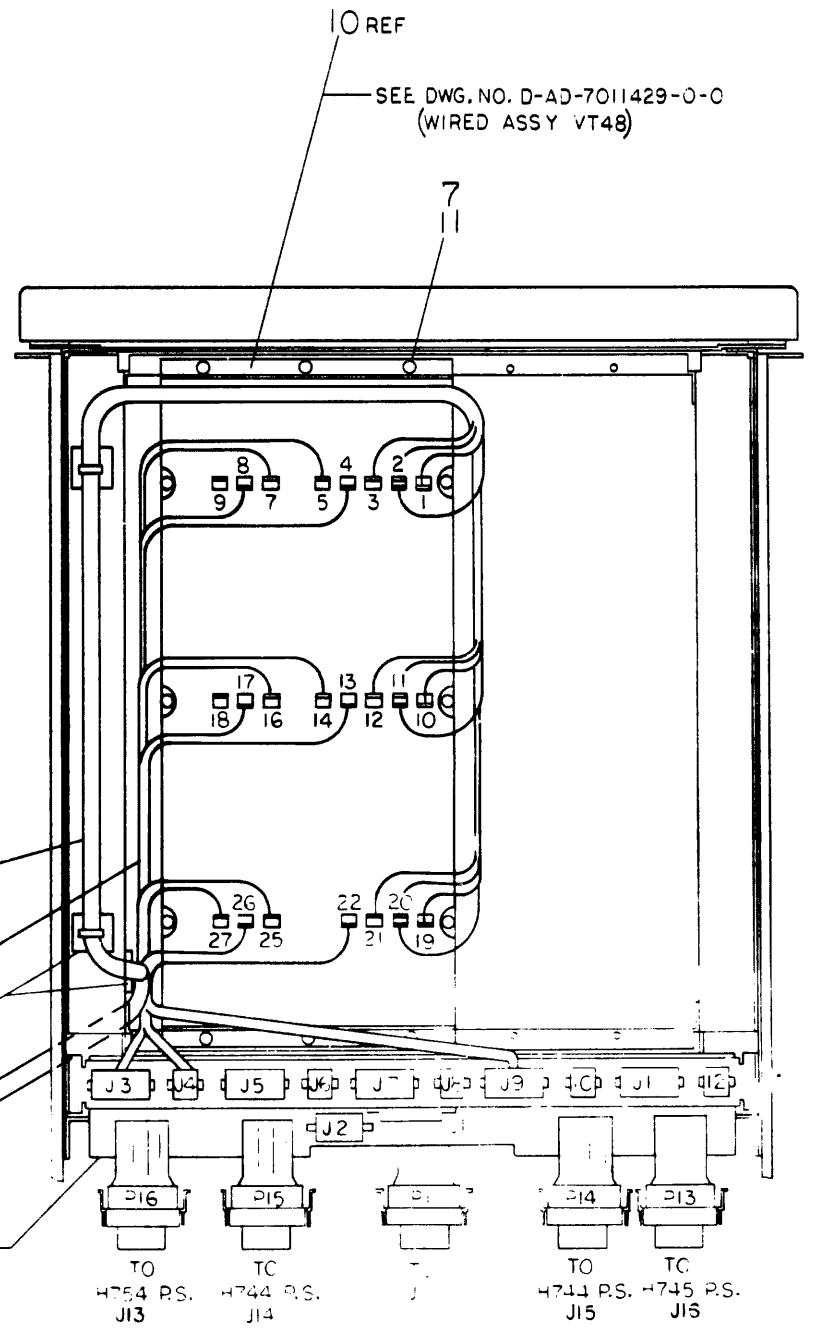
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INTERCONNECTIONS

ITEM NO.	FROM CONNECTION	TO CONNECTION	REMARKS
25	1	8	GND
	2	7	+5V
	3	5	GND
	4	4	+5V
	5	17	GND
	6	16	LTC
	7	14	GND
	8	13	-5V
	9	27	DCLO
	10	26	ACLO
	11	25	+5V
	12	22	+5V
	P3	J3	
	P4	J4	
25	P9	J9	
26	1	19	+15A
	2	20	ANALOG GND A
	3	20	ANALOG GND A
	4	21	-15V A
	5	10	+15V B
	6	11	ANALOG GND B
	7	11	ANALOG GND B
	8	12	-15V B
	9	1	+15V A
	10	2	ANALOG GND A
	11	2	ANALOG GND A
	12	3	-15V A
	P1	J1	H7070 P.S.
26	P2	J2	H7070 P.S.
28	M7051	M7055	
29	UNIBUS OUT	NO CONNECTION	
31	M7056	M7057	
32	UNIBUS IN	NO CONNECTION	

MODULE UTILIZATION

	F	E	D	C	B	A
13	M7059	BUS CONTROL			M930 UNIBUS OUT	
12	M7058	INSTRUCTION DECODE & P.C.				
11	M7057	INSTRUCTION DATA REG.				
10	M7056	STACK/SILO MEMORY				
9	M7055	READ STATUS MUX.				
8	M7054	ΔX, ΔY, ΔZ, DATA MUX. & STACK/SILO CONTROL				
7	M7053	SCISSORING & TANGENT CONTROL				
6	M7052	DUAL 12x12 MULTIPLIER				
5	M7051	CALCULATION REG.				
4						
3						
2	A322	VECTOR GENERATOR				
1	A321	CHARACTER GENERATOR			BC11A UNIBUS IN	



BOTTOM VIEW
COVER AND POWER SUPPLY REMOVED

REVISIONS		
CHK	CHANGE NO.	REV.

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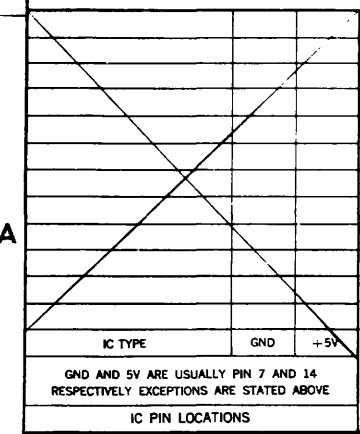
NOTES:

- FOR DRAWING DIRECTORY, REFER TO B-DD-A321-0
- UNLESS OTHERWISE SPECIFIED, THE FOLLOWING PIN NUMBERS APPLY

PACKAGE TYPE	VCC	GND	ANG	GNL	-VCC
16 PIN DIP	16	9	-	-	-
14 PIN DIP	14	7	-	-	-
I.C. DEC 318	7	-	-	-	4
I.C. DEC 0002	1,2	-	-	-	4,5
I.C. DEC 301	7	-	-	-	4
I.C. DEC 75452	8	4	-	-	6
- TAB ORIENTATION OF TRANSISTORS Q9, Q10 & Q11 ARE AS SHOWN.
- POLARITY OF CAPACITORS C12, C15, C16, C19, C22, C24 & C27 HAVE BEEN REVERSED TO POSITIONS SHOWN.
- FOR REWORK INSTRUCTIONS, SEE SHEET #2.

1	E22	ROM 5603 (OR 6300 OR 82526)	23263A2	52
3	E23, E31, E39	I.C. DEC 74193	1910018	53
1	E24	I.C. DEC 7404	1909686	54
1	E25	ROM 5603 (OR 6300 OR 82526)	23213A2	55
1	E26	ROM 5603 (OR 6300 OR 82526)	23212A2	56
2	E28, E45	I.C. DEC 2602	1910257	57
1	E29	I.C. DEC 7400	1905575	58
1	E30	ROM 5603 (OR 6300 OR 82526)	23221A2	59
1	E33	ROM 5603 (OR 6300 OR 82526)	23265A2	60
1	E34	ROM 5603 (OR 6300 OR 82526)	23288A2	61
1	E35	ROM 5603 (OR 6300 OR 82526)	23267A2	62
1	E36	ROM 5603 (OR 6300 OR 82526)	23267A2	63
1	E37	I.C. DEC 74123	1910436	64
1	E38	ROM 5603 (OR 6300 OR 82526)	23262A2	65
1	E41	ROM 5603 (OR 6300 OR 82526)	23254A2	66
1	E42	ROM 5603 (OR 6300 OR 82526)	23287A2	67
1	E43	ROM 5603 (OR 6300 OR 82526)	23266A2	68
1	E44	ROM 5603 (OR 6300 OR 82526)	23262A2	69
6		EYELET, HANDLE	9006732	70
3		HANDLE, FLIP CHIP (AMBER)	9009337-0	71
A/R		WIRE #30 AWG (GRN)	9105740-55	72
2	C77, C78	CAP, 18 PF, 5%, 100V	1002606	73
4		SEE SHEET #2	1210244	74

1		ETCH CIRCUIT BOARD	5011051	1
2	C1, C75	CAP. 47pf 5% 100V	1000011	2
3	C2, C10, C11	CAP. 100pf 5% 100V	1000016	3
1	C3	CAP. 220pf 5% 100V	1000021	4
1	C4	CAP. 15pf 5% 100V	1002427	5
3	C5, C6, C7	CAP. 33pf 5% 100V	1000009	6
2	C8, C9	CAP. 150pf 5% 100V	1000019	7
14	C12 THRU C18, C20, C22, C23, C24, C26, C27, C29	CAP. 100uf 10% 20V	1004915	8
45	C19, C21, C25, C28, C30 THRU C37, C42 THRU C74	CAP. .01uf 100V	1001610-01	9
2	C38, C39	CAP. 220pf 5% 100V	1000021	10
1	C40	CAP. 6.8uf 10% 35V	1005306	11
1	C41	CAP. 15uf 20% 35V	1002180	12
1	C76	CAP. 10mf 5% 100V	1000006	13
2	D1, D2	DIODE 1N925 (6.2V ZENER)	1101385	14
6	D3 THRU D8	DIODE D664	1100114	15
1	J1	CONN. 40 PIN RT. ANG. HEADER	1209941-02	16
1		RIGHT ANGLE HEADER LEFT LATCH	1209941-03	17
1		RIGHT ANGLE HEADER RIGHT LATCH	1209941-04	18
7	R1, R2, R3, R66 THRU R69	RES 1K 5% 1/4W	1300365	19
2	R4, R10	RES. 8.25K 1% 1/4W	1309420	20
5	R5, R6, R45, R46, R61	RES. 4.7K 5% 1/4W	1300447	21
3	R7, R37, R38	RES. 10K 5% 1/4W	1300479	22
9	R8, R11 THRU R14, R20 THRU R23	RES. 10K 1% 1/4W	1305431	23
1	R9	RES. 7.5K 1% 1/4W	1305322	24
6	R15, R16, R18, R24, R25, R27	RES. 1K 1% 1/4W	1304865	25
7	R17, R19, R26, R28, R30, R34, R36	RES. 2K 1% 1/4W	305353	26
1	R29	RES. 511 1% 1/4W	1302411	27
2	R31, R32	RES. 147 1% 1/4W	1302974	28
2	R33, R35	RES. 1.96K 1% 1/4W	1304833	29
4	R39, R40, R42, R43	RES. 8K 1% 1/4W	1305356	30
2	R41, R44	RES. 4K 1% 1/4W	1305354	31
4	R47, R48, R53, R54	RES. 180 5% 1/4W	1300260	32
4	R49, R52, R58, R59	RES. 1.47K 1% 1/4W	1305108	33
4	R50, R51, R64, R65	RES. 47 5% 1/4W	1300202	34
2	R55, R56	RES 100 3 4W 76 PR POT	1309143-04	35
2	R57, R60	RES. 20K 3 4W 76 PR POT	1309143-11	36
1	R62	RES 100 1% 1/4W	1302858	37
1	R63	RES 196 1% 1/4W	1302956	38
8	Q1 THRU Q9	TRANS. 2N4250	1509142	39
3	Q9, Q10, Q11	TRANS. 3N169	1510234	40
4	E1, E3, E6, E8	I.C. DEC 318	1910735	41
3	E2, E5, E7	I.C. HI200-15 DUAL ANALOG SW	2111285-02	42
2	E4, E9	I.C. DEC 0002	1910446	43
1	E10	ROM 5603 (OR 6300 OR 82526)	23202A2	44
3	E11, E12, E13	I.C. DEC 301	1910282	45
2	E14, E27	13-1K RES PACK	1300005-01	46
2	E15, E17	I.C. DEC 74511	1910537	47
1	E16	I.C. DEC 74510	1910536	48
2	E18, E20	I.C. DEC 7474	1905547	49
1	E19	I.C. DEC 7402	1909004	50
1	E21	I.C. DEC 75452	1910645	51



QTY REF. DESIGNATION DESCRIPTION PART NO. ITEM NO.

FIRST USED ON OPTION MODEL

ETCH BOARD REV.

DR.	DATE
CHK'D	DATE
ENG.	DATE
PROJ. ENG.	DATE
PROD.	DATE

NEXT HIGHER ASSY

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

SCALE

SHEET OF 5

digital

TITLE: GT48 CHARACTER GENERATOR

SIZE CODE: DUA A321-0-0

NUMBER: 0-0

REV. C

SEMICONDUCTOR CONVERSION CHART

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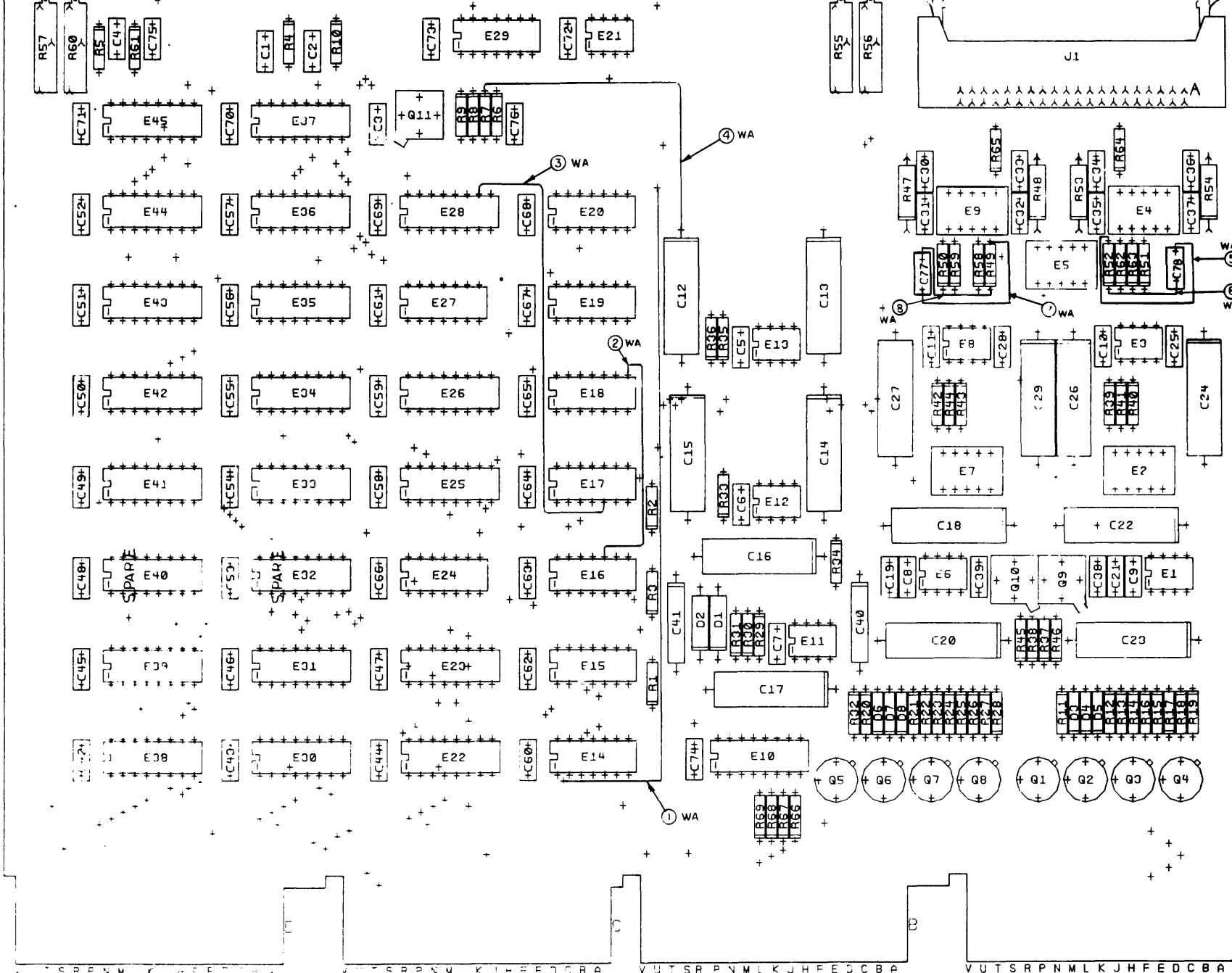
REWORK INSTRUCTIONS

- ETCH CUTS SIDE #1 AS SHOWN (SEE SHEET #3),
- CUT ETCH AT E16(10).
 - CUT ETCH AT E17(5).

- ETCH CUTS SIDE #2 AS SHOWN (SEE SHEET #3)
- CUT ETCH AT E17(5).

- WIRE ADDS SIDE #1 AS SHOWN (ITEM #10) (SEE SHEET #3)
- ADD WIRE FROM PIN HEAD ON E11(1) TO PIN TO THE RIGHT OF C10(2).
 - ADD WIRE FROM E16(10) TO R8(8).
 - ADD WIRE FROM E17(5) TO R8(8).
 - ADD WIRE FROM C12 TO R1.
 - ADD WIRE FROM C78 TO R52.
 - ADD WIRE FROM C78 TO R52.
 - ADD WIRE FROM C77 TO R49.
 - ADD WIRE FROM C77 TO R49.
- DRILL HOLES (SEE SHEET #3).
- DRILL (4) HOLES AS PER SHEET 3 AND INSTALL GRIPLETS. HOLE = #54 DRILL.

70 (QTY 6)



NOTES:

CHANGE NO. REV.

SIGNATURES	DATE		TITLE CHARACTER GENERATOR
DRN. <i>M. J. ...</i>	6/27/75		
CHK. D. <i>...</i>	7/8/75		
PROJ. ENG. <i>...</i>	7/21/75		
PROD. <i>...</i>	8/27/75		
SCALE 2 TO 1	SIZE CODE NUMBER	0	UA A321-0-0
SHT. 2 OF 5	ETCH REV C	FIRST USED ON	REV C

8 7 6 5 4 3 2 1
D U A A321-0-0
C
A B C
D U A A321-0-0
A B C
8 7 6 5 4 3 2 1 MS# 30097

8

7

6

5

4

3

DUA A321-0-0 2

1

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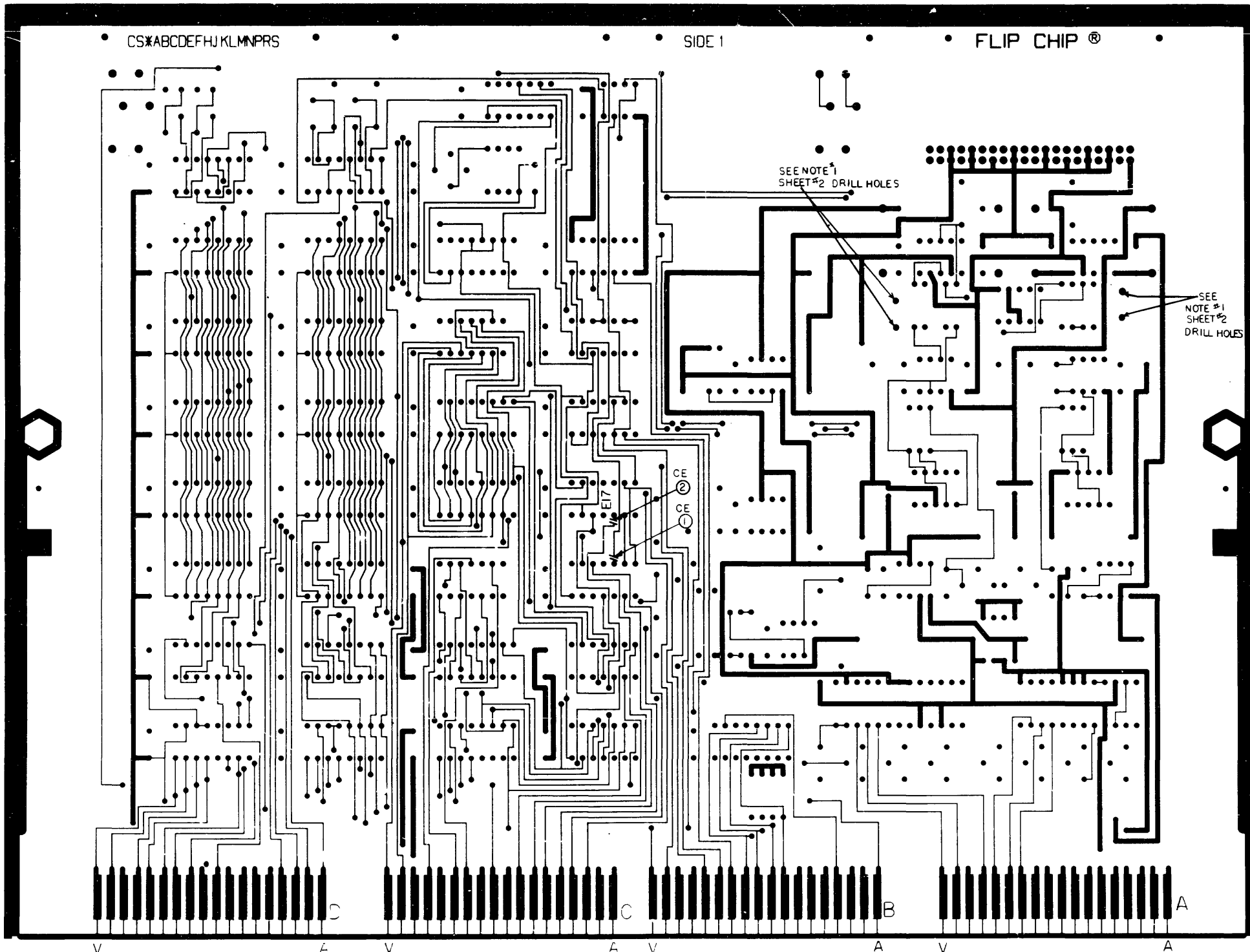
MS30097 A321 5011051C

D

C

B

A



D

C

C

B

A

DUA A321-0-0

REVISIONS		
CHK	CHANGE NO	REV

(SIDE 1)

GT48 CHARACTER GENERATOR

SIZE CODE D UA A321-0-0 NUMBER

REV. C

SCALE 2 TO 1 SHEET 3 OF 5

DIST. 1

8

7

6

5

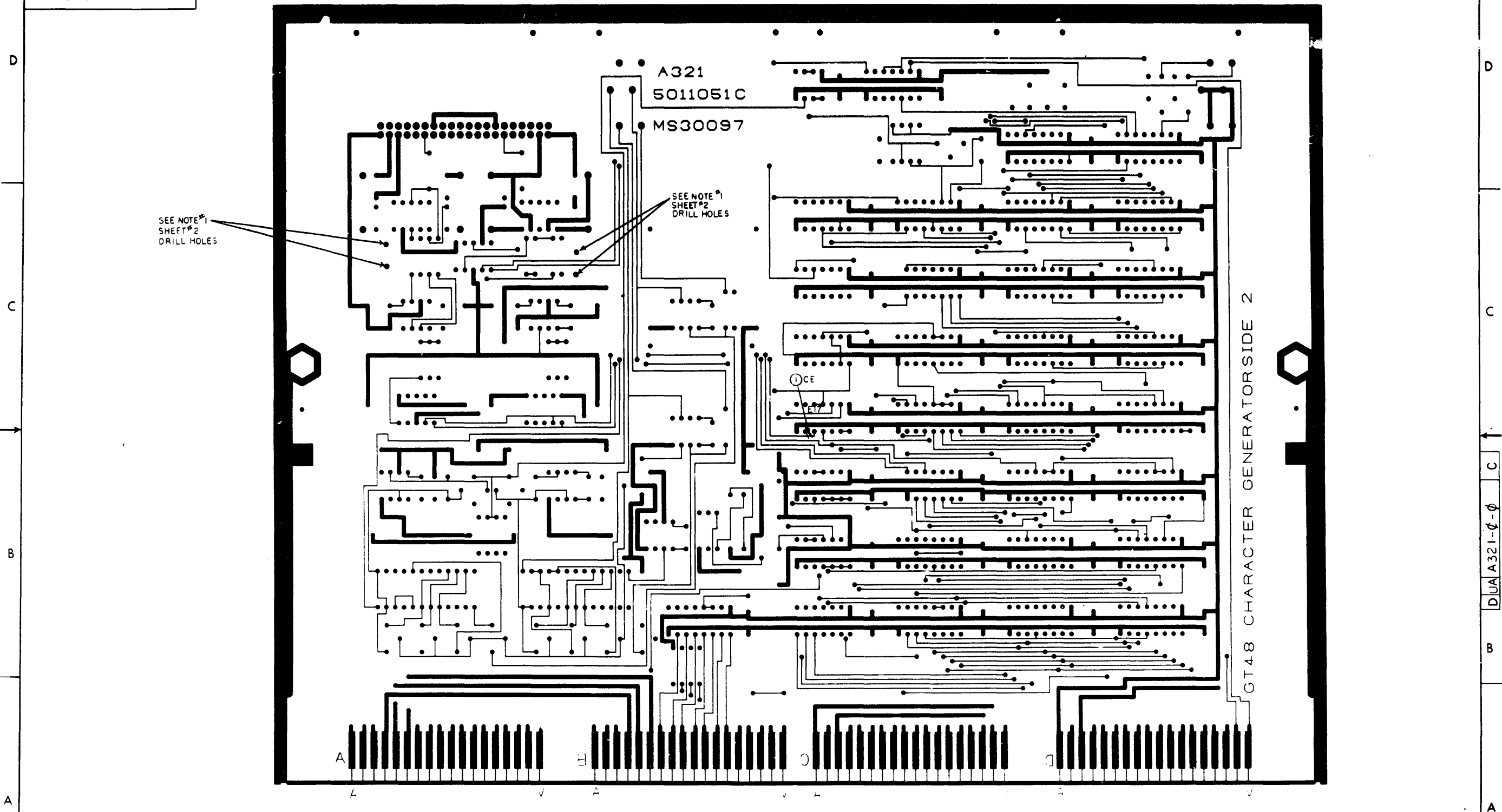
4

3

2

1

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REVISIONS		
CHK	CHANGE NO	REV

(SIDE 2)
 GT48 CHARACTER GENERATOR
 SIZE CODE: DUA A321-0-0
 NUMBER: 1
 REV: C
 SHEET 4 OF 5

8

7

6

5

4

3

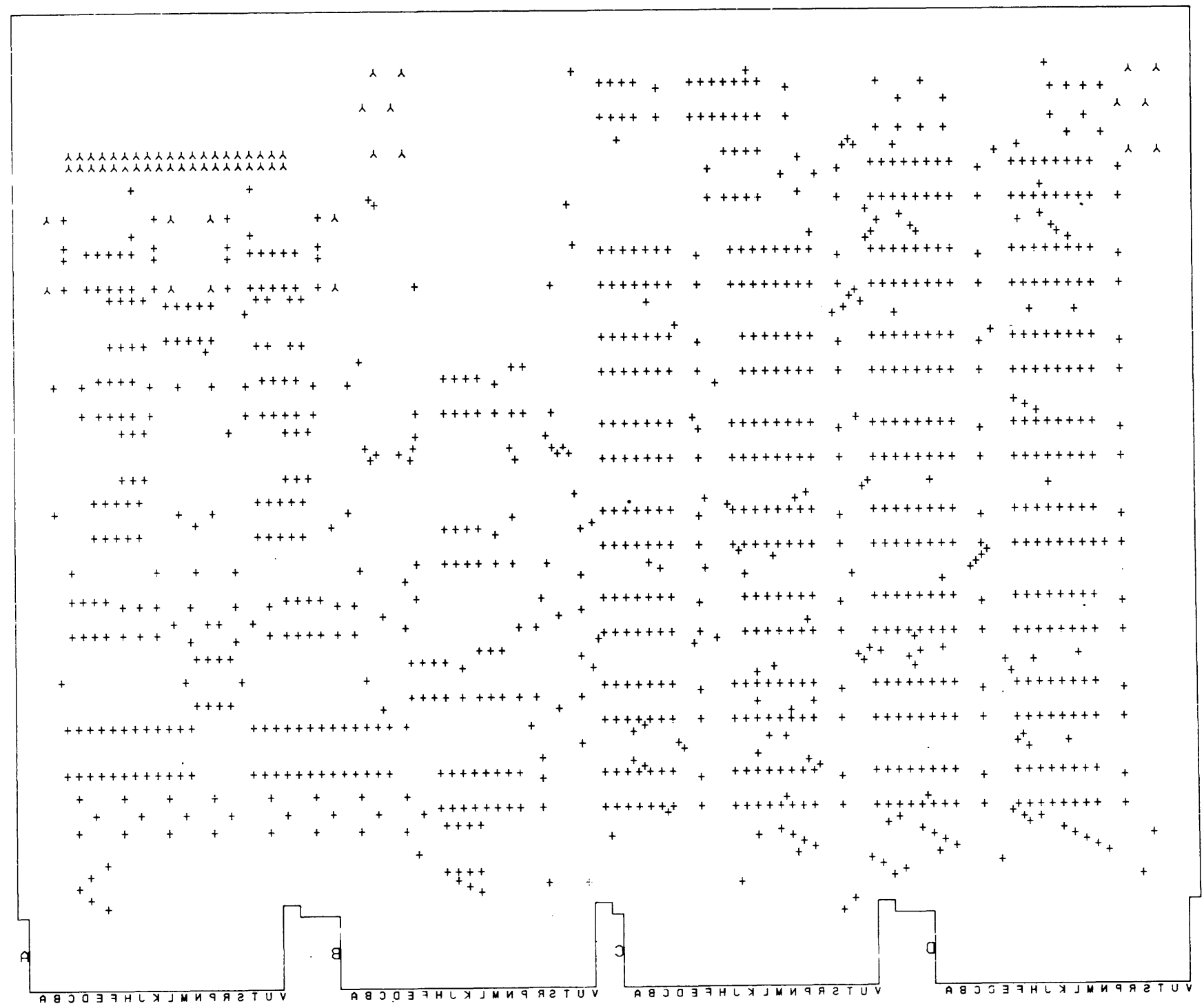
DUA321-0-0 2

1

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D
C
B
A

D
C
B
A



REVISIONS		
CHK	CHANGE NO	REV

TITLE: G48 CHARACTER GENERATOR
 SIZE CODE: DUA
 NUMBER: A321-0-0
 SCALE: 2 TO 1
 SHEET: 5 OF 5
 REV: C

8

7

6

5

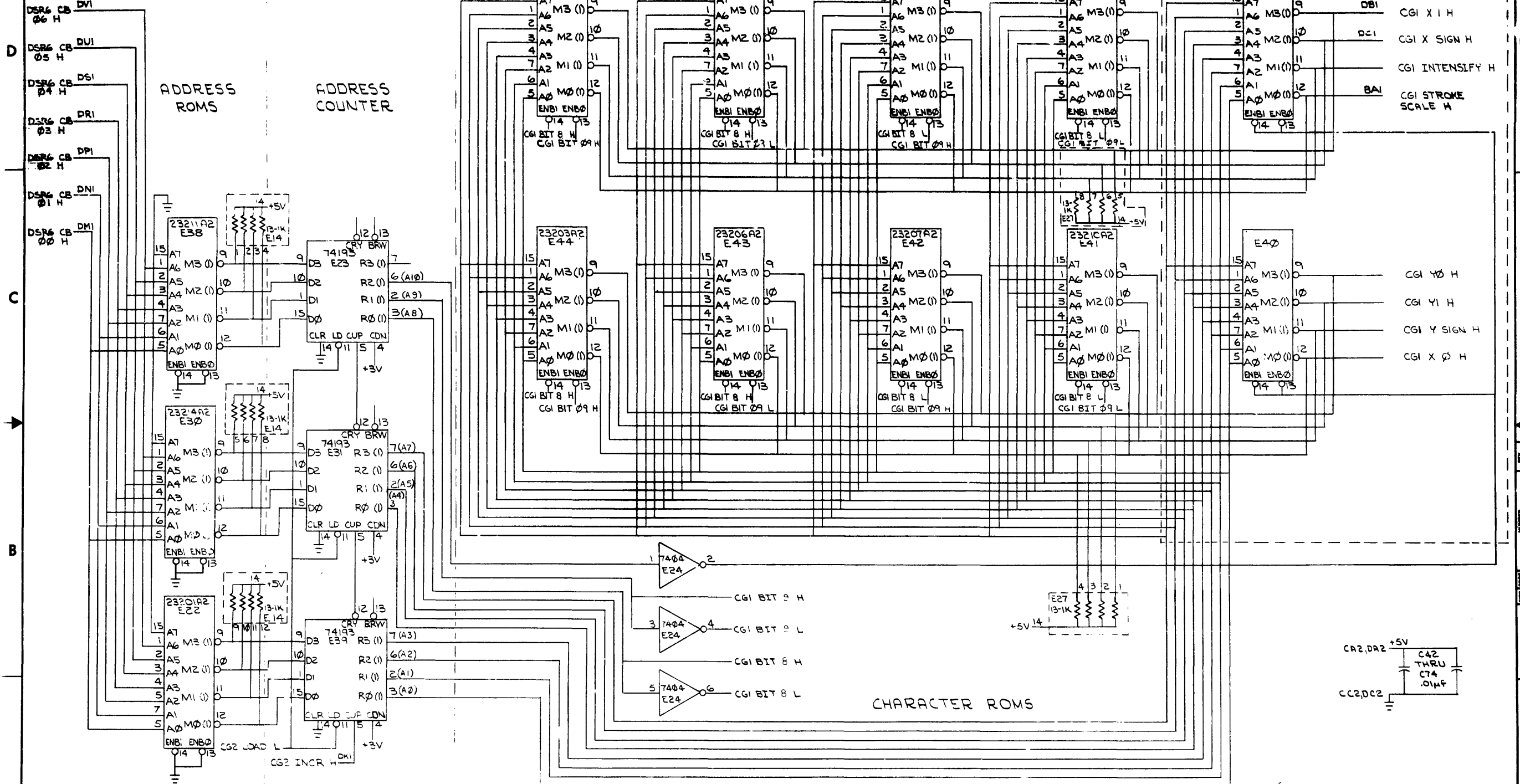
4

3

2

1

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ADDRESS ROMS ADDRESS COUNTER

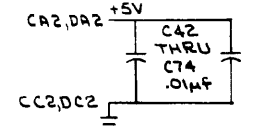
CHARACTER ROMS

OPTIONAL

DBI CGI X I H
DCI CGI X SIGN H
CGI INTENSIFY H
BAI CGI STROKE SCALE H

CGI Y0 H
CGI Y1 H
CGI Y SIGN H
CGI X0 H

CGI BIT 9 H
CGI BIT 9 L
CGI BIT 8 H
CGI BIT 8 L

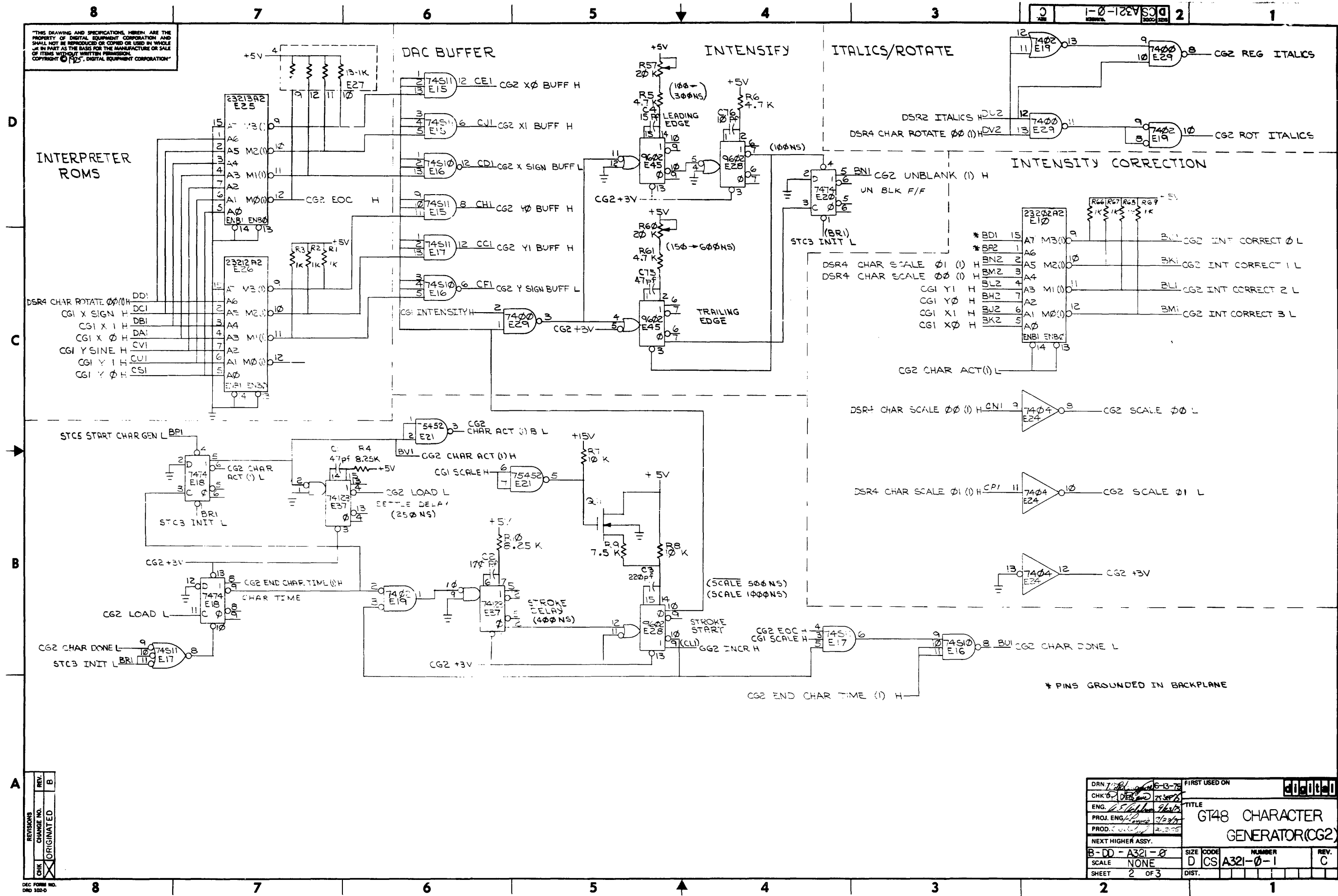


REV.	A
CHG.	B
ORIGINATED	C
DATE	7/1/75
BY	B. G. GAGHAN
CHKD.	B. G. GAGHAN
DATE	7/1/75

DRN	6-17	FIRST USED ON	
CHKD.		TITLE	GT48 CHARACTER GENERATOR (CGI)
ENG.		PROJ. ENG.	
PROD.		NEXT HIGHER ASSY.	
B-DD-A321-0	SIZE CODE	NUMBER	REV. C
SCALE NONE	D	CSA321-0-1	
SHEET OF 3	DIST.		

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1-0-122V S01 2



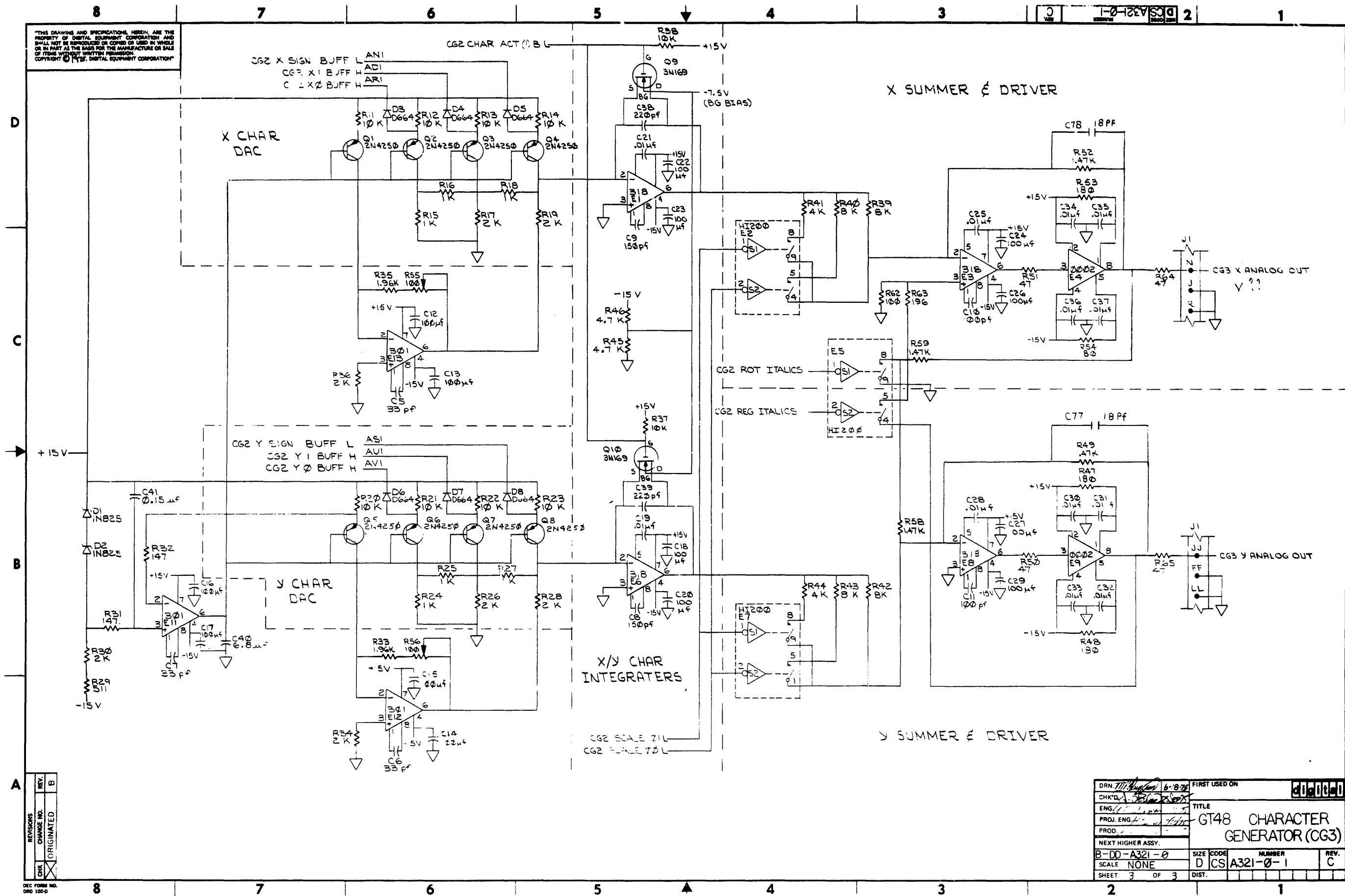
D E C S A 3 2 1 - 0 - 1

REV.	B
CHG.	ORIGINATED
REVISIONS	

DRN 7-12-75	FIRST USED ON	
CHK'D		
ENG. J. S. Johnson	TITLE	GT48 CHARACTER GENERATOR (CG2)
PROJ. ENG. J. S. Johnson	SCALE	NONE
PROD. J. S. Johnson	SHEET	2 OF 3
NEXT HIGHER ASSY.	SIZE	CODE
B-DD-A321-0	NUMBER	
SCALE NONE	DIST.	
SHEET 2 OF 3	REV.	C

DEC FORM NO. 100-0

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REV.	B
ORIGINATED	
CHG	

DRN. <i>M. J. [Signature]</i>	6-8-76	FIRST USED ON	
CHK'D. <i>[Signature]</i>		TITLE	
ENG. <i>[Signature]</i>		GT48 CHARACTER GENERATOR (CG3)	
PROJ. ENG. <i>[Signature]</i>			
PROD.			
NEXT HIGHER ASSY.			
B-DD-A321-0	SIZE	CODE	NUMBER
SCALE NONE	D	CS	A321-0-1
SHEET 3	OF 3	DIST.	

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.	QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
2	R59, R126	RES. 1.47K 1% 1/4W	1305108	42	1				
7	R28, R72, R104, R105, R106, R107, R108	RES. 220 5% 1/4W	1300271	43	9	C1, C3, C41, C54, C55, C72, C151, C155	ETCHED CIRCUIT BOARD	5011126	2
5	R73, R81, R89, R122, R130	RES. 330 5% 1/4W	1300295	44	2	C100, C103	CAP. 6.8pf 5% 100V	1000005	3
4	R80, R86, R99, R121	RES. 820 5% 1/4W	1301775	45	13	C4, C64, C71, C83, R87, C88, C94, C96, C97, C99, C106, C116, C150	CAP. 1uf 10% 35V	1000014	4
1	R95	RES. 3.9K 5% 1/4W	1300444	46	3	C5, C154, C67	CAP. 820pf 5% 100V	1000027	5
1	R83	RES. 10 5% 1/4W	1301317	47	92	C7, C8, C13, C14, C16 THRU C36, C38, C39, C42 THRU C49, C51, C52, C57, C58, C59, C60, C61, C62, C63, C65, C66, C68, C69, C70, C74, C75, C76, C78, C80, C81, C89, C90, C91, C92, C93, C104, C105, C110, C123 THRU C149, C153, C156	CAP. .01uf 100V	1001610-01	6
3	R75, R76, R84	RES. 1.96K 1% 1/4W	1304833	48	11	C2, C9, C15, C40, C53, C56, C77, C84, C98, C102, C152	CAP. 100pf 5% 100V	1000016	7
3	R1, R92, R117	RES. 12K 5% 1/4W	1300488	49	2	C10, C73	CAP. 47pf 5% 100V	1000011	8
7	R40, R50, R63, R74, R85, R101, R129	RES. 5.11K 1% 1/4W	1304854	50	6	C85, C86, C107, C108, C121, C122	CAP. 6.8uf 10% 35V	1005306	9
1	R153	RES. 7.2 1% 1/4W	1303205	51	1	C95	CAP. 39pf 5% 100V	1000010	10
3	R21, R99, R127	RES. 68.1K 1% 1/4W	1305252	52	10	C109, C111, C112, C113, C114, C115, C117, C118, C119, C120	CAP. 47uf 10% 20V	1004814	11
2	R119, R151	RES. 2.2K 5% 1/4W	1300417	53	3	D1, D4, D16	DIODE IN752A ZENER	1102809	12
3	R123, R124, R125	RES. 27 5% 1/4W	1301522	54	9	D2, D3, D5, D6, D8, D10, D11, D14, D15	DIODE D664	1100114	13
1	R131	RES. 1.69K 1% 1/4W	1309297	55	2	D12, D13	DIODE D674	1110986	14
1	R132	RES. 500 10% 3/4W POT	1309143-06	56	1	J1	CONN. 40 PIN (HEADER)	1209941-02	15
3	R100, R128, R143	RES. 2K 10% 3/4W POT	1309143-08	57	1		LATCH, LEFT	1209941-03	16
2	Q1, Q13	TRANS. DEC 2219-2	1501983	58	1		LATCH, RIGHT	1209941-04	17
2	Q2, Q3	TRANS. DEC 511	1505254	59	5	R36, R51, R93, R94, R148	RES. 10K 5% 1/4W	1300479	18
3	Q4, Q5, Q11	TRANS. DEC 65340	1503409	60	1	R2	RES. 39K 5% 1/4W	1302514	19
5	Q6, Q7, Q8, Q12, Q14	TRANS. DEC 65318	1509338	61	13	R3, R17, R44, R57, R58, R109 THRU R116	RES. 1.2K 5% 1/4W	1301320	20
1	Q9	TRANS. 3N189	1510234	62	24	R4, R13, R52, R53, R64 THRU R71, R79, R82, R87, R88, R90, R120, R144, R145, R146, R147, R150, R152	RES. 1K 5% 1/4W	1300365	21
1	Q10	TRANS. 2N5638	1511095	63	3	R5, R16, R149	RES. 1.8K 5% 1/4W	1300399	22
4	E1, E5, E34, E37	I.C. DEC 148818	1911629	64	7	R6, R25, R27, R77, R78, R103, R118	RES. 5.6K 5% 1/4W	1301874	23
8	E2, E6, E13, E23, E31, E32, E38, E48	I.C. DEC ADX318	1910735-01	65	3	R7, R8, R137	RES. 925 1% 1/4W	1305143	24
2	E3, E4	I.C. DEC 75451	1910406	66	1	R9	RES. 30.1K 1% 1/4W	1311594	25
3	E7, E14, E24	I.C. DEC NH8882	1910446	67	2	R10, R18	RES. 348 1% 1/4W	1304858	26
1	E8	I.C. DEC 8202	1910275	68	1	R11	RES. 100 1% 1/4W	1302858	27
6	E9, E10, E16, E17, E50, E51	I.C. DEC 74174	1910652	69	2	R12, R136	RES. 11.5K 1% 1/4W	1309415	28
3	E12, E22, E54	I.C. DEC AD562	1912401	70	3	R14, R91, R142	RES. 2.7K 5% 1/4W	1300426	29
1	E15	I.C. DEC 7404	1909686	71	1	R15	RES. 270 5% 1/4W	1301972	30
3	E19, E28, E35	I.C. DEC LM318	1910235	72	6	R19, R20, R29, R30, R39, R49	RES. 5K .01% .3W	1309985-07	31
4	E20, E21, E29, E30	I.C. DEC H1288-5	2111285-02	73	3	R32, R134, R154	RES. 120K 5% 1/4W	1300539	32
1	E25	I.C. DEC 74175	1910651	74	9	R22, R24, R26, R31, R41, R54, R60, R102, R133	RES. 100 5% 1/4W	1300229	33
2	E26, E27	I.C. DEC 74155	1910656	75	4	R23, R33, R135, R138	RES. 20K 20% 3/4W POT	1309143-11	34
1	E33	I.C. DEC 723	1910415	76	2	R34, R47	RES. 16K .01% .3W	1305513	35
1	E36	I.C. DEC H.S. 398D-12-WB	1912529	77	2	R35, R96	RES. 10K 20% 3/4W POT	1309143-10	36
2	E39, E40	I.C. DEC 74193	1910019	78	2	R37, R97	RES. 10K 1% 1/4W	1303312	37
3	E41, E42, E43	I.C. DEC 7495	1909055	79	1		HANDLE, MODULE	1210711-2	38
1	E44	I.C. DEC 7400	1905575	80	5	R43, R55, R56, R61, R62	RES. 180 5% 1W	1300262	39
3	E45, E52, E53	I.C. DEC 2602	1910257	81	4	R42, R45, R140, R141	RES. 100 5% 1W	1300232	40
2	E46, E47	I.C. DEC 7474	1905547	82	6	C6, C12, C37, C50, C79, C101	CAP. 0.1uf 50V	1010978-36	41
1	E55	I.C. DEC LM211	1911290	83					
16	W1 THRU W16	JUMPER, INSULATED WHT	9009195	84					
29		SOCKET, SPRING I.C.	9007912-02	85					
12		EYELET	9006732	86					
10FT		WIRE #30 AWG GRN	9105740-55	87					
1	E49	I.C. DEC 7405	1909930	88					
1	R139	RES. 39 10% 1W	1301478	89					
1	D7	DIODE IN762 ZENER	1100144	90					

8 7 6 5 4 3 2 1

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- NOTES:**
- FOR DRAWING DIRECTORY, SEE: B-DD-A322-8
 - OPTIONAL COMPONENTS NOT USED ON THIS BOARD: R38, R48, D9, C11, C82
 - UNLESS OTHERWISE SPECIFIED, THE FOLLOWING PIN NUMBERS APPLY:
- | PACKAGE TYPE | VCC | GND | -VCC |
|--------------|------|--------|------|
| 14 PIN DIP | 14 | 7 | --- |
| 16 PIN DIP | 16 | 9 | --- |
| DEC MC1488 | 3 | 15, 2 | --- |
| LM318 | 7 | --- | 4 |
| DEC 75451 | 8 | 4 | --- |
| DEC NH8882 | 1, 2 | --- | 4, 5 |
| DEC 8202 | 24 | 12 | --- |
| DEC AD562 | 1 | 3 | 6 |
| DEC LM318 | 11 | --- | 6 |
| DEC 723 | 12 | 7 | --- |
| DEC H.S.398D | 29 | 16, 28 | 27 |
| DEC LM211 | 8 | 1 | 4 |

ETCH CUTS SIDE #1

- CUT ETCH BETWEEN C110 AND R147

ETCH CUTS SIDE #2

- CUT ETCH BETWEEN E45(7) AND E46(11)
- CUT ETCH BETWEEN E45(5) AND E46(1)
- CUT ETCH BETWEEN E39(11) AND E39(10)
- CUT ETCH BETWEEN E40(11) AND E40(10)
- CUT ETCH BETWEEN E25(14) AND E26(14)

WIRE ADDS SIDE #1

- ADD WIRE FROM E45(6) TO E46(11)
- ADD WIRE FROM E45(5) TO E46(5)
- ADD WIRE FROM E39(11) TO E40(11)
- ADD WIRE FROM E40(11) TO FINGER FE1
- ADD WIRE FROM E45(13) TO FINGER FJ1
- ADD WIRE FROM C110 (BOTTOM) TO C83 (TOP)
- ADD WIRE FROM E46(8) TO E26(2)

TRANSISTOR ORIENTATION

- Q10 HAS ITS FLAT SIDE TOWARD THE TOP (HANDLE SIDE) OF THE BOARD.
- Q2, Q3, Q9: THE TABS ARE ORIENTED TOWARD THE LOWER RIGHT SIDE OF THE P.C. BOARD.

FIRST USED NO OPT/MOD VT48

ETCH BOARD REV

DRN	R. N. CAUNTER	DATE	3-JUN-75
CHK'D	P. E. BLANC	DATE	22-SEP-75
ENG	B. GEAGHAN	DATE	22-SEP-75
PROJ. ENG	H. LAVOIE	DATE	22-SEP-75
PROD	R. WAKEFIELD	DATE	22-SEP-75

TITLE: VT48 VECTOR GENERATOR

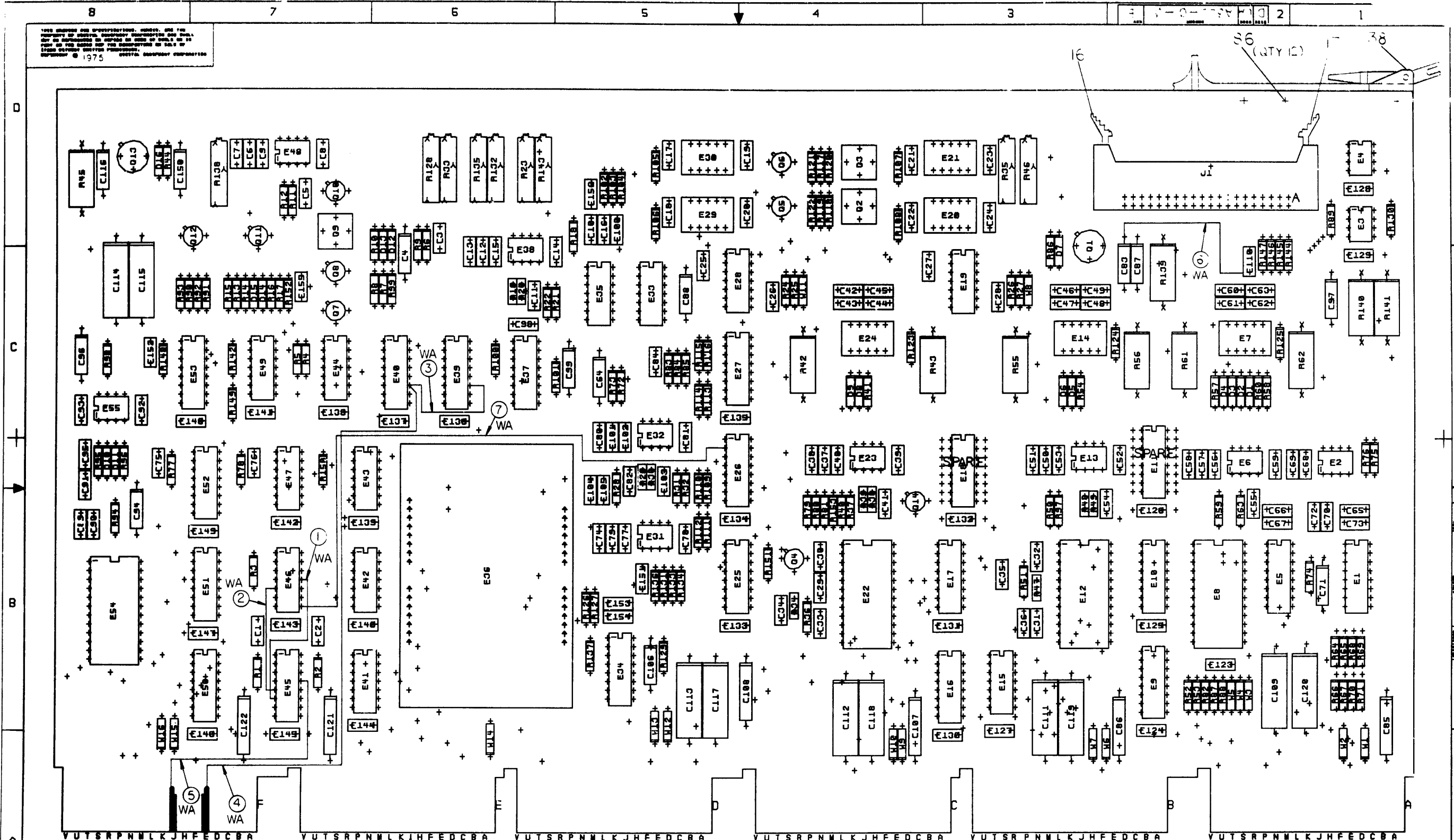
SIZE CODE: DUA NUMBER: A322-0-0 REV: B

SCALE: OF 5 SHEET: OF 5

DEC FORM NO. DRG-135

REV. B
DUA A322-0-0

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NOTES:

CHK	CHANGE NO	REV

SIGNATURES	DATE
DRN. [Signature]	11/11/75
CHK. D.P. LEBLANC	22/9/75
ENG. B. GEAGHAN	22/9/75
PROJ. ENG. H. LAVOIE	22/9/75
PROD. R. WAKEFIELD	22/9/75

TITLE VT48 VECTOR GENERATOR

SCALE	SIZE	CODE	NUMBER	REV
2/1	D	UA	A322-0-0	B

ETCH REV C FIRST USED ON VT48

8

7

6

5

4

3

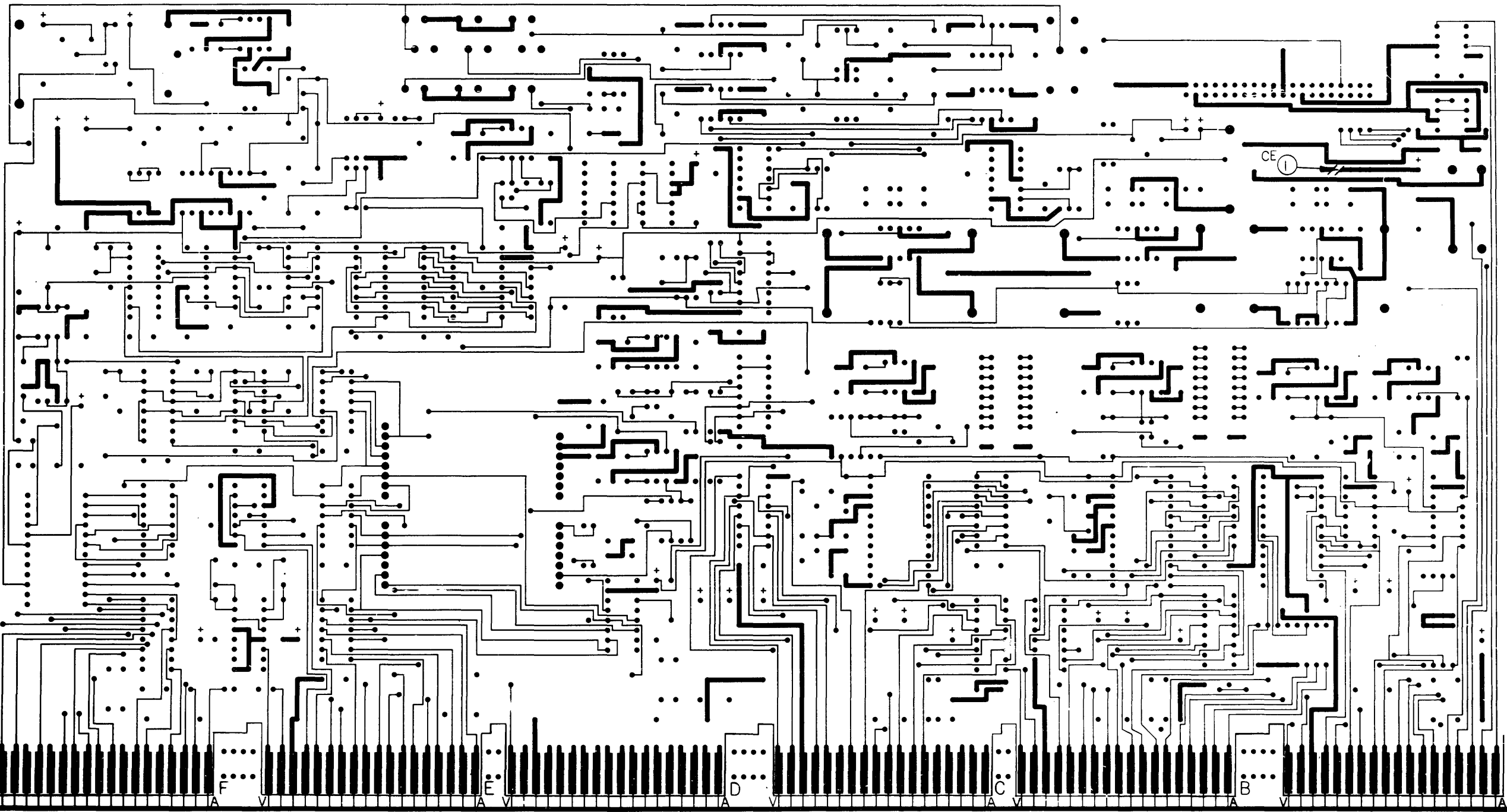
D UA A322-0-0 B

Q1975

LAYER 1

A322 MS30098 5011126CP1

CS*ABCDEFGHIJKLMNPRS SIDE 1 FLIP CHIP



REVISIONS		
CHK	CHANGE NO	REV

T48 VECTOR GENERATOR (LAYER 1)		SIZE CODE	NUMBER	REV.
2/1		D UA A322-0-0	B	B
SHEET 3 OF 5		DIST		

34C FORM NO

8

7

6

5

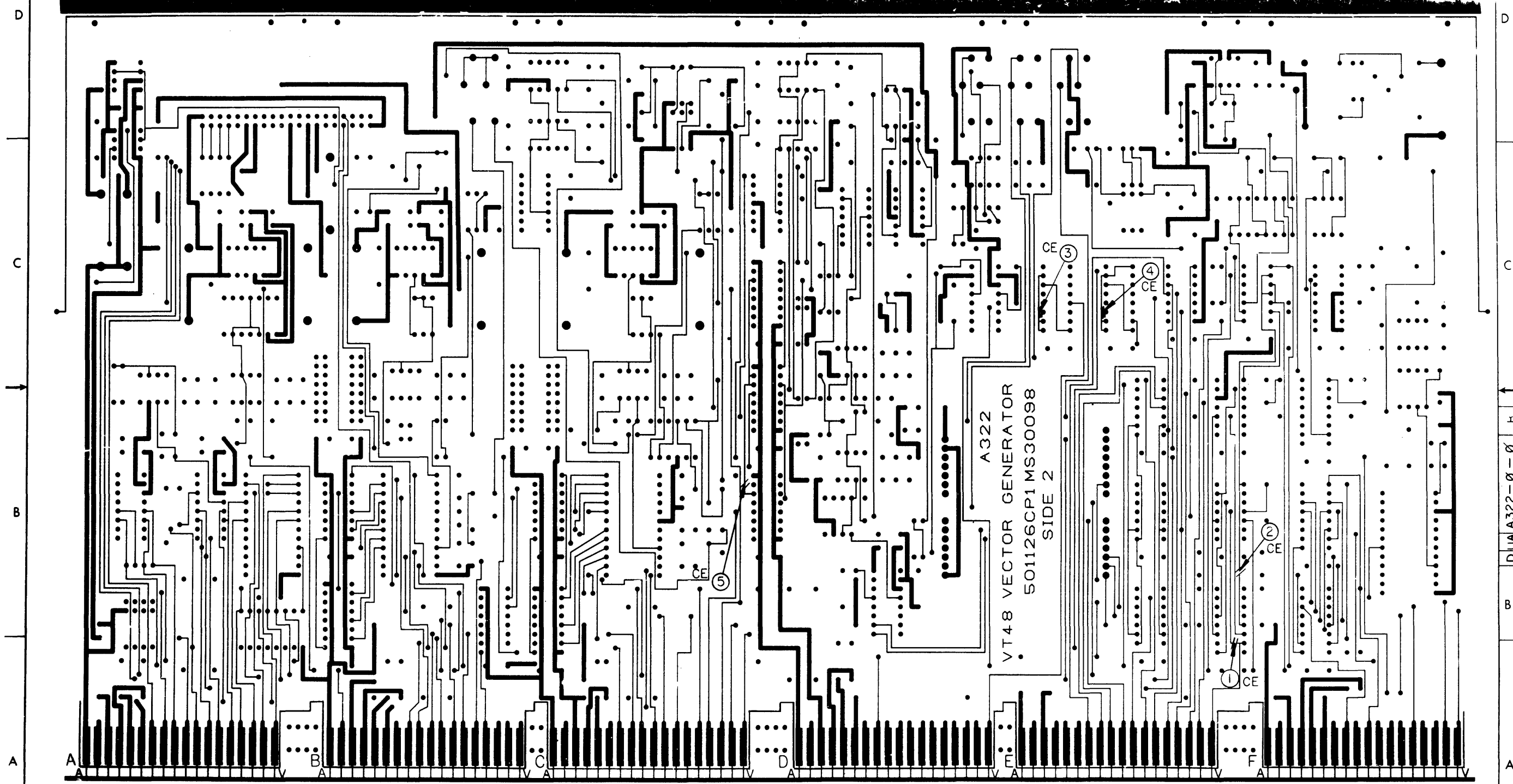
4

3

DUA A322-0-0 B 2

1975

Р 834AJ
A322 MS30098 501126CP1



REVISIONS		
CHK	CHANGE NO	REV

VT48 VECTOR GENERATOR (LAYER 4)		CODE	NUMBER	REV.
DUA A322-0-0		DIST	4 OF 5	B

DUA A322-0-0 B

8

7

6

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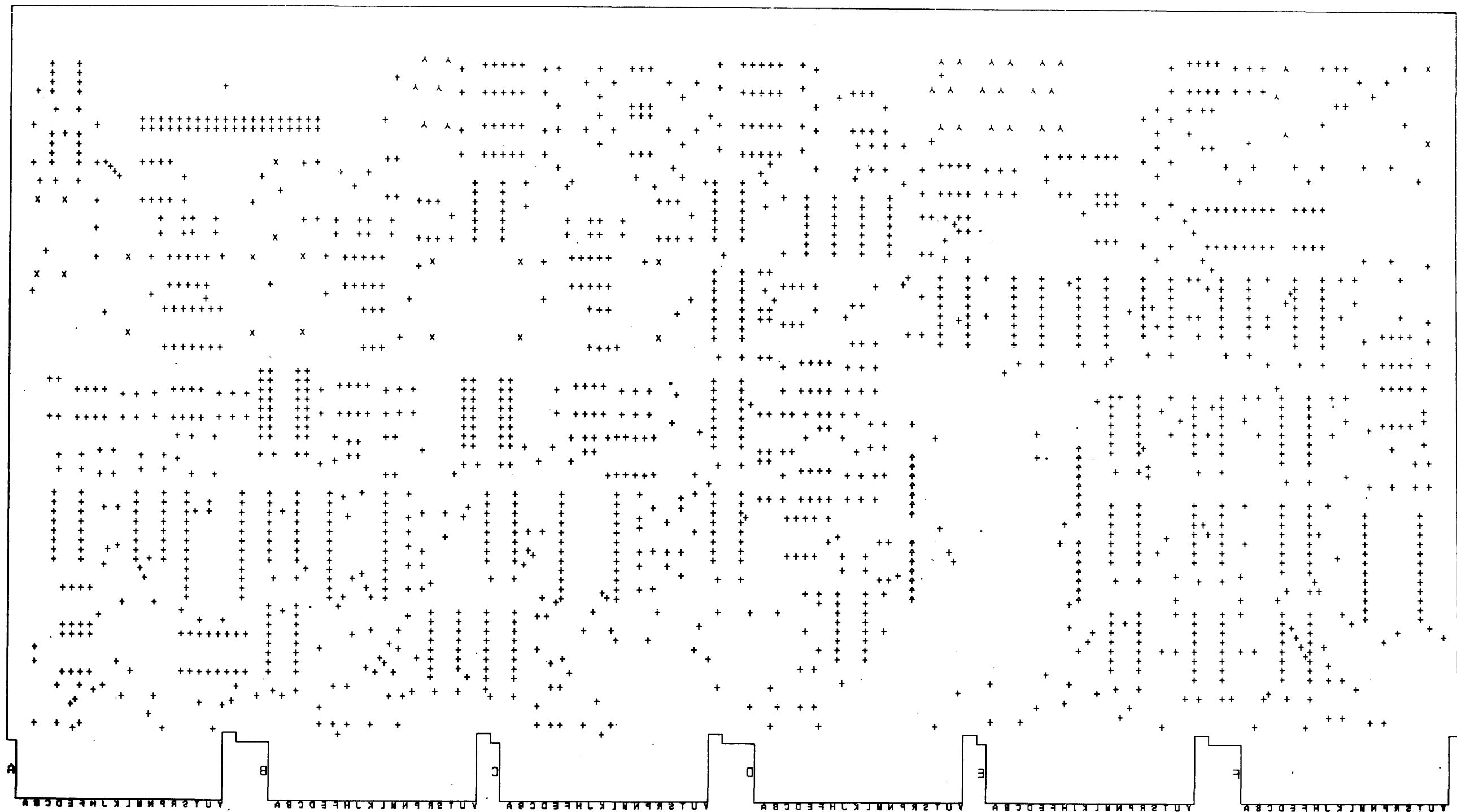
4

3

2

1

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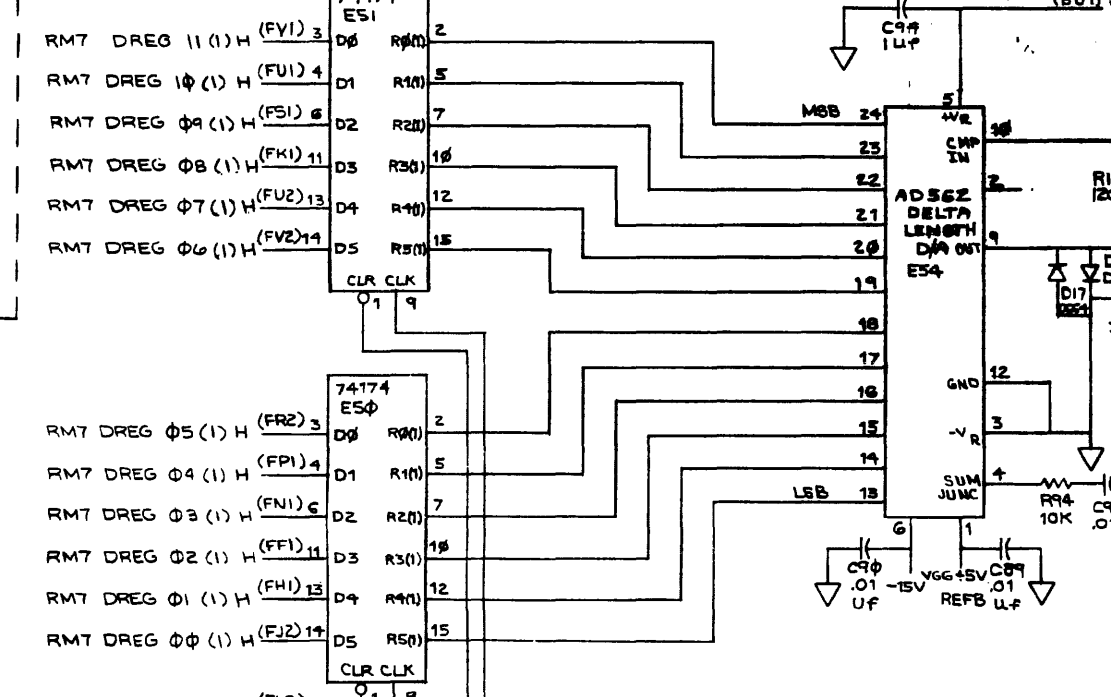
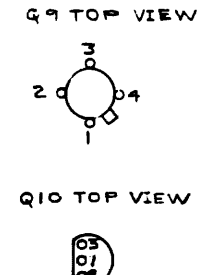
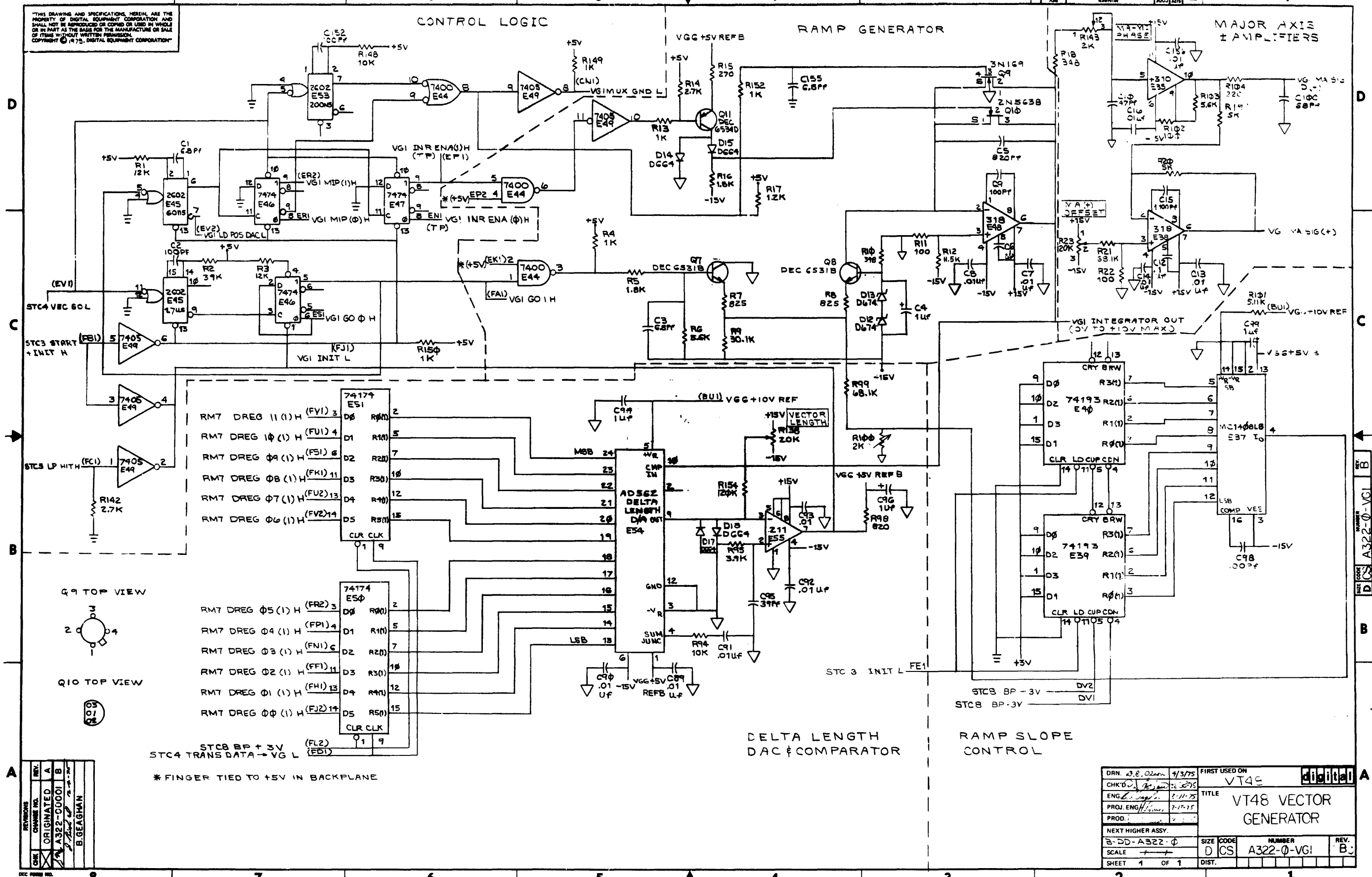


REVISIONS		
CHK	CHANGE NO	REV

TITLE	VT48 VECTOR GENERATOR	SIZE CODE	D UA	NUMBER	A322-0-0	REV.	B
SCALE	2/1	SHEET	5 OF 5	DIST.			

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19A-0-2227 2

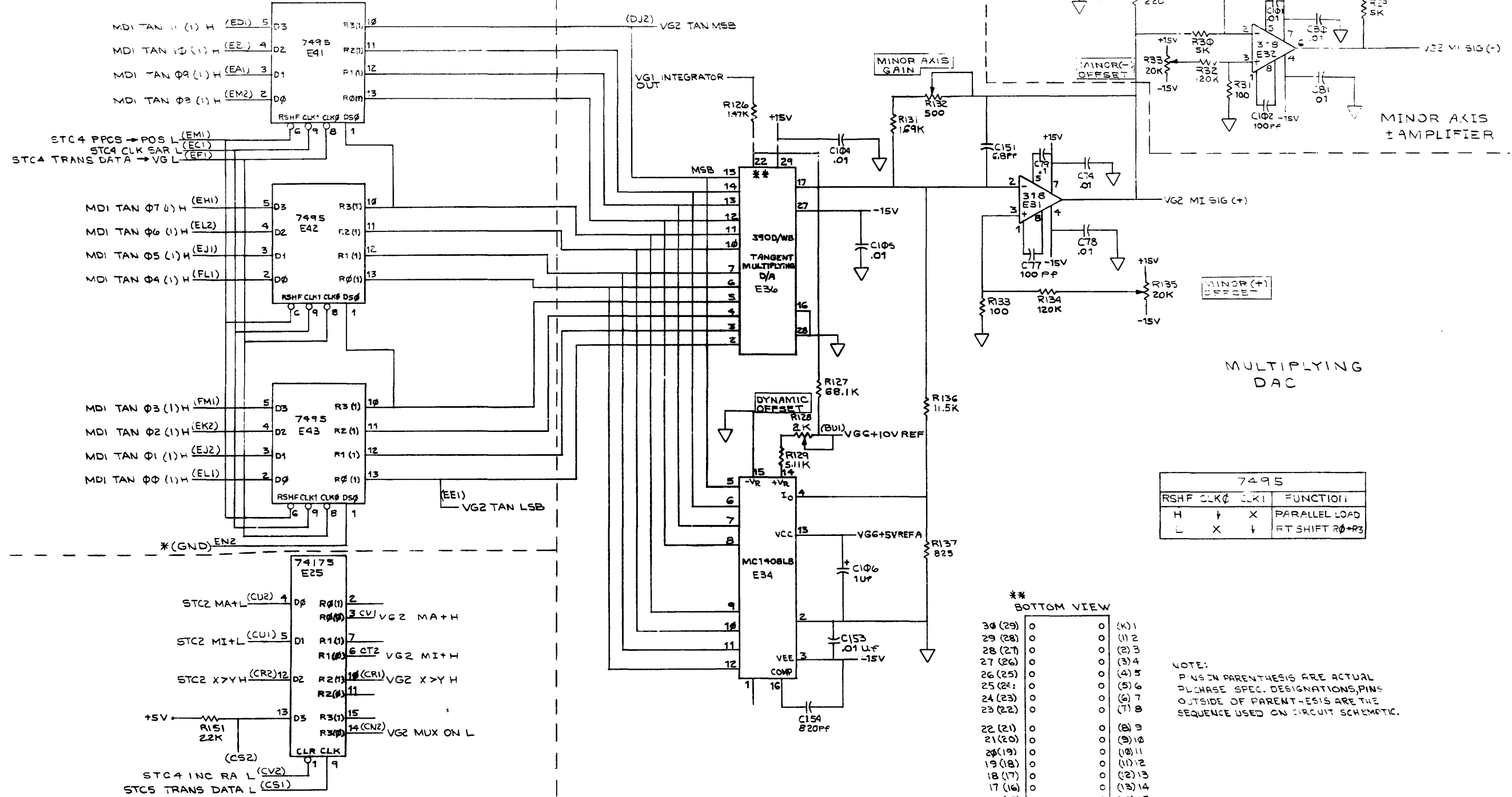


STC8 BP +3V (FL2)
 STC4 TRANS DATA → VG L (FD1)
 * FINGER TIED TO +5V IN BACKPLANE

DRN: J.S. Oram	4/3/75	FIRST USED ON	VT48
CHK'D: J.S. Oram	4/3/75	TITLE	VT48 VECTOR GENERATOR
ENG: J.S. Oram	7-11-75	SIZE	D
PROJ. ENG: J.S. Oram	7-17-75	CODE	CS
PROD: J.S. Oram	7-17-75	NUMBER	A322-0-VG1
NEXT HIGHER ASSY:		REV.	B
B-DD-A322-0		SCALE	
SHEET 1 OF 1		DIST.	

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MULTIPLYING DAC REG



7495			
RSHF CLK	CLK1	FUNCTION	
H	↑	X	PARALLEL LOAD
L	X	↓	RT SHIFT R0-R3

** BOTTOM VIEW

30 (29)	0	0	(K) 1
29 (28)	0	0	(1) 2
28 (27)	0	0	(2) 3
27 (26)	0	0	(3) 4
26 (25)	0	0	(4) 5
25 (24)	0	0	(5) 6
24 (23)	0	0	(6) 7
23 (22)	0	0	(7) 8
22 (21)	0	0	(8) 9
21 (20)	0	0	(9) 10
20 (19)	0	0	(10) 11
19 (18)	0	0	(11) 12
18 (17)	0	0	(12) 13
17 (16)	0	0	(13) 14
16 (15)	0	0	(14) 15

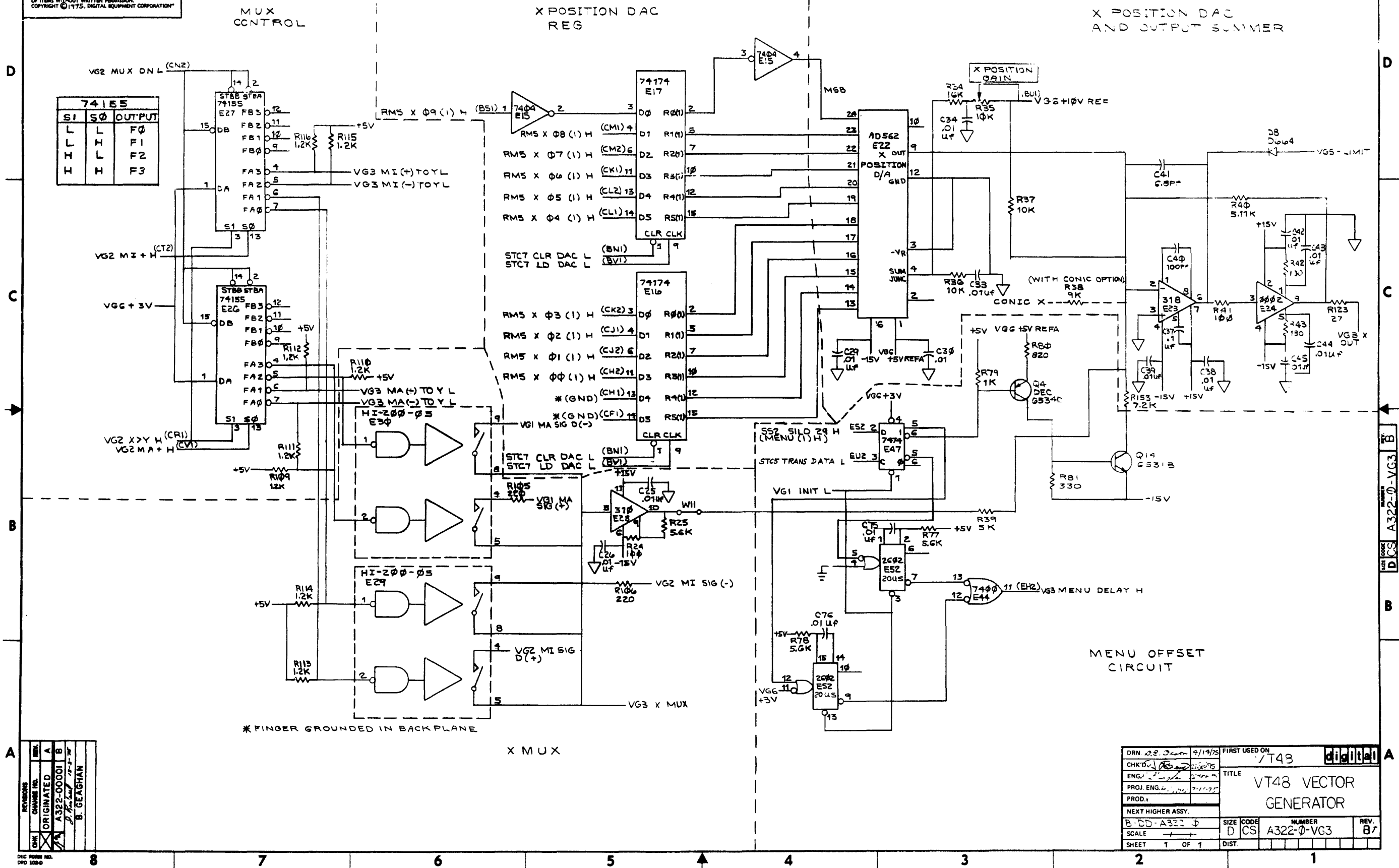
NOTE:
PINS IN PARENTHESIS ARE ACTUAL
PURCHASE SPEC. DESIGNATIONS, PINS
OUTSIDE OF PARENTHESIS ARE THE
SEQUENCE USED ON CIRCUIT SCHEMATIC.

REV.	CHG.	NO.	DATE	BY
1	ORIGINATED	A		
2	DESIGNED	B		
3	APPROVED	C		

MUX CONTROL REG.
* FINGER GROUNDED IN BACKPLANE

DRN. D.E. Shann	22 Sep 75	FIRST USED ON	VT48
CHK'D D. Shann	22 Sep 75	TITLE	VT48 VECTOR GENERATOR
ENG. D. Shann	2-11-75	SIZE	D CS
PROJ. ENG. D. Shann		NUMBER	A322-0-VG2
PROD. D. Shann		REV.	B
NEXT HIGHER ASSY.		DIST.	
B-50-A322-0			
SCALE 1:1			
SHEET 1 OF 1			

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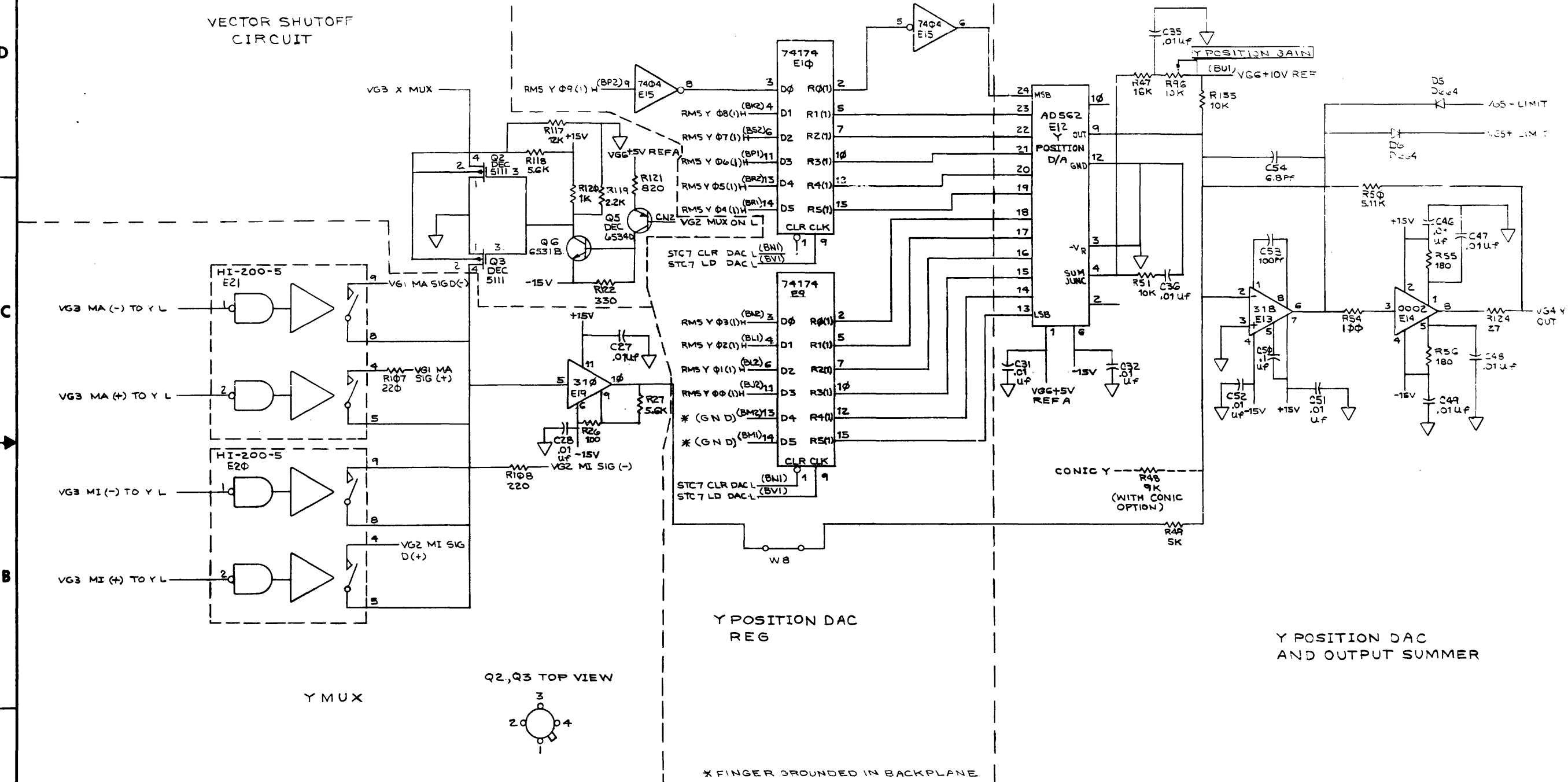


REVISED	ORIGINATED	DATE
CS	A	9/19/75
CS	B	12-1-75
CS	B	12-1-75
CS	B	12-1-75
CS	B	12-1-75
CS	B	12-1-75
CS	B	12-1-75
CS	B	12-1-75
CS	B	12-1-75
CS	B	12-1-75
CS	B	12-1-75

DRN 2.8 Jan 9/19/75	FIRST USED ON	VT48
CHK'D	DATE	9/19/75
ENG	DATE	9/19/75
PROJ. ENG.	DATE	9/19/75
PROD.	DATE	9/19/75
NEXT HIGHER ASSY.	DATE	9/19/75
B-DD-A322-0	SIZE	D
SCALE	CODE	CS
SHEET 1 OF 1	NUMBER	A322-0-VG3
	REV.	B7

REV. B A322-0-VG3

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REV. 1	DATE 10/1/75	BY B. GEHMAN
REV. 2	DATE 10/1/75	BY B. GEHMAN
REV. 3	DATE 10/1/75	BY B. GEHMAN
REV. 4	DATE 10/1/75	BY B. GEHMAN
REV. 5	DATE 10/1/75	BY B. GEHMAN
REV. 6	DATE 10/1/75	BY B. GEHMAN
REV. 7	DATE 10/1/75	BY B. GEHMAN
REV. 8	DATE 10/1/75	BY B. GEHMAN
REV. 9	DATE 10/1/75	BY B. GEHMAN
REV. 10	DATE 10/1/75	BY B. GEHMAN

DRN. 2, B. Olson 4/16/75	FIRST USED ON VT48
CHK BY J. P. [unclear] 22 Sep 75	TITLE VT48 VECTOR GENERATOR
ENG. B. [unclear] 8-11-75	SIZE CODE D CS
PROJ. ENG. [unclear] 7-9-75	NUMBER A322-0-VG4
PROD. [unclear]	REV. 3
NEXT HIGHER ASSY.	SCALE 1 OF 1
B-DD-A322-0	DIST.

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SS2 SILO ϕ_6 H (BC1)
(INTENSITY ϕ_2 (1) H)
SS2 SILO ϕ_5 H (BB1)
(INTENSITY ϕ_1 (1) H)
SS2 SILO ϕ_4 H (BA1)
(INTENSITY ϕ_0 (1) H)

VGS Z ϕ_4 (1) H (AS2)
VGS Z ϕ_5 (1) H (AS1)
VGS Z ϕ_6 (1) H (AR2)
VGS Z ϕ_7 (1) H (AR1)

VGS Z ϕ_0 (1) H (AN4)
VGS Z ϕ_1 (1) H (AN2)
VGS Z ϕ_2 (1) H (AP1)
VGS Z ϕ_3 (1) H (AP2)

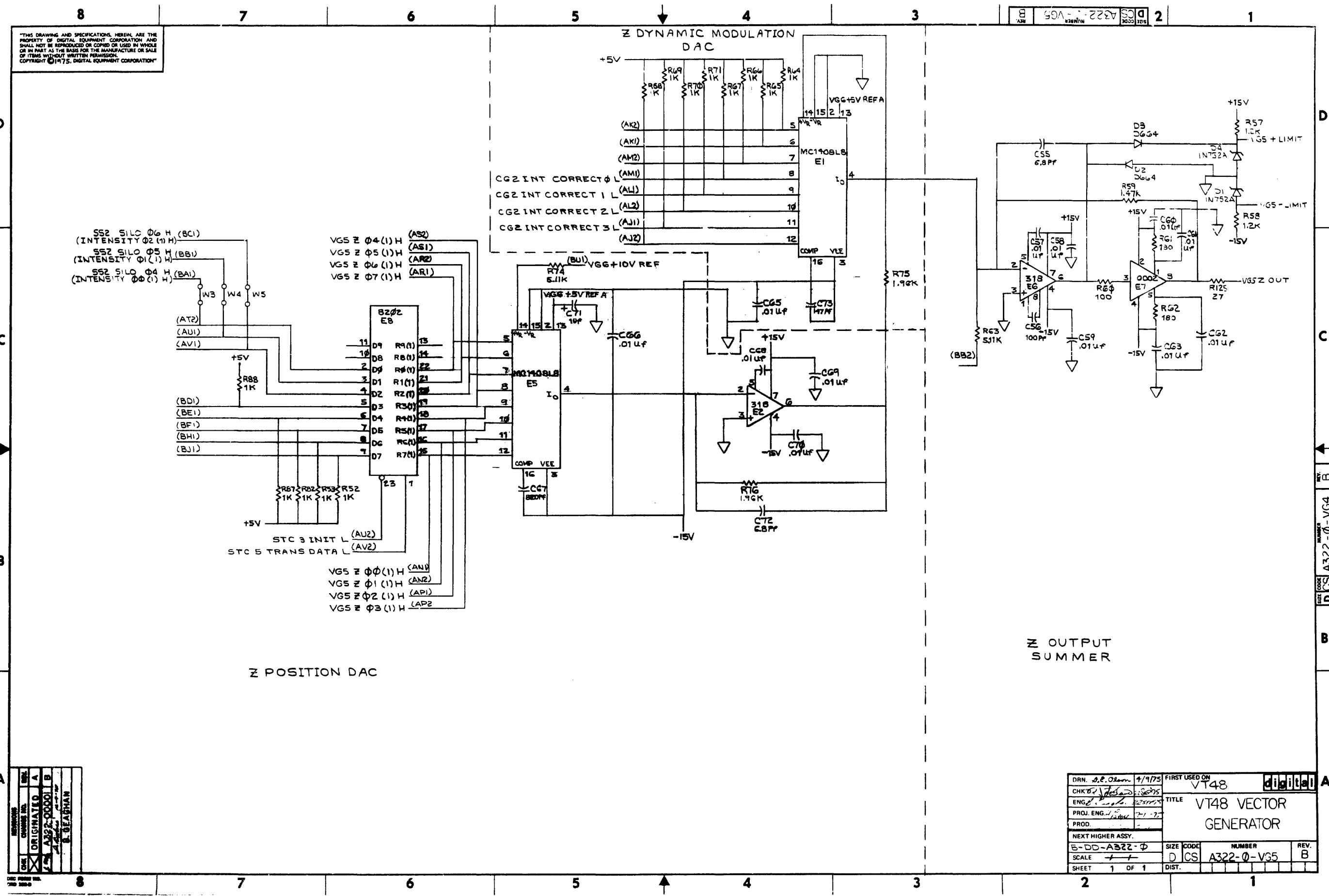
STC 3 INIT L (AU2)
STC 5 TRANS DATA L (AV2)

Z POSITION DAC

Z DYNAMIC MODULATION DAC

CG2 INT CORRECT ϕ L (AM2)
CG2 INT CORRECT 1 L (AK1)
CG2 INT CORRECT 2 L (AM1)
CG2 INT CORRECT 3 L (AL1)
CG2 INT CORRECT 3 L (AJ1)
CG2 INT CORRECT 3 L (AJ2)

Z OUTPUT SUMMER

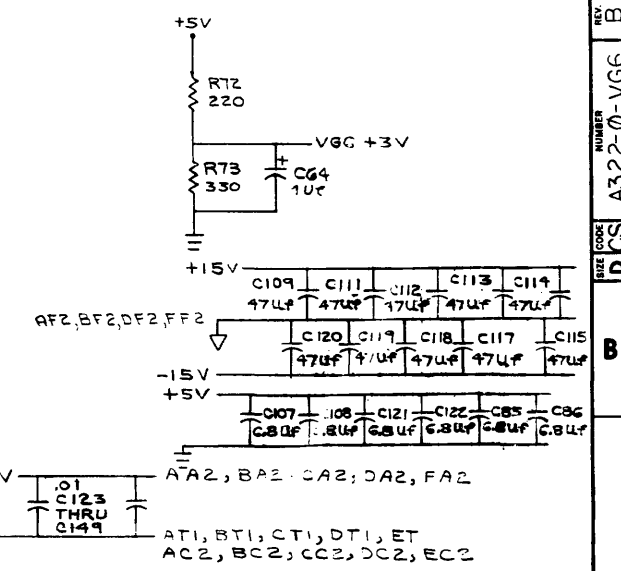
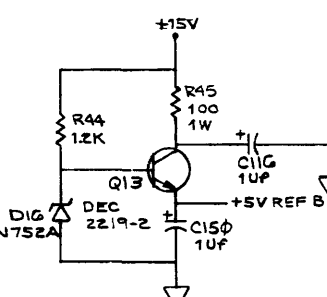
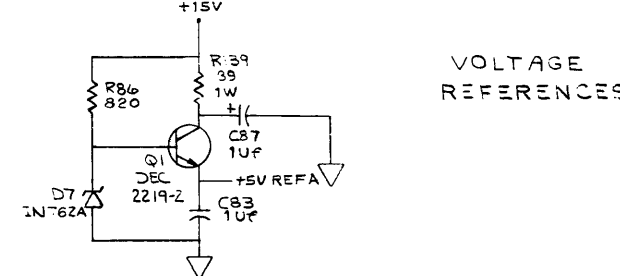
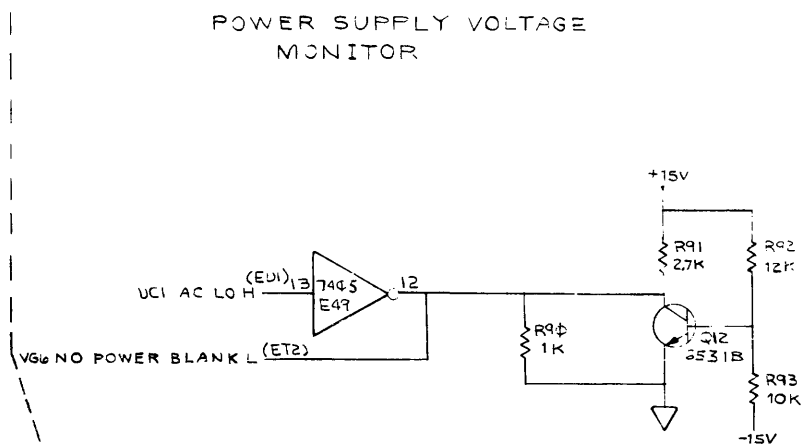
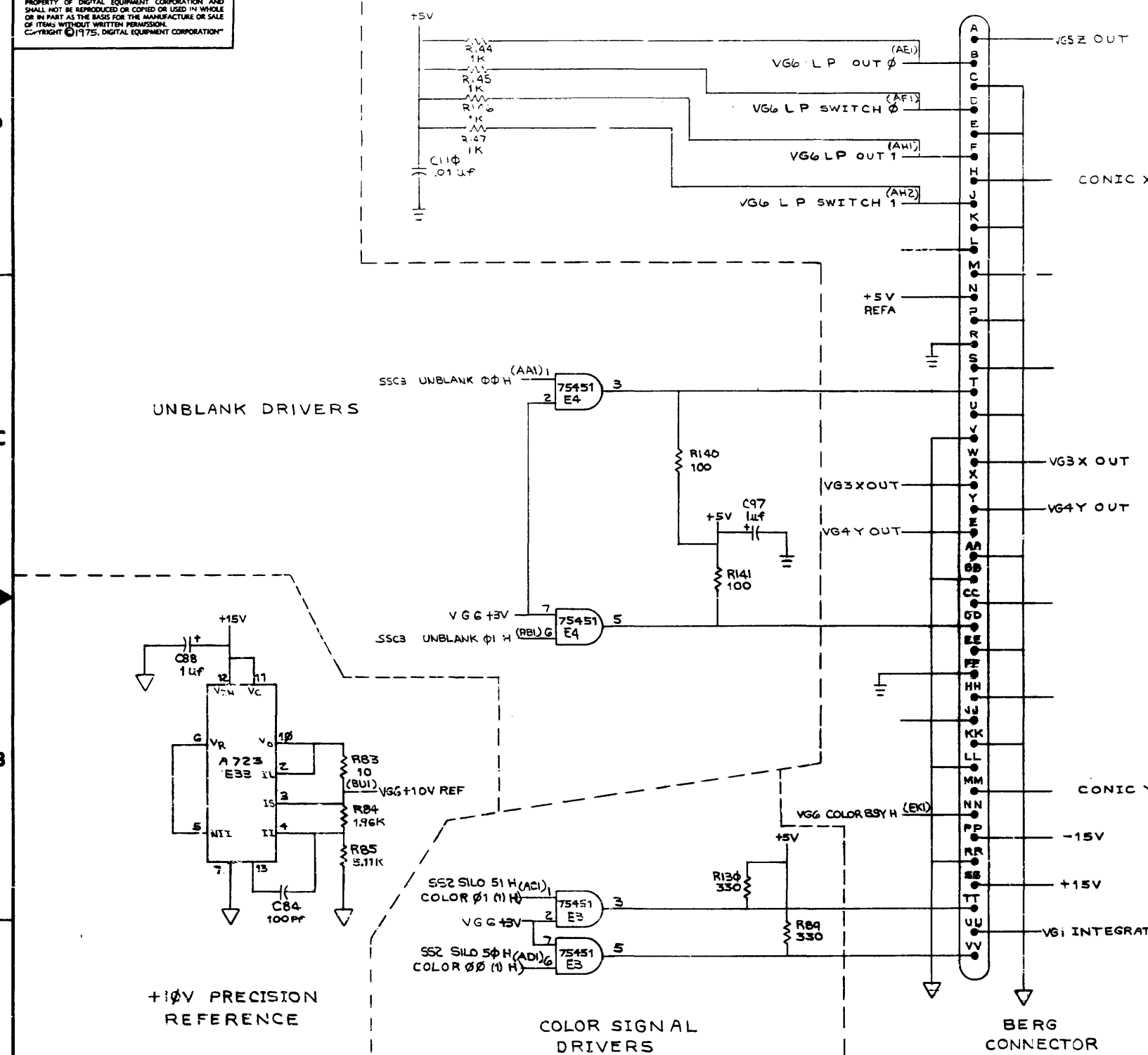


REV	DATE	BY	CHK
1			
2			
3			
4			
5			
6			
7			
8			

DRN. <i>S.E. Olson</i>	4/9/75	FIRST USED ON	VT48
CHK'D. <i>[Signature]</i>	5/28/75	TITLE	VT48 VECTOR GENERATOR
ENG. <i>[Signature]</i>	5/28/75	PROD.	
PROJ. ENG. <i>[Signature]</i>	7-1-75	NEXT HIGHER ASSY.	
SCALE		SIZE CODE	NUMBER
		D CS	A322-0-VG5
SHEET 1 OF 1	DIST.	REV.	B

REV. B
NUMBER
D CS A322-0-VG4

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- EA2 - W14 - +5V
- AD2 - W2 - +15VA
- BD2 - W7 - +15VB
- CD2 - W10 - +15VC
- DD2 - W13 - +15VD
- FD2 - W16 - +15VF
- AE2 - W1 - -15VA
- BE2 - W6 - -15VB
- CE2 - W9 - -15VC
- DE2 - W12 - -15VD
- FE2 - W15 - -15VF

DRN. J.E. Olson	4/1/75	FIRST USED ON	VT48
CHK'D		TITLE	VT48 VECTOR GENERATOR
ENG. Design	2/25/75	PROD. Eng.	1-18-75
NEXT HIGHER ASSY.		SIZE CODE	NUMBER
B-DD-A322		D CS	A322-0-VG6
SCALE		REV. B	
SHEET 1 OF 1		DIST.	

REVISION	NO.	REV.
ORIGINATED	A	B
DATE	11-22-75	1-18-75
B. GEAGAN		

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- NOTES:**
- FOR DRAWING DIRECTORY, REFER TO B-DD-M7051-B
 - UNLESS OTHERWISE SPECIFIED, THE FOLLOWING PIN NUMBERS APPLY:

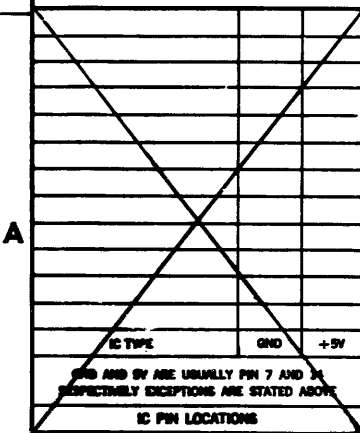
PACKAGE TYPE	VCC	GND
14 PIN DIP	14	7
16 PIN DIP	16	8
I.C. DEC 7483	5	12
I.C. DEC 8263	24	12

- WIRE ADDS SIDE #1 AS SHOWN (ITEM #20):
- ADD WIRE FROM E74(12) TO E75(12).
 - ADD WIRE FROM E42(8) TO E43(7).
 - ADD WIRE FROM E42(12) TO E43(14).
 - ADD WIRE FROM E39(7) TO E40(8).
 - ADD WIRE FROM E39(14) TO E40(16).

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		ETCHED CIRCUIT BOARD	5011009	1
81	C1 THRU C79, C96, C97	CAP. .01uf 5% 100V	1001610-01	2
6	C80 THRU C85	CAP. 6.8mfd 10% 35V	1005306	3
1	J1	CONN. RIGHT ANGLE HEADER	1209941-02	4
1		RIGHT ANGLE HEADER LEFT LATCH	1209941-03	5
1		RIGHT ANGLE HEADER RIGHT LATCH	1209941-04	6
48	R1 THRU R49	RES. 1K 5% 1/4W	1300385	7
6	E1, E3, E5, E76, E78, F80	I.C. DEC 74295	1912567	8
6	E2, E4, E6, E77, E79, E81	I.C. DEC 74284	1912566	9
14	E7, E9, E11, E12, E31, E32, E33, E51, E52, E53, E70, E72, E74, E75	I.C. DEC 7483	1909932	10
11	E8, E10, E17, E20, E36, E41, R46, E60, E68, E71, E73	I.C. DEC 74157	1910655	11
23	E13 THRU E16, E18, E22, E23, E25, E28, E30, E34, E40, E44, E50, E54, E56, E62 THRU E67, E69	I.C. DEC 74174	1910652	12
12	E19, E21, E24, E26, E27, E29, E49, E55, E57, E58, E59, E61	I.C. DEC 8263	1910471	13
2	E35, E45	I.C. DEC 74193	1910018	14
4	E37, E38, E42, E47	I.C. DEC 74585	1912089	15
1	E39	I.C. DEC 7496	1910011	16
1	E43	I.C. DEC 7404	1909696	17
12		EYELET, HANDLE	9006732	18
1		HANDLE ASSY	1210711-2	19
1FT		WIRE #30 AWG (GRN)	9105740-55	20

D
C
B
A

D
C
B
A



FIRST USED ON OPTION MODEL
VT48

ETCH BOARD-REV

ORIGINATED	REV. A	DATE 10-28-75	DRN. R.W. Cantor
CHANGE NO.	REV.	DATE 8-26-75	DRN. [Signature]
REVISIONS		DATE 8-30-75	ENG. [Signature]
		DATE 8-30-75	PROJ. ENG. [Signature]
		DATE 8-30-75	PROD. [Signature]

digital

TITLE: VT48 MUX AND REG

SCALE: NONE

SHEET 1 OF 5

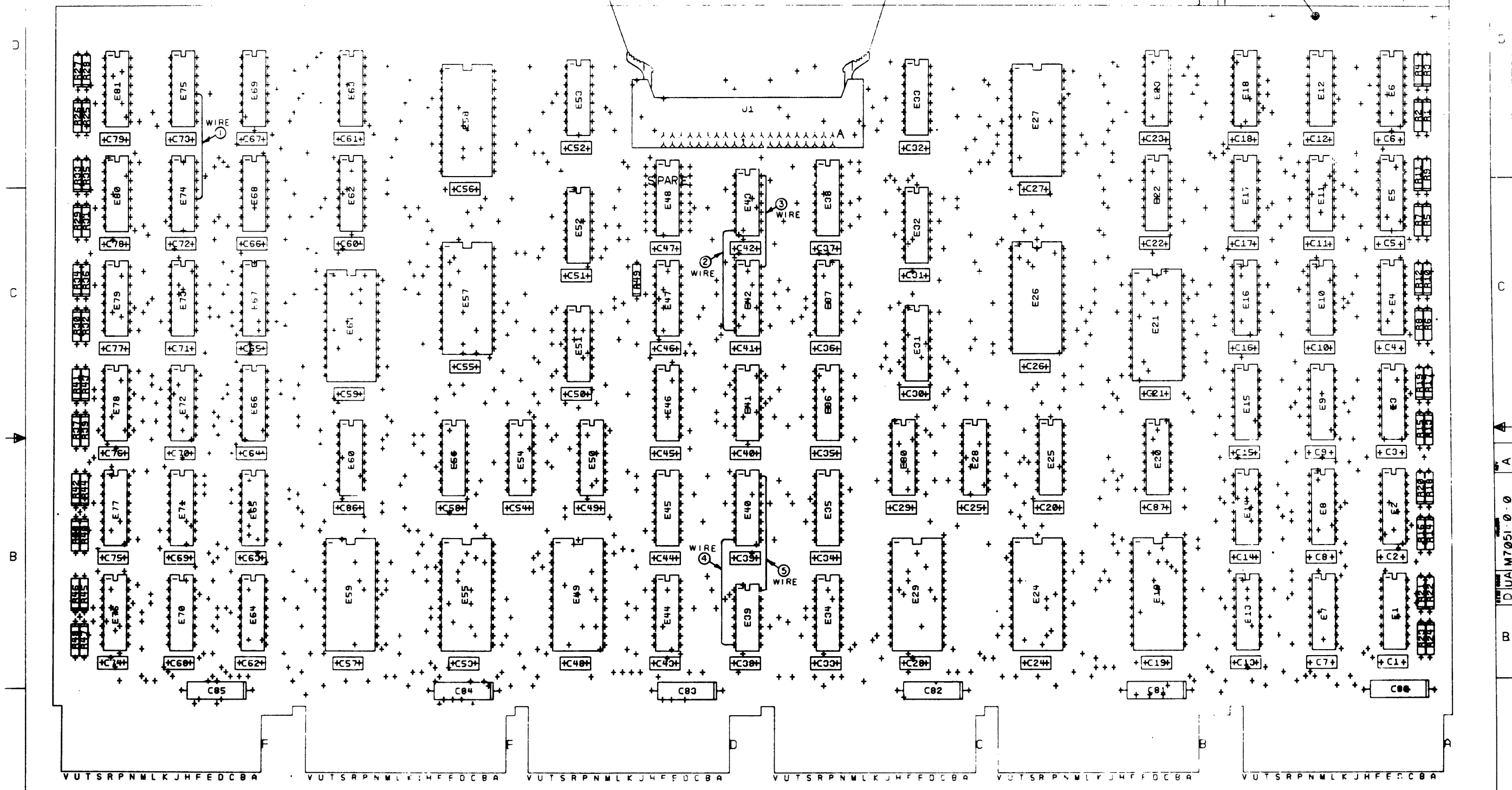
SEMICONDUCTOR CONVERSION CHART

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

SIZE CODE: DUA NUMBER: M7051-0-0 REV. A

REV. A
DUA M7051-0-0

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NOTES:

CHANGE NO.	REV.

SIGNATURES		DATE	digital
DRN. <i>[Signature]</i>	<i>[Signature]</i>	7/1/75	
CHK D. <i>[Signature]</i>	<i>[Signature]</i>	8/20/75	
ENG. <i>[Signature]</i>	<i>[Signature]</i>	8/27/75	
PROJ. ENG. <i>[Signature]</i>	<i>[Signature]</i>		
PROD. <i>[Signature]</i>	<i>[Signature]</i>		
SCALE 2/1	SIZE CODE	NUMBER	REV
SHT. 2 OF 5	D UA M7051-0-0	A	
ETCH REV	FIRST USED ON VT48		

8

7

6

5

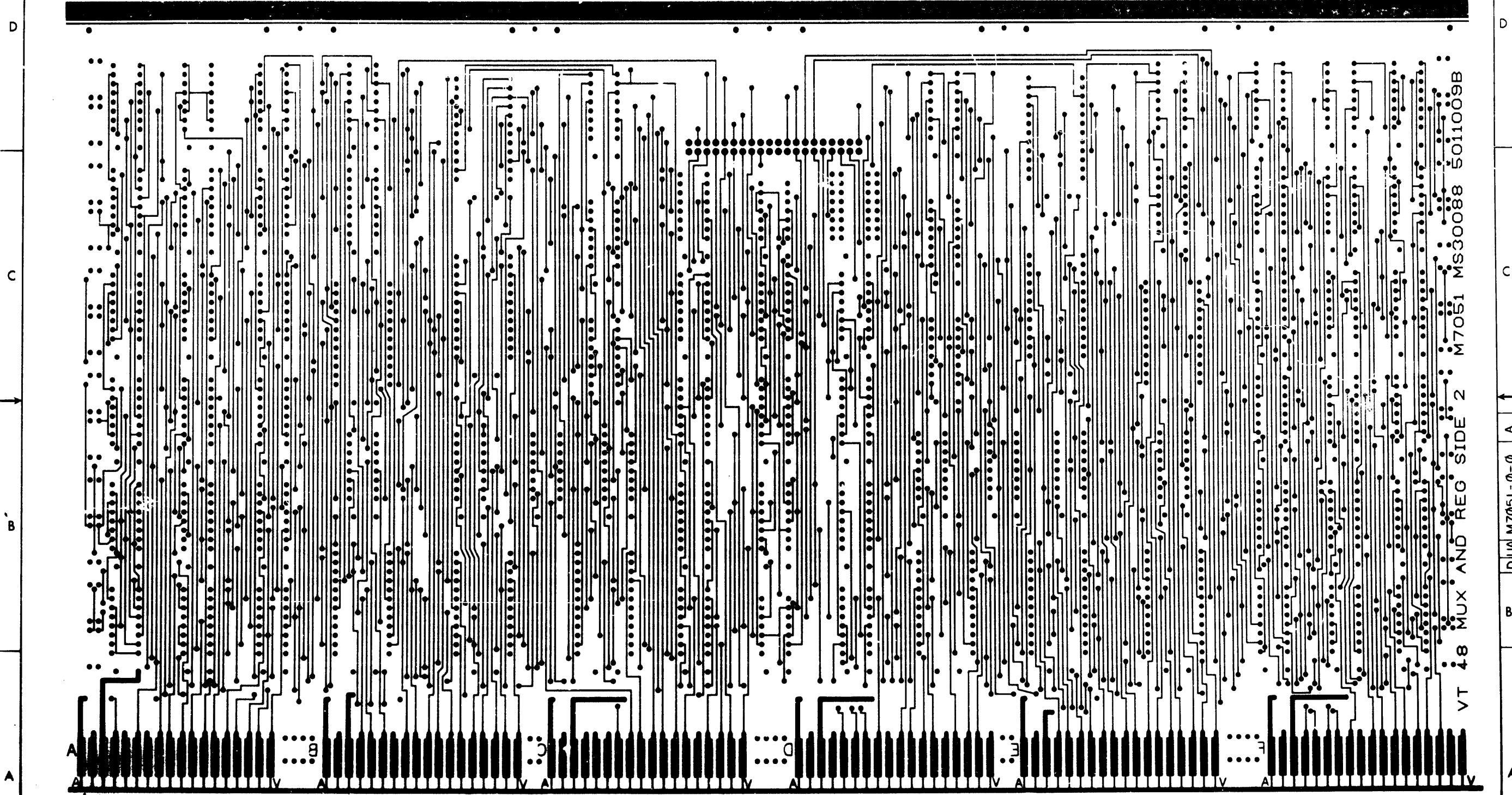
4

3

2

1 MS#

C 975

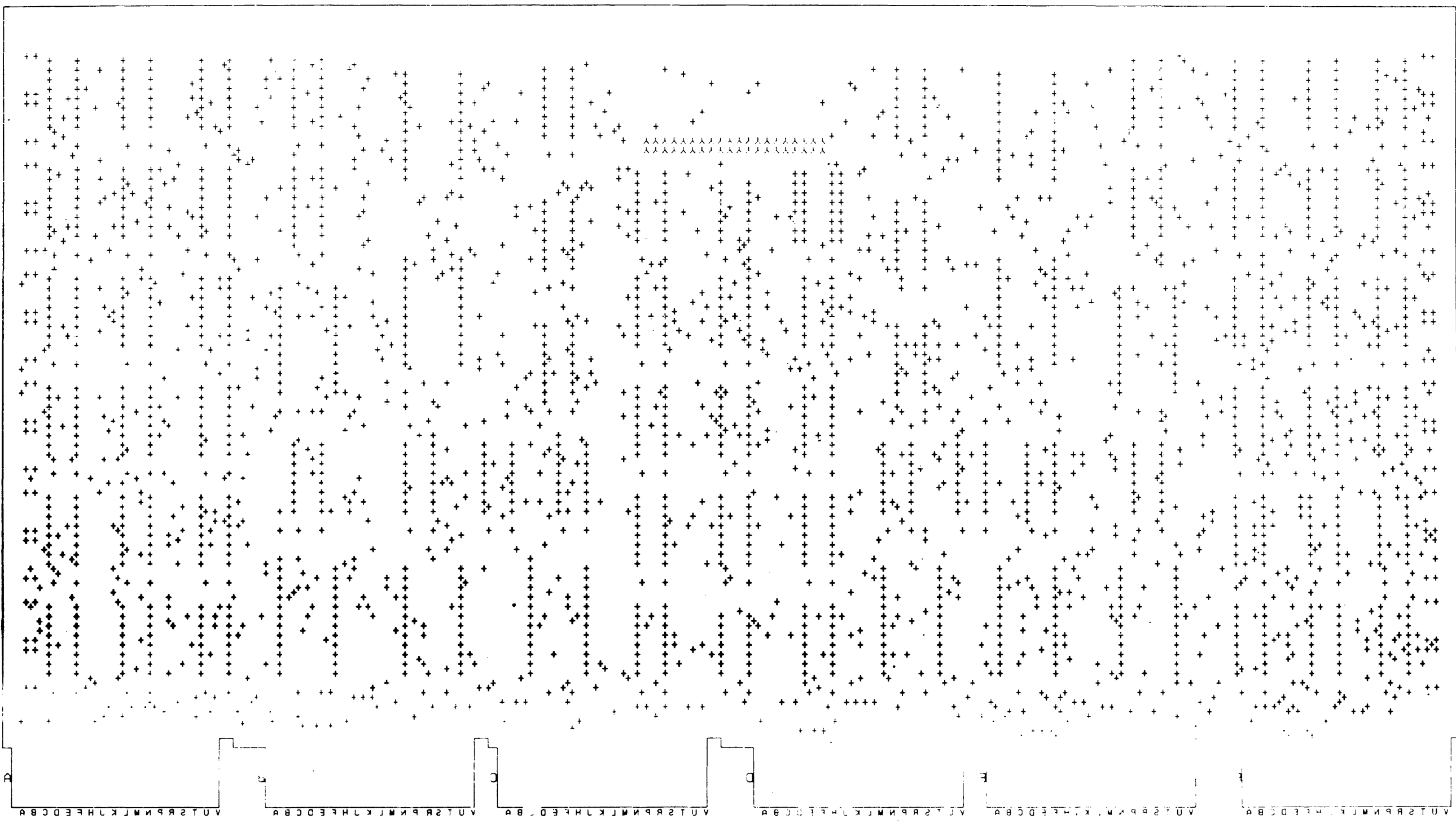


VT 48 MUX AND REG SIDE 2 M7051 MS30088 5011009B

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	VT48 MUX AND REG	SIZE CODE	D UA	NUMBER	M7051-0-0	REV.	A
SCALE	2/1	SHEET	4	OF	5	DIST.	

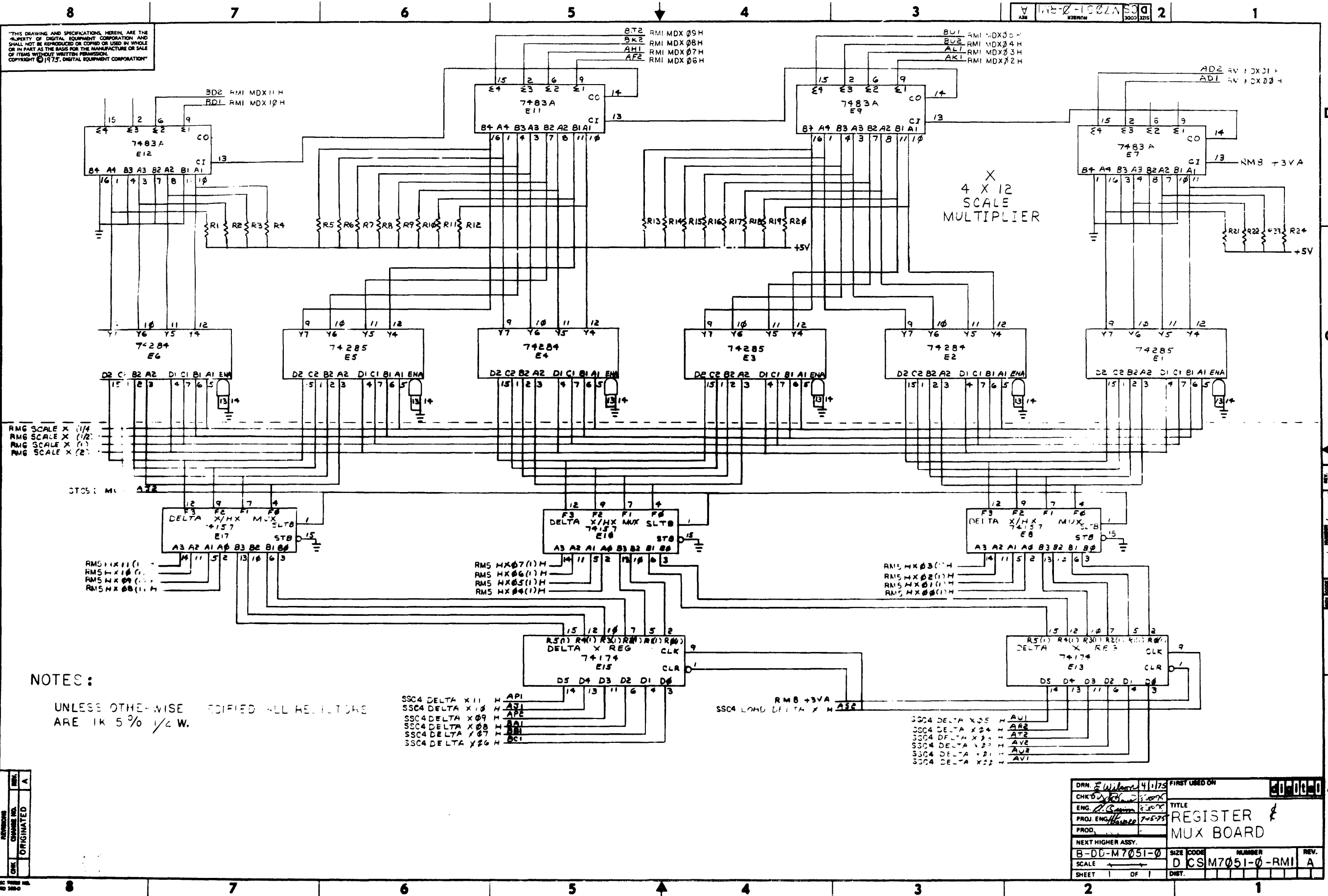
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NOTES:

CHANGE NO.	REV.

SIGNATURES		DATE	digital
DRN.			
CHK D.			
ENG.			TITLE VT48
PROD. ENG.			MUX AND REG
SCALE	2/1	SIZE CODE	NUMBER
SHT.	5 OF 5	d UA M7051-0-0	REV
ETCH REV	FIRST USED ON	VT48	



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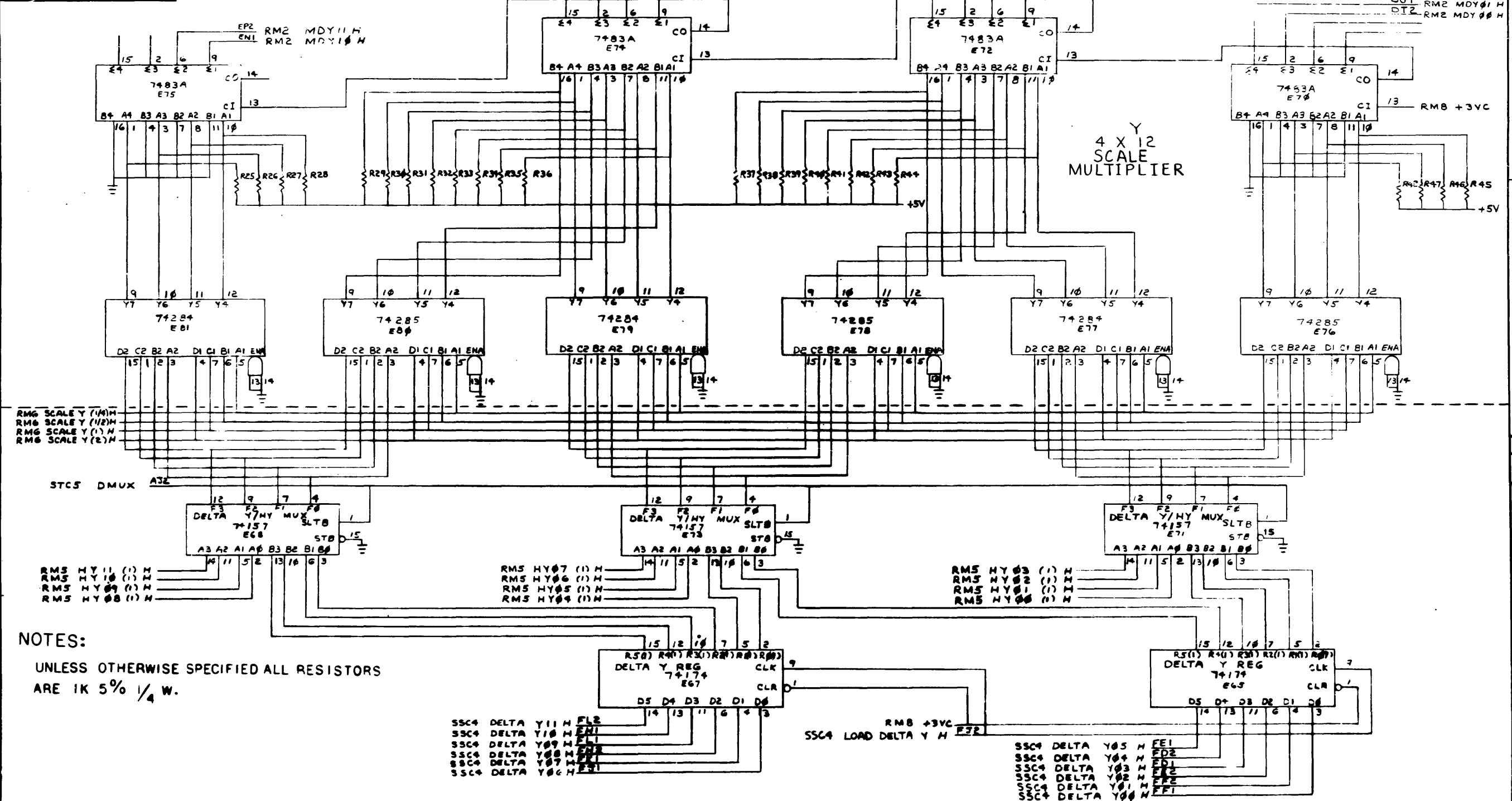
NOTES:
UNLESS OTHERWISE NOTIFIED ALL RESISTORS ARE 1K 5% 1/4 W.

SSC4 DELTA X11 H API
SSC4 DELTA X10 H A71
SSC4 DELTA X09 H A72
SSC4 DELTA X08 H A71
SSC4 DELTA X07 H A71
SSC4 DELTA X06 H A71

SSC4 DELTA X05 H A71
SSC4 DELTA X04 H A72
SSC4 DELTA X03 H A72
SSC4 DELTA X02 H A72
SSC4 DELTA X01 H A71
SSC4 DELTA X00 H A71

DRN. <i>E. Wilson</i> 4/1/75	FIRST USED ON
CHK'D. <i>[Signature]</i> 6/20/75	TITLE
ENG. <i>[Signature]</i> 2/20/75	REGISTER & MUX BOARD
PROJ. ENG. <i>[Signature]</i> 7-5-75	SIZE CODE NUMBER REV.
PROD.	B-DD-M7051-0 DCSM7051-0-RMI A
NEXT HIGHER ASSY.	SCALE
SHEET 1 OF 1	DIST.

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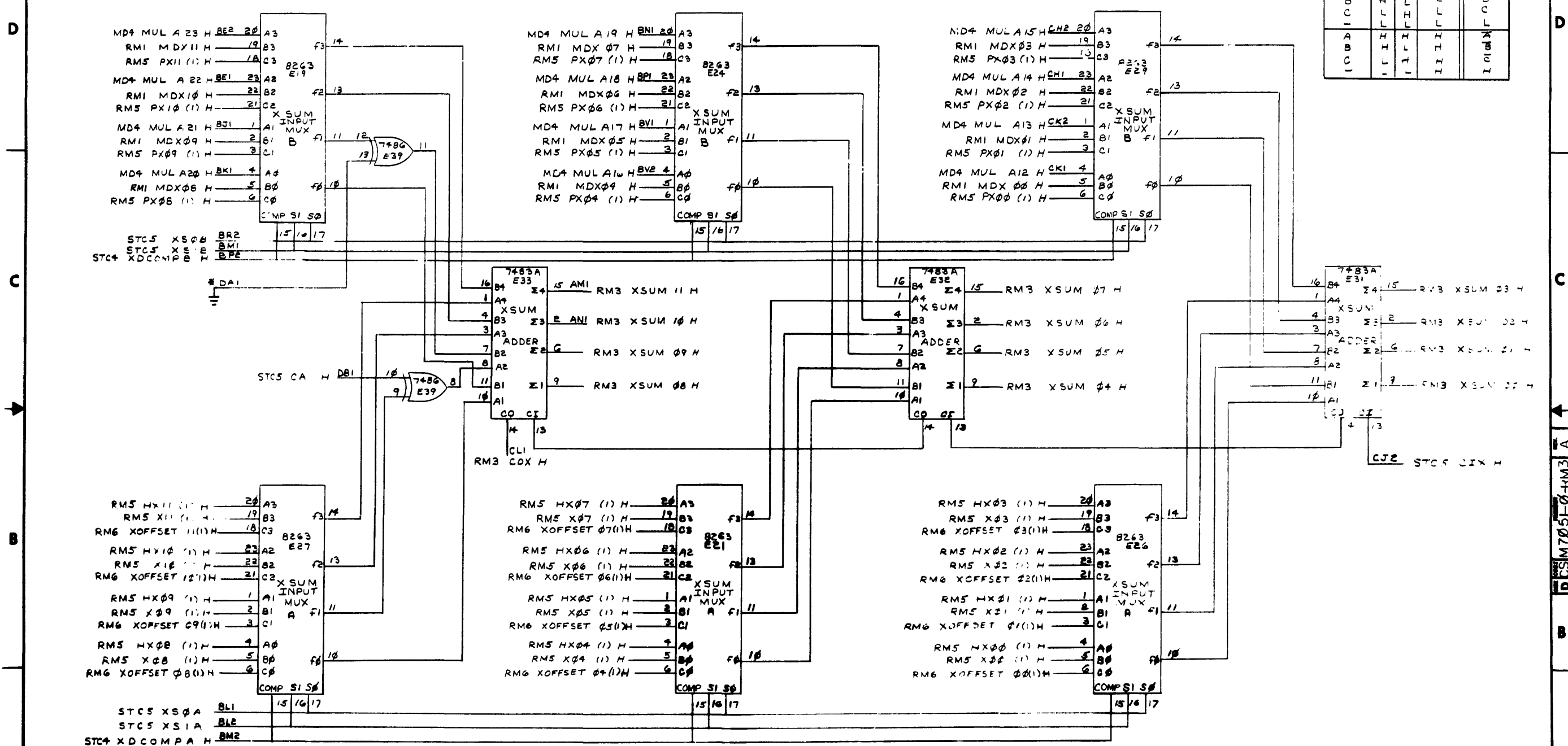
NOTES:
UNLESS OTHERWISE SPECIFIED ALL RESISTORS ARE 1K 5% 1/4 W.

UNCLASSIFIED

DRN: <i>E. Wilson</i> 4/1/75	DATE: 20-08-80
CHKD: <i>R. G. ...</i>	TITLE: REGISTER & MUX BOARD
ENG: <i>R. G. ...</i>	NUMBER: DCSM7051-0-RM2 A
PROJ. ENG: <i>R. G. ...</i>	REV.:
PROD. <i>R. G. ...</i>	SCALE:
NEXT HIGHER ASSY:	SHEET 1 OF 1
B-DD-M7051-0	DWT.

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8263				
INPUT	S1	S0	COMP	OUTPUT
A	H	H	L	A
B	L	L	L	B
C	L	L	L	C
-	L	L	L	L
A	H	H	H	K
B	L	L	H	B
C	L	L	H	C
-	L	L	H	L



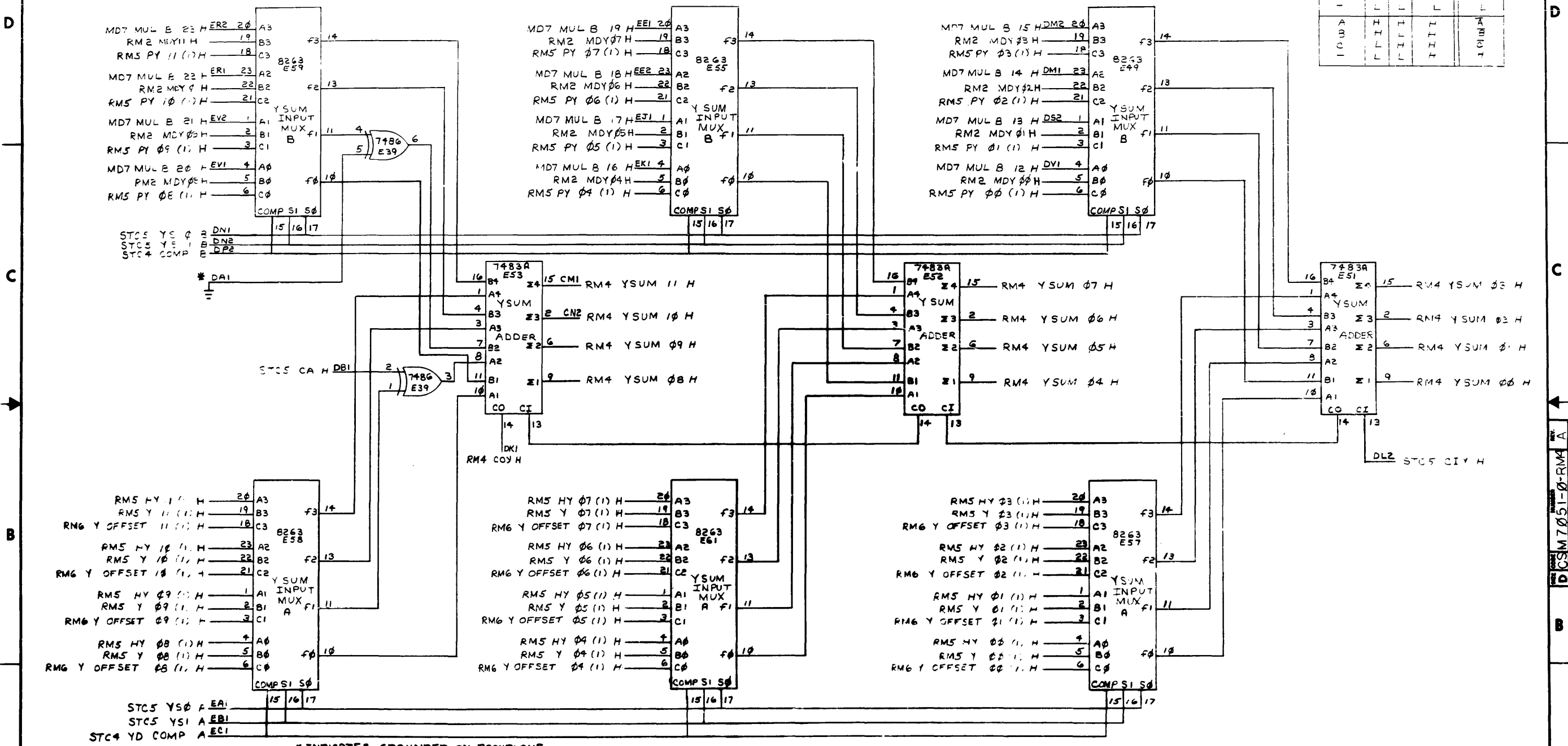
* INDICATES GROUNDED ON BACKPLANE

REVISIONS	DATE	BY	CHKD.

DRN. G. Wilson	DATE 1/24/75	FIRST USED ON	
CHKD. J. Wilson	DATE 1/24/75	TITLE	REGISTER & MUX BOARD
ENGR. J. Wilson	DATE 1/24/75		
PROJ. ENGR. J. Wilson	DATE 1/24/75		
PROD. J. Wilson	DATE 1/24/75		
NEXT HIGHER ASSY.			
B-DD-M7051-0	SIZE CODE	NUMBER	REV. A
SCALE	D	CSM7051-0-RM3	
SHEET 1	OF 1	DRY.	

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8263				
INPUT	SI	SP	COMP	OUTPUT
A	H	F	F	A
B	H	F	F	B
C	F	F	F	C
A	H	F	F	A
B	H	F	F	B
C	F	F	F	C



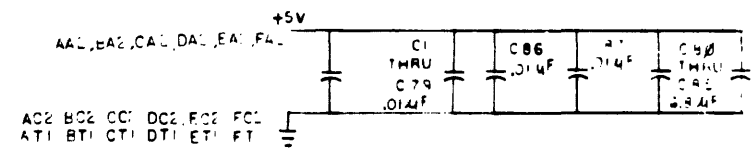
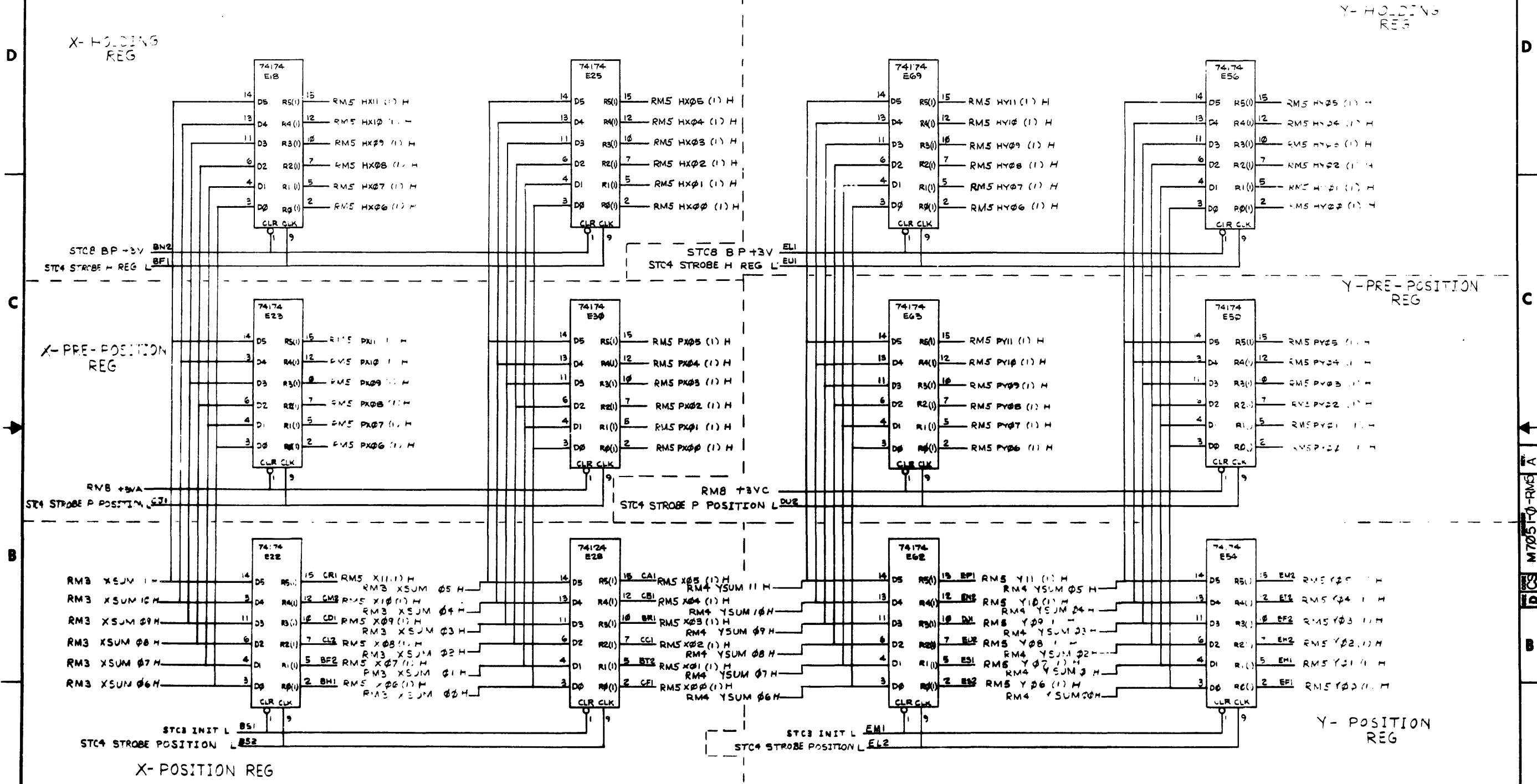
* INDICATES GROUNDED ON BACKPLANE

REV.	A
ORIGINATED	A
CHG	
REVISED	

DRN. <i>Wilson 3/17/75</i>	FIRST USED ON	80-0320
CHK'D <i>Desautels</i>	TITLE	REGISTER &
ENG. <i>W. Quinn 8/20/75</i>		MUX BOARD
PROJ. ENG. <i>W. Quinn 7-15-75</i>		
PROD.		
NEXT HIGHER ASSY.		
B-DD-M7051-0	SIZE CODE	NUM/REV
SCALE	D CSM7051-0-RM4	A
SHEET	OF	DIST.

REV. A CSM 7051-0-RM4

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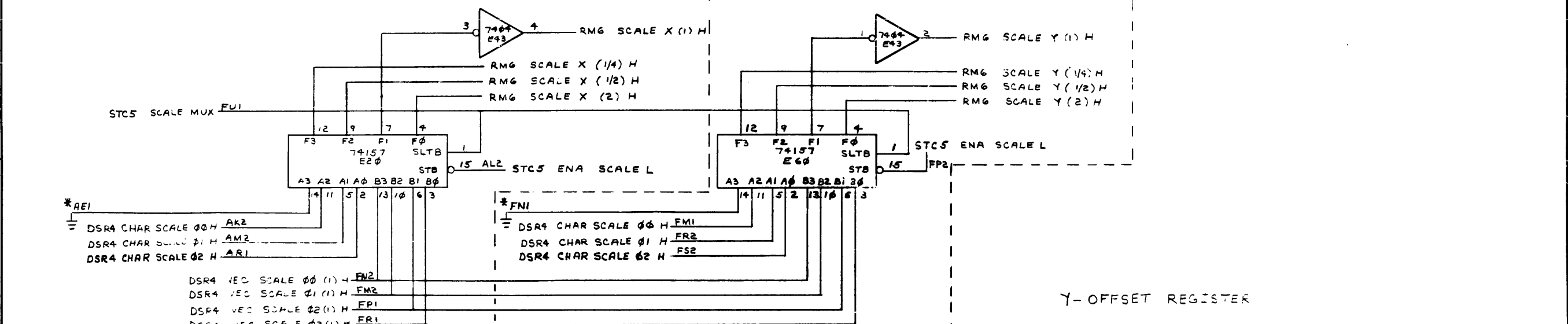
DRN	3/10/75	FIRST USED ON	30-00-0
CHK'D	3/10/75	TITLE	REGISTER & MUX BOARD
ENG	3/10/75	PROJ. ENG.	7-05-75
PROJ. ENG.	7-05-75	NEXT HIGHER ASSY.	
B-00-M7051-0	SIZE	BOOK	NUMBER
SCALE	D	CS	M7051-0-RM5
SHEET 1	OF 1	DNST.	

REV	DATE	BY	CHK
1			
2			
3			
4			
5			
6			
7			
8			

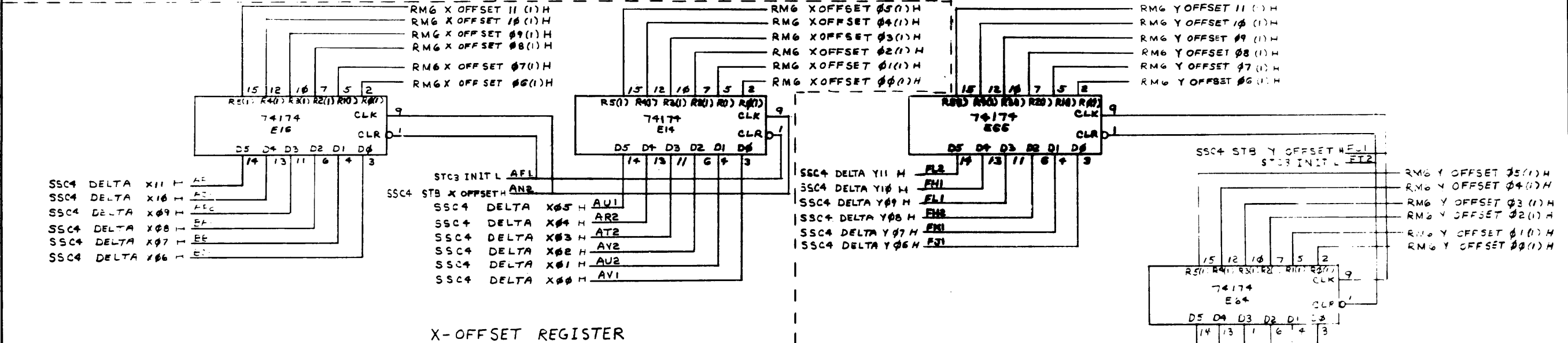
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X - CHARACTER + VECTOR SCALE MUX

Y - CHARACTER + VECTOR SCALE MUX



Y - OFFSET REGISTER



X - OFFSET REGISTER

*INDICATES GROUNDED ON BACKPLANE

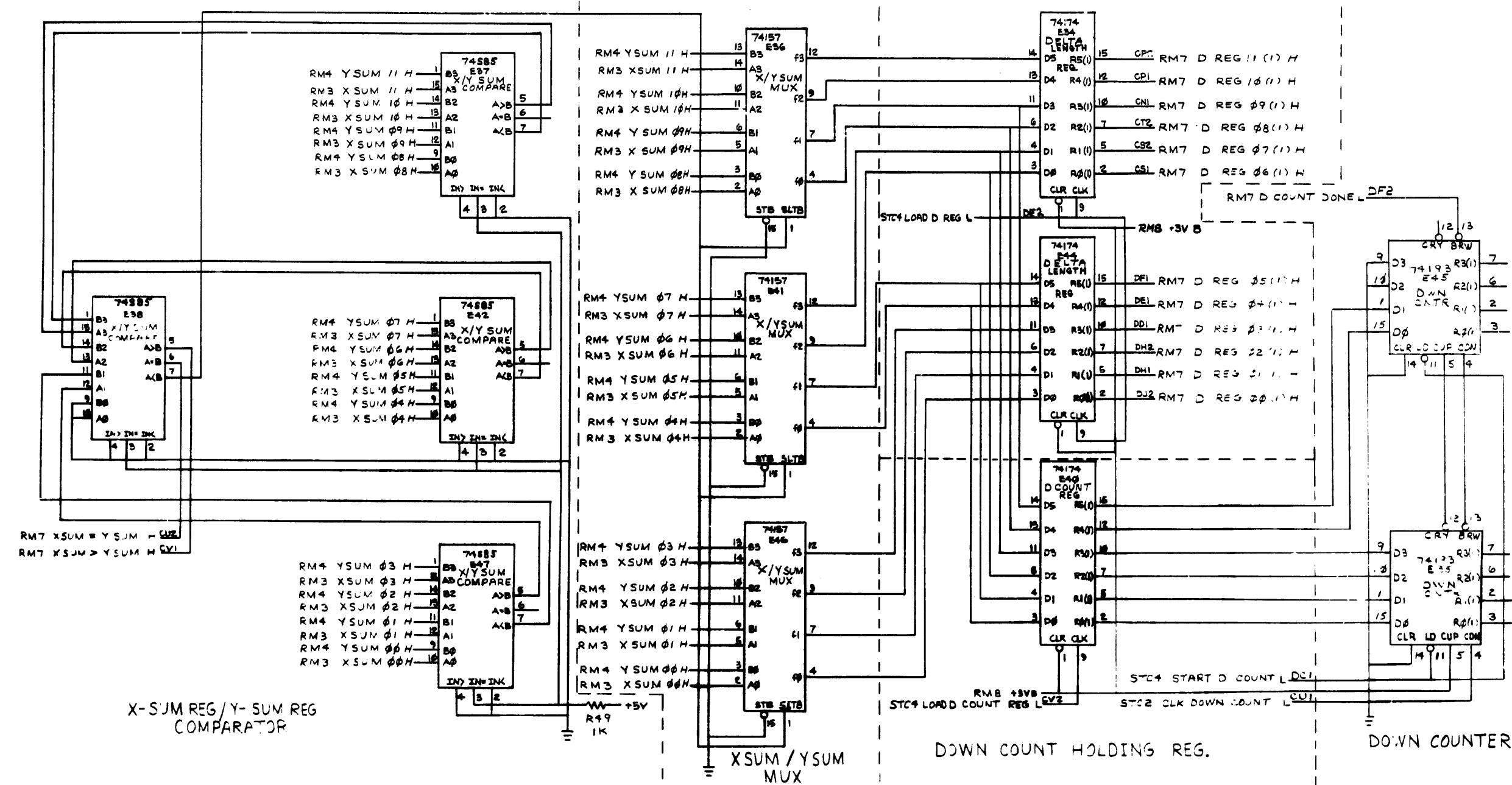
REV.	A
ORIGINATED	A

DRN	4/2/76	FIRST USED ON	20-00-00
CHK	3/2/75	TITLE	REGISTER & MUX BOARD
ENG	1/2/75	PROJ. ENG.	7-15-75
PROJ. ENG.	7-15-75	NEXT HIGHER ASSY.	
SCALE	B-DD-M7051-0	SIZE	D
SHEET	1 OF 1	REV.	A

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REV. 1
M7051-0-RM7 A
1250
SO 2

DELTA LENGTH REG



RM7 XSUM = YSUM - C42
RM7 XSUM > YSUM H C41

X-SUM REG / Y-SUM REG
COMPARATOR

XSUM / YSUM
MUX

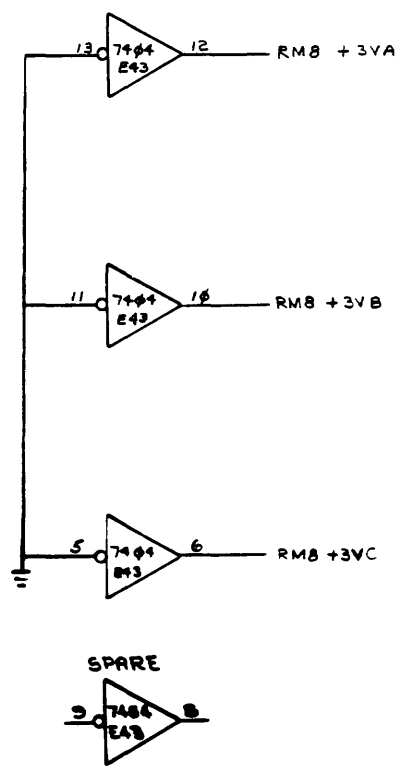
DOWN COUNT HOLDING REG.

DOWN COUNTER

REV.	ORIGINATED	A
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DRN	5/17/75	FIRST USED ON	80-0000
CHK'D	5/20/75	TITLE	REGISTER & MUX BOARD
ENG.	5/20/75	PROJ. ENG.	7-45-25
PROD.		NEXT HIGHER ARMY.	
B-DD-M7051-0	SIZE CODE	NUMBER	REV.
SCALE		D CS M7051-0-RM7 A	
SHEET	OF	DRY.	

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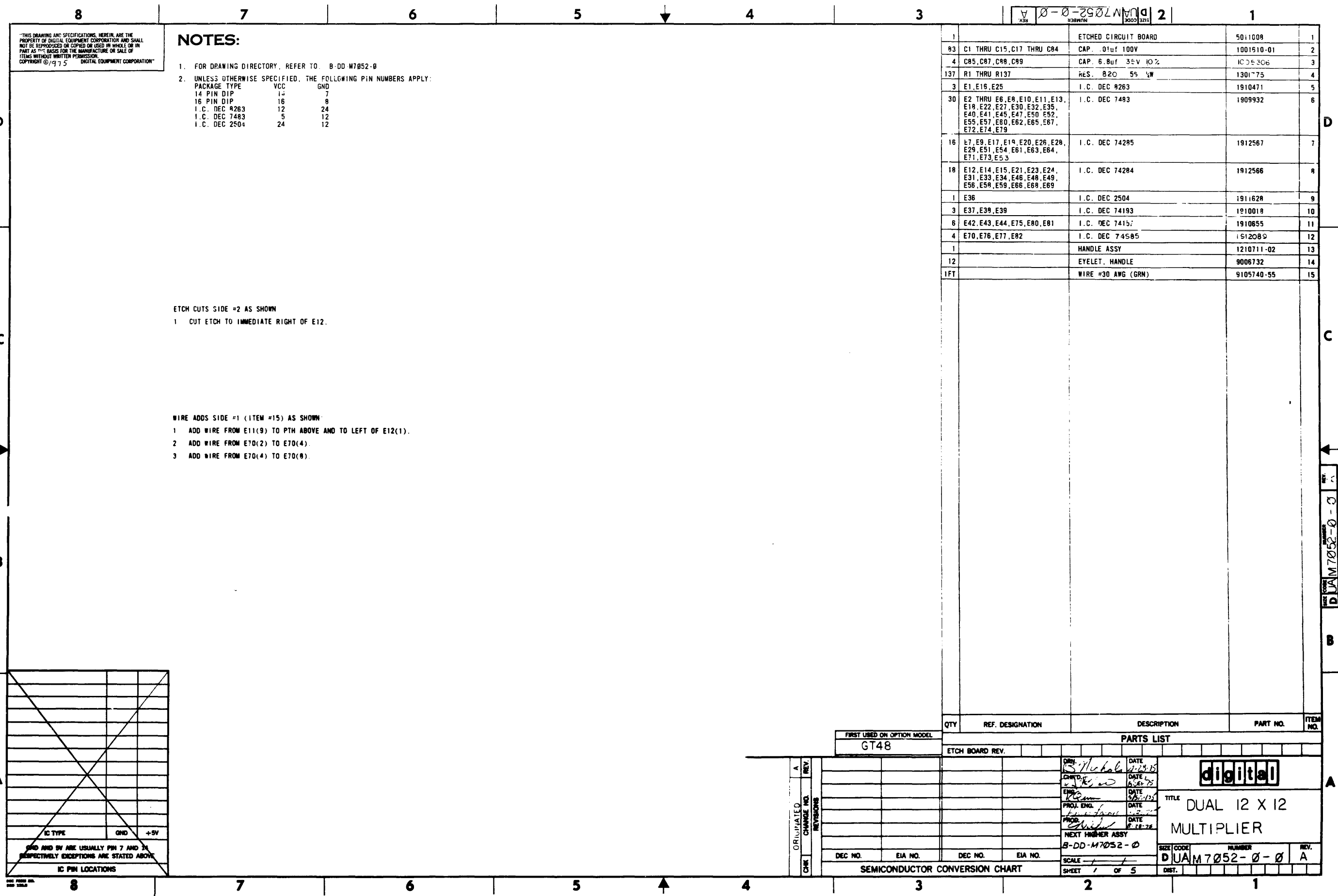
Signal	Pin	Label
RM6 X OFFSET 1φ (1) H	1	A
RM6 X OFFSET φφ (1) H	2	B
RM6 X OFFSET 11 (1) H	3	C
RM6 X OFFSET φ1 (1) H	4	D
RM5 X φ4 (1) H (CB1)	5	E
RM6 X OFFSET φ2 (1) H	6	F
RM5 X φ5 (1) H (CR1)	7	G
RM6 X OFFSET φ3 (1) H	8	H
RM5 X φ6 (1) H (BH1)	9	I
RM6 X OFFSET φ4 (1) H	10	J
RM5 X φ7 (1) H (BF2)	11	K
RM6 X OFFSET φ5 (1) H	12	L
RM5 X φ8 (1) H (CL2)	13	M
RM6 X OFFSET φ6 (1) H	14	N
RM5 X φ9 (1) H (CD1)	15	O
RM6 X OFFSET φ7 (1) H	16	P
RM5 X 1φ (1) H (CM2)	17	Q
RM6 X OFFSET φ8 (1) H	18	R
RM5 X 11 (1) H (CR1)	19	S
RM6 X OFFSET φ9 (1) H	20	T
RM5 Y 11 (1) H (EP1)	21	U
RM6 Y OFFSET φ9 (1) H	22	V
RM5 Y 1φ (1) H (EN2)	23	W
RM6 Y OFFSET φ8 (1) H	24	X
RM5 Y φ9 (1) H (DT1)	25	Y
RM6 Y OFFSET φ7 (1) H	26	Z
RM5 Y φ8 (1) H (EU2)	27	AA
RM6 Y OFFSET φ6 (1) H	28	AB
RM5 Y φ7 (1) H (ES1)	29	AC
RM6 Y OFFSET φ5 (1) H	30	AD
RM5 Y φ6 (1) H (ES2)	31	AE
RM6 Y OFFSET φ4 (1) H	32	AF
RM5 Y φ5 (1) H (EM2)	33	AG
RM6 Y OFFSET φ3 (1) H	34	AH
RM5 Y φ4 (1) H (ET2)	35	AI
RM6 Y OFFSET φ2 (1) H	36	AJ
RM6 Y OFFSET 11 (1) H	37	AK
RM6 Y OFFSET φ1 (1) H	38	AL
RM6 Y OFFSET 1φ (1) H	39	AM
RM6 Y OFFSET φφ (1) H	40	AN

CONN TO M7055

DRN: <i>William</i>	FIRST USED ON: <i>6/10/75</i>
CHK'D: <i>W. J. Park</i>	TITLE: REGISTER & MUX BOARD
ENG: <i>W. J. Park</i>	
PROJ. ENG: <i>W. J. Park</i>	
PROD. ENG: <i>W. J. Park</i>	
NEXT HIGHER ASSY:	
B-DD-M7051-0	SIZE CODE: <i>1</i>
SCALE: <i>1</i>	DCS M7051-0-RMS A
SHEET: 1 of 1	DIST.:

REVISION CONTROL SHEET

CUSTOMER PRINT SET					REVISIONS																	
VFG SET		DRAWING NO	NO OF SHT	DESCRIPTION	OPTION NO/FILE DATE																	
		D-UA-M7052-0-0	5	DUAL 12 X 12 MULTIPLIER	A																	
X		D-CS-M7052-0-MD1	1	DUAL 12 X 12 MULTIPLIER	A																	
X		D-CS-M7052-0-MD2	1	DUAL 12 X 12 MULTIPLIER	A																	
X		D-CS-M7052-0-MD3	1	DUAL 12 X 12 MULTIPLIER	A																	
X		D-CS-M7052-0-MD4	1	DUAL 12 X 12 MULTIPLIER	A																	
X		D-CS-M7052-0-MD5	1	DUAL 12 X 12 MULTIPLIER	A																	
X		D-CS-M7052-0-MD6	1	DUAL 12 X 12 MULTIPLIER	A																	
X		D-CS-M7052-0-MD7	1	DUAL 12 X 12 MULTIPLIER	A																	
		K-CO-M7052-0-4	1	DUAL 12 X 12 MULTIPLIER (CALDEC DATA BASE)	B																	
		D-AH-M7052-0-5	2	DUAL 12 X 12 MULTIPLIER	A																	
		B-MH-M7052-0-6	1	MODULE ECO HISTORY	-																	
		5011008	-	ETCH CIRCUIT BOARD	B																	
CUSTOMER PRINT SET CODES		X = PRINT OF DOCUMENT INCLUDED IN PRINT SET C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED			ECO NO																	
					ORIG																	
					TITLE	DUAL 12 X 12 MULTIPLIER				SHEET 2 OF 2				SIZE CODE B DD		NUMBER M7052-0				REV		



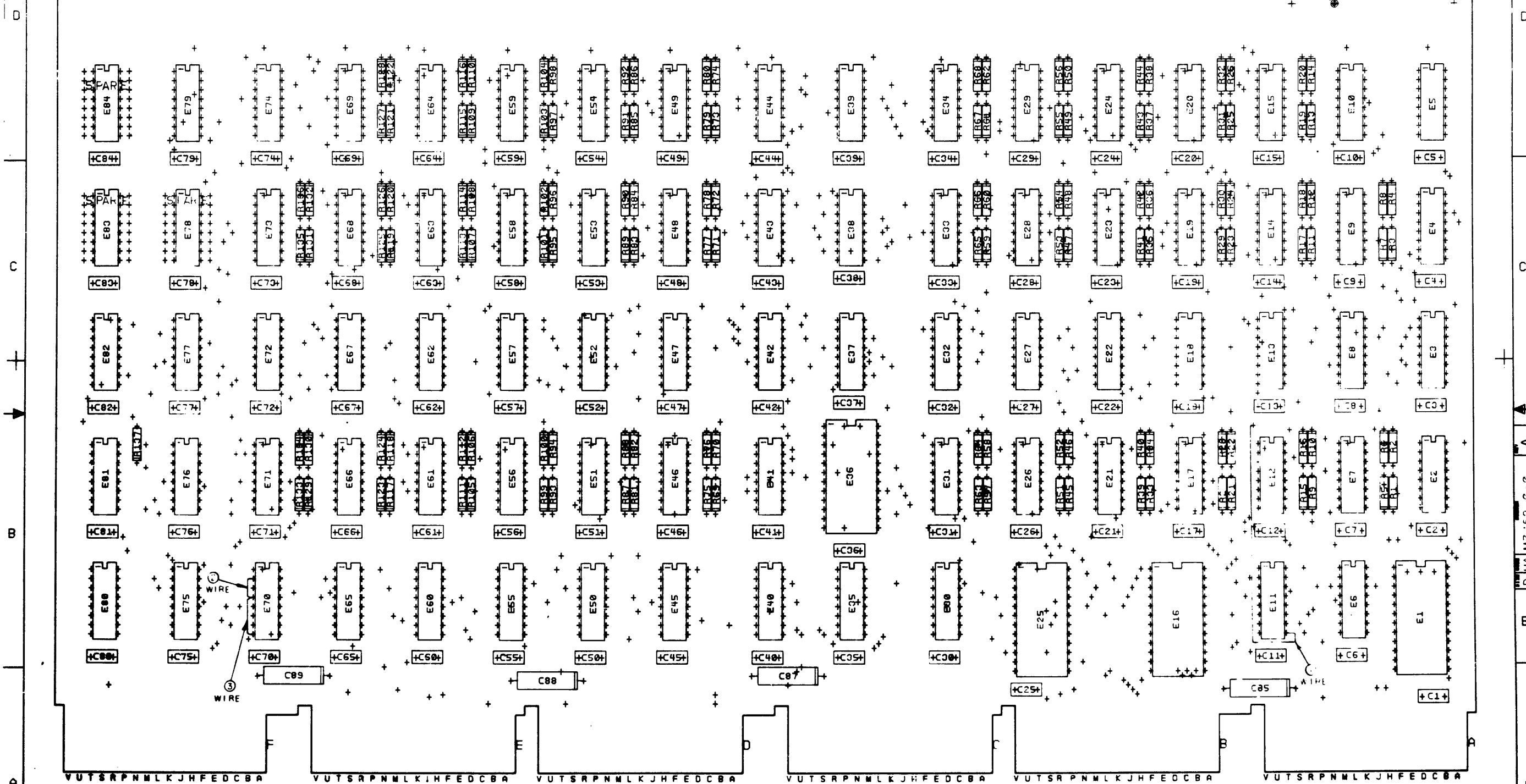
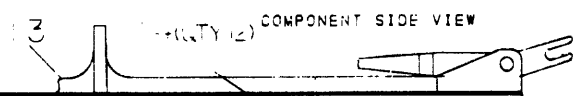
QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		ETCHED CIRCUIT BOARD	5011008	1
83	C1 THRU C15, C17 THRU C84	CAP. .01uf 100V	1001510-01	2
4	C85, C87, C88, C89	CAP. 6.8uf 35V 10%	ICD5306	3
137	R1 THRU R137	RES. 820 5% 1/4W	1301775	4
3	E1, E16, E25	I.C. DEC 9263	1910471	5
30	E2 THRU E6, E8, E10, E11, E13, E18, E22, E27, E30, E32, E35, E40, E41, E45, E47, E50, E52, E55, E57, E60, E62, E65, E67, E72, E74, E79	I.C. DEC 7483	1909932	6
16	E7, E9, E17, E19, E20, E26, E28, E29, E51, E54, E61, E63, E64, E71, E73, E53	I.C. DEC 74285	1912567	7
18	E12, E14, E15, E21, E23, E24, E31, E33, E34, E46, E48, E49, E56, E58, E59, E66, E68, E69	I.C. DEC 74284	1912566	8
1	E36	I.C. DEC 2504	1911628	9
3	E37, E38, E39	I.C. DEC 74193	1910018	10
6	E42, E43, E44, E75, E80, E81	I.C. DEC 74157	1910655	11
4	E70, E76, E77, E82	I.C. DEC 74585	1512089	12
1		HANDLE ASSY	1210711-02	13
12		EYELET, HANDLE	9006732	14
1FT		WIRE #30 AWG (GRN)	9105740-55	15

ORIGINATED		REV.		DATE		DATE		DATE		DATE	
CHG	NO.	CHG	NO.	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
1		1		4-23-75	6-27-75	5-20-75	6-27-75	6-27-75	6-27-75	6-27-75	6-27-75
SEMICONDUCTOR CONVERSION CHART				TITLE		DUAL 12 X 12		MULTIPLIER		REV. A	
GT48				PARTS LIST		ETCH BOARD REV.		SCALE		SHEET 1 OF 5	
FIRST USED ON OPTION MODEL				DEC NO.		EIA NO.		DEC NO.		EIA NO.	
GT48											

DUAL M7052-0-0

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7-1234-1 2 1



NOTES:

CHANGE NO	REV

SIGNATURES	DATE	digital
DRN. <i>[Signature]</i>	1975	
CHK'D. <i>[Signature]</i>	1975	
ENG. <i>[Signature]</i>	1975	
PROD. <i>[Signature]</i>	1975	
TITLE		DUAL 12 X 12 MULTIPLIER
SCALE 2X	SIZE CODE	NUMBER
SHT. 2 OF 5	DUA	M7052-0-01A
ETCH REV	FIRST USED ON	V148

8 7 6 5 4 3 2 1 MS#

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3

2 DUAL M7052-0-0 A

C 975

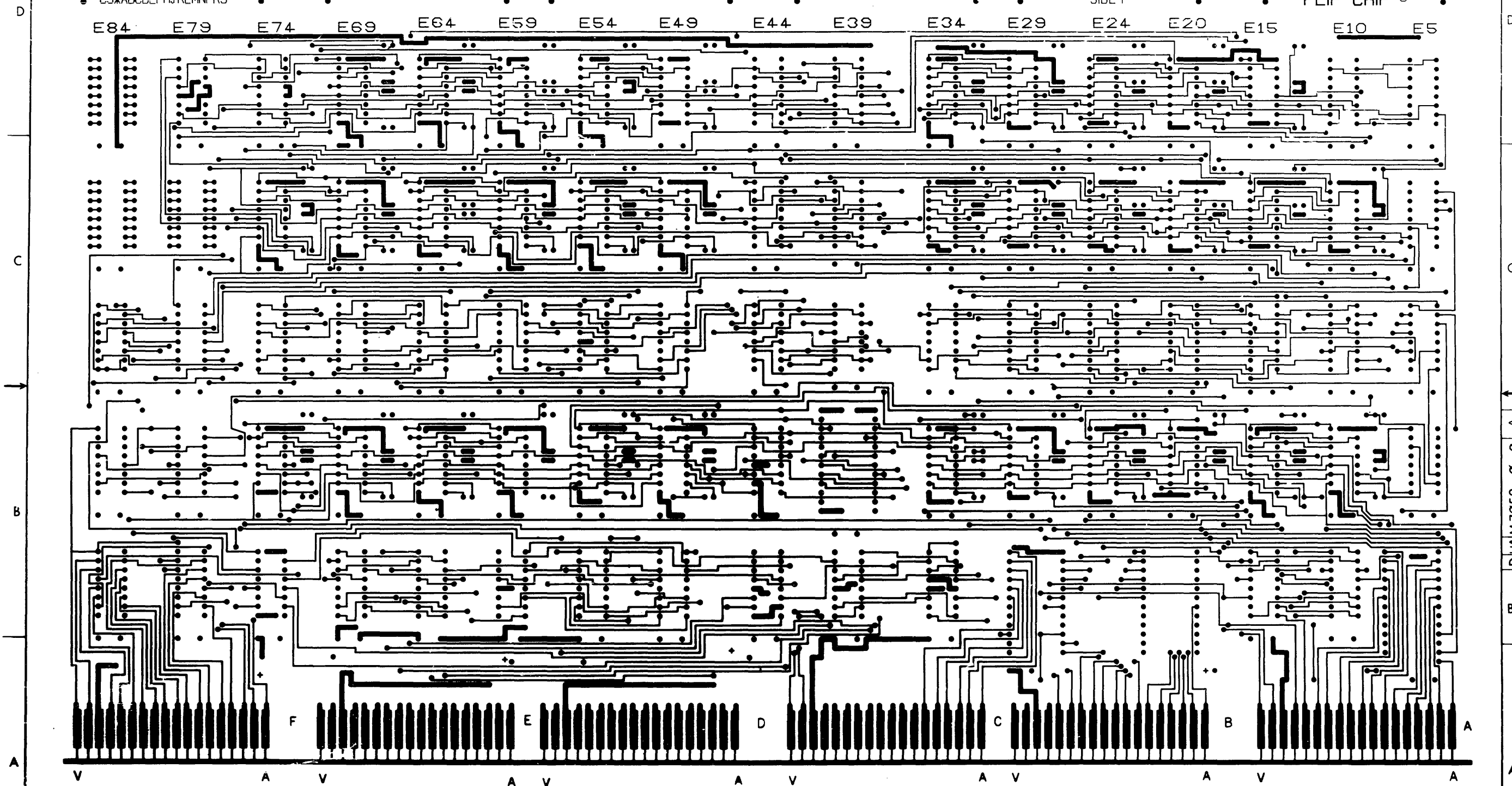
MS30089 M7052 5011008B

CS*ABCDEFGHIJKLMNPRS

SIDE 1

FLIP CHIP®

E84 E79 E74 E69 E64 E59 E54 E49 E44 E39 E34 E29 E24 E20 E15 E10 E5



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	DUAL 12 X 12 MULTIPLIER	SIZE CODE	NUMBER	REV.
SCALE	SHEET 3 OF 5	DIST.	DUAL M7052-0-0	A

8

7

6

5

4

3

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1

DUAL M7052-0-0 A

8

7

6

5

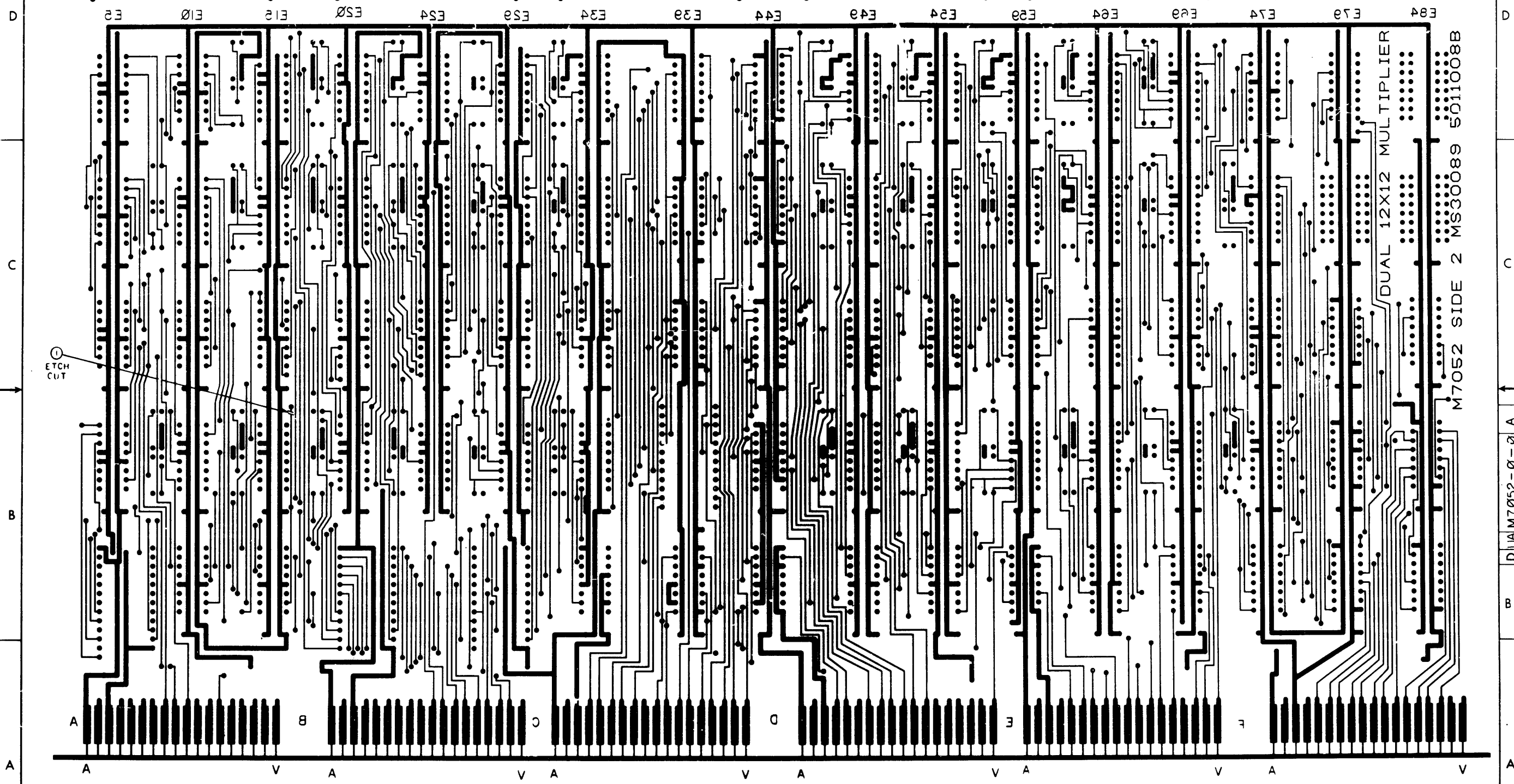
4

2

2 DUA M7052-0-0 A

1

C7915



REVISIONS		
CHK	CHANGE NO	REV

DUAL 12 X 12 MULTIPLIER		SIZE CODE	NUMBER	REV.
DUA M7052-0-0		DIST	4 OF 5	A

DUA M7052-0-0 A

8

7

6

5

4

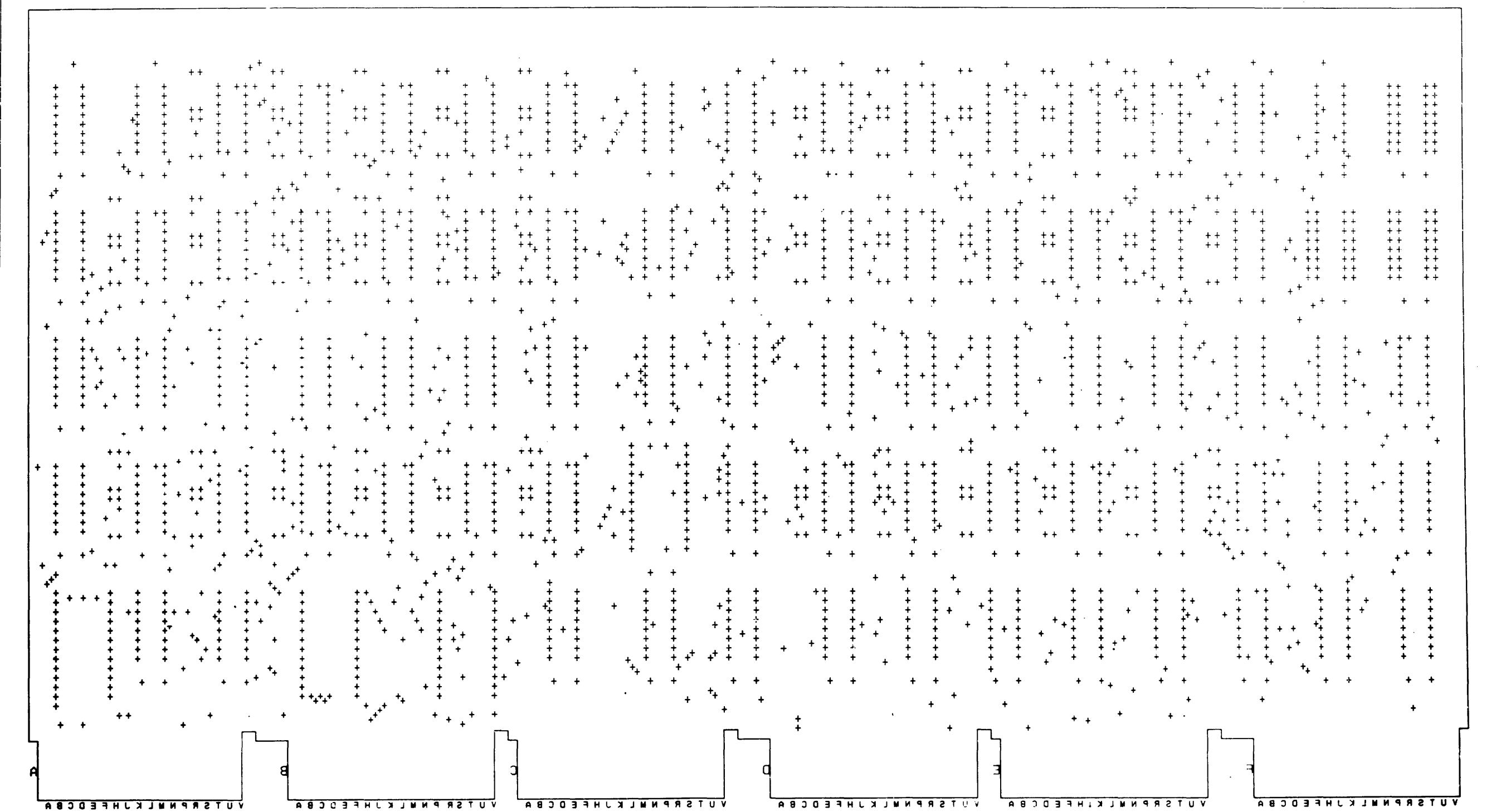
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2

1

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2 DUA M7052-0-0
 A

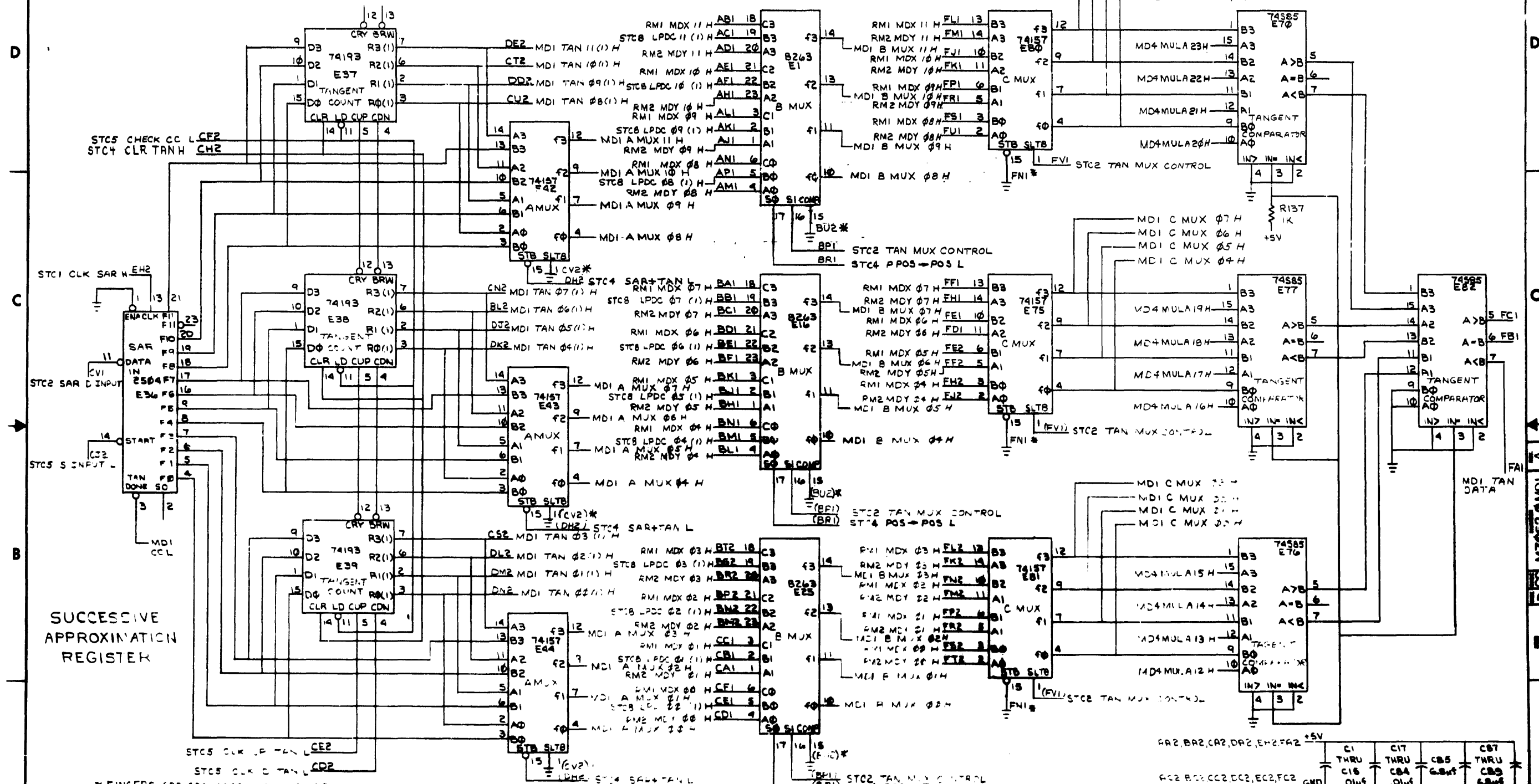


NOTES:

CHANGE NO	REV

SIGNATURES	DATE	digital
DRN. <i>P. J. [Signature]</i>	11/2/75	
CHK. D.		TITLE DUAL 12 X 12 MULTIPLIER
ENG. <i>R. [Signature]</i>	11/2/75	
PROJ. ENG. <i>A. [Signature]</i>	11/2/75	SCALE 2X1 SHT. 5 OF 5
PROD. <i>R. [Signature]</i>	11/2/75	
ETCH REV	FIRST USED ON V148	SIZE CODE NUMBER D U A M7052-0-0

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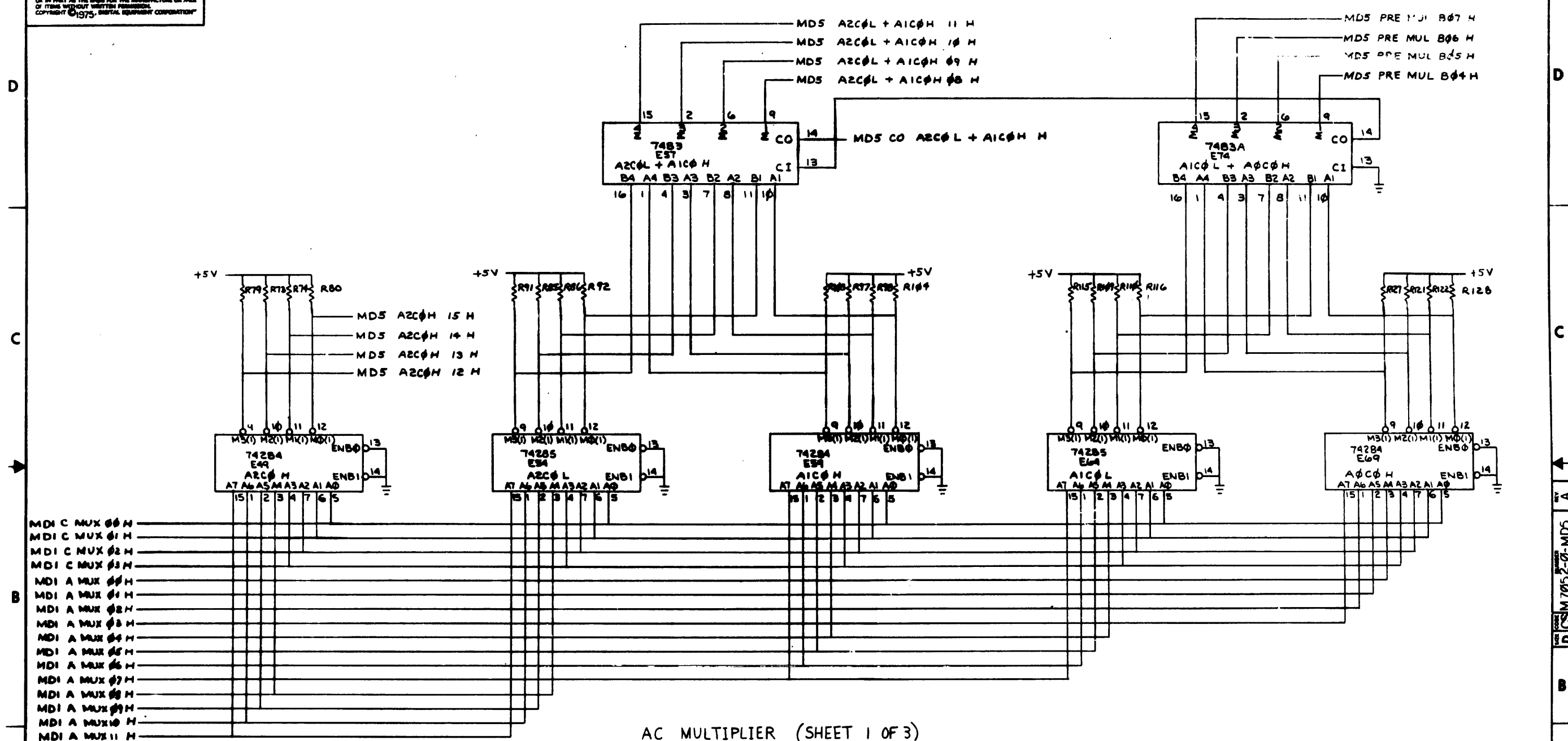
SUCCESSIVE APPROXIMATION REGISTER

* FINGERS ARE GROUNDED IN THIS PLANE

INPUT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
...

DATE: 4-28-76
 TITLE: DUAL 12X12 MULTIPLIERS (MULTIPLY & DIVIDE BOARD)
 B-DD-M7052-0
 SCALE: 1 OF 1
 SHEET: 1 OF 1

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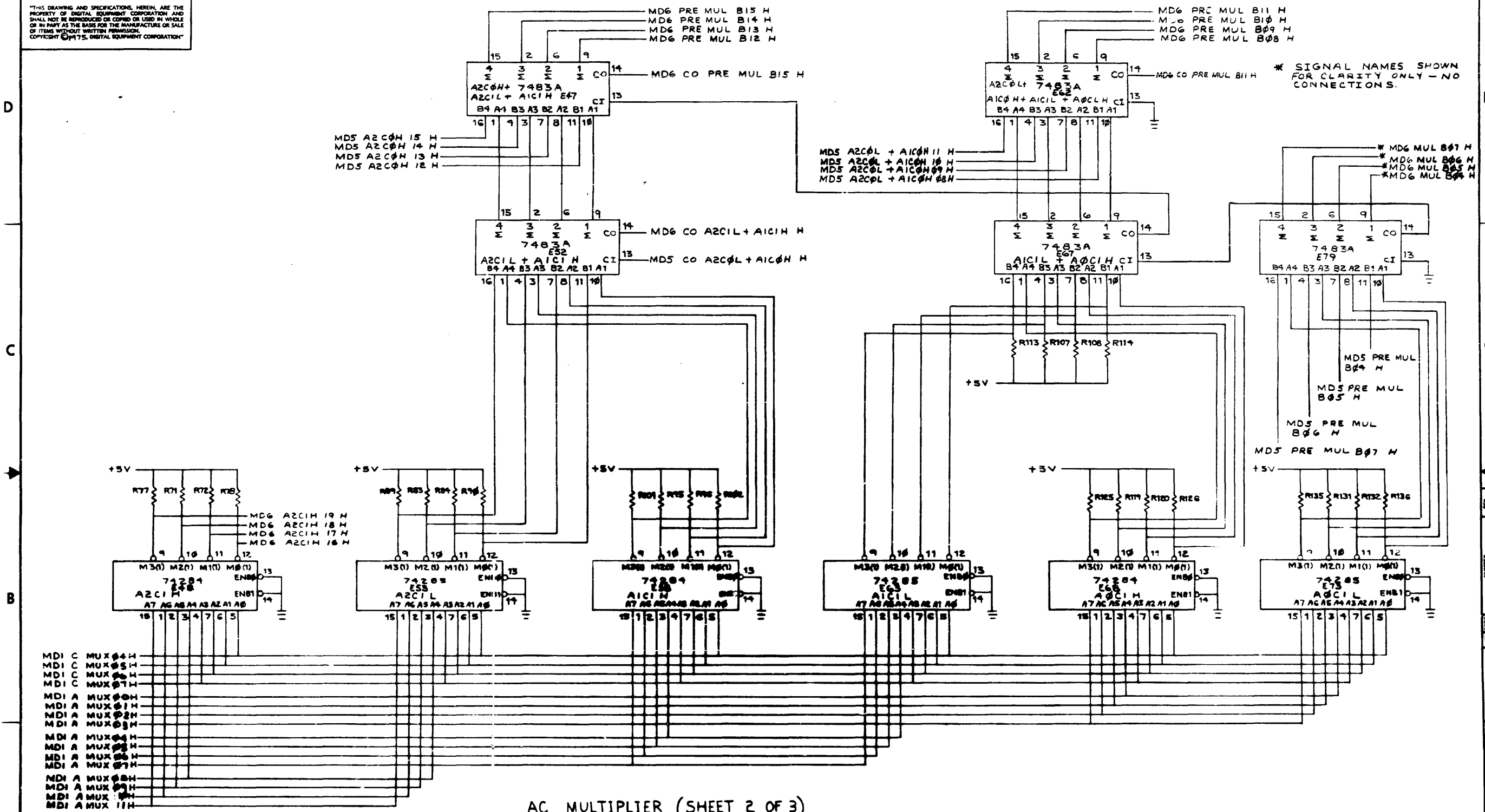


AC MULTIPLIER (SHEET 1 OF 3)
AC0

REV.	1	DATE	10/1/75
BY	...	CHKD	...
APP'D

DRN. R.W. ...	5/27/75	FIRST USED ON	40-0000
CHK'D	...	TITLE	DUAL 12X12 MULTIPLIERS (MULTIPLY/DIVIDE BOARD)
ENG. R. ...	...	PROJ. ENG. ...	7-75-0
PROD.	NEXT HIGHER ASSY.	
BDO-M7052-0		REV. CODE	D
SCALE		NUMBER	CSM7052-0-MD5
SHEET 1 OF 1		REV.	A

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AC MULTIPLIER (SHEET 2 OF 3)
ACI

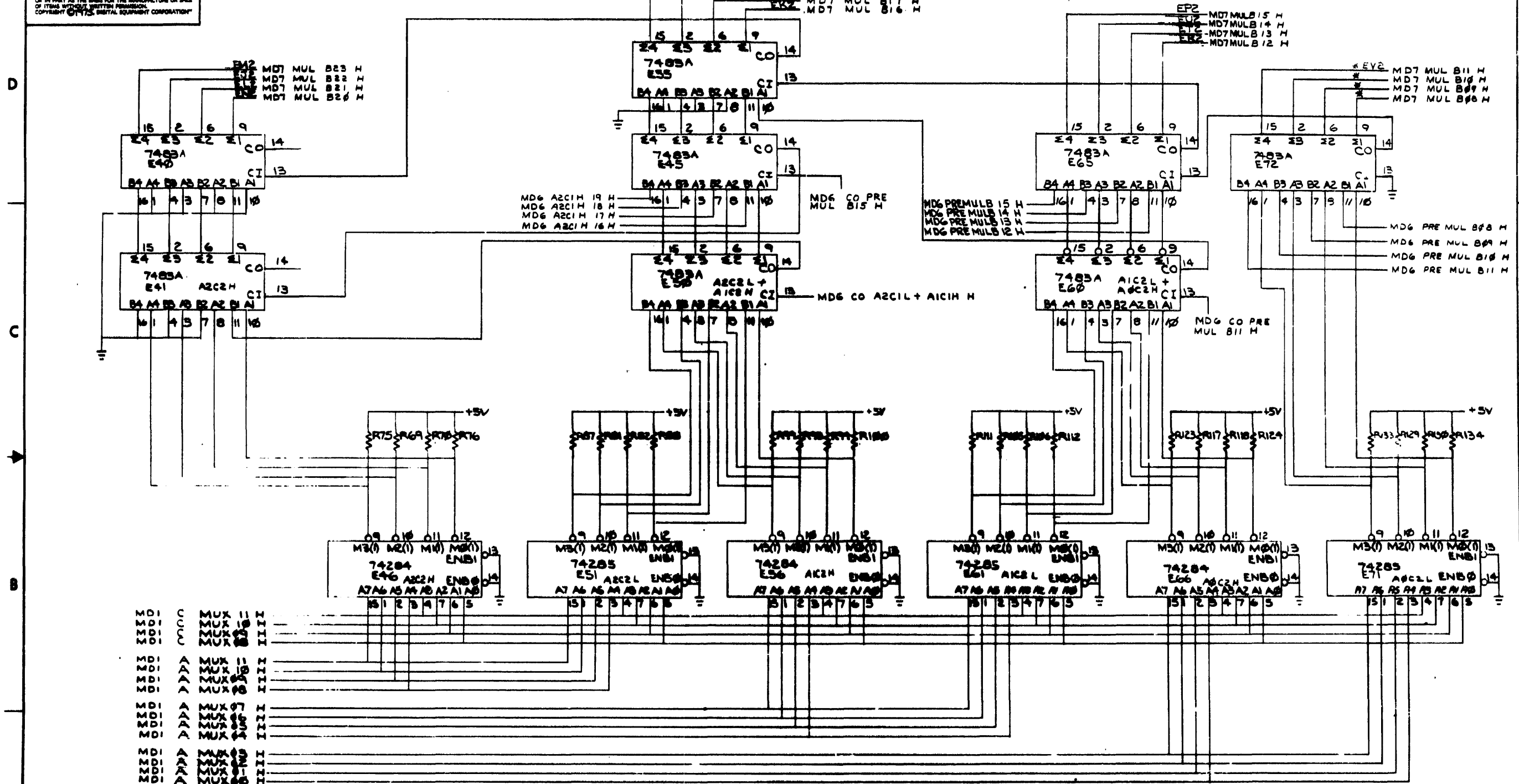
REV.	A
ORIGINATED	A
CHG.	
REVISED	
DATE	

DRN. D.E. Olin	4/20/75	FIRST USED ON	30-0000
CHK'D P. Olin	5/27/75	TITLE	DUAL 12 X 12 MULTIPLIERS (MULTIPLY BY TWO BOND)
ENG. P. Olin	10/27/75	PROJ. ENG. / Planner	28-75
PROD. R. N. P.	6-27-75	NEXT HIGHER ASSY.	
SCALE	1 OF 1	SIZE CODE	D
SHEET	1	REV.	A

D
CSM7052-0-MD6
A

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AC MULTIPLIER (SHEET 3 OF 3)
AC2

REV.	1
CHK.	ORIGINATED
CHG.	
REV.	

DRN.	5-1-75	FIRST USED ON	00-00-00
CHKD.	8503	TITLE	DUAL 12X12 MULTIPLIERS
ENG.			(MULTIPLY (DIVIDE BOARD))
PROJ. ENG.	7-75-2	SCALE	
PROD. PLAN	8-75-2	SHEET	1 OF 1
NEXT HIGHER ASSY.		SIZE CODE	D
3-00-M7052-0		NUMBER	CS M7052-0-MD7
SCALE		REV.	A
SHEET		DIST.	

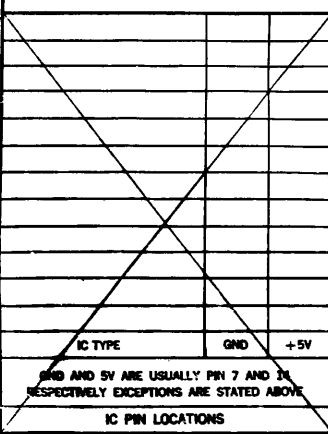
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NOTES:
 E56, E81, SHOULD BE MMI 6301

- ECO#1=O
- ETCH CUTS SIDE #1 AS SHOWN (SEE SHEET #5):
- CUT ETCH FROM E74(9)
 - CUT ETCH FROM E75(11)
 - CUT ETCH FROM S1(5)
 - CUT ETCH FROM E24(5)
 - CUT ETCH FROM PTH BELOW E23(9)
 - CUT ETCH FROM E24(9)
 - CUT ETCH TO LEFT FROM E19(2)
 - CUT ETCH TO RIGHT E19(2)
 - CUT ETCH BETWEEN E21(1) AND E26(1)
 - CUT ETCH FROM E46(5)
 - CUT ETCH FROM E64(1)
 - CUT ETCH FROM E35(4)
 - CUT ETCH FROM PTH TO RIGHT OF E12(13, 14)
- ETCH CUTS SIDE #2 AS SHOWN (SEE SHEET #6):
- CUT ETCH FROM E13(1)
 - CUT ETCH FROM 5V SOURCE OF R45
 - CUT ETCH FROM PTH ABOVE E65(14)
 - CUT ETCH FROM E75(2)
 - CUT ETCH AT E70(7)
 - CUT ETCH AT E26(1)
 - CUT ETCH AT E64(5)
 - CUT ETCH BETWEEN E14(3) AND PTH ABOVE E14
 - CUT ETCH BETWEEN FIRST AND SECOND PTH AFTER E78(3)
- WIRE ADDS SIDE #1 AS SHOWN (ITEM #7) (SEE SHEET #3):
- ADD WIRE FROM E75(5) TO PTH ABOVE AND TO RIGHT OF E65(14)
 - ADD WIRE FROM E75(11) TO E70(5)
 - ADD WIRE FROM E70(6) TO E68(13)
 - ADD WIRE FROM E74(9) TO PTH FROM FINGER FL1
 - ADD WIRE FROM PTH TO LEFT OF E77(3) TO PTH TO RIGHT OF E35(13)
 - ADD WIRE FROM PTH TO LEFT OF E53(4) TO PTH TO LEFT OF E29(2)
 - ADD WIRE FROM PTH TO LEFT OF E53(3) TO PTH TO LEFT OF E27(6)
 - ADD WIRE FROM DL1(7) TO TOP LEAD OF R45
 - ADD WIRE FROM BOTTOM LEAD OF R45 TO E47(9)
 - ADD WIRE FROM E27(8) TO E27(9)
 - ADD WIRE FROM PTH TO LEFT OF E40(4) TO PTH TO LEFT OF E36(6)
 - ADD WIRE FROM FIRST PTH TO LEFT OF E53(6) TO PTH TO LEFT OF E29(5)
 - ADD WIRE FROM PTH TO RIGHT OF E52(9) TO PTH TO LEFT OF E12(1)
 - ADD WIRE FROM E27(13) TO PTH TO LEFT OF E25(1)
- WIRE ADDS SIDE #1 CONTINUED:
- ADD WIRE FROM PTH TO LEFT OF E19(5) TO PTH BELOW TOP LEAD OF R21
 - ADD WIRE FROM E24(9) TO PTH TO RIGHT OF E36(8)
 - ADD WIRE FROM PTH TO RIGHT OF E36(8) TO PTH TO LEFT OF E53(2)
 - ADD WIRE BETWEEN E27(12) AND PTH ABOVE E18(1)
 - ADD WIRE FROM E27(11) TO E27(9)
 - ADD WIRE FROM E13(1) TO PTH BELOW AND TO RIGHT OF E12(9)
 - ADD WIRE FROM PTH BELOW AND TO RIGHT OF E12(14) TO E11(1)
 - ADD WIRE FROM E75(2) TO PTH ABOVE AND TO LEFT OF E47(1)
- SEE SHEET #4
- ADD WIRE FROM PTH BETWEEN LEADS OF CR1 AND PTH ABOVE AND LEFT OF C27
 - ADD WIRE FROM PTH TO RIGHT OF E46(10) TO PTH TO RIGHT OF E74(12)
 - ADD WIRE FROM E45(7) TO PTH TO LEFT OF E64(3)
 - ADD WIRE FROM PTH TO LEFT OF E64(4) TO PTH TO RIGHT OF E50(5)
 - ADD WIRE FROM PTH TO RIGHT OF E82(18) TO SECOND PTH TO LEFT OF E53(6)
 - ADD WIRE FROM PTH TO LEFT OF E69(3) TO SECOND PTH TO LEFT OF E40(6)
 - ADD WIRE FROM PTH TO LEFT OF E35(3) TO PTH AT FINGER EA1
 - ADD WIRE FROM PTH TO RIGHT OF E66(11) TO PTH TO LEFT OF E40(3)
 - ADD WIRE FROM PTH TO RIGHT OF E49(12) TO PTH TO LEFT OF E79(1)
 - ADD WIRE FROM PTH TO RIGHT OF E24(13) TO PTH TO LEFT OF E42(4)
 - ADD WIRE FROM PTH TO RIGHT OF E24(13) TO PTH TO LEFT OF E12(2 & 3)
 - ADD WIRE FROM PTH TO LEFT OF E29(1) TO E60(9)
 - ADD WIRE FROM PTH TO LEFT OF E63(4) TO PTH TO LEFT OF E13(2)
 - ADD WIRE FROM PTH TO RIGHT OF E61(10) TO PTH TO LEFT OF E13(3)
 - ADD WIRE FROM E35(4) TO PTH TO RIGHT OF E50(6)

1	E57	ROM MM6301 (OR M5603)	23236A2	49
2	E59, E69	I.C. DEC 7476	1905585	50
1	E61	ROM MM6300 (OR M5603)	23205A2	51
1	E62	ROM MM6300 (OR M5603)	23252A2	52
1	E63	I.C. DEC 74S153	1910547	53
1	E65	I.C. DEC 74S64	1910542	54
1	E66	ROM MM6300 (OR M5603)	23253A2	55
1	E67	ROM MM6300 (OR M5603)	23248A2	56
1	E68	I.C. DEC 7408	1910155	57
1	E70	I.C. DEC 74120	1911314	58
1	E71	ROM MM6301 (OR M5623)	23241A2	59
1	E72	ROM MM6301 (OR M5623)	23237A2	60
1	E73	I.C. DEC 74153	1909937	61
1	E75	I.C. DEC 74S74	1910544	62
2	E77, E82	I.C. DEC 74150	1910153	63
1	E91	ROM MM6301	23235A2	64
2	E84, E89	I.C. DEC 7483	1909932	65
2	E86, E87	ROM MM6301	23234A2	66
1	DL1	DELAY LINE	1611197	67
1	S1	SWITCH	1210042-01	68
12		EYELET	9006732	69
1		HANDLE ASSY	1210711-2	70
1		CAP 1200 PF 100V DM	1002424	71
1		CAP 36 PF 100V	1000012	72
A/R		WIRE #30 AWG GRN	9105740-EE	73
2	E1	I.C. DEC 74S175	1910957	74
1	E1	I.C. DEC 74S24	1910534	75

1		ETCHED CIRCUIT BOARD	5011812	1
96	C1 THRU C89, C101, C102, C106, C108 THRU C111	CAP 100pf 100V	1001610-01	2
6	C90 THRU C95	CAP 6.8 35V 13%	1005306	3
1	C97	CAP 270pf 100V	1000022	4
2	C99, C100	CAP 10pf 100V	1000006	5
1	C103	CAP 47pf 100V	1000011	6
1	C104	CAP 33pf 100V	1000009	7
1	C105	CAP 22pf 50V	1010274	8
1	C107	CAP 180pf 100V	1000020	9
24	R1, R2, R11, R17, R22, R24, R30, R32, R41, R47, R58, R60, R61, R63, R25 THRU R28, R35 THRU R38	RES 330 5% 1/4W	1300295	10
25	R2 THRU R6, R9, R13, R14, R15, R23, R29, R33, R40, R43, R44, R48, R49, R52 THRU R55, R59, R62, R64, R65	RES 1K 5% 1/4W	1300365	11
5	R7, R21, R31, R46, R57	RES 750 5% 1/4W	1301401	12
1	R10	RES 5.1K 1% 1/4W	1305432	13
2	R12, R16	RES 270 5% 1/4W	1301972	14
2	R19, R20	RES 4.7K 5% 1/4W	1300447	15
2	R34, R50	RES 10K 5% 1/4W	1300479	16
2	R39, R42	RES 20K 5% 1/4W	1302391	17
2	R45, R51	RES 180 5% 1/4W	1301322	18
1	L1	INDUCTOR 22MH 10%	1603977	19
1	CR1	CRYSTAL 45MHZ	1812051-17	20
2	E1, E8	I.C. DEC 74174	1910552	21
2	E2, E7	I.C. DEC 74193	1910018	22
4	E3, E4, E34, E47	I.C. DEC 74S112	1910545	23
3	E5, E37, E85	I.C. DEC 384	1909486	24
6	E8, E24, E41, E53, E58, E54	I.C. DEC 7400	1905575	25
3	E9, E35, E36	I.C. DEC 7404	1909686	26
9	E10 THRU E13, E15, E16, E18, E33, E64	I.C. DEC 7474	1905547	27
9	E14, E19, E23, E27, E32, E55, E60, E80, E90	I.C. DEC 7402	1909004	28
1	E17	I.C. DEC 10115	1911409	29
1	E20	ROM MM6300 (OR M5603)	23246A2	30
3	E21, E79, E88	I.C. DEC 74175	1910651	31
1	E22	I.C. DEC 10125	1911415	32
1	E25	ROM MM6300 (OR M5603)	23245A2	33
3	E29, E42, E45	I.C. DEC 9602	1910951	34
1	E29	I.C. DEC 7420	1905577	35
1	E31	ROM MM6301 (OR M5623)	23308A2	36
1	E38	ROM MM6301 (OR M5623)	23239A2	37
1	E39	ROM MM6300 (OR M5603)	23306A2	38
1	E40	I.C. DEC 74S11	1910537	39
1	E43	ROM MM6301 (OR M5623)	23240A2	40
1	E44	ROM MM6300 (OR M5603)	23307A2	41
3	E46, E74, E83	I.C. DEC 74S85	1910535	42
1	E49	ROM MM6301 (OR M5623)	23242A2	43
1	E49	ROM MM6300 (OR M5603)	23251A2	44
1	E50	I.C. DEC 75452	1910645	45
1	E51	ROM MM6301 (OR M5623)	23243A2	46
1	E52	ROM MM6300 (OR M5603)	23250A2	47
1	E56	ROM MM6301	23309A2	48



REVISIONS

REV	DATE	DESCRIPTION
1	7/29/75	DRY
2	7/29/75	CHKD
3	7/29/75	ENG
4	7/29/75	PROJ. ENG.
5	7/29/75	PROD.

DATE: 7/29/75

TITLE: SCISSORING AND TANGENT CNT

SIZE CODE: D JAM7053-0-0

NUMBER: 0

REV: 0

SEMICONDUCTOR CONVERSION CHART

SHEET 1 OF 7

D JAM7053-0-0

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WIRE ADDS SIDE #1 CONTINUED:

- 38. ADD WIRE FROM PTH TO RIGHT OF E52(11) TO PTH TO LEFT OF E12(4)
- 39. ADD WIRE FROM PTH TO RIGHT OF E52(10) TO PTH TO RIGHT OF E12(10)
- 40. ADD WIRE FROM PTH TO RIGHT OF E48(11) TO PTH FROM FINGER CC1
- 41. ADD WIRE FROM E68(11) TO E27(8).
- 42. ADD WIRE FROM PTH TO RIGHT OF E68(12) TO PTH TO RIGHT OF E54(8)
- 43. ADD WIRE FROM E19(2) TO E19(12)
- 44. ADD WIRE FROM PTH BELOW E23(8) TO E42(7)
- 45. ADD WIRE FROM E17(13) TO RIGHT LEAD OF CR1
- 46. ADD WIRE FROM E17(15) TO LEFT LEAD OF CR1
- 47. ADD WIRE FROM E69(2) TO E27(10)
- 48. ADD WIRE FROM E50(7) TO E31(12)
- 49. ADD WIRE FROM E45(3) TO E64(5)
- 50. ADD WIRE FROM E64(1) TO E64(13)
- 51. ADD WIRE FROM E53(5) TO PTH DOWN AND TO THE LEFT OF E15(7).
- 52. ADD WIRE FROM E05(7) TO E62(10).
- 53. ADD WIRE FROM E05(6) TO E43(12)
- 54. ADD WIRE FROM E52(4) TO E52(12).
- 55. ADD WIRE FROM E55(12) TO E36(12).
- 56. ADD WIRE FROM E55(11) TO E14(3).
- 57. ADD WIRE FROM E55(20) TO PTH ABOVE AND TO THE LEFT OF C70.
- 58. ADD WIRE FROM PTH ABOVE E76(1) TO PTH TO THE RIGHT OF E77(20).
- 59. ADD WIRE FROM PTH TO THE LEFT OF E78(3) TO PTH ABOVE AND TO THE RIGHT OF E51(12).
- 60. ADD WIRE FROM E78(1) TO FIRST PTH AFTER FINGER CVI.

ECC *2 =

COMPONENT ALIATION: (SEE SHT 4)
 1. ADD 330Ω RES. FROM PIN 1 TO PIN 16 (IF SPARE IC. SLOT F75)

ETCH CUTS SIDE 2 AS SHOWN (SEE SHT 6)
 1. CUT ETCH BETWEEN E22 (1) AND E22 (3)

WIRE ADDS SIDE 1 AS SHOWN ITEM #7 (SEE SHT 4)
 1. ADD WIRE FROM E76 (1) TO E51(10).
 2. ADD WIRE FROM BOTTOM OF SPARE RES. P18 TO TOP OF CAP C106.

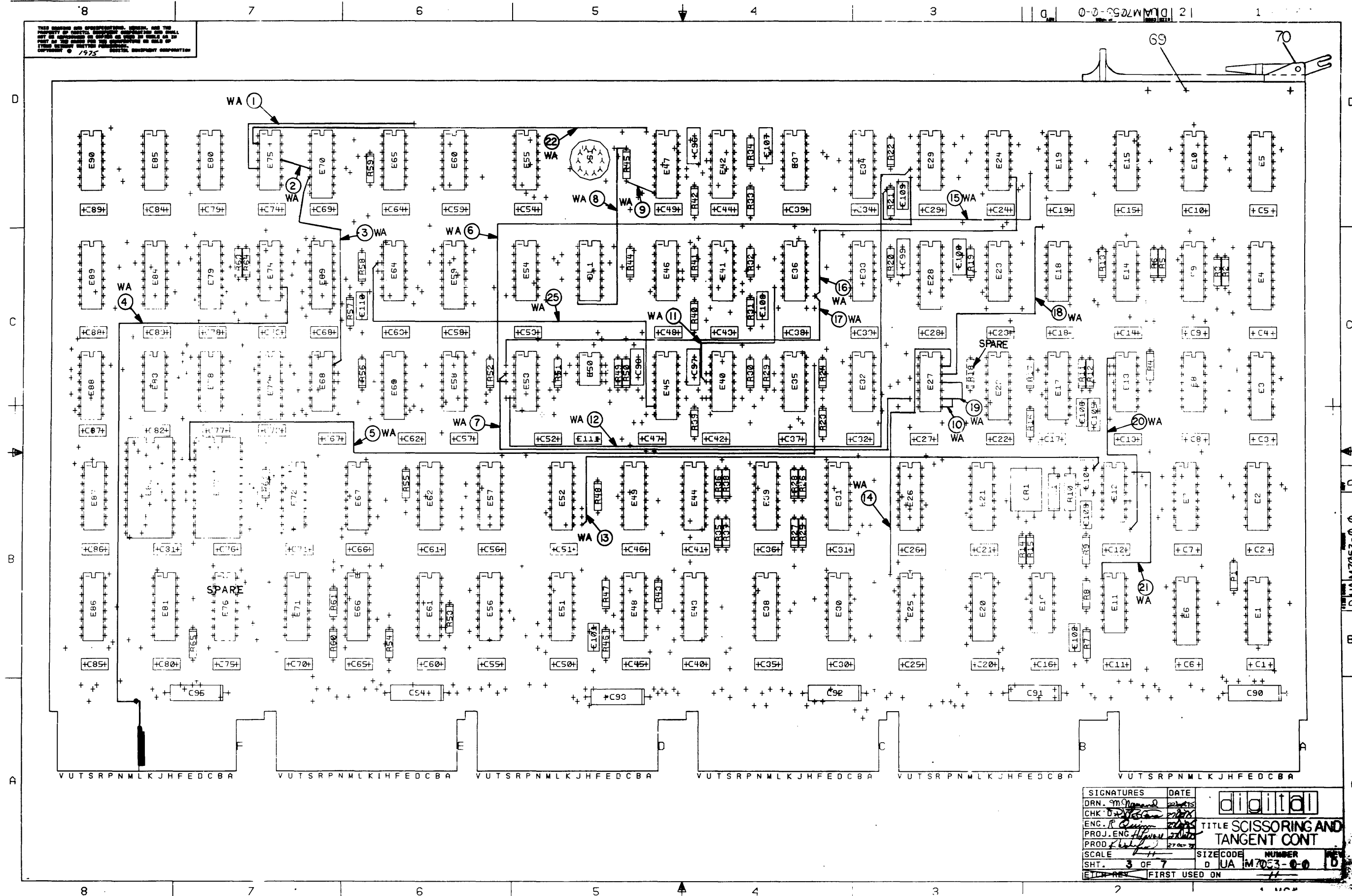
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE: WIRING AND		SIZE/COOE: D UAM7053-0-0	NUMBER: 2	REV: D
SHEET: 2 OF 7		DIST.		

FILE CODE: **D UAM7053-0-0**
 NUMBER: **2**
 REV: **D**

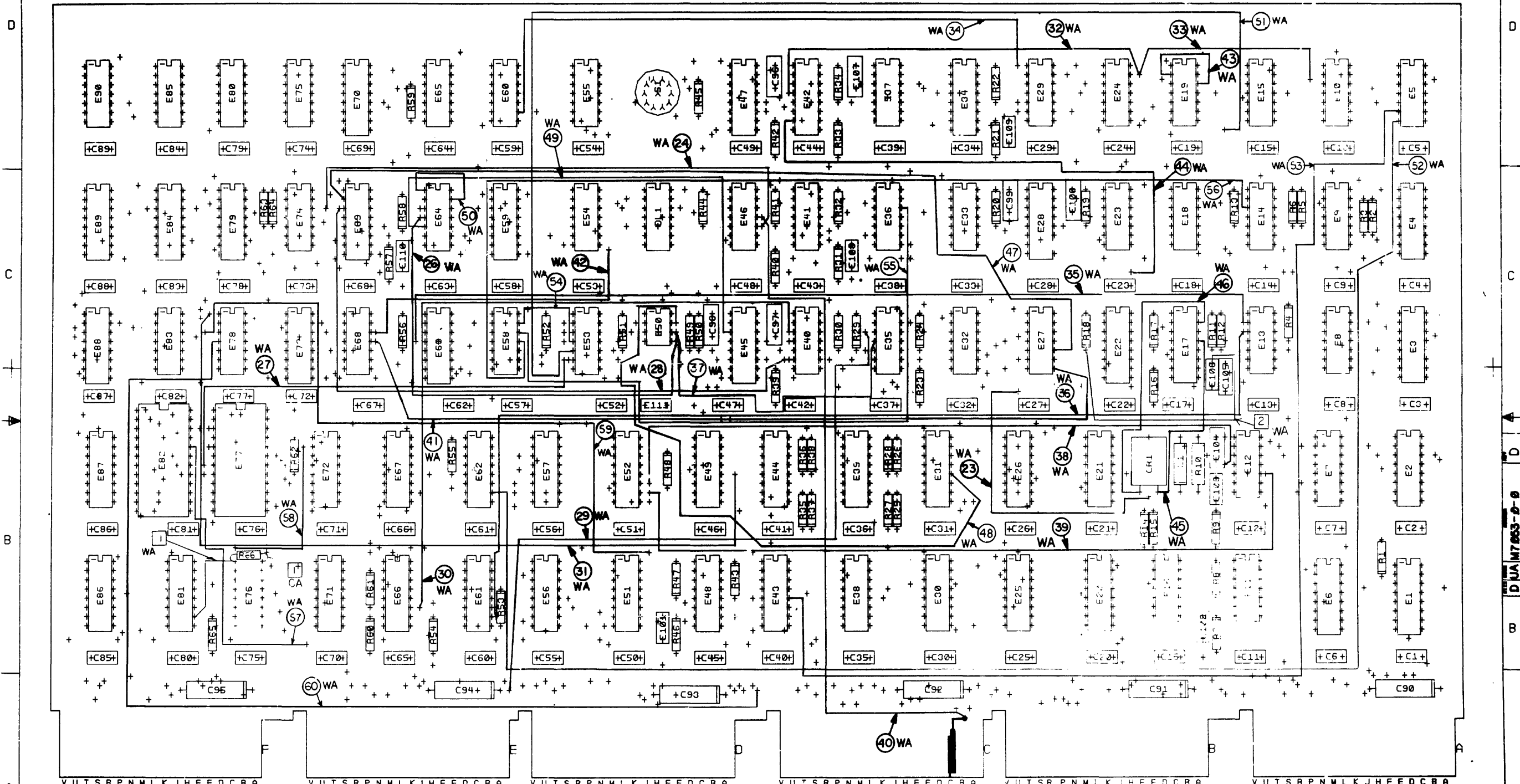
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0-0-0922WMMQ 2 |



SIGNATURES	DATE		TITLE SCISSORING AND TANGENT CONT	
DRN. M. G. [Signature]	2/2/75			
CHK. D. [Signature]	2/2/75			
ENG. R. [Signature]	2/2/75			
PROJ. ENG. [Signature]	2/2/75			
PROD. [Signature]	2/2/75	SCALE	SIZE CODE	NUMBER
		SHT. 3 OF 7	D UA IM7053-0-0	D
ETCH REV	FIRST USED ON			

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SIGNATURES	DATE
DRN: [Signature]	7 Oct 75
CHK: D. [Signature]	27 Oct 75
ENG: [Signature]	27 Oct 75
PROJ. ENG: [Signature]	27 Oct 75
PROD. K: [Signature]	27 Oct 75

digital

TITLE
SCISSORING AND TANGENT CONT

SIZE CODE
DUA M7053-0-0

SHT. 4 OF 7

FIRST USED ON

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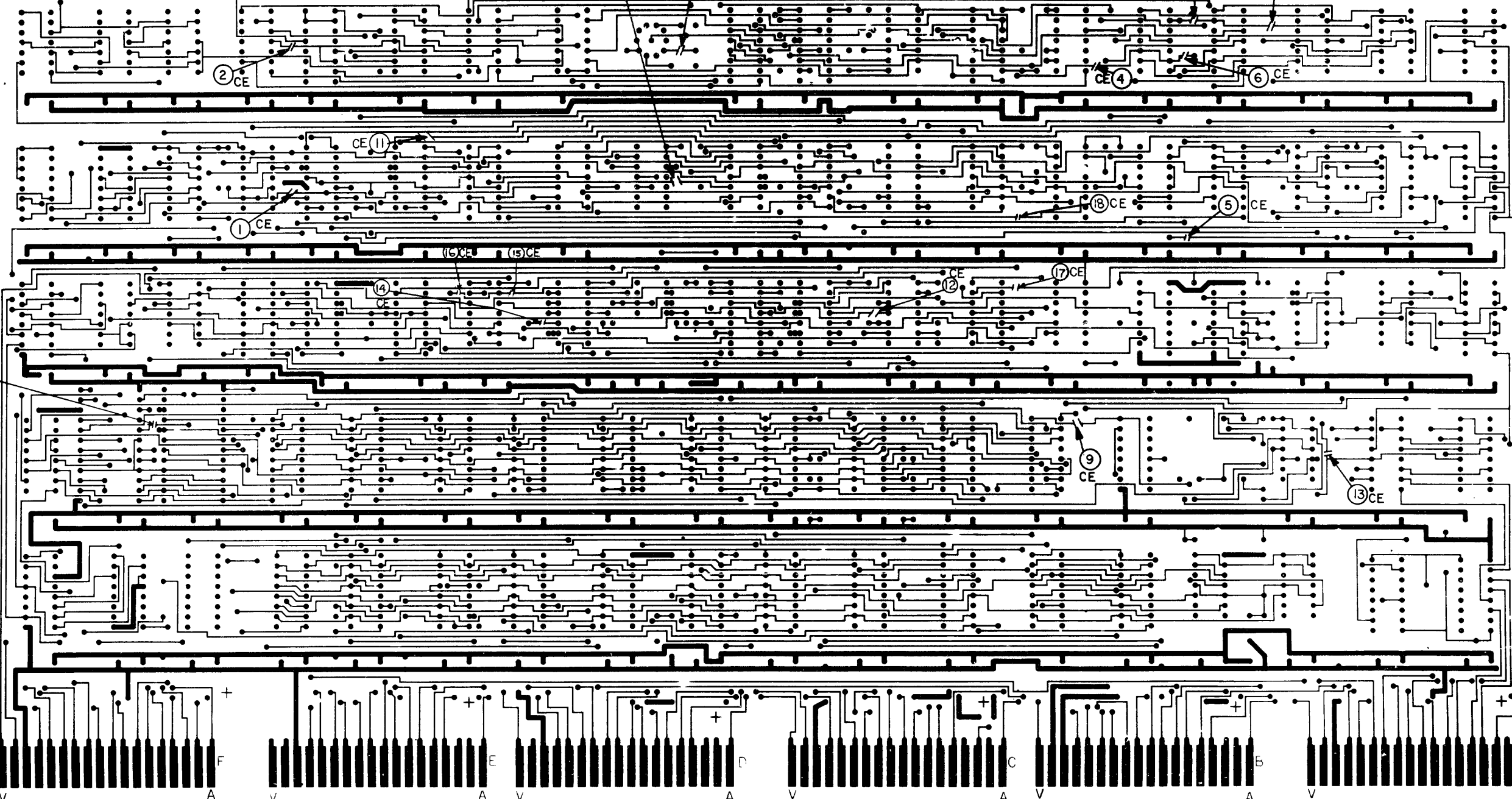
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L1

5011612CP1 M7053 MS30090

CSKABCDEFHJKLMNPRS SIDE 1 CE CE FLIP CHIP

E90 E85 E80 E75 E70 E65 E60 E55 E47 E42 E37 E34 E29 E24 E19 E15 E10 E5



REVISIONS		
CHK	CHANGE NO	DATE

TITLE SCISSORING AND TANGENT CONTROL
 SCALE H SHEET 5 OF 7
 SIZE CODE NUMBER DUA M7053-0-0 REV. D

DUA M7053-0-0

8

7

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3

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D U A M 7 0 5 3 - 0 - 0

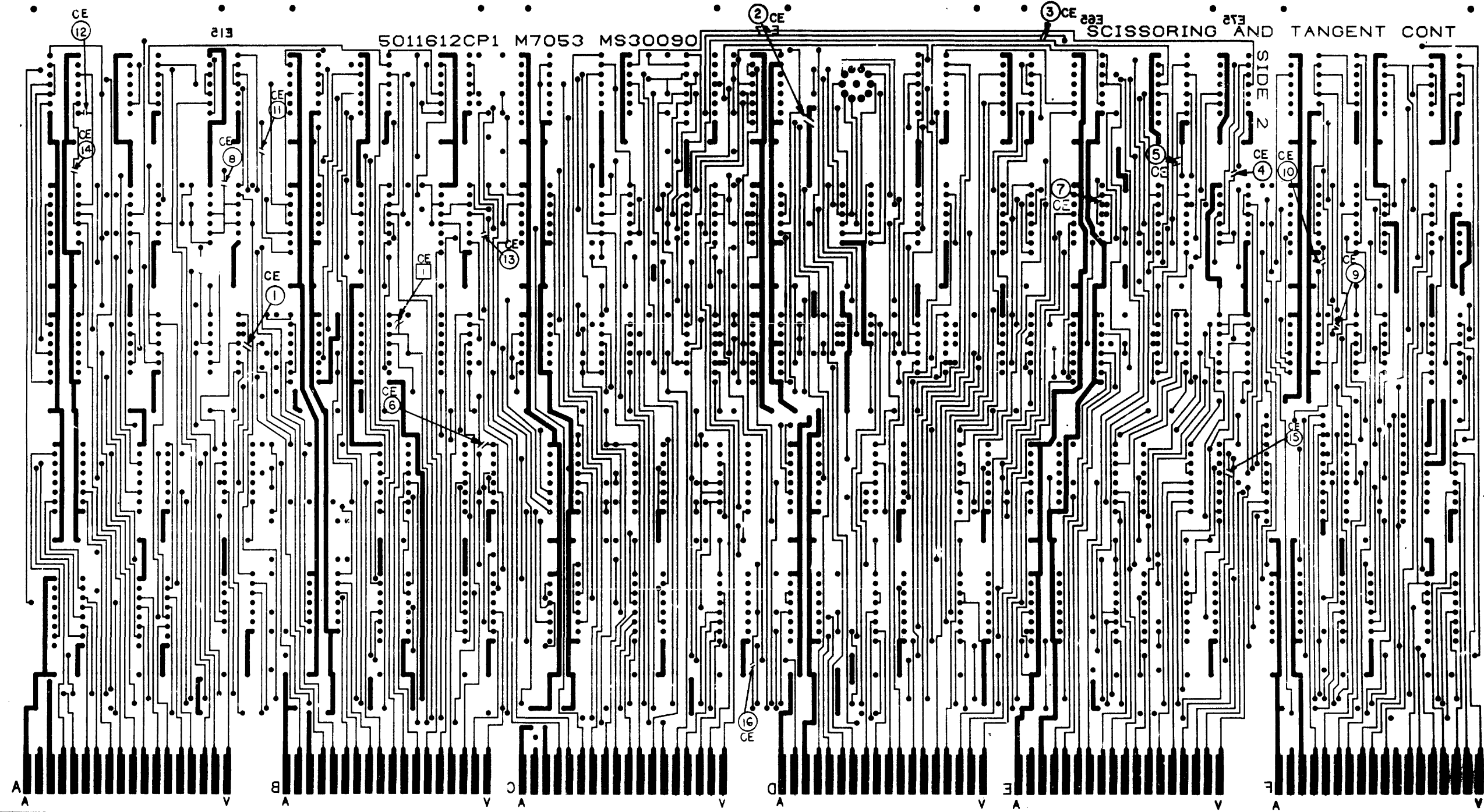
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L2

SCISSORING AND TANGENT CONT

5011612CP1 M7053 MS30090

SIDE 2



REVISIONS		
CHK	CHANGE NO	REV

TITLE SCISSORING AND TANGENT CONTROL		SIZE CODE D U A M 7 0 5 3 - 0 - 0	NUMBER	REV.
SCALE	SHEET 6 OF 7	DIST		

8

7

6

5

4

3

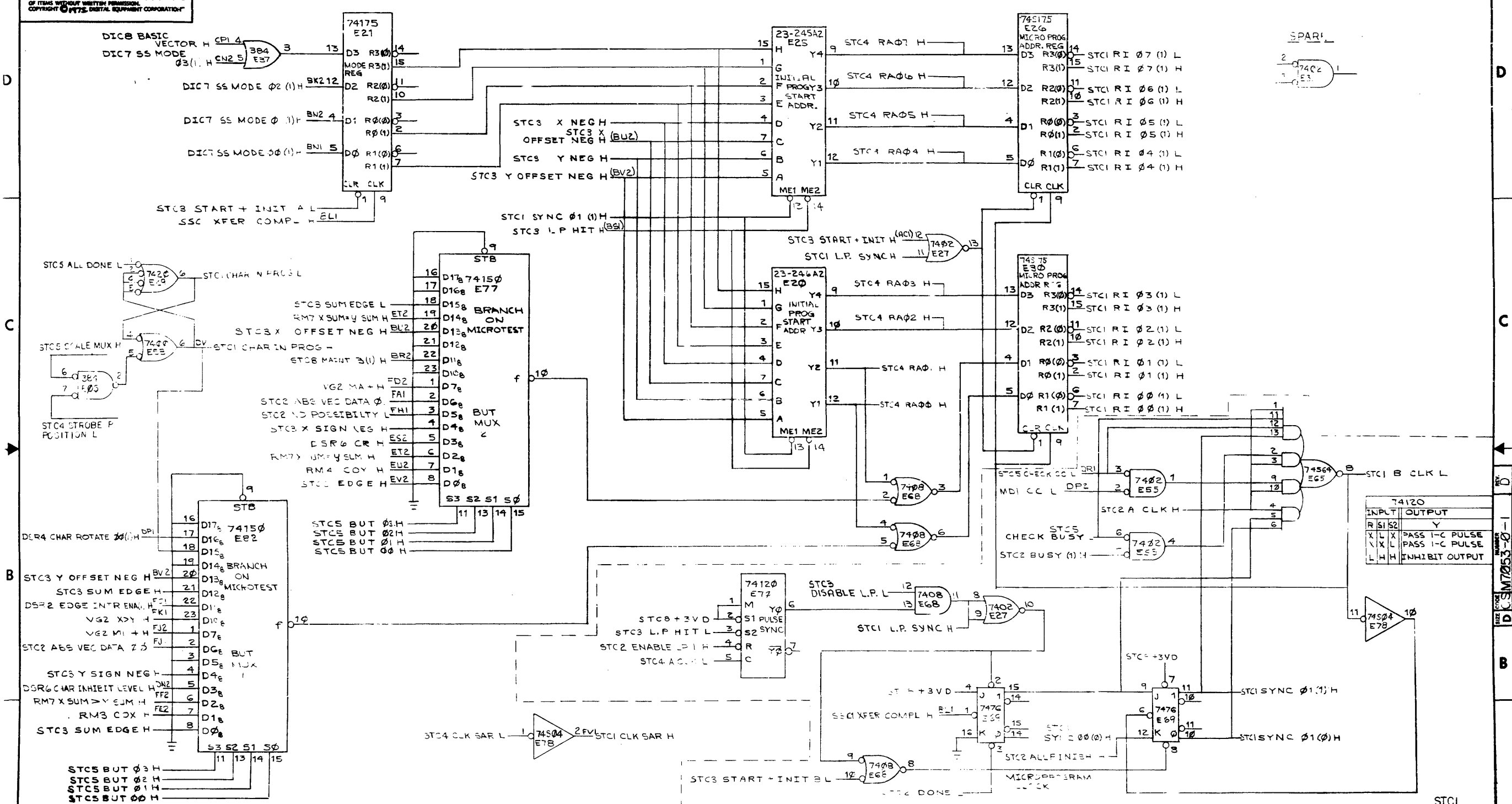
2

1

D U A M 7 0 5 3 - 0 - 0

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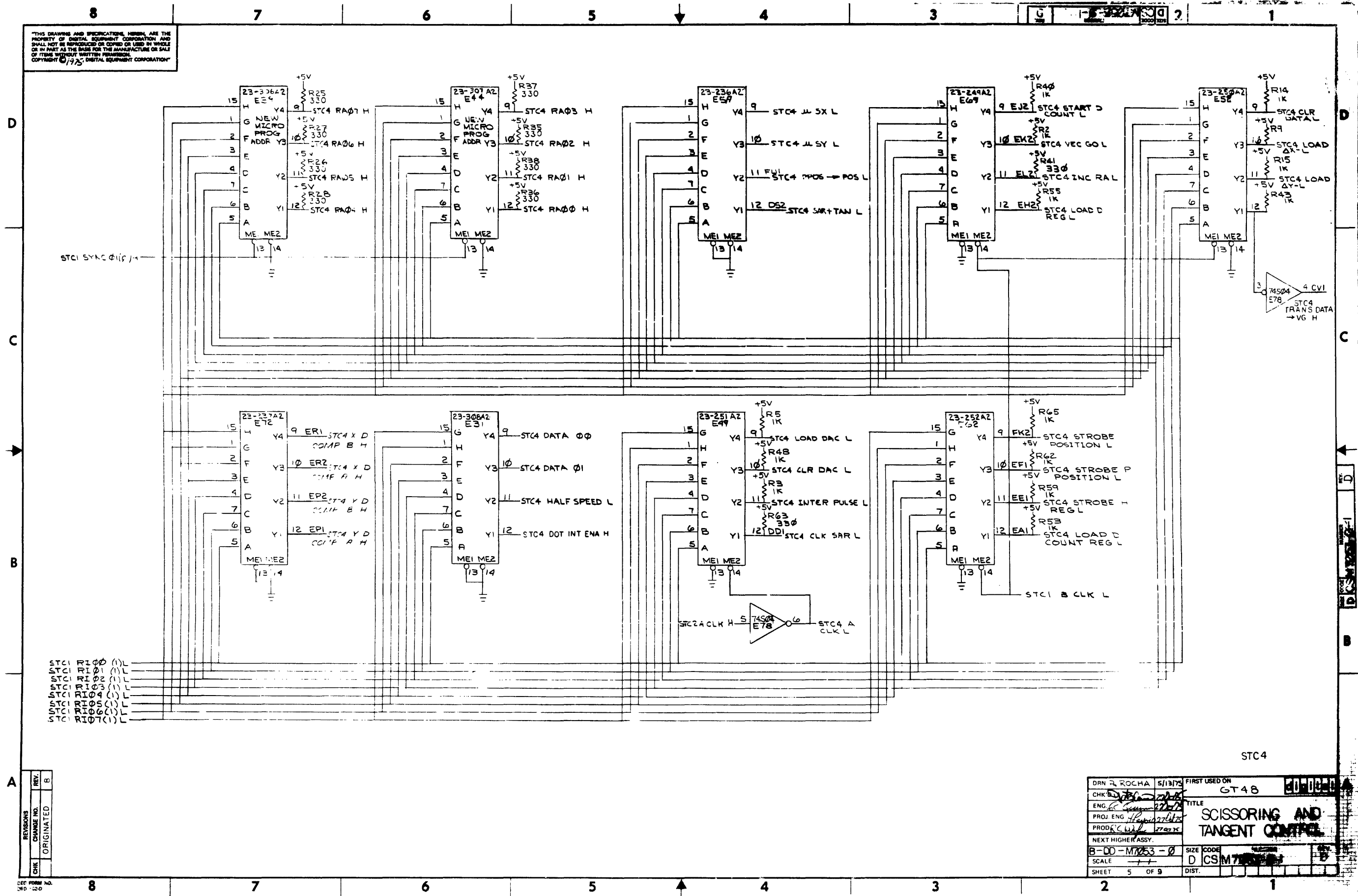
MICROPROGRAM ADDRESS CONTROL



REV.	B
ORIGINATED	
CHG	

DRN	J.C. O'Brien	FIRST USED ON	GT48
CHKD	R. Quinn	TITLE	SCISSORING AND TANGENT CONTROL
ENG	R. Quinn	PROD	1/27/75
PROJ. ENG.	J. Quinn	NEXT HIGHER ASSY.	
SCALE	1/1	SIZE	D
SHEET	2 OF 9	DIST.	

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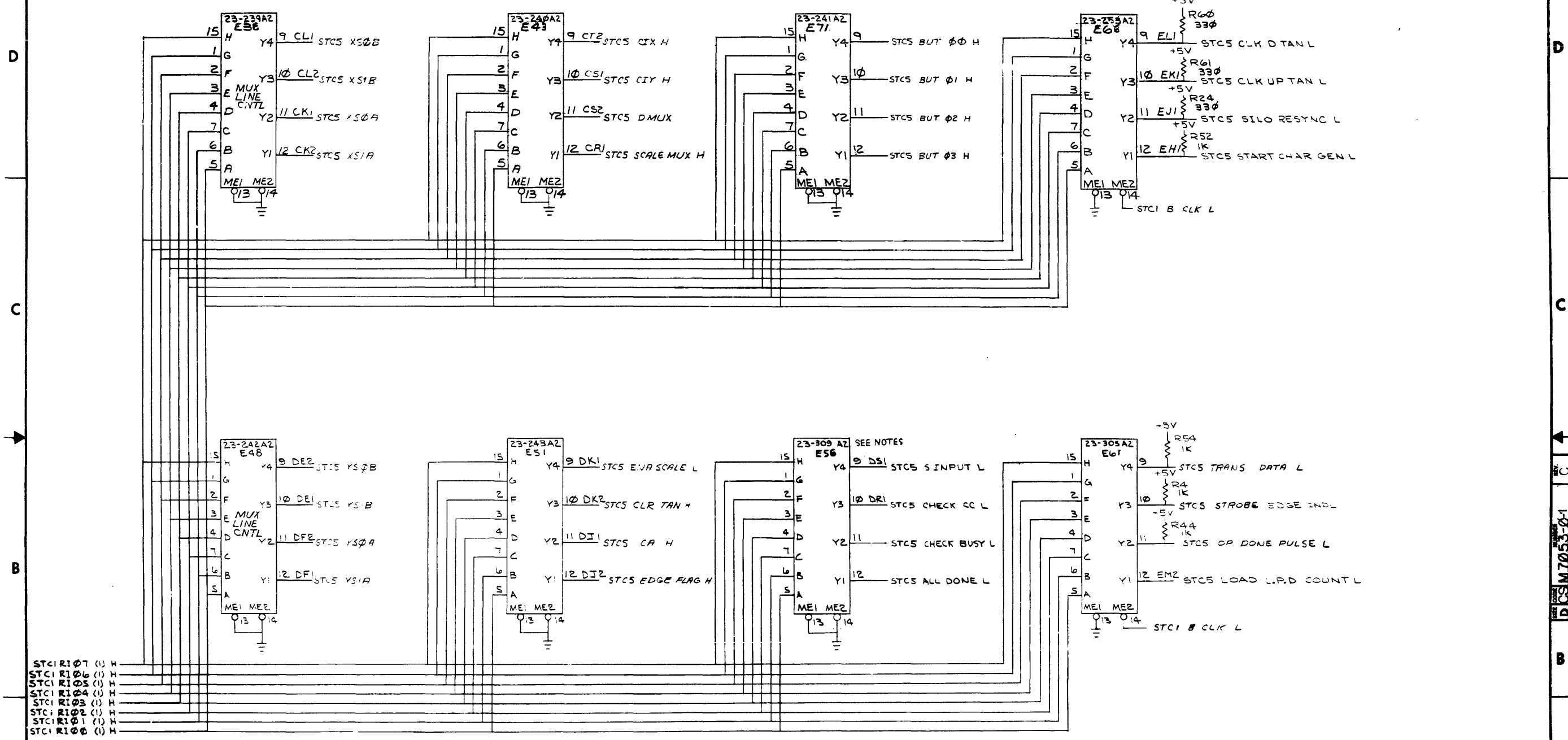
STC4

REV.	B
ORIGINATED	
CHG	

DRN	R. ROCHA	5/13/75	FIRST USED ON	GT48
CHK			TITLE	SCISSORING AND TANGENT CONTROL
ENG.			SIZE	D
PROJ. ENG.			CODE	CSM7500
PROD. C. U.S.			SCALE	1:1
NEXT HIGHER ASSY.			SHEET	5 OF 9
B-00-M7053-0			DIST.	

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1-0-3307WSQ 2



STC5

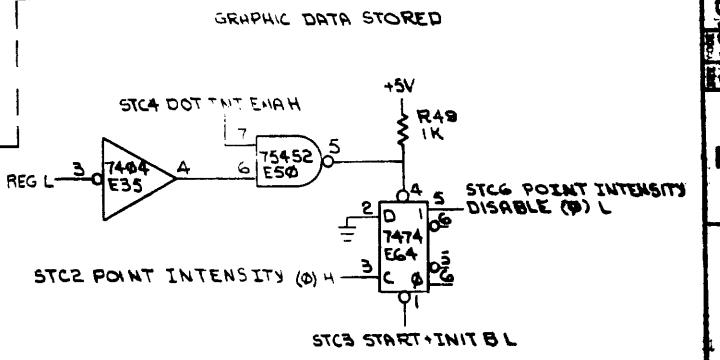
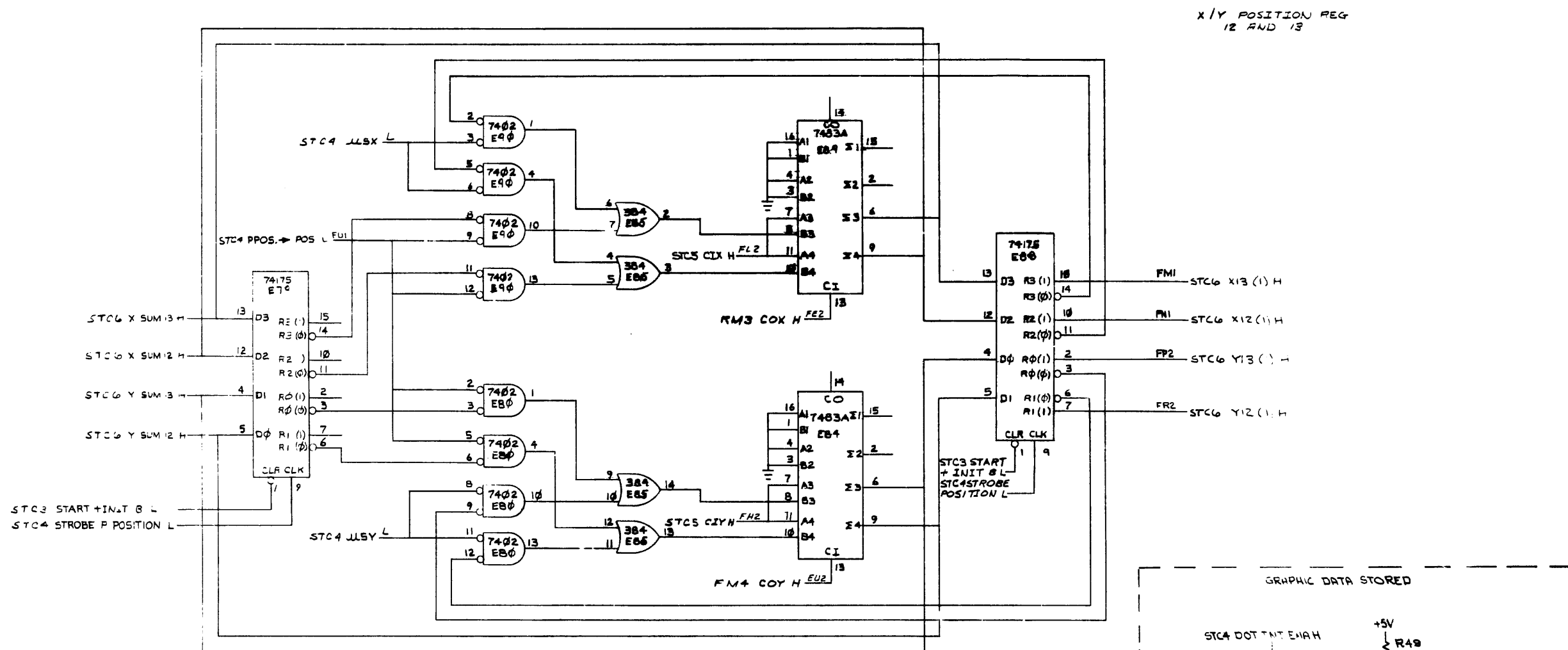
REV. NO.	REV.
ORIGINATED	B
CHK	

DRN: DUGGAN	5-13-75	FIRST USED ON: GT48
CHKD: [Signature]	[Signature]	
ENG: [Signature]	[Signature]	TITLE: SCISSORING AND TANGENT CONTROL
PROJ. ENG: [Signature]	[Signature]	
PROD. PL: [Signature]	[Signature]	
NEXT HIGHER ASSY: B-DD-M7053-0		
SCALE: + +	SIZE CODE: D	NUMBER: CSM7053-0-1
SHEET: 6 OF 9	DIST.	

DEC FORM 88A
OBD 8-2-0

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1-0-89021/MS 2

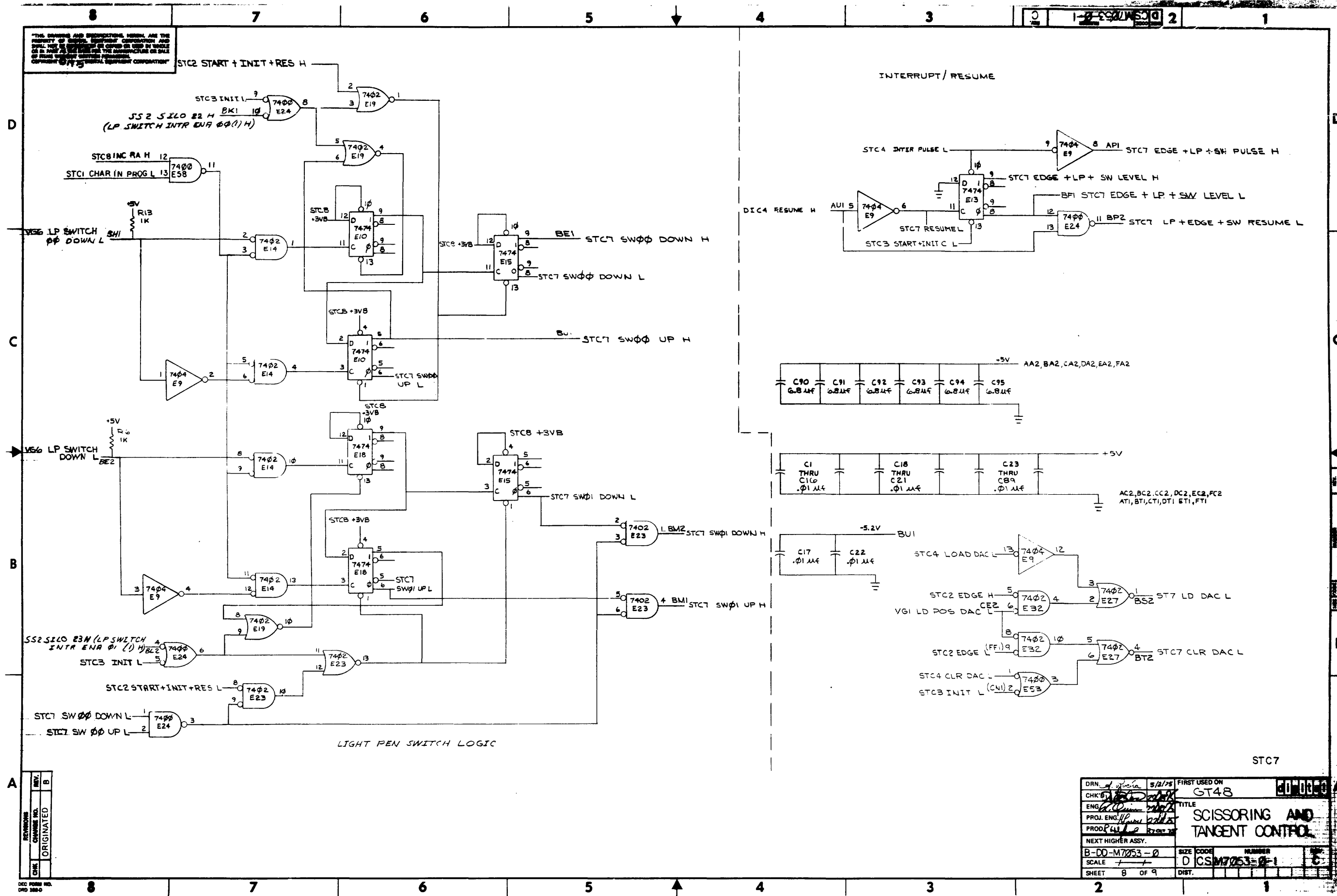


STC6

REV. B
ORIGINATED
CHG

DATE: 3/12/76	FIRST USED ON: 40-0000
CHKD: [Signature]	TITLE: SCISSORING AND TANGENT CONTROL
ENG: [Signature]	SIZE: D CS
PRD: [Signature]	NUMBER: M7053-0-4
NEXT HIGHER ASSY:	SCALE: 1/4
B-00-M7053-0	SHEET: 7 OF 9

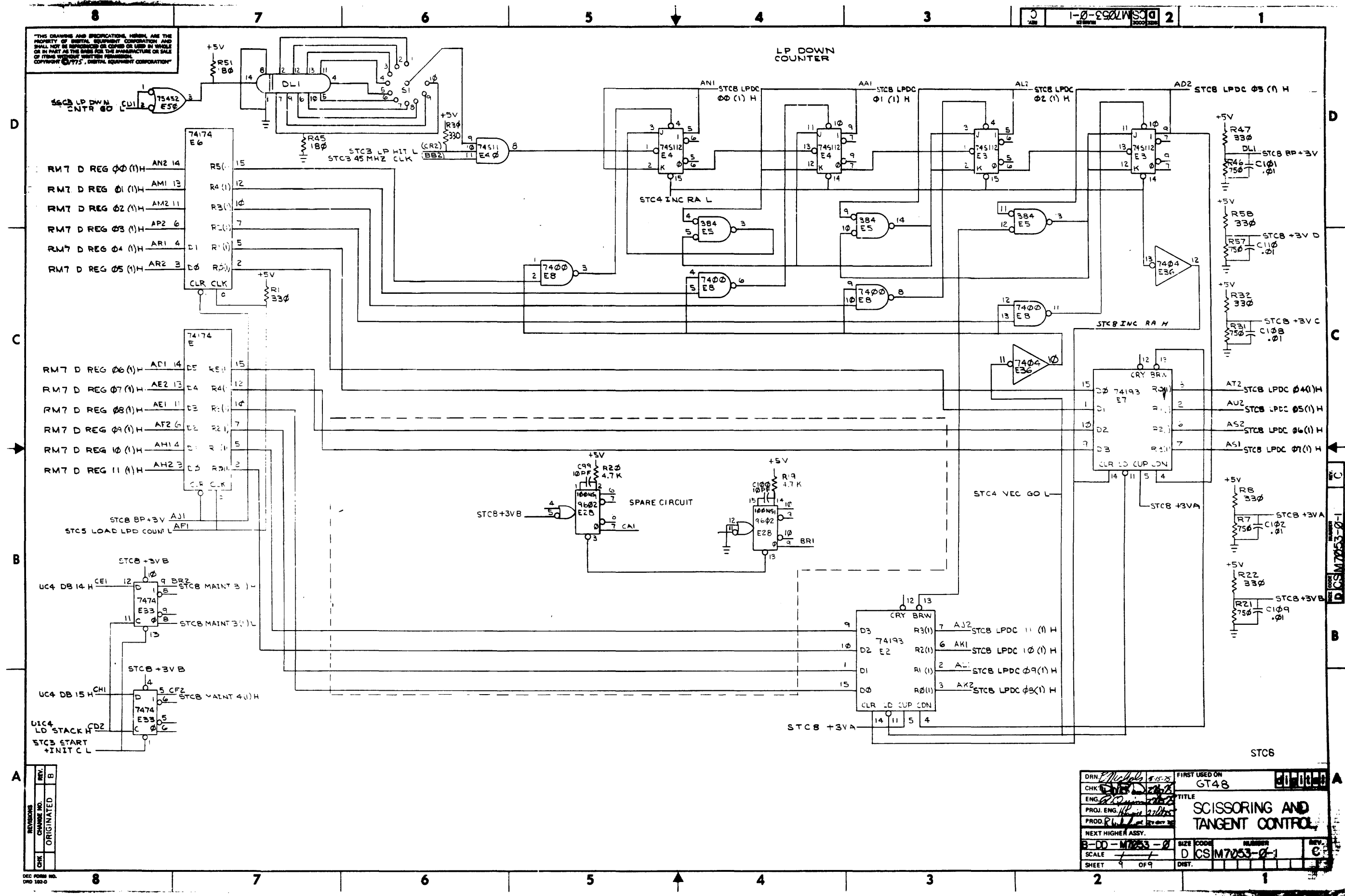
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REV. B	REV. A
ORIGINATED	CHANGED
CHANGED	REWORKED

DRN. <i>[Signature]</i>	5/2/75	FIRST USED ON	GT48
CHK. <i>[Signature]</i>			
ENG. <i>[Signature]</i>		TITLE	SCISSORING AND TANGENT CONTROL
PROJ. ENG. <i>[Signature]</i>			
PROD. <i>[Signature]</i>			
NEXT HIGHER ASSY.		SIZE CODE	NUMBER
SCALE		D	CSM7053-0-1
SHEET 8 OF 9		DIST.	

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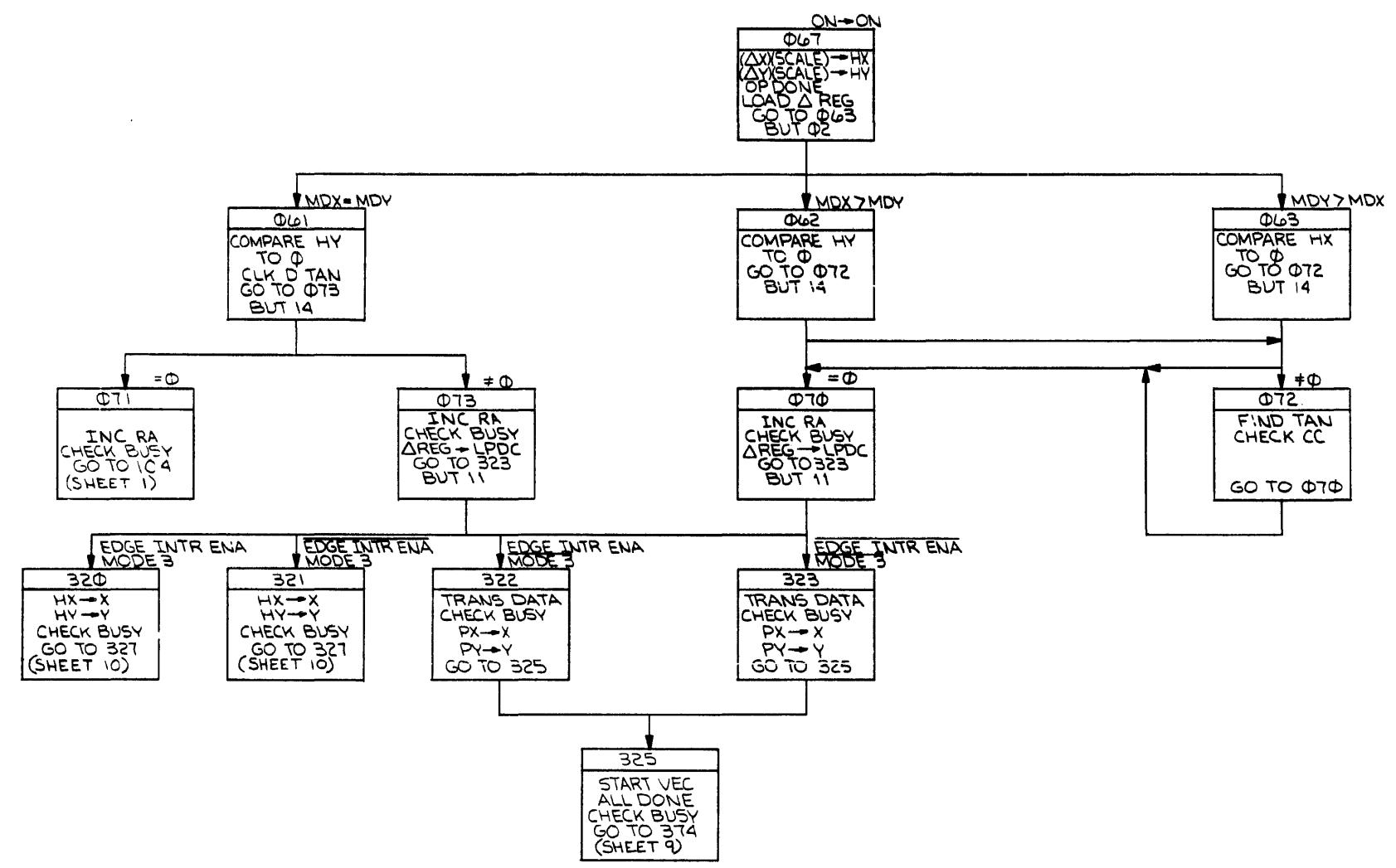
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CHK: <i>[Signature]</i>	TITLE: SCISSORING AND TANGENT CONTROL	REV: <i>[Signature]</i>
ENG: <i>[Signature]</i>	SIZE CODE: D	REV: <i>[Signature]</i>
PROJ. ENG: <i>[Signature]</i>	NUMBER: M7053-0-1	REV: <i>[Signature]</i>
PROD. R. <i>[Signature]</i>	SCALE: 1/1	REV: <i>[Signature]</i>
NEXT HIGHER ASSY:	SHEET: 4 OF 9	REV: <i>[Signature]</i>
3-00-M7053-0	DRY:	REV: <i>[Signature]</i>

REV.:	B
ORIGINATED:	
CHG:	

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VECTOR

	+	-	-	-
ΔX	+	-	-	-
ΔY	+	-	+	-
X-OFF	NA	NA	NA	NA
Y-OFF	NA	NA	NA	NA
	Φ31	Φ32	Φ33	Φ34
	X+(ΔX)SCALE)→PX Y+(ΔY)SCALE)→PY CLR SAR CLR TAN GO TO Φ67 BUT ΦΦ	X-(ΔX)SCALE)→PX Y-(ΔY)SCALE)→PY CLR SAR CLR TAN GO TO Φ67 BUT ΦΦ	X-(ΔX)SCALE)→PX Y-(ΔY)SCALE)→PY CLR SAR CLR TAN GO TO Φ67 BUT ΦΦ	X-(ΔX)SCALE)→PX Y-(ΔY)SCALE)→PY CLR SAR CLR TAN GO TO Φ67 BUT ΦΦ



REV.	
CHANGE NO.	
CHK	

DRN. R. W. Coover	30 OCT 75	FIRST USED ON	M7053
CHK. J. [Signature]	8 NOV 75	TITLE	M7053 PROGRAM FLOW DIAGRAM
ENG. J. [Signature]	R. [Signature]	PROJ. ENG.	[Signature]
PROD. [Signature]	[Signature]	NEXT HIGHER ASSY.	
B-D0-M7053-0	SCALE	SIZE CODE	NUMBER
		D FD	M7053-0-11
SHEET	2 OF 12	DIST.	

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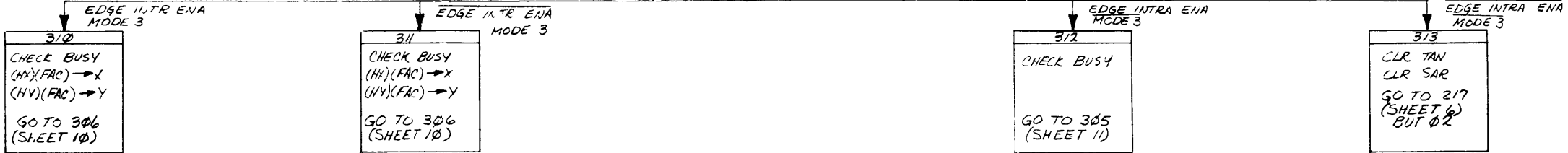
VECTOR			
ΔX	+	-	=
ΔY	+	+	+
X-OFF	NA	NA	NA
Y-OFF	NA	NA	NA
	$\phi 31$	$\phi 32$	$\phi 33$
	$X+(\Delta X)(SCALE) \rightarrow PX$	$X+(\Delta X)(SCALE) \rightarrow PX$	$X+(\Delta X)(SCALE) \rightarrow PX$
	$Y+(\Delta Y)(SCALE) \rightarrow PY$	$Y+(\Delta Y)(SCALE) \rightarrow PY$	$Y+(\Delta Y)(SCALE) \rightarrow PY$
	CLR SAR	CLR SAR	CLR SAR
	CLR TAN	CLR TAN	CLR TAN
	GO TO $\phi 67$	GO TO $\phi 67$	GO TO $\phi 67$
	BUT $\phi 6$	BUT $\phi 6$	BUT $\phi 6$

ON → OFF
 $\phi 66$
 $(\Delta X)(SCALE) \rightarrow HX$
 $(\Delta Y)(SCALE) \rightarrow HY$
 OP DONE
 LOAD Δ REG
 GO TO $\phi 3$
 BUT $\phi 4$



106
 CLK D FAC
 GO TO 107

107
 LOAD Δ REG
 Δ REG → LPDC
 GO TO 313
 BUT 11



DRN. J. Bland	3 Nov 75	FIRST USED ON	M7053
CHK'D: C. J. ...	31 Nov 75	TITLE	M7053 PROGRAM
ENG. B. ...	2 Dec 75		FLOW DIAGRAM
PROJ. ENG. H. ...	1 Dec 75		
PROD. W. ...	1 Dec 75		
NEXT HIGHER ASSY.		SIZE CODE	D
B-DD-M7053-0		NUMBER	M7053-0-11
SCALE		DIST.	
SHEET 3 OF 12			

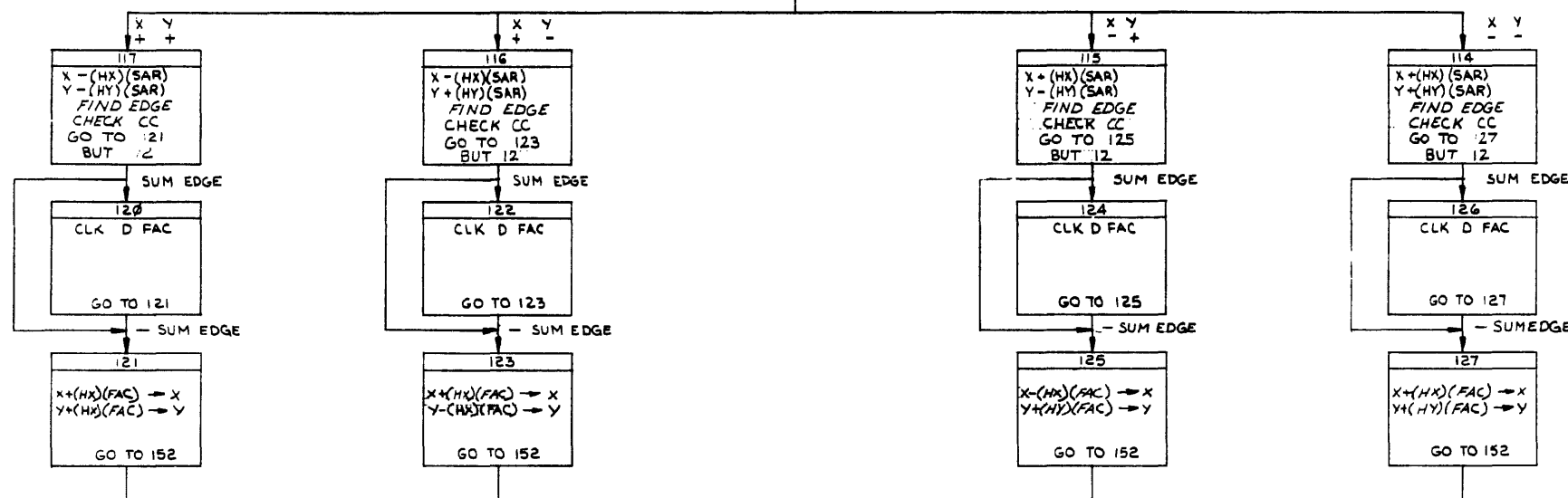
REV. NO. 1
 CHANGE NO. 1

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VECTOR				
ΔX	+	-	+	-
ΔY	+	-	+	-
X-OFF	NA	NA	NA	NA
Y-OFF	NA	NA	NA	NA
	031	032	033	034
	$X+(\Delta Y)(SCALE) \rightarrow PX$	$X+(\Delta Y)(SCALE) \rightarrow PX$	$X-(\Delta Y)(SCALE) \rightarrow PX$	$X-(\Delta Y)(SCALE) \rightarrow PX$
	$Y-(\Delta X)(SCALE) \rightarrow PY$	$Y-(\Delta X)(SCALE) \rightarrow PY$	$Y+(\Delta X)(SCALE) \rightarrow PY$	$Y+(\Delta X)(SCALE) \rightarrow PY$
	CLR SAR	CLR SAR	CLR SAR	CLR SAR
	CLR TAN	CLR TAN	CLR TAN	CLR TAN
	GO TO 067	GO TO 067	GO TO 067	GO TO 067
	BUT 00	BUT 00	BUT 00	BUT 00

OFF \rightarrow ON
 065
 $(\Delta X)(SCALE) \rightarrow HX$
 $(\Delta Y)(SCALE) \rightarrow HY$
 OPDONE
 GO TO 077

077
 $PX \rightarrow X$
 $PY \rightarrow Y$
 CHECK BUSY
 GO TO 117
 BUT 04



152
 LOAD DAC
 $1000 \rightarrow D$ COUNT
 GO TO 156

156
 START D COUNT
 LOAD Δ REG
 $(HX)(FAC) \rightarrow SUM$
 $(HY)(FAC) \rightarrow SUM$
 $\rightarrow 0$ TO 107
 (SHEET 3)

REV. 1
 CHANGE NO.
 DATE

DRN. M. Quinn	31 Oct 75	FIRST USED ON	M7053
CHK'D	31 Nov 75	TITLE	M7053 PROGRAM
ENG. R. Quinn	08 Dec 75		FLOW DIAGRAM
PROJ. ENG. M. Quinn	11 Dec 75		
PROD. M. Quinn	11 Dec 75		
NEXT HIGHER ASSY.			
B-00-M7053-0	SIZE	CODE	NUMBER
SCALE	D	FD	M7053-0-11
SHEET 4 OF 12	DIST.		REV. A

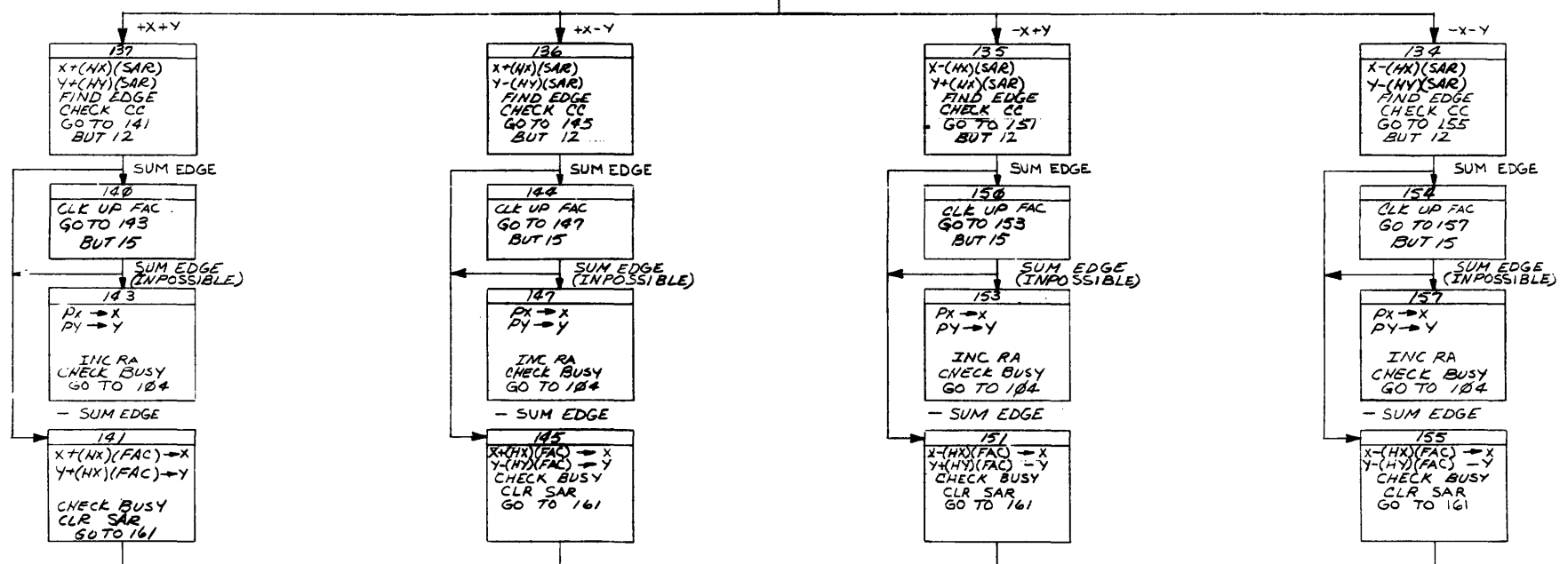
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VECTOR				
	+	-	+	-
ΔX	+	-	+	-
ΔY	+	-	+	-
X-OFF	NA	NA	NA	NA
Y-OFF	NA	NA	NA	NA
	031	032	033	034
	$X+(AX)(SCALE) \rightarrow PX$	$X+(AX)(SCALE) \rightarrow PX$	$X-(AX)(SCALE) \rightarrow PX$	$X-(AX)(SCALE) \rightarrow PX$
	$Y+(AY)(SCALE) \rightarrow PY$	$Y+(AY)(SCALE) \rightarrow PY$	$Y-(AY)(SCALE) \rightarrow PY$	$Y-(AY)(SCALE) \rightarrow PY$
	CLR SAR	CLR SAR	CLR SAR	CLR SAR
	CLRTAN	CLRTAN	CLRTAN	CLRTAN
	GO TO 067	GO TO 067	GO TO 067	GO TO 067
	BUT 00	BUT 00	BUT 00	BUT 00

068
OFF → OFF
PX → SUM
PY → SUM
GO TO 162
BUT 05

160
POSSIBILITY
 $(AX)(SCALE) \rightarrow HX$
 $(AY)(SCALE) \rightarrow HY$
OP DONE
GO TO 137
BUT 04

162
NO POSSIBILITY
PX → X
PY → Y
OP DONE
GO TO 109
(SHEET 1)



161
LOAD DAC
1000 → D COUNT
GO TO 163

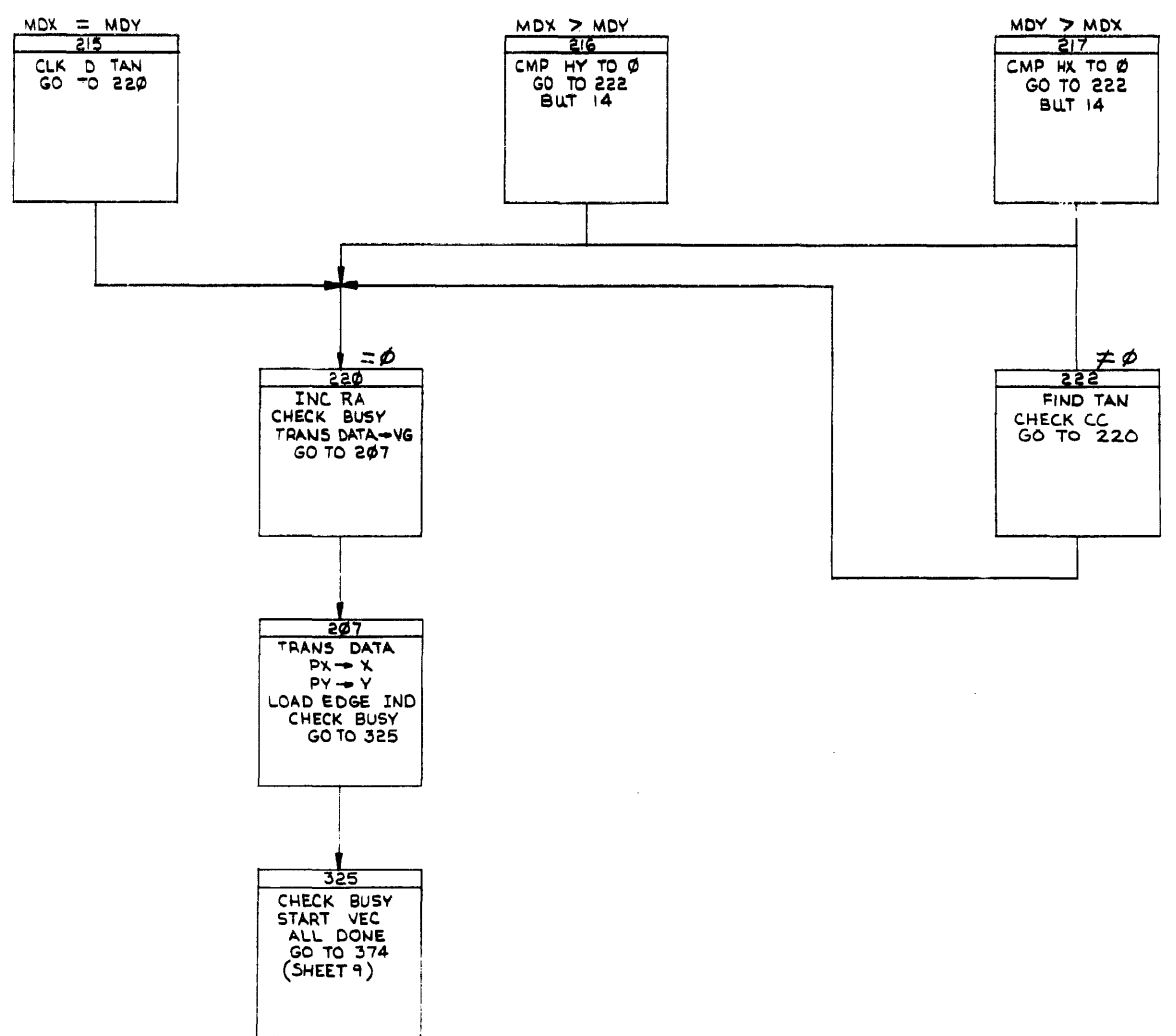
163
START D COUNT
HX → (HX)(TAN)
HY → (HY)(TAN)
LOAD Δ REG
GO TO 103
(SHEET 3)
BUT 04

REV.	
CHANGE NO.	
CHK.	

DRN. J. Bland	4 NOV 73	FIRST USED ON	M7053
CHKD. [Signature]	8 DEC 73	TITLE	M7053 PROGRAM FLOW DIAGRAM
ENG. [Signature]	8 DEC 73	PROJ. ENG. [Signature]	[Signature]
PROD. [Signature]	[Signature]	NEXT HIGHER ASSY.	
B-DD-M7053-0	SCALE 1:1	SIZE CODE D	NUMBER FDM7053-0-11
SHEET 5 OF 12	DIST.		

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TANGENT CALCULATION FOR SCISSORED VECTORS.

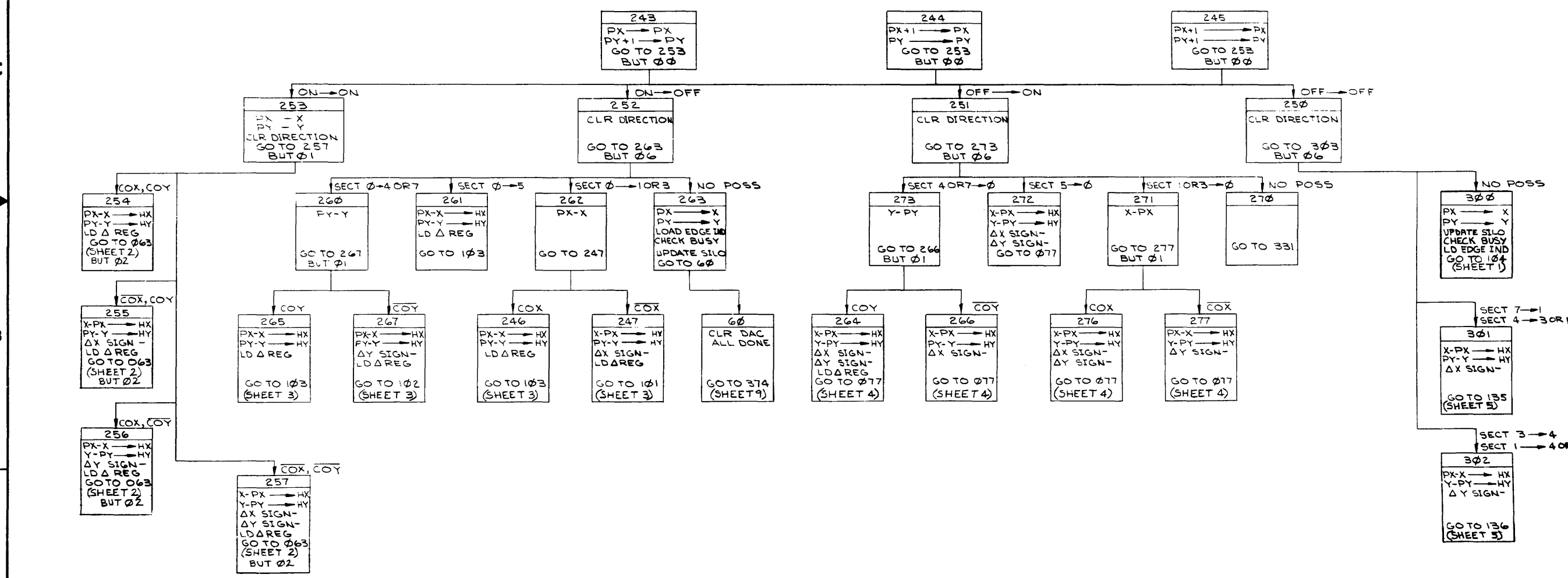


DRN. M. Q. 3 Nov 75	FIRST USED ON	M7053
CHK'D. [Signature]	DATE	3 Nov 75
ENG. [Signature]	TITLE	M7053 PROGRAM FLOW DIAGRAM
PROJ. ENG. [Signature]	SIZE	D
PROD. [Signature]	CODE	FD
NEXT HIGHER ASSY.	NUMBER	M7053-0-H
B-DD-M7053-0	REV.	A
SCALE	DIST.	
SHEET 6 OF 12		

REVISIONS
 CHANGE NO. REV.
 1
 2

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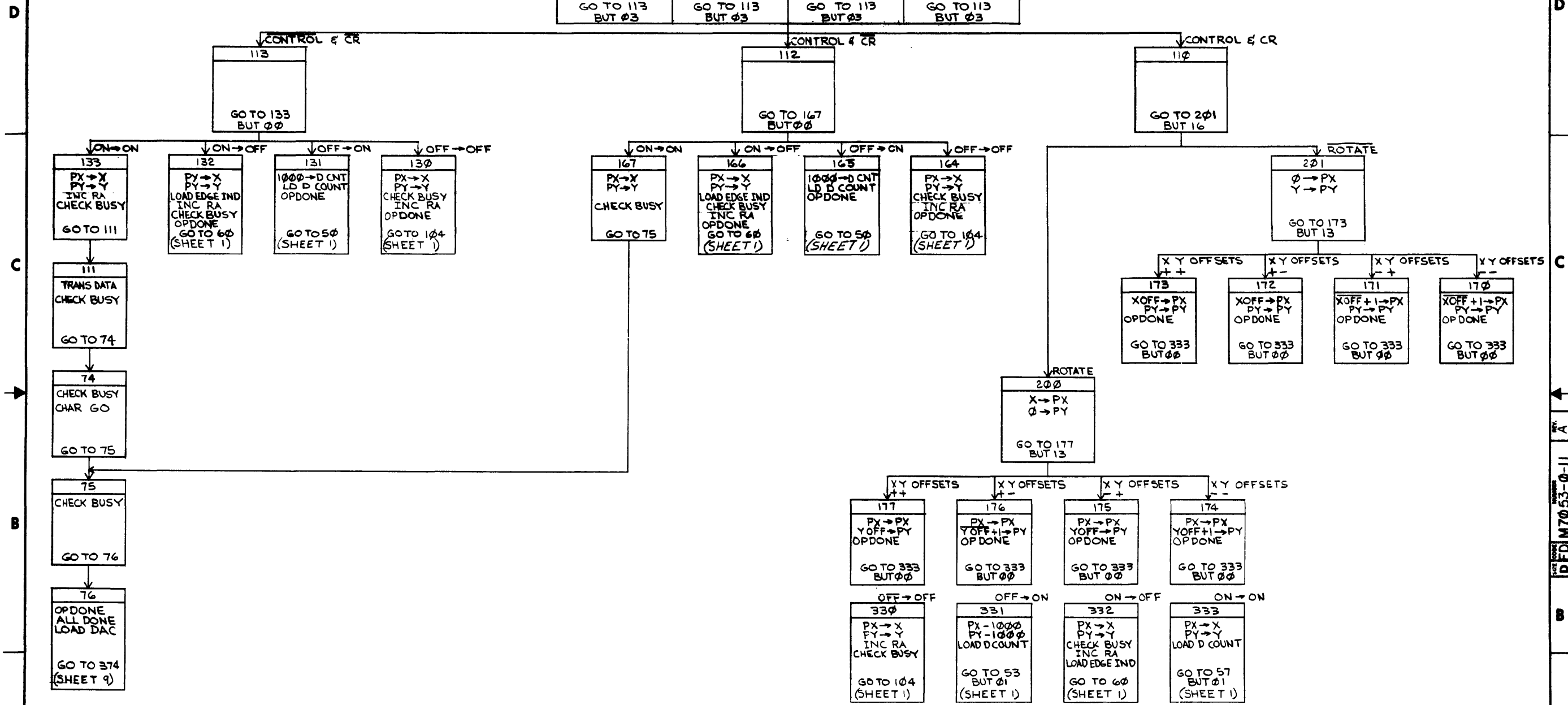
ABSOLUTE VECTOR																		
ΔX	ΔY	OFF	223	224	225	226	227	230	231	232	233	234	235	236	237	240	241	242
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
$(\Delta X)(SCALE)+X OFF$	$(\Delta X)(SCALE)+X OFF$	$(\Delta X)(SCALE)-X OFF$	$(\Delta X)(SCALE)-X OFF$	$(\Delta X)(SCALE)+X OFF$	$(\Delta X)(SCALE)+X OFF$	$(\Delta X)(SCALE)-X OFF$	$(\Delta X)(SCALE)-X OFF$	$(\Delta X)(SCALE)+X OFF$	$(\Delta X)(SCALE)-X OFF$	$(\Delta X)(SCALE)-X OFF$	$(\Delta X)(SCALE)-X OFF$	$(\Delta X)(SCALE)+X OFF$	$(\Delta X)(SCALE)-X OFF$	$(\Delta X)(SCALE)-X OFF$	$(\Delta X)(SCALE)-X OFF$	$(\Delta X)(SCALE)-X OFF$	$(\Delta X)(SCALE)-X OFF$	$(\Delta X)(SCALE)-X OFF$
$(\Delta Y)(SCALE)+Y OFF$	$(\Delta Y)(SCALE)+Y OFF$	$(\Delta Y)(SCALE)+Y OFF$	$(\Delta Y)(SCALE)-Y OFF$	$(\Delta Y)(SCALE)-Y OFF$	$(\Delta Y)(SCALE)+Y OFF$	$(\Delta Y)(SCALE)-Y OFF$	$(\Delta Y)(SCALE)-Y OFF$	$(\Delta Y)(SCALE)+Y OFF$	$(\Delta Y)(SCALE)-Y OFF$	$(\Delta Y)(SCALE)-Y OFF$	$(\Delta Y)(SCALE)+Y OFF$	$(\Delta Y)(SCALE)-Y OFF$	$(\Delta Y)(SCALE)+Y OFF$	$(\Delta Y)(SCALE)-Y OFF$	$(\Delta Y)(SCALE)-Y OFF$	$(\Delta Y)(SCALE)-Y OFF$	$(\Delta Y)(SCALE)-Y OFF$	$(\Delta Y)(SCALE)-Y OFF$
CLR TAN CLR SAR OP DONE GO TO 253 BUT 00	CLR TAN CLR SAR OP DONE GO TO 253 BUT 00	CLR TAN CLR SAR OP DONE GO TO 253 BUT 00	CLR TAN CLR SAR OP DONE GO TO 253 BUT 00	CLR TAN CLR SAR OP DONE GO TO 253 BUT 00	CLR TAN CLR SAR OP DONE GO TO 253 BUT 00	CLR TAN CLR SAR OP DONE GO TO 253 BUT 00	CLR TAN CLR SAR OP DONE GO TO 253 BUT 00	CLR TAN CLR SAR OP DONE GO TO 243 BUT 00	CLR TAN CLR SAR OP DONE GO TO 253 BUT 00	CLR TAN CLR SAR OP DONE GO TO 243 BUT 00	CLR TAN CLR SAR OP DONE GO TO 253 BUT 00	CLR TAN CLR SAR OP DONE GO TO 244 BUT 00	CLR TAN CLR SAR OP DONE GO TO 244 BUT 00	CLR TAN CLR SAR OP DONE GO TO 253 BUT 00	CLR TAN CLR SAR OP DONE GO TO 243 BUT 00	CLR TAN CLR SAR OP DONE GO TO 244 BUT 00	CLR TAN CLR SAR OP DONE GO TO 244 BUT 00	CLR TAN CLR SAR OP DONE GO TO 245 BUT 00



DRN	10-2-20	FIRST USED ON	M7053
CHK'D	3 MAY 75	TITLE	M7053 PROGRAM
ENG	...		FLOW DIAGRAM
PROJ. ENG.	...		
PROD. CONTROL	...		
NEXT HIGHER ASSY.			
B-DD-M7053-0	SIZE CODE	NUMBER	
SCALE	D	FD M7053-0-11	
SHEET 7 OF 12	DIST.		

CHARACTER

XY ++	XY +-	XY -+	XY --
035	036	037	040
X+(ΔX)(CHAR SCALE)→PX Y+(ΔY)(CHAR SCALE)→PY	X+(ΔX)(CHAR SCALE)→PX Y-(ΔY)(CHAR SCALE)→PY	X-(ΔX)(CHAR SCALE)→PX Y+(ΔY)(CHAR SCALE)→PY	X-(ΔX)(CHAR SCALE)→PX Y-(ΔY)(CHAR SCALE)→PY
GO TO 113 BUT 03	GO TO 113 BUT 03	GO TO 113 BUT 03	GO TO 113 BUT 03

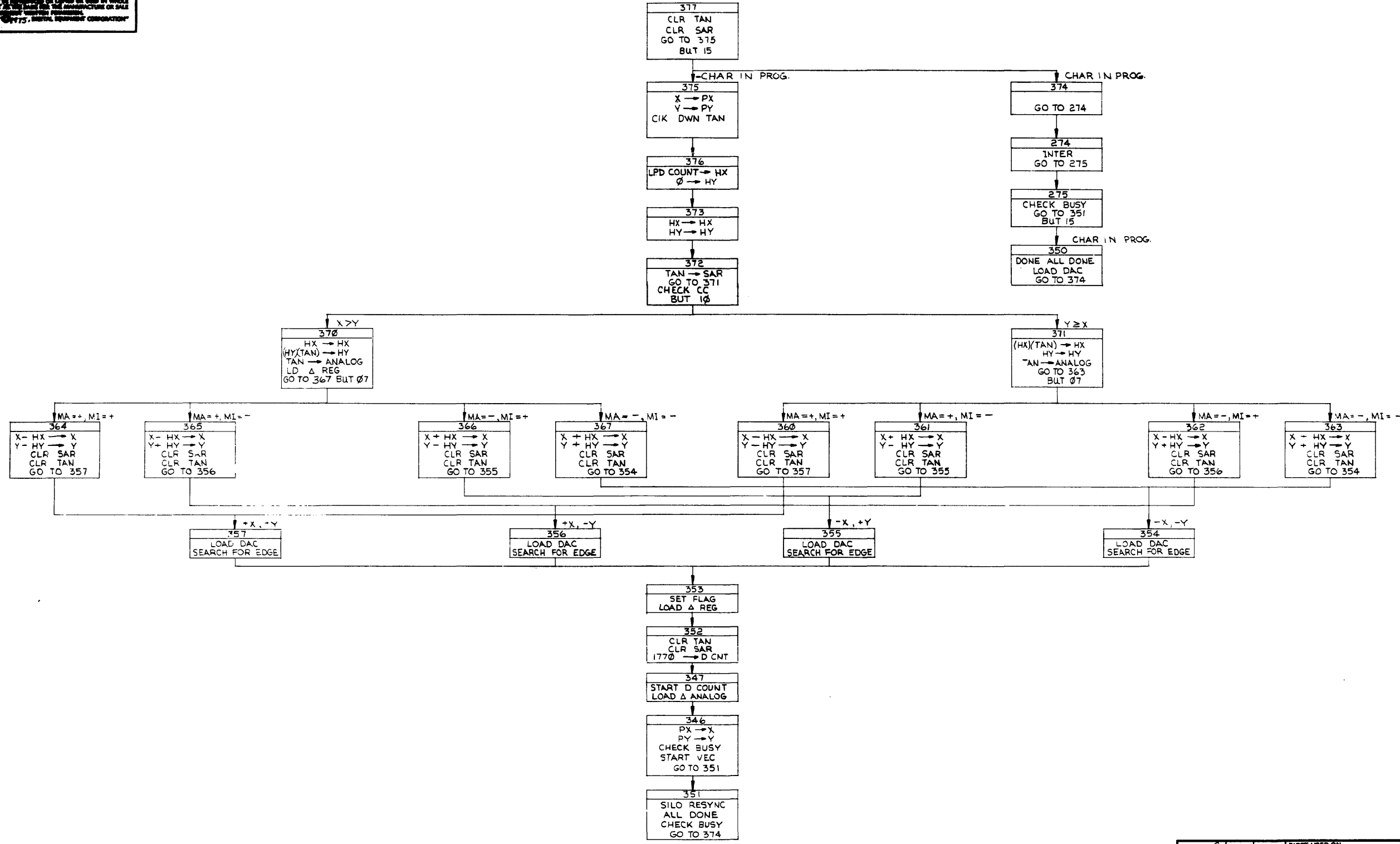


DRN: <i>[Signature]</i>	DATE: 11/01/70	FIRST USED ON: M7053	<i>[Stamp]</i>
CHK'D: <i>[Signature]</i>	DATE: 11/01/70	TITLE: M7053 PROGRAM FLOW DIAGRAM	
ENG: <i>[Signature]</i>	DATE: 11/01/70		
PROJ. ENG: <i>[Signature]</i>	DATE: 11/01/70		
PROD. <i>[Signature]</i>	DATE: 11/01/70		
NEXT HIGHER ASSY:			
B-DD-M7053-0	SIZE CODE: D	NUMBER: M7053-0-11	REV: A
SCALE: 1	SHEET: 8	OF 12	DIST.

REV. 1
CHANGE NO.
DATE

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LIGHT PEN & SWITCH INTERRUPT ROUTINE

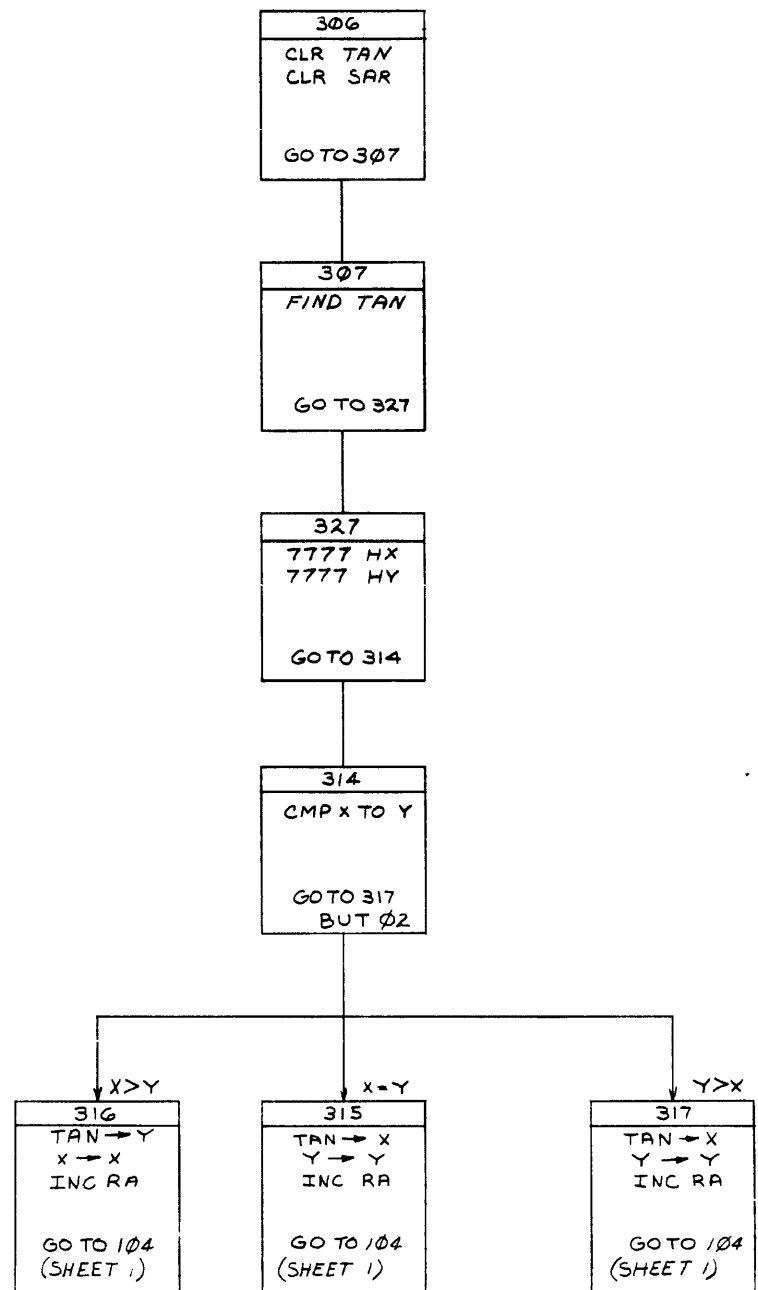


DRN. <i>M. G. G.</i>	4 Nov 75	FIRST USED ON	M7053
CHKD. <i>[Signature]</i>	8 DEC 75	TITLE	M7053 PROGRAM FLOW DIAGRAM
ENG. <i>[Signature]</i>	8 DEC 75	PROJ. ENG. <i>[Signature]</i>	11 Dec 75
PROD. <i>[Signature]</i>	11 Dec 75	NEXT HIGHER ASSY.	
B-DD-M7053-Ø		SIZE CODE	NUMBER
SCALE	→	D	FD M7053-Ø-11
SHEET	9 of 12	DRST.	A

D E D M7053-Ø-11 A

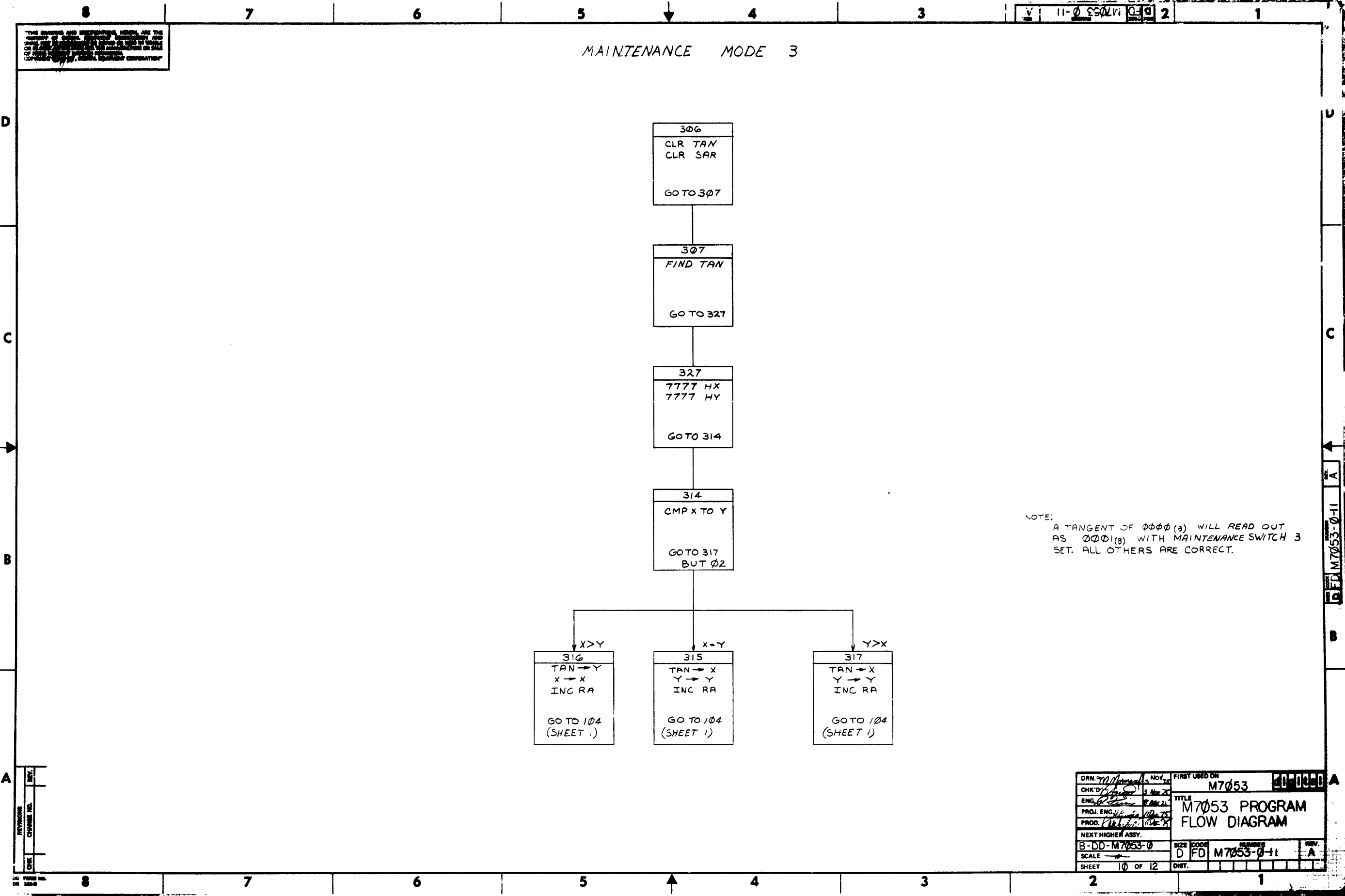
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MAINTENANCE MODE 3



NOTE:
A TANGENT OF ØØØØ(Ø) WILL READ OUT AS ØØØØ(Ø) WITH MAINTENANCE SWITCH 3 SET. ALL OTHERS ARE CORRECT.

DRN. <i>M. M. M.</i>	NOV. 15	FIRST USED ON	M7053
CHK'D <i>[Signature]</i>	3 Nov 53	TITLE	M7053 PROGRAM FLOW DIAGRAM
ENG. <i>[Signature]</i>	2 Nov 53	PROJ. ENG. <i>[Signature]</i>	PROD. <i>[Signature]</i>
NEXT HIGHER ASSY.		SIZE	CODE
B-DD-M7053-0		D	FD
SCALE		NUMBER	REV.
		M7053-0-11	A
SHEET	10 OF 12	DIST.	



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11-0-8401M M7053 2

EDGE INTR

305
INTER
INC RA
GO TO 204

204
PX → SUM
PY → SUM
EDGE FLAG
LOAD EDGE IND.
CHECK BUSY
GO TO 203 BUT 12

SUM EDGE
202
GO TO 213
BUT 04

SUM EDGE
203
PX → X
PY → Y
INTER
GO TO 205

213
+X
+Y
X+(HX)(FAC) → X
Y+(HY)(FAC) → Y
INTER
GO TO 206

212
-X
-Y
X+(HX)(FAC) → X
Y+(HY)(FAC) → Y
INTER
GO TO 206

211
+X
-Y
X-(HX)(FAC) → X
Y+(HY)(FAC) → Y
INTER
GO TO 206

210
-X
+Y
X-(HX)(FAC) → X
Y-(HY)(FAC) → Y
INTER
GO TO 206

221
1000 → D.C.
CLR DAC
GO TO 214

205
1000 → DC
LOAD DAC
CHECK BUSY
EDGE FLAG
GO TO 214

214
SILO RESYNC
START D COUNT
GO TO 104
(SHEET 1)

206
PX → X
PY → Y
EDGE FLAG
CHECK BUSY
GO TO 221

DRN: [Signature]	REV: [Signature]	FIRST USED ON	M7053
CHK'D: [Signature]	ENG: [Signature]	TITLE	M7053 PROGRAM FLOW DIAGRAM
PROJ. ENG: [Signature]	PROD. [Signature]	SIZE	D
NEXT HIGHER ASSY.	SCALE	CODE	FD
B-DD-M7053-0	SCALE	NUMBER	M7053-0-11
SHEET 11 OF 12	DIST.	REV.	A

D FD M7053-0-11 A

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SECTOR MAP

NOTE:
 1. OCTAL NUMBERS ARE DERIVED FROM THE SECTOR BITS OF THE X AND Y POSITION AND REPRESENT THE ADDRESS OF THAT PARTICULAR SECTOR. EXAMPLE: THE COORDINATE (X,Y) IS REPRESENTED AS (0000,0000) FOR SECTOR 0. THE COORDINATE (0001,0000) FOR SECTOR 20. THIS NUMBER IS ALSO THE INPUT OF THE START AND END POINT ROMS - 23-234A2.
 2. BINARY NUMBERS REPRESENT THE OUTPUT OF THE START AND END POINT ROMS AND ARE USED AS INPUT TO THE SCISSORING DECODE ROM - 23-236A2. FOR EXAMPLE: AN ARBITRARY VECTOR IS DRAWN FROM SECTOR 20. CODE 0100 TO SECTOR 1, CODE 0001. THIS IS SHOWN ON THE OUTPUT OF THE SCISSORING DECODE ROM AS A POSSIBLE VECTOR PASSING THRU SECTOR 0.
 3. THE CROSS HATCH AREA, SECTOR 0, IS THE VISUAL AREA OF THE DISPLAY.

	207	227	247	267	307	327	347	367	7	27	47	67	107	127	147	167
0111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111
0110	206	226	246	266	306	326	346	366	6	26	46	66	106	126	146	166
0101	205	225	245	265	305	325	345	365	5	25	45	65	105	125	145	165
0100	204	224	244	264	304	324	344	364	4	24	44	64	104	124	144	164
0011	203	223	243	263	303	323	343	363	3	23	43	63	103	123	143	163
0010	202	222	242	262	302	322	342	362	2	22	42	62	102	122	142	162
0001	201	221	241	261	301	321	341	361	1	21	41	61	101	121	141	161
0000	200	220	240	260	300	320	340	360	0	20	40	60	100	120	140	160
1111	217	237	257	277	317	337	357	377	17	37	57	77	117	137	157	177
1110	216	236	256	276	316	336	356	376	16	36	56	76	116	136	156	176
1101	215	235	255	275	315	335	355	375	15	35	55	75	115	135	155	175
1100	214	234	254	274	314	334	354	374	14	34	54	74	114	134	154	174
1011	213	233	253	273	313	333	353	373	13	33	53	73	113	133	153	173
1010	212	232	252	272	312	332	352	372	12	32	52	72	112	132	152	172
1001	211	231	251	271	311	331	351	371	11	31	51	71	111	131	151	171
1000	210	230	250	270	310	330	350	370	10	30	50	70	110	130	150	170
	1000	1001	1010	1011	1100	1101	1110	1111	0000	0001	0010	0011	0100	0101	0110	0111

Y SECTOR

X SECTOR

DRN: M. J. [Signature]	1/28/53	FIRST USED ON	M7053
CHK: D. [Signature]	9/3/53	TITLE	M7053 PROGRAM FLOW DIAGRAM
ENG: R. [Signature]		SIZE	D
PROJ. ENG: J. [Signature]		CODE	FD
PROD. R. C. [Signature]		NUMBER	M7053-0-11
NEXT HIGHER ASSY.		REV.	A
E-DD-M7053-0		SCALE	
SHEET 12 OF 12		DIST.	

REVISIONS
 CHANGE NO.
 REV.

M7053-0-11 A
 DFD M7053-0-11 A

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

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SEQUENCE

SEQUENCE

STACK & SILO CONTROL
STACK & SILO CONTROL

D-UA-M7054-0-0
D-CS-M7054-0-1

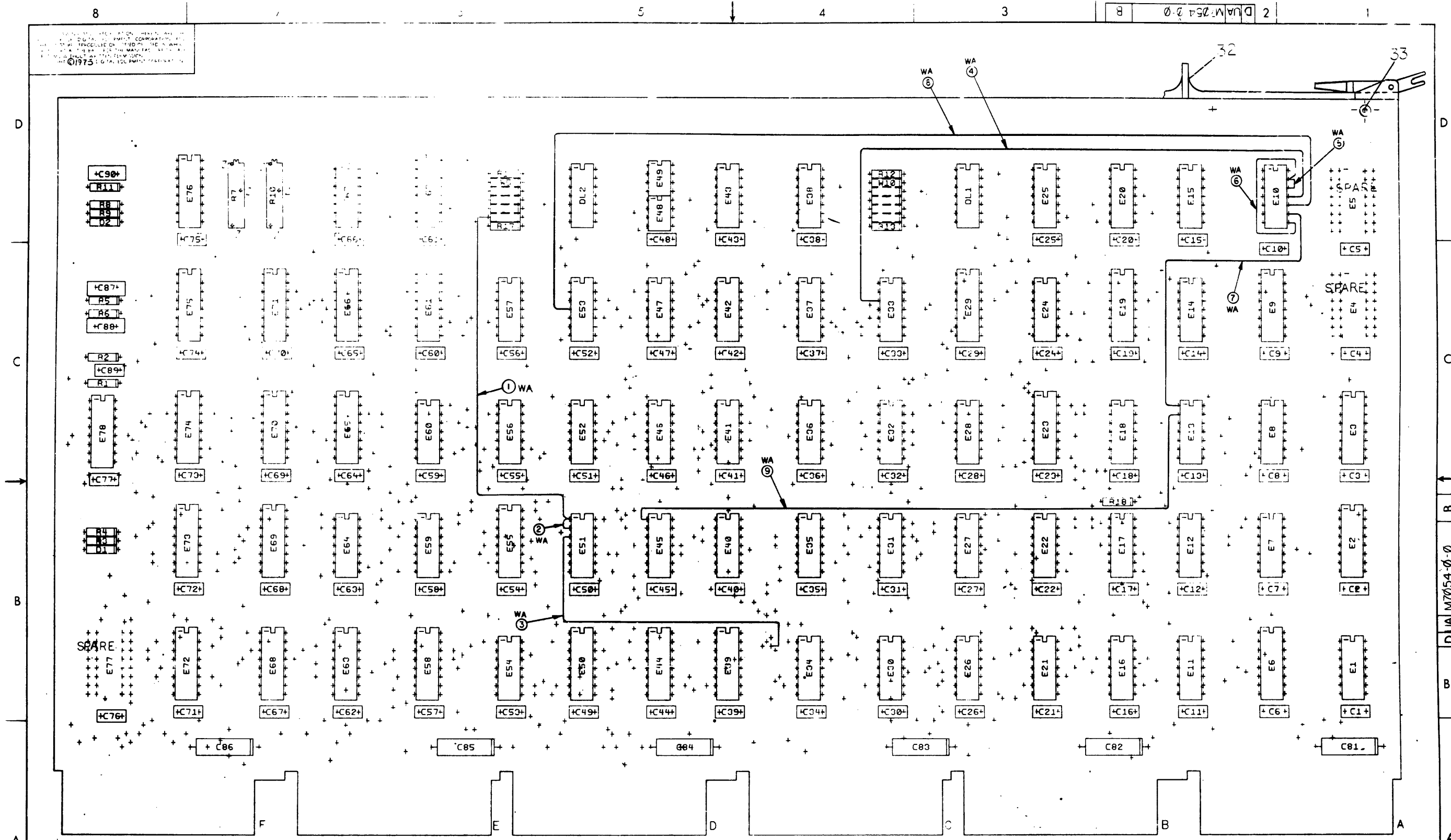
UNIT VARIATIONS		PRINT SET		
VAR	TITLE			
M7054	VT48 SILO & STACK CONTROL			

REVISIONS	CHG. NO.	REV
DATE	1-76 M7054-00001	A

USED ON OPTION/MODEL		DRN. <i>A. Rocha</i>	DATE 4/28/75	TITLE
		CHK'D. <i>D. Blum</i>	DATE 11/30/75	VT48 SILO & STACK CONTROL
		PROJ. ENG. <i>H. Lavinia</i>	DATE 10/SEP/75	
		PROD.	DATE	SIZE CODE NUMBER
				B DD M7054-0
FIELD SERV.		DATE	REV	A
SHEET 1 OF 2		<i>T.O. Donnell</i>	10SEP75	DIST

DRC 16-13281-1085-1A-R072

REVISIONS
 1975



VUTSRPNMLKJHFEDCBA VUTSRPNMLKJHFEDCBA VUTSRPNMLKJHFEDCBA VUTSRPNMLKJHFEDCBA VUTSRPNMLKJHFEDCBA VUTSRPNMLKJHFEDCBA

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	VT48 SILO + STACK CONTROL	SIZE CODE	DUA	NUMBER	M7054-0-0	REV.	B
SCALE	NONE	SHEET	2	OF	5	DIST.	

M7054 MS30091 5011388B

CSXABCDEFGHIJKLMNPRS

SIDE 1

FLIP CHIP

E76

E67

E62

DL2

E49

E43

E38

DL1

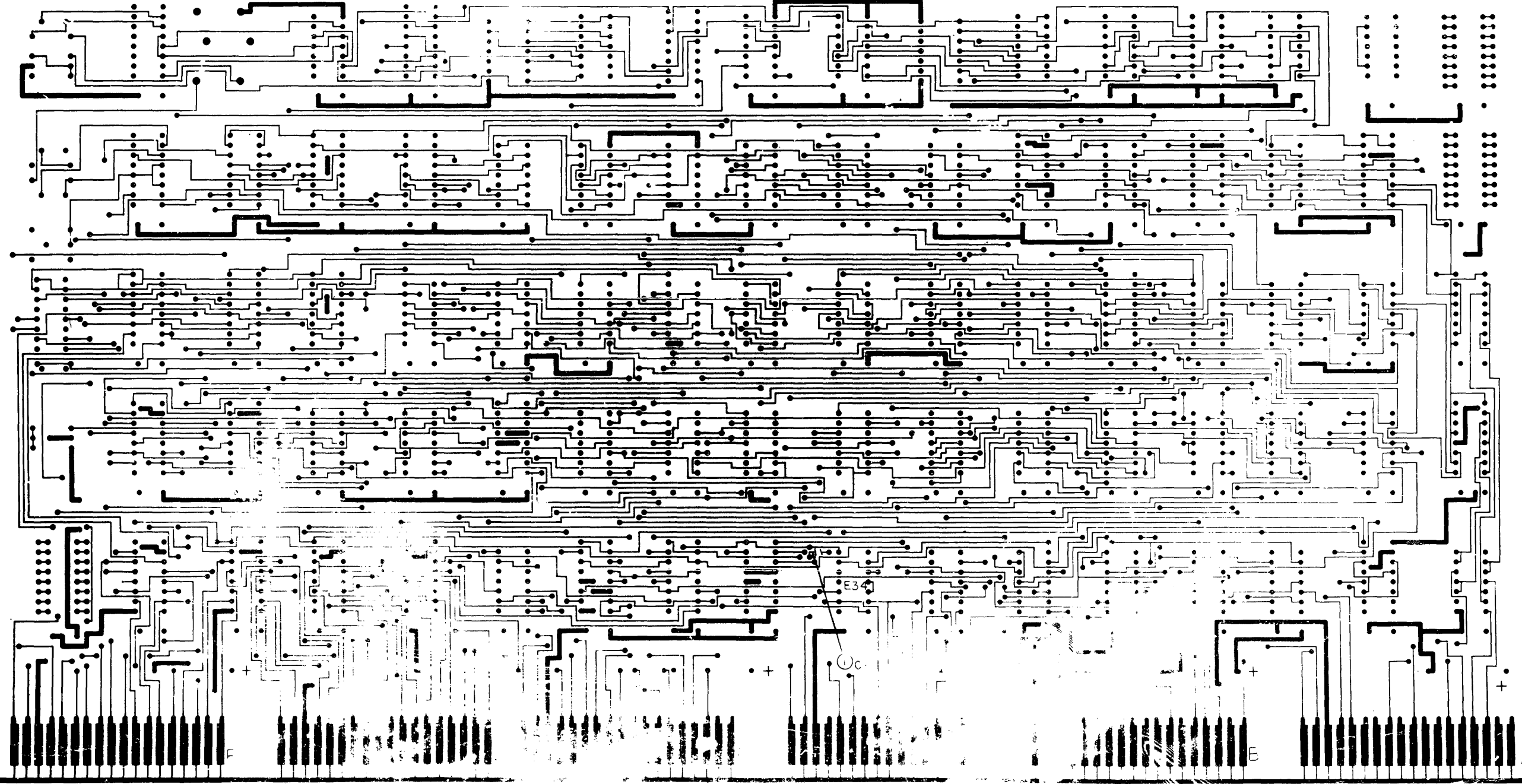
E25

E20

E15

E10

E5



REVISIONS		
CHK	CHANGE NO	REV

148 SILIC + STACK CONTROL	SIZE CODE	NUMBER	REV.
	D UA	M7054-0-0	B

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0-0-0-0-0-0-0-0-0-0

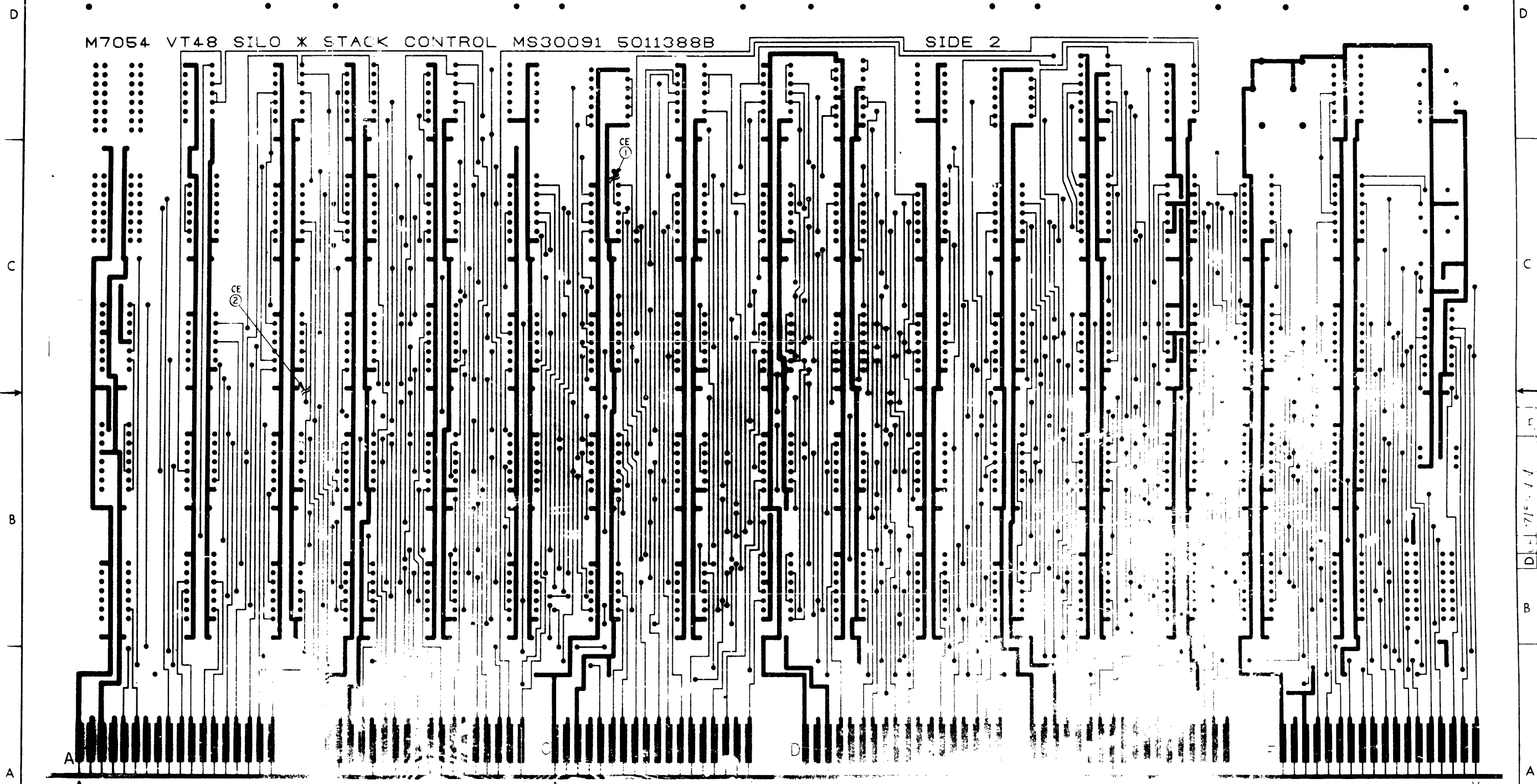
1

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M7054 VT48 SILO X STACK CONTROL MS30091 5011388B

SIDE 2



REVISIONS		
CHK	CHANGE NO	REV

CONTROL	5240001	NUMBER	REV
D	1-07-4-0-0	B	

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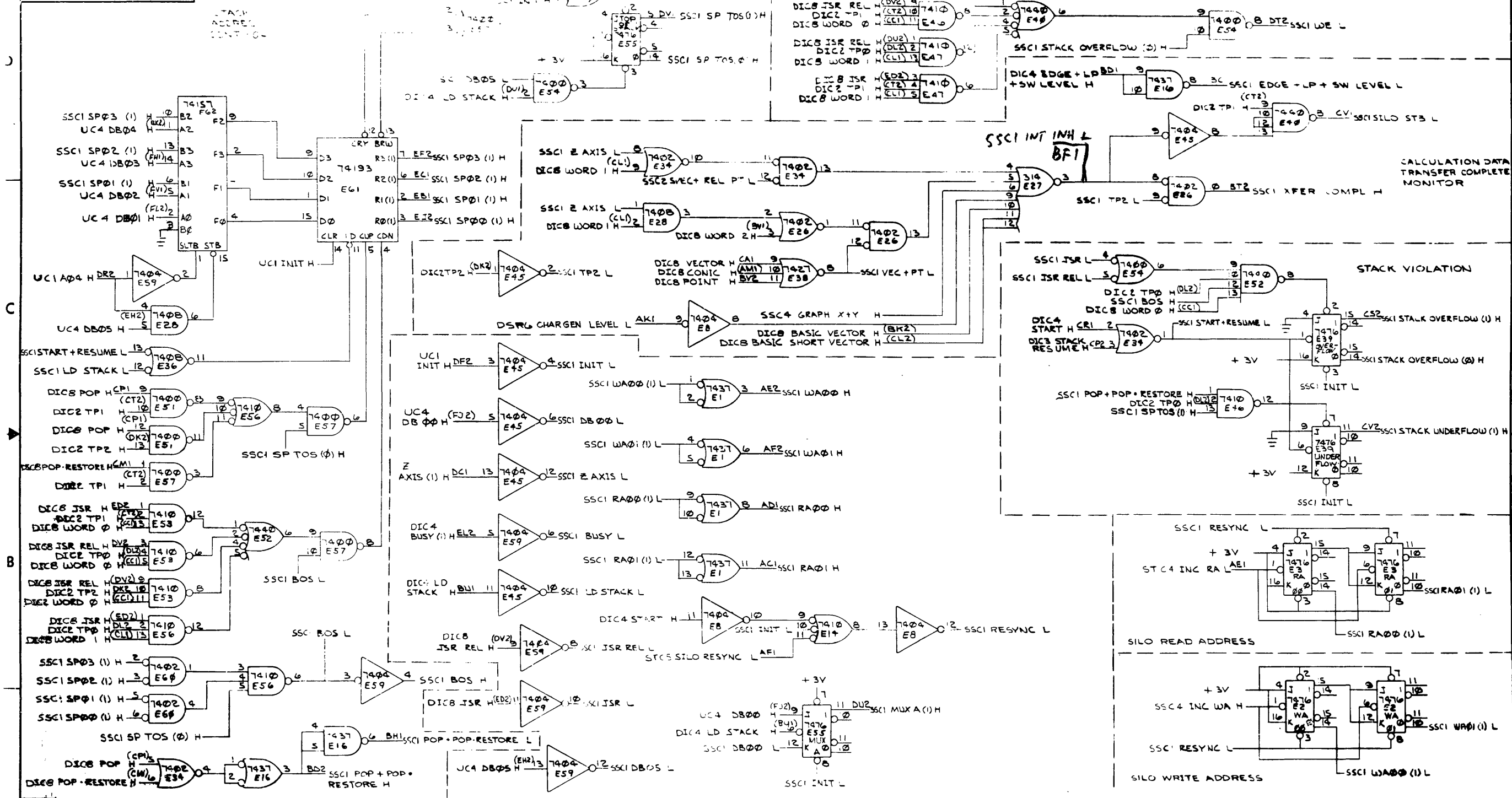
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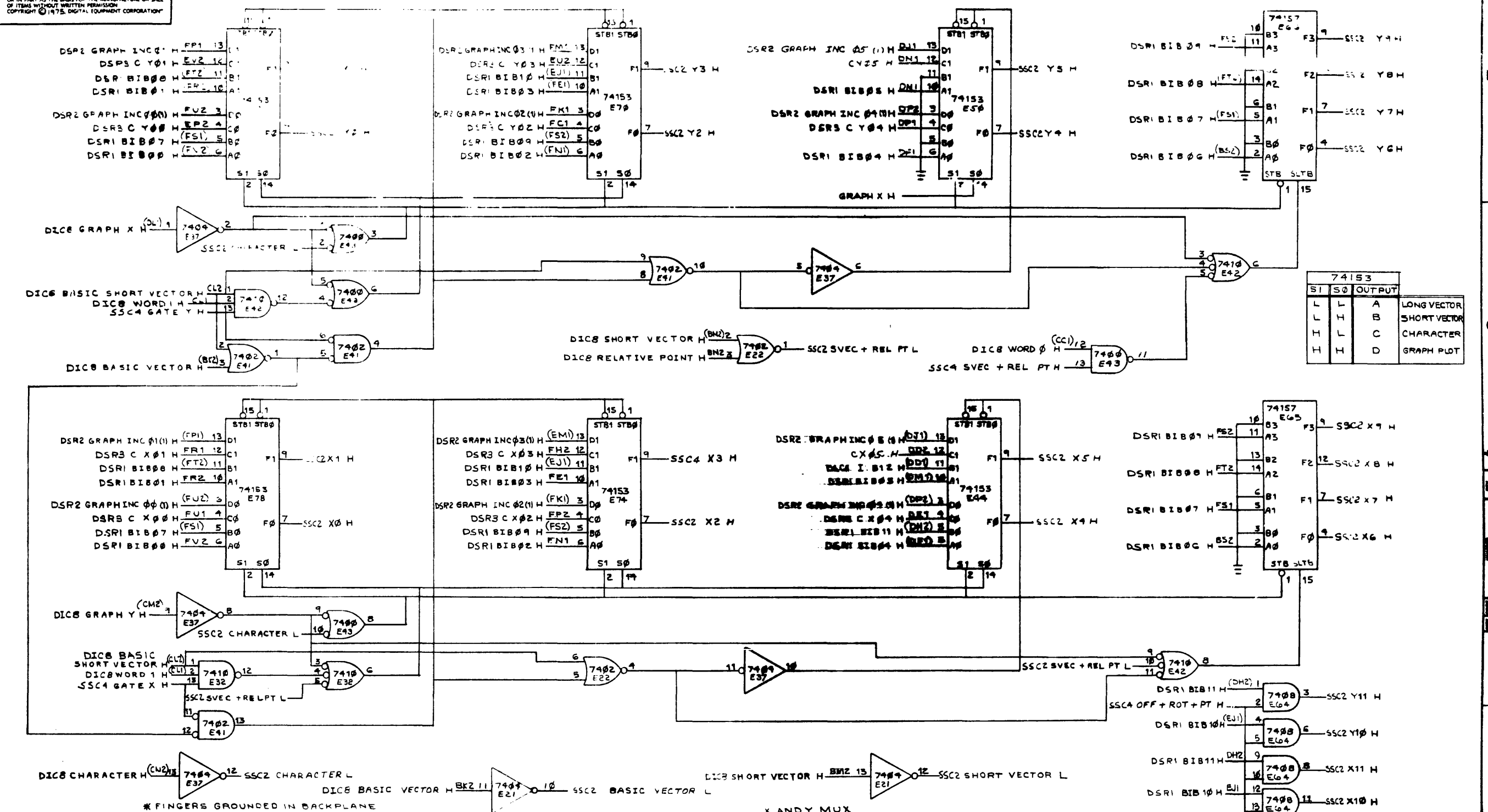
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DRN: <i>[Signature]</i> 3-7-75	FIRST USED ON: 30-08-80
CHKD: <i>[Signature]</i> 11/20/75	TITLE: STACK AND SILO CONTROL (SSCI)
ENG: <i>[Signature]</i> 10/24/75	PROJ. ENG: <i>[Signature]</i> 7-12-75
PROD. <i>[Signature]</i> 8-22-75	NEXT HIGHER ASSY:
B-DD-M7054-0	SIZE: DCS
SCALE: 1	NUMBER: M7054-0-1
SHEET: 2 OF 5	DIST.:

REV. 1

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* FINGERS GROUNDED IN BACKPLANE

X ANDY MUX

DRN. D.C. O'Brien	2/27/75	FIRST USED ON	000000
CHK'D BY		TITLE	STACK AND SILO CONTROL (SSC2)
ENG. H. Chiu	8/15/75	PROJ. ENG. H. Chiu	7-18-75
PROD. K. L. ...	8-22-75	NEXT HIGHER ASSY.	
B-DD-M7054-0	SIZE CODE	NUMBER	REV. 8
SCALE	D	CS M7054-0-1	
SHEET 3	OF 5	DIST.	

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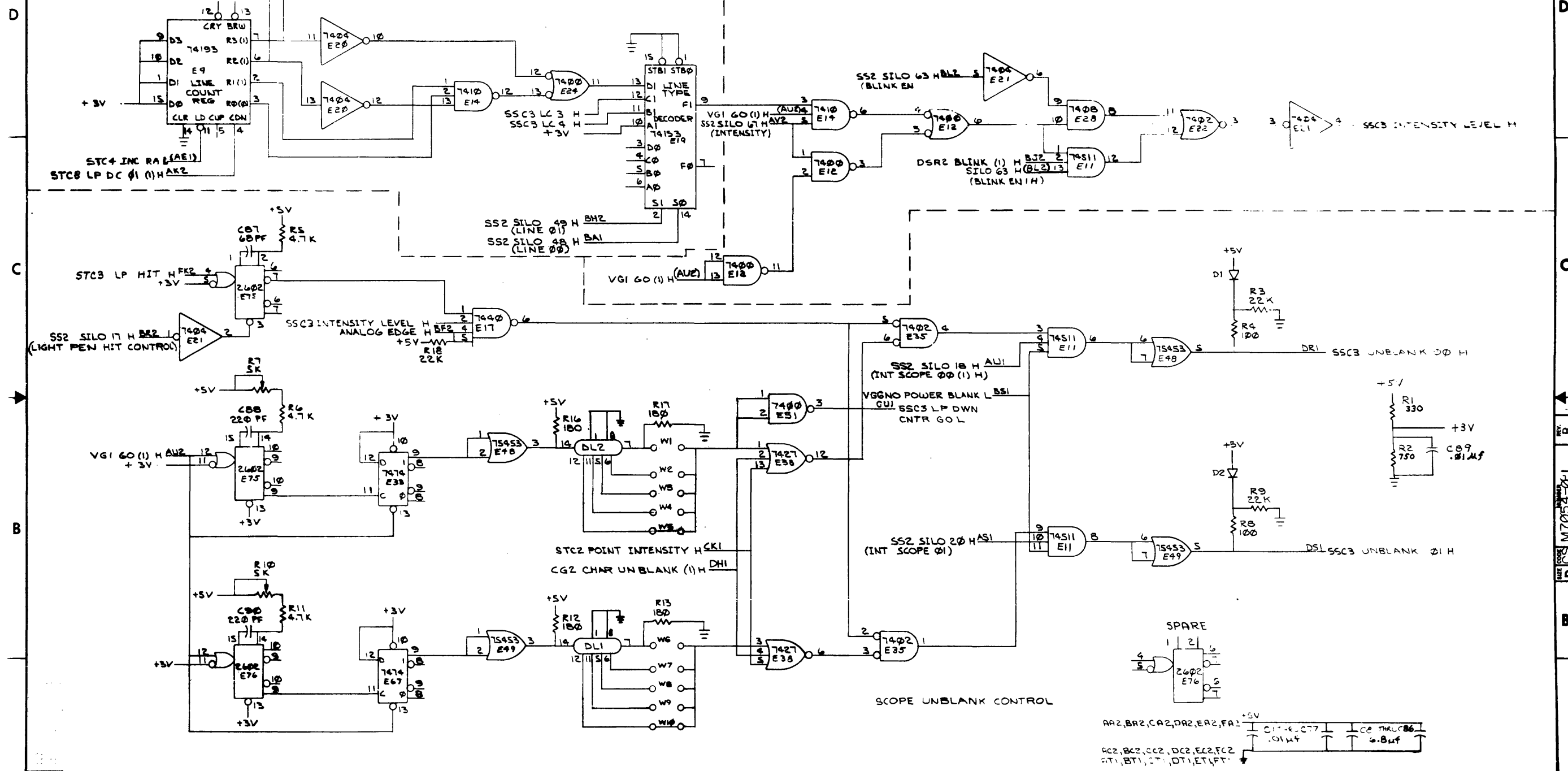
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1-S-25024W 5000 2

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LINE TYPE INTENSITY CNTL

INTENSITY ENABLE



SPARE

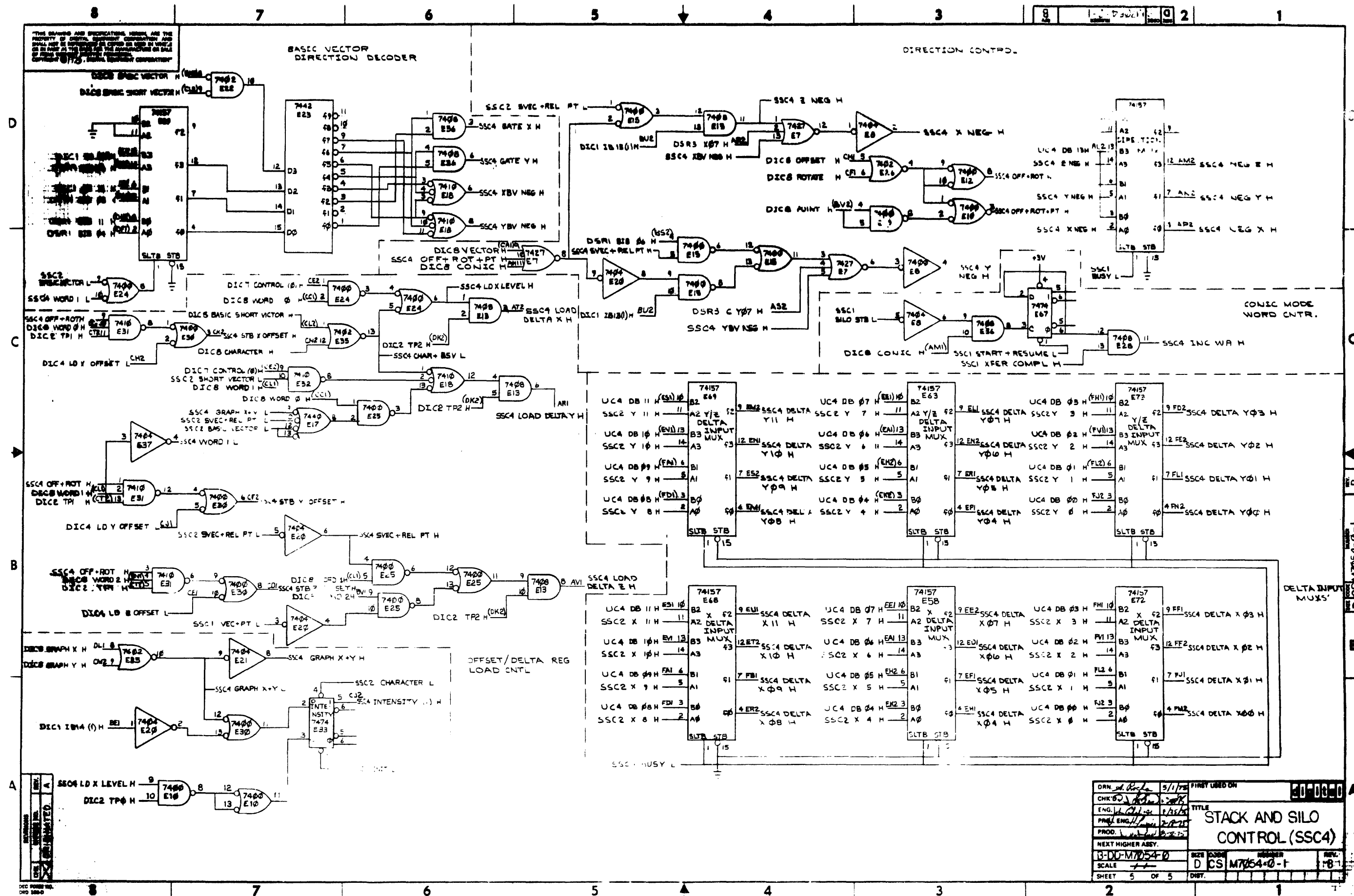
AA2,BA2,CA2,DA2,EA2,FA2: C1-C7, C77, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100

AC2,BC2,CC2,DC2,EC2,FC2: AT1,BT1,CT1,DT1,ET,FT

DRAWN	CHK'D	ENG.	PROJ. ENG.	PROD.	NEXT HIGHER ASSY.	B-00-M7054-0	SCALE	SHEET	REV.
1-S-25024W-275	1-S-25024W-15075	L. C. ...	H. ...	...	...	M7054-0	4 OF 5	4 OF 5	...
TITLE						REV.			
STACK AND SILO CONTROL (SSC3)						D CS M7054-0-1			
DATE						DST.			

REV. B
REV. D
REV. B

REV. 0



DRN	5/1/75	FIRST USED ON	
CHK			
ENG			
PROD. ENG.			
PROJ. ENG.			
NEXT HIGHER ASSY.			
13-00-M7054-0		SIZE	8 1/2 X 11
SCALE		DRAWING	D CSI M7054-0-1
SHEET 5 OF 5		DATE	

STACK AND SILO CONTROL (SSC4)

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NOTES:

- FOR DRAWING DIRECTORY, REFER TO: B-DD-M7055-0
- UNLESS OTHERWISE SPECIFIED, THE FOLLOWING PIN NUMBERS APPLY.

PACKAGE TYPE	VCC	GND
16 PIN DIP	16	8
14 PIN DIP	14	7
DEC 74150	24	12
- DO NOT INSTALL EYELETS IN THE TWO HOLES DIRECTLY ABOVE THE BERG CONNECTOR.

ETCH CUTS SIDE #1 AS SHOWN (SEE SHEET #3)

- CUT ETCH BETWEEN E3(1) AND E3(2)
- CUT ETCH BETWEEN E3(4) AND E3(2)
- CUT ETCH BETWEEN E3(2) AND E3(23)
- CUT ETCH BETWEEN E3(9) AND E3(16)
- CUT ETCH BETWEEN E25(9) AND E25(16)
- CUT ETCH BETWEEN E25(16) AND E25(17)
- CUT ETCH BETWEEN E2(1) AND C3
- CUT ETCH BETWEEN E2(2) AND E2(23)
- CUT ETCH BETWEEN E24(16) AND E24(17)

ETCH CUTS SIDE #2 AS SHOWN (SEE SHEET #4)

- CUT ETCH AT CT2
- CUT ETCH BETWEEN E3(1) AND C4
- CUT ETCH BETWEEN E3(16) AND E3(17)
- CUT ETCH AT E25(1)
- CUT ETCH AT E25(2)
- CUT ETCH AT E24(1)
- CUT ETCH AT E2(2)
- CUT ETCH BETWEEN E2(1) AND E2(2)
- CUT ETCH BETWEEN E2(2) AND E2(4)

DRILL HOLES SIDE #1 AS SHOWN (#56 DRILL 046 DIA AS SHOWN) (SEE SHEET #2)

- DRILL HOLE ABOVE AND TO LEFT OF CP1
- DRILL HOLE ABOVE AND TO LEFT OF CW1
- DRILL HOLE ABOVE AND TO LEFT OF CN1
- DRILL HOLE ABOVE AND TO LEFT OF CH1

DRILL HOLES SIDE #2 AS SHOWN (#56 DRILL 046 DIA) (SEE SHEET #4)

- AT TOP OF BOARD WITH DIMENSIONS SHOWN

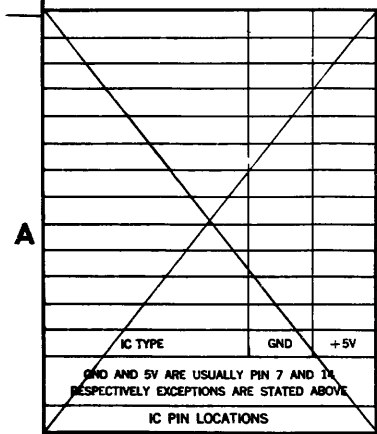
WIRE ADDS SIDE #1 AS SHOWN ITEM #13 (SEE SHEET #2)

- ADD WIRE FROM E12(7) TO E11(3)
- ADD WIRE FROM E3(9) TO E3(19)
- ADD WIRE FROM E3(19) TO E3(23)
- ADD WIRE FROM E3(16) TO DU1
- ADD WIRE FROM PTH TO LEFT OF E26(1) TO E3(2)
- ADD WIRE FROM E4(7) TO E3(23)
- ADD WIRE FROM PTH TO LEFT OF E26(1) TO E3(1)
- ADD WIRE FROM E2(4) TO E2(23)
- ADD WIRE FROM E2(23) TO E3(12)
- ADD WIRE FROM E24(1) TO DR1
- ADD WIRE FROM E24(2) TO DS1
- ADD WIRE FROM E25(2) THRU DRILL HOLE #4 TO FINGER CK2
- ADD WIRE FROM E25(1) THRU DRILL HOLE #1 TO FINGER CR2
- ADD WIRE FROM E2(2) THRU DRILL HOLE #5 TO ETCH LINE ON SIDE 2 TO J1-U
- ADD WIRE FROM PTH TO LEFT OF E26(1) TO E2(1)
- ADD WIRE FROM E25(9) TO E25(17)
- ADD WIRE FROM E25(16) THRU DRILL HOLE #3 TO FINGER CL2
- ADD WIRE FROM E24(16) THRU DRILL HOLE #2 TO FINGER CM2

D
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B
A

D
C
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A

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		ETCHED CIRCUIT BOARD	5011221	1
26	C1 THRU C26	CAP. 10nf 5% 100V	1001610-01	2
6	C27 THRU C32	CAP. 6.8uf 10% 35V	1005306	3
1	J1	CONN. 40 PIN	1209941-02	4
1	E15	I.C. DEC 7400	1905575	5
1	E14	I.C. DEC 7402	1909004	6
3	E5, E18, E26	I.C. DEC 7404	1909006	7
1	E9	I.C. DEC 0815	1909713	8
18	E1, E2, E3, E6, E7, E8, E12, E13, E16, E17, E19, E20, E21, E23, E24, E25	I.C. DEC 74150	1910153	9
4	E4, E10, E11, E22	I.C. DEC 7408	1910155	10
1		HANDLE ASSY	1210711-2	11
10		EYELET	9006732	12
1		WIRE #30 AWG (GRN)	9105740-95	13
1		BERG, LEFT LATCH	1209941-63	14
1		BERG, RIGHT LATCH	1209941-04	15



FIRST USED ON OPTION MODEL: VT48

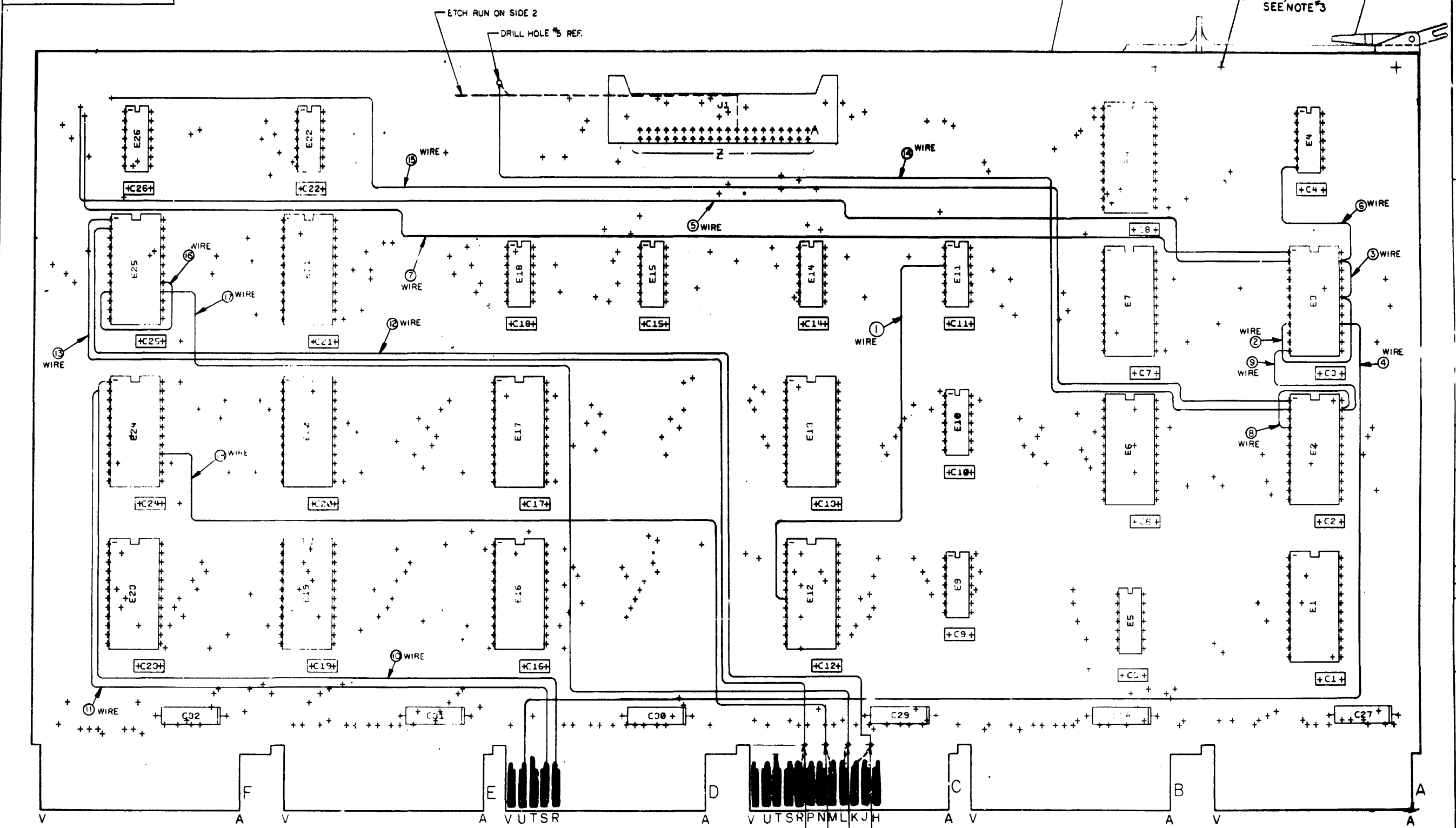
ETCH BOARD-REV

DRN. DATE 4-16-75	CHKD. DATE 6-24-75	ENG. DATE 6-20-75	PROJ. ENG. DATE 6-20-75	PROD. DATE 6-20-75
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digital
 TITLE: DISPLAY STATUS MUX
 B-DD-M7055-0
 SCALE: NONE
 SHEET 1 OF 5
 SEMICONDUCTOR CONVERSION CHART

DIA M7055-0-0 B

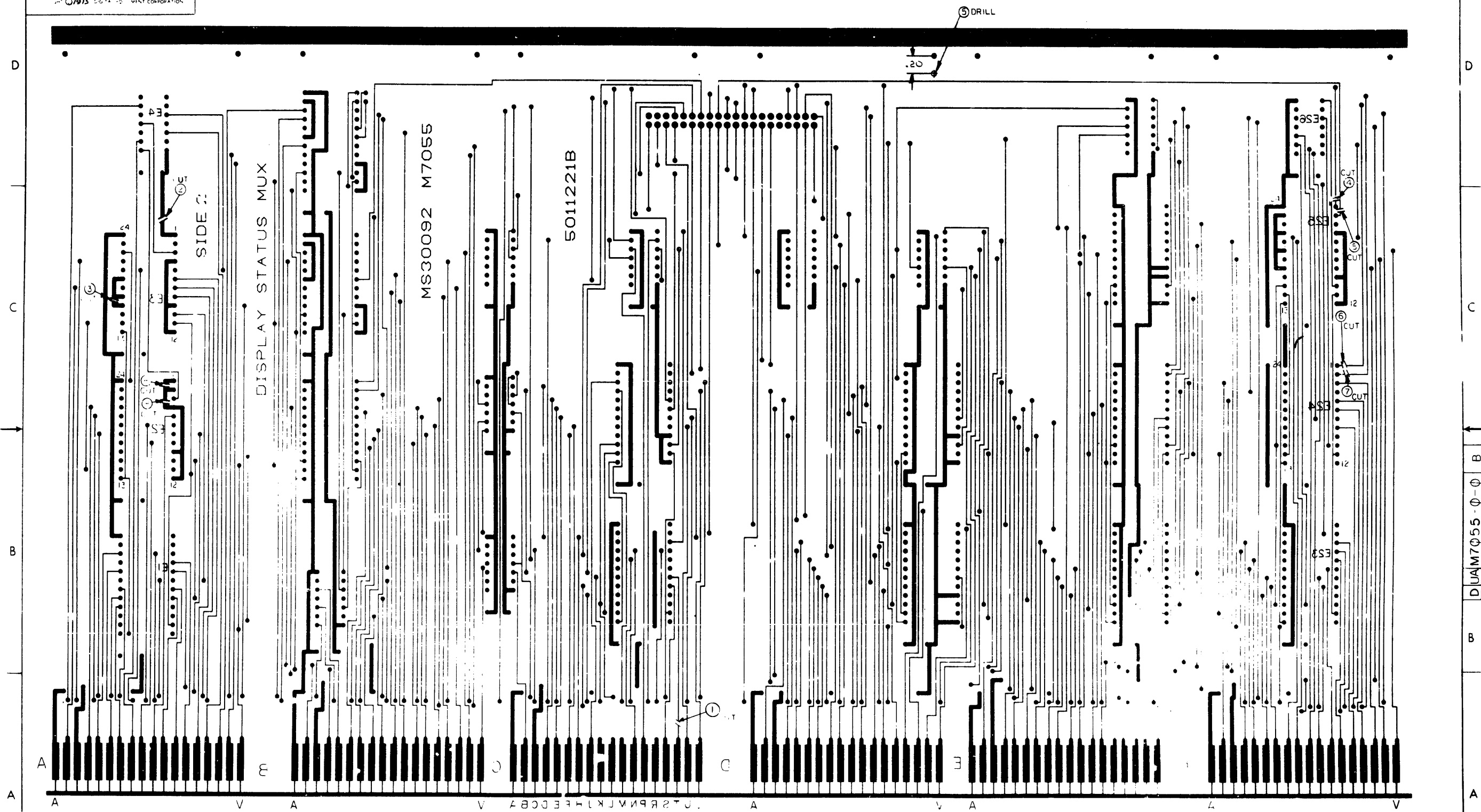
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REV.	CHANGED BY	DATE

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D U A M 7 0 5 5 - 0 - 0 B 2



REV.	DATE	BY	CHKD.

DISPLAY STATUS MUX
 DIST 4 5

SIZE CODE NUMBER REV.
 D U A M 7 0 5 5 - 0 - 0 B

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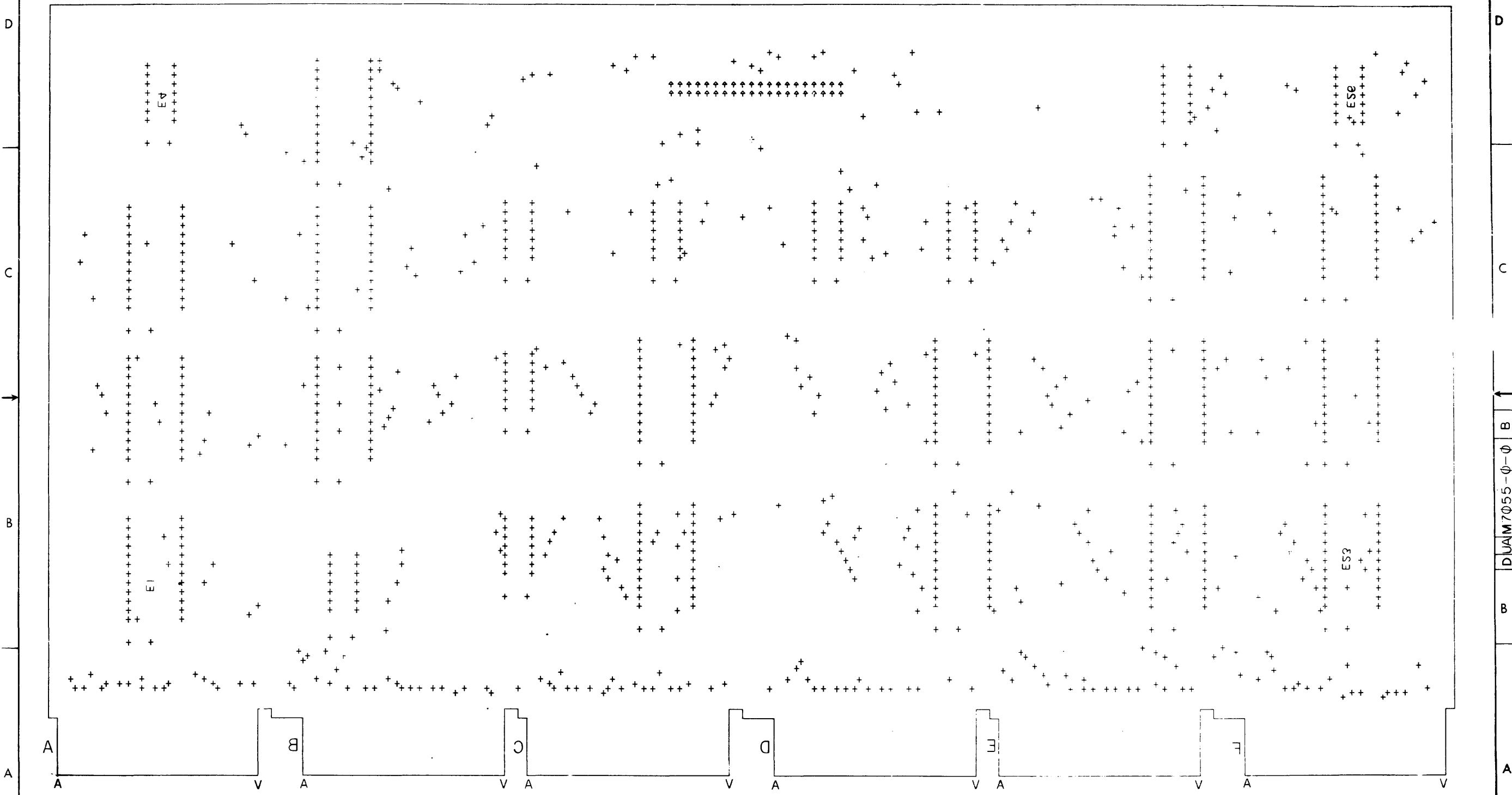
4

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DUAL M7055-0-0 2

1

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REVISIONS		
CHK	CHANGE NO	REV

TITLE		SIZE CODE	NUMBER	REV.
DISPLAY STATUS MUX		DUAL	M7055-0-0	B
SCALE	SHEET	OF	DIST.	
2/1	5	5		

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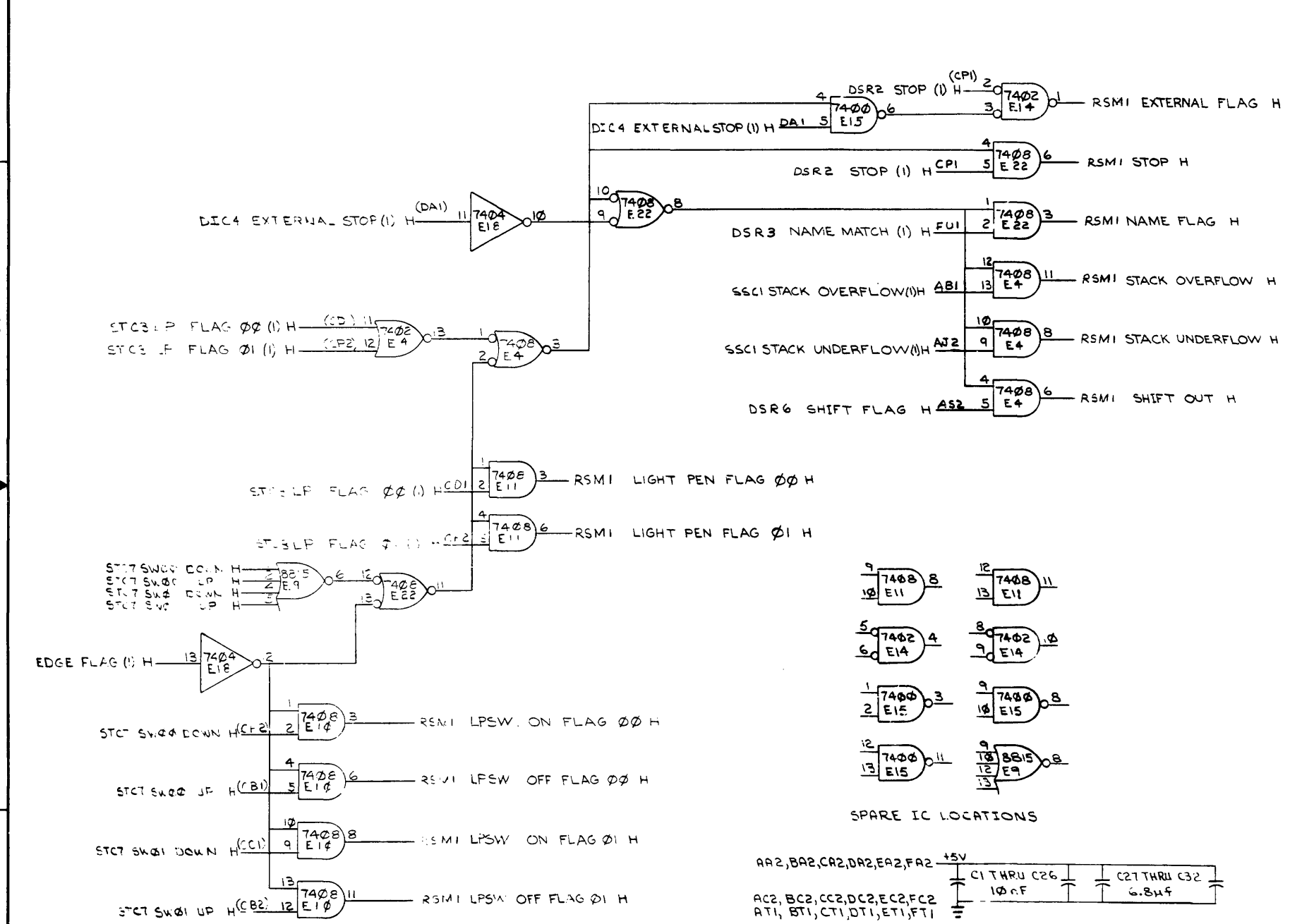
3

2

1

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FLAG PRIORITY ARBITRATION



SPARE IC LOCATIONS

J1

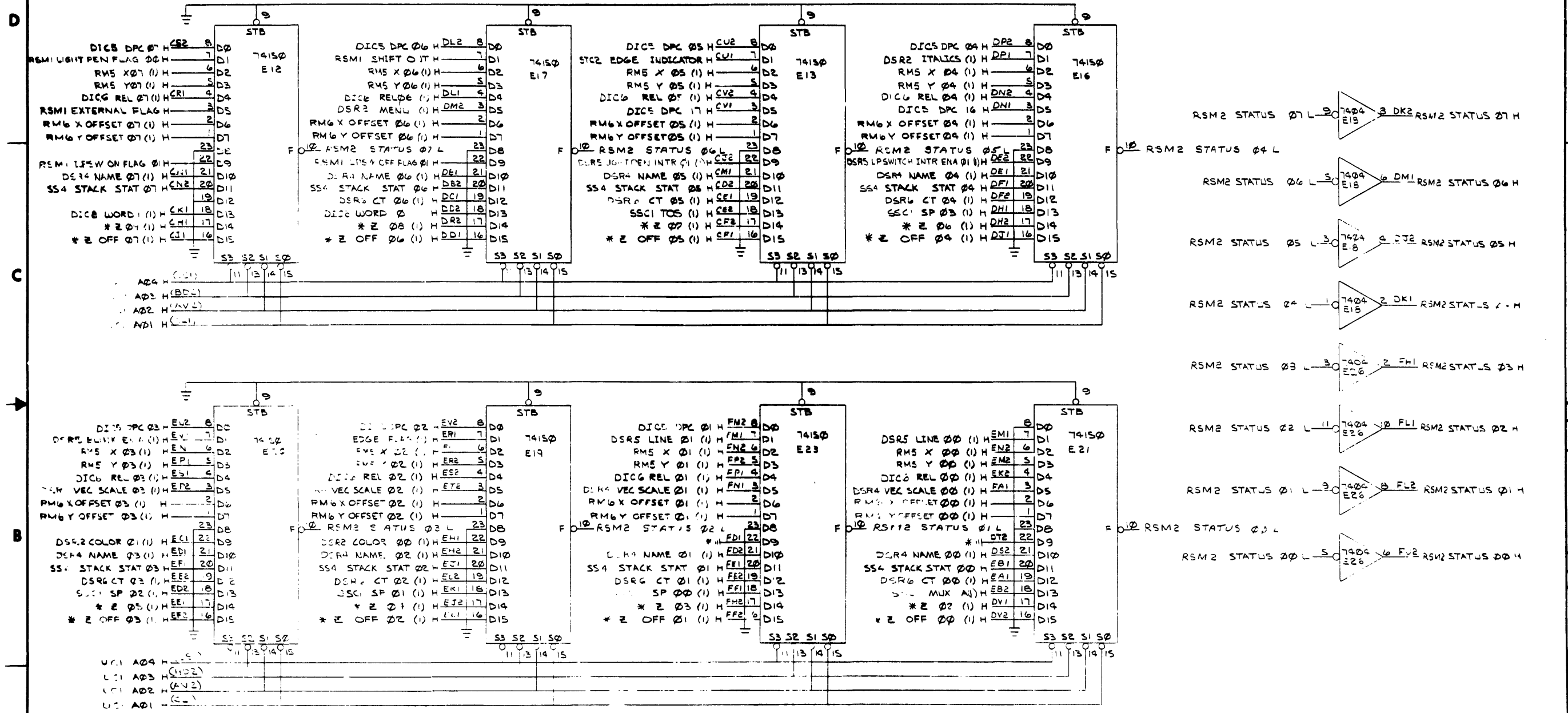
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RM6 X OFFSET 00 (1) H	B
RM6 X OFFSET 11 (1) H	C
RM6 X OFFSET 01 (1) H	D
RMS X 04 (1) H	E
RM6 X OFFSET 02 (1) H	F
RMS X 05 (1) H	G
RM6 X OFFSET 03 (1) H	H
RMS X 06 (1) H	I
RM6 X OFFSET 04 (1) H	J
RMS X 07 (1) H	K
RM6 X OFFSET 05 (1) H	L
RMS X 08 (1) H	M
RM6 X OFFSET 06 (1) H	N
RMS X 09 (1) H	O
RM6 X OFFSET 07 (1) H	P
RMS X 10 (1) H	Q
RM6 X OFFSET 08 (1) H	R
RMS X 11 (1) H	S
RM6 X OFFSET 09 (1) H	T
RMS Y 11 (1) H	U
RM6 Y OFFSET 09 (1) H	V
RMS Y 10 (1) H	W
RM6 Y OFFSET 08 (1) H	X
RMS Y 09 (1) H	Y
RM6 Y OFFSET 07 (1) H	Z
RMS Y 08 (1) H	AA
RM6 Y OFFSET 06 (1) H	AB
RMS Y 07 (1) H	AC
RM6 Y OFFSET 05 (1) H	AD
RMS Y 06 (1) H	AE
RM6 Y OFFSET 04 (1) H	AF
RMS Y 05 (1) H	AG
RM6 Y OFFSET 03 (1) H	AH
RMS Y 04 (1) H	AI
RM6 Y OFFSET 02 (1) H	AJ
RM6 Y OFFSET 01 (1) H	AK
RM6 Y OFFSET 10 (1) H	AL
RM6 Y OFFSET 00 (1) H	AM
	AN
	AO
	AP
	AQ
	AR
	AS
	AT
	AU
	AV

CONNECTOR FROM M7051

DRN: <i>Supper</i> 1-31-75	FIRST USED ON: VT48	30-0800
CHK'D: <i>A. B. C.</i> 4/2/75	TITLE: VT48 READ STATUS MULTIPLEXER (RSMI)	
ENG: <i>B. H. G.</i> 6-12-75	SIZE: D CS	NUMBER: M7055-0-1
PROJ. ENG: <i>H. I. J.</i> 6-20-75	SCALE: 1	REV: A
PROD. <i>K. L. M.</i> 6-20-75	SHEET: 2 OF 4	DIST:

REV.	
CHG.	
REV.	
CHG.	

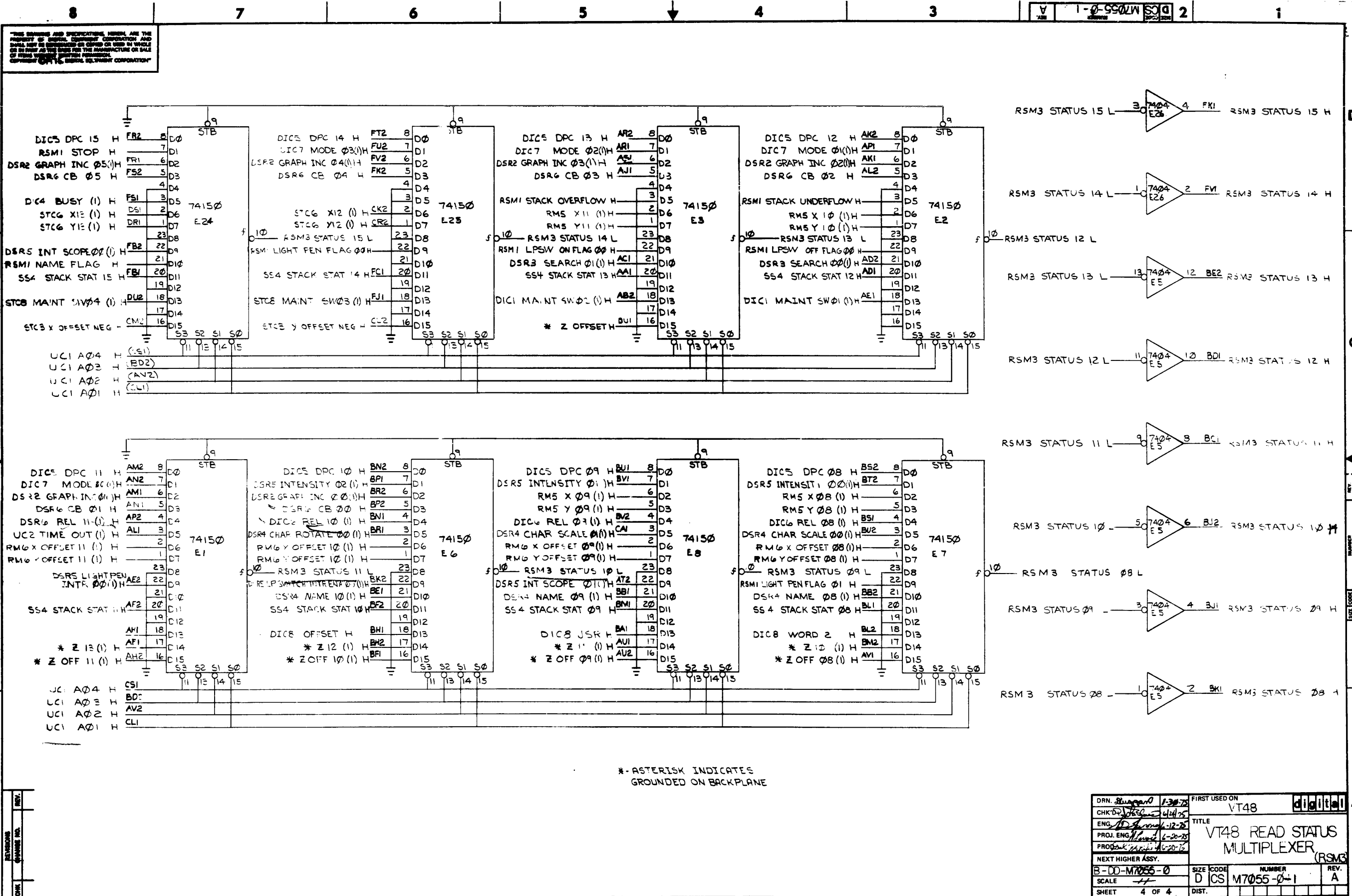
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*-ASTERISK INDICATES GROUNDED ON BACKPLANE

DRN: 7-13-75	FIRST USED ON: VT48
CHK: 1-17-75	TITLE: VT48 READ STATUS MULTIPLEXER (RSM2)
ENG: 6-12-75	
PROJ. ENG: 6-20-75	
PROD. 1-20-75	
NEXT HIGHER ASSY:	
B-DD-M7055-0	SIZE CODE: D
SCALE: 1	NUMBER: 1
SHEET: 3 OF 4	DIST.:

REVISIONS
 1
 2
 3
 4



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DRN. <i>Shugart</i>	1-30-75	FIRST USED ON	VT48	digital
CHK'DR. <i>Shugart</i>	4/14/75	TITLE	VT48 READ STATUS MULTIPLEXER (RSM3)	
ENG. <i>Shugart</i>	12-25	REV.	A	
PROJ. ENG. <i>Shugart</i>	6-20-75	SCALE	1/1	
PROB. <i>Shugart</i>	6-20-75	SIZE	D CS	
NEXT HIGHER ASSY.		NUMBER	M7055-0-1	
B-DD-M7055-0		SCALE	1/1	
SCALE		DIST.		
SHEET	4 OF 4			

*-ASTERISK INDICATES GROUNDED ON BACKPLANE

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NOTES:

- FOR DRAWING DIRECTORY, REFER TO: B-DD-M7056-B
- REF DESIGNATIONS C54 THRU C76 AND C80, AND R1 AND R2 ARE NOT USED.

ETCH CUT SIDE ONE AS SHOWN
 ①. CUT ETCH AT PTH ABOVE & LEFT OF CD1.

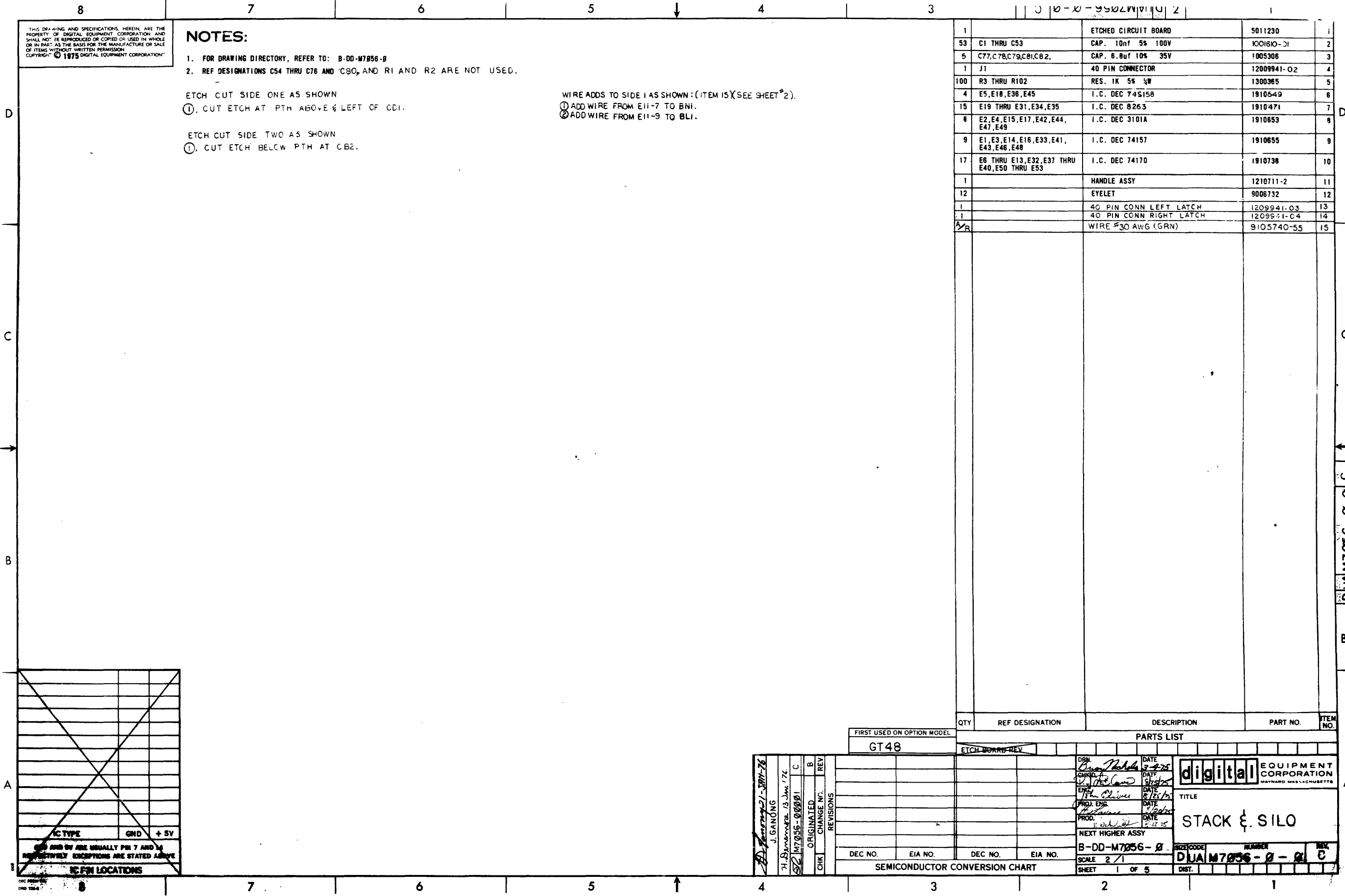
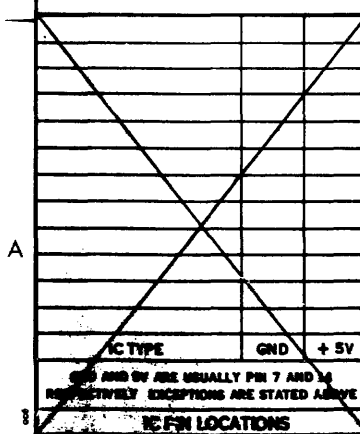
ETCH CUT SIDE TWO AS SHOWN
 ①. CUT ETCH BELCW PTH AT CB2.

WIRE ADDS TO SIDE 1 AS SHOWN: (ITEM 15) (SEE SHEET *2).
 ① ADD WIRE FROM E11-7 TO B11.
 ② ADD WIRE FROM E11-9 TO B11.

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		ETCHED CIRCUIT BOARD	5011230	1
53	C1 THRU C53	CAP. 10nf 5% 100V	1001610-01	2
5	C77,C78,C79,C81,C82,	CAP. 6.8uf 10% 35V	1005306	3
1	J1	40 PIN CONNECTOR	12009941-02	4
100	R3 THRU R102	RES. 1K 5% 1/4W	1300365	5
4	E5, E10, E36, E45	I.C. DEC 74S158	1910549	6
15	E19 THRU E31, E34, E35	I.C. DEC 8263	1910471	7
8	E2, E4, E15, E17, E42, E44, E47, E49	I.C. DEC 3101A	1910653	8
9	E1, E3, E14, E16, E33, E41, E43, E46, E48	I.C. DEC 74157	1910655	9
17	E6 THRU E13, E32, E37 THRU E40, E50 THRU E53	I.C. DEC 74170	1910738	10
1		HANDLE ASSY	1210711-2	11
12		EYELET	9006732	12
1		40 PIN CONN LEFT LATCH	1209941-03	13
1		40 PIN CONN RIGHT LATCH	1209941-04	14
15		WIRE #30 AWG (GRN)	9105740-55	15

FIRST USED ON OPTION MODEL		PARTS LIST	
GT48	ETCH BOARD REV		
DRN	DATE	CHKD	DATE
ENGR	DATE	PROJ. ENG	DATE
PROD.	DATE		
NEXT HIGHER ASSY		TITLE	
B-DD-M7056-B		STACK & SILO	
DEC NO.	EIA NO.	DEC NO.	EIA NO.
SEMICONDUCTOR CONVERSION CHART		SCALE 2/1	
SHEET 1 OF 5		DIST.	

CHK	CHANGE NO.	REV

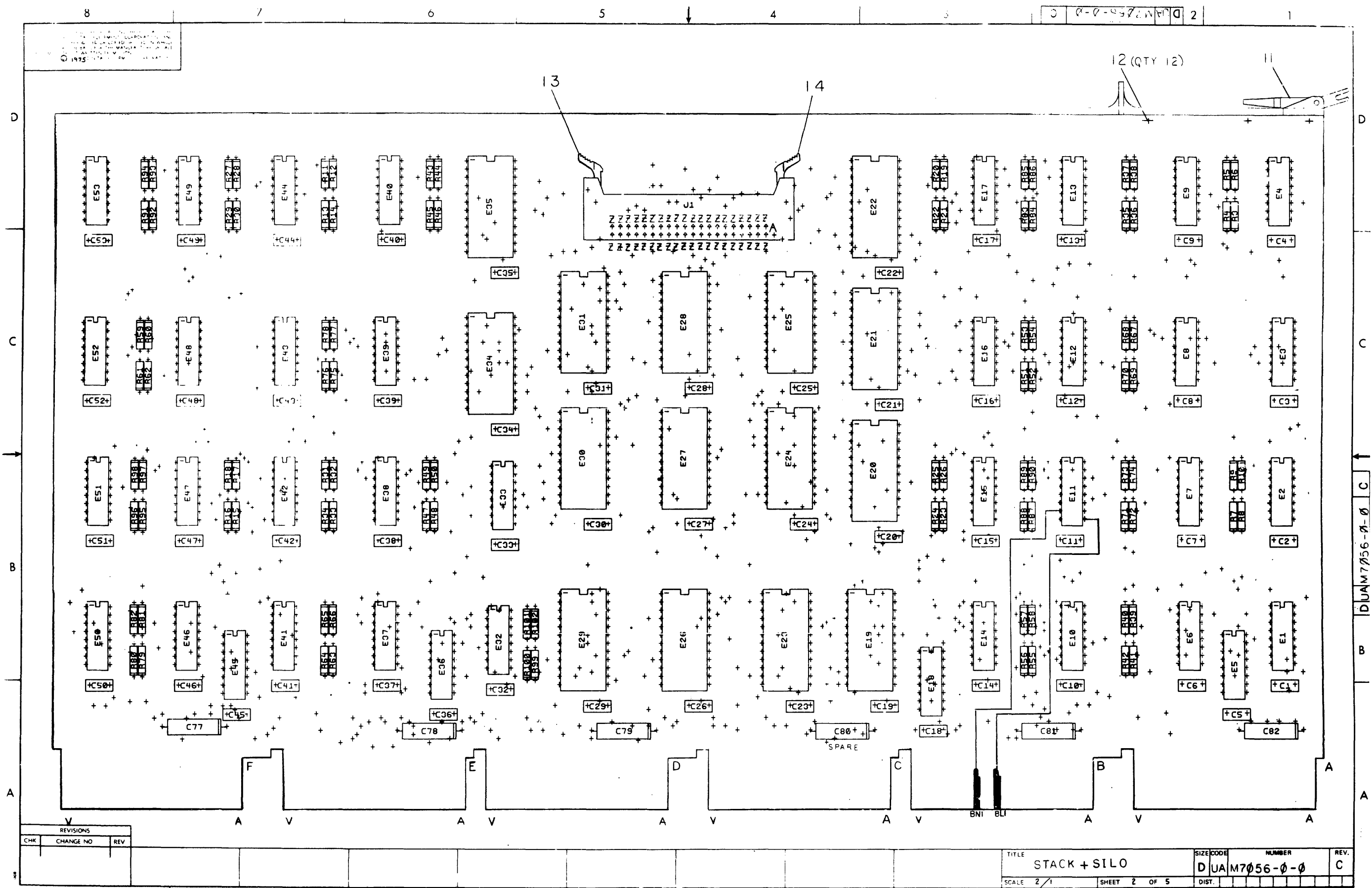


DUALM7056-B-B-C

B

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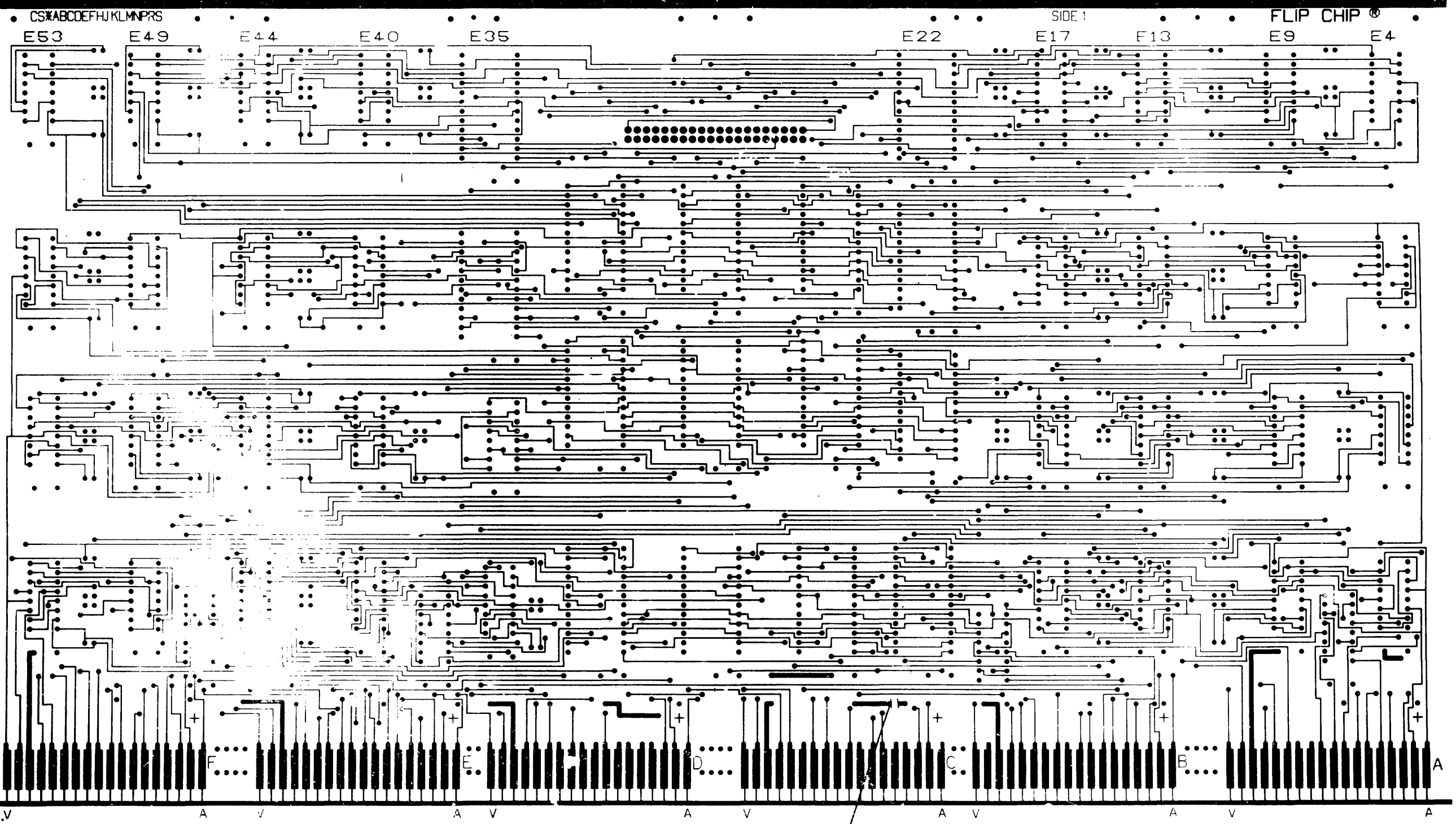
REVISIONS		
CHK	CHANGE NO	REV

TITLE	STACK + SILO	SIZE CODE	NUMBER	REV.
SCALE	2/1	DIST.		C
SHEET	2	OF	5	

DUAM7956-0-0 C

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M7056 MS30093 50:1230C LAYER 1

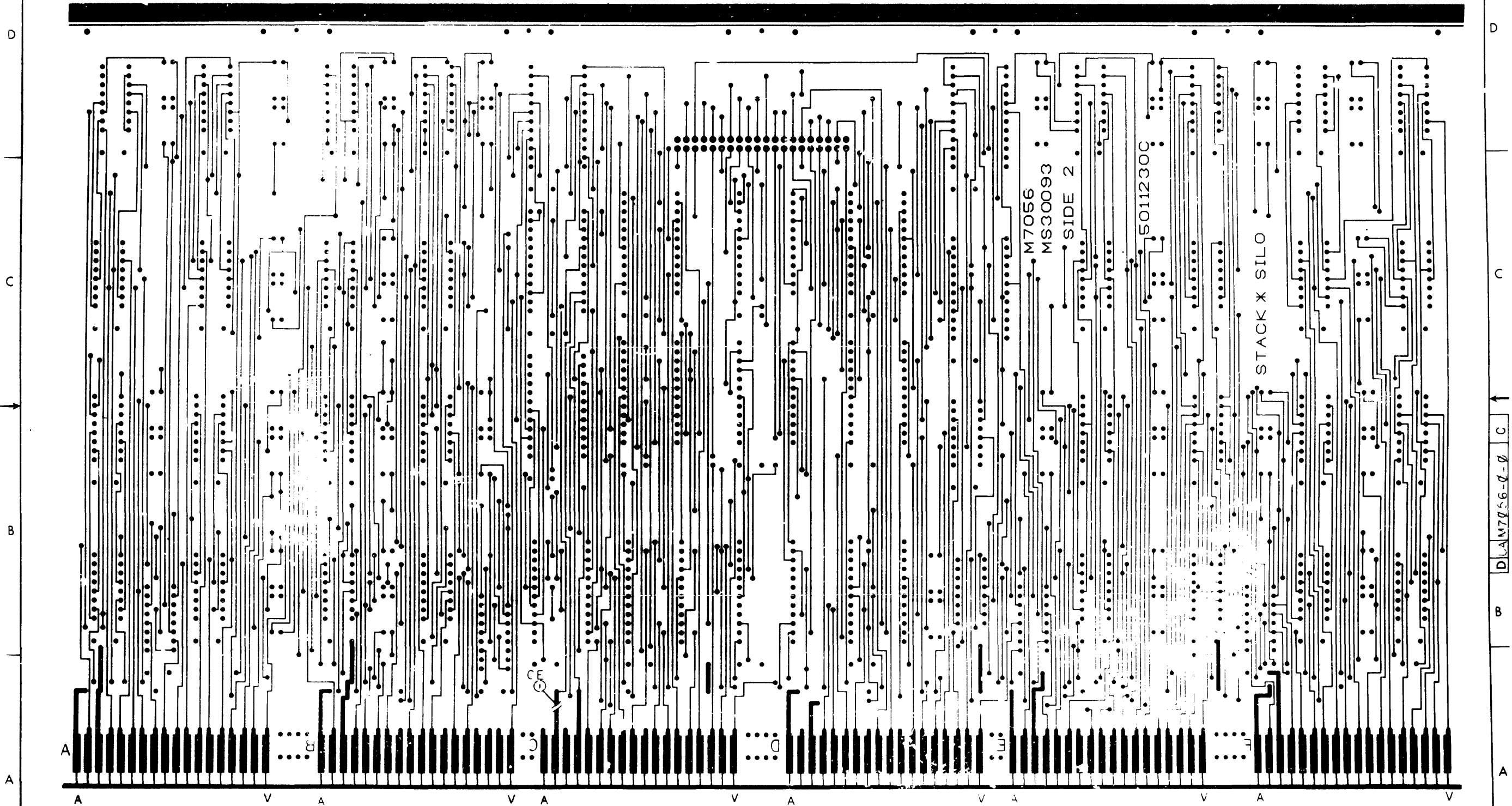


DIA M7056-0-0 C

REVISIONS		
CHK	CHANGE NO	REV

(LAYER 1)		SIZE CODE	NUMBER	REV.
TITLE STACK+SILO		D	UAM7056-0-0	C
SCALE 2/1	SHEET 3 OF 5	DIST.		

834A J

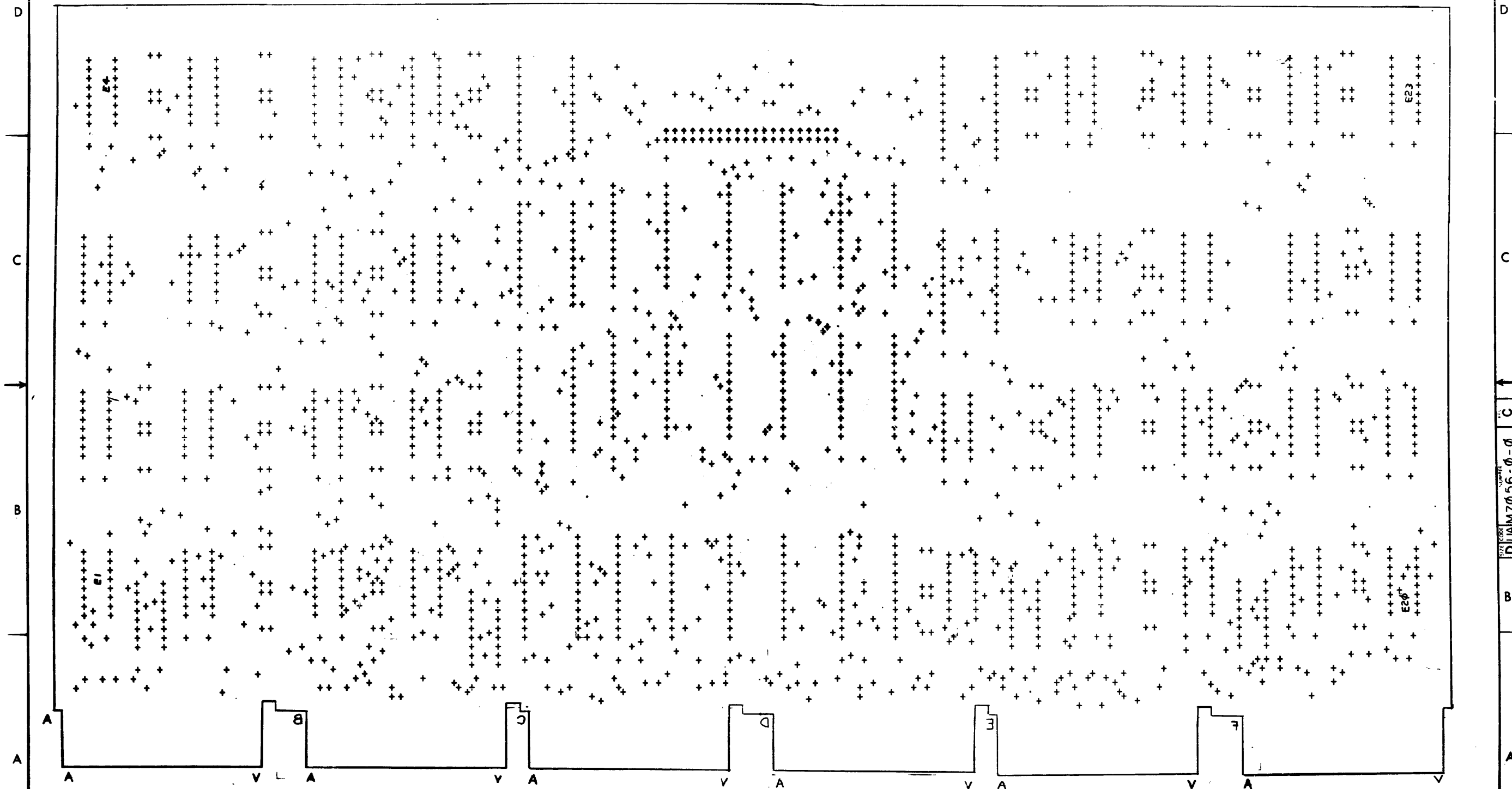


REVISIONS		
CHK	CHANGE NO	REV

(LAYER 4)		SIZE CODE	NUMBER	REV.
TITLE STACK + SILO		D UA	M7056-0-0	C
SCALE 2/1	SHEET 4 OF 5	DIST.		

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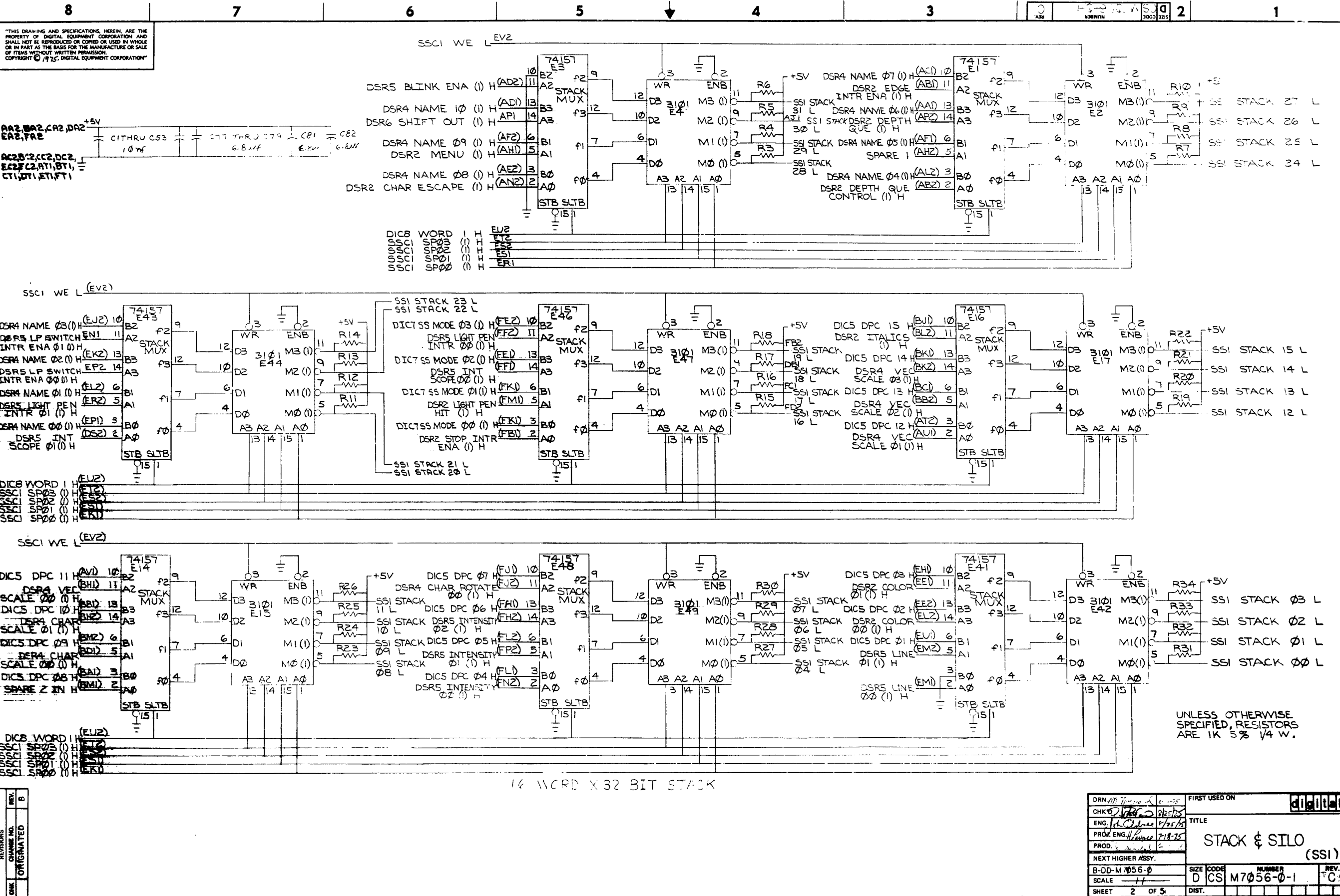
DJAM7056-0-0 2



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	STACK + SILO	SIZE CODE	NUMBER	REV.
SCALE	2/1	SHEET	5 OF 5	DIST.

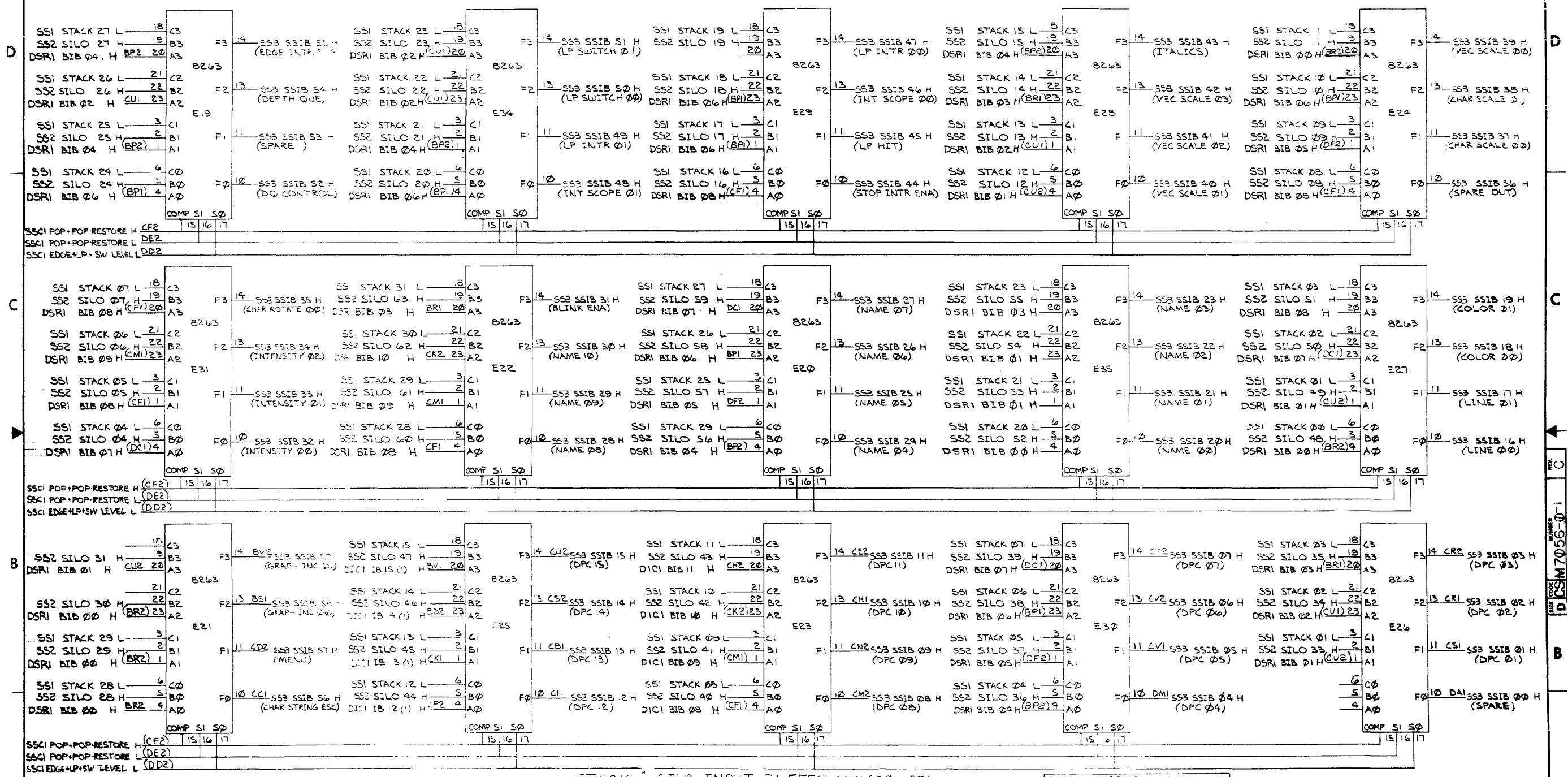
DJAM7056-0-0 C



REV.	BY

DRN. <i>10/10/75</i>	FIRST USED ON	DIGITAL
CHKD. <i>10/10/75</i>	TITLE	
ENG. <i>10/10/75</i>	STACK & SILO (SSI)	D CS M7056-0-1
PROJ. ENG. <i>10/10/75</i>		
PROD. <i>10/10/75</i>		
NEXT HIGHER ASSY.	SCALE	REV. <i>10/10/75</i>
B-DD-M 056-0	DIST.	
SHEET 2 OF 5		

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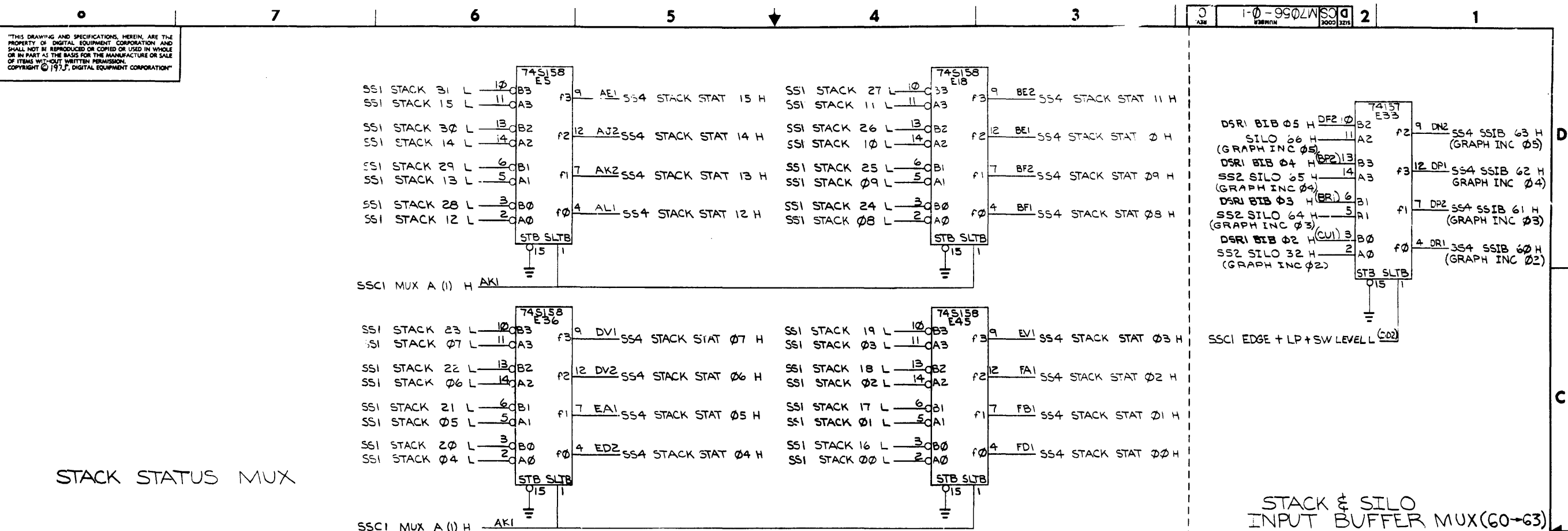
STACK & SILO INPUT BUFFER MUX (00-59)

INPUT		S0, 20 MP		OUTPUT	
A	B	L	L	A	B
C	D	L	L	C	D
E	F	L	L	E	F
G	H	L	L	G	H

DRN: <i>1-29-74</i>	FIRST USED ON	digital
CHK'D: <i>[Signature]</i>	TITLE	
ENG: <i>[Signature]</i>	STACK & SILO (SS3)	
PROD. ENG: <i>[Signature]</i>	NEXT HIGHER ASSY.	
SCALE: <i>[Signature]</i>	B-DD-M7056-0	
SHEET 7 OF 5	SIZE CODE	NUMBER
	D C S M 7056-0-1	REV. 0

REV. 1	ORIGINATED
CHK	

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- A - SS3 SSIB 16 H (LINE 00)
- B - SS3 SSIB 17 H (LINE 01)
- C - SS3 SSIB 18 H (COLOR 00)
- D - SS3 SSIB 19 H (COLOR 01)
- E - SS3 SSIB 20 H (NAME 00)
- F - SS3 SSIB 21 H (NAME 01)
- G - SS3 SSIB 22 H (NAME 02)
- H - SS3 SSIB 23 H (NAME 03)
- I - SS3 SSIB 24 H (NAME 04)
- J - SS3 SSIB 25 H (NAME 05)
- K - SS3 SSIB 26 H (NAME 06)
- L - SS3 SSIB 27 H (NAME 07)
- M - SS3 SSIB 28 H (NAME 08)
- N - SS3 SSIB 29 H (NAME 09)
- O - SS3 SSIB 30 H (NAME 10)
- P - SS3 SSIB 31 H (BLINK ENA)
- Q - SS3 SSIB 32 H (INTENSITY 00)
- R - SS3 SSIB 33 H (INTENSITY 01)
- S - SS3 SSIB 34 H (INTENSITY 02)
- T - SS3 SSIB 35 H (CHAR ROTATE 00)

- U - SS3 SSIB 36 H (SPARE 2 OUT)
- V - SS3 SSIB 37 H (CHAR SCALE 00)
- W - SS3 SSIB 38 H (CHAR SCALE 01)
- X - SS3 SSIB 39 H (VEC SCALE 00)
- Y - SS3 SSIB 40 H (VEC SCALE 01)
- Z - SS3 SSIB 41 H (VEC SCALE 02)
- AA - SS3 SSIB 42 H (VEC SCALE 03)
- AB - SS3 SSIB 43 H (ITALICS)
- AC - SS3 SSIB 44 H (STOP INTR ENA)
- AD - SS3 SSIB 45 H (LP HIT)
- AE - SS3 SSIB 46 H (INT SCOPE 00)
- AF - SS3 SSIB 47 H (LP INTR 00)
- AG - SS3 SSIB 48 H (INT SCOPE 01)
- AH - SS3 SSIB 49 H (LP INTR 01)
- AI - SS3 SSIB 50 H (LP SWITCH 02)
- AJ - SS3 SSIB 51 H (LP SWITCH 01)
- AK - SS3 SSIB 52 H (DQ CONTROL)
- AL - SS3 SSIB 53 H (SPARE 1)
- AM - SS3 SSIB 54 H (DEPTH QUE)
- AN - SS3 SSIB 55 H (EDGE INTR ENA)

CONN. TO M7057

REVISIONS	REV.
CHG	ORIGINATED

DRN	2-11-75	FIRST USED ON	digital
CHK'D	8/1/85	TITLE	STACK & SILO (SS4)
ENG.	7/1/85	NUMBER	M7056-0-1
PRG. ENG.	7-18-75	REV.	C1
PROD.	C	SCALE	1:1
NEXT HIGHER ASSY.		SHEET	5 OF 5
B-DD-M7056-0-0	SIZE	CODE	D CS
	SCALE	NUMBER	M7056-0-1
	SHEET	DIST.	

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NOTES:

- FOR DRAWING DIRECTORY, REFER TO: B-DD-M7057-0
- UNLESS OTHERWISE SPECIFIED, THE FOLLOWING PIN NUMBERS APPLY:

PACKAGE TYPE	VCC	GND
14 PIN DIP	14	7
16 PIN DIP	16	8
DEC 384	8	1
DEC 7476	5	13
DEC 7493	5	10
- DO NOT INSTALL EYELET IN THE TWO HOLES ABOVE THE BERG CONNECTOR.

ETCH CUTS SIDE #1 AS SHOWN (SEE SHEET #3)
 1-9. CUT ETCH BETWEEN ETCH RUN AND PAD.

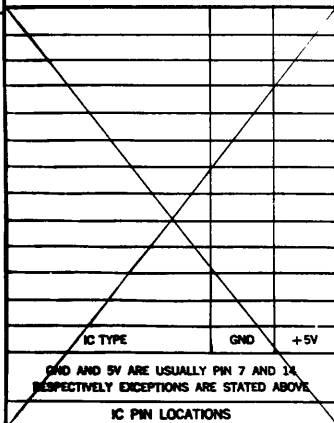
ETCH CUTS SIDE #2 AS SHOWN (SEE SHEET #4)
 1. CUT ETCH BETWEEN ETCH RUN AND PAD.
 2. CUT ETCH BETWEEN E90(11) TO E81(6).
 3. CUT ETCH BETWEEN E80(11) TO FINGER FJ2
 4. CUT ETCH AT E42(3).
 5. CUT ETCH AT E60(10).

WIRE ADDS SIDE #1 AS SHOWN (SEE SHEET #2)

- ADD WIRE FROM E42(3) TO J1(DD) (PLACE WIRE UNDER CONNECTOR).
- ADD WIRE FROM E90(11) TO E90(6).
- ADD WIRE FROM E45(10) TO FINGER DE1
- ADD WIRE FROM E65(8) TO E42(1).
- ADD WIRE FROM E60(10) TO E42(2).

WIRE ADDS SIDE #2 AS SHOWN (SEE SHEET #5)

- ADD WIRE FROM ETCH LINE TO RIGHT OF E80(12) TO ETCH LINE TO RIGHT OF E90(10).



QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		ETCHED CIRCUIT BOARD	5011251	1
2	C96, C97	CAP. 39mf 10V 10%	1000076	2
90	C1 THRU C98, C98	CAP. .01mf 100V	1001610-01	3
6	C90 THRU C95	CAP. 6.8mf 35V 10%	1005306	4
1	J1	CONN., 40 PIN RT ANG HEADER	1209941-02	5
1	R1	RES. 330 5% 1/4W	1300285	6
15	R3 THRU R17	RES. 1K 5% 1/4W	130385	7
1	R2	RES. 750 5% 1/4W	1301401	8
2	R18, R19	RES. 1K 10% 3/4W	1309143-07	9
16	E3, E4, E13, E22, E30, E43, E50, E51, E54, E55, E63, E68, E69, E74, E79, E89	I.C. DEC 7474	1905547	10
5	E34, E44, E53, E60, E77	I.C. DEC 7400	1905575	11
7	E29, E39, E40, E47, E81, E82, E86	I.C. DEC 7410	1905576	12
1	E24	I.C. DEC 7420	1905577	13
1	E28	I.C. DEC 7430	1905578	14
3	E67, E70, E97	I.C. DEC 7476	1905585	15
6	E49, E57, E65, E66, E71, E90	I.C. DEC 7402	1909004	16
1	E84	I.C. DEC 7493	1909054	17
4	E32, E33, E52, E59	I.C. DEC 384	1909486	18
4	E42, E72, E75, E76	I.C. DEC 7404	1909686	19
2	E2, E9	I.C. DEC 8242	1909712	20
1	E84	I.C. DEC 7413	1909989	21
1	E61	I.C. DEC 74193	1910018	22
4	E16, E21, E25, E26	I.C. DEC 7437	1910091	23
3	E36, E47, E58	I.C. DEC 7408	1910155	24
3	E9, E17, E31	I.C. DEC 7485	1910224	25
1	E56	I.C. DEC 74S11	1910637	26
1	E45	I.C. DEC 74175	1910651	27
9	E12, E14, E27, E37, E39, E62, E73, E79, E83	I.C. DEC 74174	1910652	28
9	E12, E14, E27, E37, E39, E62, E73, E79, E83	I.C. DEC 74157	1910655	29
2	E18, E23	I.C. DEC 74S139	1911675	30
1		EYELET, HANDLE	9006732	31
1		HANDLE	1210711-02	32
2		TUBING, 22AWG, TFE, CLEAR	9107256-10	33
1		RIGHT ANGLE HEADER LEFT LATCH	1209941-03	35
1		RIGHT ANGLE HEADER RIGHT LATCH	1209941-04	36
1	E49	ROM 5600 (OR 6330 OR 8223)	23103A1	37
1	E41	ROM 5600 (OR 6330 OR 8223)	23104A1	38

FIRST USED ON OPTION MODEL
 V T 48

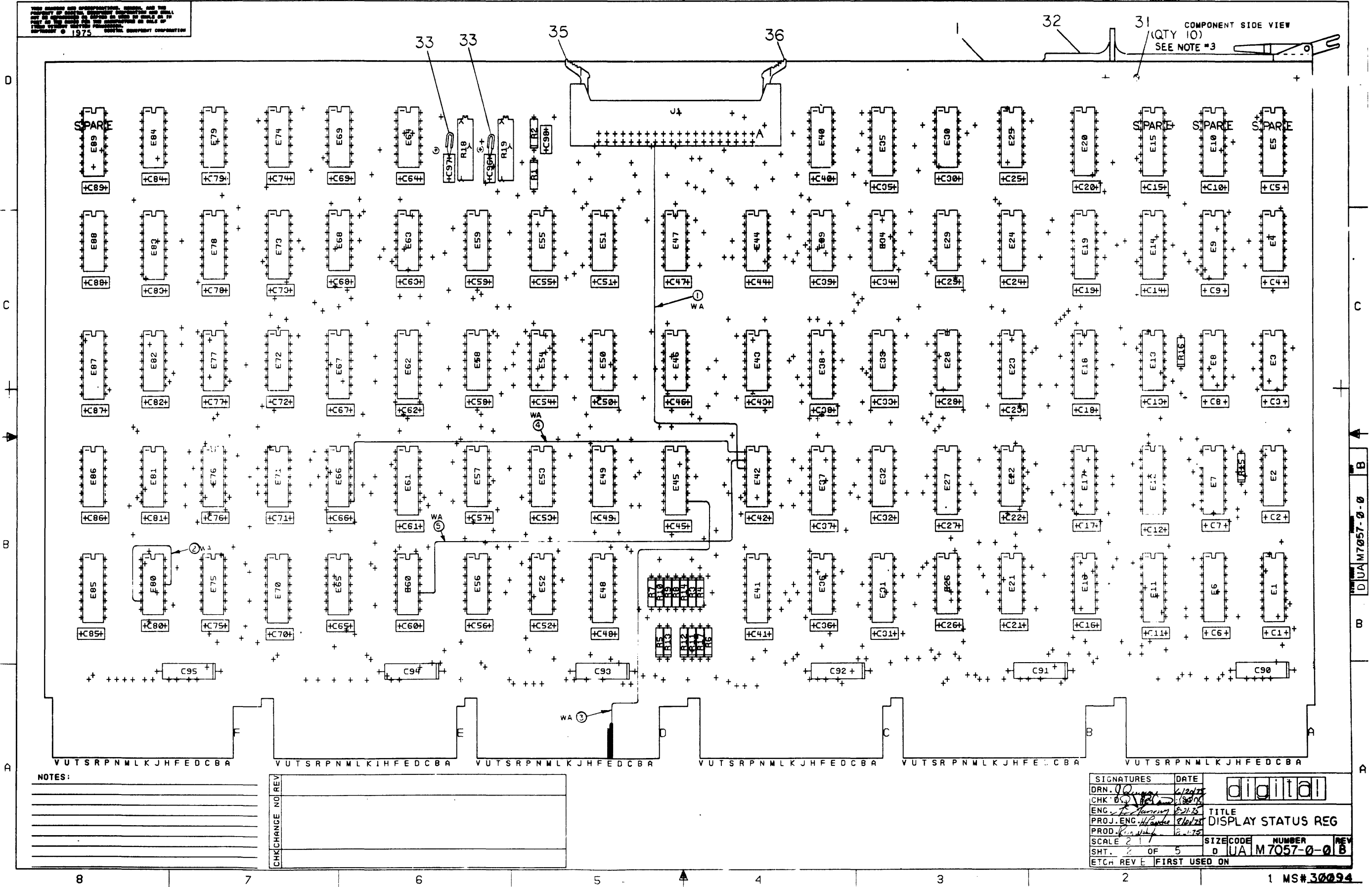
ETCH BOARD REV.

DRN. DATE 6-20-75	CHK'D. DATE 8/23/75	ENG. DATE 8-2-75	PROJ. ENG. DATE 8/21/75	PROD. DATE 8-2-75
NEXT HIGHER ASSY B-DD-M7057-0				
DEC NO.	EIA NO.	DEC NO.	EIA NO.	SCALE 2:1
SEMICONDUCTOR CONVERSION CHART				
SHEET 1 OF 5				

digital
 TITLE: DISPLAY STATUS REG
 SIZE CODE: D U A M 7057-0-0
 NUMBER: B
 REV. B

DIGITAL EQUIPMENT CORPORATION
 MODEL D U A M 7057-0-0

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NOTES:

CHK	CHANGE	NO	REV

SIGNATURES	DATE	digital	
DRN. <i>[Signature]</i>	<i>6/22/75</i>		
CHK. <i>[Signature]</i>	<i>8/20/75</i>		
ENG. <i>[Signature]</i>	<i>8/21/75</i>		
PROJ. ENG. <i>[Signature]</i>	<i>8/21/75</i>		
PROD. <i>[Signature]</i>	<i>8/21/75</i>	TITLE	
		DISPLAY STATUS REG	
SCALE 2 1/4	SIZE CODE	NUMBER	REV
SHT. 2 OF 5	0	UAM7057-0-0	B
ETCH REV E	FIRST USED ON		

D UAM7057-0-0

8

7

6

5

4

3

DJAM7057-0-0 2

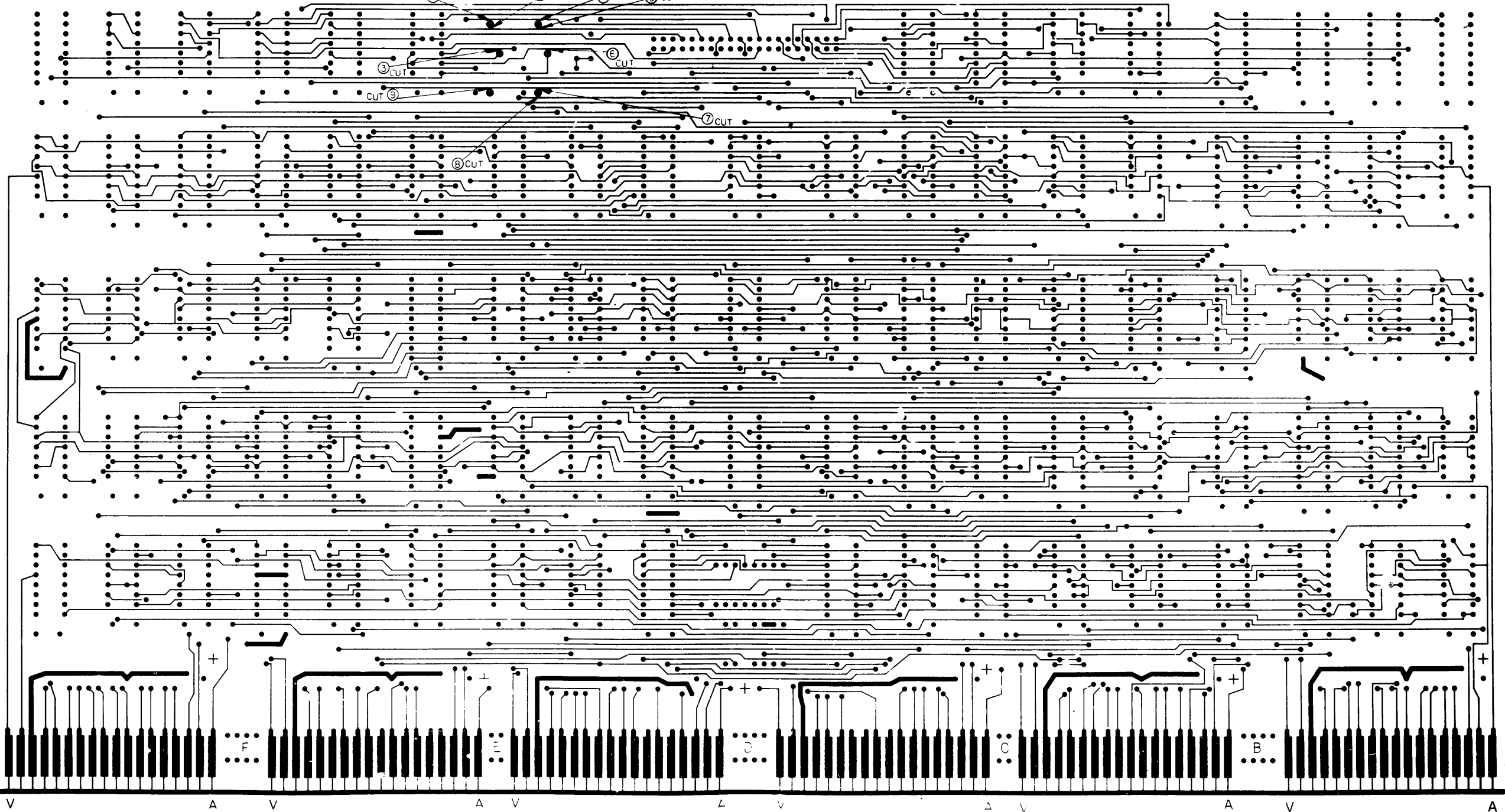
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LAYER 1

MS30094 M7057 5011251B

CS:ABCDEFGHIJKLMNPRS E89 E84 E79 E74 E69 E64 E59 E55 E51 E47 E44 E40 E35 E30 E25 E20 E15 E10 E5



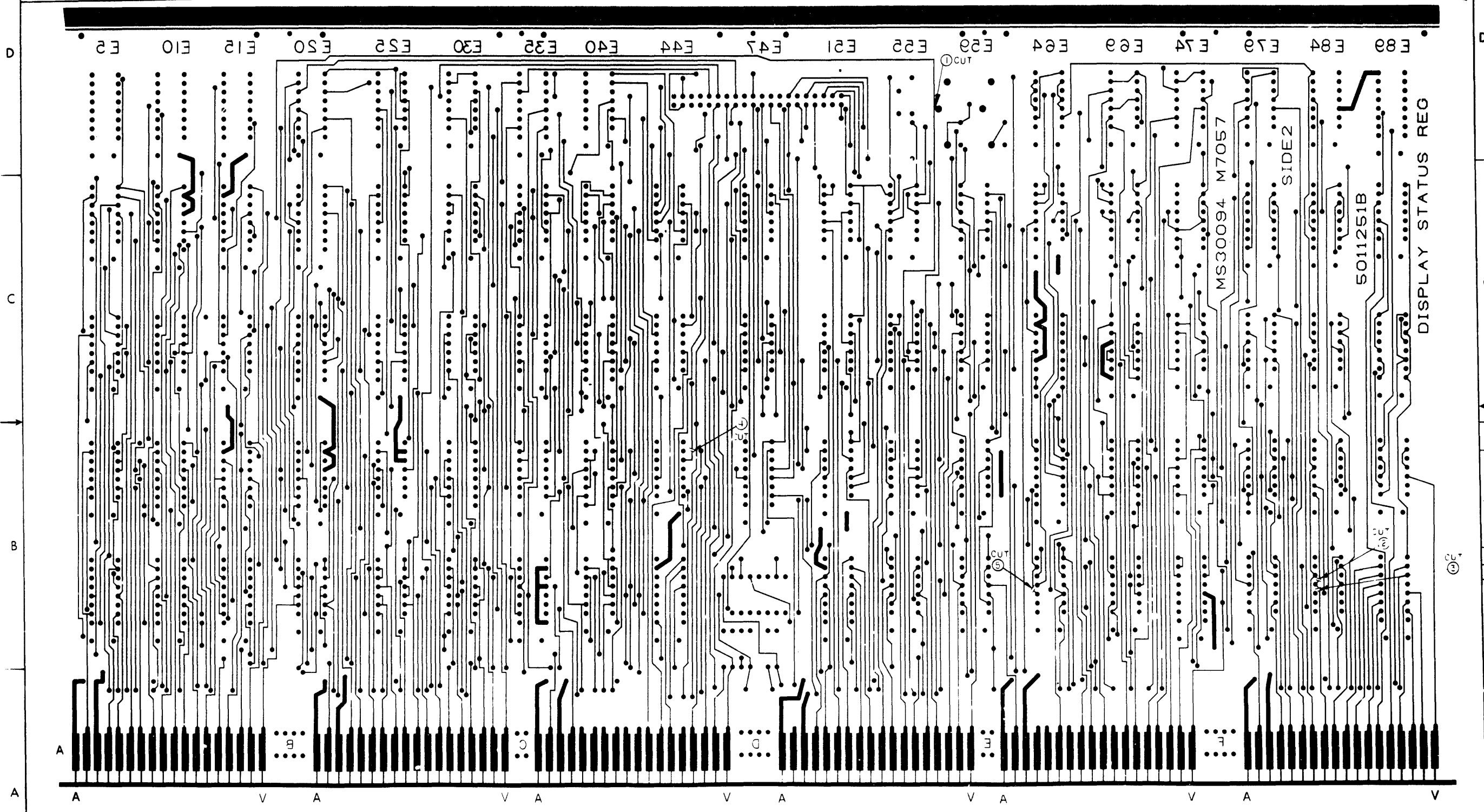
REV'S ON:		
CHK	CHANGE NO	REV

TITLE	SIZE/CODE	NUMBER	REV.
DISPLAY STATUS REG	DJAM7057-0-0	B	
SCALE 2/1	SHEET 3 OF 5	DIST.	

DJAM7057-0-0-B

LAYER 4

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CHK	CHANGE NO	LEV

DISPLAY STATUS REG		SIZE CODE	NUMBER	REV.
D U A M 7 0 5 7 - 0 - 0			8	B
SHEET 4 OF 5		DIST.		

8

7

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4

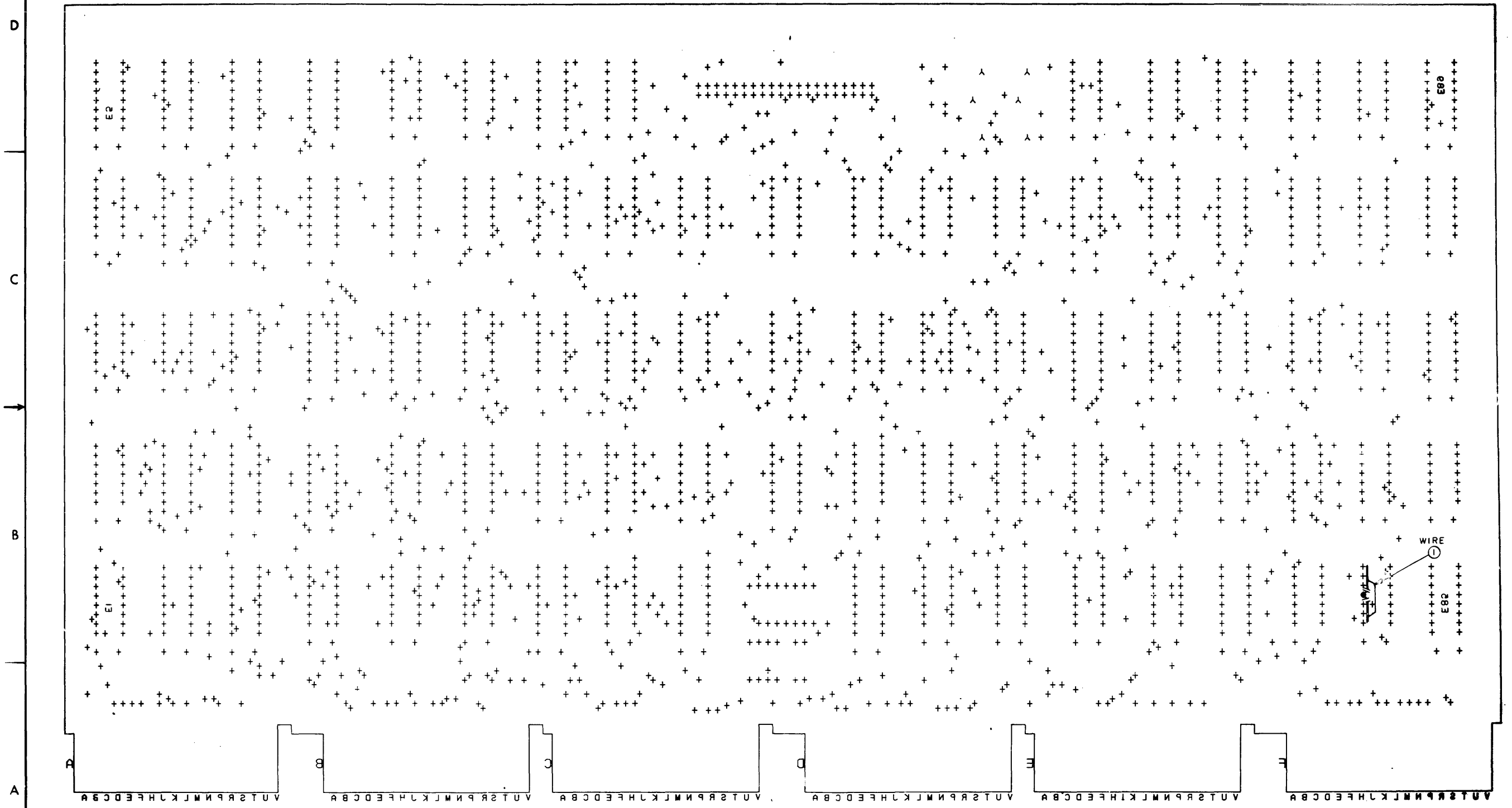
3

2

1

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8 0-0-1500M10 2



DUALM7057-0-0

REVISIONS		
CHK	CHANGE NO	REV

TITLE
DISPLAY STATUS REG
SCALE 2/1

SIZE CODE NUMBER
DUALM7057-0-0
SHEET 5 OF 5

8

7

6

5

4

3

2

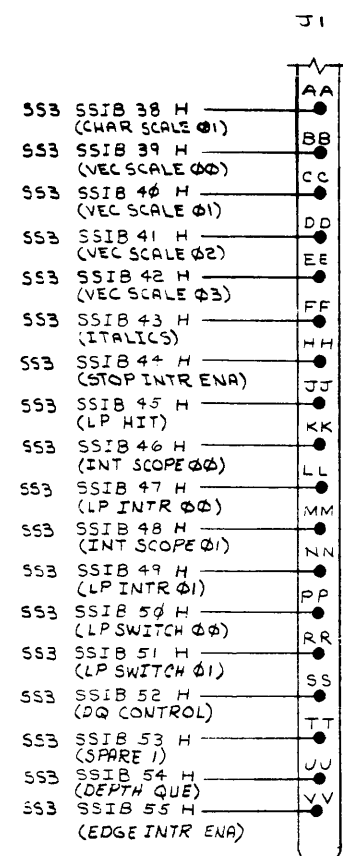
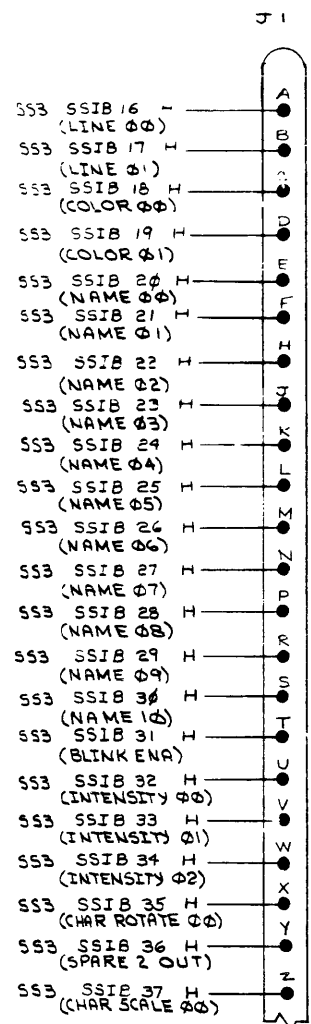
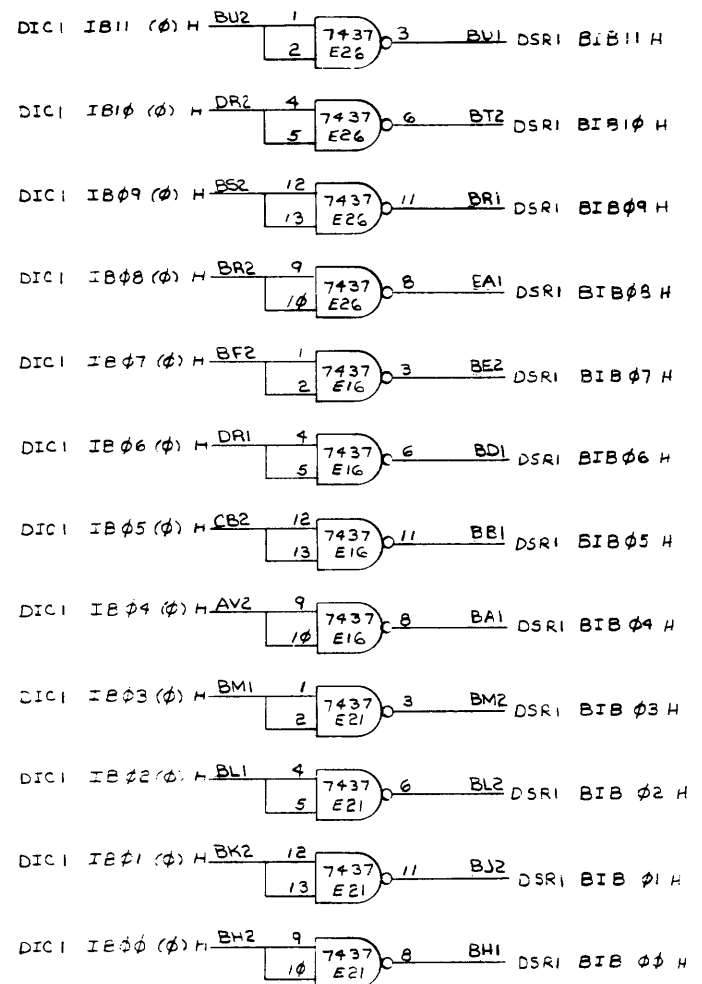
1

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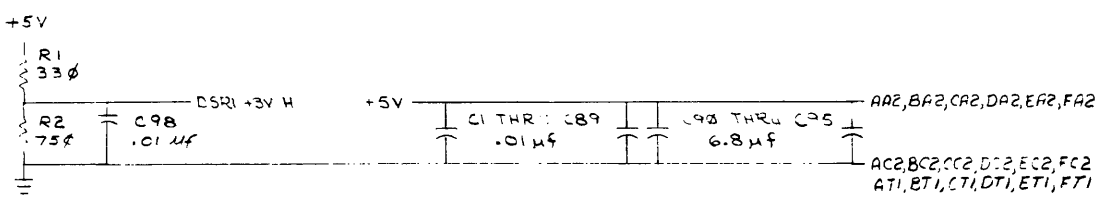
8 7 6 5 4 3 2 1

1-02502W 2

BUFFERED INPUT BUFFER (φ → 11)



CONNECTOR FROM M7056

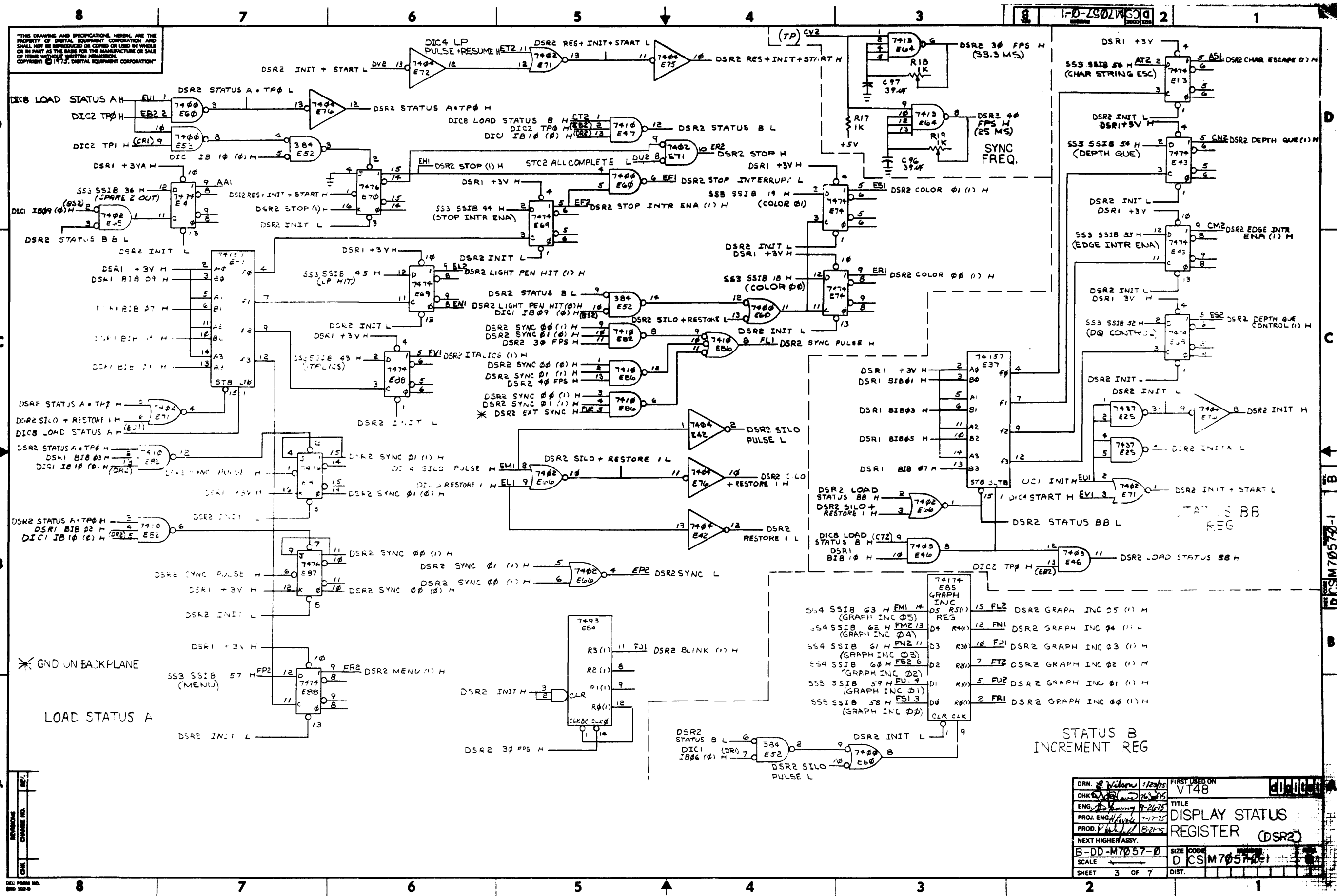


REV.	
CHANGE NO.	
CHK	

DRN. <i>W. Linn</i> 1/21/75	FIRST USED ON	VT48
CHK. <i>A. Linn</i> 1/21/75	TITLE	DISPLAY STATUS REGISTER
ENG. <i>A. Linn</i> 9-26-75	PROJ. ENG. <i>A. Linn</i> 7-17-75	
PROJ. <i>A. Linn</i> 8-21-75	NEXT HIGHER ASSY.	
SCALE	SIZE	D
SHEET 2 OF 7	NUMBER	CSM7057-01

DEC FORM NO. 100 1973

8 7 6 5 4 3 2 1



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REV. 1/75
 CHANGE NO. 1
 DATE

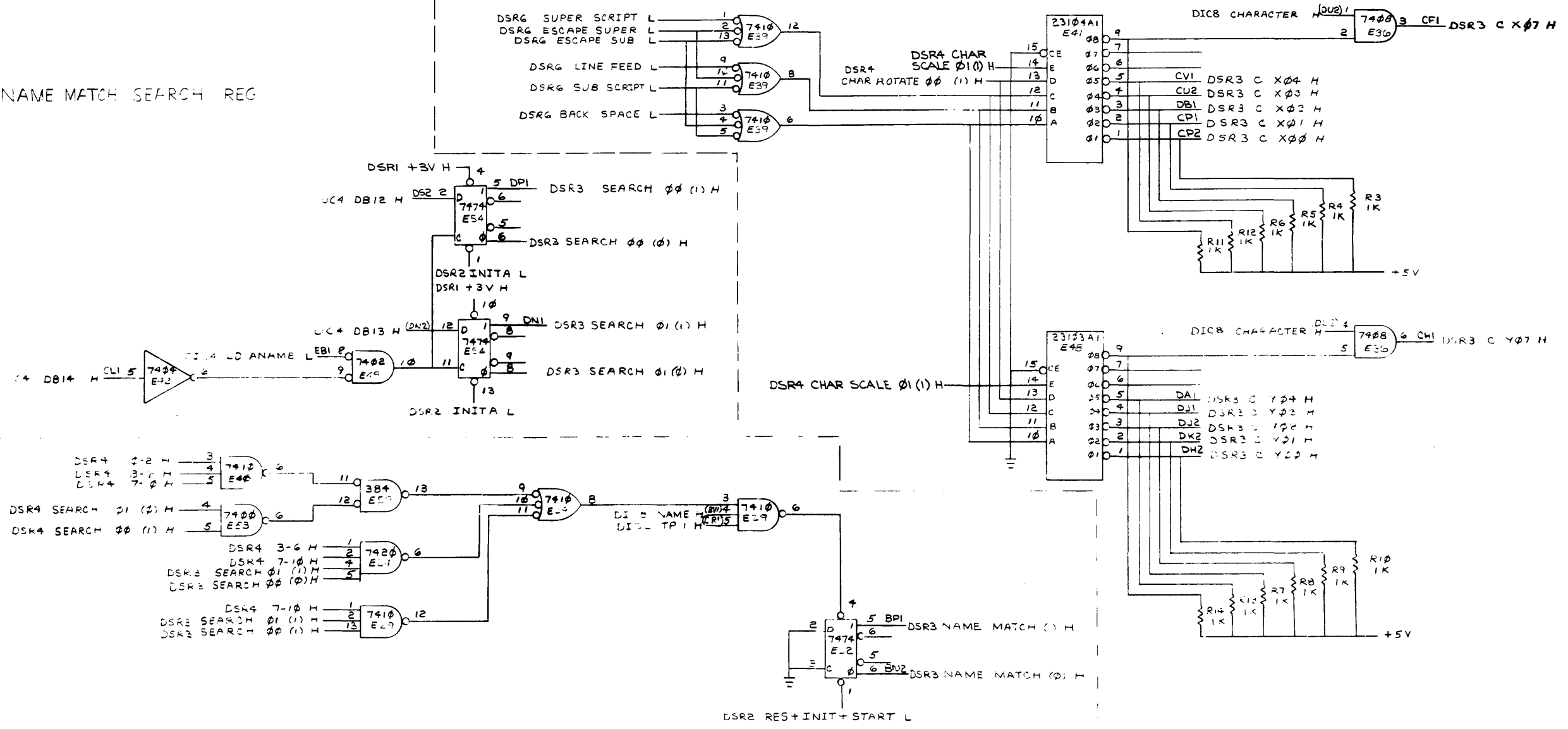
DRN. E. Wilson 1/20/75	FIRST USED ON	VT48
CHK. J. [unclear] 2/2/75		
ENG. J. [unclear] 9-21-75	TITLE	DISPLAY STATUS REGISTER (DSR2)
PROJ. ENG. J. [unclear] 7-17-75	SCALE	D
NEXT HIGHER ASSY.	SIZE	DD-M7057-0
	CODE	CSM7057-0-1
	SHEET	3 OF 7
	DIST.	

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1-02502 WSC 2

CHARACTER DELTA X AND DELTA Y DATA

NAME MATCH SEARCH REG



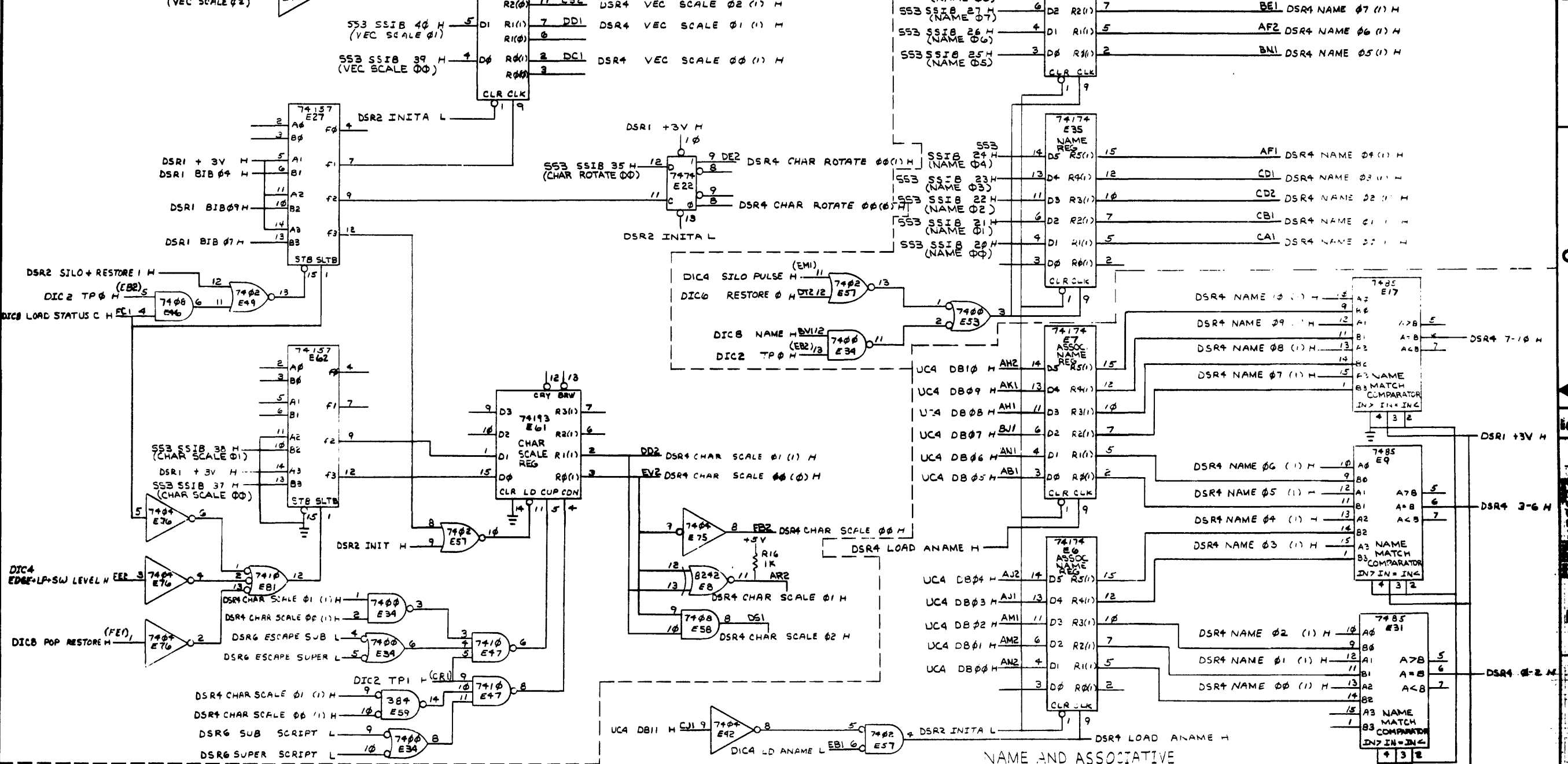
NAME MATCH REG

DRN. E. Wilson	1/24/75	FIRST USED ON	80-083
CHK'D J. J. Wilson		TITLE	DISPLAY STATUS REGISTER (DSR3)
ENG. D. J. Wilson	9-26-75	SIZE CODE	D CS M7057-0-1
PROJ. ENG. H. J. Wilson	7-17-75	SCALE	
PROD. J. J. Wilson	6-2-75	SHEET 4 OF 7	
NEXT HIGHER ASSY.		DRST.	

D E I CS M 7057-0-1

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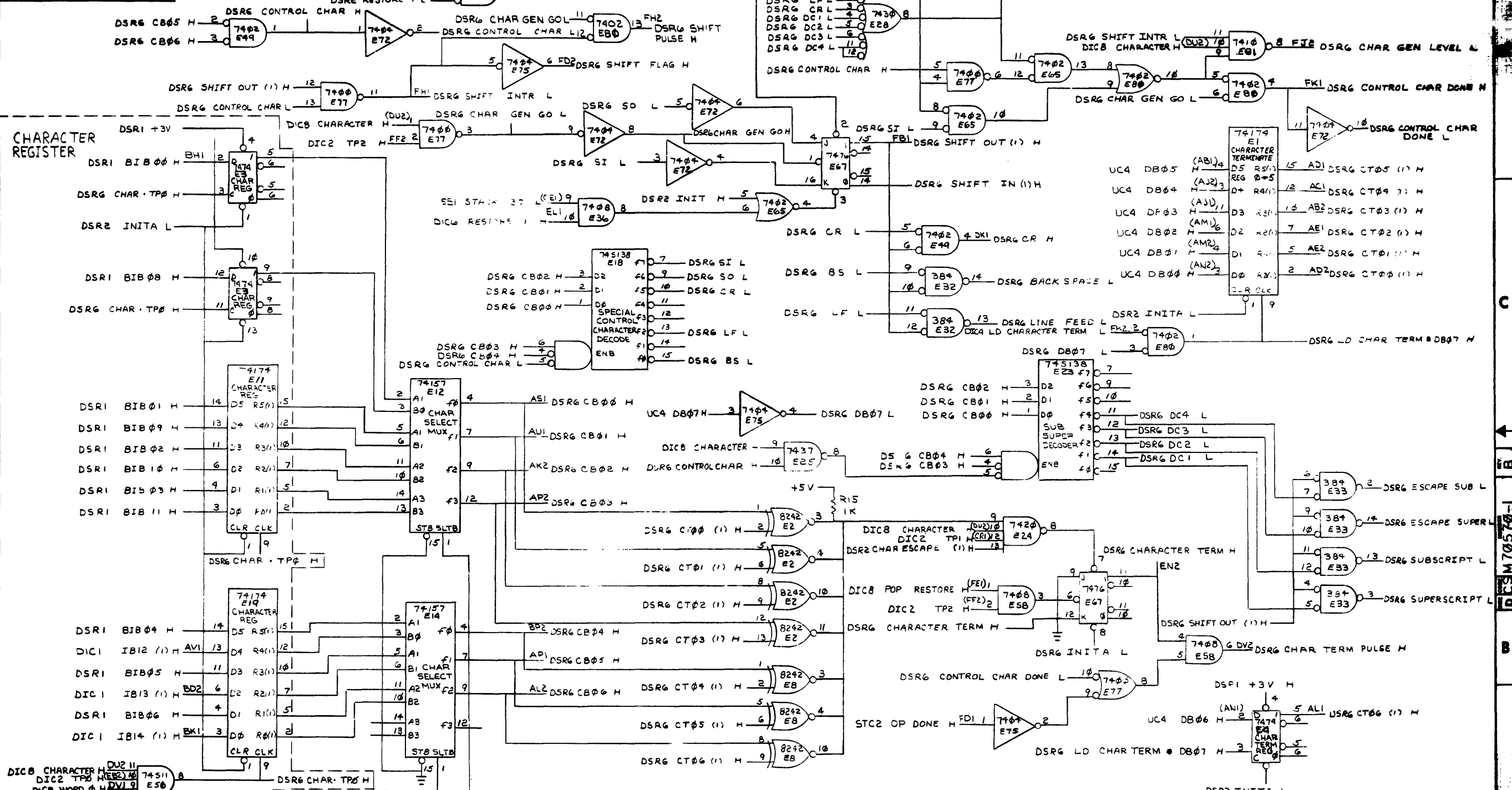
STATUS C VECTOR & CHARACTER SCALE REGS CHARACTER ROTATE



NAME AND ASSOCIATIVE NAME REGS (0-17)

DRN. E. Wilson 1/4/75	FIRST USED ON	VT48
CHKD. J. Wilson 2/2/75	TITLE	DISPLAY STATUS REGISTER (DSR4)
ENG. J. Wilson 7-26-75	SCALE	D CS M 7057-0
PROJ. ENG. J. Wilson 7-17-75	SHEET	5 OF 7
PROD. J. Wilson 8-24-75	DIST.	
NEXT HIGHER ASSY.		
B-DD-M7057-0		

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REV.	
CHG.	
REV.	
CHG.	

DRN.	B. Wilson	11/29/75	FIRST USED ON	VT48
CHK'D			TITLE	DISPLAY STATUS REGISTER
ENG.		7-26-75	SCALE	D
PROJ. ENG.		7-17-75	SIZE	CSM7057
PROD. U.S.A.		8-2-75	SHEET	7 OF 7
NEXT HIGHER ASSY.			DISTR.	
B-DD-M7057-0				

CSM7057-1

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NOTES:

- FOR DRAWING DIRECTORY, REFER TO: B-DD-M7058-0
- UNLESS OTHERWISE SPECIFIED, THE FOLLOWING PIN NUMBERS APPLY:

PACKAGE TYPE	VCC	GND
14 PIN DIP	14	7
16 PIN DIP	16	8
DEC 7476	5	13
DEC 7473	4	11
DEC 384	8	1
DEC 74154	24	12
DEC 8263	24	12

ETCH CUTS SIDE #1 AS SHOWN (SEE SHEET #3)

- CUT ETCH BETWEEN E25(4) AND E15(13).
- CUT ETCH BETWEEN E21(3) AND E31(1).
- CUT ETCH BETWEEN E11(1) AND FEED THRU TO LEFT OF E16(24).
- CUT ETCH BETWEEN E28(7) AND E33(8)
- CUT ETCH BETWEEN E94(5) AND FIRST FEED THRU.
- CUT ETCH BETWEEN E22(7) AND PTH

ETCH CUTS SIDE #2 AS SHOWN (SEE SHEET #4)

- CUT ETCH BETWEEN E25(4) AND FEED THRU TO LEFT OF E25(1).
- CUT ETCH BETWEEN E74(10) AND E74(13).
- CUT ETCH BETWEEN E75(6) AND FEED THRU TO RIGHT OF E75(7).
- CUT ETCH BETWEEN E74(6) AND FEED THRU TO LEFT OF E74(7).
- CUT ETCH BETWEEN E75(5) AND FIRST FEED THRU.
- CUT ETCH BETWEEN E75(4) AND FIRST FEED THRU.
- CUT ETCH BETWEEN E79(9) AND FIRST FEED THRU.
- CUT ETCH BETWEEN E25(14) AND FIRST FEED THRU.
- CUT ETCH BETWEEN E22 7 AND BK2

WIRE ADDS SIDE #1 AS SHOWN (SEE SHEET #2)

- ADD WIRE FROM E15(13) TO E85(4).
- ADD WIRE FROM E69(8) TO E25(4)
- ADD WIRE FROM E69(5) TO E70(3).
- ADD WIRE FROM E69(4) TO E44(11).
- ADD WIRE FROM E69(3) TO E19(5).
- ADD WIRE FROM E21(3) TO E15(13).

WIRE ADDS SIDE #1 CONTINUED:

- ADD WIRE FROM E33(6) TO E79(2).
- ADD WIRE FROM E74(8) TO E79(3).
- ADD WIRE FROM E74(12) TO E79(1).
- ADD WIRE FROM E32(5) TO E11(1).
- ADD WIRE FROM E28(7) TO E23(5).
- ADD WIRE FROM E75(10) TO E74(6).
- ADD WIRE FROM E75(9) TO E90(12).
- ADD WIRE FROM E75(8) TO E49(2).
- ADD WIRE FROM E75(5) TO E70(12).
- ADD WIRE FROM E75(8) TO E46(15).
- ADD WIRE FROM E75(4) TO E79(9).
- ADD WIRE FROM E90(3) TO E14(9).
- ADD WIRE FROM E90(4) TO E70(11).
- ADD WIRE FROM E90(5) TO E54(1).
- ADD WIRE FROM E90(6) TO E75(11).
- ADD WIRE FROM E75(12) TO E32(1).
- ADD WIRE FROM E94(5) TO E75(13).
- ADD WIRE FROM E90(1) TO E90(13).
- ADD WIRE FROM E90(3) TO E53(9).
- ADD WIRE FROM E90(7) TO P.T.H. BELOW E90(7).
- ADD WIRE FROM E95(7) TO P.T.H. BELOW E95(7).
- ADD WIRE FROM E95(2) TO E95(3).
- ADD WIRE FROM E95(2) TO E90(3).
- ADD WIRE FROM E95(1) TO E90(2).
- ADD WIRE FROM E95(5) TO E95(6).
- ADD WIRE FROM E75(10) TO E95(5).
- ADD WIRE FROM E95(4) TO E25(14).
- ADD WIRE FROM E95(4) TO B11.

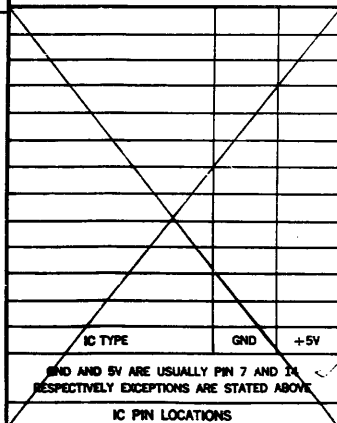
COMPONENT ADDS SIDE #1 (SEE SHEET #2):

- E90 ADD 74S11 (ITEM #14).
- E95 ADD 7402 (ITEM #10).

WIRE ADDS SIDE#1 CONT.

- ADD WIRE FROM E64(2) TO E22(7).

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		ETCHED CIRCUIT BOARD	5011200	1
100	C1 THRU C101	CAP. .01uf 100V	1001610-01	2
6	C104 THRU C109	CAP. 8.0uf 10% 35V	1005306	3
3	C100, C102, C103	CAP. 10pf	1000006	4
53	R1 THRU R7, R11 THRU R35, R37, R38, R40 THRU R58	RES. 1K 5% 1/4W	1300385	5
3	R8, R36, R39	RES. 4.7K 5% 1/4W	1300447	6
1	R9	RES. 330 5% 1/4W	1300285	7
1	R10	RES. 750 5% 1/4W	1301401	8
9	E27, E33, E38, E49, E50, E59, E85, E79	I.C. DEC 7400	1905575	9
5	E37, E54, E63, E75, E95	I.C. DEC 7402	1908004	10
6	E32, E34, E44, E48, E57, E64	I.C. DEC 7404	1909806	11
3	E12, E23, E43	I.C. DEC 7408	1910155	12
5	E29, E55, E60, E68, E18	I.C. DEC 7410	1905576	13
2	E42, E90	I.C. DEC 74S11	1910537	14
3	E24, E26, E59	I.C. DEC 7420	1905577	15
2	E52, E70	I.C. DEC 7437	1910091	16
2	E46, E47	I.C. DEC 7476	1905585	17
3	E17, E61, E69	I.C. DEC 7474	1905547	18
2	E13, E74	I.C. DEC 7473	1905587	19
8	E66, E67, E73, E77, E82, E89, E97, E99	I.C. DEC 7493	1909932	20
1	E53	I.C. DEC 8815	1909713	21
5	E16, E76, E91, E96, E91	I.C. DEC 9263	1910471	22
9	E1, E11, E56, E62, E71, E93, E87, E92, E93	I.C. DEC 74174	1910652	23
3	E14, E22, E28	I.C. DEC 384	1909486	24
2	E4, E21	I.C. DEC 74123	1910436	25
1	E51	I.C. DEC 74154	1909701	26
3	E5, E6, E15	I.C. DEC 74157	1910655	27
1	E80	I.C. DEC 74155	1910656	28
5	E31, E36, E41, E88, E96	I.C. DEC 74175	1910651	29
7	E20, E25, E72, E78, E84, E85, E94	I.C. DEC 74193	1910018	30
1	E9	ROM 5600 (OR 6330 OR 8223)	23096A1	31
1	E8	ROM 5600 (OR 6330 OR 8223)	23097A1	32
1	E2	ROM 5600 (OR 6330 OR 8223)	23098A1	33
1	E19	ROM 5600 (OR 6330 OR 8223)	23099A1	34
1	E7	ROM 5600 (OR 6330 OR 8223)	23100A1	35
1	E18	ROM 5600 (OR 6330 OR 8223)	23101A1	36
1	E3	ROM 5600 (OR 6330 OR 8223)	23102A1	37
1	E35	ROM 5603 (OR 6300 OR 82526)	23147A2	38
1	E45	ROM 5603 (OR 6300 OR 82526)	23148A2	39
1	E30	ROM 5603 (OR 6300 OR 82526)	23149A2	40
1	E29	ROM 5603 (OR 6300 OR 82526)	23150A2	41
1	E40	ROM 5603 (OR 6300 OR 82526)	23151A2	42
4		SPLIT LUG	9006735	43
1	W1	JUMPER	9107560-01	44
1		HANDLE ASSY	1210711-02	45
12		EYELET, HANDLE	9006732	46
1		WIPE #30 AWG (GRN)	9105740-55	47



FIRST USED ON OPTION MODEL: VT4-

ETCHED BOARD REV: []

DRN: []	DATE: []
CHKD: []	DATE: []
ENG: []	DATE: []
PROJ. ENG: []	DATE: []
PROD: []	DATE: []

digital

TITLE: VT48 DISPLAY CONTROL

SIZE CODE: B-DD-M7058-0-0

NUMBER: DUA M7058-0-0

SCALE: 2/1

SHEET: 1 OF 5

SEMICONDUCTOR CONVERSION CHART

DEC NO. [] EIA NO. [] DEC NO. [] EIA NO. []

CHK [] CHANGE NO. [] REV. []

REVISIONS:

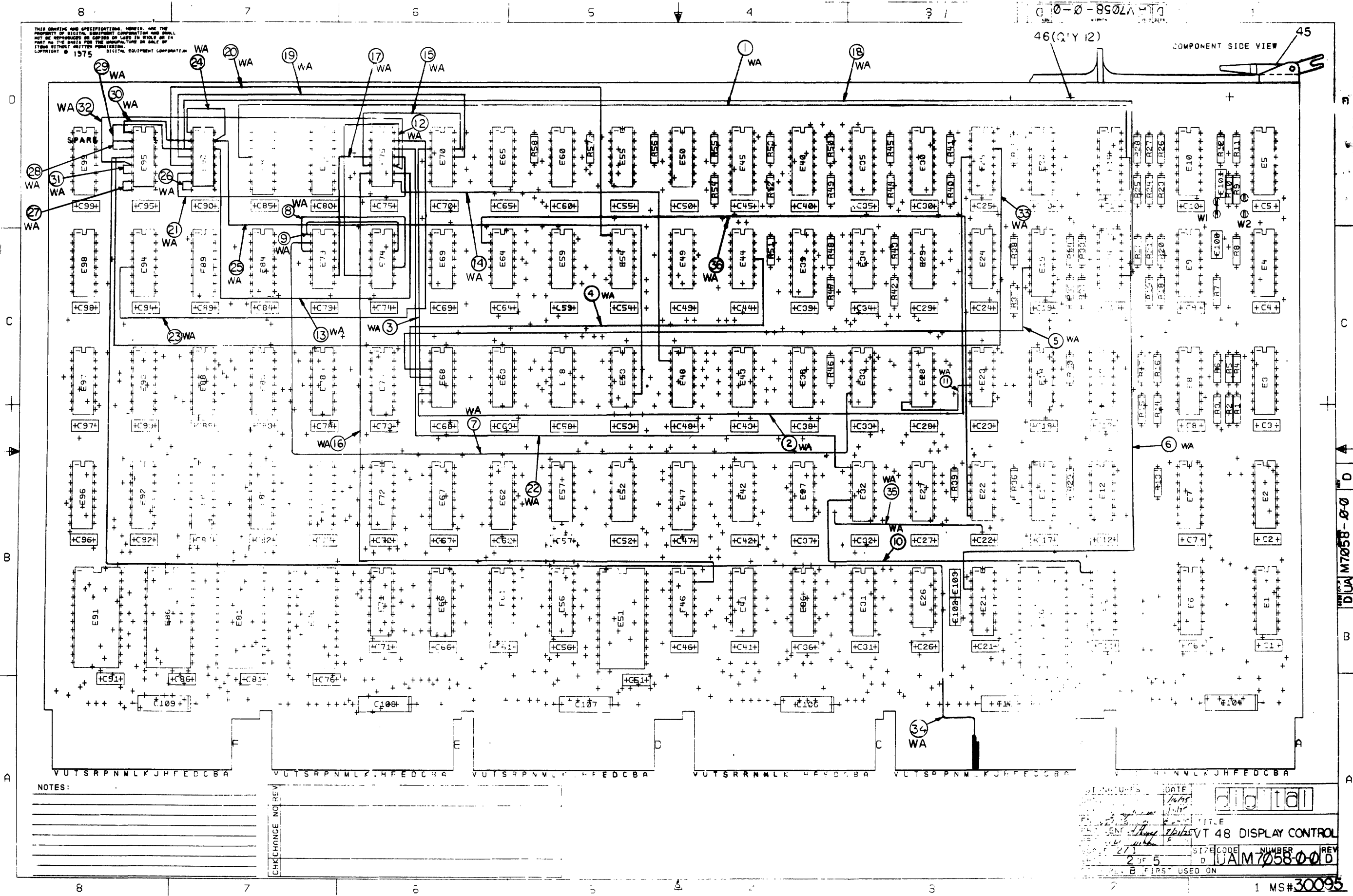
1. []

2. []

0-0-8507A

COMPONENT SIDE VIEW

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NOTES:

CHANGE NO. REV

DATE	1/11/75	DIGITAL
TITLE	VT 48 DISPLAY CONTROL	
DESIGNED BY	John Hayes	NUMBER
DRAWN BY	John Hayes	
REV	2 OF 5	REV
B FIRST USED ON		

DUA M7058-0-0

1 MS#30095

8

7

6

5

4

3

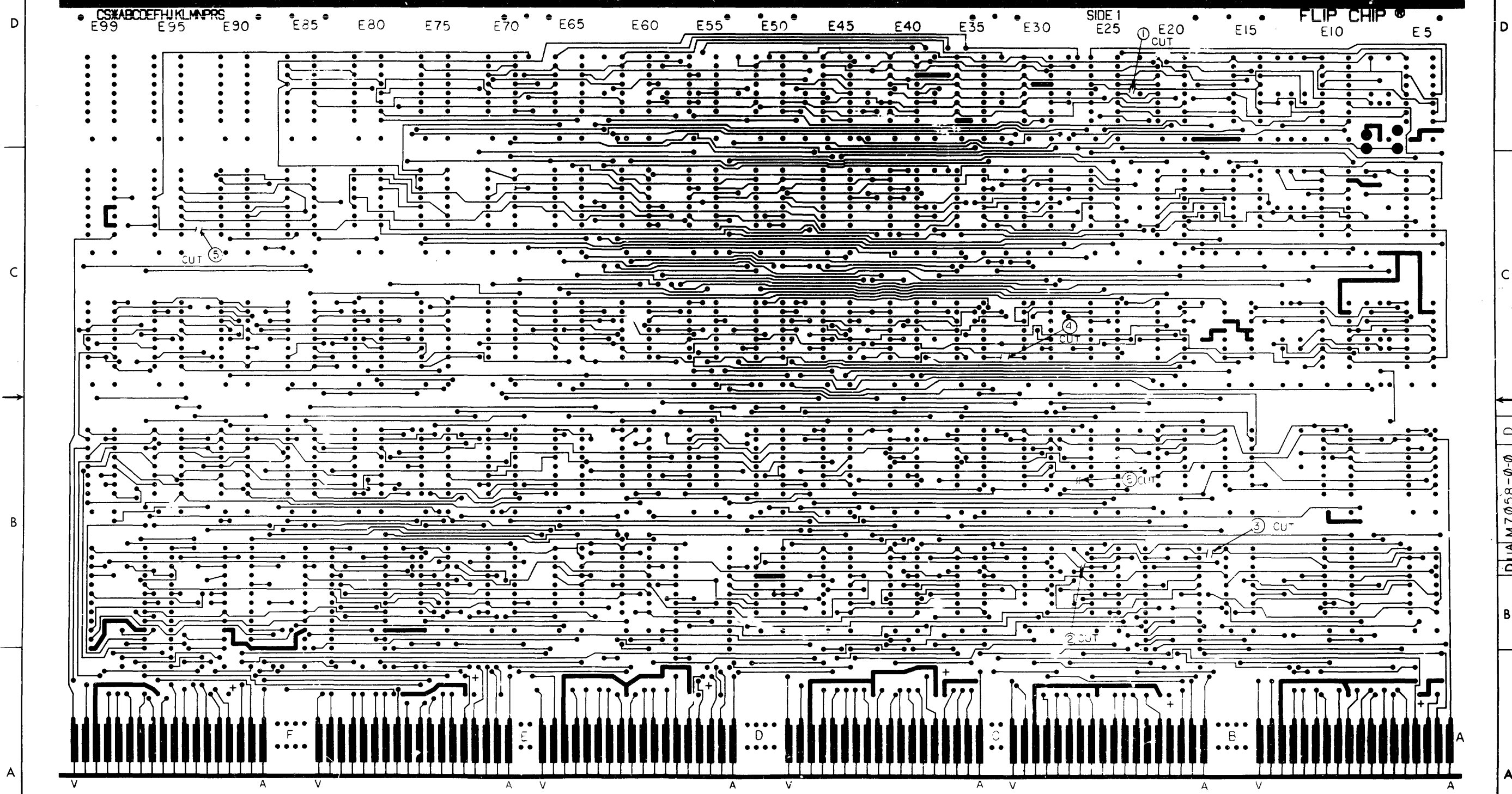
0-0-8502M70 2

1

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LAYER 1

MS30096 M7058 5011299 B



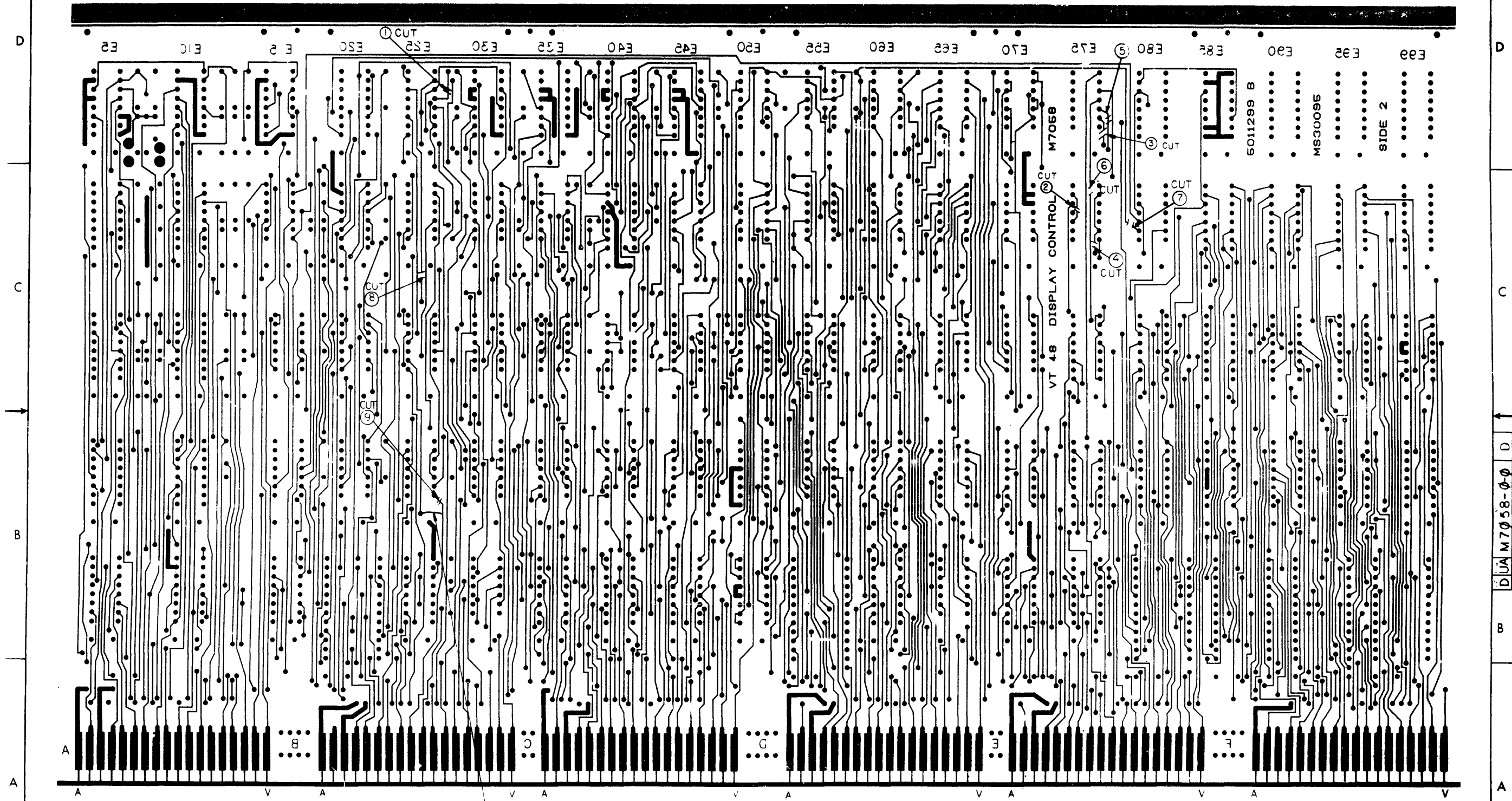
REV'S ON'S		
CHK	CHANGE NO	REV

(LAYER 1)

VT48 DISPLAY CONTROL		SIZE CODE	NUMBER	REV.
DUA M7058-00				D

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LAYER H

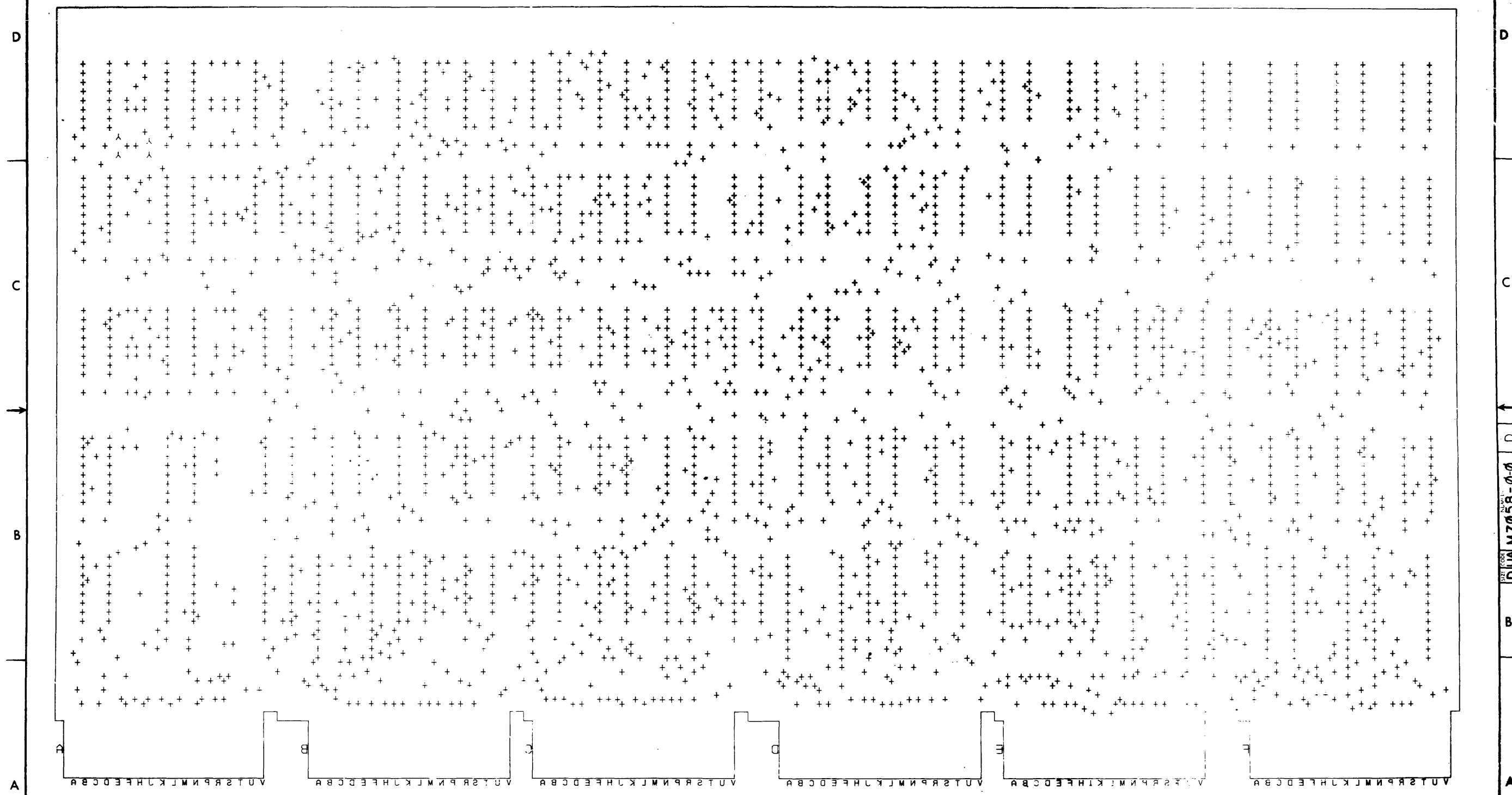


REVISIONS		
NO.	CHANGE NO.	REV.

VT48 DISPLAY CONTROL DUA M7058-0-0
 SIZE CODE NUMBER REV.
 2/1 SHEET 4 OF 5 DIST. D

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DIA M7058-0-0 2



REVISIONS		
CHK	CHANGE NO.	REV

TITLE: VT48 DISPLAY CONTROL
 SCALE: 2/1
 SHEET: 5 OF 5
 SIZE CODE: DIA M7058-0-0
 NUMBER: 1

8

7

6

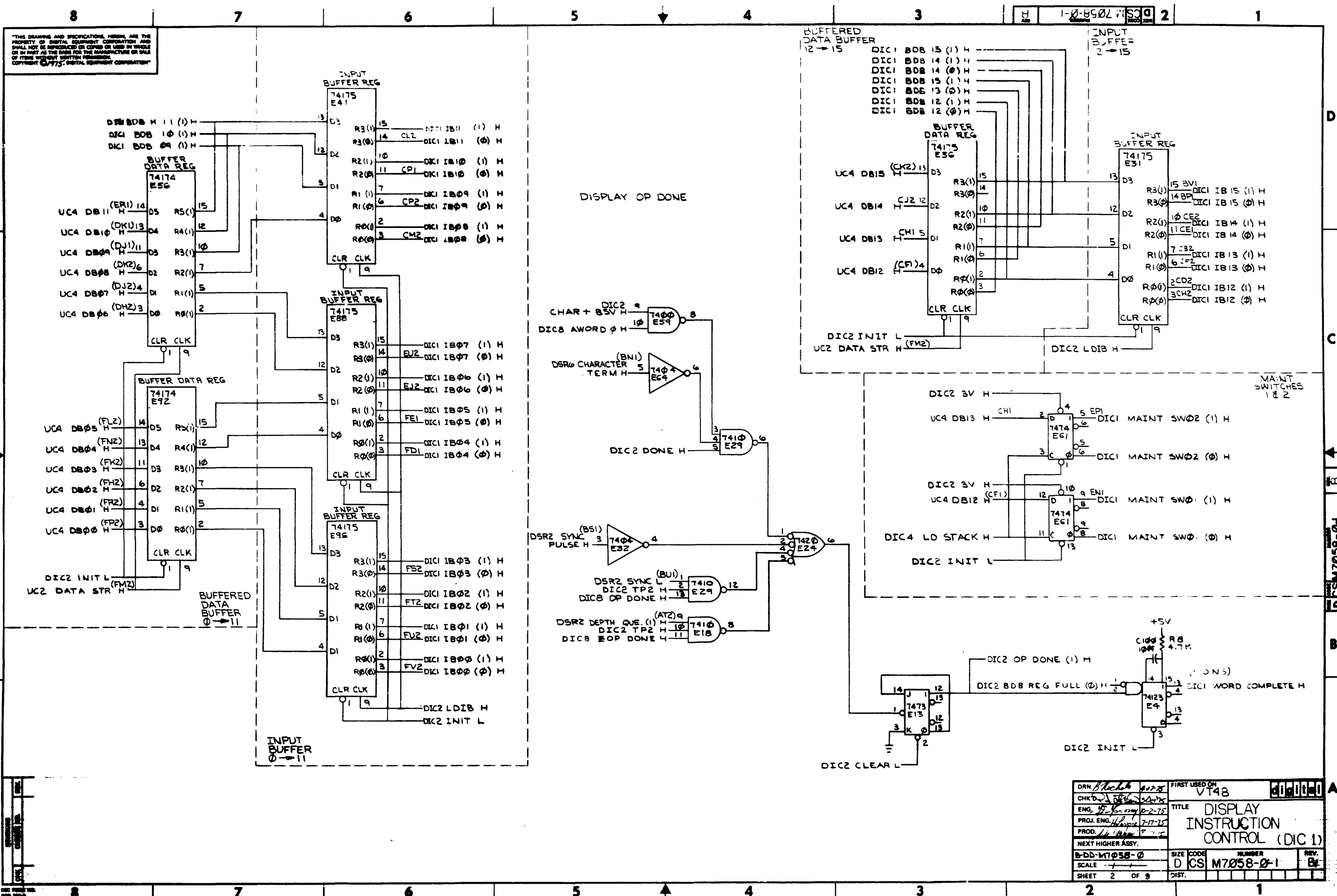
5

4

3

2

1

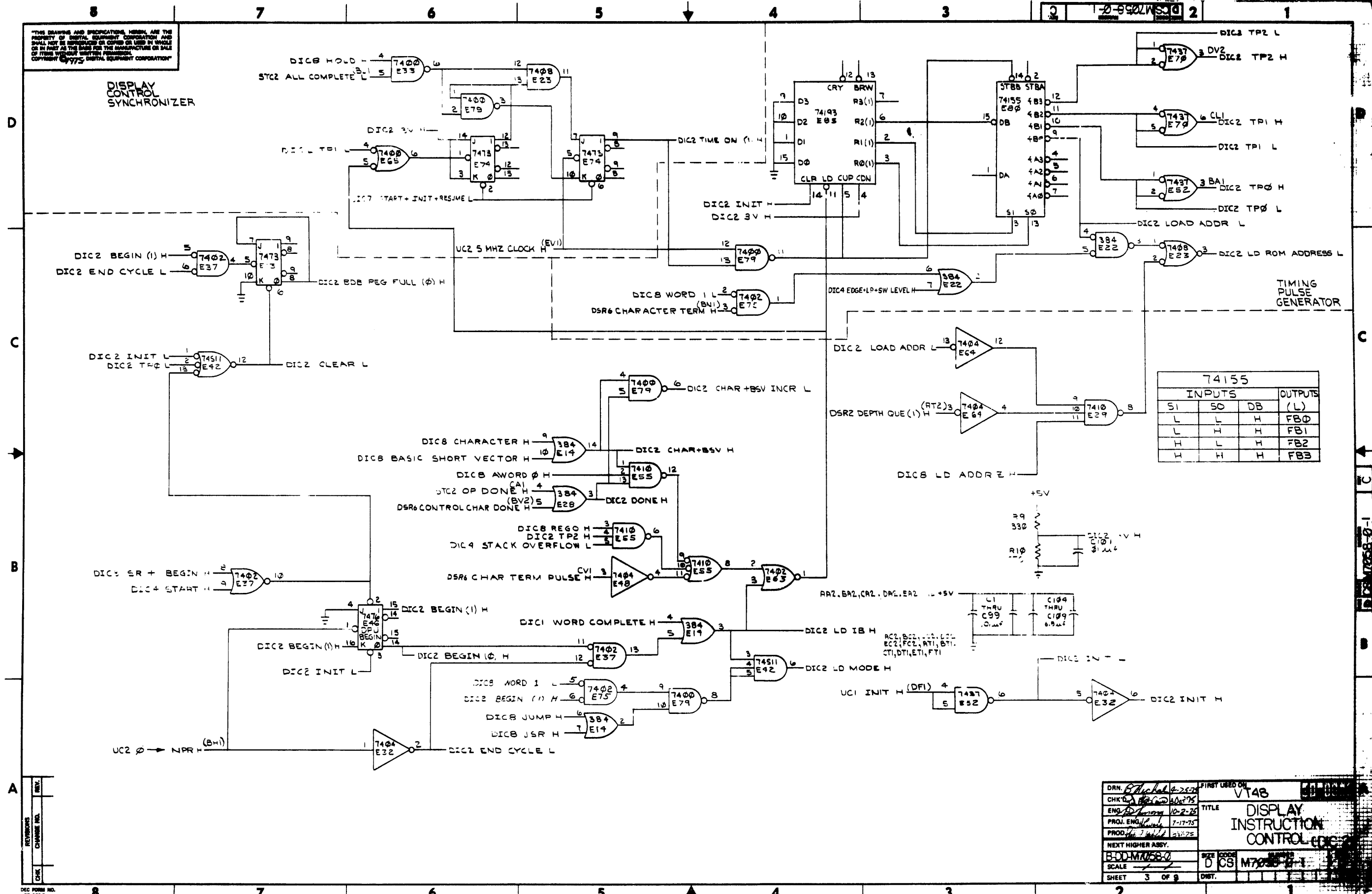


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DRN <i>Bloch 412.75</i>	FIRST USED ON	VT48
CHK'D <i>[Signature]</i>	TITLE	DISPLAY INSTRUCTION CONTROL (DIC 1)
ENG. <i>[Signature]</i>	PROJ. ENG. <i>[Signature]</i>	PROD. <i>[Signature]</i>
NEXT HIGHER ASSY.		
B-BD-M7058-0	SIZE	CODE
SCALE	D	CS
SHEET 2 OF 9	NUMBER	M7058-0-1
	DIST.	

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DISPLAY CONTROL SYNCHRONIZER

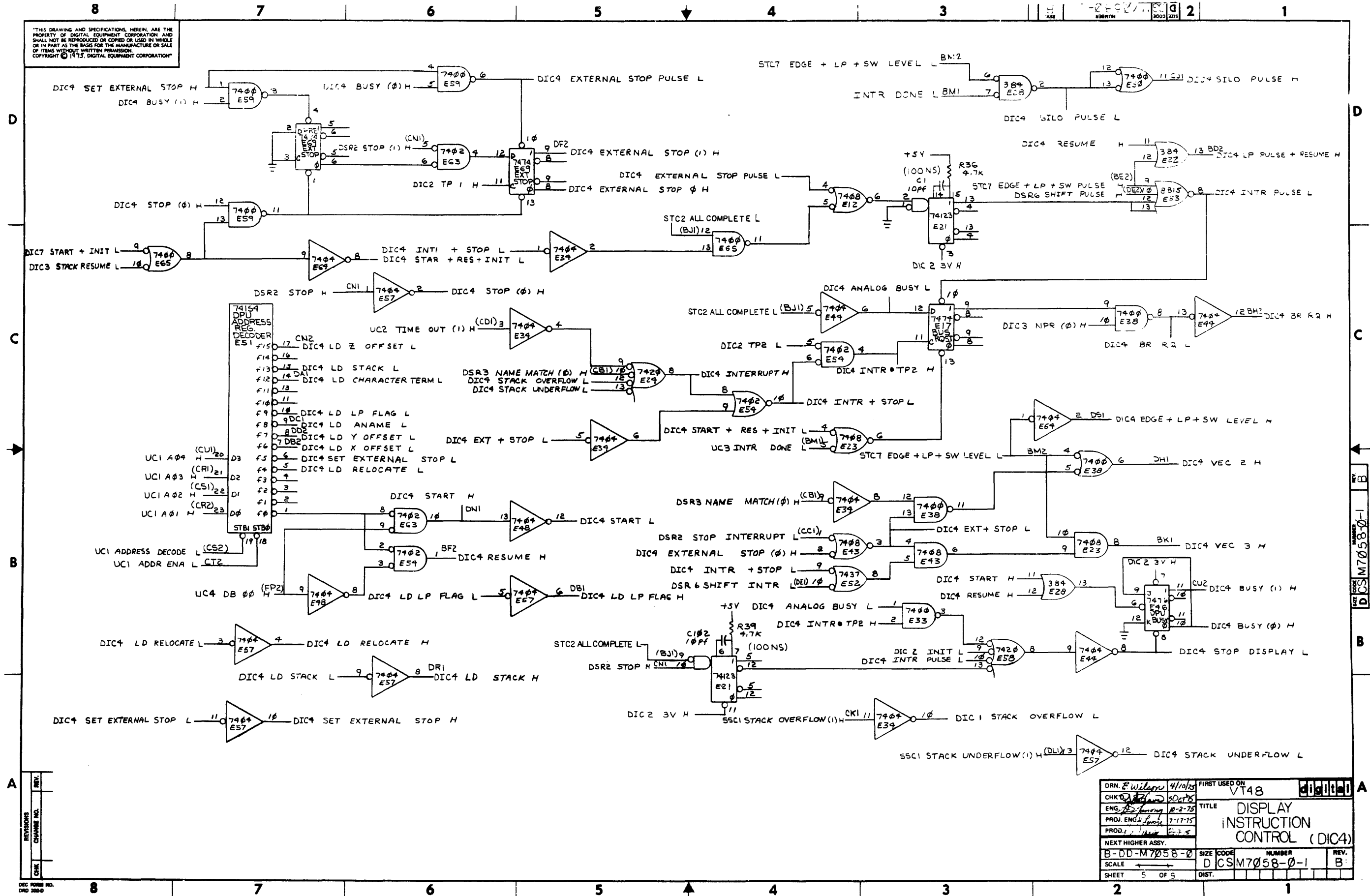


74155			
INPUTS			OUTPUTS
S1	S0	DB	(L)
L	L	H	FB0
L	H	H	FB1
H	L	H	FB2
H	H	H	FB3

DRN: <i>B. Thibault</i>	FIRST USED ON: <i>V148</i>
CHKD: <i>B. G. G.</i>	TITLE: DISPLAY INSTRUCTION CONTROL
ENG: <i>B. G. G.</i>	DATE: <i>10-2-75</i>
PROJ. ENG: <i>B. G. G.</i>	DATE: <i>7-17-75</i>
PROD. <i>B. G. G.</i>	DATE: <i>5-27-75</i>
NEXT HIGHER ASSY:	SIZE CODE: <i>D CSI M7000</i>
SCALE: <i>1/8"</i>	SHEET: <i>3 OF 9</i>

REV.	REV.

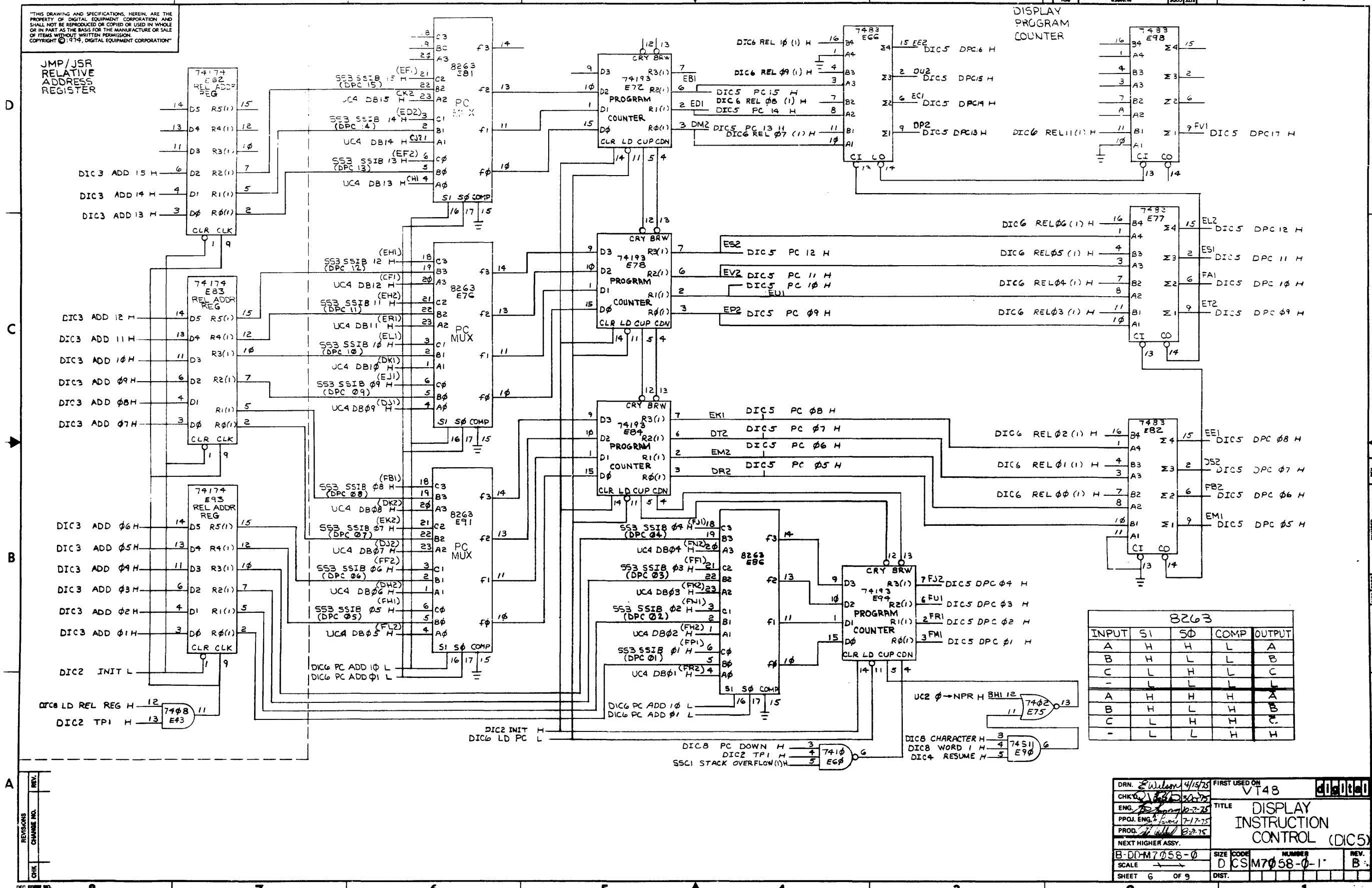
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DRN: E. Williams 4/10/75	FIRST USED ON: V148	DIGITAL
CHK: J. Williams 8 Oct 75	TITLE: DISPLAY INSTRUCTION CONTROL (DIC4)	
ENG: J. Williams 10-2-75	PROJ. ENGR: J. Williams 7-17-75	
PROJ. ENGR: J. Williams 7-17-75	NEXT HIGHER ASSY:	
B-DD-M7058-0	SIZE CODE: D	NUMBER: CS M7058-0-1
SCALE: 5 OF 5	SHEET: 5 OF 5	REV: B

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1-0-5502W50 2



8263

INPUT	S1	S0	COMP	OUTPUT
A	H	H	L	A
B	H	L	L	B
C	L	H	L	C
-	L	L	L	L
A	H	H	H	A
B	H	L	H	B
C	L	H	H	C
-	L	L	H	H

DRN. <i>Wilson 4/15/75</i>	FIRST USED ON	VT48
CHKD. <i>...</i>	TITLE	DISPLAY INSTRUCTION CONTROL (DIC5)
ENG. <i>...</i>	PROJ. ENG. <i>...</i>	PROD. <i>...</i>
NEXT HIGHER ASSY.	SIZE	CODE
B-DIM7058-0	D	C
SCALE	NUMBER	REV.
SHEET 6 OF 9	DIST.	

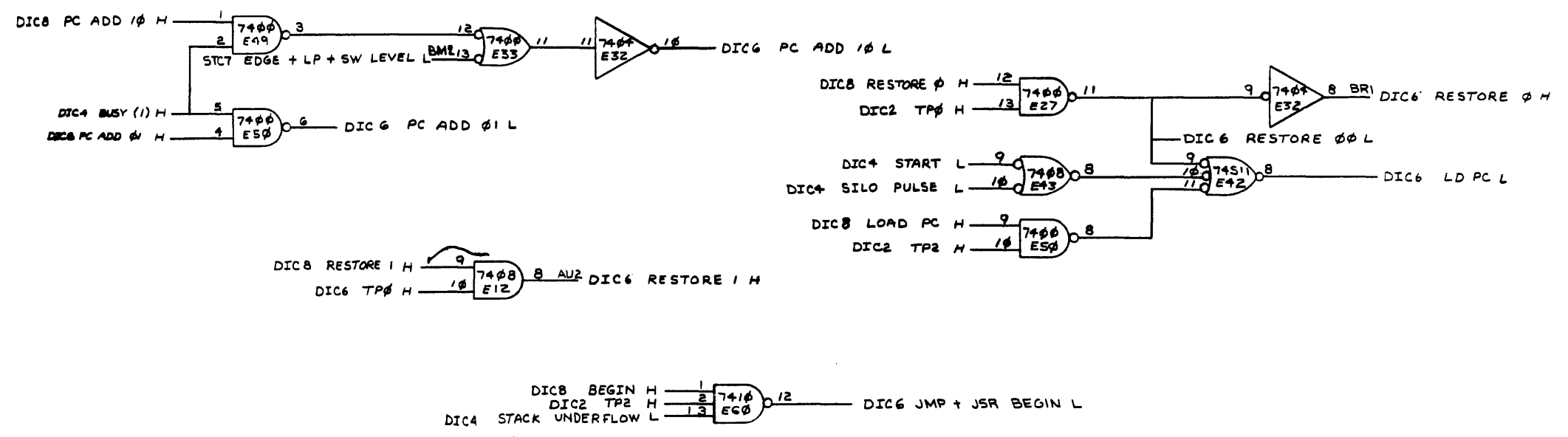
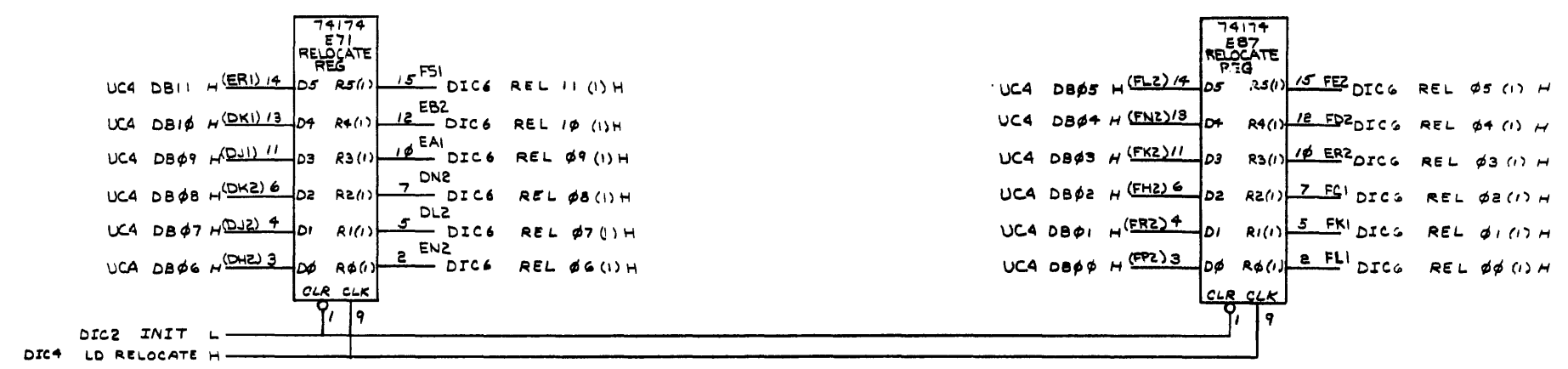
REVISIONS

NO.	DATE	BY	DESCRIPTION
1			

DEC FORM NO. 010 1082

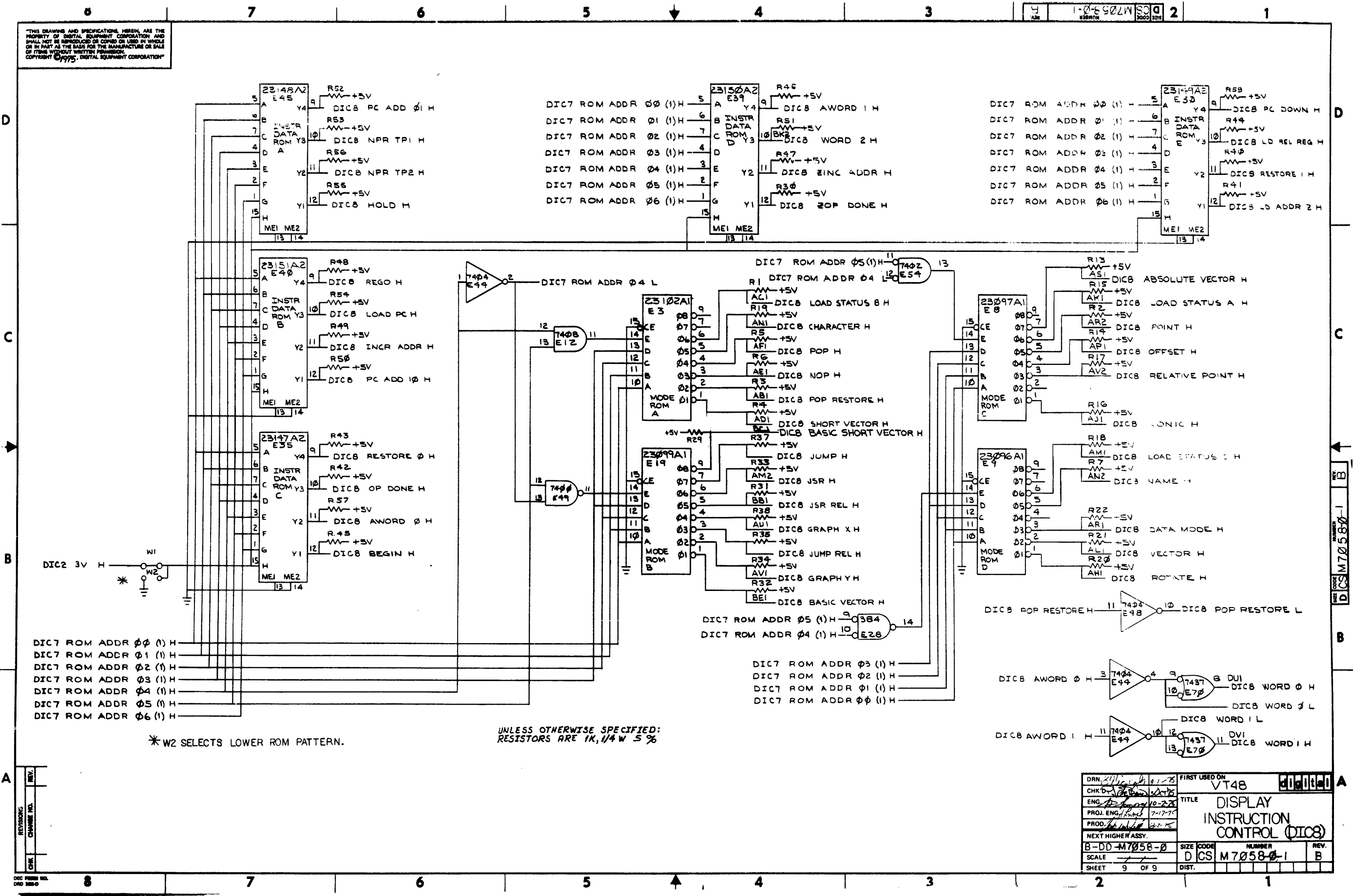
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RELOCATE REGISTER



DRN: <i>[Signature]</i> 4/14/75	FIRST USED ON: V148	DIGITAL
CHK'D: <i>[Signature]</i> 10-2-75	TITLE: DISPLAY INSTRUCTION CONTROL (DIC6)	
ENG: <i>[Signature]</i> 10-2-75	SIZE CODE: D	
PROJ. ENGR: <i>[Signature]</i> 7-17-75	NUMBER: CS M7058-0-1	
PROD. <i>[Signature]</i> 10-2-75	SCALE: 1:1	REV: B
NEXT HIGHER ASSY:	SHEET: 7 OF 9	DIST.:

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* W2 SELECTS LOWER ROM PATTERN.

UNLESS OTHERWISE SPECIFIED:
RESISTORS ARE 1K, 1/4 W 5%

DRN. 217	FIRST USED ON	VT48	
CHK'D	TITLE	DISPLAY INSTRUCTION CONTROL (DICS)	
ENG. 10-28	NUMBER	M7058-01	REV. B
PROJ. ENG. 7-17-75	SCALE	DICS M7058-01	
PROD. 2-2-75	SHEET	9 OF 9	DIST.
NEXT HIGHER ASSY.			

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NOTE THE CONTROL BUT ROM DATA OUTPUTS ARE WIRED "OR"ED TO THE DATA & CONTROL MODE ROM AS FOLLOWS

DATA & CONTROL MODE ROM		CONTROL MODE BUT ROM	
D ₂	TO	D ₁	
D ₃	TO	D ₂	
D ₄	TO	D ₃	

THE DATA MODE BUT ROM DATA OUTPUTS ARE WIRED "OR"ED TO THE DATA & CONTROL MODE ROM AS FOLLOWS

DATA & CONTROL MODE ROM		DATA MODE BUT ROM	
D ₁	TO	D ₁	
D ₃	TO	D ₂	

MODES	ADDRESS	DATA & CONTROL MODE ROM							CONTROL MODE BUT ROM							DATA MODE BUT ROM							REMARKS			
		E10							E2							E7										
		D ₈	D ₇	D ₆	D ₅	D ₄	D ₃	D ₂	D ₁	D ₈	D ₇	D ₆	D ₅	D ₄	D ₃	D ₂	D ₁	D ₈	D ₇	D ₆	D ₅	D ₄	D ₃	D ₂	D ₁	
CHARACTER	0 0 0 0 0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
SHORT VECTOR	0 0 0 0 1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
VECTOR (ROTATE)	0 0 0 1 0	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
POINT (OFFSET)	0 0 0 1 1	1	1	0	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
GRAPH X (BASIC VECTOR)	0 0 1 0 0	1	1	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
GRAPH Y (BASIC VECTOR)	0 0 1 0 1	1	1	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
RELATIVE POINT	0 0 1 1 0	1	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	(ROTATE) (OFFSET) BUT
BASIC SHORT VECTOR	0 0 1 1 1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	(ROTATE) (OFFSET) BUT
CONIC	0 1 0 0 0	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
ABSOLUTE VECTOR	0 1 0 0 1	1	1	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	(BASIC VECTOR) BUT
	0 1 0 1 0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	0 1 0 1 1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	(BASIC VECTOR) BUT
	0 1 1 0 0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	0 1 1 0 1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	0 1 1 1 0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	0 1 1 1 1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
DATA MODE CHARACTER	1 0 0 0 0	1	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
DATA MODE SHORT VECTOR	1 0 0 0 1	1	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
DATA MODE VECTOR ROTATE	1 0 0 1 0	1	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
DATA MODE POINT OFFSET	1 0 0 1 1	1	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
DATA MODE GRAPH X BASIC VECTOR	1 0 1 0 0	1	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
DATA MODE GRAPH Y BASIC VECTOR	1 0 1 0 1	1	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
DATA MODE RELATIVE POINT	1 0 1 1 0	1	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
DATA MODE BASIC SHORT VECTOR	1 0 1 1 1	1	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
DATA MODE CONIC	1 1 0 0 0	1	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
DATA MODE ABSOLUTE VECTOR	1 1 0 0 1	1	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	(POF) (JUMP RELATIVE) BUT
NAME	1 1 0 1 0	1	1	0	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	(POP RESTORE) (JSR) BUT
LOAD STATUS C	1 1 0 1 1	1	1	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	(NOP) (JSR RELATIVE) BUT
JUMP (JSR) (REL)	1 1 1 0 0	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
NOP (POP) (POP RESTORE)	1 1 1 0 1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
LOAD STATUS A	1 1 1 1 0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
LOAD STATUS B	1 1 1 1 1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

REV.	
CHG.	
CHK.	

DEC FORM NO. 000 3000

DRN <i>M. J. ...</i>	DATE <i>8-26-75</i>	FIRST USED ON	<i>010001</i>
CHK <i>M. J. ...</i>	DATE <i>8-26-75</i>	TITLE	DATA ROM PATTERN
ENG <i>M. J. ...</i>	DATE <i>8-26-75</i>	PROJ. ENG.	
PROD. REV. <i>M. J. ...</i>	DATE <i>8-26-75</i>	PROD. REV.	
NEXT HIGHER ASSY.		SIZE	D
B-10-M7058-0		CODE	CS
SCALE		NUMBER	M7058-0-9
SHEET 3 OF 4		DIST.	

REV. M7058-0-9

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ADDRESS					MODE ROM A E3					MODE ROM B E19					MODE ROM C E9					MODE ROM D E9										
A ₄	A ₃	A ₂	A ₁	A ₀	DATA	DICB LOAD STATUS B H	DICB CHARACTER H	DICB POP H	DICB NOP H	DICB POP RESTORE H	DICB SHORT VECTOR L	DICB BASIC SHORT VECTOR H	DICB JUMP H	DICB JSR H	DICB JSR REL H	DICB GRAPH X H	DICB JUMP REL H	DICB GRAPH Y H	DICB BASIC VECTOR H	DICB ABSOLUTE VECTOR H	DICB LOAD STATUS A H	DICB POINT H	DICB OFFSET H	DICB RELATIVE POINT H	DICB CONIC H	DICB LOAD STATUS C H	DICB NAME H	DICB DATA MODE H	DICB VECTOR H	DICB ROTATE H
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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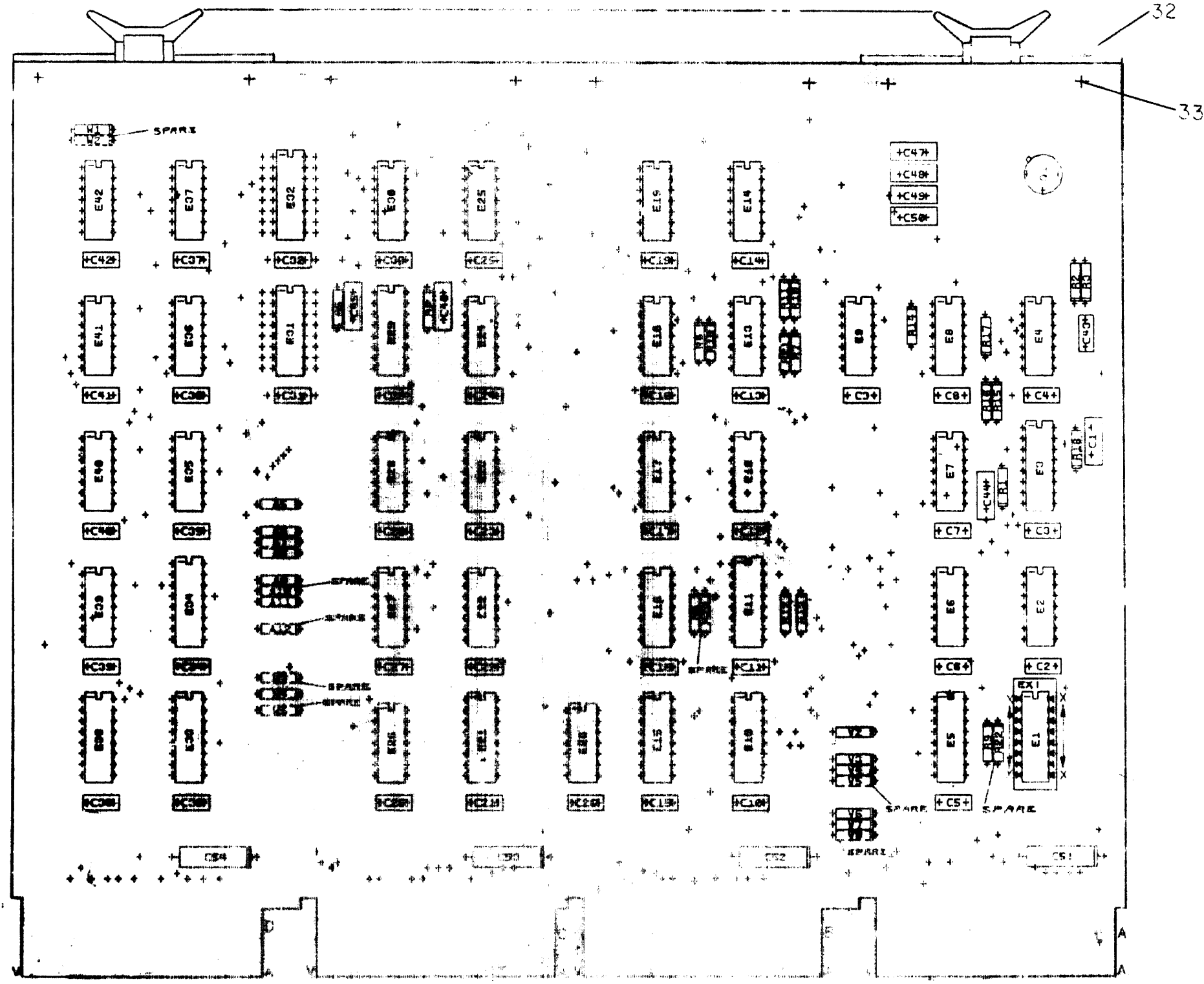
REVISIONS
CHK
CHANGE NO.

DRN: <i>Norman</i>	FIRST USED ON: <i>80-08-0</i>
CHK: <i>Norman</i>	TITLE: DATA ROM PATTERN
ENG: <i>D. Young 10-2-75</i>	
PROJ. ENG: <i>J. P.</i>	
PROD. <i>Plant</i>	
NEXT HIGHER ASS.	
SCALE: <i>1:1</i>	SIZE CODE: D CS M7058-0-9
SHEET: 4 OF 4	REV.

CS M7058-0-9

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D
C
B
A



32

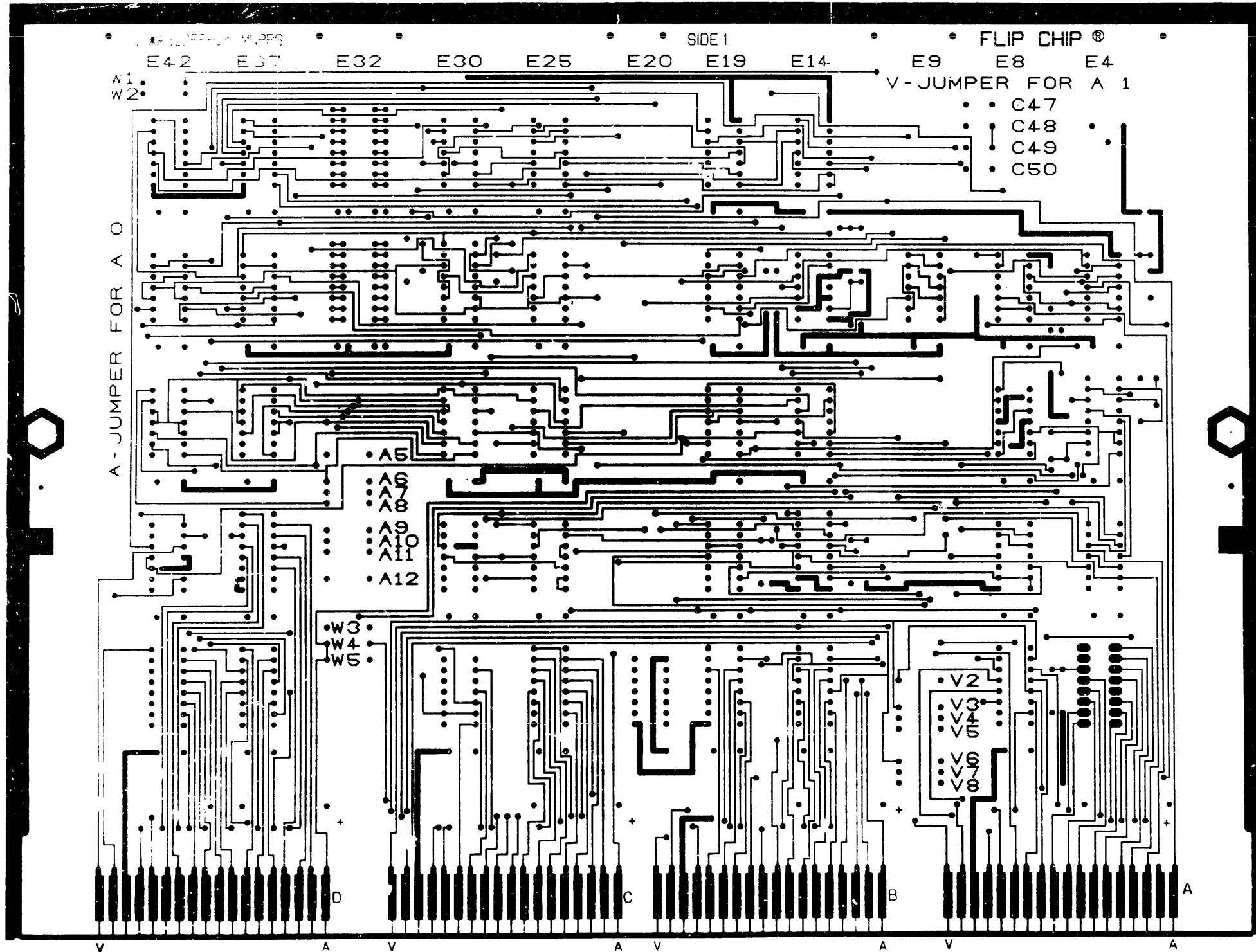
33

CHE	REV

CONTROL DUA M7059-0-0

SIZE: COOH NUMBER
DUA M7059-0-0

MS30096 M7059 5011048B



A - JUMPER FOR A 0

FLIP CHIP
 V - JUMPER FOR A 1
 C47
 C48
 C49
 C50

A5
 A6
 A7
 A8
 A9
 A10
 A11
 A12

V2
 V3
 V4
 V5
 V6
 V7
 V8

(SIDE 1)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	VT48	SIZE CODE	NUMBER	REV.
BUS CONTROL	D U A M 7 0 5 9 - 0 - 0			A
SCALE	2/1	SHEET	3 OF 5	DIST.

D U A M 7 0 5 9 - 0 - 0

B

A

8

7

6

5

4

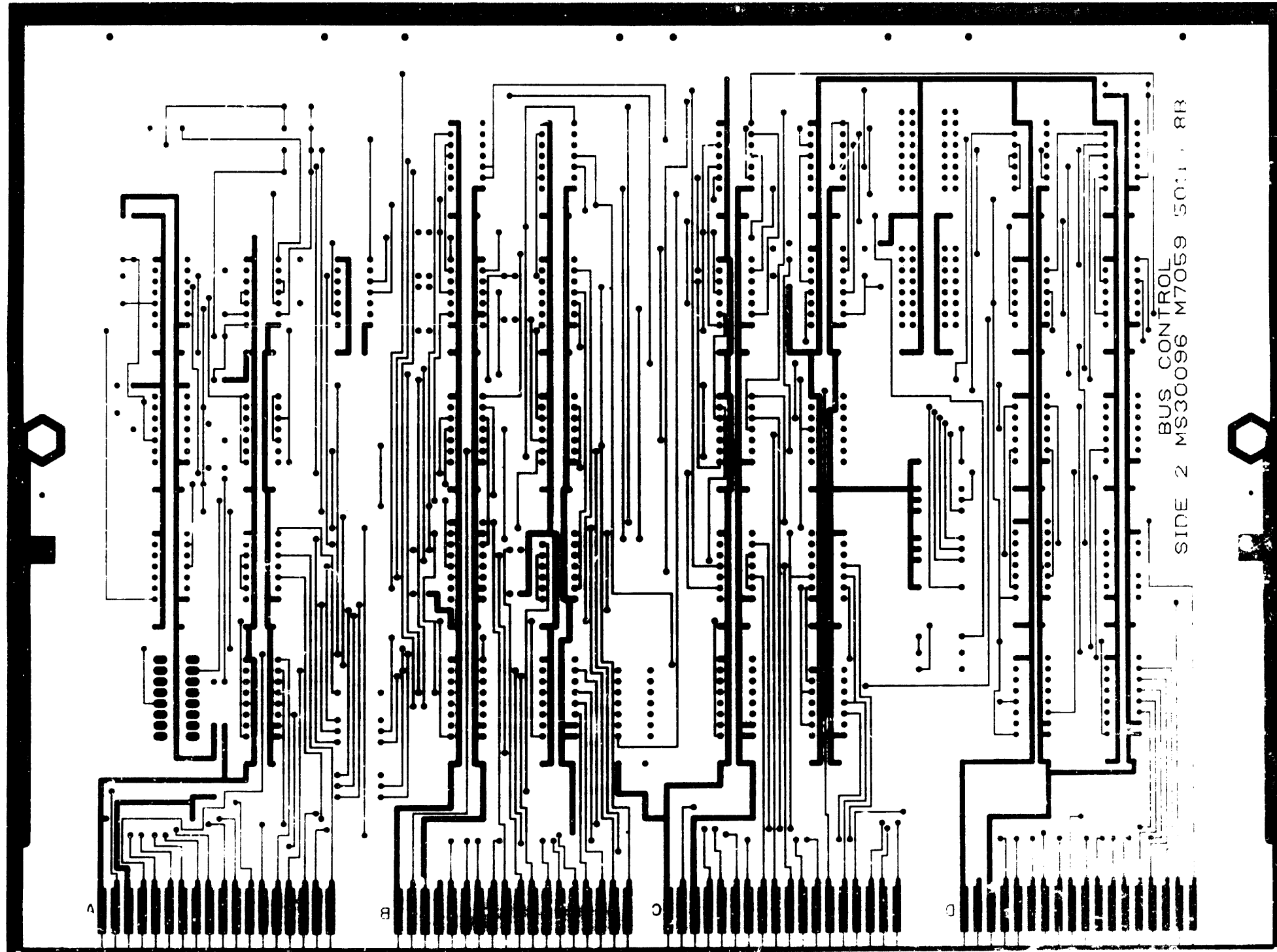
3

2

D UAM 7059-0-0

01915

D
C
B
A



REVISIONS		
CHK	CHANGE NO	REV

OF 2)

SIZE CODE	NUMBER	REV.
D U A	M7059-0-0	A

4 OF 5

8

7

6

5

4

3

2

1

C
B
A
D UAM 7059-0-0
A
B
A

8

7

6

5

4

3

2 DUA M 7 0 5 9 - 0 - 0 A

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D

C

B

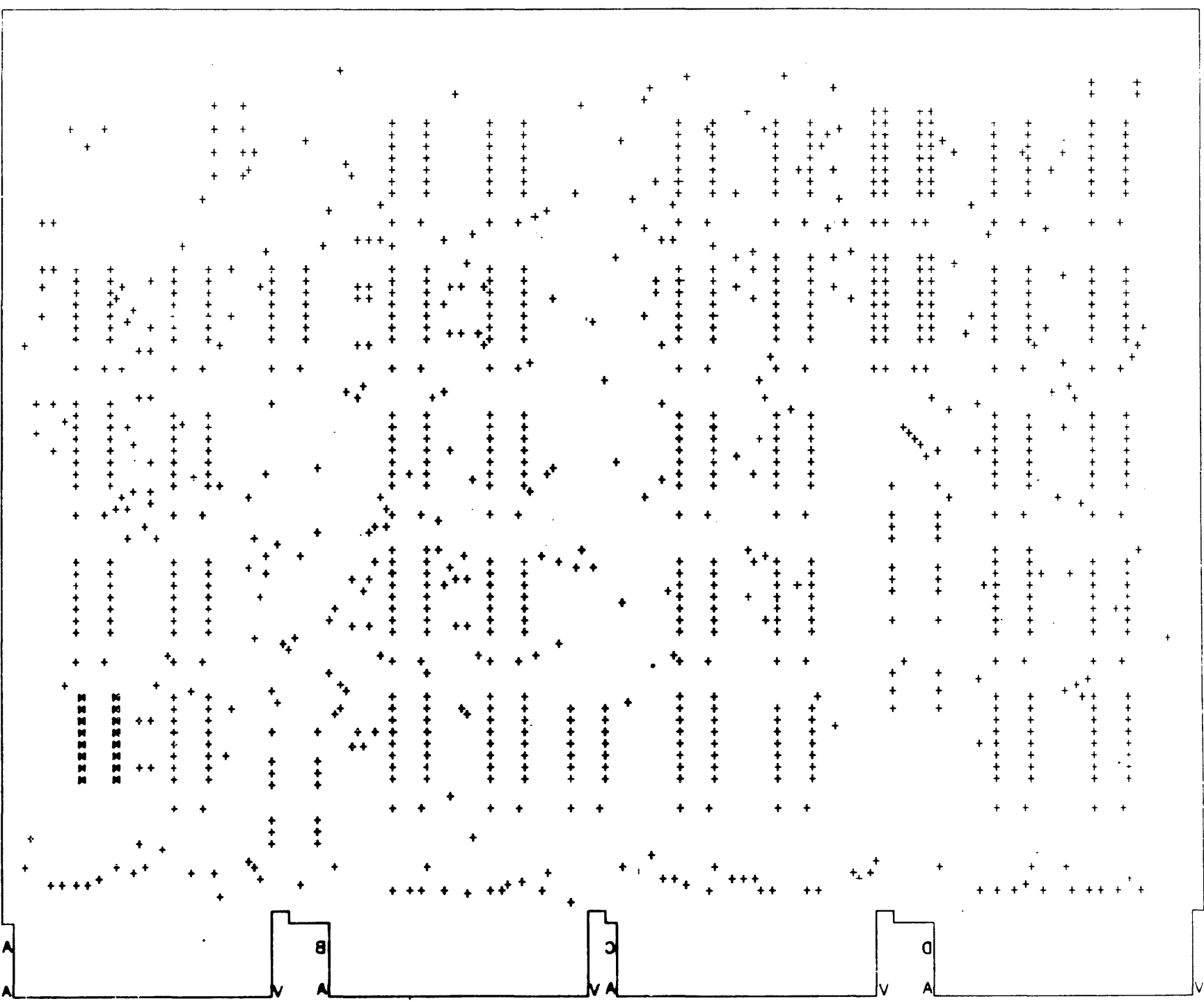
A

D

C

B

A



DUA M 7 0 5 9 - 0 - 0 A

REVISIONS		
CHK	CHANGE NO.	REV.

VC FORM NO 200 114

8

7

6

5

4

3

2

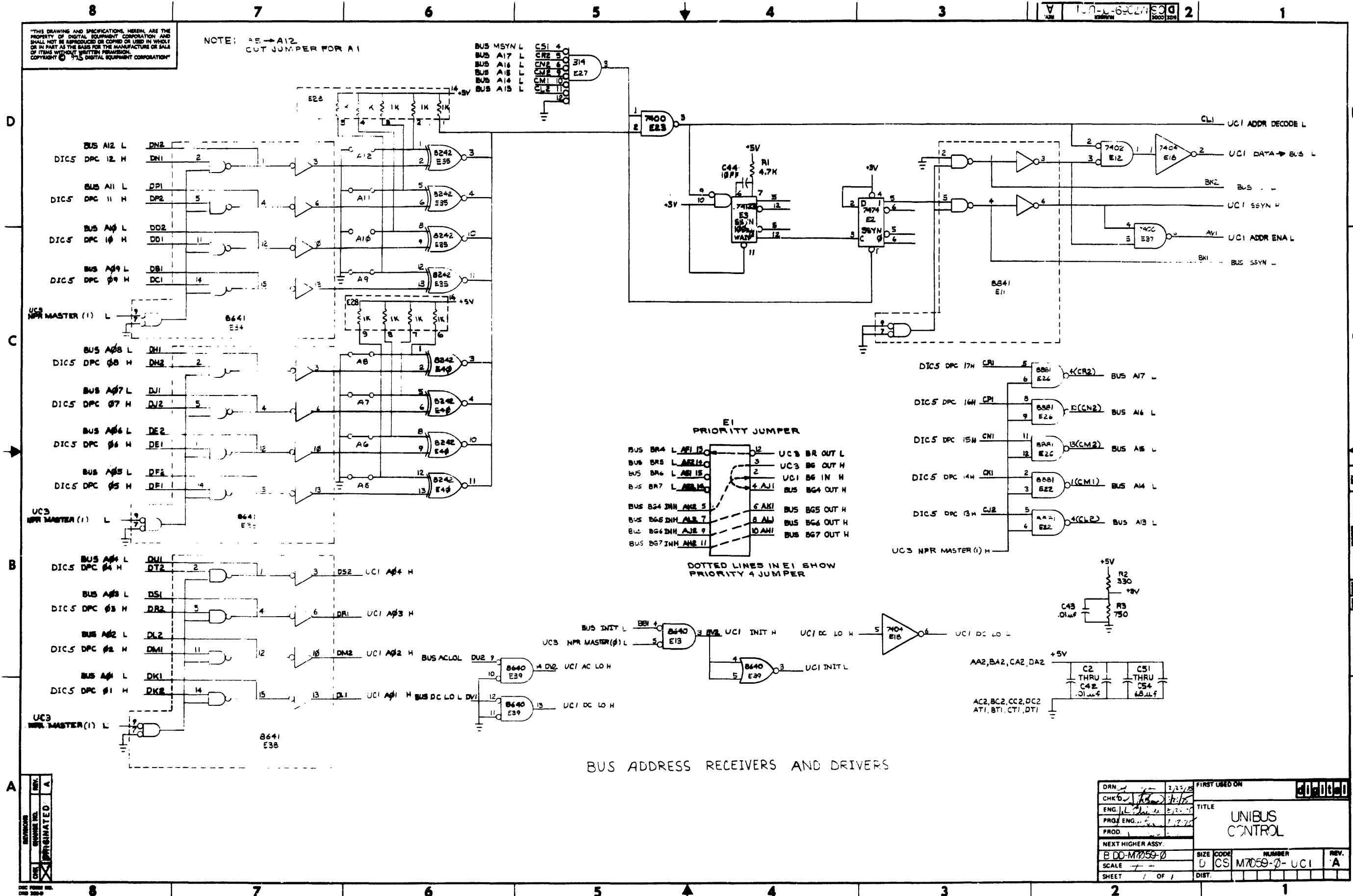
1

TITLE	SIZE CODE	NUMBER	REV.
VT48 BUS CONTROL	DUA	M 7 0 5 9 - 0 - 0	A
SCALE	SHEET	DIST	
2/1	5 OF 5		

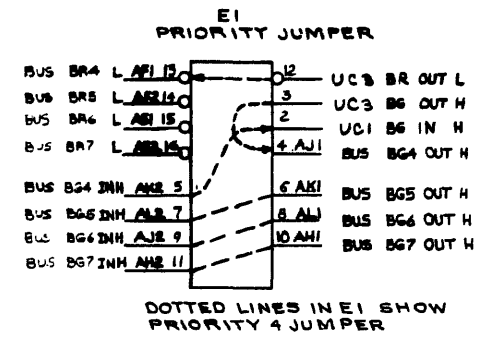
"THIS DRAWING AND SPECIFICATIONS HEREIN ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION. COPYRIGHT © 1975 DIGITAL EQUIPMENT CORPORATION"

NOTE: A5 → A12
CUT JUMPER FOR A1

BUS MSYN L
BUS A17 L
BUS A16 L
BUS A15 L
BUS A14 L
BUS A13 L



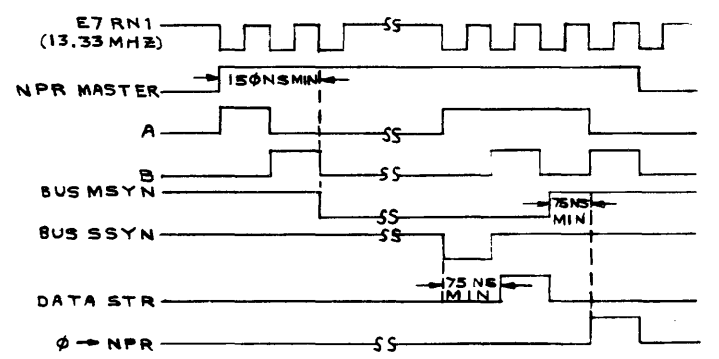
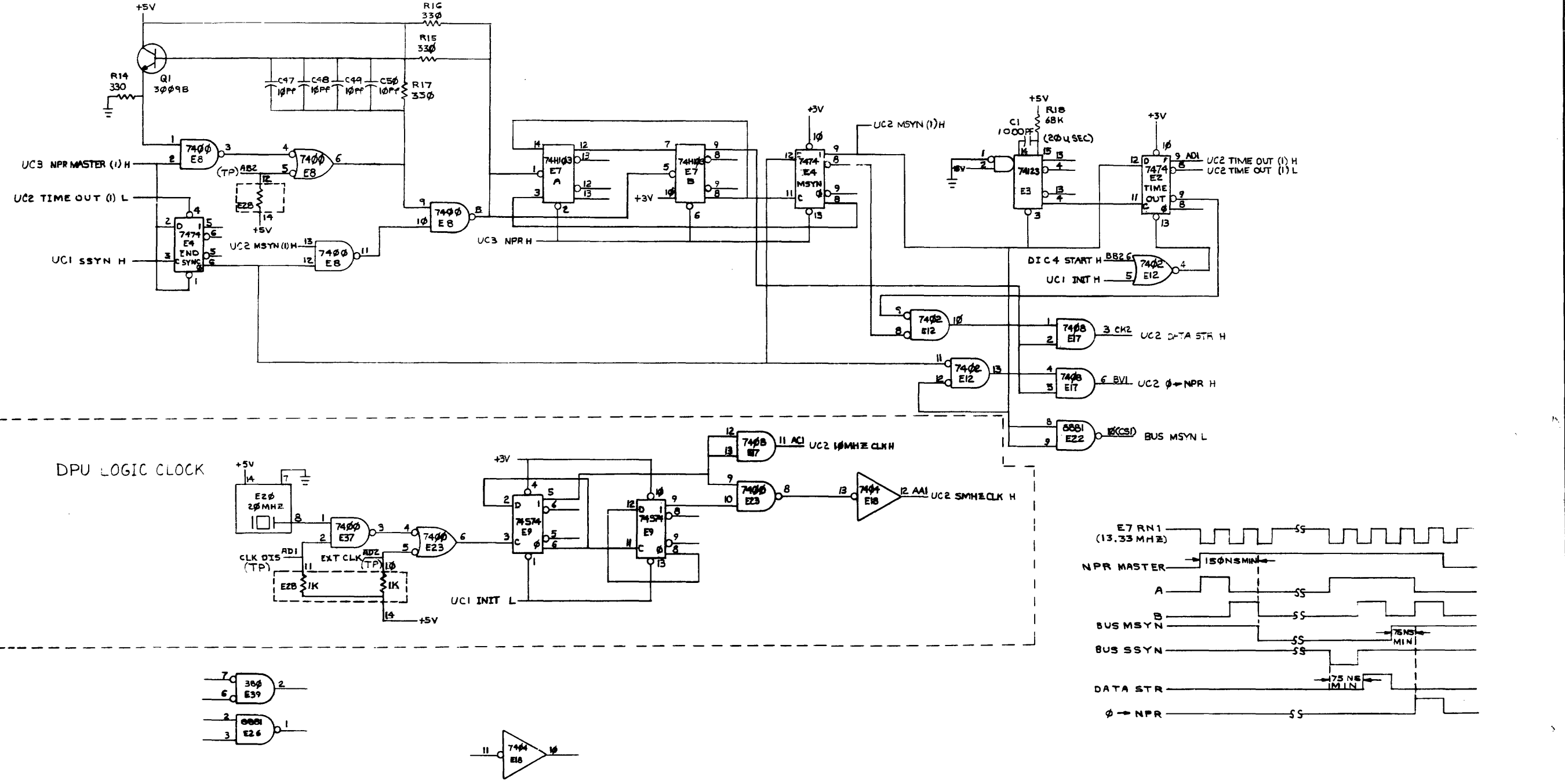
BUS ADDRESS RECEIVERS AND DRIVERS



DRN	2/2/75	FIRST USED ON	
CHK'D	1/2/75	TITLE	UNIBUS CONTROL
ENG	1/2/75	PROJECT	
PROJ. ENG.	1/2/75	SCALE	
PROD.		SHEET	1 OF 1
NEXT HIGHER ASSY.		SIZE	0 CS
B DD-M7059-0		NUMBER	M7059-0-UCI
		REV.	A

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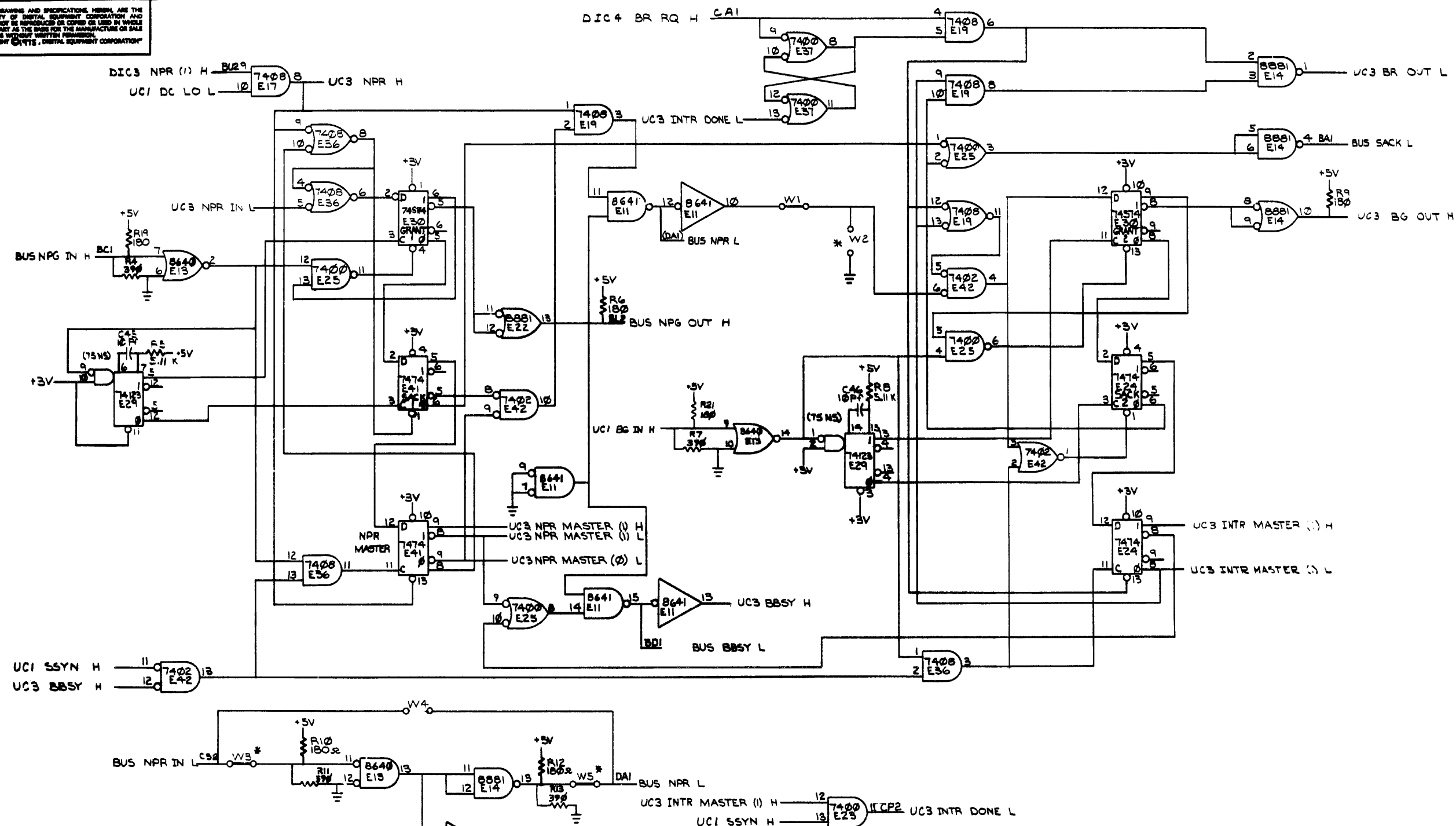
UNIBUS TIMING CONTROL



DRN	2-28-75	FIRST USED ON	
CHKD			
ENG			
PRD			
NEXT HIGHER ASSY.			
SCALE		SIZE CODE	NUMBER
SHEET	1 OF 1	D	CS M7059-0-UC2
		REV.	A

CS M7059-0-UC2

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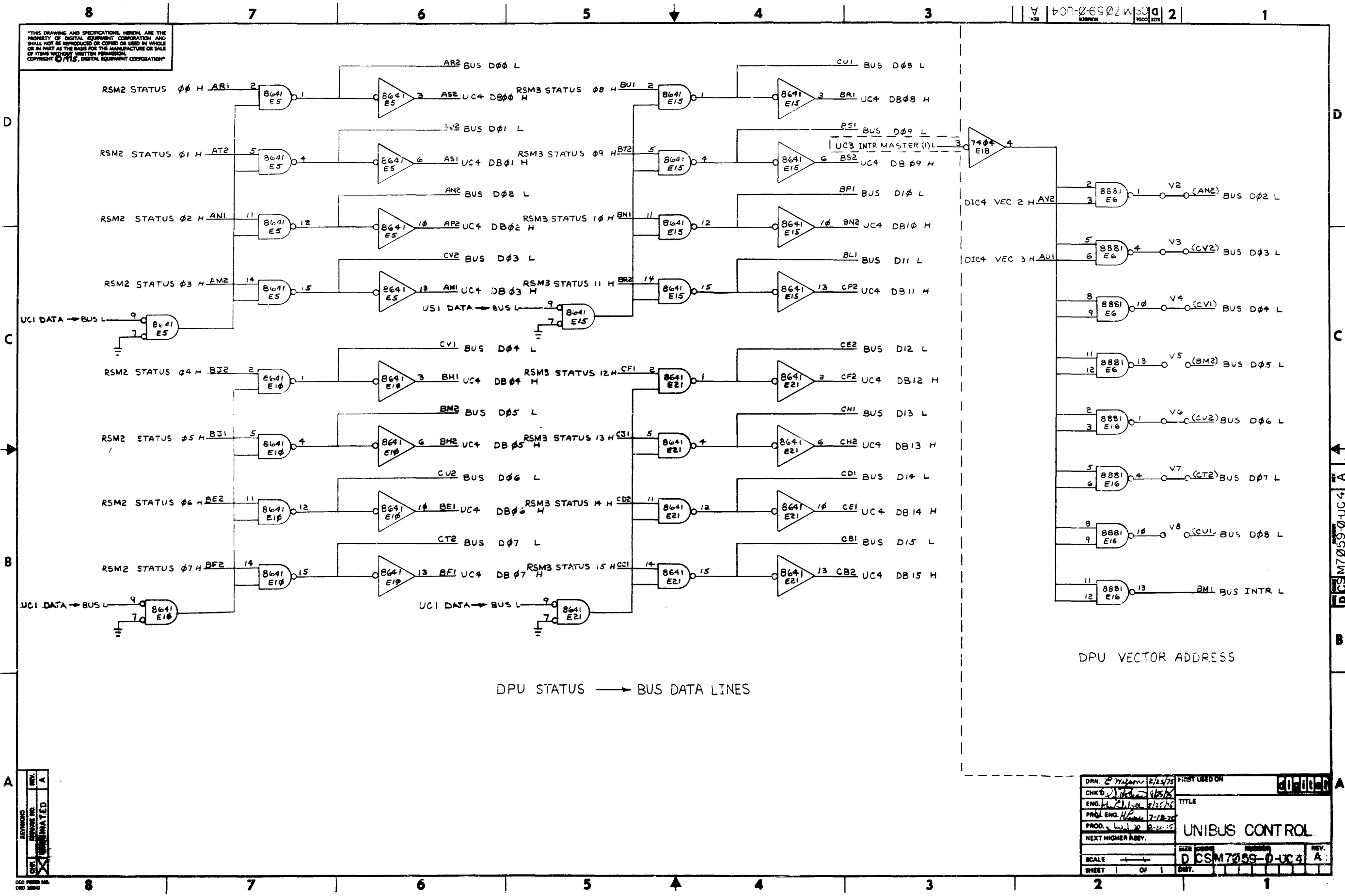


NOTE:
 1. W3/W5 IN MAKES VT48 LOOK LIKE LAST NPR DEVICE ON BUS - REMOVE W4
 2. IN 1/18 OR 1/20 WITHOUT KH11 OPTION, INSTALL W2 AND REMOVE W1

NPR/BR CONTROL LOGIC

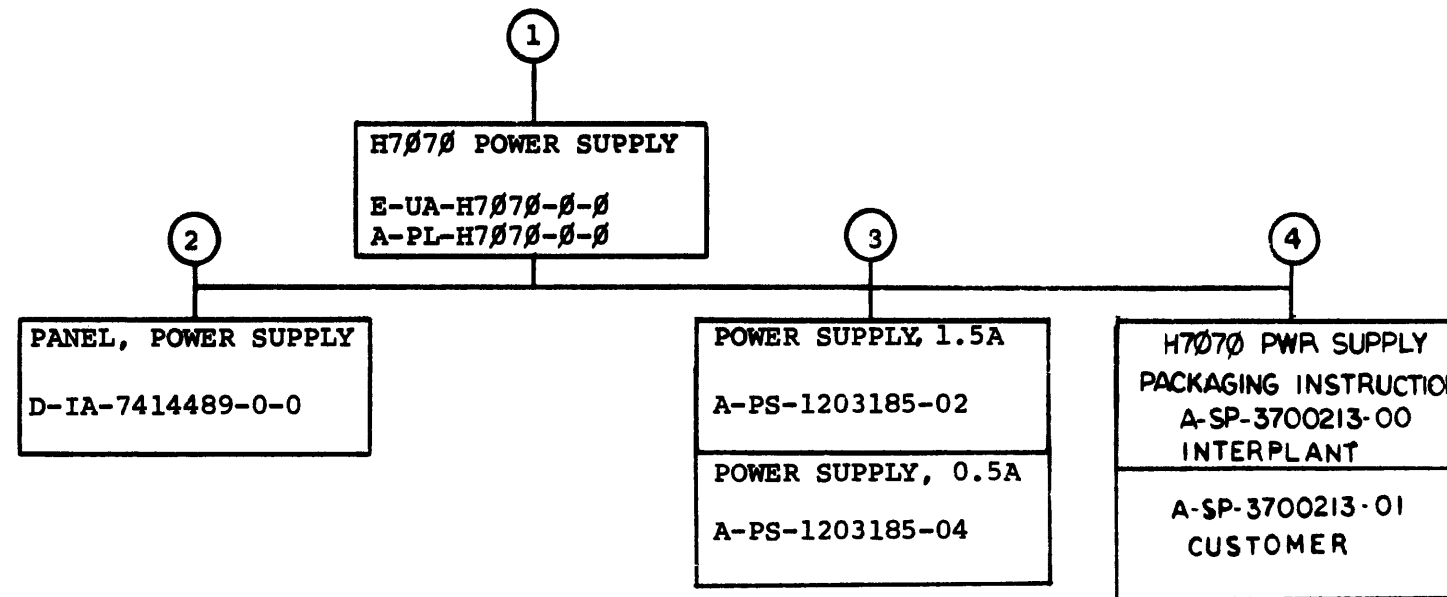
DRN. 222-75	FIRST USED ON	01-08-81
CHK'D. [Signature]	TITLE	UNIBUS CONTROL
ENG. [Signature]	PROJ. ENG. [Signature]	
PROD. [Signature]		
NEXT HIGHER ASSY.		
B-00-M7059-0	SIZE CODE	D CS M7059-0-UC3
SCALE		
SHEET 1 OF 1	DIST.	

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REVISED	BY	DATE

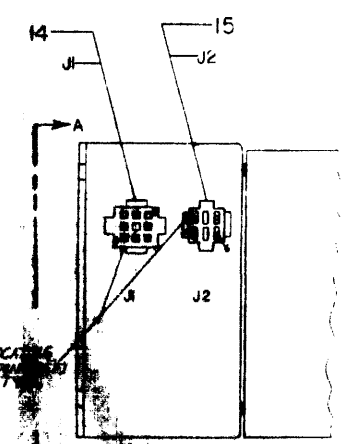
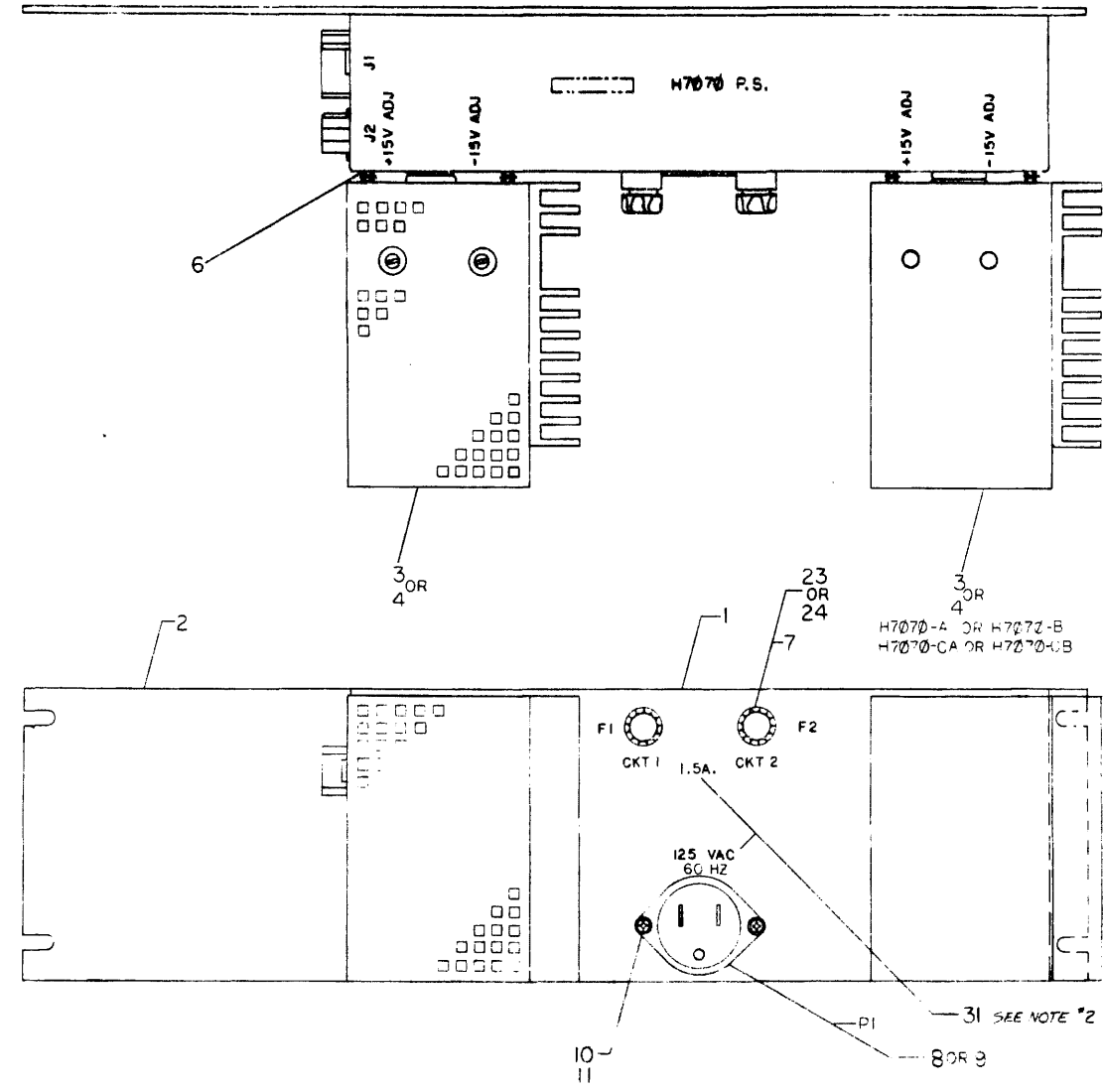
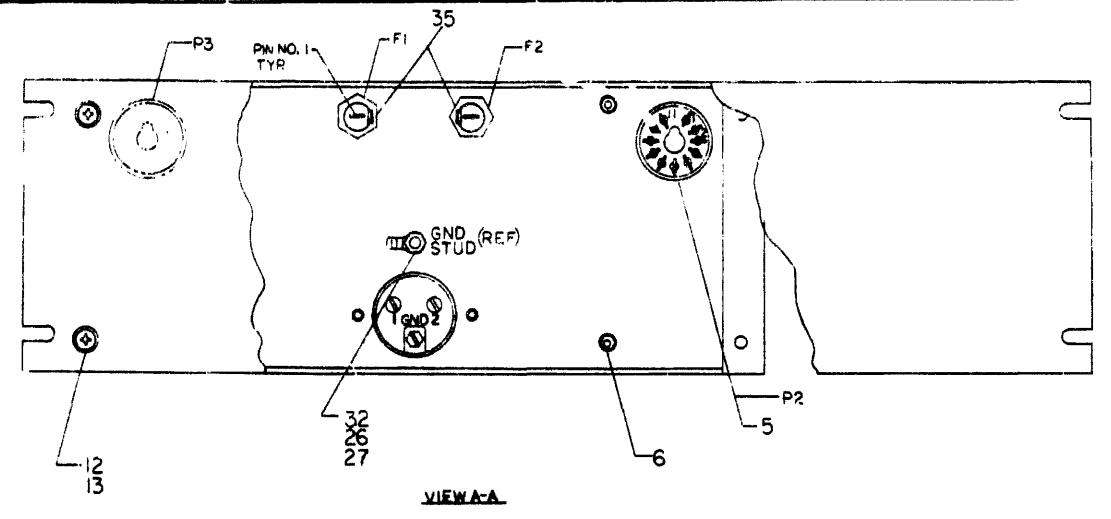
DRN. E. Moran 2/23/75	FIRST USED ON	00-00-00
CHK'D. J. ... 9/25/75	TITLE	UNIBUS CONTROL
ENG. H. ... 7-12-75	SCALE	D C S M 7 0 5 9 - 0 - U C 4 A
PROD. ... 8-22-75	SHEET 1 OF 1	REV. A
NEXT HIGHER ASSY.	DATE	BY



TITLE	SHEET	OF	SIZE	CODE	NUMBER	REV
POWER SUPPLY H7070	SHEET 2 OF	3	B	DD	H7070-0	C

LEGEND	
7870-A	...
7870-CA	...
7870-BA	...
7870-DA	...
7870-EA	...
7870-FA	...
7870-GA	...
7870-HA	...

NOTES:
 1. SEE SHEET 2 FOR WIRING DIAGRAM.
 2. APPLY ITEM #31, CENTERED AS SHOWN. REFER TO LEGEND FOR PROPER VOLTAGE DESIGNATIONS.



FOR PARTS LIST SEE: A-PL-H7070-0-0

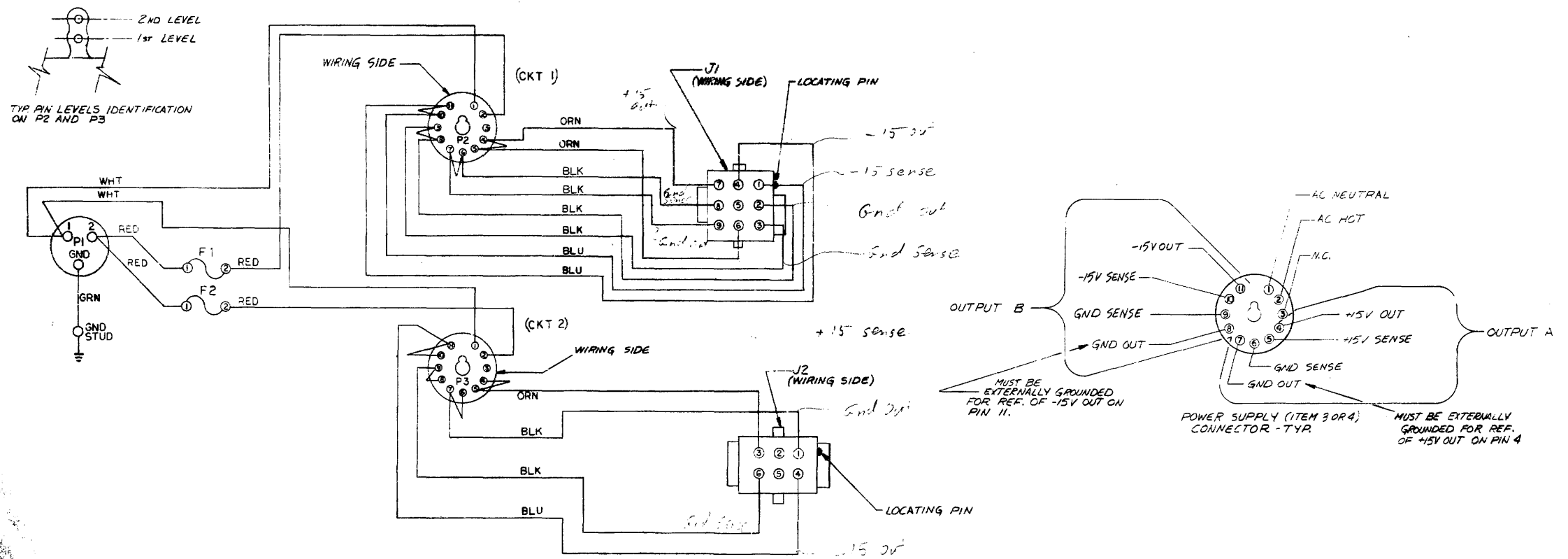
DESCRIPTION	QUANTITY	UNIT	REVISION
H7070 POWER SUPPLY ASSY.	1	ASSEMBLY	1
...

THIRD ANGLE PROJECTION
 REMOVE SQUARE AND BREAK SHARP CORNERS
 DO NOT SCALE DIMS
 MATERIAL: B-DD-H7070-0-0
 SCALE: 1/1
 SHEET: 1 OF 1

REV	DATE	BY	CHKD	DESCRIPTION
1	10/10/70	...	...	...
2	...	...	...	...

WIRE TABLE - H7070 (ALL OPTIONS) PWR. SUPPLY							
FROM	TO	ITEM	ITEM	QTY	REMARKS		
P1-1	F1-1	16	WHT	2	22	SOLDER F1-1	
P1-2	F2-1	16	RED	2	22	SOLDER F2-1	
P1-GND	GNSTUD	28		27	26	FASTEN BORN	
P2-2	P2-1	7		22	5	22	SOLDER
P2-2	P3-1	7		22	5	22	SOLDER
P2-4	P2-5	5					SOLDER BOTH
P2-4	J1-7	22		14	21	21	SOLDER P2-4
P2-5	J1-6	22		14	21	21	SOLDER P2-5
P2-6	P2-7			5			
P2-6	J1-8	22		14	21	21	SOLDER P2-6
P2-7	J1-9	22		14	21	21	SOLDER P2-7
P2-8	P2-9			5			
P2-8	J1-2	22		14	21	21	SOLDER P2-8
P2-9	J1-3	22		14	21	21	SOLDER P2-9
P2-10	P2-11			5			
P2-10	J1-1	22		14	21	21	SOLDER P2-10
P2-11	J1-4	22		14	21	21	SOLDER P2-11
P3-4	P3-5			5			SOLDER P3-4
P3-5	J2-3	22		14	21	21	SOLDER P3-5
P3-6	P3-7			5			SOLDER P3-6
P3-7	J2-6	22		14	21	21	SOLDER P3-7
P3-8	P3-9			5			SOLDER P3-8
P3-9	J2-1	22		14	21	21	SOLDER P3-9
P3-10	P3-11			5			SOLDER P3-10
P3-11	J2-4	22		14	21	21	SOLDER P3-11

+15 OUT -15 out -5 SENSE
 Gnd Sense N/C Gnd out
 Gnd out +15 SENSE Gnd Sense



H7070-0-0
 REV C

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST					QUANTITY / VARIATION															
MADE BY J. BISOL		CHECKED <i>OK Cable</i>		SECTION		H7070-CA	H7070-CB	H7070-DA	H7070-DB	H7070-A	H7070-B									
DATE 7/7/75		DATE 5 SEPT 75		/																
ENG <i>Power & Prod</i>		PROD <i>Y. Valen</i>		ISSUED SECT.																
DATE 5 Sept 75		DATE 11 Sept 75		/																
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION																		
1	D-IA-7414489-0-0	PANEL, PWR. SUPPLY MTG.		1	1	1	1	-	-											
2	D-MD-7414488-0-0	H7070 MTG. PANEL		1	1	1	1	-	-											
3	1203185-02	POWER SUPPLY 1.5 AMPS		2	-	1	-	-	-											
4	1203185-04	POWER SUPPLY 1.5 AMPS		-	2	-	1	-	-											
5	1205952	SOCKET #78511 OCTAL 11 PIN		2	2	2	2	-	-											
6	9006560	NUT KEPS #6-32		16	16	12	8	8	8											
7	9007242-00	FUSE HOLDER 20 AMP/250V		2	2	2	2	-	-											
8	9008854	INLET, FLANGED (MALE PINS) 250VAC		-	1	-	1	-	-											
9	1209983	INLET, FLANGED (MALE PINS) 125VAC		1	-	1	-	-	-											
10	9006020-3	SCREW #6-32 X 1/4 LG		2	2	2	2	-	-											
11	9006633	LOCKWASHER #6 (INT. TOOTH)		2	2	2	2	-	-											
12	9006073-3	SCREW #10-32 X 1/2 LG		4	4	4	4	-	-											
13	9007651	LOCKWASHER #10 (EXT. TOOTH)		4	4	4	4	-	-											
14	1209350-09	MATE-N-LOK SOCKET HOUSING 9 PIN		1	1	1	1	-	-											
15	1209350-06	MATE-N-LOK SOCKET HOUSING 6 PIN		1	1	1	1	-	-											
16	9107430-29	WIRE #18 AWG STRD INS TWP RED/WHT		A/R	A/R	A/R	A/R	-	-											
17	9107360-99	WIRE #10 AWG STRD INS WHT		A/R	A/R	A/R	A/R	-	-											
18	9107360-33	WIRE #18 AWG STRD INS ORN		A/R	A/R	A/R	A/R	-	-											
19	9107360-66	WIRE #18 AWG STRD INS BLU		A/R	A/R	A/R	A/R	-	-											
20	910736 -00	WIRE #18 AWG STRD INS BLK		A/R	A/R	A/R	A/R	-	-											
21	1209379-01	PINS #60619-4		12	12	12	12	-	-											
22	9107305-02	SHRINK TUBING 9/16" LG RED		24	24	24	24	-	-											
TITLE H7070 PWR SUPPLY ASSY				ASSY NO. E-UA-H7070-0-0		SIZE CODE A PL		NUMBER H7070-0-0				REV. C		ECO NO. H7070-00003						
				SHEET 1 OF 2		DIST.														

DEC FORM DEC 16 (325)-1031-N870
DRA 110


DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST					QUANTITY / VARIATION																
MADE BY J. BISOL		CHECKED <i>OK Cable</i>		SECTION		H7070-CA	H7070-CB	H7070-DA	H7070-DB	H7070-A	H7070-B										
DATE 7/7/75		DATE 5 SEPT 75		/																	
ENG <i>Power & Prod</i>		PROD <i>Y. Valen</i>		ISSUED SECT.																	
DATE 5 Sept 75		DATE 11 Sept 75		/																	
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION																			
23	9007213	FUSE 1.5 AMPS 125 VOLTS S.B.		2	-	4	-	-	-												
24	9007209	FUSE .5 AMPS 250 VOLTS S.B.		-	2	-	2	-	-												
25	9007929-00	CONNECTOR SHAKEPROOF		5	5	5	5	-	-												
26	9007930-01	TERMINAL, RING TONGUE INSULATED		6	6	6	6	-	-												
27	9006563	NUT, KEPS #8-32		1	1	1	1	-	-												
28	9107360-55	WIRE #18AWG STRD.INS. GRN.		A/R	A/R	A/R	A/R	-	-												
29	9107560-03	WIRE #18AWG SOLID, BARE		A/R	A/R	A/R	A/R	-	-												
30	9007031	TIE WRAP		A/R	A/R	A/R	A/R	-	-												
31	A-DC-7414817-0-0	DECAL MARKING, H7070		1	1	1	1	-	-												
32	9006634	LOCKWASHER #8 (INT. TOOTH)		1	1	1	1	-	-												
33	9107673-6	POWER CORD 115VAC (6FT)		1	-	1	-	-	-												
34	D-IA-7009898-1	POWER CORD 230VAC (6FT)		-	1	-	1	-	-												
35	9008292	WASHER, LOCK, INT TOOTH		2	2	2	2	-	-												
36	A-SP-3700213	H7070 PACKAGING INSTRUCTIONS		1	1	1	1	-	-												
TITLE H7070 PWR SUPPLY ASSY				ASSY NO. F-UA-H7070-0-0		SIZE CODE A PL		NUMBER H7070-0-0				REV. C		ECO NO.							
				SHEET 2 OF 2		DIST.															

DEC FORM DEC 16 (325) 1031 N870
110

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DIGITAL EQUIP. CORP.

REV. D NUMBER VT48-Ø-WL SIZE CODE K WL 2 1

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VS6Ø				
PARTS LIST				
DRN. Carl McLay	DATE 2-17-75	 <p>digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS</p>		
CHFD. J. O'Connell	DATE 5-21-75			
ENG. Don Poulson	DATE 6-9-75			
PROJ. ENG. H. Lavoie	DATE 6-9-75			
PROD. P. Wenzel	DATE 6-9-75			
NEXT HIGHER ASSEMBLY		<p>TITLE</p> <h1 style="text-align: center;">WIRE LIST</h1> <h2 style="text-align: center;">(VT48)</h2>		
D-AD-7011429-0-0				
SCALE $\frac{1}{1}$				
SHEET 1 OF		SIZE CODE K WL	NUMBER VT48-Ø-WL	REV. D

REVISIONS	CHANGE NO.	REV.
	VT48-00001	A
	24 Nov 73	
	H. LAVOIE	
	H. Lavoie 31 DEC 75 DP	
	VT48-00002	B
	11 Feb 76	
	H. LAVOIE	
	H. Lavoie 17 FEB 76 RTC	
	VT48-00003	C
	DP	
	VT48-00004	D

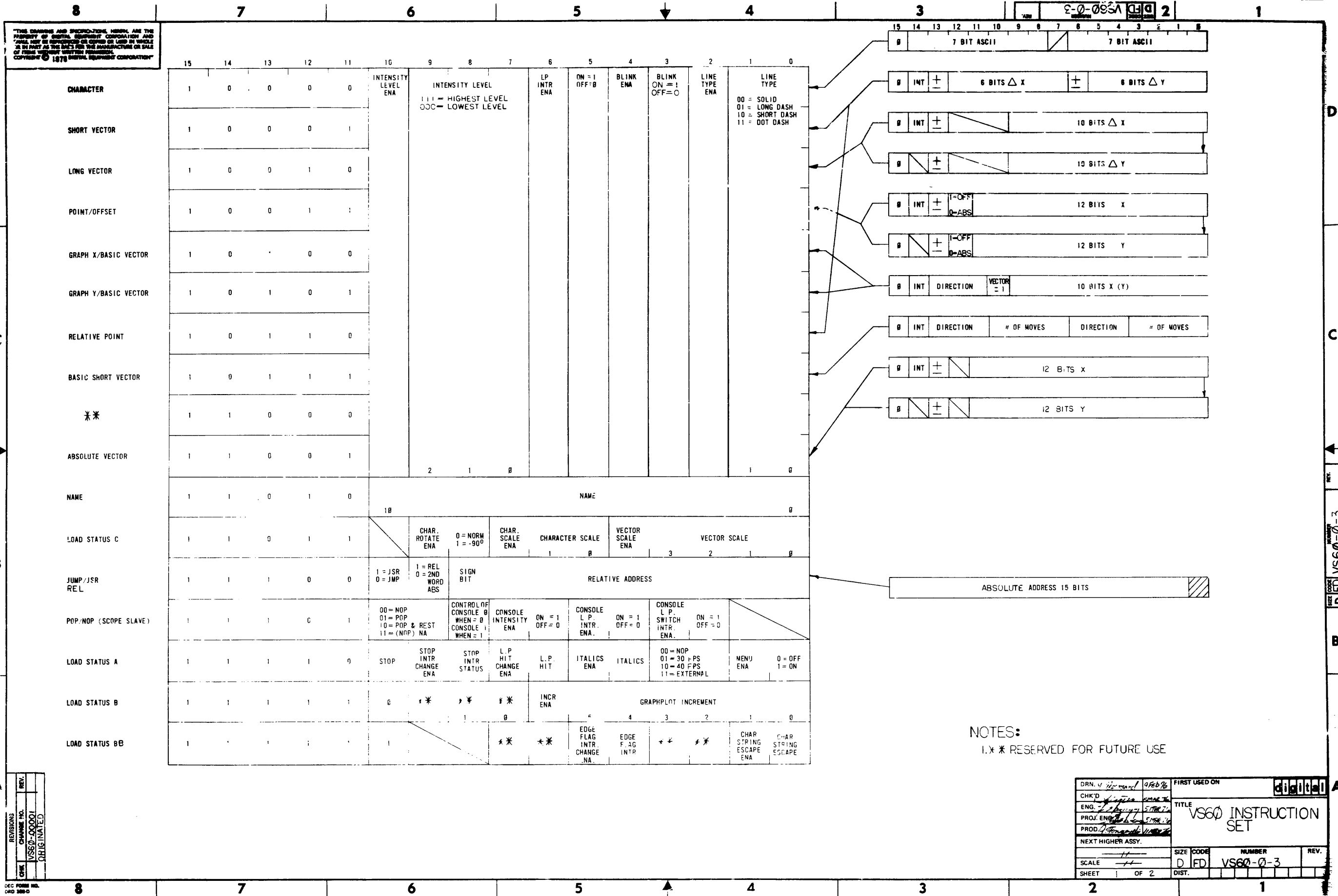
DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

MADE BY D. K. CRABBE	CHECKED <i>J. Bisol</i>	SECTION 1
DATE 5 AUGUST 1975	DATE 29 SEPT 75	
ENG <i>DK Grotte</i>	PROD <i>PC Herbert</i>	ISSUED SECT. 1
DATE 10 OCT 75	DATE 30 Oct 75	

QUANTITY / VARIATION

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	VS60-AA	VS60-AB	VS60-BA	VS60-BB	VS60-CA	VS60-CB	VS60-DA	VS60-DB	VS60-KA	VS60-KB	VS60-LA	VS60-LB
1	D-IA-7-11746-25	CABLE, INTERSCOPE	-	-	-	-	1	1	1	1	1	1	1	1
2	D-IA-7011746-35	CABLE, INTERSCOPE	1	1	1	1	1	1	1	1	-	-	-	-
3	D-IA-7011747-1B	ADAPTER CABLE, SCOPE (1)	-	-	-	-	1	1	1	1	1	1	1	1
4	D-IA-7011748-2G	ADAPTER CABLE (VT48)	1	1	1	1	1	1	1	1	-	-	-	-
5	D-IA-7011806-1B	ADAPTER CABLE, SCOPE (2)	-	-	-	-	1	1	1	1	1	1	1	1
6	A-PL-VT48-0-1	PROCESSOR SHIPPING LIST, VT48	1	1	1	1	1	1	1	1	1	1	1	1
7	A-PL-VR48-0-1	TABLE & SCOPE SHIPPING LIST	1	1	1	1	1	1	1	1	1	1	1	1
8	A-PL-VS60-0-3	VECTORING SYSTEM SOFTWARE LIST	1	1	1	1	1	1	1	1	-	-	-	-
9	7011870	HARDWARE BAG	1	-	-	-	-	-	-	-	-	-	-	-
10	1201208	ELASPED TIME METER (115V 60HZ)	1	-	1	-	1	-	1	-	-	-	-	-
11	1202234	ELASPED TIME METER (120V 50HZ)	-	1	-	1	-	1	-	1	-	-	-	-
12	D-IA-7409622	TIME METER MTG BRKT.	1	1	1	1	1	1	1	1	-	-	-	-
13	9009236-1	SCREW, SELF TAPPING #4-40	3	3	3	3	3	3	3	3	-	-	-	-
14	1700015-06	POWER CORD (115VAC) 10AMP	1	-	1	-	1	-	1	-	-	-	-	-
15	1700016-06	POWER CORD (230VAC) 10AMP	-	1	-	1	-	1	-	1	-	-	-	-
16	9007929-00	TERMINAL, RING #6 HOLE	2	2	2	2	2	2	2	2	-	-	-	-
17	9007651	WSHR EXT TOOTH #10 HOLE	2	2	2	2	2	2	2	2	-	-	-	-
18	9006073-3	SCREW PHL HD TRUSS HD #10-32 X 1/2" LG	2	2	2	2	2	2	2	2	-	-	-	-

TITLE VECTORING SYSTEM SHIPPING LIST	ASSY NO. <i>++</i>	SIZE CODE A PL	NUMBER VS60-0-2	REV	ECO NO
	SHEET 1 OF 1	DIST.			



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REV.	
CHG.	
DATE	
BY	
REV.	
CHG.	
DATE	
BY	

DRN. <i>11/10/78</i>	DATE	9 Feb 78	FIRST USED ON	digital
CHK'D			TITLE	VS60 INSTRUCTION SET
ENG.			SIZE	D FD
PROJ. ENG.			NUMBER	VS60-0-3
PROD. ENG.			REV.	
NEXT HIGHER ASSY.			SCALE	
			SHEET	1 OF 2
			DIST.	

NOTES:
1. * RESERVED FOR FUTURE USE

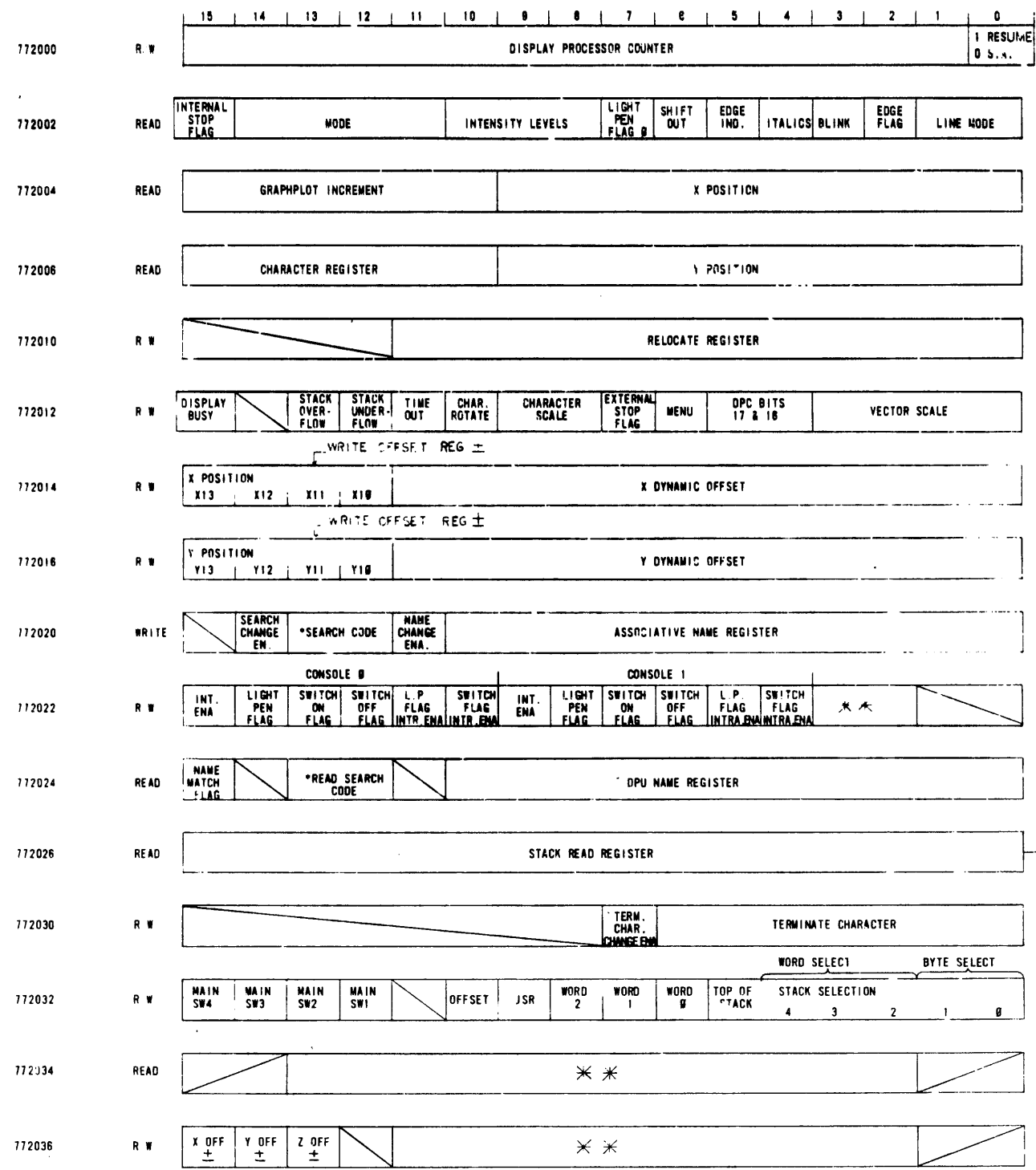
REV. 1
D FD VS60-0-3

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VECTOR ADDRESSES
THE FOLLOWING ARE THE VECTOR ADDRESSES BRANCHED, FOLLOWING THE INTERRUPT SHOWN:

VECTOR ADDRESS	VS60 INTERNAL PRIORITY	INTERRUPT	STATUS REGISTER LOCATION
320	4	INTERNAL STOP	772002
	5	EXTERNAL STOP	772012
324	2	LIGHT PEN SWITCH ON FLAG	772022
		OFF FLAG	
	3	LIGHT PEN FLAG	772002
			772022
	1	EDGE FLAG	772002
330	6	SHIFT OUT	772002
			772012
	6	STACK OVERFLOW	772012
	6	STACK UNDERFLOW	772012
	6	TIME OUT	772012
334	6	NAME MATCH	772024

(1) IS HIGHEST PRIORITY.

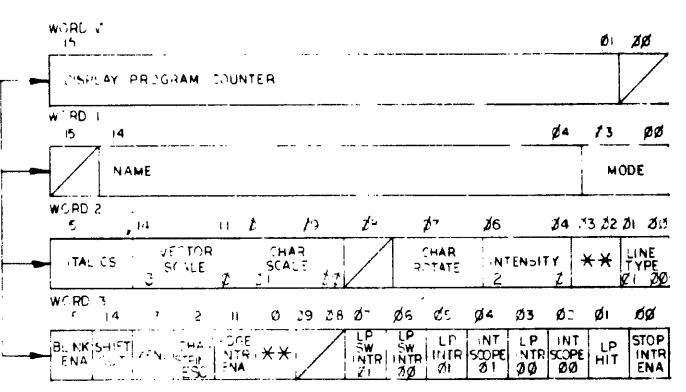


IN WRITE CONDITION, BIT 4 DICTATES OPERATION

WRITE CONDITION WILL ANSWER BELL CODE WITH SLAVE SYNC ONLY

WRITE CONDITION WITH BIT 7 ON A ONE FORCES EXTERNAL STOP

NAME MATCH CODE
N. NAME
FULL HITS MA
PART MA
TOP HITS MA



** RESERVED FOR FUTURE USE

DRN M. Howard	1 Feb 76	FIRST USED ON	1560	digital
CHK'D	S. Mack	TITLE	VS60 INSTRUCTION SET (READ STATUS)	
ENG. J. ...	5 MAR 76	PROJ. ENR. J. ...	VS60-0-3	
PROD. J. ...	5 MAR 76	NEXT HIGHER ASSY.		
SCALE	1/1	SIZE	D	REV.
SHEET	2 OF 2	CODE	FD	NUMBER
		DIST.		

digital

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